

Product Catalog

RESIDENTIAL AND COMMERCIAL IRRIGATION | *Built on Innovation®*

Hunter®



VOLUME 37

hunterindustries.com

A Commitment to Innovation, **AND A PROMISE** **OF PARTNERSHIP**

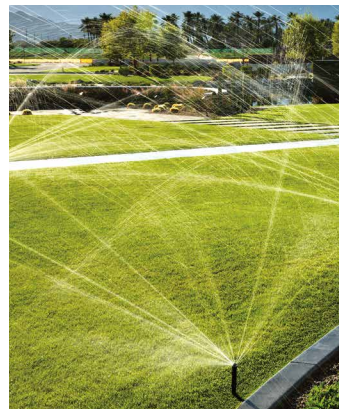
As the demand for smart technology continues to expand across all segments of the irrigation industry, **Hunter Industries has redoubled efforts to bring you high-performance, easy-to-use products that combine power and versatility** to meet the varied needs of contractors, designers, homeowners, and the landscapes themselves.

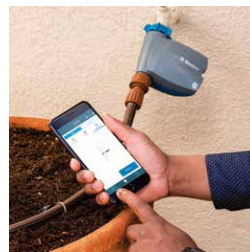
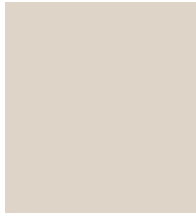
The complex requirements of today's market call for robust products and a steadfast partnership from manufacturers. That's why we have expanded our world-class Hydrowise™ irrigation management platform to provide a new category of controllers for larger applications. As we refine our controller offerings, we also remain deeply invested in our core products, and have developed groundbreaking new micro irrigation and rotary nozzle solutions. All our products remain backed by industry-leading training, technical support, and field support.

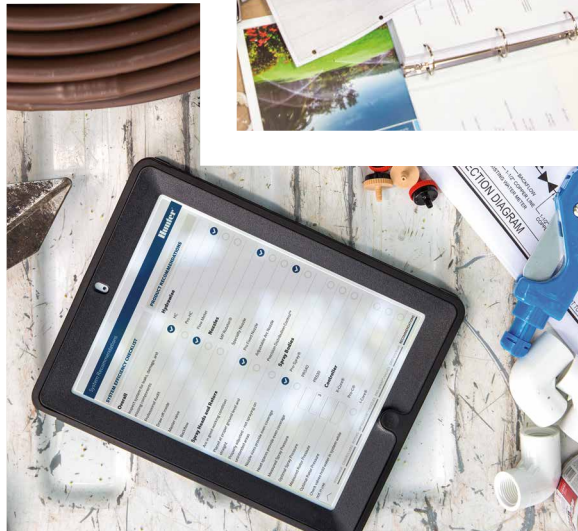
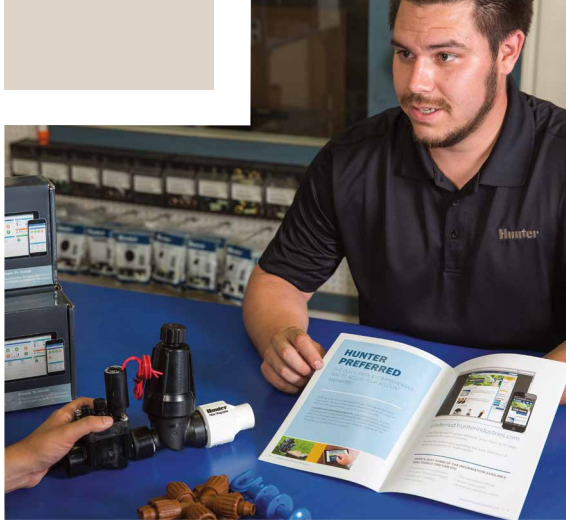
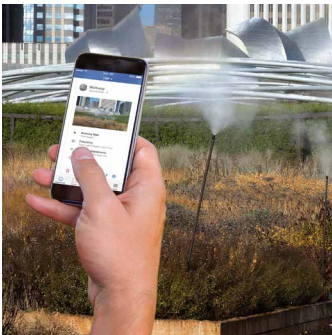
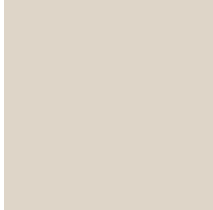
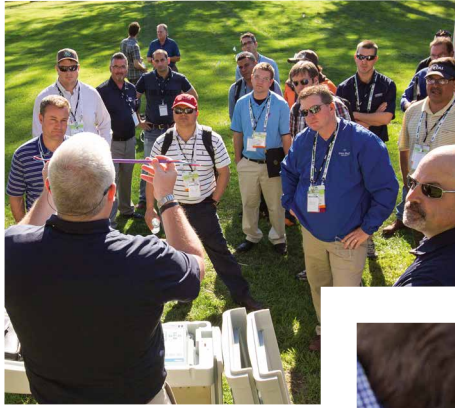
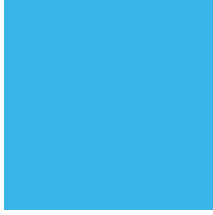
Thank you for choosing Hunter Industries.

Looking ahead, we're proud to stand with you as we tackle new challenges and embrace new opportunities as a unified team.

Hunter®





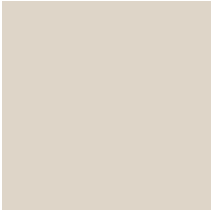




Tools and Services **FOR THE MODERN** IRRIGATION PROFESSIONAL

At Hunter Industries, we know that contractors devote their lives to building their businesses. That's why as a trusted partner of contractors **for more than 35 years, we have made it our mission to develop top-quality products backed by industry-leading tools and services** to help your business grow.

From digital education courses to technical support, our comprehensive tool kit for contractors is designed to have your back as you enter the era of digital irrigation management. Check out what we have to offer:

- 
- Free online training courses backed by industry-recognized certificate programs for Hunter irrigation and FX Luminaire lighting products
 - Water Savings Calculator to show customers their projected savings in real time
 - Hydrowise remote system monitoring capabilities to create new revenue streams
 - SiteRec, a powerful free app to help you customize solutions, show demonstration videos and product comparisons, and send bids directly to your customers
 - Hunter Preferred Program, which allows you to earn points for product purchases and redeem them for cash, distributor credit, trips, and merchandise

We also have technical and educational guides, promotional items, an expansive video library, and more. Visit hunterindustries.com/contractors today to learn how we can make your life easier. We're happy to help!



Hunter[®]

What's New **IN VOLUME 37**

Take Control of Advanced Irrigation Projects

HCC

The revolutionary HCC controller offers innovative Wi-Fi-based irrigation management for projects of all shapes and sizes. Further expanding our Hydrawise product offering, the HCC is designed with high-end residential and midsize commercial customers in mind. Built with the same flexibility and power of the ICC2, the HCC can control up to 54 stations and operate any two zones simultaneously.

See page 87 for more details.



Pro-C® Hydrawise

The Pro-C Hydrawise combines the power of Wi-Fi-based irrigation management and the convenience of modular functionality into one next-generation controller. It helps contractors save time, save water, protect landscapes, and meet the demands of customers who want smart home solutions. In addition, it allows contractors to continue using their ROAM and ROAM XL remotes for quick on-site management.

See page 86 for more details.



BTT

Our new Bluetooth® Tap Timer provides highly efficient automatic irrigation for small lawns, gardens, green walls, plants, and shrubs. BTT is easy to operate and simple to set up, and is designed for use with a hose faucet. It gives users convenient options to remotely program irrigation from their smartphone, and avoid climbing around shrubs or stepping on delicate plants to operate.

See page 101 for more details.



MP815

The newest member of Hunter's popular MP800 Series, the MP815 is ideal for medium-grade soils, gentle slopes, small spaces, and tight water windows. The versatile MP815 joins the MP800SR to extend a 0.8"/hr matched precipitation rate to a 6' to 16' radius range, while providing the same wind-resistant streams and unmatched distribution uniformity synonymous with the MP Rotator name.

See page 46 for more details.



Superior Color-Coded Dripline for a Range of Applications

Hunter Dripline (HDL) New HDL is a high-efficiency, ultra-durable upgrade to PLD that is available with three pressure-compensating emitter varieties to accommodate a range of drip system needs. Choose HDL-PC for standard installations, HDL-CV for sloping or subsurface applications that require a check valve, and HDL-R when using reclaimed water. Color-coded striping allows users to quickly identify the flow in the field, saving time during maintenance.



HDL-CV - 0.4 GPH



HDL-CV - 0.6 GPH



HDL-CV - 0.9 GPH

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HUNTER FAMILY

of Products

Founded in 1981, Hunter Industries is a family-owned, global manufacturer of best-in-class solutions for residential, commercial, municipal, agricultural, and golf course irrigation systems, as well as the outdoor lighting industry. Headed by CEO Greg Hunter, our Global Operations team provides leadership for our entire company. The core mission of Hunter Industries will always remain the same: to deliver valued products and services backed by unwavering customer support, grow the company conscientiously, and remain true to the culture that makes our employees proud to work at Hunter. [Learn more at hunterindustries.com](http://hunterindustries.com).

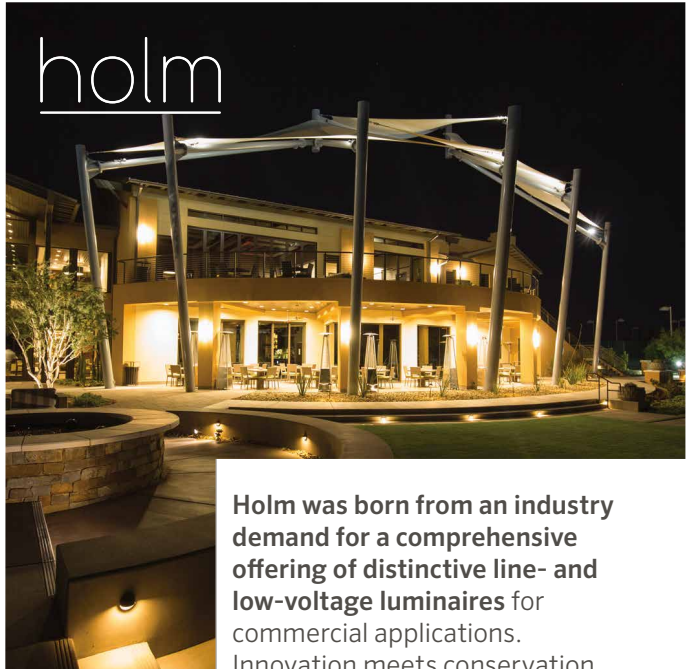


Hunter has been on the leading edge of golf course irrigation since 1983. We build performance, reliability, and serviceability into every product. From our industry-best rotors to our robust Pilot® central control software, Hunter Industries takes pride in providing golf experts and professionals with the tools and support they need to conceptualize, create, and manage world-class golf courses. [Learn more at hunterindustries.com/golf](http://hunterindustries.com/golf).

Senninger Irrigation is a leading designer and manufacturer of premier irrigation solutions for agricultural, horticultural, dairy, mining, industrial, effluent, and wastewater applications. With over 50 years of experience in more than 50 countries worldwide, and with a product portfolio spanning from wobblers to impact sprinklers, Senninger is one of the most trusted names in the irrigation industry. [Learn more at senninger.com](http://senninger.com).



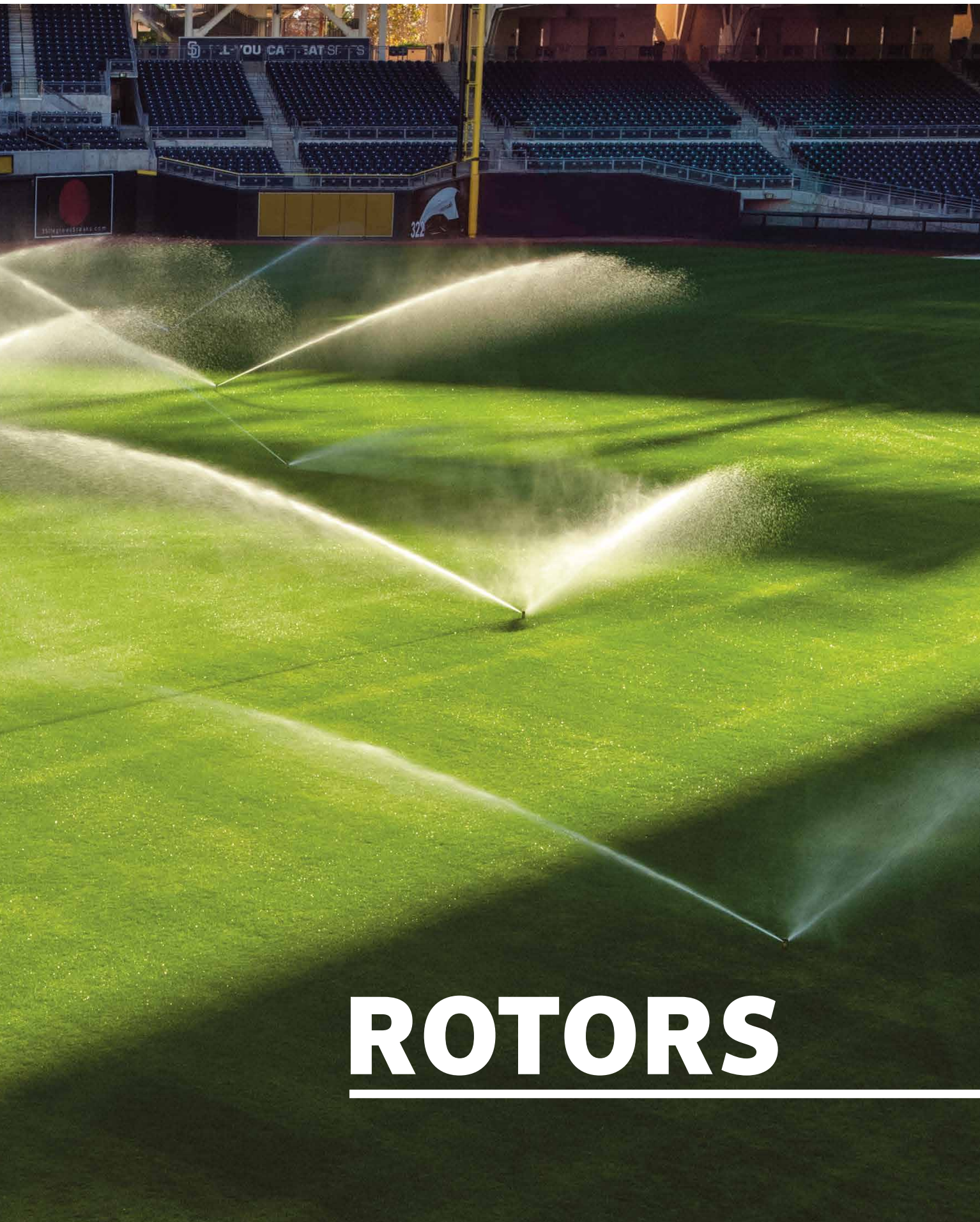
FX Luminaire is an industry-leading manufacturer of landscape and architectural lighting products with a focus on the advancement of LED technology and digital lighting control with zoning, dimming, and color adjustment capabilities, as well as smart home integration. FX Luminaire offers a full spectrum of highly efficient lighting fixtures that can be utilized to create elegant, cutting-edge landscape lighting systems for commercial or residential applications. [Learn more at fxl.com](http://fxl.com).



Holm was born from an industry demand for a comprehensive offering of distinctive line- and low-voltage luminaires for commercial applications. Innovation meets conservation in the design and production of our products, which are designed to meet required specifications while echoing the aesthetics of the project. Holm solutions provide high-quality light with optimal energy efficiency, lifespan, and durability. [Learn more at holmighting.com](http://holmighting.com).







ROTORS

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

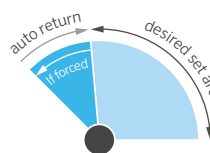


Nozzles are easier to differentiate in the field for simple installation and quick organization.

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-80	I-90
INLET SIZE		½"	½"	¾"	¾"	¾"	1"	1"	1"	1", 1½"	1½"
RADIUS	ft.	15' - 37'	15' - 30'	22' - 52'	17' - 46'	17' - 46'	40' - 71'	44' - 69'	52' - 76'	37' - 97'	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	8.9-58.5	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	50-100	80 - 120
OPERATING PRESSURE RANGE	PSI	20 - 100	20 - 100	20 - 100	20 - 100	20 - 100	40 - 100	40 - 100	40 - 100	50 - 100	80 - 120
NOZZLE TRAJECTORY		15°	15°	25°	25°	25°	25°	25°	25°	22.5°	22.5°
SPECIFIC NOZZLES		---	---	---	Optional	Optional	Pre-Installed	Pre-Installed	Pre-Installed	Pre-Installed	Pre-Installed
NOZZLE OPTIONS		8	6	27	34	34	12	6	6	21	16
WARRANTY		2 Years	1 Year	2 Years	5 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')	● (5')	● (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 12*



PGJ Reclaimed

Available as a factory installed option on all models.

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-00

Overall height: 7"
 Exposed diameter: 1⅛"
 Inlet size: ½"

PGJ-04

Overall height: 7⅞"
 Pop-up height: 4"
 Exposed diameter: 1⅛"
 Inlet size: ½"

PGJ-06

Overall height: 9⅞"
 Pop-up height: 6"
 Exposed diameter: 1⅛"
 Inlet size: ½"

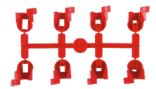
PGJ-12

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

PGJ RED NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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

PGJ NOZZLES



Bold = Recommended pressure

Note:

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

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: 2.0 only
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Warranty period: 1 year

OPERATING SPECIFICATIONS

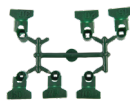
- Radius: 15' to 30'
- Flow: 0.42 to 3.4 GPM
- Recommended pressure range: 30 to 50 PSI
- Operating pressure range: 20 to 100 PSI
- Precipitation rates: 0.45 in/hr approximately
- Nozzle trajectory: 18° approximately



SRM-04
 Overall height: 6½"
 Pop-up height: 4"
 Exposed diameter: 1½"
 Inlet size: ½"

ROTORS

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



SRM



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



Radius: **22' to 52'**
 Flow: **0.5 to 14.1 GPM**
 Inlet: **3/4"**

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

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

Overall height: 7 3/8"
 Pop-up height: 4"
 Exposed diameter: 1 3/4"
 Inlet size: 3/4"

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		
				■	▲	
4LA ●	30	22	1.4	0.56	0.64	
	40	24	1.7	0.57	0.66	
	Gray 50	26	1.8	0.51	0.59	
60	28	2.0	0.49	0.57		
	5LA ●	30	25	1.6	0.49	0.57
		40	27	1.9	0.50	0.58
Gray 50		28	2.1	0.52	0.60	
60	30	2.3	0.49	0.57		
	6LA ●	30	27	2.1	0.55	0.64
		40	30	2.5	0.53	0.62
Gray 50		33	2.8	0.49	0.57	
60	35	3.0	0.47	0.54		
	7LA ●	30	29	2.8	0.64	0.74
		40	32	3.1	0.58	0.67
Gray 50		35	3.5	0.55	0.64	
60	37	3.8	0.53	0.62		
	8LA ●	30	31	3.4	0.68	0.79
		40	34	3.9	0.65	0.75
Gray 50		37	4.4	0.62	0.71	
60	38	4.7	0.63	0.72		
	9LA ●	30	33	4.3	0.76	0.88
		40	37	5.0	0.70	0.81
Gray 50		40	5.6	0.67	0.78	
60	42	6.1	0.67	0.77		
	10LA ●	40	38	6.5	0.87	1.00
		50	40	7.3	0.88	1.01
Gray 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	
				■	▲
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	
				■	▲
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
2.0 Blue	65	32	1.9	0.36	0.41
	25	33	1.4	0.25	0.29
	35	33	1.7	0.30	0.35
	45	34	2.0	0.33	0.38
2.5 Blue	55	34	2.1	0.35	0.40
	65	32	2.3	0.43	0.50
	25	33	1.7	0.30	0.35
	35	35	2.1	0.33	0.38
3.0 Blue	45	35	2.5	0.39	0.45
	55	35	2.6	0.41	0.47
	65	35	2.9	0.46	0.53
	25	35	2.2	0.35	0.40
3.0 Blue	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
5.0 Blue	65	41	4.8	0.55	0.63
	25	37	3.7	0.52	0.60
	35	39	4.5	0.57	0.66
	45	42	5.0	0.55	0.63
6.0 Blue	55	42	5.7	0.62	0.72
	65	42	6.2	0.68	0.78
	25	38	4.3	0.57	0.66
	35	40	5.6	0.67	0.78
8.0 Blue	45	43	6.0	0.62	0.72
	55	44	6.7	0.67	0.77
	65	44	7.3	0.73	0.84
	25	37	6.0	0.84	0.97
8.0 Blue	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 NOZZLES



Red (P/N 130900)



Blue (P/N 665300)



Gray (P/N 233200)



PGP-ADJ

Easy arc and radius adjustment

ROTORS

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 12*



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 Reclaimed
 Available as a factory installed option on all models



PGP Ultra
 Easy arc and radius adjustment

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: **3/4"**

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 12*



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



I-20-06
 Overall height: 9¾"
 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"

ROTORS

PGP® ULTRA & I-20 PRB

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

PRESSURE REGULATED BODY

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)



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

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 12*

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

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

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



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



I-20-06-PRB
 Overall height: 10½"
 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	
				■	▲
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 / PRB GRAY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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	
	65	30	27	2.1	0.55	0.64
2.5 ● LA Gray	40	30	2.5	0.53	0.62	
	50	33	2.8	0.49	0.57	
	60	35	3.0	0.47	0.54	
	65	30	29	2.8	0.64	0.74
	3.5 ● LA Gray	40	32	3.1	0.58	0.67
50		35	3.5	0.55	0.64	
60		37	3.8	0.53	0.62	
65		30	29	3.4	0.78	0.90
4.5 ● LA Gray		40	32	3.9	0.73	0.85
	50	35	4.4	0.69	0.80	
	60	37	4.7	0.66	0.76	

Bold = Recommended pressure

Note:

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

PGP ULTRA / I-20 / PRB NOZZLES

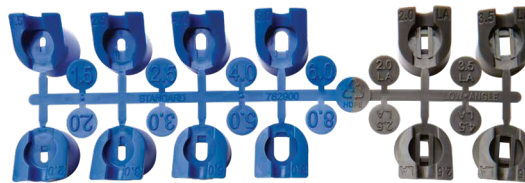


Blue Standard / Gray Low Angle (P/N 782900)



Flat-front nozzle

Convenient Nozzle Rack



I-20 04 with PRB body



Pressure Regulation

Continual operating pressure of 45 PSI

ROTORS

PGP ULTRA / I-20 GREEN HIGH FLOW NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	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

I-20 with Blue Standard Nozzle



PGP ULTRA / I-20 / PRB BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA (18' / 25')					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	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.

