

Hunter®

2006-2007 Irrigation Products Catalog



Leading the Way in Innovation

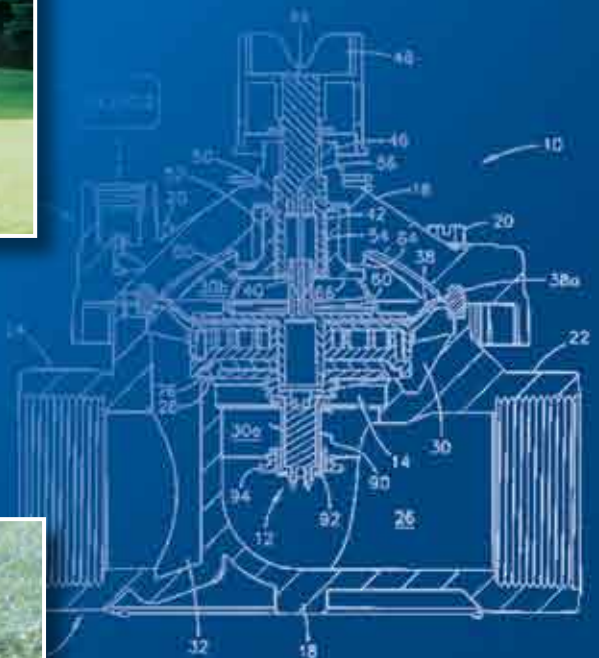


FIG. 1



New Products!



6" I-25/I-31
Ideal for taller cuts of turf
Page 16



6" I-40/I-41
An additional 2" of pop-up
Page 20



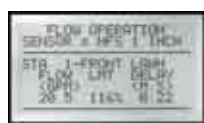
Pro-Spray® 2" & 3"
Two new pop-up heights
Page 36



New Strip Nozzles
Now 6 different choices
Page 44



**XC Indoor/
Outdoor Controller**
Entry-level residential unit
Page 68



ACC Controller w/Flow Sensing
Hunter's most powerful controller
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ACC Decoder Controller
Two-wire control to 99 stations
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Self adjusts water schedule
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2-station battery-powered control
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Enhanced water management system
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Two climate sensors in one
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Hunter innovations continue to set the standards for the irrigation industry.

The Irrigation Innovators.

To say it is one thing, to mean it is something else.

Anyone could have bestowed that title upon themselves. But only Hunter could back up the claim with a track record to justify such a proclamation.

An Innovative Approach to Customer Support

It all begins with our longstanding commitment that **the customer always comes first.** From distributors

to contractors, specifiers to sports field managers, **our priority is to listen** to your particular needs and respond with a full range of relevant, value-

added products and services.

No other company in our industry offers the wide range of **ongoing education opportunities**, comprehensive array of **printed product literature**, and information-filled **periodic mailings and newsletters** that we do. Nor can anyone match the assistance provided by our **knowledgeable technical support staff** and **customer service specialists**, or the fast response time of our **highly trained team of sales representatives.**

Then there's Hunter's **worldwide network of distributors**—in essence, an extended arm of our company with a degree of loyalty that is unsurpassed in the irrigation industry.

Is commitment like this to customers an entirely novel idea? We would like to think not, but a quick look

around the industry may seem to say otherwise.

An Innovative Approach to Growing Your Business

If we simply stopped there, it would be evident that we do things differently than everyone else. But we're not merely concerned with how to help you maximize your business today; we're focused on helping you maximize your business tomorrow. That dedication has led us to outdistance the competition in innovative methods that **help our customers grow their businesses** and be the best they can be.

Take the **Hunter Preferred Contractor Program.** By continuously evolving and expanding to better meet the needs of its participants, it has become the most popular (and most imitated) buyer rewards program in the industry. No other program offers its members so extensive **an array of business-enhancing opportunities.**

And now, there are three levels of membership to provide **even greater benefits and rewards.**

That's innovation.

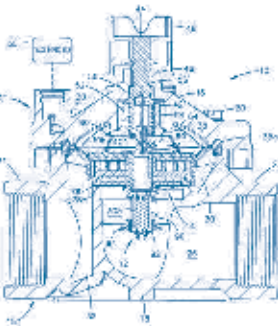


(left to right) Informative, interactive workshops focus on many aspects of the irrigation professional's business. Our experienced personnel provide helpful solutions to design and installation dilemmas. CEO Richard Hunter takes an active role in day-to-day operations of the company.

Or consider the **Hunter Industries Web site**. Sure, every company has an internet presence. But no one in the irrigation business can match the depth and breadth of our site's content, with so much useful information placed at the fingertips of our customers. Innovation again.

An Innovative Approach to Developing Products

Of course, the spirit of innovation is nothing new to Hunter. It's always been our way of life. We lead the irrigation industry with **more than 250 product patents** (almost twice the number of our largest competitor) as well as **over 40 trademarks**. Beyond all of the patented ideas are the **numerous product "firsts"**—features introduced on Hunter products that others set out to emulate, and that are now considered to be industry standards.



The Filter Sentry™ scouring mechanism is just one of hundreds of patented ideas that has made Hunter a leader in innovation.

But it's more than simply *what* products we produce; it's also *how* we produce them. The vast majority of tooling, molding, manufacturing, and assembly machinery is designed and built on-site by Hunter engineers. It's an approach that has given Hunter a tremendous market advantage by enabling us to maintain **strict quality and control standards**...and a level of unsurpassed durability, reliability, and value.

All in All, an Innovative Approach to the Way We Do Things

Some companies lead. Others follow. At Hunter, we've never even considered the second course of action.

We're always taking ideas that never were and making them into something usable. Or taking ideas that already exist and turning them into something greater.

At Hunter, when we say that we are, we really mean it...

The Irrigation Innovators.

Every Drop Counts...

As our population grows, but our sources of water do not, simple math demonstrates that there will be less of the wet stuff to go around for each of us. Never before has water conservation seemed so important.

To that end, Hunter has assembled a family of products that makes it possible for you to create a more efficient system. In fact, no other manufacturer offers such a wide array

of water-saving components that covers all aspects of irrigation. Of course, we strive to make all of our irrigation products as water-wise as possible; these particular items go above and beyond to achieve the ultimate in conservation.

As you thumb through this catalog, be sure to look for the products that display our "Proven Water Saver" logo—the symbol of guaranteed results and optimum efficiency. At Hunter, preserving our precious natural resources is not simply a noble thing to do—it's an essential part of our everyday lives.



The irrigation industry's most stringent and diverse testing procedures—and most elaborate testing facilities—give Hunter products a level of quality that is the envy of the competition.



Rotors

Applications	PGJ	PGP®	I-10/20 Ultra	I-25/31 Plus	I-40/41	I-60	I-90
Spacings 15' to 35'	✓		✓				
Spacings 25' to 45'		✓	✓				
Spacings More Than 45'				✓	✓	✓	✓
Residential	✓	✓	✓				
Commercial/Institutional			✓	✓	✓	✓	✓
Athletic Fields			✓	✓	✓	✓	✓
High Vandalism Areas			✓		✓		
Low Pressure Systems	✓	✓				✓	
Riser-Mounted Sprinklers	✓	✓	✓				
Ground Cover and/or Shrubs	✓	✓	✓				
Reclaimed Water	✓	✓	✓	✓	✓	✓	✓

All the features and benefits of the PGP®, scaled down to fit typical spray applications.

A rack of easy-to-install-and-change, water-efficient nozzles...just like PGP. Easy adjustment from the top of the sprinkler...just like PGP. The safety and durability of a rubber cover...just like PGP. The PGJ is a chip off the ol' block, in essence a PGP "junior." Hunter has scaled down the world's top-selling sprinkler exclusively for use in applications that typically call for a spray but where it's now possible to have all the benefits of a rotor. The PGJ is capable of working in tandem with larger rotors to combine big and small areas in a single zone, offering a convenience and efficiency that sprays do not. With PGJ, fewer heads perform more efficient work for a more economical price.



The "scaled down" rotor and spray alternative designed for mid-range areas at residential and commercial sites.

FEATURES & BENEFITS



Radius adjustment screw

Allows fine tuning of spray, ensures positive nozzle retention, can't be lost

Protective rubber cover

Keeps debris out

40°– 360° adjustable arc

Easily adjustable from top of sprinkler, up, down, wet or dry

Water-lubricated gear drive

Time proven, reliable rotation, year after year

Variable stator

Keeps rotation speed consistent regardless of nozzle size or pressure

Extra large filter screen

Traps more debris without clogging

Optional factory-installed drain check valve

Prevents wet spots, caused by low head drainage

MODELS

- PGJ-00 – Shrub
- PGJ-04 – 4" Pop-up (10 cm)
- PGJ-06 – 6" Pop-up (15 cm)
- PGJ-12 – 12" Pop-up (30 cm)

DIMENSIONS

- Overall height:
PGJ-00 – 7" (18 cm)
PGJ-04 – 7½" (18 cm)
PGJ-06 – 9½" (23 cm)
PGJ-12 – 16½" (41 cm)
- ½" female inlet NPT
- Exposed diameter: 1½" (3 cm)

OPERATING SPECIFICATIONS

- Discharge rate: .64 to 5.3 GPM (0.15 to 1.2 m³/hr; 2.4 to 20.1 l/min)
- Radius: 15' to 37' (4.6 to 11.3 m)
- Recommended pressure range: 30 to 50 PSI (2.1 to 3.4 bars; 206 to 344 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates:
approximately 0.60" (16 mm) per hour at 40 PSI (2.8 bars; 275 kPa) for spacings from 16' to 37' (4.6 to 11.3 m)
- Nozzle trajectory: approximately 14°

OPTIONS AVAILABLE

- Drain check valve (Pop-up models only) for up to 7' (2.1 m) elevation change
- Reclaimed water cover

"Best Buy" in the April 2006 edition of Consumers Digest.



SPRAYS? OR TIME-SAVING, MONEY-SAVING, WATER-SAVING ROTORS?

When your landscape has mid-range zones that are long and narrow, the obvious choice would be to install sprays. Yet, the intelligent choice would be a rotor specifically designed to fit this kind of landscape. With the scaled-down-in-size PGJ, two rows of rotors can do the same job as three rows of spray heads. Because PGJ rotors can run on the same zone as other rotary sprinklers, they require fewer valves and stations, and, in turn, less trenching, piping, and labor. It all adds up to less installation time and lower installation costs (as well as lower watering costs).



Nozzles self-align for easy installation and removal; marked for easy identification.



Heavy duty rubber cover keeps debris out of adjustment mechanism.



Time proven, water-lubricated gear drive plus a variable stator keeps rotation speed consistent.



Extra large filter screen (the largest in its class!) traps more debris without clogging.



Easily fine-tune arc setting through the top of the sprinkler with screwdriver or Hunter wrench.

PGJ Nozzle Performance Data

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

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced. (Optimum nozzle performance shown in bold).

PGJ Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
.75	2.1	206	4.6	0.15	2.4	14 16
	2.8	275	4.9	0.17	2.8	14 17
	3.4	344	5.2	0.19	3.2	14 17
1.0	2.1	206	5.5	0.19	3.2	13 15
	2.8	275	5.8	0.23	3.8	14 16
	3.4	344	5.8	0.25	4.2	15 17
1.5	2.1	206	6.4	0.30	4.9	14 17
	2.8	275	6.7	0.34	5.7	15 18
	3.4	344	6.7	0.39	6.4	17 20
2.0	2.1	206	7.3	0.39	6.4	14 17
	2.8	275	7.6	0.45	7.6	16 18
	3.4	344	7.6	0.52	8.7	18 21
2.5	2.1	206	8.2	0.50	8.3	15 17
	2.8	275	8.5	0.57	9.5	16 18
	3.4	344	8.5	0.64	10.6	18 20
3.0	2.1	206	9.1	0.57	9.5	14 16
	2.8	275	9.4	0.68	11.4	15 18
	3.4	344	9.4	0.77	12.9	17 20
4.0	2.1	206	10.1	0.84	14.0	17 19
	2.8	275	10.4	0.91	15.1	17 20
	3.4	344	10.4	0.98	16.3	18 21
5.0	2.1	206	11.0	1.07	17.8	18 21
	2.8	275	11.3	1.14	18.9	18 21
	3.4	344	11.3	1.20	20.1	19 22

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.

SPECIFICATION GUIDE

EXAMPLE: **PGJ - 06 - V**

MODEL PGJ	POP-UP HEIGHT 00 = Shrub 04 = 4" Pop-up 06 = 6" Pop-up 12 = 12" Pop-up	OPTIONS R = Reclaimed Water Identifier V = Factory-Installed Drain Check Valve (Pop-up Models Only)
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The world's best selling residential and light commercial rotor sets the standards for an entire industry.

Why settle for second best when you can have the sprinkler by which everything else is measured. The PGP® is Hunter's original product, the item that put the company on the map in 1981. Its exceptional design and impressive performance placed the rotor a cut above back then, while continuous improvements and enhancements have allowed it to remain the number one selling rotor in the world ever since. With the superior ability to deliver even water distribution from precision engineered nozzles, this sprinkler is unequalled for reliability, durability, versatility, and value. With its patented features and Hunter's years of experience in gear-drive technology, it's no wonder the PGP remains the professional's choice.



With an over 20-year track record, the PGP is the world's best selling rotary sprinkler.



FEATURES & BENEFITS



Integral rubber cover with membrane covered sockets

Keeps dirt out, permanently installed

Through-the-top adjustment with helpful symbols

Easiest to adjust, wet or dry

Quick check arc/fast forward

For quick verification of arc stop points

Complete set of interchangeable nozzles

12 standard or 7 low-angle nozzles for virtually any task

Reversing full-circle and part-circle operation in one unit

For fastest, hassle-free adjustment, 40° to 360°, wet or dry

Proven, long-life water-lubricated gear drive

First introduced almost 25 years ago and still continuously improved (U.S. Patent numbers 4,568,024 and 4,718,605)

Advanced riser seal

Industry's most reliable and proven pressure-activated wiper seal

Large dirty water screen

Puts an end to nozzle clogging

MODELS

- PGS – Shrub
- PGP – 4" Pop-up (10 cm)
- PGH – 12" Pop-up (30 cm)
- PGP-ATR – 2¼" Pop-up – Retrofits existing Rain Bird® Maxi-PAW™ and others

DIMENSIONS

- Overall height:
 - PGS – 7¾" (19 cm)
 - PGP – 7¾" (19 cm)
 - PGH – 17" (43 cm)
- ¾" female inlet NPT
- Exposed diameter: 1¾" (4 cm)

OPERATING SPECIFICATIONS

- Discharge rate: .5 to 14.1 GPM (0.11 to 3.20 m³/hr; 1.9 to 53.4 l/min)
- Radius: 22' to 52' (6.7 to 15.8 m)
- Recommended pressure range: 30 to 70 PSI (2.1 to 4.8 bars; 206 to 482 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates: approximately .4" (10 mm) per hour at 50 PSI (3.4 bars; 344 kPa) for spacings from 25' to 45' (7.6 to 13.7 m)
- Nozzle trajectory: standard – 25°, low angle – 13°

OPTIONS AVAILABLE

- Drain check valve for up to 10' (3.0 m) elevation change (not available for PGP-ATR)
- Reclaimed water identification cover
- Low angle nozzles
- Factory-installed nozzle



SUPERIOR NOZZLE PERFORMANCE ENSURED THROUGH CONTINUOUS TESTING

With a combination of intelligent planning, carefully controlled manufacturing, and frequent testing that conforms to the strictest industry standards, the exceptional performance of our nozzles is no accident. Hunter is the only rotary sprinkler manufacturer that not only tests nozzles during the development stage but also performs frequent tests of every batch produced. In addition, the Center for Irrigation Technology in Fresno, California, independently tests our nozzles to provide third party verification of their superior results.



PGP-ATR: EASILY UPGRADE IMPACT SPRINKLERS TO MODERN GEAR DRIVE TECHNOLOGY

Looking for an easy maintenance, high performance alternative to the grit, contamination, and tampering problems common to impact sprinklers? Hunter's PGP-ATR is the easy way to upgrade existing impact heads to modern gear drive technology. It takes only minutes to install. No digging required!



Installs Easily Without Disrupting Turf



1. Remove internal assembly of existing sprinkler.



2. Thread entire ATR body/riser into canister.



3. Set watering pattern to desired arc.



4. Install cap portion of ATR.



5. Or, make it invisible by filling the cup with sod.

The world's best selling residential and light commercial rotor sets the standards for an entire industry.



Easy, "through-the-top" arc and radius adjustment.



Heavy duty retraction spring ensures positive retraction, time after time.



Proven, long life, water lubricated gear drive. Introduced almost 25 years ago and still continuously improved.



PGP handles dirty water with a larger area filter screen.

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

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced. (Optimum nozzle performance shown in bold).

PGP Standard Nozzle (Red) Performance Data – Metric							
Nozzle	Pressure Bars	kPa	Radius m	Flow m³/hr	l/min	Precip mm/hr ■ ▲	
1	2.1	206	8.5	0.11	1.9	3	4
	2.8	275	8.8	0.14	2.3	3	4
	3.4	344	8.8	0.16	2.7	4	5
	4.1	413	9.1	0.18	3.0	4	5
2	2.1	206	8.8	0.16	2.6	4	5
	2.8	275	9.1	0.18	3.0	4	5
	3.4	344	9.1	0.20	3.4	5	6
	4.1	413	9.4	0.23	3.8	5	6
3	2.1	206	9.1	0.20	3.4	5	6
	2.8	275	9.4	0.23	3.8	5	6
	3.4	344	9.4	0.27	4.5	6	7
	4.1	413	9.8	0.30	4.9	6	7
4	2.1	206	9.8	0.27	4.5	6	7
	2.8	275	10.1	0.32	5.3	6	7
	3.4	344	10.4	0.36	6.1	7	8
	4.1	413	10.4	0.41	6.8	8	9
5	2.1	206	10.4	0.36	6.1	7	8
	2.8	275	11.0	0.41	6.8	7	8
	3.4	344	11.6	0.45	7.6	7	8
	4.1	413	11.6	0.50	8.3	7	9
6	2.1	206	10.4	0.45	7.6	8	10
	2.8	275	11.0	0.55	9.1	9	10
	3.4	344	11.6	0.61	10.2	9	11
	4.1	413	11.6	0.66	11.0	10	11
7	2.1	206	10.4	0.59	9.8	11	13
	2.8	275	11.6	0.68	11.4	10	12
	3.4	344	12.2	0.77	12.9	10	12
	4.1	413	12.2	0.84	14.0	11	13
8	2.1	206	11.3	0.73	12.1	11	13
	2.8	275	11.9	0.84	14.0	12	14
	3.4	344	12.5	0.89	14.8	11	13
	4.1	413	12.8	1.04	17.4	13	15
9	2.1	206	11.6	0.82	13.6	12	14
	2.8	275	12.5	0.98	16.3	13	14
	3.4	344	13.4	1.18	19.7	13	15
	4.1	413	13.7	1.25	20.8	13	15
10	2.8	275	13.4	1.36	22.7	15	17
	3.4	344	14.0	1.54	25.7	16	18
	4.1	413	14.3	1.73	28.8	17	19
	4.8	482	14.9	1.86	31.0	17	19
11	2.8	275	14.0	1.82	30.3	18	21
	3.4	344	14.6	2.02	33.7	19	22
	4.1	413	15.2	2.23	37.1	19	22
	4.8	482	15.5	2.39	39.7	20	23
12	2.8	275	14.0	2.38	39.7	24	28
	3.4	344	14.6	2.70	45.0	25	29
	4.1	413	15.2	2.88	48.1	25	29
	4.8	482	15.8	3.20	53.4	25	29

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.



12 standard trajectory nozzles are included with each sprinkler. A separate rack of low angle nozzles is available.

PGP Low Angle Nozzle (Gray) Performance Data

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

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced. (Optimum nozzle performance shown in bold).

PGP Low Angle Nozzle (Gray) Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
4	2.1	206	6.7	0.32	5.3	14 16
	2.8	275	7.3	0.39	6.4	14 17
	3.4	344	7.9	0.41	6.8	13 15
	4.1	413	8.5	0.45	7.6	12 14
5	2.1	206	7.6	0.36	6.1	13 14
	2.8	275	8.2	0.43	7.2	13 15
	3.4	344	8.5	0.48	7.9	13 15
	4.1	413	9.1	0.52	8.7	12 14
6	2.1	206	8.2	0.48	7.9	14 16
	2.8	275	9.1	0.57	9.5	14 16
	3.4	344	10.1	0.64	10.6	13 15
	4.1	413	10.7	0.68	11.4	12 14
7	2.1	206	8.8	0.64	10.6	16 19
	2.8	275	9.8	0.70	11.7	15 17
	3.4	344	10.7	0.80	13.2	14 16
	4.1	413	11.3	0.86	14.4	14 16
8	2.1	206	9.4	0.77	12.9	17 20
	2.8	275	10.4	0.89	14.8	16 19
	3.4	344	11.3	1.00	16.7	16 18
	4.1	413	11.6	1.07	17.8	16 18
9	2.1	206	10.1	0.98	16.3	19 22
	2.8	275	11.3	1.14	18.9	18 21
	3.4	344	12.2	1.27	21.2	17 20
	4.1	413	12.8	1.39	23.1	17 20
10	2.8	275	11.6	1.48	24.6	22 25
	3.4	344	12.2	1.66	27.6	22 26
	4.1	413	12.8	1.82	30.3	22 26
	4.8	482	13.4	1.95	32.6	22 25
P	Blank nozzle plug for turning off selected sprinklers during repairs, maintenance, etc.					

