Product Catalog

RESIDENTIAL AND COMMERCIAL IRRIGATION | *Built on Innovation®*

This is What **INNOVATION MEANS TO US**

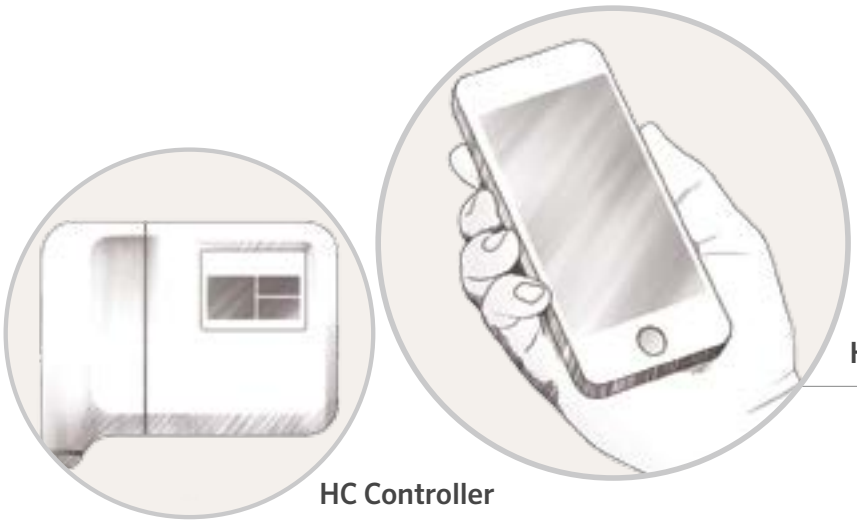
We believe the future of irrigation brings together the latest technologies, high-quality products, and unsurpassed customer support. Our focus on new innovations and solutions includes advancements in software that will improve the efficiency of irrigation worldwide.

We're committed to making your job easier and helping grow your business to the highest level. Your success is what drives us. We are proud to be your partner, and thank you for your loyalty.


Hydrawise
Hunter | HC

The Future of Irrigation
IS IN YOUR HANDS

Now you can manage customer irrigation systems from anywhere in the world using your smart device or web browser. The Hunter HC controller with Hydrawise™ web-based software lets you oversee all of your customer irrigation schedules and receive alerts and alarms at home, at the office or on vacation, anywhere in the world. Or, you can manage your irrigation right from the controller's easy-to-use full graphic touchscreen. Predictive Watering™ adjustments change daily schedules based on temperature forecast, rainfall probability and wind and humidity to provide maximum water savings while keeping your landscape healthy and beautiful.



Hydrawise Software

HC Controller

Hunter®


EASY TO USE
SAVE WATER
SAVE TIME
MONITOR
WATER USAGE
Welcome to your Hydrawise Contractor Portal!
Dashboard
6316 mins
76 %
0
7
4
7
76%
ALERTS
9 Alerts, 64 Events total

What's **NEW**

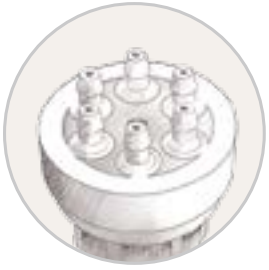
The ICC2 is a value-packed, mid-range commercial controller with exciting new features. With up to 54 stations, it's especially designed to irrigate large landscapes. The controller can run any two of its four automatic programs simultaneously, which means more irrigation within a shorter time period. The control panel and internal modules are forward- and backward-compatible with original ICC controllers. The new high-visibility backlit display makes the ICC2 easy to operate, even in low-light conditions. With its customizable language overlay, the ICC2 is a global player.

ICC2

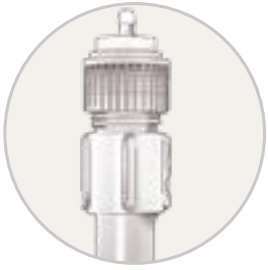
The Wireless Flow Sensor is designed to be used with flow monitoring commercial controllers such as the I-Core and ACC. It has uniquely designed flow-sensing capabilities up to 500' from the controller, which means no more running wires or digging trenches. Mounted securely in a valve box, it's easy to install. The sealed battery compartment makes it fully waterproof. It can detect leaks or breaks and responds by interrupting the watering program.

Wireless Flow Sensor

We've made big moves in some small spaces, with over 50 new Micro irrigation products. Whether you're designing dense or sparse plantings, narrow beds, small spaces, or even green roofs, we now offer all the products you need with the high quality you expect from Hunter.



Multi-Port Emitters



IH Risers

Rigid Risers

PLD-Loc Fittings

MLD, ½", and ¼" Tubing

Table of CONTENTS

Hunter®

RESIDENTIAL *Solutions*

Hunter's residential irrigation systems combine efficiency, water savings, and ease of use for jobs of any size. A design featuring the MP Rotator® will achieve distribution uniformity without runoff in a radius range of 6' to 35', so no matter what type of space you're working with, you can help your customers save water while maintaining a beautiful landscape.

1 Pro-C®

Pro-C – our most robust residential controller easily converts to a smart watering device when paired with Solar Sync.
Page 87

2 Solar Sync®

Solar Sync – uses evapotranspiration (ET) and adjusts the Pro-Cs run time daily to apply the right amount of water.
Page 110

3 MP Rotator & PRS40

MP Rotator – the world's most efficient sprinkler uses multiple streams to deliver water slowly without runoff. PRS40 ensures optimal output pressure for maximum efficiency with the MP Rotator.
Page 44 and 56

MICRO IRRIGATION *Solutions*

Hunter's micro irrigation solutions offer efficiency and water savings for the unique needs of challenging spaces. Higher quality at-grade and subsurface drip products from Hunter provide the versatility and durability required for all varieties of plantings: large & small spaces, landscape beds, hedge rows, mixed plantings, green walls, and rooftop gardens - no overspray, no runoff.

1 PCZ-101

PCZ-101 – contains our PGV valve, filter, and 25 or 40 PSI pressure regulator for maximum efficiency and complete zone control.

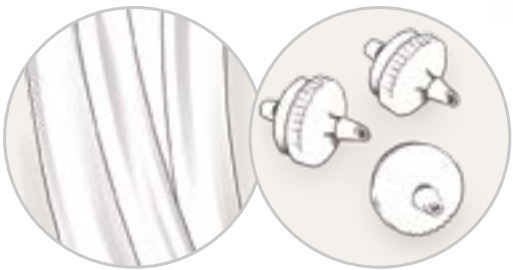
Page 130

2 Eco Mat®

Eco-Mat - unique subsurface irrigation product comprised of dripline, fleece, and a special capillary mat that irrigates with unrivaled efficiency.

Page 122

3 PLD & Point Source Emitters



PLD - Professional Landscape Dripline irrigates with maximum consistency and includes a check valve to prevent low-point drainage. Point Source Drip Emitters - Color-coded emitters which come in a variety of flows and deliver water directly to the plant's root zone without waste.

Page 124 and 128

COMMERCIAL *Solutions*

For commercial applications and public spaces, Hunter's proven water savers include our most durable commercial rotors with built-in pressure regulation, plus our ACC controller with Solar Sync®. Adding IMMS graphically-based central control simplifies the management of large-scale irrigation systems by monitoring and reporting totals to track water usage and quickly identify plumbing issues.

1 I-20 PRB

I-20 PRB – a high-performance rotor with a pressure-regulated body for optimal watering efficiency.

Page 26

2 Solar Sync

Solar Sync – conserves water by adjusting ACC run times based on ET and local weather conditions.

Page 110

3 ACC

ACC – our most advanced large-scale commercial controller works as a stand alone or with IMMS and Solar Sync for the ultimate in smart watering for even the largest properties.

Page 92

4 IMMS

IMMS – PC-based software for wide area systems management. Optional ET software provides weather-based irrigation when used with Solar Sync.

Page 106

1 ICV & Accu-Sync®

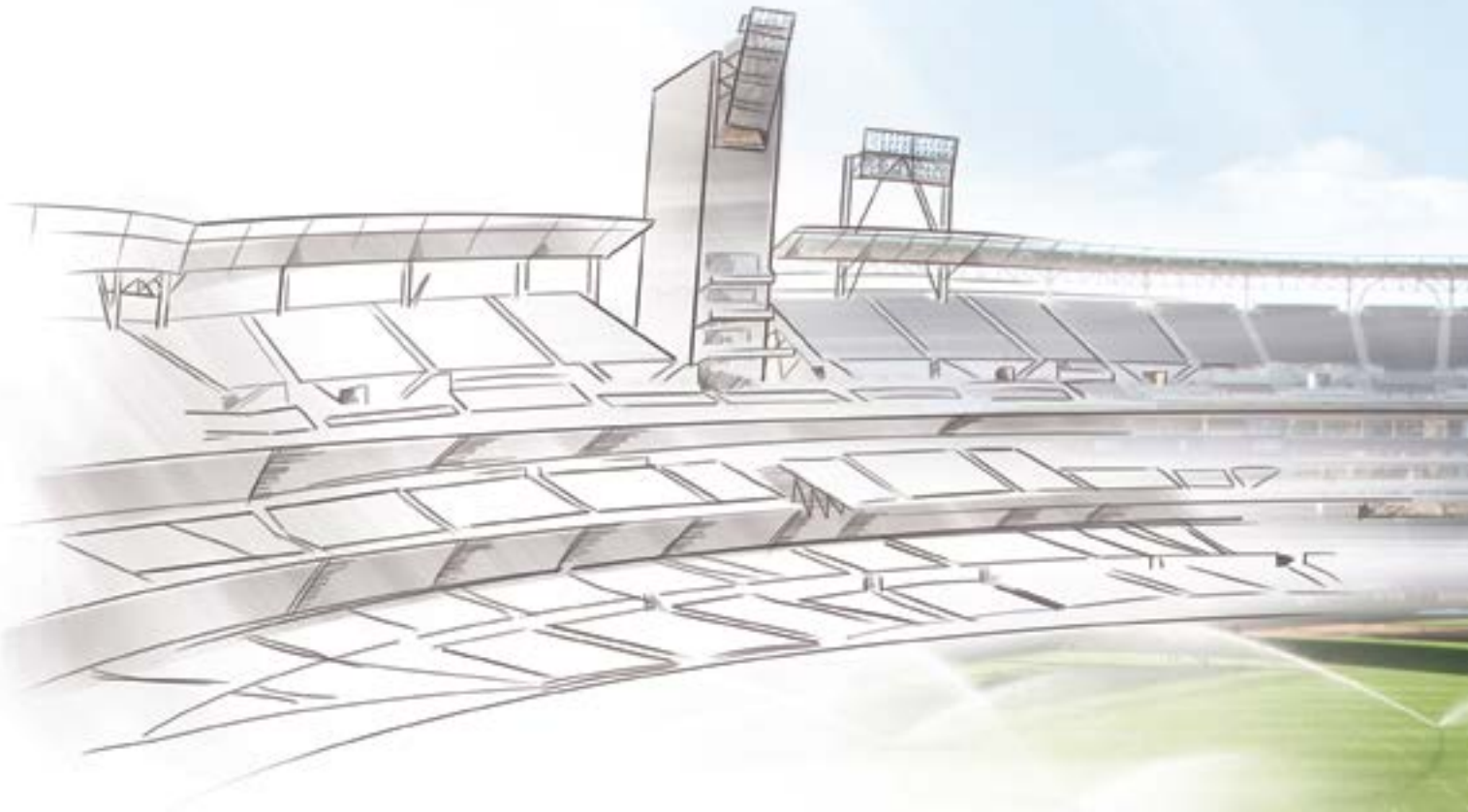
ICV – our top-of-the-line valve for high-pressure commercial systems with flow control to maximize efficiency. Accu-Sync regulates pressure at the valve to save water and extend the life of the system.
Page 77 and 79

2 I-Core®

I-Core – our versatile commercial controller saves water with built-in Solar Sync® compatibility, flow monitoring, cycle and soak, programmable rain delay, and more.
Page 90

3 I-40

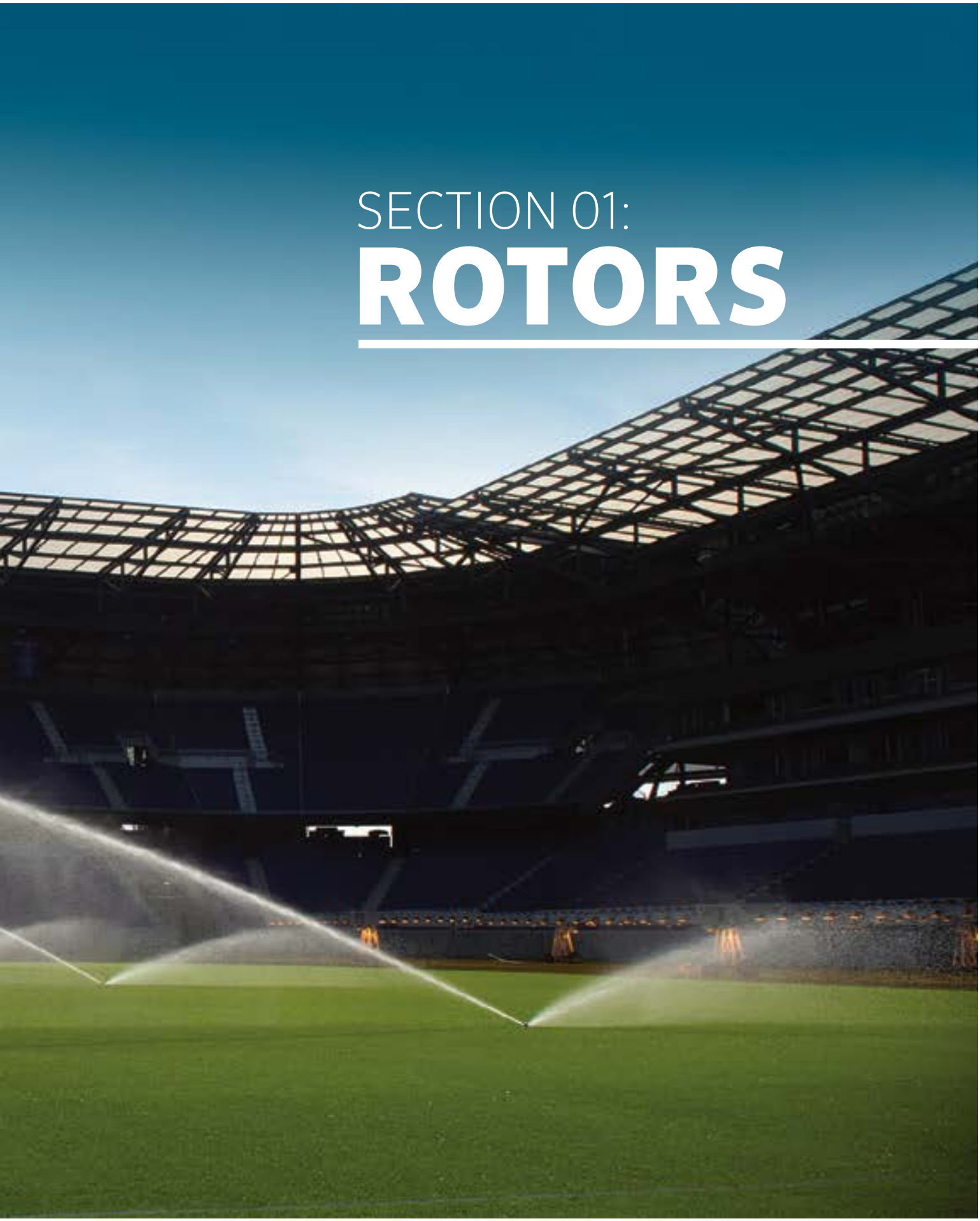
I-40 – tough stainless steel commercial rotors that deliver water with accuracy for professional results.
Page 31



SPORTS TURF *Solutions*

World-class stadiums demand world-class irrigation systems.
Hunter's winning combination includes the most durable and safe sports turf rotors, robust controllers, and trouble-free, reliable valves for the healthiest, most playable turf all season long.

SECTION 01:
ROTORS



ROTORS
ADVANCED FEATURES

RELIABLE STRENGTH & DURABILITY

PRESSURE REGULATED BODY

Reduces high incoming pressure to prevent misting and allows nozzles to operate at peak efficiency. Lower pressure produces larger water droplets that fight the effects of wind.

PGP Ultra 4", I-20 4" and 6"

STAINLESS STEEL RISER

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

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

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-90

VALUE-ADDED OPTIONS

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 mid-range and close-in watering.

I-40, I-90

EASY IN-THE-FIELD IDENTIFICATION

OPTIONAL RECLAIMED WATER ID

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

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

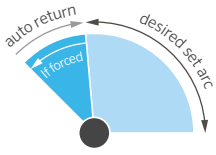
COLOR-CODED NOZZLES

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

I-25, I-40, I-90

EASY AS-NEEDED ADJUSTMENTS

AUTOMATIC ARC RETURN & NON-STRIPPABLE DRIVE



This patented feature returns the turret to the original arc regardless of where it is turned. The non-strippable drive mechanism is protected from damage, ensuring protection from vandalism.

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

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

ROTORS COMPARISON CHART

QUICK SPECS		PGJ	SRM	PGP®-ADJ	PGP ULTRA	I-20	I-25	I-40	I-40-ON	I-90
INLET SIZE		½"	½"	¾"	¾"	¾"	1"	1"	1"	1½"
RADIUS	ft.	15' - 37'	15' - 30'	22' - 52'	17' - 46'	17' - 46'	40' - 71'	44' - 69'	52' - 76'	66' - 103'
FLOW	GPM	0.64 - 5.3	0.42 - 3.4	0.5 - 14.1	0.36 - 14.8	0.36 - 14.8	3.8 - 31.5	7.6 - 29.5	13.0 - 33.7	29.5 - 83.8
FEATURES										
RECOMMENDED PRESSURE RANGE	PSI	30 - 50	30 - 50	25 - 70	25 - 70	25 - 70	40 - 100	40 - 100	40 - 100	80 - 120
OPERATING PRESSURE RANGE	PSI	20 - 100	20 - 100	20 - 100	20 - 100	20 - 100	40 - 100	40 - 100	40 - 100	80 - 120
NOZZLE TRAJECTORY		15°	15°	25°	25°	25°	25°	25°	25°	22.5°
SPECIFIC NOZZLES		---	---	---	Optional	Optional	Pre-Installed	Pre-Installed	Pre-Installed	Pre-Installed
NOZZLE OPTIONS		8	6	27	34	34	12	6	6	16
WARRANTY		2 Years	1 Year	2 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years
ADVANCED FEATURES										
LOW ANGLE NOZZLE CHOICES				●	●	●				●
AUTOMATIC ARC RETURN					●	●	●	●		
NON-STRIPPABLE DRIVE					●	●	●	●		
PART- AND FULL-CIRCLE IN ONE MODEL					●	●	●	●		
HEADED AND SLOTTED SET SCREW		●			●	●				
RECLAIMED WATER ID		●			●	●	●	●	●	●
AVAILABLE SHORT RADIUS NOZZLES					●	●				
FLOSTOP® CONTROL						●				
OPPOSING NOZZLE									●	●
STAINLESS STEEL RISER OPTION						●	●	●	●	
OPTIONAL PRESSURE REGULATED BODY					●	●				
OPTIONAL OR FACTORY INSTALLED DRAIN CHECK VALVE		● (7')			● (7')	● (7')	● (10')	● (15')	● (15')	● (9')

PGJ

Radius: **15' to 37'**
Flow: **0.64 to 5.3 GPM**
Inlet: **½"**

FEATURES

- Models: Shrub, 4", 6", 12"
- Arc setting: 40° to 360°
- 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
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Warranty period: 2 years
- ▸ Headed and slotted set screw
- ▸ Reclaimed water ID
- ▸ Drain check valve (up to 7' of elevation)

OPERATING SPECIFICATIONS

- Radius: 15' to 37'
- Flow: 0.64 to 5.3 GPM
- Recommended pressure range: 30 to 50 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.6 in/hr approximately
- Nozzle trajectory: 14° approximately

▸ = *Advanced Feature descriptions on page 18*

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

PGJ-00
Overall height: 7"
Exposed diameter: 1⅛"
Inlet size: ½"

PGJ-04
Overall height: 7⅛"
Pop-up height: 4"
Exposed diameter: 1⅛"
Inlet size: ½"

PGJ-06
Overall height: 9⅛"
Pop-up height: 6"
Exposed diameter: 1⅛"
Inlet size: ½"

PGJ-12
Overall height: 16⅜"
Pop-up height: 12"
Exposed diameter: 1⅛"
Inlet size: ½"

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 = 4" Pop-up		**V** = Drain check valve
PGJ-06 = 6" Pop-up		**R** = Drain check valve and reclaimed water ID
PGJ-12 = 12" Pop-up		

Examples:
PGJ-04 = 4" Pop-up, adjustable arc
PGJ-06 - V = 6" Pop-up, adjustable arc, with drain check valve
PGJ-12 - R = 12" Pop-up, adjustable arc, with drain check valve and reclaimed water ID

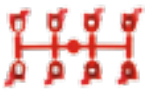
PGJ RED NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.75 ● Red	30	15	0.64	0.55	0.63
	40	**16**	**0.75**	**0.56**	**0.65**
	50	17	0.85	0.57	0.65
1.0 ● Red	30	18	0.85	0.51	0.58
	40	**19**	**1.0**	**0.53**	**0.62**
	50	19	1.1	0.59	0.68
1.5 ● Red	30	21	1.3	0.57	0.66
	40	**22**	**1.5**	**0.60**	**0.69**
	50	22	1.7	0.68	0.78
2.0 ● Red	30	24	1.7	0.57	0.66
	40	**25**	**2.0**	**0.62**	**0.71**
	50	25	2.3	0.71	0.82
2.5 ● Red	30	27	2.2	0.58	0.67
	40	**28**	**2.5**	**0.61**	**0.71**
	50	28	2.8	0.69	0.79
3.0 ● Red	30	30	2.5	0.53	0.62
	40	**31**	**3.0**	**0.60**	**0.69**
	50	31	3.4	0.68	0.79
4.0 ● Red	30	33	3.7	0.65	0.76
	40	**34**	**4.0**	**0.67**	**0.77**
	50	34	4.3	0.72	0.83
5.0 ● Red	30	36	4.7	0.70	0.81
	40	**37**	**5.0**	**0.70**	**0.81**
	50	37	5.3	0.75	0.86

Bold = Recommended pressure

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

PGJ NOZZLES



SRM

Radius: **15' to 30'**
Flow: **0.42 to 3.4 GPM**
Inlet: **½"**

FEATURES

- Model: 4"
- Arc setting: 40° to 360°
- Nozzle choices: 6
- Nozzle range: 0.50 to 3.0
- Standard factory installed nozzle: 3.0 only
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Warranty period: 1 year

SRM-04
Overall height: 6⅝"
Pop-up height: 4"
Exposed diameter: 1⅛"
Inlet size: ½"

OPERATING SPECIFICATIONS

- Radius: 15' to 30'
- Flow: 0.42 to 3.4 GPM
- Recommended pressure range: 30 to 50 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.45 in/hr approximately
- Nozzle trajectory: 18° approximately

SRM

Model	Description
SRM-04	4" Pop-up, adjustable arc, 6 standard nozzles

SRM NOZZLES

SRM

SRM GREEN NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.50 ●	30	15	0.42	0.36	0.41
	40	**16**	**0.50**	**0.38**	**0.43**
Dk. Green	50	17	0.58	0.39	0.45
.75 ●	30	15	0.42	0.36	0.41
	40	**16**	**0.50**	**0.38**	**0.43**
Dk. Green	50	17	0.58	0.39	0.45
1.0 ●	30	19	0.85	0.45	0.52
	40	**20**	**1.0**	**0.48**	**0.56**
Dk. Green	50	20	1.1	0.53	0.61
1.5 ●	30	23	1.3	0.47	0.55
	40	**24**	**1.5**	**0.50**	**0.58**
Dk. Green	50	25	1.7	0.52	0.60
2.0 ●	30	25	1.7	0.52	0.60
	40	**26**	**2.0**	**0.57**	**0.66**
Dk. Green	50	27	2.3	0.61	0.70
3.0 ●	30	28	2.5	0.61	0.71
	40	**30**	**3.0**	**0.64**	**0.74**
Dk. Green	50	30	3.4	0.73	0.84

Bold = Recommended pressure

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

PGP®

Radius: **22' to 52'**
Flow: **0.5 to 14.1 GPM**
Inlet: **¾"**

FEATURES

- Model: 4"
- Arc setting: 40° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 27 total, nozzle racks: Red, Blue, Gray Low Angle
- Warranty period: 2 years

PGP-ADJ
Overall height: 7⅜"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: ¾"

OPERATING SPECIFICATIONS

- Radius: 22' to 52'
- Flow: 0.5 to 14.1 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: Std = 25°, Low Angle = 13°

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

1 Model	2 Standard Features	3 Feature Options
PGP-ADJ-B = 4" Pop-up	Adjustable arc with Blue nozzle rack	**1.5 to 4.0** = Factory-installed Blue nozzle number
PGP-ADJ = 4" Pop-up	Adjustable arc with Red nozzle rack	**#5 to #8** = Factory-installed Red nozzle number
		#7 = Factory-installed Red nozzle number

Examples:
PGP-ADJ = 4" Pop-up, adjustable arc
PGP-ADJ - B - 3.0 = 4" Pop-up, adjustable arc, and 3.0 Blue nozzle
PGP-ADJ - 07 = 4" Pop-up, adjustable arc, and #7 Red nozzle

PGP Red Standard Nozzle

PGP GRAY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
4LA ● Gray	30	22	1.4	0.56	0.64
	40	24	1.7	0.57	0.66
	50	**26**	**1.8**	**0.51**	**0.59**
	60	28	2.0	0.49	0.57
5LA ● Gray	30	25	1.6	0.49	0.57
	40	27	1.9	0.50	0.58
	50	**28**	**2.1**	**0.52**	**0.60**
	60	30	2.3	0.49	0.57
6LA ● Gray	30	27	2.1	0.55	0.64
	40	30	2.5	0.53	0.62
	50	**33**	**2.8**	**0.49**	**0.57**
	60	35	3.0	0.47	0.54
7LA ● Gray	30	29	2.8	0.64	0.74
	40	32	3.1	0.58	0.67
	50	**35**	**3.5**	**0.55**	**0.64**
	60	37	3.8	0.53	0.62
8LA ● Gray	30	31	3.4	0.68	0.79
	40	34	3.9	0.65	0.75
	50	**37**	**4.4**	**0.62**	**0.71**
	60	38	4.7	0.63	0.72
9LA ● Gray	30	33	4.3	0.76	0.88
	40	37	5.0	0.70	0.81
	50	**40**	**5.6**	**0.67**	**0.78**
	60	42	6.1	0.67	0.77
10LA● Gray	40	38	6.5	0.87	1.00
	50	40	7.3	0.88	1.01
	60	**42**	**8.0**	**0.87**	**1.01**
	70	44	8.6	0.86	0.99

Bold = Recommended pressure

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

PGP® RED NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
1 Red	30	28	0.5	0.12	0.14
	40	29	0.6	0.14	0.16
	50	**29**	**0.7**	**0.16**	**0.19**
	60	30	0.8	0.17	0.20
2 Red	30	29	0.7	0.16	0.19
	40	30	0.8	0.17	0.20
	50	**30**	**0.9**	**0.19**	**0.22**
	60	31	1.0	0.20	0.23
3 Red	30	30	0.9	0.19	0.22
	40	31	1.0	0.20	0.23
	50	**31**	**1.2**	**0.24**	**0.28**
	60	32	1.3	0.24	0.28
4 Red	30	32	1.2	0.23	0.26
	40	33	1.4	0.25	0.29
	50	**34**	**1.6**	**0.27**	**0.31**
	60	34	1.8	0.30	0.35
5 Red	30	32	1.6	0.30	0.35
	40	36	1.8	0.27	0.31
	50	**38**	**2.0**	**0.27**	**0.31**
	60	38	2.2	0.29	0.34
6 Red	30	34	2.0	0.33	0.38
	40	36	2.4	0.36	0.41
	50	**38**	**2.7**	**0.36**	**0.42**
	60	38	2.9	0.39	0.45
7 Red	30	34	2.6	0.43	0.50
	40	38	3.0	0.40	0.46
	50	**40**	**3.4**	**0.41**	**0.47**
	60	40	3.7	0.45	0.51
8 Red	30	37	3.2	0.45	0.52
	40	39	3.7	0.47	0.54
	50	**41**	**3.9**	**0.45**	**0.52**
	60	42	4.6	0.50	0.58
9 Red	30	38	3.6	0.48	0.55
	40	41	4.3	0.49	0.57
	50	**44**	**5.2**	**0.52**	**0.60**
	60	45	5.5	0.52	0.60
10 Red	40	44	6.0	0.60	0.69
	50	**46**	**6.8**	**0.62**	**0.71**
	60	47	7.6	0.66	0.76
	70	49	8.2	0.66	0.76
11 Red	40	46	8.0	0.73	0.84
	50	**48**	**8.9**	**0.74**	**0.86**
	60	50	9.8	0.75	0.87
	70	51	10.5	0.78	0.90
12 Red	40	46	10.5	0.96	1.10
	50	**48**	**11.9**	**0.99**	**1.15**
	60	50	12.7	0.98	1.13
	70	52	14.1	1.00	1.16

Bold = Recommended pressure

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

PGP BLUE NOZZLE PERFORMANCE DATA

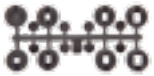
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
1.5 Blue	25	29	1.2	0.27	0.32
	35	31	1.4	0.28	0.32
	45	**31**	**1.5**	**0.30**	**0.35**
	55	32	1.8	0.34	0.39
	65	32	1.9	0.36	0.41
2.0 Blue	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	**34**	**2.0**	**0.33**	**0.38**
	55	34	2.1	0.35	0.40
	65	32	2.3	0.43	0.50
2.5 Blue	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
	45	**35**	**2.5**	**0.39**	**0.45**
	55	35	2.6	0.41	0.47
	65	35	2.9	0.46	0.53
3.0 Blue	25	35	2.2	0.35	0.40
	35	36	2.7	0.40	0.46
	45	**38**	**3.0**	**0.40**	**0.46**
	55	39	3.4	0.43	0.50
	65	39	3.7	0.47	0.54
4.0 Blue	25	37	3.0	0.42	0.49
	35	39	3.5	0.44	0.51
	45	**40**	**4.0**	**0.48**	**0.56**
	55	41	4.5	0.52	0.60
	65	41	4.8	0.55	0.63
5.0 Blue	25	37	3.7	0.52	0.60
	35	39	4.5	0.57	0.66
	45	**42**	**5.0**	**0.55**	**0.63**
	55	42	5.7	0.62	0.72
	65	42	6.2	0.68	0.78
6.0 Blue	25	38	4.3	0.57	0.66
	35	40	5.6	0.67	0.78
	45	**43**	**6.0**	**0.62**	**0.72**
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
8.0 Blue	25	37	6.0	0.84	0.97
	35	41	7.0	0.80	0.93
	45	**44**	**8.0**	**0.80**	**0.92**
	55	46	9.0	0.82	0.95
	65	46	9.8	0.89	1.03

PGP-ADJ
Easy arc and radius adjustment

PGP NOZZLES

Red (P/N 130900)

Blue (P/N 665300)



Gray (P/N 233200)

PGP® ULTRA

Radius: **17' to 47'**
Flow: **0.36 to 14.8 GPM**
Inlet: **¾"**

FEATURES

- Models: Shrub, 4", 12"
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 34
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.5 Low Angle Gray, 0.50 to 3.0 Black, 6.0 to 13.0 Green, MPR-25, MPR-30, MPR-35
- 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 10' of elevation)

OPERATING SPECIFICATIONS

- Radius: 17' to 47'
- Flow: 0.36 to 14.8 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: Std = 25°, Low Angle = 13°

▸ = *Advanced Feature descriptions on page 18*

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

PGP Ultra
Easy arc and radius adjustment

PGP-00
Overall height: 7½"
Exposed diameter: 1¾"
Inlet size: ¾"

PGP-04
Overall height: 7½"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: ¾"

PGP-12
Overall height: 17"
Pop-up height: 12"
Exposed diameter: 1¾"
Inlet size: ¾"

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
PGP-00 = Shrub **PGP-04** = 4" Pop-up **PGP-12** = 12" 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	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **Green High Flow** **MPR-25-Q, T, H, F** **MPR-30-Q, T, H, F** **MPR-35-Q, T, H, F** **1.5 to 4.0** = only nozzles 1.5 - 4.0 can be factory-installed

Examples:
PGP-04 = 4" Pop-up, adjustable arc
PGP-04 - 2.5 = 4" Pop-up, adjustable arc, and 2.5 nozzle
PGP-12 - CV-R - 4.0 = 12" Pop-up, adjustable arc, with drain check valve and reclaimed water ID, and 4.0 nozzle

I-20

Radius: **17' to 46'**
Flow: **0.36 to 14.8 GPM**
Inlet: **¾"**

FEATURES

- Models plastic riser: Shrub, 4", 6", 12"
- Models stainless steel riser: 4", 6"
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 34
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.5 Low Angle Gray, 0.50 to 3.0 Short Radius Black, 6.0 to 13.0 Green, MPR-25, MPR-30, MPR-35
- 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 10' of elevation)

OPERATING SPECIFICATIONS

- Radius: 17' to 46'
- Flow: 0.36 to 14.8 GPM
- Recommended pressure range: 25 to 70 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: Std = 25°, Low Angle = 13°

▸ = *Advanced Feature descriptions on page 18*

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-00 = Shrub **I-20-04** = 4" Pop-up **I-20-06** = 6" Pop-up **I-20-12** = 12" 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 4" model)* **R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **Green High Flow** **MPR-25-Q, T, H, F** **MPR-30-Q, T, H, F** **MPR-35-Q, T, H, F** **1.5 to 4.0** = only nozzles 1.5 - 4.0 can be factory-installed

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-04-SS = 4" Pop-up **I-20-06-SS** = 6" 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 4" model)* **R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **Green High Flow** **MPR-25-Q, T, H, F** **MPR-30-Q, T, H, F** **MPR-35-Q, T, H, F** **1.5 to 4.0** = only nozzles 1.5 - 4.0 can be factory-installed

Examples:
I-20-12 - R - 4.0 = 12" Pop-up, adjustable arc, with reclaimed water ID, and 4.0 nozzle

I-20-00
Overall height: 7¾"
Exposed diameter: 1¾"
Inlet size: ¾"

I-20-04
Overall height: 7⅛"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: ¾"

I-20-06
Overall height: 9⅞"
Pop-up height: 6"
Exposed diameter: 1¾"
Inlet size: ¾"

I-20-12
Overall height: 17"
Pop-up height: 12"
Exposed diameter: 1¾"
Inlet size: ¾"

PGP® ULTRA & I-20 PRB

PRESSURE REGULATED BODY

Radius: **17' to 46'**
Flow: **0.36 to 9.8 GPM**
Inlet: **¾"**

FEATURES

- Models:
  - PGP Ultra: 4"
  - I-20: 4", 6"
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 30
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.5 Low Angle Gray, 0.50 to 3.0 Black, MPR-25, MPR-30, MPR-35
- Warranty period: 5 years
- ▸ Pressure Regulated Body (45 PSI)
- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Headed and slotted set screw
- ▸ Optional Reclaimed water ID
- ▸ Drain check valve (up to 10' of elevation)

OPERATING SPECIFICATIONS

- Radius: 17' to 46'
- Flow: 0.36 to 9.8 GPM
- Nozzle discharge pressure: 45 PSI
- Operating pressure range: 55 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: Std = 25°, Low Angle = 13°

▸ = *Advanced Feature descriptions on page 18*

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
PGP-04-PRB = 4" Pop-up	Adjustable arc, plastic riser, Pressure Regulated Body, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **CV** = Drain check valve **CV-R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **MPR-25, 30, 35 - Q, T, H, F**

Examples:
PGP-04-PRB = 4" Pop-up, adjustable arc, pressure regulated body

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-04-PRB = 4" Pop-up **I-20-06-PRB** = 6" Pop-up	Adjustable arc, plastic riser, Pressure Regulated Body, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **MPR-25, 30, 35 - Q, T, H, F**

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-04-SS-PRB = 4" Pop-up **I-20-06-SS-PRB** = 6" Pop-up	Adjustable arc, plastic riser, Pressure Regulated Body, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = No option **R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Gray Low Angle** **Black Short Radius** **MPR-25, 30, 35 - Q, T, H, F**

Examples:
I-20-04-PRB = 4" Pop-up, adjustable arc, pressure regulated body
I-20-06-SS-PRB - R - 3.0 = 6" Pop-up, adjustable arc, stainless steel riser, Pressure Regulated Body, with reclaimed water ID, and 3.0 nozzle

PGP-04-PRB
Overall height: 8¼"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: ¾"

I-20-04-PRB
Overall height: 8¼"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: ¾"

I-20-06-PRB
Overall height: 10⅝"
Pop-up height: 6"
Exposed diameter: 1¾"
Inlet size: ¾"

PGP® ULTRA / I-20 / PRB BLUE STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
1.5 ● Blue	25	29	1.2	0.27	0.32
	35	31	1.4	0.28	0.32
	45	**31**	**1.5**	**0.30**	**0.35**
	55	32	1.8	0.34	0.39
	65	32	1.9	0.36	0.41
2.0 ● Blue	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	**34**	**2.0**	**0.33**	**0.38**
	55	34	2.1	0.35	0.40
	65	32	2.3	0.43	0.50
2.5 ● Blue	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
	45	**35**	**2.5**	**0.39**	**0.45**
	55	35	2.6	0.41	0.47
	65	35	2.9	0.46	0.53
3.0 ● Blue	25	35	2.2	0.35	0.40
	35	36	2.7	0.40	0.46
	45	**38**	**3.0**	**0.40**	**0.46**
	55	39	3.4	0.43	0.50
	65	39	3.7	0.47	0.54
4.0 ● Blue	25	37	3.0	0.42	0.49
	35	39	3.5	0.44	0.51
	45	**40**	**4.0**	**0.48**	**0.56**
	55	41	4.5	0.52	0.60
	65	41	4.8	0.55	0.63
5.0 ● Blue	25	37	3.7	0.52	0.60
	35	39	4.5	0.57	0.66
	45	**42**	**5.0**	**0.55**	**0.63**
	55	42	5.7	0.62	0.72
	65	42	6.2	0.68	0.78
6.0 ● Blue	25	38	4.3	0.57	0.66
	35	40	5.6	0.67	0.78
	45	**43**	**6.0**	**0.62**	**0.72**
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
8.0 ● Blue	25	37	6.0	0.84	0.97
	35	41	7.0	0.80	0.93
	45	**44**	**8.0**	**0.80**	**0.92**
	55	46	9.0	0.82	0.95
	65	46	9.8	0.89	1.03

PGP ULTRA / I-20 GREEN HIGH FLOW NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
10 ● Dk. Green	40	42	8.4	0.92	1.06
	50	43	9.5	0.99	1.14
	60	**45**	**10.5**	**1.00**	**1.15**
	70	47	11.4	0.99	1.15
13 ● Dk. Green	40	43	10.9	1.13	1.31
	50	44	12.3	1.22	1.41
	60	**45**	**13.6**	**1.29**	**1.49**
	70	47	14.8	1.29	1.49
6.0 LA ● Dk. Green	30	31	4.2	0.84	0.97
	40	35	5.0	0.79	0.91
	50	**37**	**5.8**	**0.82**	**0.94**
	60	39	6.3	0.80	0.92
8.0 LA ● Dk. Green	40	37	6.7	0.94	1.09
	50	39	7.7	0.97	1.13
	60	**41**	**8.5**	**0.97**	**1.12**
	70	41	9.2	1.05	1.22

PGP ULTRA / I-20 / PRB GRAY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
2.0 LA ● Gray	30	25	1.6	0.49	0.57
	40	27	1.9	0.50	0.58
	50	**28**	**2.1**	**0.52**	**0.60**
	60	30	2.3	0.49	0.57
2.5 LA ● Gray	30	27	2.1	0.55	0.64
	40	30	2.5	0.53	0.62
	50	**33**	**2.8**	**0.49**	**0.57**
	60	35	3.0	0.47	0.54
3.5 LA ● Gray	30	29	2.8	0.64	0.74
	40	32	3.1	0.58	0.67
	50	**35**	**3.5**	**0.55**	**0.64**
	60	37	3.8	0.53	0.62
4.5 LA ● Gray	30	29	3.4	0.78	0.90
	40	32	3.9	0.73	0.85
	50	**35**	**4.4**	**0.69**	**0.80**
	60	37	4.7	0.66	0.76

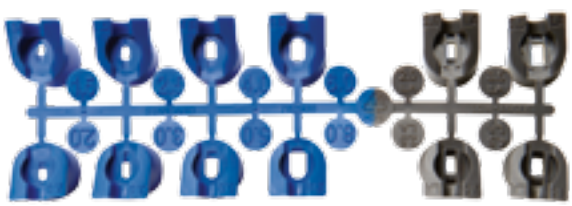
PGP ULTRA / I-20 / PRB BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA (18'/25')

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.50 SR ● Black	30	17	0.36	0.24	0.28
	40	17	0.43	0.29	0.33
	50	**18**	**0.50**	**0.30**	**0.34**
	60	19	0.57	0.30	0.35
1.0 SR ● Black	30	17	0.78	0.52	0.60
	40	17	0.90	0.60	0.69
	50	**18**	**1.00**	**0.59**	**0.69**
	60	19	1.10	0.59	0.68
2.0 SR ● Black	30	17	1.40	0.93	1.08
	40	17	1.70	1.13	1.31
	50	**18**	**2.00**	**1.19**	**1.37**
	60	19	2.20	1.17	1.35
.75 SR ● Black	30	23	0.58	0.21	0.24
	40	24	0.68	0.23	0.26
	50	**25**	**0.75**	**0.23**	**0.27**
	60	26	0.83	0.24	0.27
1.5 SR ● Black	30	23	1.10	0.40	0.46
	40	24	1.30	0.43	0.50
	50	**25**	**1.50**	**0.46**	**0.53**
	60	26	1.60	0.46	0.53
3.0 SR ● Black	30	23	2.50	0.91	1.05
	40	24	2.70	0.90	1.04
	50	**25**	**3.00**	**0.92**	**1.07**
	60	26	3.10	0.88	1.02

Bold = Recommended pressure

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

Convenient Nozzle Rack



PGP ULTRA / I-20 / PRB NOZZLES

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

Dk. Green High Flow (P/N 444800)

Black Short Radius (P/N 466100)

Pressure Regulation
Continual operating pressure of 45 PSI

ROTORS

PGP® ULTRA / I-20 / PRB MPR-25 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	25	23	0.74	0.54	0.62
	35	24	0.88	0.59	0.68
	45	25	1.00	0.62	0.71
	55	25	1.11	0.68	0.79
	65	25	1.21	0.75	0.86
120°	25	23	1.00	0.55	0.63
	35	24	1.21	0.61	0.70
	45	25	1.38	0.64	0.74
	55	25	1.53	0.71	0.82
	65	25	1.67	0.77	0.89
180°	25	23	1.44	0.52	0.61
	35	24	1.73	0.58	0.67
	45	25	1.98	0.61	0.70
	55	25	2.21	0.68	0.79
	65	25	2.41	0.74	0.86
360°	25	23	2.78	0.51	0.58
	35	24	3.34	0.56	0.64
	45	25	3.82	0.59	0.68
	55	25	4.25	0.65	0.76
	65	25	4.63	0.71	0.82

MPR-25 NOZZLE

PGP ULTRA / I-20 / PRB MPR-35 NOZZLE PERFORMANCE DATA

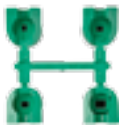
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	25	32	1.40	0.53	0.61
	35	34	1.67	0.56	0.64
	45	35	1.92	0.60	0.70
	55	35	2.13	0.67	0.77
	65	35	2.31	0.73	0.84
120°	25	32	1.77	0.50	0.58
	35	34	2.15	0.54	0.62
	45	35	2.46	0.58	0.67
	55	35	2.74	0.65	0.75
	65	35	2.99	0.70	0.81
180°	25	32	2.75	0.52	0.60
	35	34	3.33	0.55	0.64
	45	35	3.81	0.60	0.69
	55	35	4.23	0.66	0.77
	65	35	4.62	0.73	0.84
360°	25	32	5.36	0.50	0.58
	35	34	6.62	0.55	0.64
	45	35	7.58	0.60	0.69
	55	35	8.43	0.66	0.76
	65	35	9.18	0.72	0.83

MPR-35 NOZZLE

PGP ULTRA / I-20 / PRB MPR-30 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	25	29	1.03	0.47	0.54
	35	30	1.23	0.53	0.61
	45	30	1.40	0.60	0.69
	55	30	1.56	0.67	0.77
	65	30	1.69	0.72	0.83
120°	25	29	1.34	0.46	0.53
	35	30	1.62	0.52	0.60
	45	30	1.85	0.59	0.69
	55	30	2.06	0.66	0.76
	65	30	2.24	0.72	0.83
180°	25	29	2.15	0.49	0.57
	35	30	2.59	0.55	0.64
	45	30	2.96	0.63	0.73
	55	30	3.30	0.71	0.82
	65	30	3.60	0.77	0.89
360°	25	29	4.24	0.49	0.56
	35	30	5.08	0.54	0.63
	45	30	5.78	0.62	0.71
	55	30	6.39	0.68	0.79
	65	30	6.92	0.74	0.85

MPR-30 NOZZLE



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

PRB

I-25

Radius: **37' to 71'**
Flow: **3.8 to 31.5 GPM**
Inlet: **1"**

FEATURES

- Models plastic riser: 4", 6"
- Models stainless steel riser: 4", 6"
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ 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 10' of elevation)

I-25-04
Overall height: 7⅞"
Pop-up height: 4"
Exposed diameter: 1¾"
Inlet size: 1"

I-25-06
Overall height: 10¼"
Pop-up height: 6"
Exposed diameter: 1¾"
Inlet size: 1"

OPERATING SPECIFICATIONS

- Radius: 37' to 71'
- Flow: 3.8 to 31.5 GPM
- Recommended pressure range: 40 to 100 PSI
- Operating pressure range: 40 to 100 PSI
- Precipitation rates: 0.4 in/hr approximately
- Nozzle trajectory: 25°

▸ = *Advanced Feature descriptions on page 18*

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

I-25 High Speed
Available as a factory installed option on stainless steel models

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04 = 4" Pop-up **I-25-06** = 6" Pop-up	Adjustable arc, plastic riser, check valve, and 5 nozzles	**(blank)** = No option **R** = Reclaimed water ID	**#4 to #28** = Factory installed nozzle number

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04-SS = 4" Pop-up **I-25-06-SS** = 6" 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	**#4 to #28** = Factory installed nozzle number

Examples:
I-25-04 = 4" Pop-up, adjustable arc
I-25-04-SS - R - 18 = 4" Pop-up, adjustable arc, stainless steel riser, reclaimed water ID, and #18 nozzle
I-25-06-SS = 6" Pop-up, adjustable arc, stainless steel riser

I-25 STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
04 Yellow	40	40	3.8	0.46	0.53
	50	41	4.3	0.49	0.57
	60	42	4.7	0.51	0.59
	70	43	5.1	0.53	0.61
05 White	40	43	4.4	0.46	0.53
	50	44	4.8	0.48	0.55
	60	45	5.3	0.50	0.58
	70	46	5.6	0.51	0.59
07 Orange*	40	45	6.6	0.63	0.72
	50	47	7.0	0.61	0.70
	60	48	7.5	0.63	0.72
	70	49	7.9	0.63	0.73
08 Lt. Brown	40	47	7.7	0.67	0.77
	50	49	8.3	0.67	0.77
	60	50	9.2	0.71	0.82
	70	51	9.9	0.73	0.85
10 Lt. Green*	50	51	10.1	0.75	0.86
	60	52	11.1	0.79	0.91
	70	53	12.1	0.83	0.96
	80	54	12.9	0.85	0.98
13 Lt. Blue	50	53	11.2	0.77	0.89
	60	54	12.3	0.81	0.94
	70	55	13.3	0.85	0.98
	80	55	14.3	0.91	1.05
15 Gray*	50	56	13.4	0.82	0.95
	60	57	14.3	0.85	0.98
	70	57	15.2	0.90	1.04
	80	58	16.4	0.94	1.08
18 Red	50	58	14.5	0.83	0.96
	60	59	15.7	0.87	1.00
	70	62	16.9	0.85	0.98
	80	63	18.2	0.88	1.02
20 Dk. Brown*	60	62	17.8	0.89	1.03
	70	63	19.2	0.93	1.08
	80	64	20.5	0.96	1.11
	90	65	21.8	0.99	1.15
23 Dk. Green	60	64	21.9	1.03	1.19
	70	65	23.6	1.08	1.24
	80	66	25.6	1.13	1.31
	90	67	27.0	1.16	1.34
25 Dk. Blue*	60	66	23.5	1.04	1.20
	70	68	25.5	1.06	1.23
	80	69	28.0	1.13	1.31
	90	70	29.5	1.16	1.34
28 Black	70	68	26.9	1.12	1.29
	80	70	28.7	1.13	1.30
	90	71	30.6	1.17	1.35
	100	71	31.5	1.20	1.39

I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
04 Yellow	40	37	3.8	0.53	0.62
	50	38	4.3	0.57	0.66
	60	38	4.7	0.63	0.72
	70	39	5.2	0.66	0.76
05 White	40	38	4.4	0.59	0.68
	50	39	4.8	0.61	0.70
	60	40	5.5	0.66	0.76
	70	41	6.0	0.69	0.79
07 Orange*	40	40	6.1	0.73	0.85
	50	41	6.9	0.79	0.91
	60	42	7.5	0.82	0.95
	70	44	8.1	0.81	0.93
08 Lt. Brown	40	42	7.2	0.79	0.91
	50	43	8.1	0.84	0.97
	60	44	8.9	0.88	1.02
	70	45	9.8	0.93	1.08
10 Lt. Green*	50	46	10.1	0.92	1.06
	60	48	11.1	0.93	1.07
	70	49	12.1	0.97	1.12
	80	50	12.9	0.99	1.15
13 Lt. Blue	50	48	11.2	0.94	1.08
	60	49	12.3	0.99	1.14
	70	51	13.3	0.98	1.14
	80	51	14.3	1.06	1.22
15 Gray*	50	49	13.4	1.07	1.24
	60	51	14.3	1.06	1.22
	70	53	15.2	1.04	1.20
	80	54	16.4	1.08	1.25
18 Red	50	50	14.5	1.12	1.29
	60	53	15.7	1.08	1.24
	70	55	16.9	1.08	1.24
	80	57	18.2	1.08	1.25
20 Dk. Brown*	60	53	17.8	1.22	1.41
	70	56	19.2	1.18	1.36
	80	58	20.5	1.17	1.35
	90	59	21.8	1.21	1.39
23 Dk. Green	60	56	21.9	1.34	1.55
	70	58	23.6	1.35	1.56
	80	60	25.6	1.37	1.58
	90	61	27.0	1.40	1.61
25 Dk. Blue*	60	58	23.5	1.34	1.55
	70	62	25.5	1.28	1.47
	80	64	28.0	1.32	1.52
	90	66	29.5	1.30	1.51
28 Black	70	60	26.9	1.44	1.66
	80	62	28.7	1.44	1.66
	90	65	30.6	1.39	1.61
	100	67	31.5	1.35	1.56

I-25 NOZZLE

Standard

* 5 standard nozzles included with each sprinkler.

