Hunter®

2013 PRODUCT CATALOGUE

RESIDENTIAL & COMMERCIAL IRRIGATION | *Built on Innovation*

WE'RE INNOVATING MORE, SO YOU CAN CONTINUE TO USE LESS.

We believe a healthy landscape and water conservation can be one and the same. By coupling our engineering expertise with our cultural belief of minimizing environmental impact, we can meet our goal of reducing natural resource use. It's not only good for the planet, it's smart for your business.

Implementing innovative products such as Eco-Mat, MP Rotator or Solar Sync into your project will allow you to achieve the beautiful results your clients demand with the ecological benefit of efficient water use. These are just some of the forward thinking examples of eco-innovation at work.

*eco***innovation**

Hunter®

Endless possibilities, ULTIMATE LED EFFICIENCY

Creating the perfect ambiance for the perfect evening is an art that requires precision and expertise. FX Luminaire combines cutting-edge engineering, LED technology, and unmatched technical support to help lighting professionals turn any vision into reality.

From the all-new Luxor®ZD™ controller with complete zoning and dimming capabilities, to our robust line of hand-crafted fixtures built to withstand the harshest environments, the FX brand is poised to lead the way for a better future in landscape lighting.

WHAT'S NEW

MP ROTATOR

MP3500

Offering an innovative way to irrigate out to 35 feet, Hunter's MP3500 utilizes multi-stream, multi-trajectory technology to precisely lay down water at the exact location, which dramatically increases system efficiency.

75

CONTROLLERS

PRO-C/FX

The Pro-C now has the ability to control irrigation and lighting schedules from a single controller with a simple facepack upgrade.

98

CONTROLLERS

ROAM XL

Remotely access any Hunter SmartPort controller from up to two miles away. Perfect for large-scale commercial and municipal sites.

106

ROTORS

TOTAL TOP SERVICE ROTORS

SPRAYS

NOZZLES

MP ROTATOR

VALVES

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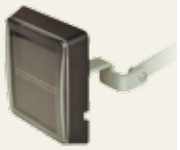
CONTROLLERS 108

Solar Panel for Node & XC Hybrid Controllers

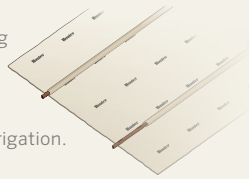
A highly innovative solution for irrigation zone control, the new Solar Panel option for Node and XC Hybrid controllers harnesses the power of the sun to promote a healthier environment.



MICRO 129

ECO-MAT

Eco-Mat couples Hunter's Professional Landscape Dripline with special fleece wrapping and fleece matting to ensure efficient and uniform subsurface irrigation.



MICRO 129

PLD-ESD

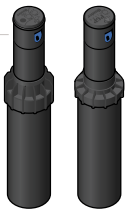
Hunter's PLD-ESD (Enhanced Subsurface Dripline) adds fleece wrapping to traditional inline emitter tubing to aid uniform water movement in subsurface installations.

Blueprint of an
EFFICIENT IRRIGATION SYSTEM

A properly designed, managed, and maintained irrigation system is an essential tool for a healthy, functional landscape. The Hunter products featured here will maximize the effectiveness of the water you use.

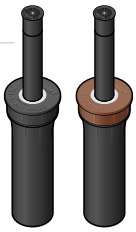
A PGP® Ultra & I-20

Hunter rotors are the best choice when watering a large turf or landscape area. Our nozzles are engineered for excellent water distribution at low precipitation rates to keep a landscape looking its best, while still using water efficiently.



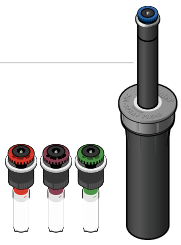
B Pro-Spray® & Nozzles

Smaller areas require spray sprinklers for proper watering. Hunter's spray bodies are available with pressure regulation to ensure the most accurate watering of any landscape. Hunter's spray nozzles are meticulously engineered and tested to provide even watering and efficient use.



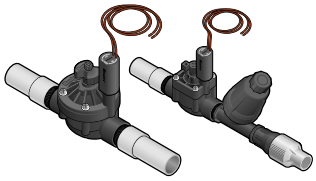
C MP Rotator®

The ultimate solution for small- to medium-sized areas, this high-efficiency, low precipitation rate sprinkler offers unmatched performance and proven water savings up to 30% over sprays.



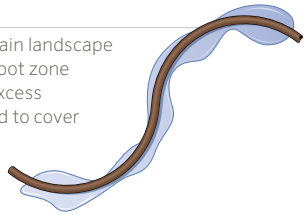
D PGV, ICV, & Drip Control Kits

Hunter's trusted valve line ensures system reliability and accuracy. Accu-Sync can be used on systems with excess pressure to extend the life of the system components and provide the correct operating pressure to the sprinklers. Drip zone kits are equipped with pressure regulators and filters to pro drip and micro irrigation components with the correct pressure and contaminant-free water.



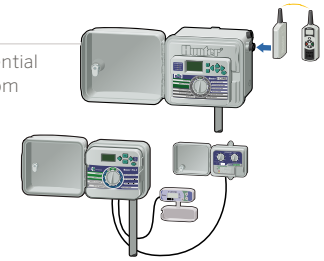
E Drip/Micro Irrigation

Drip irrigation is an efficient choice for certain landscape situations. It applies water directly to the root zone area of landscape plants, helping to limit excess irrigation. Micro spray emitters can be used to cover small planting beds efficiently.



F Pro-C/I-Core

The correct controller for the job is essential to meet the needs of any landscape, from unpredictable weather to municipal watering requirements. Having a customizable controller that is sensor compatible is the first step to a water-efficient system.

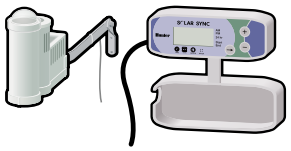


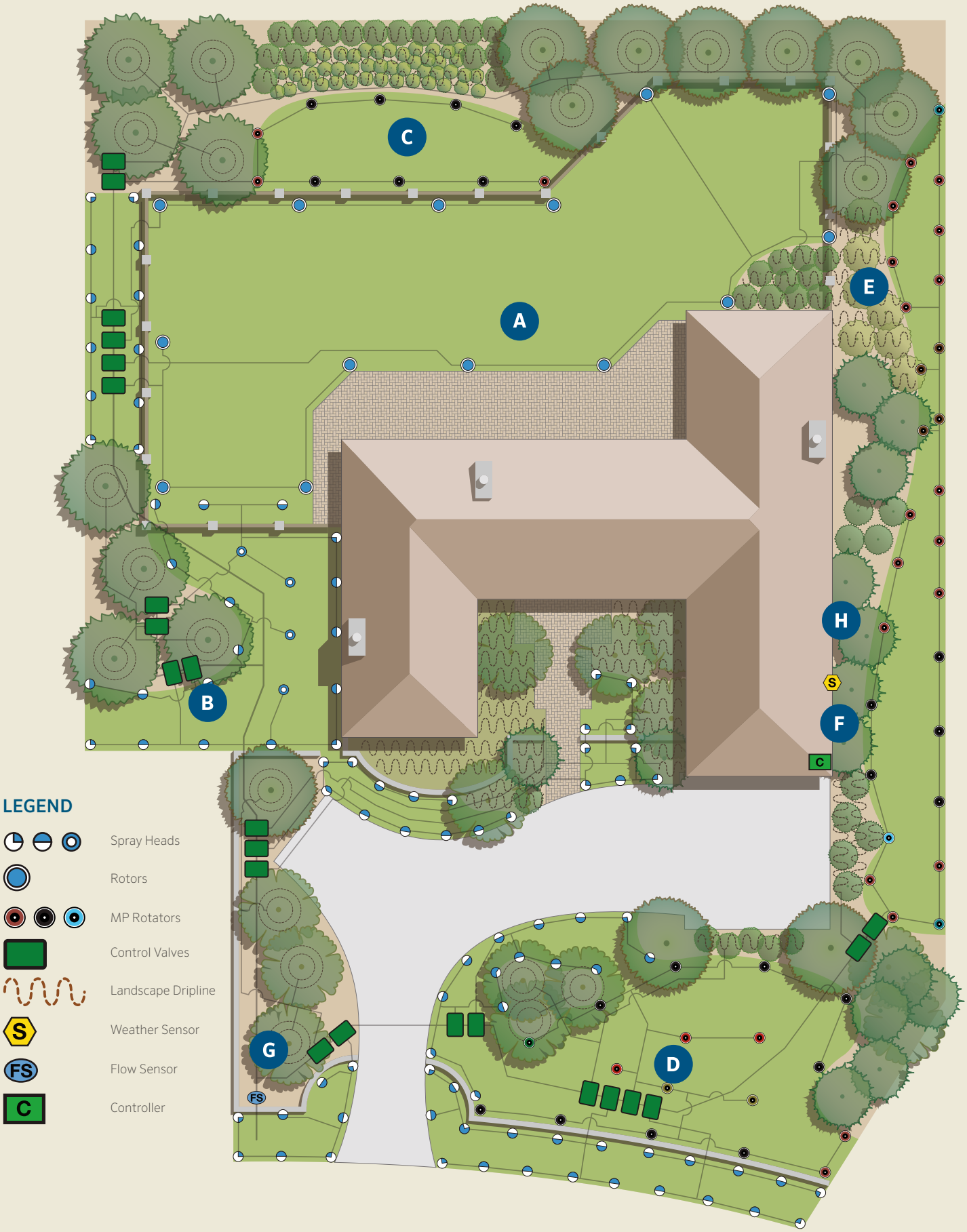
G Flow-Clik/Flow-Sync™

Flow sensors prevent systems from running when there is a leak or broken component. The Flow-Clik will work with most Hunter controllers to suspend irrigation, and the Flow-Sync is compatible with specific Hunter controllers to monitor overflow and provide flow totaling for better management.

H Solar Sync™

Solar Sync monitors weather, working with the controller to adjust the system for changing conditions, ensuring water is not wasted.




C
A
E
H
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C
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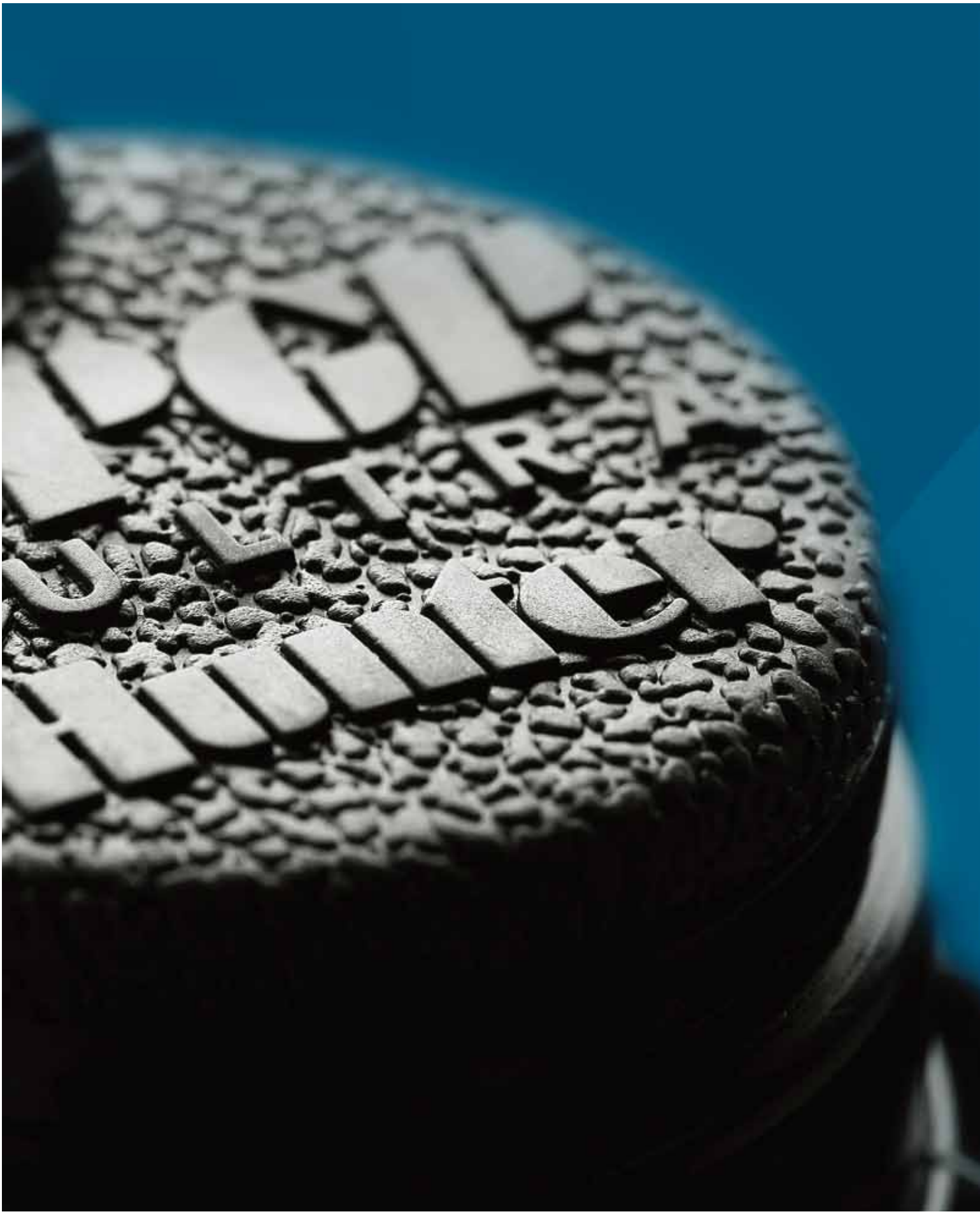
FS
D
LEGEND
Spray Heads
Rotors
MP Rotators
Control Valves
Landscape Dripline
Weather Sensor
Flow Sensor
Controller

ROTORS

Comparison Chart

	PGJ	SRM	PGP	PGP ULTRA	I-20	I-25	I-40	I-60	I-90	ST SYSTEM
APPLICATIONS										
Spacings 4.5 to 11.5 m	•	•		•	•					
Spacings 7.6 to 14 m			•	•	•					
Spacings more than 14 m						•	•	•	•	•
Residential	•	•	•	•	•					
Commercial/Institutional				•	•	•	•	•	•	
Athletic fields					•	•	•		•	•
High vandalism areas				•	•	•	•		•	
Low pressure systems	•	•	•	•				•		
Riser-mounted sprinklers	•			•	•					•
Ground cover and/or shrubs	•		•	•	•					
Reclaimed water ID cover	•			•	•	•	•	•	•	



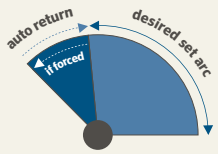
ROTORS

ADVANCED FEATURES

Automatic Arc Return

This patented feature returns to the original arc regardless of where the turret is turned. This ensures vandal protection in any environment.

PGP Ultra, I-20, I-25, I-40



Reclaimed Water ID

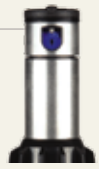
Purple caps indicate where non-potable irrigation water is being used.

PGJ, PGP Ultra, I-20, I-25, I-40, I-60, I-90

Stainless Steel Riser

For unforgiving soil conditions, unpredictable climates, or heavy foot traffic, stainless steel is the best choice.

Standard on I-40 and I-60
Optional on I-20 and I-25



Non-Strippable Drive

The patented, non-strippable, vandal proof drive mechanism enables the turret to be turned without causing damage.

PGP Ultra, I-20, I-25, I-40

FloStop™ Control

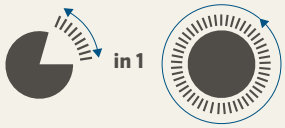
FloStop closes the flow of water from individual sprinkler heads while the system is running. This is ideal for changing nozzles or turning off specific heads during maintenance and construction.

I-20

Part- and Full-Circle In One Model

Patented non-reversing 360 for part- and full-circle in one model, from 50 to 360 degrees.

PGP Ultra, I-20, I-25, I-40



Headed and Slotted Set Screw

Use a slotted screwdriver or the Hunter wrench for easier and simpler adjustments as needed.

PGJ, PGP Ultra, I-20

Color Coded Nozzles

Nozzles are easier to differentiate in the field for simple installation and quick organization.

I-25, I-40, I-60, I-90

Drain Check Valve

The drain check valve keeps lines from draining when the system is shut off. This saves water, reduces liability, and increases system life.

PGJ, PGP Ultra, I-20, I-25, I-40, I-60, I-90

Opposing Nozzle 360˚ Model

The opposing nozzle design offers excellent water distribution. With primary and secondary nozzles on opposing sides of the turret, streams arc in opposite directions as the sprinkler rotates for outstanding midrange and close-in watering.

I-40, I-90

PGJ

Application: **Residential**
Radius: **4.3 to 11.6 m**
Flow Rate: **0.13 to 1.23 m³/hr; 2.2 to 20.5 l/min**
Inlet Size: **½" NPT**

FEATURES

- Models: Shrub, 10 cm, 15 cm, 30 cm
- Arc setting: 40 to 360 degrees
- Nozzle choices: 8
- Nozzle range: 0.75 to 5.0
- Standard factory installed nozzle: 2.0 only
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Warranty period: 2 years
- ▸ Headed and slotted set screw
- ▸ Reclaimed water ID
- ▸ Drain check valve (Up to 2 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.3 to 11.6 m
- Flow rate: 0.13 to 1.23 m³/hr; 2.2 to 20.5 l/min
- Recommended pressure range: 1.7 to 3.8 bar; 170 to 380 kPa
- Operating pressure range: 1.4 to 6.9 bar; 140 to 690 kPa
- Precipitation rates: 15 mm/hr approx.
- Nozzle trajectory: 14 degrees approx.

▸ = *Advanced Feature descriptions on page 12*

PGJ Reclaimed
Available as a factory-installed option on all models

PGJ-00
Overall height: 18 cm
Exposed diameter: 3 cm
Inlet size: ½" female NPT

PGJ-04
Overall height: 18 cm
Pop-up height: 10 cm
Exposed diameter: 3 cm
Inlet size: ½" female NPT

PGJ-06
Overall height: 23 cm
Pop-up height: 15 cm
Exposed diameter: 3 cm
Inlet size: ½" female NPT

PGJ-12
Overall height: 41 cm
Pop-up height: 60 cm
Exposed diameter: 3 cm
Inlet size: ½" female NPT

PGJ – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Feature Options
PGJ-00 = Shrub	Adjustable arc, 8 standard nozzles	**(blank)** = No option
PGJ-04 = 10 cm Pop-up		**V** = Drain check valve
PGJ-06 = 15 cm Pop-up		**R** = Drain check valve and reclaimed water ID *(pop-up models only)*
PGJ-12 = 30 cm Pop-up		

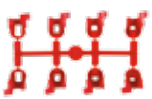
Examples:
PGJ-04 = 10 cm pop-up, adjustable arc
PGJ-06 - V = 15 cm pop-up, adjustable arc, with drain check valve
PGJ-12 - R = 30 cm pop-up, adjustable arc, with drain check valve and reclaimed water ID

PGJ NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
.75 ● Red	1.7	170	4.3	0.13	2.2	14	17
	2.0	200	4.6	0.14	2.4	14	16
	2.5	**250**	**4.9**	**0.16**	**2.7**	**13**	**15**
	3.0	300	5.2	0.18	3.0	13	15
	3.5	350	5.2	0.19	3.2	14	17
	3.8	380	5.5	0.20	3.4	13	15
1.0 ● Red	1.7	170	5.2	0.18	3.0	13	15
	2.0	200	5.5	0.19	3.2	13	15
	2.5	**250**	**5.5**	**0.21**	**3.5**	**14**	**16**
	3.0	300	5.8	0.23	3.8	14	16
	3.5	350	5.8	0.24	4.1	15	17
	3.8	380	6.1	0.25	4.2	14	16
1.5 ● Red	1.7	170	6.1	0.27	4.5	15	17
	2.0	200	6.4	0.29	4.8	14	16
	2.5	**250**	**6.4**	**0.32**	**5.4**	**16**	**18**
	3.0	300	6.7	0.36	6.0	16	18
	3.5	350	6.7	0.39	6.4	17	20
	3.8	380	7.0	0.40	6.7	16	19
2.0 ● Red	1.7	170	7.0	0.34	5.6	14	16
	2.0	200	7.3	0.37	6.2	14	16
	2.5	**250**	**7.3**	**0.42**	**7.1**	**16**	**18**
	3.0	300	7.6	0.48	8.0	17	19
	3.5	350	7.6	0.53	8.8	18	21
	3.8	380	7.9	0.56	9.3	18	20
2.5 ● Red	1.7	170	7.9	0.46	7.6	15	17
	2.0	200	8.2	0.49	8.1	14	17
	2.5	**250**	**8.2**	**0.54**	**9.0**	**16**	**18**
	3.0	300	8.5	0.59	9.8	16	19
	3.5	350	8.5	0.63	10.5	17	20
	3.8	380	8.8	0.65	10.9	17	19
3.0 ● Red	1.7	170	8.8	0.51	8.5	13	15
	2.0	200	9.1	0.56	9.3	13	15
	2.5	**250**	**9.1**	**0.64**	**10.6**	**15**	**18**
	3.0	300	9.4	0.72	12.0	16	19
	3.5	350	9.4	0.78	13.1	18	20
	3.8	380	9.8	0.82	13.7	17	20
4.0 ● Red	1.7	170	9.8	0.80	13.3	17	19
	2.0	200	10.1	0.83	13.8	16	19
	2.5	**250**	**10.1**	**0.89**	**14.8**	**18**	**20**
	3.0	300	10.4	0.94	15.7	17	20
	3.5	350	10.4	0.98	16.3	18	21
	3.8	380	10.7	1.00	16.7	18	20
5.0 ● Red	1.7	170	10.7	1.02	17.0	18	21
	2.0	200	11.0	1.06	17.6	18	20
	2.5	**250**	**11.0**	**1.11**	**18.5**	**18**	**21**
	3.0	300	11.3	1.17	19.4	18	**21**
	3.5	350	11.3	1.21	20.1	19	**22**
	3.8	380	11.6	1.23	20.5	18	21

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.



ROTORS

SRM

Application: **Residential**
Radius: **4.0 to 9.4 m**
Flow Rate: **0.08 to 0.82 m³/h; 1.4 to 13.7 l/min**
Inlet Size: **½" NPT**

FEATURES

- Model: 10 cm
- Arc setting: 40 to 360 degrees
- Nozzle choices: 6
- Nozzle range: 0.50 to 3.0
- Standard factory installed nozzle: 3.0 only
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Warranty period: 1 year

OPERATING SPECIFICATIONS

- Radius: 4.0 to 9.4 m
- Flow rate: 0.08 to 0.82 m³/hr; 1.4 to 13.7 l/min
- Recommended pressure range: 1.7 to 3.8 bar; 170 to 380 kPa
- Operating pressure range: 1.4 to 7 bar; 140 to 700 kPa
- Precipitation rates: 11 mm/hr approx.
- Nozzle trajectory: 18 degrees approx.

SRM

Model	Description
SRM-04	10 cm Pop-up, adjustable arc, 6 standard nozzles

SRM-04
Overall height: 18 cm
Pop-up height: 10 cm
Exposed diameter: 3 cm
Inlet size: ½" female NPT

SRM NOZZLE PERFORMANCE DATA

Nozzle	Pressure Bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
.50 ● Dk. Green	1.7	170	4.0	0.08	1.4	11	12
	2.0	200	4.3	0.09	1.6	10	12
	2.5	**250**	**4.3**	**0.11**	**1.8**	**12**	**14**
	3.0	300	4.6	0.12	2.0	12	13
	3.5	350	4.6	0.13	2.2	13	15
	3.8	380	4.9	0.14	2.3	12	14
.75 ● Dk. Green	1.7	170	4.9	0.13	2.2	11	13
	2.0	200	5.2	0.14	2.4	11	12
	2.5	**250**	**5.2**	**0.16**	**2.7**	**12**	**14**
	3.0	300	5.5	0.18	3.0	12	14
	3.5	350	5.5	0.19	3.2	13	15
	3.8	380	5.8	0.20	3.4	12	14
1.0 ● Dk. Green	1.7	170	5.8	0.18	2.9	11	12
	2.0	200	6.1	0.19	3.2	10	12
	2.5	**250**	**6.1**	**0.21**	**3.5**	**11**	**13**
	3.0	300	6.4	0.24	3.9	12	13
	3.5	350	6.4	0.25	4.2	12	14
	3.8	380	6.7	0.26	4.4	12	14
1.5 ● Dk. Green	1.7	170	6.7	0.27	4.5	12	14
	2.0	200	7.0	0.29	4.8	12	14
	2.5	**250**	**7.0**	**0.32**	**5.4**	**13**	**15**
	3.0	300	7.3	0.36	6.0	13	16
	3.5	350	7.3	0.39	6.5	15	17
	3.8	380	7.6	0.40	6.7	14	16
2.0 ● Dk. Green	1.7	170	7.3	0.35	5.8	13	15
	2.0	200	7.9	0.38	6.3	12	14
	2.5	**250**	**7.9**	**0.43**	**7.1**	**14**	**16**
	3.0	300	8.2	0.48	8.0	14	16
	3.5	350	8.2	0.53	8.8	16	18
	3.8	380	8.5	0.55	9.2	15	17
3.0 ● Dk. Green	1.7	170	8.2	0.51	8.5	15	17
	2.0	200	8.5	0.56	9.3	15	18
	2.5	**250**	**8.5**	**0.64**	**10.6**	**17**	**20**
	3.0	300	9.1	0.72	12.0	17	20
	3.5	350	9.1	0.78	13.1	19	22
	3.8	380	9.4	0.82	13.7	18	21

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP®

Application: **Residential**
Radius: **6.4 to 15.8 m**
Flow Rate: **0.10 to 3.22 m³/hr; 1.7 to 53.7 l/min**
Inlet Size: **¾" NPT**

FEATURES

- Model: 10 cm
- Arc setting: 40 to 360 degrees
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 27 total
- Nozzle racks: Red, Blue, Grey Low Angle
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Radius: 6.4 to 15.8 m
- Flow rate: 0.10 to 3.22 m³/hr; 1.7 to 53.7 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approx.
- Nozzle trajectory: Std = 25 degrees, Low angle = 13 degrees

PGP-ADJ
Overall height: 19 cm
Pop-up height: 10 cm
Exposed diameter: 4 cm
Inlet size: ¾" female NPT

PGP-ATR
Advanced Technology
Replacement for impact rotors

PGP-ADJ
Easy arc and radius adjustment

PGP-ADJ – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Feature Options
PGP-ADJ-B = 10 cm Pop-up	Adjustable arc with Blue nozzle rack	**(blank)** = No option
PGP-ADJ = 10 cm Pop-up	Adjustable arc with Red nozzle rack	**1.5 to 4.0** = Factory-installed Blue nozzle number
PGP-ATR = Impact replacement	Adjustable arc with Red nozzle rack	**#5 to #8** = Factory-installed Red nozzle number
		#7 = Factory-installed Red nozzle number

Examples:
PGP-ADJ = 10 cm pop-up, adjustable arc
PGP-ADJ-B - 3.0 = 10 cm pop-up, adjustable arc, and 3.0 Blue nozzle
PGP-ADJ - 07 = 10 cm pop-up, adjustable arc, and #7 Red nozzle

PGP Blue Standard Nozzle

PGP BLUE NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
1.5 ● Blue	1.7	170	8.8	0.27	4.5	7	8
	2.0	200	9.1	0.29	4.8	7	8
	2.5	250	9.4	0.32	5.4	7	8
	3.0	**300**	**9.8**	**0.35**	**5.9**	**7**	**9**
	3.5	350	9.8	0.38	6.4	8	9
	4.0	400	9.8	0.41	6.8	9	10
	4.5	450	9.4	0.43	7.2	10	11
2.0 ● Blue	1.7	170	10.1	0.32	5.4	6	7
	2.0	200	10.1	0.35	5.8	7	8
	2.5	250	10.1	0.39	6.5	8	9
	3.0	**300**	**10.4**	**0.43**	**7.2**	**8**	**9**
	3.5	350	10.4	0.47	7.8	9	10
	4.0	400	10.4	0.50	8.3	9	11
	4.5	450	10.4	0.53	8.8	10	11
2.5 ● Blue	1.7	170	10.1	0.39	6.6	8	9
	2.0	200	10.4	0.43	7.1	8	9
	2.5	250	10.7	0.48	8.0	8	10
	3.0	**300**	**10.7**	**0.54**	**8.9**	**9**	**11**
	3.5	350	10.7	0.58	9.7	10	12
	4.0	400	10.7	0.62	10.4	11	13
	4.5	450	10.7	0.66	11.1	12	13
3.0 ● Blue	1.7	170	10.7	0.50	8.4	9	10
	2.0	200	10.7	0.54	9.1	10	11
	2.5	250	11.0	0.61	10.2	10	12
	3.0	**300**	**11.6**	**0.68**	**11.4**	**10**	**12**
	3.5	350	11.9	0.74	12.3	10	12
	4.0	400	11.9	0.79	13.2	11	13
	4.5	450	11.9	0.84	14.0	12	14
4.0 ● Blue	1.7	170	11.3	0.68	11.3	11	12
	2.0	200	11.6	0.73	12.2	11	13
	2.5	250	11.9	0.81	13.6	12	13
	3.0	**300**	**12.2**	**0.90**	**15.0**	**12**	**14**
	3.5	350	12.2	0.97	16.2	13	15
	4.0	400	12.5	1.04	17.3	13	15
	4.5	450	12.5	1.10	18.3	14	16
5.0 ● Blue	1.7	170	11.3	0.84	14.0	13	15
	2.0	200	11.6	0.91	15.2	14	16
	2.5	250	11.9	1.02	17.1	15	17
	3.0	**300**	**12.8**	**1.14**	**19.0**	**14**	**16**
	3.5	350	12.8	1.24	20.6	15	17
	4.0	400	12.8	1.32	22.1	16	19
	4.5	450	12.8	1.41	23.4	17	20
6.0 ● Blue	1.7	170	11.6	1.01	16.8	15	17
	2.0	200	11.9	1.09	18.2	15	18
	2.5	250	12.2	1.22	20.4	16	19
	3.0	**300**	**13.1**	**1.36**	**22.7**	**16**	**18**
	3.5	350	13.1	1.47	24.5	17	20
	4.0	400	13.4	1.57	26.2	18	20
	4.5	450	13.4	1.67	27.9	19	21
8.0 ● Blue	1.7	170	11.3	1.35	22.5	21	25
	2.0	200	11.9	1.46	24.3	21	24
	2.5	250	12.5	1.63	27.2	21	24
	3.0	**300**	**13.4**	**1.81**	**30.2**	**20**	**23**
	3.5	350	13.7	1.95	32.6	21	24
	4.0	400	14.0	2.09	34.8	21	25
	4.5	450	14.0	2.22	36.9	23	26

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP GREY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
4 LA ● Grey	1.7	170	6.4	0.30	4.9	14	17
	2.0	200	6.7	0.32	5.3	14	16
	2.5	250	7.0	0.35	5.9	14	17
	3.0	300	7.3	0.39	6.5	15	17
	3.5	**350**	**7.9**	**0.42**	**7.0**	**13**	**15**
	4.0	400	8.5	0.45	7.5	12	14
	4.5	450	8.5	0.47	7.9	13	15
5 LA ● Grey	1.7	170	7.3	0.33	5.6	12	14
	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	**350**	**8.5**	**0.48**	**8.0**	**13**	**15**
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
6 LA ● Grey	1.7	170	8.8	0.44	7.3	11	13
	2.0	200	9.1	0.47	7.9	11	13
	2.5	250	9.4	0.53	8.8	12	14
	3.0	300	9.8	0.59	9.8	12	14
	3.5	**350**	**10.1**	**0.64**	**10.6**	**13**	**15**
	4.0	400	10.7	0.68	11.3	12	14
	4.5	450	10.7	0.72	12.0	13	15
7 LA ● Grey	1.7	170	8.5	0.58	9.7	16	18
	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.4	0.68	11.4	15	18
	3.0	300	10.1	0.75	12.5	15	17
	3.5	**350**	**10.7**	**0.80**	**13.3**	**14**	**16**
	4.0	400	11.3	0.85	14.1	13	15
	4.5	450	11.3	0.89	14.8	14	16
8 LA ● Grey	1.7	170	9.1	0.71	11.8	17	20
	2.0	200	9.4	0.76	12.7	17	20
	2.5	250	9.8	0.84	14.1	18	20
	3.0	300	10.4	0.93	15.5	17	20
	3.5	**350**	**11.3**	**1.00**	**16.6**	**16**	**18**
	4.0	400	11.6	1.06	17.6	16	18
	4.5	450	11.6	1.12	18.6	17	19
9 LA ● Grey	1.7	170	9.8	0.89	14.9	19	22
	2.0	200	10.1	0.96	16.0	19	22
	2.5	250	10.7	1.07	17.9	19	22
	3.0	300	11.3	1.19	19.8	19	22
	3.5	**350**	**12.2**	**1.28**	**21.3**	**17**	**20**
	4.0	400	12.8	1.37	22.8	17	19
	4.5	450	12.8	1.45	24.1	18	20
10 LA ● Grey	1.7	170	10.1	1.17	19.5	23	27
	2.0	200	10.7	1.26	21.0	22	26
	2.5	250	11.3	1.40	23.4	22	25
	3.0	300	11.6	1.55	25.9	23	27
	3.5	350	12.2	1.67	27.8	22	26
	4.0	**400**	**12.8**	**1.78**	**29.7**	**22**	**25**
	4.5	450	12.8	1.89	31.4	23	27

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP NOZZLES


Blue
(P/N 665300)


Grey
(P/N 233200)

ROTORS

PGP RED NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
1 ● Red	1.7	170	8.2	0.10	1.7	3	3
	2.0	200	8.5	0.11	1.8	3	3
	2.5	250	8.5	0.13	2.1	4	4
	3.0	300	8.8	0.15	2.4	4	4
	3.5	**350**	**8.8**	**0.16**	**2.7**	**4**	**5**
	4.0	400	9.1	0.18	2.9	4	5
	4.5	450	9.1	0.19	3.2	5	5
2 ● Red	1.7	170	8.5	0.14	2.4	4	5
	2.0	200	8.8	0.16	2.6	4	5
	2.5	250	8.8	0.17	2.9	4	5
	3.0	300	9.1	0.19	3.2	5	5
	3.5	**350**	**9.1**	**0.21**	**3.5**	**5**	**6**
	4.0	400	9.4	0.22	3.7	5	6
	4.5	450	9.4	0.23	3.9	5	6
3 ● Red	1.7	170	8.8	0.18	3.0	5	5
	2.0	200	9.1	0.20	3.3	5	5
	2.5	250	9.1	0.22	3.7	5	6
	3.0	300	9.4	0.25	4.1	6	6
	3.5	**350**	**9.4**	**0.27**	**4.5**	**6**	**7**
	4.0	400	9.8	0.29	4.8	6	7
	4.5	450	9.8	0.31	5.1	6	7
4 ● Red	1.7	170	9.4	0.24	4.1	5	6
	2.0	200	9.8	0.27	4.4	6	6
	2.5	250	9.8	0.30	5.0	6	7
	3.0	300	10.1	0.34	5.6	7	8
	3.5	**350**	**10.1**	**0.37**	**6.2**	**7**	**8**
	4.0	400	10.4	0.40	6.6	7	9
	4.5	450	10.4	0.43	7.1	8	9
5 ● Red	1.7	170	10.1	0.33	5.5	7	8
	2.0	200	10.4	0.36	5.9	7	8
	2.5	250	10.4	0.39	6.5	7	8
	3.0	300	11.0	0.43	7.2	7	8
	3.5	**350**	**11.6**	**0.46**	**7.7**	**7**	**8**
	4.0	400	11.6	0.49	8.1	7	8
	4.5	450	11.6	0.51	8.6	8	9
6 ● Red	1.7	170	10.1	0.42	6.9	8	10
	2.0	200	10.4	0.45	7.5	8	10
	2.5	250	10.7	0.51	8.5	9	10
	3.0	300	11.0	0.57	9.4	9	11
	3.5	**350**	**11.6**	**0.61**	**10.2**	**9**	**11**
	4.0	400	11.6	0.66	10.9	10	11
	4.5	450	11.9	0.70	11.6	10	11
7 ● Red	1.7	170	10.1	0.54	9.0	11	12
	2.0	200	10.4	0.58	9.7	11	12
	2.5	250	11.0	0.65	10.8	11	12
	3.0	300	11.6	0.72	12.0	11	12
	3.5	**350**	**12.2**	**0.78**	**12.9**	**10**	**12**
	4.0	400	12.2	0.83	13.8	11	13
	4.5	450	12.2	0.88	14.6	12	14

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
8 ● Red	1.7	170	11.0	0.66	11.0	11	13
	2.0	200	11.3	0.71	11.8	11	13
	2.5	250	11.6	0.79	13.2	12	14
	3.0	300	11.9	0.87	14.5	12	14
	3.5	**350**	**12.5**	**0.94**	**15.6**	**12**	**14**
	4.0	400	12.5	1.00	16.6	13	15
	4.5	450	12.8	1.05	17.6	13	15
9 ● Red	1.7	170	11.3	0.73	12.2	11	13
	2.0	200	11.6	0.80	13.4	12	14
	2.5	250	11.6	0.92	15.4	14	16
	3.0	300	12.5	1.05	17.5	13	16
	3.5	**350**	**13.4**	**1.15**	**19.2**	**13**	**15**
	4.0	400	13.4	1.25	20.9	14	16
	4.5	450	13.7	1.35	22.4	14	17
10 ● Red	2.0	200	12.2	1.14	19.0	15	18
	2.5	250	12.8	1.29	21.4	16	18
	3.0	300	13.4	1.44	24.0	16	18
	3.5	350	14.0	1.56	26.1	16	18
	4.0	**400**	**14.3**	**1.68**	**28.0**	**16**	**19**
	4.5	450	14.3	1.79	29.9	17	20
	5.0	500	14.6	1.90	31.7	18	21
11 ● Red	2.0	200	12.8	1.55	25.9	19	22
	2.5	250	13.7	1.73	28.7	18	21
	3.0	300	14.0	1.90	31.7	19	22
	3.5	350	14.6	2.05	34.1	19	22
	4.0	**400**	**14.9**	**2.18**	**36.3**	**20**	**23**
	4.5	450	15.2	2.30	38.4	20	23
	5.0	500	15.5	2.42	40.4	20	23
12 ● Red	2.0	200	12.8	2.03	33.8	25	29
	2.5	250	13.4	2.26	37.7	25	29
	3.0	300	14.3	2.51	41.8	24	28
	3.5	350	14.6	2.70	45.0	25	29
	4.0	**400**	**14.9**	**2.88**	**48.1**	**26**	**30**
	4.5	450	15.2	3.06	50.9	26	30
	5.0	500	15.8	3.22	53.7	26	30

Bold = Recommended pressure

Notes:

All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP NOZZLES

Red (P/N 130900)

PGP ULTRA

Application: **Residential/Commercial**
Radius: **4.9 to 14.0 m**
Flow Rate: **0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min**
Inlet Size: **¾" NPT**

FEATURES

- Models: Shrub, 10 cm, 30 cm
- Arc setting: 50 to 360 degrees
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 22
- Nozzle racks: 1.5 to 8.0 blue, 2.0 LA to 4.5 LA grey, 0.50 to 3.0 black, 6.0 to 13.0 green
- Warranty period: 5 years
- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Headed and slotted set screw
- ▸ Reclaimed water ID
- ▸ Drain check valve (Up to 3 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.9 to 14.0 m
- Flow rate: 0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approx.
- Nozzle trajectory: Std = 25 degrees, Low angle = 13 degrees

▸ = *Advanced Feature descriptions on page 12*

PGP Ultra Reclaimed
Available as a factory-installed option on all models

PGP Ultra
Easy arc and radius adjustment

PGP-00
Overall height: 19 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

PGP-04
Overall height: 19 cm
Pop-up height: 10 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

PGP-12
Overall height: 43 cm
Pop-up height: 30 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

PGP-ULTRA – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
PGP-00 = Shrub **PGP-04** = 10 cm Pop-up **PGP-12** = 30 cm Pop-up	Adjustable arc, plastic riser, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **CV** = Drain check valve **CV-R** = Drain check valve and reclaimed water ID	**1.5 to 4.0** = Factory installed nozzle number

Examples:
PGP-04 = 10 cm pop-up, adjustable arc
PGP-04 - 2.5 = 10 cm pop-up, adjustable arc, and 2.5 nozzle
PGP-12 - CV-R - 4.0 = 30 cm pop-up, adjustable arc, with drain check valve and reclaimed water ID with 4.0 nozzle

PGP ULTRA BLUE STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
1.5 ● Blue	1.7	170	8.8	0.27	4.5	7	8
	2.0	200	9.1	0.29	4.8	7	8
	2.5	250	9.4	0.32	5.4	7	8
	3.0	**300**	**9.8**	**0.35**	**5.9**	**7**	**9**
	3.5	350	9.8	0.38	6.4	8	9
	4.0	400	9.8	0.41	6.8	9	10
	4.5	450	9.4	0.43	7.2	10	11
2.0 ● Blue	1.7	170	10.1	0.32	5.4	6	7
	2.0	200	10.1	0.35	5.8	7	8
	2.5	250	10.1	0.39	6.5	8	9
	3.0	**300**	**10.4**	**0.43**	**7.2**	**8**	**9**
	3.5	350	10.4	0.47	7.8	9	10
	4.0	400	10.4	0.5	8.3	9	11
	4.5	450	10.4	0.53	8.8	10	11
2.5 ● Blue	1.7	170	10.1	0.39	6.6	8	9
	2.0	200	10.4	0.43	7.1	8	9
	2.5	250	10.7	0.48	8.0	8	10
	3.0	**300**	**10.7**	**0.54**	**8.9**	**9**	**11**
	3.5	350	10.7	0.58	9.7	10	12
	4.0	400	10.7	0.62	10.4	11	13
	4.5	450	10.7	0.66	11.1	12	13
3.0 ● Blue	1.7	170	10.7	0.50	8.4	9	10
	2.0	200	10.7	0.54	9.1	10	11
	2.5	250	11.0	0.61	10.2	10	12
	3.0	**300**	**11.6**	**0.68**	**11.4**	**10**	**12**
	3.5	350	11.9	0.74	12.3	10	12
	4.0	400	11.9	0.79	13.2	11	13
	4.5	450	11.9	0.84	14.0	12	14
4.0 ● Blue	1.7	170	11.3	0.68	11.3	11	12
	2.0	200	11.6	0.73	12.2	11	13
	2.5	250	11.9	0.81	13.6	12	13
	3.0	**300**	**12.2**	**0.90**	**15.0**	**12**	**14**
	3.5	350	12.2	0.97	16.2	13	15
	4.0	400	12.5	1.04	17.3	13	15
	4.5	450	12.5	1.10	18.3	14	16
5.0 ● Blue	1.7	170	11.3	0.84	14.0	13	15
	2.0	200	11.6	0.91	15.2	14	16
	2.5	250	11.9	1.02	17.1	15	17
	3.0	**300**	**12.8**	**1.14**	**19.0**	**14**	**16**
	3.5	350	12.8	1.24	20.6	15	17
	4.0	400	12.8	1.32	22.1	16	19
	4.5	450	12.8	1.41	23.4	17	20
6.0 ● Blue	1.7	170	11.6	1.01	16.8	15	17
	2.0	200	11.9	1.09	18.2	15	18
	2.5	250	12.2	1.22	20.4	16	19
	3.0	**300**	**13.1**	**1.36**	**22.7**	**16**	**18**
	3.5	350	13.1	1.47	24.5	17	20
	4.0	400	13.4	1.57	26.2	18	20
	4.5	450	13.4	1.67	27.9	19	21
8.0 ● Blue	1.7	170	11.3	1.35	22.5	21	25
	2.0	200	11.9	1.46	24.3	21	24
	2.5	250	12.5	1.63	27.2	21	24
	3.0	**300**	**13.4**	**1.81**	**30.2**	**20**	**23**
	3.5	350	13.7	1.95	32.6	21	24
	4.0	400	14.0	2.09	34.8	21	25
	4.5	450	14.0	2.22	36.9	23	26

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP ULTRA GREY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
2.0 LA ● Grey	1.7	170	7.3	0.33	5.6	12	14
	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	**350**	**8.5**	**0.48**	**8.0**	**13**	**15**
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
2.5 LA ● Grey	1.7	170	7.9	0.44	7.3	14	16
	2.0	200	8.2	0.47	7.9	14	16
	2.5	250	8.8	0.53	8.8	14	16
	3.0	300	9.4	0.59	9.8	13	15
	3.5	**350**	**10.1**	**0.64**	**10.6**	**13**	**15**
	4.0	400	10.4	0.68	11.3	13	15
	4.5	450	10.7	0.72	12.0	13	15
3.5 LA ● Grey	1.7	170	8.5	0.58	9.7	16	18
	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.1	0.68	11.4	16	19
	3.0	300	10.1	0.75	12.5	15	17
	3.5	**350**	**10.7**	**0.8**	**13.3**	**14**	**16**
	4.0	400	11.0	0.85	14.1	14	16
	4.5	450	11.3	0.89	14.8	14	16
4.0 LA ● Grey	1.7	170	8.2	0.71	11.8	21	24
	2.0	200	8.8	0.76	12.7	19	23
	2.5	250	9.1	0.84	14.1	20	23
	3.0	300	10.1	0.93	15.5	18	21
	3.5	**350**	**10.7**	**1.00**	**16.6**	**18**	**20**
	4.0	400	11.0	1.06	17.6	18	20
	4.5	450	11.3	1.12	18.6	18	20

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP ULTRA NOZZLES

Blue Standard / Grey Low Angle (P/N 782900)

PGP ULTRA HIGH FLOW NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
10 ● Dk. Green	1.7	170	10.7	1.48	24.6	26	30
	2.0	200	11.9	1.60	26.7	23	26
	2.5	250	12.5	1.80	30.0	23	27
	3.0	300	12.8	2.01	33.5	25	28
	3.5	350	13.1	2.18	36.3	25	29
	4.0	**400**	**13.7**	**2.34**	**39.0**	**25**	**29**
	4.5	450	14.0	2.49	41.5	25	29
13 ● Dk. Green	1.7	170	11.0	1.91	31.9	32	37
	2.0	200	12.2	2.08	34.6	28	32
	2.5	250	12.8	2.34	38.9	29	33
	3.0	300	13.1	2.61	43.4	30	35
	3.5	350	13.4	2.83	47.1	31	36
	4.0	**400**	**13.7**	**3.03**	**50.5**	**32**	**37**
	4.5	450	14.0	3.23	53.8	33	38
6.0 LA ● Dk. Green	1.7	170	9.1	0.86	14.3	21	24
	2.0	200	9.4	0.94	15.6	21	24
	2.5	250	10.1	1.07	17.8	21	24
	3.0	300	10.7	1.20	20.0	21	24
	3.5	350	11.3	1.31	21.9	21	24
	4.0	**400**	**11.6**	**1.42**	**23.6**	**21**	**24**
	4.5	450	11.9	1.52	25.3	21	25
8.0 LA ● Dk. Green	1.7	170	10.1	1.17	19.5	23	27
	2.0	200	10.7	1.28	21.3	22	26
	2.5	250	11.3	1.44	24.0	23	26
	3.0	300	11.6	1.61	26.9	24	28
	3.5	350	11.9	1.76	29.3	25	29
	4.0	**400**	**12.5**	**1.89**	**31.5**	**24**	**28**
	4.5	450	12.5	2.01	33.6	26	30

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP Ultra

PGP ULTRA BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA

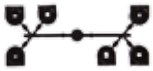
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
.50 SR ● Black	1.7	170	4.9	0.07	1.2	6	7
	2.0	200	5.2	0.08	1.3	6	7
	2.5	250	5.2	0.09	1.5	7	8
	3.0	**300**	**5.2**	**0.10**	**1.7**	**8**	**9**
	3.5	350	5.5	0.12	1.9	8	9
	4.0	400	5.5	0.13	2.1	8	10
	4.5	450	5.5	0.14	2.3	9	10
1.0 SR ● Black	1.7	170	4.9	0.16	2.7	14	16
	2.0	200	5.2	0.17	2.9	13	15
	2.5	250	5.2	0.19	3.2	14	17
	3.0	**300**	**5.2**	**0.21**	**3.6**	**16**	**18**
	3.5	350	5.5	0.23	3.8	15	18
	4.0	400	5.5	0.25	4.1	16	19
	4.5	450	5.5	0.26	4.3	17	20
2.0 SR ● Black	1.7	170	4.9	0.28	4.7	24	27
	2.0	200	5.2	0.31	5.2	23	27
	2.5	250	5.2	0.36	6.0	27	31
	3.0	**300**	**5.2**	**0.41**	**6.9**	**31**	**35**
	3.5	350	5.5	0.45	7.6	30	35
	4.0	400	5.5	0.49	8.2	33	38
	4.5	450	5.5	0.53	8.9	35	41
.75 SR ● Black	1.7	170	6.7	0.12	2.0	5	6
	2.0	200	7.0	0.13	2.2	5	6
	2.5	250	7.0	0.15	2.4	6	7
	3.0	**300**	**7.3**	**0.16**	**2.7**	**6**	**7**
	3.5	350	7.6	0.17	2.9	6	7
	4.0	400	7.6	0.19	3.1	6	7
	4.5	450	7.6	0.20	3.3	7	8
1.5 SR ● Black	1.7	170	6.7	0.23	3.8	10	12
	2.0	200	7.0	0.25	4.1	10	12
	2.5	250	7.0	0.28	4.6	11	13
	3.0	**300**	**7.3**	**0.31**	**5.2**	**12**	**13**
	3.5	350	7.6	0.34	5.6	12	13
	4.0	400	7.6	0.36	6.0	12	14
	4.5	450	7.6	0.39	6.4	13	15
3.0 SR ● Black	1.7	170	6.7	0.53	8.9	24	27
	2.0	200	7.0	0.56	9.3	23	26
	2.5	250	7.0	0.60	10.0	24	28
	3.0	**300**	**7.3**	**0.64**	**10.7**	**24**	**28**
	3.5	350	7.6	0.67	11.2	23	27
	4.0	400	7.6	0.70	11.7	24	28
	4.5	450	7.6	0.73	12.1	25	29

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

PGP ULTRA NOZZLES

Dk. Green
High Flow
(P/N 444800)



Black Short
Radius
(P/N 466100)

ROTORS

I-20

Application: **Residential/Commercial**
Radius: **4.9 to 14.0 m**
Flow Rate: **0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min**
Inlet Size: **¾" NPT**

FEATURES

- Models plastic riser: Shrub, 10 cm, 15 cm, 30 cm
- Models stainless riser: 10 cm, 15 cm
- Arc setting: 50 to 360 degrees
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 22
- Nozzle racks: 1.5 to 8.0 blue, 2.0 LA to 4.5 LA grey, 0.50 to 3.0 black, 6.0 to 13.0 green
- Warranty period: 5 years
- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Headed and slotted set screw
- ▸ FloStop® control
- ▸ Reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (Up to 3 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.9 to 14.0 m
- Flow Rate: 0.07 to 3.23 m³/hr 1.2 to 53.8 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approx.
- Nozzle trajectory: Std = 25 degrees, Low angle = 13 degrees

▸ = *Advanced Feature descriptions on page 12*

I-20 Reclaimed
Available as a factory-installed option on all models

I-20 (PLASTIC) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-00 = Shrub **I-20-04** = 10 cm Pop-up **I-20-06** = 15 cm Pop-up **I-20-12** = 30 cm Pop-up	Adjustable arc, plastic riser, check valve, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **NCV** = Without check valve *(only available on 04 [10 cm] model)* **R** = Drain check valve and reclaimed water ID	**1.5 to 4.0** = Factory installed nozzle number

I-20 (STAINLESS STEEL) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-04-SS = 10 cm Pop-up **I-20-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel riser, check valve, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **NCV** = Without check valve *(only available on 04 [10 cm] model)* **R** = Drain check valve and reclaimed water ID	**1.5 to 4.0** = Factory installed nozzle number

Examples:
I-20-04 = 10 cm pop-up, adjustable arc
I-20-12 - R - 4.0 = 30 cm pop-up, adjustable arc, with check valve, with reclaimed water ID, and 4.0 nozzle
I-20-06-SS - R - 3.0 = 15 cm pop-up, adjustable arc, stainless steel, reclaimed water ID, and 3.0 nozzle

I-20-00
Overall height: 20 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

I-20-04
Overall height: 19 cm
Pop-up height: 10 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

I-20-06
Overall height: 25 cm
Pop-up height: 15 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

I-20-12
Overall height: 43 cm
Pop-up height: 30 cm
Exposed diameter: 4.5 cm
Inlet size: ¾" female NPT