PGP ULTRA / I-20 / PRB NOZZLES

Dk. Green High Flow
(P/N 444800)





Black Short Radius
(P/N 466100)

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

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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
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
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







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

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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
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
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

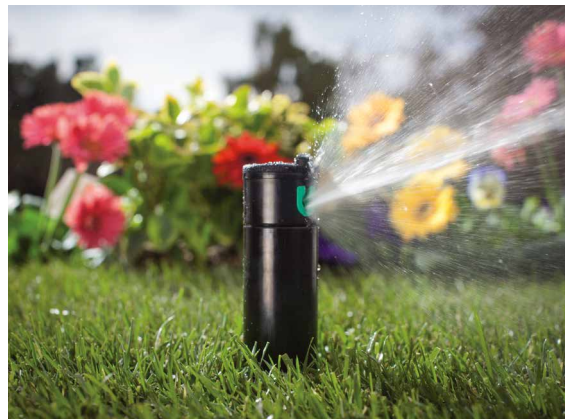


PGP ULTRA / I-20 / PRB MPR-30 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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
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
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



PGP 04 Ultra with MPR-30 Nozzle



ROTORS

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 12*



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	
				■	▲
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	
				■	▲
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	5.1	0.65	0.75
05 ○ White	40	38	4.4	0.59	0.68
	50	39	4.8	0.61	0.70
	60	40	5.3	0.64	0.74
	70	41	5.6	0.64	0.74
07 ● Orange*	40	40	6.6	0.79	0.92
	50	41	7.0	0.80	0.93
	60	42	7.5	0.82	0.95
	70	44	7.9	0.79	0.91
08 ● Lt. Brown	40	42	7.7	0.84	0.97
	50	43	8.3	0.86	1.00
	60	44	9.2	0.91	1.06
	70	45	9.9	0.94	1.09
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



ROTORS

* 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: 7¾"
 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 12*



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	
				■	▲
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
13 (42) ● Lt. Blue	80	51	13.0	0.96	1.11
	50	50	11.1	0.85	0.99
	60	51	12.3	0.91	1.05
15 (43) ● Gray	70	52	13.3	0.95	1.08
	80	53	14.2	0.97	1.12
	50	54	13.8	0.91	1.05
23 (44) ● Dk. Green	60	55	15.7	1.00	1.15
	70	57	16.6	0.98	1.14
	80	59	18.3	1.01	1.17
25 (45) ● Dk. Blue	60	62	21.3	1.07	1.23
	70	64	23.0	1.08	1.25
	80	65	24.5	1.12	1.29
25 (45) ● Dk. Blue	90	66	25.9	1.14	1.32
	60	66	23.9	1.06	1.22
	70	67	25.8	1.11	1.28
25 (45) ● Dk. Blue	80	68	27.7	1.15	1.33
	90	69	29.5	1.19	1.38

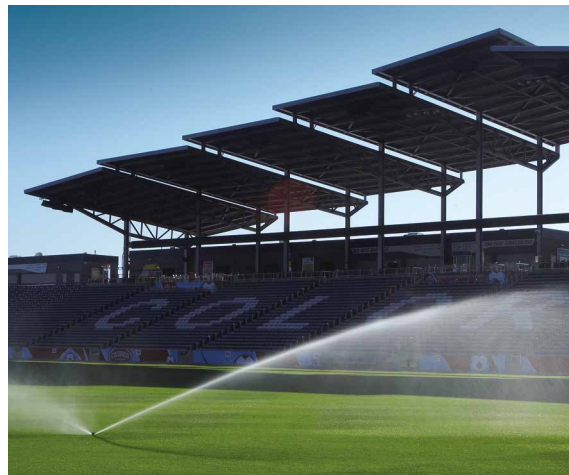
I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft	Flow GPM	Precip in/hr	
				■	▲
8 (40) ● Lt. Brown	40	41	7.6	0.87	1.00
	50	41	8.4	0.96	1.11
	60	42	9.2	1.00	1.16
10 (41) ● Lt. Green	50	45	10.3	0.98	1.13
	60	46	11.3	1.03	1.19
	70	47	12.2	1.06	1.23
13 (42) ● Lt. Blue	80	47	13.0	1.13	1.31
	50	46	11.1	1.01	1.17
	60	47	12.3	1.07	1.24
15 (43) ● Gray	70	48	13.3	1.11	1.28
	80	49	14.2	1.14	1.31
	50	51	13.8	1.02	1.18
23 (44) ● Dk. Green	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
25 (45) ● Dk. Blue	90	61	25.9	1.34	1.55
	60	59	23.9	1.32	1.53
	70	61	25.8	1.33	1.54
25 (45) ● Dk. Blue	80	62	27.7	1.39	1.60
	90	63	29.5	1.43	1.65

I-40 NOZZLES



ROTORS

I-40 Opposing Nozzle 360° Model



I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft	Flow GPM	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 precipitation 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-80

Radius: **37' to 97'**
 Flow: **8.9 to 58.5 GPM**
 Inlet: **1" & 1½"**

FEATURES

- Models:
 - I-80: True full-circle/adjustable part-circle (60° to 360°)
 - I80-ON: Full-circle opposing nozzles
- QuickCheck™ arc mechanism (I-80)
- QuickSet-360 arc mechanism (I-80)
- Nozzle range:
 - I-80: #10 to #53
 - I80-ON: #15 to #53
- Contour back-nozzle capable
- Exclusive Total-Top-Service (TTS) design
- Exclusive ProTech Turf Cup System
 - No-dig servicing of riser assembly
 - No-dig arc adjustments
 - Quick-release turf cup assembly
 - Threads in cup lock/retain the turf
- Ratcheting stainless steel riser
- Water-lubricated gear drives
- Check height up to 5' in elevation change
- Warranty period: 5 years
- ▶ **Dual trajectory color-coded nozzles:**
 - I-80: 12 standard trajectory (22.5°)
 - I80-ON: 10 standard trajectory (22.5°)
 - I-80 & I80-ON: 9 low-angle trajectory (15°)

OPERATING SPECIFICATIONS

- I-80
 - Radius: 37' to 94'
 - Flow: 8.9 to 59.6 GPM
 - Pressure range: 50 to 100 PSI
- I80-ON
 - Radius: 49' to 97'
 - Flow: 14.2 to 58.5 GPM
 - Pressure range: 65 to 100 PSI
- All I-80 rotors are pressure rated at 150 PSI

▶ = *Advanced Feature descriptions on page 12*



I80-00-SS Riser Mount
I80-00-SS-ON Riser Mount
 Overall height: 9¾"
 Exposed diameter: 2¼"
 Inlet size: 1½"



I80-04-SS Pop-up
I80-04-SS-ON Pop-up
 Overall height: 9¾"
 Pop-up height: 3¾"
 Exposed diameter: 4¾"
 Inlet size: 1" and 1½"



I80-04-SS-TC Turf Cup
I80-04-SS-ON-TC Turf Cup
 Overall height: 11½"
 Pop-up height: 3¾"
 Exposed diameter: 3½"
 Inlet size: 1" and 1½"



I-80 Reclaimed
 Factory-installed option



I-80 Turf Cup Kit
 P/N 959400



I-80 Rubber Cover Kit
 P/N 959300

I-80 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Standard Features	3 Featured Options	4 Nozzle Options
I80-00-SS = Riser Mount I80-04-SS = 4" Pop-Up I80-04-SS-TC = 4" Pop-Up with Turf Cup	Adjustable arc, stainless steel riser Adjustable arc, stainless steel riser, check-valve Adjustable arc, stainless steel riser, check-valve factory-installed turf cup	(blank) = No option R = Reclaimed water ID* * TC reclaimed ID not available	#10 to #53 = Factory-installed nozzle number* * I-80 rotors only available with factory-installed nozzles (no nozzle packs included)
I80-00-SS-ON = Riser Mount I80-04-SS-ON = 4" Pop-Up I80-04-SS-ON-TC = 4" Pop-Up with Turf Cup	Full-circle, opposing nozzle, stainless steel riser Full-circle, opposing nozzle, stainless steel riser, check valve Full-circle, opposing nozzle, stainless steel riser, check valve, factory-installed turf cup	(blank) = No option R = Reclaimed water ID* * TC reclaimed ID not available	#15 to #53 = Factory-installed nozzle number* * I-80 rotors only available with factory-installed nozzles (no nozzle packs included)

Example:

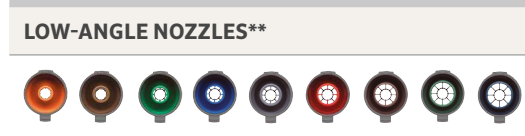
- I-80-04-SS-25 = 4" pop-up, adjustable arc, stainless steel riser, check-valve and factory-installed #25 nozzle
- I-80-04-SS-ON-R-38 = 4" pop-up, stainless steel riser, check-valve, opposing nozzle full-circle, reclaimed water ID and factory installed #38 nozzle
- I80-04-SS-ON-TC-48 = 4" pop-up, stainless steel riser, check-valve, opposing nozzle full-circle, factory-installed turf cup and factory-installed #48 nozzle

ROTORS

180-ON NOZZLE PERFORMANCE DATA*

Nozzle Set			Pressure	Radius	Flow	Precip in/hr	
			PSI	ft.	GPM	■	▲
●	●	●	50	49	14.2	0.57	0.66
Tan	15	Gray	60	51	15.7	0.58	0.67
803611	White	315317	65	52	16.4	0.58	0.67
●	●	●	70	53	17.0	0.58	0.67
●	●	●	80	55	18.2	0.58	0.67
●	●	●	50	56	17.2	0.53	0.61
Tan	18	Gray	60	58	18.8	0.54	0.62
803611	Orange	315317	65	59	19.7	0.54	0.63
●	●	●	70	60	20.0	0.53	0.62
●	●	●	80	61	21.2	0.55	0.63
●	●	●	50	57	18.4	0.55	0.63
Tan	20	Gray	60	59	20.3	0.56	0.65
803611	Brown	315317	65	61	21.4	0.55	0.64
●	●	●	70	63	21.6	0.52	0.60
●	●	●	80	64	22.7	0.53	0.62
●	●	●	50	63	21.6	0.52	0.60
Tan	23	Lt. Blue	60	65	23.0	0.52	0.61
803611	Green	315311	65	66	24.0	0.53	0.61
●	●	●	70	67	24.9	0.53	0.62
●	●	●	80	68	26.6	0.55	0.64
●	●	●	65	71	28.6	0.55	0.63
Tan	25	Lt. Blue	70	73	29.7	0.54	0.62
803611	Blue	315311	80	74	31.7	0.56	0.64
●	●	●	90	75	33.7	0.58	0.67
●	●	●	100	77	35.8	0.58	0.67
●	●	●	65	74	30.9	0.54	0.63
Tan	33	Lt. Blue	70	75	32.0	0.55	0.63
803611	Gray	315311	80	77	34.2	0.56	0.64
●	●	●	90	79	36.2	0.56	0.64
●	●	●	100	81	38.2	0.56	0.65
●	●	●	65	77	35.1	0.57	0.66
Tan	38	Lt. Blue	70	79	36.6	0.56	0.65
803611	Red	315311	80	82	38.9	0.56	0.64
●	●	●	90	84	41.3	0.56	0.65
●	●	●	100	87	43.6	0.55	0.64
●	●	●	-	-	-	-	-
Tan	43	Blue	70	83	41.3	0.58	0.67
803611	Dk. Brown	315315	80	85	43.6	0.58	0.67
●	●	●	90	87	46.3	0.59	0.68
●	●	●	100	89	48.8	0.59	0.68
●	●	●	-	-	-	-	-
Dk. Brown	48	Dk. Blue	70	90	46.9	0.56	0.64
803610	Dk. Green	833500	80	92	48.9	0.56	0.64
●	●	●	90	94	50.5	0.55	0.63
●	●	●	100	96	53.5	0.56	0.65
●	●	●	-	-	-	-	-
Dk. Brown	53	Dk. Blue	70	91	49.8	0.58	0.67
803610	Dk. Blue	833500	80	93	52.2	0.58	0.67
●	●	●	90	95	55.5	0.59	0.68
●	●	●	100	97	58.5	0.60	0.69

● = Nozzle plug P/N 315300 installed in the front side of the nozzle housing.



I-80 NOZZLE PERFORMANCE DATA*

Nozzle Set			Pressure	Radius	Flow	Precip in/hr	
			PSI	ft.	GPM	■	▲
Orange	10	Dk. Green	50	37	8.9	0.63	0.72
803603	10	315312	60	39	9.8	0.62	0.72
●	●	●	65	41	10.2	0.58	0.67
●	●	●	-	-	-	-	-
●	●	●	-	-	-	-	-
Orange	13	White	50	47	11.4	0.50	0.57
803603	13	315314	60	48	12.3	0.51	0.59
●	●	●	65	49	12.9	0.52	0.60
●	●	●	-	-	-	-	-
●	●	●	-	-	-	-	-
Orange	15	White	50	52	12.9	0.46	0.53
803603	15	315314	60	52	14.5	0.52	0.60
●	●	●	65	53	14.9	0.51	0.59
●	●	●	70	53	15.5	0.53	0.61
●	●	●	80	54	16.5	0.54	0.63
Orange	18	Lt. Green	50	57	16.6	0.49	0.57
803603	18	315313	60	58	17.8	0.51	0.59
●	●	●	65	59	18.6	0.51	0.59
●	●	●	70	60	19.4	0.52	0.60
●	●	●	80	61	20.5	0.53	0.61
Orange	20	Lt. Green	50	59	17.9	0.49	0.57
803603	20	315313	60	61	19.5	0.50	0.58
●	●	●	65	62	19.8	0.50	0.57
●	●	●	70	63	20.6	0.50	0.58
●	●	●	80	64	22.1	0.52	0.60
Orange	23	Lt. Green	50	65	20.2	0.46	0.53
803603	23	315313	60	66	22.1	0.49	0.56
●	●	●	65	67	23.9	0.51	0.59
●	●	●	70	67	24.2	0.52	0.60
●	●	●	80	69	25.9	0.52	0.60
Red	25	Green	65	71	28.3	0.54	0.62
803602	25	315310	70	72	29.3	0.54	0.63
●	●	●	80	73	31.5	0.57	0.66
●	●	●	90	74	33.4	0.59	0.68
●	●	●	100	75	35.4	0.61	0.70
Red	33	Green	65	72	30.6	0.57	0.66
803602	33	315310	70	73	31.6	0.57	0.66
●	●	●	80	75	33.9	0.58	0.67
●	●	●	90	77	35.8	0.58	0.67
●	●	●	100	79	37.9	0.58	0.67
Red	38	Green	65	76	34.9	0.58	0.67
803602	38	315310	70	78	36.2	0.57	0.66
●	●	●	80	80	39.1	0.59	0.68
●	●	●	90	82	41.2	0.59	0.68
●	●	●	100	84	43.5	0.59	0.69
Red	43	Green	-	-	-	-	-
803602	43	315310	70	81	41.2	0.60	0.70
●	●	●	80	83	43.5	0.61	0.70
●	●	●	90	86	46.2	0.60	0.69
●	●	●	100	89	48.7	0.59	0.68
Dk. Red	48	Dk. Green	-	-	-	-	-
803601	48	315312	70	83	46.3	0.65	0.75
●	●	●	80	85	48.4	0.64	0.74
●	●	●	90	89	51.7	0.63	0.73
●	●	●	100	91	54.5	0.63	0.73
Dk. Red	53	Dk. Green	-	-	-	-	-
803601	53	315312	70	87	50.7	0.64	0.74
●	●	●	80	89	53.1	0.65	0.75
●	●	●	90	92	56.4	0.64	0.74
●	●	●	100	94	59.6	0.65	0.75

● = Nozzle plug P/N 315300 installed in the back side of the nozzle housing.

* Complies to ASAE standard. All precipitation rates calculated

**Low-angle nozzles reduce radius by 15%

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

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 12*



Turf Cup Kit
 P/N 467955



Rubber Cover Kit
 P/N 234200; P/N 234201



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	
				■	▲
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

I-90-36V NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	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
	120	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



** Low angle nozzles reduce radius by 15%

* 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



ROTORS

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"



ROTORS

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

1 Model	2 Inlet Type (from pipe fitting)	3 Outlet Type (to sprinkler inlet)	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	<i>* Not available HSJ-0</i>	T = Male - ¾" Brass NPT/BSP SnapLok™ **	<i>* Not available in S or T Outlet Types</i>	<i>* HSJ-0 only</i>
		<i>* Not available HSJ-0 or HSJ-3</i>		
		<i>** HSJ-1 only - for quick coupler</i>		

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.

HIGH-FLOW SWING JOINTS

FEATURES

- Heavy-duty high-flow swing joints with O-ring seals
- HSJ-4 for high-flow I-90 and ST-90 rotors with 1½" inlets
- HSJ-5 for high-flow ST-1600B rotor with 2" inlet
- Available in popular inlet and outlet configurations

High-Flow Swing Joints

- HSJ-4 = Model 2"
- HSJ-5 = Model 3"



HSJ HIGH-FLOW SWING JOINT - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Inlet Type (from pipe fitting)	3 Outlet Type (to sprinkler inlet)	4 Outlet Style	5 Lay Length
HSJ-4 = 2" Heavy-Duty Swing Joint	3 = 2" Male - NPT - Horizontal Side Connection Q = 2" Male - NPT - Vertical Top Connection	7 = 1½" Male - NPT	2 = Single Top-Out	12 = 12" Lay Arm
HSJ-5 = 3" Heavy-Duty Swing Joint	3 = 3" Male - NPT - Horizontal Side Connection V = 3" Male - NPT - Vertical Top Connection	8 = 2" Male - NPT	2 = Single Top-Out	12 = 12" Lay Arm

Example:

HSJ-4-Q7-212 = HSJ 2" heavy-duty swing joint, 2" male NPT vertical top connection to piping, 1½" male NPT outlet to sprinkler, single top-out and 12" lay arm

HSJ-5-38-212 = HSJ 3" heavy-duty swing joint, 3" male NPT horizontal side connection to piping, 2" male NPT outlet to sprinkler, single top-out and 12" lay arm

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 nozzle 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	
				■	▲
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)

ROTORS

ST-90 / STG-900 NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	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:

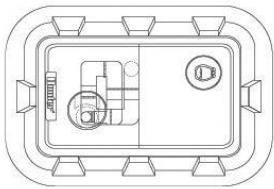
All precipitation rates calculated for 180° operation.
For precipitation rate of a 360° sprinkler, divide by 2.

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

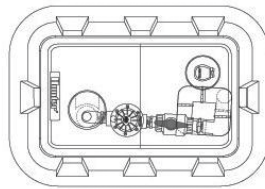
INSTALLATION DETAILS

STK-1

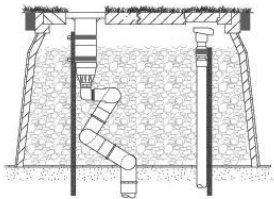
STK-2



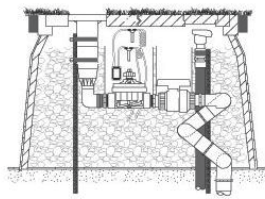
ON FIELD SIDE



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



ROTORS

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



① Quick-Coupler

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

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

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



ST-1600-HS-B (High Speed)

Overall height: 22½"
 Pop-up height: 5"
 Diameter: 14"
 Inlet size: 2" BSP*

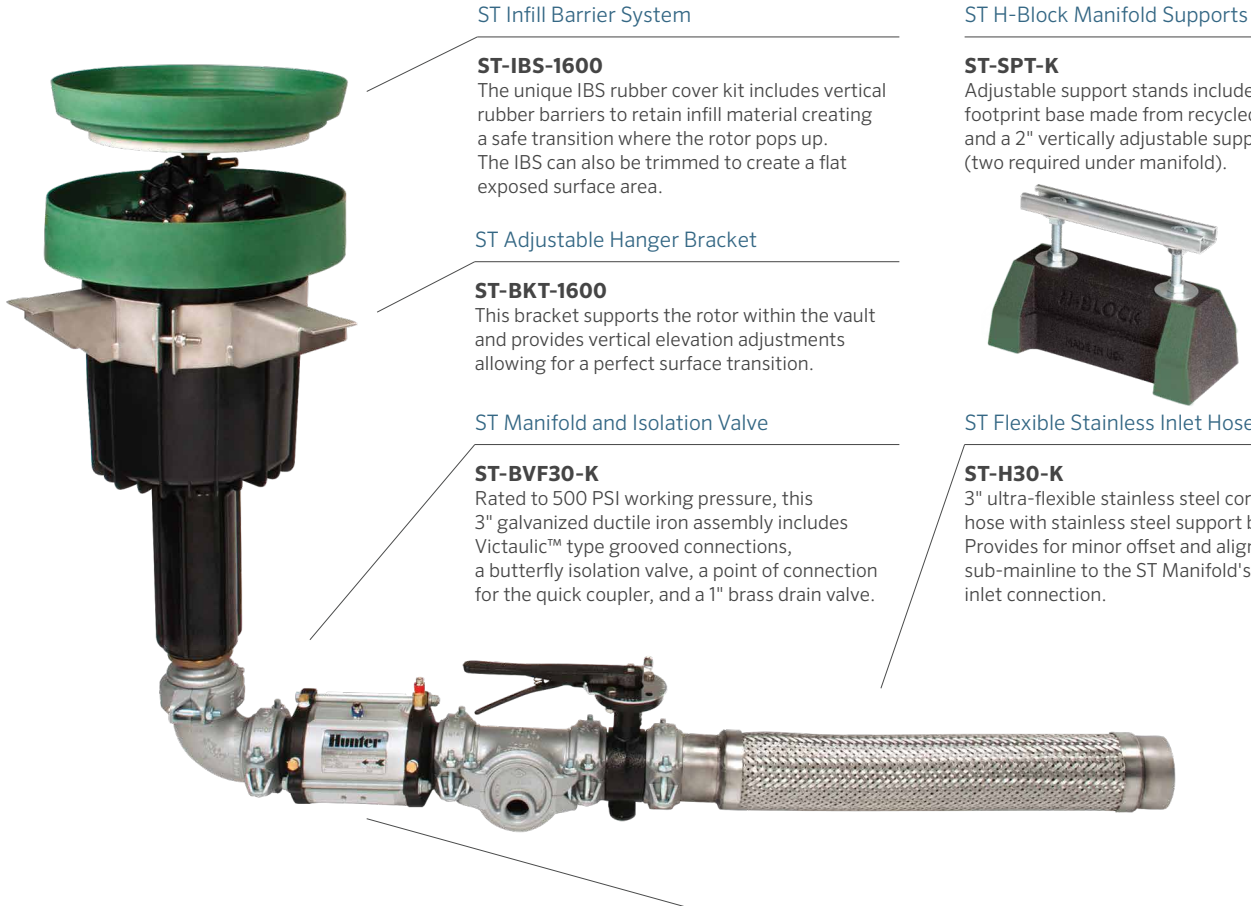
* Adapter to 2" NPT nipple not required. Use BSP t.o.e. nipple adapter P/N 241400 if desired.



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.



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.

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

For Flows Up to 200 GPM



ST-V20-KVP: Heavy-duty plastic control valve
Valve: 2" Grooved Vic Type
Opening Speed: ST-NDL-K regulates/slow 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/slow 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

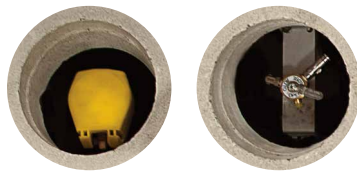
Heavy-duty tapered fiberglass and polymer-concrete construction with pre-cast holes for rotor, quick coupler valve, and remote manifold assembly.

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



ST-1600 SHORT RADIUS NOZZLE KIT - PN 959900 PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
8	45	67	23.3	1.00	1.15
	60	70	23.3	0.92	1.06
	70	72	25.5	0.95	1.09
	90	74	27.3	0.96	1.11
	100	76	29.2	0.97	1.12
10	45	74	32.4	1.14	1.32
	60	81	37.8	1.11	1.28
	70	84	42.5	1.16	1.34
	90	86	47.1	1.23	1.42
	100	88	51.0	1.27	1.46
12	45	84	46.2	1.26	1.46
	60	92	53.9	1.23	1.42
	70	94	60.5	1.32	1.52
	90	96	65.7	1.37	1.58
	100	98	71.8	1.44	1.66
14	45	91	60.7	1.41	1.63
	60	103	69.3	1.26	1.45
	70	105	78.2	1.37	1.58
	90	108	85.5	1.41	1.63
	100	110	92.5	1.47	1.70

ST-1600 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr		
				■	▲	
16 ●	60	107	96.2	1.63	1.88	
	70	115	107.3	1.57	1.81	
	Black	90	121	117.8	1.54	1.78
	100	128	127.3	1.50	1.73	
	115	135	137.4	1.46	1.69	
18 ●	60	112	107.0	1.66	1.91	
	70	121	119.4	1.56	1.80	
	Black	90	128	131.0	1.54	1.78
	100	133	141.3	1.54	1.78	
	115	141	153.2	1.48	1.71	
20 ●	60	115	144.0	2.10	2.43	
	70	128	160.9	1.89	2.18	
	Black	90	141	176.5	1.71	1.97
	100	144	190.5	1.76	2.03	
	115	148	204.2	1.80	2.08	
22 ●	60	118	171.5	2.37	2.73	
	70	130	191.8	2.20	2.54	
	Black	90	144	210.0	1.94	2.24
	100	151	226.9	1.84	2.12	
	115	157	243.1	1.89	2.18	
24 ●	60	121	202.1	2.64	3.05	
	70	133	225.9	2.46	2.84	
	Black	90	148	247.6	2.19	2.52
	100	156	267.4	2.12	2.45	
	115	160	286.4	2.16	2.49	
26 ●	60	126	233.2	2.83	3.27	
	70	136	260.4	2.71	3.13	
	Black	90	151	284.5	2.40	2.77
	100	160	307.0	2.31	2.67	
	115	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.

* All radius measurements taken at standard rotation speeds. Slowing rotation to minimum rotation speed will add 10+ feet to radius.



SIMPLE TO SPECIFY, *Easy to Install and 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, specialized equipment and complicated procedures. For the most complete and highest quality synthetic turf watering solution, look no further than the Hunter ST System.