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

I-40

Radius: **44' to 76'**
Flow: **7.6 to 33.7 GPM**
Inlet: **1"**

FEATURES

- Models stainless riser: 4", 6"
- Arc setting: 50° to 360°
- 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
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Warranty period: 5 years

- ▸ Opposing nozzle 360 degree 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 15' of elevation)

I-40-04
Overall height: 7⅞"
Pop-up height: 4"
Exposed diameter: 2"
Inlet size: 1"

I-40-06
Overall height: 10¼"
Pop-up height: 6"
Exposed diameter: 2"
Inlet size: 1"

OPERATING SPECIFICATIONS

- Radius I-40: 44' to 69'
- Radius I-40-ON: 52' to 76'
- Flow I-40: 7.6 to 29.5 GPM
- Flow I-40-ON: 13.0 to 33.7 GPM
- Recommended pressure range: 40 to 100 PSI
- Operating pressure range: 40 to 100 PSI
- Precipitation rates: 0.4 in/hr approx.
- Nozzle trajectory: 25°

▸ = *Advanced Feature descriptions on page 18*

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

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS = 4" Pop-up **I-40-06-SS** = 6" 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 **R** = Reclaimed water ID	**#8 to #25** = Factory installed nozzle number

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

1 Opposing Nozzle Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS-ON = 4" Pop-up **I-40-06-SS-ON** = 6" 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 **HS** = High speed **HS-R** = High speed and reclaimed water ID **R** = Reclaimed water ID	**#15 to #28** = Factory installed nozzle number

Examples:
I-40-04-SS = 4" Pop-up, adjustable arc, stainless steel riser, with check valve
I-40-04-SS - ON-R - 23 = 4" Pop-up, adjustable arc, stainless steel riser, with check valve, and reclaimed water ID and #23 nozzle
I-40-06-SS - 15 = 6" Pop-up, adjustable arc, stainless steel riser, with check valve and #15 nozzle

I-40 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft	Flow GPM	Precip in/hr ■	Precip in/hr ▲
8 (40) Lt. Brown	40	44	7.6	0.76	0.87
	50	45	8.4	0.80	0.92
	60	46	9.2	0.84	0.97
10 (41) Lt. Green	50	49	10.3	0.83	0.95
	60	50	11.3	0.87	1.00
	70	51	12.2	0.90	1.04
	80	51	13.0	0.96	1.11
13 (42) Lt. Blue	50	50	11.1	0.85	0.99
	60	51	12.3	0.91	1.05
	70	52	13.3	0.95	1.08
	80	53	14.2	0.97	1.12
15 (43) Gray	50	54	13.8	0.91	1.05
	60	55	15.7	1.00	1.15
	70	57	16.6	0.98	1.14
	80	59	18.3	1.01	1.17
23 (44) Dk. Green	60	62	21.3	1.07	1.23
	70	64	23.0	1.08	1.25
	80	65	24.5	1.12	1.29
	90	66	25.9	1.14	1.32
25 (45) Dk. Blue	60	66	23.9	1.06	1.22
	70	67	25.8	1.11	1.28
	80	68	27.7	1.15	1.33
	90	69	29.5	1.19	1.38

I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft	Flow GPM	Precip in/hr ■	Precip in/hr ▲
8 (40) Lt. Brown	40	41	7.6	0.87	1.00
	50	41	8.4	0.96	1.11
	60	42	9.2	1.00	1.16
10 (41) Lt. Green	50	45	10.3	0.98	1.13
	60	46	11.3	1.03	1.19
	70	47	12.2	1.06	1.23
	80	47	13.0	1.13	1.31
13 (42) Lt. Blue	50	46	11.1	1.01	1.17
	60	47	12.3	1.07	1.24
	70	48	13.3	1.11	1.28
	80	49	14.2	1.14	1.31
15 (43) Gray	50	51	13.8	1.02	1.18
	60	52	15.7	1.12	1.29
	70	53	16.6	1.14	1.31
	80	54	18.3	1.21	1.40
23 (44) Dk. Green	60	58	21.3	1.22	1.41
	70	59	23.0	1.27	1.47
	80	60	24.5	1.31	1.51
	90	61	25.9	1.34	1.55
25 (45) Dk. Blue	60	59	23.9	1.32	1.53
	70	61	25.8	1.33	1.54
	80	62	27.7	1.39	1.60
	90	63	29.5	1.43	1.65

I-40 NOZZLES

Standard/High-Speed

I-40 Opposing Nozzle 360° Model

I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

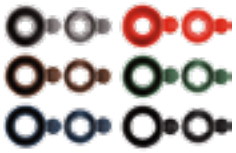
Nozzle	Pressure PSI	Radius ft	Flow GPM	Precip in/hr ■	Precip in/hr ▲
15 Gray	50	52	13.0	0.46	0.53
	60	54	13.2	0.44	0.50
	70	56	14.4	0.44	0.51
	80	57	15.5	0.46	0.53
18 Red	50	58	13.7	0.39	0.45
	60	59	15.2	0.42	0.49
	70	60	16.6	0.44	0.51
	80	62	17.8	0.45	0.51
20 Dk. Brown	60	63	19.1	0.46	0.53
	70	64	20.9	0.49	0.57
	80	66	22.3	0.49	0.57
	90	66	23.9	0.53	0.61
23 Dk. Green	60	65	20.4	0.46	0.54
	70	66	22.3	0.49	0.57
	80	67	24.0	0.51	0.59
	90	68	25.6	0.53	0.62
25 Dk. Blue*	60	66	22.0	0.49	0.56
	70	68	24.0	0.50	0.58
	80	69	25.9	0.52	0.60
	90	70	27.2	0.53	0.62
28 Black	70	70	28.9	0.57	0.66
	80	72	30.9	0.57	0.66
	90	74	32.9	0.58	0.67
	100	76	33.7	0.56	0.65

* Factory installed nozzle

Notes:

All preciptation rates calculated for 180° operation.
For the precipitation rate for a 360° sprinkler, divide by 2. Precipitation rates for the ON-Opposing Nozzle model are calculated at 360 degrees.

I-40 NOZZLES



Opposing

Front

Back

I-90

Radius: **66' to 103'**
Flow: **29.5 to 83.8 GPM**
Inlet: **1½"**

FEATURES

- Model: 3"
- Arc setting: 40° to 360°
- Dual trajectory nozzle choices:
  - 8 standard trajectory 22.5°
  - 8 low angle trajectory 15°
- Nozzle range: #25 to #73
- Exclusive PressurePort™ nozzle technology
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Standard factory installed nozzle: #53
- Factory installed rubber logo cap
- Warranty period: 5 years
- ▸ Opposing nozzle 360° model
- ▸ Dual trajectory color-coded nozzles
- ▸ Optional reclaimed water ID
- ▸ Drain check valve (up to 9' of elevation)

I-90
Overall height: ADV/36V: 11"
Pop-up height: 3"
Exposed diameter: 3½"
Inlet size: 1½"

OPERATING SPECIFICATIONS

- Radius: 66' to 103'
- Flow: 29.5 to 83.8 GPM
- Recommended pressure range: 80 to 120 PSI
- Operating pressure range: 80 to 120 PSI
- Precipitation rates: 0.75 in/hr approximately

Turf cup kit
P/N 467955

Rubber cover kits
P/N 234200; P/N 234201

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 and prior only)
- Low-Angle Nozzles - #25 to #73

▸ = *Advanced Feature descriptions on page 18*

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-90 = 3" 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	**#25 to #73** = Factory installed nozzle number

Examples:
I-90 - ADV = 3" Pop-up, adjustable arc
I-90 - 36V - 43 = 3" Pop-up, full-circle, opposing nozzles, and #43 nozzle
I-90 - 3RV - 63 = 3" Pop-up, full-circle, opposing nozzles, reclaimed water ID, and #63 nozzle

I-90-ADV NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
25 Lt. Blue	80	66	29.5	1.30	1.51
	90	67	31.5	1.35	1.56
	100	68	33.2	1.38	1.60
	110	69	35.6	1.44	1.66
33 Gray	80	68	36.2	1.51	1.74
	90	69	38.2	1.54	1.78
	100	70	40.4	1.59	1.83
	110	71	42.6	1.63	1.88
38 Red	80	72	40.6	1.51	1.74
	90	73	43.0	1.55	1.79
	100	75	45.4	1.55	1.79
	110	76	47.6	1.59	1.83
43 Dk. Brown	80	74	46.1	1.62	1.87
	90	74	48.5	1.70	1.97
	100	75	50.7	1.74	2.00
	110	77	53.4	1.73	2.00
48 Dk. Green	80	77	50.2	1.63	1.88
	90	79	52.6	1.62	1.87
	100	81	55.1	1.62	1.87
	110	82	57.5	1.65	1.90
53 Dk. Blue*	80	81	54.9	1.61	1.86
	90	84	57.2	1.56	1.80
	100	86	59.5	1.55	1.79
	110	87	62.1	1.58	1.82
	120	88	64.4	1.60	1.85
63 Black	80	86	62.3	1.62	1.87
	90	88	65.5	1.63	1.88
	100	90	69.0	1.64	1.89
	110	91	71.9	1.67	1.93
	120	92	74.7	1.70	1.96
73 Orange	80	89	72.7	1.77	2.04
	90	91	75.4	1.75	2.02
	100	93	78.1	1.74	2.01
	110	95	80.9	1.73	1.99
	120	97	83.8	1.71	1.98

* Factory installed nozzle

Notes:
Precipitation rates for ADV models are calculated for 180° operation. Precipitation rates for 36V models are calculated for 360° operation. All triangular rates are equilateral. Complies to ASAE standard.

I-90-36V NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
25 Lt. Blue	80	73	30.5	0.55	0.64
	90	75	32.4	0.55	0.64
	100	76	34.3	0.57	0.66
	110	78	36.5	0.58	0.67
33 Gray	80	77	36.3	0.59	0.68
	90	78	38.4	0.61	0.70
	100	80	40.6	0.61	0.71
	110	81	42.7	0.63	0.72
38 Red	80	80	40.6	0.61	0.71
	90	82	42.9	0.61	0.71
	100	83	45.3	0.63	0.73
	110	85	47.7	0.64	0.73
43 Dk. Brown	80	83	46.2	0.65	0.75
	90	84	48.6	0.66	0.77
	100	85	50.9	0.68	0.78
	110	86	53.4	0.69	0.80
48 Dk. Green	80	86	49.6	0.65	0.75
	90	89	52.5	0.64	0.74
	100	90	54.8	0.65	0.75
	110	91	57.3	0.67	0.77
53 Dk. Blue*	80	89	54.2	0.66	0.76
	90	90	56.7	0.67	0.78
	100	92	59.2	0.67	0.78
	110	93	61.7	0.69	0.79
	120	94	64.2	0.70	0.81
63 Black	80	92	63.2	0.72	0.83
	90	94	65.9	0.72	0.83
	100	96	69.4	0.72	0.84
	110	97	72.0	0.74	0.85
	120	98	74.9	0.75	0.87
73 Orange	80	96	72.1	0.75	0.87
	90	98	75.0	0.75	0.87
	100	99	77.8	0.76	0.88
	110	102	80.5	0.74	0.86
	120	103	83.3	0.76	0.87

I-90 NOZZLES

ADV & 36V

Low-Angle ADV & 36V**

** Low angle nozzles reduce radius by 15%

I-90

SWING JOINTS

BY LASCO FITTINGS, INC.

FEATURES

- Heavy-duty prefabricated PVC swing joints with O-Ring seals
- Available in all popular inlet and outlet configurations
- Choose from 8", 12" or 18" lay arm lengths and Single Top-Out or Triple Top-Out designs
- Unique SnapLok™ outlet with brass threads offers excellent support and durability for quick coupler installations

Swing Joints
HSJ-0 = Model ¾"
HSJ-1 = Model 1"
HSJ-2 = Model 1¼"
HSJ-3 = Model 1½"

HSJ SWING JOINT – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet Type	3 Outlet Type	4 Outlet Style	5 Lay Length
HSJ-0 = ¾" Commercial Swing Joint	**2** = Spigot - Short	**2** = Male - NPT	**2** = Single Top-Out	**08** = 8" Lay Arm*
HSJ-1 = 1" Heavy-Duty Swing Joint	**3** = Male - NPT	**3** = Enlarging - to 1½" Male NPT*	**4** = Triple Top-Out*	**12** = 12" Lay Arm
HSJ-2 = 1¼" Heavy-Duty Swing Joint	**7** = Spigot - 4" Long*	**S** = Male - 1" Brass NPT SnapLok™ **		**18** = 18" Lay Arm
HSJ-3 = 1½" Heavy-Duty Swing Joint	** Not available HSJ-0*	**T** = Male - ¾" Brass NPT/BSP SnapLok™ **	** Not available in S or T Outlet Types*	** HSJ-0 only*
		** Not available HSJ-0 or HSJ-3*		
		*** HSJ-1 only - for quick coupler*		

Example:
HSJ - 3 - 7 - 2 - 2 - 12 = HSJ 1½" heavy-duty swing joint, 1½" spigot pipe inlet, 1½" Male NPT single top-out outlet, 12" lay arm length.

ST-1200BR

ST SYSTEM FOR PASTURES, CORRALS, ARENAS, DUST CONTROL, AND WASH-DOWN WATERING

Radius: **67' to 115'**
Flow: **27.0 to 131.0 GPM**
Inlet: **1½" NPT**

FEATURES

- Nozzle choices: 5 (included)
- Standard nozzle: #12
- Nozzle range: #10 to #18
- Nozzle trajectory: 22.5°
- Gear-drive: Isolated, grease lubricated gear-drive
- Nozzle barrels: short and long (included)
- Arc adjustment: Moveable stops (left and right) arc adjustment
- Arc setting: 40° to non-reversing 360°
- Ratcheting nozzel turret

OPERATING SPECIFICATIONS

- Radius: 67' to 115'
- Flow: 27.0 to 131.0 GPM

ST-1200BR
Overall height: 12"
Overall length: 12"
Overall width: 3¾"
Inlet size: 1½" NPT

Included
Short and long barrels

ST-1200BR NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
10 ● Black	30	67	27.0	1.16	1.34
	45	75	32.8	1.12	1.30
	60	85	38.1	1.02	1.17
	75	90	43.5	1.03	1.19
12 ● Black	30	68	33.6	1.40	1.62
	45	78	41.2	1.30	1.51
	60	88	47.6	1.18	1.37
	75	98	53.1	1.06	1.23
14 ● Black	30	70	45.7	1.80	2.07
	45	86	56.0	1.46	1.68
	60	100	64.7	1.25	1.44
	75	110	72.5	1.15	1.33
16 ● Black	30	72	59.5	2.21	2.55
	45	93	73.0	1.62	1.88
	60	103	84.3	1.53	1.77
	75	116	80.9	1.16	1.34
18 ● Black	30	95	92.5	1.97	2.28
	45	104	107.0	1.90	2.20
	60	111	119.5	1.87	2.16
	75	115	131.0	1.91	2.20

STK-1 / STK-2

ST SYSTEM FOR COOLING AND CLEANING SYNTHETIC TURF

Radius: **103' to 120'**
Flow: **74.5 to 92.0 GPM**
Inlet: **1½" NPT (ST90) or 1½" ACME (STG900)**

FEATURES

- Standard installed nozzle: #83
- Arc setting: 40° to 360°
- QuickCheck™ arc mechanism
- Through-the-top arc adjustment
- Water lubricated gear-drive
- Factory installed rubber logo cap
- Nozzle trajectory: 22.5°
- Warranty period: 5 year component part

OPERATING SPECIFICATIONS

- Radius: 103' to 120'
- Flow: 74.5 to 92.0 GPM
- Operating pressure range: 100 to 120 PSI
- Precipitation rate: 1.25 in/hr approximately

USER INSTALLED OPTIONS

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

ST-90*
Overall height: 11½"
Pop-up height: 3"
Diameter: 5½"
Inlet size: 1½" NPT

* not for use with the ST Vault

STG-900*
Overall height: 14"
Pop-up height: 3"
Diameter: 8"
Inlet size: 1½" ACME

* for use with the ST173026B Vault

ST ROTOR	
Model	**Description**
ST-90-83	3" pop-up, jar top cap, adjustable arc, plastic riser, and NPT inlet threads
STG-900-83	3" pop-up, top service, adjustable arc, plastic riser, and ACME inlet threads

KIT CONFIGURATIONS

STK-1 / STK-2		
Kit Description For specification ease and to ensure the correct product is installed, the ST System is available in kit configurations below.	**STK-1** STG-900 Block System (remotely located valve)	**STK-2** 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-173026-B	ST-173026-B
ST Swing Joint: "VA" 2" PVC swing joint with 7 pivot points	ST-2008-VA	ST-2008-VA
ST Valve and Fitting Kit*	—	ST-VBVF-K
ST Adapter Elbow Fitting**	239800	239800
ST Rotor Adapter Fitting: Rotor Adapter Fitting: Connects 239800 adapter elbow fitting to STG-900 rotor's ACME inlet (STK-1)	239300	—
Rubber Cover Kit: STG-900 Rubber Cover Kit	473900	473900
Quick-Coupler Valve: 1" inlet with 1¼" outlet for key	HQ-5RC	HQ-5RC

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

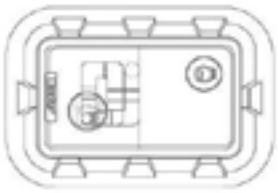
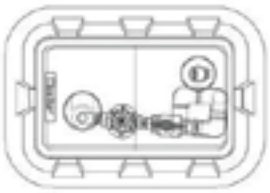
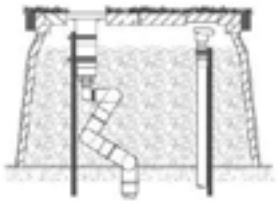
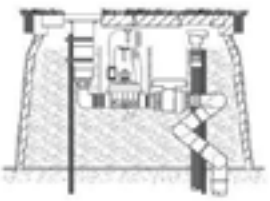
ST-90 / STG-900 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
73 ● Orange	100	103	74.5	1.35	1.56
	110	109	77.0	1.25	1.44
	120	115	79.6	1.16	1.34
83 ● Tan	100	112	84.2	1.29	1.49
	110	116	88.1	1.26	1.46
	120	120	92.0	1.23	1.42

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

Requires minimum 100 PSI dynamic pressure supplied to swing joint inlet.

INSTALLATION DETAILS

STK-1	STK-2
 ON FIELD SIDE	 ON FIELD SIDE
 VIEW FROM ON FIELD SIDE	 VIEW FROM ON FIELD SIDE

ST Rotor

ST SWING JOINTS

Multi-axis 315 PSI 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 - 2" for ST-90, STG-900

Inlet: 2" Female Slip
Outlet: 1½" Female ACME

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: 1½" NPT ICV
Ball Valve: 315 PSI rated
Inlet: 1½" ACME
Outlet: 1½" ACME
Low Pressure Loss Design: 9.8 PSI at 100 GPM
Includes: 1½" connection fittings

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 2" thick 3-piece PC cover set

Main Cover: 17" x 30"
Overall Height: 26"
Body Weight: 104 lbs.
Total Weight: 161 lbs.
Base Pad: 27" x 41"
Quick Access Port: 1

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

① Quick-Coupler

STK-6V

ST SYSTEM FOR CLEANING, COOLING, FLUSHING AND PREPARING SYNTHETIC SPORTS FIELDS FOR PLAY

Radius: **107' to 165'**
Flow: **96.2 to 326.8 GPM**
Inlet: **2" BSP**

FEATURES

- Nozzle choices: 6
- Standard nozzle: #20
- Nozzle range: #16 to #26
- Nozzle trajectory: 22.5°
- Gear-drive: Isolated, grease lubricated gear-drive
- Factory installed rubber logo cap (ST-1600B / ST-1600-HSB)
- Arc Adjustment: Moveable stops (left and right) arc adjustment
- Arc setting: 40° to non-reversing 360°
- Ratcheting nozzle turret
- Telescoping rubber infill barrier on riser
- Adjustable speed of rotation: 0 to 65 seconds (High speed models, 180° at 120 PSI)
- Internal construction: Brass, stainless steel & ball-bearings
- Optional Infill Barrier System (ST-1600B / ST-1600-HSB)
- Warranty period: 5 year component part

ST-1600-B
ST-1600-HS-B (High Speed)
Overall height: 22½"
Pop-up height: 5"
Diameter: 14"
Inlet size: 2" BSP*

* Adapter to 2" NPT nipple not required. Use BSP t.o.e. nipple adapter P/N 241400 if desired.

ST-1600-BR
ST-1600-HS-BR (High Speed)
(Riser Mounted Model)
Overall height: 8¾"
Diameter: 8¼"
Inlet size: 2" BSP*

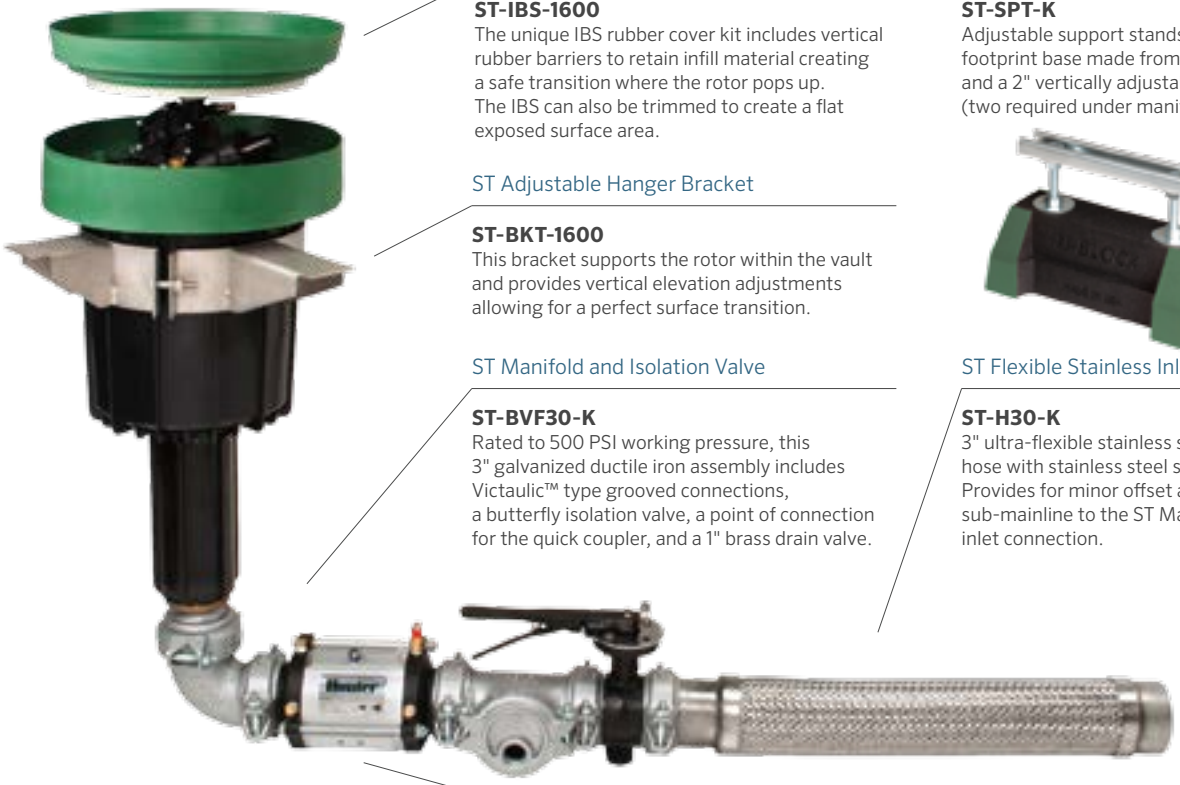
* Adapter to 2" NPT nipple not required. Use BSP t.o.e. nipple adapter P/N 241400 if desired.

OPERATING SPECIFICATIONS

- Radius: 107' to 165'
- Flow: 96.2 to 326.8 GPM
- Operating pressure range: 60 to 120 PSI
- Precipitation rate: 2.25 in/hr approximately

KIT CONFIGURATIONS

STK-6V				
Kit Description (Components are ordered individually)	**STK-6V-B-2P** Standard Pop-Up 2" Plastic Valve	**STK-6V-HSB-2P** High Speed Pop-Up 2" Plastic Valve	**STK-6V-B-3M** Standard Pop-Up 3" Metal Valve	**STK-6V-HSB-3M** High Speed Pop-Up 3" Metal Valve
ST Rotor: Synthetic turf rotor	**ST-1600-B**	**ST-1600-HS-B**	**ST-1600-B**	**ST-1600-HS-B**
ST Infill Barrier System: Rubber cover kit	**ST-IBS-1600**	**ST-IBS-1600**	**ST-IBS-1600**	**ST-IBS-1600**
ST Bracket: Rotor hanger and elevation adjustment	**ST-BKT-1600**	**ST-BKT-1600**	**ST-BKT-1600**	**ST-BKT-1600**
ST Vault: 4-piece polymer-concrete cover set	**ST-243636-B**	**ST-243636-B**	**ST-243636-B**	**ST-243636-B**
ST Manifold: 3" fittings, isolation valve and drain valve	**ST-BVF30-K**	**ST-BVF30-K**	**ST-BVF30-K**	**ST-BVF30-K**
ST Valve: With remote on-off-auto selector	**ST-V20-KVP**	**ST-V20-KVP**	**ST-V30-KV**	**ST-V30-KV**
ST Variable Speed Valve: Regulates opening speed	**ST-NDL-K**	**ST-NDL-K**	**ST-NDL-K**	**ST-NDL-K**
ST Support: Adjustable manifold support (2 required)	**ST-SPT-K**	**ST-SPT-K**	**ST-SPT-K**	**ST-SPT-K**
ST Inlet hose: Flexible stainless steel alignment hose	**ST-H30-K**	**ST-H30-K**	**ST-H30-K**	**ST-H30-K**
Quick Coupler Valve: 1" inlet, 1¼" oulet for key	**HQ-5RC**	**HQ-5RC**	**HQ-5RC**	**HQ-5RC**



ST Infill Barrier System

ST-IBS-1600
The unique IBS rubber cover kit includes vertical rubber barriers to retain infill material creating a safe transition where the rotor pops up. The IBS can also be trimmed to create a flat exposed surface area.

ST Adjustable Hanger Bracket

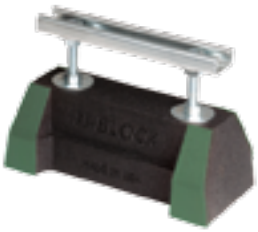
ST-BKT-1600
This bracket supports the rotor within the vault and provides vertical elevation adjustments allowing for a perfect surface transition.

ST Manifold and Isolation Valve

ST-BVF30-K
Rated to 500 PSI working pressure, this 3" galvanized ductile iron assembly includes Victaulic™ type grooved connections, a butterfly isolation valve, a point of connection for the quick coupler, and a 1" brass drain valve.

ST H-Block Manifold Supports

ST-SPT-K
Adjustable support stands include a large footprint base made from recycled tire rubber and a 2" vertically adjustable support rail (two required under manifold).



ST Flexible Stainless Inlet Hose

ST-H30-K
3" ultra-flexible stainless steel corrugated hose with stainless steel support braiding. Provides for minor offset and alignment of sub-mainline to the ST Manifold's inlet connection.

For Flows Up to 200 GPM

ST Low-Loss, Slow-Opening Valve (Plastic)

ST-V20-KVP: Heavy-duty plastic control valve
Valve: 2" Grooved Vic Type
Opening Speed: ST-NDL-K regulates/slows speed
Pressure Loss: Ultra Low (1.5 PSI at 200 GPM)
Manual Control: Remote On-Off-Auto Selector and Solenoid (not shown)

ST Low-Loss, Slow-Opening Valve (Metal)

ST-V30-KV: Heavy-duty metal control valve
Valve: 3" Grooved Vic Type
Opening Speed: ST-NDL-K regulates/slows speed
Pressure Loss: Ultra Low (2.0 PSI at 325 GPM)
Manual Control: Remote On-Off-Auto Selector and Solenoid (not shown)

ST Rotors have many uses

While ST Rotors are specifically designed for cleaning and cooling synthetic turf sports fields, they are also great for other applications such as pastures, horse arenas, dust control and even casual natural turf areas.

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

ST VAULTS

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

Quick-couplers provide a convenient source of water for washing down spills and water-soluble paint. Integrated in-vault design eliminates the need for additional quick-coupler enclosures.

The ST-V30KV 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-243636B: Includes 3" thick 4-piece PC cover set

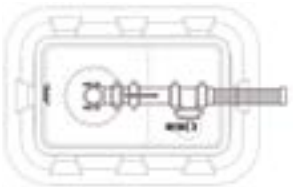
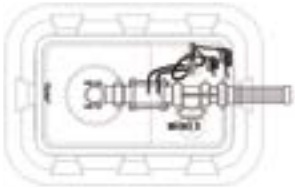
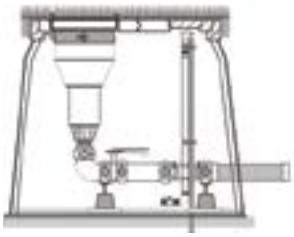
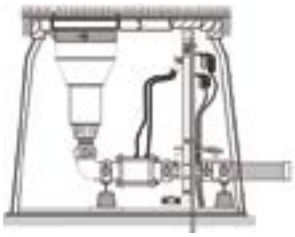
Main Cover: 24" x 36"
Overall Height: 36"
Body Weight: 170 lbs.
Total Weight: 320 lbs.
Base Pad: 42" x 48"
Quick Access Ports: 2

① Quick-Coupler

② On-Off-Auto Selector

ST-1600 Rotor in Action

INSTALLATION DETAILS

STK-5V	STK-6V
	
ON FIELD SIDE	ON FIELD SIDE
	
VIEW FROM ON FIELD SIDE	VIEW FROM ON FIELD SIDE

ST-1600 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
16 ● Black	60	107	96.2	1.63	1.88
	75	115	107.3	1.57	1.81
	90	121	117.8	1.54	1.78
	105	128	127.3	1.50	1.73
	120	135	137.4	1.46	1.69
18 ● Black	60	112	107.0	1.66	1.91
	75	121	119.4	1.56	1.80
	90	128	131.0	1.54	1.78
	105	133	141.3	1.54	1.78
	120	141	153.2	1.48	1.71
20 ● Black	60	115	144.0	2.10	2.43
	75	128	160.9	1.89	2.18
	90	141	176.5	1.71	1.97
	105	144	190.5	1.76	2.03
	120	148	204.2	1.80	2.08
22 ● Black	60	118	171.5	2.37	2.73
	75	130	191.8	2.20	2.54
	90	144	210.0	1.94	2.24
	105	151	226.9	1.84	2.12
	120	157	243.1	1.89	2.18
24 ● Black	60	121	202.1	2.64	3.05
	75	133	225.9	2.46	2.84
	90	148	247.6	2.19	2.52
	105	156	267.4	2.12	2.45
	120	160	286.4	2.16	2.49
26 ● Black	60	126	233.2	2.83	3.27
	75	136	260.4	2.71	3.13
	90	151	284.5	2.40	2.77
	105	160	307.0	2.31	2.67
	120	165	326.8	2.32	2.68

Note:
All precipitation rates calculated for 180° operation.
For precipitation rate of a 360° sprinkler, divide by 2.

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 the heavy-duty manifold assembly, 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 manifold's 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, specialised equipment and complicated procedures. For the most complete and highest quality synthetic turf watering solution, the answer is clearly the Hunter ST System.

SECTION 02

MP ROTATOR®

ADVANCED FEATURES

AUTOMATIC MATCHED PRECIPITATION

The MP Rotator® has the unique ability to control the amount of water flowing through the nozzle at various arc and radius settings, resulting in matched precipitation regardless of the nozzle setting.

DOUBLE-POP

The MP Rotator's nozzle pops up from its protected position only after the riser is fully extended, providing superior defense against dirt and debris.

DISTRIBUTION UNIFORMITY

The various streams of the MP Rotator allow it to target all areas of the landscape evenly, yielding superior uniformity over traditional spray nozzles. Each stream targets specific areas to achieve higher efficiency and even coverage.

LOW PRECIPITATION RATE

Since the vast majority of soils have an infiltration rate of less than 1.0 in/hr, irrigating at a low precipitation rate is essential to achieve efficiency.

The standard MP Rotator line applies water at 0.4 in/hr, while the MP800 Series has a precipitation rate of 0.8 in/hr. Either choice will avoid runoff, saving water and preventing erosion.

MP800 SERIES

Achieve efficient irrigation in narrow spaces with the MP800 Series. MP800 Series allows for radius adjustment down to 6', providing opportunity for overhead irrigation in smaller spaces than ever before possible.

MP ROTATOR®

Radius: **8' to 35'**

FEATURES

- Radius can be reduced up to approximately 25% on all models
- Easy arc adjustment
- Color-coded for easy identification
- Removable filter screen ensures hassle-free service
- Wind-resistant multi-stream technology
- ▸ Automatic matched precipitation
- ▸ Double-pop
- ▸ Distribution uniformity
- ▸ Low precipitation rate

OPERATING SPECIFICATIONS

- Recommended operating pressure: 40 PSI
- Recommended filtering when operating on dirty water

OPTIONS

- Specify Pro-Spray® PRS40 pop-up for accurate pressure regulation at 40 PSI
- Adding "HT" will specify male threaded nozzles

▸ = *Advanced Feature descriptions on page 43*

MP ROTATOR – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
MP1000-90 = 8' to 15' radius, adjustable from 90° to 210°	**(blank)** = No option
MP1000-210 = 8' to 15' radius, adjustable from 210° to 270°	**HT** = Male threaded version *(Not available in 3500 and 1000-210)*
MP1000-360 = 8' to 15' radius, 360°	
MP2000-90 = 13' to 21' radius, adjustable from 90° to 210°	
MP2000-210 = 13' to 21' radius, adjustable from 210° to 270°	
MP2000-360 = 13' to 21' radius, 360°	
MP3000-90 = 22' to 30' radius, adjustable from 90° to 210°	
MP3000-210 = 22' to 30' radius, adjustable from 210° to 270°	
MP3000-360 = 22' to 30' radius, 360°	
MP3500-90 = 31' to 35' radius, adjustable from 90° to 210°	
MPLCS515 = Left corner strip, 5' x 15'	
MPRCS515 = Right corner strip, 5' x 15'	
MPSS530 = Side strip, 5' x 30'	
MPCORNER = 8' to 15' radius, adjustable from 45° to 105°	

Examples:
MP1000-210 = 8' to 15' radius, adjustable from 210° to 270°
PROS-06 - PRS40-CV - MP2000-90 = 6" pop-up regulated at 40 PSI, drain check valve, with MP 2000-90.

MP1000 8' to 15' radius

MP1000-90
90° to 210°

MP1000-210
210° to 270°

MP1000-360
360°

MP2000 13' to 21' radius

MP2000-90
90° to 210°

MP2000-210
210° to 270°

MP2000-360
360°

MP3000 22' to 30' radius

MP3000-90
90° to 210°

MP3000-210
210° to 270°

MP3000-360
360°

MP3500 31' to 35' radius

MP3500-90
90° to 210°

MP ROTATOR PERFORMANCE DATA

MP1000
Radius: 8' to 15'
Adjustable Arc and Full-Circle
- Maroon: 90° to 210°
- Lt. Blue: 210° to 270°
- Olive: 360°

MP2000
Radius: 13' to 21'
Adjustable Arc and Full-Circle
- Black: 90° to 210°
- Green: 210° to 270°
- Red: 360°

MP3000
Radius: 22' to 30'
Adjustable Arc and Full-Circle
- Blue: 90° to 210°
- Yellow: 210° to 270°
- Gray: 360°

Arc	Pressure PSI	MP1000 Radius ft.	MP1000 Flow GPM	MP1000 Flow GPH	MP1000 Precip in/hr ■	MP1000 Precip in/hr ▲	MP2000 Radius ft.	MP2000 Flow GPM	MP2000 Flow GPH	MP2000 Precip in/hr ■	MP2000 Precip in/hr ▲	MP3000 Radius ft.	MP3000 Flow GPM	MP3000 Flow GPH	MP3000 Precip in/hr ■	MP3000 Precip in/hr ▲
90°	25	--	--	--	--	--	17	0.34	20.4	0.45	0.52	25	0.71	42.6	0.44	0.51
	30	12	0.17	10.2	0.45	0.52	18	0.38	22.8	0.45	0.52	27	0.76	45.6	0.40	0.46
	35	13	0.19	11.4	0.43	0.50	19	0.40	24.0	0.43	0.49	28	0.82	49.2	0.40	0.46
	40	**14**	**0.21**	**12.6**	**0.41**	**0.48**	**20**	**0.43**	**25.8**	**0.41**	**0.48**	**30**	**0.86**	**51.6**	**0.37**	**0.42**
	45	14	0.23	13.8	0.45	0.52	21	0.46	27.6	0.40	0.46	30	0.90	54.0	0.39	0.44
	50	15	0.25	15.0	0.43	0.49	21	0.47	28.2	0.41	0.47	30	0.95	57.0	0.41	0.47
	55	15	0.27	16.2	0.46	0.53	21	0.48	28.8	0.42	0.48	30	1.01	60.6	0.43	0.50
180°	25	--	--	--	--	--	16	0.6	36.0	0.45	0.52	25	1.44	86.4	0.44	0.51
	30	12	0.34	20.4	0.45	0.52	17	0.64	38.4	0.43	0.49	27	1.58	94.8	0.42	0.48
	35	13	0.38	22.8	0.43	0.50	18	0.71	42.6	0.42	0.49	28	1.70	102.0	0.42	0.48
	40	**14**	**0.42**	**25.2**	**0.41**	**0.48**	**19**	**0.77**	**46.2**	**0.41**	**0.47**	**30**	**1.82**	**109.2**	**0.39**	**0.45**
	45	14	0.44	26.4	0.43	0.50	20	0.85	51.0	0.41	0.47	30	1.93	115.8	0.41	0.48
	50	15	0.50	30.0	0.43	0.49	21	0.91	54.6	0.40	0.46	30	2.04	122.4	0.44	0.50
	55	15	0.51	30.6	0.44	0.50	21	0.95	57.0	0.41	0.48	30	2.13	127.8	0.46	0.53
210°	25	--	--	--	--	--	16	0.72	43.2	0.46	0.54	25	1.68	100.8	0.44	0.51
	30	12	0.40	24.0	0.46	0.53	17	0.75	45.0	0.43	0.49	27	1.84	110.4	0.42	0.48
	35	13	0.45	27.0	0.44	0.51	18	0.81	48.6	0.41	0.48	28	1.99	119.4	0.42	0.48
	40	**14**	**0.49**	**29.4**	**0.41**	**0.48**	**19**	**0.86**	**51.6**	**0.39**	**0.45**	**30**	**2.12**	**127.2**	**0.39**	**0.45**
	45	14	0.51	30.6	0.43	0.50	20	0.91	54.6	0.38	0.43	30	2.25	135.0	0.41	0.48
	50	15	0.57	34.2	0.42	0.48	21	0.98	58.8	0.37	0.42	30	2.37	142.2	0.43	0.50
	55	15	0.59	35.4	0.43	0.50	21	1.01	60.6	0.38	0.44	30	2.49	149.4	0.46	0.53
270°	25	--	--	--	--	--	16	0.87	52.2	0.44	0.50	25	2.19	131.4	0.45	0.52
	30	12	0.48	28.8	0.43	0.49	17	0.95	57.0	0.42	0.49	27	2.37	142.2	0.42	0.48
	35	13	0.53	31.8	0.40	0.46	18	1.03	61.8	0.41	0.47	28	2.55	153.0	0.42	0.48
	40	**14**	**0.63**	**37.8**	**0.41**	**0.48**	**19**	**1.10**	**66.0**	**0.39**	**0.45**	**30**	**2.73**	**163.8**	**0.39**	**0.45**
	45	14	0.67	40.2	0.44	0.51	20	1.17	70.2	0.38	0.43	30	2.89	173.4	0.41	0.48
	50	15	0.72	43.2	0.41	0.47	21	1.23	73.8	0.36	0.41	30	3.06	183.6	0.44	0.50
	55	15	0.75	45.0	0.43	0.49	21	1.30	78.0	0.38	0.44	30	3.22	193.2	0.46	0.53
360°	25	--	--	--	--	--	16	1.20	72.0	0.45	0.52	25	2.88	172.8	0.44	0.51
	30	12	0.69	41.4	0.46	0.53	17	1.28	76.8	0.43	0.49	27	3.15	189.0	0.42	0.48
	35	13	0.77	46.2	0.44	0.51	18	1.37	82.2	0.41	0.47	28	3.40	204.0	0.42	0.48
	40	**14**	**0.84**	**50.4**	**0.41**	**0.48**	**19**	**1.48**	**88.8**	**0.39**	**0.46**	**30**	**3.64**	**218.4**	**0.39**	**0.45**
	45	14	0.88	52.8	0.43	0.50	20	1.57	94.2	0.38	0.44	30	3.86	231.6	0.41	0.48
	50	15	0.98	58.8	0.42	0.48	21	1.68	100.8	0.37	0.42	30	4.07	244.2	0.44	0.50
	55	15	1.01	60.6	0.43	0.50	21	1.74	104.4	0.38	0.44	30	4.27	256.2	0.46	0.53

MP3500
Radius: 31' to 35'
Adjustable Arc
- Light Brown: 90°

90°

MP3500
Radius: 31' to 35'
Adjustable Arc
- Light Brown: 180°

180°

MP3500
Radius: 31' to 35'
Adjustable Arc
- Light Brown: 210°

210°

Pressure PSI	MP3500 90° Radius ft.	MP3500 90° Flow GPM	MP3500 90° Flow GPH	MP3500 90° Precip in/hr ■	MP3500 90° Precip in/hr ▲	MP3500 180° Radius ft.	MP3500 180° Flow GPM	MP3500 180° Flow GPH	MP3500 180° Precip in/hr ■	MP3500 180° Precip in/hr ▲	MP3500 210° Radius ft.	MP3500 210° Flow GPM	MP3500 210° Flow GPH	MP3500 210° Precip in/hr ■	MP3500 210° Precip in/hr ▲
25	33	1.04	62.4	0.37	0.42	33	2.21	132.6	0.39	0.45	33	2.59	155.4	0.39	0.45
30	34	1.13	67.8	0.38	0.43	34	2.24	134.4	0.37	0.43	34	2.84	170.4	0.41	0.47
35	34	1.21	72.6	0.40	0.47	34	2.65	159.0	0.44	0.51	34	3.08	184.8	0.44	0.51
40	**35**	**1.28**	**76.8**	**0.40**	**0.46**	**35**	**2.86**	**171.6**	**0.45**	**0.52**	**35**	**3.29**	**197.4**	**0.44**	**0.51**
45	35	1.38	82.8	0.43	0.50	35	3.10	186.0	0.49	0.56	35	3.54	212.4	0.48	0.55
50	35	1.43	85.8	0.45	0.52	35	3.21	192.6	0.50	0.58	35	3.76	225.6	0.51	0.59
55	35	1.50	90.0	0.47	0.54	35	3.28	196.8	0.52	0.60	35	3.94	236.4	0.53	0.61

Bold = Optimal pressure for the MP Rotator is 40 PSI. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 40 PSI.