I-20 BLUE STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
1.5 ● Blue	1.7	170	8.8	0.27	4.5	7	8
	2.0	200	9.1	0.29	4.8	7	8
	2.5	250	9.4	0.32	5.4	7	8
	3.0	**300**	**9.8**	**0.35**	**5.9**	**7**	**9**
	3.5	350	9.8	0.38	6.4	8	9
	4.0	400	9.8	0.41	6.8	9	10
	4.5	450	9.4	0.43	7.2	10	11
2.0 ● Blue	1.7	170	10.1	0.32	5.4	6	7
	2.0	200	10.1	0.35	5.8	7	8
	2.5	250	10.1	0.39	6.5	8	9
	3.0	**300**	**10.4**	**0.43**	**7.2**	**8**	**9**
	3.5	350	10.4	0.47	7.8	9	10
	4.0	400	10.4	0.5	8.3	9	11
	4.5	450	10.4	0.53	8.8	10	11
2.5 ● Blue	1.7	170	10.1	0.39	6.6	8	9
	2.0	200	10.4	0.43	7.1	8	9
	2.5	250	10.7	0.48	8.0	8	10
	3.0	**300**	**10.7**	**0.54**	**8.9**	**9**	**11**
	3.5	350	10.7	0.58	9.7	10	12
	4.0	400	10.7	0.62	10.4	11	13
	4.5	450	10.7	0.66	11.1	12	13
3.0 ● Blue	1.7	170	10.7	0.50	8.4	9	10
	2.0	200	10.7	0.54	9.1	10	11
	2.5	250	11.0	0.61	10.2	10	12
	3.0	**300**	**11.6**	**0.68**	**11.4**	**10**	**12**
	3.5	350	11.9	0.74	12.3	10	12
	4.0	400	11.9	0.79	13.2	11	13
	4.5	450	11.9	0.84	14.0	12	14
4.0 ● Blue	1.7	170	11.3	0.68	11.3	11	12
	2.0	200	11.6	0.73	12.2	11	13
	2.5	250	11.9	0.81	13.6	12	13
	3.0	**300**	**12.2**	**0.90**	**15.0**	**12**	**14**
	3.5	350	12.2	0.97	16.2	13	15
	4.0	400	12.5	1.04	17.3	13	15
	4.5	450	12.5	1.10	18.3	14	16
5.0 ● Blue	1.7	170	11.3	0.84	14.0	13	15
	2.0	200	11.6	0.91	15.2	14	16
	2.5	250	11.9	1.02	17.1	15	17
	3.0	**300**	**12.8**	**1.14**	**19.0**	**14**	**16**
	3.5	350	12.8	1.24	20.6	15	17
	4.0	400	12.8	1.32	22.1	16	19
	4.5	450	12.8	1.41	23.4	17	20
6.0 ● Blue	1.7	170	11.6	1.01	16.8	15	17
	2.0	200	11.9	1.09	18.2	15	18
	2.5	250	12.2	1.22	20.4	16	19
	3.0	**300**	**13.1**	**1.36**	**22.7**	**16**	**18**
	3.5	350	13.1	1.47	24.5	17	20
	4.0	400	13.4	1.57	26.2	18	20
	4.5	450	13.4	1.67	27.9	19	21
8.0 ● Blue	1.7	170	11.3	1.35	22.5	21	25
	2.0	200	11.9	1.46	24.3	21	24
	2.5	250	12.5	1.63	27.2	21	24
	3.0	**300**	**13.4**	**1.81**	**30.2**	**20**	**23**
	3.5	350	13.7	1.95	32.6	21	24
	4.0	400	14.0	2.09	34.8	21	25
	4.5	450	14.0	2.22	36.9	23	26

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-20 GREY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
2.0 LA ● Grey	1.7	170	7.3	0.33	5.6	12	14
	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	**350**	**8.5**	**0.48**	**8.0**	**13**	**15**
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
2.5 LA ● Grey	1.7	170	7.9	0.44	7.3	14	16
	2.0	200	8.2	0.47	7.9	14	16
	2.5	250	8.8	0.53	8.8	14	16
	3.0	300	9.4	0.59	9.8	13	15
	3.5	**350**	**10.1**	**0.64**	**10.6**	**13**	**15**
	4.0	400	10.4	0.68	11.3	13	15
	4.5	450	10.7	0.72	12.0	13	15
3.5 LA ● Grey	1.7	170	8.5	0.58	9.7	16	18
	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.1	0.68	11.4	16	19
	3.0	300	10.1	0.75	12.5	15	17
	3.5	**350**	**10.7**	**0.80**	**13.3**	**14**	**16**
	4.0	400	11.0	0.85	14.1	14	16
	4.5	450	11.3	0.89	14.8	14	16
4.0 LA ● Grey	1.7	170	8.2	0.71	11.8	21	24
	2.0	200	8.8	0.76	12.7	19	23
	2.5	250	9.1	0.84	14.1	20	23
	3.0	300	10.1	0.93	15.5	18	21
	3.5	**350**	**10.7**	**1.00**	**16.6**	**18**	**20**
	4.0	400	11.0	1.06	17.6	18	20
	4.5	450	11.3	1.12	18.6	18	20

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-20 Reclaimed with Blue Standard Nozzle

I-20 NOZZLES

Blue Standard / Gray Low Angle (P/N 782900)

ROTORS

I-20 HIGH FLOW NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
10 ● Dk. Green	1.7	170	10.7	1.48	24.6	26	30
	2.0	200	11.9	1.60	26.7	23	26
	2.5	250	12.5	1.80	30.0	23	27
	3.0	300	12.8	2.01	33.5	25	28
	3.5	350	13.1	2.18	36.3	25	29
	4.0	**400**	**13.7**	**2.34**	**39.0**	**25**	**29**
	4.5	450	14.0	2.49	41.5	25	29
13 ● Dk. Green	1.7	170	11.0	1.91	31.9	32	37
	2.0	200	12.2	2.08	34.6	28	32
	2.5	250	12.8	2.34	38.9	29	33
	3.0	300	13.1	2.61	43.4	30	35
	3.5	350	13.4	2.83	47.1	31	36
	4.0	**400**	**13.7**	**3.03**	**50.5**	**32**	**37**
	4.5	450	14.0	3.23	53.8	33	38
6.0 LA ● Dk. Green	1.7	170	9.1	0.86	14.3	21	24
	2.0	200	9.4	0.94	15.6	21	24
	2.5	250	10.1	1.07	17.8	21	24
	3.0	300	10.7	1.20	20.0	21	24
	3.5	350	11.3	1.31	21.9	21	24
	4.0	**400**	**11.6**	**1.42**	**23.6**	**21**	**24**
	4.5	450	11.9	1.52	25.3	21	25
8.0 LA ● Dk. Green	1.7	170	10.1	1.17	19.5	23	27
	2.0	200	10.7	1.28	21.3	22	26
	2.5	250	11.3	1.44	24.0	23	26
	3.0	300	11.6	1.61	26.9	24	28
	3.5	350	11.9	1.76	29.3	25	29
	4.0	**400**	**12.5**	**1.89**	**31.5**	**24**	**28**
	4.5	450	12.5	2.01	33.6	26	30

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-20

I-20 BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA

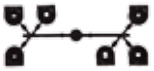
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
.50 SR ● Black	1.7	170	4.9	0.07	1.2	6	7
	2.0	200	5.2	0.08	1.3	6	7
	2.5	250	5.2	0.09	1.5	7	8
	3.0	**300**	**5.2**	**0.10**	**1.7**	**8**	**9**
	3.5	350	5.5	0.12	1.9	8	9
	4.0	400	5.5	0.13	2.1	8	10
	4.5	450	5.5	0.14	2.3	9	10
1.0 SR ● Black	1.7	170	4.9	0.16	2.7	14	16
	2.0	200	5.2	0.17	2.9	13	15
	2.5	250	5.2	0.19	3.2	14	17
	3.0	**300**	**5.2**	**0.21**	**3.6**	**16**	**18**
	3.5	350	5.5	0.23	3.8	15	18
	4.0	400	5.5	0.25	4.1	16	19
	4.5	450	5.5	0.26	4.3	17	20
2.0 SR ● Black	1.7	170	4.9	0.28	4.7	24	27
	2.0	200	5.2	0.31	5.2	23	27
	2.5	250	5.2	0.36	6.0	27	31
	3.0	**300**	**5.2**	**0.41**	**6.9**	**31**	**35**
	3.5	350	5.5	0.45	7.6	30	35
	4.0	400	5.5	0.49	8.2	33	38
	4.5	450	5.5	0.53	8.9	35	41
.75 SR ● Black	1.7	170	6.7	0.12	2.0	5	6
	2.0	200	7.0	0.13	2.2	5	6
	2.5	250	7.0	0.15	2.4	6	7
	3.0	**300**	**7.3**	**0.16**	**2.7**	**6**	**7**
	3.5	350	7.6	0.17	2.9	6	7
	4.0	400	7.6	0.19	3.1	6	7
	4.5	450	7.6	0.20	3.3	7	8
1.5 SR ● Black	1.7	170	6.7	0.23	3.8	10	12
	2.0	200	7.0	0.25	4.1	10	12
	2.5	250	7.0	0.28	4.6	11	13
	3.0	**300**	**7.3**	**0.31**	**5.2**	**12**	**13**
	3.5	350	7.6	0.34	5.6	12	13
	4.0	400	7.6	0.36	6.0	12	14
	4.5	450	7.6	0.39	6.4	13	15
3.0 SR ● Black	1.7	170	6.7	0.53	8.9	24	27
	2.0	200	7.0	0.56	9.3	23	26
	2.5	250	7.0	0.60	10.0	24	28
	3.0	**300**	**7.3**	**0.64**	**10.7**	**24**	**28**
	3.5	350	7.6	0.67	11.2	23	27
	4.0	400	7.6	0.70	11.7	24	28
	4.5	450	7.6	0.73	12.1	25	29

Bold = Recommended pressure

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-20 NOZZLES

Dk. Green
High Flow
(P/N 444800)



Black Short
Radius
(P/N 466100)

I-25

Application: **Commercial/Municipal**
Radius: **14.0 to 21.6 m**
Flow Rate: **0.82 to 7.24 m³/hr; 13.6 to 12.07 l/min**
Inlet Size: **1" BSP**

FEATURES

- Models plastic riser: 10 cm, 15 cm
- Models stainless riser: 10 cm, 15 cm
- Arc setting: 50 to 360 degrees
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 12
- Nozzle range: #4 to #28
- Warranty period: 5 years

- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Color coded nozzles
- ▸ Reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (Up to 3 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 11.9 to 21.6 m
- Flow rate: 0.82 to 7.24 m³/hr; 13.6 to 120.7 l/min
- Recommended pressure range: 2.5 to 7.0 bar; 250 to 700 kPa
- Operating pressure range: 2.5 to 7.0 bar; 250 to 700 kPa
- Precipitation rates: 15 mm/hr approx.
- Nozzle trajectory: 25 degrees

▸ = *Advanced Feature descriptions on page 12*

I-25 Reclaimed
Available as a factory-installed option on all models

I-25-04
Overall height: 20 cm
Pop-up height: 10 cm
Exposed diameter: 5 cm
Inlet size: 1" BSP

I-25-06
Overall height: 26 cm
Pop-up height: 15 cm
Exposed diameter: 5 cm
Inlet size: 1" BSP

I-25 (PLASTIC) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04 = 10 cm Pop-up **I-25-06** = 15 cm Pop-up	Adjustable arc, plastic riser, check valve, and 5 nozzles	**(blank)** = No option **R** = Reclaimed water ID **B** = BSP inlet threads	**#4 to #28** = Factory installed nozzle number

I-25 (STAINLESS STEEL) – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04-SS = 10 cm Pop-up **I-25-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel riser, check valve, and 5 nozzles	**(blank)** = No option **R** = Reclaimed water ID **HS** = High speed **HS-R** = High speed and reclaimed water ID **B** = BSP inlet threads	**#4 to #28** = Factory installed nozzle number

Examples:
I-25-04 - B = 10 cm pop-up, adjustable arc, BSP inlet threads
I-25-04-SS - R - B- 18 = 10 cm pop-up, adjustable arc, stainless steel riser, reclaimed water ID, BSP inlet threads, and #18 nozzle
I-25-06-SS - B = 15 cm pop-up, adjustable arc, stainless steel riser, BSP inlet threads

I-25 NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
4 Yellow	2.5	250	11.9	0.82	13.6	12	13
	3.0	300	12.2	0.91	15.2	12	14
	3.5	350	12.5	0.98	16.4	13	15
	4.0	400	12.5	1.05	17.5	13	16
	4.5	450	12.8	1.11	18.6	14	16
	5.0	500	13.1	1.18	19.6	14	16
5 White	2.5	250	12.8	0.95	15.9	12	13
	3.0	300	13.1	1.04	17.3	12	14
	3.5	350	13.4	1.11	18.5	12	14
	4.0	400	13.4	1.17	19.6	13	15
	4.5	450	13.7	1.24	20.6	13	15
	5.0	500	14.0	1.29	21.5	13	15
7 Orange*	2.5	250	13.4	1.44	24.0	16	19
	3.0	300	14.0	1.54	25.6	16	18
	3.5	350	14.3	1.61	26.9	16	18
	4.0	400	14.3	1.68	28.0	16	19
	4.5	450	14.6	1.75	29.1	16	19
	5.0	500	14.9	1.81	30.1	16	19
8 Lt. Brown	2.5	250	14.0	1.65	27.5	17	19
	3.0	300	14.3	1.81	30.1	18	20
	3.5	350	14.9	1.94	32.3	17	20
	4.0	400	15.2	2.05	34.2	18	20
	4.5	450	15.2	2.16	36.0	19	22
	5.0	500	15.5	2.27	37.8	19	22
10 Lt. Green*	3.0	300	15.2	2.15	35.8	18	21
	3.5	350	15.5	2.32	38.6	19	22
	4.0	400	15.8	2.48	41.3	20	23
	4.5	450	16.2	2.63	43.9	20	23
	5.0	500	16.2	2.78	46.3	21	25
	5.5	550	16.5	2.94	48.9	22	25
13 Lt. Blue	3.0	300	15.8	2.38	39.6	19	22
	3.5	350	16.2	2.57	42.8	20	23
	4.0	400	16.5	2.75	45.7	20	23
	4.5	450	16.5	2.91	48.5	21	25
	5.0	500	16.8	3.07	51.2	22	25
	5.5	550	16.8	3.24	54.0	23	27
15 Grey*	3.0	300	16.8	2.86	47.7	20	24
	3.5	350	17.1	3.05	50.8	21	24
	4.0	400	17.4	3.22	53.7	21	25
	4.5	450	17.4	3.38	56.3	22	26
	5.0	500	17.4	3.53	58.8	23	27
	5.5	550	17.7	3.69	61.5	24	27

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
18 Red	3.0	300	17.4	3.08	51.4	20	24
	3.5	350	17.7	3.31	55.2	21	24
	4.0	400	18.0	3.52	58.7	22	25
	4.5	450	18.3	3.72	62.0	22	26
	5.0	500	18.9	3.91	65.2	22	25
	5.5	550	19.2	4.11	68.5	22	26
20 Dk. Brown*	4.0	400	18.6	3.97	66.2	23	27
	4.5	450	18.9	4.20	70.1	24	27
	5.0	500	19.2	4.42	73.7	24	28
	5.5	550	19.5	4.66	77.7	25	28
	6.0	600	19.8	4.86	81.0	25	29
	6.5	650	20.1	5.05	84.2	25	29
23 Dk. Green	4.0	400	19.2	4.88	81.3	26	31
	4.5	450	19.5	5.18	86.3	27	31
	5.0	500	19.8	5.47	91.1	28	32
	5.5	550	20.1	5.78	96.3	29	33
	6.0	600	20.1	6.04	100.6	30	34
	6.5	650	20.4	6.29	104.8	30	35
25 Dk. Blue*	4.0	400	19.8	5.23	87.1	27	31
	4.5	450	20.1	5.58	93.1	28	32
	5.0	500	20.4	5.92	98.7	28	33
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.60	110.0	30	34
	6.5	650	21.3	6.90	115.1	30	35
28 Black	4.5	450	20.1	5.93	98.8	29	34
	5.0	500	20.7	6.21	103.5	29	33
	5.5	550	21.3	6.52	108.6	29	33
	6.0	600	21.3	6.77	112.8	30	34
	6.5	650	21.6	7.01	116.9	30	35
	7.0	700	21.6	7.24	120.7	31	36

* 5 standard nozzles included with each sprinkler.

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-25 NOZZLES

Standard

I-25 Nozzle

I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure Bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4 Yellow	2.5	250	11.0	0.81	13.6	14	16
	3.0	300	11.3	0.91	15.1	14	16
	3.5	350	11.6	0.99	16.4	15	17
	4.0	400	11.6	1.06	17.6	16	18
	4.5	450	11.6	1.13	18.8	17	19
	5.0	500	11.9	1.19	19.9	17	19
5 White	2.5	250	11.3	0.93	15.5	15	17
	3.0	300	11.6	1.04	17.3	16	18
	3.5	350	11.9	1.13	18.9	16	18
	4.0	400	12.2	1.22	20.3	16	19
	4.5	450	12.2	1.30	21.6	17	20
	5.0	500	12.5	1.38	22.9	18	20
7 Orange*	2.5	250	11.9	1.32	22.0	19	22
	3.0	300	12.2	1.46	24.3	20	23
	3.5	350	12.5	1.57	26.2	20	23
	4.0	400	12.8	1.68	27.9	20	24
	4.5	450	13.1	1.78	29.6	21	24
	5.0	500	13.4	1.87	31.1	21	24
8 Lt. Brown	2.5	250	12.5	1.54	25.7	20	23
	3.0	300	12.8	1.72	28.6	21	24
	3.5	350	13.1	1.86	31.0	22	25
	4.0	400	13.4	2.00	33.3	22	26
	4.5	450	13.4	2.13	35.4	24	27
	5.0	500	13.7	2.25	37.5	24	28
10 Lt. Green*	3.0	300	13.7	2.15	35.8	23	26
	3.5	350	14.0	2.32	38.6	24	27
	4.0	400	14.3	2.48	41.3	24	28
	4.5	450	14.6	2.63	43.9	25	28
	5.0	500	14.9	2.78	46.3	25	29
	5.5	550	15.2	2.94	48.9	25	29
13 Lt. Blue	3.0	300	14.3	2.38	39.6	23	27
	3.5	350	14.6	2.57	42.8	24	28
	4.0	400	14.9	2.75	45.7	25	28
	4.5	450	15.2	2.91	48.5	25	29
	5.0	500	15.5	3.07	51.2	25	29
	5.5	550	15.5	3.24	54.0	27	31
15 Grey*	3.0	300	14.6	2.86	47.7	27	31
	3.5	350	14.9	3.05	50.8	27	32
	4.0	400	15.2	3.22	53.7	28	32
	4.5	450	15.5	3.38	56.3	28	32
	5.0	500	16.2	3.53	58.8	27	31
	5.5	550	16.5	3.69	61.5	27	31
18 Red	3.0	300	14.9	3.08	51.4	28	32
	3.5	350	15.2	3.31	55.2	29	33
	4.0	400	15.5	3.52	58.7	29	34
	4.5	450	16.2	3.72	62.0	29	33
	5.0	500	16.8	3.91	65.2	28	32
	5.5	550	17.4	4.11	68.5	27	31
20 Dk. Brown*	4.0	400	16.2	3.97	66.2	30	35
	4.5	450	16.5	4.2	70.1	31	36
	5.0	500	17.1	4.42	73.7	30	35
	5.5	550	17.7	4.66	77.7	30	34
	6.0	600	17.7	4.86	81.0	31	36
	6.5	650	18.0	5.05	84.2	31	36
23 Dk. Green	4.0	400	17.1	4.88	81.3	33	39
	4.5	450	17.4	5.18	86.3	34	40
	5.0	500	17.7	5.47	91.1	35	40
	5.5	550	18.3	5.78	96.3	35	40
	6.0	600	18.3	6.04	100.6	36	42
	6.5	650	18.6	6.29	104.8	36	42
25 Dk. Blue*	4.0	400	17.7	5.23	87.1	33	39
	4.5	450	18.3	5.58	93.1	33	39
	5.0	500	18.9	5.92	98.7	33	38
	5.5	550	19.5	6.29	104.9	33	38
	6.0	600	19.8	6.60	110.0	34	39
	6.5	650	20.1	6.90	115.1	34	39
28 Black	4.5	450	18.0	5.93	98.8	37	42
	5.0	500	18.3	6.21	103.5	37	43
	5.5	550	18.9	6.52	108.6	36	42
	6.0	600	19.5	6.77	112.8	36	41
	6.5	650	19.8	7.01	116.9	36	41
	7.0	700	20.4	7.24	120.7	35	40

* 5 standard nozzles included with each sprinkler.

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

I-25 NOZZLES

High-Speed

ROTORS

I-25

I-40

Application: **Commercial/Municipal**
Radius: **13.1 to 23.2 m**
Flow Rate: **1.63 to 6.84 m³/hr; 27.2 to 114.1 l/min**
Inlet Size: **1" BSP**

FEATURES

- Models stainless riser: 10 cm to 15 cm
- Arc setting: 50 to 360 degrees
- Factory installed rubber cover
- Nozzle choices: 12
- Nozzle ranges I-40: #8 to #25
- Nozzle ranges I-40-ON: #15 to #28
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Warranty period: 5 years

- ▸ Opposing nozzle 360˚ model
- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Color coded nozzles
- ▸ Reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (Up to 4.5 m of elevation)

I-40-04
Overall height: 20 cm
Pop-up height: 10 cm
Exposed diameter: 5 cm
Inlet size: 1" BSP

I-40-06
Overall height: 26 cm
Pop-up height: 15 cm
Exposed diameter: 5 cm
Inlet size: 1" BSP

OPERATING SPECIFICATIONS

- Radius I-40: 13.1 to 21.3 m
- Radius I-40-ON: 15.2 to 23.2 m
- Flow rate I-40: 1.63 to 6.84 m³/hr; 27.2 to 114.1 l/min
- Flow rate I-40-ON: 2.75 to 7.76 m³/hr; 45.8 to 129.4 l/min
- Recommended pressure range: 2.5 to 7.0 bar; 250 to 700 kPa
- Operating pressure range: 2.5 to 7.0 bar; 250 to 700 kPa
- Precipitation rates: 15 mm/hr approx.
- Nozzle trajectory: 25 degrees

▸ = *Advanced Feature descriptions on page 12*

I-40 Reclaimed
Available as a factory-installed option on all models

I-40 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS = 10 cm Pop-up **I-40-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel riser, check valve, and 6 nozzles	**(blank)** = No option **HS** = High speed **HS-R** = High speed and reclaimed water ID **B** = BSP inlet threads **R** = Reclaimed water ID	**#8 to #25** = Factory installed nozzle number

I-40-ON – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Opposing Nozzle Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS-ON = 10 cm Pop-up **I-40-06-SS-ON** = 15 cm Pop-up	Full-circle, opposing nozzle, stainless steel riser, check valve and 6 nozzles	**(blank)** = No option **ON** = Full circle opposing nozzles **ON-R** = Full circle opposing nozzles and reclaimed water ID **B** = BSP inlet threads **R** = Reclaimed water ID	**#15 to #28** = Factory installed nozzle number

Examples:
I-40-04-SS - B = 10 cm pop-up, adjustable arc, BSP inlet threads
I-40-04-SS - ON-R - B - 23 = 10 cm pop-up, adjustable arc, full circle opposing nozzles, reclaimed water ID, BSP inlet threads, and #23 nozzle
I-40-06-SS - 15 - B = 15 cm pop-up, adjustable arc, and #15 nozzle, BSP inlet threads

I-40 NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
8 (40) Lt. Brown	2.5	250	13.1	1.63	27.2	19	22
	3.0	300	13.4	1.80	30.0	20	23
	3.5	350	13.7	1.94	32.3	21	24
	4.0	400	14.0	2.06	34.4	21	24
	4.5	450	14.0	2.18	36.3	22	26
	5.0	500	14.3	2.29	38.2	22	26
10 (41) Lt. Green	3.0	300	14.6	2.20	36.6	21	24
	3.5	350	14.9	2.37	39.4	21	24
	4.0	400	15.2	2.52	42.0	22	25
	4.5	450	15.5	2.67	44.5	22	25
	5.0	500	15.5	2.81	46.8	23	27
	5.5	550	15.8	2.96	49.3	24	27
13 (42) Lt. Blue	3.0	300	14.9	2.36	39.4	21	24
	3.5	350	15.2	2.55	42.6	22	25
	4.0	400	15.5	2.73	45.5	23	26
	4.5	450	15.5	2.90	48.3	24	28
	5.0	500	15.8	3.06	51.0	24	28
	5.5	550	16.2	3.23	53.9	25	29
15 (43) Gray	3.0	300	16.2	2.93	48.8	22	26
	3.5	350	16.5	3.19	53.2	24	27
	4.0	400	16.8	3.44	57.3	24	28
	4.5	450	17.1	3.67	61.2	25	29
	5.0	500	17.4	3.89	64.9	26	30
	5.5	550	18.0	4.14	68.9	26	30
23 (44) Dk. Green	4.0	400	18.9	4.76	79.4	27	31
	4.5	450	19.2	5.03	83.9	27	32
	5.0	500	19.5	5.29	88.1	28	32
	5.5	550	19.8	5.56	92.7	28	33
	6.0	600	20.1	5.79	96.5	29	33
	6.5	650	20.1	6.01	100.2	30	34
25 (45) Dk. Blue	4.0	400	20.1	5.33	88.7	26	30
	4.5	450	20.4	5.65	94.2	27	31
	5.0	500	20.7	5.96	99.3	28	32
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.57	109.6	30	34
	6.5	650	21.3	6.84	114.1	30	35

I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
8 (40) Lt. Brown	2.5	250	12.2	1.63	27.2	22	25
	3.0	300	12.5	1.80	30.0	23	27
	3.5	350	12.8	1.94	32.3	24	27
	4.0	400	12.8	2.06	34.4	25	29
	4.5	450	13.1	2.18	36.3	25	29
	3.0	300	13.4	2.20	36.6	24	28
10 (41) Lt. Green	3.5	350	13.7	2.37	39.4	25	29
	4.0	400	14.0	2.52	42.0	26	30
	4.5	450	14.0	2.67	44.5	27	31
	5.0	500	14.3	2.81	46.8	27	32
	5.5	550	14.6	2.96	49.3	28	32
	3.0	300	13.7	2.36	39.4	25	29
13 (42) Lt. Blue	3.5	350	14.0	2.55	42.6	26	30
	4.0	400	14.3	2.73	45.5	27	31
	4.5	450	14.3	2.90	48.3	28	33
	5.0	500	14.6	3.06	51.0	29	33
	5.5	550	14.9	3.23	53.9	29	33
	3.0	300	15.2	2.93	48.8	25	29
15 (43) Gray	3.5	350	15.5	3.19	53.2	26	30
	4.0	400	15.8	3.44	57.3	27	32
	4.5	450	15.8	3.67	61.2	29	34
	5.0	500	16.2	3.89	64.9	30	34
	5.5	550	16.5	4.14	68.9	31	35
	4.0	400	17.4	4.76	79.4	32	36
23 (44) Dk. Green	4.5	450	17.7	5.03	83.9	32	37
	5.0	500	17.7	5.29	88.1	34	39
	5.5	550	18.0	5.56	92.7	34	40
	6.0	600	18.3	5.79	96.5	35	40
	6.5	650	18.6	6.01	100.2	35	40
	4.0	400	18.0	5.33	88.7	33	38
25 (45) Dk. Blue	4.5	450	18.3	5.65	94.2	34	39
	5.0	500	18.6	5.96	99.3	34	40
	5.5	550	18.9	6.29	104.9	35	41
	6.0	600	19.2	6.57	109.6	36	41
	6.5	650	19.5	6.84	114.1	36	42
	6.5	650	20.4	6.29	104.8	30	35

I-40 NOZZLES

Standard/
High-Speed

Notes:
All precipitation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

ROTORS

I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
15 ● Gray	3.0	300	15.2	2.75	45.8	12	14
	3.5	350	15.8	2.91	48.5	12	13
	4.0	400	16.2	3.06	51.0	12	14
	4.5	450	16.8	3.20	53.3	11	13
	5.0	500	17.1	3.32	55.4	11	13
	5.5	550	17.4	3.46	57.7	11	13
18 ● Red	3.0	300	17.4	2.90	48.3	10	11
	3.5	350	17.7	3.15	52.5	10	12
	4.0	400	18.0	3.38	56.4	10	12
	4.5	450	18.0	3.61	60.1	11	13
	5.0	500	18.3	3.82	63.7	11	13
	5.5	550	18.9	4.05	67.5	11	13
20 ● Dk. Brown	4.0	400	18.9	4.26	71.1	12	14
	4.5	450	19.2	4.54	75.6	12	14
	5.0	500	19.5	4.80	80.0	13	15
	5.5	550	20.1	5.08	84.7	13	15
	6.0	600	19.8	5.32	88.7	14	16
	6.5	650	20.1	5.55	92.5	14	16
23 ● Dk. Green	4.0	400	19.5	4.55	75.8	12	14
	4.5	450	19.8	4.85	80.8	12	14
	5.0	500	20.1	5.14	85.6	13	15
	5.5	550	20.4	5.45	90.8	13	15
	6.0	600	20.7	5.71	95.1	13	15
	6.5	650	20.7	5.96	99.4	14	16
25 ● Dk. Blue	4.0	400	20.1	4.92	82.1	12	14
	4.5	450	20.4	5.23	87.2	13	14
	5.0	500	20.7	5.52	92.0	13	15
	5.5	550	21.0	5.84	97.3	13	15
	6.0	600	21.3	6.10	101.7	13	15
	6.5	650	21.3	6.36	106.0	14	16
28 ● Black	4.5	450	21.0	6.38	106.4	14	17
	5.0	500	21.3	6.68	111.3	15	17
	5.5	550	21.9	7.00	116.7	15	17
	6.0	600	22.3	7.27	121.1	15	17
	6.5	650	22.6	7.52	125.3	15	17
	7.0	700	23.2	7.76	129.4	14	17

Notes:
Precipitation rates for the ON-Opposing Nozzles models are calculated at 360 degrees.

I-40 NOZZLES

Opposing

I-40 Opposing Nozzle 360° Model

I-60

Application: **Commercial**
Radius: **14.9 to 20.4 m**
Flow Rate: **1.41 to 4.87 m³/hr; 23.5 to 81.2 l/min**
Inlet Size: **1" BSP**

FEATURES

- Model stainless riser: 10 cm
- Exclusive *Precision Distribution Control*™ nozzle mechanism
- Standard factory installed nozzle: #13
- I-60-ADS arc setting: 40–360 degrees
- I-60-36S arc setting: full-circle only
- Nozzle choices: 6
- Nozzle range: #7 to #20
- Factory installed rubber cover
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Warranty period: 5 years
- ▸ Color coded nozzles
- ▸ Optional reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (up to 3 m of elevation)

I-60
Overall height: ADS/36S: 21 cm
Pop-up height: 10 cm
Exposed diameter: 5 cm
Inlet size: 1" BSP

OPERATING SPECIFICATIONS

- Radius: 14.9 to 20.4 m
- Flow rate: 1.41 to 4.87 m³/hr; 23.5 to 81.2 l/min
- Recommended pressure range: 2.5 to 4.5 bar; 250 to 450 kPa
- Operating pressure range: 2.5 to 7.0 bar; 250 to 700 kPa
- Precipitation rates: 10 mm/hr approx.
- Nozzle trajectory: 25 degrees

▸ = *Advanced Feature descriptions on page 12*

I-60 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options
I-60 = 10 cm Pop-up	Stainless steel riser, check valve, and 6 nozzles	**(blank)** = No option **ADS** = Adjustable arc **36S** = Full circle **B** = BSP inlet threads **#13** = Factory installed nozzle number

Examples:
I-60 - ADS - B = 10 cm pop-up, adjustable arc, BSP inlet threads
I-60 - 36S - 10 - B = 10 cm pop-up, full circle, BSP inlet threads, and #10 nozzle

I-60-ADS NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
7 Orange	2.5	250	14.9	1.41	23.5	13	15
	3.0	300	15.5	1.53	25.6	13	15
	3.5	350	15.8	1.63	27.2	13	15
	4.0	400	16.5	1.72	28.7	13	15
	4.5	450	16.5	1.80	30.1	13	15
10 Lt. Green	2.5	250	15.8	1.85	30.8	15	17
	3.0	300	16.5	2.02	33.7	15	17
	3.5	350	17.1	2.16	36.0	15	17
	4.0	400	17.7	2.29	38.2	15	17
	4.5	450	17.7	2.41	40.2	15	18
13 Lt. Blue*	2.5	250	16.8	2.27	37.8	16	19
	3.0	300	17.4	2.53	42.1	17	19
	3.5	350	17.7	2.73	45.5	17	20
	4.0	400	18.3	2.93	48.8	17	20
	4.5	450	18.3	3.11	51.8	19	21
15 Grey	2.5	250	17.4	2.70	45.1	18	21
	3.0	300	18.0	2.97	49.5	18	21
	3.5	350	18.3	3.18	53.0	19	22
	4.0	400	18.6	3.38	56.3	20	23
	4.5	450	18.9	3.56	59.4	20	23
18 Red	2.5	250	17.7	3.40	56.7	22	25
	3.0	300	18.3	3.71	61.9	22	26
	3.5	350	18.9	3.96	66.0	22	26
	4.0	400	19.5	4.19	69.8	22	25
	4.5	450	19.8	4.40	73.4	22	26
20 Dk. Brown	2.5	250	18.6	3.82	63.7	22	26
	3.0	300	19.2	4.12	68.7	22	26
	3.5	350	19.5	4.36	72.7	23	26
	4.0	400	19.8	4.58	76.3	23	27
	4.5	450	20.1	4.78	79.7	24	27

* Factory-installed nozzle

Notes:
Precipitation rates for ADS models are calculated for 180-degree operation. To calculate precipitation rate for 360-degree operation, divide by 2.

I-60-36S NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
7 Orange	2.5	250	15.2	1.41	23.5	6	7
	3.0	300	15.8	1.56	26.1	6	7
	3.5	350	16.5	1.69	28.1	6	7
	4.0	400	16.8	1.80	30.1	6	7
	4.5	450	17.4	1.91	31.9	6	7
10 Lt. Green	2.5	250	15.8	1.85	30.8	7	8
	3.0	300	16.5	2.02	33.7	7	9
	3.5	350	17.1	2.16	36.0	7	9
	4.0	400	17.4	2.29	38.2	8	9
	4.5	450	18.0	2.41	40.2	7	9
13 Lt. Blue*	2.5	250	16.8	2.29	38.1	8	9
	3.0	300	17.1	2.55	42.4	9	10
	3.5	350	17.7	2.76	45.9	9	10
	4.0	400	18.0	2.95	49.2	9	11
	4.5	450	18.6	3.14	52.3	9	10
15 Grey	2.5	250	17.4	2.71	45.2	9	10
	3.0	300	17.7	2.98	49.6	10	11
	3.5	350	18.3	3.19	53.2	10	11
	4.0	400	18.6	3.39	56.5	10	11
	4.5	450	18.9	3.57	59.5	10	12
18 Red	2.5	250	17.7	3.39	56.5	11	13
	3.0	300	18.0	3.73	62.2	12	13
	3.5	350	18.9	4.00	66.7	11	13
	4.0	400	19.5	4.26	70.9	11	13
	4.5	450	19.8	4.49	74.9	11	13
20 Dk. Brown	2.5	250	18.6	3.79	63.2	11	13
	3.0	300	18.9	4.13	68.8	12	13
	3.5	350	19.5	4.40	73.3	12	13
	4.0	400	19.8	4.64	77.4	12	14
	4.5	450	20.4	4.87	81.2	12	13

* Factory-installed nozzle

Notes:
All preciptation rates calculated for 360-degree operation.

I-60 NOZZLES

ADS

36S

I-90

Application: **Large Radius Commercial/Municipal**
Radius: **18.9 to 30.8 m**
Flow Rate: **4.97 to 18.58 m³/hr; 82.8 to 309.6 l/min**
Inlet Size: **1½" BSP**

FEATURES

- Model: 8 cm
- Arc setting: 40 to 360 degrees
- Nozzle choices: 8
- Nozzle range: #25 to #73
- Through-the-top arc adjustment
- Quick check arc mechanism
- Water lubricated gear-drive
- Standard factory installed nozzle: #53
- Factory installed rubber logo cap
- Warranty period: 5 years
- ▸ Opposing nozzle 360˚ model
- ▸ Color coded nozzles
- ▸ Optional reclaimed water ID
- ▸ Drain check valve (up to 2 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 18.9 to 30.8 m
- Flow rate: 4.97 to 18.58 m³/hr; 82.8 to 309.6 l/min
- Recommended pressure range: 4.0 to 7.5 bar; 400 to 750 kPa
- Operating pressure range: 3.5 to 8 bar; 350 to 800 kPa
- Precipitation rates: 19 mm/hr approx. (360 degrees)
- Nozzle trajectory: 22.5 degrees

USER-INSTALLED OPTION

- Turf Cup Kit
  - I-90 all: P/N 467955
- Rubber Cover Kit
  - I-90-ADV: P/N 234200 (all)
  - I-90-36V: P/N 234200 (0711 date code and after)
  - I-90-36V: P/N 234201 (0611 date code & prior only)

▸ = *Advanced Feature descriptions on page 12*

I-90 Reclaimed
Available as a factory-installed option on all models

I-90
Overall height: ADV/36V: 28 cm
Pop-up height: 8 cm
Exposed diameter: 9 cm
Inlet size: 1½" female BSP

Turf cup kit
P/N 467955

Rubber cover kits
I90-ADV: P/N 234200
I90-36V: P/N 234201

I-90 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Standard Features	3 Feature Options	4 Nozzle Options
I-90 = 8 cm Pop-up	Plastic riser, check valve, and 8 nozzles	**ADV** = Adjustable arc **ARV** = Adjustable arc and reclaimed water ID **36V** = Full circle, opposing nozzles **3RV** = Full circle, opposing nozzles and reclaimed water ID **B** = BSP inlet threads	**#25 to #73** = Factory installed nozzle number

Examples:
I-90 - ADV - B = 8 cm pop-up, adjustable arc, with BSP inlet threads
I-90 - 36V - B - 43 = 8 cm pop-up, full circle, opposing nozzles, with BSP inlet threads, and #43 nozzle
I-90 - 3RV - B - 63 = 8 cm pop-up, full circle, opposing nozzles, reclaimed water ID, with BSP inlet threads, and #63 nozzle

I-90-ADV NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
25 ● Lt. Blue	4.0	400	18.9	4.97	82.8	28	32
	4.5	450	19.2	5.34	89.0	29	33
	5.0	500	19.5	5.70	95.0	30	35
	5.5	550	19.8	6.10	101.6	31	36
	6.0	600	20.1	6.43	107.2	32	37
	6.5	650	20.4	6.76	112.7	32	37
	7.0	700	20.7	7.08	117.9	33	38
33 ● Gray	4.0	400	20.1	6.84	114.1	34	39
	4.5	450	20.4	7.25	120.9	35	40
	5.0	500	20.4	7.64	127.4	37	42
	5.5	550	20.7	8.06	134.4	38	43
	6.0	600	20.7	8.42	140.3	39	45
	6.5	650	21.0	8.75	145.9	40	46
	7.0	700	21.3	9.08	151.3	40	46
38 ● Red	4.0	400	20.7	7.61	126.8	35	41
	4.5	450	21.0	8.07	134.5	37	42
	5.0	500	21.3	8.51	141.9	37	43
	5.5	550	21.9	8.99	149.8	37	43
	6.0	600	22.3	9.39	156.5	38	44
	6.5	650	22.6	9.77	162.9	38	44
	7.0	700	22.9	10.14	169.0	39	45
43 ● Dk. Brown	4.0	400	21.0	8.72	145.4	39	46
	4.5	450	21.3	9.18	153.0	40	47
	5.0	500	21.6	9.62	160.2	41	47
	5.5	550	21.9	10.08	168.0	42	48
	6.0	600	21.9	10.47	174.5	43	50
	6.5	650	22.3	10.84	180.7	44	51
	7.0	700	22.3	11.20	186.6	45	52
48 ● Dk. Green	5.0	500	22.9	10.83	180.4	41	48
	5.5	550	23.5	11.41	190.1	41	48
	6.0	600	23.8	11.89	198.1	42	49
	6.5	650	24.1	12.35	205.8	43	49
	7.0	700	24.7	12.79	213.2	42	48
53 ● Dk. Blue*	5.0	500	24.1	11.29	188.2	39	45
	5.5	550	24.7	12.00	200.0	39	45
	6.0	600	25.6	12.59	209.9	38	44
	6.5	650	26.2	13.17	219.4	38	44
	7.0	700	26.2	13.72	228.7	40	46
63 ● Black	5.0	500	25.6	13.95	232.5	43	49
	5.5	550	26.2	14.52	241.9	42	49
	6.0	600	26.5	14.98	249.7	43	49
	6.5	650	26.8	15.43	257.1	43	50
	7.0	700	27.4	15.85	264.2	42	49
73 ● Orange	5.5	550	27.4	15.22	253.7	40	47
	6.0	600	27.7	15.69	261.4	41	47
	6.5	650	28.3	16.13	268.8	40	46
	7.0	700	29.0	16.55	275.8	39	46
	7.5	750	29.9	17.01	283.5	38	44

I-90-36V NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
25 ● Lt. Blue	4.0	400	20.7	5.70	94.9	13	15
	4.5	448	21.0	6.06	101.1	14	16
	5.0	496	21.6	6.42	106.9	14	16
	5.5	552	22.3	6.80	113.3	14	16
	6.0	600	22.6	7.12	118.7	14	16
	6.5	648	22.9	7.43	123.9	14	16
	7.0	696	23.5	7.73	128.9	14	16
33 ● Gray	4.0	400	21.3	6.65	110.8	15	17
	4.5	448	21.9	7.05	117.4	15	17
	5.0	496	22.6	7.43	123.7	15	17
	5.5	552	23.2	7.84	130.6	15	17
	6.0	600	23.5	8.18	136.3	15	17
	6.5	648	23.8	8.51	141.8	15	17
	7.0	696	24.4	8.83	147.1	15	17
38 ● Red	4.0	400	22.3	7.45	124.2	15	17
	4.5	448	22.9	7.89	131.4	15	17
	5.0	496	23.8	8.29	138.2	15	17
	5.5	552	24.1	8.74	145.6	15	17
	6.0	600	24.1	9.10	151.7	16	18
	6.5	648	24.4	9.46	157.6	16	18
	7.0	696	25.0	9.80	163.3	16	18
43 ● Dk. Brown	4.0	400	23.2	8.51	141.9	16	18
	4.5	448	23.8	8.99	149.9	16	18
	5.0	496	24.1	9.45	157.4	16	19
	5.5	552	25.0	9.94	165.6	16	18
	6.0	600	25.0	10.35	172.4	17	19
	6.5	648	25.3	10.74	178.9	17	19
	7.0	696	25.6	11.11	185.2	17	20
48 ● Dk. Green	5.0	496	25.0	10.69	178.1	17	20
	5.5	552	26.2	11.24	187.2	16	19
	6.0	600	26.8	11.69	194.9	16	19
	6.5	648	27.1	12.13	202.1	16	19
	7.0	696	27.4	12.55	209.2	17	19
53 ● Dk. Blue	5.0	496	25.9	11.62	193.6	17	20
	5.5	552	26.8	12.21	203.6	17	20
	6.0	600	27.1	12.71	211.8	17	20
	6.5	648	27.7	13.19	219.7	17	20
	7.0	696	28.0	13.64	227.4	17	20
63 ● Black	5.0	496	27.4	13.85	230.8	18	21
	5.5	552	28.0	14.41	240.2	18	21
	6.0	600	28.3	14.87	247.9	19	21
	6.5	648	28.7	15.31	255.2	19	22
	7.0	696	29.3	15.73	262.2	18	21
73 ● Orange	5.5	550	29.0	16.51	275.2	20	23
	6.0	600	29.3	17.05	284.1	20	23
	6.5	650	29.6	17.56	292.6	20	23
	7.0	700	30.2	18.05	300.7	20	23
	7.5	750	30.8	18.58	309.6	20	23

* Factory-installed nozzle

Notes:

Precipitation rates for ADV models are calculated for 180-degree operation. To calculate precipitation rate for 360-degree operation, divide by 2. Precipitation rates for 36V model are calculated at 360 degrees.

I-90 NOZZLES

ADV & 36V

Low-Angle
ADV & 36V**

** Low-Angle nozzles reduce radius by 15%

ST SYSTEM

Application: **Synthetic Turf Sports Fields**
Radius: **31.4 to 50.3 m**
Flow Rate: **16.9 to 74.2 m³/hr; 282.0 to 1,237 l/min**
Inlet Size: **1½" BSP, 1½" ACME & 2" BSP**

FEATURES

- Models
  - ST-90: 8 cm jar top
  - STG-900: 8 cm top service
  - ST-1600B: 13 cm top service
  - ST-1600BR: Riser mount
- Nozzle choices
  - ST-90, STG-900: 2
  - ST-1600B, ST-1600BR: 6
- Nozzle ranges
  - ST-90, STG-900: #73 to 83
  - ST-1600B, ST-1600BR: #16 to 26
- Standard installed nozzle
  - ST-90, STG-900: #73
  - ST-1600B, ST-1600BR: #20
- Arc adjustment
  - ST-90, STG-900: Through-the-top
  - ST-1600B, ST-1600BR: Movable stops
- Arc setting: 40 to 360 degrees (all models)
- Quick check arc mechanism (all models)
- Gear-drive
  - ST-90, STG-900: Water lubricated
  - ST-1600B, ST-1600BR: Isolated grease lubrication
- Ratcheting nozzle turret: ST-1600B, ST-1600BR
- Telescoping infill protection barrier: ST-1600B
- Adjustable rotation speed: ST-1600B, ST-1600BR (0 to 80 seconds, 180 degrees at 8 bar)
- Factory installed rubber logo cap (all pop-up models)
- Nozzle trajectory: 22.5 degrees (all models)
- 5-year component part warranty (all models)

OPERATING SPECIFICATIONS

- Radius: 31.4 m to 50.3 m
- Flow rate: 16.9 to 74.2 m³/hr; 282.0 to 1,237 l/min
- Operating pressure range: 6.9 to 8.3 bar; 690 to 830 kPa
- Precipitation rate: 29.4 to 71.8 mm/hr approx. (180 degrees)

USER INSTALLED OPTIONS

- Rubber Cover Kit ST-90: P/N 234200
- Rubber Cover Kit STG-900: P/N 473900

ST-90*
Overall height: 29 cm
Pop-up height: 8 cm
Diameter: 14 cm
Inlet size: 1½" BSP
** not for use with the ST Enclosure*

STG-900*
Overall height: 36 cm
Pop-up height: 8 cm
Diameter: 20 cm
Inlet size: 1½" Acme
** for use with the ST173026B Enclosure*

ST-1600B*
Overall height: 57 cm
Pop-up height: 13 cm
Diameter: 36 cm
Inlet size: 2" BSP
** for use with the ST243642B Enclosure*

ST-1600BR*
Overall height: 22 cm
Diameter: 21 cm
Inlet size: 2" BSP
** riser mounted model*

ST ROTOR MODELS

Model	Description
ST-90-B-73	8 cm pop-up, jar top cap, adjustable arc, plastic riser, BSP inlet threads, and 2 nozzles
STG-900-73	8 cm pop-up, top service, adjustable arc, plastic riser, ACME inlet threads, and 2 nozzles
ST-1600-B	13 cm pop-up, top service, adjustable arc, stainless riser, BSP inlet threads, and 6 nozzles
ST-1600-BR	Riser mount, adjustable arc, BSP inlet threads and 6 nozzles

ST SYSTEM ACCESSORIES

ST SWING JOINTS

Multi-axis 21.7 bar; 2,172 kPa rated vertical alignment PVC swing joints with seven O-ring sealed pivot points allow the rotor to be perfectly placed within the ST Vault's cover set opening.

ST2008VA - 50 mm (2") for ST-90, STG-900

Inlet: 50 mm (2") Female Slip*
Outlet: 1½" Female Acme

* Use P/N 241400 adapter to male BSP threads

ST3010VA - 80 mm (3") for ST-1600B

Inlet: 80 mm (3") Female Slip*
Outlet: 3" Female Acme

* Use P/N 477800 adapter to male BSP threads

ST VALVE SETS

Heavy-duty control valves configured to complement the ST Rotors and ST Vaults.

STVBVFK - for STG-900 in STK-2 Kit

Valve: 40 mm (1½") NPT ICV
Ball Valve: 21.7 bar (2,170 kPa) rating

Inlet: 1½" Acme
Outlet: 1½" Acme

Low Pressure Loss Design:
0.7 bar; 70 kPa at 22.7 m^3/hr; 378 l/min from swing joint inlet through to rotor

Includes: 38 mm (1½") connection fittings

STV30KB - for ST-1600B in STK-6 Kit

Valve: 80 mm (3") BSP
Opening Speed: Slow

Pressure Loss: Ultra Low
(0.15 bar; 15 kPa at 65.0 m^3/hr; 1,082 l/min from swing joint inlet through to rotor)

Manual Control: Remote On-Off-Auto Selector and Solenoid (not shown)

ST VAULTS

Heavy-duty tapered fiberglass and polymer-concrete construction with pre-cast holes for rotor and quick coupler valve.

ST173026B - for STG-900 includes 51 mm thick 3-piece PC cover set

Main Cover: 43 cm x 76 cm
Overall Height: 66 cm
Body Weight: 47 kg
Total Weight: 73 kg
Base Pad: 68 cm x 104 cm
One Quick Access Port

ST243642B - for ST-1600 includes 76 mm thick 4-piece PC cover set

Main Cover: 61 cm x 91 cm
Overall Height: 107 cm
Body Weight: 77 kg
Total Weight: 145 kg
Base Pad: 112 cm x 127 cm
Two Quick Access Ports

① Quick Coupler

All ST Vaults include convenient quick access ports. Quick-couplers provide a convenient source of water for washing down spills and water-soluable paint. Integrated in-vault design eliminates the need for additional quick-coupler enclosures.

② On-Off-Auto Selector

The ST-V30K valve kit includes a remotely located On-Off-Auto selector and solenoid manifold assembly. These convenient features bring valve manual control functions and solenoid splice connections closer to the surface for easy access.

