TORO Australia

IRRIGATION

CATALOGUE






TORO Count on it. Irritrol

TORO Finance™

Flexible finance solutions, tailored to you.

The seasonal cost associated with an irrigation system can restrict cashflow and opportunity to optimise crop yields. Couple this with the rising cost of labour, water, repairs and power and cashflow becomes critical.

Accessing a flexible finance solution is the smart option

Toro can help you put together a financial case for an irrigation system, including the cost of labour to install.

System upgrades without the upfront costs

Sometimes the upfront expense can prevent or delay the required system upgrade. Toro Finance can structure a program to ensure your customers are always working with market leading technology and minimising running costs, whilst maximising water delivery and crop yield.

Repayment Structures can be tailored to suit cash flow requirements:

- Seasonal, irregular or even delayed repayments
- Monthly, quarterly or annual payments
- Contract terms to match your irrigation and crop requirements

Toro Finance can tailor a finance option for project segments, system upgrades or a complete irrigation system installation.

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TORO Count on it.

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Toro has an extensive range of both spray and gear drive rotor pop-up sprinklers. The charts below will help you quickly identify which pop-up will meet your performance needs.

Quick Reference Sprinkler Radius Range														
570 Series	0.6-7.9													
300 Series		4.5-10.0												
Mini 8			6.1-10.7											
T5				7.6-15.2										
LVZA					12-14.5									
T7						14-22.9								
HYDRA S							14.5-25							
640								14.6-20.2						
LVZE									15-21.5					
TS90										16.2-29				
HYDRA M											20-31.5			
TRITON L												20-32		
690													26.5-32	
VP3														34-54

Radius of Throw (m)

Quick Reference Sprinkler Flow Range														
570 Series	0.19-17													
300 Series		2-32												
Mini 8			3-11											
T5				3-36										
LVZA					15-30									
T7							25-115							
HYDRA S							41-165							
640						23-92								
LVZE								40-135						
TS90										53-238				
HYDRA M											70-190			
TRITON L												113-330		
690													190-311	
VP3														432-1150

Flow Rate (Lpm)

Fixed Sprays Overview

Model	570ZLP	570ZXF	570ZPRX
Page Number	4-5	6-7	8-9
Radius	0.6 m-7.9 m	0.6 m-7.9 m	0.6 m-5.2 m
Flow Range	0.19-17.0 Lpm	0.19-17.0 Lpm	0.19-13.0 Lpm
Operating Pressure Range (inlet)	100-520 kPa (15-75 psi)	140-520 kPa (20-75 psi)	140-520 kPa (20-75 psi)
Turf	X	X	X
Shrubs/Ground Cover	X	X	X
Slopes	X	X	X
High Pressure Systems	X	X	X
Low Pressure Systems	X		
Medians	X	X	X
High Traffic Areas		X	X
High Wind			X
Pop-up Height To Nozzle	50 mm (2") 75 mm (3") 100 mm (4") 150 mm (6") 300 mm (12")	100 mm (4") 150 mm (6") 300 mm (12")	100 mm (4") 150 mm (6") 300 mm (12")
Side Inlet Option	150 mm (6") 300 mm (12")	150 mm (6") 300 mm (12")	150 mm (6") 300 mm (12")
Check Valve Option	X	X	X
Effluent Water Option	X	X	X
Shrub Model	X	X	X
*Zero Flush	X	X	X
*X-Flow® Water Shut-off		X	X
*Built-in Pressure Regulator			X
Serviceable Seal	X	X	X
Warranty	Two years	Two years	Five years

** WaterSmart® Feature*

Nozzles Overview

Model	Radius	Arcs	Flow Range	Recommended Operating Pressure
Precision™ Series Spray Nozzles Page 15, 16, 17	1.2-4.7 m (4' - 15') Specialty patterns: 1.2-4.5 m (4' - 15')	¼, 1 3, ½, 2 3, 3 4, Full and Specialty	0.23-10.14 Lpm	280 kPa (40 psi)
Precision™ Series Rotating Nozzle Page 18, 19	4.3 m-7.9 m (14'-26')	45° to 270°, Full-circle	0.64-13.93 Lpm	280-350 kPa (40-50 psi)
MPR Plus Page 10, 11	1.3-4.9 m (5' - 15') Specialty patterns: 0.6-4.5 m (2' - 15')	¼, 1 3, ½, 2 3, 3 4, Full and Specialty	1.9-17.3 Lpm 0.2-17.4 Lpm	200 kPa (30 psi)
TVAN Page 12	2.2 m-5.5 m (8'-17')	0° - 360°	1.3-17 Lpm	200 kPa (30 psi)
Stream Bubblers Page 15	0.5 m-5.5 m (1.5'-18')	¼, ½, Full 2/180°, 2/60° x 2/60°	2.4-7.64 Lpm	140-200 kPa (20-30 psi)
Flood Bubbler PC Page 14	Circle	Flood	0.94-7.6 Lpm	140-200 kPa (20-30 psi)

Note: All 570 nozzles work in all Toro® sprays.
Precision Series also offer additional models to fit Irritrol®, Rain Bird®, and Hunter® sprays.

** WaterSmart® Feature*

- Shrub, 50 mm (2"), 75 mm (3"), 100 mm (4"), 150 mm (6") and 300 mm (12") Pop-up
- Radius: 0.6-7.9 m (2'-26')
- Operating Pressure Range: 100-520 kPa (15-75 psi)

Versatile. Flexible. Reliable. The Toro® 570ZLP sprinkler embodies all that is required for residential and service contractors wanting to stock just one sprinkler family.

Water Management Highlight

No Flushing on Pop-Up!

With a pressure-activated wiper seal that flushes only upon retraction, flow-by is eliminated on pop-up reducing water waste and allowing more heads per valve. This zero-flush seal is what makes the 570ZLP Series a spray head for those serious about effective water management.

Features & Benefits

Zero Flush Wiper Seal

Prevents flushing on pop-up, allowing more sprinklers on the same line.

One-Piece Check Valve

Easily installed at the factory or in the field. Maintains up to 3m (10') elevation change.

Low Pressure Spring

The low pressure 570ZLP allows for pop-up and retraction at lower pressures.

Ratcheting Riser

For easy and reliable arc adjustment on pop-up models.

Small 50 mm (2") Diameter Cap

Less visible, reducing damage from exposure or vandals.

Enhanced Zero Flush Seal

Specifications

Dimensions

- Body diameter:
  - 35 mm (1 3/8") on 2P, 3P, 4P, 6P and 6P SI models
  - 45 mm (1¾") on 12P SI
- Cap diameter: 50 mm (2")
- Inlet: 15 mm (½") female-threaded
- Side inlet: 120 mm (4¾") from top of sprinkler to center of side inlet

Operating Specifications

- Radius: 0.6-7.9 m (2'-26')
- Recommended pressure for spray nozzles: 210 kPa (30 psi)
- Recommended pressure for rotating nozzles: 280-350 kPa (40-50 psi)
- Flow rate: 0.2-17.0 Lpm

Additional Features

- Stainless steel retraction spring
- Low pressure sealing on LP models at 100 kPa (15 psi) for low pressure pumps and bore systems
- All bodies shipped with flush plug in place

Options Available

- Check Valve (570CV): maintains up to 3 m (10') elevation change (not for side-inlet models)
- 570SEAL: Serviceable seal for all 570Z models
- Effluent water indicators:
  - Effluent Shrub Adapter 570S-E
  - Effluent Snap-on Cap Cover (89-9752)
  - Effluent Molded Cap with seal (102-1211)
- 570-6X: 150 mm (6") Riser Extender
- Riser Pull-up Tool (89-6395)
- Adjustment Key (89-7350)

Warranty

- Two years

570ZLP Series Model List	
Model	**Description**
570Z-2LP	570Z, 50 mm (2"), Low Pressure
570Z-3LP	570Z, 75 mm (3"), Low Pressure
570Z-4LP	570Z, 100 mm (4"), Low Pressure
570Z-6LP	570Z, 150 mm (6"), Low Pressure
570Z-6LPSI	570Z, 150 mm (6"), Low Pressure, Side Inlet
570Z-12LPSI	570Z, 300 mm (12"), Low Pressure, Side Inlet

Note: all w/o Nozzle

Specifying Information—570ZLP Series

570Z-XXLP-XX-E				
570X	XXLP		SI	E
Model	**Pop-up Height**		**Optional**	**Optional**
Z—Lawn Pop-up & High Pop	2LP— 50 mm (2") 3LP— 75 mm (3") 4LP— 100 mm (4")	6LP— 150 mm (6") 12LP— 300 mm (12")	SI—Side Inlet*	E—Effluent
Example: A 570ZLP Series Sprinkler (low pressure) with a pop-up height of 150 mm (6"), you would specify: 570Z-6LP				

**Available for 150 mm (6") and 300 mm (12") models.*

- Shrub, 100 mm (4"), 150 mm (6") and 300 mm (12") Pop-up
- Radius: 0.6-7.9 m (2'-26')
- Operating Pressure Range: 140-520 kPa (20-75 psi)

Convenient and versatile. The Toro® 570ZXF sprinkler has all the versatility and features of the 570Z with the added value of Toro's patented X-Flow® technology.

Water Management Highlight

X-Flow Technology Shuts Off Water Waste

A missing or damaged spray head nozzle can let up to 150 litres of water escape per minute. The patented X-Flow technology is a shut-off device built right into the sprinkler. When accidents or vandalism occur the 570ZXF is there to reduce liability and minimise water waste.

Features & Benefits

Patented X-flow® Water Shut-off Device

Built into the riser and restricts water loss by 99% if the nozzle is removed or damaged, eliminating potential erosion or safety concerns. Allows for "dry" nozzle and filter-replacement or maintenance, while the system is running.

Zero Flush Wiper Seal

Prevents flushing on pop-up, allowing more sprinklers on the same line.

Enhanced Retraction Spring and Wiper Seal

Robust retraction spring and enhanced seal material ensures positive pop-up and retraction on all 570Z models.

One-Piece Check Valve

Easily installed at the factory or in the field. Maintains up to 3m (10') elevation change.

Ratcheting Riser

For easy and reliable arc adjustment on pop-up models.

Small 50mm (2") Diameter Cap

Less visible, reducing damage from exposure or vandals.

Patented X-Flow® Shut-off Device

Specifications

Dimensions

- Body diameter:
  - 35 mm (1 3/8") on 4P, 6P and 6P SI models
  - 45 mm (1¾") on 12P SI
- Cap diameter: 50mm (2")
- Inlet: 15 mm (½") female-threaded
- Side inlet: 120 mm (4¾") from top of sprinkler to center of side inlet

Operating Specifications

- Radius: 0.6-7.9m (2'-26')
- Operating pressure range: 140-520 kPa (20-75 psi)
- Recommended pressure for spray nozzles: 210 kPa (30 psi)
- Recommended pressure for rotating nozzles: 280-350 kPa (40-50 psi)
- Flow rate: 0.2-17.0 Lpm

Additional Features

- Stainless steel retraction spring
- All bodies shipped with flush plug in place

Options Available

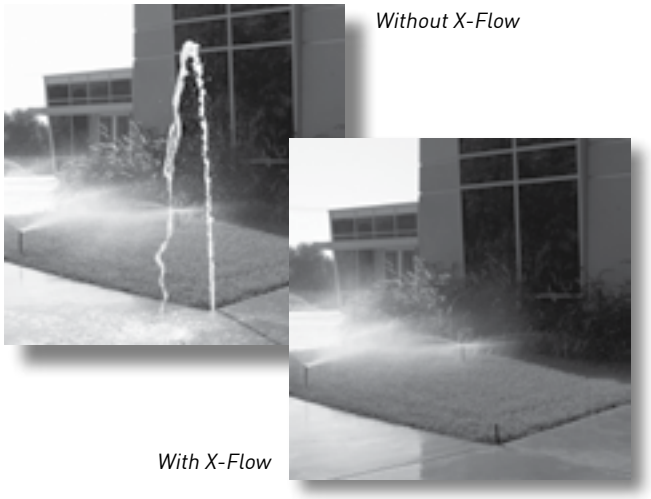
- Check Valve (570CV): maintains up to 3m (10') elevation change (on non-side-inlet models)
- 570SEAL: Serviceable seal for all 570Z models
- Effluent water indicators:
  - Effluent Snap-on Cap Cover (89-9752)
  - Effluent Molded Cap with seal (102-1211)
- Riser Pull-up Tool (89-6395)
- Adjustment Key (89-7350)

Warranty

- Two years

XF Series Sprinklers	
Model	**Description**
570Z-4P-XFCOM	XF 100 mm body only with flow shut-off check valve and flush plug
570Z-6P-XFCOM	XF 150 mm body only with flow shut-off check valve and flush plug
570Z-12P-XFCOM	XF 300 mm body only with flow shut-off check valve and flush plug

Note: all w/o Nozzle



Without X-Flow

With X-Flow

570ZXF allows for dry nozzle installations and change outs

- Shrub, 100 mm (4"), 150 mm (6") and 300 mm (12") Pop-up
- Radius: 0.6-5.2 m (2'-17')
- Operating Pressure Range: 140-520 kPa (20-75 psi)

Built-in pressure regulation. The Toro® 570ZPRX features a patented in-riser pressure regulator, bringing another superior feature to the 570Z series. The 570ZPRX sprinkler includes X-Flow® technology combined in a single riser providing unmatched water management.

Water Management Highlight

570ZPRX: For Those Serious About Water Management

By combining the patented X-Flow and pressure-regulation technologies into one riser, the 570PRX stabilises the performance of the system at 210 kPa (30 psi) from the first head to the last ensuring optimum nozzle performance.

Features & Benefits

Patented In-riser Pressure Regulator

Maintains constant 210 kPa (30 psi) outlet pressure, which minimizes misting and fogging caused by pressures above 210 kPa (30 psi).

Zero Flush Wiper Seal

Prevents flushing on pop-up, allowing more sprinklers on the same line.

Enhanced Retraction Spring and Wiper Seal

Robust retraction spring and enhanced seal material ensures positive pop-up and retraction on all 570Z models.

Ratcheting Riser

For easy and reliable arc adjustment on pop-up models.

Small 50mm (2") Diameter Cap

Less visible, reducing damage from exposure or vandals.

Patented X-flow® Water Shut-off Device

Built into the riser and restricts water loss by 99% if the nozzle is removed or damaged, eliminating potential erosion or safety concerns. Allows for "dry" nozzle and filter-replacement or maintenance, while the system is running.

Without Pressure Regulation

With Pressure Regulation

Specifications

Dimensions

- Body diameter:
  - 35 mm (1 3/8") on 4P, 6P and 6P SI models
  - 45 mm (1¾") on 12P SI
- Cap diameter: 50 mm (2")
- Inlet: 15 mm (½") female-threaded
- Side inlet: 120 mm (4¾") from top of sprinkler to center of side inlet

Operating Specifications

- Radius: 0.6-4.5 m (2'-15')
- Operating pressure range: 140-520 kPa (20-75 psi)
- Recommended pressure for spray nozzles: 210 kPa (30 psi)
- Flow rate: 0.2-13.0 Lpm

Additional Features

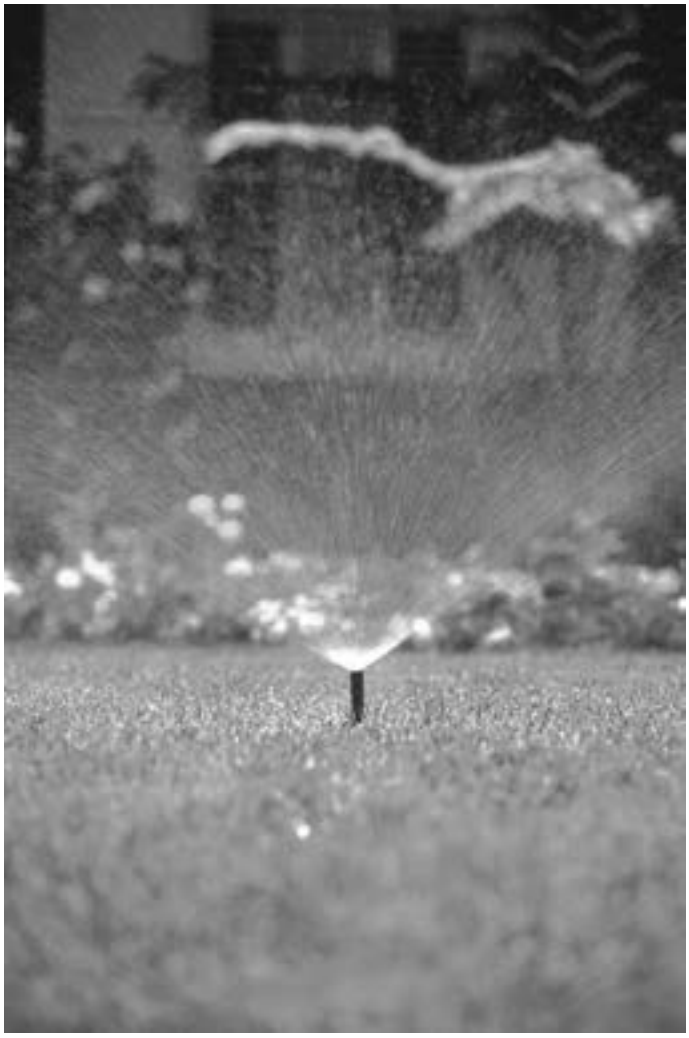
- Stainless steel retraction spring
- All bodies shipped with flush plug in place

Options Available

- Check Valve (570CV): maintains up to 3 m (10') elevation change (on non-side-inlet models)
- 570SEAL: Serviceable seal for all 570Z models
- Effluent water indicators:
  - Effluent Snap-on Cap Cover (89-9752)
  - Effluent Molded Cap with seal (102-1211)
- 5706X: 150 mm (6") Riser Extender (35-2636)
- Riser Pull-up Tool (89-6395)
- Adjustment Key (89-7350)

Warranty

- Five years



570ZPRX Series Model List

Model	Description
570S-PRX	PRX Shrub Adaptor Only. 15 mm BSPF Inlet to Toro 570 Nozzle Thread, with Inbuilt Pressure Regulation and Flow Shut-Off Device
570Z-4P-PRXCOM	100 mm PRX Body Only. Complete with Inbuilt Pressure Regulation, Flow Shut-Off Check Valve and Flush Plug
570Z-6P-PRXCOM	150 mm PRX Body Only (Bottom Inlet). Complete with Inbuilt Pressure Regulation, Flow Shut-Off Check Valve and Flush Plug
570Z-12P-PRXCOM	300 mm PRX Body Only (Bottom Inlet). Complete with Inbuilt Pressure Regulation, Flow Shut-Off Check Valve and Flush Plug

Note: all w/o Nozzle

- Radius: 1.5-4.6 m (5'-15')
- Operating Pressure Range: 140-520 kPa (20-75 psi)
- Matched Precipitation
- Side & Corner Specialty Patterns
- Arc Options: 90°, 120°, 180°, 240°, 270°, 360°
- Fit Toro® Spray Bodies

MPR Nozzles make design and installation easier than ever. Just pick your spacing and choose your arc - the nozzle does everything else.

MPR Plus Spray Nozzle Series Model List

1,5m (5') Nozzle - Red		2,4m (8') Nozzle - Green		3,0m (10') Nozzle - Blue	
Model	Description	Model	Description	Model	Description
5Q-PC	90° Arc	8Q-PC	90° Arc	10Q-PC	90° Arc
5T-PC	120° Arc	8T-PC	120° Arc	10T-PC	120° Arc
5H-PC	180° Arc	8H-PC	180° Arc	10H-PC	180° Arc
5TT-PC	240° Arc	8TT-PC	240° Arc	10TT-PC	240° Arc
5TQ-PC	270° Arc	8TQ-PC	270° Arc	10TQ-PC	270° Arc
5F-PC	360° Arc	8F-PC	360° Arc	10F-PC	360° Arc
3,7m (12') Nozzle - Brown		4,6m (15') Nozzle - Black		Special Patterns - Orange	
12Q-PC	90° Arc	15Q-PC	90° Arc	4SST-PC	Side strip 1.2 x 9.1 m (4'x30')
12T-PC	120° Arc	15T-PC	120° Arc	4EST-PC	End Strip 1.2 x 4.3 m (4'x15')
12H-PC	180° Arc	15H-PC	180° Arc	4CST-PC	Centre Strip 1.2 x 6.1 m (4'x30')
12TT-PC	240° Arc	15TT-PC	240° Arc	9SST-PC	Side Strip 2.7 x 5.2 m (9'x18')
12TQ-PC	270° Arc	15TQ-PC	270° Arc	4SSST-PC	Side Strip 1.2 x 5.2 m (4'x18')
12F-PC	360° Arc	15F-PC	360° Arc	2SST-PC	Side Strip 0.6 x 1.8 m (2'x6')

(Note: All above also available in Pressure Compensating (PC) Models

Features & Benefits

Matched Precipitation Rates

Ensure all nozzles (every arc within a family) apply water at approximately the same rate.

Low Flow Rates

Allow for more sprinklers to be placed on the same zone.

Pre-installed Pressure Compensation Device (PCD)

Eliminate fogging, conserve water and provide precise flow rates (also available without PC Devices).

Complete Selection Of Arcs

Arcs for all radius options – full, 3/4, 2/3, 1/2, 1/3 and 1/4.

Specifications

Operating Specifications

- Operating pressure range: 140-520 kPa (20-75 psi)
- Recommended pressure: 210 kPa (30 psi)
- Flow Rate: 0.2-17.3 Lpm
- Nozzle trajectory:
  1.5 m (5'): 0°; 2.4 m (8'): 10°; 3.0 m (10'): 17°;
  3.7 m (12'): 24°; 4.6 m (15'): 28°;
  Corner and Side Strips: 17°

Additional Features

- Standard and special spray patterns
- Customised screens for each nozzle
- Patterns for small areas: full set of arcs for 3.0 m, 2.4 m, and 1.5 m (10', 8' and 5') radius nozzles
- 1.2-5.2 m (4' x 18') side strip ideal for median strips
- 0.6-1.8 m (2' x 6') for small planter beds and other narrow areas
- Fine-mesh snap-in filter screens for lower flow nozzles
- Five levels of trajectory
- Convenient nozzle packaging – nozzles and screens packed separately
- Adjustment screw allows up to 25% reduction in radius and complete shutoff

Warranty

- Two years

Specifying Information—MPR Plus

XX-XXX-PC					
XX		XXX			PC
Radius		**Arc**			**Optional**
5— 1.5 m (5') 8— 2.4 m (8') 10— 3.0 m (10')	12— 3.7 m (12') 15— 4.6 m (15')	Q—90° T—120° H—180°	TT—240° Q—270° F—360°	EST—End Strip CST—Center Strip SST—Side Strip	PC—Pressure Compensation
Example: A 570 MPR Plus Nozzle with a spray of 3.0 m (10'), 180° arc and pressure compensation would be specified as: 10-H-PC					

Note: To specify a MPR Plus nozzle with a 570Z sprinkler body, attach the body specification before the above nozzle specification.
Note: Do not use PCDs with 570Z PR & 570Z PRX models

Performance Data MPR Plus Spray Nozzles—Metric

1.5 m (5') Series with 0° Trajectory - Red

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
1 4	5-Q-PC	207-276	0.34	1.5	41.9	36.3
		276-518	0.38	1.5	46.8	40.5
1 3	5-T-PC	207-276	0.45	1.5	41.6	36.0
		276-518	0.49	1.5	45.3	39.2
1 2	5-H-PC	207-276	0.68	1.5	41.8	36.2
		276-518	0.76	1.5	46.8	40.5
2 3	5-TT-PC	207-276	0.87	1.5	40.2	34.8
		276-518	1.02	1.5	47.1	40.8
3 4	5-TQ-PC	207-276	0.98	1.5	37.8	32.7
		276-518	1.10	1.5	42.4	36.7
Full	5-F-PC	207-276	1.33	1.5	41.0	35.5
		276-518	1.48	1.5	45.6	39.5

2.4 m (8') Series with 10° Trajectory - Green

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
1 4	8-Q-PC	207-276	0.83	2.4	40.0	34.6
		276-518	0.95	2.4	45.7	39.6
1 3	8-T-PC	207-276	1.10	2.4	39.7	34.4
		276-518	1.33	2.4	48.0	41.6
1 2	8-H-PC	207-276	1.67	2.4	40.2	34.8
		276-518	1.89	2.4	45.5	39.4
2 3	8-TT-PC	207-276	2.23	2.4	40.3	34.9
		276-518	2.65	2.4	47.8	41.4
3 4	8-TQ-PC	207-276	2.42	2.4	36.4	31.5
		276-518	2.65	2.4	39.8	34.5
Full	8-F-PC	207-276	3.22	2.4	38.7	33.5
		276-518	3.79	2.4	45.6	39.5

3.0 m (10') Series with 17° Trajectory - Blue

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
1 4	10-Q-PC	207-276	1.25	3.0	38.5	33.3
		276-518	1.40	3.0	43.1	37.3
1 3	10-T-PC	207-276	1.67	3.0	38.6	33.4
		276-518	1.89	3.0	43.6	37.8
1 2	10-H-PC	207-276	2.50	3.0	38.5	33.3
		276-518	2.84	3.0	43.8	37.9
2 3	10-TT-PC	207-276	3.40	3.0	39.3	34.0
		276-518	3.79	3.0	43.8	37.9
3 4	10-TQ-PC	207-276	3.75	3.0	47.7	41.3
		276-518	4.13	3.0	39.7	34.4
Full	10-F-PC	207-276	5.04	3.0	38.8	33.6
		276-518	5.72	3.0	44.0	38.1

3.0 m (12') Series with 24° Trajectory - Brown

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
1 4	12-Q-PC	207-276	1.82	3.7	36.8	31.9
		276-518	2.01	3.7	40.6	35.2
1 3	12-T-PC	207-276	2.42	3.7	36.7	31.8
		276-518	2.65	3.7	40.2	34.8
1 2	12-H-PC	207-276	3.63	3.7	36.7	31.8
		276-518	4.00	3.7	40.5	35.1
2 3	12-TT-PC	207-276	4.85	3.7	36.8	31.9
		276-518	5.30	3.7	40.2	34.8
3 4	12-TQ-PC	207-276	5.45	3.7	34.5	29.9
		276-518	6.06	3.7	38.3	33.2
Full	12-F-PC	207-276	7.27	3.7	36.8	31.9
		276-518	7.95	3.7	40.2	34.8

4.6 m (15') Series with 28° Trajectory - Black

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
1 4	15-Q-PC	207-276	2.84	4.6	37.2	32.2
		276-518	3.07	4.6	40.2	34.8
1 3	15-T-PC	207-276	3.79	4.6	37.2	32.2
		276-518	4.16	4.6	40.9	35.4
1 2	15-H-PC	207-276	5.68	4.6	37.2	32.2
		276-518	6.25	4.6	40.9	35.4
2 3	15-TT-PC	207-276	7.57	4.6	37.2	32.2
		276-518	8.33	4.6	40.9	35.4
3 4	15-TQ-PC	207-276	8.71	4.6	35.7	30.9
		276-518	9.47	4.6	38.8	33.6
Full	15-F-PC	207-276	11.36	4.6	37.2	32.2
		276-518	12.49	4.6	40.9	35.4

Special Patterns - Orange

Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
	4-EST-PC	207-276	1.63	1.2 x 4.4	21.4	18.50
		276-518	1.89	1.2 x 4.4	24.8	21.40
	4-CST-PC	207-276	3.26	1.2 x 9.1	20.6	17.90
		276-518	3.79	1.2 x 9.1	24.0	20.80
	9-SST-PC	207-276	4.16	2.7 x 5.5	19.4	16.80
		276-518	4.54	2.7 x 5.5	21.1	18.30
	4-SST-PC	207-276	3.33	1.2 x 9.1	21.1	18.30
		276-518	3.79	1.2 x 9.1	24.0	20.80
	2-SST-PC	207-276	0.34	0.6 x 1.8	21.8	18.90
		276-518	0.38	0.6 x 1.8	24.3	21.10
	4S-SST-PC	207-276	1.89	1.2 x 5.5	19.8	17.70
		276-518	2.23	1.2 x 5.5	23.4	20.20

= nozzles with PCDs. All performance specifications are based on the stated working pressure available at the base of the sprinkler.

- Radius: 2.2-5.5 m (8'-17')
- Operating Pressure Range: 150-350 kPa (20-50 psi)
- Arc Options: 0°-360° (infinitely adjustable)

Quick, easy and infinitely adjustable!

Toro® Variable Arc Nozzles (TVAN) are designed to deliver excellent irrigation efficiency with maximum product versatility.

Easy Grip Top

The easy grip top makes arc adjustment from 0°- 360° a snap

TVAN Variable Arc Nozzles Model List	
Model	**Description**
TVAN8	2.4 m (8') Variable Arc Pattern
TVAN10	3.0 m (10') Variable Arc Pattern
TVAN12	3.7 m (12') Variable Arc Pattern
TVAN15	4.6 m (15') Variable Arc Pattern
TVAN17	5.2 m (17') Variable Arc Pattern

Features & Benefits

Matched Precipitation Rates

Within a given radius family (MPR) ensures all nozzles apply water at approximately the same rate.

Unique Grip and Turn Adjustment

Requires no tools and makes arc setting fast and simple. Adjust from the top of the nozzle – wet or dry.

Infinitely Adjustable From 0° – 360°

The TVAN provides a variety of arc settings to precisely match any terrain and reduces inventory by meeting the needs of any size or shape landscape.

Five Colour-coded Nozzles

Allow for quick and easy identification even when retracted.

Specifications

Operating Specifications

- Radius: 2.2-5.5 m (8' to 17')
- Operating pressure range: 150-350 kPa (20-50 psi)
- Recommended pressure: 210 kPa (30 psi)

Additional Features

- Stainless steel adjustment screw allows up to 25% radius reduction
- Nozzle arc adjustment opens from a fixed left stop position indicated by an arrow on the top
- Compatibility with any female threaded riser made, means one nozzle family can meet all your needs

Warranty

- Two years

Performance Data – TVAN

	Pressure	8 Series-Green				10 Series-Blue				12 Series-Brown				15 Series-Black				17 Series-Gray			
Pattern	kPa	Flow (Lpm)	Radius (m)	Prec. Rate* (mm/hr) ▲	Prec. Rate* (mm/hr) ■	Flow (Lpm)	Radius (m)	Prec. Rate* (mm/hr) ▲	Prec. Rate* (mm/hr) ■	Flow (Lpm)	Radius (m)	Prec. Rate* (mm/hr) ▲	Prec. Rate* (mm/hr) ■	Flow (Lpm)	Radius (m)	Prec. Rate* (mm/hr) ▲	Prec. Rate* (mm/hr) ■	Flow (Lpm)	Radius (m)	Prec. Rate* (mm/hr) ▲	Prec. Rate* (mm/hr) ■
90°	150	1.3	2.2	74.4	64.4	1.8	2.8	63.6	55.1	3.0	3.4	71.9	62.2	3.9	4.6	51.0	44.2	4.6	4.9	53.1	45.9
	200	1.4	2.4	67.3	58.3	1.9	3.0	58.5	50.6	3.1	3.6	66.2	57.4	4.2	4.6	55.0	47.6	5.1	5.2	52.2	45.2
	250	1.6	2.6	65.5	56.8	2.3	3.0	70.8	61.3	3.8	3.8	72.9	63.1	4.9	4.8	58.9	51.0	5.8	5.4	55.1	47.7
	300	1.8	2.7	68.4	59.2	2.6	3.0	73.9	64.0	4.5	4.1	74.1	64.2	5.6	4.9	64.6	55.9	6.5	5.5	59.5	51.5
	350	1.9	2.7	72.2	62.5	2.8	3.0	86.2	74.6	4.8	4.3	71.9	62.3	6.1	4.9	70.4	60.9	7.0	5.5	64.1	55.5
180°	150	2.1	2.2	60.1	52.0	3.2	2.5	70.9	61.4	5.2	3.4	62.3	53.9	6.5	4.1	53.5	46.4	7.4	4.4	52.9	45.8
	200	2.4	2.4	57.7	50.0	3.6	2.7	64.6	55.9	5.7	3.6	60.9	52.7	7.1	4.5	48.5	42.0	8.0	5.1	42.6	36.9
	250	2.6	2.4	62.5	54.1	3.9	2.9	64.2	55.6	6.4	4.0	55.4	48.0	8.0	4.6	52.3	45.3	10.7	5.3	52.7	45.7
	300	2.8	2.5	62.0	53.7	4.3	3.0	66.2	57.3	7.1	4.3	53.2	46.0	8.8	4.6	57.6	49.9	10.7	5.3	52.7	45.7
	350	2.9	2.8	51.2	44.3	4.7	3.0	72.3	62.6	7.7	4.3	57.7	49.9	9.4	4.6	61.5	53.3	11.6	5.5	53.1	46.0
270°	150	3.2	2.2	61.0	52.8	4.5	2.5	66.5	57.5	7.4	3.2	66.7	57.8	8.6	3.8	55.0	47.6	9.9	4.2	51.8	44.8
	200	3.5	2.4	56.1	48.6	4.9	2.7	62.0	53.7	8.1	3.9	49.2	42.5	9.9	4.5	45.1	39.1	10.8	5.1	38.3	33.2
	250	3.8	2.4	60.9	52.7	5.6	2.9	61.5	53.2	9.4	4.2	49.2	42.6	10.9	4.6	47.5	41.2	12.7	5.2	43.3	37.5
	300	4.2	2.5	62.0	53.7	6.2	3.0	63.6	55.1	10.4	4.3	51.9	44.9	11.9	4.7	49.7	43.0	14.2	5.3	46.7	40.4
	350	4.6	2.8	54.2	46.9	6.7	3.0	68.7	59.5	10.9	4.3	54.4	47.1	12.9	4.9	49.6	42.9	15.4	5.5	47.0	40.7
360°	150	4.2	2.2	60.1	52.0	6.2	2.5	68.7	59.5	8.6	3.0	66.2	57.3	9.9	3.8	47.5	41.1	11.0	5.2	28.1	24.4
	200	4.8	2.4	57.7	50.0	6.9	2.7	65.5	56.7	10.0	3.8	47.9	41.5	11.8	4.5	40.3	34.9	12.8	5.5	29.3	25.3
	250	5.5	2.6	56.3	48.8	7.9	2.9	65.0	56.3	11.1	3.6	59.3	51.3	12.9	4.6	42.2	36.5	14.2	5.5	32.5	28.1
	300	6.1	2.7	57.9	50.2	8.8	3.0	67.7	58.6	12.1	3.5	68.4	59.2	14.0	4.7	43.9	38.0	15.6	5.5	35.7	30.9
	350	6.7	2.7	63.6	55.1	9.5	3.0	73.1	63.3	12.9	3.7	65.2	56.5	15.0	4.9	43.2	37.4	17.0	5.5	38.9	33.7

▲ *Precipitation rates are for triangular spacing, shown in millimeters per hour, calculated at 50% of diameter.*
■ *Precipitation rates are for square spacing, shown in millimeters per hour, calculated at 50% of diameter.*
All performance specifications are based on the stated working pressure available at the base of the sprinkler.

- Radius: 0.5-0.8 m (1.5'-3')

Specifications

Operating Specifications and Features

- Operating pressure range: 250-520 kPa (10-75 psi)
- Flow Rate: 0.8-2.9 Lpm
- Fits all Toro spray bodies, shrub adapters, risers and riser extenders

Warranty

- Two years

570 Series Stream Bubbler Performance Chart

Code	Description	Pattern	Desc.	Pressure kPa	Flow Lpm	Radius m	Prec. Rate ▲	Prec. Rate ■
89-7865	SB-90-PC2		2/60°	250-300	0.80	0.5	886.0	768.0
				300-400	0.90	0.5	997.0	864.0
89-7875	SB-180-PC2		4/60°	250-300	1.80	0.8	390.0	338.0
				300-400	1.90	0.8	411.0	356.0
89-7877	SB-360-PC2		6/60°	250-300	2.80	0.5	776.0	672.0
				300-400	2.90	0.5	803.0	696.0
89-7871	SB-2-180-PC2		2/180°	250-300	0.80	0.5	443.0	384.0
				300-400	0.90	0.5	499.0	432.0
89-7873	SB-4-180-PC2		2/60° x 2/60°	250-300	1.80	0.8	389.0	337.0
				300-400	1.90	0.8	411.0	356.0

Stream Bubbler Nozzles Model List

Code	Model	Arc
89-7865	SB-90-PC2	90° Arc, 0.6 m (2') Radius
89-7875	SB-180-PC2	180° Arc, 0.6 m (2') Radius
89-7877	SB-360-PC2	360° Arc, 0.6 m (2') Radius
89-7871	SB-2-180-PC2	180° Arc, 2 Stream. 0.6 m (2') Radius
89-7873	SB-4-180-PC2	180° Arc, 4 Stream. 0.6 m (2') Radius

Pressure Compensating Flood Bubblers

Specifications

Operating Specifications and Features

- Operating pressure range:
  250-400 kPa (30-60 psi)
  Maximum pressure: 520 kPa
- Flow Rate: Adjustable: 0.95-7.6 Lpm
  Fixed Flow: 0.9, 1.9, 3.8 Lpm
- Adjustment screw allows up to 25% reduction in radius
- Compatible with shrub adapter, 570Z Series sprinklers, risers and riser extenders

Warranty

- Two years

570 Series Flood Bubbler Performance Chart

Pattern	Description	250 kPa Lpm	300 kPa Lpm	350 kPa Lpm	400 kPa Lpm
Flood ●	FB-25-PC	0.95	0.95	0.95	0.95
	FB-50-PC	1.63	1.77	1.89	1.89
	FB-100-PC	3.53	3.66	3.79	3.79
	FB-200-ADJ-PC	7.05	7.32	7.57	7.57

Pressure-compensating Flood Bubblers Model List

Code	Model	Description
89-1727	FB-25-PC	0.9 Lpm
89-1729	FB-50-PC	1.9 Lpm
89-1731	FB-100-PC	3.8 Lpm
89-1733	FB-200-ADJ-PC	Adjustable Lpm

500 Series Bubblers

Specifications

Operating Specifications and Features

- Operating pressure range:
  - Flood: 100-520 kPa (15-75 psi)
  - Stream: 70-520 kPa (10-75 psi)
- Maximum pressure: 520 kPa (75 psi)
- Flow Rate:
  - Flood: 6.4-10.2 Lpm
  - Stream: 6.7-14.7 Lpm
- Inlet: 15 mm (½") female thread
- Attaches directly to risers
- Radius adjusts up to 50%

Warranty

- Two years

500 Series Bubblers Model List

Model	Description
511-30	90° Arc, Stream Bubbler
512-30	180° Arc, Stream Bubbler
514-30	360° Arc, Stream Bubbler
516-30	180° Arc, 2-stream Bubbler
514-20	Universal Flood Bubbler

Performance Data Adjustable Flood Bubbler Nozzle

Pattern	Model No.	kPa	Lpm
360° Flood ●	514-20	100	6.32
		125	7.14
		150	7.84
		175	8.38
		200	8.93
		225	9.28
		250	9.65
		275	10.20

Performance Data Adjustable Stream Bubbler

Model Number	Stream Patterns		100 kPa		150 kPa		200 kPa		250 kPa		300 kPa	
			Flow (Lpm)	Radius (m)	Flow (Lpm)	Radius (m)	Flow (Lpm)	Radius (m)	Flow (Lpm)	Radius (m)	Flow (Lpm)	Radius (m)
512-30	4/60°	☼	6.72	2.5	8.30	3.1	9.59	3.3	10.71	3.7	11.81	4.2
514-30	6/60°	☼	8.38	2.1	10.27	2.5	11.89	3.0	13.3	3.2	14.67	3.5

- Radius: 1.2-4.6 m (4'-15')
- Operating Pressure Range: 275-520 kPa (40-75 psi)
- Arc Options: 90°, 120°, 180°, 240°, 270°, 360°
- Side & Corner Specialty Patterns
- Fit Toro® or Irritrol®, Rain Bird® and Hunter® Spray Bodies

Toro's Precision™ Series Spray Nozzles are the most complete and efficient spray nozzle line available to help irrigation professionals manage water use, eliminate runoff and reduce customer water bills. The Precision™ Series Spray Nozzles 25 mm/hr precipitation rate ensures that water is applied more slowly and evenly without sacrificing landscape health. These nozzles are available in a wide selection of arcs and radii, as well as male and female threads, making them ideal for large scale installations and retrofits. The Precision™ Series Spray Nozzles are now pressure-compensating, further enhancing the best-in-class spray nozzle in the industry.

Features & Benefits

Patented H²0 Chip Technology

Using patented H²0 chip technology – and no moving parts – each Precision™ Series Spray Nozzle creates one or more high frequency oscillating streams to achieve the desired arc and radius with one-third less water usage.

Maximize Irrigation Efficiency

Precision™ Series Spray Nozzles deliver an industry first 25 mm/hr precipitation rate, which better matches soil infiltration rate. This lower precipitation rate, along with high distribution uniformity make this the most efficient nozzle family from 1.5-4.6 m (5'-15').

Pressure-Compensating

Pressure-Compensating Precision™ Series Spray Nozzles maintain 25 mm/hr precipitation rate and minimise misting for inlet pressures of more than 280 kPa (40 psi), minimising the need for a regulating head, at fraction of the cost.

Design and Retrofit Effectiveness

The lower flow rate of Precision™ Series Spray Nozzles maximises design efficiency and saves on overall material costs by using fewer valves and less controller stations. In addition, existing systems with low pressure can be fixed with a simple retrofit of the existing high-flow nozzle.

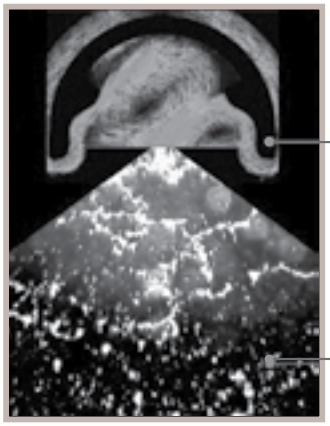
Third-Party Performance Validation

Precision™ Series Spray Nozzles have been tested and validated in the field and at the Centre for Irrigation Technology (CIT).

Water Management Highlight

Patented H²O Chip Technology

On the outside, Precision™ Series Spray Nozzles look like standard spray nozzles, but the performance of the patented H²O Chip Technology on the inside is unmatched. The H²O Chips create high-frequency streams of water that oscillate at a rate of 200 cycles per second. The result is a matched precipitation rate of 25 mm/hr - an industry first - while using up to 35% less water than a standard spray nozzle.

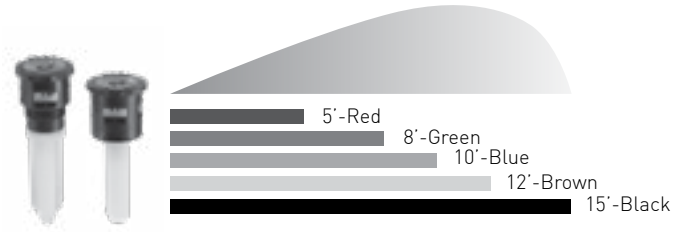


Water enters a specially designed chamber within the H²O Chip where the water expands and collapses, which creates an oscillating effect.

Consistent-sized water droplets exit the Chip in the designed arc pattern and radius, with precise edge definition, class-leading distribution uniformity and reduced water usage.

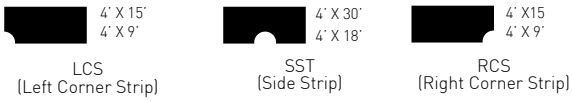
Time Savings

All Precision™ Series Spray Nozzles can be combined on the same zone for greater design and installation flexibility, which equates to time savings on the job site. Whether a new installation or retrofit project, the comprehensive range of Precision™ nozzles meets the needs of any project and all models are available in Toro (Male) and Female threads.



Nine Arcs, Plus Side and Center Strips Available

Side and Corner Strips Available



Specifications

Operating Specifications (with PCD)

- Radius: 1.2-4.6 m (5'-15')
- Operating pressure range: 280-520 kPa (40-70 psi)
- Recommended Pressure: 350 kPa (50 psi)
- Flow Rate: 0.2-10.1 Lpm
- Nozzle trajectory:
  - 1.5 m (5'): 5°
  - 2.4 m (8'): 10°
  - 3.0 m (10'): 15°
  - 3.7 m (12'): 20°
  - 4.6 m (15'): 27°
- Corner and Side Strips: 20°

Additional Features

- Radius reduction 25% maximum
- Color coded for radius on top of the nozzle
- Precipitation rate ≤ 25 mm/hour
- Maintains precipitation rate as radius is reduced up to max of 25%
- Matched precipitation rate within radius families
- Matched precipitation rates between radius families
- Screen attached to nozzle for easy insertion into the spray body
- Works on all spray bodies

Warranty

- Two years

Specifying Information—Precision™ Series Spray Nozzles

0-X-XXXX-XXXX-P					
Nozzle	**Thread**	**Radius**		**Arc**	
O	X	XXXX		XXX	
0—25 mm (1") Per Hour	T—Toro Male Threaded Nozzle Blank—Female Threaded Nozzle	5— 1.5 m (5') 8— 2.4 m (8') 10— 3.0 m (10') 12— 3.7 m (12') 15— 4.6 m (15')	4X15— 1.2 m x 4.6 m (4'X15') 4X30— 1.2 m x 9.1 m (4'X30') 4X9— 1.2 m x 2.7 m (4'X9') 4X18— 1.2 m x 5.5 m (4'X18')	60—60° Q—90° T—120° 150—150° H—180° 210—210°	TT—240° TQ—270° F—360° -Full Circle LCS—Left Corner RCS—Right Corner SST—Side Strip

Example: A female threaded Precision™ Series Spray with a spray radius of 3.7 m (12') and a 90° arc would be specified as: 0-12-QP
Example 2: A male threaded Precision™ Series Spray with a spray radius of 3.0 m (10') and a 180° arc would be specified as: 0-T-10-HP

Performance Data

1.5m "O" Nozzle (Red)

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
5-60P	275	1.8	0.26	30.5	35.6
	350	1.7	0.26	33.0	38.1
	450	1.9	0.29	25.4	30.5
5-QP	275	1.4	0.23	25.4	30.5
	350	1.6	0.30	30.5	35.6
	450	1.8	0.38	35.9	41.0
5-TP	275	1.3	0.26	25.4	27.9
	350	1.5	0.42	33.0	38.1
	450	1.8	0.65	47.5	56.6
5-150P	275	1.8	0.53	22.9	25.4
	350	1.8	0.53	22.9	25.4
	450	1.8	0.53	22.9	25.4
5-HP	275	1.3	0.38	25.4	30.5
	350	1.5	0.49	27.9	33.0
	450	1.8	0.67	34.5	39.6
5-210P	275	1.5	0.61	27.9	30.5
	350	1.7	0.68	25.4	27.9
	450	1.8	0.78	24.3	27.9
5-TTP	275	1.3	0.53	27.9	33.0
	350	1.5	0.76	33.0	38.1
	450	1.8	1.08	38.5	44.6
5-TQP	275	1.3	0.57	25.4	30.5
	350	1.5	0.79	30.5	35.6
	450	1.8	1.11	37.0	42.1
5-FP	275	1.2	0.64	25.4	30.5
	350	1.5	0.91	27.9	33.0
	450	1.8	1.32	31.9	37.0

2.4m "O" Nozzle (Green)

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
8-60P	275	2.3	0.42	27.9	33.0
	350	2.3	0.42	30.5	33.0
	450	2.4	0.50	31.6	35.6
8-QP	275	2.1	0.53	27.9	33.0
	350	2.3	0.64	30.5	33.0
	450	2.7	0.82	31.9	35.6
8-TP	275	2.3	0.76	25.4	30.5
	350	2.4	0.91	27.9	33.0
	450	2.7	1.11	31.9	37.0
8-150P	275	2.4	1.21	27.9	33.0
	350	2.6	1.21	25.4	30.5
	450	2.4	1.21	27.9	33.0
8-HP	275	2.1	0.98	25.4	30.5
	350	2.3	1.25	27.9	33.0
	450	2.6	1.63	31.9	37.0
8-210P	275	2.4	1.29	22.9	25.4
	350	2.4	1.44	25.4	27.9
	450	2.4	1.65	29.4	33.0
8-TTP	275	2.1	1.29	25.4	27.9
	350	2.4	1.63	27.9	30.5
	450	2.7	2.16	31.9	37.0
8-TQP	275	2.2	1.55	25.4	27.9
	350	2.4	1.82	27.9	30.5
	450	2.7	2.23	31.9	37.0
8-FP	275	2.1	2.08	27.9	30.5
	350	2.3	2.46	27.9	30.5
	450	2.5	3.02	27.9	33.0

3.0m "O" Nozzle (Blue)

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
10-60P	275	2.9	0.61	25.4	30.5
	350	3.2	0.68	25.4	27.9
	450	3.4	0.80	26.9	29.4
10-QP	275	2.9	0.98	25.4	27.9
	350	3.1	1.06	27.9	30.5
	450	3.3	1.14	29.4	34.5
10-TP	275	2.9	1.17	25.4	27.9
	350	3.1	1.36	27.9	30.5
	450	3.3	1.66	31.9	37.0
10-150P	275	2.9	1.78	30.5	35.6
	350	3.1	1.85	27.9	33.0
	450	3.1	1.97	29.0	34.1
10-HP	275	3.0	1.82	25.4	27.9
	350	3.1	2.01	27.9	30.5
	450	3.2	2.27	29.4	34.5
10-210P	275	2.9	2.16	27.9	30.5
	350	3.1	2.42	27.9	30.5
	450	3.1	2.76	30.5	34.5
10-TTP	275	2.9	2.38	25.4	28.2
	350	3.0	2.65	27.9	30.5
	450	3.2	3.07	29.4	34.5
10-TQP	275	2.9	2.69	25.4	27.9
	350	3.0	2.91	25.4	30.5
	450	3.2	3.23	27.9	31.9
10-FP	275	2.9	3.60	25.4	27.9
	350	3.1	4.01	27.9	30.5
	450	3.3	4.63	29.4	34.5

3.6m "O" Nozzle (Brown)

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
12-60P	275	4.0	1.14	25.4	30.5
	350	4.0	1.14	25.4	30.5
	450	4.0	1.14	25.4	30.5
12-QP	275	3.7	1.29	25.4	30.5
	350	3.7	1.48	27.9	33.0
	450	3.8	1.74	30.5	34.5
12-TP	275	3.5	1.74	25.4	30.5
	350	3.6	1.89	25.4	30.5
	450	3.7	2.13	27.9	33.0
12-150P	275	3.7	2.23	25.4	27.9
	350	3.5	2.50	30.5	33.0
	450	3.7	2.85	31.9	35.9
12-HP	275	3.5	2.65	25.4	30.5
	350	3.6	2.84	25.4	31.0
	450	3.8	3.14	27.9	30.5
12-210P	275	3.4	3.26	30.5	35.6
	350	3.5	3.63	30.5	35.6
	450	3.7	4.15	31.9	37.0
12-TTP	275	3.5	3.41	25.4	30.5
	350	3.5	3.90	27.9	33.0
	450	3.5	4.67	30.5	34.5
12-TQP	275	3.5	3.97	25.4	30.5
	350	3.6	4.31	25.4	30.5
	450	3.7	4.85	27.9	33.0
12-FP	275	3.5	5.11	25.4	27.9
	350	3.6	5.64	25.4	30.5
	450	3.8	6.47	27.9	33.0

4.6m "O" Nozzle (Black)

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
15-60P	275	4.3	1.36	27.9	30.5
	350	4.6	1.55	25.4	30.5
	450	4.6	1.77	29.4	34.5
15-QP	275	4.3	2.01	25.4	30.5
	350	4.4	2.23	27.9	30.5
	450	4.6	2.55	29.4	33.0
15-TP	275	4.4	2.73	25.4	30.5
	350	4.5	2.91	25.4	30.5
	450	4.7	3.21	27.9	30.5
15-150P	275	4.3	3.52	27.9	33.0
	350	4.4	3.94	30.5	33.0
	450	4.4	4.51	34.5	39.6
15-HP	275	4.4	4.16	25.4	30.5
	350	4.4	4.54	27.9	30.5
	450	4.2	5.10	29.4	33.0
15-210P	275	4.3	4.66	25.4	30.5
	350	4.3	5.45	30.5	35.6
	450	4.4	6.21	31.6	36.6
15-TTP	275	4.4	5.49	25.4	30.5
	350	4.5	5.94	25.4	30.5
	450	4.6	6.62	27.9	31.9
15-TQP	275	4.3	6.06	22.9	25.4
	350	4.4	6.43	25.4	27.9
	450	4.6	7.03	26.9	30.5
15-FP	275	4.4	8.33	25.4	30.5
	350	4.5	8.93	25.4	30.5
	450	4.7	9.88	27.9	31.9

Special Patterns

Arc	kPa	Radius (m)	Flow (lpm)	Precip.Rate ■ (mm/hr.)	Precip.Rate ▲ (mm/hr.)
4X30 SSTP	275	1.2 x 9.1	2.34	25.8	29.7
	350	1.2 x 9.1	2.45	26.9	31.1
	450	1.2 x 9.1	2.59	28.5	32.8
4X15 LCSP	275	1.2 x 4.5	1.20	26.6	30.7
	350	1.2 x 4.5	1.24	27.5	31.7
4X15 RCS	450	1.2 x 4.5	1.29	28.6	33.0
4X18 SSTP	275	1.2 x 5.4	1.35	25.0	28.9
	350	1.2 x 5.4	1.39	25.7	29.7
	450	1.2 x 5.4	1.44	26.6	30.7
4X9 LCSP	275	1.2 x 2.7	0.67	24.7	28.6
	350	1.2 x 2.7	0.71	26.1	30.2
4X9 RCSP	450	1.2 x 2.7	0.76	28.0	32.3

Specifications

- Radius 1.5 – 4.6 m
- Radius reduction: 25% maximum
- Operating pressure range: 275 – 500 kPa
- Recommended Pressure: 350 kPa
- Flow Rate: 0.2 – 9.9 Lpm
- Nozzle trajectory:
  1.5 m: 5° 2.4 m: 10° 3.0 m: 15°
  3.6 m: 20° 4.6 m: 27°
- Corner and side strips: 20°
- 2 Year Warranty

Model List

1.5m "O" Nozzle (Red)

Male	Female	Description
O-T-5-60P	O-5-60P	60° Arc
O-T-5-TP	O-5-TP	90° Arc
O-T-5-150P	O-5-150P	150° Arc
O-T-5-HP	O-5-HP	180° Arc
O-T-5-210P	O-5-210P	210° Arc
O-T-5-TTP	O-5-TTP	240° Arc
O-T-5-TQP	O-5-TQP	270° Arc
O-T-5-FP	O-5-FP	360° Arc

2.4m "O" Nozzle (Green)

Male	Female	Description
O-T-8-60P	O-8-60P	60° Arc
O-T-8-TP	O-8-TP	90° Arc
O-T-8-150P	O-8-150P	150° Arc
O-T-8-HP	O-8-HP	180° Arc
O-T-8-210P	O-8-210P	210° Arc
O-T-8-TTP	O-8-TTP	240° Arc
O-T-8-TQP	O-8-TQP	270° Arc
O-T-8-FP	O-8-FP	360° Arc

3.0m "O" Nozzle (Blue)

Male	Female	Description
O-T-10-60P	O-10-60P	60° Arc
O-T-10-TP	O-10-TP	90° Arc
O-T-10-150P	O-10-150P	150° Arc
O-T-10-HP	O-10-HP	180° Arc
O-T-10-210P	O-10-210P	210° Arc
O-T-10-TTP	O-10-TTP	240° Arc
O-T-10-TQP	O-10-TQP	270° Arc
O-T-10-FP	O-10-FP	360° Arc

3.6m "O" Nozzle (Brown)

Male	Female	Description
O-T-12-60P	O-12-60P	60° Arc
O-T-12-TP	O-12-TP	90° Arc
O-T-12-150P	O-12-150P	150° Arc
O-T-12-HP	O-12-HP	180° Arc
O-T-12-210P	O-12-210P	210° Arc
O-T-12-TTP	O-12-TTP	240° Arc
O-T-12-TQP	O-12-TQP	270° Arc
O-T-12-FP	O-12-FP	360° Arc

4.6m "O" Nozzle (Black)

Male	Female	Description
O-T-15-60P	O-15-60P	60° Arc
O-T-15-TP	O-15-TP	90° Arc
O-T-15-150P	O-15-150P	150° Arc
O-T-15-HP	O-15-HP	180° Arc
O-T-15-210P	O-15-210P	210° Arc
O-T-15-TTP	O-15-TTP	240° Arc
O-T-15-TQP	O-15-TQP	270° Arc
O-T-15-FP	O-15-FP	360° Arc

Special Patterns

Male	Female	Description
O-T-4X9-RCSP	O-4X9-RCSP	Right Corner
O-T-4X9-LCSP	O-4X9-LCSP	Left Corner
O-T-4X18-SSTP	O-4X18-SSTP	Side Strip
O-T-4X15-RCSP	O-4X15-RCSP	Right Corner
O-T-4X15-LCSP	O-4X15-LCSP	Left Corner
O-T-4X30-SSTP	O-4X30-SSTP	Side Strip

- Radius: 4.3-7.9 m (14'-26')
- Operating Pressure Range: 170-520 kPa (20-75 psi)
- 45°-360° Arc Settings
- Fit Toro® or Irritrol®, Rain Bird® and Hunter® Spray Bodies

Based off the design of the world's leading gear-driven rotor for golf applications, the Precision Series Rotating Nozzle is powered by a proven gear drive and delivers wind resistant, multi-stream, multi-trajectory patterns.

Female-threaded PRN-A

Male-threaded PRN-TA

PRN Adjustment Tool

Female-threaded PRN-F

Male-threaded PRN-TF

Features & Benefits

Gear-Driven

Utilises a proven planetary gear drive, variable stator and turbine to rotate the nozzle.

Matched Precipitation Rate of 14 mm/hr

These nozzles deliver water more slowly and evenly than standard spray nozzles. The precipitation rate of 14 mm/hr helps prevent excess run times often set to stay within watering windows.

Consistent Speed of Rotation

The gear drive mechanism delivers a consistent speed of rotation regardless of system pressure and prevents product stalling at low pressure.

Step-Up™ Technology

Step-Up™ Technology is designed to deliver high uniformity with matched precipitation for in-close watering all the way out to the furthest radius point. The unique "steps" create 15 streams, each designed to cover an area of the pattern.

Water Management Highlights

Precision Series Rotating Nozzles supply matched precipitation with any arc and any radius from 4.3 m-7.9 m (14 to 26'). Water is applied slowly and evenly to reduce runoff and wasted water.

Specifications

Operating Specifications

- Radius: 4.3-7.9 m (14'-26')
- Operating pressure range: 140-520 kPa (20-75 psi)
- Recommended pressure: 280-350 kPa (40-50 psi)
- Flow Rate: 0.65-14 Lpm

Additional Features

- 15 unique streams with different trajectories
- Maximum height of 20° trajectory to fight through wind
- Threads onto nearly all sprayheads and shrub adapters (male or female)
- Pre-attached screen for easy installation
- Radius reduction up to 25% by turning set screw 90°
- Color coded to identify adjustable or full circle
- Precipitation rate = 14 mm/hr on square spacing plans
- Maintains precipitation rate as radius is reduced
- Matched precipitation from 4.3-7.9 m (14-26')
- Matched precipitation from 1.4-5.2 Bar (20-75 psi)
- Adjustable by hand or tool
- Consistent speed of rotation not affected by pressure

Warranty

- Five years

Precision Series Rotating Nozzle Model List	
Male Threaded	**Description**
PRN-TA	Toro Male Threaded, 4.3-7.9 m (14-26'), Adjustable from 45°-270°
PRN-TF	Toro Male Threaded, 4.3-7.9 m (14-26'), Full-Circle
Female Threaded	**Description**
PRN-A	Female Threaded, 4.3-7.9 m (14-26'), Adjustable from 45°-270°
PRN-F	Female Threaded, 4.3-7.9 m (14-26'), Full-Circle

Specification Note:

Proper system flush prior to installation and primary filtration of 100 mesh is necessary to ensure reliable operation of this product.

PRN Visual Arc Adjustment

The unique adjustment method allows for pre-setting of arc by hand or tool before the nozzle is installed. Visual indicators allow the user to quickly adjust the arc pattern to the desired arc from 45-270°. The adjustment band can be adjusted by hand or with the PRNTOOL. The tool can be ordered separately as: PRNTOOL

Performance Data Precision™ Series Rotating Nozzles					
Arc	kPa	Lpm	Radius	Precip Rate (mm/hr) ■	Precip Rate (mm/hr) ▲
45°	170	0.64	4.3	17.0	19.59
	210	0.87	4.6	20.0	23.09
	240	0.79	4.9	16.0	18.53
	310	1.06	5.5	16.9	19.52
	380	1.25	5.8	17.9	20.65
	450	1.48	6.7	15.8	18.20
	520	1.63	6.7	17.4	20.07
90°	170	1.63	4.9	16.4	18.97
	210	1.70	5.2	15.2	17.58
	240	2.04	5.8	14.6	16.89
	310	2.65	6.7	14.1	16.33
	380	2.99	7.0	14.6	16.87
	450	3.22	7.6	13.3	15.36
	520	3.48	7.6	14.4	16.62
120°	170	1.82	5.0	13.1	15.12
	210	2.23	5.2	15.0	17.29
	240	2.38	5.6	13.5	15.59
	310	3.48	6.7	13.9	16.10
	380	3.86	7.0	14.1	16.33
	450	4.20	7.3	14.1	16.32
	520	4.47	7.6	13.8	15.99
180°	170	3.14	4.6	18.0	20.83
	210	3.44	5.2	15.4	17.78
	240	4.01	5.8	14.4	16.58
	310	5.22	6.7	13.9	16.10
	380	5.83	7.0	14.2	16.44
	450	6.36	7.6	13.1	15.18
	520	6.85	7.9	13.1	15.12
240°	170	4.24	4.6	18.3	21.08
	210	4.58	4.9	17.3	20.02
	240	5.38	5.8	14.4	16.66
	310	6.47	6.4	14.2	16.42
	380	7.15	6.7	14.3	16.54
	450	7.61	7.0	13.9	16.09
	520	8.33	7.3	14.0	16.18
270°	170	4.09	4.3	17.9	20.69
	210	4.88	4.6	18.6	21.53
	240	5.19	5.5	13.7	15.88
	310	7.08	6.4	13.8	15.92
	380	8.06	6.7	14.3	16.52
	450	8.90	7.3	13.3	15.32
	520	9.84	7.6	13.5	15.62
360°	170	6.85	4.6	19.7	22.71
	210	8.18	5.5	16.3	18.82
	240	8.25	5.9	14.2	16.35
	310	11.13	6.8	14.3	16.54
	380	12.26	7.1	14.6	16.85
	450	13.17	7.4	14.4	16.64
	520	13.93	7.8	13.7	15.85

Specifying Information—Precision Series Rotating Nozzle

PRN-X-X		
PRN	X	X
Model	**Thread**	**Model**
PRN—Precision Rotating Nozzle	T—Male Thread Blank—Female Thread	A—Adjustable arc F—Full-circle
Example: A male threaded Precision Series Rotating nozzle with a 7.3 m (24') radius and a 180° arc would be specified as: PRN-TA A female threaded Precision Series Rotating nozzle with a 6.1 m (20') radius and 360° arc would be specified as: PRN-F		

Precision™ Series Rotating Nozzle Shrub & Slope Kit

The new Toro® Precision™ Series Rotating Nozzle Shrub & Slope Kit delivers efficient irrigation in above ground settings, garden beds and nurseries. Pre-assembled out of the box, the kit features a highly efficient Precision™ Rotating Nozzle, 570ZSXF Shrub Riser and Precision™ Check Valve. The kit has a universal 15 mm (½") female inlet, making it a go-to solution for both new installs and retrofit projects.

Pre-installed adjustable or full circle Precision™ Series Rotating Nozzle delivers multiple wind resistant, low trajectory streams at a matched precipitation rate of 14.5 mm/hr.

Toro 570SXF Shrub riser with patented X-Flow® Technology prevents water waste by eliminating 99.9% of the flow through the riser in the event the nozzle is removed. Ideal protection against vandalism and theft, or for maintenance convenience. (Flush lateral line before installing)

With a hold-back strength of up to 4.5 m, the Precision™ Check Valve is spring-activated and provides an immediate check at system shut-off, making it ideally suited for slope settings.

Specifications

Operating Specifications

- Radius: 4.2-7.9 m (max radius at 500 kPa operating pressure)
- Operating pressure range: 275-500 kPa (use of the Precision™ Check Valve is not recommended on systems with an operating pressure of less than 275 kPa)
- Recommended operating pressure: 300 kPa
- 15 mm (½") female inlet
- Check height: up to 4.5 m

Additional Features

- Maximum stream trajectory of 20° to help fight wind and minimise drift
- Radius reduction of up to 25% by turning set screw at top of nozzle
- Integrated X-Flow® Technology
- Pre-assembled for easy installation

Warranty

- Two years

Precision™ Series Rotating Nozzles Performance Data (Adjustable) 45° - 270°

Arc	Pressure (kPa)	Flow (Lpm)	Radius (m)	Precip Rate (mm/hr) ■	Precip Rate (mm/hr) ▲
90°	275	2.35	6.25	14.48	16.76
	300	2.53	6.47	14.48	16.76
	350	2.86	6.88	14.48	16.76
	400	3.05	7.10	14.48	16.76
180°	275	4.62	6.25	14.22	16.51
	300	4.95	6.47	14.22	16.42
	350	5.57	6.89	14.19	16.22
	400	5.98	7.23	13.82	15.85
270°	275	6.13	5.79	14.48	16.76
	300	6.65	6.07	14.29	16.58
	350	7.64	6.59	13.97	16.24
	400	8.36	6.92	13.97	16.05

Precision™ Series Rotating Nozzles Performance Data (Full)

Arc	Pressure (kPa)	Flow (Lpm)	Radius (m)	Precip Rate (mm/hr) ■	Precip Rate (mm/hr) ▲
360°	275	9.69	6.37	14.22	16.51
	300	10.42	6.59	14.32	16.51
	350	11.77	7.00	14.48	16.55
	400	12.45	7.20	14.48	16.71

Ordering Information

Model	Description
PRNTA-S-PCV	Adjustable Precision Rotating Nozzle Shrub & Slope kit, Adjustable 45°-270°
PRNTA-SE-PCV	Adjustable Precision Rotating Nozzle Shrub & Slope kit, Effluent, Adjustable 45°-270°
PRNTF-S-PCV	Adjustable Precision Rotating Nozzle Shrub & Slope kit, Full Circle
PRNTF-SE-PCV	Adjustable Precision Rotating Nozzle Shrub & Slope kit, Effluent, Full Circle

Effluent Water Indicators

118-1302
- Lavender molded cover for use on 570Z Series pop-up models

102-1211
- Lavender molded cap for use on 570Z Series pop-up models
- Includes wiper seal

102-0563
- Lavender molded 570Z Series shrub adapter
- Installs onto a 13 mm (½") NPT riser

Precision Check Valve PCV-500
- 15mm (½") male x female thread
- Holds back 4.5 mm (15') elevation change
- Prevents low head drainage

PCV-500 Pressure Loss Data					
Flow rate (Lpm)	4	8	12	16	20
Pressure Loss (kPa)	35	41	45	48	70

Serviceable Parts

570SEAL
- Serviceable seal for all 570Z models
- Recommended for upgrades

Risers and Extenders

570-6X
- 570Z Extender
- Male-inlet threads install onto any 570Z pop-up sprinkler or shrub adapter to provide a 15cm (6") extension
- Maximum pressure: 520 kPa (75 psi)

Check Valve 570CV
- Check valve for all 570Z models
- Install in field to prevent low head drainage

Tools

89-6395
- Riser pull-up and screen removal tool for all 570Z Series models

89-7350
- Adjustment tool for all 570Z Series models

PRNTOOL
- PRN Adjustment Tool for Precision™ Series Rotating Nozzles
- Adjusts arc and radius

PNOZZTOOL
- Robust riser pull-up and screen removal tool
- Retrofit all brands and all spray-head models
- Patent protected

TORO 21

Large Turf Sprinklers Overview

Model	Mini 8	300 Multi-Stream	T5
Page Number	25-26	27-28-29	30-31
Inlet size	½"	¾"	¾"
Radius	6.1-10.7 m	4.6-9.2 m	7.6-15.2 m
Flow Range	3.0- 11.5 Lpm	2.2-31.2 Lpm	2.8-36.5 Lpm
Operating Pressure Range	200-350 kPa	240-350 kPa	170-450 kPa
Artificial Turf			
Shrubs/Ground Cover		X	X
Slopes		X	X
Low Pressure	X		X
High Traffic/Vandal Prone Areas			
Rubber Cover for Sports Fields			X
High Wind			X
Normally Open Hydraulic System			
Electric Valve in Head			
Full Circle	X	X	X
Part-circle Adjustable	X		X
Part-circle Fixed		X	
Part/Full Circle In One	X	X	X
Stainless Steel Riser			
*Check Valve	Optional	Optional	Optional
Effluent Water Option		X	X
Shrub Model		X	X
High Pop Model		X	X
*Smart-Arc Memory			
Below Grade			
*Trajectory Adjustment			
*X-Flow Water Shut-off			
Standard Pop-up Height	100 mm	70-95 mm	127 mm
Top Serviceable			
Warranty	Two years	Two years	Five years

** WaterSmart® Feature*

Large Turf Sprinklers Overview cont.




Model	LVZA	T7	640	LVZE
Page Number	32	33-34	35-36-37	38-39
Inlet size	¾"	1"	1"	1"
Radius	12-14.5 m	14.1-22.9 m	14.6-20.2 m	15-21.6 m
Flow Range	15-29.3 Lpm	25.7-115.8 Lpm	23.6-92.8 Lpm	40-135 Lpm
Operating Pressure Range	250-600 kPa (35-90 psi)	280-700 kPa (40-100 psi)	280-620 kPa (40-90 psi)	300-700 kPa (45-100 psi)
Artificial Turf	X			X
Shrubs/Ground Cover				
Slopes				
Low Pressure				
High Traffic/Vandal Prone Areas			X	
Rubber Cover for Sports Fields		X	X	
High Wind	X			X
Normally Open Hydraulic System			X	
Electric Valve in Head				
Full Circle	X	X	X	X
Part-circle Adjustable	X	X		X
Part-circle Fixed			X	
Part/Full Circle In One	X	X		X
Stainless Steel Riser		X	X	
*Check Valve		Standard	Standard	
Effluent Water Option		X	X	
Shrub Model				
High Pop Model				
*Smart-Arc Memory		X		
Below Grade		X	X	
*Trajectory Adjustment				
*X-Flow Water Shut-off				
Standard Pop-up Height	66mm	127mm	60mm	79mm
Top Serviceable				
Warranty	Five years	Five years	Five years	Five years

** WaterSmart® Feature*

Large Turf Sprinklers Overview cont.

Model	HYDRA-2-S	TS90	HYDRA-2-M	TRITON L	690	VP3
Page Number	40-41	42-43	44-45	46-47	48	49-50
Inlet size	1"	1"	1½"	1½"	1½"	2"
Radius	14.5-25 m	16.2-29 m	20-31.5 m	20-32 m	26.5-33 m	34-54 m
Flow Range	41-165 Lpm	52.9-232.8 Lpm	70-190 Lpm	113-330 Lpm	193-311.0 Lpm	432-1148 Lpm
Operating Pressure Range	400-700 kPa (60-100 psi)	280-700 kPa (40-100 psi)	400-700 kPa (60-100 psi)	300-800 kPa (45-115 psi)	550-1000 kPa (80-150 psi)	400-800 kPa (60-115 psi)
Artificial turf	X	X	X	X	X	X
Shrubs/Ground Cover						
Slopes						
Low Pressure						
High Traffic/Vandal Prone Areas	X			X		X
Rubber Cover for Sports Fields		X				
High Wind		X			X	
Normally Open Hydraulic System					X	
Electric Valve in Head	X		X			X
Full Circle	X		X	X	1 and 2 Speed	X
Part-circle Adjustable	X		X	X		X
Part-circle Fixed					90° and 180°	
Part/Full Circle In One	X	X	X	X		X
Stainless Steel Riser						
*Check Valve	X	Standard	X		X	X (VIH version)
Effluent Water Option		X			X	
Shrub Model						
High Pop Model						
*Smart-Arc Memory		X				
Below Grade		X				
*Trajectory Adjustment		7°-30°				
*X-Flow Water Shut-off						
Standard Pop-up Height	80mm	100mm	80mm	107mm	57mm	120mm
Top Serviceable	X		X	X		X
Warranty	Five years	Five years	Five years	Two years	Three years	Two years

- Inlet Size: ½"
- Radius: 6.1-10.7 m
- Operating Pressure Range: 200-350 kPa (30-50 psi)

When spray heads won't do the job and a full size rotor is just too much, you need the Mini 8 from Toro®. Designed to fill in that hard to cover area between 6.1 m and 10.7 m, the Mini 8 provides great value and water efficiency for your landscapes.

Features & Benefits

Top Arc Indication

Ensures easy adjustments from 40° to 360° with visual feedback of arc change by reading the scale.

Stainless Steel Radius Adjustment Screw

Allows up to 25% reduction.

Pressure Activated Seal

The seal and robust trip mechanism offer enhanced reliability.

Ratcheting Riser

Easily shift the riser and fixed left stop to the desired position.

Five Interchangeable Nozzles

To cover varying flow and radius requirements (comes pre-installed with a 1.5 nozzle).

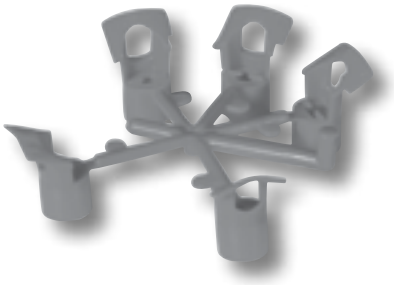
Part and Full Circle In One

Offers convenience and reduces inventory requirements.

Water Management Highlight

Not Too Big and Not Too Small.
The Mini 8 is Just Right.

With the smaller nozzle set you get lower flows on smaller spaces providing more efficient application and water savings. And compared to sprays, it saves on the number of heads which in turn reduces the number of valves and stations required. No matter how you look at it, the Mini 8 brings together money savings with better water management.



Nozzle Tree—Five interchangeable nozzles – comes pre-installed with a 1.5 nozzle

Arc setting is visible from the top of sprinkler

Arc Scale

Use a slotted screwdriver to turn. Read arc change on the arc scale as the screwdriver is turned. The arrow points to the arc degrees.

Specifications

Dimensions

- Body height: 150 mm (6")
- Pop-up to nozzle height: 95 mm (3¾")
- Exposed diameter: 45 mm (1¾")
- Cap diameter: 57 mm (2¼")
- Inlet: ½" female-threaded

Operating Specifications

- Radius: 6.1–10.7 m
- Operating pressure range: 200-350 kPa
- Flow Rate: 3.0-11.5 Lpm
- Trajectory: 25°

Options Available

- MINI8-CV – Check Valve – maintains up to 8' elevation change (Bag of 25)
- 102-2024 – Adjustment Tool

Warranty

- Two years

Optional Check Valve
Prevents low head drainage and puddling at the sprinkler.

Mini 8 Performance Data—Metric

Nozzle	kPa	Lpm	Radius	Prec. Rate (mm/hr)	
				▲	■
0.75	200	3.0	6.1	5.6	4.8
	250	3.3	6.3	5.8	5.0
	300	3.8	6.5	6.2	5.4
	350	4.6	6.7	7.1	6.1
1.0	200	4.2	7.9	4.7	4.0
	250	4.6	8.1	4.8	4.2
	300	5.2	8.3	5.2	4.5
	350	5.7	8.6	5.3	4.6
1.5	200	4.5	8.8	4.0	3.5
	250	5.0	9.0	4.3	3.7
	300	5.6	9.3	4.5	3.9
	350	6.1	9.5	4.7	4.0
2.0	200	5.3	9.1	4.4	3.8
	250	6.0	9.3	4.l8	4.2
	300	6.8	9.4	5.3	4.6
	350	7.7	9.4	6.0	5.2
3.0	200	8.7	10.3	5.7	4.9
	250	9.4	10.6	5.8	5.0
	300	10.4	10.7	6.3	5.4
	350	11.5	10.7	6.9	6.0

Radius shown in meters. Data based on 360°.
**△ Precipitation rates are for triangular spacing, shown in millimeters per hour, calculated at 50% of diameter.*
**□ Precipitation rates are for square spacing, shown in millimeters per hour, calculated at 50% of diameter.*
All performance specifications are based on the stated working pressure available at the base of the sprinkler.
** Pre-installed nozzle.*

Mini 8 Model List

Code	Description
MINI8-4P	Mini 8 Rotor, 100 mm (4") Lawn Pop-up
MINI8-CV	Check Valve
102-2024	Adjustment Tool
102-3133	Nozzle Rack

Specifying Information — Mini 8

MINI8-4P-XX-XX				
MINI8	4P	XX		XX
Description	**Body**	**Nozzle**		**Optional**
MINI8—Mini 8 Rotor	4P—Lawn Pop-up	75—7.5 10—1.0 15—1.5	20—2.0 30—3.0	CV—Check Valve
Example: A Mini 8 Series sprinkler with a 3.0 nozzle would be specified as: MINI8-4P-30				

Note: MINI8-CV available in bags of 25.

- Inlet Size: 20 mm (¾") for Lawn and High-pop; 15-20 mm (½"-¾") for Shrub model
- Radius: 4.6-9.2 m
- Operating Pressure Range: 240-350 kPa

The 300 Series Multi-Stream Rotor from Toro® combines a highly distinctive way to irrigate with the reliability you've come to expect. Uniquely designed, Multi-Stream Rotors feature multiple rotating streams, a slower precipitation rate and excellent wind resistance.

Features & Benefits

Unique Multiple Rotating Streams

Provide slow, effective watering, plus you can zone your arcs together, saving time and water.

Matched Precipitation Rate Arc Discs

Ensures uniform delivery of water across each square foot of an irrigated area, resulting in high-precision water application.

Choice of Six Nozzles and Nine Interchangeable Arc Discs

For maximum versatility covering varying landscape needs (4 separate nozzles for high-pops).

Selection of Pop-up Heights

75 mm (3") Lawn Pop-up, shrub and high-pop – to satisfy varying installation requirements.

300 Series arc discs come in 9 different selections

300 Series Multi-Stream Rotor Model List	
Model	**Description**
300-00-00	Lawn Pop-up w/o Nozzle
300-10-00	Shrub w/o Nozzle
300-12-00	300 mm (12") Pop-up w/o Nozzle

Water Management Highlight

A Winning Combination of Watering Efficiency and Visual Appeal

The exclusive "fingers of water" application takes a flow of water and divides it into smaller streams at different trajectories for a stronger performance all across the landscape. Shorter radii get the coverage needed with enough water still in the main stream to reach longer distances. This also creates a heavier watering stream at the tail end of the spray allowing for greater wind resistance.

Specifications

Operating Specifications

- Body Diameter: 60 mm (2 3/8")
- Cap Diameter: 75 mm (3")
- Height:
  - Lawn Pop-up: 155 mm (6 1/8")
  - High-Pop: 405 mm (16")
- Shrub Base Diameter: 45 mm (1¾")

Additional Features

- Radius: 4.6-9.2 m (15'-30')
- Flow Rate:
  - Lawn Pop-up and High-pop: 2.2-31.2 Lpm
  - Shrub: 7.8-24.0 Lpm
- Operating Pressure Range: 240-350 kPa
- Trajectory: 3 angles to cover short, medium & large radius
- Pop-up to nozzle:
  - Lawn Pop-up: 70 mm (2¾")
  - High-Pop: 298 mm (11¾")
- Inlet (Female-threaded):
  - Lawn Pop-up and High-pop: 20 mm (¾")
  - Shrub: 15 mm (½") to 20 mm (¾")
- Large basket filter screen
- High-pop model fitted with locking cap

Options Available

- Recycled Water Indicators:
  - 89-7853 — Omni Nozzle Cover (Use with Part No. 300-15)
  - 89-7854 — High-pop Omni Nozzle Cover (Use w/Part No. 300-25)
  - 89-7889 — Rotor Plug

Warranty

- Two years

300 Series Lawn Pop-up Apex @ 3.5 Bar

Nozzle	27° Max. Ht. of Spray
01	1.47 m
02	1.55 m
03	1.,8 m
63	2.1 m
93	1.9 m

300 Series: Shrub w/COM (360° Arc Disc) Model Nos. 300-10-00COM

Nozzle	kPa	Lpm	Radius
01	350	7.9	4.3
01	500	10.8	4.8
02	350	9.5	7.0
02	500	13.5	7.6
03	350	17.4	8.2
03	500	23.0	8.8
63	350	10.2	8.6
63	500	14.0	9.1
93	350	14.0	8.9
93	500	19.4	9.4
Omni (Min)	350	10.2	4.9
Omni (Min)	500	14.5	5.4
Omni (Max)	350	21.1	9.2
Omni (Max)	500	23.8	10

Performance Data Omni™ Adjustable Radius Nozzle Standard—Metric

				360°	270°	225°	202.5°	180°	157.5°	135°	112°	90°
kPa	Radius (m)	Precipitation Rate* ▲	Precipitation Rate* ■	Flow (at Designated Arcs) (Lpm)								
250	4.5	44.1	38.2	12.9	9.7	8.1	7.3	6.5	5.7	4.9	4.0	3.2
	5.0	39.0	33.8	14.1	10.6	8.8	8.0	7.1	6.2	5.3	4.4	3.5
	6.0	31.9	27.6	16.6	12.5	10.4	9.3	8.3	7.3	6.2	5.2	4.2
	7.0	27.0	23.3	19.1	14.3	11.9	10.7	9.6	8.4	7.2	5.9	4.8
	8.0	24.0	20.8	22.2	16.7	13.9	12.5	11.1	9.7	8.3	6.9	5.6
350	6.0	36.9	31.9	19.2	14.4	12.0	10.8	9.6	8.4	7.2	6.0	4.8
	7.0	31.3	27.1	22.2	16.7	13.9	12.5	11.1	9.7	8.3	6.9	5.6
	8.0	27.2	23.6	25.2	18.9	15.7	14.2	12.6	11.0	9.4	7.8	6.3
	9.0	24.1	20.9	28.2	21.1	17.6	15.8	14.1	12.3	10.6	8.8	7.0
	10.0	21.6	18.7	31.2	23.4	19.5	17.5	15.6	13.6	11.7	9.7	7.8

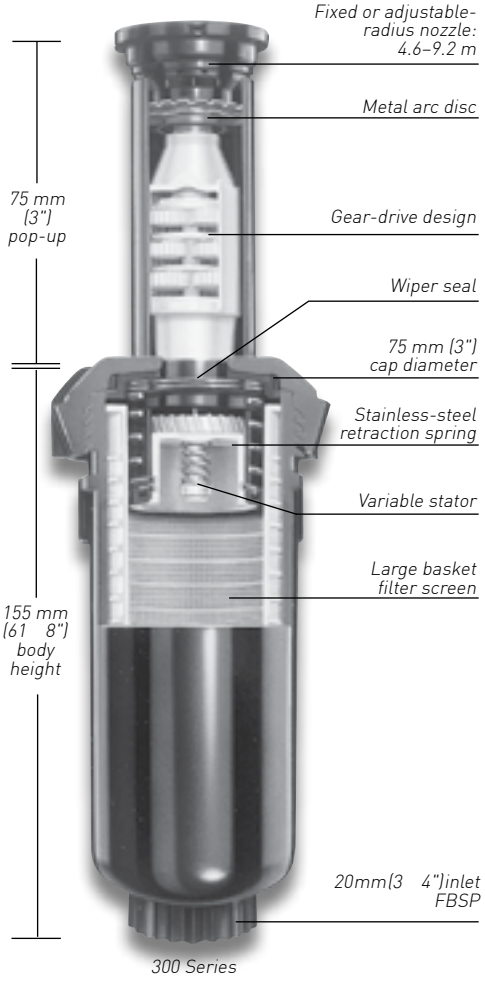
Performance Data 300 Series Fixed-Radius Nozzle—Metric

					360°	270°	225°	202.5°	180°	157.7°	135°	112°	90°
Nozzle	kPa	Radius (m)	Precipitation Rate* ▲	Precipitation Rate* ■	Flow (at Designated Arcs) (Lpm)								
01	250	4.9	25.4	22.0	8.8	6.6	5.5	4.9	4.4	3.9	3.3	2.8	2.2
	350	5.5	25.2	21.8	11.0	8.3	6.9	6.2	5.5	4.8	4.1	3.4	2.8
02	250	6.5	18.2	15.7	11.1	8.3	6.9	6.2	5.5	4.8	4.2	3.5	2.8
	350	7.4	16.4	14.2	13.0	9.8	8.1	7.3	6.5	5.7	4.9	4.1	3.3
03	250	8.6	19.5	16.9	20.9	15.7	13.1	11.7	10.4	9.1	7.8	6.5	5.2
	350	9.2	20.1	17.4	24.6	18.5	15.4	13.8	12.3	10.8	9.2	7.7	6.2
63	250	8.6	9.8	8.5	10.5	7.8	6.5	5.9	5.2	4.6	3.9	3.3	2.6
	350	9.2	10.1	8.7	12.3	9.2	7.7	6.9	6.2	5.4	4.6	3.9	3.9
93	250	8.6	14.7	12.7	15.7	11.7	9.8	8.8	7.8	6.9	5.7	4.9	3.9
	350	9.2	15.1	13.1	18.5	13.9	11.5	10.4	9.2	8.1	6.9	5.8	4.6

Additional Features

- Lawn and 300 mm Pop-up
- Stainless-steel retraction spring
- Wiper seal
- Small surface diameter
- At-grade installation
- 300 mm body has bottom and side inlets
- Locking cap available

Effluent water indicators available | *Shrub* | *Lawn Pop-up* | *High-pop*



MultiStream (300 Series) Ordering Information

Lawn Pop-Up	
300-00-00	75 mm Pop-Up Body Only, without Nozzle and Arc Disc, 20 mm FBSP Inlet
89-7853	Lilac Cap 300 Series Pop-Up
Shrub	
300-10-00	Shrub Rotor Body Only, without Nozzle and Arc Disc, 20 mm FBSP Inlet
300 mm (12") Pop-Up	
300-12-00	300 mm Pop-Up Body Only, without Nozzle and Arc Disc, 20 mm FBSP Inlet
89-7854	Lilac Cap 300 Series High-Pop

Multi-Stream (300 Series) Ordering information

Stream Rotor Arc Discs	
304-00	90° Stainless Steel Arc Disc
305-00	112° Stainless Steel Arc Disc
306-00	135° Stainless Steel Arc Disc
307-00	157° Stainless Steel Arc Disc
308-00	180° Stainless Steel Arc Disc
309-00	202° Stainless Steel Arc Disc
310-00	225° Stainless Steel Arc Disc
312-00	270° Stainless Steel Arc Disc
316-00	360° Stainless Steel Arc Disc

Nozzle Assemblies (Lawn and Shrub Heads)	
300-15	Omni Nozzle, Adjustable Radius, 4.5-10.0 m
300-11	#01 Nozzle Assembly, (Blank I.D. Plug), 4.9-5.5 m
300-12	#02 Nozzle Assembly, (Blank I.D. Plug), 6.5-7.4 m
300-13	#03 Nozzle Assembly, (Blank I.D. Plug), 8.6-9.2 m
300-63-1	#63 Nozzle Assembly, (Blank I.D. Plug), (50% less flow than #03 nozzle), 8.6-9.2 m
300-93-1	#93 Nozzle Assembly, (Blank I.D. Plug), (25% less flow than #03 nozzle), 8.6-9.2 m

Nozzle Assemblies (Hi-Pop Heads)	
300-25	Omni Nozzle, High Pop, Adjustable Radius, 4.5-10.0 m
300-22	#02 Nozzle Assembly, High Pop, (Blank I.D. Plug), 6.5-7.4 m
300-23	#03 Nozzle Assembly, High Pop, (Blank I.D. Plug), 8.6-9.2 m

- Inlet Size: 20 mm (¾")
- Radius: 7.6-15.2 m
- Operating Pressure Range: 170-450 kPa

The Toro® T5 RapidSet® Series Rotor has the features to satisfy all your basic irrigation needs while surprising you with a few extras. The T5 offers an extra inch of pop-up height compared to most competitive units. All lawn models are now available with the optional RapidSet® feature, a quick and easy way to make arc adjustments—with NO TOOLS. For those day-in and day-out installations, the T5 is the only rotor you'll need.

Stream straighteners align the water flow behind the nozzle.

Nozzles
Geometry on the face of the nozzle creates breakup.

Features & Benefits

127 mm (5") Pop-Up

Easily replaces many competitive 100 mm (4') units in the same footprint but delivers an extra inch of pop-up.

Standard Rubber Cover

The top of the sprinkler is covered with a heavy duty rubber cover to minimize impact injuries and reduce liability.

Airfoil™ Technology Nozzles

The T5 RapidSet rotor comes with a full set of 8 standard nozzles (25° trajectory) and 4 low angle (10° trajectory) nozzles that utilise patent pending Airfoil technology, which creates a zone of low pressure just below the main stream to gently guide water downward for unmatched uniformity without forcefully washing out newly-laid seeds.

Optional Check Valve

Available with a hold back strength of 2.1 m of elevation change.

Top Adjust Arc Set

The T5 can be set between a minimum arc set of 40° and a full circle set of 360°. Arc changes are made from the top of the sprinkler while popped up or down by using a small slotted screwdriver.

RapidSet® Arc Adjustment

Easy tool-free arc adjustment, without any risk to over torque and damage the interior of the rotor.

T5 Series Model List

Model	Description
T5P-RS-LN	127 mm (5") Lawn Pop-up
T5PCK-RS-LN	127 mm (5") Lawn Pop-up w/ check valve
T5PE-RS-LN	127 mm (5") Lawn Pop-up, Effluent
T5PSS-RS-LN	127 mm (5") Lawn Pop-up w/ stainless steel riser
T5PCKSS-RS-LN	127 mm (5") Lawn Pop-up w/ stainless steel riser and check valve
T5PCKSSE-RS-LN	127 mm (5") Lawn Pop-up w/ stainless steel riser and check valve, Effluent
T5PSSE-RS-LN	27 mm (5") Lawn Pop-up w/ stainless steel riser, Effluent
T5S-RS	Shrub
T5SE-RS	Shrub, Effluent
T5HP-RS	305 mm (12") High Pop-up
T5HPE-RS	305 mm (12") High Pop-up, Effluent
89-7561	Check valve

Specifications

Dimensions

	Lawn Pop	Shrub	HP
Body Diameter:	57 mm (2¼")	57 mm (2¼")	57 mm (2¼")
Cap Diameter:	67 mm (2 5/8")	N/A	67 mm (2 5/8")
Height:	190 mm (7½")	196 mm (7¾")	429mm(16 7/8")

Operating Specifications

- Radius: 7.6-15.2 m
- Arc Set: 40–360°
- Flow Rate: 2.8-36.5 Lpm
- Operating Pressure Range: 170-450 kPa
- Trajectory: 25° standard, 10° low angle
- Pop-up to nozzle: 127 mm (5")
- Inlet: 20 mm (¾")
- Factory installed with a #3.0 nozzle

Options

- Check valve
- Stainless Steel riser
- Effluent indicator

Warranty

- Five years

T-5 Low Angle Nozzle Performance Data

Nozzle	Pressure kPa	Radius m	Flow m³/hr	Flow Lpm	Precipitation Rate (mm/hr) ■	▲
1.0 LA	170	7,62	0,17	2,8	5,79	6,68
	200	7,99	0,19	3,1	5,84	6,74
	250	8,53	0,22	3,6	5,93	6,84
	300	8,53	0,23	3,8	6,29	7,26
	350	8,71	0,25	4,1	6,52	7,53
	400	8,84	0,27	4,4	6,82	7,88
	450	8,84	0,28	4,7	7,27	8,39
1.5 LA	170	8,23	0,25	4,2	7,38	8,52
	200	8,60	0,27	4,5	7,38	8,52
	250	9,18	0,31	5,2	7,39	8,53
	300	9,40	0,34	5,7	7,68	8,87
	350	9,45	0,38	6,3	8,41	9,71
	400	9,45	0,41	6,8	9,13	10,55
	450	9,45	0,43	7,2	9,67	11,16
2.0 LA	170	8,84	0,32	5,3	8,14	9,40
	200	9,08	0,35	5,8	8,41	9,72
	250	9,49	0,40	6,7	8,89	10,27
	300	9,71	0,45	7,6	9,64	11,14
	350	9,93	0,49	8,2	9,98	11,52
	400	10,06	0,52	8,7	10,37	11,98
	450	10,06	0,56	9,3	11,00	12,70
3.0 LA	170	8,84	0,50	8,3	12,79	14,77
	200	9,33	0,54	8,9	12,32	14,23
	250	10,10	0,60	10,1	11,84	13,67
	300	10,32	0,68	11,3	12,73	14,70
	350	10,71	0,74	12,3	12,87	14,86
	400	10,97	0,79	13,2	13,17	15,21
	450	10,97	0,84	14,0	13,96	16,12

T5 Performance Data

Nozzle	Pressure kPa	Radius m	Flow m³/hr	Flow Lpm	Precipitation Rate (mm/hr) ■	▲
1.5	170	10,06	0,26	4,4	5,16	5,96
	200	10,18	0,28	4,7	5,44	6,29
	250	10,40	0,32	5,3	5,90	6,82
	300	10,62	0,35	5,9	6,27	7,25
	350	10,67	0,38	6,3	6,69	7,73
	400	10,76	0,40	6,7	6,99	8,07
	450	10,97	0,43	7,1	7,09	8,19
2.0	170	10,67	0,33	5,5	5,79	6,68
	200	10,79	0,36	6,0	6,20	7,16
	250	11,01	0,42	7,0	6,89	7,96
	300	11,23	0,47	7,8	7,46	8,62
	350	11,28	0,51	8,4	7,94	9,17
	400	11,28	0,54	9,0	8,52	9,83
	450	11,28	0,59	9,8	9,21	10,64
2.5	170	10,67	0,40	6,6	6,98	8,07
	200	10,79	0,44	7,3	7,53	8,70
	250	11,01	0,51	8,5	8,41	9,71
	300	11,23	0,57	9,5	8,99	10,39
	350	11,28	0,61	10,2	9,62	11,11
	400	11,28	0,65	10,9	10,27	11,86
	450	11,28	0,69	11,5	10,89	12,58
3.0	170	10,97	0,50	8,3	8,30	9,58
	200	11,22	0,54	8,9	8,52	9,84
	250	11,66	0,60	10,1	8,88	10,25
	300	12,10	0,68	11,3	9,25	10,68
	350	12,19	0,75	12,6	10,15	11,72
	400	12,19	0,82	13,6	11,01	12,72
	450	12,19	0,86	14,4	11,61	13,41
4.0	170	11,28	0,67	11,2	10,54	12,17
	200	11,64	0,72	12,1	10,69	12,34
	250	12,27	0,82	13,7	10,92	12,61
	300	12,71	0,91	15,2	11,30	13,04
	350	12,80	0,98	16,3	11,92	13,77
	400	12,89	1,04	17,3	12,49	14,42
	450	13,11	1,10	18,4	12,83	14,81
5.0	170	11,89	0,85	14,2	12,05	13,92
	200	12,13	0,92	15,3	12,50	14,44
	250	12,57	1,04	17,3	13,15	15,18
	300	13,02	1,14	19,0	13,44	15,51
	350	13,46	1,24	20,7	13,73	15,86
	400	13,72	1,33	22,2	14,14	16,33
	450	13,72	1,39	23,1	14,73	17,01
6.0	170	11,89	0,95	15,9	13,50	15,59
	200	12,38	1,04	17,4	13,65	15,76
	250	13,22	1,21	20,1	13,79	15,92
	300	13,88	1,35	22,4	13,96	16,12
	350	14,20	1,45	24,2	14,42	16,65
	400	14,42	1,55	25,9	14,93	17,24
	450	14,63	1,65	27,4	15,39	17,77
8.0	170	10,97	1,31	21,8	21,69	25,05
	200	11,83	1,43	23,8	20,43	23,59
	250	13,26	1,64	27,3	18,65	21,54
	300	14,14	1,80	29,9	17,96	20,74
	350	14,50	1,95	32,4	18,51	21,37
	400	14,81	2,08	34,7	18,99	21,93
	450	15,24	2,20	36,7	18,97	21,91

1. *Precipitation rates based on half-circle operation*
2. ■ *square spacing based on 50% diameter of throw*
3. ▲ *triangular spacing based on 50% diameter of throw*

Perrot LVZA Pop-up Sprinkler

The Perrot LVZA pop-up sprinkler range is an ideal sprinkler for watering medium turf areas. Capable of achieving a throw of up to 14.5 m, the LVZA can be used in larger turf areas, parks and sports grounds. Featuring Perrot's proven impact drive system, the LVZA sprinkler works in a wide variety of water sources.

Features & Benefits

Nozzle with Diffuser Pin

Nozzle with a diffuser pin that can be screwed in or out of the flow path to increase or decrease the sprinklers throw.

Anti Back-Splash Lever Arm

Anti back-splash lever arm ensures that water from the lever arm is directed parallel to the main jet. This will avoid any unwanted overspray especially in part circle applications.

Full Circle & Part Circle

- Each LVZA pop-up sprinkler can be adjusted to a full or part circle arc.
- Part Circle (30-330°) - via arc adjustment springs.
- Full circle (360°) - lift the arc trip lever or remove the arc adjustment stops.

Proven Impact Drive

Perrot impact drive technology ensures an uninterrupted flow path that allows the use of a wide variety of water sources.

Robust Construction

Constructed from brass, stainless steel, engineered plastics and housed in a hot dipped gavanised can, the LVZA has been built to last.

Specifications

Applications

- Medium sized turf areas

Technical Data

- Nozzle Sizes: 4 and 4.5 mm
- Operating Pressure: 250 - 600 kPa
- Radius Range: 12 - 14.5 m
- Flow Rate: 15 - 29.3 Lpm
- Trajectory: 22°
- Inlet: 20 mm (3/4") BSPF

LVZA(FC/PC)

LVZA Performance Data

Operating Pressure	4 mm		4.5 mm	
	Lpm	m	Lpm	m
250 kPa	15.0	12.0	19.0	12.5
300 kPa	16.5	12.5	20.8	13.0
350 kPa	17.7	12.7	22.5	13.5
400 kPa	19.0	13.0	24.0	13.7
450 kPa	20.2	13.3	25.5	14.0
500 kPa	21.2	13.5	26.8	14.2
550 kPa	22.2	13.7	28.2	14.4
600 kPa	23.2	14.0	29.3	14.5

LVZA Ordering Information

RV15943	LVZA FC/PC Pop-up Sprinkler - 4.0 mm Nozzle
RV15945	LVZA FC/PC Pop-up Sprinkler - 4.5 mm Nozzle
RB15696	LVZA Nozzle Only - 4.0 mm
RB15698	LVZA Nozzle Only - 4.5 mm

LVZA Product Details

Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
LVZA Pop-up	20 mm (3/4") BSPF	224 mm	66 mm	250 kPa	190 mm	152 mm

- Inlet Size: 25 mm (1") BSP
- Radius: 14.0-22.9 m
- Operating Pressure Range: 280-700 kPa (40-100 psi)

The Toro® T7 Rotor is built rugged to withstand the harsh conditions and vandalism present in municipal/government, sports fields and commercial rotor applications.

Features & Benefits

Top Arc Indication

Arc setting indicator on top of the rotor allows for easy wet or dry adjustments from 50°-360°.

High Efficiency Nozzles

Single port design ensures water is evenly distributed across the pattern without putting too much water near the head, which prevents seed from washing away.

Vandal and Abuse Resistance

Smart Arc™ memory safely returns sprinkler to previously set arc if vandalized.

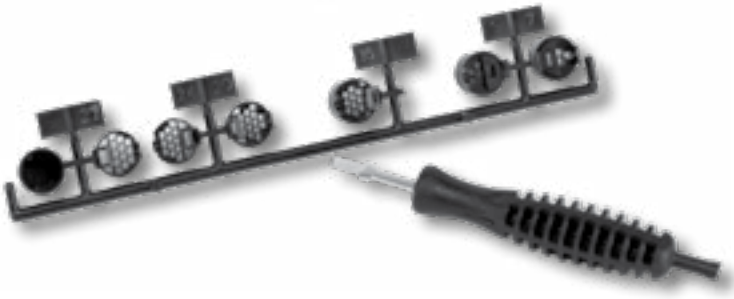
Design Solutions and Safety

Standard check valve to prevent low head drainage. Small exposed diameter reduces possibility of injury on play areas.

Durability

Heavy duty retract spring and water-lubricated gear drive. Wiper seal reduces stick-ups and wiper seal leaks.

T7 Rotor Model List	
Model	**Description**
• T7P-52	25 mm (1") Rotor, BSP
• T7P-52E	25 mm (1") Rotor, Effluent Indicator, BSP
• T7PSS-52	25 mm (1") Stainless Steel Rotor, BSP
• T7PSS-52E	25 mm (1") Stainless Steel Rotor, Effluent Indicator, BSP



Standard rubber cover with arc indicator from 45°-360° simplifies installation and service

Specifications

Dimensions

- Pop-up height to nozzle: 127 mm (5")
- Body height: 220 mm (8¾")
- Rubber cover diameter: 57 mm (2¼")
- Body diameter: 70 mm (2¾")

Operating Specifications

- Precipitation rate: 7.6 - 17.4 mm per hour
- Radius: 14.0 - 22.9 m
- Flow rate: 25-115.8 Lpm
- Operating pressure range: 280-700 kPa
- Inlet size: 25 mm (1") BSP
- Nozzle trajectory: 25°
- Arc adjustment: 50°-360° (unidirectional at 360°)
- Factory installed with #12.0 nozzle

T7 Sports Rotor Nozzle Performance Data - Metric

Nozzle	Pressure (kPa)	Flow Rate (Lpm)	Radius (metres)*	Precip. Rate (mm/hr) ▲*	Precip. Rate (mm/hr) ■*
7.0	280	25.0	14.0	8.8	7.6
	350	28.0	14.3	9.5	8.2
	420	30.7	14.6	9.9	8.6
	490	33.3	14.9	10.3	9.0
	560	35.6	15.5	10.2	8.8
	630	39.0	15.8	10.8	9.3
	690	40.5	16.5	10.4	9.0
9.0	280	28.0	14.3	9.5	8.2
	350	31.4	15.2	9.4	8.1
	420	32.9	15.5	9.4	8.2
	490	35.6	15.8	9.8	8.5
	560	37.5	16.5	9.6	8.3
	630	41.3	16.8	10.2	8.8
	690	43.5	17.1	10.4	9.0
12.0	280	36.0	15.2	10.7	9.3
	350	43.9	15.5	12.6	10.9
	420	48.1	16.2	12.8	11.1
	490	52.2	16.5	13.4	11.6
	560	55.6	16.8	13.7	11.9
	630	59.0	17.1	14.0	12.2
	690	62.5	17.4	14.3	12.4
16.0	280	49.2	16.2	13.1	11.3
	350	57.2	17.1	13.6	11.8
	420	61.3	17.7	13.6	11.8
	490	66.2	18.0	14.2	12.3
	560	71.2	18.6	14.3	12.4
	630	75.7	18.9	14.7	12.7
	690	79.9	19.2	15.0	13.0
20.0	280	60.6	16.2	16.1	13.9
	350	66.2	17.7	14.7	12.7
	420	73.8	18.3	15.3	13.2
	490	78.0	18.6	15.6	13.5
	560	84.0	19.8	14.8	12.8
	630	89.3	20.1	15.3	13.2
	690	93.9	20.4	15.6	13.5
24.0	280	59.8	15.8	16.5	14.3
	350	66.2	18.3	13.7	11.9
	420	73.1	19.2	13.7	11.9
	490	78.3	19.8	13.8	12.0
	560	84.4	20.4	14.0	12.1
	630	90.1	20.7	14.5	12.6
	690	95.8	21.6	14.2	12.3
27.0	280	70.8	16.8	17.5	15.1
	350	88.6	19.8	15.6	13.5
	420	89.3	21.6	13.2	11.4
	490	97.7	21.9	14.0	12.2
	560	103.7	22.3	14.5	12.6
	630	110.1	22.6	15.0	13.0
	690	115.8	22.9	15.4	13.3

Radius shown in meters. Data based on 360°.

Additional Features

- Standard check valve
- Threaded cap-retained riser assembly
- Variable reversing stator
- Nozzle tree: (7, 9, 12, 16, 20, 24 and 27) gpm
- Slip clutch
- Nozzle support/breakup screw
- Riser pull-up feature on top of nozzle base
- Adjustment/pull up tool supplied
- Locking cap screw

Options Available

- Stainless steel riser
- Effluent indicator

Warranty

- Five years

Specifying Information—T7 Sprinkler

T7PXX-XXXX			
Descrip.	**Optional**	**Thread**	**Optional**
T7P	SS	XX	E
T7P—Sports Rotor	SS—Stainless Steel Riser	52—BSP	E—Effluent
Example: A T7P sprinkler with a stainless steel riser and effluent rubber cover would be specified as T7PSS-52E			

- Inlet Size: 25 mm (1") BSP
- Radius: 14.6-20.2 m
- Operating Pressure Range: 300-600 kPa (40-90 psi)

Considered the most durable, heavy-duty commercial sprinkler available, the Toro® 640 Series is the proven veteran for athletic fields, parks, campuses and commercial sites.

Features & Benefits

35 Years of Reliability

Once the 640 Series sprinkler goes in the ground, it stays there. With a stainless steel-encased nozzle assembly and gear drive design.

Normally Open Valve-In-Head Body

Allows individual head control - the only commercial grade Toro rotor available with this feature.

Stainless Steel, Engineering Plastic and Brass Construction

Provide dependable performance in the most demanding environments.

Standard Check Valve

Prevents low-head drainage and keeps laterals charged with water.

The 640 installs below grade for increased player safety.

Specifications

Dimensions

- Body diameter: 63 mm (2½")
- Cap diameter: 81 mm (3¼")
- Body height: - Check-O-Matic – 230 mm (9")
  - Valve-In-head: 267 mm (10½")
- Exposed surface diameter when buried 13 mm (½") below grade: 45 mm (1¾")

Operating Specifications

- Radius: 14.6-20.2 m
- Flow Rate: 23.6-92.8 Lpm
- Operating Pressure Range: 300-600 kPa
- Trajectory: 27°
- Pop-up to nozzle: 60 mm (2 3/8")
- Inlet: 25 mm (1") female-threaded
- Below-grade installation: up to 13 mm (½")
- Check-O-Matic maintains up to 4.6 m elevation change
- Selection of five nozzles and 12 arcs
- Adjustment screw allows up to 25% radius reduction

Additional Features

- Standard rubber cover
- Vandal-resistant cap with locking set screw
- Small exposed surface diameter
- Gear-drive design
- Basket filter screen
- Stainless steel retraction spring

640 Series Sprinklers Performance Data

27° Nozzle	Maximum Height of Spray
Nozzle Apex @ 350 kPa	
40	3.5 m
41	4.2 m
42	4.1 m
Nozzle Apex @ 400 kPa	
43	5.7 m
Nozzle Apex @ 500 kPa	
44	6.0 m

Accessories/Tools Available

- 995-100 - Valve-In-Head Snap Ring Pliers
- 995-08 - Valve Removal Tool
- 995-35 - Valve Insertion Tool
- 35-0579 - #41 Fast Rotation Stator
- 35-1011 - #42/43 Fast Rotation Stator
- Effluent option available

Warranty

- Five years

Ordering Information – 640 Series Components

To order a 640 Drive Assembly, append the model number with one of the following arcs:	To order a 640 Nozzle and Stator, append the model number with one of these nozzle sets:	To order a 640 Nozzle and Stator with effluent marker, append the model number with one of these nozzle sets:
45° 127° 192°	40 41 42	40E 41E 42E
60° 148° 238°	43 44	43E 44E 42E
90° 173° 270°		
108° 180° 360°		
For Example: 640-0108	For Example: 640-41	For Example 640-41E

Specifying Information—640 Series

64X-XX-4X-XXX-E						
X	X	X	X	XXX		E
Arc	**Thread**	**Valve Type**	**Nozzle**	**Special Arc**		**Optional**
0—Special Arc 1—90° 2—180° 3—270° 4—360°	5—BSP Thread	1—Normally Open Valve-In-Head 2—Check-O-Matic	0 1 2 3 4	045° 060° 108° 127°	148° 173° 192° 238°	E—Effluent Model
Example: A 640 Series Sprinkler with a 90° arc, 40 nozzle and a check valve would be specified as: 641-02-40						

Most 640 sprinklers are available in component parts only. Consult Toro Irrigation Price List for a complete list of sprinklers available as finished goods.