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.



Both the 12" pop-up PGP and riser mounted PGS (inset, shown with HCV check valve) sprinklers are ideal for irrigating shrub areas and slopes.

SPECIFICATION GUIDE

EXAMPLE: **PGP - ADJ - LA**

MODEL	FEATURES	OPTIONS
PGS = Shrub	ADJ, 360, ADV, 36V, ARV, 3RV	XX = 12 Standard Nozzles OR: LA = 7 Low-Angle Nozzles
PGP = 4" Pop-up	ADJ, 360, ADV, 36V, ARV, 3RV, ATR	01 - 12 = Factory-Installed Standard Nozzle 4 - 10 LA = Factory-Installed Low-Angle Nozzle
PGH = 12" Pop-up	ADV, 36V, ARV, 3RV	

KEY TO FEATURES:

ADJ = Adjustable with no Check Valve
360 = Full-Circle with no Check Valve
ADV = Adjustable with Check Valve
ATR = 2 1/4" Pop-up, adjustable with no check valve and #7 nozzle factory-installed

36V = Full-Circle with Check Valve
ARV = Adjustable, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve



Integral rubber cover protects adjustment mechanism and adds safety in play areas.

WHAT MAKES PGP THE WORLD'S #1 GEAR DRIVE?

The PGP® has been and continues to be the world's best-selling gear-driven rotary sprinkler. But being first is not simply limited to sales figures. Some of the Hunter PGP "Firsts" that set it apart from the competition include:

- Through the top adjustment—wet or dry—no parts to remove, easy adjustment, precise
- Full rack of nozzles included with every head—allows you to custom-tailor sprinkler performance to the site's needs
- Rubber cover standard—keeps dirt out, improves safety

It's no coincidence...being first in developing technological advances like the PGP have earned Hunter the reputation as "The Irrigation Innovators™."



I-10/I-20 Ultra

The rotor with heavy-duty commercial-grade features that's equally at home in a residential setting.

If you've ever desired the convenience of being able to use just one rotor to cover all of your needs, here it is. Got a small area for which you don't want to create a separate spray zone? Is a portion of your landscape in sandy soil? Is the landscape a mix of shrub zones and expanses of grass? Does one part of the turf require a higher cut? With all the features on today's I-20 Ultra (most notably its ability to effectively cover a radius range from 17 up to 47 feet) there's a single-sprinkler alternative to stocking a variety of rotors and sprays. With over 20 different nozzle choices, the I-20 Ultra rotor can handle the full range of irrigation needs.



*Stainless steel riser
prolongs operation in
harsh soil conditions.*



FEATURES & BENEFITS

Integral rubber cover

Stays put to keep play areas safe

Choice of 22 different nozzles

Allows sprinkler to be custom fitted to all spacings from 17' to 47'

FloStop® Control

Allows stoppage of flow through an individual head while remainder of system is running

Easy arc adjustment (40° – 360°)

Right at the top of the sprinkler

Continuously improved, water-lubricated gear drive

Backed by over 20 years of proven reliability

Extra-strong spring

Reliable retraction every time

Drain check valve for up to 10 feet of elevation change

Saves water, reduces liability



MODELS

I-10 – Shrub

I-20 – 4" Pop-up (10 cm)

I-20-6P – 6" Pop-up (15 cm)

I-20-HP – 12" Pop-up (30 cm)

DIMENSIONS

- Overall height:
 - I-10 – 7¾" (20 cm)
 - I-20 – 7¾" (19 cm)
 - I-20-6P – 9⅞" (25 cm)
 - I-20-HP – 17" (43 cm)
- ¾" female inlet NPT
- Exposed diameter: 1¾" (4 cm)

OPERATING SPECIFICATIONS

- Discharge rate: .9 to 14.8 GPM (0.20 to 3.36 m³/hr; 3.4 to 56.0 l/min)
- Radius: 17' to 47' (5.2 to 14.3 m)
- Recommended pressure range: 30 to 70 PSI (2.1 to 4.8 bars; 206 to 482 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates:
 - approximately .4" (10 mm) per hour at 50 PSI (3.4 bars; 344 kPa) for spacing from 18' to 45' (5.5 to 13.7 m)
- Nozzle trajectory: standard – 25°; low angle – 13°
- Drain check valve for up to 10' (3.0 m) elevation change

OPTIONS AVAILABLE

- Reclaimed water cover
- Stainless steel riser (4" & 6" I-20 only)
- Factory-installed nozzles (Standard and LA only)



High Flow Nozzles
(Optional - Part # 444800)

22 NOZZLES COVER ALL NEEDS FROM 17 TO 47 FEET

No need to mix sprays and rotors on a mid-range landscape. The I-20 *Ultra* boasts one of the widest selections of nozzle choices in a rotary sprinkler, making it the only head you'll need. In addition to the full rack of 8 standard and 4 low angle nozzles included with every I-20 *Ultra*, Hunter also offers the option of 10 specialty nozzles. Short Radius Nozzles provide the coverage of a spray with all of the benefits of a commercial-grade rotor. Available in three flow rates for an 18' radius and three for a 25' radius, these nozzles will precisely irrigate an area without wasting water beyond the desired throw. And, for systems that deliver water at a quicker rate, high performance can be assured with four High Flow Nozzles (including two low angle) which are specially designed for optimum coverage.



8 Standard &
4 Low Angle
Nozzles
(included)

Short Radius Nozzles
(Optional - Part # 466100)



Highly engineered and tested to ensure proper performance.

Speed Installation and Service with I-20 *Ultra's* Patented FloStop®

*Stop the flow of water to an
individual head while the system is running*

No more running back
and forth to turn off a system
when doing maintenance
on a single head
in an effort to stay dry



#1 Proven, long-life, water lubricated
gear drive system.



With FloStop® you can
temporarily turn off the
flow of water to an individual
head while the rest of the
system is in operation

I-10/I-20 Ultra

The ultimate upgrade for residential projects is a rotor that teems with heavy duty, commercial grade features.



Multiple, heavy-duty body cap threads ensure strength even at extreme pressures.



"Square top" nozzle design allows for easy installation and removal.



Standard integral rubber cover keeps dirt out and adds safety in play areas.

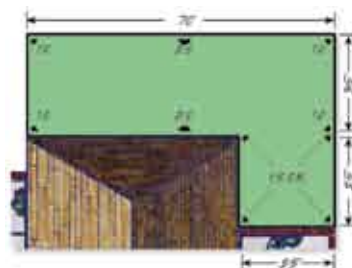


Thicker spring wire plus more coils provides strongest retraction force.

I-20 ULTRA - 8 STANDARD & 4 LOW ANGLE NOZZLES (INCLUDED)

I-10/I-20 Ultra Standard Nozzle Performance Data					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
1.0	30	30'	0.9	0.19	0.22
	40	31'	1.0	0.20	0.23
	50	31'	1.2	0.24	0.28
	60	32'	1.3	0.24	0.28
1.5	30	32'	1.2	0.23	0.26
	40	33'	1.4	0.25	0.29
	50	34'	1.6	0.27	0.31
	60	34'	1.8	0.30	0.35
2.0	30	32'	1.6	0.30	0.35
	40	34'	1.8	0.30	0.35
	50	36'	2.0	0.30	0.34
	60	36'	2.2	0.33	0.38
3.0	30	34'	2.0	0.33	0.38
	40	36'	2.4	0.36	0.41
	50	38'	2.7	0.36	0.42
	60	38'	2.9	0.39	0.45
3.5	30	34'	2.6	0.43	0.52
	40	38'	3.0	0.40	0.46
	50	40'	3.4	0.41	0.47
	60	40'	3.7	0.45	0.51
4.0	30	37'	3.2	0.45	0.52
	40	39'	3.7	0.47	0.54
	50	41'	4.2	0.48	0.56
	60	42'	4.6	0.50	0.58
6.0	30	35'	4.2	0.66	0.76
	40	40'	4.9	0.59	0.68
	50	43'	5.5	0.57	0.66
	60	44'	6.0	0.60	0.69
8.0	40	41'	6.0	0.69	0.79
	50	44'	6.8	0.68	0.78
	60	45'	7.6	0.72	0.83
	70	47'	8.2	0.71	0.83

I-10/I-20 Ultra Low Angle Nozzle Performance Data					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
2.0	30	25'	1.6	0.49	0.57
	40	27'	1.9	0.50	0.58
	50	28'	2.1	0.52	0.60
	60	30'	2.3	0.49	0.57
2.5	30	27'	2.1	0.55	0.64
	40	30'	2.5	0.53	0.62
	50	33'	2.8	0.49	0.57
	60	35'	3.0	0.47	0.54
3.5	30	29'	2.8	0.64	0.74
	40	32'	3.1	0.58	0.67
	50	35'	3.5	0.55	0.64
	60	37'	3.8	0.53	0.62
4.5	30	29'	3.4	0.78	0.90
	40	32'	3.9	0.73	0.85
	50	35'	4.4	0.69	0.80
	60	37'	4.7	0.66	0.76



I-10/I-20 Ultra Standard Nozzle Performance Data – Metric							
Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m ³ /hr	Flow l/min	Precip mm/hr	
1.0	2.1	206	9.1	0.20	3.4	5	6
	2.8	275	9.4	0.23	3.8	5	6
	3.4	344	9.4	0.27	4.5	6	7
	4.1	413	9.8	0.30	4.9	6	7
1.5	2.1	206	9.8	0.27	4.5	6	7
	2.8	275	10.1	0.32	5.3	6	7
	3.4	344	10.4	0.36	6.1	7	8
	4.1	413	10.4	0.41	6.8	8	9
2.0	2.1	206	9.8	0.36	6.1	8	9
	2.8	275	10.4	0.41	6.8	9	9
	3.4	344	11.0	0.45	7.6	8	9
	4.1	413	11.0	0.50	8.3	8	10
3.0	2.1	206	10.4	0.45	7.6	8	10
	2.8	275	11.0	0.55	9.1	9	10
	3.4	344	11.6	0.61	10.2	9	11
	4.1	413	11.6	0.66	11.0	10	11
3.5	2.1	206	10.4	0.59	9.8	11	13
	2.8	275	11.6	0.68	11.4	10	12
	3.4	344	12.2	0.77	12.9	10	12
	4.1	413	12.2	0.84	14.0	11	13
4.0	2.1	206	11.3	0.73	12.1	11	13
	2.8	275	11.9	0.84	14.0	12	14
	3.4	344	12.5	0.95	15.9	12	14
	4.1	413	12.8	1.04	17.4	13	15
6.0	2.1	206	10.7	0.95	15.9	17	19
	2.8	275	12.2	1.11	18.5	15	17
	3.4	344	13.1	1.25	20.8	15	17
	4.1	413	13.4	1.36	22.7	15	17
8.0	2.8	275	12.5	1.36	22.7	17	20
	3.4	344	13.4	1.54	25.7	17	20
	4.1	413	13.7	1.73	28.8	18	21
	4.8	482	14.3	1.86	31.0	18	21

I-10/I-20 Ultra Low Angle Nozzle Performance Data – Metric							
Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m ³ /hr	Flow l/min	Precip mm/hr	
2.0	2.1	206	7.6	0.36	6.1	13	14
	2.8	275	8.2	0.43	7.2	13	15
	3.4	344	8.5	0.48	7.9	13	15
	4.1	413	9.1	0.52	8.7	12	14
2.5	2.1	206	8.2	0.48	7.9	14	16
	2.8	275	9.1	0.57	9.5	14	16
	3.4	344	10.1	0.64	10.6	13	15
	4.1	413	10.7	0.68	11.4	12	14
3.5	2.1	206	8.8	0.64	10.6	16	19
	2.8	275	9.8	0.70	11.7	15	17
	3.4	344	10.7	0.79	13.2	14	16
	4.1	413	11.3	0.86	14.4	14	16
4.5	2.1	206	8.8	0.77	12.9	20	23
	2.8	275	9.8	0.89	14.8	19	22
	3.4	344	10.7	1.00	16.7	18	20
	4.1	413	11.3	1.07	17.8	17	19

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.

To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced. (Optimum nozzle performance shown in bold).

With so many features, so many model choices, and so many nozzle options, the I-20 Ultra is the only sprinkler that you'll need for all parts of your landscape, whether it's a commercial or residential site.

I-20 ULTRA - HIGH FLOW NOZZLE RACK (GREEN - PART # 444800)

I-10/I-20 Ultra High Flow Standard Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
10	40	42'	8.4	0.92
	50	43'	9.5	0.99
	60	45'	10.5	1.00
	70	47'	11.4	0.99
13	40	43'	10.9	1.13
	50	44'	12.3	1.22
	60	45'	13.6	1.29
	70	47'	14.8	1.29

I-10/I-20 Ultra High Flow Low Angle Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
6.0 LA	30	31'	4.2	0.84
	40	35'	5.0	0.79
	50	37'	5.8	0.82
	60	39'	6.3	0.80
8.0 LA	40	37'	6.7	0.94
	50	39'	7.7	0.97
	60	41'	8.5	0.97
	70	41'	9.2	1.05

I-10/I-20 Ultra High Flow Standard Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
10	2.8	275	12.8	1.91	31.8	23
	3.4	344	13.1	2.16	36.0	25
	4.1	413	13.7	2.38	39.7	25
	4.8	482	14.3	2.59	43.1	25
13	2.8	275	13.1	2.48	41.3	29
	3.4	344	13.4	2.79	46.6	31
	4.1	413	13.7	3.09	51.5	33
	4.8	482	14.3	3.36	56.0	33

I-10/I-20 Ultra High Flow Low Angle Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
6.0 LA	2.1	206	9.4	0.95	15.9	21
	2.8	275	10.7	1.14	18.9	20
	3.4	344	11.3	1.32	22.0	21
	4.1	413	11.9	1.43	23.8	20
8.0 LA	2.8	275	11.3	1.52	25.4	24
	3.4	344	11.9	1.75	29.1	25
	4.1	413	12.5	1.93	32.2	25
	4.8	482	12.5	2.09	34.8	27

I-20 ULTRA - SHORT RADIUS NOZZLE RACK (BLACK - PART # 466100)

I-10/I-20 Ultra 18' Short Radius Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
.50 SR	30	17'	0.36	0.24
	40	17'	0.43	0.29
	50	18'	0.50	0.30
	60	19'	0.57	0.30
1.0 SR	30	17'	0.78	0.52
	40	17'	0.90	0.60
	50	18'	1.0	0.59
	60	19'	1.1	0.59
2.0 SR	30	17'	1.4	0.93
	40	17'	1.7	1.13
	50	18'	2.0	1.19
	60	19'	2.2	1.17

I-10/I-20 Ultra 5.5 m Short Radius Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
.50 SR	2.1	206	5.2	0.08	1.4	6
	2.8	275	5.2	0.10	1.6	7
	3.4	344	5.5	0.11	1.9	8
	4.1	413	5.8	0.13	2.2	8
1.0 SR	2.1	206	5.2	0.18	3.0	13
	2.8	275	5.2	0.20	3.4	15
	3.4	344	5.5	0.23	3.8	15
	4.1	413	5.8	0.25	4.2	15
2.0 SR	2.1	206	5.2	0.32	5.3	24
	2.8	275	5.2	0.39	6.4	29
	3.4	344	5.5	0.45	7.6	30
	4.1	413	5.8	0.50	8.3	30

I-10/I-20 Ultra 25' Short Radius Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
.75 SR	30	23'	0.58	0.21
	40	24'	0.68	0.23
	50	25'	0.75	0.23
	60	26'	0.83	0.24
1.5 SR	30	23'	1.1	0.40
	40	24'	1.3	0.43
	50	25'	1.5	0.46
	60	26'	1.6	0.46
3.0 SR	30	23'	2.5	0.91
	40	24'	2.7	0.90
	50	25'	3.0	0.92
	60	26'	3.1	0.88

I-10/I-20 Ultra 7.6 m Short Radius Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■ ▲
.75 SR	2.1	206	7.0	0.13	2.2	5
	2.8	275	7.3	0.15	2.6	6
	3.4	344	7.6	0.17	2.8	6
	4.1	413	7.9	0.19	3.1	6
1.5 SR	2.1	206	7.0	0.25	4.2	10
	2.8	275	7.3	0.30	4.9	11
	3.4	344	7.6	0.34	5.7	12
	4.1	413	7.9	0.36	6.1	12
3.0 SR	2.1	206	7.0	0.57	9.5	23
	2.8	275	7.3	0.61	10.2	23
	3.4	344	7.6	0.68	11.4	23
	4.1	413	7.9	0.70	11.7	22

SPECIFICATION GUIDE

EXAMPLE: **I-20 - ADS - 3.0**

MODEL	FEATURES	OPTIONS
I-10 = Shrub	ADV, 36V, ARV, 3RV	XX = Complete Set of Nozzles
I-20 = 4" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS, ADJ, 360	1.0 - 8.0 = Factory-Installed Standard Nozzles
I-20-6P = 6" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS	2.0 LA - 4.5 LA = Factory-Installed Low Angle Nozzles
I-20-HP = 12" Pop-up	ADV, 36V, ARV, 3RV	

KEY TO FEATURES:

ADJ = Adjustable Arc without Check Valve

360 = Full-Circle without Check Valve

ADV = Adjustable Arc with Check Valve

36V = Full-Circle with Check Valve

ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve

36S = Full-Circle, Stainless Steel Riser, with Check Valve

ARV = Adjustable Arc, Reclaimed Water, with Check Valve

3RV = Full-Circle, Reclaimed Water, with Check Valve

ARS = Adjustable Arc, Reclaimed Water, Stainless Steel Riser, with Check Valve

3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve



Photo Courtesy Matthew B. Zimmerman



Standard drain check valve prevents low-head drainage.



Optional purple rubber cover identifies non-potable water.

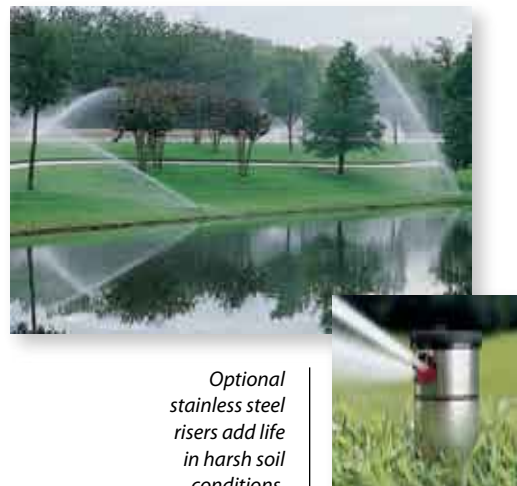
Available on all Hunter rotary sprinklers.

I-25/31 Plus

Efficient, economical, easy to use.

The ideal choice for commercial and recreational sites.

For durability, performance and economy on medium to large area sites, no other rotor brings it all together like the Hunter I-25 Plus. A ribbed body and cap for better grip. An extra-thick heavy-duty rubber cover. The industry's smallest exposed surface area in its category. A dozen nozzles that provide optimum performance in both primary and secondary coverage. The patented VStat® self-adjusting stator. Compact, extra-beefy construction. Plus, an optional stainless steel riser for even more toughness. The I-25 Plus has plenty to offer at quite an attractive price. No wonder it's the pick of so many people for so many jobs.



Optional stainless steel risers add life in harsh soil conditions.

FEATURES & BENEFITS



ProTech™ safety system

Small exposed heavy-duty rubber cover and boot keeps playing areas safe

12 color coded nozzles

Outstanding flexibility, identification, and distribution uniformity

Optional stainless steel riser

Long life in harsh conditions

Heavy duty ribbed cap and body

Stands up to heavy traffic, easy servicing

Proven water-lubricated gear drive

Time-tested and now improved for even longer life

Patented VStat® self-adjusting stator

No stator rings required, drives with more power and adds years to sprinkler life

Drain check valve for up to 10 feet of elevation change

Saves water, reduces liability

MODELS

I-25, I-31* – 3½" (9 cm) Commercial duty rotor

I-25 HS, I-31 HS* – 3½" (9 cm) High-speed commercial duty rotor

I-25-6P, I-31-6P* – 5½" (14 cm) Commercial duty rotor

I-25-6P HS, I-31-6P HS* – 5½" (14 cm) High-speed commercial duty rotor

** metric model number (BSP threads)*

DIMENSIONS

- Overall height:
I-25, I-31, I-25 HS, I-31 HS – 7⅞" (20 cm)
I-25-6P, I-31-6P, I-25-6P HS, I-31-6P HS – 10¼" (26 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 1⅞" (5 cm)

OPERATING SPECIFICATIONS

- Discharge rate: 3.8 to 31.5 GPM (0.86 to 7.16 m³/hr; 14.4 to 119.2 l/min)
- Radius for I-25, I-31, I-25-6P, I-31-6P: 40' to 71' (12.2 to 21.6 m)
- Radius for I-25, I-31 HS, I-25-6P HS, I-31-6P HS: 37' to 67' (11.3 to 20.4 m)
- Recommended pressure range: 40 to 100 PSI (2.8 to 6.9 bars; 275 to 689 kPa)
- Operating pressure range: 40 to 100 PSI (2.8 to 6.9 bars; 275 to 689 kPa)
- Precipitation rates: approximately .23" to .57" (6 to 14 mm) per hour
- Nozzle trajectory: 25°

OPTIONS AVAILABLE

- For quick, light wetdowns of sports fields or any areas that require dust control, Hunter offers the high-speed version I-25/31 HS that cuts full circle rotation time from three minutes down to one. High-speed model I-42/43 also available.
- Reclaimed water cover
- Factory-installed nozzles



I-25 Plus Nozzle System: *Custom-tailored uniformity with excellent close-in coverage*

IN-THE-FIELD IDENTIFICATION IS TWICE AS EASY

Hunter helps you to distinguish nozzles in two different ways. First, every nozzle is individually color-coded for easy I.D. on the shelf, in the truck, or while in operation. Then, each standard nozzle has a nozzle number engraved on the outer surface. To aid in the selection process, these easy-to-read nozzle numbers approximate the nozzle's flow in gallons.



