2015 Product Catalogue

RESIDENTIAL, COMMERCIAL, AND GOLF IRRIGATION | *Built on Innovation®*

Petco Park — San Diego, California, USA

YOUR SUCCESS
Is Our Inspiration

For three generations, the Hunter family has been dedicated to engineering innovations for you, the irrigation professional. With more than 250 patents, our goal is to ensure that all new products and enhancements are aimed at making your job easier and more profitable. If they don't, we won't build them.

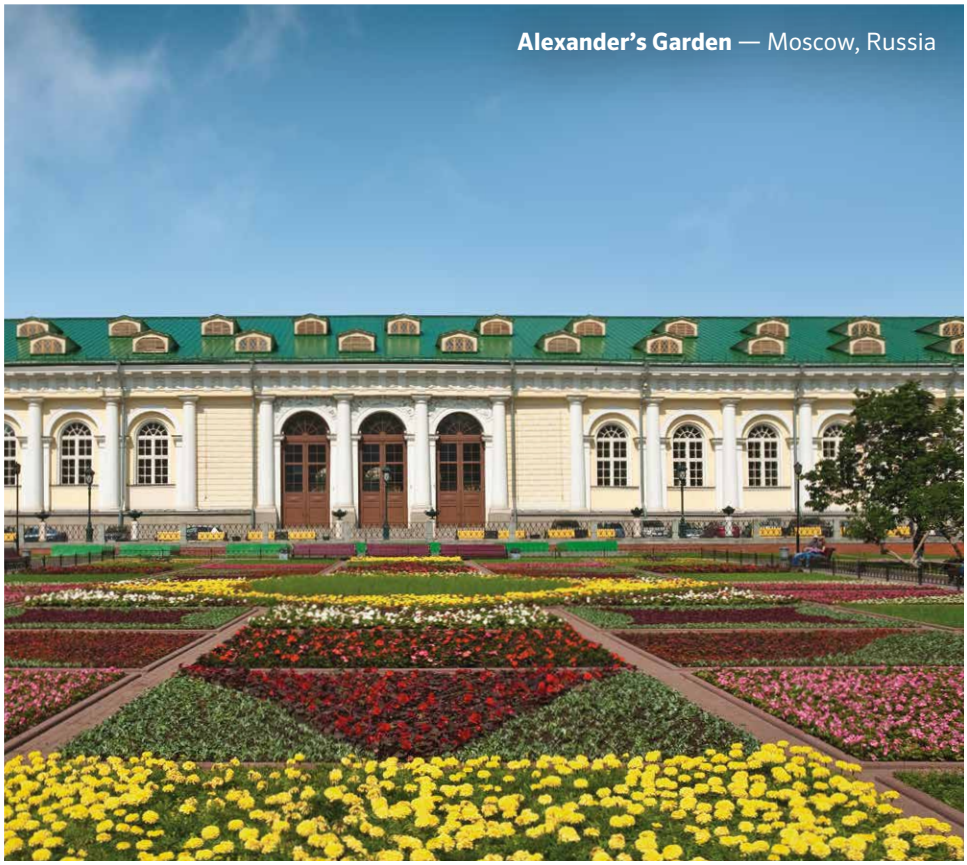
This year, we are proud to introduce three new products to take your business to the next level. These innovations are designed to improve your bottom line, and all of them are conservation focused, which is good for business and good for the planet.

As always, we back our products with our world-class, in-house technical support and customer service. From the manufacturing floor to our area managers, we set the bar high because we know that you need more than a high-quality manufacturer, you need a partner.

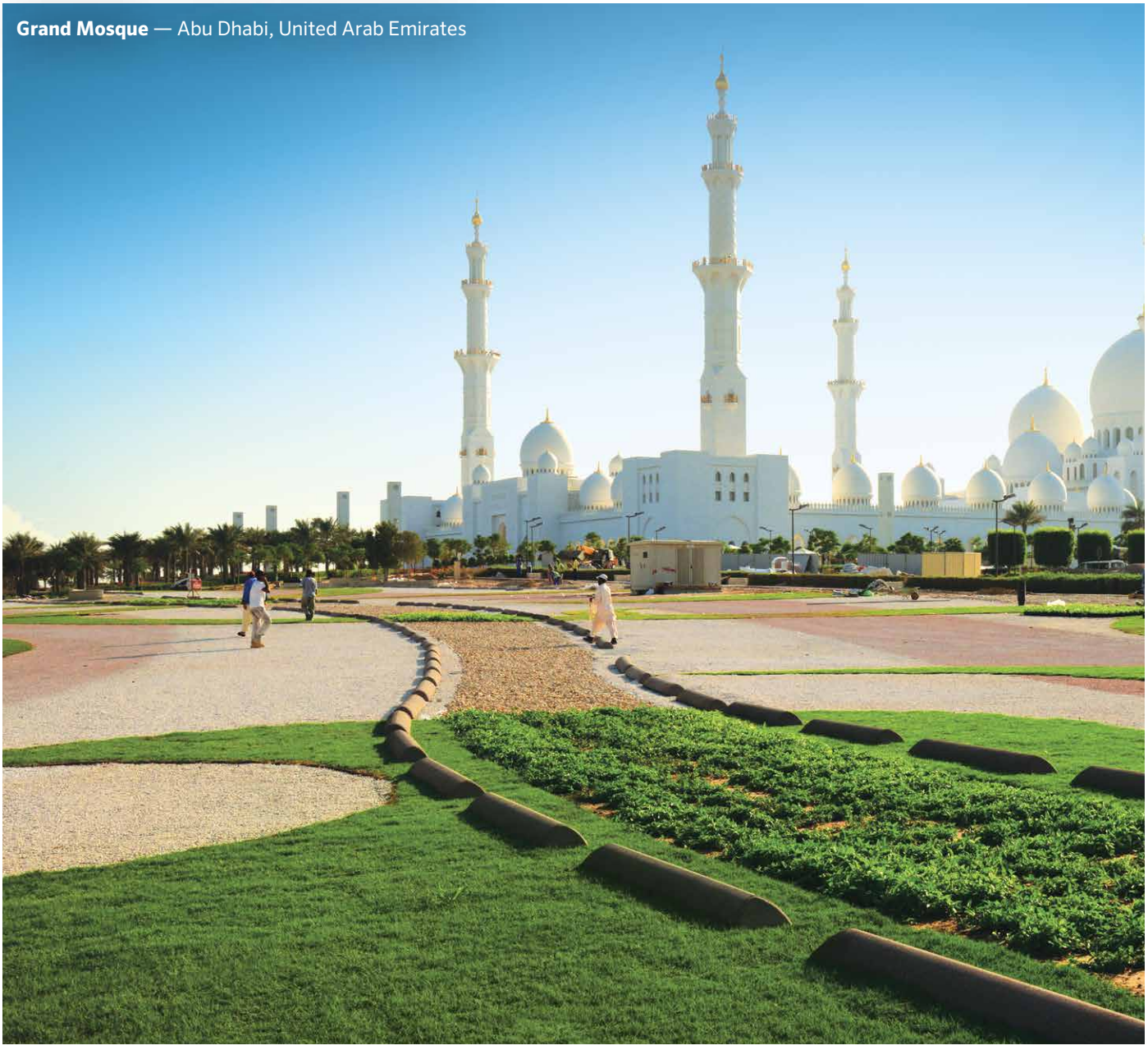
Hunter®

Boston Public Gardens — Boston, Massachusetts, USA

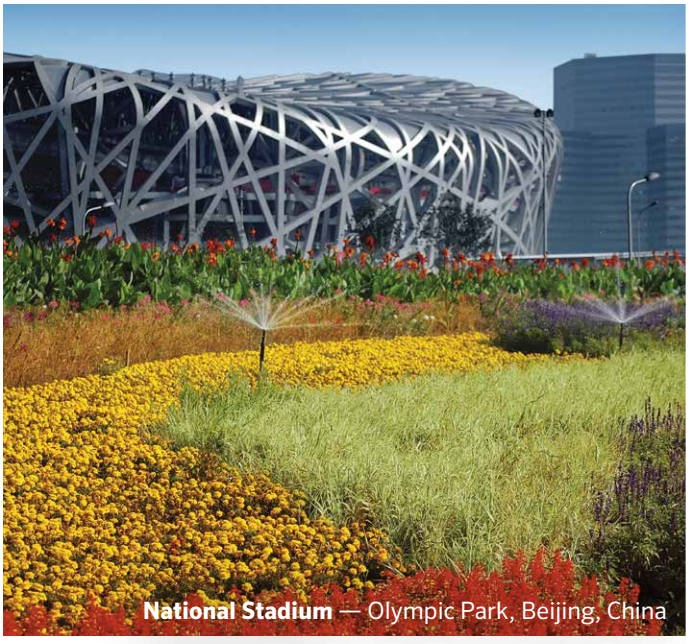
Tramway — France



Alexander's Garden — Moscow, Russia



Grand Mosque — Abu Dhabi, United Arab Emirates



National Stadium — Olympic Park, Beijing, China

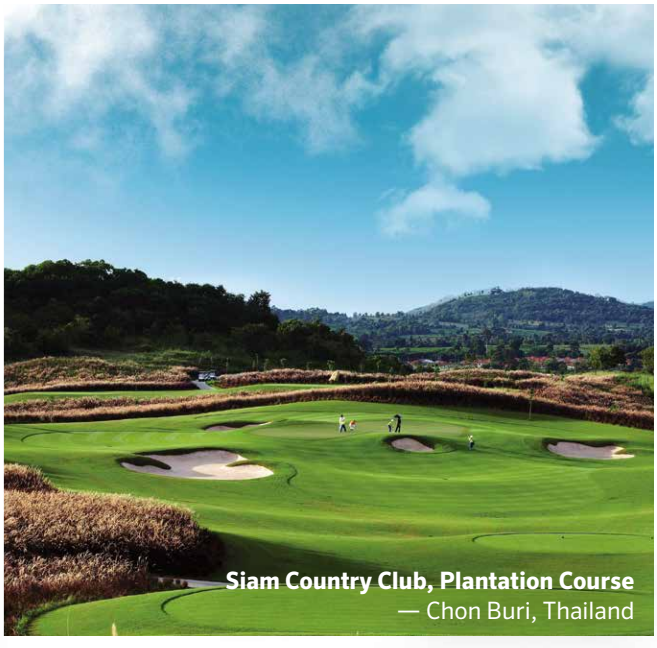
San Diego, California, USA

Napa Valley, California, USA

Napa Valley, California, USA

TPC Cancun at Cancun Country Club — Cancun, Mexico

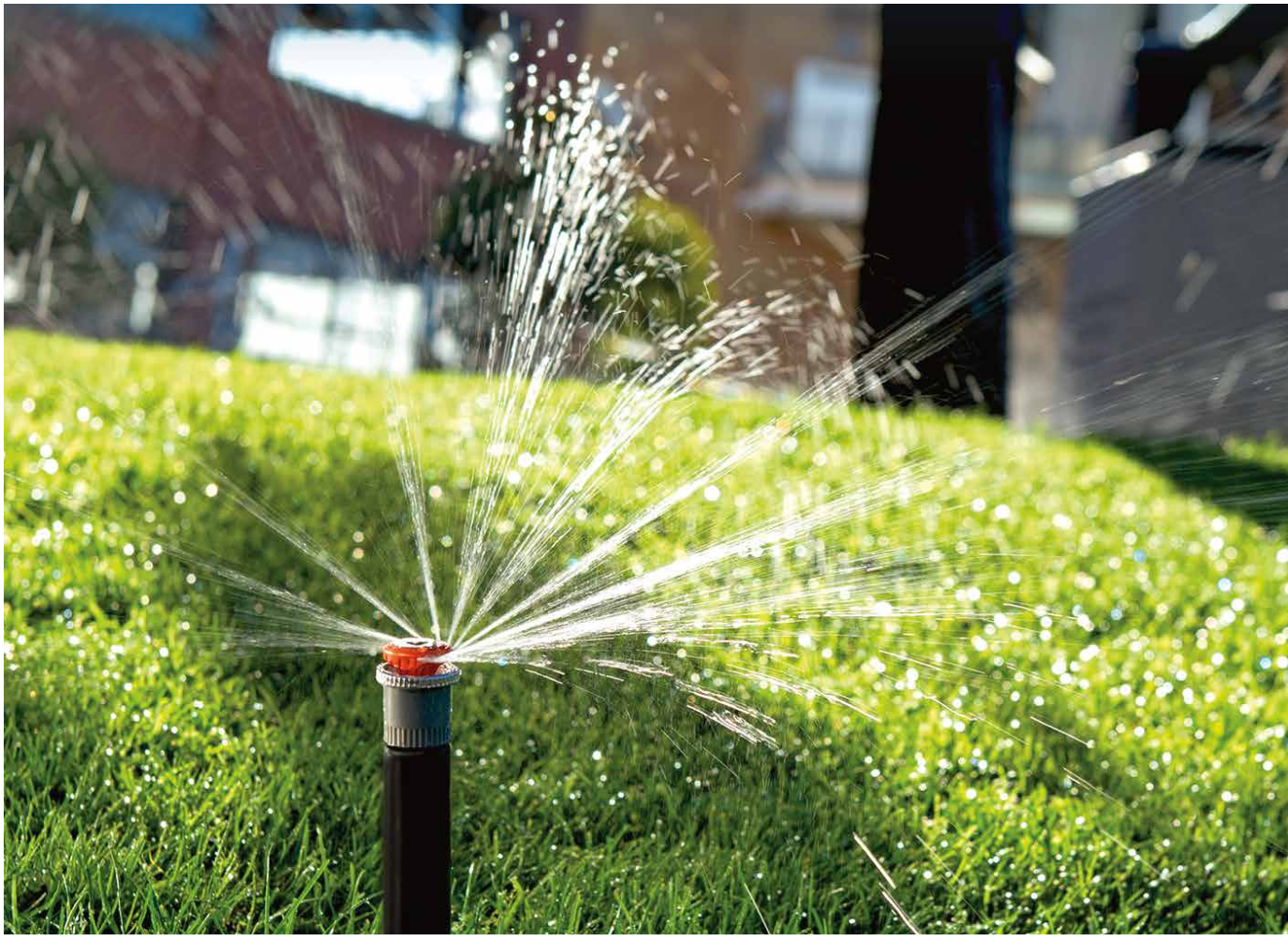
Carnoustie Golf Links — Carnoustie, Scotland



Siam Country Club, Plantation Course
— Chon Buri, Thailand

MP800SR: THE ONLY HIGH-EFFICIENCY SOLUTION

For Short-Radius Needs



Hunter Products

MP800SR-90, MPTOOL

You asked, we listened. Now, the popular features of the MP Rotator® can be used in even the smallest landscapes. Our engineering team spent years perfecting the design of the MP800SR to include the same high distribution uniformity and wind-resistant streams of our other MP Rotator products.

We're offering the MP800SR in two models, the adjustable 90° to 210° arc and a 360° full circle. The MP800SR features a debris-resistant double-pop design and construction with the highest-quality materials available.

Now, you can use the whole family of MP Rotators to solve virtually any overhead watering need from 1.8 to 3.5 metres.

ELIMINATE GUESSWORK

With Hunter's Soil-Clik™

Hunter Products

SOIL-CLIK, SOLAR-SYNC

Because climate conditions are only part of the picture, many customers told us they'd like a device that monitors the amount of moisture in the soil to complement our other Clik sensors and Solar Sync®.

Soil-Clik™

We responded with our new Soil-Clik, which senses moisture levels in the soil at the root zone, and prevents watering when user-determined levels are adequate. Soil-Clik has two components: a moisture sensor probe which is placed in the soil, and an electronic module which communicates with the probe and the controller.

Soil-Clik Probe

The probe is easy to install—simply bury it at any depth required by the root zone of the plant material. Because the sensor is underground, it is protected from damage by animals, sunlight, vandalism, foot traffic, mowers, and aerators.

For total environmental awareness, the Soil-Clik can be paired with Solar Sync. Solar Sync will make ET-based adjustments to run times and application amounts, while Soil-Clik will ensure that Solar Sync never allows irrigation when the soil is still wet. It's a perfect water-saving pairing, designed to make your job easier, and to help conserve one of our most precious natural resources.

PRO-C®

New Advanced Features Help You Build Your Business

We've improved the Pro-C with a dial position to easily accommodate the Hunter Solar Sync® without additional wiring or modules. When paired with Solar Sync, the Pro-C is an EPA WaterSense® labeled smart device that will make automatic ET-based adjustments to run times, saving water.

The Pro-C now comes with a 4-station base controller with expansion to 16 stations. Plus, we added three built-in lighting programs which enable the Pro-C to control landscape lighting as well.

Hunter Product

PRO-C


3:32
Bypass
Rain Sensor
Active
System Off
RUN
Date/Time
Manual
Start Times
Solar Sync®
Run Times
Seasonal Adjust
Pump
Water Days
Hunter® | PRO-C

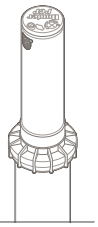
BLUEPRINT OF AN *Efficient Irrigation System*

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

A

PGP® Ultra & I-20

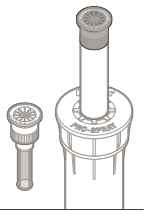
Hunter rotors are the best choice when watering a large turf or landscape area. Our nozzles are engineered for excellent water distribution at low precipitation rates to keep a landscape looking its best, while still using water efficiently.



B

Pro-Spray® & Nozzles

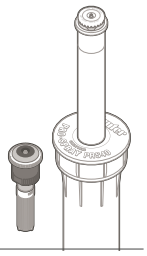
Smaller areas require spray sprinklers for proper watering. Hunter's spray bodies are available with pressure regulation to ensure the most accurate watering of any landscape. Hunter's spray nozzles are meticulously engineered and tested to provide even watering and efficient use.



C

MP Rotator®

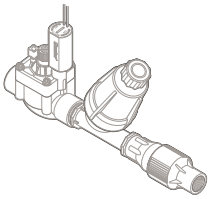
The ultimate solution for small- to medium-sized areas, this high-efficiency, low precipitation rate sprinkler offers unmatched performance and proven water savings up to 30% over sprays.



D

PGV, ICV, & Drip Control Zone Kits

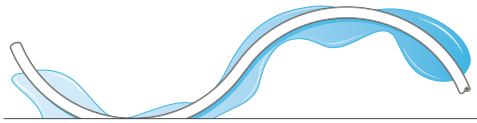
Hunter's trusted valve line ensures system reliability and accuracy. Accu-Sync® can be used on systems with excess pressure to extend the life of the system components and provide the correct operating pressure to the sprinklers. Drip kits are equipped with pressure regulators and filters to provide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



E

Drip/Micro Irrigation

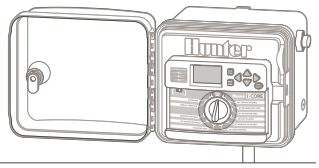
Drip irrigation is an efficient choice for certain landscape situations. It applies water directly to the root zone area of landscape plants, helping to limit excess irrigation. Micro spray emitters can be used to cover small planting beds efficiently.



F

Pro-C®/I-Core®

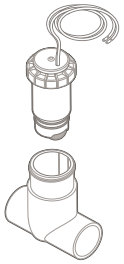
The correct controller for the job is essential to meet the needs of any landscape, from unpredictable weather to municipal watering requirements. Having a customisable controller that is sensor compatible is the first step to a water-efficient system.



G

Flow-Clik®/Flow-Sync®

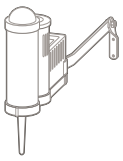
Flow sensors prevent systems from running when there is a leak or broken component. The Flow-Clik will work with most Hunter controllers to suspend irrigation, and the Flow-Sync is compatible with specific Hunter controllers to monitor overflow and provide flow totaling for better management.

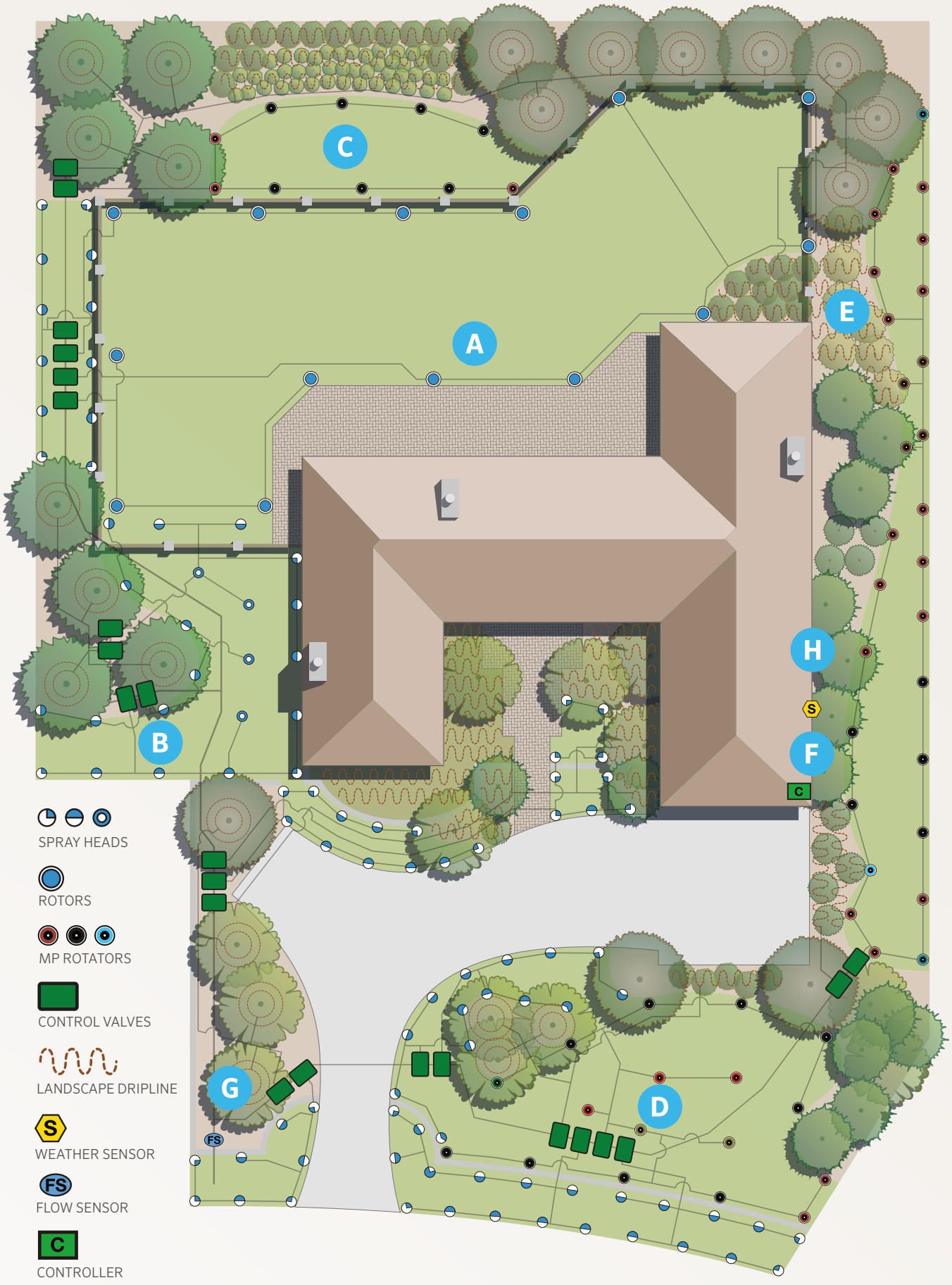


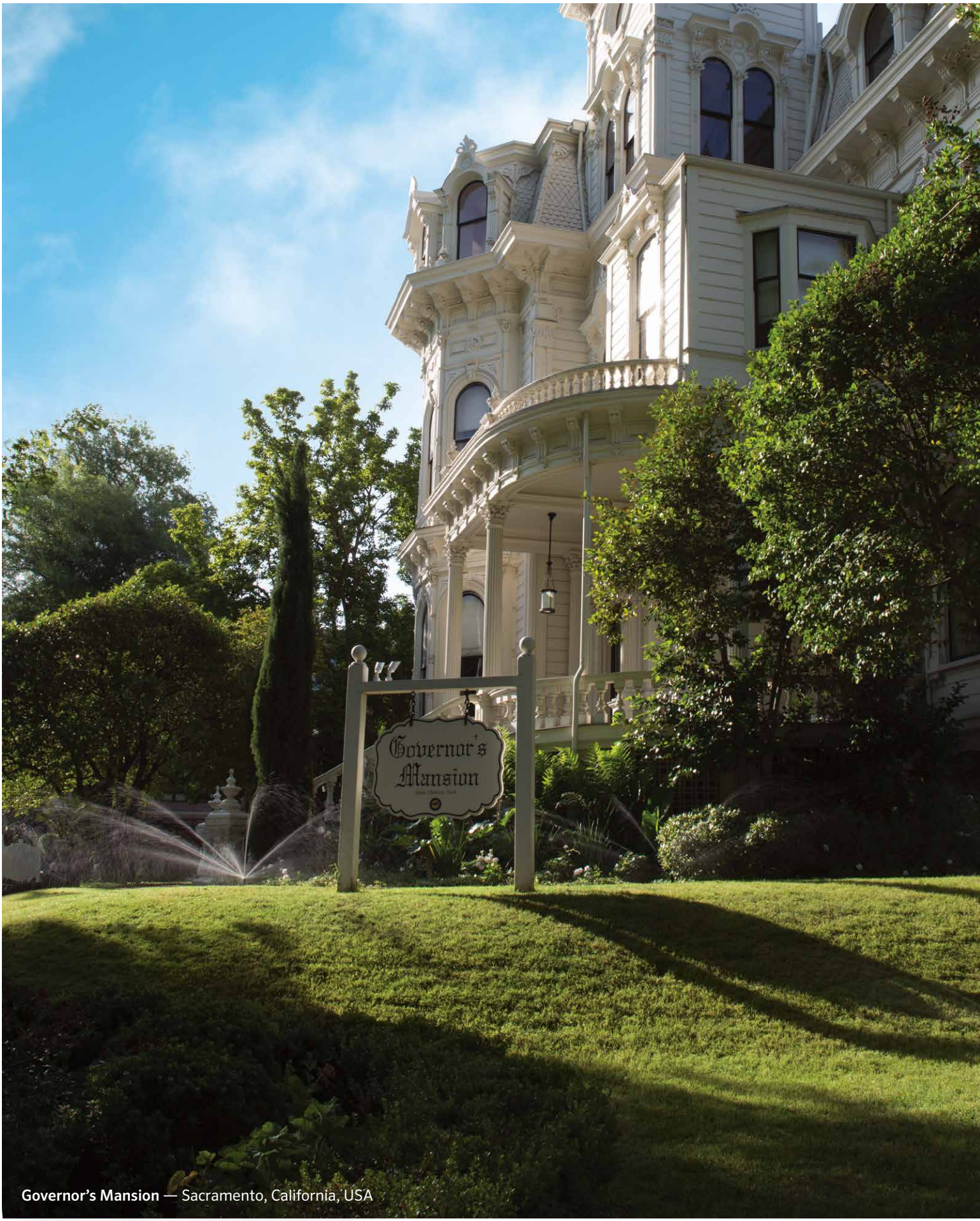
H

Solar Sync®

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




C
A
E
B
H
S
F
C
G
D
FS
SPRAY HEADS
ROTORS
MP ROTATORS
CONTROL VALVES
LANDSCAPE DRIPLINE
S
WEATHER SENSOR
FS
FLOW SENSOR
C
CONTROLLER



Governor's Mansion — Sacramento, California, USA

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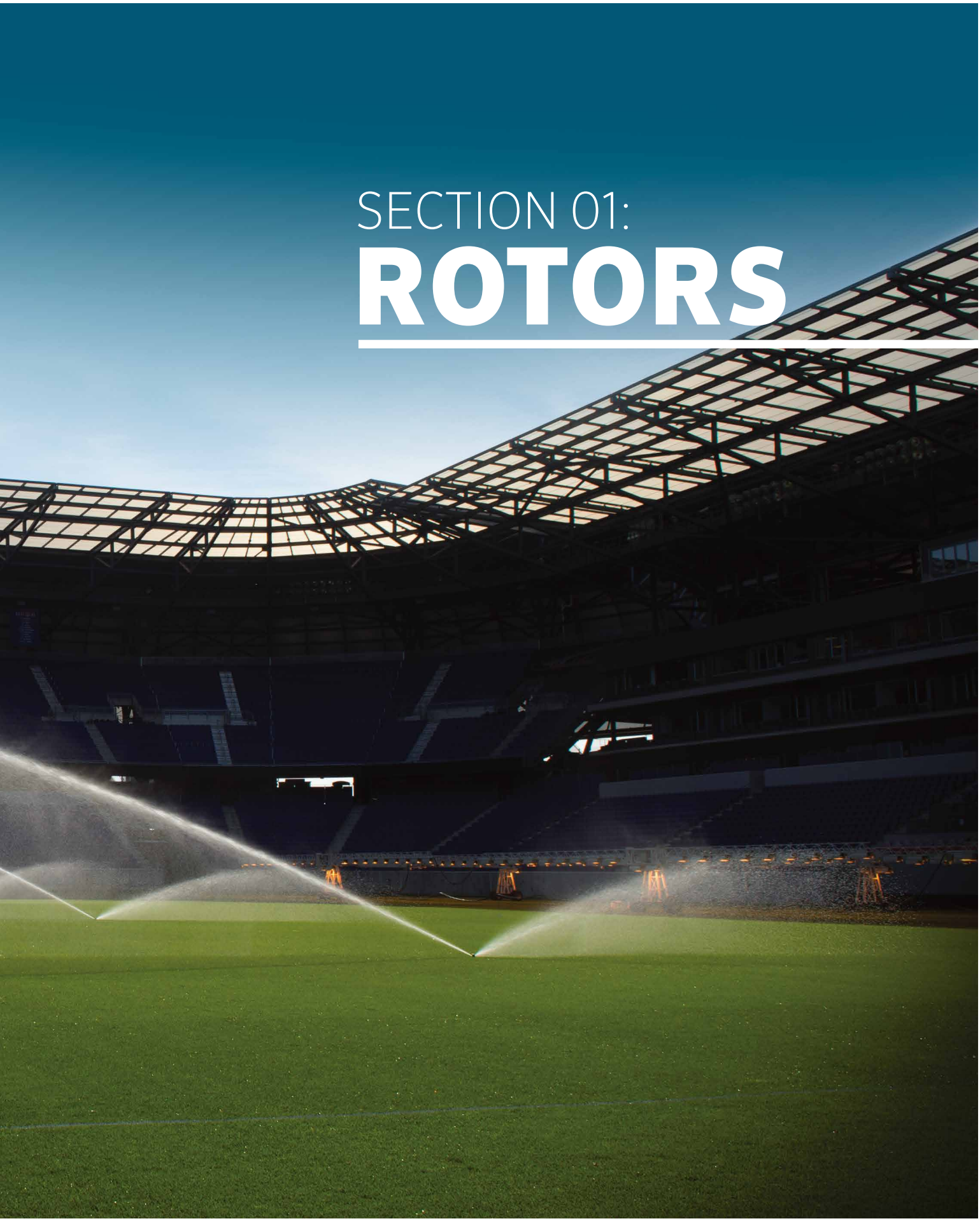
Hunter®

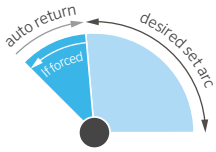


SECTION 01:
ROTORS

ROTORS
ADVANCED FEATURES

RELIABLE STRENGTH & DURABILITY

AUTOMATIC ARC RETURN



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

PGP® Ultra, I-20, I-25, I-40

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

NON-STRIPPABLE DRIVE

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

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

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

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

COLOUR-CODED NOZZLES

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

I-25, I-40, I-90

EASY AS-NEEDED ADJUSTMENTS

PART- AND FULL-CIRCLE IN ONE MODEL

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

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

FLOSTOP® CONTROL

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

I-20

HEADED AND SLOTTED SET SCREW

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

PGJ, PGP Ultra, I-20

ROTORS COMPARISON CHART

QUICK SPECS		PGJ	SRM	PGP®-ADJ	PGP ULTRA	I-20	I-25	I-40	I-40-ON	I-90
INLET SIZE		½"	½"	¾"	¾"	¾"	1"	1"	1"	1½"
RADIUS	m	4.3–11.6	4.0–9.4	6.4–15.8	4.9–14.0	4.9–14.0	14.0–21.6	13.1–23.3	15.2–23.2	22.3–31.7
FLOW	m^3/hr	0.13–1.23	0.08–0.82	0.10–3.22	0.07–3.23	0.07–3.23	0.82–7.24	1.63–6.84	2.75–7.76	6.7–19.04
	l/min	2.2–20.5	1.4–13.7	1.7–53.7	1.2–53.8	1.2–53.8	13.6–120.7	27.2–114.1	45.8–129.4	111.7–317.2
FEATURES										
RECOMMENDED PRESSURE RANGE	bar	1.7–3.8	1.7–3.8	1.7–4.5	1.7–4.5	1.7–4.5	2.5–7.0	2.8–7.0	2.8–7.0	5.5–8.0
	kPa	170–380	170–380	170–450	170–450	170–450	250–700	280–700	280–700	550–800
OPERATING PRESSURE RANGE	bar	1.4–7.0	1.4–7.0	1.4–7.0	1.4–7.0	1.4–7.0	2.8–6.9	2.5–7.0	2.5–7.0	5.0–8.0
	kPa	140–700	140–700	140–700	140–700	140–700	280–690	250–700	250–700	500–800
NOZZLE TRAJECTORY		15°	15°	25°	25°	25°	25°	25°	25°	22.5°
SPECIFIC NOZZLES		---	---	---	Optional	Optional	Pre-Installed	Pre-Installed	Pre-Installed	Pre-Installed
NOZZLE OPTIONS		8	6	27	34	34	12	6	6	16
WARRANTY		2 Years	1 Year	2 Years	5 Years	5 Years	5 Years	5 Years	5 Years	5 Years
ADVANCED FEATURES										
LOW ANGLE NOZZLE CHOICES				●	●	●				●
AUTOMATIC ARC RETURN					●	●	●	●		
NON-STRIPPABLE DRIVE					●	●	●	●		
PART- AND FULL-CIRCLE IN ONE MODEL					●	●	●	●		
HEADED AND SLOTTED SET SCREW		●			●	●				
RECLAIMED WATER ID		●			●	●	●	●	●	●
AVAILABLE SHORT RADIUS NOZZLES					●	●				
FLOSTOP® CONTROL						●				
OPPOSING NOZZLE									●	●
STAINLESS STEEL RISER OPTION						●	●	●	●	
OPTIONAL OR FACTORY INSTALLED DRAIN CHECK VALVE		● (2 m)			● (2 m)	● (3 m)	● (3 m)	● (4.5 m)	● (4.5 m)	● (2 m)

PGJ

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

FEATURES

- Models: Shrub, 10 cm, 15 cm, 30 cm
- 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
- ▸ Optional reclaimed water ID
- ▸ Drain check valve (up to 2 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.3 to 11.6 m
- Flow: 0.13 to 1.23 m³/hr; 2.2 to 20.5 l/min
- Recommended pressure range: 1.7 to 3.8 bar; 170 to 380 kPa
- Operating pressure range: 1.4 to 7.0 bar; 140 to 700 kPa
- Precipitation rates: 15 mm/hr approximately
- Nozzle trajectory: 14° approximately

▸ = *Advanced Feature descriptions on page 18*

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 = 10 cm Pop-up		**V** = Drain check valve
PGJ-06 = 15 cm Pop-up		**R** = Drain check valve and reclaimed water ID *(pop-up models only)*
PGJ-12 = 30 cm Pop-up		

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

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

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

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

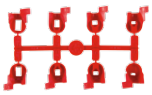
PGJ-12
Overall height: 41 cm
Pop-up height: 30 cm
Exposed diameter: 3 cm
Inlet size: ½"

PGJ RED NOZZLE PERFORMANCE DATA

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

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

PGJ NOZZLES



PGJ

SRM

Radius: **4.0 to 9.4 m**
Flow: **0.08 to 0.82 m³/hr; 1.4 to 13.7 l/min**
Inlet: **½"**

FEATURES

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

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

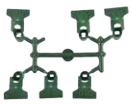
OPERATING SPECIFICATIONS

- Radius: 4.0 to 9.4 m
- Flow: 0.08 to 0.82 m³/hr; 1.4 to 13.7 l/min
- Recommended pressure range: 1.7 to 3.8 bar; 170 to 380 kPa
- Operating pressure range: 1.4 to 7.0 bar; 140 to 700 kPa
- Precipitation rates: 11 mm/hr approximately
- Nozzle trajectory: 18° approximately

SRM

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

SRM NOZZLES



SRM

SRM GREEN NOZZLE PERFORMANCE DATA

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

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

PGP®

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

FEATURES

- Model: 10 cm
- 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, Grey Low Angle
- Warranty period: 2 years

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

OPERATING SPECIFICATIONS

- Radius: 6.4 to 15.8 m
- Flow: 0.10 to 3.22 m³/hr; 1.7 to 53.7 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7.0 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approximately
- Nozzle trajectory: Standard = 25°, Low Angle = 13°

PGP-ADJ
Easy arc and radius adjustment

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

1 Model	2 Standard Features	3 Feature Options
PGP-ADJ-B = 10 cm Pop-up	Adjustable arc with Blue nozzle rack	**1.5 to 4.0** = Factory-installed Blue nozzle number
PGP-ADJ = 10 cm 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 = 10 cm Pop-up, adjustable arc
PGP-ADJ-B - 3.0 = 10 cm Pop-up, adjustable arc, and #3.0 Blue nozzle
PGP-ADJ - 07 = 10 cm Pop-up, adjustable arc, and #7 Red nozzle

PGP Red Nozzle

PGP® BLUE NOZZLE PERFORMANCE DATA

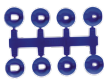
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
1.5 ● Blue	1.7	170	8.8	0.27	4.5	7	8
	2.0	200	9.1	0.29	4.8	7	8
	2.5	250	9.4	0.32	5.4	7	8
	3.0	300	9.8	0.35	5.9	7	9
	3.5	350	9.8	0.38	6.4	8	9
	4.0	400	9.8	0.41	6.8	9	10
	4.5	450	9.4	0.43	7.2	10	11
2.0 ● Blue	1.7	170	10.1	0.32	5.4	6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

PGP GREY LOW ANGLE NOZZLE PERFORMANCE DATA

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

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

PGP NOZZLES



Blue
(P/N 665300)

Grey
(P/N 233200)

PGP® RED NOZZLE PERFORMANCE DATA

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

PGP RED NOZZLE PERFORMANCE DATA

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

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

PGP NOZZLES

Red (P/N 130900)

ROTORS

PGP® ULTRA

Radius: **4.9 to 14.0 m**
Flow: **0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min**
Inlet: **¾"**

FEATURES

- Models: Shrub, 10 cm, 30 cm
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 22
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 Low Angle to 4.0 Low Angle Grey, 0.50 Short Radius to 3.0 Short Radius Black, 6.0 to 13.0 Green, MPR-20, 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
- ▸ Optional reclaimed water ID
- ▸ Drain check valve (up to 3 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.9 to 14.0 m
- Flow: 0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7.0 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approximately
- Nozzle trajectory: Standard = 25°, Low Angle = 13°

▸ = *Advanced Feature descriptions on page 18*

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

PGP Ultra
Easy arc and radius adjustment

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

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

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
PGP-00 = Shrub **PGP-04** = 10 cm Pop-up **PGP-12** = 30 cm Pop-up	Adjustable arc, plastic riser, 8 standard nozzles, and 4 low angle nozzles	**CV** = Drain check valve **CV-R** = Drain check valve and reclaimed water ID	**Blue 1.5 - 8.0** **Grey 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 = 10 cm Pop-up, adjustable arc
PGP-04 - 2.5 = 10 cm Pop-up, adjustable arc and 2.5 nozzle
PGP-12 - CV-R - 4.0 = 30 cm Pop-up, adjustable arc, with drain check valve and reclaimed water ID with 4.0 nozzle

I-20

Radius: **4.9 to 14.0 m**
Flow: **0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min**
Inlet: **¾"**

FEATURES

- Models plastic riser: Shrub, 10 cm, 15 cm, 30 cm
- Models stainless steel riser: 10 cm, 15 cm
- Arc setting: 50° to 360°
- Factory installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water lubricated gear-drive
- Nozzle choices: 22
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.0 Low Angle Grey, 0.50 to 3.0 Short Radius Black, 6.0 to 13.0 Green, MPR-20, 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
- ▸ Optional reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (up to 3 m of elevation)

OPERATING SPECIFICATIONS

- Radius: 4.9 to 14.0 m
- Flow: 0.07 to 3.23 m³/hr; 1.2 to 53.8 l/min
- Recommended pressure range: 1.7 to 4.5 bar; 170 to 450 kPa
- Operating pressure range: 1.4 to 7.0 bar; 140 to 700 kPa
- Precipitation rates: 10 mm/hr approximately
- Nozzle trajectory: Standard = 25°, Low angle = 13°

▸ = *Advanced Feature descriptions on page 18*

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-00 = Shrub **I-20-04** = 10 cm Pop-up **I-20-06** = 15 cm Pop-up **I-20-12** = 30 cm Pop-up	Adjustable arc, plastic, check valve, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = no option **NCV** = Without check valve *(only available on 10 cm model)* **R** = Reclaimed water ID	**Blue 1.5 - 8.0** **Grey 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 = 10 cm Pop-up **I-20-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel, check valve, 8 standard nozzles, and 4 low-angle nozzles	**(blank)** = no option **NCV** = Without check valve *(only available on 10 cm model)* **R** = Reclaimed water ID	**Blue 1.5 - 8.0** **Grey 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-20-04 = 10 cm Pop-up, adjustable arc
I-20-12 - R - 4.0 = 30 cm Pop-up, adjustable arc, check valve, with reclaimed water ID, and 4.0 nozzle
I-20-06-SS - R - 3.0 = 15 cm Pop-up, adjustable arc, stainless steel riser, with reclaimed water ID, and 3.0 nozzle

I-20-00
Overall height: 12 cm
Exposed diameter: 4.5 cm
Inlet size: ¾"

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

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

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

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

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
1.5 ● Blue	1.7	170	8.8	0.27	4.5	7	8
	2.0	200	9.1	0.29	4.8	7	8
	2.5	250	9.4	0.32	5.4	7	8
	3.0	300	9.8	0.35	5.9	7	9
	3.5	350	9.8	0.38	6.4	8	9
	4.0	400	9.8	0.41	6.8	9	10
	4.5	450	9.4	0.43	7.2	10	11
2.0 ● Blue	1.7	170	10.1	0.32	5.4	6	7
	2.0	200	10.1	0.35	5.8	7	8
	2.5	250	10.1	0.39	6.5	8	9
	3.0	300	10.4	0.43	7.2	8	9
	3.5	350	10.4	0.47	7.8	9	10
	4.0	400	10.4	0.50	8.3	9	11
	4.5	450	10.4	0.53	8.8	10	11
2.5 ● Blue	1.7	170	10.1	0.39	6.6	8	9
	2.0	200	10.4	0.43	7.1	8	9
	2.5	250	10.7	0.48	8.0	8	10
	3.0	300	10.7	0.54	8.9	9	11
	3.5	350	10.7	0.58	9.7	10	12
	4.0	400	10.7	0.62	10.4	11	13
	4.5	450	10.7	0.66	11.1	12	13
3.0 ● Blue	1.7	170	10.7	0.50	8.4	9	10
	2.0	200	10.7	0.54	9.1	10	11
	2.5	250	11.0	0.61	10.2	10	12
	3.0	300	11.6	0.68	11.4	10	12
	3.5	350	11.9	0.74	12.3	10	12
	4.0	400	11.9	0.79	13.2	11	13
	4.5	450	11.9	0.84	14.0	12	14
4.0 ● Blue	1.7	170	11.3	0.68	11.3	11	12
	2.0	200	11.6	0.73	12.2	11	13
	2.5	250	11.9	0.81	13.6	12	13
	3.0	300	12.2	0.90	15.0	12	14
	3.5	350	12.2	0.97	16.2	13	15
	4.0	400	12.5	1.04	17.3	13	15
	4.5	450	12.5	1.10	18.3	14	16
5.0 ● Blue	1.7	170	11.3	0.84	14.0	13	15
	2.0	200	11.6	0.91	15.2	14	16
	2.5	250	11.9	1.02	17.1	15	17
	3.0	300	12.8	1.14	19.0	14	16
	3.5	350	12.8	1.24	20.6	15	17
	4.0	400	12.8	1.32	22.1	16	19
	4.5	450	12.8	1.41	23.4	17	20
6.0 ● Blue	1.7	170	11.6	1.01	16.8	15	17
	2.0	200	11.9	1.09	18.2	15	18
	2.5	250	12.2	1.22	20.4	16	19
	3.0	300	13.1	1.36	22.7	16	18
	3.5	350	13.1	1.47	24.5	17	20
	4.0	400	13.4	1.57	26.2	18	20
	4.5	450	13.4	1.67	27.9	19	21
8.0 ● Blue	1.7	170	11.3	1.35	22.5	21	25
	2.0	200	11.9	1.46	24.3	21	24
	2.5	250	12.5	1.63	27.2	21	24
	3.0	300	13.4	1.81	30.2	20	23
	3.5	350	13.7	1.95	32.6	21	24
	4.0	400	14.0	2.09	34.8	21	25
	4.5	450	14.0	2.22	36.9	23	26

PGP ULTRA / I-20 GREY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
2.0 LA ● Grey	1.7	170	7.3	0.33	5.6	12	14
	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	350	8.5	0.48	8.0	13	15
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
2.5 LA ● Grey	1.7	170	7.9	0.44	7.3	14	16
	2.0	200	8.2	0.47	7.9	14	16
	2.5	250	8.8	0.53	8.8	14	16
	3.0	300	9.4	0.59	9.8	13	15
	3.5	350	10.1	0.64	10.6	13	15
	4.0	400	10.4	0.68	11.3	13	15
	4.5	450	10.7	0.72	12.0	13	15
3.5 LA ● Grey	1.7	170	8.5	0.58	9.7	16	18
	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.1	0.68	11.4	16	19
	3.0	300	10.1	0.75	12.5	15	17
	3.5	350	10.7	0.80	13.3	14	16
	4.0	400	11.0	0.85	14.1	14	16
	4.5	450	11.3	0.89	14.8	14	16
4.0 LA ● Grey	1.7	170	8.2	0.71	11.8	21	24
	2.0	200	8.8	0.76	12.7	19	23
	2.5	250	9.1	0.84	14.1	20	23
	3.0	300	10.1	0.93	15.5	18	21
	3.5	350	10.7	1.00	16.6	18	20
	4.0	400	11.0	1.06	17.6	18	20
	4.5	450	11.3	1.12	18.6	18	20

PGP ULTRA / I-20 NOZZLES

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

Nozzle screw allows you to adjust the way you want to. Square top nozzle makes installation easy.

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

PGP Ultra

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

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
10 ● Dk. Green	1.7	170	10.7	1.48	24.6	26	30
	2.0	200	11.9	1.60	26.7	23	26
	2.5	250	12.5	1.80	30.0	23	27
	3.0	300	12.8	2.01	33.5	25	28
	3.5	350	13.1	2.18	36.3	25	29
	4.0	400	13.7	2.34	39.0	25	29
	4.5	450	14.0	2.49	41.5	25	29
13 ● Dk. Green	1.7	170	11.0	1.91	31.9	32	37
	2.0	200	12.2	2.08	34.6	28	32
	2.5	250	12.8	2.34	38.9	29	33
	3.0	300	13.1	2.61	43.4	30	35
	3.5	350	13.4	2.83	47.1	31	36
	4.0	400	13.7	3.03	50.5	32	37
	4.5	450	14.0	3.23	53.8	33	38
6.0 LA ● Dk. Green	1.7	170	9.1	0.86	14.3	21	24
	2.0	200	9.4	0.94	15.6	21	24
	2.5	250	10.1	1.07	17.8	21	24
	3.0	300	10.7	1.20	20.0	21	24
	3.5	350	11.3	1.31	21.9	21	24
	4.0	400	11.6	1.42	23.6	21	24
	4.5	450	11.9	1.52	25.3	21	25
8.0 LA ● Dk. Green	1.7	170	10.1	1.17	19.5	23	27
	2.0	200	10.7	1.28	21.3	22	26
	2.5	250	11.3	1.44	24.0	23	26
	3.0	300	11.6	1.61	26.9	24	28
	3.5	350	11.9	1.76	29.3	25	29
	4.0	400	12.5	1.89	31.5	24	28
	4.5	450	12.5	2.01	33.6	26	30

I-20 with Blue Standard Nozzle

PGP ULTRA / I-20 BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
.50 SR ● Black	1.7	170	4.9	0.07	1.2	6	7
	2.0	200	5.2	0.08	1.3	6	7
	2.5	250	5.2	0.09	1.5	7	8
	3.0	300	5.2	0.10	1.7	8	9
	3.5	350	5.5	0.12	1.9	8	9
	4.0	400	5.5	0.13	2.1	8	10
	4.5	450	5.5	0.14	2.3	9	10
1.0 SR ● Black	1.7	170	4.9	0.16	2.7	14	16
	2.0	200	5.2	0.17	2.9	13	15
	2.5	250	5.2	0.19	3.2	14	17
	3.0	300	5.2	0.21	3.6	16	18
	3.5	350	5.5	0.23	3.8	15	18
	4.0	400	5.5	0.25	4.1	16	19
	4.5	450	5.5	0.26	4.3	17	20
2.0 SR ● Black	1.7	170	4.9	0.28	4.7	24	27
	2.0	200	5.2	0.31	5.2	23	27
	2.5	250	5.2	0.36	6.0	27	31
	3.0	300	5.2	0.41	6.9	31	35
	3.5	350	5.5	0.45	7.6	30	35
	4.0	400	5.5	0.49	8.2	33	38
	4.5	450	5.5	0.53	8.9	35	41
.75 SR ● Black	1.7	170	6.7	0.12	2.0	5	6
	2.0	200	7.0	0.13	2.2	5	6
	2.5	250	7.0	0.15	2.4	6	7
	3.0	300	7.3	0.16	2.7	6	7
	3.5	350	7.6	0.17	2.9	6	7
	4.0	400	7.6	0.19	3.1	6	7
	4.5	450	7.6	0.20	3.3	7	8
1.5 SR ● Black	1.7	170	6.7	0.23	3.8	10	12
	2.0	200	7.0	0.25	4.1	10	12
	2.5	250	7.0	0.28	4.6	11	13
	3.0	300	7.3	0.31	5.2	12	13
	3.5	350	7.6	0.34	5.6	12	13
	4.0	400	7.6	0.36	6.0	12	14
	4.5	450	7.6	0.39	6.4	13	15
3.0 SR ● Black	1.7	170	6.7	0.53	8.9	24	27
	2.0	200	7.0	0.56	9.3	23	26
	2.5	250	7.0	0.60	10.0	24	28
	3.0	300	7.3	0.64	10.7	24	28
	3.5	350	7.6	0.67	11.2	23	27
	4.0	400	7.6	0.70	11.7	24	28
	4.5	450	7.6	0.73	12.1	25	29

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

PGP ULTRA / I-20 NOZZLES

Dk. Green
High Flow
(P/N 444800)

Black Short Radius
(P/N 466100)

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

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.7	170	7.0	0.17	3.0	13.7	15.8
	2.4	240	7.3	0.20	3.6	14.9	17.3
	3.1	310	7.6	0.23	3.6	15.6	18.1
	3.8	380	7.6	0.25	4.2	17.4	20.1
	4.5	450	7.6	0.27	4.8	18.9	21.9
120°	1.7	170	7.0	0.23	3.6	13.9	16.0
	2.4	240	7.3	0.27	4.8	15.4	17.8
	3.1	310	7.6	0.31	5.4	16.2	18.7
	3.8	380	7.6	0.35	6.0	18.0	20.7
	4.5	450	7.6	0.38	6.6	19.6	22.6
180°	1.7	170	7.0	0.33	5.4	13.3	15.4
	2.4	240	7.3	0.39	6.6	14.7	17.0
	3.1	310	7.6	0.45	7.2	15.5	17.9
	3.8	380	7.6	0.50	8.4	17.3	20.0
	4.5	450	7.6	0.55	9.0	18.9	21.8
360°	1.7	170	7.0	0.63	10.8	12.8	14.8
	2.4	240	7.3	0.76	12.6	14.2	16.4
	3.1	310	7.6	0.87	14.4	14.9	17.3
	3.8	380	7.6	0.97	16.2	16.6	19.2
	4.5	450	7.6	1.05	17.4	18.1	20.9

MPR-25 NOZZLE

NEW

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

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.7	170	9.8	0.32	5.4	13.4	15.4
	2.4	240	10.4	0.38	6.6	14.1	16.3
	3.1	310	10.7	0.44	7.2	15.3	17.7
	3.8	380	10.7	0.48	7.8	17.0	19.6
	4.5	450	10.7	0.52	9.0	18.4	21.3
120°	1.7	170	9.8	0.40	6.6	12.7	14.6
	2.4	240	10.4	0.49	8.4	13.6	15.8
	3.1	310	10.7	0.56	9.6	14.7	17.0
	3.8	380	10.7	0.62	10.2	16.4	18.9
	4.5	450	10.7	0.68	11.4	17.9	20.7
180°	1.7	170	9.8	0.62	10.2	13.1	15.2
	2.4	240	10.4	0.76	12.6	14.1	16.3
	3.1	310	10.7	0.87	14.4	15.2	17.6
	3.8	380	10.7	0.96	16.2	16.9	19.5
	4.5	450	10.7	1.05	17.4	18.4	21.3
360°	1.7	170	9.8	1.22	20.4	12.8	14.8
	2.4	240	10.4	1.50	25.2	14.0	16.2
	3.1	310	10.7	1.72	28.8	15.1	17.5
	3.8	380	10.7	1.91	31.8	16.8	19.4
	4.5	450	10.7	2.09	34.8	18.3	21.2

MPR-35 NOZZLE

NEW

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

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.7	170	8.8	0.23	3.6	12.0	13.8
	2.4	240	9.1	0.28	4.8	13.4	15.4
	3.1	310	9.1	0.32	5.4	15.2	17.6
	3.8	380	9.1	0.35	6.0	17.0	19.6
	4.5	450	9.1	0.38	6.6	18.4	21.2
120°	1.7	170	8.8	0.30	4.8	11.7	13.5
	2.4	240	9.1	0.37	6.0	13.2	15.2
	3.1	310	9.1	0.42	7.2	15.1	17.4
	3.8	380	9.1	0.47	7.8	16.8	19.4
	4.5	450	9.1	0.51	8.4	18.3	21.1
180°	1.7	170	8.8	0.49	8.4	12.5	14.4
	2.4	240	9.1	0.59	9.6	14.1	16.2
	3.1	310	9.1	0.67	11.4	16.1	18.6
	3.8	380	9.1	0.75	12.6	17.9	20.7
	4.5	450	9.1	0.82	13.8	19.6	22.6
360°	1.7	170	8.8	0.96	16.2	12.3	14.2
	2.4	240	9.1	1.15	19.2	13.8	15.9
	3.1	310	9.1	1.31	21.6	15.7	18.1
	3.8	380	9.1	1.45	24.0	17.4	20.0
	4.5	450	9.1	1.57	26.4	18.8	21.7

MPR-30 NOZZLE

NEW

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

I-25

Radius: **11.9 to 21.6 m**
Flow: **0.82 to 7.24 m³/hr; 13.6 to 120.7 l/min**
Inlet: **1" BSP**

FEATURES

- Models plastic riser: 10 cm, 15 cm
- Models stainless steel riser: 10 cm, 15 cm
- 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
- ▸ Colour-coded nozzles
- ▸ Stainless steel riser
- ▸ Drain check valve (up to 3 m of elevation)

OPERATING SPECIFICATIONS

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

▸ = *Advanced Feature descriptions on page 18*

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

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

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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04 = 10 cm Pop-up **I-25-06** = 15 cm Pop-up	Adjustable arc, plastic riser, check valve, and 5 nozzles	**B** = BSP inlet threads **R** = Reclaimed water ID	**#4 - #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 = 10 cm Pop-up **I-25-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel riser, check valve, and 5 nozzles	**B** = BSP inlet threads **R** = Reclaimed water ID **HS** = High-Speed **HS-R** = High-speed and reclaimed water ID	**#4 - #28** = Factory installed nozzle number