640 Series Performance Data

Nozzle	Pressure (kPa)	Flow (Lpm)	Radius (m)	360°		270°		238°		192°		180°		173°	
				▲	■	▲	■	▲	■	▲	■	▲	■	▲	■
40	300	23.6	14.6	7.62	6.60	10.16	8.81	11.53	9.99	14.29	12.38	15.24	13.21	15.86	13.74
	350	25.5	15.3	7.62	6.60	10.16	8.81	11.53	9.99	14.29	12.38	15.24	13.21	15.86	13.74
	400	27.1	15.8	7.52	6.55	10.02	8.74	11.37	9.91	14.10	12.29	15.04	13.11	15.65	13.64
	450	29.2	16.0	8.01	6.74	10.68	8.98	12.11	10.19	15.01	12.63	16.01	13.47	16.66	14.02
	500	30.9	16.2	8.19	6.92	10.92	9.23	12.39	10.47	15.36	12.98	16.38	13.84	17.05	14.40
	550	32.6	16.5	8.38	7.11	11.18	9.48	12.68	10.76	15.72	13.34	16.76	14.22	17.44	14.80
	600	34.7	16.7	8.56	7.29	11.41	9.72	12.95	11.03	16.05	13.67	17.12	14.58	17.81	15.17
41	300	36.9	15.2	11.15	9.72	14.87	12.95	16.87	14.70	20.91	18.22	22.30	19.43	23.20	20.22
	350	38.8	16.2	10.20	8.91	13.60	11.88	15.43	13.48	19.12	16.70	20.40	17.82	21.22	18.54
	400	41.0	16.4	10.57	9.04	14.09	12.06	15.98	13.68	19.81	16.95	21.13	18.08	21.99	18.82
	450	43.6	16.6	11.06	9.53	14.74	12.71	16.72	14.42	20.73	17.87	22.11	19.06	23.01	19.83
	500	46.1	16.8	11.24	9.72	14.99	12.95	17.00	14.70	21.07	18.22	22.48	19.43	23.39	20.22
	550	48.1	17.1	11.43	9.91	15.24	13.21	17.29	14.98	21.43	18.57	22.86	19.81	23.78	20.61
	600	49.9	17.3	11.61	10.08	15.48	13.45	17.56	15.25	21.76	18.91	23.22	20.17	24.15	20.98
42	300	46.6	16.2	12.27	10.74	16.36	14.33	18.56	16.25	23.00	20.15	24.54	21.49	25.53	22.36
	350	49.1	16.8	12.00	10.45	15.99	13.94	18.14	15.81	22.49	19.60	23.99	20.90	24.96	21.75
	400	52.5	17.0	12.70	10.87	16.93	14.49	19.21	16.44	23.81	20.38	25.40	21.74	26.43	22.62
	450	53.7	17.2	12.46	11.06	16.61	14.74	18.85	16.72	23.36	20.73	24.92	22.11	25.93	23.01
	500	57.0	17.7	12.45	11.18	16.59	14.90	18.83	16.90	23.34	20.96	24.89	22.35	25.90	23.26
	550	59.8	17.7	13.21	11.43	17.61	15.24	19.98	17.29	24.77	21.43	26.42	22.86	27.48	23.78
	600	62.5	17.7	13.92	11.96	18.56	15.95	21.05	18.10	26.10	22.43	27.84	23.93	28.96	24.89
43	300	51.7	17.4	11.85	10.33	15.80	13.77	17.92	15.62	22.22	19.36	23.70	20.65	24.66	21.49
	350	55.2	18.0	11.76	10.22	15.68	13.62	17.79	15.45	22.05	19.16	23.52	20.43	24.47	21.26
	400	58.4	17.9	12.65	10.87	16.87	14.49	19.13	16.44	23.72	20.38	25.30	21.74	26.32	22.62
	450	62.0	18.3	12.95	11.18	17.27	14.90	19.59	16.90	24.29	20.96	25.91	22.35	26.96	23.26
	500	66.2	19.0	12.57	11.18	16.76	14.90	19.02	16.90	23.57	20.96	25.15	22.35	26.16	23.26
	550	69.3	19.2	12.95	11.18	17.27	14.90	19.59	16.90	24.29	20.96	25.91	22.35	26.96	23.26
	600	72.2	19.4	13.31	11.53	17.75	15.38	20.13	17.44	24.96	21.62	26.62	23.06	27.70	24.00
44	300	65.7	17.3	15.14	13.20	20.18	17.59	22.90	19.96	28.38	24.74	30.28	26.39	31.50	27.46
	350	70.8	18.3	14.52	12.74	19.35	16.98	21.96	19.27	27.22	23.88	29.03	25.48	30.21	26.51
	400	73.8	18.5	14.88	13.16	19.85	17.54	22.51	19.90	27.91	24.67	29.77	26.31	30.97	27.38
	450	80.2	18.9	15.37	13.46	20.50	17.95	23.25	20.36	28.83	25.24	30.75	26.92	31.99	28.01
	500	84.0	19.4	15.75	13.46	21.00	17.95	23.82	20.36	29.53	25.24	31.50	26.92	32.77	28.01
	550	88.6	19.8	15.75	13.46	21.00	17.95	23.82	20.36	29.53	25.24	31.50	26.92	32.77	28.01
	600	92.8	20.2	15.75	13.64	21.00	18.19	23.82	20.63	29.53	25.57	31.50	27.28	32.77	28.38

Nozzle	Pressure (kPa)	Flow (Lpm)	Radius (m)	148°		127°		108°		90°		60°		45°	
				▲	■	▲	■	▲	■	▲	■	▲	■	▲	■
40	300	23.6	14.6	18.54	16.06	21.60	18.72	25.40	22.01	30.48	26.42	45.72	39.62	60.96	52.83
	350	25.5	15.3	18.54	16.06	21.60	18.72	25.40	22.01	30.48	26.42	45.72	39.62	60.96	52.83
	400	27.1	15.8	18.29	15.94	21.31	18.58	25.06	21.84	30.07	26.21	45.11	39.32	60.15	52.43
	450	29.2	16.0	19.48	16.39	22.70	19.10	26.69	22.46	32.03	26.95	48.04	40.42	64.06	53.90
	500	30.9	16.2	19.93	16.84	23.22	19.62	27.31	23.07	32.77	27.69	49.15	41.53	65.53	55.37
	550	32.6	16.5	20.39	17.30	23.76	20.16	27.94	23.71	33.53	28.45	50.29	42.67	67.06	56.90
	600	34.7	16.7	20.82	17.73	24.26	20.66	28.53	24.30	34.24	29.16	51.36	43.74	68.48	58.32
41	300	36.9	15.2	27.12	23.63	31.61	27.54	37.17	32.39	44.60	38.86	66.90	58.29	89.20	77.72
	350	38.8	16.2	24.81	21.67	28.91	25.25	33.99	29.70	40.79	35.64	61.19	53.45	81.58	71.27
	400	41.0	16.4	25.70	22.00	29.95	25.63	35.22	30.14	42.27	36.17	63.40	54.25	84.53	72.34
	450	43.6	16.6	26.89	23.18	31.34	27.02	36.85	31.77	44.22	38.13	66.33	57.19	88.44	76.25
	500	46.1	16.8	27.34	23.63	31.86	27.54	37.47	32.39	44.96	38.86	67.44	58.29	89.92	77.72
	550	48.1	17.1	27.80	24.10	32.40	28.08	38.10	33.02	45.72	39.62	68.58	59.44	91.44	79.25
	600	49.9	17.3	28.24	24.53	32.90	28.58	38.69	33.61	46.43	40.34	69.65	60.50	92.86	80.67
42	300	46.6	16.2	29.84	26.13	34.78	30.46	40.89	35.81	49.07	42.98	73.61	64.47	98.15	85.95
	350	49.1	16.8	29.18	25.42	34.00	29.63	39.98	34.84	47.98	41.81	71.97	62.71	95.96	83.62
	400	52.5	17.0	30.89	26.44	36.00	30.82	42.33	36.24	50.80	43.48	76.20	65.23	101.60	86.97
	450	53.7	17.2	30.30	26.89	35.32	31.34	41.53	36.85	49.83	44.22	74.75	66.33	99.67	88.44
	500	57.0	17.7	30.27	27.18	35.28	31.68	41.49	37.25	49.78	44.70	74.68	67.06	99.57	89.41
	550	59.8	17.7	32.13	27.80	37.44	32.40	44.03	38.10	52.83	45.72	79.25	68.58	105.66	91.44
	600	62.5	17.7	33.86	29.10	39.46	33.91	46.40	39.88	55.68	47.85	83.52	71.78	111.35	95.71
43	300	51.7	17.4	28.82	25.12	33.59	29.27	39.50	34.42	47.40	41.30	71.09	61.95	94.79	82.60
	350	55.2	18.0	28.61	24.85	33.34	28.96	39.20	34.06	47.04	40.87	70.56	61.30	94.08	81.74
	400	58.4	17.9	30.77	26.44	35.86	30.82	42.16	36.24	50.60	43.48	75.90	65.23	101.19	86.97
	450	62.0	18.3	31.51	27.18	36.72	31.68	43.18	37.25	51.82	44.70	77.72	67.06	103.63	89.41
	500	66.2	19.0	30.58	27.18	35.64	31.68	41.91	37.25	50.29	44.70	75.44	67.06	100.58	89.41
	550	69.3	19.2	31.51	27.18	36.72	31.68	43.18	37.25	51.82	44.70	77.72	67.06	103.63	89.41
	600	72.2	19.4	32.37	28.05	37.73	32.69	44.37	38.44	53.24	46.13	79.86	69.19	106.48	92.25
44	300	65.7	17.3	36.82	32.10	42.91	37.40	50.46	43.98	60.55	52.78	90.83	79.17	121.11	105.56
	350	70.8	18.3	35.31	30.98	41.15	36.11	48.39	42.46	58.06	50.95	87.10	76.43	116.13	101.90
	400	73.8	18.5	36.21	32.00	42.19	37.30	49.61	43.86	59.54	52.63	89.31	78.94	119.08	105.26
	450	80.2	18.9	37.39	32.75	43.58	38.16	51.24	44.87	61.49	53.85	92.24	80.77	122.99	107.70
	500	84.0	19.4	38.31	32.75	44.64	38.16	52.49	44.87	62.99	53.85	94.49	80.77	125.98	107.70
	550	88.6	19.8	38.31	32.75	44.64	38.16	52.49	44.87	62.99	53.85	94.49	80.77	125.98	107.70
	600	92.8	20.2	38.31	33.18	44.64	38.66	52.49	45.47	62.99	54.56	94.49	81.84	125.98	109.12

Precipitation Rate Data in mm/hr

** ▲ Precipitation rates are for triangular spacing, shown in millimeters per hour, calculated at 50% of diameter.*

** ■ Precipitation rates are for square spacing, shown in millimeters per hour, calculated at 50% of diameter.*

All performance specifications are based on the stated working pressure available at the base of the sprinkler.

Radius shown in meters. Data based on 360°.

Note: For the 640, differing arcs cannot be valved together.

Perrot LVZE Pop-up Sprinkler

The Perrot LVZE pop-up sprinkler range is an ideal sprinkler for watering large turf areas. Capable of achieving a throw of up to 21.6 m, the LVZE can be used in larger turf areas, parks and sports grounds. Featuring Perrot's proven impact drive system, the LVZE sprinkler works in a wide variety of water sources.

Features & Benefits

Nozzle with Diffuser Pin

Nozzle with a diffuser pin that can be screwed in or out of the flow path to increase or decrease the sprinklers throw.

Top-Serviceable

Maintenance on the sprinkler can be performed from the top of the sprinkler without the need for digging.

Anti Back-Splash Lever Arm

Anti back-splash lever arm ensures that water from the lever arm is directed parallel to the main jet. This will avoid any unwanted overspray especially in part circle applications.

Full Circle (K) & Part Circle (W)

LVZE is available in full and full/part circle models.

Full Circle (K) - factory pre-set 360° arc

Part Circle (W): 30 - 330° - via arc adjustment springs
360° - lift the trip lever

Proven Impact Drive

Perrot Impact drive technology ensures an uninterrupted flow path that allows the use of a wide variety of water sources.

Robust Construction

Constructed from brass, stainless steel, engineered plastics and housed in a hot dipped gavanised can, the LVZE has been built to last.

Specifications

Applications

- Medium to large sized turf areas

Technical Data

- Nozzle Sizes: 4.8, 5.2, 6, 7 and 8 mm
- Operating Pressure: 300 - 700 kPa
- Radius Range: 15.1 - 21.6 m
- Flow Rate: 40 - 135 Lpm
- Trajectory: 22°
- Inlet: 25 mm (1") BSP

LVZE K (FC)

LVZE W (FC/PC)

LVZE (K) Full Circle Performance Data										
Operating Pressure	4.8 mm		5.2 mm		6.0 mm		7.0 mm		8.0 mm	
	Lpm	m	Lpm	m	Lpm	m	Lpm	m	Lpm	m
300 kPa	50.0	15.1	53.3	15.7	60.0	16.2	76.7	16.7	88.3	17.3
400 kPa	56.7	15.8	61.7	16.5	70.0	17.1	88.3	17.7	101.7	18.4
500 kPa	63.3	16.5	68.3	17.3	78.3	18.0	98.3	18.7	113.3	19.5
600 kPa	70.0	17.2	75.0	18.1	85.0	18.9	108.3	19.7	125.0	20.6
700 kPa	75.0	17.7	81.7	18.8	91.7	19.7	116.7	20.6	135.0	21.6

LVZE (W) Full/Part Circle Performance Data										
Operating Pressure	4.8 mm		5.2 mm		6.0 mm		7.0 mm		8.0 mm	
	Lpm	m	Lpm	m	Lpm	m	Lpm	m	Lpm	m
300 kPa	40.0	15.1	43.3	15.7	51.7	16.2	66.7	16.2	78.3	17.3
400 kPa	46.7	15.8	51.7	16.5	58.3	17.1	76.7	17.7	90.0	18.4
500 kPa	51.7	16.5	56.7	17.3	66.7	18.0	86.7	18.7	101.7	19.5
600 kPa	56.7	17.2	63.3	18.1	71.1	18.9	95.0	19.7	111.7	20.6
700 kPa	61.7	17.7	68.3	18.8	78.3	19.7	101.7	20.6	120.0	21.6

LVZE Product Details						
Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
LVZE Pop-up	25 mm (1") BSP	284 mm	79 mm	300 kPa	190 mm	152 mm

LVZE Ordering Information	
RV16746	LVZE FC Impact Pop-up Sprinkler - 4.8 mm Nozzle
RV16747	LVZE FC Impact Pop-up Sprinkler - 5.2 mm Nozzle
RV16748	LVZE FC Impact Pop-up Sprinkler - 6.0 mm Nozzle
RV16749	LVZE FC Impact Pop-up Sprinkler - 7.0 mm Nozzle
RV16750	LVZE FC Impact Pop-up Sprinkler - 8.0 mm Nozzle
RV17311	LVZE FC/PC Impact Pop-up Sprinkler - 4.8 mm Nozzle
RV17312	LVZE FC/PC Impact Pop-up Sprinkler - 5.2 mm Nozzle
RV17313	LVZE FC/PC Impact Pop-up Sprinkler - 6.0 mm Nozzle
RV17314	LVZE FC/PC Impact Pop-up Sprinkler - 7.0 mm Nozzle
RV17315	LVZE FC/PC Impact Pop-up Sprinkler - 8.0 mm Nozzle
RT28759	LVZE Nozzle Only - 4.2 mm Nozzle
RT28761	LVZE Nozzle Only - 4.8 mm Nozzle
RT28763	LVZE Nozzle Only - 5.2 mm Nozzle
RT28764	LVZE Nozzle Only - 6.0 mm Nozzle
RT28765	LVZE Nozzle Only - 7.0 mm Nozzle
RT28766	LVZE Nozzle Only - 8.0 mm Nozzle

Perrot HYDRA-2-S VAC Pop-up Sprinkler

The Perrot HYDRA-2-S VAC gear drive pop-up sprinkler is an ideal choice for the irrigation of large turf areas like sports fields and parklands. Capable of achieving a throw of up to 25 m and a flow rate range of 41 - 165 Lpm the HYDRA-2-S is ideal for all larger turf projects. The HYDRA-2-S is supplied with a 24 VAC Valve-In-Head body. The valve is incorporated into the sprinkler body and is easily accessed from the top of the sprinkler.

Features & Benefits

Innovative Nozzle Technology

The unique nozzle design minimizes water turbulence, which results in a longer throw, reduced flows and high uniformity. Nozzles are available in 4, 5, 6, 7, 8 and 9 mm sizes. Nozzles are easily removed / replaced.

Easy Arc Adjustment

- HYDRA-2-S is available in a preset full circle (360°) and adjustable arc model (30-330°). Adjustable arc model is adjustable from both arc stops:
- Left hand arc - up to 90°
- Right hand arc - 30° to 330°

Fast Rotation Speed

Rotation speed for 360° arc in 60 - 130 seconds.

Closed Case Rotor

Designed for maximum efficiency and durability.

VAC Valve-In-Head

The Perrot HYDRA-2-S sprinkler is available with a built-in 24 VAC electric Valve-in-Head body. This allows ON/OFF/Auto control at the rotor and provides individual management of each rotor to ensure that they perform at their highest level of efficiency.

Top Serviceable

All parts including the solenoid can be serviced from the top of the sprinkler without the need for digging.

Specifications

Applications

- Sports fields and parklands

Technical Data

- Nozzle Sizes: 4, 5, 6, 7, 8 & 9 mm
- Operating Pressure: 400 - 700 kPa
- Radius Range: 14.5 - 25 m
- Flow Rate: 41 - 165 Lpm
- Rotation Time: 60 - 130 Sec/360°
- Trajectory: 25°
- Inlet: 25mm (1") BSP

Perrot HYDRA-2-S VAC Pop-up Sprinkler cont.

HYDRA-2-S Performance Data												
Operating Pressure	Nozzle 4 mm		Nozzle 5 mm		Nozzle 6 mm		Nozzle 7 mm		Nozzle 8 mm		Nozzle 9 mm	
	Lpm	m	Lpm	m	Lpm	m	Lpm	m	Lpm	m	Lpm	m
400 kPa	41.7	14.5	53.3	16.0	68.3	16.5	85.0	18.0	103.3	20.0	125.0	21.0
500 kPa	46.7	15.5	60.0	17.0	76.7	18.0	95.0	19.5	115.0	21.5	138.3	22.5
600 kPa	50.0	16.5	65.0	18.0	83.3	19.5	103.3	21.0	126.7	23.0	151.7	24.0
700 kPa	55.0	17.0	71.7	18.5	90.0	20.5	111.7	22.0	136.7	24.0	165.0	25.0

HYDRA-S Product Details						
Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
HYDRA-2-S VAC	25 mm (1") BSP	344 mm	80 mm	350 kPa	162 mm	60 mm

HYDRA-2-S	Description
RV13830	HYDRA-2-S FC/PC 4,0MM
RV13831	HYDRA-2-S FC/PC 5,0MM
RV13832	HYDRA-2-S FC/PC 6,0MM
RV13833	HYDRA-2-S FC/PC 7,0MM
RV13834	HYDRA-2-S FC/PC 8,0MM
RV13835	HYDRA-2-S FC/PC 9,0MM
RV13821	HYDRA-2-S PC 4,0MM
RV13822	HYDRA-2-S PC 5,0MM
RV13823	HYDRA-2-S PC 6,0MM
RV13824	HYDRA-2-S PC 7,0MM
RV13825	HYDRA-2-S PC 8,0MM
RV13826	HYDRA-2-S PC 9,0MM
RV13870	HYDRA-2-PC VAC 4,0 MM
RV13871	HYDRA-2-PC VAC 5,0 MM
RV13872	HYDRA-2-PC VAC 6,0 MM
RV13873	HYDRA-2-PC VAC 7,0 MM
RV13874	HYDRA-2-PC VAC 8,0 MM
RV13875	HYDRA-2-PC VAC 9,0 MM
RV13876	HYDRA-2-S FC/PC VAC 4.0 MM
RV13877	HYDRA-2-S FC/PC VAC 5.0 MM
RV13878	HYDRA-2-S FC/PC VAC 6.0 MM
RV13879	HYDRA-2-S FC/PC VAC 7.0 MM
RV13880	HYDRA-2-S FC/PC VAC 8.0 MM
RV13881	HYDRA-2-S FC/PC VAC 9.0 MM

- Inlet Size: 25 mm (1") BSP
- Radius: 16.2-29.0 m
- Operating Pressure Range: 280-700 kPa

For big open spaces, the Toro TS90 provides unparalleled features and performance into a single fully adjustable rotor.

Features & Benefits

Trujectory Adjustment from 7° to 30°

Fine tunes nozzle spray height, helps provide true head-to-head coverage, and compensates for windy conditions.

Part- And Full-Circle In One Sprinkler

No need to inventory multiple models or service parts.

Back Nozzle Capable

Perfect for perimeter of sports fields. Provides the flexibility for fine-tuning any watering requirement.

Ratcheting Riser

Allows you to adjust the riser position in the body with no disassembly. Simply pull up the riser and ratchet it to the precise position you want to water.

Three Nozzle Configuration

Provides better distribution uniformity, nozzle flexibility and system efficiency.

Constant-Velocity Drive

Provides reliable rotation speed – from sprinkler to sprinkler.

Specifications

Dimensions

- Body Height: 216 mm (8½”)
- Pop-Up Height: 100 mm (4”)
- Exposed Cap Diameter: 57 mm (2¼”)

Operating Specifications

- Radius: 16.2-29.0 m at 25° trajectory
- Flow Rate: 52.9-232.8 Lpm
- Precipitation Rate: 14.2-15.2 mm/hr
- Arc: Full- & Part-circle in one
  - Full-circle: 360° unidirectional clockwise rotation
  - Part-circle: 40°-330°
- Rotation Speed: 3 minutes ± 30 seconds
- Inlet: 25 mm (1”) female-threaded (BSP)
- Operating pressure range: 280-700 kPa (40-100 psi)
- Factory installed with #4 nozzle

Additional Features

- Full set of color-coded nozzles that thread directly into the front.
- Rubber cover and below grade installation
- Check Valve standard – maintains up to 3 m (10’) elevation
- Nozzle options: 9 main, 3 intermediate, 1 inner

Options Available

- Effluent Indicator available: part number 118-0063
- Main Nozzle Tool: 16 mm (5/8”) hex socket or Toro Part 995-99
- Intermediate and Trajectory tool: 8 mm (5 16”) hex socket or Toro Part 995-105

Warranty

- Five years

TS90 Series Model List

Model	Description
TS90TP-52	25 mm BSPF, Nozzles 1-9 included.

TS90 Peformance Data

Nozzle Set Number	Main/ Intermediate	340 kPa				410 kPa				480 kPa				550 kPa				620 kPa				690 kPa			
		Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■	Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■	Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■	Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■	Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■	Radius (m)	Flow (Lpm)	Prec. Rate* (mm/hr) ▲	■
1	Yellow/Blue	16.2	53	14	12	16.5	58	15	13	16.8	62	15	13	16.8	66	16	14	16.5	70	18	15	17.1	74	17	15
1	Blue/ Orange	16.8	71	17	15	18.0	77	17	14	18.6	84	17	15	18.0	89	19	17	18.0	95	20	18	18.9	99	19	17
3	Brown/ Orange					17.4	86	20	17	18.3	93	19	17	18.6	99	20	17	19.2	105	20	17	20.7	110	18	15
4	Orange/ Orange									22.6	124	17	15	24.4	133	15	13	24.7	140	16	14	25.0	147	16	14
5	Green/Blue													24.1	143	17	15	25.0	151	17	14	25.6	158	17	14
6	Grey/Blue													25.0	150	17	14	26.2	159	16	14	26.5	167	16	14
7	Black/ Orange													24.4	165	19	17	26.5	175	17	15	25.6	184	19	17
8	Red/Blue													26.2	184	18	16	26.8	195	19	16	26.8	205	20	17
9	Beige/Blue													25.9	208	21	19	27.7	221	20	17	29.0	233	19	17

Perrot HYDRA-2-M VAC Pop-up Sprinkler

The Perrot HYDRA-2-M VAC gear drive pop-up sprinkler is an ideal choice for the irrigation of large turf areas like sports fields and parklands. Capable of achieving a throw of up to 31.5 m and a flow rate range of 70 - 190 Lpm, the HYDRA-2-M is ideal for all large turf projects. The HYDRA-2-M is supplied with a 24 VAC Valve-In-Head body. The valve is incorporated into the sprinkler body and is easily accessed from the top of the sprinkler.

Features & Benefits

Innovative Nozzle Technology

The unique nozzle design minimizes water turbulence, which results in longer throw, reduced flows and high uniformity. Nozzles are available in 7, 8, 9, 10 and 11 mm sizes. Nozzles are easily removed /replaced.

Easy Arc Adjustment

- HYDRA-2-M is available in a preset Full circle (360°) and Adjustable arc model (30-330°). Adjustable arc model is adjustable from both arc stops:
- Left hand arc - up to 90°
- Right hand arc - 30 to 330°

Fast Rotation Speed

Rotation Speed for 360° arc in 130 - 280 seconds.

Closed Case Rotor

Designed for maximum efficiency and durability.

VAC Valve-In-Head

The Perrot HYDRA-2-M sprinkler is available with a built-in 24 VAC electric Valve-in-Head body. This allows ON/OFF/Auto control at the rotor and provides individual management of each rotor to ensure that they perform at their highest level of efficiency.

Top Serviceable

All parts including the solenoid can be serviced from the top of the sprinkler without the need for digging.

Specifications

Applications

- Sports fields and Parklands

Technical Data

- Nozzle Sizes: 7, 8, 9, 10 and 11 mm
- Operating Pressure: 400 - 700 kPa
- Radius Range: 20 - 31.5 m
- Flow Rate: 70 - 190 Lpm
- Trajectory: 25°
- Inlet: 40 mm (1½") BSP

HYDRA-2-M Performance Data										
Operating Pressure	Nozzle 7 mm		Nozzle 8 mm		Nozzle 9mm		Nozzle 10 mm		Nozzle 11 mm	
	Lpm	m	Lpm	m	Lpm	m	Lpm	m	Lpm	m
400 kPa	70.0	20.0	90.0	22.0	105.0	23.5	125.0	24.0	143.0	25.0
500 kPa	80.0	22.0	100.0	24.0	118.0	25.5	140.0	27.0	162.0	28.0
600 kPa	87.0	24.0	108.0	26.0	130.0	27.5	153.0	29.0	177.0	30.0
700 kPa	93.0	25.0	117.0	27.0	142.0	28.5	167.0	30.0	190.0	31.5

HYDRA-2-M Product Details						
Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
HYDRA-M VAC	40 mm (1½") BSP	350 mm	80 mm	350 kPa	172 mm	65 mm

HYDRA-2-M	Description
RV13747	HYDRA-2-M FC SVAC 7 mm
RV13748	HYDRA-2-M FC SVAC 8 mm
RV13749	HYDRA-2-M FC SVAC 9 mm
RV13750	HYDRA-2-M FC SVAC 10 mm
RV13751	HYDRA-2-M FC SVAC 11 mm
RV13707	HYDRA-2-M FC/PC SVAC 7 mm
RV13708	HYDRA-2-M FC/PC SVAC 8 mm
RV13709	HYDRA-2-M FC/PC SVAC 9 mm
RV13710	HYDRA-2-M FC/PC SVAC 10 mm
RV13711	HYDRA-2-M FC/PC SVAC 11 mm

Perrot TRITON-L Pop-up Sprinkler

The Perrot TRITON-L pop-up sprinkler is an ideal sprinkler for watering large turf areas. Capable of achieving a throw of up to 32 m, the TRITON-L can be used in larger turf areas, parks and sports grounds. Featuring Perrot's proven impact drive system, the TRITON-L sprinkler works in a wide variety of water sources.

TRITON-L K (FC)

TRITON-L W (FC/PC)

Features & Benefits

Top Serviceable

Maintenance on the sprinkler can be performed from the top of the sprinkler without the need for digging. Triton-L has a 'tool free' easy to remove lid that provides easy sprinkler access.

Full Circle (K) & Part Circle (W)

Triton-L is available in full and full/part circle models.

Full Circle (K) - factory pre-set 360° arc

Part Circle (W): 30 - 330° - via arc adjustment springs
360° - lift the trip lever

Proven Impact Drive

Perrot impact drive technology ensures an uninterrupted flow path that allows the use of a wide variety of water sources.

Robust Construction

Constructed from brass, stainless steel, engineered plastics and housed in a hot dipped galvanised can, the Triton-L has been built to last.

Fast Sprinkler Rotation Speed

360° arc in under 1 minute.

Specifications

Applications

- Sports grounds and parklands

Technical Data

- Nozzle Sizes: 9, 11 & 13 mm
- Operating Pressure: 300 - 800 kPa
- Radius Range: 20.0 - 32.0 m
- Flow Rate: 113 - 330 Lpm
- Trajectory: 22°
- Inlet: 40 mm (1½") BSP

TRITON-L (K) Full Circle Performance Data*						
Operating Pressure	9 mm		11 mm		13 mm	
	Lpm	m	Lpm	m	Lpm	m
300 kPa	130.0	20.0	163.3	21.0	203.3	22.0
400 kPa	148.3	21.2	188.3	23.0	233.3	25.0
500 kPa	166.7	22.4	210.0	24.8	261.7	27.5
600 kPa	183.3	23.6	231.7	26.6	286.7	29.0
700 kPa	196.7	24.7	248.3	27.9	308.3	30.5
800 kPa	211.7	25.7	266.7	29.1	330.0	32.0

**Full Circle Sprinkler is supplied with 3 nozzles fitted*

TRITON-L (W) Full/Part Circle Performance Data						
Operating Pressure	9 mm		11 mm		13 mm	
	Lpm	m	Lpm	m	Lpm	m
300 kPa	113.3	20.0	146.7	21.0	186.7	22.0
400 kPa	130.0	21.0	170.0	23.0	215.0	25.0
500 kPa	145.0	22.4	188.3	24.8	240.0	27.5
600 kPa	158.3	23.6	206.7	26.6	261.7	29.0
700 kPa	170.0	24.7	221.7	27.9	281.7	30.5
800 kPa	181.7	25.7	236.7	29.1	315.0	32.0

TRITON-L Product Details						
Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
TRITON-L Pop-up	40 mm (1½") BSPF	377 mm	107 mm	300 kPa	247 mm	181 mm

TRITON-L Ordering Information	
RV19876	TRITON-L FC Impact Pop-up Sprinkler - 9.0 mm Nozzle
RV19878	TRITON-L FC Impact Pop-up Sprinkler - 11.0 mm Nozzle
RV19880	TRITON-L FC Impact Pop-up Sprinkler - 13.0 mm Nozzle
RV19888	TRITON-L FC/PC Impact Pop-up Sprinkler - 9.0 mm Nozzle
RV19890	TRITON-L FC/PC Impact Pop-up Sprinkler - 11.0 mm Nozzle
RV19892	TRITON-L FC/PC Impact Pop-up Sprinkler - 13.0 mm Nozzle
RT17465	TRITON-L Nozzle Only - 9.0 mm
RT17467	TRITON-L Nozzle Only - 11.0 mm
RT17469	TRITON-L Nozzle Only - 13.0 mm
RT17551	TRITON-L Nozzle Only - 5.0 mm

- Inlet Size: 40 mm (1½")
- Radius: 26.5-33.0 m
- Operating Pressure Range: 550-1000 kPa (80-150 psi)

For nearly 40 years the 690 series has set the standard for durability and reliability in commercial applications. Extremely rugged, the 690 Series is constructed of brass, stainless steel and engineering plastics for unmatched performance in the most demanding environments.

Features & Benefits

Artificial Playing Surfaces
Radius and flow capabilities are perfect for cooling and rinsing artificial playing surfaces such as football fields.

Electric Valve In Head Models
Provide individual head control that ensures run times can match differing soil, turf and terrain watering requirements, pressure regulation to ensure all nozzles perform at the same pressure and manual ON-OFF-auto control at the head.

Fixed Arc Drives
Nine fixed arc drive assemblies ensure positive retention of the coverage area with no arc drift.

Balanced Application Rate
Used in single or double row applications these sprinklers operate at a slower speed over the non-overlap area and a faster speed over the overlapped areas to provide a balanced application rate.

Specifications

Dimensions
- Body diameter: 254 mm (10")
- Body height: 405 mm (16")

Operating Specifications
- Radius: 26.5-33.0 m
- Flow Rate: 193.0-311.0 Lpm
- Operating Pressure Range: 550-1000 kPa (80-150 psi)
- Pop-up height to nozzle: 20 mm (¾")
- Inlet: 40 mm (1½") NPT
- Check-O-Matic: Maintains 11.2 m (37') of elevation
- Electric Valve-in-head Solenoid: 24V ac or 12VDC
- All internal components serviceable from the top

Warranty
- Three years

690 Series Model List	
Model	**Description**
691	90° Part-circle sprinkler
692	180° Part-circle sprinkler
694	Full-circle sprinkler
696	2-speed (60°-120°) sprinkler
698	2-speed (180°-180°) sprinkler

690 Series Performance Data—Metric

Base Pressure			Nozzle Set 90				Nozzle Set 91				Nozzle Set 92			
Bar	kPa	Kg/cm²	Rad.	Lpm	Prec. Rate*| ▲	■	Rad.	Lpm	Prec. Rate*| ▲	■	Rad.	Lpm	Prec. Rate*| ▲	■
5.5	550	5.61	26.5	193	19.0	16.5	29.3	232	18.7	16.2	30.5	280	20.8	18.0
6.9	690	7.04	27.4	216	19.9	17.2	30.5	278	20.7	17.9	32.9	311	19.9	17.2

Specifying Information—690

69X-0X-XX-X				
Arc			**Valve-In-Head Type**	**Nozzle**	**Pressure Regulation***
69X			**0X**	**XX**	**X**
1—90° 2—180°	4—Full-circle 6—Full-circle, 2-speed (60°–120°) 8—Full-circle, 2-speed (180°–180°)	A—150° B—165° C—195° D—210°	1—Normally Open Hydraulic 2—Check-O-Matic 6—Electric	90 91 92	8—80 psi 1—100 psi
Example: When specifying a 690 Series Sprinkler with a 180° arc, electric valve-in-head, #91 nozzle, and pressure regulation at 550 kPa (80 psi), you would specify: **692-06-918**					

*Electric models only. Note: not all configurations available, refer to the Toro Irrigation pricelist for a complete list of available models.

Perrot VP3 Pop-up Sprinkler

The Perrot VP3 Piston Drive long radius rotor is the irrigation solution of choice for the cooling and washing down of large synthetic turf fields. Capable of achieving a throw of up to 54 m, the VP3 can be installed along the outer perimeter of the playing surface, which helps preserve player safety and maintain field aesthetics.

VP3

VP3 VAC

Features & Benefits

Innovative Nozzle Technology

The unique nozzle design minimizes water turbulence, which helps to maintain stream exit speed at the nozzle outlet. This results in longer throw, reduced flows and high distribution uniformity. Nozzles are available in 16, 20 and 24 mm sizes.

Low Maintenance Piston Drive

A fully enclosed piston drive system presents a smooth, continuous rotation.

Reduced Watering Time

A combination of high flows and fast (adjustable) rotation speeds allows for quick cooling of synthetic sports fields. Rotation speeds of 50 - 120 seconds for a 180° arc.

Integrated Valve-In-Head

The Perrot VP3 sprinkler is also available with a built-in 24 VAC electric Valve-In-Head option. The VP3 VAC features ON/OFF/ Auto control at the rotor and provides individual management of each rotor to ensure they perform at their highest level of efficiency.

Top Serviceable

All parts including the solenoid can be serviced from the top of the sprinkler without the need for digging.

Specifications

Applications

- Sports fields with synthetic turf, hockey pitches, racetracks

Technical Data

- Nozzle Sizes: 16, 20, 24 mm
- Operating Pressure: 400 - 800 kPa
- Radius Range: 34 - 54 m
- Flow Range: 432 - 1148 Lpm
- Rotation Time 180°: from min. 50 to max. 120 sec at 400-800 kPa
- Trajectory: 25°
- Inlet: 50mm (2") BSP

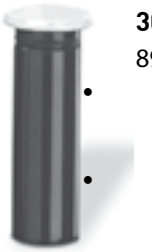
VP3 Performance Data						
Operating Pressure	Nozzle 16 mm		Nozzle 20 mm		Nozzle 24 mm	
	Lpm	m	Lpm	m	Lpm	m
400 kPa	432.0	34.0	602.0	40.0	812.0	42.0
500 kPa	483.0	37.0	673.0	42.0	907.0	44.0
600 kPa	528.0	40.0	738.0	45.0	993.0	49.0
700 kPa	572.0	42.0	798.0	48.0	1073.0	52.0
800 kPa	612.0	44.0	853.0	50.0	1148.0	54.0

VP3 Product Details						
Sprinkler Type	Inlet	Body Height	Pop-up Height	Minimum Pressure	Exposed Surface	Lid
VP3	50 mm (2") BSP	528 mm	120 mm	400 kPa	350 mm	256 mm
VP3 VAC	50 mm (2") BSP	686 mm	120 mm	400 kPa	350 mm	256 mm

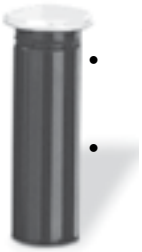
VP3 Ordering Information	
RV25418	VP3 FC/PC Piston Drive Pop-up Sprinkler - 16 mm Nozzle
RV25419	VP3 FC/PC Piston Drive Pop-up Sprinkler - 20 mm Nozzle
RV25420	VP3 FC/PC Piston Drive Pop-up Sprinkler - 24 mm Nozzle
RV25366	VP3 FC/PC Piston Drive Pop-up Sprinkler w/ 24 VAC VIH - 16 mm Nozzle
RV25367	VP3 FC/PC Piston Drive Pop-up Sprinkler w/ 24 VAC VIH - 20 mm Nozzle
RV25368	VP3 FC/PC Piston Drive Pop-up Sprinkler w/ 24 VAC VIH - 24 mm Nozzle
RB25412	VP3 Nozzle Only - 16 mm
RB25413	VP3 Nozzle Only - 20 mm
RB25414	VP3 Nozzle Only - 24 mm

VP3 Accessory	
G465-312	Articulated Riser 300 x 50 mm BSPM

Effluent Water Indicators



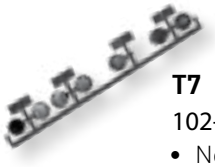
300 Series
89-7853
- Lavender cover for 300 Series Omni nozzle
- Use with part no. 300-15 (Omni Nozzle)



89-7854
- Lavender cover for 300 Series Omni nozzle high-pop models
- Use with part no. 300-25 (Omni Nozzle)

89-7889
- Lavender plug for 300 Series with fixed-radius nozzles

Nozzles



T7
102-2633
- Nozzle tree

T5 Nozzle Tree Kit
102-7712
- 20 nozzle trees per bag

Installation/Adjustment Tools

Mini 8 Series
102-2024
- Adjustment tool for Mini 8

T5|T7 Rotor Tool
102-6527

T5 Rotor Check Valve Kit
89-7561
- 20 valve seals per bag

T5 Effluent Cap
118-3832

995-07
- VIH pliers for 640 Series models

995-100
- Valve snap ring pliers for 690 Series models

995-08
- Valve removal tool for 640 Series models
- Designed for quick removal of valve assembly from body

995-09
- Valve removal tool for 690 Series models

995-42
- Canister removal tool for 640 Series models

996-51
- Cap removal tool for 640 Series models

995-37
- Seal installation tool for 640 Series models

995-35
- Valve insertion tool for 640 Series models
- Designed for accurate one-step insertion of valve assembly and snap ring

995-101
- Valve insertion tool for 690 Series models

Selector Tool
995-15
- Manual on/off flag key for 690 sprinkler

Perrot RollcarT Travelling Irrigator

The Perrot RollcarT is a travelling sprinkler that is ideal for watering large turf areas. Capable of achieving a throw of up to 18 m in radius, the RollcarT can be used in larger turf areas, parks and sports grounds. The RollcarT starts travelling as soon as the water supply is turned on. The RollcarT is drawn toward a guide rope and turns off automatically at the end of its run.

Features & Benefits

Multiple Uses

Part circle sprinkler allows the operator to define the area to be irrigated. Can be operated in full or part circle mode.

Variable Speed

Speed can be altered by regulating the water flow. RollcarT will operate between 10 to 20 m/Hr.

Uniform Distribution

ZE impact sprinkler coupled with constant speed delivers uniform water distribution.

Maintenance Free

Gears are sealed and operate at low friction and remain practically maintenance free.

Convenience

Compact self contained design ensures simple set-up and storage.

Lawn Friendly

Part circle sprinkler operation allows the RollcarT to travel on dry ground eliminating potential damage to new seeded lawn.

Specifications

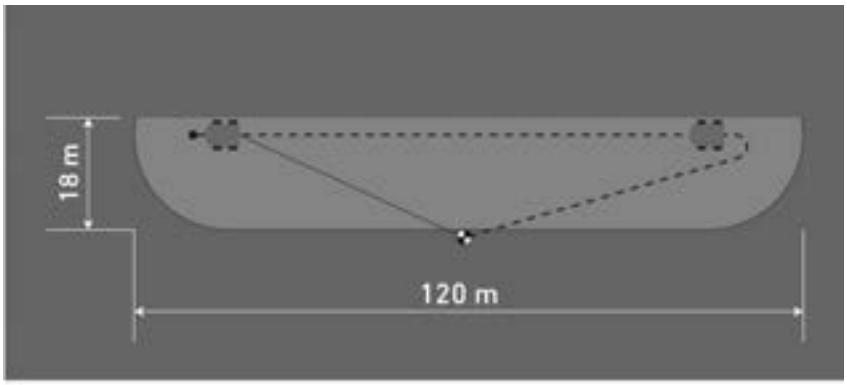
Applications

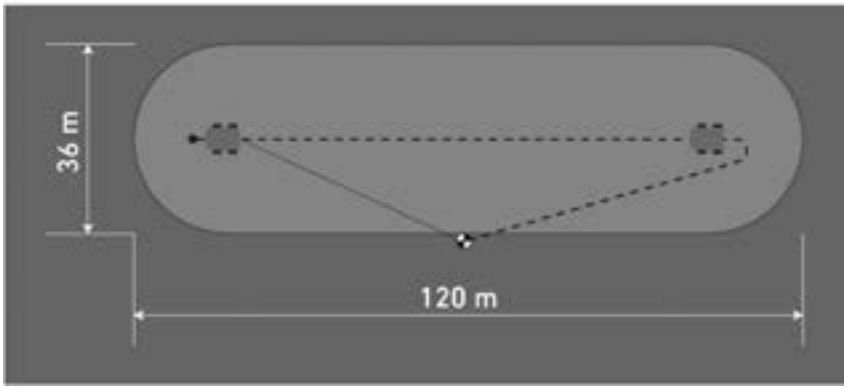
- Large lawn areas, sports field

Technical Data

- Nozzle Size: ZE 30 (7 mm)
- Operating Pressure: 350 - 600 kPa
- Radius Range: 18.3 m
- Flow Rate: 54.3 Lpm
- Trajectory: 30°
- Inlet: 25 mm (1") BSP

RollcarT Typical Layout





RollcartT Product Details						
Sprinkler Type	**Inlet**	**Operating Pressure**	**Body Height**	**Body Length**	**Body Width**	**Weight**
RollcartT	25 mm (1") BSP	350 kPa	470 mm	790 mm	400 mm	27 Kg

RollcartT Ordering Information	
BM84270	RollcarT Travelling Irrigator - Order Hose Separately
1018001	25 mm x 55 m Hose with Fittings (1000 kPa)
ZK94007	GEKA Brass Coupling x 25 mm Hose Tail
ZK94011	GEKA Brass Coupling x 25 mm Male Thread

Large Radius Sprinkler Gun Performance Chart and Overview

Model	ZN23	P2S	P2M
Page Number	55	56	57
Inlet size	2½"	2½"	3"
Radius	33.5-50.5 m	35-55 m	50-69 m
Flow Range	262.8-903.7 Lpm	336-1011 Lpm	961.7-2021.7 Lpm
Operating Pressure Range	300-700 kPa (45-100 psi)	400-800 kPa (60-115 psi)	500-800 kPa (70-115 psi)
Adjustable Speed	X	X	X
Rotation			
Trajectory	230	250	250
Artificial Turf	X	X	X
High Traffic/Vandal Prone Areas			
High Wind			
Normally Open Hydraulic System			X
Electric Valve in Head			
Full Circle	X	X	X
Part-circle Adjustable	X	X	X
Part-circle Fixed			
Part/Full Circle In One	X	X	X
Impact Drive	X		
Piston Drive		X	
Effluent Water Option			
*Smart-Arc Memory			
Warranty	Two years	Two years	Two years

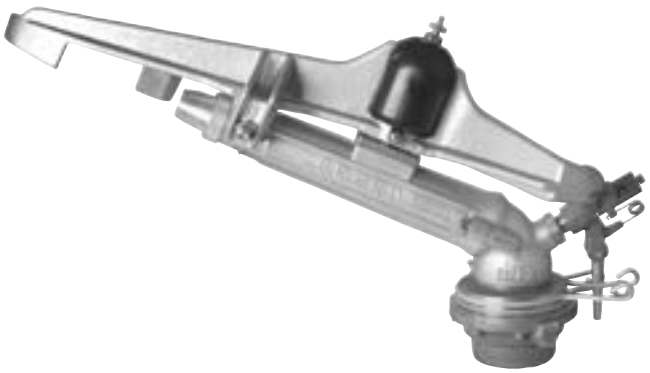
Big Gun Sprinkler Coverage											
ZN23			33.5-50.5								
P2S				35-55							
P2M						50-69					

Radius of Throw (m)

Big Gun Sprinkler Discharge											
ZN23			262.8-903.7								
P2S				336-1011							
P2M						961.7-2021.7					

Flow Rate (Lpm)

Perrot ZN 23 Impact Sprinkler



The Perrot ZN 23 impact sprinkler is a long radius sprinkler designed for use in agriculture and dust suppression. Capable of achieving a throw of up to 50.5 m, the ZN 23 impact sprinkler is ideal for long radius applications.

Solidly constructed, the ZN 23 can be adjusted to operate as a full or part circle sprinkler.

Features & Benefits

Full Circle and Part Circle Operation

ZN 23 can be adjusted to operate both as full and part circle.
Part Circle (30 - 330°) - via arc adjustment springs
Full Circle (360)° - lift the trip lever or remove the arc stops

Slow Reverse Impact

Designed to return at a slower speed for more even water application.

Protection Cap

Protection cap ensures that the impact arm axle remains clean for trouble free operation.

Adjustable Rotation Speed

Rotation speed of the sprinkler can be adjusted by increasing or decreasing tension on the braking plate.

Solid Construction

Constructed from brass, stainless steel, cast aluminium and engineered plastics.

Specifications

Applications

- Large turf, agriculture and dust suppression

Technical Data

- Nozzle Sizes: 16, 20 and 24 mm
- Operating Pressure: 300 - 700 kPa
- Radius Range: 33.5 - 50.5 m
- Flow Rate: 262.8 - 903.7 Lpm
- Trajectory: 23°
- Inlet: 65 mm (2½)" BSP

ZN 23 Performance Data					
Operating Pressure	Nozzle Sizes	Sprinkler Spacing		Precipitation Rate	
		▲	■	▲ (mm)	■ (mm)
300-700 kPa	16, 20 & 24 mm	33x28 - 50x43	33x33 - 50x50	17.1 - 25.2	14.5 - 21.7

ZN 23 Performance Data						
Operating Pressure	16 mm		20 mm		24 mm	
	Lpm	m	Lpm	m	Lpm	m
300 kPa	262.8	33.5	410.8	37.5	591.5	42.0
400 kPa	303.5	37.0	474.3	40.5	683.0	43.0
500 kPa	339.3	38.0	530.3	43.0	763.7	45.5
600 kPa	371.8	40.0	581.0	45.8	836.5	48.5
700 kPa	401.7	41.8	627.5	47.5	903.7	50.5

ZN 23 Ordering Information	
RF24492	ZN 23-3W FC/PC Impact Sprinkler - 16 mm Nozzle
RF24494	ZN 23-3W FC/PC Impact Sprinkler - 20 mm Nozzle
RF24496	ZN 23-3W FC/PC Impact Sprinkler - 24 mm Nozzle
RT24043	ZN 23 Nozzle Only - 16 mm
RT24045	ZN 23 Nozzle Only - 20 mm
RT24047	ZN 23 Nozzle Only - 24 mm

Perrot P2S Piston Drive Sprinkler

The Perrot P2S Piston Drive Sprinkler has been designed with a focus on a performance. Capable of a maximum throw of 55 m, the P2S is an ideal solution for sports fields where they can be installed around the outer perimeter of the playing surface. They are also ideal for use in agriculture and for dust suppression applications due to their long throw and fast rotation speed.

Features & Benefits

Innovative Nozzle Technology

P2S nozzle design minimizes water turbulence, which helps to maintain stream exit speed at the nozzle outlet. This results in a longer throw, reduced flows and high distribution uniformity.

Large Radius

Three nozzle sizes (16, 20 and 24 mm) are available offering a radius range of 35 - 55 m and flow rates of 336 - 1011 L/Min.

Low Maintenance Piston Drive

A fully enclosed piston drive system presents a smooth vibration free continuous rotation.

Reduced Watering Time

A combination of high flows and fast (adjustable) rotation speeds allows for quick cooling of synthetic sports fields and is ideal for use in agriculture and dust suppression sytems. P2S features adjustable rotation speeds of 50 - 120 seconds for a 180° arc.

Easy to Adjust

The P2S is a Full/Part Circle sprinkler.
Part Circle (30 - 330°) - via arc adjustment springs.
Full Circle (360°) - remove arc adjustment spring stops.

Specifications

Applications

- Sports fields, agriculture and dust suppression

Technical Data

- Nozzle Sizes: 16, 20 and 24 mm
- Secondary Nozzle: 5 mm
- Operating Pressure: 400 - 800 kPa
- Radius Range: 35 - 55 m
- Flow Rate: 336 - 1011 Lpm
- Trajectory: 25°
- Inlet: 65 mm (2½)" BSP

P2S Performance Data					
Operating Pressure	Nozzle Sizes	Sprinkler Spacing		Precipitation Rate	
		▲	■	▲ (mm)	■ (mm)
400-800 kPa	16, 20 & 24 mm	35x30.3 - 55x47.7	35x35 - 55x55	19.0 - 23.1	16.4 - 20.1

P2S Performance Data						
Operating Pressure	16 mm		20 mm		24 mm	
	Lpm	m	Lpm	m	Lpm	m
400 kPa	336.0	35.0	506.0	41.5	715.0	45.0
500 kPa	375.0	38.0	566.0	45.0	800.0	48.0
600 kPa	411.0	41.0	620.0	48.0	876.0	52.0
700 kPa	444.0	43.0	670.0	50.0	946.0	53.5
800 kPa	475.0	44.0	716.0	51.0	1011.0	55.0

Maximum radius achieved at minimum rotation speed

P2S Ordering Information	
RF25161	P2S FC/PC Piston Drive Sprinkler - 16 mm Nozzle
RF25163	P2S FC/PC Piston Drive Sprinkler - 20 mm Nozzle
RF25165	P2S FC/PC Piston Drive Sprinkler - 24 mm Nozzle
RT25151	P2S Nozzle Only - 16 mm
RT25153	P2S Nozzle Only - 20 mm
RT25155	P2S Nozzle Only - 24 mm

Perrot P2M Piston Drive Sprinkler

The Perrot P2M Piston Drive Sprinkler has been designed with a focus on performance. Capable of a maximum throw of 69 m, the P2M is an ideal solution for sports fields, agriculture and dust suppression applications.

Features & Benefits

Large Radius

Three nozzle sizes (26, 30 and 34 mm) are available, offering a radius range of 50 - 69 m and flow rates of 961.7 - 2021.7 Lpm.

Innovative Nozzle Technology

P2M nozzle design minimizes water turbulence, which helps to maintain stream exit speed at the nozzle outlet. This results in a longer throw, reduced flows and high distribution uniformity.

Low Maintenance Piston Drive

A fully enclosed piston drive system presents a smooth vibration free continuous rotation.

Reduced Watering Time

A combination of high flows and fast (adjustable) rotation speeds allows for quick cooling of synthetic sports fields and is ideal for use in agriculture and dust suppression sytems. P2M features adjustable rotation speeds of 2 to 7 minutes for a 360° arc.

Easy to Adjust

The P2M is a Full/Part Circle sprinkler.
Part Circle (30° - 330°) - via arc adjustment springs.
Full Circle (360°) - remove arc adjustment spring stops.

Specifications

Applications

- Large turf, agriculture & dust suppression

Technical Data

- Nozzle Sizes: 26, 30 and 34 mm
- Operating Pressure: 500 - 800 kPa
- Radius Range: 50 - 69 m
- Flow Range: 961.7 - 2021.7 Lpm
- Rotation Time 360° from: 2 to 7 minutes
- Trajectory: 25°
- Inlet: 80 mm (3") BSP

P2M Performance Data

Operating Pressure	26 mm		30 mm		34 mm	
	Lpm	m	Lpm	m	Lpm	m
500 kPa	961.7	50.0	1258.3	55.0	1598.3	58.0
600 kPa	1053.3	53.0	1378.3	58.0	1750.0	61.0
700 kPa	1136.7	57.0	1488.3	63.0	1890.0	66.0
800 kPa	1215.0	59.0	1591.7	65.0	2021.7	69.0

P2M Ordering Information

RF25255	P2M FC/PC Piston Drive Sprinkler - 26 mm Nozzle
RF25257	P2M FC/PC Piston Drive Sprinkler - 30 mm Nozzle
RF25259	P2M FC/PC Piston Drive Sprinkler - 34 mm Nozzle
RT24965	P2M Nozzle Only - 26 mm
RT24967	P2M Nozzle Only - 30 mm
RT24969	P2M Nozzle Only - 34 mm

Model	I-Pro	SLP	Lawn Genie
Page Number	60	65	66
Radius	1.3 m-5.5 m (4'-17')	2.4 m-5.5 m (8'-17')	2.6 m-4.5 m (8'-15')
Flow Range	0.2-17 Lpm	2-17 Lpm	1.42-10.80 Lpm
Operating Pressure Range (inlet)	130-520 kPa (15-75 psi)	140-350 kPa (20-50 psi)	50-520 kPa (7-35 psi)
Turf	X	X	X
Shrubs/Ground Cover	X	X	X
Slopes	X		
High Pressure Systems			
Low Pressure Systems	X		X
Medians	X		
High Traffic Areas			
High Wind			
Pop-up Height To Nozzle	75 mm (3") 100 mm (4") 150 mm (6") 300 mm (12")	50 mm (2")	50 mm (2")
Side Inlet Option	150 mm (6") 300 mm (12")		
Check Valve Option	X		
Effluent Water Option	X		
Shrub Model	X		
*Zero Flush			
*X-Flow® Water Shut-off			
*Built-in Pressure Regulator			
Serviceable Seal			
Warranty	Five years	Three years	One year

** WaterSmart® Feature*

	I-PRO™ Series 3"	I-PRO™ Series 4"	I-PRO™ Series 6"	I-PRO™ Series 12"
Page Number	60	60	60	60
Side Inlet			X	X
Check Valve Option	X	X	X	X
Pressure Regulator Option		X	X	X
Recycled Water Option (Field-Installable)	X	X	X	X
Retrofit Option (Less Body)		X	X	X

	I-PRO™ Nozzles	Specialty Nozzles	PRO-VAN Nozzles
Page Number	61-62	61-62	63
Radius	5', 8', 10', 12', 15'	Specialty	8', 10', 12', 15', 17'
Arc	1/4, 1/3, 1/2, 2/3, 3/4, Full*	9-EST, 9-CST, 9-SST, 15-EST, 15-CST, 15-SST	Adjustable
Flow Range	0.23 - 18.24	1.58 - 5.12	2.00 - 17.43
Recommended Operating Pressure	150-350 kPa	150-275 kPa	150-350 kPa

** ⅔" and ¾" arcs not available in 5', 8' and 10' nozzles*

Irritrol's new I-PRO™ Series spray heads combine a pressure-activated wiper seal and advanced formula lubricant that virtually eliminate troublesome stick ups. Add a unique tapered lip design that prevents debris from entering the body and you have a spray head with superior performance. It's rugged and reliable with a textured body style for a non-slip grip and even easier installation.

Available in four pop-up heights with side inlet and check valve options, the I-PRO™ Series fits most landscape applications.

Features

Pressure-Activated Seal with lubricant Additive

Cleans debris from stem, reduces flow-by during pop-up and prevents leaking between cap and body. Extra lubricant additive further eliminates stick-ups.

Check valve (optional)

Prevents low-head drainage, eliminating flood or erosion damage by keeping water in lateral pipes in elevation changes up to 3.9 m.

Sturdy and Robust , Textured Body

Provides for easy installation with a non-slip grip.

Side and bottom inlets on 150 mm and 300 mm models (150 mm also available in non-side inlet)

Reduces installation time.

Heavy-duty, stainless steel retraction spring

Ensures positive pop-down.

Male-threaded riser

Compatible with any female-threaded nozzle in the industry.

Pre-installed flush plug

Makes system flushing a breeze and allows for easy nozzle installation.

Ratcheting riser

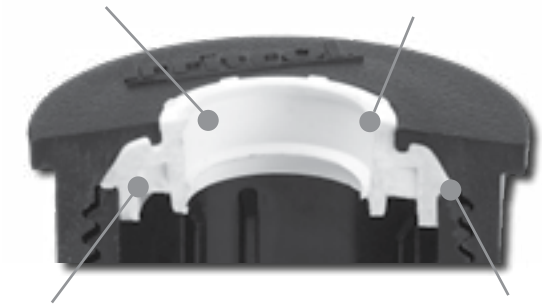
Two-piece mechanism permits easy arc adjustment in the field while sprinkler is operating.

Ordering Information	
Code	**Description**
I-PRO300	80 mm I-Pro Pop-up body only
I-PRO400	100 mm I-Pro Pop-up body only
I-PRO600-SI	150 mm I-Pro Pop-up body only, bottom and side inlets
I-PRO1200-SI	300 mm I-Pro Pop-up body only, bottom and side inlets
I-PRO-NPC	I-Pro Lilac Reclaimed Water Cap
I-PRO-CV	I-Pro Check Valve

Specifications

- Inlet size: 15 mm (½") female
- Exposed diameter: 57 mm
- Body diameter: 41 mm
- Body height:
  - I-PRO300: 124 mm
  - I-PRO400: 146 mm
  - I-PRO600: 235 mm
  - I-PRO1200: 407 mm
- Side inlet: 111 mm from centre of side inlet to top of cap
- Recommended working pressure:
  - Standard: 138-345 kPa (max 517 kPa)
  - CV: 172-345 kPa (max 517 kPa)
- Radius of throw: 1.3 – 5.5 m
- Flow-by: 0 at 69 kPa or greater; 0.38 Lpm otherwise
- 5 year warranty

Superior Performing Wiper Seal



Irritrol's new I-PRO™ nozzles with Matched Precipitation Rate are designed to simplify your design process while delivering precision performance. An I-PRO MPR nozzle ensures even water distribution within an arc family allowing for accurate control of precipitation rate, radius and flow. Compared to the competition, these I-PRO nozzles give an equal to or lower on average precipitation and flow rate adding greater irrigation efficiency.

I-PRO nozzles are female-threaded and include a ribbed-edge design for a non-slip grip.

Compatible with all Irritrol spray heads as well as any male-threaded riser in the industry, Irritrol's newest nozzle series are just the right nozzles to get the job done.

Features

Matched Precipitation Rates

Ensures even water distribution within each family.

Low-flow rates

Allow for more sprinklers to be installed on the same zone.

Colour-Coded Top

For quick and easy radius identification.

Female-Threaded

Compatible with any male-threaded riser in the industry.

Ribbed-Edge Design

Provides for a non-slip grip.

Stainless steel radius adjustment screw

Allows for up to 25% in-field reduction.

Warranty

5 years

Specialty Nozzle 9' Series - 20° Trajectory

Pattern	Desc.	Pressure kPa	Lpm	Radius m
	9-EST	150	1.58	0.9 x 2.4
		200	1.69	1.2 x 2.7
		250	1.78	1.4 x 2.9
		275	1.82	1.5 x 3.0
	9-CST	150	3.26	0.9 x 4.9
		200	3.39	1.2 x 5.4
		250	3.58	1.4 x 5.7
		275	3.68	1.5 x 6.0
	9-SST	150	3.26	0.9 x 4.9
		200	3.39	1.2 x 5.4
		250	3.58	1.4 x 5.7
		275	3.68	1.5 x 6.0

Specialty Nozzle 15' Series - 21° Trajectory

Pattern	Desc.	Pressure kPa	Lpm	Radius m
	15-EST	150	2.01	0.9 x 4.2
		200	2.27	1.1 x 4.4
		250	2.53	1.4 x 4.9
		275	2.65	1.5 x 5.1
	15-CST	150	4.24	0.9 x 8.5
		200	4.55	1.2 x 9.0
		250	4.93	1.4 x 9.5
		275	5.12	1.5 x 9.7
	15-SST	150	4.24	0.9 x 8.5
		200	4.55	1.2 x 9.0
		250	4.93	1.4 x 9.5
		275	5.12	1.5 x 9.7

5' Family Red

Pattern	Desc.	Pres. kPa	Lpm	Radius m	Prec. Rate mm/hr ▲	Prec. Rate mm/hr ■
	5-Q	150	0.23	1.3	37.5	32.5
		200	0.37	1.5	45.1	39.0
		250	0.46	1.6	49.5	42.9
		300	0.55	1.7	52.6	45.6
		350	0.64	1.8	54.8	47.4
	5-T	150	0.31	1.3	38.4	33.3
		200	0.48	1.5	44.0	38.1
		250	0.59	1.6	48.3	41.8
		300	0.71	1.7	51.3	44.5
		350	0.83	1.8	53.4	46.3
	5-H	150	0.43	1.3	35.5	30.8
		200	0.73	1.5	45.1	39.0
		250	0.83	1.6	45.0	38.9
		300	1.00	1.7	47.8	41.4
		350	1.09	1.8	46.7	40.5
	5-F	150	1.11	1.3	45.5	39.4
		200	1.50	1.5	46.2	40.0
		250	1.67	1.6	45.1	39.0
		300	2.00	1.7	47.9	41.5
		350	2.20	1.8	47.0	40.7

8' Family Green

Pattern	Desc.	Pres. kPa	Lpm	Radius m	Prec. Rate mm/hr ▲	Prec. Rate mm/hr ■
	8-Q	150	0.76	2.2	43.4	37.6
		200	0.95	2.4	45.8	39.7
		250	0.97	2.5	42.9	37.1
		300	1.16	2.6	47.5	41.2
		350	1.21	2.8	42.7	37.0
	8-T	150	1.07	2.2	46.1	39.9
		200	1.24	2.4	44.9	38.9
		250	1.40	2.5	46.6	40.3
		300	1.68	2.6	51.7	44.7
		350	1.74	2.8	46.2	40.0
	8-H	150	1.58	2.2	45.4	39.3
		200	1.90	2.4	45.8	39.7
		250	2.07	2.5	45.9	39.7
		300	2.48	2.6	50.9	44.1
		350	2.60	2.8	45.9	39.8
	8-F	150	3.17	2.2	45.4	39.3
		200	3.81	2.4	45.8	39.7
		250	4.14	2.5	45.9	39.7
		300	4.97	2.6	50.9	44.1
		350	5.20	2.8	45.9	39.8

10' Family Blue

Pattern	Desc.	Pres. kPa	Lpm	Radius m	Prec. Rate mm/hr ▲	Prec. Rate mm/hr ■
	10-Q	150	1.24	2.8	43.7	37.8
		200	1.46	3.0	45.1	39.0
		250	1.72	3.2	46.4	40.2
		300	2.06	3.5	46.6	40.3
		350	2.31	3.7	46.7	40.4
	10-T	150	1.76	2.8	46.7	40.5
		200	1.94	3.0	44.8	38.8
		250	2.27	3.2	46.1	40.0
		300	2.73	3.5	46.3	40.1
		350	2.94	3.7	44.6	38.6
	10-H	150	2.82	2.8	49.8	43.1
		200	2.96	3.0	45.6	39.5
		250	3.33	3.2	45.0	39.0
		300	3.99	3.4	47.9	41.4
		350	4.34	3.5	49.1	42.5
	10-F	150	5.03	2.7	47.8	41.4
		200	6.00	3.0	46.2	40.0
		250	6.08	3.1	43.8	38.0
		300	7.30	3.3	46.4	40.2
		350	7.83	3.4	46.9	40.6

12' Family Brown

Pattern	Desc.	Pres. kPa	Lpm	Radius m	Prec. Rate mm/hr ▲	Prec. Rate mm/hr ■
	12-Q	150	1.88	3.4	45.0	39.0
		200	2.09	3.6	44.6	38.6
		250	2.35	3.8	45.0	39.0
		300	2.82	4.0	48.8	42.2
		350	2.76	4.0	47.8	41.4
	12-T	150	2.44	3.4	44.0	38.1
		200	2.75	3.6	44.0	38.1
		250	3.11	3.8	44.8	38.8
		300	3.73	3.9	51.0	44.2
		350	3.88	4.0	50.4	43.7
	12-H	150	4.13	3.4	49.5	42.8
		200	4.21	3.6	45.0	39.0
		250	4.71	3.8	45.2	39.1
		300	5.65	4.1	46.6	40.3
		350	6.28	4.3	47.1	40.8
	12-TT	150	4.93	3.4	44.3	38.4
		200	5.67	3.6	45.5	39.4
		250	5.98	3.8	43.0	37.3
		300	7.17	3.9	49.0	42.5
		350	7.39	4.0	48.0	41.6
	12-TQ	150	4.80	3.3	40.7	35.2
		200	6.30	3.6	44.9	38.9
		250	6.28	3.8	40.2	34.8
		300	7.54	3.9	45.8	39.7
		350	7.68	4.0	44.3	38.4
	12-F	150	7.16	3.4	42.9	37.2
		200	8.35	3.6	44.6	38.6
		250	8.40	3.8	40.3	34.9
		300	10.07	3.9	45.9	39.7
		350	10.80	4.0	46.8	40.5

15' Family Black

Pattern	Desc.	Pres. kPa	Lpm	Radius m	Prec. Rate mm/hr ▲	Prec. Rate mm/hr ■
	15-Q	150	3.00	4.3	44.9	38.9
		200	3.33	4.5	45.6	39.5
		250	3.82	4.8	46.0	39.8
		300	4.58	4.9	52.9	45.8
		350	5.06	4.9	58.4	50.6
	15-T	150	4.23	4.2	49.9	43.2
		200	4.36	4.5	44.7	38.7
		250	4.83	4.7	45.4	39.3
		300	5.79	4.7	54.5	47.2
		350	6.03	4.8	54.4	47.1
	15-H	150	6.22	4.1	51.3	44.4
		200	6.66	4.5	45.6	39.5
		250	7.65	4.8	46.0	39.8
		300	9.17	4.9	52.9	45.9
		350	9.07	4.9	52.4	45.3
	15-TT	150	8.03	4.3	45.1	39.1
		200	8.82	4.5	45.3	39.2
		250	10.00	4.8	45.1	39.1
		300	12.00	4.9	51.9	45.0
		350	11.96	4.9	51.8	44.8
	15-TQ	150	9.18	4.1	50.4	43.7
		200	10.10	4.5	46.1	39.9
		250	10.93	4.7	45.7	39.6
		300	13.11	4.8	52.6	45.5
		350	13.87	4.9	53.4	46.2
	15-F	150	12.16	4.1	50.1	43.4
		200	13.65	4.5	46.7	40.5
		250	14.93	4.8	44.9	38.9
		300	17.92	4.9	51.7	44.8
		350	18.24	4.9	52.6	45.6

▲ *Triangle spacing based on 50% of the diameter of throw*
■ *Square spacing based on 50% of the diameter of throw*

Featuring an exclusive "Smart Grip" adjustment feature, these variable arc nozzles offer the utmost in convenience, as well as reliable, precise performance for any application.

Features & Benefits

Full adjustable arc – from 0° to 360°

Reduces inventory by meeting the needs of any size or shape landscape.

Precision Adjustment

Eliminates dry spots on lawn edges and reduces water waste on sidewalks, etc.

Exclusive "Smart Grip" Head Design

Requires no tools and provides the industry's easiest arc adjustment – even when wet.

Visible right-stop arrow on top of Nozzle

Ensure setting accuracy.

Compatible with any male-threaded riser in the industry

Reduces inventory requirements.

Removable Filter

Reduces the risk of blockages.

Additionnal Features

- Colour-coded for easy radius identification
- Pre-assembled at 0°arc
- Stainless steel radius adjustment screw allows for up to 25% radius reduction.
- Suits the HS, SLP and I-PRO™ Series pop-ups
- 5 year warranty.

Specifications

- Flow rate: 2.0-17.4 Lpm
- Trajectories:
- PRO-VAN8 5°
- PRO-VAN10 10°
- PRO-VAN12 15°
- PRO-VAN15 20°
- PRO-VAN17 25°

PRO-VAN8 - 8'

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	2.4	6.51	65.8	75.9
	206	2.4	8.06	81.3	94.0
	275	2.7	9.39	94.7	109.5
	345	2.7	10.51	106.2	122.7
270°	137	2.1	5.15	69.3	80.0
	206	2.7	6.25	84.1	97.0
	275	2.7	7.15	96.3	111.3
	345	2.7	8.06	108.5	125.2
180°	137	2.7	3.29	66.5	76.7
	206	2.7	4.05	81.8	94.5
	275	2.7	4.66	94.0	108.5
	345	2.7	5.22	105.4	121.7
90°	137	2.7	2.00	81.0	93.5
	206	3.0	2.42	97.8	113.0
	275	3.0	2.73	110	127.0
	345	3.0	2.95	119.1	137.7

PRO-VAN10 - 10'

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	3.0	7.50	48.5	55.9
	206	3.0	9.12	58.9	68.1
	275	3.4	12.08	78.0	90.2
	345	3.7	13.59	87.9	101.3
270°	137	3.0	6.06	52.1	60.2
	206	3.4	7.38	63.5	73.2
	275	3.7	8.56	73.4	84.8
	345	3.7	9.54	82.0	94.7
180°	137	3.0	4.28	55.4	63.8
	206	3.4	5.22	67.6	78.0
	275	3.7	5.98	77.2	89.2
	345	3.7	6.70	86.6	99.8
90°	137	3.4	2.35	60.7	70.1
	206	3.7	2.91	75.2	86.9
	275	3.7	3.37	87.1	100.6
	345	4.0	3.79	97.8	113.0

PRO-VAN12 - 12'

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	3.4	8.56	38.4	44.2
	206	3.7	10.56	47.2	54.6
	275	4.0	12.11	54.4	62.7
	345	4.0	13.70	61.5	70.9
270°	137	3.4	7.00	41.9	48.3
	206	3.7	8.67	51.8	59.9
	275	4.0	9.99	59.7	69.1
	345	40	11.28	67.6	78.0
180°	137	3.4	5.03	45.2	52.1
	206	3.7	6.17	55.4	64.0
	275	4.0	7.15	64.3	74.2
	345	4.3	8.03	71.9	83.1
90°	137	3.7	2.84	51.1	58.9
	206	4.0	3.52	63.2	72.9
	275	4.3	4.13	71.9	83.1
	345	4.3	4.58	82.3	95.0

PRO-VAN15 - 15'

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	4.3	10.45	30.0	34.5
	206	4.6	12.68	36.3	41.9
	275	4.6	14.65	42.2	48.5
	345	4.9	16.32	46.7	54.1
270°	137	4.3	8.93	34.3	39.4
	206	4.6	10.83	41.9	48.3
	275	4.9	12.49	47.8	55.1
	345	4.9	14.12	54.1	62.5
180°	137	4.6	6.44	36.8	42.7
	206	4.9	7.91	45.5	52.3
	275	4.9	9.16	52.6	60.7
	345	5.2	10.26	58.9	68.1
90°	137	4.6	3.75	42.9	49.8
	206	4.9	4.54	52.1	60.2
	275	5.2	5.30	61.0	70.4
	345	5.2	5.91	67.8	78.2

PRO-VAN17 - 17'

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	4.3	10.99	24.6	28.4
	206	4.9	13.64	30.5	35.1
	275	5.2	15.54	34.8	40.1
	345	5.2	17.43	38.9	45.0
270°	137	4.3	9.48	28.2	32.5
	206	4.9	11.75	35.1	40.4
	275	5.2	13.64	40.6	47.0
	345	5.2	15.16	45.2	52.1
180°	137	4.6	7.20	32.3	37.1
	206	5.2	9.10	40.6	47.0
	275	5.2	10.23	45.7	52.8
	345	5.5	11.37	50.8	58.7
90°	137	4.6	4.55	40.6	47.0
	206	5.2	5.69	50.8	58.7
	275	5.5	6.44	57.4	66.5
	345	5.5	7.20	64.3	74.2

□ *Square spacing based on 50% diameter of throw*
△ *Equilateral Triangular spacing based on 50% diameter of throw*

Ordering Information

Code	Description
PRO-VAN8	2.4 m Green Top Variable Arc Nozzle. Suit "HS" and "SLP" Series
PRO-VAN10	3.0 m Blue Top Variable Arc Nozzle. Suit "HS" and "SLP" Series
PRO-VAN12	3.7 m Brown Top Variable Arc Nozzle. Suit "HS" and "SLP" Series
PRO-VAN15	4.6 m Black Top Variable Arc Nozzle. Suit "HS" and "SLP" Series
PRO-VAN17	5.2 m Grey Top Variable Arc Nozzle. Suit "HS" and "SLP" Series


PRO-VAN8: Green


PRO-VAN10: Blue


PRO-VAN12: Brown


PRO-VAN15: Black


PRO-VAN17: Grey

533 Bubbler

Designed for localized watering of flower beds, roses, shrub areas and ground covers, Irritrol's 533 Bubbler is the only hand-adjustable flood bubbler that shuts down to a true zero flow.

Features

- **Simple Twist Top Flow Adjustment**
  Easily adjusts by hand with no tools needed!
- **True Zero Flow Shut-Off**
  Allows for temporary maintenance needs
- **Fully Adjustable Arc and Flow Rate**
  For flexibility in precise watering needs
- **Heavy-duty ABS Material**
  Provides durability and long-lasting life

Specifications

- Recommended working pressure: 137-275 kPa
- Flow rate: 5.2-22.4 Lpm
- Maximum operating pressure: 517 kPa
- Inlet size: 15 mm (1/2") female uni-thread
- 5 year warranty

Dimensions

- H: 29 mm
- Top diameter: 27 mm

Performance Data				
	90° Adjust	180° Adjust	270° Adjust	360° Adjust
kPa	Lpm	Lpm	Lpm	Lpm
103	5.2	9.0	10.8	11.3
138	5.9	10.4	12.5	13.1
172	6.7	11.5	14.1	14.6
207	7.3	12.7	15.3	16.4
241	7.6	13.6	16.6	20.9
276	8.5	14.6	17.8	22.4

HS100 Shrub Adaptor

Designed for use with all Irritrol spray head nozzles in shrub and other low traffic areas to mount HS Series nozzles to 15mm MBSP threaded risers.

Features

- Suits HS, LS and I-Pro series nozzles
- 15mm female uni-thread inlet
- Threads directly onto riser
- UV-treated for above-ground mount
- Manufactured of heavy-duty ABS
- Accepts all Irritrol nozzles and any other female-threaded nozzle
- 5 year warranty

Ordering Information	
Code	**Description**
533	Adjustable Bubbler, 15mm female uni-thread inlet
HS100	Shrub Adaptor to suit Irritrol nozzles

The new SLP Series family of sprayheads offers contractors exceptional flexibility, convenience and reliability at an affordable price. Ideal for residential and light commercial applications, the SLP Series features a compact, slim-line body with 50 mm or 100 mm pop-up heights.

For added convenience and flexibility, all SLP Series models may be ordered with pre-installed Irritrol MPR Variable Arc Nozzles (PRO-VAN®), these sprayheads may also be ordered without nozzles. In addition, a field-installable check valve is available to prevent low-head drainage.

The small diameter cap on the SLP Series allows it to blend easily into any landscape. Although compact in design, these sprays feature a sturdy one-piece moulded body and a heavy-duty stainless steel retraction spring which ensures positive pop-down. Unlike some professional pop-ups the SLP riser seal is field replaceable.

The SLP Series sprayheads - setting the standard for flexibility, convenience and value.

Features & Benefits

- Compact slim-line body design.
- Available with pre-installed Variable Arc Nozzles in five radii.
- Matched precipitation rate nozzles provide even coverage.
- Adjustable arc patterns from 0°-360°.
- Debris covers on models without nozzles for easy flushing.
- Ratcheting riser permits easy arc adjustment in the field.
- Pressure-activated seal reduces flow-by during pop-up and keeps debris away from stem during retraction.
- Heavy-duty, stainless steel retraction spring ensures positive pop down.
- One-piece moulded body adds durability.
- Removable nozzle, screen and internal components for flushing and servicing.
- Small diameter cover ensures more attractive landscaping.
- Accepts all Irritrol MPR Variable Arc Nozzles (PRO-VAN®) and Irritrol MPR Canopy™ fixed-arc nozzles.
- Three Year Warranty.

SLP-208

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	2.4	6.51	65.8	75.9
	206	2.4	8.06	81.3	94.0
	275	2.7	9.39	94.7	109.5
	345	2.7	10.51	106.2	122.7
270°	137	2.1	5.15	69.3	80.0
	206	2.7	6.25	84.1	97.0
	275	2.7	7.15	96.3	111.3
	345	2.7	8.06	108.5	125.2
180°	137	2.7	3.29	66.5	76.7
	206	2.7	4.05	81.8	94.5
	275	2.7	4.66	94.0	108.5
	345	2.7	5.22	105.4	121.7
90°	137	2.7	2.00	81.0	93.5
	206	3.0	2.42	97.8	113.0
	275	3.0	2.73	110	127.0
	345	3.0	2.95	119.1	137.7

SLP-210

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	3.0	7.50	48.5	55.9
	206	3.0	9.12	58.9	68.1
	275	3.4	12.08	78.0	90.2
	345	3.7	13.59	87.9	101.3
270°	137	3.0	6.06	52.1	60.2
	206	3.4	7.38	63.5	73.2
	275	3.7	8.56	73.4	84.8
	345	3.7	9.54	82.0	94.7
180°	137	3.0	4.28	55.4	63.8
	206	3.4	5.22	67.6	78.0
	275	3.7	5.98	77.2	89.2
	345	3.7	6.70	86.6	99.8
90°	137	3.4	2.35	60.7	70.1
	206	3.7	2.91	75.2	86.9
	275	3.7	3.37	87.1	100.6
	345	4.0	3.79	97.8	113.0

SLP-212

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	3.4	8.56	38.4	44.2
	206	3.7	10.56	47.2	54.6
	275	4.0	12.11	54.4	62.7
	345	4.0	13.70	61.5	70.9
270°	137	3.4	7.00	41.9	48.3
	206	3.7	8.67	51.8	59.9
	275	4.0	9.99	59.7	69.1
	345	40	11.28	67.6	78.0
180°	137	3.4	5.03	45.2	52.1
	206	3.7	6.17	55.4	64.0
	275	4.0	7.15	64.3	74.2
	345	4.3	8.03	71.9	83.1
90°	137	3.7	2.84	51.1	58.9
	206	4.0	3.52	63.2	72.9
	275	4.3	4.13	71.9	83.1
	345	4.3	4.58	82.3	95.0

SLP-215

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	4.3	10.45	30.0	34.5
	206	4.6	12.68	36.3	41.9
	275	4.6	14.65	42.2	48.5
	345	4.9	16.32	46.7	54.1
270°	137	4.3	8.93	34.3	39.4
	206	4.6	10.83	41.9	48.3
	275	4.9	12.49	47.8	55.1
	345	4.9	14.12	54.1	62.5
180°	137	4.6	6.44	36.8	42.7
	206	4.9	7.91	45.5	52.3
	275	4.9	9.16	52.6	60.7
	345	5.2	10.26	58.9	68.1
90°	137	4.6	3.75	42.9	49.8
	206	4.9	4.54	52.1	60.2
	275	5.2	5.30	61.0	70.4
	345	5.2	5.91	67.8	78.2

SLP-217

Model	Pressure kPa	Radius m	Flow Lpm	Precip. □ mm/h	Precip. △ mm/h
360°	137	4.3	10.99	24.6	28.4
	206	4.9	13.64	30.5	35.1
	275	5.2	15.54	34.8	40.1
	345	5.2	17.43	38.9	45.0
270°	137	4.3	9.48	28.2	32.5
	206	4.9	11.75	35.1	40.4
	275	5.2	13.64	40.6	47.0
	345	5.2	15.16	45.2	52.1
180°	137	4.6	7.20	32.3	37.1
	206	5.2	9.10	40.6	47.0
	275	5.2	10.23	45.7	52.8
	345	5.5	11.37	50.8	58.7
90°	137	4.6	4.55	40.6	47.0
	206	5.2	5.69	50.8	58.7
	275	5.5	6.44	57.4	66.5
	345	5.5	7.20	64.3	74.2

□ *Square spacing based on 50% diameter of throw*
△ *Equilateral Triangular spacing based on 50% diameter of throw*

Ordering Information

Code	Description
SLP-200	50mm SL Pop-up body only
SLP-208	50mm SL Pop-up sprinkler complete with 2.4 m PRO-VAN nozzle
SLP-210	50mm SL Pop-up sprinkler complete with 3.0 m PRO-VAN nozzle
SLP-212	50mm SL Pop-up sprinkler complete with 3.7 m PRO-VAN nozzle
SLP-215	50mm SL Pop-up sprinkler complete with 4.6 m PRO-VAN nozzle
SLP-217	50mm SL Pop-up sprinkler complete with 5.2 m PRO-VAN nozzle

Fully adjustable pop-up sprinkler suited to small to medium residential lawns and gardens.

Shrub head also available for above ground watering of shrubs and ground cover.

Features & Benefits

- Residential Lawns.
- Garden Beds.
- Ground Covers.
- Full 50 mm pop-up height.
- Easy to install.
- Space from 3.3 to 4.0 metres apart to provide uniform watering across the zone.
- Stainless steel reduction screw for radius adjustment.
- Filter screen is removable for easy cleaning.
- Stainless steel spring for positive retraction.
- Durable, corrosion-resistant construction.
- Ratcheting riser allows for easy spray direction adjustment.

Specifications

- Inlet: 15 mm FBSP
- Pop up height: 50 mm
- Body height: 100 mm
- Top Diameter: 50 mm
- Operating Pressure Range: 50-250 kPa

Shrub Head Sprinkler

- Provides for above ground watering of shrubs and ground covers.
- Easy-to-use radius adjustment screw.
- 15 mm (1/2") FBSP thread

For home gardens. Fully adjustable pop up and shrub head.

Ordering Information	
Lawn Genie Pop-Up Sprinklers	
Code	**Description**
1012129	LG50 50 mm Pop-Up Sprinkler
Lawn Genie Shrub Head Sprinkler	
1012136	Shrub Head Only
1012137	Shrub Head assembled with full circle nozzle
1012138	Shrub Head assembled with half circle nozzle
1012139	Shrub Head assembled with quarter circle nozzle

Lawn Genie Nozzle Performance

Code	Pattern	Pressure kPa	Flow Rate Lpm	Radius m	Prec Rate* □	Prec Rate* △
1013741	90deg	50	1.42	2.6	50.4	58.2
		100	2.02	3.4	41.9	48.4
		150	2.48	3.8	41.2	47.6
		200	2.87	4.2	39.0	45.0
		250	3.22	4.5	38.2	44.1
1013742	180deg	50	2.65	2.6	47.0	54.3
		100	3.78	3.4	39.2	45.3
		150	4.67	3.8	49.2	56.8
		200	5.42	4.2	36.9	42.6
		250	6.10	4.5	36.1	41.9
1013743	270deg	50	3.73	2.6	49.7	57.4
		100	5.30	3.4	41.3	47.7
		150	6.47	3.8	40.3	46.5
		200	7.60	4.2	38.8	44.8
		250	8.58	4.5	38.1	44.0
1013744	360deg	50	4.85	2.6	43.0	49.7
		100	6.78	3.4	35.2	40.6
		150	8.28	3.8	34.4	39.7
		200	9.67	4.2	32.9	38.0
		250	10.82	4.5	32.1	37.1

□ *Precipitation Rate on square spacing based on 50% of the diameter of throw, in mm/h*

△ *Precipitation Rate on triangular spacing based on 50% of the diameter of throw, in mm/h*

Antelco® Rotor Max™ Midi Sprinklers (suit "Butterfly" applications)

Application

Greenhouses, vegetables and under tree watering.

Excellent single sprinkler distribution. Smooth rotation, robust design, durable construction. The standard sprinkler has a black colour coded 25° trajectory spinner.

Dimensions

- Height: 96 mm
- Width: 90 mm
- Weight: 38 grams

Features

- Easily taken apart for servicing
- Dual outlet sealed spinner enhances performance
- Nozzle options are coloured to identify flow
- 1/2" BSPM inlet
- Spinner and nozzle constructed from UV stabilised acetal
- Frame constructed from polypropylene

Product Code	Rotor Max™ Performance				
	Nozzle Colour Orifice Diam. mm	Pressure kPa	Flow Lph	Diameter m	Stream Height m
10121055	Red 2.8 mm	100	300	11.0	0.9
		200	400	13.0	1.2
		250	460	13.0	1.2
		300	500	13.0	1.4
10121005	Black 3.2 mm	100	375	11.0	0.9
		200	540	13.0	1.2
		250	600	13.0	1.2
		300	660	14.0	1.3
10121065	Purple 3.8 mm	100	550	11.9	0.7
		200	775	13.8	1.0
		250	875	14.0	1.1
		300	975	13.4	1.2

Rotor Max™ tested 0.2 m above ground

Antelco® Rotor Rain® Mini Sprinklers

Low trajectory with large droplets. Robust, reliable and accurate.

Features

- 3/8" MBSP inlet
- Purple nozzle – 2.8 mm orifice diameter
- Break-off spray deflector for close in watering of young trees.
- Full flow flipper suspended between two bearings for reliable performance.
- Constructed from UV stablized material; Frame – acetal, Flipper – nylon, Nozzle – acetal

Dimensions

- Height: 49 mm
- Width: 46 mm
- Weight: 8 grams

Rotor Rain® Performance Data					
Product Code	Pressure kPa	Diameter m	Flow Rate Lph	Stream Height m	Deflector Diameter m
10120365	100	11.2	265	0.8	
	150	12.8	330	0.9	4.0
	200	13.0	385	1.0	
	250	12.4	430	1.1	

Application

Suitable for vegetables, ornamentals, landscaped gardens, commercial tree and vine crops.

Durable and reliable with excellent distribution uniformity. Vari-Rotor Spray™ can be adjusted to reduce volume of flow and radius of throw.

Features

- "C" Frame design for strength and distribution uniformity
- Full flow flipper suspended between two bearings
- Inverted model incorporates special dust cover to protect bearing
- UV Stabilised material: Frame – acetal, Base-acetal, Flipper-nylon
- Inlet: 10-32 UNF thread, 4 mm

Rotor Spray™

Inverted Rotor Spray™

Vari-Rotor Spray™

Ordering Information

Code	Description
10120025	Rotor Spray™ 0.9 mm Brown Base
10120015	Rotor Spray™ 1.0 mm Blue Base
10120035	Rotor Spray™ 1.3 mm Green Base
10120055	Rotor Spray™ 1.5 mm Red Base
10120075	Rotor Spray™ 1.8 mm Orange Base
10120045	Rotor Spray™ 2.0 mm Grey Base
10120205	Vari-Rotor Spray™ Black Base with Shut-off valve
10120125	Inverted Rotor Spray™ 0.9 mm Brown Base
10120115	Inverted Rotor Spray™ 1.0 mm Blue Base
10120135	Inverted Rotor Spray™ 1.3 mm Green Base
10120155	Inverted Rotor Spray™ 1.5 mm Red Base

			Rotor Spray™		Vari-Rotor Spray™		Inverted Rotor Spray™	
Performance			●		●		●	
			Tested 0.2 m above ground		Tested 2.0 m above ground		Tested 0.8 m above ground	Tested 2.0 m above ground
Base Colour and Orifice Size	**Pressure kPa**	**Flow Lph**	**Diameter m**	**Stream Height m**	**Diameter m**	**Stream Height m**	**Diameter m**	
Brown 0.9 mm	100	31	5.2	0.2			4.0	5.4
	125	35	5.6	0.3			4.2	5.8
	150	38	5.6	0.4			4.2	6.0
Blue 1.0 mm	100	38	5.2	0.3			4.2	5.6
	125	42	5.4	0.4			4.4	5.8
	150	46	5.4	0.5			4.6	6.0
Green 1.3 mm	100	61	6.0	0.4			4.2	5.8
	150	76	6.9	0.5			4.6	6.2
	200	88	7.2	0.5			5.0	6.6
Red 1.5 mm	100	85	6.5	0.4			4.4	6.2
	150	105	7.5	0.4			4.8	6.4
	200	120	8.1	0.4			5.0	7.2
Orange 1.8 mm	100	95	6.7	0.3				
	150	117	7.5	0.4				
	200	135	8.4	0.5				
Grey 2.0 mm	100	120	6.8	0.4				
	150	150	7.8	0.4				
	200	175	8.0	0.5				
Black 1.5 mm	100	0 – 82			0 – 6.5	0 – 0.4		
	150	0 – 105			0 – 7.5	0 – 0.4		
	200	0 – 123			0 – 8.1	0 – 0.4		

Spectrum 360™ Jet

An adjustable full circle vortex spray jet with fine water droplets. Flow and coverage can be altered by rotating the cap.

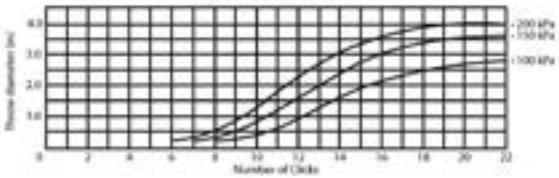
Applications

Suitable for a variety of landscape, nursery, pot plant and garden watering.

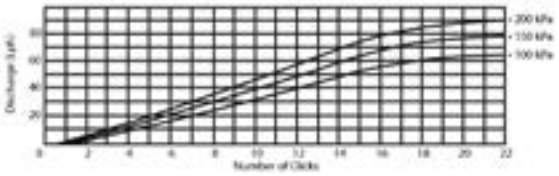
Features

- Adjustable flow including shut-off
- Removable cap for easy cleaning
- Three inlet connection options

Diameter of Throw



Flow Rate



Performance	360		
	Pressure kPa	Flow Lph	Diameter m
fully open (approx. 22 clicks	100	64	2.8
	150	78	3.6
	200	90	4.0

Dimensions				
Dimensions Assembled		Barb	Thread	Spike
Height Width Depth Weight (approx)		26 mm 20 mm 16 mm 1.7 g	26 mm 20 mm 16 mm 2.1 g	137 mm 42 mm 16 mm 5.5 g
UV Stabilised Material	Base Cap Deflector	polypropylene polypropylene acetal	acetal polypropylene acetal	polypropylene polypropylene acetal
Base/Connection Type: Inlet		Barb 4 mm	10-32 UNF Thread 4 mm	Barb 4 mm

Antelco® Spectrum™ – Spray Jets	
Ordering information	
10132045	Spectrum™ 360° Jet 4 mm Barb
10132015	Spectrum™ 360° Jet 4 mm Thread
10132095	Spectrum™ 360° Spike

Spectrum 360™ 4 mm Thread

Spectrum 360™ 4 mm Barb

Spectrum 360™ Spike 4 mm Barb

Vari-Jet™

Applications

Home gardens and landscaping.

Features

- Vari-Jets™ available in three spray patterns.
- Cap and base made from UV stabilised Acetal
- Inlet : 10-32 UNF thread, 4 mm
- Valve adjusts radius of throw and reduces flow

Dimensions

- Height: 32 mm
- Width: 22 mm
- Weight: 2.3 grams

Vari-Jet™ 180° fan

Cap Colour			Black	Black	Black
Performance					
			360° x 18	180°	90°
*Min. Opening Size			0.5 mm	1.5 mm	1.5 mm
Base Colour and Orifice Size	Press. kPa	Flow Lph	Diameter m	Radius m	Radius m
Black max 1.5 mm	50	0 – 53	0 – 4.9	0 – 1.9	0 – 1.5
	100	0 – 78	0 – 6.8	0 – 2.4	0 – 2.4
	150	0 – 98	0 – 8.2	0 – 3.0	0 – 2.9
	200	0 – 115	0 – 8.2	0 – 3.2	0 – 3.1
	250	0 – 130	0 - 7.2	0 – 3.4	0 – 3.3

• Minimum opening size for Base and Cap given to assist filtration selection.

Antelco® Vari-Jet™ – Micro Spray with Radius/ Flow Adjustment Valve	
Ordering information	
10113145	Vari-Jet™ 360° x 18 Hole Black Cap/Black Base, 0-78 Lph
10113125	Vari-Jet™ 180° Black Cap/Black Base, 0-78 Lph
10113115	Vari-Jet™ 90° Black Cap/Black Base, 0-78 Lph

Winged™ – Single Piece Spray Jet

Economical fan spray jet for effective watering.

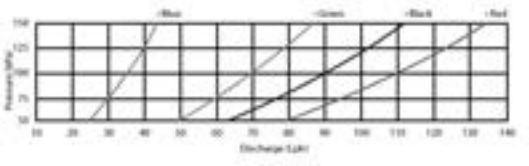
Applications

Suitable for home and landscaped gardens and horticultural applications.

Features

- Winged base with 4mm "Quick" thread for rapid and easy installation
- No tools required
- Choice of three spray patterns – 360°, 180°, 90°
- Four colour coded flow rates
- Constructed from acetal

Flow Rate





Performance			360	180	90
Colour Orifice	**Pressure kPa**	**Flow Lph**	**Diameter m**	**Radius of Throw m**	
Blue 1.0 mm	50	25	1.6	0.8	1.1
	100	35	2.0	1.0	1.4
	150	43	2.4	1.2	1.7
Green 1.5 mm	50	48	2.0	1.0	1.3
	100	70	2.4	1.2	1.6
	150	88	2.8	1.5	1.9
Black 1.7 mm	50	62	2.4	1.2	1.6
	100	90	2.8	1.5	1.9
	150	113	3.2	1.8	2.2
Red 1.9 mm	50	77	2.5	1.4	1.8
	100	110	3.0	1.7	2.1
	150	134	3.4	2.0	2.4

Antelco® Winged™ – Single Piece Spray Jet			
Ordering information			
10115445	Winged™ Single Piece Jet, Blue 360°, 35 Lph	10115645	Winged™ Single Piece Jet, Black 360°, 90 Lph
10115425	Winged™ Single Piece Jet, Blue 180°, 35 Lph	10115625	Winged™ Single Piece Jet, Black 180°, 90 Lph
10115415	Winged™ Single Piece Jet, Blue 90°, 35 Lph	10115615	Winged™ Single Piece Jet, Black 90°, 90 Lph
10115545	Winged™ Single Piece Jet, Green 360°, 70 Lph	10115745	Winged™ Single Piece Jet, Red 360°, 110 Lph
10115525	Winged™ Single Piece Jet, Green 180°, 70 Lph	10115725	Winged™ Single Piece Jet, Red 180°, 110 Lph
10115515	Winged™ Single Piece Jet, Green 90°, 70 Lph	10115715	Winged™ Single Piece Jet, Red 90°, 110 Lph

Micro Spray Jets

Two piece jets with precise watering patterns, suited to a wide range of applications including home and landscaped gardens, horticultural and viticultural crops.

Features

- Five optional spray patterns.
- Winged base for easy hand installation.
- No separate tools required.
- Colour coded bases for flow rate identification.
- Caps feature a snap ring which firmly engages the base.
- Cap and base constructed from acetal
- Effective performance at low pressure (100 kPa)

Antelco® Micro Spray Jet – Two Piece	
Ordering information	
10114435	Winged™ Micro Spray Jet 360°x 18 Black Cap/ Green Base 54 Lph
10114235	Winged™ Micro Spray Jet 180°Fan Black Cap/ Green Base 54 Lph
10114135	Winged™ Micro Spray Jet 90°Fan Black Cap/ Green Base 54 Lph
10110855	Black Cap Only 360°x 18
10111288	180°x Black Cap/White Base 911 Lph


360° Mist Jet Yellow Base


360° x 18 hole Green Base


180° fan Green Base


90° fan Green Base


Strip Spray 40° (2 x 20°) Blue Base

Performance			360	40 (2x20)	Mist	90	180
*Min. Opening Size			0.5 mm	1.4 mm	1.2 mm	1.5 mm	1.5 mm
Base Colour & Orifice Size	**Press. kPa**	**Flow Lph**	**Diameter of Throw m**			**Radius of Throw m**	
Yellow 0.36mm	50	13			1.0		
	100	18			0.8		
	150	22			0.9		
	200	25			0.8		
	250	28			0.8		
Blue 1.0mm	50	22		2.6			
	100	33		4.8			
	150	42		5.6			
	200	49		5.8			
	250	56		5.8			
Green 1.3mm	50	36	4.7			1.4	1.5
	100	54	6.4			2.2	2.0
	150	68	7.0			2.6	2.3
	200	80	7.2			2.0	2.5
	250	91	7.6			3.1	2.7

Shaded data indicate a change in performance from spray to mist.

Antelco® CFd® Downspray

The C-Frame Downspray is a 360° spray jet that distributes water evenly across the wetted surface area. Stake assembly options provide savings in labour and installation time.

Applications

Nurseries, tree lots, pot plants, home and landscaped gardens.

Features

- 45° downspray reduces the effect of wind
- Gentle spray minimises damage to delicate plant foliage
- Galvanised wire stake assembly incorporates shutt-off clip to stop flow
- ASTA stake assembly incorporates a hole punch for easy installation
- 3 colour coded frames to identify flow rates
- Quick insertion thread with leak-proof design
- UV stablised for long life

CFd® Downspray (patent pending)		
Colour	**Orifice Size**	**Order Code**
Black Brown Blue	0.8 mm 0.9 mm 1.0 mm	10119005 10119025 10119015

CFd® Downspray Galvanised Wire Stake Assembly with Shut-Off Clip		
Colour	**Tube Length**	**Order Code**
Black Brown Blue	914 mm 914 mm 914 mm	10143705 10143725 10143715

Specifications			
Dimensions Assembled		CFd® Downspray	CFd® Downspray Wire Stake Assembly
Height Width Depth Weight (approx)		34 mm 25 mm 8 mm 1.4g	950 mm 25 mm 15 mm 27.8g
UV Stabilised Materials	Frame Stake Adaptor Off-Take Tube Barb Adaptor Stake	acetal	acetal polypropylene polyethylene acetal galvanised steel
Base/Connection Type: Inlet		Quick Thread with Sealing Barb 4mm	Barb 4 mm

Performance		360°	
Colour and Orifice Size	**Pressure kPa**	**Flow Lph**	**Diameter m**
Black 0.8 mm	50 100 150	15 22 27	0.6 0.6 0.5
Brown 0.9 mm	50 100 150	20 28 34	0.6 0.5 0.5
Blue 1.0 mm	50 100 150	22 33 42	0.6 0.5 0.5

Snap-Jet™ Spray

Low maintenance spray jet with easy-to-fit snap in jets providing for reliable irrigation of trees, vineyards, greenhouses and vegetables.

Applications

- Orchards
- Vineyards
- Greenhouses
- Vegetables

Features

- Available in three different flow rates
- Colour-coded bases for flow rate identification
- No moving parts for maximum efficiency
- Constructed of heavy duty UV resistant plastics for long life
- Easily disassembled for cleaning
- Screws into 4 mm tubing

The Snap-Jet is the economically priced spray jet.

Ordering Information

Code	Description
SSJ30C	Black Snap-Jet only
SSJ35C	Orange Snap-Jet only
SSJ40C	Blue Snap-Jet only

Snap-Jet Performance Chart

Jet	Press kPa	Flow Lph	C Hi-Low Notch 360 x 16 Stream		
			Code	Diameter m	Diameter m
Black 0.76 mm	70	18		1.74	2.38
	105	22		2.10	2.90
	140	25	SSJ30C	2.44	3.35
	170	28		2.71	3.75
	205	31		2.99	4.12
Orange 0.89 mm	70	25		1.95	2.59
	105	30		2.38	3.17
	140	35	SSJ35C	2.74	3.66
	170	39		3.08	4.09
	205	42		3.35	4.48
Blue 1.02 mm	70	32		2.16	2.80
	105	39		2.65	3.45
	140	45	SSJ40C	3.05	3.96
	170	51		3.41	4.42
	205	56		3.72	4.85

Plastic Ag Sprinklers				
	Butterfly	**IMPOP-RSR**	**Bluey**	**Model S-11**
15 mm Inlet	• M	• M	• M	
20 mm Inlet				• M
25 mm Inlet				
32 mm Inlet				
Full Circle	•	•	•	•
Part Circle		•	•	
Single Nozzle	•	•	•	•
Double Nozzle				•
Diameter of Throw (m)	9.8 - 11.0	18.4 - 27.6	21.0	24.0 - 38.5
Flow Rate (Lpm)	4.4 - 10.5	5.7 - 28.7	14.9 - 18.2	11.8 - 67.5

Metal Ag Sprinklers												
	Rotoframe™	**TR2**	**TR2FP**	**Model 1SS**	**Block**	**Senator**	**Premier**	**President**	**Monsoon™**	**Rainspray® Model 15**	**Typhoon™**	**Model 6S**
15 mm Inlet	• F			• M	• M	• M	• M					
20 mm Inlet	• F	• M	• M				• M	• M				
25 mm Inlet									• F	• F	• F	
32 mm Inlet												• M
Full Circle	•	•	•	•	•	•	•	•	•	•	•	•
Part Circle		•	•		•	•						
Single Nozzle	•	•	•	•	•	•	•	•	•	•	•	
Double Nozzle		•	•				•	•	•	•		•
Diameter of Throw (m)	10.9-12.0	23.5-32.1	23.5-32.1	19.0-24.0	21.0-24.0	22.0-25.0	20.9-32.3	24.4-34.1	29.4-34.8	34.0-44.0	32.8-36.7	57.2-71.9
Flow Rate (Lpm)	11.8-16.2	11.1-52.2	11.1-52.2	2.7 -10.9	14.8-20.8	14.5-20.5	6.3-42.4	17.1-62.3	22.7-91.2	26.0-102.0	33.0-56.4	212.0- 501.0

For additonal Large Radius Sprinklers refer to the Large Radius Sprinkler Gun Performance Chart and Overview on page 57.

Butterfly Sprinkler

Applications

- Economical low pressure 'butterfly' type sprinkler with rotating spinner.
- For use in nurseries
- Manufactured from quality engineering plastics with stainless steel spindle

Specifications

- Inlet: 15 mm MBSP
- Jet size: 3.1 mm
- Flows: 4.4 Lpm to 7 Lpm
- Diameters: 9.8 m to 11 m

An economical alternative.

Ordering Information	
Code	**Description**
1015192	Butterfly Sprinkler

Performance Chart		
kPa	**Lpm**	**Dia (m)**
100	4.4	9.8
150	5.5	11.0
200	6.4	10.8
250	7.0	10.5

Rotoframe™ Rotating Sprinklers

Applications

Lower pressure 'butterfly' sprinkler with rotating spinner and frame which provides improved water distribution.

- For use in Nurseries and Market Gardens
- Die-cast zinc body, stainless steel spindle, plastic spinner and brass nut

Specifications

- Inlet: 15 mm FBSP and 20 mm FBSP
- Jet size: 5 mm
- Flows: 11.8 Lpm to 16.2 Lpm
- Diameters: 10.9 m to 12.0 m

Rotating spinner and frame provides improved water distribution.

Ordering Information	
Code	**Description**
1015190	15 mm BSP Female
1015191	20 mm BSP Female

Performance Chart		
kPa	**Lpm**	**Dia (m)**
100	11.8	10.9
150	13.2	11.8
200	14.7	12.0
250	16.2	11.6

IMPOP-RSR Part Circle Impact Sprinkler

Applications

The IMPOP-RSR impact sprinkler can be used for dirty water on above grade installation by mounting on a pipe/riser in agricultural and turf applications.

Key Features

- Weighted guide arm controls stream and prevents side splash onto buildings, streets or walkways
- Five interchangeable, colour-coded nozzles from 5.7 to 28.7 Lpm
- Matched precipitation rates
- Part or full circle operation
- Heavy duty plastic construction
- Radius reduction screw allows up to 25% reduction
- No tools needed to change nozzles
- 3.4 mm (Black) nozzle pre-installed

Specifications

- Inlet: 15 mm MBSP
- Flows: 5.7 to 28.7 Lpm
- Diameters: 18.4 to 27.6 m
- Recommended operating pressure: 200-350 Kpa
- Maximum operating pressure: 480 kPa
- Five colour coded nozzles:
  - Orange
  - Red
  - Black
  - Blue
  - Green

Nozzles

IMPOP-RSR

IMPOP Performance Data

Nozzle mm	Colour	kPa	Lpm	Diam m
2.8	Orange	200 250 300 350	5.7 6.4 7.5 8.8	18.4 20.6 21.6 22.0
3.2	Red	200 250 300 350	7.6 8.0 8.7 9.5	20.0 21.6 23.2 24.6
3.4	Black	200 250 300 350	11.0 12.6 14.2 15.3	21.2 22.8 24.2 25.0
4.3	Blue	200 250 300 350	14.4 15.3 17.1 25.9	23.2 24.4 25.2 26.6
5.0	Green	200 250 300 350	21.9 23.6 25.9 28.7	23.8 25.2 26.6 27.6

Ordering Information

IMPOP-RSR	Plastic Part Circle Impact Sprinkler, 15 mm Inlet, 5 Colour Coded Nozzles
101TNOZ	Nozzle set, 5 colour-coded nozzles, suit IMPOP-RSR

Bluey 15 mm Plastic Part Circle Sprinkler

Applications

Economical plastic part circle impact sprinkler suited to use on a sled base or riser for use in nurseries, turf applications and lifestyle properties.

Specifications

- Inlet: 15 mm MBSP
- Flows: 14.9 to 18.2 Lpm
- Diameters: 21 m
- 4.1 mm single nozzle
- 24° Trajectory
- Part or full circle operation
- Plastic body and nozzle

Bluey Performance Data

Pressure kPa	Flow Rate Lpm	Diameter m
200	14.9	21
250	16.6	21
300	18.2	21

Bluey

101PPC15MM

Ordering Information

101PPC15MM	Plastic Part Circle 15 mm Impact Sprinkler 24° fitted with 4.1 Jet

Applications

- Orchards
- Pastures
- Vegetables

Tried and tested. Durable plastic construction, gives excellent overhead watering performance even in windy conditions.

Features

- Single or double jet impact sprinkler with 24° trajectory
- Tough acetal body with stainless steel fulcrum pin and springs
- Superior three washer bearing stack gives more reliable and consistent rotation
- Improved rear jet design increases irrigation performance
- Bayonet nozzles allow easy field service with no tools
- Rear jet inter-changeable with AR3 rear nozzle
- Improved water distribution

Specifications

- Inlet: 20 mm MBSP
- Flows: 11.8 to 67.5 Lpm
- Diameters: 24 m to 35.8 m
- Recommended Operating Pressure Range: 250 to 450 kPa
- Optimum pressures 300 to 350 kPa (shown shaded in grey)

Ordering Information	
Code	Description
1015003	Model S-II Sprinkler body only
SDA5003	Bearing, washer, spring kit
10150034930	Model S-II fitted with 4.9 x 3.0 mm Jet (ex factory)

See bottom of Performance Chart for all other made to order codes.

The Model S-II Sprinkler is the workhorse of our sprinkler range.

Performance Chart - Single Jet														
Colour	White		Black		Grey		Green		Orange		Yellow		Red	
Jet	3.7		4.1		4.4		4.9		5.4		6.1		7.1	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
200	11.8	24.0	14.5	25.4	16.2	25.8	20.2	27.0	24.8	28.0	31.5	29.6	41.0	29.8
250	13.2	25.4	16.2	26.2	18.1	26.6	22.6	28.2	27.9	29.8	35.3	30.9	46.0	32.0
300	14.5	25.8	17.8	26.6	19.9	27.6	24.8	29.0	30.6	31.0	38.7	32.2	50.4	33.8
350	15.6	26.4	19.3	27.2	21.5	28.0	26.8	29.6	33.1	31.6	41.8	33.1	54.6	34.4
400	16.7	27.4	20.6	28.0	23.1	28.6	28.7	30.2	35.5	31.7	44.8	31.8	58.3	33.6
450	17.7	28.2	21.9	28.6	24.5	29.6	30.5	30.4	37.6	31.7	47.5	31.5	61.9	34.6
Code	10150033700		10150034100		10150034400		10150034900		10150035400		10150036100		10150037100	

Performance Chart - Double Jet														
Jet	3.7 x 2.5		4.1 x 2.8		4.4 x3.2		4.9 x 3.0		5.4 x 3.0		6.1 x 3.2		7.1 x 2.5	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
200	15.8	24.4	19.7	24.9	22.2	25.6	25.2	26.3	29.8	27.6	37.1	28.4	44.6	29.8
250	17.7	25.5	22.1	25.8	24.9	26.3	28.3	27.8	33.5	29.3	41.5	30.1	50.1	31.7
300	19.5	25.8	24.4	27.3	27.3	27.6	31.2	29.3	36.7	31.4	44.8	33.0	55.0	34.4
350	21.1	26.5	26.2	27.5	29.5	27.7	33.7	27.7	39.8	31.3	49.3	32.7	59.4	34.4
400	22.2	26.8	27.9	28.0	31.1	28.5	35.5	30.5	41.7	32.4	52.0	34.7	63.0	35.8
450	24.0	28.0	29.8	28.2	33.6	29.0	38.2	30.8	45.2	31.7	56.0	32.5	67.5	33.6
Code	10150033725		10150034128		10150034432		10150034930		10150035430		10150036132		10150037125	

Codes Shaded in RED indicate ex factory models. All other combinations are made to order.

	Main Jet								Rear Jet			
Jet	3.7	4.1	4.4	4.9	5.4	6.1	7.1	Blank	2.5	2.8	3.0	3.2
Code	1015060	1015061	1015062	1015063	1015064	1015065	1015066	1015068	1015069	1015070	1015071	1015072
Colour	White	Black	Grey	Green	Orange	Yellow	Red	Black	Green	Orange	Yellow	Red

Applications

- Orchards
- Pastures
- Vegetables

An economical brass impact sprinkler designed to give reliable overhead performance, even in windy conditions.

Features

- Full circle and part circle models
- Available in single or double jet configurations
- Stainless steel fulcrum pin and springs
- High grade quality washer/bearing stack
- Trajectory 27°
- Brass jet
- Main jets come with plastic straightening vane insert

Specifications

- Inlet: 20 mm MBSP
- Flows: 11.1 Lpm to 52.2 Lpm
- Diameters: 23.5 m to 32.1 m
- Recommended Operating Pressure Range: 250 to 400 kPa

Ordering Information

Code	Description
1015260	Model TR2 Full Circle (Body Only)
1015310	Model TR2FP Part Circle (Body Only)
XXXX	Fully assembled - see bottom of Performance Charts

Reliable overhead watering operation.