PRIMARY AND SECONDARY NOZZLES CHANGE AS ONE UNIT

Two distinct nozzles, each with its own particular function. One color-coded single unit, making it simple to replace both of these nozzles with one single action. Simply snap one out, snap another in and both the primary and secondary nozzles are changed, with no need to fine tune. With every I-25 Plus nozzle, the distribution of water over the entire area of throw is unsurpassed—no other rotor in its class delivers water more effectively or more efficiently.

THE ULTIMATE IN FLEXIBILITY AND PERFORMANCE

The 12 different I-25 Plus nozzles accommodate any radius from 40 to 75 feet, and any flow rate from 3.8 to 31.5 GPM. With a full dozen nozzles to select from, the I-25 Plus offers more choices to fit more different needs than any other medium to large area rotor on the market.



Pressure Port™: SUPERIOR COVERAGE, BEST CLOSE-IN WATERING

With high flow, high pressure nozzles, the tremendous force of the primary stream tends to draw water away from the smaller secondary nozzle, limiting the efficiency for short and medium range coverage. But, Hunter's patented system decreases velocity and pressure while increasing droplet size, resulting in excellent close-in coverage. When the water droplets are larger, they are less affected by the primary nozzle and less likely to be carried away by the wind. And because the velocity is lower, seed washout in newly planted areas is greatly reduced.



Upper arrow: Water flowing to main orifice
Lower arrow: Water to secondary orifice.



Water is ported inside the turret reducing the pressure for improved water distribution.

I-25/31 Plus

*A winning combination of efficiency, economy, and ease of use.
It's the ideal choice for commercial and recreational sites.*



*High speed
version for
baseball infields
and clay
tennis courts.*















*Enhanced nozzles
offer improved
water efficiency
and better pattern
control.*















*Patented VStat®
stator for
convenience and
long life.*

*Hunter nozzle experts work
to continuously upgrade sprinkler
performance.*

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

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

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













* 5 standard nozzles included with each sprinkler

Note: All precipitation rates calculated for 180 degree operation.
For the precipitation rate of a 360 degree sprinkler, divide by 2.
For more information on precipitation rates see page 111.

*Ribbed body and body cap add
"gripability" for easy jar-top
servicing.*















I-31 Plus Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr	Precip mm/hr
 4 Yellow	2.8	275	12.2	0.86	14.4	12	13
	3.4	344	12.5	0.98	16.3	13	14
	4.1	413	12.8	1.07	17.8	13	15
	4.8	482	13.1	1.16	19.3	13	16
 5 White	2.8	275	13.1	1.00	16.7	12	13
	3.4	344	13.4	1.09	18.2	12	14
	4.1	413	13.7	1.20	20.1	13	15
	4.8	482	14.0	1.27	21.2	13	15
 7 Orange*	2.8	275	13.7	1.50	25.0	16	18
	3.4	344	14.3	1.59	26.5	15	18
	4.1	413	14.6	1.70	28.4	16	18
	4.8	482	14.9	1.79	29.9	16	19
 8 Lt Brown	2.8	275	14.3	1.75	29.1	17	20
	3.4	344	14.9	1.89	31.4	17	20
	4.1	413	15.2	2.09	34.8	18	21
	4.8	482	15.5	2.25	37.5	19	21
 10 Lt. Green*	3.4	344	15.5	2.29	38.2	19	22
	4.1	413	15.8	2.52	42.0	20	23
	4.8	482	16.2	2.75	45.8	21	24
	5.5	551	16.5	2.93	48.8	22	25
 13 Lt. Blue	3.4	344	16.2	2.54	42.4	19	23
	4.1	413	16.5	2.79	46.6	21	24
	4.8	482	16.8	3.02	50.3	21	25
	5.5	551	16.8	3.25	54.1	23	27
 15 Gray*	3.4	344	17.1	3.04	50.7	21	24
	4.1	413	17.4	3.25	54.1	22	25
	4.8	482	17.4	3.45	57.5	23	26
	5.5	551	17.7	3.73	62.1	24	28
 18 Red	3.4	344	17.7	3.29	54.9	21	24
	4.1	413	18.0	3.57	59.4	22	25
	4.8	482	18.9	3.84	64.0	21	25
	5.5	551	19.2	4.13	68.9	22	26
 20 Dk. Brown*	4.1	413	18.9	4.04	67.4	23	26
	4.8	482	19.2	4.36	72.7	24	27
	5.5	551	19.5	4.66	77.6	24	28
	6.2	620	19.8	4.95	82.5	25	29
 23 Dk. Green	4.1	413	19.5	4.97	82.9	26	30
	4.8	482	19.8	5.36	89.3	27	32
	5.5	551	20.1	5.82	96.9	29	33
	6.2	620	20.4	6.13	102.2	29	34
 25 Dk. Blue*	4.1	413	20.1	5.34	88.9	26	30
	4.8	482	20.7	5.79	96.5	27	31
	5.5	551	21.0	6.36	106.0	29	33
	6.2	620	21.3	6.70	111.7	29	34
 28 Black	4.8	482	20.7	6.11	101.8	28	33
	5.5	551	21.3	6.52	108.6	29	33
	6.2	620	21.6	6.95	115.8	30	34
	6.9	689	21.6	7.16	119.2	31	35

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

I-31 Plus High-Speed Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr	Precip mm/hr
 4 Yellow	2.8	275	11.3	0.86	14.4	14	16
	3.4	344	11.6	0.98	16.3	15	17
	4.1	413	11.6	1.07	17.8	16	18
	4.8	482	11.9	1.18	19.7	17	19
 5 White	2.8	275	11.6	1.00	16.7	15	17
	3.4	344	11.9	1.09	18.2	15	18
	4.1	413	12.2	1.25	20.8	17	19
	4.8	482	12.5	1.36	22.7	17	20
 7 Orange*	2.8	275	12.2	1.39	23.1	19	22
	3.4	344	12.5	1.57	26.1	20	23
	4.1	413	12.8	1.70	28.4	21	24
	4.8	482	13.4	1.84	30.7	20	24
 8 Lt Brown	2.8	275	12.8	1.64	27.3	20	23
	3.4	344	13.1	1.84	30.7	21	25
	4.1	413	13.4	2.02	33.7	22	26
	4.8	482	13.7	2.23	37.1	24	27
 10 Lt. Green*	3.4	344	14.0	2.29	38.2	23	27
	4.1	413	14.6	2.52	42.0	24	27
	4.8	482	14.9	2.75	45.8	25	28
	5.5	551	15.2	2.93	48.8	25	29
 13 Lt. Blue	3.4	344	14.6	2.54	42.4	24	27
	4.1	413	14.9	2.79	46.6	25	29
	4.8	482	15.5	3.02	50.3	25	29
	5.5	551	15.5	3.25	54.1	27	31
 15 Gray*	3.4	344	14.9	3.04	50.7	27	32
	4.1	413	15.5	3.25	54.1	27	31
	4.8	482	16.2	3.45	57.5	26	31
	5.5	551	16.5	3.72	62.1	27	32
 18 Red	3.4	344	15.2	3.29	54.9	28	33
	4.1	413	16.2	3.57	59.4	27	32
	4.8	482	16.8	3.84	64.0	27	32
	5.5	551	17.4	4.13	68.9	27	32
 20 Dk. Brown*	4.1	413	16.2	4.04	67.4	31	36
	4.8	482	17.1	4.36	72.7	30	35
	5.5	551	17.7	4.66	77.6	30	34
	6.2	620	18.0	4.95	82.5	31	35
 23 Dk. Green	4.1	413	17.1	4.97	82.9	34	39
	4.8	482	17.7	5.36	89.3	34	40
	5.5	551	18.3	5.81	96.9	35	40
	6.2	620	18.6	6.13	102.2	35	41
 25 Dk. Blue*	4.1	413	17.7	5.34	88.9	34	39
	4.8	482	18.9	5.79	96.5	32	37
	5.5	551	19.5	6.36	106.0	33	39
	6.2	620	20.1	6.70	111.7	33	38
 28 Black	4.8	482	18.3	6.11	101.8	37	42
	5.5	551	18.9	6.52	108.6	37	42
	6.2	620	19.8	6.95	115.8	35	41
	6.9	689	20.4	7.15	119.2	34	40

* 5 standard nozzles included with each sprinkler

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.

The I-25 Plus is popular for parks and other wide open public places.



New 6" pop-up model for areas with taller-cut turf.

SPECIFICATION GUIDE

EXAMPLE: **I-25 - ADS - 25**

MODEL	FEATURES	OPTIONS
I-25, I-31* = 3½" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS, ADSHS, 36SHS	XX = Standard Set of 5 Nozzles 04 – 28 = Factory-Installed Nozzle Number
I-25-6P, I-31-6P* = 5½" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS, ADSHS, 36SHS	
* Metric Model Number (BSP Threaded Inlet)		

KEY TO FEATURES:

ADV = Adjustable Arc, with Check Valve

36V = Full-Circle, with Check Valve

ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve

36S = Full-Circle, Stainless Steel Riser, with Check Valve

ARV = Adjustable Arc, Reclaimed Water, with Check Valve

3RV = Full-Circle, Reclaimed Water, with Check Valve

ARS = Adjustable Arc, Reclaimed Water, Stainless Steel Riser, with Check Valve

3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve

ADSHS = ADS High-Speed Version

36SHS = 36S High-Speed Version

I-40/41 Group

*The top choice at sports facilities worldwide,
a winner for parks and commercial sites as well.*

With its unparalleled ability to deliver water accurately and efficiently at distances up to 70 feet, our top-of-the-line commercial rotor has become the sprinkler of choice at stadiums, diamonds, practice fields, and other playing surfaces the world over...not to mention, parks, campuses, and commercial sites, too! And why has it become such a favorite? Features, features, features. From the ProTech™ safety system to secondary nozzles that offer exceptional mid-range and close-in coverage, from a stainless steel riser to a heavy-duty retraction spring, from a factory-installed drain check valve with a 15-foot check height to convenient through-the-top arc adjustment...if you've got a lot of turf to take care of, we've got a lot of sprinkler to help you do the job.

FEATURES & BENEFITS



ProTech™ safety system

Small exposed heavy duty rubber cover and boot keeps playing areas safe

Primary nozzle system: 6 interchangeable nozzles

Uniform coverage with radius from 45 to 70 feet

Dual opposing nozzle full-circle option

Superior coverage for maximum efficiency

Easy arc adjustment (40°–360°)

Up, down, wet or dry with through the top convenience

Stainless steel riser and super-strong spring

For long-term positive retraction

Proven water-lubricated gear drive

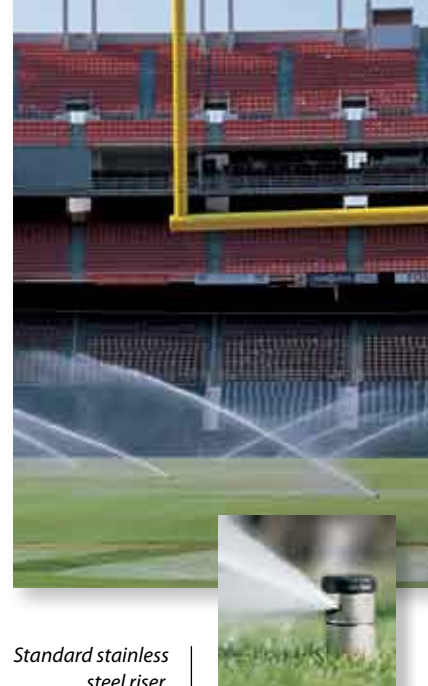
Time-tested and now improved for even longer life

Patented VStat® self adjusting stator

No stator rings required, drives with more power and adds years to sprinkler life

Drain check valve for up to 15 feet elevation change

Saves water, reduces liability



Standard stainless
steel riser.

MODELS

- I-40, I-41* – 4" Heavy-duty rotor
 - I-42, I-43* – 4" High-speed heavy-duty rotor
 - I-40-6P, I-41-6P* – 5½" Heavy-duty rotor
 - I-42-6P, I-43-6P* – 5½" High-speed heavy-duty rotor
- * metric model number (BSP threads)

DIMENSIONS

- I-40, I-41, I-42, I-43
Overall height: 7⅞" (20 cm)
- I-40-6P, I-41-6P, I-42-6P, I-43-6P
Overall height: 10¼" (26 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 2" (5 cm)

OPERATING SPECIFICATIONS

- Discharge rate: 7.0 to 28.2 GPM
(1.59 to 6.4 m³/hr; 26.5 to 106.7 l/min)
- Radius for I-40, I-41, I-40-6P, I-41-6P:
45' to 70' (13.7 to 21.3 m)
- Radius for I-40-ON, I-40-6P-ON:
52' to 76' (15.8 to 23.2 m)
- Radius for I-42, I-43, I-42-6P, I-43-6P:
41' to 65' (12.5 to 19.8 m)
- Recommended pressure range: 40 to 100 PSI
(2.8 to 6.9 bars; 275 to 689 kPa)
- Operating pressure range: 40 to 100 PSI
(2.8 to 6.9 bars; 275 to 689 kPa)
- Precipitation rates: approximately
.33" to .48" (8 to 12 mm) per hour
- Nozzle trajectory: 25°

OPTIONS AVAILABLE

- The turf cup kit (part # 460000) for the I-40 or I-42 sprinkler allows the addition of a plug of living sod to the top of the riser. Perfect for areas where an invisible sprinkler is required.
- High-speed version (I-42, I-43, I-42-6P, I-43-6P)
- Dual opposing nozzle (full-circle version)
I-40-36S-ON, I-40-6P-36S-ON
- Reclaimed water cover
- Factory-installed nozzles



Six standard nozzle choices for optimum water distribution.



WHY STAINLESS STEEL RISERS?

When it comes to rotary sprinklers, stainless steel is unsurpassed for its durability. It can withstand the brutal punishment of harsh climates, challenging soil conditions, and wear-and-tear of heavy foot traffic. Plus, its solid construction and robust appearance are the perfect deterrents to vandalism. Stainless steel risers are a standard feature on I-60 and I-40 rotors, and are available as an option on both I-25 *Plus* and I-20 *Ultra* (already tough in their standard plastic versions, exceptionally rugged with stainless steel). When you want sprinklers that are built to last, Hunter rotors with stainless steel risers are the ones to turn to first.

THE ProTech™ SAFETY SYSTEM FOR THE ULTIMATE IN PLAYER PROTECTION

When it comes to safety at sport facilities, the less exposed surface area on your rotors, the more safe that playing surface will be. With the ProTech safety system, the revealed portion of our heavy duty rubber cover is the smallest possible size, minimizing the contact with athletic participants or children at play. And, with a rubber boot that surrounds the rubber cover, there are no metal or hard plastic components close to the surface. The entire top of our I-25 *Plus* and I-40 commercial rotors are both flexible and user friendly.



THE TRIPLE NOZZLE SYSTEM: UNSURPASSED COVERAGE

The wind-resistant design of the I-40's triple nozzle system delivers distribution uniformity that is unsurpassed in its class. Six free interchangeable main stream nozzles accurately go the distance up to 70 feet, while two built-in secondary nozzles provide complete mid-range and close-in coverage. The result is that test after test, year after year, at facilities the world over, no other sprinkler can deliver the level of performance like Hunter's top-of-the-line rotor. For maximum water efficiency—and no brown spots—three nozzles makes this one rotor too good.



I-40/41 Group

The number one choice at sports facilities the world over is also a winner for parks and commercial sites.



Strongest retraction spring for positive retraction.



Professional sports facilities around the world choose the I-40 for effective irrigation.



Patented VStat® variable stator assures consistent rotation speed.



The optional Turf Cup Kit is perfect for any area requiring invisible sprinklers and perfect playing surfaces. (part # 460000)

I-40 Nozzle Performance Data					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
40	40	45'	7.0	0.67	0.77
	50	46'	8.0	0.73	0.84
	60	46'	8.5	0.77	0.89
41	50	50'	10.2	0.79	0.91
	60	51'	11.1	0.82	0.95
	70	52'	12.1	0.86	0.99
	80	53'	13.0	0.89	1.03
42	50	51'	11.0	0.81	0.94
	60	53'	12.3	0.84	0.97
	70	55'	13.1	0.83	0.96
	80	56'	13.9	0.85	0.99
43	50	56'	13.5	0.83	0.96
	60	57'	15.1	0.89	1.03
	70	59'	16.1	0.89	1.03
	80	61'	17.5	0.91	1.05
44	60	63'	20.0	0.97	1.12
	70	65'	21.8	0.99	1.15
	80	66'	23.4	1.03	1.19
	90	67'	24.9	1.07	1.23
45	60	66'	22.7	1.00	1.16
	70	68'	24.7	1.03	1.19
	80	69'	26.4	1.07	1.23
	90	70'	28.2	1.11	1.28

I-41 Nozzle Performance Data – Metric							
Nozzle	Pressure Bars	kPa	Radius m	Flow m³/hr	l/min	Precip mm/hr	
						■	▲
40	2.8	275	13.7	1.59	26.5	17	20
	3.4	344	14.0	1.82	30.3	18	21
	4.1	413	14.0	1.93	32.2	20	23
41	3.4	344	15.2	2.32	38.6	20	23
	4.1	413	15.5	2.52	42.0	21	24
	4.8	482	15.8	2.75	45.8	22	25
	5.5	551	16.2	2.95	49.2	23	26
42	3.4	344	15.5	2.50	41.6	21	24
	4.1	413	16.2	2.79	46.6	21	25
	4.8	482	16.8	2.98	49.6	21	24
	5.5	551	17.1	3.16	52.6	22	25
43	3.4	344	17.1	3.07	51.1	21	24
	4.1	413	17.4	3.43	57.2	23	26
	4.8	482	18.0	3.66	60.9	23	26
	5.5	551	18.6	3.97	66.2	23	27
44	4.1	413	19.2	4.54	75.7	25	28
	4.8	482	19.8	4.95	82.5	25	29
	5.5	551	20.1	5.31	88.6	26	30
	6.2	620	20.4	5.66	94.2	27	31
45	4.1	413	20.1	5.16	85.9	25	29
	4.8	482	20.7	5.61	93.5	26	30
	5.5	551	21.0	6.00	99.9	27	31
	6.2	620	21.3	6.40	106.7	28	32

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

I-42 Nozzle Performance Data					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
40	40	41'	7.0	0.80	0.93
	50	42'	8.0	0.87	1.01
	60	42'	8.5	0.93	1.07
41	50	44'	10.2	1.01	1.17
	60	44'	11.1	1.10	1.27
	70	45'	12.1	1.15	1.33
	80	46'	13.0	1.18	1.37
42	50	46'	11.0	1.00	1.16
	60	47'	12.3	1.07	1.24
	70	49'	13.1	1.05	1.21
	80	50'	13.9	1.07	1.24
43	50	51'	13.5	1.00	1.15
	60	52'	15.1	1.07	1.24
	70	52'	16.1	1.15	1.32
	80	53'	17.5	1.20	1.38
44	60	58'	20.0	1.14	1.32
	70	58'	21.8	1.25	1.44
	80	60'	23.4	1.25	1.44
	90	60'	24.9	1.33	1.54
45	60	60'	22.7	1.21	1.40
	70	62'	24.7	1.24	1.43
	80	64'	26.4	1.24	1.43
	90	65'	28.2	1.28	1.48

I-43 Nozzle Performance Data – Metric							
Nozzle	Pressure Bars	kPa	Radius m	Flow m³/hr	l/min	Precip mm/hr	
						■	▲
40	2.8	275	12.5	1.59	26.5	20	24
	3.4	344	12.8	1.82	30.3	22	26
	4.1	413	12.8	1.93	32.2	24	27
41	3.4	344	13.4	2.32	38.6	26	30
	4.1	413	13.4	2.52	42.0	28	32
	4.8	482	13.7	2.75	45.8	29	34
	5.5	551	14.0	2.95	49.2	30	35
42	3.4	344	14.0	2.50	41.6	25	29
	4.1	413	14.3	2.79	46.6	27	31
	4.8	482	14.9	2.98	49.6	27	31
	5.5	551	15.2	3.16	52.6	27	31
43	3.4	344	15.5	3.07	51.1	25	29
	4.1	413	15.9	3.43	57.2	27	32
	4.8	482	15.9	3.66	60.9	29	34
	5.5	551	16.2	3.97	66.2	30	35
44	4.1	413	17.7	4.54	75.7	29	34
	4.8	482	17.7	4.95	82.5	32	37
	5.5	551	18.3	5.31	88.6	32	37
	6.2	620	18.3	5.66	94.2	34	39
45	4.1	413	18.3	5.16	85.9	31	36
	4.8	482	18.9	5.61	93.5	31	36
	5.5	551	19.5	6.00	99.9	32	36
	6.2	620	19.8	6.40	106.7	33	38

Note: All precipitation rates calculated for 180 degree operation. For the precipitation rate of a 360 degree sprinkler, divide by 2. For more information on precipitation rates see page 111.