ST SYSTEM

KIT CONFIGURATIONS

STK-1B / STK-2B COMPONENTS		
The ST Kits Descriptions For specification ease and to ensure the correct product is installed, the ST System is available in kit configurations.	**STK-1B** STG-900 Block System (remotely located valve)	**STK-2B** STG-900 VAH System (valve adjacent to head)
ST Rotor: Synthetic Turf Rotor without rubber cover kit	**STG-900**	**STG-900**
ST Vault: Vault with 3-piece polymer-concrete cover	**ST-173026B**	**ST-173026B**
ST Swing Joint: "VA" 50 mm (2") PVC Swing joint with 7 pivot points	**ST-2008VA**	**ST-2008VA**
ST Valve & Fitting Kit: ICV-151 valve, high pressure rated ball valve & fitting kit	—	**ST-VBVFK**
ST Adapter Elbow Fitting*	**239800**	**239800**
ST Rotor Adapter Fitting**	**239300**	—
Rubber Cover Kit: STG-900 Rubber Cover Kit	**473900**	**473900**
Quick Coupler Valve: 25 mm (1") inlet with 32 mm (1¼") outlet for key	**HQ5RC**	**HQ5RC**
BSP Inlet Adapter: Converts swing joint to 50 mm male BSP threads	**241400**	**241400**

Notes:
*ST Adapter Elbow Fitting connects ST-2008VA swing joint to rotor adapter fitting (STK-1B) also connects ST-VBVFK to STG-900 rotor (STK-2B)
**ST Rotor Adapter Fitting connects 239800 adapter elbow fitting to STG-900 rotor's Acme inlet (STK-1B)

STK-5B / STK-6B COMPONENTS		
The STK Kits Description For specification ease and to ensure the correct product is installed, the ST System is available in kit configurations.	**STK-5B** ST-1600 Block System (remotely located valve)	**STK-6B** ST-1600 VAH System (valve adjacent to head)
ST Rotor: Synthetic Turf Rotor	**ST-1600B**	**ST-1600B**
ST Vault: Vault with 4-piece polymer-concrete cover set	**ST-243642B**	**ST-243642B**
ST Swing Joint: 80 mm (3") PVC Swing Joint with 7 pivot points	**ST-3010VA**	**ST-3010VA**
ST Valve Sets: 80 mm (3") Valve Set with remote on-off-auto selector manifold	—	**ST-V30K**
ST Fitting Sets	**ST-F30K**	**ST-F30K**
Quick Coupler Valve: 25 mm (1") inlet with 32 mm (1¼") outlet for key	**HQ5RC**	**HQ5RC**
BSP Inlet Adapter: Converts swing joint to 80 mm male BSP threads	**477800**	**477800**

ST-1600 NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
16 ● Black	4.0	400	32.5	21.8	364	41.4	47.8
	5.0	500	35.0	24.4	406	39.8	45.9
	6.0	600	37.0	26.8	446	39.1	45.1
	7.0	700	39.0	28.9	482	38.0	43.9
	8.0	800	41.0	31.2	520	37.1	42.9
18 ● Black	4.0	400	34.0	24.3	405	42.0	48.6
	5.0	500	37.0	27.1	452	39.6	45.8
	6.0	600	39.0	29.8	496	39.1	45.2
	7.0	700	40.5	32.1	535	39.1	45.2
	8.0	800	43.0	34.8	580	37.6	43.5
20 ● Black	4.0	400	35.0	32.7	545	53.4	61.7
	5.0	500	39.0	36.5	609	48.1	55.5
	6.0	600	43.0	40.1	668	43.4	50.1
	7.0	700	44.0	43.3	721	44.7	51.6
	8.0	800	45.0	46.4	773	45.8	52.9
22 ● Black	4.0	400	36.0	38.9	649	60.1	69.4
	5.0	500	39.5	43.6	726	55.8	64.5
	6.0	600	44.0	47.7	795	49.3	56.9
	7.0	700	47.0	51.5	859	46.7	53.9
	8.0	800	48.0	55.2	920	47.9	55.3
24 ● Black	4.0	400	37.0	45.9	765	67.1	77.4
	5.0	500	40.5	51.3	855	62.6	72.2
	6.0	600	45.0	56.2	937	55.5	64.1
	7.0	700	47.5	60.7	1012	53.8	62.2
	8.0	800	48.7	65.0	1084	54.9	63.3
26*● Black	4.0	400	38.4	53.0	883	71.8	82.9
	5.0	500	41.4	59.2	986	68.8	79.5
	6.0	600	46.0	64.6	1077	61.0	70.4
	7.0	700	48.7	69.7	1162	58.6	67.7
	8.0	800	50.3	74.2	1237	58.7	67.8

* Preliminary data

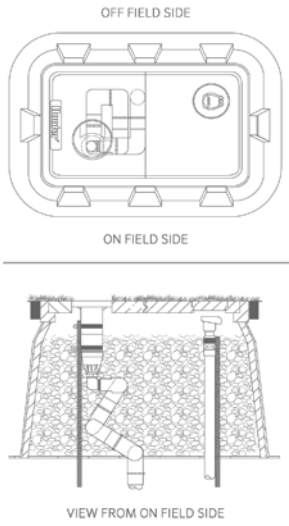
ST-90 / STG-900 NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
73 ● Orange	6.9	689	31.4	16.9	282	34.3	39.6
	7.6	758	33.2	17.5	291	31.7	36.6
	8.3	827	35.1	18.1	301	29.4	34.0
83 ● Tan	6.9	689	34.1	19.1	319	32.8	37.9
	7.6	758	35.4	20.0	333	32.0	37.0
	8.3	827	36.6	20.9	348	31.2	36.1

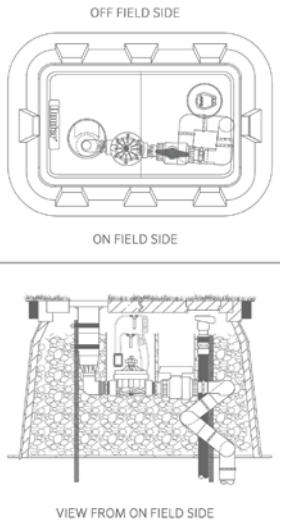
Notes:
All precipitation rates calculated for 180 degree operation.
For precipitation rate of 360 degree sprinkler divide by 2.

INSTALLATION DETAILS

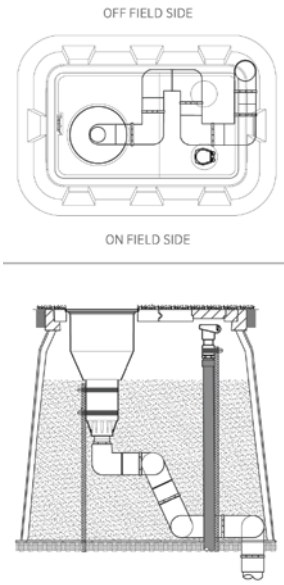
STK-1B



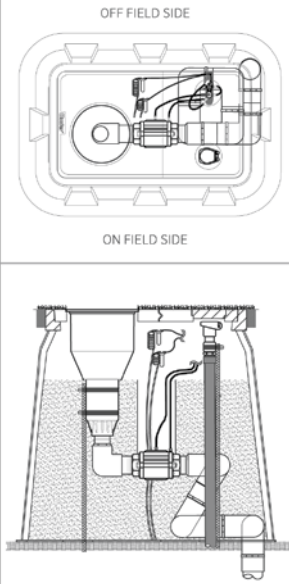
STK-2B



STK-5B



STK-6B



Simple to specify,
EASY TO INSTALL & MAINTAIN

The Hunter ST System is the first and only cost-effective integrated solution designed to exceed the unique and specific needs of the synthetic turf irrigation market. The core of the Hunter ST System features our gear-driven long-range rotors. Coupled with special multi-axis swing joints, low-pressure loss valves and robust, feature-packed enclosures, they provide the ultimate in installation flexibility and long-term total access to all irrigation components including the swing joint point of connection. Such complete access is an absolute must when the surrounding synthetic surface is not easily excavated and restored to original condition without huge expense, specialized equipment and procedures. For the most complete and highest quality synthetic turf watering solution, the answer is clearly the Hunter ST System.

Inside the ST System

Open access to all components for ease of ongoing maintenance.

From the top

Smooth and safe surface area with quick-access ports.

Seamless integration

Blends in perfectly with the surrounding synthetic surface.

TTS GOLF ROTORS

TOTAL-TOP-SERVICE (TTS): ADVANCED FEATURES

Access Everything Through the Top

The no-dig solution is appreciated by golfers, management, and especially the Superintendent.

Through-the-Top Solenoid Connections

Keeps wire splices protected in valve-box conditions with easy solenoid servicing.

Upper Snap Rings with Integrated Wiper Seal

Protects rotor's riser seal from external contamination such as top-dressing.

Pilot Valve Freeze Suppression Unit

Patented FST technology prevents freeze damage—another TTS exclusive.

Convenient Circular Flange Design

Offset riser and compartment allows quick and easy trimming around the rotor with motorized equipment.

Large and Flexible Yardage Marker Capabilities

Recessed area for placard markers; optional raised marker for popular engraved and paint-filled markers.

Unitized Inlet Valve Assembly

Easy one-step removal of rock screen, valve seat and valve assembly.

Concealed Adjustable Pressure Regulation

Stored within the flange compartment, prevents accidental adjustments.

Stainless Steel Seat in Pilot Valve

Durable and corrosion-free, helps prevent slow leaks and weeping in the rotor.

Two-Stage Filtration in Valve Circuitry

Anti-contamination filters in pilot valve and inlet valve protect critical valve-in-head passages.

Through-the-Top Servicing of On-Off-Auto Selector

Simple and inexpensive to replace, should damage occur.

Proudly Manufactured in the USA

Hunter is the only leading irrigation manufacturer making golf rotors in the United States of America.

TTS GOLF ROTORS

DECODER-IN-HEAD (DIH): ADVANCED FEATURES

Decoders Are Built Into Rotors

Perfect package to complement decoder control systems.

Access Decoders Through the Top with No Digging Required

Servicing is a breeze and there's no mess with TTS DIH rotors.

Seamless No-Splice Connection Between Decoder and Solenoid

With no connectors, maintains ongoing electrical continuity and peace of mind.

Program Decoders from the Surface with No Disassembly

Simple, fast and easy to program before or after installation.

Durability, Efficiency, and Reliability Housed in the Only TTS DIH Rotor in the Industry

Peace of mind from the #1 producer of gear-driven rotors in the world.

DIH Rotors Include All the Exclusive Features and Benefits of TTS Rotors

When you can access everything through the top, you never have to touch the turf.

Decoders Are Housed in the DIH Rotor's Unique Flange Compartment

Improves playability and eliminates hundreds of unsightly decoder enclosures course-wide.

New 2-Station DIH Rotor Option

Perfect cost-effective solution for back-to-back heads around greens.

State-of-the-Art Surge Suppression

Earth grounding is easily added with the DSG surge protector.

Individual Decoder and Solenoid Components Within Flange Compartment

Isolated configuration minimizes maintenance costs year after year and into the future.

Built Strong in the United States of America

Among the top three irrigation manufacturers, Hunter is the only one making golf rotors in the USA.

Made in the U.S.A.

G900 SERIES

Model: **G900 & G995**
Application: **Golf & Large Turf**
Radius: **22.3 to 31.7 m**
Flow Rate: **6.7 to 19.04 m³/hr; 111.7 to 317.2 l/min**

FEATURES

- Models
  - G900: Full circle
  - G995: Adjustable arc (40° to 360°)
- Quick check arc mechanism
- Dual Trajectory Nozzles
  - 8 standard trajectory (22.5°)
  - 8 low angle trajectory (15°)
- Nozzle range: #25 to #73
- Exclusive PressurePort™ nozzle technology
- Contour "back-nozzle" capability
- Water lubricated gear-drive
- ▸ All TTS Advanced Features
- ▸ All DIH Advanced Features

G990C
Pop-up height: 8 cm
Overall height: 34 cm
Flange diameter: 19 cm
Female Inlet: 1½" ACME

G995E
Pop-up height: 8 cm
Overall height: 34 cm
Flange diameter: 19 cm
Female Inlet: 1½" ACME

OPERATING SPECIFICATIONS*

- G990
  - Discharge rate: 6.93 to 18.92 m³/hr, 115.5 to 315.3 l/min
  - Radius: 22.3 to 31.4 m
  - Pressure range: 5.5 to 8.3 bar; 551 to 827 kPa
- G995
  - Discharge rate: 6.7 to 19.04 m³/hr, 111.7 to 317.2 l/min
  - Radius: 22.9 to 31.7 m
  - Pressure range: 5.5 to 8.3 bar; 551 to 827 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally Open Hydraulic with through-the-top connections
- D – Decoder-in-Head with all "E" specifications below
- DD – 2-Station Decoder-in-Head with all "E" specifications below
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (370 mA inrush) solenoid with captive plunger and internal downstream bleed

▸ = Advanced Feature detailed descriptions on pages 41 and 42
** = All TTS rotors pressure rated at 10 bar; 1,000 kPa*

G900 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G990 = Full circle	**C** = Check-O-Matic* **D** = Decoder Valve-in-Head** **DD** = 2-Station Decoder Valve-in-Head** **E** = Electric Valve-in-Head**	**25 to 73** = Installed G990 Nozzle*	**P8** = 80 PSI **P1** = 100 PSI **P2** = 120 PSI	**S** = SSU*
G995 = Adjustable Arc 40 - 360°	**C** = Check-O-Matic* **D** = Decoder Valve-in-Head** **DD** = 2-Station Decoder Valve-in-Head** **E** = Electric Valve-in-Head	**25 to 73** = Installed G995 Nozzle*	**P8** = 80 PSI **P1** = 100 PSI **P2** = 120 PSI	**S** = SSU*
	** Converts to N.O. Hydraulic Valve-in-Head* *** SSU Configuration Only*	** SSU = #25 or #53*	** SSU = P8*	** Standard Stocking Unit*

Examples:
G990E - 53 - P8 - S = G990 full-circle electric valve-in-head, installed #53 nozzle, 80 PSI regulation, standard stocking unit model

G990 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure Bar	Pressure kPa	Radius** m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	551	22.3	6.93	115.2	14.0	16.2
	6.2	620	22.9	7.36	122.6	14.1	16.3
	6.9	689	23.2	7.79	129.8	14.5	16.8
	7.6	758	23.8	8.29	138.2	14.7	16.9
	8.3	827	24.1	8.72	145.4	15.0	17.4
33 Gray	5.5	551	23.5	8.25	137.4	15.0	17.3
	6.2	620	23.8	8.72	145.4	15.4	17.8
	6.9	689	24.4	9.22	153.7	15.5	17.9
	7.6	758	24.7	9.70	161.6	15.9	18.4
	8.3	827	25.0	10.20	170.0	16.3	18.9
38 Red	5.5	551	24.4	9.22	153.7	15.5	17.9
	6.2	620	25.0	9.75	162.4	15.6	18.0
	6.9	689	25.3	10.29	171.4	16.1	18.6
	7.6	758	25.9	10.84	180.6	16.1	18.6
	8.3	827	26.2	11.40	190.0	16.6	19.2
43 Dk. Brown	5.5	551	25.3	10.49	174.9	16.4	18.9
	6.2	620	25.6	11.04	184.0	16.8	19.4
	6.9	689	25.9	11.56	192.7	17.2	19.9
	7.6	758	26.2	12.13	202.1	17.7	20.4
	8.3	827	26.5	12.70	211.6	18.1	20.8
48 Dk. Green	5.5	551	26.2	11.27	187.8	16.4	18.9
	6.2	620	27.1	11.93	198.7	16.2	18.7
	6.9	689	27.4	12.45	207.4	16.5	19.1
	7.6	758	27.7	13.02	216.9	16.9	19.5
	8.3	827	28.0	13.52	225.2	17.2	19.8
53 Dk. Blue	5.5	551	27.1	12.31	205.2	16.7	19.3
	6.2	620	27.4	12.88	214.6	17.1	19.8
	6.9	689	28.0	13.45	224.1	17.1	19.7
	7.6	758	28.3	14.02	233.6	17.4	20.1
	8.3	827	28.7	14.58	243.0	17.8	20.5
63 Black	5.5	551	28.0	14.36	23.92	18.3	21.1
	6.2	620	28.7	14.97	249.5	18.2	21.1
	6.9	689	29.3	15.76	265.7	18.4	21.3
	7.6	758	29.6	16.36	272.5	18.7	21.6
	8.3	827	29.9	17.01	283.5	19.1	22.0
73 Orange	5.5	551	29.3	16.38	272.9	19.1	22.1
	6.2	620	29.9	17.04	283.9	19.1	22.0
	6.9	689	30.2	17.67	297.5	19.4	22.4
	7.6	758	31.1	18.29	304.7	18.9	21.8
	8.3	827	31.4	18.92	315.3	19.2	22.2

* Complies to ASAE standard. All precipitation rates calculated for 360˚ operation. All triangular rates are equilateral. Preliminary performance.

G995 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure Bar	Pressure kPa	Radius** m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	551	22.9	6.70	111.7	12.8	14.8
	6.2	620	23.2	7.16	119.2	13.3	15.4
	6.9	689	23.5	7.54	125.7	13.7	15.8
	7.6	758	23.8	8.09	134.8	14.3	16.5
	8.3	827	24.1	8.52	142.0	14.7	17.0
33 Gray	5.5	551	23.5	8.22	137.0	14.9	17.2
	6.2	620	23.8	8.68	144.6	15.4	17.7
	6.9	689	24.1	9.18	152.9	15.8	18.3
	7.6	758	27.4	9.68	161.3	15.9	18.3
	8.3	827	25.0	10.18	169.6	16.3	18.8
38 Red	5.5	551	24.4	9.22	153.7	15.5	17.9
	6.2	620	25.0	9.77	162.8	15.6	18.1
	6.9	689	25.6	10.31	171.9	15.7	18.2
	7.6	758	25.9	10.81	180.2	16.1	18.6
	8.3	827	26.2	11.36	189.3	16.5	19.1
43 Dk. Brown	5.5	551	25.6	10.47	174.5	16.0	18.4
	6.2	620	25.9	11.02	183.6	16.4	19.0
	6.9	689	25.9	11.52	191.9	17.2	19.8
	7.6	758	26.2	12.13	202.1	17.7	20.4
	8.3	827	26.5	12.65	210.8	18.0	20.8
48 Dk. Green	5.5	551	26.8	11.40	190.0	15.8	18.3
	6.2	620	27.1	11.95	199.1	16.2	18.7
	6.9	689	27.4	12.52	208.6	16.6	19.2
	7.6	758	28.0	13.06	217.7	16.6	19.2
	8.3	827	28.0	13.74	229.0	17.5	20.2
53 Dk. Blue	5.5	551	27.7	12.47	207.8	16.2	18.7
	6.2	620	27.7	12.99	216.5	16.9	19.5
	6.9	689	28.0	13.52	225.2	17.2	19.8
	7.6	758	28.3	14.11	235.1	17.6	20.3
	8.3	827	28.0	14.63	243.8	18.6	21.5
63 Black	5.5	551	28.3	14.15	235.8	17.6	20.3
	6.2	620	28.7	14.88	247.9	18.1	20.9
	6.9	689	29.0	15.67	261.2	18.7	21.6
	7.6	758	29.3	16.33	272.2	19.1	22.0
	8.3	827	29.9	16.97	282.8	19.0	22.0
73 Orange	5.5	551	29.3	16.51	275.2	19.3	22.3
	6.2	620	29.9	17.13	285.4	19.2	22.2
	6.9	689	30.5	17.74	295.6	19.1	22.0
	7.6	758	31.1	18.38	306.2	19.0	22.0
	8.3	827	31.7	19.04	317.2	18.9	21.9

* Complies to ASAE standard. All precipitation rates calculated for 360˚ operation. All triangular rates are equilateral. Preliminary performance.

G900 NOZZLES

G990 & G995

Low-Angle G990 & G995**

** Low angle nozzles reduce radius by 15%

New Contour "Back-Nozzle" Capabilities

Choose any nozzle from the PGP, I-40, and G70 nozzle racks, or from the short and mid-range G900 nozzles.

G800 SERIES

Model: **G880**
Application: **Golf & Large Turf**
Radius: **20.4 to 26.8 m**
Flow Rate: **5.11 to 13.15 m³/hr; 85.2 to 219.2 l/min**

FEATURES

- Models
  - G880: Full circle
- Nozzle choices: 6 standard trajectory (25°)
- Nozzle range: #25 to #53
- Exclusive PressurePort™ nozzle technology
- Water lubricated gear-drive
- ▸ All TTS Advanced Features
- ▸ All DIH Advanced Features

OPERATING SPECIFICATIONS*

- Discharge rate: 5.11 to 13.15 m³/hr, 85.2 to 219.2 l/min
- Radius: 20.4 to 26.8 m
- Pressure range: 4.5 to 6.9 bar; 450 to 689 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally Open Hydraulic with through-the-top connections
- D – Decoder-in-Head with all "E" specifications below
- DD – 2-Station Decoder-in-Head with all "E" specifications below
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (370 mA inrush) solenoid with captive plunger and internal downstream bleed

▸ = Advanced Feature detailed descriptions on pages 41 and 42
** = All TTS rotors pressure rated at 10 bar; 1,000 kPa*

G880C
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G880E
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G880 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G880 = Full circle	**C** = Check-O-Matic*	**25 to 53** = Installed G880 Nozzle*	**P6** = 65 PSI	**S** = SSU*
	D = Decoder Valve-in-Head**		**P8** = 80 PSI	
	DD = 2-Station Decoder Valve-in-Head**			
	E = Electric Valve-in-Head			
	** Converts to N.O. Hydraulic Valve-in-Head* *** SSU Configuration Only*	** SSU = #25 or #48*	** SSU = P8*	** Standard Stocking Unit*

Examples:
G880E - 48 - P8 - S = G880 full-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G880 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	(m)	m³/hr	l/min	■	▲
25 Lt. Blue	4.5	450	20.4	5.11	85.2	12.3	14.1
	4.8	482	21.0	5.43	90.5	12.3	14.2
	5.5	551	21.6	5.91	98.4	12.6	14.6
	6.2	620	21.9	6.34	105.6	13.2	15.2
	6.9	689	22.3	6.77	112.8	13.7	15.8
33 Gray	4.5	450	22.3	7.04	117.3	14.2	16.4
	4.8	482	22.6	7.31	121.9	14.4	16.6
	5.5	551	23.2	7.88	131.4	14.7	17.0
	6.2	620	23.5	8.40	140.1	15.3	17.6
	6.9	689	23.8	8.81	146.9	15.6	18.0
38 Red	4.5	450	23.2	7.97	132.9	14.9	17.2
	4.8	482	23.5	8.25	137.4	15.0	17.3
	5.5	551	24.1	8.75	145.7	15.1	17.4
	6.2	620	24.4	9.20	153.3	15.5	17.9
	6.9	689	24.7	9.75	162.4	16.0	18.5
43 Dk. Brown	4.5	450	23.8	8.90	148.4	15.8	18.2
	4.8	482	24.1	9.27	154.4	16.0	18.5
	5.5	551	25.0	9.93	165.4	15.9	18.3
	6.2	620	25.3	10.56	176.0	16.5	19.1
	6.9	689	26.5	11.09	184.7	16.9	19.5
48 Dk. Green	4.5	450	25.0	9.95	165.8	15.9	18.4
	4.8	482	25.3	10.52	175.3	16.4	19.0
	5.5	551	25.9	11.13	185.5	16.6	19.1
	6.2	620	26.2	11.79	196.5	17.2	19.8
	6.9	689	26.5	12.36	205.9	17.6	20.3
53 Dk. Blue	4.5	450	25.3	10.65	177.5	16.6	19.2
	4.8	482	25.6	11.15	185.9	17.0	19.6
	5.5	551	26.5	11.95	199.1	17.0	19.6
	6.2	620	26.8	12.45	207.4	17.3	20.0
	6.9	689	26.8	13.15	219.2	18.3	21.1

* Complies to ASAE standard. All precipitation rates calculated for 360˚ operation. All triangular rates are equilateral.

G880 NOZZLES

TTS Equals Convenience and Versatility

With TTS, every serviceable component of the rotor can be easily accessed anytime with no servicing mess whatsoever.

G800 SERIES

Model: **G870 & G875**
Application: **Golf & Large Turf**
Radius: **14.3 to 22.9 m**
Flow Rate: **1.75 to 7.77 m³/hr, 29.1 to 127.6 l/min**

FEATURES

- Models
  - G870: Full circle
  - G875: Full circle/Part circle (50° to 360°)
- QuickSet-360 arc mechanism (G875)
- Nozzle choices
  - G870: 6 standard trajectory (25°)
  - G875: 9 standard trajectory (25°)
- Nozzle range
  - #15 to #28 (G870)
  - #8 to #28 (G875)
- Exclusive PressurePort™ nozzle technology
- Water lubricated gear-drive
- ▸ All TTS Advanced Features
- ▸ All DIH Advanced Features

G870C
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G875E
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

OPERATING SPECIFICATIONS*

- G870
  - Discharge rate: 2.95 to 7.66 m³/hr, 49.2 to 127.6 l/min
  - Radius: 16.2 to 22.9 m
  - Pressure range: 3.4 to 6.9 bars; 344 to 689 kPa
- G875
  - Discharge rate: 1.75 to 7.34 m³/hr, 29.1 to 122.3 l/min
  - Radius: 14.3 to 21.6 m
  - Pressure range: 2.8 to 6.9 bars; 344 to 689 kPa)

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D – Decoder-In-Head with all "E" specifications below
- DD – 2-Station Decoder-in-Head with all "E" specifications below
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (370 mA inrush) solenoid with captive plunger and internal downstream bleed

▸ = Advanced Feature detailed descriptions on pages 41 and 42
** = All TTS rotors pressure rated at 10 bars; 1,000 kPa*

G870 & G875 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G870 = Full circle	**C** = Check-O-Matic* **D** = Decoder Valve-in-Head** **DD** = 2-Station Decoder Valve-in-Head** **E** = Electric Valve-in-Head	**15 to 28** = Installed G870 Nozzle*	**P6** = 65 PSI **P8** = 80 PSI	**S** = SSU*
G875 = Full/Part circle 50 to 360°	**C** = Check-O-Matic* **D** = Decoder Valve-in-Head** **DD** = 2-Station Decoder Valve-in-Head** **E** = Electric Valve-in-Head	**8 to 28** = Installed G875 Nozzle*	**P6** = 65 PSI **P8** = 80 PSI	**S** = SSU*
	** Converts to N.O. Hydraulic Valve-in-Head* *** SSU Configuration Only*	** SSU = #23 or #25*	** SSU = P6/#23; SSU = P8/#25*	** Standard Stocking Unit*

Examples:
G870E - 25 - P8 - S = G870 full-circle electric valve-in-head, installed #25 nozzle, 80 PSI regulation, standard stocking unit model

G870 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure Bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
15 ● Gray	3.4	344	16.2	2.95	49.2	11.3	13.1
	4.1	413	16.5	3.20	53.4	11.8	13.7
	4.5	450	16.8	3.36	56.0	12.0	13.8
	4.8	482	17.1	3.52	58.7	12.1	14.0
	5.5	551	17.7	3.70	61.7	11.8	13.7
18 ● Red	3.4	344	17.7	3.23	53.8	10.3	11.9
	4.1	413	18.0	3.61	60.2	11.2	12.9
	4.5	450	18.3	3.70	61.7	11.1	12.8
	4.8	482	18.3	3.84	64.0	11.5	13.3
	5.5	551	18.6	4.04	67.4	11.7	13.5
20 ● Dk. Brown	3.4	413	18.6	4.27	71.2	12.4	14.3
	4.1	450	18.9	4.45	74.2	12.5	14.4
	4.5	482	19.2	4.66	77.6	12.6	14.6
	4.8	551	19.5	5.00	83.3	13.1	15.2
	5.5	620	19.5	5.32	88.6	14.0	16.1
23 ● Dk. Green	3.4	413	19.2	4.57	76.1	12.4	14.3
	4.1	450	19.8	4.77	79.5	12.2	14.0
	4.5	482	19.8	4.97	82.9	12.7	14.6
	4.8	551	20.1	5.32	88.6	13.1	15.2
	5.5	620	20.4	5.66	94.3	13.6	15.7
25 ● Dk. Blue	3.4	413	19.8	4.95	82.5	12.6	14.6
	4.1	450	20.4	5.11	85.2	12.3	14.1
	4.5	482	20.4	5.36	89.3	12.9	14.8
	4.8	551	21.0	5.75	95.8	13.0	15.0
	5.5	620	21.6	6.11	101.8	13.0	15.1
28 ● Black	4.8	482	21.6	6.38	106.4	13.6	15.7
	5.5	551	21.6	6.79	113.2	14.5	16.7
	6.2	620	22.3	7.22	120.4	14.6	16.8
	6.9	689	22.9	7.66	127.6	14.6	16.9

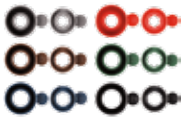
* Complies to ASAE standard. All precipitation rates calculated for 360˚ operation. All triangular rates are equilateral.

G875 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure Bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
8 ● Lt. Brown	2.8	275	14.3	1.75	29.1	8.5	9.8
	3.4	344	14.9	1.89	31.4	8.5	9.8
	4.1	413	15.2	2.09	34.8	9.0	10.4
	4.5	450	15.2	2.16	36.0	9.3	10.7
	4.8	482	15.5	2.25	37.5	9.3	10.7
10 ● Lt. Green	3.4	344	16.2	2.48	41.3	9.5	11.0
	4.1	413	16.5	2.73	45.4	10.1	11.6
	4.5	450	16.5	2.84	47.3	10.5	12.1
	4.8	482	16.8	2.98	49.6	10.6	12.2
	5.5	551	17.1	3.25	54.1	11.1	12.9
13 ● Lt. Blue	3.4	344	16.8	2.54	42.4	9.1	10.5
	4.1	413	17.1	2.79	46.6	9.6	11.1
	4.5	450	17.1	2.91	48.5	10.0	11.5
	4.8	482	17.4	3.02	50.3	10.0	11.6
	5.5	551	17.4	3.25	54.1	10.8	12.4
15 ● Gray	3.4	344	17.4	3.04	50.7	10.1	11.6
	4.1	413	17.7	3.25	54.1	10.4	12.0
	4.5	450	18.0	3.36	56.0	10.4	12.0
	4.8	482	18.0	3.48	57.9	10.7	12.4
	5.5	551	18.3	3.73	62.1	11.2	12.9
18 ● Red	3.4	344	18.3	3.29	54.9	9.8	11.4
	4.1	413	18.6	3.57	59.4	10.3	11.9
	4.5	450	18.6	3.70	61.7	10.7	12.4
	4.8	482	18.9	3.84	64.0	10.7	12.4
	5.5	551	19.2	4.13	68.9	11.2	12.9
20 ● Dk. Brown	4.1	413	18.9	4.04	67.4	11.3	13.1
	4.5	450	18.9	4.13	68.9	11.6	13.4
	4.8	482	19.2	4.36	72.7	11.8	13.7
	5.5	551	19.5	4.66	77.6	12.2	14.1
	6.2	620	19.8	4.95	82.5	12.6	14.6
23 ● Dk. Green	4.1	413	19.5	4.97	82.9	13.1	15.1
	4.5	450	19.8	4.86	81.0	12.4	14.3
	4.8	482	19.8	5.36	89.3	13.7	15.8
	5.5	551	20.1	5.82	96.9	14.4	16.6
	6.2	620	20.4	6.13	102.2	14.7	17.0
25 ● Dk. Blue	4.1	413	19.8	5.34	89.0	13.6	15.7
	4.5	450	19.8	5.63	93.9	14.4	16.6
	4.8	482	20.4	5.82	96.9	13.9	16.1
	5.5	551	21.0	6.20	103.3	14.0	16.2
	6.2	620	21.6	6.59	109.8	14.1	16.2
28 ● Black	4.8	482	20.1	6.11	101.8	15.1	17.4
	5.5	551	20.7	6.56	109.4	15.3	17.6
	6.2	620	21.3	6.95	115.8	15.3	17.6
	6.9	689	21.6	7.34	122.3	15.7	18.1

* Complies to ASAE standard. All precipitation rates calculated for 360˚ operation. All triangular rates are equilateral.

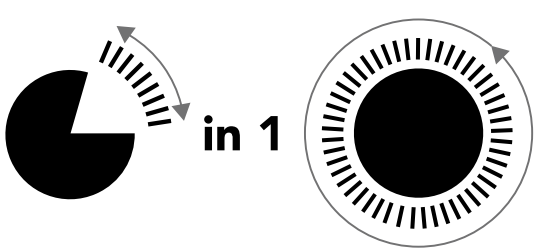
G870 & G875 NOZZLES



G870

G875

ROTORS



QuickSet-360

With Hunter's quick check arc mechanism and patented QuickSet-360 non-reversing full-circle feature in a variable arc rotor, adjustments are fast, easy and more flexible than ever before. Now available on 35 Series and 75 Series rotors.

SPRAYS

Comparison Chart

	PS ULTRA	PRO-SPRAY®	PRS30	PRS40
APPLICATIONS				
Turfgrass	•	•	•	•
Turfgrass: Tall mowing height	•	•	•	•
Ground cover	•	•	•	•
Shrubs: Sprinklers on risers	•	•	•	•
Shrubs: Tall pop-up sprinklers		•	•	•
Residential	•	•	•	•
Commercial		•	•	•
High traffic areas		•	•	•
Reclaimed water		•	•	•
Field-installed check valve options	•	•	•	•
Factory-installed check valve options		•	•	•
Pressure regulation			•	•


CHECK VALVE
PRO-SPEC

SPRAYS

ADVANCED FEATURES

Co-Molded Wiper Seal

This pressure-activated, multi-function wiper seal was designed to reduce flow-by. The zero flush seal operates at low pressures and allows more sprinkler heads on the same zone. The wiper seal's design protects the riser when operating, and keeps debris out of the seal when retracted, reducing riser stick-ups.

Pro-Spray Check Valve

Optional check valves eliminate leaks and puddles at the lower heads, protecting landscapes from damage and erosion while reducing water waste. Choose from the convenience of factory-installed check valves or the flexibility of field installation.

Heavy-Duty Spring

The strongest retraction spring for positive retraction under any conditions.

Pressure Regulated to 30 & 40 PSI

Hunter's pressure regulated pop-up sprays are calibrated for the needs of any installation. The PRS30 with the brown cap optimizes performance of your traditional sprays at 2.1 bar (30 PSI). The grey-capped 2.8 bar (PRS40) is designed for the efficient MP Rotator and is the only 40 PSI regulated pop-up on the market today.

Body Cap Won't Leak Under High Pressure

The Pro-Spray line incorporates a heavy-duty ribbed body and durable cap engineered to withstand the harshest environments, including the rigors of foot traffic and the abuses of heavy machinery. In addition, a multi-thread buttress design provides superior strength in cap-to-body gripping capacity helping the head to withstand high inlet surge pressures.

Competitor *Pro-Spray*

PS ULTRA

Application: **Residential**
Size: **5 cm, 10 cm, 15 cm**

FEATURES

- Application: Residential
- Models: 5 cm, 10 cm, 15 cm
- Nozzle choices: 5
- Flow rate: 0.04 to 1.22 m³/hr
- Nozzle choices: 3.0 m, 3.7 m, 4.6 m, 5.2 m, 1.5 x 9.1 m side strip (side strip pattern available on 5 and 10 cm models only)
- Preinstalled Pro Adjustable nozzle
- Enhanced cap for more durability, easier handling, and extended riser seal life
- 5 cm and 10 cm models can retro-fit into older style PS sprays
- Two-piece ratchet
- Male threaded riser to accept all female nozzles
- Available with flush plug (large filter screen not included)
- Extra large filter screen
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Flow rate: 0.63 to 20.4 l/hr
- Radius: 2.5 to 9.1 m
- Recommended pressure range: 1.4 to 4.8 bar; 140 to 480 kPa
- Precipitation rates: 43 mm/hr approx.

FACTORY INSTALLED OPTIONS

- Nozzles: 3.0 m, 3.7 m, 4.6 m, 5.2 m, 1.5 X 9.1 m side strip
- Flush plug (large filter screen not included)

USER INSTALLED OPTIONS

- Drain check valve: 10 cm and 15 cm models (up to 2 m of elevation; P/N 462237)
- Large basket filter screen (replacement; P/N 162900)

PS ULTRA – SPECIFICATION BUILDER: ORDER 1 + 2

1 Models	2 Radius
PSU-02 = 5 cm (2") Pop-up	**(blank)** = No option
PSU-04 = 10 cm (4") Pop-up	**10A** = 3.0 m (10') adjustable nozzle
PSU-06 = 15 cm (6") Pop-up	**12A** = 3.7 m (12') adjustable nozzle
	15A = 4.6 m (15') adjustable nozzle
	17A = 5.2 m (17') adjustable nozzle
	5SS = 1.5 m x 9.0 m (5' x 30') side strip *(5 cm and 10 cm only)*

Examples:
PSU-04 - 15A = 10 cm pop-up, with a 4.6 m adjustable nozzle
PSU-02 - 5SS = 5 cm pop-up, with a 1.5 m x 9.0 m side strip
PSU-06 - 10A = 15 cm pop-up, with a 3.0 m adjustable nozzle
PSU-04 = 10 cm pop-up, with flush plug, large filter screen not included

PSU02
Overall height: 12.7 cm
Pop-up height: 5 cm
Exposed diameter: 3 cm
Inlet size: ½" Female NPT

PSU04
Overall height: 18.4 cm
Pop-up height: 10 cm
Exposed diameter: 3 cm
Inlet size: ½" Female NPT

PSU06
Overall height: 24.1 cm
Pop-up height: 15 cm
Exposed diameter: 3 cm
Inlet size: ½" Female NPT

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

Nozzle 10A Red
3.0 m radius
Adjustable from 0° to 360°
Trajectory: 15°

Nozzle 12A Green
3.7 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Arc	Pressure		Nozzle 10A Red					Nozzle 12A Green				
			Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	2.1	0.04	0.63	68	79	2.7	0.05	0.81	53	61
	1.5	150	2.4	0.05	0.79	66	76	3.2	0.06	1.01	47	55
	2.0	**200**	**3.0**	**0.06**	**0.92**	**49**	**57**	**3.7**	**0.07**	**1.18**	**42**	**48**
	2.1	210	3.3	0.06	0.95	42	48	4.0	0.07	1.22	36	42
	2.5	250	3.5	0.06	1.04	41	47	4.2	0.08	1.34	36	42
90°	1.0	100	2.1	0.08	1.26	68	79	2.7	0.10	1.62	53	61
	1.5	150	2.4	0.09	1.57	66	76	3.2	0.12	2.02	47	55
	2.0	**200**	**3.0**	**0.11**	**1.84**	**49**	**57**	**3.7**	**0.14**	**2.37**	**42**	**48**
	2.1	210	3.3	0.11	1.89	42	48	4.0	0.15	2.43	36	42
	2.5	250	3.5	0.12	2.08	41	47	4.2	0.16	2.68	36	42
120°	1.0	100	2.1	0.10	1.68	68	79	2.7	0.13	2.16	53	61
	1.5	150	2.4	0.13	2.10	66	76	3.2	0.16	2.70	47	55
	2.0	**200**	**3.0**	**0.15**	**2.46**	**49**	**57**	**3.7**	**0.19**	**3.16**	**42**	**48**
	2.1	210	3.3	0.15	2.52	42	48	4.0	0.19	3.24	36	42
	2.5	250	3.5	0.17	2.78	41	47	4.2	0.21	3.57	36	42
180°	1.0	100	2.1	0.15	2.52	68	79	2.7	0.19	3.23	53	61
	1.5	150	2.4	0.19	3.14	66	76	3.2	0.24	4.04	47	55
	2.0	**200**	**3.0**	**0.22**	**3.68**	**49**	**57**	**3.7**	**0.28**	**4.74**	**42**	**48**
	2.1	210	3.3	0.23	3.78	42	48	4.0	0.29	4.86	36	42
	2.5	250	3.5	0.25	4.16	41	47	4.2	0.32	5.35	36	42
240°	1.0	100	2.1	0.20	3.35	68	79	2.7	0.26	4.31	53	61
	1.5	150	2.4	0.25	4.19	66	76	3.2	0.32	5.39	47	55
	2.0	**200**	**3.0**	**0.29**	**4.91**	**49**	**57**	**3.7**	**0.38**	**6.31**	**42**	**48**
	2.1	210	3.3	0.30	5.04	42	48	4.0	0.39	6.49	36	42
	2.5	250	3.5	0.33	5.55	41	47	4.2	0.43	7.14	36	42
270°	1.0	100	2.1	0.23	3.77	68	79	2.7	0.29	4.85	53	61
	1.5	150	2.4	0.28	4.72	66	76	3.2	0.36	6.06	47	55
	2.0	**200**	**3.0**	**0.33**	**5.52**	**49**	**57**	**3.7**	**0.43**	**7.10**	**42**	**48**
	2.1	210	3.3	0.34	5.68	42	48	4.0	0.44	7.30	36	42
	2.5	250	3.5	0.37	6.25	41	47	4.2	0.48	8.03	36	42
360°	1.0	100	2.1	0.30	5.03	68	79	2.7	0.39	6.47	53	61
	1.5	150	2.4	0.38	6.29	66	76	3.2	0.49	8.09	47	55
	2.0	**200**	**3.0**	**0.44**	**7.37**	**49**	**57**	**3.7**	**0.57**	**9.47**	**42**	**48**
	2.1	210	3.3	0.45	7.57	42	48	4.0	0.58	9.73	36	42
	2.5	250	3.5	0.50	8.33	41	47	4.2	0.64	10.71	36	42

Bold = Recommended pressure

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

● Nozzle 15A Black
4.6 m radius
Adjustable from 0° to 360°
Trajectory: 28°

● Nozzle 17A Gray
5.2 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Arc	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	3.4	0.07	1.19	50	57	4.7	0.09	1.54	33	39
	1.5	150	3.9	0.09	1.49	47	54	4.9	0.12	1.93	38	44
	2.0	**200**	**4.6**	**0.10**	**1.75**	**40**	**46**	**5.2**	**0.14**	**2.26**	**40**	**46**
	2.1	210	4.9	0.11	1.80	36	41	5.5	0.14	2.32	37	42
	2.5	250	5.2	0.12	1.98	35	40	5.7	0.15	2.55	38	43
90°	1.0	100	3.4	0.14	2.39	50	57	4.7	0.18	3.08	33	39
	1.5	150	3.9	0.18	2.98	47	54	4.9	0.23	3.85	38	44
	2.0	**200**	**4.6**	**0.21**	**3.50**	**40**	**46**	**5.2**	**0.27**	**4.51**	**40**	**46**
	2.1	210	4.9	0.22	3.59	36	41	5.5	0.28	4.63	37	42
	2.5	250	5.2	0.24	3.95	35	40	5.7	0.31	5.10	38	43
120°	1.0	100	3.4	0.19	3.18	50	57	4.7	0.25	4.11	33	39
	1.5	150	3.9	0.24	3.98	47	54	4.9	0.31	5.13	38	44
	2.0	**200**	**4.6**	**0.28**	**4.66**	**40**	**46**	**5.2**	**0.36**	**6.01**	**40**	**46**
	2.1	210	4.9	0.29	4.79	36	41	5.5	0.37	6.18	37	42
	2.5	250	5.2	0.32	5.27	35	40	5.7	0.41	6.8	38	43
180°	1.0	100	3.4	0.29	4.77	50	57	4.7	0.37	6.16	33	39
	1.5	150	3.9	0.36	5.97	47	54	4.9	0.46	7.70	38	44
	2.0	**200**	**4.6**	**0.42**	**6.99**	**40**	**46**	**5.2**	**0.54**	**9.02**	**40**	**46**
	2.1	210	4.9	0.43	7.18	36	41	5.5	0.56	9.27	37	42
	2.5	250	5.2	0.47	7.90	35	40	5.7	0.61	10.20	38	43
240°	1.0	100	3.4	0.38	6.37	50	57	4.7	0.49	8.21	33	39
	1.5	150	3.9	0.48	7.96	47	54	4.9	0.62	10.27	38	44
	2.0	**200**	**4.6**	**0.56**	**9.32**	**40**	**46**	**5.2**	**0.72**	**12.03**	**40**	**46**
	2.1	210	4.9	0.57	9.57	36	41	5.5	0.74	12.35	37	42
	2.5	250	5.2	0.63	10.54	35	40	5.7	0.82	13.60	38	43
270°	1.0	100	3.4	0.43	7.16	50	57	4.7	0.55	9.24	33	39
	1.5	150	3.9	0.54	8.95	47	54	4.9	0.69	11.55	38	44
	2.0	**200**	**4.6**	**0.63**	**10.49**	**40**	**46**	**5.2**	**0.81**	**13.53**	**40**	**46**
	2.1	210	4.9	0.65	10.77	36	41	5.5	0.83	13.90	37	42
	2.5	250	5.2	0.71	11.86	35	40	5.7	0.92	15.30	38	43
360°	1.0	100	3.4	0.57	9.55	50	57	4.7	0.74	12.32	33	39
	1.5	150	3.9	0.72	11.94	47	54	4.9	0.92	15.40	38	44
	2.0	**200**	**4.6**	**0.84**	**13.98**	**40**	**46**	**5.2**	**1.08**	**18.04**	**40**	**46**
	2.1	210	4.9	0.86	14.36	36	41	5.5	1.11	18.53	37	42
	2.5	250	5.2	0.95	15.81	35	40	5.7	1.22	20.40	38	43

Bold = Recommended pressure

STRIP PATTERN NOZZLE PERFORMANCE DATA

Nozzle Model	Pressure		Width x Length	Flow	
	Bar	kPa	m	m³/hr	l/min
SS-530	1.0	100	2.2 x 8.5	0.21	3.5
	1.5	150	2.4 x 8.5	0.25	4.2
	2.0	**200**	**1.5 x 9.0**	**0.29**	**4.9**
	2.1	210	1.5 x 9.0	0.30	5.0
	2.5	250	1.5 x 9.0	0.33	5.5

Bold = Recommended pressure

PRO-SPRAY®

Application: **Residential/Commercial**
Models: **Shrub, 5 cm, 7.5 cm, 10 cm, 15 cm, 30 cm**

FEATURES

- Application: Residential/Commercial
- Models: Shrub, 5 cm, 7.5 cm, 10 cm, 15 cm, 30 cm
- Compatible with all female threaded nozzles
- No side inlet (NSI) version available in 15 cm and 30 cm
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Body cap won't leak under high pressure
- ▸ Heavy-duty spring

OPERATING SPECIFICATIONS

- Recommended pressure range: 1.0 to 7.0 bar; 100 to 700 kPa

FACTORY INSTALLED OPTIONS

- Drain check valve (up to 3 m of elevation)
- Check valve available on 10 cm, 15 cm, 30 cm
- Reclaimed water ID cap

USER INSTALLED OPTIONS

- Drain check valve (up to 3 m of elevation; P/N 437400)
- Reclaimed water ID cap (P/N 458520)
- Snap-on reclaimed cover (P/N PROSRCCAP)

▸ = *Advanced Feature descriptions on page 52*

Pro-Spray Reclaimed
Pro-Spray models come with optional factory-installed purple reclaimed caps.

Related Solutions: Works Best With
Pro-Spray works best with MP Rotator, Pro-Spray Fixed Arc Nozzles and Pro Adjustable Nozzles.

PROS-00
Overall height: 4 cm
Inlet size: ½" Female NPT

PROS-02
Overall height: 10 cm
Pop-up height: 5 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PROS-03
Overall height: 12.5 cm
Pop-up height: 8 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PROS-04
Overall height: 15.5 cm
Pop-up height: 10 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

A] **PROS-06**
B] **PROS-06-NSI**
Overall height: 22.5 cm
Pop-up height: 15 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

A] **PROS-12**
B] **PROS-12-NSI**
Overall height: 41 cm
Pop-up height: 30 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PRO-SPRAY® – SPECIFICATION BUILDER: ORDER 1 + 2

1 Models	2 Options
PROS-00 = Shrub Adapter	**(blank)** = No option
PROS-02 = 5 cm (2") Pop-up	**CV** = Factory-installed drain check valve *(Pop-up models only, 15 cm and 30 cm modelsordered as CV will come as no side inlet)*
PROS-03 = 7.5 cm (3") Pop-up	**CV-R** = Factory-installed reclaimed body cap *(Shrub molded in purple)*
PROS-04 = 10 cm (4") Pop-up	
PROS-06 = 15 cm (6") Pop-up	
PROS-06-NSI = 15 cm (6") Pop-up (no side inlet)	
PROS-12 = 30 cm (12") Pop-up	
PROS-12-NSI = 30 cm (12") Pop-up (no side inlet)	

Examples:
PROS-04 - 10A = 10 cm pop-up, and 14.6 m adjustable nozzle
PROS-06 - CV - 12H = 15 cm pop-up, drain check valve, and 3.7 m half circle nozzle
PROS-12 - CV-R - RCS-515 = 30 cm pop-up, drain check valve, reclaimed body cap, and right corner strip

PRS30

PRESSURE REGULATED

Application: **Residential/Commercial**
Models: **Shrub, 10 cm, 15 cm, 30 cm**
Pressure Regulated at: **2.1 bar**

FEATURES

- Application: Residential/Commercial
- Models: Shrub, 10 cm, 15 cm, 30 cm
- Pressure regulated at 2.1 bar
- No side inlet (NSI) version available in 15 cm and 30 cm
- Identification cap is brown for easy field ID
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Body cap won't leak under high pressure
- ▸ Heavy-duty spring

OPERATING SPECIFICATIONS

- Recommended pressure range: 1.0 to 7.0 bar; 100 to 700 kPa

FACTORY INSTALLED OPTIONS

- Drain check valve (up to 4.3 m of elevation)
- Check valve available on 10 cm, 15 cm, 30 cm
- Reclaimed water ID cap

USER INSTALLED OPTIONS

- Vandal-proof cap (P/N PROS-PRS30-VPC)
- Drain check valve (up to 4.3 m of elevation; P/N 457400)
- Reclaimed water ID cap (P/N 458560)
- Snap-on reclaimed cover (P/N PROSRCCAP)

▸ = *Advanced Feature descriptions on page 52*

PRS30 Reclaimed
PRS30 models come with optional factory-installed purple reclaimed caps.

Related Solutions: Works Best With
PRS30 works best with Pro-Spray Fixed Arc Nozzles and Pro Adjustable Nozzles.

PRS30 – SPECIFICATION BUILDER: ORDER 1 + 2

1 Models	2 Options
PROS-00-PRS30 = 2.1 bar regulated shrub adapter	**(blank)** = No option
PROS-04-PRS30 = 2.1 bar regulated 10 cm (4") pop-up	**CV =** Factory-installed drain check valve *(Pop-up models only, 15 cm and 30 cm models ordered as CV will come as no side inlet)*
PROS-06-PRS30 = 2.1 bar regulated 15 cm (6") pop-up	
PROS-06-NSI-PRS30 = 2.1 bar regulated 15 cm (6") pop-up (no side inlet)	**CV-R** = Factory-installed reclaimed body cap *(Shrub molded in purple)*
PROS-12-PRS30 = 2.1 bar regulated 30 cm (12") pop-up	
PROS-12-NSI-PRS30 = 2.1 bar regulated 30 cm (12") pop-up (no side inlet)	

Examples:
PROS-04-PRS30 = 10 cm pop-up regulated at 2.1 bar
PROS-06-PRS30 - CV - 12H = 15 cm pop-up regulated at 2.1 bar, drain check valve, and 3.7 m half circle nozzle
PROS-12-PRS30 - CV-R - 10A = 30 cm pop-up regulated at 2.1 bar, drain check valve, reclaimed body cap, and 3.0 m adjustable nozzle

PROS-00-PRS30
Overall height: 11 cm
Inlet size: ½" Female NPT

PROS-04-PRS30
Overall height: 15.5 cm
Pop-up height: 10 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

A] **PROS-06-PRS30**
B] **PROS-06-NSI-PRS30**
Overall height: 22.5 cm
Pop-up height: 15 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

A] **PROS-12-PRS30**
B] **PROS-12-NSI-PRS30**
Overall height: 41 cm
Pop-up height: 30 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PRS40

PRESSURE REGULATED

Application: **Residential/Commercial**
Models: **Shrub, 10 cm, 15 cm, 30 cm**
Pressure Regulated at: **2.8 bar**

FEATURES

- Application: Residential/Commercial
- Models: Shrub, 10 cm, 15 cm, 30 cm
- Pressure regulated at 2.8 bar
- Identification cap is grey for easy field ID
- Innovative directional flush plug design
- 15 cm and 30 cm models come standard as no side inlet ensuring proper installation with check valve
- Drain check valve (up to 4.3 m of elevation)
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Body cap won't leak under high pressure
- ▸ Heavy-duty spring

OPERATING SPECIFICATIONS

- Recommended pressure range: 1.0 to 7.0 bar; 100 to 700 kPa

FACTORY INSTALLED OPTIONS

- Reclaimed water ID cap

USER INSTALLED OPTIONS

- Reclaimed water ID cap (P/N 458562)
- Snap-on reclaimed cover (P/N PROSRCCAP)

▸ = *Advanced Feature descriptions on page 52*

PRS40 Reclaimed
PRS40 models come with optional factory-installed purple reclaimed caps.

Related Solutions: MP Rotator
PRS40 is designed specifically for the MP Rotator.