Performance Chart - Single Jet - Full and Part Circle

Jet	9		10		11		12		13		14	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
210	11.1	23.5	14.1	24.7	17.2	25.0	20.2	24.7	24.1	24.7	28.3	25.3
250	12.3	23.9	15.3	25.1	19.3	25.4	22.3	25.1	25.5	25.1	31.5	25.7
300	13.7	24.2	16.7	25.5	20.7	25.8	24.4	25.5	28.4	25.5	34.4	26.1
350	15.1	24.7	18.1	25.9	22.1	26.2	26.3	25.9	31.3	25.9	37.1	26.5
400	16.6	25.2	19.6	26.6	23.6	26.7	28.0	26.4	33.6	26.4	39.2	26.7
Code-Full	10152600900		10152601000		10152601100		10152601200		10152601300		10152601400	
Code-Part	–		101531010		101531011		101531012		101531013		101531014	

Note: #9 Jet is not suitable for use with the part circle sprinkler
Jet sizes are shown in 1/64th of an inch. Codes shaded in Red indicate ex factory models. All other combinations are made to order.

Performance Chart - Double Jet - Full Circle

Jet	9 x 6		10 x 6		11 x 6		12 x 6		13 x 8		14 x 8	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
210	17.2	23.5	20.1	25.3	23.2	26.6	26.2	27.2	34.3	27.8	38.3	29.1
250	19.3	23.9	21.5	25.7	25.3	27.2	28.5	28.2	37.5	29.2	41.8	30.1
300	20.7	24.3	25.1	26.1	27.4	27.6	31.4	28.9	41.1	30.0	46.1	30.9
350	23.0	24.7	27.1	26.5	30.1	28.1	34.3	29.6	44.3	30.5	49.3	31.4
400	23.6	25.2	28.6	27.0	31.6	28.6	36.6	30.1	47.2	31.0	52.2	32.1
Code	10152600906		10152601006		10152601106		10152601206		10152601308		10152601408	

Full Circle	Main						Rear		
Jet	9	10	11	12	13	14	Blank	6	8
Code	1015329	1015330	1015331	1015332	1015333	1015334	1015320	1015326	1015328

Part Circle	Main				
Jet	10	11	12	13	14
Code	1015311	1015312	1015313	1015314	1015315

Model 1SS Wedge Drive Impact Sprinkler

Applications

Specifically designed for use in under-tree applications.

Features

- Trajectory: 24°
- Wedge drive aids distribution at lower pressures
- Brass body, arm and jets, with stainless steel fulcrum pin and springs

Specifications

- Inlet: 15 mm MBSP
- Flows: 2.7 Lpm to 10.9 Lpm
- Diameters: 17 m to 24 m
- Recommended Operating Pressure Range: 200 to 300 kPa

Wedge drive helps deliver better watering.

Performance Chart – Model 1SS

Jet	Standard Jet – 24									
	4		5		6		7		8	
kPa	Lpm	Dia. m	Lpm	Dia. m	Lpm	Dia. m	Lpm	Dia. m	Lpm	Dia. m
200	2.7	19	4.0	20	5.0	21.0	6.9	22	8.9	23
250	3.0	19	4.4	20	5.6	21.3	7.8	22	10.0	23
300	3.3	19	4.7	20	6.1	21.5	8.7	23	10.9	24

Ordering Information

Code	Description
1015243	Model 1SS 24° Sprinkler Body Only
101524306	Model 1SS 24° Sprinkler Body with #6 fitted
SDA0803	White Bearing washer to suit 1SS and 1SS-LA
SDA1535	Black Bearing washer to suit 1SS and 1SS-LA

Jets

Jet Only	Code
#5 (24°)	1015212
#6 (24°)	1015213
#7 (24°)	1015214
#8 (24°)	1015215

Ordering Information – Nozzles Fitted

	4	5	6
1SS Std. Jet 24°	101524304	101524305	101524306

Model 1SS with #6 is ex factory. All other combinations are made to order.

15 mm Brass Full/Part Circle Impact Sprinkler

Applications

- Orchards
- Pastures
- Vegetables

Features

Senator 15 mm Brass Part Circle Sprinkler

Code: 101BPC15MM

- Inlet: 15 mm MBSP
- Flows: 14.5 Lpm to 20.5 Lpm
- Diameters: 22 m to 25 m
- 10/64" single nozzle
- Part or full circle operation
- Body/Nozzle – brass construction

Block 15 mm Metal Epoxy Coated Part Circle Sprinkler

Code: 101BLOCK

- Inlet: 15 mm MBSP
- Flows: 14.8 Lpm to 20.8 Lpm
- Diameters: 21 m to 24 m
- 10/64" single nozzle brass
- 24° Trajectory
- Part or full circle operation
- Body/Nozzle – brass construction

SENATOR 101BPC15MM

101BLOCK

Pressure kPa	Diameter of Throw m	Flow Rate Lpm
200	22.0	14.5
300	23.8	17.7
400	25.0	20.5

Pressure kPa	Diameter of Throw m	Flow Rate Lpm
200	21.0	14.8
300	22.0	18.0
400	24.0	20.8

Ordering Information	
Code	**Description**
101BPC15MM	15 mm Brass Full/Part Cirlce Senator Sprinkler
101BLOCK	15 mm Brass Metal Epoxy Coated Full/Part Circle Block Sprinkler

Applications

- Orchards
- Pastures
- Vegetables

A dependable high performance full circle metal impact sprinkler widely used on aluminium hand-move or fixed systems.

Features

- Corrosion resistant non-ferrous metal body and arm with stainless steel fulcrum pin and springs
- Brass bearing and stem
- Single or double jets offering a wide range of applications

Specifications

- Inlet: 15 mm MBSP or 20 mm MBSP
- Flows: 6.3 Lpm to 42.4 Lpm
- Diameters: 20.9 m to 32.3 m
- Recommended Operating Pressure Range: 200 to 350 kPa
- Optimum pressures: 250 to 300 kPa (shown shaded)

Parts – Ordering Information

Code	Description	Qty
SKA1020	Thrust Washer	1
SKA1029	Bearing Washer	1

Widely used on hand-move or fixed systems.

Ordering Information

Code	Description	Base male (mm)
1015100	Sprinkler (Body Only)	15
1015101	Sprinkler (Body Only)	20
	Fully assembled - see below	

	Main							Rear		
Jet	7	8	9	10	11	12	14	Blank	6	8
Code	1015111	1015112	1015113	1015114	1015115	1015116	1015118	1015020	1015121	1015122

Performance Chart - Single Jet

Jet	7		8		9		10		11		12		14	
kPa	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m
150	6.3	20.9	7.8	22.0	10.2	22.7	12.6	23.4	15.2	24.3	17.0	24.7	22.8	26.5
200	7.2	22.4	8.9	23.3	11.8	24.0	14.6	25.7	17.5	26.6	19.7	27.4	26.1	29.4
250	7.9	23.1	9.9	24.0	13.2	24.6	16.4	26.6	19.5	27.7	22.0	28.8	29.0	30.7
300	8.4	23.4	10.8	24.4	14.4	25.0	18.0	27.1	21.3	28.4	24.2	29.8	31.5	31.6
350	9.1	23.8	11.6	24.7	15.6	25.3	19.5	27.4	22.9	29.0	26.1	30.6	33.9	32.3
15 mm Code	10151000700		10151000800		10151000900		10151001000		10151001100		10151001200		10151001400	
20 mm Code	10151010700		10151010800		10151010900		10151011000		10151011100		10151011200		10151011400	

Performance Chart - Double Jet

Jet	8 x 6		9 x 6		10 x 6		11 x 6		12 x 6		14 x 8	
kPa	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m
150	12.2	21.5	14.2	22.5	16.5	23.4	18.7	24.1	21.9	24.7	28.8	26.5
200	13.8	23.6	16.2	24.6	18.6	24.1	21.5	26.6	25.2	27.4	32.8	29.4
250	15.2	24.4	18.0	25.4	20.5	24.9	23.8	27.7	28.2	28.8	36.3	30.7
300	16.4	24.9	19.6	25.8	22.3	25.2	26.0	28.4	30.8	29.8	39.5	31.6
350	17.5	25.2	21.1	26.2	23.9	25.0	27.9	29.0	33.3	30.6	42.4	32.3
15 mm Code	10151000806		10151000906		10151001006		10151001106		10151001206		10151001408	
20 mm Code	10151010806		10151010906		10151011006		10151011106		10151011206		10151011408	

Jet sizes stated in 64's of an inch.
Codes shaded in RED indicate ex factory models. All other combinations are made to order.

President Impact Sprinkler

Applications

- Pastures
- Vegetables

A traditional high performance full circle metal impact sprinkler widely used for overhead watering of pastures and vegetables.

Features

- Diecast zinc body and arm, coated for improved corrosion resistance
- Stainless steel fulcrum pin and springs
- Single or double, accurately engineered plastic jets to suit a wide range of medium pressure applications
- Main jet comes with straightening vane

Specifications

- Inlet: 20 mm MBSP
- Flows: 17.1 Lpm to 62.3 Lpm
- Diameters: 24.4 m to 34.1 m
- Recommended Operating Pressure Range: 250 to 400 kPa
- Optimum pressure - 300 kPa (shown shaded grey)

Widely used on hand-move or fixed systems.

Main Jet						Rear Jet		
Jet	4.4	4.9	5.4	6.1	7.1	Blank	03	05
Code	1015045	1015046	1015047	1015048	1015058	1015150	1015151	1015152
Colour	Grey	Green	Orange	Yellow	Red	Black	Black	Black

Performance Chart - Single Jet

Colour	Grey		Green		Orange		Yellow		Red	
Jet	4.4		4.9		5.4		6.1		7.1	
kPa	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m
200	17.1	26.0	20.8	26.3	25.3	25.4	30.2	27.7	39.4	28.0
250	19.2	26.6	23.4	26.4	28.3	28.2	33.7	28.1	43.9	32.0
300	21.0	27.1	25.7	29.3	31.1	30.0	37.0	30.0	48.2	32.0
350	22.7	27.6	27.7	30.0	33.8	30.0	39.9	30.6	52.0	33.9
400	24.3	28.5	29.7	30.0	35.9	30.3	42.7	30.7	55.6	34.1
Code	10151304400		10151304900		10151305400		10151306100		10151307100	

Ordering Information

Code	Description
1015130	President Sprinkler (Body Only)
10151305403	President fitted with 5.4 x #3 jets (ex factory)

See bottom of Performance Chart for all other made to order codes.

Performance Chart –Double Jet

Jet	4.4 x No.3		4.9 x No.5		5.4 x No.3		6.1 x No.3		7.1 x No. 3	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
200	24.8	25.1	32.1	24.4	30.9	27.6	36.5	26.1	43.8	26.7
250	28.1	26.4	36.0	27.0	33.3	30.2	40.7	27.7	48.9	29.4
300	30.8	27.4	39.7	27.6	36.3	30.3	44.8	28.8	53.7	30.6
350	33.2	28.3	42.8	28.7	38.6	31.5	48.1	29.6	58.4	31.7
400	35.4	28.2	45.4	29.0	40.8	31.5	51.8	30.2	62.3	33.3
Code	10151304403		10151304905		10151305403		10151306103		10151307103	

Note: Main jet size in millimetres.
Codes shaded in RED indicate ex factory models. All other combinations are made to order.

Applications

- Orchards
- Pastures
- Vineyards

A traditional metal impact sprinkler for applications in the medium pressure range.

Suits applications in the medium pressure range.

Features

- Diecast zinc body and arm, coated for improved corrosion resistance
- Stainless steel fulcrum pin and springs
- Single or double jets offering a wide range of applications
- Unique balanced arm means the sprinkler is suitable for use on tall riser pipe
- Long flow straightening main nozzle

Specifications

- Inlet: 25 mm FBSP.
- Flows: 22.7 Lpm to 91.2 Lpm
- Diameters: 29.4 m to 34.8 m
- Recommended Operating Pressure Range: 250 to 400 kPa
- Optimum pressures - 350 to 400 kPa (shown shaded grey)

	Main						Rear			
Jet	4.8	5.6	6.0	6.4	6.8	7.2	Blank	3.2	4.8	5.6
Code	1015162	1015164	1015165	1015166	1015167	1015168	1015175	1015177	1015179	1015180

All nozzles are black in colour.

Performance – Single Jet

Jet	5.6		6.0		6.4		6.8		7.2	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
200	22.7	29.4	26.5	29.9	28.5	30.3	34.9	30.4	38.0	30.9
250	25.4	30.5	29.2	30.8	31.4	31.2	37.5	31.6	42.0	31.8
300	28.0	31.6	32.0	31.8	34.5	32.1	41.3	32.5	46.5	32.8
350	30.5	32.3	35.0	32.7	37.8	33.0	44.8	33.4	50.5	33.6
400	32.2	32.8	37.5	33.6	40.1	33.8	47.7	34.2	53.8	34.5
Code	10151605600		10151606000		10151606400		10151606800		10151607200	

Ordering Information

Code	Description
1015160	Monsoon™ Sprinkler body only
10151605632	Monsoon™ fitted with 5.6 mm x 3.2 jets (ex factory)

See bottom of Performance Charts for all other made to order codes.

Performance – Double Jet

Jet	5.6 x 3.2		6.0 x 3.2		6.4 x 3.2		6.8 x 3.2		6.8 x 4.8		7.2 x 4.8		7.2 x 5.6	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
200	32.2	29.5	36.0	28.9	38.0	29.2	43.4	30.2	53.8	30.2	58.0	31.2	64.5	31.4
250	37.4	31.4	40.0	29.7	42.0	30.4	48.5	31.3	60.0	31.3	65.0	32.0	72.1	32.2
300	40.7	32.2	43.7	30.6	46.5	31.8	53.3	32.0	66.0	32.0	71.2	32.6	79.0	33.0
350	43.7	33.5	47.4	31.5	50.4	32.7	57.5	32.9	71.5	32.9	77.2	33.5	85.4	33.8
400	46.6	34.2	50.5	32.4	53.8	33.6	61.2	33.8	76.7	33.8	82.2	34.5	91.2	34.8
Code	10151605632		10151606032		10151606432		10151606832		10151606848		10151607248		10151607256	

Applications

- Frost Control
- Crop Cooling
- Pastures

Features

- Single or double nozzle impact sprinkler with 25° trajectory
- Tough epoxy coated pressure cast zinc body and arm, stainless steel fulcrum pin and springs
- Full circle
- Fitted with high density polyethylene spring cover.

Specifications

- Inlet: 25 mm FBSP
- Flows: 26 Lpm to 102 Lpm
- Diameters: 32 m to 44 m
- Recommended Operating Pressure Range: 300 to 500 kPa

Polyethylene spring cover for added spring protection.

Parts – Ordering – Model 15

Qty	Code	Description
2	SDA0805	Bearing Washer - White
2	SDA1536	Bearing Washer - Black
1	SDA0706	Bearing Spring

Performance Chart –Single Jet

Jet	13		14		16		18		20	
kPa	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m	Lpm	Dia m
300	26	34	34	35	43	35	53	37	63	38
350	28	35	37	36	47	37	59	39	68	40
400	31	35	40	37	51	38	64	40	74	41
450	33	36	43	37	54	39	67	41	77	43
500	34	36	45	38	56	40	69	42	80	44
Model 15	10152531300		10152531400		10152531600		10152531800		10152532000	

Ordering Information

Code	Description
1015253	Model 15 Frost Control Sprinkler (Body Only)
	Fully assembled - see Performance Charts above

	Main					Rear		
Jet	13	14	16	18	20	Blank	6	8
Code	1013076	1013077	1013078	1013079	1013080	1015270	1015273	1015274

Performance Chart – Double jet

Jet	13 x 6		13 x 8		14 x 6		14 x 8		16 x 8		16 x 10		18 x 10		20 x 10	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
300	31	34	35	34	34	33	41	35	48	35	58	35	69	37	77	38
350	34	35	39	35	36	34	45	36	55	37	64	37	76	39	84	40
400	37	35	42	35	39	35	49	37	62	38	70	38	82	40	91	41
450	40	36	45	36	47	37	52	34	66	39	74	39	86	41	97	43
500	42	36	47	36	50	38	55	38	69	40	78	40	89	42	102	44
Model 15	10152531306		10152531308		10152531406		10152531408		10152531608		10152531610		10152531810		10152532010	

Codes shaded in RED indicate ex factory models. All other combinations are made to order.

Typhoon™ Impact Sprinkler

Applications

For use on aluminium hand-move or fixed systems.

Single jet impact sprinkler with adjustable arm-spring for adjustment of rotation times.

Features

- Die Cast body and arm, with zinc plating, stainless steel fulcrum pin and spring, brass bearing sleeve

Specifications

- Inlet: 25 mm FBSP
- Flows: 33.0 Lpm to 56.4 Lpm
- Diameters: 31.8 m to 37.9 m
- Recommended Operating Pressure Range: 300 to 400 kPa

For medium pressure applications.

Ordering & Performance Information

Jet	15		16		16.6		18		19	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
300	33.0	32.8	40.3	35.8	40.9	34.1	45.3	31.8	49.4	33.6
350	35.5	33.4	43.1	37.9	44.0	35.8	48.8	32.5	53.1	35.0
400	37.7	36.0	46.0	37.3	46.8	36.4	52.0	34.0	56.4	36.7
Code	1015181		1015182		1015186		1015184		1015185	

Note: Jet sizes shown in 1/64th of an inch.

Model 6S Metal Impact Sprinkler

Applications

Full circle impact sprinkler suitable for higher pressure applications.

Features

- Double jet high performance impact sprinkler constructed of quality aluminium alloy
- Recommended Operating Pressure Range: 500 to 700 kPa
- #16 Jet with adjustable diffuser pin factory fitted to sprinkler body
- 23° Trajectory

Specifications

- Inlet: 32 mm MBSP
- Flows: 212 Lpm - 501 Lpm
- Diameters: 57.2 m to 71.9 m

Ordering Information

Code	Description
10152543416	Model 6S fitted with 34x16 nozzles

Performance Chart – Double Jet

Jet	28 x 16		30 x 16		32 x 16		34 x 16		40 x 16	
kPa	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m	Flow Lpm	Dia m
450	212	57.2	237	58.5	261	60.3	304	61.5	369	65.8
500	224	58.5	250	60.0	276	61.6	317	63.1	397	67.4
550	235	59.7	263	61.5	286	62.8	331	64.6	426	68.8
600	244	60.4	274	63.9	303	64.2	345	65.7	452	69.9
650	254	62.1	281	64.0	315	65.2	362	67.0	482	71.3
700	263	62.8	293	64.6	323	65.8	374	67.6	501	71.9

Note: Jet sizes shown in 1/64th of an inch.

Sprinkler Sled Bases

Polypropylene Sprinkler Base
Code: 1014398

Mini sprinkler sled for inline tube and mobile applications such as bowling greens.

- Outlet: 15 mm FBSP
- Inlet: 15 mm MBSP
- Suitable for tube sizes up to 19 mm
- Weight 0.13 kg
- Diameter: 305 mm
- Height: 90 mm

Heavy Duty Galvanised Steel Sprinkler Base
Code: 101SLED20

Stable circular base suitable for impact sprinklers in mobile applications such as open space turf.

- Outlet: 20 mm FBSP
- Inlet: 20 mm MBSP
- Weight: 1.5 kg
- Diameter: 355 mm
- Height: 107 mm

Super Heavy Duty Galvanised Steel Sprinkler Base
Code: 101SLED32

Stable circular base suitable for impact sprinklers in mobile applications such as open space turf.

- Outlet: 32 mm FBSP
- Inlet: 32 mm MBSP
- Weight: 3.85 kg
- Diameter: 450 mm
- Height: 182 mm

Application

- Orchards
- Nurseries
- Overhead frost protector
- Vineyards

Engineered to provide improved water application for low volume, under-tree and under vine installations.

Features

- Aerofoil shaped frame improves distribution
- Snap Fit bearing provides easy field disassembly
- Anti-insect/dust proof spinner retracts to protect nozzle when not in operation
- Improved distribution characteristics with large droplet size being less susceptible to wind effects
- Low angle of throw for maximising under foliage penetration
- Available with snap-off deflector for irrigating young trees. (Reduces diameter to 30% of stated performance)
- Also available with Limited Throw Deflector (LTD)
- Retrofittable deflector plate creates fixed spray pattern for reduced throw on young plants
- Available (for easy identification) in eight colour coded flow rates ranging from 29 Lph to 304 Lph
- Recommended operating pressure as shaded on chart for optimum performance
- Maximum diameter of throw in excess of 10 metres

Specifications

- Inlet: 10 mm MBSP/NPT
- Recommended Pressure Range: 100 – 200 kPa
- Materials: Frame, bearing and nozzle: Acetal. Spinner: Nylon

Deflector Plate SPP2600DP

LTD Throw SPP412L

Deflector Tab SPP413L

Performance Chart

Jet Colour Orifice Diam.	Pressure (kPa)	Diam. Std Spinner (m)	Diam. with Ltd Spinner (m)	Diam Deflector TAB Spinner (m)	Diam Deflector Plate (m)	Flow (L/h)	Stream Height* (m)
Black 1.00 mm	100	4.9				30	0.56
	150	5.5	4.0	1.0	1.4	36	0.62
	200	5.8				41	0.65
White 1.05 mm	100	6.1				44	0.56
	150	6.9	4.6	1.4	1.4	55	0.62
	200	7.3				64	0.65
Maroon 1.25 mm	100	6.8				62	0.57
	150	7.8	5.1	1.5	1.4	76	0.71
	200	8.3				89	0.90
Green 1.40 mm	100	7.3				81	0.60
	150	9.2	5.3	1.6	1.4	99	0.83
	200	10.3				115	0.90
Blue 1.65 mm	100	8.4				108	0.60
	150	9.4	6.0	1.7	1.6	134	0.80
	200	10.5				156	0.92
Grey 1.80 mm	100	8.5				125	0.60
	150	9.4	5.5	2.7	1.7	155	0.77
	200	10.8				178	0.90
Yellow 2.0 mm	100	8.3				156	0.65
	150	9.4	N/R	2.5	1.8	192	0.75
	200	10.3				221	0.85
Red 2.3 mm	100	8.8				214	0.74
	150	10.2	N/R	2.5	1.8	265	0.97
	200	10.3				304	1.05

Shaded portions indicate recommended operating pressures.
Diameters based on spinner installed 250 mm above ground.
** Measured from spinner outlet.*

Ordering Information	
CODE	**DESCRIPTION**
1014271	Waterbird Classic 10 mm, Black Nozzle at 36 Lph, 2.8 m radius with Standard Spinner
1014272	Waterbird Classic 10 mm, White Nozzle at 55 Lph, 3.5 m radius with Standard Spinner
1014273	Waterbird Classic 10 mm, Maroon Nozzle at 76 Lph, 3.9 m radius with Standard Spinner
1014274	Waterbird Classic 10 mm, Green Nozzle at 99 Lph, 4.6 m radius with Standard Spinner
1014275	Waterbird Classic 10 mm, Blue Nozzle at 134 Lph, 4.7 m radius with Standard Spinner
1014276	Waterbird Classic 10 mm, Grey Nozzle at 155 Lph, 4.7m radius with Standard Spinner
1014277	Waterbird Classic 10 mm, Yellow Nozzle at 192 Lph, 4.7 m radius with Standard Spinner
1014278	Waterbird Classic 10 mm, Red Nozzle at 265 Lph, 5.1 m radius with Standard Spinner
1014281	Waterbird Classic 10 mm, Black Nozzle at 36 Lph, 0.5 m radius with Deflector Tab Spinner
1014282	Waterbird Classic 10 mm, White Nozzle at 55 Lph, 0.7 m radius with Deflector Tab Spinner
1014283	Waterbird Classic 10 mm, Maroon Nozzle at 76 Lph, 0.8 m radius with Deflector Tab Spinner
1014284	Waterbird Classic 10 mm, Green Nozzle at 99 Lph, 0.8 m radius with Deflector Tab Spinner
1014285	Waterbird Classic 10 mm, Blue Nozzle at 134 Lph, 0.9 m radius with Deflector Tab Spinner
1014291	Waterbird Classic 10 mm, Black Nozzle at 36 Lph, 2.8 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014292	Waterbird Classic 10 mm, White Nozzle at 55 Lph, 3.5 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014293	Waterbird Classic 10 mm, Maroon Nozzle at 76 Lph, 3.9 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014294	Waterbird Classic 10 mm, Green Nozzle at 99 Lph, 4.6 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014300	Waterbird Classic 10 mm, Blue Nozzle at 134 Lph, 4.7 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014299	Waterbird Classic 10 mm, Yellow Nozzle at 192 Lph, 4.7 m radius with Standard Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014295	Waterbird Classic 10 mm, Black Nozzle at 36 Lph, 0.5 m radius with Deflector Tab Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014296	Waterbird Classic 10 mm, White Nozzle at 55 Lph, 0.7 m radius with Deflector Tab Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014297	Waterbird Classic 10 mm, Maroon Nozzle at 76 Lph, 0.8 m radius with Deflector Tab Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014298	Waterbird Classic 10 mm, Green Nozzle at 99 Lph, 0.8 m radius with Deflector Tab Spinner on Black Stake with 5 mm x 0.6 m Tube and Adaptor
1014272LTD	Waterbird Classic 10 mm, White Nozzle at 55 Lph, 2.3 m radius with Limited Throw Deflector Spinner
1014273LTD	Waterbird Classic 10 mm, Maroon Nozzle at 76 Lph, 2.6 m radius with Limited Throw Deflector Spinner
1014274LTD	Waterbird Classic 10 mm, Green Nozzle at 99 Lph, 2.7 m radius with Limited Throw Deflector Spinner
1014275LTD	Waterbird Classic 10 mm, Blue Nozzle at 134 Lph, 3.0 m radius with Limited Throw Deflector Spinner
1014276LTD	Waterbird Classic 10 mm, Grey Nozzle at 155 Lph, 2.7 m radius with Limited Throw Deflector Spinner

Additional configurations are available on request.

Waterbird® PC (Pressure Compensating) Mini Sprinkler

Application

Delivers a spray pattern that suits a wide range of crops. Suits a mixture of applications including under tree irrigation, overhead irrigation, vegetables, vineyards, orchards, greenhouse applications and overhead frost protection.

Features

- Unique patented pressure compensating diaphragm assembly for improved performance
- Pressure compensating mechanism provides uniform flow on undulating terrain
- Anti-insect/dust proof spinner retracts to protect nozzle when not in operation
- A two stage spinner provides two diameters of throw. The smallest diameter is for younger trees, and the deflector is simply removed for developed trees
- Aerofoil shaped frame improves sprinkler distribution pattern
- Large droplet size is less susceptible to wind effects
- Snap Fit bearing for easy infield maintenance
- Low angle of throw maximises under foliage penetration
- Eight colour coded flow rates from 35 Lph to 152 Lph
- Available in both standard and deflector tab spinners
- Fully assembled models available with pre-installed tube and stake

Specifications

- Inlet: 10 mm MBSP/NPT
- Recommended Pressure Range: 150 – 350 kPa
- Materials: Frame, bearing and nozzle: Acetal. Spinner: Nylon

Performance Chart

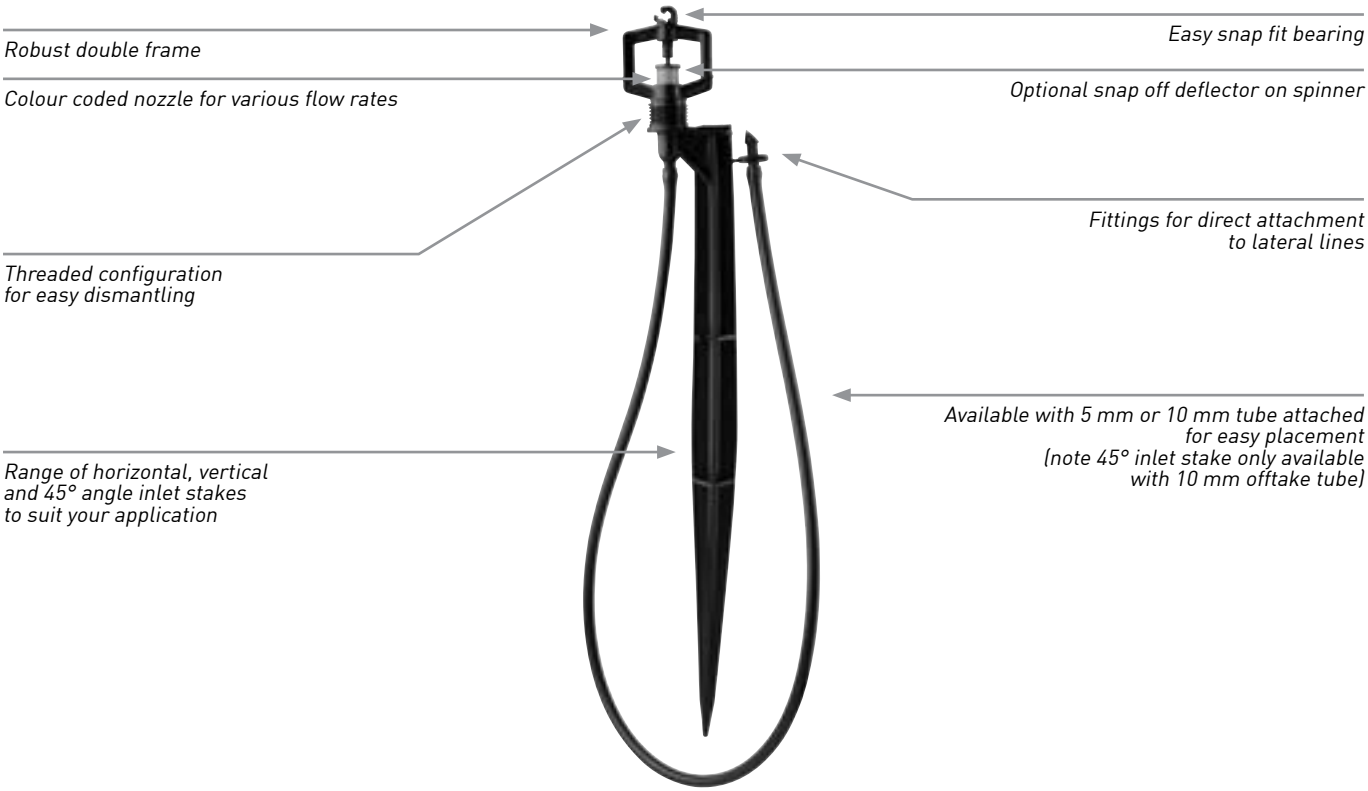
Jet Colour	Pressure (kPa)	Diam. Std Spinner (m)	Diam Deflector TAB Spinner (m)	Flow (Lph)	Stream Height* (m)
Black	150	5.5		35	0.39
	200	5.5	0.6	36	
	250	5.5	0.6	37	
	300	5.5	0.6	37	
	350	5.5		37	
Light Blue	150	5.5		45	0.36
	200	6.0	1.0	48	
	250	6.0	1.0	48	
	300	6.0	1.0	47	
	350	6.0		47	
White	150	6.5		54	0.43
	200	6.5	1.4	57	
	250	6.5	1.4	57	
	300	7.0	1.4	58	
	350	7.0		59	
Maroon	150	7.0		74	0.33
	200	7.5	1.6	76	
	250	8.0	1.6	77	
	300	7.5	1.6	76	
	350	7.5		75	
Green	150	8.0		96	0.50
	200	8.0	1.7	97	
	250	8.0	1.8	97	
	300	8.5	2.0	98	
	350	8.5		98	
Purple	150	8.4		120	0.35
	200	8.4	2.1	116	
	250	7.6	2.1	116	
	300	7.8	2.1	116	
	350	7.8		116	
Blue	150	9.0		135	0.50
	200	9.0	2.7	135	
	250	9.0	2.7	134	
	300	9.0	2.7	133	
	350	8.5		134	
Grey	150	9.0		151	0.39
	200	9.5	2.7	151	
	250	9.0	2.7	152	
	300	9.0	2.7	150	
	350	9.0		149	

Shaded portions indicate recommended operating pressures.
Diameters based on spinner installed 250 mm above ground.
** Measured from spinner outlet.*

Ordering Information	
Waterbird® PC Mini Sprinkler Head Only	
CODE	**DESCRIPTION**
WB7PC36	Waterbird PC, 10 mm Black Nozzle at 36 Lph, 2.8 m radius with Standard Spinner
WB7PC47	Waterbird PC, 10 mm Light Blue Nozzle at 47 Lph, 3.0 m radius with Standard Spinner
WB7PC57	Waterbird PC, 10 mm White Nozzle at 57 Lph, 3.3 m radius with Standard Spinner
WB7PC76	Waterbird PC, 10 mm Maroon Nozzle at 76 Lph, 4.0 m radius with Standard Spinner
WB7PC99	Waterbird PC, 10 mm Green Nozzle at 99 Lph, 4.0 m radius with Standard Spinner
WB7PC118	Waterbird PC, 10 mm Purple Nozzle at 118 Lph, 3.8 m radius with Standard Spinner
WB7PC134	Waterbird PC, 10 mm Blue Nozzle at 134 Lph, 4.5 m radius with Standard Spinner
WB7PC151	Waterbird PC, 10 mm Grey Nozzle at 151 Lph, 4.5 m radius with Standard Spinner
WB7PC36D	Waterbird PC, 10 mm Black Nozzle at 36 Lph, 0.3 m radius with Deflector Spinner
WB7PC47D	Waterbird PC, 10 mm Light Blue Nozzle at 47 Lph, 0.5 m radius with Deflector Spinner
WB7PC57D	Waterbird PC, 10 mm White Nozzle at 57 Lph, 0.7 m radius with Deflector Spinner
WB7PC76D	Waterbird PC, 10 mm Maroon Nozzle at 76 Lph, 0.8 m radius with Deflector Spinner
WB7PC99D	Waterbird PC, 10 mm Green Nozzle at 99 Lph, 0.9 m radius with Deflector Spinner
WB7PC118D	Waterbird PC, 10 mm Purple Nozzle at 118 Lph, 1.1 m radius with Deflector Spinner
WB7PC134D	Waterbird PC, 10 mm Blue Nozzle at 134 Lph, 1.4 m radius with Deflector Spinner
WB7PC151D	Waterbird PC, 10 mm Grey Nozzle at 151 Lph, 1.4 m radius with Deflector Spinner
Waterbird® PC Mini Sprinkler with Stake and Tube Assembly	
CODE	**DESCRIPTION**
WB7PCXXS	Available with Standard Spinner on Black Stake with Tube and Adaptor
WB7PCXXSR	Available with Standard Spinner on Red Stake with Tube and Adaptor
WB7PCXXDS	Available with Deflector Spinner on Black Stake with Tube and Adaptor
WB7PCXXDSR	Available with Deflector Spinner on Red Stake with Tube and Adaptor

For any of the above configurations, substitute the XX with the desired flow rate (refer to the above codes).
E.g. For Waterbird PC at 47 Lph with standard spinner on black stake, use code WB7PC47S.

N.B. Nozzles 36 to 99 Lph fitted with 5 mm x 0.6 m Tube and Stake, Nozzles 118 Lpm and above fitted with 10 mm x 0.8 m Tube and Stake



Application

Designed specifically to meet the needs of the olive industry. The Waterbird® PC Olive Sprinkler is fully designed, engineered and manufactured in Australia, it's built to operate in the harshest of environments.

Features

- An even throw of water across the spray pattern ensures good, consistent root development
- Aerofoil frame design for improved distribution
- Proven robust frame design for superior strength and long field life
- The advanced spinner mechanism ensures excellent start-up reliability and low maintenance
- The anti-insect spinner design protects the jet and tube when it's not in use
- A two stage spinner provides two diameters of throw. The smaller diameter for younger trees, and the deflector is simply removed for developed trees
- Supplied with a deflector tab on the spinner to reduce diameter of throw to approx. 30%. Can be removed at any time by hand
- The self flushing pressure compensating mechanism provides regulated flow for undulating terrain
- A highly visible UV stabilised red stake provides easy identification and reduces the chance of mechanical damage
- Also available with UV stabilised black stake (optional)

Specifications

- Inlet: 10 mm MBSP/NPT
- Recommended Pressure Range: 150 - 350 kPa
- Materials: Frame, bearing and nozzle: Acetal. Spinner: Nylon

Performance Chart

Jet Colour Orifice Diam.	Pressure (kPa)	Diam. Std Spinner (m)	Radius Std Spinner (m)	Diam Deflector TAB Spinner (m)	Radius Std Spinner (m)	Flow (L/h)	Stream Height* (m)
Purple 0.9 mm	150	4.2	2.1			28	0.11
	200	4.0	2.0	1.2	0.6	29	
	250	4.0	2.0	1.2	0.6	27	
	300	4.0	2.0	1.2	0.6	27	
	350	4.0	2.0			28	
Brown 1.06 mm	150	4.5	2.3			36	0.13
	200	4.5	2.3	1.3	0.7	37	
	250	4.5	2.3	1.3	0.7	37	
	300	4.5	2.3	1.3	0.7	37	
	350	4.5	2.3			37	
Light Blue 1.25 mm	150	4.5	2.3			47	0.13
	200	4.5	2.3	1.4	0.7	47	
	250	4.5	2.3	1.4	0.7	47	
	300	4.5	2.3	1.4	0.7	48	
	350	4.5	2.3			48	
Light Green 1.33 mm	150	5.0	2.5			55	0.15
	200	5.0	2.5	1.5	0.8	56	
	250	5.0	2.5	1.5	0.8	56	
	300	5.0	2.5	1.5	0.8	57	
	350	5.0	2.5			56	
Orange 1.46 mm	150	6.0	3.0			68	0.15
	200	6.0	3.0	1.8	0.9	70	
	250	6.0	3.0	1.8	0.9	68	
	300	6.0	3.0	1.8	0.9	68	
	350	6.0	3.0			69	
Grey 1.46 mm	150	6.8	3.4			86	0.24
	200	6.8	3.4	2.00	1.0	88	
	250	6.8	3.4	2.00	1.0	88	
	300	6.8	3.4	2.00	1.0	89	
	350	6.8	3.4			90	

Shaded portions indicate recommended operating pressures.
Diameters based on spinner at 250 mm above ground level.
** Measured from spinner outlet.*

Ordering Information	
CODE	**DESCRIPTION**
WB7PC36DSR	Waterbird PC, 10 mm Black Nozzle at 36 Lph, 0.3 m radius with Deflector Spinner on Red stake with 5 mm x 0.6 m tube and adaptor
WB7PC47DSR	Waterbird PC, 10 mm Light Blue Nozzle at 47 Lph, 0.5 m radius with Deflector Spinner on Red stake with 5 mm x 0.6 m tube and adaptor
WB7PC57DSR	Waterbird PC, 10 mm White Nozzle at 57 Lph, 0.7 m radius with Deflector Spinneron Red stake with 5 mm x 0.6 m tube and adaptor
WB7PC76DSR	Waterbird PC, 10 mm Maroon Nozzle at 76 Lph, 0.8 m radius with Deflector Spinneron Red stake with 5 mm x 0.6 m tube and adaptor
WB7PC99DSR	Waterbird PC, 10 mm Green Nozzle at 99 Lph, 0.9 m radius with Deflector Spinneron Red stake with 5 mm x 0.6 m tube and adaptor
WB7PC118DSR	Waterbird PC, 10 mm Purple Nozzle at 118 Lph, 1.1 m radius with Deflector Spinneron Red stake with 10 mm x 0.8 m tube and adaptor
WB7PC134DSR	Waterbird PC, 10 mm Blue Nozzle at 134 Lph, 1.4 m radius with Deflector Spinner on Red stake with 10 mm x 0.8 m tube and adaptor
WB7PC151DSR	Waterbird PC, 10 mm Grey Nozzle at 151 Lph, 1.4 m radius with Deflector Spinner on Red stake with 10 mm x 0.8 m tube and adaptor
CODE	**DESCRIPTION**
WB7PCXXDS	Available with Deflector Spinner on Black Stake with tube and adaptor

Substitute the XX with the desired flow rate (refer to the above codes).

E.g. For Waterbird PC at 47 L/h with Deflector Spinner on Black Stake with tube and adaptor, use code WB7PC47DS.

N.B. Nozzles 36 to 99 Lph fitted with 5 mm x 0.6m Tube & Stake, Nozzles 118 Lph and above fitted with 10 mm x 0.8m Tube and Stake.

Application

Developed to allow easy suspension from poly tubing for convenience during harvesting. Waterbird Trellis is specifically designed to meet the needs of nut tree growers to provide improved water application for under tree irrigation.

Features

- Developed to meet the unique needs of nut tree growers
- Trellis hook allows for easy suspension from poly tubing with a cable tie
- Snap lock bearing prevents nozzle dislodging by machinery during harvest and spraying
- Anti-insect/dust proof spinner retracts to protect nozzle when not in operation
- Low angle of throw for maximising under foliage penetration
- Robust aerofoil shaped frame for improved distribution and long field life
- More efficient water application – larger droplets, low angle and less wind effect
- Fully assembled model available with pre-installed 5 mm x 0.6 m tube and 5 mm Adaptor
- Limited Throw Deflector (LTD) models available

Specifications

- Inlet: 10 mm MBSP/NPT
- Recommended Pressure Range: 100 – 200 kPa
- Materials: Frame, bearing and nozzle: Acetal. Spinner: Nylon
- Trellis Hook: suits cable ties to 5 mm width

Performance Chart

Jet Colour Orifice Diam.	Pressure (kPa)	Diam. Std Spinner (m)	Radius Std Spinner (m)	Diam Deflector Ltd Spinner (m)	Radius Deflector Ltd Spinner (m)	Diam Deflector TAB Spinner (m)	Radius Deflector TAB Spinner (m)	Flow (L/h)	Stream Height* (m)
White 1.05 mm	100	6.1	3.1					43	0.56
	150	6.9	3.5	4.6	2.3	1.0	0.5	53	0.62
	200	7.3	3.7					61	0.65
Maroon 1.25 mm	100	6.8	3.4					60	0.57
	150	7.8	3.9	5.1	2.6	1.5	0.8	74	0.71
	200	8.3	4.2					85	0.90
Green 1.40 mm	100	7.3	3.7					75	0.60
	150	9.2	4.6	5.3	2.7	1.7	0.9	92	0.83
	200	10.3	5.2					106	0.90

Shaded portions indicate recommended operating pressures.
Diameters based on spinner at 250 mm above ground level.
** Measured from spinner outlet.*

Ordering Information

CODE	DESCRIPTION
1014272T	Waterbird Trellis, 10 mm White Nozzle at 55Lph, 3.5 m radius with Standard Spinner
1014272TA	Waterbird Trellis, 10 mm White Nozzle at 55Lph, 3.5 m radius with Standard Spinner, assembled with tube and adaptor
1014273T	Waterbird Trellis, 10 mm Maroon Nozzle at 76Lph, 3.9 m radius with Standard Spinner
1014273TA	Waterbird Trellis, 10 mm Maroon Nozzle at 76Lph, 3.9 m radius with Standard Spinner, assembled with tube and adaptor
1014274T	Waterbird Trellis, 10 mm Green Nozzle at 99Lph, 4.6 m radius with Standard Spinner
1014274TA	Waterbird Trellis, 10 mm Green Nozzle at 99Lph, 4.6 m radius with Standard Spinner, assembled with tube and adaptor

Additional configurations are available on request.
NB. All assembled nozzles are fitted with 5 mm x 0.6 m PVC tube and 5 mm adaptor

WBS1045WT:
Waterbird Stake (365 mm), 10 mm x 45º Angled Inlet, Black, fitted with 10 mm x 0.8 m tube.

1014374:
Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black.

1014372:
Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black, fitted with 5 mm x 0.6 m tube.

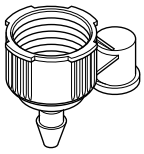
WBS1045:
Waterbird Stake (365 mm), 10 mm x 45º Angled Inlet, Black.

1014376:
Waterbird Stake (360 mm), 5 mm Vertical Inlet, Red.

WBD180R:
Red Snap On 180º Deflector, suit Olive Sprinkler.

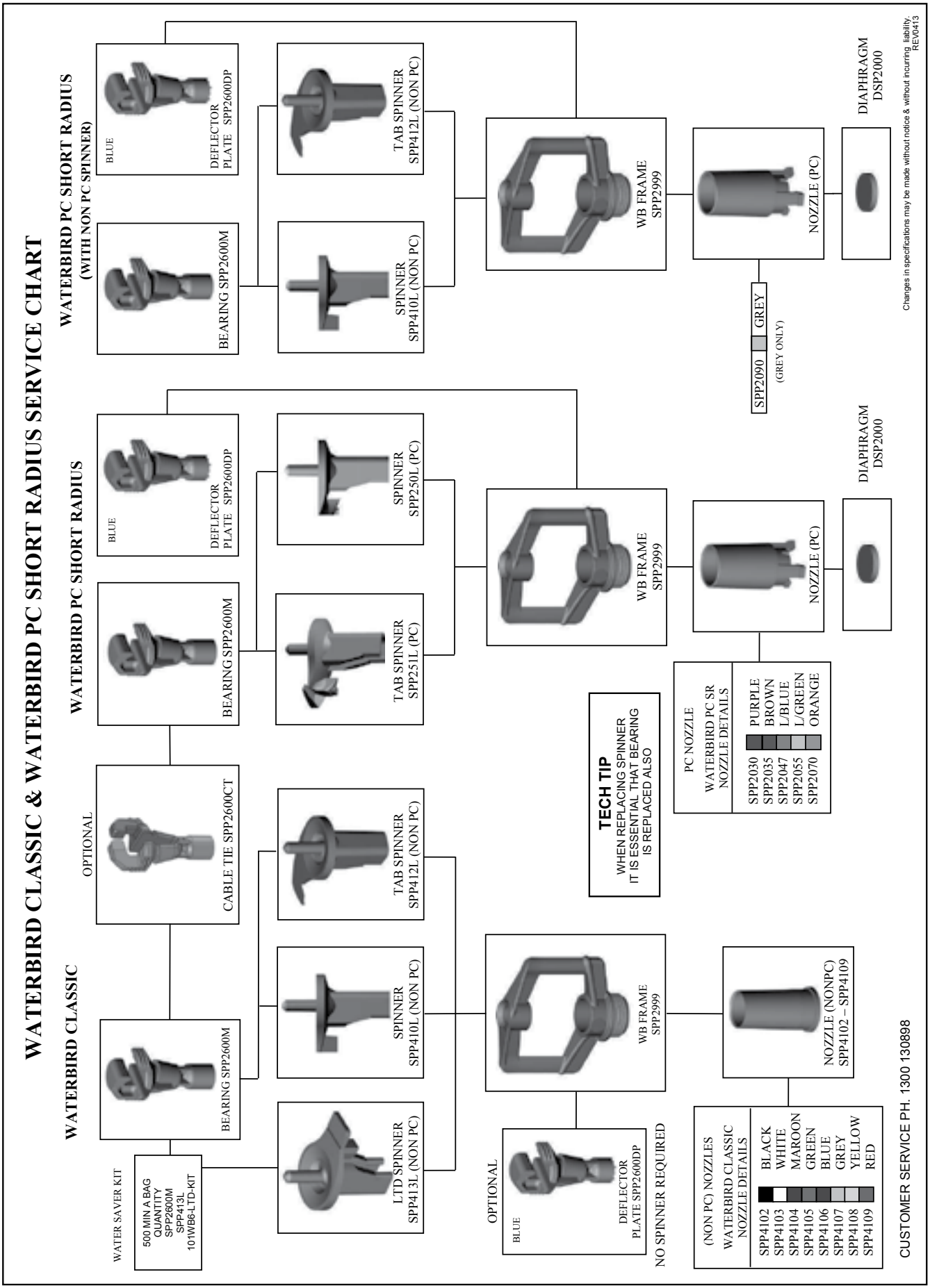
WBD180B:
Black Snap On 180º Deflector, suit all Waterbirds

10143967/1014396:
Stake Adaptor, 10 mm Inlet with 15 mm BSPM Outlet and 10 mm BSPF Outlet. Mounts on 20 mm PVC Pipe.



IPG10091:
Waterbird Adaptor for 5 mm Rod Stake with 5 mm Barbed Inlet.

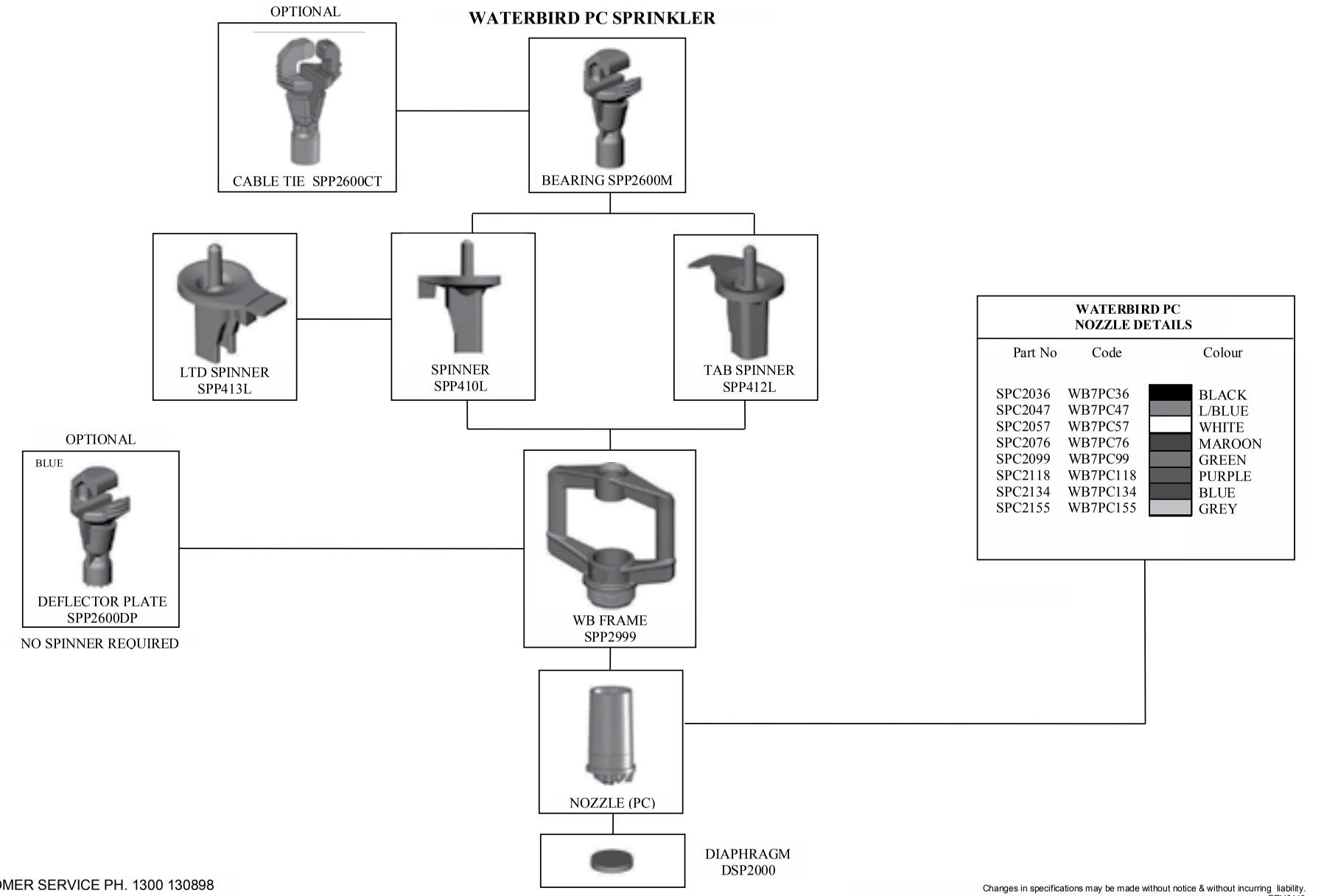
Ordering Information	
Code	**Description**
1014374	Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black
1014376	Waterbird Stake (360 mm), 5 mm Vertical Inlet, Red
1014372	Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black, fitted with 5 mm x 0.6 m tube
1014372-1	Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black, fitted with 5 mm x 1 m tube
1014372-12	Waterbird Stake (360 mm), 5 mm Vertical Inlet, Black, fitted with 5 mm x 1.2 m tube
10143967	Stake Adaptor Red, 10 mm Inlet with 15 mm BSPM Outlet and 10 mm BSPF Outlet. Mounts on 20 mm PVC Pipe
1014396	Stake Adaptor Black, 10 mm Inlet with 15 mm BSPM Outlet and 10 mm BSPF Outlet. Mounts on 20 mm PVC Pipe
WBS1045	Waterbird Stake (365 mm), 10 mm x 45º Angled Inlet, Black
WBS1045WT	Waterbird Stake (365 mm), 10 mm x 45º Angled Inlet, Black, fitted with 10 mm x 0.8 m tube
IPG10091	Waterbird Adaptor for 5 mm Rod Stake with 5 mm Barbed Inlet.
WBT5200	5 mm x 200 m PVC Flexible Tubing
1011431	10 mm x 250 m Polyethylene Tubing
WBD180R	Red Snap On 180 Degree Deflector suit Olive Sprinkler
WBD180B	Black Snap On 180 Degree Deflector suit all Waterbirds
SPP2600DP	Snap-in Deflector Plate (Converts WBC to Stream Jet)
WT0610	6 mm x 10 mm Take-off, suit Waterbird 10 mm Tubing
1011047	5 mm Joiner, suit Waterbird



Changes in specifications may be made without notice and without incurring liability. Note: PC Short Radius Models no longer available as complete sprinklers.

WATERBIRD PC SERVICE CHART

WATERBIRD PC SPRINKLER



WATERBIRD PC NOZZLE DETAILS

Part No	Code	Colour
SPC2036	WB7PC36	BLACK
SPC2047	WB7PC47	L/BLUE
SPC2057	WB7PC57	WHITE
SPC2076	WB7PC76	MAROON
SPC2099	WB7PC99	GREEN
SPC2118	WB7PC118	PURPLE
SPC2134	WB7PC134	BLUE
SPC2155	WB7PC155	GREY

CUSTOMER SERVICE PH. 1300 130898

Changes in specifications may be made without notice & without incurring liability.
REV0413

Changes in specifications may be made without notice and without incurring liability.

Toro Australia Pty Ltd, 53 Howards Road, Beverley, South Australia, 5009.
Phone 1300 130 898, fax (08) 8243 2488. A.B.N. 47 001 310 443

Page no.

Application

For use in horticultural, viticultural, greenhouse and landscape applications, Neptune PC provides a highly accurate and durable drip solution.

The pressure compensating mechanism provides uniformity over long runs and changing topographies.

The Non-Drain PC emitter is suited to pulse irrigation and systems installed on sloping terrain, improving irrigation efficiencies by reducing the time taken to pressurise the system.

Features

Pressure Compensating

- Wide cross-section labyrinth creates maximum turbulence to keep debris in suspension
- Self-flushing diaphragm allows debris to pass through the emitter, reducing risk of blockages
- Pressure compensating for even water and nutrient distribution over long runs and changing topographies
- Silicone diaphragm for performance and longevity
- Low entry pressure (50 kPa) for pressure compensating mode
- Low CV provides uniform discharge over a wide pressure range
- UV stabilised LDPE tube for multi season application
- Large tube diameters available creating the ability for long runs

Non-Drain (additional features)

- Suited to pulse irrigation and sloping terrain
- Reduces time to pressurise system at start up
- Reduced water usage and energy costs

Operating Specifications

- Recommended Operating Pressure Range:
  - 15.4 and 19.0 mm I.D.: 100 - 350 kPa
  - 20.8 mm I.D.: 100 - 325 kPa
  - 25 mm I.D.: 100 - 300 kPa
- Emitter Flow: 1.2, 1.5 & 2.4 Lph
- Emitter Spacing: 0.3 - 1.0 m
- Tube I.D.: 15.4, 19.0, 20.8 & 25.0 mm
- Wall Thickness: 0.63, 0.9 & 1.0 mm
- Recommended Filtration:
  - 1.2 Lph: 150 mesh / 100 micron
  - 1.5 & 2.4 Lph: 120 mesh / 130 micron
- Non-Drain (ND) Emitter Opening Pressure:
  - ND Emitters open at 50 kPa (5.0 m)
  - ND Emitters close at 17 kPa (1.7 m)

Specifications				
Nominal Diameter	15 mm	19 mm	21 mm	25 mm
ID (mm)	15.4 mm	19.0 mm	20.8 mm	25.0 mm
Flow Rates	1.2, 1.5, 2.4 Lph	1.2, 1.5, 2.4 Lph	1.2, 1.5, 2.4 Lph	1.2, 1.5, 2.4 Lph
Std. Wall Thickness	0.63 & 0.90 mm	0.63, 0.90 & 1.0 mm	0.63, 0.90 & 1.0 mm	0.63, 0.90 & 1.0 mm
Sealing Pressure (kPa)	17 kPa	18 kPa	19 kPa	20 kPa
Opening Pressure (kPa)	50 kPa	50 kPa	50 kPa	50 kPa
Compensating Range	50-350 kPa	50-350 kPa	50-325 kPa	50-300 kPa
Minimum Recommended Pressure	100 kPa	100 kPa	100 kPa	100 kPa
Maximum Pressure	350 kPa	350 kPa	325 kPa	300 kPa
Standard Coil Length	400 m	350 m	350 m	300 m
Standard Emitter Spacings	0.3, 0.4, 0.5, 0.55, 0.6, 0.75, 0.9, 1.0m	0.3, 0.4, 0.5, 0.55, 0.6, 0.75, 0.9, 1.0m	0.3, 0.4, 0.5, 0.55, 0.6, 0.75, 0.9, 1.0m	0.3, 0.4, 0.5, 0.55, 0.6, 0.75, 0.9, 1.0m

Design Information												
Nominal Diameter/Flow (Lph)	15/1.2	15/1.5	15/2.4	19/1.2	19/1.5	19/2.4	21/1.2	21/1.5	21/2.4	25/1.2	25/1.5	25/2.4
ID (mm)	15.4	15.4	15.4	19.0	19.0	19.0	20.8	20.8	20.8	25.0	25.0	25.0
Emitter Index (in compensating range)	0	0	0	0	0	0	0	0	0	0	0	0
Emitter constant	1.18	1.48	2.36	1.18	1.48	2.36	1.18	1.48	2.36	1.18	1.48	2.36
Emitter Kd barb factor	0.38	0.38	0.38	0.19	0.19	0.19	0.14	0.14	0.14	0.08	0.08	0.08
Roughness Factor, C	140	140	140	140	140	140	140	140	140	140	140	140
Minimum Compensating Pressure (kPa)	50	50	50	50	50	50	50	50	50	50	50	50
Minimum Recommended Pressure (kPa)	100	100	100	100	100	100	100	100	100	100	100	100
Maximum Pressure (All Wall Thickness)	350	350	350	350	350	350	325	325	325	300	300	300
Filtration (micron) - sand	100	120	120	100	120	120	100	120	120	100	120	120

Ordering Information					
Product (Tube Type)	Emitter Type	Tube I.D.	Wall Thickness	Emitter Flow Rate	Emitter Spacing
N	XX	XX	XX	XX	XXX
Neptune dripline	PC = PC ND = Non-drain, PC	15 = 15.4 mm 19 = 19.0 mm 21 = 20.8 mm 25 = 25.0 mm	06 = 0.63 mm 09 = 0.9 mm 10 = 1.0 mm	12 = 1.2 Lph 15 = 1.5 Lph 24 = 2.4 Lph	030 = 0.30 m 040 = 0.40 m 050 = 0.50 m 055 = 0.55 m 060 = 0.60 m 075 = 0.75 m 090 = 0.90 m 100 = 1.00 m

Example: Neptune PC 20.8 mm, 0.9 mm wall thickness, 2.4 Lph emitter every 0.3 metres would be specified as: NPC210924030
Standard Coil Length, 15.4 mm: 400 m , 19.0 & 20.8 mm: 350 m, 25.0 mm: 300 m
Standard emitter spacing is 0.3 m to 1.0 m. Different configurations are available on request subject to availability and minimum order quantities. Please refer to Customer Service for details.

Neptune® PC and Non-drain PC Maximum Run Length Tables (m)

I.D. 15.4 mm - Flow Rate 1.2 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	123	154	182	208	246	279	302
200	156	196	232	266	313	356	383
250	180	225	267	306	360	410	442
300	198	249	295	338	398	454	489
350	214	269	318	365	429	490	528

I.D. 19 mm - Flow Rate 1.2 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	188	233	274	312	365	414	446
200	239	296	349	397	465	527	568
250	275	341	401	457	535	607	653
300	304	377	443	505	592	672	723
350	328	407	479	546	640	727	781

I.D. 15.4 mm - Flow Rate 1.5 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	106	133	158	180	212	241	260
200	135	169	200	229	270	308	331
250	155	194	230	264	311	355	382
300	171	215	255	292	344	392	422
350	185	232	275	315	371	424	456

I.D. 19 mm - Flow Rate 1.5 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	161	199	234	267	312	354	381
200	204	253	298	340	398	451	485
250	235	292	343	391	458	520	559
300	260	322	379	432	506	574	618
350	281	348	410	467	547	621	668

I.D. 15.4 mm - Flow Rate 2.4 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	78	98	116	132	156	177	192
200	99	124	147	168	198	226	244
250	114	143	169	194	229	261	281
300	126	158	187	214	252	288	311
350	136	170	202	232	273	311	336

I.D. 19 mm - Flow Rate 2.4 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	118	147	172	196	230	261	280
200	150	186	219	249	292	332	357
250	173	214	252	288	337	382	411
300	191	237	279	318	373	423	455
350	206	256	301	343	402	457	491

I.D. 20.8 mm - Flow Rate 1.2 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	221	273	320	364	425	482	518
200	281	347	408	464	541	614	660
250	324	400	469	534	624	707	761
300	358	442	519	590	690	782	841
350	387	478	561	638	746	846	909

I.D. 25 mm - Flow Rate 1.2 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	311	382	446	506	589	667	716
200	396	486	568	645	751	850	912
250	456	560	655	743	865	979	1051
300	504	619	724	821	956	1083	1163
350	545	669	782	888	1034	1170	1256

I.D. 20.8 mm - Flow Rate 1.5 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	191	236	277	315	368	416	447
200	243	300	352	401	468	531	571
250	280	346	406	462	539	612	657
300	309	382	449	510	596	676	727
350	334	413	485	551	645	731	786

I.D. 25 mm - Flow Rate 1.5 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	269	330	386	437	510	577	619
200	342	420	491	557	649	735	788
250	394	484	566	642	748	846	909
300	436	535	626	710	827	936	1005
350	471	578	676	767	894	1012	1087

I.D. 20.8 mm - Flow Rate 2.4 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	141	174	203	232	271	306	329
200	179	221	259	295	344	390	420
250	206	254	298	340	397	450	484
300	227	281	330	375	439	497	535
350	245	303	356	406	475	538	579

I.D. 25 mm - Flow Rate 2.4 Lph

Operating Pressure (kPa)	Emitter Spacing (m)						
	0.3	0.4	0.5	0.6	0.75	0.9	1.0
150	198	243	284	322	375	424	455
200	252	309	362	410	478	541	581
250	290	356	417	473	551	624	670
300	320	393	460	523	609	689	740
350	346	426	498	565	658	745	800

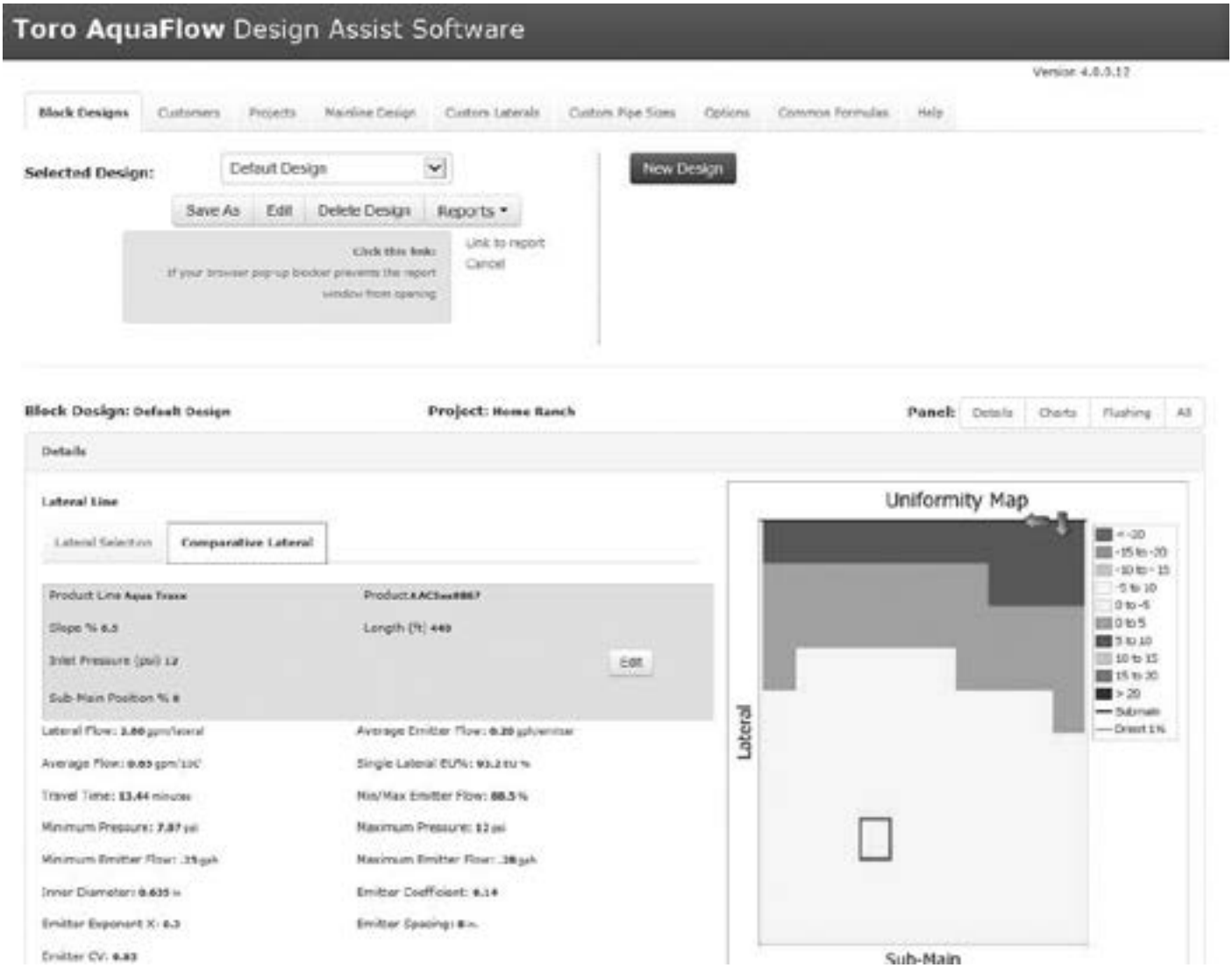
The Performance Data above is based on minimum 100 kPa operating pressure, single lateral and no elevation change.

Application

AquaFlow™ provides irrigation designers, dealers and growers with a state-of-the-art tool to configure drip irrigation systems for optimum performance using Toro Aqua-Traxx® PBX, Neptune™ and DripMaxx™ drip tube.

AquaFlow's capabilities include:

- Dashboard format for easy viewing
- Real-time system design changes
- Compare different designs
- Colour coded uniformity display
- Unlimited slopes
- Multiple pipe types and sizes
- Single or multiple block reports
- Flushing for both laterals and submains



Note: Diagram for illustration purposes only.

To become a registered user of AquaFlow visit https://aquaflow.toro.com or driptips.toro.com

Application

For use in viticultural, horticultural, greenhouse and landscape irrigation applications. The pressure compensating mechanism makes it suitable for use in steep or undulating situations or where longer run lengths need to be achieved.

Features

- Large pre-entry filter area helps to screen water-borne particles
- High clogging resistance
- Proven pressure compensating mechanism for long runs, steep and undulating terrain
- Low entry pressure (50 kPa) into pressure compensating mode
- High uniformity of flow within compensating range.
- Flow rates available 1.2, 1.6, 2.1 and 3.5 Lph
- Large pipe diameters available creating the ability to run the drip tube further
- Diameters made to suit Australian standard fittings

Design Information												
Nominal Diam/Flow (Lph)	19/1.2	19/1.6	19/2.1	19/3.5	21/1.2	21/1.6	21/2.1	21/3.5	25/1.2	25/1.6	25/2.1	25/3.5
ID (mm)	19	19	19	19	20.8	20.8	20.8	20.8	25	25	25	25
Emitter Index (in compensating range)	0	0	0	0	0	0	0	0	0	0	0	0
Emitter Constant	1.2	1.6	2.1	3.5	1.2	1.6	2.1	3.5	1.2	1.6	2.1	3.5
Emitter k_d barb factor	0.36	0.36	0.36	0.36	0.24	0.24	0.24	0.24	0.15	0.15	0.15	0.15
Roughness Factor, C	140	140	140	140	140	140	140	140	140	140	140	140
Min. Compensating Pressure (kPa)	50	50	50	50	50	50	50	50	50	50	50	50
Minimum Recommended Pressure (kPa)	100	100	100	100	100	100	100	100	100	100	100	100
Maximum Pressure (WT = 1 mm)	-	-	-	-	-	-	-	-	300	300	300	300
Maximum Pressure (WT = 0.9 mm)	350	350	350	350	325	325	325	325	-	-	-	-
Filtration (micron) - sand	120	120	120	120	120	120	120	120	120	120	120	120

Specifications			
Nominal Diameter	19 mm	21 mm	25 mm
Diameters ID	19 mm	20.8 mm	25 mm
Flow Rates	1.2, 1.6, 2.1, 3.5 Lph	1.2, 1.6, 2.1, 3.5 Lph	1.2, 1.6, 2.1, 3.5 Lph
Std. Wall Thickness	0.9 mm	0.9 mm	1 mm
Compensating Range	50-350 kPa	50-350 kPa	50-350 kPa
Minimum Recommended Pressure	100 kPa	100 kPa	100 kPa
Maximum Pressure	350 kPa (0.9 mm wall)	325 kPa (0.9 mm wall)	300 kPa (1 mm wall)
Standard Coil Length	19 mm – 350 m Non-standard lengths for qualifying order	21 mm – 350 m Non-standard lengths for qualifying order	25 mm – 300 m Non-standard lengths for qualifying order
Standard emitter spacings	0.3, 0.4, 0.5, 0.6, 0.75, 0.9,1.0 m	0.3, 0.4, 0.5, 0.6, 0.75, 0.9,1.0 m	0.3, 0.4, 0.5, 0.6, 0.75, 0.9,1.0 m

Ordering Information						
X	C	XX	XX	XX	XXX	XXX
	Pressure compensating	ID	Wall thickness	Emitter flow	Spacing	Special coil length (m) (available upon application)
		19 – 19 mm 21 – 20.8 mm 25 – 25 mm	09 – 0.9 mm 10 – 1 mm	12 – 1.2 Lph 16 – 1.6 Lph 21 – 2.1 Lph 35 – 3.5 Lph	030 – 30 cm 040 – 40 cm 050 – 50 cm 060 – 60 cm 075 – 75 cm 090 – 90cm 100 – 100 cm 150 – 150cm	

Example: XC190916100 – DripMaxx Pressure compensating, 19 mm, 0.9 mm wall thickness, 1.6 Lph emitter every 1.0 metre, standard coil length.
Example: XC25101630-220 – DripMaxx Pressure compensating, 25 mm, 1.0 mm wall thickness, 1.6 Lph emitter every 30 cm, 220 metre coil length.
Minimum Order Quantity: 5000 metres.

DripMaxx® PC Maximum Run Length Table (m)

Emitter Spacing									
Diam/Flow	**Inlet Pressure kPa**	**0.3 m**	**0.4 m**	**0.5 m**	**0.6 m**	**0.75 m**	**0.9 m**	**1.0 m**	**1.5 m**
19/1.2									
	200	218	274	326	374	441	504	544	724
	250	251	315	375	430	508	581	626	834
	300	277	348	414	476	562	642	692	922
	350	299	376	447	514	607	693	748	996
19/1.6									
	200	181	227	270	310	366	418	451	599
	250	208	261	311	356	421	481	518	691
	300	229	288	343	394	465	531	573	764
	350	247	311	370	426	502	574	619	826
19/2.1									
	200	151	190	226	259	306	350	377	502
	250	174	219	260	298	352	403	435	579
	300	191	241	287	329	389	445	480	640
	350	207	260	310	356	421	480	518	691
19/3.5									
	200	108	136	162	185	219	250	270	359
	250	124	156	186	213	252	288	311	414
	300	137	172	205	236	279	318	344	458
	350	148	186	221	255	301	344	372	495
21/1.2									
	200	266	332	392	448	527	599	646	855
	250	306	382	451	516	607	691	743	986
	300	337	421	499	570	670	763	823	1089
	325	351	439	519	594	699	795	857	1135
21/1.6									
	200	220	275	325	372	437	497	536	709
	250	253	316	374	428	503	573	617	817
	300	279	349	413	473	556	633	681	903
	325	291	364	430	492	578	659	710	941
21/2.1									
	200	184	230	272	311	365	416	448	594
	250	212	264	313	358	421	480	517	684
	300	234	292	346	395	465	530	571	756
	325	243	304	360	412	485	552	595	788
21/3.5									
	200	131	164	194	222	262	298	321	425
	250	151	189	224	256	301	343	370	490
	300	167	209	247	283	333	379	409	541
	325	174	217	257	295	347	395	426	564
25/1.2									
	200	375	465	549	625	732	832	895	1181
	250	432	536	631	720	844	958	1031	1361
	300	477	592	698	795	932	1059	1139	1504
25/1.6									
	200	311	386	455	518	607	689	742	979
	250	357	444	523	597	699	795	855	1129
	300	395	490	578	659	773	878	945	1247
25/2.1									
	200	260	323	380	434	508	578	621	819
	250	299	372	438	500	585	665	716	945
	300	330	410	484	552	647	735	791	1045
25/3.5									
	200	186	231	272	311	364	414	446	587
	250	214	266	314	357	419	476	513	678
	300	236	294	347	395	464	526	567	749

Note: Run lengths are based on a single drip tube, with no elevation change and a minimum operating pressure of 100 kPa at any emitter.

Application

For use in viticultural, horticultural, greenhouse and landscape irrigation applications. The two large diameters make it suitable for use in flat to mildly sloping terrain where longer run lengths need to be achieved.

Features

- Large pre-entry filter area helps to screen water-borne particles
- Turbulent flow path for high clogging resistance
- Five flow rates available
- Large pipe diameters create the ability to run the drip tube further
- Diameters made to suit Australian standard and other fittings

Specifications				
Nominal Diam. (mm)	15	19	25	21
Diam. ID (mm)	15.4	19	25	20.8
Nominal Flow Rates (Lph)	0.8, 1.2, 1.6, 2.0, 4.0	0.8, 1.2, 1.6, 2.0, 4.0	0.8, 1.2, 1.6, 2.0, 4.0	0.8, 1.2, 1.6, 2.0, 4.0
Std. Wall Thickness (mm)	0.9	0.9	1	0.9
Minimum Recommended Pressure (kPa)	80	80	80	80
Maximum Pressure (kPa)	350 (0.9 mm wall)	350 (0.9 mm wall)	300 (1 mm wall)	325 (0.9 mm wall)
Standard Coil Length (m)	400. Non-standard lengths for qualifying order	350. Non-standard lengths for qualifying order	300. Non-standard lengths for qualifying order	350. Non-standard lengths for qualifying order
Standard emitter spacings	0.3, 0.4, 0.5, 0.6, 0.75, 0.9, 1.0, 1.5 m	0.3, 0.4, 0.5, 0.6, 0.75, 0.9, 1.0, 1.5 m	0.3, 0.4, 0.5, 0.6, 0.75, 0.9, 1.0, 1.5 m	0.3, 0.4, 0.5, 0.6, 0.75, 0.9, 1.0, 1.5 m

Design Information										
Nominal Diam/Flow	15/0.85	15/1.2	15/1.6	15/2.0	15/4.0	19/0.85	19/1.2	19/1.6	19/2.0	19/4.0
ID (mm)	15.4	15.4	15.4	15.4	15.4	19	19	19	19	19
Emitter Index, x **		0.474	0.495	0.496	0.513		0.474	0.495	0.496	0.513
Emitter Constant, b**		0.3931	0.4946	0.6165	1.1773		0.3931	0.4946	0.6165	1.1773
Emitter k_d barb factor	0.19	0.19	0.19	0.19	0.19	0.13	0.13	0.13	0.13	0.13
Roughness Factor	140	140	140	140	140	140	140	140	140	140
Minimum Recommended Pressure (kPa)	80	80	80	80	80	80	80	80	80	80
Nominal Flow at 100 kPa	0.85	1.2	1.6	2.0	4.0	0.85	1.2	1.6	2.0	4.0
Maximum Pressure kPa (WT = 1 mm)	-	-	-	-	-	-	-	-	-	-
Maximum Pressure kPa (WT = 0.9 mm)	350	350	350	350	350	350	350	350	350	350
Filtration (micron) - sand	100	100	120	120	120	100	100	120	120	120

*** Flow equation, $Q = b.P^x$, where Q = emitter flow (Lph) and P = pressure (metres)*

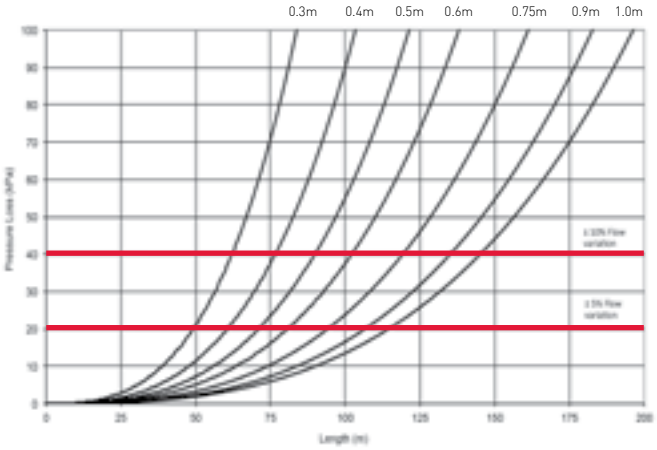
Design Information										
Nominal Diam/Flow	21/0.85	21/1.2	21/1.6	21/2.0	21/4.0	25/0.85	25/1.2	25/1.6	25/2.0	25/4.0
ID (mm)	20.8	20.8	20.8	20.8	20.8	25	25	25	25	25
Emitter Index, x **		0.474	0.495	0.496	0.513		0.474	0.495	0.496	0.513
Emitter Constant, b**		0.3931	0.4946	0.6165	1.1773		0.3931	0.4946	0.6165	1.1773
Emitter k_d barb factor	0.19	0.19	0.19	0.19	0.19	0.13	0.13	0.13	0.13	0.13
Roughness Factor	140	140	140	140	140	140	140	140	140	140
Minimum Recommended Pressure (kPa)	80	80	80	80	80	80	80	80	80	80
Nominal Flow at 100 kPa	0.85	1.2	1.6	2.0	4.0	0.85	1.2	1.6	2.0	4.0
Maximum Pressure kPa (WT = 1 mm)	-	-	-	-	-	350	350	350	350	350
Maximum Pressure kPa (WT = 0.9 mm)	325	325	325	325	325	-	-	-	-	-
Filtration (micron) - sand	100	100	120	120	120	100	100	120	120	120

*** Flow equation, $Q = b.P^x$, where Q = emitter flow (Lph) and P = pressure (metres)*

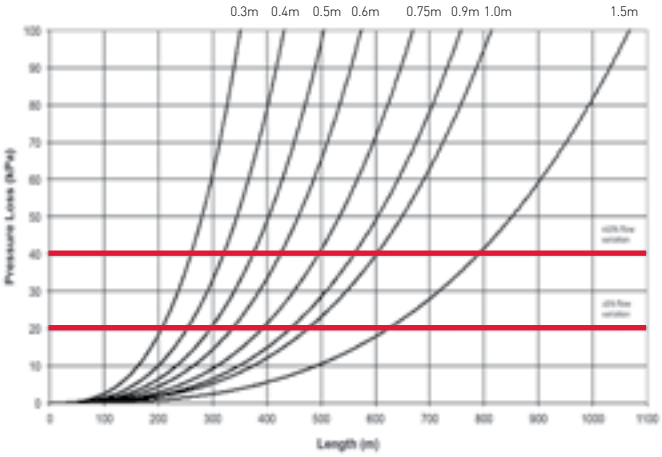
Ordering Information						
X	N	XX	XX	XX	XXX	XXX
	Non-compensating	ID	Wall thickness	Emitter flow	Spacing	Special coil length (m)
		15 – 15.4 mm 19 – 19 mm 21 – 20.8 mm 25 – 25 mm	09 – 0.9 mm 10 – 1 mm	0.8 – 0.85 Lph 12 – 1.2 Lph 16 – 1.6 Lph 20 – 2.0 Lph 40 – 4.0 Lph	030 – 30 cm 040 – 40 cm 050 – 50 cm 060 – 60 cm 075 – 75 cm 090 – 90 cm 100 – 100 cm 150 – 150 cm	

Example: XN190916100 – DripMaxx Classic non-compensating, 19mm, 0.9mm wall thickness, 1.6 Lph emitter every 1.0 metre, standard coil length.
Example : XN25101630-220 – DripMaxx Classic non-compensating, 25mm, 1.0mm wall thickness, 1.6 Lph emitter every 30cm, 220 metre coil length.
Minimum order quantity: 5000 metres.

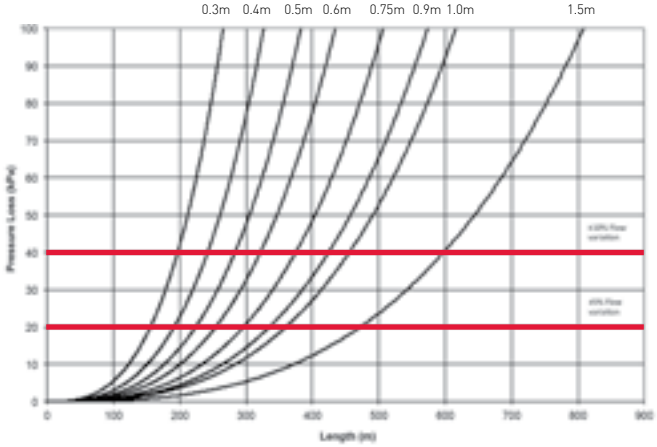
15 mm DripMaxx Classic 4.0 Lph Run Length (m) vs Pressure Loss (kPa)



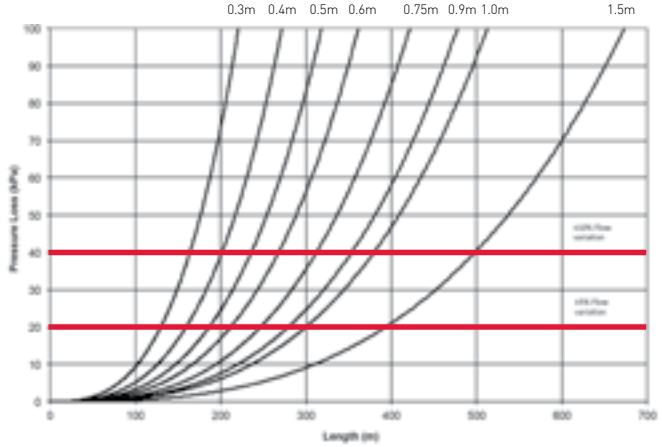
19 mm DripMaxx Classic 0.8 Lph Run Length (m) vs Pressure Loss (kPa)



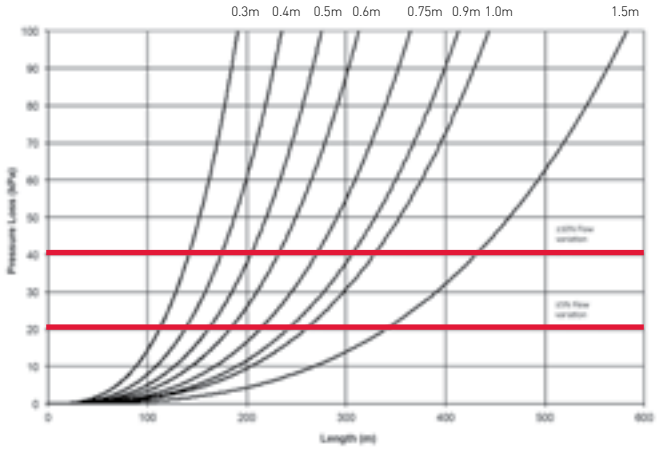
19 mm DripMaxx Classic 1.2 Lph Run Length (m) vs Pressure Loss (kPa)



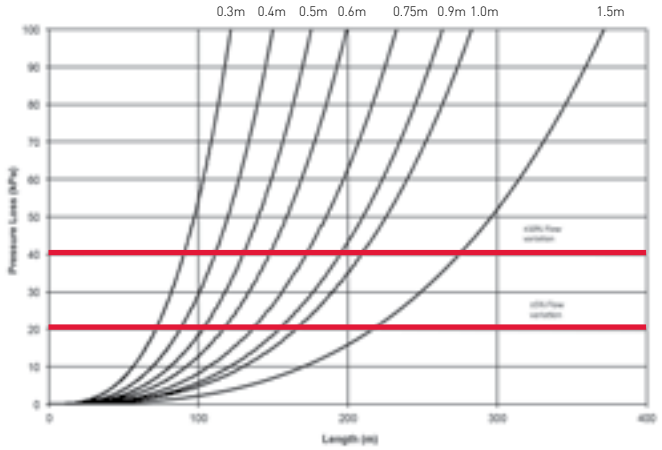
19 mm DripMaxx Classic 1.6 Lph Run Length (m) vs Pressure Loss (kPa)



19 mm DripMaxx Classic 2.0 Lph Run Length (m) vs Pressure Loss (kPa)

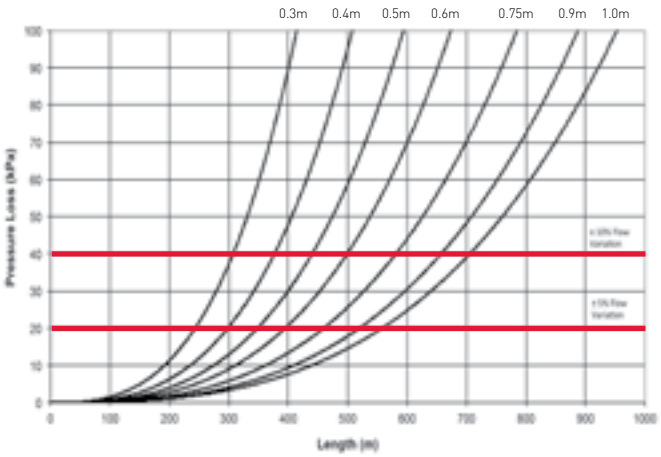


19 mm DripMaxx Classic 4.0 Lph Run Length (m) vs Pressure Loss (kPa)

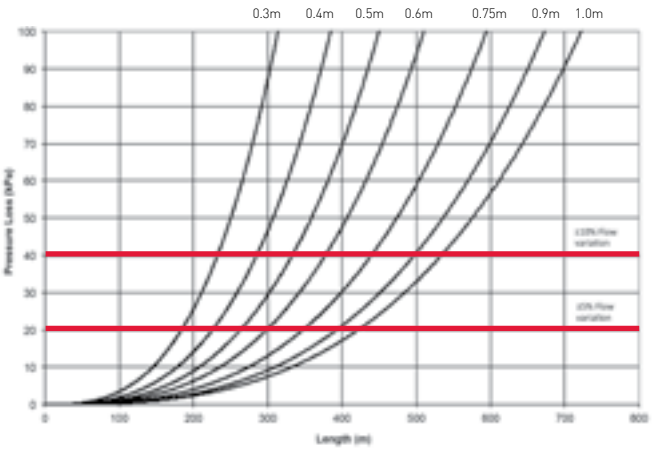


DripMaxx® Classic, In-line, Non-Compensating Drip Tube

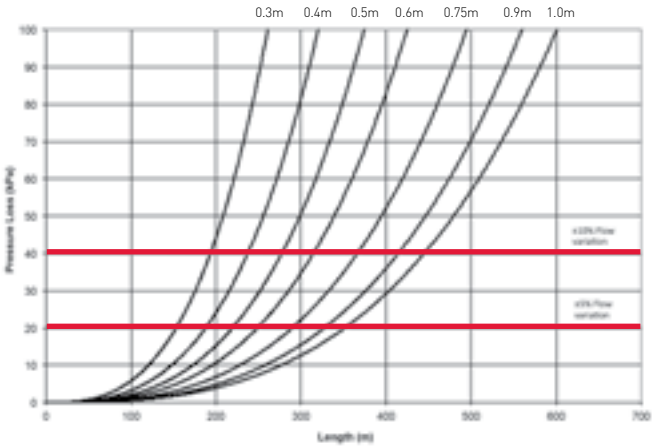
21 mm DripMaxx Classic 0.8 Lph Run Length (m) vs Pressure Loss (kPa)



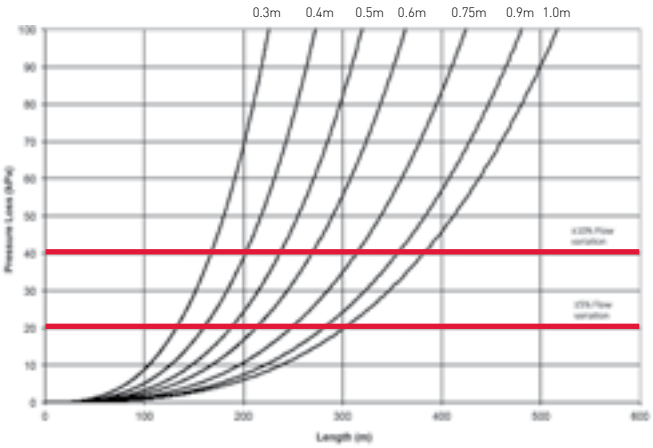
21 mm DripMaxx Classic 1.2 Lph Run Length (m) vs Pressure Loss (kPa)



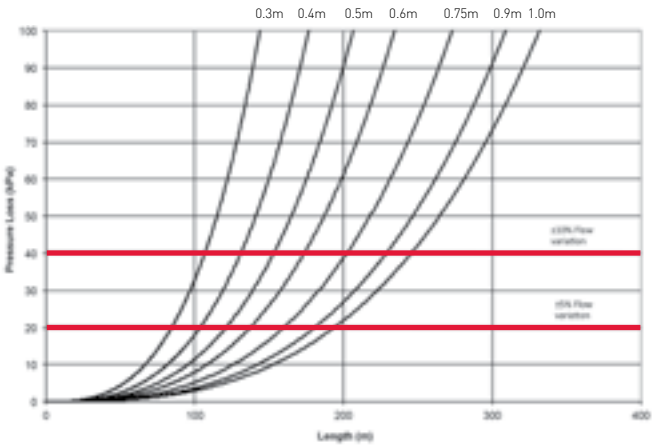
21 mm DripMaxx Classic 1.6 Lph Run Length (m) vs Pressure Loss (kPa)



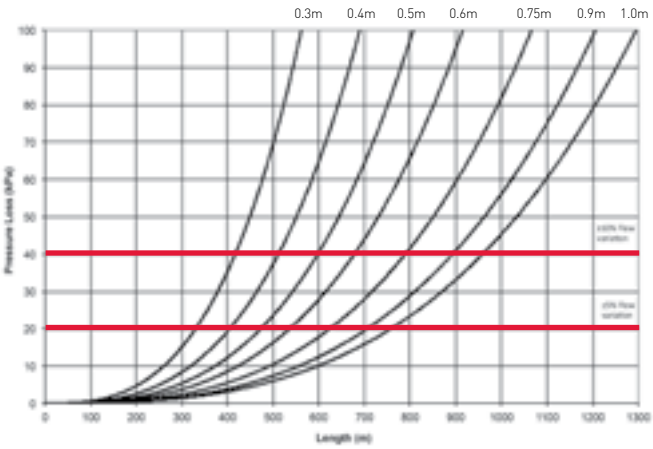
21 mm DripMaxx Classic 2.0 Lph Run Length (m) vs Pressure Loss (kPa)



21 mm DripMaxx Classic 4.0 Lph Run Length (m) vs Pressure Loss (kPa)

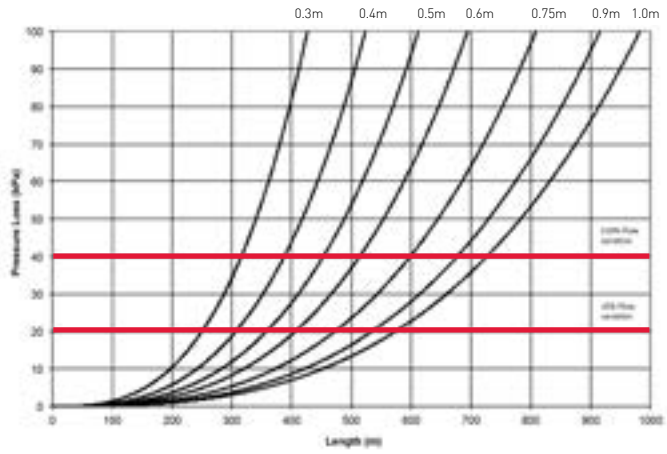


25 mm DripMaxx Classic 0.8 Lph Run Length (m) vs Pressure Loss (kPa)

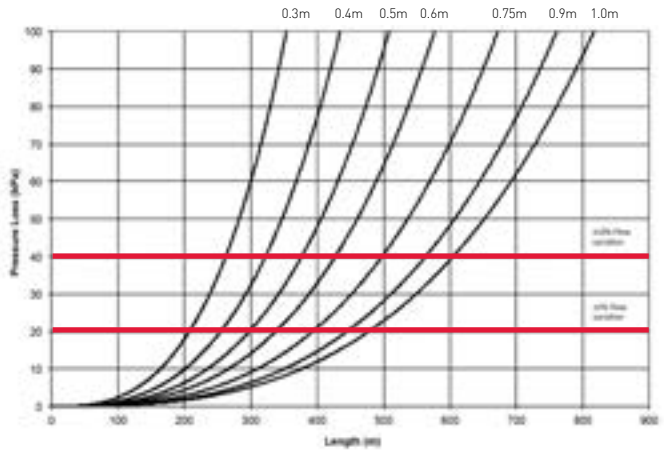


DripMaxx® Classic, In-line, Non-Compensating Drip Tube

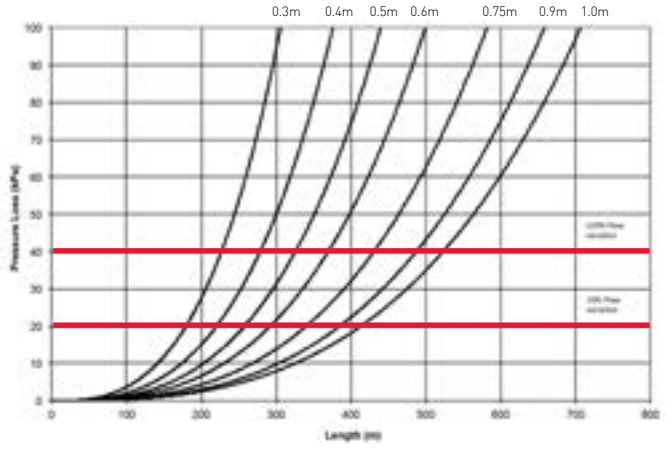
25 mm DripMaxx Classic 1.2 Lph Run Length (m) vs Pressure Loss (kPa)



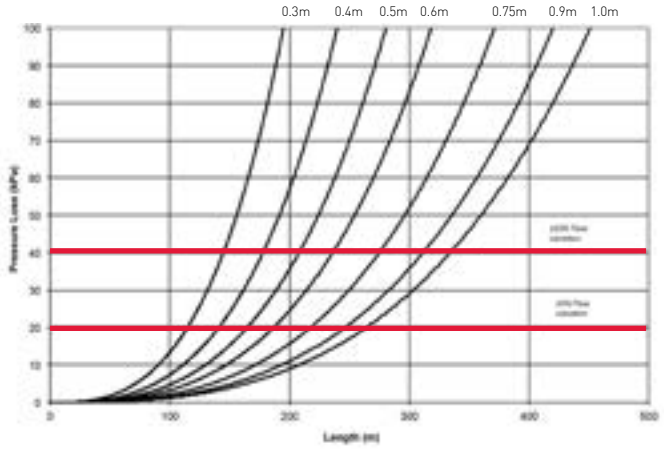
25 mm DripMaxx Classic 1.6 Lph Run Length (m) vs Pressure Loss (kPa)



25 mm DripMaxx Classic 2.0 Lph Run Length (m) vs Pressure Loss (kPa)



25 mm DripMaxx Classic 4.0 Lph Run Length (m) vs Pressure Loss (kPa)



AquaFlow Drip Irrigation Design Software for DripMaxx®

Application

AquaFlow™ provides irrigation designers, dealers and growers with a state-of-the-art tool to configure drip irrigation systems for optimum performance using Toro Aqua-Traxx® PBX, Neptune™ and DripMaxx™ drip tube.

AquaFlow's capabilities include:

- Dashboard format for easy viewing
- Real-time system design changes
- Compare different designs
- Colour coded uniformity display
- Unlimited slopes
- Multiple pipe types and sizes
- Single or multiple block reports
- Flushing for both laterals and submains

Note: Diagram for illustration purposes only.

To become a registered user of AquaFlow visit https://aquaflow.toro.com or driptips.toro.com

Drip-In™ Classic Drip Tube

Application

- Vineyards
- Orchards
- Row Crops

One piece in-line drip tube, tough and economical, designed for all permanent or row crop applications.

- High clog resistance due to wide turbulent passage way and raised inlet filter
- Extremely accurate flow rate due to high quality control
- Self-flushing in-built filter for added protection
- Two directly opposed outlet holes to minimise exit hole clogging
- Substantial installation savings as there is no hole punching, lost emitters or handling damage
- Available in factory spaced intervals or custom made to your spacing requirements
- Suitable for recovery and re-use in row crops
- Available in 16 mm nominal diameter

Emitter Flow Equation

$Q = k_p P^x$

Q = Flow in Lph

P = Pressure in metres

x = emitter exponent

k_p = emitter constant

Emitter Barb Pressure Loss Equation

$$H_b = \frac{k_b v^2}{2g}$$

g = gravitation acceleration m/sec²

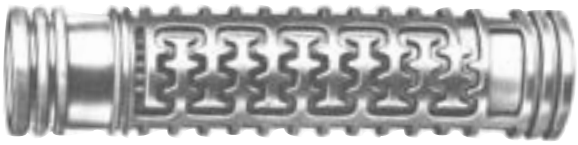
v = velocity (m/sec)

H_b = emitter pressure loss (m)

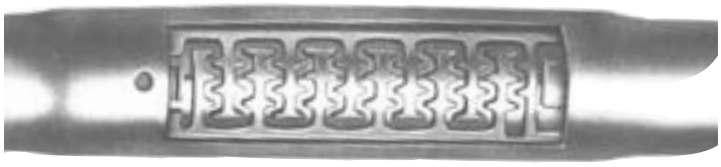
The emitter design creates turbulent flow which ensures maximum blockage resistance. The emitter is fused to the inside of the tube as it is extruded in the manufacturing process and provides substantial savings on installation costs.

Clear Tube shown for demonstration purposes only.

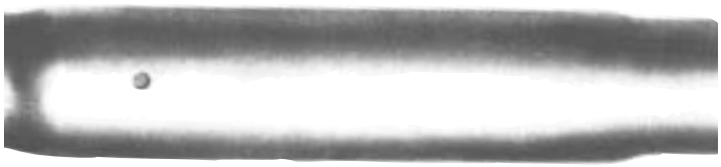
The Drip-In™ Emitter



inserted in the tube . . .



becomes a permanent part of it.

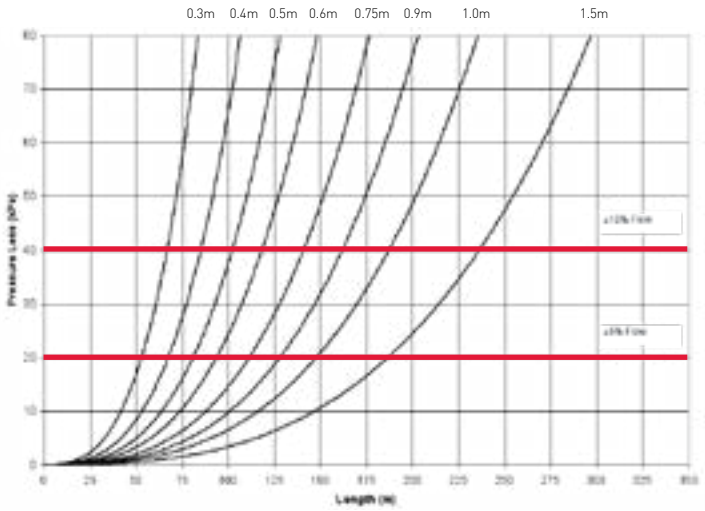


16mm Drip-In Classic Emitter		
Nom. Flow (Lph)	2.0	4.0
Exponent, x	0.5305	0.507
Constant, kp	0.5757	1.245
Barb factor, k_b	0.9	0.9

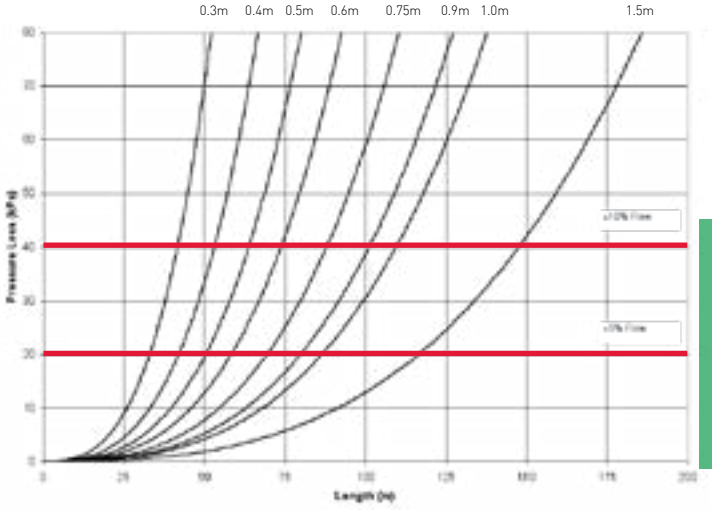
Tube Dimensions				
Nom. Diam (mm)	ID (mm)	OD (mm)	Coil Length (m)	Max Pressure (kPa)
16	14	16	450	350

16 mm Drip-In™ Classic Drip Tube

16 mm Drip-In Classic 2.0 Lph Run Length (m) vs Pressure Loss (kPa)



16 mm Drip-In Classic 4.0 Lph Run Length (m) vs Pressure Loss (kPa)



±10% Flow variation on flat ground
±5% Flow variation on flat ground

Ordering Information								
16 mm Drip-In Classic Tubing - Coil length 450 metres								
FLOW RATE	Spacing (m)							
	0.3	0.4	0.5	0.6	0.75	0.9	1.0	1.5
2.0 Lph	DDN1620030	DDN1620040	DDN1620050	DDN1620060	DDN1620075	DDN1620090	DDN1620100	DDN1620150
4.0 Lph	DDN1640030	DDN1640040	DDN1640050	DDN1640060	DDN1640075	DDN1640090	DDN1640100	DDN1640150

** Customised spacings are available on request.*

Drip-In™ PC, In-Line, Pressure Compensating Drip Tube

Application

- Vineyards
- Orchards
- Row Crops

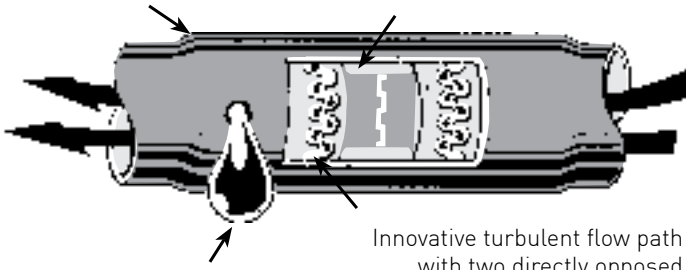
Pressure compensating dripline for irrigation in difficult terrain or where long run lengths are required.

Features

- Featuring an innovative turbulent flow path and chemically inert self-flushing silicon diaphragm
- Available in 1.6, 2.0, 2.4 and 4.0 Lph flow rates
- Wide pressure regulating range from 100 kPa to 400 kPa
- Turbulent flow path ensures there is no flow spike or prolonged flushing mode
- Two outlet holes and large exit chamber reduces risk of exit hole clogging
- Tubing sizes of 16, and 20 mm OD
- Durable, tough wall thickness of at least 1 mm
- Emitter cannot be dislodged or move inside the pipe
- Available in factory spaced intervals or custom made to your spacing requirements

Standard spacings or can be custom made to grower specifications.

Self-cleaning diaphragm chamber increases blockage resistance and facilitates flushing at the end of each watering cycle. Chemical resistant diaphragm for longer life.



Pressure compensating to deliver a regulated rate of water at varying pressures.

Innovative turbulent flow path with two directly opposed outlets to reduce risk of exit hole clogging.

Self-flushing diaphragm flushes in three stages, being start-up, during irrigation if clogging occurs and on shut down. The flushing occurs where there is low pressure on the diaphragm and it is relaxed allowing particles to be passed out through the emitter.

16 mm Drip-In PC Emitter				
Nom. Flow (Lph)	1.6	2.0	2.4	4.0
Exponent *, x	0	0	0	0
Constant, k_p	1.64	2.07	2.29	4.05
Barb factor, k_b	2.07	2.07	2.07	2.07

20 mm Drip-In PC Emitter				
Nom. Flow (Lph)	1.6	2.0	2.4	4.0
Exponent *, x	1.6	0	0.07	0
Constant, k_p	0	2.0	1.946	4.07
Barb factor, k_b	0.75	0.75	0.75	0.75

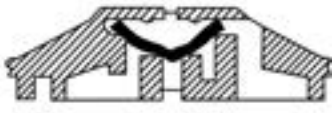
** Exponent determined within 100-400 kPa*

Tube Dimensions				
Nom. Diam (mm)	ID (mm)	OD (mm)	Coil Length (m)	Max Pressure (kPa)
16	14	16	450	350
20	18	20	300	350

Raised inlet deflects particles

Contents

During the irrigation cycle, the diaphragm is depressed across the compensating chamber.



Flushing Cycle

As the dripper begins to clog there is a reduction of flow, and pressure on both sides of the diaphragm begins to equalise.

The diaphragm returns to its relaxed position and particles are flushed out. The dripper then returns to normal performance

Emitter Flow Equation

$Q = k_p P^x$

Q = Flow in Lph

P = Pressure in metres

x = emitter exponent

k_p = emitter constant

Emitter Barb Pressure Loss Equation

$$H_b = \frac{k_b v^2}{2g}$$

g = gravitation acceleration m/sec²

v = velocity (m/sec)

H_b = emitter pressure loss (m)

16 mm Drip-In™ PC, Pressure Compensating Drip Tube

Maximum Recommended Run Length

Inlet Pressure (kPa)	Spacing (m)																													
	0.3				0.4				0.5				0.6				0.75				0.9				1.0				1.5			
	Length (m)																													
150	62	53	48	35	81	69	63	46	98	84	76	55	115	99	90	65	139	119	108	79	162	139	126	92	177	152	138	100	244	211	190	139
200	79	67	61	44	102	87	79	58	125	107	97	70	146	125	113	83	177	152	137	100	206	177	160	117	225	193	175	127	311	267	242	242
250	90	77	70	51	117	100	91	66	143	123	111	81	167	144	130	94	203	174	157	115	237	203	184	134	258	221	201	146	358	308	278	278
300	99	85	77	56	129	111	100	73	158	135	122	89	185	159	144	104	224	192	174	126	261	224	203	147	285	245	221	161	396	339	306	306
350	107	92	83	60	139	120	108	78	170	146	132	96	199	171	155	112	242	207	188	136	282	242	219	159	308	265	239	174	427	366	332	332
400	114	98	88	64	148	127	115	83	181	155	140	102	212	183	165	119	257	221	200	144	300	258	233	169	328	281	255	185	454	390	354	354
Nom. Flow Lph	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4

Based on minimum pressure of 100 kPa. All run lengths calculated on flat ground.

Ordering Information

16 mm Drip In PC Tubing - Coil Length 450 metres

FLOW RATE	Spacing (m)							
	0.3	0.4	0.5	0.6	0.75	0.9	1.0	1.5
1.6 Lph	DDC1616030	DDC1616040	DDC1616050	DDC1616060	DDC1616075	DDC1616090	DDC1616100	DDC1616150
2.0 Lph	DDC1620030	DDC1620040	DDC1620050	DDC1620060	DDC1620075	DDC1620090	DDC1620100	DDC1620150
2.4 Lph	DDC1624030	DDC1624040	DDC1624050	DDC1624060	DDC1624075	DDC1624090	DDC1624100	DDC1624150
4.0 Lph	DDC1640030	DDC1640040	DDC1640050	DDC1640060	DDC1640075	DDC1640090	DDC1640100	DDC1640150

** Customised spacings are available on request.*

20 mm Drip-In™ PC, Pressure Compensating Drip Tube

Maximum Recommended Run Length

Inlet Pressure (kPa)	Spacing (m)																													
	0.3				0.4				0.5				0.6				0.75				0.9				1.0				1.5			
	Length (m)																													
150	113	99	91	62	145	127	116	79	174	153	140	95	202	177	161	111	241	211	193	132	277	243	222	152	301	264	241	166	406	356	325	224
200	144	126	115	79	184	161	147	101	221	194	176	121	256	225	205	140	306	269	244	168	352	309	282	194	382	335	305	210	517	454	413	285
250	165	144	131	90	211	185	168	116	254	223	203	140	294	258	235	161	352	308	281	193	405	356	323	223	439	385	351	242	594	522	475	328
300	182	159	145	100	233	204	185	127	280	246	223	154	325	285	259	179	388	341	309	213	447	393	356	246	485	426	387	267	657	576	524	362
350	196	172	156	107	251	220	199	138	302	265	240	166	351	308	279	193	419	368	333	230	484	424	385	266	524	460	417	289	710	624	566	392
400	209	183	166	114	267	234	212	147	322	282	255	177	374	328	296	205	446	392	354	246	514	452	409	284	558	490	444	307	756	664	601	417
Nom. Flow Lph	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4	1.6	2	2.4	4

Ordering Information

20 mm Drip In PC Tubing - Coil Length 450 metres

FLOW RATE	Spacing (m)							
	0.3	0.4	0.5	0.6	0.75	0.9	1.0	1.5
1.6 Lph	DDC2016030	DDC2016040	DDC2016050	DDC2016060	DDC2016075	DDC2016090	DDC2016100	DDC2016150
2.0 Lph	DDC2020030	DDC2020040	DDC2020050	DDC2020060	DDC2020075	DDC2020090	DDC2020100	DDC2020150
2.4 Lph	DDC2024030	DDC2024040	DDC2024050	DDC2024060	DDC2024075	DDC2024090	DDC2024100	DDC2024150
4.0 Lph	DDC2040030	DDC2040040	DDC2040050	DDC2040060	DDC2040075	DDC2040090	DDC2040100	DDC2040150

Application

Drip Eze™, Quick Drip™ and Enviro-Drip™ extruded in-line drip tube is a precise, low flow irrigation product suited to a wide range of landscape applications, such as high density planting areas and intricately shaped beds.