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

I-25 STANDARD NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4 Yellow	2.5	250	11.9	0.82	13.6	12	13
	3.0	300	12.2	0.91	15.2	12	14
	3.5	350	12.5	0.98	16.4	13	15
	4.0	400	12.5	1.05	17.5	13	16
	4.5	450	12.8	1.11	18.6	14	16
	5.0	500	13.1	1.18	19.6	14	16
	5.5	550	13.4	1.24	20.7	14	16
5 White	2.5	250	12.8	0.95	15.9	12	13
	3.0	300	13.1	1.04	17.3	12	14
	3.5	350	13.4	1.11	18.5	12	14
	4.0	400	13.4	1.17	19.6	13	15
	4.5	450	13.7	1.24	20.6	13	15
	5.0	500	14.0	1.29	21.5	13	15
	5.5	550	14.3	1.35	22.6	13	15
7 Orange*	2.5	250	13.4	1.44	24.0	16	19
	3.0	300	14.0	1.54	25.6	16	18
	3.5	350	14.3	1.61	26.9	16	18
	4.0	400	14.3	1.68	28.0	16	19
	4.5	450	14.6	1.75	29.1	16	19
	5.0	500	14.9	1.81	30.1	16	19
	5.5	550	15.2	1.87	31.1	16	19
8 Lt. Brown	2.5	250	14.0	1.65	27.5	17	19
	3.0	300	14.3	1.81	30.1	18	20
	3.5	350	14.9	1.94	32.3	17	20
	4.0	400	15.2	2.05	34.2	18	20
	4.5	450	15.2	2.16	36.0	19	22
	5.0	500	15.5	2.27	37.8	19	22
	5.5	550	15.8	2.38	39.6	19	22
10 Lt. Green*	3.0	300	15.2	2.15	35.8	18	21
	3.5	350	15.5	2.32	38.6	19	22
	4.0	400	15.8	2.48	41.3	20	23
	4.5	450	16.2	2.63	43.9	20	23
	5.0	500	16.2	2.78	46.3	21	25
	5.5	550	16.5	2.94	48.9	22	25
	6.0	600	16.8	3.07	51.1	22	25
13 Lt. Blue	3.0	300	15.8	2.38	39.6	19	22
	3.5	350	16.2	2.57	42.8	20	23
	4.0	400	16.5	2.75	45.7	20	23
	4.5	450	16.5	2.91	48.5	21	25
	5.0	500	16.8	3.04	51.2	22	25
	5.5	550	16.8	3.24	54.0	23	27
	6.0	600	17.1	3.39	56.4	23	27
15 Grey*	3.0	300	16.8	2.86	47.7	20	24
	3.5	350	17.1	3.05	50.8	21	24
	4.0	400	17.4	3.22	53.7	21	25
	4.5	450	17.4	3.38	56.3	22	26
	5.0	500	17.4	3.53	58.8	23	27
	5.5	550	17.7	3.69	61.5	24	27
	6.0	600	18.0	3.82	63.7	24	27
	6.2	620	18.3	3.88	64.6	23	27
18 Red	3.0	300	17.4	30.8	51.4	20	24
	3.5	350	17.7	3.31	55.2	21	24
	4.0	400	18.0	3.52	58.7	22	25
	4.5	450	18.3	3.72	62.0	22	26
	5.0	500	18.9	3.91	65.2	22	25
	5.5	550	19.2	4.11	68.5	22	26
	6.0	600	19.5	4.28	71.4	23	26
	6.2	620	19.5	4.35	72.5	23	26
20 Dk. Brown*	3.5	350	18.0	3.72	62.1	23	27
	4.0	400	18.6	3.97	66.2	23	27
	4.5	450	18.9	4.20	70.1	24	27
	5.0	500	19.2	4.42	73.7	24	28
	5.5	550	19.5	4.66	77.7	25	28
	6.0	600	19.8	4.86	81.0	25	29
	6.5	650	20.1	5.05	84.2	25	29
	6.9	690	20.4	5.21	86.8	25	29
23 Dk. Green	3.5	350	18.6	4.56	76.0	26	30
	4.0	400	19.2	4.88	81.3	26	31
	4.5	450	19.5	5.18	86.3	27	31
	5.0	500	19.8	5.47	91.1	28	32
	5.5	550	20.1	5.78	96.3	29	33
	6.0	600	20.1	6.04	100.6	30	34
	6.5	650	20.4	6.29	104.8	30	35
	6.9	690	20.7	6.50	108.3	30	35
25 Dk. Blue*	3.5	350	19.2	4.86	80.9	26	30
	4.0	400	19.8	5.23	87.1	27	31
	4.5	450	20.1	5.58	93.1	28	32
	5.0	500	20.4	5.92	98.7	28	33
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.60	110.0	30	34
	6.5	650	21.3	6.90	115.1	30	35
	6.9	690	21.6	7.15	119.2	31	35
28 Black	3.5	350	18.3	5.31	88.5	32	37
	4.0	400	19.2	5.63	93.8	31	35
	4.5	450	20.1	5.93	98.8	29	34
	5.0	500	20.7	6.21	103.5	29	33
	5.5	550	21.3	6.52	108.6	29	33
	6.0	600	21.3	6.77	112.8	30	34
	6.5	650	21.6	7.01	116.9	30	35
	6.9	690	21.6	7.21	120.2	31	36

* 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-25 NOZZLE

Standard

I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4 Yellow	2.5	250	11.0	0.81	13.6	14	16
	3.0	300	11.3	0.91	15.1	14	16
	3.5	350	11.6	0.99	16.4	15	17
	4.0	400	11.6	1.06	17.6	16	18
	4.5	450	11.6	1.13	18.8	17	19
	5.0	500	11.9	1.19	19.9	17	19
	5.5	550	11.9	1.26	21.1	18	21
5 White	2.5	250	11.3	0.93	15.5	15	17
	3.0	300	11.6	1.04	17.3	16	18
	3.5	350	11.9	1.13	18.9	16	18
	4.0	400	12.2	1.22	20.3	16	19
	4.5	450	12.2	1.30	21.6	17	20
	5.0	500	12.5	1.38	22.9	18	20
	5.5	550	12.5	1.46	24.4	19	22
7 Orange*	2.5	250	11.9	1.32	22.0	19	22
	3.0	300	12.2	1.46	24.3	20	23
	3.5	350	12.5	1.57	26.2	20	23
	4.0	400	12.8	1.68	27.9	20	24
	4.5	450	13.1	1.78	29.6	21	24
	5.0	500	13.4	1.87	31.1	21	24
	5.5	550	13.4	1.97	32.8	22	25
8 Lt. Brown	2.5	250	12.5	1.54	25.7	20	23
	3.0	300	12.8	1.72	28.6	21	24
	3.5	350	13.1	1.86	31.0	22	25
	4.0	400	13.4	2.00	33.3	22	26
	4.5	450	13.4	2.13	35.4	24	27
	5.0	500	13.7	2.25	37.5	24	28
	5.5	550	13.7	2.38	39.7	25	29
10 Lt. Green*	3.0	300	13.7	2.15	35.8	23	26
	3.5	350	14.0	2.32	38.6	24	27
	4.0	400	14.3	2.48	41.3	24	28
	4.5	450	14.6	2.63	43.9	25	28
	5.0	500	14.9	2.78	46.3	25	29
	5.5	550	15.2	2.94	48.9	25	29
	6.0	600	15.2	3.07	51.1	26	31
13 Lt. Blue	3.0	300	14.3	2.38	39.6	23	27
	3.5	350	14.6	2.57	42.8	24	28
	4.0	400	14.9	2.75	45.7	25	28
	4.5	450	15.2	2.91	48.5	25	29
	5.0	500	15.5	3.07	51.2	25	29
	5.5	550	15.5	3.24	54.0	27	31
	6.0	600	15.5	3.39	56.4	28	32

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
15 Grey*	3.0	300	14.6	2.86	47.7	27	31
	3.5	350	14.9	3.05	50.8	27	32
	4.0	400	15.2	3.22	53.7	28	32
	4.5	450	15.5	3.38	56.3	28	32
	5.0	500	16.2	3.53	58.8	27	31
	5.5	550	16.5	3.69	61.5	27	31
	6.0	600	16.5	3.82	63.7	28	33
	6.2	620	16.5	3.88	64.6	29	33
18 Red	3.0	300	14.9	3.08	51.4	28	32
	3.5	350	15.2	3.31	55.2	29	33
	4.0	400	15.5	3.52	58.7	29	34
	4.5	450	16.2	3.72	62.0	29	33
	5.0	500	16.8	3.91	65.2	28	32
	5.5	550	17.4	4.11	68.5	27	31
	6.0	600	17.4	4.28	71.4	28	33
	6.2	620	17.4	4.35	72.5	29	33
20 Dk. Brown*	3.5	350	15.5	3.72	62.1	31	36
	4.0	400	16.2	3.97	66.2	30	35
	4.5	450	16.5	4.20	70.1	31	36
	5.0	500	17.1	4.42	73.7	30	35
	5.5	550	17.7	4.66	77.7	30	34
	6.0	600	17.7	4.86	81.0	31	36
	6.5	650	18.0	5.05	84.2	31	36
	6.9	690	18.0	5.21	86.8	32	37
23 Dk. Green	3.5	350	16.5	4.56	76.0	34	39
	4.0	400	17.1	4.88	81.3	33	39
	4.5	450	17.4	5.18	86.3	34	40
	5.0	500	17.7	5.47	91.1	35	40
	5.5	550	18.3	5.78	96.3	35	40
	6.0	600	18.3	6.04	100.6	36	42
	6.5	650	18.6	6.29	104.8	36	42
	6.9	690	18.6	6.50	108.3	38	43
25 Dk. Blue*	3.5	350	17.1	4.86	80.9	33	38
	4.0	400	17.7	5.23	87.1	33	39
	4.5	450	18.3	5.58	93.1	33	39
	5.0	500	18.9	5.92	98.7	33	38
	5.5	550	19.5	6.29	104.9	33	38
	6.0	600	19.8	6.60	110.0	34	39
	6.5	650	20.1	6.90	115.1	34	39
	6.9	690	20.1	7.15	119.2	35	41
28 Black	3.5	350	17.4	5.31	88.5	35	41
	4.0	400	17.7	5.63	93.8	36	42
	4.5	450	18.0	5.93	98.8	37	42
	5.0	500	18.3	6.21	103.5	37	43
	5.5	550	18.9	6.52	108.6	36	42
	6.0	600	19.5	6.77	112.8	36	41
	6.5	650	19.8	7.01	116.9	36	41
	6.9	690	20.4	7.21	120.2	35	40

* 5 standard nozzles included with each sprinkler.

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

I-25 NOZZLE

High-Speed

ROTORS

I-40

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

FEATURES

- Models stainless steel riser: 10 cm to 15 cm
- 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° model
- ▸ Automatic arc return
- ▸ Non-strippable drive
- ▸ Part- and full-circle in one model
- ▸ Colour-coded nozzles
- ▸ Optional reclaimed water ID
- ▸ Stainless steel riser
- ▸ Drain check valve (up to 3 m of elevation)

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

OPERATING SPECIFICATIONS

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

▸ = *Advanced Feature descriptions on page 18*

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

I-40 Reclaimed
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 = 10 cm Pop-up **I-40-06-SS** = 15 cm Pop-up	Adjustable arc, stainless steel riser, check valve and 6 nozzles	**B** = BSP inlet threads **R** = Reclaimed water ID **HS** = High speed **HS-R** = High speed and reclaimed water ID	**#8 to #25** = Factory installed nozzle number

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS-ON = 10 cm Pop-up **I-40-06-SS-ON** = 15 cm Pop-up	Full-circle, opposing nozzle, stainless steel riser, check valve and 6 nozzles	**B** = BSP inlet threads **R** = Reclaimed water ID **ON** = Full circle opposing nozzle **ON-R** = Full circle opposing nozzles, reclaimed water ID	**#15 to #28** = Factory installed nozzle number

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

I-40 STANDARD NOZZLE PERFORMANCE DATA

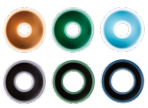
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
8 (40) Lt. Brown	2.5	250	13.1	1.63	27.2	19	22
	3.0	300	13.4	1.80	30.0	20	23
	3.5	350	13.7	1.94	32.3	21	24
	4.0	400	14.0	2.06	34.4	21	24
	4.5	450	14.0	2.18	36.3	22	26
	5.0	500	14.3	2.29	38.2	22	26
	5.5	550	14.6	2.41	40.2	23	26
10 (41) Lt. Green	3.0	300	14.6	2.20	36.6	21	24
	3.5	350	14.9	2.37	39.4	21	24
	4.0	400	15.2	2.52	42.0	22	25
	4.5	450	15.5	2.67	44.5	22	25
	5.0	500	15.5	2.81	46.8	23	27
	5.5	550	15.8	2.96	49.3	24	27
	6.0	600	16.2	3.08	51.4	24	27
13 (42) Lt. Blue	3.0	300	14.9	2.36	39.4	21	24
	3.5	350	15.2	2.55	42.6	22	25
	4.0	400	15.5	2.73	45.5	23	26
	4.5	450	15.5	2.90	48.3	24	28
	5.0	500	15.8	3.06	51.0	24	28
	5.5	550	16.2	3.23	53.9	25	29
	6.0	600	16.5	3.38	56.3	25	29
15 (43) Grey	3.0	300	16.2	2.93	48.8	22	26
	3.5	350	16.5	3.19	53.2	24	27
	4.0	400	16.8	3.44	57.3	24	28
	4.5	450	17.1	3.67	61.2	25	29
	5.0	500	17.4	3.89	64.9	26	30
	5.5	550	18.0	4.14	68.9	26	30
	6.0	600	18.3	4.34	72.4	26	30
	6.2	620	18.3	4.43	73.8	26	31
23 (44) Dk. Green	3.5	350	18.6	4.48	74.6	26	30
	4.0	400	18.9	4.76	79.4	27	31
	4.5	450	19.2	5.03	83.9	27	32
	5.0	500	19.5	5.29	88.1	28	32
	5.5	550	19.8	5.56	92.7	28	33
	6.0	600	20.1	5.79	96.5	29	33
	6.2	620	20.1	5.89	98.1	29	34
	6.5	650	20.1	6.01	100.2	30	34
	6.9	690	20.4	6.19	103.2	30	34
25 (45) Dk. Blue	3.5	350	19.8	4.98	83.0	25	29
	4.0	400	20.1	5.33	88.7	26	30
	4.5	450	20.4	5.65	94.2	27	31
	5.0	500	20.7	5.96	99.3	28	32
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.57	109.6	30	34
	6.2	620	21.0	6.69	111.5	30	35
	6.5	650	21.3	6.84	114.1	30	35
	6.9	690	21.3	7.07	117.8	31	36

I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
8 (40) Lt. Brown	2.5	250	12.2	1.63	27.2	22	25
	3.0	300	12.5	1.80	30.0	23	27
	3.5	350	12.8	1.94	32.3	24	27
	4.0	400	12.8	2.06	34.4	25	29
	4.5	450	13.1	2.18	36.3	25	29
	5.0	500	13.4	2.29	38.2	25	29
	5.5	550	13.4	2.41	40.2	27	31
10 (41) Lt. Green	3.0	300	13.4	2.20	36.6	34	28
	3.5	350	13.7	2.37	39.4	25	29
	4.0	400	14.0	2.52	42.0	26	30
	4.5	450	14.0	2.67	44.5	27	31
	5.0	500	14.3	2.81	46.8	27	32
	5.5	550	14.6	2.96	49.3	28	32
	6.0	600	14.6	3.08	51.4	29	33
13 (42) Lt. Blue	3.0	300	13.7	2.36	39.4	25	29
	3.5	350	14.0	2.55	42.6	26	30
	4.0	400	14.3	2.73	45.5	27	31
	4.5	450	14.3	2.90	48.3	28	33
	5.0	500	14.6	3.06	51.0	29	33
	5.5	550	14.9	3.23	53.9	29	33
	6.0	600	14.9	3.38	56.3	30	35
15 (43) Grey	3.0	300	15.2	2.93	48.8	25	29
	3.5	350	15.5	3.19	53.2	26	30
	4.0	400	15.8	3.44	57.3	27	32
	4.5	450	15.8	3.67	61.2	29	34
	5.0	500	16.2	3.89	64.9	30	34
	5.5	550	16.5	4.14	68.9	31	35
	6.0	600	16.5	4.34	72.4	32	39
	6.2	620	16.5	4.43	73.8	33	38
23 (44) Dk. Green	3.5	350	16.8	4.48	74.6	32	37
	4.0	400	17.4	4.76	79.4	32	36
	4.5	450	17.7	5.03	83.9	32	37
	5.0	500	17.7	5.29	88.1	34	39
	5.5	550	18.0	5.56	92.7	34	40
	6.0	600	18.3	5.79	96.5	35	40
	6.2	620	18.6	5.89	98.1	34	39
	6.5	650	18.6	6.01	100.2	35	40
	6.9	690	18.6	6.19	103.2	36	41
25 (45) Dk. Blue	3.5	350	17.4	4.98	83.0	33	38
	4.0	400	18.0	5.33	88.7	33	38
	4.5	450	18.3	5.65	94.2	34	39
	5.0	500	18.6	5.96	99.3	34	40
	5.5	550	18.9	6.29	104.9	35	41
	6.0	600	19.2	6.57	109.6	36	41
	6.2	620	19.5	6.69	111.5	35	41
	6.5	650	19.5	6.84	114.1	36	42
	6.9	690	19.5	7.07	117.8	37	43

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

I-40 NOZZLES



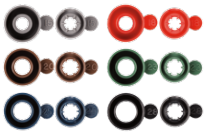
Standard/
High-Speed

I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m^3/hr	l/min	■	▲
15 ● Grey	3.0	300	15.2	2.75	45.8	12	14
	3.5	350	15.8	2.91	48.5	12	13
	4.0	400	16.2	3.06	51.0	12	14
	4.5	450	16.8	3.20	53.3	11	13
	5.0	500	17.1	3.32	55.4	11	13
	5.5	550	17.4	3.46	57.7	11	13
	6.0	600	17.7	3.58	59.6	11	13
	6.2	620	17.7	3.62	60.4	12	13
18 ● Red	3.0	300	17.4	2.90	48.3	10	11
	3.5	350	17.7	3.15	52.5	10	12
	4.0	400	18.0	3.38	56.4	10	12
	4.5	450	18.0	3.61	60.1	11	13
	5.0	500	18.3	3.82	63.7	11	13
	5.5	550	18.9	4.05	67.5	11	13
	6.0	600	19.2	4.25	70.8	12	13
	6.2	620	19.2	4.33	72.1	12	14
	6.5	650	19.5	4.43	73.9	12	13
20 ● Dk. Brown	3.5	350	18.3	3.98	66.2	12	14
	4.0	400	18.9	4.26	71.1	12	14
	4.5	450	19.2	4.54	75.6	12	14
	5.0	500	19.5	4.80	80.0	13	15
	5.5	550	20.1	5.08	84.7	13	15
	6.0	600	19.8	5.32	88.7	14	16
	6.2	620	19.8	5.42	90.4	14	16
	6.5	650	20.1	5.55	92.5	14	16
	6.9	690	20.1	5.74	95.7	14	16
23 ● Dk. Green	3.5	350	18.9	4.23	70.6	12	14
	4.0	400	19.5	4.55	75.8	12	14
	4.5	450	19.8	4.85	80.8	12	14
	5.0	500	20.1	5.14	85.6	13	15
	5.5	550	20.4	5.45	90.8	13	15
	6.0	600	20.7	5.71	95.1	13	15
	6.2	620	20.7	5.82	97.0	14	16
	6.5	650	20.7	5.96	99.4	14	16
	6.9	690	21.0	6.17	102.9	14	16
25 ● Dk. Blue	3.5	350	19.5	4.60	76.7	12	14
	4.0	400	20.1	4.92	82.1	12	14
	4.5	450	20.4	5.23	87.2	13	14
	5.0	500	20.7	5.52	92.0	13	15
	5.5	550	21.0	5.84	97.3	13	15
	6.0	600	21.3	6.10	101.7	13	15
	6.2	620	21.3	6.22	103.6	14	16
	6.5	650	21.3	6.36	106.0	14	16
	6.9	690	21.6	6.57	109.5	14	16
28 ● Black	3.5	350	19.8	5.73	95.5	15	17
	4.0	400	20.4	6.07	101.1	15	17
	4.5	450	21.0	6.38	106.4	14	17
	5.0	500	21.3	6.68	111.3	15	17
	5.5	550	21.9	7.00	116.7	15	17
	6.0	600	22.3	7.27	121.1	15	17
	6.2	620	22.3	7.38	122.9	15	17
	6.5	650	22.6	7.52	125.3	15	17
	6.9	690	23.2	7.73	128.8	14	17

Note:
Precipitation rates for the ON-Opposing Nozzles models are calculated at 360°. For the precipitation rate for a 360° sprinkler, divide by 2.

I-40 NOZZLES



Opposing

Front

Back

I-40 Opposing Nozzle 360° Model

I-90

Radius: **22.3 to 31.4 m**
Flow: **6.7 to 19.04 m³/hr; 111.7 to 317.2 l/min**
Inlet: **1½" BSP**

FEATURES

- Model: 8 cm
- 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 Pressure Port™ 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 colour-coded nozzles
- ▸ Optional reclaimed water ID
- ▸ Drain check valve (up to 2 m of elevation)

OPERATING SPECIFICATIONS

- Radius:
  - I90-ADV: 20.1 m to 29.6 m
  - 190-36V: 22.3 m to 31.4 m
- Flow:
  - I90-ADV: 6.70 to 19.04 m³/hr; 111.7 to 317.2 l/min
  - I90-36V: 6.93 to 18.92 m³/hr; 115.5 to 315.3 l/min
- Recommended pressure range: 5.5 to 8.0 bar; 550 to 800 kPa
- Operating pressure range: 5.0 to 8.0 bar; 500 to 800 kPa
- Precipitation rates: 19 mm/hr approximately (360°)

USER-INSTALLED OPTIONS

- Turf Cup Kit
  - I-90 all: P/N 467955
- Rubber Cover Kit
  - I-90-ADV: P/N 234200 (all)
  - I-90-36V: P/N 234200 (0711 date code and after)
  - I-90-36V: P/N 234201 (0611 date code and prior only)
- Low-Angle Nozzles: #25 to #73

▸ = *Advanced Feature descriptions on page 18*

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

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

Turf cup kit
P/N 467955

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

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

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

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

I-90-ADV NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	550	20.1	6.70	111.7	33.1	38.2
	6.0	600	20.4	7.16	119.2	34.3	39.6
	7.0	700	20.7	7.54	125.7	35.1	40.5
	7.5	750	21.0	8.09	134.8	36.6	42.2
33 Grey	5.5	550	20.7	8.22	137.0	38.3	44.2
	6.0	600	21.0	8.68	144.6	39.2	45.3
	7.0	700	21.3	9.18	152.9	40.3	46.6
	7.5	750	21.6	9.68	161.3	41.3	47.7
38 Red	5.5	550	21.9	9.22	153.7	38.3	44.2
	6.0	600	22.3	9.77	162.8	39.5	45.6
	7.0	700	22.9	10.31	171.9	39.5	45.6
	7.5	750	23.2	10.81	180.2	40.3	46.5
43 Dk. Brown	5.5	550	22.6	10.47	174.5	41.2	47.5
	6.0	600	22.6	11.02	183.6	43.3	50.0
	7.0	700	22.9	11.52	191.9	44.1	50.9
	7.5	750	23.5	12.13	202.1	44.0	50.9
48 Dk. Green	5.5	550	23.5	11.40	190.0	41.4	47.8
	6.0	600	24.1	11.95	199.1	41.2	47.6
	7.0	700	24.7	12.52	208.6	41.1	47.4
	7.5	750	25.0	13.06	217.7	41.8	48.3
53 Dk. Blue	5.5	550	24.7	12.47	207.8	40.9	47.2
	6.0	600	25.6	12.99	216.5	39.6	45.8
	7.0	700	26.2	13.52	225.2	39.3	45.4
	7.5	750	26.5	14.11	235.1	40.1	46.3
	8.0	800	26.8	14.63	243.8	40.7	47.0
63 Black	5.5	550	26.2	14.15	235.8	41.2	47.6
	6.0	600	26.8	14.88	247.9	41.4	47.8
	7.0	700	27.4	15.67	261.2	41.7	48.1
	7.5	750	27.7	16.33	272.2	42.5	49.0
	8.0	800	28.0	16.97	282.8	43.2	49.8
73 Orange	5.5	550	27.1	16.51	275.2	44.9	51.8
	6.0	600	27.7	17.13	285.4	44.5	51.4
	7.0	700	28.3	17.74	295.6	44.2	51.0
	7.5	750	29.0	18.38	306.2	43.8	50.6
	8.0	800	29.6	19.04	317.2	43.5	50.3

* Factory installed nozzle

Notes:

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

I-90-36V NOZZLE PERFORMANCE DATA

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	550	22.3	6.93	115.5	14.0	16.2
	6.0	600	22.9	7.36	122.6	14.1	16.3
	7.0	700	23.2	7.79	129.8	14.5	16.8
	7.5	750	23.8	8.29	138.2	14.7	16.9
33 Grey	5.5	550	23.5	8.25	137.4	15.0	17.3
	6.0	600	23.8	8.72	145.4	15.4	17.8
	7.0	700	24.4	9.22	153.7	15.5	17.9
	7.5	750	24.7	9.70	161.6	15.9	18.4
38 Red	5.5	550	24.4	9.22	153.7	15.5	17.9
	6.0	600	25.0	9.75	162.4	15.6	18.0
	7.0	700	25.3	10.29	171.5	16.1	18.6
	7.5	750	25.9	10.84	180.6	16.1	18.6
43 Dk. Brown	5.5	550	25.3	10.49	174.9	16.4	18.9
	6.0	600	25.6	11.04	184.0	16.8	19.4
	7.0	700	25.9	11.56	192.7	17.2	19.9
	7.5	750	26.2	12.13	202.1	17.7	20.4
48 Dk. Green	5.5	550	26.2	11.27	187.8	16.4	18.9
	6.0	600	27.1	11.93	198.7	16.2	18.7
	7.0	700	27.4	12.45	207.4	16.5	19.1
	7.5	750	27.7	13.02	216.9	16.9	19.5
53 Dk. Blue*	5.5	550	27.1	12.31	205.2	16.7	19.3
	6.0	600	27.4	12.88	214.6	17.1	19.8
	7.0	700	28.0	13.45	224.1	17.1	19.7
	7.5	750	28.3	14.02	233.6	17.4	20.1
	8.0	800	28.7	14.58	243.0	17.8	20.5
63 Black	5.5	550	28.0	14.36	239.2	18.3	21.1
	6.0	600	28.7	14.97	249.5	18.2	21.1
	7.0	700	29.3	15.76	262.7	18.4	21.3
	7.5	750	29.6	16.36	272.5	18.7	21.6
	8.0	800	29.9	17.01	283.5	19.1	22.0
73 Orange	5.5	550	29.3	16.38	272.9	19.1	22.1
	6.0	600	29.9	17.04	283.9	19.1	22.0
	7.0	700	30.2	17.67	294.5	19.4	22.4
	7.5	750	31.1	18.29	304.7	18.9	21.8
	8.0	800	31.4	18.92	315.3	19.2	22.2

I-90 NOZZLE

ADV & 36V

Low Angle ADV & 36V**

** For low angle nozzle performance, reduce radius by 15%.

I-90

STK-1 / STK-2

ST SYSTEM FOR COOLING AND CLEANING SYNTHETIC TURF

Radius: **31.4 to 36.6 m**
Flow: **16.9 to 20.9 m³/hr; 282.0 to 348 l/min**
Inlet: **1½" BSP (ST-90), 1½" ACME (STG-900)**

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 years

OPERATING SPECIFICATIONS

- Radius: 31.4 m to 36.6 m
- Flow: 16.9 to 20.9 m³/hr; 282 to 348 l/min
- Operating pressure range: 6.9 to 8.3 bar; 690 to 830 kPa
- Precipitation rate: 35 mm/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: 29 cm
Pop-up height: 8 cm
Diameter: 14 cm
Inlet size: 1½" (40 mm) BSP

* not for use with the ST Vault

STG-900*
Overall height: 36 cm
Pop-up height: 8 cm
Diameter: 20 cm
Inlet size: 1½" (40 mm) ACME

* for use with the ST173026B Vault

ST ROTOR	
Model	**Description**
ST-90-B-83	8 cm pop-up, jar top cap, adjustable arc, plastic riser, BSP inlet threads, and 2 nozzles
STG-900-83	8 cm pop-up, top service, adjustable arc, plastic riser, ACME inlet threads, and 2 nozzles

KIT CONFIGURATIONS

STK-1 / STK-2 COMPONENTS		
Kit Descriptions 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-173026B**	**ST-173026B**
ST Swing Joint: "VA" 2" (50mm) PVC swing joint with 7 pivot points	**ST-2008VA**	**ST-2008VA**
ST Valve & Fitting Kit: ICV-151 valve, high pressure rated ball valve & fitting kit	—	**ST-VBVFK**
ST Adapter Elbow Fitting*	**239800**	**239800**
ST Rotor Adapter Fitting**	**239300**	—
Rubber Cover Kit: STG-900 Rubber Cover Kit	**473900**	**473900**
Quick-Coupler Valve: 1" (25mm) inlet with 1¼" (32 mm) outlet for key	**HQ5RC-BSP**	**HQ5RC-BSP**
BSP Inlet Adapter: Converts swing joint to 2" (50 mm) male BSP threads	**241400**	**241400**

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

ST-90 / STG-900 NOZZLE PERFORMANCE DATA

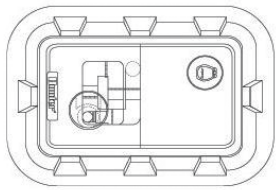
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
73 ●	7.0	700	31.4	16.9	282	34.3	39.6
	7.5	750	33.2	17.5	291	31.7	36.6
Orange	8.0	800	35.1	18.1	301	29.4	34.0
83 ●	7.0	700	34.1	19.1	319	32.8	37.9
	7.5	750	35.4	20.0	333	32.0	37.0
Tan	8.0	800	36.6	20.9	348	31.2	36.1

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

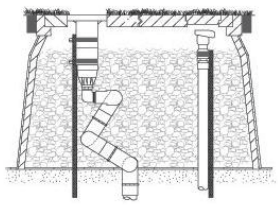
Requires minimum 7.0 bar; 700 kPa dynamic pressure supplied to swing joint inlet.

INSTALLATION DETAILS

STK-1

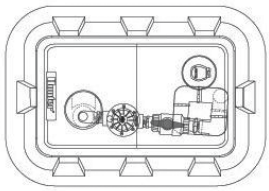


ON FIELD SIDE

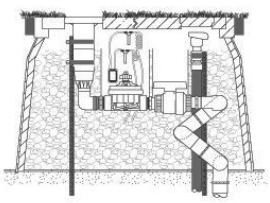


VIEW FROM ON FIELD SIDE

STK-2



ON FIELD SIDE



VIEW FROM ON FIELD SIDE

ST Rotor

ST SWING JOINTS

Multi-axis 22 bar; 2,200 kPa rated vertical alignment PVC swing joints with seven O-Ring sealed pivot points allow the rotor to be perfectly placed within the ST Vault's cover set opening.

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

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

* Use P/N 241400 adapter to male BSP threads

ST VALVE SETS

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

STVBVFK: for STG-900 in STK-2 Kit

Valve: 1½" (40 mm) NPT ICV
Ball Valve: 22 bar (2,200 kPa) rating
Inlet: 1½" (40 mm) ACME
Outlet: 1½" (40 mm) ACME
Low Pressure Loss Design: 0.7 bar; 70 kPa at 22.7 m³/hr; 378 l/min from swing joint inlet through to rotor
Includes: 1½" (40 mm) 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 51 mm thick 3-piece PC cover set

Main Cover: 43 cm x 76 cm
Overall Height: 66 cm
Body Weight: 47 kg
Total Weight: 73 kg
Base Pad: 68 cm x 104 cm
Quick Access Ports: 1

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

① Quick-Coupler

STK-5V / STK-6V

ST SYSTEM FOR COOLING AND CLEANING SYNTHETIC TURF

Radius: **32.5 to 50.3 m**
Flow: **21.8 to 74.2 m³/hr; 364 to 1,237 l/min**
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)
- 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 (180° at 8 bar; 800 kPa)
- Warranty period: 5 year component part
- Internal construction: Brass, stainless steel and ball-bearings
- Optional Infill Barrier System (ST-1600B)

ST-1600B
Overall height: 57 cm
Pop-up height: 13 cm
Diameter: 36 cm
Inlet size: 2" (50 mm) BSP*

* Use P/N 241400 adapter to 2" (50 mm) pipe

OPERATING SPECIFICATIONS

- Radius: 32.5 to 50.3 m
- Flow: 21.8 to 74.2 m³/hr; 364 to 1,237 l/min
- Operating pressure range: 4.0 to 8.0 bar; 400 to 800 kPa
- Precipitation rate: 60 mm/hr approximately

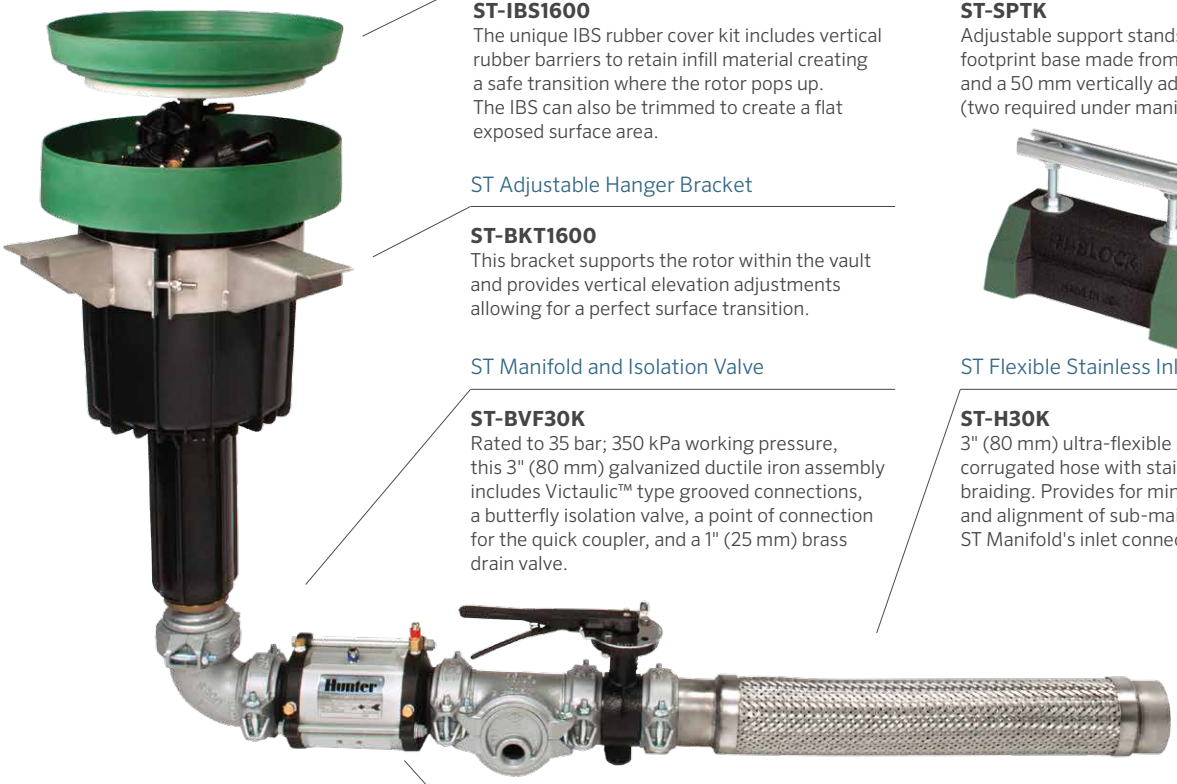
ST ROTOR	
Model	**Description**
ST-1600-B	13 cm pop-up, top service, adjustable arc, stainless steel riser, BSP inlet threads, and 6 nozzles
ST-1600-HS-B	High-speed ST-1600B, up to 65 seconds for 180° at 8 bar; 800 kPa
ST-1600-BR	Riser mount, adjustable arc, BSP inlet threads and 6 nozzles
ST-1600-HS-BR	High-speed ST-1600BR, up to 65 seconds for 180° at 8 bar; 800 kPa

ST-1600BR
(Riser Mounted Model)
Overall height: 22 cm
Diameter: 21 cm
Inlet size: 2" (50 mm) BSP*

* Use P/N 241400 adapter to 2" (50 mm) pipe

KIT CONFIGURATIONS

STK-5V / STK-6V COMPONENTS		
Kit Description For specification ease and to ensure the correct product is installed, the ST System is available in kit configurations below.	**STK-5V** ST-1600 Block System (remotely located valve)	**STK-6V** ST-1600 VAH System (valve adjacent to head)
ST Rotor: Synthetic turf rotor	**ST-1600B**	**ST-1600B**
ST IBS: Infill barrier system rubber cover kit	**ST-IBS1600**	**ST-IBS1600**
ST BKT: Rotor vault hanger & elevation adjustment bracket	**ST-BKT1600**	**ST-BKT1600**
ST Vault: Vault with 4-piece polymer-concrete cover set	**ST-243636B**	**ST-243636B**
ST Manifold: 3" (80 mm) Fittings, isolation valve and drain valve	**ST-BVF30K**	**ST-BVF30K**
ST Valve: 3" (80 mm) valve with remote on-off-auto selector	—	**STV30KV**
ST Support: Adjustable manifold support (2 required)	**ST-SPTK**	**ST-SPTK**
ST Inlet Hose: Flexible stainless steel braided alignment hose	**ST-H30K**	**ST-H30K**
BSP Inlet Adapter: 3" (80 mm) NPT male x BSP female adpater	**855000**	**855000**
BSP Drain Valve Adapter: 1" (25 mm) NPT male x BSP male adapter (2 req'd)	**855100**	**855100**
Quick Coupler Valve: 1" (25 mm) BSP inlet 1¼" (32 mm) outlet for key	**HQ5RC-BSP**	**HQ5RC-BSP**



ST Infill Barrier System

ST-IBS1600
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-BKT1600
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-BVF30K
Rated to 35 bar; 350 kPa working pressure, this 3" (80 mm) galvanized ductile iron assembly includes Victaulic™ type grooved connections, a butterfly isolation valve, a point of connection for the quick coupler, and a 1" (25 mm) brass drain valve.

ST H-Block Manifold Supports

ST-SPTK
Adjustable support stands include a large footprint base made from recycled tire rubber and a 50 mm vertically adjustable support rail (two required under manifold).

ST Flexible Stainless Inlet Hose

ST-H30K
3" (80 mm) 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

ST-V30KV: Heavy-duty control valves for STK-6V.
Valve: 3" (80 mm) Grooved Vic Type
Opening Speed: Slow
Pressure Loss: Ultra Low (0.15 bar; 15 kPa at 65.0 m^3/hr; 1,082 l/min)
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 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 two 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.

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 76 mm thick 4-piece PC cover set

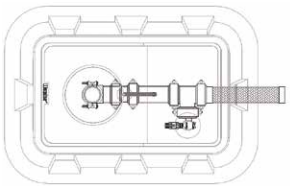
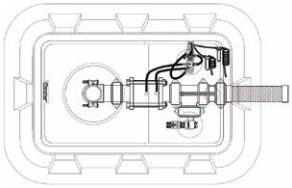
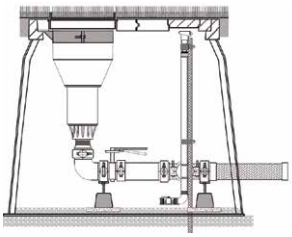
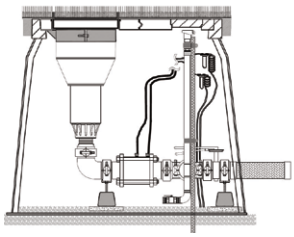
Main Cover: 61 cm x 91 cm
Overall Height: 91 cm
Body Weight: 70 kg
Total Weight: 138 kg
Base Pad: 106 cm x 122 cm
Quick Access Ports: 2

① Quick-Coupler

② On-Off-Auto Selector

ST-1600 Rotor in Action

INSTALLATION DETAILS

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

ST-1600 NOZZLE PERFORMANCE DATA

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m^3/hr	l/min	■	▲
16 ● Black	4.0	400	32.5	21.8	364	41.4	47.8
	5.0	500	35.0	24.4	406	39.8	45.9
	6.0	600	37.0	26.8	446	39.1	45.1
	7.0	700	39.0	28.9	482	38.0	43.9
	8.0	800	41.0	31.2	520	37.1	42.9
18 ● Black	4.0	400	34.0	24.3	405	42.0	48.6
	5.0	500	37.0	27.1	452	39.6	45.8
	6.0	600	39.0	29.8	496	39.1	45.2
	7.0	700	40.5	32.1	535	39.1	45.2
	8.0	800	43.0	34.8	580	37.6	43.5
20 ● Black	4.0	400	35.0	32.7	545	53.4	61.7
	5.0	500	39.0	36.5	609	48.1	55.5
	6.0	600	43.0	40.1	668	43.4	50.1
	7.0	700	44.0	43.3	721	44.7	51.6
	8.0	800	45.0	46.4	773	45.8	52.9
22 ● Black	4.0	400	36.0	38.9	649	60.1	69.4
	5.0	500	39.5	43.6	726	55.8	64.5
	6.0	600	44.0	47.7	795	49.3	56.9
	7.0	700	47.0	51.5	859	46.7	53.9
	8.0	800	48.0	55.2	920	47.9	55.3
24 ● Black	4.0	400	37.0	45.9	765	67.1	77.4
	5.0	500	40.5	51.3	855	62.6	72.2
	6.0	600	45.0	56.2	937	55.5	64.1
	7.0	700	47.5	60.7	1012	53.8	62.2
	8.0	800	48.7	65.0	1084	54.9	63.3
26 ● Black	4.0	400	38.4	53.0	883	71.8	82.9
	5.0	500	41.4	59.2	986	68.8	79.5
	6.0	600	46.0	64.6	1077	61.0	70.4
	7.0	700	48.7	69.7	1162	58.6	67.7
	8.0	800	50.3	74.2	1237	58.7	67.8

SECTION 02:

MP ROTATOR®

ADVANCED FEATURES

AUTOMATIC MATCHED PRECIPITATION

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

DOUBLE-POP

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

DISTRIBUTION UNIFORMITY

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

LOW PRECIPITATION RATE

Since the vast majority of soils have an infiltration rate of less than 25 mm/hr, irrigating at a low precipitation rate is essential to achieve efficiency.

The standard MP Rotator line applies water at 10 mm/hr, while the SR Series has a precipitation rate of 20 mm/hr. Either choice will avoid runoff, saving water and preventing erosion.

SHORT RADIUS (SR) SERIES

Achieve efficient irrigation in narrow spaces with the SR Series. MP800SR allows for radius adjustment down to 1.8 m, providing opportunity for overhead irrigation in smaller spaces than ever before possible.

ECO ROTATOR

Radius: **2.5 to 9.1 m**

FEATURES

- Model: 10 cm
- Adjustable arc and radius offer precise settings
- Drain check valve (up to 2 m of elevation)
- Two-piece ratchet
- Warranty period: 2 years
- Nozzle choices:
  MP1000-90, MP2000-90
  MP3000-90, MP1000-360
  MP2000-360, MP3000-360
- ▸ Automatic matched precipitation
- ▸ Double-pop
- ▸ Distribution uniformity
- ▸ Low precipitation rate

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

OPERATING SPECIFICATIONS

- Flow rate: 0.04 to 0.96 m^3/hr; 0.61 to 16.07 l/min
- Radius: 2.5 to 9.1 m
- Recommended pressure range: 1.7 to 3.8 bar; 170 to 380 kPa
- Precipitation rates: 10 mm/hr approximately

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 45*

ECO ROTATOR

Model	Description
ECO-04 - 1090	10 cm pop-up, MP1000 2.5 to 4.5 m radius, adjustable from 90° to 210°
ECO-04 - 10360	10 cm pop-up, MP1000 2.5 to 4.5 m radius, 360°
ECO-04 - 2090	10 cm pop-up, MP2000 4.0 to 6.4 m radius, adjustable from 90° to 210°
ECO-04 - 20360	10 cm pop-up, MP2000 4.0 to 6.4 m radius, 360°
ECO-04 - 3090	10 cm pop-up, MP3000 6.7 to 9.1 m radius, adjustable from 90° to 210°
ECO-04 - 30360	10 cm pop-up, MP3000 6.7 to 9.1 m radius, 360°

ECO ROTATOR PERFORMANCE DATA

ECO-04 MP1000
Radius: 2.5 to 4.5 m
Adjustable Arc and Full-Circle
● Maroon: 90° to 210°
● Olive: 360°

ECO-04 MP2000
Radius: 4.0 to 6.4 m
Adjustable Arc and Full-Circle
● Black: 90° to 210°
● Red: 360°

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

Arc	Pressure bar	Pressure kPa	MP1000 Radius m	MP1000 Flow m^3/hr	MP1000 Flow l/min	MP1000 Precip mm/hr ■	MP1000 Precip mm/hr ▲	MP2000 Radius m	MP2000 Flow m^3/hr	MP2000 Flow l/min	MP2000 Precip mm/hr ■	MP2000 Precip mm/hr ▲	MP3000 Radius m	MP3000 Flow m^3/hr	MP3000 Flow l/min	MP3000 Precip mm/hr ■	MP3000 Precip mm/hr ▲
90°	1.7	170	--	--	--	--	--	5.2	0.07	1.18	11	12	7.6	0.16	2.63	11	13
	2.0	200	3.7	0.04	0.61	11	12	5.5	0.07	1.23	10	11	8.2	0.17	2.77	10	11
	2.5	250	4.0	0.04	0.68	10	12	5.8	0.09	1.43	10	12	8.5	0.19	3.08	10	12
	2.8	**280**	**4.1**	**0.04**	**0.70**	**10**	**11**	**6.1**	**0.09**	**1.52**	**10**	**11**	**9.1**	**0.20**	**3.25**	**9**	**11**
	3.0	300	4.3	0.04	0.73	10	11	6.4	0.09	1.57	9	10	9.1	0.20	3.38	10	11
	3.5	350	4.4	0.05	0.78	10	11	6.4	0.10	1.68	10	11	9.1	0.22	3.67	11	12
	3.8	380	4.5	0.05	0.81	9	11	6.4	0.11	1.77	11	12	9.1	0.23	3.80	11	13
180°	1.7	170	--	--	--	--	--	4.9	0.13	2.22	11	12	7.6	0.32	5.48	11	13
	2.0	200	3.7	0.07	1.20	11	12	5.2	0.14	2.35	11	12	8.2	0.35	5.88	10	12
	2.5	250	4.0	0.08	1.35	10	12	5.5	0.16	2.67	11	12	8.5	0.40	6.55	11	12
	2.8	**280**	**4.1**	**0.08**	**1.40**	**10**	**11**	**5.8**	**0.17**	**2.80**	**10**	**12**	**9.1**	**0.41**	**6.88**	**10**	**11**
	3.0	300	4.3	0.09	1.46	10	11	6.1	0.17	2.90	10	11	9.1	0.43	7.18	10	12
	3.5	350	4.4	0.09	1.56	10	11	6.4	0.19	3.15	9	10	9.1	0.47	7.77	11	13
	3.8	380	4.5	0.10	1.62	9	11	6.4	0.19	3.22	9	11	9.1	0.45	8.02	12	13
210°	1.7	170	--	--	--	--	--	4.9	0.16	2.58	11	12	7.6	0.38	6.40	11	13
	2.0	200	3.7	0.09	1.41	11	13	5.2	0.17	2.75	11	13	8.2	0.41	6.85	10	12
	2.5	250	4.0	0.10	1.58	10	12	5.5	0.19	3.08	10	12	8.5	0.46	7.65	11	12
	2.8	**280**	**4.1**	**0.10**	**1.63**	**10**	**11**	**5.8**	**0.20**	**3.25**	**10**	**12**	**9.1**	**0.48**	**8.02**	**10**	**11**
	3.0	300	4.3	0.10	1.71	10	11	6.1	0.21	3.42	10	11	9.1	0.50	8.37	10	12
	3.5	350	4.4	0.11	1.82	10	11	6.4	0.22	3.70	9	10	9.1	0.54	9.03	11	13
	3.8	380	4.5	0.11	1.89	9	11	6.4	0.23	3.80	10	11	9.1	0.56	9.37	12	13
360°	1.7	170	--	--	--	--	--	4.9	0.27	4.42	11	12	7.6	0.66	10.98	11	13
	2.0	200	3.5	0.14	2.40	12	14	5.2	0.28	4.72	11	13	8.2	0.70	11.72	10	12
	2.5	250	4.0	0.16	2.69	10	12	5.5	0.32	5.28	10	12	8.5	0.79	13.10	11	12
	2.8	**280**	**4.1**	**0.17**	**2.81**	**10**	**12**	**5.8**	**0.33**	**5.55**	**10**	**12**	**9.1**	**0.83**	**13.75**	**10**	**11**
	3.0	300	4.3	0.18	2.94	10	11	6.1	0.35	5.80	10	11	9.1	0.87	14.37	10	12
	3.5	350	4.4	0.19	3.17	10	11	6.4	0.37	6.25	9	10	9.1	0.93	15.52	11	13
	3.8	380	4.5	0.20	3.25	10	11	6.4	0.38	6.40	9	10	9.1	0.96	16.07	12	13

Bold = Recommended pressure

MP ROTATOR®

Radius: **2.5 to 10.7 m**

FEATURES

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

OPERATING SPECIFICATIONS

- Recommended operating pressure: 2.8 bar; 280 kPa

OPTIONS

- Pair with Pro-Spray® PRS40 to achieve pressure regulation at the head of 2.8 bar; 280 kPa
- Adding "HT" will specify male threaded nozzles

▸ = *Advanced Feature descriptions on page 45*

MP1000 2.6 to 4.5 m radius

MP1000-90
90° to 210°

MP1000-210
210° to 270°

MP1000-360
360°

MP2000 4.0 to 6.4 m radius

MP2000-90
90° to 210°

MP2000-210
210° to 270°

MP2000-360
360°

MP3000 6.7 to 9.1 m 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 = 2.5 to 4.5 m radius, adjustable from 90° to 210°	**(blank)** = No option
MP1000-210 = 2.5 to 4.5 m radius, adjustable from 210° to 270°	**HT** = Male threaded version *(Not available in 3500)*
MP1000-360 = 2.5 to 4.5 m radius, 360°	
MP2000-90 = 4.0 to 6.4 m radius, adjustable from 90° to 210°	
MP2000-210 = 4.0 to 6.4 m radius, adjustable from 210° to 270°	
MP2000-360 = 4.0 to 6.4 m radius, 360°	
MP3000-90 = 6.7 to 9.1 m radius, adjustable from 90° to 210°	
MP3000-210 = 6.7 to 9.1 m radius, adjustable from 210° to 270°	
MP3000-360 = 6.7 to 9.1 m radius, 360°	
MP3500-90 = 9.4 to 10.7 m radius, adjustable from 90° to 210°	
MPLCS515 = Left corner strip, 1.5 m to 4.5 m	
MPRCS515 = Right corner strip, 1.5 m to 4.5 m	
MPSS530 = Side strip, 1.5 m to 9.1 m	
MPCORNER = 2.5 to 4.5 m radius, adjustable from 45° to 105°	

Examples:
MP1000-210 = 2.5 to 4.5 m radius, adjustable from 210° to 270°
PROS-06-PRS40-CV-MP2000-90 = 15 cm pop-up regulated at 2.8 bar; 280 kPa, drain check valve, with MP2000-90

MP ROTATOR PERFORMANCE DATA

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

MP2000
Radius: 4.0 to 6.4 m
Adjustable Arc and Full-Circle
- Black: 90° to 210°
- Green: 210° to 270°
- Red: 360°

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

Arc	Pressure bar	Pressure kPa	MP1000 Radius m	MP1000 Flow m³/hr	MP1000 Flow l/min	MP1000 Precip mm/hr ■	MP1000 Precip mm/hr ▲	MP2000 Radius m	MP2000 Flow m³/hr	MP2000 Flow l/min	MP2000 Precip mm/hr ■	MP2000 Precip mm/hr ▲	MP3000 Radius m	MP3000 Flow m³/hr	MP3000 Flow l/min	MP3000 Precip mm/hr ■	MP3000 Precip mm/hr ▲
90°	1.7	170	--	--	--	--	--	5.2	0.07	1.18	11	12	7.6	0.16	2.63	11	13
	2.0	200	3.7	0.04	0.61	11	12	5.5	0.07	1.23	10	11	8.2	0.17	2.77	10	11
	2.5	250	4.0	0.04	0.68	10	12	5.8	0.09	1.43	10	12	8.5	0.19	3.08	10	12
	2.8	**280**	**4.1**	**0.04**	**0.70**	**10**	**11**	**6.1**	**0.09**	**1.52**	**10**	**11**	**9.1**	**0.20**	**3.25**	**9**	**11**
	3.0	300	4.3	0.04	0.73	10	11	6.4	0.09	1.57	9	10	9.1	0.20	3.38	10	11
	3.5	350	4.4	0.05	0.78	10	11	6.4	0.10	1.68	10	11	9.1	0.22	3.67	11	12
	3.8	380	4.5	0.05	0.81	9	11	6.4	0.11	1.77	11	12	9.1	0.23	3.80	11	13
180°	1.7	170	--	--	--	--	--	4.9	0.13	2.22	11	12	7.6	0.32	5.48	11	13
	2.0	200	3.7	0.07	1.20	11	12	5.2	0.14	2.35	11	12	8.2	0.35	5.88	10	12
	2.5	250	4.0	0.08	1.35	10	12	5.5	0.16	2.67	11	12	8.5	0.4	6.55	11	12
	2.8	**280**	**4.1**	**0.08**	**1.40**	**10**	**11**	**5.8**	**0.17**	**2.80**	**10**	**12**	**9.1**	**0.41**	**6.88**	**10**	**11**
	3.0	300	4.3	0.09	1.46	10	11	6.1	0.17	2.90	10	11	9.1	0.43	7.18	10	12
	3.5	350	4.4	0.09	1.56	10	11	6.4	0.19	3.15	9	10	9.1	0.47	7.77	11	13
	3.8	380	4.5	0.10	1.62	9	11	6.4	0.19	3.22	9	11	9.1	0.45	8.02	12	13
210°	1.7	170	--	--	--	--	--	4.9	0.16	2.58	11	12	7.6	0.38	6.40	11	13
	2.0	200	3.7	0.09	1.41	11	13	5.2	0.17	2.75	11	13	8.2	0.41	6.85	10	12
	2.5	250	4.0	0.10	1.58	10	12	5.5	0.19	3.08	10	12	8.5	0.46	7.65	11	12
	2.8	**280**	**4.1**	**0.10**	**1.63**	**10**	**11**	**5.8**	**0.20**	**3.25**	**10**	**12**	**9.1**	**0.48**	**8.02**	**10**	**11**
	3.0	300	4.3	0.10	1.71	10	11	6.1	0.21	3.42	10	11	9.1	0.50	8.37	10	12
	3.5	350	4.4	0.11	1.82	10	11	6.4	0.22	3.70	9	10	9.1	0.54	9.03	11	13
	3.8	380	4.5	0.11	1.89	9	11	6.4	0.23	3.80	10	11	9.1	0.56	9.37	12	13
270°	1.7	170	--	--	--	--	--	4.9	0.20	3.32	11	12	7.6	0.50	8.35	12	13
	2.0	200	3.7	0.11	1.80	11	13	5.2	0.21	3.53	11	13	8.2	0.53	8.83	10	12
	2.5	250	4.0	0.12	2.05	10	12	5.5	0.24	3.97	10	12	8.5	0.59	9.82	11	12
	2.8	**280**	**4.1**	**0.13**	**2.10**	**10**	**11**	**5.8**	**0.25**	**4.15**	**10**	**12**	**9.1**	**0.62**	**10.32**	**10**	**11**
	3.0	300	4.3	0.13	2.20	10	11	6.1	0.26	4.35	10	11	9.1	0.65	10.77	10	12
	3.5	350	4.4	0.14	2.35	10	11	6.4	0.28	4.70	9	10	9.1	0.70	11.68	11	13
	3.8	380	4.5	0.15	2.45	9	11	6.4	0.29	4.88	9	11	9.1	0.73	12.12	12	13
360°	1.7	170	--	--	--	--	--	4.9	0.27	4.42	11	12	7.6	0.66	10.98	11	13
	2.0	200	3.7	0.14	2.40	12	14	5.2	0.28	4.72	11	13	8.2	0.70	11.72	10	12
	2.5	250	4.0	0.16	2.69	10	12	5.5	0.32	5.28	10	12	8.5	0.76	13.10	11	12
	2.8	**280**	**4.1**	**0.17**	**2.81**	**10**	**12**	**5.8**	**0.33**	**5.55**	**10**	**12**	**9.1**	**0.83**	**13.75**	**10**	**11**
	3.0	300	4.3	0.18	2.94	10	11	6.1	0.35	5.80	10	11	9.1	0.87	14.37	10	12
	3.5	350	4.4	0.19	3.17	10	11	6.4	0.37	6.25	9	10	9.1	0.93	15.52	11	13
	3.8	380	4.5	0.20	3.25	10	11	6.4	0.38	6.40	9	10	9.1	0.96	16.07	12	13

Bold = Optimal pressure for the MP Rotator is 2.8 bar; 280 kPa. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 2.8 bar; 280 kPa.