MP ROTATOR[®]

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 feature
- ▶ 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 41*

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°

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 HT = Male threaded version <i>(Not available in 3500 and 1000-210)</i>
MP1000-210 = 8' to 15' radius, adjustable from 210° to 270°	
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°	
MPLCS-515 = Left corner strip, 5' x 15'	
MPRCS-515 = Right corner strip, 5' x 15'	
MPSS-530 = Side strip, 5' x 30'	
MP-CORNER = 8' to 15' radius, adjustable from 45° to 105°	

Examples:

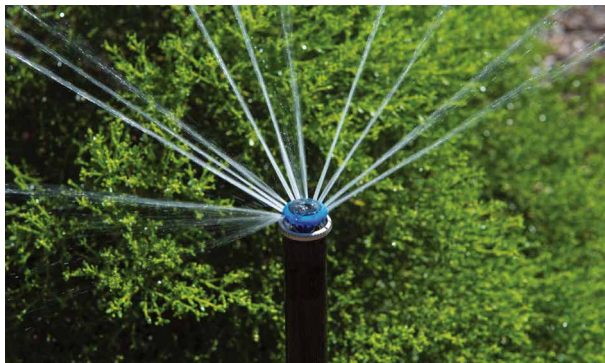
MP1000-210 = 8' to 15' radius, adjustable from 210° to 270°
PROS-06 - PRS40-CV - MP2000-90 = 6" pop-up regulated at 40 PSI, drain check valve, with MP 2000-90.

MP ROTATOR PERFORMANCE DATA

Arc	Pressure PSI	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°				
		Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Flow GPH	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
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
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
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
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	

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

Works best with Pro-Spray PRS40



For Pro-Spray PRS40 information see page 57




MP ROTATOR PERFORMANCE DATA

MP3500

Radius: 31' to 35'

Adjustable Arc

● Light Brown: 90°

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

MP3500 31' to 35' radius






MP3500-90
90° to 210°

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

MP ROTATOR PERFORMANCE DATA

- MPLCS-515: Ivory, MP Left Corner Strip
- MPRCS-515: Copper, MP Right Corner Strip
- MPSS-530: 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
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
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	

MP Strips



MPLCS-515
Left Corner Strip
5' x 15'



MPRCS-515
Right Corner Strip
5' x 15'



MPSS-530
Side Strip
5' x 30'

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 Pro-Spray PRS40, pressure regulated spray body 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
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
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
	55	15	0.51	30.6
55	15	0.53	31.8	

Bold = Recommended Pressure

MP Corner



MP-CORNER
 Corner
 8' to 15'

Male Threaded



MP-HT
 Male Threaded

MP Accessories

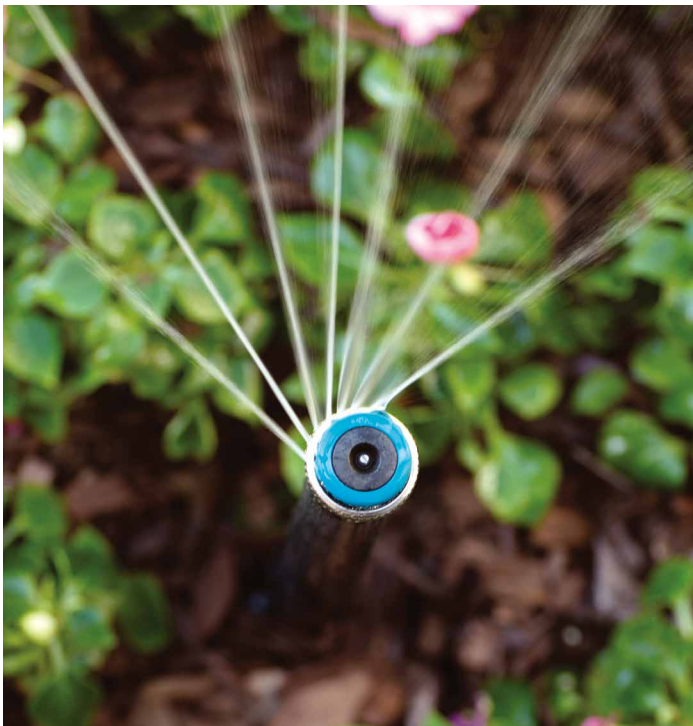


MPTOOL
 Adjusts all MP Rotators



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

MP Rotator



MP Tool for easy adjustments



MP ROTATOR® 800 SERIES

Radius: 6' to 16'

FEATURES

- Provides coverage from 6' to 16'
- Radius can be reduced up to approximately 25% on all models
- 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 feature
- ▶ Distribution uniformity
- ▶ Low precipitation rate

OPERATING SPECIFICATIONS

- Recommended operating pressure: 40 PSI
To achieve minimum radius setting: 30 PSI
- MP800SR-90 uses a 60-mesh built-in nozzle filter
- MP800SR-360 and MP815 use a 40-mesh built-in nozzle filter
- Recommended filtering when operating on dirty water
- Hunter's HY filters are a great solution for zone-specific MP800 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 41*

MP800SR 6' to 12' radius



MP800SR-90
90° to 210°



MP800SR-360
360°

MP815 8' to 16' radius



MP815-90
90° to 210°



MP815-210
210° to 270°



MP815-360
360°

MP800SR-90







MP815-90



MP ROTATOR PERFORMANCE DATA

MP800SR

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






MAX RADIUS							MIN RADIUS	
Arc	Pressure PSI	Radius ft.	Flow		Precip in/hr		Radius ft.	Flow GPM
			GPM	GPH	■	▲		
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
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
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
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 Pro-Spray PRS40, pressure regulated at 40 PSI.

MP ROTATOR PERFORMANCE DATA

MP815

Radius: 8' to 16'
Adjustable Arc and Full-Circle
● Maroon and Gray: 90° to 210°
● Lt. Blue and Gray: 210° to 270°
● Olive and Gray: 360°

Arc	Pressure PSI	Radius ft.	Flow		Precip in/hr	
			GPM	GPH	■	▲
90° 	30	14	0.42	25.2	0.83	0.95
	35	15	0.46	27.6	0.79	0.91
	40	15	0.49	29.4	0.84	0.97
	45	16	0.52	31.2	0.78	0.90
	50	16	0.55	33.0	0.83	0.96
180° 	30	13	0.75	45.0	0.85	0.99
	35	14	0.86	51.6	0.84	0.98
	40	15	0.93	55.8	0.80	0.92
	45	15	0.96	57.6	0.82	0.95
	50	16	1.06	63.6	0.80	0.92
210° 	30	13	0.88	52.8	0.86	0.99
	35	14	0.96	57.6	0.81	0.93
	40	15	1.10	66.0	0.81	0.93
	45	15	1.16	69.6	0.85	0.98
	50	16	1.24	74.4	0.80	0.92
270° 	30	13	1.14	68.4	0.87	1.00
	35	14	1.24	74.4	0.81	0.94
	40	15	1.40	84.0	0.80	0.92
	45	15	1.47	88.2	0.84	0.97
	50	16	1.54	92.4	0.77	0.89
360° 	30	13	1.52	91.2	0.87	1.00
	35	14	1.70	102.0	0.83	0.96
	40	15	1.87	112.2	0.80	0.92
	45	15	2.00	120.0	0.86	0.99
	50	16	2.13	127.8	0.80	0.92
55	16	2.26	135.6	0.85	0.98	

MP ROTATOR



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.

FLOGUARD™ TECHNOLOGY



In the event of a missing nozzle, FloGuard technology reduces the flow of water from the riser to a 0.5 GPM (10' tall) indicator stream, eliminating water waste and preventing landscape erosion while providing a visual indicator for repair.



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.

PRO-SPRAY

COMPETITOR



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.

Pro-Spray: Seal remains intact

Competitor: Significant leaking at the body cap

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, 8A, 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				●	●
FLOGUARD™ TECHNOLOGY				●	●
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: **1/2"**

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: 8A, 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 462237SP)
- Large inlet filter screen (replacement; P/N 162900SP)

▶ = *Advanced Feature descriptions on page 50*



PSU-02

Retracted height: 5"
Pop-up height: 2"
Exposed diameter: 1/4"
Inlet size: 1/2"



PSU-04

Retracted height: 7 1/4"
Pop-up height: 4"
Exposed diameter: 1/4"
Inlet size: 1/2"



PSU-06

Retracted height: 9 1/2"
Pop-up height: 6"
Exposed diameter: 1/4"
Inlet size: 1/2"

PS ULTRA - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 (OPTIONAL)

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 8A = 8' Adjustable nozzle 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 <i>(Available for 4" model only)</i> Substitute standard installation of large inlet filter screen and receive unit with the nozzle filter only.

Examples:

- 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 = 4" Pop-up, with flush plug, large filter screen not included
- PSU-04 - 12A - NFO = 4" Pop-up, with a 12' adjustable nozzle, nozzle filter only

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

Arc	Pressure PSI	8A 8' radius Adjustable from 0° to 360° Trajectory: 0° ● Brown				10A 10' radius Adjustable from 0° to 360° Trajectory: 15° ● Red				12A 12' radius Adjustable from 0° to 360° Trajectory: 28° ● Green			
		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Precip in/hr ■ ▲	
45° ▶	20	7	0.18	2.83	3.27	9	0.20	1.90	2.20	11	0.25	1.59	1.84
	25	8	0.20	2.74	3.16	10	0.23	1.92	2.22	12	0.28	1.60	1.85
	30	8	0.22	2.65	3.06	10	0.25	1.93	2.22	12	0.32	1.68	1.95
	35	9	0.24	2.50	2.89	11	0.28	1.92	2.22	13	0.37	1.80	2.08
	40	9	0.25	2.38	2.74	11	0.30	1.88	2.17	13	0.42	1.91	2.21
90° ◑	20	7	0.36	2.83	3.27	9	0.40	1.90	2.20	11	0.50	1.59	1.84
	25	8	0.40	2.74	3.16	10	0.45	1.92	2.22	12	0.55	1.60	1.85
	30	8	0.44	2.65	3.06	10	0.50	1.93	2.22	12	0.63	1.68	1.95
	35	9	0.47	2.50	2.89	11	0.55	1.92	2.22	13	0.73	1.80	2.08
	40	9	0.50	2.38	2.74	11	0.59	1.88	2.17	13	0.84	1.91	2.21
120° ◐	20	7	0.48	2.83	3.27	9	0.53	1.90	2.20	11	0.67	1.59	1.84
	25	8	0.53	2.74	3.16	10	0.60	1.92	2.22	12	0.73	1.60	1.85
	30	8	0.59	2.65	3.06	10	0.67	1.93	2.22	12	0.84	1.68	1.95
	35	9	0.63	2.50	2.89	11	0.73	1.92	2.22	13	0.97	1.80	2.08
	40	9	0.67	2.38	2.74	11	0.79	1.88	2.17	13	1.12	1.91	2.21
180° ◐	20	7	0.72	2.83	3.27	9	0.80	1.90	2.20	11	1.00	1.59	1.84
	25	8	0.80	2.74	3.16	10	0.90	1.92	2.22	12	1.10	1.60	1.85
	30	8	0.88	2.65	3.06	10	1.00	1.93	2.22	12	1.26	1.68	1.95
	35	9	0.94	2.50	2.89	11	1.10	1.92	2.22	13	1.46	1.80	2.08
	40	9	1.00	2.38	2.74	11	1.18	1.88	2.17	13	1.68	1.91	2.21
240° ◑	20	7	0.96	2.83	3.27	9	1.07	1.90	2.20	11	1.33	1.59	1.84
	25	8	1.07	2.74	3.16	10	1.20	1.92	2.22	12	1.47	1.60	1.85
	30	8	1.17	2.65	3.06	10	1.33	1.93	2.22	12	1.68	1.68	1.95
	35	9	1.25	2.50	2.89	11	1.47	1.92	2.22	13	1.95	1.80	2.08
	40	9	1.33	2.38	2.74	11	1.57	1.88	2.17	13	2.24	1.91	2.21
270° ◑	20	7	1.08	2.83	3.27	9	1.20	1.90	2.20	11	1.50	1.59	1.84
	25	8	1.20	2.74	3.16	10	1.35	1.92	2.22	12	1.65	1.60	1.85
	30	8	1.32	2.65	3.06	10	1.50	1.93	2.22	12	1.89	1.68	1.95
	35	9	1.41	2.50	2.89	11	1.65	1.92	2.22	13	2.19	1.80	2.08
	40	9	1.50	2.38	2.74	11	1.77	1.88	2.17	13	2.52	1.91	2.21
360° ●	20	7	1.44	2.83	3.27	9	1.60	1.90	2.20	11	2.00	1.59	1.84
	25	8	1.60	2.74	3.16	10	1.80	1.92	2.22	12	2.20	1.60	1.85
	30	8	1.76	2.65	3.06	10	2.00	1.93	2.22	12	2.52	1.68	1.95
	35	9	1.88	2.50	2.89	11	2.20	1.92	2.22	13	2.92	1.80	2.08
	40	9	2.00	2.38	2.74	11	2.36	1.88	2.17	13	3.36	1.91	2.21

Bold = Recommended pressure

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

15A








15' radius
Adjustable from
0° to 360°
Trajectory: 28°

● Black

17A


17' radius
Adjustable from
0° to 360°
Trajectory: 28°

● Gray

Arc	Pressure PSI	Radius ft.	Flow			Precip in/hr			
			GPM	■	▲	ft.	GPM	■	▲
45° 	20	14	0.39	1.51	1.75	16	0.49	1.46	1.68
	25	15	0.43	1.57	1.82	17	0.57	1.60	1.85
	30	15	0.47	1.59	1.84	17	0.58	1.53	1.77
	35	16	0.52	1.55	1.79	18	0.63	1.49	1.72
	40	17	0.57	1.60	1.85	19	0.69	1.55	1.79
90° 	20	14	0.77	1.51	1.75	16	0.97	1.46	1.68
	25	15	0.86	1.57	1.82	17	1.13	1.60	1.85
	30	15	0.93	1.59	1.84	17	1.15	1.53	1.77
	35	16	1.03	1.55	1.79	18	1.25	1.49	1.72
	40	17	1.13	1.60	1.85	19	1.38	1.55	1.79
120° 	20	14	1.03	1.51	1.75	16	1.29	1.46	1.68
	25	15	1.15	1.57	1.82	17	1.51	1.51	1.74
	30	15	1.24	1.59	1.84	17	1.53	1.53	1.77
	35	16	1.37	1.55	1.79	18	1.67	1.49	1.72
	40	17	1.51	1.60	1.85	19	1.84	1.47	1.70
180° 	20	14	1.54	1.51	1.75	16	1.94	1.46	1.68
	25	15	1.72	1.57	1.82	17	2.26	1.51	1.74
	30	15	1.86	1.59	1.84	17	2.30	1.53	1.77
	35	16	2.06	1.55	1.79	18	2.50	1.49	1.72
	40	17	2.26	1.60	1.85	19	2.76	1.47	1.70
240° 	20	14	2.05	1.51	1.75	16	2.59	1.46	1.68
	25	15	2.29	1.57	1.82	17	3.01	1.51	1.74
	30	15	2.48	1.59	1.84	17	3.07	1.53	1.77
	35	16	2.75	1.55	1.79	18	3.33	1.49	1.72
	40	17	3.01	1.60	1.85	19	3.68	1.47	1.70
270° 	20	14	2.31	1.51	1.75	16	2.91	1.46	1.68
	25	15	2.58	1.57	1.82	17	3.39	1.51	1.74
	30	15	2.79	1.59	1.84	17	3.45	1.53	1.77
	35	16	3.09	1.55	1.79	18	3.75	1.49	1.72
	40	17	3.39	1.60	1.85	19	4.14	1.47	1.70
360° 	20	14	3.08	1.51	1.75	16	3.88	1.46	1.68
	25	15	3.44	1.57	1.82	17	4.52	1.51	1.74
	30	15	3.72	1.59	1.84	17	4.60	1.53	1.77
	35	16	4.12	1.55	1.79	18	5.00	1.49	1.72
	40	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: **1/2"**

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 437400SP)
- Reclaimed water ID cap (P/N 458520SP)
- Snap-on reclaimed cover (P/N PROS-RC-CAP)
- ▶ = *Advanced Feature descriptions on page 50*



Pro-Spray Reclaimed

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

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

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

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



PROS-00
 Retracted height: 1 1/2"
 Inlet size: 1/2"



PROS-02
 Retracted height: 4"
 Pop-up height: 2"
 Exposed diameter: 2 1/4"
 Inlet size: 1/2"



PROS-03
 Retracted height: 5"
 Pop-up height: 3"
 Exposed diameter: 2 1/4"
 Inlet size: 1/2"
 Shut-Off



PROS-04
 Retracted height: 5 7/8"
 Pop-up height: 4"
 Exposed diameter: 2 1/4"
 Inlet size: 1/2"
 Shut-Off



[A] **PROS-06-SI**
 [B] **PROS-06**
 Retracted height: 8 3/4"
 Pop-up height: 6"
 Exposed diameter: 2 1/4"
 Inlet size: 1/2"



[A] **PROS-12-SI**
 [B] **PROS-12**
 Retracted height: 16 1/8"
 Pop-up height: 12"
 Exposed diameter: 2 1/4"
 Inlet size: 1/2"

SPRAYS

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
- ▶ FloGuard™ technology

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
- FloGuard technology available for check valve models

USER INSTALLED OPTIONS

- Vandal-proof cap (P/N PROS-PRS30-VPC)
- Drain check valve (up to 14' of elevation; P/N 437400SP)
- Reclaimed water ID cap (P/N 458560)
- Snap-on reclaimed cover (P/N PROS-RC-CAP)

▶ = *Advanced Feature descriptions on page 50*



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: 16⅞"
Pop-up height: 12"
Exposed diameter: 2¼"
Inlet size: ½"

PRS30 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Model	2 Feature Options	3 Specialty Options
PROS-00-PRS30 = 30 PSI regulated shrub adapter	(blank) = No option	(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)	R = Factory-installed reclaimed body cap
PROS-06-PRS30 = 30 PSI regulated 6" pop-up		F = FloGuard technology
PROS-12-PRS30 = 30 PSI regulated 12" pop-up		F-R = FloGuard technology with reclaimed body cap

PRS30 (SIDE INLET) MODELS

Model

PROS-06-SI-PRS30 = 30 PSI regulated 6" pop-up with side inlet

PROS-12-SI-PRS30 = 30 PSI regulated 12" pop-up with side inlet

Examples:

PROS-06-SI-PRS30 = 6" Pop-up with side inlet regulated at 30 PSI

PROS-06-PRS30-CV = 6" Pop-up regulated at 30 PSI, drain check valve

PROS-12-PRS30-CV-F-R = 12" Pop-up regulated at 30 PSI, drain check valve, and FloGuard technology with reclaimed body cap



PRS30 Reclaimed

PRS30 models include optional factory-installed purple reclaimed caps



Related Solutions: Works Best With

Pro-Spray® Fixed Arc Nozzles and Pro Adjustable Nozzles work best with PRS30

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
- ▶ FloGuard™ technology

OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI

FACTORY INSTALLED OPTIONS

- Reclaimed water ID cap
- FloGuard technology available for check valve models

USER INSTALLED OPTIONS

- Reclaimed water ID cap (P/N 458562)
- Snap-on reclaimed cover (P/N PROS-RC-CAP)
- ▶ = *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: 16⅞"
Pop-up height: 12"
Exposed diameter: 2¼"
Inlet size: ½"

SPRAYS

PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Specialty Options
<p>PROS-00-PRS40 = 40 PSI regulated shrub adapter</p> <p>PROS-04-PRS40-CV = 40 PSI regulated 4" pop-up with drain check valve</p> <p>PROS-06-PRS40-CV = 40 PSI regulated 6" pop-up with drain check valve</p> <p>PROS-12-PRS40-CV = 40 PSI regulated 12" pop-up with drain check valve</p>	<p>(blank) = No option</p> <p>R = Factory-installed reclaimed body cap</p> <p>F = FloGuard technology</p> <p>F-R = FloGuard technology with reclaimed body cap</p>

Examples:

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

NOZZLES

NOZZLES



PRO 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'

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

4A

● Lt. Green

4' radius
Adjustable from
0° to 360°
Trajectory: 0°

6A

● Lt. Blue

6' radius
Adjustable from
0° to 360°
Trajectory: 0°

8A

● Brown

8' radius
Adjustable from
0° to 360°
Trajectory: 0°

10A

● Red

10' radius
Adjustable from
0° to 360°
Trajectory: 15°

Arc	Pressure PSI	4A				6A				8A				10A			
		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	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
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
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
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
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
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
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.

Pro Adjustable Nozzle



PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

12A

12' radius
Adjustable from
0° to 360°
Trajectory: 28°

● Green

15A

15' radius
Adjustable from
0° to 360°
Trajectory: 28°

● Black

17A

17' radius
Adjustable from
0° to 360°
Trajectory: 28°

● Gray

Arc	Pressure PSI	12A			15A			17A					
		Radius ft.	Flow GPM	Precip in/hr ■ ▲	Radius ft.	Flow GPM	Precip in/hr ■ ▲	Radius ft.	Flow GPM	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

NOZZLES







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, ½, Full
● Brown Trajectory: 0°

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

Arc	Position	Pressure PSI	5				8				10			
			Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	Precip in/hr ■ ▲		Radius ft.	Flow GPM	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	Use Hunter 4A or 6A Nozzle				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					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	Use Hunter 4A or 6A Nozzle				Use Hunter 8A Nozzle				Use Hunter 10A Nozzle			
		25												
		30												
		35												
		40												
270° 	TQ	20	Use Hunter 4A or 6A Nozzle				Use Hunter 8A Nozzle				Use Hunter 10A Nozzle			
		25												
		30												
		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, ½, ¾, Full
Trajectory: 28°

● Green

15







15' radius
Fixed: ¼, ½, ¾, Full
Trajectory: 28°

● Black

17

17' radius
Fixed: ¼, ½
Trajectory: 28°

● Gray

Arc	Position	Pressure PSI	12'			15'			17'					
			Radius ft.	Flow GPM	Precip in/hr ■ ▲	Radius ft.	Flow GPM	Precip in/hr ■ ▲	Radius ft.	Flow GPM	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	Use Hunter 17A Nozzle			
		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				
		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	Use Hunter 17A Nozzle			
		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				
		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	Use Hunter 17A Nozzle			
		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				
		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	Use Hunter 17A Nozzle			
		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				
		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



NOZZLES



SHORT RADIUS MICRO SPRAY 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 for a consistent pattern
- Meets micro spray requirements of 30 GPH max flow at 30 PSI

SHORT RADIUS NOZZLES PERFORMANCE DATA						
Arc	Pressure PSI	Position	● Lt. Brown			
			Radius ft.	Flow		*Precip in/hr
90° 	20	2Q	2	0.09	5.4	2.17
	25		2	0.10	6.0	2.41
	30		2	0.11	6.6	2.65
	35		2	0.13	7.8	3.13
	40		2	0.14	8.4	3.37
180° 	20	2H	2	0.14	8.4	1.68
	25		2	0.15	9.0	1.80
	30		2	0.20	12.0	2.41
	35		2	0.20	12.0	2.41
	40		2	0.21	12.6	2.53

SHORT RADIUS NOZZLES PERFORMANCE DATA						
Arc	Pressure PSI	Position	● Lt. Green			
			Radius ft.	Flow		*Precip in/hr
90° 	20	4Q	4	0.18	10.8	1.08
	25		4	0.20	12.0	1.20
	30		4	0.20	12.0	1.20
	35		4	0.22	13.2	1.32
	40		4	0.24	14.4	1.44
180° 	20	4H	4	0.33	19.8	0.99
	25		4	0.34	20.4	1.02
	30		4	0.40	24.0	1.20
	35		4	0.40	24.0	1.20
	40		4	0.44	26.4	1.32

SHORT RADIUS NOZZLES PERFORMANCE DATA						
Arc	Pressure PSI	Position	● Lt. Blue			
			Radius ft.	Flow		*Precip in/hr
90° 	20	6Q	6	0.22	13.2	0.59
	25		6	0.24	14.4	0.64
	30		6	0.30	18.0	0.80
	35		6	0.30	18.0	0.80
	40		6	0.30	18.0	0.80
180° 	20	6H	6	0.40	24.0	0.53
	25		6	0.44	26.4	0.59
	30		6	0.50	30.0	0.67
	35		6	0.52	31.2	0.70
	40		6	0.54	32.4	0.72

Bold = Recommended pressure
 *Precipitation rate shown without overlap



2Q
Radius: 2'



2H
Radius: 2'



4Q
Radius: 4'



4H
Radius: 4'



6Q
Radius: 6'



6H
Radius: 6'







NOZZLES

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
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
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
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
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
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

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	Pressure	Radius	Flow	Precip in/hr		
S-8A	PSI	ft.	GPM	■	▲	
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	Pressure	Radius	Flow	Precip in/hr		
S-16A	PSI	ft.	GPM	■	▲	
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

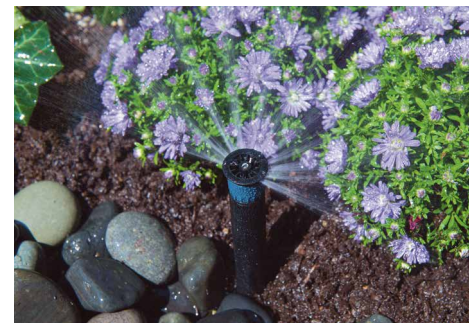


S-8A
7' to 9'



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



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:
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 disc 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.