Drip Eze and Enviro-Drip apply water to the plants at a slow consistent rate, reducing the risk of run-off and water wastage. Particularly suited to areas like median strip garden beds where overspray cannot be tolerated. Enviro-Drip is for use with non-potable treated water.

Quick Drip's higher flow allows users to apply water within shorter watering windows - ideally suited to sandy environments.

Features

- Tube manufactured from low density polyethylene
- Continuous wetted strip (in closer spacings)
- Pressure compensating emitter available in 13mm 2 Lph only
- Discreet brown tubing blends into the landscape (Drip Eze) or purple tube to signify non-potable (Enviro-Drip)
- Easy to install, fits difficult corners, rockeries, etc.
- Two directly opposed outlet holes to prevent exit holes clogging
- Uses Australian Standard poly fittings
- Designed to be installed above ground
- Raised inlet to emitter reduces the risk of emitter blockage

Drip Eze™
Take-Off Adaptor (DT0813)

- 8mm x 13mm take-off adaptor
- Can be used with 19 mm, 25 mm or 32 mm poly sub-mains
- Ergonomic grip plate for easy insertion
- Product code is etched into the mould
- True 5mm hole punch to insert

Drip Eze™
4mm Non-compensating

- Tube inside diameter: 4 mm
- Tube outside diameter: 6 mm
- Emitter discharge: 2 Lph @ 100 kPa
- Emitter spacing: 15, 30 cm
- Recommended operating pressure: 100 kPa
- Tube pressure rating; 300 kPa
- Roll lengths (15 cm spacing): 914 m
- Roll lengths (30 cm spacing): 25, 50, 100, 200 m
- Colour: Brown

Drip Eze™
13mm Non-compensating

- Tube inside diameter: 12.9 mm
- Tube outside diameter: 15.4 mm
- Emitter discharge: 2 Lph @ 100 kPa
- Emitter spacing: 30, 40, 50, 60, 100 cm
- Recommended operating pressure: 100 kPa
- Tube pressure rating; 300 kPa
- Roll lengths (40,50,60, 100 cm spacing): 200 m
- Roll lengths (30 cm spacing): 20, 50, 100, 200 m
- Colour: Brown

Quick Drip™
13mm Non-compensating

- Tube inside diameter: 12.9 mm
- Tube outside diameter: 15.4 mm
- Emitter discharge: 8 Lph @ 200 kPa
- Emitter spacing: 30 cm
- Recommended operating pressure: 100 kPa
- Tube pressure rating; 200 kPa
- Roll lengths : 50 and 100 m
- Colour: Brown

Enviro Drip™
13mm Non-compensating - Lilac

- Tube inside diameter: 12.9 mm
- Tube outside diameter: 15.4 mm
- Emitter discharge: 8 Lph @ 200 kPa
- Emitter spacing: 30 cm
- Recommended operating pressure: 100 kPa
- Tube pressure rating; 300 kPa
- Roll lengths : 50 and 100 m
- Colour: Lilac

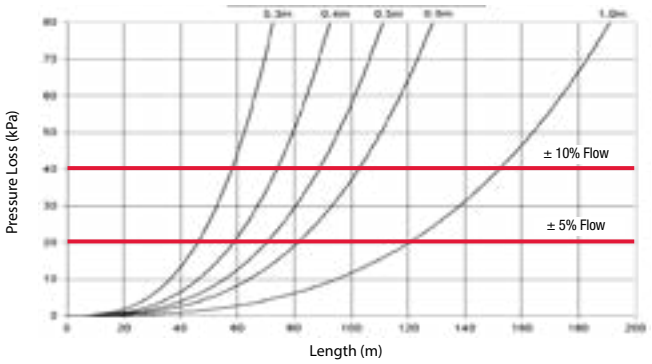
Drip Eze™
13mm Pressure Compensating

- Tube inside diameter: 12.9 mm
- Tube outside diameter: 15.4 mm
- Emitter discharge: 1.6 and 2 Lph
- Emitter spacing (1.6 Lph): 40 cm
- Emitter spacing (2 Lph): 30, 40, 50, 60, 100 cm
- Recommended operating pressure: 100-300 kPa
- Tube pressure rating; 300 kPa
- Roll lengths (1.6 Lph, 40 cm spacing): 50, 100, 200 m
- Colour: Brown

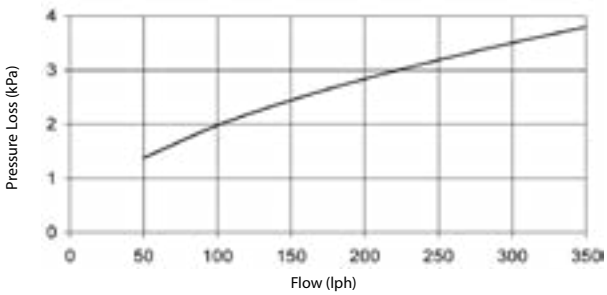
Enviro-Drip™
13mm Pressure Compensating - Lilac

- For use with non-potable, treated water
- Tube inside diameter: 12.9 mm
- Tube outside diameter: 15.4 mm
- Emitter discharge: 1.6 and 2 Lph
- Emitter spacing (1.6 Lph): 30 cm
- Emitter spacing (2 Lph): 30, 50 cm
- Recommended operating pressure: 100-300 kPa
- Tube pressure rating; 300 kPa
- Roll lengths (1.6 Lph): 200 m
- Roll lengths (2 Lph): 50, 100, 200 m
- Colour: Lilac
- Marked clearly "Caution Not for Drinking"

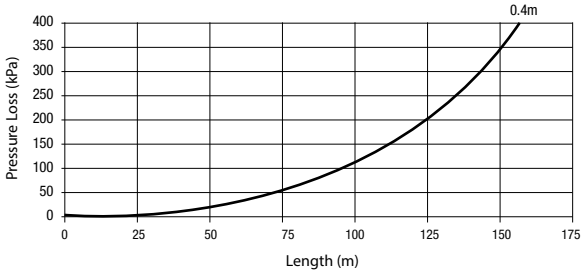
13 mm Drip Eze Non-compensating 2.0 Lph
Run Length (m) vs Pressure Loss (kPa)



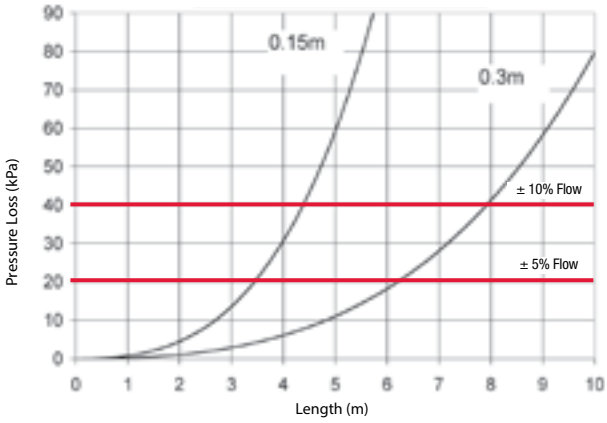
13 mm Drip Eze Non-compensating
2.0 Lph Flow (Lph) vs Pressure (kPa)



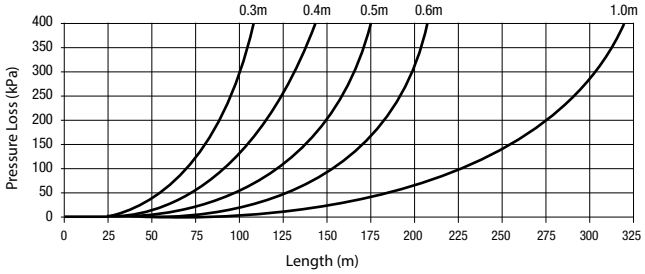
13 mm Drip Eze PC 1.6 Lph
Run Length (m) vs Pressure Loss (kPa)



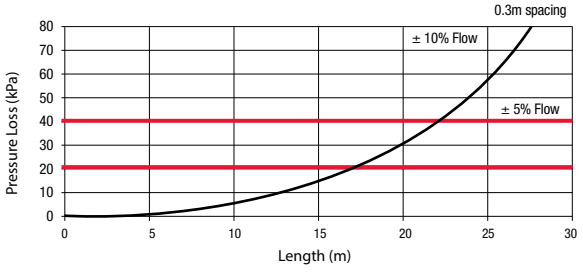
4 mm Drip Eze 2.0 Lph
Run Length (m) vs Pressure Loss (kPa)



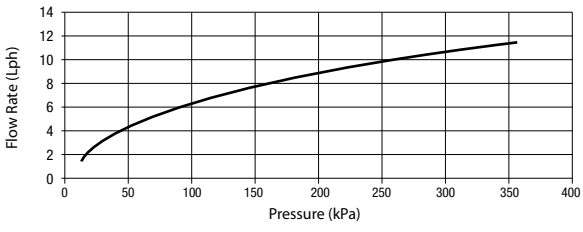
13 mm Drip Eze PC 2.0 Lph
Run Length (m) vs Pressure Loss (kPa)



13 mm Drip Eze Quick Drip 8.0 Lph
Run Length (m) vs Pressure Loss (kPa)



13 mm Drip Eze Quick Drip 8.0 Lph
Flow (Lph) vs Pressure (kPa)



Ordering Information

Please refer to the Toro Australia Irrigation Division Price List

Maximum Run Lengths

Product	Flow Rate (Lph)	Dripper Spacing (m)	Run Length (m) 100 kPa Input	Run Length (m) 200 kPa Input	Run Length (m) 220 kPa Input	Run Length (m) 240 kPa Input	Run Length (m) 300 kPa Input
4 mm Non-compensating Drip Eze **	2	0.15	4.5				
	2	0.30	8				
13 mm Non-compensating Drip Eze **	2	0.30	60				
	2	0.40	75				
	2	0.50	85				
	2	0.60	100				
	2	1.00	150				
13 mm Pressure-compensating Drip Eze	1.6	0.40		100			125
	2	0.30		70			85
	2	0.40		90			105
	2	0.50		110			135
	2	0.60		125			160
		1.00		200			255
13 mm Enviro-Drip	2	0.30		70			85
13 mm Quick Drip	8	0.30			21.6	27	

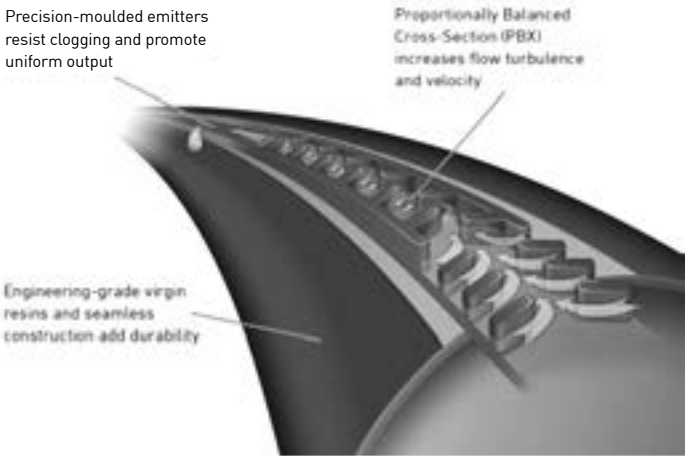
*Note: All pressure compensating tube run lengths are based on a minimum operating pressure of 100 kPa, single laterals and flat ground. ** All non-compensating tube run lenghts are based on a variation in discharge of +/-10% of the nominal dripper flow rate, single laterals and flat ground.*

Application

Used extensively for short term row crops such as vegetables, legumes, sugar cane, cotton, tomatoes and strawberries.

Features

- Proportionally Balance Cross-Section (PBX) increases flow turbulence and velocity
- Seamless construction means no more split seams or unglued strips
- Highly resistant to plugging due to the large number of inlet filters per outlet
- Easily identifiable double blue stripe to aid in correct installation
- Every coil laser printed with code and manufacture date for easy batch identification
- The precision laser incised outlet slit impedes root intrusion, providing superior accuracy and consistency to "knife-cut" tapes
- Enhanced turbulent flow path and precise moulding and manufacturing process provides excellent CV
- Available in 5, 6, 8, 10, 12 and 15 mil thicknesses
- Available in three nominal bores – 16, 22 and 28 mm
- Emitter spacing options for all soils
- Widest selection of flow rates
- Accurate delivery of water and fertiliser



For best system results, always demand genuine Toro Pro-Loc™ Fittings

Layflat to Aqua-Traxx Offtake

PVC to Aqua-Traxx Offtake

PVC to Aqua-Traxx Offtake

LD Poly to Aqua-Traxx Offtake

LD Poly to Aqua-Traxx Offtake

AQUA-TRAXX® Wall Thickness									
Drip Tape Diameter		Wall Thickness	Operating Pressure				Reel Length		Weight
			Psi		kPa				
Inches	mm	Mil	Min	Max	Min	Max	Feet	Meters	Kg
5/8"	16	5 mil	4	10	30	70	13,000	3,962	33
5/8"	16	6 mil	4	12	30	80	10,000	3,048	29
5/8"	16	8 mil	4	15	30	100	7,500	2,286	30
5/8"	16	10 mil	4	15	30	100	6,000	1,829	29
5/8"	16	12 mil	4	15	30	100	5,100	1,554	29
5/8"	16	15 mil	4	15	30	100	4,000	1,219	29
7/8"	22	6 mil	4	10	30	70	7,380	2,250	31
7/8"	22	8 mil	4	15	30	100	6,000	1,829	33
7/8"	22	10 mil	4	15	30	100	4,400	1,341	32
7/8"	22	12 mil	4	15	30	100	4,000	1,219	33
7/8"	22	15 mil	4	15	30	100	3,000	914	30
1-1/8"	28	10 mil	4	15	30	100	4,200	1,280	31
1-1/8"	28	12 mil	4	15	30	100	3,300	1,005	30
1-1/8"	28	15 mil	4	15	30	100	2,400	732	28

AQUA-TRAXX LENGTH OF RUN DATA

Emitter Flow Part Number	Q-1 lph/1 m @ kpa
AAXxx1609	0.65
AAXxx1611	0.83
AAXxx2411	0.83
AAXxx1613	0.93
AAXxx1814	1.11
AAXxx1817	1.24
AAXxx1617	1.25
AAXxx2417	1.25
AAXxx0817	1.30
AAXxx0822	1.66
AAXxx1222	1.66
AAXxx1822	1.67
AAXxx2422	1.67
AAXxx0825	1.86
AAXxx1225	1.86
AAXxx1625	1.87
AAXxx2428	2.08
AAXxx3629	2.19
AAXxx1830	2.22
AAXxx0834	2.50
AAXxx1034	2.50
AAXxx1234	2.50
AAXxx1634	2.50
AAXxx1838	2.78
AAXxx1642	3.12
AAXxx2444	3.29
AAXxx0644	3.33
AAXxx1245	3.33
AAXxx0650	3.73
AAXxx0850	3.74
AAXxx1256	4.16
AAXxx1666	4.94
AAXxx0467	4.99
AAXxx0667	4.99
AAXxx0867	4.99
AAXxx1069	5.06
AAXxx0884	6.24
AAXxx1288	6.58
AAXxx0690	6.66
AAXxx04100	7.47
AAXxx06112	8.33
AAXxx08133	9.87
AAXxx04134	9.99
AAXxx04168	12.48
AAXxx04265	19.75

5/8" (16 mm) Diameter Length of Run (metres) @ 70 kPa for 90% EU

SLOPE — Uphill / Flat / Downhill

Q-1	2%	1%	0	1%	2%
0.65	73	139	439	571	97
0.83	79	147	396	524	112
0.93	72	135	350	464	103
1.11	78	141	327	434	381
1.24	78	138	300	395	371
1.25	78	138	304	404	371
1.30	72	128	281	373	342
1.66	76	129	255	334	327
1.67	77	129	247	323	322
1.86	75	125	232	301	304
1.87	75	125	232	300	304
2.08	74	121	213	277	282
2.19	74	119	209	270	276
2.22	74	118	205	266	273
2.50	73	116	197	251	259
2.78	72	110	179	225	236
3.12	70	106	166	208	235
3.29	70	105	164	205	217
3.33	70	104	160	198	212
3.73	69	100	149	185	197
3.74	68	99	148	185	198
4.16	66	95	137	169	182
4.94	65	89	125	152	164
4.99	65	89	126	154	166
5.06	64	88	121	148	159
6.24	60	80	106	127	137
6.58	59	78	104	124	133
6.66	59	78	103	122	131
7.47	57	73	95	113	122
8.33	55	69	89	104	112
9.87	52	64	80	93	101
9.99	51	64	79	91	99
12.48	47	57	68	78	84
19.75	39	44	51	57	62

7/8" (22 mm) Diameter Length of Run (metres) @ 70 kPa for 90% EU

SLOPE — Uphill / Flat / Downhill

Q-1	2%	1%	0	1%	2%
0.65	73	144	772	198	94
0.83	80	156	694	236	105
0.93	73	144	615	217	94
1.11	80	154	579	718	106
1.24	80	155	525	677	108
1.25	80	154	537	683	106
1.30	74	143	494	632	96
1.66	79	150	447	586	109
1.67	79	152	440	578	110
1.86	79	148	408	540	110
1.87	79	149	408	540	112
2.08	79	146	376	500	114
2.19	79	144	368	487	114
2.22	79	144	363	480	116
2.50	78	143	346	457	379
2.78	78	139	312	416	376
3.12	77	136	289	385	361
3.29	77	135	284	373	355
3.33	77	135	281	371	353
3.73	77	132	262	345	337
3.74	77	131	263	345	335
4.16	76	127	243	316	315
4.94	75	122	219	284	289
4.99	75	123	221	288	292
5.06	74	121	216	277	284
6.24	72	113	187	239	247
6.58	72	112	183	232	243
6.66	72	110	180	228	240
7.47	71	106	169	213	224
8.33	69	102	156	194	205
9.87	67	95	141	174	186
9.99	66	95	139	171	184
12.48	64	87	120	146	157
19.75	56	70	91	106	114

1-1/8"(28 mm) Diameter Length of Run (metres) @ 70 kPa for 90% EU

SLOPE — Uphill / Flat / Downhill

Q-1	2%	1%	0	1%	2%
0.65	73	147	1189	190	93
0.83	80	159	1071	213	103
0.93	73	147	947	193	93
1.11	80	158	892	217	104
1.24	80	159	814	226	104
1.25	80	158	828	221	104
1.30	74	147	764	204	95
1.66	80	156	686	239	105
1.67	80	157	670	246	106
1.86	80	156	629	754	105
1.87	80	157	629	759	106
2.08	80	154	579	722	106
2.19	80	154	564	710	106
2.22	80	154	560	702	106
2.50	80	154	532	678	106
2.78	79	152	480	625	108
3.12	79	150	449	586	109
3.29	79	150	434	576	109
3.33	79	150	433	570	110
3.73	79	149	403	533	113
3.74	79	148	404	533	110
4.16	79	144	373	495	114
4.94	78	142	338	449	381
4.99	78	143	342	454	381
5.06	78	142	331	441	386
6.24	77	135	289	381	358
6.58	77	135	282	372	353
6.66	77	134	278	365	350
7.47	76	131	259	342	333
8.33	76	127	240	312	312
9.87	75	122	217	281	286
9.99	74	121	213	278	282
12.48	72	112	185	236	246
19.75	66	95	139	173	184

How to determine Length of Run

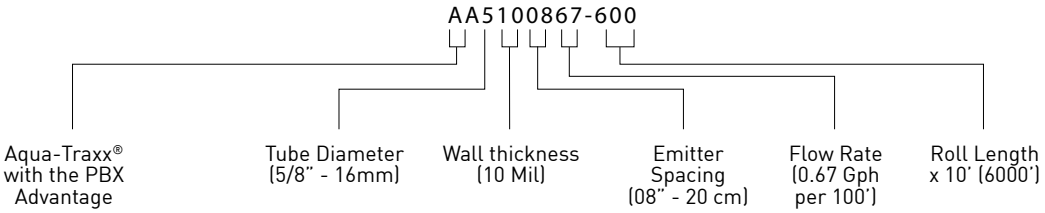
1. Find the Q-1 (lph/1 meter) that corresponds to the desired Emitter Flow Part Number.

2. Go to desired Tubing Diameter chart and match the Q-1 (identified above) with desired slope % (uphill = negative, downhill = positive) to find a length of run in metres.

AQUA-TRAXX® Flow Rates										
Emitter Flow	Part Number	Outlet Spacing cm	Emitter Flow Rate				Emitter Exponent	Filtration Requirement		Flow Classification
			gph @ 8 psi	lph @ 55 Kpa	gpm/100ft @ 8 psi	lph/1 meter @ 55 kpa		Mesh	Micron	
0.07 GPH	AAXxx0817	20	0.07	0.26	0.17	1.30	0.55	200	74	Low
	AAXxx1609	40	0.07	0.26	0.09	0.65	0.55	200	74	Low
0.09 GPH	AAXxx0822	20	0.09	0.34	0.22	1.66	0.55	200	74	Low
	AAXxx1611	40	0.09	0.34	0.11	0.83	0.55	200	74	Low
0.10 GPH	AAXxx0825	20	0.10	0.38	0.25	1.86	0.55	200	74	Low
	AAXxx1613	40	0.10	0.38	0.13	0.93	0.55	200	74	Low
0.13 GPH	AAXxx0467	10	0.13	0.51	0.67	4.99	0.5	140	105	Low
	AAXxx0644	15	0.13	0.51	0.44	3.33	0.5	140	105	Low
	AAXxx0834	20	0.13	0.51	0.34	2.50	0.5	140	105	Low
	AAXxx1222	30	0.13	0.51	0.22	1.66	0.5	140	105	Low
	AAXxx1617	40	0.13	0.51	0.17	1.25	0.5	140	105	Low
	AAXxx1814	45	0.13	0.51	0.14	1.11	0.5	140	105	Low
	AAXxx2411	60	0.13	0.51	0.11	0.83	0.5	140	105	Low
0.15 GPH	AAXxx0650	15	0.15	0.57	0.50	3.73	0.5	140	105	Low
	AAXxx1225	30	0.15	0.57	0.25	1.86	0.5	140	105	Low
	AAXxx1817	45	0.15	0.57	0.17	1.24	0.5	140	105	Low
0.165 GPH	AAXxx1034	25	0.16	0.62	0.34	2.50	0.5	140	105	Low
0.20 GPH	AAXxx04100	10	0.20	0.76	1.00	7.47	0.5	140	105	Med
	AAXxx0667	15	0.20	0.76	0.67	4.99	0.5	140	105	Med
	AAXxx0850	20	0.20	0.76	0.50	3.74	0.5	140	105	Med
	AAXxx1234	30	0.20	0.76	0.34	2.50	0.5	140	105	Med
	AAXxx1625	40	0.20	0.76	0.25	1.87	0.5	140	105	Med
	AAXxx1822	45	0.20	0.76	0.22	1.67	0.5	140	105	Med
	AAXxx2417	60	0.20	0.76	0.17	1.25	0.5	140	105	Med
0.27 GPH	AAXxx04134	10	0.27	1.01	1.34	9.99	0.5	140	105	Med
	AAXxx0690	15	0.27	1.01	0.90	6.66	0.5	140	105	Med
	AAXxx0867	20	0.27	1.01	0.67	4.99	0.5	140	105	Med
	AAXxx1245	30	0.27	1.01	0.45	3.33	0.5	140	105	Med
	AAXxx1634	40	0.27	1.01	0.34	2.50	0.5	140	105	Med
	AAXxx1830	45	0.27	1.01	0.30	2.22	0.5	140	105	Med
	AAXxx2422	60	0.27	1.01	0.22	1.67	0.5	140	105	Med
0.34 GPH	AAXxx04168	10	0.34	1.27	1.68	12.48	0.5	140	105	High
	AAXxx06112	15	0.34	1.27	1.12	8.33	0.5	140	105	High
	AAXxx0884	20	0.34	1.27	0.84	6.24	0.5	140	105	High
	AAXxx1069	25	0.34	1.29	0.69	5.06	0.5	140	105	High
	AAXxx1256	30	0.34	1.27	0.56	4.16	0.5	140	105	High
	AAXxx1642	40	0.34	1.27	0.42	3.12	0.5	140	105	High
	AAXxx1838	45	0.34	1.27	0.38	2.78	0.5	140	105	High
	AAXxx2428	60	0.34	1.27	0.28	2.08	0.5	140	105	High
0.53 GPH	AAXxx04265	10	0.53	2.01	2.65	19.75	0.5	140	105	High
	AAXxx08133	20	0.53	2.01	1.33	9.87	0.5	140	105	High
	AAXxx1288	30	0.53	2.01	0.88	6.58	0.5	140	105	High
	AAXxx1666	40	0.53	2.01	0.66	4.94	0.5	140	105	High
	AAXxx2444	60	0.53	2.01	0.44	3.29	0.5	140	105	High
	AAXxx3629	90	0.53	2.01	0.29	2.19	0.5	140	105	High

Note: not all configurations are available at time of print. Consult your local Toro Territory Manager to confirm local availability.

Product Code Definition



Key: Part number AA51000867-600

AA = Aqua-Traxx® with the PBX Advantage
5 = Tube Diameter (5/8")
10 = Wall thickness (10 mil)
08 = Emitter spacing (08" or 20 cm)
67 = Flow per 100' of Tape (.67 Gph per 100')
600 = Roll length (x 10')

*denotes:
- X-5 for 5/8", 7 for 7/8" and 9 for 1-1/8"
- XX-for mil (1/1000th of an inch) thickness

Metric outlet spacing expressed in nominal length
Gph and gpm represent US gallons
Coefficient of Variation (CV) less than 3%
†Maximum pressure within laterals while operating or flushing

Emitter Flow Classification @ 55 kPa	
Low	0.26 - 0.57 Lph
Med	0.76 - 1.01 Lph
High	1.27 - 2.01 Lph

Wall Thickness	
5	0.127
6	0.152
8	0.203
10	0.254
12	0.305
15	0.381

mil is the unit of 1/1000 of an inch

Aqua-Traxx® Lph / 100 m		
Code	Outlet Spacing cm	Lph/100 meters
AAXxx0467	10	499
AAXxx04100	10	747
AAXxx04134	10	999
AAXxx04168	10	1248
AAXxx04265	10	1975
AAXxx0644	15	333
AAXxx0650	15	373
AAXxx0667	15	499
AAXxx0690	15	666
AAXxx06112	15	833
AAXxx0817	20	130
AAXxx0822	20	166
AAXxx0825	20	186
AAXxx0834	20	250
AAXxx0850	20	374
AAXxx0867	20	499
AAXxx0884	20	624
AAXxx08133	20	987
AAXxx1069	25	506
AAXxx1222	30	166
AAXxx1225	30	186
AAXxx1234	30	250
AAXxx1245	30	333
AAXxx1256	30	416
AAXxx1288	30	658
AAXxx1609	40	65
AAXxx1611	40	83
AAXxx1613	40	93
AAXxx1617	40	125
AAXxx1625	40	187
AAXxx1634	40	250
AAXxx1642	40	312
AAXxx1666	40	494
AAXxx1814	45	111
AAXxx1817	45	124
AAXxx1822	45	167
AAXxx1830	45	222
AAXxx1838	45	278
AAXxx2411	60	83
AAXxx2417	60	125
AAXxx2422	60	167
AAXxx2428	60	208
AAXxx2444	60	329
AAXxx3629	90	219

T-TAPE Lph / 100 m		
Code	Outlet Spacing cm	Lph/100 meters
Xxx-10-750	10	750
Xxx-10-1000	10	1000
Xxx-15-340	15	340
Xxx-15-500	15	500
Xxx-20-125	20	125
Xxx-20-250	20	250
Xxx-20-380	20	380
Xxx-20-500	20	500
Xxx-30-170	30	170
Xxx-30-250	30	250
Xxx-30-340	30	340
Xxx-40-125	40	125
Xxx-40-185	40	185
Xxx-40-250	40	250
Xxx-40-315	40	315
Xxx-60-210	60	210

STREAMLINE® Lph / 100 m		
Code	Outlet Spacing cm	Lph/100 meters
0.72 L/Hr x 0.20m	20	360
1.05 L/Hr x 0.20m	20	525
0.72 L/Hr x 0.30m	30	240
1.05 L/Hr x 0.30m	30	350
0.72 L/Hr x 0.40m	40	180

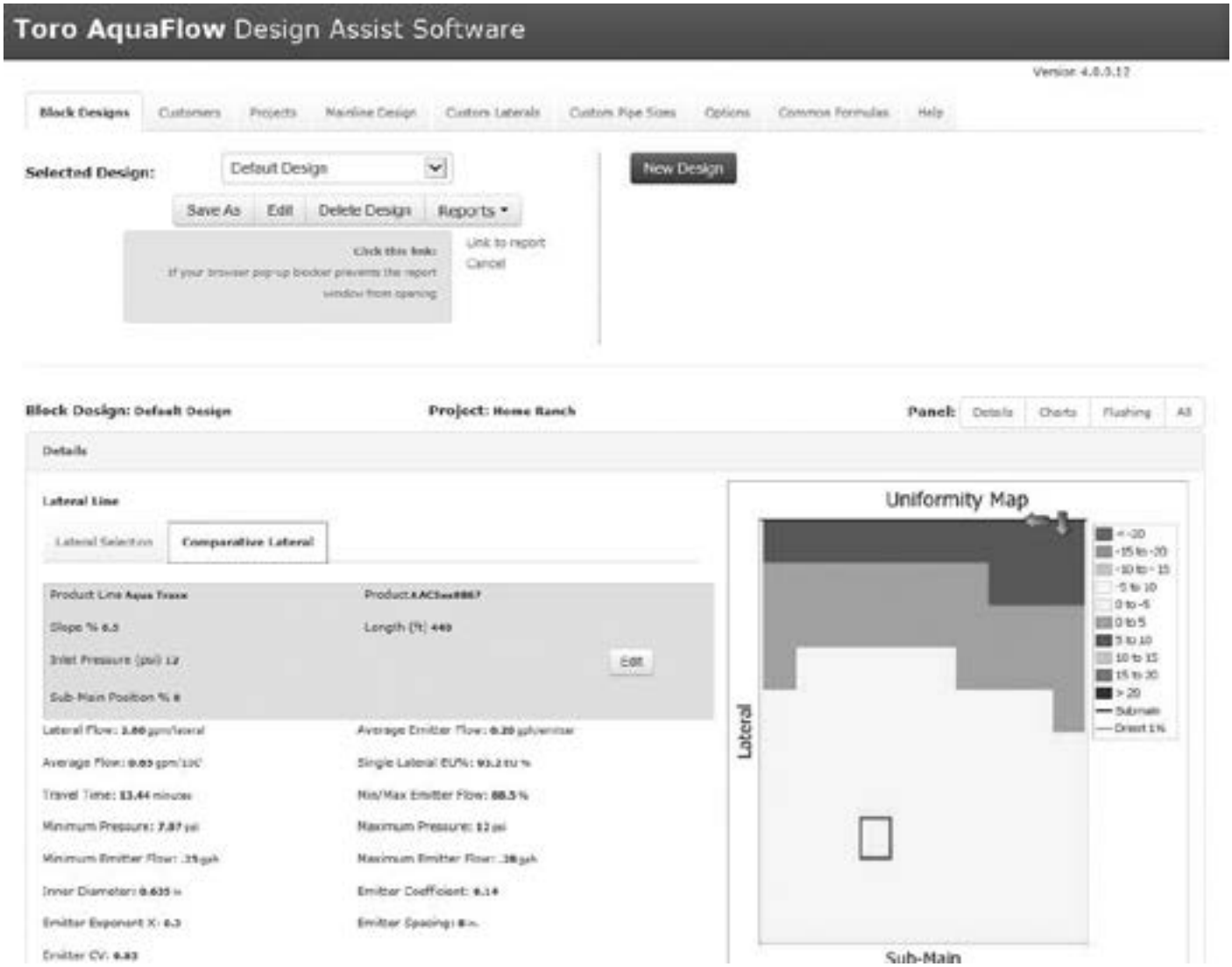
AquaFlow Drip Irrigation Design Software for Aqua-Traxx® Premium Drip Tape

Application

AquaFlow™ provides irrigation designers, dealers and growers with a state-of-the-art tool to configure drip irrigation systems for optimum performance using Toro Aqua-Traxx® PBX, Neptune™ and DripMaxx™ drip tube.

AquaFlow's capabilities include:

- Dashboard format for easy viewing
- Real-time system design changes
- Compare different designs
- Colour coded uniformity display
- Unlimited slopes
- Multiple pipe types and sizes
- Single or multiple block reports
- Flushing for both laterals and submains



Note: Diagram for illustration purposes only.

To become a registered user of AquaFlow visit https://aquaflow.toro.com or driptips.toro.com

Application

The next level of uniformity, efficiency and yield

The new Aqua-Traxx FlowControl premium drip tape is the latest advancement in precision drip irrigation. It's the only flow-regulating drip tape available – giving you more control and uniformity wherever you farm. The innovative emitter design provides flexibility to increase or decrease flow while maintaining a uniform output across changing elevations. Now you have more control over how much water your crops get, especially in long runs or hilly terrain, where water pressure can vary throughout the run.

Features

- Designed and moulded with the PBX Advantage for increased durability, clog resistance and uniform output.
- Flexibility to increase and decrease flow without sacrificing uniformity.
- Available in three diameters and four wall thickness, including 5/8" (16 mm) and 7/8" (22 mm) 8 mil.
- Emitter spacing from 15-60 cm with no cost increase, for precise placement and flexibility when designing your system.
- All flow rates require just 150-mesh filtration

Advantages of FlowControl

Vs Standard Drip Tape

- High uniformity on longer runs and hilly terrain.
- Improved system performance as a result of better irrigation uniformity.
- Increased planting and harvesting efficiency from longer lengths of run.
- Eliminate extra manifolds and labor-intensive jumpers (micro-tubing used to regulate pressure).

Vs Pressure-Compensating Tape

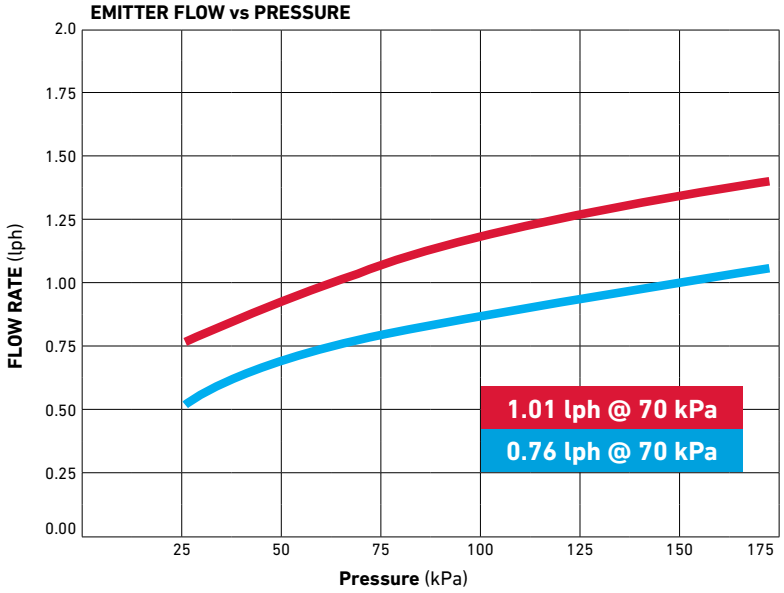
- Retain flexibility to increase or decrease application rate for greater control over watering and scheduling decisions.
- Available in wider range of thicknesses to meet the needs of all crops, including more affordable 5/8" (16 mm) 6-mil and 7/8" (22 mm) 8-mil.
- One price for any emitter spacing from 15 to 60 cm giving you the wetting pattern you want without paying a premium.
- Designed with patented PBX technology for increased durability, clog resistance and uniform output.

Flow Control™ - Flow Rates						
Emitter Flow Part Number	Outlet Spacing	Emitter Flow Rate		Emitter Exponent	Final Requirement	
	cm	Lph @ 70 kPa	Lph/1 m @ 70 kPa		Mesh	Micron
0.20 gph emitter						
AAFCXxx0667	15	0.76	4.99	0.3	150	98
AAFCXxx0850	20	0.76	3.74			
AAFCXxx1234	30	0.76	2.50			
AAFCXxx1625	40	0.76	1.87			
AAFCXxx1822	45	0.76	1.67			
AAFCXxx2417	60	0.76	1.25			
0.27 gph emitter						
AAFCXxx0690	15	1.01	6.66	0.3	150	98
AAFCXxx0867	20	1.01	4.99			
AAFCXxx1245	30	1.01	3.33			
AAFCXxx1634	40	1.01	2.50			
AAFCXxx1830	45	1.01	2.22			
AAFCXxx2422	60	1.01	1.67			

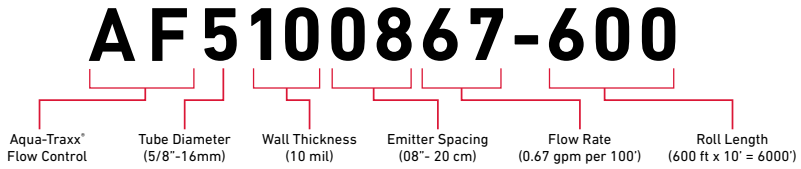
↑ *Maximum pressure within laterals while operating or flushing.*
Not all configurations are available in all regions

Flow Control™ - Wall Thickness							
Diameter	Wall Thickness	Operating Pressure				Length	Weight
		kPa		bar			
		Min	Max †	Min	Max †	m	Kg
5/8" (16mm) 0.635"	8 mil	28	110	0.3	1.1	2,286	30
	10 mil	28	172	0.3	1.7	1,829	29
	12 mil	28	172	0.3	1.7	1,554	29
	15 mil	28	172	0.3	1.7	1,219	29
7/8" (22mm) 0.880"	8 mil	28	103	0.3	1.0	1,829	33
	10 mil	28	138	0.3	1.4	1,341	32
	12 mil	28	138	0.3	1.4	1,219	33
	15 mil	28	152	0.3	1.5	914	30

"X denotes the diameter - 5 for 5/8" and 7 for 7/8".
"xx denotes mil (1/1000th of an inch) thickness.
Metric outlet spacing expressed in nominal length.
† *Coefficient of Variation (CV) less than 3%.*



FLOWCONTROL CODE BUILDER



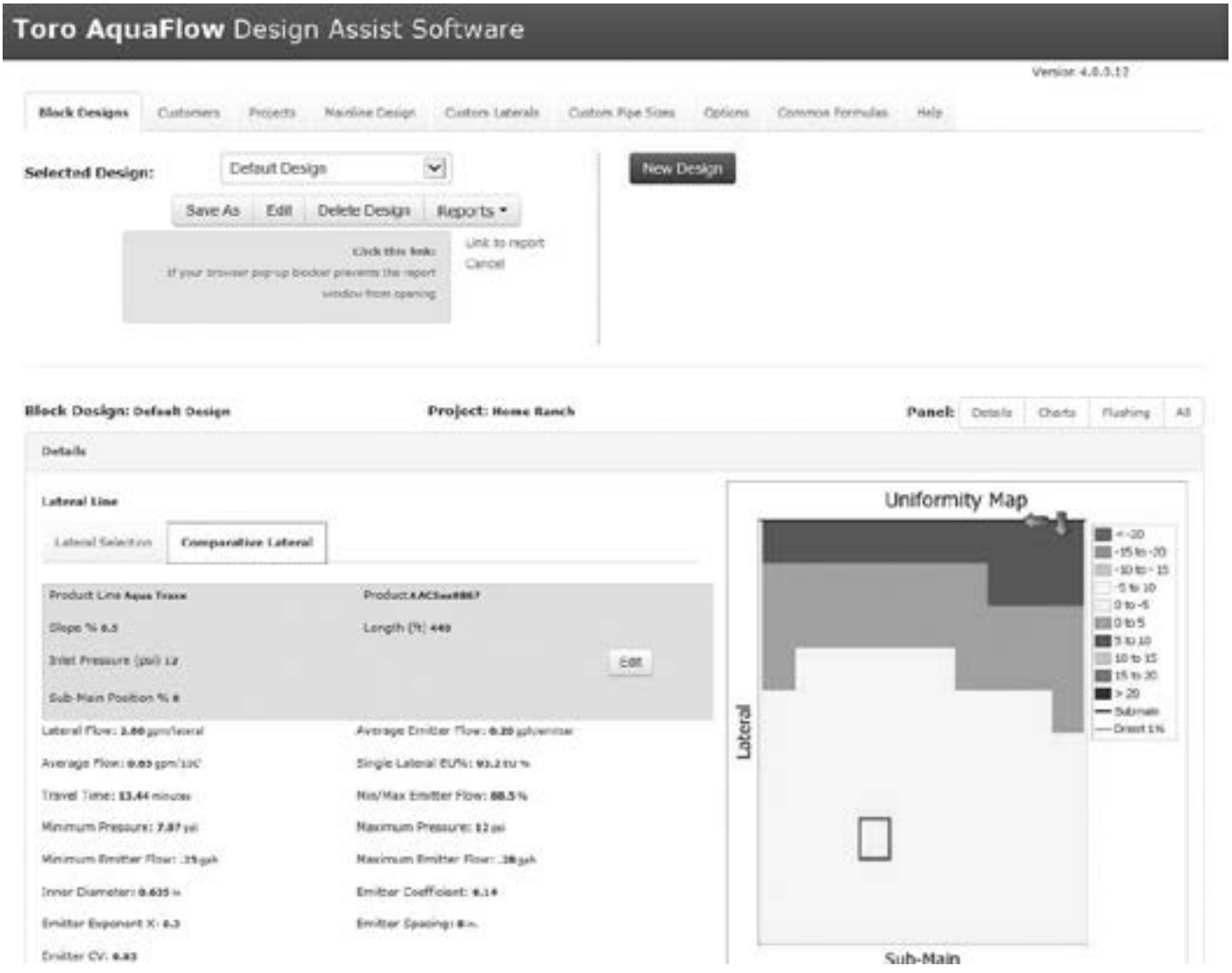
AquaFlow Drip Irrigation Design Software for Aqua-Traxx® Flow Control (FC) Premium Drip Tape

Application

AquaFlow™ provides irrigation designers, dealers and growers with a state-of-the-art tool to configure drip irrigation systems for optimum performance using Toro Aqua-Traxx® PBX, Neptune™ and DripMaxx™ drip tube.

AquaFlow's capabilities include:

- Dashboard format for easy viewing
- Real-time system design changes
- Compare different designs
- Colour coded uniformity display
- Unlimited slopes
- Multiple pipe types and sizes
- Single or multiple block reports
- Flushing for both laterals and submains



Note: Diagram for illustration purposes only.

To become a registered user of AquaFlow visit https://aquaflow.toro.com or driptips.toro.com

Application

For use as an economical submain for low pressure micro irrigation systems.
Blue Stripe® Oval polyethylene tubing is a lay-flat form of tubing manufactured from the highest grade of resins.

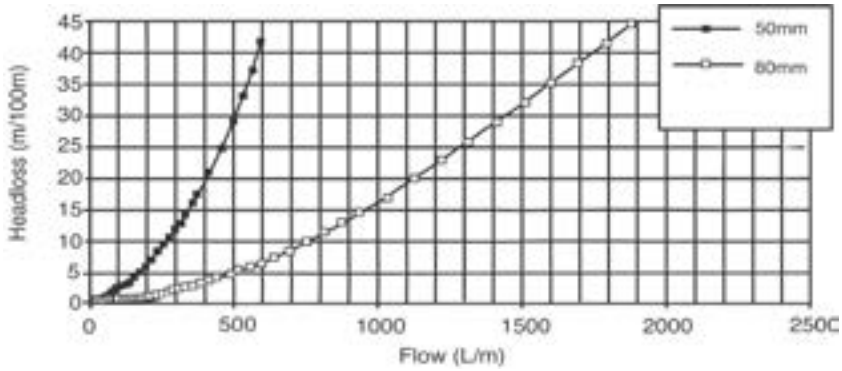
Features

- Supplied in lay-flat form to reduce freight volumes, storage and for ease of installation
- Large diameters offer cost effective alternative to rigid PVC, high density polyethylene or lay-flat hose
- Blue stripe for ease of identification
- Manufactured from superior linear low density resins
- Impregnated with 2% carbon black for maximum UV resistance
- Maximum operating pressure: 140 kPa
- When Oval Hose is in place and pressurised it becomes round, Oval hose rolls out faster and easier, reducing your installation time, thereby reducing your cost

Dura-Pol™ tubing is a layflat form of tubing and is used in portable drip irrigation systems where the tube needs to be re-located or re-used.

Dimensional Data				
Nominal Size (mm)	**Tube Inside Diam. (mm)**	**Min. Wall Thickness (mm)**	**Coil Length (m)**	**Coil Weight (kg)**
50	52.0	1.3	137	27.8
80	77.2	1.9	61	27.3

Friction Loss Chart



Ordering Information	
ELD5251-045	50 mm x 135 m Dura-Pol™ Heavy Tubing
ELD7776-020	80 mm x 60 m Dura-Pol™ Heavy Tubing

Application

- Vineyards
- Orchards
- Nurseries

A proven turbulent flow drip emitter, widely used in vineyards, orchards and also for row crops.

Features

- Available in 2.0, 4.0 and 8.0 Lph flow rates
- Recommended operating pressure range 80-120 kPa
- Take apart feature permits cleaning and inspection
- Large turbulent flow path provides resistance to plugging
- Barbed inlet can be installed directly onto poly tube or used with 4 mm tubing
- Base lugs to provide stability on tubing
- Blanking cap available to stop dripper emitting water
- 4 mm angled barbed inlet to reduce the risk of particle entry on start up
- Colour coded internal discs for easy identification
- Construction:
  - Cap - glass filled polypropylene
  - Insert - Santoprene™
  - Base - ABS

Disc Colour	Flow
White	2 Lph
Black	4 Lph
Green	8 Lph

The first Australian made turbulent flow drip emitter, still widely used throughout the irrigation industry in Australia.

Ordering Information

Code	Description
1014002	2 Lph Turbo-Key Dripper
1014004	4 Lph Turbo-Key Dripper
1014008	8 Lph Turbo-Key Dripper

Performance Data

Code	Nominal Flow (Lph)	Flow (Lph) vs Pressure (kPa)			Flow Path dimensions Min. (mm)
		80 kPa	100 kPa	120 kPa	
1014002	2	1.85	2.08	2.29	0.80 x 0.61
1014004	4	3.66	4.08	4.48	1.2 x 1.12
1014008	8	7.2	8.0	8.7	1.45 x 1.55

Application

- Vineyards
- Orchards

Pressure compensating emitter with a chemically inert silicon diaphragm to cater for undulating terrain or long lateral runs with maximum blockage resistance.

Features

- Available in 2.0, 4.0 and 8.0 Lph flow rates
- Recommended operating pressure range 100-300 kPa
- Turbulent flow path for blockage resistance and uniform water distribution
- High quality chemical resistant diaphragm
- Removable cap and diaphragm for system inspection
- 4 mm barbed inlet to reduce the risk of particle entry on start up
- Diaphragm seats on base to prevent backflow into the emitter
- Outlet baffle to deter entry of insects
- Cap stamped with nominal flow rate for easy identification
- 4mm tubing can be connected to the outlet for precise drip placement
- Construction:
  - Cap - glass filled polypropylene
  - Diaphragm - silicone
  - Base - ABS

Australian made pressure compensating emitter that reacts to changes in pressure to ensure an even flow.

Ordering Information

Code	Description
1014052	2 Lph Turbo-Plus II (Pressure Compensating)
1014054	4 Lph Turbo-Plus II (Pressure Compensating)
1014058	8 Lph Turbo-Plus II (Pressure Compensating)

Performance Data

Code	Nominal Flow (Lph)	Flow (Lph) vs Pressure (kPa)					Turbulent Flow Path Dimensions Min. (mm)
		100 kPa	150 kPa	200 kPa	250 kPa	300 kPa	
1014052	2	1.97	2.04	2.05	2.02	1.95	0.6 x 0.6
1014054	4	3.96	3.88	3.99	4.09	4.15	0.6 x 0.7
1014058	8	7.59	7.83	7.92	8.09	8.12	1.2 x 0.7

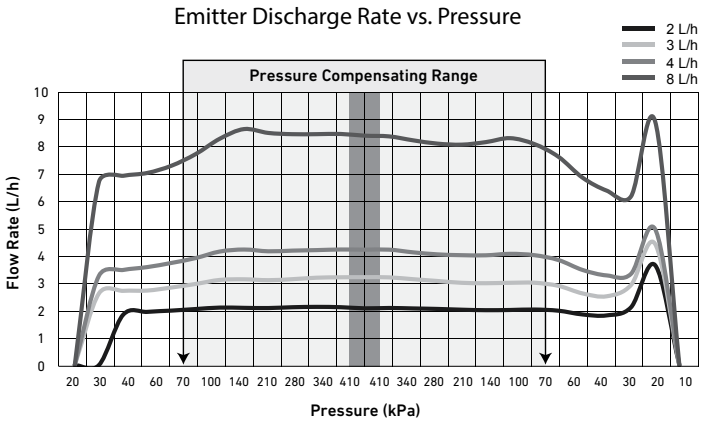
Application

Precise Pressure Compensating emitter engineered for use in greenhouses, nurseries and landscape applications for applying water and nutrients directly to individual plants. Continuously Self-Flushing diaphragm prevents debris build-up. Available in Anti-Leak configurations, the NGE AL ensures uniform flow over long runs, eliminates drainage caused by varying elevations and ensures even growth across your crops.

Features

- Available in 2 Lph and 4 Lph flow rates
- Low CV for uniform discharge over wide pressure range
- Semi-circle inlet filter and wide turbulent flow path allows smaller particles to exit the flow path during the self-flushing cycle
- Available in Anti-Leak configurations for uniform flow over long runs
- Redesigned drip emitter base features a unique flange with ribs to prevent the barb from damaging or penetrating too far into the poly tube
- All components are manufactured with UV and acid resistant high-grade materials for long field life
- Available in 3 mm barb, 4 mm barb and Male adaptor
- Colour coded for easy identification

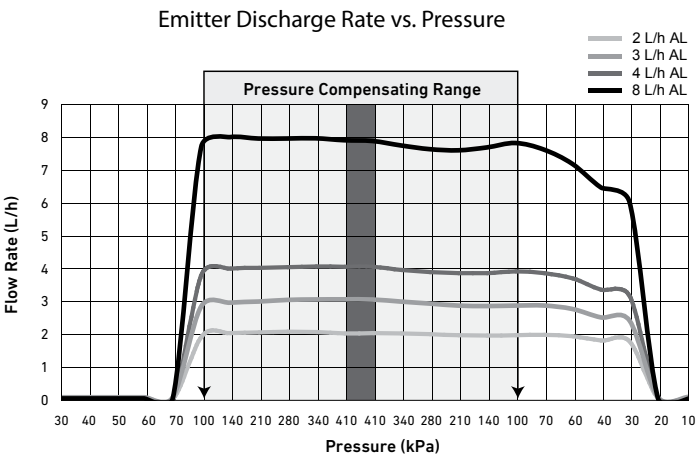
NGE™ PC performance



Operating Specifications

NGE PC				
Nominal Flow Rate (Lph)	2	3*	4	8
Recommended Pressure Range (kPa)	60-410			
Emitter Exponent (x)	0.0			
Coefficient of Variation (Cv)	≤3%			
Minimum Filtration Requirement	120 Mesh (125 Micron)			
Colour	Blue	Green	Black	Red

NGE™ PC Anti-Leak performance



Operating Specifications

NGE PC ANTI-LEAK				
Nominal Flow Rate (Lph)	2	3*	4	8
Recommended Pressure Range (kPa)	90-410			
Closing Pressure (kPa)	24			
Emitter Exponent (x)	0.0			
Coefficient of Variation (Cv)	≤3%			
Minimum Filtration Requirement	140 Mesh (105 Micron)			
Colour	Light Blue	Light Green	Grey	Light Red

** NGE 3 Lph Drip Emitters will become available in late 2019.*

NGE™ Emitter Ordering Information

Barbed Outlet

NGE Drip Emitters - Pressure Compensating (PC)	
Model	**Description**
DPCT02-3-BLUE	2 Lph PC Emitter - 3 mm Barb Outlet
DPCT02-4-BLUE	2 Lph PC Emitter - 4 mm Barb Outlet
DPCT02-MA-BLUE	2 Lph PC Emitter - Male Adaptor Outlet
DPCT03-3-GRN	3 Lph PC Emitter - 3 mm Barb Outlet
DPCT03-4-GRN	3 Lph PC Emitter - 4 mm Barb Outlet
DPCT03-MA-GRN	3 Lph PC Emitter - Male Adaptor Outlet
DPCT04-3-BLK	4 Lph PC Emitter - 3 mm Barb Outlet
DPCT04-4-BLK	4 Lph PC Emitter - 4 mm Barb Outlet
DPCT04-MA-BLK	4 Lph PC Emitter - Male Adaptor Outlet
DPCT08-3-RED	8 Lph PC Emitter - 3 mm Barb Outlet
DPCT08-4-RED	8 Lph PC Emitter - 4 mm Barb Outlet
DPCT08-MA-RED	8 Lph PC Emitter - Male Adaptor Outlet

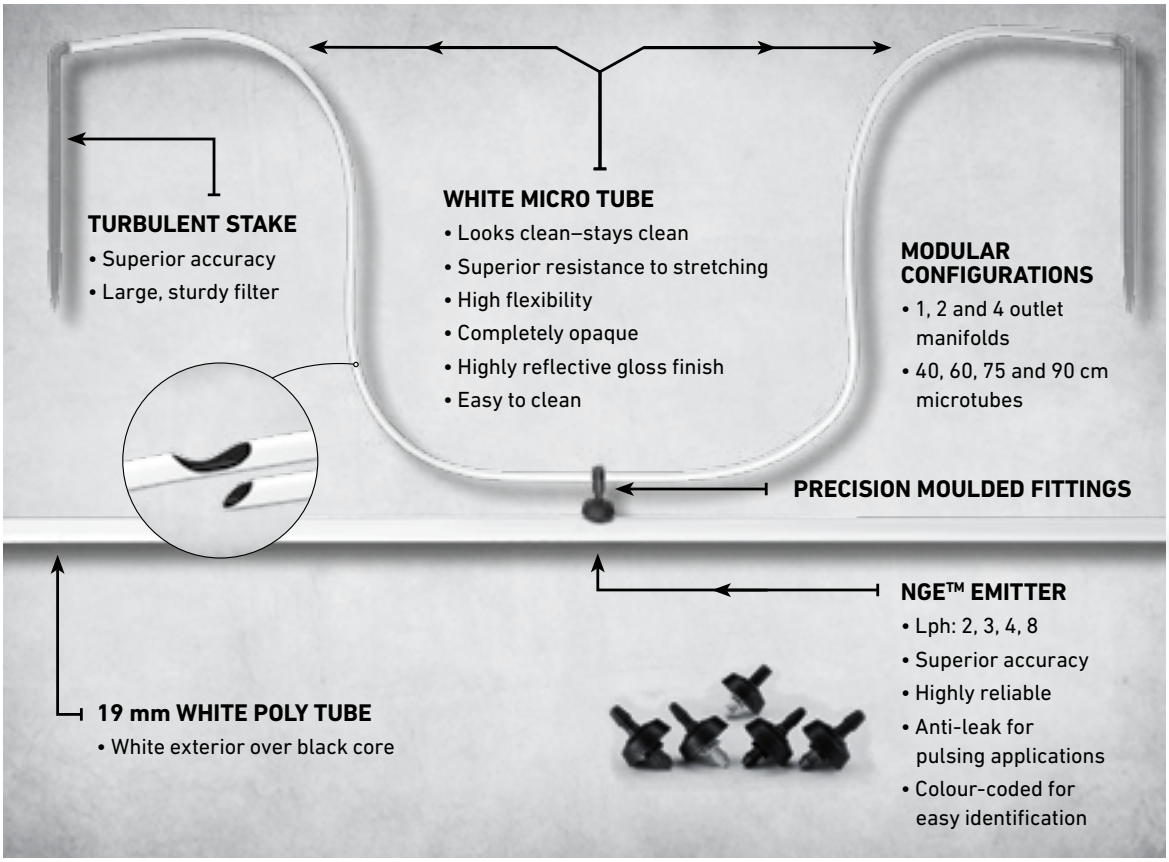
Male Adaptor Outlet

NGE Drip Emitters - Pressure Compensating (PC) and Anti-Leak (AL)	
Model	**Description**
DPCT02-3-AL-BLUE	2 Lph PC AL Emitter - 3 mm Barb Outlet
DPCT02-4-AL-BLUE	2 Lph PC AL Emitter - 4 mm Barb Outlet
DPCT02-MA-AL-BLUE	2 Lph PC AL Emitter - Male Adaptor Outlet
DPCT03-3-AL-GRN	3 Lph PC AL Emitter - 3 mm Barb Outlet
DPCT03-4-AL-GRN	3 Lph PC AL Emitter - 4 mm Barb Outlet
DPCT03-MA-AL-GRN	3 Lph PC AL Emitter - Male Adaptor Outlet
DPCT04-3-AL-BLK	4 Lph PC AL Emitter - 3 mm Barb Outlet
DPCT04-4-AL-BLK	4 Lph PC AL Emitter - 4 mm Barb Outlet
DPCT04-MA-AL-BLK	4 Lph PC AL Emitter - Male Adaptor Outlet
DPCT08-3-AL-RED	8 Lph PC AL Emitter - 3 mm Barb Outlet
DPCT08-4-AL-RED	8 Lph PC AL Emitter - 4 mm Barb Outlet
DPCT08-MA-AL-RED	8 Lph PC AL Emitter - Male Adaptor Outlet

Application

Quality Drip Irrigation for High Value Crops.

White Spider assemblies used with NGE anti-leak pressure compensating (AL PC) emitters are ideal for pot and hydroponic watering in greenhouses and nurseries. By applying water directly to the root system, foliage remains dry, decreasing the risk of disease and water washing off chemicals applied to the foliage.



Manufactured from quality resins, the bright white tubing is highly reflective, durable, flexible and easy to clean. The precision moulded NGE emitters and fittings provide accuracy and durability over multiple crop cycles.

19 mm Pre-Punched White Poly Tube

Developed for use with Toro NGE emitters and White Spider assemblies to provide a complete drip system solution.

- Brilliant white
- Premium quality
- High visibility
- Highly temperature reflective
- Completely opaque

Bright white layer over an opaque black core

Pre-punched for ease-of-use

White Pre-Punched Poly

ORDERING INFORMATION	
Model	**Description**
WPP19XXX-300	19 mm White Pre-Punched Poly Tube (300 m roll)

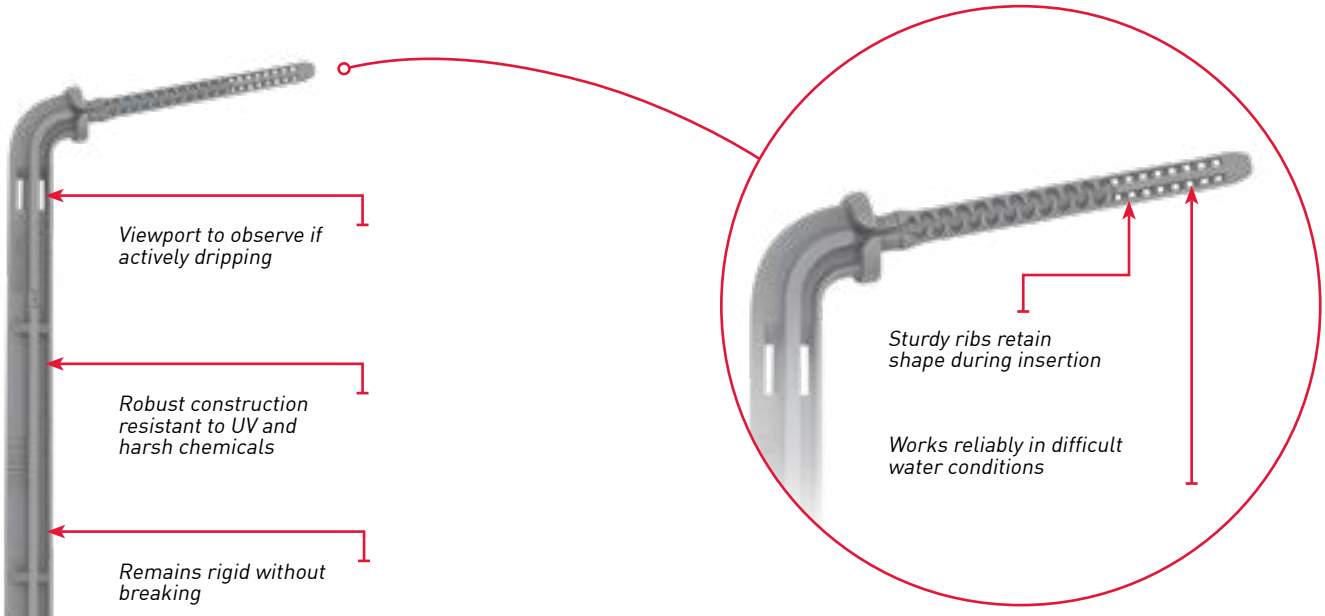
XXX – specify the hole spacing in metres.

Example: 0.60 m spacing would be specified as WPP19060-300.

- Standard coil length: 300 m
- Minimum run: 7200 (24 coils)
- Coils per pallet: 24 coils
- Group spacings available from .10 m intervals
- Ability to laser etch with dealer details

Custom coil lengths and group spacings are available on request subject to availability and minimum order quantities. Please refer to customer service for details.

Every component designed for durability and ease-of-use



Specifications

Operational

- Opening pressure: 90 kPa
- Closing pressure: 24 kPa
- Recommended filtration: 140 mesh

Flows Available

- 2 Lph (Light Blue)
- 3 Lph (Light Green)
- 4 Lph (Grey)
- 8 Lph (Light Red)

White and Black Spider Accessories

Stakes

Assembly Adaptors

Ordering Information	
Model	**Description**
Pre-Cut Micro Tube	
SFHWT0335-16	3 mm x 40 cm White Pre-Cut Tube
SFHWT0335-24	3 mm x 60 cm White Pre-Cut Tube
SFHWT0335-30	3 mm x 75 cm White Pre-Cut Tube
SFHT0332-16	3 mm x 40 cm Black Pre-Cut Tube
SFHT0332-24	3 mm x 60 cm Black Pre-Cut Tube
SFHT0332-30	3 mm x 75 cm Black Pre-Cut Tube
Stakes	
IPST0301BQ-G	Grey Barbed Elbow Stake
IPST0301-G	Grey Turbulent Flow Straight Stake
IPST0301Q-G	Grey Turbulent Flow Elbow Stake
IPSTT0301BQ	Black Barbed Elbow Stake
IPSTT0301	Black Turbulent Flow Straight Stake
IPSTT0301Q	Black Turbulent Flow Elbow Stake
Assembly Adaptors	
FBST1	1 Outlet Barbed Straight x Female Adaptor
FBSE	1 Outlet Barbed Elbow x Female Adaptor
FBST2	2 Outlet Barbed Tee x Female Adaptor
FBST4	4 Outlet Manifold x Female Adaptor

White SPIDER Stake Assembly - Pressure Compensating (PC) and Anti-Leak PC (AL)	
Model	**Description**
DSW-02-3ALQB-40	2 Lph PC AL Emitter with Grey Barbed Elbow Stake, 40 cm White Tube
DSW-02-3ALQB-60	2 Lph PC AL Emitter with Grey Barbed Elbow Stake, 60 cm White Tube
DSW-03-3ALQB-40	3 Lph PC AL Emitter with Grey Barbed Elbow Stake, 40 cm White Tube
DSW-03-3ALQB-60	3 Lph PC AL Emitter with Grey Barbed Elbow Stake, 60 cm White Tube
DSW-04-3ALQB-40	4 Lph PC AL Emitter with Grey Barbed Elbow Stake, 40 cm White Tube
DSW-04-3ALQB-60	4 Lph PC AL Emitter with Grey Barbed Elbow Stake, 60 cm White Tube

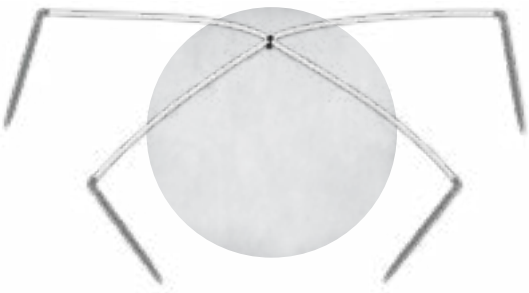
Note: Barbed Stake is recommended for use on Spider Stake Assemblies

1 WAY Spider - white and black	
Model	**Description**
1 way white	
DBS1WQBX-60	1 Way Manifold with Grey Barbed Elbow Stake, 60 cm White Tube
DBS1WQBX-75	1 Way Manifold with Grey Barbed Elbow Stake, 75 cm White Tube
1 way Black	
DBS1KQBX-60	1 Way Manifold with Black Barbed Elbow Stake, 60 cm Black Tube
DBS1KQBX-75	1 Way Manifold with Black Barbed Elbow Stake, 75 cm Black Tube

Note: Barbed Stake is recommended for use on 1 Way Spider

2 WAY Spider - white and black	
Model	**Description**
2 way white	
DBS2WQTX-60	2 Outlet Barbed Tee with Grey Turbulent Elbow Stake, 2 x 60 cm White Tube
DBS2WQTX-75	2 Outlet Barbed Tee with Grey Turbulent Elbow Stake, 2 x 75 cm White Tube
2 way Black	
DBS2KQTX-60	2 Outlet Barbed Tee with Black Turbulent Elbow Stake, 2 x 60 cm Black Tube
DBS2KQTX-75	2 Outlet Barbed Tee with Black Turbulent Elbow Stake, 2 x 75 cm Black Tube

Note: Turbulent Stake is recommended for use on 2 Way Spider



4 WAY Spider - white and black	
Model	**Description**
4 way white	
DBS4WQTX-60	4 Outlet Manifold Cross with Grey Turbulent Elbow Stake, 4 x 60 cm White Tube
DBS4WQTX-75	4 Outlet Manifold Cross with Grey Turbulent Elbow Stake, 4 x 75 cm Black Tube
4 way Black	
DBS4KQTX-60	4 Outlet Manifold Cross with Turbulent Elbow Stake, 4 x 60 cm Black Tube
DBS4KQTX-75	4 Outlet Manifold Cross with Turbulent Elbow Stake, 4 x 75 cm Black Tube

Note: Turbulent Stake is recommended for use on 4 Way Spider

E-2® Micro Drip Emitter

Application

Classic drip emitter for short runs and non-sloping agricultural, nursery and landscape applications. Its pull-apart feature and large open flow path, allows for easy field inspection, maintenance and greater resistance to plugging.

Features

- Non-pressure compensating hydraulic design
- Available in one flow rate: 4.0 Lph
- Fast, single-barb installation fits directly into low density poly tube
- Outlet barb accepts 4 mm low density poly tube for precise drip placement
- Large open flow path for resistance to plugging
- Take apart feature for fast, simple field inspection

E-2® Emitter DBK04	
Pressure vs Flow Rate	
Pressure kPa	**Flow Rate Lph**
50	2.73
100	4.15
150	5.31
200	6.31
250	7.22
300	8.07
350	8.85

4 mm Flexible Irrigation Tube

Application

Ideal for use in commercial and domestic applications, providing versatility when connecting micro drippers and sprays in an irrigation system. The highly flexible tube allows you to run drippers and sprays to garden beds potted plants and hanging baskets.

Features

- Highly flexible for easy installation with micro drippers and sprays
- Manufactured from PVC for maximum grip on 4 mm barbed fittings
- Ideal for irrigation garden beds, potted plants and hanging baskets
- Available in 6 coil lengths: 5, 10, 25, 50 ,100 and 250 m
- Manufactured from high quality resin for a superior seal
- UV stabilised for durability and long field life

Tip: Use with Toro 4 mm Barbed Drip Emitters.

Ordering Information		
Model	**Description**	**Pack Size**
RT4-05	Flexible PVC Irrigation Tube 4 mm x 5 metre	20
RT4-10	Flexible PVC Irrigation Tube 4 mm x 10 metre	10
RT4-25	Flexible PVC Irrigation Tube 4 mm x 25 metre	10
RT4-50	Flexible PVC Irrigation Tube 4 mm x 50 metre	5
RT4-100	Flexible PVC Irrigation Tube 4 mm x 100 metre	1
RT4-250	Flexible PVC Irrigation Tube 4 mm x 250 metre	1

Agri Drip™ Emitters

A turbulent flow path drip emitter, sealed to maintain pre-set discharge rates and uniformity. Pressure Compensating emitters suit installations where elevations and slopes normally create the need for complex system designs.

Application

Suitable for most horticultural tree and row crops, viticulture, and landscaped gardens.

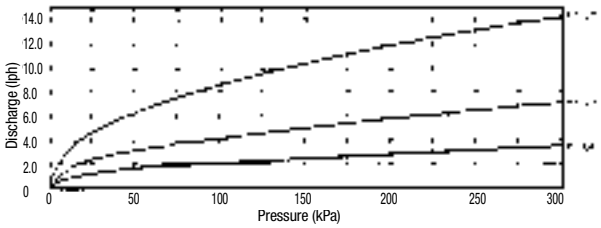
Features

- Standard drip emitter range – 2 Lph, 4 Lph, 8 Lph
- Pressure Compensating drip emitter range – 2 Lph, 4 Lph, 8 Lph
- Positive barb connection – 4 mm Inlet
- Outlet: Push fit 4 mm
- Constructed from UV stabilised material
  Base: Polypropylene
  Cap: Polypropylene
  Diaphragm: Silicon rubber

Agri Drip™ On-Line Drippers

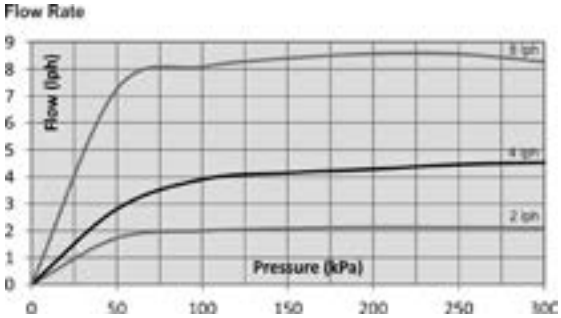
Code	Description
10130225	Agri Drip™ Standard 2 Lph
10130245	Agri Drip™ Standard 4 Lph
10130285	Agri Drip™ Standard 8 Lph
10130325	Agri Drip™ Pressure Compensating 2 Lph
10130345	Agri Drip™ Pressure Compensating 4 Lph
10130365	Agri Drip™ Pressure Compensating 8 Lph

Discharge Rate: Standard Drip Emitters



Agri Drip™ Standard Emitter

Discharge Rate: Pressure Compensating



Agri Drip™ Pressure Compensating Emitter

Performance	Standard Discharge (Lph)			Pressure (kPa)	Compensating Discharge (Lph)		
Pressure (kPa)	2 Lph	4 Lph	8 Lph		2 Lph	4 Lph	8 Lph
50	1.4	3.0	6.0	100	2.0	3.9	8.1
75	1.7	3.6	7.4	150	2.1	4.1	8.4
100	2.0	4.1	8.4	200	2.1	4.3	8.6
125	2.2	4.6	9.3	250	2.1	4.4	8.6
150	2.4	5.0	10.2	300	2.1	4.5	8.3
Minimum Cross Section (mm)	0.9 x 0.7	1.3 x 0.8	1.8 x 1.1		0.7 x 0.6	0.8 x .08	0.7 x 1.0

Midi Drip™ Emitters

Economical and precise watering of individual plants and trees with stable positioning of emitters in tubing or with spike.

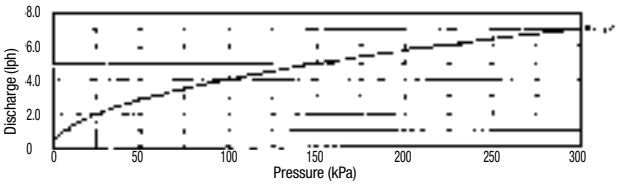
Application

Suitable for shrubs and flowers, fruit trees, vines and tomatoes in a wide range of situations from home gardens to large scale nurseries.

Features

- Take apart for servicing
- Barb model for direct insertion into tubing
- Spike model to extend Midi Drip emitter from the main supply line
- Inlet: 4 mm barb
- Constructed from UV stabilised polypropylene

Discharge Rate



Performance	4 Lph
Pressure kPa	Discharge (Lph)
50 kPa	2.8
75 kPa	3.5
100 kPa	4.00
125 kPa	4.47
150 kPa	4.90
Minimum Cross Section (mm)	0.5 x 0.6

Midi Drip™ Spike 4 mm Barb
Code: 10130195

Midi Drip™ 4 mm Barb
Code: 10130145

Application

A pressure compensating spike dripper with turbulent flow path, sealed to maintain pre-set discharge rates and uniformity.

Suited to use in nurseries, shade houses and residential landscape irrigation systems.

Features

- Registered design
- Pressure compensated flow rate, with turbulent flow path, self-flushing action and insect baffle to minimise blockages
- Three colour coded flow rates available: 2 Lph, 4 Lph and 8 Lph.
- Inlet barb has built-in filter
- Outlet suitable for attaching 4 mm micro tube.
- UV stabilised materials for long life.

Asta® Drip PC Spike 4 mm

Specifications		
Dimensions Assembled	Height	144 mm
	Width	33 mm
	Depth	17 mm
Weight (approx.)		4.5 g
Base/Connection Type	Inlet	Barb 4 mm
	Outlet	Spout 4 mm
UV Stabilised Material	Base	Polypropylene
	Spike	Polypropylene
	Diaphragm	Silicone rubber

Performance			
Pressure (kPa)	**Discharge Lph**		
	2 Lph	**4 Lph**	**8 Lph**
	Red base	Black base	Green base
50	2.0	3.6	5.8
100	2.3	4.3	7.8
150	2.3	4.4	8.0
200	2.3	4.6	8.2
250	2.3	4.7	8.3
300	2.3	4.7	8.2

Ordering Information	
Code	**Description**
10130735	2 Lph Asta® Drip PC spike, 4 mm Barb
10130745	4 Lph Asta® Drip PC spike, 4 mm Barb
10130755	8 Lph Asta® Drip PC spike, 4 mm Barb

Application

A pressure compensating dripper with turbulent flow path, sealed to maintain pre-set discharge rates and uniformity.

Suited to use in pots, planter boxes, balcony, patio and residential landscape irrigation systems.

Features

- Registered design
- Pressure compensated flow rate, with turbulent flow path, self-flushing action and insect baffle to minimise blockages
- Three colour coded flow rates available: 2 Lph, 4 Lph and 8 Lph
- Ergonomically designed for easy finger/thumb installation
- Inlet barb has built-in filter
- Outlet suitable for attaching 4 mm micro tube

Pinch Drip™ PC Barb 4 mm

Specifications		
Dimensions Assembled	Height	25 mm
	Width	28 mm
	Depth	15 mm
Weight (approx.)		1.1 g
Base/Connection Type	Inlet	Barb 4 mm
	Outlet	Spout 4 mm
UV Stabilised Material	Base	Polypropylene
	Spike	Polypropylene
	Diaphragm	Silicone rubber

Performance			
Pressure (kPa)	**Discharge Lph**		
	2 Lph	**4 Lph**	**8 Lph**
	Red base	Black base	Green base
50	2.0	3.4	5.9
100	2.3	4.1	7.8
150	2.3	4.4	8.1
200	2.3	4.6	8.3
250	2.3	4.6	8.4
300	2.3	4.6	8.4

Ordering Information	
Code	**Description**
10130705	2 Lph Pinch Drip™ PC, 4 mm Barb
10130715	4 Lph Pinch Drip™ PC, 4 mm Barb
10130725	8 Lph Pinch Drip™ PC, 4 mm Barb

Application

A turbulent flow, Pressure Compensating dripper available in 3 flows.

Suited to pots, planter boxes, balconies, patios and landscape applications.

Features

- Take-apart for easy inspection and cleaning
- Self-flushing action with insect baffle to minimise blockages
- PC barbed dripper range: 2 lph, 4 lph and 8 lph with 4 mm spout
- Coloured bases to identify flow rates
- 4 lph PC Spike and In-Line Spike models to anchor CETA® at the plant

Performance	Discharge (lph)		
Pressure (kPa)	2 lph	4 lph	8 lph
50	1.9	3.3	6.2
100	2.0	3.8	7.9
150	2.2	4.2	7.9
200	2.3	4.4	8.1
250	2.3	4.4	8.1
300	2.3	4.4	8.0

Ordering Information	
Code	Description
10130425	2 Lph CETA® PC Dripper, 4 mm Barb
10130445	4 Lph CETA® PC Dripper, 4 mm Barb
10130485	8 Lph CETA® PC Dripper, 4 mm Barb
10130625	4 Lph CETA® PC Spike Dripper, 4 mm Barb
10130655	4 Lph CETA® PC In-Line Spike Dripper, 4 mm Barb

Specifications			
		CETA® PC	CETA® PC Spike/In-Line Spike
Dimensions Assembled	Height	25 mm	135 mm
	Width	20 mm	36 mm/42 mm
	Depth	16 mm	16 mm
Weight (approx.)		1.7g	5.0g
UV Stabilised Material	Base	Polypropylene	Polypropylene
	Spike	Polypropylene	Polypropylene
	Diaphragm	Silicone rubber	Silicone rubber
Connection Type	Inlet	Barb 4 mm	Barb 4 mm
	Outlet	Spout 4 mm	Spout 4 mm

CETA® PC 2 lph Barb 4mm

CETA® PC 4 lph Barb 4mm

CETA® PC 8 lph Barb 4mm

CETA® PC 4 lph Spike 4mm

CETA® PC 4 lph In-Line Spike 4mm

Application

Gentle umbrella pattern. Flow and coverage can be altered by rotating the cap. Flow rates allow for short watering times.
Suits street trees and shrubs.

Features

- Finger-tip flow control with shut-off option
- Spike model to anchor Mini Bubbler at the plant
- Barb model for direct attachment to feeder and supply lines
- Threaded model for installation into Rigid Risers and Asta® Stakes
- 1/2" Threaded model for riser pipe installations

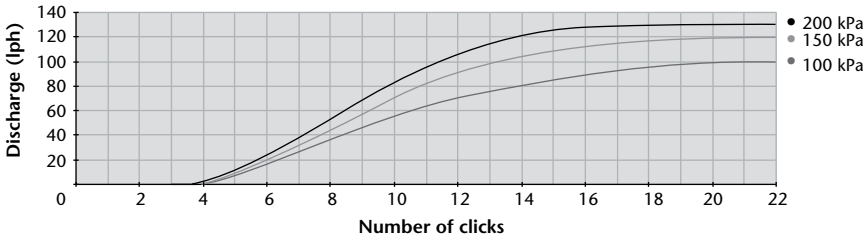
Mini Bubbler Barb 4 mm

Mini Bubbler Thread 1/2" FNPT

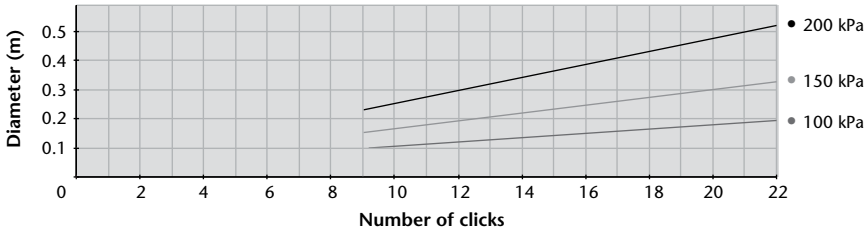
Mini Bubbler Thread 4 mm

Mini Bubbler Spike 4 mm

Flow Rate



Diameter of Throw



Ordering Information	
Code	**Description**
10131745	Mini Bubbler 360°, 4 mm Barb
10131715	Mini Bubbler 360°, 4 mm Thread
10131725	Mini Bubbler 360°, ½" FNPT Thread
10131795	Mini Bubbler 360°, Spike

Performance		360°	
	Pressure (kPa)	Flow (Lph)	Diameter (m)
fully open (approx. 22 clicks)	100	100	0.2
	150	119	0.3
	200	130	0.5

Specifications: Shrubbler® and Mini Bubbler					
		Barb	Thread	Thread 1/2"	Spike
Dimensions Assembled	Height	23 mm	23 mm	34 mm	135mm
	Width	20 mm	20 mm	26 mm	42 mm
	Depth	16 mm	16 mm	26 mm	16 mm
Weight (approx.)		1.6 g	2.0 g	4.3 g	5.4 g
UV Stabilised Material	Base	Polypropylene	Acetal	Polypropylene	Polypropylene
	Cap	Polypropylene	Polypropylene	Polypropylene	Polypropylene
Base/Connection Type: Inlet		Barb 4mm	10-32 UNF Thread 4 mm	Thread 1/2" FNPT	Barb 4 mm

Application

The original patented Shrubbler® with flow adjustment. Flow and coverage can be altered by rotating the cap.

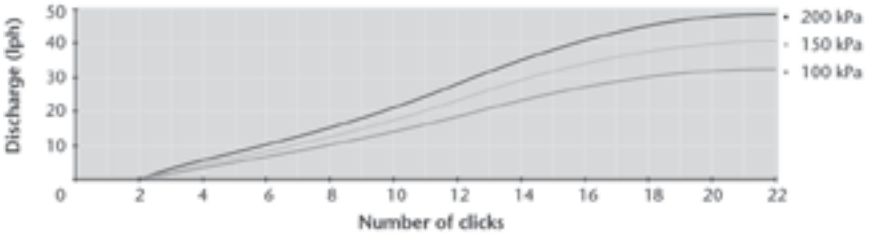
Use with pots, tubs, landscaped gardens, nurseries, hanging baskets. In-Line spike model for planter boxes.

Features

- Finger-tip flow control with shut-off option
- Spike model to anchor Shrubbler® at the plant
- Barb model for direct attachment to feeder and supply lines
- Threaded model for installation into Rigid Risers and Asta® Stakes
- 1/2" Threaded model for riser pipe installations
- In-Line spike model suits 4 mm ID connection tube

Performance			360	180
	Pressure (kPa)	Flow (Lph)	Diameter (m)	Radius (m)
fully open (approx. 22 clicks)	100	33	0.4	0.4
	150	41	0.6	0.5
	200	49	0.9	0.6

Flow Rate 360° & 180°



Diameter of Throw 360°

Radius of Throw 180°

Shrubbler® Spike 4 mm

Shrubbler® Barb 4 mm

Shrubbler® Thread 4 mm

Ordering Information	
Code	**Description**
10131445	Shrubbler 360˚, 4 mm Barb
10131415	Shrubbler 360˚, 4 mm Thread
10131425	Shrubbler 360˚, ½" FNPT Thread
10131495	Shrubbler 360˚, Spike
10130995	Shrubbler 360˚, In-Line Spike

Ordering Information	
Code	**Description**
10131245	Shrubbler 180˚, 4 mm Barb
10131215	Shrubbler 180˚, 4 mm Thread
10131225	Shrubbler 180˚, ½" FNPT Thread
10131295	Shrubbler 180˚, Spike

Shrubbler® In-Line Spike 4 mm

Shrubbler® Thread 1/2" FNPT

Application

A pressure compensating, fixed flow drip emitter. Gentle flow action with uniform coverage for all emitters on same supply tube.

For use with pots, planter boxes, balconies, patios and residential landscape irrigation systems.

Features

- Patented design
- Pressure compensated flow rate
- Diameter of throw maintained by pressure compensating device over a wide range of inlet pressures
- 8 fingers of water
- Take apart for easy inspection and cleaning
- Coloured cap for easy identification
- UV stabilised materials for long life

Performance

Nominal Flow	Pressure (kPa)	Flow (Lph)	Diameter (m)
24 Lph	100	24	0.3
	150	29	0.4
	200	33	0.4
	250	36	0.4
	300	38	0.4

Shrubbler® 360° PC Barb 4 mm

Specifications

		BARB	SPIKE
Dimensions Assembled	Height	25 mm	135 mm
	Width	20 mm	16 mm
	Depth	15 mm	26 mm
Weight (Approx)		1.7 g	5.4 g
Base/Connection Type: Inlet		Barb 4 mm	Barb 4 mm
UV Stabilised Material	Base	Polypropylene	Polypropylene
	Cap	Polypropylene	Polypropylene
	Diaphragm	Silicone	Silicone

Shrubbler® 360° PC Spike 4 mm

Ordering Information

Code	Description
10131685	Shrubbler® PC, 24 Lph, 4 mm Barb
10131695	Shrubbler® PC 24 Lph, on spike, 4 mm Barb

NEW

Application

The PotStream™ is a side mounted watering solution for pot plants and containers. The adjustable gentle stream pattern minimises soil erosion and the variable flow rate and pattern radius allows for use in various pot sizes.

Suits pot plants, planter boxes and containers.

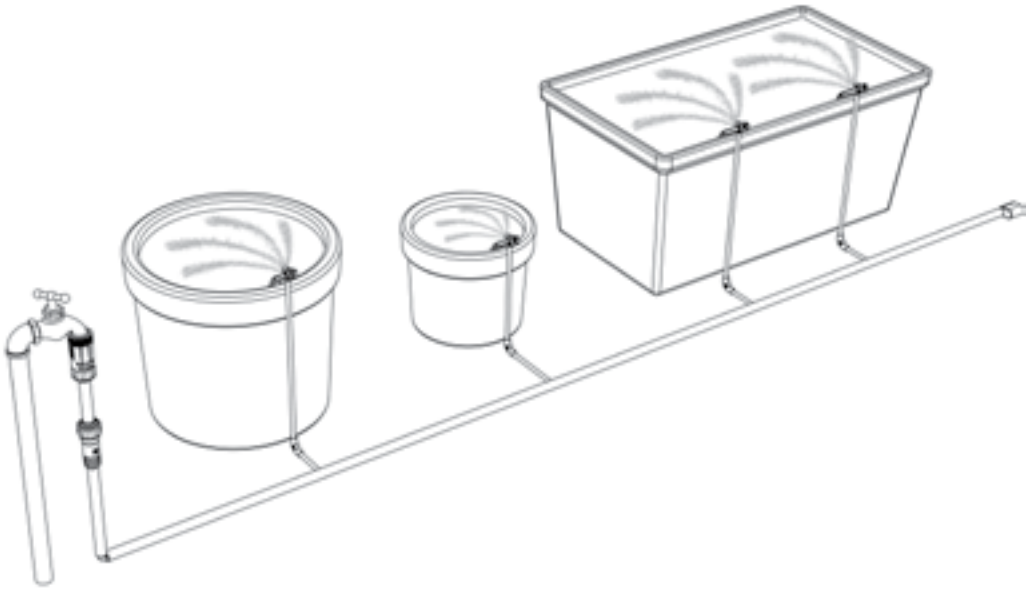
Features

- Variable flow rate and pattern size suits 150 mm to 600 mm diameter pots
- Suits pot wall thickness up to 40 mm
- Side mounted installation for clean and tidy location of supply tube
- Low application rate and gentle stream pattern
- Easily adjustable knob for varying spray patterns

Performance		
Pressure (kPa)	**Flow (Lph)**	**Radius (m)**
50	0-16	0-235
100	0-22	0-245
150	0-27	0-260
200	0-31	0-280
250	0-36	0-300
300	0-39	0-330

Ordering Information	
Code	**Description**
10131455	PotStream™ Adjustable Flow

Specifications							
Dimensions Assembled		**UV Stabilised Material**		**Colour**		**Base/Connection Type**	
Height	220 mm	Stake	Polypropylene	Stake	black	Inlet	Barb 4.5 mm
Width	22 mm	Knob	HDPE	Knob	black		
Depth	75 mm						
Weight (approx.)	11 g						



PotStream™ Adjustable Flow

Constructed of UV resistant polypropylene, Irritrol's irrigation fittings provide a range of solutions for joining system components such as pumps, risers, sprinklers, valves and filters.

Precision manufacturing combined with tapered threads and heavy wall sections provides maximum sealing performance for reliability you can trust. The robust octagonal nut section allows for quick and easy installation, providing a tight seal across all connections.

Application

Irritrol's irrigation fittings are designed to make a variety of threaded connections, both below and above the ground.

Features

- Made from high grade polypropylene with carbon black for UV protection
- Precision manufacturing and heavy wall sections provides positive seal
- Robust octagonal nut section for easy tightening by hand or spanner
- Full form threads cut to a standard taper of 2º ensures positive seal at high pressure
- Fittings are non-hydroscopic making them moisture resistant
- Highly resistant to a broad range of chemicals and fertilisers
- Maximum pressure rating of 1500 kPa

Elbows – Female

TFE15: 15 mm BSPF
TFE20: 20 mm BSPF
TFE25: 25 mm BSPF
TFE32: 32 mm BSPF
TFE40: 40 mm BSPF
TFE50: 50 mm BSPF

Plugs

TMP15: 15 mm BSPM
TMP20: 20 mm BSPM
TMP25: 25 mm BSPM
TMP32: 32 mm BSPM
TMP40: 40 mm BSPM
TMP50: 50 mm BSPM

Elbows – Male

TME15: 15 mm BSPM
TME20: 20 mm BSPM
TME25: 25 mm BSPM

Reducing Sockets

TRS2015: 20 mm x 15 mm BSPF
TRS2515: 25 mm x 15 mm BSPF
TRS2520: 25 mm x 20 mm BSPF

Range of fittings

Tees – Male

TMT15: 15 mm BSPM
TMT20: 20 mm BSPM
TMT25: 25 mm BSPM

Elbows – M X F

TMFE15: 15 mm BSPM x 15 mm BSPF
TMFE20: 20 mm BSPM x 20 mm BSPF
TMFE25: 25 mm BSPM x 25 mm BSPF

Nipples

TN15: 15 mm BSPM
TN20: 20 mm BSPM
TN25: 25 mm BSPM
TN32: 32 mm BSPM
TN40: 40 mm BSPM
TN50: 50 mm BSPM

Tees – Female

TFT15: 15 mm BSPF
TFT20: 20 mm BSPF
TFT25: 25 mm BSPF
TFT32: 32 mm BSPF
TFT40: 40 mm BSPF
TFT50: 50 mm BSPF

Screwed Bushes

TRB2015: 20 mm BSPM x 15 mm BSPF
TRB2515: 25 mm BSPM x 15 mm BSPF
TRB2520: 25 mm BSPM x 20 mm BSPF
TRB3215: 32 mm BSPM x 15 mm BSPF
TRB3220: 32 mm BSPM x 20 mm BSPF
TRB3225: 32 mm BSPM x 25 mm BSPF
TRB4015: 40 mm BSPM x 15 mm BSPF
TRB4020: 40 mm BSPM x 20 mm BSPF
TRB4025: 40 mm BSPM x 25 mm BSPF
TRB4032: 40 mm BSPM x 32 mm BSPF
TRB5015: 50 mm BSPM x 15 mm BSPF
TRB5020: 50 mm BSPM x 20 mm BSPF
TRB5025: 50 mm BSPM x 25 mm BSPF
TRB5032: 50 mm BSPM x 32 mm BSPF
TRB5040: 50 mm BSPM x 40 mm BSPF

Reducing Nipples

TRN2015: 20 mm BSPM x 15 mm BSPM
TRN2515: 25 mm BSPM x 15 mm BSPM
TRN2520: 25 mm BSPM x 20 mm BSPM
TRN3225: 32 mm BSPM x 25 mm BSPM
TRN4032: 40 mm BSPM x 32 mm BSPM
TRN5040: 50 mm BSPM x 40 mm BSPM

Sockets – Female

TS15: 15 mm BSPF
TS20: 20 mm BSPF
TS25: 25 mm BSPF
TS32: 32 mm BSPF
TS40: 40 mm BSPF
TS50: 50 mm BSPF

End Caps

TFC15: 15 mm BSPF
TFC20: 20 mm BSPF
TFC25: 25 mm BSPF
TFC32: 32 mm BSPF
TFC40: 40 mm BSPF
TFC50: 50 mm BSPF

Impact Sprinkler Threaded Socket

The Irritrol Impact Sprinkler Threaded Socket is engineered to provide a precision BSP tapered thread for a strong and reliable seal between the riser and sprinkler.

Manufactured with UV stabilised high grade polypropylene for UV protection.

The interrupted landing joint prevents the sprinkler bearing from making contact with the riser. This fitting is specially designed with a shorter inlet and longer outlet thread to suit the riser and impact sprinkler threads.

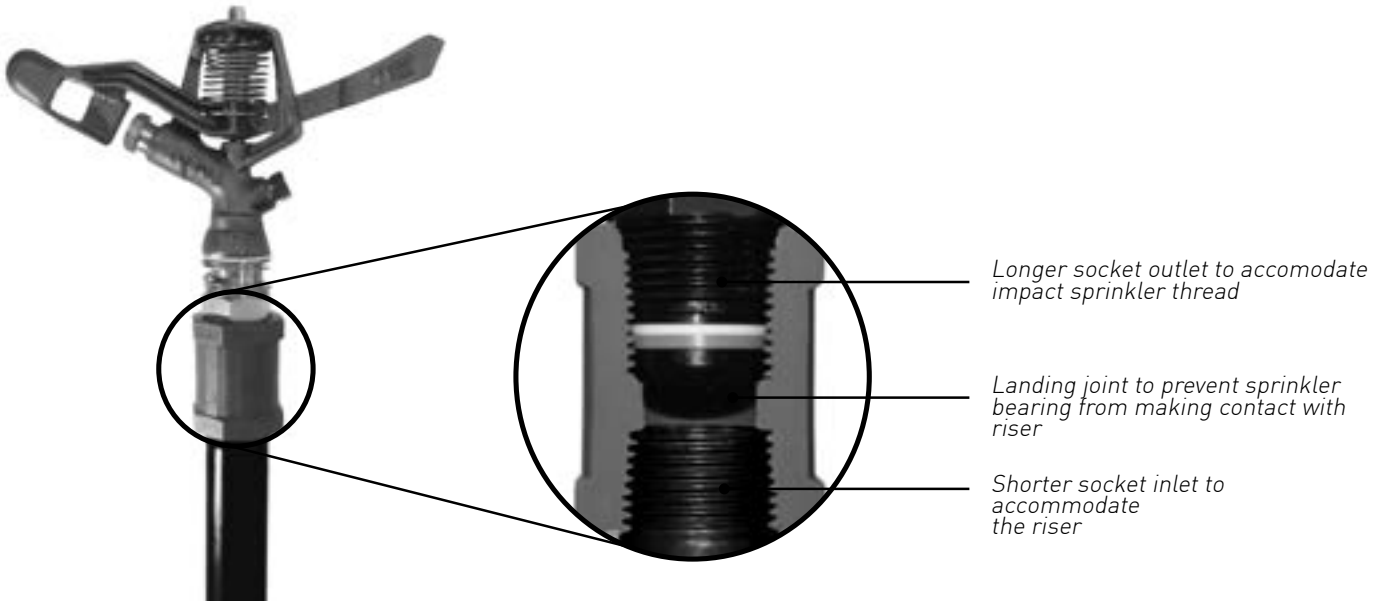
Ordering Information	
Code	**Description**
101IS15	Female Impact Threaded Socket 15 mm BSPF
101IS20	Female Impact Threaded Socket 20 mm BSPF

Application

Designed specifically to meet the needs of growers using impact sprinklers.

Features

- Specifically designed for impact sprinklers
- Made from green high grade polypropylene for UV protection and easy identification
- Precision manufacturing and heavy wall sections provides positive seal
- Tapered thread to maximise seal at high pressure
- Robust octagonal nut section for easy tightening by hand or spanner
- Fittings are non-hydroscopic making them moisture resistant
- Highly resistant to a broad range of chemicals and fertilisers
- Available in 15 mm and 20 mm



Application

Suitable for use in joining uPVC Pipe made to the Australian Standard AS 1477.

Features

- A wide range of uPVC fittings imported from the US
- The majority are schedule 40 fittings with the exception of some specialty fittings in schedule 80 and class 10
- Schedule 40 fittings are white and not suitable for direct sunlight situations
- Schedule 80 fittings are grey and are UV stabilised
- Range of sizes from 15 mm up to 250 mm
- BSP and limited range of NPT threads

Range of fittings

Plain Tees, Slip × Slip x Slip

Faucet Tees, Slip × Female Thread x Slip

Reducing and Increasing Tees, Slip × Slip x Slip

Reducing Faucet Tees, Slip × Female Thread x Slip

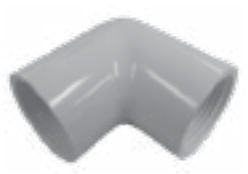
Plain Elbows, Slip × Slip

Reducing Elbows, Slip × Slip

Spigot Elbows, Slip × Spigot

45° Elbows, Slip × Slip

Faucet Elbows Slip × Female Thread



Reducing Faucet Elbows, Slip × Female Thread

Elbows, Slip × Male Thread

"Street" Elbows, Male × Female Thread

Side Outlet Elbows, Slip × Slip × Slip

Side Outlet Elbows, Female Thread

Couplings, Slip × Slip

Reducing Couplings, Slip × Slip

Valve Sockets, Slip × Male Thread

Reducing Valve Sockets, Slip × Male Thread

Valve Take-Off Adaptors, Spigot × Male BSP

Reducing Valve Take-Off Adaptors, Spigot × Male BSP

Faucet Sockets, Slip × Female Thread

Reducing Faucet Sockets, Slip × Female Thread

Faucet Take-Off Adaptors, Spigot × Female Thread

Reducing Bushes, Slip × Spigot

Reducing Bushes, Spigot × Female Thread

Threaded Bushes, Male Thread × Female Thread

Threaded Adaptors, Male Thread × Female Thread

Caps, Slip

Threaded Caps, Female Thread

Threaded Plugs, Male Thread

Wye Tees, Slip × Slip × Slip

Crosses, Slip × Slip × Slip × Slip

Telescopic Repair Couplings, Spigot × Slip

Barrel Unions, Slip × Slip

Telescopic Repair Couplings, Socket × Socket

Compression Couplings

Van Stone Flanges, Rotating Ring × Slip

Swing Joints, Male BSP × Male BSP

Threaded Couplings

Schedule 40/80 Pressure Rating		
Maximum Working Pressure (kPa)		
Nominal Pipe Dia. (mm)	Schedule 40	Schedule 80
15	4137	5860
20	3300	4757
25	3100	4343
32	2550	3585
40	2275	3240
50	1930	2758
80	1790	2550
100	1516	2206
150	1241	1930
195	1100	1723

Ordering Information
See Toro Australia Irrigation Price List

Application

A non-metal check valve for use in systems where the prevention of flow reversal is necessary.

Features

- Engineered to maximize flow, responsiveness and for positive shut-off
- Compact, space saving design
- Body constructed from PVC
- High grade EPDM seat
- No metal parts
- Excellent for Pool and Spa and general purpose irrigation use
- Suitable for horizontal and vertical up flow installations
- Angled seat and weighted flapper for low-pressure seal
- Slip x Slip socket connections

Installation

Swing check valves are designed for horizontal installations, but may be installed in the up-flow only vertical position.

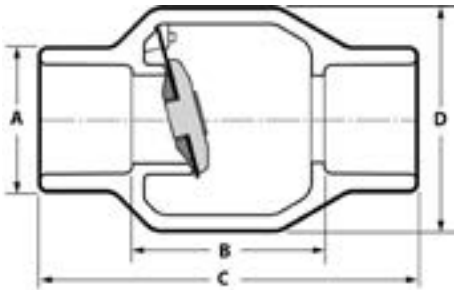
Check valves MUST be installed with valve's FLOW direction arrow pointing in the direction of the flow. Do not install the valve in the vertical down flow direction.

Flow velocity should not exceed 1.5 metres per second.

Not for use with Compressed Air or Gas.

Specifications

- Maximum opening pressure less than 4 kPa
- Maximum pressure at 23°C
  Full flow (open) – 1034 kPa
  Back pressure (closed) – 517 kPa



Dimension ± 1.5mm				
Nomimal Size	**A**	**B**	**C**	**D**
15	65	103	49	54
20	45	90	49	54
25	59	116	43	67
32	75	140	52	86
40	76	143	62	86
50	92	162	76	108
80	119	214	110	146
100	152	256	133	162

Ordering Information	
Code	**Description**
S1520-05-A	15 mm PVC Swing Check Valve Slip x Slip
S1520-07-A	20 mm PVC Swing Check Valve Slip x Slip
S1520-10-A	25 mm PVC Swing Check Valve Slip x Slip
S1520-12-A	32 mm PVC Swing Check Valve Slip x Slip
S1520-15-A	40 mm PVC Swing Check Valve Slip x Slip
S1520-20-A	50 mm PVC Swing Check Valve Slip x Slip
S1520-30-A	80 mm PVC Swing Check Valve Slip x Slip
S1520-40-A	100 mm PVC Swing Check Valve Slip x Slip

Application

Two, three and four port manifolds for use in residential automatic 25 mm control systems.

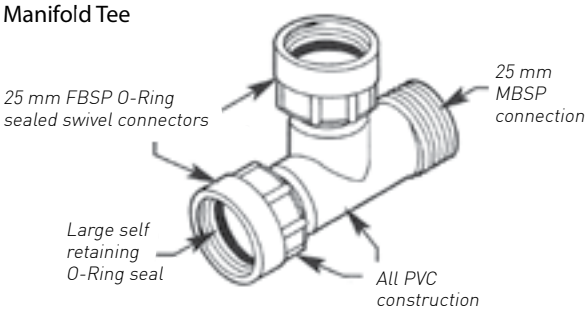
Features

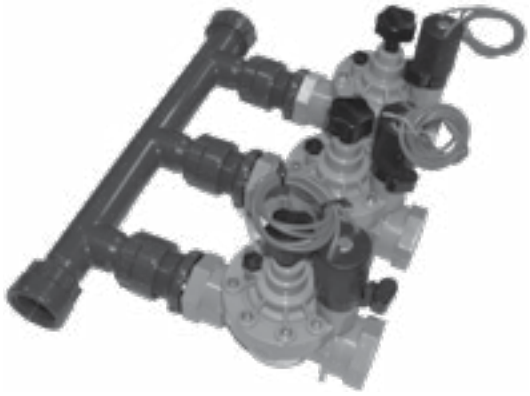
- Body – all PVC construction
- Pressure Rating: 1034 kPa at 23°C
- O-ring sealed swivel connections – require no thread sealant and allows hand tight assembly for positive seal
- 25 mm male and female BSP threads

Benefits

- Easy to install – no cutting, no glueing, no thread tape – saves time
- Makes the valve assembly neat
- Additional valves can be added conveniently
- Valves can be removed without cutting the valve manifold which speeds up the process of replacing faulty or damaged valves
- No glueing means the valve manifold can be pressurised immediately
- Swivel connectors mean the valve manifold takes up less room

Manifold Tee





Typical 3 port manifold Valve Assembly

MA0101-010BT-A

MA2004-010BT-A

MA0602-010BT-A

MA0603-010-A

MA2903-010-A

MA2907-010BT-A

MA8306-010BT-A

MA4800-010-A

MA2908-010-A

Ordering Information	
Code	**Description**
MA0101-010-2-A	2 Port Manifold
MA0101-010-3-A	3 Port Manifold
MA0101-010-4-A	4 Port Manifold
MA0101-010BT-A	Tee Swivel x MBSP x Swivel
MA0602-010BT-A	Elbow MBSP x Swivel
MA0603-010-A	Elbow Swivel x Swivel
MA2004-010BT-A	Cross Swivel x MBSP x Swivel x Swivel
MA2903-010-A	Coupling Swivel x Swivel
MA2907-010BT-A	Coupling Swivel x MBSP
MA2908-010-A	Coupling Swivel x Slip
MA4800-010-A	Spears Cap FBSP
MA8306-010BT-A	O' Ring Nipple MBSP x MBSP
MA-214-A	O' Ring Suit Spears Swivels
B-218-A	O' Ring Suit Spears Nipples

Double Barb Fittings

The DB range can be confidently installed without clamps when matched to quality low pressure poly tubing with corresponding dimensions (refer to the tubing manufacturer for confirmation of suitability or test under field conditions). Operating pressures should not exceed 300 kPa.

Features

- Double barb for increased retention
- Sharp-edged barbs create leak-proof seal
- Increased strength and superior quality
- Heat, chemical and wear resistant
- UV stabilised materials for long life

Size options

- 13 mm – Suits nominal 13 mm I.D. tube
- 14 mm – Suits nominal 14 mm I.D. and 16 mm O.D. tube
- 15 mm – Suits nominal 15 mm I.D. and 17 mm O.D. tube
- 16 mm – Suits nominal 16 mm I.D. and 18 mm O.D. tube
- 18 mm – Suits nominal 18 mm I.D. and 20 mm O.D. tube
- 19 mm – Suits nominal 19 mm I.D tube
- 21 mm – Suits nominal 21 mm I.D. and 23 mm O.D. tube
- 25 mm – Suits nominal 25 mm I.D. and 27 mm O.D. tube

DB Tee

DB Increasing Tee

DB End Plug

DB Joiner

DB Reducing Joiner

DB Director ½" MNPT

DB Elbow

DB Reducing Elbow

Ordering Information

Code	Description
Double Barb Joiners	
10147005	DB JOINER 13 mm
10147015	DB JOINER 14 mm suits 16 mm OD Drip tubes
10146975	DB JOINER 15 mm suits 17 mm OD Drip tubes
10147025	DB JOINER 16 mm
10147035	DB JOINER 18 mm suits 20 mm OD Drip tubes
10146985	DB JOINER 19 mm
10147045	DB JOINER 21 mm suits 22/23 mm OD Drip tubes
10146995	DB JOINER 25 mm
Double Barb Reducing Joiners	
10147845	DB REDUCING JOINER 14 mm x 13 mm
10147055	DB REDUCING JOINER 19 mm x 13 mm
10147095	DB REDUCING JOINER 19 mm x 14 mm
10147125	DB REDUCING JOINER 19 mm x 15 mm
10147155	DB REDUCING JOINER 19 mm x 18 mm
10147845	DB REDUCING JOINER 21 mm x 19 mm
10147065	DB REDUCING JOINER 25 mm x 13 mm
10147195	DB REDUCING JOINER 25 mm x 19 mm
10146965	DB REDUCING JOINER 25 mm x 21 mm
Double Barb Elbows	
10147205	DB ELBOW 13 mm
10147215	DB ELBOW 14 mm suits 16 mm OD Drip tubes
10147375	DB ELBOW 15 mm suits 17 mm OD Drip tubes
10147235	DB ELBOW 18 mm suits 20 mm OD Drip tubes
10147265	DB ELBOW 19 mm
10147245	DB ELBOW 21 mm suits 22/23 mm OD Drip tubes
10147255	DB ELBOW 25 mm
Double Barb Reducing Elbows	
10147275	DB REDUCING ELBOW 16 mm x 14 mm
10147305	DB REDUCING ELBOW 19 mm x 15 mm
10147325	DB REDUCING ELBOW 19 mm x 18 mm
Double Barb Tees	
10147405	DB TEE 13 mm
10147415	DB TEE 14 mm suits 16 mm OD Drip tubes
10147395	DB TEE 15 mm suits 17 mm OD Drip tubes
10147435	DB TEE 18 mm suits 20 mm OD Drip tubes
10147605	DB TEE 19 mm
10147445	DB TEE 21 mm suits 22/23 mm OD Drip tubes
10147455	DB TEE 25 mm
Double Barb Increasing Tees	
10147475	DB INCREASING TEE 14 mm x 16 mm
10147485	DB INCREASING TEE 14 mm x 19 mm
10147505	DB INCREASING TEE 15 mm x 19 mm
10147525	DB INCREASING TEE 18 mm x 19 mm
Double Barb Reducing Tees	
10147765	DB REDUCING TEE 13 mm x 4 mm
10147465	DB REDUCING TEE 14 mm x 4 mm
10147535	DB REDUCING TEE 19 mm x 13 mm
10147755	DB REDUCING TEE 19 mm x 14 mm
10147555	DB REDUCING TEE 21 mm x 19 mm
10147585	DB REDUCING TEE 25 mm x 13 mm
10147695	DB REDUCING TEE 25 mm x 14 mm
10146995	DB JOINER 25 mm
Double Barb Directors	
10148035	DB DIRECTOR 13 mm x ½"NPT
10148015	DB DIRECTOR 14 mm x ½"NPT
10148025	DB DIRECTOR 15 mm x ½"NPT
Double Barb End Plugs	
10147685	DB END PLUG 13 mm
10147615	DB END PLUG 14 mm suits 16 mm OD Drip tubes
10147635	DB END PLUG 18 mm suits 20 mm OD Drip tubes
10147665	DB END PLUG 19 mm
10147645	DB END PLUG 21 mm suits 22/23 mm OD Drip tubes

A range of polypropylene fittings designed to control, disperse, slow and divert water through low pressure poly tubing up to 300 kPa.

Application

Home gardens, landscaping and professionally installed irrigation systems.