Works best with PRS40

For PRS40 information see page 63

MP ROTATOR PERFORMANCE DATA

MP3500
Radius: 9.4 to 10.7 m
Adjustable Arc
● Light Brown: 90° to 210°

Arc	Pressure bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip. mm/hr ■	Precip. mm/hr ▲
90°	1.7	170	10.1	0.24	3.94	9	11
	2.0	200	10.4	0.26	4.28	10	11
	2.5	250	10.4	0.28	4.58	10	12
	2.8	**280**	**10.7**	**0.29**	**4.84**	**10**	**12**
	3.0	300	10.7	0.31	5.22	11	13
	3.5	350	10.7	0.33	5.41	11	13
	3.8	380	10.7	0.34	5.68	12	14
180°	1.7	170	10.1	0.50	8.36	10	11
	2.0	200	10.4	0.51	8.48	9	11
	2.5	250	10.4	0.60	10.03	11	13
	2.8	**280**	**10.7**	**0.65**	**10.83**	**11**	**13**
	3.0	300	10.7	0.70	11.73	12	14
	3.5	350	10.7	0.73	12.15	13	15
	3.8	380	10.7	0.75	12.41	13	15
210°	1.7	170	10.1	0.59	9.80	10	12
	2.0	200	10.4	0.65	10.75	10	12
	2.5	250	10.4	0.70	11.66	11	13
	2.8	**280**	**10.7**	**0.75**	**12.45**	**11**	**13**
	3.0	300	10.7	0.80	13.40	12	14
	3.5	350	10.7	0.85	14.23	13	15
	3.8	380	10.7	0.90	14.91	13	16

Bold = Optimal pressure for the MP Rotator is 2.8 bar; 280 kPa. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 2.8 bar; 280 kPa.

MP ROTATOR PERFORMANCE DATA

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

	Pressure bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min
MP Left Corner Strip	1.7	170	1.1 x 4.2	0.04	0.67
	2.0	200	1.2 x 4.3	0.04	0.72
	2.5	250	1.4 x 4.5	0.05	0.79
	2.8	**280**	**1.5 x 4.6**	**0.05**	**0.84**
	3.0	300	1.6 x 4.7	0.06	0.87
	3.5	350	1.7 x 4.8	0.06	0.94
	3.8	380	1.8 x 4.9	0.06	0.99
MP Right Corner Strip	1.7	170	1.1 x 4.2	0.04	0.67
	2.0	200	1.2 x 4.3	0.04	0.72
	2.5	250	1.4 x 4.5	0.05	0.79
	2.8	**280**	**1.5 x 4.6**	**0.05**	**0.84**
	3.0	300	1.6 x 4.7	0.05	0.87
	3.5	350	1.7 x 4.8	0.06	0.94
	3.8	380	1.8 x 4.9	0.06	0.99
MP Side Strip	1.7	170	1.1 x 8.3	0.08	1.34
	2.0	200	1.2 x 8.6	0.09	1.43
	2.5	250	1.4 x 8.9	0.09	1.57
	2.8	**280**	**1.5 x 9.1**	**0.10**	**1.66**
	3.0	300	1.6 x 9.3	0.10	1.72
	3.5	350	1.7 x 9.6	0.11	1.87
	3.8	380	1.8 x 9.9	0.12	1.96

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 2.8 bar; 280 kPa. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 2.8 bar; 280 kPa.

MP3500 9.4 to 10.7 radius

MP3500-90
90° to 210°

MP Strips

MPLCS515
Left Corner Strip
1.5 x 4.6 m

MPRCS515
Right Corner Strip
1.5 x 4.6 m

MPSS530
Side Strip
1.5 x 9.1 m

MP ROTATOR PERFORMANCE DATA

MP Corner
Radius: 2.5 to 4.5 m
Adjustable Arc
● Turquoise: 45° to 105°

Arc	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min
45°	1.7	170	--	--	--
	2.0	200	3.5	0.04	0.61
	2.5	250	4.0	0.04	0.68
	2.8	**280**	**4.1**	**0.04**	**0.70**
	3.0	300	4.3	0.04	0.73
	3.5	350	4.4	0.05	0.78
	3.8	380	4.5	0.05	0.81
90°	1.7	170	3.2	0.07	1.15
	2.0	200	3.5	0.08	1.27
	2.5	250	4.0	0.08	1.40
	2.8	**280**	**4.1**	**0.09**	**1.44**
	3.0	300	4.3	0.09	1.57
	3.5	350	4.4	0.10	1.67
	3.8	380	4.5	0.10	1.73
105°	1.7	170	3.2	0.08	1.34
	2.0	200	3.5	0.09	1.48
	2.5	250	4.0	0.10	1.63
	2.8	**280**	**4.1**	**0.10**	**1.70**
	3.0	300	4.3	0.11	1.83
	3.5	350	4.4	0.12	1.94
	3.8	380	4.5	0.12	2.00

Bold = Recommended pressure

MP Corner

MPCORNER
Corner
2.5 to 4.5 m

Male Threaded

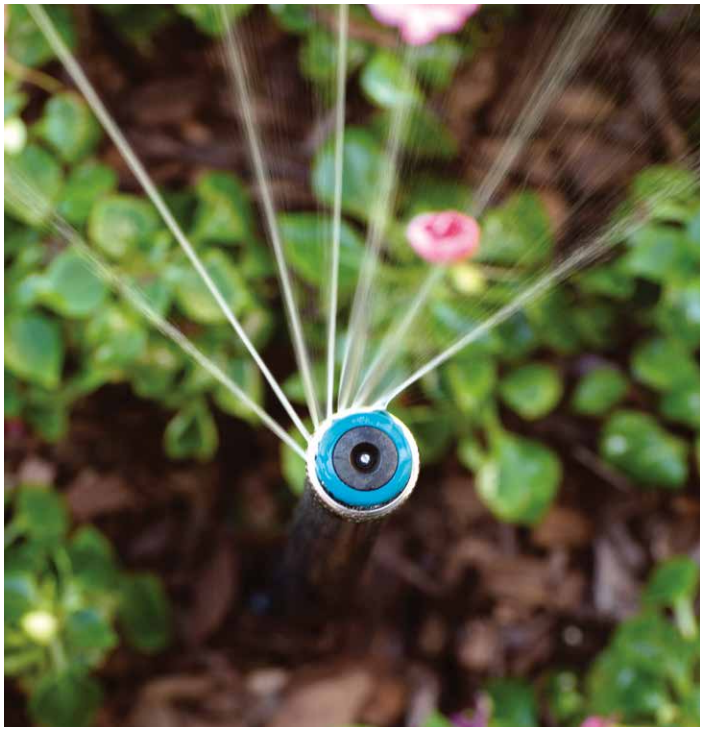
MP-HT
Male Threaded

MP Accessories

MPTOOL
Adjusts all MP Rotators

MPSTICK
Snaps onto any length of 1" (25 mm) PVC to allow standing adjustment.
PVC pipe not included.

MP Rotator



MP Tool for easy adjustments

MP ROTATOR® SR

Radius: **1.8 to 3.5 m**

FEATURES

- Provides coverage from 1.8 to 3.5 m
- Colour-coded for easy identification
- Removable filter screen prevents large objects from clogging nozzle
- Wind-resistant multi-stream technology
- Adjustable arc and radius
- ▸ Automatic matched precipitation
- ▸ Double-pop
- ▸ Distribution uniformity
- ▸ Low precipitation rate

OPERATING SPECIFICATIONS

- Recommended operating pressure: 2.8 bar, 280 kPa
  - 2.8 bar; 280 kPa for max radius settings
  - 2.1 bar; 210 kPa for min radius settings
- Recommended to use with clean water
- MP800SR-90 uses a 60 mesh built-in nozzle filter
- MP800SR-360 uses a 40 mesh built-in nozzle filter
- Use 150 mesh pre-filter arrangement
- Hunter ACZ, PCZ, or ICZ drip filters are a great solution for zone-specific MP800SR arrangements

OPTIONS

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

▸ = *Advanced Feature descriptions on page 45*

MP800SR 1.8 to 3.5 m radius

MP800SR-90
1.8 to 3.5 m radius adjustable from 90°-210°

NEW

MP800SR-360
1.8 to 3.5 m radius 360°

MP ROTATOR PERFORMANCE DATA - MP800SR

MP800SR
Radius: 1.8 to 3.5 m
Adjustable Arc
Orange and Grey: 90° to 210°
Lime Green and Grey: 360°

Arc	Pressure bar	Pressure kPa	MAX RADIUS Radius m	MAX RADIUS Flow m³/hr	MAX RADIUS Flow l/min	MAX RADIUS Precip. mm/hr ■	MAX RADIUS Precip. mm/hr ▲	MIN RADIUS Radius m	MIN RADIUS Flow m³/hr	MIN RADIUS Flow l/min
90°	2.1	200	2.6	0.04	0.61	22	25	**1.8**	**0.03**	**0.49**
	2.5	250	2.9	0.04	0.72	21	24	2.1	0.03	0.55
	2.8	**280**	**3.1**	**0.05**	**0.87**	**21**	**24**	2.4	0.04	0.61
	3.0	300	3.4	0.06	0.95	20	23	2.4	0.04	0.68
	3.5	350	3.5	0.06	1.02	20	23	2.7	0.04	0.72
	3.8	380	3.5	0.06	1.06	20	23	3.0	0.05	0.76
180°	2.1	200	2.6	0.07	1.21	22	25	**1.8**	**0.06**	**0.98**
	2.5	250	2.8	0.08	1.40	21	24	2.1	0.07	1.10
	2.8	**280**	**3.0**	**0.10**	**1.59**	**21**	**24**	2.4	0.07	1.21
	3.0	300	3.3	0.10	1.74	19	22	2.4	0.08	1.36
	3.5	350	3.4	0.11	1.82	19	22	2.7	0.09	1.44
	3.8	380	3.5	0.11	1.89	18	21	3.0	0.09	1.51
210°	2.1	200	2.6	0.08	1.40	22	25	**1.8**	**0.07**	**1.15**
	2.5	250	2.8	0.10	1.67	22	25	2.1	0.08	1.28
	2.8	**280**	**3.0**	**0.11**	**1.85**	**21**	**24**	2.4	0.08	1.41
	3.0	300	3.2	0.12	2.01	20	23	2.4	0.10	1.59
	3.5	350	3.4	0.13	2.12	19	22	2.7	0.10	1.68
	3.8	380	3.5	0.13	2.20	18	21	3.0	0.11	1.77
360°	2.1	200	2.6	0.14	2.38	22	25	**1.8**	**0.11**	**1.78**
	2.5	250	2.8	0.16	2.65	20	23	2.1	0.12	1.97
	2.8	**280**	**3.0**	**0.18**	**2.95**	**20**	**23**	2.4	0.13	2.12
	3.0	300	3.1	0.19	3.22	20	23	2.4	0.13	2.23
	3.5	350	3.3	0.20	3.33	19	21	2.7	0.14	2.38
	3.8	380	3.5	0.22	3.71	18	21	3.0	0.16	2.65

Bold = Optimal pressure for the MP Rotator is 2.8 bar; 280 kPa. This can easily be achieved by using the MP Rotator with the Hunter PRS40 Spray Body, pressure regulated at 2.8 bar; 280 kPa.

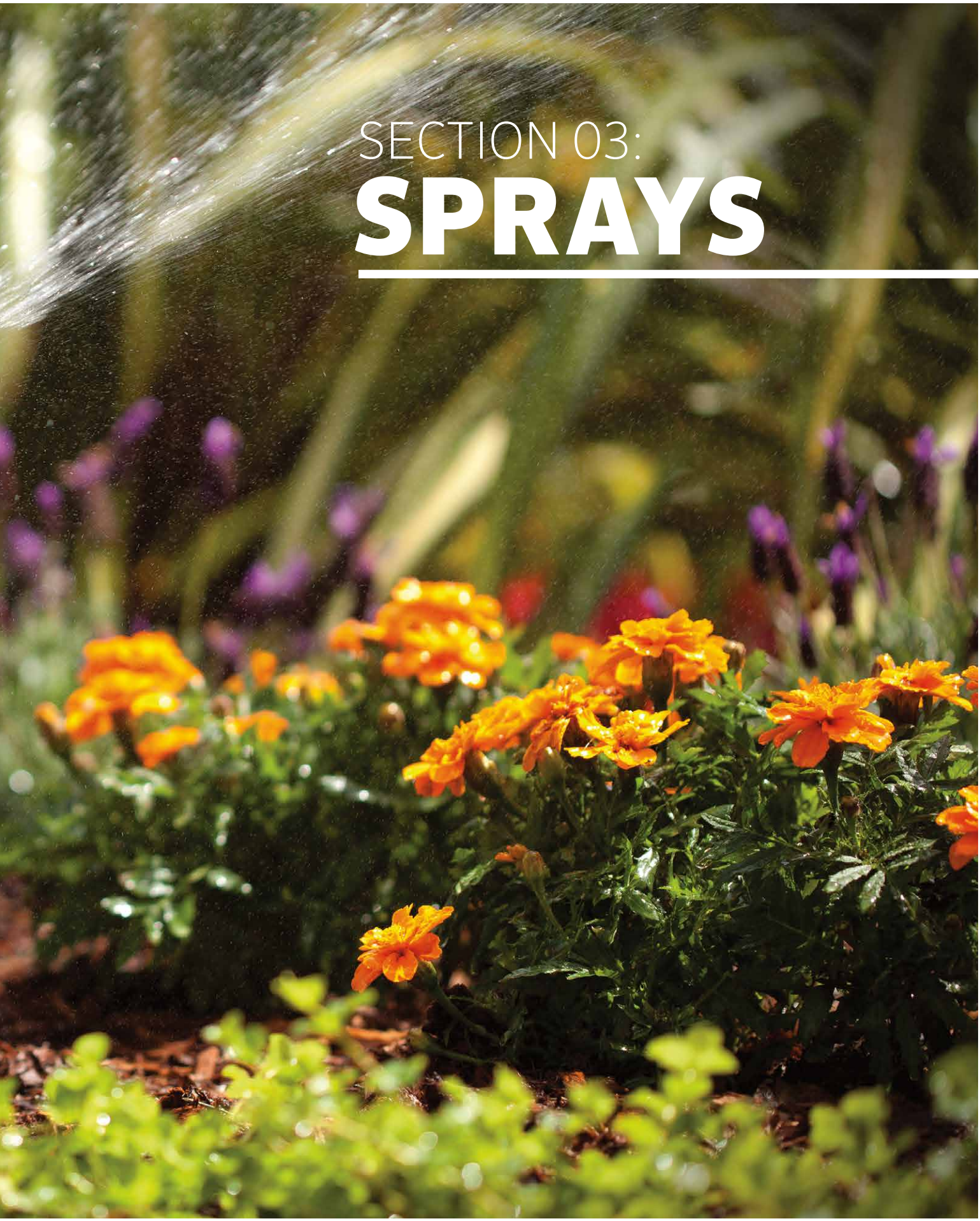
MP800SR

Efficient Watering For Spaces Under 2.4 Metres

Efficiently simulating natural rainfall has always been a challenge in small spaces. Most spray nozzles with short radius capability apply water much faster than the soil can absorb (50 mm/hr or more), and typically have poor uniformity. Therefore, many users resort to drip irrigation which does not simulate rainfall, and cannot be used in turf applications. Up to now, high-volume, inefficient overhead sprays have been the only solution.

Now, Hunter introduces the MP800SR, a high-efficiency overhead irrigation solution for small spaces. The MP800SR will adjust down to 1.8 m, and uses a low precipitation rate of 20 mm/hr to help avoid runoff. Its superior distribution uniformity ensures that the least amount of water is used to get the job done.

To achieve its lowest radius setting of 1.8 m, an inlet pressure of 2.1 bar; 210 kPa is required. The MP800SR should be paired with the PRS30 in this application.



SECTION 03: SPRAYS

SPRAYS
ADVANCED FEATURES

STRENGTH & DURABILITY

CO-MOLDED WIPER SEAL

The pressure-activated, multi-function wiper seal regulates flow-by during start up, keeping debris out of the seal to reduce riser stick-ups. Once the head is fully popped up, the wiper seal completely seals off the riser gap allowing for the maximum number of heads per zone.

INNOVATIVE SEAL DESIGN

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

HEAVY-DUTY SPRING

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

PRO-SPRAY® CHECK VALVE

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

PRESSURE REGULATED TO 2.1 & 2.8 BAR

Hunter's pressure regulated pop-up sprays are calibrated for the needs of any installation. The PRS30 with the brown cap optimises performance of traditional sprays at 2.1 bar; 210 kPa. The grey-capped 2.8 bar; 280 kPa PRS40 is designed for the efficient MP Rotator and is the only 2.8 bar; 280 kPa regulated pop-up on the market today.

INDUSTRY'S STRONGEST SPRAY BODY

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

COMPETITOR

PRO-SPRAY

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

SPRAY BODY COMPARISON CHART

QUICK SPECS		PS ULTRA	PRO-SPRAY®	PRS30	PRS40
		Good	Better	Best for Sprays	Best for MP Rotator®
POP-UP HEIGHT	cm	5, 10, 15	Shrub, 5, 7.5, 10, 15, 30	Shrub, 10, 15, 30	Shrub, 10, 15, 30
PRESSURE REGULATED	bar	N/A	N/A	2.1	2.8
	kPa	N/A	N/A	210	280
FEATURES					
PRE-INSTALLED NOZZLE		5SS, 10A, 12A, 15A, 17A	N/A	N/A	N/A
CAP COLOUR		Black	Black	Brown	Grey
CHECK VALVES		Field Installed	Field Installed or Factory Installed	Field Installed or Factory Installed	Factory Installed
WARRANTY		2 Years	5 Years	5 Years	5 Years
ADVANCED FEATURES					
BODY STYLE		Slim Line	Rugged Body	Rugged Body	Rugged Body
SPRING		Standard	Heavy Duty	Heavy Duty	Heavy Duty
CO-MOLDED WIPER SEAL			●	●	●
RECLAIMED CAP			●	●	●
PRESSURE REGULATION				●	●
APPLICATIONS					
TURFGRASS		●	●	●	●
TURFGRASS: TALL MOWING HEIGHT		●	●	●	●
SHRUBS: SPRINKLERS ON RISERS			●	●	●
SHRUBS: TALL POP-UP SPRINKLERS			●	●	●
RESIDENTIAL		●	●	●	●
COMMERCIAL/MUNICIPALITIES			●	●	●
HIGH TRAFFIC AREAS			●	●	●
RECLAIMED WATER			●	●	●

PS ULTRA

Models: **5 cm, 10 cm, 15 cm**
Inlet: **½"**

FEATURES

- Models: 5 cm, 10 cm, 15 cm
- Pre-installed Pro Adjustable or Strip nozzle option
- Durable cap
- 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: 1.0 to 4.8 bar; 100 to 480 kPa

FACTORY INSTALLED OPTIONS

- Nozzles: 3.0 m, 3.7 m, 4.6 m, 5.2 m, 1.5 x 9.0 m side strip (side strip pattern available on 5 cm and 10 cm models only)
- Flush plug (large filter screen not included)
- Optional extra large filter screen

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 56*

PSU-02
Retracted height: 13 cm
Pop-up height: 5 cm
Exposed diameter: 3 cm
Inlet size: ½"

PSU-04
Retracted height: 18 cm
Pop-up height: 10 cm
Exposed diameter: 3 cm
Inlet size: ½"

PSU-06
Retracted height: 24 cm
Pop-up height: 15 cm
Exposed diameter: 3 cm
Inlet size: ½"

PS ULTRA – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Nozzles	3 Optional
PSU-02 = 5 cm Pop-up	**(blank)** = Flush plug, no large filter screen	**NFO** = Nozzle filter only *(Available for10 cm model only)* Substitute standard installation of large inlet filter screen and receive unit with the nozzle filter only
PSU-04 = 10 cm Pop-up	**10A** = 3.0 m adjustable nozzle	
PSU-06 = 15 cm Pop-up	**12A** = 3.7 m adjustable nozzle	
	15A = 4.6 m adjustable nozzle	
	17A = 5.2 m adjustable nozzle	
	5SS = 1.5 m x 9.0 m side strip *(02 and 04 only)*	

Examples:
PSU-02 - 5SS = 5 cm Pop-up, with a 1.5 m x 9.0 m side strip
PSU-06 - 10A = 15 cm Pop-up, with a 3.0 m adjustable nozzle
PSU-04 = 10 cm Pop-up, with flush plug, large filter screen not included
PSU-04 - 12A - NFO = 10 cm Pop-up, with a 3.7 m adjustable nozzle

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

10A ● Red — 3.0 m radius, Adjustable from 0° to 360°, Trajectory: 15°

12A ● Green — 3.7 m radius, Adjustable from 0° to 360°, Trajectory: 28°

Arc	Pressure bar	Pressure kPa	10A Radius m	10A Flow m³/hr	10A Flow l/min	10A Precip mm/hr ■	10A Precip mm/hr ▲	12A Radius m	12A Flow m³/hr	12A Flow l/min	12A Precip mm/hr ■	12A Precip mm/hr ▲
45°	1.0	100	2.6	0.04	0.68	49	56	3.2	0.04	0.73	34	40
	1.5	150	2.8	0.05	0.80	49	57	3.4	0.06	0.97	40	46
	2.1	**210**	**3.0**	**0.06**	**0.94**	**49**	**56**	**3.7**	**0.07**	**1.23**	**44**	**51**
	2.5	250	3.2	0.06	1.06	48	56	3.9	0.09	1.44	46	54
	3.0	300	3.5	0.07	1.18	47	54	4.1	0.10	1.68	48	56
90°	1.0	100	2.6	0.08	1.35	49	56	3.2	0.09	1.46	34	40
	1.5	150	2.8	0.10	1.61	49	57	3.4	0.12	1.93	40	46
	2.1	**210**	**3.0**	**0.11**	**1.89**	**49**	**56**	**3.7**	**0.15**	**2.46**	**44**	**51**
	2.5	250	3.2	0.13	2.11	48	56	3.9	0.17	2.88	46	54
	3.0	300	3.5	0.14	2.37	47	54	4.1	0.20	3.36	48	56
120°	1.0	100	2.6	0.11	1.80	49	56	3.2	0.12	1.94	34	40
	1.5	150	2.8	0.13	2.14	49	57	3.4	0.15	2.58	40	46
	2.1	**210**	**3.0**	**0.15**	**2.52**	**49**	**56**	**3.7**	**0.20**	**3.28**	**44**	**51**
	2.5	250	3.2	0.17	2.82	48	56	3.9	0.23	3.84	46	54
	3.0	300	3.5	0.19	3.16	47	54	4.1	0.27	4.48	48	56
180°	1.0	100	2.6	0.16	2.71	49	56	3.2	0.17	2.91	34	40
	1.5	150	2.8	0.19	3.21	49	57	3.4	0.23	3.86	40	46
	2.1	**210**	**3.0**	**0.23**	**3.78**	**49**	**56**	**3.7**	**0.30**	**4.92**	**44**	**51**
	2.5	250	3.2	0.25	4.23	48	56	3.9	0.35	5.76	46	54
	3.0	300	3.5	0.28	4.73	47	54	4.1	0.40	6.71	48	56
240°	1.0	100	2.6	0.22	3.61	49	56	3.2	0.23	3.88	34	40
	1.5	150	2.8	0.26	4.28	49	57	3.4	0.31	5.15	40	46
	2.1	**210**	**3.0**	**0.30**	**5.03**	**49**	**56**	**3.7**	**0.39**	**6.56**	**44**	**51**
	2.5	250	3.2	0.34	5.64	48	56	3.9	0.46	7.68	46	54
	3.0	300	3.5	0.38	6.31	47	54	4.1	0.54	8.95	48	56
270°	1.0	100	2.6	0.24	4.06	49	56	3.2	0.26	4.37	34	40
	1.5	150	2.8	0.29	4.82	49	57	3.4	0.35	5.80	40	46
	2.1	**210**	**3.0**	**0.34**	**5.66**	**49**	**56**	**3.7**	**0.44**	**7.38**	**44**	**51**
	2.5	250	3.2	0.38	6.34	48	56	3.9	0.52	8.65	46	54
	3.0	300	3.5	0.43	7.10	47	54	4.1	0.60		48	56
360°	1.0	100	2.6	0.32	5.41	49	56	3.2	0.35	5.83	34	40
	1.5	150	2.8	0.39	6.43	49	57	3.4	0.46	7.73	40	46
	2.1	**210**	**3.0**	**0.45**	**7.55**	**49**	**56**	**3.7**	**0.59**	**9.84**	**44**	**51**
	2.5	250	3.2	0.51	8.45	48	56	3.9	0.69	11.53	46	54
	3.0	300	3.5	0.57	9.47	47	54	4.1	0.81	13.43	48	56

Bold = Recommended pressure

PS ULTRA STANDARD NOZZLES PERFORMANCE DATA

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

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

Arc	Pressure		15A Radius	15A Flow		15A Precip mm/hr		17A Radius	17A Flow		17A Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	4.0	0.08	1.27	38	43	4.6	0.10	1.68	38	43
	1.5	150	4.3	0.09	1.51	39	45	4.9	0.12	1.94	38	44
	2.1	**210**	**4.6**	**0.11**	**1.79**	**40**	**46**	**5.2**	**0.13**	**2.23**	**39**	**45**
	2.5	250	4.9	0.12	2.00	40	46	5.5	0.15	2.46	39	45
	3.0	300	5.2	0.14	2.25	40	46	5.8	0.16	2.72	39	45
90°	1.0	100	4.0	0.15	2.53	38	43	4.6	0.20	3.36	38	43
	1.5	150	4.3	0.18	3.03	39	45	4.9	0.23	3.88	38	44
	2.1	**210**	**4.6**	**0.21**	**3.57**	**40**	**46**	**5.2**	**0.27**	**4.45**	**39**	**45**
	2.5	250	4.9	0.24	4.01	40	46	5.5	0.30	4.92	39	45
	3.0	300	5.2	0.27	4.50	40	46	5.8	0.33	5.44	39	45
120°	1.0	100	4.0	0.20	3.38	38	43	4.6	0.27	4.48	38	43
	1.5	150	4.3	0.24	4.03	39	45	4.9	0.31	5.17	38	44
	2.1	**210**	**4.6**	**0.29**	**4.76**	**40**	**46**	**5.2**	**0.36**	**5.94**	**39**	**45**
	2.5	250	4.9	0.32	5.34	40	46	5.5	0.39	6.56	39	45
	3.0	300	5.2	0.36	6.00	40	46	5.8	0.43	7.25	39	45
180°	1.0	100	4.0	0.30	5.07	38	43	4.6	0.40	6.71	38	43
	1.5	150	4.3	0.36	6.05	39	45	4.9	0.47	7.75	38	44
	2.1	**210**	**4.6**	**0.43**	**7.14**	**40**	**46**	**5.2**	**0.53**	**8.91**	**39**	**45**
	2.5	250	4.9	0.48	8.02	40	46	5.5	0.59	9.83	39	45
	3.0	300	5.2	0.54	9.00	40	46	5.8	0.65	10.87	39	45
240°	1.0	100	4.0	0.41	6.76	38	43	4.6	0.54	8.95	38	43
	1.5	150	4.3	0.48	8.07	39	45	4.9	0.62	10.34	38	44
	2.1	**210**	**4.6**	**0.57**	**9.52**	**40**	**46**	**5.2**	**0.71**	**11.88**	**39**	**45**
	2.5	250	4.9	0.64	10.69	40	46	5.5	0.79	13.11	39	45
	3.0	300	5.2	0.72	12.00	40	46	5.8	0.87	14.50	39	45
270°	1.0	100	4.0	0.46	7.60	38	43	4.6	0.60	10.07	38	43
	1.5	150	4.3	0.54	9.08	39	45	4.9	0.70	11.63	38	44
	2.1	**210**	**4.6**	**0.64**	**10.71**	**40**	**46**	**5.2**	**0.80**	**13.36**	**39**	**45**
	2.5	250	4.9	0.72	12.03	40	46	5.5	0.89	14.75	39	45
	3.0	300	5.2	0.81	13.50	40	46	5.8	0.98	16.31	39	45
360°	1.0	100	4.0	0.61	10.13	38	43	4.6	0.81	13.43	38	43
	1.5	150	4.3	0.73	12.10	39	45	4.9	0.93	15.51	38	44
	2.1	**210**	**4.6**	**0.86**	**14.28**	**40**	**46**	**5.2**	**1.07**	**17.82**	**39**	**45**
	2.5	250	4.9	0.96	16.03	40	46	5.5	1.18	19.67	39	45
	3.0	300	5.2	1.08	18.00	40	46	5.8	1.30	21.75	39	45

Bold = Recommended pressure

STRIP PATTERN NOZZLE PERFORMANCE DATA

Model	Pressure		Width x Length	Flow	
	bar	kPa	m	m³/hr	l/min
SS-530	1.0	100	1.2 x 8.5	0.21	3.5
	1.5	150	1.5 x 9.0	0.25	4.2
	2.0	200	1.5 x 9.0	0.29	4.9
	2.1	**210**	**1.5 x 9.0**	**0.30**	**5.0**
	2.5	250	1.5 x 9.0	0.33	5.5

Bold = Recommended pressure

PRO-SPRAY®

Models: **Shrub, 5 cm, 7.5 cm, 10 cm, 15 cm, 30 cm**
Inlet: **½"**

FEATURES

- Models: Shrub, 5 cm, 7.5 cm, 10 cm, 15 cm, 30 cm
- Compatible with all female threaded nozzles
- No side inlet (NSI) version available in 15 cm and 30 cm
- Innovative directional flush plug
- 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: 1.0 to 7.0 bar; 100 to 700 kPa

FACTORY INSTALLED OPTIONS

- Drain check valve (up to 3 m of elevation)
- Reclaimed water ID cap

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 56*

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

PROS-00
Retracted height: 4 cm
Inlet size: ½"

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

PROS-03
Retracted height: 12.5 cm
Pop-up height: 7.5 cm
Exposed diameter: 5.7 cm
Inlet size: ½"

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

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

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

PRO-SPRAY – SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
PROS-00 = Shrub Adapter	**(blank)** = No option
PROS-02 = 5 cm Pop-up	**CV** = Factory-installed drain check valve *(Pop-up models only) 15 cm and 30 cm models ordered*
PROS-03 = 7.5 cm Pop-up	**R** = Factory-installed reclaimed body cap *(shrub molded in purple)*
PROS-04 = 10 cm Pop-up	
PROS-06 = 15 cm Pop-up	
PROS-06-NSI = 15 cm Pop-up (no side inlet)	
PROS-12 = 30 cm Pop-up	
PROS-12-NSI = 30 cm Pop-up (no side inlet)	

Examples:
PROS-04 = 10 cm Pop-up
PROS-06 - CV = 15 cm Pop-up, drain check valve
PROS-12 - CV - R = 30 cm Pop-up, drain check valve, reclaimed body cap

PRS30

PRESSURE REGULATED

Models: **Shrub, 10 cm, 15 cm, 30 cm**
Pressure Regulation: **2.1 bar; 210 kPa**

FEATURES

- Models: Shrub, 10 cm, 15 cm, 30 cm
- No side inlet (NSI) version available in 15 cm and 30 cm
- 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 2.1 bar

OPERATING SPECIFICATIONS

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

FACTORY INSTALLED OPTIONS

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

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 56*

PRS30 Reclaimed
PRS30 models include optional factory-installed purple reclaimed caps.

Related Solutions: Works Best With
Pro-Spray Fixed Arc Nozzles and ProAdjustable Nozzles work best with the PRS30.

PRS30 – SPECIFICATION BUILDER: ORDER 1 + 2

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

Examples:
PROS-04-PRS30 = 10 cm Pop-up regulated at 2.1 bar; 210 kPa
PROS-06-PRS30 - CV = 15 cm Pop-up regulated at 2.1 bar; 210 kPa, drain check valve
PROS-12-PRS30 - CV - R = 30 cm Pop-up regulated at 2.1 bar; 210 kPa, drain check valve, and reclaimed body cap

PROS-00-PRS30
Retracted height: 11 cm
Inlet size: ½"

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

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

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

PRS40

PRESSURE REGULATED

Models: **Shrub, 10 cm, 15 cm, 30 cm**
Pressure Regulation: **2.8 bar; 280 kPa**

FEATURES

- Models: Shrub, 10 cm, 15 cm, 30 cm
- Grey identification cap for easy field ID
- Innovative directional flush plug design
- Drain check valve installed with up to 4.3 m of elevation comes standard
- 15 cm and 30 cm models come standard as no side inlet (NSI), ensuring proper installation with check valve
- 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 2.8 bar

OPERATING SPECIFICATIONS

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

FACTORY INSTALLED OPTIONS

- Reclaimed water ID cap

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 56*

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

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

PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2

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

Examples:
PROS-04-PRS40 = 10 cm Pop-up regulated at 2.8 bar
PROS-06-PRS40 - CV = 15 cm Pop-up regulated at 2.8 bar and drain check valve
PROS-12-PRS40 - CV - R = 30 cm Pop-up regulated at 2.8 bar, drain check valve and reclaimed body cap

PROS-00-PRS40
Retracted height: 11 cm
Inlet size: ½"

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

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

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

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
- Colour-coded for easy field identification
- Adjustable from 0° to 360°

OPERATING SPECIFICATIONS

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

4A Nozzle
Radius: 1.2 m

6A Nozzle
Radius: 1.8 m

8A Nozzle
Radius: 2.4 m

10A Nozzle
Radius: 3.0 m

12A Nozzle
Radius: 3.7 m

15A Nozzle
Radius: 4.6 m

17A Nozzle
Radius: 5.2 m

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

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

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

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

Arc	Pressure		4A Radius	4A Flow		4A Precip mm/hr		6A Radius	6A Flow		6A Precip mm/hr		8A Radius	8A Flow		8A Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	0.9	0.02	0.31	187	216	1.5	0.03	0.54	117	136	2.0	0.04	0.62	77	89
	1.5	150	1.0	0.02	0.39	178	206	1.6	0.04	0.60	108	124	2.2	0.04	0.72	72	83
	2.1	**210**	**1.2**	**0.03**	**0.48**	**167**	**193**	**1.8**	**0.04**	**0.65**	**98**	**114**	**2.4**	**0.05**	**0.83**	**67**	**77**
	2.5	250	1.3	0.03	0.56	158	183	1.9	0.04	0.70	92	106	2.6	0.05	0.91	63	73
	3.0	300	1.4	0.04	0.64	149	172	2.1	0.05	0.75	86	99	2.9	0.06	1.01	59	68
90°	1.0	100	0.9	0.02	0.31	93	108	1.5	0.06	1.08	116	134	2.0	0.07	1.24	77	89
	1.5	150	1.0	0.02	0.39	89	103	1.6	0.07	1.21	109	126	2.2	0.09	1.44	72	83
	2.1	**210**	**1.2**	**0.03**	**0.48**	**84**	**97**	**1.8**	**0.08**	**1.35**	**102**	**118**	**2.4**	**0.10**	**1.65**	**67**	**77**
	2.5	250	1.3	0.03	0.56	79	91	1.9	0.09	1.47	97	112	2.6	0.11	1.82	63	73
	3.0	300	1.4	0.04	0.64	75	86	2.1	0.10	1.61	92	106	2.9	0.12	2.02	59	68
120°	1.0	100	0.9	0.06	0.97	221	255	1.5	0.08	1.26	102	118	2.0	0.10	1.66	77	89
	1.5	150	1.0	0.07	1.10	188	217	1.6	0.09	1.43	97	112	2.2	0.11	1.92	72	83
	2.1	**210**	**1.2**	**0.07**	**1.25**	**162**	**187**	**1.8**	**0.10**	**1.61**	**91**	**105**	**2.4**	**0.13**	**2.20**	**67**	**77**
	2.5	250	1.3	0.08	1.36	146	168	1.9	0.11	1.76	87	100	2.6	0.15	2.43	63	73
	3.0	300	1.4	0.09	1.49	131	151	2.1	0.12	1.93	82	95	2.9	0.16	2.69	59	68
180°	1.0	100	0.9	0.07	1.18	178	206	1.5	0.10	1.70	92	106	2.0	0.15	2.49	77	89
	1.5	150	1.0	0.08	1.38	157	181	1.6	0.12	1.96	88	102	2.2	0.17	2.87	72	83
	2.1	**210**	**1.2**	**0.10**	**1.60**	**139**	**160**	**1.8**	**0.13**	**2.24**	**84**	**97**	**2.4**	**0.20**	**3.30**	**67**	**77**
	2.5	250	1.3	0.11	1.78	127	146	1.9	0.15	2.47	81	94	2.6	0.22	3.65	63	73
	3.0	300	1.4	0.12	1.98	115	133	2.1	0.16	2.72	78	90	2.9	0.24	4.03	59	68
240°	1.0	100	0.9	0.12	1.94	220	254	1.5	0.15	2.44	99	114	2.0	0.20	3.32	77	89
	1.5	150	1.0	0.13	2.24	192	221	1.6	0.17	2.83	96	111	2.2	0.23	3.83	72	83
	2.1	**210**	**1.2**	**0.16**	**2.59**	**168**	**194**	**1.8**	**0.20**	**3.28**	**92**	**107**	**2.4**	**0.26**	**4.40**	**67**	**77**
	2.5	250	1.3	0.17	2.86	153	177	1.9	0.22	3.63	89	103	2.6	0.29	4.86	63	73
	3.0	300	1.4	0.19	3.17	139	160	2.1	0.24	4.03	86	99	2.9	0.32	5.38	59	68
270°	1.0	100	0.9	0.13	2.09	211	244	1.5	0.18	3.08	111	128	2.0	0.22	3.73	77	89
	1.5	150	1.0	0.14	2.40	183	211	1.6	0.21	3.52	106	122	2.2	0.26	4.31	72	83
	2.1	**210**	**1.2**	**0.16**	**2.75**	**159**	**183**	**1.8**	**0.24**	**4.02**	**101**	**116**	**2.4**	**0.30**	**4.95**	**67**	**77**
	2.5	250	1.3	0.18	3.02	144	166	1.9	0.27	4.42	97	112	2.6	0.33	5.47	63	73
	3.0	300	1.4	0.20	3.33	130	150	2.1	0.29	4.87	92	107	2.9	0.36	6.05	59	68
360°	1.0	100	0.9	0.14	2.26	171	197	1.5	0.21	3.57	96	111	2.0	0.30	4.97	77	89
	1.5	150	1.0	0.16	2.60	148	171	1.6	0.24	4.07	92	106	2.2	0.34	5.75	72	83
	2.1	**210**	**1.2**	**0.18**	**2.98**	**129**	**149**	**1.8**	**0.28**	**4.62**	**87**	**100**	**2.4**	**0.40**	**6.61**	**67**	**77**
	2.5	250	1.3	0.20	3.29	117	135	1.9	0.30	5.06	83	96	2.6	0.44	7.29	63	73
	3.0	300	1.4	0.22	3.63	106	122	2.1	0.33	5.56	79	92	2.9	0.48	8.07	59	68

Bold = Recommended pressure

Note: The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 2.1 bar; 210 kPa. Adjusting the radius reduction screw may be required to achieve catalogue radius and flow.

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

10A — 3.0 m radius, Adjustable from 0° to 360°, Trajectory: 15°
● Red

12A — 3.7 m radius, Adjustable from 0° to 360°, Trajectory: 28°
● Green

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

Arc	Pressure		10A Radius	10A Flow		10A Precip mm/hr		12A Radius	12A Flow		12A Precip mm/hr		15A Radius	15A Flow		15A Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45°	1.0	100	2.6	0.04	0.68	49	56	3.2	0.04	0.73	34	40	4.0	0.08	1.27	38	43
	1.5	150	2.8	0.05	0.80	49	57	3.4	0.06	0.97	40	46	4.3	0.09	1.51	39	45
	2.1	**210**	**3.0**	**0.06**	**0.94**	**49**	**56**	**3.7**	**0.07**	**1.23**	**44**	**51**	**4.6**	**0.11**	**1.79**	**40**	**46**
	2.5	250	3.2	0.06	1.06	48	56	3.9	0.09	1.44	46	54	4.9	0.12	2.00	40	46
	3.0	300	3.5	0.07	1.18	47	54	4.1	0.10	1.68	48	56	5.2	0.14	2.25	40	46
90°	1.0	100	2.6	0.08	1.35	49	56	3.2	0.09	1.46	34	40	4.0	0.15	2.53	38	43
	1.5	150	2.8	0.10	1.61	49	57	3.4	0.12	1.93	40	46	4.3	0.18	3.03	39	45
	2.1	**210**	**3.0**	**0.11**	**1.89**	**49**	**56**	**3.7**	**0.15**	**2.46**	**44**	**51**	**4.6**	**0.21**	**3.57**	**40**	**46**
	2.5	250	3.2	0.13	2.11	48	56	3.9	0.17	2.88	46	54	4.9	0.24	4.01	40	46
	3.0	300	3.5	0.14	2.37	47	54	4.1	0.20	3.36	48	56	5.2	0.27	4.50	40	46
120°	1.0	100	2.6	0.11	1.80	49	56	3.2	0.12	1.94	34	40	4.0	0.20	3.38	38	43
	1.5	150	2.8	0.13	2.14	49	57	3.4	0.15	2.58	40	46	4.3	0.24	4.03	39	45
	2.1	**210**	**3.0**	**0.15**	**2.52**	**49**	**56**	**3.7**	**0.20**	**3.28**	**44**	**51**	**4.6**	**0.29**	**4.76**	**40**	**46**
	2.5	250	3.2	0.17	2.82	48	56	3.9	0.23	3.84	46	54	4.9	0.32	5.34	40	46
	3.0	300	3.5	0.19	3.16	47	54	4.1	0.27	4.48	48	56	5.2	0.36	6.00	40	46
180°	1.0	100	2.6	0.16	2.71	49	56	3.2	0.17	2.91	34	40	4.0	0.30	5.07	38	43
	1.5	150	2.8	0.19	3.21	49	57	3.4	0.23	3.86	40	46	4.3	0.36	6.05	39	45
	2.1	**210**	**3.0**	**0.23**	**3.78**	**49**	**56**	**3.7**	**0.30**	**4.92**	**44**	**51**	**4.6**	**0.43**	**7.14**	**40**	**46**
	2.5	250	3.2	0.25	4.23	48	56	3.9	0.35	5.76	46	54	4.9	0.48	8.02	40	46
	3.0	300	3.5	0.28	4.73	47	54	4.1	0.40	6.71	48	56	5.2	0.54	9.00	40	46
240°	1.0	100	2.6	0.22	3.61	49	56	3.2	0.23	3.88	34	40	4.0	0.41	6.76	38	43
	1.5	150	2.8	0.26	4.28	49	57	3.4	0.31	5.15	40	46	4.3	0.48	8.07	39	45
	2.1	**210**	**3.0**	**0.30**	**5.03**	**49**	**56**	**3.7**	**0.39**	**6.56**	**44**	**51**	**4.6**	**0.57**	**9.52**	**40**	**46**
	2.5	250	3.2	0.34	5.64	48	56	3.9	0.46	7.68	46	54	4.9	0.64	10.69	40	46
	3.0	300	3.5	0.38	6.31	47	54	4.1	0.54	8.95	48	56	5.2	0.72	12.00	40	46
270°	1.0	100	2.6	0.24	4.06	49	56	3.2	0.26	4.37	34	40	4.0	0.46	7.60	38	43
	1.5	150	2.8	0.29	4.82	49	57	3.4	0.35	5.80	40	46	4.3	0.54	9.08	39	45
	2.1	**210**	**3.0**	**0.34**	**5.66**	**49**	**56**	**3.7**	**0.44**	**7.38**	**44**	**51**	**4.6**	**0.64**	**10.71**	**40**	**46**
	2.5	250	3.2	0.38	6.34	48	56	3.9	0.52	8.65	46	54	4.9	0.72	12.03	40	46
	3.0	300	3.5	0.43	7.10	47	54	4.1	0.60	10.07	48	56	5.2	0.81	13.50	40	46
360°	1.0	100	2.6	0.32	5.41	49	56	3.2	0.35	5.83	34	40	4.0	0.61	10.13	38	43
	1.5	150	2.8	0.39	6.43	49	57	3.4	0.46	7.73	40	46	4.3	0.73	12.10	39	45
	2.1	**210**	**3.0**	**0.45**	**7.55**	**49**	**56**	**3.7**	**0.59**	**9.84**	**44**	**51**	**4.6**	**0.86**	**14.28**	**40**	**46**
	2.5	250	3.2	0.51	8.45	48	56	3.9	0.69	11.53	46	54	4.9	0.96	16.03	40	46
	3.0	300	3.5	0.57	9.47	47	54	4.1	0.81	13.43	48	56	5.2	1.08	18.00	40	46

Bold = Recommended pressure
Note: The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 2.1 bar; 210 kPa. Adjusting the radius reduction screw may be required to achieve catalogue radius and flow.

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA

17A ● Grey

5.2 m radius
Adjustable from 0° to 360°
Trajectory: 28°

Arc	Pressure bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
45°	1.0	100	4.6	0.10	1.68	38	43
	1.5	150	4.9	0.12	1.94	38	44
	2.1	**210**	**5.2**	**0.13**	**2.23**	**39**	**45**
	2.5	250	5.5	0.15	2.46	39	45
	3.0	300	5.8	0.16	2.72	39	45
90°	1.0	100	4.6	0.20	3.36	38	43
	1.5	150	4.9	0.23	3.88	38	44
	2.1	**210**	**5.2**	**0.27**	**4.45**	**39**	**45**
	2.5	250	5.5	0.30	4.92	39	45
	3.0	300	5.8	0.33	5.44	39	45
120°	1.0	100	4.6	0.27	4.48	38	43
	1.5	150	4.9	0.31	5.17	38	44
	2.1	**210**	**5.2**	**0.36**	**5.94**	**39**	**45**
	2.5	250	5.5	0.39	6.56	39	45
	3.0	300	5.8	0.43	7.25	39	45
180°	1.0	100	4.6	0.40	6.71	38	43
	1.5	150	4.9	0.47	7.75	38	44
	2.1	**210**	**5.2**	**0.53**	**8.91**	**39**	**45**
	2.5	250	5.5	0.59	9.83	39	45
	3.0	300	5.8	0.65	10.87	39	45
240°	1.0	100	4.6	0.54	8.95	38	43
	1.5	150	4.9	0.62	10.34	38	44
	2.1	**210**	**5.2**	**0.71**	**11.88**	**39**	**45**
	2.5	250	5.5	0.79	13.11	39	45
	3.0	300	5.8	0.87	14.50	39	45
270°	1.0	100	4.6	0.60	10.07	38	43
	1.5	150	4.9	0.70	11.63	38	44
	2.1	**210**	**5.2**	**0.80**	**13.36**	**39**	**45**
	2.5	250	5.5	0.89	14.75	39	45
	3.0	300	5.8	0.98	16.31	39	45
360°	1.0	100	4.6	0.81	13.43	38	43
	1.5	150	4.9	0.93	15.51	38	44
	2.1	**210**	**5.2**	**1.07**	**17.82**	**39**	**45**
	2.5	250	5.5	1.18	19.67	39	45
	3.0	300	5.8	1.30	21.75	39	45

Bold = Recommended pressure
Note: The Pro-Spray PRS30's built-in pressure regulator controls output to a maximum of 2.1 bar; 210 kPa. Adjusting the radius reduction screw may be required to achieve catalogue radius and flow.

Pro Adjustable Nozzle

PRO-SPRAY® FIXED ARC NOZZLES

FEATURES

- Colour-coded for easy field identification
- Optimum droplet size minimises misting while maximising uniformity

OPERATING SPECIFICATIONS

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

PRO-SPRAY® 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 ● Blue — 1.5 m radius, Fixed: ¼, ½, Full, Trajectory: 0°

8 ● Brown — 2.4 m radius, Fixed: ¼, ⅓, ½, Full, Trajectory: 0°

10 ● Red — 3.0 m radius, Fixed: ¼, ⅓, ½, Full, Trajectory: 15°

Arc	Position	Pressure		5 Radius	5 Flow		5 Precip mm/hr		8 Radius	8 Flow		8 Precip mm/hr		10 Radius	10 Flow		10 Precip mm/hr	
		bar	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
90°	Q	1.0	100	1.1	0.02	0.30	60	69	1.7	0.04	0.62	51	59	2.4	0.07	1.08	45	52
		1.5	150	1.3	0.02	0.38	54	62	2.1	0.05	0.84	46	53	2.7	0.08	1.33	44	50
		2.0	200	1.5	0.03	0.45	48	55	2.4	0.06	1.00	42	48	3.0	0.09	1.53	41	47
		2.1	**210**	**1.5**	**0.03**	**0.46**	**49**	**57**	**2.4**	**0.06**	**1.03**	**43**	**49**	**3.0**	**0.09**	**1.57**	**42**	**48**
		2.5	250	1.7	0.03	0.51	42	49	2.7	0.07	1.13	37	43	3.3	0.10	1.71	38	44
120°	T	1.0	100						1.7	0.05	0.83	51	59	2.4	0.09	1.44	45	52
		1.5	150						2.1	0.07	1.12	46	53	2.7	0.11	1.77	44	50
		2.0	200	**Use 4A or 6A Nozzle**					2.4	0.08	1.33	42	48	3.0	0.12	2.04	41	47
		2.1	**210**						**2.4**	**0.08**	**1.37**	**43**	**49**	**3.0**	**0.13**	**2.09**	**42**	**48**
		2.5	250						2.7	0.09	1.51	37	43	3.3	0.14	2.28	38	44
180°	H	1.0	100	1.1	0.04	0.60	60	69	1.7	0.08	1.33	55	64	2.4	0.13	2.17	45	52
		1.5	150	1.3	0.05	0.76	54	62	2.1	0.10	1.69	46	53	2.7	0.16	2.65	44	50
		2.0	200	1.5	0.05	0.90	48	55	2.4	0.12	1.99	42	48	3.0	0.18	3.06	41	47
		2.1	**210**	**1.5**	**0.06**	**0.92**	**49**	**57**	**2.4**	**0.12**	**2.05**	**43**	**49**	**3.0**	**0.19**	**3.14**	**42**	**48**
		2.5	250	1.7	0.06	1.02	42	49	2.7	0.14	2.27	37	43	3.3	0.21	3.43	38	44
240°	TT	1.0	100															
		1.5	150															
		2.0	200	**Use 4A or 6A Nozzle**					**Use 8A Nozzle**					**Use 10A Nozzle**				
		2.1	**210**															
		2.5	250															
270°	TQ	1.0	100															
		1.5	150															
		2.0	200	**Use 4A or 6A Nozzle**					**Use 8A Nozzle**					**Use 10A Nozzle**				
		2.1	**210**															
		2.5	250															
360°	F	1.0	100	1.1	0.07	1.20	60	69	1.7	0.16	2.67	55	64	2.4	0.26	4.33	45	52
		1.5	150	1.3	0.09	1.52	54	62	2.1	0.20	3.37	46	53	2.7	0.32	5.31	44	50
		2.0	200	1.5	0.11	1.79	48	55	2.4	0.24	3.99	42	48	3.0	0.37	6.13	41	47
		2.1	**210**	**1.5**	**0.11**	**1.85**	**49**	**57**	**2.4**	**0.25**	**4.10**	**43**	**49**	**3.0**	**0.38**	**6.28**	**42**	**48**
		2.5	250	1.7	0.12	2.04	42	49	2.7	0.27	4.54	37	43	3.3	0.41	6.85	38	44

Bold = Recommended pressure

PRO-SPRAY® FIXED ARC NOZZLES PERFORMANCE DATA

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

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

17 ● Grey — 5.2 m radius; Fixed: ¼, ½; Trajectory: 28°

Arc	Position	Pressure bar	Pressure kPa	12 Radius m	12 Flow m³/hr	12 Flow l/min	12 Precip mm/hr ■	12 Precip mm/hr ▲	15 Radius m	15 Flow m³/hr	15 Flow l/min	15 Precip mm/hr ■	15 Precip mm/hr ▲	17 Radius m	17 Flow m³/hr	17 Flow l/min	17 Precip mm/hr ■	17 Precip mm/hr ▲
90°	Q	1.0	100	3.0	0.10	1.58	42	49	3.9	0.15	2.50	39	46	4.7	0.19	3.17	34	40
		1.5	150	3.4	0.12	2.00	42	48	4.2	0.18	3.06	42	48	4.9	0.23	3.88	39	45
		2.0	200	3.7	0.14	2.37	41	48	4.6	0.21	3.54	40	46	5.2	0.27	4.48	40	46
		2.1	**210**	**3.7**	**0.15**	**2.43**	**43**	**49**	**4.6**	**0.22**	**3.62**	**41**	**47**	**5.2**	**0.28**	**4.59**	**41**	**47**
		2.5	250	4.0	0.16	2.69	40	47	4.9	0.24	3.95	40	46	5.5	0.30	5.01	40	46
120°	T	1.0	100	3.0	0.13	2.11	42	49	3.9	0.20	3.33	39	46					
		1.5	150	3.4	0.16	2.67	42	48	4.2	0.24	4.08	42	48					
		2.0	200	3.7	0.19	3.16	41	48	4.6	0.28	4.71	40	46	**Use 17A Nozzle**				
		2.1	**210**	**3.7**	**0.19**	**3.25**	**43**	**49**	**4.6**	**0.29**	**4.83**	**41**	**47**					
		2.5	250	4.0	0.22	3.59	40	47	4.9	0.32	5.27	40	46					
180°	H	1.0	100	3.0	0.19	3.17	42	49	3.9	0.30	5.00	39	46	4.7	0.38	6.33	34	40
		1.5	150	3.4	0.24	4.01	42	48	4.2	0.37	6.12	42	48	4.9	0.47	7.76	39	45
		2.0	200	3.7	0.28	4.73	41	48	4.6	0.42	7.07	40	46	5.2	0.54	8.96	40	46
		2.1	**210**	**3.7**	**0.29**	**4.87**	**43**	**49**	**4.6**	**0.43**	**7.25**	**41**	**47**	**5.2**	**0.55**	**9.18**	**41**	**47**
		2.5	250	4.0	0.32	5.39	40	47	4.9	0.47	7.91	40	46	5.5	0.60	10.01	40	46
240°	TT	1.0	100	3.0	0.25	4.22	42	49	3.9	0.40	6.67	39	46					
		1.5	150	3.4	0.32	5.34	42	48	4.2	0.49	8.16	42	48					
		2.0	200	3.7	0.38	6.31	41	48	4.6	0.57	9.43	40	46	**Use 17A Nozzle**				
		2.1	**210**	**3.7**	**0.39**	**6.49**	**43**	**49**	**4.6**	**0.58**	**9.66**	**41**	**47**					
		2.5	250	4.0	0.43	7.18	40	47	4.9	0.63	10.54	40	46					
270°	TQ	1.0	100	3.0	0.29	4.75	42	49	3.9	0.45	7.50	39	46					
		1.5	150	3.4	0.36	6.01	42	48	4.2	0.55	9.19	42	48					
		2.0	200	3.7	0.43	7.10	41	48	4.6	0.64	10.61	40	46	**Use 17A Nozzle**				
		2.1	**210**	**3.7**	**0.44**	**7.30**	**43**	**49**	**4.6**	**0.65**	**10.87**	**41**	**47**					
		2.5	250	4.0	0.48	8.08	40	47	4.9	0.71	11.86	40	46					
360°	F	1.0	100	3.0	0.38	6.33	42	49	3.9	0.60	10.00	39	46					
		1.5	150	3.4	0.48	8.01	42	48	4.2	0.73	12.25	42	48					
		2.0	200	3.7	0.57	9.47	41	48	4.6	0.85	14.14	40	46	**Use 17A Nozzle**				
		2.1	**210**	**3.7**	**0.58**	**9.74**	**43**	**49**	**4.6**	**0.87**	**14.49**	**41**	**47**					
		2.5	250	4.0	0.65	10.78	40	47	4.9	0.95	15.81	40	46					

Bold = Recommended pressure

SHORT RADIUS NOZZLES

FEATURES

- Specifically designed for controlled irrigation of close-in spaces
- Built to last in harsh conditions
- Available in 0.6 m, 1.2 m and 1.8 m radius versions

SHORT RADIUS NOZZLES PERFORMANCE DATA

Nozzle Lt. Brown

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

Nozzle Lt. Green

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

Nozzle Lt. Blue

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

Bold = Recommended pressure

2Q Nozzle
Radius: 0.6 m

2H Nozzle
Radius: 0.6 m

4Q Nozzle
Radius: 1.2 m

4H Nozzle
Radius: 1.2 m

6Q Nozzle
Radius: 1.8 m

6H Nozzle
Radius: 1.8 m

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 bar	Pressure kPa	Width x Length m	Flow m^3/hr	Flow l/min
LCS-515	1.0	100	1.2 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	200	1.5 x 4.5	0.15	2.4
	2.1	**210**	**1.5 x 4.5**	**0.15**	**2.5**
	2.5	250	1.5 x 4.5	0.16	2.7
RCS-515	1.0	100	1.2 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	200	1.5 x 4.5	0.15	2.4
	2.1	**210**	**1.5 x 4.5**	**0.15**	**2.5**
	2.5	250	1.5 x 4.5	0.16	2.7
SS-530	1.0	100	1.2 x 8.5	0.21	3.5
	1.5	150	1.5 x 9.0	0.25	4.2
	2.0	200	1.5 x 9.0	0.29	4.9
	2.1	**210**	**1.5 x 9.0**	**0.30**	**5.0**
	2.5	250	1.5 x 9.0	0.33	5.5
ES-515	1.0	100	1.1 x 4.2	0.10	1.7
	1.5	150	1.2 x 4.3	0.13	2.1
	2.0	200	1.5 x 4.5	0.15	2.4
	2.1	**210**	**1.5 x 4.5**	**0.15**	**2.5**
	2.5	250	1.5 x 4.5	0.16	2.7
CS-530	1.0	100	1.2 x 8.5	0.21	3.5
	1.5	150	1.5 x 9.0	0.25	4.2
	2.0	200	1.5 x 9.0	0.29	4.9
	2.1	**210**	**1.5 x 9.0**	**0.30**	**5.0**
	2.5	250	1.5 x 9.0	0.33	5.5
SS-918	1.0	100	2.4 x 5.2	0.27	4.5
	1.5	150	2.7 x 5.5	0.33	5.5
	2.0	200	2.7 x 5.5	0.38	6.4
	2.1	**210**	**2.7 x 5.5**	**0.39**	**6.5**
	2.5	250	2.7 x 5.5	0.43	7.1

Bold = Recommended pressure

Left Corner Strip
Rectangle: 1.5 m x 4.5 m

Right Corner Strip
Rectangle: 1.5 m x 4.5 m

Side Strip
Rectangle: 1.5 m x 9.0 m

Side Strip
Rectangle: 2.7 m x 5.5 m

Center Strip
Rectangle: 1.5 m x 9.0 m

End Strip
Rectangle: 1.5 m x 4.5 m

STREAM NOZZLES

FEATURES

- 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 bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	2.1	0.05	0.9	52	60
	1.5	150	2.2	0.07	1.1	55	64
	2.0	200	2.4	0.08	1.4	57	66
	2.1	**210**	**2.4**	**0.09**	**1.4**	**57**	**66**
	2.5	250	2.6	0.10	1.6	58	67
180°	1.0	100	2.1	0.12	1.9	55	63
	1.5	150	2.2	0.13	2.1	51	58
	2.0	200	2.4	0.14	2.3	47	54
	2.1	**210**	**2.4**	**0.14**	**2.3**	**46**	**53**
	2.5	250	2.6	0.15	2.4	44	50
360°	1.0	100	2.1	0.24	4.0	56	65
	1.5	150	2.2	0.25	4.2	50	58
	2.0	200	2.4	0.26	4.4	45	52
	2.1	**210**	**2.4**	**0.26**	**4.4**	**44**	**51**
	2.5	250	2.6	0.27	4.6	41	47

Bold = Recommended pressure

MODEL S-16A STREAM SPRAY NOZZLE PERFORMANCE DATA

Arc	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	4.3	0.08	1.4	18	21
	1.5	150	4.6	0.10	1.6	18	21
	2.0	200	5.0	0.11	1.9	18	21
	2.1	**210**	**5.0**	**0.11**	**1.9**	**18**	**21**
	2.5	250	5.3	0.13	2.1	18	21
180°	1.0	100	4.3	0.14	2.3	14	17
	1.5	150	4.6	0.17	2.8	15	18
	2.0	200	5.0	0.20	3.3	16	18
	2.1	**210**	**5.0**	**0.20**	**3.4**	**16**	**19**
	2.5	250	5.3	0.23	3.8	16	19
360°	1.0	100	4.3	0.23	3.9	12	14
	1.5	150	4.6	0.30	5.0	14	16
	2.0	200	5.0	0.36	6.1	15	17
	2.1	**210**	**5.0**	**0.38**	**6.3**	**15**	**17**
	2.5	250	5.3	0.43	7.2	16	18

Bold = Recommended pressure

STREAM NOZZLES

S-8A
Radius: 2.1 m to 2.6 m

S-16A
Radius: 4.3 m to 5.3 m

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 m³/hr	Flow l/min	Radius m
	MSBN-25Q	0.06	0.9	0.30
	MSBN-50Q	0.11	1.9	0.46
	MSBN-50H	0.11	1.9	0.30
	MSBN-10H	0.23	3.8	0.46
	MSBN-10F	0.23	3.8	0.30
	MSBN-20F	0.45	7.6	0.46

Notes:
Typical spacing 0.6 to 1.2 m. Flows shown for pressures between 1.0 and 4.8 bar; 100 and 480 kPa.