NEW RECLAIMED ICV VALVE



The ICV-R reclaimed water valve is constructed with ultra-durable, chlorine-resistant materials and maintains top performance in reclaimed water installations.

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
- ▶ 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: 6¼"
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 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-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

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

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

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*

▶ = *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-100JT-G
Inlet Diameter: 1"
Height: 5½"
Length: 4½"
Width: 3¼"



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

PGV Jar Top



VALVES

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

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

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

Examples:
 PGV-101JT-G = 1" Globe jar top valve, with flow control, and 1" female
 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-100G 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

OPERATING SPECIFICATIONS

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

SOLENOID SPECIFICATIONS

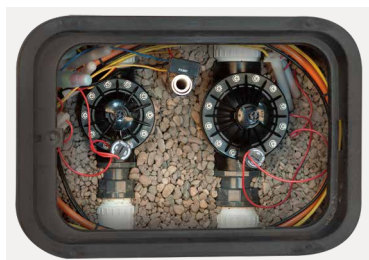
- 24 VAC solenoid
 - 350 mA inrush, 190 mA holding, 60 Hz
 - 370 mA inrush, 210 mA holding, 50 Hz
- ▶ = *Advanced Feature descriptions on page 71*



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

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

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)
<p>PGV-151 = 1½" Globe/Angle valve, with flow control</p> <p>PGV-201 = 2" Globe/Angle valve, with flow control</p>	<p>(blank) = NPT threads</p>	<p>(blank) = No Option</p> <p>DC = DC latching solenoid</p> <p>LS = Valve without solenoid</p>	<p>(blank) = No option</p> <p>CC = Solenoid conduit cover</p> <p>DC = DC latching solenoid</p> <p>AS-ADJ = Accu Sync adjustable pressure regulator</p> <p>AS-xx* = Accu Sync pressure regulator 20 * = 20 PSI, 30 * = 30 PSI, 40 * = 40 PSI 50 * = 50 PSI, 70 * = 70 PSI</p>

Example:
PGV-151 - DC - R = 1½" 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 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-301: 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: 4¾"
Width: 4"



ICV-151G
Inlet Diameter: 1½"
Height: 7½"
Length: 6¾"
Width: 5½"



ICV-201G
Inlet Diameter: 2"
Height: 7½"
Length: 6¾"
Width: 5½"



ICV-301
Inlet Diameter: 3"
Height: 10¾"
Length: 9"
Width: 7¾"



ICV-R
Inlet Diameter: 1", 1½", 2", and 3"
Height: 7½"
Length: 6¾"
Width: 5½"

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 ICV-151G = 1½" Globe valve ICV-201G = 2" Globe valve ICV-301 = 3" Globe/Angle valve	(blank) = NPT threads	(blank) = No option DC = DC latching solenoid FS = Filter Sentry FS-R = Reclaimed water ID tag, purple flow control knob, Filter Sentry and purple chlorine resistant diaphragm	(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

Examples:

ICV-101G = 1" Globe valve, NPT threads

ICV-151G - FS - R = 1½" Globe valve, Filter Sentry, purple flow control knob, purple chlorine resistant diaphragm, and reclaimed water ID tag

IBV

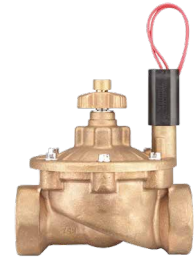
Size: **1", 1½", 2", 3"**
Flow: **0.1 to 300 GPM**

FEATURES

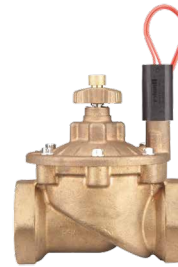
- Factory-installed Filter Sentry™ diaphragm
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design assures leak-free performance
- Fabric reinforced EPDM diaphragm and EPDM seat ensure superior performance in all conditions
- Optional 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



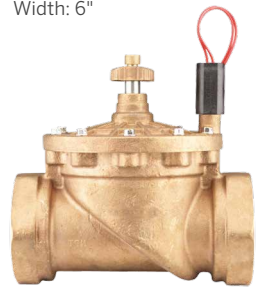
IBV-101G-FS
Inlet Diameter: 1"
Height: 4½"
Length: 3½"
Width: 5¼"



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"

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*

Filter Sentry



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

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

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.

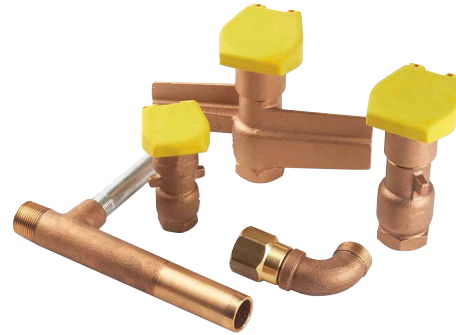
QUICK COUPLERS

Size: ¾", 1"
Pressure Rating: 150 PSI

FEATURES

- 100% interchangeable with major brands*
- Red brass and stainless steel construction
- Heavy-duty thermoplastic locking and non-locking covers
- Optional winged 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 compatibility chart on page 165



Quick Couplers



Reclaimed Water Option

All locking models have an optional purple 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	1	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" NPT	1	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 HQ5 = 1" Inlet, 1-piece body, 1 slot HQ33D = ¾" Inlet, 2-piece body, 2 slots HQ44 = 1" Inlet, 2-piece body, 1 slot or ACME key socket	RC = Yellow rubber cover LRC = Yellow locking rubber cover <i>(Not available for HQ3 body)</i>	(blank) = No option AW = ACME key with anti-rotation wings <i>(Only available for HQ44 body)</i> 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	HSO
HK44 = 1" valve, 1" key inlet	HQ44	HS1, HS2
HK44A = 1" valve, ACME key inlet	HQ44AW	HS1, HS2
HK55 = 1" valve, 1¼" key inlet	HQ5	HS1, HS2

HS HOSE SWIVELS

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

SNAPLOK COMBO KITS

Type: **Quick-Coupler + SnapLok Swing Joint**

FEATURES

- Versatile, cross-compatible and heavy-duty quick-coupler
- Highly effective solution for quick-coupler stabilization
- SnapLok™ design includes:
 - Heavy-duty PVC and brass outlet construction
 - Anti-rotation coupler locking feature
 - Accommodates both rebar and pipe stabilization

See the HSJ swing joints on page 32



Quick Coupler with SnapLok
Equipped HSJ-1 swing joint

SNAPLOK COMBO KITS

Kit Model	Quick Coupler Model	SnapLok Model
HQ-SL-K-1 = Locking Lid, NPT x 18" SnapLok	HQ-44-LRC	HSJ-1-3S-218
HQ-SL-K-1-R = Locking Reclaimed Lid, NPT x 18" SnapLok	HQ-44-LRCR	HSJ-1-3S-218
HQ-SL-K-2 = Locking Lid, Spigot x 18" SnapLok	HQ-44-LRC	HSJ-1-7S-218
HQ-SL-K-2-R = Locking Reclaimed Lid, Spigot x 18" SnapLok	HQ-44-LRCR	HSJ-1-7S-218



HYDRAWISE™ CONTROLLERS



THE NEW HYDRAWISE-READY CONTROLLERS



BUILD A STRONGER BUSINESS

Add services, grow revenue, increase customer satisfaction, and rest assured that Hydrowise has your back as you expand your business.



SAVE TIME AND LABOR

Designed to efficiently manage a range of landscapes across various climate zones, the robust functionality of Hydrowise will help you save time and labor.



MANAGE FROM ANYWHERE

Gain convenient system access anytime from your smartphone, tablet, or the web for a range of remote viewing and management capabilities.



SAVE WATER

Advanced, web-based climate monitoring automatically adjusts irrigation systems to local weather conditions, ensuring plants remain healthy.



PROTECT THE LANDSCAPE

Flow rate and valve monitoring instantly alert you in the event of a problem, so you can quickly be there for your customers when they need you the most.

► [Hydrawise Advanced Features description on page 111](#)

HYDRAWISE™ CONTROLLERS COMPARISON CHART

QUICK SPECS	HC WI-FI	PRO-HC WI-FI	PRO-C HYDRAWISE WI-FI	HCC WI-FI
NUMBER OF STATIONS	6 & 12 Up to 36 with Expansion Modules	6, 12, 24	4 to 16	8 to 54
TYPE*	Fixed and Expandable	Fixed	Modular	Modular
NUMBER OF PROGRAMS	Station-Based Programming	Station-Based Programming	Station-Based Programming	Station-Based Programming
START TIMES PER PROGRAM	36	36	36	54
NUMBER OF SIMULTANEOUS PROGRAMS	---	---	---	Any 2 station + P/MV
WARRANTY	2 Years	2 Years	2 Years	5 Years
FEATURES				
ENCLOSURE TYPE	Plastic Indoor	Plastic Indoor Plastic Outdoor	Plastic Indoor/Outdoor	Plastic/Metal/Stainless Outdoor Plastic/Metal/Stainless Pedestal
FLOW METER COMPATIBLE	HC Flow Meter	HC Flow Meter	HC Flow Meter	HC Flow Meter
WATER MANAGEMENT SOFTWARE	Hydrawise	Hydrawise	Hydrawise	Hydrawise
REMOTE CONTROL COMPATIBLE	Web and Mobile App	Web and Mobile App	Web and Mobile App ROAM ROAMXL	Web and Mobile App ROAM ROAMXL
RAIN-CLIK® AND FREEZE-CLIK® COMPATIBLE	●	●	●	●
SOLAR SYNC® COMPATIBLE				
NUMBER OF SENSOR INPUTS	2	2	1	2 (All Models)
MAX. STATION RUN TIMES (hours)	24	24	24	24

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

HC & PRO-HC

Number of Stations: **6, 12, 24, 36**
Type: **Wi-Fi control**

FEATURES

- Number of stations:
 - HC: 6 and 12 (24 and 36 with 12-station expansion modules)
 - Pro-HC: 6, 12, and 24 fixed stations
- Enclosure:
 - HC plastic indoor
 - Pro-HC plastic indoor and outdoor
- Wi-Fi enabled for fast and simple internet connection
- Full-color touch screen
- Full programming at the controller
- HC flow meter compatible for flow monitoring and alerts
- Built-in electrical monitoring and alerts
- Advanced sensor ports
- Hydrawise software compatible
- Warranty period: 2 years

PRO-HC EXTRA FEATURES

- Dedicated master valve/pump start
- Large terminal strips and wiring compartment
- Built-in milliamp sensor for detection of wiring problems

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: 2

APPROVALS

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



Pro-HC (plastic indoor)
Height: 8.25"
Width: 9.5"
Depth: 3.5"



Pro-HC (plastic outdoor)
Height: 9"
Width: 10"
Depth: 4"

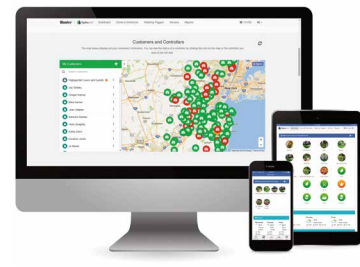


HC (plastic indoor)
Height: 6"
Width: 7"
Depth: 1.3"



HC Flow Meter

* See details on page 124



Hydrawise™ software

* See details on page 112

HYDRAWISE
CONTROLLERS

PRO-HC AND HC - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Models	2 Transformer	3 Indoor/Outdoor	4 Options
PHC-6 = 6-station controller with Wi-Fi connection PHC-12 = 12-station controller with Wi-Fi connection PHC-24 = 24-station controller with Wi-Fi connection HC-6 = 6-station controller with Wi-Fi connection HC-12 = 12-station controller with Wi-Fi connection	00 = 120 VAC 01 = 230 VAC	(blank) = Outdoor model <i>(internal transformer)</i> i = Indoor model <i>(plug-in transformer)</i>	(blank) = No option E = 230 VAC with European connections A = 230 VAC with Australian connections <i>(outdoor model has internal transformer with cord)</i>

Examples:

- PHC-2400 = 24-station 120 VAC outdoor plastic controller
- HC-1200i = 12-station 120 VAC indoor plastic controller

PRO-C HYDRAWISE

Number of Stations: **4 - 16**
Type: **Modular**

FEATURES

- Wi-Fi-enabled for easy connection to the internet from any location
- Uses Hydrowise web-based software to offer automatic watering schedule updates
- Integrates local weather data to make water-saving schedule adjustments
- Utilizes Pro-C modules to create station counts between 4-16
- Built-in milliamp sensor
- ROAM and ROAM XL compatible
- Warranty: 2 years
- ▶ Touch-screen interface
- ▶ Predictive Watering™ adjustments
- ▶ Flow meter detection and alerts with optional HC Flow Meter
- ▶ Wiring detection and alerts
- ▶ Includes 5' lead and plug

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC
- P/MV: (24 VAC): 0.28 A
- Transformer output (24 VAC): 1 A
- Sensor inputs: 1
- Station output (24 VAC): 0.56 A

APPROVALS

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



Pro-C Hydrowise Plastic Indoor/Outdoor

Height: 9"
Width: 10"
Depth: 4½"



HPC Face Panel



PCM-300 and PCM-900 Expansion Modules



EPA WaterSense Approved

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency

HYDRAWISE CONTROLLERS

PRO-C HYDRAWISE

Model	Description
HPC-400	4-station base: Domestic 110 VAC indoor/outdoor controller
HPC-401-E	4-station base: European 230 VAC indoor/outdoor controller
HPC-401-A	4-station base: Australian 230 VAC indoor/outdoor controller

PC-SERIES STATION EXPANSION

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

HPC FACE PANEL

Model	Description
HPC-FP	Hydrawise retrofit front panel for Pro-C controllers (March 2014 or later models)

HCC

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

FEATURES

- Wi-Fi enabled for quick connection to Hydrowise software
- Number of stations: 8 to 38 (plastic), 8 to 54 (metal)
- Enclosure: outdoor plastic, metal, and stainless steel wall mount and pedestal options
- Simultaneous station operation: 2
- ▶ Touch-screen interface
- ▶ Predictive Watering™ adjustments
- ▶ Backward compatible with ICC and ICC2 controllers
- ▶ Cycle and Soak
- ▶ Programmable delay between stations
- ▶ Programmable rain delay
- ▶ Programmable master valve by station
- Pre-wired SmartPort for compatibility with ROAM/ROAM XL remotes
- Built-in milliamp sensor for wire fault detection and alerts
- HC Flow Meter compatible for flow monitoring and alerts
- 3.2" full-color display
- Warranty period: 5 years



Plastic

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

Metal (Gray or Stainless)

Height: 16"
Width: 13"
Depth: 5"

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC
- Transformer output: 24 VAC, 1.4 A
- Station output: (24V) 0.56 A
- P/MV (24 VAC): Up to 0.56 A
- Sensor inputs: 2



HC Flow Meter

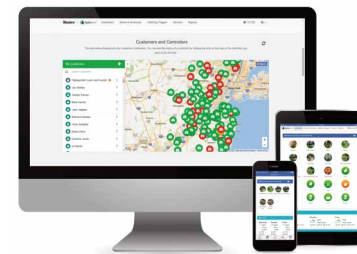
* See details on page 124

APPROVALS

- UL, cUL, FCC, CE, RCM
- Plastic Wall Mount: IP44, NEMA 3R
- Metal Wall Mount (includes stainless): IP44, NEMA 3R
- Plastic Pedestal: IP34, NEMA 3R

HCC	
Model	Description
HCC-800-PL	8-station base model, plastic outdoor, wall mount
HCC-800-M	8-station base model, gray metal outdoor, wall mount
HCC-800-SS	8-station base model, stainless steel, wall mount
HCC-800-PP	8-station base model, plastic pedestal
HCC-FPUP	Retrofit Upgrade Kit for ICC and ICC2
ICC-PED	Gray pedestal for metal wall mount cabinet
ICC-PED-SS	Stainless steel pedestal for stainless wall mount
ICC-PWB	Optional Pedestal Wiring Board for metal pedestals
WIFI-EXT-KIT	Wi-Fi antenna extension kit

HCC SERIES STATION EXPANSION	
Model	Description
ICM-400	4-station plug-in module with enhanced surge protection
ICM-800	8-station plug-in module with enhanced surge protection
ICM-2200	22-station expansion module (max. one per controller)



Hydrowise™ software

* See details on page 112



EPA WaterSense Approved

Recognized as a responsible water-saving tool by the U.S. Environmental Protection Agency

HYDRAWISE CONTROLLERS



CONTROLLERS

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 Klik event (such as rain) ends. At the end of the programmed Klik 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/BLOCKS

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.

EASY RETRIEVE™

A manual backup utility that stores complete controller scheduling and setup information in the controller's memory. This allows the saved settings to be restored at any time and is a quick way to reset the controller to the original programmed watering schedule. This feature is particularly beneficial when overwriting any unwanted changes to the current program.

CONTROLLERS COMPARISON CHART

QUICK SPECS	X-CORE®	PRO-C®/ PCC	ICC2	I-CORE®	ACC	ACC2
NUMBER OF STATIONS	2, 4, 6, 8	4 to 16/ 6, 12	8 to 54	6 to 42 Up to 48 with Decoders	6 to 42 Up to 99 with Decoders	12 to 54 Up to 225 with Decoders
TYPE*	Fixed	Modular/ Fixed	Modular	Modular	Modular	Modular
NUMBER OF PROGRAMS	3	3	4	4	6	32
START TIMES PER PROGRAM	4	4	8	8	10	10
NUMBER OF SIMULTANEOUS PROGRAMS	---	---	2	2	6	14 conventional, 30 decoder
WARRANTY	2 Years	2 Years	5 Years	5 Years	5 Years	5 Years
FEATURES						
ENCLOSURE TYPE	Plastic Indoor Plastic Outdoor	Plastic Indoor Plastic Outdoor	Plastic/Metal/ Stainless Outdoor Plastic/Metal/ Stainless Pedestal	Plastic/Metal/ Stainless Outdoor Plastic/Metal/ Stainless Pedestal	Metal/Stainless Outdoor Plastic/Metal/ Stainless Pedestal	Plastic/Metal/ Stainless Outdoor Plastic/Metal/ Stainless Pedestal
FLOW METER COMPATIBLE				Flow-Sync® WFS	Flow-Sync® WFS	Flow-Sync® and others WFS HC Flow Meter
WATER MANAGEMENT SOFTWARE					IMMS	Built-In
REMOTE CONTROL COMPATIBLE	ROAM ROAM XL	ROAM ROAM XL	ROAM ROAM XL	ROAM ROAM XL	ROAM ROAM XL	ROAM ROAM XL
RAIN-CLIK® AND FREEZE-CLIK® COMPATIBLE	●	●	●	●	●	●
SOLAR SYNC® COMPATIBLE	●	●	●	●	●	●
NUMBER OF SENSOR INPUTS	1	1	1	2 (Plastic) 3 (Metal & Ped)	4+ Dedicated Flow Input	3 Clik + 6 Flow
MAX. STATION RUN TIMES (hours)	4	6	12	12	6	12

CONTROLLERS

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

APPROVALS

- CE, UL, cUL, C-tick, FCC
- ▶ = *Advanced Feature descriptions on page 89*



Plastic Indoor
Height: 6.5"
Width: 5.75"
Depth: 2"



Plastic Outdoor
Height: 8.6"
Width: 7"
Depth: 3.75"

CONTROLLERS

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

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

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
 - ▶ 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
- 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



Plastic Indoor

Height: 8.25"
 Width: 9.5"
 Depth: 3.75"



Plastic Outdoor

Height: 9"
 Width: 10"
 Depth: 4.5"



PCM-300 and PCM-900 Expansion Modules

These modules are compatible with the new Pro-C 400 series.

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

APPROVALS

- CE, UL, cUL, C-tick, FCC
- ▶ = *Advanced Feature descriptions on page 89*

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		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)
	PCC-6 = 6-Station						
	PCC-12 = 12-Station						

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

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

ICC2

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

FEATURES

- Number of stations: 8 to 54 (metal), 8 to 38 (plastic)
- Type: Modular
- Enclosure: Plastic/Metal/Stainless Outdoor and Plastic/Metal/Stainless 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
- 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

APPROVALS

- UL, cUL, FCC, CE, RCM
- Plastic Wall Mount: IP44, NEMA 3R
- Metal Wall Mount (includes stainless): IP44, NEMA 3R
- Plastic Pedestal: IP24, NEMA 3R

▶ = *Advanced Feature descriptions on page 89*



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.

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-FPUP2	ICC2 Retrofit Kit for original ICCs
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-400 and ICM-800 modules are backward compatible with the original ICC controller.	

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
 - w 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

APPROVALS

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

ENCLOSURE RATING

- Steel wall mount: IP56
- Plastic pedestal: IP24
- Plastic wall mount: IP44

▶ = *Advanced Feature descriptions on page 89*

I-CORE	
Model	Description
IC-600-PL	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



Plastic Wall Mount

Height: 11"
Width: 13.25"
Depth: 6.25"



Metal Wall Mount

(gray or stainless steel)
Height: 12.5"
Width: 15.5"
Depth: 6.5"



Plastic Pedestal

Height: 39"
Width: 24"
Depth: 17"



Metal Pedestal

(gray or stainless steel)
Height: 36"
Width: 15.5"
Depth: 5"



ICM-600 Expansion Module

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

ENCLOSURE TYPES & EXPANSION

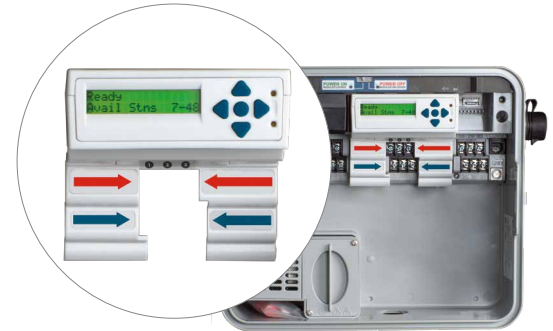
Enclosure Type	Expands To
Plastic cabinet	30-stations
Metal/stainless steel cabinet	42-stations
Plastic pedestal	42-stations
Metal/stainless steel pedestal	42-stations

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**



DUAL48M Decoder Output Module

Height: 1.4"
Width: 4.4"
Depth: 4"

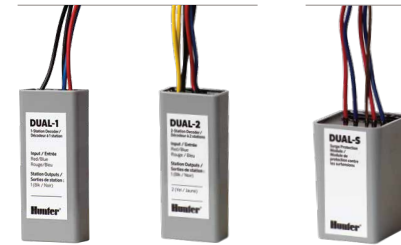
DUAL SPECIFICATIONS

- 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 page 89*



DUAL Decoders

Height: 3"
Width: 1.75"
Depth: 2"

Surge Arrestor

Height: 2.75"
Width: 1.75"
Depth: 2"

DUAL		
Base Model	Plus	Description
IC-600-PL	DUAL48M	48-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 24
 - 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



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: 39"
Width: 24"
Depth: 17"



A2M-600

Standard 6-station expansion module with extreme service lightning protection.