PROS-00-PRS40
Overall height: 11 cm
Inlet size: ½" Female NPT

PROS-04-PRS40-CV
Overall height: 15.5 cm
Pop-up height: 10 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PROS-06-PRS40-CV
Overall height: 22.5 cm
Pop-up height: 15 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PROS-12-PRS40-CV
Overall height: 41 cm
Pop-up height: 30 cm
Exposed diameter: 5.7 cm
Inlet size: ½" Female NPT

PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2

1 Models	2 Options
PROS-00-PRS40 = 2.8 bar regulated shrub adapter	**(blank)** = No option
PROS-04-PRS40-CV = 2.8 bar regulated 10 cm (4") pop-up	**CV-R** = Factory-installed reclaimed body cap *(Shrub molded in purple)* *(Pop-up models only, 15 cm and 30 cm models ordered as CV will come as no side inlet)*
PROS-06-PRS40-CV = 2.8 bar regulated 15 cm (6") pop-up	
PROS-12-PRS40-CV = 2.8 bar regulated 30 cm (12") pop-up	

Examples:
PROS-04-PRS40 - CV = 10 cm pop-up regulated at 2.8 bar
PROS-06-PRS40 - CV = 15 cm pop-up regulated at 2.8 bar, drain check valve
PROS-12-PRS40 - CV - R = 30 cm pop-up regulated at 2.8 bar, drain check valve, reclaimed body cap
PROS-06-PRS40 - CV - MP200090 = 15 cm pop-up regulated at 2.8 bar, drain check valve, with MP 2000 90-210°

NOZZLES

PRO ADJUSTABLE NOZZLES

FEATURES

- Crisp, well-defined edges
- Matched precipitation rate from 2.4 m to 5.2 m
- Easy grip top for simple adjustment
- Designed with large water droplets to withstand light winds
- Even distribution results in beautiful pattern
- 1.2 m and 1.8 m Pro Adjustable Nozzles provide additional flexibility
- Colour-coded for easy field identification
- Adjustable from 0° to 360°

OPERATING SPECIFICATIONS

- Recommended operating pressure: 2.0 bar and 200 kPa
- Specify the new Pro-Spray® PRS30 pop-up for accurate pressure regulation of 2.1 bar; 210 kPa

4A Nozzle
Radius: 1.2 m

6A Nozzle
Radius: 1.8 m

8A Nozzle
Radius: 2.4 m

10A Nozzle
Radius: 3 m

12A Nozzle
Radius: 3.6 m

15A Nozzle
Radius: 4.5 m

17A Nozzle
Radius: 5.2 m

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

Nozzle 4A Lt. Green
1.2 m radius
Adjustable from 0° to 360°
Trajectory: 0°

Nozzle 6A Lt. Blue
1.8 m radius
Adjustable from 0° to 360°
Trajectory: 0°

Nozzle 8A Brown
2.4 m radius
Adjustable from 0° to 360°
Trajectory: 0°

Arc	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	0.9	0.02	0.27	162	187	1.5	0.02	0.37	79	91	1.7	0.02	0.37	62	72
	1.5	150	0.9	0.02	0.34	202	234	1.5	0.03	0.46	98	113	2.1	0.03	0.47	51	59
	2.0	**200**	**1.2**	**0.02**	**0.40**	**133**	**154**	**1.8**	**0.03**	**0.54**	**80**	**92**	**2.4**	**0.03**	**0.55**	**46**	**53**
	2.1	210	1.2	0.02	0.41	137	158	1.8	0.03	0.55	82	95	2.7	0.03	0.56	37	43
	2.5	250	1.2	0.03	0.45	151	174	1.8	0.04	0.61	90	104	2.8	0.04	0.62	38	44
90°	1.0	100	0.9	0.03	0.55	162	187	1.5	0.04	0.74	79	91	1.7	0.04	0.75	62	72
	1.5	150	0.9	0.04	0.68	202	234	1.5	0.06	0.92	98	113	2.1	0.06	0.93	51	59
	2.0	**200**	**1.2**	**0.05**	**0.80**	**133**	**154**	**1.8**	**0.06**	**1.08**	**80**	**92**	**2.4**	**0.07**	**1.09**	**46**	**53**
	2.1	210	1.2	0.05	0.82	137	158	1.8	0.07	1.11	82	95	2.7	0.07	1.12	37	43
	2.5	250	1.2	0.05	0.9	151	174	1.8	0.07	1.22	90	104	2.8	0.07	1.24	38	44
120°	1.0	100	0.9	0.04	0.73	162	187	1.5	0.06	0.98	79	91	1.7	0.06	1.00	62	72
	1.5	150	0.9	0.05	0.91	202	234	1.5	0.07	1.23	98	113	2.1	0.07	1.24	51	59
	2.0	**200**	**1.2**	**0.06**	**1.07**	**133**	**154**	**1.8**	**0.09**	**1.44**	**80**	**92**	**2.4**	**0.09**	**1.46**	**46**	**53**
	2.1	210	1.2	0.07	1.10	137	158	1.8	0.09	1.48	82	95	2.7	0.09	1.50	37	43
	2.5	250	1.2	0.07	1.21	151	174	1.8	0.10	1.62	90	104	2.8	0.10	1.65	38	44
180°	1.0	100	0.9	0.07	1.09	162	187	1.5	0.09	1.47	79	91	1.7	0.09	1.49	62	72
	1.5	150	0.9	0.08	1.37	202	234	1.5	0.11	1.84	98	113	2.1	0.11	1.87	51	59
	2.0	**200**	**1.2**	**0.10**	**1.60**	**133**	**154**	**1.8**	**0.13**	**2.16**	**80**	**92**	**2.4**	**0.13**	**2.19**	**46**	**53**
	2.1	210	1.2	0.10	1.64	137	158	1.8	0.13	2.21	82	95	2.7	0.13	2.25	37	43
	2.5	250	1.2	0.11	1.81	151	174	1.8	0.15	2.44	90	104	2.8	0.15	2.47	38	44
240°	1.0	100	0.9	0.09	1.46	162	187	1.5	0.12	1.96	79	91	1.7	0.12	1.99	62	72
	1.5	150	0.9	0.11	1.82	202	234	1.5	0.15	2.45	98	113	2.1	0.15	2.49	51	59
	2.0	**200**	**1.2**	**0.13**	**2.13**	**133**	**154**	**1.8**	**0.17**	**2.87**	**80**	**92**	**2.4**	**0.17**	**2.92**	**46**	**53**
	2.1	210	1.2	0.13	2.19	137	158	1.8	0.18	2.95	82	95	2.7	0.18	2.99	37	43
	2.5	250	1.2	0.14	2.41	151	174	1.8	0.19	3.25	90	104	2.8	0.20	3.30	38	44
270°	1.0	100	0.9	0.10	1.64	162	187	1.2	0.13	2.21	123	142	1.7	0.13	2.24	62	72
	1.5	150	0.9	0.12	2.05	202	234	1.5	0.17	2.76	98	113	2.1	0.17	2.8	51	59
	2.0	**200**	**1.2**	**0.14**	**2.40**	**133**	**154**	**1.8**	**0.19**	**3.23**	**80**	**92**	**2.4**	**0.20**	**3.28**	**46**	**53**
	2.1	210	1.2	0.15	2.47	137	158	1.8	0.2	3.32	82	95	2.7	0.20	3.37	37	43
	2.5	250	1.2	0.16	2.71	151	174	1.8	0.22	3.66	90	104	2.8	0.22	3.71	38	44
360°	1.0	100	0.9	0.13	2.19	162	187	1.2	0.18	2.94	123	142	1.7	0.18	2.99	62	72
	1.5	150	0.9	0.16	2.73	202	234	1.5	0.22	3.68	98	113	2.1	0.22	3.73	51	59
	2.0	**200**	**1.2**	**0.19**	**3.20**	**133**	**154**	**1.8**	**0.26**	**4.31**	**80**	**92**	**2.4**	**0.26**	**4.37**	**46**	**53**
	2.1	210	1.2	0.20	3.29	137	158	1.8	0.27	4.43	82	95	2.7	0.27	4.49	37	43
	2.5	250	1.2	0.22	3.62	151	174	1.8	0.29	4.87	90	104	2.8	0.30	4.94	38	44

Bold = Recommended pressure

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

Nozzle 10A Red
3.0 m radius
Adjustable from 0° to 360°
Trajectory: 15°

Nozzle 12A Green
3.7 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Nozzle 15A Black
4.6 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Arc	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	2.1	0.04	0.63	68	79	2.7	0.05	0.81	53	61	3.4	0.07	1.19	50	57
	1.5	150	2.4	0.05	0.79	66	76	3.2	0.06	1.01	47	55	3.9	0.09	1.49	47	54
	2.0	**200**	**3.0**	**0.06**	**0.92**	**49**	**57**	**3.7**	**0.07**	**1.18**	**42**	**48**	**4.6**	**0.10**	**1.75**	**40**	**46**
	2.1	210	3.3	0.06	0.95	42	48	4.0	0.07	1.22	36	42	4.9	0.11	1.80	36	41
	2.5	250	3.5	0.06	1.04	41	47	4.2	0.08	1.34	36	42	5.2	0.12	1.98	35	40
90°	1.0	100	2.1	0.08	1.26	68	79	2.7	0.10	1.62	53	61	3.4	0.14	2.39	50	57
	1.5	150	2.4	0.09	1.57	66	76	3.2	0.12	2.02	47	55	3.9	0.18	2.98	47	54
	2.0	**200**	**3.0**	**0.11**	**1.84**	**49**	**57**	**3.7**	**0.14**	**2.37**	**42**	**48**	**4.6**	**0.21**	**3.50**	**40**	**46**
	2.1	210	3.3	0.11	1.89	42	48	4.0	0.15	2.43	36	42	4.9	0.22	3.59	36	41
	2.5	250	3.5	0.12	2.08	41	47	4.2	0.16	2.68	36	42	5.2	0.24	3.95	35	40
120°	1.0	100	2.1	0.10	1.68	68	79	2.7	0.13	2.16	53	61	3.4	0.19	3.18	50	57
	1.5	150	2.4	0.13	2.10	66	76	3.2	0.16	2.70	47	55	3.9	0.24	3.98	47	54
	2.0	**200**	**3.0**	**0.15**	**2.46**	**49**	**57**	**3.7**	**0.19**	**3.16**	**42**	**48**	**4.6**	**0.28**	**4.66**	**40**	**46**
	2.1	210	3.3	0.15	2.52	42	48	4.0	0.19	3.24	36	42	4.9	0.29	4.79	36	41
	2.5	250	3.5	0.17	2.78	41	47	4.2	0.21	3.57	36	42	5.2	0.32	5.27	35	40
180°	1.0	100	2.1	0.15	2.52	68	79	2.7	0.19	3.23	53	61	3.4	0.29	4.77	50	57
	1.5	150	2.4	0.19	3.14	66	76	3.2	0.24	4.04	47	55	3.9	0.36	5.97	47	54
	2.0	**200**	**3.0**	**0.22**	**3.68**	**49**	**57**	**3.7**	**0.28**	**4.74**	**42**	**48**	**4.6**	**0.42**	**6.99**	**40**	**46**
	2.1	210	3.3	0.23	3.78	42	48	4.0	0.29	4.86	36	42	4.9	0.43	7.18	36	41
	2.5	250	3.5	0.25	4.16	41	47	4.2	0.32	5.35	36	42	5.2	0.47	7.90	35	40
240°	1.0	100	2.1	0.20	3.35	68	79	2.7	0.26	4.31	53	61	3.4	0.38	6.37	50	57
	1.5	150	2.4	0.25	4.19	66	76	3.2	0.32	5.39	47	55	3.9	0.48	7.96	47	54
	2.0	**200**	**3.0**	**0.29**	**4.91**	**49**	**57**	**3.7**	**0.38**	**6.31**	**42**	**48**	**4.6**	**0.56**	**9.32**	**40**	**46**
	2.1	210	3.3	0.30	5.04	42	48	4.0	0.39	6.49	36	42	4.9	0.57	9.57	36	41
	2.5	250	3.5	0.33	5.55	41	47	4.2	0.43	7.14	36	42	5.2	0.63	10.54	35	40
270°	1.0	100	2.1	0.23	3.77	68	79	2.7	0.29	4.85	53	61	3.4	0.43	7.16	50	57
	1.5	150	2.4	0.28	4.72	66	76	3.2	0.36	6.06	47	55	3.9	0.54	8.95	47	54
	2.0	**200**	**3.0**	**0.33**	**5.52**	**49**	**57**	**3.7**	**0.43**	**7.10**	**42**	**48**	**4.6**	**0.63**	**10.49**	**40**	**46**
	2.1	210	3.3	0.34	5.68	42	48	4.0	0.44	7.30	36	42	4.9	0.65	10.77	36	41
	2.5	250	3.5	0.37	6.25	41	47	4.2	0.48	8.03	36	42	5.2	0.71	11.86	35	40
360°	1.0	100	2.1	0.30	5.03	68	79	2.7	0.39	6.47	53	61	3.4	0.57	9.55	50	57
	1.5	150	2.4	0.38	6.29	66	76	3.2	0.49	8.09	47	55	3.9	0.72	11.94	47	54
	2.0	**200**	**3.0**	**0.44**	**7.37**	**49**	**57**	**3.7**	**0.57**	**9.47**	**42**	**48**	**4.6**	**0.84**	**13.98**	**40**	**46**
	2.1	210	3.3	0.45	7.57	42	48	4.0	0.58	9.73	36	42	4.9	0.86	14.36	36	41
	2.5	250	3.5	0.50	8.33	41	47	4.2	0.64	10.71	36	42	5.2	0.95	15.81	35	40

Bold = Recommended pressure

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

● **Nozzle 17A Grey**
5.2 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Arc	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m^3/hr	l/min	■	▲
45°	1.0	100	4.7	0.09	1.54	33	39
	1.5	150	4.9	0.12	1.93	38	44
	2.0	**200**	**5.2**	**0.14**	**2.26**	**40**	**46**
	2.1	210	5.5	0.14	2.32	37	42
	2.5	250	5.7	0.15	2.55	38	43
90°	1.0	100	4.7	0.18	3.08	33	39
	1.5	150	4.9	0.23	3.85	38	44
	2.0	**200**	**5.2**	**0.27**	**4.51**	**40**	**46**
	2.1	210	5.5	0.28	4.63	37	42
	2.5	250	5.7	0.31	5.10	38	43
120°	1.0	100	4.7	0.25	4.11	33	39
	1.5	150	4.9	0.31	5.13	38	44
	2.0	**200**	**5.2**	**0.36**	**6.01**	**40**	**46**
	2.1	210	5.5	0.37	6.18	37	42
	2.5	250	5.7	0.41	6.80	38	43
180°	1.0	100	4.7	0.37	6.16	33	39
	1.5	150	4.9	0.46	7.70	38	44
	2.0	**200**	**5.2**	**0.54**	**9.02**	**40**	**46**
	2.1	210	5.5	0.56	9.27	37	42
	2.5	250	5.7	0.61	10.20	38	43
240°	1.0	100	4.7	0.49	8.21	33	39
	1.5	150	4.9	0.62	10.27	38	44
	2.0	**200**	**5.2**	**0.72**	**12.03**	**40**	**46**
	2.1	210	5.5	0.74	12.35	37	42
	2.5	250	5.7	0.82	13.6	38	43
270°	1.0	100	4.7	0.55	9.24	33	39
	1.5	150	4.9	0.69	11.55	38	44
	2.0	**200**	**5.2**	**0.81**	**13.53**	**40**	**46**
	2.1	210	5.5	0.83	13.90	37	42
	2.5	250	5.7	0.92	15.30	38	43
360°	1.0	100	4.7	0.74	12.32	33	39
	1.5	150	4.9	0.92	15.40	38	44
	2.0	**200**	**5.2**	**1.08**	**18.04**	**40**	**46**
	2.1	210	5.5	1.11	18.53	37	42
	2.5	250	5.7	1.22	20.4	38	43

Bold = Recommended pressure

Pro Adjustable Nozzle

PRO-SPRAY® FIXED ARC NOZZLES

FEATURES

- Colour-coded for easy field identification
- Optimum droplet size minimizes misting while maximizing uniformity

OPERATING SPECIFICATIONS

- Recommended operating pressure: 2.1 bar; 210 kPa
- Specify the Pro-Spray® PRS30 pop-up for accurate pressure regulation of 2.1 bar; 210 kPa

PRO-SPRAY® NOZZLES

ARC	5	8	10	12	15	17
Q						
T	Use 4A/6A Nozzle					Use 17A Nozzle
H						
TT	Use 4A/6A Nozzle	Use 8A Nozzle	Use 10A Nozzle			Use 17A Nozzle
TQ	Use 4A/6A Nozzle	Use 8A Nozzle	Use 10A Nozzle			Use 17A Nozzle
F						Use 17A Nozzle

PRO-SPRAY® FIXED ARC NOZZLES PERFORMANCE DATA

				● Nozzle 5 Blue 1.5 m radius Fixed: ¼, ½, Full Trajectory: 0°					● Nozzle 8 Brown 2.4 m radius Fixed: ¼, ⅓, ½, Full Trajectory: 0°					● Nozzle 10 Red 3.0 m radius Fixed: ¼, ⅓, ½, Full Trajectory: 15°				
Arc	Position	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
		Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
90°	Q	1.0	100	1.1	0.02	0.30	60	69	1.7	0.04	0.62	51	59	2.4	0.07	1.08	45	52
		1.5	150	1.3	0.02	0.38	54	62	2.1	0.05	0.84	46	53	2.7	0.08	1.33	44	50
		2.0	200	1.5	0.03	0.45	48	55	2.4	0.06	1.00	42	48	3.0	0.09	1.53	41	47
		2.1	**210**	**1.5**	**0.03**	**0.46**	**49**	**57**	**2.4**	**0.06**	**1.03**	**43**	**49**	**3.0**	**0.09**	**1.57**	**42**	**48**
		2.5	250	1.7	0.03	0.51	42	49	2.7	0.07	1.13	37	43	3.3	0.10	1.71	38	44
120°	T	1.0	100						1.7	0.05	0.83	51	59	2.4	0.09	1.44	45	52
		1.5	150						2.1	0.07	1.12	46	53	2.7	0.11	1.77	44	50
		2.0	200	Use Hunter 4A Nozzle					2.4	0.08	1.33	42	48	3.0	0.12	2.04	41	47
		2.1	**210**						**2.4**	**0.08**	**1.37**	**43**	**49**	**3.0**	**0.13**	**2.09**	**42**	**48**
		2.5	250						2.7	0.09	1.51	37	43	3.3	0.14	2.28	38	44
180°	H	1.0	100	1.1	0.04	0.60	60	69	1.7	0.08	1.33	55	64	2.4	0.13	2.17	45	52
		1.5	150	1.3	0.05	0.76	54	62	2.1	0.10	1.69	46	53	2.7	0.16	2.65	44	50
		2.0	200	1.5	0.05	0.90	48	55	2.4	0.12	1.99	42	48	3.0	0.18	3.06	41	47
		2.1	**210**	**1.5**	**0.06**	**0.92**	**49**	**57**	**2.4**	**0.12**	**2.05**	**43**	**49**	**3.0**	**0.19**	**3.14**	**42**	**48**
		2.5	250	1.7	0.06	1.02	42	49	2.7	0.14	2.27	37	43	3.3	0.21	3.43	38	44
240°	TT	1.0	100															
		1.5	150															
		2.0	200	Use Hunter 4A Nozzle					Use Hunter 8A Nozzle					Use Hunter 10A Nozzle				
		2.1	**210**															
		2.5	250															
270°	TQ	1.0	100															
		1.5	150															
		2.0	200	Use Hunter 4A Nozzle					Use Hunter 8A Nozzle					Use Hunter 10A Nozzle				
		2.1	**210**															
		2.5	250															
360°	F	1.0	100	1.1	0.07	1.2	60	69	1.7	0.16	2.67	55	64	2.4	0.26	4.33	45	52
		1.5	150	1.3	0.09	1.52	54	62	2.1	0.20	3.37	46	53	2.7	0.32	5.31	44	50
		2.0	200	1.5	0.11	1.79	48	55	2.4	0.24	3.99	42	48	3.0	0.37	6.13	41	47
		2.1	**210**	**1.5**	**0.11**	**1.85**	**49**	**57**	**2.4**	**0.25**	**4.10**	**43**	**49**	**3.0**	**0.38**	**6.28**	**42**	**48**
		2.5	250	1.7	0.12	2.04	42	49	2.7	0.27	4.54	37	43	3.3	0.41	6.85	38	44

Bold = Recommended pressure

PRO-SPRAY® FIXED ARC NOZZLES PERFORMANCE DATA

Nozzle 12 Green
3.7 m radius
Fixed: ¼, ⅓, ½, ⅔, ¾, Full
Trajectory: 28°

Nozzle 15 Black
4.6 m radius
Fixed: ¼, ⅓, ½, ⅔, ¾, Full
Trajectory: 28°

Nozzle 17 Grey
5.2 m radius
Fixed: ¼, ½
Trajectory: 28°

Arc	Position	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
		Bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
90°	Q	1.0	100	3.0	0.10	1.58	42	49	3.9	0.15	2.50	39	46	4.7	0.19	3.17	34	40
		1.5	150	3.4	0.12	2.00	42	48	4.2	0.18	3.06	42	48	4.9	0.23	3.88	39	45
		2.0	200	3.7	0.14	2.37	41	48	4.6	0.21	3.54	40	46	5.2	0.27	4.48	40	46
		2.1	**210**	**3.7**	**0.15**	**2.43**	**43**	**49**	**4.6**	**0.22**	**3.62**	**41**	**47**	**5.2**	**0.28**	**4.59**	**41**	**47**
		2.5	250	4.0	0.16	2.69	40	47	4.9	0.24	3.95	40	46	5.5	0.30	5.01	40	46
120°	T	1.0	100	3.0	0.13	2.11	42	49	3.9	0.20	3.33	39	46					
		1.5	150	3.4	0.16	2.67	42	48	4.2	0.24	4.08	42	48					
		2.0	200	3.7	0.19	3.16	41	48	4.6	0.28	4.71	40	46	**Use Hunter 17A Nozzle**				
		2.1	**210**	**3.7**	**0.19**	**3.25**	**43**	**49**	**4.6**	**0.29**	**4.83**	**41**	**47**					
		2.5	250	4.0	0.22	3.59	40	47	4.9	0.32	5.27	40	46					
180°	H	1.0	100	3.0	0.19	3.17	42	49	3.9	0.30	5.00	39	46	4.7	0.38	6.33	34	40
		1.5	150	3.4	0.24	4.01	42	48	4.2	0.37	6.12	42	48	4.9	0.47	7.76	39	45
		2.0	200	3.7	0.28	4.73	41	48	4.6	0.42	7.07	40	46	5.2	0.54	8.96	40	46
		2.1	**210**	**3.7**	**0.29**	**4.87**	**43**	**49**	**4.6**	**0.43**	**7.25**	**41**	**47**	**5.2**	**0.55**	**9.18**	**41**	**47**
		2.5	250	4.0	0.32	5.39	40	47	4.9	0.47	7.91	40	46	5.5	0.60	10.01	40	46
240°	TT	1.0	100	3	0.25	4.22	42	49	3.9	0.40	6.67	39	46					
		1.5	150	3.4	0.32	5.34	42	48	4.2	0.49	8.16	42	48					
		2.0	200	3.7	0.38	6.31	41	48	4.6	0.57	9.43	40	46	**Use Hunter 17A Nozzle**				
		2.1	**210**	**3.7**	**0.39**	**6.49**	**43**	**49**	**4.6**	**0.58**	**9.66**	**41**	**47**					
		2.5	250	4.0	0.43	7.18	40	47	4.9	0.63	10.54	40	46					
270°	TQ	1.0	100	3	0.29	4.75	42	49	3.9	0.45	7.50	39	46					
		1.5	150	3.4	0.36	6.01	42	48	4.2	0.55	9.19	42	48					
		2.0	200	3.7	0.43	7.1	41	48	4.6	0.64	10.61	40	46	**Use Hunter 17A Nozzle**				
		2.1	**210**	**3.7**	**0.44**	**7.3**	**43**	**49**	**4.6**	**0.65**	**10.87**	**41**	**47**					
		2.5	250	4	0.48	8.08	40	47	4.9	0.71	11.86	40	46					
360°	F	1.0	100	3	0.38	6.33	42	49	3.9	0.60	10.00	39	46					
		1.5	150	3.4	0.48	8.01	42	48	4.2	0.73	12.25	42	48					
		2.0	200	3.7	0.57	9.47	41	48	4.6	0.85	14.14	40	46	**Use Hunter 17A Nozzle**				
		2.1	**210**	**3.7**	**0.58**	**9.74**	**43**	**49**	**4.6**	**0.87**	**14.49**	**41**	**47**					
		2.5	250	4	0.65	10.78	40	47	4.9	0.95	15.81	40	46					

Bold = Recommended pressure

SHORT RADIUS NOZZLES

FEATURES

- Precision engineered for controlled irrigation of close-in spaces
- Available in three different radius versions for total coverage assurance
- Built to last in harsh conditions
- Available in 0.6 m, 1.2 m and 1.8 m radius versions

SHORT RADIUS NOZZLES PERFORMANCE DATA

Nozzle Lt. Brown

Arc	Pressure Bar	Pressure kPa	Position	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	2Q	0.6	0.01	0.23	153	177
	1.5	150		0.6	0.02	0.28	188	217
	2.0	200		0.6	0.02	0.33	217	250
	2.1	**210**		**0.6**	**0.02**	**0.33**	**222**	**257**
	2.5	250		0.6	0.02	0.36	242	280
180°	1.0	100	2H	0.6	0.03	0.46	153	177
	1.5	150		0.6	0.03	0.56	188	217
	2.0	200		0.6	0.04	0.65	217	250
	2.1	**210**		**0.6**	**0.04**	**0.67**	**222**	**257**
	2.5	250		0.6	0.04	0.73	242	280

Nozzle Lt. Green

Arc	Pressure Bar	Pressure kPa	Position	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	4Q	1.2	0.04	0.69	115	133
	1.5	150		1.2	0.05	0.77	128	147
	2.0	200		1.2	0.05	0.82	137	158
	2.1	**210**		**1.2**	**0.05**	**0.84**	**139**	**160**
	2.5	250		1.2	0.05	0.87	145	168
180°	1.0	100	4H	1.2	0.08	1.39	115	133
	1.5	150		1.2	0.09	1.54	128	147
	2.0	200		1.2	0.10	1.65	137	158
	2.1	**210**		**1.2**	**0.10**	**1.67**	**139**	**160**
	2.5	250		1.2	0.10	1.74	145	168

Nozzle Lt. Blue

Arc	Pressure Bar	Pressure kPa	Position	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	6Q	1.8	0.11	1.84	136	157
	1.5	150		1.8	0.11	1.93	143	165
	2.0	200		1.8	0.12	2.00	148	171
	2.1	**210**		**1.8**	**0.12**	**2.01**	**149**	**172**
	2.5	250		1.8	0.22	2.06	152	176
180°	1.0	100	6H	1.8	0.22	3.67	136	157
	1.5	150		1.8	0.22	3.86	143	165
	2.0	200		1.8	0.22	4.00	148	171
	2.1	**210**		**1.8**	**0.22**	**4.03**	**149**	**172**
	2.5	250		1.8	0.23	4.12	152	176

2Q

2H

4Q

4H

6Q

6H

STRIP PATTERN NOZZLES

FEATURES

- Precision engineeried for accurate coverage of tight spaces
- Available in an array of models built to strategically water specific angles
- Built to last in harsh conditions

STRIP PATTERN NOZZLE PERFORMANCE DATA

Arc	Pressure Bar	Pressure kPa	Width x Length m	Flow m^3/hr	Flow l/min
LCS-515	1.0	100	1.2 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	**200**	**1.5 x 4.5**	**0.15**	**2.4**
	2.1	210	1.5 x 4.5	0.15	2.5
	2.5	250	1.5 x 4.5	0.16	2.7
RCS-515	1.0	100	1.2 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	**200**	**1.5 x 4.5**	**0.15**	**2.4**
	2.1	210	1.5 x 4.5	0.15	2.5
	2.5	250	1.5 x 4.5	0.16	2.7
SS-530	1.0	100	2.2 x 8.5	0.21	3.5
	1.5	150	2.4 x 8.5	0.25	4.2
	2.0	**200**	**2.4 x 8.5**	**0.29**	**4.9**
	2.1	210	1.5 x 9.0	0.30	5
	2.5	250	1.5 x 9.0	0.33	5.5
ES-515	1.0	100	1.1 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	**200**	**1.5 x 4.5**	**0.15**	**2.4**
	2.1	210	1.5 x 4.5	0.15	2.5
	2.5	250	1.5 x 4.5	0.16	2.7
CS-530	1.0	100	2.2x 8.5	0.21	3.5
	1.5	150	2.4x 8.5	0.25	4.2
	2.0	**200**	**1.5 x 9.0**	**0.29**	**4.9**
	2.1	210	1.5 x 9.0	0.30	5
	2.5	250	1.5 x 9.0	0.33	5.5
SS-918	1.0	100	2.4 x 5.2	0.27	4.5
	1.5	150	2.7 x 5.5	0.33	5.5
	2.0	**200**	**2.7 x 5.5**	**0.38**	**6.4**
	2.1	210	2.7 x 5.5	0.39	6.5
	2.5	250	2.7 x 5.5	0.43	7.1

Bold = Recommended pressure

Left Corner Strip
Rectangle: 1.5 m x 4.5 m

Right Corner Strip
Rectangle: 1.5 m x 4.5 m

Side Strip
Rectangle: 1.5 m x 9.0 m

Side Strip
Rectangle: 2.7 m x 5.5 m

Center Strip
Rectangle: 1.5 m x 9.0 m

End Strip
Rectangle: 1.5 m x 4.5 m

STREAM NOZZLES

FEATURES

- These adjustable arc models handle stream sprays with ease
- They offer sprays that at 2.1 bar; 210 kPa can water as far as 2.4 m or 4.8 m, making them a great choice for slopes, ground cover and shrubbery applications

S-8A
2.1 m to 2.7 m

S-16A
4.6 m to 5.5 m

MODEL S-8A STREAM SPRAY NOZZLE PERFORMANCE CHART

Arc	Pressure		Radius	Flow		Precip mm/hr	
S-8A	Bar	kPa	m	m³/hr	l/min	■	▲
90°	1.0	100	2.1	0.06	0.9	2.28	2.63
	1.5	150	2.4	0.07	1.2	1.93	2.22
	2.0	200	2.4	0.08	1.3	2.11	2.43
	2.1	**210**	**2.4**	**0.08**	**1.4**	**2.29**	**2.64**
	2.5	250	2.7	0.09	1.5	1.95	2.25
180°	1.0	100	2.1	0.11	1.9	2.12	2.45
	1.5	150	2.4	0.14	2.3	1.71	1.98
	2.0	200	2.4	0.16	2.7	1.8	2.08
	2.1	**210**	**2.4**	**0.16**	**2.7**	**1.89**	**2.19**
	2.5	250	2.7	0.18	3	1.57	1.81
360	1.0	100	2.1	0.23	3.8	2.12	2.45
	1.5	150	2.4	0.28	4.6	1.67	1.93
	2.0	200	2.4	0.32	5.3	1.73	2.00
	2.1	**210**	**2.4**	**0.33**	**5.5**	**1.77**	**2.05**
	2.5	250	2.7	0.36	6.0	1.45	1.67

Bold = Recommended pressure

S-8A

MODEL S-16A STREAM SPRAY NOZZLE PERFORMANCE CHART

Arc	Pressure		Radius	Flow		Precip mm/hr	
S-16A Blue	Bar	kPa	m	m³/hr	l/min	■	▲
90°	1.0	100	4.6	0.09	1.3	0.68	0.79
	1.5	150	4.9	0.10	1.6	0.69	0.80
	2.0	200	4.9	0.11	1.8	0.75	0.87
	2.1	**210**	**5.2**	**0.11**	**1.9**	**0.72**	**0.83**
	2.5	250	5.5	0.12	2.1	0.68	0.78
180°	1.0	100	4.6	0.16	2.6	0.57	0.66
	1.5	150	4.9	0.19	3.2	0.60	0.69
	2.0	200	4.9	0.22	3.7	0.66	0.76
	2.1	**210**	**5.2**	**0.23**	**3.8**	**0.65**	**0.75**
	2.5	250	5.5	0.25	4.1	0.62	0.71
360	1.0	100	4.6	0.31	5.2	0.51	0.59
	1.5	150	4.9	0.38	6.4	0.55	0.63
	2.0	200	4.9	0.44	7.3	0.62	0.72
	2.1	**210**	**5.2**	**0.45**	**7.5**	**0.61**	**0.70**
	2.5	250	5.5	0.49	8.2	0.59	0.68

Bold = Recommended pressure

BUBBLER NOZZLES

FEATURES

- Hunter bubblers keep the output of water constant regardless of pressure, for precise, easy application
- MSBN and PCN models feature nozzle thread for use with spray heads
- Every plant, shrub, and tree receives the right amount of water with no excess runoff or waste

MULTI-STREAM BUBBLER PERFORMANCE DATA

Arc		Model	Flow m³/hr	Flow l/min	Radius m
	●	MSBN-25Q	0.06	**0.9**	1.0
	●	MSBN-50Q	0.11	**1.9**	1.5
	●	MSBN-50H	0.11	**1.9**	1.0
	●	MSBN-10H	0.23	**3.8**	1.5
	●	MSBN-10F	0.23	**3.8**	1.0
	●	MSBN-20F	0.45	**7.6**	1.5

Notes:
Typical spacing 0.06 to 1.2 m. Flows shown for pressures between 1 and 4.7 bar.

Multi-Stream Bubbler

PCN PERFORMANCE DATA

	Model	Flow m³/hr	Flow l/min	Pattern Type
	25	0.06	**0.09**	Trickle
	50	0.11	**1.90**	Trickle
	10	0.23	**3.80**	Umbrella
	20	0.45	**7.60**	Umbrella

Notes:
Typical spacing 0.3 to 0.9 m. Flows shown for pressures between 1 and 4.8 bar.

PCN

Multi-Stream Bubbler Nozzles

Q
Flow: 0.06 m³/hr;
0.9 l/min

Q/H
Flow: 0.11 m³/hr;
1.9 l/min

H/F
Flow: 0.23 m³/hr;
3.8 l/min

F
Flow: 0.45 m³/hr;
7.6 l/min

PCN Bubbler Nozzles

Q
Flow: 0.06 m³/hr;
0.9 l/min

Q/H
Flow: 0.11 m³/hr;
1.9 l/min

H/F
Flow: 0.23 m³/hr;
3.8 l/min

F
Flow: 0.46 m³/hr;
7.6 l/min

BUBBLERS

FEATURES

- Hunter bubblers keep the output of water constant regardless of pressure, for precise, easy application
- ½" female inlet
- Every plant, shrub, and tree receives the right amount of water with no excess runoff or waste

PCB PERFORMANCE DATA

Model	Flow m³/hr	Flow l/min	Pattern Type
25	0.06	**0.09**	Trickle
50	0.11	**1.90**	Trickle
10	0.23	**3.80**	Umbrella
20	0.45	**7.60**	Umbrella

Notes:
Typical spacing 0.3 to 0.9 m. Flows shown for pressures between 1 and 4.8 bar.

PCB

Pressure Compensating Bubblers

PCB

PCB-R

AFB PERFORMANCE DATA

Model	Flow m³/hr	Flow l/min	Pattern Type
AFB	< 0.45	< 0.76	Trickle/ Umbrella

AFB

Adjustable Flood Bubbler

AFB

5-CST-B BUBBLER NOZZLE PERFORMANCE DATA

Pressure Bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min
1.0	100	1.5	0.07	1.1
1.5	150	1.5	0.07	1.2
2.0	200	1.5	0.09	1.4
2.1	210	1.5	0.09	1.5
2.5	250	1.5	0.10	1.6

5-CST-B

Dual-Stream Bubbler Nozzle

5-CST-B

MP ROTATOR

ECO ROTATOR

Application: **Residential/Commercial**
Radius: **2.5 m to 9.1 m**

FEATURES

- Application: Residential/light commercial
- Model (plastic riser): 10 cm
- Nozzle choices: 6
- Flow rate: 0.61 to 16.07 l/min
- Adjustable arc and radius offer timely and precise settings
- Drain check valve (up to 2 m of elevation)
- Two-piece ratchet
- Zero flow-by wiper seal
- Patented double pop
- Warranty period: 2 years
- Nozzle choices: MP100090, MP200090, MP300090, MP1000360, MP2000360, and MP3000360

Eco Rotator
Overall height: 19 cm
Exposed diameter: 3 cm
Inlet size: ½" female

OPERATING SPECIFICATIONS

- Flow rate: 0.61 to 16.07 l/min
- Radius: 2.5 to 9.1 m
- Recommended pressure range: 1.75 to 3.75 bar; 175 to 375 kPa
- Precipitation rates: 10 mm/hr approx.

FACTORY INSTALLED OPTIONS

- MP 1000 90-210 degrees, 360°
- MP 2000 90-210 degrees, 360°
- MP 3000 90-210 degrees, 360°

USER INSTALLED OPTIONS

- Drain check valve: 10 cm model (up to 2 m of elevation; P/N 462237)

ECO ROTATOR

Model	Description
ECO-04 - 1090	10 cm (4") pop-up, MP1000 2.5 to 4.5 m radius, adjustable from 90° to 210°
ECO-04 - 10360	10 cm (4") pop-up, MP1000 2.5 to 4.5 m radius, 360°
ECO-04 - 2090	10 cm (4") pop-up, MP2000 4 to 6.4 m radius, adjustable from 90° to 210°
ECO-04 - 20360	10 cm (4") pop-up, MP2000 4 to 6.4 m radius, 360°
ECO-04 - 3090	10 cm (4") pop-up, MP3000 6.7 to 9.1 m radius, adjustable from 90° to 210°
ECO-04 - 30360	10 cm (4") pop-up, MP3000 6.7 to 9.1 m radius, 360°

ECO ROTATOR PERFORMANCE DATA

ECO-04 MP1000
Radius: 2.5 to 4.6 m
Adjustable Arc and Full Circle
- Maroon: 90° to 210°
- Olive: 360°

ECO-04 MP2000
Radius: 4 to 6.4 m
Adjustable Arc and Full Circle
- Black: 90° to 210°
- Red: 360°

ECO-04 MP3000
Radius: 6.7 to 9.1 m
Adjustable Arc and Full Circle
- Blue: 90° to 210°
- Gray: 360°

	Pressure		MP1000					MP2000					MP3000				
	Bar	kPa	Radius m	Flow l/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Radius m	Flow l/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Radius m	Flow l/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.75	175	--	--	--	--	--	5.2	71	1.18	11	12	7.6	158	2.63	11	13
	2.00	200	3.7	36	0.61	11	12	5.5	74	1.23	10	11	8.2	166	2.77	10	11
	2.25	225	3.8	38	0.63	10	12	5.6	80	1.33	10	12	8.4	175	2.92	10	12
	2.50	250	4.0	41	0.68	10	12	5.8	86	1.43	10	12	8.5	185	3.08	10	12
	2.75	275	4.1	42	0.70	10	11	6.1	91	1.52	10	11	9.1	195	3.25	9	11
	3.00	300	4.3	44	0.73	10	11	6.4	94	1.57	9	11	9.1	203	3.38	10	11
	3.25	325	4.3	45	0.75	10	11	6.6	97	1.62	9	10	9.1	212	3.53	10	12
	3.50	350	4.4	47	0.78	10	11	6.7	101	1.68	9	10	9.1	220	3.67	11	12
	3.75	375	4.6	49	0.81	9	11	6.7	106	1.77	9	11	9.1	228	3.80	11	13
180°	1.75	175	--	--	--	--	--	4.9	133	2.22	11	12	7.6	320	5.48	11	13
	2.00	200	3.7	72	1.20	11	12	5.2	141	2.35	11	12	8.2	353	5.88	10	12
	2.25	225	3.8	76	1.27	10	12	5.3	150	2.50	11	13	8.4	373	6.22	11	12
	2.50	250	4.0	81	1.35	10	12	5.5	160	2.67	11	12	8.5	393	6.55	11	12
	2.75	275	4.1	84	1.40	10	11	5.8	168	2.80	10	12	9.1	413	6.88	10	11
	3.00	300	4.3	88	1.46	10	11	6.1	174	2.90	10	11	9.1	431	7.18	10	12
	3.25	325	4.3	91	1.51	10	11	6.2	182	3.03	9	11	9.1	449	7.48	11	12
	3.50	350	4.4	94	1.56	10	11	6.4	189	3.15	9	10	9.1	466	7.77	11	13
	3.75	375	4.6	97	1.62	9	11	6.4	193	3.22	9	11	9.1	451	8.02	12	13
210°	1.75	175	--	--	--	--	--	4.9	155	2.58	11	12	7.6	384	6.40	11	13
	2.00	200	3.7	85	1.41	11	13	5.2	165	2.75	11	13	8.2	411	6.85	10	12
	2.25	225	3.8	89	1.48	10	12	5.3	175	2.92	11	13	8.4	436	7.27	11	12
	2.50	250	4.0	95	1.58	10	12	5.5	185	3.08	10	12	8.5	459	7.65	11	12
	2.75	275	4.1	98	1.63	10	11	5.8	195	3.25	10	12	9.1	481	8.02	10	11
	3.00	300	4.3	102	1.71	10	11	6.1	205	3.42	10	11	9.1	502	8.37	10	12
	3.25	325	4.3	106	1.76	10	11	6.2	214	3.57	9	11	9.1	523	8.72	11	12
	3.50	350	4.4	109	1.82	10	11	6.4	222	3.70	9	10	9.1	542	9.03	11	13
	3.75	375	4.6	113	1.89	9	11	6.4	228	3.80	10	11	9.1	562	9.37	12	13
360°	1.75	175	--	--	--	--	--	4.9	265	4.42	11	12	7.6	659	10.98	11	13
	2.00	200	3.5	144	2.40	12	14	5.2	283	4.72	11	13	8.2	703	11.72	10	12
	2.25	225	3.8	153	2.55	11	13	5.3	300	5.00	11	13	8.4	745	12.42	11	12
	2.50	250	4.0	161	2.69	10	12	5.5	317	5.28	10	12	8.5	786	13.10	11	12
	2.75	275	4.1	169	2.81	10	12	5.8	333	5.55	10	12	9.1	825	13.75	10	11
	3.00	300	4.3	177	2.94	10	11	6.1	348	5.80	10	11	9.1	862	14.37	10	12
	3.25	325	4.3	183	3.05	10	11	6.2	362	3.03	9	11	9.1	892	14.95	11	12
	3.50	350	4.4	190	3.17	10	11	6.4	374	6.25	9	10	9.1	931	15.52	11	13
	3.75	375	4.5	195	3.25	10	11	6.4	384	6.40	9	10	9.1	964	16.07	12	13

MP ROTATOR®

Application: **Residential/Commercial**
Radius: **2.5 m to 10.6 m**

FEATURES

- True matched precipitation at any arc or radius setting
- Radius can be reduced up to 25% on all models
- Colour-coded for easy identification
- Double-pop feature keeps dirt and debris out of nozzle
- Removable filter screen prevents large objects from clogging nozzle
- Low precipitation rate
- Wind-resistant multi-stream technology
- Adjustable arc and radius

OPERATING SPECIFICATIONS

- Recommended operating pressure: 2.8 bar; 280 kPa

OPTIONS

- Specify Pro-Spray® PRS40 pop-up for accurate pressure regulation at 2.8 bar; 280 kPa
- Adding "HT" will specify male threaded nozzles

MP1000–2.5 to 4.5 m radius

MP100090
90° to 210°

MP1000210
210° to 270°

MP1000360
360°

MP2000–4 to 6.4 m radius

MP200090
90° to 210°

MP2000210
210° to 270°

MP2000360
360°

MP ROTATOR – SPECIFICATION BUILDER: ORDER 1 + 2

1 Models	2 Options
MP1000-90 = 2.5 to 4.5 m radius, adjustable from 90° to 210°	**(blank)** = No option
MP1000-210 = 2.5 to 4.5 m radius, adjustable from 210° to 270°	**HT** = Male thread version *(Not available in 3500)*
MP1000-360 = 2.5 to 4.5 m radius, 360°	
MP2000-90 = 4 to 6.7 m radius, adjustable from 90° to 210°	
MP2000-210 = 4 to 6.7 m radius, adjustable from 210° to 270°	
MP2000-360 = 4 to 6.7 m radius, 360°	
MP3000-90 = 6.7 to 9.1 m radius, adjustable from 90° to 210°	
MP3000-210 = 6.7 to 9.1 m radius, adjustable from 210° to 270°	
MP3000-360 = 6.7 to 9.1 m radius, 360°	
MP3500-90 = 10 to 11 m radius, adjustable from 90° to 210°	
MPLCS515 = Left corner strip, 1.5 to 4.6 m	
MPRCS515 = Right corner strip, 1.5 to 4.6 m	
MPSS530 = Side strip, 1.5 to 4.6 m	
MPCORNER = 2.5 to 4.5 m radius, adjustable from 45° to 105°	

Examples:
MP1000-210 = 2.5 to 4.5 m radius, adjustable from 210° to 270°
PROS-06 - PRS40-CV - MP2000-90 = 15 cm pop-up regulated at 2.8 bar, drain check valve, with MP 2000 90-210

Works best with PRS40

See page 58

MP ROTATOR PERFORMANCE DATA

MP Corner
Radius: 8' to 15'
Adjustable Arc
Color Code: Turquoise

	Pressure Bar	Pressure kPa	Radius m	Flow l/hr	Flow l/min
45°	1.75	175	--	--	--
	2.00	200	3.5	36	0.61
	2.25	225	3.8	38	0.63
	2.50	250	4.0	41	0.68
	2.75	275	4.1	42	0.70
	3.00	300	4.3	44	0.73
	3.25	325	4.3	45	0.75
	3.50	350	4.4	47	0.78
	3.75	375	4.5	49	0.81
90°	1.75	175	3.2	69	1.15
	2.00	200	3.5	76	1.27
	2.25	225	3.8	79	1.31
	2.50	250	4.0	84	1.40
	2.75	275	4.1	86	1.44
	3.00	300	4.3	94	1.57
	3.25	325	4.3	98	1.63
	3.50	350	4.4	100	1.67
	3.75	375	4.5	104	1.73
105°	1.75	175	3.2	80	1.34
	2.00	200	3.5	89	1.48
	2.25	225	3.8	91	1.53
	2.50	250	4.0	98	1.63
	2.75	275	4.1	102	1.70
	3.00	300	4.3	110	1.83
	3.25	325	4.3	113	1.88
	3.50	350	4.4	117	1.94
	3.75	375	4.5	120	2.00

MP ROTATOR PERFORMANCE DATA

- **MPLCS515:** Ivory. MP Left Strip
- **MPRCS515:** Copper. MP Right Strip
- **MPSS530:** Brown. MP Side Strip

	Pressure Bar	Pressure kPa	Radius m	Flow l/hr	Flow l/min
MP Left Strip	2.1	210	1.2 x 4.3	43.2	0.72
	2.4	240	1.5 x 4.6	48.0	0.80
	2.8	280	1.5 x 4.6	49.8	0.83
	3.1	310	1.5 x 4.6	52.2	0.87
	3.4	340	1.8 x 4.9	57.0	0.95
	3.8	380	1.8 x 4.9	58.8	0.98
MP Right Strip	2.1	210	1.2 x 4.3	43.2	0.72
	2.4	240	1.5 x 4.6	48.0	0.80
	2.8	280	1.5 x 4.6	49.8	0.83
	3.1	310	1.5 x 4.6	52.2	0.87
	3.4	340	1.8 x 4.9	57.0	0.95
	3.8	380	1.8 x 4.9	58.8	0.98
MP Side Strip	2.1	210	1.2 x 8.5	86.4	1.44
	2.4	240	1.5 x 9.1	93.0	1.55
	2.8	280	1.5 x 9.1	99.6	1.66
	3.1	310	1.5 x 9.1	106.8	1.78
	3.4	340	1.8 x 9.8	111.0	1.85
	3.8	380	1.8 x 9.8	115.8	1.93

Notes:
Strip pattern radius can be adjusted by 25%. MP Rotator is designed to maintain matched precipitation after radius adjustment.

MP3000–6.7 to 9.1 m radius

MP300090
90° to 210°

MP3000210
210° to 270°

MP3000360
360°

MP3500–9.1 to 10.7 m radius

MP3500
90° to 210°

MP Strips

MPLCS515
Left Corner
1.5 x 4.6 m

MPRCS515
Right Corner
1.5 x 4.6 m

MPSS50
Side Strip
1.5 x 9.1 m

Male Threaded

MPCORNER
Corner
2.4 to 4.5 m

MP-HT
Male threaded

MP Accessories

MP Tool
Adjustments to MP Rotators are simply a snap with this handy tool.

MP Stick
The MP Stick snaps on to 1" PVC of any length to easily adjust MP Rotators while standing up.

MP ROTATOR

MP ROTATOR PERFORMANCE DATA

MP1000
Radius: 2.5 to 4.6 m
Adjustable Arc and Full Circle
- Maroon: 90° to 210°
- Lt. Blue: 210° to 270°
- Olive: 360°

MP2000
Radius: 4 to 6.4 m
Adjustable Arc and Full Circle
- Black: 90° to 210°
- Green: 210° to 270°
- Red: 360°

MP3000
Radius: 6.7 to 9.1 m
Adjustable Arc and Full Circle
- Blue: 90° to 210°
- Yellow: 210° to 270°
- Grey: 360°

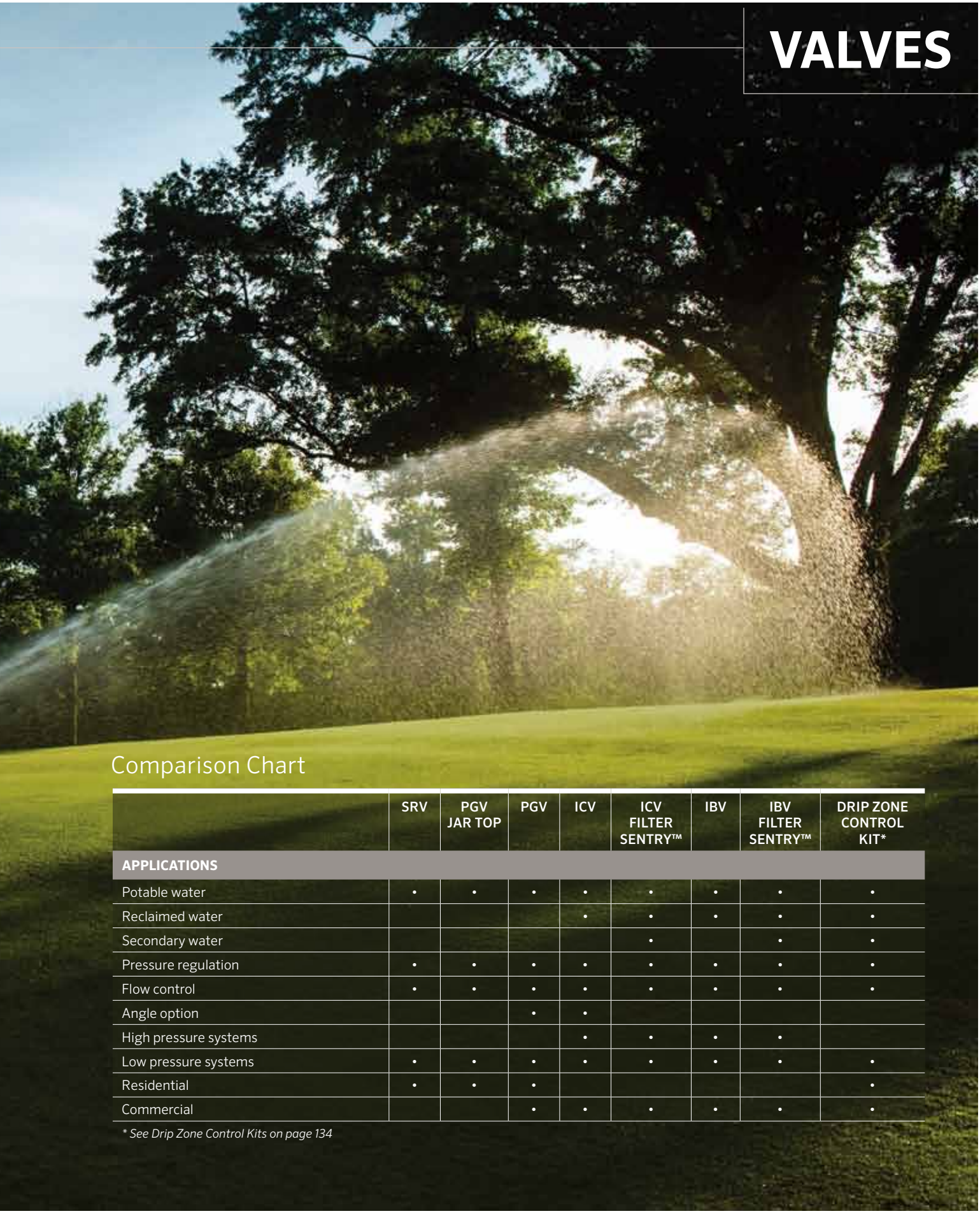
	Pressure		MP1000					MP2000					MP3000				
			Radius	Flow	Flow	Precip mm/hr		Radius	Flow	Flow	Precip mm/hr		Radius	Flow	Flow	Precip mm/hr	
	Bar	kPa	m	LPH	LPM	■	▲	m	LPH	LPM	■	▲	m	LPH	LPM	■	▲
90°	1.75	175	--	--	--	--	--	5.2	71	1.18	11	12	7.6	158	2.63	11	13
	2.00	200	3.7	36	0.61	11	12	5.5	74	1.23	10	11	8.2	166	2.77	10	11
	2.25	225	3.8	38	0.63	10	12	5.6	80	1.33	10	12	8.4	175	2.92	10	12
	2.50	250	4.0	41	0.68	10	12	5.8	86	1.43	10	12	8.5	185	3.08	10	12
	2.75	275	4.1	42	0.70	10	11	6.1	91	1.52	10	11	9.1	195	3.25	9	11
	3.00	300	4.3	44	0.73	10	11	6.4	94	1.57	9	11	9.1	203	3.38	10	11
	3.25	325	4.3	45	0.75	10	11	6.6	97	1.62	9	10	9.1	212	3.53	10	12
	3.50	350	4.4	47	0.78	10	11	6.7	101	1.68	9	10	9.1	220	3.67	11	12
	3.75	375	4.6	49	0.81	9	11	6.7	106	1.77	9	11	9.1	228	3.80	11	13
180°	1.75	175	--	--	--	--	--	4.9	133	2.22	11	12	7.6	320	5.48	11	13
	2.00	200	3.7	72	1.20	11	12	5.2	141	2.35	11	12	8.2	353	5.88	10	12
	2.25	225	3.8	76	1.27	10	12	5.3	150	2.50	11	13	8.4	373	6.22	11	12
	2.50	250	40	81	1.35	10	12	5.5	160	2.67	11	12	8.5	393	6.55	11	12
	2.75	275	4.1	84	1.40	10	11	5.8	168	2.80	10	12	9.1	413	6.88	10	11
	3.00	300	4.3	88	1.46	10	11	6.1	174	2.90	10	11	9.1	431	7.18	10	12
	3.25	325	4.3	91	1.51	10	11	6.2	182	3.03	9	11	9.1	449	7.48	11	12
	3.50	350	4.4	94	1.56	10	11	6.4	189	3.15	9	10	9.1	466	7.77	11	13
	3.75	375	4.6	97	1.62	9	11	6.4	193	3.22	9	11	9.1	451	8.02	12	13
210°	1.75	175	--	--	--	--	--	4.9	155	2.58	11	12	7.6	384	6.40	11	13
	2.00	200	3.7	85	1.41	11	13	5.2	165	2.75	11	13	8.2	411	6.85	10	12
	2.25	225	3.8	89	1.48	10	12	5.3	175	2.92	11	13	8.4	436	7.27	11	12
	2.50	250	4.0	95	1.58	10	12	5.5	185	3.08	10	12	8.5	459	7.65	11	12
	2.75	275	4.1	98	1.63	10	11	5.8	195	3.25	10	12	9.1	481	8.02	10	11
	3.00	300	4.3	102	1.71	10	11	6.1	205	3.42	10	11	9.1	502	8.37	10	12
	3.25	325	4.3	106	1.76	10	11	6.2	214	3.57	9	11	9.1	523	8.72	11	12
	3.50	350	4.4	109	1.82	10	11	6.4	222	3.70	9	10	9.1	542	9.03	11	13
	3.75	375	4.6	113	1.89	9	11	6.4	228	3.80	10	11	9.1	562	9.37	12	13
270°	1.75	175	--	--	--	--	--	4.9	199	3.32	11	12	7.6	501	8.35	12	13
	2.00	200	3.7	108	1.80	11	13	5.2	212	3.53	11	13	8.2	530	8.83	10	12
	2.25	225	3.8	114	1.90	10	12	5.3	225	3.75	11	13	8.4	560	9.33	11	12
	2.50	250	4.0	123	2.05	10	12	5.5	238	3.97	10	12	8.5	589	9.82	11	12
	2.75	275	4.1	126	2.10	10	11	5.8	249	4.15	10	12	9.1	619	10.32	10	11
	3.00	300	4.3	132	2.20	10	11	6.1	26	4.35	10	11	9.1	646	10.77	10	12
	3.25	325	4.3	135	2.25	10	11	6.2	272	4.53	9	11	9.1	673	11.22	11	12
	3.50	350	4.4	141	2.35	10	11	6.4	282	4.70	9	10	9.1	701	11.68	11	13
	3.75	375	4.6	147	2.45	9	11	6.4	293	4.88	9	11	9.1	727	12.12	12	13
360°	1.75	175	--	--	--	--	--	4.9	265	4.42	11	12	7.6	659	10.98	11	13
	2.00	200	3.5	144	2.40	12	14	5.2	283	4.72	11	13	8.2	703	11.72	10	12
	2.25	225	3.8	153	2.55	11	13	5.3	300	5.00	11	13	8.4	745	12.42	11	12
	2.50	250	4.0	161	2.69	10	12	5.5	317	5.28	10	12	8.5	786	13.10	11	12
	2.75	275	4.1	169	2.81	10	12	5.8	333	5.55	10	12	9.1	825	13.75	10	11
	3.00	300	4.3	177	2.94	10	11	6.1	348	5.80	10	11	9.1	862	14.37	10	12
	3.25	325	4.3	183	3.05	10	11	6.2	362	3.03	9	11	9.1	892	14.95	11	12
	3.50	350	4.4	190	3.17	10	11	6.4	374	6.25	9	10	9.1	931	15.52	11	13
	3.75	375	4.5	195	3.25	10	11	6.4	384	6.40	9	10	9.1	964	16.07	12	13

MP ROTATOR PERFORMANCE DATA

MP3500
Radius: 10 m to 11 m
Ajustable Arc
● Light Brown: 90° to 210°

	Pressure		Radius	Flow	Flow	Precip. mm/hr	
	Bar	kPa	m	l/h	l/min	■	▲
90°	1.75	175	10.1	236	3.94	9	11
	2.00	200	10.4	257	4.28	10	11
	2.50	250	10.4	275	4.58	10	12
	2.75	275	10.7	291	4.84	10	12
	3.00	300	10.7	313	5.22	11	13
	3.50	350	10.7	325	5.41	11	13
	3.75	375	10.7	341	5.68	12	14
180°	1.75	175	10.1	502	8.36	10	11
	2.00	200	10.4	509	8.48	9	11
	2.50	250	10.4	602	10.03	11	13
	2.75	275	10.7	650	10.83	11	13
	3.00	300	10.7	704	11.73	12	14
	3.50	350	10.7	729	12.15	13	15
	3.75	375	10.7	745	12.41	13	15
210°	1.75	175	10.1	588	9.80	10	12
	2.00	200	10.4	645	10.75	10	12
	2.50	250	10.4	700	11.66	11	13
	2.75	275	10.7	747	12.45	11	13
	3.00	300	10.7	804	13.40	12	14
	3.50	350	10.7	854	14.23	13	15
	3.75	375	10.7	895	14.91	13	16

VALVES



Comparison Chart

	SRV	PGV JAR TOP	PGV	ICV	ICV FILTER SENTRY™	IBV	IBV FILTER SENTRY™	DRIP ZONE CONTROL KIT*
APPLICATIONS								
Potable water	•	•	•	•	•	•	•	•
Reclaimed water				•	•	•	•	•
Secondary water					•		•	•
Pressure regulation	•	•	•	•	•	•	•	•
Flow control	•	•	•	•	•	•	•	•
Angle option			•	•				
High pressure systems				•	•	•	•	
Low pressure systems	•	•	•	•	•	•	•	•
Residential	•	•	•					•
Commercial			•	•	•	•	•	•

** See Drip Zone Control Kits on page 134*

ADVANCED FEATURES

Flow Control

Maximize efficiency and prolong the life of a system by fine tuning flow and pressure for each zone.