MP ROTATOR PERFORMANCE DATA

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

	Pressure PSI	Radius ft.	Flow GPM	Flow GPH
MP Left Corner Strip	30	4 x 14	0.19	11.4
	35	5 x 15	0.21	12.6
	40	**5 x 15**	**0.22**	**13.2**
	45	5 x 15	0.23	13.8
	50	6 x 16	0.25	15.0
	55	6 x 16	0.26	15.6
MP Right Corner Strip	30	4 x 14	0.19	11.4
	35	5 x 15	0.21	12.6
	40	**5 x 15**	**0.22**	**13.2**
	45	5 x 15	0.23	13.8
	50	6 x 16	0.25	15.0
	55	6 x 16	0.26	15.6
MP Side Strip	30	4 x 28	0.38	22.8
	35	5 x 30	0.41	24.6
	40	**5 x 30**	**0.44**	**26.4**
	45	5 x 30	0.47	28.2
	50	6 x 32	0.49	29.4
	55	6 x 32	0.51	30.6

Bold = Recommended Pressure

Notes: Strip pattern radius can be adjusted by 25%. MP Rotator is designed to maintain matched precipitation after radius adjustment. Optimal pressure for the MP Rotator is 40 PSI. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 40 PSI.

MP ROTATOR PERFORMANCE DATA

MP Corner
Radius: 8' to 15'
Adjustable Arc
- Turquoise: 45° to 105°

Arc	Pressure PSI	Radius ft.	Flow GPM	Flow GPH
45°	25	--	--	--
	30	12	0.17	10.2
	35	13	0.18	10.8
	40	**14**	**0.19**	**11.4**
	45	14	0.21	12.6
	50	14	0.22	13.2
	55	15	0.23	13.8
90°	25	11	0.31	18.6
	30	12	0.34	20.4
	35	13	0.36	21.6
	40	**14**	**0.39**	**23.4**
	45	14	0.41	24.6
	50	15	0.43	25.8
	55	15	0.46	27.6
105°	25	11	0.36	21.6
	30	12	0.39	23.4
	35	13	0.42	25.2
	40	**14**	**0.45**	**27.0**
	45	14	0.48	28.8
	50	15	0.51	30.6
	55	15	0.53	31.8

Bold = Recommended Pressure

MP Strips

MPLCS515
Left Corner Strip
5' x 15'

MPRCS515
Right Corner Strip
5' x 15'

MPSS530
Side Strip
5' x 30'

MP Corner

MPCORNER
Corner
8' to 15'

Male Threaded

MP-HT
Male Threaded

MP Accessories

MPTOOL
Adjusts all MP Rotators

MPSTICK
Snaps onto any length of 1" PVC to allow standing adjustment. *PVC pipe not included.*

MP TOOL: For Easy Adjustments

MP ROTATOR® 800 SERIES

Radius: **6' to 12'**

FEATURES

- Provides coverage from 6' to 12'
- Color-coded for easy identification
- Removable filter screen prevents large objects from clogging nozzle
- Wind-resistant multi-stream technology
- Adjustable arc and radius
- ▸ Automatic matched precipitation
- ▸ Double-pop
- ▸ Distribution uniformity
- ▸ Low precipitation rate

OPERATING SPECIFICATIONS

- Recommended operating pressure: 40 PSI
  - 30 PSI for min radius settings
- MP800SR-90 uses a 60 mesh built-in nozzle filter
- MP800SR-360 uses a 40 mesh built-in nozzle filter
- Recommended: use 150 mesh pre-filter arrangement with dirty water
- Hunter's HY filters are a great solution for zone-specific MP800SR arrangements

OPTIONS

- Specify Pro-Spray® PRS40 pop-up for accurate pressure regulation to achieve typical radius settings
- Specify Pro-Spray PRS30 for accurate pressure regulation to achieve minimum radius settings

▸ = *Advanced Feature descriptions on page 43*

MP800SR 6' to 12' radius

MP800SR-90
90° to 210°

MP800SR-360
360°

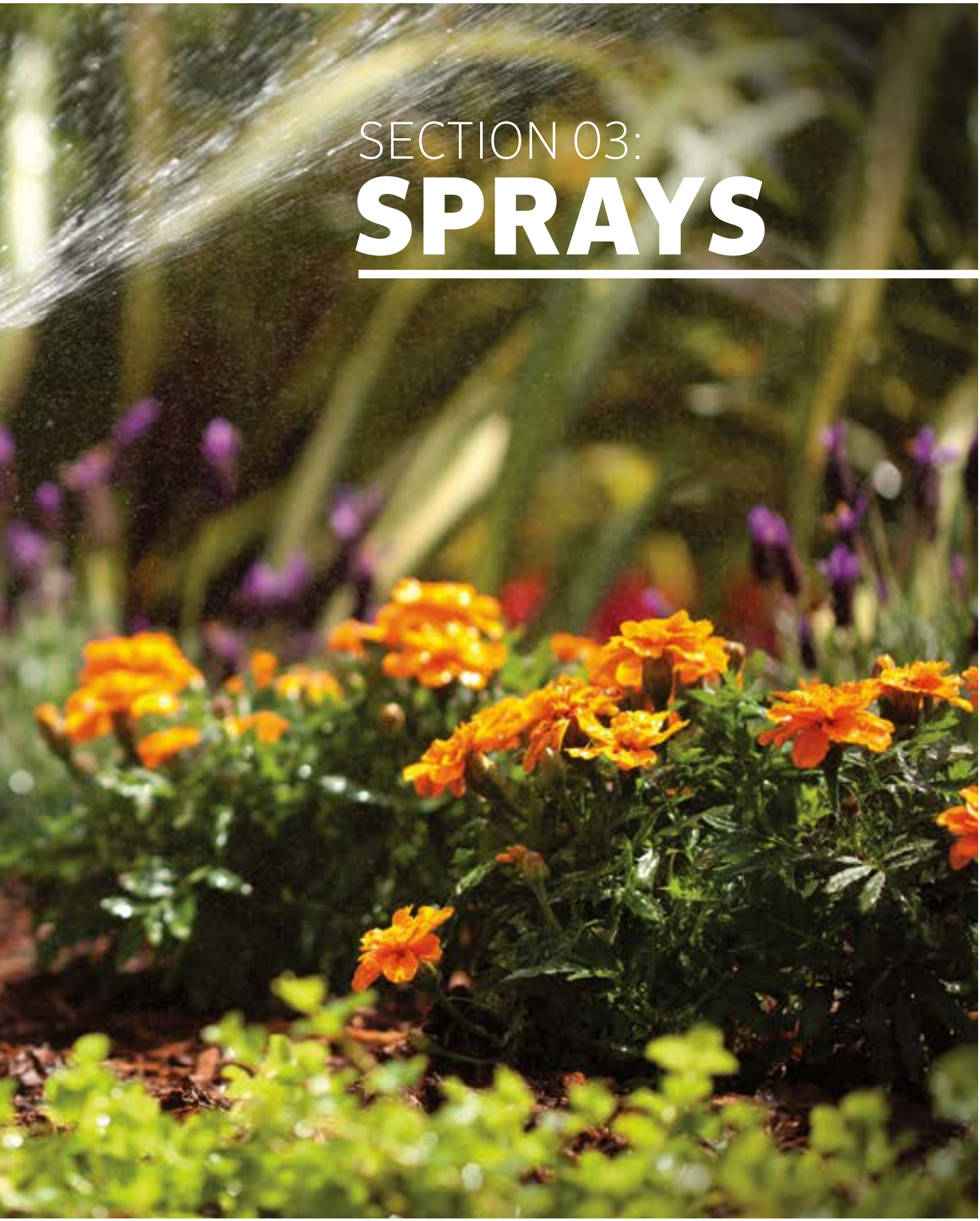
MP800SR

MP ROTATOR PERFORMANCE DATA

MP800SR
Radius: 6' to 12'
Adjustable Arc
● Orange and Gray: 90° to 210°
● Lime Green and Gray: 360°

Arc	Pressure PSI		Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■	Precip in/hr ▲	MIN RADIUS Radius ft.	MIN RADIUS Flow GPM
90°	30		8	0.17	9.6	0.90	1.04	6	0.13
	35		9	0.21	11.4	0.89	1.03	7	0.15
	40		**10**	**0.23**	**13.8**	**0.83**	**0.96**	**8**	**0.16**
	45		11	0.25	15.0	0.80	0.92	8	0.18
	50		11	0.27	16.2	0.79	0.92	9	0.19
	55		12	0.28	16.8	0.80	0.93	10	0.20
180°	30		8	0.33	19.2	0.88	1.02	6	0.26
	35		9	0.38	22.2	0.85	0.99	7	0.29
	40		**10**	**0.42**	**25.2**	**0.81**	**0.93**	**8**	**0.32**
	45		11	0.46	27.6	0.77	0.88	8	0.36
	50		11	0.48	28.8	0.76	0.88	9	0.38
	55		12	0.50	30.0	0.73	0.84	10	0.40
210°	30		8	0.35	22.2	0.80	0.93	6	0.30
	35		9	0.38	26.4	0.77	0.89	7	0.34
	40		**10**	**0.43**	**29.4**	**0.81**	**0.91**	**8**	**0.37**
	45		10	0.45	31.8	0.82	0.95	8	0.42
	50		11	0.49	33.6	0.73	0.85	9	0.44
	55		12	0.56	34.8	0.70	0.81	10	0.47
360°	30		8	0.66	37.8	0.89	1.03	6	0.47
	35		9	0.71	42.0	0.80	0.92	7	0.52
	40		**10**	**0.78**	**46.8**	**0.79**	**0.91**	**8**	**0.56**
	45		10	0.85	51.0	0.78	0.90	8	0.59
	50		11	0.88	52.8	0.73	0.85	9	0.63
	55		12	0.98	58.8	0.70	0.81	10	0.70

Bold = Optimal pressure for the MP Rotator is 40 PSI. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 40 PSI.



SECTION 03:
SPRAYS

SPRAYS
ADVANCED FEATURES

STRENGTH & DURABILITY

CO-MOLDED WIPER SEAL

The industry's most rugged wiper seal is co-molded from two types of chemical and chlorine-resistant materials. This pressure-activated, multi-function wiper seal reduces flow-by, operates at low pressures, and allows more sprinkler heads to be installed on the same zone. Its innovative design prevents debris from entering the seal when the riser is retracted, reducing riser stick-ups.

INNOVATIVE SEAL DESIGN

Pedestrian traffic, landscaping equipment, temperature changes, and cycling pressures can often cause body caps to loosen. Most spray bodies utilize an O-Ring, which breaks seal immediately after loosening. The Pro-Spray can withstand more than one full 360° turn and remain sealed at any pressure.

HEAVY-DUTY SPRING

The industry's strongest spring for positive retraction under any conditions.

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.

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 traditional sprays at 30 PSI. The gray-capped 40 PSI PRS40 is designed for the efficient MP Rotator and is the only 40 PSI regulated pop-up on the market today.

INDUSTRY'S STRONGEST SPRAY BODY

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, the buttress thread design provides superior strength in cap-to-body gripping capacity helping the head to withstand high inlet surge pressures.

COMPETITOR

PRO-SPRAY

Competitor: Significant leaking at the body cap
Pro-Spray: Seal remains intact

SPRAY BODY COMPARISON CHART

QUICK SPECS		PS ULTRA	PRO-SPRAY®	PRS30	PRS40
SIZE		Good	Better	Best with Sprays	Best with MP Rotator®
POP-UP HEIGHT	in.	2, 4, 6	Shrub, 2, 3, 4, 6, 12	Shrub, 4, 6, 12	Shrub, 4, 6, 12
PRESSURE REGULATED	PSI	N/A	N/A	30	40
FEATURES					
PRE-INSTALLED NOZZLE		5SS, 10A, 12A, 15A, 17A	N/A	N/A	N/A
CAP COLOR		Black	Black	Brown	Gray
CHECK VALVES		Field Installed	Field Installed or Factory Installed	Field Installed or Factory Installed	Factory Installed
WARRANTY		2 Years	5 Years	5 Years	5 Years
ADVANCED FEATURES					
BODY STYLE		Slim Line	Rugged Body	Rugged Body	Rugged Body
SPRING		Standard	Heavy Duty	Heavy Duty	Heavy Duty
CO-MOLDED WIPER SEAL			●	●	●
RECLAIMED CAP			●	●	●
PRESSURE REGULATION				●	●
APPLICATIONS					
TURFGRASS		●	●	●	●
TURFGRASS: TALL MOWING HEIGHT		●	●	●	●
SHRUBS: SPRINKLERS ON RISERS			●	●	●
SHRUBS: TALL POP-UP SPRINKLERS			●	●	●
RESIDENTIAL		●	●	●	●
COMMERCIAL/MUNICIPALITIES			●	●	●
HIGH TRAFFIC AREAS			●	●	●
RECLAIMED WATER			●	●	●

PS ULTRA

Models: **2", 4", 6"**
Inlet: **½"**

FEATURES

- Models: 2", 4", 6"
- Enhanced cap for more durability, easier handling, and extended riser seal life
- 2" and 4" models can retrofit into older style PS sprays
- Two-piece ratcheting riser
- 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
- ▸ Optional check valve
- ▸ Heavy-duty spring

OPERATING SPECIFICATIONS

- Operational pressure range: 20 to 70 PSI

FACTORY INSTALLED OPTIONS

- Nozzles: 10A, 12A, 15A, 17A, 5' x 30' side strip (side strip pattern available on 2" and 4" models only)
- Flush plug (large filter screen not included)
- Optional extra large filter screen

USER INSTALLED OPTIONS

- Drain check valve: 4" and 6" models (up to 7' of elevation; P/N 462237)
- Large inlet filter screen (replacement; P/N 162900)

▸ = *Advanced Feature descriptions on page 50*

PSU02
Retracted height: 5"
Pop-up height: 2"
Exposed diameter: 1¼"
Inlet size: ½"

PSU04
Retracted height: 7¼"
Pop-up height: 4"
Exposed diameter: 1¼"
Inlet size: ½"

PSU06
Retracted height: 9½"
Pop-up height: 6"
Exposed diameter: 1¼"
Inlet size: ½"

PS ULTRA – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Nozzles	3 Optional
PSU-02 = 2" Pop-up **PSU-04** = 4" Pop-up **PSU-06** = 6" Pop-up	**(blank)** = Flush plug, no large filter screen **10A** = 10' Adjustable nozzle **12A** = 12' Adjustable nozzle **15A** = 15' Adjustable nozzle **17A** = 17' Adjustable nozzle **5SS** = 5' x 30' Side Strip *(2" and 4" only)*	**NFO** = Nozzle filter only *(Available for 4" model only)* Substitute standard installation of large inlet filter screen and receive unit with the nozzle filter only.

Examples:
PSU-04 = 4" Pop-up, with flush plug
PSU-02 - 5SS = 2" Pop-up, with a 5' x 30' side strip
PSU-06 - 10A = 6" Pop-up, with a 10' adjustable nozzle
PSU-04 - 12A - NFO = 4" Pop-up, with 12' adjustable nozzle, large inlet filter screen not included

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

	10A ● Red 10' radius Adjustable from 0° to 360° Trajectory: 15°					**12A** ● Green 12' radius Adjustable from 0° to 360° Trajectory: 28°				**15A** ● Black 15' radius Adjustable from 0° to 360° Trajectory: 28°				**17A** ● Gray 17' radius Adjustable from 0° to 360° Trajectory: 28°			
Arc	**Pressure** PSI	**Radius** ft.	**Flow** GPM	**Precip in/hr** ■	**Precip in/hr** ▲	**Radius** ft.	**Flow** GPM	**Precip in/hr** ■	**Precip in/hr** ▲	**Radius** ft.	**Flow** GPM	**Precip in/hr** ■	**Precip in/hr** ▲	**Radius** ft.	**Flow** GPM	**Precip in/hr** ■	**Precip in/hr** ▲
45°	20	9	0.20	1.90	2.20	11	0.25	1.59	1.84	14	0.39	1.51	1.75	16	0.49	1.46	1.68
	25	10	0.23	1.92	2.22	12	0.28	1.60	1.85	15	0.43	1.57	1.82	17	0.57	1.60	1.85
	30	**10**	**0.25**	**1.93**	**2.22**	**12**	**0.32**	**1.68**	**1.95**	**15**	**0.47**	**1.59**	**1.84**	**17**	**0.58**	**1.53**	**1.77**
	35	11	0.28	1.92	2.22	13	0.37	1.80	2.08	16	0.52	1.55	1.79	18	0.63	1.49	1.72
	40	11	0.30	1.88	2.17	13	0.42	1.91	2.21	17	0.57	1.60	1.85	19	0.69	1.55	1.79
90°	20	9	0.40	1.90	2.20	11	0.50	1.59	1.84	14	0.77	1.51	1.75	16	0.97	1.46	1.68
	25	10	0.45	1.92	2.22	12	0.55	1.60	1.85	15	0.86	1.57	1.82	17	1.13	1.60	1.85
	30	**10**	**0.50**	**1.93**	**2.22**	**12**	**0.63**	**1.68**	**1.95**	**15**	**0.93**	**1.59**	**1.84**	**17**	**1.15**	**1.53**	**1.77**
	35	11	0.55	1.92	2.22	13	0.73	1.80	2.08	16	1.03	1.55	1.79	18	1.25	1.49	1.72
	40	11	0.59	1.88	2.17	13	0.84	1.91	2.21	17	1.13	1.60	1.85	19	1.38	1.55	1.79
120°	20	9	0.53	1.90	2.20	11	0.67	1.59	1.84	14	1.03	1.51	1.75	16	1.29	1.46	1.68
	25	10	0.60	1.92	2.22	12	0.73	1.60	1.85	15	1.15	1.57	1.82	17	1.51	1.51	1.74
	30	**10**	**0.67**	**1.93**	**2.22**	**12**	**0.84**	**1.68**	**1.95**	**15**	**1.24**	**1.59**	**1.84**	**17**	**1.53**	**1.53**	**1.77**
	35	11	0.73	1.92	2.22	13	0.97	1.80	2.08	16	1.37	1.55	1.79	18	1.67	1.49	1.72
	40	11	0.79	1.88	2.17	13	1.12	1.91	2.21	17	1.51	1.60	1.85	19	1.84	1.47	1.70
180°	20	9	0.80	1.90	2.20	11	1.00	1.59	1.84	14	1.54	1.51	1.75	16	1.94	1.46	1.68
	25	10	0.90	1.92	2.22	12	1.10	1.60	1.85	15	1.72	1.57	1.82	17	2.26	1.51	1.74
	30	**10**	**1.00**	**1.93**	**2.22**	**12**	**1.26**	**1.68**	**1.95**	**15**	**1.86**	**1.59**	**1.84**	**17**	**2.30**	**1.53**	**1.77**
	35	11	1.10	1.92	2.22	13	1.46	1.80	2.08	16	2.06	1.55	1.79	18	2.50	1.49	1.72
	40	11	1.18	1.88	2.17	13	1.68	1.91	2.21	17	2.26	1.60	1.85	19	2.76	1.47	1.70
240°	20	9	1.07	1.90	2.20	11	1.33	1.59	1.84	14	2.05	1.51	1.75	16	2.59	1.46	1.68
	25	10	1.20	1.92	2.22	12	1.47	1.60	1.85	15	2.29	1.57	1.82	17	3.01	1.51	1.74
	30	**10**	**1.33**	**1.93**	**2.22**	**12**	**1.68**	**1.68**	**1.95**	**15**	**2.48**	**1.59**	**1.84**	**17**	**3.07**	**1.53**	**1.77**
	35	11	1.47	1.92	2.22	13	1.95	1.80	2.08	16	2.75	1.55	1.79	18	3.33	1.49	1.72
	40	11	1.57	1.88	2.17	13	2.24	1.91	2.21	17	3.01	1.60	1.85	19	3.68	1.47	1.70
270°	20	9	1.20	1.90	2.20	11	1.50	1.59	1.84	14	2.31	1.51	1.75	16	2.91	1.46	1.68
	25	10	1.35	1.92	2.22	12	1.65	1.60	1.85	15	2.58	1.57	1.82	17	3.39	1.51	1.74
	30	**10**	**1.50**	**1.93**	**2.22**	**12**	**1.89**	**1.68**	**1.95**	**15**	**2.79**	**1.59**	**1.84**	**17**	**3.45**	**1.53**	**1.77**
	35	11	1.65	1.92	2.22	13	2.19	1.80	2.08	16	3.09	1.55	1.79	18	3.75	1.49	1.72
	40	11	1.77	1.88	2.17	13	2.52	1.91	2.21	17	3.39	1.60	1.85	19	4.14	1.47	1.70
360°	20	9	1.60	1.90	2.20	11	2.00	1.59	1.84	14	3.08	1.51	1.75	16	3.88	1.46	1.68
	25	10	1.80	1.92	2.22	12	2.20	1.60	1.85	15	3.44	1.57	1.82	17	4.52	1.51	1.74
	30	**10**	**2.00**	**1.93**	**2.22**	**12**	**2.52**	**1.68**	**1.95**	**15**	**3.72**	**1.59**	**1.84**	**17**	**4.60**	**1.53**	**1.77**
	35	11	2.20	1.92	2.22	13	2.92	1.80	2.08	16	4.12	1.55	1.79	18	5.00	1.49	1.72
	40	11	2.36	1.88	2.17	13	3.36	1.91	2.21	17	4.52	1.60	1.85	19	5.52	1.47	1.70

Bold = Recommended pressure

STRIP PATTERN NOZZLE PERFORMANCE DATA

Model	**Pressure** PSI	**Width x Length** ft.	**Flow** GPM
SS-530	20	4 x 28	1.10
	25	5 x 30	1.20
	30	**5 x 30**	**1.30**
	35	5 x 30	1.40
	40	5 x 30	1.50

Bold = Recommended pressure

PRO-SPRAY®

Models: **Shrub, 2", 3", 4", 6", 12"**
Inlet: **½"**

FEATURES

- Models: Shrub, 2", 3", 4", 6", 12"
- Compatible with all female threaded nozzles
- Side inlet (SI) version available in 6" and 12"
- Innovative directional flush plug design
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Heavy-duty spring
- ▸ Industry's strongest spray body
- ▸ Innovative seal design
- ▸ Pro-Spray check valve

OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI

FACTORY INSTALLED OPTIONS

- Drain check valve (up to 10' of elevation)
- Check valve available on 4", 6", 12"
- Reclaimed water ID cap

USER INSTALLED OPTIONS

- Drain check valve (up to 10' of elevation; P/N 437400)
- Reclaimed water ID cap (P/N 458520)
- Snap-on reclaimed cover (P/N PROSRCCAP)

▸ = *Advanced Feature descriptions on page 50*

Pro-Spray Reclaimed
Pro-Spray models include optional factory-installed purple reclaimed caps

PROS-00
Retracted height: 1½"
Inlet size: ½"

PROS-02
Retracted height: 4"
Pop-up height: 2"
Exposed diameter: 2¼"
Inlet size: ½"

PROS-03
Retracted height: 5"
Pop-up height: 3"
Exposed diameter: 2¼"
Inlet size: ½"
Shut-Off

PROS-04
Retracted height: 5⅞"
Pop-up height: 4"
Exposed diameter: 2¼"
Inlet size: ½"
Shut-Off

[A] **PROS-06-SI**
[B] **PROS-06**
Retracted height: 8¾"
Pop-up height: 6"
Exposed diameter: 2¼"
Inlet size: ½"

[A] **PROS-12-SI**
[B] **PROS-12**
Retracted height: 16⅛"
Pop-up height: 12"
Exposed diameter: 2¼"
Inlet size: ½"

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

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

Examples:
PROS-04 = 4" pop-up
PROS-06 - CV = 6" pop-up, drain check valve
PROS-12 - CV-R = 12" pop-up, drain check valve, reclaimed body cap

PRS30

PRESSURE REGULATED

Models: **Shrub, 4", 6", 12"**
Pressure Regulation: **30 PSI**

FEATURES

- Models: Shrub, 4", 6", 12"
- Side inlet (SI) version available in 6" and 12"
- Identification cap is brown for easy field ID
- Innovative directional flush plug design
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Heavy-duty spring
- ▸ Industry's strongest spray body
- ▸ Innovative seal design
- ▸ Pro-Spray check valve
- ▸ Pressure regulated to 30 PSI

OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI

FACTORY INSTALLED OPTIONS

- Drain check valve (up to 14' of elevation)
- Check valve available on 4", 6", 12"
- Reclaimed water ID cap

USER INSTALLED OPTIONS

- Vandal-proof cap (P/N PROS-PRS30-VPC)
- Drain check valve (up to 14' of elevation; P/N 457400)
- Reclaimed water ID cap (P/N 458560)
- Snap-on reclaimed cover (P/N PROSRCCAP)

▸ = *Advanced Feature descriptions on page 50*

PRS30 Reclaimed

PRS30 models include optional factory-installed purple reclaimed caps

Related Solutions: Works Best With

Pro-Spray® Fixed Arc Nozzles and Precision Distribution Control™ Adjustable Nozzles work best with PRS30

PRS30 – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
PROS-00-PRS30 = 30 PSI regulated shrub adapter	**(blank)** = No option
PROS-04-PRS30 = 30 PSI regulated 4" Pop-up	**CV** = Factory-installed drain check valve *(Pop-up models only 6" and 12" models ordered as CV will come as no side inlet)*
PROS-06-SI-PRS30 = 30 PSI regulated 6" Pop-up with side inlet	
PROS-06-PRS30 = 30 PSI regulated 6" Pop-up (no side inlet)	
PROS-12-SI-PRS30 = 30 PSI regulated 12" Pop-up with side inlet	**R** = Factory-installed reclaimed body cap
PROS-12-PRS30 = 30 PSI regulated 12" Pop-up (no side inlet)	*(Shrub molded in purple)*

Examples:
PROS-04-PRS30 = 4" Pop-up regulated at 30 PSI
PROS-06-PRS30-CV = 6" Pop-up regulated at 30 PSI, drain check valve
PROS-12-PRS30-CV - R = 12" Pop-up regulated at 30 PSI, drain check valve, and reclaimed body cap

PROS-00-PRS30
Retracted height: 4½"
Inlet size: ½"

PROS-04-PRS30
Retracted height: 5⅞"
Pop-up height: 4"
Exposed diameter: 2¼"
Inlet size: ½"

[A] **PROS-06-SI-PRS30**
[B] **PROS-06-PRS30**
Retracted height: 8¾"
Pop-up height: 6"
Exposed diameter: 2¼"
Inlet size: ½"

[A] **PROS-12-SI-PRS30**
[B] **PROS-12-PRS30**
Retracted height: 16⅛"
Pop-up height: 12"
Exposed diameter: 2¼"
Inlet size: ½"

SPRAYS

PRS40

PRESSURE REGULATED

Models: **Shrub, 4", 6", 12"**
Pressure Regulation: **40 PSI**

FEATURES

- Models: Shrub, 4", 6", 12"
- Gray identification cap for easy field ID
- Innovative directional flush plug design
- 6" and 12" models come standard as no side inlet, ensuring proper installation with check valve
- Drain check valve installed (14' of elevation) comes standard
- Warranty period: 5 years
- ▸ Co-molded wiper seal
- ▸ Heavy-duty spring
- ▸ Industry's strongest spray body
- ▸ Innovative seal design
- ▸ Pro-Spray check valve
- ▸ Pressure regulated to 40 PSI

OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI

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 50*

PRS40 Reclaimed
PRS40 models include optional factory-installed purple reclaimed caps

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

PROS-00-PRS40
Retracted height: 4½"
Inlet size: ½"

PROS-04-PRS40-CV
Retracted height: 5⅞"
Pop-up height: 4"
Exposed diameter: 2¼"
Inlet size: ½"

PROS-06-PRS40-CV
Retracted height: 8¾"
Pop-up height: 6"
Exposed diameter: 2¼"
Inlet size: ½"

PROS-12-PRS40-CV
Retracted height: 16⅛"
Pop-up height: 12"
Exposed diameter: 2¼"
Inlet size: ½"

PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
PROS-00-PRS40 = 40 PSI regulated shrub adapter	**(blank)** = No option
PROS-04-PRS40 = 40 PSI regulated 4" Pop-up	**CV** = Factory-installed drain check valve
PROS-06-PRS40 = 40 PSI regulated 6" Pop-up	*(Pop-up models only)*
PROS-12-PRS40 = 40 PSI regulated 12" Pop-up	**R** = Factory-installed reclaimed body cap
	(Shrub molded in purple)

Examples:
PROS-04-PRS40 - CV = 4" Pop-up regulated at 40 PSI, drain check valve
PROS-06-PRS40 - CV = 6" Pop-up regulated at 40 PSI, drain check valve
PROS-12-PRS40 - CV - R = 12" Pop-up regulated at 40 PSI, drain check valve, reclaimed body cap

NOZZLES

PRECISION DISTRIBUTION CONTROL™ ADJUSTABLE NOZZLES

FEATURES

- Crisp, well-defined edges
- Matched precipitation rate on each nozzle from 8A to 17A
- Easy grip top for simple adjustment
- Large water droplets cut through wind
- Even distribution results in better coverage
- 4' and 6' models provide additional flexibility
- Color-coded for easy field identification
- Adjustable from 0° to 360°

OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Specify Pro-Spray® PRS30 pop-up for accurate pressure regulation of 30 PSI

4A
Radius: 4'

6A
Radius: 6'

8A
Radius: 8'

10A
Radius: 10'

12A
Radius: 12'

15A
Radius: 15'

17A
Radius: 17'

PRECISION DISTRIBUTION CONTROL™ ADJUSTABLE NOZZLES PERFORMANCE DATA

	4A	6A	8A	10A
	● Lt. Green	● Lt. Blue	● Brown	● Red
	4' radius Adjustable from 0° to 360° Trajectory: 0°	6' radius Adjustable from 0° to 360° Trajectory: 0°	8' radius Adjustable from 0° to 360° Trajectory: 0°	10' radius Adjustable from 0° to 360° Trajectory: 15°

Arc	Pressure PSI	4A Radius ft.	4A Flow GPM	4A Precip in/hr ■	4A Precip in/hr ▲	6A Radius ft.	6A Flow GPM	6A Precip in/hr ■	6A Precip in/hr ▲	8A Radius ft.	8A Flow GPM	8A Precip in/hr ■	8A Precip in/hr ▲	10A Radius ft.	10A Flow GPM	10A Precip in/hr ■	10A Precip in/hr ▲
45°	20	3	0.10	7.29	8.42	5	0.15	4.19	4.84	7	0.18	2.83	3.27	9	0.20	1.90	2.20
	25	3	0.11	7.12	8.22	5	0.17	4.36	5.03	8	0.20	2.74	3.16	10	0.23	1.92	2.22
	30	**4**	**0.13**	**6.26**	**7.22**	**6**	**0.18**	**3.85**	**4.45**	**8**	**0.22**	**2.65**	**3.06**	**10**	**0.25**	**1.93**	**2.22**
	35	4	0.14	6.11	7.06	6	0.18	3.55	4.10	9	0.24	2.50	2.89	11	0.28	1.92	2.22
	40	4	0.16	6.36	7.35	6	0.19	3.57	4.12	9	0.25	2.38	2.74	11	0.30	1.88	2.17
90°	20	3	0.19	6.93	8.00	5	0.30	4.19	4.84	7	0.36	2.83	3.27	9	0.40	1.90	2.20
	25	3	0.20	6.47	7.47	5	0.34	4.49	5.18	8	0.40	2.74	3.16	10	0.45	1.92	2.22
	30	**4**	**0.22**	**5.29**	**6.11**	**6**	**0.37**	**3.96**	**4.57**	**8**	**0.44**	**2.65**	**3.06**	**10**	**0.50**	**1.93**	**2.22**
	35	4	0.24	5.24	6.05	6	0.38	3.75	4.32	9	0.47	2.50	2.89	11	0.55	1.92	2.22
	40	4	0.25	4.97	5.74	6	0.40	3.76	4.34	9	0.50	2.38	2.74	11	0.59	1.88	2.17
120°	20	3	0.28	7.65	8.84	5	0.37	3.88	4.48	7	0.48	2.83	3.27	9	0.53	1.90	2.20
	25	3	0.30	7.28	8.40	5	0.38	3.76	4.35	8	0.53	2.74	3.16	10	0.60	1.92	2.22
	30	**4**	**0.34**	**6.14**	**7.09**	**6**	**0.44**	**3.53**	**4.08**	**8**	**0.59**	**2.65**	**3.06**	**10**	**0.67**	**1.93**	**2.22**
	35	4	0.36	5.81	6.71	6	0.46	3.40	3.93	9	0.63	2.50	2.89	11	0.73	1.92	2.22
	40	4	0.37	5.52	6.37	6	0.48	3.38	3.91	9	0.67	2.38	2.74	11	0.79	1.88	2.17
180°	20	3	0.34	6.20	7.16	5	0.50	3.49	4.03	7	0.72	2.83	3.27	9	0.80	1.90	2.20
	25	3	0.38	6.15	7.10	5	0.54	3.56	4.12	8	0.80	2.74	3.16	10	0.90	1.92	2.22
	30	**4**	**0.45**	**5.41**	**6.25**	**6**	**0.60**	**3.21**	**3.70**	**8**	**0.88**	**2.65**	**3.06**	**10**	**1.00**	**1.93**	**2.22**
	35	4	0.46	5.02	5.80	6	0.64	3.15	3.64	9	0.94	2.50	2.89	11	1.10	1.92	2.22
	40	4	0.48	4.77	5.51	6	0.68	3.20	3.69	9	1.00	2.38	2.74	11	1.18	1.88	2.17
240°	20	3	0.58	7.93	9.15	5	0.73	3.82	4.42	7	0.96	2.83	3.27	9	1.07	1.90	2.20
	25	3	0.62	7.52	8.68	5	0.78	3.86	4.46	8	1.07	2.74	3.16	10	1.20	1.92	2.22
	30	**4**	**0.68**	**6.14**	**7.09**	**6**	**0.88**	**3.53**	**4.08**	**8**	**1.17**	**2.65**	**3.06**	**10**	**1.33**	**1.93**	**2.22**
	35	4	0.74	6.06	6.99	6	0.92	3.40	3.93	9	1.25	2.50	2.89	11	1.47	1.92	2.22
	40	4	0.80	5.97	6.89	6	1.02	3.60	4.15	9	1.33	2.38	2.74	11	1.57	1.88	2.17
270°	20	3	0.62	7.53	8.70	5	0.88	4.10	4.73	7	1.08	2.83	3.27	9	1.20	1.90	2.20
	25	3	0.66	7.12	8.22	5	0.98	4.31	4.98	8	1.20	2.74	3.16	10	1.35	1.92	2.22
	30	**4**	**0.73**	**5.86**	**6.76**	**6**	**1.10**	**3.92**	**4.53**	**8**	**1.32**	**2.65**	**3.06**	**10**	**1.50**	**1.93**	**2.22**
	35	4	0.78	5.67	6.55	6	1.15	3.78	4.36	9	1.41	2.50	2.89	11	1.65	1.92	2.22
	40	4	0.84	5.57	6.43	6	1.20	3.76	4.34	9	1.50	2.38	2.74	11	1.77	1.88	2.17
360°	20	3	0.66	6.01	6.94	5	1.05	3.67	4.23	7	1.44	2.83	3.27	9	1.60	1.90	2.20
	25	3	0.72	5.82	6.72	5	1.10	3.63	4.19	8	1.60	2.74	3.16	10	1.80	1.92	2.22
	30	**4**	**0.80**	**4.81**	**5.56**	**6**	**1.26**	**3.37**	**3.89**	**8**	**1.76**	**2.65**	**3.06**	**10**	**2.00**	**1.93**	**2.22**
	35	4	0.86	4.69	5.42	6	1.30	3.20	3.70	9	1.88	2.50	2.89	11	2.20	1.92	2.22
	40	4	0.90	4.47	5.17	6	1.40	3.29	3.80	9	2.00	2.38	2.74	11	2.36	1.88	2.17

Bold = Recommended pressure
Note: The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 30 PSI. Adjusting the radius reduction screw may be required to achieve catalog radius and flow.

Precision Distribution Control™ Adjustable Nozzle

PRECISION DISTRIBUTION CONTROL™ ADJUSTABLE NOZZLES PERFORMANCE DATA

		12A ● Green 12' radius Adjustable from 0° to 360° Trajectory: 28°				15A ● Black 15' radius Adjustable from 0° to 360° Trajectory: 28°				17A ● Gray 17' radius Adjustable from 0° to 360° Trajectory: 28°			
Arc	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
45°	20	11	0.25	1.59	1.84	14	0.39	1.51	1.75	16	0.49	1.46	1.68
	25	12	0.28	1.60	1.85	15	0.43	1.57	1.82	17	0.57	1.60	1.85
	30	**12**	**0.32**	**1.68**	**1.95**	**15**	**0.47**	**1.59**	**1.84**	**17**	**0.58**	**1.53**	**1.77**
	35	13	0.37	1.80	2.08	16	0.52	1.55	1.79	18	0.63	1.49	1.72
	40	13	0.42	1.91	2.21	17	0.57	1.60	1.85	19	0.69	1.55	1.79
90°	20	11	0.50	1.59	1.84	14	0.77	1.51	1.75	16	0.97	1.46	1.68
	25	12	0.55	1.60	1.85	15	0.86	1.57	1.82	17	1.13	1.60	1.85
	30	**12**	**0.63**	**1.68**	**1.95**	**15**	**0.93**	**1.59**	**1.84**	**17**	**1.15**	**1.53**	**1.77**
	35	13	0.73	1.80	2.08	16	1.03	1.55	1.79	18	1.25	1.49	1.72
	40	13	0.84	1.91	2.21	17	1.13	1.60	1.85	19	1.38	1.55	1.79
120°	20	11	0.67	1.59	1.84	14	1.03	1.51	1.75	16	1.29	1.46	1.68
	25	12	0.73	1.60	1.85	15	1.15	1.57	1.82	17	1.51	1.51	1.74
	30	**12**	**0.84**	**1.68**	**1.95**	**15**	**1.24**	**1.59**	**1.84**	**17**	**1.53**	**1.53**	**1.77**
	35	13	0.97	1.80	2.08	16	1.37	1.55	1.79	18	1.67	1.49	1.72
	40	13	1.12	1.91	2.21	17	1.51	1.60	1.85	19	1.84	1.47	1.70
180°	20	11	1.00	1.59	1.84	14	1.54	1.51	1.75	16	1.94	1.46	1.68
	25	12	1.10	1.60	1.85	15	1.72	1.57	1.82	17	2.26	1.51	1.74
	30	**12**	**1.26**	**1.68**	**1.95**	**15**	**1.86**	**1.59**	**1.84**	**17**	**2.30**	**1.53**	**1.77**
	35	13	1.46	1.80	2.08	16	2.06	1.55	1.79	18	2.50	1.49	1.72
	40	13	1.68	1.91	2.21	17	2.26	1.60	1.85	19	2.76	1.47	1.70
240°	20	11	1.33	1.59	1.84	14	2.05	1.51	1.75	16	2.59	1.46	1.68
	25	12	1.47	1.60	1.85	15	2.29	1.57	1.82	17	3.01	1.51	1.74
	30	**12**	**1.68**	**1.68**	**1.95**	**15**	**2.48**	**1.59**	**1.84**	**17**	**3.07**	**1.53**	**1.77**
	35	13	1.95	1.80	2.08	16	2.75	1.55	1.79	18	3.33	1.49	1.72
	40	13	2.24	1.91	2.21	17	3.01	1.60	1.85	19	3.68	1.47	1.70
270°	20	11	1.50	1.59	1.84	14	2.31	1.51	1.75	16	2.91	1.46	1.68
	25	12	1.65	1.60	1.85	15	2.58	1.57	1.82	17	3.39	1.51	1.74
	30	**12**	**1.89**	**1.68**	**1.95**	**15**	**2.79**	**1.59**	**1.84**	**17**	**3.45**	**1.53**	**1.77**
	35	13	2.19	1.80	2.08	16	3.09	1.55	1.79	18	3.75	1.49	1.72
	40	13	2.52	1.91	2.21	17	3.39	1.60	1.85	19	4.14	1.47	1.70
360°	20	11	2.00	1.59	1.84	14	3.08	1.51	1.75	16	3.88	1.46	1.68
	25	12	2.20	1.60	1.85	15	3.44	1.57	1.82	17	4.52	1.51	1.74
	30	**12**	**2.52**	**1.68**	**1.95**	**15**	**3.72**	**1.59**	**1.84**	**17**	**4.60**	**1.53**	**1.77**
	35	13	2.92	1.80	2.08	16	4.12	1.55	1.79	18	5.00	1.49	1.72
	40	13	3.36	1.91	2.21	17	4.52	1.60	1.85	19	5.52	1.47	1.70

Bold = Recommended pressure
Note: The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 30 PSI. Adjusting the radius reduction screw may be required to achieve catalog radius and flow.