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

APPROVALS

- CE, UL, C-UL, C-tick, FCC
- Metal wall mounts: IP56
- Plastic pedestal: IP24

ALL STAINLESS STEEL (SS) MODELS

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

▶ = *Advanced Feature descriptions on page 89*

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
A2M-600	6-station plug in expansion module with extreme service lightning protection

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 Klik 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: 2
- Automatic daily weather-based scheduling with optional Hunter Solar Sync sensor
- ▶ Seasonal Adjustment: Global, by Program, or Solar Sync
- ▶ Programmable decoders
- ▶ Solar Sync Delay

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 page 89*



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

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

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

CONTROLLERS

ACC2

Number of Stations: **12 to 54**
Type: **Modular**

FEATURES

- Number of stations: 12 to 54
 - Type: Modular
 - Enclosure: Outdoor, metal, stainless steel, and plastic pedestal
 - Independent programs: 32
 - Start times per program: 10
 - Station runtime: 1 second to 12 hrs
 - Built-in Solar Sync®
 - Pre-wired with SmartPort®
 - Built-in SD card reader
 - Color backlit display, reversible facepack
 - 8 station block programming groups
 - Warranty period: 5 years
- ▶ Real-time flow monitoring
 - ▶ Flow scheduling/Flow budgeting
 - ▶ Solar Sync Delay/Rain-Delay
 - ▶ Easy Retrieve™ memory
 - ▶ Conditional Response Programming
 - ▶ Password protection with user management
 - ▶ MainSafe™ water source protection
 - ▶ Delay between stations
 - ▶ Calendar days off, by date
 - ▶ Sensor programmability
 - ▶ Cycle and Soak

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC
- Power consumption:
 - 120 VAC, Standby: 0.17 A, Typical (6 solenoids): 0.33 A, Max: 1.02 A
 - 230 VAC, Standby: 0.15 A, Typical (6 solenoids): 0.26 A, Max: 0.62 A
- Transformer output: 4.0 A
- Station output: Up to 0.800 A
- P/MV output 3, expandable to 6, 0.800 A
- Sensor inputs: 3 Clik, 3 Flow (expandable to 6), 1 Solar Sync

APPROVALS

- CE, UL, c-UL, RCM, FCC
- Steel: IP44
- Plastic pedestal: IP24

ALL STAINLESS STEEL (SS) MODELS

- Stainless Steel 0.057" gauge steel
 - Passivated for corrosion resistance
- ▶ = *Advanced Feature descriptions on page 89*



Metal Wall Mount (gray or stainless)
Height: 15.7"
Width: 15.7"
Depth: 6.8"



Metal Pedestals
(gray or stainless)
Height: 37"
Width: 15.5"
Depth: 5"



Plastic Pedestal
Height: 39.5"
Width: 23.5"
Depth: 17"



A2M-600
6-station plug-in module with extreme service lightning protection



A2C-F3
3 input flow meter expansion module

ACC2 MODELS	
Model	Description
A2C-1200-M	12-station base unit controller, expands to 54-stations, gray steel wall mount, outdoor
A2C-1200-P	12-station base unit controller, expands to 54-stations, plastic outdoor wall mount
A2C-1200-SS	12-station base unit controller, expands to 54-stations, stainless steel wall mount, outdoor
A2C-1200-PP	12-station base unit controller, expands to 54-stations, plastic pedestal
ACC-PED	Metal pedestal, gray powder-coated, for use with A2C-1200-M
PED-SS	Stainless steel pedestal for use with A2C-1200-SS

STATION EXPANSION MODULES	
Modules	Description
A2M-600	6-station plug-in module for use with the A2C-1200 series controllers
A2C-F3	3 input flow meter expansion module

CONTROLLERS

ACC2 DECODER

Number of Stations: **75 to 225**
Type: **Modular Decoder**

FEATURES

- Number of stations: 75 to 225
- Type: Modular Decoder
- Enclosure: Outdoor metal, stainless steel, plastic pedestal
- Full-color, high-resolution backlit display (reversible)
- Independent programs: 32
- Start times per program: 10
- Station run times: 15 seconds to 12 hours
- Optional Wi-Fi interface
- Real-time flow monitoring (up to 6 flow meters and flow zones)
- Up to 6 Pump/Master Valve outputs, Normally Open or Normally Closed
- Flow Management (runs flow zones to specified capacity)
- Monthly flow budgeting
- Built-in Solar Sync® logic/Solar Sync Delay feature
- SD card updates and log storage
- 12 selectable languages

► = *Advanced Feature descriptions on page 89*

DECODER FEATURES

- Operates all Hunter ICD decoders
- Three two-wire paths per output module
Up to 10,000 ft/3 km on 14 AWG/2 mm² wire
Up to 15,000 ft/4.5 km on 12 AWG/3.3mm² wire
- Replaceable automotive fuses included in each output module
- P/MV and flow sensor assignments either locally or via two-wire path
- Decoder inventory and update via two-wire path
- Decoder/solenoid finder
- Wire test mode for field diagnostics
- ICD-HP wireless programmer compatible

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Max AC current draw: 120 VAC, 2 A/230 VAC, 1 A
- Transformer output: 24 VAC, 4 A
- P/MV outputs (24 VAC): Up to 6; 3 dedicated outputs with optional assignment to decoders.
- Simultaneous program operation: 30 up to 20 per output module
- Sensor inputs: 3 Clik, 1 Solar Sync, and 6 Flow sensors

ENCLOSURE RATING

- Metal wall mount (includes stainless): IP44
- Plastic pedestal: IP24

APPROVALS

- CE, UL, c-UL, RCM, FCC



Metal Wall Mount (gray or stainless)

Height: 15.7"
Width: 15.7"
Depth: 6.8"



Plastic Wall Mount

Height: 16.7"
Width: 17"
Depth: 7"



A2C-D75 Expansion Module

Expand any ACC2 Decoder controller in 75-station increments, up to 225 stations.



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

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

ACC2 DECODERS

Model	Description
A2C-75D-M	75-station base model, gray metal outdoor, wall mount
A2C-75D-P	75-station base model, plastic outdoor, wall mount
A2C-75D-SS	75-station base model, stainless steel, wall mount
A2C-75D-PP	75-station base model, plastic pedestal
A2C-D75	75-station decoder expansion module
A2C-F3	Optional Flow Meter expansion module (adds 3 inputs)
A2C-WIFI	Internal Wi-Fi module
ACC-PED	Gray pedestal for wall mount
PED-SS	316 stainless steel pedestal for wall mount

DECODER MODULES

Model	Description
ICD-100	Single-station decoder with surge suppression
ICD-200	2-station decoder with surge suppression
ICD-400	4-station decoder with surge suppression
ICD-600	6-station decoder with surge suppression
ICD-SEN	Sensor decoder with surge suppression

ACC 2 SERIES STATION EXPANSION

Model	Description
A2C-D75	75-station decoder expansion module

BATTERY-OPERATED CONTROLLERS COMPARISON CHART

QUICK SPECS	BTT	NODE	WVS	XC HYBRID
NUMBER OF STATIONS	1	1, 2, 4, 6	1, 2, 4	6, 12
TYPE*	Fixed	Fixed	Fixed	Fixed
NUMBER OF PROGRAMS	2	3	4	3
START TIMES PER PROGRAM	2	4	9	4
NUMBER OF SIMULTANEOUS PROGRAMS	---	---	---	---
WARRANTY	2 Years	2 Years	2 Years	2 Years
ENCLOSURE TYPE	Plastic Outdoor	Plastic Outdoor Waterproof	Waterproof	Plastic Indoor/ Outdoor Stainless Indoor/ Outdoor
FLOW METER COMPATIBLE				
WATER MANAGEMENT SOFTWARE				
REMOTE CONTROL COMPATIBLE	Mobile App		WVP	
RAIN-CLIK® AND FREEZE-CLIK® COMPATIBLE		●	●	●
SOLAR SYNC® COMPATIBLE				
BATTERY OPERATED	●	●	●	●
NUMBER OF SENSOR INPUTS		1	1	1
MAX. STATION RUN TIMES (hours)	24	6	4	4

CONTROLLERS

BTT

BLUETOOTH TAP TIMER

Number of Stations: 1
Type: **Bluetooth, Battery Operated, Fixed**

FEATURES

- Bluetooth-enabled programming for easy wireless smartphone control
- Manage unlimited number of devices
- Multilanguage mobile app
- Independent Timer and Cycling modes
- 6- and 24-hour maximum run times
- 7-day Rain Delay period
- Manual push-button operation
- Automatic water shutoff after 1 hour
- Red LED low-battery indicator
- Secure passcode protection
- Rugged screen filter
- Drip system ready with optional BTT-LOC
- Alkaline batteries included
- Warranty period: 2 years

ELECTRICAL SPECIFICATIONS

- Requires 2x AA (1.5V) alkaline batteries (included)
- Bluetooth® 4.0, Low Energy Module
- Operating temperature: 41°F to 140°F

OPERATING SPECIFICATIONS

- High-pressure solenoid diaphragm valve:
- Flow rate: 0.0083 to 15 GPM (0.5 to 900 GPH)
 - Recommended pressure: 7 to 116 PSI

APP SPECIFICATIONS

- iOS® 9.0 or above
- Android™ 4.4 or above
- Optimal communication distance: 10-16'
- Max. communication distance: 32'

APPROVALS

- Bluetooth, CE, IPX6



BTT-100
Inlet Diameter: 3/4"
Outlet Diameter: 3/4"
Height: 5"
Width: 4.9"
Depth: 2.4"



BTT-LOC (Optional)
Inlet Diameter: 3/4"
Outlet Diameter: 16-18 mm Dripline
Height: 2 3/4"
Width: 1 1/4"

BTT



CONTROLLERS

BTT	
Model	Description
BTT-100	Bluetooth Tap Timer, 3/4" Hose Thread
BTT-LOC	BTT Adapter, 16-18mm Drip Tube

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NODE

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

FEATURES

- Type: Fixed
- Battery powered with battery-life indicator
- Number of stations: 1, 2, 4, 6
- Enclosure: Waterproof indoor/outdoor body
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- Master Valve operation (available in 2, 4, 6 station models)
- Solar Panel Kit provides maintenance-free operation
- Programmable Off mode up to 99 days
- Manual Cycle
- Rain sensor bypass
- Warranty period: 2 years
- ▶ Easy Retrieve™ memory
- ▶ Seasonal Adjustment: Global

ELECTRICAL SPECIFICATIONS

- Operates DC-latching solenoids only (P/N 458200)
- P/MV (multi-station module)
- Wired sensor inputs: 1
- Power source: 9-volt battery (up to two) or Solar Panel with charging cell

APPROVALS

- IP68, CE, FCC, C-tick
- ▶ = *Advanced Feature descriptions on page 89*



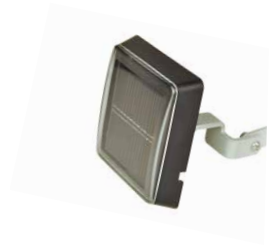
NODE-100
 (less solenoid)
 Diameter: 3½"
 Height: 2½"



NODE-100-LS
NODE-200
NODE-400
NODE-600
 Diameter: 3½"
 Height: 2½"



NODE-100-VALVE (NPT THREADS)
NODE-100-VALVE-B (BSP THREADS)
 Diameter: 3½"
 Height: 2½"



SPNODE
(Solar Panel Kit)
 Height: 3¼"
 Width: 3"
 Depth: 5⁄8"

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-101G valve and DC-latching solenoid (NPT threads)
NODE-100-VALVE-B	Single station controller with PGV-101G-B valve and DC-latching solenoid (BSP threads)

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

OPTIONS (SPECIFY SEPARATELY)	
Model	Description
458200	DC-latching solenoid
SPNODE	Solar Panel Kit for NODE

CONTROLLERS

WVP & WVC

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

FEATURES

- Type: Fixed
- Battery Operated
- Number of stations: 1, 2, 4
- Enclosure: Plastic outdoor, waterproof
- 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

ELECTRICAL SPECIFICATIONS

- Simultaneous station operation
- Wired sensor inputs: 1
- Power source: 9-volt battery
- Operates DC-latching solenoids only (P/N 458200)
- Frequency of operation: 900 MHz
- No FCC license required

APPROVALS

- IP68, CE



WVP
Height: 11½"
Width: 3"
Length: 2"



WVC
Diameter: 3¼"
Height: 5"

CONTROLLERS

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

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

OPTIONS (SPECIFY SEPARATELY)	
Model	Description
458200	DC-latching solenoid

XC HYBRID

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

FEATURES

- Solar Panel, Ambient Light, 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
- Solar Panel model 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: 8 $\frac{5}{8}$ "
Width: 7"
Depth: 3 $\frac{3}{4}$ "



Stainless Steel Outdoor
Height: 9 $\frac{3}{4}$ "
Width: 7 $\frac{3}{8}$ "
Depth: 4 $\frac{1}{4}$ "



Stainless Steel Solar Outdoor/Ambient Indoor
Height: 10 $\frac{3}{4}$ "
Width: 7 $\frac{3}{8}$ "
Depth: 4 $\frac{1}{4}$ "



XCHSPOLE
Optional pole mounting kit
Height: 4'



XCHSPB
Optional mounting bracket only



SPXCH
Optional Solar Panel
Height: 3 $\frac{1}{4}$ "
Width: 3"
Depth: $\frac{5}{8}$ "

ELECTRICAL SPECIFICATIONS

- Operates DC-latching solenoids (only) 9-11 VDC
- P/MV
- Wired sensor inputs: 1
- Operates on solar panel, battery power or optional 24 VAC plug-in wall adapter (P/N 526500)
- Plastic model uses 6 AA batteries
- Stainless steel model uses 6 C batteries
- Stainless steel solar model uses 1800 mAh charging cell

APPROVALS

- CE, UL, cUL, C-tick
- ▶ = *Advanced Feature descriptions on page 89*

XC HYBRID	
Model	Description
XCH-600	6-station indoor/outdoor controller
XCH-600-SS	6-station outdoor controller, stainless steel
XCH-600-SSP	6-station outdoor controller, stainless steel, with mounted solar panel
XCH-1200	12-station indoor/outdoor controller
XCH-1200-SS	12-station outdoor controller, stainless steel
XCH-1200-SSP	12-station outdoor controller, stainless steel, with mounted solar panel

MAXIMUM WIRE RUNS

Wire Size	Max. Distance (ft.)
18 AWG	550
16 AWG	870
14 AWG	1380
12 AWG	2200

USER INSTALLED OPTIONS (SPECIFY SEPARATELY)

Model	Description
XCHSPOLE	4' stainless steel pole, mounting bracket and hardware
XCHSPB	Steel mounting bracket and hardware
458200*	DC-latching solenoid
SPXCH	Solar Panel kit for XC Hybrid (non-solar models)
526500	120VAC/24V plug-in wall adapter

Note:
* Use DC-latching solenoids only

CONTROLLERS



CONTROLLER ACCESSORIES

ROAM

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

FEATURES

- Works with Hunter X-Core®, Pro-C®, PCC, Pro-C Hydrowise, ICC2, HCC, I-Core®, ACC, and ACC2 controllers through a SmartPort connection
- 128 programmable addresses for use of multiple Roam remotes in the same neighborhood
- Operate up to 240 stations
- 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 (use ROAM-SCWH shielded cable wiring harness)
- 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

CONTROLLER ACCESSORIES

ROAM	
Model	Description
ROAM-KIT	Transmitter, receiver, SmartPort wiring harness, and 4 AAA batteries
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, Pro-C Hydrwise, ICC2, HCC, I-Core, ACC, and ACC2 controllers through a SmartPort connection
- Up to 2 miles (line of sight) range for remote manual operation of Hunter irrigation systems
- Operate up to 240 stations
- 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 (use ROAM-SCWH shielded cable wiring harness)
- FCC approved: No FCC license required

* Not available in all countries.



Roam XL (no antenna)

Height: 6¼"
Width: 3"
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 XL	
Model	Description
ROAMXL-KIT	Transmitter, receiver, SmartPort wiring harness, 4 AAA batteries 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')

CONTROLLER ACCESSORIES

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



ICD-HP

Height: 8 ¼"
Width: 3 ⅞"
Depth: 2"

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



CONTROLLER ACCESSORIES

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"

CONTROLLER ACCESSORIES

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 AMPS	Max. Resistive AMPS	Coil VA							
	HP at 120 VAC	HP at 230 VAC	HP at 230 VAC			INRUSH		AMPS		Coil VA			
						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)

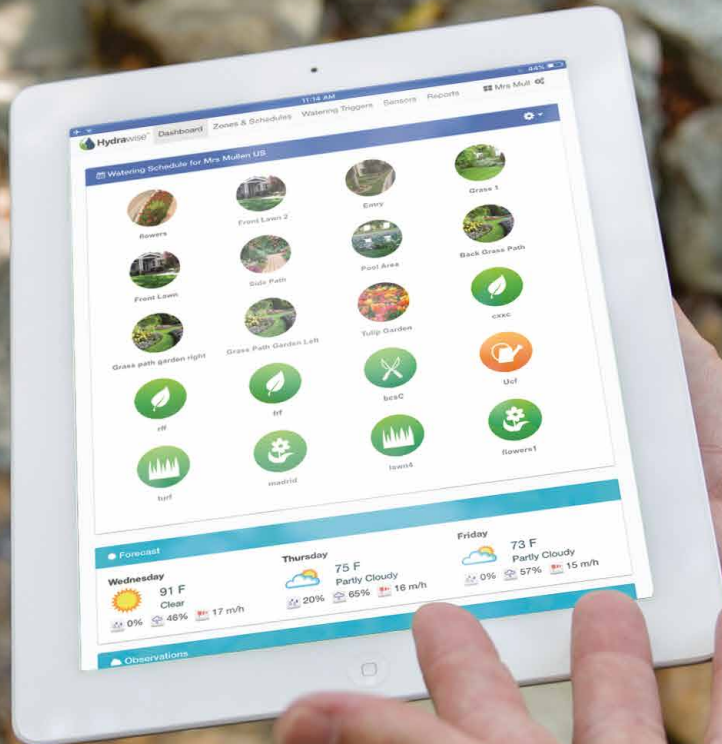


PSRB Pump Start Relay Booster

Height: 8⅝"
Width: 7"
Depth: 3¾"

WATER MANAGEMENT SOFTWARE

WATER
MANAGEMENT





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 that provide in-depth water management capabilities for their clients' landscapes, piping systems, and electrical systems. It is a professional, cloud-based irrigation software that works for everyone.

USER FEATURES

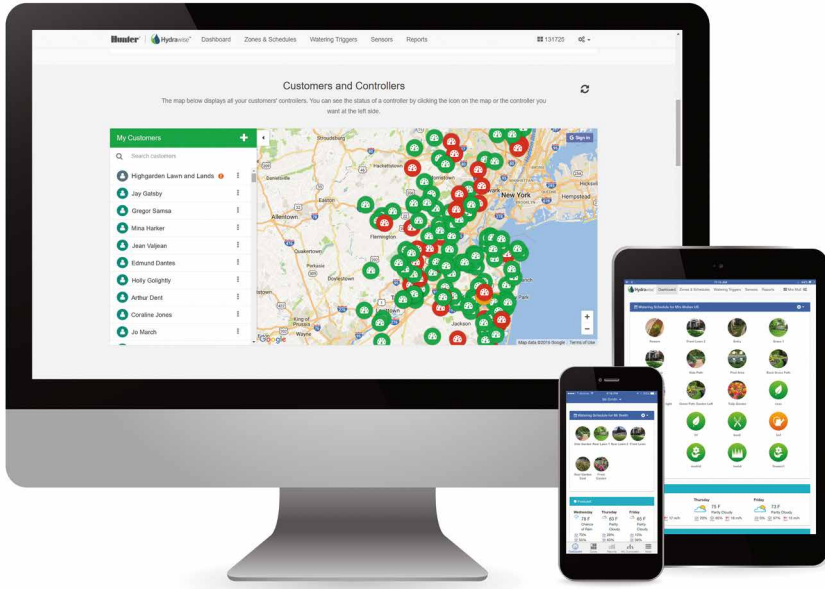
- Remote access
- **Predictive Watering** Adjustments based on web-based weather data brings up to 50% in water savings
- Extensive system reporting keeps you in the know
- Monitor internet connection, flow, and electrical current
- Smartphone and web access
- Get automatic notifications via text and app to alert you of broken pipes or sprinklers
- The software is available in English, Spanish, French, German, Italian, Portuguese, Russian, and Turkish

CONTRACTOR FEATURES

- Contractor management system allows access to multiple controllers any time
- Contractor dashboard
- Staff access management
- Manage thousands of controllers
- Job sheets
- Store irrigation plans
- Advanced reporting
- Controller change logs

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



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.

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

WATER MANAGEMENT



Pro-HC Controller
6, 12, and 24 station controller



HC Controller
6 and 12 station controller



Pro-C Hydrowise Controller
4-16 station controller



HCC Controller
8-54 station controller



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



Rain-Clik®
Improve water consumption with on-site 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 SOLARSYNCSSEN 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: 10.5"
 Width: 8.5"
 Depth: 12.1"



Wireless Solar Sync Sensor
 (w/mounting arm)
 Height: 4.5"
 Width: 8.5"
 Depth: 1"

COMMUNICATION OPTIONS

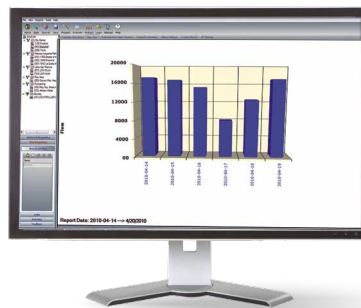
- ACC-COM-HWR, LAN, GPRS, GPRS-E
- Mounted internally to ACC controller
- RAD3: 450-470 MHz, UHF Radios, Power Output: 1 Watt, Bandwidth: 12.5 kHz narrowband
- ACC-HWIM: Hardwire interface module for 4-20 mA loop communications, installs inside ACC controller cabinets or pedestals
- ACC-COM-LAN requires fixed IP address from system administrators
- ACC-COM-GPRS requires a monthly service plan

HARDWARE 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

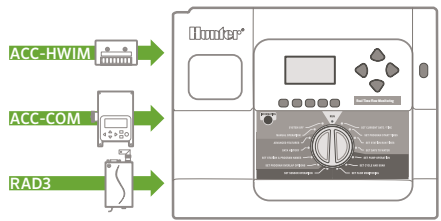
Model	Description
IMMS4CD	IMMS Graphics central control software
IMMS-ET-CD	Optional ET automatic weather adjustment software (requires IMMS4CD base model)

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

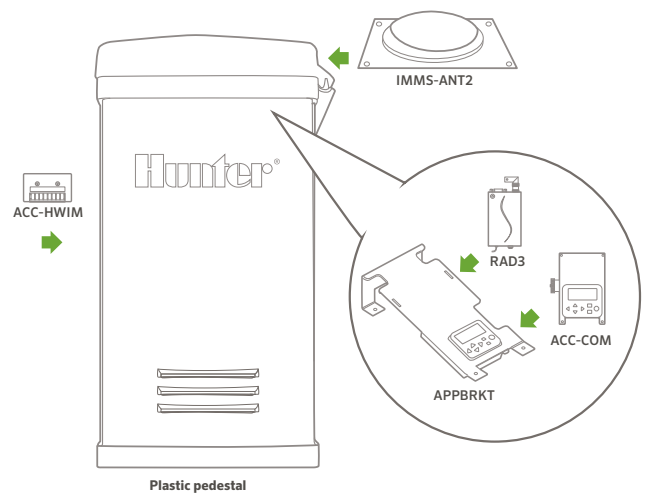
USER-INSTALLED OPTIONS (SPECIFY SEPARATELY)

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)	
APPBRKT2	Communication bracket for newer plastic pedestals (April 2017)	Holds com modules and accessories in new style plastic pedestal	
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





SENSORS

SENSORS COMPARISON CHART

QUICK SPECS	SOLAR SYNC®	RAIN-CLIK®	MINI-CLIK®	SOIL-CLIK®	WIND-CLIK®	FREEZE-CLIK®	FLOW-CLIK®	FLOW-SYNC®	WFS	HC FLOW METER	MINI-WEATHER STATION	ET SENSOR
TYPE	ET/ Rain/ Freeze	Rain	Rain	Soil Sensing	Wind	Freeze	Flow	Flow	Flow	Flow	Wind/ Freeze/ Rain	ET
AVAILABLE WIRELESS	●	●							●			
COMPATIBLE CONTROLLERS	X-Core, Pro-C, ICC2, I-CORE, ACC, ACC2	All AC Control- lers	All AC Control- lers	All AC Control- lers	All AC Control- lers	All AC Control- lers	All AC Control- lers	ACC, ACC2, I-CORE	ACC, ACC2, I-CORE	HC, HCC PRO-HC, HPC	X-Core, Pro-C, ICC2, I-CORE, ACC, ACC2	ACC
WARRANTY	5 Years (Wired) 10 Years (Wire- less)	5 Years (Wired) 10 Years (Wire- less)	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years	2 Years	5 Years	2 Years
APPLICATION												
RAIN SENSOR	●	●	●								●	●
FREEZE SENSOR	●					●					●	●
WIND SENSOR					●						●	●
FLOW							●	●	●	●		
SOIL SENSOR				●								

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 Hunter X-Core®, Pro-C®, I-Core®, ICC2, ACC, and ACC2 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



Wired Solar Sync Sensor

(w/mounting arm)
Height: 3"
Width: 8.5"
Depth: 1"



Wireless Solar Sync Sensor



(w/mounting arm)
Height: 4.5"
Width: 8.5"
Depth: 1"



Wireless Solar Sync Receiver

(w/ wall mounting kit)
Height: 5.5"
Width: 1.5"
Depth: 1.5"

SENSORS

SOLAR SYNC	
Model	Description
SOLAR-SYNC-SEN	Wired Solar Sync for use with ACC, ACC2, I-Core, ICC2, new Pro-C 400/PCC Series, and X-Core controllers. Includes Solar Sync Sensor and wire. 
WSS-SEN	Wireless Solar Sync for use with ACC, ACC2, 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 1,000' 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®, ACC, and ACC2 Clik-sensor inputs
- Ideal companion sensor to Solar Sync®
- Warranty period: 5 years

SPECIFICATIONS

- Max distance, control module to controller: 6'
- Max distance, control module to sensor probe: 1,000'
- Input power: 24 VAC, 100 mA max
- Output: Normally-closed dry contact closure
- Enclosure: NEMA 3R, indoor/outdoor

SOIL-CLIK Module

Height: 4.5"
 Width: 3.5"
 Depth: 1.25"
 Power: 24 VAC, 100mA max
 Wire Leads: 31.5"



SOIL-CLIK Probe

Diameter: 0.8"
 Height: 3.25"
 Wire to Probe: 1,000' max
 18 AWG Direct Burial Wire
 Wire Leads: 31.5"

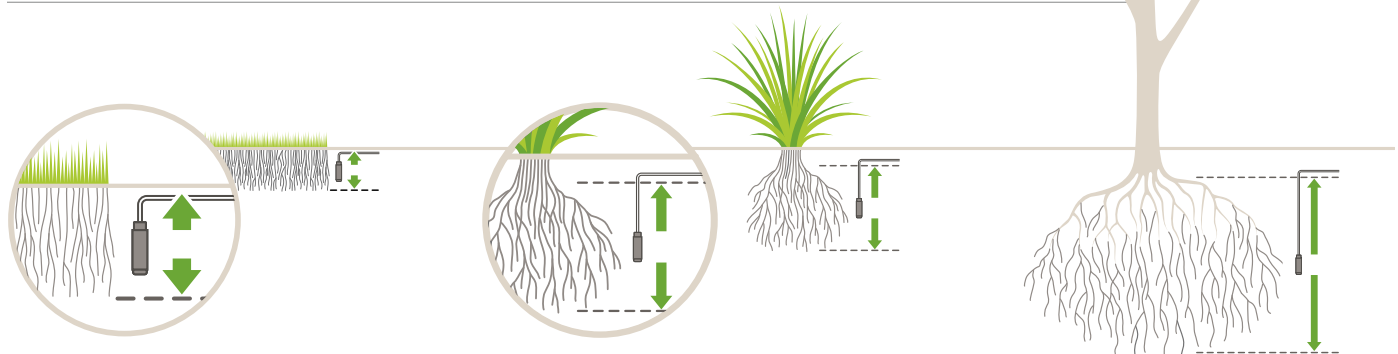


SENSORS

SOIL-CLIK

Model	Description
SOIL-CLIK	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" 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, Freeze**

FEATURES

- Quick Response™ feature shuts the system off as soon as it starts raining
- Maintenance-free design with 10-year battery life for wireless models
- Adjustable vent ring allows for setting of reset delay
- Rugged polycarbonate housing and metal extension arm
- Wired models include 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/RFC
Height: 2.5"
Length: 7"



SGM
Optional gutter mount
Height: ½"
Length: 3"



WR-CLIK/WRF-CLIK
Height: 3"
Length: 8"



Wireless Receiver
Height: 3.25"
Length: 4"

RAIN-CLIK	
Model	Description
RAIN-CLIK	Wired Rain-Clik sensor
RFC	Wired Rain/Freeze-Clik sensor
WR-CLIK	Wireless Rain-Clik sensor and receiver
WRF-CLIK	Wireless Rain/Freeze-Clik sensor and receiver

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

SENSORS

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 1/8" to 3/4" 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

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
Height: 2"
Length: 6"



SG-MC
Stainless steel sensor guard enclosure for Mini-Clik. Includes Mini-Clik.
Height: 5 1/2"
Length: 3"
Width: 4"



SGM
Optional gutter mount
Height: 1/2"
Length: 3"

MINI-CLIK®

Model	Description
MINI-CLIK	Wired Rain Sensor
MINI-CLIK-NO	Wired Rain Sensor with "normally-open" switch

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

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
Height: 2"
Length: 6"

FREEZE-CLIK®

Model	Description
FREEZE-CLIK	Wired freeze sensor interrupts 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 1/8" 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 1/2" 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

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	Wired wind sensor interrupts or returns irrigation when programmed wind speed is measured.