PGV, PGV-JT, ICV, IBV

Reclaimed Water ID Handle

Violet tags and handles are an option for a clear, quick, and simple method of identifying the use of non-potable water.

PGV, PGV-JT, ICV, IBV (tag)

Filter Sentry™

The Filter Sentry disk scours the filter clean twice during each valve cycle. Since it is attached to the diaphragm, the Filter Sentry feature can beeasily added after a valve has been installed.

ICV, IBV

Accu-Sync™ Capable

Avoid sprinkler over-pressure conditions and experience significant water savings with Hunter's Accu-Sync pressure regulator.

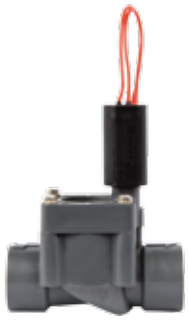
SRV, PGV, PGV-JT, ICV, IBV

SRV

Application: **Residential**
Size: **25 mm (1" BSP)**
Flow Rate: **0.25 to 7.0 m³/hr**

FEATURES

- Application: Residential
- Size: 25 mm
- Double-beaded diaphragm seal design for superior leak-free performance
- Compatible with Hunter's DC Latching solenoids for use with battery operated controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low flow capability allows use of Hunter's micro-irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 51° C
- Warranty period: 2 years
- ▸ Accu-Sync™ capable



SRV-100G
Inlet Diameter: 1"
13 cm H x 11 cm L x 6 cm W

OPERATING SPECIFICATIONS

- Flow rate: 0.25 to 7 m³/hr; 4 to 115 l/min
- Recommended pressure range: 1.5 to 10 bar; 150 to 1,000 kPa

▸ = *Advanced Feature descriptions on page 81*

SRV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Inlet/Outlet	3 Options (User Installed)
SRV-100G (no flow control)	**(blank)** = Female NPT	**(blank)** = No option
	S = slip x slip	**DC** = DC latching solenoid
	B = BSP threads	**CC** = Solenoid conduit cover
		AS-ADJ = Accu-Sync adjustable pressure regulator
		AS-xx* = Accu-Sync pressure regulator **20*** = *1.4 bar*, **30*** = *2.1 bar*, **40*** = *2.8 bar*, **50*** = *3.5 bar*, **70*** = *4.8 bar*

Examples:
SRV-100G - DC = 25 mm (1") Globe valve, no flow control, w/ DC latching solenoid
SRV-100G - S = 25 mm (1") Globe valve, no flow control, slip x slip

SRV PRESSURE LOSS IN BAR

Flow m³/hr	25 mm globe
0.3	0.08
1.0	0.10
2.5	0.13
3.5	0.13
4.5	0.21
5.5	0.30
7.0	0.46

kPa charts located on page 90

PGV

Application: **Residential/Light Commercial**
Size: **25 mm, 40 mm, 50 mm**
Flow Rate: **0.05 to 34 m³/hr; 0.7 to 570 l/min**

FEATURES

- Application (PGV100): Residential
- Application (PGV101, 151, 201): Residential/Light commercial
- Sizes: 25 mm, 40 mm, 50 mm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design for superior leak-free performance
- DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low flow capability allows use of Hunter's micro-irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 66° C
- Warranty period: 2 years
- ▸ Flow control
- ▸ Reclaimed water ID handle
- ▸ Accu-Sync™ capable

PGV-100G
Inlet Diameter: 1"
13 cm H x 11 cm L x 6 cm W

PGV-201
Inlet Diameter: 2"
20 cm H x 17 cm L x 13 cm W

OPERATING SPECIFICATIONS

- Flow rate
  - PGV 100: 0.05 to 7 m³/hr 0.7 to 115 l/min
  - PGV 101: 0.05 to 7 m³/hr 0.7 to 115 l/min
  - PGV 151: 5 to 27 m³/hr, 75 to 450 l/min
  - PGV 201: 5 to 34 m³/hr, 75 to 570 l/min
- Recommended pressure range: 1.5 to 10 bar; 150 to 1000 kPa

SOLENOID SPECIFICATION

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz (North America)
  - 370 mA inrush, 190 mA holding, 50 Hz (most International locations)

▸ = *Advanced Feature descriptions on page 81*

PGV PRESSURE LOSS IN BAR

Flow m³/hr	25 mm globe	25 mm angle	40 mm globe	40 mm angle	50 mm globe	50 mm angle
0.25	0.10	0.07				
1.00	0.10	0.07				
2.50	0.12	0.08				
3.50	0.16	0.09				
4.50	0.22	0.12	0.21	0.22	0.08	0.08
7.00	0.44	0.22	0.22	0.21	0.08	0.08
9.00			0.24	0.21	0.09	0.09
11.00			0.26	0.23	0.11	0.09
13.50			0.31	0.26	0.14	0.10
18.00			0.44	0.37	0.21	0.14
22.50			0.62	0.53	0.31	0.22
27.00			0.84	0.75	0.44	0.33
30.50					0.56	0.45
34.00					0.70	0.59

kPa charts located on page 90

PGV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-100G = 25 mm (1" BSP) Globe valve, no flow control	**(blank)** = Female NPT	**(blank)** = No Option	**(blank)** = No option
PGV-101G = 25 mm (1" BSP) Globe valve, w/ flow control	**S** = slip x slip *(Excludes PGV-151 and PGV-201)*	**DC** = DC latching solenoid	**R** = Reclaimed water ID handle *(Except for PGV-100)*
PGV-100A = 25 mm (1" BSP) Angle valve, no flow control		**LS** = Valve w/o solenoid	
PGV-101A = 25 mm (1" BSP) Angle valve, w/ flow control			**DC** = DC latching solenoid
PGV-151 = 40 mm (1½" BSP) Globe/angle valve, w/ flow control	**B** = Female BSP		**CC** = Solenoid conduit cover
PGV-201 = 50 mm (2" BSP) Globe/angle valve, w/ flow control			**AS-ADJ** = Accu-Sync adjustable pressure regulator
PGV-100 = 1" Globe valve, no flow control	**MM** = Male x male (NPT)		**AS-xx*** = Accu-Sync pressure regulator **20*** = *1.4 bar*, **30*** = *2.1 bar*, **40*** = *2.8 bar*, **50*** = *3.5 bar*, **70*** = *4.8 bar*
PGV-101 = 1" Globe valve, w/ flow control	**MMB** = Male x male (BSP)		

Examples:
PGV-101G - B - DC = 25 mm Globe valve, with flow control, female BSP threads, and DC latching solenoid
PGV-151 - B - AS-ADJ = 40 mm Globe valve, with flow control, female BSP threads, and Accu-Sync™ adjustable pressure regulator

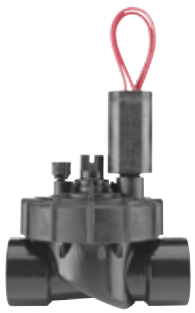
PGV JAR TOP

Application: **Residential**
Size: **25 mm (1" BSP)**
Flow Rate: **0.05 to 7 m³/hr; 0.7 to 115 l/min**

FEATURES

- Application: Residential
- Size: 25 mm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Durable glass-filled nylon threaded bonnet ring allows easy access without tools
- Double-beaded diaphragm seal design for superior leak-free performance
- DC latching solenoids enable Hunter's battery-powered controllers
- Low flow capability allows use of Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 66° C
- Warranty period: 2 years
- ▸ Flow control
- ▸ Reclaimed water ID handle
- ▸ Accu-Sync™ capable

PGV-100JT - G
Inlet Diameter: 1"
14 cm H x 11 cm L x 8 cm W



PGV-101JT - G
Inlet Diameter: 1"
14 cm H x 11 cm L x 8 cm W

OPERATING SPECIFICATIONS

- Flow rate: 0.05 to 7 m³/hr; 0.7 to 115 l/min
- Recommended pressure range: 1.5 to 10 bar; 150 to 1,000 kPa

SOLENOID SPECIFICATION

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz (North America)
  - 370 mA inrush, 190 mA holding, 50 Hz (most International locations)

▸ = *Advanced Feature descriptions on page 81*

PGV JAR TOP PRESSURE LOSS IN BAR

Flow m³/hr	25 mm globe
0.25	0.08
1.00	0.10
2.50	0.13
3.50	0.13
4.50	0.21
5.50	0.30
6.50	0.46

kPa charts located on page 90

PGV JAR-TOP – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-100JT = 25 mm (1" BSP) Globe jar-top valve, no flow control	**G** = Female NPT	**(blank)** = No option	**(blank)** = No option
PGV-101JT = 25 mm (1" BSP) Globe jar-top valve, w/ flow control)	**GS** = slip x slip	**LS** = Less solenoid *(Only available on 101JT-G, 100JT-G, 101JT-GB, 100JT-GB)*	**R** = Reclaimed water ID handle *(Except for PGV-100JT)*
	GB = Female BSP		**CC** = Solenoid conduit cover
	MM = Male x male (NPT)	**DC** = DC latching solenoid	**DC** = DC latching solenoid
	MMB = Male x male (BSP)		**AS-ADJ** = Accu-Sync adjustable pressure regulator
			AS-xx* = Accu-Sync pressure regulator **20*** = *1.4 bar*, **30*** = *2.1 bar*, **40*** = *2.8 bar*, **50*** = *3.5 bar*, **70*** = *4.8 bar*

Examples:
PGV-100JT - GB = 25 mm Globe jar top valve without flow control, and female BSP threads
PGV-100JT - MMB = 25 mm Globe jar top valve without flow control, and male BSP threads

ICV

Application: **Commercial/Municipal**
Size: **25 mm, 40 mm, 50 mm, 80 mm**
Flow Rate: **0.06 to 68 m³/hr; 0.4 to 1135 l/min**

FEATURES

- Application: Commercial/Municipal
- Sizes: 25 mm, 40 mm, 50 mm, 80 mm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Glass-filled nylon construction results in the highest pressure rating
- Double-beaded diaphragm seal design for superior leak-free performance
- Fabric-reinforced EPDM diaphragm and EPDM seat ensure superior performance in all water conditions
- DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low flow capability allows for use with Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 66° C
- Warranty period: 5 years
- ▸ Flow control
- ▸ Filter Sentry™
- ▸ Reclaimed water ID handle
- ▸ Accu-Sync™ capable

OPERATING SPECIFICATIONS

- Flow rate
  - ICV-101G: 0.06 to 9 m³/hr; 0.4 to 150 l/min
  - ICV-151G: 17 to 31 m³/hr; 75 to 510 l/min
  - ICV-201G: 9 to 34 m³/hr; 150 to 560 l/min
  - ICV-301: 34 to 68 m³/hr; 560 to 1,135 l/min
- Recommended pressure range: 1.5 to 15.0 bar; 150 to 1,500 kPa

SOLENOID SPECIFICATION

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz (North America)
  - 370 mA inrush, 190 mA holding, 50 Hz (most International locations)

▸ = *Advanced Feature descriptions on page 81*

ICV-101G
14 cm H x 12 cm L x 10.2 cm W

ICV-151G
18 cm H x 17.5 cm L x 14 cm W

ICV-201G
18 cm H x 17.5 cm L x 14 cm W

ICV-301
27.3 cm H x 23.5 cm L x 18.7 cm W

ICV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
ICV-101G = 25 mm (1" BSP) globe valve	**(blank)** = NPT threads	**(blank)** = No option	**(blank)** = No option
ICV-151G = 40 mm (1½" BSP) globe valve	**B** = BSP threads	**FS** = Filter Sentry	**R** = Reclaimed water ID handle
ICV-201G = 50 mm (2" BSP) globe valve		**DC** = DC latching solenoid	**CC** = Solenoid conduit cover
ICV-301 = 80 mm (3" BSP) globe/angle valve			**DC** = DC latching solenoid
			AS-ADJ = Accu-Sync adjustable pressure regulator
			AS-xx* = Accu-Sync pressure regulator **20*** = *1.4 bar*, **30*** = *2.1 bar*, **40*** = *2.8 bar*, **50*** = *3.5 bar*, **70*** = *4.8 bar*

Examples:
ICV-101G = 25 mm globe valve, NPT threads
ICV-151G - FS - R = 40 mm globe valve, NPT threads, Filter Sentry, and reclaimed water ID handle
ICV-301B = 80 mm globe/angle valve, BSP threads

ICV PRESSURE LOSS IN BAR

Flow m3/hr	25 mm globe	40 mm globe	50 mm globe	80 mm globe	80 mm angle
0.05	0.14				
0.10	0.14				
0.25	0.14				
1.00	0.17				
2.50	0.19				
3.50	0.21				
4.50	0.24	0.10			
7.00	0.33	0.11			
9.00	0.45	0.12	0.05		
11.00		0.15	0.07		
13.50		0.20	0.10		
17.00		0.29	0.15		
20.50		0.42	0.22		
23.00		0.52	0.28		
27.00		0.72	0.39		
30.50		0.93	0.50		
34.00		1.20	0.63	0.15	0.13
40.00			0.88	0.20	0.16
45.50			1.20	0.26	0.23
51.00				0.34	0.30
57.00				0.43	0.38
62.50				0.53	0.48
68.00				0.64	0.59

kPa charts located on page 90

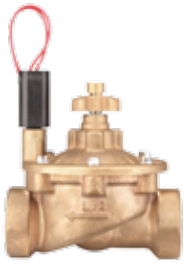
IBV

Application: **Commercial/Municipal**
Size: **25 mm, 40 mm, 50 mm, 80 mm**
Flow Rate: **0.06 to 68 m³/hr; 0.4 to 1135 l/min**

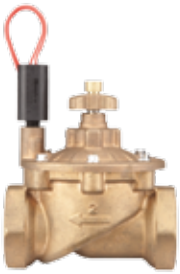
FEATURES

- Application: Commercial/Municipal
- Sizes: 25 mm, 40 mm, 50 mm, 80 mm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design for superior leak-free performance
- Fabric-reinforced EPDM diaphragm and EPDM seat ensure superior performance in all conditions
- DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low flow capability allows use of Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 66° C
- Warranty period: 5 years
- ▸ Flow control
- ▸ Filter Sentry™
- ▸ Accu-Sync™ capable

IBV-101G
11.4 cm H x 9.3 cm L x 13.1 cm W



IBV-151G
15.7 cm H x 13.2 cm L x 16.3 cm W



IBV-201G
15.4 cm H x 13.2 cm L x 17.6 cm W

IBV-301G
23.6 cm H x 18.3 cm L x 23 cm W

OPERATING SPECIFICATIONS

- Flow rate
  - IBV-101G: 0.06 to 9 m³/hr; 0.4 to 150 l/min
  - IBV-151G: 17 to 31 m³/hr; 75 to 510 l/min
  - IBV-201G: 9 to 34 m³/hr; 150 to 560 l/min
  - IBV-301: 34 to 68 m³/hr; 560 to 1,135 l/min
- Recommended pressure range: 1.5 to 15 bar; 150 to 1,500 kPa

SOLENOID SPECIFICATION

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz (North America)
  - 370 mA inrush, 190 mA holding, 50 Hz (most International locations)

▸ = *Advanced Feature detailed descriptions on page 81*

IBV – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
IBV-101G = 25 mm (1" BSP) globe valve	**(blank)** = NPT threads	**(blank)** = No option	**(blank)** = No option
IBV-151G = 40 mm (1 ½" BSP) globe valve	**B** = BSP threads	**FS** = Filter Sentry	**R** = Reclaimed water ID tag
IBV-201G = 50 mm (2" BSP) globe valve		**DC** = DC latching solenoid	**CC** = Solenoid conduit cover
IBV-301G = 80 mm (3" BSP) globe/ angle valve			**DC** = DC latching solenoid
			AS-ADJ = Accu-Sync adjustable pressure regulator
			AS-xx* = Accu-Sync pressure regulator **20*** = *1.4 bar*, **30*** = *2.1 bar*, **40*** = *2.8 bar*, **50*** = *3.5 bar*, **70*** = *4.8 bar*

Examples:
IBV-101G = 25 mm globe valve, NPT threads
IBV-151G - FS - R = 40 mm globe valve, NPT threads, Filter Sentry, and reclaimed water ID tag
IBV-201G - B - FS = 50 mm globe valve , BSP Threads, Filter Sentry

IBV PRESSURE LOSS IN BAR

Flow m3/hr	25 mm globe	40 mm globe	50 mm globe	80 mm globe
0.05	0.14			
0.10	0.14			
0.25	0.14			
1.00	0.17			
2.50	0.19			
3.50	0.21			
4.50	0.24	0.10		
7.00	0.33	0.11		
9.00	0.45	0.12	0.05	
11.00		0.15	0.07	
13.50		0.20	0.10	
17.00		0.29	0.15	
20.50		0.42	0.22	
23.00		0.52	0.28	
27.00		0.72	0.39	
30.50		0.93	0.50	
34.00		1.20	0.63	0.15
40.00			0.88	0.20
45.50			1.20	0.26
51.00				0.34
57.00				0.43
62.50				0.53
68.00				0.64

kPa charts located on page 90

ACCU-SYNC™

Application: **Residential/Commercial**
Type: **Pressure Regulator**

OPERATING SPECIFICATIONS

- Regulation from 1.5 to 7 bar; 150 to 700 kPa
- Static pressure: 10 bar; 1,000 kPa
- Required dynamic pressure differential: 1 bar; 100 kPa
- Works with AC and DC latching solenoids
- Works with any Hunter valve

ACCU-SYNC VALVE RECOMMENDED FLOW RANGE

Valve	Flow	
	m^3/hr	l/min
SRV-100/101	19 - 114	1.2 - 6.8
PGV-100/101	19 - 114	1.2 - 6.8
PGV-151	75 - 454	4.5 - 28
PGV-201	150 - 750	9.0 - 34
ICV-101	19 - 150	1.2 - 9.0
ICV-151	75 - 565	4.5 - 34
ICV-201	150 - 750	9.0 - 46
ICV-301	565 - 1135	34 - 68
IBV-101	19 - 150	1.2 - 9.0
IBV-151	75 - 565	4.5 - 34
IBV-201	150 - 750	9.0 - 46
IBV-301	565 - 1135	34 - 68

ACCU-SYNC APPLICATIONS

●	**Adjustable 1.5 to 7 bar**	For full customization, the adjustable Accu-Sync can regulate pressure from 1.5 to 7 bar; 150 to 700 kPa
●	**Fixed 1.5 bar**	Ideal for point source micro irrigation systems
●	**Fixed 2 bar**	Ideal for spray systems
●	**Fixed 3 bar**	Ideal for Hunter's MP Rotator and large in-line drip systems
●	**Fixed 3.5 bar**	Ideal for mid-range rotors
●	**Fixed 5 bar**	Ideal for larger rotors

Adjustable

AS-ADJ
Height with solenoid: 8.2 cm
Length: 26.5 cm

AS-30
Height with solenoid: 8.2 cm
Length: 26.5 cm

AS-50
Height with solenoid: 8.2 cm
Length: 26.5 cm

Fixed

AS-20
Height with solenoid: 8.2 cm
Length: 26.5 cm

AS-40
Height with solenoid: 8.2 cm
Length: 26.5 cm

AS-70
Height with solenoid: 8.2 cm
Length: 26.5 cm

Installation
The Accu-Sync shown installed on the ICV and PGV valves.

QUICK COUPLERS

Application: **Commercial**
Pressure Rated at: **10.5 bar; 1,050 kPa**

FEATURES

- 100% Interchangeable with Rain Bird®, Toro®, and Buckner®
- Red brass and stainless steel construction
- TuffTop™ thermoplastic locking and non-locking covers
- Optional WingThing™ stabilization and Acme key connection
- Stainless steel lug on 25 mm (1") and 52 mm (1¼") keys
- Spring-loaded covers with stainless steel springs for positive closing and protection of valve's sealing components

Quick Couplers

Reclaimed Option
All locking models have an optional purple TuffTop™ cover for sites using reclaimed water.

HQ PRESSURE LOSS IN BAR

Flow m³/hr	HQ-3	HQ-33	HQ-44	HQ-5
1.0	0.06	0.07		
2.3	1.12	0.14		
3.4	0.28	0.30	0.15	
4.5	0.50	0.52	0.30	0.07
6.8			0.79	0.21
9.1				0.43
11.4				0.63
13.6				0.90
15.9				1.37

kPa charts located on page 90

QUICK COUPLER, KEY AND HOSE SWIVEL CHARTS

Model	Inlet threads	Slots	Body	Color*	Locking	Key	Swivels
HQ-3RC	20 mm (¾") NPT	2	1 - Piece	Yellow	No	HK-33	HS-0
HQ-33DRC	20 mm (¾") NPT	2	2 - Piece	Yellow	No	HK-33	HS-0
HQ-33DLRC	20 mm (¾") NPT	2	2 - Piece	Yellow	Yes	HK-33	HS-0
HQ-44RC	25 mm (1") NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-LRC	25 mm (1") NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-RC-AW	25 mm (1") NPT	Acme	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	25 mm (1") NPT	Acme	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-4RC	25 mm (1") NPT	2	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	25 mm (1") NPT	2	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2
HQ-5RC-B	25 mm (1") BSP	2	1 - Piece	Yellow	No	HK-55	HS-1-B or HS-2-B
HQ-5LRC-B	25 mm (1") BSP	2	1 - Piece	Yellow	Yes	HK-55	HS-1-B or HS-2-B

Notes:
* All Locking cover models are available with purple covers for reclaimed water applications.
** Anti-rotation stabilization wings.

QUICK COUPLERS

HQ QUICK COUPLER – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Cover Options	3 Additional Options
HQ3 = 20 mm (¾") Inlet, 1-piece body, 2 slots	**RC** = Yellow rubber cover	**(blank)** = No option
HQ5 = 25 mm (1") Inlet, 1-piece body, 2 slots	**LRC** = Yellow locking ruber cover *(Not available for the HQ3 body)*	**AW** = Acme key with anti-rotation wings *(Only available in body HQ44)*
HQ33D = 20 mm (¾") Inlet, 2-piece body, 2 slots		**BSP** = BSP threads *(Only available in body HQ5)*
HQ44 = 25 mm (1") Inlet, 2-piece body, 1 slot or Acme		**R** = Purple locking cover *(reclaimed water ID; Only available LRC models)*

Examples:
HQ3 - RC = HQ3 valve with rubber cover
HQ44 - LRC = HQ44 valve with locking rubber cover
HQ44- LRC - R = HQ44 valve with locking rubber cover and reclaimed water ID
HQ44 - LRC - AW- R = HQ valve, locking rubber cover, Acme key socket, anti-rotation wings and reclaimed ID
HQ5 - LRC - BSP = HQ5 valve with locking rubber cover and BSP body inlet threads

HK KEYS

Key Model	Compatible Valve	Compatible Swivel
HK33 = 20 mm (¾") valve, 20 mm (¾") key inlet	HQ3, HQ33	HS0
HK44 = 25 mm (1") valve, 25 mm (1") key inlet	HQ44	HS1, HS2, HS1B, HS2B
HK44A = 25 mm (1") valve, acme key inlet	HQ44AW	HS1, HS2, HS1B, HS2B
HK55 = 25 mm (1") valve, 32 mm (1¼") key inlet	HQ5	HS1, HS2, HS1B, HS2B

HS HOSE SWIVELS

Hose Swivel	Compatible Key
HS0 = 20 mm (¾") inlet, 20 mm (¾") hose outlet	HK33
HS1 = 25 mm (1") inlet, 20 mm (¾") hose outlet	HK44, HK44A, HK55
HS2 = 25 mm (1") inlet, 25 mm (1") hose outlet	HK44, HK44A, HK55
HS1B = 25 mm (1") inlet, 20 mm (¾") BSP outlet	HK44, HK44A, HK55
HS2B = 25 mm (1") inlet, 25 mm (1") BSP outlet	HK44, HK44A, HK55

PRESSURE LOSS IN KPA

SRV PRESSURE LOSS IN kPa

Flow l/min	25 mm globe
4	7.6
20	13
40	13
55	13
75	22
95	35
115	43

PGV PRESSURE LOSS IN kPa

Flow l/min	25 mm globe	25 mm angle	40 mm globe	40 mm angle	50 mm globe	50 mm angle
4	8.2	6.8				
20	9.7	6.8				
40	13.0	6.8				
55	11.0	6.8				
75	22.0	14.0	20	22	4.0	8.8
95	31.0	16.0	20	21	5.7	9.2
115	43.0	21.0	21	21	7.3	9.6
135			22	21	9.0	10.0
200			27	24	14.0	12.0
325			47	41	26.0	19.0
400			65	59	33.0	24.0
500			96	92	43.0	32.0
625					56.0	45.0
775					74.0	64.0

PGV JAR TOP PRESSURE LOSS IN kPa

Flow l/min	25 mm globe
4	8.2
20	9.7
40	13.0
55	11.0
75	22.0
95	31.0
115	43.0

ICV PRESSURE LOSS IN kPa

Flow l/min	25 mm globe	40 mm globe	50 mm globe	80 mm globe	80 mm angle
1	14				
2	14				
4	14				
20	17				
40	20				
60	20				
75	20	9.6			
115	29	10.0			
150	48	12.0	5.0		
190		15.0	7.0		
225		18.0	9.3		
280		26.0	14.0		
340		37.0	20.0		
380		46.0	26.0		
450		65.0	36.0		
510		84.0	47.0		
565		104.0	57.0	16	12
660			79.0	22	17
750			103.0	29	23
850				38	30
950				47	38
1050				58	47
1135				69	56

IBV PRESSURE LOSS IN kPa

Flow l/min	25 mm globe	40 mm globe	50 mm globe	80 mm globe
1	14			
2	14			
4	14			
20	17			
40	20			
60	20			
75	20	9.6		
115	29	10.0		
150	48	12.0	5.0	
190		15.0	7.0	
225		18.0	9.3	
280		26.0	14.0	
340		37.0	20.0	
380		46.0	26.0	
450		65.0	36.0	
510		84.0	47.0	
565		104.0	57.0	16
660			79.0	22
750			103.0	29
850				38
950				47
1050				58
1135				69

HQ PRESSURE LOSS IN kPa

Flow m^3/hr	HQ-3	HQ-33	HQ-44	HQ-5
18.9	5.5	6.9		
37.9	12.4	13.8		
56.8	28.3	29.6	15.2	
75.7	49.6	52.4	30.3	6.9
113.6			79.3	20.7
151.4				43.4
189.3				63.4
227.1				89.6
265.0				136.5


Real Time Flow Monitoring
INFORMATION
RUN
SYSTEM SET
MANUAL OPERATION
ADVANCED FEATURES
DATA HISTORY
SET STATION & PROGRAM NAMES
SET PROGRAM OVERLAP OPTIONS
SET SENSOR OPERATION
SET CURRENT DATE / TIME
SET PROGRAM START TIMES
SET STATION RUN TIMES
SET DAYS TO WATER
SET PUMP OPERATION
SET CYCLE AND SOAK
SET FLOW MONITORING

CONTROLLERS

Comparison Chart

	ELC	X-CORE	PCC	PRO-C	I-CORE	ACC	XC HYBRID†	NODE†	WVS†
APPLICATIONS									
Residential	•	•	•	•			•	•	•
Light commercial			•	•			•	•	•
Commercial					•		•	•	
High-end commercial						•	•	•	•
TYPE									
Fixed	•	•	•				•	•	•
Modular				•	•	•			
Decoder					•	•			
Indoor	•	•	•	•					
Outdoor		•	•	•	•	•	•	•	•
FEATURES									
Number of stations	4, 6	2, 4, 6, 8	6, 9, 12, 15	3 to 15	6 to 42* 1 to 48**	12 to 42* 1 to 99**	4, 6, 8, 10, 12	1, 2, 4, 6	1, 2, 4
Independent programs	3	3	3	3	4	6	3	3	program by station
Start times per program	4	4	4	4	8 (A, B, C) 16 (D)	10	4	4	9
Max. station run time (hrs)	4	4	6	6	12	6	4	6	4

† *Battery-powered controllers*
* *Conventional controller*
** *Decoder controller*

ADVANCED FEATURES

Automatic Short Circuit Protection

Automatic short circuit protection, found in all Hunter AC powered controllers, automatically detects electrical faults typically caused by wiring issues or damage. Shorted stations are skipped, allowing watering to continue for those stations that are not faulty. There are no fuses to blow or internal circuit breakers to trip that can result in completely disabling irrigation.

Eco Logic, X-Core, PCC, Pro-C, I-Core, ACC

Real Time Flow Monitoring

This feature permits the connection of a flow meter to recognize high or low flow conditions and react automatically to alarms. The controller learns typical flows for each zone of irrigation and then monitors performance during automatic irrigation. When incorrect flows are detected, the controller can identify the faulty station and shut it down. This feature is designed for best use with a normally-closed Master Valve. The alarm parameters are user-programmable for optimal flexibility. Flow totals are also recorded in controller memory to verify system water usage.

I-Core, ACC

Seasonal Adjustment

This feature allows for quick adjustments to irrigation run times through a percentage scale. During peak season, set the seasonal adjust to 100%. If weather conditions require less water, enter the appropriate percentage value (i.e. 50%) to cut down irrigation run times without the need to adjust each station in the program. Hunter offers three different ways to use Seasonal Adjustment to reduce water usage:

Globally: Provides a seasonal adjustment value to all controller programs (available on most Hunter controllers)

Monthly: Allows user to program seasonal adjustment values for each month of the year (available on I-Core controller). The controller will automatically change the programmed seasonal adjustment value at the first day of every month.

I-Core

Daily (Solar Sync ET sensor): Implements an automatic daily adjustment based on measured local weather (available for most Hunter controllers)

X-Core, PCC, Pro-C, I-Core, ACC

Easy Retrieve™

A manual back-up utility that stores a complete controller´s schedule and setup information in back-up memory. This allows the saved watering schedule to be restored at any time. This can be used to set a controller back to the initial settings after tampering or at the beginning of a new season.

X-Core, PCC, Pro-C, I-Core, ACC, XC Hybrid, Node

Non-Water Days

Day(s) of the week can be programmed Off in advance, so that irrigation does not occur regardless of program interval schedules. For example, if the gardener mows the lawn on Saturday, the non-water day feature allows Saturday to be programmed Off, so that watering will not occur.

PCC, Pro-C, I-Core, ACC

No Water Window

User-specified periods of time during which the controller will not allow automatic irrigation. No Water Window can be used to comply with local watering restrictions or to prevent conflicts with pedestrian traffic. This setting does not affect manual watering options for local maintenance.

I-Core, ACC

Delay Between Stations

A delay in watering between individual stations as the controller steps sequentially through zones of irrigation. The delay may range from a few seconds, to permit slow-closing valves time to shut down, or much longer to allow pressure tanks, etc., to refill or recharge.

X-Core, PCC, Pro-C, I-Core, ACC

Programmable Rain Delay

A user-specified number of days for the controller to remain in Off mode, but then automatically revert to automatic irrigation. This will prevent watering during an extended period of inclement weather, but will resume watering automatically without requiring a return visit to the controller. The controller displays the number of days remaining before watering resumes.

Eco Logic, X-Core, PCC, Pro-C, I-Core, ACC, XC Hybrid, Node

Cycle and Soak

Water-saving feature that allows the operator to specify a maximum run time for each single station, followed by a minimum soak time, to prevent runoff from slopes or saturated soil. The operator can enter any run time, and the controller will automatically divide it into cycles to allow the water to be absorbed during the soak periods. The feature is adjustable by individual station for unique soil and site conditions.

I-Core, ACC

Simultaneous Station Groups

The ability to group stations into larger irrigation units that run together within automatic programs. This permits consolidation of large systems into fewer items to program and can be used to control system flow in high capacity installations.

ACC

Quick Check™

This feature allows for the quick diagnosis of wiring problems to valves in the field instead of checking each field wiring circuit for potential problems. Quick Check can detect a field wiring short and displays an “ERR” and station number on the display.

Eco Logic, X-Core, PCC, Pro-C, I-Core, ACC, Node

Total Run Time Calculator

This feature adds up all run times, and calculates the total duration of a program or to instantly display the full length of an irrigation cycle. This information can be used to determine the time of day at which watering will end.

PCC, Pro-C, I-Core, X-Core, ACC, Node

Sensor Programmability

The ability to specify which program or stations will be shut down in response to a specific sensor alarm. This allows stations or programs unaffected by the sensor to continue automatic operations.

X-Core, PCC, Pro-C, I-Core, ACC, XC Hybrid

Non-Volatile Memory

This feature offers protection against unreliable power, retaining current time, day, and program data.

Available on all Hunter controllers

ECO LOGIC

Application: **Residential**
Number of Stations: **4, 6**
Type: **AC Power/Fixed**

FEATURES

- Number of stations: 4, 6
- Type: Fixed
- Enclosure: Indoor/outdoor
- Independent programs: 3 (customisable)
- Start times per program: 4 (customisable)
- Max station run time: 4 hrs
- Compatible with Hunter Clik sensors and other micro-switch type weather sensors
- Rain sensor bypass
- Programmable rain delay: 1 to 7 days
- Manual cycle
- Test program allows for quick system checks
- Quick Check™
- Non-volatile memory
- Automatic short circuit protection
- Seasonal adjustment (global): 10% to 150%
- Delay between stations (maximum): 4 hrs
- Customisable programs enable the controller to be simplified
- Warranty period: 2 years

Plastic indoor
12.6 cm H x 12.6 cm W x 3.2 cm D

ELECTRICAL SPECIFICATIONS

- Transformer input: 230/240 VAC 50/60 Hz
- Transformer output (24 VAC): 0.625 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.56 A

APPROVALS

- CE, cUL

ECO LOGIC

Model	Description
ELC-401i - E	4-Station indoor controller, 230/240 VAC with European connections
ELC-601i - E	6-Station indoor controller, 230/240 VAC with European connections

X-CORE

Application: **Residential**
Number of Stations: **2, 4, 6, 8**
Type: **Fixed**

FEATURES

- Number of stations: 2, 4, 6, 8
- Type: Fixed
- Enclosures: Indoor and outdoor
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 4 hrs
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ Programmable rain delay
- ▸ Quick Check
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment: Global or automatic updates with Solar Sync™
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Total Run Time

Plastic indoor
16.5 cm H x 14.6 cm W x 5 cm D

Plastic outdoor
22 cm H x 17.8 cm W x 9.5 cm D

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230/240 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- Pump/master valve: (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: -18° C to 66° C

APPROVALS

- CE, UL, cUL, C-tick, FCC

▸ = *Advanced Feature descriptions on pages 93 and 94*

X-CORE – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
XC-2 = 2 stations *(indoor model only)*	**00** = 120VAC	**(blank)** = Outdoor model	**(blank)** = No option
XC-4 = 4 stations	**01** = 230/240 VAC	**i** = Indoor model	**E** = 230/240 VAC with European connections
XC-6 = 6 stations			**A** = 230/240 VAC with Australian connections *(Australian outdoor models have internal transformer with cord)*
XC-8 = 8 stations			

Examples:
XC-201i - E = 2-Station 230/240 VAC indoor controller, with plastic cabinet
XC-401 - E = 4-Station 230/240 VAC outdoor controller, with plastic cabinet
XC-601i - E = 6-Station 230/240 VAC indoor controller, with plastic cabinet
XC-801 - E = 8-Station 230/240 VAC outdoor controller, with plastic cabinet

PCC

Application: **Residential/Light Commercial**
Number of Stations: **6, 9, 12, 15**
Type: **Fixed**

FEATURES

- Number of stations: 6, 9, 12, 15
- Type: Fixed
- Enclosures: Indoor and outdoor
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- Optional lighting specific programs provide independent irrigation & lighting control (requires Pro-C/FX facepack upgrade: P/N 526205)
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ Programmable rain delay
- ▸ Quick Check
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment: Global or automatic updates with Solar Sync™
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Total run time calculator
- ▸ Non-Water Days

Plastic indoor
21.1 cm H x 24.4 cm W x 9.4 cm D

Plastic outdoor
22.6 cm H x 25.1 cm W x 10.9 cm D

Optional Pro-C/FX Facepack
Provides irrigation and lighting programs to be controlled from the Pro-C (P/N 526205)

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230/240 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: -18° C to 66° C

APPROVALS

- CE, UL, cUL, C-tick, FCC

▸ = *Advanced Feature descriptions on pages 93 and 94*

USER INSTALLED OPTIONS (Specify Separately)

Options	Description
526205	Pro-C FX upgrade facepack provides lighting control independant of irrigation control. Up to 3 lighting transformers can be controlled using new programs L1, L2, & L3. (Use of a single lighting transformer reduces the total number of irrigation stations available by 1)

PCC – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
PCC-6 = 6 stations	**00** = 120/VAC	**(blank)** = Outdoor model	**(blank)** = No option
PCC-9 = 9 stations	**01** = 230/240 VAC	**i** = Indoor model	**E** = 230/240 VAC with European connections
PCC-12 = 12 stations			**A** = 230/240 VAC with Australian connections *(Australian outdoor models have internal transformer with cord)*
PCC-15 = 15 stations			

Examples:
PCC-1201i - E = 12-Station indoor controller 230/240 VAC and plastic cabinet
PCC-600 = 6-Station outdoor controller 120 VAC and plastic cabinet
PCC-901i - E = 9-Station indoor controller 230/240 VAC and plastic cabinet

PRO-C

Application: **Residential/Light Commercial**
Number of Stations: **3 to 15**
Type: **Modular**

FEATURES

- Number of stations: 3 to 15
- Type: Modular
- Enclosures: Indoor and outdoor
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- Optional lighting specific programs provide independent irrigation & lighting control (requires Pro-C/FX facepack upgrade: P/N 526205)
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ One touch manual start and advance
- ▸ Rain sensor bypass
- ▸ Programmable rain delay
- ▸ Quick Check
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment: Global or automatic updates with Solar Sync™
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Total run time calculator
- ▸ Non-Water Days

Plastic indoor
21.1 cm H x 24.4 cm W x 9.4 cm D

Plastic outdoor
22.6 cm H x 25.1 cm W x 10.9 cm D

Modular Expansion
Pro-C's Modular Edition allows easy expansion after initial installation.

Optional Pro-C/FX Facepack
Provides irrigation and lighting programs to be controlled from the Pro-C (P/N 526205)

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230/240 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: -18° C to 66° C

APPROVALS

- CE, UL, cUL, C-tick, FCC

▸ = *Advanced Feature descriptions on pages 93 and 94*

PRO-C – SPECIFICATION BUILDER: ORDER 1 + 2

1 Base Models	2 Options
PC-300i = 3-Station indoor Pro-C controller, plug-in transformer	**(blank)** = No option
PC-300 = 3-Station outdoor Pro-C controller, internal transformer	**E** = 230/240 VAC with European connections
PC-301i = International version 3-Station indoor Pro-C controller, plug-in transformer	**A** = 230/240 VAC with Australian connections *(Outdoor model has internal transformer with cord)*
PC-301 = International version 3-Station outdoor Pro-C controller, internal transformer	

Examples:
PC-301i - E = 3-Station indoor base unit, and plastic cabinet
PC-601i - E = 3-Station indoor base unit, one PCM-300 module, and plastic cabinet
PC-901i - E = 3-Station indoor base unit, two PCM-300 modules, and plastic cabinet
PC-1201 - E = 3-Station outdoor base unit, three PCM-300 modules, and plastic cabinet
PC-1501 - E = 3-Station outdoor base unit, one PCM-300 module, one PCM-900 module, and plastic cabinet

EXPANSION MODULES

Station Expansion Modules	Description
PCM-300	3-Station plug-in module: Use to increase station count from 3 to 6, 6 to 9, and 9 to 12
PCM-900	9-Station plug-in module: Use to increase station count from 6 to 15 only

I-CORE

Application: **Commercial**
Number of Stations: **6 to 42**
Type: **Modular**

FEATURES

- Number of stations: 6 to 42 (48 stations with DUAL decoders)
- Type: Modular
- Enclosure: Outdoor-plastic or metal
- Independent programs: 4
- Start times per program: 8 (A, B, C); 16 (D)
- Max. station run time: 12 hrs
- Warranty period: 5 years
- ▸ Real time flow monitoring
- ▸ Easy Retrieve™ memory
- ▸ One touch manual start and advance
- ▸ Rain sensor bypass
- ▸ Programmable rain delay
- ▸ Quick Check
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment
  - Global, by user
  - Monthly, by program
  - Automatic, by Solar Sync
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Total run time calculator
- ▸ Cycle and soak
- ▸ No water window
- ▸ Non-Water Days
- ▸ Multi-language programming: English, Spanish, French, Italian, German, Portuguese

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/240 VAC, 50/60 Hz
- Transformer output (24 VAC): 1.4 A
- Dual voltage transformer (120/240 VAC)
- Station output (24 VAC): 0.56 A
- Simultaneous station operation (includes master valve): 5 valves
- Pump/Master Valve (24 VAC): 0.28 A
- Sensor inputs: Plastic: 2; Metal: 3
- Operating temperature: -18° C to 66° C

APPROVALS

- CE, UL, cUL, C-tick, FCC
- Enclosure rating
  - Steel wall mounts: IP-56
  - Plastic pedestal: IP-24
  - Plastic wall-mount: IP-44

▸ = *Advanced Feature descriptions on pages 93 and 94*

Plastic wall mout
25.7 cm H x 33.7 cm W x 2.1 cm D

Metal wall mount (grey powder-coated or stainless))
29 cm H x 39 cm W x 15 cm D

Metal pedestal (grey powder-coated or stainless)
92 cm H x 39 cm W x 13 cm D

Plastic pedestal
97 cm H x 54 cm W x 40 cm D

Modular Expansion
I-Core's unique "bridge" modules activate the existing terminal strips.

I-CORE	
Model	**Description**
IC-600-PL	6-Station controller, indoor/outdoor, plastic cabinet
IC-601-PL	International version, 6-Station controller, indoor/outdoor, plastic cabinet
IC-600-M	6-Station controller, indoor/outdoor, metal cabinet
IC-600-PP	6-Station controller, indoor/outdoor, plastic pedestal
ICM-600	6-station plug-in expansion module
IC-600-SS	6-Station controller, indoor/outdoor, stainless steel cabinet
ACC-PED	Metal pedestal, gray powder-coated, use with I-Core and ACC metal controllers
PED-SS	Stainless pedestal for use with I-Core and ACC stainless controllers

ENCLOSURE TYPES & EXPANSION	
Enclosure Type	**Expands To**
Plastic cabinet	30 Stations
Metal/stainless cabinet	42 Stations
Plastic pedestal	42 Stations
Stainless cabinet	42 Stations

DUAL

Application: **Commercial**
Number of Stations: **6 to 48**
Type: **Decoder Output for I-Core**

FEATURES

- Two-wire decoder system for I-Core controllers
- Decoder station sizes available: 1, 2
- DUAL-S external surge arresters
- Field programmable
  - Dual decoder module display and push button programming makes it easy to program decoders at the controller itself
  - Dual decoders can be field programmed with the Hunter ICD-HP. No need to remove decoders from the two-wire path.
- Decoder module displays decoder operation and diagnostic information
- Can operate up to 48 stations of combined decoder and conventional control, making system retrofit easy
- Waterproof connectors for connection to two-wire path included with all Dual decoders and DUAL-S surge arrester
- Solenoid finder feature assists in locating valves in the field
- Number of 2-wire paths: 3
- ▸ Includes all features of the I-Core controller, plus decoder operations
- ▸ Programmable decoders
- ▸ Wireless programming with Hunter ICDHP
- ▸ Color-coded ID wire
- ▸ Waterproof connectors included

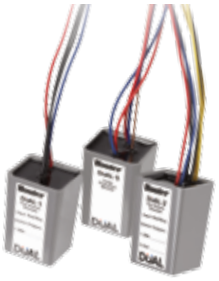
DUAL SPECIFICATIONS

- Max. recommended distance, decoder to solenoid: 30 m
- Max. distance to decoder
  - 2 mm² (14 AWG) wire path: 1,500 m
  - 3.3 mm² (12 AWG) wire path: 2,300 m

APPROVALS

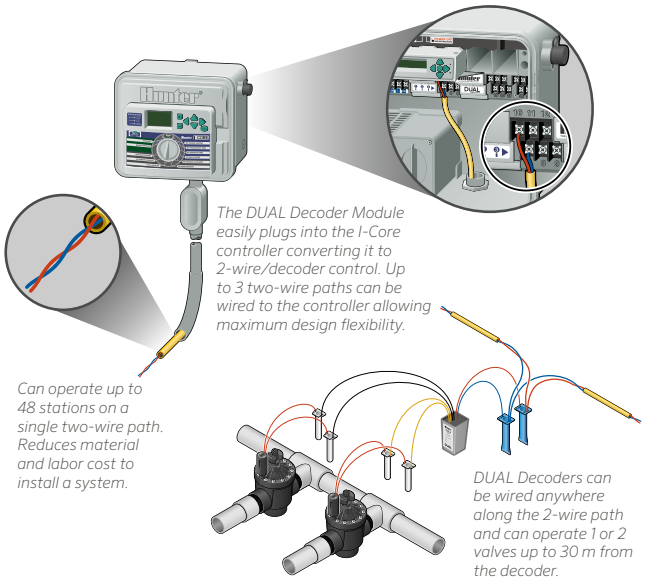
- CE, UL, cUL, C-tick, FCC

▸ = *Advanced Feature descriptions on pages 93 and 94*



Dual decoders and surge arrestor
7.6 cm x 4.4 cm W x 5 cm D

DUAL decoder module
3.5 cm H x 11.1 cm W x 10.1 cm D



The DUAL Decoder Module easily plugs into the I-Core controller converting it to 2-wire/decoder control. Up to 3 two-wire paths can be wired to the controller allowing maximum design flexibility.

Can operate up to 48 stations on a single two-wire path. Reduces material and labor cost to install a system.

DUAL Decoders can be wired anywhere along the 2-wire path and can operate 1 or 2 valves up to 30 m from the decoder.