Features

- Tapered entry on all barbed fittings for ease of installation
- Range includes common Australian and International tube sizes
- UV stabilised materials for long life

Director

Joiner

Reducing Joiner

Tee

Elbow

Reducing Tee

Threaded Elbow Female

Threaded Tee Female

Threaded Elbow Male

Threaded Tee Male

Threaded Corner Elbow Male

Increasing Tee

Reducing Elbow

Ordering Information

Code	Description
Joiners	
10144705	13 mm JOINER
10146005	15 mm JOINER
10146015	18 mm JOINER suits 20 mm OD Drip Tubes
10144715	19 mm JOINER
10146025	21 mm JOINER suits 22/23 mm OD Drip Tubes
10144735	25 mm JOINER
10144745	32 mm JOINER
10146055	REDUCING JOINER 16 mm x 15 mm
10144805	REDUCING JOINER 19 mm x 13 mm
10146065	REDUCING JOINER 19 mm x 15 mm
10146075	REDUCING JOINER 19 mm x 18 mm
10146085	REDUCING JOINER 21 mm x 19 mm
10144765	REDUCING JOINER 25 mm x 13 mm
10144775	REDUCING JOINER 25 mm x 19 mm
10144815	REDUCING JOINER 32 mm x 25 mm
Elbows	
10144835	13 mm ELBOW
10144865	19 mm ELBOW
10144875	25 mm ELBOW
10144825	32 mm ELBOW
10144955	THREADED ELBOW 13 mm x 1/2" BSP FEMALE
10144965	THREADED ELBOW 19 mm x 1/2" BSP FEMALE
10144975	THREADED ELBOW 25 mm x 1/2" BSP FEMALE
10144885	THREADED ELBOW 13 mm x 1/2" BSP MALE
10144905	THREADED ELBOW 19 mm x 1/2" BSP MALE
10144915	THREADED ELBOW 19 mm x 3/4" BSP MALE
10144925	THREADED ELBOW 25 mm x 1/2" BSP MALE
10144935	THREADED ELBOW 25 mm x 3/4" BSP MALE
10145005	THREADED CORNER ELBOW 19 mm x 1/2" BSP MALE
10146155	REDUCING ELBOW 16 mm x 15 mm
10146165	REDUCING ELBOW 19 mm x 15 mm
10146175	REDUCING ELBOW 19 mm x 18 mm
10146185	REDUCING ELBOW 21 mm x 19 mm
Tees	
10145035	13 mm TEE
10145065	19 mm TEE
10145075	25 mm TEE
10145085	32 mm TEE
10145105	REDUCING TEE 19 mm LINE x 13 mm BRANCH
10146255	REDUCING TEE 21 mm LINE x 19 mm BRANCH
10145115	REDUCING TEE 25 mm LINE x 13 mm BRANCH
10145125	REDUCING TEE 25 mm LINE x 19 mm BRANCH
10145135	REDUCING TEE 32 mm LINE x 25 mm BRANCH
10145155	THREADED TEE 13 mm LINE x 1/2" BSP FEMALE BRANCH
10145165	THREADED TEE 19 mm LINE x 1/2" BSP FEMALE BRANCH
10145175	THREADED TEE 25 mm LINE x 1/2" BSP FEMALE BRANCH
10145185	THREADED TEE 13 mm LINE x 1/2" BSP MALE BRANCH
10145205	THREADED TEE 19 mm LINE x 1/2" BSP MALE BRANCH
10145215	THREADED TEE 19 mm LINE x 3/4" BSP MALE BRANCH
10145225	THREADED TEE 25 mm LINE x 1/2" BSP MALE BRANCH
10145235	THREADED TEE 25 mm LINE x 3/4" BSP MALE BRANCH
10146305	INCREASING TEE 15 mm LINE x 16 mm BRANCH
10146315	INCREASING TEE 15 mm LINE x 19 mm BRANCH
10146325	INCREASING TEE 18 mm LINE x 19 mm BRANCH
Tails	
10145255	13 mm TAIL x 1/2" BSPM DIRECTOR
10145265	13 mm TAIL x 3/4" BSPM DIRECTOR
10145275	13 mm TAIL x 1" BSPM DIRECTOR
10145285	19 mm TAIL x 1/2" BSPM DIRECTOR
10145295	19 mm TAIL x 3/4" BSPM DIRECTOR
10145305	19 mm TAIL x 1" BSPM DIRECTOR
10145325	25 mm TAIL x 3/4" BSPM DIRECTOR
10145315	25 mm TAIL x 1" BSPM DIRECTOR
10145335	32 mm TAIL x 1" BSPM DIRECTOR

Antelco Take-Off fittings provide an easy to install method of connecting low pressure irrigation tubing and drip lines to LDPE supply lines.

Application

Sub surface and above ground drip irrigation systems and landscape watering applications.

Features

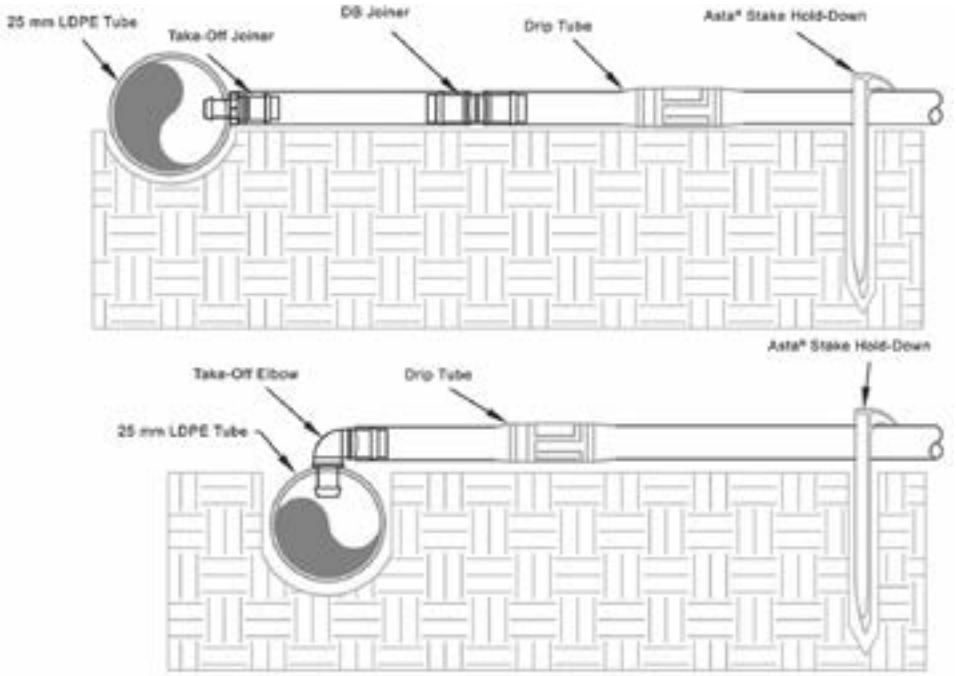
- Reduce time and installation costs
- 8 mm x 13 mm Elbow suitable for installation from 19 mm LDPE tube
- 10 mm inlet fittings suitable for installation from 25 mm LDPE tube
- Take-Off Elbows are ideal for installing drip lines at any angle to the supply line ensuring parallel lateral lines in sub surface or above ground drip systems

Ordering Information	
Code	**Description**
10146405	Take-Off Joiner 10 mm x 13 mm
10146395	Take-Off Joiner 10 mm x 14 mm
10146415	Take-Off Elbow 10 mm x 13 mm
10146435	Take-Off Elbow 10 mm x 14 mm
10146425	Take-Off Elbow 8 mm x 13 mm

Installation

- To install, use an 8 mm hole punch for Take-off Elbow 8 mm x 13 mm.
- Use a 10 mm hole punch for 10 mm x 13 mm & 10 mm x 14 mm models.

Typical Applications



Take-Off Joiner
10 mm x 13 mm

Take-Off Joiner
10 mm x 14 mm

Take-Off Elbow
10 mm x 13 mm

Take-Off Elbow
8 mm x 13 mm

Take-Off Elbow
10 mm x 14 mm

End Plug

Tidy Bow

End Sleeve

Saddle Clamp

Saddle Clip

Ratchet Clamp

Tap Fittings

A range of quick connect fittings to specifically adapt polyethylene irrigation tubes to snap-on fittings. Connect to tap adaptors, tap timers, manifold and multi outlet distributors.

Features

- Simple to use ergonomic design
- UV35+ 'O'-Ring™ silicone to resist UV degradation
- Top adaptor suits snap-on connections
- UV stabilised materials for long life

Ordering Information

Code	Description
Fittings	
10144555	13 mm END PLUG
10144565	19 mm END PLUG
10144575	25 mm END PLUG
10144585	32 mm END PLUG
10144605	13 mm END SLEEVE
10145355	4 mm SADDLE CLIP w/- nail
10145365	13 mm SADDLE CLIP w/- nail
10145405	13 mm SADDLE CLAMP
10145415	19 mm SADDLE CLAMP
10145345	TIDY BOW clip on Elbow 7 mm (suits 4 mm tube)
Tap Fittings	
10144005	NUT & TAIL 3/4" BSPF x 13 mm
10144055	NUT & TAIL 3/4" BSPF x 16 mm
10144015	NUT & TAIL 3/4" BSPF x 19 mm
10144025	NUT & TAIL 1" BSPF x 13 mm
10144035	NUT & TAIL 1" BSPF x 19 mm
10144045	NUT & TAIL 1" BSPF x 25 mm
10144505	3/4" BSPF BLANK NUT w/- washer
10144515	1" BSPF BLANK NUT w/- washer
10145865	UV 35+ `O`-RING™
10145775	SNAP-ON TAP ADAPTOR 3/4" BSPF
10145785	SNAP-ON TAP ADAPTOR 1" BSPF
10145815	REDUCING BUSH 1"BSPM x 3/4"BSPF
10145825	TAP ADAPTOR 1"BSPF x 3/4"BSPM
10145455	SNAP-ON JOINER 13 mm Barb
10145445	SNAP-ON JOINER 19 mm Barb
10145465	SNAP-ON CONNECTOR FEMALE x 13 mm Barb
10145475	SNAP-ON CONNECTOR FEMALE x 16 mm Barb
10145485	SNAP-ON CONNECTOR FEMALE x 19 mm Barb
10144455	SNAP-ON CONNECTOR FEMALE x 3/4" BSPF
Ratchet Clamps	
10144305	13 mm RATCHET CLAMP #15, suits tube 15 mm -16 mm OD
10144345	RATCHET CLAMP #17, suits tube 16 mm - 18 mm OD
10144335	16 mm RATCHET CLAMP #18, suits tube 17 mm - 19 mm OD
10144295	RATCHET CLAMP #20, suits tube 19 mm - 21 mm OD
10144315	19 mm RATCHET CLAMP #22, suits tube 21 mm - 23 mm OD
10144285	RATCHET CLAMP #23, suits tube 22 mm - 24 mm OD
10144325	25 mm RATCHET CLAMP #28, suits tube 27 mm - 30 mm OD

UV35+ 'O'-Ring™

Snap-On Connector barb

Nut and Tail

Snap-On Joiner

Snap-On Connector Thread ¾"

Ratchet Clamp	# 15	# 17	# 18	# 20	# 22	# 23	# 28
Tube O.D. Range	15 - 16 mm	16 - 18 mm	17 - 19 mm	19 - 21 mm	21 - 23 mm	22 - 24 mm	27 - 30 mm
Suits I.D. Poly Tube	13 mm	14 mm	16 mm	18 mm	19 mm	21 mm	25 mm
Suits O.D. Dripline	15 mm	16 - 17 mm	18 mm	20 mm	22 mm	23 mm	27 mm

Antelco Take-Off Fittings are an improved method of connecting low pressure irrigation tubes and driplines to polyethylene tubes and PVC mainlines.

Xpando® Take-Off Adaptor

Capo® Rubber Grommet

Application

Agricultural, horticultural, vineyard and landscape applications.

Features

- Easy to install, reducing both time and cost of installation
- Innovative Xpando® (Registered Design) Take-Off Adaptor with collapsible barb prevents pull-out and reduces grommet damage during the installation process
- Capo® Top Hat Grommet with internal step combines with Xpando® interference barb to hold off-take firmly in place
- UV stabilised materials for long life
- Pressure rating: 300 kPa

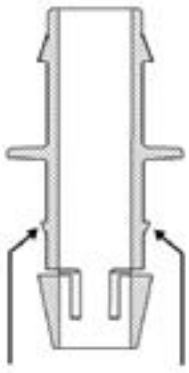
Ordering Information

Code	Description	Nom. Pipe Size	Min. Wall Thickness	Max. Wall Thickness	CAPO Grommet	Hole Size Grommet
Xpando® Take-Off Fittings						
10145875	10 mm GROMMET INLET x 14 mm XPANDO® TAKE-OFF ADAPTOR	25 mm	1.5 mm	3.6 mm	10 mm (curved)	14 mm
10145885	10 mm GROMMET INLET x 15 mm XPANDO® TAKE-OFF ADAPTOR					
10145605	13 mm GROMMET INLET x 13 mm XPANDO® TAKE-OFF ADAPTOR	40 mm	1.5 mm	2.3 mm	13 mm	16 mm
10145595	13 mm GROMMET INLET x 14 mm XPANDO® TAKE-OFF ADAPTOR					
10145615	13 mm GROMMET INLET x 15 mm XPANDO® TAKE-OFF ADAPTOR					
10145635	16 mm GROMMET INLET x 16 mm XPANDO® TAKE-OFF ADAPTOR	50 mm	1.5 mm	3.6 mm	16 mm	19 mm
10145585	16 mm GROMMET INLET x 18 mm XPANDO® TAKE-OFF ADAPTOR					
10145665	19 mm GROMMET INLET x 19 mm XPANDO® TAKE-OFF ADAPTOR	50 mm	1.5 mm	6.0 mm	19 mm	22 mm
10145675	19 mm GROMMET INLET x 21 mm XPANDO® TAKE-OFF ADAPTOR					
10145685	19 mm GROMMET INLET x 25 mm XPANDO® TAKE-OFF ADAPTOR					

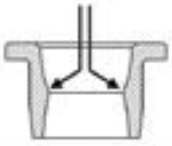
** Take-Off Adapter size is the internal diameter of the tube- eg 14mm Take-Off suits 14 mm I.D / 16 mm O.D. tube*

Ordering Information

Capo® Rubber Grommets	
Code	**Description**
10145725	CAPO® RUBBER GROMMET 10 mm I.D.
10145735	CAPO® RUBBER GROMMET 13 mm I.D.
10145745	CAPO® RUBBER GROMMET 16 mm I.D.
10145755	CAPO® RUBBER GROMMET 19 mm I.D.



Interference barbs endure seal



On-off device to control the water flow in low pressure irrigation systems.

Application

Secondary zone water diversion and flow control. Always install as an in-line valve with tubes connected to both inlet and outlet.

Features

- Simple on-off operation and straight through flow
- Operating pressure range up to 300 kPa
- Green Back® cap for standard irrigation applications
- Purple Back® cap for recycled water applications
- UV stabilised materials for long life

Vari-Flow™ thread × thread

Vari-Flow™ barb × barb

Green Back™ Valve

Threaded Green Back™ Valve

Threaded Purple Back™ Valve

Specifications

Type	Order Code		Dimensions Assembled				UV Stabilised Materials				Base/ Connection Type
			H (mm)	L (mm)	W (mm)	Weight approx.	Body	Knob	Stem	Cover	
Vari-Flow™ Valve											
Vari-Flow™ Valve Barb x Barb 4.5 mm	10142155	4.5 mm	21	40	15	2.5 g	Acetal	HDPE	-	-	Barb 4.5 mm
Vari-Flow™ Valve Thread x Thread 4.0 mm	10142115	4.0 mm	21	40	15	2.5 g	Acetal	HDPE	-	-	10-32 UNF Thread 4 mm
Green Back® Valve and Purple Back® Valve											
Green Back Valve 13 mm (Shank OD 12.6 mm)	10145505	13 / 14 / 15 / 16 mm	40	81	28	18 g	Acetal	–	Polypropylene	Acetal	Barb
Green Back Valve 14 mm (Shank OD 14.0 mm)	10145575										
Green Back Valve 15 mm (Shank OD 14.6 mm)	10145555										
Green Back Valve 16 mm (Shank OD 15.7 mm)	10145515										
Purple Back Valve 13 mm (Shank OD 12.6 mm)	10146505										
Purple Back Valve 14 mm (Shank OD 14.0 mm)	10146575										
Purple Back Valve 15 mm (Shank OD 14.6 mm)	10146555										
Purple Back Valve 16 mm (Shank OD 15.7 mm)	10146515										
Green Back Valve 18 mm (Shank OD 17.6 mm)	10145565	18 / 19 / 21 mm	60	100	41	49 g	Acetal	-	Polypropylene	Acetal	Barb
Green Back Valve 19 mm (Shank OD 19.0 mm)	10145525										
Green Back Valve 21 mm (Shank OD 20.8 mm)	10145535										
Purple Back Valve 18 mm (Shank OD 17.6 mm)	10146565										
Purple Back Valve 19 mm (Shank OD 19.0 mm)	10146525										
Purple Back Valve 21 mm (Shank OD 20.8 mm)	10146495										
Green Back Valve 25 mm (Shank OD 25.0 mm)	10145545	25 mm	71	124	53	81 g	Acetal	-	Polypropylene	Acetal	Barb
Purple Back Valve 25 mm (Shank OD 25.0 mm)	10146545										
Threaded Green Back® Valve and Threaded Purple Back® Valve											
Green Back Valve 13 mm Barb x ¾" BSPM	10146605	13 / 14 mm	44	81	28	22 g	Acetal	-	Polypropylene	Acetal	¾" BSPM Thread x Barb
Purple Back Valve 13 mm Barb x ¾" BSPM	10146705										
Purple Back 14 mm Barb x 3/4" BSPM	10146775										
Green Back® Valve 19 mm Barb x 3/4" BSPM	10146695	19 mm	60	103	41	53 g	Acetal		Polypropylene	Acetal	¾" BSPM Thread x Barb

Essential components in low pressure micro irrigation systems. Used in conjunction with standard low pressure tubing. Antelco fittings are practical and durable. Rigid Risers raise the height of irrigation emitters or act as a drop tube to suspend emitters.

Application

Home gardens, landscaping, glasshouses and hanging baskets.

Features

- Micro fittings single barb connection
- Rigid Risers in three convenient lengths
- UV stabilised materials for long life


Goof Plugs (rack of 10)


Key Punch™


Adaptor 4 mm (F) × ½" FNPT thread


Adaptor 'Quick' thread


Adaptor barb × thread


Joiner


Rigid Riser with 'Quick' thread adaptor


Joiner barb × barb hypodermic


Elbow


Tee


Cross


Tidy Bow

Ordering Information	
Code	**Description**
10141015	ADAPTOR 4 mm MICRO, x 1/2" NPTF Thread
10140925	ADAPTOR 4 mm "QUICK" thread x thread
10140995	ADAPTOR 4.5 mm BARB x 10-32 Thread
10140195	JOINER 4.5 mm Barb
10140935	JOINER hypodermic 4mm Barb x Barb
10140295	ELBOW 4.5 mm Barb
10140395	TEE 4.5 mm Barb
10140495	CROSS 4.5 mm Barb
10142315	KEY PUNCH™
10142325	RACK OF 10 GOOF PLUGS 4 mm
10145345	Tidy Bow Clip on Elbow 7 mm (suits 4 mm tube)

Asta® Stakes (Registered Design)

The Asta® Stake range provides a variety of solutions for stabilising the components of micro irrigation systems.

Application

Asta® Stakes for rigid riser stability. Asta® Stake Hold-Down for securing drip and micro irrigation systems.

Features

- Asta® Stakes available in 4 height options: 200 mm, 310 mm, 420 mm and 530 mm
- Asta® Stakes suitable for plasticised PVC and polyethylene tubing (6.9 mm OD)
- Asta® Stake Hold-Down locates and secures polyethylene tubing (up to 22 mm OD)
- UV stabilised materials for long life

Micro Stake and Micro Stake Assembly

Quality fittings for accurate, secure sprinkler placement.

Features

- 320 mm long stake with 4 mm barbed entry and 4 mm off take attached
- UV stabilised materials for long life
- Assembly stake comes fitted with 500 mm length of 4 mm vinyl tube

Micro Stake with 4 mm off-take tube

Ordering Information	
Code	**Description**
Asta® Stakes	
10140885	Asta® Stake 200 mm
10140875	Asta® Stake 310 mm
10140895	Asta® Stake 420 mm
10140905	Asta® Stake 530 mm
10143685	Asta® Stake Assembly with 300 mm Offtake Tube + Adaptor
10143695	Asta® Stake Assembly with 600 mm Offtake Tube + Adaptor
10143595	Asta® Clip Stake
10143615	Asta® Stake Hold-Down
Micro Stakes	
10140825	Micro Stake 4 mm Entry
10140784	Micro Stake with 500 mm x 4 mm Tube Fitted
10140835	Micro Stake with 400 mm x 4 mm Tube Fitted
Rigid Risers	
10143125	Rigid Riser 200 mm with "Quick" Thread Adaptor
10143135	Rigid Riser 300 mm with "Quick" Thread Adaptor
10143145	Rigid Riser 450 mm with "Quick" Thread Adaptor

Filtration device designed to trap foreign particles in the water and reduce clogging of emitters.

Application

For low pressure (up to 300 kPa) micro irrigation systems.

Features

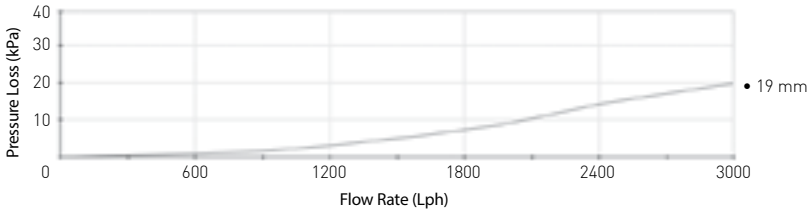
- In-line model with single barb inlet and outlet
- Snap-On model for direct connection to standard tap adaptors
- 80 mesh screen filter
- Easily taken apart for cleaning
- Effective compact filter with minimal flow loss

In-Line Filter *Snap-On Filter* *In-Line Filter screen detail*

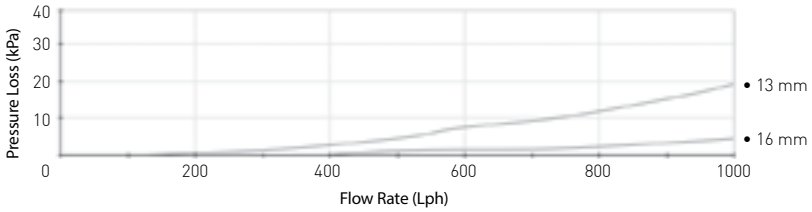
This product has been independently tested by the Australian Irrigation Technology Centre, report No A98052 and A00007.

Ordering Information	
Code	**Description**
10144355	13 mm IN-LINE FILTER
10144365	16 mm IN-LINE FILTER
10144375	19 mm IN-LINE FILTER
10144405	13 mm SNAP-ON FILTER
10144415	16 mm SNAP-ON FILTER
10144425	19 mm SNAP-ON FILTER

Pressure Loss vs Flow
19 mm Filter



Pressure Loss vs Flow
13 and 16 mm Filter



Specifications								
	Dimensions Assembled			**Materials**				**Base/Connection Type**
	L (mm)	**W (mm)**	**Weight approx.**	**Tail**	**Body**	**Washer**	**Screen**	
In-Line Filter								
13 mm and 16 mm	132	33	28 g	Inlet: acetal	Filter & Nut: polypropylene	rubber	HDPE	Inlet: BARB 13 mm/16 mm Outlet: BARB 13 mm/16 mm
19 mm	175	40	43 g	Inlet: acetal	Filter & Nut: polypropylene	rubber	HDPE	Inlet: BARB 19 mm Outlet: BARB 19 mm
Snap-On Filter								
13 mm and 16 mm	134	33	35 g	–	Snap-On Inlet: acetal Filter & Sleeve Snap-On: polypropylene	TPV	HDPE	Inlet: SNAP-ON CONNECTOR Outlet: BARB 13 mm/16 mm
19 mm	175	40	51 g	–	Snap-On Inlet: acetal Filter & Sleeve Snap-On: polypropylene	TPV	HDPE	Inlet: SNAP-ON CONNECTOR Outlet: BARB 19 mm

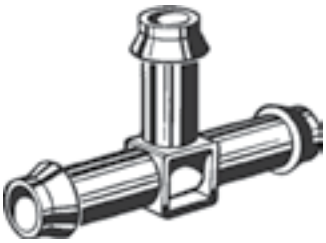
Fittings for LD Polyethylene Tube

Toro and Irritrol Systems offer a range of single barb polypropylene fittings to suit low density polyethylene tube.

Valve Director

To connect lines to threaded fittings

1011068: 32 mm tail × 25 mm BSP male



Tee

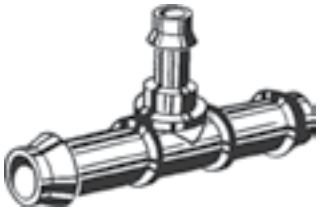
Used to connect three poly lines

1011008: 32 mm tube × all tails

Adaptor

To connect main and feeder lines

1011057: 5 mm × 10 mm tube barbed joiner (use 101P4 punch)



Reducing Tee

To connect a smaller line to larger lines

1011025: 32 mm tube × 25 mm branch

Joiner

To connect main and feeder lines

1011042: 10 mm tube joiner
1011044: 16 mm tube joiner
1011056: 32 mm tube joiner

Reducing Joiner

Used to join poly feeder lines of different sizes

1011057: 5 mm × 10 mm tube joiner (use 101P4 punch)
1011051: 16 mm × 13 mm tube joiner
1011052: 19 mm × 13 mm tube joiner
1011053: 19 mm × 16 mm tube joiner
1011072: 32 mm × 25 mm tube joiner

Take-offs

Used to offtake one poly tube from another

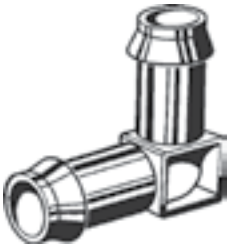
1011160: 10 mm compression take-off

DTO813: 8 mm × 13 mm Drip-Eze take-off adaptor

1011170: 10 mm grommet take-off complete (to connect 10 mm LD poly to PVC)

ETO813: 8 mm × 13 mm Elbow take-off (suit Drip-Eze)

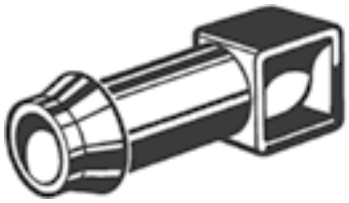
10146415: 10 mm × 13 mm take-off Elbow



Elbow

Used to change the direction of lines

1011070: 32 mm tube elbow



End Plug

Used to permanently seal poly lines

1011089: 16 mm tube end stop
1011095: 32 mm tube end stop

Ratchet Clamp

For securing fittings to poly lines

1011150: Ratchet clamp × 32 mm I.D. tube
101RC13: 13 mm Ratchet Clamp 14 mm - 15.5 mm clamping range
101RC19: 19 mm Ratchet Clamp 20 mm - 22 mm clamping range
101RC25: 25 mm Ratchet Clamp 26 mm - 29.5 mm clamping range

Repair Plug

For repairing wrongly punched holes

FPG02: 5 mm and 8 mm Goof Plug - suit replacement work

A range of punches and accessories are available to suit the commercial installation of drippers. We also have repair plugs and clips.

Application

Plugs are used to repair wrongly punched holes. Trellis Clips are used to fasten drip lines to the trellis wire.

101L24A: Hole Punch

101P3, 101P4: Hole Punch

10142315: Key Punch

101DX25: Emitter Blanking clip, suits 25 mm DripMaxx® and Neptune

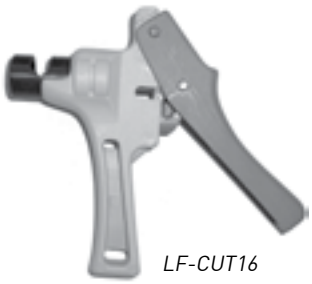
101DI20: Emitter Blanking clip, suits 20 mm Drip-In®

DT08TOOL: 8 mm Punch and Insertion tool. Suits DT0813 take-offs. Punches a hole and inserts the take-off in the same action.

101P5: 5 mm Hole Punch Ergonomic handle with coupon ejector. Suits DT0813 and some Antelco fittings

10142325: 4 mm Goof Plug

VC16, VC20: Trellis Clip



LF-CUT16

Layflat Cutter

- The tool is lightweight, compact and strong, and easy to hold in the palm of the hand
- The waste plastic does not fall into the hose and is discharged from the tool
- This tool cuts a 16 mm hole
- Suits the 1014099 (16 mm tape × double spigot layflat adaptor), 1014115 (22 mm tape × layflat adaptor), FTA5-LF (16 mm tape x layflat takeoff) and FTA7-LF (22 mm tape x layflat takeoff)

101UP3 and 101UP4: Universal Hand Gun Punch

- For low density polyethylene pipes with diameters between 12 to 32 mm
- Size adjustment simply by turning the dial at the base of the punch
- Strong and sturdy design
- Blade is made of hardened and sharpened steel
- Two models available:
- 101UP3 – 3 mm hole suitable for 4 mm barbed fittings
- 101UP4 – 4 mm hole suitable for 5 mm barbed fittings

Ordering Information

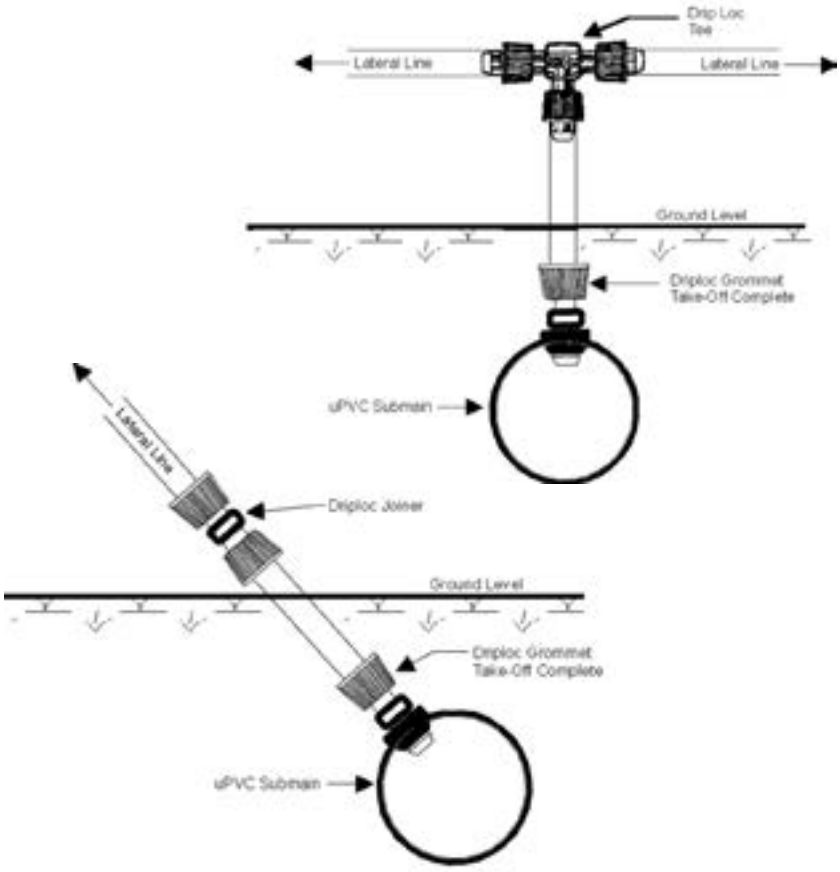
Code	Description
10142325	4 mm Goof Plug (code is for one rack of 10 plugs)
FPG02	Double sided Goof Plug – 5 mm x 8 mm (suit Drip or Waterbird® repair)
10142315	Key punch
101L24A	Punch – 5 mm Ag style, plastic, suit Waterbird® and 1011057 barbed off-take
101P3	Hole punch (green) to suit 4 mm barbed emitters
101P4	Hole punch (blue) to suit 5 mm Waterbird® barb
101P5	Hole punch suits DT0813 and some Antleco fittings
DT08TOOL	8 mm hole punch and insertion tool. Suits DT0813
VC16	16 mm Trellis clip to suit 13 mm poly and 16 mm Drip-In®
VC20	20 mm Trellis clip to suit 19 mm poly, 19 mm DripMaxx® and 20 mm Drip-In®
101DI20	Emitter blanking clip to suit 20 mm Drip-In®
101DX25	Emitter blanking clip to suit 25 mm DripMaxx®
101UP3	Universal Hand Gun Punch – suits 4 mm barbs
101UP4	Universal Hand Gun Punch – suits 5 mm barbs
LF-CUT16	Layflat Cutter – 16 mm hole size

Application

The Drip-Loc® range of fittings have been specifically designed to suit a range of low density polyethylene tube sizes. The fittings come complete with locking rings to ensure positive polyethylene connections.

Features

- Fast and easy to install
- No Ratchet Clamps are required, so more economic than conventional barbed fittings
- The smooth barbed face and backing ring reduces the stress in the tubing and reduces both leakage and blow-off at higher pressures
- Material:
  Fittings: polypropylene
  Curved Grommet: natural black rubber
  Top Hat Grommet: EPDM black
- Pressure rating: 450 kPa
- Manifold pipe wall thickness that suits the curved grommet: 2.2 to 4 mm



Use only slow speed hand drills. Do NOT use high speed drills. Drip-Loc® fittings can handle a range of polyethylene tubing internal diameters, as follows in the table below.

Drip-Loc® Tubing Diameters	
10 mm fittings	For 10 mm I.D.
13 mm fittings	For 12 mm to 14 mm I.D. (can be used for 16 mm O.D. Drip-In Tubing)
16 mm fittings	For 16 mm to 17 mm I.D.
19 mm fittings	For 19 mm to 21 mm I.D.
25 mm fittings	For 25 mm to 27 mm I.D.

Pipe wall thickness must be greater than 1 mm for the locking ring to hold.

Hole size required for the Drip-Loc® Grommets			
Product Code	**LDPE Tube Size (ID)**	**Hole Saw Size**	**Min. Pipe Size (ID)**
1011170*	10 mm	29/64″ (11 mm)	40 mm
1011191	13 mm	5/8″ (16 mm)	40 mm
1011192	16 mm	7/8″ (22 mm)	40 mm
1011193	19 mm	7/8″ (22 mm)	40 mm
1011194	25 mm	15/16″ (33 mm)	50 mm
101THG13	13 mm	5/8″ (16 mm)	40 mm
101THG16	16 mm	¾″ (19 mm)	50 mm
101THG19	19 mm	7/8″ (22 mm)	50 mm

** Not a Drip-Loc Grommet*

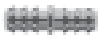
Drip-Loc® Fittings Ordering Information						
Description	Use	Image	Tube Size (ID)			
			13 mm	16 mm	19 mm	25 mm
Drip-Loc® Tee	Used for connecting two (2) driplines to a submain riser		1011201			
Drip-Loc® Joiner	Used for joining or repairing driplines		1011211	1011212		
Drip-Loc® Reducing Joiner	Used for changing tubing sizes in long lateral runs			1011217 (16 mm × 13 mm)		
Drip-Loc® Grommet Take Off Complete*	Used for connecting driplines to uPVC submains (min 40 mm size)		1011191	1011192	1011193	1011194
Rubber Top Hat Grommet	Combine with suitable barbed fittings to offtake LD poly from PVC		101THG13 (use with 10144705)	101THG16	101THG19 (use with 10144715)	
Rubber Grommet for Drip-Loc® only	Grommet spare part for Drip-Loc Grommet take off complete		1011196	1011198	1011198	1011199
Drip-Loc® End Stop	Used to seal the ends of driplines		1011231			

** Drip-Loc® Grommet Off-Takes are used for connecting polyethylene tubing to uPVC submains. The curved rubber grommet fits snugly to the uPVC tubing. See previous page for hole saw sizes.*

Drip-Loc® Fittings to suit Drip-In Tube				
Description	Use	Image	Drip-In Tube Size	
			16 mm (OD)	20 mm (OD)
Drip-Loc® Joiner	Used for joining or repairing driplines		1011211	
Drip-Loc® Grommet Take Off	Used for connecting driplines to uPVC submains (min 40 mm size)		1011191 (use 5/8″ or 16 mm hole saw)	1011193 (use 7/8″ or 22 mm hole saw)
Drip-Loc® Tee	Used for connection of two (2) driplines to a submain riser		1011201	
Drip-Loc® End Stop	Used to seal the ends of driplines		1011231	

Drip-In™ Fittings

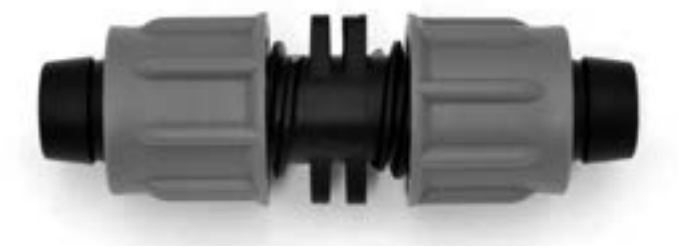
Feature a fine edge multi-barb configuration, which provides excellent tube retention and sealing.

Drip-In™ Fittings Ordering Information				
Description	**Use**	**Drawing**	**Tube Size (OD)**	
			16 mm	**20 mm**
Drip-In Director	Used in combination with faucet fitting, when connecting Drip-in to a uPVC submain 32 mm in diameter or less		1015662	1015664
Drip-In Joiner	Used for joining or repairing driplines		1015667	10146015 (Antelco)
Drip-In Reducing Joiner	Used for changing tubing sizes in long lateral runs		1015669 (20 mm × 16 mm) 1015665 (18 mm × 16 mm)	1015669 (20 mm × 16 mm)
Drip-In In-Line Tap	Used to turn off supply to driplines. Also used for dripline end flush		1015666	10145565 (Antelco)
Drip-In Elbow	Used to change direction of driplines		1015687	1015688
Drip-In Tee	Used for connection of two (2) driplines to a submain riser		1015697	1015698
Drip-In Grommet Take-Off Complete	Used for connecting driplines to uPVC submains (min 40 mm size)		1015678 (use 5/8″ or 16 mm hole saw)	1015681 (use 5/8″ or 16 mm hole saw)
Grommet Take Off Rubber Only	Used for the connection of various fittings to PVC pipe or as replacement		1015689 (part of 1015678)	1015690 (part of 1015681)
Drip-In Plain Tubing	Used as riser tube for connection of submain to driplines		1015659 (450 m)	1015660 (300 m)
Trellis Clip	Used for the connection of driplines to trellis wire in a vineyard. Use one (1) trellis clip per metre of dripline		VC16	VC20
End Flushing Cap	Used for flushing of driplines		101FE16	
Ratchet Clip	Used for securing fittings to plain Drip-In Tubing		10144345	10144295
Hippo Clamp	Stainless steel clamp used to secure Drip-In tubing to fittings		101HIP16	101HIP19
Emitter Blanking Clip	Clip used to 'blank off' selected Drip-In emitters			101DI20

Note: Drip-In fittings have either two or three barbs.

Pro-Loc™ Tape Fittings

Easy to install Pro-Loc tape fittings offer a comprehensive range of configurations including couplings, layflat take-offs and valve options. Engineered for use with quality 16 mm and 22 mm tape, Pro-Loc fittings are designed to last for the life of the irrigation system.



FTC500

Application

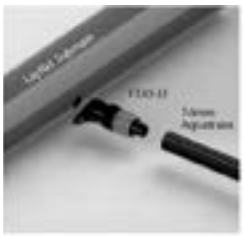
Pro-Loc tape fittings deliver the quality you expect from Toro for reliable performance, season after season.

Features

- Tight Seal - Coarse thread ensures a tight seal, even in dirty conditions
- Easy to Install - Long double barb for positive installation
- Easy to Grip - Ergonomically designed nut provides a secure connection every time
- Easy to See - Bright blue nut makes tape fittings easy to find, remove and reuse
- Low Profile - Compact design doesn't interfere with retrieving the tape
- UV Resistant - Tough anti-UV stabiliser to suit Australian condition

Designed for reliable, proven results when used with Aqua-Traxx™. For best system results, always demand genuine Pro-Loc fittings.

FTV5-LF



*Layflat to Aquatraxx Offtake***

*PVC to Aquatraxx Offtake**

*PVC to Aquatraxx Offtake****

LD Poly to Aquatraxx Offtake

LD Poly to Aquatraxx Offtake

Ordering Information		
Code		**Description**
Couplings		
	FTC500	16 mm Tape Coupling
	FTC700	22 mm Tape Coupling
	FTC800	25 mm Tape Coupling
Barb Takeoffs		
	FTA5-250B	16 mm Tape x Barbed Takeoff (suit 101P4 Punch / 4.5 mm hole)
	FTA5-400B	16 mm Tape x Barbed Takeoff (suit 7.5 mm hole)
	FTA5-700B	16 mm Tape x Barbed Takeoff (suit 13 mm hole)
	FTA7-700B	22 mm Tape x Barbed Takeoff (suit 13 mm hole)
	FTA5-425G	16 mm Tape x Barbed Takeoff with Integral Gasket (requires 11.5 mm hole)
	FTA5-425GR	16 mm Tape x Barbed Takeoff with Rubber Grommet*
	FTA7-425GR	22 mm Tape x Barbed Takeoff with Rubber Grommet*
	FTHG4	Grommet only to suit FTA5-425GR, FTA7-425GR
Threaded Adaptors		
	FTA5-75MPT	16 mm Tape x 3/4" MBSP Adaptor
	FTA7-75MPT	22 mm Tape x 3/4" MBSP Adaptor
	FTA5-75FHS	16 mm Tape x 20 mm Female Hose Swivel Adaptor
Flush Valves		
	FFVFPT-L	Automatic Flush Valve x 20 mm Female, Low Flow - White
	FFVFPT-H	Automatic Flush Valve x 20 mm Female, High Flow - Red
	FTA5-FVL	16 mm Tape x Low Pressure Flush Valve
	FTA7-FVL	22 mm Tape x Low Pressure Flush Valve
Layflat Takeoff Fittings		
	FTA5-LF	16 mm Tape x Layflat Takeoff - Single Grip**
	FTA7-LF	22 mm Tape x Layflat Takeoff - Single Grip**
Barbed Adaptors		
	FTA5-500HB	16 mm Tape x 16 mm OD tube Barbed Adaptor
	FTA5-700HB	16 mm Tape x 20 mm OD tube Barbed Adaptor
	FTA7-700HB	22 mm Tape x 20 mm OD tube Barbed Adaptor
Tees		
	FTT500	16 mm Tape Tee
	FTT700	22 mm Tape Tee

Ordering Information		
Code		**Description**
Barbed Tees		
	FTT5-500HB	16 mm Tape x 16 mm OD tube Barbed Tee
	FTT5-700HB	16 mm Tape x 20 mm OD tube Barbed Tee
Shutoff Valves		
	FTV500	16 mm Tape Shutoff Valve
	FTV700	22 mm Tape Shutoff Valve
Barbed Shutoff Valve with Locking Nut		
	FTV5-420BN	16 mm Tape x Barb (suit 10 mm hole) with Locking Nut Shutoff Valve
	FTV5-500HN	16 mm Tape x 16 mm OD tube Barb with Locking Nut Shutoff Valve
	FTV7-500HN	22 mm Tape x 16 mm OD tube Barb with Locking Nut Shutoff Valve
Barbed Shutoff Valves		
	FTV5-500HB	16 mm Tape x 16 mm OD tube Barb Shutoff Valve
	FTV7-500HB	22 mm Tape x 16 mm OD tube Barbed Shutoff Valve
	FTV5-250B	16 mm Tape x Barbed Shutoff Valve (suit 101P4 Punch / 4.5 mm hole)
	FTV5-400B	16 mm Tape x Barbed Shutoff Valve (suit 7.5 mm hole)
Layflat Takeoff Shutoff Valves		
	FTV5-LF	16 mm Tape x Layflat Takeoff Shutoff Valve - Single Grip **
	FTV7-LF	22 mm Tape x Layflat Takeoff Shutoff Valve - Single Grip **
T-Handle Hex Tool		
	LF-INST	T-Handle Hex Tool for Layflat Installation

** 15 mm or 0.59" drill size*
*** requires a 16 mm layflat punch*
**** 16 mm or 0.63" drill size*

Pro-Loc™ Fittings vs Tube Selection Guide

Code	Tube Inner Diameter Tolerance (mm)	Wall Thickness Tolerance (mm)
FTA5-500HB FTT5-500HB FTV500 FTV7-500HN FTV5-500HB FTV7-500HB	13.2 - 15.0	0.50 - 1.40
FTA5-700B FTA7-700B FTA5-700HB FTA7-700HB FTT5-700HB FTV700	17.2 - 18.5	0.80 - 1.40

Aqua-Traxx® Drip Tape Fittings

Use to connect Aqua-Traxx® drip tube run lengths to various submains.

Aqua-Traxx® Fittings				
Description	Use	Drawing	Tube Size	
			16 mm	22 mm
Tape Joiner	Used for joining or repairing tape lines		1014100	1014111
Tape Joiner × Barb	Used for connecting riser tube to tape		1014104 16 mm Barb × 16 mm Tape (use Drip-In plain poly 1015659)	
10 mm Compression × Tape In-Line Tap	Used to turn off supply to tape lines, when connected to Durapol		1014106	
Tape Tee	Used for connection of tape × tape × tape		1014109	
Two Stage Layflat Adaptor	Used for connecting Aqua-Traxx tape to Lay-Flat tubing (16 mm diameter hole required)		1014099 (double spigot)	
One Stage Layflat Adaptor	Used for connecting Aqua-Traxx tape to Lay-Flat tubing (19 mm diameter hole required)		1014103	
Drip-In Tubing	Used for riser tube from the uPVC submains (Plain tube, no emitters)		1015659 (OD 16 mm) (ID 14 mm) 450 m roll	1015660 (OD 20 mm) (ID 18 mm) 300 m roll
Grommet Take-Off Complete	Used for connecting Aqua-Traxx via plain Drip-In riser to uPVC submains (min 32 mm size)		1015678 (hole saw 5/8″)	1015681 (hole saw 5/8″)

Hippo Clamps

For use in all LD Poly and Drip tube systems in securing tube to barbed fittings.

Application

Highly suited for commercial, subsurface drip and high value crops where irrigation is critical.

Features

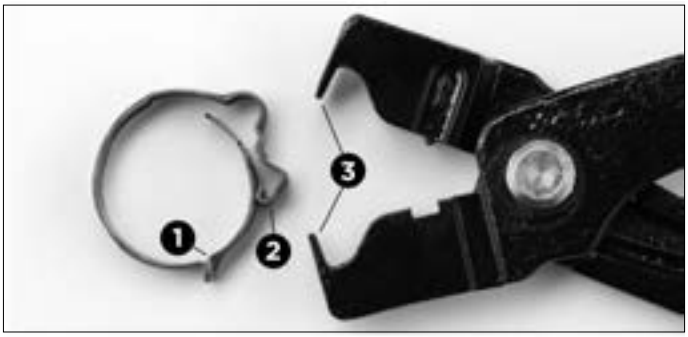
- Manufactured from 304 Grade Stainless Steel
- Secure latch system ensures a positive lock first time, every time
- Smooth edges to prevent tube/fitting damage
- Each clamp is uniquely colour-coded for quick and easy identification
- UV stabilised and corrosion resistant
- One-hand installation and removal makes the job easy
- Specifically designed Hippo Tool allows for quick and easy one-hand operation
- Band Width
  101HIP12-101HIP28: 8 mm
  101HIP36: 9 mm
- Wide range of clamps available to suit OD's from 12 mm to 36 mm

Hippo Clamp

Clamping Tool

Hippo Clamp Dimensions			
Code	**Colour Code**	**Size Range (mm)**	**Band Width (mm)**
101HIP12	Blue	12.0 – 13.0	8
101HIP14	Red	14.5 – 16.0	8
101HIP15	Gold	15.0 – 16.5	8
101HIP16	Green	16.5 – 18.0	8
101HIP17	Purple	17.0 – 18.5	8
101HIP18	Blue	18.0 – 19.5	8
101HIP19	Red	19.5 – 20.5	8
101HIP20	Purple	20.0 – 22.0	8
101HIP21	Blue	21.5 – 22.5	8
101HIP22	Gold	22.0 – 23.0	8
101HIP23	Green	23.0 – 23.5	8
101HIP26	Purple	26.5 – 28.0	8
101HIP27	Red	27.0 – 28.0	8
101HIP28	Gold	28.5 – 30.0	8
101HIP36	Green	35.0 – 36.0	9
101HIPTOOL2	Toro Hippo Clamping Tool		

Note: To determine the Hippo Clamp best suited to your installation, insert fitting into the tube and then measure the outside diameter of the tube. For optimum performance, the outside diameter should be no larger than the recommended clamping range of the selected clamp.



1 Retainer 2 Latch 3 Hippo Clamp Tool Jaws

To install:

Step 1:

Slide Hippo Clamp over tube and into position. Apply Hippo Clamp Tool Jaws (3) to the retainer (1) and into the latch (2) on the Hippo Clamp.

Step 2:

Squeeze the handles of the Hippo Clamp Tool together until the latch 'locks' over the retainer. Release the Hippo Clamp Tool and remove.

To remove:

Step 1:

Apply the Hippo Clamp Tool Jaws (3) to the retainer (1) and into the latch (2) on the Hippo Clamp.

Step 2:

Squeeze the handles of the Hippo Clamp Tool together and lift the latch (2) over the retainer (1) to unlock the clamp. Release the Hippo Clamp Tool and remove.

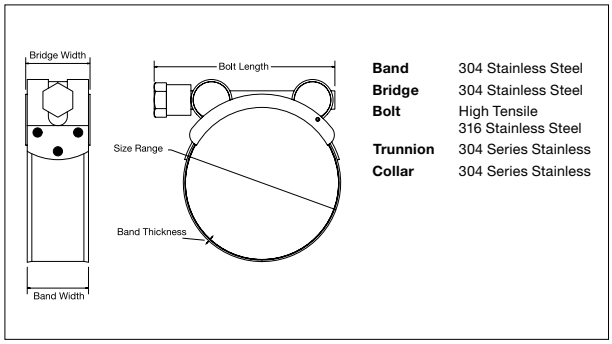
Application

Tridon heavy duty Bolt Clamps are suitable for use in applications where large tightening forces are required when the tube is submitted to higher pressures.

Features

- Ideal for heavy duty applications where strong hold and corrosion protection are required
- Rolled edges prevent tube damage
- Easy installation by tightening the bolt
- 304 Stainless Steel band, bridge, trunnion and collar for superior corrosion protection
- High Tensile 316 Stainless Steel Bolt for extra hardness and superior seal
- Superior design and proven reliability
- Range of clamps to suit OD's from 18 mm to 121 mm

Heavy Duty Bolt Clamp



Dimensions – Band and Bolt

Ref	Band width	Bridge width	Band Thickness	Bolt	Bolt Legth
1	16 mm	18 mm	0.7 mm	M5	40 mm
2	20 mm	22 mm	0.7 mm	M6	55 mm
3	24 mm	27 mm	1.0 mm	M8	80 mm

Ordering Information

Ref	Code	Description
1	TTBS21-23P	Bolt Clamp 'SS' 21 - 23 mm Clamping Range
	TTBS23-25P	Bolt Clamp 'SS' 23 - 25 mm Clamping Range
	TTBS26-28P	Bolt Clamp 'SS' 26 - 28 mm Clamping Range
	TTBS27-29P	Bolt Clamp 'SS' 27 - 29 mm Clamping Range
2	TTBS29-31P	Bolt Clamp 'SS' 29 - 31 mm Clamping Range
	TTBS32-35P	Bolt Clamp 'SS' 32 - 35 mm Clamping Range
	TTBS34-37P	Bolt Clamp 'SS' 34 - 37 mm Clamping Range
	TTBS38-41P	Bolt Clamp 'SS' 38 - 41 mm Clamping Range
	TTBS40-43P	Bolt Clamp 'SS' 40 - 43 mm Clamping Range
	TTBS44-47P	Bolt Clamp 'SS' 44 - 47 mm Clamping Range
	TTBS48-51P	Bolt Clamp 'SS' 48 - 51 mm Clamping Range
	TTBS52-55P	Bolt Clamp 'SS' 52 - 55 mm Clamping Range
	TTBS56-59P	Bolt Clamp 'SS' 56 - 59 mm Clamping Range
	TTBS60-63P	Bolt Clamp 'SS' 60 - 63 mm Clamping Range
3	TTBS64-67P	Bolt Clamp 'SS' 64 - 67 mm Clamping Range
	TTBS68-73P	Bolt Clamp 'SS' 68 - 73 mm Clamping Range
	TTBS74-79P	Bolt Clamp 'SS' 74 - 79 mm Clamping Range
	TTBS80-85P	Bolt Clamp 'SS' 80 - 85 mm Clamping Range
	TTBS86-91P	Bolt Clamp 'SS' 86 - 91 mm Clamping Range
	TTBS92-97P	Bolt Clamp 'SS' 92 - 97 mm Clamping Range
	TTBS98-103P	Bolt Clamp 'SS' 98 - 103 mm Clamping Range
	TTBS104-112P	Bolt Clamp 'SS' 104 - 112 mm Clamping Range
	TTBS113-121P	Bolt Clamp 'SS' 113 - 121 mm Clamping Range

Application

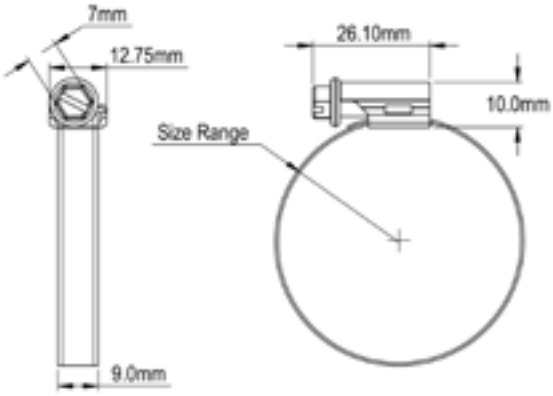
The PR worm drive range provides superior design and proven reliability. Ideal for commercial applications, PR worm drive clamps are designed for maximum sealing capability.

Features

- Ideal for commercial and heavy duty applications
- Non-perforated band for maximum durability
- Technically advanced design improves sealing capability
- Easy to install using the Flexidriver tool
- Rolled edges and smooth underside prevents hose damage and delivers superior sealing
- All clamps are manufactured with 304 Stainless Steel for superior corrosion protection
- Construction material
  Band – 304 stainless steel
  Housing – 304 stainless steel
  Screw – 304 stainless steel (with plating)
- Range of clamps to suit OD's from 8 mm to 120 mm
- Clamp width 9 mm

Worm Drive Clamp

Flexidriver tool to suit the worm drive clamp



Ordering Information	
Code	**Description**
PR4012	Worm Drive 'SS' 8-12 mm Clamping Range
PR4016	Worm Drive 'SS' 10-16 mm Clamping Range
PR4022	Worm Drive 'SS' 12-22 mm Clamping Range
PR4027	Worm Drive 'SS' 16-27 mm Clamping Range
PR4032	Worm Drive 'SS' 20-32 mm Clamping Range
PR4040	Worm Drive 'SS' 25-40 mm Clamping Range
PR4045	Worm Drive 'SS' 30-45 mm Clamping Range
PR4050	Worm Drive 'SS' 35-50 mm Clamping Range
PR4060	Worm Drive 'SS' 40-60 mm Clamping Range
PR4070	Worm Drive 'SS' 50-70 mm Clamping Range
PR4080	Worm Drive 'SS' 60-80 mm Clamping Range
PR4090	Worm Drive 'SS' 70-90 mm Clamping Range
PR4100	Worm Drive 'SS' 80-100 mm Clamping Range
PR4110	Worm Drive 'SS' 90-110 mm Clamping Range
PR4120	Worm Drive 'SS' 100-120 mm Clamping Range
CND-2	Flexidriver Tool - to suit PR Worm Drive Clamps

Application

For use within polyethylene hydraulic tube systems.

Barb Block Fittings

Features

- Constructed from reinforced polypropylene
- Quick and easy installation
- Good resistance to most acids and chemicals used in agriculture
- Maximum working pressure: 1400 kPa
- Temperature range: 4 to 90˚C (subject to application)
- Suitable for indoor and outdoor use
- Blue in colour
- Wide range of fittings available

Pipe Fittings

Features

- Constructed from Nylon 6-6
- Quick and easy installation
- Good resistance to most acids and chemicals used in agriculture
- Maximum working pressure: 1400 kPa
- Temperature range: –20 to 110˚C
- Blue in colour
- Wide range of fittings available

Union Connector

Director

Female Connector

Union Elbow

Male Elbow

Union Tee

Male Run Tee

Male Branch Tee

Hex Threaded Plug

Adaptors

Pipe Hex Nipple

Joiners

Pipe Reducing Nipple

Ordering Information			
Code	**Size**	**Code**	**Size**
Pipe Hex Nipple		**Pipe Bushing**	
12012202028	⅛″	12011004028	¼″ × ⅛″
12012204048	¼″	12011006028	⅜″ × ⅛″
12012206068	⅜″	12011006048	⅜″ × ¼″
12012208088	½″	12011008028	½″ × ⅛″
Male Branch Tee		12011008048	½″ × ¼″
22047146028	⅛″ × 6 mm	12011008068	½″ × ⅜″
22047146048	¼″ × 6 mm	12011002048	¾″ × ¼″
22047148028	⅛″ × 8 mm	12011002068	¾″ × ⅜″
22047148048	¼″ × 8 mm	12011002088	¾″ × ½″
Male Elbow		**Joiner**	
22046946028	⅛″ × 6 mm	12010302028	⅛″
22046946048	¼″ × 6 mm	12010304048	¼″
22046948028	⅛″ × 8 mm	12010306068	⅜″
22046948048	¼″ × 8 mm	12010308088	½″

Ordering Information	
Code	**Size**
Female Connector	
22046646028	6 mm × ⅛″
22046646048	6 mm × ¼″
22046648028	8 mm × ⅛″
22046648048	8 mm × ¼″
22046648548	8 mm × M14 × 1.5
Union Connector	
22046246008	6 mm
22046248008	8 mm
22045648468	8 mm × 6 mm
Union Elbow	
22046546008	6 mm
22046548008	8 mm
Union Tee	
22046448488	8 mm
Director	
22046846028	⅛″ × 6 mm
22046846048	¼″ × 6 mm
22046848028	⅛″ × 8 mm
22046848048	¼″ × 8 mm
Male Run Tee	
22047246028	⅛″ × 6 mm
22047246048	¼″ × 6 mm
22047248028	⅛″ × 8 mm
22047248048	¼″ × 8 mm
Reducing Nipple	
12012304028	¼″ × ⅛″
12012306028	⅜″ × ⅛″
12012306048	⅜″ × ¼″
12012308048	½″ × ¼″
12012308068	½″ × ⅜″
Hex Pipe Plug	
12012102008	⅛″
12012104008	¼″
Hydraulic Tube	
101HT8	8 mm OD Hydraulic Tube (suits 8 mm Tefen Fittings) – 500 m roll
101HT8-R	8 mm OD Hydraulic Tube with Red Stripe (suits 8 mm Tefen Fittings) – 500 m roll
101HT8-W	8 mm OD Hydraulic Tube with White Stripe (suits 8 mm Tefen Fittings) – 500 m roll
101HT8-B	8 mm OD Hydraulic Tube with Blue Stripe (suits 8 mm Tefen Fittings) – 500 m roll
101HT8-L	8 mm OD Hydraulic Tube with Lilac Stripe (suits 8 mm Tefen Fittings) – 500 m roll
101HT8-Y	8 mm OD Hydraulic Tube with Yellow Stripe (suits 8 mm Tefen Fittings) – 500 m roll

Hydraulic Tube with Stripe is made to order with a minimum order quantity of 10 rolls.

Aluminium Tubing

Toro has a range of quality aluminium tubing manufactured to a high standard with a robust seam for reinforcement.

Features

- Aluminium tube is supplied with plain ends
- Extruded irrigation tube produced to Australian Standard AS1866
- Pressure tested to 2000 kPa
- Standard lenghth 9 m
- Non-standard lengths can be made subject to enquiry approval

Nomimal Diameter (mm)	Mean Outside Diameter (mm)	Wall Thickness Diameter (mm)
50	50.8	1.2
80	76.2	1.2
100	101.6	1.5
125	127	1.6
150	152.4	2.0

Ordering Conditions

1. Please note, standard mill packs will only be supplied. Orders must be complete multiples of mill pack.
2. As this product is manufactured to order and is an extruded product, exact quantities cannot be guaranteed. Our supplier reserves the right to a shipping tolerance of ± 20%. The order will be manufactured, shipped and considered complete.
3. Customer to organise collection from Capral warehouse in nearest capital city. All shipping charges are the responsibility of the customer.

Please confirm ordering requirements with Toro Australia Customer Service prior to quoting and placement of order.

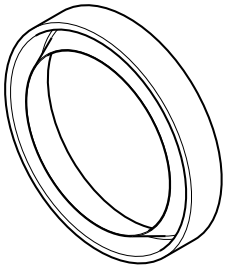
Ordering Information

Code	Description	Tubes Per Pack	Min. Pack Order
1016322	50 mm × 9 m Tubing	60	1
1016323	80 mm × 9 m Tubing	25	2
1016324	100 mm × 9 m Tubing	14	2
1016325	125 mm × 9 m Tubing	9	2
1016326	150 mm × 9 m Tubing	6	3

Gaskets for Mainline and Flexalite™ Aluminium Couplings

Application

Used with Mainline and Flexalite Aluminium Couplings



Aluminium Couplings Gaskets	
Code	**Description**
1016011	40 mm Slow Drain Gasket
1016012	50 mm Slow Drain Gasket
1016013	80 mm Slow Drain Gasket
1016014	100 mm Slow Drain Gasket
1016015	125 mm Slow Drain Gasket
1016016	150 mm Slow Drain Gasket
1016022	50 mm Medium Drain Gasket
1016023	80 mm Medium Drain Gasket
1016024	100 mm Medium Drain Gasket
1016025	125 mm Medium Drain Gasket

Application

For use in any permanent sprinkler system where the sprinkler needs to be installed above or not directly into the pipework.

Features

- UV stabilised PVC, suitable for aboveground installation
- Three diameters: 15 mm (½"), 20 mm (¾") and 25 mm (1")
- Threads: Male BSP
- Made in the USA

Dimensions			
Nominal Size	**15 mm (½")**	**20 mm (¾")**	**25 mm (1")**
Pipe OD (mm)	21.34	26.67	33.40
Pipe Min Wall thickness (mm)	3.73	3.91	4.55
Pipe ID (average) (mm)	13.36	18.34	23.77
Pressure Rating (kPa)	2930	2378	2200

Ordering Information					
Code	**Description**	**Code**	**Description**	**Code**	**Description**
15 mm (½")		**20 mm (¾")**		**25 mm (1")**	
101R1530	Riser 15 x 30 mm MBSP Schedule 80	101R2030	Riser 20 x 30 mm MBSP Schedule 80	101R2530	Riser 25 x 30 mm MBSP Schedule 80
101R1550	Riser 15 x 50 mm MBSP Schedule 80	101R2050	Riser 20 x 50 mm MBSP Schedule 80		
101R15100	Riser 15 x 100 mm MBSP Schedule 80	101R20100	Riser 20 x 100 mm MBSP Schedule 80	101R25100	Riser 25 x 100 mm MBSP Schedule 80
101R15150	Riser 15 x 150 mm MBSP Schedule 80	101R20150	Riser 20 x 150 mm MBSP Schedule 80	101R25150	Riser 25 x 150 mm MBSP Schedule 80
101R15200	Riser 15 x 200 mm MBSP Schedule 80	101R20200	Riser 20 x 200 mm MBSP Schedule 80	101R25200	Riser 25 x 200 mm MBSP Schedule 80
101R15300	Riser 15 x 300 mm MBSP Schedule 80	101R20300	Riser 20 x 300 mm MBSP Schedule 80	101R25300	Riser 25 x 300 mm MBSP Schedule 80
101R15450	Riser 15 x 450 mm MBSP Schedule 80	101R20450	Riser 20 x 450 mm MBSP Schedule 80	101R25450	Riser 25 x 450 mm MBSP Schedule 80
101R15600	Riser 15 x 600 mm MBSP Schedule 80	101R20600	Riser 20 x 600 mm MBSP Schedule 80	101R25600	Riser 25 x 600 mm MBSP Schedule 80
101R15900	Riser 15 x 900 mm MBSP Schedule 80	101R20900	Riser 20 x 900 mm MBSP Schedule 80	101R25900	Riser 25 x 900 mm MBSP Schedule 80
101R151200	Riser 15 x 1200 mm MBSP Schedule 80	101R201200	Riser 20 x 1200 mm MBSP Schedule 80	101R251200	Riser 25 x 1200 mm MBSP Schedule 80

Application

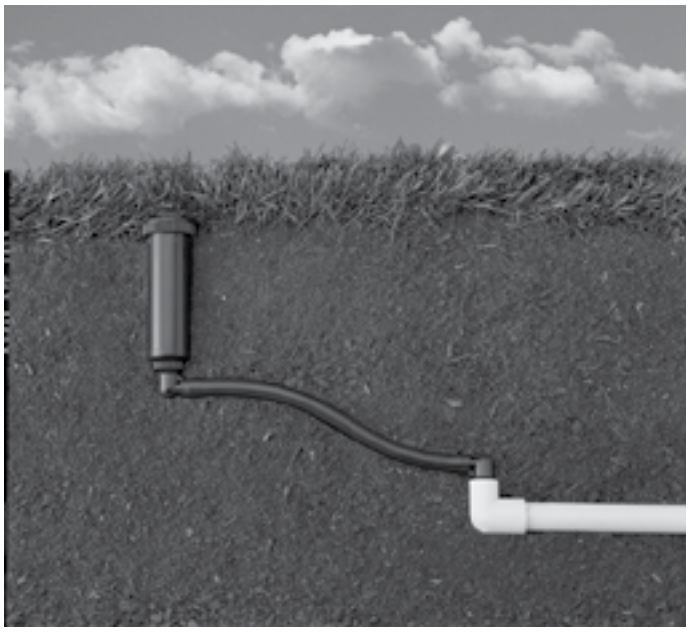
A pre-assembled flexible riser assembly used to connect sprinklers to the pipework. Its flexibility solves many of those tough sprinkler installation and replacement problems.

Features

- Flexible tube cushions the pipework from external impacts to the sprinkler
- Useful tool in difficult fit-out situations where the sprinkler doesn't always suit the pipe location
- 2 year Warranty
- Its flexibility can save time and labour – less trenching/digging

Specifications

- Two pre-assembled lengths: 200, 300mm
- Choice of 15 x 15 or 15 x 20mm MBSP elbow connections
- Tube ID: 12.45mm ± 0.13
- Tube OD: 17.78mm
- Wall Thickness: 2.54mm ± 0.25
- Pressure Rating: 600 kPa
- Material: Polyethylene



Pressure Loss vs Flow					
Flow (Lpm)	5	10	15	20	25
Assembly	2	7	17	29	57

** Pressure loss in kPa for 300mm riser assembly*

Ordering Information	
Code	**Description**
SPFA-585	200 mm x 15 mm x 15 mm MBSP Flex Riser Assembly
SPFA-5875	200 mm x 15 mm x 20 mm MBSP Flex Riser Assembly
SPFA-5125	300 mm x 15 mm x 15 mm MBSP Flex Riser Assembly
SPFA-51275	300 mm x 15 mm x 20 mm MBSP Flex Riser Assembly

Pressure Gauges and Adapters

Code: 101PGAT

¼" BSPM threaded pressure test point. Suitable for pressures up to 400 kPa. Suits 101PGN.

Code: 1012846

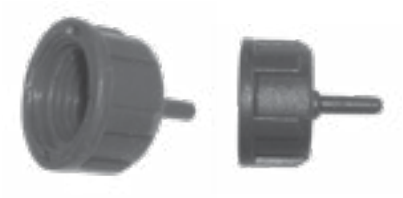
Screws directly onto pressure gauge and used to measure pressure from 1012487

• ¼" FBSP

Code: 1012844

Pitot Tube Assembly for measuring pressure direct from a sprinkler nozzle. Threaded to screw onto pressure gauge.

• ¼" FBSP



Code: 101PGN

¼" female threaded adaptor to suit 1012841, 1012842 and 1012843 pressure gauges. Needle inserts into 101PGAB and 101PGN for pressure measurement

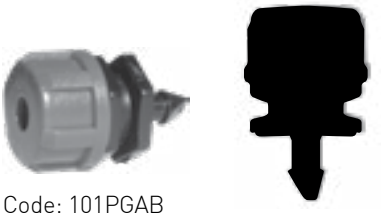
Code: 1012847

1/8" MBSP Schrader Valve

Flow and Pressure Gauge Kit 995-01

Makes determining your water capacity for a sprinkler system a breeze. Simply attach this gauge, and it will tell you the two key factors to designing your system, water pressure and gallons per minute. No more guesswork!

- Use on outside tap, not in line
- Use adjustment knob to balance psi with Gpm
- ½" NPT female threaded inlet
- Maximum pressure 160 psi (1103 kPa)
- Maximum Flow – 13 US Gpm (49 Lpm)
- Gauges show US Gpm and psi only



Code: 101PGAB

4mm barbed pressure test adaptor for direct insertion into low density polyethylene pipe. For use up to 400 kPa. Suits 101PGN.

Pressure Gauges

• Glycerine filled

• ¼" BSP male thread

1012841 0-250 kPa gauge
1012842 0-400 kPa gauge
1012843 0-1000 kPa gauge

Ordering Information	
Code	**Description**
1012841	Pressure Gauge - Glycerine Filled 0-250 kPa (35 psi)
1012842	Pressure Gauge - Glycerine Filled 0-400 kPa (60 psi)
1012843	Pressure Gauge - Glycerine Filled 0-1000 kPa (145 psi)
995-01	Flow Gauge kit (U.S. Gallons and psi)
1012844	Pitot Tube Assembly
1012846	Pressure Gauge Adaptor (1/4" FBSP to Schrader Valve)
1012847	Schrader Valve 1/8" MBSP
101PGAT	Pressure Gauge Adaptor 1/4" MBSP Thread
101PGAB	Pressure Gauge Adaptor Barbed
101PGN	Needle to adapt Pressure Gauge (1/4") suits 101PGAT and 101PGAB

Application

Family of products for the control and regulation of valves and filtration systems.

Galit (3 way Hydraulic Relay)

Code: 52101NG

NO/NC hydraulically controlled relay with 3 position handle, all in the one unit. Suitable for control of hydraulic valves up to 400mm and for modifying NO valve to NC.

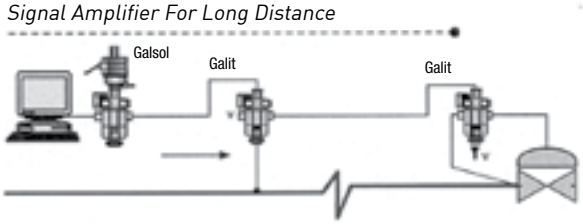
Operating Pressure Range: 50-1000 kPa
Connections: 1/8" FBSP
Orifice Size: 5.8mm
Manual Over-ride: Auto, Open, Closed
Lever Setting: (1) (3) (2)

Features

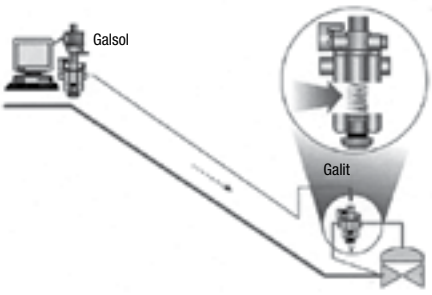
- Wide water passages reduce risk of blockage problems
- Constructed from fibreglass reinforced nylon
- Resistant to most acids and chemicals used in agriculture
- Simple installation and minimal maintenance

Spring Selection Table		
	Galit NC	**Galit NO**
Yellow	50-100kPa	50-100kPa
Green	100-140kPa	100-150kPa
White	140-170kPa	150-200kPa
Red	170-220kPa	200-250kPa

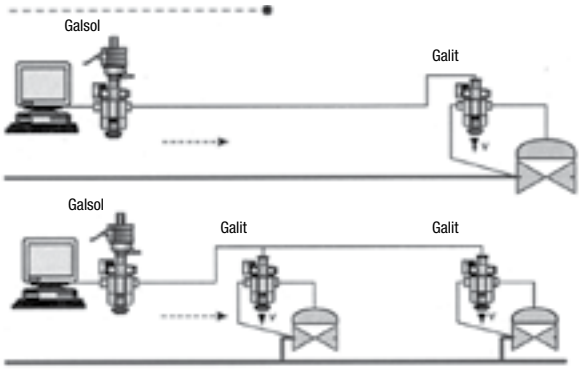
Signal Amplifier For Long Distance



Solution For Topographic Height Difference



Remote Command



Solenoid Adaptor to suit XR-100 and Galit

Code: 52103AD

Used to add a solenoid coil to the XR-100 or Galit to enable electro-hydraulic control.

For use with Galit NB400 - 3 way coils.

NB400 3 Way Solenoids and Adaptors 24VAC 50/60 Hz

Code: 52901PB, 52901NC

Power: 4 watts
Inrush Current: 200mA
Holding Current: 200mA
Max. Pressure: 1000kPa
52901PB: Normally Open
52901NC: Normally Closed

24VAC 50/60Hz
Code: 52901PB, 52901NC

2 Wire DC Latching

Code: 52902AD

Resistance: 4.5Ω
Operating Voltage: 9-40 volts DC
Std. Pulse width: 20-100ms
Red Wire: Latching
Black Wire: Unlatching
Max. Pressure: 1000 kPa

2 Wire DC Latching
Code: 52902AD

3 Wire DC Latching

Code: 52903AD

Resistance: 3.0Ω
Operating Voltage: 9-40 volts DC
Std. Pulse width: 20-100ms
Red Wire: Latching
White Wire: Common (+)
Black Wire: Unlatching
Max. Pressure: 1000 kPa

3 Wire DC Latching
Code: 52903AD

Ordering Information	
Code	**Description**
52103AD	Solenoid Adaptor to suit XR100
52101NG	Galit - 3 way Hydraulic Relay
52901PB	Solenoid and Adaptor 24VAC 50/60Hz, NO
52901NC	Solenoid and Adaptor 24VAC 50/60Hz, NC
52902AD	Solenoid and Adaptor 2 wire, 9-40 VDC Latching
52903AD	Solenoid and Adaptor 3 wire, 9-40 VDC Latching

Swing Joints

For use within irrigation systems on automatically controlled valves for hydraulic, filter flushing and Gulf valve systems.

Application

Swing joints provide the flexibility to align the sprinkler to proper grade and level positioning to ensure optimum water use through maximum nozzle distribution uniformity.

Features

- Minimize friction loss to ensure optimum pressure is available at each sprinkler
- Standard 2 x 90 models provide two 90's at the outlet for alignment in two directions and the Ultra 4 x 90 models provide four 90's at the outlet for maximum alignment flexibility in four directions
- Glue tees for PVC piping applications and saddle tees for HDPE and PVC piping applications
- Available with a Quick Coupler outlet that includes both an anti-rotation and position stabilizing feature to ensure the quick coupling valve stays secure during key installation and removal

Additional Features

- Schedule 80 PVC construction
- Double o-ring swivel joints
- Low friction loss characteristics
- 2100 kpa pressure rating
- 5500 kPa burst pressure safety rating
- 3 inlet fittings styles: ACME, male thread and 100 mm spigot
- 2 outlet fitting styles: ACME and male thread
- 200 mm and 300 mm lay lengths
- Saddle Tee models: 50 mm and 63 mm tees with 25 mm, 32 mm or 35 mm outlet
- Glue Tee models: 2" tee with 25 mm, 32 mm or 35 mm outlet
- Glue 90°models: 2" 90° with 25 mm, 32 mm or 35 mm outlet
- Quick coupler models with Dura-lock anti-rotation feature
- Compatible with all brands of service and saddle tees

Lasco G465-312 Swing Joint/Articulated Riser

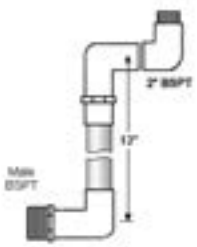
This 50 mm (2") BSP Swing Joint is designed for use in sports fields where large sprinklers with large flow rates are required.

Application

Swing joints provide the flexibility to align the sprinkler to proper grade and level positioning to ensure optimum water use through maximum nozzle distribution uniformity.

Features

- Constructed from Schedule 80 PVC pipe for extra strength
- 50mm (2") diameter body for high flows
- 50 mm BSPM inlet and 50 mm BSPM outlet
- Proven ACME threads for durability and flexibility
- 300 mm (12") lay length
- Designed for use with either bottom or side inlet sprinklers
- Suitable with Perrot VP3 sprinklers
- 1380 kPa Rating



Swing Joints and Risers	
Code	**Description**
ARTICULATED RISERS – O-RING DURA™(SCHEDULE 80 / CLASS 18) 1800 KPA RATING THREADED	
DU2010BSP	300 mm x 25 mm BSPM Articulated Riser (3 Elbow) 1-B1-22-1-12
DU2010SLIP	300 mm x 25 mm Spigot Inlet x 25 mm BSPM Outlet (3 Elbow) 1-A2-3-1-12
DU2015BSP	300 mm x 40 mm BSPM Articulated Riser (3 Elbow) 3-B1-22-1-12
DU2015SLIP	300 mm x 40 mm Spigot Inlet x 40 mm BSPM Outlet (3 Elbow) 1-A2-3-1-12
DU2015MPT	300 mm x 40 mm MPT Articulated Riser (3 Elbow) 3-22-3-1-12
SWING JOINT/ARTICULATED RISER - LASCO G465-312 SWING (SCHEDULE 80) 1380 KPA RATING THREADED	
G465-312	300 MM X 50 MM Articulated Riser BSPM x BSPM Schedule 80 (3 elbow)
SWING JOINTS & ADAPTORS (SCHEDULE 80 / CLASS 18) 1800 KPA RATING THREADED	
TSJ-10B-12-3-10A	300 mm x 25 mm Articulated Riser BSP x ACME Male Thread
TSJ-10S-12-3-10A	300 mm x 25 mm Articulated Riser Slip x ACME Male Thread
TSJ-15B-12-3-15A	300 mm x 40 mm Articulated Riser BSP x ACME Male Thread
TSJ-15S-12-3-15A	300 mm x 40 mm Articulated Riser Slip x ACME Male Thread
TOBA39-010	25 mm BSP to ACME Adaptor
TOBA39-015	40 mm BSP to ACME Adaptor
SWING JOINTS SPEARS (SCHEDULE 80) 3 ELBOW 1800 KPA RATING	
5893-01010-A	300 mm x 25 mm Articulated Riser BSP x BSP
5893-01510-A	300 mm x 40 mm Articulated Riser BSP x BSP
5895-01010-A	300 mm x 25 mm Articulated Riser Slip x BSP
5895-01510-A	300 mm x 40 mm Articulated Riser Slip x BSP
TORO SUPER FUNNY PIPE FLEX ASSEMBLIES 600 KPA RATING	
SPFA-585	200 mm x 15 mm x 15 mm BSP Articulated Riser
SPFA-5875	200 mm x 15 mm x 20 mm BSP Articulated Riser
SPFA-5125	300 mm x 15 mm x 15 mm BSP Articulated Riser
SPFA-51275	300 mm x 15 mm x 20 mm BSP Articulated Riser
ARTICULATED RISERS (POLYPROPYLENE) 700 KPA RATING	
591-025	200 mm x 15 mm BSP Articulated Risers (3 Elbow)
591-027	300 mm x 15 mm BSP Articulated Risers (3 Elbow)
591-029	200 mm x 20 mm BSP Articulated Risers (3 Elbow)
591-030	300 mm x 20 mm BSP Articulated Risers (3 Elbow)
591-032	200 mm x 25 mm BSP Articulated Risers (3 Elbow)
591-034	300 mm x 25 mm BSP Articulated Risers (3 Elbow)
ELBOWS (POLYPROPYLENE) MALE X FEMALE 700 KPA RATING	
591-MFE15	15 mm BSP Elbow, Male x Female
591-MFE20	20 mm BSP Elbow, Male x Female
591-MFE25	25 mm BSP Elbow, Male x Female

2 Way Solenoids

S-392-2W

2 Way Solenoid Coil Only, 6 – 20 VDC Latching, 2 Wire

Code: S-392-2W

Voltage Range: 6 – 20VDC
Coil Resistance: 6 ohms
Coil Inductance: 90 mH
Pulse Width: 20 – 100ms
Operation: 2 Way

Pressure Rating: 1000 kPa
Cable Colours: Red/Black, 80cm
+Red & -Black: Latch Position
+Black & - Red: Unlatch Position

Bermad Coil Only, Black/Black 3.6 Watt 24 VDC Normally Closed

Code: S390-2W-24VDC-NC

Power: 3.6 Watts
Voltage: 24 VDC
Coil Resistance: 156 ohms @ 20° C
Inrush Current: 180mA
Holding Current: 180mA
Operation: 2 Way, normally closed

Pressure Rating: 1000 kPa
Cable Colours: Black, 80cm

Bermad Coil Only, Red/Red 1.7 Watt Normally Closed

Code: S390-2W-24VAC-R

Power: 1.7 Watts
Voltage: 24 VAC
Inrush Current: 250mA
Holding Current: 125mA
37.5 ohms @ 20° C
Operation: 2 Way

Pressure Rating: 1000 kPa
Cable Colours: Red, 80cm
On/Off Handle: White
Coil Resistance:

Coil and Base, 2 Way, 24 VAC N/C

Code: S390-24VAC-NC2W-BO

Power: 1.7 Watts
Voltage: 24 VAC
Inrush Current: 250mA
Holding Current: 125mA
Coil Resistance:
37.5 ohms @ 20° C
Operation: 2 Way,
normally closed

Pressure Rating: 1000 kPa
Cable Colours: Red, 80cm
On/Off Handle: White
Orifice Diameter: 1.8mm
Ports: 1/8" NPT (female)

3 Way Solenoids

3 way, 2 wire, 12-50VDC Latching Solenoid, Normally Open Pilot Valve

Code: 982-3B

Power Voltage: 12-50VDC Latching
Coil Resistance: 4.2 ohms
Pulse Width: 20-100ms
Ports: 1/8" NPT (female)
Operation: 3 way, normally closed

Cable Colours: Red/Black
On/Off Handle: Green
Orifice Size: 2.2mm
Pressure Rating: 1000 kPa
+Red & - Black: Solenoid vents
+Black & - Red: Solenoid pressurizes

3 way, 3 wire, 12-50VDC Latching Solenoid, Normally Open Pilot Valve

Code: S-985

Voltage: 12-50VDC Latching
Coil Resistance: 4.2 ohms ON, 7.5 ohms OFF
Pulse Width: 20-100ms
Ports: 1/8" NPT (female)
Operation: 3 way, normally closed
Cable Colours: Red/Black/White

On/Off Handle: Green
Orifice Size: 2.2mm
Pressure Rating: 1000 kPa
+ White: Fixed common
- Red: Solenoid vents
- Black: Solenoid pressurizes

Coil and Base, 3 Way, 3 Wire 9-40 VDC, 2 Wire Latch (Suit GDC/TDC/Sentinel)

Code: S402-3W

Voltage Range: 9 – 40 VDC
Coil Resistance: 8 ohms
Coil Inductance: 90 mH
Pulse Width: 20 – 100ms
Operation: 3 Way

Pressure Rating: 1000 kPa
Cable Colours: Red/Black, 80cm
On/Off Handle: Black
Orifice Diameter: 2.2mm
+Red & - Black: Solenoid Vents
+Black & - Red: Solenoid Pressurises
Ports: 1/8" NPT (female)

S402-3W

Coil and Base, 3 Way, 3 Wire 4.2 Watt 24 VDC Normally Closed

Code: S390-3W-24VDC-NC

Power: 4.2 Watts
Voltage: 24 VDC
Coil Resistance: 135 ohms @ 20° C
Inrush Current: 170mA
Holding Current: 170mA
Operation: 3 Way, normally closed

Pressure Rating: 1000 kPa
Cable Colours: Black, 80cm
On/Off Handle: White
Orifice Diameter: 1.8mm
Ports: 1/8" NPT (female)

Coil and Base, 3 Way, 24 VAC N/C

Code: S390-3DB24VAC-BO

Power: 3.5 Watts
Voltage: 24VAC
Coil Resistance: *
Inrush Current: 200mA
Holding Current: 200mA
Operation: 3 Way, normally closed
*The resistance in this coil cannot be measured

Pressure Rating: 1000 kPa
Cable Colours: Orange/Blue, 80cm
On/Off Handle: White
Orifice Size: 1.8mm
Ports: 1/8" NPT (female)

S390-3DB24VAC-BO

3 Way Solenoids cont.

Coil and Base, 3 Way, 24 VAC with Diode, N/C

Code: S390D24VACNC3WBO

Power: 3.5 Watts
Voltage: 24 VAC
Coil Resistance: *
Inrush Current: 200mA
Holding Current: 200mA
Operation: 3 Way, normally closed
Pressure Rating: 1000 kPa
Cable Colours: Orange/Blue, 80cm
On/Off Handle: White
Orifice Diameter: 1.8mm
Ports: 1/8" NPT (female)
*The resistance in this coil cannot be measured

Solenoid Coil, 24 VAC, N.O. 3 Way with Diode

Code: S400NO

Power: 3.5 Watts
Voltage: 24 VAC
Coil Resistance: *
Inrush Current: 200mA
Holding Current: 200mA
Operation: 3 Way, normally open
Pressure Rating: 1000 kPa
Cable Colours: Red/Blue, 80cm
On/Off Handle: Green
Orifice Diameter: Inlet – 2.2mm
Exhaust – 1.8mm
Ports: 1/8" NPT (female)
*The resistance in this coil cannot be measured

S400NO

Coil and Base, 3 Way, 24 VAC N/O with Diode

Code: S400-3W-24VACDNO

Power: 3.5 Watts
Voltage: 24 VAC
Coil Resistance: *
Inrush Current: 200mA
Holding Current: 200mA
Operation: 3 Way, normally open
Pressure Rating: 1000 kPa
Cable Colours: Red/Blue, 80cm
On/Off Handle: Green
Orifice Diameter: Inlet – 2.2mm
Exhaust – 1.8mm
Ports: 1/8" NPT (female)
*The resistance in this coil cannot be measured

Coil and Base, 3 Way, Red/Red 2.9 Watt, 24 VAC N/O

Code: S390R24VACN3W

Power: 2.9 Watts
Voltage: 24 VAC
Coil Resistance: 21 ohms @ 20° C
Inrush Current: 460mA
Holding Current: 240mA
Operation: 3 Way, normally open
Pressure Rating: 1000 kPa
Cable Colours: Red, 80cm
On/Off Handle: White
Orifice Diameter: 1.8mm
Ports:1/8" NPT (female)

3 way, 3 wire, 9-40 VDC Latching Solenoid, Normally Open/Closed Pilot Valve

Code: 1014872

Voltage: 9-40 VDC Latching
Coil Resistance: 3.0 ohms
Pulse Width: 20-100ms
Ports: 1/8" BSP (female)
Operation: 3 way, normally closed/open
Cable Colours: Red/Black/White
On/Off Handle: Black
Orifice Size: 5.8mm
Pressure Rating: 1000 kPa
White: Fixed common+
Red: Latching
Black: Unlatching

3 Way Taps

Bermad 1/8" Sagiv 3 Way Manual Tap

Code: SAGIV-18

SAGIV-18

Bermad Solenoid Coil, 12 VDC, 2 Wire Latching with Galit

Code: S-982-G

Sub Heading: Single Sided Control Bars 12 VDC Solenoid Normally Open

Control Bar Single Sided 4 Port 12 VDC N/O Coil
Code: BE-CB-4-12VDC-NO
Uses S-390-3W-12VDC coil

Control Bar Single Sided 6 Port 12 VDC N/O Coil
Code: BE-CB-6-12VDC-NO
Uses S-390-3W-12VDC coil

Control Bar Single Sided 8 Port 12 VDC N/O Coil
Code: BE-CB-8-12VDC-NO
Uses S-390-3W-12VDC coil

BE-CB-4-12VDC-NO

Sub Heading: Single Sided Control Bars 12 VDC Latching Solenoid Normally Open

Control Bar Single Sided 4 Port 12 VDC Latching N/O
Code: BE-CB-4-12VDCL-NO
Uses S-985 coil

Control Bar Single Sided 6 Port 12 VDC Latching N/O
Code: BE-CB-6-12VDCL-NO
Uses S-985 coil

Control Bar Single Sided 8 Port 12 VDC Latching N/O
Code: BE-CB-8-12VDCL-NO
Uses S-985 coil

BE-CB-4-12VDC-NO

Solenoid Coils and Accessories

588403

- 811B Solenoid Assembly
- 24VAC, 50Hz, 0.34 amp inrush, 0.20 amp holding current
- 45cm Red leads, XLPE insulation, 20AWG conductors
- Captive plunger

DCLS-P

- Potted DC Latching solenoid suits EZ-Flo Plus, P-150, P-220 and 220 series valves. Suits DDCWP
- Wetted parts constructed from 400 stainless steel and zytel
- Voltage: 6-14VDC
- Coil resistance: 9 ohms
- Coil inductance: 65 mH
- Pulse width: 20ms
- Leads: 2, red and black, 45cm long, 20AWG, PVC insulation
- Latch position: + Red and - Black
- Unlatch position: + Black and - Red

HVC-KIT

- Converts standard solenoid operated valve into hydraulic remotely operated valve. Only suits Toro P150, P220, Irritrol Century, Century Plus and S-Series solenoid valves
- Kit consists of a thread x ¼" barbed adaptor (to replace the coil) and 2 PVC plugs. Suits Toro ¼" control tubing
- Cannot be used if EZReg or OmniReg required or fitted

Lilac Valve Accessories

1088501

- Effluent tag for use with Toro or competitive valves

Air Vacuum Breaker – 15 mm MBSP

Application

Designed to allow air into the irrigation system, under vacuum conditions created during shutdown and drainage of drip lines. Aids in the prevention of dirt ingress into drippers under vacuum.

Specifications

- 15mm (½") BSPM thread
- Maximum pressure: 1000 kPa
- Plastic construction with Buna-N o-ring seal

Air Intake vs Vacuum Pressure				
Vacuum Pressure (kPa)	-10	-20	-30	-40
Air Intake (m3/h)	34	51	65	80

Ordering Information	
Code	**Description**
101VB15	Air vacuum Breaker, 15mm BSPM Pack size: 20

ARV-1-A 25 mm MBSP Combination Air Release Valve

Application

Designed to efficiently extract the air trapped in pipes and filter systems.

Features

- One seal which expels both kinetic and residual air automatically, regardless of water pressure.
- Exclusive Y shaped air discharge outlet allows a much greater air flow than in other valves in both the intake and discharge phase.
- Simple design with only five parts. Is easy to disassemble for cleaning and maintenance.
- Red coloured body for easy field identification.

Operation

1. Expels air from the pipe network as the lines fill. When the water reaches the interior of the valve the float rises and seals the discharge outlet.
2. Continually expels air automatically when residual pockets of air reach the valve. Air pockets are expelled regardless of water pressure.
3. Prevents vacuum and subsequent pipe collapse because as soon as pressure is decreased the float drops, opening the seal and allowing outside air into the pipe system.

Specifications

- Inlet: 25 mm (1") MBSP
- Seals at 20 kPa water pressure.
- Maximum working pressure: 1200 kPa.
- Air volume extracted at 70 kPa is 24.5 m3/hr.
- Fibreglass reinforced Polyamide body and base for UV protection.

Ordering Information	
Code	**Description**
1014900	ARV-1-A 25 mm MBSP Air Release Valve
1014900SPK	ARV-I-A Valve Service Kit

ARV-2-KA 50 mm MBSP Combination Air Release Valve

Application

Designed to efficiently extract the air trapped in pipes and filter systems.

Features

- Unique double seal system, one for kinetic performance and another for permanent automatic control.
- Triangular discharge outlet and low density float ensures water tightness. No water discharge regardless how slowly the system is pressurised or emptied.
- Polyurethane main seal resistant to fertiliser and system cleaning chemicals.
- Screen in outlet elbow to prevent entry of foreign material.
- 32 mm FBSP outlet to allow for pipe plumbing exhaust.
- Red coloured body for easy field identification.

Operation

1. Expels air from the pipe network as the lines fill. When the water reaches the interior of the valve the float rises and seals the discharge outlet.
2. Continually expels air automatically when residual pockets of air reach the valve. Air pockets are expelled regardless of water pressure.
3. Prevents vacuum and subsequent pipe collapse because as soon as pressure is decreased the float drops, opening the seal and allowing outside air into the pipe system.

Specifications

- Inlet: 50 mm (2") MBSP
- Seals at 20 kPa water pressure.
- Maximum working pressure: 1600 kPa.
- Air volume extracted at 30 kPa is 370 m3/hr.
- Fibreglass reinforced Polyamide body and base for UV protection.

Ordering Information	
Code	**Description**
1014901	ARV-2-KA 50 mm MBSP Air Release Valve
1014901SPK	ARV-2-KA Valve Service Kit

Application

The air release feature allows air to escape the pipeline during system start-up, while the vacuum relief feature allows air to enter the pipeline during valve closure or system shutdown.

The vacuum relief minimises:

- Collapse of mainline and submain pipes due to the vacuum.
- Back siphonage of dirt into emitters. (Vacuum relief can reduce this problem and in some cases eliminate it)
- Water hammer caused by sudden reversal of flows, especially downstream of a valve.

Features

- Available in 25mm and 50mm MBSP threaded inlets.
- Innovative slam resistant design ensures only water closes the valve.

Performance Chart

		1014903	1014904
		25mm	50mm
	Air Flow	Pressure	Pressure
	m3/min	kPa	kPa
Intake	-4.9		-11.2
	-4.2		-8.1
	-3.5		-5.4
	-2.8	-28.8	-3.1
	-2.1	-2.9	-1.2
	0	0	0
Exhaust	0.7	2.3	0
	1.4	6.9	0.007
	2.1	16.3	0.021
	2.8	33.8	0.207
	3.5	53.4	1.02
	4.2	75.8	1.32
	4.9	112	4.2
	5.6		7.7
	6.3		11.7
	7.1		16.2
	7.7		21.3
	8.4		26.9
	9.2		33.2
	9.9		39.9
	10.6		47.2
	11.3		55

Specifications

Code	1014903	1014904
Connection	25mm BSPM	50mm BSPM
Max. Pressure	1035 kPa	1035 kPa
Closing Pressure	7 kPa	7 kPa
Air Orifice	19.7mm	28.9mm
Height	170mm	230mm
Diameter	70mm	90mm

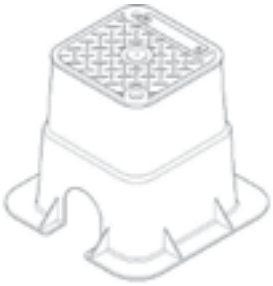
Ordering Information

Code	Description
1014903	25mm MBSP Air Vacuum Valve
1014904	50mm MBSP Air Vacuum Valve

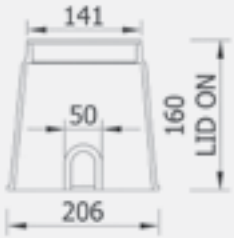
150mm Round Residential Valve Box

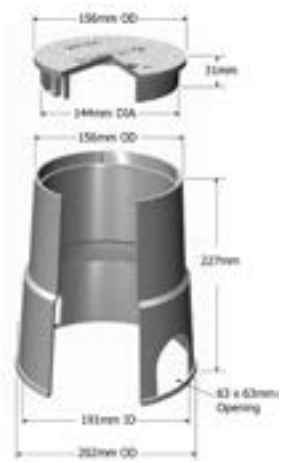
Half Height Rectangular Valve Box

Square Valve Boxes



Customised logos can be added to valve box lids for the 1012666 and the 1012670. Contact Customer Service for details and minimum ordering quantities.

Valve Box Product Code	Valve Box Description	Valve Box Lid Product Code	Dimensions
1012666 1012669	150 mm Valve Box Residential • Ideal as a small inconspicuous valve box for residential systems • Tapered wall for extra rigidity • "T-Lip" Base only for 1012666	1012667	
1012670 1012670RW	Rectangular Half Height Valve Box • Ideal for situations where excavation is a problem • Durable construction ensures long field life • Large access area makes it ideal for valve manifolds. • Snap Lock lid for positive fixing 1012670 with lilac lid	PRE 2004 1012677 POST 2004 1012670LID RECYCLE 1012670LIDRW	
1012765	150 mm Square Valve Box • Ideal for housing a 25 mm, 40 mm valve in a smaller box • Ribbed and tapered wall construction ensure strength and rigidity • "T-Lipped" for positive fixing • Flanged base provides extra support • Pipe cut-outs allow for quick and easy installation.	1012675	
1012769	220 mm Square Valve Box • Ideal for housing a 50 mm 80 mm valve in a smaller box • Ribbed tapered construction ensure strength and rigidity • "T-Lipped" for positive fixing • Flanged base for extra support • Pipe cut-outs allow for quick and easy installation	1012676	

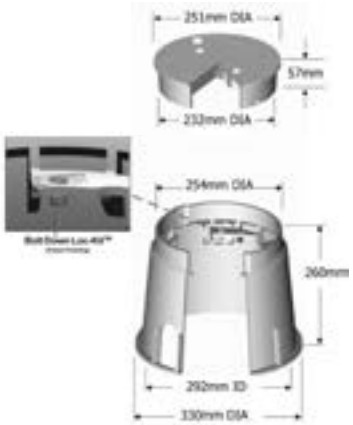


150 mm Round Valve Box

- Commercial grade valve box for housing single 25 or 40 mm solenoid valve
- Pipe cuts-outs, 63 mm x 63 mm
- Snap on lid for easy access (no bolt and no provision for bolt
- T-Lip lid to reduce risk of dirt jamming lid lift
- Lid marked "CV"

Recycled Water Option

Ordering Information	
Code	**Description**
591-VB-60	150 mm Round Valve box, Black body, Green Lid
591-VB-60RW	150 mm Round Valve box, Black body, Lilac Lid
591-VBL60T	150 mm Black Lid to suit Round Valve box
591-VBL60RW	150 mm Lilac Lid to suit Round Valve box

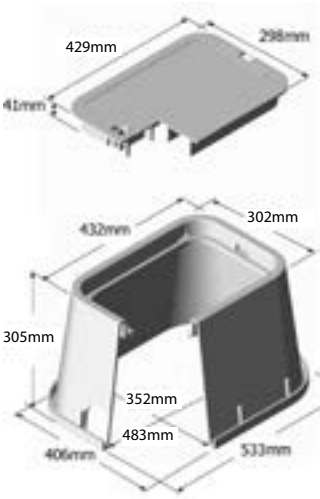


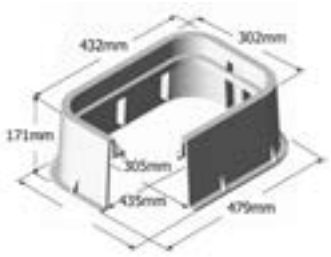
250 mm Round Valve Box

- Commercial grade valve box for housing single 25 or 40 mm solenoid valve
- No Pipe cuts-outs
- Snap on lid for easy access with stainless steel bolt for security
- T-Lip lid to reduce risk of dirt jamming lid lift
- Lid marked "Irrigation Control Valve"

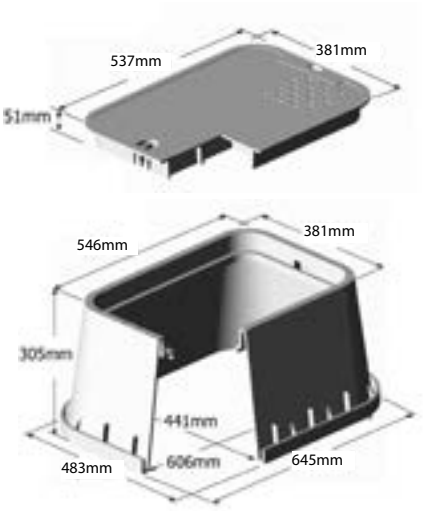
Recycled Water Option

Ordering Information	
Code	**Description**
591-VB1100	250 mm Round Valve box, Green body, Green Lid
591VBL1100	Green Lid to suit 591VB1100
591-VBL1100RW	Lilac lid to suit 591VB1100





Extension



352 mm x 483 mm x 305 mm Rectangular Valve Box

- Commercial grade valve box for housing multiple solenoid valves or larger single valves
- No Pipe cuts-outs
- Snap on lid for easy access with stainless steel bolt for security
- T-Lip lid to reduce risk of dirt jamming lid lift
- Lid marked "Irrigation Control Valve"

Recycled Water Option

Ordering Information	
Code	**Description**
591-VB1419	352 mm x 483 mm x 305 mm Rectangular Valve box, Green body, Green Lid
591-VB1419RW	352 mm x 483 mm x 305 mm Rectangular Valve box, Lilac Lid and body
591VBL1419	Green Lid to suit 591-VB1419
591VBE1419	Extension (Black body) suits 591-VB1419
591VBL1419RW	Lilac Lid to suit 591VB1419 and 591VB1419RW

** Measurements based on the following: Bottom of Body, Width x Length x Depth*

441 mm x 606 mm x 305 mm Jumbo Rectangular Valve Box

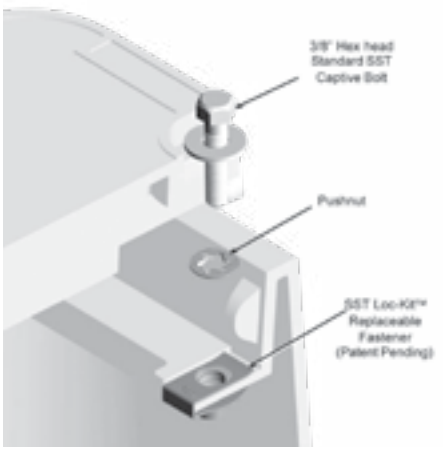
- Commercial grade valve box for housing multiple solenoid valves
- No Pipe cuts-outs
- Snap on lid for easy access with stainless steel bolt for security
- T-Lip lid to reduce risk of dirt jamming lid lift
- Lid marked "Irrigation Control Valve"

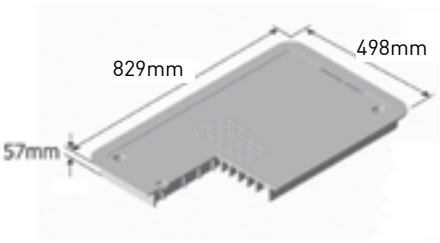
Recycled Water Option

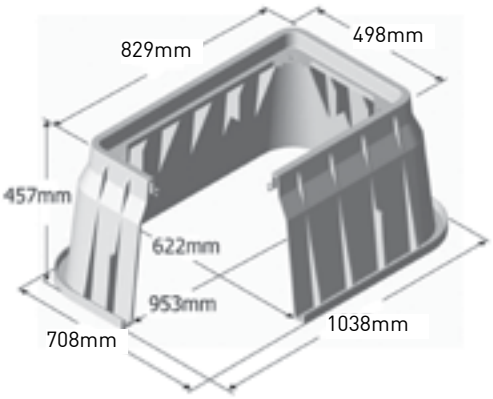
Ordering Information	
Code	**Description**
591-VB-12	441 mm x 606 mm x 305 mm Rectangular Valve box, Green body, Green Lid
591-VBL12	Green Lid to suit 591-VB-12
591-VBL12RW	Lilac lid to suit 591-VB-12

622 mm x 953 mm x 457 mm Super Jumbo Rectangular Valve Box

- Commercial grade valve box for housing multiple solenoid valves
- No Pipe cuts-outs
- Snap on lid for easy access with stainless steel bolt for security
- T-Lip lid to reduce risk of dirt jamming lid lift
- Lid marked "Irrigation Control Valve"







Ordering Information	
Code	**Description**
591-VB-18*	622 mm x 953 mm x 457 mm Super Jumbo Rectangular Valve Box, Green body, Green Lid
591-VB-18LID	Green Lid to suit 591-VB-18

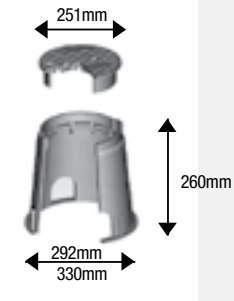
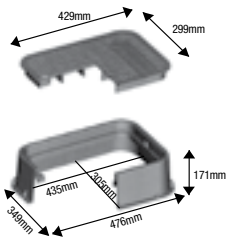
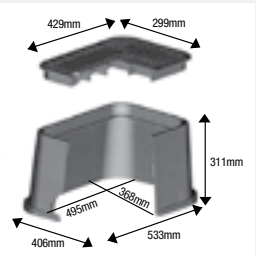
** Measurements based on the following: Bottom of Body, Width x Length x Depth*

HDPE Structural Foam		
Material Property	**ASTM Test Method**	**Typical Value**
Type, Class, Category	D1248	III, A, 3
Density, g/cm3	D1505	0.950 min, 0.965 max.
Tensile Strength at break, psi	D6380	3,000 to 4,400
Elongation at break	D638	400 %
Tensile Impact	D1822	27 ft-lb/in2
Flexural Modulus, psi	D790	120,000 min, 240,000 max
Low Temperature Brittleness F50, at °C	D746	←-76
Hardness, Shore D	D2240	66
Deflection Temperature at 66 psi (°F)	D648	150° min, 200° max.
Electric Dielectric Strength, V/mil	D149	400 min, 600 max

Ordering Information	
Code	**Description**
591-VBBOLT	Replacement 3/8" stainless steel, all thread bolt, suits all Carsons except 591-VB-60. Washer not supplied.
101LOCKIT	Carson Lock kit with bolt to secure lid to box

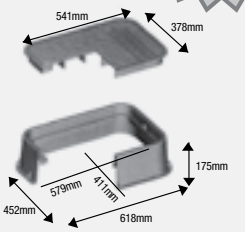
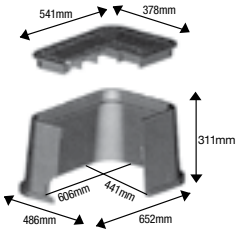
Toro Valve Boxes by DURA™

Recycled Water Options

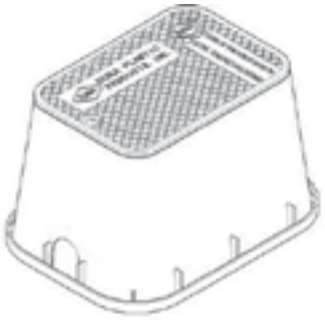
Valve Box and Lid Product Code	Valve Box Description	Valve Box Lid Product Code	Dimensions
TVB-7RND-G (Green Body and Lid) TVB-7RND-E (Lilac Body and Lid)	Dura 171 mm Round Valve Box • For use in non-vehicular traffic areas • Suits 25 and 40 mm valves (single) • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • No bolt hole	TVB-7LID-G (Green Lid) TVB-7LID-E (Lilac Lid)	
TVB-10RND-G (Green Body and Lid) TVB-10RND-E (Lilac Body and Lid)	Dura 251 mm Round Valve Box • For use in non-vehicular traffic areas • Suits 50 and 80 mm valves (single) • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • Single bolt hole - no bolt	TVB-10LID-G (Green Lid) TVB-10LID-E (Lilac Lid)	
TVB-1217-6-G (Green Body and Lid)*	Dura 305 mm x 435 mm x 171 mm Rectangular Valve Box • For use in non-vehicular traffic areas • Suits manifold of multiple valves or larger valves • Standard depth profile suits most commercial jobs • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • Single bolt hole - no bolt	TVB-1217LID-G (Green Lid) TVB-1217LID-E (Lilac Lid)	
TVB-1217-12-G (Green Body and Lid)* TVB-1217-12-E (Lilac Body and Lid)	Dura 368 mm x 495 mm x 311 mm Rectangular Valve Box • For use in non-vehicular traffic areas • Suits manifold of multiple valves or larger valves • Standard depth profile suits most commercial jobs • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • Single bolt hole - no bolt	TVB-1217LID-G (Green Lid) TVB-1217LID-E (Lilac Lid)	

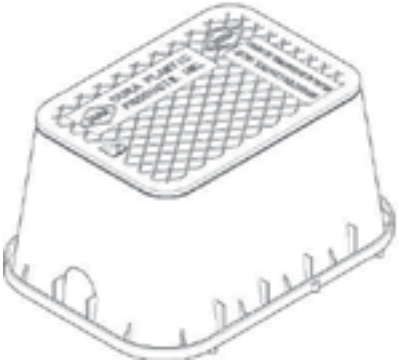
** Measurement based on Bottom of Body, Width x Length x Depth*

Recycled Water Options

Valve Box and Lid Product Code	Valve Box Description	Valve Box Lid Product Code	Dimensions
TVB-1521-6-G (Green Body and Lid)*	Dura 411 mm x 579 mm x 175 mm Jumbo Rectangular Valve Box • For use in non-vehicular traffic areas • Suits manifold of multiple valves or larger valves • Low depth profile saves installation time • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • No Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • Single bolt hole - no bolt	TVB-1521-LID-G (Green Lid) TVB-1521-LID-E (Lilac Lid)	
TVB-1521-12-G (Green Body and Lid)*	Dura 441 mm x 606 mm x 311 mm Jumbo Rectangular Valve Box • For use in non-vehicular traffic areas • Suits manifold of multiple valves or larger valves • Standard depth profile suits most commercial jobs • Snap Lid for easy access • T-lip lid design to prevent dirt jamming lid lift • Pipe cut-outs • Lid engraved with "Irrigation Control Valve" • Single bolt hole - no bolt	TVB-1521-LID-G (Green Lid) TVB-1521-LID-E (Lilac Lid)	

** Measurement based on Bottom of Body, Width x Length x Depth*





Technical Specifications		
Static Vertical Load Rating SCTE – Light Duty, Pedestrian		
Properties of Base Material	ASTM Test Method	HDPE
Tensile Strength	D-638	2,700 - 4,400 psi (Typical Range)
Flexural Modulus	D-790	Min. 140,000 not to exceed 240,000 psi
Notched Izod Impact Strength	D-256	0.5 - 3.0 (Typical Range)
Deflection Temperature @ 66psi	D-648	150° to 200°F (Typical Range)
Density	D-792	Min.0.950 not to exceed 0.965
Electrical Dielectric Strength	D-149	400 - 600 V/mil (Typical Range)
Moulded Product		
Chemical Resistance	D-543	Very Resistant
Water Absorbtion	D-570	Less that 1% weight change

Ordering Information	
Code	**Description**
Round	
TVB-7RND-G	175 mm Round Commercial Valve Box (previously 1017RND)
TVB-7RND-E	Lilac 175 mm Round Commercial Valve Box (previously 1017RNDRW)
TVB-10RND-G	275 mm Round Commercial Valve Box (previously 10110RND)
TVB-10RND-G-NMH	275 mm Round Commercial Valve Box, no pre-cut holes (previously 10110RNDNC)
TVB-10RND-E	Lilac 275mm Round Commercial Valve Box (previously 10110RNDRW)
Rectangular	
TVB-1217-6-G	350 x 475 x 150 mm Commercial Valve Box (previously 10114196)
TVB-1217-12-G	350 x 475 x 300 mm Commercial Valve Box (previously 101141912)
TVB-1217-12-G-NMH	350 x 475 x 300 mm Commercial Valve Box, No Cut Outs (previously 101141912NC)
TVB-1217-12-E	Lilac 350 x 475 x 300 mm Commercial Valve Box (previously 101141912RW)
Jumbo	
TVB-1521-6-G	425 x 575 x 150 mm Commercial Valve Box (previously 10117236)
TVB-1521-12-G	425 x 575 x 300 mm Commercial Valve Box (previously 101172312)
Green Lids - Suit Toro Valve Boxes by Dura™	
TVB-7LID-G	175 mm Green Lid. Suit TVB-7RND-G
TVB-10LID-G	275 mm Green Lid. Suit TVB-10RND-G
TVB-1217LID-G	350 x 475 mm Green lid. Suit TVB-1217-6-G and TVB-1217-12-G
TVB-1521LID-G	425 x 575 mm Green lid. Suit TVB-1521-6-G and TVB-1521-12-G
Lilac Lids - Suit Toro Valve Boxes by Dura™	
TVB-7LID-E	175 mm Lilac Lid. Suit TVB-7RND-E
TVB-10LID-E	275 mm Lilac Lid. Suit TVB-10RND-E
TVB-1217LID-E	350 mm x 475mm Lilac Lid. Suit TVB-1217-6-E and TVB-1217-12-E
TVB-1521LID-E	425 mm x 575mm Lilac Lid. Suit TVB-1521-6-E and TVB-1521-12-E

** Measurement based on Bottom of Body, Width x Length x Depth*

*** Width x Length*

Control Valve Wiring – Single Core

Application

For use in automatic irrigation systems to connect solenoid valves to controller. Extra low voltage systems only (as defined by AS3000). Suitable for direct burial. Not suitable for connection to Mains Power Supply.