PRO-SPRAY® FIXED ARC NOZZLES

FEATURES

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

OPERATING SPECIFICATIONS

- Recommended operating pressure: 30 PSI
- Specify the Pro-Spray® PRS30 pop-up for accurate pressure regulation of 30 PSI

PRO-SPRAY® FIXED ARC 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
	(5')	(8')	(10')	(12')	(15')	(17')

PRO-SPRAY® FIXED ARC NOZZLES PERFORMANCE DATA

5 5' radius
Fixed: ¼, ½, Full
● Blue Trajectory: 0°

8 8' radius
Fixed: ¼, ⅓, ½, Full
● Brown Trajectory: 0°

10 10' radius
Fixed: ¼, ⅓, ½, Full
● Red Trajectory: 15°

Arc	Position	Pressure PSI	5 Radius ft.	5 Flow GPM	5 Precip in/hr ■	5 Precip in/hr ▲	8 Radius ft.	8 Flow GPM	8 Precip in/hr ■	8 Precip in/hr ▲	10 Radius ft.	10 Flow GPM	10 Precip in/hr ■	10 Precip in/hr ▲
90°	Q	20	4	0.09	2.25	2.60	7	0.20	1.54	1.78	9	0.34	1.63	1.88
		25	4	0.11	2.54	2.94	8	0.22	1.33	1.53	10	0.39	1.48	1.71
		30	**5**	**0.12**	**1.80**	**2.08**	**8**	**0.24**	**1.46**	**1.69**	**10**	**0.42**	**1.63**	**1.89**
		35	6	0.13	1.36	1.57	9	0.26	1.25	1.45	11	0.46	1.47	1.69
		40	6	0.14	1.46	1.69	9	0.28	1.34	1.55	11	0.49	1.57	1.82
120°	T	20					7	0.26	1.54	1.78	9	0.46	1.63	1.88
		25					8	0.29	1.33	1.53	10	0.51	1.48	1.71
		30	**Use Hunter 4A or 6A Nozzle**				**8**	**0.32**	**1.46**	**1.69**	**10**	**0.57**	**1.63**	**1.89**
		35					9	0.35	1.25	1.45	11	0.61	1.47	1.69
		40					9	0.38	1.34	1.55	11	0.66	1.57	1.82
180°	H	20	4	0.19	2.25	2.60	7	0.38	1.49	1.72	9	0.70	1.67	1.92
		25	4	0.21	2.54	2.94	8	0.43	1.28	1.48	10	0.79	1.53	1.76
		30	**5**	**0.23**	**1.80**	**2.08**	**8**	**0.47**	**1.41**	**1.63**	**10**	**0.88**	**1.69**	**1.95**
		35	6	0.25	1.36	1.57	9	0.51	1.21	1.39	11	0.95	1.52	1.75
		40	6	0.27	1.46	1.69	9	0.54	1.29	1.49	11	1.03	1.63	1.89
240°	TT	20												
		25												
		30	**Use Hunter 4A or 6A Nozzle**				**Use Hunter 8A Nozzle**				**Use Hunter 10A Nozzle**			
		35												
		40												
270°	TQ	20												
		25												
		30	**Use Hunter 4A or 6A Nozzle**				**Use Hunter 8A Nozzle**				**Use Hunter 10A Nozzle**			
		35												
		40												
360°	F	20	4	0.37	2.25	2.60	7	0.78	1.54	1.78	9	1.29	1.53	1.77
		25	4	0.42	2.54	2.94	8	0.88	1.33	1.53	10	1.45	1.39	1.61
		30	**5**	**0.47**	**1.80**	**2.08**	**8**	**0.97**	**1.46**	**1.69**	**10**	**1.59**	**1.53**	**1.76**
		35	6	0.51	1.36	1.57	9	1.05	1.25	1.45	11	1.72	1.37	1.58
		40	6	0.55	1.46	1.69	9	1.13	1.34	1.55	11	1.84	1.46	1.69

Bold = Recommended pressure

PRO-SPRAY® FIXED ARC NOZZLES PERFORMANCE DATA

12 — 12' radius — Fixed: ¼, ⅓, ½, ⅔, ¾, Full — Trajectory: 28° — ● Green

15 — 15' radius — Fixed: ¼, ⅓, ½, ⅔, ¾, Full — Trajectory: 28° — ● Black

17 — 17' radius — Fixed: ¼, ½ — Trajectory: 28° — ● Gray

Arc	Position	Pressure PSI	12 Radius ft.	12 Flow GPM	12 Precip in/hr ■	12 Precip in/hr ▲	15 Radius ft.	15 Flow GPM	15 Precip in/hr ■	15 Precip in/hr ▲	17 Radius ft.	17 Flow GPM	17 Precip in/hr ■	17 Precip in/hr ▲
90°	Q	20	11	0.54	1.71	1.98	14	0.78	1.53	1.77	16	0.93	1.40	1.61
		25	12	0.61	1.62	1.87	15	0.88	1.51	1.74	17	1.05	1.39	1.61
		30	**12**	**0.67**	**1.78**	**2.06**	**15**	**0.97**	**1.67**	**1.92**	**17**	**1.15**	**1.54**	**1.77**
		35	13	0.72	1.65	1.90	16	1.06	1.59	1.84	18	1.25	1.49	1.72
		40	13	0.78	1.77	2.04	17	1.14	1.52	1.75	19	1.34	1.43	1.65
120°	T	20	11	0.72	1.71	1.98	14	1.04	1.53	1.77				
		25	12	0.81	1.62	1.87	15	1.17	1.51	1.74				
		30	**12**	**0.89**	**1.78**	**2.06**	**15**	**1.30**	**1.67**	**1.92**	**Use Hunter 17A Nozzle**			
		35	13	0.97	1.65	1.90	16	1.41	1.59	1.84				
		40	13	1.04	1.77	2.04	17	1.52	1.52	1.75				
180°	H	20	11	1.05	1.67	1.93	14	1.51	1.48	1.71	16	1.91	1.43	1.66
		25	12	1.18	1.58	1.83	15	1.69	1.45	1.67	17	2.15	1.43	1.65
		30	**12**	**1.30**	**1.74**	**2.01**	**15**	**1.86**	**1.59**	**1.84**	**17**	**2.37**	**1.58**	**1.82**
		35	13	1.42	1.61	1.86	16	2.02	1.52	1.75	18	2.57	1.53	1.76
		40	13	1.52	1.73	2.00	17	2.16	1.44	1.66	19	2.76	1.47	1.70
240°	TT	20	11	1.40	1.67	1.93	14	2.01	1.48	1.71				
		25	12	1.58	1.58	1.83	15	2.26	1.45	1.67				
		30	**12**	**1.74**	**1.74**	**2.01**	**15**	**2.48**	**1.59**	**1.84**	**Use Hunter 17A Nozzle**			
		35	13	1.89	1.61	1.86	16	2.69	1.52	1.75				
		40	13	2.03	1.73	2.00	17	2.88	1.44	1.66				
270°	TQ	20	11	1.61	1.67	1.93	14	2.34	1.48	1.71				
		25	12	1.82	1.58	1.83	15	2.64	1.45	1.67				
		30	**12**	**2.00**	**1.74**	**2.01**	**15**	**2.92**	**1.59**	**1.84**	**Use Hunter 17A Nozzle**			
		35	13	2.17	1.61	1.86	16	3.18	1.52	1.75				
		40	13	2.33	1.73	2.00	17	3.42	1.44	1.66				
360°	F	20	11	2.17	1.72	1.99	14	3.04	1.49	1.72				
		25	12	2.45	1.63	1.89	15	3.41	1.46	1.69				
		30	**12**	**2.70**	**1.80**	**2.08**	**15**	**3.75**	**1.61**	**1.85**	**Use Hunter 17A Nozzle**			
		35	13	2.93	1.67	1.93	16	4.07	1.53	1.76				
		40	13	3.15	1.80	2.07	17	4.36	1.45	1.68				

Bold = Recommended pressure

SHORT RADIUS NOZZLES

FEATURES

- Specifically designed for controlled irrigation of close-in spaces
- Built to last in harsh conditions
- Available in 2', 4' and 6' radius versions

SHORT RADIUS NOZZLES PERFORMANCE DATA

Lt. Brown

Arc	Pressure PSI	Position	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	20	2Q	2	0.09	8.66	10.0
	25		2	0.10	9.63	11.11
	30		**2**	**0.11**	**10.59**	**12.23**
	35		2	0.12	11.55	13.34
	40		2	0.14	13.48	15.56
180°	20	2H	2	0.12	5.78	6.67
	25		2	0.14	6.74	7.78
	30		**2**	**0.16**	**7.70**	**8.89**
	35		2	0.18	8.66	10.0
	40		2	0.18	8.66	10.0

SHORT RADIUS NOZZLES PERFORMANCE DATA

Lt. Green

Arc	Pressure PSI	Position	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	20	4Q	4	0.20	4.81	5.56
	25		4	0.22	5.29	6.11
	30		**4**	**0.22**	**5.29**	**6.11**
	35		4	0.24	5.78	6.67
	40		4	0.24	5.78	6.67
180°	20	4H	4	0.41	4.93	5.70
	25		4	0.43	5.17	5.97
	30		**4**	**0.44**	**5.29**	**6.11**
	35		4	0.46	5.53	6.39
	40		4	0.46	5.53	6.39

SHORT RADIUS NOZZLES PERFORMANCE DATA

Lt. Blue

Arc	Pressure PSI	Position	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	20	6Q	6	0.47	5.03	5.80
	25		6	0.49	5.24	6.05
	30		**6**	**0.51**	**5.45**	**6.30**
	35		6	0.52	5.56	6.42
	40		6	0.52	5.56	6.42
180°	20	6H	6	0.95	5.08	5.87
	25		6	0.97	5.19	5.99
	30		**6**	**0.98**	**5.24**	**6.05**
	35		6	0.99	5.29	6.11
	40		6	1.00	5.35	6.17

Bold = Recommended pressure

2Q
Radius: 2'

2H
Radius: 2'

4Q
Radius: 4'

4H
Radius: 4'

6Q
Radius: 6'

6H
Radius: 6'

STRIP PATTERN NOZZLES

FEATURES

- Specifically designed for accurate coverage of strip areas
- Available in an array of models built to water unique spaces
- Built to last in harsh conditions

STRIP PATTERN NOZZLE PERFORMANCE DATA

Arc	Pressure PSI	Width x Length	Flow GPM
LCS-515	20	4 x 14	0.55
	25	5 x 15	0.60
	30	**5 x 15**	**0.65**
	35	5 x 15	0.70
	40	5 x 15	0.75
RCS-515	20	4 x 14	0.55
	25	5 x 15	0.60
	30	**5 x 15**	**0.65**
	35	5 x 15	0.70
	40	5 x 15	0.75
SS-530	20	4 x 28	1.10
	25	5 x 30	1.20
	30	**5 x 30**	**1.30**
	35	5 x 30	1.40
	40	5 x 30	1.50
ES-515	20	4 x 14	0.55
	25	5 x 15	0.60
	30	**5 x 15**	**0.65**
	35	5 x 15	0.70
	40	5 x 15	0.75
CS-530	20	4 x 28	1.10
	25	5 x 30	1.20
	30	**5 x 30**	**1.30**
	35	5 x 30	1.40
	40	5 x 30	1.50
SS-918	20	8 x 17	1.45
	25	9 x 18	1.58
	30	**9 x 18**	**1.72**
	35	9 x 18	1.88
	40	9 x 18	2.08

Bold = Recommended pressure

Left Corner Strip
Rectangle: 5' x 15'

Right Corner Strip
Rectangle: 5' x 15'

Side Strip
Rectangle: 5' x 30'

Side Strip
Rectangle: 9' x 18'

Center Strip
Rectangle: 5' x 30'

End Strip
Rectangle: 5' x 15'

STREAM NOZZLES

FEATURES

- Adjustable Arc from 25°-360°
- Offered in 2 adjustable radius options
- Lower application rate to avoid runoff
- Multiple streams provide even coverage

MODEL S-8A STREAM SPRAY NOZZLE PERFORMANCE DATA

Arc S-8A	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	20	7	0.29	2.28	2.63
	25	8	0.32	1.93	2.22
	30	**8**	**0.38**	**2.11**	**2.43**
	35	8	0.41	2.29	2.64
	40	9	0.54	1.95	2.25
180°	20	7	0.54	2.12	2.45
	25	8	0.57	1.71	1.98
	30	**8**	**0.60**	**1.80**	**2.08**
	35	8	0.63	1.89	2.19
	40	9	0.66	1.57	1.81
360°	20	7	1.08	2.12	2.45
	25	8	1.11	1.67	1.93
	30	**8**	**1.15**	**1.73**	**2.00**
	35	8	1.18	1.77	2.05
	40	9	1.22	1.45	1.67

Bold = Recommended pressure

MODEL S-16A STREAM SPRAY NOZZLE PERFORMANCE DATA

Arc S-16A	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
90°	20	15	0.40	0.68	0.79
	25	16	0.46	0.69	0.80
	30	**16**	**0.50**	**0.75**	**0.87**
	35	17	0.54	0.72	0.83
	40	18	0.57	0.68	0.78
180°	20	15	0.67	0.57	0.66
	25	16	0.80	0.60	0.69
	30	**16**	**0.88**	**0.66**	**0.76**
	35	17	0.97	0.65	0.75
	40	18	1.04	0.62	0.71
360°	20	15	1.19	0.51	0.59
	25	16	1.46	0.55	0.63
	30	**16**	**1.66**	**0.62**	**0.72**
	35	17	1.82	0.61	0.70
	40	18	1.99	0.59	0.68

Bold = Recommended pressure

STREAM NOZZLES

S-8A
7' to 9'

S-16A
15' to 18'

S-8A

BUBBLER NOZZLES

FEATURES

- Pressure compensation ensures uniform output across various pressures
- Provides the correct amount of water, reducing runoff or waste
- Nozzle threaded for use with Pro-Spray®

MULTI-STREAM BUBBLER PERFORMANCE DATA

Arc		Model	Flow GPM	Radius ft.
		MSBN-25Q	0.25	1.0
		MSBN-50Q	0.50	1.5
		MSBN-50H	0.50	1.0
		MSBN-10H	1.00	1.5
		MSBN-10F	1.00	1.0
		MSBN-20F	2.00	1.5

Notes:
Typical spacing 2 to 4 ft. Flows shown for pressures between 15 and 70 PSI.

Multi-Stream Bubbler

MULTI-STREAM BUBBLER NOZZLES

MSBN-25Q
Flow: 0.25 GPM

MSBN-50Q/50H
Flow: 0.50 GPM

MSBN-10H/10F
Flow: 1.0 GPM

MSBN-20F
Flow: 2.0 GPM

PCN PERFORMANCE DATA

	Model	Flow GPM	Pattern Type
	25	0.25	Trickle
	50	0.50	Trickle
	10	1.00	Umbrella
	20	2.00	Umbrella

Notes:
Typical spacing 2 to 4 ft. Flows shown for pressures between 15 and 70 PSI.

PCN

PCN BUBBLER NOZZLES

PCN-25
Flow: 0.25 GPM

PCN-50
Flow: 0.50 GPM

PCN-10
Flow: 1.0 GPM

PCN-20
Flow: 2.0 GPM

MSBN Installed on PROS-04

Combining Hunter Bubbler Nozzles with the Pro-Spray provides the watering precision of pressure compensating bubblers paired with the benefit of retracting the nozzle out of sight.

BUBBLERS

FEATURES

- Pressure compensation ensures uniform output across various pressures
- ½" inlet
- Flow marked top for easy identification

PCB PERFORMANCE DATA

	Model	Flow GPM	Pattern Type
	25	0.25	Trickle
	50	0.50	Trickle
	10	1.00	Umbrella
	20	2.00	Umbrella

Notes:
Typical spacing 2 to 4 ft. Flows shown for pressures between 15 and 70 PSI.

PCB

PRESSURE COMPENSATING BUBBLERS

PCB

PCB-R

AFB PERFORMANCE DATA

	Model	Flow GPM	Pattern Type
	AFB	< 2.0	Trickle/ Umbrella

AFB

ADJUSTABLE FLOOD BUBBLER

AFB

5-CST-B BUBBLER NOZZLE PERFORMANCE DATA

	Pressure (PSI)	Radius (ft.)	Flow (GPM)
	20	5	0.30
	25	5	0.32
	30	**5**	**0.38**
	35	5	0.40
	40	5	0.42

5-CST-B

DUAL-STREAM BUBBLER NOZZLE

5-CST-B

HUNTER SPRAY NOZZLES

Built to Last

SPRAY BODIES:

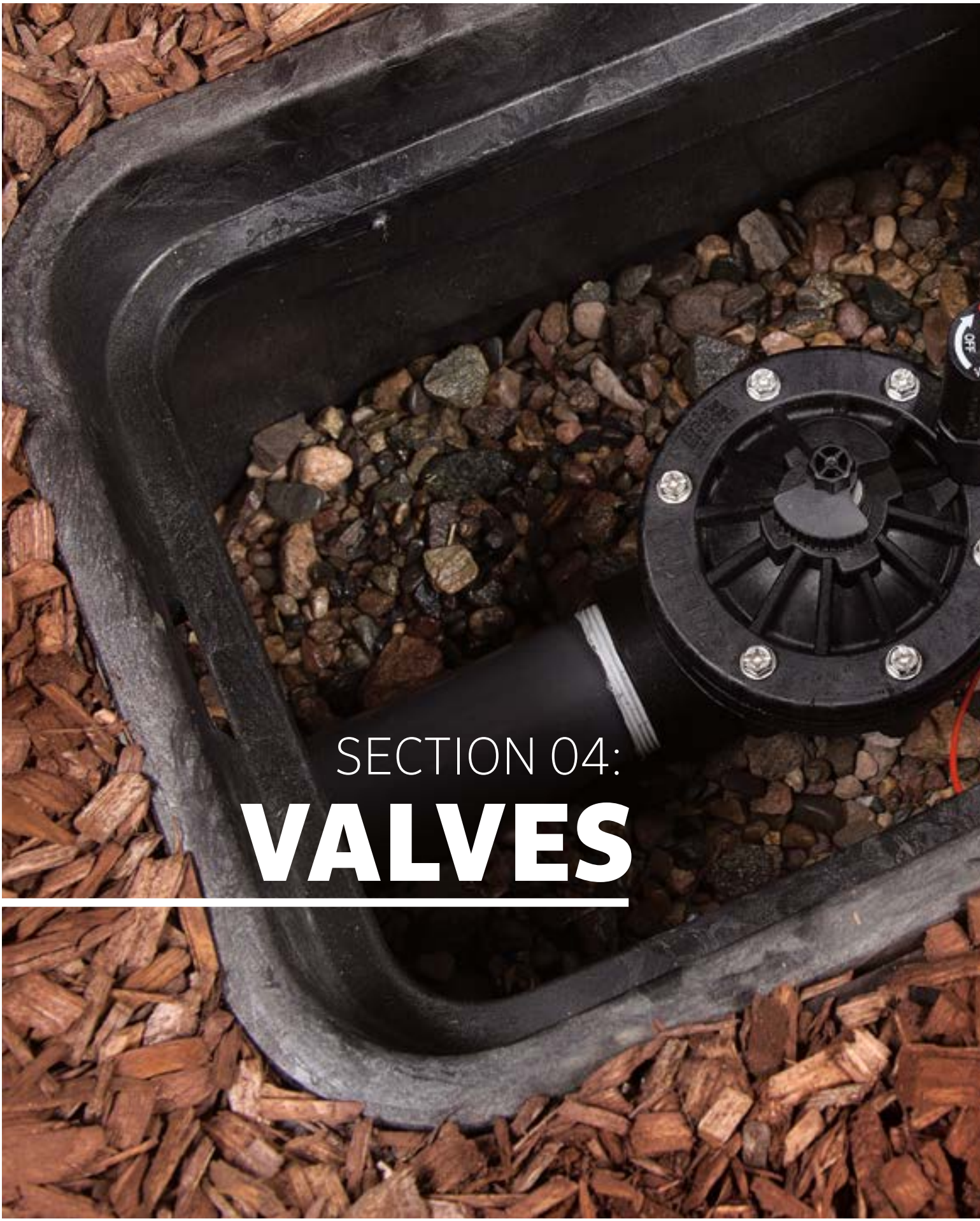
Always Perform Under Pressure
With an industry leading 500+ PSI burst pressure, the Pro-Spray® is built to perform in the most demanding irrigation systems in the world.

Innovative Seal Design Prevents Leaks
Most spray bodies leak when the cap is loosened only a quarter turn. The Pro-Spray can handle over one full turn of the cap with no leak or loss of performance.

SPRAY NOZZLES:

Designed for Complete Coverage
The industry's strongest edges and uniform coverage at full radius means no section of landscape is missed.

Thick Droplets Get the Job Done Right
Hunter spray nozzles disperse the largest water droplets of any spray nozzle on the market, so water is not deflected by wind or held back by thick turf.



SECTION 04:

VALVES

ADVANCED FEATURES

DURABLE & RELIABLE

FLOW CONTROL

Available on:

PGV, ICV, IBV

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

ACCU-SYNC® PRESSURE REGULATION

Available on:

PGV, ICV, IBV

Avoid sprinkler over-pressure conditions and experience significant water savings with Hunter's Accu-Sync pressure regulator. This option is available in adjustable pressure or fixed pressure models.

RECLAIMED WATER IDENTIFICATION

Available on:

PGV, ICV, IBV

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

FILTER SENTRY™

Available on:

ICV, IBV

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

VALVES COMPARISON CHART

QUICK SPECS	1" PGV & JAR TOP	PGV	ICV	ICV FILTER SENTRY™	IBV FILTER SENTRY™
SIZE	1"	1½", 2"	1", 1½", 2", 3"	1", 1½", 2", 3"	1", 1½", 2", 3"
FLOW GPM	0.2 to 40	20 to 150	0.1 to 300	0.1 to 300	0.1 to 300
FEATURES					
CAPTIVE BONNET BOLTS	●	●	●	●	
EPDM DIAPHRAGM AND SEAT			Standard	Standard	Standard
WARRANTY	2 Years	2 Years	5 Years	5 Years	5 Years
ADVANCED FEATURES					
FLOW CONTROL	Optional	●	●	●	●
FILTER SENTRY™			User Installed	Factory Installed	Factory Installed
ACCU-SYNC® CAPABLE	●	●	●	●	●
RECLAIMED WATER ID HANDLE	User Installed	User Installed	User Installed	Factory Installed	
RECLAIMED WATER ID TAG			User Installed	Factory Installed	Factory Installed
APPLICATIONS					
RESIDENTIAL	●	●	●		
COMMERCIAL		●	●	●	●
POTABLE WATER	●	●	●	●	●
RECLAIMED WATER			●	●	●
SECONDARY WATER				●	●
PRESSURE REGULATION	●	●	●	●	●
HIGH PRESSURE SYSTEMS			●	●	●
LOW PRESSURE SYSTEMS	●	●	●	●	●
HIGH TEMPERATURE LOCATIONS			●	●	●

PGV-ASV

Size: **¾", 1"**
Flow: **0.2 to 40 GPM**

FEATURES

- External and internal manual bleed allows quick and easy "at the valve" activation
- Durable six-bolt bonnet design for maximum strength
- Removable anti-siphon cap for simple servicing
- Double-beaded diaphragm seal design assures leak-free performance
- Optional 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: 150° F
- Warranty period: 2 years
- ▸ Flow control
- ▸ Optional reclaimed water ID handle
- ▸ Accu-Sync® pressure regulation

OPERATING SPECIFICATIONS

- Flow: 0.2 to 40 GPM
- Recommended pressure range: 20 to 150 PSI

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

▸ = *Advanced Feature descriptions on page 71*

PGV-075-ASV
Inlet Diameter: ¾"
Height: 5½"
Length: 5¾"
Width: 2½"

PGV-101-ASV
Inlet Diameter: 1"
Height: 5½"
Length: 5¾"
Width: 2½"

VALVES

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-075 = ¾" Anti-siphon valves with flow control **PGV-101** = 1" Anti-siphon valves with flow control	**ASV** = Female NPT **ASV-S** = Slip x Slip	**LS** = Valve without solenoid	**(blank)** = No option **R** = Reclaimed water ID handle **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20*** = *20 PSI*, **30*** = *30 PSI* **40*** = *40 PSI*, **50*** = *50 PSI* **70*** = *70 PSI*

Examples:
PGV-075 - ASV = ¾" Anti-siphon valve with flow control, and female NPT
PGV-101 - ASV - S - DC = 1" Anti-siphon valve with flow control, slip x slip, and DC latching solenoid
PGV-101 - ASV - R = 1" Anti-siphon valve with flow control, female NPT, and reclaimed water ID handle

PGV-ASV PRESSURE LOSS IN PSI

Flow (GPM)	¾" Globe	1" Globe
1	1	1
5	2	2
10	2	2
15	3	3
20	6	6
25		6
30		9
35		16
40		20

1" PGV & PGV JAR TOP

Size: **1"**
Flow: **0.2 to 40 GPM**

FEATURES

- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design assures leak-free performance
- Durable glass-filled nylon threaded bonnet ring allows easy access without tools (Jar Top)
- Optional: 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: 150° F
- Warranty period: 2 years
- ▸ Flow control
- ▸ Accu-Sync® pressure regulation
- ▸ Optional reclaimed water ID handle

OPERATING SPECIFICATIONS

- Flow:
  - PGV-100: 0.2 to 40 GPM
  - PGV-101: 0.2 to 40 GPM
- Recommended pressure range: 20 to 150 PSI

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

FACTORY INSTALLED OPTIONS

- Valve without solenoid
- DC latching solenoid

USER INSTALLED OPTIONS

- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu-Sync pressure regulator*
- Reclaimed water ID handle for PGV-101 models (P/N 269205)

▸ = *Advanced Feature descriptions on page 71*

* Accu-Sync product information on page 79

PGV-100G
Inlet Diameter: 1"
Height: 5"
Length: 4½"
Width: 2½"

PGV-101G
Inlet Diameter: 1"
Height: 5"
Length: 4½"
Width: 2½"

PGV-100JTG
Inlet Diameter: 1"
Height: 5½"
Length: 4½"
Width: 3¼"

PGV-101JTG
Inlet Diameter: 1"
Height: 5½"
Length: 4½"
Width: 3¼"

PGV Jar Top

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-100G = 1" Globe valve, without flow control **PGV-101G** = 1" Globe valve, with flow control **PGV-100A** = 1" Angle valve, without flow control **PGV-101A** = 1" Angle valve, with flow control	**(blank)** = NPT threads **S** = Slip x Slip *(only available in 100G and 101G models)*	**(blank)** = No Option **DC** = DC latching solenoid **LS** = Valve without solenoid	**(blank)** = No option **R** = Reclaimed water ID handle *(Except for PGV-100)* **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync® adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *20 PSI*, **30 *** = *30 PSI*, **40 *** = *40 PSI* **50 *** = *50 PSI*, **70 *** = *70 PSI*
PGV-100 = 1" Globe valve, without flow control **PGV-101** = 1" Globe valve, with flow control	**MM** = Male x male (NPT) **MB** = Male NPT x 1" Barb **MB125** = Male NPT x 1¼" Barb		

Example:
PGV-101G - S - DC = 1" Globe valve, with flow control, slip x slip, and DC latching solenoid

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 = 1" Globe jar top valve, without flow control **PGV-101JT** = 1" Globe jar top valve, with flow control	**G** = Female NPT **GS** = Slip x Slip **MM** = Male x male (NPT) **MB** = Male NPT x 1" Barb **MB075** = Male NPT x ¾" Barb **MB125** = Male NPT x 1¼" Barb	**(blank)** = No option **LS** = Valve without solenoid **DC** = DC latching solenoid	**(blank)** = No option **R** = Reclaimed water ID handle *(Except for PGV-100JT)* **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *20 PSI*, **30 *** = *30 PSI*, **40 *** = *40 PSI*, **50 *** = *50 PSI* **70 *** = *70 PSI*

Examples:
PGV-101JT - G = 1" Globe jar top valve, with flow control, and 1" female
PGV-101JT - GS - R = 1" Globe jar top valve, with flow control, slip x slip, and reclaimed water ID handle
PGV-101JT - G - R = 1" Globe jar top valve, with flow control, 1" female, and reclaimed water ID handle
PGV-100JT - MB075 - DC = 1" Globe jar top valve, without flow control, with 1" male x ¾" barb, and DC latching solenoid

PGV PRESSURE LOSS IN PSI

Flow GPM	1" Globe
1	1.1
5	1.6
10	1.9
15	2.3
20	3.3
30	9.0
35	16
40	20

PGV-100-G Installed

PGV

Size: **1½", 2"**
Flow: **20 to 150 GPM**

FEATURES

- Sizes: 1½", 2"
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design assures leak-free performance
- Optional: DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 150° F
- Warranty period: 2 years
- ▸ Flow control
- ▸ Accu-Sync® pressure regulation
- ▸ Optional reclaimed water ID handle

PGV-151
Inlet Diameter: 1½"
Height: 7½"
Length: 5¾"
Width: 4½"

PGV-201
Inlet Diameter: 2"
Height: 8"
Length: 6¾"
Width: 5¼"

OPERATING SPECIFICATIONS

- Flow:
  - PGV-151: 20 to 120 GPM
  - PGV-201: 20 to 150 GPM
- Recommended pressure range: 20 to 150 PSI

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

▸ = *Advanced Feature descriptions on page 71*

PGV Installed

PGV PRESSURE LOSS IN PSI

Flow GPM	1½" Globe	1½" Angle	2" Globe	2" Angle
20	3	3	1	1
30	3	3	1	2
35	3	3	2	2
40	3	3	2	2
50	4	3.5	1	1
60	5	4	2	2
80	5.5	4.5	3	2
100	9	8	5	3
120	11.5	10.5	6	5
135			8	7
150			10	9

PGV 1.5" & 2" – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 **Model**	2 **Inlet/Outlet**	3 **Options** (Factory Installed)	4 **Options** (User Installed)
PGV-151 = 1½" Globe/Angle valve, with flow control **PGV-201** = 2" Globe/Angle valve, with flow control	**(blank)** = NPT threads	**(blank)** = No Option **DC** = DC latching solenoid **LS** = Valve without solenoid	**(blank)** = No option **R** = Reclaimed water ID handle **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *20 PSI*, **30 *** = *30 PSI*, **40 *** = *40 PSI* **50 *** = *50 PSI*, **70 *** = *70 PSI*

Example:
PGV-151 - DC - R = 1 ½" Globe/angle valve, with flow control, DC latching solenoid, and reclaimed water ID handle

ICV

Size: **1", 1½", 2", 3"**
Flow: **0.1 to 300 GPM**

FEATURES

- Sizes: 1", 1½", 2", 3"
- 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 assures leak-free performance
- Fabric reinforced EPDM diaphragm and EPDM seat ensure greater performance in all water conditions
- Optional DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low flow capability allows for use of Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 150° F
- Warranty period: 5 years
- ▸ Flow control
- ▸ Filter Sentry™
- ▸ Optional reclaimed water ID tag
- ▸ Accu-Sync® pressure regulation

OPERATING SPECIFICATIONS

- Flow:
  - ICV-101G: 0.1 to 40 GPM
  - ICV-151G: 20 to 150 GPM
  - ICV-201G: 40 to 200 GPM
  - ICV-301G: 150 to 300 GPM
- Recommended pressure range: 20 to 220 PSI

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
  - 350 mA inrush, 190 mA holding, 60 Hz
  - 370 mA inrush, 210 mA holding, 50 Hz

▸ = *Advanced Feature descriptions on page 71*

ICV-101G
Inlet Diameter: 1"
Height: 5½"
Length: 3¾"
Width: 4"

ICV-151G
Inlet Diameter: 1½"
Height: 7⅛"
Length: 6⅞"
Width: 5½"

ICV-201G
Inlet Diameter: 2"
Height: 7⅛"
Length: 6⅞"
Width: 5½"

ICV-301
Inlet Diameter: 3"
Height: 10¾"
Length: 9¼"
Width: 7⅜"

Filter Sentry

ICV PRESSURE LOSS IN PSI

Flow (GPM)	1" Globe	1½" Globe	2" Globe	3" Globe	3" Angle
0.1	2.0				
0.5	2.0				
1	2.0				
5	2.5				
10	3.0				
15	3.0				
20	3.0	1.5			
30	9.0	1.5			
40	20.0	1.7	0.8		
50		2.2	1.2		
60		3.0	1.7		
75		3.9	2.4		
90		5.5	3.2		
100		7.0	4.2		
120		10.9	6.5		
135		12.7	7.9		
150		16.2	9.8	2.5	1.9
175			13.3	3.0	2.4
200			17.7	4.1	3.3
225				5.3	4.3
250				6.7	5.5
275				8.3	6.9
300				10.1	8.5

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
ICV-101G = 1" Globe valve	**(blank)** = NPT threads	**(blank)** = No option	**(blank)** = No option
ICV-151G = 1½" Globe valve		**FS** = Filter Sentry	**R** = Reclaimed water ID tag
ICV-201G = 2" Globe valve		**DC** = DC latching solenoid	**CC** = Solenoid conduit cover
ICV-301 = 3" Globe/Angle valve			**DC** = DC latching solenoid
			AS-ADJ = Accu-Sync adjustable pressure regulator
			AS-xx* = Accu-Sync pressure regulator **20** * = *20 PSI*, **30** * = *30 PSI* **40** * = *40 PSI*, **50** * = *50 PSI* **70** * = *70 PSI*

Examples:
ICV-101G = 1" Globe valve, NPT threads
ICV-151G - FS - R = 1½" Globe valve, Filter Sentry, and reclaimed water ID tag

VALVES

IBV

Size: **1", 1½", 2", 3"**
Flow: **0.1 to 300 GPM**

FEATURES

- Factory-installed Filter Sentry™ diaphragm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design assures leak-free performance
- Fabric reinforced EPDM diaphragm and EPDM seat ensure superior performance in all conditions
- Optional 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: 150° F
- Warranty period: 5 years
- ▸ Heavy-duty flow control
- ▸ Accu-Sync® pressure regulation

OPERATING SPECIFICATIONS

- Flow:
  - IBV-101G-FS: 0.1 to 40 GPM
  - IBV-151G-FS: 20 to 150 GPM
  - IBV-201G-FS: 40 to 200 GPM
  - IBV-301G-FS: 150 to 300 GPM
- Recommended pressure range: 20 to 220 PSI

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
- 350 mA inrush, 190 mA holding, 60 HZ
- 370 mA inrush, 210 mA holding, 50 HZ

FACTORY INSTALLED OPTIONS

- DC latching solenoid

USER INSTALLED OPTIONS

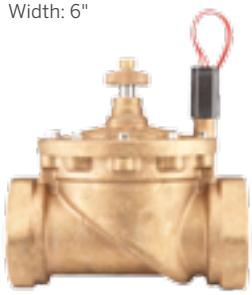
- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu-Sync pressure regulator
- Reclaimed water ID tag (P/N 700392)

▸ = *Advanced Feature descriptions on page 71*

IBV-101G-FS
Inlet Diameter: 1"
Height: 4½"
Length: 3½"
Width: 5¼"

IBV-151G-FS
Inlet Diameter: 1½"
Height: 6¼"
Length: 5¼"
Width: 6"

IBV-201G-FS
Inlet Diameter: 2"
Height: 6"
Length: 5¼"
Width: 7"



IBV-301G-FS
Inlet Diameter: 3"
Height: 9"
Length: 9"
Width: 7¼"

Filter Sentry

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
IBV-101G-FS = 1" Globe valve **IBV-151G-FS** = 1½" Globe valve **IBV-201G-FS** = 2" Globe valve **IBV-301G-FS** = 3" Globe/ Angle valve	**(blank)** = NPT threads	**(blank)** = No option **DC** = DC latching solenoid	**(blank)** = No option **R** = Reclaimed water ID tag **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator. **20** * = *20 PSI*, **30** * = *30 PSI*, **40** * = *40 PSI*, **50** * = *50 PSI*, **70** * = *70 PSI*

IBV PRESSURE LOSS IN PSI

Flow GPM	1" Globe	1½" Globe	2" Globe	3" Globe
0.1	2.0			
0.5	2.0			
1	2.0			
5	2.5			
10	3.0			
15	3.0			
20	3.0	1.5		
30	4.0	1.5		
40	7.0	1.7	0.8	
50		2.2	1.2	
60		3.0	1.7	
75		3.9	2.4	
90		5.5	3.2	
100		7.0	4.2	
120		10.9	6.5	
135		12.7	7.9	
150		16.2	9.8	2.5
175			13.3	3.0
200			17.7	4.1
225				5.3
250				6.7
275				8.3
300				10.1

Note:
Charts based on full-open flow control position

ACCU-SYNC®

Type: **Pressure Regulator**

OPERATING SPECIFICATIONS

- Regulation from 20 to 100 PSI
- Static pressure: 150 PSI
- Required dynamic pressure differential: 15 PSI
- Works with AC and DC latching solenoids
- Works with any Hunter valve

ACCU-SYNC VALVE RECOMMENDED FLOW RANGE

Valve	Flow GPM
PGV-100/101	5 to 40
PGV-151	20 to 120
PGV-201	40 to 150
ICV-101	5 to 40
ICV-151	20 to 150
ICV-201	40 to 200
ICV-301	150 to 300
IBV-101	5 to 40
IBV-151	20 to 150
IBV-201	40 to 200
IBV-301	150 to 300

ACCU-SYNC APPLICATIONS

●	**Adjustable 20–100 PSI**	For full customization, the adjustable Accu-Sync can regulate pressure from 20 to 100 PSI
●	**Fixed 30 PSI**	Ideal for spray systems
●	**Fixed 40 PSI**	Ideal for Hunter's MP Rotator and large in-line drip systems
●	**Fixed 50 PSI**	Ideal for mid-range rotors
●	**Fixed 70 PSI**	Ideal for larger rotors

ADJUSTABLE

AS-ADJ
Height with solenoid:3¼"

ADAPTER

SOLENOID ADAPTER

FIXED

AS-30
Height with solenoid: 3¼"

AS-40
Height with solenoid: 3¼"

AS-50
Height with solenoid: 3¼"

AS-70
Height with solenoid: 3¼"

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

VALVES

QUICK COUPLERS

Size: **¾", 1"**
Pressure Rating: **150 PSI**

FEATURES

- 100% interchangeable with major brands*
- Red brass and stainless steel construction
- TuffTop™ thermoplastic locking and non-locking covers
- Optional WingThing™ stabilization and ACME key connection
- Stainless steel lug on 1" and 1¼" keys
- Spring-loaded covers with stainless steel springs for positive closing and protection of valve's sealing components
- Warranty period: 5 years

** See compatiblity chart on page 149*

Quick Couplers

Reclaimed Water Option

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

HQ PRESSURE LOSS IN PSI

Flow (GPM)	HQ-3	HQ-33	HQ-44	HQ-5
5	0.8	1.0		
10	1.8	2.0		
15	4.1	4.3	2.2	
20	7.2	7.6	4.4	1.0
30			11.5	3.0
40				6.3
50				9.2
60				13.0
70				19.8

QUICK COUPLER, KEY AND HOSE SWIVEL CHARTS

Model	Inlet Threads	Slots	Body	Color*	Locking	Key	Swivels
HQ-3RC	¾"	2	1 - Piece	Yellow	No	HK-33	HS-0
HQ-33DRC	¾"	2	2 - Piece	Yellow	No	HK-33	HS-0
HQ-33DLRC	¾"	2	2 - Piece	Yellow	Yes	HK-33	HS-0
HQ-44RC	1" NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-44LRC	1" NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-44RC-AW	1" NPT	ACME	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	1" NPT	ACME	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-5RC	1" NPT	2	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" NPT	2	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2

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

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

1 Model	2 Cover Options	3 Additional Options
HQ3 = ¾" Inlet, 1-piece body, 2 slots	**RC** = Yellow rubber cover	**(blank)** = No option
HQ5 = 1" Inlet, 1-piece body, 2 slots	**LRC** = Yellow locking rubber cover	**AW** = ACME key with anti-rotation wings
HQ33D = ¾" Inlet, 2-piece body, 2 slots	*(Not available for HQ3 body)*	*(Only available for HQ44 body)*
HQ44 = 1" Inlet, 2-piece body, 1 slot or ACME key socket		**R** = Purple locking cover *(reclaimed water ID; only available for 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 = HQ44 valve, with locking rubber cover, ACME key socket with anti-rotation wings and reclaimed water ID

KEYS

Model	Compatible Valve	Compatible Swivel
HK33 = ¾" valve, ¾" key inlet	HQ3, HQ33	HS0
HK44 = 1" valve, 1" key inlet	HQ44	HS1, HS2, HS1B, HS2B
HK44A = 1" valve, ACME key inlet	HQ44AW	HS1, HS2, HS1B, HS2B
HK55 = 1" valve, 1¼" key inlet	HQ5	HS1, HS2, HS1B, HS2B

HS HOSE SWIVELS

Model	Compatible Key
HS0 = ¾" inlet, ¾" hose outlet	HK33
HS1 = 1" inlet, ¾" hose outlet	HK44, HK44A, HK55
HS2 = 1" inlet, 1" hose outlet	HK44, HK44A, HK55

① HQ5LRC Quick Coupler with SnapLok™ equipped HSJ-1 swing joint

Introducing Hunter's new full line of HSJ heavy-duty swing joints with configurations for every need and every project. There is even a version specifically designed for quick coupler applications. The SnapLok outlet on HSJ-1 models is equipped with accommodations for both rebar and pipe stabilization, as well as heavy-duty brass outlet threads with a unique anti-rotation locking feature.

See the HSJ swing joints on page 35

SECTION 05:

CONTROLLERS

THE NEW
HC CONTROLLER

TOUCHSCREEN INTERFACE

The HC controller has a full graphical touchscreen interface, making programming without Wi-Fi connectivity a breeze. Install and program within minutes with this controller.

WI-FI CONTROLLER

Use our mobile device app as a remote control for increased efficiency or manage your customer controllers from a smart device or your web-based home or office.

PREDICTIVE WATERING™ ADJUSTMENTS

Daily schedule adjustments, based on local weather data; monitor past; current and forecasted temperature, rainfall, humidity, and wind speed. This allows for adjustments of watering times and schedules to balance water savings with water efficiency for plants.

FLOW METER DETECTION AND ALERTS

Monitor the state of the piping system with an optional flow meter. Receive automatic alerts when a pipe is broken to prevent property damage.

WIRING DETECTION AND ALERTS

HC 12 zone (station) controller continuously monitors the electrical current flowing to your solenoid valves. If the current is too high or too low, Hydrawise™ will alert you and tell you which valve is not working properly. This allows you to correct a failed valve before damage is done to plant materials.

ADVANCED SENSOR PORTS

Two general purpose sensor ports can be used for many different functions. Sensor port works with the Hunter HC flow meters, the Hunter Clik sensor range and standard rain and soil sensors to stop irrigation. The sensor ports can also start an irrigation cycle. This allow you to create custom starts based on sensor readings.

Water-Saving Features

BUILT IN SOLAR SYNC®

Includes logic for optional Solar Sync weather sensor. The smart sensor automatically adjusts watering for weather conditions, and provides shutdowns during rain or freeze events. Qualifies for many USA and International water-savings programs.

SOLAR SYNC DELAY

Solar Sync Delay allows the installer to specify a number of days before automatic weather adjustment begins. This allows a period of non-adjusted irrigation for grow-in or plant establishment purposes, without requiring a return visit to the site to enable the Solar Sync water-saving feature.

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.

Seasonal Adjustments may be made manually at the controller dial position, or automatically with a connected Solar Sync smart sensor.

PROGRAMMABLE CLIK DELAY

This allows the user to delay programmed watering for a designated period after a Clik event (such as rain) ends. At the end of the programmed Clik Delay period, the controller will resume the normally programmed irrigation schedule.

CYCLE AND SOAK

Cycle and Soak splits a station's run time into smaller amounts of watering, with a delay before applying more water. This prevents waste and run off. The controller can run other stations during the soak time, for efficient use of time.

Diagnostic Features

QUICKCHECK™

QuickCheck is a diagnostic mode that automatically detects field wiring shorts by station number.

AUTOMATIC SHORT CIRCUIT PROTECTION

Detects field wiring faults and skips faulty stations, without damage to the controller. Allows watering to continue with unaffected stations.

REAL TIME FLOW MONITORING

Allows the controller with a connected flow meter to recognize high and low flow conditions, react automatically to alarms, and report flow totals. Faulty stations are recorded for repair, and the controller continues water with the next station.

Advanced & Special Features

NON-WATER DAYS

Prevents certain days of the week from ever watering, regardless of the schedule type. Useful for weekly mowing days or other planned events.

TOTAL RUNTIME CALCULATOR

This calculates the total duration of a program, based on all of its station run times. This can be used to calculate the end time of a program.

PROGRAMMABLE DECODERS

Each decoder is programmed with its actual station (valve) numbers for simplicity and reliability. Decoders may be re-programmed at any time if desired. Hunter decoders do not require lengthy serial numbers.

SIMULTANEOUS STATION GROUPS

Simultaneous Station Groups allow groups of stations to run together within a program. This permits consolidation of large systems into fewer items to program, and can be used to control system flow in high capacity installations.

SENSOR PROGRAMMABILITY

This feature allows the user to specify which program or stations will be shut down in response to a specific sensor alarm. Stations or programs not affected by the sensor continue to run automatically.

DELAY BETWEEN STATIONS

Users can program a delay between stations as the controller advances from one station to the next. This delay can range from a few seconds (to permit slow-closing valves additional time to close) to a much longer period of time (to allow pressure tanks time to recharge), based on user requirements.

MULTI-LANGUAGE PROGRAMMING

Users can choose to program Hunter controllers in various different languages including English, Spanish, French, Italian, German and Portuguese.

CONTROLLERS COMPARISON CHART

QUICK SPECS	ECO LOGIC	X-CORE®	XC-HYBRID	PRO-C®	PCC	HC	ICC2	I-CORE®	ACC	NODE	WVS
NUMBER OF STATIONS	4, 6	2, 4, 6, 8	6, 12	4 to 16	6, 12	6, 12	8 to 54	6 to 42 Up to 48 with Decoders	6 to 42 Up to 99 with Decoders	1, 2, 4, 6	1, 2, 4
TYPE*	Fixed	Fixed	Fixed	Modular	Fixed	Fixed	Modular	Modular	Modular	Fixed	Fixed
NUMBER OF PROGRAMS	2	3	3	3	3	---	4	4	6	3	---
START TIMES PER PROGRAM	4	4	4	4	4	---	8	8 (16 for program D)	10	4	---
NUMBER OF SIMULTANEOUS PROGRAMS	---	---	---	---	---	---	2	2	6	---	---
WARRANTY	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years	5 Years	5 Years	5 Years	2 Years	2 Years
FEATURES											
ENCLOSURE TYPE	Plastic Indoor	Plastic Indoor Plastic Outdoor	Plastic Indoor/ Outdoor Stainless Indoor/ Outdoor	Plastic Indoor Plastic Outdoor	Plastic Indoor Plastic Outdoor	Plastic Indoor	Plastic/ Metal Stainless Indoor/ Outdoor Plastic Pedestal	Plastic/ Metal Stainless Outdoor Plastic Pedestal Stainless Pedestal	Metal Outdoor Stainless Outdoor Plastic Pedestal Stainless Pedestal	Water-proof	Water-proof
SOLAR SYNC® COMPATIBLE		●		●	●		●	●	●		
CENTRAL CONTROL COMPATIBLE				●	●	●	●	●	●		
REMOTE CONTROL COMPATIBLE		●		●	●	●	●	●	●		
FLOW METER COMPATIBLE						●		●	●		
RAIN-CLIK® FREEZE-CLIK® FLOW-CLIK COMPATIBLE	●	●	●	●	●	●	●	●	●	●	●
BATTERY OPERATED			●							●	●
NUMBER OF SENSOR INPUTS	1	1	1	1	1	2	1	2 (Plastic Models) 3 (Metal & Ped Models)	4 + Dedicated Flow Input	1	1
MAX. STATION RUN TIMES (hours)	4	4	4	6	6	24	12	12	6	6	4

* Fixed or modular indicates the controllers ability to expand the number of stations from a base count.

X-CORE®

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

FEATURES

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

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV: (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: 0° F to 140° F

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 84*

Plastic Indoor
Height: 6½"
Width: 5¾"
Depth: 2"

Plastic Outdoor
Height: 8⅝"
Width: 7"
Depth: 3¾"

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

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

Examples:
XC-200i = 2-Station 120 VAC indoor controller, with plastic cabinet
XC-400 = 4-Station 120 VAC outdoor controller, with plastic cabinet
XC-600i = 6-Station 120 VAC indoor controller, with plastic cabinet
XC-800 = 8-Station 120 VAC outdoor controller, with plastic cabinet

PRO-C® & PCC

Number of Stations: **4 - 16, 6 & 12**
Type: **Modular & Fixed**

FEATURES

- Number of stations:
  - Pro-C: 4 - 16
  - PCC: 6 & 12
- Type:
  - Pro-C: Modular
  - PCC: Fixed
- Enclosures: Indoor or outdoor plastic
- Independent irrigation programs: 3
- Independent lighting programs: 3
- Start times per program: 4
- Max. station run time: 6 hours
- Solar Sync® Delay feature allows adjustments to be postponed for up to 99 days
- Cycle and Soak feature built in: reduces runoff
- Added knockouts for additional flexibility
- Non-volatile memory
- Rain sensor bypass
- One touch manual start and advance
- Warranty period: 2 years

▸ Built in Solar Sync
▸ Easy Retrieve™ memory
▸ QuickCheck™
▸ Automatic short circuit protection
▸ Seasonal Adjustment: Global or automatic updates with Solar Sync
▸ Delay between stations
▸ Sensor programmability
▸ Non-Water Days

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230 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: 0° F to 140° F

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 84*

Plastic Indoor
Height: 8¼"
Width: 9½"
Depth: 3¾"

Plastic Outdoor
Height: 9"
Width: 10"
Depth: 4½"

PCM-300 and PCM-900 Expansion Modules
These modules are compatible with the new Pro-C 400 series.