I-40-ON: You'll Favor this "Opposing" Idea



Looking for a large area rotary sprinkler with great water distribution? Hunter offers the industry's only reduced version of popular "golf type" sprinklers, designed specifically for parks, sports fields, and public areas.

The I-40-ON offers all the same great features as Hunter's other I-40 models, plus an "opposing" nozzle design where the primary and secondary nozzles are on opposite sides of the nozzle turret and send their streams in opposite directions as the sprinkler rotates. The result is exceptional mid-range and close-in coverage, delivered in the most visually appealing manner.

The other feature that sets I-40-ON apart from other I-40 models is the color-coded nozzles. Each nozzle's radius range can be easily identified by its color, while a numbered tag molded onto the nozzle itself distinguishes that particular nozzle's flow rate.

The I-40-ON is available in both 4- and 6-inch versions, and the internal assembly of the sprinkler can be easily retrofitted into existing I-40 bodies (or can also retrofit into I-25 bodies for a no-hassle upgrade).

I-40 Dual Opposing Nozzle Performance Data

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

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

I-41 Dual Opposing Nozzle Performance Data – Metric

Nozzle	Pressure Bars	kPa	Radius m	Flow m³/hr	l/min	Precip mm/hr
15 Gray	3.4	344	15.8	2.95	49.2	12
	4.1	413	16.5	3.00	50.0	11
	4.8	482	17.1	3.27	54.5	11
	5.5	551	17.4	3.52	58.7	12
18 Red	3.4	344	17.7	3.11	51.9	10
	4.1	413	18.0	3.45	57.5	11
	4.8	482	18.3	3.77	62.8	11
	5.5	551	18.9	4.04	67.4	11
20 Dk. Brown	4.1	413	19.2	4.34	72.3	12
	4.8	482	19.5	4.75	79.1	12
	5.5	551	20.1	5.06	84.4	13
	6.2	620	20.1	5.43	90.5	13
23 Dk. Green	4.1	413	19.8	4.63	77.2	12
	4.8	482	20.1	5.06	84.4	13
	5.5	551	20.4	5.45	90.8	13
	6.2	620	20.7	5.81	96.9	14
25 Dk. Blue*	4.1	413	20.1	5.00	83.3	12
	4.8	482	20.7	5.45	90.8	13
	5.5	551	21.0	5.88	98.0	13
	6.2	620	21.3	6.18	103.0	14
28 Black	4.8	482	21.3	6.56	109.4	14
	5.5	551	21.9	7.02	117.0	15
	6.2	620	22.6	7.47	124.5	15
	6.9	689	23.2	7.65	127.6	14

* Factory-installed nozzle

Note: All precipitation rates calculated for 360 degree operation. For more information on precipitation rates see page 111.

SPECIFICATION GUIDE

EXAMPLE: **I-40 - ADS - 43**

MODEL	FEATURES	OPTIONS
I-40, I-41* = 3½" Pop-up	ADS, 36S, ARS, 3RS, 36S-ON, 3RS-ON	XX = Standard Set of 6 Nozzles 40 - 45 = Factory-Installed Nozzle Number (Models ADS, 36S, ARS, 3RS) 15 - 28 = Factory-Installed Nozzle Number (Models 36S-ON, 3RS-ON)
I-42, I-43* = High-Speed	ADS, 36S, ARS, 3RS	
I-40-6P, I-41-6P* = 5½" Pop-up	ADS, 36S, ARS, 3RS, 36S-ON, 3RS-ON	
I-42-6P, I-43-6P* = 5½" Pop-up	ADS, 36S, ARS, 3RS	

* Metric Model Number (BSP Threaded Inlet)

KEY TO FEATURES:

ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve

36S = Full-Circle, Stainless Steel Riser, with Check Valve

ARS = Adjustable with Check Valve, Reclaimed Water and Stainless Steel Riser

3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve

36S-ON = Full-Circle, Dual Opposing Nozzle, Stainless Steel Riser, with Check Valve

3RS-ON = Full-Circle, Dual Opposing Nozzle, Reclaimed Water ID, Stainless Steel Riser, with Check Valve



With the opposing nozzle option, the secondary nozzles that provide exceptional close-in coverage are located opposite the primary nozzle.

I-60

A large turf rotor that meets the demands of systems with lower pressures and smaller budgets.

Facilities with wide expanses of turf require rotors that can cover great distances. But, the farther the rotors are spread apart, the higher the pressure needs to be to cover the throw. With municipal water supplies, more often than not, the pressure is too low for the rotors to work effectively. Instead of the expense of installing a pump to get the pressure up to an operational level, Hunter offers you a more efficient (cost and performance) way. The I-60 lets you space rotors far enough apart, as is desirable in a large landscape such as a city park or community sports complex. Because it is designed to operate under lower pressure, it's a rotor that makes good economic sense. And, since it uses less water to run, the I-60 also eliminates the need to install larger pipe (another savings for the budget conscious).

FEATURES & BENEFITS



Patented Precision Distribution Control™

Assures even coverage at low pressures without the need for a booster pump

6 color-coded nozzles

Truly uniform coverage and fast identification

Stainless-steel riser

Increased durability in harsh soil conditions

Easy arc adjustment (40° – 360°)

Up, down, wet or dry with through the top convenience

Heavy-duty, water-lubricated gear drive

Enduring reliability, year after year

Patented VStat® self-adjusting stator

No stator rings required, drives with more power and adds years to sprinkler life

Drain check valve for up to 10 feet elevation change

Saves water, reduces liability



DIFFUSED MODE: Perfect close-in watering.



DISTANCE MODE: Large radius coverage.

MODELS

I-60 ADS – Adjustable arc (40°–360°)

I-60 365 – Full circle

DIMENSIONS

- Pop-up height: 3" (8 cm)
- Overall height: 8⅝" (21 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 1¾" (4.45 cm)

OPERATING SPECIFICATIONS

I-60 ADS

- Discharge rate: 6.5 to 20.4 GPM (1.48 to 4.63 m³/hr; 24.6 to 77.2 l/min)
- Radius: 50' to 66' (15.2 to 20.1 m)
- Recommended pressure range: 40 to 60 PSI (2.8 to 4.1 bars; 275 to 413 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates: approximately .29" to .52" (7 mm to 13 mm) per hour
- Nozzle trajectory: 25°

I-60 365

- Discharge rate: 6.5 to 20.8 GPM (1.48 to 4.72 m³/hr; 24.6 to 78.7 l/min)
- Radius: 51' to 67' (15.5 to 20.4 m)
- Recommended pressure range: 40 to 60 PSI (2.8 to 4.1 bars; 275 to 413 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates: approximately .25" to .55" (6 mm to 14 mm) per hour
- Nozzle trajectory: 25°

OPTIONS AVAILABLE

- Reclaimed water cover
- Factory-installed nozzles


I-60 ADS Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
7	40	50'	6.5	0.50 0.58
Orange	50	52'	7.1	0.51 0.58
	60	54'	7.7	0.51 0.59
10	40	53'	8.5	0.58 0.67
Lt. Green	50	56'	9.5	0.58 0.67
	60	58'	10.2	0.58 0.67
13	40	56'	10.5	0.64 0.74
Lt. Blue*	50	58'	12.1	0.69 0.80
	60	60'	13.0	0.70 0.80
15	40	58'	12.5	0.72 0.83
Gray	50	60'	13.9	0.74 0.86
	60	62'	15.1	0.76 0.87
18	40	59'	15.6	0.86 1.00
Red	50	62'	17.5	0.88 1.01
	60	65'	18.6	0.85 0.98
20	40	62'	17.5	0.88 1.01
Dk. Brown	50	64'	19.1	0.90 1.04
	60	66'	20.4	0.90 1.04

I-60 ADS Nozzle Performance Data – Metric

Nozzle	Pressure Bars kPa	Radius m	Flow m³/hr l/min	Precip mm/hr ■ ▲
7	2.8 275	15.2	1.48 24.6	13 15
Orange	3.4 344	15.9	1.61 26.9	13 15
	4.1 413	16.5	1.75 29.1	13 15
10	2.8 275	16.2	1.93 32.2	15 17
Lt. Green	3.4 344	17.1	2.16 36.0	15 17
	4.1 413	17.7	2.32 38.6	15 17
13	2.8 275	17.1	2.39 39.7	16 19
Lt. Blue*	3.4 344	17.7	2.75 45.8	18 20
	4.1 413	18.3	2.95 49.2	18 20
15	2.8 275	17.7	2.84 47.3	18 21
Gray	3.4 344	18.3	3.16 52.6	19 22
	4.1 413	18.9	3.43 57.2	19 22
18	2.8 275	18.0	3.54 59.1	22 25
Red	3.4 344	18.9	3.98 66.2	22 26
	4.1 413	19.8	4.23 70.4	22 25
20	2.8 275	18.9	3.98 66.2	22 26
Dk. Brown	3.4 344	19.5	4.34 72.3	23 26
	4.1 413	20.1	4.63 77.2	23 26

* Factory-installed nozzle

Note: All precipitation rates calculated for 180 degree operation.
For the precipitation rate of a 360 degree sprinkler, divide by 2.
For more information on precipitation rates see page 111.

I-60 36S Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
7	40	51'	6.5	0.24 0.28
Orange	50	54'	7.5	0.25 0.29
	60	56'	8.0	0.25 0.28
10	40	53'	8.5	0.29 0.34
Lt. Green	50	56'	9.5	0.29 0.34
	60	58'	10.2	0.29 0.34
13	40	56'	10.5	0.32 0.37
Lt. Blue*	50	58'	12.4	0.35 0.41
	60	60'	13.0	0.35 0.40
15	40	58'	12.5	0.36 0.41
Gray	50	60'	14.0	0.37 0.43
	60	62'	15.1	0.38 0.44
18	40	59'	15.6	0.43 0.50
Red	50	62'	17.7	0.44 0.51
	60	65'	18.9	0.43 0.50
20	40	62'	17.5	0.44 0.51
Dk. Brown	50	64'	19.1	0.45 0.52
	60	67'	20.8	0.45 0.51

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

I-60 36S Nozzle Performance Data – Metric

Nozzle	Pressure Bars kPa	Radius m	Flow m³/hr l/min	Precip mm/hr ■ ▲
7	2.8 275	15.5	1.48 24.6	6 7
Orange	3.4 344	16.5	1.70 28.4	6 7
	4.1 413	17.1	1.82 30.3	6 7
10	2.8 275	16.2	1.93 32.2	7 9
Lt. Green	3.4 344	17.1	2.16 36.0	7 9
	4.1 413	17.7	2.32 38.6	7 9
13	2.8 275	17.1	2.39 39.7	8 9
Lt. Blue*	3.4 344	17.7	2.82 46.9	9 10
	4.1 413	18.3	2.95 49.2	9 10
15	2.8 275	17.7	2.84 47.3	9 10
Gray	3.4 344	18.3	3.16 53.0	10 11
	4.1 413	18.9	3.43 57.2	10 11
18	2.8 275	18.0	3.54 59.1	11 13
Red	3.4 344	18.9	4.02 67.0	11 13
	4.1 413	19.8	4.29 71.5	11 13
20	2.8 275	18.9	3.98 66.2	11 13
Dk. Brown	3.4 344	19.5	4.34 72.3	11 13
	4.1 413	20.4	4.72 78.7	11 13

* Factory-installed nozzle

Note: All precipitation rates calculated for 360 degree operation.
For more information on precipitation rates see page 111.

PRECISION. DISTRIBUTION. CONTROL. THE NAME SAYS IT ALL.

Here is an innovative performance feature that provides you with exactly what it says. The new Hunter I-60 rotor boasts a single nozzle design that features Precision Distribution Control™ for reduced turbulence and maximum radius. Thanks to gear-driven pins that intermittently diffuse the stream, Precision Distribution Control creates water-efficient performance while it minimizes runoff and waste. And not only that, but this patented technology will eliminate the need to boost your local water pressures for efficient coverage with expensive and complex pumping systems. So, if you thought the Hunter I-60 was only a long distance specialist, be aware that it delivers exceptional close-in coverage as well. With Precision Distribution Control, what you say is what you get.



SPECIFICATION GUIDE

EXAMPLE: **I-60 - ADS - 18 - B**

MODEL	FEATURES	OPTIONS
I-60 = 3" Pop-up	ADS, 36S, ARS, 3RS	XX = Complete Set of Nozzles 7 - 20 = Factory-Installed Nozzle Number B = BSP Thread

KEY TO FEATURES:

ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve
36S = Full-Circle, Stainless Steel Riser, with Check Valve
ARS = Adjustable Arc, Reclaimed Water, Stainless Steel Riser, with Check Valve
3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve

I-90

Industry's longest distance rotary sprinkler specifically designed for parks, sports fields, and public areas.

With a radius up to 96 feet from a single sprinkler, the I-90 boasts a coverage area no other commercial sprinkler can deliver. Yet, its reduced-size diameter and cushioned rubber cover make it the perfect choice for parks and wide-open lawn areas, as well as perimeter watering of athletic fields and horse arenas. The rotor is also perfectly easy to service, with a "jar-top" body cap that allows quick access to the filter screen and check valve with no extra pieces, parts, or tools required. The I-90 is offered in two models—a full-circle opposing-nozzle version or an adjustable arc model—each with color-coded nozzles that can be field-changed to match the specific needs of your site.



Rubber cover keeps play areas safe.

FEATURES & BENEFITS



Extra-thick heavy-duty rubber cover

Helps keep playing surfaces safe

6 color-coded primary nozzles

Truly uniform coverage and fast identification

Jar-Top serviceability

Easy access to screen, gear drive and valve assemblies

Closed case rotor

Absolute protection from dirt

Proven, heavy-duty gear drive

Enduring reliability

Water activated riser seal

Clean flushing action and positive retraction

Heavy duty stainless steel spring

Assures positive retraction, time after time

Drain check valve to handle elevation change

Saves water, reduces liability

MODELS

I-90 36V – Full circle

I-90 ADV – Adjustable arc (40°–360°)

DIMENSIONS

- Pop-up height: 3" (7.6 cm)
- Female inlet: 1½" NPT or BSP
- Exposed diameter: 3½" (8.9 cm)
- Overall height: 11" (28 cm)

OPERATING SPECIFICATIONS

I-90 36V

- Discharge rate: 29.8 to 69.4 GPM (6.77 to 15.76 m³/hr, 113 to 263 l/min)
- Radius: 71' to 96' (21 to 29.3 m)
- Recommended pressure range: 60 to 100 PSI (4.1 to 6.9 bars; 275 to 689 kPa)
- Operating pressure range: 50 to 100 PSI (3.4 to 6.9 bars; 344 to 689 kPa)







I-90 ADV

- Discharge rate: 30.7 to 69.8 GPM (6.97 to 15.85 m³/hr, 116 to 264 l/min)
- Radius: 67' to 90' (20.4 to 27.4 m)
- Recommended pressure range: 60 to 100 PSI (4.1 to 6.9 bars; 275 to 689 kPa)
- Operating pressure range: 50 to 100 PSI (3.4 to 6.9 bars; 344 to 689 kPa)







OPTIONS AVAILABLE

- Reclaimed water identification
- Factory-installed nozzles
- Turf Cup Kit (part # 467955)

I-90-ADV Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
 33 Gray	60	67'	30.7	1.32 1.52
	70	67'	33.1	1.42 1.64
	80	68'	35.5	1.48 1.71
	90	69'	37.7	1.52 1.76
	100	70'	39.8	1.56 1.81
 38 Red	60	69'	34.0	1.37 1.59
	70	70'	36.9	1.45 1.67
	80	72'	39.8	1.48 1.71
	90	73'	42.3	1.53 1.76
	100	75'	44.1	1.51 1.74
 43 Dk. Brown	60	70'	38.7	1.52 1.76
	70	71'	42.0	1.60 1.85
	80	72'	44.5	1.65 1.91
	90	73'	47.6	1.72 1.99
	100	73'	48.3	1.74 2.01
 48 Dk. Green	70	75'	47.0	1.61 1.86
	80	77'	50.2	1.63 1.88
	90	79'	53.3	1.64 1.90
	100	81'	56.0	1.64 1.90
 53 Dk. Blue*	70	79'	48.5	1.50 1.73
	80	81'	53.4	1.57 1.81
	90	85'	57.0	1.52 1.75
	100	86'	59.5	1.55 1.79
 63 Black**	70	84'	60.9	1.66 1.92
	80	86'	63.8	1.66 1.92
	90	88'	66.5	1.65 1.91
	100	90'	69.8	1.66 1.92







I-90-ADV Nozzle Performance Data – Metric

Nozzle	Pressure Bars kPa	Radius m	Flow m³/hr l/min	Precip mm/hr ■ ▲
 33 Gray	4.1 413	20.4	6.97 116.2	33 39
	4.8 482	20.4	7.52 125.3	36 42
	5.5 551	20.7	8.06 134.4	38 43
	6.2 620	21.0	8.56 142.7	39 45
	6.9 689	21.3	9.04 150.6	40 46
 38 Red	4.1 413	21.0	7.72 128.7	35 40
	4.8 482	21.3	8.38 139.7	37 43
	5.5 551	21.9	9.04 150.6	38 43
	6.2 620	22.3	9.61 160.1	39 45
	6.9 689	22.9	10.02 167.0	38 44
 43 Dk. Brown	4.1 413	21.3	8.79 146.5	39 45
	4.8 482	21.6	9.54 159.0	41 47
	5.5 551	21.9	10.11 168.4	42 48
	6.2 620	22.3	10.81 180.2	44 50
	6.9 689	22.3	10.97 182.8	44 51
 48 Dk. Green	4.8 482	22.9	10.67 177.9	41 47
	5.5 551	23.5	11.40 190.0	41 48
	6.2 620	24.1	12.11 201.7	42 48
	6.9 689	24.7	12.72 212.0	42 48
 53 Dk. Blue*	4.8 482	24.1	11.02 183.6	38 44
	5.5 551	24.7	12.13 202.1	40 46
	6.2 620	25.9	12.95 215.7	39 45
	6.9 689	26.2	13.51 225.2	39 45
 63 Black**	4.8 482	25.6	13.83 230.5	42 49
	5.5 551	26.2	14.49 241.5	42 49
	6.2 620	26.8	15.10 251.7	42 48
	6.9 689	27.4	15.85 264.2	42 49

* Factory-installed nozzle ** Preliminary performance data







Note: All precipitation rates calculated for 180 degree operation.
For the precipitation rate of a 360 degree sprinkler, divide by 2.
For more information on precipitation rates see page 111.

I-90-36V Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲
 33 Gray	60	71'	29.8	0.57 0.66
	70	74'	32.2	0.57 0.65
	80	76'	34.4	0.57 0.66
	90	78'	36.8	0.58 0.67
	100	80'	38.6	0.58 0.67
 38 Red	60	74'	33.3	0.59 0.68
	70	77'	36.1	0.59 0.68
	80	79'	38.4	0.59 0.68
	90	80'	40.9	0.62 0.71
	100	82'	42.8	0.61 0.71
 43 Dk. Brown	60	77'	38.1	0.62 0.71
	70	79'	40.9	0.63 0.73
	80	82'	43.9	0.63 0.73
	90	83'	46.5	0.65 0.75
	100	84'	48.5	0.66 0.76
 48 Dk. Green	70	82'	46.3	0.66 0.77
	80	86'	49.6	0.65 0.75
	90	89'	52.5	0.64 0.74
	100	90'	54.8	0.65 0.75
 53 Dk. Blue*	70	85'	50.5	0.67 0.78
	80	88'	53.5	0.66 0.77
	90	90'	57.4	0.68 0.79
	100	92'	59.5	0.68 0.78
 63 Black**	70	90'	60.6	0.72 0.83
	80	92'	63.2	0.72 0.83
	90	94'	65.9	0.72 0.83
	100	96'	69.4	0.72 0.84

Note: To ensure optimum nozzle performance, the rotor should be operated in the "Recommended pressure range". The sprinkler will work normally when used in the "Operating pressure range", but nozzle performance may be reduced.