HC FLOW METER

Sensor: **Flow**

FEATURES

- Flow meter connects to Hydrowise™ ready controllers and the Hydrowise software
- Shows total water use by zone
- Monitors the system to alert for high/low flow conditions
- Dial allows for manual recording at the meter in gallons or m³
- Meters are factory calibrated
- Two-wire read-based pulse output
- Flow directional markings on body
- Temperature range (water) - up to 100°F
- Electrical connection - 2 wires
- Directional flow - yes
- Accuracy - 2% (+ or -) at recommended flow
- Material: Brass body with PVC reading cap

► = *Additional chart on page 172*



HC-075-FLOW (¾" coupling)

Height: 3.1"
Length: 9.1"
Depth: 3.1"
Weight: 2.1 lbs

HC-100-FLOW (1" coupling)

Height: 3.6"
Length: 10.3"
Depth: 3.1"
Weight: 3.1 lbs

HC-150-FLOW (1½" coupling)

Height: 6.3"
Length: 16.9"
Depth: 4.9"
Weight: 14.5 lbs

HC-200-FLOW (2" coupling)

Height: 6.3"
Length: 17.5"
Depth: 4.9"
Weight: 16.3 lbs

HC FLOW METER SPECIFICATIONS

	HC-075-FLOW (¾")	HC-100-FLOW (1")	HC-150-FLOW (1½")	HC-200-FLOW (2")
Inlet/outlet connection size	¾" NPT body, male thread with 1" NPT male adapter	1" NPT body, male thread with 1.5" NPT male adaptor	1½" NPT body, male thread with 2" NPT male adaptor	2" NPT body, male thread with 3" NPT male adaptor
Meter internal diameter	¾"	1"	1½"	2"
Minimum flow (GPM)	0.22	0.3	0.88	1.98
Maximum recommended flow (GPM)	15	30	66	105
Maximum flow rate (GPM)	21	34	88	132
Dial reading (US gal)	1 pulse per 0.1 US gal	1 pulse per 1 US gal	1 pulse per 1 US gal	1 pulse per 1 US gal
Working pressure (PSI)	0-230	1-230	2-230	3-230

SENSORS

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

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 sensor and module shown with receptacle tees

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

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.

SENSORS

FLOW-SYNC®

Sensor: **Flow**

FEATURES

- Simple two wire connection to ACC, ACC2, 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 sensor, requires FCT fitting for pipe installation (sold separately)

FLOW-SYNC

Model	Description
HFS*	Hunter Flow-Sync sensor, use with ACC, ACC2, and I-Core controllers, sensor requires FCT fitting 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, ACC2, and I-Core controllers. Requires FCT fitting for pipe installation (sold separately).

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.

WFS

WIRELESS FLOW SENSOR

Sensor: **Flow**

FEATURES

- Wirelessly transmit flow data (gallons or liters) to controller, for flow recording and monitoring purposes
- Compatible with Hunter I-Core®, ACC, and ACC2 controllers
- 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 receiver: 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 - Domestic 900 mHz
WFS-T	Wireless Flow Sensor Kit Transmitter Only - Domestic 900 mHz
WFS-R	Wireless Flow Sensor Kit Receiver Only - Domestic 900 mHz
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.







MICRO

MICRO

ADVANCED FEATURES

Engineered for peak performance in even the harshest conditions, Hunter's ultra-durable micro irrigation products are the toughest and most resilient in the industry. Combining unmatched strength with high-quality, long-lasting performance in the field, our products ensure precise water delivery for years to come.

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.

DRIP CONTROL ZONE KITS

Hunter offers the absolute highest quality in control zone kits, from low-flow to high-flow systems. Some features, such as our Filter Sentry™ scrubber, add further value to an already superior kit.

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.

MULTI-PURPOSE BOX

The HDPE Box is just the right size to provide easy access to air relief, automatic flush valves, ball valves, large emitters, wiring connections, and even valves or filters.

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.

HDL - HUNTER DRIPLINE

Hunter Dripline provides a pressure compensation system with a built-in check valve option 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.

AIR/VACUUM RELIEF VALVE

The Hunter AVR is designed to reliably discharge air during system start-up and allow air into the line during shutdown. Assisting in reducing water hammer, the valve should close reliably even with low water pressure.

AUTOMATIC FLUSH VALVE

Automatically flushes debris at system start-up.

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®	HDL	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, 0.6, 0.9 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 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, Green Roofs, 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
- The fleece wrap protects against root intrusion without using toxic chemicals or metal byproducts
- Water holding capacity of 0.5 gal/yd²
- 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

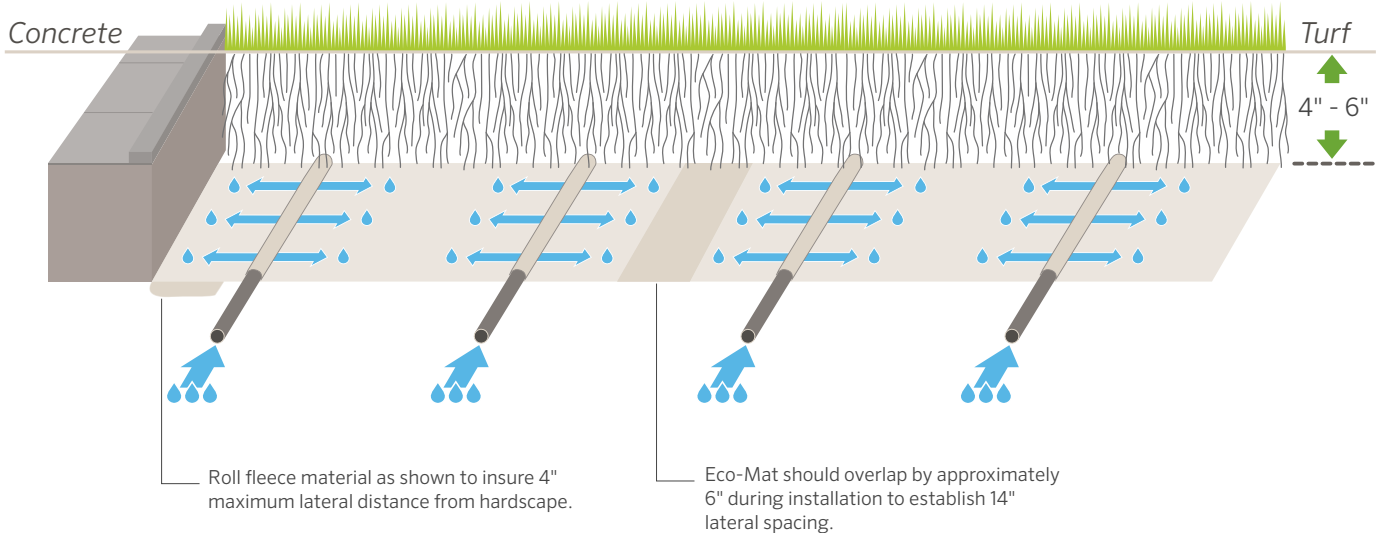
ECO-MAT	17 mm
Flow and Spacing	0.6 GPH and 12"
Roll Length	100' or 295'
Width	32"
ft ²	100' roll is 266 ft ² , 295' roll is 785 ft ²
Operating Pressure	15 to 50 PSI
Minimum Filtration	120 mesh; 125 microns
Lateral Row Spacing	14"

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, reference the Maximum Run Length Chart on page 171. Use 0.6 GPH for flow and 12" emitter spacing.

Eco-Mat Installed



MICRO

SIZE ROLL	APPROXIMATE COVERAGE WITH 6" OVERLAP
100'	240 ft ²
295'	710 ft ²

Example: $\text{Roll Quantity} = \frac{\text{Irrigated landscape area}}{\text{area of roll coverage}} = \frac{2.5}{710 \text{ ft}^2} = 1,800 \text{ ft}^2$

Note: Example is based on a 295' roll.

Note: * For purchasing, always round up to the nearest whole roll of Eco-Mat.

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 Hunter 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)



Eco-Wrap

For maximum run length distances, reference the Maximum Run Length Chart on page 171. Use 0.6 GPH for flow and 12" emitter spacing.

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

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 Installed



HDL

HUNTER DRIPLINE HDL-CV, HDL-PC, HDL-R

Flow: **0.4, 0.6, 0.9 GPH**

Surface or Subsurface Irrigation: **Gardens, Turf, Tree Rings, Green Walls, Irregular Spaces**

FEATURES

- Pressure-compensating emitters
- Color-coded stripes to identify flow
- Flow rates of 0.4, 0.6, 0.9 GPH
- Emitter spacing at 12", 18", and 24"
- Tubing diameter: 0.660" (OD) x .560" (ID)
- Wall thickness 0.05"
- Strong UV resistance
- Stretch-wrapped 100', 250', and 500' coils make handling easy and efficient
- Available without emitters (blank)
- Emitter inlet filtration to prevent clogging
- Extra-wide flow labyrinth prevents clogging
- Full-size outlet pool and raised wall inhibit debris and roots from entering the emitter
- Warranty period: 5 years (plus 2 additional years for environmental stress cracking)
- Check valves keep the line charged up to 6' and prevent low-point drainage (HDL-CV only)

OPERATING SPECIFICATIONS

- HDL-CV:
 - Pressure-compensating, non-draining emitters
 - Operating pressure range: 15 to 60 PSI
 - Minimum filtration: 120 mesh; 125 microns
- HDL-PC and HDL-R:
 - Pressure-compensating
 - Operating pressure range: 10 to 60 PSI
 - Minimum filtration: 120 mesh; 125 microns

► = *Application Rate charts on page 171*



HDL-CV



HDL-PC



HDL-R (Reclaimed)



Coil with Stretch Wrap

HDL - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1	Model	2	Spacing	3	Length	4	Options
	HDL-04 = 0.4 GPH Flow	12 = 12"		100 = 100'		PC=Pressure-compensating	
	HDL-06 = 0.6 GPH Flow	18 = 18"		250 = 250'		CV=Pressure-compensating with check valve	
	HDL-09 = 0.9 GPH Flow	24 = 24"		500 = 500'		R = Reclaimed (available in 0.6 and 0.9 GPH models only)	
	HDL-BLNK = No Emitters			1K = 1,000'			

Example:

HDL-09-12-250-CV = 0.9 GPH check valve dripline with 12" spacing in a 250' coil

Notes: * 100' coils available in the following HDL models only: HDL-06-12-100-CV, HDL-09-12-100-CV, HDL-09-18-100-CV, HDL-06-12-100-PC, and HDL-09-12-10-PC

HDL Installed



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 171

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

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

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

MLD

MLD Installed



MAXIMUM RUN LENGTH

Pressure (PSI)	Emitter Spacing (in.)	Run Length (ft.)
25.0	6"	15'
25.0	12"	30'
40.0	6"	15'
40.0	12"	30'

Notes: Run lengths based on maintaining consistent flows.

ECO-INDICATOR

Uses: **Drip System Indicator**

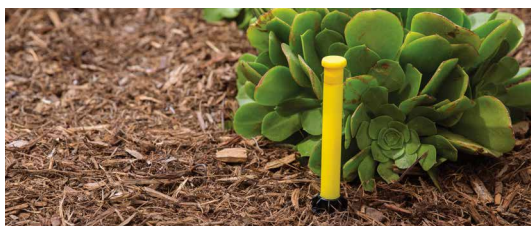
FEATURES

- Visible yellow stem indicates system is in operation
- Attach to polyethylene or PVC via ½" MPT connection
- Requires 12 PSI to pop-up
- Commercial-grade body and stem
- Warranty: 2 years

OPERATING SPECIFICATIONS

- Operating pressure range: Up to 60 PSI
- Indication of system operation: 12-60 PSI

Eco-Indicator Installed



ECO-ID

Pair with Eco-Mat® and Eco-Wrap® subsurface systems.

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

PLD LOC FITTINGS

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

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
3/4" Male Pipe
Thread x Loc



PLD-LOC 050
1/2" Male Pipe
Thread x Loc



PLD-LOC CAP
End Cap x Loc



PLD-LOC ELB
Locking Elbow



PLD-LOC CPL
Locking Coupler



PLD-LOC FHS
3/4" Female Hose
Swivel x Loc



PLD-LOC TEE
Locking Tee

PLD FITTINGS

Fittings: **17 mm Dripline**
Uses: **Barbed Fittings**

BARBED FITTINGS

- Acetal material
- Dual barb provides stronger hold than single barb
- Ideal for use with Eco-Mat®, Eco-Wrap®, HDL
- Fits 17 mm dripline and tubing
- For installation of the PLD-IAC and PLD-IAE grommets, use an 1/16" spade drill bit
- Brown color to match HDL dripline
- No clamps necessary
- Warranty period: 1 year

OPERATING SPECIFICATIONS

- Maximum pressure: 60 PSI

FITTINGS



PLD-050
1/2" MPT x 17 mm
Barb



PLD-ELB
17 mm Barb Elbow



PLD-075
3/4" MPT x 17 mm
Barb



PLD-CPL
17 mm Barb
Coupling



PLD-CAP
17 mm Barb x 1/2"
MPT with Cap



PLD-075-TB-TEE
17 mm Barb Tee x
3/4" Thread



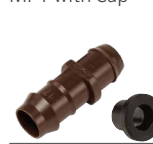
PLD-BV
17 mm Barb
Shut-off Valve



PLD-TEE
17 mm Barb Tee



PLD-050-TB-TEE
1/2" FPT x 17 mm
Barb Tee



PLD-IAC
(with GROMMET)
Insert Adapter x
17 mm Coupling



PLD-IAE
(with GROMMET)
Insert Adapter x
17 mm Elbow



PLD-CRS
17 mm Barb Cross



PLD-075-TB-ELB
3/4" FPT x 17 mm
Barb Elbow

BARBED FITTINGS

Fittings: 16-18 mm Dripline
Uses: ¼" MLD, PE or Vinyl

¼" BARBED FITTINGS

- Acetal material (superior hold)
- Fit ¼" tubing sizes with ID of 0.160" to 0.170"
- Use with Mini Landscape Dripline (MLD)
- Goof plug lays flat and holds securely without leaking
- Warranty period: 1 year

OPERATING SPECIFICATIONS

- Maximum pressure: 100 PSI
- Material: UV-stabilized acetal



QB-TEE
¼" Barb Tee



QB-ELB
¼" Barb Elbow



QB-CPL
¼" Barb Coupling



QB-CRS
¼" Barb Cross



GP-025
Goof Plug

¼" Barb Fittings:

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

MULTI-PURPOSE BOX

Uses: For Protection and Easy Access of Irrigation Components

FEATURES

- Small rectangular box - use with air relief, ball valves, small control zone kits, or water meters
- Durable HDPE
- Brown base blends in with soils
- 5-color lid offerings: Brown, Tan, Green, Purple, and Black
- Overlapping lid prevents debris from entering box
- Knock-out bolt hole with molded nut (¾")
- Reinforced base and lid for strength
- UV-protected nonslip lid
- Warranty period: 2 years



Multi-Purpose Box
Top
Width: 7.5"
Length: 10.5"
Bottom
Width: 8.5"
Length: 11.5"
Height: 8.0"



MB-LID-B



MB-LID-G



MB-LID-R



MB-LID-T

MULTI-PURPOSE BOX

Model	Description
MB-0811	Multi-purpose box with standard brown lid
MB-0811-G	Multi-purpose box with green lid
MB-0811-T	Multi-purpose box with tan lid
MB-0811-R	Multi-purpose box with purple lid
MB-0811-B	Multi-purpose box with black lid
MB-BOX	Multi-purpose box (box only)

MULTI-PURPOSE BOX

Model	Description
MB-LID	Multi-purpose box (lid only) - brown
MB-LID-G	Multi-purpose box (lid only) - green
MB-LID-T	Multi-purpose box (lid only) - tan
MB-LID-R	Multi-purpose box (lid only) - purple
MB-LID-B	Multi-purpose box (lid only) - black

AIR/VACUUM RELIEF VALVE

Uses: **Air Release and Vacuum Relief**

FEATURES

- Releases air pockets without premature closure
- Leak-free closure after release
- Help prevent system collapse through vacuum relief
- Corrosion resistant
- UV protected
- Lightweight and durable
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Operating pressure range: up to 80 PSI



AVR-075
Height: 5"
Width: 2"
Inlet: 3/4" MPT



PLD-AVR
1/2" Air/Vacuum Relief Valve

AUTOMATIC FLUSH VALVE

Uses: **Automatically Flushes Debris at System Start up**

FEATURES

- 1/2" MPT or 17 mm barb models
- Removable top for diaphragm maintenance
- Reversible diaphragm for high or low flow
- Warranty period: 1 year

OPERATING SPECIFICATIONS

- Max operating pressure: 60 PSI
- Low-flow diaphragm side: 2-5 GPM
- High-flow diaphragm side: 5-12 GPM



AFV-B
Automatic flush valve with 17 mm barb connection



AFV-T
Automatic flush valve with 1/2" MPT connection

IH RISERS

Flow: **0.5, 1.0, 2.0, 4.0, 6.0** GPH
 Surface Irrigation: **Point-to-Point Irrigation**

FEATURES

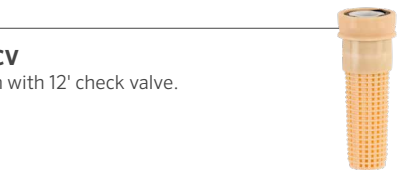
- Heavy-duty, military-grade, vandal-resistant design
- Made of flexible PVC for durability
- Brown components blend in with landscape
- Accepts any 1/2" FPT emitter
- Ideal for slopes
- Pre-assembly reduces labor by up to 50%
- On grade or below grade installation
- Available in multiple lengths for easy assembly
- Pre-assembled with 1/2" MPT adapter and specified emitter with check valve
- Available as components for custom assemblies
- Check valve holds back 12' of head
- Warranty period: 2 years

OPERATING SPECIFICATIONS

- Maximum flow: 7 GPM
- Maximum pressure: 60 PSI



IH RISERS



SCREEN-CV

Filter screen with 12' check valve.



IH-FIT-3850

3/8" x 1/2" MPT IH fitting



IH-FIT-3850-R

3/8" x 1/2" MPT IH fitting (reclaimed)



IPS-050-250



IH-250

Flexible PVC for creating headers or custom risers

IH RISER COMPONENTS

Model	Description
IH-RISER-06	6" flexible PVC riser
IH-RISER-12	12" flexible PVC riser
IH-RISER-18	18" flexible PVC riser
IH-RISER-24	24" flexible PVC riser
IH-RISER-36	36" flexible PVC riser
IH-RISER-12-R	12" flexible PVC riser (reclaimed)
IH-RISER-24-R	24" flexible PVC riser (reclaimed)
IH-RISER-36-R	36" flexible PVC riser (reclaimed)
SCREEN-CV	Filter screen with 12' check valve
IH-FIT-3850	3/8" x 1/2" MPT IH fitting
IH-FIT-3850-R	3/8" x 1/2" MPT IH fitting (reclaimed)
IH-250	250' length of 12" flexible PVC irrigation hose
IPS-050-250	250' length of 1/2" IPS

IH Risers with Emitters - SPECIFICATION BUILDER: ORDER 1 + 2 + 3

1 Riser Length	2 Flow with Check Valve Screen	3 Fitting Options
IH-06 = 6" riser	05-CV = 0.5 GPH	(blank) = Brown R = Reclaimed (purple fitting)
IH-12 = 12" riser	10-CV = 1.0 GPH	
IH-18 = 18" riser	20-CV = 2.0 GPH	
IH-24 = 24" riser	40-CV = 4.0 GPH	
IH-36 = 36" riser	60-CV = 6.0 GPH	

Example:
 IH-12-10-CV = 12" Irrigation Hose Riser with 1.0 GPH emitter with brown fittings

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

½" FEMALE THREAD (BROWN BASE)			
	Model	Inlet Type	Flow (GPH)
● Blue	HEB-05-BR	½" Female Thread	0.5
● Black	HEB-10-BR	½" Female Thread	1.0
● Red	HEB-20-BR	½" Female Thread	2.0
● Tan	HEB-40-BR	½" Female Thread	4.0
● Orange	HEB-60-BR	½" Female Thread	6.0

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.