PRO-C SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
PC-4 = 4-station base module controller **PCC-6** = 6-Station **PCC-12** = 12-Station	**00** = 120 VAC **01** = 230 VAC	**(blank)** = Outdoor Model *(internal transformer)* **i** = Indoor Model *(plug-in transformer)*	**(blank)** = No option **E** = 230 VAC with European Connections **A** = 230 VAC with Australian Connections *(outdoor models have internal transformer with cord)*

PC-SERIES STATION EXPANSION

Modules	Description
PCM-300	3-Station plug-in module: Use to increase station count from 4 to 7, 7 to 10, and 10 to 13
PCM-900	9-Station plug-in module: Use to increase station count from 7 to 16

Examples:
PC-400 = Modular 4-Station outdoor base unit, internal 120 VAC transformer, and plastic cabinet
PCC-601i - E = Fixed 6-Station indoor controller, plug-in 230 VAC transformer with European connections, and plastic cabinet
PCC-1200 = Fixed 12-Station outdoor controller, Internal 120 VAC transformer, and plastic cabinet

HC

Number of Stations: **6, 12**
Expands up to 36 stations
Wi-Fi Enabled

FEATURES

- 6 and 12 station standard controllers
- Wi-Fi enabled for simple connection to the internet
- Schedule adjustment based on local weather
- 12 station expansion module allows for expansion to 36 stations
- Watering overflow detection and alerts
- Wiring fault detection and alerts
- Flow meter measures water usage and leak detection
- Warranty: 2 years

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230 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: 2
- Operating temperature: 0°F to 140°F

APPROVALS

- CE, C-tick, FCC

▸ = *Advanced Feature descriptions on pages 83*

* Hydrawise software information on page 104

Plastic Indoor
Height: 6"
Width: 7"
Depth: 1.3"

Flow Meter - ¾" coupling
Height: 5.1"
Length: 9.1"
Depth: 3.1"

Flow Meter - 1" coupling
Height: 6.3"
Length: 9.1"
Depth: 3.1"

Compatible with Hydrawise software

HC – OPTIONS

Models	Description
HC-1200M	12 station expansion module
HC-075-FLOW	Flow meter with ¾" NPT thread
HC-100-FLOW	Flow meter with 1" NPT thread

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

1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
HC-6 = 6 station controller with Wi-Fi connection	**00** = 120 VAC	**i** = Indoor model	**(Blank)** = No option
HC-12 = 12 station indoor controller with Wi-Fi connection			**E** = 230 VAC with European connections
			A = 230 VAC with Australian connections *(outdoor model has internal transformer with cord)*

Examples:
HC-600i-A = 6-Station 230 VAC indoor plastic controller, and with Australian cord
HC-1200i-E = 12-Station 120 VAC indoor plastic controller, and with European cord

ICC2

Number of Stations: **8 - 54**
Type: **Modular**

FEATURES

- Number of stations: 8 to 54 (metal), 8 to 38 (plastic)
- Type: Modular
- Enclosure: Outdoor plastic, metal, stainless steel, plastic pedestal
- Backlit display
- Independent programs: 4
- Start Times per program: 8
- Max station run time: 12 hours
- Simultaneous program operation: 2
- Warranty period: 5 years
- ▸ Built in Solar Sync®
- ▸ Solar Sync Delay feature
- ▸ Cycle and Soak
- ▸ Easy Retrieve™ Memory
- ▸ QuickCheck™
- ▸ Automatic short circuit protection
- ▸ Seasonal Adjustment: Manual or automatic via Solar Sync
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Programmable Clik Delay
- ▸ Non-Water Days
- ▸ Added knockouts for mounting flexibility
- ▸ Non-volatile memory
- ▸ Rain Sensor bypass
- ▸ One touch manual start and advance

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Transformer output: 24 VAC, 1.4 A
- Station output: (24V) 0.56 A
- P/MV (24 VAC): Up to 0.56 A
- Sensor inputs: 1
- Operating temperature: 0°F to 140°F

APPROVALS

- CE, UL, cUL, C-tick, FCC
- Plastic Wall Mount: IP-54
- Metal Wall Mount (includes stainless): IP-55
- Plastic Pedestal: IP-24

▸ = *Advanced Feature descriptions on pages 84*

Plastic
Height: 12"
Width: 13.7"
Depth: 5"

Metal (Gray or Stainless)
Height: 16"
Width: 13"
Depth: 5"

Expansion Modules
These enhanced station output modules expand both old and new versions of ICC, and include additional surge suppression, in increments of 4, 8 or 22 stations.

CONTROLLERS

ICC2

Model	Description
I2C-800-PL	8 station base model, plastic outdoor wall mount
I2C-800-M	8 station base model, gray metal outdoor, wall mount
I2C-800-SS	8 station base model, stainless steel, wall mount
I2C-800-PP	8 station base model, plastic pedestal
ICC-PED	Gray pedestal for metal wall mount
ICC-PED-SS	Stainless steel pedestal for stainless wall mount
ICC-PWB	Optional Pedestal Wiring Board for metal pedestals

ICC 2 SERIES STATION EXPANSION

Model	Description
ICM-400	4-Station plug-in module with enhanced surge suppression
ICM-800	8-station plug-in module with enhanced surge suppression
ICM-2200*	22-station expansion module (one per controller)

Note
Newer ICM modules are backward compatible with the original ICC controller.
*Available first quarter 2017.

I-CORE®

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

FEATURES

- Number of stations: 6 to 42
- Type: Modular
- Enclosure: Outdoor plastic or metal
- Independent programs: 4
- Built in Solar Sync®
- Start times per program: 8 (A, B, C); 16 (D)
- Max. station run time: 12 hrs
- One touch manual start and advance
- Programmable rain delay
- Non-volatile memory
- Warranty period: 5 years

- ▸ Real time flow monitoring
- ▸ Easy Retrieve™ memory
- ▸ QuickCheck™
- ▸ Automatic short circuit protection
- ▸ Total run time calculator
- ▸ Seasonal Adjustment: Global, Monthly, by program and Solar Sync
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Cycle and Soak
- ▸ No Water Window
- ▸ Non-Water Days
- ▸ Solar Sync Delay
- ▸ Multi-language programming

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Transformer output (24 VAC): 1.4 A
- Station output (24 VAC): 0.56 A
- P/MV (24 VAC): 0.28 A
- Simultaneous program operation: 2
- Sensor inputs: Plastic: 2; Metal: 3
- Operating temperature: 0° F to 140° F

APPROVALS

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

ENCLOSURE RATING

- Steel wall mount: IP-56
- Plastic pedestal: IP-24
- Plastic wall mount: IP-44

▸ = *Advanced Feature descriptions on pages 84*

Plastic Wall Mount
Height: 11"
Width: 13¼"
Depth: 6¼"

Metal Wall Mount
(gray or stainless steel)
Height: 12½"
Width: 15½"
Depth: 6½"

Plastic Pedestal
Height: 36"
Width: 15½"
Depth: 5"

Metal Pedestal
(gray or stainless steel)
Height: 38½"
Width: 21⁹⁄₁₆"
Depth: 16"

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
IC-600-SS	6-Station controller, indoor/outdoor, stainless steel cabinet
ICM-600	6-Station plug-in expansion module
ACC-PED	Metal pedestal, gray powder-coated, for use with I-Core and ACC metal controllers
PED-SS	Stainless steel pedestal for use with I-Core and ACC stainless steel controllers

ICM-600 Expansion Module
I-Core's unique "bridge" modules activate the existing terminal strips.

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

DUAL®

Number of Stations: **Up to 48**
Type: **Decoder**

FEATURES

- Two-wire decoder system for I-Core controllers
- Decoder station sizes available: 1, 2
- Field programmable decoders (no serial numbers to enter)
- DUAL-S external surge protection module
- DUAL decoder module display and push button programming make it easy to program decoders at the controller itself
- 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 protection
- Number of two-wire paths: 3
- Solenoid finder feature assists in locating valves in the field
- Wireless programming with ICD-HP
- Warranty period: 5 years
- ▸ Programmable decoders

DUAL SPECIFICATIONS

- Max. recommended distance, decoder to solenoid: 100'
- Max. distance to decoder:
  - 14 AWG wire path: 5,000'
  - 12 AWG wire path: 7,500'

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 84*

DUAL48M Decoder Ouput Module
Height: 1⅜"
Width: 4⅜"
Depth: 4"

DUAL Decoders
Height: 3"
Width: 1¾"
Depth: 2"

Surge Arrestor
Height: 2¾"
Width: 1¾"
Depth: 2"

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 two-wire decoder system (up to 48-Station 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

14 AWG Decoder Cable		12 AWG 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

MAXIMUM WIRE RUNS

ID 1 Wire	ID 2 Wire
5,000 ft. with I-Core/DUAL systems	7,500 ft. with I-Core/DUAL systems
10,000 ft. with ACC/ICD systems	15,000 ft. with ACC/ICD systems

ACC

Number of Stations: **12 to 42**
Type: **Modular**

FEATURES

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

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Max. AC Current Draw: 120 VAC, 2 Amps; 230 VAC, 1 Amp (max. computed with all programs running and optional accessories installed)
- Transformer output (24 VAC): 4.0 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.32 A
- P/MV: 2, normally-closed
- Sensor inputs: 4 + Flow
- Operating temperature: 0° F to 140° F

APPROVALS

- CE, UL, C-UL, C-tick, FCC
- Metal wall mounts: IP-56
- Plastic pedestal: IP-24

ALL STAINLESS STEEL (SS) MODELS

- American-made Type 316 Stainless Steel 0.057" gauge steel
- Passivated for corrosion resistance

▸ = *Advanced Feature descriptions on pages 84*

Metal Wall Mount (gray or stainless)
Height: 12½"
Width: 15½"
Depth: 6¼"

Metal Pedestals
(gray or stainless)
Height: 37"
Width: 15½"
Depth: 5"

Plastic Pedestal
Height: 38½"
Width: 21½"
Depth: 16"

ACM-600
Standard 6-Station output module with heavy-duty surge protection

AGM-600
Optional Extreme Service high-lightning 6-Station output module

ACC

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

STATION EXPANSION MODULES

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

Number of Stations: **1 to 99**
Type: **Decoder**

FEATURES

- Includes all features of the ACC controller, plus decoder operations
- Built in Solar Sync®
- Decoder station sizes available: 1, 2, 4, 6
- Sensor decoder available with Flow and Clik inputs
- Max. recommended distance, decoder to solenoid: 150'
- ICD-HP wireless handheld programmer compatible
- Two-way communications
- Surge suppression: Internal (ground wire included)
- Dual P/MV 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

▸ Seasonal Adjustment: Global, by Program, or Solar Sync
▸ Programmable decoders
▸ Solar Sync Delay

ICD-100, 200, ICD-SEN
Height: 3½"
Width: 1½"
Depth: ¾"

ICD-400, 600
Height: 3½"
Width: 1¾"
Depth: 1½"

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Max. AC Current Draw: 120 VAC, 2 Amps; 230 VAC, 1 Amp (max. computed with all programs running and optional accessories installed)
- Transformer output: 24 VAC, 4 A, at 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 100' runs, up to 14 solenoids max. simultaneous
- Wiring, Decoder to solenoid: 150' max.
- 6 two-wire output paths to field decoders
- Diagnostic LEDs with line status, signal activity, decoder and status

▸ = *Advanced Feature descriptions on pages 84*

ID WIRE MODEL GUIDE

14 AWG Decoder Cable		12 AWG 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
5,000' with I-Core/DUAL® systems	7,500' with I-Core/DUAL systems
10,000' with ACC/ICD systems	15,000' 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, gray 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

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

ROAM

Range: **Up to 1,000 ft.**
Type: **Remote**

FEATURES

- Works with Hunter X-Core®, Pro-C®, PCC, ICC2, I-Core® and ACC controllers through a SmartPort® connection
- 128 programmable addresses for use of multiple Roam remotes in the same neighborhood
- Manually run watering cycles without modifying regular program
- Programmable run times: 1 to 90 minutes
- Range: 1000' (line of sight)
- Warranty: 2 years

REMOTE SPECIFICATION

- Transmitter power source: 4 AAA batteries included
- Receiver power source: 24 VAC, from controller through a SmartPort connector
- System operating frequency: 433 MHz band
- SmartPort connector can be mounted up to 50' (max.) from controller
- FCC approved: No FCC license required

Transmitter and Receiver
Height: 7"
Width: 2¼"
Depth: 1¼"

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 receiver.

Wall Mount Bracket for SmartPort
P/N 258200

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

OPTIONS (SPECIFY SEPARATELY)	
Model	**Description**
ROAM-WH	SmartPort wiring harness (length: 6' pack of 50)
ROAM-SCWH	Shielded SmartPort wiring harness (length: 25')
258200	Wall Mount Bracket for SmartPort

ROAM XL

Range: **Up to 2 miles**
Type: **Remote**

FEATURES

- Works with Hunter X-Core, Pro-C, PCC, ICC2, I-Core and ACC controllers through a SmartPort® connection
- Up to 2 miles (line of sight) range for remote manual operation of Hunter irrigation systems
- 128 different programmable addresses
- Display shows remaining battery life
- Programmable run times: 1 to 90 minutes
- Large LCD display, push-button operation
- Manually run watering cycles without modifying regular program
- Rugged plastic carrying case included
- Warranty: 3 years

REMOTE SPECIFICATION

- Transmitter power source: 4 AAA batteries included
- Receiver power source: 24 VAC, from controller through a SmartPort connector
- System operating frequency: 27 MHz band
- SmartPort connector can be mounted up to 50' (max.) from controller
- FCC approved: No FCC license required

* Not available in all countries.

Roam XL (no antenna)
Height: 6¼"
Width: 3"
Depth: 1¼"

ROAM XL	
Model	**Description**
ROAMXL-KIT	Transmitter, receiver, SmartPort wiring harness, 4 AAA batteries included and plastic carrying case included
ROAMXL-TR	Handheld transmitter, and 4 AAA batteries included
ROAMXL-R	Receiver unit (SmartPort wiring harness included)

OPTIONS (SPECIFY SEPARATELY)	
Model	**Description**
258200	Wall Mount Bracket for SmartPort
ROAMXL-CASE	Plastic carrying case
ROAM-WH	SmartPort wiring harness (length: 6')
ROAM-SCWH	Shielded SmartPort wiring harness (length: 25')

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 receiver.

Wall Mount Bracket for SmartPort
P/N 258200

ICD-HP

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
- Communicates with decoder through plastic case: wireless electromagnetic induction saves waterproof connectors
- Compatible with Hunter ICD, DUAL®, and Pilot® series decoders
- USB powered for shop or office use; 4 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
- Waterproof programming cup
- Backlit adjustable display
- 6 operating languages

ELECTRICAL SPECIFICATIONS

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

APPROVALS

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

ICD-HP
Height: 8"
Width: 4"
Depth: 3"

Packaged in an outdoor carrying case, this complete kit includes probes, induction cup, cable, USB power cable for bench use, and 4 AA batteries for field work.

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

PUMP START RELAY

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 contains UL-approved relays
- Warranty period: 2 years

Pump Start Relay
Height: 6½"
Width: 7½"
Depth: 4½"

PUMP START RELAY

Model	Description
PSR-22	Double pole/single throw pump start relay for 120 VAC pumps up to 2 hp or 230 VAC pumps up to 3 hp
PSR-52	Double pole/single throw pump start relay for 120 VAC pumps up to 3 hp or 230 VAC pumps up to 7.5 hp
PSR-53	Triple pole/single throw pump start relay for 120 VAC pumps up to 3 hp, 230 VAC pumps up to 7.5 hp, or 230 VAC pumps up to 10 hp (3 phase)

PUMP START RELAY ELECTRICAL SPECIFICATIONS

Model	Single Phase		3 Phase	Max. Full Load	Max. Resistive	Coil VA				Coil VA			
	HP at 120 VAC	HP at 230 VAC	HP at 230 VAC	AMPS	AMPS	INRUSH		AMPS		HOLDING		AMPS	
						50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
PSR-22	2*	3*	N/A	30	40	33	30	1.38	1.25	8	6.5	0.33	0.27
PSR-52	3	7.5	N/A	40	50	65	60	2.71	2.50	7.5	5	0.31	0.21
PSR-53	3	7.5	10	40	50	65	60	2.71	2.50	7.5	5	0.31	0.21

Note:
* Approximate power

PSRB

PUMP START RELAY BOOSTER

FEATURES

- Solves long distance pump start relay power challenges
- Suitable for conventional or ICD decoder connections
- Includes easily activated solid state relay, and local 24V transformer for PSR activation
- Easy wiring with labeled wire connections
- NEMA 3R enclosure with standard key lock

ELECTRICAL SPECIFICATIONS

- Primary AC Power: 120/230 VAC, 50/60 Hz, 50W
- Output (to PSR): 25V, 1600 mA
- MV Input: Dual pole, double throw solid state relay (10 A)

PSRB Pump Start Relay Booster
Height: 8⅝"
Width: 7"
Depth: 3¾"

XC HYBRID

Number of Stations: **6, 12**
Type: **Fixed**

FEATURES

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

Plastic Indoor/Outdoor
Height: 8⅝"
Width: 7"
Depth: 3¾"

Stainless Steel Outdoor
Height: 9¾"
Width: 7⅜"
Depth: 4¼"

XCHSPOLE
with XCHSPB installed pole
for stainless steel model
Height: 4'

SPXCH
Optional Solar Panel
Height: 3¼"
Width: 3"
Depth: ⅝"

ELECTRICAL SPECIFICATIONS

- Operates DC latching solenoids (only) 9-11 VDC
- P/MV
- Sensor inputs: 1
- Operating temperature: 0° F to 140° F
- Power Source
- Operates on battery power or 24 VAC plug in transformer or optional Solar Panel
- Plastic model uses 6 AA batteries
- Stainless steel model uses 6 C batteries

APPROVALS

- CE, UL, cUL, C-tick

▸ = *Advanced Feature descriptions on pages 84*

MAXIMUM WIRE RUNS

Wire Size	Max. Distance (ft.)
18 AWG	500
16 AWG	800
14 AWG	1300
12 AWG	2000

XC HYBRID

Model	Description
XCH-600	6-Station indoor/outdoor controller
XCH-600-SS	6-Station outdoor controller, stainless steel
XCH-1200	12-Station indoor/outdoor controller
XCH-1200-SS	12-Station outdoor controller, stainless steel

USER INSTALLED OPTIONS (SPECIFY SEPARATELY)

Model	Description
XCHSPOLE	Stainless steel mounting pole (4')
XCHSPB	Stainless steel mounting bracket (required for pole)
458200*	DC latching solenoid
SPXCH	Solar Panel kit for XC Hybrid

Note:
* Use DC latching solenoids only

NODE

Number **of Stations: 1, 2, 4, 6**
Type: **Battery Operated, Fixed**

FEATURES

- Type: Fixed
- Battery Operated
- Number of stations: 1, 2, 4, 6
- Enclosure: Outdoor plastic
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- One touch manual start and advance
- Master Valve operation (available in 2, 4, 6 station models)
- Solar Panel Kit (SPNODE) provides maintenance-free operation
- Accepts single or double 9-volt batteries for extended battery life
- Solenoid wire length up to 100' (use 18 AWG wire)
- Programmable off mode
- Submersible to 12' (IP68 rated)
- Battery life indicator
- Protective rubber cover
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ Seasonal Adjustment: Global

ELECTRICAL SPECIFICATIONS

- Operates DC latching solenoids only (P/N 458200)
- P/MV
- Sensor inputs: 1
- Operating temperature: 0° F to 140° F
- Power source: 9-volt battery (up to two) or Solar Panel
- Solar Panel Kit SPNODE eliminates the need for batteries and provides maintenance-free operation

APPROVALS

- CE

▸ = *Advanced Feature descriptions on pages 84*

NODE-100
NODE-100-LS
(less solenoid)
Diameter: 3½"
Height: 2½"

NODE-200
NODE-400
NODE-600
Diameter: 3½"
Height: 2½"

NODE-100-Valve
Diameter: 3½"
Height: 2½"

SPNODE
Height: 3¼"
Width: 3"
Depth: ⅝"

CONTROLLERS

NODE	
Model	**Description**
NODE-100	Single station controller (DC latching solenoid included)
NODE-100-LS	Single station controller (DC latching solenoid not 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-101-G valve and DC latching solenoid (NPT threads)
NODE-100-VALVE-B	Single station controller with PGV-101-GB valve and DC latching solenoid (BSP threads)

MAXIMUM WIRE RUNS	
Wire Size	**Max. Distance (ft.)**
18 AWG	100

OPTIONS (SPECIFY SEPARATELY)	
Options*	**Description**
458200	DC latching solenoid
SPNODE	Solar Panel Kit for Node

WVP & WVC

Number **of Stations: 1, 2, 4**
Type: **Battery Operated, Fixed**

FEATURES

- Type: Fixed
- Battery Operated
- Number of stations: 1, 2, 4
- Enclosure: Outdoor plastic
- Independent station programming
- Start times per program: 9
- Max. station run time: 4 hrs
- WVC submersible to 12' (IP68 rated)
- Battery life indicator
- Wireless remote programming
- Max. solenoid wire run 100' (use 18 AWG wire)
- Warranty period: 2 years

WVP
Height: 11½"
Width: 3"
Length: 2"

ELECTRICAL SPECIFICATIONS

- Simultaneous station operation
- Sensor inputs: 1
- Power source: 9-volt battery
- Operates DC latching solenoids only (P/N 458200)
- Operating temperature: 0° F to 140° F
- Frequency of operation: 900 MHz
- No FCC license required

WVC
Diameter: 3¼"
Height: 5"

APPROVALS

- CE

MAXIMUM WIRE RUNS	
Wire Size	**Max Distance (ft.)**
18 AWG	100

WVP / WVC	
Model	**Description**
WVC-100	Single station wireless controller (DC latching solenoid ordered separately) 900 MHz
WVC-200	2-Station wireless controller (DC latching solenoid ordered separately) 900 MHz
WVC-400	4-Station wireless controller (DC latching solenoid ordered separately) 900 MHz
WVP	Wireless valve programmer to be used with wireless valve controllers

PRO-C® + SOLAR SYNC®

Smart Control Made Easy

With Pro-Cs built-in Solar Sync dial position, upgrading to smart control has never been easier. There's no additional wiring to run – the Solar Sync sensor will use evapotranspiration (ET) to adjust the Pro-C run times daily based on local weather conditions, resulting in water savings and conservation. When paired with Solar Sync, the Pro-C is an EPA WaterSense® labeled smart device and has received international certifications for water conservation.

SECTION 06:

WATER MANAGEMENT SOFTWARE

ADVANCED FEATURES

CONTRACTOR MANAGEMENT SYSTEM

Hydrawise™ software provides the ultimate irrigation and customer management solution. The Hydrawise Contractor Portal provides a simple-to-use, yet extremely versatile system for managing customer irrigation controllers without having to visit the site.

PROVEN WATER SAVER

Hydrawise software combines internet weather adjustments with professional programming features. These combined features allow for up to 50 percent in water savings vs. a controller base that is programmed and not adjusted throughout the year.

PREDICTIVE WATERING™ ADJUSTMENTS

Daily schedule adjustments, based on local weather data; monitor past, current and forecasted temperature, rainfall, humidity, and wind speed. This allows for adjustments of watering times and schedules to balance water savings with water efficiency for plants.

WEATHER STATIONS

Hydrawise allows you to use any local airport weather station at no cost or add up to five (5) weather stations from Weather Underground with an Enthusiast Plan for hyper-local weather data. With this flexible web-based weather system, you can even add your own weather station, if there is no weather station nearby.

USER MANAGEMENT

If you want to be able to have different users log into your controller, like your significant other, the Enthusiast Plan lets you add multiple users to your account. Users can even be 'read only,' so that they can't make any changes to your configuration.

ENHANCED REPORTING

See how much water you have used in the last day or month and see how much water you have saved. The full reporting package allows you to summarize minimum, maximum, average and totals for all reports. You can even share these reports with your clients, so they can be in the know.

CONTROLLER LOGS

Get a clear picture of the controller's history such as faulty wiring issues, flow meter alerts, program changes and watering events that are all logged.

IRRIGATION LAYOUTS AND SCHEDULES

Save time on the job site by attaching your site plans to the controller. This allows you to quickly locate piping and valves.

HYDRAWISE™ SOFTWARE

Maximum Controllers: **Unlimited**
Platform: **Computer, Mobile Devices**
Type: **Water Management**

Hydrawise™ cloud software is a user-friendly water management software. Each homeowner can use Predictive Watering™ Adjustments to achieve water savings. Hydrawise software is also a powerful tool for professional contractors to do in-depth water management for their client's landscape, piping system and valves electrical system. It is a professional cloud-based irrigation software that works for everyone.

FEATURES

- Contractor management system allows access to multiple controllers any time
- Predictive Watering Adjustments based on web-based weather data brings up to 50% in water savings
- Extensive system reporting keeps you in the know
- Monitor internet connection, flow and electrical current
- Get automatic notifications via text and app to alert you of broken pipes or sprinklers

- Contractor Management System
- Proven Water Saver
- Predictive Watering Adjustments
- Weather Stations
- User Management
- Enhanced Reporting
- Controller Logs
- Irrigation Layouts And Schedules

SOFTWARE PLANS (1 YEAR)

Plan	Description
HC-PLAN-HOME	Home Plan (Free) - Our standard plan offers free weather station connection, App alerts, reporting and 1 user account
HC-PLAN-ENTHUSIAST	Enthusiast Plan - Use multiple weather stations for hyper-local weather, receive SMS alerts, 5 user accounts
HC-PLAN-CONTRACTOR STARTER	Contractor Starter (Free) - Manage up to 5 controllers and up to 5 contractor staff users
HC-PLAN-CONTRACTOR	Contractor Plan - Manage up to 50 controllers and up to 5 contractor staff users
HC-PLAN-BRONZE	Bronze Plan - Manage up to 100 controllers and up to 15 contractor staff users
HC-PLAN-SILVER	Silver Plan - Manage up to 150 controllers and up to 30 contractor staff users
HC-PLAN-GOLD	Gold Plan - Manage up to 200 controllers and up to 45 contractor staff users
HC-PLAN-PLATINUM	Platinum Plan - Manage over 200 controllers and more than 45 contractor staff users

Try it now with a free demo at hydrawise.com/demo

Easy to Use

Simple and straightforward installation with step-by-step setup wizard. Dashboard control from smartphone, tablet, and PC apps. Touchscreen interface on the HC controller.

Save Water

Uses weather station information and localized forecasts to predict, change, monitor, measure, and report on your irrigation.

Save Time

Remote access anytime via phone, tablet or computer. Contractor management access via account login.

Monitor Water Usage

Optional flow meter to detect broken pipes and spray heads, faulty wiring, or leaky valves. View the water usage for each watering cycle with a flow meter and discover when a zone's water usage is abnormal.

HC Controller
Compatible 6 and 12 station controller

Flow Meter
Add optional flow meter for flow alerts and monitoring water consumption

Rain-Clik®
Improve water consumption with onsite shutoff

IMMS®

Sites: **Up to 100**
Controllers: **Up to 10,000**
Number of Stations: **Up to 990,000**

Hunter's Irrigation Management & Monitoring Software (IMMS) is a PC-based software package that makes central control of large-scale irrigation systems affordable, usable, and comprehensible. IMMS is optimized for the Hunter ACC controller and accessories (including decoder controllers).

FEATURES

- Windows®-based programming and communications software
- Total control of each controller's functions
- Graphical user interface with customizable map-based navigation
- Map utility allows direct import of linework and layers
- 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 communications channels to reduce communications costs
- Compatible with water-saving Hunter Solar Sync® sensors, or optional ET Sensors

KEY SPECIFICATIONS

- Operating system: Microsoft Windows XP, Vista, Windows 7, Windows 8*
- Minimum RAM: 512 MB
- Minimum screen resolution: 1,024 x 768
- Storage: At least 100 MB disk space

* Windows is a registered trademark of the Microsoft Corporation

COMPATIBLE SENSORS

- **Flow-Sync®:** Hunter Flow-Sync sensor for ACC controllers (one per controller). Provides flow monitoring with diagnostic shutdowns in real time
- **Clik Sensors**: Each controller requires its own rain sensor for fast rain shutdowns. All Hunter Clik sensors are compatible with ACC and other Hunter controllers
- **ET Sensor**: ET Sensor platform is for use with IMMS-ET software
- **Solar Sync Sensor** (wired or wireless): Each controller can use its own SOLARSYNCSEN or WSS-SEN for smart, water-saving self-adjustment
  - Solar Sync sensors also provide rain and freeze shutoff functions
  - Solar Sync compatibility is included with the basic IMMS4CD software

ET Sensor
Height: 10½"
Width: 8½"
Depth: 12⅛"

Wireless Solar Sync Sensor
(w/mounting arm)
Height: 4½"
Width: 8½"
Depth: 1"

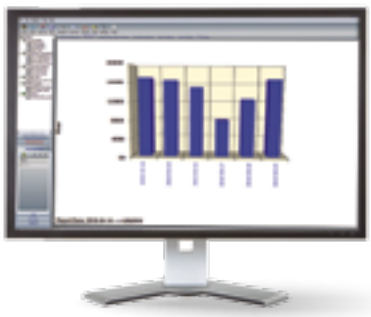
COMMUNICATION OPTIONS

- ACC-COM-HWR, LAN, GPRS, GPRS-E
- Mounted internally to ACC controller
- RAD3: 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, 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 18 AWG wire with ground wire, up to 10,000' between each device

Add a visual dimension to central control with background map graphics



Track flow and other vital statistics in both charts and spreadsheets

IMMS SOFTWARE

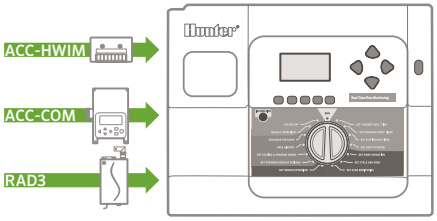
Model	Description
IMMS4CD	IMMS Graphics central control software
IMMS-ET-CD	Optional ET automatic weather adjustment software *(requires IMMS4CD base model)*

Note:
* Requires an ET Sensor at one or more ACC controller locations

COMMUNICATION OPTIONS FOR ACC INTERFACE

Model	Purpose
ACC-COM-HWR = Hardwire/radio module*	Supports hardwire and radio communication options
ACC-COM-LAN = Ethernet module*	Supports TCP/IP in Ethernet networks in addition to hardwire and radio sharing with local controllers
ACC-COM-GPRS = GPRS cellular data module*	Supports mobile data connection via GPRS phone in addition to hardwire and radio sharing with local controllers

Note:
* Also supports radio and hardwire



ACC wall mount communication components

USER-INSTALLED OPTIONS (SPECIFY SEPARATELY)

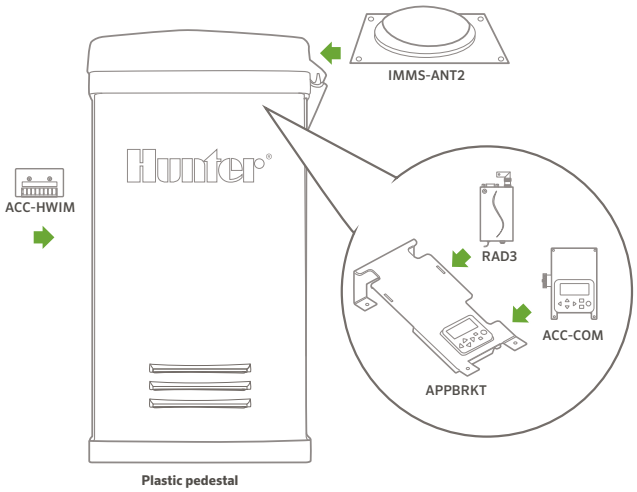
Model	Description	Purpose
ACC-HWIM	Hardwire interface module required for hardwire connections	Provides surge protected terminals for hardwired cable connections
RAD3	UHF radio module (North America), 450-470 MHz	UHF radio module for wireless connections (license and antenna required and not included)
APPBRKT	Communication bracket for plastic pedestals	Holds com modules and accessories in plastic pedestal (not required in wall mounts)

Model	Description	Options	Purpose
IMMS-CCC	Hardwire Central Interface	None = 120 VAC (North America) E = 230 VAC (Europe/ International power) A = 230 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 = 100' 300 = 300' 500 = 500'		Cable for all IMMS hardwired communications

Note:
* GCBL also available in 1,000' increments (up to 4,000')

RADIO ANTENNA OPTIONS (SPECIFY SEPARATELY)

Model	Description
IMMS-ANT2	Omni-directional antenna fits ACC plastic pedestal lid
IMMS-ANT3	Omni-directional antenna for wall- or pole-mount
IMMS-ANTYAGI3	High efficiency directional antenna for pole-mount
RA5M	High gain omni-directional mast antenna for roof- or pole-mount



ACC plastic pedestal communication components

WATER MANAGEMENT

SECTION 07:

SENSORS

SOLAR SYNC®

Sensor: **ET/Rain/Freeze**

FEATURES

- Provides automatic daily weather adjustment to program run times
- Wired and wireless models available
- Solar Sync may be used in IMMS central installations
- Rain and Freeze shutoff
- Gutter mount bracket included
- Compatible with all Hunter AC powered controllers
- Warranty period: 5 years (10 year battery warranty for wireless model)

SPECIFICATIONS

- Maximum distance sensor to module: 200' (wired model) or 800' (wireless model)
- 40' of wire included in kit (wired model)
- Rain and Freeze sensor shutdown capability included

APPROVALS

- FCC, CE

Solar Sync Sensor
(w/mounting arm)
Height: 3"
Width: 8½"
Depth: 1"

Solar Sync Module
Height: 1¾"
Width: 5"
Depth: ¾"

Wireless Solar Sync Sensor
(w/mounting arm)
Height: 4½"
Width: 8½"
Depth: 1"

Wireless Solar Sync Receiver
Height: 5½"
Width: 1½"
Depth: 1½"

SENSORS

SOLAR SYNC		
Model	**Description**	
SOLAR-SYNC	Solar Sync kit for use with PCC and Pro-C 300 controllers. *Includes Solar Sync Sensor and module.*	
SOLAR-SYNC-SEN	Wired Solar Sync for use with ACC, I-Core®, ICC2, new Pro-C® 400/PCC Series, and X-Core® controllers. *Includes Solar Sync Sensor only.*	
WSS	Wireless Solar Sync for use with PCC and Pro-C 300 controllers. *Includes Wireless Solar Sync Sensor, Wireless receiver, and module.*	
WSS-SEN	Wireless Solar Sync for use with ACC, I-Core, ICC2, new Pro-C 400/PCC Series, and X-Core controllers. *Includes wireless Solar Sync Sensor and wireless receiver.*	

SOIL-CLIK®

Sensor: **Soil Moisture**

FEATURES

- Soil moisture level and status at a glance
- Shuts down irrigation when desired moisture level has been reached
- One-touch override allows soil moisture bypass for special conditions
- Low voltage outdoor enclosure powered by host controller
- Simple installation allows probe to be up to 1000' from controller
- Connect to Hunter sensor inputs, or use to interrupt common wires in virtually any 24 VAC irrigation system
- Use with X-Core®, Pro-C®, ICC2, and I-Core®, and ACC Clik sensor inputs
- Ideal companion sensor to Solar Sync®
- Warranty period: 5 years

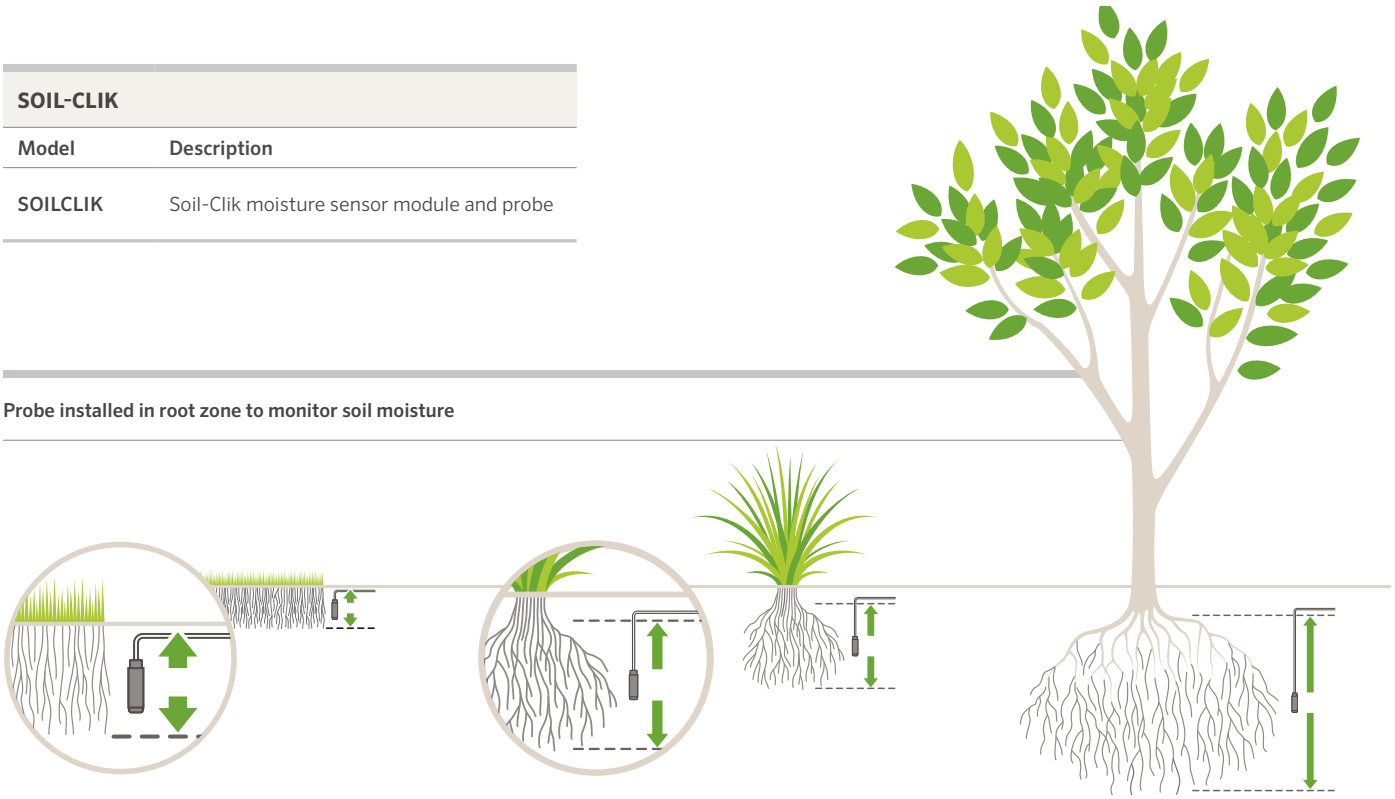
SOIL-CLIK Module
Height: 4½"
Width: 3½"
Depth: 1¼"
Power: 24 VAC, 100mA max
Wire Leads: 31½"

SOIL-CLIK Probe
Diameter: ⅞"
Height: 3¼"
Wire to Probe: 1000' max
18 AWG Direct Burial Wire
Wire Leads: 31½"

SPECIFICATIONS

- Max distance, control module to controller: 6'
- Max distance, control module to sensor probe: 1000'
- Input power: 24 VAC, 100 mA max
- Output: Normally-closed dry contact closure
- Enclosure: NEMA 3R, indoor/outdoor

SOIL-CLIK	
Model	**Description**
SOILCLIK	Soil-Clik moisture sensor module and probe



Probe installed in root zone to monitor soil moisture

In turf applications, the probe should be placed in the root zone, approximately 6 inches deep (adjust for actual turf conditions).

For shrubs or trees, select a deeper depth that matches the root zone. For new plantings, choose a spot halfway down the root ball, adjacent to native soil.

RAIN-CLIK®

Sensor: **Rain**

FEATURES

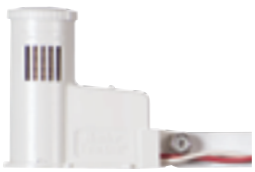
- Quick Response™ feature shuts the system off as soon as it starts raining
- Maintenance-free design with 10-year battery life for Wireless Rain-Clik
- Adjustable vent ring allows for setting of reset delay
- Rugged polycarbonate housing and metal extension arm
- Rain-Clik includes 25' of 20 AWG sheathed, two-conductor, UL-approved wire
- Wireless unit available with 800' range from wireless sensor to receiver
- Warranty period: 5 years (10 year battery warranty for wireless model)
- Compatible with most controllers

SPECIFICATIONS

- Wiring: normally-open or normally-closed
- 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
- UL listed, CUL (CSA), CE
- Switch rating: 24 VAC, 3 A
- Freeze sensor shuts system off when temperatures fall below 37° F (Rain/Freeze-Clik® model)
- System operating frequency: 433 MHz (wireless model)
- Communication range up to 800' line of sight (wireless model)
- Rain/Freeze-Clik shuts system off when temperatures fall below 37° F
- Receiver input power: 24 VAC (from controller)

APPROVALS

- UL listed, FCC approved, cUL, CSA, CE



RAIN-CLIK
Height: 2½"
Length: 7"

WR-CLIK-TR
Height: 3"
Length: 8"

WR-CLIK-R
(Receiver)
Height: 3¼"
Length: 4"

SGM
Optional gutter mount

RAIN-CLIK	
Model	**Description**
RAIN-CLIK	Rain-Clik sensor
RFC	Rain/Freeze-Clik sensor
WR-CLIK	Wireless Rain-Clik system
WR-CLIK-TR	Wireless Rain-Clik Transmitter (only)
WRF-CLIK	Wireless Rain/Freeze-Clik system
WR-CLIK-R	Wireless Rain Receiver (only)

USER INSTALLED OPTION (SPECIFY SEPARATELY FROM CONTROLLER)	
Model	**Description**
SGM	Optional gutter mount (included in the WRF-CLIK)

MINI-CLIK®

Sensor: **Rain**

FEATURES

- Easily installs on any automatic irrigation system
- Debris tolerant for reliable operation without unnecessary shutdowns
- Can be set to shut system off from ⅛" to 1" of rainfall
- Includes 25' of 20 AWG sheathed, two-conductor, UL-approved wire
- Optional user-installed metal gutter mount for Mini-Clik (order SGM)
- Optional user-installed stainless steel sensor guard enclosure for Mini-Clik (order SG-MC, Includes Mini-Clik)
- Warranty period: 5 years

MINI-CLIK
Height: 2"
Length: 6"

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

SPECIFICATIONS

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

MINI-CLIK®

Model	Description
MINI-CLIK	Rain Sensor
MINI-CLIK-NO	Rain Sensor with "normally-open" switch
MINI-CLIK-C	Rain Sensor with conduit mount
MINI-CLIK-HV	Rain Sensor for high voltage application (120/230 VAC)

SGM
Optional gutter mount

SENSORS

FREEZE-CLIK®

Sensor: **Freeze**

FEATURES

- Installs easily with no adjustment needed
- Accurate temperature sensing shuts system off when air temperature reaches 37°F
- Used with other sensors to enhance overall efficiency of irrigation systems
- Warranty period: 5 years

Note: Not intended for agricultural applications

FREEZE-CLIK
Height: 2"
Length: 6"

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®

Model	Description
FREEZE-CLIK	Freeze sensor interrupts irrigation when temperatures drop below 37° F
FREEZE-CLIK REV	Freeze sensor allows irrigation when temperatures drop below 37° F

MINI WEATHER STATION

Sensor: **Wind, Rain, Freeze**

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 12 to 35 mph
- Set rain shutdown from ⅛" to 1" of rainfall
- Warranty period: 5 years
- Automatically shuts off system when temperatures fall below 37° F

SPECIFICATIONS

- Electrical rating: 24 VAC, 5 A maximum
- Wind vane diameter: 5"
- Wind speed adjustments: Actuation speed: 12 to 35 mph
- Reset speed: 8 to 24 mph
- Freeze-Clik® temperature set point: 37° F
- Mounts: Slip fits over 2" PVC pipe or attaches to ½" conduit with adapter (supplied with unit)

MWS-FR
Height: 8"
Wind Vane Diameter: 5"

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

SENSORS

WIND-CLIK®

Sensor: **Wind**

FEATURES

- Adjusts to activate and reset at various wind speeds
- Wiring: “normally-closed” or “normally-open”
- Warranty period: 5 years
- Works with fountain systems to eliminate overspray in windy conditions
- Wind sensor interrupts/returns irrigation when programmed wind speed is measured

SPECIFICATIONS

- Switch rating: 24 VAC, 5 A maximum
- Wind speed adjustment
- Actuation speed: 12 to 35 mph
- Reset speed: 8 to 24 mph
- Mounts: Slip fits over 2" PVC pipe or attaches to 0.4" conduit with adapter (supplied with unit)

WIND-CLIK
Height: 4"
Wind Vane Diameter: 5"

WIND-CLIK®	
Model	**Description**
WIND-CLIK	Wind sensor interrupts or returns irrigation when programmed wind speed is measured.

FLOW-CLIK®

Sensor: **Flow**

FEATURES

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

Flow-Clik sensor and module shown with receptacle tees

SPECIFICATIONS

- Flow-Clik Interface Panel: 36" leads provided for easy wiring to controller (2 wires to controller, 24 VAC terminals and 2 wires to sensor)
- Current draw: 24 VAC, 0.025 A
- Switching current: 2 A maximum
- Max. distance between interface panel and sensor: 1000'
- Sensor Wiring: 2 x direct burial, 18 AWG or greater, color-coded or marked for polarity, up to 1000' from controller
- Programmable start up delay: 0 to 300 seconds
- Programmable interrupt period: 2 to 60 minutes

FLOW-CLIK®

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

REQUIRED USER INSTALLED OPTION (SPECIFY SEPARATELY)

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

Notes:
* FCT for pipe installation sold separately

FLOW RANGE

Flow-Sync Sensor Diameter	Operating Range (GPM)	
	Minimum	Suggested Maximum*
1"	2	17
1½"	5	35
2"	10	55
3"	28	120
4"	34	200

Note:
* Good design practice dictates the maximum flow not to exceed 5'/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.