Specification

Conductor:	Multi-strand plain copper wire
Insulation:	UV stabilised polypropylene to AS3808
Colours:	Black, Blue, Brown, Green,Red, White, Yellow
Coil Lengths:	100 and 500 metres
Sizes:	0.5, 1.0, 1.5, 2.5, 4.0, 6.0 mm^2

Wiring Installation Hints

- It is important to know the current draw of the electrical components so that the correct wire size is used.
- When installing control wire, ensure wire is looped at valve location to allow for expansion/contraction and soil movement.
- All valves to be installed in well drained gravel based valve box enclosures.
- A common wire links one wire on all solenoid valves to the controller and is usually black in colour.
- Ensure all wire connections are accessible for later servicing and fault finding.
- Ensure wire is not taut in the trench, i.e. allow for movement by providing extra slack in all installations.
- An active wire is defined as the wire that connects a valve to a specific station. They can be various colours.
- All wire connections must be waterproof, i.e. use wire connectors and sealant gel to ensure a waterproof connection.

Typical Properties

Nominal Area (mm^2)	Nearest AWG No.	Conductor No/ Diam (mm)	Amp rating (Amps)	Insulation Thickness (mm)	Electrical Resistance @ 20°C ohms/1000 m	Nominal OD (mm)	Weight (kg/100 m)
0.5	20	7/0.30	3	0.3	38.4	1.6	0.7
1.0	17	7/0.43	10	0.6	21.2	2.5	1.2
1.5	16	7/0.50	16	0.6	13.6	2.8	1.6
2.5	13 ½	7/0.67	23	0.6	7.4	3.3	2.7
4.0	11	7/0.85	30	0.6	4.6	3.8	4.1
6.0	9 ½	7/1.04	39	0.7	3.1	4.55	6.16

Ordering Information

Code	Description
SC05100XXX	Single Core 0.5 mm^2 x 100 m coil Multi-strand 7/0.30 Available in Black (BLK), Blue (BLU), Brown (BRN), Green (GRN), Red (RED), White (WHI), Yellow (YEL). (To order quote (for example) SC05100BLK)
SC10100XXX	Single Core 1.0 mm^2 x 100 m coil Multi-strand 7/0.43 Available in seven standard colours as above
SC10500XXX	Single Core 1.0 mm^2 x 500 m coil Multi-strand 7/0.43 Available in seven standard colours as above
SC15100XXX	Single Core 1.5 mm^2 x 100 m coil Multi-strand 7/0.50 Available in seven standard colours as above
SC15500XXX	Single Core 1.5 mm^2 x 500 m coil Multi-strand 7/0.50 Available in seven standard colours as above
SC25500XXX	Single Core 2.5 mm^2 x 500 m coil Multi-strand 7/0.67 Available in seven standard colours as above
SC40500XXX	Single Core 4.0 mm^2 x 500 m coil Multi-strand 7/0.85 Available in seven standard colours as above
SC60500XXX	Single Core 6.0 mm^2 x 500 m coil Multi-strand 7/1.04 Available in seven standard colours as above

Control Valve Wiring – Multi-core

Application

For use in automatic irrigation systems to connect solenoid valves to controller. Extra low voltage systems only (as defined by AS3000). Suitable for direct burial. Not suitable for connection to Mains Power Supply.

Specification

Conductor:	Annealed copper to AS1125 drawn from Class 102 copper to AS1574
Insulation:	Coloured UV stabilised polypropylene
Outer Sheath:	Flexible coloured (red) PVC type 4V75 to AS3808
Coil Lengths:	50m (0.5 mm^2 only), 100 and 500 metres
Sizes:	0.5, 1.0, 1.5, 2.5 mm^2

Ordering Information

MC	xx	xx	xx
	02 (2 cores)	05 (0.5 mm^2)	50 (50 metres)*
	03 (3 cores)	10 (1.0 mm^2)	100 (100 metres)
	05 (5 cores)	15 (1.5 mm^2)	500 (500 metres)
	07 (7 cores)	25 (2.5 mm^2)	
	09 (9 cores)		*50 m (0.5 mm^2 only)
	13 (13 cores)		

Example of how to order: 7 core x 1.5mm^2 x 500 metre coil – MC0715500

Typical Properties

Nominal Area per core (mm^2)	No. of Cores.	Conductor No/ Diam (mm) per Core	Amp rating (Amps)	Insulation Thickness (mm)	Sheath Thickness (mm)	Electrical Resistance @ 20°C ohms/1000m	Nominal OD (mm)	Weight (kg/100m)
0.5	3	7/0.30	4	0.3	0.6	38.4	4.60	3.20
	5	7/0.30	4	0.3	0.6	38.4	5.50	4.60
	7	7/0.30	4	0.3	0.6	38.4	6.10	6.00
	9	7/0.30	4	0.3	0.6	38.4	7.10	7.50
	13	7/0.30	4	0.3	0.7	38.4	8.50	10.70
1.0	2	7/0.43	10	0.4	0.6	21.2	5.50	3.90
	3	7/0.43	10	0.4	0.6	21.2	5.80	4.70
	5	7/0.43	10	0.4	0.6	21.2	7.20	7.30
	7	7/0.43	10	0.4	0.6	21.2	7.80	9.80
	9	7/0.43	10	0.4	0.7	21.2	9.20	12.30
	13	7/0.43	10	0.4	0.7	21.2	10.70	17.70
1.5	2	7/0.50	16	0.4	0.6	13.6	5.90	4.40
	3	7/0.50	16	0.4	0.6	13.6	6.20	6.40
	5	7/0.50	16	0.4	0.6	13.6	7.70	9.50
	7	7/0.50	16	0.4	0.7	13.6	8.60	12.70
	9	7/0.50	16	0.4	0.7	13.6	10.20	16.10
	13	7/0.50	16	0.4	0.7	13.6	11.60	22.80
2.5	2	7/0.67	23	0.4	0.6	7.41	7.10	6.80
	3	7/0.67	23	0.4	0.6	7.41	7.20	9.30
	5	7/0.67	23	0.4	0.7	7.41	9.20	14.70
	7	7/0.67	23	0.4	0.7	7.41	10.10	20.70
	9	7/0.67	23	0.4	0.7	7.41	12.90	26.00
	13	7/0.67	23	0.4	0.8	7.41	14.20	36.00

Core Colours

2 core	Black	Red											
3 core	Black	Red	White										
5 core	Black	Red	White	Blue	Green								
7 core	Black	Red	White	Blue	Green	Brown	Yellow						
9 core	Black	Red	White	Blue	Green	Brown	Yellow	Pink	Grey				
13 core	Black	Red	White	Blue	Green	Brown	Yellow	Pink	Grey	Violet	Beige	Lt Green	Orange

Twisted Decoder Communication Cable

Application

For use specifically in GDC and TDC control systems to connect decoders to the interface unit. Extra low voltage systems only (as defined by AS3000). Suitable for direct burial. Not suitable for connection to Mains Power.

Features

- Twisted conductors, to reduce interference.
- Heavy duty outer sheath to help retain the integrity of the cable.
- Two cores are colour coded to match the communication cable from the decoders and reduce the possibility of wiring errors.
- Available in 4 standard colours Red, Green, Yellow and Blue. Others made to order.
- Rip cord inside sheath to help installation.

Specifications	
Conductor	Tinned, solid core copper wire
No. of conductors	2
Insulation	V75 PVC to AS3808, 1.5 mm thick
Outer Sheath	Heavy duty, 4V75 PVC to AS3808, 1.2 mm thick
Colours	1 x Black and 1 x white insulation with Red, Green, Yellow, Blue outer sheath
Coil Length	500 metres
Size	2.5 mm^2 (two conductors)
Coil Weight/500 m	66 kg
Nominal Cross section	7.5 mm x 12.5 mm
Electrical resistance @ 20°C, ohms/1000 m	7.35

Decoder-Solenoid Cable

Application

For use specifically in GDC and TDC control systems to connect decoders to each solenoid. Colour coded to match decoder wiring and help avoid incorrect connection. Suitable for direct burial. Not suitable for connection to Mains Power.

Features

- Two products available; 4 core, 8 core.
- Use 4 core on 1 and 2 output decoders
- Use 8 core on 4 output decoders
- Colour coding helps to avoid incorrect solenoid wiring polarity. Always connect the Black striped wire to the Black wire of the latching coil.

Specifications	
Conductor	Tinned, solid core copper wire
Insulation	Coloured UV stabilised polypropylene
Outer Sheath	Red 4V75 PVC to AS3808
Colours: 4 core	Green, Green with Black stripe, Red and Red with Black stripe
Colours: 8 core	Green, Green with Black stripe, Red and Red with Black stripe, orange and Orange with Black stripe, Blue and Blue with Black stripe
Coil Length	500 metres
Size	1.5 mm^2 conductors
Coil Weight	40 kg (4 core) 75 kg (8 core)
Electrical resistance @ 20°C, ohms/1000m	13.6

Ordering Information	
Code	**Description**
MC0221500-T	Red Paige twisted decoder cable 2.1 mm^2 x 2 (1 black, 1 white), solid core x 500 m
MC0221500-TGRN	Green Paige twisted decoder cable 2.1 mm^2 x 2 (1 black, 1 white), solid core x 500 m
MC0221500-TYEL	Yellow Paige twisted decoder cable 2.1 mm^2 x 2 (1 black, 1 white), solid core x 500 m
MC0221500-TBLU	Blue Paige twisted decoder cable 2.1 mm^2 x 2 (1 black, 1 white), solid core x 500 m
MC0415500-D	4 x 1.5 mm^2 Solid, Paired, colour coded cable x 500 metre. Use with 1 & 2 output decoders
MC0815500-D	8 x 1.5 mm^2 Solid, Paired, colour coded cable x 500 metre. Use with 4 output decoders

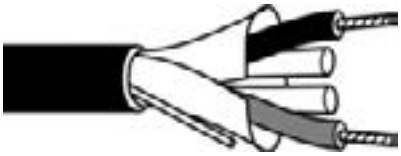
Grounding Cable – Bare Copper, Single Core

Application

For use in grounding controllers and decoder systems and providing extra lightning protection. Connection to copper rods and plates. Not for use in connecting to solenoids.

- Soft-Annealed, bare, solid, single core copper, 6AWG (13.2 mm^2).
- Coil length - 75 metre.
- Weight - 9.6 kg

Ordering Information	
Code	**Description**
6AWG075BCC	Single Core 13 mm^2 x 75 m coil, single core bare copper cable (no insulation)



Communication Cable – Double Screened

Application

For use in central control systems where the communication from the central PC to the field controllers is via hard wire. Also for use, in some circumstances, for connection of various sensors to field controllers.

Features

- The cable comprises two stranded, insulated conductors, and aluminium shield and drain wire to protect signals from electrical, magnetic or RF interference, and a sunlight resistant PE outer jacket. The wires are twisted with a 75 mm maximum lay.
- Suitable for below ground installation but not armour protected.

Specifications	
Insulation	Polyethylene to ICE S-61-402 and ASTM D-1248.
Insulation Colour	Black
Insulation thickness	0.41 mm (16 mils)
Shield	A 2 mil aluminium backed polyester shielding with a 1.37 mm^2 (#16 AWG) solid, tinned copper drain wire in contact with the aluminium
Sheath	Black heat stabilized, high density Polyethylene, sunlight and moisture resistant, conforming to ICEA S-61-402, NEMA WC-5 and ASTM D-1248.
Sheath Thickness	1.14 mm (45 mils)
Sheath OD	7.6 mm (0.3")
Conductors	Stranded soft annealed tin coated copper conforming to ASTM-B-3 and B-8.
Conductor Size	1.37 mm^2 (#16 AWG)
No. of Conductors	Two

Ordering Information	
Code	**Description**
MC0212500-COM	Paige Communication Cable. 1.2 mm^2 x 2 (1 yellow, 1 grey), Screened x 500 m
MC0408300-COM	Paige Communication Cable. 0.82 mm^2, 18G, Screened x 300 m
MC0408750-COM	Paige Communication Cable. 0.82 mm^2, 18G, Screened x 750 m
MC04081200-COM	Paige Communication Cable. 0.82 mm^2, 18G, Screened x 1200 m

Scotchlok® Gel-filled 314, 316IR 2/3 Wire Connector

- Moisture resistant wire connector for two or three copper wire connections. Suitable for 0.5-1.5 mm^2 cables. Maximum insulation OD is 3.8 mm.
- No need to strip the insulation back. Push the cable all the way to the stop. With all cables inserted, squeeze the cap with a pair of pliers. Check the gel oozes out of the connector slots.
- Test to ensure cables are firmly held within the connector.
- 314 0.5 – 1.0 mm^2, 316IR 0.5 – 1.5 mm^2.
- Not suitable for decoder systems.

1012589 | 1012589P

Twist Lock Gel-filled Wire Connector

- Silicone filled, moisture resistant connector for copper wire connections. Suitable for joining from 2 x 1 mm^2 up to 2 x 2.5 mm^2.
- Strip insulation back 20mm, group bare wire end together. Insert wires through flexible sealing fingers. Pre-twisting is unnecessary unless using stranded cable. (Wrap stranded wire around solid wires). Bend wires over completely into one V-channel. Squeeze inner sleeve into pre-filled outer sleeve until locked.

1012590

Gel-filled Wire Connector

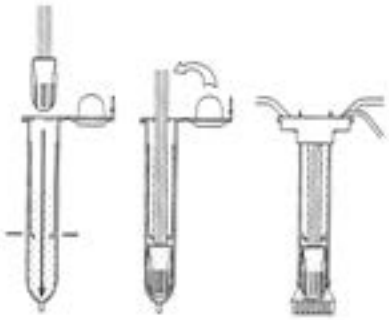
- Moisture resistant wire connector for two or three copper wire connections. Suitable for 0.5 mm^2 cables (19-26 AWG). Maximum insulation OD is 2 mm for the two outside slots and 1.9 mm for the centre slot.
- No need to strip the insulation back. Push the cable all the way to the stop. With all cables inserted, squeeze the cap with a pair of pliers. Check the gel oozes out of the connector slots.
- Test to ensure cables are firmly held within the connector.

PA-270317 / PA-270317C / PA-270228R

Ordering Information	
Code	**Description**
1012589	Gel-filled Wire connector for 0.5 mm^2 cable 100 pcs per bag
1012589P	Gel-filled Wire connector for 0.5 mm^2 cable 25 pcs per bag
1012590	Twist Lock Gel filled Connector – 1.5 mm^2 – 2.5 mm^2 cable
PA-270317	3M 314 2/3 0.5 – 1.0 mm^2 Cable Connector
PA-270228R	3M 316IR 2/3 0.5 – 1.5 mm^2 Cable Connector

3M Direct Bury Splice Kits

3M DBR/Y and DBO/B Direct Bury Splice Kits are real time savers when installing underground electrical systems. Every component for the splice is included in the kit. The insulator tube is pre-filled tube is prefilled with a moisture resistant gel. No crimping tool, no waste, no mess. Just quick, reliable underground splices for irrigation and sprinkler systems, landscape lighting.



Features

- Sealant does not set up hard, allowing splice to be reworked without cutting wires (new tube required).
- Application temperature range: 32° - 120°F (0° - 49°C).
- Storage Temperature: 120°F (49°C) maximum.
- U.V. resistant
- DBY-6 and DBR-6 introduced for use in Toro GDC and GAC decoder systems.

Ordering Information	
Code	**Description**
DBR/Y	3M Waterproof Connector. 600VA rated. ROHS compliant. Suitable for 2.1mm² decoder cable.
DBO/B	3M Waterproof Connector. 600VA rated. ROHS compliant. Suitable for 1.5mm² cable joins or smaller.

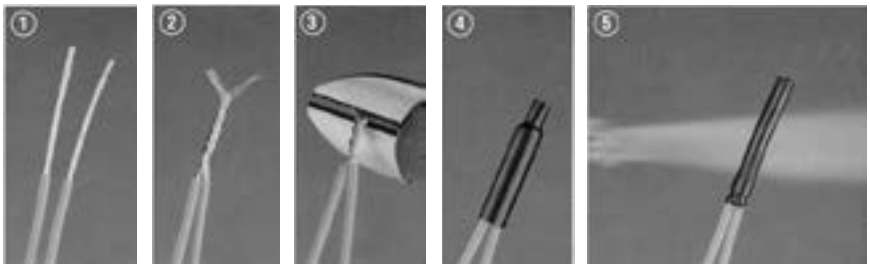
DBR/Y

DBO/B

Heat Shrink Wire Connector

A heat shrinkable cap for simple, fast sealing of multiple wire connection without the need for soldering.

- Strip wires to 25 mm, twist bare wires together. Trim to 12 mm. Put on cap and apply heat until cap achieves uniform length and the mastic sealant is visible at the end.



Cap Type	No. of Cables	Cable Diam mm²
Cap 48	2	0.5 - 1.0
	3	0.5
Cap 64	2	2.5
	3	1.0 - 1.5
Cap 95	2	4.0 - 6.0
	3	2.5 - 4.0
Cap 125	6	4.0
	4	6.0

3M Scotch 35 Vinyl Electrical Tape Rainbow Pack

A premium grade electrical tape that stretches to conform to virtually any shape that requires colour coded insulation.

Abrasion and weather resistant, with excellent mechanical and electrical insulation properties that wraps smoothly and holds tight over a wide range of temperatures.

Tape Thickness: 0.17 mm (7 mil)

UV Resistance: Exceeds UL510 requirements

Temperature Rating: 105°C (220°F)

Size: 19 mm x 20 m roll

Rainbow Pack consists of 10 assorted vinyl electrical tape rolls, containing black, red, blue, white and green/yellow.

Approx. Length (mm)	102	144	190	286
Approx. Width (mm)	2.5	3.6	4.5	4.6
Approx. Max. Bundle Dia. (mm)	20	36	48	79
Thickness (mm)	1.1	1.2	1.4	1.4
Tensile Strength (kg)	8	18	22	22

Ordering Information	
Code	**Description**
1011610	3M Pack of 10 assorted PVC electrical tape

Copper grounding plates with welded insulation cover

- Required for supplementary grounding of any irrigation controller, weather station or interface forms a low inductance path to ground.
- Ground plates to be installed to a minimum depth of 76cm or below the frost line if it is lower than 76cm.
- Product Code:
  182199L – Grounding Plate with Exothermically Welded 100 mm x 2.44 m and 7.6 m of 17 mm2 Bare Copper Wire.

182199L

Copper Grounding rods

- Used as a standalone or combined with a ground plate to form a ground grid for supplementary grounding of any irrigation controller, weather station or interface.
- Full length must be installed completely into the earth.
- Product Codes:
  182000IC6 – Copper Grounding Rod 16 mm x 2.4 m with Exothermically Welded 4.57 m of 6 AWG Insulated Green Wire
  182000 – Copper Grounding Rod 16 mm x 2.4 m
  182005 – Grounding Clamp (182000)

182000IC6

182000

Decoder Cable Switches with lighting protection

Decoder Cable Switches are specifically designed as electrical isolation devices to help with troubleshooting of damaged or non-functioning 2-Wire irrigation systems. Single or multiple sections of the electrical circuit can be disconnected or isolated by simply removing a fuse, without cutting wires or undoing splices/ joints.

Ordering Information	
Code	**Description**
270DCFD1L	Single Decoder Cable Switching Device w/ Lightning Protection
270DCFDL	Two-way Decoder Cable Switching Device w/ Lightning Protection
270DCFD3L	Three-way (1 input & 3 output cables) w/ Lightning Protection

Decoder Cable Fuse Device (DCFD)

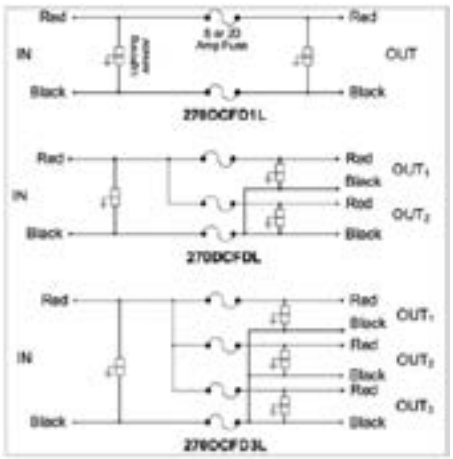
Application

Specifically designed as electrical isolation device for quick troubleshooting of damaged or non-functioning 2-Wire irrigation systems. Single or multiple sections of the electrical circuit can be disconnected or isolated by simply removing a fuse, without cutting wires or undoing splices/joints.

Features

- The isolation of circuit sections minimises electronic component failure
- Cap is unscrewed to access the fuses, the O-Ring Seal provides a waterproof capsule.
- Lighting protection models incorporate lightning arresters on the input and outputs wires.
- All wires are 0.91 m 14 AWG UF/TWU for direct burial and to allow the assembly to be brought above grade when troubleshooting and accessing the fuses.
- Standard 20-amp Mini Automotive fuses act as circuit switches when inserted (closed/on) or removed (open/off)
- Provides lightning protection when the electrical surges exceed 20-amp.
- For more sensitive circuit during a lightning strike, 5-amp fuses are included on the lightning protection models.

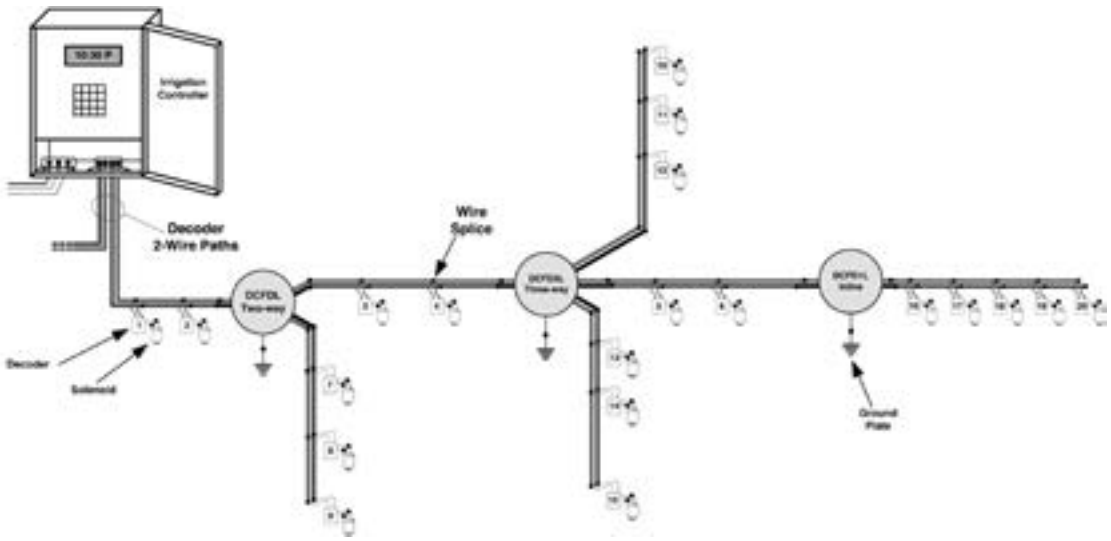
Ordering Information	
Code	**Description**
270DCFD1L	Single Decoder Cable Switching Device w/ Lightning Protection
270DCFDL	Two-way Decoder Cable Switching Device w/ Lightning Protection
270DCFD3L	Three-way (1 input & 3 output cables) w/ Lightning Protection



Decoder Cable Fuse Device Installation

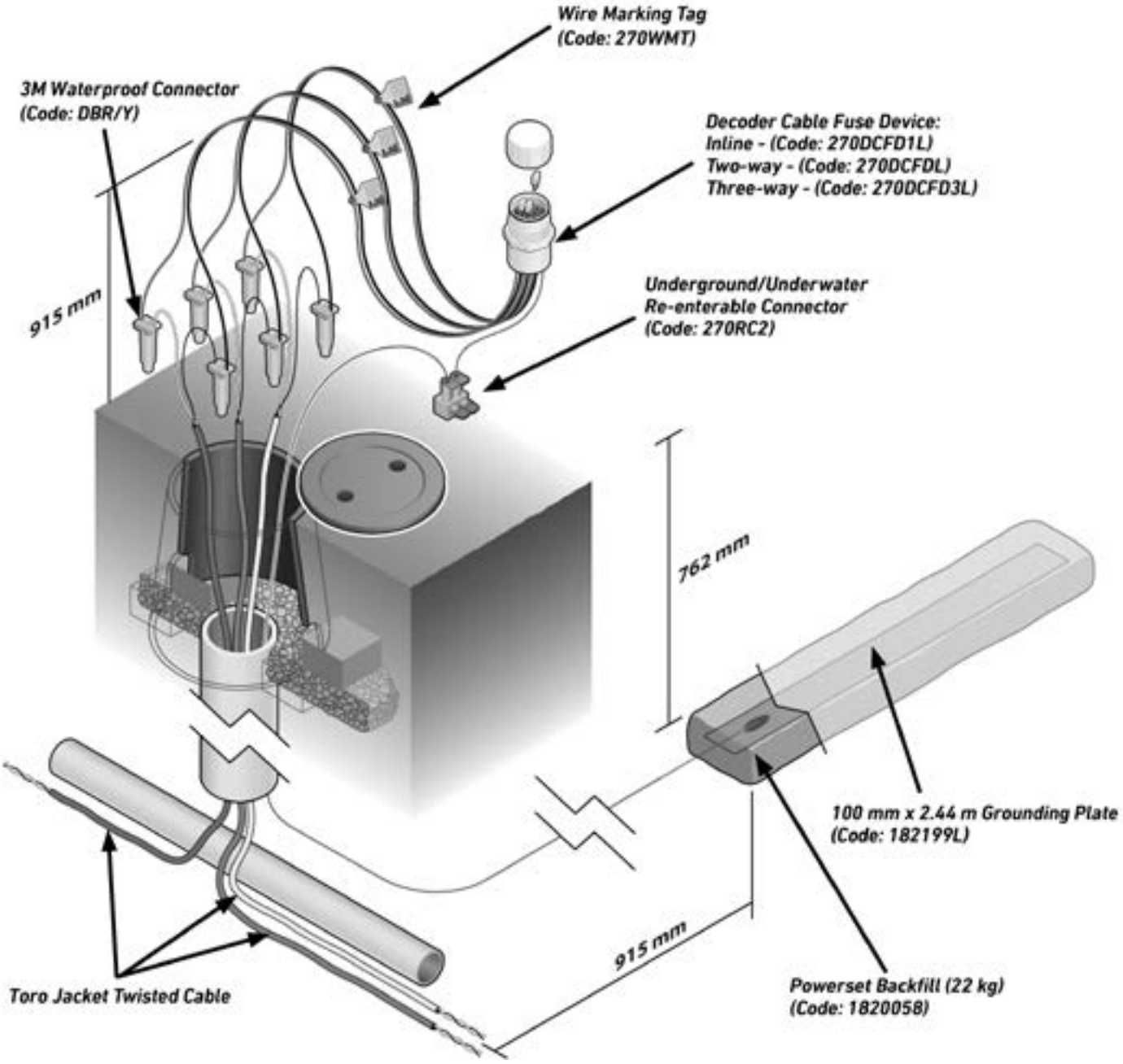
Decoder Cable Fuse Devices should be strategically installed at the points where cables split in different directions and in long straight wire sections to isolate it in half for troubleshooting.

The typical Installation below shows locations where you would undo the splices when troubleshooting. The electrical circuit should be looked at as if it was a hydraulic system and the DCFDs are isolation valves.



Decoder Cable Fuse Device Installation (cont.)

The DCFD must be installed inside an accessible irrigation valve box and the wire connections must be made using the connectors as illustrated in the drawing below.



TMR-1 Maintenance Remote

750 m Range

Designed for convenience and usability, the Toro® TMR-1 is a maintenance remote system that allows a single operator to perform irrigation checks and operate a system from up to 750 m away. A large, easy-to-read LCD, push button interface and intuitive command set make the TMR-1 easy to use and operate.

TMR-1 KIT-A

Transmitter

Receiver

Features

- Operates on unlicensed frequency
- Up to 750 metre line-of-sight range without the need for ACMA licensing.
- Toro Exclusive All Stations Cycle (ASC) Function
- Provides one-start system operation for walk-throughs, maximizing productivity – 2 minute runtimes per station.
- Quick-Connect System (For Toro Controllers)
- Allows receiver to easily be moved from one controller to another; circular connector can be bracket-mounted or mounted using 12.7mm (½") conduit.
- Multi-Controller/Multi-Site Capability Programmable address allowing selection of up to 999 different remote receivers at controllers.
- Two year warranty

Additional Features

- Intuitive, easy-to-use keypad
- Large, easy-to-read LCD display
- Remotely controls up to 500 stations
- Battery life indicator
- Circular connector comes standard with 1.2 metre cable
- Simple, intuitive command set
- Default run time is 10 minutes
- Display shows countdown of time left to run
- Ergonomic design and removable belt clip make for easy handling

Specifications

- Receiver size: 255 mm x 76 mm (with antenna)
- Transmitter size: 255 mm x 76 mm (with antenna)

Electrical Specifications

- Receiver input voltage: 22-26 VAC input
- Transmitter DC Operating voltage: 6-8V DC (4 AA Standard or NiMH rechargeable batteries)
- User may use NiMH rechargeable batteries or standard AA alkaline cells
- Battery charger: Dual rate 12-hour charger
- Receiver operates off of the 24 VAC power from the controller
- TUV-GS, CE compliant

Operating Specifications

- Frequency: 430-450 MHz
- Operating temperature range: -10° to 60° C
- Up to 750m line-of-sight range

Ordering Information

Code	Description
TMR-1-KIT-A	Toro Maintenance Remote Complete Kit
TMR-1-CC	Cable connect for Toro Maintenance Remote Receiver
CMR-ADP	Adaptor for use TMR-1 with MC-E, KwikDial and RainDial

Application

A reliable wired rain sensor system suitable for use with most irrigation controllers to help conserve water by sensing rain events.

Features

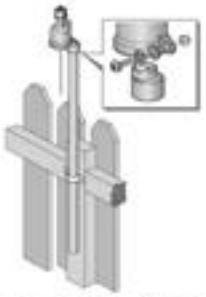
- Compatible with all Toro and other Manufacturers controllers.
  Universal Normally Open and Normally Closed operation for compatibility with all controllers that are designed to accept a sensor device.
- Maintenance Free Hygroscopic Discs
  Industry standard sensing discs with adjustable rain shut-off indexes at 3.2, 6.3, 12.7 and 19 mm.
- 7.6 Metres of UV Resistant Cable
  Includes 7.6 metres of white outdoor rated, UV resistant cable.
- Three Mounting Options
  (See schematic below)

Specification

- Dimensions
  Transmitter: 44 mm W x 89 mm H x 49 mm D.
- Weight (product and carton): 0.36 kg
- Relay contacts output, normally open or normally closed: 3A, 24VAC
- Operating temperature: -29° C to 49° C
- Low profile design and UV resistant housing for sensor.
- No special tools for installation.
- Warranty: 2 years

Quick Clip gutter bracket

Wall mount



Conduit adapter

Ordering Information	
Code	**Description**
TRS	Toro Wired RainSensor

Application

A reliable wireless rain sensor system suitable for use with most irrigation controllers to help conserve water by sensing rain events. The patent pending Water Conservation Mode™ helps to save even more water by extending the controller reset beyond where conventional rain sensors reset.

Features

- Normally Open or Normally Closed
  Either sensor can be set for either normally open or normally closed making them compatible with almost all electronic timers.
- Selectable Water Management Modes
  Delay resumption of irrigation by intelligently extending beyond the mechanical reset time and save water.
- Smart Bypass ™
  Allows the sensor to be overridden and resets automatically. Handy for irrigating special need zones.
- LCD Display
  Provides informative system feedback including outside temperature, transmitter signal strength and battery life.
- Rain/Freeze Combination
  Features digital programmable accuracy. The freeze shut-off can be set from 2°C to 7°C. (Note, the Freeze sensor should not be used to control frost control systems.)
- Wireless Sensor
  Ease of installation and suits retro-fits.

Dimensions

- Transmitter
  44 mm W x 89 mm H x 44 mm D
- Receiver
  50 mm W x 102 mm H x 44 mm D
- Weight (product and carton) 0.35 kg

Specifications

- Operating temperature
  -29° C to 49° C.
- Housing material
  Weather and UV resistant engineered polymer
- Transmitting range
  Up to 150m (line of sight) with adjustable antenna
- Sensor
  Maintenance free hygroscopic discs; adjustable rain sensitivity (3.2 mm to 19 mm)
- Low battery Indicator
- Signal Strength indicator/scale
- Rain delay
  Feature that works intelligently with the rain sensor.
- Fail safe Mode
  For loss of communication or failed sensor events.
- Real time outside temperature displayed on the LCD (TWRFS only)
- Easy to replace, standard coin batteries (5 year lifetime)
- Versatile mounting bracket
  One piece Quick-Clip™ gutter bracket or 15mm (1/2") conduit adaptor.
- Can control multiple receivers/ controllers with one sensor transmitter.
- Warranty: 5 years

Electrical Specifications

- Transmitter Power:
  2 replaceable lithium cells (CR2032-3V)
- Receiver Power Source:
  22-28 VAC/VDC, 100 mA (from existing timer or optional transformer)
- Relay Contacts Output:
  Normally open or normally closed; 3 A at 24VAC
- FCC, IC, AVA, CUL, CE and C-tick approved

Ordering Information

Code	Description
TWRS-I	Toro Wireless Rainsensor
TWRFS-I	Toro Wireless Rain/Freeze Sensor

No guesswork for ease of use

- Simple programming
- Signal strength indicator
- Battery life indicator
- Temperature Indication (Rain/ Freeze model)

Water Conservation Modes

Selectable water conservation modes delay resumption of irrigation by intelligently extending beyond mechanical reset time and can save you up to 30%* more water.

** Savings vary based on sensor setting, watering schedule and other conditions.*

Application

Two water conservation devices that can operate with almost all controllers. The sensor senses a rain event and prevents programmed irrigation from happening. Suitable for use in residential and commercial systems.

Key Benefits of Wireless Sensor

- Wireless models – saves labour, suits retro-fit projects
- Constant communication – assures that even after a controller power outage, the controller is continually updated with the sensor's status
- Signal Strength Indicator – Aids installation and troubleshooting
- Smart Bypass – Allows deactivation of the sensor temporarily – handy for watering special needs zones.
- Dry out Rate Adjustment – increases water saving ability by setting the ideal dry out time

Features

RS1000-I

- Enhanced communication and signal link integrity features.
- Fully adjustable shutoff points from 1/8" to 3/4" (3-19 mm) of accumulated rainfall.
- Compatible with nearly all controllers.
- 91m transmission range offers virtually limitless installation options.
- Easy, versatile one-piece mounting requires no special tools.
- Quick-Clip™ gutter bracket included.
- Visual sensor status and alert indicators verify consistent operation.
- Signal strength indicator ensures correct installation, communication link and signal integrity.
- Smart Bypass™ for easy system override—sensor switches back automatically on next activation.
- Slide/snap-on cover protects receiver from the elements.
- Five-year battery life (typical). Wireless.
- Three-year warranty.

RS500

- Fully adjustable shutoff points from 1/8" to 3/4" (3-19 mm) accumulated rainfall.
- Compatible with virtually any AC powered controllers.
- 7.6 m (25') cable (white, UV resistant,UL-rated) provides installation flexibility.
- Five-year warranty.

Operating Specifications

- Sensor type: industry-standard hygroscopic discs.
- Rain sensitivity: adjustable nominal 1/8" to 3/4" (3–19 mm).
- Operating temperature: -29°C to 49°C.
- Housing material: UV resistant engineered polymer.

Wireless only:

- Transmission range: Up to 91m line of sight
- Battery: Two CR2032 3 V cells, 5-year life (typical).

Electrical Specifications

- Receiver power: 24VAC/VDC, 100mA.
- Load rating: normally open or normally closed, 3A @ 24 VAC
- UL Listed.

Dimensions

- Sensor:
  38 mm H x 44 mm W x 95 mm D
- Receiver:
  38 mm H x 25 mm W x 76 mm D

Smart Approved WaterMark

RS500

RS1000-I

Ordering Information	
Code	**Description**
RS500	Wired RainSensor
RS1000-I	Wireless RainSensor and receiver

Irritrol Pump Start Relay

Application

A low power pump start relay or Landscape lighting relay. With a lockable, vandal and weather-resistant case, the Irritrol® SR-1 can be mounted indoors or outdoors to provide reliable switching control for pumps or other electrical devices from the controller.

Features

- Electrical relays for both low voltage (24V AC) control switching and high voltage (240V AC) main power contacts
- Allows remote pump switching using 24V AC output from an irrigation controller's master valve/pump start circuit
- Opens and closes main power contacts for pumps (1.5kW at 240V AC 1 Phase)
- Highly efficient 0.1 Amp operating requirement
  Draws less holding power than most solenoid valves.
- Enclosed, weather-resistant case – indoor or outdoor mount

Electrical Specifications

- Contacts: Up to 1.5kW at 240V AC, 1 Phase (20A at 240V AC)
- Coil: 24V AC, 3VA (19V AC Min, 30V AC Max)
- Coil Draw: 0.1Amp

Dimensions

- 241 mm H x 159 mm W x 95 mm D

Ordering Information	
Code	**Description**
SR-1	Richdel Pump start relay, 1.5kW, 240V AC single phase

Profile Plug-In Transformer

- Heavy duty black plastic case
- Will operate up to two solenoid valves simultaneously
- For indoor use or within water-proof enclosure only
- Direct plug-in to standard three pin 240VAC outlet
- IP20 Rating
- Input: 240VAC, 50Hz
- Output: 24VAC, 50Hz, 900mA. Max 22VA
- Casing Dimensions: 56 mm wide, 58 mm high, 84 mm long (excludes two pins)
- 1.8 metre long lead

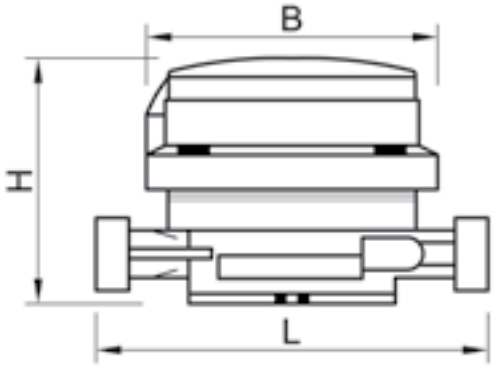
Ordering Information	
Code	**Description**
101PIT	Plug-In Transformer

Application

For use in agricultural, commercial turf and landscaping irrigation systems where water usage totals are required.

A factory fitted pulse output enables the water meter to be connected to a suitable irrigation controller to monitor flow rates and the controller to create flow alarms for valve and mainline failure.

Not suitable for Water Authority metering.



Features

- Conform to OIML R49 Class 2
- Cyclometer is hermetically sealed and can be rotated through 360
- The body is made of high quality brass with anti-corrosion baked powder external surface treatment
- Minimal moving parts – less maintenance
- Maximum working temperature: 30°C
- Factory supplied pulse output as standard
  1 pulse = 10 Litres
- Supplied with couplings, washers and internal filter
- 12 Month Replacement Warranty

Ordering Information	
Code	**Description**
WMSJ-015-P10	15 mm Single jet meter, 10L/pulse, MBSP
WMSJ-020-P10	20 mm Single jet meter, 10L/pulse, MBSP
WMSJ-025-P10	25 mm Single jet meter, 10L/pulse, MBSP
WMMJ-032-P10	32 mm Multi jet meter, 10L/pulse, MBSP
WMMJ-040-P10	40 mm Multi jet meter, 10L/pulse, MBSP

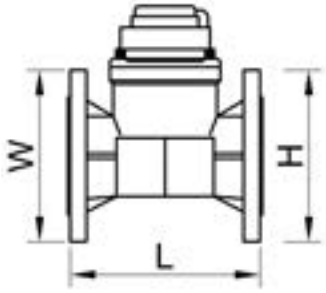
Specifications					
SIZE (mm)	**15**	**20**	**25**	**32**	**40**
Operation	Single jet Inferential	Single jet Inferential	Single jet Inferential	Multi jet Inferential	Multi jet Inferential
Overload Flow m3/h (Q max)	3	5	7	12	20
Permanent Flow m3/h (Qn)	1.5	2.5	3.5	6	10
Transitional Flow l/h +/-2% (Qt)	120	200	280	480	800
Minimum Flow l/h +/-5% (Q min)	30	50	70	120	200
Minimum Reading (l)	0.001	0.001	0.001	0.05	0.05
Maximum Reading (m3)	99999.9999	99999.9999	99999.9999	99999.9999	99999.9999
Maximum Operating Pressure (MPa)	1.6	1.6	1.6	1.6	1.6
Litres / Pulse	10	10	10	10	10
Length (L) (mm)	110	130	160	260	300
Width (B) (mm)	81	81	81	94	138
Height (H) (mm)	86	86	86	126	170
Maximum Working Temperature (°C)	30	30	30	30	30

Application

For use in agricultural, commercial turf and landscaping irrigation systems where total water usage is required.

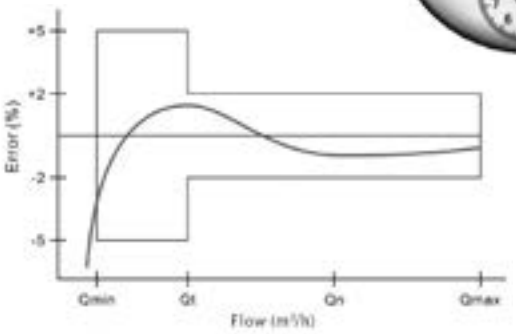
A factory fitted pulse output enables the water meter to be connected to a suitable irrigation controller to monitor flow rates and the controller to create flow alarms for valve and mainline failure.

Not suitable for Water Authority metering.



Features

- Conforms to OIML R49 Class 2
- Hermetically sealed dial. Can be rotated through 360 degrees.
- Body is constructed from cast iron and is baked powder coated internally and externally
- Single jet inferential operation
- Maximum working temperature: 30°C
- Factory supplied pulsed output standard
- Table D flanges to AS2129
- 12 Month Replacement Warranty



Ordering Information

Code	Description
WMSJ-050-P100	50 mm Single jet meter, 100L/pulse, paddle style, Table D flange
WMSJ-080-P100	80 mm Single jet meter, 100L/pulse, paddle style, Table D flange
WMSJ-100-P100	100 mm Single jet meter, 100L/pulse, paddle style, Table D flange
WMSJ-150-P1000	150 mm Single jet meter, 1,000L/pulse, paddle style, Table D flange
WMSJ-200-P1000	200 mm Single jet meter, 1,000L/pulse, paddle style, Table D flange
WMSJ-250-P10000	250 mm Single jet meter, 10,000L/pulse, paddle style, Table D flange
WMSJ-300-P10000	300mm Single jet meter, 10,000L/pulse, paddle styl e, Table D flange

Specifications

Description	Units	Technical Data						
Normal Size	mm	50	80	100	150	200	250	300
Maximum flow (Q4)	m³/hr	30	80	120	300	500	800	1200
Continuous flow (Q3) *	m³/hr	15	40	60	150	250	400	600
Transitional flow (Q2)	m³/hr	4.5	12	18	45	75	120	180
Minimum flow (Q1)	m³/hr	2.8	5	7	10	18	20	28
Minimum reading	l	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maximum reading	m³	9999999.99	9999999.99	9999999.99	9999999.99	9999999.99	9999999.99	9999999.99
Working pressure	Mpa	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Pressure loss at (Q max)	Mpa	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1	≤ 0.1
Length (L)	mm	200	225	250	300	350	400	450
Weight (W)	mm	165	200	220	285	340	395	445
Height (H)	mm	267	295	306	351	393	441	491
Temperature Cold	°C	30°C	30°C	30°C	30°C	30°C	30°C	30°C

Application

For use with Toro TMC-424, Sentinel®, Irritrol MC-E and other compatible controllers where you need to monitor the system for flow. The Toro TFS series flow sensor is a cost effective water saving tool. The potted electronics are designed for valve box or buried installation, making them suitable for most residential, commercial and municipal irrigation application.

Features

- Simple impeller-based design
- Potted electronics designed for valve box or underground applications
- Sensor pre-installed in tee
- Removable sensor design for easy replacement without removal of tee
- Socket end tee
- Compatible with TMC-424, Sentinel® and Irritrol MC-E
- Compatible with Competitors controllers that require frequency output flow sensors (pulses per second proportional to flow velocity.
- Colour coded leads to reduce chance of incorrect connection at the controller. Red wire (+) and Black wire (-).
- Two year warranty

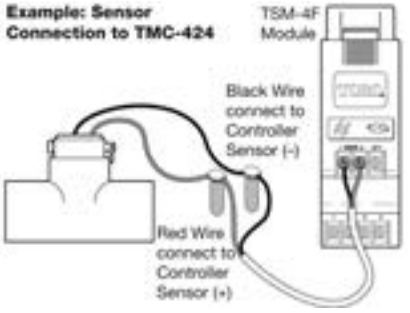
Specifications

- Output: 2-wire, unscaled pulse – pulse width 5 msec +/- 25%
- Frequency: 3.2 to 200 Hz
- Pressure Rating:
  - 15,20,25 mm - up to 1034 kPa
  - 40,50,80,100 mm – up to 690 kPa
- Temperature Rating: Up to 60°C
- Flow Range (Velocity):
  - 15,20,25 mm – 0.6-6 metres per second
  - 40,50,80,100 mm – 0.15–9 metres per second
- Accuracy:
  - 15,20,25 mm – +/- 3 to 5%
  - 40,50,80,100 mm – +/- 1%
- Linearity/repeatability:
  - 15,20,25 mm – ± 1.5%
  - 40,50,80,100 mm – ± 0.3%
- Slip x Slip Tee: Suits AS1477 PVC Pipe
  - 15,20,25 mm – Schedule 40 PVC
  - 40,50,80,100 m – Schedule 80 PVC
- Sensor Housing: Potted, PPS
- Impeller:

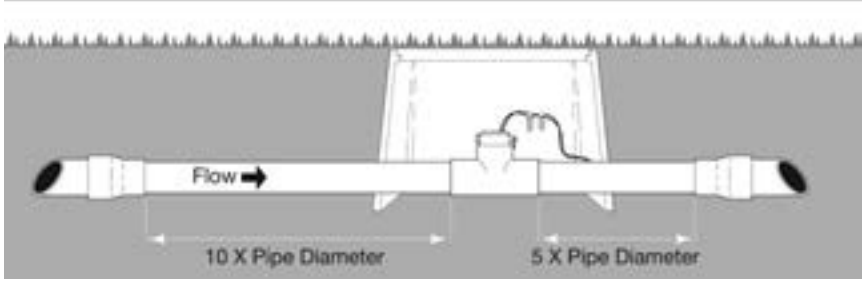
  - 15,20,25 mm – 300SST
  - 40,50,80,100 mm – Glass-filled nylon
- Shaft: Tungsten Carbide
- Bearing: UHMWPE
- Wires: 0.82 mm² (18AWG) direct burial irrigation wire (solid copper)

Installation

- Choose a location along the pipe where 10 pipe diameters upstream and 5 pipe diameters downstream of the sensor provide no flow disturbance, ie. pipework with no fittings or bends.



Model	Description	Suggested Flow Range (Lpm)
TFS-050	15 mm Flow Sensor	6 – 38
TFS-075	20 mm Flow Sensor	11 – 75
TFS-100	25 mm Flow Sensor	19 – 114
TFS-150	40 mm Flow Sensor	18 – 380
TFS-200	50 mm Flow Sensor	38 – 750
TFS-300	80 mm Flow Sensor	75 – 1135
TFS-400	100 mm Flow Sensor	150 - 1895



Controller Compatibility

- Toro TMC-424
- Toro Site-Pro®
- Toro Sentinel ™
- Irritrol MC-E
- Hunter® ACC
- WeatherTRAK® ET Pro™
- Calsense®
- Rain Bird Maxicom, MDC and Site Control

In-field Wiring

- Use shielded twisted pair cable suitable for direct burial. Use Toro Communication cable (code 591-008/HC). Maximum distance from sensor to controller is 600 metres.
- When connecting to a Toro controller, connect the red wire to "IN", "SIGNAL" or "(+)" terminal and the black wire to "GND", "SIGNAL", "(–)" or "COM" terminal.
- Ensure connections are made and kept waterproof. Use 3M DBY wire connectors.
- To avoid signal corruption, do not install wiring alongside high voltage cables.

Recommended Operating Ranges for the TMC424 with TFS

Learned Flow PPS	Equivalent Flow (Litres per minute)						
	15mm	20mm	25mm	40mm	50mm	80mm	100mm
	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm
5	2	4	6	30	56	165	273
10	3	7	11	63	110	322	56
15	5	9	16	95	163	480	794
20	6	13	21	127	217	637	1054
25	8	16	26	159	271	795	1315
30	9	19	31	191	325	952	1575
35	11	22	36	224	379	1110	1835
40	12	24	41	256	433	1267	2096
45	14	27	46	288	487	1424	2356
50	15	30	51	320	540	1582	2617
55	17	33	56	352	594	1739	2877
60	18	36	61	385	648	1897	3138
65	20	39	66	417	702	2054	3398
70	21	42	70	449	756	2212	3658
75	23	45	75	481	810	2369	3919
80	24	48	81	513	864	2527	4179
85	26	51	86	545	918	2684	4440
90	27	54	91	578	971	2841	4700
95	28	57	96	610	1025	2999	4961
100	30	60	100	642	1079	3156	5221
105	31	63	105	674	1133	3314	5481
110	33	66	110	706	1187	3471	5742
115	34	69	115	739	1241	3629	6002
120	36	72	120	771	1295	3786	6263
125	38	75	125	803	1348	3944	6523

Do not operate in this region

Marginal

Calibration Table

Model Ordering Code	Size mm -inch	K Value	Offset
TFS-050	15 - 1/2"	0.2953	0.9
TSS-075	20 - 3/4"	0.59166	0.9
TFS-100	25 - 1"	0.9884	1.2
TFS-150	40 – 1 ½"	6.4314	-0.316
TFS-200	50 – 2"	10.7615	0.1435
TFS-300	80 – 3"	31.4530	0.227
TFS-400	100 – 4"	52.0221	0.23707

Ordering Information

Code	Description
TFS-050	15 mm Flow Sensor
TFS-075	20 mm Flow Sensor
TFS-100	25 mm Flow Sensor
TFS-150	40 mm Flow Sensor
TFS-200	50 mm Flow Sensor
TFS-300	80 mm Flow Sensor
TFS-400	100 mm Flow Sensor

Electric-Hydraulic Converters

Toro® Electric-Hydraulic Converters (EHC) provide the ability to bring together electrical outputs from sophisticated electric controllers and the pressure-based signals in hydraulic irrigation systems. EHC is ideal for retrofitting hydraulic systems, enabling Normally-Open (NO) or Normally-Closed (NC) hydraulic valves to be operated with a 24 VAC output irrigation system controller. For new installations, hydraulic control valves are ideal for applications in areas with increased lightning risk. What's more, you can add as many converters as you need – expansion is unlimited.

Features

- Supplied pre-plumbed with in-line filter on inlet supply line, pre-assembled on sturdy plastic mounting plate.
- Direct manual control activates any sprinkler from the converter
- Any single converter unit can be replaced easily without affecting other converters
- Easily added to for system expansion

Specifications

- Pressure: 280-1034 kPa
- Wiring: 0.82 mm^2 x 1.2 metre wire leads
  - Maximum distance from converter to valve: 1/4" OD – 300 metres
- Normally open: Valve elevation should not exceed 7.6 metres above, 21 metres below controller elevation
- Normally closed: Valve elevation should not exceed 0 metres above or 21 metres below controller elevation
- Suits Toro hydraulic tube ¼" x 1/8"

Electrical Specifications

- Input power:
  – 24VAC, 50 Hz
  – Holding – 0.30 amps
  – Inrush – 0.37 amps

Warranty

- Two years

Dimensions

- 4 station: 224 mm W x 115 mm H x 64 mm D
- 12 station: 224 mm W x 318 mm H x 64 mm D
- 16 station: 224 mm W x 420 mm H x 64 mm D

Ordering Information

Code	Description
EHC-01-01	1 station, normally open
EHC-01-04	4 station, normally open
EHC-01-12	12 station, normally open
EHC-01-16	16 station, normally open
EHC-08-04	4 station, normally closed
EHC-08-12	12 station, normally closed
EHC-08-16	16 station, normally closed

Application

Used to inject fertilisers, chemicals and water treatment additives through your irrigation system.

Features

- Extremely efficient and compact venturi design with no moving parts for minimised maintenance operation.
- Available in a wide range of sizes for varying flow rates and injection capacities.
- Powered by motive fluid so no external energy is required for most installations.
- Moulded from a chemically coupled polypropylene with 40% glass fill, with internal mixing vanes. Model 4091 constructed from PVDF (Kynar).

Benefits

- Substantial fertiliser savings can be made through irrigation application.
- Can also be used for injecting system cleaning chemicals through micro irrigation systems.
- Selection of flow meters, metering valves and foot strainers.
- Can be used to inject air into the system for aeration/oxidation purposes.

Injector Accessories

- **Flow Meters**
  Four variable area flow meters available:
  0.4-4 L/m, 0.8-8 L/m
  1.8-18 L/m, 5-38 L/m
  Pressure Rating:
  1000 kPa at 20˚C
  Polysulfone bodies and adaptors.
  Stainless Steel Grade 316 internal parts.
  Inlet/outlet size: 15 mm male NPT.
- **Tube Fittings - Tails**
  High density polyethylene.
  Two sizes, 15 mm male NPT x 6 mm barb, and 15 mm male NPT x 8 mm barb.
- **Strainers**
  Tube end polypropylene strainer.
  500 micron screen.

Flow Meters

Strainers

Tails

Standard Equipment Required

Model 584 (20 mm)
Suction inlet, built-in check valve
with Viton™ seat, PTFE ball, and Hastelloy-C™ spring. Suction inlet has 1/4" NPT thread and 6 mm hose tail. Use with 6 mm Clear Vinyl Tubing. Use 1014831 Flow Meter, 1014843 Metering Valve and 1014848 Strainer if required.

Model 1078 (25 mm)
Suction inlet includes check valve with Viton™ seat, PTFE ball and Hastelloy-C™ spring. Suction inlet has 15 mm NPT thread and 8 mm hose tail. Use with 8 mm Clear Vinyl Tubing. Use 1014831 or 1014832 Flow Meter, 1014842 Metering Valve and 1014844 Strainer or 1014841 Strainer assembly if required.

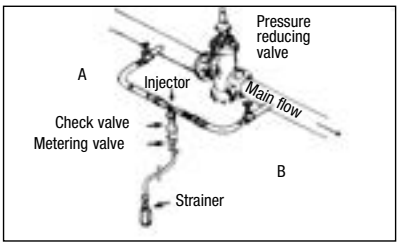
Model 1583-A (40 mm)
Suction inlet includes check valve with Viton™ seat, PTFE ball, and Hastelloy-C™ spring. Suction inlet has 15 mm NPT thread and 12.5 mm hose tail. Use with 12.5 mm Clear Vinyl Tubing. Use with 1014833 Flow Meter, 1014842 Metering Valve and 1014845 Strainer if required.

Model 2081-A (50 mm)
Suction inlet, 32 mm MBSP thread. Check Valve is not included with this model. Use with Check Valve, code 1012872 and Foot Valve code 1012871, and 25 mm Clear Vinyl Tubing.

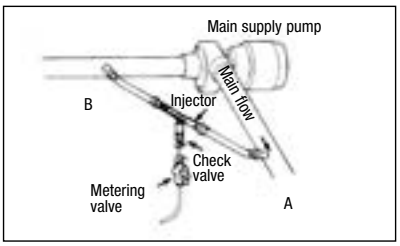
Ordering Information

Code	Description
1014855	Model 584 Mazzei Injector complete with 1.5m suction tube, metering valve, strainer and foot valve
1014821	20 mm Male BSP Model 584 Mazzei Injector (95 L/h Injector)
1014831	20 mm Flow Meter (0.4 - 4 L/m)
1014843	Metering Valve MV- 6 mm ID Tubing
1014846	Tail, 15 mm Thread x 6 mm Barb
1014848	6 mm Barbed Model S-84 Foot Strainer
1014856	Model 1078 Mazzei Injector complete with 1.5m suction tube, metering valve, strainer and foot valve
1014822	25 mm Male BSP Model 1078 Mazzei Injector (285 L/h Injector)
1014832	25 mm Flow Meter (0.8 - 8 L/m)
1014842	Metering Valve MV-50 15mm Female NPT
1014847	Tail, 15 mm Thread x 8 mm Barb
1014841	8 mm Foot Strainer with Check Valve
1014844	8 mm Barbed Model S-84 Foot Strainer
1014857	Model 1583-A Mazzei Injector complete with 1.5m suction tube, metering valve, strainer and foot valve
1014823	40 mm Male BSP Model 1583-A Mazzei Injector (680 L/h Injector)
1014833	40 mm Flow Meter (1.8 - 18 L/m)
1014845	12.5 mm Barbed Model S-84 Foot Strainer
1014824	50 mm Male BSP Model 2081-A Mazzei Injector (1900 L/h Injector)
1014834	50 mm Flow Meter (5 L/m - 38 L/m)
1014836	Mazzei Injector Model 584 (PVDF)

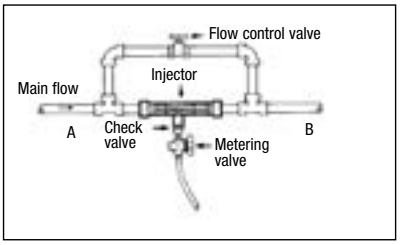
Typical Installations



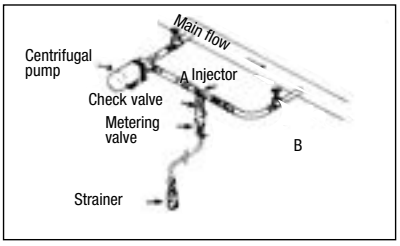
Example A. Injector installed around a point of restriction such as a regulator valve or gate valve which creates a pressure loss, thereby allowing the injector to produce a vacuum.



Example B. Injector installed across the differential pressure created by an existing booster or supply pump in the system. It is plumbed from the discharge side to the intake side of the pump.



Example C. Injector installed in main flow line with flow control valve on by-pass line.



Example D. Installed in conjunction with a centrifugal pump to boost pressure through the injector thereby creating a differential pressure and producing a vacuum for chemical induction downstream from the pump.

Mazzei™ Injectors Required Information

The following information and calculations are required to determine the correct size and model of injector for an irrigation system.

1. Total water flow of the irrigation system (in litres per minute).

   .....L/m

2. Rate of fertilizer/chemical injection required (in litres per hour).

   .....L/h

3. Pressure differential available in the system.

   i). Maximum available water pressure (System Pressure prior to the pressure reducing or flow control valve in installation examples A and C, or pressure at the discharge of the main supply pump in installation example B).

   .....kPa (a)

   ii). Minimum water pressure required to operate the system (Pressure after the pressure reducing or flow control valve in examples A and C, or pressure at the inlet of the main supply pump in example B).

   .....kPa (b)

   iii). Available pressure differential (a-b).

   .....kPa (c)

   iv). Percentage of pressure differential (c/a x 100).

   .....%

- If the pressure differential (as calculated) is 20% or greater, a bypass installation method can be used. (See examples A, B and C of typical installations).
- If there is not at least 20% pressure differential, the injector must be installed in series with a booster pump. (See example D of Typical Installations).

Injector Selection

The Injector Performance Chart on the following page lists the motive flow requirements and suction capacities of several models of Mazzei Injectors at various differential pressure conditions.

From the calculations, use the Performance Chart on the next page to select an injector model that can exceed the required injection (suction) rate. For the injector to operate, the motive flow (flow through the Injector) must not exceed the total flow of the irrigation system.

1. Locate the Injector Inlet Pressure (kPa) which most closely corresponds to your maximum available water pressure (3i above).
2. Locate the Outlet Pressure (kPa) which most closely corresponds to your pressure required to operate the system (3ii above).
3. Read across the table (next page) to locate the Injector Model with a Liquid Suction Rate which will exceed your injection requirements. (Use a metering valve to adjust to the desired injection rate).

Specifications					
	Model 584	**Model 1078-2**	**Model 1583-A**	**Model 2081-A**	**Model 4091**
Body Material	Glass reinforced polypropylene	Glass reinforced polypropylene	Glass reinforced polypropylene	Glass reinforced polypropylene	PVDF (Kynar)
Pressure rating @ 20°C	1034 kPa	1034 kPa	1034 kPa	1034 kPa	896 kPa
Length (mm)	150	229	279	297	660
Height of suction port below centreline of Injector	63.5 mm	114 mm	89 mm	63.5 mm	130 mm
Suction Port	¼" ID tube barb and ¼" MNPT	½" ID tube barb and ½" MNPT	½" ID tube barb and ½" MNPT	1 ¼" MBSP	2 x 2" MBSP

Mazzei™ Injectors Performance Chart

Suction Capacity of Mazzei Injectors at Various Operating Pressures

Operating Pressure (kPa)		Model 584 (20 mm)		Model 1078-2 (25 mm)		Model 1583-A (40 mm)		Model 2081-A (50 mm)		Model 4091 (100 mm)	
Injector Inlet	**Injector Outlet**	**Motive Flow (Lpm)**	**Water Suction (Lpm)**	**Motive Flow (Lpm)**	**Water Suction (Lpm)**	**Motive Flow (Lpm)**	**Water Suction (Lpm)**	**Motive Flow (Lpm)**	**Water Suction (Lpm)**	**Motive Flow (Lpm)**	**Water Suction (Lpm)**
138	0 34 69 82 103	15.82 (127)	1.57 1.57 1.50 1.21 0.92	41.45 (120)	6.20 6.02 4.42 3.25 1.91	81.2 (123)	14.39 12.96 9.06 8.31 4.18	245.3 (120)	39.80 39.80 29.50 18.80 9.60	1030 (120)	177.9 177.9 170.3 113.6 45.4
207	0 34 69 103 138 173	19.38 (186)	1.60 1.60 1.57 1.59 1.15 0.73	50.76 (179)	5.95 5.96 5.96 5.18 3.50 1.13	99.5 (179)	14.29 14.28 13.35 10.55 7.92 1.15	300.5 (179)	39.80 39.80 39.80 32.30 21.50 3.90	1257 (179)	177.9 177.9 177.9 162.8 87.1 15.1
276	0 34 69 103 138 173 207	22.37 (245)	1.62 1.61 1.62 1.61 1.59 1.35 0.95	58.63 (237)	5.88 5.88 5.88 5.88 5.79 4.56 2.69	114.8 (230)	14.34 14.43 14.33 13.91 12.17 9.68 5.14	347.1 (231)	39.80 39.80 39.80 39.80 33.00 24.90 10.70	1446 (241)	177.9 177.9 177.9 177.9 177.9 117.3 56.8
345	0 69 138 173 207 241 276	25.02 (310)	1.61 1.61 1.60 1.54 1.36 0.99 0.18	65.56 (303)	5.83 5.83 5.83 5.83 5.45 4.06 2.21	128.4 (289)	14.35 14.28 14.16 12.85 10.88 7.61 2.55	388.0 (286)	39.80 39.80 39.80 37.10 28.60 18.90 7.30	1575 (297)	177.9 177.9 177.9 177.9 166.5 102.2 22.7
413	0 69 138 207 241 276 310	27.4 (369)	1.67 1.67 1.65 1.60 1.50 1.27 0.91	71.8 (352)	5.85 5.85 5.85 5.87 5.79 4.87 2.80	140.7 (340)	14.49 14.45 14.37 13.03 11.50 9.33 5.18	425.1 (345)	39.80 39.80 39.80 37.90 32.10 24.00 13.70	1741 (352)	177.9 177.9 177.9 177.9 174.1 159.0 106.0
482	0 69 138 207 276 345 380	29.6 (434)	1.63 1.64 1.63 1.62 1.62 1.06 0.57	77.55 (405)	4.89 5.89 5.89 5.90 5.83 3.44 1.82	151.9 (391)	14.43 14.43 14.43 14.24 12.53 7.85 2.73	490.5 (403)	39.80 39.80 39.80 39.80 33.40 20.60 9.00	1874 (417)	174.1 174.1 174.1 174.1 174.1 117.3 60.6
551	0 69 138 207 276 345 413 448	31.64 (500)	1.65 1.65 1.66 1.66 1.66 1.58 1.08 0.50	82.89 (472)	5.92 5.92 5.92 5.92 5.98 5.77 3.34 2.08	162.4 (448)	14.61 14.61 14.61 14.61 13.91 11.19 5.88 0.76	520.4 (458)	39.80 39.80 39.80 39.80 38.10 31.90 17.00 3.80	2014 (479)	170.3 170.3 170.3 170.3 170.3 170.3 113.6 53.0
621	0 69 138 207 276 345 413 482 517	33.57 (555)	1.71 1.71 1.73 1.72 1.72 1.72 1.54 0.84 0.33	87.93 (530)	5.96 5.96 5.96 5.96 6.03 5.95 5.34 2.50 1.30	172.3 (504)	14.47 14.47 14.47 14.47 14.45 13.74 11.22 3.10 -	548.4 (521)	39.80 39.80 39.80 39.80 39.80 39.00 28.90 11.30 -	2154 (545)	159.0 159.0 159.0 159.0 159.0 151.4 147.6 106.0 53.0
689	0 69 138 207 276 345 413 482 551	35.39 (621)	1.81 1.81 1.84 1.83 1.82 1.82 1.70 1.47 1.06	60.3 (593)	5.94 5.94 5.94 5.94 5.94 5.93 5.99 5.13 1.93	181.6 (561)	14.64 14.64 14.64 14.64 14.64 14.41 13.01 9.25 1.62	548.4 (573)	39.80 39.80 39.80 39.80 39.80 39.20 37.50 26.00 7.60	2271 (611)	159.0 159.0 159.0 159.0 159.0 159.0 159.0 147.6 56.8

Numbers in red brackets indicate the injector outlet pressure when suction stops (Zero Suction Point)

Application

Used in conjunction with sub-surface ROOTGUARD® Drip Tube and Aqua-Traxx® tape systems to aerate the root zone and improve harvest results.

Rainbow A-Series injectors are designed to be installed one injector per lateral line.

- In areas with long above-ground submains.
- In areas with submains that have elevation changes.

Features

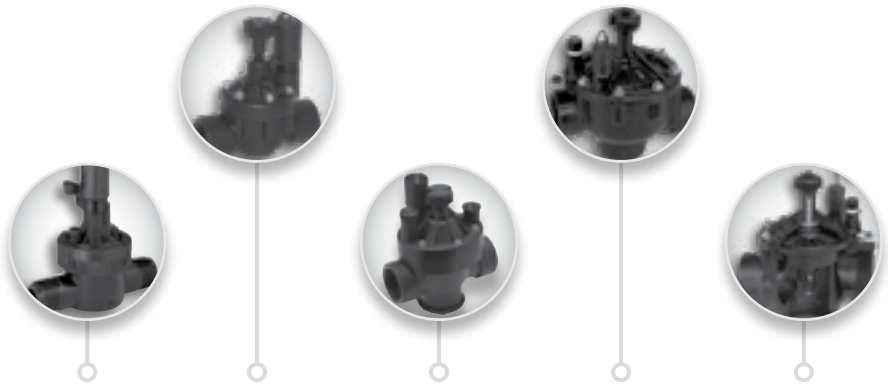
- Available in one 1/2 " and two 3/4" male NPT models.
- Motive flow rates ranging from 3.41 to 52.11 Lpm.
- 10%+ increase in yields as compared to conventional drip *
- 50% increase in root mass - healthy and more vital plant *
- Less stress on plant as it is able to absorb water, air and soil nutrients simultaneously during the irrigation cycle.
- Ease of operation
- Efficient, compact venturi design with no moving parts
- Colour coded units for ease of identification
- Moulded from 40% glass filled polypropylene

** Increase in yields and root mass based on results obtained at a commercial farming operation and a study performed by CIT at CSU Fresno.*

Motive Flow - Litres per Minute			
Inlet Pressure kPa	**MAI-A3**	**MAI-A20**	**MAI-A24**
138	3.41	21.32	27.63
172	3.79	23.85	29.65
207	4.16	26.00	31.92
241	4.54	27.76	35.07
276	4.92	29.52	37.09
310	5.30	31.16	40.00
345	5.55	33.43	41.38
414	6.06	36.08	45.42
483	6.43	39.24	48.83
552	6.94	41.76	52.11
Colour	Red	Tan	Brown

Model A3 has 1/2" MNPT connections.
Models A20 and A24 have 3/4" MNPT connections.

Ordering Information	
Code	**Description**
MAI-A3	Mazzei Air Injector, 15 mm MNPT, Red, 3.4-6.9 Lpm
MAI-A20	Mazzei Air Injector, 20 mm MNPT, Tan, 21.3-41.7 Lpm
MAI-A24	Mazzei Air Injector, 20 mm MNPT, Brown, 27.6-52.1 Lpm



Model		EZ-Flo® Plus	TPV Series	P150	P220 Series	P220S Scrubbler
Page Number		**216**	**217**	**218**	**219-220**	**221-222**
Flow range		1-113 Lpm	1-150 Lpm	80-568 Lpm	19-1135 Lpm	19-1135 Lpm
Operating Pressure*		70-1000 kPa	70-1200 kPa	140-1000 kPa	70-1500 kPa	70-1500 kPa
Conditions	Electrically Activated Systems	X	X	X	X	X
	Effluent Water		X		X	X
Sizes	25 mm	X	X		X	X
	40 mm			X	X	X
	50 mm			X	X	X
	80 mm				X	X
Configurations	Angle			X	X	X
	In-Line/Globe	X	X	X	X	X
Inlet/Outlet	Threaded (Female)	X	X	X	X	X
	Slip	X				
Features	Manual Flow Control	X	X	X	X	X
	Pressure Regulation			X	X	X
	Internal Bleed	X	X	X	X	X
	External Bleed (Flush)	X	X		X	X
	Optional DC Latching Solenoid	X	X	X	X	X
Body Construction	PVC	X	X			
	Glass-filled Nylon			X	X	X
	Glass-filled Polypropylene	X				
Warranty		Five years	Five years	Five years	Five years	Five years

** Reduce maximum pressure rating to 820 kPa if DCLS-P coil fitted.*

- **25 mm BSP [Female]**
- **25 mm Slip [Female]**
- **Electric Models**

The name says it all – EZ. Easy to install and easy to service, these Toro® valves are easy to choose. Perfect for residential applications, EZ-Flo Plus valves are available in a range of configurations providing the flexibility you need.

Features & Benefits

Jar-Top Design
No screws mean less time flushing out the system on start-up. Cleaning the diaphragm area is uncomplicated as it requires no tools. EZ-Flo Plus valves are simple to service – it's that easy.

PVC, Glass-Filled Polypropylene and Stainless Steel Construction
Provides longer life span and leak protection in nearly any environment.

Double-beaded, Chloramine and Ozone-Resistant Santoprene® Diaphragm
Ensures a consistent, leak-proof seal all the way up to 1000 kPa.

Optional Flow Control
Adjusts the flow of each zone on a system.

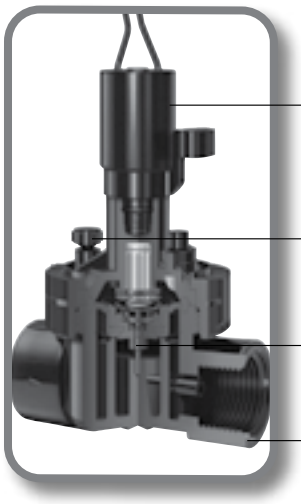
Specifications

Dimensions
- 130 x 75 x 101 mm H x W x L

Operating Specifications and Additional Features
- Flow Range:
  - 25 mm: 1.0-113 Lpm
- Operating Pressure: 70-1000 kPa
- Encapsulated solenoid (588403) with captured hex plunger assembly (24 VAC)
- Inrush current, 0.4 amps
- Holding current, 0.2 amps
- Available with or without flow control

Options Available
- DCLS-P — Potted DC Latching Solenoid (max. pressure 820 kPa)

Warranty
- Five years



EZ-Flo Plus Series Model List	
Model	**Description**
50Hz Solenoids	
EZP-03-54 EZP-23-54 EZP-00-54	25 mm, Female, BSP 25 mm, Female, BSP, w/ Flow Control 25 mm, Female Slip x slip
DC-Latching Solenoid	
EZP-23-94	25 mm, Female, BSP, DCLS-P, w/ Flow Control

EZ-Flo® Friction Loss Data – kPa

Flow – Lpm	1	19	38	57	76	114
Loss – kPa	14	24	28	21	23	43

Note: flow rates are recommended not to exceed 35 kPa loss.

- **25 mm BSP [Female]**
- **1.0 -150 Lpm**
- **Electric Models**

The search for a full-featured yet economically priced, residential and commercial valve is over thanks to Toro's 25 mm TPV Series valve offering. These full-featured, rugged, debris-resistant valves feature flow ranges from 1.0 to 150 Lpm, making them ideal for everything from drip to high-flow residential and light-commercial applications.

Features & Benefits

Tough Double-Beaded, Chloramine and Ozone-Resistant Santoprene® Diaphragm
Ensures a consistent, leak-proof seal all the way up to 1200 kPa.

Patented DBS (Debris Bypass System) Technology™
Metering system ensures proper functionality, even in tough environments.

Wide Range of Flows and Pressure
One valve for all site specific needs.

Robust Solenoid Design
Ensures reliable opening and closing.

Water Management Highlight

DBS Technology™ (Debris Bypass System)

DBS is a patented vibrating metering pin and diaphragm assembly that allows for small particles to pass through the valve without clogging.

Specifications

Dimensions
- 130 x 70 x 127 mm H x W x L

Operating Specifications
- Flow Range: 1.0-150 Lpm
- Operating Pressure: Electric; 70-1200 kPa
- Burst pressure safety rating: 3600 kPa
- Solenoid: 24 VAC (50 Hz) Standard (588403)
  - Inrush: 0.4 amps
  - Holding: 0.2 amps

Additional Features
- Operates in low-flow and landscape drip applications when a filter is installed upstream
- Manual Operation without the use of a controller—Internal and External Bleed
- Captured hex/Phillips screws
- Optional flow control allows precise zone adjustment and manual shutoff
- Encapsulated solenoid with captured hex plunger assembly
- Removable flow control handle to ensure vandal-resistance
- Self-aligning bonnet permits fast and easy servicing
- Large directional flow arrows

Options Available
- DCLS-P - Potted DC Latching Solenoid Assembly (max. pressure 820 kPa)

Warranty
- Five years

TPV Series Model List

Model	Description
TPV100BSP	25 mm Female x Female, 50Hz/BSP, w/o Flow Control
TPVF100BSP	25 mm Female x Female, 50Hz/BSP, w/ Flow Control

TPV Friction Loss Data

Flow – Lpm	1	4	19	38	57	76	114	152
Loss – kPa	14	20	28	34	38	41	55	103

Note: flow rates are recommended not to exceed 35 kPa loss.

- **40 and 50 mm BSP (Female)**
- **Electric Models**

40 and 50 mm in-line globe/angle valves for light commercial applications. The P150 Series valves are the "value" work horses of plastic valves.

Features & Benefits

Heavy-duty glass-filled nylon (GFN) and stainless-steel construction

Globe/Angle configuration
Rated at 1000 kPa with flows from 80 to 568 Lpm

Filter-controlled Water
To resist contamination of solenoid port. Filter serviceable from top of valve.

Precise pressure control option with compact EZReg® dial-design
Serviceable under pressure – no need to shut down system

Pressure regulates in electric and manual modes
Serviceable under pressure

Specifications

Dimensions

Body styles:
- Globe/angle valve: 40 mm and 50 mm BSP female threads

Dimensions:
- 40 mm: 184 mm x 92 mm H x W
- 50 mm: 241 mm x 156 mm H x W

Operating Specifications

- Flow range: 80-568 Lpm
- Pressure range: 140-1000 kPa
- Solenoid: 50Hz (24 VAC)
- Inrush current: 0.4 amps
- Holding current: .2 amps

Additional Features

- Non-rising, manual flow control handle; adjustable to zero flow
- Manual internal bleed
- Rugged Santoprene, double beaded diaphragm
- Forward flow design for precise pressure regulation
- No external tubing for either electric or pressure regulating models
- Encapsulated solenoid with captured hex plunger assembly
- Lilac Recycled Water Tag available (code: RWSG-KIT)
- Positive O-ring seal on inlet plug
- Unique 3-way SS bonnet screws accept Phillips or hex driver tools
- Slow closing design reduces water hammer

Options Available

- EZR-30 - EZReg, 30-200 kPa Regulator Module
- EZR-100 - EZReg, 30-700 kPa Regulator Module
- DCLS-P - Potted DC Latching Solenoid Assembly (max. pressure 820 kPa)

Warranty

- Five years

P-150 Series Plastic Valve Model List

Model	Description
P150-23-56	Electric, Globe/Angle, 40 mm BSP Plastic Valve, 50 Hz Solenoid
P150-23-58	Electric, Globe/Angle, 50 mm BSP Plastic Valve, 50 Hz Solenoid

P-150 Series Friction Loss Data (kPa)

		Flow – Lpm														
Size (mm)	Configuration	80	100	120	140	160	180	200	250	300	350	400	450	500	550	568
40	Globe	22	21	21	17	18	20	31	46							
	Angle	21	21	22	15	13	13	19	26							
50	Globe					22	22	20	19	26	34	42	42	52	62	67
	Angle					18	17	14	13	16	24	24	26	32	37	39

Note: For optimum performance when designing a system, be sure to calculate total friction loss to ensure sufficient downstream pressure. For optimum regulation performance, size regulating valves toward the higher flow ranges. Flow rates are recommended not to exceed 35 kPa pressure loss.

- **25 mm, 40 mm, 50 mm, 80 mm, BSP (Female)**
- **Electric Models**
- **Pressure-regulating option**
- **Globe, Angle**

For proven reliability in the field, the Toro® P220 Series valves deliver. Constructed of heavy-duty, glass-filled nylon material, these valves are ready to consistently withstand pressures up to 1500 kPa.

Features & Benefits

Durable Glass-Filled Nylon
Ensures the P220 can operate at pressures up to 1500 kPa.

Precise Pressure Control Option
Compact EZReg® dial-design technology (field installed - no need to remove solenoid).

Internal And External Manual Bleed
Internal bleed keeps valve box dry and easy to use.

Schrader Valve Pre-Installed
Simple verification of downstream pressure.

Filter Screen on 50 mm and 80 mm Models
Allows for upstream filtration of control water to reduce risk of clogging inside the valve.

Water Management Highlight

Pressure Regulator
The EZReg® module can regulate with flows of only 20 Lpm with a 25mm valve and it only requires 70 kPa differential to operate. The pressure regulator can be easily and quickly installed—even under pressure, with no danger of water geysers.

Specifications

Dimensions

- 25 mm: 171 x 92 mm H x W
- 40 mm: 184 x 92 mm H x W
- 50 mm: 241 x 156 mm H x W
- 80 mm: 273 x 156 mm H x W

Operating Specifications

- Flow Range:
  - 25 mm: 20-140 Lpm
  - 40 mm: 120-400 Lpm
  - 50 mm: 300-650 Lpm
  - 80 mm: 600-1100 Lpm
- Operating Pressure:
  - Electric: 70-1500 kPa (25, 40 mm models)
  - Electric: 140-1500 kPa (50, 80 mm models)
- Minimum pressure differential (between inlet and outlet) for pressure regulation: 70 kPa
- Burst pressure safety rating: 5000 kPa
- Body styles:
  - Globe/Angle: 25, 40, 50, 80 mm female threads
- 588403 Solenoid: 24 VAC (50 Hz)
  - Inrush: 50 Hz: 0.40 amps
  - Holding: 50 Hz: 0.2 amps

Options Available

- EZR-30 - EZReg, 30-200 kPa Regulator Module
- EZR-100 - EZReg, 30-700 kPa Regulator Module
- DCLS-P - Potted DC Latching Solenoid Assembly (max. pressure 820 kPa)

Additional features

- Tough glass-filled nylon and stainless steel construction
- Internal and External bleed
- Standard, built-in Schrader-type valve for downstream pressure verification
- Flow control independent of solenoid
- Self-aligning bonnet to ensure correct installation
- Self-cleaning, stainless steel metering rod
- Low-flow capability down to 20 Lpm with EZReg

Warranty

- Five years

P-220 Series BSP Thread Model List

Model	Description
P220-23-54	Electric, In-Line 25 mm BSP Plastic Valve, 24V 50 Hz Solenoid
P220-23-56	Electric, In-Line 40 mm BSP Plastic Valve, 24V 50 Hz Solenoid
P220-23-58	Electric, In-Line 50 mm BSP Plastic Valve, 24V 50 Hz Solenoid
P220-23-50	Electric, Angle 80 mm BSP Plastic Valve, 24V 50 Hz Solenoid
P220-23-94	Electric, Angle 25 mm BSP Plastic Valve, DC Latching Solenoid
P220-23-96	Electric, Angle 40 mm BSP Plastic Valve, DC Latching Solenoid
P220-23-98	Electric, Angle 50 mm BSP Plastic Valve, DC Latching Solenoid
P220-23-90	Electric, Angle 80 mm BSP Plastic Valve, DC Latching Solenoid

P-220 Series Valve Friction Loss Data – kPa

Size	Configuration	Flow Rate Lpm																							
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700	800	900	1000	1100
25 mm	Globe	28	28	24	22	24	31	43																	
	Angle	28	29	25	21	18	20	28																	
40 mm	Globe						12	14	18	23	28	43	62	81	104										
	Angle						9	10	13	17	22	34	48	65	85										
50 mm	Globe												14	20	26	33	40	50	54	58					
	Angle												8	12	15	19	24	29	32	34					
80 mm	Globe																		18	19	22	32	41	52	65
	Angle																		14	15	18	26	34	43	54

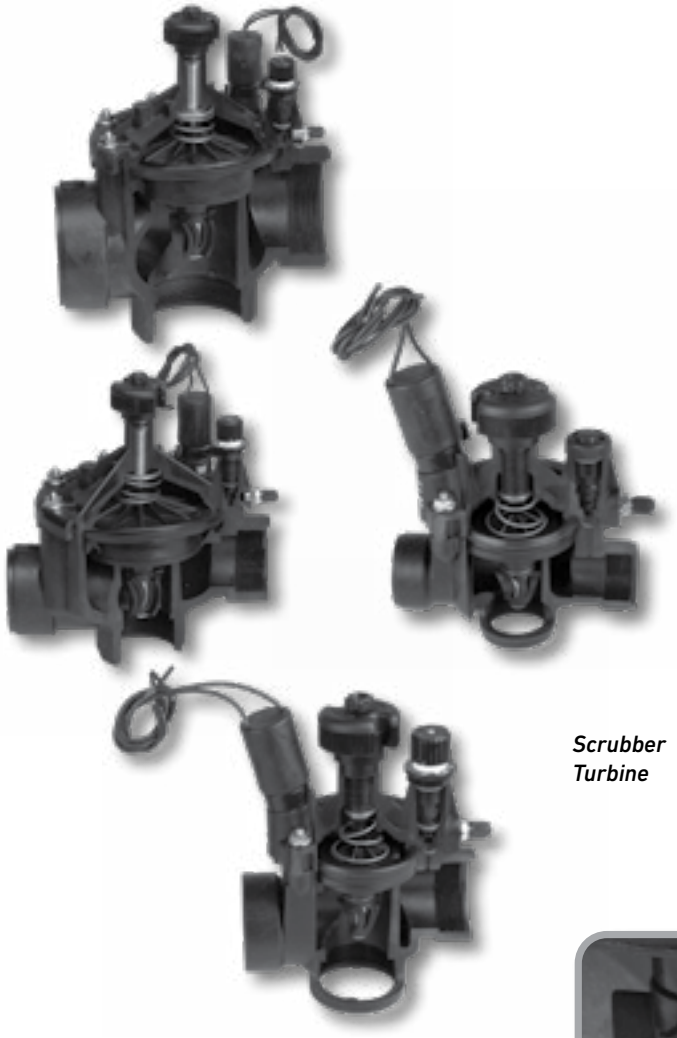
Shading indicates flow range.

Flow rates are recommended not to exceed 35 kPa loss.

For optimum regulation performance, size regulating valves toward the higher flow ranges.

- **25 mm, 40 mm, 50 mm, 80 mm BSP**
- **Electric Models**
- **Pressure-regulating**
- **Globe, Angle**

A true dirty water irrigation valve, able to handle chlorine and other chemicals found in reclaimed and other non-potable water systems. Constructed of heavy-duty, glass-filled nylon and EPDM rubber materials, these valves resist clogging and feature a patent-pending active cleansing technology (ACT™ System) to actively fight sand, algae and other particles from blocking the proper metering through the valve.



Features & Benefits

Durable Glass-Filled Nylon
Ensures the P220 can operate at pressures up to 1500 kPa (220 psi).

Active Cleansing Technology (ACT™)
Industry's first active scrubber valve cleans continuously whereas competitive valves only clean on opening and closing.

Fabric-reinforced EPDM Diaphragm and EPDM Seat
Designed to work in virtually all water applications.

Rugged Internal Plastic and Stainless Steel Parts
Scrubber fan, nut and metering system are designed with marine and aerospace plastics and metals which make them resistant to water treated with chlorines and ozones.

Precise Pressure Regulation Option
Compact EZReg® dial-design technology ensures precise downstream pressure for optimizing sprinkler head performance.

Completely Serviceable and Retrofittable
Diaphragm assembly may be replaced or retrofitted to previous models.

Pressure Regulator

The EZReg® module can regulate with flows of only 20 Lpm with a 25 mm valve and it only requires 70 kPa differential to operate. The pressure regulator can be easily and quickly installed—even under pressure, with no danger of water geysers.

Scrubber Turbine

Filter Surface

ACT™ System

Patent-pending Active Cleansing Technology – in which the turbine is constantly rotating to clean the metering/filtration area. This ensures that dirt, algae, chlorines, chloramines and water treated with ozone will not impede valve performance.

Specifications

Dimensions

- 25 mm: 171 x 92 mm H x W
- 40 mm: 184 x 92 mm H x W
- 50 mm: 241 x 156 mm H x W
- 80 mm: 273 x 156 mm H x W

Operating Specifications

- Flow Range:
  - 25 mm: 20-151 Lpm
  - 40 mm: 114-416 Lpm
  - 50 mm: 303-568 Lpm
  - 80 mm: 493-1137 Lpm
- Operating Pressure
  - 25 mm and 40 mm Models: 70-1500 kPa
  - 50 mm and 80 mm Models: 140-1500 kPa
- Minimum pressure differential (between inlet and outlet) for pressure regulation: 70 kPa
- Body styles:
  - Globe/Angle: 25, 40, 50 and 80 mm female threads
- 588403 Solenoid: 24 VAC (50) Standard
  - Inrush: 50 Hz: 0.40 amps
  - Holding: 50 Hz: 0.2 amps

Additional features

- Tough glass-filled nylon and stainless steel construction
- Internal and External bleed
- Standard, built-in Schrader-type valve for downstream pressure verification
- Flow control independent of solenoid
- Self-aligning bonnet to ensure correct installation
- Self-cleaning, stainless steel metering rod
- Low-flow capability down to 20 Lpm with EZReg
- 316 nuclear-grade stainless-steel filter for maximum corrosion resistance

Options Available

- EZR-30 - EZReg, 30-200 kPa Regulator Module
- EZR-100 - EZReg, 30-700 kPa Regulator Module
- 588403: 24 VAC Solenoid Assembly, 50 Hz, Captive Plunger
- DCLS-P - Potted DC Latching Solenoid Assembly (max. pressure 820 kPa)
- SGS -12 - Spike Guard™ Solenoid: 50/60 Hz (24 VAC)

Warranty

- Five years

P-220 Scrubber Series Model List

Model	Description
P220S-23-54	P220S, 25 mm BSP with ACT™ System
P220S-23-56	P220S, 40 mm BSP with ACT™ System
P220S-23-58	P220S, 50 mm BSP with ACT™ System
P220S-23-50	P220S, 80 mm BSP with ACT™ System

P-220 Scrubber Series Friction Loss Data – kPa

Size	Configuration	Flow Rate Lpm																						
		20	35	50	60	75	80	100	120	150	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100
25 mm	Globe	32	33	28	24	21	22	32	47	73														
	Angle	29	32	27	22	18	18	29	42	64														
40 mm	Globe						8	9	12	20	34	52	78	102	131									
	Angle						7	9	11	16	28	43	64	86	111									
50 mm	Globe												25	33	42	56	64	76						
	Angle												19	26	35	43	53	63						
80 mm	Globe																15	18	21	28	37	46	56	67
	Angle																13	16	19	24	32	40	50	61

Flow rates are recommended not to exceed 35 kPa loss.

Note: For optimum performance when designing a system, be sure to calculate total friction loss to ensure sufficient downstream pressure. For optimum regulation performance, size regulating valves toward the higher flow ranges.

Solenoids

DCLS-P

- Potted DC latching solenoid for Toro valves used with EZ-Flo Plus, TPV, P150, P220 or P220S

588403

- Solenoid assembly for EZ-Flo Plus, TPV, P150, P220 or P220S
- Captive hex plunger assembly
- 0.5 m leads

SGS-12

- Spike Guard Solenoid compatible with EZ-Flo Plus, TPV, P150, P220 or P220S
- 24 Vac, 50/60 Hz
- Inrush 0.2A
- Holding: 0.1A
- 20,000 volts lightning rating

LWS

- Low Wattage Solenoid compatible with EZ-Flo Plus, TPV, P150, P220 or P220S
- 24 Vac, 50/60 Hz
- Inrush 0.2A
- Holding: 0.1A

EZReg™ Pressure-Regulation Options

EZR-30 and EZR-100

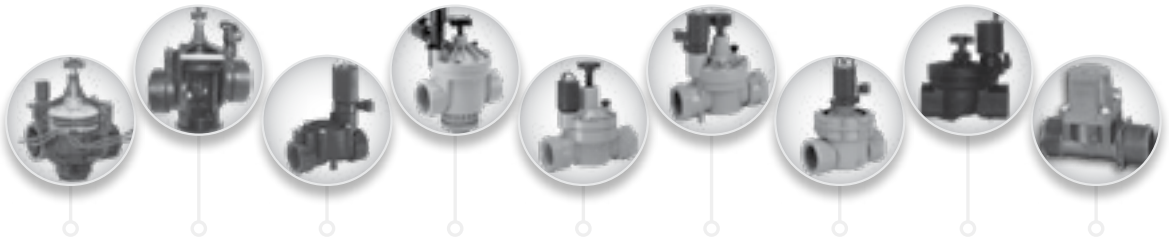
- Pressure-regulator module for use with P150, P220 or P220S
- Precise pressure control with dial design
- EZR-30: 35-200 kPa
- EZR-100: 35-690 kPa

Valve Wire Sizing Chart – SGS & LWS

Maximum One-way Distance (in Meters) Between Controller and Valve using Spike Guard™ or Low Wattage Solenoid*

Ground Wire	Control Wire			
	1,0 mm²	1,5 mm²	2,5 mm²	4,0 mm²
1.0 mm²	600	750	900	1000
1.5 mm²	750	1000	1200	1400
2.5 mm²	900	1200	1500	1900
4.0 mm²	1000	1400	1900	2500

** 24 VAC Solenoid. Pressure: 1000 kPa. Voltage Drop: 4 V. Minimum Operating Voltage: 20 V. Amperage (peak) 0,12 A.*



	Model	Century Plus Series	Century Plus Scrubber	700 Series (UltraFlow)	200B Series	204/205 Series	2500 Series	2400 Series	IV25 Series	Mini Control Valves
	Page Number	225	226-227	228	229	230	231	232	233	234
Application	Residential			X		X	X	X	X	X
	Commercial	X	X	X	X	X			X	
Operation	Manual	X	X	X	X	X	X	X	X	
	Electric	X	X	X	X	X	X	X	X	X
	Hydraulic	X (with HCV Kit)	X (with HCV Kit)							
Size	20 mm			X						X
	25 mm	X	X	X		X	X	X	X	
	40 mm	X	X	X	X					
	50 mm	X	X	X	X					
	80 mm	X	X							
Configuration	Angle	X	X		X					
	Globe	X	X	X	X	X	X	X	X	X
Inlet/Outlet	Threaded FBSP	X	X	X	X	X	X	X	X	
	Slip							X		
Features	Manual Flow Control	X	X	X	X	optional	optional	optional	X	
	Internal Bleed	X	X	X	X		X	X	X	
	Body Construction	Glass filled nylon	Glass filled nylon	Glass filled nylon	PVC	PVC	PVC	PVC	Glass filled nylon	Heavy Duty Engineering Plastic
	Pressure Range kPa*	70-1500	70-1500	70-1034	140-1034	70-1034	70-1034	70-1034	70-1250	20-1400
	External Bleed	X	X		X	X	X	X	X	
	DCLS-P compatible	X	X	X	X		X	X	X	

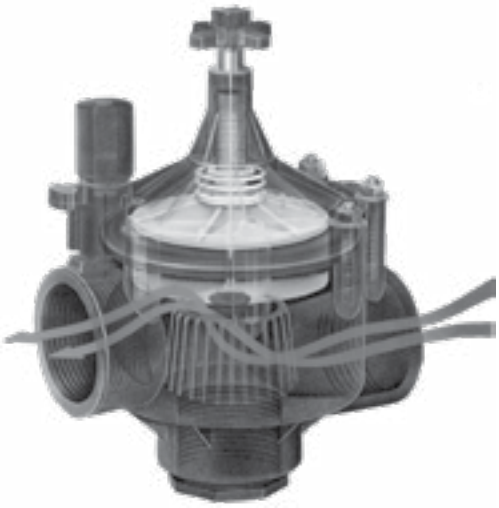
** Reduce maximum pressure rating to 820 kPa if DCLS-P coil fitted.*

When installing valves, please ensure the following:

- PTFE thread tape is used to seal all threaded fittings
- The valves are installed in position such that air can be evacuated from the bonnet, i.e. never install a valve upside down or on an angle as this could entrap air and possibly cause the valve to chatter and prevent valve closure
- In turf/landscape situations the valves are installed below ground in valve boxes for aesthetics and for easy valve adjustment and maintenance
- Loop 30 cm of extra cable inside valve box for wire contraction/expansion
- Use waterproof wire connectors
- Allow a valve box of sufficient size to provide access to all valves

Application

These heavy-duty globe/angle valves, designed primarily for commercial applications, offer superior performance and durability under the most demanding conditions. Tracing its origin back to the highly popular Century Series, the 100 Series (Century PLUS) delivers reliable performance with a host of enhanced features.



Century Plus Commercial Valve

Features

- Available in 25, 40, 50 and 80 mm BSP
- 1500 kPa rating (820 kPa if using DCLS-P)
- Manual internal and external bleed
- Flow control allows flow adjustment and manual shutoff
- Globe/angle configuration
- Glass-reinforced nylon body withstands high temperatures under pressure
- Rugged, double-beaded, nylon-reinforced Buna-N diaphragm
- Stainless steel metering system
- Captive plunger solenoid
- Positive O-ring seal on inlet plug
- Moulded-in studs allow positive bonnet attachment
- Brass flow control stem (50 and 80 mm models)
- Pressure Regulation (OmniReg® modular option). See OmniReg® page for performance data and specifications.
- 9–12 VDC Latching Solenoid option (DCLS-P) (max. pressure 820 kPa)

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC - 9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC - 4.8 VA
- Holding current: 0.2 amp

Operating Specifications

- Flow range: 20-1100 Lpm
- Pressure range: 70-1500 kPa

Ordering Information

Code	Description
100P1-BSP	Century Plus 25 mm FBSP Solenoid Valve with Flow Control
100P1.5-BSP	Century Plus 40 mm FBSP Solenoid Valve with Flow Control
100P2-BSP	Century Plus 50 mm FBSP Solenoid Valve with Flow Control
100P3-BSP	Century Plus 80 mm FBSP Solenoid Valve with Flow Control
HVC-KIT	Hydraulic Conversion Kit for Century Series Valves

Dimensions

Size	Height (mm)	Width (mm)	Depth (mm)
25	172	92	121
40	185	92	121
50	242	156	197
80	273	156	210

Century Plus Series Friction Loss (kPa) vs Flow (Lpm)

Size	Configuration	Flow Rate Lpm																							
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100
25 mm	Globe	43	29	25	23	26	32	43	55	69														
	Angle	43	29	25	21	20	21	29	38	49														
40 mm	Globe						12	14	18	23	28	43	62	85	111									
	Angle						9	10	13	17	22	34	48	65	85									
50 mm	Globe													20	25	32	40	48	54					
	Angle													12	15	19	24	29	32					
80 mm	Globe																		18	24	32	41	52	65
	Angle																		14	19	26	34	43	54

Flow rates are recommended not to exceed 35 kPa loss.
Note: when designing a system, the industry standard maximum flow rate velocity through pipes and fittings is 2m/s. Please refer to relevant pipe velocity data.

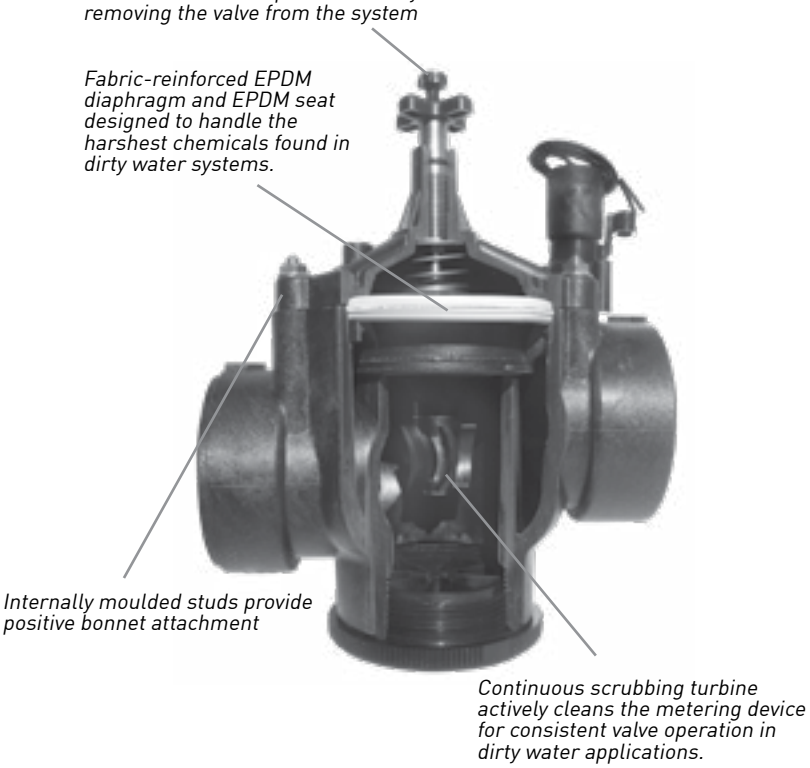
Century Plus Scrubber Valve

Constructed of heavy-duty, glass-reinforced nylon, stainless steel, brass and EPDM rubber materials, the Century Plus scrubber valves resist clogging and feature a patent-pending continuous scrubbing mechanism to actively fight dirt, algae and other particles from disrupting the functionality of the valve. The Century Plus scrubber valves are true dirty water irrigation valves, able to handle the harsh chemicals found in dirty water systems, such as chlorines, chloramines and water treated with ozones.

Features

- **Continuous Scrubbing Feature**
  Actively cleans the metering device for consistent valve operation
- **Tough, Glass-reinforced Nylon, Stainless Steel And Brass Construction**
  Withstands high temperatures and system surges under pressure for long-term reliability
- **Fabric-reinforced EPDM Diaphragm and EPDM Seat**
  Designed to operate in virtually all water applications
- **Rugged Internal Plastic and Stainless Steel Parts**
  Scrubber fan, nut and metering system chlorine and chemical resistant
- **Completely Serviceable and Retrofittable**
  Diaphragm assembly may be replaced or retrofitted to previous models
- **1500 kPa Pressure Rating**
  Prevents water hammer and system damage in high-pressure installations
- **Internal and External Bleed (Flush Mode)**
  Manual operation
- **Externally Removable Self-cleaning Metering System**
  Provides consistent performance in recycled-water applications
- **Accepts OmniReg® Modular Pressure Regulator**
  Ensures consistent performance

Next Generation Scrubber Valve



Added Features

- Flow control allows flow adjustment and manual shutoff
- EPDM valve seat seal
- Encapsulated injection-moulded solenoid with a captive hex plunger 24 VAC
- Positive O-ring seal on inlet plug prevents leaks without damaging seal threads
- Moulded-in and anchored studs allow positive bonnet attachment and removal
- Brass flow control stem on 50 and 80 mm models
- Easily serviced without removal from the system
- Five-year warranty

Operating Specifications

- Flow range: 20-1100 Lpm
- Pressure range: 140-1500 kPa

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC - 9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC - 4.8 VA
- Holding current: 0.2 amp

Options Available

- OmniReg® 35-210 kPa regulator (OMR-30)
- OmniReg® 35-700 kPa regulator (OMR-100)
- DC latching solenoid (DCLS-P)
  Note: Maximum pressure for a valve that utilizes latching solenoid is 820 kPa.

  * Optional accessories are field-installable. Must specify separately if required.

Ordering Information

Code	Description
100P1-BSP-S	Century Plus 25 mm FBSP Solenoid Valve with Flow Control and Continuous Self Cleaning Filter
100P1.5-BSP-S	Century Plus 40 mm FBSP Solenoid Valve with Flow Control and Continuous Self Cleaning Filter
100P2-BSP-S	Century Plus 50 mm FBSP Solenoid Valve with Flow Control and Continuous Self Cleaning Filter
100P3-BSP-S	Century Plus 80 mm FBSP Solenoid Valve with Flow Control and Continuous Self Cleaning Filter

Dimensions (D × W × H)

	D (mm)	W (mm)	H (mm)
100P1-S	121	92	172
100P1.5-S	121	92	185
100P2-S	197	156	242
100P3-S	210	156	273

Century Plus Scrubber Valve Friction Loss Data – kPa

Size	Configuration	Flow Rate Lpm																						
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	700	800	900	1000	1100
25 mm	Globe	31	33	24	18	28	40	53	69	88														
	Angle	30	33	24	17	27	40	54	69	85														
40 mm	Globe				7	8	10	15	20	25	31	48	69	95	125									
	Angle				7	8	10	14	18	22	27	41	61	81	105									
50 mm	Globe												22	32	42	54	66	80	92					
	Angle												19	28	35	42	54	66	78					
80 mm	Globe																		23	31	40	49	60	73
	Angle																		18	25	34	43	54	65

Shading indicates flow range.
Flow rates are recommended not to exceed 35 kPa loss.

Application

A straight-through flow path for minimum pressure loss and a host of standard and optional operating features make these heavy-duty electric globe valves ideal for a variety of challenging residential and light commercial applications.

Features

- Manual internal bleed
- Self-cleaning, 150-mesh, stainless steel filter screen on 25, 40 and 50 mm models
- In-line FBSP inlet and outlet
- Straight-through flow path provides low pressure loss
- Slow-closing design reduces likelihood of water hammer
- Flow control allows flow adjustment and manual shutoff (not available on 20 mm model)
- Compact, low-profile design
- Glass-reinforced nylon body and bonnet construction with stainless steel spring and hardware
- Rugged, nylon-reinforced EPDM diaphragm
- Captive plunger solenoid
- Three-way stainless steel bonnet screws accept Phillips, flat-blade and hex-driver tools

Operating Specifications

- Flow Range:
- 20 mm: 1 to 110 Lpm
- 25 mm: 1 to 180 Lpm
- 40 mm: 60 to 530 Lpm
- 50 mm: 120 to 680 Lpm
- Consult your irrigation designer before using any solenoid valve where flow velocities exceed 2 m/sec
- Pressure Range: 70 - 1034 kPa (maximum pressure drops to 820 kPa if using DCLS-P coil)

Electrical Specifications

- Solenoid: 24 VAC.
- Inrush volt-amp: 24 VAC–9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC–4.8 VA
- Holding current: 0.2 amp

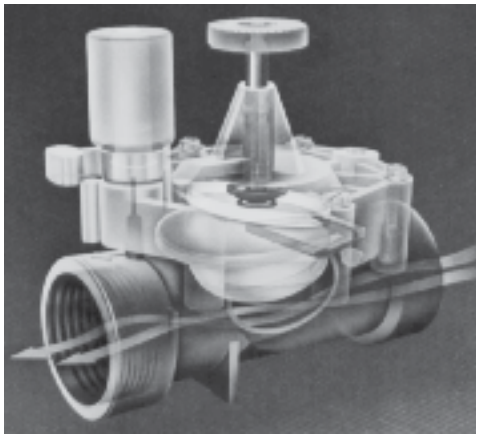
The UltraFlow Series straight-through flow path

Accessories

- 9–12 VDC Latching Solenoid (DCLS-P) (max. pressure 820 kPa)
- OmniReg® Pressure Regulating Kit

Conventional flow path

Ordering Information	
Code	**Description**
700-.75-50H	90 L/m Ultra-Flow Solenoid Valve 20 mm FBSP
700-1-BSP	180 L/m Ultra-Flow Solenoid Valve with Flow Control 25 mm FBSP
700-1.5-BSP	400 L/m Ultra-Flow Solenoid Valve with Flow Control 40 mm FBSP
700-2-BSP	680 L/m Ultra-Flow Solenoid Valve with Flow Control 50 mm FBSP



Constructed of glass reinforced nylon with stainless steel hardware

Dimensions (L × W × H)			
Size	**Length (mm)**	**Width (mm)**	**Height (mm)**
20	86	48	115
25	112	76	115
40	159	112	140
50	203	140	178

Ultra-Flow® Valve Friction Loss Data – kPa

Size	Flow - Lpm																					
	1	**10**	**20**	**40**	**60**	**80**	**100**	**110**	**120**	**140**	**160**	**180**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**530**	**600**	**680**
25 mm	3	3	6	9	15	25	38	45														
40 mm	15	11	13	17	15	13	18	21	25	33	43	54										
50 mm					2	3	4	4	5	7	8	10	11	18	26	36	47	59	73	82		
80 mm									5	6	6	7	7	10	14	19	23	27	33	36	44	57

Shading indicates flow range.
Independently tested at the CIT, California, USA

Application

These durable, heavy-duty commercial valves are designed to provide reliable, cost-effective performance under the most challenging conditions.

Features

- Double-beaded diaphragm provides leak proof seal. Santoprene construction.
- Buna-N valve seat seal
- High-strength ribbed bonnet and bottom inlet
- Manual internal and external bleeds
- Slow-closing design reduces water hammer
- Flow control allows flow adjustment and manual shutoff
- Heavy-duty, construction. Corrosion- and UV-resistant PVC with stainless steel spring and hardware
- Threaded inlet plug O-ring seal minimises leaks
- Captive plunger feature eliminates loose parts in solenoid
- Easily serviced without removal from the system
- Three-way stainless steel bonnet screws accept Phillips, flat-blade and hex-driver tools
- Pressure regulation: OmniReg® modular option

Operating Specifications

- Flow Range:
  40 mm: 80 to 300 Lpm
  50 mm: 225 to 450 Lpm
  Consult your irrigation designer before using any solenoid valve where flow velocities exceed 2 m/sec
- Pressure Range: 140–1034 kPa
- Maximum pressure of 820 kPa if using latching coil (DCLS-P)

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC–9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC–4.8 VA
- Holding current: 0.2 amp

Accessories

- 9–12 VDC Latching Solenoid (DCLS-P) (max. pressure 820 kPa)
- OmniReg® Pressure Regulating Kit

Dimensions (L × W × H)

Code	Length (mm)	Width (mm)	Height (mm)
216B-M	140	108	197
217B-M	160	138	223

The 200B Series
40 mm and 50 mm, solid construction, proven reliability

Ordering Information

Code	Description
216B-M	40 mm Model 200B Solenoid Valve with Flow Control
217B-M	50 mm Model 200B Solenoid Valve with Flow Control

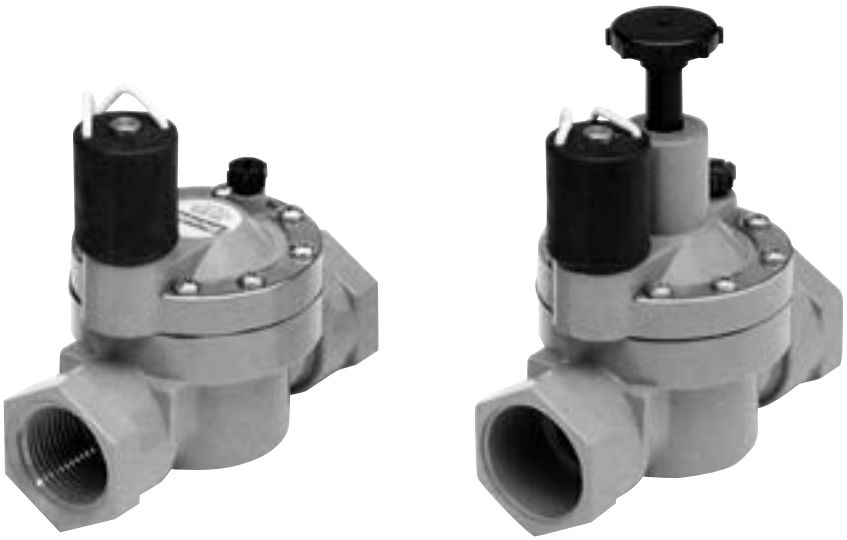
200B Series Valve Friction Loss Data – kPa

Size	Configuration	Flow – Lpm												
		80	100	120	140	160	180	200	225	250	300	350	400	450
40 mm	Globe Angle	21 19	19 17	18 15	16 14	17 14	19 15	23 17	28 11	32 24	39 30			
50 mm	Globe Angle								12 11	14 12	20 15	29 19	36 26	43 33

Shading indicates flow range.