½" FEMALE THREAD

(brown base)



Inlet Options



① Self-piercing Barb



② 10-32 Thread



③ ½" Female Thread

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: 10 to 50 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

(also available in 18")

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
- 3/4" inlet and 3/4" outlet

ACZ-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 3/4" 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 3/4" 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 170](#)



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

ACZ-101
Height: 11½"
Width: 3"
Length: 12"
1" inlet x ¾" outlet



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

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

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



MICRO

DRIP CONTROL ZONE KITS

Kits: **Commercial**
Flow: **0.5 to 20 GPM**

FEATURES

- Highest quality components
- Factory assembled to save installation time
- Filter Sentry™ diaphragm screen cleaning system (on all models except ICZ-101-LF)
- Wide flow range to cover most micro irrigation applications
- Warranty period: 5 years

FACTORY INSTALLED OPTIONS

- 25 or 40 PSI regulator

USER INSTALLED OPTIONS

- Reclaimed water ID handle (P/N 561205)



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

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

ICZ-101-LF-R

- 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
- Reclaimed water ID tag, purple flow control knob, Filter Sentry, and purple chlorine-resistant diaphragm



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

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 170*

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

1 Model	2 Options
ICZ-101 = 1" ICV Filter Sentry globe valve with 1" HY100 filter and regulator	25 = 25 PSI regulator
ICZ-101-LF = 1" ICV globe valve with 1" HFR-100-075 filter regulator	40 = 40 PSI regulator
ICZ-101-LF-R = 1" ICV reclaimed valve with Filter Sentry and 1" x ¾" reclaimed Hunter Filter Regulator	

Example:

ICZ-101-40 = 1" ICV Filter Sentry globe valve with 1" HY100 filter and regulator, and 1" outlet 40 PSI regulator

DRIP CONTROL ZONE KITS

Kits: **Commercial**
Flow: **20 GPM to 100 GPM**

FEATURES

- Highest quality components
- Factory assembled to save installation time
- Filter Sentry™ diaphragm screen cleaning system
- Medium to High Flow range for larger applications
- Warranty period: 5 years

USER INSTALLED OPTIONS

- Reclaimed water ID handle (P/N 561205)

ICZ-151-XL

- Factory Installed Filter Sentry
- 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
- 150 mesh; 100microns stainless steel screen
- 1½" inlet and 2" outlet

ICZ-201

- Factory Installed Filter Sentry
- Pressure regulation: 40 PSI
- Flow: 40 to 100 GPM (2,400 to 6,000 GPH)
- Operating pressure: 40 to 120 PSI
- Operating temperature: up to 120° F
- 150 mesh; 100 microns stainless steel screen
- 2" inlet x 2" 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 170](#)



ICZ-151-XL

Height: 12"
Width: 5½"
Length: 22½"
1½" inlet x single 2" outlet



ICZ-201

Height: 12"
Width: 5½"
Length: 22½"
1½" inlet x single 2" outlet

MICRO

DRIP CONTROL ZONE KITS

Model	Description
ICZ-151-XL	1½" ICV globe valve with 1½" filter and single 2" regulator
ICZ-201	2" ICV globe valve with 2" filter and single 2" regulator

DRIP CONTROL ZONE COMPONENTS

System: **Filtration and Pressure Regulation for Commercial and Residential Systems**

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-100-075-R, HFR-075

- Hunter Filter Regulators
- 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 Y-FILTER

- Filters without built-in regulation
- All non-regulated Y-filters are MPT x MPT configuration
- ¾" and 1" HY have 150 mesh (100 microns) stainless steel screen
- 1 ½" and 2" HY have 150 mesh (100 microns) stainless steel screen
- Flow: ¾", 1" up to 20 GPM
 - 1 ½" up to 60 GPM
 - 2" up to 100 GPM
- Maximum pressure: 120 PSI



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



HFR-100-075-25-R
HFR-100-075-40-R
 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-075, HY-100,
HY-100-075
 Height: 6"
 Width: 3"
 Length: 5"



HY-151
 Height: 9"
 Width: 5"
 Length: 9"



HY-201
 Height: 12"
 Width: 6¾"
 Length: 11½"

HUNTER FILTER REGULATORS AND Y-FILTERS

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
HY-075	¾" inlet/outlet
HY-100	1" inlet/outlet
HY-100-R	1" inlet/outlet, with reclaimed bonnet
HY-100-075	1" inlet x ¾" outlet
HY-151	1½" inlet/outlet
HY-201	2" inlet/outlet

MICRO

PRESSURE REGULATORS

BY SENNINGER®

Uses: **Regulate High Pressures to Prevent Damage to System**

FEATURES

- Each regulator maintains a constant preset outlet pressure based on its flow/inlet pressure.
- 100% water tested for accuracy at Senninger’s facilities
- Very low hysteresis and friction loss helps maintain accurate regulation
- Can be installed above or below ground
- Warranty period: 2 years on materials, workmanship, and performance
- Patented tamper-proof design
- No external metal parts for excellent corrosion resistance

OPERATING SPECIFICATIONS

- PRL (3/4"):
 - Flow range: 0.5 to 8.0 GPM
 - Maximum inlet pressure*: 100 to 120 PSI
- PRLV (3/4", 1"):
 - Flow range: 0.5 to 18 GPM
 - Maximum inlet pressure: 125 PSI
- PRM-MF (3/4", 1"):
 - Flow range: 2 to 20 GPM
 - Maximum inlet pressure*: 100 to 130 PSI

*Maximum recommended inlet pressure should not exceed 80 PSI above nominal model pressure



PRL - Pressure-Regulating
 Low-Flow
 Width: 1 9/16"
 Length: 4 1/2"
 3/4" FPT inlet x 3/4" outlet FPT



PRLV - Pressure-Regulating Limiting Valve
 Wide Range Flow
 Width: 2 1/2"
 Length: 5 4/5"
 3/4" FPT inlet x 3/4" outlet FPT

PRL (3/4")			
Model	Pressure	Inlet	Outlet
PRL203F3F	20 PSI	3/4" FPT	3/4" FPT
PRL253F3F	25 PSI	3/4" FPT	3/4" FPT
PRL303F3F	30 PSI	3/4" FPT	3/4" FPT
PRL353F3F	35 PSI	3/4" FPT	3/4" FPT
PRL403F3F	40 PSI	3/4" FPT	3/4" FPT

PRLV (3/4")			
Model	Pressure	Inlet	Outlet
PRLV20MF3F3FV	20 PSI	3/4" FPT	3/4" FPT
PRLV30MF3F3FV	30 PSI	3/4" FPT	3/4" FPT
PRLV40MF3F3FV	40 PSI	3/4" FPT	3/4" FPT

PRLV (1")			
Model	Pressure	Inlet	Outlet
PRLV40MF4F4FV	40 PSI	1" FPT	1" FPT
PRLV50MF4F4FV	50 PSI	1" FPT	1" FPT
PRLV60MF4F4FV	60 PSI	1" FPT	1" FPT

PMR-MF (3/4")			
Model	Pressure	Inlet	Outlet
PMR20MF3F3FV	20 PSI	3/4" FPT	3/4" FPT
PMR25MF3F3FV	25 PSI	3/4" FPT	3/4" FPT
PMR30MF3F3FV	30 PSI	3/4" FPT	3/4" FPT
PMR35MF3F3FV	35 PSI	3/4" FPT	3/4" FPT
PMR40MF3F3FV	40 PSI	3/4" FPT	3/4" FPT
PMR50MF3F3FV	50 PSI	3/4" FPT	3/4" FPT

PMR-MF (1")			
Model	Pressure	Inlet	Outlet
PMR20MF4F4FV	20 PSI	1" FPT	1" FPT
PMR25MF4F4FV	25 PSI	1" FPT	1" FPT
PMR30MF4F4FV	30 PSI	1" FPT	1" FPT
PMR35MF4F4FV	35 PSI	1" FPT	1" FPT
PMR40MF4F4FV	40 PSI	1" FPT	1" FPT



PMR-MF - Pressure-Master Regulator
 Medium-Flow
 Width: 2 1/2"
 Length: 5 1/2" (3/4" model), 5 4/5" (1" model)
 1" FPT inlet x 1" outlet

The pressure regulator will maintain the predetermined operating pressure provided that the inlet pressure is at least 5 PSI above the expected outlet pressure, but not exceeding the maximum operating pressure.

MICRO


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	Flow	Throw Diameter
	PSI	GPH	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	Flow	Throw Diameter
	PSI	GPH	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	Flow	Spray Pattern ft.		
			Diameter in Throw		Radius of Throw
	PSI	GPH	360° x 18 Hole	180°	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



Nozzles

For a robust micro spray system, use the Short Radius Micro Spray Nozzles paired with Pro-Spray

Short Radius Micro Spray Nozzles
see page 65



SD-T



SD-B



SD-B-STK
Height: 6.0"



HS-T



HS-B



HS-B-STK
Height: 6.0"



TS-T-F



TS-T-H



TS-T-Q



MICRO

RZWS

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

FEATURES

- Patented StrataRoot™ baffles divert water to the root zone while adding strength to the unit
- Durable locking cap
- Pressure-compensating bubbler
- Built-in Hunter Swing Joint for direct installation to ½" PVC fitting
- Pre-assembled watering system for fast installation
- 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 (HCV)
- Locking reclaimed purple cap

USER INSTALLED OPTIONS

- Fabric sleeve that helps prevent soil intrusion in sandy areas for 18" and 36" models (P/N RZWS-SLEEVE)
- Replacement cap for 18" and 36" models (P/N 913300SP)
- Locking reclaimed purple cap for 18" and 36" models (P/N 913301SP)
- Reclaimed water purple cap for 10" (P/N RZWS10-RCC)



RZWS-10
Diameter: 2"
Length: 10"

RZWS-18
Tube Diameter: 3"
Cap Diameter: 4.75"
Length: 18"

RZWS-36
Tube Diameter: 3"
Diameter: 4.75"
Length: 36"

RZB

The RZB is an accessory for small trees and shrubs that assists irrigation systems in delivering water to the roots.

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



Diameter: 2"
Length: 9"



**Reclaimed models available
Add -R to model number**

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

A close-up photograph of reddish-brown soil, showing its granular texture and some small dark specks. A white horizontal line is drawn across the middle of the image, positioned just below the word 'RECLAIMED'.

RECLAIMED

RECLAIMED

EMBRACE THE POWER OF PURPLE

with our complete line of reclaimed water products

ROTORS

					
PGJ	PGP ULTRA	I-20	I-25	I-40	I-80
PGJ-00-R PGJ-04-R PGJ-06-R PGJ-12-R	PGP-00-CV-R PGP-04-CV-R PGP-12-CV-R PGP-04-CV-R-PRB	I-20-00-R I-20-04-R I-20-04-SS-R I-20-04-R-PRB I-20-04-SS-R-PRB I-20-06-R I-20-06-SS-R I-20-06-R-PRB I-20-06-SS-R-PRB I-20-12-R	I-25-04-R I-25-04-SS-R I-25-06-R I-25-06-SS-R	I-40-04-SS-R I-40-04-SS-ON-R I-40-06-SS-R I-40-06-SS-ON-R	I-80-00-SS-R I-80-04-SS-R I-80-00-SS-ON-R I-80-04-SS-ON-R

Rotors Key

- 00 - Shrub
- 04 - 4" pop-up
- 06 - 6" pop-up
- 12 - 12" pop-up
- CV - Check valve
- SS - Stainless steel
- ON - Opposing nozzles
- PRB - Pressure regulated body
- ARV - Adjustable arc
- 3RV - Full-circle

ROTORS

SPRAYS

BUBBLERS

		
I-90	PRO-SPRAY	BUBBLERS
I-90-ARV I-90-3RV	PROS-00-R PROS-04-CV-R PROS-06-CV-R PROS-12-CV-R PROS-RC-CAP (snap-on) 458520 = ID cap (threaded)	PCB-25-R PCB-50-R PCB-10-R PCB-20-R
	PRO-SPRAY PRS30	
	PROS-00-PRS30-R PROS-04-PRS30-CV-R PROS-06-PRS30-CV-R PROS-12-PRS30-CV-R 458560 = ID cap	
	PRO-SPRAY PRS40	
	PROS-00-PRS40-R PROS-04-PRS40-CV-R PROS-06-PRS40-CV-R PROS-12-PRS40-CV-R 458562 = ID cap	

Sprays Key


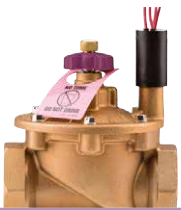


- 00 - Shrub
- 04 - 4" pop-up
- 06 - 6" pop-up
- 12 - 12" pop-up
- CV - Check valve

Bubblers Key

- 25 - 0.25 GPM
- 50 - 0.50 GPM
- 10 - 1.00 GPM
- 20 - 2.00 GPM

RECLAIMED

VALVES





			
ICV	IBV	QUICK COUPLER	DRIP CONTROL ZONE KITS
ICV-101G-FS-R ICV-151G-FS-R ICV-201G-FS-R ICV-301-FS-R 561205 = ICV-101-201 series ID handle 515005 = ICV-301 series ID handle	IBV-101G-FS-R IBV-151G-FS-R IBV-201G-FS-R IBV-301G-FS-R	HQ-33DLRC-R HQ-44LRC-R HQ-44LRC-AW-R HQ-5LRC-R	ICZ-101-25-LF-R ICZ-101-40-LF-R HFR-100-075-25-R = Filter with 25 PSI regulator only HFR-100-075-40-R = Filter with 40 PSI regulator only

Valves Key

- FS - Filter Sentry™
- LRC - Locking rubber cover
- RC - Rubber cover
- AW - ACME key with anti-rotation wheels

* Note: IBV purple tags user-installed options

MICRO

			
IH RISERS	RZWS	HDL	MULTI-PURPOSE BOX
IH-FIT-3850-R IH-RISER-12-R IH-RISER-18-R IH-RISER-24-R	RZWS-10-R RZWS-10-25-R RZWS-10-50-R RZWS-10-25-CV-R RZWS-10-50-CV-R RZWS-18-R RZWS-18-25-R RZWS-18-50-R RZWS-18-25-CV-R RZWS-18-50-CV-R	RZWS-36-R RZWS-36-25-R RZWS-36-50-R RZWS-36-25-CV-R RZWS-36-50-CV-R 913301SP 18" and 36" reclaimed cap RZWS10-RCC (cap only)	MB-0811-R MB-LID-R (lid only)
IH-06-12-250-R IH-06-12-500-R IH-06-12-1K-R IH-06-18-250-R IH-06-18-500-R IH-06-18-1K-R IH-06-24-250-R IH-06-24-1K-R IH-09-12-250-R IH-09-12-500-R	HDL-09-12-1K-R HDL-09-18-250-R HDL-09-18-500-R HDL-09-18-1K-R HDL-09-24-250-R HDL-09-24-1K-R HDL-BLNK-250-R HDL-BLNK-500-R HDL-BLNK-1K-R		

Micro Key

IH Risers	RZWS	HDL	HDL-09	24 - 24"	1K - 1,000'
12 - 12" riser	10 - 10" length	BLNK - No emitter	0.9 GPH	spacing	length
18 - 18" riser	18 - 18" length	HDL-04 - 0.4 GPH	12 - 12" spacing	250 - 250' length	
24 - 24" riser	36 - 36" length	HDL-06 - 0.6 GPH	18 - 18" spacing	500 - 500' length	

RECLAIMED



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 182



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 FLEX_{SG} Tubing
- Acetal material for sharp barbs
- Operating pressure up to 80 PSI
- Compatible with FLEX_{SG} and other brands



Spiral Barb Elbows

HSBE-TOOL, HSBE-050, HSBE-075

FLEX_{SG} TUBING

Model

- FLEX_{SG}: 100' roll
- FLEX_{SG}-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



FLEX_{SG} 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 182

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.

PRO-SPRAY SHUT-OFF CAP

Models

- 213600SP

Features

- Caps off the Pro-Spray for maintenance or drip conversions
- Maintains a clean look to the landscape

SHUT-OFF NOZZLE

Models

- 916400SP

Features

- Easy shut-off for spray system
- Allows heads to pop-up for easy visibility
- Use with Pro-Spray and PS Ultra models



SJ Swing Joint
6" and 12" links



SpotShot Hose-End Nozzle
¾" P/N 160700
1" P/N 160705



Pro-Spray Shut-Off Cap
213600SP



Shut-Off Nozzle
916400SP

TOOLS



Hunter Wrench
172000SP



"T" Handle Tool
319100SP



Pitot Gauge
280100SP



MP Gauge Assembly
P/N MPGAUGE
(For use with MP Rotators or standard nozzles)



Hand Pump
217500SP



MP Tool
P/N MPTOOL



Nozzle Insertion Collar
123200SP



ST1600 Tool
517600SP



Hunter Emitter Multi-Tool
P/N HEMT
(Punches pilot holes and pellets, inserts and removes emitters, cuts tubing)



Pocket Punch
P/N POCKETPUNCH
(Punches, inserts, and removes emitters)



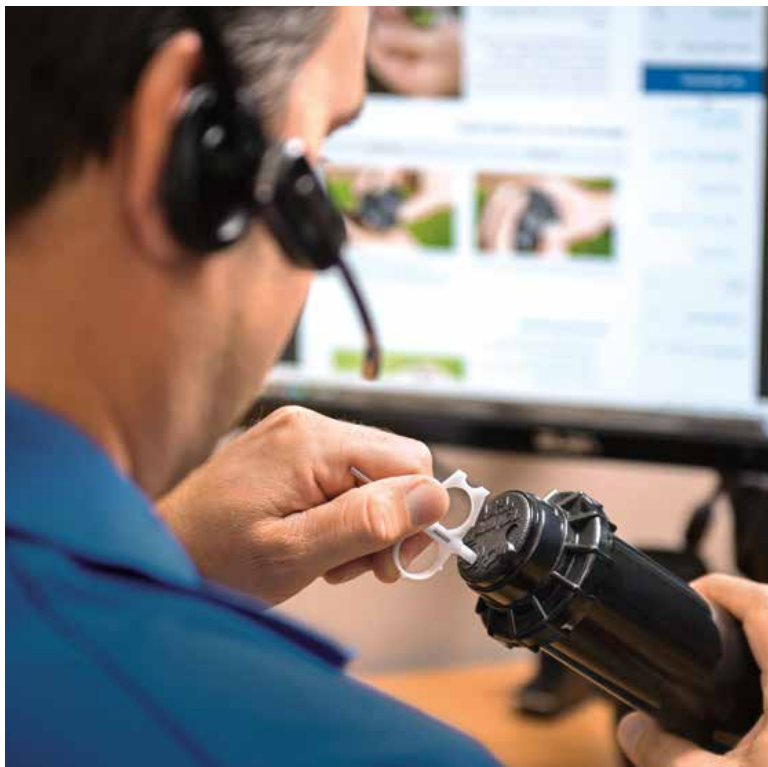
TECHNICAL

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	Use Hunter Nozzle	
RAIN BIRD®	● Red	
3500	0.75	0.75
	1	1.0
	1.5	1.5
	2	2.0
	3	3.0
T-Bird T-22	4	4.0
	.65 (Blue)	0.75
	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
T-Bird T-30	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0
	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	Use Hunter Nozzle	
TORO®	● Red	
300/340	1	0.75
Stream Rotor	2	1.5
	3	3.0

To Replace	Use Hunter Nozzle	
NELSON®	● Red	
5500	#51	0.75
	#52	1.5
	#53	2.0
	#54	2.5

PGP® GEAR-DRIVEN ROTARY SPRINKLERS			
To Replace	Use Hunter Nozzle		
RAIN BIRD®	● 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	Use Hunter Nozzle		
K-RAIN®	● 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	Use Hunter Nozzle			
TORO®	● 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	180-10	5	2.0
		360-10	9	5.0
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	

TECHNICAL

REPLACEMENT GUIDE

PGP® ULTRA / I-20 GEAR-DRIVEN ROTARY SPRINKLERS		
To Replace	Use Hunter Nozzle	
RAIN BIRD®	● 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
R-50	12 (Beige)	8.0
	1.5 (Black)	2.0
	2.0 (Brown)	3.0
	3.0 (Gray)	4.0
T-Bird T-30	4.0 (Yellow)	5.0
	6.0 (Green)	8.0
	1.3 (Black)	1.5
5000	2.5 (Gray)	2.5
	5.0 (Green)	5.0
	1.5	1.5
5505	2.0	2.0
	3.0	3.0
	4.0	4.0
	6.0	5.0
	8.0	8.0
	12	8.0

To Replace	Use Hunter Nozzle	
K-RAIN®	● 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	Use Hunter Nozzle	
TORO®	● 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
	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	Use Hunter Product	
ANY MFRS NOZZLES	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) 6 (Lt. Blue) 8 (Dk. Green) 10 (Gray) 12 (Beige) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue)	4 (Yellow) 5 (White) 7 (Orange) 8 (Lt. Brown) 10 (Lt. Green) 13 (Lt. Blue) 18 (Red) 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) 6 (Lt. Blue) 8 (Dk. Green) 10 (Gray) 12 (Beige) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue)	4 (Yellow) 5 (White) 8 (Lt. Brown) 10 (Lt. Green) 13 (Lt. Blue) 15 (Gray) 18 (Red) 20 (Dk. Brown)
8005	12 (Beige) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue) 20 (Red) 22 (Yellow) 24 (Orange)	13 (Lt. Blue) 15 (Gray) 18 (Red) 20 (Dk. Brown) 23 (Dk. Green) 25 (Dk. Blue) 28 (Black)

To Replace TORO®		Use Hunter Nozzle
2001	6 (Yellow) 9 (Red) 12 (Brown) 18 (Blue) 24 (Green)	7 (Orange) 8 (Lt. Brown) 10 (Lt. Green) 18 (Red) 25 (Dk. Blue)
640	40 41 42 43 44	8 (Lt. Brown) 10 (Lt. Green) 13 (Lt. Blue) 15 (Gray) 20 (Dk. Brown)

To Replace NELSON®		Use Hunter Nozzle
7000 & 7500	1 2 3 4 5 6 7 8	7 (Orange) 8 (Lt. Brown) 10 (Lt. Green) 13 (Lt. Blue) 15 (Gray) 20 (Dk. Brown) 23 (Dk. Green) 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) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue) 20 (Red) 22 (Yellow)	10 (Lt. Green) 15 (Gray) 15 (Gray) 23 (Dk. Green) 25 (Dk. Blue) 25 (Dk. Blue)
TALON	14 16 18 20 22	13 (Lt. Blue) 10 (Lt. Green) 23 (Dk. Green) 25 (Dk. Blue) 25 (Dk. Blue)

To Replace TORO®		Use Hunter Nozzle
640	40 41 42 43 44	8 (Lt. Brown) 10 (Lt. Green) 13 (Lt. Blue) 15 (Gray) 23 (Dk. Green)

To Replace THOMPSON®		Use Hunter Nozzle
186/7	R-Nozzle S-Nozzle T-Nozzle	13 (Lt. Blue) 15 (Gray) 15 (Gray)
188/9	U-Nozzle V-Nozzle	23 (Dk. Green) 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)

I-80 GEAR DRIVEN-ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle
41-51A	18 x 11.5	23 (Green)
41-51A	13 x 11	15 (White)
47A-SAM	16	13 (Lt. Blue)
37A	14	10 (Lt. Green)
65 SERIES	16	13 (Lt. Blue)
7005	10 (Gray) 12 (Beige) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue)	10 (Lt. Green) 13 (Lt. Blue) 15 (White) 18 (Orange) 20 (Tan)
8005	12 (Beige) 14 (Lt. Green) 16 (Dk. Brown) 18 (Dk. Blue) 20 (Red) 22 (Yellow)	10 (Lt. Green) 15 (White) 15 (White) 23 (Green) 25 (Blue) 25 (Blue)
TALON	14 16 18 20 22	13 (Lt. Blue) 10 (Lt. Green) 23 (Green) 25 (Blue) 25 (Blue)

To Replace TORO®		Use Hunter Nozzle
640	41 42 43 44	10 (Lt. Green) 13 (Lt. Blue) 15 (White) 23 (Green)
TS-90	1 (Yellow) 2 (Blue) 3 (Brown) 4 (Orange) 5 (Green) 6 (Gray) 7 (Black) 8 (Red) 9 (Tan)	15 (White) 20 (Tan) 23 (Green) 33 (Gray) 38 (Red) 38 (Red) 43 (Dk. Brown) 48 (Dk. Green) 53 (Dk. Blue)

To Replace THOMPSON®		Use Hunter Nozzle
186/7	R-Nozzle S-Nozzle T-Nozzle	13 (Lt. Blue) 15 (White) 15 (White)
188/9	U-Nozzle V-Nozzle	23 (Green) 25 (Blue)

To Replace SINGLE NOZZLE		All Impact MFRS
	15/64"	10 (Lt. Green)
	1/4"	13 (Lt. Blue)
	17/64"	15 (White)
	9/32"	15 (White)

TECHNICAL

REPLACEMENT GUIDE

HQ - KEYS				
To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
33K, 33DK 44K 4K-Acme 55K-1	075-SLK 100-SLK 100-AK	QB33K07 QB44K10 QB44KAT10 QB5RK10	4C075, C075 4C100, C100 4C100A, C100A 4C101, C101	HK-33 HK-44 HK-44A HK-55

HQ - SWIVELS				
To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
SH-0 SH-1 SH-2	075-75MHS 075-MHS 100-MHS	HS075 HS100 HS101 HS100BS HS101BS	4HS-075, HS075 4HS-100, HS-100 4HS-101, HS-101 4HS-100-BS, HS-100-BS 4HS-101-BS, HS-101-BS	HS-0 HS-1 HS-2 HS-1-B HS-2-B

HQ - QUICK COUPLERS				
To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
3RC 33DRC 33DLRC 33DNP 44RC	075-SLSC 100-SLSC,	QB3RC07 QB33RC07 QB33LRC07 QB33NP07 QB44RC10	4V075-RY, QCV075-R 4V133-4A-RY, QCV133-4A-R 4V133-4A-RLY, QCV133-4A-RL-2 4V133-4A-RL-NP, QCV133-4A-N-2 4V144-RY, QCV-144-R	HQ-3RC HQ-33DRC HQ-33DLRC HQ-33DLRC-R HQ-44RC
44LRC 44NP	100-2SLVC 100-SLVLC 100-2SLLVC	QB44LRC10 QB44N010 QB44RCATAR10 QB44LRCATAR10 QB44NPATAR10	4V144-RLY, QCV-144-RL 4V144-RL-NP, QCV-144-N	HQ-44LRC HQ-44LRC-R HQ-44RC-AW HQ-44LRC-AW HQ-44LRC-AW-R
4NP-Acme 5RC	100-ATLVC	QBRB5RC10	4V101-RY, QCV-101-R	HQ-5RC
5LRC 5NP 5RC-BSP 5LRC-BSP 5NP-BSP		QBRB5LRC10 QBRB5NP10 QBRB5RC10BS QBRB5LRC10BS QBRB5NP10BS	4V101-RLY, QCV-101-RL 4V101-RL-NP, QCV-101-N 4V101-RY-BS, QCV-101-R-BS 4V101-RLY-BS, QCV-101-RL-BS 4V101-RL-NP-BS, QCV-101-N-BS	HQ-5LRC HQ-5LRC-R HQ-5RC-BSP HQ-5LRC-BSP 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.