FLOW-SYNC®

Sensor: **Flow**

FEATURES

- Simple two wire connection to ACC and I-Core® controllers (up to 1000')
- Feeds flow data (gallons or liters) to controller, for flow recording and monitoring purposes
- Robust waterproof construction
- 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

SPECIFICATIONS

- Recommended pressure range: 0 to 220 PSI
- Pressure Loss: < 1 PSI
- Wiring: 2 x direct burial, 18 AWG or greater, color-coded or marked for polarity, up to 1000' from controller

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

SENSORS

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

REQUIRED USER INSTALLED OPTION (SPECIFY SEPARATELY)	
Model	**Description**
FCT-100	1" Schedule 40 sensor (white) receptacle tee
FCT-150	1½" Schedule 40 sensor (white) receptacle tee
FCT-158	1½" Schedule 80 sensor (gray) receptacle tee
FCT-200	2" Schedule 40 sensor (white) receptacle tee
FCT-208	2" Schedule 80 sensor (gray) receptacle tee
FCT-300	3" Schedule 40 sensor (white) receptacle tee
FCT-308	3" Schedule 80 sensor (gray) receptacle tee
FCT-400	4" Schedule 40 sensor (white) receptacle tee

Note:
* Flow-Sync (sensor only) for use with ACC and I-Core controllers. Requires FCT for pipe installation (sold separately).

WIRELESS FLOW SENSOR

Sensor: **Flow**

FEATURES

- Feeds flow data (gallons or liters) to controller, for flow recording and monitoring purposes
- Robust waterproof construction
- 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

SPECIFICATIONS

- Maximum distance sensor to module: 500'
- Recommended pressure range: 0 to 220 PSI
- Pressure Loss: <1 PSI

APPROVALS

- FCC and CE approved

WFS

WIRELESS FLOW SENSOR	
Model	**Description**
WFS	Wireless Flow Sensor Kit 900 mHz
WFS-INT	Wirelss Flow Sensor Kit - International 868 mHz
WFS-T	Wireless Flow Sensor Kit Transmitter Only
WFS-R	Wireless Flow Sensor Kit Receiver Only
WFS-T-INT	Wireless Flow Sensor Kit Transmitter Only - International 868 mHz
WFS-R-INT	Wireless Flow Sensor Kit Receiver Only - International 868 mHz
WFS-SEN	Wireless Flow Sensor Kit Sensor Only
WFS-LITHBATT	Wireless Flow Sensor Lithium Battery
WFS-ALKBATT	Wireless Flow Sensor Alkaline Battery with Cage

REQUIRED USER INSTALLED OPTION (SPECIFY SEPARATELY)	
Model	**Description**
FCT-100	1" Schedule 40 sensor (white) receptacle tee
FCT-150	1½" Schedule 40 sensor (white) receptacle tee
FCT-158	1½" Schedule 80 sensor (gray) receptacle tee
FCT-200	2" Schedule 40 sensor (white) receptacle tee
FCT-208	2" Schedule 80 sensor (gray) receptacle tee
FCT-300	3" Schedule 40 sensor (white) receptacle tee
FCT-308	3" Schedule 80 sensor (gray) receptacle tee
FCT-400	4" Schedule 40 sensor (white) receptacle tee

FLOW RANGE		
Wireless Flow Sensor Diameter	**Operating Range (GPM)**	
	Minimum	Suggested Maximum*
1"	2	17
1½"	5	35
2"	10	55
3"	28	120
4"	34	200

Note:

* Good design practice dictates the maximum flow not to exceed 5'/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.


Hunter IH RISER

SECTION 07:

MICRO

ADVANCED FEATURES

Hunter now has a complete system of commercial-grade micro irrigation products for any application. Whether you're designing micro irrigation projects for dense or sparse plantings, narrow beds, small spaces, or even green roofs, you can get everything you need from Hunter. Many of the components are available in a brown color for an aesthetically pleasing look that blends into the landscape.

SUBSURFACE

ECO-MAT®

Designed to suit a variety of hard-to-irrigate areas, the Eco-Mat uses an engineered combination of Hunter's fleece-wrapped professional landscape dripline attached to a specialized fleece blanket, which evenly disperses water within the root zone.

ECO-WRAP™

Eco-Wrap is Hunter's fleece-wrapped professional landscape dripline, which transports water quickly and more efficiently than bare dripline.

ECO-INDICATOR

The Eco-Indicator provides a visual signal that the system is operating. Pair with Eco-Mat and Eco-Wrap subsurface systems or any drip system where emitters are obscured.

PLD-LOC FITTINGS

PLD-Loc Fittings are easier and faster than other fittings with easy push-on installation. Threads lock them into place. Fits all dripline inside diameters: 16 mm, 17 mm, 18 mm and ½" black poly tubing. Reusable - perfect for drip irrigation maintenance.

RZWS - ROOT ZONE WATERING SYSTEM

The Root Zone Watering System features Hunter's patented StrataRoot design, which is a series of internal baffles that deliver water to all levels of the root zone. The RZWS is pre-assembled to save time, and the enclosed design and grate protect irrigation hardware from vandalism.

ABOVE GROUND

PLD - PROFESSIONAL LANDSCAPE DRIPLINE

Hunter's PLD provides a pressure compensation system with built-in check valve to help prevent emitter clogging and water loss and ensure even flows on all terrains and lateral lengths.

POINT SOURCE EMITTERS

A wide range of flow rates offers you the flexibility to give individual plants and trees the right amount of water from a single emitter. Color-coded for flow identification with coined edges for easy gripping during installation.

MULTI-PORT EMITTERS

Pressure-compensating commercial-grade emitters for all PVC systems. Perfect for mixed plantings or a series of shrubs. Color coded to match other Hunter emitters.

RIGID RISERS

Designed for rugged system designs. Accept 10-32 threaded components. A perfect solution for annual flower beds and planters.

IH RISERS

Heavy duty commercial-grade risers with a vandal-resistant design. Available in 12" or 24" blank or emitter style. Emitter style includes screens with check valves. Brown components blend in with the landscape.

APPLICATION COMPARISON

From Professional Landscape Dripline to our root zone watering system, Hunter's micro irrigation solutions are designed to apply water efficiently and precisely where it's needed. Choose the combination of products best suited for your application and plant type using the chart below.

QUICK SPECS	ECO-MAT®	ECO-WRAP™	PLD	MLD	IH RISER	PSE	MULTI-PORT	MICRO SPRAYS	RZWS
EMITTER SPACING	12"	12"	12, 18, 24"	6, 12"	-	-	-	-	-
FLOW RATES	0.6 GPH	0.6 GPH	0.4–1.0 GPH	0.4–0.85 GPH	0.5, 1, 2, 4, 6 GPH	0.5, 1, 2, 4, 6 GPH	0.5, 1, 2, 4, 6 GPH	0–28.6 GPH	0.25, 0.50 GPM
NON-DRAINING (CHECK VALVE)	●	●	●						
WARRANTY	5 Years	5 Years	5 Years	1 Year	2 Years	2 Years	2 Years	1 Year	2 Years
ADVANCED FEATURES									
FLEECE TECHNOLOGY	●	●							
PRESSURE COMPENSATION	●	●	●						●
STRATA ROOT SYSTEM									●
ADJUSTABLE RADIUS								●	
PLANT TYPE									
TEMPORARY IRRIGATION			●	●				●	
GROUNDCOVER, SHRUBS, TREES AT GRADE (LESS THAN 6" DEEP)			●					●	
TURF	●	●							
SMALL SHRUBS, PLANTS AND GROUNDCOVER	●	●		●				●	
TREES AND LARGE SHRUBS		●						●	●
SPREADING SUCCULENTS, MOSS, AND MAT PLANTS	●	●		●					
APPLICATION									
USE WITH RECLAIMED WATER	●	●	●						●
SUBSURFACE INSTALLATION	●	●	●						●
POTTED PLANTS		●	●	●				●	
HEDGE ROWS	●	●	●						
DENSE MIXED PLANTINGS	●	●	●					●	
RESIDENTIAL GARDENING	●	●	●	●				●	
ROADWAY MEDIANS	●	●	●						●
GREEN ROOF	●	●							
TREES	●	●	●						●

ECO-MAT®

UNMATCHED UNIFORMITY AND WATER SAVINGS

Subsurface Irrigation: **Under Turf, Gardens, Small Shrubs**

FEATURES

- Water-saving with nearly 100% distribution uniformity
- Promotes healthier plant roots
- Eliminates overspray onto sidewalks, buildings, or vehicles
- Perfect for irrigating difficult areas
- Use with PLD-Loc or barbed PLD fittings
- The polypropylene wrap protects against root intrusion without using toxic chemicals or metal byproducts
- Water holding capacity of 0.5 gal/yd^2
- Pressure compensating
- Check valves keep the line charged up to 5' and prevent low point drainage
- Recommended for use with all Hunter Drip Control Zone Kits
- For maximum water savings, use with Hunter Soil-Clik®
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

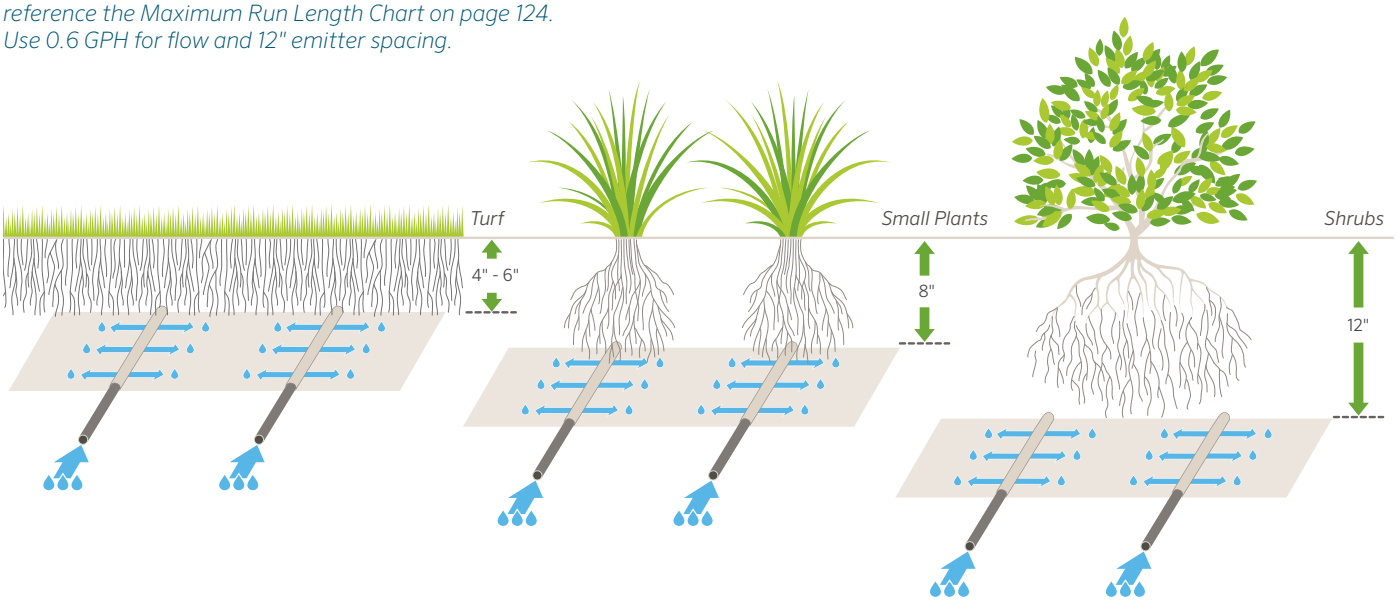
ECO-MAT TECHNICAL SPECIFICATIONS

ECO-MAT	**17 mm**
Flow and Spacing	0.6 GPH and 12"
Roll Length	100' or 295'
Width	32"
ft^2	100' roll is 266 ft^2, 295' roll is 785 ft^2
Operating Pressure	15 to 50 PSI
Minimum Filtration	120 mesh; 125 microns
Lateral Row Spacing	14"

OPERATING SPECIFICATIONS

- Minimum filtration 120 mesh; 125 microns
- Operating pressure range: 15 to 50 PSI
- Compatible with PLD-LOC and 17 mm insert barb fittings
- Recommended installation depth range 4" to 12"

For maximum run length distances for the Eco-Mat or Eco-Wrap, reference the Maximum Run Length Chart on page 124. Use 0.6 GPH for flow and 12" emitter spacing.



Eco-Indicator

Pair with Eco-Mat and Eco-Wrap subsurface systems. Offers a visual signal that the system is operating. Requires 12 PSI minimum. Yellow, easy-to-see indicator stem with 6" pop up height.

ECO-WRAP™

Subsurface Irrigation: **Under Turf, Gardens, Shrubs, Trees**

FEATURES

- High distribution uniformity surpassed only by the Eco-Mat
- Promotes healthier plant roots
- Eliminates overspray onto sidewalks, buildings, or vehicles
- Ideal for difficult areas between flagstone and pavers
- Use with PLD-Loc or barbed PLD fittings
- Fleece-wrapped professional landscape dripline
- Transports water faster and more uniformly than bare dripline
- Pressure compensating
- Check valves keep the line charged up to 5' and prevent low point drainage
- Fleece fully moistens in less than 3 minutes and conserves water that bare dripline cannot
- Recommended for use with all Hunter Drip Control Zone Kits
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

OPERATING SPECIFICATIONS

- Minimum filtration 120 mesh; 125 microns
- Operating pressure range: 15 to 50 PSI
- Compatible with PLD-LOC and 17 mm insert barb fittings

For maximum run length distances for the Eco-Mat or Eco-Wrap, reference the Maximum Run Length Chart on page 124. Use 0.6 GPH for flow and 12" emitter spacing.

ECO-WRAP TECHNICAL SPECIFICATIONS

ECO-WRAP	**17 mm**
Flow and Spacing	0.6 GPH and 12"
Roll Length	250'
Operating Pressure	15 to 50 PSI
Minimum Filtration	120 mesh; 125 microns

Eco-Wrap

APPLICATION RATE

EMITTER FLOW RATE – 0.4 GPH

Row Spacing (in.)	Emitter Spacing (in.) 12	18	24
12	0.64	0.43	0.32
14	0.55	0.37	0.28
16	0.48	0.32	0.24
18	0.43	0.29	0.21
20	0.39	0.26	0.19
24	0.32	0.21	0.16

EMITTER FLOW RATE – 0.6 GPH

Row Spacing (in.)	Emitter Spacing (in.) 12	18	24
12	0.96	0.64	0.48
14	0.83	0.55	0.41
16	0.72	0.48	0.36
18	0.64	0.43	0.32
20	0.58	0.39	0.29
24	0.48	0.32	0.24

EMITTER FLOW RATE – 1.0 GPH

Row Spacing (in.)	Emitter Spacing (in.) 12	18	24
12	1.60	1.07	0.80
14	1.38	0.92	0.69
16	1.20	0.80	0.60
18	1.07	0.71	0.53
20	0.96	0.64	0.48
24	0.80	0.53	0.40

Notes
Application rates in inches per hour

QUICK REFERENCE CHART – GPM PER 100'

Emitter (GPH)	Emitter Spacing (in.) 12	18	24
0.4	0.67	0.44	0.33
0.6	1.00	0.67	0.50
1.0	1.67	1.11	0.83

Notes
Remember that for Eco-Mat, there are two laterals. Calculating GPM per 100' should reflect two lines, not just one.

PLD

PROFESSIONAL LANDSCAPE DRIPLINE

Flow: **0.4, 0.6, 1.0 GPH**
Surface Irrigation: **Shrub Rows, Gardens, Tree Rings**

FEATURES

- Check valves keep the line charged up to 5' and prevent low point drainage
- Pressure compensating emitters
- Flow rates of 0.4, 0.6, 1.0 GPH
- Emitter spacing at 12", 18", 24"
- Anti-siphon prevents debris from entering emitters when used subsurface
- Available without emitters (blank)
- Use with PLD-Loc or barbed PLD fittings
- Strong UV resistance
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)

OPERATING SPECIFICATIONS

- Pressure compensating, non-draining emitters
- Operating pressure range: 15 to 50 PSI
- Minimum filtration: 120 mesh; 125 microns

Precipitation Rate charts on page 123

PLD

PLD Reclaimed
Optional color for reclaimed water sources

PLD Installed

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

1 Model	2 Spacing	3 Length	4 Options
PLD-04 = 0.4 GPH Flow	**12** = 12"	**100** = 100'*	**(blank)** = No option
PLD-06 = 0.6 GPH Flow	**18** = 18"	**250** = 250'	**R** = Reclaimed *
PLD-10 = 1.0 GPH Flow	**24** = 24"	**500** = 500'	
PLD-BLNK = No Emitters		**1K** = 1,000'	

Example:
PLD-04 - 12 - 250 = 0.4 GPH landscape dripline with 12" spacing in a 250' roll

Notes:
* 100' rolls available only in models PLD-BLNK-100, PLD-06-12-100, PLD-10-12-100, and PLD-10-18-100. Reclaimed models available in 0.6 and 1.0 GPH only and do not contain check valves.

EMITTER LINE MAXIMUM RUN LENGTH

EMITTER LINE LENGTH – 0.4 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
15.0	289	401	502
20.0	354	494	620
25.0	405	563	706
30.0	441	621	783
35.0	481	671	842
40.0	508	719	910
45.0	542	755	949
50.0	558	784	988

EMITTER LINE LENGTH – 0.6 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
15.0	173	240	300
20.0	230	320	402
25.0	265	373	471
30.0	299	417	523
35.0	333	462	580
40.0	342	483	611
45.0	364	518	657
50.0	387	543	685

EMITTER LINE LENGTH – 1.0 GPH

Pressure (PSI)	Emitter Spacing (in.) 12	18	24
15.0	126	176	222
20.0	169	235	295
25.0	197	276	346
30.0	218	308	390
35.0	240	337	425
40.0	263	362	452
45.0	271	384	486
50.0	387	543	685

SOIL INFILTRATION RATES

Soil Type	Maximum application rate (in/hr) on slopes 0-5%	5-8%	8-12%
Sand, coarse	1.5-2.0	1.0-1.5	0.75-1.0
Sand, fine	0.75-1.0	0.5-0.8	0.4-0.6
Loam, silt loam	0.3-0.5	0.25-0.4	0.15-0.3
Clay, clay loam	0.15	0.10	0.08

FITTINGS

Fittings: **16-18 mm Dripline**
Uses: **Barbed and Premium Fittings**

BARBED FITTINGS

- Acetal material
- Dual barb provides stronger hold than single barb
- Ideal for use with Eco-Mat®, Eco-Wrap™, PLD
- Fits 17 mm dripline and tubing
- Brown color to match PLD dripline
- No clamps necessary
- Warranty period: 1 year

OPERATING SPECIFICATIONS

- Maximum pressure: 60 PSI

FITTINGS

PLD-075
¾" MPT x 17 mm Barb

PLD-050
½" MPT x 17 mm Barb

PLD-ELB
17 mm Barb Elbow

PLD-CPL
17 mm Barb Coupling

PLD-CAP
17 mm Barb x ½" MPT
with Cap

PLD-TEE
17 mm Barb Tee

PLD-075-TBTEE
17 mm Barb Tee x
¾" Thread

PLD-BV
17 mm Barb Shut-off Valve

PLD-AVR
½" Air/Vacuum Relief Valve

PLD-LOC

- High quality glass-filled polypropylene
- Easy push-on installation, threads lock it into place
- Easier and faster than other fittings
- Fits multiple sizes of dripline and tubing (Inside diameter range from 0.520" to 0.620")
- Brown color blends in with dripline and landscape
- Reusable and ideal for drip irrigation maintenance
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Maximum pressure: 60 PSI

FITTINGS

PLD-LOC 075
¾" Male Pipe Thread x Loc

PLD-LOC 050
½" Male Pipe Thread x Loc

PLD-LOC ELB
Locking Elbow

PLD-LOC CPL
Locking Coupler

PLD-LOC CAP
End Cap x Loc

PLD-LOC TEE
Locking Tee

PLD-LOC FHS
¾" Female Hose Swivel
x Loc

MICRO

MLD

MINI LANDSCAPE DRIPLINE

Flow: **0.4-0.85 GPH**
Surface Irrigation: **Short Runs and Planters**
Fittings: **All ¼" barb fittings**

FEATURES

- Perfect for short runs and planters
- 100' and 250' rolls
- 6" or 12" emitter spacing
- 250' rolls uncoil from the inside of the roll for easy, no-hassle dispensing
- Offered in both brown or black
- Use with standard ¼" barb fittings
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- 0.250" outside diameter x 0.175" inside diameter
- Operating Pressure: 10-40 PSI
- Materials: LLDPE
- Minimum bending radius: 12"
- Minimum Filtration: 150 mesh; 100 microns

▸ = *Flow chart available on page 155*

MLD

MLD Installed

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

1 Model	2 Spacing	3 Length	4 Options
MLD-05	**06** = 6" **12** = 12"	**100** = 100' **250** = 250'	**BL** = Black **(blank)** = Brown

Example:
MLD-05 - 12 - 250 = 0.5 GPH mini landscape dripline with 12" spacing in a 250' roll, Brown

MAXIMUM RUN LENGTH

Pressure (PSI)	Emitter Spacing (in.) 6	12
25.0	15'	30'
40.0	15'	30'

Notes
Run lengths based on maintaining consistent flows.

FITTINGS

¼" Barb Fittings:
0.18" barb use with MLD or any vinyl or PE ¼" tubing, UV stabilized materials, and durable single barb connection.

QB-TEE
¼" Barb Tee

QB-ELB
¼" Barb Elbow

QB-CPL
¼" Barb Coupling

QB-CRS
¼" Barb Cross

GP-025
Goof Plug

IH RISERS

Flow: **0.5, 1.0, 2.0, 4.0, 6.0 GPH**
Surface Irrigation: **Commercial-Grade**

FEATURES

- Heavy duty commercial-grade vandal-resistant design
- Made of flexible PVC for durability
- Brown components blend in with landscape
- Accepts any ½" FPT emitter
- Ideal for slopes
- Pre-assembly reduces labor by up to 50%
- On grade or below grade installation
- Available in both 12" and 24" cut lengths pre-assembled with two ½" MPT adapters
- Available in 12" lengths pre-assembled with ½" MPT adapter and specified emitter with check valve
- Available as components only for self-assembly
- Check valve holds back up to 9' of head
- Warranty period: 2 years

IH RISERS

OPERATING SPECIFICATIONS

- Maximum Flow: 7 GPM
- Maximum Pressure: 60 PSI

IH RISER FLEXIBLE PVC

Model	Description
IH-RISER-12	12" flexible PVC riser
IH-RISER-24	24" flexible PVC riser
IH-12-05-CV	12" flexible PVC riser with 0.5 GPH nozzle
IH-12-10-CV	12" flexible PVC riser with 1.0 GPH nozzle
IH-12-20-CV	12" flexible PVC riser with 2.0 GPH nozzle
IH-12-40-CV	12" flexible PVC riser with 4.0 GPH nozzle
IH-12-60-CV	12" flexible PVC riser with 6.0 GPH nozzle
IH-250	250' length of 12" flexible PVC irrigation hose
IH-FIT-3850	⅜" x ½" MPT IH fitting
IH-FIT-3850-NP	⅜" x ½" MPT IH fitting (purple reclaimed)
IPS-050250	250' length of ½" IPS
SCREENCV	Screen with 9' check valve

SCREEN-CV
Filter screen with 9' check valve.

IH-FIT-3850
⅜" x ½" MPT IH Fitting

IH-FIT-3850-NP
⅜" x ½" MPT IH Fitting (purple reclaimed)

POINT SOURCE EMITTERS

Pressure Compensating Flow: **0.5, 1.0, 2.0, 4.0, 6.0 GPH**

FEATURES

- Pressure compensating
- Color-coded by flow
- Three inlet variations: ¼" barb, 10-32 thread, ½" FPT
- Coined edges for easy grip
- Self-piercing barb
- Optional diffuser cap
- Self-flushing diaphragm
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Recommended pressure range: 20 to 50 PSI
- Minimum filtration 150 mesh; 100 microns

POINT SOURCE EMITTERS – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Flow Rate	3 Inlet	4 Qty./Bag
HE	**050** = 0.5 GPH	**B** = Self-piercing Barb*	25
HEB	**10** = 1.0 GPH	**T** = 10-32 Threaded*	100
	20 = 2.0 GPH	**(blank)** = ½" Female Thread	
	40 = 4.0 GPH		
	60 = 6.0 GPH		

* For HE only (not HEB)

Example:
HE-20 - T - 25 = 2.0 GPH Point Source Emitter with 10-32 thread in a bag of 25
HEB-050 - 100 = 0.5 GPH Point Source Emitter with ½" female thread in a bag of 100

Inlet Options

① Self-piercing Barb

② 10-32 Thread

③ ½" Female Thread

EMITTER MODEL CHART

	Model	Inlet Type	Flow (GPH)
Blue	HE-050-B	Self-piercing Barb	0.5
Black	HE-10-B	Self-piercing Barb	1.0
Red	HE-20-B	Self-piercing Barb	2.0
Tan	HE-40-B	Self-piercing Barb	4.0
Orange	HE-60-B	Self-piercing Barb	6.0
Blue	HE-050-T	10-32 Thread	0.5
Black	HE-10-T	10-32 Thread	1.0
Red	HE-20-T	10-32 Thread	2.0
Tan	HE-40-T	10-32 Thread	4.0
Orange	HE-60-T	10-32 Thread	6.0
Blue	HEB-05	½" Female Thread	0.5
Black	HEB-10	½" Female Thread	1.0
Red	HEB-20	½" Female Thread	2.0
Tan	HEB-40	½" Female Thread	4.0
Orange	HEB-60	½" Female Thread	6.0

DIFFUSER CAP
(HE-DIFF)
Gently diffuses water on higher flow emitters to prevent erosion.

MICRO

MULTI-PORT EMITTERS

Pressure Compensating Flow: **0.5, 1.0, 2.0, 4.0 GPH**

FEATURES

- Unused ports may be closed using vinyl emitter caps
- Pressure-compensating
- Perfect for mixed plantings or series of shrubs
- Flows are color-coded to match other Hunter emitters
- ½" threaded
- Commercial-grade for all PVC systems
- Manifold available
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Recommended Pressure: 5 to 65 PSI
- Minimum Filtration: 150 mesh; 100 microns

MULTI-PORT EMITTER MODEL CHART

	Model	Flow (GPH)
Blue	MPE-05	0.5
Black	MPE-10	1.0
Red	MPE-20	2.0
Tan	MPE-40	4.0
Gray	MPM-050	N/A

Multi-Port Emitter

MULTI-PORT MANIFOLD
(MPM-050)
Unrestricted flow through outlets as indicated by gray color. Use with ¼" distribution tubing and a barbed emitter at the end (Available in ½" FPT). Allows water to be directed to as many as six different locations.

EMITTER CAPS
(MPE-CAPS)
Plugs unused ¼" barbed emitter outlets. Use with Hunter Multi-Port Emitters.

RIGID RISER

Surface Irrigation: **Height Adjustment**

FEATURES

- For rugged system designs
- Accepts 10-32 threaded components
- Perfect for annual flower beds and planters
- Inlet configurations: ½" FPT, ¼" barb, or blank
- HDPE construction
- Warranty period: 1 year

RIGID RISER MODEL CHART

Model	Description
RR12	12" rigid riser
RR12-T	12" rigid riser with ½" threaded base
RR12-B	12" rigid riser with ¼" barb base
RR18	18" rigid riser
RR18-T	18" rigid riser with ½" threaded base
RR18-B	18"rigid riser with ¼" barb base

12" RIGID RISER

18" RIGID RISER

DRIP CONTROL ZONE KITS

Kits: **Residential and Light Commercial**
Flow: **0.5 to 15 GPM**

FEATURES

- Convenient kit with all necessary parts
- Highest quality components
- Saves on installation time
- Factory assembled
- Warranty period: 2 years

FACTORY INSTALLED OPTIONS

- 25 or 40 PSI regulator

USER INSTALLED OPTIONS

- Reclaimed water ID handle for ACZ-075 and PCZ-101 (P/N 269205)

ACZ-075

- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen
- ¾" inlet and ¾" outlet

PCZ-101

- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen
- 1" inlet and ¾" outlet

SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 Hz
  - 370 mA inrush current, 210 mA holding current, 50 Hz

PCZ & ACZ performance chart on page 154

ACZ-075
Height: 11½"
Width: 3"
Length: 12"
¾" inlet x ¾" outlet

PCZ-101
Height: 7"
Width: 3"
Length: 10"
1" inlet x ¾" outlet

DRIP ZONE CONTROL KITS – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
ACZ-075 = ¾" PGV-ASV valve with ¾" HFR system	**25** = 25 PSI regulator
PCZ-101 = 1" NPT PGV globe valve with 1" HFR system	**40** = 40 PSI regulator

Examples:
ACZ-075 - 25 = ¾" PGV-ASV valve with ¾" HFR system, and ¾" outlet 25 PSI regulator
PCZ-101 - 25 = 1" NPT PGV globe valve with 1" HFR system, and ¾" outlet 25 PSI regulator

PCZ-101 Installed

DRIP CONTROL ZONE KITS

Kits: **Commercial**
Flow: **2 to 60 GPM**

FEATURES

- Highest quality components
- Factory assembled to save installation time
- Filter Sentry™ diaphragm screen cleaning system
- Wide flow range to cover most micro irrigation applications
- Warranty period: 5 years

FACTORY INSTALLED OPTIONS

- 25 or 40 PSI regulator (ICZ-101)

USER INSTALLED OPTIONS

- Reclaimed water ID handle for ICZ-101-LF, ICZ-101 and ICZ-151 (P/N 561205)

ICZ-101-LF

- Pressure Regulation: 25 or 40 PSI
- Flow 0.5 to 15 GPM (30 to 900 GPH)
- Operating Pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen
- 1" inlet and ¾" outlet

ICZ-101

- Factory Installed Filter Sentry
- Pressure regulation: 25 or 40 PSI
- Flow: 2 to 20 GPM (120 to 1,200 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen
- 1" inlet and 1" outlet
- Factory installed Filter Sentry

ICZ-151

- Pressure regulation: 40 PSI
- Flow: 20 to 60 GPM (1,200 to 3,600 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 120 mesh; 125 microns stainless steel screen
- 1½" inlet and dual 1" outlets

SOLENOID OPERATING SPECIFICATIONS

- Heavy-duty solenoid: 24 VAC
  - 350 mA inrush current, 190 mA holding current, 60 cycles
  - 370 mA inrush current, 210 mA holding current, 50 cycles

Additional charts on page 154

ICZ-101-LF
Height: 7"
Width: 4"
Length: 10½"
1" inlet x ¾" outlet

ICZ-101
Height: 6¾"
Width: 4"
Length: 14"
1" inlet x 1" outlet

ICZ-151
Height: 12"
Width: 12"
Length: 22"
1½" inlet x Dual 1" outlets

DRIP ZONE CONTROL KITS – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
ICZ-101-LF = 1" ICV globe valve with HFR-100-075 filter regulator	**25** = 25 PSI regulator *(excluding ICZ-151)*
ICZ-101 = 1" ICV globe valve with 1" HY100 filter system	**40** = 40 PSI regulator
ICZ-151 = 1½" ICV globe valve with 1½" filter system	

Example:
ICZ-101 - 40 = 1" ICV globe valve with 1" HY100 filter system, and 1" outlet 40 PSI regulator

FILTER REGULATOR

System: **Regulation and Filtration, All in One Component**

FEATURES

- Factory-assembled and water-tested
- Highest quality components (stainless steel filter screen, standard flush cap, top-of-the-line regulator)
- Wide flow range to cover most micro irrigation applications
- Warranty period: 2 years

HFR-100-075, HFR-075

- Pressure regulation: 25 or 40 PSI
- Flow: 0.5 to 15 GPM (30 to 900 GPH)
- Operating pressure: 20 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen

HUNTER FILTER REGULATOR

Model	Description
HFR-075-25	¾" inlet x ¾" outlet, regulated at 25 PSI
HFR-075-40	¾" inlet x ¾" outlet, regulated at 40 PSI
HFR-100-075-25	1" inlet x ¾" outlet, regulated at 25 PSI
HFR-100-075-40	1" inlet x ¾" outlet, regulated at 40 PSI

HUNTER Y-FILTER

- Filter HY-100 1" Male NPT
- Filter HY-100-075 1" Male NPT inlet x ¾" Male outlet
- Filter HY-075 ¾" Male
  - Filter only (no regulation)
  - Extra large 150 mesh; 100 microns stainless steel screen
- Filter HY-151 1½" Male NPT
  - Filter only (no regulation)
  - Extra large 120 mesh; 125 microns stainless steel screen

HFR-100-075-25
HFR-100-075-40
Height: 7"
Width: 2¾"
Length: 6¼"
1" inlet x ¾"outlet

HFR-075-25
HFR-075-40
Height: 7"
Width: 2¾"
Length: 6¼"
¾" inlet x ¾" outlet

HY-100, HY-100-75, HY-075
Height: 6"
Width: 3"
Length: 5"

HY-151
Height: 11"
Width: 4.5"
Length: 8"

MICRO

SUPPLY TUBING

½" POLYETHYLENE PROFESSIONAL TUBING

Uses: **Water transportation**
Size: **OD 0.700" x ID 0.600"**

FEATURES

- 0.700" outside diameter x 0.600" inside diameter
- Connect using PLD-Loc fittings or standard 700 series compression fittings
- Made with linear low density UV-resistant polyethylene
- Thicker wall, commercial grade
- Warranty period: 2 years

OPERATING PRESSURE

- 0 to 60 PSI

½" PE Tubing

½" PE TUBING – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Tubing Diameter	3 Length
TWPE = Thick-Walled Polyethylene Tubing	**700** = 0.700" outside diameter	**100** = 100' **250** = 250' **500** = 500' **1K** = 1,000'

Example:
TWPE-700 - 250 = ½" polyethylene tubing in a 250' roll

DISTRIBUTION TUBING

¼" POLYETHYLENE AND VINYL TUBING

Uses: **Water transportation**
Size: **OD 0.250" x ID 0.170"**

FEATURES

- 0.250" outside diameter x 0.170" inside diameter
- Connect using standard ¼" fittings (0.18" barbs)
- Offered in vinyl or polyethylene
- UV Resistant materials
- Polyethylene is better choice in warm climates
- Vinyl is more flexible and useful in cold climates
- Warranty: 2 years

OPERATING PRESSURE

- 0 to 60 PSI

¼" Tubing

¼" TUBING – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Tubing Diameter	3 Length
HQPE = Polyethylene Tubing **HQV** = Vinyl Tubing	**250** = 0.250" outside diameter	**100** = 100' **250** = 250' **1K** = 1,000'

Example:
HQPE-250 - 1K = ¼" polyethylene tubing in a 1,000' roll

MICRO SPRAYS

Uses: **Trees, Shrubs, Containers, and Flower Beds**

SOLO-DRIP

- Eight streams of water for accurate watering
- Fingertip cap control for flow and radius adjustment
- Operating specifications: 15 to 30 PSI
- Warranty period: 1 year

SOLO-DRIP PERFORMANCE DATA

Pressure PSI	Flow GPH	Throw Diameter ft.
15	0-11	0-1.5
20	0-12.5	0-1.9
30	0-15.7	0-2.7

Note: Adjustable to Maximum (approx. 20 clicks)

HALO-SPRAY

- Large diameter, umbrella of water
- Adjust radius as needed
- Combine several for a "blanket" of water
- Operating specifications: 15 to 30 PSI
- Warranty period: 1 year

HALO-SPRAY PERFORMANCE DATA

Pressure PSI	Flow GPH	Throw Diameter ft.
15	0-14	0-5.8
20	0-16	0-7.7
30	0-20	0-11.5

Note: Adjustable to Maximum (approx. 14 clicks)

TRIO-SPRAY

- Full-, half-, and quarter-circle configurations
- Functions like big sprays on a micro level
- Control knob for specific adjustment
- Operating specifications: 10 to 30 PSI
- Warranty period: 1 year

TRIO-SPRAY PERFORMANCE DATA

Pressure PSI	Flow GPH	Spray Pattern ft. Diameter in Throw 360° x 18 Hole	Radius of Throw 180°	Radius of Throw 90°
10	0-16.7	0-17	0-7	0-6
15	0-20.3	0-19	0-8	0-7
20	0-23.4	0-20	0-9	0-8
25	0-26.1	0-22	0-10	0-9
30	0-28.6	0-23	0-11	0-10

Accessories

Pair with ¼" tubing or with Rigid Risers for added flexibility and better water application.

SD-T
Height: 1.0"
Width: 0.8"
Length: 0.6"
Radius: 360°

SD-B
Height: 1.0"
Width: 0.8"
Length: 0.6"
Radius: 360°

SD-B-STK
Height: 6.0"
Width: 1.7"
Length: 0.6"
Radius: 360°

HS-T
Height: 1.0"
Width: 0.8"
Length: 0.6"
Radius: 360°

HS-B
Height: 1.0"
Width: 0.8"
Length: 0.6"
Radius: 360°

HS-B-STK
Height: 6.0"
Width: 1.7"
Length: 0.6"
Radius: 360°

TS-T-F
Height: 1.5"
Width: 0.9"
Length: 0.6"
Radius: 360°

TS-T-F
Height: 1.5"
Width: 0.9"
Length: 0.6"
Radius: 180°

TS-T-F
Height: 1.5"
Width: 0.9"
Length: 0.6"
Radius: 90°

RZWS

Size: **10", 18", 36"**
Flow: **0.25 or 0.50 GPM**

FEATURES

- Built-in Hunter Swing Joint for direct installation to ½" PVC fitting
- Hunter pressure-compensating bubbler for precise watering
- Pre-assembled watering system for fast installation
- Patented StrataRoot™ baffles divert water to root zone while adding strength to the unit
- Locking cap
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Bubbler flow rates: 0.25 or 0.50 GPM
- Recommended pressure range: 15 to 70 PSI

FACTORY INSTALLED OPTIONS

- Check valve
- Locking reclaimed purple cap

USER INSTALLED OPTIONS

- Sleeve: Fabric sleeve that helps prevent soil intrusion in sandy areas. For 18" and 36" models (P/N RZWS-SLEEVE)
- Replacement cap for 36" and 18" cm models:
  - New style snap-on locking cap (P/N 913300SP)
  - Screw locking cap (P/N RZWS-CAP)
- Locking reclaimed water purple cap for 18" and 36" models:
  - New style snap-on locking cap (P/N 913301SP)
  - Screw locking cap (P/N RZWS-RCCAP)
- Reclaimed water purple cap for 10" (P/N RZWS10-RCC)

RZSW-10
Diameter: 2"
Length: 10"

RZWS-18
Diameter: 4.8"
Length: 18"

RZWS-36
Diameter: 4.8"
Length: 36"

MICRO

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

1 Model	2 Bubbler Flow Rate	3 Options
RZWS-10 = 10" Root zone watering system	**25** = 0.25 GPM	**(blank)** = No option
RZWS-18 = 18" Root zone watering system	**50** = 0.50 GPM	**CV** = Check valve
RZWS-36 = 36" Root zone watering system	**(blank)** = no bubbler or swing joint	**R** = Reclaimed cap
		CV-R = Check valve with reclaimed cap

Examples:
RZWS-18 - 25 = 18" Root zone watering system at 0.25 GPM
RZWS-10 - 50 - CV = 10" Root zone watering system at 0.50 GPM, with check valve
RZWS-36 - 25 - CV-R = 36" Root zone watering system at 0.25 GPM, with check valve and reclaimed cap

ADDITIONAL OPTIONS (SPECIFY SEPARATELY)

RZWS-SLEEVE = Field installed sleeve made from filter fabric

Reclaimed models available
Add -R to model number
Purple reclaimed cap spare part
(P/N RZWS-RCCAP for 18" and 36" models,
P/N RZWS-10RCC for 10" models)

SECTION 09:

ACCESSORIES

ACCESSORIES

DBRY-6

Models
- DBRY100: Bulk 100 connectors
  (100 tubes loose in box, plus inner box with 100 wire nuts)
- DBRY2X25: 25 x 2-packs
  (2 tubes and 2 wire nuts in a plastic bag, x 25 units)

Features
- UL Listed for 600 Volts direct burial
- Improved red-and-yellow wire nut, eliminating the need for two different sizes
- A snap-lock feature that secures the wire nut in the bottom of the light blue waterproof tube
- 3 wire exit cutouts in the strain relief cap, to ease wire routing
- Meets Directive 2006/95/EC and IEC standards EN61984:2009, EN60998- 1:2004, and EN60998-2-4:2005

Waterproof Wire Connectors
DBRY100, DBRY2X25

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 through top of valve
- Adjusts to compensate for elevational changes up to 32': Maximum flexibility
- Variety of inlet and outlet options: Reduces need for additional fittings
- Meets schedule 80 specifications: Durable under high pressure

Pressure loss charts for HCV products on page 166

HCV Check Valve
Overall height: 3"

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
- Acetal material for sharp barbs
- Operating pressure up to 80 PSI
- Compatible with FLEXSG and other brands

Spiral Barb Elbows
HSBE-TOOL, HSBE-050, HSBE-075

FLEXSG TUBING

Model
- FLEXSG: 100' roll
- FLEXSG-18: 18" pre-cut lengths

Features
- Engineered to resist kinking
- Inside diameter: 0.49"
- Operating pressure: up to 80 PSI
- Linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

FLEXSG Tubing
100' and 18" pre-cut lengths

ACCESSORIES

SJ SWING JOINT

Models
- SJ-506: ½" threaded x 6" length standard
- SJ-7506: ½" x ¾" threaded x 6" length
- SJ-706: ¾" threaded x 6" length
- SJ-512: ½" threaded x 12" length
- SJ-7512: ½" x ¾" threaded x 12" length
- SJ-712: ¾" threaded x 12" length

Features
- Unique leak-free swivel ells on both ends can be installed in any position for maximum versatility
- Pressure rated to 150 PSI

Pressure loss charts for SJ products on page 166

SJ Swing Joint
6" and 12" links

SPOTSHOT HOSE-END NOZZLE

Models
- ¾" Hose thread inlet – P/N 160700
- 1" Hose thread inlet – P/N 160705

Features
- Variable nozzle stream choices:
- Fan – Broad light stream for turf hot spots
- Soak – Medium stream for dust control areas
- Jet – Tight focused stream for power washing

Operating Specifications
- Flow – 35 GPM at 80 PSI*

* Not recommended for residential use with regulated, low pressure or low flow conditions.

SpotShot Hose-End Nozzle
¾" P/N 160700
1" P/N 160705

RZB

Models
- RZB: 2" diameter x 9" length

Features
- Solid mesh tube with perforated top to complement overhead or drip irrigation systems
- Allows oxygen and natural precipitation to reach the root zone
- Easy installation that directs overhead and drip irrigation to the root zone

RZB

TOOLS

Hunter Wrench
P/N 172000

"T" Handle Tool
P/N 053191

Pitot Gauge
P/N 280100

MP Gauge Assembly
P/N MPGAUGE
(For use with MP Rotators or standard nozzles)

Hunter Emitter Multi-Tool
P/N HEMT
(Punches pilot holes and pellets, inserts and removes emitters, cuts tubing)

TOOLS

Hand Pump
P/N 460302

MP Tool
P/N MPTOOL

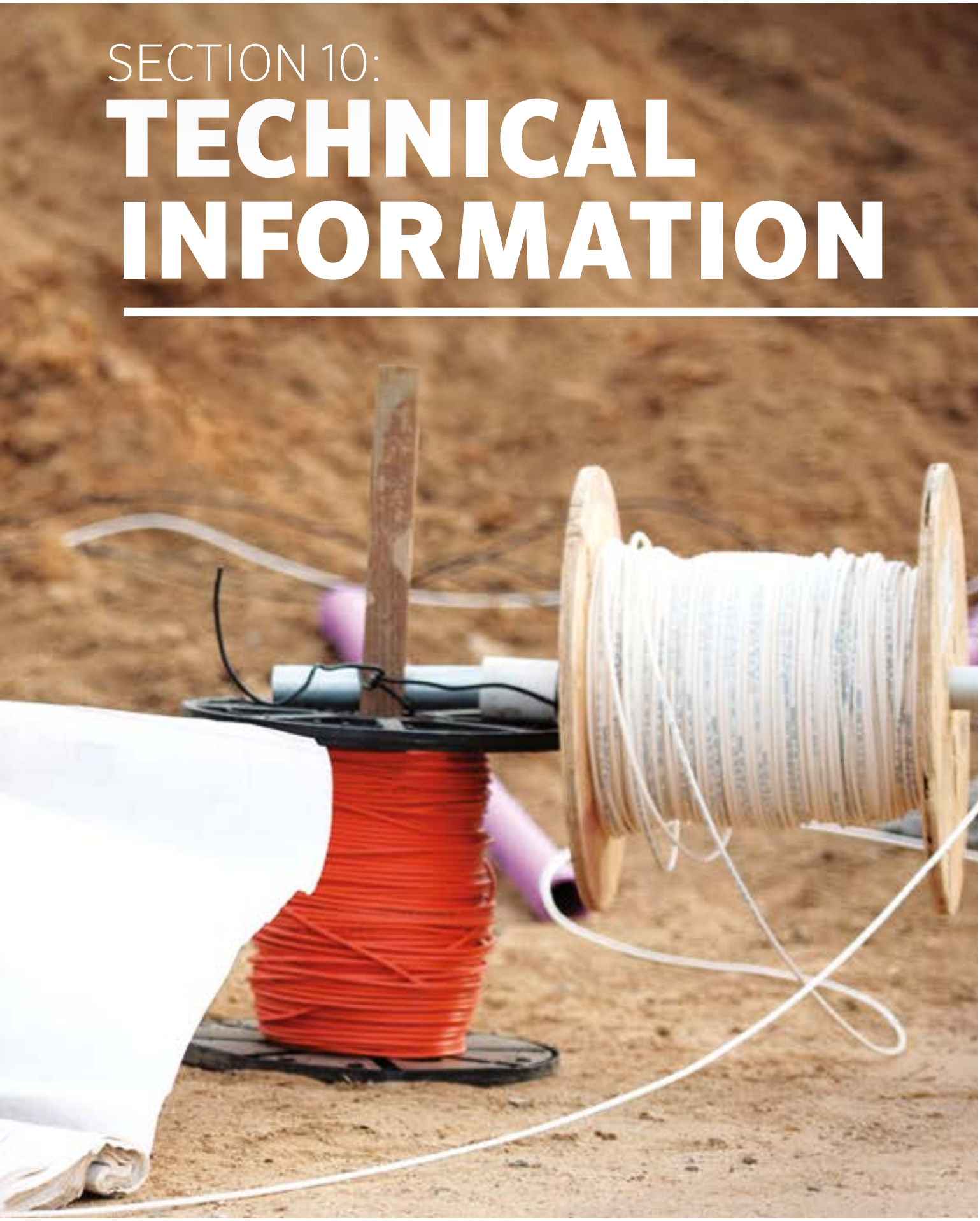
Nozzle Insertion Collar
P/N 123200

ST1600 Tool
P/N 517600

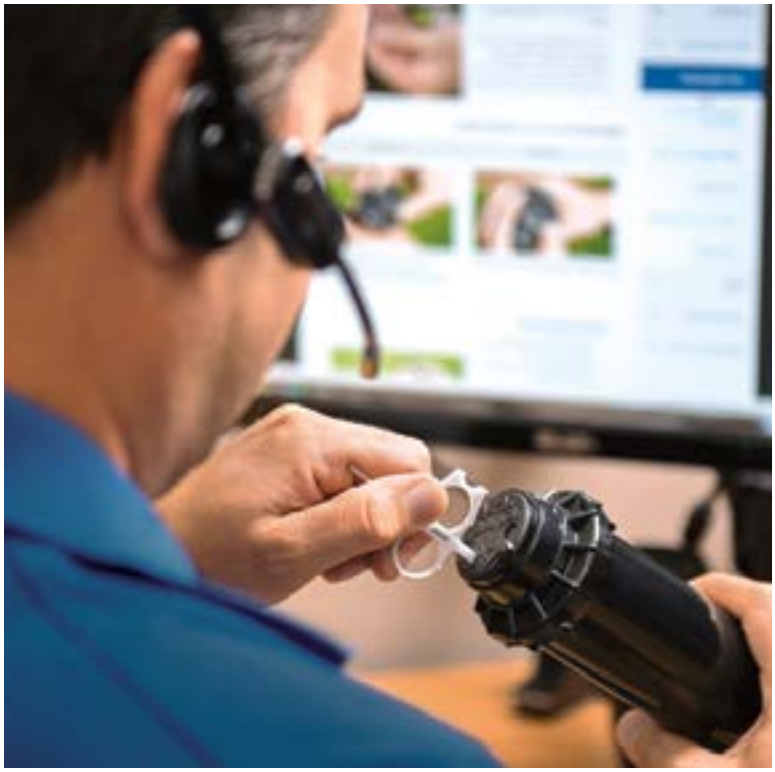
Pocket Punch
P/N POCKETPUNCH
(Punches, inserts, and removes emitters)

SECTION 10:

TECHNICAL INFORMATION



HUNTER
Technical Services



Our Hunter Technical Service Team has more than 197 years of combined industry expertise.