DUAL

Base model	Plus	Description
IC-600-PL	DUAL48M	48-Station controller, indoor/outdoor, plastic cabinet
IC-601-PL	DUAL48M	International version, 6-Station controller, indoor/outdoor, plastic cabinet
IC-600-M	DUAL48M	48-Station controller, indoor/outdoor, metal cabinet
IC-600-PP	DUAL48M	48-Station controller, indoor/outdoor, plastic pedestal
IC-600-SS	DUAL48M	48-Station controller, indoor/outdoor, stainless steel cabinet

Dual Model	Description
DUAL48M	Dual decoder output module. Plug-in module converts any I-Core controller to 2-wire decoder system (up to 48 stations maximum)
DUAL-1	DUAL 1-station decoder (includes 2 DBRY-6 connectors)
DUAL-2	DUAL 2-station decoder (includes 2 DBRY-6 connectors)
DUAL-S	Dual surge arrestor (includes 4 DBRY-6 connectors)

ID WIRE MODEL GUIDE

2 mm² Standard Decoder Cable		3.3 mm² Long Range, Heavy-Duty Decoder Cable	
ID1GRY	Gray jacket	ID2GRY	Gray jacket
ID1PUR	Purple jacket	ID2PUR	Purple jacket
ID1YLW	Yellow jacket	ID2YLW	Yellow jacket
ID1ORG	Orange jacket	ID2ORG	Orange jacket
ID1BLU	Blue jacket	ID2BLU	Blue jacket
ID1TAN	Tan jacket	ID2TAN	Tan jacket

ID WIRE MAXIMUM WIRE RUNS

ID 1 Wire	ID 2 Wire
1500 m with I-Core/Dual systems	2300 m with I-Core/Dual systems
3 km with ACC/ICD systems	4.5 km with ACC/ICD systems

CONTROLLERS

ACC

Application: **High-End Commercial**
Number of Stations: **12 to 42**
Type: **Modular**

FEATURES

- Number of stations: 12 to 42
- Type: Modular
- Enclosure: Outdoor
- Independent programs: 6
- Start times per program: 10
- Max. station run time: 6 hrs
- Warranty period: 5 years
- ▸ Real time flow monitoring
- ▸ Easy Retrieve™ memory
- ▸ One touch manual start and advance
- ▸ Programmable rain delay
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment: ACC
  - Global, by user
  - Fixed, by program
  - Automatic, by Solar Sync
- ▸ Delay between stations
- ▸ Sensor programmability: ACC
- ▸ Total run time calculator
- ▸ Cycle and soak
- ▸ No Water Window
- ▸ Simultaneous station groups

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/240 VAC, 50/60 Hz
- Transformer output (24 VAC): 4.0 A
- Dual voltage transformer (120/240 VAC)
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.32 A
- Pump/master valve: 2, normally closed
- Sensor inputs: 4
- Operating temperature: -18° C to 66° C

APPROVALS

- CE, UL, cUL, C-tick, FCC
- Enclosure rating
  - Steel wall mounts: IP-56
  - Plastic pedestal: IP-24

ALL STAINLESS STEEL (SS) MODELS

- American-made Type 304 Stainless Steel 1.45 mm gauge steel
- Passivated for corrosion resistance

▸ = *Advanced Feature descriptions on pages 93 and 94*

Metal wall mount (grey powder-coated or stainless)
31 cm H x 39 cm W x 16 cm D

Metal pedestals (grey powder-coated or stainless)
92 cm H x 39 cm W x 13 cm D (pedestal only)

Plastic pedestal
97 cm H x 54 cm W x 40 cm D

ACM-600
Optional Extreme Service high-lightning 6-station output module.

AGM-600
Standard 6-station output module with heavy-duty surge protection.

ACC

Model	Description
ACC-1200	12-Station base unit controller, expands to 42 stations, metal cabinet
ACC-1200-SS	12-station base unit controller, stainless steel cabinet
ACC-1200-PP	12-Station base unit controller, expands to 42 stations, plastic pedestal
ACC-PED	Metal pedestal, grey powder-coated, for use with I-Core and ACC metal controllers
PED-SS	Stainless steel pedestal for use with I-Core and ACC stainless controllers

EXPANSION MODULES

Station Expansion Modules	Description
ACM-600	6-Station plug-in module for use with the ACC-1200 series controllers
AGM-600	6-Station plug-in module for use with the ACC-1200 series controllers (extreme service lightning protection version)

ACC-99D

Application: **High-End Commercial**
Number of Stations: **1 to 99**
Type: **Decoder**

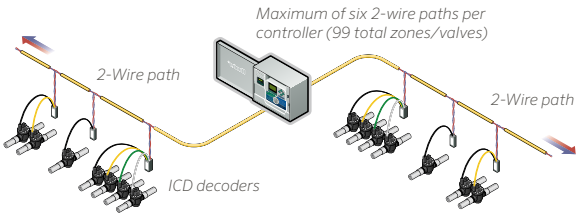
FEATURES

- Includes all standard features of the ACC
- Decoder station sizes available: 1, 2, 4, 6
- Sensor decoder available with Flow and Clik inputs
- Max. distance to decoder
  - 2 mm² (14 AWG) wire path: 3,000 m
  - 3.3 mm² (12 AWG) wire path: 4,500 m
- Max. recommended distance, decoder to solenoid: 45 m
- Field programmable
- ICD-HP wireless handheld programmer compatible
- Two-way communications
- Surge suppression: Internal (ground wire included)
- Dual pump/master valve outputs may be assigned to decoders
- Wire path connectors included with each decoder
- Number of wire paths: 6
- Automatic daily weather-based scheduling with optional Hunter Solar Sync™ sensor

ICD-100, 200, ICD-SEN
92 mm H x 38 mm W x 12.7 mm D

ICD-400, 600
92 mm H x 46 mm W x 38 mm D

(Height does not include wire leads)



ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz, 2 A max at 120 V, 1A max at 230 V
- Transformer output: 24 VAC, 4 A, @ 120 VAC
  - Decoder Line (path) output: 34 V peak-to-peak
  - Decoder Power draw: 40 mA per active output
  - Solenoid capacity: 2 standard 24 VAC Hunter solenoids per output within 45 m runs, up to 14 solenoids max simultaneous (includes dual P/MV outputs)
- Wiring, Decoder to solenoid: standard pair 1 mm (18 AWG) to 45 m (twisted improves surge resistance)
- 6 two-wire output paths to field decoders
- Two-way confirmation of decoder activation
- Two-way monitoring of sensor connections (ICD-SEN)
- Diagnostic LEDs with line status, signal activity, decoder and status
- Programmable decoder station IDs (from controller panel)

ID WIRE MODEL GUIDE

2 mm² (14 AWG) Standard Decoder Cable		3.3 mm² (12 AWG) Long Range, Heavy-Duty Decoder Cable	
ID1GRY	Grey jacket	ID2GRY	Gray jacket
ID1PUR	Purple jacket	ID2PUR	Purple jacket
ID1YLW	Yellow jacket	ID2YLW	Yellow jacket
ID1ORG	Orange jacket	ID2ORG	Orange jacket
ID1BLU	Blue jacket	ID2BLU	Blue jacket
ID1TAN	Tan jacket	ID2TAN	Tan jacket

MAXIMUM WIRE RUNS

ID 1 Wire	ID 2 Wire
1500 m with I-Core/Dual systems	2.3 km with I-Core/Dual systems
3 km with ACC/ICD systems	4.5 km with ACC/ICD systems

ACC-99D DECODER

Model	Description
ACC-99D	2-Wire decoder controller with 99 station capacity, metal cabinet
ACC-99D-SS	2-Wire decoder controller with 99 station capacity, stainless steel wall mount
ACC-99D-PP	2-Wire decoder controller with 99 station capacity, plastic pedestal
ACC-PED	Metal pedestal, grey powder-coated, for use with I-Core and ACC metal controllers
PED-SS	Stainless steel pedestal for use with I-Core and ACC stainless controllers

DECODER MODULES

Decoder Model*	Description
ICD-100	Single-station decoder with surge suppression and ground wire
ICD-200	2-station decoder with surge suppression and ground wire
ICD-400	4-station decoder with surge suppression and ground wire
ICD-600	6-station decoder with surge suppression and ground wire
ICD-SEN	2-input sensor decoder with surge suppression and ground wire

Notes:
* Specify separately. Each decoder includes 2 waterproof connectors for red and blue wires.

ICD-HP

Application: **Commercial**
Type: **Decoder Programmer**

FEATURES

- Program or re-program decoder stations, whether new or installed
- Program any station numbers in any order, or skip stations for future expansion
- Simplifies setup and diagnostics for sensor decoders
- Sensor test functions for Clik and Flow sensors, plus built-in multimeter
- Waterproof programming cup
- Communicates with decoder through plastic case—wireless electro-magnetic induction saves waterproof connectors
- Compatible with Hunter ICD or Dual series decoders
- USB powered for shop or office use; 4 x AA batteries for field use
- All test leads and cables included in durable, foam-padded carrying case
- Turn decoder stations on and view solenoid status, current in milliamps, and more
- Backlit adjustable display
- 6 international operating languages

ELECTRICAL SPECIFICATIONS

- Power input: 4 x AA batteries, or standard USB connector (included)
- Communications: Wireless induction, range 25 mm (1")
- Fused test leads for unpowered decoder functions

APPROVALS

- FCC, CE, C-tick (no license required)

ICD-HP
21 cm H x 9 cm W x 5 cm D
Handheld programmer, includes all test and power leads, programming cup, and rugged carrying case

ICD-HP

ICD-HP	
Model	**Description**
ICD-HP	Wireless handheld decoder programmer, includes all test and power leads, programming cup, and rugged carrying case

PSR

Application: **Residential/Commercial**
Type: **Accessory**

FEATURES

- Three models available to fit your particular application
- NEMA 3R rated locking plastic enclosure rated for outdoor use, weather resistance and security
- 24 VAC flying leads make it quick and easy to wire to controller
- The PSR-22 meets demanding electrical requirements for UL approval, and the PSR-52/-53 contain UL-approved relays

Compact design
Enclosure measures
17 cm H x 19 cm W x 12 cm D

PUMP START RELAY

Model	Description
PSR-22	Double pole/single throw pump start relay for 120 VAC pumps up to 1.5 kW or 240 VAC pumps up to 3.7 kW
PSR-52	Double pole/single throw pump start relay for 120 VAC pumps up to 2.2 kW or 240 VAC pumps up to 5.6 kW
PSR-53	Triple pole/single throw pump start relay for 120 VAC pumps up to 2.2 kW, 240 VAC pumps up to 5.6 kW, or 240 VAC pumps up to 7.5 kW (three phase)
PSRB	Used to boost controller output power available to operate larger pump start relays if necessary

PUMP START RELAY ELECTRICAL SPECIFICATIONS

Models	Single Phase		3 Phase	Max Full Load	Max Resistive	Coil VA		Coil VA	
	kW AT 110 VAC	kW AT 240 VAC	kW AT 240 VAC	AMPS	AMPS	IN-RUSH	(AMPS)	HOLDING	(AMPS)
PSR-22	1.5*	3.7*	N/A	30	40	31	(1.29)	7	(0.29)
PSR-52	2.2	5.6	N/A	40	40	56	(2.33)	6	(0.25)
PSR-53	2.2	5.6	7.5	40	50	56	(2.33)	6	(0.25)

Notes:
* Approximate power

ROAM

Application: **Residential/Commercial**
Range: **up to 300 m**
Type: **Remote**

FEATURES

- Designed to work with Hunter X-Core, Pro-C, PCC, I-Core and ACC controllers through a SmartPort® connection
- 128 programmable addresses for use with multiple Roam remotes in the same neighborhood
- Run manual watering cycles without modifying regular program
- Maximum stations supported: 240
- Programmable run times: 1 to 90 minutes
- Range: Up to 300 m (line of sight)
- Transmitter power source: 4 AAA batteries (included)
- Receiver power source: 24 VAC, 10 mA (provided by controller)
- System operating frequency: 433 MHz
- FCC approved
- Warranty: 2 years

Transmitter and Receiver
18 cm H x 5.7 cm W x 3 cm D

SmartPort®
Hunter remotes require the installation of a SmartPort wiring harness*. The SmartPort is a connector that is wired to the terminals on the controller, and allows quick connection to any Hunter remote.

** ACC and I-Core controllers include pre-wired SmartPorts for remote operation.*

Wall Mount Bracket for SmartPort
P/N 258200

ROAM	
Model	**Description**
ROAM-KIT	Transmitter, receiver (SmartPort® wiring harness, and 4 AAA batteries included)
ROAM-R	Receiver unit
ROAM-TR	Transmitter unit (4 AAA batteries included)

OPTIONS	
Options	**Description**
ROAM-WH	SmartPort wiring harness (length: 1.8 m, pack of 50)
SRR-SCWH	Shielded SmartPort wiring harness (length: 7.6 m)
258200	Wall Mount Bracket for SmartPort

ROAM XL

Application: **Commercial**
Range: **up to 3 km**
Type: **Remote**

FEATURES

- Up to 3 km range for remote manual operation of Hunter irrigation systems
- Designed to work with Hunter X-Core, Pro-C, PCC, I-Core and ACC controllers through a SmartPort® connection
- 128 different programmable addresses
- Display shows remaining battery life
- Maximum stations supported: 240
- Programmable Run Times: 1 to 90 minutes
- Large LCD display, push-button operation
- Run manual watering cycles without modifying regular program
- Transmitter power source: 4 AAA batteries (included)
- Receiver power source: 24 VAC, 10 mA (provided by controller)
- System operating frequency: 27 MHz band
- SmartPort connector can be mounted up to 15 m (max) from controller (use SRR-SCWH shielded cable wiring harness)
- FCC Approved
- Rugged plastic carrying case included
- Warranty: 5 years

Roam XL (no antenna)
15.9 cm H x 7.6 cm W x 3.2 cm D

SmartPort®
Hunter remotes require the installation of a SmartPort wiring harness*. The SmartPort is a connector that is wired to the terminals on the controller, and allows quick connection to any Hunter remote.

** ACC and I-Core controllers include pre-wired SmartPorts for remote operation.*

Wall Mount Bracket for SmartPort
P/N 258200

ROAM XL	
Model	**Description**
ROAMXL-KIT	Transmitter, receiver, SmartPort® wiring harness, and carrying case
ROAMXL-TR	Handheld transmitter (4 AAA batteries included)
ROAMXL-R	Receiver unit (SmartPort wiring harness included)
ROAMXL-CASE	Plastic carrying case
ROAM-WH	SmartPort wiring harness (length: 1.8 m, pack of 50)
SRR-SCWH	Shielded SmartPort wiring harness (length: 7.6 m)

OPTIONS	
Options	**Description**
258200	Wall Mount Bracket for SmartPort

**Not Available in all countries.*

CONTROLLERS

XC HYBRID

Application: **Residential/Commercial**
Number of Stations: **4, 6, 8, 10, 12**
Type: **Battery Operated/Fixed**

FEATURES

- Battery or AC powered
- Type: Fixed
- Number of stations: 4, 6, 8, 10, 12 (plastic); 6, 12 (stainless steel)
- Enclosures: Indoor/outdoor plastic; outdoor stainless steel
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 4 hrs
- Operates DC latching solenoids only
- Optional Solar Panel SPXCH provides maintenance free operation
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ One touch manual start and advance
- ▸ Rain sensor bypass
- ▸ Programmable rain delay
- ▸ Non-volatile memory
- ▸ Automatic short circuit protection
- ▸ Global Seasonal Adjustment
- ▸ Delay between stations
- ▸ Sensor programmability

Plastic indoor/outdoor
22 cm H x 17.8 cm W x 9.5 cm D

Stainless steel outdoor
25 cm H x 19 cm W x 11 cm D

Pole for Stainless Steel Model
1.2 m

Optional Solar Panel
8.3 cm H x 6 cm W x 1.6 cm D

ELECTRICAL SPECIFICATIONS

- Operates DC latching solenoids (only) 9-11 VDC
- Pump/master valve
- Sensor inputs: 1
- Operating temperature: -18° C to 66° C

POWER SOURCE

- Operates on battery power or 24 VAC plug in transformer or optional Solar Panel
- Plastic model uses 6 AA batteries
- Stainless model uses 6 C batteries

APPROVALS

- CE, UL, cUL, C-tick
- IP 24 (Plastic Model)

▸ = *Advanced Feature descriptions on pages 93 and 94*

MAXIMUM WIRE RUNS

Wire Size	Max Distance (m)
1.0 mm²	152
1.5 mm²	244
2.0 mm²	396
2.5 mm²	610

XC HYBRID

Model	Description
XCH-400	4-Station indoor/outdoor controller
XCH-600	6-Station indoor/outdoor controller
XCH-600-SS	6-Station outdoor controller, stainless steel
XCH-800	8-Station indoor/outdoor controller
XCH-1000	10-Station indoor/outdoor controller
XCH-1200	12-Station indoor/outdoor controller
XCH-1200-SS	12-Station outdoor controller, stainless steel

OPTIONS

Options*	Description
XCHSPOLE	Steel mounting pole (1.2 m H)
XCHSPB	Stainless steel mounting bracket (required for pole)
458200	DC-Latching solenoid
SPXCH	Solar Panel kit for XC Hybrid

Notes:
* Specify separately. Use DC-Latching Solenoids only.

NODE

Application: **Residential/Commercial**
Number of Stations: **1, 2, 4, 6**
Type: **Battery Operated/Fixed**

FEATURES

- Battery powered
- Type: Fixed
- Number of stations: 1, 2, 4, 6
- Enclosure: Outdoor
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- Operates DC latching solenoids only
- Accepts single or double 9 volt batteries for extended battery life
- Master Valve operation (available in 2, 4, 6 station models)
- Solar Panel Kit (SPNODE) provides maintenance free operation
- Programmable Off
- Manual Cycle
- Solenoid wire length up to 30 m (18 AWG)
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ Global Seasonal Adjustment
- ▸ Sensor compatibility
- ▸ Battery life indicator
- ▸ Waterproof body

ELECTRICAL SPECIFICATIONS

- Operates DC latching solenoids only (P/N 458200)
- Pump/master valve
- Sensor inputs: 1
- Operating temperature: -18° C to 66° C

POWER SOURCE

- 9-volt battery (up to two) or Solar Panel

APPROVALS

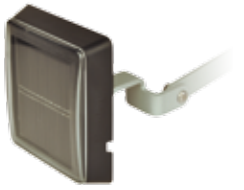
- IP68, CE

▸ = *Advanced Feature descriptions on pages 93 and 94*

NODE-100
8.9 cm diameter x
6.4 cm tall

NODE-200
NODE-400
NODE-600

NODE-100-Valve
NODE-100-Valve-B
(BSP thread)



Optional Solar Panel
8.3 cm H x 7.6 cm W x
1.6 cm D

CONTROLLERS

NODE	
Model	**Description**
NODE-100	Single station controller (DC latching solenoid included)
NODE-200	2-Station controller (DC latching solenoid ordered separately)
NODE-400	4-Station controller (DC latching solenoid ordered separately)
NODE-600	6 station controller (DC latching solenoid ordered separately)
NODE-100-VALVE	Single station controller with PGV-101G valve and DC latching solenoid (NPT threads)
NODE-100-VALVE-B	Single station controller with PGV-101G-B valve and DC latching solenoid (BSP threads)

MAXIMUM WIRE RUNS	
Wire Size	**Max Distance (m)**
18 AWG	30

OPTIONS	
Options*	**Description**
458200	DC latching solenoid
SPNODE	Solar Panel kit for Node

WVP & WVC

Application: **Residential/Commercial**
Number of Stations: **1, 2, 4**
Type: **Battery Operated/Fixed**

FEATURES

- Battery powered
- Type: Fixed
- Number of stations: 1, 2, 4
- Enclosure: Outdoor
- Program by station
- Start times per program: 9
- Max. station run time: 4 hrs
- Warranty period: 2 years
- ▸ Battery life indicator
- ▸ Waterproof body (WVC)
- ▸ Wireless remote programming

WVP
29.2 cm L x 7.6 cm W x 5 cm H

ELECTRICAL SPECIFICATIONS

- Simultaneous station operation
  - Example: a 2 station WVC-200 can operate 2 stations simultaneously, and a 4 station WVC-400 can operate all 4 at the same time
- Sensor inputs: 1
- Power source: 9-volt battery
- Operates DC latching solenoids only (P/N 458200)
- Operating temperature: -18° C to 66° C
- Frequency: 900 MHz ISM band
- No FCC license required

WVC
8.3 diameter x 12.7 cm tall

APPROVALS

- IP68, CE

▸ = *Advanced Feature descriptions on pages 93 and 94*

MAXIMUM WIRE RUNS

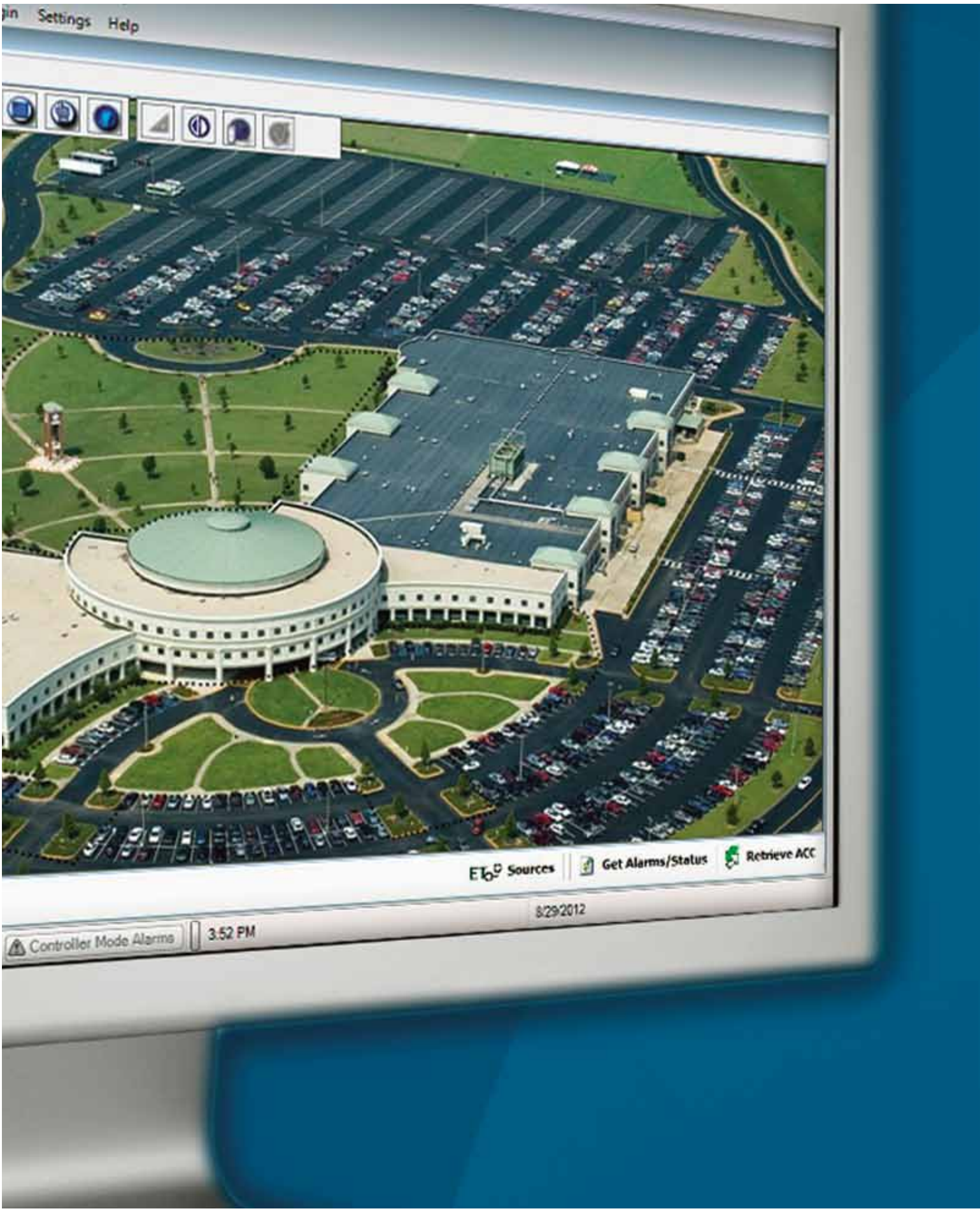
Wire Size	Max Distance (m)
18 AWG	30

WVP / WVC

Model	Description
WVC-100	Single station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-200	2-Station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-400	4-Station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-100-E	Single station wireless controller (DC latching solenoid ordered separately) 869.85 MHz (Europe)
WVC-200-E	2-Station wireless controller (DC latching solenoid ordered separately) 869.85 MHz (Europe)
WVC-400-E	4-Station wireless controller (DC latching solenoid ordered separately) 869.85 MHz (Europe)
WVP	Wireless valve programmer to be used with wireless valve controllers
WVPE	Wireless valve programmer to be used with wireless valve controllers (Europe)

Be Smart,
WHEN YOU BUILD YOUR SYSTEM

Efficient water use should be the goal of every irrigation system. The compact, easy-to-install Solar Sync ET sensor makes accomplishing goals easier than ever. To put it simply, the Solar Sync makes your controller smart. It saves water by adjusting controller run times based on daily local weather conditions. In addition, it integrates Hunter's popular Rain-Clik™ and Freeze-Clik® sensors, which provide quick response in shutting down your irrigation system during rain and/or freezing conditions. Not only does this innovative sensor save water and promote healthier plant and turf growth, it saves money as well. To make sure your system is running as smart as possible, find the Solar Sync's complete profile on page 119.


Settings
Help
Sources
Get Alarms/Status
Retrieve ACC
8/29/2012
Controller Mode Alarms
3:52 PM

CENTRAL

Maps

The IMMS graphics feature includes the ability to create one or more map views for control purposes. You can see where all of your irrigated locations are, and click any for a more detailed view or control purposes.

Ideal for orienting new employees, IMMS Graphics also simplifies life for busy irrigators with large numbers of assets to control. Use any background image to show the system, site, or controller area, and create control zones and station symbols that link to their command functions. You supply the pictures, and IMMS includes all the tools you need to create an interactive map-based system.

IMMS-ET (Evapotranspiration)

Take the guesswork out of irrigation amounts and daily adjustments for weather conditions. The optional IMMS-ET software add-on uses cost-effective local sensors, combined with your station database (for plant types, soil, precipitation rate, and more) to create water-saving irrigation programs for your whole system, every day.

IMMS-ET models the moisture level in soil reservoirs (including compensation for natural rainfall) and schedules just enough irrigation to replace what your plants need. IMMS-ET can track climate history according to your own sensors and document how it has responded with irrigation adjustments.

Programming

Each controller has its own complete setup and operations screens with tools to quickly and easily get the results you want. Eliminate the confusion and hassle of multiple field personnel setting up irrigation with dials and buttons. Shut off irrigation with a mouse click for emergencies. Access every function of controllers from simple spreadsheets or choosing from a menu of common functions and commands.

Alarm Management

IMMS reports all alarms, including over-currents, flow violations, communication issues, and water window violations, with individual date-and time-stamped messages. The IMMS operator knows the state of all irrigation controllers and valves at a glance, without driving around town to check individual sites. Printable reports can be exported to other formats or handed to work crews for investigation.

Flow Monitoring

Track your water usage, and spot plumbing problems a mile away (or several hundred miles away). IMMS is built around the powerful ACC controller platform, which includes real-time flow monitoring. With a flow meter and normally-closed master valves, the ACC detects incorrect flow conditions and moves swiftly to isolate the offending valves. Each flow violation is reported to the central software, after the controller has finished its own diagnostics. Leaks, breaks, and flooding are minimized, and the irrigation manager is the first to know of any issues.

IMMS also tracks total water usage by site, controller, program, and station. Keep detailed historical records, and go home each day with the peace of mind given by automatic flow monitoring.

IMMS

Sites: **100+**
Controllers: **1,000+**
Number of Stations: **Up to 990,000**

FEATURES

- Windows-based programming and communications software
- Total control of each controller's functions
- Graphical user interface with customizable map-based navigation
- Flow monitoring and reporting with Hunter ACC controllers
- Alarm reporting and detailed irrigation history reports
- Wireless and hardwired communication options, including Ethernet and GPRS
- Controller sharing of communication channels to reduce communications costs
- ▸ Maps (now including AutoCAD import)
- ▸ Programming
- ▸ IMMS-ET (evapotranspiration)
- ▸ Alarm management
- ▸ Flow monitoring
- ▸ Solar Sync compatibility allows inexpensive self-adjustment at each controller

KEY SPECIFICATIONS

- Operating system: Microsoft Windows XP, Vista, Windows 7, Windows 8
- Minimum RAM: 512 MB
- Minimum screen resolution: 1024 x 768
- Storage: At least 100 MB disk space

COMPATIBLE CONTROLLERS

- IMMS is optimized for the Hunter ACC controller and accessories (including decoder controllers)

COMPATIBLE SENSORS

- Hunter Flow-Sync™ for ACC controllers (one per controller). Provides flow total reporting and flow alarm monitoring with diagnostic shutdowns in real time.
- Clik Sensors: Each controller should have its own rain sensor or Solar Sync sensor for fast rain shutdowns. All Hunter Clik sensors are compatible with ACC.
- Solar Sync™ Sensor: Individual controllers may now self-adjust with Hunter's innovative Solar Sync sensor, which will report the local adjustments to central software.
- ET Sensor: ET Sensor platform is for use with IMMS-ET software. ET Sensor is added to selected ACC controllers, to report local conditions. This local ET data has no additional monthly charges and can be shared through the software to create schedules for other controllers in the same micro-climate. Add as many ET Sensors as needed to sample all micro-climates.

▸ = *Advanced Feature descriptions on page 112*

Add a visual dimension to central control with background map graphics.

Track flow and other vital statistics in both charts and spreadsheets.

Station level symbols can be positioned over background images from any source.

IMMS SOFTWARE	
Model	**Description**
IMMSCD	IMMS graphics central control software *(Custom images not included)*
IMMS-ET-CD	Optional ET automatic weather adjustment software *(requires IMMS3CD base model; Requires an ET Sensor at one or more ACC controller locations)*

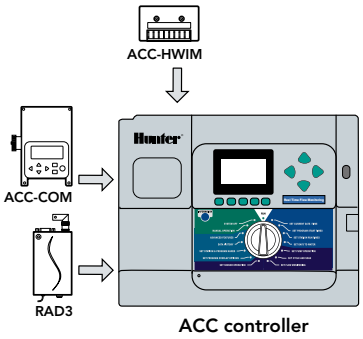
Local ET Sensor, includes Rain Gauge (shown with optional ET Wind anemometer)

IMMS

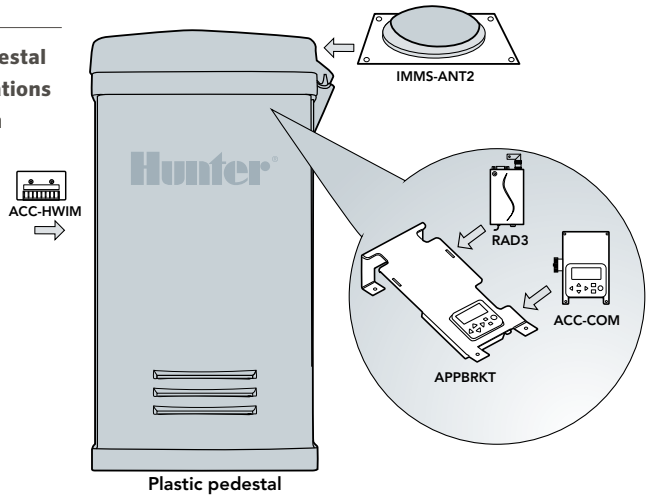
COMMUNICATIONS COMPONENTS

- ACC: Communications options are installed inside the ACC controller cabinet. No additional enclosures or power are necessary for these options.
- Options include radio, hardwire, dial-up, Ethernet, and GPRS mobile communications

Wall mount communications installation



Plastic pedestal communications installation



COMMUNICATION OPTIONS FOR ACC INTERFACE

Model	Purpose
ACC-COM-HWR = Hardwire/radio module*	Supports hardwire and radio communication options
ACC-COM-POTS = Dial-up modem module*	Supports dial-up analog telephone line input in addition to hardwire and radio communication sharing (not for use with VoIP lines)
ACC-COM-GSM-E = CSD cellular module*	Supports GSM mobile input in addition to hardwire and radio communication sharing (cell service required) (international)
ACC-COM-LAN = Ethernet module*	Supports TCP/IP in Ethernet networks in addition to hardwire and radio sharing with local controllers
ACC-COM-GPRS-E = GPRS cellular data module*	Supports mobile data connection via GPRS phone in addtion to hardwire and radio sharing with local controllers (international)

Notes:
* Also supports radio and hardwire

USER-INSTALLED OPTIONS (Specify Separately)

Model	Description	Purpose
ACC-HWIM	Hardwire interface module required for hardwire connections	Provides surge protected terminals for hardwired cable connections
RAD3	UHF radio module (North America), 450-470 MHz	UHF radio module for wireless connections (license and antenna required and not included)
RAD460INT	UHF radio module (International), 440-480 MHz Consult factory for other international frequency ranges	UHF radio module for wireless connections, international only (license and antenna required and not included)
APPBRKT	Communication bracket for plastic pedestals	Holds Com modules and accessories in plastic pedestal (not required in wall mounts)

Base	Model	Options	Purpose
IMMS-CCC	HARDWIRE CENTRAL INTERFACE	None = 120 VAC (North America) E = 230/240 VAC (Europe/international power) A = 230/240 VAC (Australia)	Hardwired central interface for connection to Site via direct wire (GCBL cable), supplied with USB cable for connection to central computer, and plug-in transformer
GCBL*	**100 = 30 m (100 FT)** **300 = 90 m (300 FT)** **500 = 150 m (500 FT)**		Cable for all IMMS hardwired communications

Notes:
* GCBL also available in 300 m (1000 FT) increments up to 1200 m (4000 FT)

IMMS

SPECIFICATIONS

- ACC-COM-HWR, POTS, GSM, LAN, GPRS
- 8 cm x 11 cm x 4.5 cm
- Powered internally by controller
- Mounted internally to ACC controller
- RAD3, RAD460INT: 450-470 MHz, UHF Radios, Power Output: 1 Watt, Bandwidth: 12.5 kHz narrowband
- ACC-HWIM: Hardwire interface module for 4-20 ma loop communications, includes 8 color-coded terminals for GCBL connection. Installs inside ACC controller cabinets or pedestals.
- ACC-COM-LAN requires fixed IP address from system administrators
- ACC-COM-GPRS requires a monthly service plan

HARDWIRE COMMUNICATIONS CABLE

- GCBL shielded, two twisted pair 1 mm (18 AWG) wire with ground wire, up to 3,000 m between each device

RADIO ANTENNA OPTIONS (Specify Separately)

Model	Description
IMMSANT2	Omni-directional antenna for plastic pedestal lid installation
IMMSANT3	Omni-directional antenna for wall or pole mount installation
IMMSANTYAGI3	High efficiency directional antenna for pole installation
RA5M	High gain omni-directional mast antenna for roof or pole installations

IMMS

SYSTEM CONFIGURATIONS (ACC CONTROLLERS)

1 Determine how you will reach the first controller on each Site.
- Dial-up landline: Add ACC-COM-POTS to controller
- Hardwire cable: Add one IMMS-CCC at the computer, and ACC-COM-HWR plus one ACC-HWIM at the controller
- GSM cell phone: Add ACC-COM-GSM to controller (requires CSD service plan)
- Ethernet local area network: Add ACC-COM-LAN at the controller, and connect to the network (RJ-45 jack)
- GPRS cell phone: Add ACC-COM-GPRS to controller (requires GPRS coverage and service contract)

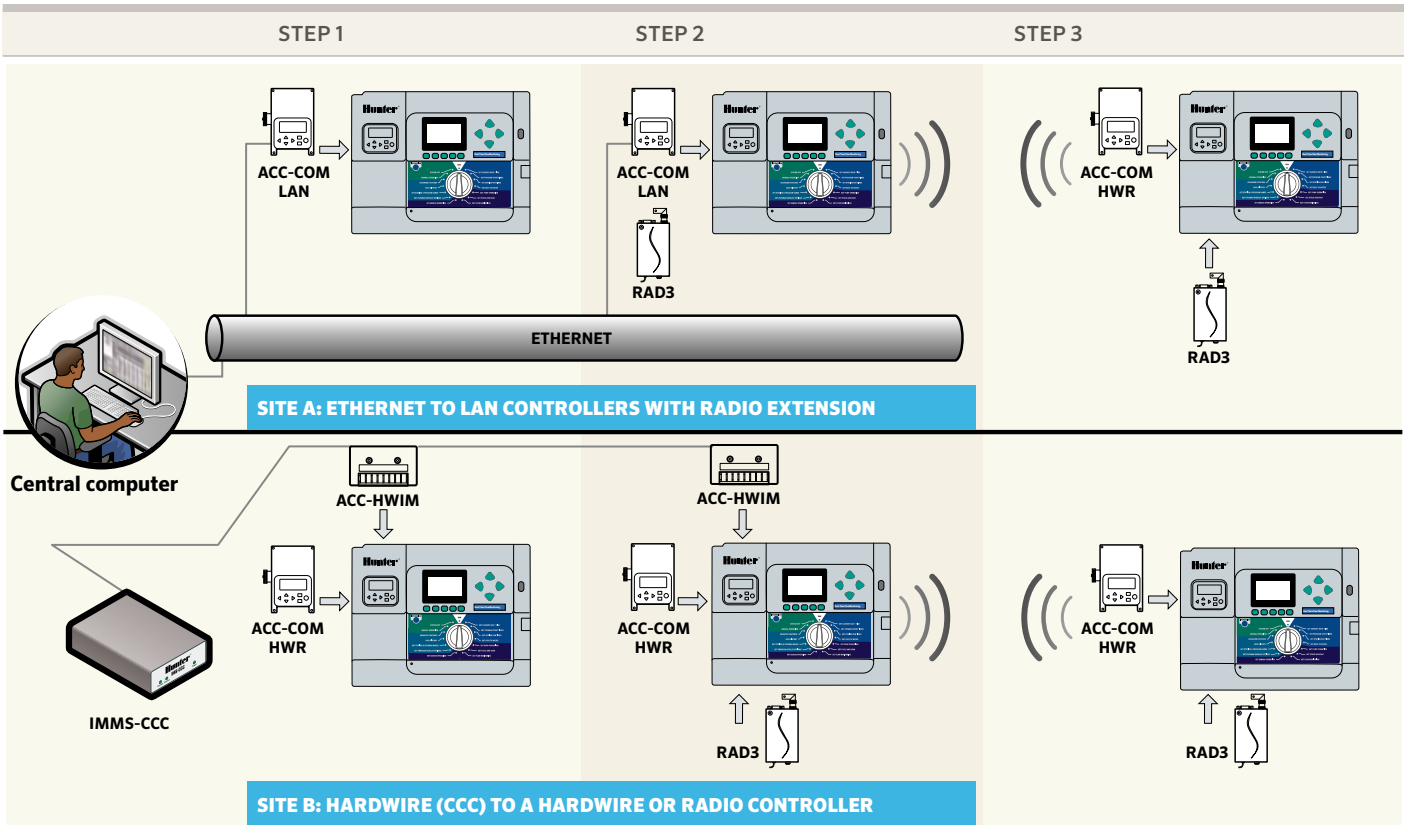
2 Determine how that first controller will reach the other controllers on the Site.
- If by radio, add one RAD3 (US) or RAD460INT (international) plus antenna to the controller
- If by hardwire cable, add one ACC-HWIM (if it is not already present as in 1)

3 Equip the other controllers. Add one ACC-COM-HWR to each controller, plus:
- One ACC-HWIM when hardwire connection will be necessary
- One RAD3 plus antenna when radio connections are necessary

Consult factory for detailed system design information.

SAMPLE CONFIGURATIONS

- Many other configurations possible; consult factory or System Design Guide for details.



SENSORS

SOLAR SYNC™

Application: **Residential/Commercial**
Sensor: **ET/Rain/Freeze**

FEATURES

- Provides automated daily adjustment to program run times using ET (evapotranspiration) calculated from on-site weather
- Wired and wireless models available
- No Water Window programming available in most controllers
- Rain and freeze shutoff
- Gutter mount bracket included
- Solar Sync Sensor may be used (without ET Module) in IMMS central installations
- Warranty period: 5 years (10 year battery warranty for wireless model)

ELECTRICAL SPECIFICATIONS

- Maximum distance sensor to module: 60 m (wired model) or 240 m (wireless model)
- 12 m of wire included in kit (wired model)
- Solar Sync and Wireless Solar Sync compatible with Pro-C and PCC controllers
- Solar Sync SEN and Wireless Solar Sync SEN are compatible with X-Core, I-Core, and ACC controllers
- Rain and Freeze sensor shutdown capability included in sensor

APPROVALS

- FCC, CE

Solar Sync sensor w/ mounting arm
7.6 cm H x 22 cm W x 2.5 cm D

Solar Sync module
4.4 cm H x 13 cm W x 1.9 cm D

Wireless Solar Sync sensor w/ mounting arm
11 cm H x 22 cm W x 2.5 cm D

Wireless Solar Sync receiver
14 cm H x 3.9 cm W x 3.8 cm D

SENSORS

SOLAR SYNC		
Model	**Description**	
SOLAR-SYNC	Solar Sync kit for use with PCC and Pro-C controllers. *Includes Solar Sync Sensor and module.*	
SOLAR-SYNC-SEN	Solar Sync for use with ACC, I-Core• and X-Core controllers. *Includes Solar Sync Sensor only* (module not needed for X-Core, I-Core• and ACC controllers).	
WSS	Wireless Solar Sync for use with PCC and Pro-C controllers. *Includes Wireless Solar Sync Sensor, Wireless receiver, and module.*	
WSS-SEN	Wireless Solar Sync for use with ACC, I-Core• and X-Core controllers. *Includes Wireless Solar Sync Sensor and Wireless receiver* (module not required for X-Core and ACC controllers).	

*Available for I-Core Spring of 2013

ET SYSTEM

Application: **Commercial**
Sensor: **ET**

FEATURES

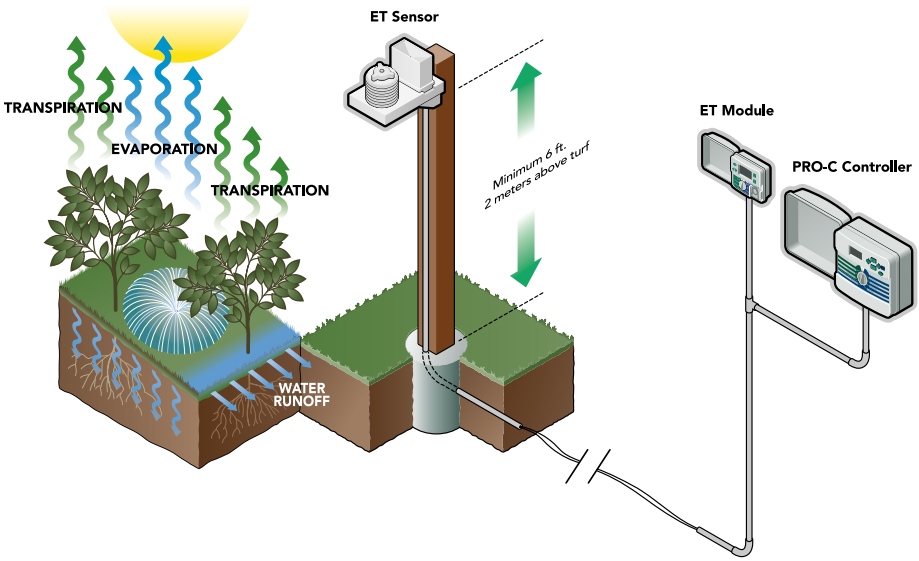
- Calculates evapotranspiration (ET) for individual microclimate to fit the exact landscape requirements
- Specific irrigation scheduling for every zone based on the characteristics of each plant and soil type
- Enables compliance with local watering restrictions
- Easily upgrades Hunter PCC and Pro-C to weather-based controllers
- Non-volatile memory
- Full range of scheduling options
- Includes 30 m of 0.5 mm^2 (20 AWG), 2-conductor direct burial wire for sensor installation
- WiltGard™ technology can be set to trigger protective watering when extreme conditions threaten plants
- Warranty period: 2 years

ELECTRICAL SPECIFICATIONS

- Power input: 24 VAC, 50/60 Hz (from host controller)
- Current draw: 20 mA, maximum
- Max. distance, Controller to ET Module: 2 m
- Max. distance, ET Sensor to module: 30 m
- Sensor wire: Includes 30 m of 0.5 mm^2 (20 AWG) UL approved wire

ET Sensor
27 cm H x 18 cm W x 31 cm D

ET Module
15 cm H x 10 cm W x 5 cm D



ET SYSTEM	
Model	**Description**
ET-SYSTEM	ET Sensor and module for use with PCC and Pro-C controllers
ET-WIND	Optional anemometer add-on to ET Sensor to gather wind speed data
ET-SENSOR	Sensor only for use with IMMS-ET installations

RAIN-CLIK™

Application: **Residential/Commercial**
Sensor: **Rain**

FEATURES

- Quick Response™ feature shuts the system off as soon as it starts raining
- Maintenance-free design with 10-year battery life for Wireless Rain-Clik
- Adjustable vent ring allows for setting of reset delay
- Rugged polycarbonate housing and metal extension arm
- Rain-Clik includes 7.6 m of 0.5 mm^2 (20 AWG) sheathed, two-conductor, UL-approved wire
- Wireless unit available with 244 m range from wireless sensor to receiver
- Compatible with most controllers
- Warranty period: 5 years (10 year battery warranty for wireless model)

RAIN-CLIK
6.4 cm H x 18 cm L

ELECTRICAL SPECIFICATIONS

- Wiring: normally closed or normally open
- Time to turn off irrigation system: 2 to 5 minutes approx. for Quick Response
- Time to reset Quick Response: 4 hours approx. under dry, sunny conditions
- Time to reset when fully wet: 3 days approx. under dry, sunny conditions
- Switch rating: 24 VAC, 3 A
- Freeze sensor shuts system off when temperatures fall below 3˚ C (Rain/Freeze-Clik model)
- System operating frequency: 433 MHz (Wireless model)
- UL listed, FCC approved, suitable for use in Australia, CUL (CSA), CE
- Communication range up to 244 m line of sight (Wireless model)
- Rain/Freeze-Clik shuts system off when temperatures fall below 3˚ C
- Receiver input power: 24 VAC (from controller)

WR-CLIK (transmitter)
7.6 cm H x 20 cm L

WR-CLIK (receiver)
8.3 cm W x 10 cm H

RAIN-CLIK™	
Model	**Description**
RAIN-CLIK	Rain-Clik sensor
RFC	Rain/Freeze-Clik sensor
WR-CLIK	Wireless Rain-Clik system
WRF-CLIK	Wireless Rain/Freeze-Clik system

USER INSTALLED OPTION (Specify Separately)	
Model	**Description**
SGM	Optional gutter mount (included in the WRF-CLIK)

SGM
Optional gutter mount

MINI-CLIK®

Application: **Residential/Commercial**
Sensor: **Rain**

FEATURES

- Easily installs on any automatic irrigation system
- Debris tolerant for reliable operation and no unnecessary shutdowns
- Can be set to shut system off from 3 mm to 25 mm of rainfall
- Includes 7.6 m of 0.5 mm² (20 AWG) sheathed, two-conductor, UL-approved wire
- Optional user-installed metal gutter mount for Mini-Clik® (order SGM)
- Warranty period: 5 years

ELECTRICAL SPECIFICATIONS

- Switch rating: 24 VAC, 5 A
- Wiring: 0.5 mm² (20 AWG), UL listed, typically interrupts the common ground wire between the solenoid valves and controller

MINI-CLIK
8 cm H x 15 cm L

SGM
Optional gutter mount

SG-MC
Stainless steel sensor guard enclosure for Mini-Clik

MINI-CLIK®	
Model	**Description**
MINI-CLIK	Rain Sensor
MINI-CLIK-NO	Rain Sensor w/ normally open switch
MINI-CLIK-C	Rain Sensor w/ conduit mount
MINI-CLIK-HV	Rain Sensor for high voltage application (120/240 VAC)

USER INSTALLED OPTIONS (Specify Separately)	
Model	**Description**
SGM	Optional Gutter Mount
SG-MC	Stainless Steel Sensor Guard Enclosure for Mini-Clik

MINI WEATHER STATION

Application: **Residential/Commercial**
Sensor: **Wind/Freeze/Rain**

FEATURES

- Compact sensor that monitors wind, rain, freezing temperatures, and shuts the irrigation system off as weather conditions require
- Installs easily on automatic irrigation systems
- Set wind speed shutdown from 19 to 56 km/h
- Set rain shutdown from 3 mm to 25 mm of rainfall
- Automatically shuts off system when temperatures fall below 3° C
- Warranty period: 5 years

ELECTRICAL SPECIFICATIONS

- Electrical rating: 24 VAC, 5 A maximum
- Wind vane diameter: 13 cm
- Wind speed adjustments: Actuation speed: 19 to 56 km/h
- Reset speed: 13 to 39 km/h
- Freeze-Clik® temperature set point: 3˚ C
- Mounts: Slip fits over 55 mm PVC pipe or attaches to 1 cm conduit with adapter (supplied with unit)

MWS-FR
10 cm H x 13 cm D wind vane diameter

MINI WEATHER STATION	
Model	**Description**
MWS	Weather station combines wind & rain sensors
MWS-FR	Weather station combines wind & rain sensors with a freeze sensor

SENSORS

WIND-CLIK™

Application: **Residential/Commercial**
Sensor: **Wind**

FEATURES

- Adjusts to activate and reset at various wind speeds
- Two types of operation: “normally open” or “normally closed” wiring
- Works with fountain systems to eliminate overspray in windy conditions
- Warranty period: 5 years

ELECTRICAL SPECIFICATIONS

- Switch rating: 24 VAC, 5 A maximum
- Wind speed adjustment
  - Actuation speed: 19 to 56 km/h
  - Reset speed: 13 to 39 km/h

WIND-CLIK
9.9 cm H x 13 cm D wind vane diameter

WIND-CLIK™	
Model	**Description**
WIND-CLIK	Wind sensor interrupts/returns irrigation when programmed wind speed is measured

FLOW-CLIK™

Application: **Residential/Commercial**
Sensor: **Flow**

FEATURES

- Automatically shuts down system if an overflow condition occurs
- Calibration for precise system control: Single button allows each system to be programmed at a specified flow level
- Helps protect against flood damage and erosion
- Works with most Hunter and most non-Hunter controllers
- Multi-color LED provides system status to display when power is applied, and indicate if flow is within limits
- Compatible with most commercial and residential piping systems: Large flow range provides complete flexibility
- Warranty period: 5 years

ELECTRICAL SPECIFICATIONS

- Flow-Clik Interface Panel 90 cm leads provided for easy wiring to controller (2 wires to controller 24 VAC terminals and 2 wires to sensor and terminals)
- Current draw: 24 VAC, 0.025 A
- Switching current: 2 A maximum
- Max. distance between interface panel and sensor: 300 m (1 mm^2 [18 AWG] minimum wire size); 2 wires required for Flow-Clik sensor
- Programmable start up delay: 0 to 300 seconds
- Programmable interrupt period: 2 to 60 minutes
- System status indicator light
- One button system calibration to set highest flow zone

Flow-Clik sensor and module shown with receptacle tees

SENSORS

FLOW-CLIK™

Model	Description
FLOW-CLIK*	Standard kit for all 24 VAC controllers. Includes sensor and interface module, sensor requires FCT for pipe installation

USER INSTALLED OPTION (Specify Separately)

Model	Description
FCT-100	25 mm (1") Schedule 40 sensor receptacle tee
FCT-150	40 mm (1½") Schedule 40 sensor receptacle tee
FCT-158	40 mm (1½") Schedule 80 sensor receptacle tee
FCT-200	50 mm (2") Schedule 40 sensor receptacle tee
FCT-208	50 mm (2") Schedule 80 sensor receptacle tee
FCT-300	80 mm (3") Schedule 40 sensor receptacle tee
FCT-308	80 mm (3") Schedule 80 sensor receptacle tee
FCT-400	100 mm (4") Schedule 40 sensor receptacle tee

Notes:
* FCT for pipe installation sold separately

FLOW-CLIK FLOW RANGE

Pipe Diameter	Operating range (l/min)	
	Minimum	Suggested Maximum*
25 mm	23	64
40 mm	50	132
50 mm	76	208
80 mm	150	450
100 mm	225	750

Notes:
* Good design practice dictates the maximum flow not to exceed 1.5 m/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.

BSP ADAPTERS FOR FCT FITTINGS

Diameter (mm)	Model
25 mm	795700
40 mm	795800
50 mm	241400
80 mm	477800

FLOW-SYNC™

Application: **Commercial**
Sensor: **Flow**

FEATURES

- Simple two-wire connection to ACC and I-Core controllers (up to 300 m)
- Feeds flow data (gallons or liters) to controller, for flow recording and monitoring purposes
- Robust waterproof construction (used with appropriate FCT tees for pipe diameter, see table)
- Provides station level flow monitoring for reaction to high or low flow conditions
- Helps prevent damage and waste from leaks and breaks in piping system

Impeller-type flow meter, requires FCT for pipe installation (sold separately)

FLOW RANGE

Flow-Sync Diameter	Operating range (l/min) Minimum	Suggested Maximum*
25 mm	7.6	64
40 mm	19	132
50 mm	37.8	208
80 mm	106	454
100 mm	129	738

Notes:

* Good design practice dictates the maximum flow not to exceed 1.5 m/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe

BSP ADAPTERS FOR FCT FITTINGS

Diameter (mm)	Model
25 mm	795700
40 mm	795800
50 mm	241400
80 mm	477800

SENSORS

FLOW-SYNC

Model	Description
HFS*	Flow-Sync sensor, use with ACC and I-Core controllers, sensor requires FCT for pipe installation.