I-90-36V Nozzle Performance Data – Metric

Nozzle	Pressure Bars kPa	Radius m	Flow m³/hr l/min	Precip mm/hr ■ ▲
 33 Gray	4.1 413	21.6	6.77 112.8	14 17
	4.8 482	22.6	7.31 121.9	14 17
	5.5 551	23.2	7.81 130.2	15 17
	6.2 620	23.8	8.36 139.3	15 17
	6.9 689	24.4	8.77 146.1	15 17
 38 Red	4.1 413	22.6	7.56 126.0	15 17
	4.8 482	23.5	8.20 136.6	15 17
	5.5 551	24.1	8.72 145.3	15 17
	6.2 620	24.4	9.29 154.8	16 18
	6.9 689	25.0	9.72 162.0	16 18
 43 Dk. Brown	4.1 413	23.5	8.65 144.2	16 18
	4.8 482	24.1	9.29 154.8	16 19
	5.5 551	25.0	9.97 166.2	16 18
	6.2 620	25.3	10.56 176.0	17 19
	6.9 689	25.6	11.02 183.6	17 19
 48 Dk. Green	4.8 482	25.0	10.52 175.2	17 19
	5.5 551	26.2	11.27 187.7	16 19
	6.2 620	27.1	11.92 198.7	16 19
	6.9 689	27.4	12.45 207.4	17 19
 53 Dk. Blue*	4.8 482	25.9	11.47 191.1	17 20
	5.5 551	26.8	12.15 202.5	17 20
	6.2 620	27.4	13.04 217.3	17 20
	6.9 689	28.0	13.51 225.2	17 20
 63 Black**	4.8 482	27.4	13.76 229.4	18 21
	5.5 551	28.0	14.35 239.2	18 21
	6.2 620	28.6	14.97 249.4	18 21
	6.9 689	29.3	15.76 262.7	18 21

* Factory-installed nozzle ** Preliminary performance data

Note: All precipitation rates calculated for 360 degree operation.
For more information on precipitation rates see page 111.



Custom tailored nozzles for close-in and mid-range efficiency.



Optional Turf Cup Kit available (part # 467955)



6 color-coded primary nozzles for uniform coverage and fast identification.

SPECIFICATION GUIDE

EXAMPLE: **I-90 - 36V - 53**

MODEL	FEATURES	OPTIONS
I-90 = 3" Pop-up	ADV, 36V, ARV, 3RV	XX = Complete Set of Nozzles 33 - 63 = Factory-Installed Nozzle Number B = BSP Thread

KEY TO FEATURES:

ADV = Adjustable Arc with Check Valve
36V = Full-Circle with Check Valve

ARV = Adjustable Arc, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve



Sprays

Applications	PS	SRS	Pro-Spray®	Institutional Spray
Turfgrass	✓	✓	✓	✓
Turfgrass – Tall Mowing Height		✓	✓	✓
Ground Cover		✓	✓	✓
Shrubs – Sprinklers on Risers	✓	✓	✓	✓
Shrubs – Tall Pop-up Sprinklers		✓	✓	✓
Residential	✓	✓	✓	✓
Commercial/Institutional			✓	✓
High Traffic Areas			✓	✓
Reclaimed Water	✓	✓	✓	✓
Field-Installed Check Valve Option	✓	✓	✓	✓
Factory-Installed Check Valve Option			✓	✓
Pressure Regulation				✓



*Fast, precise set-up. Adjusts easily to fit unique landscapes.
This is one sprinkler that offers hundreds of solutions.*

Here's the one sprinkler to carry when you want to carry just one. With its adjustable arc that creates arc patterns from 1 to 360 degrees, you'll find there's no need to stock hundreds of odd-pattern nozzles. Simply select and set the exact arc you need with the easy-to-use Hunter adjustment wrench, and you'll keep water precisely where you want it and off buildings and hardscapes. No other spray sprinkler with a single nozzle is this versatile! Or as dirt tolerant—the factory-installed extra-large filter screen traps the maximum amount of debris without interrupting flow and is easily removed for cleaning. Fast and easy to set up, the PS is designed to fit your budget as effortlessly as it fits your landscape.



Curving landscapes are easily covered with PS's patented adjustable nozzle.



FEATURES & BENEFITS



Adjustable arc nozzle included

One nozzle does the job of many

Color-coded nozzle ID ring

Permits quick identification of radius in field

New improved nozzle design

Even more dirt tolerant than before

Heavy duty wiper seal

Eliminates flow-by

Super extra large filter screen

Captures large debris without interrupting flow

Optional drain check valve

Available for field installation

MODELS

PS-00 – Shrub

PS-02 – 2" Pop-up (5 cm)

PS-04 – 4" Pop-up (10 cm)

DIMENSIONS

- Overall height:
PS-00 – 4½" (11 cm)
PS-02 – 4½" (11 cm)
PS-04 – 6½" (16 cm)
- ½" female inlet NPT
- Exposed diameter: 1¼" (3 cm)

OPERATING SPECIFICATIONS

- Discharge rate: .2 to 5.3 GPM (0.05 to 1.20 m³/hr; 0.8 to 20.1 l/min)
- Radius: 10' to 19' (3.0 to 5.8 m)
- Recommended pressure range: 20 to 40 PSI (1.4 to 2.8 bars; 137 to 275 kPa)
- Precipitation rates: approximately 1.4" to 1.7" (35 to 43 mm) per hour

OPTIONS AVAILABLE

- Field installed drain check valve for up to 7' (2.1 m) elevation change (part # 461843)



Super large filter screen captures debris without interrupting flow.

YOU'LL ALWAYS HAVE THE RIGHT HEAD FOR THE JOB

The PS spray is the ideal sprinkler for residential contractors, service contractors and others that want to stock just one sprinkler for their new residential installations and replacement work. Because it has a built-in nozzle, you can simply dial it to any arc setting you need between 1° and 360°. There are no nozzles to stock or carry, no parts to forget. In addition the PS nozzle has been upgraded with a wide body design that has resulted in better dirt tolerance, superior sprinkler stability, and the ability to take advantage of “full on” or “full off” radius adjustment. When it comes to a spray, the convenient, all-in-one PS is the simplest way to achieve the ultimate in versatility.



Optional drain check valve available for field installation. Prevents low-head drainage for up to 7' (2.1 m) of elevation change per zone.

A BETTER ADJUSTMENT SCREW? WE NAILED IT!

The PS spray's nozzle adjustment screw features a flat portion at its top. Thus, when adjusting the arc on the nozzle, there is a definite limit to how far the screw can be turned down (in carpentry terms, think standard headed nail). The screw cannot be tightened below the base of the nozzle. This helps assure that the nozzle will always remain stable and in place.



Small exposed diameter hides from vandals.



*Fast, precise set-up. Adjusts easily to fit unique landscapes.
This is one sprinkler that offers hundreds of solutions.*

PS Standard Nozzle Performance Data

		10 Foot Radius Adjustable from 1° to 360° Trajectory: 15° Color Code: Red ●					12 Foot Radius Adjustable from 1° to 360° Trajectory: 28° Color Code: Green ●					15 Foot Radius Adjustable from 1° to 360° Trajectory: 28° Color Code: Black ●					17 Foot Radius Adjustable from 1° to 360° Trajectory: 28° Color Code: White ○				
Arc	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr		
45° ▶	20	10'	0.2	1.54	1.78		12'	0.4	2.14	2.47		14'	0.4	1.57	1.81		16'	0.9	2.71	3.13	
	25	10'	0.2	1.54	1.78		12'	0.5	2.67	3.09		14'	0.5	1.71	1.98		17'	1.0	2.66	3.08	
	30	11'	0.3	1.91	2.20		14'	0.5	1.96	2.27		16'	0.6	1.80	2.08		18'	1.1	2.61	3.02	
	35	11'	0.3	1.91	2.20		14'	0.6	2.36	2.72		16'	0.7	2.11	2.43		18'	1.3	3.09	3.57	
	40	12'	0.3	1.60	1.85		15'	0.7	2.40	2.77		17'	0.7	1.87	2.15		19'	1.4	2.99	3.45	
90° ◐	20	10'	0.4	1.54	1.78		12'	0.6	1.60	1.85		14'	0.7	1.38	1.59		16'	1.6	2.41	2.78	
	25	10'	0.4	1.54	1.78		12'	0.8	2.14	2.47		15'	0.9	1.54	1.78		17'	1.8	2.40	2.77	
	30	11'	0.5	1.59	1.84		14'	0.9	1.77	2.04		16'	1.0	1.50	1.74		18'	1.9	2.26	2.61	
	35	11'	0.5	1.59	1.84		14'	0.9	1.77	2.04		16'	1.1	1.65	1.91		18'	2.1	2.50	2.88	
	40	12'	0.5	1.34	1.54		15'	1.0	1.71	1.98		17'	1.2	1.60	1.85		19'	2.2	2.35	2.71	
120° ◑	20	10'	0.5	1.44	1.67		12'	0.8	1.60	1.85		14'	0.9	1.33	1.53		16'	1.6	1.80	2.08	
	25	10'	0.6	1.73	2.00		12'	0.9	1.80	2.08		15'	1.1	1.41	1.63		17'	1.9	1.90	2.19	
	30	11'	0.6	1.43	1.65		14'	1.0	1.47	1.70		16'	1.2	1.35	1.56		18'	2.1	1.87	2.16	
	35	11'	0.7	1.67	1.93		14'	1.1	1.62	1.87		16'	1.3	1.47	1.69		18'	2.3	2.05	2.37	
	40	12'	0.7	1.40	1.62		15'	1.2	1.54	1.78		17'	1.5	1.50	1.73		19'	2.4	1.92	2.22	
180° ◒	20	10'	0.7	1.35	1.56		12'	1.2	1.60	1.85		14'	1.4	1.38	1.59		16'	2.4	1.80	2.08	
	25	10'	0.8	1.54	1.78		12'	1.3	1.74	2.01		15'	1.6	1.37	1.58		17'	2.7	1.80	2.08	
	30	11'	1.0	1.59	1.84		14'	1.5	1.47	1.70		16'	1.8	1.35	1.56		18'	2.9	1.72	1.99	
	35	11'	1.0	1.59	1.84		14'	1.6	1.57	1.81		16'	2.0	1.50	1.74		18'	3.1	1.84	2.13	
	40	12'	1.2	1.60	1.85		15'	1.7	1.45	1.68		17'	2.1	1.40	1.62		19'	3.3	1.76	2.03	
240° ◓	20	10'	1.0	1.44	1.67		12'	1.5	1.50	1.74		14'	1.7	1.25	1.45		16'	2.6	1.47	1.69	
	25	10'	1.2	1.73	2.00		12'	1.7	1.70	1.97		15'	1.9	1.22	1.41		17'	2.9	1.45	1.67	
	30	11'	1.3	1.55	1.79		14'	1.9	1.40	1.62		16'	2.1	1.18	1.37		18'	3.2	1.43	1.65	
	35	11'	1.4	1.67	1.93		14'	2.1	1.55	1.79		16'	2.3	1.30	1.50		18'	3.5	1.56	1.80	
	40	12'	1.6	1.60	1.85		15'	2.2	1.41	1.63		17'	2.5	1.25	1.44		19'	3.7	1.48	1.71	
270° ◔	20	10'	1.1	1.41	1.63		12'	1.7	1.52	1.75		14'	2.0	1.31	1.51		16'	2.8	1.40	1.62	
	25	10'	1.3	1.67	1.93		12'	1.9	1.69	1.96		15'	2.2	1.25	1.45		17'	3.1	1.38	1.59	
	30	11'	1.5	1.59	1.84		14'	2.1	1.38	1.59		16'	2.4	1.20	1.39		18'	3.3	1.31	1.51	
	35	11'	1.6	1.70	1.96		14'	2.3	1.51	1.74		16'	2.6	1.30	1.51		18'	3.9	1.54	1.78	
	40	12'	1.7	1.52	1.75		15'	2.4	1.37	1.58		17'	2.8	1.24	1.44		19'	4.0	1.42	1.64	
360° ●	20	10'	1.4	1.35	1.56		12'	2.1	1.40	1.62		14'	3.0	1.47	1.70		16'	3.7	1.39	1.61	
	25	10'	1.6	1.54	1.78		12'	2.2	1.47	1.70		15'	3.4	1.45	1.68		17'	4.3	1.43	1.65	
	30	11'	2.0	1.59	1.84		14'	2.8	1.38	1.59		16'	3.6	1.35	1.56		18'	4.6	1.37	1.58	
	35	11'	2.1	1.67	1.93		14'	3.0	1.47	1.70		16'	4.0	1.50	1.74		18'	4.8	1.43	1.65	
	40	12'	2.4	1.60	1.85		15'	3.3	1.41	1.63		17'	4.4	1.47	1.69		19'	5.3	1.41	1.63	

Note: For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).












PS Side Strip Nozzle Performance Data

Color Code: Blue ●				
Nozzle	Pressure PSI	Width x Length	Flow GPM	Precip in/hr
Model 5SS Side Strip	20	4' x 28'	1.1	0.95
	25	5' x 30'	1.2	0.77
	30	5' x 30'	1.3	0.83
	35	5' x 32'	1.4	0.84
	40	5' x 33'	1.5	0.90

Adjusting the arc on
the PS also adjusts the
amount of water going
through the head,
resulting in matched
precipitation.



PS Standard Nozzle Performance Data - Metric

		3.0 Meter Radius (10') Adjustable from 1° to 360° Trajectory: 15° Color Code: Red						3.7 Meter Radius (12') Adjustable from 1° to 360° Trajectory: 28° Color Code: Green						4.6 Meter Radius (15') Adjustable from 1° to 360° Trajectory: 28° Color Code: Black						5.2 Meter Radius (17') Adjustable from 1° to 360° Trajectory: 28° Color Code: White					
Arc	Pressure Bars kPa	Radius m	Flow m³/hr l/min	Precip mm/hr		Radius m	Flow m³/hr l/min	Precip mm/hr		Radius m	Flow m³/hr l/min	Precip mm/hr		Radius m	Flow m³/hr l/min	Precip mm/hr									
	1.4 137	3.0	0.05	0.8	39	45	3.7	0.09	1.5	54	63	4.3	0.09	1.5	40	46	4.9	0.20	3.4	69	79				
	1.7 172	3.0	0.05	0.8	39	45	3.7	0.11	1.9	68	78	4.6	0.11	1.9	43	50	5.2	0.23	3.8	68	78				
	2.1 206	3.4	0.07	1.1	48	56	4.1	0.11	1.9	50	58	4.9	0.14	2.3	46	53	5.5	0.25	4.2	66	77				
	2.4 241	3.4	0.07	1.1	48	56	4.3	0.14	2.3	60	69	4.9	0.16	2.6	53	62	5.5	0.30	4.9	78	91				
	2.8 275	3.7	0.07	1.1	41	47	4.6	0.16	2.6	61	70	5.2	0.16	2.6	47	55	5.8	0.32	5.3	76	88				
	1.4 137	3.0	0.09	1.5	39	45	3.7	0.14	2.3	41	47	4.3	0.16	2.6	35	40	4.9	0.36	6.1	61	71				
	1.7 172	3.0	0.09	1.5	39	45	3.7	0.18	3.0	54	63	4.6	0.20	3.4	39	45	5.2	0.41	6.8	61	70				
	2.1 206	3.4	0.11	1.9	40	47	4.1	0.20	3.4	45	52	4.9	0.23	3.8	38	44	5.5	0.43	7.2	57	66				
	2.4 241	3.4	0.11	1.9	40	47	4.3	0.20	3.4	45	52	4.9	0.25	4.2	42	49	5.5	0.48	7.9	63	73				
	2.8 275	3.7	0.11	1.9	34	39	4.6	0.23	3.8	43	50	5.2	0.27	4.5	41	47	5.8	0.50	8.3	60	69				
	1.4 137	3.0	0.11	1.9	37	42	3.7	0.18	3.0	41	47	4.3	0.20	3.4	34	39	4.9	0.36	6.1	46	53				
	1.7 172	3.0	0.14	2.3	44	51	3.7	0.20	3.4	46	53	4.6	0.25	4.2	36	41	5.2	0.43	7.2	48	56				
	2.1 206	3.4	0.14	2.3	36	42	4.1	0.23	3.8	37	43	4.9	0.27	4.5	34	40	5.5	0.48	7.9	48	55				
	2.4 241	3.4	0.16	2.6	42	49	4.3	0.25	4.2	41	47	4.9	0.30	4.9	37	43	5.5	0.52	8.7	52	60				
	2.8 275	3.7	0.16	2.6	36	41	4.6	0.27	4.5	39	45	5.2	0.34	5.7	38	44	5.8	0.55	9.1	49	56				
	1.4 137	3.0	0.16	2.6	34	40	3.7	0.27	4.5	41	47	4.3	0.32	5.3	35	40	4.9	0.55	9.1	46	53				
	1.7 172	3.0	0.18	3.0	39	45	3.7	0.30	4.9	44	51	4.6	0.36	6.1	35	40	5.2	0.61	10.2	46	53				
	2.1 206	3.4	0.23	3.8	40	47	4.1	0.34	5.7	37	43	4.9	0.41	6.8	34	40	5.5	0.66	11.0	44	51				
	2.4 241	3.4	0.23	3.8	40	47	4.3	0.36	6.1	40	46	4.9	0.45	7.6	38	44	5.5	0.70	11.7	47	54				
	2.8 275	3.7	0.27	4.5	41	47	4.6	0.39	6.4	37	43	5.2	0.48	7.9	36	41	5.8	0.75	12.5	45	52				
	1.4 137	3.0	0.23	3.8	37	42	3.7	0.34	5.7	38	44	4.3	0.39	6.4	32	37	4.9	0.59	9.8	37	43				
	1.7 172	3.0	0.27	4.5	44	51	3.7	0.39	6.4	43	50	4.6	0.43	7.2	31	36	5.2	0.66	11.0	37	42				
	2.1 206	3.4	0.30	4.9	39	46	4.1	0.43	7.2	36	41	4.9	0.48	7.9	30	35	5.5	0.73	12.1	36	42				
	2.4 241	3.4	0.32	5.3	42	49	4.3	0.48	7.9	39	45	4.9	0.52	8.7	33	38	5.5	0.80	13.2	40	46				
	2.8 275	3.7	0.36	6.1	41	47	4.6	0.50	8.3	36	41	5.2	0.57	9.5	32	37	5.8	0.84	14.0	38	43				
	1.4 137	3.0	0.25	4.2	36	41	3.7	0.39	6.4	38	44	4.3	0.45	7.6	33	38	4.9	0.64	10.6	36	41				
	1.7 172	3.0	0.30	4.9	42	49	3.7	0.43	7.2	43	50	4.6	0.50	8.3	32	37	5.2	0.70	11.7	35	40				
	2.1 206	3.4	0.34	5.7	40	47	4.1	0.48	7.9	35	40	4.9	0.55	9.1	31	35	5.5	0.75	12.5	33	38				
	2.4 241	3.4	0.36	6.1	43	50	4.3	0.52	8.7	38	44	4.9	0.59	9.8	33	38	5.5	0.89	14.8	39	45				
	2.8 275	3.7	0.39	6.4	38	44	4.6	0.55	9.1	35	40	5.2	0.64	10.6	32	36	5.8	0.91	15.1	36	42				
	1.4 137	3.0	0.32	5.3	34	40	3.7	0.48	7.9	36	41	4.3	0.68	11.4	37	43	4.9	0.84	14.0	35	41				
	1.7 172	3.0	0.36	6.1	39	45	3.7	0.50	8.3	37	43	4.6	0.77	12.9	37	43	5.2	0.98	16.3	36	42				
	2.1 206	3.4	0.45	7.6	40	47	4.1	0.64	10.6	35	40	4.9	0.82	13.6	34	40	5.5	1.04	17.4	35	40				
	2.4 241	3.4	0.48	7.9	42	49	4.3	0.68	11.4	37	43	4.9	0.91	15.1	38	44	5.5	1.09	18.2	36	42				
	2.8 275	3.7	0.55	9.1	41	47	4.6	0.75	12.5	36	41	5.2	1.00	16.7	37	43	5.8	1.20	20.1	36	41				

Note: For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).

PS Side Strip Nozzle Performance Data - Metric

Color Code: Blue					
Nozzle	Pressure Bars kPa	Width x Length	Flow m³/hr	l/min	Precip mm/hr
Model 5SS Side Strip	1.4 137	1.2 m x 8.5 m	0.25	4.2	24
	1.7 172	1.5 m x 9.1 m	0.27	4.5	20
	2.1 206	1.5 m x 9.1 m	0.30	4.9	21
	2.4 241	1.5 m x 9.8 m	0.32	5.3	21
	2.8 275	1.5 m x 10.1 m	0.34	5.7	23

SPECIFICATION GUIDE

EXAMPLE: **PS - 04 - (15) - A**

MODEL	POP-UP HEIGHT	RADIUS	PATTERN
PS	00 = Shrub 02 = 2" Pop-up 04 = 4" Pop-up	(10) = 10' (12) = 12' (15) = 15' (17) = 17' (5S) = Side Strip	A = Adjustable S = Side Strip



The PS features a color-coded radius identification ring and a radius adjustment screw for fine-tuning the distance.

SRS

Convenience, and versatility in an economical spray with virtually any standard nozzles (ours or theirs).

The SRS lets you take advantage of a spray that offers the unrivaled degree of Hunter quality no matter what nozzle you currently have in stock. Better yet, choose to install the adjustable arc nozzles Hunter has created exclusively for use in tandem with the SRS. Either way, you'll receive a superior spray. One whose construction, highlighted by a rugged flat body cap, is both brawny and durable. And one whose performance delivers the most effective coverage possible, thanks to a no-flow-by wiper seal that allows your system to handle low water pressure as proficiently as high. And, best of all, what truly makes this spray head so hard to resist is that its price is so easy to handle.



The SRS offers flexibility at an economical price.