Anyone can sell you products. At Hunter, we've always believed the difference lies in providing world-class product support to make your job easier. When you need technical help, whether it's to ask a quick question or to get product-specific troubleshooting assistance, you can count on Hunter's Technical Services Team to provide the best support in the industry. Our knowledgeable experts are always available to help you.

In addition, our Field Service Team provides on-site training and troubleshooting assistance with Central Control, decoder system, and other commercial, residential, municipal, and golf course installations. Their combined experience of 200+ years in the industry is invaluable when you need factory support by phone, remote desktop, or at the job site.

Contact Us

Phone: 1-800-733-2823, Mon–Fri 6 a.m.–4 p.m. PST

Email: huntertechnicalsupport@hunterindustries.com

After Hours: Leave us a voice message and someone from our team will return your call the next business day

Online Product Information

Visit our Support Library for instructional videos, owner's manuals, installation details, articles, and more.

Rotors, Controllers, Sensors, Drip/Micro Irrigation, Valves, Sprays, Nozzles, FX Luminaire, and Water Management Software

www.hunterindustries.com/support

Hablamos Español

Tenemos varios técnicos que hablan Español para ayudarle. Soporte por línea esta disponible también:

www.hunterindustries.com/es/support

PRODUCT
Specialist Program

This unique training program is designed to equip contractors, distributors, and other professionals with the knowledge to become familiar with Hunter products.

To get started:

1. Access the training website:

- Visit www.training.hunterindustries.com
- Log in or create a new account
- Click on courses, enroll at no cost, watch the training module, and take the quiz

2. Take courses for the level you choose:

- Click on the Specialist Program and choose the level you need
- Click on the courses required for each level and enroll in the courses
- Watch the training module and take the quiz

3. Apply for your certificate:

- Submit the Completion Notification Form for each level
- Obtain your certificate and use your membership card. You may use your certificates to apply for Continuing Education Unit Credits through the Irrigation Association

Choose from three levels of training:

Technician Level: Basic knowledge of the entire Hunter product line

Specialist Level: In-depth knowledge on a particular product

Expert Level: Thorough knowledge on a product category

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 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 which of these high performance sprinklers can be used to replace other brands. Simply consult the following replacement guide to find the appropriate Hunter sprinkler for any irrigation need.

PGJ GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Red
3500	0.75	0.75
	1	1.0
	1.5	1.5
	2	2.0
	3	3.0
	4	4.0
T-Bird T-22	.65 (Blue)	0.75
	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	0.75
Stream Rotor	2	1.5
	3	3.0

To Replace NELSON®		Use Hunter Nozzle ● Red
5500	#51	0.75
	#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

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**

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)**

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)**
	1/4"	**13 (Lt. Blue)**
	17/64"	**15 (Gray)**
	9/32"	**15 (Gray)**

REPLACEMENT GUIDE

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 guideline 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 (■):

$$\text{P.R. (in/hr)} = \frac{\text{Flow Rate (GPM) for any Arc} \times 34{,}650}{\text{Degrees of Arc} \times \text{Head Spacing (ft.)} \times \text{Row Spacing (ft.)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate } (m^3/hr) \text{ for any Arc} \times 360{,}000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate (l/min) for any Arc} \times 21{,}600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

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:

Equilateral Triangular Spacing (▲):

$$\text{P.R. (in/hr)} = \frac{\text{Flow Rate (GPM) for any Arc} \times 34{,}650}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate } (m^3/hr) \text{ for any Arc} \times 360{,}000}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate (l/min) for any Arc} \times 21{,}600}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

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.

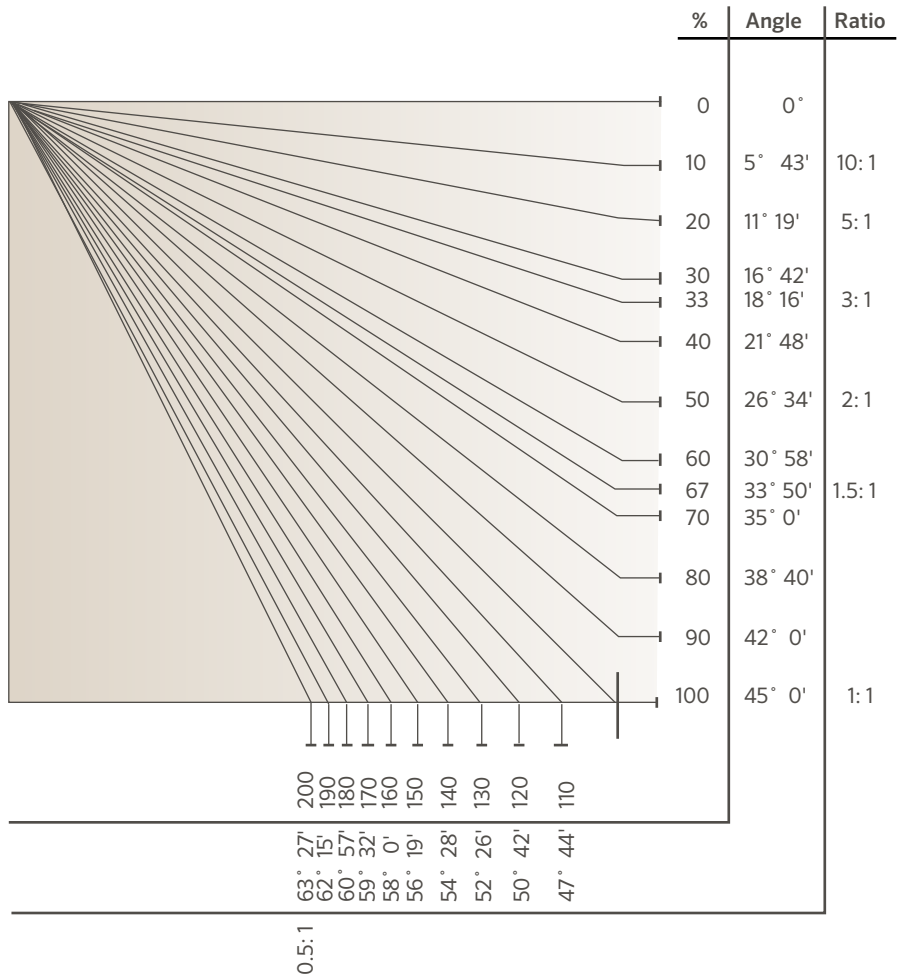
$$\text{P.R. (in/hr)} = \frac{\text{Flow (GPM)} \times 96.25}{\text{Total Area (ft.)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow } (m^3/hr) \times 1{,}000}{\text{Total Area } (m^2)}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow (l/min)} \times 60}{\text{Total Area } (m^2)}$$

SLOPE EQUIVALENTS/IRRIGATION

PERCENT, ANGLE, RATIO



SLOPE IRRIGATION: Maximum precipitation rates for slopes

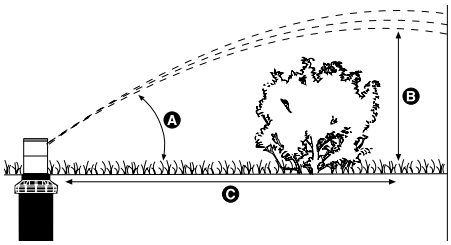
Soil Texture	0 to 5% Slope		5 to 8% Slope		8 to 12% Slope		12% + Slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	2.0	2.0	2.0	1.5	1.5	1.0	1.0	0.5
Coarse sandy soils over compact subsoils	1.75	1.5	1.25	1.0	1.0	0.75	0.75	0.4
Light sandy loams uniform	1.75	1.0	1.25	0.8	1.0	0.6	0.75	0.4
Light sandy loams over compact subsoils	1.25	0.75	1.0	0.5	0.75	0.4	0.5	0.3
Uniform silt loams	1.0	0.5	0.8	0.4	0.6	0.3	0.4	0.2
Silt loams over compact subsoil	0.6	0.3	0.5	0.25	0.4	0.15	0.3	0.1
Heavy clay or clay loam	0.2	0.15	0.15	0.10	0.12	0.08	0.1	0.06

Notes:

Maximum precipitation rates for slopes:
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 (PSI)	Degrees of Trajectory	Max Height of Spray	Distance from Head to Maximum Height (ft.)
MP ROTATOR®	800	40	18	18"	Varies
	1000	40	20	20"	Varies
	2000	40	26	45"	Varies
	3000	40	26	79"	Varies
	3500	40	26	79"	Varies
	Corner	40	14	14"	Varies
	Side Strip	40	16	19"	Varies
	Left Strip	40	16	18"	Varies
PGJ	0.75	40	10	2'	4
	1.0	40	10	2'	8
	1.5	40	10	3'	12
	2.0	40	15	5'	16
	2.5	40	12	5'	20
	3.0	40	15	5'	20
	4.0	40	15	5'	22
	5.0	40	15	6'	24
PGP® RED NOZZLES	1	50	26	7'	22
	2	50	26	7'	22
	3	50	26	8'	23
	4	50	26	8'	23
	5	50	27	9'	26
	6	50	27	10'	28
	7	50	26	11'	30
	8	50	26	11'	30
	9	50	27	12'	32
	10	60	25	13'	32
	11	60	25	13'	38
	12	60	25	13'	40
PGP LOW ANGLE GRAY NOZZLES	4	50	15	5'	22
	5	50	15	4'	22
	6	50	14	4'	22
	7	50	14	4'	22
	8	50	14	5'	24
	9	50	15	5'	26
	10	60	15	6'	30
PGP BLUE NOZZLES	1.5	45	25	8'	23
	2.0	45	25	8'	23
	2.5	45	25	9'	26
	3.0	45	25	10'	28
	4.0	45	25	11'	30
	5.0	45	25	11'	30
	6.0	55	25	12'	32
	8.0	55	25	13'	32
PGP ULTRA/I-20 DARK BLUE NOZZLES	1.0	50	26	8'	23
	1.5	50	26	8'	23
	2.0	50	27	9'	26
	3.0	50	27	10'	28
	3.5	50	26	11'	30
	4.0	50	26	11'	30
	6.0	50	27	12'	32
	8.0	60	25	13'	32
PGP ULTRA/I-20 BLUE NOZZLES	1.5	45	25	8'	23
	2.0	45	25	8'	23
	2.5	45	25	9'	26
	3.0	45	25	10'	28
	4.0	45	25	11'	30
	5.0	45	25	11'	30
	6.0	55	25	12'	32
	8.0	55	25	13'	32

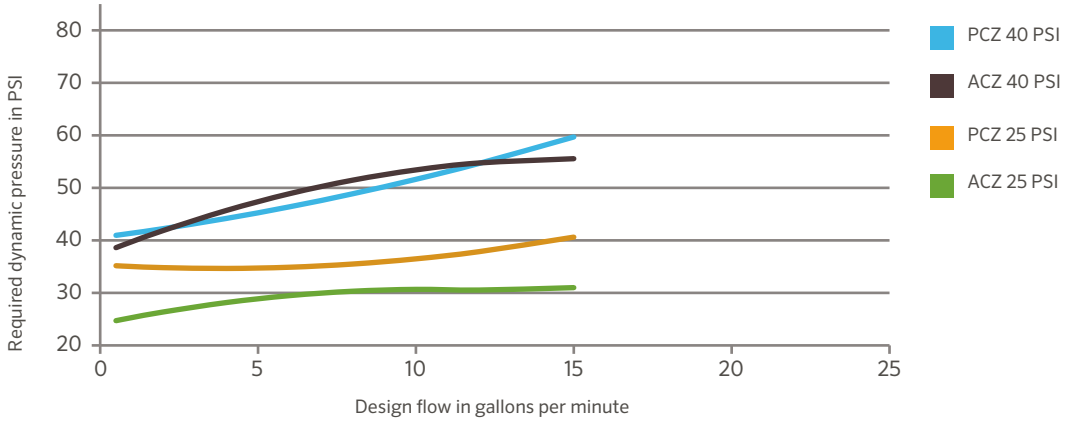
HEIGHT OF SPRAY

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

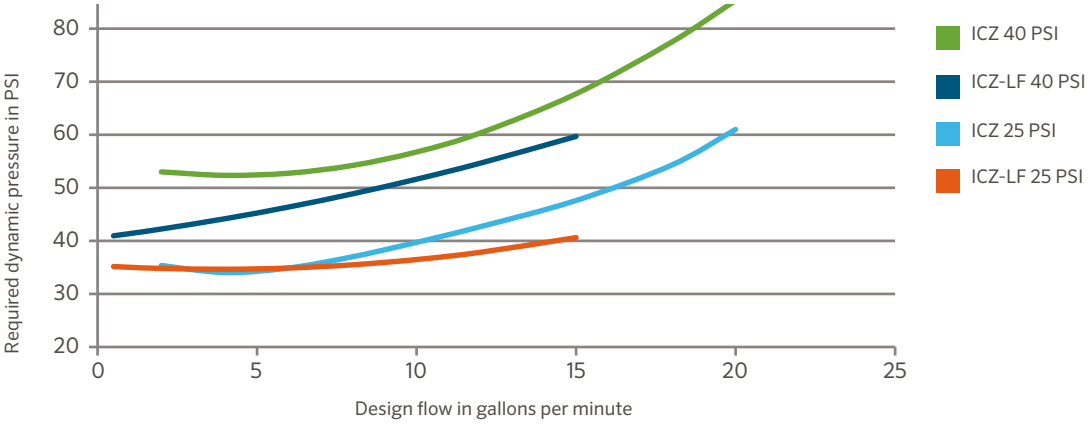
Model	Nozzle No.	Pressure (PSI)	Degrees of Trajectory	Max Height of Spray	Distance from Head to Maximum Height (ft.)
PGP® Ultra/I-20 Low Angle Gray Nozzles	2.0LA	50	13	5	22
	2.5LA	50	13	4	22
	3.5LA	50	13	4	22
	4.5LA	50	13	4	22
PGP Ultra/I-20 Short Radius Black Nozzles	0.5	50	15	5	8
	1.0	50	14	6	9
	2.0	50	3	1	6
PGP Ultra/I-20 Short Radius Black Nozzles	0.75	50	22	7	13
	1.5	50	18	7	13
	3.0	50	8	1	6
PGP Ultra/I-20 MPR-25 Red Nozzles	Q - 90	45	22	3	15
	T - 120	45	21	4	14
	H - 180	45	24	4	14
	F - 360	45	22	4	10
PGP Ultra/I-20 MPR-30 Lt. Green Nozzles	Q - 90	45	28	5	18
	T - 120	45	14	3	17
	H - 180	45	16	4	16
	F - 360	45	18	2	13
PGP Ultra/I-20 MPR-35 Tan Nozzles	Q - 90	45	28	6	19
	T - 120	45	28	6	18
	H - 180	45	16	4	17
	F - 360	45	14	3	12
I-25	4	50	25	9	22
	5	50	25	11	28
	7	50	25	10	28
	8	50	25	11	28
	10	60	25	12	30
	13	60	25	13	31
	15	60	25	12	31
	18	60	25	15	34
	20	70	25	15	35
	23	70	25	16	38
	25	70	25	16	38
	28	70	25	17	40
I-40	8	50	25	12	32
	10	60	25	14	32
	13	60	25	14	34
	15	60	25	15	42
	23	70	25	17	46
	25	70	25	17	48
I-90 ADV	33	80	22	15	42
	38	80	22	16	48
	43	80	22	16	48
	48	80	22	17	54
	53	80	22	17	56
	63	80	22	18	64
I-90 36V	33	80	22	17	46
	38	80	22	17	50
	43	80	22	17	54
	48	80	22	17	56
	53	80	22	17	58
	63	80	22	18	62
I-90 ADV Low Angle	33	80	15	8	38
	38	80	15	9	40
	43	80	15	9	41
	48	80	15	10	43
	53	80	15	11	45
	63	80	15	12	48
I-90 36V Low Angle	33	80	15	8	38
	38	80	15	9	40
	43	80	15	9	41
	48	80	15	10	43
	53	80	15	11	45
	63	80	15	12	48

DRIP CONTROL ZONE KIT CHARTS

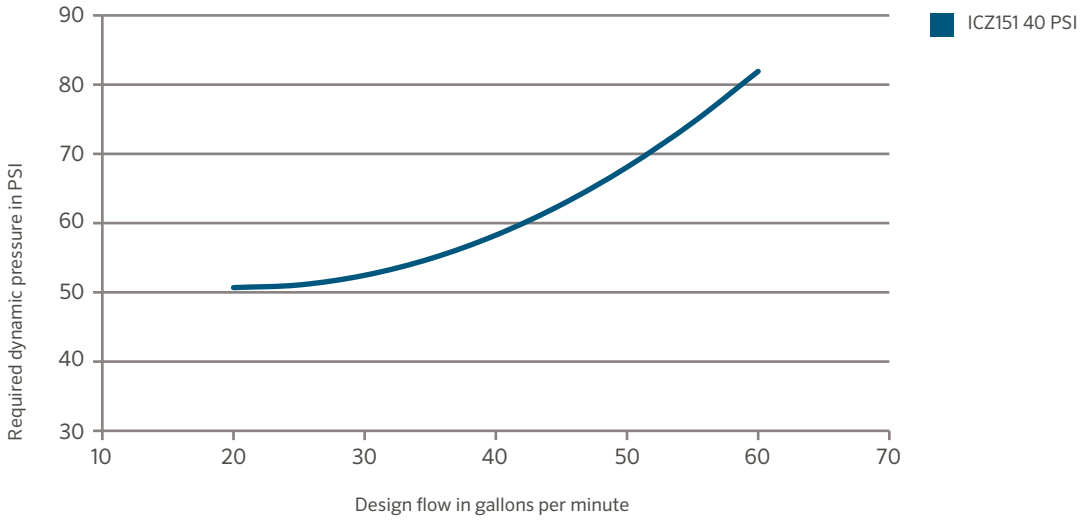
RESIDENTIAL - PCZ101, ACZ075: Inlet pressure required for designed outlet pressure



COMMERCIAL - ICZ101 Inlet pressure required for designed outlet pressure

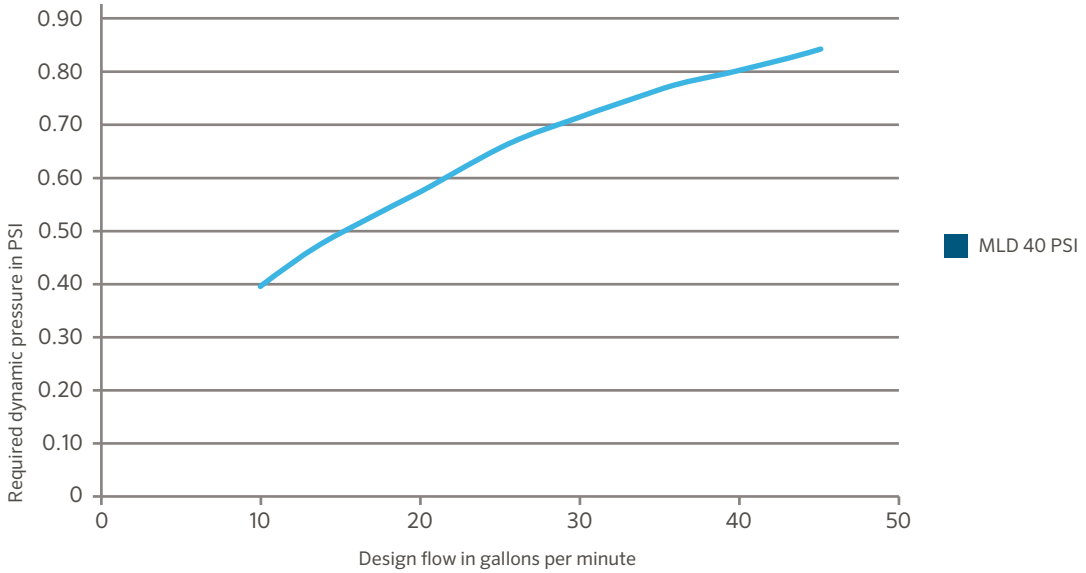


COMMERCIAL - ICZ151: Inlet pressure required for designed outlet pressure



MLD FLOW CHART

MLD FLOW CHART



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

WATER METER PRESSURE LOSS CHART: Typical Pressure Loss (PSI)

Flow (GPM)	⅝"	¾"	1"	1½"	2"	3"	4"	Flow (GPM)
1	0.2	0.1						1
2	0.3	0.2						2
3	0.4	0.3						3
4	0.6	0.5	0.1					4
5	0.9	0.6	0.2					5
6	1.3	0.7	0.3					6
7	1.8	0.8	0.4					7
8	2.3	1.0	0.5					8
9	3.0	1.3	0.6					9
10	3.7	1.6	0.7					10
11	4.4	1.9	0.8					11
12	5.1	2.2	0.9					12
13	6.1	2.6	1.0					13
14	7.2	3.1	1.1					14
15	8.3	3.6	1.2					15
16	9.4	4.1	1.4	0.4				16
17	10.7	4.6	1.6	0.5				17
18	12.0	5.2	1.8	0.6				18
19	13.4	5.8	2.0	0.7				19
20	15.0	6.5	2.2	0.8				20
22		7.9	2.8	1.0				22
24		9.5	3.4	1.2				24
26		11.2	4.0	1.4				26
28		13.0	4.6	1.6				28
30		15.0	5.3	1.8	0.7			30
32			6.0	2.1	0.8			32
34			6.9	2.4	0.9			34
36			7.8	2.7	1.0			36
38			8.7	3.0	1.2			38
40			9.6	3.3	1.3			40
42			10.6	3.6	1.4			42
44			11.7	3.9	1.5			44
46			12.8	4.2	1.6			46
48			13.9	4.5	1.7			48
50			15.0	4.9	1.9			50
52				5.3	2.1			52
54				5.7	2.2			54
56				6.2	2.3			56
58				6.7	2.5			58
60				7.2	2.7	1.0		60
65				8.3	3.2	1.1		65
70				9.8	3.7	1.3		70
75				11.3	4.3	1.5		75
80				12.8	4.9	1.6	0.7	80
90				16.1	6.2	2.0	0.8	90
100				20.0	7.8	2.5	0.9	100
110					9.5	2.9	1.0	110
120					11.3	3.4	1.2	120
130					13.0	3.9	1.4	130
140					15.1	4.5	1.6	140
150					17.3	5.1	1.8	150
160					20.0	5.8	2.1	160
170						6.5	2.4	170
180						7.2	2.7	180
190						8.0	3.0	190
200						9.0	3.2	200
220						11.0	3.9	220
240						13.0	4.7	240
260						15.0	5.5	260
280						17.3	6.3	280
300						20.0	7.2	300
350							10.0	350
400							13.0	400
450							16.2	450
500							20.0	500
75% of max meter capacity	**15 GPM**	**22.5 GPM**	**37.5 GPM**	**75 GPM**	**120 GPM**	**225 GPM**	**375 GPM**	**75% of max meter capacity**

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

TYPE K COPPER TUBING

ASTM B88 C=140 • PSI loss per 100 ft. of pipe

Nominal Size	½"		⅝"		¾"		1"		1¼"		1½"		2"		2½"		3"	
Pipe ID	0.527		0.652		0.745		0.995		1.245		1.481		1.959		2.435		2.907	
Pipe OD	0.625		0.750		0.875		1.125		1.375		1.625		2.125		2.625		3.125	
Avg. Wall	0.049		0.049		0.065		0.065		0.065		0.072		0.083		0.095		0.109	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	1.47	1.09	0.96	0.39	0.74	0.20	0.41	0.05	0.26	0.02								
2	2.94	3.94	1.92	1.40	1.47	0.73	0.82	0.18	0.53	0.06								
3	4.41	8.35	2.88	2.97	2.21	1.55	1.24	0.38	0.79	0.13								
4	5.88	14.23	3.84	5.05	2.94	2.64	1.65	0.65	1.05	0.22								
5	7.35	21.51	4.80	7.64	3.68	3.99	2.06	0.98	1.32	0.33								
6	8.81	30.15	5.76	10.70	4.41	5.59	2.47	1.37	1.58	0.46	1.12	0.20						
7	10.28	40.12	6.72	14.24	5.15	7.44	2.88	1.82	1.84	0.61	1.30	0.26						
8	11.75	51.37	7.68	18.24	5.88	9.53	3.30	2.33	2.11	0.78	1.49	0.34						
9	13.22	63.90	8.64	22.68	6.62	11.85	3.71	2.90	2.37	0.97	1.67	0.42						
10	14.69	77.66	9.60	27.57	7.35	14.41	4.12	3.52	2.63	1.18	1.86	0.51						
12			11.52	38.64	8.82	20.20	4.95	4.94	3.16	1.66	2.23	0.71	1.28	0.18				
14			13.44	51.41	10.29	26.87	5.77	6.57	3.69	2.21	2.60	0.95	1.49	0.24				
16			15.36	65.83	11.76	34.41	6.59	8.42	4.21	2.83	2.98	1.22	1.70	0.31				
18			17.28	81.88	13.23	42.80	7.42	10.47	4.74	3.52	3.35	1.51	1.91	0.39				
20					14.70	52.02	8.24	12.72	5.26	4.28	3.72	1.84	2.13	0.47				
22					16.17	62.06	9.07	15.18	5.79	5.10	4.09	2.19	2.34	0.56	1.51	0.19	1.06	0.08
24					17.64	72.91	9.89	17.84	6.32	5.99	4.46	2.58	2.55	0.66	1.65	0.23	1.16	0.10
26							10.71	20.69	6.84	6.95	4.84	2.99	2.76	0.77	1.79	0.27	1.26	0.11
28							11.54	23.73	7.37	7.97	5.21	3.43	2.98	0.88	1.93	0.30	1.35	0.13
30							12.36	26.96	7.90	9.06	5.58	3.89	3.19	1.00	2.06	0.35	1.45	0.15
32							13.19	30.39	8.42	10.21	5.95	4.39	3.40	1.12	2.20	0.39	1.54	0.16
34							14.01	34.00	8.95	11.42	6.32	4.91	3.61	1.26	2.34	0.44	1.64	0.18
36							14.84	37.79	9.48	12.70	6.70	5.46	3.83	1.40	2.48	0.49	1.74	0.20
38							15.66	41.77	10.00	14.04	7.07	6.03	4.04	1.55	2.61	0.54	1.83	0.23
40							16.48	45.94	10.53	15.43	7.44	6.63	4.25	1.70	2.75	0.59	1.93	0.25
42							17.31	50.28	11.06	16.89	7.81	7.26	4.47	1.86	2.89	0.65	2.03	0.27
44									11.58	18.41	8.18	7.91	4.68	2.03	3.03	0.70	2.12	0.30
46									12.11	19.99	8.56	8.59	4.89	2.20	3.17	0.76	2.22	0.32
48									12.63	21.63	8.93	9.30	5.10	2.38	3.30	0.83	2.32	0.35
50									13.16	23.33	9.30	10.03	5.32	2.57	3.44	0.89	2.41	0.38
55									14.48	27.84	10.23	11.96	5.85	3.07	3.78	1.06	2.66	0.45
60									15.79	32.70	11.16	14.05	6.38	3.60	4.13	1.25	2.90	0.53
65									17.11	37.93	12.09	16.30	6.91	4.18	4.47	1.45	3.14	0.61
70									18.43	43.51	13.02	18.70	7.44	4.79	4.82	1.66	3.38	0.70
75											13.95	21.24	7.97	5.45	5.16	1.89	3.62	0.80
80											14.88	23.94	8.51	6.14	5.50	2.13	3.86	0.90
85											15.81	26.79	9.04	6.87	5.85	2.38	4.10	1.01
90											16.74	29.78	9.57	7.63	6.19	2.65	4.35	1.12
95											17.67	32.91	10.10	8.44	6.54	2.93	4.59	1.24
100											18.60	36.19	10.63	9.28	6.88	3.22	4.83	1.36
110													11.69	11.07	7.57	3.84	5.31	1.62
120													12.76	13.01	8.26	4.51	5.79	1.91
130													13.82	15.08	8.95	5.23	6.28	2.21
140													14.88	17.30	9.63	6.00	6.76	2.54
150													15.95	19.66	10.32	6.82	7.24	2.88
160													17.01	22.16	11.01	7.69	7.72	3.25
170													18.07	24.79	11.70	8.60	8.21	3.63
180															12.39	9.56	8.69	4.04
190															13.07	10.57	9.17	4.46
200															13.76	11.62	9.66	4.91
220															15.14	13.87	10.62	5.86
240															16.51	16.29	11.59	6.88
260															17.89	18.90	12.55	7.98
280															19.27	21.68	13.52	9.15
300																	14.48	10.40
320																	15.45	11.72
340																	16.42	13.11
360																	17.38	14.58
380																	18.35	16.11
400																		
420																		
440																		
460																		
480																		
500																		

Notes: Shaded area represents velocities over 7 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

TYPE L COPPER TUBING

ASTM B88 C=140 • PSI loss per 100 ft. of pipe

Nominal Size	½"		⅝"		¾"		1"		1¼"		1½"		2"		2½"		3"	
Pipe ID	0.545		0.666		0.785		1.025		1.265		1.505		1.985		2.465		2.945	
Pipe OD	0.625		0.750		0.875		1.125		1.375		1.625		2.125		2.625		3.125	
Avg. Wall	0.040		0.042		0.045		0.050		0.055		0.060		0.070		0.080		0.090	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	1.37	0.93	0.92	0.35	0.66	0.16	0.39	0.04	0.25	0.02								
2	2.75	3.35	1.84	1.26	1.32	0.57	0.78	0.15	0.51	0.06								
3	4.12	7.09	2.76	2.67	1.99	1.20	1.17	0.33	0.76	0.12								
4	5.49	12.09	3.68	4.56	2.65	2.05	1.55	0.56	1.02	0.20								
5	6.87	18.27	4.60	6.89	3.31	3.09	1.94	0.85	1.27	0.30								
6	8.24	25.61	5.52	9.65	3.97	4.34	2.33	1.18	1.53	0.43	1.08	0.18						
7	9.62	34.07	6.44	12.84	4.63	5.77	2.72	1.58	1.78	0.57	1.26	0.24						
8	10.99	43.63	7.36	16.45	5.30	7.39	3.11	2.02	2.04	0.72	1.44	0.31						
9	12.36	54.26	8.28	20.45	5.96	9.19	3.50	2.51	2.29	0.90	1.62	0.39						
10	13.74	65.95	9.20	24.86	6.62	11.17	3.88	3.05	2.55	1.10	1.80	0.47						
12			11.04	34.85	7.95	15.66	4.66	4.28	3.06	1.54	2.16	0.66	1.24	0.17				
14			12.88	46.36	9.27	20.83	5.44	5.69	3.57	2.04	2.52	0.88	1.45	0.23				
16			14.72	59.37	10.59	26.68	6.21	7.28	4.08	2.62	2.88	1.12	1.66	0.29				
18			16.56	73.84	11.92	33.18	6.99	9.06	4.59	3.25	3.24	1.40	1.86	0.36				
20					13.24	40.33	7.77	11.01	5.10	3.96	3.60	1.70	2.07	0.44				
22					14.57	48.11	8.54	13.14	5.61	4.72	3.96	2.03	2.28	0.53	1.48	0.18	1.03	0.08
24					15.89	56.53	9.32	15.44	6.12	5.55	4.32	2.38	2.49	0.62	1.61	0.22	1.13	0.09
26							10.10	17.90	6.63	6.43	4.68	2.76	2.69	0.72	1.75	0.25	1.22	0.11
28							10.87	20.54	7.14	7.38	5.04	3.17	2.90	0.82	1.88	0.29	1.32	0.12
30							11.65	23.33	7.65	8.38	5.40	3.60	3.11	0.94	2.01	0.33	1.41	0.14
32							12.43	26.30	8.16	9.45	5.76	4.06	3.31	1.05	2.15	0.37	1.51	0.15
34							13.20	29.42	8.67	10.57	6.12	4.54	3.52	1.18	2.28	0.41	1.60	0.17
36							13.98	32.71	9.18	11.75	6.48	5.05	3.73	1.31	2.42	0.46	1.69	0.19
38							14.76	36.15	9.69	12.99	6.84	5.58	3.93	1.45	2.55	0.51	1.79	0.21
40							15.53	39.75	10.20	14.28	7.21	6.13	4.14	1.59	2.69	0.56	1.88	0.23
42							16.31	43.51	10.71	15.63	7.57	6.71	4.35	1.75	2.82	0.61	1.98	0.26
44									11.22	17.04	7.93	7.32	4.56	1.90	2.95	0.66	2.07	0.28
46									11.73	18.50	8.29	7.94	4.76	2.07	3.09	0.72	2.16	0.30
48									12.24	20.02	8.65	8.60	4.97	2.24	3.22	0.78	2.26	0.33
50									12.75	21.59	9.01	9.27	5.18	2.41	3.36	0.84	2.35	0.35
55									14.02	25.76	9.91	11.06	5.70	2.88	3.69	1.00	2.59	0.42
60									15.30	30.26	10.81	13.00	6.21	3.38	4.03	1.18	2.82	0.50
65									16.57	35.10	11.71	15.07	6.73	3.92	4.36	1.37	3.06	0.57
70									17.85	40.26	12.61	17.29	7.25	4.50	4.70	1.57	3.29	0.66
75											13.51	19.65	7.77	5.11	5.04	1.78	3.53	0.75
80											14.41	22.14	8.28	5.76	5.37	2.01	3.76	0.84
85											15.31	24.77	8.80	6.44	5.71	2.25	4.00	0.94
90											16.21	27.54	9.32	7.16	6.04	2.50	4.23	1.05
95											17.11	30.44	9.84	7.91	6.38	2.76	4.47	1.16
100											18.01	33.47	10.35	8.70	6.71	3.03	4.70	1.28
110													11.39	10.38	7.39	3.62	5.17	1.52
120													12.43	12.20	8.06	4.25	5.65	1.79
130													13.46	14.15	8.73	4.93	6.12	2.07
140													14.50	16.23	9.40	5.66	6.59	2.38
150													15.53	18.44	10.07	6.43	7.06	2.70
160													16.57	20.78	10.74	7.24	7.53	3.05
170													17.60	23.25	11.41	8.11	8.00	3.41
180															12.09	9.01	8.47	3.79
190															12.76	9.96	8.94	4.19
200															13.43	10.95	9.41	4.61
220															14.77	13.07	10.35	5.50
240															16.12	15.35	11.29	6.46
260															17.46	17.80	12.23	7.49
280															18.80	20.42	13.17	8.59
300																	14.11	9.76
320																	15.05	11.00
340																	15.99	12.31
360																	16.94	13.69
380																	17.88	15.13
400																		
420																		
440																		
460																		
480																		
500																		

Notes: Shaded area represents velocities over 7 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 40 STEEL

ASTM B53 C=100 • PSI loss per 100 ft. of pipe

Nominal Size	½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"	
Pipe ID	0.622		0.824		1.049		1.38		1.610		2.067		2.469		3.068		4.026	
PIpe OD	0.842		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500	
Avg. Wall	0.110		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	1.05	0.91	0.60	0.23	0.37	0.07	0.21	0.02	0.16	0.01								
2	2.11	3.28	1.20	0.84	0.74	0.26	0.43	0.07	0.31	0.03								
3	3.16	6.95	1.80	1.77	1.11	0.55	0.64	0.14	0.47	0.07								
4	4.22	11.85	2.40	3.02	1.48	0.93	0.86	0.25	0.63	0.12								
5	5.27	17.91	3.00	4.56	1.85	1.41	1.07	0.37	0.79	0.18								
6	6.33	25.10	3.61	6.39	2.22	1.97	1.29	0.52	0.94	0.25	0.57	0.07						
7	7.38	33.40	4.21	8.50	2.60	2.63	1.50	0.69	1.10	0.33	0.67	0.10						
8	8.44	42.77	4.81	10.88	2.97	3.36	1.71	0.89	1.26	0.42	0.76	0.12						
9	9.49	53.19	5.41	13.54	3.34	4.18	1.93	1.10	1.42	0.52	0.86	0.15						
10	10.55	64.65	6.01	16.45	3.71	5.08	2.14	1.34	1.57	0.63	0.95	0.19						
12	12.65	90.62	7.21	23.06	4.45	7.12	2.57	1.88	1.89	0.89	1.15	0.26	0.80	0.11				
14			8.41	30.68	5.19	9.48	3.00	2.50	2.20	1.18	1.34	0.35	0.94	0.15				
16			9.61	39.29	5.93	12.14	3.43	3.20	2.52	1.51	1.53	0.45	1.07	0.19				
18			10.82	48.87	6.67	15.10	3.86	3.97	2.83	1.88	1.72	0.56	1.20	0.23				
20			12.02	59.40	7.42	18.35	4.28	4.83	3.15	2.28	1.91	0.68	1.34	0.28				
22			13.22	70.87	8.16	21.89	4.71	5.76	3.46	2.72	2.10	0.81	1.47	0.34	0.95	0.12	0.55	0.03
24					8.90	25.72	5.14	6.77	3.78	3.20	2.29	0.95	1.61	0.40	1.04	0.14	0.60	0.04
26					9.64	29.83	5.57	7.85	4.09	3.71	2.48	1.10	1.74	0.46	1.13	0.16	0.65	0.04
28					10.38	34.22	6.00	9.01	4.41	4.25	2.67	1.26	1.87	0.53	1.21	0.18	0.70	0.05
30					11.12	38.88	6.43	10.24	4.72	4.83	2.86	1.43	2.01	0.60	1.30	0.21	0.76	0.06
32					11.86	43.81	6.86	11.54	5.04	5.45	3.06	1.62	2.14	0.68	1.39	0.24	0.81	0.06
34					12.61	49.02	7.28	12.91	5.35	6.10	3.25	1.81	2.28	0.76	1.47	0.26	0.86	0.07
36					13.35	54.49	7.71	14.35	5.67	6.78	3.44	2.01	2.41	0.85	1.56	0.29	0.91	0.08
38							8.14	15.86	5.98	7.49	3.63	2.22	2.54	0.94	1.65	0.33	0.96	0.09
40							8.57	17.44	6.30	8.24	3.82	2.44	2.68	1.03	1.73	0.36	1.01	0.10
42							9.00	19.09	6.61	9.02	4.01	2.67	2.81	1.13	1.82	0.39	1.06	0.10
44							9.43	20.81	6.93	9.83	4.20	2.91	2.94	1.23	1.91	0.43	1.11	0.11
46							9.86	22.59	7.24	10.67	4.39	3.16	3.08	1.33	1.99	0.46	1.16	0.12
48							10.28	24.44	7.56	11.55	4.58	3.42	3.21	1.44	2.08	0.50	1.21	0.13
50							10.71	26.36	7.87	12.45	4.77	3.69	3.35	1.55	2.17	0.54	1.26	0.14
55							11.78	31.45	8.66	14.86	5.25	4.40	3.68	1.85	2.38	0.64	1.38	0.17
60							12.85	36.95	9.44	17.45	5.73	5.17	4.02	2.18	2.60	0.76	1.51	0.20
65							13.93	42.86	10.23	20.24	6.21	6.00	4.35	2.53	2.82	0.88	1.64	0.23
70									11.02	23.22	6.68	6.88	4.69	2.90	3.03	1.01	1.76	0.27
75									11.81	26.39	7.16	7.82	5.02	3.29	3.25	1.14	1.89	0.31
80									12.59	29.74	7.64	8.82	5.35	3.71	3.47	1.29	2.01	0.34
85									13.38	33.27	8.12	9.86	5.69	4.15	3.68	1.44	2.14	0.38
90											8.59	10.96	6.02	4.62	3.90	1.60	2.27	0.43
95											9.07	12.12	6.36	5.10	4.12	1.77	2.39	0.47
100											9.55	13.33	6.69	5.61	4.33	1.95	2.52	0.52
110											10.50	15.90	7.36	6.70	4.77	2.33	2.77	0.62
120											11.46	18.68	8.03	7.87	5.20	2.73	3.02	0.73
130											12.41	21.66	8.70	9.12	5.63	3.17	3.27	0.85
140											13.37	24.85	9.37	10.47	6.07	3.64	3.52	0.97
150													10.04	11.89	6.50	4.13	3.78	1.10
160													10.71	13.40	6.94	4.66	4.03	1.24
170													11.38	15.00	7.37	5.21	4.28	1.39
180													12.05	16.67	7.80	5.79	4.53	1.54
190													12.72	18.43	8.24	6.40	4.78	1.71
200													13.39	20.26	8.67	7.04	5.03	1.88
220															9.54	8.40	5.54	2.24
240															10.40	9.87	6.04	2.63
260															11.27	11.45	6.54	3.05
280															12.14	13.13	7.05	3.50
300															13.00	14.92	7.55	3.98
320															13.87	16.81	8.05	4.48
340																	8.56	5.01
360																	9.06	5.57
380																	9.57	6.16
400																	10.07	6.77
420																	10.57	7.42
440																	11.08	8.08
460																	11.58	8.78
480																	12.08	9.50
500																	12.59	10.24

Notes: Shaded area represents velocities over 7 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

CLASS 160 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 26 C=150 • PSI loss per 100 ft. of pipe