Multi-Stream Bubbler

MULTI-STREAM BUBBLER NOZZLES

MSBN-25Q
Flow: 0.06 m³/hr;
0.9 l/min

MSBN-50Q/50H
Flow: 0.11 m³/hr;
1.9 l/min

MSBN-10H/10F
Flow: 0.23 m³/hr;
3.8 l/min

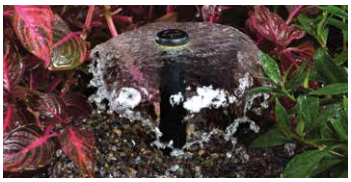
MSBN-20F
Flow: 0.45 m³/hr;
7.6 l/min

PCN PERFORMANCE DATA

	Model	Flow m³/hr	Flow l/min	Pattern Type
	25	0.06	0.9	Trickle
	50	0.11	1.9	Trickle
	10	0.23	3.8	Umbrella
	20	0.46	7.6	Umbrella

Notes:
Typical spacing 0.3 to 0.9 m. Flows shown for pressures between 1.0 and 4.8 bar; 100 and 480 kPa.

PCN



PRESSURE COMPENSATING BUBBLER NOZZLES

PCN-25
Flow: 0.06 m³/hr;
0.9 l/min

PCN-50
Flow: 0.11 m³/hr;
1.9 l/min

PCN-10
Flow: 0.23 m³/hr;
3.8 l/min

PCN-20
Flow: 0.46 m³/hr;
7.6 l/min

BUBBLERS

FEATURES

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

PCB PERFORMANCE DATA

Model	Flow m³/hr	Flow l/min	Pattern Type
25	0.06	0.9	Trickle
50	0.11	1.9	Trickle
10	0.23	3.8	Umbrella
20	0.45	7.6	Umbrella

Notes:
Typical spacing 0.6 to 1.2 m. Flows shown for pressures between 1.0 and 4.8 bar; 100 and 480 kPa.

PCB

PRESSURE COMPENSATING BUBBLERS

PCB

PCB-R

AFB PERFORMANCE DATA

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

AFB

ADJUSTABLE FLOOD BUBBLER

AFB

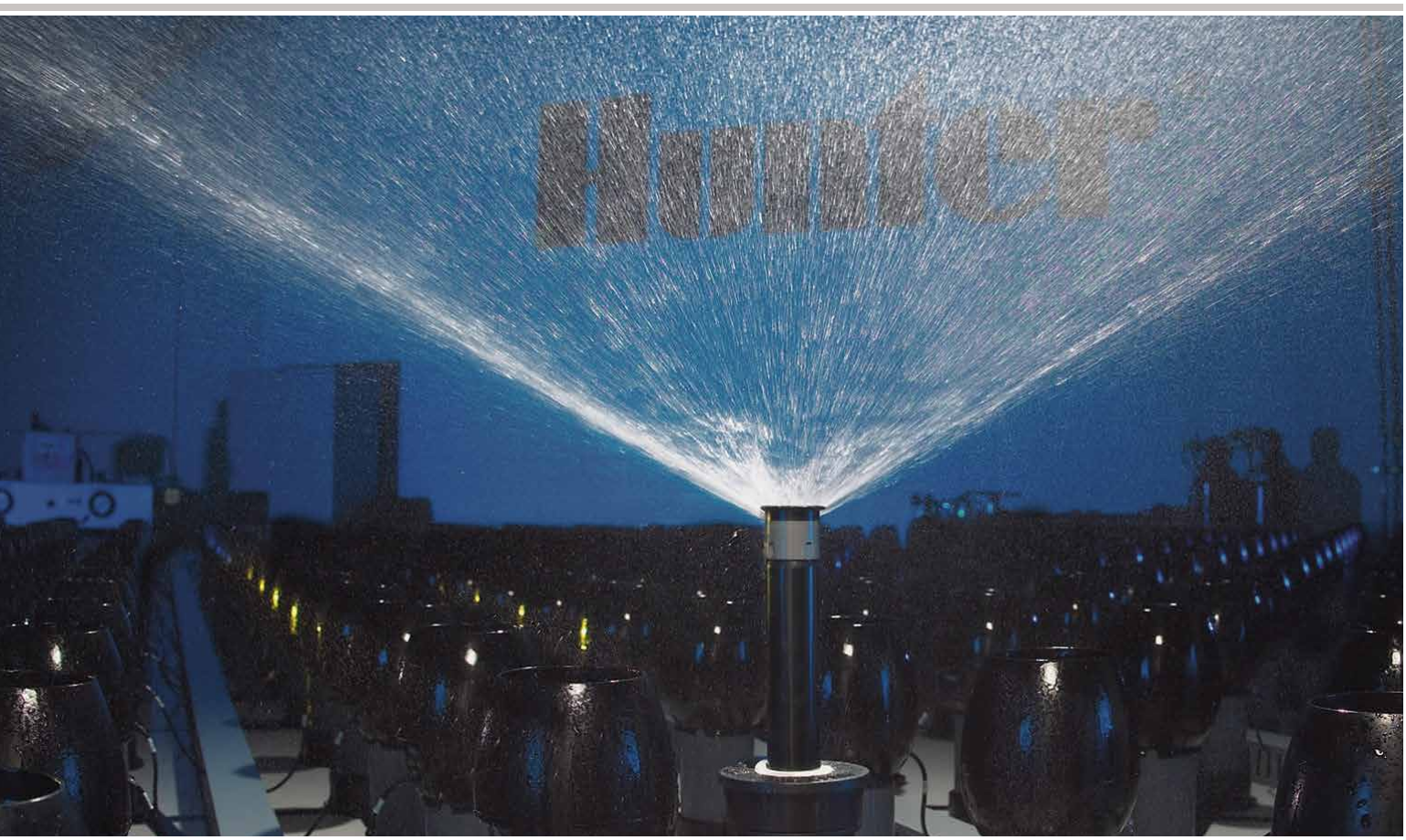
5-CST-B BUBBLER NOZZLE PERFORMANCE DATA

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

5-CST-B

DUAL-STREAM BUBBLER NOZZLE

5-CST-B



HUNTER SPRAY NOZZLES

Built to Take Care of Business

SPRAY BODIES:

Always Perform Under Pressure
With an industry-leading 41 bar; 410 kPa burst pressure, the Pro-Spray® is built to perform in the most demanding irrigation systems in the world.

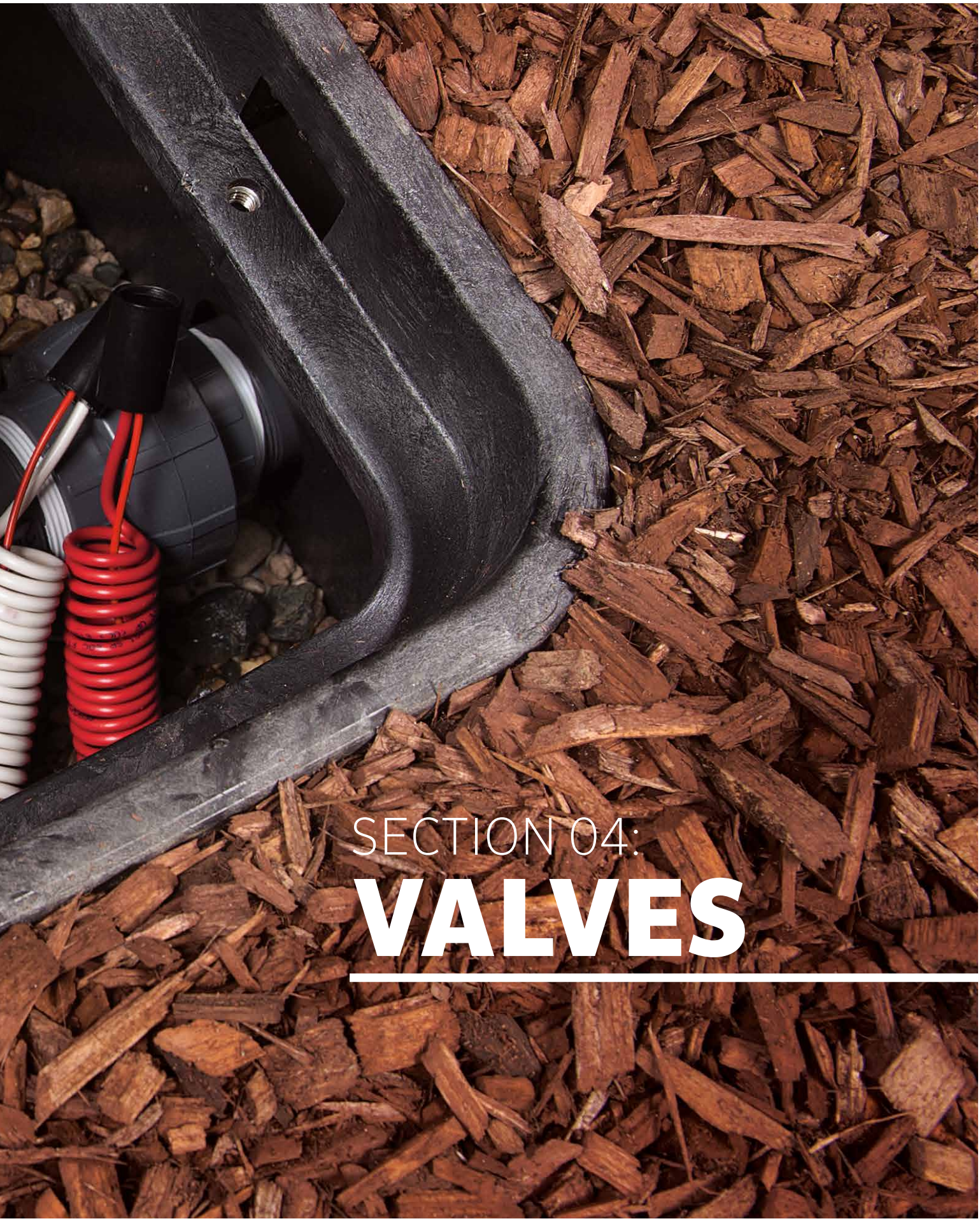
Innovative Seal Design
Most spray bodies leak when the cap is loosened only a quarter turn. The Pro-Spray can handle over one full turn of the cap with no leak or loss of performance.

SPRAY NOZZLES:

We've Got You Covered
The industry's strongest edges and uniform coverage at full radius means no section of landscape is missed.

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


OFF
ON
1/4 TURN



SECTION 04:

VALVES

VALVES
ADVANCED FEATURES

PRESSURE REGULATION

FLOW CONTROL

Available on:
PGV, ICV, IBV

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

RECLAIMED WATER IDENTIFICATION

Available on:
PGV, ICV, IBV

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

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.

FILTER SENTRY™

Available on:
ICV, IBV

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

VALVES COMPARISON CHART

QUICK SPECS	1" PGV & JAR TOP	PGV	ICV	ICV FILTER SENTRY™	IBV FILTER SENTRY™
SIZE	1" BSP	1½", 2" BSP	1", 1½", 2", 3" BSP	1", 1½", 2", 3" BSP	1", 1½", 2", 3" BSP
FLOW (m^3/hr)	0.05-9.00	0.05-34.00	0.05-68.00	0.05-68.00	0.05-68.00
FLOW (l/min)	0.7-150	0.7-570	0.4-1135	0.4-1135	0.4-1135
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			●	●	●

1" PGV & PGV JAR TOP

Inlet: **1" (25 mm)**
Flow: **0.05 to 9 m³/hr; 0.7 to 150 l/min**

FEATURES

- Size: 1" (25 mm)
- External and internal manual bleed allows quick and easy "at the valve" activation
- Double-beaded diaphragm seal design for superior 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: 66° C
- Warranty period: 2 years
- ▸ Flow control
- ▸ Accu-Sync® pressure regulation
- ▸ Optional reclaimed water ID

OPERATING SPECIFICATIONS

- Flow: 0.05 to 9 m³/hr; 0.7 to 150 l/min
- Recommended pressure range: 1.5 to 10 bar; 150 to 1,000 kPa

SOLENOID SPECIFICATIONS

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

FACTORY INSTALLED OPTIONS

- Valve without solenoid
- DC latching solenoid

USER INSTALLED OPTIONS

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

▸ = *Advanced Feature descriptions on page 80*

* Accu-Sync product information on page 92

PGV-100G
Inlet Diameter: 1" (25 mm)
Height: 13 cm
Length: 11 cm
Width: 6 cm

PGV-101G
Inlet Diameter: 1" (25 mm)
Height: 13 cm
Length: 11 cm
Width: 6 cm

PGV-100JT - G
Inlet Diameter: 1" (25 mm)
Height: 14 cm
Length: 11 cm
Width: 8 cm

PGV-101JT - G
Inlet Diameter: 1" (25 mm)
Height: 14 cm
Length: 11 cm
Width: 8 cm

PGV Jar Top

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-100G = 1" (25 mm) Globe valve, without flow control **PGV-101G** = 1" (25 mm) Globe valve, with flow control **PGV-100A** = 1" (25 mm) Angle valve, without flow control **PGV-101A** = 1" (25 mm) Angle valve, with flow control	**(blank)** = NPT threads **B** = BSP threads	**(blank)** = No Option **DC** = DC latching solenoid **LS** = Valve without solenoid	**(blank)** = No option **R** = Reclaimed water ID handle *(Except for PGV-100)* **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync® adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *1.4 bar*, **30 *** = *2.1 bar*, **40 *** = *2.8 bar* **50 *** = *3.5 bar*, **70 *** = *4.8 bar*
PGV-100 = 1" (25 mm) Globe valve, without flow control **PGV-101** = 1" (25 mm) Globe valve, with flow control	**MM** = Male x male (NPT) **MMB** = Male x male (BSP)		

Example:
PGV-101G - B - DC = 1" (25 mm) Globe valve, with flow control, BSP threads, and DC latching solenoid

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-100JT = 1" (25 mm) Globe jar top valve, without flow control **PGV-101JT** = 1" (25 mm) Globe jar top valve, with flow control	**GB** = BSP threads **MM** = Male x male (NPT) **MMB** = Male x male (BSP)	**(blank)** = No option **LS** = Less solenoid **DC** = DC latching solenoid	**(blank)** = No option **R** = Reclaimed water ID handle *(Except for PGV-100JT)* **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *1.4 bar*, **30 *** = *2.1 bar*, **40 *** = *2.8 bar* **50 *** = *3.5 bar*, **70 *** = *4.8 bar*

Examples:
PGV-100JT - GB = 1" (25 mm) Globe jar top valve, without flow control, and BSP threads
PGV-100JT - MMB = 1" (25 mm) Globe jar top valve, without flow control, and male BSP threads

PGV PRESSURE LOSS IN BAR

Flow m^3/hr	1"
0.3	0.1
1.0	0.1
2.5	0.1
3.5	0.1
4.5	0.2
5.5	0.3
6.5	0.4
8.0	0.8
9.0	1.0

PGV PRESSURE LOSS IN kPa

Flow l/min	1"
4	8.2
20	9.7
40	13
55	11
75	22
95	31
115	62
135	112
150	139

PGV-100-G Installed

PGV

Inlet: **1½" (40 mm), 2" (50 mm)**
Flow: **5 to 34 m³/hr; 75 to 570 l/min**

FEATURES

- Sizes: 1½" (40 mm), 2" (50 mm)
- 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: 66° C
- Warranty period: 2 years
- ▸ Flow control
- ▸ Accu-Sync® pressure regulation
- ▸ Optional reclaimed water ID handle

OPERATING SPECIFICATIONS

- Flow:
  - PGV-151: 5 to 27 m³/hr; 75 to 450 l/min
  - PGV-201: 5 to 34 m³/hr; 75 to 570 l/min
- Recommended pressure range: 1.5 to 10 bar; 150 to 1000 kPa

SOLENOID SPECIFICATIONS

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

FACTORY INSTALLED OPTIONS

- Valve without solenoid
- DC latching solenoid

USER INSTALLED OPTIONS

- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu-Sync pressure regulator
- Reclaimed water ID (P/N 607105)

▸ = *Advanced Feature descriptions on page 80*

PGV-151
Inlet Diameter: 1½" (40 mm)
Height: 19 cm
Length: 15 cm
Width: 11 cm

PGV-201
Inlet Diameter: 2" (50 mm)
Height: 20 cm
Length: 17 cm
Width: 13 cm

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

1 Model	2 Inlet/Outlet	3 Options (Factory Installed)	4 Options (User Installed)
PGV-151 = 1½" (40 mm) Globe/angle valve, with flow control **PGV-201** = 2" (50 mm) Globe/angle valve, with flow control	**(blank)** = NPT threads **B** = BSP threads	**(blank)** = No Option **DC** = DC latching solenoid **LS** = Valve w/o solenoid	**(blank)** = No option **R** = Reclaimed water ID handle **CC** = Solenoid conduit cover **DC** = DC latching solenoid **AS-ADJ** = Accu-Sync® adjustable pressure regulator **AS-xx*** = Accu-Sync pressure regulator **20 *** = *1.4 bar*, **30 *** = *2.1 bar* **40 *** = *2.8 bar*, **50 *** = *3.5 bar* **70 *** = *4.8 bar*

Examples:
PGV-151 - B - AS-ADJ = 1½" (40 mm) Globe valve, with flow control, BSP threads, and Accu-Sync adjustable pressure regulator

PGV PRESSURE LOSS IN kPa

Flow l/min	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
4	8	7				
20	9.5	7				
40	13	7				
55	11	7				
75	22	14	20	22	4	9
95	31	16	20	21	5.5	9
115	43	21	21	21	7.5	9.5
135			22	21	9	10
150			25	23	12	11
200			27	24	14	12
325			47	41	26	19
400			65	59	33	24
500			96	92	43	32
625					56	45
775					74	64

PGV PRESSURE LOSS IN BAR

Flow m^3/hr	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
0.3	0.1	0.1				
1.0	0.1	0.1				
2.5	0.1	0.1				
3.5	0.2	0.1				
4.5	0.2	0.1	0.2	0.2	0.1	0.1
7.0	0.4	0.2	0.2	0.2	0.1	0.1
8.0			0.2	0.2	0.1	0.1
9.0			0.2	0.2	0.1	0.1
11.0			0.3	0.2	0.1	0.1
13.5			0.3	0.3	0.1	0.1
18.0			0.4	0.4	0.2	0.1
22.5			0.6	0.5	0.3	0.2
27.0			0.8	0.8	0.4	0.3
30.5					0.6	0.5
34.0					0.7	0.6

ICV

Inlet: **1" (25 mm), 1½" (40 mm) 2" (50 mm), 3" (80 mm)**
Flow: **0.06 to 68 m³/hr; 0.4 to 1,135 l/min**

FEATURES

- Inlet: 1" (25 mm), 1½" (40 mm), 2" (50 mm), 3" (80 mm)
- External and internal manual bleed allows quick and easy "at the valve" activation
- Glass-filled nylon construction resulting 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 conditions
- 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: 66° C
- Warranty period: 5 years
- ▸ Flow control
- ▸ Filter Sentry™
- ▸ Accu-Sync® pressure regulation
- ▸ Optional reclaimed water ID

OPERATING SPECIFICATIONS

- Flow:
  - ICV-101G: 0.06 to 9 m³/hr; 0.4 to 150 l/min
  - ICV-151G: 4 to 34 m³/hr; 75 to 568 l/min
  - ICV-201G: 9 to 45 m³/hr; 150 to 757 l/min
  - ICV-301: 34 to 68 m³/hr; 570 to 1,135 l/min
- Recommended pressure range: 1.5 to 15.0 bar; 150 to 1500 kPa

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
- Filter Sentry

USER INSTALLED OPTIONS

- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu-Sync pressure regulator
- Reclaimed water ID handle for ICV101, 151, 201 (P/N 561205) and 301 (P/N 515005)
- Reclaimed water ID Tag for all ICV valves (P/N 700392) (Included on Filter Sentry Models)

▸ = *Advanced Feature descriptions on page 80*

ICV-101G
Inlet Diameter: 1" (25 mm)
Height: 14 cm
Length: 12 cm
Width: 10 cm

ICV-151G
Inlet Diameter: 1½" (40 mm)
Height: 18 cm
Length: 17 cm
Width: 14 cm

ICV-201G
Inlet Diameter: 2" (50 mm)
Height: 18 cm
Length: 17 cm
Width: 14 cm

ICV-301
Inlet Diameter: 3" (80 mm)
Height: 27 cm
Length: 22 cm
Width: 19 cm

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

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

Examples:
ICV-101G = 1" (25 mm) Globe valve, NPT threads
ICV-151G - FS - R = 1½" (40 mm) Globe valve, NPT threads, Filter Sentry, and reclaimed water ID handle
ICV-301B = 3" (80 mm) Globe/Angle valve, BSP threads

ICV PRESSURE LOSS IN BAR

Flow m³/hr	1" Globe	1½" Globe	2" Globe	3" Globe	3" Angle
0.05	0.1				
0.1	0.1				
0.3	0.1				
1.0	0.2				
2.5	0.2				
3.5	0.2				
4.5	0.2	0.1			
7.0	0.4	0.1			
9.0	1.0	0.1	0.1		
11.0		0.2	0.1		
13.5		0.2	0.1		
17.0		0.3	0.1		
20.5		0.4	0.2		
23.0		0.5	0.3		
27.0		0.7	0.4		
30.5		0.9	0.5		
34.0		1.2	0.6	0.2	0.1
40.0			0.9	0.2	0.2
45.5			1.2	0.3	0.2
51.0				0.3	0.3
57.0				0.4	0.4
62.5				0.5	0.5
68.0				0.6	0.6

ICV PRESSURE LOSS IN kPa

Flow l/min	1" Globe	1½" Globe	2" Globe	3" Globe	3" Angle
1	14				
2	14				
4	14				
20	17				
40	20				
60	20				
75	20	9.6			
115	62	10			
150	139	12	5.0		
190		15	7.0		
225		18	9.3		
280		26	14		
340		37	20		
380		46	26		
450		65	36		
510		84	47		
565		104	57	16	12
660			79	22	17
750			103	29	23
850				38	30
950				47	38
1,050				58	47
1,135				69	56

IBV

Inlet: **1" (25 mm), 1½" (40 mm) 2" (50 mm), 3" (80 mm)**
Flow: **0.06 to 68 m³/hr; 0.4 to 1,135 l/min**

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: 66° C
- Warranty period: 5 years
- ▸ Heavy-duty flow control
- ▸ Accu-Sync® pressure regulation

OPERATING SPECIFICATIONS

- Flow rate:
  - IBV-101G-FS: 0.06 to 9 m³/hr; 0.4 to 150 l/min
  - IBV-151G-FS: 4 to 34 m³/hr; 75 to 568 l/min
  - IBV-201G-FS: 9 to 45 m³/hr; 150 to 757 l/min
  - IBV-301G-FS: 34 to 68 m³/hr; 570 to 1,135 l/min
- Recommended pressure range: 1.5 to 15 bar; 150 to 1500 kPa

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

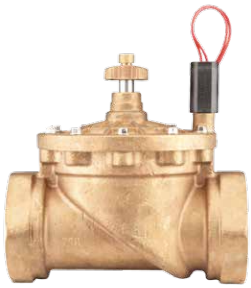
- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu-Sync pressure regulator
- Reclaimed water ID tag (P/N 700392)

▸ = *Advanced Feature descriptions on page 80*

IBV-101G-FS
Inlet Diameter: 1" (25 mm)
Height: 11.5 cm
Length: 9 cm
Width: 13 cm

IBV-151G-FS
Inlet Diameter: 1½" (40 mm)
Height: 16 cm
Length: 13 cm
Width: 16 cm

IBV-201G-FS
Inlet Diameter: 2" (50 mm)
Height: 15 cm
Length: 13 cm
Width: 17 cm



IBV-301G-FS
Inlet Diameter: 3" (80 mm)
Height: 24 cm
Length: 23 cm
Width: 18 cm

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" (25 mm) Globe valve **IBV-151G-FS** = 1½" (40 mm) Globe valve **IBV-201G-FS** = 2" (50 mm) Globe valve **IBV-301G-FS** = 3" (80 mm) Globe/Angle valve	**B** = BSP 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 *** = *1.4 bar*, **30 *** = *2.1 bar* **40 *** = *2.8 bar*, **50 *** = *3.5 bar* **70 *** = *4.8 bar*

Examples:
IBV-151G - B - FS - R = 1½" (40 mm) Globe valve, BSP threads, Filter Sentry, and reclaimed water ID tag
IBV-201G - B - FS = 2" (50 mm) Globe valve , BSP threads, Filter Sentry

IBV PRESSURE LOSS IN BAR

Flow m^3/hr	1" Globe	1½" Globe	2" Globe	3" Globe
0.05	0.1			
0.1	0.1			
0.3	0.1			
1.0	0.2			
2.5	0.2			
3.5	0.2			
4.5	0.2	0.1		
7.0	0.4	0.1		
9.0	1.0	0.1	0.1	
11.0		0.2	0.1	
13.5		0.2	0.1	
17.0		0.3	0.2	
20.5		0.4	0.2	
23.0		0.5	0.3	
27.0		0.7	0.4	
30.5		0.9	0.5	
34.0			0.6	0.2
40.0				0.2
45.5				0.3
51.0				0.3
57.0				0.4
62.5				0.5
68.0				0.6

IBV PRESSURE LOSS IN kPa

Flow l/min	1" Globe	1½" Globe	2" Globe	3" Globe
0.1	14			
0.5	14			
4	14			
20	17			
40	20			
60	20			
75	20	9.6		
115	62	10		
150	139	12	5	
190		15	7	
225		18	9.3	
280		26	14	
340		37	20	
380		46	26	
450		65	36	
510		84	47	
565			57	16
660				22
750				29
850				38
950				47
1,050				58
1,135				69

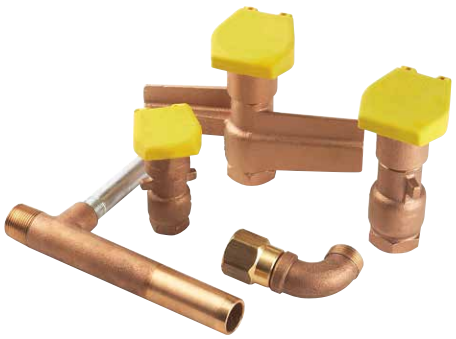
QUICK COUPLERS

Size: **¾" (20 mm), 1" (25 mm)**
Pressure **Rating: 10 bar; 1,000 kPa**

FEATURES

- 100% interchangeable with major brands*
- Red brass and stainless steel construction
- TuffTop™ thermoplastic locking and non-locking covers
- Optional WingThing™ stabilisation and ACME key connection
- Stainless steel lug on 1" (25 mm) and 1¼" (32 mm) keys
- Spring-loaded covers with stainless steel springs for positive closing and protection of valve's sealing components

* HQ compatibility information on page 191



Quick Couplers

HQ PRESSURE LOSS IN BAR

Flow m³/hr	HQ-3	HQ-33	HQ-44	HQ-5
1	0.06	0.07		
2.3	1.12	0.14		
3.4	0.28	0.30	0.15	
4.5	0.50	0.52	0.30	0.07
6.8			0.79	0.21
9.1				0.43
11.4				0.63
13.6				0.90
15.9				1.37

HQ PRESSURE LOSS IN kPa

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

Reclaimed Water Option

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

QUICK COUPLER, KEY AND HOSE SWIVEL CHARTS

Model	Inlet Threads	Slots	Body	Colour*	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" (25 mm) NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-44LRC	1" (25 mm) NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-44RC-AW	1" (25 mm) NPT	ACME	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	1" (25 mm) NPT	ACME	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-5RC	1" (25 mm) NPT	2	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" (25 mm) NPT	2	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2

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

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

1 Model	2 Cover Options	3 Additional Options
HQ3 = ¾" Inlet, 1-piece body, 2 slots	**RC** = Yellow rubber cover	**(blank)** = No option
HQ5 = 1" (25 mm) Inlet, 1-piece body, 2 slots	**LRC** = Yellow locking rubber cover *(Not available for HQ3 body)*	**AW** = ACME key with anti-rotation wings *(Only available for HQ44 body)*
HQ33D = ¾" Inlet, 2-piece body, 2 slots		**BSP** = BSP threads *(Only available for HQ5 body)*
HQ44 = 1" (25 mm) Inlet, 2-piece body, 1 slot or ACME		**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 purple locking cover
HQ44 - LRC - AW - R = HQ valve, with locking rubber cover, ACME key socket, anti-rotation wings and purple locking cover
HQ5 - LRC - BSP = HQ5 valve with locking rubber cover and BSP threads

HK KEYS

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

HS HOSE SWIVELS

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

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

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

See the new HSJ swing joints on page 173

ACCU-SYNC®

Type: **Pressure Regulator**

OPERATING SPECIFICATIONS

- Regulation from 1.5 to 7.0 bar; 150 to 700 kPa
- Static pressure: 10 bar; 1,000 kPa
- Required dynamic pressure differential: 1.0 bar; 100 kPa
- Works with AC and DC latching solenoids
- Works with any Hunter valve

ACCU-SYNC VALVE RECOMMENDED FLOW RANGE

Valve	Flow l/min	Flow m^3/hr
PGV-100/101	19 - 114	1.2 - 6.8
PGV-151	75 - 454	4.5 - 28
PGV-201	150 - 750	9.0 - 34
ICV-101	19 - 150	1.2 - 9.0
ICV-151	75 - 510	4.5 - 31
ICV-201	150 - 560	9.0 - 34
ICV-301	565 - 1135	34 - 68
IBV-101	19 - 150	1.2 - 9.0
IBV-151	75 - 510	4.5 - 31
IBV-201	150 - 560	9.0 - 46
IBV-301	565 - 1135	34 - 68

ACCU-SYNC APPLICATIONS

●	**Adjustable 1.5 to 7 bar**	For full customisation, the adjustable Accu-Sync can regulate pressure from 1.5 to 7.0 bar; 150 to 700 kPa
●	**Fixed 1.5 bar**	Ideal for point source micro irrigation systems, pressure regulated to 1.5 bar; 150 kPa
●	**Fixed 2.0 bar**	Ideal for spray systems, pressure regulated to 2.0 bar; 200 kPa
●	**Fixed 3.0 bar**	Ideal for Hunter's MP Rotator and large in-line drip systems, pressure regulated to 3.0 bar; 300 kPa
●	**Fixed 3.5 bar**	Ideal for mid-range rotors, pressure regulated to 3.5 bar; 350 kPa
●	**Fixed 5.0 bar**	Ideal for larger rotors, pressure regulated to 5.0 bar; 500 kPa

ADJUSTABLE

AS-ADJ
Height with solenoid: 8 cm

AS-30
Height with solenoid: 8 cm

AS-50
Height with solenoid: 8 cm

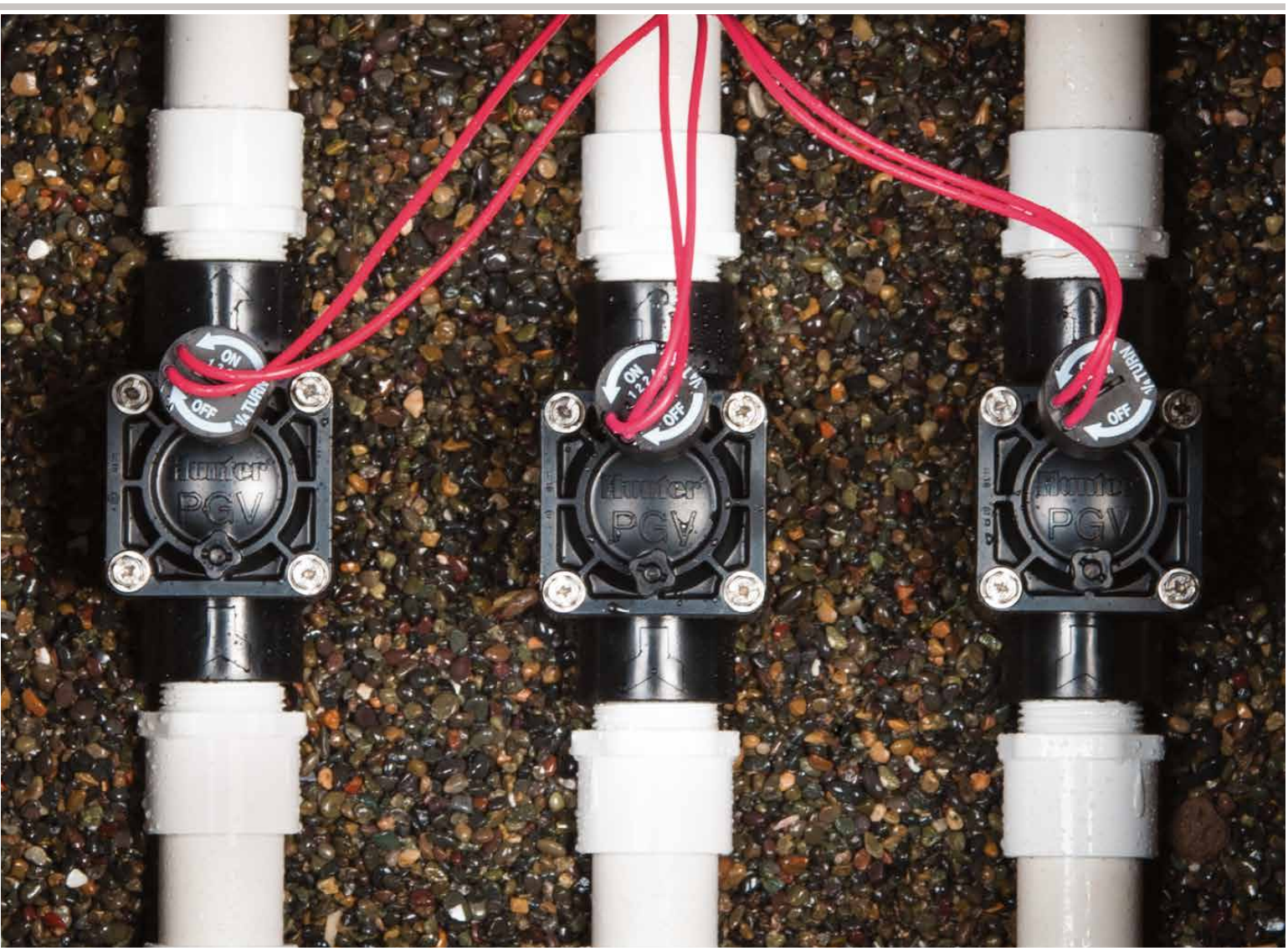
FIXED

AS-20
Height with solenoid: 8 cm

AS-40
Height with solenoid: 8 cm

AS-70
Height with solenoid: 8 cm

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



HUNTER VALVES

Built to Thrive Under Pressure

From residential to commercial, high pressure to low pressure, clean water to dirty water, Hunter valves keep your system running flawlessly day in and day out.

RELIABLE:

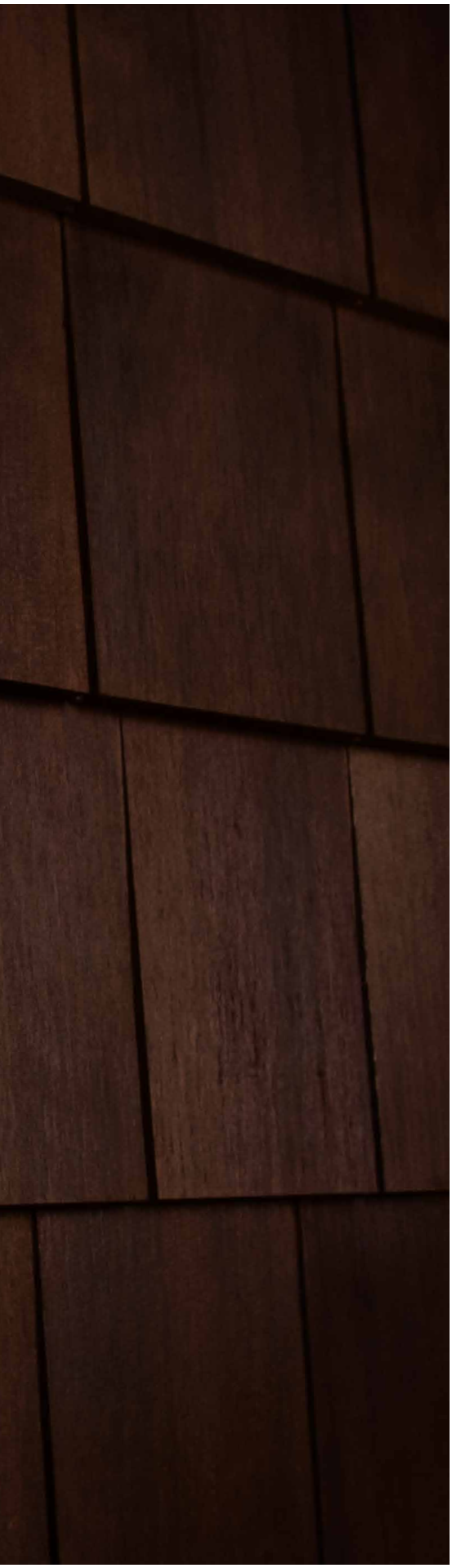
- Fewer parts means greater longevity and simple operation
- AC and DC models for flexibility
- Residential models handle up to 10 bar; 1,000 kPa
- Commercial models handle up to 15 bar; 1,500 kPa

SIMPLE PRESSURE REGULATION:

- Regulating at the valve greatly enhances efficiency
- Accu-Sync® provides simple regulation from 1.5 to 7.0 bar; 150 to 700 kPa

SECTION 05:

CONTROLLERS



ADVANCED FEATURES

SIMPLE OPERATION & SMART COMPATIBILITY

SOLAR SYNC® DIAL POSITION

The Pro-C® facepack has Solar Sync control built-in, making it even easier to upgrade any Pro-C to weather-based smart control. Solar Sync is an EPA WaterSense® Approved smart device which calculates evapotranspiration (ET) and adjusts Hunter controllers daily based on local weather conditions, resulting in water savings and conservation.

QUICKCHECK™

The QuickCheck feature makes field wiring issues easy to assess with the push of a button. QuickCheck displays an ERR message when a field wiring short is detected on a particular station number.

AUTOMATIC SHORT CIRCUIT PROTECTION

Automatic short circuit protection is a feature found in all Hunter AC powered controllers. This feature automatically detects electrical faults, which are typically caused by wiring issues. Only affected stations are skipped, allowing all other stations to water normally as programmed. There are no fuses to blow or internal circuit breakers to trip, so complete irrigation system shutdown is avoided.

NON-WATER DAYS

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

CONTROLLERS
ADVANCED FEATURES

PROGRAMMABLE DECODERS

Field programmability means no lengthy serial numbers to enter in the controller, and no time lost re-programming decoder assignments after a controller change. Each decoder is programmed with its actual station (valve) numbers for simplicity and reliability. Decoders may be re-programmed at any time if desired.

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.

REAL TIME FLOW MONITORING

This feature permits connection of a flow meter to recognise high or low flow conditions and react automatically to alarms. The controller learns typical flows for each zone of irrigation and then monitors performance during automatic irrigation. When incorrect flows are detected, the controller can identify the faulty station and shut it down. Flow Monitoring requires the installation of a Normally-Closed Master Valve for full functionality. Flow totals are also recorded in controller memory to report system water usage.

CYCLE AND SOAK

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

SIMULTANEOUS STATION GROUPS

Simultaneous Station Groups allow for 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.

TOTAL RUN TIME CALCULATOR

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

SEASONAL ADJUSTMENT: GLOBAL, MONTHLY, AND SOLAR SYNC

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.

Global: Provides a seasonal adjustment value to all programs.

Monthly: Allows users to program a seasonal adjustment value for each month of the year. This works by automatically changing the programmed seasonal adjustment value on the first day of every month.

Solar Sync: The Solar Sync ET sensor implements an automatic daily adjustment based on measured local weather.

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.

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.

MULTI-LANGUAGE PROGRAMMING

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

CONTROLLERS COMPARISON CHART

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

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

ECO LOGIC

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

FEATURES

- Number of stations: 4, 6
- Type: Fixed
- Enclosure: Indoor
- Independent programs: 2
- Start times per program: 4
- Max station run time: 4 hours
- Compatible with Hunter Clik sensors and other micro-switch type weather sensors
- Rain sensor bypass
- Programmable rain delay: 1 to 7 days
- Manual cycle
- Test program allows for quick system checks
- Warranty period: 2 years
- Easy Retrieve™ memory
- Quick Check™
- Solar Sync® Delay
- Automatic short circuit protection
- Seasonal Adjustment: Global or automatic updates with Solar Sync
- Delay between stations
- Sensor programmability

Plastic Indoor
Height: 12.6 cm
Width: 12.6 cm
Length: 3.2 cm

ELECTRICAL SPECIFICATIONS

- Transformer input: 230 VAC 50/60 Hz
- Transformer output (24 VAC): 0.625 A
- Station output (24 VAC): 0.28 A
- P/MV output (24 VAC): 0.28 A
- Sensor input: 1

APPROVALS

- CE, cUL

ECO LOGIC

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

X-CORE®

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

FEATURES

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

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV: (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: -18° C to 60° C

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 95 and 96*

Plastic Indoor
Height: 16.5 cm
Width: 14.6 cm
Depth: 5 cm

Plastic Outdoor
Height: 22 cm
Width: 17.8 cm
Depth: 9.5 cm

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

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

Examples:
XC-201i - E = 2-Station 230 VAC indoor controller, with plastic cabinet
XC-401 - E = 4-Station 230 VAC outdoor controller, with plastic cabinet
XC-601i - E = 6-Station 230 VAC indoor controller, with plastic cabinet
XC-801 - E = 8-Station 230 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 and outdoor plastic
- Independent irrigation programs: 3
- Independent lighting programs: 3
- Start times per program: 4
- Max. station run time: 6 hours
- Solar Sync® Delay feature allows adjustments to be postponed for up to 99 days
- Cycle and Soak feature built in: reduces runoff
- Added knockouts for additional flexibility
- Non-volatile memory
- Rain sensor bypass
- One touch manual start and advance
- Warranty period: 2 years

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

ELECTRICAL SPECIFICATIONS

- Transformer input: 120 VAC or 230 VAC (international model)
- Transformer output (24 VAC): 1 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.28 A
- Sensor inputs: 1
- Operating temperature: -18° C to 60° C

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 95 and 96*

Plastic Indoor
Height: 20.9 cm
Width: 24.3 cm
Depth: 9.7 cm

Plastic Outdoor
Height: 22.5 cm
Width: 25 cm
Depth: 11 cm

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

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

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

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 only

Easy access

Easier access to wiring

Replaceable battery

Replaceable lithium 3 V battery

Base Module

New 4 station base module

Improved design

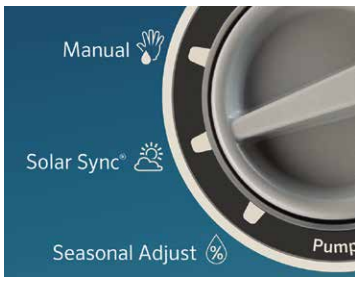
Relocated sensor terminals and common screw

The New Pro-C®

Same world-class reliability, with additional features such as a Solar Sync® dial position, cycle and soak, and built-in lighting programs, which enable it to control landscape lighting for a complete residential solution.

SOLAR SYNC DIAL POSITION

Easily upgrade and program smart control without additional wiring



4 STATION BASE MODULE

Better options for more stations, expandable to 16 stations

MORE DURABLE CONNECTIONS

Replaceable, more flexible ribbon cable similar to I-Core®

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 hours
- One touch manual start and advance
- Programmable rain delay
- Non-volatile memory
- Warranty period: 5 years

- ▸ Real time flow monitoring
- ▸ Easy Retrieve™ memory
- ▸ QuickCheck™
- ▸ Automatic short circuit protection
- ▸ 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 output (24 VAC): 0.28 A
- Simultaneous program operation: 2
- Sensor inputs: Plastic: 2; Metal: 3
- Operating temperature: -18° C to 60° C

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 95 and 96*

Plastic Outdoor
Height: 28 cm
Width: 34 cm
Depth: 16 cm

Metal Wall Mount
(grey or stainless steel)
Height: 31 cm
Width: 39 cm
Depth: 15 cm

Plastic Pedestal
Height: 97 cm
Width: 55 cm
Depth: 40 cm

Metal Pedestal
(grey or stainless steel)
Height: 92 cm
Width: 39 cm
Depth: 13 cm

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

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

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

DUAL® FOR I-CORE®

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

▸ Programmable decoders

DUAL SPECIFICATIONS

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

APPROVALS

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

▸ = *Advanced Feature descriptions on pages 95 and 96*

DUAL Decoder Module
Height: 3.5 cm
Width: 11 cm
Depth: 10 cm

DUAL Decoders and Surge Arrestor
Height: 7.6 cm
Width: 4.4 cm
Depth: 5 cm

DUAL		
Base Model	**Plus**	**Description**
IC-600-PL	**DUAL48M**	48-Station controller, indoor/outdoor, plastic cabinet (USA)
IC-601-PL	**DUAL48M**	48-Station controller, indoor/outdoor, plastic cabinet (international)
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			
2 mm² Standard Decoder Cable		**3.3 mm² Long Range, Heavy-duty Decoder Cable**	
ID1GRY	Grey jacket	ID2GRY	Grey jacket
ID1PUR	Purple jacket	ID2PUR	Purple jacket
ID1YLW	Yellow jacket	ID2YLW	Yellow jacket
ID1ORG	Orange jacket	ID2ORG	Orange jacket
ID1BLU	Blue jacket	ID2BLU	Blue jacket
ID1TAN	Tan jacket	ID2TAN	Tan jacket

MAXIMUM WIRE RUNS	
ID 1 Wire	**ID 2 Wire**
1500 m with I-Core/DUAL systems	2300 m with I-Core/DUAL systems
3 km with ACC/ICD systems	4.5 km with ACC/ICD systems

ACC

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

FEATURES

- Number of stations: 12 to 42
- Type: Modular
- Enclosure: Outdoor plastic and stainless steel
- Independent programs: 6
- Start times per program: 10
- Max. station run time: 6 hours
- 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
- ▸ Seasonal Adjustment: Global, by Program, and/or by Solar Sync
- ▸ Delay between stations
- ▸ Sensor programmability
- ▸ Cycle and Soak
- ▸ No Water Window
- ▸ Simultaneous station groups

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- Max. AC Current Draw: 120 VAC, 2 Amps; 230 VAC, 1 Amp (max. computed with all programs running and optional accessories installed)
- Transformer output (24 VAC): 4.0 A
- Station output (24 VAC): 0.56 A
- P/MV output (24 VAC): 0.32 A
- P/MV: 2, normally-closed
- Sensor inputs: 4 + Flow
- Operating temperature: -18° C to 60° C

APPROVALS

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

ALL STAINLESS STEEL (SS) MODELS

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

▸ = *Advanced Feature descriptions on pages 95 and 96*

Metal Enclosures
(grey or stainless steel)
Height: 31 cm
Width: 39 cm
Depth: 16 cm

Metal Pedestals
(grey or stainless steel)
Height: 94 cm
Width: 39 cm
Depth: 13 cm

Plastic Pedestal
Height: 97 cm
Width: 55 cm
Depth: 40 cm

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

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

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

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

ACC Controller

Loaded with Potential

ACC is ready to accept a variety of accessories to save time, money, and water. Plug in ROAM or ROAM XL for remote control of stations and programs. Connect the Hunter Flow-Sync® to measure and monitor actual flow. Attach a Solar Sync® sensor to automatically adjust watering amounts for local climate conditions (and provide rain shutoff). Put all of ACC's onboard intelligence to work for you with these innovative optional solutions.

Solar Sync®

The ACC controller uses its programmed run time and adjusts to Solar Sync's seasonal adjustment value to modify the actual irrigation run time.

ROAM XL / ROAM

These compact, high-powered remotes can be carried from job to job and used to remotely access any Hunter controller that has a SmartPort® connector.

Flow-Sync®

A proven water saver, the Flow-Sync connects to the ACC controller to measure actual flow, and provides automatic reaction to high or low flow conditions during irrigation.

ACC-99D

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

FEATURES

- Includes all features of the ACC controller, plus decoder operations
- Built in Solar Sync®
- Decoder station sizes available: 1, 2, 4, 6
- Sensor decoder available with Flow and Clik inputs
- Max. recommended distance, decoder to solenoid: 45 m
- ICD-HP wireless handheld programmer compatible
- Two-way communications
- Surge suppression: Internal (ground wire included)
- Dual P/MV outputs may be assigned to decoders
- Wire path connectors included with each decoder
- Number of wire paths: 6
- Automatic daily weather-based scheduling with optional Hunter Solar Sync sensor
- ▸ Seasonal Adjustment: Global, by Program, and/or Solar Sync
- ▸ Programmable decoders
- ▸ Solar Sync Delay

ELECTRICAL SPECIFICATIONS

- Transformer input: 120/230 VAC, 50/60 Hz
- 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 45 m runs, up to 14 solenoids max. simultaneous (includes DUAL® P/MV outputs)
- Wiring, Decoder to solenoid: 45 m max.
- 6 two-wire output paths to field decoders
- Diagnostic LEDs with line status, signal activity, decoder and status

▸ = *Advanced Feature descriptions on pages 95 and 96*

ICD-100, 200, ICD-SEN
Height: 92 mm
Width: 38 mm
Depth: 12.7 mm

ICD-400, 600
Height: 92 mm
Width: 46 mm
Depth: 38 mm

ID WIRE MODEL GUIDE

2 mm² Standard Decoder Cable		3,3 mm² Long Range, Heavy-duty Decoder Cable	
ID1GRY	Grey jacket	ID2GRY	Grey jacket
ID1PUR	Purple jacket	ID2PUR	Purple jacket
ID1YLW	Yellow jacket	ID2YLW	Yellow jacket
ID1ORG	Orange jacket	ID2ORG	Orange jacket
ID1BLU	Blue jacket	ID2BLU	Blue jacket
ID1TAN	Tan jacket	ID2TAN	Tan jacket

ID WIRE MAXIMUM WIRE RUNS

ID 1 Wire	ID 2 Wire
1500 m with DUAL systems	2300 m with DUAL systems
3 km with ICD systems	4.5 km with 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 wall mount
ACC-99D-PP	2-Wire decoder controller with 99-Station capacity, plastic pedestal
ACC-PED	Metal pedestal, grey powder-coated, for use with I-Core and ACC metal controllers
PED-SS	Stainless steel pedestal for use with I-Core and ACC stainless controllers

DECODER MODELS

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

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 electro-magnetic induction saves waterproof connectors
- Compatible with Hunter ICD-HP, 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 25 mm
- Fused test leads for unpowered decoder functions

APPROVALS

- FCC, CE, C-tick (no licence 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: 21 cm
Width: 9 cm
Depth: 5 cm

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

CONTROLLERS

ROAM

Range: **Up to 300 m**
Type: **Remote**

FEATURES

- Works with Hunter X-Core®, Pro-C®, PCC, I-Core® and ACC controllers through a SmartPort® connection
- 128 programmable addresses for use of multiple Roam remotes in the same neighborhood
- Run manual watering cycles without modifying regular program
- Programmable run times: 1 to 90 minutes
- Range: 300 m (line of sight)
- Warranty period: 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 15 m (max.) from controller (use ROAM-SCWH shielded cable wiring harness)
- FCC approved: No FCC licence required

Transmitter and Receiver
Height: 18 cm
Width: 6 cm
Depth: 3 cm

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

OPTIONS	
Model	**Description**
ROAM-WH	SmartPort wiring harness (length: 1.8 m)
ROAM-SCWH	Shielded SmartPort wiring harness (length: 7.6 m)
258200	Wall mount bracket for SmartPort

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

Wall Mount Bracket for SmartPort
P/N 258200

ROAM XL

Range: **Up to 3 km**
Type: **Remote**

FEATURES

- Works with Hunter X-Core®, Pro-C®, PCC, I-Core® and ACC controllers through a SmartPort® connection
- Up to 3 km (line of sight) range for remote manual operation of Hunter irrigation systems
- 128 different programmable addresses
- Display shows remaining battery life
- Programmable run times: 1 to 90 minutes
- Large LCD display, push-button operation
- Run manual watering cycles without modifying regular program
- Rugged plastic carrying case included
- Warranty period: 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 15 m (max.) from controller (use ROAM-SCWH shielded cable wiring harness)
- FCC approved: No FCC licence required

* Not available in all countries.