USER INSTALLED OPTION (Specify Separately)

Model	Description
FCT-100	25 mm (1") Schedule 40 sensor receptacle tee
FCT-150	40 mm (1½") Schedule 40 sensor receptacle tee
FCT-158	40 mm (1½") Schedule 80 sensor receptacle tee
FCT-200	50 mm (2") Schedule 40 sensor receptacle tee
FCT-208	50 mm (2") Schedule 80 sensor receptacle tee
FCT-300	80 mm (3") Schedule 40 sensor receptacle tee
FCT-308	80 mm (3") Schedule 80 sensor receptacle tee
FCT-400	100 mm (4") Schedule 40 sensor receptacle tee

Notes:

* FCT for pipe installation sold separately

FREEZE-CLIK®

Application: **Residential/Commercial**
Sensor: **Freeze**

FEATURES

- Installs easily with no adjustment needed
- Accurate temperature sensing shuts system off when air temperature reaches 3˚ C
- Used with other sensors to enhance overall efficiency of irrigation systems
- Warranty period: 5 years

Not intended for agricultural applications

ELECTRICAL SPECIFICATIONS

- Switch rating: 24 VAC, 5 A
- Wiring: Typically interrupts the common ground wire between the solenoid valves and the controller UL listed

FREEZE-CLIK
5 cm H x 11 cm L

FREEZE-CLIK®	
Model	**Description**
FREEZE-CLIK	Freeze sensor interrupts irrigation when temperatures drop below 3° C
FREEZE-CLIK REV	Freeze sensor allows irrigation when temperatures drop below 3° C

SENSORS

MICRO

ECO-MAT 16 MM

Application: **Residential/Commercial/ Green Roof Turf & Shrub Irrigation**

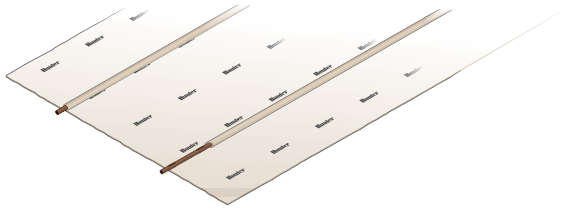
Flow Rate: **2.2 LPH**

FEATURES

- Fleece irrigation mat with fleece-wrapped PLD tubing (ECO-MAT)
- Fleece-wrapped PLD tubing (PLD-ESD)
- Pressure compensating/check valve emitter
- 2.2 LPH emitter
- Water holding capacity of 2 liters per square meter
- 30 cm emitter spacing, 35 cm row spacing
- 0.80 m width x 100 m length
- 100 m roll (PLD-ESD 16 mm)
- Recommended for use with all Hunter Drip Zone Control Kit

OPERATING SPECIFICATIONS

- Pressure compensating, check valve emitters
- Operating pressure 1.4 to 3.4 bar
- Compatible with 16 mm insert barb fittings
- Recommended filtration 120 mesh
- Recommended installation depth range 10 cm to 30 cm

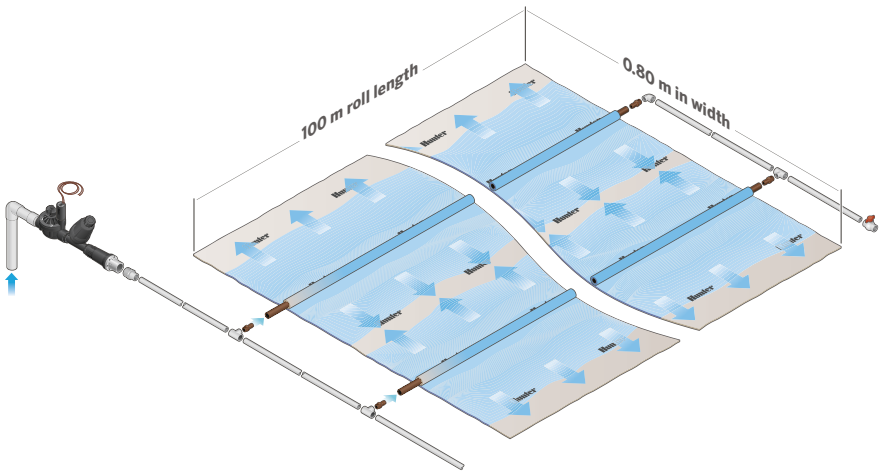


Eco-Mat
Dripline cover (special polypropylene fleece), mat made of special polypropylene fleece, PLD dripline

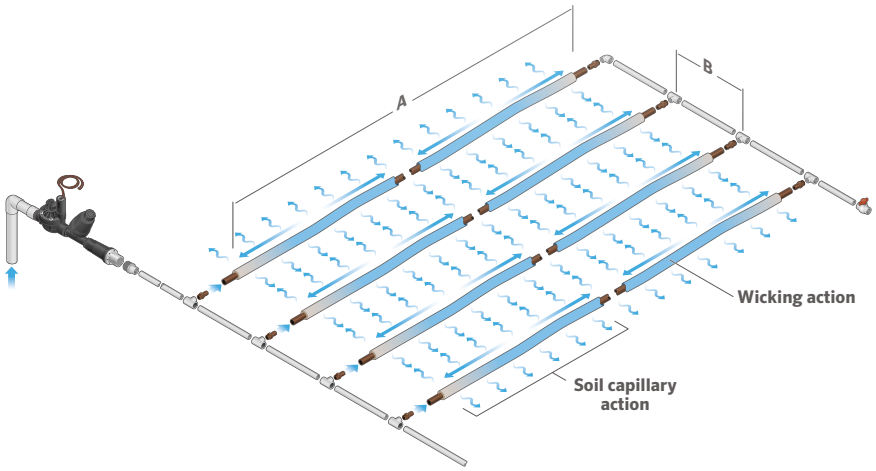
PLD-ESD
Fleece-wrapped inline emitter tubing

ECO-MAT™ TECHNICAL SPECIFICATIONS

Model	Flow & Spacing	Roll Length	Width	m^2	Operating Pressure	Mimimum Filtration	Tubing Row Spacing
Eco-Mat 16 mm	2.2 LPH	100 m	0.80 m	80	1.4 to 3.4 bar	120 mesh/125 micron	35 cm
PLD-ESD16	2.2 LPH	100 m	N/A	N/A	1.4 to 3.4 bar	120 mesh/125 micron	N/A



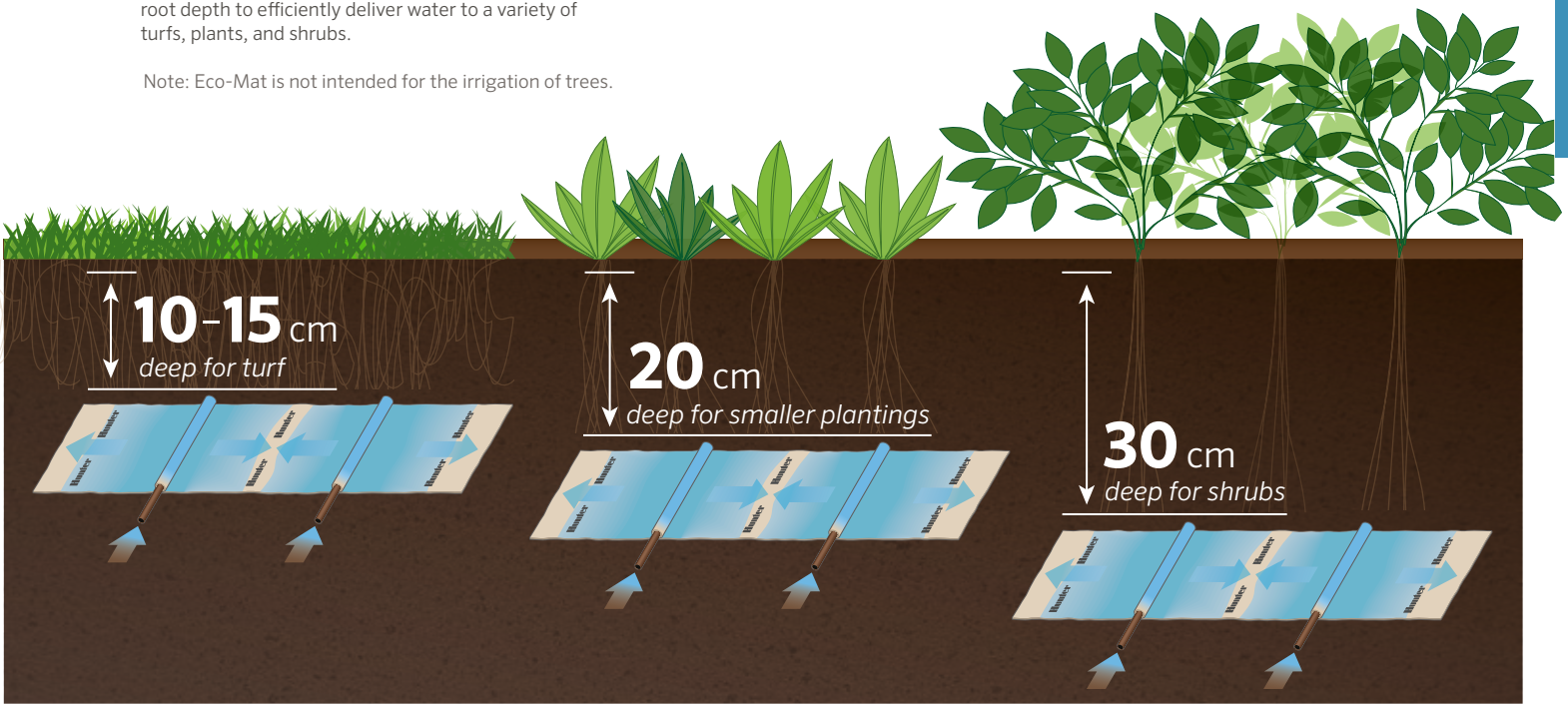
Eco-Mat
The Eco-Mat is composed of Hunter's specialized fleece-wrapped drip tubing (PLD-ESD), and root zone irrigation mat made of polypropylene fleece.



PLD-ESD
The PLD-ESD provides enhanced lateral water movement, which is dramatically more efficient than unwrapped drip tubing where water is drawn downward into the ground. Length A and row spacing B are dependent on design and site conditions.

Installation depth guidelines (below)
The Eco-Mat should be installed just below the optimal root depth to efficiently deliver water to a variety of turfs, plants, and shrubs.

Note: Eco-Mat is not intended for the irrigation of trees.



PLD-16 MM

Application: **Residential/Commercial**
Flow Rate: **2.2 & 3.8 LPH**

FEATURES

- In-line pressure-compensating emitters provide consistent high-quality performance
- Built-in check valve prevents emitter clogging and wasteful runoff
- Available emitter spacing of 30 cm and 50 cm
- Emitter flow rates available in 2.2 and 3.8 l/hr
- Comes in 100 m, 200 m, and 400 m rolls
- Superior flexibility and kink resistance
- Works with Drip Zone Control Kit
- Warranty period: 5 years (including 2 additional years for environmental stress cracking)

PLD SPECIFICATION

- Pressure compensating, non-draining emitters
- Operating pressure range: 1.0 to 3.5 bar; 100 to 350 kPa
- Recommended filtration: 120 mesh
- Accepts 16 mm insert fittings

PLD FITTINGS SPECIFICATION

- Quick and easy connections without using tools or glue
- Handles pressures up to 3.5 bar; 350 kPa
- UV resistant

PLD & PLD Fittings

PLD

PLD-CPL-16
16 mm barb x barb

PLD-050-16
½" MPT x 16 mm barb

PLD-TEE-16
16 mm barb x barb tee

PLD-ELB-16
16 mm barb x barb elbow

PLD-BV-16
16 mm barb x barb ball valve

PLD – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Spacing	3 Length
PLD-22 = 2.2 l/hr Flow	**30 cm**	**100 m**
PLD-38 = 3.8 l/hr Flow	**50 cm**	**200 m**
		400 m

Examples:
PLD-22 - 30 - 100 = 2.2 LPH landscape dripline with 30 cm spacing in a 100 m roll
PLD-22 - 50 - 200 = 2.2 LPH landscape dripline with 50 cm spacing in a 200 m roll
PLD-38 - 50 - 400 = 3.8 LPH landscape dripline with 50 cm spacing in a 400 m roll

PLD INSERT FITTINGS

Model	Decscription
PLD-050-16	16 mm Barb x ½" Male Thread
PLD-CPL-16	16 mm Barb x Barb Coupling
PLD-ELB-16	16 mm Barb x Barb 90° Elbow
PLD-TEE-16	16 mm Barb x Barbed Tee
PLD-BV-16	16 mm Barb x Barb Ball Valve

Additional charts located on page 153

PLD-17 MM

Application: **Residential/Commercial**
Flow Rate: **1.4, 2.3, 3.8 LPH**

FEATURES

- In-line pressure-compensating emitters provide consistent high-quality performance
- Built-in check valve prevents emitter clogging and wasteful runoff
- Superior flexibility and kink resistance
- Available emitter spacing of 30 cm, 45 cm, or 60 cm
- Emitter flow rates available in 1.4, 2.3, 3.8 LPH
- Blank tubing available (no emitters)
- Comes in 75 m and 305 m rolls
  - 30 m rolls available in models PLD 0612100, PLD 1012100, and PLD 1018100
- Purple (reclaimed) color available in 2.3 and 3.8 LPH emitter models
- Works with Drip Zone Control Kits
- Warranty period: 5 years (including 2 additional years for environmental stress cracking)

PLD SPECIFICATION

- Pressure compensating, non-draining emitters
- Operating pressure range: 1.0 to 3.5 bar; 100 to 350 kPa
- Recommended filtration: 120 mesh
- Accepts 17 mm insert fittings

PLD FITTINGS SPECIFICATION

- Quick and easy connections without using tools or glue
- Same color as original PLD drip line for a perfect blend under mulch
- Handles pressures up to 3.5 bar; 350 kPa
- UV resistant

PLD & PLD Fittings

PLD

PLD-050
½" MPT x 17 mm barb

PLD-075
¾" MPT x 17 mm barb

PLD-CPL
17 mm barb x barb coupling

PLD-ELB
17 mm barb x barb 90° elbow

PLD-TEE
17 mm barb x barb tee

PLD-CAP
17 mm Barb x ½ MPT with cap

PLD-BV
17 mm barb x barb shut-off valve

PLD-075-TBTEE
¾" Female thread x 17 mm barb tee

PLD-AVR
½" threaded air/vacuum relief valve

PLD INSERT FITTINGS

Model	Description	Model	Description
PLD-050	Barb to 13 mm (½") NPT Adapter	PLD-CAP	Barb to End Cap
PLD-075	Barb to 19 mm (¾") NPT Adapter	PLD-BV	Barbed Valve
PLD-CPL	Barb to Barb Coupling	PLD-075-TBTEE	¾" Female Thread x 17 mm Barb Tee
PLD-ELB	Barb to Barb, 90° Elbow		
PLD-TEE	Barbed Tee	PLD-AVR	Air Relief Valve

Additional charts located on page 153

PLD – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Spacing	3 Length	4 Options
PLD-04 = 1.4 l/hr Flow	**12** = 30 cm	**100*** = 30 m	**(blank)** = Female NPT
PLD-06 = 2.3 l/hr Flow	**18** = 45 cm	**250** = 75 m	**R** = Reclaimed
PLD-10 = 3.8 l/hr Flow	**24** = 60 cm	**1K** = 300 m	
PLD-BLNK = Blank			

Examples:
PLD-04 - 12 - 250 = 1.4 l/hr landscape dripline with 30 m (12") spacing in a 75 m (250') roll
PLD-06 - 12 - 100 = 2.3l/hr landscape dripline with 30 cm (12") spacing in a 30 m (100') roll
PLD-10 - 24 - 250 - R = 3.8 l/hr landscape dripline with 60 cm (24") spacing in a 75 m (250') roll, with reclaimed option
PLD-BLNK - 100 = 30 m (100') Roll of blank tubing

Notes:
* 30 m (100') rolls only available in models PLD-06-12-100, PLD-10-12-100, and PLD-10-18-100

MICRO

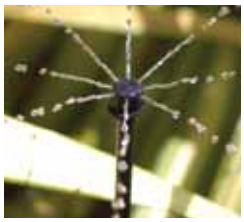
MICRO SPRAYS

Application: **Residential/Commercial**
Uses: **Precise Area Watering**

SOLO-DRIP

- Eight streams of water for accurate watering
- Fingertip cap control for flow and radius adjustment
- Operating specifications: 1 to 2.5 bar; 100 to 250 kPa
- Dimensions:
  [A]SD-T: 2.41 cm H x 1.98 cm W x 1.60 cm D
  [B] SD-B: 2.41 cm H x 1.98 cm W x 1.60 cm D
  [C] SD-B-STK: 15.2 cm H x 4.32 cm W x 1.60 cm D

Solo-Drip



HALO-SPRAY

- Large diameter, umbrella of water
- Adjust radius as needed
- Combine several for a “blanket” of water
- Operating specifications: 1 to 2.5 bar; 100 to 250 kPa
- Dimensions:
  [A] HS-T: 2.41 cm H x 1.98 cm W x 1.60 cm D
  [B] HS-B: 2.41 cm H x 1.98 cm W x 1.60 cm D
  [C] HS-B-STK: 15.2 cm H x 4.32 cm W x 1.60 cm D

Halo-Spray

TRIO-SPRAY

- Full-, half-, and quarter-circle configurations
- Functions like big sprays on a micro level
- Control knob for specific adjustment
- Operating specifications: 0.7 to 2.5 bar; 70 to 250 kPa
- Dimensions:
  [A] TS-F: 3.81 cm H x 2.29 cm W x 1.52 cm D
  [B] TS-H: 3.81 cm H x 2.29 cm W x 1.52 cm D
  [C] TS-Q: 3.81 cm H x 2.29 cm W x 1.52 cm D

Trio-Spray

SOLO-DRIP PERFORMANCE DATA

Pressure (bar)	Flow (LPH)	Throw Diameter (m)
1.0	0 - 40	0 - 0.5
1.5	0 - 50	0 - 0.6
2.0	0 - 60	0 - 0.8

Notes:
Adjustable to Maximum (approx. 20 clicks)

HALO-SPRAY PERFORMANCE DATA

Pressure (bar)	Flow (LPH)	Throw Diameter (m)
1.0	0 - 52	0 - 1.7
1.5	0 - 65	0 - 2.8
2.0	0 - 74	0 - 3.4

Notes:
Adjustable to Maximum (approx. 14 clicks)

TRIO-SPRAY PERFORMANCE DATA

Pressure (bar)	Flow (LPH)	Spray Pattern Diameter in Throw (m) 360° x 18 Hole	Radius of Throw (m) 180°	90°
0.5	0 - 54	0 - 5.0	0 - 2.0	0 - 1.5
1.0	0 - 77	0 - 5.8	0 - 2.5	0 - 2.1
1.5	0 - 94	0 - 6.4	0 - 2.9	0 - 2.6
2.0	0 - 105	0 - 7.0	0 - 3.2	0 - 3.0
2.5	0 - 119	0 - 7.5	0 - 3.5	0 - 3.3

MICRO SPRAY MODELS

Model	Description
SD-T	Solo-Drip w/ 10-32 Threads, 360°
SD-B	Solo-Drip w/ Barb, 360°
SD-B-STK	Solo-Drip w/ Barb with stake, 360°
HS-T	Halo-Drip w/ 10-32 Threads, 360°
HS-B	Halo-Drip w/ Barb, 360°
HS-B-STK	Halo-Drip w/ Barb with stake, 360°
TS-T-F	Trio-Spray w/ 10-32 Threads, 360°
TS-T-H	Trio-Spray w/ 10-32 Threads, 180°
TS-T-Q	Trio-Spray w/ 10-32 Threads, 90°

DRIP ZONE CONTROL KITS

Application: **Res/Com Micro Irrigation**
Flow Rate: **2 to 55 l/min**

FEATURES

- Factory-assembled and water-tested
- Highest quality components (SS filter screen, standard flush cap, top-of-the-line regulator)
- Wide flow range to cover most micro irrigation applications

PCZ-101

- Pressure regulation: 1.7 or 2.8 bar; 170 to 280 kPa
- Flow: 2 to 55 l/min
- Operating pressure: 1.4 to 8 bar; 140 to 800 kPa
- Operating temperature: up to 66° C
- 150 mesh stainless steel screen

USER INSTALLED OPTIONS

- Reclaimed water ID handle for PCZ-101 (P/N 269205)
- Filters available separately (HY100 1" NPT and HY075 ¾")

SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  350 mA inrush, 190 mA holding, 60 Hz
  370 mA inrush, 190 mA holding, 50 Hz

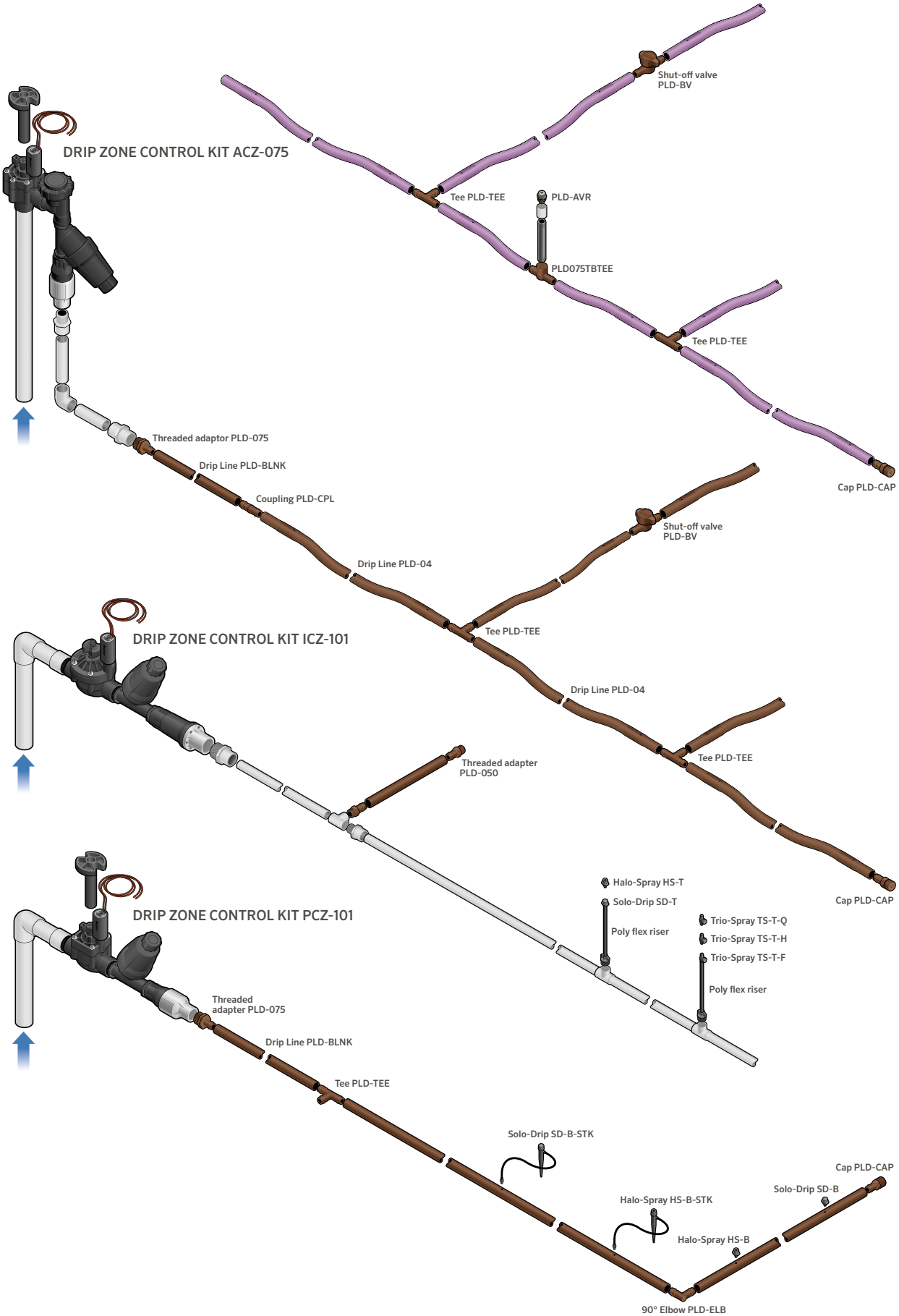
Additional charts located on page 154

PCZ-101
15 cm H x 33 cm W x7.5 cm D
25 mm inlet x 19 mm outlet

HY075, HY100, HY175
(filter system sold separately)

MICRO

DRIP ZONE CONTROL KIT MODELS	
Model	**Description**
PCZ-101 - 25	25 mm (1") PGV globe valve with 25 mm (1") HY100 filter system, and 1.7 bar (25 PSI) regulator
PCZ-101 - 40	25 mm (1") PGV globe valve with 25 mm (1") HY100 filter system, and 2.8 bar (40 PSI) regulator


DRIP ZONE CONTROL KIT ACZ-075
Shut-off valve PLD-BV
Tee PLD-TEE
PLD-AVR
PLD075TBTEE
Tee PLD-TEE
Cap PLD-CAP
Threaded adaptor PLD-075
Drip Line PLD-BLNK
Coupling PLD-CPL
Drip Line PLD-04
DRIP ZONE CONTROL KIT ICZ-101
Shut-off valve PLD-BV
Tee PLD-TEE
Drip Line PLD-04
Tee PLD-TEE
Threaded adapter PLD-050
Cap PLD-CAP
DRIP ZONE CONTROL KIT PCZ-101
Halo-Spray HS-T
Solo-Drip SD-T
Poly flex riser
Trio-Spray TS-T-Q
Trio-Spray TS-T-H
Trio-Spray TS-T-F
Poly flex riser
Threaded adapter PLD-075
Drip Line PLD-BLNK
Tee PLD-TEE
Solo-Drip SD-B-STK
Cap PLD-CAP
Solo-Drip SD-B
Halo-Spray HS-B-STK
Halo-Spray HS-B
90° Elbow PLD-ELB

RZWS

Application: **Res/Com Tree and Shrub Irrigation**
Size: **25, 45, 90 cm**
Flow Rate: **1 l/min or 2 l/min**

FEATURES

- Built in Hunter Swing Joint for direct installation to ½" PVC fitting
- Patented StrataRoot baffles divert water to root zone while adding strength to the unit
- Locking cap

OPERATING SPECIFICATIONS

- Bubbler flow rates: 1 l/min or 2 l/min
- Recommended pressure range: 1.0 to 4.8 bar; 100 to 480 kPa

FACTORY INSTALLED OPTIONS

- Check valve
- Locking reclaimed purple cap

USER INSTALLED OPTIONS

- Sleeve: Fabric sleeve that helps prevent soil intrusion in sandy soils (P/N RZWS-SLEEVE)
- Replacement cap 45 cm and 90 cm only (P/N RZWS-CAP)
- Locking reclaimed purple cap 45 cm and 90 cm only (P/N RZWS-RCCAP)
- Purple reclaimed cap spare part (P/N RZWS-RCCAP for 45 cm and 90 cm models. P/N RZWS10RCC for 25 cm models)

DIMENSIONS

- 25 cm: 5.1 cm diameter x 25 cm length
- 45 cm: 7.6 cm diameter x 45 cm length
- 90 cm: 7.6 cm diameter x 90 cm length

Standard and reclaimed models available

Reclaimed models available. Add -R to model number.
Purple reclaimed cap spare part
(P/N RZWS-RCCAP for 45 cm and 90 cm models.
P/N RZWS10RCC for 25 cm models)

ROOT ZONE WATERING SYSTEM – SPECIFICATION BUILDER: Order 1 + 2 + 3

1 Model	2 Bubbler Flow Rate	3 Options
RZWS-10 = 25 cm (10") Root zone watering system	**25** = 1 l/min	**(blank)** = No option
RZWS-18 = 45 cm (18") Root zone watering system	**50** = 2 l/min	**CV** = Check valve
RZWS-36 = 90 cm (36") Root zone watering system		**R** = Reclaimed cap *(excluding RZWS-10 models)*
		CV-R = Check valve with reclaimed cap

ADDITIONAL OPTIONS (SPECIFY SEPARATELY)

RZWS-SLEEVE = Field installed sleeve made from filter fabric

RZWS-CAP = Replacement cap for 45 cm (18") and 90 cm (36") models

RZWS-RCCAP = Reclaimed water replacement cap for 45 cm (18") and 90 cm (36") models

RZWS10RCC = Reclaimed water replacement cap for 25 cm (10") models

Examples:
RZWS-18 - 25 - CV = 45 cm (18") Root zone watering system at 1 l/min, with check valve
RZWS-10 - 50 - R = 25 cm (10") Root zone watering system at 2 l/min, with reclaimed cap
RZWS-36 - 25 - CV = 90 cm (36") Root zone watering system at 1 l/min, with check valve

ACCESSORIES

ACCESSORIES

HCV

Models

- HC-50F-50F: ½" Female inlet x ½" Female outlet
- HC-50F-50M: ½" Female inlet x ½" Male outlet
- HC-75F-75M: ¾" Female inlet x ¾" Male outlet

Features

- Adjustment access from top of valve
- Adjusts to compensate for elevational changes up to 11 m: Maximum flexibility
- Variety of inlet and outlet options: Reduces need for additional fittings
- Meets schedule 80 specifications: Durable under high pressure

HCV
Overall height: 7.6 cm

HUNTER SPIRAL BARB ELBOWS

Models

- HSBE-050: ½" male NPT x spiral barb elbow
- HSBE-075: ¾" male NPT x spiral barb elbow
- HSBE TOOL: Insert tool

Features

- For use with FLEXsg Tubing
- Acetel material for sharp barbs
- Operating pressure up to 5.5 bar; 550 kPa
- Compatible with FLEXsg and other brands

Spiral Barb Elbows
HSBE-TOOL, HSBE-050, HSBE-075

Pressure loss charts for HCV products are located on page 163

ACCESSORIES

SJ SWING JOINT

Models

- SJ-506: ½" threaded x 15 cm length standard
- SJ-506-R: ½" threaded x 15 cm length retrofit
- SJ-7506: ½" x ¾" threaded x 15 cm length
- SJ-706: ¾" threaded x 15 cm length
- SJ-512: ½" threaded x 30 cm length
- SJ-7512: ½" x ¾" threaded x 30 cm length
- SJ-712: ¾" threaded x 30 cm length

Features

- Standard configuration has swivel ells on both ends for maximum versatility
- Retrofit version has a 21 mm hex nut for easy threading into horizontally oriented fittings
- Unique swivel ells can be installed to virtually any configuration, leak free
- Pressure rated to 10 bar; 1000 kPa

SJ Swing Joint
15 cm and 30 cm links

FLEXsg TUBING

Model

- FLEXsg: 30 m roll

Features

- Engineered to resist kinking
- Inside diameter: 1.2 cm
- Operating pressure: up to 5.5 bar; 550 kPa
- Linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

FLEXsg Tubing
30 m

Pressure loss charts for SJ products are located on page 163

TOOLS

Hunter Wrench
P/N 172000

T-Handle Tool
P/N 053191

Rotor Pressure Gauge
P/N 129900
(works with PGP-ADJ)

Rotor Pitot Gauge and Tube Assembly
P/N 280100

MP Gauge Assembly
P/N MPGAUGE

MP Tool
P/N MPTOOL

TOOLS

Nozzle Insertion Collar
P/N 123200

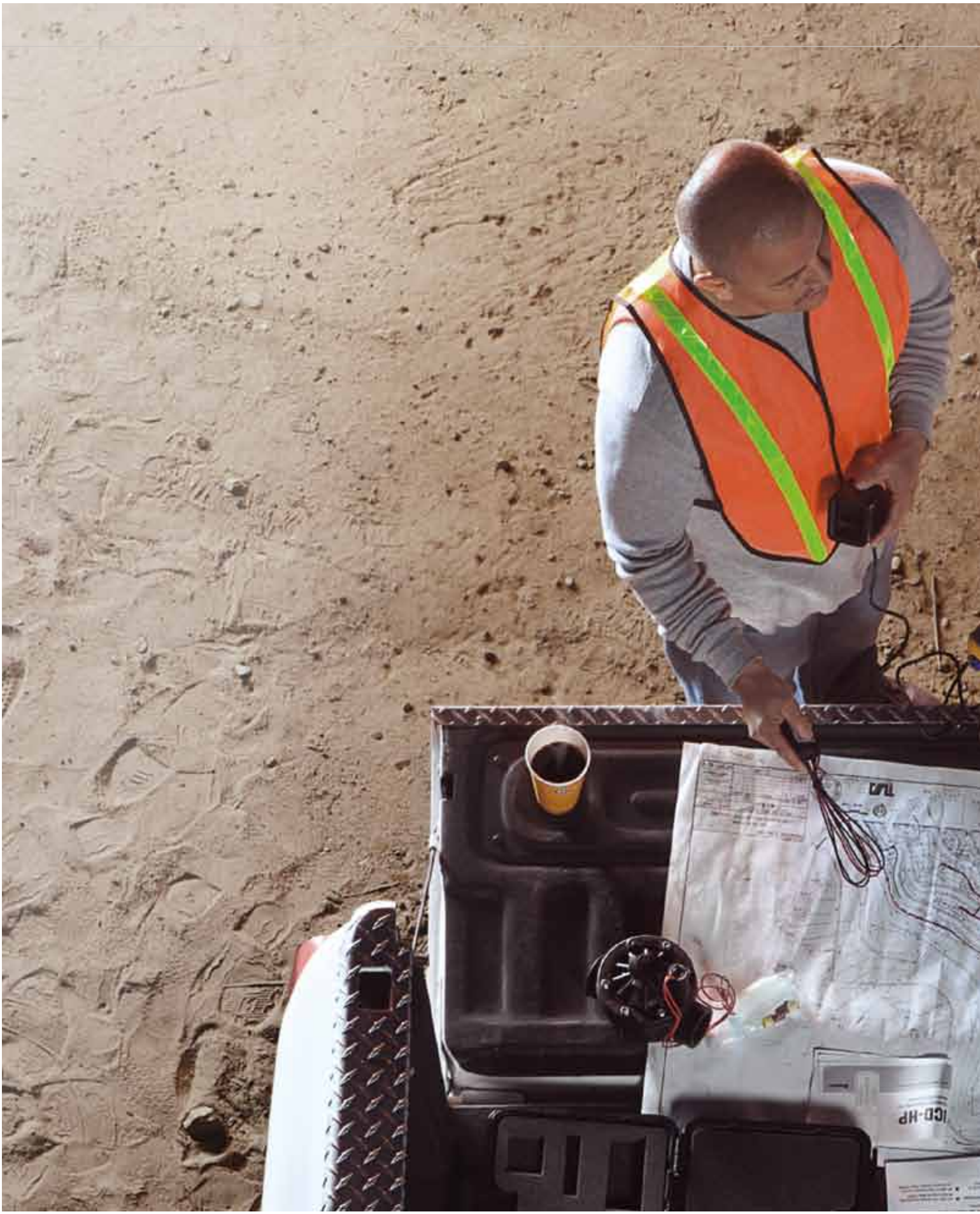
Hand Pump
P/N 460302

SpotShot Hose-End Nozzle
¾" P/N 160700
1" P/N 160705

Pocket Punch
P/N POCKETPUNCH
(Punches, inserts, and removes emitters)

ST1600 Tool
P/N 517600

Hunter Emitter Multi Tool
P/N HEMT
(Punches pilot holes and pellets, inserts and removes emitters, cuts tubing)



TECHNICAL INFORMATION

REPLACEMENT GUIDE

Bringing together a combination of intelligent design, carefully controlled manufacturing, and regular testing to ensure conformity to the strictest standards, Hunter has been able to create what performance studies have shown to be truly exceptional nozzles. Essentially, we have made the science of developing superior nozzles—and thus, superior sprinklers—look easy. In the process, we have also made it easy for you to determine exactly which of these high performance sprinklers make the appropriate choice for you to install as an alternative to your current product that does not carry the Hunter label. Simply consult our comprehensive replacement guide and you'll quickly see there's a better quality, better performing sprinkler from Hunter that will fit whatever irrigation need you have.

PGJ GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Red
3500	0.75	.75
	1	1.0
	1.5	1.5
	2	2.0
	3	3.0
	4	4
T-Bird T-22	.65 (Blue)	.75
	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0
T-Bird T-30	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0
	5.0 (Green)	5.0

To Replace TORO®		Use Hunter Nozzle ● Red
300/340	1	.75
Stream Rotor	2	1.5
	3	3.0

To Replace NELSON®		Use Hunter Nozzle ● Red
5500	#51	.75
	#52	1.5
	#53	2.0
	#54	2.5

PGP® GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Red	● Blue
Mini-Paw 15103	07 (Black)	6	2.5
	09 (Green)	7	3.0
Maxi-Paw 2045	06 (Red)	5	2.0
	07 (Black)	6	2.5
	08 (Blue)	8	4.0
	10 (Yellow)	9	5.0
	12 (Beige)	10	8.0
R-50	1.5 (Black)	5	2.0
	2.0 (Brown)	7	3.0
	3.0 (Gray)	8	4.0
	4.0 (Yellow)	9	5.0
	6.0 (Green)	10	8.0
T-Bird T-30	1.3 (Black)	4	1.5
	2.5 (Gray)	6	2.5
	5.0 (Green)	9	5.0
5000	1.5	4	1.5
	2.0	5	2.0
	3.0	7	3.0
	4.0	8	4.0
	6.0	9	5.0
	8.0	10	8.0
5505	2	5	2.0
	3	6	2.5
	4	7	3.0
	5	8	4.0
	6	9	5.0
	8	10	8.0
	10	10	8.0
	12	11	8.0
15111	10 (5/32" nozzle)	9	5.0
21A, 27A	10 (5/32" nozzle)	9	5.0
25	10 (5/32" nozzle)	9	5.0
31A, 37A	14 (7/32" nozzle)	11	8.0
35	12 (3/16" nozzle)	10	8.0

To Replace K-RAIN®		Use Hunter Nozzle ● Red	● Blue
RPS75	0.50	1	--
	0.75	2	--
	1.0	4	1.5
	2.0	6	2.0
	2.5	7	2.5
	3.0	8	3.0
	4.0	9	4.0
	6.0	10	6.0
	8.0	11	8.0

PGP® GEAR DRIVEN ROTARY SPRINKLERS

To Replace TORO®		Use Hunter Nozzle ● Red	● Blue
300/340	308-XX-02	4	1.5
Stream Rotor	308-XX-03	7	3.0
	316-XX-02	7	3.0
	316-XX-03	10	8.0
XP-300 Series	XP-300-090-07	4	1.5
	180-07	7	3.0
	360-07	10	8.0
	XP-300-090-09	5	2.0
	180-09	8	4.0
	360-09	11	--
	XP-300-090-10	5	2.0
	180-10	9	5.0
	360-10	12	--
Super 600	1.3	4	1.5
	2.5	7	3.0
	5.0	10	8.0
	6.0	10	8.0
Super 700	1.3	3	1.5
	1.5	4	1.5
	2.0	5	2.0
	3.0	7	3.0
	4.5	8	4.0
	6.0	9	5.0
	7.5	10	8.0
	9.0	11	8.0
Super 800	0.50	1	--
	0.75	2	--
	1.0	4	1.5
	2.0	6	2.0
	2.5	7	2.5
	3.0	8	3.0
	4.0	9	4.0
	6.0	10	6.0
	8.0	11	8.0
TR50	1.0	3	--
	1.5	4	1.5
	2.0	5	2.0
	3.0	6	3.0
	4.5	8	4.0
	6.0	9	6.0
	7.5	10	8.0
	9.0	11	8.0

REPLACEMENT GUIDE

PGP® ULTRA / I-20 GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Blue
Mini-Paw 15103	07 (Black)	**2.5**
	09 (Green)	**3.0**
Maxi-Paw 2045	06 (Red)	**2.0**
	07 (Black)	**2.5**
	08 (Blue)	**4.0**
	10 (Yellow)	**5.0**
	12 (Beige)	**8.0**
R-50	1.5 (Black)	**2.0**
	2.0 (Brown)	**3.0**
	3.0 (Gray)	**4.0**
	4.0 (Yellow)	**5.0**
	6.0 (Green)	**8.0**
T-Bird T-30	1.3 (Black)	**1.5**
	2.5 (Gray)	**2.5**
	5.0 (Green)	**5.0**
5000	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**5.0**
	8.0	**8.0**
5505	2	**2.0**
	3	**2.5**
	4	**3.0**
	5	**4.0**
	6	**5.0**
	8	**8.0**
	10	**8.0**
	12	**8.0**
15111	10 (5/32" nozzle)	**5.0**
21A, 27A	10 (5/32" nozzle)	**5.0**
25	10 (5/32" nozzle)	**5.0**
31A, 37A	14 (7/32" nozzle)	**8.0**
35	12 (3/16" nozzle)	**8.0**

To Replace K-RAIN®		Use Hunter Nozzle ● Blue
RPS75	0.50	--
	0.75	--
	1.0	**1.5**
	2.0	**2.0**
	2.5	**2.5**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**6.0**
	8.0	**8.0**

PGP® ULTRA / I-20 GEAR DRIVEN ROTARY SPRINKLERS

To Replace TORO®		Use Hunter Nozzle ● Blue
300/340	308-XX-02	**1.5**
Stream Rotor	308-XX-03	**3.0**
	316-XX-02	**3.0**
	316-XX-03	**8.0**
XP-300 Series	XP-300-090-07	**1.5**
	180-07	**3.0**
	360-07	**8.0**
	XP-300-090-09	**2.0**
	180-09	**4.0**
	360-09	--
	XP-300-090-10	**2.0**
	180-10	**5.0**
	360-10	--
Super 600	1.3	**1.5**
	2.5	**3.0**
	5.0	**8.0**
	6.0	**8.0**
Super 700	1.3	**1.5**
	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.5	**4.0**
	6.0	**5.0**
	7.5	**8.0**
	9.0	**8.0**
Super 800	0.50	--
	0.75	--
	1.0	**1.5**
	2.0	**2.0**
	2.5	**2.5**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**6.0**
	8.0	**8.0**
TR50	1.0	--
	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.5	**4.0**
	6.0	**6.0**
	7.5	**8.0**
	9.0	**8.0**

SPRAY SPRINKLERS

To Replace ANY MFRS NOZZLES		Use Hunter Product Nozzles
Nozzles	8' Radius	**8A**
	10' Radius	**10A**
	12' Radius	**12A**
	15' Radius	**15A**
	17' Radius	**17A**
Rain Bird 1800		**Pro-Spray**
1800 SAM		**Pro-Spray-CV**
1800 SAM PRS		**Pro-Spray-PRS30-CV**
Uni-Spray		**PS Ultra**

REPLACEMENT GUIDE

I-25 GEAR DRIVEN ROTARY SPRINKLER

To Replace RAIN BIRD®		Use Hunter Nozzle
FALCON	4 (Black)	**4 (Yellow)**
	6 (Lt. Blue)	**5 (White)**
	8 (Dk. Green)	**7 (Orange)**
	10 (Gray)	**8 (Lt. Brown)**
	12 (Beige)	**10 (Lt. Green)**
	14 (Lt. Green)	**13 (Lt. Blue)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
41-51A	18 x 11.5	**20 (Dk. Brown)**
41-51A	13 x 11	**13 (Lt. Blue)**
47A	16	**13 (Lt. Blue)**
37A	14	**8 (Lt. Brown)**
7005	4 (Black)	**4 (Yellow)**
	6 (Lt. Blue)	**5 (White)**
	8 (Dk. Green)	**8 (Lt. Brown)**
	10 (Gray)	**10 (Lt. Green)**
	12 (Beige)	**13 (Lt. Blue)**
	14 (Lt. Green)	**15 (Gray)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
8005	12 (Beige)	**13 (Lt. Blue)**
	14 (Lt. Green)	**15 (Gray)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
	20 (Red)	**23 (Dk. Green)**
	22 (Yellow)	**25 (Dk. Blue)**
	24 (Orange)	**28 (Black)**

To Replace TORO®		Use Hunter Nozzle
2001	6 (Yellow)	**7 (Orange)**
	9 (Red)	**8 (Lt. Brown)**
	12 (Brown)	**10 (Lt. Green)**
	18 (Blue)	**18 (Red)**
	24 (Green)	**25 (Dk. Blue)**
640	40	**8 (Lt. Brown)**
	41	**10 (Lt. Green)**
	42	**13 (Lt. Blue)**
	43	**15 (Gray)**
	44	**20 (Dk. Brown)**

To Replace NELSON®		Use Hunter Nozzle
7000 & 7500	1	**7 (Orange)**
	2	**8 (Lt. Brown)**
	3	**10 (Lt. Green)**
	4	**13 (Lt. Blue)**
	5	**15 (Gray)**
	6	**20 (Dk. Brown)**
	7	**23 (Dk. Green)**
	8	**25 (Dk. Blue)**

To Replace THOMPSON®		Use Hunter Nozzle
186/187	P-Nozzle	**5 (White)**
	Q-Nozzle	**7 (Orange)**
	R-Nozzle	**13 (Lt. Blue)**
	S-Nozzle	**15 (Gray)**
	T-Nozzle	**18 (Red)**
	U-Nozzle	**23 (Dk. Green)**
	VS-Nozzle	**28 (Black)**
	V-Nozzle	**28 (Black)**
	W-Nozzle	**28 (Black)**

To Replace SINGLE NOZZLE		All Impact MFRS
	5/32"	**4 (Yellow)**
	11/64"	**5 (White)**
	3/16"	**7 (Orange)**
	13/64"	**8 (Lt. Brown)**
	7/32"	**10 (Lt. Green)**
	15/64"	**13 (Lt. Blue)**
	1/4"	**15 (Gray)**
	17/64"	**20 (Dk. Brown)**

REPLACEMENT GUIDE

I-40 GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle
41-51A	18 x 11.5	**23 (Dk. Green)**
41-51A	13 x 11	**15 (Gray)**
47A-SAM	16	**13 (Lt. Blue)**
37A	14	**10 (Lt. Green)**
65 SERIES	16	**13 (Lt. Blue)**
8005	12 (Beige)	**10 (Lt. Green)**
	14 (Lt. Green)	**15 (Gray)**
	16 (Dk. Brown)	**15 (Gray)**
	18 (Dk. Blue)	**23 (Dk. Green)**
	20 (Red)	**25 (Dk. Blue)**
	22 (Yellow)	**25 (Dk. Blue)**
TALON	14	**13 (Lt. Blue)**
	16	**10 (Lt. Green)**
	18	**23 (Dk. Green)**
	20	**25 (Dk. Blue)**
	22	**25 (Dk. Blue)**

To Replace TORO®		Use Hunter Nozzle
640	40	**8 (Lt. Brown)**
	41	**10 (Lt. Green)**
	42	**13 (Lt. Blue)**
	43	**15 (Gray)**
	44	**23 (Dk. Green)**

To Replace THOMPSON®		Use Hunter Nozzle
186/7	R-Nozzle	**13 (Lt. Blue)**
	S-Nozzle	**15 (Gray)**
	T-Nozzle	**15 (Gray)**
188/9	U-Nozzle	**23 (Dk. Green)**
	V-Nozzle	**25 (Dk. Blue)**

To Replace SINGLE NOZZLE		All Impact MFRS
	15⁄64"	**10 (Lt. Green)**
	14"	**13 (Lt. Blue)**
	17⁄64"	**15 (Gray)**
	9⁄32"	**15 (Gray)**

HQ - KEYS

To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
33K, 33DK	075-SLK	QB33K07	4C075, C075	**HK-33**
44K	100-SLK	QB44K10	4C100, C100	**HK-44**
4K-Acme	100-AK	QB44KAT10	4C100A, C100A	**HK-44A**
55K-1		QB5RK10	4C101, C101	**HK-55**

HQ - SWIVELS

To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
SH-0	075-75MHS	HS075	4HS-075, HS075	**HS-0**
SH-1	075-MHS	HS100	4HS-100, HS-100	**HS-1**
SH-2	100-MHS	HS101	4HS-101, HS-101	**HS-2**
		HS100BS	4HS-100-BS, HS-100-BS	**HS-1-B**
		HS101BS	4HS-101-BS, HS-101-BS	**HS-2-B**

HQ - QUICK COUPLERS

To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
3RC	075-SLSC	QB3RC07	4V075-RY, QCV075-R	**HQ-3RC**
33DRC		QB33RC07	4V133-4A-RY, QCV133-4A-R	**HQ-33DRC**
33DLRC		QB33LRC07	4V133-4A-RLY, QCV133-4A-RL-2	**HQ-33DLRC**
33DNP		QB33NP07	4V133-4A-RL-NP, QVC133-4A-N-2	**HQ-33DLRC-R**
44RC	100-SLSC,	QB44RC10	4V144-RY, QCV-144-R	**HQ-44RC**
44LRC	100-2SLVC	QB44LRC10	4V144-RLY, QCV-144-RL	**HQ-44LRC**
44NP	100-SLVLC	QB44NO10	4V144-RL-NP, QCV-144-N	**HQ-44LRC-R**
	100-2SLLVC	QB44RCATAR10		**HQ-44RC-AW**
		QB44LRCATAR10		**HQ-44LRC-AW**
4NP-Acme		QB44NPATAR10		**HQ-44LRC-AW-R**
5RC	100-ATLVC	QBRB5RC10	4V101-RY, QCV-101-R	**HQ-5RC**
5LRC		QBRB5LRC10	4V101-RLY, QCV-101-RL	**HQ-5LRC**
5NP		QBRB5NP10	4V101-RL-NP, QCV-101-N	**HQ-5LRC-R**
5RC-BSP		QBRB5RC10BS	4V101-RY-BS, QCV-101-R-BS	**HQ-5RC-BSP**
5LRC-BSP		QBRB5LRC10BS	4V101-RLY-BS, QCV-101-RL-BS	**HQ-5LRC-BSP**
5NP-BSP		QBRB5NP10BS	4V101-RL-NP-BS, QCV-101-N-BS	**HQ-5LRC-BSPR**

PRECIPITATION RATES

In this section, the "Sprinkler Spacing Method–Any Arc and Any Spacing" equation is used to calculate precipitation rates. The first set of equations with the ■ shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The next set with the ▲ shows the precipitation rate for the sprinklers laid out in an equilateral triangular spacing pattern. This is the "Sprinkler Spacing Method–Equilateral Triangular Spacing" equation.

WHAT IS "PRECIPITATION RATE"?

If someone said they were caught in a rainstorm that dropped one inch of water in an hour, you would have some idea of how "hard" or "heavily" the rain came down. A rainstorm that covers an area with one inch of water in one hour has a "precipitation rate" of one inch per hour (1 in/hr or 25 mm/hr). Similarly, the precipitation rate is the "speed" at which a sprinkler or an irrigation system applies water.

MATCHED PRECIPITATION RATES

A zone or system in which all the heads have similar precipitation rates is said to have "matched precipitation rates". Systems that have matched precipitation rates reduce wet and dry spots and excessive run times, which lead to high water consumption and increased costs. Knowing that sprinkler spacing, flow rates, and arcs of coverage affect precipitation rates, a general rule of thumb is: as the spray arc doubles, so should the flow.

90° Arc = 1 GPM
(0.23 m^3/hr; 3.8 l/min)

180° Arc = 2 GPM
(0.45 m^3/hr; 7.6 l/min)

360° Arc = 4 GPM
(0.91 m^3/hr; 15.1 l/min)

The flow rate of half-circle heads must be two times the flow rate of the quarter-circle heads, and the full-circle heads must have two times the flow rate of the half-circle heads. In the illustration, the same amount of water is applied to each quarter circle area and precipitation is therefore matched.

CALCULATING PRECIPITATION RATES

Depending upon the construction of the irrigation system, the precipitation rate may be calculated by either a "sprinkler spacing" or a "total area" method.

Sprinkler Spacing Method
The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:

Any Arc and Any Spacing (■):

$$\text{P.R. (mm/hr)} = \frac{\text{GPM (for any Arc)} \times 34{,}650}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{m^3/hr \text{ (for any Arc)} \times 360{,}000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{l/min \text{ (for any Arc)} \times 21{,}600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

Equilateral Triangular Spacing (▲):

$$\text{P.R. (mm/hr)} = \frac{\text{GPM of 360 Arc} \times 96.25}{(\text{Head Spacing})^2 \times 0.866}$$

$$\text{P.R. (mm/hr)} = \frac{m^3/hr \times 1{,}000}{\text{Total Area}}$$

$$\text{P.R. (mm/hr)} = \frac{l/min \text{ of 360 Arc} \times 60}{(\text{Head Spacing})^2 \times 0.866}$$

Total Area Method
The precipitation rate for a "system" is the average precipitation rate of all sprinklers in an area, regardless of the spacing, flow rate, or arc for each head. The Total Area Method calculates all the flows of all of the heads in any given area.