FEATURES & BENEFITS



Rugged body cap design

Stands up to heavy traffic in public areas

Compatible with all standard nozzles

Accepts popular female-threaded nozzles including Hunter adjustable arc nozzles

Heavy-duty UV-resistant wiper seal

Assures long life at a wide range of water pressures

Standard side inlet

Featured on 6" and 12" (15 and 30 cm) models for installation convenience

Ratcheting riser for quick arc alignment

Ensures quick pattern alignment

Strong stainless steel spring

Ensures reliable retraction year after year

MODELS

- SRS-00 – Shrub
- SRS-02 – 2" Pop-up (5 cm)
- SRS-03 – 3" Pop-up (7.5 cm)
- SRS-04 – 4" Pop-up (10 cm)
- SRS-06 – 6" Pop-up (15 cm)
- SRS-12 – 12" Pop-up (30 cm)

DIMENSIONS

- Overall height:
 - SRS-02 – 4" (10 cm)
 - SRS-03 – 4 7/8" (12.5 cm)
 - SRS-04 – 6" (15 cm)
 - SRS-06 – 8 1/2" (21.5 cm)
 - SRS-12 – 15 1/4" (39 cm)
- 1/2" female inlet NPT
- Exposed diameter: 2" (5 cm)

OPERATING SPECIFICATIONS

- Recommended pressure range: 15 to 70 PSI (1.0 to 4.8 bars; 103 to 482 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m³/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 1.5" (38 mm) per hour

OPTIONS AVAILABLE

- Field-installed drain check valve for up to 7' (2.1 m) elevation change (part # 462810)
- Field-installed reclaimed water identification cap (part # 349800)



Color coded nozzles make for easy identification and stocking.

ALL SITUATIONS ARE NOT EXACTLY ALIKE...SAME GOES FOR YOUR NOZZLE CHOICES

One of the constant challenges in irrigation is finding a way to efficiently water landscape areas of different shapes and sizes, encompassing everything from turf to shrubs to the most delicate flowers. It stands to reason that no single nozzle should provide all your irrigation answers. Whether you choose to use the Pro-Spray® or Institutional Spray, or prefer the popular SRS, Hunter should be considered your sprinkler of choice because it is the sprinkler of choices. Today, the line-up of nozzle choices for all Hunter sprays is so wide ranging, one is certain to meet your particular needs. Adjustable arc or fixed pattern. Small area, micro-spray, or pressure compensating bubbler. Corner strips, side strips, or stream sprays. Each one color-coded for easy flow rate identification, each one precision engineered for maximum performance. Now, more than ever, whatever needs you have for a spray, Hunter has the nozzle to get the job done.



Adjustable arc nozzles dial to any pattern precisely.

USING RECLAIMED WATER? IDENTIFICATION OPTIONS AVAILABLE FOR ALL SPRINKLERS AND VALVES

It's no secret that as water sources become more scarce, water costs continue to rise. Thus, the need has grown for an economical solution in areas that require large amounts of irrigation. Today's technology has helped make reclaimed water a safe, acceptable, and affordable solution to this problem. At virtually any site where drinkability is not an issue—including parks and recreational grounds, residential common areas, crop lands, roadway embankments, and medians—you'll find reclaimed water at use. Simply select the reclaimed water option when ordering spray or rotor products from this catalog and you'll receive the same quality Hunter components plus an internationally recognized UV-resistant purple identification cap as a standard feature. A reclaimed water I.D. handle is also available for Hunter valves.



Specialty pattern nozzles and bubblers make watering odd shaped areas easy.

SPECIFICATION GUIDE

EXAMPLE: **SRS - 04 - 10H**

MODEL SRS	POP-UP HEIGHT	NOZZLE SERIES	PATTERN
	00 = Shrub	8 = 8 Series	A = Adjustable
	02 = 2" Pop-up	10 = 10 Series	Q = Quarter-Circle
	03 = 3" Pop-up	12 = 12 Series	H = Half-Circle
	04 = 4" Pop-up	15 = 15 Series	F = Full-Circle
	06 = 6" Pop-up	17 = 17 Series	
	12 = 12" Pop-up		

Note: Bodies and nozzles sold separately. Also compatible with Hunter's bubbler and specialty nozzles.

Pro-Spray[®]

*A rugged contractor-friendly spray
for residential and commercial projects.*

The Pro-Spray has been manufactured with the precision required to ensure reliable operation and peak performance for years to come.

This solid performer boasts heavy-duty ABS construction, including an extra-thick body and cap. Exclusive body ribs make it easier to install, adjust, and service while also providing more stability for the sprinkler in loose soils. But brawn isn't all this product offers. The sprinkler also features a user-friendly "pull-ring" flush cap that helps keep debris to a minimum and a multi-function wiper seal that eliminates flow-by. Add in its compatibility with all industry standard female nozzles—as well as Hunter's own complete line-up of adjustable, fixed, and specialty nozzles—and you have the industry's most sophisticated spray sprinkler. A spray designed with the professional in mind.



The reliable and sturdy Pro-Spray is ideal for residential landscapes.

FEATURES & BENEFITS

Heavy-duty body and cap construction

Multi-thread buttress design withstands the harshest environments

Pressure activated, multi-function, no flow-by wiper seal

Easy to remove and clean; treated with UV inhibitors to ensure long life

Compatible with all female threaded nozzles

Accepts adjustable, fixed, and specialty nozzles from Hunter and all major brands

Optional factory-installed drain check valve for up to 10 feet elevation change

Eliminates landscape damage from flooding and erosion

Ratcheting riser for quick arc alignment

Make adjustments while sprinkler is operating

Heavy-duty spring

For positive retraction under any conditions

Innovative "pull-ring" flush plug design

Allows limited flow permitting controlled directional flushing



MODELS

- PROS-00 – Shrub
- PROS-02 – 2" Pop-up (5 cm)
- PROS-03 – 3" Pop-up (7.5 cm)
- PROS-04 – 4" Pop-up (10 cm)
- PROS-06 – 6" Pop-up (15 cm)
- PROS-12 – 12" Pop-up (30 cm)

DIMENSIONS

- Overall height:
 - PROS-02 – 4" (10 cm)
 - PROS-03 – 5" (12.5 cm)s
 - PROS-04 – 5 $\frac{1}{2}$ " (15.5 cm)
 - PROS-06 – 8 $\frac{3}{4}$ " (22.5 cm)
 - PROS-12 – 16 $\frac{1}{2}$ " (41 cm)
- $\frac{1}{2}$ " female inlet NPT
- Exposed diameter: 2 $\frac{1}{4}$ " (5.7 cm)

OPERATING SPECIFICATIONS

- Recommended pressure range: 15 to 70 PSI (1.0 to 4.8 bars; 103 to 482 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m³/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 1.5" (38 mm) per hour

OPTIONS AVAILABLE

- Factory-installed drain check valve for up to 10' (3 m) elevation change; "Check Valve" stamped on cap for easy ID
- Field-installed drain check valve (part # 437400)
- Field-installed black rubber cover (part # 469805)
- Field-installed reclaimed water identification snap-on cover (part # 469800)
- Field-installed reclaimed water identification body cap (part # 458520), with "Check Valve" stamped on cap for easy ID (part # 458525)
- Field-installed vandal-proof cap (part # PROS-VPC)



THE WIPER SEAL THAT ALLOWS MORE HEADS PER VALVE

With its pressure activated, multi-function wiper seal, the Pro-Spray has been designed to reduce “flow-by.” A zero flush seal ensures dependable operation at low pressures and permits more sprinkler heads to be installed on the same zone. The wiper seal’s unique design grips the riser when operating and keeps debris from entering the seal when retracted. Body cap leaks will be a thing of the past, as well. You’ll find Pro-Spray to be the ideal choice for handling the debris of gritty soils while eliminating the worry of riser stick-ups.



INNOVATIVE FLUSH PLUG MAKES FLUSHING EASY

The Pro-Spray flush cap has a convenient pull ring that allows for easy pull up of the riser, which makes flushing operations cleaner. As water pressure opens the flap, controlled directional flushing cleans the system. The plug then closes and, while in the retracted position, the spring loaded, self-sealing mechanism prevents debris from entering the riser. The result: no more nozzle plugging and debris-related callback problems.

A CAP THAT WON'T CRACK OR LEAK UNDER PRESSURE

The competition can't make that claim. Because only the Pro-Spray incorporates a heavy-duty ribbed body and a durable cap engineered to withstand the harshest environments, including the rigors of foot traffic and the abuses of heavy machinery. In addition, a multi-thread buttress design provides superior strength in cap-to-body gripping capacity helping the head to withstand high inlet surge pressures. All in all, with internal strength and performance evaluations, plus continuous field testing, this is probably the industry's most highly-evaluated spray product.



◀ **The Competition**
The leading competitor's sprinkler develops body cap leaks over time due to the plastic-on-plastic cap seal that is temperature and pressure sensitive.



◀ **Hunter Pro-Spray®**
The Hunter sprinkler is designed with a wiper seal that also seals the cap where it threads to the body. No body cap leaks—ever!

SPECIFICATION GUIDE

EXAMPLE: **PROS - 04 - CV - 15H**

MODEL	POP-UP HEIGHT	OPTIONS	NOZZLE SERIES	PATTERN
PROS = Pro-Spray	00 = Shrub 02 = 2" Pop-up 03 = 3" Pop-up 04 = 4" Pop-up 06 = 6" Pop-up 12 = 12" Pop-up	CV = Factory-Installed Drain Check Valve (Pop-up Models Only) CV-R = Factory-Installed Reclaimed Body Cap	8 = 8 Series 10 = 10 Series 12 = 12 Series 15 = 15 Series 17 = 17 Series*	A = Adjustable Q = Quarter-Circle H = Half-Circle F = Full-Circle

Note: Bodies and nozzles sold separately. Also compatible with Hunter's bubbler and specialty nozzles.

* 17 Series available in Adjustable, Half, and Quarter-Circle patterns only. CV and CV-R models not available in 2" or 3" pop-ups.

Institutional Spray

Rugged, water-saving sprinklers designed for commercial, institutional, and public area applications.

Exceptional strength, innovative features...just the need for high traffic areas. Features like a positive-seal flush cap with an innovative pull-up design that keeps debris out. A high quality, multi-functional, pressure-activated wiper seal. True pressure regulation under a wide range of environmental and pressure conditions to reduce water waste. An in-stem regulator that acts as a flow control device if the nozzle is removed. A super heavy-duty check valve assembly that eliminates the potential liability issues of low head drainage. The most powerful retraction spring in its class. Sounds like a lot in a spray sprinkler? How about one more great feature—just like all other Hunter Institutional Series™ irrigation products, it carries a 5-year warranty.



Government agencies can save up to 30% on water use with the Institutional Spray.

FEATURES & BENEFITS

In-stem pressure regulation built-in

Maximum nozzle efficiency regardless of inlet pressure

Heavy-duty body and cap construction

Multi-thread buttress design withstands the harshest environments

Pressure activated, multi-function, no flow-by wiper seal

Easy to remove and clean; treated with UV inhibitors to ensure long life

Compatible with all female threaded nozzles

Accepts adjustable, fixed, and specialty nozzles from Hunter and all major brands

Optional factory-installed drain check valve for up to 14 feet elevation change

Eliminates landscape damage from flooding and erosion

Ratcheting riser for quick arc alignment

Make adjustments while sprinkler is operating

Heavy-duty spring

For positive retraction under any conditions

Innovative “pull-ring” flush plug design

Allows limited flow permitting controlled directional flushing

MODELS

- INST-00 – Shrub
- INST-04 – 4" Pop-up (10 cm)
- INST-06 – 6" Pop-up (15 cm)
- INST-12 – 12" Pop-up (30 cm)

DIMENSIONS

- Overall height:
 - INST-04 – 5 $\frac{7}{8}$ " (15.5 cm)
 - INST-06 – 8 $\frac{3}{4}$ " (22.5 cm)
 - INST-12 – 16 $\frac{1}{8}$ " (41 cm)
- $\frac{1}{2}$ " female inlet NPT
- Exposed diameter: 2 $\frac{1}{4}$ " (5.7 cm)

OPERATING SPECIFICATIONS

- Recommended pressure range: 15 to 100 PSI (1.0 to 6.9 bars; 103 to 689 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m³/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 1.5" (38 mm) per hour

OPTIONS AVAILABLE

- Factory-installed drain check valve for up to 14' (4.3 m) elevation change; "Check Valve" stamped on cap for easy identification
- Field-installed drain check valve (part # 437400)
- Field-installed black rubber cover (part # 469805)
- Field-installed reclaimed water identification snap-on cover (part # 469800)
- Field-installed reclaimed water identification body cap (part # 458530), with "Check Valve" stamped on top for easy ID (part # 458535)
- Field-installed vandal-proof cap (part # INST-VPC)
- Field-installed check valve (part # 437400)





PRESSURE REGULATION THAT'S BUILT IN (SO IT'S ALWAYS THERE)



*Without Regulator:
Mist gets carried away*



*With Regulator:
Large droplets =
No wasted water*

For long pipe runs with wide variations in available pressure, large elevation changes that make design difficult, or high and variable pressure situations that create nozzle performance problems, the Institutional Spray provides a comprehensive solution. Built-in pressure regulation to a true 30 PSI. You'll get controlled, reliable pressure to Hunter's wide array of available nozzles, as well as the elimination of misting, fogging, or unwanted variation. The pressure regulator is also dirt tolerant, handles extreme operating pressures up to 100 PSI, and will control flow rates by 70% if the nozzle is damaged or removed. Best of all, unlike pressure compensating discs, this regulator is built into the sprinkler, so it's ready from the get-go to handle the extremes your site dishes out.



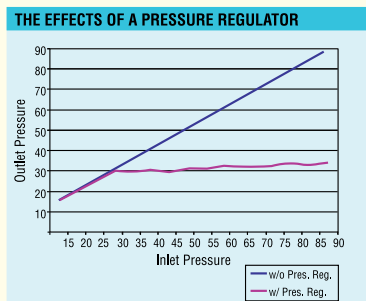
REGULATOR ALSO ACTS AS ANTI-GEYSER DEVICE IF NOZZLE IS REMOVED



Without Regulator



With Regulator

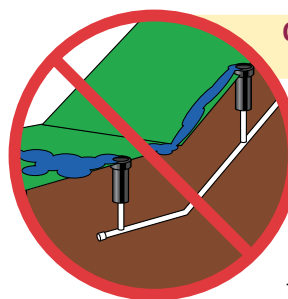


SPECIFICATION GUIDE

EXAMPLE: **INST - 06 - CV - 15H**

MODEL	POP-UP HEIGHT	OPTIONS	NOZZLE SERIES	PATTERN
INST = Institutional Spray (Includes Factory-Installed Pressure Regulator)	00 = Shrub 04 = 4" Pop-up 06 = 6" Pop-up 12 = 12" Pop-up	CV = Factory-Installed Drain Check Valve (Pop-up Models Only) CV-R = Factory-Installed Reclaimed Body Cap	8 = 8 Series 10 = 10 Series 12 = 12 Series 15 = 15 Series 17 = 17 Series*	A = Adjustable Q = Quarter-Circle H = Half-Circle F = Full-Circle

Note: Bodies and nozzles sold separately. Also compatible with Hunter's bubbler and specialty nozzles.
* 17 Series available in Adjustable, Quarter, and Half-Circle patterns only.



CHECK VALVES: NO LEAKS, NO PUDDLES, NO WASTE

The Institutional Spray check valve eliminates leaks and puddles at the lower heads, protecting landscapes from damage and erosion while reducing water waste, for up to 14 feet of elevation change. Choose from the convenience of factory-installed check valves or the flexibility of field installation.

Adjustable Arc Nozzles

Quick and easy fine-tuning to any arc for maximum performance.

Any spray head body that uses female-threaded nozzles can have the ultimate in versatility with a Hunter nozzle. And the most versatile of the wide array of Hunter nozzles is the Adjustable Arc nozzle. With an easy turn by hand—no tools are required to adjust—you can fine-tune Hunter Adjustable Arc nozzles from 25 to 360 degrees to keep the spray in the areas as designed. In addition, the radius can be reduced up to 25% without changing the pattern distribution. Thus, virtually any landscape needs can be met, including those areas that require custom arcs. Today, more and more landscapes are calling for a nozzle that can be precisely set to handle meandering walkways or atypical, hard-to-handle sharp angles. Why keep an inventory of the many different odd arc nozzles that you would seldom use? When you stock Hunter Adjustable Arc nozzles, you'll always have just the right nozzle... no matter what the job is.



Adjustable Arc Nozzles Performance Data																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		8 Foot Radius Adjustable from 25° to 360° Nozzle Trajectory: 0° Color Code: Brown					10 Foot Radius Adjustable from 25° to 360° Nozzle Trajectory: 15° Color Code: Red					12 Foot Radius Adjustable from 25° to 360° Nozzle Trajectory: 28° Color Code: Green					15 Foot Radius Adjustable from 25° to 360° Nozzle Trajectory: 28° Color Code: Black					17 Foot Radius Adjustable from 25° to 360° Nozzle Trajectory: 28° Color Code: Gray																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										








Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 30 PSI. For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).

THE IDEAL SOLUTION FOR CURVING LANDSCAPES

Most nozzles have been designed specifically to provide optimum efficiency at the standard angles of 90, 180 and 360 degrees. And while most expanses of turf call for the use of such nozzles, today more and more landscapes are requiring a nozzle that can deliver effective coverage to sites whose plot plans don't fall into these standard angles. Irregularly shaped planter beds and meandering walkways create landscapes with odd angles that are in need of an irrigation solution that can provide effective coverage. Hunter adjustable arc nozzles can be set at any angle from 25 to 360 degrees, allowing sprinklers to be fine-tuned to exactly the precise pattern needed. You'll never need worry about having too much coverage (eliminate the wasted water that would normally end up overshooting your lawn and land on the sidewalk) or too little (no more dry spots for those few extra degrees of grass that others nozzles can't quite reach). Best of all, no tools are required to adjust the arc, it's all done easily by hand.