Roam XL
(w/o antenna)
Height: 16 cm
Width: 8 cm
Depth: 3 cm

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

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

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

Wall Mount Bracket for SmartPort
P/N 258200

XC HYBRID

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

FEATURES

- Battery or AC powered
- Type: Fixed
- Number of stations: 6, 12
- Operates DC latching solenoids only
- Enclosures: Indoor and outdoor plastic; outdoor stainless steel
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 4 hours
- Optional Solar Panel SPXCH provides maintenance-free operation
- Compatible with Solar Panel Kit
- 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

ELECTRICAL SPECIFICATIONS

- Operates DC latching solenoids (only) 9-11 VDC
- P/MV
- Sensor inputs: 1
- Operating temperature: -18° C to 60° C

POWER SOURCE

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

APPROVALS

- CE, UL, cUL, C-tick
- Plastic model: IP-24

▸ = *Advanced Feature descriptions on pages 95 and 96*

Plastic Indoor/Outdoor
Height: 22 cm
Width: 18 cm
Depth: 10 cm

Stainless Steel Outdoor
Height: 25 cm
Width: 19 cm
Depth: 11 cm

XCHSPOLE
with XCHSPB installed pole for stainless steel model
Height: 1 m

SPXCH
Optional solar panel
Height: 8 cm
Width: 8 cm
Depth: 2 cm

MAXIMUM WIRE RUNS	
Wire Size	**Max. Distance** (m)
1 mm²	152
1.5 mm²	244
2 mm²	396
2.5 mm²	610

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

OPTIONS (SPECIFY SEPERATELY)	
Options	**Description**
XCHSPOLE	Steel mounting pole (1.2 m)
XCHSPB	Stainless steel mounting bracket (required for pole)
458200*	DC latching solenoid
SPXCH	Solar Panel Kit for XC Hybrid

Notes:
* Use DC latching Solenoids only

NODE

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

FEATURES

- Type: Fixed
- Battery Operated
- Number of stations: 1, 2, 4, 6
- Enclosure: Outdoor plastic
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hours
- One touch manual start and advance
- Master Valve operation (available in 2, 4, 6 station models)
- Solar Panel Kit (SPNODE) provides maintenance-free operation
- Accepts single or double 9 V batteries for extended battery life
- Solenoid wire length up to 30 m (use 1 mm² wire)
- Programmable off mode
- Submersible to 4 m (IP68 rated)
- Battery life indicator
- Protective rubber cover
- Warranty period: 2 years
- ▸ Easy Retrieve™ memory
- ▸ Seasonal Adjustment: Global

ELECTRICAL SPECIFICATIONS

- Sensor inputs: 1
- Operates DC latching solenoids only (P/N 458200)
- Operating temperature: -18° C to 60° C
- Power source: 9 V battery (up to two) or Solar Panel
- Solar Panel Kit SPNODE eliminates the need for batteries and provides maintenance-free operation

APPROVALS

- CE

▸ = *Advanced Feature descriptions on pages 95 and 96*

NODE-100
Diameter: 9 cm
Height: 6 cm

NODE-200
NODE-400
NODE-600
Diameter: 9 cm
Height: 6 cm

NODE-100-Valve
Diameter: 9 cm
Height: 6 cm

SPNODE
Height: 8 cm
Width: 8 cm
Depth: 2 cm

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

MAXIMUM WIRE RUNS	
Wire Size	**Max. Distance (m)**
1 mm²	30

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

WVP & WVC

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

FEATURES

- Type: Fixed
- Battery Operated
- Number of stations: 1, 2, 4
- Enclosure: Outdoor plastic
- Independent station programming
- Start times per program: 9
- Max. station run time: 4 hours
- WVC submersible to 3 m (IP68 rated)
- Battery life indicator
- Wireless remote programming
- Max. solenoid wire run 30 m (use 1 mm^2 wire)
- Warranty period: 2 years

WVP
Height: 29 cm
Width: 8 cm
Length: 5 cm

ELECTRICAL SPECIFICATIONS

- Simultaneous station operation
- Sensor inputs: 1
- Power source: 9 V battery
- Operates DC latching solenoids only (P/N 458200)
- Operating temperature: -18° C to 60° C
- Frequency: 869 MHz ISM band
- No FCC licence required

WVC
Diameter: 8 cm
Height: 13 cm

APPROVALS

- CE

WVP / WVC	
Model	**Description**
WVC-100	Single station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-200	2-Station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-400	4-Station wireless controller (DC latching solenoid ordered separately) 900 MHz ISM band (US/Australia)
WVC-100-E	Single station wireless controller (DC latching solenoid ordered separately) 869 MHz (Europe)
WVC-200-E	2-Station wireless controller (DC latching solenoid ordered separately) 869 MHz (Europe)
WVC-400-E	4-Station wireless controller (DC latching solenoid ordered separately) 869 MHz (Europe)
WVP	Wireless valve programmer to be used with wireless valve controllers
WVPE	Wireless valve programmer to be used with wireless valve controllers (Europe)

PSR

PUMP START RELAY

Type: **Accessory**

FEATURES

- Choice of three models sized accordingly 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: 17 cm
Width: 19 cm
Depth: 12 cm

CONTROLLERS

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 2 kW
PSR-52	Double pole/single throw pump start relay for 120 VAC pumps up to 3 hp or 230 VAC pumps up to 2.2 kW
PSR-53	Triple pole/single throw pump start relay for 120 VAC pumps up to 3 hp, 230 VAC pumps up to 2.2 kW, or 230 VAC pumps up to 7.5 kW (3 phase)
PSRB	Used to boost controller output power available to operate larger pump start relays if necessary

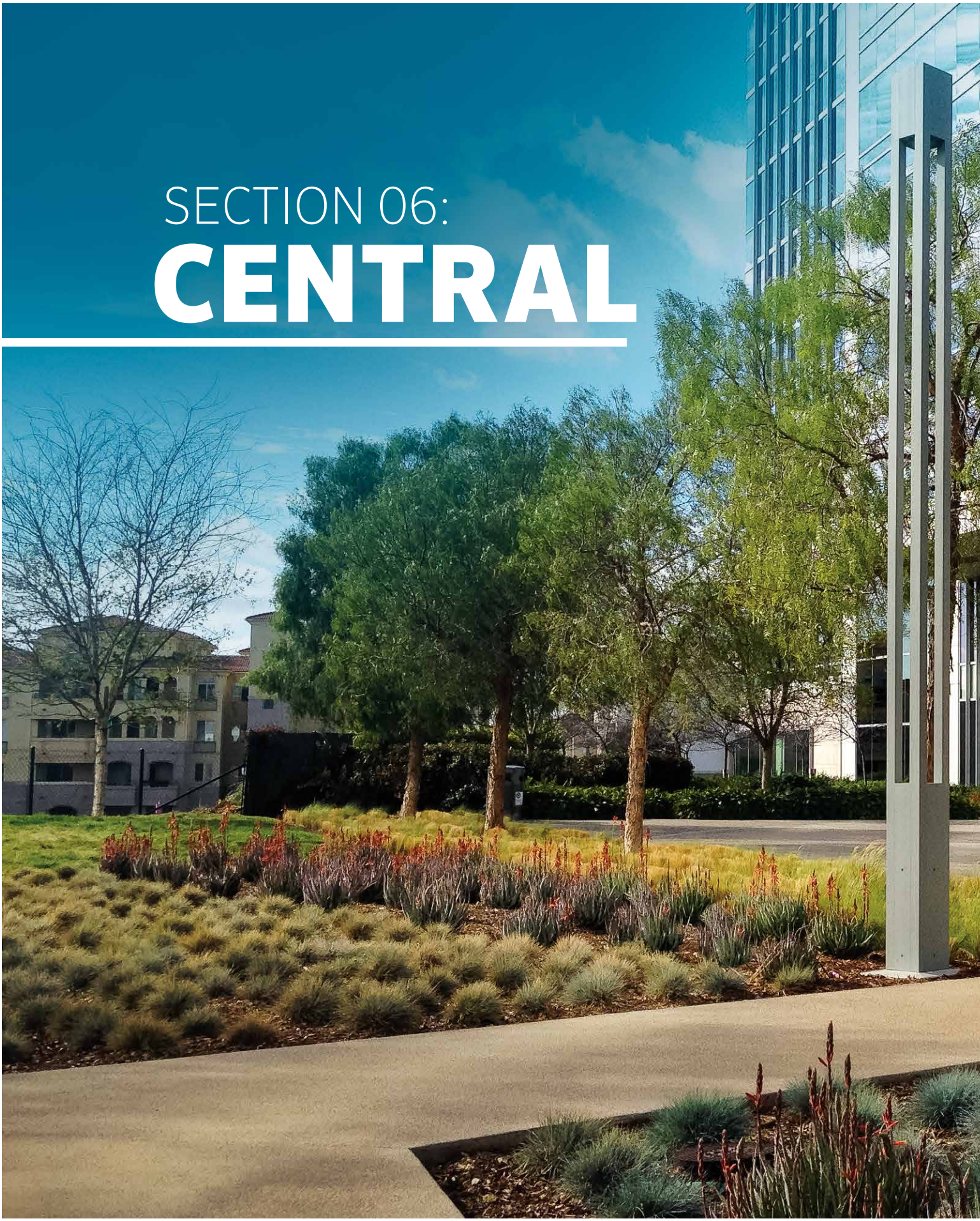
PUMP START RELAY ELECTRICAL SPECIFICATIONS

Model	Single Phase		3 Phase	Max. Full Load	Max. Resistive	Coil VA		Coil VA	
	kW AT 120 VAC	kW AT 230 VAC	kW AT 230 VAC	AMPS	AMPS	IN-RUSH	AMPS	HOLDING	AMPS
PSR-22	2*	5*	N/A	30	40	31	(1.29)	7	(0.29)
PSR-52	2.2	5.6	N/A	40	50	56	(2.33)	6	(0.25)
PSR-53	2.2	5.6	7.5	40	50	56	(2.33)	6	(0.25)

Note:
* Approximate power

SECTION 06:

CENTRAL



IMMS®

Sites: **Up to 100**
Controllers: **Up to 1,000**
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 software and hardware have been intensively developed and refined into a graphically based irrigation command and control program. With IMMS, interactive map graphics (to station level) put the irrigation system manager in complete visual control of wide-area watering operations.

Add a visual dimension to central control with background map graphics

FEATURES INCLUDE:

MAPS (Compatible with AutoCAD)

The IMMS® Graphics feature creates map views so you can see all of your irrigated locations and get a more detailed view.

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

PROGRAMMING

Each controller has its own complete setup and operations screens with tools to quickly get the results you want. Easily access every function from simple spreadsheets or by choosing from a menu of common functions and commands. In the case of emergencies, irrigation can be shut off with the click of a mouse.

ALARM MANAGEMENT

With individual date- and time-stamped messages, IMMS Graphics reports all alarms, including over-currents, flow violations, communication issues, and water window violations. No more driving to each individual site; the IMMS Graphics operator understands the condition of all irrigation controllers and valves at a glance. Reports can be exported to additional formats or printed and provided to work crews for investigation.

IMMS-ET (Evapotranspiration)

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

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

FLOW MONITORING

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

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

IMMS®

FEATURES

- Windows®-based programming and communications software
- Total control of each controller's functions
- Graphical user interface with customisable map-based navigation
- New 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 CONTROLLERS

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

COMPATIBLE SENSORS

- **Flow-Sync®:** Hunter Flow-Sync sensor for ACC controllers (one per controller). Provides flow total reporting and flow alarm 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. ET Sensor is added to selected ACC controllers, to report local conditions. This local ET data has no additional monthly charges and can be shared through the software to create schedules for other controllers in the same micro-climate (including ICC or Pro-C controllers). Add as many ET Sensors as needed to sample all micro-climates.
- **Solar Sync Sensor** (wired or wireless): Each controller can use its own SOLARSYNCSEN or WSS-SEN for smart, water-saving self-adjustment. Solar Sync sensors also provide rain and freeze shutoff functions. Solar Sync compatibility is included with the basic IMMS4CD software.

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

Track flow and other vital statistics in both charts and spreadsheets

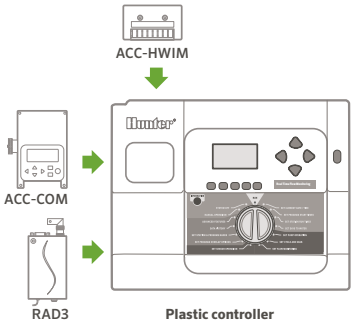
Station level symbols can be positioned over background images from any source

ET Sensor
Height: 27 cm
Width: 18 cm
Depth: 31 cm

COMMUNICATION OPTIONS FOR ACC INTERFACE

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

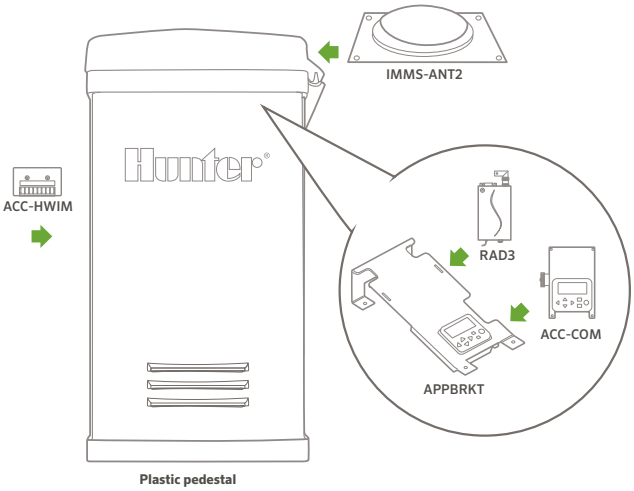
Note:
* Also supports radio and hardwire



Wall mount communications installation

RADIO ANTENNA OPTIONS (SPECIFY SEPARATELY)

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



Plastic pedestal communications installation

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 (licence and antenna required and not included)
RAD460INT	UHF radio module (International), 440-480 MHz "Consult factory for other international frequency ranges"	UHF radio module for wireless connections, international only (licence and antenna required and not included)
APPBRKT	Communication bracket for plastic pedestals	Holds Com modules and accessories in plastic pedestal (not required in wall mounts)

Base	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 = 30 m 300 = 90 m 500 = 150 m		Cable for all IMMS hardwired communications

Note:
* GCBL available in 300 m increments (up to 1200 m)

SPECIFICATIONS

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

HARDWIRE COMMUNICATIONS CABLE

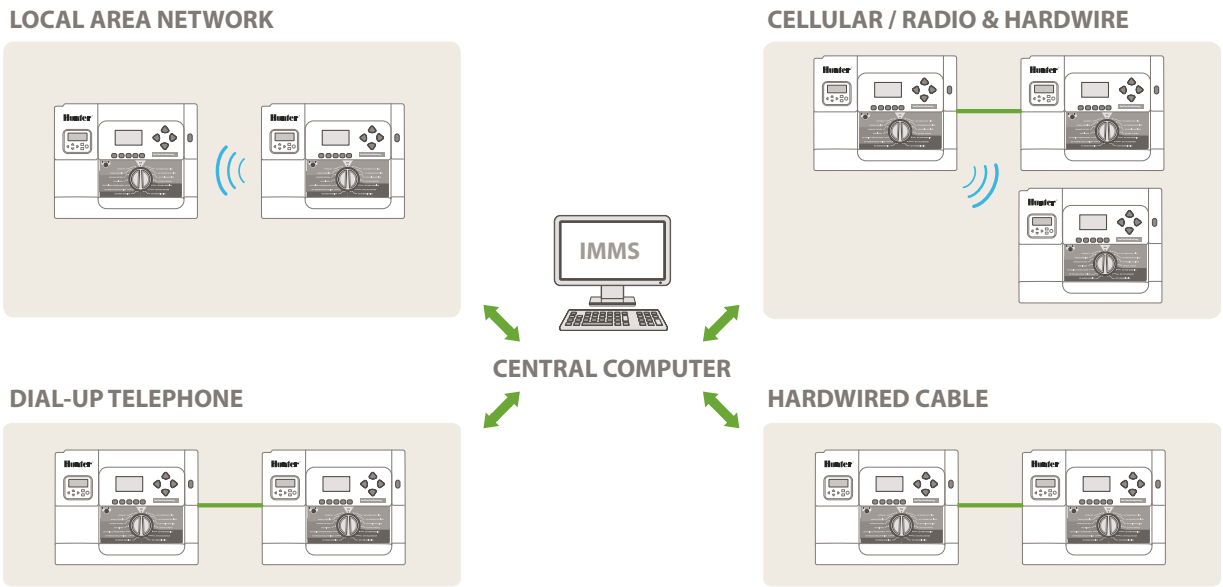
- GCBL shielded, two twisted pair 1 mm^2 wire with ground wire, up to 3,000 m between each device

SYSTEM CONFIGURATIONS (ACC CONTROLLERS)

1. **Determine how you will reach the first controller on each site**
   - Dial-up landline: Add ACC-COM-POTS to controller
   - Hardwire cable: Add one IMMS-CCC at the computer, and ACC-COM-HWR plus one ACC-HWIM at the controller
   - Ethernet local area network: Add ACC-COM-LAN at the controller, and connect to the network (RJ-45 jack)
   - GPRS cell phone: Add ACC-COM-GPRS-E to controller (requires GPRS coverage and service contract)
2. **Determine how that first controller will reach the other controllers on the site**
   - If by radio, add one RAD3 (US) or RAD460INT (international) plus antenna to the controller
   - If by hardwire cable, add one ACC-HWIM (if it is not already present as in 1)
3. **Equip the other controllers. Add one ACC-COM-HWR to each controller, plus:**
   - One ACC-HWIM when hardwire connection will be necessary
   - One RAD3 plus antenna when radio connections are necessary

SAMPLE CONFIGURATIONS

- Many other configurations possible; consult Hunter Technical Support or System Design Guide for details.



SECTION 07:
SENSORS

SOLAR SYNC®

Sensor: **ET/Rain/Freeze**

FEATURES

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

SPECIFICATIONS

- Maximum distance sensor to module: 60 m (wired model) or 240 m (wireless model)
- 12 m of wire included in kit (wired model)
- Rain and Freeze sensor shutdown capability included

APPROVALS

- FCC, CE

Solar Sync Sensor
(w/mounting arm)
Height: 8 cm
Width: 22 cm
Depth: 2 cm

Solar Sync Module
Height: 4 cm
Width: 13 cm
Depth: 2 cm

Wireless Solar Sync Sensor
(w/mounting arm)
Height: 11 cm
Width: 22 cm
Depth: 2.5 cm

Wireless Solar Sync Receiver
Height: 14 cm
Width: 4 cm
Depth: 4 cm

SENSORS

SOLAR SYNC		
Model	**Description**	
SOLAR-SYNC	Solar Sync kit for use with PCC and Pro-C 300 controllers. *Includes Solar Sync Sensor and module.*	
SOLAR-SYNC-SEN	Wired Solar Sync for use with ACC, I-Core®, new Pro-C® 400/PCC Series, and X-Core® controllers. *Includes Solar Sync Sensor only.*	
WSS	Wireless Solar Sync for use with PCC and Pro-C 300 controllers. *Includes Wireless Solar Sync Sensor, Wireless receiver, and module.*	
WSS-SEN	Wireless Solar Sync for use with ACC, I-Core, 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 300 m 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® and I-Core®, and ACC Clik sensor inputs
- Ideal companion sensor to Solar Sync®
- Warranty period: 5 years

SPECIFICATIONS

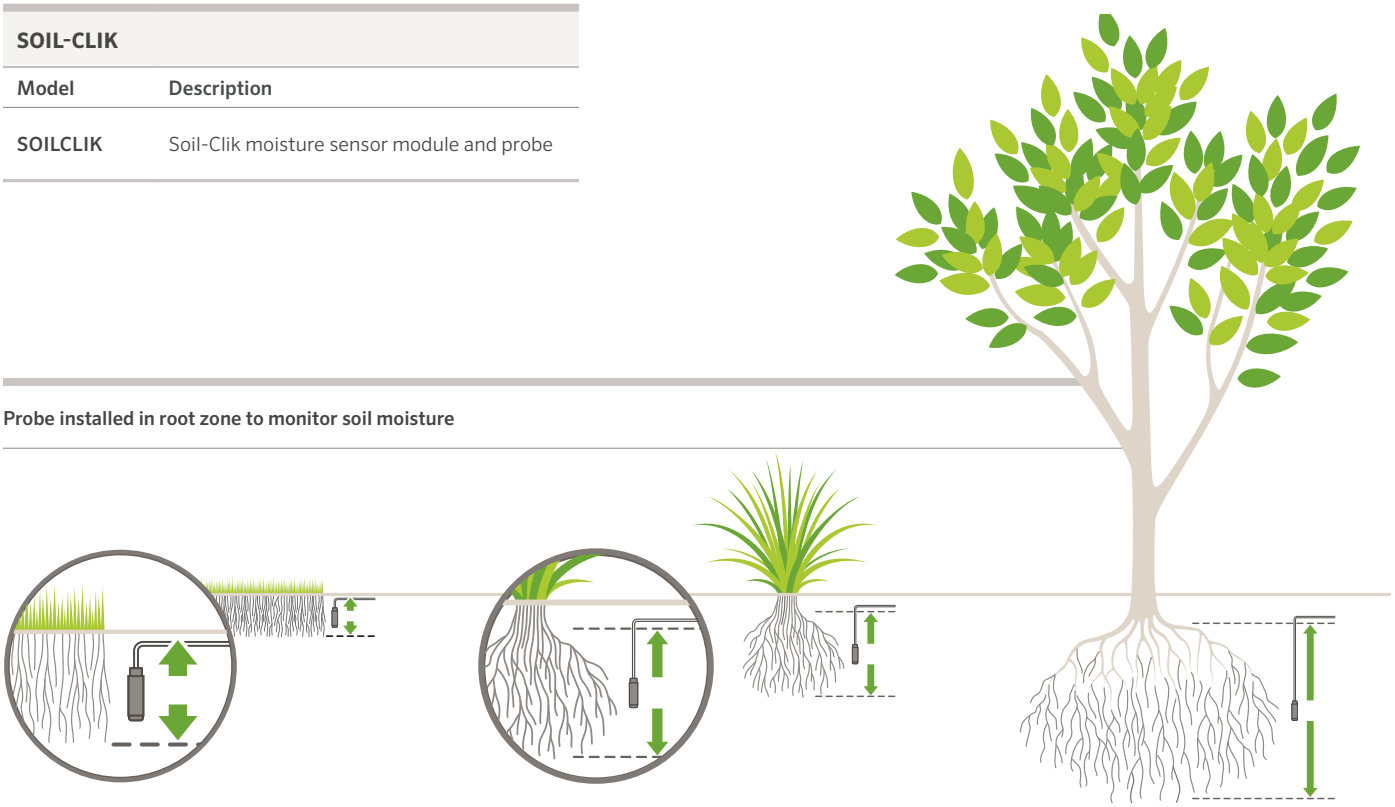
- Max distance, control module to controller: 2 m
- Max distance, control module to sensor probe: 300 m
- Input power: 24 VAC, 100mA max.
- Output: Normally-closed dry contact closure
- Enclosure: NEMA 3R, indoor/outdoor

NEW

SOIL-CLIK Module
Height: 11.4 cm
Width: 8.9 cm
Depth: 3.2 cm
Power: 24 VAC, 100mA max.
Wire Leads: 80 cm

SOIL-CLIK Probe
Diameter: 2 cm
Height: 8.3 cm
Wire to Probe: 300 m max.
1 mm^2 Direct Burial Wire
Wire Leads: 80 cm

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



Probe installed in root zone to monitor soil moisture

In turf applications, the probe should be placed in the root zone, approximately 15 cm deep (adjust for actual turf conditions).

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

RAIN-CLIK®

Sensor: **Rain**

FEATURES

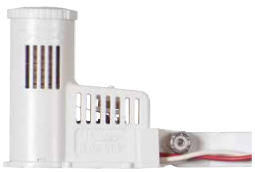
- Quick Response™ feature shuts the system off as soon as it starts raining
- Maintenance-free design with 10-year battery life for Wireless Rain-Clik
- Adjustable vent ring allows for setting of reset delay
- Rugged polycarbonate housing and metal extension arm
- Rain-Clik includes 7.6 m of 0.5 mm^2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

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
- Switch rating: 24 VAC, 3 A
- Freeze sensor shuts system off when temperatures fall below 3° C (Rain/Freeze-Clik model)
- System operating frequency: 433 MHz (wireless model)
- Communication range up to 240 m line of sight (wireless model)
- Receiver input power: 24 VAC (from controller)

APPROVALS

- UL listed, FCC approved, cUL, CSA, CE, suitable for use in Australia



RAIN-CLIK
Height: 6 cm
Length: 18 cm

WR-CLIK-TR
Height: 7.6 cm
Length: 20 cm

WR-CLIK-R
(Receiver)
Height: 8.3 cm
Length: 10 cm

SGM
Optional gutter mount

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

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

MINI-CLIK®

Sensor: **Rain**

FEATURES

- Easily installs on any automatic irrigation system
- Debris tolerant for reliable operation and no unnecessary shutdowns
- Can be set to shut system off from 3 mm to 25 mm of rainfall
- Includes 7.6 m of 0.5 mm^2 sheathed, two-conductor, UL-approved wire
- Optional user-installed metal gutter mount for Mini-Clik (order SGM, Includes Mini-Clik)
- Warranty period: 5 years

SPECIFICATIONS

- Switch rating: 24 VAC, 5 A
- Wiring: 0.5 mm^2, typically interrupts the common ground wire between the solenoid valves and controller

MINI-CLIK
Height: 5 cm
Length: 15 cm

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

SGM
Optional gutter mount

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

FREEZE-CLIK®

Sensor: **Freeze**

FEATURES

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

SPECIFICATIONS

- Switch rating: 24 VAC, 5 A
- Wiring: Typically interrupts the common ground wire between the solenoid valves and the controller
- UL listed
- *Not intended for agricultural applications*

FREEZE-CLIK
Height: 5 cm
Length: 11 cm

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

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 any automatic irrigation system
- Set wind speed shutdown from 19 to 56 km/hr
- Set rain shutdown from 3 mm to 25 mm of rainfall
- Automatically shuts off system when temperatures fall below 3° C
- Warranty period: 5 years

SPECIFICATIONS

- Electrical rating: 24 VAC, 5 A maximum
- Wind vane diameter: 13 cm
- Wind speed adjustments: Actuation speed: 19 to 56 km/hr
- Reset speed: 13 to 39 km/hr
- Mounts: Slip fits over 55 mm PVC pipe or attaches to 1 cm conduit with adapter (supplied with unit)

MWS-FR
Height: 20 cm
Wind Vane Diameter: 13 cm

MINI WEATHER STATION	
Model	**Description**
MWS	Weather station combines wind and rain
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
- Works with fountain systems to eliminate overspray in windy conditions
- Wind sensor interrupts/returns irrigation when programmed wind speed is measured
- Warranty period: 5 years

SPECIFICATIONS

- Switch rating: 24 VAC, 5 A maximum
- Wind speed adjustment
- Actuation speed: 19 to 56 km/hr
- Reset speed: 13 to 39 km/hr
- Mounts: Slip fits over 50 mm PVC pipe or attaches to 1 cm conduit with adapter (supplied with unit)

WIND-CLIK
Height: 10 cm
Wind Vane Diameter: 13 cm

FLOW-CLIK®

Sensor: **Flow**

FEATURES

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

Flow-Clik sensor and module shown with receptacle tees

SPECIFICATIONS

- Flow-Clik Interface Panel: 90 cm leads provided for easy wiring to controller (2 wires to controller, 24 VAC terminals and 2 wires to sensor and terminals)
- Current draw: 24 VAC, 0.025 A
- Switching current: 2 A maximum
- Max. distance between interface panel and sensor: 300 m
- Sensor Wiring: 2 x direct burial, 0.82 mm^2 or greater, colour-coded or marked for polarity, up to 300 m from controller
- Programmable start up delay: 0 to 300 seconds
- Programmable interrupt period: 2 to 60 minutes

FLOW-CLIK®

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

REQUIRED USER INSTALLED OPTION (SPECIFY SEPARATELY)

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

Notes:
* FCT for pipe installation sold separately

BSP ADAPTERS FOR FCT FITTINGS

Diameter	Model
1" (25 mm)	795700
1½" (40 mm)	795800
2" (50 mm)	241400
3" (80 mm)	477800

FLOW RANGE

Pipe Diameter	Operating Range			
	Minimum		Suggested Maximum*	
	l/min	m^3/hr	l/min	m^3/hr
1" (25 mm)	7.6	0.45	64	3.84
1½" (40 mm)	19	1.14	132	8.0
2" (50 mm)	37.8	2.26	208	12.5
3" (80 mm)	106	6.36	450	27.0
4" (100 mm)	129	7.74	750	45.0

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

FLOW-SYNC®

Sensor: **Flow**

FEATURES

- Simple two-wire connection to ACC and I-Core® controllers (up to 300 m)
- Feeds flow data (gallons or liters) to controller, for flow recording and monitoring purposes
- Robust waterproof construction
- 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: 1.5 to 15.0 bar; 150 to 1500 kPa
- Pressure Loss: < 0.009 bar; 0.9 kPa
- Wiring: 2 x direct burial, 0.82 mm^2 or greater, colour-coded or marked for polarity, up to 300 m from controller.

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

FLOW-SYNC

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

REQUIRED USER INSTALLED OPTION (SPECIFY SEPARATELY)

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

Notes:
* FCT for pipe installation sold separately

BSP ADAPTERS FOR FCT FITTINGS

Diameter	Model
1" (25 mm)	795700
1½" (40 mm)	795800
2" (50 mm)	241400
3" (80 mm)	477800

FLOW RANGE

Pipe Diameter	Operating Range			
	Minimum		Suggested Maximum*	
	l/min	m^3/hr	l/min	m^3/hr
1" (25 mm)	7.6	0.45	64	3.84
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2" (50 mm)	37.8	2.26	208	12.5
3" (80 mm)	106	6.36	450	27.0
4" (100 mm)	129	7.74	750	45.0

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

BUILT TO RESPOND

The Ultimate Environmental Solution

ABOVE & BELOW

Get the whole picture with the latest advances in water-saving technology. Pair our new Soil-Clik moisture sensor with Solar Sync to measure both soil and climate conditions. Soil-Clik won't allow watering on days that don't need it, or on wet turf; Solar Sync will use ET to adjust application amounts when irrigation is needed. Together they're the ultimate environmentally responsive solution.


Hunter

SECTION 07:

MICRO

ECO-MAT® & PLD-ESD

Flow: **2.2 l/hr**

FEATURES

- Fleece irrigation mat with fleece-wrapped PLD tubing (ECO-MAT)
- Fleece-wrapped PLD tubing (PLD-ESD)
- 2.2 l/hr; 0.13 m^3/hr pressure compensating, check valve emitter
- Water holding capacity of 2 litres per square metre
- 30 cm emitter spacing, 35 cm row spacing
- 0.80 m width x 100 m roll length (ECO-MAT 16 mm)
- 0.80 m width x 90 m roll length (ECO-MAT 17 mm)
- 100 m roll (PLD-ESD 16 mm)
- 76 m roll (PLD-ESD 17 mm)
- Recommended for use with all Hunter Drip Control Zone Kits
- Warranty period: 5 years

OPERATING SPECIFICATIONS

- Pressure compensating, check valve emitters
- Operating pressure 1.0 to 3.5 bar, 100 to 350 kPa
- Compatible with 16 mm and 17 mm insert barb fittings
- Recommended filtration 120 mesh
- Recommended installation depth range 10 cm to 30 cm

ECO-MAT

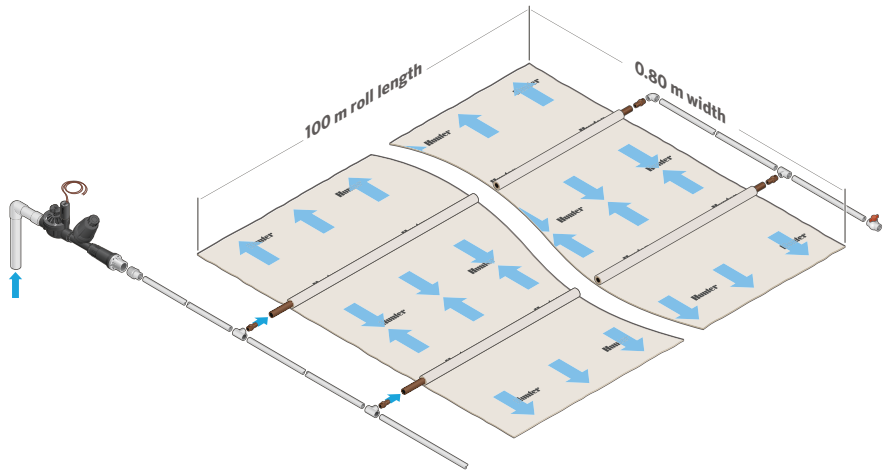
ECO-MAT is a polypropylene fleece-wrapped sub-surface micro irrigation product consisting of fleece-wrapped inline emitter (PLD) tubing with 2.2 l/hr emitters with 30 cm spacing attached to a sheet of fleece. Both 17 mm (North America) and 16 mm (International) models are available. Specifically designed for turf applications.

PLD-ESD

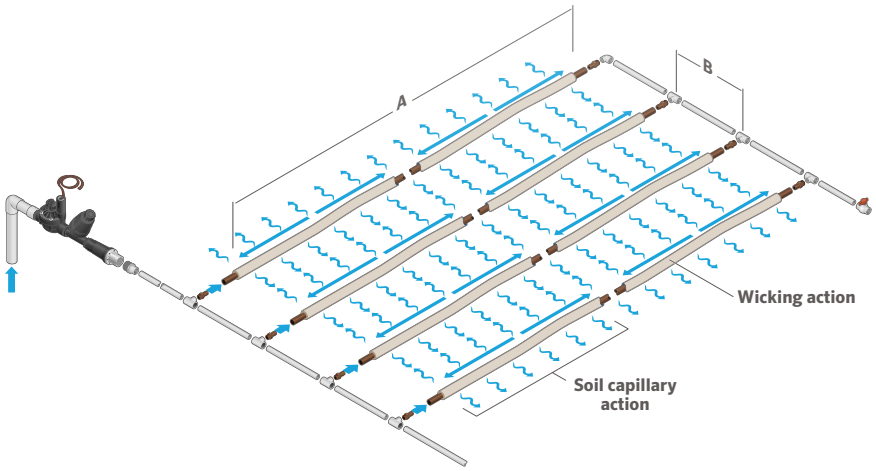
PLD-ESD a polypropylene fleece-wrapped subsurface micro irrigation product consisting of fleece-wrapped inline emitter (PLD) tubing with 2.2 l/hr emitters with 30 cm spacing. Both 17 mm (North America) and 16 mm (International) models are available. Designed for narrow landscaped areas, dense plantings, or small turf applications.

ECO-MAT TECHNICAL SPECIFICATIONS

Model	Flow & Spacing	Roll Length	Width	m^2	Operating Pressure		Minimum Filtration	Tubing Row Spacing
ECO-MAT 16 mm	2.2 l/hr	100 m	0.80 m	80	1.0 to 3.5 bar	100 to 350 kPa	120 mesh/125 micron	35 cm
PLD-ESD 16 mm	2.2 l/hr	100 m	N/A	N/A	1.0 to 3.5 bar	100 to 350 kPa	120 mesh/125 micron	N/A
ECO-MAT 17 mm	2.3 l/hr	90 m	0.80 m	60	1.0 to 3.5 bar	100 to 350 kPa	120 mesh/125 micron	35 cm
PLD-ESD 17 mm	2.3 l/hr	76 m	N/A	N/A	1.0 to 3.5 bar	100 to 350 kPa	120 mesh/125 micron	N/A



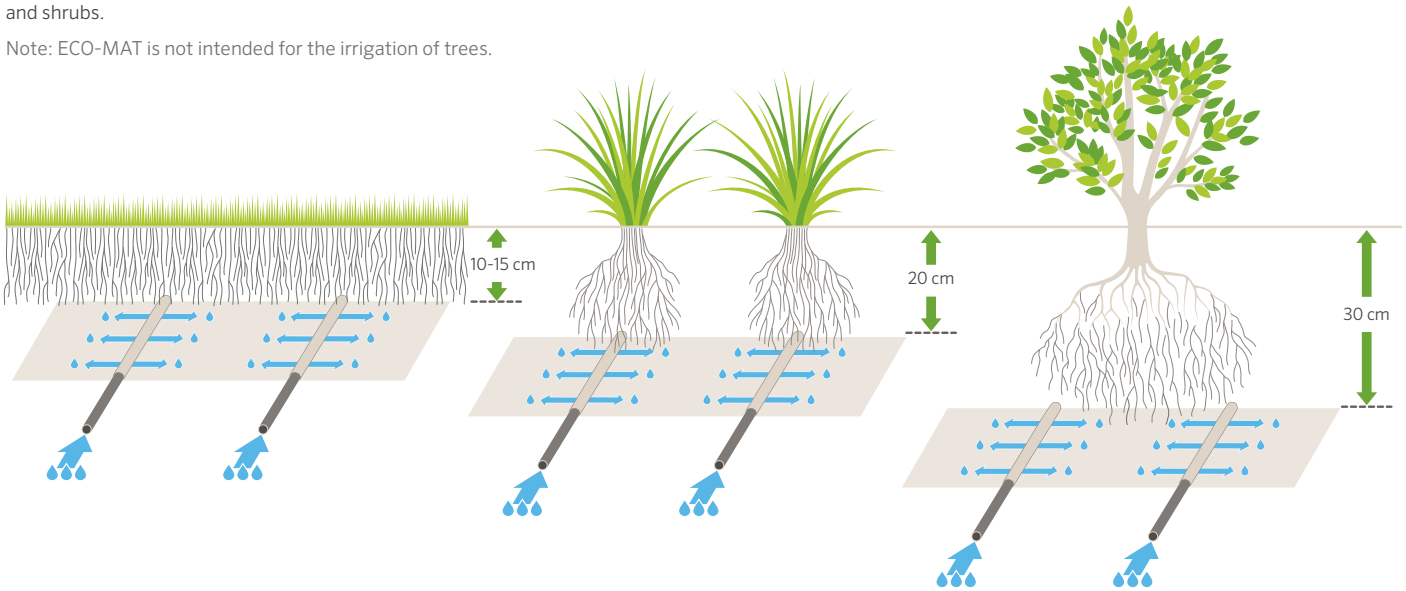
ECO-MAT
The ECO-MAT is composed of Hunter's specialised fleece-wrapped drip tubing (PLD-ESD) and root zone irrigation mat made of polypropylene fleece.



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

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

Note: ECO-MAT is not intended for the irrigation of trees.



MICRO

PLD-16 MM

Flow: **2.2, 3.8 l/hr**

FEATURES

- In-line pressure-compensating emitters provide consistent high-quality performance
- Built-in check valve prevents emitter clogging and wasteful runoff
  - Emitter check height 1.5 m
- Available emitter spacing of 30 cm and 50 cm
- Emitter flow rates available in 2.2 l/hr and 3.8 l/hr
- Available in 100 m, 200 m, and 400 m rolls
- Superior flexibility and kink resistance
- Works with Drip Zone Control Kits
- Warranty period: 5 years (including 2 additional years for environmental stress cracking)

FITTING FEATURES

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

OPERATING SPECIFICATIONS

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

* Precipitation Rate and Maximum Line Length information found on page 196

PLD & PLD Fittings

PLD

PLD-CPL-16
16 mm Barb x Barb

PLD-050-16
½" (12 mm) MPT x 16 mm Barb

PLD-ELB-16
16 mm Barb x Barb Elbow

PLD-TEE-16
16 mm Barb x Barb Tee

PLD-BV-16
16 mm Barb x Barb Ball Valve

PLD – SPECIFICATION BUILDER: ORDER 1 + 2 + 3

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

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

PLD INSERT FITTINGS

Model	Description
PLD-CPL-16	16 mm Barb x Barb
PLD-050-16	½" MPT x 16 mm Barb
PLD-ELB-16	16 mm Barb x Barb Elbow
PLD-TEE-16	16 mm Barb x Barb Tee
PLD-BV-16	16 mm Barb x Barb Ball Valve

PLD-17 MM

Flow: **1.4, 2.3, 3.8 l/hr**

FEATURES

- In-line pressure-compensating emitters provide consistent high-quality performance
- Built-in check valve prevents emitter clogging and wasteful runoff
  - Emitter check height 1.5 m
- Available emitter spacing of 30 cm, 45 cm, or 60 cm
- Emitter flow rates available in 1.4, 2.3, 3.8 l/hr
- Blank tubing available (no emitters)
- Available in 30 m, 75 m and 300 m rolls
- Superior flexibility and kink resistance
- Works with Drip Zone Control Kits
- 30 m rolls available in models PLD 0612100, PLD 1012100, and PLD 1018100
- Warranty period: 5 years (including 2 additional years for environmental stress cracking)

FITTING FEATURES

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

OPERATING SPECIFICATIONS

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

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

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

Example:
PLD-04 - 12 - 250 = 1.4 l/hr landscape dripline with 30 cm spacing in a 75 m roll

* = 30 m rolls available only in models PLD-BLNK-100, PLD-06-12-100, PLD-10-12-100, and PLD-10-18-100

PLD INSERT FITTINGS

Model	Description
PLD-050	Barb to ½" MPT Adapter
PLD-075	Barb to ¾" MPT Adapter
PLD-CPL	Barb to Barb Coupling
PLD-ELB	Barb to Barb, 90° Elbow
PLD-TEE	Barb Tee
PLD-CAP	Barb to End Cap
PLD-BV	Barb Valve
PLD-075-TBTEE	¾" FPT x 17 mm Barb Tee
PLD-AVR	Air Relief Valve

PLD & PLD Fittings

PLD

PLD-050
½" MPT x 17 mm Barb

PLD-075
¾" MPT x 17 mm Barb

PLD-CPL
17 mm Barb x Barb Coupling

PLD-ELB
17 mm Barb x Barb 90° Elbow

PLD-TEE
17 mm Barb x Barb Tee

PLD-CAP
17 mm Barb x ½" MPT with Cap

PLD-BV
17 mm Barb x Barb Shut-off Valve

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

PLD-AVR
½" Air/Vacuum Relief Valve

* Precipitation Rate and Maximum Line Length charts on page 196

POINT SOURCE EMITTERS

Flow: **2, 4, 8, 15, 23 l/hr**

FEATURES

- Slowly delivers water right to the plant
- Available in three convenient styles
- Pressure compensating from 1.0 to 3.5 bar; 100 to 350 kPa
- Flow labeled in imperial and metric units
- Assembled in the USA
- Optional diffuser cap available
- Barb emitters can be inserted into ½" and ¼" tubing without tools for fast installation
- Colour-coded inlet: Models are colour-coded by flow rate for fast identification
- Coined edge for easy installation: Ribbed edges provide easy tool-free installation
- Array of flow rates: With flow rates ranging from 2.0 to 23.0 l/hr, plants can get the right amount of water from a single emitter

OPERATING SPECIFICATIONS

- Pressure compensating 1.0 to 3.5 bar; 100 to 350 kPa

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

1 Model	2 Flow Rate	3 Inlet	4 Qty./Bag
HE	2, 4, 8, 15, 23 l/hr	B = Self-piercing Barb	25/100
		T = 10/32 Threaded	25/100
HEB	4, 8 l/hr	½" Female Thread	25
HE	Diff = Diffuser/Bug Cap	Snap Fit	50

Point Source Emitters



EMITTER MODEL CHART

		Model	Inlet Type	Flow (l/hr)
	Blue	HE-050-B	Self-piercing Barb	2.0
	Black	HE-10-B	Self-piercing Barb	4.0
	Red	HE-20-B	Self-piercing Barb	8.0
	Tan	HE-40-B	Self-piercing Barb	15.0
	Orange	HE-60-B	Self-piercing Barb	23.0
	Blue	HE-050-T	10/32" Thread	2.0
	Black	HE-10-T	10/32" Thread	4.0
	Red	HE-20-T	10/32" Thread	8.0
	Tan	HE-40-T	10/32" Thread	15.0
	Orange	HE-60-T	10/32" Thread	23.0
	Black	HEB-10	½" Female Thread	4.0
	Red	HEB-20	½" Female Thread	8.0

Diffuser Cap
Gently distributes water at higher flows and protects the emitter outlet from clogging.

MICRO SPRAYS

Uses: **Precise Area Watering**

SOLO-DRIP

- Eight streams of water for accurate watering
- Fingertip cap control for flow and radius adjustment
- Operating specifications: 1.0 to 2.5 bar; 100 to 250 kPa
- Dimensions:
  [A] SD-T: 2.4 cm H x 2.0 cm W x 1.6 cm D
  [B] SD-B: 2.4 cm H x 2.0 cm W x 1.6 cm D
  [C] SD-B-STK: 15.2 cm H x 4.3 cm W x 1.6 cm D

HALO-SPRAY

- Large diameter, umbrella of water
- Adjust radius as needed
- Combine several for a “blanket” of water
- Operating specifications: 1.0 to 2.5 bar; 100 to 250 kPa
- Dimensions:
  [A] HS-T: 2.4 cm H x 2.0 cm W x 1.6 cm D
  [B] HS-B: 2.4 cm H x 2.0 cm W x 1.6 cm D
  [C] HS-B-STK: 15.2 cm H x 4.3 cm W x 1.6 cm D

TRIO-SPRAY

- Full-, half-, and quarter-circle configurations
- Functions like big sprays on a micro level
- Control knob for specific adjustment
- Operating specifications: 0.5 to 2.5 bar; 50 to 250 kPa
- Dimensions:
  [A] TS-F: 3.8 cm H x 2.3 cm W x 1.5 cm D
  [B] TS-H: 3.8 cm H x 2.3 cm W x 1.5 cm D
  [C] TS-Q: 3.8 cm H x 2.3 cm W x 1.5 cm D

SOLO-DRIP PERFORMANCE DATA

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

Note: Adjustable to Maximum (approx. 20 clicks)

HALO-SPRAY PERFORMANCE DATA

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

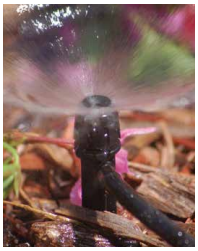
Note: Adjustable to Maximum (approx. 14 clicks)

TRIO-SPRAY PERFORMANCE DATA

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

SOLO-DRIP

HALO-SPRAY



TRIO-SPRAY

MICRO SPRAY MODELS

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

DRIP CONTROL ZONE KITS

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

PCZ-101

- Pressure regulation: 1.7 or 2.8 bar; 170 or 280 kPa
- Flow: 2 to 55 l/min
- Operating pressure: 1.4 to 8.0 bar; 140 to 800 kPa
- Operating temperature: up to 66° C
- 150 mesh stainless steel screen

USER INSTALLED OPTIONS

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

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

HFR-100, HFR-100-75, HFR-075

- Pressure regulation: 1.7 or 2.8 bar; 170 or 280 kPa
- Flow: 2 to 55 l/min
- Operating pressure: 1.4 to 8.0 bar; 140 to 800 kPa
- Operating temperature: up to 66° C
- 150 mesh stainless steel screen

HUNTER HYE FILTER

- Filter HY-100 1" (25 mm) male NPT
- Filter HY-100-075 1" (25 mm) male NPT inlet x ¾" male outlet
- Filter HY-075 ¾" male

* PCZ performance chart found on page 197

DRIP CONTROL ZONE KIT MODELS

Model	Description
PCZ-101-25-B	1" (25 mm) BSP PGV globe valve with 1" (25 mm) filter system, and 1.7 bar regulator, ¾" outlet
PCZ-101-40-B	1" (25 mm) BSP PGV globe valve with 1" (25 mm) filter system, and 2.8 bar regulator, ¾" outlet

HUNTER FILTER REGULATOR KIT MODELS

Model	Description
HFR-100-075-25	1" (25 mm) NPT filter system, and 1.7 bar; 170 kPa regulator, ¾" outlet
HFR-100-075-40	1" (25 mm) NPT filter system, and 2.8 bar; 280 kPa regulator, ¾" outlet
HFR-075-25	¾" filter system, and 1.7 bar; 170 kPa regulator, ¾" outlet
HFR-075-40	¾" filter system, and 2.8 bar; 280 kPa regulator, ¾" outlet

PCZ-101
Height: 18 cm
Width: 7 cm
Length: 26 cm
25 mm female inlet x 20 mm female outlet

HFR-100-075-25, HFR-100-075-40
Height: 18 cm
Width: 7 cm
Length: 18 cm
25 mm male NPT inlet x 20 mm female outlet

HFR-075-25, HFR-075-40
Height: 18 cm
Width: 7 cm
Length: 18 cm
20 mm male NPT inlet x 20 mm female outlet

HY-100, HY-100-75, HY-075
Height: 15 cm
Width: 7 cm
Length: 13 cm

RZWS

Size: **25, 45, 90 cm**
Flow: **1.0 l/min or 2.0 l/min**

FEATURES

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

DIMENSIONS

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

OPERATING SPECIFICATIONS

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

FACTORY INSTALLED OPTIONS

- Check valve
- Locking reclaimed purple cap

USER INSTALLED OPTIONS

- Sleeve: Fabric sleeve that helps prevent soil intrusion in sandy areas (P/N RZWS-SLEEVE)
- Replacement cap 45 cm and 90 cm only (P/N RZWS-CAP)
- Locking reclaimed purple cap 45 cm and 90 cm only (P/N RZWS-RCCAP)

Standard and reclaimed models available

Reclaimed models available

Purple reclaimed cap spare part (P/N RZWS-RCCAP for 45 cm and 90 cm models, P/N RZWS-10RCC for 25 cm models)

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

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

Examples:
RZWS-18 - 25 - CV = 45 cm Root zone watering system at 1 l/min, with check valve
RZWS-10 - 50 - R = 25 cm Root zone watering system at 2 l/min, with reclaimed cap
RZWS-36 - 25 - CV = 90 cm Root zone watering system at 1 l/min, with check valve

ADDITIONAL OPTIONS (SPECIFY SEPARATELY)

RZWS-SLEEVE = Field installed sleeve made from filter fabric
RZWS-CAP = Replacement cap for 45 cm and 90 cm models
RZWS-10RCC = Reclaimed water replacement cap for 25 cm models
RZWS-RC-CAP = Reclaimed water replacement cap for 45 cm and 90 cm models

Root Zone Watering System


Hunter
CHECK VALVE
PRO-SPRAY PRS40

SECTION 09:

ACCESSORIES

ACCESSORIES

DBRY-6

Models
- DBRY100: Bulk 100 connectors
  (100 tubes loose in box, plus inner box with 100 wire nuts)
- DBRY2X25: 25 x 2-packs
  (2 tubes and 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 from top of valve
- Adjusts to compensate for elevational changes up to 11 m: Maximum flexibility
- Variety of inlet and outlet options: Reduces need for additional fittings
- Meets schedule 80 specifications: Durable under high pressure

HCV
Overall height: 7.5 cm

HUNTER SPIRAL BARB ELBOWS

Models
- HSBE-050: ½" male x spiral barb elbow
- HSBE-075: ¾" male x spiral barb elbow
- HSBE TOOL: Insert tool

Features
- For use with FLEXSG Tubing
- Acetal material for sharp barbs
- Operating pressure up to 6.9 bar; 690 kPa
- Compatible with FLEXSG and other brands

Spiral Barb Elbows
HSBE-TOOL, HSBE-050, HSBE-075

FLEXSG TUBING

Models
- FLEXSG: 30 m roll
- FLEXSG-18: 45 cm pre-cut lengths

Features
- Engineered to resist kinking
- Inside diameter: 1.2 cm
- Operating pressure: up to 6.9 bar; 690 kPa
- Linear low-density polyethylene material

FLEXSG Tubing
30 m and 45 cm pre-cut lengths

Pressure loss charts for HCV products on page 206

ACCESSORIES

SJ SWING JOINT

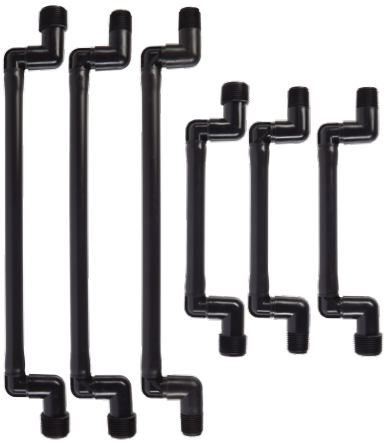
Models

- SJ-506: ½" threaded x 15 cm length
- SJ-512: ½" threaded x 30 cm length
- SJ-7506: ½" x ¾" threaded x 15 cm length
- SJ-7512: ½" x ¾" threaded x 30 cm length
- SJ-706: ¾" threaded x 15 cm length
- SJ-712: ¾" threaded x 30 cm length

Features

- Unique leak-free swivel ells on both ends can be installed in any position for maximum versatility
- Pressure rated to 10 bar; 1000 kPa

Pressure loss charts for SJ products are located on page 206



SJ Swing Joint
15 cm or 30 cm links

SPOTSHOT HOSE-END NOZZLE

Models

- ¾" Hose thread inlet – P/N 160700
- 1" (25 mm) 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 – 132 l/min; 8 m^3/hr at 5.5 bar; 551 kPa*

* Not recommended for residential use with regulated, low pressure or low flow conditions.