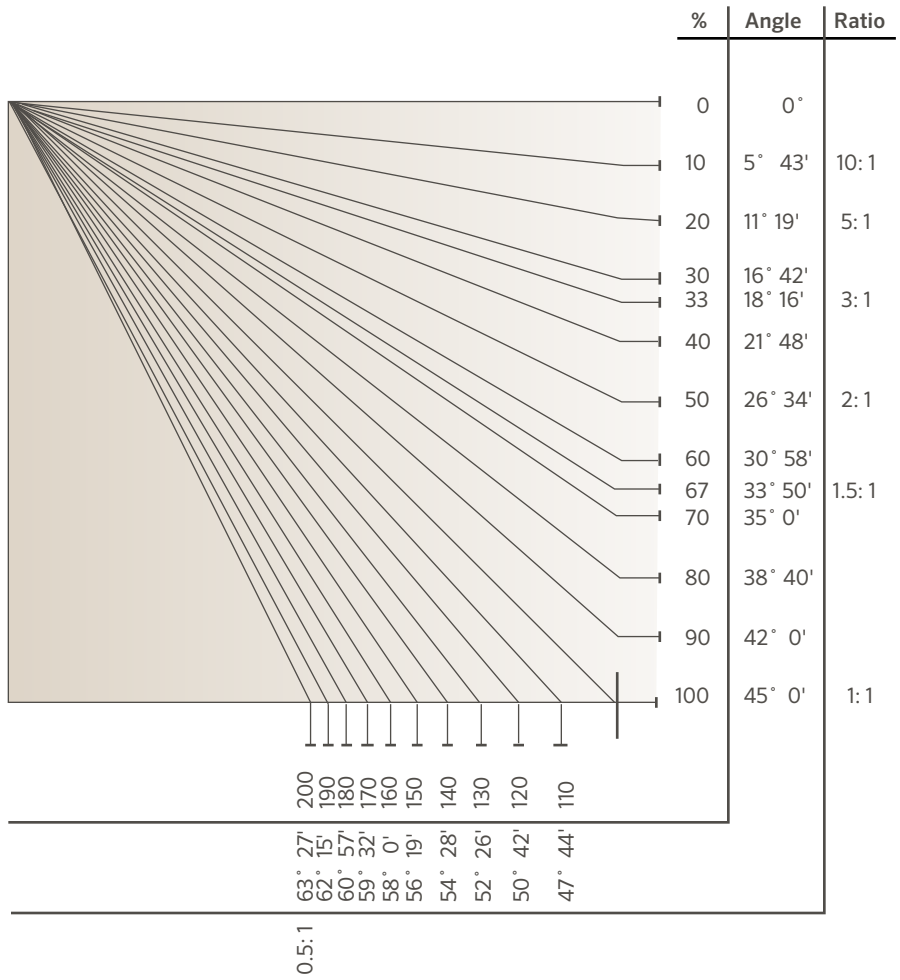
$$\text{P.R. (mm/hr)} = \frac{\text{Total GPM} \times 96.25}{\text{Total Area}}$$

$$\text{P.R. (mm/hr)} = \frac{m^3/hr \times 1{,}000}{\text{Total Area}}$$

$$\text{P.R. (mm/hr)} = \frac{l/min \times 60}{\text{Total Area}}$$

SLOPE EQUIVALENTS/IRRIGATION

PERCENT, ANGLE, RATIO



SLOPE IRRIGATION: Maximum precipitation rates for slopes in mm/hr

Soil Texture	0 to 5% Slope		5 to 8% Slope		8 to 12% Slope		12% + Slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	51	51	51	38	38	25	25	13
Coarse sandy soils over compact subsoils	44	38	32	25	25	19	19	10
Light sandy loams uniform	44	25	32	20	25	15	19	10
Light sandy loams over compact subsoils	32	19	25	13	19	10	13	8
Uniform silt loams	25	13	20	10	15	8	10	5
Silt loams over compact subsoil	15	8	13	6	10	4	8	3
Heavy clay or clay loam	5	4	4	3	3	2	3	2

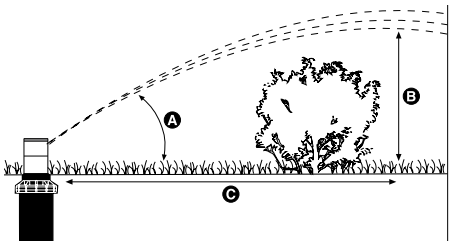
Notes:

Maximum precipitation rates for slopes in mm/hr

The maximum precipitation values listed below are those suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil condition and condition of ground cover.

HEIGHT OF SPRAY

The trajectory and spray height of the water stream leaving a sprinkler nozzle is important information when designing and installing irrigation systems.



These rotor nozzle trajectory charts are designed to help determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern. All information shown is at optimum operating pressures.

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

Model	Nozzle No.	Pressure		Degrees of Trajectory	Max Height of Spray (m)	Distance from Head to Maximum Height (m)
		bar	kPa			
MP ROTATOR	1000	2.8	275	20	0.5	Varies
	2000	2.8	275	26	1.1	Varies
	3000	2.8	275	26	2.0	Varies
	3500	2.8	275	26	2.0	Varies
	Corner	2.8	275	14	0.4	Varies
	Side Strip	2.8	275	16	0.5	Varies
	Left Strip	2.8	275	16	0.5	Varies
PGJ	0.75	2.8	275	10	0.6	1.2
	1.0	2.8	275	10	0.6	2.4
	1.5	2.8	275	10	0.9	3.7
	2.0	2.8	275	15	1.5	4.9
	2.5	2.8	275	12	1.5	6.1
	3.0	2.8	275	15	1.5	6.1
	4.0	2.8	275	15	1.5	6.7
	5.0	2.8	275	15	1.8	7.3
PGP RED NOZZLES	1.0	3.5	350	26	2.1	6.7
	2.0	3.5	350	26	2.1	6.7
	3.0	3.5	350	26	2.4	7.0
	4.0	3.5	350	26	2.4	7.0
	5.0	3.5	350	27	2.7	7.9
	6.0	3.5	350	27	3.0	8.5
	7.0	3.5	350	26	3.4	9.1
	8.0	3.5	350	26	3.4	9.1
	9.0	3.5	350	27	3.7	9.8
	10.0	4.0	400	25	4.0	9.8
	11.0	4.0	400	25	4.0	11.6
	12.0	4.0	400	25	4.0	12.2
PGP LOW ANGLE GREY NOZZLES	4.0	3.5	350	15	1.5	6.7
	5.0	3.5	350	15	1.2	6.7
	6.0	3.5	350	14	1.2	6.7
	7.0	3.5	350	14	1.2	6.7
	8.0	3.5	350	14	1.5	7.3
	9.0	3.5	350	15	1.5	7.9
	10.0	4.0	400	15	1.8	9.1
PGP BLUE NOZZLES	1.5	3.0	300	25	2.4	7.0
	2.0	3.0	300	25	2.4	7.0
	2.5	3.0	300	25	2.7	7.9
	3.0	3.0	300	25	3.0	8.5
	4.0	3.0	300	25	3.4	9.1
	5.0	3.0	300	25	3.4	9.1
	6.0	3.8	380	25	3.7	9.8
	8.0	3.8	380	25	4.0	9.8
PGP ULTRA/I-20 DARK BLUE NOZZLES	1.0	3.5	350	26	2.4	7.0
	1.5	3.5	350	26	2.4	7.0
	2.0	3.5	350	27	2.7	7.9
	3.0	3.5	350	27	3.0	8.5
	3.5	3.5	350	26	3.4	9.1
	4.0	3.5	350	26	3.4	9.1
	6.0	3.5	350	27	3.7	9.8
	8.0	4.0	400	25	4.0	9.8
PGP ULTRA/I-20 BLUE NOZZLES	1.5	3.0	300	25	2.4	7.0
	2.0	3.0	300	25	2.4	7.0
	2.5	3.0	300	25	2.7	7.9
	3.0	3.0	300	25	3.0	8.5
	4.0	3.0	300	25	3.4	9.1
	5.0	3.0	300	25	3.4	9.1
	6.0	3.8	380	25	3.7	9.8
	8.0	3.8	380	25	4.0	9.8

HEIGHT OF SPRAY

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

Model	Nozzle No.	Pressure		Degrees of Trajectory	Max Height of Spray (m)	Distance from Head to Maximum Height (m)
		bar	kPa			
PGP Ultra/I-20 Low Angle Gray Nozzles	2.0 LA	3.5	350	13	1.5	6.7
	2.5 LA	3.5	350	13	1.2	6.7
	3.5 LA	3.5	350	13	1.2	6.7
	4.5 LA	3.5	350	13	1.2	6.7
PGP Ultra/I-20 Short Radius Black Nozzles	0.5	3.5	350	15	1.5	2.4
	1.0	3.5	350	14	1.8	2.7
	2.0	3.5	350	3	0.3	1.8
PGP Ultra/I-20 Short Radius Black Nozzles	0.75	3.5	350	22	2.1	4.0
	1.5	3.5	350	18	2.1	4.0
	3.0	3.5	350	8	0.3	1.8
I-25	4	3.5	350	25	2.7	6.7
	5	3.5	350	25	3.4	8.5
	7	3.5	350	25	3.0	8.5
	8	3.5	350	25	3.4	8.5
	10	4	400	25	3.7	9.1
	13	4	400	25	4.0	9.4
	15	4	400	25	3.7	9.4
	18	4	400	25	4.6	10.4
	20	5	500	25	4.6	10.7
	23	5	500	25	4.9	11.6
	25	5	500	25	4.9	11.6
	28	5	500	25	5.2	12.2
I-40	8 (40)	3.5	350	25	3.7	9.8
	10 (41)	4	400	25	4.3	9.8
	13 (42)	4	400	25	4.3	10.4
	15 (43)	4	400	25	4.6	12.8
	23 (44)	5	500	25	5.2	14.0
	25 (45)	5	500	25	5.2	14.6
I-60 ADS	7	4	400	20	3.0	8.5
	10	4	400	20	4.0	11.6
	13	4	400	20	4.0	11.6
	15	4	400	20	4.3	12.2
	18	4	400	20	4.3	12.2
	20	4	400	20	4.6	14.0
I-60 36S	7	4	400	20	4.0	11.0
	10	4	400	20	4.3	12.2
	13	4	400	20	4.3	12.5
	15	4	400	20	4.3	12.8
	18	4	400	20	4.3	13.1
	20	4	400	20	5.2	15.2
I-90 ADV	33	5.5	550	22	4.6	12.8
	38	5.5	550	22	4.9	14.6
	43	5.5	550	22	4.9	14.6
	48	5.5	550	22	5.2	16.5
	53	5.5	550	22	5.2	17.1
	63	5.5	550	22	5.5	19.5
I-90 36V	33	5.5	550	22	5.2	14.0
	38	5.5	550	22	5.2	15.2
	43	5.5	550	22	5.2	16.5
	48	5.5	550	22	5.2	17.1
	53	5.5	550	22	5.2	17.7
	63	5.5	550	22	5.5	18.9

PLD CHARTS

PLD APPLICATION RATES

16 MM EMITTER FLOW RATE – 2.2 LPH

Row Spacing (m)	Emitter Spacing (m) 0.30	0.50
0.30	24.4	14.7
0.35	21.0	12.6
0.40	18.3	11.0
0.45	16.3	9.8
0.50	14.7	8.8
0.55	13.3	8.0
0.60	12.2	7.3

16 MM EMITTER FLOW RATE – 3.8 LPH

Row Spacing (m)	Emitter Spacing (m) 0.30	0.50
0.30	42.2	25.3
0.35	36.2	21.7
0.40	31.7	19.0
0.45	28.1	16.9
0.50	25.3	15.2
0.55	23.0	13.8
0.60	21.1	12.7

Notes
Application rates in mm per hour

17 MM EMITTER FLOW RATE – 1.5 LPH

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.60
0.30	16.7	11.1	8.2
0.35	14.3	9.5	7.0
0.40	12.5	8.3	6.1
0.45	11.1	7.4	5.5
0.50	10.0	6.7	4.9
0.55	9.1	6.1	4.5
0.60	8.3	5.6	4.1

17 MM EMITTER FLOW RATE – 2.3 LPH

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.60
0.30	25.6	17.0	12.6
0.35	21.9	14.6	10.8
0.40	19.2	12.8	9.4
0.45	17.0	11.4	8.4
0.50	15.3	10.2	7.5
0.55	13.9	9.3	6.9
0.60	12.8	8.5	6.3

17 MM EMITTER FLOW RATE – 3.8 LPH

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.60
0.30	42.2	28.1	20.8
0.35	36.2	24.1	17.8
0.40	31.7	21.1	15.6
0.45	28.1	18.8	13.8
0.50	25.3	16.9	12.5
0.55	23.0	15.4	11.3
0.60	21.1	14.1	10.4

PLD EMITTER LINE MAXIMUM LENGTH CHARTS

16 MM EMITTER LINE MAX LENGTH – 2.2 LPH

Pressure (bar)	Emitter Spacing (m) 0.30	0.50
1.0	47	73
2.0	84	131
3.0	104	162

16 MM EMITTER LINE MAX LENGTH – 3.8 LPH

Pressure (bar)	Emitter Spacing (m) 0.30	0.50
1.0	35	54
2.0	59	91
3.0	72	112

17 MM EMITTER LINE MAX LENGTH – 1.5 LPH

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	86	119	149
2.0	132	185	232
3.0	159	223	281

17 MM EMITTER LINE MAX LENGTH – 2.3 LPH

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	51	71	88
2.0	89	124	156
3.0	108	152	191

17 MM EMITTER LINE MAX LENGTH – 3.8 LPH

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	37	52	65
2.0	65	92	115
3.0	80	112	142

PLD FLOW CONVERSION CHARTS

16 MM QUICK REFERENCE CHART – LPM PER 100 M

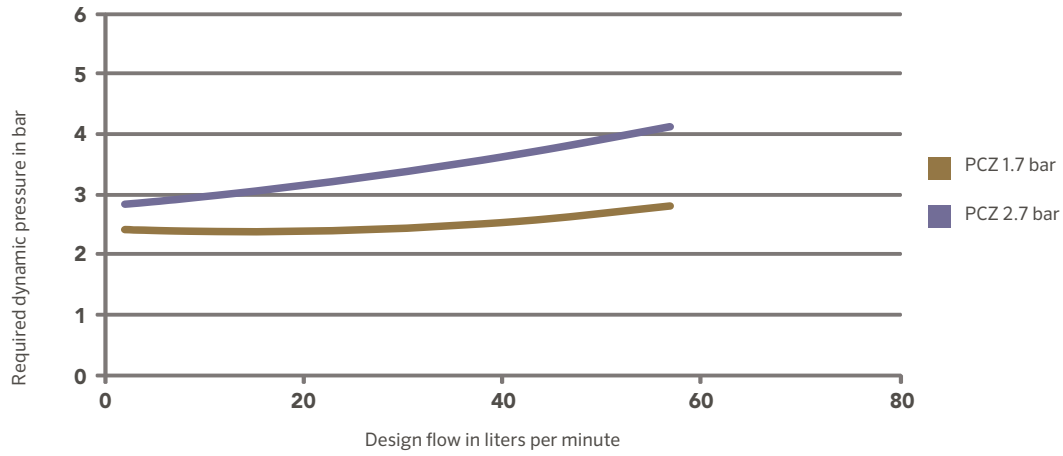
Emitter (LPH)	Emitter Spacing (m) 0.30	0.50
2.2	12.2	7.3
3.8	21.1	12.7

17 MM QUICK REFERENCE CHART – LPM PER 100 M

Emitter (LPH)	Emitter Spacing (m) 0.30	0.50	0.60
1.5	8.1	5.4	4.2
2.3	12.6	8.5	6.4
3.8	20.2	13.6	10.2

DRIP ZONE CONTROL KIT CHARTS

PCZ101: Inlet pressure required for designed outlet pressure



CONVERSION FACTORS

CONVERSION FACTORS			
To Convert	**From**	**To**	**Multiply By**
Area	acres	foot^2	43560
	acres	meter^2	4046.8
	meter^2	foot^2	10.764
	foot^2	inch^2	144
	inch^2	centimeter^2	6.452
	hectares	meter^2	10000
	hectares	acres	2.471
Power	kilowatts	horsepower	1.341
Flow	foot^3/minute	meter^3/second	0.0004719
	foot^3/second	meter^3/second	0.02832
	yards^3/minute	meter^3/second	0.01274
	gallon/minute	meter^3/hour	0.22716
	gallon/minute	liter/minute	3.7854
	gallon/minute	liter/second	0.06309
	meter^3/hour	liter/minute	16.645
	meter^3/hour	liter/second	0.2774
	liter/minute	liter/second	60
Length	foot	inch	12
	inch	centimeter	2.54
	foot	meter	0.30481
	kilometer	miles	0.6214
	miles	foot	5280
	miles	meter	1609.34
	millimeter	inch	0.03937
Pressure	PSI	kilopascals	6.89476
	PSI	bar	0.068948
	bar	kilopascals	100
	PSI	feet of head	2.31
Velocity	feet/second	meter/second	0.3048
Volume	feet^3	gallon	7.481
	feet^3	liter	28.32
	meter^3	feet^3	35.31
	meter^3	yard^3	1.3087
	yard^3	feet^3	27
	yard^3	gallon	202
	acres/feet	foot^3	43,560
	gallon	meter^3	0.003785
	gallon	liter	3.785
	imperial gallon	gallon	1.833

FRICTION LOSS CHARTS

UPCV PIPE CLASS 3 (6 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		36.4 mm		46.4 mm		59.2 mm		70.6 mm		84.6 mm		103.6 mm		153.2 mm		188.2 mm	
Pipe OD		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.8 mm		1.8 mm		1.9 mm		2.2 mm		2.7 mm		3.2 mm		3.4 mm		5.9 mm	
Flow (GPM)	Flow m^3/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25																
2	0.5																
3	0.75																
4	1	0.3	0.03														
7	1.5	0.4	0.06	0.2	0.02												
9	2	0.5	0.09	0.3	0.03												
11	2.5	0.7	0.14	0.4	0.04												
13	3	0.8	0.20	0.5	0.06												
15	3.5	0.9	0.27	0.6	0.08												
18	4	1.1	0.34	0.7	0.10												
22	5	1.3	0.52	0.8	0.16												
26	6	1.6	0.72	1.0	0.22	0.6	0.07	0.4	0.03								
31	7	1.9	0.96	1.1	0.30	0.7	0.09	0.5	0.04								
35	8	2.1	1.23	1.3	0.38	0.8	0.12	0.6	0.05								
40	9	2.4	1.53	1.5	0.47	0.9	0.14	0.6	0.06								
44	10	2.7	1.86	1.6	0.57	1.0	0.17	0.7	0.07								
48	11			1.8	0.68	1.1	0.21	0.8	0.09	0.5	0.04						
53	12			2.0	0.8	1.2	0.24	0.9	0.10	0.6	0.04						
57	13			2.1	0.93	1.3	0.28	0.9	0.12	0.6	0.05						
62	14			2.3	1.07	1.4	0.33	1.0	0.14	0.7	0.06						
66	15			2.5	1.21	1.5	0.37	1.1	0.16	0.7	0.06	0.5	0.02				
70	16					1.6	0.42	1.1	0.18	0.8	0.07	0.5	0.03				
75	17					1.7	0.47	1.2	0.20	0.8	0.08	0.6	0.03				
79	18					1.8	0.52	1.3	0.22	0.9	0.09	0.6	0.03				
84	19					1.9	0.57	1.3	0.24	0.9	0.10	0.6	0.04				
88	20					2.0	0.63	1.4	0.27	1.0	0.11	0.7	0.04				
92	21					2.1	0.69	1.5	0.29	1.0	0.12	0.7	0.05				
97	22					2.2	0.75	1.6	0.32	1.1	0.13	0.7	0.05				
101	23					2.3	0.82	1.6	0.35	1.1	0.14	0.8	0.05				
106	24							1.7	0.37	1.2	0.16	0.8	0.06				
110	25							1.8	0.40	1.2	0.17	0.8	0.06				
114	26							1.8	0.43	1.3	0.18	0.9	0.07				
119	27							1.9	0.47	1.3	0.19	0.9	0.07				
123	28							2.0	0.50	1.4	0.21	0.9	0.08				
128	29							2.1	0.53	1.4	0.22	1.0	0.08				
132	30							2.1	0.57	1.5	0.23	1.0	0.09				
154	35									1.7	0.31	1.2	0.12				
176	40									2.0	0.40	1.3	0.15				
198	45									2.2	0.50	1.5	0.19				
220	50											1.6	0.23				
242	55											1.8	0.27				
264	60											2.0	0.32				
286	65											2.1	0.37	1.0	0.05		
308	70											2.3	0.42	1.1	0.06		
330	75													1.1	0.07		
352	80													1.2	0.08		
374	85													1.3	0.09		
396	90													1.4	0.10		
440	100													1.5	0.12	1.0	0.04
484	110													1.7	0.14	1.1	0.05
528	120													1.8	0.17	1.2	0.06
572	130													2.0	0.20	1.3	0.07
616	140													2.1	0.23	1.4	0.08
660	150													2.3	0.26	1.5	0.09

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

UPCV PIPE CLASS 4 (10 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		22 mm		28.4 mm		36.2 mm		45.2 mm		57 mm		67.8 mm		81.4 mm		99.4 mm		144.6 mm		180.8 mm	
Pipe OD		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.5 mm		1.8 mm		1.9 mm		2.4 mm		3 mm		3.6 mm		4.3 mm		5.3 mm		7.7 mm		9.6 mm	
Flow (GPM)	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.2	0.02																		
2	0.5	0.4	0.08																		
3	0.75	0.5	0.18																		
4	1	0.7	0.30																		
7	1.5	1.1	0.64	0.7	0.19																
9	2	1.5	1.10	0.9	0.32																
11	2.5	1.8	1.66	1.1	0.48	0.7	0.15														
13	3	2.2	2.33	1.3	0.67	0.8	0.21														
15	3.5	2.6	3.10	1.5	0.89	0.9	0.27														
18	4			1.8	1.14	1.1	0.35	0.7	0.12												
22	5			2.2	1.73	1.3	0.53	0.9	0.18												
26	6			2.6	2.42	1.6	0.74	1.0	0.25	0.7	0.08										
31	7					1.9	0.99	1.2	0.34	0.8	0.11										
35	8					2.2	1.27	1.4	0.43	0.9	0.14										
40	9					2.4	1.58	1.6	0.53	1.0	0.17	0.7	0.07								
44	10							1.7	0.65	1.1	0.21	0.8	0.09								
48	11							1.9	0.77	1.2	0.25	0.8	0.11								
53	12							2.1	0.91	1.3	0.29	0.9	0.13								
57	13							2.3	1.06	1.4	0.34	1.0	0.15								
62	14							2.4	1.21	1.5	0.39	1.1	0.17								
66	15							2.6	1.38	1.6	0.44	1.2	0.19								
70	16									1.7	0.50	1.2	0.22	0.9	0.09						
75	17									1.9	0.56	1.3	0.24	0.9	0.10						
79	18									2.0	0.62	1.4	0.27	1.0	0.11						
84	19									2.1	0.69	1.5	0.30	1.0	0.12						
88	20									2.2	0.76	1.5	0.33	1.1	0.13						
92	21									2.3	0.83	1.6	0.36	1.1	0.15						
97	22									2.4	0.90	1.7	0.39	1.2	0.16						
101	23									2.5	0.98	1.8	0.42	1.2	0.17						
106	24											1.8	0.46	1.3	0.19						
110	25											1.9	0.49	1.3	0.20						
114	26											2.0	0.53	1.4	0.22	0.9	0.08				
119	27											2.1	0.57	1.4	0.23	1.0	0.09				
123	28											2.2	0.61	1.5	0.25	1.0	0.09				
128	29											2.2	0.65	1.5	0.27	1.0	0.10				
132	30											2.3	0.69	1.6	0.28	1.1	0.11	0.5	0.02		
154	35													1.9	0.38	1.3	0.14	0.6	0.02		
176	40													2.1	0.48	1.4	0.18	0.7	0.03		
198	45													2.4	0.60	1.6	0.23	0.8	0.04		
220	50															1.8	0.28	0.8	0.04		
242	55															2.0	0.33	0.9	0.05		
264	60															2.1	0.39	1.0	0.06		
286	65															2.3	0.45	1.1	0.07		
308	70															2.5	0.51	1.2	0.08		
330	75															2.7	0.58	1.3	0.09		
352	80															2.9	0.66	1.4	0.11		
374	85															3.0	0.74	1.4	0.12		
396	90															3.2	0.82	1.5	0.13	1.0	0.04
440	100																	1.7	0.16	1.1	0.05
484	110																	1.9	0.19	1.2	0.06
528	120																	2.0	0.22	1.3	0.08
572	130																	2.2	0.26	1.4	0.09
616	140																	2.4	0.30	1.5	0.10
660	150																	2.5	0.34	1.6	0.11

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

UPVC PIPE CLASS 5 (16 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		21.2 mm		27.2 mm		34 mm		42.6 mm		53.6 mm		63.8 mm		76.6 mm		93.6 mm		136.2 mm		170.2 mm	
Pipe OD		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.5 mm		1.8 mm		1.9 mm		2.4 mm		3 mm		3.6 mm		4.3 mm		5.3 mm		7.7 mm		14.9 mm	
Flow (GPM)	Flow m^3/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.2	0.03																		
2	0.5	0.4	0.10																		
3	0.75	0.6	0.21	0.4	0.06																
4	1	0.8	0.36	0.5	0.11	0.3	0.04														
7	1.5	1.2	0.77	0.7	0.23	0.5	0.08	0.3	0.03												
9	2	1.6	1.32	1.0	0.39	0.6	0.13	0.4	0.04												
11	2.5	2.0	1.99	1.2	0.59	0.8	0.20	0.5	0.07												
13	3	2.4	2.79	1.4	0.83	0.9	0.28	0.6	0.09												
15	3.5			1.7	1.10	1.1	0.37	0.7	0.12												
18	4			1.9	1.41	1.2	0.48	0.8	0.16												
22	5			2.4	2.13	1.5	0.72	1.0	0.24												
26	6					1.8	1.01	1.2	0.34	0.7	0.11										
31	7					2.1	1.34	1.4	0.45	0.9	0.15										
35	8					2.4	1.72	1.6	0.57	1.0	0.19										
40	9							1.8	0.71	1.1	0.23										
44	10							1.9	0.87	1.2	0.28										
48	11							2.1	1.03	1.4	0.34	1.0	0.14								
53	12							2.3	1.21	1.5	0.40	1.0	0.17								
57	13									1.6	0.46	1.1	0.20								
62	14									1.7	0.53	1.2	0.23								
66	15									1.8	0.60	1.3	0.26								
70	16									2.0	0.68	1.4	0.29	1.0	0.12						
75	17									2.1	0.76	1.5	0.32	1.0	0.13						
79	18									2.2	0.84	1.6	0.36	1.1	0.15						
84	19									2.3	0.93	1.7	0.40	1.1	0.16						
88	20									2.5	1.02	1.7	0.44	1.2	0.18						
92	21											1.8	0.48	1.3	0.20						
97	22											1.9	0.52	1.3	0.21						
101	23											2.0	0.57	1.4	0.23						
106	24											2.1	0.61	1.4	0.25	1.0	0.09				
110	25											2.2	0.66	1.5	0.27	1.0	0.10				
114	26											2.3	0.71	1.6	0.29	1.0	0.11				
119	27											2.3	0.76	1.6	0.31	1.1	0.12				
123	28											2.4	0.82	1.7	0.33	1.1	0.13				
128	29											2.5	0.87	1.7	0.36	1.2	0.13				
132	30													1.8	0.38	1.2	0.14				
154	35													2.1	0.51	1.4	0.19				
176	40													2.4	0.65	1.6	0.24				
198	45													2.7	0.81	1.8	0.30				
220	50															2.0	0.37	1.0	0.06		
242	55															2.2	0.44	1.0	0.07		
264	60															2.4	0.52	1.1	0.08		
286	65															2.6	0.60	1.2	0.10		
308	70															2.8	0.69	1.3	0.11		
330	75															3.0	0.78	1.4	0.13		
352	80															3.2	0.88	1.5	0.14		
374	85																	1.6	0.16		
396	90																	1.7	0.18		
440	100																	1.9	0.21	1.2	0.07
484	110																	2.1	0.26	1.3	0.09
528	120																	2.3	0.30	1.5	0.10
572	130																	2.5	0.35	1.6	0.12
616	140																	2.7	0.40	1.7	0.14
660	150																	2.9	0.45	1.8	0.15

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 40 IPS PVC PLASTIC PIPE

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		1"		1¼"		1½"		2"		2½"		3"		4"		6"		8"	
Pipe OD		1.315"		1.66"		2.375"		2.375"		2.375"		3.500"		4.500"		6.625"		8.625	
Pipe ID		1.049"		1.380"		2.469"		2.067"		2.469"		3.068"		4.026"		6.065"		7.981"	
Pipe ID mm		26.64		35.05		40.89		52.50		62.71		77.93		102.26		154.05		202.72	
Wall Thick		0.133"		0.140"		0.145"		0.154"		0.203"		0.216"		0.237"		0.280"		0.322"	
Flow (GPM)	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.1	0.01																
2	0.5	0.2	0.03																
3	0.75	0.4	0.07	0.2	0.02														
4	1	0.5	0.12	0.3	0.03	0.2	0.01												
7	1.5	0.7	0.25	0.4	0.07	0.3	0.03	0.2	0.01										
9	2	1.0	0.43	0.6	0.11	0.4	0.05	0.3	0.02										
11	2.5	1.2	0.65	0.7	0.17	0.5	0.08	0.3	0.02										
13	3	1.5	0.92	0.9	0.24	0.6	0.11	0.4	0.03										
15	3.5	1.7	1.22	1.0	0.32	0.7	0.15	0.4	0.04										
18	4	2.0	1.56	1.2	0.41	0.8	0.19	0.5	0.06										
22	5	2.5	2.36	1.4	0.62	1.1	0.29	0.6	0.09										
26	6			1.7	0.87	1.3	0.41	0.8	0.12	0.5	0.05	0.3	0.02						
31	7			2.0	1.16	1.5	0.55	0.9	0.16	0.6	0.07	0.4	0.02						
35	8			2.3	1.48	1.7	0.70	1.0	0.21	0.7	0.09	0.5	0.03						
40	9			2.6	1.84	1.9	0.87	1.2	0.26	0.8	0.11	0.5	0.04						
44	10			2.9	2.24	2.1	1.06	1.3	0.31	0.9	0.13	0.6	0.05						
48	11					2.3	1.26	1.4	0.37	1.0	0.16	0.6	0.05						
53	12					2.5	1.48	1.5	0.44	1.1	0.18	0.7	0.06						
57	13					2.7	1.72	1.7	0.51	1.2	0.21	0.8	0.07						
62	14					3.0	1.97	1.8	0.58	1.3	0.25	0.8	0.09						
66	15					3.2	2.24	1.9	0.66	1.3	0.28	0.9	0.10						
70	16							2.1	0.75	1.4	0.31	0.9	0.11						
75	17							2.2	0.84	1.5	0.35	1.0	0.12						
79	18							2.3	0.93	1.6	0.39	1.0	0.14						
84	19							2.4	1.03	1.7	0.43	1.1	0.15						
88	20							2.6	1.13	1.8	0.48	1.2	0.17						
92	21									1.9	0.52	1.2	0.18						
97	22									2.0	0.57	1.3	0.2						
101	23									2.1	0.62	1.3	0.21						
106	24									2.2	0.67	1.4	0.23						
110	25									2.2	0.72	1.5	0.25						
114	26									2.3	0.77	1.5	0.27						
119	27									2.4	0.83	1.6	0.29						
123	28											1.6	0.31						
128	29											1.7	0.33						
132	30											1.7	0.35						
154	35											2.0	0.47	1.2	0.12				
176	40											2.3	0.60	1.4	0.16				
198	45											2.6	0.74	1.5	0.20				
220	50											2.9	0.90	1.7	0.24				
242	55													1.9	0.29				
264	60													2.0	0.34				
286	65													2.2	0.39	1.0	0.07		
308	70													2.4	0.45	1.0	0.08		
330	75													2.5	0.51	1.1	0.09		
352	80													2.7	0.57	1.2	0.10		
374	85													2.9	0.64	1.3	0.11		
396	90													3.0	0.71	1.3	0.12	0.8	0.03
440	100															1.5	0.15	0.9	0.03
484	110															1.6	0.18	0.9	0.04
528	120															1.8	0.21	1.0	0.04
572	130															1.9	0.25	1.1	0.05
616	140															2.1	0.28	1.2	0.06
660	150															2.1	0.32	1.3	0.07

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 80 IPS PVC PLASTIC PIPE

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		1"		1¼"		1½"		2"		2½"		3"		4"		6"		8"	
Pipe OD		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		8.625	
Pipe ID		0.957		1.278		1.500		1.939		2.323		2.900		3.826		5.761		7.625	
Pipe ID mm		24.31		32.46		38.10		49.25		59.00		73.66		97.18		146.33		193.68	
Wall Thick		0.179		0.191		0.200		0.218		0.276		0.300		0.337		0.432		0.500	
Flow (GPM)	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.1	0.01																
2	0.5	0.3	0.05																
3	0.75	0.4	0.11	0.3	0.03														
4	1	0.6	0.19	0.3	0.05	0.2	0.02												
7	1.5	0.9	0.40	0.5	0.10	0.4	0.04	0.2	0.01										
9	2	1.2	0.68	0.7	0.17	0.5	0.08	0.3	0.02										
11	2.5	1.5	1.02	0.8	0.25	0.6	0.11	0.4	0.03										
13	3	1.8	1.43	1.0	0.35	0.7	0.16	0.4	0.05										
15	3.5	2.1	1.90	1.2	0.47	0.9	0.21	0.5	0.06										
18	4	2.4	2.44	1.3	0.60	1.0	0.27	0.6	0.08										
22	5	3.0	3.69	1.7	0.90	1.2	0.41	0.7	0.12										
26	6			2.0	1.26	1.5	0.58	0.9	0.17	0.6	0.07	0.4	0.02						
31	7			2.3	1.68	1.7	0.77	1.0	0.22	0.7	0.09	0.5	0.03						
35	8			2.7	2.15	1.9	0.99	1.2	0.28	0.8	0.12	0.5	0.04						
40	9			3.0	2.68	2.2	1.23	1.3	0.35	0.9	0.15	0.6	0.05						
44	10					2.4	1.49	1.5	0.43	1.0	0.18	0.7	0.06						
48	11					2.7	1.78	1.6	0.51	1.1	0.21	0.7	0.07						
53	12					2.9	2.09	1.7	0.60	1.2	0.25	0.8	0.08						
57	13							1.9	0.69	1.3	0.29	0.8	0.10						
62	14							2.0	0.80	1.4	0.33	0.9	0.11						
66	15							2.2	0.91	1.5	0.38	1.0	0.13						
70	16							2.3	1.02	1.6	0.42	1.0	0.14						
75	17							2.5	1.14	1.7	0.47	1.1	0.16						
79	18							2.6	1.27	1.8	0.53	1.2	0.18						
84	19									1.9	0.58	1.2	0.20						
88	20									2.0	0.64	1.3	0.22						
92	21									2.1	0.70	1.4	0.24						
97	22									2.2	0.76	1.4	0.26						
101	23									2.3	0.83	1.5	0.28						
106	24									2.4	0.90	1.6	0.30						
110	25									2.5	0.97	1.6	0.33						
114	26											1.7	0.35						
119	27											1.8	0.38						
123	28											1.8	0.41	1.0	0.11				
128	29											1.9	0.43	1.1	0.11				
132	30											2.0	0.46	1.1	0.12				
154	35											2.3	0.61	1.3	0.16				
176	40											2.6	0.78	1.5	0.20				
198	45													1.7	0.25				
220	50													1.9	0.31				
242	55													2.1	0.37				
264	60													2.2	0.43				
286	65													2.4	0.50	1.1	0.07		
308	70													2.6	0.57	1.2	0.08		
330	75													2.8	0.65	1.2	0.09		
352	80													3.0	0.73	1.3	0.10		
374	85													3.2	0.82	1.4	0.11		
396	90													3.4	0.91	1.5	0.12		
440	100															1.7	0.15	0.9	0.04
484	110															1.8	0.18	1.0	0.05
528	120															2.0	0.21	1.1	0.05
572	130															2.1	0.25	1.2	0.06
616	140															2.3	0.28	1.3	0.07
660	150															2.5	0.32	1.4	0.08

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

HDPE PRESSURE PIPE PE80 SDR 17.6 PN6

C=140 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID mm		21.40		28.40		35.40		44.20		55.80		66.40		79.80		97.40		141.80		177.20	
Wall Thick		1.8		1.8		2.3		2.9		3.6		4.3		5.1		6.3		9.1		11.4	
Flow (GPM)	Flow m^3/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.2	0.03																		
2	0.5	0.4	0.11																		
3	0.75	0.6	0.23	0.3	0.06																
4	1	0.8	0.40	0.4	0.10	0.3	0.03														
7	1.5	1.2	0.84	0.7	0.21	0.4	0.07	0.3	0.02												
9	2	1.5	1.43	0.9	0.36	0.6	0.12	0.4	0.04												
11	2.5	1.9	2.16	1.1	0.54	0.7	0.19	0.5	0.06												
13	3	2.3	3.03	1.3	0.76	0.8	0.26	0.5	0.09												
15	3.5	2.7	4.03	1.5	1.01	1.0	0.35	0.6	0.12												
18	4	3.1	5.16	1.8	1.30	1.1	0.44	0.7	0.15												
22	5			2.2	1.96	1.4	0.67	0.9	0.23												
26	6			2.6	2.75	1.7	0.94	1.1	0.32	0.7	0.10	0.5	0.04								
31	7			3.1	3.66	2.0	1.25	1.3	0.42	0.8	0.14	0.6	0.06								
35	8			3.5	4.69	2.3	1.60	1.4	0.54	0.9	0.17	0.6	0.07								
40	9					2.5	2.00	1.6	0.68	1.0	0.22	0.7	0.09								
44	10					2.8	2.43	1.8	0.82	1.1	0.26	0.8	0.11								
48	11							2.0	0.98	1.2	0.32	0.9	0.14								
53	12							2.2	1.15	1.4	0.37	1.0	0.16								
57	13							2.4	1.34	1.5	0.43	1.0	0.18								
62	14							2.5	1.53	1.6	0.49	1.1	0.21								
66	15							2.7	1.74	1.7	0.56	1.2	0.24								
70	16							2.9	1.96	1.8	0.63	1.3	0.27								
75	17							3.1	2.20	1.9	0.71	1.4	0.30								
79	18							3.3	2.44	2.0	0.79	1.4	0.34								
84	19									2.2	0.87	1.5	0.37								
88	20									2.3	0.95	1.6	0.41								
92	21									2.4	1.04	1.7	0.45	1.2	0.18						
97	22									2.5	1.14	1.8	0.49	1.2	0.2						
101	23									2.6	1.24	1.8	0.53	1.3	0.22						
106	24									2.7	1.34	1.9	0.57	1.3	0.23						
110	25									3.8	1.44	2.0	0.62	1.4	0.25						
114	26											2.1	0.67	1.4	0.27	1.0	0.10	0.5	0.02		
119	27											2.2	0.71	1.5	0.29	1.0	0.11	0.5	0.02		
123	28											2.2	0.76	1.6	0.31	1.0	0.12	0.5	0.02		
128	29											2.3	0.81	1.6	0.33	1.1	0.13	0.5	0.02		
132	30											2.4	0.87	1.7	0.35	1.1	0.13	0.5	0.02		
154	35											2.8	1.15	1.9	0.47	1.3	0.18	0.6	0.03		
176	40											3.2	1.48	2.2	0.6	1.5	0.23	0.7	0.04		
198	45													2.5	0.75	1.7	0.28	0.8	0.05		
220	50													2.8	0.91	1.9	0.35	0.9	0.06		
242	55													3.1	1.09	2.1	0.41	1.0	0.07		
264	60													3.3	1.28	2.2	0.48	1.1	0.08		
286	65															2.4	0.56	1.1	0.09		
308	70															2.6	0.64	1.2	0.10		
330	75																	1.3	0.12		
352	80																	1.4	0.13		
374	85																	1.5	0.15		
396	90																	1.6	0.16		
440	100																	1.8	0.20	1.1	0.07
484	110																	1.9	0.24	1.2	0.08
528	120																	2.1	0.28	1.4	0.09
572	130																	2.3	0.33	1.5	0.11
616	140																			1.6	0.13
660	150																			1.7	0.14

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

HDPE PRESSURE PIPE PE80 SDR 11 PN10

C=140 • PRESSURE LOSS (BAR/100 METERS)

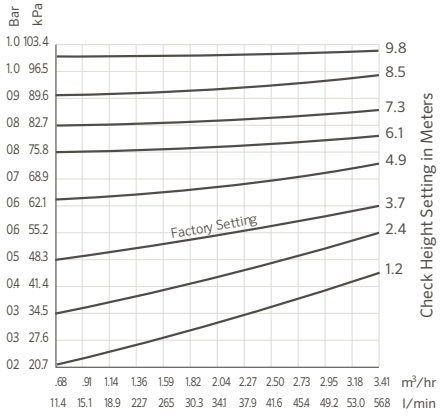
Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID mm		20.40		26.20		32.60		40.80		51.40		61.40		73.60		90.00		130.80		163.60	
Wall Thick		2.3		2.9		3.7		4.6		5.8		6.8		8.2		10		14.6		18.2	
Flow (GPM)	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
1	0.25	0.2	0.04																		
2	0.5	0.4	0.14																		
3	0.75	0.6	0.29	0.4	0.09																
4	1	0.8	0.50	0.5	0.15																
7	1.5	1.3	1.06	0.8	0.31	0.5	0.11														
9	2	1.7	1.80	1.0	0.53	0.7	0.18														
11	2.5	2.1	2.73	1.3	0.81	0.8	0.28	0.5	0.09												
13	3	2.5	3.82	1.5	1.13	1.0	0.39	0.6	0.13												
15	3.5	3.0	5.08	1.8	1.50	1.2	0.52	0.7	0.17												
18	4			2.1	1.92	1.3	0.66	0.8	0.22	0.5	0.07										
22	5			2.6	2.91	1.7	1.00	1.1	0.34	0.7	0.11										
26	6			3.1	4.08	2.0	1.41	1.3	0.47	0.8	0.15										
31	7					2.3	1.87	1.5	0.63	0.9	0.20										
35	8					2.7	2.40	1.7	0.8	1.1	0.26										
40	9					3.0	2.98	1.9	1.00	1.2	0.32										
44	10							2.1	1.21	1.3	0.39										
48	11							2.3	1.45	1.5	0.47	1.0	0.20								
53	12							2.5	1.70	1.6	0.55	1.1	0.23								
57	13							2.8	1.97	1.7	0.64	1.2	0.27								
62	14							3.0	2.27	1.9	0.74	1.3	0.31								
66	15									2.0	0.84	1.4	0.35								
70	16									2.1	0.94	1.5	0.40								
75	17									2.3	1.05	1.6	0.44	1.1	0.18						
79	18									2.4	1.17	1.7	0.49	1.2	0.20						
84	19									2.5	1.30	1.8	0.54	1.2	0.23						
88	20									2.7	1.42	1.9	0.60	1.3	0.25						
92	21									2.8	1.56	2.0	0.66	1.4	0.27						
97	22									2.9	1.70	2.1	0.71	1.4	0.30						
101	23									3.1	1.84	2.2	0.78	1.5	0.32						
106	24											2.3	0.84	1.6	0.35						
110	25											2.3	0.91	1.6	0.37						
114	26											2.4	0.97	1.7	0.40	1.1	0.15				
119	27											2.5	1.04	1.8	0.43	1.2	0.16				
123	28											2.6	1.12	1.8	0.46	1.2	0.17				
128	29											2.7	1.19	1.9	0.49	1.3	0.19				
132	30											2.8	1.27	2.0	0.53	1.3	0.20				
154	35											3.3	1.69	2.3	0.70	1.5	0.26				
176	40													2.6	0.89	1.7	0.34				
198	45													2.9	1.11	2.0	0.42				
220	50													3.3	1.35	2.2	0.51	1.0	0.08		
242	55															2.4	0.61	1.1	0.10		
264	60															2.6	0.71	1.2	0.12		
286	65															2.8	0.83	1.3	0.13		
308	70															3.1	0.95	1.4	0.15		
330	75															3.3	1.08	1.6	0.17		
352	80																	1.7	0.20		
374	85																	1.8	0.22	1.1	0.07
396	90																	1.9	0.24	1.2	0.08
440	100																	2.1	0.30	1.3	0.10
484	110																	2.3	0.35	1.5	0.12
528	120																	2.5	0.42	1.6	0.14
572	130																	2.7	0.48	1.7	0.16
616	140																			1.8	0.19
660	150																			2.0	0.21

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

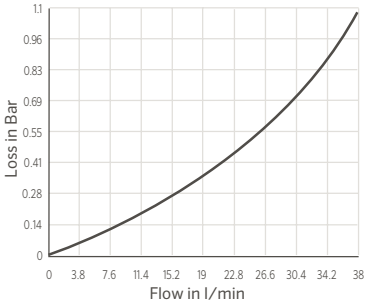
FRICTION LOSS CHARTS

ACCESSORY PRESSURE LOSS CHARTS

HCV PRESSURE LOSS CHART



SWING JOINT FRICTION LOSS



WIRE DATA

STANDARD ANNEALED COPPER AT 20° C					
American Wire Gauge	Metric Wire Gauge	Diameter (Mils)	Diameter (mm)	Resistance (Per mft Ohms)	Resistance (Per km Ohms)
1		289.3	7.348	0.9239	0.4065
	7		7		0.448
2		257.6	6.543	0.1563	0.5128
	6		6		0.6098
3		229.4	5.827	0.1971	0.6466
4		204.3	5.189	0.2485	0.8152
	5		5		0.08781
5		181.9	4.62	0.3134	1.028
	4.5		4.5		1.084
6		162	4.115	0.3952	1.297
	4		4		1.372
7		144.3	3.665	0.4981	1.634
	3.5		3.5		1.792
8		128.5	3.264	0.6281	2.061
	3		3		2.439
9		114.4	2.906	0.7925	2.6
10		101.9	2.588	0.9988	3.277
	2.5		2.5		3.512
11		90.7	2.3	1.26	4.14
12		80.8	2.05	1.59	5.21
	2		2		5.49
13		72	1.83	2	6.56
	1.8		1.8		6.78
14		64.1	1.63	2.52	8.28
	1.6		1.6		8.58
15		57.1	1.45	3.18	10.4
	1.4		1.4		11.2
16		50.8	1.29	4.02	13.2
	1.2		1.2		15.2
17		45.3	1.15	5.05	16.6
18		40.3	1.02	6.39	21
	1		1		22
19		35.9	0.912	8.05	26.4
	0.9		0.9		27.1
20		32	0.813	10.1	33.2

WIRE SIZING

REQUIRED INFORMATION

- Actual one-way length of wire between the controllers and the power source or the controllers and valves
- Allowable voltage loss along the wire circuit
- Accumulative current flowing through the wire section being sized in amperes

RESISTANCE IS CALCULATED USING THIS FORMULA:

$$R = \frac{1000 \times AVL}{2L \times I}$$

R = Maximum Allowable Resistance of wire in ohms per 1000 meters

AVL = Allowable voltage loss

L = Wire length (one way) in meters

I = Inrush current

AVL for controller power wire sizing is calculated by subtracting the minimum operating voltage required by the controller from the minimum available voltage at the power source.

AVL for valve wire sizing is calculated by subtracting minimum solenoid operating voltage from controller output voltage. This number will vary depending on the manufacturer and in some cases with line pressure.

VALVE WIRE SIZING EXAMPLE

Given: The distance from the controller to the valve is 600 m. The controller output is 24 V. The valve has a minimum operating voltage of 20 V and an inrush current of 370 mA (0.37 A).

$$R = \frac{1000 \times 4}{2(600) \times 0.37}$$

$$R = \frac{4000}{444}$$

R = 9.01 ohms/1000 meters

So, wire resistance can not exceed 9 ohms per 1000 m. Now go to table #1 and select the proper wire size. Since 1.5 mm^2 gauge wire has more resistance than 9 ohms per 1000 feet, choose 2.5 mm^2 wire.

Table 2 is a quick reference and is set up to provide maximum wire runs given the information at the bottom of the table.

TABLE 1 - RESISTANCE OF COPPER WIRE

Wire Size (mm^2)	Resistance at 20° C (68° F) (ohms per 1000 m)
0.5	38.4
1.0	18.7
1.5	13.6
2.5	7.4
4.0	4.6
6.0	3.1

TABLE 2- VALVE WIRE SIZING

Ground Wire	Control Wire						
	0.5	1	1.5	2.5	4	6	6
0.5	140	190	210	235	250	260	1590
1.0	190	290	335	415	465	495	2440
1.5	208	335	397	515	595	647	3700
2.5	235	415	515	730	900	1030	5400
4.0	250	465	595	900	1175	1405	7690
6.0	260	495	647	1030	1405	1745	10530

Notes:
Maximum one-way distance in feet between controller and valve
Heavy-duty solenoid: 24 VAC,
370 mA inrush current, 190 mA holding current, 60 cycles;
475 mA inrush current, 230 mA holding current, 50 cycles

ADDITIONAL DATA

WIRE SIZE REFERENCE CHART

Wire Size (mm^2)	25 mm	32 mm	40 mm	50 mm	63 mm	75 mm	90 mm	110 mm	160 mm	Wire Size (mm^2)
0.5	20	35	49	80	110	175	-	-	-	0.5
1	16	30	42	67	97	150	-	-	-	1
1.5	10	18	25	40	56	88	120	150	-	1.5
2.5	7	15	20	33	50	75	102	130	-	2.5
4	6	13	16	27	40	63	85	110	-	4
6	4	6	9	16	25	35	50	65	150	6

Notes:

Approximate number of wires to be installed in conduit or tubing
Maximum number of wires in conduit or sleeving

CLIMATE ETp TABLE

Climate*	mm Daily
Cool Humid	2.5 to 3.8
Cool Dry	3.8 to 5.1
Warm Humid	3.8 to 5.1
Warm Dry	5.1 to 6.3
Hot Humid	5.1 to 7.6
Hot Dry	7.6 to 11.4

Notes:

* Cool = under 21 ˚C as an average mid-summer high
* Warm = between 21˚ and 32˚ C as mid-summer highs
* Hot = over 32˚ C
* Humid = over 50% as average mid-summer relative humidity (dry=under 50%)

NOTES

NOTES

STATEMENT OF WARRANTY

Hunter Industries Incorporated ("Hunter") warrants the following products to be free of defects in materials or workmanship under normal use for a period of one (1) year from the original date of manufacture: SRM family, and Micro Sprays. Hunter warrants the following products to be free of defects in materials or workmanship under normal use for a period of two (2) years from the original date of manufacture: PGP-ADJ®, PGJ, MP Rotator family, PS Ultra family, Spray Nozzles, PCN, PCB, AFB, PGV family, SRV, X-Core family, Pro-C family, ROAM, NODE, WVP, WVS, ACZ, PCZ, PSR, HCV, SJ, FLEXsg, HSBE family, RZWS, and ET System. Hunter warrants the following products to be free of defects in materials or workmanship under normal use for a period of five (5) years from the original date of manufacture: ROAM XL, PGP Ultra family, I-20, I-25, I-35, I-40, I-60 and I-90 families, Pro-Spray® family, Pro-Spray® PRS30 family, and Pro-Spray® PRS40 family, I-Core/Dual family and ACC controller families, ROAM XL, ICD Decoder Products, ICR Remotes, IMMS™ Central Control Products, "Clik" Sensors, Solar-Sync, HQ, ICV and IBV valves, ICZ and PLD tubing, Eco-Mat, ST System Rotors and Accessories. If used for agriculture applications, Hunter limits the warranty for its spray, rotator and rotor products to a period of one (1) year from original date of manufacture. This agriculture limitation supersedes all other warranties expressed or implied. Hunter warrants the battery life of the Wireless Rain-Clik and Wireless Solar Sync sensors for 10 years. If a defect in a Hunter product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part. This warranty does not extend to repairs, adjustments, or replacement of a Hunter product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the Hunter product. If a defect arises in a Hunter product or part during the warranty period, you should contact your local Hunter Authorized Distributor.

HUNTER'S OBLIGATION TO REPAIR OR REPLACE ITS PRODUCTS AS SET FORTH ABOVE IS THE SOLE AND EXCLUSIVE WARRANTY SET FORTH BY HUNTER. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. HUNTER WILL NOT BE LIABLE TO ANY PARTY IN STRICT LIABLITY, TORT, CONTRACT, OR ANY OTHER MANNER FOR DAMAGES CAUSED OR CLAIMED TO BE CAUSED AS A RESULT OF ANY DESIGN OR DEFECT IN HUNTER'S PRODUCTS, OR FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE.

If you have any questions concerning the warranty or its application, please email HunterTechnicalSupport@hunterindustries.com.

ASAE CERTIFICATION STATEMENT

Hunter Industries Incorporated certifies that pressure, flow rate, and radius data for these products were determined and listed in accordance with ASAE Standard S398.1, Procedure for Sprinkler Testing and Performance Reporting, and are representative of performance of production sprinklers at the time of publication. Actual product performance may differ from the published specifications due to normal manufacturing variations and sample selection. All other specifications are solely the recommendation of Hunter Industries Incorporated.

HUNTER: *Built on Innovation*

Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

Richard E. Hunter, CEO of Hunter Industries

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