Adjustable Arc Nozzles Performance Data – Metric

		2.4 Meter Radius (8 ft.) Adjustable from 25° to 360° Trajectory: 0° Color Code: Brown						3.0 Meter Radius (10 ft.) Adjustable from 25° to 360° Trajectory: 15° Color Code: Red						3.7 Meter Radius (12 ft.) Adjustable from 25° to 360° Trajectory: 28° Color Code: Green						4.6 Meter Radius (15 ft.) Adjustable from 25° to 360° Trajectory: 28° Color Code: Black						5.2 Meter Radius (17 ft.) Adjustable from 25° to 360° Trajectory: 28° Color Code: Gray						
		Nozzle 8A						Nozzle 10A						Nozzle 12A						Nozzle 15A						Nozzle 17A						
Arc	Pressure	Radius	Flow					Radius	Flow					Radius	Flow					Radius	Flow					Radius	Flow					
	Bars	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
45° 	1.4	137	2.1	0.04	0.6	68	78	2.7	0.04	0.6	41	47	3.4	0.06	0.9	40	47	4.2	0.09	1.5	38	44	4.8	0.11	1.8	37	43	5.2	0.13	2.1	38	44
	1.7	171	2.4	0.04	0.7	60	69	3.0	0.04	0.7	44	44	3.7	0.06	1.0	37	43	4.5	0.10	1.6	37	43	5.2	0.13	2.1	38	44	5.2	0.13	2.1	38	44
	2.1	206	2.4	0.06	0.9	75	86	3.0	0.06	0.9	55	55	3.7	0.07	1.2	43	49	4.5	0.11	1.8	40	47	5.2	0.14	2.3	41	47	5.2	0.14	2.3	41	47
	2.4	240	2.7	0.06	1.0	62	71	3.3	0.06	1.0	48	48	4.0	0.08	1.4	42	49	4.8	0.12	1.9	39	45	5.5	0.14	2.4	38	44	5.5	0.14	2.4	38	44
	2.7	274	3.0	0.08	1.4	71	82	3.6	0.08	1.4	57	57	4.3	0.10	1.6	42	48	5.2	0.13	2.1	38	44	5.8	0.16	2.6	37	43	5.8	0.16	2.6	37	43
90° 	1.4	137	2.1	0.08	1.3	68	78	2.7	0.08	1.3	47	47	3.4	0.11	1.9	40	47	4.2	0.17	2.9	38	44	4.8	0.22	3.7	37	43	5.2	0.26	4.3	38	44
	1.7	171	2.4	0.09	1.5	60	69	3.0	0.09	1.5	44	44	3.7	0.12	2.1	37	43	4.5	0.20	3.3	37	43	5.2	0.26	4.3	38	44	5.2	0.26	4.3	38	44
	2.1	206	2.4	0.11	1.9	75	86	3.0	0.11	1.9	55	55	3.7	0.14	2.4	43	49	4.5	0.21	3.5	40	47	5.2	0.27	4.5	41	47	5.2	0.27	4.5	41	47
	2.4	240	2.7	0.12	1.9	62	71	3.3	0.12	1.9	48	48	4.0	0.17	2.8	42	49	4.8	0.23	3.9	39	45	5.5	0.28	4.7	38	44	5.5	0.28	4.7	38	44
	2.7	274	3.0	0.17	2.8	71	82	3.6	0.17	2.8	57	57	4.3	0.19	3.2	42	48	5.2	0.26	4.3	38	44	5.8	0.31	5.2	37	43	5.8	0.31	5.2	37	43
120° 	1.4	137	2.1	0.10	1.7	68	78	2.7	0.10	1.7	47	47	3.4	0.15	2.5	40	47	4.2	0.23	3.9	38	44	4.8	0.29	4.9	37	43	5.2	0.34	5.7	38	44
	1.7	171	2.4	0.12	2.0	60	69	3.0	0.12	2.0	44	44	3.7	0.17	2.8	37	43	4.5	0.26	4.3	37	43	5.2	0.34	5.7	38	44	5.2	0.34	5.7	38	44
	2.1	206	2.4	0.15	2.5	75	86	3.0	0.15	2.5	55	55	3.7	0.19	3.2	43	49	4.5	0.28	4.7	40	47	5.2	0.36	6.1	41	47	5.2	0.36	6.1	41	47
	2.4	240	2.7	0.15	2.6	62	71	3.3	0.15	2.6	48	48	4.0	0.22	3.7	42	49	4.8	0.31	5.2	39	45	5.5	0.38	6.3	38	44	5.5	0.38	6.3	38	44
	2.7	274	3.0	0.22	3.7	71	82	3.6	0.22	3.7	57	57	4.3	0.25	4.2	42	48	5.2	0.34	5.7	38	44	5.8	0.42	7.0	37	43	5.8	0.42	7.0	37	43
180° 	1.4	137	2.1	0.15	2.6	68	78	2.7	0.15	2.6	47	47	3.4	0.23	3.8	40	47	4.2	0.35	5.8	38	44	4.8	0.44	7.3	37	43	5.2	0.51	8.6	38	44
	1.7	171	2.4	0.18	3.0	60	69	3.0	0.18	3.0	44	44	3.7	0.25	4.2	37	43	4.5	0.39	6.5	37	43	5.2	0.51	8.6	38	44	5.2	0.51	8.6	38	44
	2.1	206	2.4	0.22	3.7	75	86	3.0	0.22	3.7	55	55	3.7	0.29	4.8	43	49	4.5	0.42	7.0	40	47	5.2	0.54	9.1	41	47	5.2	0.54	9.1	41	47
	2.4	240	2.7	0.23	3.9	62	71	3.3	0.23	3.9	48	48	4.0	0.33	5.5	42	49	4.8	0.47	7.8	39	45	5.5	0.57	9.5	38	44	5.5	0.57	9.5	38	44
	2.7	274	3.0	0.33	5.5	71	82	3.6	0.33	5.5	57	57	4.3	0.38	6.4	42	48	5.2	0.51	8.6	38	44	5.8	0.63	10.4	37	43	5.8	0.63	10.4	37	43
240° 	1.4	137	2.1	0.21	3.4	68	78	2.7	0.21	3.4	47	47	3.4	0.30	5.0	40	47	4.2	0.47	7.8	38	44	4.8	0.59	9.8	37	43	5.2	0.68	11.4	38	44
	1.7	171	2.4	0.24	3.9	60	69	3.0	0.24	3.9	44	44	3.7	0.33	5.6	37	43	4.5	0.52	8.7	37	43	5.2	0.68	11.4	38	44	5.2	0.68	11.4	38	44
	2.1	206	2.4	0.30	4.9	75	86	3.0	0.30	4.9	55	55	3.7	0.38	6.4	43	49	4.5	0.56	9.4	40	47	5.2	0.73	12.1	41	47	5.2	0.73	12.1	41	47
	2.4	240	2.7	0.31	5.1	62	71	3.3	0.31	5.1	48	48	4.0	0.44	7.4	42	49	4.8	0.62	10.4	39	45	5.5	0.76	12.6	38	44	5.5	0.76	12.6	38	44
	2.7	274	3.0	0.44	7.4	71	82	3.6	0.44	7.4	57	57	4.3	0.51	8.5	42	48	5.2	0.68	11.4	38	44	5.8	0.84	13.9	37	43	5.8	0.84	13.9	37	43
270° 	1.4	137	2.1	0.23	3.9	68	78	2.7	0.23	3.9	47	47	3.4	0.34	5.7	40	47	4.2	0.52	8.7	38	44	4.8	0.66	11.0	37	43	5.2	0.77	12.8	38	44
	1.7	171	2.4	0.27	4.4	60	69	3.0	0.27	4.4	44	44	3.7	0.37	6.2	37	43	4.5	0.59	9.8	37	43	5.2	0.77	12.8	38	44	5.2	0.77	12.8	38	44
	2.1	206	2.4	0.33	5.6	75	86	3.0	0.33	5.6	55	55	3.7	0.43	7.2	43	49	4.5	0.63	10.6	40	47	5.2	0.82	13.6	41	47	5.2	0.82	13.6	41	47
	2.4	240	2.7	0.35	5.8	62	71	3.3	0.35	5.8	48	48	4.0	0.50	8.3	42	49	4.8	0.70	11.7	39	45	5.5	0.85	14.2	38	44	5.5	0.85	14.2	38	44
	2.7	274	3.0	0.50	8.3	71	82	3.6	0.50	8.3	57	57	4.3	0.57	9.5	42	48	5.2	0.77	12.8	38	44	5.8	0.94	15.7	37	43	5.8	0.94	15.7	37	43
360° 	1.4	137	2.1	0.31	5.1	68	78	2.7	0.31	5.1	47	47	3.4	0.45	7.6	40	47	4.2	0.70	11.7	38	44	4.8	0.88	14.7	37	43	5.2	1.03	17.1	38	44
	1.7	171	2.4	0.35	5.9	60	69	3.0	0.35	5.9	44	44	3.7	0.50	8.3	37	43	4.5	0.78	13.0	37	43	5.2	1.03	17.1	38	44	5.2	1.03	17.1	38	44
	2.1	206	2.4	0.44	7.4	75	86	3.0	0.44	7.4	55	55	3.7	0.57	9.5	43	49	4.5	0.84	14.1	40	47	5.2	1.09	18.2	41	47	5.2	1.09	18.2	41	47
	2.4	240	2.7	0.46	7.7	62	71	3.3	0.46	7.7	48	48	4.0	0.66	11.1	42	49	4.8	0.94	15.6	39	45	5.5	1.14	18.9	38	44	5.5	1.14	18.9	38	44
	2.7	274	3.0	0.66	11.1	71	82	3.6	0.66	11.1	57	57	4.3	0.76	12.7	42	48	5.2	1.03	17.1	38	44	5.8	1.25	20.9	37	43	5.8	1.25	20.9	37	43




Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 2.1 Bars (206 kPa). For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).

Pro-Spray® Nozzles

Precise edges, optimum droplet size deliver superior matched precipitation for the most popular arc settings.

The Pro-Spray® name has come to stand for your assurance of unsurpassed quality and performance in a professional-grade spray head. Now, the name also guarantees the same high standards for spray nozzles. While many landscapes require precise fine-tuning to achieve optimum coverage, the vast majority of spray heads that contractors install call for the use of standard angle nozzles...that is, full-circle, half-circle, and quarter-circle patterns. When installing nozzles along straight runs or in areas that require 360° arcs, labor will be saved by not having to adjust each nozzle to those common patterns. With patterns that feature precise edges and a droplet size that minimizes wind drift, Hunter Pro-Spray nozzles have been painstakingly designed to provide superior coverage. Five different radius ranges are available, each able to be reduced if needed for fine-tuning and each color-coded for quick and easy radius identification.



Pro-Spray® Nozzles Performance Data																										
			8 Foot Radius Fixed (Quarter, Half, Full) Nozzle Trajectory: 0° Color Code: Brown				10 Foot Radius Fixed (Quarter, Half, Full) Nozzle Trajectory: 15° Color Code: Red				12 Foot Radius Fixed (Quarter, Half, Full) Nozzle Trajectory: 28° Color Code: Green				15 Foot Radius Fixed (Quarter, Half, Full) Nozzle Trajectory: 28° Color Code: Black				17 Foot Radius Fixed (Quarter, Half, Full) Nozzle Trajectory: 28° Color Code: Gray							
						8							10								15				17	
Arc	Pressure PSI	Pattern	Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr			Radius ft.	Flow GPM	Precip in/hr	
	20	Q	7'	0.17	1.34	1.54		9'	0.30	1.43	1.65		11'	0.50	1.59	1.84		14'	0.77	1.51	1.75		16'	0.97	1.46	1.68
	25		8'	0.19	1.14	1.32		10'	0.33	1.27	1.47		12'	0.55	1.47	1.70		15'	0.86	1.47	1.70		17'	1.13	1.51	1.74
	30		8'	0.24	1.44	1.67		10'	0.39	1.50	1.73		12'	0.63	1.68	1.95		15'	0.93	1.59	1.84		17'	1.20	1.60	1.85
	35		9'	0.33	1.57	1.81		11'	0.49	1.56	1.80		13'	0.73	1.66	1.92		16'	1.03	1.55	1.79		18'	1.25	1.49	1.72
	40		10'	0.48	1.85	2.13		12'	0.63	1.68	1.95		14'	0.84	1.65	1.91		17'	1.13	1.51	1.74		19'	1.38	1.47	1.70
	20	H	7'	0.34	1.34	1.54		9'	0.60	1.43	1.65		11'	1.00	1.59	1.84		14'	1.54	1.51	1.75		16'	1.94	1.46	1.68
	25		8'	0.38	1.14	1.32		10'	0.66	1.27	1.47		12'	1.10	1.47	1.70		15'	1.72	1.47	1.70		17'	2.26	1.51	1.74
	30		8'	0.48	1.44	1.67		10'	0.82	1.58	1.82		12'	1.31	1.75	2.02		15'	1.86	1.59	1.84		17'	2.40	1.60	1.85
	35		9'	0.66	1.57	1.81		11'	0.98	1.56	1.80		13'	1.46	1.66	1.92		16'	2.06	1.55	1.79		18'	2.50	1.49	1.72
	40		10'	0.96	1.85	2.13		12'	1.26	1.68	1.95		14'	1.68	1.65	1.91		17'	2.26	1.51	1.74		19'	2.76	1.47	1.70
	20	F	7'	0.68	1.34	1.54		9'	1.20	1.43	1.65		11'	2.00	1.59	1.84		14'	3.08	1.51	1.75					
	25		8'	0.76	1.14	1.32		10'	1.32	1.27	1.47		12'	2.20	1.47	1.70		15'	3.44	1.47	1.70					
	30		8'	0.95	1.43	1.65		10'	1.62	1.56	1.80		12'	2.65	1.77	2.05		15'	3.72	1.59	1.84					
	35		9'	1.32	1.57	1.81		11'	1.96	1.56	1.80		13'	2.92	1.66	1.92		16'	4.12	1.55	1.79					
	40		10'	1.92	1.85	2.13		12'	2.52	1.68	1.95		14'	3.36	1.65	1.91		17'	4.54	1.51	1.74					

Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 30 PSI. For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).



Hunter operates an outdoor test area at our San Marcos facility where nozzles are subjected to sand testing and other environments that simulate real world conditions.



The large filter screen that comes with every nozzle prevents clogging from debris and ensures uniform coverage.






FULL, EVEN COVERAGE ACROSS EVERY PATTERN

Every Hunter Pro-Spray® Nozzle has been precision engineered to ensure that the entire area of coverage receives its intended amount of water. Whether it is a quarter-, half- or full-circle pattern, the discharge from the nozzle features a consistent trajectory from all sides, which assures delivery at the same high level of performance in every direction. Hunter nozzles also are noted for emitting at the optimum droplet size: large enough to avoid the problems of misting, small enough to provide nice, even distribution.



Pro-Spray® Nozzles Performance Data – Metric

				2.4 Meter Radius (8 ft.) Fixed (Quarter, Half, Full) Trajectory: 0° Color Code: Brown						Nozzle		3.0 Meter Radius (10 ft.) Fixed (Quarter, Half, Full) Trajectory: 15° Color Code: Red						Nozzle		3.7 Meter Radius (12 ft.) Fixed (Quarter, Half, Full) Trajectory: 28° Color Code: Green						Nozzle		4.6 Meter Radius (15 ft.) Fixed (Quarter, Half, Full) Trajectory: 28° Color Code: Black						Nozzle		5.2 Meter Radius (17 ft.) Fixed (Quarter) Trajectory: 28° Color Code: Gray						Nozzle	
		Pressure		Radius		Flow		Precip		mm/hr		Radius		Flow		Precip		mm/hr		Radius		Flow		Precip		mm/hr		Radius		Flow		Precip		mm/hr		Radius		Flow		Precip		mm/hr	
Arc	Pattern	Bars	kPa	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲	m	m³/hr	l/min	■	▲
90° 	Q	1.4	137	2.1	0.04	0.6	34	39	2.7	0.07	1.1	36	42	3.4	0.11	1.9	40	47	4.2	0.17	2.9	38	44	4.9	0.22	3.7	37	43	5.2	0.26	4.3	38	44	5.8	0.31	5.2	37	43	6.5	0.36	6.1	36	42
		1.7	171	2.4	0.04	0.7	29	34	3.0	0.07	1.3	37	44	3.7	0.12	2.1	37	43	4.5	0.20	3.3	37	43	5.2	0.26	4.3	38	44	5.8	0.31	5.2	37	43	6.5	0.36	6.1	36	42					
		2.1	206	2.4	0.05	0.9	37	42	3.0	0.09	1.5	44	55	3.7	0.14	2.4	43	49	4.5	0.21	3.5	40	47	5.2	0.27	4.5	41	47	5.8	0.32	5.4	38	44	6.1	0.37	6.6	35	41					
		2.4	240	2.7	0.07	1.3	40	46	3.3	0.11	1.9	46	48	4.0	0.17	2.8	42	49	4.8	0.23	3.9	39	45	5.5	0.28	4.7	38	44	6.2	0.33	6.0	35	41										
180° 	H	2.7	274	3.0	0.11	1.8	47	54	3.6	0.14	2.4	49	57	4.3	0.19	3.2	42	48	5.2	0.26	4.3	38	44	5.8	0.31	5.2	37	43	6.5	0.36	6.1	36	42	7.2	0.41	6.8	34	40					
		1.4	137	2.1	0.08	1.3	34	39	2.7	0.14	2.3	42	47	3.4	0.23	3.8	40	47	4.2	0.35	5.8	38	44	4.9	0.44	7.3	37	43	5.6	0.50	8.0	36	42										
		1.7	171	2.4	0.09	1.4	29	34	3.0	0.15	2.5	37	44	3.7	0.25	4.2	37	43	4.5	0.39	6.5	37	43	5.2	0.51	8.6	38	44	5.9	0.55	9.1	37	43										
		2.1	206	2.4	0.11	1.8	37	42	3.0	0.19	3.1	46	55	3.7	0.30	5.0	44	51	4.5	0.42	7.0	40	47	5.2	0.54	9.1	41	47	5.9	0.56	9.2	37	43										
360° 	F	2.4	240	2.7	0.15	2.5	30	46	3.3	0.22	3.7	46	48	4.0	0.33	5.5	42	49	4.8	0.47	7.8	39	45	5.5	0.57	9.5	38	44	6.2	0.63	10.5	37	43	7.0	0.70	11.7	36	42					
		2.7	274	3.0	0.22	3.6	35	54	3.6	0.29	4.8	49	57	4.3	0.38	6.4	42	48	5.2	0.51	8.6	38	44	5.8	0.63	10.5	37	43	6.5	0.71	12.0	36	42										
		1.4	137	2.1	0.15	2.6	34	39	2.7	0.27	4.5	42	47	3.4	0.45	7.6	40	47	4.2	0.70	11.7	38	44	4.9	0.88	14.7	37	43	5.6	1.00	16.9	36	42										
		1.7	171	2.4	0.17	2.9	29	34	3.0	0.30	5.0	37	44	3.7	0.50	8.3	37	43	4.5	0.78	13.0	37	43	5.2	1.03	17.1	38	44	6.0	1.14	18.9	37	43										
		2.1	206	2.4	0.22	3.6	36	42	3.0	0.37	6.1	46	55	3.7	0.60	10.0	45	52	4.5	0.84	14.1	40	47	5.2	1.09	18.2	41	47	6.0	1.16	18.9	37	43	6.8	1.26	20.9	37	43					
		2.4	240	2.7	0.30	5.0	40	46	3.3	0.44	7.4	46	48	4.0	0.66	11.1	42	49	4.8	0.94	15.6	39	45	5.5	1.14	18.9	38	44	6.3	1.21	19.8	37	43	7.1	1.30	21.7	36	42					
		2.7	274	3.0	0.44	7.3	47	54	3.6	0.57	9.5	49	57	4.3	0.76	12.7	42	48	5.2	1.03	17.1	38	44	5.8	1.25	20.9	37	43	6.6	1.36	22.6	36	42										

Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 2.1 Bars (206 kPa). For more information on precipitation rates see page 111. (Optimum nozzle performance shown in bold).

IT'S EASY TO SEE WE'VE ENHANCED OUR COLOR-CODED ID

Never has it been so easy to identify what nozzle is installed in a spray head. With Hunter's improved color-coding I.D. system for Pro-Spray® Nozzles, you'll no longer need to turn on the system in order to view the sprinkler from the side as it pops up (and sprays you with water). Now, you can view the sprinkler from the top and see the color-coded plug that identifies the particular nozzle...while the system is off! A quick peek and you'll know exactly what size (radius) nozzle is installed simply by its color—brown is 8' (2.4 m), red is 10' (3.0 m), green is 12' (3.7 m), black is 15' (4.6 m), and gray is 17' (5.2 m).



Tiny nozzle markings on other brands are difficult to read. With Hunter, the color tells all.



Specialty Nozzles

Providing innovative watering solutions for narrow turf areas, planter boxes, and slopes.

STRIP PATTERN NOZZLES

To accommodate the needs of narrow planting areas, Hunter offers you two options: either use center and end strips or corner and side strips. Whichever method you choose will deliver optimum pattern distribution from the industry's most precisely designed nozzles.



Strip Pattern Nozzle Performance Data

Color Code: Blue				
Nozzle Model	Pressure PSI	Width x Length	Flow GPM	
LCS-515 Left-Corner Strip	20	4' x 14'	0.55	
	25	5' x 15'	0.60	
	30	5' x 15'	0.65	
	35	5' x 15'	0.70	
RCS-515 Right-Corner Strip	20	4' x 14'	0.55	
	25	5' x 15'	0.60	
	30	5' x 15'	0.65	
	35	5' x 15'	0.70	
SS-530 Side Strip	20	4' x 28'	1.10	
	25	5' x 30'	1.20	
	30	5' x 30'	1.30	
	35	5' x 30'	1.40	
ES-515 End Strip	20	4' x 14'	0.55	
	25	5' x 15'	0.60	
	30	5' x 15'	0.65	
	35	5' x 15'	0.70	
CS-530 Center Strip	20	4' x 28'	1.10	
	25	5' x 30'	1.20	
	30	5' x 30'	1.30	
	35	5' x 30'	1.40	
SS-918 Side Strip	20	8' x 17'	1.45	
	25	9' x 18'	1.58	
	30	9' x 18'	1.72	
	35	9' x 18'	1.88	
	40	9' x 18'	2.08	

Strip Pattern Nozzle Performance Data - Metric

Color Code: Blue				
Nozzle Model	Pressure Bars	Width x Length	Flow m ³ /hr	
LCS-515 Left-Corner Strip	1.4	1.2 m x 4.3 m	0.12	
	1.7	1.5 m x 4.6 m	0.14	
	2.1	1.5 m x 4.6 m	0.15	
	2.4	1.5 m x 4.6 m	0.16	
RCS-515 Right-Corner Strip	1.4	1.2 m x 4.3 m	0.12	
	1.7	1.5 m x 4.6 m	0.14	
	2.1	1.5 m x 4.6 m	0.15	
	2.4	1.5 m x 4.6 m	0.16	
SS-530 Side Strip	1.4	1.2 m x 8.5 m	0.25	
	1.7	1.5 m x 9.1 m	0.27	
	2.1	1.5 m x 9.1 m	0.30	
	2.4	1.5 m x 9.1 m	0.32	
ES-515 End Strip	1.4	1.2 m x 4.3 m	0.12	
	1.7	1.5 m x 4.6 m	0.14	
	2.1	1.5 m x 4.6 m	0.15	
	2.4	1.5 m x 4.6 m	0.16	
CS-530 Center Strip	1.4	1.2 m x 8.5 m	0.25	
	1.7	1.5 m x 9.1 m	0.27	
	2.1	1.5 m x 9.1 m	0.30	
	2.4	1.5 m x 9.1 m	0.32	
SS-918 Side Strip	1.4	2.4 m x 5.2 m	0.33	
	1.7	2.7 m x 5.5 m	0.36	
	2.1	2.7 m x 5.5 m	0.39	
	2.4	2.7 m x 5.5 m	0.43	
	2.8	2.7 m x 5.5 m	0.47	

STREAM SPRAY NOZZLES - S-8A & S-16A

Combining the convenience of customized arc selection with a lower application rate, these dial-setting, adjustable arc nozzles offer stream sprays that at 30 PSI, can throw as far as 8' or 16'. An outstanding nozzle to use on slopes and ground cover areas with tight soils that require a low precipitation rate.