Application

Designed primarily for light commercial and residential use, these rugged electric valves have offered debris-tolerant operation and a high-flow, low-friction-loss design for optimum performance for nearly 40 years.



204/205 Series Valves give optimum performance at all times.

Features

- Improved bonnet design interlocks with the diaphragm and base for greater pressure tolerance
- Manual external bleed
- Debris-tolerant design for use in lightly contaminated dirty water
- High-flow, low-friction-loss design
- Optional flow control allows flow adjustment and manual shutoff
- Heavy-duty construction. Corrosion and UV-resistant PVC
- Rugged, nylon-reinforced Buna-N diaphragm
- Buna-N valve seat seal
- Encapsulated solenoid
- Available in female BSP
- Removable, tamper-resistant flow control handle
- Easily serviced without removal from the system

Dimensions (L × W × H)

Code	Length (mm)	Width (mm)	Height (mm)
204MT	127	70	120
205MT	127	70	130

Operating Specifications

- Flow Range: 1–110 Lpm
- Pressure Range: 70–1034 kPa

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC–9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC–4.8 VA
- Holding current: 0.2 amp

Ordering Information

Code	Description
204MT	25 mm FBSP Solenoid Valve with Manual Bleed
205MT	25 mm FBSP Solenoid Valve with Flow Control

204/205 Series Valve Friction Loss Data – kPa

	Description							
Size	1	10	20	40	60	80	100	110
25 mm	32	25	20	15	14	23	30	34

Shading indicates flow range.

Application

Designed primarily for light commercial and residential use.

Features

- Manual internal bleed enables the valve to be opened without filling valve box with water
- Manual external bleed allows valve to be opened with less pressure and keeps valve clean from debris (flush mode)
- Floating' metering system makes the valve suitable for most bores and dirty water applications
- High flow, low friction-loss design
- Optional ergonomic flow control allows flow adjustment and manual shutoff
- Self-aligning bonnet for fast and easy servicing

Construction

- Heavy-duty, corrosion and UV resistant PVC and stainless steel construction
- Rugged, double-beaded EPDM diaphragm provides leak-proof seal for long-term performance
- Buna-N valve seat seal
- Encapsulated injection-moulded solenoid
- High-strength, self-aligning ribbed bonnet permits fast and easy servicing
- Available in female BSP configuration
- Removable, tamper-resistant flow control handle
- Captured hex/Phillips screws allow easy servicing without removal from bonnet
- Full stainless-steel, "floating" metering system for long-term performance
- Enhanced flush mode seal
- Captive plunger

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC-9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24VAC-4.8 VA
- Holding current: 0.2 amp

Dimensions (L × W × H)			
Code	**Length (mm)**	**Width (mm)**	**Height (mm)**
2500MT	127	70	131
2500MTF	127	70	131

Operating Specifications

- Flow range from 1–110 Lpm.
- Pressure range from 70–1034 kPa.

Accessories

- 9–12 VDC Latching Solenoid (DCLS-P) (Maximum pressure with DCLS-P fitted is 820 kPa)

2500 MTF

2500 MT

2500 Series Valve Friction Loss Data – kPa								
	Description							
Size	1	10	20	40	60	80	100	110
25 mm	32	25	20	15	14	23	30	34

Shading indicates flow range.

Ordering Information	
Code	**Description**
2500MT	25 mm FBSP Solenoid Valve, Internal Bleed and Debris Resistant
2500MTF	25 mm FBSP Solenoid Valve, Flow Control, Internal Bleed and Debris Resistant
2500MTF -DCL-A	25 mm FBSP Solenoid Valve, Flow Control, Internal Bleed and Debris Resistant with DC Latching Coil Installed

Application

Designed primarily for residential use, these durable electric valves offer solid construction, reliable performance and convenient operation to accommodate the specific needs of homeowners.

Features

- Manual internal bleed
- Manual external bleed (flush mode)
- Heavy-duty, corrosion and UV-resistant PVC, glass filled polypropylene and stainless steel construction
- Double-beaded diaphragm provides leak-proof seal
- Buna-N valve seat seal
- Encapsulated solenoid
- Threaded bonnet permits fast and easy servicing
- Full stainless steel metering system
- Available in female BSP or slip (no valve adaptor required) configuration
- Easily serviced without removal from the system

Operating Specifications

- Flow Range: 1–100 Lpm
- Pressure Range: 70–1034 kPa

Electrical Specifications

- Solenoid: 24 VAC
- Inrush volt-amp: 24 VAC–9.6 VA
- Inrush current: 0.4 amp
- Holding volt-amp: 24 VAC - 4.8 VA
- Holding current: 0.2 amp

Accessories

- 9–12 VDC Latching Solenoid (DCLS-P) (Maximum pressure with fitted DCLS-P is 820 kPa)

Dimensions (L × W × H)		
Length (mm)	Width (mm)	Height (mm)
102	78	131

2400 MT

2400 MTF

2400 Series Valve Friction Loss Data – kPa								
	Description							
Size	1	10	20	40	60	80	100	110
25 mm	35	30	24	28	20	24	35	42

Shading indicates flow range.

Ordering Information	
Code	**Description**
2400S50H	25 mm Slip Fit Screw Top Solenoid Valve with Manual Bleed
2400MT	25 mm FBSP Screw Top Solenoid Valve with Manual Bleed
2400MTF	25 mm FBSP Screw Top Solenoid Valve with Flow Control
2400MT-DCL-A	25 mm FBSP Screw Top Solenoid Valve with DC Latching Coil Installed

Application

Designed for light commercial and residential use, suited to contractor installation with enhanced performance and exceptional reliability.

Features & Performance

- Watermark approved
- Perforated (14 paths) debris resistant, Nitrile diaphragm assembly
- Large balanced diaphragm (no spring)
- Extremely slow closing (only causes pressure spike of 15%)
- Heavy duty, corrosion and UV resistant 30% glass filled nylon 66 construction
- Threaded bonnet permits fast and easy servicing
- Australian made and designed
- Manual internal bleed enables valve to be opened without filling valve box with water
- Encapsulated 25% glass filled nylon 66, solenoid assembly
- Ergonomic flow control handle allows precise flow adjustment
- Removable, "tamper resistant" flow control handle
- Easy to read "Flow" direction arrows for installation
- Serviceable with 22 mm metric socket/ spanner
- IV25FC-L valve with DC latching coil does not include flow control and internal manual bleed lever.

Operating Specifications

- Flow range: 1.3–120 Lpm
- Pressure range: 70–1250 kPa

Electrical Specifications

IV25FC

- Inrush Volt-amp: 24 VAC–6.0 VA
- Inrush Current: 0.25 amp
- Holding Volt-amp: 24 VAC–4.5 VA
- Holding Current: 0.18 amp

IV25FC-L

- 4-9 V DC Latching (max. pressure 820 kPa)
- Pulse Width: 20-40 ms

IV25FC Irritrol Valve with Flow Control

IV25FC Irritrol Valve with DC Latching Coil

IV25FC Valve Friction Loss Data – kPa						
	Description					
Size	1	50	60	80	100	120
25 mm	1	1	5	20	30	44

Shading indicates flow range.

Ordering Information	
Code	**Description**
IV25FC	25 mm Nyglass Solenoid Valve with Flow Control
IV25FC-L	25 mm Nyglass Solenoid Valve with DC Latching Coil

Dimensions (L × W × H)			
Code	**Length (mm)**	**Width (mm)**	**Height (mm)**
IV25FC	105	82	115
IV25FC-L	105	82	115

Application

For use in residential drip or spray/ jet irrigation systems. Rugged plastic construction with one-piece moulded "bonnet".

Features

- Available in three models, 13 mm Mini-Barb™, 19 mm Mini-Barb™, and 20 mm BSP Mini-Thread Solenoid Valve
- Working pressure range, 20-1250 kPa
- Internal filter to reduce risk of valve blockages
- For use with low density polyethylene tubing with barbed outlet providing positive sealing
- Simple operation for reliable performance
- Heavy duty engineering plastic construction
- Australian made

Electrical Specifications

- Solenoid: 24 volt AC, 50 Hz
- Inrush current: 0.32 amp
- Holding current: 0.26 amp

Dimensions (L × W × H)

Size	Length (mm)	Width (mm)	Height (mm)
13	80	54	62
19	90	54	62
20	76	54	62

Mini Valves
Small in size but big in performance.

Mini Control Valve Friction Loss Data – kPa

	Description				
Size	3	5	10	15	20
13 barb x 20 BSPM	9	10	33	68	116
19 barb x 20 BSPM	13	15	25	57	100
20 BSPM x 20 BSPM	10	11	30	60	105

Shading indicates flow range.

Ordering Information

Code	Description	Inlet	Outlet
1012313	13 mm Mini-Barb™ Solenoid Valve	20 mm BSPM	13 mm Barb
1012316	20 mm BSP Mini-Thread Solenoid Valve	20 mm BSPM	20 mm BSPM
1012312	19 mm Mini-Barb™ Solenoid Valve	20 mm BSPM	19 mm Barb

- **Century Series Valves**
- **Century Series Scrubber Valves**
- **Ultra-Flow® Series Valves**
- **200B Series**

OmniReg®, a modular pressure regulating device, enabling the user to quickly and accurately set the exact downstream pressure required for any application. No more guessing. No more estimating.

Simply turn the dial to the desired pressure

Graduated dial features easy-to-read settings

Features

- Compatible with 100, 100S, 200B and Ultra Flow series valves
- Simple and easy to install
- Enables the user to quickly and accurately set the downstream pressure
- Easy-to-read, top mounted graduated dial with clearly marked settings for control of downstream pressure
- Operates with a downstream pressure regulation range up to 690 kPa and inlet pressure up to 1400 kPa, and requires only 4 L/m to operate
- Delivers accuracy of +/- 20 kPa
- Desired pressure can be set with water on or off
- Low profile design permits use in applications with limited space
- Manufactured of heavy-duty, corrosion-resistant glass filled nylon with stainless steel and brass hardware
- Maintains constant downstream pressure, regardless of widely varying inlet pressure

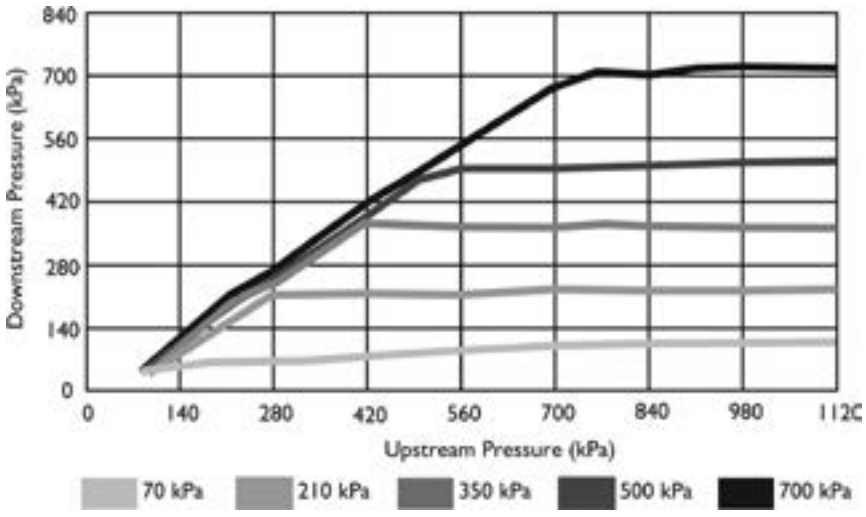
Operating Specifications

- Flow Range: 4-1100 Lpm
- Inlet Pressure Range: Up to 1400 kPa
- Pressure Regulation: 35-210 kPa (OMR-30), 35-690 kPa (OMR-100)
- Inlet pressure must be 70 kPa greater than the desired downstream pressure setting

Note:

Compatible with Century Series and Ultra-Flow valves manufactured after January 1996 and 200B Series valves after January 1998.

Performance You Can Count On



Ordering Information	
Code	**Description**
OMR-30	OmniReg®, 35-210 kPa Modular Pressure Regulator Conversion Kit
OMR-100	OmniReg®, 35-690 kPa Modular Pressure Regulator Conversion Kit

TORO DCLS-P Solenoid

- Potted DC Latching solenoid suits Richdel, 700 series and Century Plus series valves.
- Wetted parts constructed from 400 stainless steel and zytel
- Voltage: 6-14VDC
- Leads: 2, red and black, 45 cm long, 20AWG, PVC insulation
- Latch position: + Red and – Black
- Unlatch position: + Black and - Red

HVC-KIT

- Converts standard solenoid operated valve into hydraulic remotely operated valve. Only suits Toro P150, P220, Irritol Century, Century Plus and S-Series solenoid valves.
- Kit consists of a thread x ¼" barbed adaptor (to replace the coil) and 2 PVC plugs. Suits Toro ¼" control tubing.
- Cannot be used if EZReg or OmniReg® required or fitted.

SPK-700-X

Prepackaged repair kit for UltraFlow® Series valves. Includes diaphragm assembly, support ring, seat seal, O-rings and fasteners

SPK-700 — X

Model	Size
SPK-700-.75	¾″
SPK-700-1	1″
SPK-700-1.5	1½″
SPK-700-2	2″

SPK-100-X

Prepackaged repair kit for Century Series valves. Includes diaphragm assembly, support ring, O-ring metering rod and fasteners

SPK-100 — X

Model	Size
SPK-100-1	1″
SPK-100-1.5	1½″
SPK-100-2	2″
SPK-100-3	3″

R100PX

Prepackaged repair kit for Century PLUS Series valves. Includes diaphragm assembly, support ring, O-rings, metering rod and fastening nuts

R100P — X

Model	Size
R100P1	1″
R100P1.5	1½″
R100P2	2″
R100P3	3″

Butterfly Valves

Applications

- Isolation of larger diameter valve hurdles
- Pipeline Isolation
- Pump Station Headworks

Features

- Pressure rating: 1035 kPa
- Construction Material:
  Stem: Stainless Steel, Grade 410 (ASTM A182 F6A)
  Disc : Stainless Steel, Grade 316 (ASTM A351 CF8M)
  Seat : EPDM
  Body: Epoxy coated, Cast Iron (ASTM A156 CLASS B)
- Wafer style
- Lever Handle
- Available in 80, 100, 150 and 200 mm

Ordering Information	
Code	**Description**
101BFV80	80 mm Wafer style Butterfly Valve
101BFV100	100 mm Wafer style Butterfly Valve
101BFV150	150 mm Wafer style Butterfly Valve
101BFV200	200 mm Wafer style Butterfly Valve

Brass Ball Valves

Applications

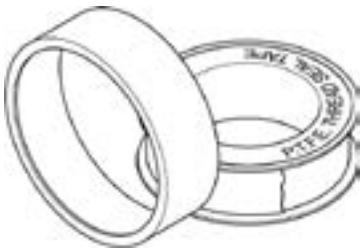
- Isolation of Valve hurdles
- End of line flushing

Features

- Pressure rating: 1035 kPa
- Construction Material:
  Nickel plated Brass body
  Stainless steel handle and nut
- FBSP threads, 15 mm to 100 mm
- Working Temperature: -10˚C to 120˚C

Brass Ball Valves

PVC Ball Valves



PTFE Tape

PVC Ball Valves

Applications

- Isolation of Valve hurdles
- End of line flushing

Features

- Pressure rating: 1035 kPa
- Construction Material:
  ABS handle, PVC body and ball
  EPDM seat seal and O-Ring
- FBSP threads, 15 mm to 100 mm
- Working Temperature: 5˚C to 50˚C

PTFE Tape

- 12 mm wide × 10 & 30 m rolls
- 0.1 mm thick, white tape
- Heavy duty 0.3 grams per cubic centimetre

Extra Heavy Duty Pink Plumbers Tape

- 12 mm wide × 10 m roll
- 0.1 mm thick, pink tape
- 1.0 gram per cubic centimetre

Ordering Information	
Code	**Description**
101BBV15S	15 mm BSPF Brass Ball Valve
101BBV20S	20 mm BSPF Brass Ball Valve
101BBV25S	25 mm BSPF Brass Ball Valve
101BBV32S	32 mm BSPF Brass Ball Valve
101BBV40S	40 mm BSPF Brass Ball Valve
101BBV50S	50 mm BSPF Brass Ball Valve
101BBV80S	80 mm BSPF Brass Ball Valve
101BBV100S	100 mm BSPF Brass Ball Valve

Ordering Information	
Code	**Description**
101PBVT15	15 mm BSPF PVC Ball Valve
101PBVT20	20 mm BSPF PVC Ball Valve
101PBVT25	25 mm BSPF PVC Ball Valve
101PBVT32	32 mm BSPF PVC Ball Valve
101PBVT40	40 mm BSPF PVC Ball Valve
101PBVT50	50 mm BSPF PVC Ball Valve
101PBVT80	80 mm BSPF PVC Ball Valve
101PBVT100	100 mm BSPF PVC Ball Valve

Ordering Information	
Code	**Description**
101TT12	10 m roll × 12 mm wide PTFE Tape
101TT1230	30 m roll × 12 mm wide PTFE Tape
101TT12P	12 mm × 10 m Extra Heavy Duty Pink Plumbers Tape

Applications

The Dual Check Valve provides protection to the potable water supply from contamination in low hazard applications like meter connections on domestic properties.

Features

- Protects against back pressure and back siphonage
- Suitable for low hazard applications
- Compact and lightweight
- Corrosion resistant
- Independently operating check valves
- Operating temperature range of 1°C to 60°C
- Suitable for vertical and horizontal installations
- Approved to AS 2845-1

Plastic Dual Check Valve

- Technical data:
  Inlet and outlet: female BSP
  Minimum working pressure: 220 kPa
  Maximum working pressure: 1050 kPa
  Operating temperature range: 1°C to 60°C

Pressure Loss		
Code	**Flow (Lpm)**	**Pressure Loss (kPa)**
101DC20P	60	50
101DC20PN	60	50
101DC25P	60	30

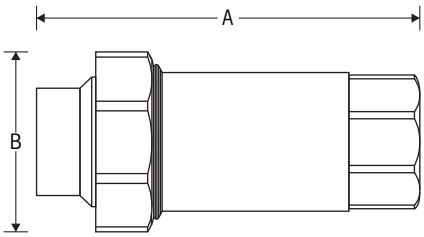
Ordering Information	
Code	**Description**
101DC20P	20 mm Plastic Dual Check Valve, F x BSPF
101DC20PN	20 mm Plastic Dual Check Valve, F x BSPF with nipples
101DC20NB	20 mm nipple with O'ring to suit 101DC20P
101DC25P	25 mm Inlet x 25 mm Outlet Plastic Dual Check Valve, F x BSPM

Brass Dual Check Valve

- Materials:
  DR Brass body and covers
  Stainless steel springs
- Technical data:
  Inlet and outlet: female BSP
  Minimum working pressure: 220 kPa
  Maximum working pressure: 1200 kPa

Dimensions (L × W)		
Nominal Size	**A. Length (mm)**	**B. Width (mm)**
20 mm	91	46
25 mm	92	46

Dimensions are indicative only.



Dual Check Valve Dimensions

Pressure Loss vs. Flow		
	Valve Size	
	20 mm (101DC20)	**25 mm (101DC25)**
Flow Rate (L/m)	**Pressure Drop (kPa)**	
0	0	0
20	4	2
40	11	9
60	28	26
80	62	58
100	100	95
120	157	145

Applications

A heavy duty pressure regulating valve, for use in irrigation systems like residential and commercial turf/landscaping, drip and other low flow micro, centre pivot, nurseries and greenhouses.

Features

- Wide operating flow range 1.9 to 45 Lpm
- 7 models effectively regulate downstream pressures at the following settings: 69, 103, 138, 173, 208, 242 and 276 kPa all preset to exacting factory specifications
- High strength ABS construction – impact resistant
- 20 mm FBSP inlet and outlet
- Tamper-proof joints sonically welded to eliminate unauthorized changes to pressure settings

Specifications

- Body: chemical resistant ABS plastic
- Diaphragm: EPDM
- Spring: stainless steel
- Inlet: 20 mm (¾″) FBSP
- Outlet: 20 mm (¾″) FBSP
- Overall length: 102 mm
- Outside diameter: 47 mm
- Operating pressure range: 70-1104kPa

101PR10

Ordering Information	
Code	**Description**
101PR10	Pressure Regulator – 69 kPa
101PR15	Pressure Regulator – 103 kPa
101PR20	Pressure Regulator – 138 kPa
101PR25	Pressure Regulator – 173 kPa
101PR30	Pressure Regulator – 208 kPa
101PR35	Pressure Regulator – 242 kPa
101PR40	Pressure Regulator – 276 kPa

Performance

	Input Pressure												
101PR10	**kPa**	**69**	**103**	**138**	**208**	**276**	**345**	**414**	**552**	**690**	**827**	**965**	**1104**
Flow	**Litres**	**Output Pressure (kPa)**											
	1.9	68	68	68	68	68	70	72	78	84	88	92	92
	3.8	68	69	69	69	69	69	69	69	70	70	73	73
	11.4	65	70	70	70	70	70	70	70	70	67	67	67
	22.7	49	66	72	72	72	72	72	72	72	72	72	72
	34.1	32	44	56	71	73	73	73	73	74	77	80	83
	45.4	32	44	56	71	73	73	73	73	74	77	80	83
101PR15													
Flow	1.9			102	105	105	106	108	112	117	120	124	125
	3.8			103	105	105	105	105	106	107	108	109	109
	11.4			105	105	105	106	106	107	107	108	109	108
	22.7			90	104	104	104	104	104	104	104	104	104
	34.1			73	93	108	108	108	108	108	108	110	112
	45.4			59	79	97	110	112	112	113	117	122	125
101PR20													
Flow	1.9			135	138	138	138	138	138	142	145	148	151
	3.8			134	136	137	137	137	137	137	138	139	139
	11.4			130	136	137	137	137	137	137	137	137	137
	22.7			99	133	136	136	135	135	134	133	133	133
	34.1			80	110	133	138	138	138	138	138	138	138
	45.4			68	90	122	132	138	138	138	141	145	147
101PR25													
Flow	1.9				160	162	163	165	168	173	184	191	191
	3.8				161	161	162	163	163	167	168	170	171
	11.4				163	163	163	163	163	163	163	163	163
	22.7				148	162	162	162	162	162	162	163	163
	34.1				129	151	162	163	163	165	165	165	165
	45.4				102	136	147	165	169	171	172	174	177
101PR30													
Flow	1.9				200	201	203	206	214	217	219	226	231
	3.8				200	200	203	203	207	207	210	210	214
	11.4				200	203	202	204	204	204	205	205	205
	22.7				159	193	197	200	202	203	203	203	203
	34.1				138	165	186	200	203	203	203	203	203
	45.4				117	152	171	200	207	210	210	210	210
101PR35													
Flow	1.9					241	241	241	243	248	252	255	261
	3.8					237	239	239	240	241	245	246	248
	11.4					234	239	239	239	239	239	239	239
	22.7					209	236	236	236	236	236	238	236
	34.1					199	221	234	236	236	236	236	236
	45.4					158	200	221	245	245	245	245	245
101PR40													
Flow	1.9					269	276	279	283	290	293	296	300
	3.8					269	276	276	276	276	283	283	283
	11.4					255	276	276	276	276	276	276	276
	22.7					221	255	269	276	276	276	276	276
	34.1					200	248	269	276	276	276	276	276
	45.4					165	207	248	283	283	283	283	285

Quick Coupling Turf Valves

- One or two piece brass construction for a wide range of applications
- Weighted cover to prevent dirt entry
- Optional lockable yellow vinyl cover uses valve key handle as locking key
- Lilac colour rubber top to indicate reclaimed water use (sold seperately)
- Pressure rating: 1000 kPa

Quick Coupling Valve Keys

Provides instant sprinkler or hose swivel connection to quick coupling valve.

- Durable de-zinc resistant brass construction
- Double as security key on lock-up models (1013472 and 1013474 only)

Swivel Elbows

Provides swivel connection of hose to coupler to prevent hose kinking.

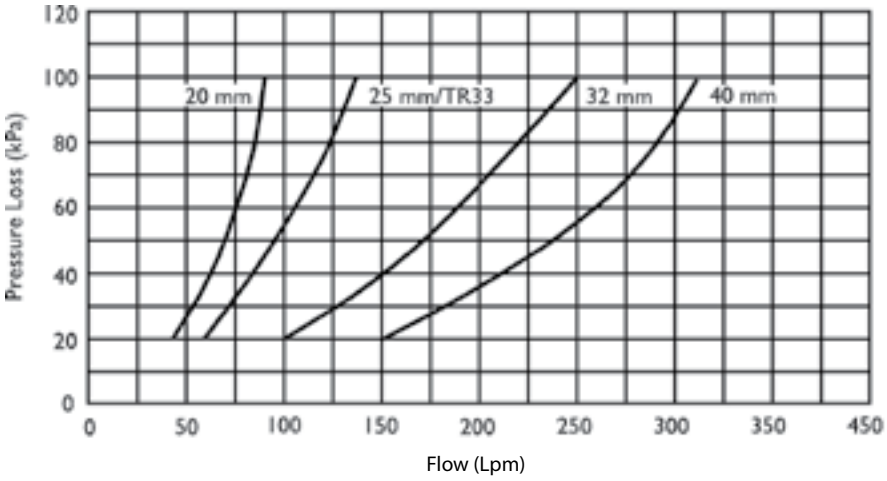
- Durable de-zinc resistant brass construction

Swivel Elbows are used to prevent hose kinking when connecting a hose to a coupler

The range of Quick Coupling Turf Valves is extensive with models to suit almost every need

Valve Keys are used to open Quick Coupling Valves

Quick Coupling Valves – Flow vs Pressure



(Note: 32 mm model shown, but no longer available)

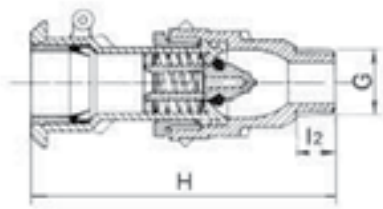
Ordering Information	
Code	**Description**
Quick Coupling Valves	
1013451	#2 20 mm Two Piece Body
1013453	#33 25 mm One Piece Body
1013454	#3B 25 mm Two Piece Body
1013456	#6 40 mm Two Piece Body
1013450	TR33 25 mm One Piece Body
Rubber Cover	
1013463	RT Rubber Top & Screw, Yellow, suits all models
1013457	Lilac Rubber Top & Screw, suits all models
Quick Coupling Valve Keys	
1013470	#2 25 mm (M) 20 mm (F), 2 Lug Valve Key, suit 1013451
1013472	#3B 25 mm (M) 20 mm (F), 2 Lug Valve Key, suit 1013453, 1013454
1013474	#6F 40 mm (M), 32 mm (F), 1 Lug Valve Key, suit 1013456
1013469	TR33, 25 mm (M), 1 Lug Valve Key, suit 1013450
Swivel Elbows	
1013482	#3 25 mm Female × 25 mm Male Swivel Elbow (suits 1013472)
1013484	#5 40 mm Female × 32 mm Male Swivel Elbow (suits 1013474)

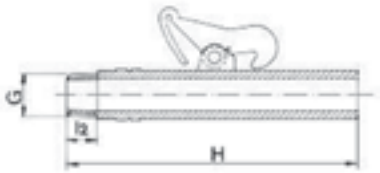
Applications

Low cost alternative to brass quick coupling valves and keys. More suited to low pressure systems or downstream of control valves.

Specifications

- Material: polypropylene body and nutrile rubber seal
- Pressure rating: 1000 kPa





Dimensions				
Code	**Size (G)**	**H (mm)**	**I2 (mm)**	**Weight (grams)**
1012711	20 mm (¾″) MBSP	146	17	144
1012712	25 mm (1″) MBSP	148	18	147
1012713	20 mm (¾″) MBSP	173	18	66

Ordering Information	
Code	**Description**
1012711	20 mm MBSP TR Plastic Quick Coupling Valve
1012712	25 mm MBSP TR Plastic Quick Coupling Valve
1012713	Plastic Key to suit 1012711, 1012712, with 20 mm MBSP outlet

Applications

For use with F600 Sand Media Tanks. The valves provide three way operation for backwashing.

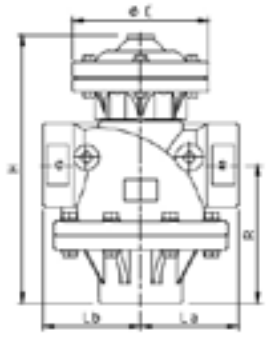
Features

- Unique diaphragm actuated plug assembly for smooth operation
- No rolling diaphragm
- Closes supply port before backflush port opens
- No supply water to waste
- High flow capacity

Pressure Loss, Kv Factor for Bermad 350 series Backwash Valves (Angle Flow)

Code	Valve	Filtering Mode	Backwash Mode
BFLV22P	2x2-350-P	K_v = 52	K_v = 48
BFLV33P	3x3-350-P	K_v = 110	K_v = 100
BFLV44P	4x4-350-P	K_v = 225	K_v = 205

Pressure Loss Equation : $P = (Q / K_v)^2$ where P = pressure loss in bar, Q = flow in m^3/hr, $K_v = m^3/hr$ at pressure loss of 1 Bar



BFLV22P

BFLV33P

BFLVL44P

Specifications

Valve Code	BFLV22P	BFLV33P	BFLVL44P
End Connections	2" BSPF/50 mm Thread	3"/80 mm Grooved	4"/100 mm Grooved
Flush Connections	2" BSPF/50 mm Thread	3"/80 mm Grooved	4"/100 mm Grooved
Pressure Range	70-1000 kPa	70-1000 kPa	70-1000 kPa
Maximum Temperature	65˚C	65˚C	65˚C
Chambers	2	2	2
Valve Body	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Separating Partition	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Cover	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Diaphragm	NR-AL52 Nylon Fabric Reinforced	NR-AL52 Nylon Fabric Reinforced	NR-AL52 Nylon Fabric Reinforced
Seats, Diaphragm washers	Brass	Brass	Stainless Steel 304
Plug, Plug washer	Acetal Copolymer	Acetal Copolymer	Acetal Copolymer
Stopper Disc	PVC-U	PVC-U	PVC-U
Seal, O-Rings	NBR	NBR	NBR
Spring	Stainless Steel AISI 302	Stainless Steel AISI 302	Stainless Steel AISI 302
Shaft	Stainless Steel AISI 303	Stainless Steel AISI 303	Stainless Steel AISI 303
External Bolts, Nuts and Discs	Stainless Steel	Stainless Steel	Stainless Steel
Control Chamber Volume Displacement	0.13 L	0.34 L	0.55 L

Dimensions and Weights

Size	2" x 2" Threaded	3" x 3" Grooved	4" x 4" Grooved
H (mm)	274	378	464
R (mm)	127	120	225
La (mm)	90	143.5	138.5
Lb (mm)	90	143.5	178.5
ØC (mm)	126	160.5	210
Weight (kg)	2.8kg	2.8kg	9.9kg

Ordering Information

Code	Description
BFLV22P	2"× 2" 350 Series Plastic Backwash Valve (no coil)
IR2X2350-55-A-BP	2"× 2" 350 Series Plastic Backwash Valve (with 24VAC coil)
BFLV33P	3"× 3" 350 Series Plastic Backwash Valve (no coil)
BFLVL44P	4"× 4" 350 Series Plastic Backwash Valve (no coil)

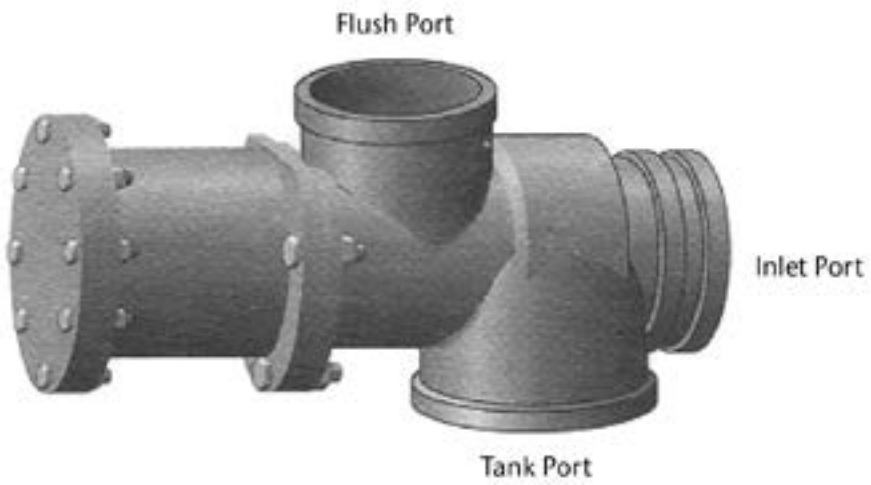
Applications

For use as a backwash valve on Toro's range of stainless steel media filter tanks.

Specifications

Construction Material:

- Body: Cast Iron ASTM A126, class B with fusion epoxy coating
- Valve stem: 304 stainless steel
- Stem Guide Bushing: PVC
- Nuts, Bolts & Washers: 304 stainless steel
- Connections: Grooved victaulic
- Pressure Rating: 1000 kPa



Stainless Steel Filter Backflush Valve Dimensions					
Tank Size (inch/mm)	**Flush Valve**	**Inlet Port (inch/mm)**	**Tank Port (inch/mm)**	**Flush Port (inch/mm)**	**Weight (kg)**
24/600	F011526	3 / 80	4/ 100	2 ½ / 65	12.6
36/900	F011526	3 / 80	4 /100	2 ½ / 65	12.6
45/1100	F011551	4 / 100	5 / 125	4 / 100	13.6
48/1200	F011551	4 / 100	5 / 125	4 / 100	13.6

Controller Overview

Model	DDC™ WP	DDC™	Tempus™ DC	TMC-424E	Custom Command	TDC Series
Page Number	246-247	248-249	250	251-252	253	254
Number of Stations	2, 4, 6, 8	4, 6, 8	1, 2, 4, 6	4 to 24	9, 12, 15, 18, 24, 36, 48	100-200
Modular				X		X
*Flow-Sensing				X		
Two-wire Decoder						X
*RainSensor Compatible	X	X	X	X	X	X
Number of Programs	3	3	4	4	4	10
Simultaneous Program Operation				X	X	X
Number of Start Times	3 per Program	3 per Program	3 per Program	16	16	6
Maximum Station Runtime	4 hours	4 hours	8 hours	8 hours	10 hours	99 min
Minimum Station Runtime	1 min	1 min	1 min	1 sec	1 min	1 min
Days of the Week Programming	X	X	X	X	X	X
Odd/Even Programming	X	X	X	X	X	X
Interval Programming	X	X	X	X	X	X
*ET-Optimized Programming						
Valves Per Station	1	1	1	2	2	2
Battery-Powered	X		X			
Armchair™ Programming	X	X		X	X	
App/Smart Device Programming			X			
Optional High-Surge Protection				X	X STD on 24 STN	X
Enclosure	Waterproof Indoor/Outdoor	Indoor/Outdoor	Waterproof Indoor/Outdoor	Outdoor	Outdoor	Outdoor
Program Retention	Five years	Five years	Five years	Five years	Five years	Five years
Warranty	Two years	One year	Two years	Five years	Five years	Five years

** WaterSmart® Feature*

- **2-, 4-, 6- and 8-Stations**
- **Battery-powered**
- **Waterproof**

Looking for a rugged waterproof controller ideal for remote or isolated installations? Toro's DDCWP Series controller provides all that and more. Using the potted DC latching solenoid, the DDCWP is battery-operated using two 9V batteries.

Features & Benefits

Fully Waterproof and Submersible
Submersible up to 1,9 m per IP-68 standards, allowing contractors to mount up to an 8-station controller in a valve box.

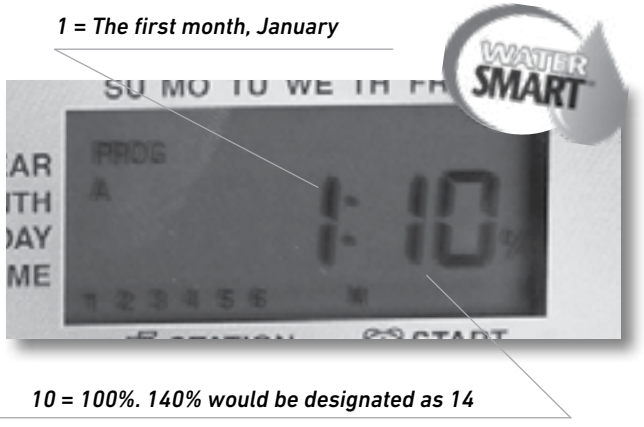
Operates DC Latching Solenoids
Controller is compatible with most manufacturers' DC Latching solenoids.

Exclusive "Digital Dial" Technology
Simple programming functions.

Unique Power Feature
Verifies sufficient voltage level for turning stations off before turning any stations on.

Monthly Watering Schedule
Monthly preset option – ideal for automatic runtime adjustments.

Water Management Highlight



Monthly % Adjust

DDCWP adjusts annual irrigation run time during initial controller set up. Options include from 0-200% and January to December scheduling. With easy adjusting for seasonal watering, water savings is enhanced for all-around intelligent programming.

Specifications

Dimensions

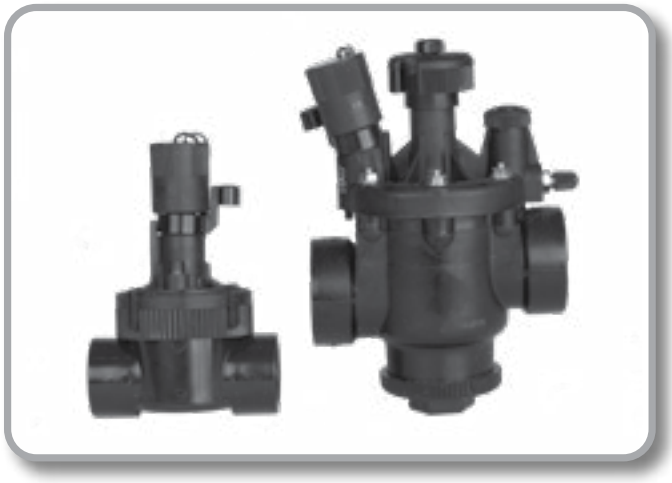
- 146 mm (W) x 127 mm (H) x 50 mm (D)
- Weight: 660,5 g without 9V batteries (batteries not included)

Operating Specifications and Additional Features

- Operating temperature: 0°C to 60°C
- Operates using two x 9V alkaline batteries (not supplied)
- Operates one latching solenoid per station and one latching solenoid-equipped master valve
- Controller is compatible with all Toro valves accepting latching solenoids (model DCLS-P or equivalent) and competitive valve models/latching solenoids
- Accepts Toro TRS Wired RainSensor™, Wired Rain/Freeze and other normally-closed sensors
- Low-battery indicator visible on LCD screen
- Three independent programs and three start times per program
- Three scheduling choices by program
- Seven-day calendar
- 1 to 7-day interval
- Odd/even with 365-day calendar and 31st day exclusion
- Station run times from one minute to four hours in one-minute increments
- Seasonal adjust by month from 0-200% in 10% increments
- Manual operation by station or program
- Self-diagnostic circuit breaker skips shorted stations
- Up to five-year program retention with on-board coin battery saves time of day and all programming features

Warranty

- Two years



EZ-Flo® Plus and P-220 valves shown with the DCLS-P Latching solenoid which provide cost and labor savings

Battery Cap

Easy installation of two 9V batteries with the simple screw on/off lid. The battery cap provides a dependable leak-proof seal allowing submersion up to 1.9 m per IP-68

DDCWP Series Model List

Model	Description
DDCWP-2-9V	2-station
DDCWP-4-9V	4-station
DDCWP-6-9V	6-station
DDCWP-8-9V	8-station

Wire Run Lengths for DDCWP

With battery voltage at 9 VDC, maximum recommended wire runs for an 8-station DDCWP are:

Multi-strand Wire	Distance
	Meters
1.0 mm² (18 AWG)	60 m
1.5 mm² (16 AWG)	93 m
2.5 mm² (14 AWG)	150 m
4.0 mm² (12 AWG)	250 m

DDC™ Series Residential Controller

- **4, 6 and 8 Station**
- **Digital Dial Technology**
- **Indoor and Outdoor**

The DDC features an exclusive, patented virtual dial interface that guides a user through simple programming functions. Although compact in size, several large features are packed into the DDC – making it extremely affordable for any residential application.

Features & Benefits

Toro exclusive "digital dial" technology
Simulates the simplicity of a mechanical dial

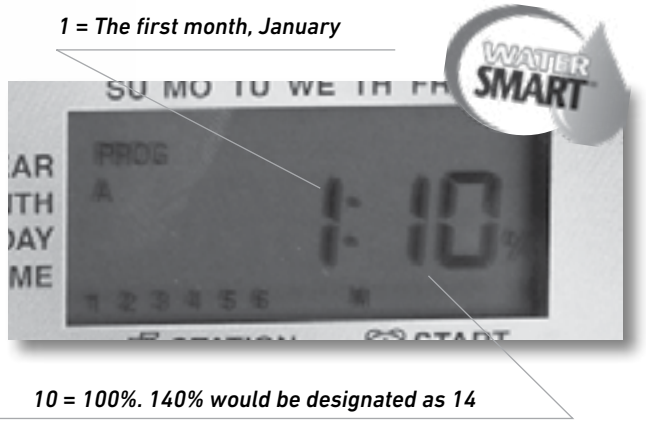
3 independent programs
Easily identified within "digital dial" interface

Water Budget: 0 to 200% in 10% increments
Monthly preset option — ideal for system start-up or shutdown in advance

Self-diagnostic circuit breaker
Identifies irrigation faults

Multi-lingual Display
User selectable multi-language overlays

Water Management Highlight



Monthly Season Adjust:
Irrigation run times can be set and then pre-adjusted for entire year from 0-200% in 10% increments by month. With easy adjusting for seasonal watering, water savings is enhanced for all around intelligent programming.

Specifications

Operating Specifications and Features

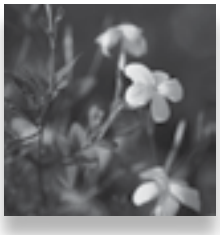
- Indoor:
  - Weight without 9-volt battery: 280 g
  - Dimensions:
    127 mm (H) x 146 mm (W) x 40 mm (D)
  - 500mA class 2 transformer
- Outdoor:
  - Weight without 9-volt battery:
    1.14 kg
  - Dimensions:
    220 mm (H) x 178 mm (W) x 89 mm (D)
- Input power:
  - 240 VAC, 50 Hz (Plug-in transformer, CE Mark)
  - 0.50 amps (60 W) maximum
- Station Output Power:
  - 24 VAC
  - 0.25 amps (6 VA) per station maximum
  - 0.25 amps (6 VA) pump start/master valve
  - 0.50 amps (12 VA) total load

Additional features

- Large LCD display
- 3 Start Times per Program
- Key locking outdoor cabinet provides vandal resistance
- 1 to 240 minute run times with delay between stations
- Multiple watering days options:
  - 7 day calendar
  - 14 day interval
- Odd/Even day watering, with 31st day exclusion
- Manual programs start for programs stored in controller memory
- Built-in Rain delay with sensor terminal hookups
- Arm-Chair programming with 9-volt battery power source
- Programmable Master Valve
- Convenient program review feature
- Program retention with on board coin battery
- Default program if loss of power occurs
- Quick reference card for programming assistance
- Accepts Toro TWRS or TWRFS wireless rain/freeze sensor
- Self diagnostic circuit breaker
- 365 day calendar

Warranty

- One year


DDC Series 220 VAC Model List	
Model	**Description**
Indoor Digital Dial Controllers	
DDC-4-240	4-Station, Indoor, 240 VAC Plug-In Transformer
DDC-6-240	6-Station, Indoor, 240 VAC Plug-In Transformer
DDC-8-240	8-Station, Indoor, 240 VAC Plug-In Transformer
Outdoor Digital Dial Controllers	
DDC-4-240-ODC	4-Station, Outdoor, 240 VAC, Corded
DDC-6-240-ODC	6-Station, Outdoor, 240 VAC, Corded
DDC-8-240-ODC	8-Station, Outdoor, 240 VAC, Corded

Tempus™ DC Series Controller

- **Bluetooth Connectivity**
- **1, 2, 4, 6 Stations**
- **Waterproof**
- **Battery-powered**

Take watering to the next level with Toro's innovative NEW Tempus™ DC Battery-Operated Controller. Ideal to manage irrigation in areas without electricity and enabled with Bluetooth® technology to provide you full control of your watering from your smartphone or device.

Features & Benefits

Bluetooth® Connectivity
Allows instant control from your smartphone device without having to access the valve box.

Simple Intuitive Programming via App
Simple, user-friendly programming using the new Toro App.

2 Display Versions To Choose from - WITH and WITHOUT LCD Screen
Available in versions with and without LCD display to suit your controlling and programming needs..

Waterproof
Housed in a durable IP68 rate plastic case to withstand water and extreme weather conditions.

Battery-Operated
Ideal for use in areas without mains power available.

Water Budget
Enables the run time to be adjusted from 0% to 200% in 10% increments.

Rain Sensor-Ready
Has set input for rain sensor to make water conservation easy and simple.

With LCD

No LCD

Specifications

Dimensions

- Size:
  - TEMPUS™ DC without LDC: 12 cm x 11,5 cm x 5 cm (W x H x D)
  - TEMPUS™ DC with LCD: 10,5 cm x 15,5 cm x 5 cm (W x H x D)
- Weight:
  - TEMPUS™ DC without LDC: 250 gr.
  - TEMPUS™ DC with LCD: 260 gr.

Operating Specifications & Additional Features

- 1, 2, 4, 6 stations.
- 4 independent programs
- 3 start times per program.
- Non-volatile memory retains programming in the event of power outage or battery replacement.
- Bracket for optional on-valve installation.
- Watering time from 1 minute to 8 hours in 1 minute increments.
- Flexible irrigation programming:
  - Daily
  - Weekly
  - Odd/Even Day
  - 1 to 31-day intervals.
- Automatic, semi-automatic and manual start.
- Programmable rain delay from 1 day up to 15 days.

Electrical Specifications

- Battery-operated (4 x 1.5V battery for LCD Model; 9V battery for NO LCD Model).
- Operating temperature of -10˚ C to 50˚ C.
- Output 9V DC latching.
- Compatible with Toro DCLS-P DC latching solenoid (max pressure 6 bar) and works with most competitor coils.
- Maximum distance of 300 m between controller and DC latching solenoid (cable section 0.75mm^2).
- IP68-rated, 100% waterproof case.

Warranty

2 years

TEMPUS™ DC SERIES MODEL LIST

MODEL	DESCRIPTION
TEMP-1-DC	Battery-powered controller, 1 station with bluetooth, no LCD
TEMP-2-DC	Battery-powered controller, 2 station with bluetooth, no LCD
TEMP-4-DC	Battery-powered controller, 4 station with bluetooth, no LCD
TEMP-6-DC	Battery-powered controller, 6 station with bluetooth, no LCD
TEMP-1-DC-L	Battery-powered controller, 1 station with bluetooth and LCD
TEMP-2-DC-L	Battery-powered controller, 2 station with bluetooth and LCD
TEMP-4-DC-L	Battery-powered controller, 4 station with bluetooth and LCD
TEMP-6-DC-L	Battery-powered controller, 6 station with bluetooth and LCD

- **4- to 24-Stations**
- **Outdoor**
- **Modular**
- **Flow-Sensing**

The TMC-424E Series takes modularity to a whole new level. Toro's advanced modular technology combines sophisticated features with simple operation to provide a customizable controller.

Expandable with 4 and 8 station modules :

Normal Surge *High Surge* *Flow monitoring*

Features & Benefits

Station Count Modularity
Station count modularity from 4 to 24 stations using 4- or 8-station modules for flexibility.

Two Levels of Surge Protection
Standard or High Surge modules provide options to meet regional lightning protection needs.

Flow-Sensing
Monitor and react to system leaks or breaks.

Up to 4 Master Valve or Pump Start Connections
Options for connection of up to four Master Valve or Pump Start Relays utilizing TSM-4F or TSM-8F modules.

Run Times In Minutes or Seconds
Ability to set run times for less than a minute provides efficient watering for planter box, misting cycle, nursery, or syringe cycle needs.

Armchair Programming
Removable Timing Mechanism can be powered by 9V battery allowing for easy and comfortable programming.

Water Management Highlight

Flow-Sensing for Greater Water Savings

With flow-sensing capability that monitors up to three independent flow sensors, the controller consistently monitors for problems and takes action as needed to isolate breaks or system issues.

Specifications

Dimensions

- 273 mm (W) x 260 mm (H) x 117 mm (D)
- Weight: 3.2 kg

Electrical Specifications

- Input power:
  - 240 VAC, 50 Hz
  - 30 VA
  - UL, CUL-listed
- Station output power:
  - 24 VAC
  - 0.50 amps (12 VA) per station maximum
  - 0.50 amps (12 VA) pump/master valve
  - 1.20 amps total load
- Surge Protection:
  - Standard: 6.0 KV common mode; 600 V normal mode
  - High Surge: 6.0 KV common mode; 6.0 KV normal mode

Specifications and Features

- Four programs with a total of 16 start times that can be allocated between the programs
- Three Scheduling choices
  - Seven-day calendar
  - 1- to 31-day interval with day exclusion
  - Odd/even days with day exclusion
- Station run times in minutes or seconds
- Programmable well recovery/station delay from 1 to 60 seconds or 1 to 60 minutes (8 hrs is the maximum run time)
- Pump start/master valve settable by program and station
- Operate up to three programs simultaneously
- Rain delay from one to 14 days and water budgeting from 0-200% in 10% increments
- Hot-swappable station modules
- Review feature quickly recaps all program information
- Short detection for faster troubleshooting
- Valve Test mode for quick system checks
- Multi-language capability (English, Spanish, French, Italian, German and Portuguese)
- Program erase
- 12/24-hour real-time clock
- Non-volatile memory

Optional Accessories

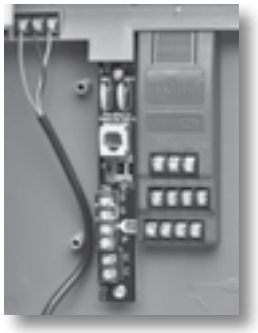
- TRS: Wired RainSensor
- TWRS-1/TWRFS-1: Wireless RainSensor or Wireless Rain/Freeze Sensor
- TFS: Flow Sensor

Warranty

- Five years

Up to 4 Master Valve/PS Connections

One on controller terminal block and 3 flow-sensing modules. Any station can be assigned to any MV. Options for a single station to activate both a controller and flow module MV/PS connection (e.g., MV and Booster Pump activation).



TMC-424E Series 220 VAC Model List	
Model	**Description**
TMC-424E-ODC-50H*	Modular, Outdoor, 240VAC/50Hz
Base models include TSM-4 (4-station Module)	
Station Modules - ***Base model includes 4 stations***	
Model	**Description**
TSM-4	4-station Expansion Module
TSM-4H	4-station Expansion Module, High-Surge
TSM-4F	4-station Expansion Module, Flow-Sensing
TSM-8	8-station Expansion Module
TSM-8H	8-station Expansion Module, High-Surge
TSM-8F	8-station Expansion Module, Flow-Sensing

- **12, 15, 18, 24, 36, 48 Stations**
- **Wall or Pedestal Mount**

With the highest surge protection in its price range, the Toro® Custom Command offers durability and performance in one rugged commercial-grade controller.

Features & Benefits

Versatile Runtimes
Run times from one minute to ten hours in one-minute increments meet the needs of standard or drip applications.

Independent Programs
Four fully independent programs and 16 start times that can run concurrently with start time overlap protection within each program.

High Surge Protection
Highest surge protection in its price range for lightning-prone areas.

Water Management Highlight

Wired RainSensor or Wireless Rain/Freeze sensors will stop irrigation when it rains or when temperature drops below a user-defined point.

Specifications

Dimensions
- Plastic 12-24 Stations – 292 mm (W) x 149 mm (H) x 219 mm (D)
- Weight: 6.8 kg
- Metal 36-48 Stations – 273 mm (W) x 399 mm (H) x 146 mm (D)
- Weight: 8.1 kg

Electrical Specifications
- Input Power
  - 240 VAC, 50 Hz
  - 50VA
- UL, CUL Listed
- Station output power
  - 24 VAC (60 Hz)
  - 0,50 amps (12 VA) per station maximum
  - 0,50 amps (12 VA) pump/master valve
  - 1,25 amps (30 VA) total load

Operating Specifications
- Three selectable watering schedules:
  - Seven-day calendar
  - Odd/even days with day exclusion
  - 31-day interval
- 365-day calendar with automatic compensation for leap year
- Rain delay from one to seven days
- Program stacking for simultaneous operation of one to four programs
- Season % Adjust by month
- Individual station manual start and manual start by program
- Independent program erase for each program
- Master valve/pump start operation selectable by program
- Available in 12, 15, 18, 24, 36 and 48 station models
- Non-volatile memory retains programmed information in event of power failure
- Self-diagnostic circuit breaker that identifies and overrides faulty stations

Optional Accessories
- TRS: Wired RainSensor
- TWRS-1/TWRFS-1: Wireless RainSensor or Rain/Freeze Sensor

Warranty
- Five years

High-Surge Protection

With the highest surge protection in its competitive price range, a self-diagnostic circuit breaker and a five-year warranty, this controller withstands the test of time.

Custom Command Series 230 VAC Model List

Model	Description
Wall-Mount Plastic Cabinet	
CC-P12-50HC	12-station
CC-P15-50HC	15-station
CC-P18-50HC	18-station
CC-P24-50HC	24-station
Wall-Mount Metal Cabinet	
CC-M36-50HC	36-station
CC-M48-50HC	48-station

- **100-200 Stations**
- **1, 2 or 4-Station Decoders**

For an energy efficient, highly cost-effective way to irrigate large commercial installations, you'll want the TDC Series from Toro®. Using a two-wire path to communicate to buried decoders, the TDC system eliminates high costs associated with traditional valve wiring, trenching and trouble-shooting.

Features & Benefits

ISP Decoders
Industry leading surge protections up to 20 KV means less grounding in the field than competitive products.

Advanced Diagnostics
The TDC provides true two-way communication with each decoder in the field, thus providing communication verification to decoders in the field, as well as shorted or open solenoid conditions, making troubleshooting a breeze.

Low-Power Operating Costs
The TDC Decoders operate DC Latching Solenoids which utilize no power when valves are in operation.

Water Budget
Water budget by controller, by program and by station (Season Adjust) 0 to 250% in 1% increments.

Simple, Intuitive Programming
Installation and future servicing are quick and simple thanks to the large LCD display and the industry's most intuitive interface.

Key-locking, Front-Entry, Metal Cabinet
TDC offers a key-locking cabinet in both the outdoor and indoor model controllers. Constructed from heavy-duty powder-coated metal, this is a wall-mount cabinet that provides superior weather and vandalism resistance.

Modular Design
The base model of the TDC offers 100 stations with capability to easily add another module allowing up to 200-station control. This is ideal for phased projects. Independently fused wire paths (4 per 100 stations = 8 for 200 stations) provide protection to the controller in the event of a short in field wiring.

Specifications

Dimensions
- Cabinet: 356 mm (W) x 330 mm (H) x 152 mm (D)

Electrical Specifications
- Input Power: 240 VAC (50 Hz)
- Station Output Power: Up to 38 VAC maximum; 3 amps maximum output
- Wiring-two wire path: Jacketed, twisted pair 2.1 mm^2 to 4200 m
- Wiring-decoder to solenoid: Standard pair 1.0 mm^2 to 100 m, 1.5 mm^2 to 150 m

Operating Specifications
- 20 KV surge protection with proper grounding of 10 Ohms or less at the controller
- 10 independent irrigation programs
- Six start times per program
- Day of the week programming, odd/even, interval (1-31 days)
- 0-255% adjust by controller, by program, by station
- Day Exclusion (remove a day from standard program)
- Programmable master valve and pump start, by station
- Manual start of each station or entire program
- Non-volatile memory retains programming
- Self-diagnostics circuit breaker skips shorted/open stations
- Two-way confirmation of decoder activation
- Activate up to 20 solenoids at up to 4.2 km away
- Programmable rain delay up to 31 days
- Water window calculator
- 10-digit alpha-numeric zone identification
- RainSensor-compatible
- Upgradeable to Sentinel® Central Control
- Utilizes DC latching solenoids for valve control

Optional Accessories

DEG-SG-LINE	Decoder, Line Surge Protector
118-2749SK	100 Station Expansion / Replacement Board (new style blue daughterboard)
TRS	Wired RainSensor
TWRS-1	Wireless RainSensor

Warranty
- Five years

TDC Series Model List

Metal Wall Mount

Model	Description
CDEC-SA-100	Turf Stand-Alone Decoder Controller, D.C. latching, 100 station output
CDEC-SA-200	Turf Stand-Alone Decoder Controller, D.C. latching, 200 station output

Two-Wire Station Decoders

Model	Description
CDEC-ISP-1	1 station decoder w/ integrated surge protection
CDEC-ISP-2	2 station decoder w/ integrated surge protection
CDEC-ISP-4	4 station decoder w/ integrated surge protection

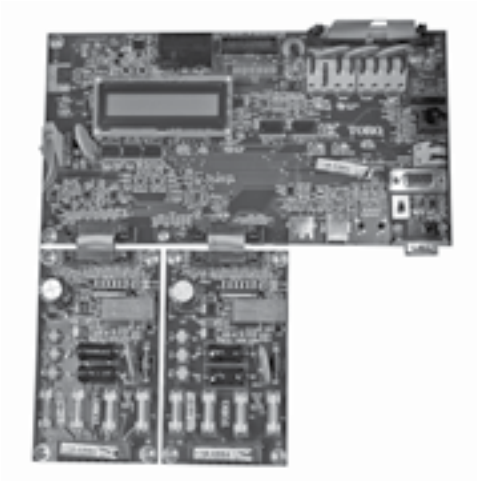
Cable

Model	Description
MC0221500-T	2 x 2.1 mm^2 communication cable 500 m
MC0415500-D	4 x 1.5 mm^2 decoder to solenoid cable x 500 m (1-2 zone decoder)
MC0815500-D	8 x 1.5 mm^2 decoder to solenoid cable x 500 m (4 zone decoder)

Decoder Control
Choose from 1, 2 or 4 station decoders. Each decoder has the ability to drive 2 DCLS-P Latching Solenoids.

Low Power Operating Costs
The TDC Decoders operate DC Latching Solenoids which utilise signficantly less power than AC solenoids.

Modular Design
The TDC has a base of 100 stations and can be upgraded to 200 stations without purchasing a new controller.

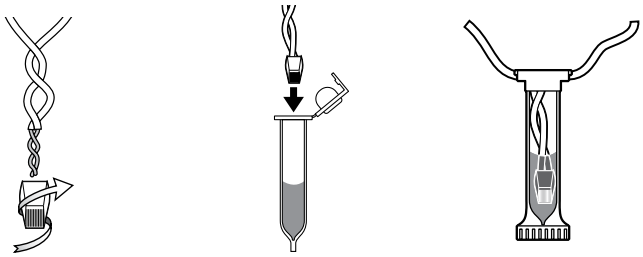


Advanced Diagnostics
The TDC provides true two way communication with each decoder in the field, thus providing communication verification to decoders in the field, as well as shorted or open solenoid conditions, making troubleshooting a breeze.

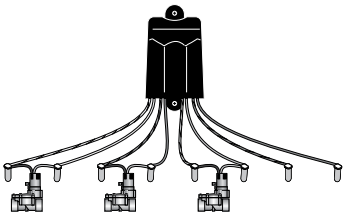
Accessories
Wired or wireless rain or rain/freeze sensors are available to shutdown irrigation if user defined conditions occur in the field.

Important Installation Practices

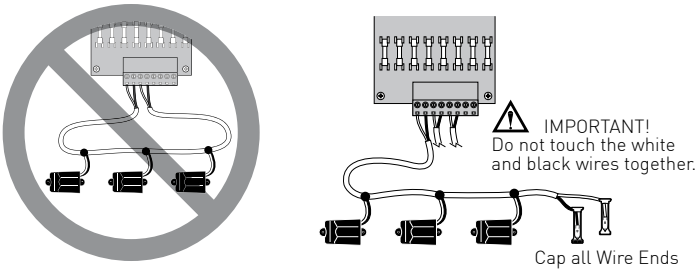
Waterproof all communication cable splices using DBR/Y by 3m®.



All decoder to solenoid wires must be connected with the correct polarity to properly operate the solenoid. The decoder's SOLID ouput wire is connected to the RED solenoid wire. The decoder's output wire with BLACK STRIPE is connected to the BLACK solenoid wire.

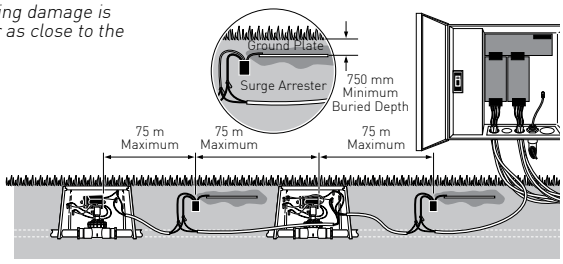


Do not loop or connect the decoder cable back to the controller board circuit. All wire path from the daughter board will end at a decoder. Communication cables not being used must be capped and water proofed.



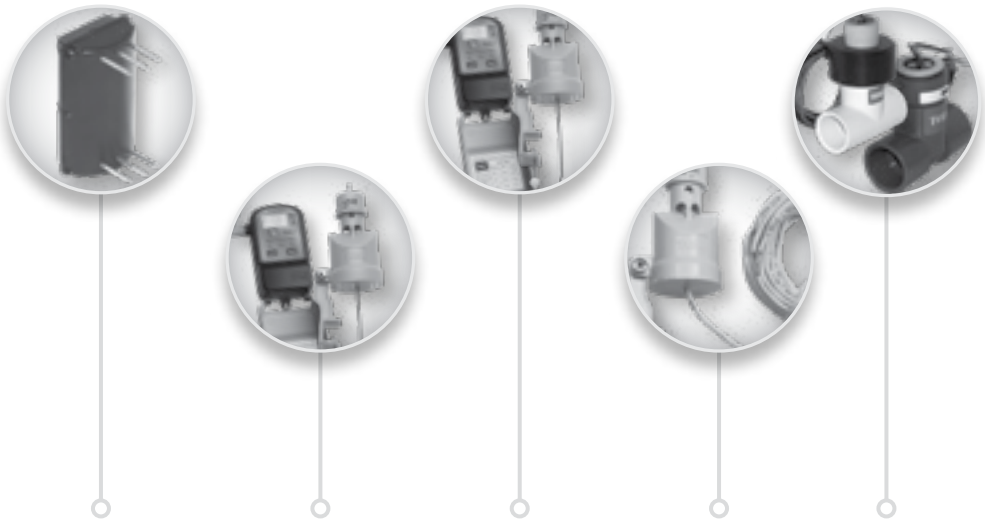
Two Wire Decoder Systems must be properly grounded in order to protect against lightning surges. The communication cable must be grounded no further than 150 m from any decoder. In high lightning areas, Toro recommends that a decoder be no more than 75 m from a surge device/ ground plate, or total of 150 m between ground plates. The surge device must be a Toro DEC-SG-LINE and must be grounded to a copper rod 2.4 m long and plate that is at least 10.16 cm x 240 cm x 1.6 mm, as per diagram below.

Note: A best practice on installation to avoid surge/lightning damage is to locate the decoder as close to the valve(s) as possible.



** High lightning set up. Double distances for standard install.*

Sensors and Remote Overview



Model	Turf Guard®	TWRFS-1	TWRS-1	TRS	TFS
Page Number	257-258	259	259	260	139, 267
Transmission Range (Line-Of-Sight)	Up To 150 m	Up To 152 m	Up To 152 m		
Rain Sensing*		X	X	X	
Soil Moisture Sensing*	X				
Freeze Sensing*		X			
Flow Sensing*					X
Salinity Sensing	X				
Works With All 24V Controllers		X	X	X	
Communicates With Multiple Receivers	X	X	X		
Adjusts Irrigation Based On Amount Of Water Needed	With Sentinel®				
Replaceable Battery	X	X	X		
Automatic Resetting Bypass		X	X		
Cycle Delay Feature	With Sentinel®				
Power Failure Protection	X	X	X		
Signal Strength Indicator On Receiver		X	X		
Signal Strength Indicator On Sensor					
Multiple Mounting Options		X	X	X	
Flow Range					6-1835 Lpm
Diameter					15, 20, 25, 40, 50, 80, 100 mm
Warranty	1 Year of NSN	5 Years	5 Years	2 Years	2 Years

** WaterSmart® Feature*

- **Soil Moisture**
- **Salinity**
- **Temperature**
- **Web-based Interface**

The Toro® Turf Guard Wireless Soil Monitoring system helps you improve your turf, soil and water efficiency. The system is a revolutionary technology that lets you know what's going on beneath the surface of your turf, so you can make timely, more-informed adjustments.

Features & Benefits

Monitor Moisture Levels And Adjust Irrigation

Reduce water usage and improve playability without risking turf quality. Promote root growth by avoiding over watering. Detect dry areas before it impacts the turf's health.

Track Salt Build-up And Schedule Flushing

Take the guesswork out of monitoring and managing salinity levels. Get positive confirmation that your flushing reduced soil salts. Know when and how much water to flush with.

Monitor Daily Soil Temperatures

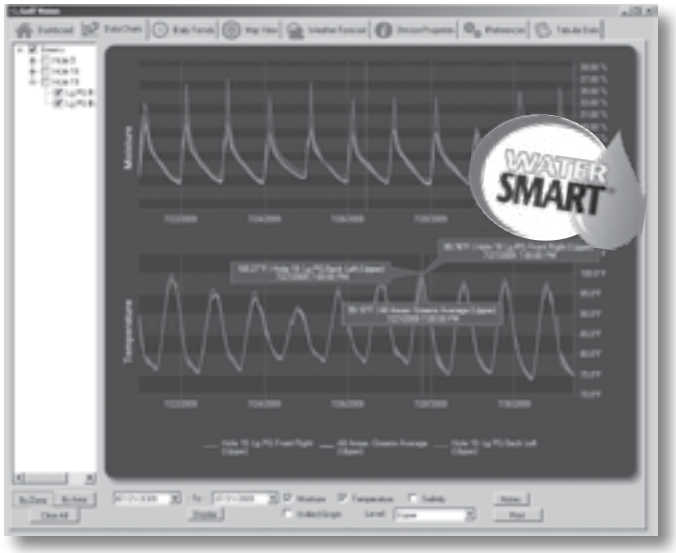
Predict peak soil temperatures early in the day to start remediation activities before an emergency. Schedule fungicide applications and pesticides for optimal effectiveness. Understand evaporation rates and syringing needs.

Wireless Network

No wires between the repeaters and the sensors, or the sensor and the probes means that sensors can be installed anywhere on your turf without disrupting play. Install sensors in other areas without having to trench or pull wires.

Water Management Highlight

No need to guess at how much water to apply for flushing an area, let Turf Guard tell you when enough water has been applied to push the salts out of the root zone. Don't wonder if you need to irrigate an area tonight, let Turf Guard tell you if the area is in an acceptable moisture level range.



Specifications

Dimensions

- Body: 50 mm (W) x 92 mm (H) x 156 mm (D)
- Spikes: 44 mm x 5 mm
- Installation Hole Diameter: 108 mm

Electrical Specifications

- Input Power:
  - Repeater: <.02A @ 6 VDC
  - Base Station: 240 VAC, 50 Hz

Temperature Specifications

- Operating: 0°C to 60°C
- Storage: -30°C to 82°C

Sensing

- 0.1°C Temperature resolution
- 0.1% Volumetric soil moisture content resolution
- 0.1 dS/m Soil conductivity resolution (Salinity)

Communication

- Repeater Range: Up to 1525 m line-of-sight
- Buried Sensor Range: Up to 150 m line-of-sight
- 900 MHz FHSS Communication
- Additional licensing not required

Operating Specifications and Additional Features

- Password Protected Web-based Interface
- Moisture Data available in Sentinel® Software Interface
- Immediately ready for operation after installation
- Advanced MESH routing technology overcomes obstacles
- Repeater can adapt to standard 240V outlet
- Durable sensor housing is resistant to aeration damage
- Supports up to 500 sensors per system
- Expected sensor battery life of 3 years, field replaceable
- Sensor reading sent every 5 minutes
- Automatic network configuration and failure recovery
- Graphical system overview displays sensor data-at-a-glance
- Plots trends and compares historical and current readings
- Move quickly from system-wide averages to individual sensor readings

Warranty

- Comes with 1 year of NSN support (extended support plans available)

How it works:

Multiple sensors buried in a site at critical root zone levels.

Above-ground repeaters installed on or in existing irrigation controller enclosures.

Wireless MESH networking links all sensors to central computer

Moisture, Temperature and Salinity readings displayed in your office

Sensor

Measures soil moisture, temperature, and salinity.

Repeater

Can run off of a standard 240V outlet or controller power-supply with adaptor.

Multiple sensors can be run through just one repeater, no configuration required.

Base Station

Connects to Internet in the office.

Web-based Interface

View current sensor readings and historical data remotely from any Web-connected computer or Web-enabled Mobile Phone or PDA.

Turf Guard Model List

Model	Description
AU	
TG-S2-R-AU	Turf Guard Sensor With Replaceable Battery
TG-R-INT-AU	Repeater-Internal Mount
TG-R-EXT-AU	Repeater-External Mount
TG-B-AU	Base Station
TG-PS-AU	Power Conversion Board
TG-S2-BAT	Replacement Battery
TS-TGB	Turf Guard Receiver for Sentinel

- **Rain or Rain/Freeze Sensor**
- **152 m Range**

No wires. No hassle. Just reliable rain sensing that provides optimum water savings. Toro® innovative wireless technology provides easy to use, advanced features for prompt reaction when it starts to rain.

Specifications

Dimensions

- Transmitter: 44 mm (W) x 89 mm (H) x 44 mm (D)
- Receiver: 51 mm (W) x 102 mm (H) x 44 mm (D)
- Weight: 0.4 kg product and carton

Electrical Specifications

- Transmitter Power: Two replaceable lithium cells
- (CR2032-3V)
- Receiver Power Source: 22-28 VAC/VDC, 100mA (from existing timer or optional tranformer)
- Relay contacts output: Normally-opened or normally-closed; 3A @ 24VAC
- FCC, IC, AVA, UL, CUL, CE and C-tick approved

Specifications and Features

- Operating temperature: -28°C–49°C
- Housing material: Weather and UV resistant engineered polymer
- Transmitting range: up to 152 m (line-of-sight) with adjustable antenna
- Sensor: maintenance free hygroscopic disks; adjustable rain sensitivity: 3 mm-20 mm
- Low battery indicator
- Signal strength indicator/scale
- Rain delay feature that works intelligently with the rain sensor (unlike most controller-based rain delays)
- Fail-safe modes in the event of loss of communications or failed sensor
- Real-time outside temperature displayed on the LCD (TWRFS only)
- Five year easy to replace, standard coin batteries
- Versatile mounting options – one-piece Quick-Clip™ gutter bracket or ½"(13 mm) conduit adapter
- Can control multiple receivers/controllers with one sensor transmitter

Warranty

- Five years

Features & Benefits

Smart Bypass™

Allows for system override at any time and resets automatically.

Rain/Freeze Combination

Features digital programmable accuracy – a first in the industry – The Freeze shutoff can be set from 2° to 7°C in 0.5°C increments.

Water Management Highlight

Water Conservation Modes

Selectable water conservation modes delay resumption of irrigation by intelligently extending beyond mechanical reset time and can save you up to 30%* more water.

* Savings vary based on sensor setting, watering schedule and other conditions.

First LCD In A Wireless Rainsensor

Provides informative system feedback including outside temperature, and transmitter signal strength and battery life

Wireless RainSensor Model List

Model	Description
TWRS-I	Toro Wireless RainSensor, 433,92 MHz
TWRFS-I	Toro Wireless Rain/Freeze Sensor, 433,92 MHz

- **Wired Rain**
- **Normally-Open or Normally-Closed**

When it rains sometimes all you need is a simple sensor that ensures the job gets done. With multiple set-points for adjustable rain sensitivity and maintenance-free sensing disks, Toro's TRS provides the reliability required.

Features & Benefits

Compatible With All Toro and Other Manufacturers' Controllers

Universal Normally Open and Normally Closed operation for compatibility with all controllers that are designed to accept a sensor device.

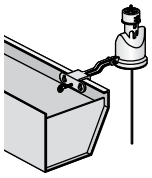
Maintenance Free Hygroscopic Discs

Industry standard sensing discs with adjustable rain shut-off indexes at 3 mm, 6 mm, 13 mm and 20 mm of rain.

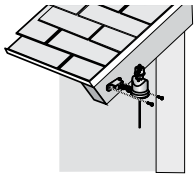
7.6m of UV-Resistant Cable

Includes 7.6 m of white outdoor-rated, UV-resistant cable.

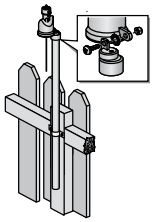
Three Mounting Options



Quick Clip gutter bracket



Wall mount



Conduit adapter

Specifications

Dimensions

- Transmitter: 44 mm (W) x 89 mm (H) x 44 mm (D)
- Weight: 0.4 kg product and carton

Specifications and Features

- Relay contacts output, normally open or normally closed: 3A, 24 VAC
- Operating temperature: -28°C to 49°C
- Low profile design and UV-resistant housing for sensor
- No special tools required for installation

Warranty

- Two years

Wired RainSensor Model List

Model	Description
TRS	Toro Wired RainSensor

Model	Sentinel® Central Control
Maximum Number of Satellites	999 (total)
Maximum Stations Per Satellite	204
Number of Programs	16 per Satellite
Ability To Make Program Changes In Field	X
Programming By Time	X
*Automatic ET-Based Runtime Adjustment	X
Programmable Valve Sequence	X
*Flow Optimization	X
Alarms & Reports	X
Station Operation Recording	X
*Water Use Recording	X
*Historical Water Use Comparison	Daily, Weekly, Yearly
Importing Maps	X
Software Only Option	X
Software + Computer Option	X
Windows® Compatible	X
Toro NSN® Support Included	Two years

Model	Small Metal Wall Mount (Controller)
Number Of Stations	12, 24, 36, 48 (204 with MapTo or Decoders)
Modular	
MapTo Option	X
*ET-Adjust	X
*Flow Sensing Compatible	X
Remote (SHHR) Compatible	X
*RainSensor Compatible	X
Number Of Programs	16
Simultaneous Program Operation	Up to 2 Amps
Number Of Start Times	8 per Program
Max Station Runtime	4 Hours 15 Minutes
Days Of The Week Programming	X
Odd/Even Programming	X
Interval Programming	X
*Flow Monitoring	X
*Water Use Logging	X
Valves Per Station	2
Surge Protection	X
Warranty	Five years

** WaterSmart® Feature*

- **Central Control Software**
- **PC-based**
- **Flow Optimisation Across Satellites**

Sentinel Central Control from Toro® is a powerful system that literally "stands guard" over large irrigation sites. With the ability to control up to 999 field satellites from one location, users have a water management tool that provides reliability, accuracy and water savings.

iPhone®, iPad® and Android® Connectivity

Features & Benefits

Simple To Use
Microsoft® Windows-based software – daily operations and scheduling are made quick and easy.

Features For Water Management
ET-based watering, flow sensing and optimisation, water usage report with historical comparison.

Smartphone and Tablet Connectivity
The new Sentinel WMS software package also includes iPhone®, iPad® and Android® connectivity for remote programming and alerts on ALL new systems.

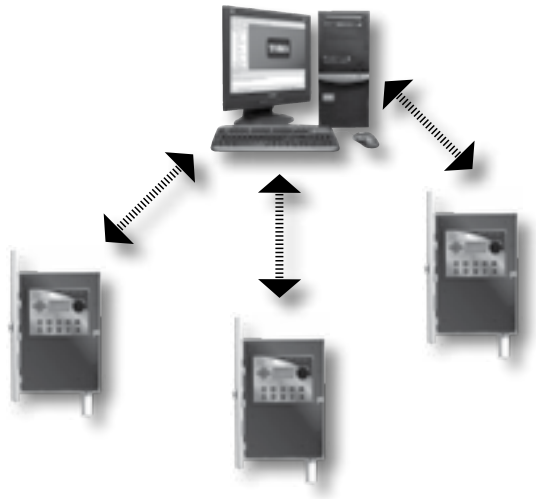
- iPhone® and the Apple logo are registered trademarks of Apple Inc. in the US and other countries.
- Android® and the Android logo are trademarks or registered trademarks of Google Inc.

Multiple Communication Options
Communication options like radio, telephone, fiber optics cellular, and Ethernet can be mixed and matched to meet system requirements.

Distributed Programming
Stores irrigation programs in the computer while allowing irrigation control at the satellite level, ensuring the loss of a component does not result in the loss of irrigation across the system.

Toro NSN® Support
All centrals come with a minimum of two years of NSN support – unlimited 24-hour toll-free support with 24/7/365 emergency paging.

Distributed Intelligence



Each Sentinel® controller is a fully intelligent unit with program data stored at both the field satellite and within the central computer. In the event the computer goes off line, there will be no loss of irrigation. True two-way communication allows programming changes to occur at the on-site field controller and uploaded to the central computer. Protection from unauthorized changes is ensured as the controller program can be easily compared to the program saved in the central computer.

Specifications

Specifications and Features

- Control up to 999 field satellites
- Group controllers into "systems" for system-wide adjustments:
  - Rain Days
  - Percent Adjust
  - ET-Adjustment from shared weather station
- Field changes to controller programs can be uploaded to computer
- Support for the System Administration
  - Set system, program and satellite descriptions
  - Map valve positions on site maps
  - Mark special dates on on-screen calendar
- Alarm reporting of any system component failure, including communications, over/under-flow conditions, electrical problems or power failure
- Extensive reporting features:
  - Run time reports
  - Water usage
  - Alarms
  - Logging of system changes
- Water use, rain and ET accumulation
- Flow optimizing to maintain optimum flow and shorten water window
- Ability to redefine valve sequence without physically changing wire terminations in field satellite
- Information overview by group and satellite
- System status indications for individual field satellite
- On-line help screens
- Map-based feedback on system status
- Standard internet connection allows for remote access to central software via NSN® Connect
- Multiple master valves programmable per station or program

Warranty

- Two year extendable by continuous NSN TotalCARE plan subscription

Sentinel Central Model List	
Central Software/Computer Models	
Model	**Description**
SGIS-1-T	Software Only w/2 years of NSN Support
SGIS-1-C	Software and computer w/2 years of NSN Support
SGIS-1-0	Software, Computer Equip, Peripheral Radio Hardware w/2 years of NSN Support

Sentinel Communications Options
Narrowband Radio (450-470 MHz)
Ethernet/Internet
Cell Enabled Data Modem
Landline Telephone
Spread Spectrum Radio (900 MHz)
Fiber Optics

ET-Based Watering

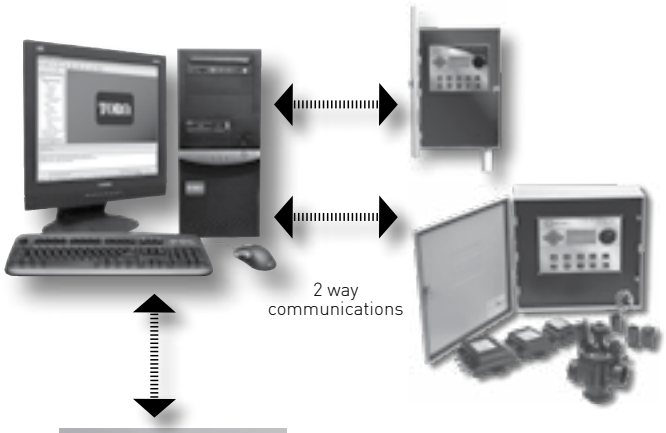
Maximise efficiency on your Sentinel system by using ET-Based watering. ET-Based watering automatically schedules irrigation based on individual landscape needs and local weather conditions, resulting in lower water bills and a healthier environment. Sentinel works in conjunction with multiple weather sources including wired and wireless on-site weather stations.

Recommended On-Site Weather Station

- Davis Vantage Pro 2
- Less Expensive
- Wireless (6162)
- AC powered
- Solar

Supported Weather Sources:

- Davis Instruments®
  - Vantage Pro 2 Plus™
- Campbell Scientfic®
  - ET 106
  - Turf Weather



On-site
Weather Station

- **12 to 48 Station models**
- **204 Stations with MapTo**
- **Flow Sensor Ready**

Toro® Sentinel field satellites are commercial grade, units that do the irrigation control work in the field. Designed to operate in both stand-alone and central mode.

The newly-redesigned satellite controller offers a number of new features and enhancements, including a completely-redesigned interface for easier standalone programming that incorporates a large backlit graphical display, new shortcut buttons for frequently-used functions, as well as a number of other additions.

WS1

Powder-coated, wall-mount enclosure

Features & Benefits

Flow Sensing
Reads, displays and reacts to under and over flow situations and track water usage. No additional circuit boards are required.

Weather Based Irrigation
Sentinel waters according to ET values by using one or a number of onsite weather stations.

Expanded Wireless Connectivity
Sentinel offers true two-way communication via several different connectivity options that can be mixed and matched to meet system requirements.

Firmware Updating
Firmware is now easier than ever to update or upgrade by simply inserting a USB thumb drive.

Advanced Troubleshooting
The new satellite controller has significantly more internal memory, allowing for extensive event logging and data storage, making it easier to diagnose issues in the field.

Water Management Highlight

The new satellite controller can easily be upgraded to operate with Turf Guard® wireless soil sensors, communicating directly with up to 16 sensors per controller (1 per program), continually measuring moisture, levels in the soil, and adjusting irrigation as needed.

Specifications

Dimensions

- Small wall-mount:
  260 mm (W) x 387 mm (H) x 133 mm (D)
- Weight: 9.5 kg

Electrical Specifications

- Input power:
  - 240 VAC/50 Hz
- Station output power:
  - 24 VAC
  - 1.0 amps per station maximum
  - 2.0 amps total load
- Surge protection: 24 V output boards, 20 KV @ 10 KVA

Specifications and Features

- 16 programs
- Eight start times per program
- 6-week scheduling calendar
- Station runtimes from one minute to 4 hours and 15 minutes
- Global adjustment from 0-255%
- Flow sensor ready
- Turf Guard ready
- Two sensor inputs included for rain sensors or other switch sensors
- ET and soil sensing options
- Operating temperature: -10˚ to 60˚C

Specifications and Features (cont.)

- Ability to connect to a laptop to download large station count programs
- Upgrade to a central computer system without additional field satellite hardware or costs
- Program single or multiple stations to operate sequentially or start a program or multiple programs with just a few keystrokes
- Ability to read open- or closed-contact switches in any station count configuration
- Current monitor will disable a station if excessive amp draw is detected
- Non-volatile memory will retain all programming and real-time data for 10 years
- Operating temperature: -10° to 60°C
- Surge rated to 20 KV @ 10 KVA

Optional Accessories

- TRS: Wired RainSensor
- TWRS/TWRFS: Wireless RainSensor or Wireless Rain/Freeze Sensor
- TFS: Flow Sensors
- TS-TGB: Turf Guard Base Station Module for Sentinel Satellite Connectivity

Warranty

- Five years

Sentinel® Wireless Wall Mount Controller

Sentinel Wireless Output Boards utilize spread spectrum radio communication between the control module and the output boards, allowing nearly unlimited installation flexibility while virtually eliminating surge damage to the control module. Retrofits and remote flow sensing are a snap as hardscape crossing issues are eliminated.

Warranty

- Five years

Specifications

Operational

- Wireless Output Controllers allow expansion of Sentinel Master Controllers to 204 stations
- Ability to mount outputs remote from Sentinel® Control Module
  - No cabling between output boards and control module improves protection of control module from power surges
- Improved sensing includes real-time current draw per station
- Manual station activation switches
- Long range and short range models

Dimensions

- Small wall mount 360 mm (W) x 330 mm (H) x 150 mm (D)

Specifying Information—Sentinel

TS-XXX-XX-XXX-NR-50HC					
Configuration	**Wireless Range**	**Station Count**	**Enclosure**	**Communication to Central**	**Power Supply**
TS	**XXX**	**XX**	**XXX**	**NR**	**50HC**
TS— Conventional Toro Sentinel Satellite	WSR— Short Range Wireless WLR— Long Range Wireless Blank— wired	12—12-station 24—24-station 36—36-station 48—48-station	WS1—Powder-Coated Wall Mount (Small)	NR—No Radio	50HC—220-240V/50Hz
Example: A 24-station wired Sentinel Controller in a powder-coated wall-mount cabinet would be specified as: **TS24WS1NR50HC**					

Easy to install and expand – a highly cost effective field controller for large central control installations. Using a two-wire path to communicate to decoders, the Sentinel Two-Wire controller eliminates high costs associated with traditional valve wiring.

Flow Sensor Compatible

Soil Sensing Option

DC Sentinel Two-Wire Station Decoders	
Model	**Description**
DEC-ISP-1	1-station with integrated surge protection (Operates up to two DC latching coils)
DEC-ISP-2	2-station with integrated surge protection (Operates up to four DC latching coils)
DEC-ISP-4	4-station with integrated surge protection (Operates up to eight DC latching coils)
DEC-SG-LINE	Sentinel two wire DC inline surge protection

Specifications

Operational

- Up to 204 stations
- Operates Valves with DC-Latching Solenoids
- 16 programs, eight start times per program
- 6-week or 365-day scheduling calendar
- Station runtimes from one minute to 4 hours and 15 minutes
- Global adjustment from 0-255%
- Flow sensor ready
- Two sensor inputs included for rain sensors or other switch sensors
- Operating Temperature: 0° to 60°C

Electrical

- Input power:
  - 240 VAC (50 Hz)
- Output power:
  - Up to 2 DC latching solenoids per station
  - Up to 16 simultaneous DC latching stations
- Two-wire path wiring (jacketed, twisted pair):
  - 2.1 mm^2
  - 4200 m max
- Decoder-to-solenoid wiring:
  - 1.5 mm^2
  - 150 m max

Dimensions

- Small wall-mount: 36 cm W x 33 cm H X 15 cm D
- Weight: 9.5 Kg

Optional Accessories

- TRS – Wired RainSensor
- TWRS/TWRFS – Wireless RainSensor or Wireless Rain/Freeze Sensor
- TFS – Flow Sensors
- TS-TGB - Soil Sensor Receiver Base Station Module

Warranty

- Five years

Specifying Information—Sentinel

TS-X-XXX-NR-50HC				
Configuration	**Station Count**	**Enclosure**	**Communication to Central**	**Power Supply**
TS	**XX**	**XXX**	**NR**	**50HC**
TS— Conventional Toro Sentinel Satellite	D-Decoder 204 station	WS2—Powder-Coated Wall Mount Decoder	NR—No Radio	50HC—220-240V/50Hz
A wired Sentinel DC Controller in a powder-coated wall-mount cabinet would be specified as: **TSDWS2NR50HC**				

Sentinel® Soil Sensing

Using Turf Guard® soil sensor, Sentinel users can set upper and lower moisture level "trip points" in the software to regulate when irrigation is allowed, as well as view the trends over time on an at-a-glance dashboard.

Specifications

- 1 sensor assignable per program
- 16 sensors per controller
- Sensor data read every 5 minutes
- Ability to work in conjunction with ET-based control

Ordering Details	
Code	**Description**
TG-B-AU	Turf Guard Base Station
TG-S2-R-AU	Turf Guard Sensor
TG-R-INT-AU	Turf Guard Internal Repeater
TG-R-EXT-AU	Turf Guard External Repeater
TG-PS-AU	Turf Guard Power Conversion Board
TG-S2-BAT	Turf Guard Replacement Battery
TS-TGB	Turf Guard Receiver for Sentinel

Sentinel® Flow Sensing

Toro Sentinel satellites have extensive flow reading, reaction, and reporting capabilities. All controllers come with two flow inputs and two alarm inputs available, and are compatible with both standard flow sensors as well as most hydrometers, including reed-switch and 3-wire pulse-diode models.

Specifications

- Two flow inputs available on all Sentinel controllers
- High, low, and zero flow detection by station or group of stations
- Unexpected flow detection outside of scheduled watering
- Volumetric flow shutdown option
- Projected and actual flow graphing
- Data exportable to customized Excel spreadsheets
- Each controller stores two years of flow data

Ordering Details	
Code	**Description**
TFS-050	15 mm Slip x Slip PVC Impellor Flow Sensor
TFS-075	20 mm Slip x Slip PVC Impellor Flow Sensor
TFS-100	25 mm Slip x Slip PVC Impellor Flow Sensor
TFS-150	40 mm Slip x Slip PVC Impellor Flow Sensor
TFS-200	50 mm Slip x Slip PVC Impellor Flow Sensor
TFS-300	80 mm Slip x Slip PVC Impellor Flow Sensor
TFS-400	100 mm Slip x Slip PVC Impellor Flow Sensor
FS-INSERT-B	Insert Type Flow Sensor to suit 80 mm to 400 mm (tapping band required)

Isn't it nice to know someone's got you covered? Available day or night, you can count on the Toro® National Support Network (NSN) team for total operational confidence.

Support for the Sentinel® Central Control

- Every Sentinel central package comes standard with 2-years NSN support
- Unlimited 24-hour support Technical assistance by email with next business day response
- Remote PC assistance where connectivity is available
- Support of Microsoft® operating system software when purchased from NSN
- NSN lab for field issue duplication and diagnostics
- Technical bulletins
- Remote data storage for duration of subscription period
- Extended warranty on central hardware components with continuous subscription

Features & Benefits

24-Hour, Seven-Day, 365 Support

Worldwide, Toro NSN is always available to answer your questions, troubleshoot your system and solve your problems. And if needed, our rapid central computer and component replacement service ensures minimal disruption to the operation of your irrigation system

The Confidence Of Working With The Best In The Business

NSN has a diagnostic lab on-site for each irrigation platform, all field hardware, plus ancillary products. The lab is used to duplicate field issues and investigate causes and solutions as part of Toro's commitment to continuous improvement. NSN is dedicated to irrigation — we know your business and expectations.

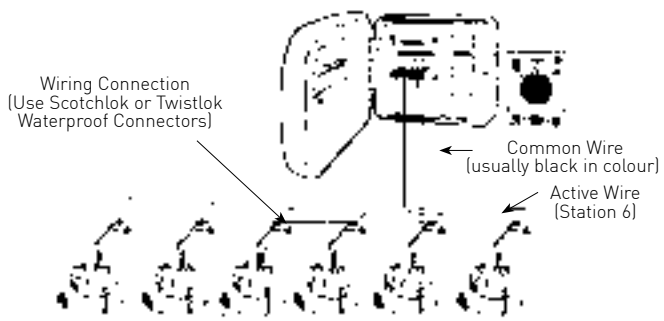
New System Support, Flexible Options To Renew

Every new Sentinel offering includes Toro NSN support. To protect your Toro investment long-term, choose a renewal option that gives you exactly what you need for continued reliable, cost-effective support and extended warranty, including equipment upgrades to keep your technology current and powerful.

	Junior DC	KwikDial	KD2 Series*	Rain Dial - R	Total Control -R	MC -E Blue
Number of Stations	1,4	12	4, 6,9	6,9,12	6,9,12,15,18,24	8,12,18,24,36,48
Number of Programs	2	3	3	3	4	8
Minimum Run Time	1 minute	1 minute	1 minute	1 minute	1 minute	1 second
Max Run Time	9 Hours & 59 minute	240 minute	240 minutes	354 minutes	10 Hours	10 Hours
Run Time Units	1 minute	1 minute	1 minute	min / 0.1 hours	1 minute	sec/minute
Starts Per Program	3	3	3	3	16 Total/Assignable	8
Schedule	7 Day	7 Day	7 Day	7 Day	7 Day	7 Days
-Interval	1 to 14 Days	1 to 31 Days	1 to 31 Days	1 to 31 Days	1 to 30 Days	1 to 59 Days
-Interval Day exclusion	-	Yes	Yes	Yes	-	No
-Odd/Even	-	Yes	Yes	Yes	Yes	Yes
-Odd/EvenDay exclusion	-	Yes	Yes	Yes	Yes	Yes
Time keeping Back up	9V DC Battery	24 hour memory	9V DC Battery	9V DC Battery	9V Battery	48 Hour Memory
Program Memory	Battery	24 hour memory	Non-Volatile	Non-Volatile	Non-Volatile	Non Volatile
Armchair Programming	Yes	No	Yes	Yes	Yes	No
Water Budget %	10-200%	0-200%	0-200%	0-200%	10-200%	0-200%
-Water Budget Adjust Per	Global	Program	Program	Program/Per Month	Program	Global/Per Month
Program\Start Time Stacking	Yes	Yes	Yes	Yes	Yes	Yes
Simultaneous Watering	-	-	-	Up to 3 progs/zones	Yes	Yes
Individual Program Erase	Yes	Yes	Yes	Yes	Yes	Yes
Cycle Repeat	-	-	-	-	-	Looping Function
Delay Between Stations	-	-	-	1 sec to 2 Hours	-	Yes
-MV/ PS On/Off in Delay	-	-	-	Yes	-	Yes
Power Supply	9V DC Battery	240V AC	240V AC	240V AC	240V AC	240VAC
Manual Rain Delay	On/Off	up to 7 Days	up to 7 Days	up to 9 Days	Up to 7 Days	1 to 14 Days
Rain Switch	-	Yes	Yes	Yes	Yes	Yes
-Rain Switch Byass	-	Yes	Yes	-	Yes	Yes
-Programable Rain Switch	-	-	-	-	-	No
Master Valve/ Pump Start	-	Yes	Yes	Yes	Yes	Yes
-MV/PS Programable Per	-	N/A	N/A	Station	Program	Station
Cabinet / Housing Type	Water Proof Plastic	Outdoor only	Outdoor only	Indoor/Outdoor	Outdoor Plastic	Yes
Lockable Cabinet	-	Yes	Yes	Yes on OD	Yes	Yes
Remote Option	-	-	-	TMR	TMR	-
Input Surge Protection	-	Yes	Yes	Yes	Yes	-
Output Surge Protection	-	Yes	Yes	Yes	Yes	-
Valve Test Program	-	Yes	Yes	Yes	Yes	Yes
Station Output Voltage	9VDC Latching	24VAC	24VAC	24VAC	24VAC	24VAC
Max Valves per Station @.25A	1	1	1	2	2	5
Max Valves Operating @.25A	1	2	2	4	5	5 + Master
Warranty	1 Year	3 Years	5 Years	5 Years	5 Years	5 Years
Electrical Over Current	-	Yes	Yes	Yes	Yes	Yes
-Station Fault Skip	-	Yes	Yes	Yes	Yes	-
Sensor Inputs	-	1	1	1	1	-
-Sensor Start	-	-	-	-	-	Yes
-Sensor Stop	-	Yes	Yes	Yes	Yes	Yes

*Available late 2019

Basic Control Wire Layout for Raindial Controller



Please Note:

- *The common wire links one wire on all solenoid valves to the controller and is usually black in colour.*
- *An active wire is defined as that which connects a valve to a specific station. They can be various colours.*
- *When installing control wire, ensure wire is looped at valve location to allow for expansion/contraction and soil movement.*
- *Ensure all wire connections are accessible for later servicing/fault finding. All wire connections must be waterproof.*

Application

A battery operated, single or four station controller for situations where automatic control is required but power is not available, is difficult or expensive to procure.

Features

- Fully waterproof and submersible (to 2m, per IP68 standard) cabinet
- Mount directly on to valve, wall or valve box wall
- 1 and 4 station configurations
- Flip cover protects large LCD display
- Two independent programs
- "Water Budget" 10 to 200% (in 10% increments)
- Program start time stacking
- Low battery power indicator
- Watering times: 1 minute to 9 hours, 59 minutes, in 1 minute increments
- Start times: 3 starts per program
- Manual and semi-automatic starts
- Multiple watering day options – 7 day calendar or up to 14 day interval
- Rain off function
- Toro latching solenoid (DCLS-P) and 2400 MTF included with the 1 station model, waterproof wire connectors included
- Screwed cap / o-ring battery compartment
- Mounting bracket included
- Easy 4 button programming
- Smart "Reserve Power" feature will not allow activation without sufficent power to deactivate

Specifications

- Uses one 9 volt alkaline battery
- Operates 2 wire 9 volt DC coils (Toro DCLS-P)

Dimensions
(without mounting bracket)

- Height 125 mm
- Width 100 mm
- Depth 45 mm

Valve Compatibility

- DCLS-P suits Irritrol valves and Toro 220, P220, P150 and Ez-Flo Plus™ Solenoid valves.

Junior DC Controller

DCLS-P

Ordering Details	
Code	**Description**
JRDC – 1A	Single station Junior DC controller complete with 9 VDC latch coil and 2400MTF valve
JRDC – 4	Four station Junior DC controller only
DCLS-P	DCL Potted Latching Solenoid, 6-24 VDC

• 6, 9 and 12 Station Outdoor and Indoor

These popular, long-standing controllers offer exceptional scheduling flexibility and a host of new features for speed of progamming and maintenance and more pump control for bore and booster pump applications.

Key Features & Benefits

- 6, 9 and 12-station models
  - provides irrigation control for most sizes of residential landscapes
- Three independent programs
  - programming flexibility to meet the needs of a wide variety of plant material on the landscape site
- Three water day choices
  - Any-day-of-the-week
  - Skip days between water days (with day exclusion)
  - Odd or Even date watering (with day exclusion)
- Non-volatile memory
  - retains user's program during power outages
- Water budgeting per program
  - for quick changes to the watering durations of all stations on a program at one time. Changes, in 10% increments, reduce the need to readjust individual station running times for an entire program, 0-200%
- 365 calendar for odd/even date watering
  - meets the Odd/Even date watering mandates often used for landscape water reductions
- Master valve/pump start circuit assignable per station
  - Stations requiring a booster pump can be supplied while other stations can run on street water pressure
- Bore level recovery (delay between stations) 0-59 secs, 1-59 mins, 1-2 hrs
  (Option of pump circuit ON or OFF during delay)
  - bores that need recovery time from ground water between stations would not need the pump circuit on between stations
- Rain delay up to 9 days
  - saves water by allowing a manual setting of days of delay before automatically resuming the watering schedule
- Test all stations program
  - allows a quick test of all stations from lowest to highest zone number
- Manual station advance
  -during automatic, semi- automatic, and station test cycles, allows advancement of operation up through the stations
- Clear/erase memory by program
  - saves time by quickly erasing the program desired while leaving the others intact
- Program stack or overlap option
  - allows three programs/stations on at once or restricts operation to no overlapping station runs (to prevent too many valves on at one time)
- Snap-out face panels
- 9 and 12-station models have 12-station terminal boards allowing interchange front panels to change station number
- Self-diagnostic circuit breaker

Added Features

- Easy-to-read programming dial and self-prompting LCD
- Anywhere programming (under battery power)
- Automatic, semi-automatic and manual operation
- Weather-resistant plastic, key-lock cabinet with an internal transformer (outdoor models)
- Durable plastic cabinet wih an external transformer (indoor models)
- Electrical surge protection (on both input and output lines) resists damage from lightning storms and power surges
- Five-year warranty

Dimensions		
	OUTDOOR	INDOOR
H	197 mm	197 mm
W	273 mm	178 mm
D	102 mm	95 mm

Operating Specifications

- Station run times: 1-59 minutes in 1-minute increments or 1-5.9 hours in 0.1-hour (6 minute) increments
- Start times: 3 per program per day for 9 starts total
- Watering schedules per program:

Any day of the week
Skip days from 1 to 31 days between irrigation days
Odd or even date watering

Electrical Specifications

- Transformer input: 240VAC, 50Hz
- Transformer outpu: 24VAC, 1.25 amps
- Maximum output per station: 24VAC, 0.5amps
- Maximum output to valves: 24VAC, 1.0 amps (including master valve/pump start circuit)
- Battery backup for "armchair" programming and keeping current time and date: 9-volt alkaline (not included)
- Program memory: non-volatile

Optional Accessories

- RS1000-I Wireless Rain Sensor
- RS500 Wired Rain Sensor
- SR-1 Pump Start Relay

• 6, 9 and 12 Station
• Outdoor

Three fully independent programs, three start times per program and up to 12 stations make the KwikDial ideal for a wide range of residential applications.

Key Features & Benefits

- Three independent programs

Allows differing watering days, start times, station run times and station assignments

- Multiple watering day options

Provides flexibility to meet water restrictions and diverse plant requirements

– Days-of-the-week watering

– Odd/even date watering with 31st day skip

– Repeating-day-interval watering (every day, every 2nd day, every 3rd day, etc., up to once every 31 days)

- Self-diagnostic, electronic circuit breaker

Identifies and overrides an electrical "short" in a valve or in valve wiring and continues to water operable stations

- Sensor hookup with bypass switch compatible with the Irritrol Rainsensor™ series

Saves water by shutting off the system during rain

- "Program Stacking" feature

Prevents program overlap

- Electrical surge protection (on both input and output lines)

Resists damage from lightning storms and power surges

Dimensions	
	OUTDOOR
H	230 mm
W	175 mm
D	102 mm

Ordering Information	
Code	Description
KD4-EXT-AC	4 Station, outdoor, with cord and plug
KD6-EXT-AC	6 Station, outdoor, with cord and plug
KD9-EXT-AC	9 Station, outdoor, with cord and plug
KD12-EXT-AC	12 Station, outdoor, with cord and plug
KD4-EXT-A	4 Station, outdoor, un-corded
KD6-EXT-A	6 Station, outdoor, un-corded
KD9-EXT-A	9 Station, outdoor, un-corded
KD12-EXT-A	12 Station, outdoor, un-corded

KD6-EXT-AC

Added Features

- Automatic, semi-automatic (manual program) and manual station(s) operation
- Programmable "Rain Off" up to seven days
- Dial and four push buttons for ease of programming
- Large LCD displays status of programs scheduled to run each day
- Multiple language capabilities (English, French, German, Italian and Spanish)
- Built-in memory maintains real time and programming information for a minimum of 24 hours in the absence of AC power (no battery required)
- "All stations" test program
- Water budgeting feature for each program (0-200% in 10% increments)
- Weather-resistant plastic case with internal transformer and provision on door for a padlock
- Complies with Australian electrical safety standards; C Tick approved
- Three-year warranty

Operating Specifications

- Station run times: 1-240 minutes (4 hours) in 1-minute increments
- Start times: 3 per program for up to 9 daily starts
- Watering day schedules: selectable per program for any days-of-the-week watering, interval watering (selectable in 1-day increments) from daily to once every 31 days, and odd/even-date watering (weekday exclusion option available in odd/even date and day-interval modes; e.g. water on all odd dates except Saturdays or water every three days except Tuesdays)

Electrical Specifications

- Transformer input: 240 VAC, 50Hz
- Transformer output: 24 VAC, 0.8 amp (including master valve)
- Capacity: One station valve plus a master valve (or 24 VAC pump start relay) on at a time
- Maximum output per station: 24 VAC, 0.4amp

Optional Accessories

- RS1000-I Wireless Rain Sensor
- RS500 Wired Rain Sensor
- SR-1 Pump Start Relay

- **4, 6 and 9 Station**
- **Outdoor**
- **Available late 2019**

Three fully independent programs, three start times per program and up to 9 stations make the KwikDial ideal for a wide range of residential applications.

KD600-EXT-A

Key Features & Benefits

- Three independent programs

Allows differing watering days, start times, station run times and station assignments

- Multiple watering day options

Provides flexibility to meet water restrictions and diverse plant requirements

– Days-of-the-week watering

– Odd/even date watering with 31st day skip

– Repeating-day-interval watering (every day, every 2nd day, every 3rd day, etc., up to once every 31 days)

- Self-diagnostic, electronic circuit breaker

Identifies and overrides an electrical "short" in a valve or in valve wiring and continues to water operable stations

- Sensor hookup with bypass switch compatible with the Irritrol Rainsensor™ series

Saves water by shutting off the system during rain

- "Program Stacking" feature

Prevents program overlap

- Electrical surge protection (on both input and output lines)

Resists damage from lightning storms and power surges

Dimensions	
H	204 mm
W	153 mm
D	115 mm

Ordering Information	
Code	**Description**
KD400-EXT-AC	4 Station, outdoor, with cord and plug
KD600-EXT-AC	6 Station, outdoor, with cord and plug
KD900-EXT-AC	9 Station, outdoor, with cord and plug
KD400-EXT-A	4 Station, outdoor, un-corded
KD600-EXT-A	6 Station, outdoor, un-corded
KD900-EXT-A	9 Station, outdoor, un-corded

Added Features

- Automatic, semi-automatic (manual program) and manual station(s) operation
- Programmable "Rain Off" up to seven days
- Dial and five push buttons for ease of programming
- Large LCD displays status of programs scheduled to run each day
- Multiple language capabilities (English, French, German, Italian and Spanish)
- Built-in memory maintains real time and programming information for a minimum of 24 hours in the absence of AC power (no battery required)
- "All stations" test program
- Water budgeting feature for each program (0-200% in 10% increments)
- Weather-resistant plastic case with internal transformer and provision on door for a padlock
- Complies with Australian electrical safety standards; C Tick approved
- Five-year warranty

Operating Specifications

- Station run times: 1-240 minutes (4 hours) in 1-minute increments
- Start times: 3 per program for up to 9 daily starts
- Watering day schedules: selectable per program for any days-of-the-week watering, interval watering (selectable in 1-day increments) from daily to once every 31 days, and odd/even-date watering (weekday exclusion option available in odd/even date and day-interval modes; e.g. water on all odd dates except Saturdays or water every three days except Tuesdays)

Electrical Specifications

- Transformer input: 240 VAC, 50Hz
- Transformer output: 24 VAC, 0.8 amp (including master valve)
- Capacity: One station valve plus a master valve (or 24 VAC pump start relay) on at a time
- Maximum output per station: 24 VAC, 0.4amp

Optional Accessories

- RS1000-I Wireless Rain Sensor
- RS500 Wired Rain Sensor
- SR-1 Pump Start Relay

- **1 5 mm, 20 mm, 25 mm, 40 mm, 50 mm, 80 mm, 100 mm**
- **6-1835 Lpm**

Features & Benefits

Effective Flow Monitoring Even In Flows Down to 6 Lpm

Effective in ranges from 6-1835 Lpm.
Teamed with the Toro TMC-424, 15 mm, 20 mm, 25 mm sensors provide a cost-effective flow monitoring and alarm system.

Compatible With Competitive Controllers

In addition to the TORO compatible controllers – TDC+, TMC-424E, TIS-PRO and Sentinel® – these flow sensors work with any controller or control system compatible with frequency output flow sensors (pulses per second proportional to flow velocity).

Recommended Operating Ranges for the TMC424 with TFS

Learned Flow PPS	Equivalent Flow (Litres per minute)						
	15 mm	20 mm	25 mm	40 mm	50 mm	80 mm	100 mm
	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm	Lpm
5	2	4	6	30	56	165	273
10	3	7	11	63	110	322	533
15	5	9	16	95	163	480	794
20	6	13	21	127	217	637	1054
25	8	16	26	159	271	795	1315
30	9	19	31	191	325	952	1575
35	11	22	36	224	379	1110	1835
40	12	24	41	256	433	1267	2096
45	14	27	46	288	487	1424	2356
50	15	30	51	320	540	1582	2617
55	17	33	56	352	594	1739	2877
60	18	36	61	385	648	1897	3138
65	20	39	66	417	702	2054	3398
70	21	42	70	449	756	2212	3658
75	23	45	75	481	810	2369	3919
80	24	48	81	513	864	2527	4179
85	26	51	86	585	918	2684	4440
90	27	54	91	578	971	2841	4700
95	28	57	96	610	1025	2999	4961
100	30	60	100	642	1079	3156	5221
105	31	63	105	674	1133	3314	5481
110	33	66	110	706	1187	3471	5742
115	34	69	115	739	1241	3629	6002
120	36	72	120	771	1295	3786	6263
125	38	75	125	803	1348	3944	6523

Specifications

Specifications and Features

- Simple impeller-based design
- Potted electronics designed for valve box or underground applications
- Sensor pre-installed in tee
- Removable sensor design for easy replacement without removal of tee
- Socket end tee
- Output: 2-wire, unscaled pulse–pulse width 5msec +/- 25%
- Frequency: 3.2 to 200 Hz
  - Pressure Rating:
    15, 20 and 25 mm: up to 1030 kPa
  - 40, 50, 80, and 100 mm: up to 680 kPa
- Temperature Rating: Up to 60° C
- Flow Range (Velocity):
  - 15, 20 and 25 mm: 0.6-6.0 m per second
  - 40, 50, 80, and 100 mm: 0.1-9.1 m per second
- Tee:
  - 15, 20 and 25 mm: Schedule 40 PVC
  - 40, 50, 80, and 100 mm: Schedule 80 PVC
- Sensor Housing: Potted, PPS
  - Impeller:
    15, 20 and 25 mm: 300SST
    40, 50, 80, and 100 mm: Glass-filled nylon
- Shaft: Tungsten Carbide
- Bearing: UHMWPE
  - In-Field Wiring
- Use shielded twisted pair cable suitable for direct burial. Use Toro Communication cable (code 591-008/HC). Maximum distance from sensor to controller is 600 metres.
- When connecting to a Toro controller, connect the red wire to "IN", "SIGNAL", or "(+)" terminal and the black wire to "GND", "SIGNAL", "(-)" or "COM" terminal.
- Ensure connections are made and kept waterproof. Use 3M DBY wire connectors.
- To avoid signal corruption, do not install wiring alongside high voltage cables.