Nominal Size	½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"	
Avg. ID	0.696		0.910		1.175		1.512		1.734		2.173		2.635		3.21		4.134	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500	
Avg. Wall	0.072		0.070		0.070		0.074		0.083		0.101		0.120		0.145		0.183	
Min. Wall	0.062		0.060		0.060		0.064		0.073		0.091		0.110		0.135		0.173	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	0.84	0.25	0.49	0.07	0.30	0.02	0.18	0.01	0.14	0.00								
2	1.68	0.90	0.99	0.24	0.59	0.07	0.36	0.02	0.27	0.01	0.17	0.00						
3	2.53	1.90	1.48	0.52	0.89	0.15	0.54	0.04	0.41	0.02	0.26	0.01						
4	3.37	3.24	1.97	0.88	1.18	0.25	0.71	0.07	0.54	0.04	0.35	0.01	0.24	0.00				
5	4.21	4.89	2.46	1.33	1.48	0.38	0.89	0.11	0.68	0.06	0.43	0.02	0.29	0.01				
6	5.05	6.86	2.96	1.86	1.77	0.54	1.07	0.16	0.81	0.08	0.52	0.03	0.35	0.01	0.24	0.00		
7	5.90	9.12	3.45	2.47	2.07	0.71	1.25	0.21	0.95	0.11	0.60	0.04	0.41	0.01	0.28	0.01		
8	6.74	11.68	3.94	3.17	2.36	0.91	1.43	0.27	1.09	0.14	0.69	0.05	0.47	0.02	0.32	0.01		
9	7.58	14.53	4.43	3.94	2.66	1.14	1.61	0.33	1.22	0.17	0.78	0.06	0.53	0.02	0.36	0.01		
10	8.42	17.66	4.93	4.79	2.96	1.38	1.78	0.40	1.36	0.21	0.86	0.07	0.59	0.03	0.40	0.01		
12	10.11	24.75	5.91	6.71	3.55	1.94	2.14	0.57	1.63	0.29	1.04	0.10	0.71	0.04	0.48	0.01		
14	11.79	32.93	6.90	8.93	4.14	2.58	2.50	0.76	1.90	0.39	1.21	0.13	0.82	0.05	0.55	0.02		
16	13.48	42.16	7.88	11.44	4.73	3.30	2.86	0.97	2.17	0.50	1.38	0.17	0.94	0.06	0.63	0.02	0.38	0.01
18	15.16	52.44	8.87	14.23	5.32	4.10	3.21	1.20	2.44	0.62	1.56	0.21	1.06	0.08	0.71	0.03	0.43	0.01
20			9.85	17.29	5.91	4.99	3.57	1.46	2.71	0.75	1.73	0.25	1.18	0.10	0.79	0.04	0.48	0.01
22			10.84	20.63	6.50	5.95	3.93	1.74	2.99	0.90	1.90	0.30	1.29	0.12	0.87	0.04	0.53	0.01
24			11.82	24.24	7.09	6.99	4.28	2.05	3.26	1.05	2.07	0.35	1.41	0.14	0.95	0.05	0.57	0.02
26			12.81	28.11	7.68	8.11	4.64	2.38	3.53	1.22	2.25	0.41	1.53	0.16	1.03	0.06	0.62	0.02
28			13.80	32.25	8.27	9.30	5.00	2.73	3.80	1.40	2.42	0.47	1.65	0.18	1.11	0.07	0.67	0.02
30			14.78	36.64	8.87	10.57	5.35	3.10	4.07	1.59	2.59	0.53	1.76	0.21	1.19	0.08	0.72	0.02
32					9.46	11.91	5.71	3.49	4.34	1.79	2.76	0.60	1.88	0.23	1.27	0.09	0.76	0.03
34					10.05	13.32	6.07	3.91	4.61	2.01	2.94	0.67	2.00	0.26	1.35	0.10	0.81	0.03
36					10.64	14.81	6.42	4.34	4.88	2.23	3.11	0.74	2.12	0.29	1.43	0.11	0.86	0.03
38					11.23	16.37	6.78	4.80	5.16	2.46	3.28	0.82	2.23	0.32	1.50	0.12	0.91	0.04
40					11.82	18.00	7.14	5.28	5.43	2.71	3.46	0.90	2.35	0.35	1.58	0.14	0.95	0.04
42					12.41	19.70	7.50	5.78	5.70	2.97	3.63	0.99	2.47	0.39	1.66	0.15	1.00	0.04
44					13.00	21.47	7.85	6.30	5.97	3.23	3.80	1.08	2.59	0.42	1.74	0.16	1.05	0.05
46					13.59	23.32	8.21	6.84	6.24	3.51	3.97	1.17	2.70	0.46	1.82	0.18	1.10	0.05
48					14.18	25.23	8.57	7.40	6.51	3.80	4.15	1.27	2.82	0.50	1.90	0.19	1.15	0.06
50					14.78	27.21	8.92	7.98	6.78	4.10	4.32	1.37	2.94	0.53	1.98	0.20	1.19	0.06
55							9.82	9.52	7.46	4.89	4.75	1.63	3.23	0.64	2.18	0.24	1.31	0.07
60							10.71	11.18	8.14	5.74	5.18	1.91	3.53	0.75	2.38	0.29	1.43	0.08
65							11.60	12.97	8.82	6.66	5.62	2.22	3.82	0.87	2.57	0.33	1.55	0.10
70							12.49	14.88	9.50	7.64	6.05	2.55	4.11	1.00	2.77	0.38	1.67	0.11
75							13.38	16.90	10.18	8.68	6.48	2.89	4.41	1.13	2.97	0.43	1.79	0.13
80							14.28	19.05	10.86	9.78	6.91	3.26	4.70	1.28	3.17	0.49	1.91	0.14
85									11.53	10.94	7.34	3.65	4.99	1.43	3.37	0.55	2.03	0.16
90									12.21	12.16	7.78	4.06	5.29	1.59	3.56	0.61	2.15	0.18
95									12.89	13.45	8.21	4.48	5.58	1.76	3.76	0.67	2.27	0.20
100									13.57	14.79	8.64	4.93	5.88	1.93	3.96	0.74	2.39	0.22
110									14.93	17.64	9.50	5.88	6.46	2.30	4.36	0.88	2.63	0.26
120											10.37	6.91	7.05	2.71	4.75	1.04	2.86	0.30
130											11.23	8.02	7.64	3.14	5.15	1.20	3.10	0.35
140											12.10	9.20	8.23	3.60	5.54	1.38	3.34	0.40
150											12.96	10.45	8.81	4.09	5.94	1.57	3.58	0.46
160											13.82	11.77	9.40	4.61	6.34	1.76	3.82	0.52
170											14.69	13.17	9.99	5.16	6.73	1.97	4.06	0.58
180													10.58	5.73	7.13	2.19	4.30	0.64
190													11.16	6.34	7.52	2.42	4.54	0.71
200													11.75	6.97	7.92	2.67	4.77	0.78
220													12.93	8.31	8.71	3.18	5.25	0.93
240													14.10	9.77	9.50	3.74	5.73	1.09
260															10.29	4.33	6.21	1.27
280															11.09	4.97	6.68	1.45
300															11.88	5.65	7.16	1.65
320															12.67	6.37	7.64	1.86
340															13.46	7.12	8.12	2.08
360															14.25	7.92	8.59	2.31
380																	9.07	2.56
400																	9.55	2.81
420																	10.03	3.08
440																	10.50	3.35
460																	10.98	3.64
480																	11.46	3.94
500																	11.94	4.25

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

CLASS 200 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 21 C=150 • PSI loss per 100 ft. of pipe

Nominal Size	Class 315: ½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"		6"	
Avg. ID	0.696		0.910		1.169		1.482		1.700		2.129		2.581		3.146		4.046		5.955	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625	
Avg. Wall	0.072		0.070		0.073		0.089		0.100		0.123		0.147		0.177		0.227		0.335	
Min. Wall	0.062		0.060		0.063		0.079		0.090		0.113		0.137		0.167		0.214		0.316	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	0.84	0.25	0.49	0.07	0.30	0.02	0.19	0.01	0.14	0.00										
2	1.68	0.90	0.99	0.24	0.60	0.07	0.37	0.02	0.28	0.01	0.18	0.00								
3	2.53	1.90	1.48	0.52	0.90	0.15	0.56	0.05	0.42	0.02	0.27	0.01								
4	3.37	3.24	1.97	0.88	1.19	0.26	0.74	0.08	0.56	0.04	0.36	0.01	0.24	0.01						
5	4.21	4.89	2.46	1.33	1.49	0.39	0.93	0.12	0.71	0.06	0.45	0.02	0.31	0.01						
6	5.05	6.86	2.96	1.86	1.79	0.55	1.11	0.17	0.85	0.09	0.54	0.03	0.37	0.01	0.25	0.00				
7	5.90	9.12	3.45	2.47	2.09	0.73	1.30	0.23	0.99	0.12	0.63	0.04	0.43	0.02	0.29	0.01				
8	6.74	11.68	3.94	3.17	2.39	0.94	1.49	0.30	1.13	0.15	0.72	0.05	0.49	0.02	0.33	0.01				
9	7.58	14.53	4.43	3.94	2.69	1.17	1.67	0.37	1.27	0.19	0.81	0.06	0.55	0.02	0.37	0.01				
10	8.42	17.66	4.93	4.79	2.99	1.42	1.86	0.45	1.41	0.23	0.90	0.08	0.61	0.03	0.41	0.01				
12	10.11	24.75	5.91	6.71	3.58	1.98	2.23	0.63	1.69	0.32	1.08	0.11	0.73	0.04	0.49	0.02				
14	11.79	32.93	6.90	8.93	4.18	2.64	2.60	0.83	1.98	0.43	1.26	0.14	0.86	0.06	0.58	0.02				
16	13.48	42.16	7.88	11.44	4.78	3.38	2.97	1.07	2.26	0.55	1.44	0.18	0.98	0.07	0.66	0.03	0.40	0.01		
18	15.16	52.44	8.87	14.23	5.37	4.21	3.34	1.33	2.54	0.68	1.62	0.23	1.10	0.09	0.74	0.03	0.45	0.01		
20			9.85	17.29	5.97	5.11	3.72	1.61	2.82	0.83	1.80	0.28	1.22	0.11	0.82	0.04	0.50	0.01		
22			10.84	20.63	6.57	6.10	4.09	1.92	3.11	0.99	1.98	0.33	1.35	0.13	0.91	0.05	0.55	0.01		
24			11.82	24.24	7.17	7.17	4.46	2.26	3.39	1.16	2.16	0.39	1.47	0.15	0.99	0.06	0.60	0.02		
26			12.81	28.11	7.76	8.31	4.83	2.62	3.67	1.34	2.34	0.45	1.59	0.18	1.07	0.07	0.65	0.02		
28			13.80	32.25	8.36	9.53	5.20	3.01	3.95	1.54	2.52	0.52	1.71	0.20	1.15	0.08	0.70	0.02		
30			14.78	36.64	8.96	10.83	5.57	3.41	4.24	1.75	2.70	0.59	1.84	0.23	1.24	0.09	0.75	0.03		
32					9.55	12.21	5.94	3.85	4.52	1.97	2.88	0.66	1.96	0.26	1.32	0.10	0.80	0.03	0.37	0.00
34					10.15	13.66	6.32	4.31	4.80	2.21	3.06	0.74	2.08	0.29	1.40	0.11	0.85	0.03	0.39	0.00
36					10.75	15.18	6.69	4.79	5.08	2.45	3.24	0.82	2.20	0.32	1.48	0.12	0.90	0.04	0.41	0.01
38					11.35	16.78	7.06	5.29	5.36	2.71	3.42	0.91	2.33	0.36	1.57	0.14	0.95	0.04	0.44	0.01
40					11.94	18.45	7.43	5.82	5.65	2.98	3.60	1.00	2.45	0.39	1.65	0.15	1.00	0.04	0.46	0.01
42					12.54	20.20	7.80	6.37	5.93	3.27	3.78	1.09	2.57	0.43	1.73	0.16	1.05	0.05	0.48	0.01
44					13.14	22.02	8.17	6.94	6.21	3.56	3.96	1.19	2.69	0.47	1.81	0.18	1.10	0.05	0.51	0.01
46					13.73	23.91	8.55	7.54	6.49	3.86	4.14	1.29	2.82	0.51	1.90	0.19	1.15	0.06	0.53	0.01
48					14.33	25.87	8.92	8.15	6.78	4.18	4.32	1.40	2.94	0.55	1.98	0.21	1.20	0.06	0.55	0.01
50					14.93	27.90	9.29	8.79	7.06	4.51	4.50	1.51	3.06	0.59	2.06	0.23	1.25	0.07	0.58	0.01
55							10.22	10.49	7.76	5.38	4.95	1.80	3.37	0.71	2.27	0.27	1.37	0.08	0.63	0.01
60							11.15	12.33	8.47	6.32	5.40	2.11	3.67	0.83	2.47	0.32	1.50	0.09	0.69	0.01
65							12.07	14.30	9.18	7.33	5.85	2.45	3.98	0.96	2.68	0.37	1.62	0.11	0.75	0.02
70							13.00	16.40	9.88	8.41	6.30	2.81	4.29	1.10	2.89	0.42	1.74	0.12	0.81	0.02
75							13.93	18.63	10.59	9.56	6.75	3.20	4.59	1.25	3.09	0.48	1.87	0.14	0.86	0.02
80							14.86	21.00	11.29	10.77	7.20	3.60	4.90	1.41	3.30	0.54	1.99	0.16	0.92	0.02
85									12.00	12.05	7.65	4.03	5.21	1.58	3.50	0.60	2.12	0.18	0.98	0.03
90									12.71	13.40	8.10	4.48	5.51	1.76	3.71	0.67	2.24	0.20	1.04	0.03
95									13.41	14.81	8.55	4.95	5.82	1.94	3.92	0.74	2.37	0.22	1.09	0.03
100									14.12	16.28	9.00	5.45	6.12	2.13	4.12	0.81	2.49	0.24	1.15	0.04
110											9.90	6.50	6.74	2.55	4.53	0.97	2.74	0.29	1.27	0.04
120											10.80	7.63	7.35	2.99	4.95	1.14	2.99	0.34	1.38	0.05
130											11.70	8.85	7.96	3.47	5.36	1.32	3.24	0.39	1.50	0.06
140											12.60	10.16	8.57	3.98	5.77	1.52	3.49	0.45	1.61	0.07
150											13.50	11.54	9.19	4.52	6.18	1.73	3.74	0.51	1.73	0.08
160											14.40	13.01	9.80	5.10	6.60	1.95	3.99	0.57	1.84	0.09
170													10.41	5.70	7.01	2.18	4.24	0.64	1.96	0.10
180													11.02	6.34	7.42	2.42	4.49	0.71	2.07	0.11
190													11.64	7.01	7.83	2.67	4.74	0.79	2.19	0.12
200													12.25	7.71	8.24	2.94	4.98	0.86	2.30	0.13
220													13.47	9.19	9.07	3.51	5.48	1.03	2.53	0.16
240													14.70	10.80	9.89	4.12	5.98	1.21	2.76	0.18
260															10.72	4.78	6.48	1.41	2.99	0.21
280															11.54	5.48	6.98	1.61	3.22	0.25
300															12.37	6.23	7.48	1.83	3.45	0.28
320															13.19	7.02	7.98	2.06	3.68	0.31
340															14.02	7.86	8.47	2.31	3.91	0.35
360															14.84	8.73	8.97	2.57	4.14	0.39
380																	9.47	2.84	4.37	0.43
400																	9.97	3.12	4.60	0.48
420																	10.47	3.42	4.83	0.52
440																	10.97	3.72	5.06	0.57
460																	11.46	4.04	5.29	0.62
480																	11.96	4.37	5.52	0.67
500																	12.46	4.72	5.75	0.72

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

CLASS 315 PVC IPS PLASTIC PIPE

ASTM D2241 (1120, 1220) SDR 13.5 C=150 • PSI loss per 100 ft. of pipe

Nominal Size	½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"		6"	
Avg. ID	0.696		0.874		1.101		1.394		1.598		1.983		2.423		2.948		3.794		5.583	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625	
Avg. Wall	0.072		0.088		0.107		0.133		0.151		0.196		0.226		0.274		0.353		0.521	
Min. Wall	0.062		0.078		0.097		0.123		0.141		0.176		0.213		0.259		0.333		0.491	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	0.84	0.25	0.53	0.08	0.34	0.03	0.21	0.01	0.16	0.00										
2	1.68	0.90	1.07	0.30	0.67	0.10	0.42	0.03	0.32	0.02	0.21	0.01								
3	2.53	1.90	1.60	0.63	1.01	0.20	0.63	0.06	0.48	0.03	0.31	0.01								
4	3.37	3.24	2.14	1.07	1.35	0.35	0.84	0.11	0.64	0.06	0.42	0.02	0.28	0.01						
5	4.21	4.89	2.67	1.61	1.68	0.53	1.05	0.17	0.80	0.09	0.52	0.03	0.35	0.01						
6	5.05	6.86	3.20	2.26	2.02	0.74	1.26	0.23	0.96	0.12	0.62	0.04	0.42	0.02	0.28	0.01				
7	5.90	9.12	3.74	3.01	2.36	0.98	1.47	0.31	1.12	0.16	0.73	0.06	0.49	0.02	0.33	0.01				
8	6.74	11.68	4.27	3.86	2.69	1.25	1.68	0.40	1.28	0.20	0.83	0.07	0.56	0.03	0.38	0.01				
9	7.58	14.53	4.81	4.80	3.03	1.56	1.89	0.49	1.44	0.25	0.93	0.09	0.63	0.03	0.42	0.01				
10	8.42	17.66	5.34	5.83	3.37	1.90	2.10	0.60	1.60	0.31	1.04	0.11	0.69	0.04	0.47	0.02				
12	10.11	24.75	6.41	8.17	4.04	2.66	2.52	0.84	1.92	0.43	1.25	0.15	0.83	0.06	0.56	0.02				
14	11.79	32.93	7.48	10.87	4.71	3.53	2.94	1.12	2.24	0.58	1.45	0.20	0.97	0.08	0.66	0.03				
16	13.48	42.16	8.55	13.92	5.39	4.53	3.36	1.44	2.56	0.74	1.66	0.26	1.11	0.10	0.75	0.04	0.45	0.01		
18	15.16	52.44	9.61	17.32	6.06	5.63	3.78	1.79	2.88	0.92	1.87	0.32	1.25	0.12	0.85	0.05	0.51	0.01		
20			10.68	21.05	6.73	6.84	4.20	2.17	3.20	1.12	2.08	0.39	1.39	0.15	0.94	0.06	0.57	0.02		
22			11.75	25.11	7.40	8.16	4.62	2.59	3.52	1.33	2.28	0.47	1.53	0.18	1.03	0.07	0.62	0.02		
24			12.82	29.50	8.08	9.59	5.04	3.04	3.83	1.57	2.49	0.55	1.67	0.21	1.13	0.08	0.68	0.02		
26			13.89	34.21	8.75	11.12	5.46	3.53	4.15	1.82	2.70	0.64	1.81	0.24	1.22	0.09	0.74	0.03		
28			14.96	39.25	9.42	12.76	5.88	4.05	4.47	2.08	2.91	0.73	1.95	0.27	1.31	0.11	0.79	0.03		
30			16.02	44.60	10.10	14.50	6.30	4.60	4.79	2.37	3.11	0.83	2.08	0.31	1.41	0.12	0.85	0.04		
32					10.77	16.34	6.72	5.18	5.11	2.67	3.32	0.93	2.22	0.35	1.50	0.14	0.91	0.04	0.42	0.01
34					11.44	18.28	7.14	5.80	5.43	2.98	3.53	1.04	2.36	0.39	1.60	0.15	0.96	0.04	0.45	0.01
36					12.12	20.32	7.56	6.45	5.75	3.32	3.74	1.16	2.50	0.44	1.69	0.17	1.02	0.05	0.47	0.01
38					12.79	22.46	7.98	7.13	6.07	3.67	3.94	1.28	2.64	0.48	1.78	0.19	1.08	0.05	0.50	0.01
40					13.46	24.70	8.40	7.84	6.39	4.03	4.15	1.41	2.78	0.53	1.88	0.20	1.13	0.06	0.52	0.01
42					14.14	27.04	8.82	8.58	6.71	4.41	4.36	1.54	2.92	0.58	1.97	0.22	1.19	0.07	0.55	0.01
44					14.81	29.47	9.24	9.35	7.03	4.81	4.57	1.68	3.06	0.63	2.07	0.24	1.25	0.07	0.58	0.01
46					15.48	32.00	9.66	10.15	7.35	5.22	4.77	1.83	3.20	0.69	2.16	0.27	1.30	0.08	0.60	0.01
48					16.16	34.62	10.08	10.98	7.67	5.65	4.98	1.98	3.34	0.75	2.25	0.29	1.36	0.08	0.63	0.01
50					16.83	37.34	10.50	11.85	7.99	6.09	5.19	2.13	3.47	0.80	2.35	0.31	1.42	0.09	0.65	0.01
55							11.55	14.13	8.79	7.27	5.71	2.54	3.82	0.96	2.58	0.37	1.56	0.11	0.72	0.02
60							12.60	16.60	9.59	8.54	6.23	2.99	4.17	1.13	2.82	0.43	1.70	0.13	0.79	0.02
65							13.65	19.26	10.39	9.91	6.74	3.47	4.52	1.31	3.05	0.50	1.84	0.15	0.85	0.02
70							14.70	22.09	11.18	11.37	7.26	3.98	4.86	1.50	3.29	0.58	1.98	0.17	0.92	0.03
75							15.75	25.10	11.98	12.91	7.78	4.52	5.21	1.70	3.52	0.66	2.13	0.19	0.98	0.03
80							16.80	28.29	12.78	14.55	8.30	5.09	5.56	1.92	3.76	0.74	2.27	0.22	1.05	0.03
85									13.58	16.28	8.82	5.70	5.91	2.15	3.99	0.83	2.41	0.24	1.11	0.04
90									14.38	18.10	9.34	6.33	6.25	2.39	4.23	0.92	2.55	0.27	1.18	0.04
95									15.18	20.01	9.86	7.00	6.60	2.64	4.46	1.02	2.69	0.30	1.24	0.05
100									15.98	22.00	10.38	7.70	6.95	2.90	4.69	1.12	2.83	0.33	1.31	0.05
110											11.41	9.18	7.64	3.46	5.16	1.33	3.12	0.39	1.44	0.06
120											12.45	10.79	8.34	4.07	5.63	1.57	3.40	0.46	1.57	0.07
130											13.49	12.51	9.03	4.72	6.10	1.82	3.68	0.53	1.70	0.08
140											14.53	14.35	9.73	5.41	6.57	2.08	3.97	0.61	1.83	0.09
150											15.56	16.31	10.42	6.15	7.04	2.37	4.25	0.69	1.96	0.11
160											16.60	18.38	11.12	6.93	7.51	2.67	4.54	0.78	2.09	0.12
170													11.81	7.76	7.98	2.99	4.82	0.87	2.23	0.13
180													12.51	8.62	8.45	3.32	5.10	0.97	2.36	0.15
190													13.20	9.53	8.92	3.67	5.39	1.08	2.49	0.16
200													13.90	10.48	9.39	4.03	5.67	1.18	2.62	0.18
220													15.29	12.50	10.33	4.81	6.24	1.41	2.88	0.22
240													16.68	14.69	11.27	5.66	6.80	1.66	3.14	0.25
260															12.21	6.56	7.37	1.92	3.40	0.29
280															13.15	7.52	7.94	2.20	3.67	0.34
300															14.08	8.55	8.50	2.50	3.93	0.38
320															15.02	9.64	9.07	2.82	4.19	0.43
340															15.96	10.78	9.64	3.16	4.45	0.48
360															16.90	11.98	10.20	3.51	4.71	0.54
380																	10.77	3.88	4.97	0.59
400																	11.34	4.27	5.24	0.65
420																	11.90	4.67	5.50	0.71
440																	12.47	5.09	5.76	0.78
460																	13.04	5.53	6.02	0.84
480																	13.61	5.98	6.28	0.91
500																	14.17	6.45	6.54	0.98

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 40 PVC IPS PLASTIC PIPE

ASTM D1785 (1120, 1220) C=150 • PSI loss per 100 ft. of pipe

Nominal Size	½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"		5"	
Avg. ID	0.602		0.804		1.029		1.360		1.590		2.047		2.445		3.042		3.998		6.031	
Pipe OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625	
Avg. Wall	0.119		0.123		0.143		0.150		0.155		0.164		0.215		0.229		0.251		0.297	
Min. Wall	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	1.13	0.50	0.63	0.12	0.39	0.04	0.22	0.01	0.16	0.00										
2	2.25	1.82	1.26	0.44	0.77	0.13	0.44	0.03	0.32	0.02	0.19	0.00								
3	3.38	3.85	1.89	0.94	1.16	0.28	0.66	0.07	0.48	0.03	0.29	0.01								
4	4.50	6.55	2.52	1.60	1.54	0.48	0.88	0.12	0.65	0.06	0.39	0.02	0.27	0.01						
5	5.63	9.91	3.16	2.42	1.93	0.73	1.10	0.19	0.81	0.09	0.49	0.03	0.34	0.01						
6	6.75	13.89	3.79	3.40	2.31	1.02	1.32	0.26	0.97	0.12	0.58	0.04	0.41	0.02	0.26	0.01				
7	7.88	18.48	4.42	4.52	2.70	1.36	1.54	0.35	1.13	0.16	0.68	0.05	0.48	0.02	0.31	0.01				
8	9.01	23.66	5.05	5.79	3.08	1.74	1.76	0.45	1.29	0.21	0.78	0.06	0.55	0.03	0.35	0.01				
9	10.13	29.43	5.68	7.20	3.47	2.17	1.99	0.56	1.45	0.26	0.88	0.08	0.61	0.03	0.40	0.01				
10	11.26	35.77	6.31	8.75	3.85	2.63	2.21	0.68	1.61	0.32	0.97	0.09	0.68	0.04	0.44	0.01				
12	13.51	50.14	7.57	12.27	4.62	3.69	2.65	0.95	1.94	0.44	1.17	0.13	0.82	0.05	0.53	0.02				
14	15.76	66.71	8.84	16.32	5.39	4.91	3.09	1.26	2.26	0.59	1.36	0.17	0.96	0.07	0.62	0.03				
16	18.01	85.42	10.10	20.90	6.17	6.29	3.53	1.62	2.58	0.76	1.56	0.22	1.09	0.09	0.71	0.03	0.41	0.01		
18	20.26	106.24	11.36	25.99	6.94	7.82	3.97	2.01	2.90	0.94	1.75	0.28	1.23	0.12	0.79	0.04	0.46	0.01		
20			12.62	31.59	7.71	9.51	4.41	2.45	3.23	1.14	1.95	0.33	1.36	0.14	0.88	0.05	0.51	0.01		
22			13.89	37.69	8.48	11.35	4.85	2.92	3.55	1.37	2.14	0.40	1.50	0.17	0.97	0.06	0.56	0.02		
24			15.15	44.28	9.25	13.33	5.29	3.43	3.87	1.60	2.34	0.47	1.64	0.20	1.06	0.07	0.61	0.02		
26			16.41	51.36	10.02	15.46	5.74	3.98	4.20	1.86	2.53	0.54	1.77	0.23	1.15	0.08	0.66	0.02		
28			17.67	58.91	10.79	17.73	6.18	4.56	4.52	2.13	2.73	0.62	1.91	0.26	1.23	0.09	0.71	0.02		
30			18.94	66.94	11.56	20.15	6.62	5.19	4.84	2.42	2.92	0.71	2.05	0.30	1.32	0.10	0.77	0.03		
32					12.33	22.71	7.06	5.85	5.16	2.73	3.12	0.80	2.18	0.34	1.41	0.12	0.82	0.03	0.36	0.00
34					13.10	25.41	7.50	6.54	5.49	3.06	3.31	0.89	2.32	0.38	1.50	0.13	0.87	0.03	0.38	0.00
36					13.87	28.24	7.94	7.27	5.81	3.40	3.51	0.99	2.46	0.42	1.59	0.14	0.92	0.04	0.40	0.01
38					14.64	31.22	8.38	8.04	6.13	3.76	3.70	1.10	2.59	0.46	1.68	0.16	0.97	0.04	0.43	0.01
40					15.41	34.33	8.82	8.84	6.46	4.13	3.89	1.21	2.73	0.51	1.76	0.18	1.02	0.05	0.45	0.01
42					16.18	37.58	9.26	9.67	6.78	4.52	4.09	1.32	2.87	0.56	1.85	0.19	1.07	0.05	0.47	0.01
44					16.95	40.96	9.71	10.54	7.10	4.93	4.28	1.44	3.00	0.61	1.94	0.21	1.12	0.06	0.49	0.01
46					17.73	44.47	10.15	11.45	7.42	5.35	4.48	1.57	3.14	0.66	2.03	0.23	1.17	0.06	0.52	0.01
48					18.50	48.12	10.59	12.39	7.75	5.79	4.67	1.69	3.28	0.71	2.12	0.25	1.23	0.07	0.54	0.01
50					19.27	51.90	11.03	13.36	8.07	6.25	4.87	1.83	3.41	0.77	2.20	0.27	1.28	0.07	0.56	0.01
55							12.13	15.94	8.88	7.45	5.36	2.18	3.75	0.92	2.42	0.32	1.40	0.08	0.62	0.01
60							13.24	18.72	9.68	8.75	5.84	2.56	4.09	1.08	2.65	0.37	1.53	0.10	0.67	0.01
65							14.34	21.72	10.49	10.15	6.33	2.97	4.44	1.25	2.87	0.43	1.66	0.11	0.73	0.02
70							15.44	24.91	11.30	11.65	6.82	3.41	4.78	1.43	3.09	0.50	1.79	0.13	0.79	0.02
75							16.54	28.31	12.10	13.23	7.30	3.87	5.12	1.63	3.31	0.56	1.91	0.15	0.84	0.02
80							17.65	31.90	12.91	14.91	7.79	4.36	5.46	1.84	3.53	0.63	2.04	0.17	0.90	0.02
85									13.72	16.69	8.28	4.88	5.80	2.06	3.75	0.71	2.17	0.19	0.95	0.03
90									14.52	18.55	8.76	5.43	6.14	2.29	3.97	0.79	2.30	0.21	1.01	0.03
95									15.33	20.50	9.25	6.00	6.48	2.53	4.19	0.87	2.42	0.23	1.07	0.03
100									16.14	22.55	9.74	6.59	6.82	2.78	4.41	0.96	2.55	0.25	1.12	0.03
110											10.71	7.87	7.51	3.31	4.85	1.14	2.81	0.30	1.23	0.04
120											11.68	9.24	8.19	3.89	5.29	1.34	3.06	0.36	1.35	0.05
130											12.66	10.72	8.87	4.52	5.73	1.56	3.32	0.41	1.46	0.06
140											13.63	12.30	9.55	5.18	6.17	1.79	3.57	0.47	1.57	0.06
150											14.61	13.97	10.24	5.89	6.61	2.03	3.83	0.54	1.68	0.07
160											15.58	15.75	10.92	6.63	7.05	2.29	4.08	0.61	1.79	0.08
170													11.60	7.42	7.50	2.56	4.34	0.68	1.91	0.09
180													12.28	8.25	7.94	2.85	4.59	0.75	2.02	0.10
190													12.97	9.12	8.38	3.15	4.85	0.83	2.13	0.11
200													13.65	10.03	8.82	3.46	5.11	0.92	2.24	0.12
220													15.01	11.96	9.70	4.13	5.62	1.09	2.47	0.15
240													16.38	14.06	10.58	4.85	6.13	1.28	2.69	0.17
260															11.46	5.63	6.64	1.49	2.92	0.20
280															12.35	6.46	7.15	1.71	3.14	0.23
300															13.23	7.34	7.66	1.94	3.37	0.26
320															14.11	8.27	8.17	2.19	3.59	0.30
340															14.99	9.25	8.68	2.45	3.81	0.33
360															15.87	10.29	9.19	2.72	4.04	0.37
380																	9.70	3.01	4.26	0.41
400																	10.21	3.31	4.49	0.45
420																	10.72	3.62	4.71	0.49
440																	11.23	3.95	4.94	0.53
460																	11.74	4.28	5.16	0.58
480																	12.25	4.64	5.38	0.63
500																	12.76	5.00	5.61	0.68

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

POLYETHYLENE PLASTIC PIPE ID CONTROLLED

PE 3408 ASTM D2239 C=140 • PSI loss per 100 ft. of pipe

Nominal Size Avg. I.D.	½" 0.622		¾" 0.824		1" 1.049		1¼" 1.380		1½" 1.610		2" 2.067		2½" 2.469		3" 3.068		4" 4.026	
Flow (GPM)	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss	Velocity FPS	PSI Loss
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.16	0.00								
2	2.11	1.76	1.20	0.45	0.74	0.14	0.43	0.04	0.31	0.02	0.19	0.01						
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.29	0.01						
4	4.22	6.35	2.40	1.62	1.48	0.50	0.86	0.13	0.63	0.06	0.38	0.02	0.27	0.01				
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.79	0.09	0.48	0.03	0.33	0.01				
6	6.33	13.46	3.61	3.43	2.22	1.06	1.29	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01		
7	7.38	17.91	4.21	4.56	2.60	1.41	1.50	0.37	1.10	0.18	0.67	0.05	0.47	0.02	0.30	0.01		
8	8.44	22.93	4.81	5.84	2.97	1.80	1.71	0.47	1.26	0.22	0.76	0.07	0.54	0.03	0.35	0.01		
9	9.49	28.52	5.41	7.26	3.34	2.24	1.93	0.59	1.42	0.28	0.86	0.08	0.60	0.03	0.39	0.01		
10	10.55	34.67	6.01	8.82	3.71	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.67	0.04	0.43	0.01		
12			7.21	12.37	4.45	3.82	2.57	1.01	1.89	0.48	1.15	0.14	0.80	0.06	0.52	0.02		
14			8.41	16.45	5.19	5.08	3.00	1.34	2.20	0.63	1.34	0.19	0.94	0.08	0.61	0.03		
16			9.61	21.07	5.93	6.51	3.43	1.71	2.52	0.81	1.53	0.24	1.07	0.10	0.69	0.04	0.40	0.01
18			10.82	26.21	6.67	8.10	3.86	2.13	2.83	1.01	1.72	0.30	1.20	0.13	0.78	0.04	0.45	0.01
20			12.02	31.85	7.42	9.84	4.28	2.59	3.15	1.22	1.91	0.36	1.34	0.15	0.87	0.05	0.50	0.01
22					8.16	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02
24					8.90	13.79	5.14	3.63	3.78	1.72	2.29	0.51	1.61	0.21	1.04	0.07	0.60	0.02
26					9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.13	0.09	0.65	0.02
28					10.38	18.35	6.00	4.83	4.41	2.28	2.67	0.68	1.87	0.28	1.21	0.10	0.70	0.03
30					11.12	20.85	6.43	5.49	4.72	2.59	2.86	0.77	2.01	0.32	1.30	0.11	0.76	0.03
32					11.86	23.50	6.86	6.19	5.04	2.92	3.06	0.87	2.14	0.36	1.39	0.13	0.81	0.03
34					12.61	26.29	7.28	6.92	5.35	3.27	3.25	0.97	2.28	0.41	1.47	0.14	0.86	0.04
36							7.71	7.69	5.67	3.63	3.44	1.08	2.41	0.45	1.56	0.16	0.91	0.04
38							8.14	8.50	5.98	4.02	3.63	1.19	2.54	0.50	1.65	0.17	0.96	0.05
40							8.57	9.35	6.30	4.42	3.82	1.31	2.68	0.55	1.73	0.19	1.01	0.05
42							9.00	10.24	6.61	4.83	4.01	1.43	2.81	0.60	1.82	0.21	1.06	0.06
44							9.43	11.16	6.93	5.27	4.20	1.56	2.94	0.66	1.91	0.23	1.11	0.06
46							9.86	12.12	7.24	5.72	4.39	1.70	3.08	0.71	1.99	0.25	1.16	0.07
48							10.28	13.11	7.56	6.19	4.58	1.84	3.21	0.77	2.08	0.27	1.21	0.07
50							10.71	14.14	7.87	6.68	4.77	1.98	3.35	0.83	2.17	0.29	1.26	0.08
55							11.78	16.87	8.66	7.97	5.25	2.36	3.68	0.99	2.38	0.35	1.38	0.09
60							12.85	19.82	9.44	9.36	5.73	2.77	4.02	1.17	2.60	0.41	1.51	0.11
65									10.23	10.86	6.21	3.22	4.35	1.36	2.82	0.47	1.64	0.13
70									11.02	12.45	6.68	3.69	4.69	1.55	3.03	0.54	1.76	0.14
75									11.81	14.15	7.16	4.19	5.02	1.77	3.25	0.61	1.89	0.16
80									12.59	15.95	7.64	4.73	5.35	1.99	3.47	0.69	2.01	0.18
85									13.38	17.84	8.12	5.29	5.69	2.23	3.68	0.77	2.14	0.21
90											8.59	5.88	6.02	2.48	3.90	0.86	2.27	0.23
95											9.07	6.50	6.36	2.74	4.12	0.95	2.39	0.25
100											9.55	7.15	6.69	3.01	4.33	1.05	2.52	0.28
110											10.50	8.53	7.36	3.59	4.77	1.25	2.77	0.33
120											11.46	10.02	8.03	4.22	5.20	1.47	3.02	0.39
130											12.41	11.62	8.70	4.89	5.63	1.70	3.27	0.45
140											13.37	13.33	9.37	5.61	6.07	1.95	3.52	0.52
150													10.04	6.38	6.50	2.22	3.78	0.59
160													10.71	7.19	6.94	2.50	4.03	0.67
170													11.38	8.04	7.37	2.79	4.28	0.74
180													12.05	8.94	7.80	3.11	4.53	0.83
190													12.72	9.88	8.24	3.43	4.78	0.92
200													13.39	10.87	8.67	3.78	5.03	1.01
220															9.54	4.50	5.54	1.20
240															10.40	5.29	6.04	1.41
260															11.27	6.14	6.54	1.64
280															12.14	7.04	7.05	1.88
300															13.00	8.00	7.55	2.13
320															13.87	9.02	8.05	2.40
340																	8.56	2.69
360																	9.06	2.99
380																	9.57	3.30
400																	10.07	3.63
420																	10.57	3.98
440																	11.08	4.33
460																	11.58	4.71
480																	12.08	5.09
500																	12.59	5.49

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

TABLE OF APPROXIMATE PRESSURE LOSSES FOR PIPE FITTINGS

Steel Fitting Type	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
Coupling	0.6	0.8	1	1.2	1.5	2	2.5	3	4	6	8
Run of St. Tee	1	1	1.5	2	2	2.5	3	4	5	7	10
Tee, Side Outlet	3	4.5	5	7	9	11	13	16	20	31	42
Tee, Run Reduced ½"	1.5	2.5	3	4	5	6	7	8	12	16	20
Elbow, 90°	1.5	2.5	3	4	5	6	7	8	12	16	20
Elbow, 45°	0.75	1	1.3	1.7	2	2.5	3	3.5	5	7.5	10
Corporation Stop	9	9	9	9	9	9					
Curb Stop	6	6	7	7	8	8					

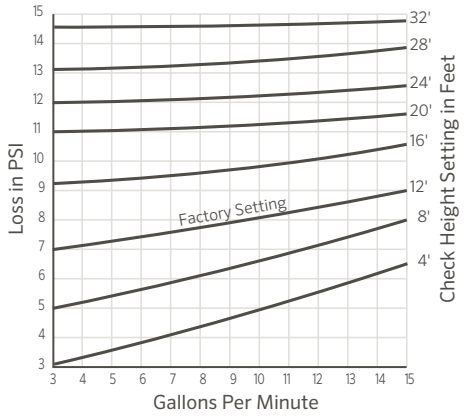
Plastic IPS or Copper Fitting Type	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
Coupling	1.5	2.5	3.0	3.0	4.0	6.0	7.0	8.0	11.0	18.0	24.0
Run of St. Tee	2.5	3.0	4.0	5.0	6.0	8.0	9.0	11.0	15.0	21.0	28.0
Tee, Side Outlet	7.0	9.0	12.0	15.0	18.0	24.0	30.0	36.0	45.0	70.0	90.0
Tee, Run Reduced ½"	3.5	4.5	6.0	8.0	9.0	11.0	14.0	17.0	24.0	34.0	45.0
Elbow, 90°	3.5	4.5	6.0	8.0	9.0	11.0	14.0	17.0	24.0	34.0	45.0
Elbow, 34°	1.5	2.0	3.0	3.5	4.0	5.0	7.0	8.0	10.0	16.0	20.0

To use this chart, multiply the approximate "equivalent feet of pipe" value by the proper pipe pressure loss per 100 ft. rating, then divide by 100. The result is the fitting loss in PSI.

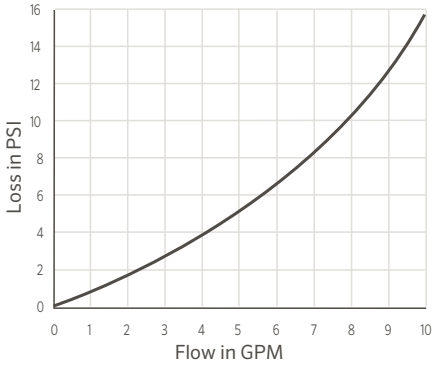
Notes:
It is recommended that the above chart be used only when the manufacturers recommended pressure loss values are not available.

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 1,000'
AVL = Allowable voltage loss
L = Wire length (one way)
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 1,800'. 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).

$$R = \frac{1{,}000 \times 4}{2\,(1{,}800) \times 0.37}$$

$$R = \frac{4{,}000}{1{,}332}$$

$$R = 3.00 \text{ ohms/1,000 ft.}$$

So, wire resistance cannot exceed 3.00 ohms per 1,000'. Now go to table #1 and select the proper wire size. Since 18 gauge wire has more resistance than 3.00 ohms per 1,000', choose 14 gauge 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 (AWG)	Resistance at 20° C (68° F) (ohms per 1,000')
18	6.39
16	4.02
14	2.52
12	1.59
10	1
8	0.63
6	0.4
4	0.25

TABLE 2- VALVE WIRE SIZING

Ground Wire	Control Wire						
	18	16	14	12	10	8	6
18	850	1040	1210	1350	1460	1540	1590
16	1040	1340	1650	1920	2150	2330	2440
14	1210	1650	2150	2630	3080	3450	3700
12	1350	1920	2630	3390	4170	4880	5400
10	1460	2150	3080	4170	5400	6670	7690
8	1540	2330	3450	4880	6670	8700	10530
6	1590	2440	3700	5400	7690	10530	13330

Notes:
Maximum one-way distance in feet between controller and valve heavy-duty solenoid: 24 VAC, 350 mA inrush current, 190 mA holding current, 60 Hz; 370 mA inrush current, 210 mA holding current, 50 Hz.

ADDITIONAL DATA

WIRE SIZE REFERENCE CHART

Wire Size (AWG)	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	Wire Size (AWG)
18	6	12	20	35	49	80	110	175					18
16	5	10	16	30	42	67	97	150					16
14	4	6	10	18	25	40	56	88	120	150			14
12	3	5	7	15	20	33	50	75	102	130	205		12
10	1	3	6	13	16	27	40	63	85	110	170		10
8	1	2	4	6	9	16	25	35	50	65	105	150	8
6	1	1	3	3	5	10	15	22	32	40	63	92	6
4		1	1	2	4	7	10	16	24	30	48	70	4
2		1	1	2	2	5	9	12	18	22	36	54	2
0			1	1	2	3	5	8	12	15	24	36	0
00			1	1	1	2	4	7	10	14	21	31	00
000				1	1	2	3	6	8	11	18	26	000
0000				1	1	1	2	5	7	10	15	22	0000

Notes:
Approximate number of wires to be installed in conduit or tubing.
Maximum number of wires in conduit or sleeving.

ESTIMATING PIPE SIZE

Nominal Pipe Size	Approximate String Length in Inches		
	Copper Pipe	Galvanized (Sch. 40 Steel)	PVC Pipe
½"	2"	2⅝"	2⅝"
⅝"	2⅜"		
¾"	2¾"	3⅝16"	3⅝16"
1"	3½"	4⅛"	4⅛"
1¼"	4⅝16"	5⅜16"	5⅜16"
1½"	5⅛"	6"	6"
2"	6¾"	7⅞16"	7⅞16"

Notes:
To determine the nominal size of a pipe, wrap a string around the pipe and compare its length to the chart above.

CLIMATE ETp TABLE

Climate*	Inches Daily
Cool Humid	0.10 to 0.15
Cool Dry	0.15 to 0.20
Warm Humid	0.15 to 0.20
Warm Dry	0.20 to 0.25
Hot Humid	0.20 to 0.30
Hot Dry	0.30 to 0.45

Notes:
* Cool = under 70˚ F as an average mid-summer high
* Warm = between 70˚ and 90˚ F as mid-summer highs
* Hot = over 90˚
* Humid = over 50% as average mid-summer relative humidity (dry=under 50%)

STATEMENT OF WARRANTY Hunter Residential & Commercial Irrigation

Hunter Industries Incorporated ("Hunter") warrants the following products to be free of defects in materials or workmanship under normal use in landscape irrigation applications for the specified period of time outlined below from the original date of manufacture:

ONE YEAR	**ROTORS**	SRM	**MICRO**	Micro Sprays, PLD Fittings, PLD-LOC Fittings, Rigid Risers
TWO YEARS	**ROTORS**	PGP®-ADJ, PGJ	**CONTROLLERS**	Eco Logic, XC Hybrid, HC Controller, X-Core® and Pro-C® Families, ROAM, NODE, WVP, WVC, PSR
	SPRAYS	PS Ultra Family	**SENSORS**	ET System, Wireless Flow Sensor
	NOZZLES	Spray Nozzles, PCN, PCB, AFB, MSBN	**MICRO**	ACZ, PCZ, RZWS, Point Source Emitters, Tubing, Multi-Port Emitters, IH Risers, MLD, Eco-Indicator
	VALVES	PGV Family, PSR	**ACCESSORIES**	HCV, SJ, FLEXsg, HSBE Family, SpotShot, RZB
THREE YEARS	**CONTROLLERS**	ROAM XL	**MP ROTATOR®**	All
FIVE YEARS	**ROTORS**	PGP Ultra, I-20, I-25, I-40, and I-90 Families	**CENTRAL**	IMMS® Central Control Products
	SPRAYS	Pro-Spray®, Pro-Spray PRS30, and Pro-Spray PRS40 Families	**SENSORS**	Clik Sensors, Solar-Sync®, Flow-Sync®, MWS
	VALVES	HQ, ICV, IBV	**MICRO**	ICZ, PLD Tubing, Eco-Mat®, Eco-Wrap™
	CONTROLLERS	I-Core®/DUAL® and ACC controller families, ICD and Dual Decoder Products, ICR Remotes, ICC2		

If used for agricultural 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 during the warranty period, contact your local Hunter Authorized Distributor.

STATEMENT OF WARRANTY Hunter Golf and ST System Irrigation

Hunter will unconditionally repair, replace or repurchase, at its sole discretion, any defective Golf or ST Product Components listed below by category, returned freight prepaid, within a period of:

GOLF ROTOR PRODUCTS

A. Three (3) years component* warranty from the date of manufacture
B. Five (5) years component* warranty from the date of manufacture with one-for-one matching purchase of HSJ Swing Joints from authorized Hunter Golf distributor.

HSJ SWING JOINT, ST ROTOR, AND ST ACCESSORY PRODUCTS

C. Five (5) years component* warranty from the date of manufacture

GOLF CONTROLLER PRODUCTS

D. One (1) year component* warranty from the date of manufacture

PILOT GOLF DECODER PRODUCTS

E. Three (3) years component* warranty from the date of manufacture

COMPUTERS, PRINTERS & ACCESSORIES

F. Equipment manufacturer's warranty (no Hunter warranty)

MAINTENANCE RADIO & BATTERY

G. Equipment manufacturer's warranty (no Hunter warranty)

Hunter's warranty applies only to products installed as specified and used as intended for irrigation purposes. Hunter's warranty shall be limited to defects in materials and workmanship during the warranty period, and shall not extend to situations in which the product was subjected to improper design, installation, operation, maintenance, application, abuse, improper electrical current, grounding, service other than by Hunter authorized agents, operating conditions other than that for which it was designed, or in systems using water containing corrosive chemicals, electrolytes, sand, dirt, silt, rust or agents that otherwise attack and degrade plastics. Hunter's warranty does not cover component failures caused by lightning strikes, electrical power surges or unconditioned power supplies. If products are repurchased, the price to Distributor for such products in effect at the time of return will apply.

Hunter® | *Built on Innovation®*

Hunter's obligation to repair, replace or repurchase its products or product components as set forth above is the sole and exclusive warranty extended by Hunter. There are no other warranties, expressed or implied, including warranties of merchantability and warranties of fitness for a particular purpose. Hunter will not be liable to a distributor or to any other party in strict liability, tort, contract or any other manner for any damages caused or claimed to be caused as a result of any design of or defect in Hunter's products, or for any special, incidental or consequential damages of any nature.

* Warranty covers repair, replacement or repurchase of individual defective component assemblies contained within the product. Returns of complete finished goods are not allowed under warranty without prior approval from the Hunter Product Manager.

** Where applicable, Hunter's statement of warranty complies with local directives.

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.

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.

Gregory R. Hunter, President of Hunter Industries

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