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

Jet Stream Nozzle

Soak Stream Nozzle

Fan Stream Nozzle

TOOLS

Hunter Wrench
P/N 172000

"T" Handle Tool
P/N 053191

Pitot Gauge
P/N 280100

Rotor Pressure Gauge
P/N 129900
(works with PGP-ADJ only)

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

Hand Pump
P/N 460302

MP Tool
P/N MPTOOL

Nozzle Insertion Collar
P/N 123200

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

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

ST1600 Tool
P/N 517600

GOLF TOOLS

Arc Adjustment/ Riser Hold-up Tool
P/N 382800
G85B/G885

Valve Insertion/Removal Tool
P/N 604000
G800 Series

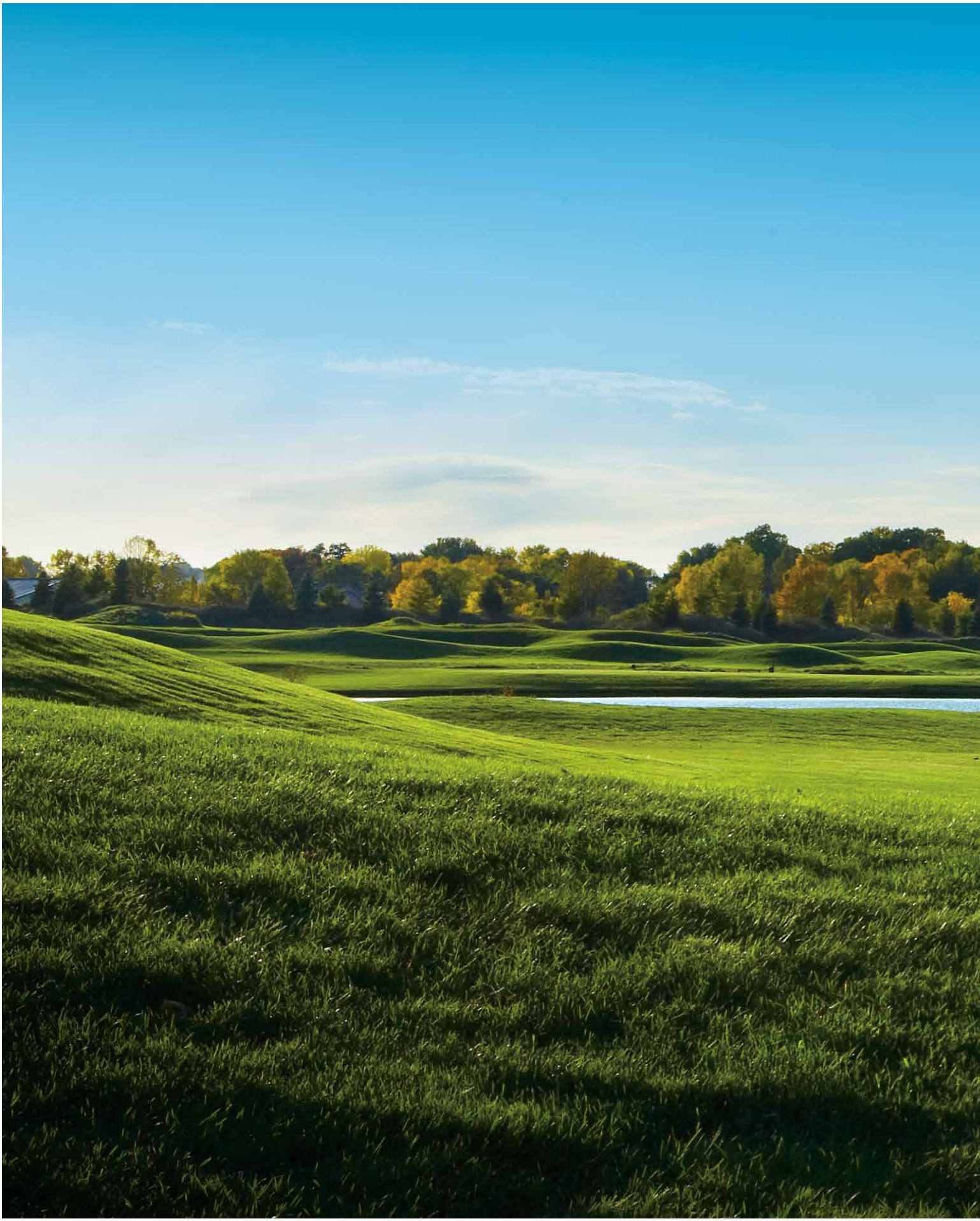
Valve Insertion/Removal Tool
P/N 052805
G900/G90 Series

Valve & Snap Ring Insertion/Removal Pliers
P/N 475600
G800 Series

Valve Flushing Tool
P/N 609400
G800/G900 Series

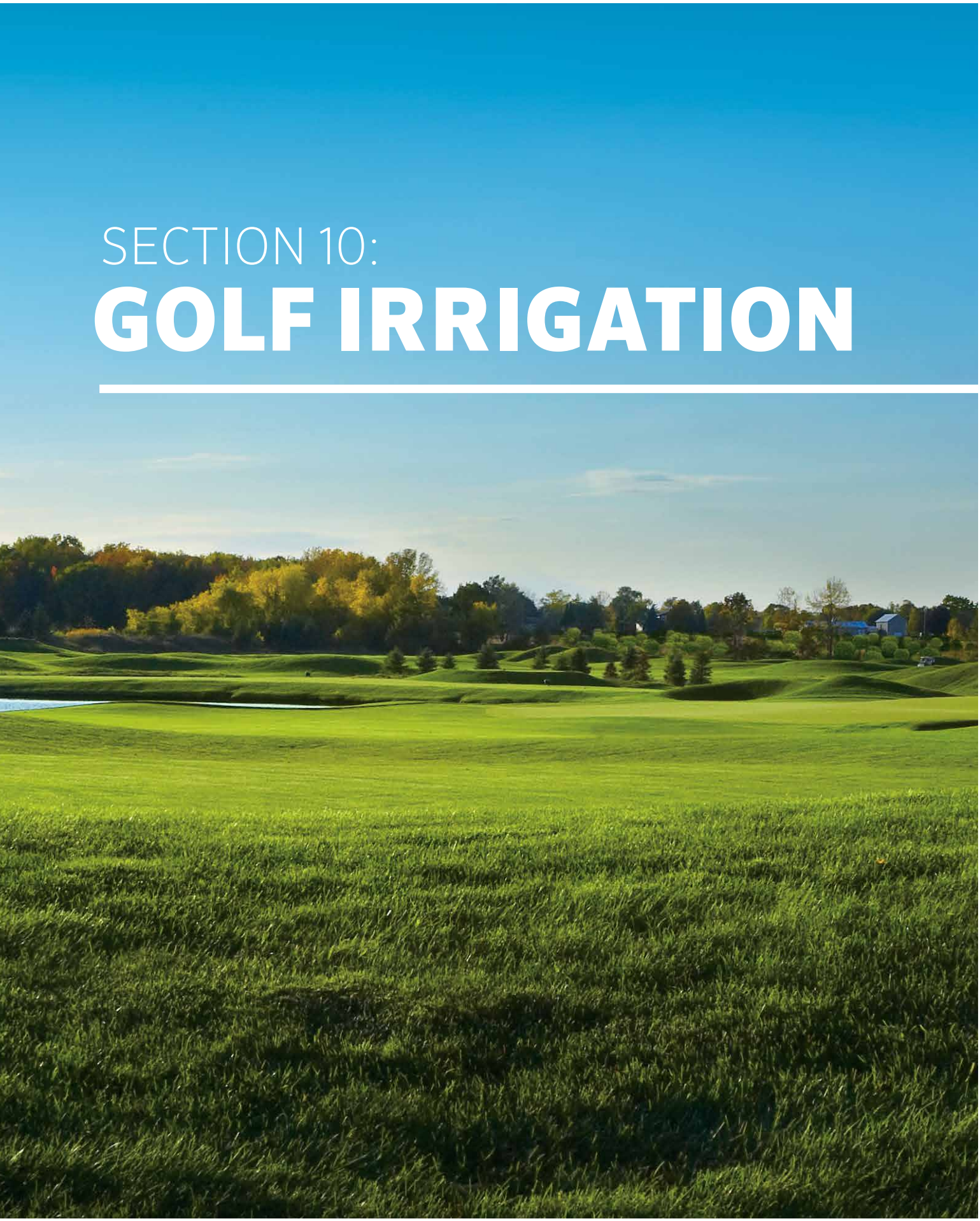
Snap Ring Removal Tool
P/N 052510
All Golf Models

Nozzle Removal/ Installation Tool
P/N 803700
G85B, G885 Short and Mid-Range Nozzles



SECTION 10:

GOLF IRRIGATION



GOLF ROTORS

GOLF ROTORS
ADVANCED FEATURES

GOLF IRRIGATION

THE G885 HAS POWER TO SPARE

Boasting the highest torque output of any golf rotor on the market, the G885's patented gear drive will push through anything that gets in its way. Try it yourself and see. With just one rotation of the turret by hand, you can clearly feel this rotor's formidable durability. With such a powerful core, an array of efficient nozzles, and true full circle and part circle capabilities, the G885 is the golf rotor you can always count on.

EASY ARC ADJUSTMENT WITH OR WITHOUT A TOOL

With the G885, the arc is adjustable anytime; uninstalled, installed or while in operation. The convenient adjustment ring can be rotated by hand, or with the easy-to-use arc adjustment tool. This combination tool can also be used as a means to hold the riser in the popped-up position for nozzle changes.

DUAL TRAJECTORY FLEXIBILITY

Choose from the wide assortment of efficient wind-fighting 22.5° standard trajectory nozzles, or the 15° low-angle trajectory nozzles. Either way, there is a perfect match for your unique course conditions and problem-solving needs. Regardless of the version you choose, changing nozzles is fast and easy with Hunter's exclusive QuickChange technology.

CONTOUR "BACK-NOZZLE" CAPABILITY

Whether you want a little extra green behind your adjustable arc G885 rotors or a more "modeled" look to your fairway's hard edges, contour "Back-Nozzles" are here to make your vision a reality. They are also great for reducing water use along perimeter housing areas and other unique situations around the course. Choose from six short-range or seven mid-range nozzles to suit your needs.

RATCHETING RISER WITH QUICKSET-360 ADJUSTABILITY

Setting up your adjustable arc G885 is fast and simple. The integrated ratcheting mechanism allows a simple twist of the riser to align the right-side reversing point. Then, the adjustment ring is used to quickly set the arc and left-side reversing point. The G885 is also easily convertible to a true non-reversing full circle rotor with our exclusive QuickSet-360 feature.

PRIMARY NOZZLE ADAPTER

Unique irrigation problems exist on nearly every golf course. This is especially true in tight, hard-to-irrigate areas. The G885 primary nozzle adapter can solve many of these problems quickly and easily by allowing you to mix and match nozzles to get the coverage needed, or to plug the primary flow completely.

ALSO AVAILABLE, THE NEW G85B BLOCK ROTOR

If you're looking for a cost-effective golf rotor with a wide-range of radius and feature capabilities, including a recessed area for a yardage marker, the G85B block rotor is here. It includes all the great features of the G885 rotor at a fraction of the cost.

TTS GOLF ROTORS
ADVANCED FEATURES

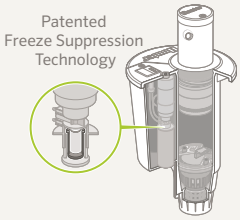
Total-Top-Service (TTS)

Access Everything Through the Top

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

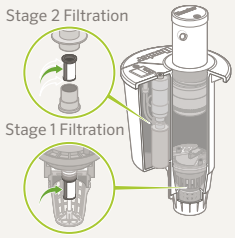
Large and Flexible Yardage Marker Capabilities

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



Pilot Valve Freeze Suppression Unit

Patented FST technology prevents freeze damage—another TTS exclusive



Two-Stage Filtration in Valve Circuitry

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

Unitised Inlet Valve Assembly

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

Convenient Circular Flange Design

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

Upper Snap Rings with Integrated Wiper Seal

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

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

Simple and inexpensive to replace, should damage occur

Through-the-Top Solenoid Connections

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

Stainless Steel Seat in Pilot Valve

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

Concealed Adjustable Pressure Regulation

Stored within the flange compartment, prevents accidental adjustments

Proudly Manufactured in the USA

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

Made in the USA

DIH GOLF ROTORS
ADVANCED FEATURES

Decoder-In-Head (DIH)

Decoders Are Built Into Rotors

Perfect package to complement decoder control systems. All DIH rotors include two DBR/Y-6 splice connectors

State-of-the-Art Surge Suppression

Earth grounding is easily added with the Pilot SG surge protector

Individual Decoder and Solenoid Components Within Flange Compartment

Isolated configuration minimises maintenance costs year after year and into the future

Seamless No-Splice Connection Between Decoder and Solenoid

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

Made in the USA

New Two-Station DIH Rotor Option

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

Program Decoders from the Surface with No Disassembly

Simple, fast, and easy to program before or after installation with the wireless ICD-HP

Access Decoders Through the Top with No Digging Required

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

Durability, Efficiency, and Reliability Housed in the Industry's First TTS DIH Rotor

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

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

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

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

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

Built Strong in the United States of America

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

G900 SERIES

Models: **G990 & G995**
Radius: **22.3 to 31.4 m**
Flow: **6.7 to 19.04 m³/hr; 111.7 to 317.2 l/min**

FEATURES

- Models:
  - G990 – Full circle
  - G995 – Adjustable arc (40°-360°)
- QuickCheck™ arc mechanism
- Dual trajectory nozzle choices:
  - 8 standard trajectory (22.5°)
  - 8 low angle trajectory (15°)
- Nozzle range: #25 to #73
- Exclusive PressurePort™ nozzle technology
- Contour "Back-Nozzle" capabilities
- Water lubricated gear-drive
- ▸ All TTS advanced features
- ▸ Decoder-In-Head (DIH) capable

OPERATING SPECIFICATIONS

- G990
  - Radius: 22.3 to 31.4 m
  - Flow: 6.93 to 18.92 m³/hr; 115.5 to 315.3 l/min
  - Pressure range: 5.5 to 8.3 bar; 550 to 830 kPa
- G995
  - Radius: 20.1 to 29.6 m
  - Flow: 6.7 to 19.04 m³/hr; 111.7 to 317.2 l/min
  - Pressure range: 5.5 to 8.3 bar; 550 to 830 kPa
- All TTS rotors are pressure rated at 10 bar; 1,000 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally-Open Hydraulic with through the top connections
- D – Decoder Valve-In-Head with all "E" specifications below*
- DD – Two-station Decoder Valve-In-Head with all "E" specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 210 mA (370 mA inrush) 50Hz; 190 mA (350 mA inrush) 60Hz solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. See page 180 for critical recommendations on grounding DIH rotors.

▸ = *TTS and DIH Advanced Features detailed on pages 150 and 152*

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

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

G990 & G995 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G990 = Full Circle	**C** = Check-O-Matic* **D** = Decoder Valve-In-Head **DD** = Two-station Decoder Valve-In-Head **E** = Electric Valve-In-Head	**25 to 73** = Installed G990 Nozzle*	**P8** = 80 PSI (nozzles 25 to 53) **P1** = 100 PSI (nozzles 53 to 73) **P2** = 120 PSI (nozzle 73)	**S** = SSU*
G995 = Adjustable Arc 40° - 360°	**C** = Check-O-Matic* **D** = Decoder Valve-In-Head **DD** = Two-station Decoder Valve-In-Head **E** = Electric Valve-In-Head ** Converts to N.O. Hydraulic Valve-In-Head*	**25 to 73** = Installed G995 Nozzle* ** SSU = #25 or #53*	**P8** = 80 PSI (nozzles 25 to 53) **P1** = 100 PSI (nozzles 53 to 73) **P2** = 120 PSI (nozzle 73) ** SSU = P8/#25 P8/#53*	**S** = SSU* ** Standard Stocking Unit*

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

G990 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure bar	Pressure kPa	Radius** m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	550	22.3	6.93	115.2	14.0	16.2
	6.2	620	22.9	7.36	122.6	14.1	16.3
	6.9	690	23.2	7.79	129.8	14.5	16.8
	7.6	760	23.8	8.29	138.2	14.7	16.9
	8.3	830	24.1	8.72	145.4	15.0	17.4
33 Grey	5.5	550	23.5	8.25	137.4	15.0	17.3
	6.2	620	23.8	8.72	145.4	15.4	17.8
	6.9	690	24.4	9.22	153.7	15.5	17.9
	7.6	760	24.7	9.70	161.6	15.9	18.4
	8.3	830	25.0	10.20	170.0	16.3	18.9
38 Red	5.5	550	24.4	9.22	153.7	15.5	17.9
	6.2	620	25.0	9.75	162.4	15.6	18.0
	6.9	690	25.3	10.29	171.4	16.1	18.6
	7.6	760	25.9	10.84	180.6	16.1	18.6
	8.3	830	26.2	11.40	190.0	16.6	19.2
43 Dk. Brown	5.5	550	25.3	10.49	174.9	16.4	18.9
	6.2	620	25.6	11.04	184.0	16.8	19.4
	6.9	690	25.9	11.56	192.7	17.2	19.9
	7.6	760	26.2	12.13	202.1	17.7	20.4
	8.3	830	26.5	12.70	211.6	18.1	20.8
48 Dk. Green	5.5	550	26.2	11.27	187.8	16.4	18.9
	6.2	620	27.1	11.93	198.7	16.2	18.7
	6.9	690	27.4	12.45	207.4	16.5	19.1
	7.6	760	27.7	13.02	216.9	16.9	19.5
	8.3	830	28.0	13.52	225.2	17.2	19.8
53 Dk. Blue	5.5	550	27.1	12.31	205.2	16.7	19.3
	6.2	620	27.4	12.88	214.6	17.1	19.8
	6.9	690	28.0	13.45	224.1	17.1	19.7
	7.6	760	28.3	14.02	233.6	17.4	20.1
	8.3	830	28.7	14.58	243.0	17.8	20.5
63 Black	5.5	550	28.0	14.36	23.92	18.3	21.1
	6.2	620	28.7	14.97	249.5	18.2	21.1
	6.9	690	29.3	15.76	265.7	18.4	21.3
	7.6	760	29.6	16.36	272.5	18.7	21.6
	8.3	830	29.9	17.01	283.5	19.1	22.0
73 Orange	5.5	550	29.3	16.38	272.9	19.1	22.1
	6.2	620	29.9	17.04	283.9	19.1	22.0
	6.9	690	30.2	17.67	297.5	19.4	22.4
	7.6	760	31.1	18.29	304.7	18.9	21.8
	8.3	830	31.4	18.92	315.3	19.2	22.2

G995 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure bar	Pressure kPa	Radius** m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
25 Lt. Blue	5.5	550	20.1	6.70	111.7	16.6	19.1
	6.2	620	20.4	7.16	119.2	17.2	19.8
	6.9	690	20.7	7.54	125.7	17.6	20.3
	7.6	760	21.0	8.09	134.8	18.3	21.1
	8.3	830	21.0	8.52	142.0	19.3	22.2
33 Grey	5.5	550	20.7	8.22	137.0	19.1	22.1
	6.2	620	21.0	8.68	144.6	19.6	22.7
	6.9	690	21.3	9.18	152.9	20.2	23.3
	7.6	760	21.6	9.68	161.3	20.7	23.9
	8.3	830	21.9	10.18	169.6	21.1	24.4
38 Red	5.5	550	21.9	9.22	153.7	19.1	22.1
	6.2	620	22.3	9.77	162.8	19.7	22.8
	6.9	690	22.9	10.31	171.9	19.7	22.8
	7.6	760	23.2	10.81	180.2	20.1	23.3
	8.3	830	23.5	11.36	189.3	20.6	23.8
43 Dk. Brown	5.5	550	22.6	10.47	174.5	20.6	23.8
	6.2	620	22.6	11.02	183.6	21.7	25.0
	6.9	690	22.9	11.52	191.9	22.0	25.4
	7.6	760	23.5	12.13	202.1	22.0	25.4
	8.3	830	23.8	12.65	210.8	22.4	25.8
48 Dk. Green	5.5	550	23.5	11.40	190.0	20.7	23.9
	6.2	620	24.1	11.95	199.1	20.6	23.8
	6.9	690	24.7	12.52	208.6	20.5	23.7
	7.6	760	25.0	13.06	217.7	20.9	24.1
	8.3	830	25.3	13.74	229.0	21.5	24.8
53 Dk. Blue	5.5	550	24.7	12.47	207.8	20.5	23.6
	6.2	620	25.6	12.99	216.5	19.8	22.9
	6.9	690	26.2	13.52	225.2	19.7	22.7
	7.6	760	26.5	14.11	235.1	20.1	23.2
	8.3	830	26.8	14.63	243.8	20.3	23.5
63 Black	5.5	550	26.2	14.15	235.8	20.6	23.8
	6.2	620	26.8	14.88	247.9	20.7	23.9
	6.9	690	27.4	15.67	261.2	20.8	24.0
	7.6	760	27.7	16.33	272.2	21.2	24.5
	8.3	830	28.0	16.97	282.8	21.6	24.9
73 Orange	5.5	550	27.1	16.51	275.2	22.4	25.9
	6.2	620	27.7	17.13	285.4	22.3	25.7
	6.9	690	28.3	17.74	295.6	22.1	25.5
	7.6	760	29.0	18.38	306.2	21.9	25.3
	8.3	830	29.6	19.04	317.2	21.8	25.1

* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G900 NOZZLES

G990 & G995

G900 LOW-ANGLE NOZZLES

G990 & G995**

** Low-angle nozzles reduce radius by 15%

Contour "Back-Nozzle" Capabilities

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

GOLF ROTORS

G800 SERIES

Model: **G880**
Radius: **20.4 to 26.8 m**
Flow: **5.11 to 13.15 m³/hr; 85.2 to 219.2 l/min**

FEATURES

- Model: G880 – Full circle
- Nozzle choices: 7 standard trajectory (25°)
- Nozzle range: #23 to #53
- Exclusive PressurePort™ nozzle technology
- Water lubricated gear-drive
- ▸ All TTS advanced features
- ▸ Decoder-In-Head (DIH) capable

OPERATING SPECIFICATIONS

- Radius: 20.4 to 26.8 m
- Flow: 5.11 to 13.15 m³/hr; 85.2 to 219.2 l/min
- Pressure range: 4.5 to 6.9 bar; 450 to 690 kPa
- All TTS rotors are pressure rated at 10 bar; 1,000 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally-Open Hydraulic with through the top connections
- D – Decoder Valve-In-Head with all "E" specifications below*
- DD – Two-station Decoder Valve-In-Head with all "E" specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 210 mA (370 mA inrush) 50Hz; 190 mA (350 mA inrush) 60Hz solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. See page 180 for critical recommendations on grounding DIH rotors.

▸ = *TTS and DIH Advanced Features detailed on pages 150 and 152*

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

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

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

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G880 = Full Circle	**C** = Check-O-Matic*	**23 to 53** = Installed G880 Nozzle*	**P6** = 65 PSI (nozzles 23 and 25)	**S** = SSU*
	D = Decoder Valve-In-Head		**P8** = 80 PSI (nozzles 23 to 53)	
	DD = Two-station Decoder Valve-In-Head			
	E = Electric Valve-In-Head			
	** Converts to N.O. Hydraulic Valve-In-Head*	** SSU = #23, #25 or #48*	** SSU = P6/#23, P6/#25 P8/#25, P8/#48*	** Standard Stocking Unit*

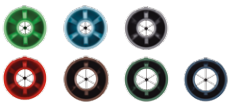
Example:
G880 - E - 48 - P8 - S = G880 full circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G880 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	Bar	kPa	m	m³/hr	l/min	■	▲
23 ● Green	4.5	450	20.4	5.11	85.2	12.3	14.1
	4.8	480	21.0	5.43	90.5	12.3	14.2
	5.5	550	21.6	5.91	98.4	12.6	14.6
	6.2	620	21.9	6.34	105.6	13.2	15.2
	6.9	690	22.3	6.77	112.8	13.7	15.8
25 ● Blue	4.5	450	21.6	6.54	109.0	14.0	16.1
	4.8	480	22.3	6.79	113.2	13.7	15.8
	5.5	550	22.6	7.29	121.5	14.3	16.5
	6.2	620	22.9	7.79	129.8	14.9	17.2
	6.9	690	23.2	8.18	136.3	15.2	17.6
33 ● Grey	4.5	450	22.3	7.04	117.3	14.2	16.4
	4.8	480	22.6	7.31	121.9	14.4	16.6
	5.5	550	23.2	7.88	131.4	14.7	17.0
	6.2	620	23.5	8.40	140.1	15.3	17.6
	6.9	690	23.8	8.81	146.9	15.6	18.0
38 ● Red	4.5	450	23.2	7.97	132.9	14.9	17.2
	4.8	480	23.5	8.25	137.4	15.0	17.3
	5.5	550	24.1	8.75	145.7	15.1	17.4
	6.2	620	24.4	9.20	153.3	15.5	17.9
	6.9	690	24.7	9.75	162.4	16.0	18.5
43 ● Dk. Brown	4.5	450	23.8	8.90	148.4	15.8	18.2
	4.8	480	24.1	9.27	154.4	16.0	18.5
	5.5	550	25.0	9.93	165.4	15.9	18.3
	6.2	620	25.3	10.56	176.0	16.5	19.1
	6.9	690	25.6	11.09	184.7	16.9	19.5
48 ● Dk. Green	4.5	450	25.0	9.95	165.8	15.9	18.4
	4.8	480	25.3	10.52	175.3	16.4	19.0
	5.5	550	25.9	11.13	185.5	16.6	19.1
	6.2	620	26.2	11.79	196.5	17.2	19.8
	6.9	690	26.5	12.36	205.9	17.6	20.3
53 ● Dk. Blue	4.5	450	25.3	10.65	177.5	16.6	19.2
	4.8	480	25.6	11.15	185.9	17.0	19.6
	5.5	550	26.5	11.95	199.1	17.0	19.6
	6.2	620	26.8	12.45	207.4	17.3	20.0
	6.9	690	26.8	13.15	219.2	18.3	21.1

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

G880 NOZZLES



TTS EQUALS CONVENIENCE AND VERSATILITY

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

GOLF ROTORS

G800 SERIES

Model: **G884**
Radius: **14.9 to 28.3 m**
Flow: **3.28 to 13.24 m³/hr; 54.6 to 220.6 l/min**

FEATURES

- Model: G884 – Full circle
- Dual trajectory colour-coded nozzles:
  - 10 standard trajectory (22.5°)
  - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Stainless steel riser
- Water lubricated gear-drive
- ▸ All TTS advanced features
- ▸ Decoder-In-Head (DIH) capable

OPERATING SPECIFICATIONS

- Radius: 14.9 to 28.3 m
- Flow: 3.28 to 13.24 m³/hr; 54.6 to 220.6 l/min
- Pressure range: 3.4 to 6.9 bar; 340 to 690 kPa
- All TTS rotors are pressure rated at 10 bar; 1000 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally-Open Hydraulic with through the top connections
- D – Decoder Valve-In-Head with all "E" specifications below*
- DD – Two-station Decoder Valve-In-Head with all "E" specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 210 mA (370 mA inrush) 50Hz; 190 mA (350 mA inrush) 60Hz solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. See page 180 for critical recommendations on grounding DIH rotors.

▸ = *TTS and DIH Advanced Features detailed on pages 150 and 152*

G884C
Pop-up height: 9.5 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G884E
Pop-up height: 9.5 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G884 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G884 = Full Circle (convertible to forward-facing adjustable arc rotor)	**C** = Check-O-Matic*	**15 to 53** = Installed G880 Nozzle*	**P5** = 50 PSI (nozzles 15 to 18)	**S** = SSU*
	D = Decoder Valve-In-Head		**P6** = 65 PSI (nozzles 18 to 25)	
	DD = Two-station Decoder Valve-In-Head		**P8** = 80 PSI (nozzles 25 to 35)	
	E = Electric Valve-In-Head			
	** Converts to N.O. Hydraulic Valve-In-Head*	** SSU = #18, #23, #25 or #48*	** SSU = P5/#18, P6/#23 P8/#25, P8/#48*	** Standard Stocking Unit*

Example:
G884 - E - 48 - P8 - S = G884 full circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G884 NOZZLE PERFORMANCE DATA*

Nozzle Set			Pressure		Radius	Flow		Precip mm/hr	
			bar	kPa	m	m³/hr	l/min	■	▲
● Tan 803611	15 White	● Grey 315317	3.4	340	14.9	3.28	54.6	14.7	17.0
			4.1	410	15.5	3.65	60.8	15.1	17.4
			4.5	450	15.9	3.81	63.5	15.2	17.5
			4.8	480	16.2	3.90	65.1	15.0	17.3
			5.5	550	16.8	4.13	68.9	14.7	17.0
● Tan 803611	18 Orange	● Grey 315317	3.4	340	16.8	3.97	66.1	14.1	16.3
			4.1	410	17.1	4.28	71.3	14.7	17.0
			4.5	450	17.4	4.45	74.1	14.7	17.0
			4.8	480	18.0	4.66	77.6	14.4	16.6
			5.5	550	18.6	4.94	82.4	14.3	16.5
● Tan 803611	20 Brown	● Grey 315317	3.4	340	17.4	3.91	65.2	13.0	15.0
			4.1	410	18.6	4.28	71.3	12.4	14.3
			4.5	450	18.9	4.47	74.4	12.5	14.4
			4.8	480	19.2	4.67	77.9	12.7	14.6
			5.5	550	19.5	5.02	83.6	13.2	15.2
● Tan 803611	23 Green	● Lt. Blue 315311	3.4	340	19.2	4.49	74.8	12.2	14.1
			4.1	410	19.8	4.99	83.2	12.7	14.7
			4.5	450	20.1	5.19	86.5	12.8	14.8
			4.8	480	20.4	5.41	90.1	13.0	15.0
			5.5	550	20.4	5.81	96.9	13.9	16.1
● Tan 803611	25 Blue	● Lt. Blue 315311	4.5	450	21.6	6.50	108.3	13.9	16.0
			4.8	480	22.3	6.75	112.5	13.6	15.7
			5.5	550	22.6	7.19	119.8	14.1	16.3
			6.2	620	22.9	7.65	127.5	14.6	16.9
			6.9	690	22.9	8.12	135.3	15.5	17.9
● Tan 803611	33 Grey	● Lt. Blue 315311	4.5	450	22.3	7.02	117.0	14.2	16.4
			4.8	480	22.9	7.30	121.7	14.0	16.1
			5.5	550	23.2	7.81	130.1	14.6	16.8
			6.2	620	23.5	8.24	137.3	15.0	17.3
			6.9	690	24.1	8.65	144.1	14.9	17.2
● Tan 803611	38 Red	● Lt. Blue 315311	4.5	450	22.9	7.96	132.6	15.2	17.6
			4.8	480	23.2	8.29	138.1	15.4	17.8
			5.5	550	23.8	8.85	147.5	15.7	18.1
			6.2	620	24.1	9.38	156.3	16.2	18.7
			6.9	690	25.0	9.87	164.4	15.8	18.2
● Tan 803611	43 Dk. Brown	● Blue 315300	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	25.3	9.85	164.1	15.4	17.8
			6.2	620	25.9	10.52	175.3	15.7	18.1
			6.9	690	26.5	11.04	183.9	15.7	18.1
● Dk. Brown 803610	48 Dk. Green	● Dk. Blue 833500	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	25.9	10.88	181.2	16.2	18.7
			6.2	620	27.1	11.46	191.0	15.6	18.0
			6.9	690	27.7	12.08	201.4	15.7	18.1
● Dk. Brown 803610	53 Dk. Blue	● Dk. Blue 833500	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	27.1	11.86	197.7	16.1	18.6
			6.2	620	27.7	12.58	209.6	16.3	18.9
			6.9	690	28.3	13.24	220.6	16.5	19.0

* Preliminary Performance Data. Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G884 NOZZLES

G885 Decoder-In-Head TTS Rotor

G885 TTS Rotor Spacious TTS Flange Compartment

All TTS rotors include ample room for solenoid splice connections and a decoder module when needed.

GOLF ROTORS

G800 SERIES

Model: **G885**
Radius: **13.1 to 27.7 m**
Flow: **1.86 to 13.06 m³/hr; 31.0 to 217.7 l/min**

FEATURES

- Model: G885 – True full circle/adjustable part circle (60° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Dual trajectory colour-coded nozzles:
  - 12 standard trajectory (22.5°)
  - 9 low-angle trajectory (15°)
- Nozzle range: #10 to #53
- Exclusive PressurePort™ nozzle technology
- Contour "Back-Nozzle" capabilities
- Ratcheting stainless steel riser
- Water lubricated gear-drive
- ▸ All TTS advanced features
- ▸ Decoder-In-Head (DIH) capable

G885C
Pop-up height: 9.5 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

OPERATING SPECIFICATIONS

- Radius: 13.1 to 27.7 m
- Flow: 1.86 to 13.06 m³/hr; 31.0 to 217.7 l/min
- Pressure range: 3.4 to 6.9 bar; 340 to 690 kPa
- All TTS rotors are pressure rated at 10 bar; 1,000 kPa

G885E
Pop-up height: 9.5 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally-Open Hydraulic with through the top connections
- D – Decoder Valve-In-Head with all "E" specifications below*
- DD – Two-station Decoder Valve-In-Head with all "E" specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 210 mA (370 mA inrush) 50Hz; 190 mA (350 mA inrush) 60Hz solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. See page 180 for critical recommendations on grounding DIH rotors.

▸ = *TTS and DIH Advanced Features detailed on pages 150 and 152*

G885 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G885 = Full/Part Circle 60°-360° Arc Range	**C** = Check-O-Matic*	**10 to 53** = Installed G885 Nozzle*	**P5** = 50 PSI (nozzles 10 to 18)	**S** = SSU*
	D = Decoder Valve-In-Head		**P6** = 65 PSI (nozzles 18 to 25)	
	DD = Two-station Decoder Valve-In-Head		**P8** = 80 PSI (nozzles 25 to 53)	
	E = Electric Valve-In-Head			
	** Converts to N.O. Hydraulic Valve-In-Head*	** SSU = #18, #23, #25 or #48*	** SSU = P5/#18, P6/#23 P8/#25, P8/#48*	** Standard Stocking Unit*

Example:
G885 - E - 48 - P8 - S = G885 full/part circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G885 NOZZLE PERFORMANCE DATA*

Nozzle Set			Pressure		Radius	Flow		Precip mm/hr	
			bar	kPa	m	m^3/hr	l/min	■	▲
Orange	10	Dk. Green	3.4	340	13.1	1.86	31.0	10.8	12.5
803603		315312	4.1	410	13.4	2.23	37.1	12.4	14.3
●	Lt. Green	●	4.5	450	13.7	2.29	38.2	12.2	14.1
			-	-	-	-	-	-	-
			-	-	-	-	-	-	-
Orange	13	White	3.4	340	14.6	2.66	44.3	12.4	14.3
803603		315314	4.1	410	15.2	2.91	48.5	12.5	14.5
●	Lt. Blue	●	4.5	450	15.5	3.04	50.7	12.6	14.5
			-	-	-	-	-	-	-
			-	-	-	-	-	-	-
Orange	15	White	3.4	340	15.9	3.02	50.3	12.0	13.9
803603		315314	4.1	410	16.2	3.34	55.6	12.8	14.8
●	White	●	4.5	450	16.5	3.45	57.5	12.7	14.7
			-	-	-	-	-	-	-
			-	-	-	-	-	-	-
Orange	18	Lt. Green	3.4	340	16.8	3.79	63.2	13.5	15.6
803603		315313	4.1	410	17.4	4.04	67.4	13.4	15.5
●	Orange	●	4.5	450	17.7	4.13	68.9	13.2	15.3
			-	-	-	-	-	-	-
			-	-	-	-	-	-	-
Orange	20	Lt. Green	3.4	340	17.7	4.18	69.7	13.4	15.4
803603		315313	4.1	410	18.3	4.45	74.2	13.3	15.4
●	Tan	●	4.5	450	18.6	4.66	77.6	13.5	15.6
			4.8	480	18.6	4.88	81.4	14.1	16.3
			5.5	550	18.9	5.13	85.6	14.4	16.6
Orange	23	Lt. Green	3.4	340	18.6	4.78	79.6	13.8	16.0
803603		315313	4.1	410	19.2	5.18	86.3	14.0	16.2
●	Green	●	4.5	450	19.8	5.43	90.5	13.8	16.0
			4.8	480	20.1	5.86	97.7	14.5	16.7
			5.5	550	20.4	6.34	105.6	15.2	17.5
Red	25	Green	4.5	450	21.0	6.68	111.3	15.1	17.4
803602		315310	4.8	480	21.3	6.92	115.3	15.2	17.6
●	Blue	●	5.5	550	21.6	7.37	122.8	15.7	18.2
			6.2	620	21.9	7.77	129.5	16.1	18.6
			6.9	690	22.3	8.25	137.4	16.7	19.2
Red	33	Green	-	-	-	-	-	-	-
803602		315310	-	-	-	-	-	-	-
●	Grey	●	5.5	550	22.3	7.83	130.4	15.8	18.3
			6.2	620	22.6	8.34	138.9	16.4	18.9
			6.9	690	23.2	8.75	145.7	16.3	18.8
Red	38	Green	-	-	-	-	-	-	-
803602		315310	-	-	-	-	-	-	-
●	Red	●	5.5	550	24.1	8.94	149.0	15.4	17.8
			6.2	620	24.1	9.36	156.0	16.1	18.6
			6.9	690	24.4	9.75	162.4	16.4	18.9
Red	43	Green	-	-	-	-	-	-	-
803602		315310	-	-	-	-	-	-	-
●	Dk. Brown	●	5.5	550	24.4	9.88	164.7	16.6	19.2
			6.2	620	24.7	10.54	175.6	17.3	20.0
			6.9	690	25.3	11.06	184.3	17.3	20.0
Dk. Red	48	Dk. Green	-	-	-	-	-	-	-
803601		315312	-	-	-	-	-	-	-
●	Dk. Green	●	5.5	550	25.9	11.20	186.6	16.7	19.3
			6.2	620	26.2	11.86	197.6	17.3	19.9
			6.9	690	26.8	12.43	207.1	17.3	19.9
Dk. Red	53	Dk. Green	-	-	-	-	-	-	-
803601		315312	-	-	-	-	-	-	-
●	Dk. Blue	●	5.5	550	27.1	11.98	199.7	16.3	18.8
			6.2	620	27.4	12.54	209.0	16.7	19.2
			6.9	690	27.7	13.06	217.7	17.0	19.6

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

* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G885 STANDARD NOZZLES

G885 LOW-ANGLE NOZZLES**

** Low-angle nozzles reduce radius by 15%

Contour "Back-Nozzle" Capabilities

Whether you want a little extra green behind your adjustable-arc G885 rotors or a more "modeled" look to your fairway's hard edges, Contour "Back-Nozzles" are here to make your vision a reality. Choose from four short-range or four mid-range nozzles to suit your needs.

CONTOUR BACK-NOZZLE PERFORMANCE DATA

P/N	Colour	Profile	4.5 Bar		5.5 Bar	
			Metres	L/M	Metres	L/M
803604	Peach		7.6	12.9	8.2	14.8
803603	Orange		8.5	14.4	8.8	15.9
803602	Red		9.4	15.9	10.1	17.0
803601	Dk. Red		10.4	17.4	11.0	18.5
315314	White		11.3	10.6	11.6	11.0
315313	Lt. Green		12.8	16.3	13.4	17.8
315310	Green		14.0	19.7	14.6	21.6
315312	Dk. Green		14.9	29.9	15.5	33.3

G885 CONTOUR BACK-NOZZLES

QuickSet-360 with Ratcheting Riser

Setting up your adjustable arc G885 is fast and simple. The integrated ratcheting mechanism allows a simple twist of the riser to align the right-side reversing point. The G885 is also easily convertible to a true non-reversing full circle rotor with our exclusive QuickSet-360 feature.

GOLF ROTORS

G800 SERIES

Model: **G835**
Radius: **5.5 to 15.2 m**
Flow: **0.43 to 2.91 m³/hr; 7.2 to 48.5 l/min**

FEATURES

- Model: G835: Full/Part circle (50° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Nozzle choices: 8 multi-trajectory (15° to 25°)
- Nozzle range: #2 to #12
- Water lubricated gear-drive
- ▸ All TTS advanced features
- ▸ Decoder-In-Head (DIH) capable

OPERATING SPECIFICATIONS

- Radius: 5.5 to 15.2 m
- Flow: 0.43 to 2.91 m³/hr; 7.2 to 48.5 l/min
- Pressure range: 2.8 to 4.5 bar; 280 to 450 kPa
- All TTS rotors are pressure rated at 10 bar; 1,000 kPa

OPTIONS

- C – Check-O-Matic checks up to 8 m in elevation change and readily converts to Normally-Open Hydraulic with through the top connections
- D – Decoder Valve-In-Head with all "E" specifications below*
- DD – Two-station Decoder Valve-In-Head with all "E" specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 210 mA (370 mA inrush) 50Hz; 190 mA (350 mA inrush) 60Hz solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. See page 180 for critical recommendations on grounding DIH rotors.

▸ = *TTS and DIH Advanced Features detailed on pages 150 and 152*

G835C
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G835E
Pop-up height: 8 cm
Overall height: 30 cm
Flange diameter: 18 cm
Female Inlet: 1½" ACME

G835 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G835 = Full/Part Circle 50 to 360°	**C** = Check-O-Matic * **D** = Decoder Valve-in-Head **E** = Electric Valve-in-Head ** Converts to N.O. Hydraulic Valve-in-Head*	**6** = Installed G835 Nozzle * includes 8-nozzle rack ** SSU = #6*	**P5** = 50 PSI **P6** = 65 PSI ** SSU = P5*	**S** = SSU * ** Standard Stocking Unit*

Examples:
G835E - 6 - P5 - S = G835 full/part-circle electric valve-in-head, installed #6 nozzle, 50 PSI regulation, standard stocking unit model

G835 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
2 Yellow	2.8	280	5.5	0.43	7.2	14.3	16.6
	3.4	340	6.1	0.48	7.9	12.8	14.8
	4.1	410	6.7	0.55	9.1	12.1	14.0
	4.5	450	7.0	0.59	9.8	12.0	13.9
3 Yellow	2.8	280	7.0	0.68	11.4	13.9	16.0
	3.4	340	7.6	0.73	21.1	12.5	14.5
	4.1	410	8.2	0.80	13.2	11.7	13.6
	4.5	450	8.5	0.82	13.6	11.2	13.0
4 Yellow	2.8	280	7.6	0.89	14.8	15.3	17.6
	3.4	340	8.5	0.93	15.5	12.8	14.8
	4.1	410	9.1	1.00	16.7	12.0	13.8
	4.5	450	9.4	1.04	17.4	11.7	13.5
5 Yellow	2.8	280	8.8	1.07	17.8	13.7	15.8
	3.4	340	9.8	1.14	18.9	11.9	13.8
	4.1	410	10.1	1.20	20.1	11.9	13.7
	4.5	450	10.7	1.23	20.4	10.8	12.4
6 Yellow	2.8	280	9.8	1.36	22.7	14.3	16.5
	3.4	340	10.7	1.43	23.8	12.6	14.5
	4.1	410	11.3	1.50	25.0	11.8	13.6
	4.5	450	11.9	1.54	25.7	10.9	12.6
8 Yellow	2.8	280	11.0	1.77	29.5	14.7	17.0
	3.4	340	11.9	1.82	30.3	12.9	14.8
	4.1	410	12.8	1.89	31.4	11.5	13.3
	4.5	450	13.1	1.93	32.2	11.2	13.0
10 Yellow	2.8	280	11.9	2.20	36.7	15.6	18.0
	3.4	340	13.1	2.29	38.2	13.4	15.4
	4.1	410	13.7	2.34	39.0	12.4	14.4
	4.5	450	14.3	2.39	39.7	11.6	13.4
12 Yellow	2.8	280	13.4	2.73	45.4	15.2	17.5
	3.4	340	14.3	2.77	46.2	13.5	15.6
	4.1	410	14.6	2.84	47.3	13.3	15.3
	4.5	450	15.2	2.91	48.5	12.5	14.5

* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G835 NOZZLES

QuickSet-360

With Hunter's QuickCheck arc mechanism and patented QuickSet-360 non-reversing full-circle feature in a variable arc rotor, adjustments are fast, easy and more flexible than ever before. Now available on all B Series and G800 Series adjustable arc rotors.

B SERIES

Models: **G80B**
Radius: **20.4 to 26.8 m**
Flow: **5.11 to 13.15 m³/hr; 85.2 to 219.2 l/min**

FEATURES

- Full circle opposing nozzles
- Colour-coded nozzles: 7 standard trajectory (25°)
- Nozzle range: #23 to #53
- Exclusive PressurePort™ nozzle technology
- Water lubricated gear-drives
- Check height up to 3 m in elevation change

OPERATING SPECIFICATIONS

- Radius: 20.4 to 26.8 m
- Flow: 5.11 to 13.15 m³/hr; 85.2 to 219.2 l/min
- Pressure range: 4.5 to 6.9 bar; 450 to 690 kPa
- All B Series rotors are pressure rated at 10 bar; 1,000 kPa

G80B
Pop-up height: 8 cm
Overall height: 24.5 cm
Flange diameter: 13.7 cm
Female Inlet: 1¼" ACME

G80B – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G80 = Full Circle	**B** = Block rotor with check valve	**23 to 53** = Installed G80 Nozzle* ** SSU = #23, #25 or #48*	**S** = SSU* ** Standard Stocking Unit*

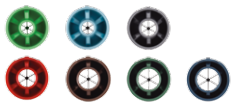
Example:
G80 - B - 25 - S = G80 full circle block rotor, installed #25 nozzle, standard stocking unit model

G80B NOZZLE PERFORMANCE DATA*

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
23 ● Green	4.5	450	20.4	5.11	85.2	12.3	14.1
	4.8	480	21.0	5.43	90.5	12.3	14.2
	5.5	550	21.6	5.91	98.4	12.6	14.6
	6.2	620	21.9	6.34	105.6	13.2	15.2
	6.9	690	22.3	6.77	112.8	13.7	15.8
25 ● Blue	4.5	450	21.6	6.54	109.0	14.0	16.1
	4.8	480	22.3	6.79	113.2	13.7	15.8
	5.5	550	22.6	7.29	121.5	14.3	16.5
	6.2	620	22.9	7.79	129.8	14.9	17.2
	6.9	690	23.2	8.18	136.3	15.2	17.6
33 ● Grey	4.5	450	22.3	7.04	117.3	14.2	16.4
	4.8	480	22.6	7.31	121.9	14.4	16.6
	5.5	550	23.2	7.88	131.4	14.7	17.0
	6.2	620	23.5	8.40	140.1	15.3	17.6
	6.9	690	23.8	8.81	146.9	15.6	18.0
38 ● Red	4.5	450	23.2	7.97	132.9	14.9	17.2
	4.8	480	23.5	8.25	137.4	15.0	17.3
	5.5	550	24.1	8.75	145.7	15.1	17.4
	6.2	620	24.4	9.20	153.3	15.5	17.9
	6.9	690	24.7	9.75	162.4	16.0	18.5
43 ● Dk. Brown	4.5	450	23.8	8.90	148.4	15.8	18.2
	4.8	480	24.1	9.27	154.4	16.0	18.5
	5.5	550	25.0	9.93	165.4	15.9	18.3
	6.2	620	25.3	10.56	176.0	16.5	19.1
	6.9	690	25.6	11.09	184.7	16.9	19.5
48 ● Dk. Green	4.5	450	25.0	9.95	165.8	15.9	18.4
	4.8	480	25.3	10.52	175.3	16.4	19.0
	5.5	550	25.9	11.13	185.5	16.6	19.1
	6.2	620	26.2	11.79	196.5	17.2	19.8
	6.9	690	26.5	12.36	205.9	17.6	20.3
53 ● Dk. Blue	4.5	450	25.3	10.65	177.5	16.6	19.2
	4.8	480	25.6	11.15	185.9	17.0	19.6
	5.5	550	26.5	11.95	199.1	17.0	19.6
	6.2	620	26.8	12.45	207.4	17.3	20.0
	6.9	690	26.8	13.15	219.2	18.3	21.1

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

G80B NOZZLES



G80B

GOLF ROTORS

B SERIES

Models: **G84B & G85B**
Radius: **13.1 to 28.3 m**
Flow: **1.86 to 13.24 m³/hr; 31.0 to 220.6 l/min**

FEATURES

- Models:
  - G84B: Full circle opposing nozzles
  - G85B: True full circle/adjustable part circle (60° to 360°)
- QuickCheck™ arc mechanism (G85B)
- QuickSet-360 arc mechanism (G85B)
- Dual trajectory colour-coded nozzles:
  - G84B: 10 standard trajectory (22.5°)
  - G85B: 12 standard trajectory (22.5°)
- G84B & G85B: 9 low-angle trajectory (15°)
- Nozzle range:
  - G84B: #15 to #53
  - G85B: #10 to #53
- Exclusive PressurePort™ nozzle technology
- Contour "Back-Nozzle" capabilities (G85B)
- Ratcheting stainless steel riser
- Water lubricated gear-drives
- Check height up to 3 m in elevation change

OPERATING SPECIFICATIONS

- G84B
  - Radius: 14.9 to 28.3 m
  - Flow: 3.28 to 13.24 m³/hr; 54.6 to 220.6 l/min
  - Pressure range: 3.4 to 6.9 bar; 340 to 690 kPa
- G85B
  - Radius: 13.1 to 27.7 m
  - Flow: 1.86 to 13.06 m³/hr; 31,0 to 217.7 l/min
  - Pressure range: 3.4 to 6.9 bar; 340 to 690 kPa
- All B Series rotors are pressure rated at 10 bar; 1,000 kPa

G84B
Pop-up height: 9.5 cm
Overall height: 24.5 cm
Flange diameter: 13.7 cm
Female Inlet: 1¼" ACME

G85B
Pop-up height: 9.5 cm
Overall height: 24.5 cm
Flange diameter: 13.7 cm
Female Inlet: 1¼" ACME

G84B & G85B – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G84 = Full Circle	**B** = Block rotor with check valve	**15 to 53** = Installed G84 Nozzle* ** SSU = #18, #25 & #48*	**S** = SSU* ** Standard Stocking Unit*
G85 = Full/Part Circle 60° - 360°	**B** = Block rotor with check valve	**10 to 53** = Installed G85 Nozzle** *** SSU = #18, #25 & #48*	**S** = SSU* ** Standard Stocking Unit*

Example:
G84 - B - 25 - S = G80 full circle block rotor, installed #25 nozzle, standard stocking unit model

G84B NOZZLE PERFORMANCE DATA*

Nozzle Set			Pressure		Radius	Flow		Precip mm/hr	
			bar	kPa	m	m³/hr	l/min	■	▲
● Tan 803611	15 White	● Grey 315317	3.4	340	14.9	3.28	54.6	14.7	17.0
			4.1	410	15.5	3.65	60.8	15.1	17.4
			4.5	450	15.9	3.81	63.5	15.2	17.5
			4.8	480	16.2	3.90	65.1	15.0	17.3
			5.5	550	16.8	4.13	68.9	14.7	17.0
● Tan 803611	18 Orange	● Grey 315317	3.4	340	16.8	3.97	66.1	14.1	16.3
			4.1	410	17.1	4.28	71.3	14.7	17.0
			4.5	450	17.4	4.45	74.1	14.7	17.0
			4.8	480	18.0	4.66	77.6	14.4	16.6
			5.5	550	18.6	4.94	82.4	14.3	16.5
● Tan 803611	20 Brown	● Grey 315317	3.4	340	17.4	3.91	65.2	13.0	15.0
			4.1	410	18.6	4.28	71.3	12.4	14.3
			4.5	450	18.9	4.47	74.4	12.5	14.4
			4.8	480	19.2	4.67	77.9	12.7	14.6
			5.5	550	19.5	5.02	83.6	13.2	15.2
● Tan 803611	23 Green	● Lt. Blue 315311	3.4	340	19.2	4.49	74.8	12.2	14.1
			4.1	410	19.8	4.99	83.2	12.7	14.7
			4.5	450	20.1	5.19	86.5	12.8	14.8
			4.8	480	20.4	5.41	90.1	13.0	15.0
			5.5	550	20.4	5.81	96.9	13.9	16.1
● Tan 803611	25 Blue	● Lt. Blue 315311	4.5	450	21.6	6.50	108.3	13.9	16.0
			4.8	480	22.3	6.75	112.5	13.6	15.7
			5.5	550	22.6	7.19	119.8	14.1	16.3
			6.2	620	22.9	7.65	127.5	14.6	16.9
			6.9	690	22.9	8.12	135.3	15.5	17.9
● Tan 803611	33 Grey	● Lt. Blue 315311	4.5	450	22.3	7.02	117.0	14.2	16.4
			4.8	480	22.9	7.30	121.7	14.0	16.1
			5.5	550	23.2	7.81	130.1	14.6	16.8
			6.2	620	23.5	8.24	137.3	15.0	17.3
			6.9	690	24.1	8.65	144.1	14.9	17.2
● Tan 803611	38 Red	● Lt. Blue 315311	4.5	450	22.9	7.96	132.6	15.2	17.6
			4.8	480	23.2	8.29	138.1	15.4	17.8
			5.5	550	23.8	8.85	147.5	15.7	18.1
			6.2	620	24.1	9.38	156.3	16.2	18.7
			6.9	690	25.0	9.87	164.4	15.8	18.2
● Tan 803611	43 Dk. Brown	● Blue 315300	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	25.3	9.85	164.1	15.4	17.8
			6.2	620	25.9	10.52	175.3	15.7	18.1
			6.9	690	26.5	11.04	183.9	15.7	18.1
● Dk. Brown 803610	48 Dk. Green	● Dk. Blue 833500	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	25.9	10.88	181.2	16.2	18.7
			6.2	620	27.1	11.46	191.0	15.6	18.0
			6.9	690	27.7	12.08	201.4	15.7	18.1
● Dk. Brown 803610	53 Dk. Blue	● Dk. Blue 833500	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	27.1	11.86	197.7	16.1	18.6
			6.2	620	27.7	12.58	209.6	16.3	18.9
			6.9	690	28.3	13.24	220.6	16.5	19.0

G84B NOZZLES

G85B NOZZLES

LOW-ANGLE NOZZLES**

** Low-angle nozzles reduce radius by 15%

G85B NOZZLE PERFORMANCE DATA

Nozzle Set			Pressure		Radius	Flow		Precip mm/hr	
			bar	kPa	m	m³/hr	l/min	■	▲
Orange 803603	10 Lt. Green	Dk. Green 315312	3.4	340	13.1	1.86	31.0	10.8	12.5
			4.1	410	13.4	2.23	37.1	12.4	14.3
			4.5	450	13.7	2.29	38.2	12.2	14.1
			-	-	-	-	-	-	-
●	●	●	-	-	-	-	-	-	-
Orange 803603	13 Lt. Blue	White 315314	3.4	340	14.6	2.66	44.3	12.4	14.3
			4.1	410	15.2	2.91	48.5	12.5	14.5
			4.5	450	15.5	3.04	50.7	12.6	14.5
			-	-	-	-	-	-	-
●	●	●	-	-	-	-	-	-	-
Orange 803603	15 White	White 315314	3.4	340	15.9	3.02	50.3	12.0	13.9
			4.1	410	16.2	3.34	55.6	12.8	14.8
			4.5	450	16.5	3.45	57.5	12.7	14.7
			-	-	-	-	-	-	-
●	●	●	-	-	-	-	-	-	-
Orange 803603	18 Orange	Lt. Green 315313	3.4	340	16.8	3.79	63.2	13.5	15.6
			4.1	410	17.4	4.04	67.4	13.4	15.5
			4.5	450	17.7	4.13	68.9	13.2	15.3
			-	-	-	-	-	-	-
●	●	●	-	-	-	-	-	-	-
Orange 803603	20 Tan	Lt. Green 315313	3.4	340	17.7	4.18	69.7	13.4	15.4
			4.1	410	18.3	4.45	74.2	13.3	15.4
			4.5	450	18.6	4.66	77.6	13.5	15.6
			4.8	480	18.6	4.88	81.4	14.1	16.3
●	●	●	5.5	550	18.9	5.13	85.6	14.4	16.6
Orange 803603	23 Green	Lt. Green 315313	3.4	340	18.6	4.78	79.6	13.8	16.0
			4.1	410	19.2	5.18	86.3	14.0	16.2
			4.5	450	19.8	5.43	90.5	13.8	16.0
			4.8	480	20.1	5.86	97.7	14.5	16.7
●	●	●	5.5	550	20.4	6.34	105.6	15.2	17.5
Red 803602	25 Blue	Green 315310	4.5	450	21.0	6.68	111.3	15.1	17.4
			4.8	480	21.3	6.92	115.3	15.2	17.6
			5.5	550	21.6	7.37	122.8	15.7	18.2
			6.2	620	21.9	7.77	129.5	16.1	18.6
●	●	●	6.9	690	22.3	8.25	137.4	16.7	19.2
Red 803602	33 Grey	Green 315310	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	22.3	7.83	130.4	15.8	18.3
			6.2	620	22.6	8.34	138.9	16.4	18.9
●	●	●	6.9	690	23.2	8.75	145.7	16.3	18.8
Red 803602	38 Red	Green 315310	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	24.1	8.94	149.0	15.4	17.8
			6.2	620	24.1	9.36	156.0	16.1	18.6
●	●	●	6.9	690	24.4	9.75	162.4	16.4	18.9
Red 803602	43 Dk. Brown	Green 315310	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	24.4	9.88	164.7	16.6	19.2
			6.2	620	24.7	10.54	175.6	17.3	20.0
●	●	●	6.9	690	25.3	11.06	184.3	17.3	20.0
Dk. Red 803601	48 Dk. Green	Dk. Green 315312	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	25.9	11.20	186.6	16.7	19.3
			6.2	620	26.2	11.86	197.6	17.3	19.9
●	●	●	6.9	690	26.8	12.43	207.1	17.3	19.9
Dk. Red 803601	53 Dk. Blue	Dk. Green 315312	-	-	-	-	-	-	-
			-	-	-	-	-	-	-
			5.5	550	27.1	11.98	199.7	16.3	18.8
			6.2	620	27.4	12.54	209.0	16.7	19.2
●	●	●	6.9	690	27.7	13.06	217.7	17.0	19.6

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

* Preliminary performance data.