Warranty

- Two years

TFS Series Flow Sensor Performance Data for Lpm

Sensor Model	TFS-050	TFS-075	TFS-100	TFS-150	TFS-200	TFS-300	TFS-400
Size	15 mm	20 mm	25 mm	40 mm	50 mm	80 mm	100 mm
K Value	0.2953	0.5966	0.9884	6.4314	10.7615	31.4530	52.0221
Offset	0.9	0.9	1.2	-3.016	0.1435	0.227	0.23707

TFS Series Model List

Model	Description
• TFS-050	15 mm Flow Sensor
• TFS-075	20 mm Flow Sensor
• TFS-100	25 mm Flow Sensor
• TFS-150	40 mm Flow Sensor
• TFS-200	50 mm Flow Sensor
• TFS-300	80 mm Flow Sensor
• TFS-400	100 mm Flow Sensor

Do not operate in this region

Marginal

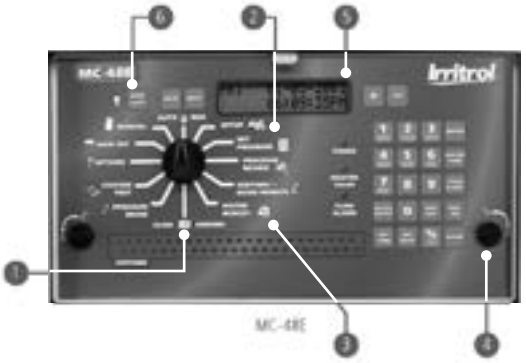
- **8, 12, 18, 24, 36 & 48 Stations**
- **Outdoor and Indoor**

Key Features

- Flow monitoring with diagnostics and 3 types of alarms (requires station #1 for a N/O master valve circuit)
- Models with station counts from 8 up to 48

Operating Specifications

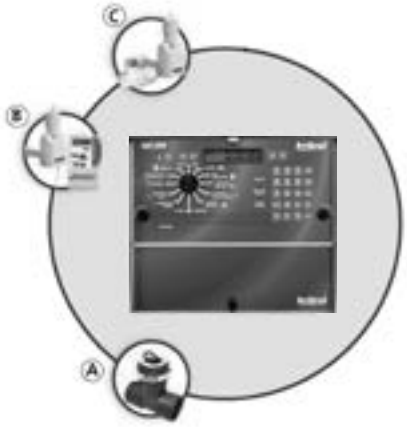
- Eight independent programs
- Watering day cycles per program:
  - Any days of the week
  - Odd or Even date watering
  - Day intervals from 1- 60 days
- Station run times:
  - 0-59 seconds in 1-second increments
  - 1 minute to 10 hours in 1-minute increments
- Global water budget
  - 0% to 200% in 1% increments



1. Flow monitoring and diagnostics
2. Eight independent programs
3. Global water budget
4. Quick-disconnect face panel
5. 32-character, dot matrix LCD display
6. LCD backlight

Electrical Specifications

- Transformer input: 240V AC, 50 Hz
- Transformer output: 24V AC, 2.08 amps (50 VA)
- Maximum output per station: 24V AC, 1.24 amps
- Maximum output to valves: 24V AC, 1.68 amps (including master valve)



Optional Accessories

A TFS® Flow sensors
B RS1000-I wireless RainSensor™
C RS500 wired RainSensor™

Dimensions

- 8-12 Station: H: 9 3 4", W: 10 1 2", D: 4 1 4"
- 18-48 Station: H: 12", W: 14 1 4", D: 4 3 4"

MC-E (Blue) Series Model List

Model	Description
MCE8A	8 -Station, wall mount, fits P-2B Pedestal
MCE12A	12 -Station, wall mount, fits P-2B Pedestal
MCE18A	18 -Station, wall mount, fits P-6B Pedestal
MCE24A	24 -Station, wall mount, fits P-6B Pedestal
MCE36A	36-Station, wall mount, fits P-6B Pedestal
MCE48A	48 -Station, wall mount, fits P-6B Pedestal

• 6, 9, 12, 15, 18 and 24 Stations
• Outdoor and Indoor

Maximum scheduling flexibility in an easy-to-use format makes this innovative controller ideal for a wide range of sophisticated watering requirements.

Key Features & Benefits

- Four independent programs offer concurrent operation capability - for scheduling flexibility
- Seven-day calendar, odd/even day or day - interval options of one to 30 days - provides the flexibility to meet water restrictions or plant water requirements
- Programmable master valve on/off per program - provides the flexibility of running some programs with a booster pump and some without
- Non-volatile memory - holds program during power failures for reliable operation
- Snap-out design - allows easy removal of control module without disturbing valve wiring for hassle-free station upgrade (6 to 9 or 9 to 12 and 15 to 18 or 18 to 24) and servicing
- Flexible station run times and start times - meet a broad range of watering requirements
- 6, 9 and 12-station models have 12-station terminal boards; 15, 18 and 24 models have 24 station terminal boards - allows increase of station count simply by changing face panel module (6 to 12 and 15 to 24)
- Sensor hooked up with bypass switch compatible with the wireless Rainsensor™ series. - saves water by shutting off the system during rain

Dimensions	
	OUTDOOR
H	216 mm
W	267 mm
D	127 mm

Added Features

- User-friendly, 10-position programming dial and large, easy-to-read display
- Excluded-day option, when used with the odd/even day option, allows selection of specific day(s) not to water
- 365-day calendar for odd/even day programming
- Start time stacking within each program
- Water budgeting
- Programmable "Rain Off" up to seven days
- Automatic, semi-automatic, manual and timed-manual operation
- Self-diagnostic circuit breaker identifies and overrides an electrical malfunction on a valve
- Electrical surge protection (on both input and output lines) resists damage from lightning storms and power outages
- Battery backup keeps accurate time for up to 90 days during power failures
- Valve test terminal for easy valve identification
- Weather-resistant, plastic key-lock cabinet with an internal transformer
- Wall mount
- Complies with Australian electrical safety standards; C Tick approved
- Five-year warranty

Operating Specifications

- Station run times: 1 minute to 10 hours in 1 minute increments
- Start times: 16 total starts assignable to any program
- Watering schedule: 7 day calendar, odd/even day or interval option of 1-30 days
- Water budgeting: 10-200% in 10% increments

Electrical Specifications

- Electronic circuit breaker: 1.25 amps minimum holding
- Maximum output per station: 24 VAC, 0.5 amp
- Maximum output to valves: 24 VAC, 1.25 amps (including master valve)
- Battery backup: 9-volt alkaline battery (not included)
- Transformer input: 240 VAC, 50 Hz
- Transformer output: 24 VAC, 1.67 amps

Ordering Information	
Code	Description
TC6A	Total Control 6 Station Controller - 4 Program with Built-in Transformer, Remote Ready
TC9A	Total Control 9 Station Controller - 4 Program with Built-in Transformer, Remote Ready
TC12A	Total Control 12 Station Controller - 4 Program with Built-in Transformer, Remote Ready
TC18A	Total Control 18 Station Controller - 4 Program with Built-in Transformer, Remote Ready
TC24A	Total Control 24 Station Controller - 4 Program with Built-in Transformer, Remote Ready

Application

For use in automatically controlling filter flush solenoid valves and motors.

Features

- Easy scroll through programming allows program to be altered for each site
- Microprocessor control
- Able to control 24 VAC or 12 VDC, 2 wire latched solenoids
- Can control a maximum of 8 filter flush valves and one 240 VAC motor
- Flushing based on Time or Pressure Differential or Flow input (PD or flow switch required)
- Display shows time to next flush (if time based) and total number of flushes
- Controller can be set up to detect periods of no flow and to prevent filter flushing during this time - requires a flow switch or pulse meter
- Capable of flushing after specific volume - pulse flow meter required
- Weatherproof cabinet
- Can also control downstream isolating mainline solenoid valve during filter flushing

Power Inputs

- 240 VAC IEC female connector
- 24 VAC
- 12 VDC

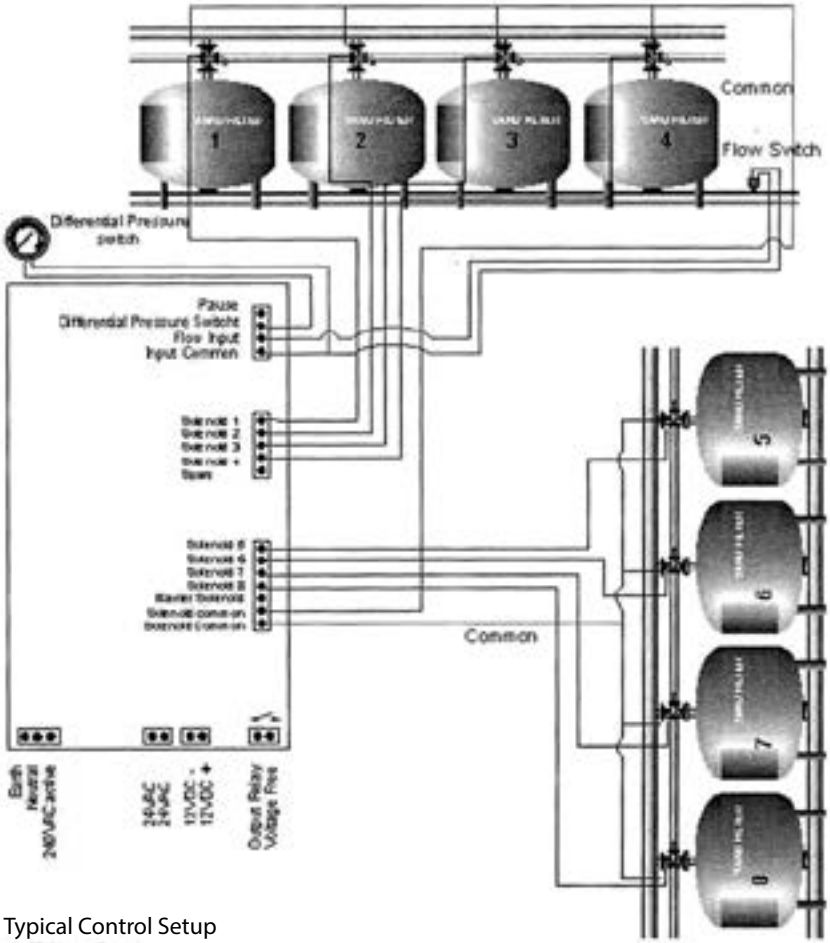
Inputs

- Three input terminals - Pause, Differential Pressure Switch and Flow Input
- Requires Normally Open switch (not supplied with controller)

Programmable Output

- Output relay can be programmed to perform any one of four functions - filter flushing, fault output, alarm output, excess flow
- Relay suitable for maximum of 5 amps. Power supply to this relay must be fused to maximum 5 amps

Multiple Sand Filter Setup



Typical Control Setup

Dimensions	
H	250 mm
W	200 mm
L	100 mm

Ordering Information	
Code	**Description**
101FFC8	8 Station Filter Flushing Controller 240 VAC, 24 VAC or 12 VDC
AF-TG10	Talgil 1-10 Station Filter Flushing Controller

Toro Australia Pty Ltd, 53 Howards Road, Beverley, South Australia, 5009.
Phone 1300 130 898, fax (08) 8243 2488. A.B.N. 47 001 310 443

In-Line and Snap-On Filters

Filtration device designed to trap foreign particles in the water and reduce clogging of emitters.

Application

For low pressure (up to 300 kPa) micro irrigation systems.

Features

- In-Line model with single barb inlet and outlet
- Snap-On model for direct connection to standard tap adaptors
- 80 mesh screen filter
- Easily taken apart for cleaning
- Effective compact filter with minimal flow loss

In-Line Filter *Snap-On Filter*

Ordering Information	
Code	**Description**
IN-LINE FILTERS: 80 MESH SCREEN	
10144355	In-Line Filter 13 mm Barb
10144375	In-Line Filter 19 mm Barb
SNAP-ON FILTERS: 80 MESH SCREEN	
10144355	Snap-On Filter 13 mm Barb
10144375	Snap-On Filter 19 mm Barb

Pressure Reducing Filter

Application

All in one pressure reducer and filter. Pressure regulator regulates water pressure downstream and the filter prevents dirt and debris blocking the irrigation system.

Specifications

- Filter Screen: 200 mesh
- Maximum input Pressure: 1,000 kPa
- Output pressure: 172 kPa
- Maximum flow of 27 Lpm downstream of unit
- Made from Glass filled Polypropylene

1011680/1011681 Pressure Reducing Filter

Ordering Information	
Code	**Description**
1011681	20 mm Pressure Reducing Filter, 200 Mesh, 172 kPa
1011680	25 mm Pressure Reducing Filter, 200 Mesh, 172 kPa

PBS Plastic Body Screen Filter

Application

- Ideal for smaller drip and micro sprinkler systems with flows up to 6.0 m³/hr.
- Hydraulic valve command water filtration
- Sizes available:

  20 mm - Maximum
  Flow rate 1.8 m³/hr (10 kPa loss)

  25 mm - Maximum
  Flow rate 2.8 m³/hr (10 kPa loss)

  32 mm - Maximum
  Flow rate 4.5 m³/hr (10 kPa loss)

  40 mm - Maximum
  Flow rate 6.0 m³/hr (10 kPa loss)

1011122

Features

- Male BSP connections
- Rugged corrosion resistant nylon canister and cap, stainless steel screen
- Easily dismantled for thorough cleaning
- Inox screen cartridge
- O'ring in Buna-N
- Locking ring glass reinforced Nylon 6
- Maximum working pressure: 1000 kPa
- Available in 150 mesh / 100 micron

Ordering Information	
Code	**Description**
1011120	20 mm (¾") - 150 Mesh Screen
1011122	25 mm (1") - 120 Mesh Screen
1011124	32 mm (1¼") - 150 Mesh Screen
1011126	40 mm (1½") - 150 Mesh Screen
1011126SCN	150 Mesh Screen, to suit 1011122, 1011124, 1011126

PBD Plastic Body Disc Filter - MBSP

25, 40 mm Disc Filter

Application

- For smaller drip and micro sprinkler systems with flows up to 7 m³/hr
- Sizes available :

  25 mm - Max Flow rate 4.5 m³/hr

  40 mm - Max Flow rate 7 m³/hr

  (Flow rate based on 10 kPa loss)

Features

- Male BSP connections
- Rugged corrosion resistant nylon canister and cap
- Easily dismantled for thorough cleaning
- Disc cartridge
- Maximum working pressure: 1000 kPa
- Available in 150 mesh / 100 micron disc

Ordering Information	
Code	**Description**
1011165	25 mm (1") MBSP Disc Filter - 150 Mesh
1011167	40 mm (1½") MBSP Disc Filter - 150 Mesh

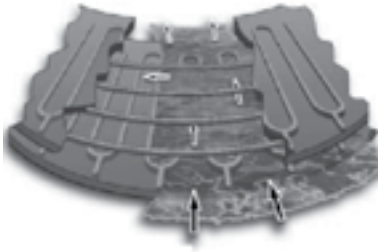
XD Plastic Body Disc Filter - MBSP

Application

For in-field back-up filtration and other situations where manual cleaning is suitable.

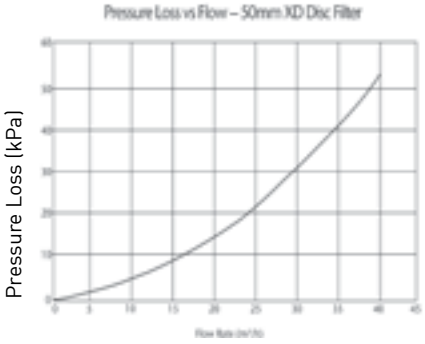
Features

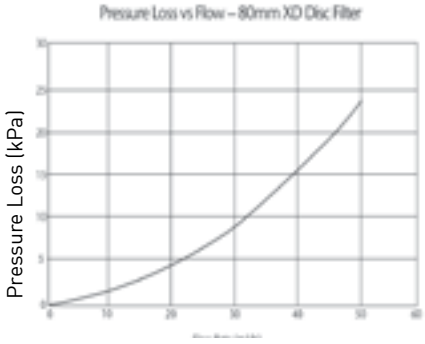
- 50mm and 80mm MBSP models
- Angle or In-line configuration in the same model
- 80, 120 mesh discs available
- Glass fibre reinforced nylon body with polypropylene discs
- Ring nut collar for easy disassembly and maintenance
- Maximum working pressure: 1000 kPa
- 25mm plastic ball valve supplied as manual filter flush valve
- Patented disc system greatly increases the effective filtering surface area
- Inlet and outlet ports for pressure gauges. Ports need to be drilled and tapped



Disc Flow Path

XD Disc Filter





Dimensions and Flows						
Size	**L (mm)**	**H1 (mm)**	**H (mm)**	**Filtering Area (cm2)**	**Weight (kg)**	**Maximum Recommended Flow (m³/hr)***
50	275	90	540	10800	7.5	18
80	325	125	800	18000	10.5	31

** Based on 10 kPa loss*

Ordering Information	
Code	**Description**
101XD5080	50mm MBSP XD disc Filter, 80 mesh (Grey discs)
101XD50120	50mm MBSP XD disc Filter, 120 mesh (Blue discs)
101XD8080	80mm MBSP XD disc Filter, 80 mesh (Grey discs)
101XD80120	80mm MBSP XD disc Filter, 120 mesh (Blue discs)

Application

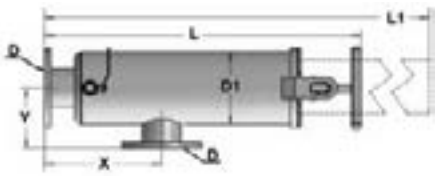
- Suitable for micro irrigation systems or as back up filter at control valves in the field
- All sizes available with 80 or 120 mesh screens
- Other mesh screens available upon request

Features

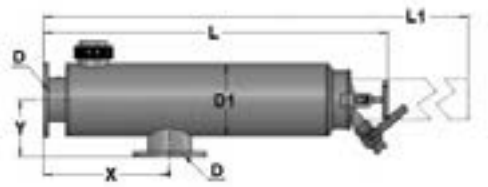
- Steel construction and epoxy/polyester coated
- Screen constructed of PVC with Stainless Steel mesh
- Direct flow method where water passes along the length of the filter screen
- Inlet / outlet at 90 degrees
- Maximum operating pressure: 800 kPa
- Pressure test points upstream and downstream of screen (pressure gauge and needle adaptor required)

Note:
In some installations a pressure release valve must be inserted before the filtering installation.

F100 Series Filter



Model F115-140



Model F160

F100 Series Technical Data

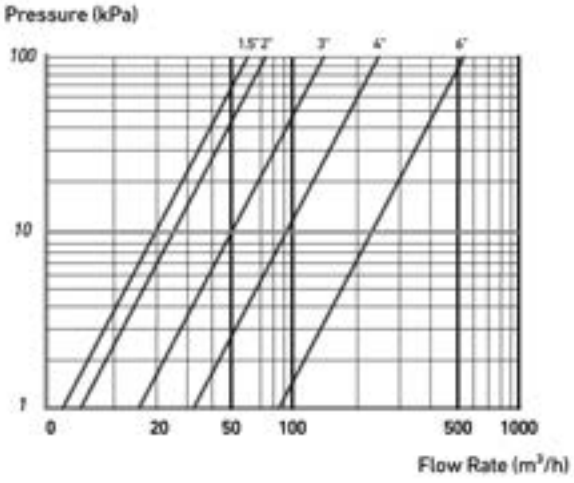
Model	In/Out D (mm/ inch)	D1 (mm/ inch)	X (mm)	Y (mm)	L (mm)	L1 (mm)	Maximum Flow Rate (m^3/h)	Flush Valve (mm BSPF)	Shipping Weight (kg)
F115M	40/1.5	100/4	220	97	455	600	20	15	8.6
F120M	50/2	150/6	230	130	469	600	25	20	16.1
F130F	80/3	150/6	270	140	729	1130	50	20	27.7
F140F	100/4	200/8	325	190	855	1330	90	25	38.0
F160F	150/6	250/10	480	217	1240	2250	220	40	76.0

F100 Series - Ordering Information

Code	Description	Maximum Recommended Flow* (m^3/h)
F115M-80	40 mm (1½") FBSP, 80 mesh	20
F115M-120	40 mm (1½") FBSP, 120 mesh	20
F120M-80	50 mm (2") FBSP, 80 mesh	25
F120M-120	50 mm (2") FBSP, 120 mesh	25
F130F-80	80 mm (3") Flanged, 80 mesh	50
F130F-120	80 mm (3") Flanged, 120 mesh	50
F140F-80	100 mm (4") Flanged, 80 mesh	90
F140F-120	100 mm (4") Flanged, 120 mesh	90
F140F-150	100 mm (4") Flanged, 150 mesh	90
F160F-80	150 mm (6") Flanged, 80 mesh	220
F160F-120	150 mm (6") Flanged, 120 mesh	220

** Based on 10 kPa pressure loss (clean). Derate for dirty water.*

F100 - Pressure Loss Graph



Application

- Suitable for micro and sprinkler irrigation systems or as back up filter at the control valves in the field
- Models F215/F220 available with 80 or 120 mesh screens
- Models F230/F240/F260 available with 40, 80 or 120 mesh screen
- Model F280 available with 30 or 40 mesh screen (other screens available)
- Model F2100 available with 30 mesh screen (other screens available)

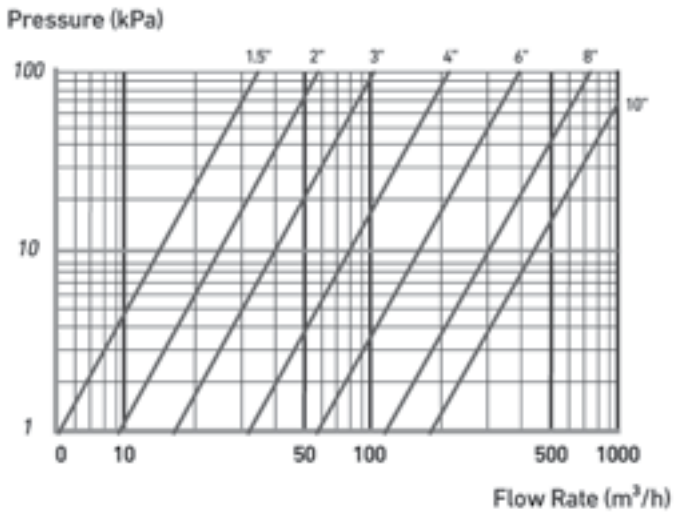
Features

- Steel construction and epoxy polyester coated
- Screen constructed of PVC with stainless steel mesh
- Direct flow method where water passes along the length of the filter screen
- Pressure test points upstream and downstream of screen. (Pressure gauge and needle adaptor required)
- Inlet / outlet at 180 degrees
- Simple cleaning by opening drain valve or removal of element
- Maximum operating pressure: 800 kPa

Note:
In some installations a pressure release valve may be required before the filter station

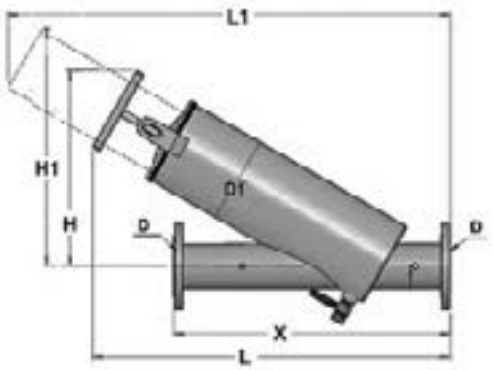
F200 In-line Manual Screen Y Pattern Filters

Pressure Loss Graph

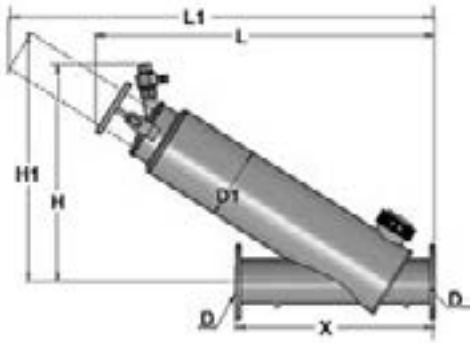


F200 Series - Ordering Information		
Code	**Description**	**Maximum Recommended Flow Rate* (m³/hr)**
F215M-80	40 mm (1½") FBSP, 80 mesh	15
F215M-120	40 mm (1 1/2") FBSP, 120 mesh	15
F220M-40	50 mm (2") FBSP, 40 mesh	25
F220M-80	50 mm (2") FBSP, 80 mesh	25
F220M-120	50 mm (2") FBSP, 120 mesh	25
F230F-80	80 mm (3") Flanged, 80 mesh	40
F230F-120	80 mm (3") Flanged, 120 mesh	40
F240F-40	100 mm (4") Flanged, 40 mesh	80
F240F-80	100 mm (4") Flanged, 80 mesh	80
F240F-120	100 mm (4") Flanged, 120 mesh	80
F260F-40	150 mm (6") Flanged, 40 mesh	180
F260F-80	150 mm (6") Flanged, 80 mesh	180
F260F-120	150 mm (6") Flanged, 120 mesh	180
F280F-30	200 mm (8") Flanged, 30 mesh	300
F280F-120	200 mm (8") Flanged, 120 mesh	300
F2100F-30	250 mm (10") Flanged, 30 mesh	450

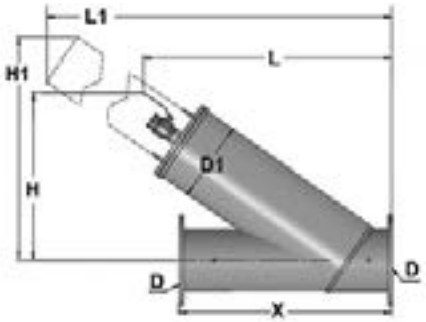
** Based on 10 kPa pressure loss (clean). Derate for dirty water.*



Model F215-F240



Model F260



Model F280 - F210

F200 Series Technical Data										
Model	**In/Out D (mm/inch)**	**D1 (mm/inch)**	**X (mm)**	**L (mm)**	**L1 (mm)**	**H (mm)**	**H1 (mm)**	**Maximum Flow Rate* (m^3/h)**	**Flush Valve BSPF**	**Shipping Weight (kg)**
F215	40/1.5	100/4	350	496	603	278	308	15	15 mm	9.3
F220	50/2	150/6	480	504	587	295	308	25	20 mm	16.2
F230	80/3	150/6	550	717	1032	398	539	40	20 mm	31.9
F240	100/4	200/8	685	887	1275	487	688	80	25 mm	43.8
F260	150/6	250/10	735	1264	2032	817	1207	180	40 mm	79.2
F280	200/8	300/12	830	1072	1556	643	1178	300	50 mm	108.8
F2100	250/10	350/14	940	1103	1778	745	1165	450	50 mm	135

** Based on 10 kPa pressure loss (clean). Derate for dirty water.*

F100 Right Angle Manual Disc Filter

Application

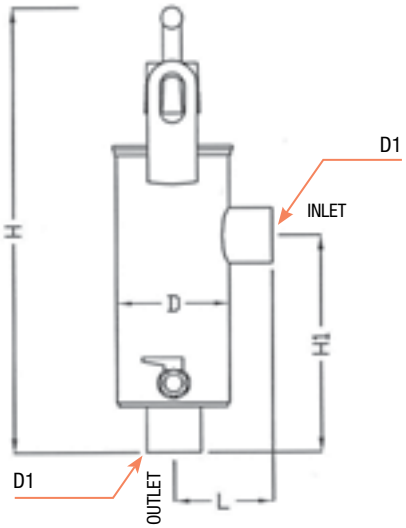
- Suitable for micro irrigation systems or as back up filter at control valves in the field
- Both sizes available with 80 mesh (purple) or 120 mesh (red) discs

Features

- Steel construction and epoxy/polyester coated
- Disc constructed of plastic
- Inlet/Outlet at 90 degrees
- Simple cleaning by opening drain valve or removal of element
- Maximum operating pressure: 800 kPa

Note:
In some installations a pressure release valve must be inserted before the filtering installation

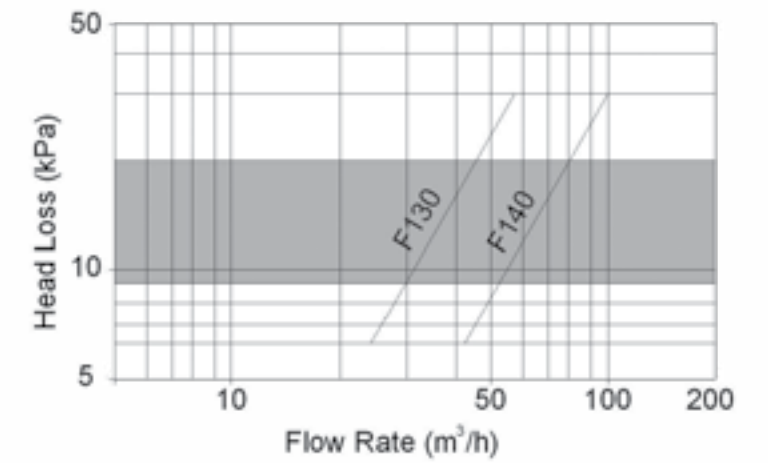
RMD 100 Series Filter

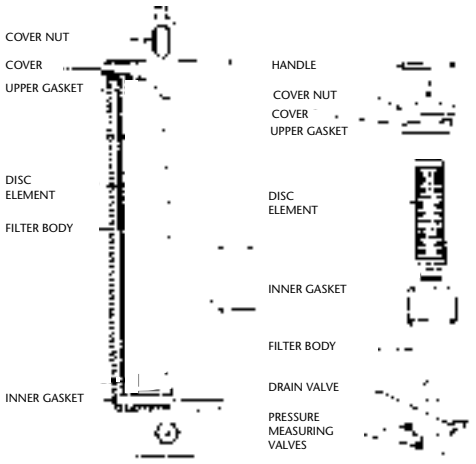


Dimensional Drawing RMD 100 Series Filter

Technical Data

Model Number	Maximum Recommended Flow Rate* (m^3/h)	Connection (Table Rating)	D (mm)	D1 (mm)	H (mm)	H1 (mm)	L (mm)	Weight (Kg)	Flush Valve Size (mm)
F130D	31	Flange (D/E)	150	80	729	270	140	28	20 F
F140D	55	Flange (D)	200	100	855	325	190	38	25 F





Schematic drawing – RDM 100 Right Angle Disc Filter

Ordering Information

Code	Description
F130D-80	80 mm (3") Flanged, 80 Mesh, 31 m^3/h (Purple discs)
F130D-120	80 mm (3") Flanged, 120 Mesh, 31 m^3/h (Red discs)
F140D-120	100 mm (4") Flanged, 120 Mesh, 55 m^3/h (Red discs)

** Maximum flow based on 10 kPa loss (clean). Derate for dirty water.*

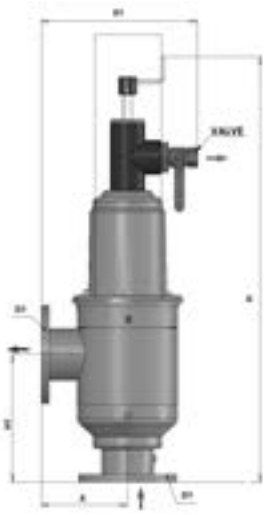
SA500C and SA500L Right Angle Semi Automatic Suction Screen Filter

Application

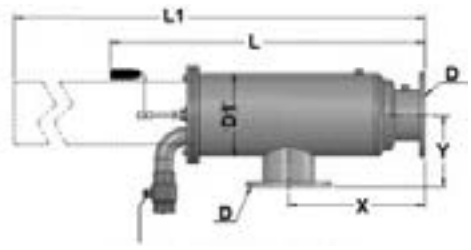
The SA500C is used in a wide range of applications in the Industrial, Municipal, Commercial and Agricultural sectors. Commonly used as a primary or secondary filter for sprinkler, drip, mini, and micro irrigation systems.

Features

- Filter housing material of construction: Carbon Steel ST37.2
- Pre-treatment: sand blasting up to Sa 2.5 grade
- Exterior & Interior coating: electrostatic oven baked polyester-epoxy powder coating with a thickness of 150-200 micron
- Minimum operating pressure: 100 kPa
- Maximum operating pressure: 1000 kPa
- Maximum working temperature: 65°C
- Manually operated flush valve
- Manually rotated suction scanner
- Standard 80 mesh (200 micron) or 120 mesh (120 micron) screen
- Screen made from 316 stainless steel
- Low flush rates, 6-10 m^3/h (SA500C), 40 m^3/h (SA500L)



Model SA500C



Model SA500L

SA500C Series Technical Data

Model	In/Out D (mm/inch)	D1 (mm/ inch)	X (mm)	X1 (mm)	Y (mm)	H (mm)	H1 (mm)	Maximum Flow Rate* (m^3/h)	Flush Valve (mm BSPF)	Shipping Weight (kg)
SA502C	50/2	150/6	123	270	174	590	637	25	15	12
SA503C	3/80	150/6	164	307	197	790	849	45	20	24
SA504C	100/4	200/8	190	343	280	933	980	80	25	30

SA500L Series Technical Data

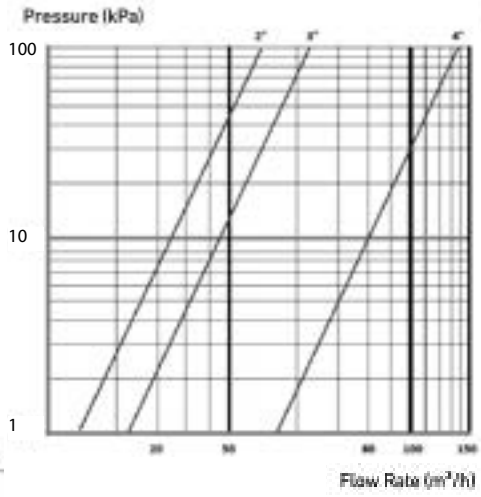
Model	In/Out D (mm/ inch)	D1 (mm/ inch)	X (mm)	Y (mm)	L (mm)	L1 (mm)	Maximum Flow Rate* (m^3/h)	Flush Valve (mm BSPF)	Shipping Weight (kg)
SA506L	150/6	250/10	450	237	1163	1800	150	50	102
SA508L	200/8	250/10	550	237	1361	2200	250	50	119

Ordering Information

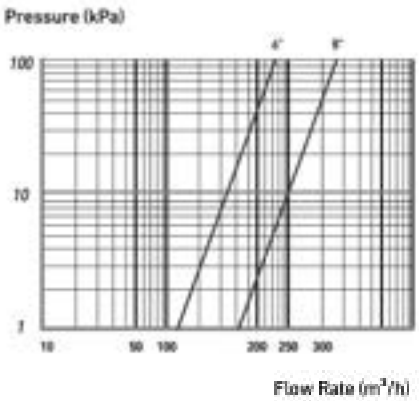
Code	Description
SA502C-80	2" BSPF, 80 Mesh, 25 m^3/hr*
SA502C-120	2" BSPF, 120 Mesh, 25 m^3/hr*
SA502C-200	2" BSPF, 200 Mesh, 25 m^3/hr*
SA503C-80	3" BSPF, 80 Mesh, 45 m^3/hr*
SA503C-120	3" BSPF, 120 Mesh, 45 m^3/hr*
SA504C-80	4" Flanged, 80 Mesh, 80 m^3/hr*
SA504C-120	4" Flanged, 120 Mesh, 80 m^3/hr*
SA506L-80	6" Flanged, 80 Mesh, 150 m^3/hr*
SA506L-120	6" Flanged, 120 Mesh, 150 m^3/hr*
SA508L-80	8" Flanged, 80 Mesh, 250 m^3/hr*
SA508L-120	8" Flanged, 120 Mesh, 250 m^3/hr*

** Based on 10 kPa pressure loss (clean). Derate for dirty water.*

Semi Automatic Filters - Series SA500C
Pressure Loss Graph



Semi Automatic Filters - Series SA500L
Pressure Loss Graph



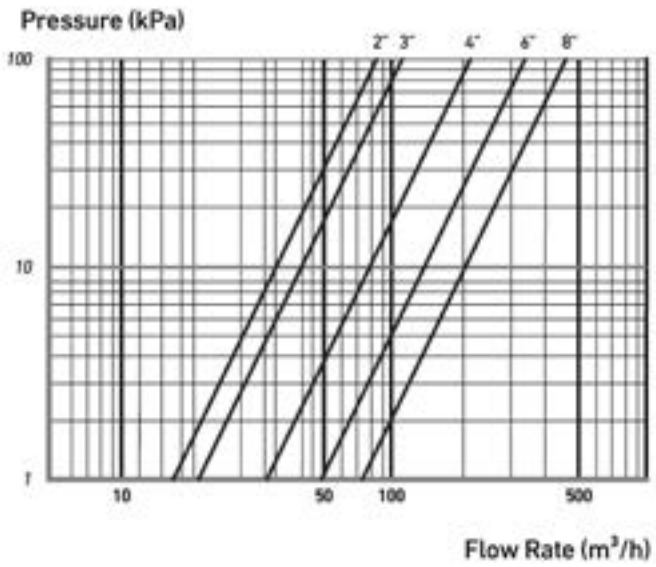
Application

- For use with drip, micro and sprinkler irrigation systems and back up filtration at the control valves in the field
- Screens available in 40, 80 and 120 mesh. Other screens available upon request

Features

- Baked epoxy coated carbon steel body
- Screen made from 316 stainless steel
- Automatic self cleaning with control voltage either 6 VDC or 12 VDC
- Clean filter pressure loss 10 kPa - for maximum recommended flows
- Maximum operating pressure: 1000 kPa
- Minimum operating pressure: 200 kPa
- 5 second flushing cycle (user settable)
- Pressure differential or time based flushing control
- Flush valve - 25 mm (AF202-204)
  - 50 mm (AF206-208)
- Low flush rate - 6 m^3/h (at 200 kPa) 50, 80, 100 mm
  - 12 m^3/h (at 200 kPa) 150, 200 mm

Automatic Hydraulic Filters - Series AF200
Head Loss Graph



AF200 Series Technical Data											
Model	**In/Out D (mm/inch)**	**D1 (mm/inch)**	**X (mm)**	**X1 (mm)**	**Y (mm)**	**H (mm)**	**H1 (mm)**	**Maximum Flow Rate (m^3/h)***	**Screen Area (cm^2)**	**Flushing Flow Rate (m^3/h)****	**Shipping Weight (kg)**
AF202	50/2	250/10	220	465	197	507	475	30	1100	6	43
AF203	80/3	250/10	220	465	197	507	475	40	1100	6	45
AF204	100/4	250/10	220	465	210	641	610	80	1630	6	50
AF206	150/6	250/10	220	585	400	1150	1575	130	4120	20	90
AF208	200/8	400/16	303	642	450	1219	1700	200	5240	20	150

Model AF200

Filtration Grade Conversion Table										
Micron	25	30	40	50	80	100	120	150	200	400
Mesh	650	550	400	300	200	150	120	100	80	40

Ordering Information	
Code	**Description**
AF202M-80	2" BSPF, 80 Mesh, 30 m^3/hr
AF202M-120	2" BSPF, 120 Mesh, 30 m^3/hr
AF203M-80	3" BSPF, 80 Mesh, 40 m^3/hr
AF203M-120	3" BSPF, 120 Mesh, 40 m^3/hr
AF204F-80	4" Flanged, 80 Mesh, 80 m^3/hr
AF204F-120	4" Flanged, 120 Mesh, 80 m^3/hr
AF206F-120	6" Flanged, 120 Mesh, 130 m^3/hr
AF208F-120	8" Flanged, 120 Mesh, 200 m^3/hr

S= Filter with large filtration area
** Flow rate data is for high quality water at filtration grade of 120 mesh. De-rate the filter flow rate depending on water quality, load and filtration grade.*
*** Flushing flow rate data is for minimum operational pressure (200 kPa)*
Flush water consumption (at 200 kPa): 8 Litres (50, 80, 100 mm) ; 16 Litres (150, 200 mm)
All auto screen filters come with complete instruction booklets for operation and maintenance

AF800 Parallel and In-Line Hydraulic Auto Screen Filter Suction Scanner

Application

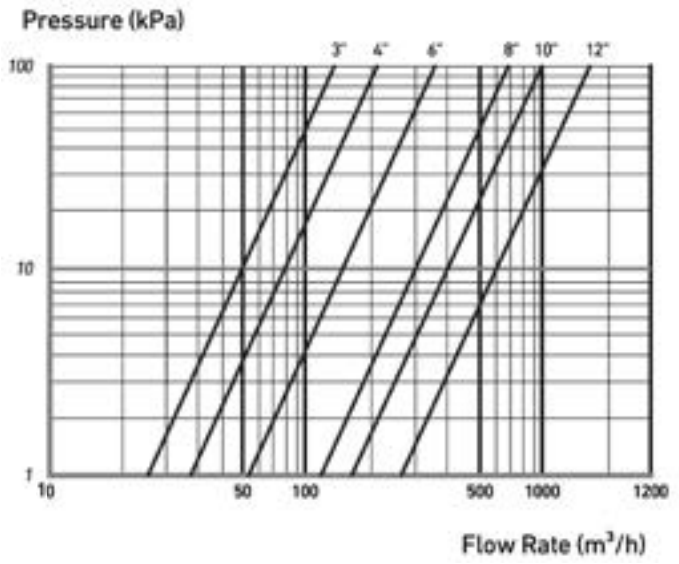
- For use with drip, micro and sprinkler irrigation systems and back up filtration at the control valves in the field.
- All screens are 120 mesh (standard). 40 and 80 mesh also available as standard in some models. Other screens available upon request.

Features

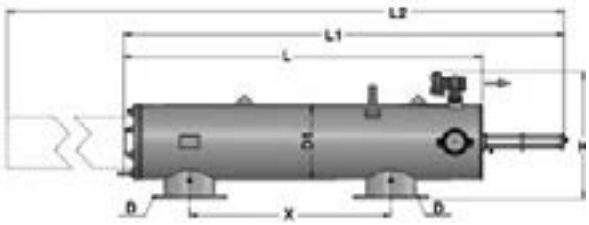
- Available in parallel or in-line configuration
- Filter housing material of construction: Carbon Steel ST37.2
- Pre-treatment: sand blasting up to Sa 2.5 grade
- Exterior & Interior coating: electrostatic oven baked polyester-epoxy powder coating with a thickness of 150-200 micron (some configurations available with galvanised body)
- Filter element: - Stainless Steel screen AISI 316 mesh, supported by a PVC cylinder
- Automatic self cleaning with 6VDC or 12VDC controller
- Minimum operating pressure: 200 kPa
- Maximum operating pressure: 1000 kPa
- 10 second flushing cycle (user settable)
- Pressure differential or time-based flushing control
- Table D flanges (standard). Others built to order

Parallel Hydraulic Auto Screen Filter – Suction Scanner

AF800 Series Head Loss Graph (120 mesh)



Filtration Grade Conversion Table														
Micron	10	25	30	40	50	80	100	120	150	200	400	800	1500	3000
Mesh	1500	650	550	400	300	200	150	120	100	80	40	20	10	5



Parallel Hydraulic Auto Screen Filter

AF800 – Technical Data														
Model Number	In/Out Diam D (mm)	Segment Diameter (mm)	No. of Segments	D1 (mm)	H (mm)	X (mm)	L (mm)	L1 (mm)	L2 (mm)	Maxm [1] Flow Rate (m^3/hr)	Flushing [2] Flow Rate (m^3/hr)	Screen Area (cm^2)	Shipping Weight (kg)	No. of Flush Valves
AF803OLPR	80/3	225	2	250	545	450	1139	1386	2040	50	30	3220	110	1
AF804LOPR	100/4	225	4	250	545	900	1535	1782	2820	80	30	5780	135	1
AF806LOPR	150/6	225	4	300	580	900	1605	1851	2890	150	30	5780	147	1
AF806XLP	150/6	225	6	250	555	900	2001	2247	3680	160	30	8410	157	1
AF808LOPR	200/8	225	6	300	579	900	2190	2437	3870	300	30	8410	187	1
AF810LOPR	250/10	225	6	350	595	900	2194	2437	3870	400	30	8410	212	1
AF810XLP	250/10	280	6	400	720	1100	2700	3145	5420	450	90	11710	405	3
AF812PR	300/12	280	6	400	720	1100	2700	3145	5420	600	90	11710	410	3

[1] Based on 10 kPa loss across inlet to outlet flange, clean water.
[2] Based on minimum flushing pressure of 200 kPa.

XLP= Extra long filter with extra large filtration area. PR= Parallel.
IL= in line. LO= Long filter with large filtration area.

** Flow rate data is for high quality water at filtration grade of 120 mesh.*

*** Flushing flow rate data is for minimum operational pressure (200 kPa)*
De-rate the filter flow capacity depending on water quality, load and filtration grade.
Flush Valve: 50 mm BSPF

Ordering Information	
Code	**Description**
AF803LOPR-120	3" Flanged, 120 mesh, 50 m^3/hr
AF804LOPR-40	4" Flanged, 40 mesh, 80 m^3/hr
AF804LOPR-80	4" Flanged, 80 mesh, 80 m^3/hr
AF804LOPR-120	4" Flanged, 120 mesh, 80 m^3hr
AF806LOPR-40	6" Flanged, 40 mesh, 150 m^3/hr
AF806LOPR-80	6" Flanged, 80 mesh, 150 m^3/hr
AF806LOPR-120	6" Flanged, 120 mesh, 150 m^3/hr
AF806XLP-120	6" Flanged Extra Long Body, 120 mesh, 160 m^3/hr
AF808LOPR-40	8" Flanged, 40 mesh, 300 m^3/hr
AF808LOPR-80	8" Flanged, 80 mesh, 300 m^3/hr
AF808LOPR-120	8" Flanged, 120 mesh, 300 m^3/hr
AF810LOPR-120	10" Flanged, 120 mesh, 400 m^3/hr
AF810XLP-120	10" Flanged Extra Long Body, 120 mesh, 450 m^3/hr
AF812PR-120	12" Flanged, 120 mesh, 600 m^3/hr

** In-line models and galvanised bodies. For availability please contact Toro Australia.*

All auto screen filters come with complete instruction booklets for operation and maintenance

F700 Epoxy Coated Hydrocyclone Separator

Application

- For use prior to primary filtration with bore water. Ideal for removing large volumes of suspended material denser than water and to reduce the load on the primary filter
- For use in all forms of irrigation

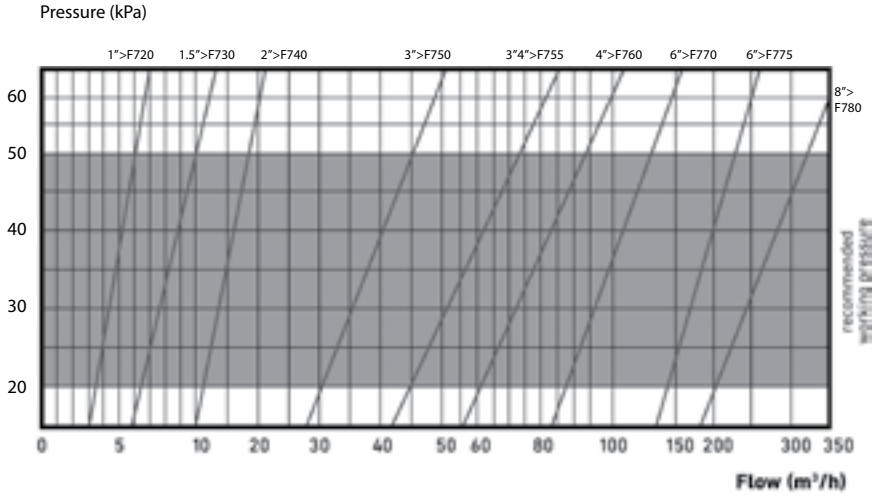
Features

- Inlet/Outlet
  – MBSP threads on 25,40 and 50 mm
  – Flanged table D on 80,100, 150 and 200 mm
- 90 degree Inlet/Outlet configuration
- Filter housing material of construction: Carbon Steel ST37.2
- Pre-treatment: sand blasting up to Sa 2.5 grade
- Interior and exterior coating: electrostatic oven baked polyester-epoxy powder coating with a thickness of 150-200 micron
- Manual operation
- Dirt collector (sump) included with each unit
- Maximum operating pressure: 1000 kPa
- Size available
  25 mm – 200 mm
- Flow range: 4 to 330 m³/hr
- Centrifugal flow action causes particles to precipitate down the wall of the unit and into the dirt collector

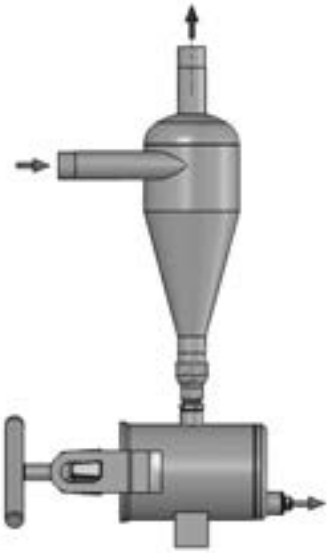
Note:
It is critical when selecting the correct unit to ensure that the flow rate passed through the unit falls within the 20 to 50 kPa head loss region (shown shaded on the chart).

700 Series Hydrocyclone

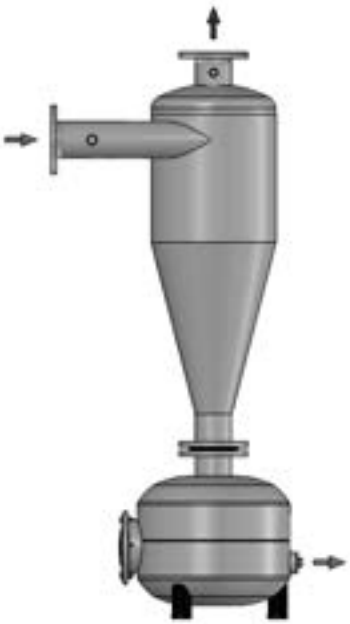
F700 Pressure Loss Graph



F720-F755F Configuration



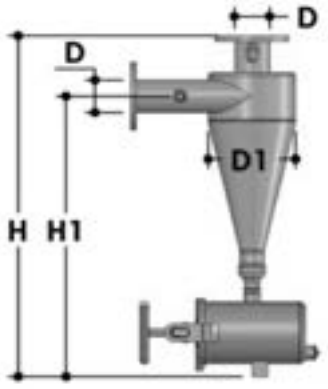
F760F Configuration



F770F, F775F, F780F Configuration

F700 Hydrocyclone Separator Technical Data							
Model	**In/Out D (mm/inch)**	**D1 (mm/inch)**	**H (mm)**	**H1 (mm)**	**Tank (Litres)**	**Min^{M}/Max^{M} Flow Range (m^3/h)**	**Shipping Weight (kg)**
F720	25/1	100/4	600	460	1.5	3.5-6	10.1
F730	40/1.5	150/6	740	594	2.5	6.5-10	15.5
F740	50/2	200/8	900	755	5	11-19	23.4
F750	80/3	200/8	930	765	5	29-45	32.5
F755	80x100/3x4	300/12	1550	1285	30	45-73	75.0
F760	100/4	400/16	1765	1495	60	60-93	97.5
F770	150/6	500/20	1996	1671	150	93-155	187.0
F775	150/6	600/24	2300	1940	150	145-225	230.0
F780	200/8	750/30	2897	2492	220	200-330	328.0

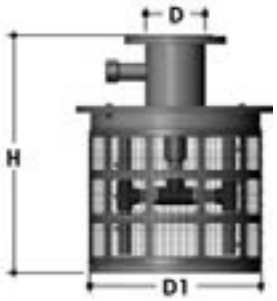
Ordering Information	
Code	**Description**
F720M	25 mm MBSP, 3.5 to 6 (m^3/hr)
F730M	40 mm MBSP, 6.5 to 10 (m^3/hr)
F740M	50 mm MBSP, 11 to 19 (m^3/hr)
F750F	80 mm Flanged Table D/E, 29 to 45 (m^3/hr)
F755F	80 x 100 mm Flanged Table D, 45 to 73 (m^3/hr)
F760F	100 mm Flanged Table D, 60 to 93 (m^3/hr)
F770F	150 mm Flanged Table D, 93 to 155 (m^3/hr)
F775F	150 mm Flanged Table D, 145 to 225 (m^3/hr)
F780F	200 mm Flanged Table D, 200 to 330 (m^3/hr)



Application

The hydraulic pre-pump strainers (PPS) are self-cleaning and enable high quality pumping from different types of water sources such as sewage, reservoirs, rivers and lakes. The PPS helps to extend the life of the pump and protects the entire filtration system from becoming clogged and deteriorating, ensuring effective and efficient pumping is maintained.

The PPS is submerged in the water source, when pumping starts, water flows through the screen. Large suspended debris and dirt accumulates on the screen preventing it from entering the pump and the water system. The screen is automatically self-cleaned by water spray from the nozzles, continuously rotating and covering the entire area of the screen.



Features

- Outlet: 100 mm, 150 mm, 200 mm, 250 mm and 300 mm
- Body of strainer and connections: Carbon Steel ST37.2
- Pre-treatment: sand blasting up to Sa 2.5 grade
- Exterior & Interior coating: electrostatic oven baked polyester-epoxy powder coating with a thickness of 150-200 micron
- Screen made from 304 stainless steel
- Operating pressure: 200-300 kPa
- Supplied with 2500 micron screen
- Includes 12 m of 25 mm flexible flush pipe with connection fittings
- Tripod legs available to order separately

Pre-Pump Strainers Technical Data

Model	In/Out D (mm/inch)	D1 (mm)	H (mm)	Outlet Diameter (mm)	Flush Pipe Diameter (mm)	Screen Area (cm^2)	Maximum Flow Rate (m^3/h)* 2500 µm	Flushing Flow Rate** (m^3/hr)	Shipping Weight (kg)
PPS1004	100/4	478	520	100	25	4805	100	7	60
PPS1006	150/6	478	670	150	40	6998	190	10	75
PPS1008	200/8	478	870	200	40	10061	380	16	80
PPS1010	250/10	748	790	250	40	13770	630	16	128
PPS1012	300/12	748	970	300	40	18000	880	21	141

** Maximum flow rate data is based on high quality water.*
De-rate the strainer capacity depending on water quality, load and filtration grade.

*** Based on 300 kPa operating pressure.*

Ordering Information

Code	Description
PPS1004	4" Pre-Pump Strainer, 100 m^3/hr
PPS1006	6" Pre-Pump Strainer, 190 m^3/hr
PPS1008	8" Pre-Pump Strainer, 380 m^3/hr
PPS1010	10" Pre-Pump Strainer, 630 m^3/hr
PPS1012	12" Pre-Pump Strainer, 880 m^3/hr

F600 Epoxy Coated Vertical Media Tanks

Applications

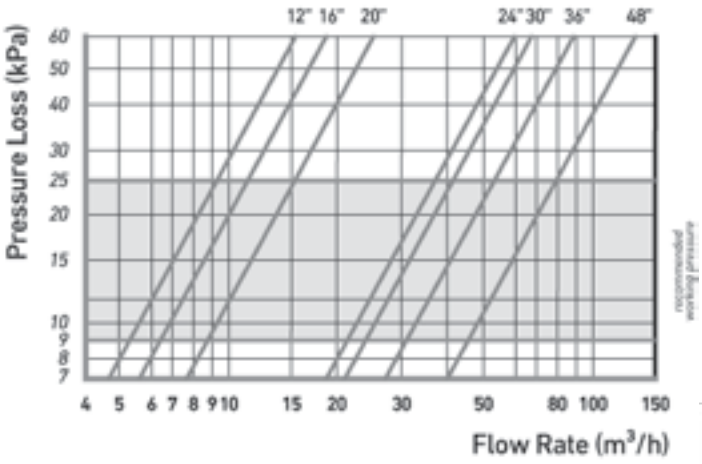
- Vertical Epoxy coated carbon steel tanks designed for use in large commercial irrigation systems where a high level of quality filtration is required
- Used for tape and drip systems and in dirty water situations with micro irrigation systems
- Used to collect chemicals that have been precipitated out of solution

Features

- Filter housing material of construction: Carbon Steel ST37.2
- Pre-treatment: sand blasting up to Sa 2.5 grade
- Exterior & Interior coating: electrostatic oven baked polyester-epoxy powder coating with a thickness of 150-200 micron
- Suitable for use with sand, gravel or a combination of both media
- Filtration systems are supplied complete with flushing valves, inlet/outlet manifolds, backup screen filter
- Maximum Pressure: 800 kPa
- Tanks available in 300, 400, 500, 635, 760, 900 and 1220 mm diameter
- Stations supplied as in-line with 2 to 6 tanks (depending on tank size)

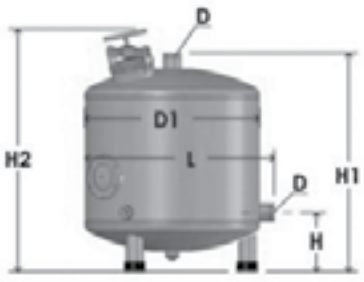
F605

F600 Series Head Loss Graph (per tank) at 120 micron



F640

Model F605-F635



Model F640-F660

F600 Tank Technical Data								
Model	**D (mm)**	**D1 (mm/inch)**	**H (mm)**	**H1 (mm)**	**H2 (mm)**	**L (mm)**	**No. of 25 kg sand bags**	**Weight of tank only (kg)**
F605	25 BSPF	300/12	150	785	1160	445	2	45
F610	40 BSPF	400/16	180	870	1175	457	3	48
F620	50 BSPF	500/20	180	880	1280	548	5	60
F635	50 FBSP	600/24	180	880	1285	696	7	85
F640	80 Vict	760/30	300	1070	1197	864	12	130
F650	80 Vict	900/36	300	1110	1242	1010	16	170
F660	100 Vict	1200/48	300	1110	1189	1338	23	246

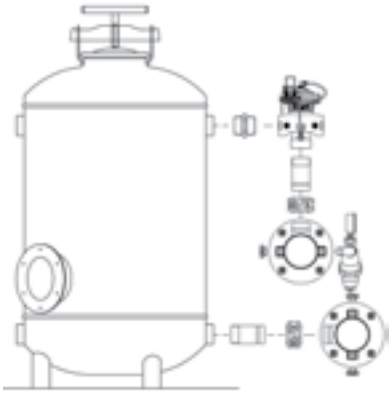
Flow Rate Data					
Model	**Filtration Area (m^2)**	**Backwash Flow (based on 80m/h or 22 L/s/m^2)**		**Flow Range per Tank (based on 45-65m/h or 12.5-18 L/s/m^2)**	
		L/s	**m^3/h**	**L/s**	**m^3/h**
F605	0.07	1.6	5.6	0.9-1.3	3-5
F610	0.12	2.7	9.6	1.4-2.2	5-8
F620	0.20	4.4	16	2.5-3.6	9-13
F635	0.29	6.4	23.2	3.6-5.2	13-19
F640	0.44	9.8	35	5.5-7.9	20-29
F650	0.64	14.2	51.2	8.0-11.6	29-42
F660	1.13	25.1	90	14.1-20.4	51-73

Flow range figures are given to show the normal anticipated flow range for each tank. The number of tanks required for any particular flow rate will depend on the particulate load and the finish required.

Backwash flow rates are based on 16/30 sand media.

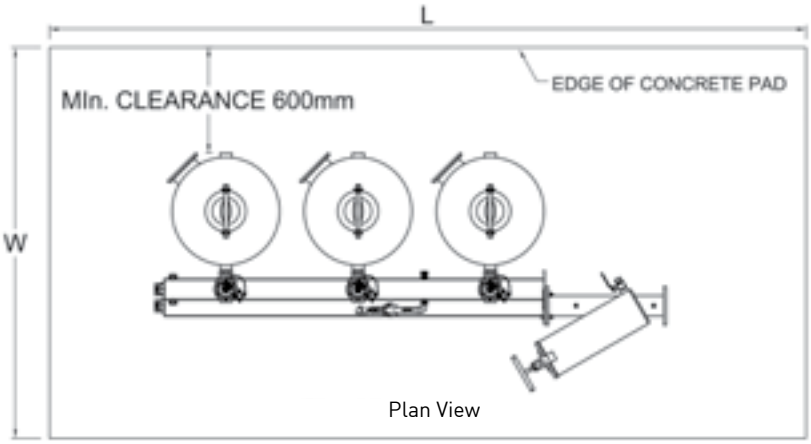
Ordering Information	
Code	**Description**
F605	1" BSPF Inlet/Outlet, 12" Body, 800 kPa Rating
F610	1½" BSPF Inlet/Outlet, 16" Body, 800 kPa Rating
F620	2" BSPF Inlet/Outlet, 20" Body, 800 kPa Rating
F635	2" BSPF Inlet/Outlet, 25" Body, 800 kPa Rating
F640	3" BSPF Inlet/Outlet, 3" Victaulic, 30" Body, 800 kPa Rating
F650	3" BSPF Inlet/Outlet, 3" Victaulic, 36" Body, 800 kPa Rating
F660	4" BSPF Inlet/Outlet, 4" Victaulic, 48" Body, 800 kPa Rating

F600 Epoxy Coated Vertical Filter Stations

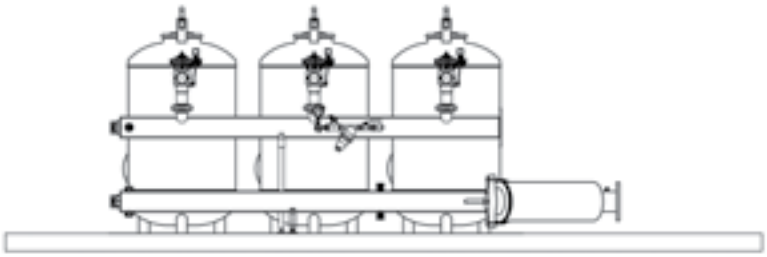


Exploded Side View of Tank

Typical F600 Media Filter Station. Station includes tanks, inlet and outlet manifold, back wash valves, associated manifold fittings, back-up strainer, manifold supports, hydraulic control assembly. Not included are: solenoids, controller, media, PD switch, controller support bracket, back wash line and associated fittings, air release valve.



Plan View



Side View

F600 Media Filter Stations

Technical Data								
Code	**Manifold Diam. (mm)**	**Back-up Filter**	**Filtration Area (m^2)**	**No. of Tanks**	**Backwash Valve**	**Flow m^3/h (45m/h) (12.5 L/s/m^2)**	**Flow m^3/h (65m/h) (18 L/s/m^2)**	**Pad Size L × W (m × m)**
101FSP0216	50 FBSP	F220M-80	0.24	2×400	2″ × 2″	10	16	2.9 × 2.1
101FSP0316	80 FL	F230F-80	0.36	3×400	2″ × 2″	15	24	3.7 × 2.2
101FSP0416	80 FL	F230F-80	0.48	4×400	2″ × 2″	20	32	4.3 × 2.2
101FSP0220	80 FL	F230F-80	0.40	2×500	2″ × 2″	18	26	3.3 × 2.2
101FSP0320	80 FL	F230F-80	0.60	3×500	2″ × 2″	27	39	3.9 × 2.2
101FSP0420	100 FL	F240F-80	0.80	4×500	2″ × 2″	36	52	4.7 × 2.3
101FSP0225	80 FL	F230F-80	0.58	2×600	2″ × 2″	26	38	3.4 ×2.3
101FSP0325	100 FL	F240F-80	0.87	3×600	2″ × 2″	39	57	4.3 × 2.4
101FSP0425	100 FL	F240F-80	1.16	4×600	2″ × 2″	52	76	5.1 × 2.4
101FSP0230	100 FL	F240F-80	0.88	2×760	3″ × 2″	40	58	3.8 × 2.4
101FSP0330	150 FL	F260F-80	1.32	3×760	3″ × 2″	60	87	5.0 × 2.4
101FSP0430	150 FL	F260F-80	1.76	4×760	3″ × 2″	80	116	6.0 × 2.4
101FSP0236	100 FL	F240F-80	1.28	2×900	3″ × 2″	58	84	4.1 × 2.5
101FSP0336	150 FL	F260F-80	1.92	3×900	3″ × 2″	87	126	5.4 × 2.5
101FSP0436	150 FL	F260F-80	2.56	4×900	3″ × 2″	116	168	6.5 × 2.5
101FSP0348	200 FL	1014733F	3.39	3×1200	4″ × 3″	153	219	5.7 × 3.2
101FSP0448	200 FL	1014733F	4.52	4×1200	4″ × 3″	204	292	7.0 × 3.2
101FSP0548	250 FL	1014739F	5.65	5×1200	4″ × 3″	255	365	8.5 ×3.2
101FSP0648	250 FL	1014739F	6.78	6×1200	4″ × 3″	306	438	9.9 × 3.2

Note: The flow ranges given in these tables are indicative only. All filter selections must be based on de-rating the flow capacity to suit the grade of filtration required, the particle size and load and seasonal variations. Pad dimensions typically allow a minimum clearance of 600mm all around the filter assembly as per the diagram above.

Applications

For use with F600 Sand Media Tanks. The valves provide three way operation for backwashing.

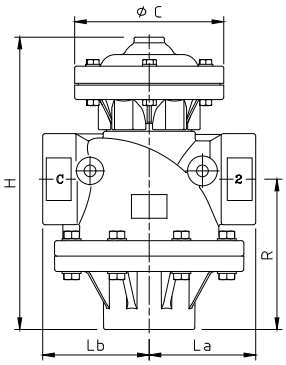
Features

- Unique diaphragm actuated plug assembly for smooth operation
- No rolling diaphragm
- Closes supply port before backflush port opens
- No supply water to waste
- High flow capacity

Pressure Loss, Kv Factor for Bermad 350 series Backwash Valves (Angle Flow)

Code	Valve	Filtering Mode	Backwash Mode
BFLV22P	2x2-350-P	K_v = 52	K_v = 48
BFLV33P	3x3-350-P	K_v = 110	K_v = 100
BFLV44P	4x4-350-P	K_v = 225	K_v = 205

Pressure Loss Equation : $P = (Q / K_v)^2$ where P = pressure loss in bar, Q = flow in m^3/hr, $K_v = m^3/hr$ at pressure loss of 1 Bar




BFVL22P


BFVL33P


BFLVL44P

Specifications

Valve Code	BFVL22P	BFVL33P	BFLVL44P
End Connections	2" BSPF/50mm Thread	3"/80mm Grooved	4"/100mm Grooved
Flush Connections	2" BSPF/50mm Thread	3"/80mm Grooved	4"/100mm Grooved
Pressure Range	70-1000 kPa	70-1000 kPa	70-1000 kPa
Maximum Temperature	65°C	65°C	65°C
Chambers	2	2	2
Valve Body	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Separating Partition	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Cover	Polyamide 6 - 30GF	Polyamide 6 - 30GF	Polyamide 6 - 30GF
Diaphragm	NR-AL52 Nylon Fabric Reinforced	NR-AL52 Nylon Fabric Reinforced	NR-AL52 Nylon Fabric Reinforced
Seats, Diaphragm washers	Brass	Brass	Stainless Steel 304
Plug, Plug washer	Acetal Copolymer	Acetal Copolymer	Acetal Copolymer
Stopper Disc	PVC-U	PVC-U	PVC-U
Seal, O-Rings	NBR	NBR	NBR
Spring	Stainless Steel AISI 302	Stainless Steel AISI 302	Stainless Steel AISI 302
Shaft	Stainless Steel AISI 303	Stainless Steel AISI 303	Stainless Steel AISI 303
External Bolts, Nuts and Discs	Stainless Steel	Stainless Steel	Stainless Steel
Control Chamber Volume Displacement	0.13 L	0.34 L	0.55 L

Dimensions and Weights

Size	2" x 2" Threaded	3" x 3" Grooved	4" x 4" Grooved
H (mm)	274	378	464
R (mm)	127	120	225
La (mm)	90	143.5	138.5
Lb (mm)	90	143.5	178.5
ØC (mm)	126	160.5	210
Weight (kg)	2.8kg	2.8kg	9.9kg

Ordering Information

Code	Description
BFLV22P	2"× 2" 350 Series Plastic Backwash Valve (no coil)
IR2X2350-55-A-BP	2"× 2" 350 Series Plastic Backwash Valve (with 24VAC coil)
BFLV33P	3"× 3" 350 Series Plastic Backwash Valve (no coil)
BFLVL44P	4"× 4" 350 Series Plastic Backwash Valve (no coil)

F600HM Epoxy Coated Vertical Deep Bed Media Tanks

Applications

- Deep bed vertical epoxy coated carbon steel tanks for use in industrial water treatment applications where longer contact time is required.
- For use in irrigation systems where greater depth of media may be needed.

Features

- Suitable for use with sand, gravel or a combination of both media.
- Maximum pressure : 800 kPa
- Tanks available in 500, 760, 900 and 1220 mm diameter.
- Tanks sold separately, not as part of array

Model F620-D

Model (F640-D - F660-D

PVT600-D Epoxy Coated Vertical Deep Bed Media Tanks Dimensional Drawings

F600HM Series Technical Data								
Code	**D1 (mm/inch)**	**B (mm)**	**L (mm)**	**L1 (mm)**	**L2 (mm)**	**Connection (D) (mm/inch)**	**Rec. Flow Rate (m^3/h) (min/max)**	**Filtration Area (m^2)**
F620-D	500/20	563	180	1675	2075	40/1.5	1-3	0.20
F640-D	760/30	865	300	2052	2185	50/2	3-6	0.44
F650-D	900/36	970	300	1990	2121	50/2	4-9	0.64
F660-D	1200/48	1343	420	2160	2246	50/2	6-17	1.13

**Recommended media depth 1000mm.*

Applications

Vertical stainless steel sand media filters, designed for large commercial irrigation systems where a high quality of filtration is required.

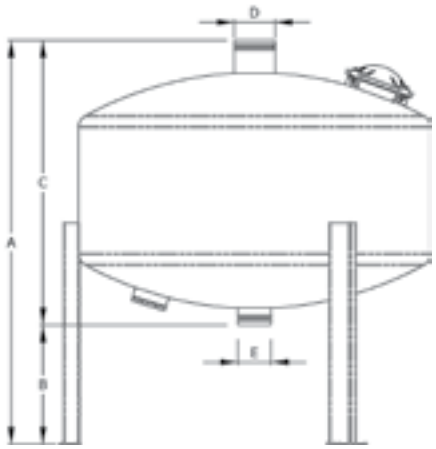
Features

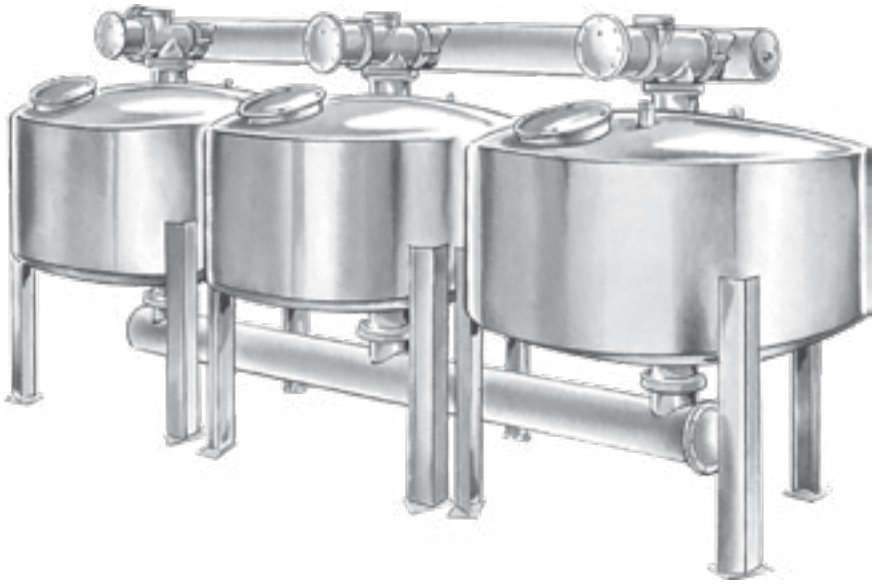
- Available as manifolded kits to filter a wide range of flows
- Kits can be further manifolded when higher flow rates are required
- Constructed of durable stainless steel to provide a lifetime of service
- Unique 'flow balanced' under-drain designed for trouble-free operation
- Ensures even water distribution during filtration and backwash
- Multiple stainless steel under-drain inlets with V-shaped slots help reduce particle entrapment
- Station includes tanks, inlet and outlet manifold, backwash valves, associated manifold fittings, back-up strainer, manifold supports, hydraulic control assembly.

  Not included are; solenoids, controller, media, PD switch, controller support bracket, back wash line and associated fittings, air release valve.

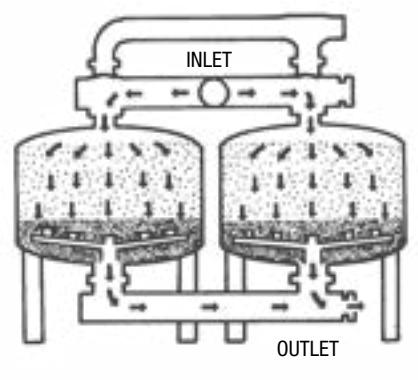
Specifications

- Media Tanks and Manifold: Grade 304 Stainless Steel
- Backwash Valves and Port Hole Covers: Cast Iron ASTM A126 Class B with fusion epoxy coat
- Valve Components: Type 304 Stainless Steel, PVC stem and O-rings
- Pressure Rating: 1000 kPa



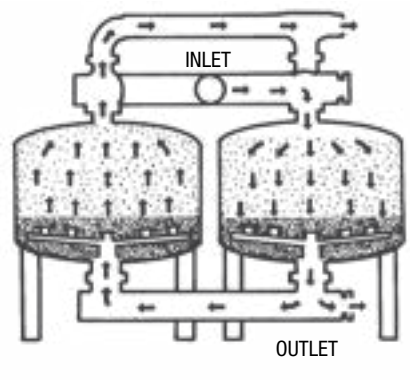


The key to trouble free irrigation. Vertical, stainless steel sand media filters, available in a range of models and flows to suit most applications.



Filtering

The under drain inlets are evenly placed beneath the sand media bed and provide for uniform 'lift' during backwash, as well as uniform through-flow during filtration.

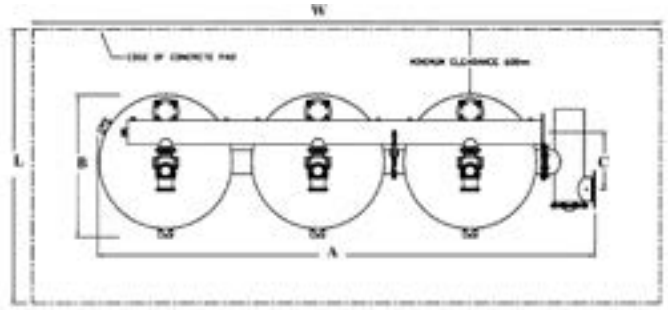


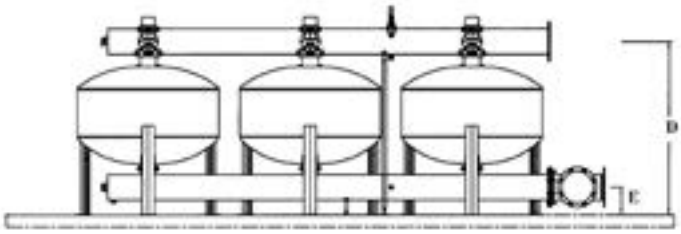
Backwashing

This 'lift' creates rapid mobilisation of the sand bed, enabling shorter backwash cycles, less backwash disposal and energy cost savings.

Stainless Steel Media Tank Dimensions

Tank Size mm/inch	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
600/24	1054	260	794	114	89
900/36 NEW	1229	375	854	114	114
1100/45	1270	413	857	140	114
1200/48	1397	413	857	140	114





Pad dimensions typically allow a minimum clearance of 600 mm all around the filter assembly as per the diagram above.

Assembled Dimensions								
No. of Tanks	**A (mm)**	**B (mm)**	**C (mm)**	**D (mm)**	**E (mm)**	**Manifold Diam. (mm)**	**L (mm)**	**W (mm)**
2x600	1830	764	203	1151	171	80	1964	3030
3x600	2690	715	353	1151	156	100	1915	3887
4x600	3440	715	353	1151	156	100	1915	4640
2x900**	2491	996	83	1473	390	100	2196	3691
3x900**	3599	996	444	1473	366	150	2196	4786
4x900**	4636	996	444	1473	366	150	2196	5836
3x1100	4230	1218	526	1375	247	200	2418	5430
4x1100	5480	1218	526	1375	247	200	2418	6680
3x1200	4574	1296	517	1486	239	200	2496	5772
4x1200	5974	1296	517	1486	239	200	2496	7172
5x1200	7437	1296	678	1485	186*	250	2496	8636
6x1200	8837	1296	678	1485	186*	250	2496	10036

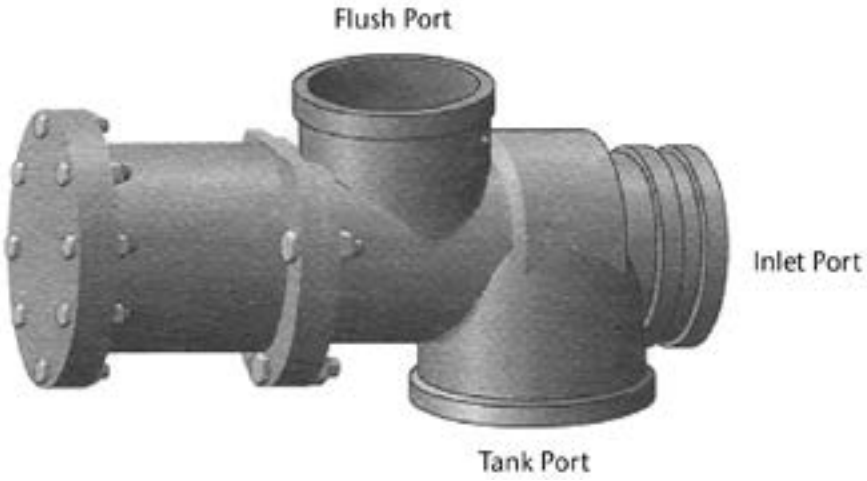
** Note: Flange Radius 208 mm – Lower than floor level*
*** Based on 'new design' tank*

Technical Data								
Code	**No. of Tanks**	**Filter Area (m^2)**	**Backwash* Flow (m^3/h)**	**Flow (m^3/h)****	**Flow (m^3/h)*****	**Back-up Filter**	**No. of 25kg Gravel Bags**	**No. of 25kg Sand Bags**
101FSS0224	2x600	0.56	22	25.2	36.4	1014472	4	12
101FSS0324	3x600	0.84	22	37.8	54.6	1014737F	6	18
101FSS0424	4x600	1.12	22	50.4	72.8	1014737F	8	24
101FSS0236	2x900	1.28	51	57.6	83.2	1014737F	6	18
101FSS0336	3x900	1.92	51	86.4	124.8	1014738F	9	27
101FSS0436	4x900	2.56	51	115.2	166.4	1014738F	12	36
101FSS0345	3x1100	2.97	79	133.7	193.0	1014733F	24	66
101FSS0445	4x1100	3.96	79	178.2	257.4	1014733F	32	88
101FSS0348	3x1200	3.39	90	152.5	220.4	1014733F	33	76
101FSS0448	4x1200	4.52	90	203.4	293.8	1014733F	44	104
101FSS0548	5x1200	5.65	90	254.3	367.3	1014739F	55	130
101FSS0648	6x1200	6.78	90	305.1	440.7	1014739F	65	156

** Based on velocity of 80 m/h*
*** Based on velocity of 45 m/h or flow rate of 12.5 L/s/m2*
**** Based on velocity of 65 m/h or flow rate of 18 L/s/m2*

Note: The flow ranges given in these tables are indicative only. All filter selections must be based on de-rating the flow capacity to suit the grade of filtration required, the particulate size and load and seasonal variations.

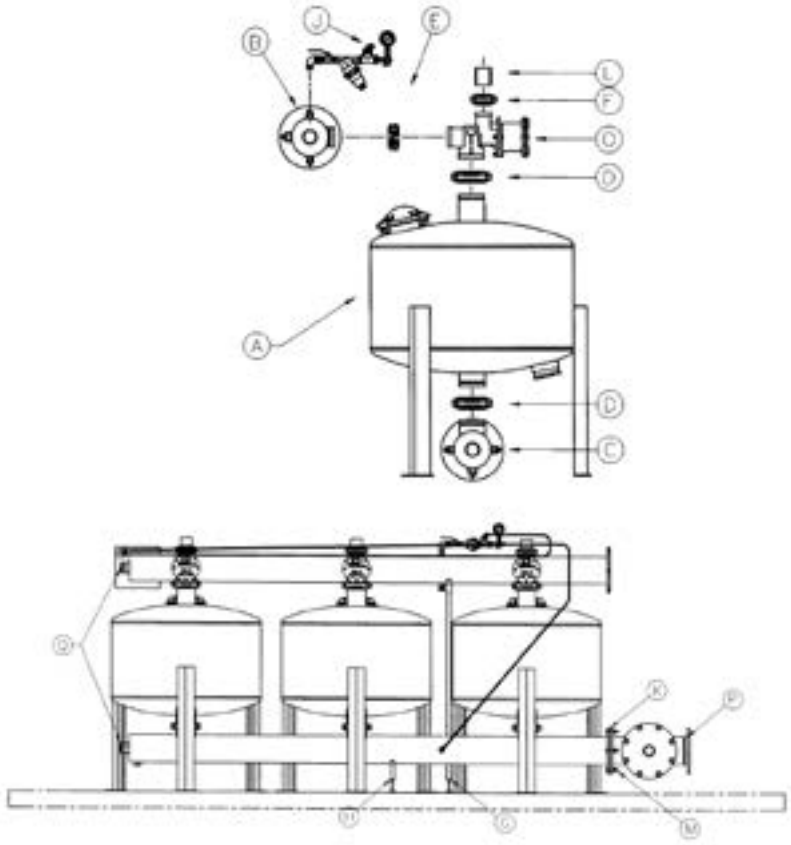
Backwash Valve for Stainless Steel Filter



Backflush Valve Dimensions					
Tank Size (mm)	**Flush Valve Code**	**Inlet Port Grooved (inch/mm)**	**Tank Port Grooved (inch/mm)**	**Flush Port Grooved (inch/mm)**	**Weight (kg)**
24/600	F011526	3 / 80	4/ 100	2½ / 65	12.6
36/900	F011526	3 / 80	4 /100	2½ / 65	12.6
45/1100	F011551	4 / 100	5 / 125	4 / 100	13.6
48/1200	F011551	4 / 100	5 / 125	4 / 100	13.6

Item Label	Description
A	Filter tank
B	Inlet Manifold
C	Outlet Manifold
D	Tank Outlet Victaulic Coupling
E	Valve Inlet Victaulic Coupling
F	Valve Backwash Victaulic Coupling
G	Inlet Manifold Support
H	Outlet Manifold Support
I*	Hydraulic Tube Kit – suits up to 3 tanks
J	Hydraulic Charging Head
K	Table D Insertion Gasket
L	PVC Grooved Adaptor
M	GI Nut, Bolt and Washer
N*	Teflon Tape one roll per tank
O	Backwash Valve
P	Flanged Basket Strainer
Q	50 mm Poly Plug
R*	20 mm Poly Plug

** Not shown on drawing*

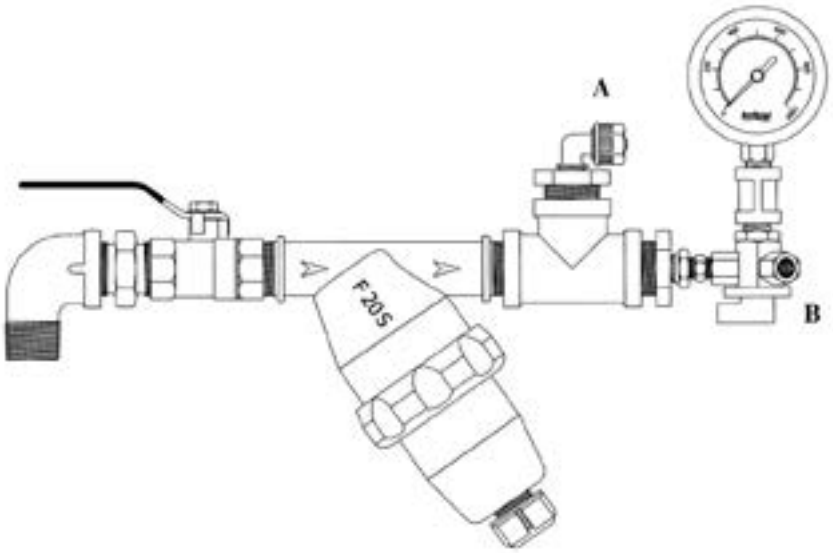


Flush Port Victaulic Adaptor detail
65 mm PVC victaulic adaptor acts as a 50mm PVC socket.
100 mm PVC victaulic adaptor acts as a 100mm PVC adaptor.

Hydraulic Charging Head
Code: 101HCH

Used to filter the supply line to hydraulically operated solenoid valves.

- Port A is the high pressure port
- Port B is the low pressure port
- 20 mm MBSP inlet elbow
- 0-1000 kPa pressure gauge and 3 way brass valve
- 20 mm Plastic screen filter (150 mesh)



Pressure Differential Switch
Code: A20DPK30-K, A20DPK15-K

Used to trigger filter flush cycle on a controller.

- Settable Differential range 0 to 200 kPa (A20DPK30-K), 0 to 100 kPa (A20DPK15-K).
- 1/8" NPTM ports
- Normally open or closed switch (user settable)
- Supplied with U shaped mounting bracket, two 1/8" FBSP x 8 mm tube connectors

PD Switch Bracket
Code: 101PDBRAC

For use specifically to mount the PD switch to the stainless steel media manifold.

- Manufactured from 2 mm thick stainless steel
- 25 mm MBSP mounting thread
- 115 mm high, 63 mm wide

Filter Flush Controller Bracket
Code: 101FFCP

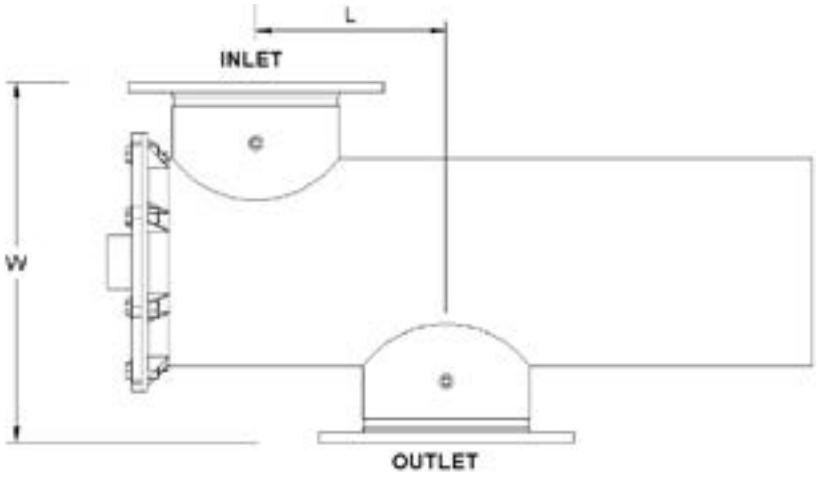
Designed specifically to mount the 8 station filter flush controller and PD switch onto the stainless steel media manifold.

- Manufactured from 2 mm thick stainless steel
- Four pre-drilled holes to suit 101FFC8
- 292 mm wide, 259 mm high
- 25 mm MBSP mounting thread
- Mounting hole to suit Pressure Differential Switch

An inexpensive secondary "trap" to be used downstream of the principal filter station

Features

- Supplied with either victaulic or flanged (table D) inlet and outlets
- Max. operating pressure: 700 kPa
- 80 mesh standard screen
- Type 304 stainless steel housing and basket
- Cost efficient system protection
- High flow with low pressure drop safety strainer



Technical Specifications

Model	Inlet Outlet (mm)	Max Flow* (m^3/h)	Max Pressure (kPa)	Length (mm)	L (mm)	W (mm)	Body Diam. (mm)
1014737 1014737F	100Vic 100Fl	68	700	400	135	420	215
1014738F	150Fl	204	700	760	201	476	270
1014733 1014733F	200Vic 200Fl	270	700	905	250	474	270
1014739F	250Fl	390	700	1060	380	530	325
1014740	300Vic	540	700	1250	410	550	350

** Based on 10 kPa pressure loss (clean). Derate for dirty water.*

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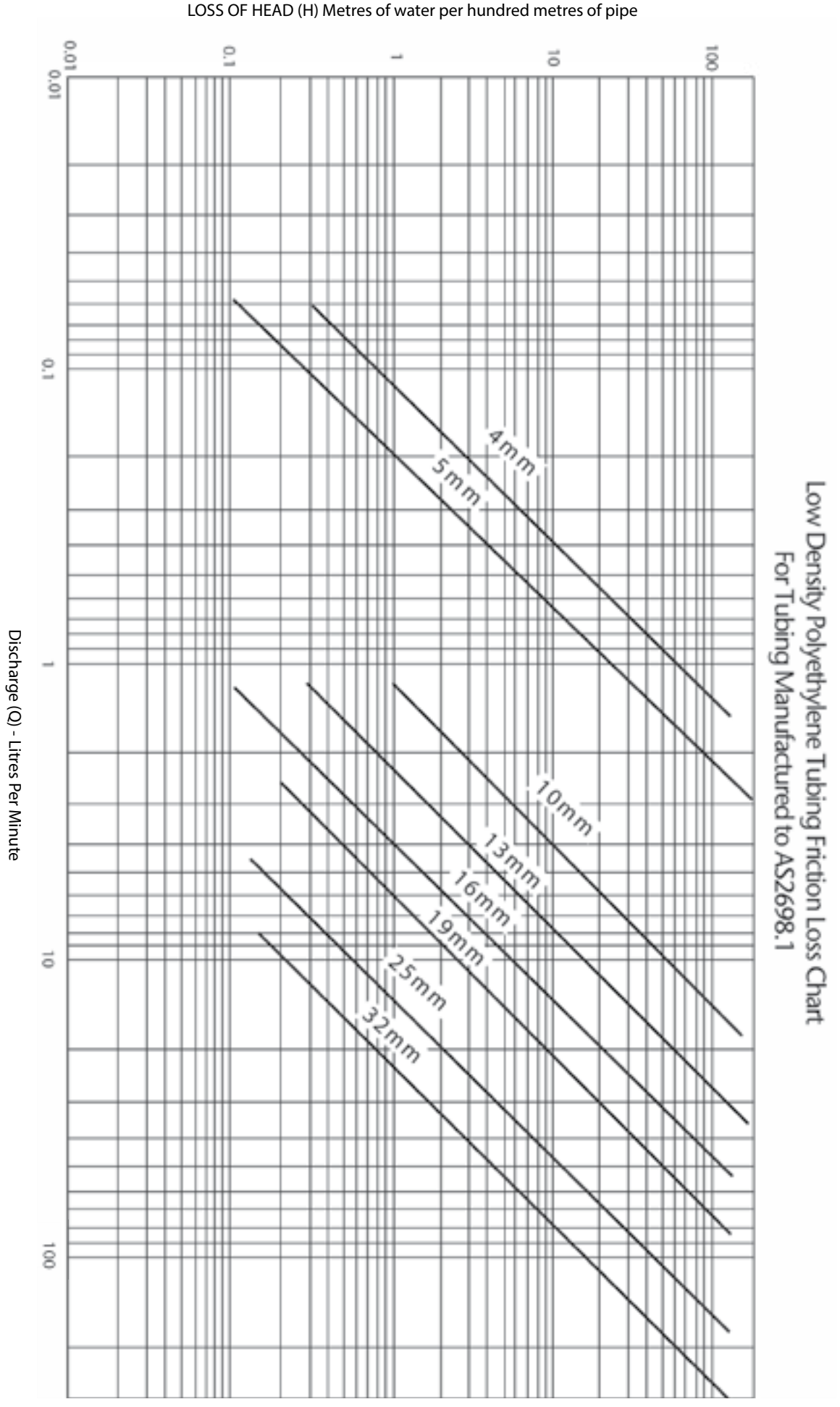
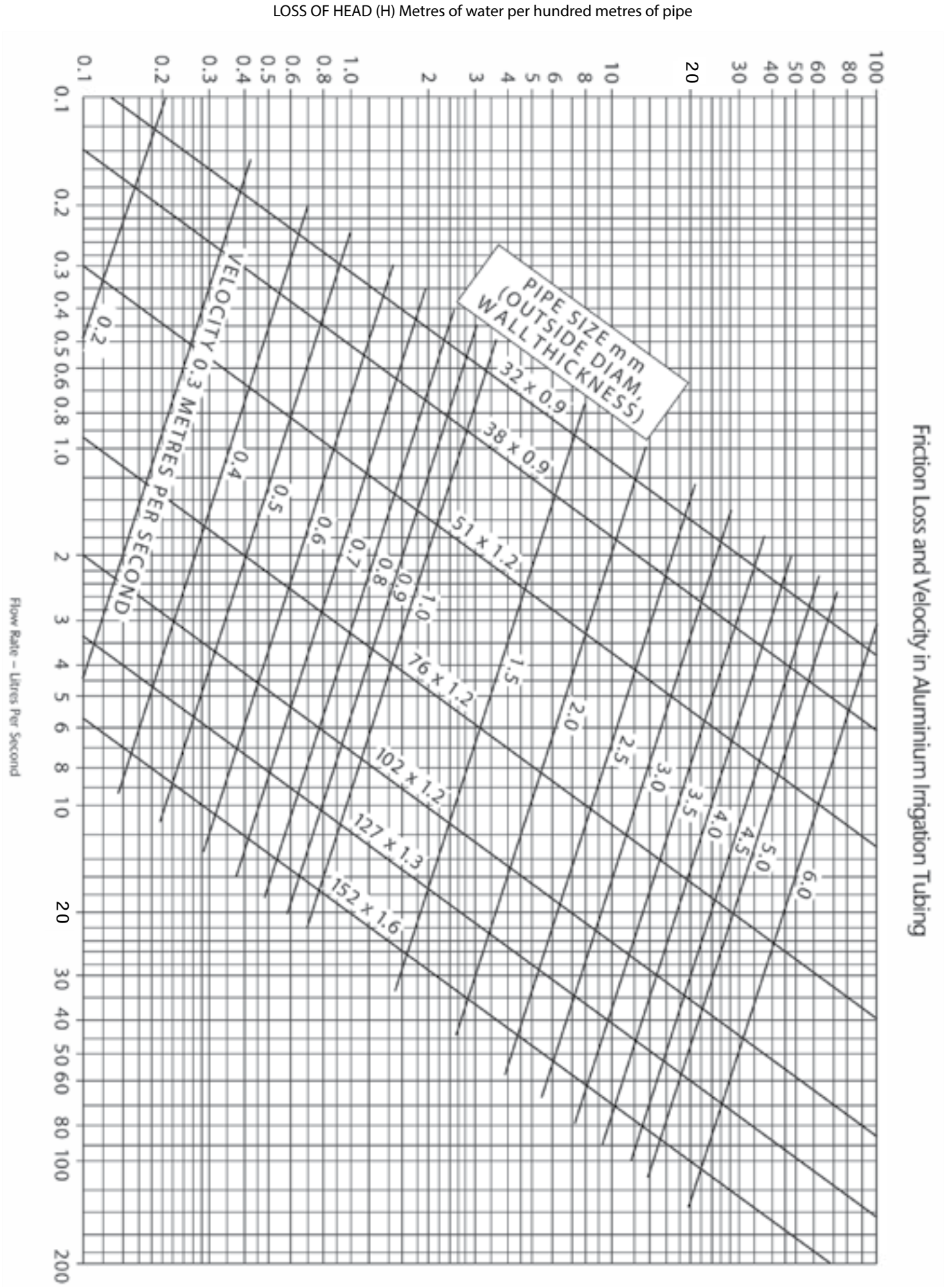
Friction Loss Chart – Low Density Polyethylene Tubing



Friction Loss Chart – Aluminium Tubing



Method of Wire Sizing from controller to solenoid valve

Data Needed

- Inrush current of the solenoid valve (I)
- Distance in metres (one way) between controller and solenoid valve (D)
- The allowable voltage drop in the wire without affecting the operation of the solenoid valve (Vd)

Steps

Calculate the maximum allowable wire resistance per 1000 metres with the following formula:

$$R = \frac{500^* \times Vd}{D \times I}$$

where R = allowable wire resistance per 1000 metres

** This assumes that the active and common wires are the same size*

Example: A valve with a minimum operating voltage of 20 volts and an inrush current of 0.34 amps is to be located 650 metres from the controller. The controller minimum output voltage is 24 VAC.

The allowable voltage drop
Vd = 24-20 = 4 volts

The distance to the valve (D)
= 650 metres

The current draw (I) = 0.34 amps

$$R = \frac{500 \times 4}{650 \times 0.34} = 9.05 \text{ ohms/1000m}$$

From Table 1, 1.5 mm² wire has too much resistance, therefore select 2.5 mm².

Table 2 provides maximum wire runs given a solenoid valve with a minimum operating voltage of 20 volts AC, an inrush current of 0.34 amps and a controller minimum output voltage of 24 VAC.

For example, such a solenoid that was 810 metres away from the controller, could have a 2.5 mm² active with a 4 mm² common wire.

Table 1
Copper Wire Resistance

Nominal Area of Conductor (mm²)	Resistance at 20 C ohms / 1000 m
0.5	38.4
1.0	21.2
1.5	13.6
2.5	7.4
4.0	4.6
6.0	3.1
10.0	1.8
16.0	1.1

Table 2
Maximum one-way distance between controller and valve

Common Wire (mm²)	Active Wire (mm²)					
	0.50	1.00	1.50	2.50	4.00	6.00
0.50	153	197	226	257	274	283
1.00	197	277	338	411	456	484
1.50	226	338	433	560	646	704
2.50	257	411	560	795	980	1120
4.00	274	456	646	980	1279	1528
6.00	283	484	704	1120	1528	1898

This table has been calculated based on the following factors. Solenoid voltage: 24VAC, Maximum Pressure: 1000 kPa, Voltage drop: 4 volts, Solenoid inrush current: 0.34 Amps.

Table 3
American Wire Cross Sectional Area

AWG Gauge	Area (mm²)	AWG Gauge	Area (mm²)
26	0.128	12	3.302
25	0.162	11	4.156
24	0.205	10	5.271
23	0.255	9	6.629
22	0.322	8	8.350
21	0.411	7	10.544
20	0.516	6	13.292
19	0.653	5	16.755
18	0.823	4	21.137
17	1.039	3	26.653
16	1.308	2	33.606
15	1.652	1	42.384
14	2.088	0	53.454
13	2.629	00	67.399

Drip Equations

Number of emitters per plant

$$\text{Emitters per plant} = \frac{\text{canopy area (square meters) x 0.75}}{\text{wetted area per emitter (square meters)}}$$

Wetted Area per Emitter		
Soil Type	Diameter (meters)	Area (meters^2)
Sand	0.6-0.9	0.3-0.7
Sandy Loam	0.9-1.4	0.7-1.5
Loam	0.9-1.5	0.7-1.9
Clay-Loam	1.2-1.8	1.2-2.6
Clay	1.5-2.1	1.9-3.5

Flow per zone

$$\text{Flow per zone (lpm)} = \frac{\text{total number of drippers x dripper flow rate (lph)}}{\text{60 (minutes)}}$$

Precipitation Rate for Evenly Spaced Single Laterals and Emitters

Precipitation Rate for Evenly Space Drip Line (mm/hr)						
Emitter Flow (Lph)	Emitter Spacing (cm)	Spacing between Drip Lines (cm)				
		30	40	50	75	100
1.2	30	13.3	10.0	8.0	5.3	4.0
1.2	50	8.0	6.0	4.8	3.2	2.4
1.2	75	5.3	4.0	3.2	2.1	1.6
1.5	30	16.7	12.5	10.0	6.7	5.0
1.5	50	10.0	7.5	6.0	4.0	3.0
1.5	75	6.7	5.0	4.0	2.7	2.0
2.4	30	26.7	20.0	16.0	10.7	8.0
2.4	50	16.0	12.0	9.6	6.4	4.8
2.4	75	10.7	8.0	6.4	4.3	3.2

Precipitation Rate Formula

$$\text{Precipitation Rate (mm/hr)} = \frac{\text{10 000 x Emitter Flow (lph)}}{\text{Lateral Spacing (cm) x Emitter Spacing (cm)}}$$

Note: this formula applies to evenlty spaced drip irrigation and emitters

Precipitation Rate for a Single Lateral

Precipitation Rate for a Single Drip Line in a contained Landscape (mm/hr)						
Emitter Flow (Lph)	Emitter Spacing (cm)	Width of Contained Landscape (m)				
		50	75	100	125	150
1.2	30	8.0	5.3	4.0	3.2	2.7
1.2	50	4.8	3.2	2.4	1.9	1.6
1.2	75	3.2	2.1	1.6	1.3	1.1
1.5	30	10.0	6.7	5.0	4.0	3.3
1.5	50	6.0	4.0	3.0	2.4	2.0
1.5	75	4.0	2.7	2.0	1.6	1.3
2.4	30	16.0	10.7	8.0	6.4	5.3
2.4	50	9.6	6.4	4.8	3.8	3.2
2.4	75	6.4	4.3	3.2	2.6	2.1

Precipitation Rate Formula

$$\text{Precipitation Rate (mm/hr)} = \frac{\text{10,000 x Emitter Flow (lph)}}{\text{Width of Contained Landscape (cm) x Emitter Spacing (cm)}}$$

Thermal effects on dripline

For recurring, ambient temperatures above 23°C, multiply pressure rating of selected tubing by the appropriate FACTOR from the table below. Result will be the temp-corrected maximum pressure rating for the tubing selected. For temperatures not shown but between 23°C and 60°C, interpolate to obtain the temp-corrected maximum pressure. Use this information to select the appropriate pressure regulator to assure tubing life expectancy and warranty coverage.

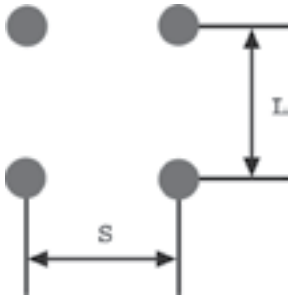
°C	Factor
23	1.00
27	0.92
32	0.81
38	0.70
43	0.60
49	0.45
54	0.32
60	0.18

The following information has been compiled to assist in the correct selection of both sprinklers and jets.

Recommended Spacings:

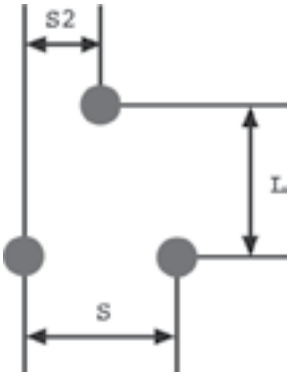
Rectangular

- No wind: 55% of diameter of throw
- 0-6 km/hr: 50% of diameter of throw
- 6-12 km/hr: 45% of diameter of throw



Triangular

- No wind: 55% of diameter of throw
- 0-6 km/hr: 50% of diameter of throw
- 6-12 km/hr: 45% of diameter of throw



Calculating Precipitation Rate

PR = Precipitation Rate (mm/h)

Q = Flow of full circle sprinkler (Lpm)

L = Row spacing (m)

S = Sprinkler Spacing (m)

$$\text{Precipitation} = \frac{Q \times 60}{L \times S}$$

Please Note:
'No Wind' conditions should only be used for indoor systems.

Sprinkler Jet Conversions

A number of sprinkler jets are stated in 64th of an inch.

- To convert from 64th of an inch to mm:
  A × 0.397 = mm
  A = 64th of an inch
  e.g. 9/64, A= 9
- To convert from mm to 64th of an inch:
  B × 2.54 = 64th of an inch
  B = mm
  e.g. 5.6mm = 14/64"

Estimating the Supply Capacity Requirements for an Area

The following factors need to be determined.

1. Area = A (m^2)
2. The application amount required for the worst possible situation = P (mm/week)
3. The irrigation time period per week for the worst possible situation = T (hours)
4. The irrigation efficiency = E (e.g. Irrigation efficiency is 80%, E = 80)

$$\text{Flow Rate (litres per minute)} = \frac{A \times P \times 100}{60 \times T \times E}$$

Metric Conversion Tables

Measure	Metric	Imperial	U.S.
Pressure	1.0 kPa	0.145 psi	0.145 psi
	6.895 kPa	1.0 psi	1.0 psi
	101.37 kPa	1 Atmosphere	1 Atmosphere
	3.387 kPa	1 inch (hg)	1 inch (hg)
Volume	1.0 litre	0.22 Gallon	0.264 Gallon
	4.546 litres	1.0 Gallon	1.2 Gallons
	3.787 litres	0.833 Gallon	1.0 Gallon
	1.0 m^3	35.31 $feet^3$	35.31 $feet^3$
	1.0 m^3	220.2 Gallons	264.24 Gallons
	1.0 litre	61.03 $inch^3$	61.03 $inch^3$
	28.32 litres	1.0 $foot^3$	1.0 $foot^3$
	102.5 m^3	1.0 acre-inch	1.0 acre-inch
Area	1 cm^2	0.155 $inch^2$	0.155 $inch^2$
	1 m^2	10.764 $feet^2$	10.764 $feet^2$
	1 ha	2.471 acre	2.471 acre
	259 ha	1.0 $mile^2$	1.0 $mile^2$
	1 $kilometre^2$	247.1 acres	247.1 acres
Length	1 cm	0.394 inch	0.394 inch
	25.4 mm	1.0 inch	1.0 inch
	1 metre	3.281 feet	3.281 feet
	1 metre	1.094 yards	1.094 yards
	1 kilometre	0.621 miles	0.621 miles
	1.61 kilometres	1.0 mile	1.0 mile
	20.0 metres (approx.)	1.0 chain	66 feet
Velocity	1.0 m / second	196.9 ft / min	196.9 ft / min
	1.0 km / hour	0.621 mph	0.621 mph
Power	1.0 kilowatt	1.341 horsepower	1.341 horsepower
	1.0 Metric hp	0.986 hp	0.986 hp
Mass	1.0 kilogram	2.2 pounds	2.2 pounds
	1.0 tonne	0.984 ton	0.984 ton
Force	1.0 Newton	0.225 lbs (Force)	0.225 lbs (Force)
Temperature	°C = 5/9 (°F – 32)	(9 × °C)/ 5 + 32 = °F	(9 × °C)/ 5 + 32 = °F

Data is approximate for every day use.
1.0m^3 = 1000 litres.

Precipitation and Infiltration Rates

Precipitation Rates

To avoid run-off and water wastage, select sprinklers so that the precipitation rate is less than or equal to the infiltration rate of the soil. The type of soil, condition of both soil and ground cover, and slope affect the infiltration rate. The table below shows some indicative average rates. Always confirm the infiltration rate with on-site tests.

Where system precipitation rates are higher than the infiltration rate, it may be possible to avoid run-off by repeating the irrigation cycle for shorter periods of time.

Table 1: Indicative Maximum Precipitation Rates – mm/hour

Soil Texture	0-5% slope		5-8% slope		8-12% slope		12+ % slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	50	50	50	38	38	25	25	12
Coarse sandy soils over compact subsoils	44	38	31	25	25	19	19	10
Light sandy loams uniform	44	25	31	20	25	15	19	10
Light sandy loams over compact subsoils	31	19	25	12	19	10	12	7
Uniform silt soils	25	12	20	10	15	7	10	5
Silt soils over compact subsoil	15	7	12	6	10	4	7	2.5
Heavy clay or clay loam	5	4	4	2.5	3	2	2.5	1.5

The maximum precipitation rates values listed in this table are suggested by the US Department of Agriculture. The values are indicative averages only and may vary with respect to actual soil and ground cover condition.

Piping Flow Rates

Flow Rates

One of the selection criteria irrigation designers use to select pipe sizing for mainline pipe is to maintain the velocity of flow through the mainline pipe to be less than or equal to 1.5 m/s. Pressure rating and pressure loss are other criteria.

Tables 1 and 2 indicate flow rates in litres per minute for various PVC (AS 1477) and PE (AS/NZS 4130S1) pipe sizes for a velocity of 1.5 metres per second.

Pipe sizing in sprinkler laterals (pipes downstream of the zone control valve) is based on maintaining the zone pressure to within a set tolerance. As a result, velocities in sprinkler laterals can sometimes need to be raised higher than 1.5 m/s in an effort to balance friction loss and pressure gained by elevation differences. This decision should only be undertaken by someone experienced in hydraulic design.

Table 1
Mainline Flow Rates for 1.5 m/s Velocity PVC Pipe

PVC Pipe Size and Class	Maximum Flow (Lpm)
15 mm cl 15	23
20 mm cl 12	39
25 mm cl 12	62
32 mm cl 12	99
40 mm cl 12	130
50 mm cl 12	204

Table 2
Mainline Flow Rates for 1.5 m/s Velocity PE100 PN 12.5

MDPE Pipe Size and Class	Maximum Flow (Lpm)
DN25	30
DN32	50
DN40	80
DN50	125

Table 3
Lateral Flow Rates for 2.0 m/s Velocity PVC Pipe

PVC Pipe Size and Class	Maximum Flow (Lpm)
15 mm cl 15	30
20 mm cl 12	52
25 mm cl 12	82
32 mm cl 12	132
40 mm cl 12	173
50 mm cl 12	272

Table 4
Lateral Flow Rates for 2.0 m/s Velocity PE100 PN 12.5

MDPE Pipe Size and Class	Maximum Flow (Lpm)
DN25	40
DN32	68
DN40	105
DN50	165

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