 <p>90° Arc = 1 GPM (0.23 m³/hr; 3.8 l/min)</p>	 <p>180° Arc = 2 GPM (0.45 m³/hr; 7.6 l/min)</p>	 <p>360° Arc = 4 GPM (0.91 m³/hr; 15.1 l/min)</p>
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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 (■):

$$\begin{aligned} \text{P.R. (in/hr)} &= \frac{\text{Flow Rate (GPM) for any Arc} \times 34,650}{\text{Degrees of Arc} \times \text{Head Spacing (ft.)} \times \text{Row Spacing (ft.)}} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow Rate (m}^3\text{/hr) for any Arc} \times 360,000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow Rate (l/min) for any Arc} \times 21,600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}} \end{aligned}$$

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 (▲):

$$\begin{aligned} \text{P.R. (in/hr)} &= \frac{\text{Flow Rate (GPM) for any Arc} \times 34,650}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow Rate (m}^3\text{/hr) for any Arc} \times 360,000}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow Rate (l/min) for any Arc} \times 21,600}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866} \end{aligned}$$

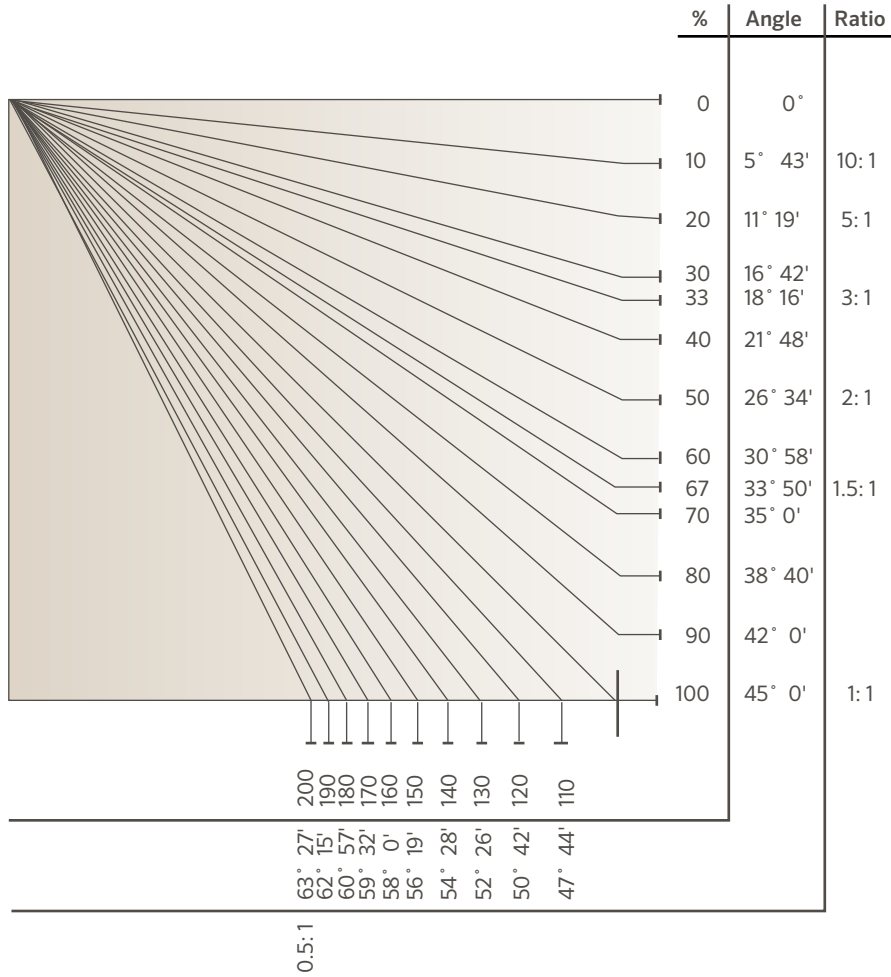
Total Area Method

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.

$$\begin{aligned} \text{P.R. (in/hr)} &= \frac{\text{Flow (GPM)} \times 96.25}{\text{Total Area (ft.)}} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow (m}^3\text{/hr)} \times 1,000}{\text{Total Area (m}^2\text{)}} \\ \text{P.R. (mm/hr)} &= \frac{\text{Flow (l/min)} \times 60}{\text{Total Area (m}^2\text{)}} \end{aligned}$$

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

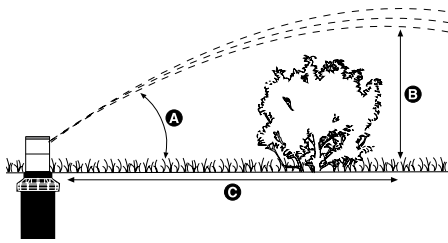
Notes:

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®	815	40	15	12"	Varies
	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
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

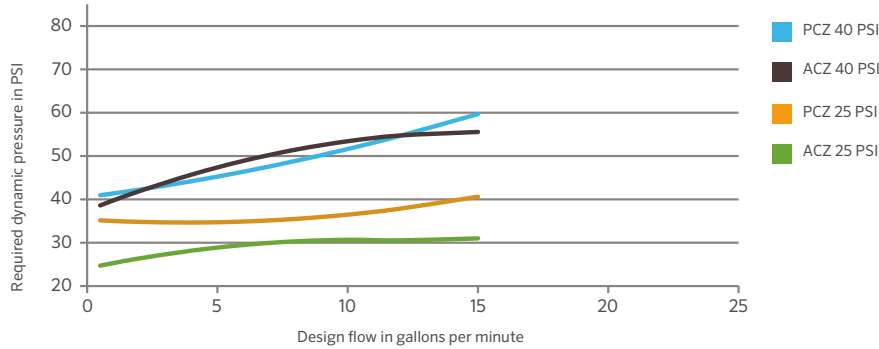
HEIGHT OF SPRAY

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

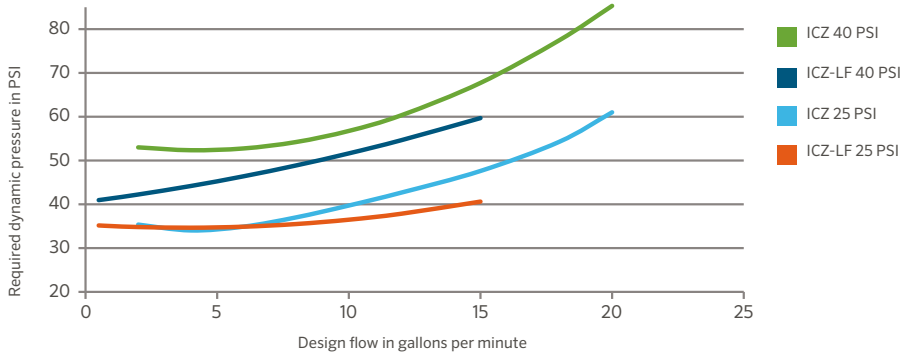
Model	Nozzle No.	Pressure (PSI)	Degrees of Trajectory	Max Height of Spray	Distance from Head to Maximum Height (ft.)
PGP® Ultra/I-20 Low Angle Gray Nozzles	2.0LA	50	13	5	22
	2.5LA	50	13	4	22
	3.5LA	50	13	4	22
	4.5LA	50	13	4	22
PGP Ultra/I-20 Short Radius Black Nozzles	0.5	50	15	5	8
	1.0	50	14	6	9
	2.0	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
I-90 ADV	25	70	25	17	48
	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
I-90 36V	63	80	22	18	64
	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
I-90 ADV Low Angle	63	80	22	18	62
	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
I-90 36V Low Angle	63	80	15	12	48
	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

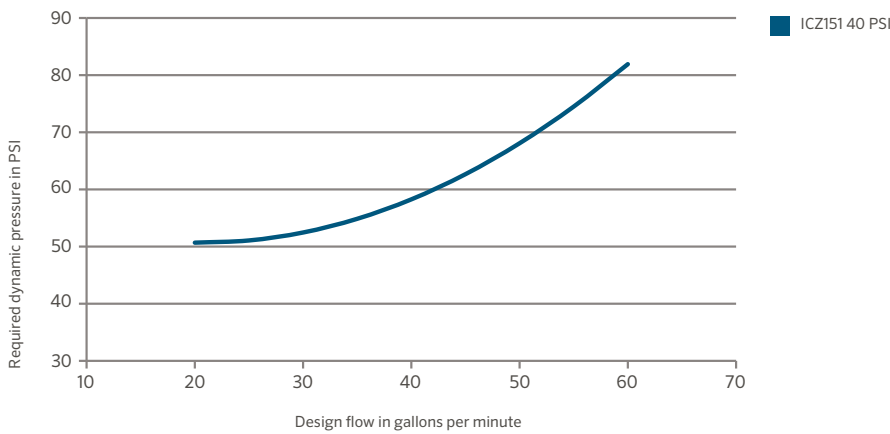
RESIDENTIAL - PCZ101, ACZ075: Inlet pressure required for designed outlet pressure



COMMERCIAL - ICZ101 Inlet pressure required for designed outlet pressure



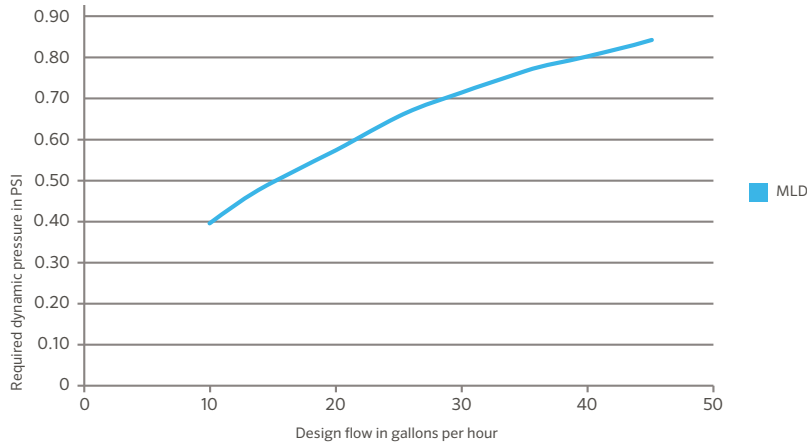
COMMERCIAL - ICZ151: Inlet pressure required for designed outlet pressure



TECHNICAL

MINI LANDSCAPE DRIPLINE FLOW CHART

MLD FLOW CHART



HUNTER DRIPLINE (HDL) MAXIMUM RUN LENGTHS

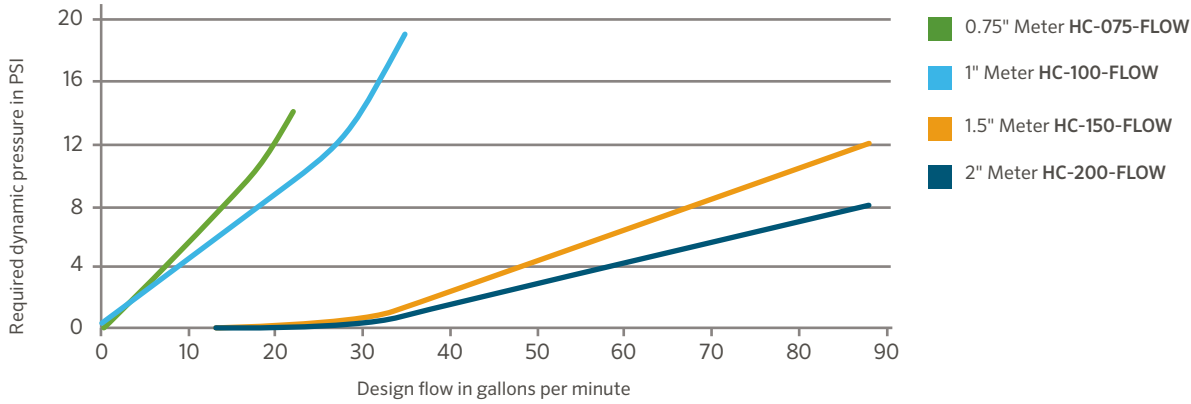
HDL-PC AND HDL-R: MINIMUM OPERATING PRESSURE OF 10 PSI
 HDL-CV: MINIMUM OPERATING PRESSURE OF 15 PSI

DRIPLINE LENGTH (IN FEET) - USING 0.4 GPH EMITTER				DRIPLINE LENGTH (IN FEET) - USING 0.6 GPH EMITTER				DRIPLINE LENGTH (IN FEET) - USING 0.9 GPH EMITTER			
Pressure (PSI)	Emitter Spacing (in.)			Pressure (PSI)	Emitter Spacing (in.)			Pressure (PSI)	Emitter Spacing (in.)		
	12	18	24		12	18	24		12	18	24
10	205	285	361	10	168	236	298	10	114	164	208
15	285	404	511	15	236	333	423	15	164	233	292
20	339	475	604	20	280	395	501	20	192	273	348
25	380	532	675	25	314	441	560	25	214	304	385
30	411	582	735	30	339	482	610	30	236	333	419
35	438	619	784	35	363	513	650	35	251	355	451
40	463	657	831	40	385	545	688	40	267	376	479
45	489	688	872	45	404	570	722	45	280	395	501
50	507	719	912	50	419	594	753	50	292	414	523
55	529	747	947	55	438	616	784	55	302	429	541
60	548	772	981	60	451	638	810	60	314	441	560

PC CHECK VALVE - MINIMUM OPERATING PRESSURE OF 15 PSI

EMITTER LINE LENGTH - 0.4 GPH				EMITTER LINE LENGTH - 0.6 GPH				EMITTER LINE LENGTH - 1.0 GPH			
Pressure (PSI)	Emitter Spacing (in.)			Pressure (PSI)	Emitter Spacing (in.)			Pressure (PSI)	Emitter Spacing (in.)		
	12	18	24		12	18	24		12	18	24
15	205	289	367	15	171	239	304	15	117	164	211
20	289	404	513	20	239	336	426	20	164	233	292
25	339	479	604	25	280	398	501	25	192	273	348
30	380	535	679	30	314	441	560	30	217	307	389
35	411	582	738	35	339	482	610	35	236	333	423
40	438	623	788	40	363	516	653	40	251	355	451
45	467	657	835	45	385	545	688	45	267	376	479
50	489	691	872	50	404	570	722	50	280	395	501
55	511	719	912	55	419	597	757	55	292	414	523
60	529	747	947	60	438	619	784	60	302	429	541

HC FLOW METER PRESSURE LOSS 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

TECHNICAL

FRICITION LOSS CHARTS

WATER METER PRESSURE LOSS CHART: Typical Pressure Loss (PSI)								
Flow (GPM)	5/8"	3/4"	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.

FRICITION LOSS CHARTS - TYPE K COPPER TUBING

ASTM B88 C=140 • PSI loss per 100 ft. of pipe																		
Nominal Size	½"		¾"		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.

TECHNICAL

FRICITION LOSS CHARTS - TYPE L COPPER TUBING

ASTM B88 C=140 • PSI loss per 100 ft. of pipe																		
Nominal Size Pipe ID Pipe OD Avg. Wall	½" 0.545 0.625 0.040		⅝" 0.666 0.750 0.042		¾" 0.785 0.875 0.045		1" 1.025 1.125 0.050		1¼" 1.265 1.375 0.055		1½" 1.505 1.625 0.060		2" 1.985 2.125 0.070		2½" 2.465 2.625 0.080		3" 2.945 3.125 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.

FRICITION LOSS CHARTS - SCHEDULE 40 STEEL

ASTM B53 C=100 • PSI loss per 100 ft. of pipe

Nominal Size Pipe ID Pipe OD Avg. Wall	½"		¾"		1"		1¼"		1½"		2"		2½"		3"		4"	
	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.

FRICITION 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.

FRICITION 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	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	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	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	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	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	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	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	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	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	6.60	1.95	3.99	0.57	1.84	0.09				
170							10.41	5.70	7.01	2.18	7.01	2.18	4.24	0.64	1.96	0.10				
180							11.02	6.34	7.42	2.42	7.42	2.42	4.49	0.71	2.07	0.11				
190							11.64	7.01	7.83	2.67	7.83	2.67	4.74	0.79	2.19	0.12				
200							12.25	7.71	8.24	2.94	8.24	2.94	4.98	0.86	2.30	0.13				
220							13.47	9.19	9.07	3.51	9.07	3.51	5.48	1.03	2.53	0.16				
240							14.70	10.80	9.89	4.12	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.

FRICITION 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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	16.90	11.98	10.20	3.51	4.71	0.54		
380									10.77	3.88	4.97	0.59			10.77	3.88	4.97	0.59		
400									11.34	4.27	5.24	0.65			11.34	4.27	5.24	0.65		
420									11.90	4.67	5.50	0.71			11.90	4.67	5.50	0.71		
440									12.47	5.09	5.76	0.78			12.47	5.09	5.76	0.78		
460									13.04	5.53	6.02	0.84			13.04	5.53	6.02	0.84		
480									13.61	5.98	6.28	0.91			13.61	5.98	6.28	0.91		
500									14.17	6.45	6.54	0.98			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.

FRICITION 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	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	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	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	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	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	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	4.34	0.68	1.91	0.09
180											12.28	8.25	7.94	2.85	4.59	0.75	4.59	0.75	2.02	0.10
190											12.97	9.12	8.38	3.15	4.85	0.83	4.85	0.83	2.13	0.11
200											13.65	10.03	8.82	3.46	5.11	0.92	5.11	0.92	2.24	0.12
220											15.01	11.96	9.70	4.13	5.62	1.09	5.62	1.09	2.47	0.15
240											16.38	14.06	10.58	4.85	6.13	1.28	6.13	1.28	2.69	0.17
260													11.46	5.63	6.64	1.49	6.64	1.49	2.92	0.20
280													12.35	6.46	7.15	1.71	7.15	1.71	3.14	0.23
300													13.23	7.34	7.66	1.94	7.66	1.94	3.37	0.26
320													14.11	8.27	8.17	2.19	8.17	2.19	3.59	0.30
340													14.99	9.25	8.68	2.45	8.68	2.45	3.81	0.33
360													15.87	10.29	9.19	2.72	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		

TECHNICAL

Notes: Shaded area represents velocities over 5 fps. Use with caution where water hammer is a concern.

FRICITION 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	
	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

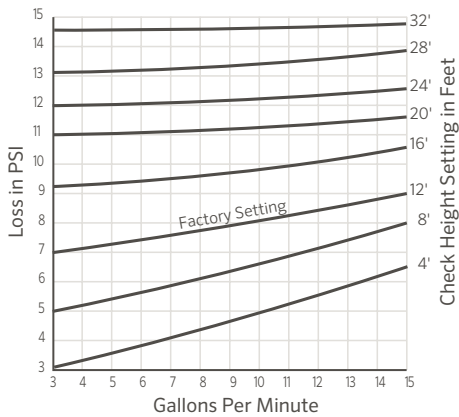
To use this chart, multiply the approximate "equivalent feet of pipe" value by the proper pipe pressure loss per 100 ft. rating, then divide by 100. The result is the fitting loss in PSI.

Notes:

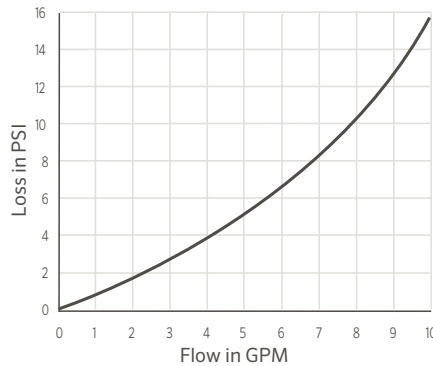
It is recommended that the above chart be used only when the manufacturers recommended pressure loss values are not available.

ACCESSORY PRESSURE LOSS CHARTS

HCV PRESSURE LOSS CHART



SWING JOINT FRICTION LOSS



TECHNICAL

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).

$$R = \frac{1,000 \times 4}{2 (1,800) \times 0.37}$$

$$R = \frac{4,000}{1,332}$$

$$R = 3.00 \text{ ohms}/1,000 \text{ ft.}$$

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"	2½"	2½"
⅝"	2⅜"		
¾"	2¾"	3⅝"	3⅝"
1"	3½"	4⅞"	4⅞"
1¼"	4⅝"	5¾"	5¾"
1½"	5⅞"	6"	6"
2"	6¾"	7⅞"	7⅞"

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, Air Relief Valves
TWO YEARS	ROTORS	PGP®-ADJ, PGJ	CONTROLLERS	Eco Logic, XC Hybrid, X-Core®, Pro-C® Families, Hydrowise™ Families, ROAM, NODE, WVP, WVC, PSR, and BTT
	SPRAYS	PS Ultra Family	SENSORS	ET System
	NOZZLES	Spray Nozzles, PCN, PCB, AFB, MSBN	MICRO	ACZ, PCZ, RZWS, Point Source Emitters, Tubing, Multi-Port Emitters, IH Risers, MLD, Eco-Indicator, Multi-Purpose Box, Senninger Regulators
	VALVES	PGV Family, PSR	ACCESSORIES	HCV, SJ, FLEXsg, HSBF Family, SpotShot, RZB
THREE YEARS	CONTROLLERS	ROAM XL	MP ROTATOR®	All
FIVE YEARS	ROTORS	PGP Ultra, I-20, I-25, I-40, I-80, 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, Wireless Flow Sensor
	VALVES	HQ, ICV, IBV	MICRO	ICZ, PLD, HDL, Eco-Mat®, Eco-Wrap®
	CONTROLLERS	I-Core®/ DUAL®, and ACC/ACC2 controller families, ICD and Dual Decoder Products, ICR Remotes, ICC2, HCC		

Hunter Golf and ST System Irrigation Component* Warranty Products

Hunter will unconditionally repair, replace, or repurchase, at its sole discretion, any defective component* assemblies contained within the Golf and ST products listed below by category, returned freight prepaid, from the date of manufacture within a period of:

ONE YEAR	GOLF CONTROLLERS	Pilot® Software, Pilot-FC, Pilot-FI, Pilot Hub
THREE YEARS	GOLF ROTORS	B Series, G800 Series, G900 Series, RT Series
	GOLF DECODERS	Pilot 100, Pilot 200, Pilot 400, Pilot 600
FIVE YEARS	GOLF ROTORS	Golf rotor component warranty extended to 5 years with one-for-one purchase of HSJ Swing Joint from authorized Hunter Golf distributor.
	SWING JOINTS	HSJ-0, HSJ-1, HSJ-2, HSJ-3
	ST ROTORS	ST-90, STG-900, ST-1200, ST-1600
	ST ACCESSORIES	All model number starting with "ST"
	COMPUTER, PRINTERS & ACCESSORIES, MAINTENANCE RADIO & BATTERY	Equipment manufacturer's warranty (no Hunter warranty)

* 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.

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.**



Statement of Warranty Continued

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.

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'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.

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, CEO of Hunter Industries

Gene Smith, President, Landscape Irrigation and Outdoor Lighting

Website www.hunterindustries.com | **Customer Support** +1 800-383-4747 | **Technical Service** +1 800-733-2823

USA HEADQUARTERS

1940 Diamond Street
San Marcos, California 92078, USA
TEL: +1 760-744-5240

MEXICO

ISO 9001:2015 Certified
Calle Nordika #8615
Parque Industrial Nordika
Tijuana, B.C., Mexico CP 22640
TEL: +52 664-903-1300

EUROPE

Avda. Diagonal 523, 5º- 2º
Edificio Atalaya
08029 Barcelona, Spain
TEL: +34 934-948-881

AUSTRALIA

Suite 7, 202 Ferntree Gully Road
Notting Hill, Melbourne
Victoria 3168, Australia
TEL: +61 3 9562-9918
FAX: +61 3 9558-6983

MIDDLE EAST

P.O. Box 2370
Amman, 11941, Jordan
TEL: +962 6-5152882
FAX: +962 6-5152992

CHINA

B1618, Huibin Office Bldg.
No. 8, Beichen Dong Street
Beijing 100101, China
TEL/FAX: +86 10-84975146