B SERIES

Models: **G70B & G75B**
Radius: **14.3 to 22.9 m**
Flow: **1.75 to 7.66 m³/hr; 29.1 to 127.6 l/min**

FEATURES

- Models:
  - G70B: Full circle
  - G75B: Full/Part circle (50° to 360°)
- QuickCheck™ arc mechanism (G75B)
- QuickSet-360 arc mechanism (G75B)
- Nozzle choices:
  - G70B: 6 standard trajectory (25°)
  - G75B: 9 standard trajectory (25°)
- Nozzle range:
  - G70B: #15 to #28
  - G75B: #8 to #28
- Exclusive PressurePort™ nozzle technology
- Water lubricated gear-drive
- Check height up to 3 m in elevation change

OPERATING SPECIFICATIONS

- G70B
  - Radius: 16.2 to 22.9 m
  - Discharge rate: 2.95 to 7.66 m³/hr; 49.2 to 127.6 l/min
  - Pressure range: 3.4 to 6.9 bar; 340 to 690 kPa
- G75B
  - Radius: 14.3 to 21.6 m
  - Discharge rate: 1.75 to 7.34 m³/hr; 29.1 to 122.3 l/m
  - Pressure range: 2.8 to 6.9 bar; 280 to 690 kPa
- All B Series rotors are pressure rated at 10 bars; 1,000 kPa

G70B
Pop-up height: 8 cm
Overall height: 23 cm
Flange diameter: 12 cm
Female Inlet: 1¼" ACME

G75B
Pop-up height: 8 cm
Overall height: 23 cm
Flange diameter: 12cm
Female Inlet: 1¼" ACME

G70B & G75B - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options
G70 = Full Circle	**B** = Block Rotor with Check Valve	**25** = Installed G70 Nozzle * ** Available in SSU model only* *SSU = #25* *Includes nozzle pack*	**S** = SSU * ** Standard Stocking Unit*
G75 = Full/Part Circle, 50° - 360° Arc Range	**B** = Block Rotor with Check Valve	**25** = Installed G75 Nozzle ** *** Available in SSU model only* *SSU = #25* *Includes nozzle pack*	**S** = SSU * ** Standard Stocking Unit*

Example:
G70 - B - 25 - S = G70 full circle block rotor, installed #25 nozzle with nozzle pack, standard stocking unit model

G70B NOZZLE PERFORMANCE DATA*

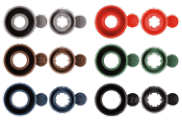
Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
15 Grey	3.4	340	16.2	2.95	49.2	11.3	13.1
	4.1	410	16.5	3.20	53.4	11.8	13.7
	4.5	450	16.8	3.36	56.0	12.0	13.8
	4.8	480	17.1	3.52	58.7	12.1	14.0
	5.5	550	17.7	3.70	61.7	11.8	13.7
18 Red	3.4	340	17.7	3.23	53.8	10.3	11.9
	4.1	410	18.0	3.61	60.2	11.2	12.9
	4.5	450	18.3	3.70	61.7	11.1	12.8
	4.8	480	18.3	3.84	64.0	11.5	13.3
	5.5	550	18.6	4.04	67.4	11.7	13.5
20 Dk. Brown	3.4	340	18.6	4.27	71.2	12.4	14.3
	4.1	410	18.9	4.45	74.2	12.5	14.4
	4.5	450	19.2	4.66	77.6	12.6	14.6
	4.8	480	19.5	5.00	83.3	13.1	15.2
	5.5	550	19.5	5.32	88.6	14.0	16.1
23 Dk. Green	3.4	340	19.2	4.57	76.1	12.4	14.3
	4.1	410	19.8	4.77	79.5	12.2	14.0
	4.5	450	19.8	4.97	82.9	12.7	14.6
	4.8	480	20.1	5.32	88.6	13.1	15.2
	5.5	550	20.4	5.66	94.3	13.6	15.7
25 Dk. Blue	3.4	340	19.8	4.95	82.5	12.6	14.6
	4.1	410	20.4	5.11	85.2	12.3	14.1
	4.5	450	20.4	5.36	89.3	12.9	14.8
	4.8	480	21.0	5.75	95.8	13.0	15.0
	5.5	550	21.6	6.11	101.8	13.0	15.1
28 Black	4.8	480	21.6	6.38	106.4	13.6	15.7
	5.5	550	21.6	6.79	113.2	14.5	16.7
	6.2	620	22.3	7.22	120.4	14.6	16.8
	6.9	690	22.9	7.66	127.6	14.6	16.9

* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G75B NOZZLE PERFORMANCE DATA*

Nozzle	Pressure		Radius	Flow		Precip mm/hr	
	bar	kPa	m	m³/hr	l/min	■	▲
8 Lt. Brown	2.8	280	14.3	1.75	29.1	8.5	9.8
	3.4	340	14.9	1.89	31.4	8.5	9.8
	4.1	410	15.2	2.09	34.8	9.0	10.4
	4.5	450	15.2	2.16	36.0	9.3	10.7
	4.8	480	15.5	2.25	37.5	9.3	10.7
10 Lt. Green	3.4	340	16.2	2.48	41.3	9.5	11.0
	4.1	410	16.5	2.73	45.4	10.1	11.6
	4.5	450	16.5	2.84	47.3	10.5	12.1
	4.8	480	16.8	2.98	49.6	10.6	12.2
	5.5	550	17.1	3.25	54.1	11.1	12.9
13 Lt. Blue	3.4	340	16.8	2.54	42.4	9.1	10.5
	4.1	410	17.1	2.79	46.6	9.6	11.1
	4.5	450	17.1	2.91	48.5	10.0	11.5
	4.8	480	17.4	3.02	50.3	10.0	11.6
	5.5	550	17.4	3.25	54.1	10.8	12.4
15 Grey	3.4	340	17.4	3.04	50.7	10.1	11.6
	4.1	410	17.7	3.25	54.1	10.4	12.0
	4.5	450	18.0	3.36	56.0	10.4	12.0
	4.8	480	18.0	3.48	57.9	10.7	12.4
	5.5	550	18.3	3.73	62.1	11.2	12.9
18 Red	3.4	340	18.3	3.29	54.9	9.8	11.4
	4.1	410	18.6	3.57	59.4	10.3	11.9
	4.5	450	18.6	3.70	61.7	10.7	12.4
	4.8	480	18.9	3.84	64.0	10.7	12.4
	5.5	550	19.2	4.13	68.9	11.2	12.9
20 Dk. Brown	4.1	410	18.9	4.04	67.4	11.3	13.1
	4.5	450	18.9	4.13	68.9	11.6	13.4
	4.8	480	19.2	4.36	72.7	11.8	13.7
	5.5	550	19.5	4.66	77.6	12.2	14.1
	6.2	620	19.8	4.95	82.5	12.6	14.6
23 Dk. Green	4.1	410	19.5	4.97	82.9	13.1	15.1
	4.5	450	19.8	4.86	81.0	12.4	14.3
	4.8	480	19.8	5.36	89.3	13.7	15.8
	5.5	550	20.1	5.82	96.9	14.4	16.6
	6.2	620	20.4	6.13	102.2	14.7	17.0
25 Dk. Blue	4.1	410	19.8	5.34	89.0	13.6	15.7
	4.5	450	19.8	5.63	93.9	14.4	16.6
	4.8	480	20.4	5.82	96.9	13.9	16.1
	5.5	550	21.0	6.20	103.3	14.0	16.2
	6.2	620	21.6	6.59	109.8	14.1	16.2
28 Black	4.8	480	20.1	6.11	101.8	15.1	17.4
	5.5	550	20.7	6.56	109.4	15.3	17.6
	6.2	620	21.3	6.95	115.8	15.3	17.6
	6.9	690	21.6	7.34	122.3	15.7	18.1

G70B & G75B NOZZLES



G70B

G75B

GOLF ROTORS

B SERIES

Model: **G35B**
Radius: **5.5 to 15.2 m**
Flow: **0.43 to 2.91 m³/hr; 7.2 to 48.5 l/min**

FEATURES

- Model: G35B: Full/Part Circle (50° - 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Nozzle choices:
  - 8 multi-trajectory 15°–25°
- Nozzle range:
  - #2 to #12
- Water lubricated gear-drive
- Check height up to 3 m in elevation change

OPERATING SPECIFICATIONS

- Radius: 5.5 to 15.2 m
- Flow: 0.43 to 2.91m³/hr; 7.2 to 48.5 l/min
- Pressure range: 2.8 to 4.5 bar; 280 to 450 kPa
- All B Series rotors are pressure rated at 10 bar; 1,000 kPa

G35B
Pop-up height: 8 cm
Overall height: 23 cm
Flange diameter: 12 cm
Female Inlet: 1¼" ACME

GOLF ROTORS

G35B – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G35 = Full/Part Circle 50° to 360°	**B** = Block rotor with check valve	**6** = Installed G35 Nozzle* ** Available in SSU model only* *SSU = #6* *Includes nozzle rack*	**S** = SSU* ** Standard Stocking Unit*

Example:
G35 - B - 6 - S = G35 full/part circle block rotor, installed #6 nozzle with nozzle rack, standard stocking unit model

G835 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure bar	Pressure kPa	Radius m	Flow m^3/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
2 Yellow	2.8	280	5.5	0.43	7.2	14.3	16.6
	3.4	340	6.1	0.48	7.9	12.8	14.8
	4.1	410	6.7	0.55	9.1	12.1	14.0
	4.5	450	7.0	0.59	9.8	12.0	13.9
3 Yellow	2.8	280	7.0	0.68	11.4	13.9	16.0
	3.4	340	7.6	0.73	21.1	12.5	14.5
	4.1	410	8.2	0.80	13.2	11.7	13.6
	4.5	450	8.5	0.82	13.6	11.2	13.0
4 Yellow	2.8	280	7.6	0.89	14.8	15.3	17.6
	3.4	340	8.5	0.93	15.5	12.8	14.8
	4.1	410	9.1	1.00	16.7	12.0	13.8
	4.5	450	9.4	1.04	17.4	11.7	13.5
5 Yellow	2.8	280	8.8	1.07	17.8	13.7	15.8
	3.4	340	9.8	1.14	18.9	11.9	13.8
	4.1	410	10.1	1.20	20.1	11.9	13.7
	4.5	450	10.7	1.23	20.4	10.8	12.4
6 Yellow	2.8	280	9.8	1.36	22.7	14.3	16.5
	3.4	340	10.7	1.43	23.8	12.6	14.5
	4.1	410	11.3	1.50	25.0	11.8	13.6
	4.5	450	11.9	1.54	25.7	10.9	12.6
8 Yellow	2.8	280	11.0	1.77	29.5	14.7	17.0
	3.4	340	11.9	1.82	30.3	12.9	14.8
	4.1	410	12.8	1.89	31.4	11.5	13.3
	4.5	450	13.1	1.93	32.2	11.2	13.0
10 Yellow	2.8	280	11.9	2.20	36.7	15.6	18.0
	3.4	340	13.1	2.29	38.2	13.4	15.4
	4.1	410	13.7	2.34	39.0	12.4	14.4
	4.5	450	14.3	2.39	39.7	11.6	13.4
12 Yellow	2.8	280	13.4	2.73	45.4	15.2	17.5
	3.4	340	14.3	2.77	46.2	13.5	15.6
	4.1	410	14.6	2.84	47.3	13.3	15.3
	4.5	450	15.2	2.91	48.5	12.5	14.5

* Complies to ASAE standard. All precipitation rates calculated for 360° operation. All triangular rates are equilateral. To calculate precipitation rates for 180° operation, multiply by 2.

G835 NOZZLES

HQ5LRC Quick Coupler

with HSJ-1 SnapLok™ equipped swing joint

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

See the new HSJ swing joints on page 173

ROTOR ACCESSORIES

HOSE-SWIVEL ADAPTERS

Models

- Hose swivel adapter for G90 and G900 Series (fits ¾" & 1" hose) P/N G90HS100
- Hose swivel adapter for G800 Series (fits ¾" & 1" hose) P/N G800HS100

Hose Swivel Adapters

RUBBER COVER KITS

Models

- G990 rubber cover kit (date codes 06/11 & prior only) P/N 473800
- G995 rubber cover kit (also G990 date codes 07/11 & after) P/N 473900

Rubber Cover Kit

RT SERIES

Models: **G70RT, G75RT & G80RT**
Radius: **14.3 to 26.8 m**
Flow: **1.75 to 13.15 m³/hr; 29.1 to 219.2 l/min**

FEATURES

- Models:
  - G70RT: Full circle riser with nozzle set
  - G75RT: Full/Part circle riser with nozzle set
  - G80RT: Full circle riser with nozzle set
- Works with all 1" and 1½" inlet Toro® 600 and 700 Series golf rotors
- Converts current sprinklers into closed-case rotors
- The RT upgrade extends the life of existing irrigation systems
- Performance, reliability and long life
- Upgrade takes less than 5 minutes

G70RT / G75RT
Pop-up height: 8 cm

G80RT
Pop-up height: 8 cm

Quick and Easy Upgrade!
The RT retro upgrade takes just minutes and extends the life and reliability of aging irrigation systems.

G70RT/G75RT RETRO RISERS

To Replace TORO®	Use Hunter Model/Nozzle Nozzle	G70RT Full Circle	G75RT Full/Part Circle
630	31	15	15
	32	18	18
	33	20	20
	34	28	–
660	62	15	15
	63	18	18
	64	25	25
	65	28	–
730	31	15	15
	32	18	18
	33	20	20
	34	23	23
	35	28	–
760	62	15	15
	63	18	18
	64	20	23
	65	25	25
	66	28	–

G80RT RETRO RISERS

To Replace TORO®	Use Hunter Model/Nozzle Nozzle	G80RT Full Circle
650	56	23
	57	33
	58	33
	59	38
670	70	43
	71	48
	72	48
680	84	25
	85	33
	86	33
	87	43
	88	48
750	54	25
	55	33
	56	38
	57	43
	58	48
780	84	25
	85	25
	86	33
	87	38
	88	43
	89	48

HSJ 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 20, 30 or 46 cm 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
- Match HSJ swing joint and Hunter golf rotor purchases to qualify for an upgraded 5-year component exchange golf rotor warranty*

* Must be purchased from authorised Hunter Golf distributor to qualify for extended warranty program.

Swing Joints
HSJ-0 = Model ¾"
HSJ-1 = Model 1" (25 mm)
HSJ-2 = Model 1¼" ()
HSJ-3 = Model 1½" (40 mm)

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

1 Model	2 Inlet Type	3 Outlet Type	4 Outlet Style	5 Lay Length
HSJ-0 = ¾" Commercial Swing Joint	**3** = Male - NPT	**2** = Male - NPT	**2** = Single Top-Out	**8** = 20 cm Lay Arm*
	4 = Male - ACME*	**3** = Enlarging - to 1½" (40 mm) Male NPT*		
HSJ-1 = 1" Heavy-Duty Swing Joint	**5** = Spigot - Metric Short**	**5** = Male - BSP *(not available in HSJ-0)*	**4** = Triple Top-Out*	**12** = 30 cm Lay Arm
	6 = Male - BSP**	**6** = Enlarging - to 1½" (40 mm) Male BSP*		
HSJ-2 = 1¼" Heavy-Duty Swing Joint	**7** = Spigot - 10 cm Long**	**8** = Enlarging - to 1½" Male ACME*		**18** = 46 cm Lay Arm**
	M = Main ACME H-Connection ***	**0** = Male ACME		
HSJ-3 = 1½" Heavy-Duty Swing Joint	**P** = Main ACME V-Connection ****	**A** = Enlarging/Reducing - to 1¼" Male ACME**		
		S = Male - Brass NPT SnapLok™ ***		
	* *Not available in HSJ-0 or HSJ-3. Use "M" inlet for HSJ-3.*	**U** = Male - Brass BSP SnapLok™ ***		
	** *Not available in HSJ-0.*	* *Not available in HSJ-0 or HSJ-3*	* *Not available in S Outlet Type*	* *HSJ-0 only*
	*** *Horizontal connection reduces from 1½" ACME to swing joint size*	** *Not available in HSJ-0 and HSJ-2*		** *Not available in HSJ-0*
	**** *Vertical connection reduces from 1½" ACME to swing joint size*	*** *HSJ-1 model only - for quick coupler*		

Example:
HSJ - 3 - M - 0 - 2 - 12 = HSJ 1½" heavy-duty swing joint, 1½" Male ACME horizontal connection to mainline tee, 1½" Male ACME single top outlet, 12" lay arm length.

ACME ADAPTER FITTINGS

1¼" Models

1¼" male ACME x 1" female NPT	P/N 109325
1¼" male ACME x 1" female BSP	P/N 105329
1¼" male ACME x 1¼" female NPT	P/N 474800
1¼" male ACME x 1¼" female BSP	P/N 474900
1¼" male ACME x 1½" female NPT	P/N 104153
1¼" male ACME x 1½" female BSP	P/N 107262

Acme x Acme Models

1½" male ACME x 1" ACME female	P/N 225300
1½" male ACME x 1¼" ACME female	P/N 225400
1¼" male ACME x 1" ACME female	P/N 225500

1½" Models

1½" male ACME x 1" female NPT	P/N 475400
1½" male ACME x 1" female BSP	P/N 475500
1½" male ACME x 1¼" female NPT	P/N 475200
1½" male ACME x 1¼" female BSP	P/N 475300
1½" male ACME x 1½" female NPT	P/N 475000
1½" male ACME x 1½" female BSP	P/N 475100

B2B Tee Assembly

1½" ACME threaded tee and 1½" adapter for connecting two swing joints to a single mainline connection in back-to-back installations around greens.

P/N = HSJ-305-015-3 = NPT Inlet
P/N = HSJ-305-015-6 = BSP Inlet
P/N = HSJ-305-015-M = ACME Inlet (shown)

CENTRAL CONTROL

The Future is Here

Pilot® central control uses an array of advanced innovations to put the superintendent in complete command.

PILOT® CENTRAL CONTROL
ADVANCED FEATURES

COMPLETE CONTROL

PILOT-CC SOFTWARE CENTRAL CONTROL

Safely balance sprinkler demand with water and electrical supply for the most efficient irrigation cycles possible.

PILOT-FC FIELD CONTROLLER

The Pilot field controller manages up to 80 stations in 10 station increments. The full-featured controller has everything you need in a stand-alone field controller. For a fully automated, flow-optimised system, network all your controllers together with Pilot-CC central control software.

Communication options include hardwire, UHF radio, and two spread-spectrum bands. Power options include both 120 VAC and 230 VAC.

PILOT-DH DECODER HUB

Pilot includes a two-wire decoder option. Pilot-DH decoder hubs have a 999-station capacity and can run up to 120 stations simultaneously.

The hub has a plastic pedestal enclosure with a full-featured control panel. It can be used as in-field control, a stand-alone decoder controller, or linked to a Pilot-CC central control for fully flow-optimised irrigation management.

Communication options include hardwire, UHF radio, and two spread-spectrum bands. Power options include both 120 and 230 VAC.

EASY TO PROGRAM AND MAINTAIN

Ease-of-Use: The control panel features a large, multi-language display and an array of function buttons providing quick access to the most commonly used features. The display clearly shows what the controller is doing and has a unique feature which shows the user what time the next scheduled watering will occur.

Ease-of-Maintenance: The system was designed with you in mind. Circuit boards are encapsulated in polyurethane to reduce damage from moisture and pests. All hardware is captured, so you won't lose screws in the grass. The clean, modular design of Pilot units allow them to be serviced with a Phillips screwdriver, which we provide with every controller.

PILOT® SOFTWARE

Pilot is easy to use and has all the features you need to reliably and automatically water your course. Runtimes can be adjusted manually or determined automatically using application depth. Irrigation is scheduled through a powerful programming matrix which lets you see every sprinkler on the course while you make your adjustments. Pilot offers two types of water management, flow optimised and FCP or field controller program. When flow-optimised, electrical and hydraulic demand are efficiently managed to ensure your watering window is as short as possible. When you use an FCP you have total control over when, where and how long sprinklers run—perfect for overseeding, seed germination, grow-in and other cultural practices where optimal use of the pump station is a secondary concern. FCPs can be retrieved into the central control software, edited, then sent back to the field unit – so you can manage all your controller schedules from the computer in your office.

PILOT SOFTWARE SPECIFICATIONS

- Operating system: 64-bit Windows® 8
- Maximum field controllers: 999
- Maximum stations: 79,920
- ET-based scheduling: weather station or manually entered
- Hydraulic management: automated and graphed to individual stations
- Mapping: online maps converted from AutoCAD and other applications

* Note: Windows is a registered trademark of The Microsoft Corporation

Overview - Pilot

GO WITH THE FLOW

Pilot® uses your electrical and hydraulic data to efficiently balance sprinkler demand while maintaining flow at safe velocities. To protect your pump station and maintain optimal sprinkler uniformity, irrigation can be gradually stepped up in safe increments.

Flow Optimisation

CREATE AND EDIT SCHEDULES OUT ON THE COURSE

With Pilot, critical irrigation is not dependent upon the whims and availability of a computer or communications link where it is subject to a single point of failure. Pilot software creates schedules then sends them to the field where controllers do the actual irrigating. Because Pilot field controllers are packed with intelligence, you can even create and edit schedules out on the course and transfer them back to Pilot for review and editing.

Schedule Creation

MAPPING YOUR COURSE

Although it is not required to have a map, adding one allows you to run water by clicking the station symbols on the map, monitor stations as they are running, and adjust certain settings.

Maps

PILOT® CONTROLLER

Application: **Golf**
Number of Stations: **80**
Type: **Field Controller**

FEATURES

- 5 languages
- Up to 80 station outputs in 10-station increments
- Up to 3 Hunter golf valve-in-head rotors per station output
- Up to 20 simultaneous Hunter golf valve-in-head rotors active per controller
- 32 automatic schedules with 8 start times per schedule
- Exclusive Safe-Toggle™ mechanical on-off-auto station switches
- 1–31 day skip-day scheduling
- One-touch rain shutdown up to 30 days or indefinitely
- One-touch Safe-Pause™ with 30 minute safety timer
- 1–300% runtime seasonal adjustment
- Seasonal start time adjustment is used to quickly change all start times plus or minus 30 minutes

Pilot-FC Plastic Pedestal
Height: 100 cm
Width: 60 cm
Depth: 44 cm
Weight: 32 kg

POWER SUPPLY INPUT

- 120/230 VAC at 60/50 Hz
- 1.2 Amps maximum at 120 VAC
- 0.73 Amps maximum at 230 VAC

Pilot-FI Field Interface
One is required with any central control system. It is used to link the central computer to the field equipment. For indoor locations only.

Height: 30 cm
Width: 30 cm
Depth: 11 cm
Weight: 2 kg

POWER SUPPLY OUTPUT

- Station output: 1 Amp at 24 VAC
- 24 VAC Hot Post output: 420 mA at 24 VAC
- Solenoid Capacity: 3 standard 24 VAC Hunter golf valve-in-head rotors per output, 20 maximum simultaneous stations

RADIO SYSTEMS

- UHF Radio: 450-470 MHz; other frequeny ranges available for selected markets
- Spread Spectrum Radio: 915 MHz (US) and 2.4 GHz (international)

WIRED SYSTEMS

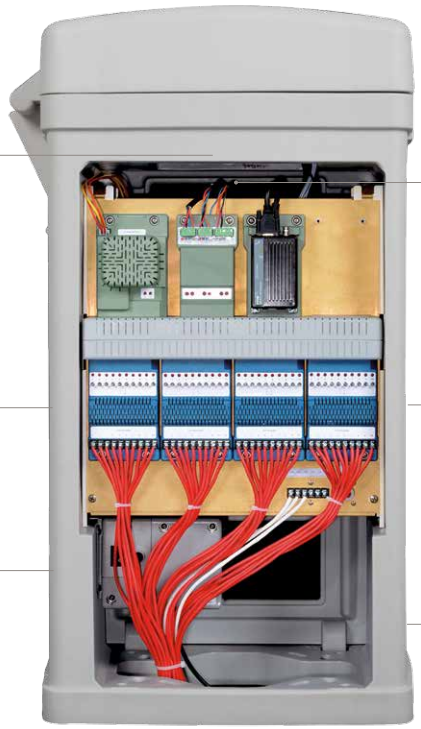
- GCBL: Shielded two twisted pairs, 0.82 mm^2
- GCBLA: Armored, shielded two twisted pairs, 0.82 mm^2

PILOT-FI – SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Options	
Pilot-FI	Plastic pedestal (grey)	**HWR**	Hardwire communications
		UHF	UHF radio communications (US only)
		LF	Licence-free radio communications
		ILF	Licence-free radio communications

Examples:
Pilot-FI-HWR Field interface with hardwire communications
Pilot-FI-UHF Field interface with UHF radio communications (US only)
Pilot-FI-ILF Field interface with international licence-free radio communications

THE PILOT® FIELD CONTROLLER WAS BUILT SPECIFICALLY FOR GOLF COURSE IRRIGATION CONTROL.



Water-Resistant Keypad
Large backlit display with convenient function buttons for the most commonly used features. Built-in system diagnostics make trouble-shooting your system a breeze.

Auto/On/Off Switches and Diagnostic LED Indicators
Standard for all station outputs, provide quick troubleshooting and watering tools.

Conveniently Located Dual-Voltage (120/230 VAC) Junction Box
Features heavy duty surge protection and even includes a spare fuse.

Easy to Service
The only tool required is a Phillips screwdriver included with every controller.

Modular 10-Station Expansion Boards
Colour-coded modular components with captured screws so they won't get lost, making it easy to assemble and troubleshoot.

Spacious Wiring Area
No exposed circuitry or loose wires. All circuit boards are encapsulated in polyurethane to protect them from moisture, insects and temperature extremes.

PILOT-FC – SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Options	
Pilot-FC30 (30-station)	Plastic pedestal (grey) 120/230 VAC 60/50 Hz dual-voltage transformer	**S**	Stand-alone field controller with no central communications
Pilot-FC40 (40-station)		**HWR**	Hardwire communications
Pilot-FC50 (50-station)		**UHF**	UHF radio communications (US only)
Pilot-FC60 (60-station)		**LF**	Licence-free spread spectrum radio communications (900 MHz for North America and where permitted)
Pilot-FC70 (70-station)		**ILF**	Licence-free spread spectrum radio communications (2.4 GHz for international, where permitted)
Pilot-FC80 (80-station)			

Examples:
Pilot-FC40-S 40-station, stand-alone field controller with no central communications
Pilot-FC70-HWR 70-station field controller with hardwire communications
Pilot-FC80-ILF 80-station field controller with international licence-free radio communications

PILOT® DECODERS

Application: **Golf**
Number of Stations: **999**
Type: **Decoder System**

Decoder installations continue to be one of the fastest growing forms of technology in irrigation control. A key advantage over conventional systems is that decoders use less wire for an overall irrigation system. That means lower cost, quicker installation time, and easier system diagnosis and repair if needed. Systems can be easily expanded—with minimal digging and disruption of landscaping—by adding in more decoders rather than running additional wires.

Pilot enables you to take advantage of this cost-efficient approach. Pilot decoders are available with 1, 2, 4 and 6-station outputs, making it possible to run each head on an entire green with a single decoder. In all, decoders let you operate up to 999 stations out to 4.5 km from a single hub.

Pilot decoder systems include built-in surge suppression, colour-coded wire connections, true independent station control, programmable station addresses, and two-way feedback to the controller with confirmation and status indication.

Pilot-SG surge protectors are required when a system is designed and installed with Decoder-In-Head (DIH) rotors.

Pilot Decoder Hub

Water-Resistant Keypad
Backlit display and secondary LED facepack means it can be used day or night

Diagnostic LED Indicators
For all functions on decoder output module

250-Station Output Modules
Enable your decoder hub to grow with your course. Start with 250 - grow to 999

Pilot Decoders
1 & 2 Station Decoders:
Height: 9 cm
Width: 4 cm
Depth: 2.5 cm
Weight: 150 g

4 & 6 Station Decoders:
Height: 9 cm
Width: 4.5 cm
Depth: 4 cm
Weight: 250 g

Distinct yellow design makes it much easier to find decoders in dark valve boxes or buried in the soil.

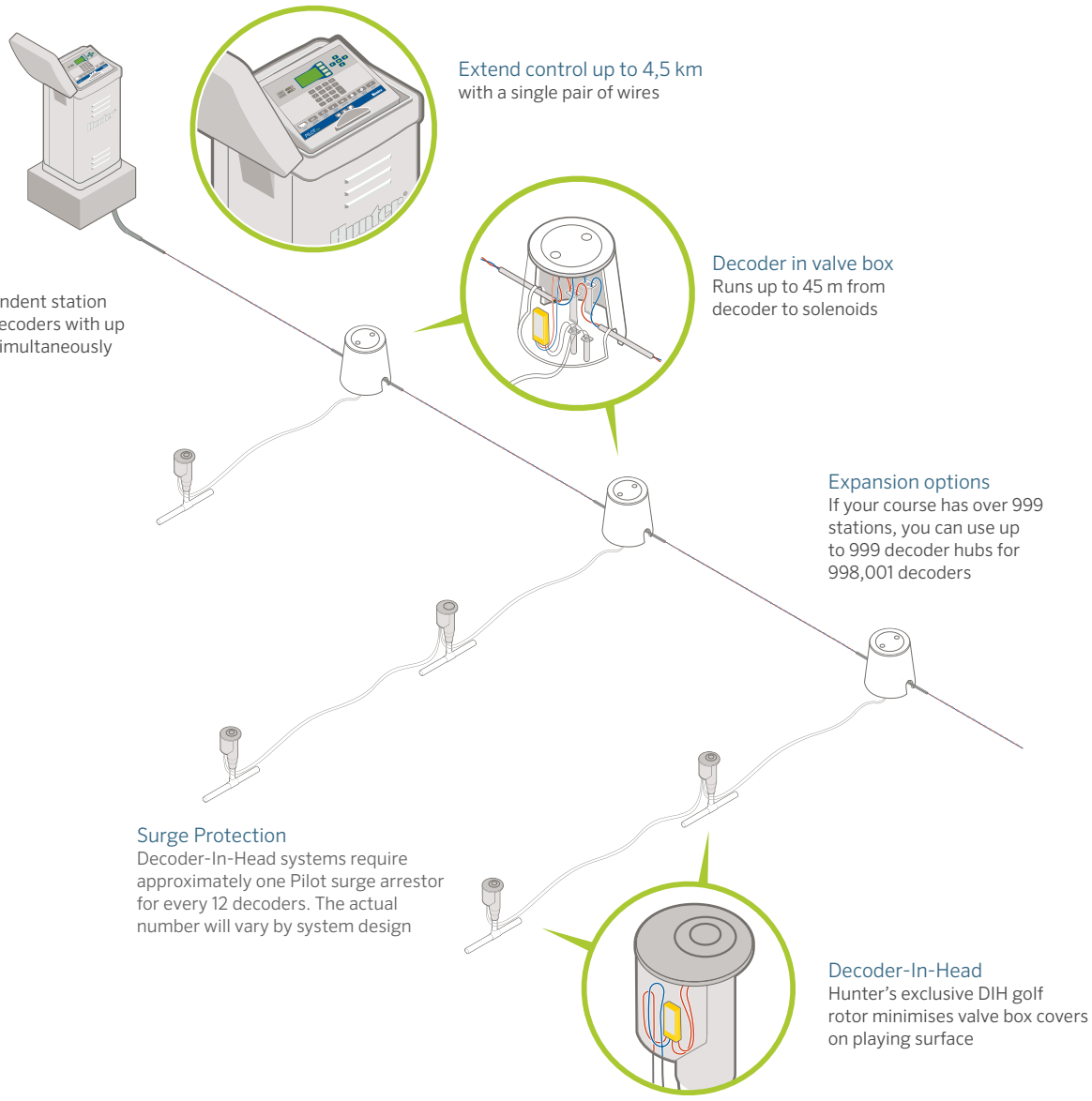
DS-G Surge Ground Arrestor

All DIH rotors include two IBM DBRY-6 splices for connection to the 2-wire path. DIH rotor control systems require grounding with Pilot-SG surge suppressors coupled to appropriate grounding plate or rod. Hunter recommends a minimum of one Pilot-SG for every 12 installed DIH rotors or as per project specification.

PILOT-DH – SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Options	
Pilot-DH250 (250-station)	Plastic pedestal (grey)	**S**	Stand-alone decoder hub with no central communications
Pilot-DH500 (500-station)		**HWR**	Hardwire communications
Pilot-DH750 (750-station)		**UHF**	UHF radio communications (US only)
Pilot-DH999 (999-station)		**LF**	Licence-free spread spectrum radio communications (900 MHz for North America and where permitted)
		ILF	Licence-free spread spectrum radio communications (2.4 GHz for international, where permitted)

Examples:
Pilot-DH250-S 250-station, stand-alone decoder hub with no central communications
Pilot-DH750-ILF 750-station decoder hub with international licence-free radio communications
Pilot-DH999-HWR 999-station decoder hub with hardwire communications



Extend control up to 4,5 km
with a single pair of wires

Pilot-DH
Provides independent station control of 999 decoders with up to 120 running simultaneously

Decoder in valve box
Runs up to 45 m from decoder to solenoids

Expansion options
If your course has over 999 stations, you can use up to 999 decoder hubs for 998,001 decoders

Surge Protection
Decoder-In-Head systems require approximately one Pilot surge arrestor for every 12 decoders. The actual number will vary by system design

Decoder-In-Head
Hunter's exclusive DIH golf rotor minimises valve box covers on playing surface

DECODERS – SPECIFICATION BUILDER ORDER 1 + 2

1 Model		2 Standard Features
Pilot-100	1-station decoder	Built-in surge protection
Pilot-200	2-station decoder	DBRY-6 Waterproof Connectors included
Pilot-400	4-station decoder	
Pilot-600	6-station decoder	
Pilot-SG	Inline surge protection (for DIH rotor systems)	

Example:
Pilot-100 1-station decoder

Wireless Programming!
Communicate with decoders directly through plastic case: wireless electro-magnetic induction saves waterproof connectors

See the ICD-HP on 183

WEATHER STATION

Application: **Golf**
Range: **Wireless 1 km**
Type: **Weather Station**

FEATURES

- Includes built-in 60-day data logger: With onboard evapotranspiration (ET) calculation (modified Penman-Monteith equation for turf grass)
- Wireless package uses 2.4 GHz licence-free technology
  - 2.4 GHz radio systems can reach up to 3 km
  - In rural areas, try the licence-free, 900 MHz radio for links up to 800 m
- Wired systems use Hunter GCBL, direct-bury cable with a range of 1.25 km (dedicated 9-pin serial computer port required)
- Optional solar panel kit provides wireless power
  - Simple installation and versatile mounting with on-board 800 mAh rechargeable gel cell battery with 18 VDC transformer and 7 m power cable.
- Weatherproof construction: With UV stabilised enclosure, weather-proof external connectors and long-life coated circuit boards
- UL, c-UL and CE certifications

TurfWeather Station
Height: 61 cm
Width: 40.5 cm
Depth: 38 cm
Weight: 6 kg

COMPLETE PACKAGES INCLUDE HUNTER WEATHER SOFTWARE

Model	Description
TWHW	Wired communications to central computer – GCBL cable is required
TW24	2.4 GHz licence-free radio communication to central computer
TW916	916 MHz licence-free radio communication to central computer
TW922A	922 MHz licence-free radio communication to central computer
TWSUN	Optional solar power kit for all TurfWeather models

MAINTENANCE RADIO

Application: **Golf**
Range: **Up to 3.5 km**
Type: **Remote Control**

FEATURES

- Instant control of stations, blocks and programs
- Fewer buttons to push
- Instant audio confirmation of commands
- Hunter's famous StraightTalk™ Technology: Enables wireless remote control at ranges up to 3.5 km whether or not the central computer is turned on
- Easy commands that show in display before sending
- Compact size, industrial construction
- Suitable for two-way voice communication with crews and office
- High signal output: 2 watts, UHF (450–470 MHz)*

* Note: Licence required in most countries

TRNR Radio
Height: 10.25 cm
Width: 5.25 cm
Depth: 3 cm
Weight: 200 grams

ICD-HP

WIRELESS HANDHELD DECODER PROGRAMMER

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
- Turn decoder stations on and view solenoid status, current in milliamps, and more
- Built-in voltmeter for decoder path
- Communicates with decoders directly through plastic case: wireless electro-magnetic induction saves waterproof connectors
- Communicates through the top of DIH rotors- no cover removal required

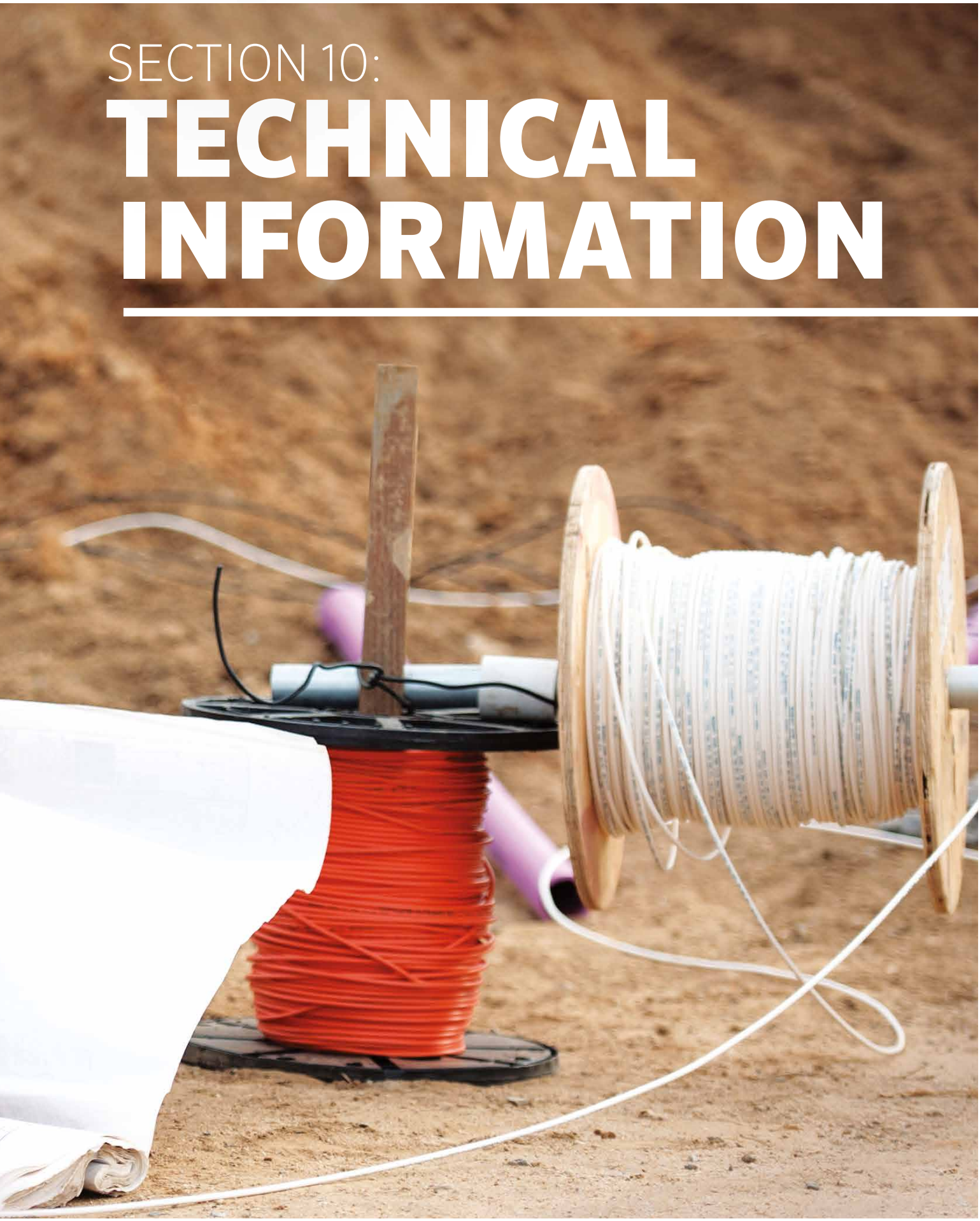
ICD-HP
Height: 21 cm
Width: 9 cm
Depth: 5 cm

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

CENTRAL CONTROL

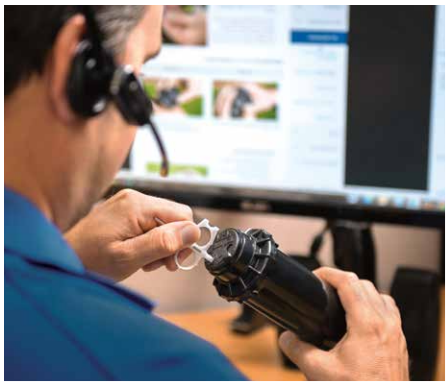

NAVAL HOSPITAL
CLARK
MCCARTHY



SECTION 10:

TECHNICAL INFORMATION

HUNTER
Technical Services



Our Hunter Technical Service Team has more than 197 years of combined industry expertise.

Anyone can sell you products. At Hunter, we've always believed the difference lies in providing world-class product support to make your job easier. When you need technical help, whether it's to ask a quick question or to get product-specific troubleshooting assistance, you can count on Hunter's Technical Services Team to provide the best support in the industry. Our knowledgeable experts are always available to help you.

In addition, our Field Service Team provides on-site training and troubleshooting assistance with central control, decoder system, and other commercial, residential, municipal, and golf course installations. Their combined experience of 200+ years in the industry is invaluable when you need factory support by phone, remote desktop, or at the job site.

Contact Us

Phone: 1-800-733-2823, Mon–Fri 6 a.m.–4 p.m. PST

Email: huntertechnicalsupport@hunterindustries.com

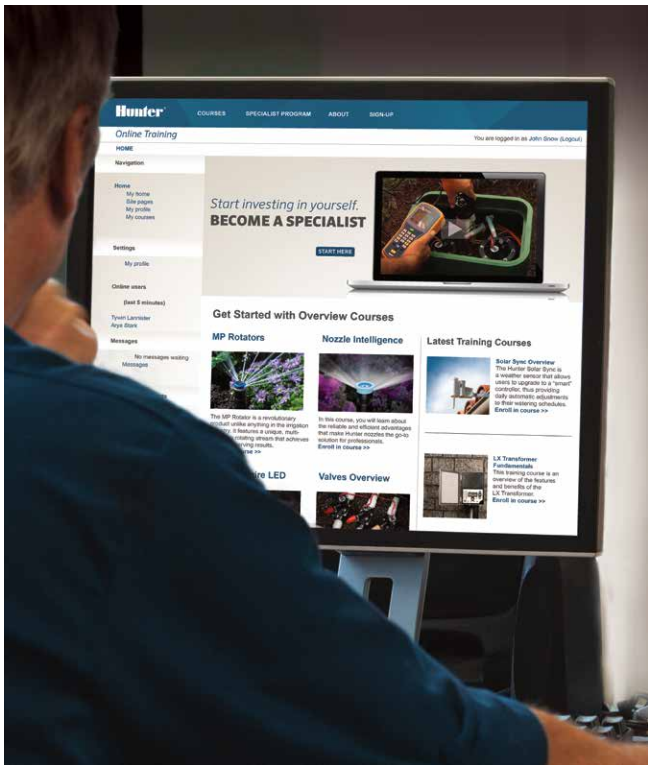
After Hours: Leave us a voice message and someone from our team will return your call the next business day

Online Product Information

Visit our Support Library for instructional videos, owner's manuals, installation details, articles, and more.

Rotors, Controllers, Sensors, Drip/Micro Irrigation, Valves, Sprays, Nozzles, FX Control, and Central Control

www.hunterindustries.com/support



PRODUCT
Specialist Program

This unique training program is designed to equip contractors, distributors, and other professionals with the knowledge to become familiar with Hunter products.

To get started:

1. Access the training website:

- Visit www.training.hunterindustries.com
- Log in or create a new account
- Click on courses, enroll at no cost, watch the training module, and take the quiz

2. Take courses for the level you choose:

- Click on the Specialist Program and choose the level you need
- Click on the courses required for each level and enroll in the courses
- Watch the training module and take the quiz

3. Apply for your certificate:

- Submit the Completion Notification Form for each level
- Obtain your certificate and use your membership card. You may use your certificates to apply for Continuing Education Unit Credits through the Irrigation Association

Choose from three levels of training:

Technician Level: Basic knowledge of the entire Hunter product line

Specialist Level: In-depth knowledge on a particular product

Expert Level: Thorough knowledge on a product category

REPLACEMENT GUIDE

Bringing together a combination of intelligent design, carefully controlled manufacturing, and regular testing to ensure conformity to the strictest standards, Hunter has been able to create truly exceptional nozzles. Essentially, we have made the science of developing superior nozzles—and thus, superior sprinklers—look easy. In the process, we have also made it easy for you to determine which of these high performance sprinklers can be used to replace other brands. Simply consult the following replacement guide to find the appropriate Hunter sprinkler for any irrigation need.

PGJ GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Red
3500	0.75	0.75
	1	1.0
	1.5	1.5
	2	2.0
	3	3.0
	4	4.0
T-Bird T-22	.65 (Blue)	0.75
	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Grey)	2.5
	4.0 (Yellow)	4.0
T-Bird T-30	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Grey)	2.5
	4.0 (Yellow)	4.0
	5.0 (Green)	5.0

To Replace TORO®		Use Hunter Nozzle ● Red
300/340	1	0.75
Stream Rotor	2	1.5
	3	3.0

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

PGP® GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Red	● Blue
Mini-Paw 15103	07 (Black)	6	2.5
	09 (Green)	7	3.0
Maxi-Paw 2045	06 (Red)	5	2.0
	07 (Black)	6	2.5
	08 (Blue)	8	4.0
	10 (Yellow)	9	5.0
	12 (Beige)	10	8.0
R-50	1.5 (Black)	5	2.0
	2.0 (Brown)	7	3.0
	3.0 (Grey)	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 (Grey)	6	2.5
	5.0 (Green)	9	5.0
5000	1.5	4	1.5
	2.0	5	2.0
	3.0	7	3.0
	4.0	8	4.0
	6.0	9	5.0
	8.0	10	8.0
5505	2	5	2.0
	3	6	2.5
	4	7	3.0
	5	8	4.0
	6	9	5.0
	8	10	8.0
	10	10	8.0
	12	11	8.0

To Replace K-RAIN®		Use Hunter Nozzle ● Red	● Blue
RPS75	0.50	1	--
	0.75	2	--
	1.0	4	1.5
	2.0	6	2.0
	2.5	7	2.5
	3.0	8	3.0
	4.0	9	4.0
	6.0	10	6.0
	8.0	11	8.0

PGP® GEAR DRIVEN ROTARY SPRINKLERS

To Replace TORO®		Use Hunter Nozzle ● Red	● Blue
300/340	308-XX-02	4	1.5
Stream Rotor	308-XX-03	7	3.0
	316-XX-02	7	3.0
	316-XX-03	10	8.0
XP-300 Series	XP-300-090-07	4	1.5
	180-07	7	3.0
	360-07	10	8.0
	XP-300-090-09	5	2.0
	180-09	8	4.0
	360-09	11	--
	XP-300-090-10	5	2.0
	180-10	9	5.0
	360-10	12	--
Super 600	1.3	4	1.5
	2.5	7	3.0
	5.0	10	8.0
	6.0	10	8.0
Super 700	1.3	3	1.5
	1.5	4	1.5
	2.0	5	2.0
	3.0	7	3.0
	4.5	8	4.0
	6.0	9	5.0
	7.5	10	8.0
	9.0	11	8.0
Super 800	0.50	1	--
	0.75	2	--
	1.0	4	1.5
	2.0	6	2.0
	2.5	7	2.5
	3.0	8	3.0
	4.0	9	4.0
	6.0	10	6.0
	8.0	11	8.0
TR50	1.0	3	--
	1.5	4	1.5
	2.0	5	2.0
	3.0	6	3.0
	4.5	8	4.0
	6.0	9	6.0
	7.5	10	8.0
	9.0	11	8.0

REPLACEMENT GUIDE

PGP® ULTRA / I-20 GEAR DRIVEN ROTARY SPRINKLERS

To Replace RAIN BIRD®		Use Hunter Nozzle ● Blue
Mini-Paw 15103	07 (Black)	**2.5**
	09 (Green)	**3.0**
Maxi-Paw 2045	06 (Red)	**2.0**
	07 (Black)	**2.5**
	08 (Blue)	**4.0**
	10 (Yellow)	**5.0**
	12 (Beige)	**8.0**
R-50	1.5 (Black)	**2.0**
	2.0 (Brown)	**3.0**
	3.0 (Grey)	**4.0**
	4.0 (Yellow)	**5.0**
	6.0 (Green)	**8.0**
T-Bird T-30	1.3 (Black)	**1.5**
	2.5 (Grey)	**2.5**
	5.0 (Green)	**5.0**
5000	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**5.0**
	8.0	**8.0**
5505	2	**2.0**
	3	**2.5**
	4	**3.0**
	5	**4.0**
	6	**5.0**
	8	**8.0**
	10	**8.0**
	12	**8.0**

To Replace K-RAIN®		Use Hunter Nozzle ● Blue
RPS75	0.50	- -
	0.75	- -
	1.0	**1.5**
	2.0	**2.0**
	2.5	**2.5**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**6.0**
	8.0	**8.0**

PGP® ULTRA / I-20 GEAR DRIVEN ROTARY SPRINKLERS

To Replace TORO®		Use Hunter Nozzle ● Blue
300/340	308-XX-02	**1.5**
Stream Rotor	308-XX-03	**3.0**
	316-XX-02	**3.0**
	316-XX-03	**8.0**
XP-300 Series	XP-300-090-07	**1.5**
	180-07	**3.0**
	360-07	**8.0**
	XP-300-090-09	**2.0**
	180-09	**4.0**
	360-09	- -
	XP-300-090-10	**2.0**
	180-10	**5.0**
	360-10	- -
Super 600	1.3	**1.5**
	2.5	**3.0**
	5.0	**8.0**
	6.0	**8.0**
Super 700	1.3	**1.5**
	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.5	**4.0**
	6.0	**5.0**
	7.5	**8.0**
	9.0	**8.0**
Super 800	0.50	- -
	0.75	- -
	1.0	**1.5**
	2.0	**2.0**
	2.5	**2.5**
	3.0	**3.0**
	4.0	**4.0**
	6.0	**6.0**
	8.0	**8.0**
TR50	1.0	- -
	1.5	**1.5**
	2.0	**2.0**
	3.0	**3.0**
	4.5	**4.0**
	6.0	**6.0**
	7.5	**8.0**
	9.0	**8.0**

SPRAY SPRINKLERS

To Replace ANY MFRS NOZZLES		Use Hunter Product Nozzles
Nozzles	8 Radius	**8A**
	10 Radius	**10A**
	12 Radius	**12A**
	15 Radius	**15A**
	17 Radius	**17A**
Rain Bird 1800		**Pro-Spray**
1800 SAM		**Pro-Spray-CV**
1800 SAM PRS		**Pro-Spray-PRS30-CV**
Uni-Spray		**PS Ultra**

REPLACEMENT GUIDE

I-25 GEAR DRIVEN ROTARY SPRINKLER

To Replace RAIN BIRD®		Use Hunter Nozzle
FALCON	4 (Black)	**4 (Yellow)**
	6 (Lt. Blue)	**5 (White)**
	8 (Dk. Green)	**7 (Orange)**
	10 (Grey)	**8 (Lt. Brown)**
	12 (Beige)	**10 (Lt. Green)**
	14 (Lt. Green)	**13 (Lt. Blue)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
41-51A	18 x 11.5	**20 (Dk. Brown)**
41-51A	13 x 11	**13 (Lt. Blue)**
47A	16	**13 (Lt. Blue)**
37A	14	**8 (Lt. Brown)**
7005	4 (Black)	**4 (Yellow)**
	6 (Lt. Blue)	**5 (White)**
	8 (Dk. Green)	**8 (Lt. Brown)**
	10 (Grey)	**10 (Lt. Green)**
	12 (Beige)	**13 (Lt. Blue)**
	14 (Lt. Green)	**15 (Grey)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
8005	12 (Beige)	**13 (Lt. Blue)**
	14 (Lt. Green)	**15 (Grey)**
	16 (Dk. Brown)	**18 (Red)**
	18 (Dk. Blue)	**20 (Dk. Brown)**
	20 (Red)	**23 (Dk. Green)**
	22 (Yellow)	**25 (Dk. Blue)**
	24 (Orange)	**28 (Black)**

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

To Replace NELSON®		Use Hunter Nozzle
7000 & 7500	1	**7 (Orange)**
	2	**8 (Lt. Brown)**
	3	**10 (Lt. Green)**
	4	**13 (Lt. Blue)**
	5	**15 (Grey)**
	6	**20 (Dk. Brown)**
	7	**23 (Dk. Green)**
	8	**25 (Dk. Blue)**

I-40 GEAR DRIVEN ROTARY SPRINKLERS

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

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

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

REPLACEMENT GUIDE

HQ - KEYS

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

HQ - SWIVELS

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

HQ - QUICK COUPLERS

To Replace RAIN BIRD®	To Replace TORO®	To Replace BUCKNER	To Replace WEST AG/STORM	Use Hunter
3RC	075-SLSC	QB3RC07	4V075-RY, QCV075-R	**HQ-3RC**
33DRC		QB33RC07	4V133-4A-RY, QCV133-4A-R	**HQ-33DRC**
33DLRC		QB33LRC07	4V133-4A-RLY, QCV133-4A-RL-2	**HQ-33DLRC**
33DNP		QB33NP07	4V133-4A-RL-NP, QVC133-4A-N-2	**HQ-33DLRC-R**
44RC	100-SLSC,	QB44RC10	4V144-RY, QCV-144-R	**HQ-44RC**
44LRC	100-2SLVC	QB44LRC10	4V144-RLY, QCV-144-RL	**HQ-44LRC**
44NP	100-SLVLC	QB44NO10	4V144-RL-NP, QCV-144-N	**HQ-44LRC-R**
	100-2SLLVC	QB44RCATAR10		**HQ-44RC-AW**
		QB44LRCATAR10		**HQ-44LRC-AW**
4NP-Acme		QB44NPATAR10		**HQ-44LRC-AW-R**
5RC	100-ATLVC	QBRB5RC10	4V101-RY, QCV-101-R	**HQ-5RC**
5LRC		QBRB5LRC10	4V101-RLY, QCV-101-RL	**HQ-5LRC**
5NP		QBRB5NP10	4V101-RL-NP, QCV-101-N	**HQ-5LRC-R**
5RC-BSP		QBRB5RC10BS	4V101-RY-BS, QCV-101-R-BS	**HQ-5RC-BSP**
5LRC-BSP		QBRB5LRC10BS	4V101-RLY-BS, QCV-101-RL-BS	**HQ-5LRC-BSP**
5NP-BSP		QBRB5NP10BS	4V101-RL-NP-BS, QCV-101-N-BS	**HQ-5LRC-BSPR**

PRECIPITATION RATES

In this section, the "Sprinkler Spacing Method–Any Arc and Any Spacing" equation is used to calculate precipitation rates. The first set of equations with the ■ shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The next set with the ▲ shows the precipitation rate for the sprinklers laid out in an equilateral triangular spacing pattern. This is the "Sprinkler Spacing Method–Equilateral Triangular Spacing" equation.

WHAT IS PRECIPITATION RATE?

If someone said they were caught in a rainstorm that dropped 25mm 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 25mm of water in one hour has a precipitation rate of one meter per hour (25 mm/hr). Similarly, the precipitation rate is the speed at which a sprinkler or an irrigation system applies water.

MATCHED PRECIPITATION RATES

A zone or system in which all the heads have similar precipitation rates is said to have "matched precipitation rates." Systems that have matched precipitation rates reduce wet and dry spots and excessive run times, which lead to high water consumption and increased costs. Knowing that sprinkler spacing, flow rates, and arcs of coverage affect precipitation rates, a general rule of thumb is: as the spray arc doubles, so should the flow.

90° Arc = 1 GPM; 0.23 m^3/hr; 3.8 l/min

180° Arc = 2 GPM; 0.45 m^3/hr; 7.6 l/min

360° Arc = 4 GPM; 0.91 m^3/hr; 15.1 l/min

The flow rate of half-circle heads must be two times the flow rate of the quarter-circle heads, and the full-circle heads must have two times the flow rate of the half-circle heads. In the illustration, the same amount of water is applied to each quarter circle area and precipitation is therefore matched.

CALCULATING PRECIPITATION RATES

Depending upon the construction of the irrigation system, the precipitation rate may be calculated by either a Sprinkler Spacing or a Total Area method.

Sprinkler Spacing Method (■)
The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:

Any Arc and Any Spacing (■):

$$\text{P.R. (in/hr)} = \frac{\text{Flow Rate (GPM) for any Arc} \times 34{,}650}{\text{Degrees of Arc} \times \text{Head Spacing (ft.)} \times \text{Row Spacing (ft.)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate } (m^3/hr) \text{ for any Arc} \times 360{,}000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate (l/min) for any Arc} \times 21{,}600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

Sprinkler Spacing Method (▲)
The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:

Equilateral Triangular Spacing (▲):

$$\text{P.R. (in/hr)} = \frac{\text{Flow Rate (GPM) for any Arc} \times 34{,}650}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate } (m^3/hr) \text{ for any Arc} \times 360{,}000}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow Rate (l/min) for any Arc} \times 21{,}600}{\text{Degrees of Arc} \times (\text{Head Spacing})^2 \times 0.866}$$

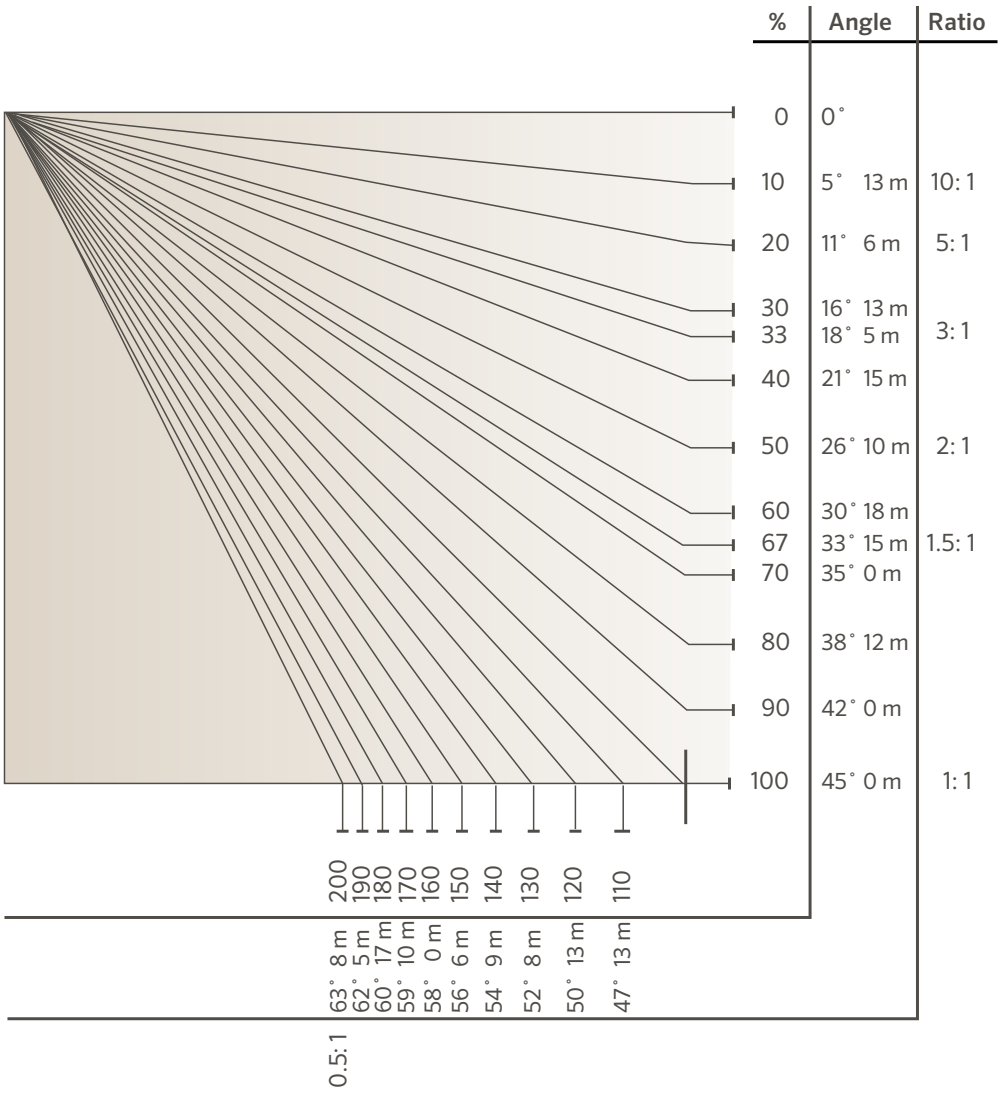
Total Area Method
The precipitation rate for a "system" is the average precipitation rate of all sprinklers in an area, regardless of the spacing, flow rate, or arc for each head. The Total Area Method calculates all the flows of all of the heads in any given area.

$$\text{P.R. (in/hr)} = \frac{\text{Flow (GPM)} \times 96.25}{\text{Total Area (ft.)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow } (m^3/hr) \times 1{,}000}{\text{Total Area } (m^2)}$$

$$\text{P.R. (mm/hr)} = \frac{\text{Flow (l/min)} \times 60}{\text{Total Area } (m^2)}$$

SLOPE EQUIVALENTS/IRRIGATION



SLOPE IRRIGATION: Maximum precipitation rates for slopes in mm/hr

Soil Texture	0 to 5% Slope		5 to 8% Slope		8 to 12% Slope		12% + Slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	51	51	51	38	38	25	25	13
Coarse sandy soils over compact subsoils	44	38	32	25	25	19	19	10
Light sandy loams uniform	44	25	32	20	25	15	19	10
Light sandy loams over compact subsoils	32	19	25	13	19	10	13	8
Uniform silt loams	25	13	20	10	15	8	10	5
Silt loams over compact subsoil	15	8	13	6	10	4	8	3
Heavy clay or clay loam	5	4	4	3	3	2	3	2

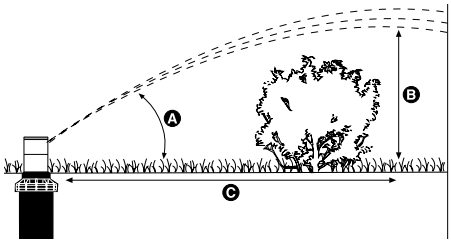
Notes:

Maximum precipitation rates for slopes in mm/hr

The maximum precipitation values listed below are those suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil condition and condition of ground cover.

HEIGHT OF SPRAY

The trajectory and spray height of the water stream leaving a sprinkler nozzle is important information when designing and installing irrigation systems.



These rotor nozzle trajectory charts are designed to help determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern. All information shown is at optimum operating pressures.

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

Model	Nozzle No.	Pressure		Degrees of Trajectory	Max Height of Spray (m)	Distance from Head to Maximum Height (m)
		bar	kPa			
MP ROTATOR®	1000	2.8	275	20	0.5	Varies
	2000	2.8	275	26	1.1	Varies
	3000	2.8	275	26	2.0	Varies
	3500	2.8	275	28	2.5	Varies
	Corner	2.8	275	14	0.4	Varies
	Side Strip	2.8	275	16	0.5	Varies
	Left Strip	2.8	275	16	0.5	Varies
PGJ	0.75	2.8	275	10	0.6	1.2
	1.0	2.8	275	10	0.6	2.4
	1.5	2.8	275	10	0.9	3.7
	2.0	2.8	275	15	1.5	4.9
	2.5	2.8	275	12	1.5	6.1
	3.0	2.8	275	15	1.5	6.1
	4.0	2.8	275	15	1.5	6.7
	5.0	2.8	275	15	1.8	7.3
PGP® RED NOZZLES	1.0	3.5	350	26	2.1	6.7
	2.0	3.5	350	26	2.1	6.7
	3.0	3.5	350	26	2.4	7.0
	4.0	3.5	350	26	2.4	7.0
	5.0	3.5	350	27	2.7	7.9
	6.0	3.5	350	27	3.0	8.5
	7.0	3.5	350	26	3.4	9.1
	8.0	3.5	350	26	3.4	9.1
	9.0	3.5	350	27	3.7	9.8
	10.0	4.0	400	25	4.0	9.8
	11.0	4.0	400	25	4.0	11.6
	12.0	4.0	400	25	4.0	12.2
PGP LOW ANGLE GREY NOZZLES	4.0	3.5	350	15	1.5	6.7
	5.0	3.5	350	15	1.2	6.7
	6.0	3.5	350	14	1.2	6.7
	7.0	3.5	350	14	1.2	6.7
	8.0	3.5	350	14	1.5	7.3
	9.0	3.5	350	15	1.5	7.9
	10.0	4.0	400	15	1.8	9.1
PGP BLUE NOZZLES	1.5	3.0	300	25	2.4	7.0
	2.0	3.0	300	25	2.4	7.0
	2.5	3.0	300	25	2.7	7.9
	3.0	3.0	300	25	3.0	8.5
	4.0	3.0	300	25	3.4	9.1
	5.0	3.0	300	25	3.4	9.1
	6.0	3.8	380	25	3.7	9.8
	8.0	3.8	380	25	4.0	9.8
PGP ULTRA/I-20 DARK BLUE NOZZLES	1.0	3.5	350	26	2.4	7.0
	1.5	3.5	350	26	2.4	7.0
	2.0	3.5	350	27	2.7	7.9
	3.0	3.5	350	27	3.0	8.5
	3.5	3.5	350	26	3.4	9.1
	4.0	3.5	350	26	3.4	9.1
	6.0	3.5	350	27	3.7	9.8
	8.0	4.0	400	25	4.0	9.8
PGP ULTRA/I-20 BLUE NOZZLES	1.5	3.0	300	25	2.4	7.0
	2.0	3.0	300	25	2.4	7.0
	2.5	3.0	300	25	2.7	7.9
	3.0	3.0	300	25	3.0	8.5
	4.0	3.0	300	25	3.4	9.1
	5.0	3.0	300	25	3.4	9.1
	6.0	3.8	380	25	3.7	9.8
	8.0	3.8	380	25	4.0	9.8

HEIGHT OF SPRAY

HUNTER NOZZLE HEIGHT AND TRAJECTORY CHART

Model	Nozzle No.	Pressure		Degrees of Trajectory	Max Height of Spray (m)	Distance from Head to Maximum Height (m)
		bar	kPa			
PGP® Ultra/I-20 Low Angle Grey Nozzles	2.0 LA	3.5	350	13	1.5	6.7
	2.5 LA	3.5	350	13	1.2	6.7
	3.5 LA	3.5	350	13	1.2	6.7
	4.5 LA	3.5	350	13	1.2	6.7
PGP Ultra/I-20 Short Radius Black Nozzles	0.5	3.5	350	15	1.5	2.4
	1.0	3.5	350	14	1.8	2.7
	2.0	3.5	350	3	0.3	1.8
PGP Ultra/I-20 Short Radius Black Nozzles	0.75	3.5	350	22	2.1	4.0
	1.5	3.5	350	18	2.1	4.0
	3.0	3.5	350	8	0.3	1.8
I-25	4	3.5	350	25	2.7	6.7
	5	3.5	350	25	3.4	8.5
	7	3.5	350	25	3.0	8.5
	8	3.5	350	25	3.4	8.5
	10	4	400	25	3.7	9.1
	13	4	400	25	4.0	9.4
	15	4	400	25	3.7	9.4
	18	4	400	25	4.6	10.4
	20	5	500	25	4.6	10.7
	23	5	500	25	4.9	11.6
	25	5	500	25	4.9	11.6
	28	5	500	25	5.2	12.2
I-40	8 (40)	3.5	350	25	3.7	9.8
	10 (41)	4	400	25	4.3	9.8
	13 (42)	4	400	25	4.3	10.4
	15 (43)	4	400	25	4.6	12.8
	23 (44)	5	500	25	5.2	14.0
	25 (45)	5	500	25	5.2	14.6
I-90 ADV	33	5.5	550	22	4.6	12.8
	38	5.5	550	22	4.9	14.6
	43	5.5	550	22	4.9	14.6
	48	5.5	550	22	5.2	16.5
	53	5.5	550	22	5.2	17.1
	63	5.5	550	22	5.5	19.5
I-90 36V	33	5.5	550	22	5.2	14.0
	38	5.5	550	22	5.2	15.2
	43	5.5	550	22	5.2	16.5
	48	5.5	550	22	5.2	17.1
	53	5.5	550	22	5.2	17.7
	63	5.5	550	22	5.5	18.9

PLD CHARTS

PLD APPLICATION RATES

16 MM EMITTER FLOW RATE – 3.8 l/hr

Row Spacing (m)	Emitter Spacing (m) 0.30	0.50
0.30	42	25
0.35	36	22
0.40	32	19
0.45	28	17
0.50	25	15
0.55	23	14
0.60	21	13

16 MM EMITTER FLOW RATE – 2.2 l/hr

Row Spacing (m)	Emitter Spacing (m) 0.30	0.50
0.30	24	15
0.35	21	13
0.40	18	11
0.45	16	10
0.50	15	9
0.55	13	8
0.60	12	7

Notes
Application rates in m per hour

17 MM EMITTER FLOW RATE – 3.8 l/hr

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.61
0.30	42	28	21
0.35	36	24	18
0.40	32	21	16
0.45	28	19	14
0.50	25	17	12
0.55	23	15	11
0.60	21	14	10

17 MM EMITTER FLOW RATE – 2.3 l/hr

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.61
0.30	26	17	13
0.35	22	15	11
0.40	19	13	9
0.45	17	11	8
0.50	15	10	8
0.55	14	9	7
0.60	13	9	6

17 MM EMITTER FLOW RATE – 1.5 l/hr

Row Spacing (m)	Emitter Spacing (m) 0.30	0.45	0.61
0.30	17	11	8
0.35	14	10	7
0.40	13	8	6
0.45	11	7	5
0.50	10	7	5
0.55	9	6	4
0.60	8	6	4

PLD EMITTER LINE MAXIMUM LENGTH CHARTS

16 MM EMITTER LINE MAX LENGTH – 2.2 l/hr

Pressure (bar)	Emitter Spacing (m) 0.30	0.50
1.0	47	73
2.0	84	131
3.0	104	162

16 MM EMITTER LINE MAX LENGTH – 3.8 l/hr

Pressure (bar)	Emitter Spacing (m) 0.30	0.50
1.0	35	54
2.0	59	91
3.0	72	112

17 MM EMITTER LINE MAX LENGTH – 1.5 l/hr

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	86	119	149
2.0	132	185	232
3.0	159	223	281

17 MM EMITTER LINE MAX LENGTH – 2.3 l/hr

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	51	71	88
2.0	89	124	156
3.0	108	152	191

17 MM EMITTER LINE MAX LENGTH – 3.8 l/hr

Pressure (bar)	Emitter Spacing (m) 0.30	0.50	0.60
1.0	37	52	65
2.0	65	92	115
3.0	80	112	142

PLD FLOW CONVERSION CHARTS

16 MM QUICK REFERENCE CHART – l/min PER 100 M

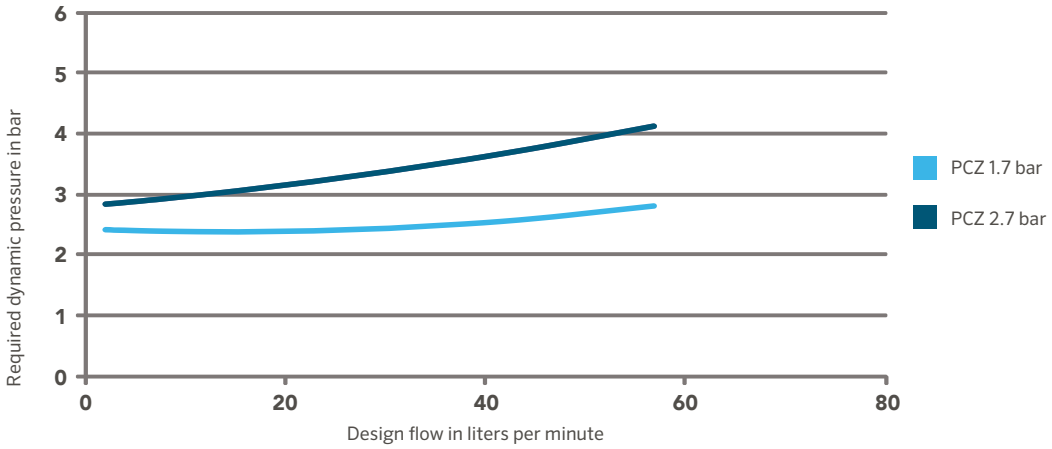
Emitter (l/hr)	Emitter Spacing (m) 0.30	0.50
2.2	12.2	7.3
3.8	21.1	12.7

17 MM QUICK REFERENCE CHART – l/min PER 100 M

Emitter (l/hr)	Emitter Spacing (m) 0.30	0.50	0.60
1.5	8.1	5.4	4.2
2.3	12.6	8.5	6.4
3.8	20.2	13.6	10.2

DRIP CONTROL ZONE KIT CHARTS

PCZ101: Inlet pressure required for designed outlet pressure



CONVERSION FACTORS

CONVERSION FACTORS

To Convert	From	To	Multiply By
Area	acres	foot^2	43560
	acres	meter^2	4046.8
	meter^2	foot^2	10.764
	foot^2	inch^2	144
	inch^2	centimeter^2	6.452
	hectares	meter^2	10000
	hectares	acres	2.471
Power	kilowatts	horsepower	1.341
Flow	foot^3/minute	meter^3/second	0.0004719
	foot^3/second	meter^3/second	0.02832
	yards^3/minute	meter^3/second	0.01274
	gallon/minute	meter^3/hour	0.22716
	gallon/minute	liter/minute	3.7854
	gallon/minute	liter/second	0.06309
	meter^3/hour	liter/minute	16.645
	meter^3/hour	liter/second	0.2774
	liter/minute	liter/second	60
Length	foot	inch	12
	inch	centimeter	2.54
	foot	meter	0.30481
	kilometer	miles	0.6214
	miles	foot	5280
	miles	meter	1609.34
	millimeter	inch	0.03937
Pressure	PSI	kilopascals	6.89476
	PSI	bar	0.068948
	bar	kilopascals	100
	PSI	feet of head	2.31
Velocity	feet/second	meter/second	0.3048
Volume	feet^3	gallon	7.481
	feet^3	liter	28.32
	meter^3	feet^3	35.31
	meter^3	yard^3	1.3087
	yard^3	feet^3	27
	yard^3	gallon	202
	acres/feet	foot^3	43,560
	gallon	meter^3	0.003785
	gallon	liter	3.785
	imperial gallon	gallon	1.833

FRICTION LOSS CHARTS

UPCV PIPE CLASS 3 (6 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		36.4 mm		46.4 mm		59.2 mm		70.6 mm		84.6 mm		103.6 mm		153.2 mm		188.2 mm	
Pipe OD		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.8 mm		1.8 mm		1.9 mm		2.2 mm		2.7 mm		3.2 mm		3.4 mm		5.9 mm	
Flow l/min	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25																
7.6	0.5																
11.4	0.75																
15.1	1	0.3	0.03														
26.5	1.5	0.4	0.06	0.2	0.02												
34.1	2	0.5	0.09	0.3	0.03												
41.6	2.5	0.7	0.14	0.4	0.04												
49.2	3	0.8	0.20	0.5	0.06												
56.8	3.5	0.9	0.27	0.6	0.08												
68.1	4	1.1	0.34	0.7	0.10												
83.3	5	1.3	0.52	0.8	0.16												
98.4	6	1.6	0.72	1.0	0.22	0.6	0.07	0.4	0.03								
117.3	7	1.9	0.96	1.1	0.30	0.7	0.09	0.5	0.04								
132.5	8	2.1	1.23	1.3	0.38	0.8	0.12	0.6	0.05								
151.4	9	2.4	1.53	1.5	0.47	0.9	0.14	0.6	0.06								
166.6	10	2.7	1.86	1.6	0.57	1.0	0.17	0.7	0.07								
181.7	11			1.8	0.68	1.1	0.21	0.8	0.09	0.5	0.04						
200.6	12			2.0	0.8	1.2	0.24	0.9	0.10	0.6	0.04						
215.8	13			2.1	0.93	1.3	0.28	0.9	0.12	0.6	0.05						
234.7	14			2.3	1.07	1.4	0.33	1.0	0.14	0.7	0.06						
249.8	15			2.5	1.21	1.5	0.37	1.1	0.16	0.7	0.06	0.5	0.02				
265.0	16					1.6	0.42	1.1	0.18	0.8	0.07	0.5	0.03				
283.9	17					1.7	0.47	1.2	0.20	0.8	0.08	0.6	0.03				
299.0	18					1.8	0.52	1.3	0.22	0.9	0.09	0.6	0.03				
318.0	19					1.9	0.57	1.3	0.24	0.9	0.10	0.6	0.04				
333.1	20					2.0	0.63	1.4	0.27	1.0	0.11	0.7	0.04				
348.3	21					2.1	0.69	1.5	0.29	1.0	0.12	0.7	0.05				
367.2	22					2.2	0.75	1.6	0.32	1.1	0.13	0.7	0.05				
382.3	23					2.3	0.82	1.6	0.35	1.1	0.14	0.8	0.05				
401.3	24							1.7	0.37	1.2	0.16	0.8	0.06				
416.4	25							1.8	0.40	1.2	0.17	0.8	0.06				
431.5	26							1.8	0.43	1.3	0.18	0.9	0.07				
450.5	27							1.9	0.47	1.3	0.19	0.9	0.07				
465.6	28							2.0	0.50	1.4	0.21	0.9	0.08				
484.5	29							2.1	0.53	1.4	0.22	1.0	0.08				
499.7	30							2.1	0.57	1.5	0.23	1.0	0.09				
583.0	35									1.7	0.31	1.2	0.12				
666.2	40									2.0	0.40	1.3	0.15				
749.5	45									2.2	0.50	1.5	0.19				
832.8	50											1.6	0.23				
916.1	55											1.8	0.27				
999.3	60											2.0	0.32				
1082.6	65											2.1	0.37	1.0	0.05		
1165.9	70											2.3	0.42	1.1	0.06		
1249.2	75													1.1	0.07		
1332.5	80													1.2	0.08		
1415.7	85													1.3	0.09		
1499.0	90													1.4	0.10		
1665.6	100													1.5	0.12	1.0	0.04
1832.1	110													1.7	0.14	1.1	0.05
1998.7	120													1.8	0.17	1.2	0.06
2165.3	130													2.0	0.20	1.3	0.07
2331.8	140													2.1	0.23	1.4	0.08
2498.4	150													2.3	0.26	1.5	0.09

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

UPCV PIPE CLASS 4 (10 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		22 mm		28.4 mm		36.2 mm		45.2 mm		57 mm		67.8 mm		81.4 mm		99.4 mm		144.6 mm		180.8 mm	
Pipe OD		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.5 mm		1.8 mm		1.9 mm		2.4 mm		3 mm		3.6 mm		4.3 mm		5.3 mm		7.7 mm		9.6 mm	
Flow	Flow	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar	Velocity	bar
l/min	m³/hr	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss	m/s	loss
3.8	0.25	0.2	0.02																		
7.6	0.5	0.4	0.08																		
11.4	0.75	0.5	0.18																		
15.1	1	0.7	0.30																		
26.5	1.5	1.1	0.64	0.7	0.19																
34.1	2	1.5	1.10	0.9	0.32																
41.6	2.5	1.8	1.66	1.1	0.48	0.7	0.15														
49.2	3	2.2	2.33	1.3	0.67	0.8	0.21														
56.8	3.5	2.6	3.10	1.5	0.89	0.9	0.27														
68.1	4			1.8	1.14	1.1	0.35	0.7	0.12												
83.3	5			2.2	1.73	1.3	0.53	0.9	0.18												
98.4	6			2.6	2.42	1.6	0.74	1.0	0.25	0.7	0.08										
117.3	7					1.9	0.99	1.2	0.34	0.8	0.11										
132.5	8					2.2	1.27	1.4	0.43	0.9	0.14										
151.4	9					2.4	1.58	1.6	0.53	1.0	0.17	0.7	0.07								
166.6	10							1.7	0.65	1.1	0.21	0.8	0.09								
181.7	11							1.9	0.77	1.2	0.25	0.8	0.11								
200.6	12							2.1	0.91	1.3	0.29	0.9	0.13								
215.8	13							2.3	1.06	1.4	0.34	1.0	0.15								
234.7	14							2.4	1.21	1.5	0.39	1.1	0.17								
249.8	15							2.6	1.38	1.6	0.44	1.2	0.19								
265.0	16									1.7	0.50	1.2	0.22	0.9	0.09						
283.9	17									1.9	0.56	1.3	0.24	0.9	0.10						
299.0	18									2.0	0.62	1.4	0.27	1.0	0.11						
318.0	19									2.1	0.69	1.5	0.30	1.0	0.12						
333.1	20									2.2	0.76	1.5	0.33	1.1	0.13						
348.3	21									2.3	0.83	1.6	0.36	1.1	0.15						
367.2	22									2.4	0.90	1.7	0.39	1.2	0.16						
382.3	23									2.5	0.98	1.8	0.42	1.2	0.17						
401.3	24											1.8	0.46	1.3	0.19						
416.4	25											1.9	0.49	1.3	0.20						
431.5	26											2.0	0.53	1.4	0.22	0.9	0.08				
450.5	27											2.1	0.57	1.4	0.23	1.0	0.09				
465.6	28											2.2	0.61	1.5	0.25	1.0	0.09				
484.5	29											2.2	0.65	1.5	0.27	1.0	0.10				
499.7	30											2.3	0.69	1.6	0.28	1.1	0.11	0.5	0.02		
583.0	35													1.9	0.38	1.3	0.14	0.6	0.02		
666.2	40													2.1	0.48	1.4	0.18	0.7	0.03		
749.5	45													2.4	0.60	1.6	0.23	0.8	0.04		
832.8	50															1.8	0.28	0.8	0.04		
916.1	55															2.0	0.33	0.9	0.05		
999.3	60															2.1	0.39	1.0	0.06		
1082.6	65															2.3	0.45	1.1	0.07		
1165.9	70															2.5	0.51	1.2	0.08		
1249.2	75															2.7	0.58	1.3	0.09		
1332.5	80															2.9	0.66	1.4	0.11		
1415.7	85															3.0	0.74	1.4	0.12		
1499.0	90															3.2	0.82	1.5	0.13	1.0	0.04
1665.6	100																	1.7	0.16	1.1	0.05
1832.1	110																	1.9	0.19	1.2	0.06
1998.7	120																	2.0	0.22	1.3	0.08
2165.3	130																	2.2	0.26	1.4	0.09
2331.8	140																	2.4	0.30	1.5	0.10
2498.4	150																	2.5	0.34	1.6	0.11

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

UPVC PIPE CLASS 5 (16 BAR)

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID		21.2 mm		27.2 mm		34 mm		42.6 mm		53.6 mm		63.8 mm		76.6 mm		93.6 mm		136.2 mm		170.2 mm	
Pipe OD		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Wall Thick		1.5 mm		1.8 mm		1.9 mm		2.4 mm		3 mm		3.6 mm		4.3 mm		5.3 mm		7.7 mm		14.9 mm	
Flow l/min	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25	0.2	0.03																		
7.6	0.5	0.4	0.10																		
11.4	0.75	0.6	0.21	0.4	0.06																
15.1	1	0.8	0.36	0.5	0.11	0.3	0.04														
26.5	1.5	1.2	0.77	0.7	0.23	0.5	0.08	0.3	0.03												
34.1	2	1.6	1.32	1.0	0.39	0.6	0.13	0.4	0.04												
41.6	2.5	2.0	1.99	1.2	0.59	0.8	0.20	0.5	0.07												
49.2	3	2.4	2.79	1.4	0.83	0.9	0.28	0.6	0.09												
56.8	3.5			1.7	1.10	1.1	0.37	0.7	0.12												
68.1	4			1.9	1.41	1.2	0.48	0.8	0.16												
83.3	5			2.4	2.13	1.5	0.72	1.0	0.24												
98.4	6					1.8	1.01	1.2	0.34	0.7	0.11										
117.3	7					2.1	1.34	1.4	0.45	0.9	0.15										
132.5	8					2.4	1.72	1.6	0.57	1.0	0.19										
151.4	9							1.8	0.71	1.1	0.23										
166.6	10							1.9	0.87	1.2	0.28										
181.7	11							2.1	1.03	1.4	0.34	1.0	0.14								
200.6	12							2.3	1.21	1.5	0.40	1.0	0.17								
215.8	13									1.6	0.46	1.1	0.20								
234.7	14									1.7	0.53	1.2	0.23								
249.8	15									1.8	0.60	1.3	0.26								
265.0	16									2.0	0.68	1.4	0.29	1.0	0.12						
283.9	17									2.1	0.76	1.5	0.32	1.0	0.13						
299.0	18									2.2	0.84	1.6	0.36	1.1	0.15						
318.0	19									2.3	0.93	1.7	0.40	1.1	0.16						
333.1	20									2.5	1.02	1.7	0.44	1.2	0.18						
348.3	21											1.8	0.48	1.3	0.20						
367.2	22											1.9	0.52	1.3	0.21						
382.3	23											2.0	0.57	1.4	0.23						
401.3	24											2.1	0.61	1.4	0.25	1.0	0.09				
416.4	25											2.2	0.66	1.5	0.27	1.0	0.10				
431.5	26											2.3	0.71	1.6	0.29	1.0	0.11				
450.5	27											2.3	0.76	1.6	0.31	1.1	0.12				
465.6	28											2.4	0.82	1.7	0.33	1.1	0.13				
484.5	29											2.5	0.87	1.7	0.36	1.2	0.13				
499.7	30													1.8	0.38	1.2	0.14				
583.0	35													2.1	0.51	1.4	0.19				
666.2	40													2.4	0.65	1.6	0.24				
749.5	45													2.7	0.81	1.8	0.30				
832.8	50															2.0	0.37	1.0	0.06		
916.1	55															2.2	0.44	1.0	0.07		
999.3	60															2.4	0.52	1.1	0.08		
1082.6	65															2.6	0.60	1.2	0.10		
1165.9	70															2.8	0.69	1.3	0.11		
1249.2	75															3.0	0.78	1.4	0.13		
1332.5	80															3.2	0.88	1.5	0.14		
1415.7	85																	1.6	0.16		
1499.0	90																	1.7	0.18		
1665.6	100																	1.9	0.21	1.2	0.07
1832.1	110																	2.1	0.26	1.3	0.09
1998.7	120																	2.3	0.30	1.5	0.10
2165.3	130																	2.5	0.35	1.6	0.12
2331.8	140																	2.7	0.40	1.7	0.14
2498.4	150																	2.9	0.45	1.8	0.15

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 40 IPS PVC PLASTIC PIPE

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		1"		1¼"		1½"		2"		2½"		3"		4"		6"		8"	
Pipe OD		1.315"		1.66"		2.375"		2.375"		2.375"		3.500"		4.500"		6.625"		8.625"	
Pipe ID		1.049"		1.380"		2.469"		2.067"		2.469"		3.068"		4.026"		6.065"		7.981"	
Pipe ID mm		26.64		35.05		40.89		52.50		62.71		77.93		102.26		154.05		202.72"	
Wall Thick		0.133"		0.140"		0.145"		0.154"		0.203"		0.216"		0.237"		0.280"		0.322"	
Flow l/min	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25	0.1	0.01																
7.6	0.5	0.2	0.03																
11.4	0.75	0.4	0.07	0.2	0.02														
15.1	1	0.5	0.12	0.3	0.03	0.2	0.01												
26.5	1.5	0.7	0.25	0.4	0.07	0.3	0.03	0.2	0.01										
34.1	2	1.0	0.43	0.6	0.11	0.4	0.05	0.3	0.02										
41.6	2.5	1.2	0.65	0.7	0.17	0.5	0.08	0.3	0.02										
49.2	3	1.5	0.92	0.9	0.24	0.6	0.11	0.4	0.03										
56.8	3.5	1.7	1.22	1.0	0.32	0.7	0.15	0.4	0.04										
68.1	4	2.0	1.56	1.2	0.41	0.8	0.19	0.5	0.06										
83.3	5	2.5	2.36	1.4	0.62	1.1	0.29	0.6	0.09										
98.4	6			1.7	0.87	1.3	0.41	0.8	0.12	0.5	0.05	0.3	0.02						
117.3	7			2.0	1.16	1.5	0.55	0.9	0.16	0.6	0.07	0.4	0.02						
132.5	8			2.3	1.48	1.7	0.70	1.0	0.21	0.7	0.09	0.5	0.03						
151.4	9			2.6	1.84	1.9	0.87	1.2	0.26	0.8	0.11	0.5	0.04						
166.6	10			2.9	2.24	2.1	1.06	1.3	0.31	0.9	0.13	0.6	0.05						
181.7	11					2.3	1.26	1.4	0.37	1.0	0.16	0.6	0.05						
200.6	12					2.5	1.48	1.5	0.44	1.1	0.18	0.7	0.06						
215.8	13					2.7	1.72	1.7	0.51	1.2	0.21	0.8	0.07						
234.7	14					3.0	1.97	1.8	0.58	1.3	0.25	0.8	0.09						
249.8	15					3.2	2.24	1.9	0.66	1.3	0.28	0.9	0.10						
265.0	16							2.1	0.75	1.4	0.31	0.9	0.11						
283.9	17							2.2	0.84	1.5	0.35	1.0	0.12						
299.0	18							2.3	0.93	1.6	0.39	1.0	0.14						
318.0	19							2.4	1.03	1.7	0.43	1.1	0.15						
333.1	20							2.6	1.13	1.8	0.48	1.2	0.17						
348.3	21									1.9	0.52	1.2	0.18						
367.2	22									2.0	0.57	1.3	0.20						
382.3	23									2.1	0.62	1.3	0.21						
401.3	24									2.2	0.67	1.4	0.23						
416.4	25									2.2	0.72	1.5	0.25						
431.5	26									2.3	0.77	1.5	0.27						
450.5	27									2.4	0.83	1.6	0.29						
465.6	28											1.6	0.31						
484.5	29											1.7	0.33						
499.7	30											1.7	0.35						
583.0	35											2.0	0.47	1.2	0.12				
666.2	40											2.3	0.60	1.4	0.16				
749.5	45											2.6	0.74	1.5	0.20				
832.8	50											2.9	0.90	1.7	0.24				
916.1	55													1.9	0.29				
999.3	60													2.0	0.34				
1082.6	65													2.2	0.39	1.0	0.07		
1165.9	70													2.4	0.45	1.0	0.08		
1249.2	75													2.5	0.51	1.1	0.09		
1332.5	80													2.7	0.57	1.2	0.10		
1415.7	85													2.9	0.64	1.3	0.11		
1499.0	90													3.0	0.71	1.3	0.12	0.8	0.03
1665.6	100															1.5	0.15	0.9	0.03
1832.1	110															1.6	0.18	0.9	0.04
1998.7	120															1.8	0.21	1.0	0.04
2165.3	130															1.9	0.25	1.1	0.05
2331.8	140															2.1	0.28	1.2	0.06
2498.4	150															2.1	0.32	1.3	0.07

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

SCHEDULE 80 IPS PVC PLASTIC PIPE

C=150 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		1"		1¼"		1½"		2"		2½"		3"		4"		6"		8"	
Pipe OD		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		8.625	
Pipe ID		0.957		1.278		1.500		1.939		2.323		2.900		3.826		5.761		7.625	
Pipe ID mm		24.31		32.46		38.10		49.25		59.00		73.66		97.18		146.33		193.68	
Wall Thick		0.179		0.191		0.200		0.218		0.276		0.300		0.337		0.432		0.500	
Flow l/min	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25	0.1	0.01																
7.6	0.5	0.3	0.05																
11.4	0.75	0.4	0.11	0.3	0.03														
15.1	1	0.6	0.19	0.3	0.05	0.2	0.02												
26.5	1.5	0.9	0.40	0.5	0.10	0.4	0.04	0.2	0.01										
34.1	2	1.2	0.68	0.7	0.17	0.5	0.08	0.3	0.02										
41.6	2.5	1.5	1.02	0.8	0.25	0.6	0.11	0.4	0.03										
49.2	3	1.8	1.43	1.0	0.35	0.7	0.16	0.4	0.05										
56.8	3.5	2.1	1.90	1.2	0.47	0.9	0.21	0.5	0.06										
68.1	4	2.4	2.44	1.3	0.60	1.0	0.27	0.6	0.08										
83.3	5	3.0	3.69	1.7	0.90	1.2	0.41	0.7	0.12										
98.4	6			2.0	1.26	1.5	0.58	0.9	0.17	0.6	0.07	0.4	0.02						
117.3	7			2.3	1.68	1.7	0.77	1.0	0.22	0.7	0.09	0.5	0.03						
132.5	8			2.7	2.15	1.9	0.99	1.2	0.28	0.8	0.12	0.5	0.04						
151.4	9			3.0	2.68	2.2	1.23	1.3	0.35	0.9	0.15	0.6	0.05						
166.6	10					2.4	1.49	1.5	0.43	1.0	0.18	0.7	0.06						
181.7	11					2.7	1.78	1.6	0.51	1.1	0.21	0.7	0.07						
200.6	12					2.9	2.09	1.7	0.60	1.2	0.25	0.8	0.08						
215.8	13							1.9	0.69	1.3	0.29	0.8	0.10						
234.7	14							2.0	0.80	1.4	0.33	0.9	0.11						
249.8	15							2.2	0.91	1.5	0.38	1.0	0.13						
265.0	16							2.3	1.02	1.6	0.42	1.0	0.14						
283.9	17							2.5	1.14	1.7	0.47	1.1	0.16						
299.0	18							2.6	1.27	1.8	0.53	1.2	0.18						
318.0	19									1.9	0.58	1.2	0.20						
333.1	20									2.0	0.64	1.3	0.22						
348.3	21									2.1	0.70	1.4	0.24						
367.2	22									2.2	0.76	1.4	0.26						
382.3	23									2.3	0.83	1.5	0.28						
401.3	24									2.4	0.90	1.6	0.30						
416.4	25									2.5	0.97	1.6	0.33						
431.5	26											1.7	0.35						
450.5	27											1.8	0.38						
465.6	28											1.8	0.41	1.0	0.11				
484.5	29											1.9	0.43	1.1	0.11				
499.7	30											2.0	0.46	1.1	0.12				
583.0	35											2.3	0.61	1.3	0.16				
666.2	40											2.6	0.78	1.5	0.20				
749.5	45													1.7	0.25				
832.8	50													1.9	0.31				
916.1	55													2.1	0.37				
999.3	60													2.2	0.43				
1082.6	65													2.4	0.50	1.1	0.07		
1165.9	70													2.6	0.57	1.2	0.08		
1249.2	75													2.8	0.65	1.2	0.09		
1332.5	80													3.0	0.73	1.3	0.10		
1415.7	85													3.2	0.82	1.4	0.11		
1499.0	90													3.4	0.91	1.5	0.12		
1665.6	100															1.7	0.15	0.9	0.04
1832.1	110															1.8	0.18	1.0	0.05
1998.7	120															2.0	0.21	1.1	0.05
2165.3	130															2.1	0.25	1.2	0.06
2331.8	140															2.3	0.28	1.3	0.07
2498.4	150															2.5	0.32	1.4	0.08

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

HDPE PRESSURE PIPE PE80 SDR 17.6 PN6

C=140 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID mm		21.40		28.40		35.40		44.20		55.80		66.40		79.80		97.40		141.80		177.20	
Wall Thick		1.8		1.8		2.3		2.9		3.6		4.3		5.1		6.3		9.1		11.4	
Flow l/min	Flow m^3/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25	0.2	0.03																		
7.6	0.5	0.4	0.11																		
11.4	0.75	0.6	0.23	0.3	0.06																
15.1	1	0.8	0.40	0.4	0.10	0.3	0.03														
26.5	1.5	1.2	0.84	0.7	0.21	0.4	0.07	0.3	0.02												
34.1	2	1.5	1.43	0.9	0.36	0.6	0.12	0.4	0.04												
41.6	2.5	1.9	2.16	1.1	0.54	0.7	0.19	0.5	0.06												
49.2	3	2.3	3.03	1.3	0.76	0.8	0.26	0.5	0.09												
56.8	3.5	2.7	4.03	1.5	1.01	1.0	0.35	0.6	0.12												
68.1	4	3.1	5.16	1.8	1.30	1.1	0.44	0.7	0.15												
83.3	5			2.2	1.96	1.4	0.67	0.9	0.23												
98.4	6			2.6	2.75	1.7	0.94	1.1	0.32	0.7	0.10	0.5	0.04								
117.3	7			3.1	3.66	2.0	1.25	1.3	0.42	0.8	0.14	0.6	0.06								
132.5	8			3.5	4.69	2.3	1.60	1.4	0.54	0.9	0.17	0.6	0.07								
151.4	9					2.5	2.00	1.6	0.68	1.0	0.22	0.7	0.09								
166.6	10					2.8	2.43	1.8	0.82	1.1	0.26	0.8	0.11								
181.7	11							2.0	0.98	1.2	0.32	0.9	0.14								
200.6	12							2.2	1.15	1.4	0.37	1.0	0.16								
215.8	13							2.4	1.34	1.5	0.43	1.0	0.18								
234.7	14							2.5	1.53	1.6	0.49	1.1	0.21								
249.8	15							2.7	1.74	1.7	0.56	1.2	0.24								
265.0	16							2.9	1.96	1.8	0.63	1.3	0.27								
283.9	17							3.1	2.20	1.9	0.71	1.4	0.30								
299.0	18							3.3	2.44	2.0	0.79	1.4	0.34								
318.0	19									2.2	0.87	1.5	0.37								
333.1	20									2.3	0.95	1.6	0.41								
348.3	21									2.4	1.04	1.7	0.45	1.2	0.18						
367.2	22									2.5	1.14	1.8	0.49	1.2	0.20						
382.3	23									2.6	1.24	1.8	0.53	1.3	0.22						
401.3	24									2.7	1.34	1.9	0.57	1.3	0.23						
416.4	25									3.8	1.44	2.0	0.62	1.4	0.25						
431.5	26											2.1	0.67	1.4	0.27	1.0	0.10	0.5	0.02		
450.5	27											2.2	0.71	1.5	0.29	1.0	0.11	0.5	0.02		
465.6	28											2.2	0.76	1.6	0.31	1.0	0.12	0.5	0.02		
484.5	29											2.3	0.81	1.6	0.33	1.1	0.13	0.5	0.02		
499.7	30											2.4	0.87	1.7	0.35	1.1	0.13	0.5	0.02		
583.0	35											2.8	1.15	1.9	0.47	1.3	0.18	0.6	0.03		
666.2	40											3.2	1.48	2.2	0.60	1.5	0.23	0.7	0.04		
749.5	45													2.5	0.75	1.7	0.28	0.8	0.05		
832.8	50													2.8	0.91	1.9	0.35	0.9	0.06		
916.1	55													3.1	1.09	2.1	0.41	1.0	0.07		
999.3	60													3.3	1.28	2.2	0.48	1.1	0.08		
1082.6	65															2.4	0.56	1.1	0.09		
1165.9	70															2.6	0.64	1.2	0.10		
1249.2	75																	1.3	0.12		
1332.5	80																	1.4	0.13		
1415.7	85																	1.5	0.15		
1499.0	90																	1.6	0.16		
1665.6	100																	1.8	0.20	1.1	0.07
1832.1	110																	1.9	0.24	1.2	0.08
1998.7	120																	2.1	0.28	1.4	0.09
2165.3	130																	2.3	0.33	1.5	0.11
2331.8	140																			1.6	0.13
2498.4	150																			1.7	0.14

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

HDPE PRESSURE PIPE PE80 SDR 11 PN10

C=140 • PRESSURE LOSS (BAR/100 METERS)

Nominal Size		25 mm		32 mm		40 mm		50 mm		63 mm		75 mm		90 mm		110 mm		160 mm		200 mm	
Pipe ID mm		20.40		26.20		32.60		40.80		51.40		61.40		73.60		90.00		130.80		163.60	
Wall Thick		2.3		2.9		3.7		4.6		5.8		6.8		8.2		10		14.6		18.2	
Flow l/min	Flow m³/hr	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss	Velocity m/s	bar loss
3.8	0.25	0.2	0.04																		
7.6	0.5	0.4	0.14																		
11.4	0.75	0.6	0.29	0.4	0.09																
15.1	1	0.8	0.50	0.5	0.15																
26.5	1.5	1.3	1.06	0.8	0.31	0.5	0.11														
34.1	2	1.7	1.80	1.0	0.53	0.7	0.18														
41.6	2.5	2.1	2.73	1.3	0.81	0.8	0.28	0.5	0.09												
49.2	3	2.5	3.82	1.5	1.13	1.0	0.39	0.6	0.13												
56.8	3.5	3.0	5.08	1.8	1.50	1.2	0.52	0.7	0.17												
68.1	4			2.1	1.92	1.3	0.66	0.8	0.22	0.5	0.07										
83.3	5			2.6	2.91	1.7	1.00	1.1	0.34	0.7	0.11										
98.4	6			3.1	4.08	2.0	1.41	1.3	0.47	0.8	0.15										
117.3	7					2.3	1.87	1.5	0.63	0.9	0.20										
132.5	8					2.7	2.40	1.7	0.8	1.1	0.26										
151.4	9					3.0	2.98	1.9	1.00	1.2	0.32										
166.6	10							2.1	1.21	1.3	0.39										
181.7	11							2.3	1.45	1.5	0.47	1.0	0.20								
200.6	12							2.5	1.70	1.6	0.55	1.1	0.23								
215.8	13							2.8	1.97	1.7	0.64	1.2	0.27								
234.7	14							3.0	2.27	1.9	0.74	1.3	0.31								
249.8	15									2.0	0.84	1.4	0.35								
265.0	16									2.1	0.94	1.5	0.40								
283.9	17									2.3	1.05	1.6	0.44	1.1	0.18						
299.0	18									2.4	1.17	1.7	0.49	1.2	0.20						
318.0	19									2.5	1.30	1.8	0.54	1.2	0.23						
333.1	20									2.7	1.42	1.9	0.60	1.3	0.25						
348.3	21									2.8	1.56	2.0	0.66	1.4	0.27						
367.2	22									2.9	1.70	2.1	0.71	1.4	0.30						
382.3	23									3.1	1.84	2.2	0.78	1.5	0.32						
401.3	24											2.3	0.84	1.6	0.35						
416.4	25											2.3	0.91	1.6	0.37						
431.5	26											2.4	0.97	1.7	0.40	1.1	0.15				
450.5	27											2.5	1.04	1.8	0.43	1.2	0.16				
465.6	28											2.6	1.12	1.8	0.46	1.2	0.17				
484.5	29											2.7	1.19	1.9	0.49	1.3	0.19				
499.7	30											2.8	1.27	2.0	0.53	1.3	0.20				
583.0	35											3.3	1.69	2.3	0.70	1.5	0.26				
666.2	40													2.6	0.89	1.7	0.34				
749.5	45													2.9	1.11	2.0	0.42				
832.8	50													3.3	1.35	2.2	0.51	1.0	0.08		
916.1	55															2.4	0.61	1.1	0.10		
999.3	60															2.6	0.71	1.2	0.12		
1082.6	65															2.8	0.83	1.3	0.13		
1165.9	70															3.1	0.95	1.4	0.15		
1249.2	75															3.3	1.08	1.6	0.17		
1332.5	80																	1.7	0.20		
1415.7	85																	1.8	0.22	1.1	0.07
1499.0	90																	1.9	0.24	1.2	0.08
1665.6	100																	2.1	0.30	1.3	0.10
1832.1	110																	2.3	0.35	1.5	0.12
1998.7	120																	2.5	0.42	1.6	0.14
2165.3	130																	2.7	0.48	1.7	0.16
2331.8	140																			1.8	0.19
2498.4	150																			2.0	0.21

Notes: Shaded area represents velocities over 1.5 m/s. Use with caution where water hammer is a concern.

FRICTION LOSS CHARTS

TABLE OF APPROXIMATE PRESSURE LOSSES FOR PIPE FITTINGS

Steel Fitting Type	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
Coupling	0.18	0.24	0.30	0.37	0.46	0.61	0.76	0.91	1.21	1.82	2.40
Run of St. Tee	0.30	0.30	4.60	0.60	0.60	0.76	0.91	1.21	1.52	2.13	3.05
Tee, Side Outlet	0.91	1.38	1.50	2.13	2.74	3.35	4.0	4.90	6.1	9.44	12.1
Tee, Run Reduced ½"	0.45	0.76	0.91	1.21	1.50	1.82	2.13	2.4	3.65	4.90	6.10
Elbow, 90°	0.45	0.76	0.91	1.21	1.50	1.82	2.13	2.4	3.65	4.90	6.10
Elbow, 45°	0.22	0.30	0.40	0.52	0.60	0.76	0.91	1.06	1.5	2.28	3.04
Corporation Stop	2.74	2.74	2.74	2.74	2.74	2.74					
Curb Stop	1.82	1.82	2.13	2.13	2.43	2.43					

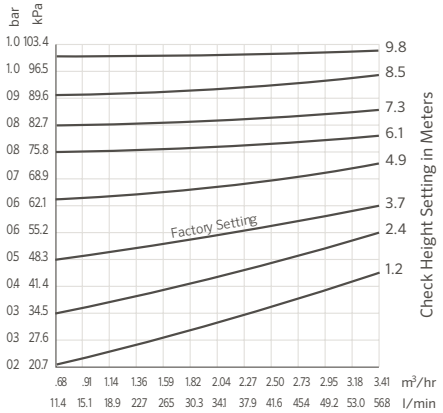
Plastic IPS or Copper Fitting Type	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"
Coupling	0.46	0.76	0.91	0.91	1.22	1.82	2.13	2.43	3.35	5.50	7.31
Run of St. Tee	0.76	0.91	1.22	1.52	1.83	2.43	2.74	3.35	4.57	6.40	8.53
Tee, Side Outlet	2.13	2.74	3.65	4.57	5.48	7.31	9.14	11.0	13.71	21.33	27.43
Tee, Run Reduced ½"	1.06	1.37	1.82	2.43	2.74	3.35	4.26	5.18	7.31	10.36	13.71
Elbow, 90°	1.06	1.37	1.82	2.43	2.74	3.35	4.26	5.18	7.31	10.36	13.71
Elbow, 34°	0.46	0.60	0.91	1.06	1.22	1.52	2.13	2.44	3.04	4.90	6.10

To use this chart, multiply the approximate "equivalent meter of pipe" value by the proper pipe pressure loss per 30 m rating, then divide by 100. The result is the fitting loss in bar; kPa.

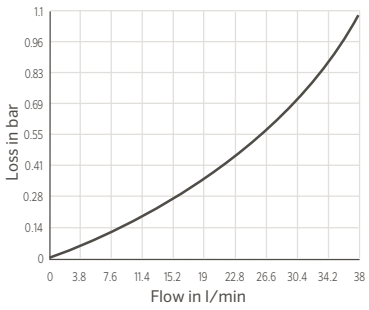
Notes:
It is recommended that the above chart be used only when the manufacturers recommended pressure loss values are not available.

ACCESSORY PRESSURE LOSS CHARTS

HCV PRESSURE LOSS CHART



SWING JOINT FRICTION LOSS



WIRE DATA

STANDARD ANNEALED COPPER AT 20° C					
American Wire Gauge	Metric Wire Gauge	Diameter (Mils)	Diameter (mm)	Resistance (Per mft Ohms)	Resistance (Per km Ohms)
1		289.3	7.348	0.9239	0.4065
	7		7		0.448
2		257.6	6.543	0.1563	0.5128
	6		6		0.6098
3		229.4	5.827	0.1971	0.6466
4		204.3	5.189	0.2485	0.8152
	5		5		0.08781
5		181.9	4.62	0.3134	1.028
	4.5		4.5		1.084
6		162	4.115	0.3952	1.297
	4		4		1.372
7		144.3	3.665	0.4981	1.634
	3.5		3.5		1.792
8		128.5	3.264	0.6281	2.061
	3		3		2.439
9		114.4	2.906	0.7925	2.6
10		101.9	2.588	0.9988	3.277
	2.5		2.5		3.512
11		90.7	2.3	1.26	4.14
12		80.8	2.05	1.59	5.21
	2		2		5.49
13		72	1.83	2	6.56
	1.8		1.8		6.78
14		64.1	1.63	2.52	8.28
	1.6		1.6		8.58
15		57.1	1.45	3.18	10.4
	1.4		1.4		11.2
16		50.8	1.29	4.02	13.2
	1.2		1.2		15.2
17		45.3	1.15	5.05	16.6
18		40.3	1.02	6.39	21
	1		1		22
19		35.9	0.912	8.05	26.4
	0.9		0.9		27.1
20		32	0.813	10.1	33.2

WIRE SIZING

REQUIRED INFORMATION

Actual one-way length of wire between the controllers and the power source or the controllers and valves

Allowable voltage loss along the wire circuit

Accumulative current flowing through the wire section being sized in amperes

RESISTANCE IS CALCULATED USING THIS FORMULA:

$$R = \frac{1{,}000 \times AVL}{2L \times I}$$

R = Maximum Allowable Resistance of wire in ohms per 300 m
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 550 m. The controller output is 24 V. The valve has a minimum operating voltage of 20 V and an inrush current of 370 mA (0.37 A).

$$R = \frac{1{,}000 \times 4}{2\,(600) \times 0.37}$$

$$R = \frac{4{,}000}{444}$$

$$R = 9.01 \text{ ohms}/1{,}000 \text{ m}$$

So, wire resistance cannot exceed 9 ohms per 300 m. Now go to table #1 and select the proper wire size. Since 1.5 mm^2 gauge wire has more resistance than 9 ohms per 300 m, choose 2.5 mm^2 wire.

Table 2 is a quick reference and is set up to provide maximum wire runs given the information at the bottom of the table.

TABLE 1 - RESISTANCE OF COPPER WIRE

Wire Size (mm^2)	Resistance at 20° C (68° F) (ohms per 1000 m)
0.5	38.4
1.0	18.7
1.5	13.6
2.5	7.4
4.0	4.6
6.0	3.1

TABLE 2- VALVE WIRE SIZING

Ground Wire	Control Wire						
	0.5	1	1.5	2.5	4	6	6
0.5	140	190	210	235	250	260	1590
1.0	190	290	335	415	465	495	2440
1.5	208	335	397	515	595	647	3700
2.5	235	415	515	730	900	1030	5400
4.0	250	465	595	900	1175	1405	7690
6.0	260	495	647	1030	1405	1745	10530

Notes:
Maximum one-way distance in feet between controller and valve Heavy-duty solenoid: 24 VAC, 370 mA inrush current, 190 mA holding current, 60 cycles; 475 mA inrush current, 230 mA holding current, 50 cycles

ADDITIONAL DATA

WIRE SIZE REFERENCE CHART

Wire Size (mm^2)	25 mm	32 mm	40 mm	50 mm	63 mm	75 mm	90 mm	110 mm	160 mm	Wire Size (mm^2)
0.5	20	35	49	80	110	175	-	-	-	0.5
1	16	30	42	67	97	150	-	-	-	1
1.5	10	18	25	40	56	88	120	150	-	1.5
2.5	7	15	20	33	50	75	102	130	-	2.5
4	6	13	16	27	40	63	85	110	-	4
6	4	6	9	16	25	35	50	65	150	6

Notes:
Approximate number of wires to be installed in conduit or tubing. Maximum number of wires in conduit or sleeving

CLIMATE ETp TABLE

Climate*	mm Daily
Cool Humid	2.5 to 3.8
Cool Dry	3.8 to 5.1
Warm Humid	3.8 to 5.1
Warm Dry	5.1 to 6.3
Hot Humid	5.1 to 7.6
Hot Dry	7.6 to 11.4

Notes:
* Cool = under 21˚C as an average mid-summer high
* Warm = between 21˚ and 32˚ C as mid-summer highs
* Hot = over 32˚ C
* Humid = over 50% as average mid-summer relative humidity (dry=under 50%)

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
TWO YEARS	**ROTORS**	PGP®-ADJ, PGJ	**CONTROLLERS**	X-Core® and Pro-C® Families, ROAM, NODE, WVP, WVC, PSR, Wi-Fi Kit
	SPRAYS	PS Ultra Family	**SENSORS**	ET System
	NOZZLES	Spray Nozzles, PCN, PCB, AFB	**MICRO**	ACZ, PCZ, RZWS, Point Source Emitters
	MP ROTATOR®	All	**ACCESSORIES**	HCV, SJ, FLEXsg, HSBE Family
	VALVES	PGV Family, SRV, PSR		
THREE YEARS	**CONTROLLERS**	ROAM XL		
FIVE YEARS	**ROTORS**	PGP Ultra, I-20, I-25, I-35, I-40, I-60, 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®
	VALVES	HQ, ICV, IBV	**MICRO**	ICZ and PLD Tubing, Eco-Mat®
	CONTROLLERS	I-Core®/DUAL® and ACC controller families, ICD Decoder Products, ICR Remotes		

If used for agricultural applications, Hunter limits the warranty for its spray, rotator and rotor products to a period of one (1) year from original date of manufacture. This agriculture limitation supersedes all other warranties expressed or implied. **Hunter warrants the battery life of the Wireless Rain-Clik and Wireless Solar Sync sensors for 10 years.** If a defect in a Hunter product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part. This warranty does not extend to repairs, adjustments, or replacement of a Hunter product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the Hunter product. If a defect arises in a Hunter product during the warranty period, contact your local Hunter Authorized Distributor.

STATEMENT OF WARRANTY Hunter Golf and ST System Irrigation

Hunter will unconditionally repair, replace or repurchase, at its sole discretion, any defective Golf or ST Product Components listed below by category, returned freight prepaid, within a period of:

GOLF ROTOR PRODUCTS

A. Three (3) years component* warranty from the date of manufacture
B. Five (5) years component* warranty from the date of manufacture with one-for-one matching purchase of HSJ Swing Joints from authorized Hunter Golf distributor.

HSJ SWING JOINT, ST ROTOR, AND ST ACCESSORY PRODUCTS

C. Five (5) years component* warranty from the date of manufacture

GOLF CONTROLLER PRODUCTS

D. One (1) year component* warranty from the date of manufacture

COMPUTERS, PRINTERS & ACCESSORIES

E. Equipment manufacturer's warranty (no Hunter warranty)

MAINTENANCE RADIO & BATTERY

F. Equipment manufacturer's warranty (no Hunter warranty)

Hunter's warranty applies only to products installed as specified and used as intended for irrigation purposes. Hunter's warranty shall be limited to defects in materials and workmanship during the warranty period, and shall not extend to situations in which the product was subjected to improper design, installation, operation, maintenance, application, abuse, improper electrical current, grounding, service other than by Hunter authorized agents, operating conditions other than that for which it was designed, or in systems using water containing corrosive chemicals, electrolytes, sand, dirt, silt, rust or agents that otherwise attack and degrade plastics. Hunter's warranty does not cover component failures caused by lightning strikes, electrical power surges or unconditioned power supplies. If products are repurchased, the price to Distributor for such products in effect at the time of return will apply.

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Hunter's obligation to repair, replace or repurchase its products or product components as set forth above is the sole and exclusive warranty extended by Hunter. There are no other warranties, expressed or implied, including warranties of merchantability and warranties of fitness for a particular purpose. Hunter will not be liable to a distributor or to any other party in strict liability, tort, contract or any other manner for any damages caused or claimed to be caused as a result of any design of or defect in Hunter's products, or for any special, incidental or consequential damages of any nature.

* Warranty covers repair, replacement or repurchase of individual defective component assemblies contained within the product. Returns of complete finished goods are not allowed under warranty without prior approval from the Hunter Product Manager.

** Where applicable, Hunter's statement of warranty complies with local directives.

If you have any questions concerning the warranty or its application, please email HunterTechnicalSupport@hunterindustries.com.

ASAE CERTIFICATION STATEMENT

Hunter Industries Incorporated certifies that pressure, flow rate, and radius data for these products were determined and listed in accordance with ASAE Standard S398.1, Procedure for Sprinkler Testing and Performance Reporting, and are representative of performance of production sprinklers at the time of publication. Actual product performance may differ from the published specifications due to normal manufacturing variations and sample selection. All other specifications are solely the recommendation of Hunter Industries Incorporated.

Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

Gregory R. Hunter, President of Hunter Industries

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