Model S-8A Stream Spray Nozzle Performance Data

Adjustable from 25° to 360°						
Color Code: Blue						
Arc	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr		
90°	20	7	0.29	2.28	2.63	
	25	8	0.32	1.93	2.22	
	30	8	0.35	2.11	2.43	
	35	8	0.38	2.29	2.64	
180°	20	9	0.41	1.95	2.25	
	25	7	0.54	2.12	2.45	
	30	8	0.60	1.80	2.08	
	35	8	0.63	1.89	2.19	
360°	20	9	0.66	1.57	1.81	
	25	7	1.08	2.12	2.45	
	30	8	1.15	1.73	2.00	
	35	8	1.18	1.77	2.05	
	40	9	1.22	1.45	1.67	

Model S-16A Stream Spray Nozzle Performance Data

Adjustable from 25° to 360°						
Color Code: Blue						
Arc	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr		
90°	20	15	0.40	0.68	0.79	
	25	16	0.46	0.69	0.80	
	30	16	0.50	0.75	0.87	
	35	17	0.54	0.72	0.83	
180°	20	18	0.57	0.68	0.78	
	25	15	0.67	0.57	0.66	
	30	16	0.88	0.66	0.76	
	35	17	0.97	0.65	0.75	
360°	20	18	1.04	0.62	0.71	
	25	15	1.19	0.51	0.59	
	30	16	1.66	0.62	0.72	
	35	17	1.82	0.61	0.70	
	40	18	1.99	0.59	0.68	

Model S-8A Stream Spray Nozzle Performance Data - Metric

Adjustable from 25° to 360°						
Color Code: Blue						
Arc	Pressure Bars	Radius m	Flow m ³ /hr	Precip mm/hr		
90°	1.4	138	2.1	0.07	1.1	58
	1.7	172	2.4	0.07	1.2	49
	2.1	207	2.4	0.08	1.3	53
	2.4	241	2.4	0.09	1.4	58
180°	2.8	276	2.7	0.09	1.6	49
	1.4	138	2.1	0.12	2.0	54
	1.7	172	2.4	0.13	2.2	44
	2.1	207	2.4	0.14	2.3	46
360°	2.4	241	2.4	0.14	2.4	48
	2.8	276	2.7	0.15	2.5	40
	1.4	138	2.1	0.25	4.1	54
	1.7	172	2.4	0.25	4.2	42
	2.1	207	2.4	0.26	4.4	51
	2.4	241	2.4	0.27	4.5	45
	2.8	276	2.7	0.28	4.6	37

Model S-16A Stream Spray Nozzle Performance Data - Metric

Adjustable from 25° to 360°						
Color Code: Blue						
Arc	Pressure Bars	Radius m	Flow m ³ /hr	Precip mm/hr		
90°	1.4	138	4.6	0.09	1.5	17
	1.7	172	4.9	0.10	1.7	18
	2.1	207	4.9	0.11	1.9	22
	2.4	241	5.2	0.12	2.0	18
180°	2.8	276	5.5	0.13	2.2	17
	1.4	138	4.6	0.15	2.5	15
	1.7	172	4.9	0.18	3.0	15
	2.1	207	4.9	0.20	3.3	17
360°	2.4	241	5.2	0.21	3.7	16
	2.8	276	5.5	0.24	3.9	16
	1.4	138	4.6	0.27	4.5	13
	1.7	172	4.9	0.33	5.5	14
	2.1	207	4.9	0.38	6.3	16
	2.4	241	5.2	0.41	6.9	15
	2.8	276	5.5	0.45	7.5	17

POP-UP MICRO-SPRAY NOZZLES

The unique pop-up design of the Hunter Micro-Spray Nozzle, coupled with the fact that it attaches directly to a pop-up sprinkler, makes this alternative to drip a winner. When not in use, both the nozzle and the spray head body retract, so nothing sticks up above the surface.



Micro-Spray Nozzles Performance Data

Arc	Pressure PSI	Nozzle	Radius ft.	Flow GPM	Precip in/hr	
90°	25	MS-Q	5'	0.12	1.85	2.13
	40		5'	0.14	2.16	2.49
	60		5'	0.14	2.16	2.49
180°	25	MS-H	5'	0.25	1.93	2.22
	40		5'	0.28	2.16	2.49
	60		5'	0.29	2.23	2.58
360°	25	MS-F	5'	0.50	1.93	2.22
	40		5'	0.56	2.16	2.49
	60		5'	0.58	2.23	2.58

Micro-Spray Nozzles Performance Data – Metric

Arc	Pressure Bars kPa	Nozzle	Radius m	Flow m³/hr l/min	Precip mm/hr	
90°	1.7 172	MS-Q	1.5	0.03 0.45	47	54
	2.8 275		1.5	0.03 0.53	55	63
	4.1 413		1.5	0.03 0.53	55	63
180°	1.7 172	MS-H	1.5	0.06 0.95	49	56
	2.8 275		1.5	0.06 1.06	55	63
	4.1 413		1.5	0.07 1.10	57	65
360°	1.7 172	MS-F	1.5	0.11 1.89	49	56
	2.8 275		1.5	0.13 2.12	55	63
	4.1 413		1.5	0.13 2.20	57	65

SHORT RADIUS NOZZLES












Hunter Short Radius Nozzles permit well-controlled easy watering of planter boxes and bed areas. These nozzles (in 2-, 4-, and 6-foot radius versions) are just the answer for small spaces that have longed for a better solution than trying to drastically reduce the radius range on a nozzle designed for longer throws.



Short Radius Nozzles Performance Data

Arc		Color Code: Light Brown					Color Code: Light Green					Color Code: Light Blue				
		Pressure PSI	Nozzle	Radius ft.	Flow GPM	Precip in/hr	Nozzle	Radius ft.	Flow GPM	Precip in/hr	Nozzle	Radius ft.	Flow GPM	Precip in/hr	Nozzle	Radius ft.
90°		20	2Q	2'	0.09	8.66	4Q	4'	0.20	4.81	6Q	6'	0.47	5.03	6Q	6'
		25		2'	0.10	9.63		4'	0.22	5.29		6'	0.49	5.24		6'
		30		2'	0.11	10.59		4'	0.22	5.29		6'	0.51	5.45		6'
		35		2'	0.12	11.55		4'	0.24	5.78		6'	0.52	5.56		6'
		40		2'	0.14	13.48		4'	0.24	5.78		6'	0.52	5.56		6'
180°		20	2H	2'	0.12	5.78	4H	4'	0.41	4.93	6H	6'	0.95	5.08	6H	6'
		25		2'	0.14	6.74		4'	0.43	5.17		6'	0.97	5.19		6'
		30		2'	0.16	7.70		4'	0.44	5.29		6'	0.98	5.24		6'
		35		2'	0.18	8.66		4'	0.46	5.53		6'	0.99	5.29		6'
		40		2'	0.18	8.66		4'	0.46	5.53		6'	1.00	5.35		6'

Short Radius Nozzles Performance Data – Metric

		Color Code: Light Brown 					Color Code: Light Green 					Color Code: Light Blue 																	
Arc	Pressure	Radius		Flow		Precip mm/hr			Nozzle	m	m³/hr	l/min	Precip mm/hr			Nozzle	ft.	m³/hr	l/min	Precip mm/hr									
	Bars	kPa																											
90° 	1.4 137	2Q	0.6	0.02	0.34	220	254	4Q	1.2	0.05	0.76	122	141	6Q	1.8	0.11	1.78	128	147										
	1.7 172		0.6	0.02	0.38	244	282													1.2	0.05	0.81	134	155	1.8	0.11	1.85	133	154
	2.1 206		0.6	0.02	0.42	269	311													1.2	0.05	0.83	134	155	1.8	0.12	1.93	139	160
	2.4 241		0.6	0.03	0.45	293	339													1.2	0.05	0.91	147	169	1.8	0.12	1.97	141	163
	2.8 275		0.6	0.03	0.53	342	395													1.2	0.05	0.91	147	169	1.8	0.12	1.97	141	163
180° 	1.4 137	2H	0.6	0.03	0.45	147	169	4H	1.2	0.09	1.55	125	145	6H	1.8	0.22	3.60	129	149										
	1.7 172		0.6	0.03	0.53	171	198													1.2	0.10	1.63	131	152	1.8	0.22	3.67	132	152
	2.1 206		0.6	0.04	0.61	196	226													1.2	0.10	1.67	134	155	1.8	0.22	3.71	133	154
	2.4 241		0.6	0.04	0.68	220	254													1.2	0.10	1.74	141	162	1.8	0.22	3.75	134	155
	2.8 275		0.6	0.04	0.68	220	254													1.2	0.10	1.74	141	162	1.8	0.23	3.79	136	157



Bubblers & Bubbler Nozzles

A whole new generation in bubbler technology offers all the precision of drip, but none of the maintenance hassles.

Hunter presents a way to meet your deep watering needs that offers considerably more efficiency than drip irrigation. With the ability to compensate for pressure differences, the Hunter PCB (and the PCN, which attaches directly to pop-up spray bodies) allows the output of water to remain constant regardless of the input pressure, resulting in a precise application never before achieved in bubblers. The same holds true with the MSBN and 5-CST-B nozzles, designed for deep watering of larger planted areas. Now, every plant, shrub, or tree can receive the same amount of water required with no excess runoff or waste. Best of all, because it's so simple to install, you'll have the perfect alternative to drip...no fancy filtration, no unsightly above-ground tubes, and considerably less chance of damage. For a more attractive, more efficient way to deep water, let the idea of Hunter's bubbler products sink in.

PCN BUBBLER NOZZLES



PCN Nozzle & PCB Performance Data

Model	Pressure PSI	Flow GPM	Pattern Type
● 25	30	0.25	Trickle
● 50	30	0.50	Trickle
● 10	30	1.00	Umbrella
● 20	30	2.00	Umbrella

Note: Typical spacing 1 to 3 ft.

PCN Nozzle & PCB Performance Data – Metric

Model	Pressure Bars kPa	Flow m ³ /hr l/min	Pattern Type
● 25	2.1 206	0.06 0.9	Trickle
● 50	2.1 206	0.11 1.9	Trickle
● 10	2.1 206	0.23 3.8	Umbrella
● 20	2.1 206	0.45 7.6	Umbrella

Note: Typical spacing 0.3 to 0.9 m.

With the pressure compensating nozzle (PCN), you get all the advantages over traditional drip irrigation plus a product that sits atop a riser that retracts into the ground when not in use. It's the most tamper-proof, eye-appealing method of deep watering available today (attention specifiers...you're going to like this).



PCB AND AFB BUBBLERS ½" THREAD

SPECIFICATION GUIDE

EXAMPLE: **PCB - 25 - R**

MODELS	FLOW	OPTIONS
PCB = ½" FIPT	25 = .25 GPM	R = Reclaimed Water
PCN = Standard Female Nozzle Thread	50 = .50 GPM	
	10 = 1.0 GPM	
	20 = 2.0 GPM	
AFB = ½" FIPT	Adjustable Flow	

Four different PCB models means that you can choose from color-coded flow rates of either .25, .50, 1.0, or 2.0 gallons per minute to eliminate guesswork and guarantee that all your greenery gets exactly the water it needs. Or choose the AFB model which pressure compensates to a 2.0 GPM flow and can be fine-tuned with a stainless steel screw adjustment.








Hunter bubblers allow precise, deep watering of planted areas. And their ease of installation and maintenance make them an attractive alternative to drip.






MULTI-STREAM BUBBLER NOZZLES – MSBN

Multi-Stream Bubbler Performance Data

Arc	Model	Pressure PSI	Flow GPM	Radius ft.
	● MSBN-25Q	30	0.25	1.0
	● MSBN-50Q	30	0.50	1.5
	● MSBN-50H	30	0.50	1.0
	● MSBN-10H	30	1.00	1.5
	● MSBN-10F	30	1.00	1.0
	● MSBN-20F	30	2.00	1.5

Note: Typical spacing 2 to 4 ft.

Multi-Stream Bubbler Nozzle – Metric

Arc	Model	Pressure Bars	Pressure kPa	Flow m ³ /hr	Flow l/min	Radius m
	● MSBN-25Q	2.0	206	0.06	0.9	0.30
	● MSBN-50Q	2.0	206	0.11	1.9	0.46
	● MSBN-50H	2.0	206	0.11	1.9	0.30
	● MSBN-10H	2.0	206	0.23	3.8	0.46
	● MSBN-10F	2.0	206	0.23	3.8	0.30
	● MSBN-20F	2.0	206	0.45	7.6	0.46


Note: Typical spacing 0.6 to 1.2 m.

A Hunter exclusive! Four streams on the half-circle, eight streams on the full-circle discharge water to more effectively cover a larger area needed in many planted zones. And because it installs on a pop-up sprinkler, the bubbler retracts when not irrigating, which prevents damage.




DUAL-STREAM BUBBLER NOZZLES – 5-CST-B

5-CST-B Bubbler Nozzle Performance Data

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

5-CST-B Bubbler Nozzle Performance Data – Metric

	Pressure Bars	Pressure kPa	Radius m	Flow m ³ /hr	Flow l/min
	1.4	138	1.52	0.30	1.14
	1.7	172	1.52	0.32	1.21
	2.1	207	1.52	0.38	1.44
	2.4	241	1.52	0.40	1.51
	2.8	276	1.52	0.42	1.59

This center strip nozzle expands our collection of specialty pattern offerings designed to accommodate the needs of long, narrow planting strips. The 5' stream coverage can be adjusted down 25% without the loss of pattern distribution. And only Hunter's version of this nozzle delivers optimum performance right out of the box.





Valves

<i>Applications</i>	SRV	ASV	PGV	PGV Jar-Top	HPV	ICV	ICV Yield Study™	HBV
Residential	✓	✓	✓	✓	✓			
Commercial/Institutional			✓		✓	✓	✓	✓
Flow Control	✓	✓	✓	✓	✓	✓	✓	✓
Angle Valve Configuration		✓	✓		✓			
High Pressure Systems						✓	✓	✓
Pressure Regulation			✓			✓	✓	✓
Reclaimed Water	✓	✓	✓	✓	✓	✓	✓	✓
Brackish/Algae Contaminated Water							✓	

SRV

Simple operation, reliable performance. The economical residential valve that can handle the toughest conditions.

Who said that dependable performance and affordable pricing were mutually exclusive terms when it comes to residential valves? Hunter makes it possible to get both, along with the type of solid construction you'd expect to cost considerably more. Our SRV features a durable high-grade PVC globe body plus a rugged diaphragm custom-crafted to withstand the challenge of vigorous day-to-day use. In addition, the SRV boasts a diaphragm support to prevent stress failure, an internal manual bleed to keep the valve box dry, and the heavy-duty Hunter solenoid. Plus, to meet the particular needs of each individual system you install, the SRV is available in either flow control or non-flow control models. Built to accommodate a budget as well as it does an irrigation system, that's the simple, reliable Hunter SRV.



The SRV provides reliable on-off control of residential systems, year after year.

FEATURES & BENEFITS



Heavy-duty Hunter solenoid

Provides dependable operation and long life

High grade construction

Made of durable PVC and stainless steel to resist wear

Internal manual bleed

Easy to use and keeps valve box dry

Optional flow control

Adjust the flow of each zone on a system

Optional slip configuration

Permits direct solvent connection to PVC pipe

Rigid diaphragm support

Works to prevent stress failure in tough conditions



FLOW CONTROL: CHOOSE THE OPTION OF EFFICIENCY

If you really want to maximize the efficiency of the SRV, be sure to ask for the flow control option. This convenient addition to the valve makes it possible to fine tune the flow for each zone on an irrigation system, allowing for more effective irrigation of each area of your landscape (and that means healthier turf). Flow control—just another example of how Hunter makes a great product even better.

MODELS

- SRV-100G – 1" plastic globe valve
- SRV-101G – 1" plastic globe valve with flow control
- SRV-100G-S – 1" plastic globe valve, slip inlets
- SRV-101G-S – 1" plastic globe valve with flow control, slip inlets

DIMENSIONS

- 5" H x 4½" L x 2½" W
(13 cm H x 11 cm L x 6 cm W)
- Female inlet/outlet: 1" NPT, BSP, or Slip

OPERATING SPECIFICATIONS

- Flow: 1 to 30 GPM
(0.23 to 6.8 m³/hr; 3.8 to 114 l/min)
- Pressure: 20 to 150 PSI
(1.4 to 10.3 bars; 138 to 1034 kPa)
- Ambient temperature: up to 125°F (52°C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles

OPTIONS AVAILABLE

- Reclaimed water identification handle for flow control models only (part # 269205)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)



SRV Pressure Loss in PSI

GPM	1" Globe
1	1.1
5	1.9
10	1.9
15	1.6
20	3.3
25	5.0
30	6.1

Charts based on full-open flow control position.

SRV Pressure Loss in Bars

m³/hr	1" Globe
0.23	0.08
1.14	0.13
2.27	0.13
3.41	0.11
4.54	0.23
5.68	0.34
6.81	0.42

Charts based on full-open flow control position.

SRV Pressure Loss in kPa

l/min	1" Globe
4.0	7.58
19.0	13.10
38.0	13.10
52.0	11.03
76.0	22.75
95.0	34.47
114.0	42.06

Charts based on full-open flow control position.

SPECIFICATION GUIDE

EXAMPLE: **SRV - 100G - S - DC**

MODEL SRV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	100G = 1" Globe Valve, no Flow Control 101G = 1" Globe Valve, with Flow Control	S = Slip x Slip B = BSP Threads	R = Reclaimed Water Identification Handle DC = DC Latching Solenoid CC = Solenoid Conduit Cover

ASV

Atmospheric backflow prevention in an economical valve designed for residential and light commercial use.

With the ASV, irrigation systems that require backflow prevention for every zone can enjoy simple operation and trouble-free performance without the need to install a separate backflow preventer. This convenient all-in-one unit offers a host of features that professionals expect from a Hunter valve—a rugged diaphragm that provides a leak-proof seal, internal bleed for manual operation, stainless steel hardware and springs, stainless steel bonnet screws, and heavy-duty PVC construction that is both corrosion- and UV-resistant. The valve also includes flow control, allowing precise adjustment of the flow plus manual shutoff. For proven reliability in an anti-siphon/electric valve, depend on the ASV.



The ASV slip version permits a quick and easy solvent-weld connection to PVC pipe, eliminating the chance for threaded fitting leaks.

FEATURES & BENEFITS



Heavy-duty Hunter solenoid

Provides dependable operation and long life

High grade construction

Made of durable PVC and stainless steel to resist wear

Internal and external manual bleed

Two choices for manual operation

Standard flow control

Adjust the flow of each zone on a system

Optional slip configuration

Permits direct solvent connection to PVC pipe

Rigid diaphragm support

Works to prevent stress failure in tough conditions

Captive solenoid plunger and anti-siphon poppet

No lost parts during routine service



MODELS

- ASV-075 – ¾" anti-siphon electric valve with flow control, NPT inlets
- ASV-101 – 1" anti-siphon electric valve with flow control, NPT inlets
- ASV-075-S – ¾" anti-siphon electric valve with flow control, Slip inlets
- ASV-101-S – 1" anti-siphon electric valve with flow control, Slip inlets
- AVB-100 – 1" Atmospheric vacuum breaker, NPT inlets

DIMENSIONS

- ASV-075 – 5½" H x 5¾" L x 2½" W
(14 cm H x 11 cm L x 6 cm W)
Female inlet/outlet: ¾" NPT or Slip
- ASV-101 – 5½" H x 6¼" L x 2½" W
(14 cm H x 15.9 cm L x 6 cm W)
Female inlet/outlet: 1" NPT or Slip
- AVB-100 – 4½" H x 6½" L x 2½" W
(11.5 cm H x 15.9 cm L x 6 cm W)
Female inlet/outlet: 1" NPT

OPERATING SPECIFICATIONS

- Flow: 1 to 30 GPM
(0.23 to 6.8 m³/hr; 3.8 to 114 l/min)
- Pressure: 20 to 150 PSI
(1.4 to 10.3 bars; 138 to 1034 kPa)
- Ambient temperature: up to 125°F (52°C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles
- IAPMO, ASSE 1001 and City of Los Angeles approved

OPTIONS AVAILABLE

- Reclaimed water identification handle (part # 269205)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # PACZ075)

ASV Pressure Loss in PSI

GPM	¾"	1"
1	1.0	1.0
5	2.0	2.0
10	2.0	2.0
15	3.0	3.0
20	6.0	6.0
25		6.0
30		9.0

ASV Pressure Loss in Bars

m³/hr	¾"	1"
0.23	0.07	0.07
1.14	0.14	0.14
2.27	0.14	0.14
3.41	0.21	0.21
4.54	0.41	0.41
5.68		0.41
6.81		0.62

ASV Pressure Loss in kPa

l/min	¾"	1"
4.0	6.89	6.89
19.0	13.79	13.79
38.0	13.79	13.79
52.0	20.68	20.68
76.0	41.37	41.37
95.0		41.37
114.0		62.05

Charts based on full-open flow control position.

SPECIFICATION GUIDE

EXAMPLE: **ASV - 101 - S - DC**

MODEL	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USED INSTALLED
ASV	075 = ¾" Anti-Siphon Valves with Flow Control 075LS = ¾" Anti-Siphon Valves with Flow Control Less Solenoid 101 = 1" Anti-Siphon Valve with Flow Control 101LS = 1" Anti-Siphon Valve with Flow Control Less Solenoid	S = Slip x Slip (ASV Only)	R = Reclaimed Water Identification Handle DC = DC Latching Solenoid CC = Solenoid Conduit Cover
AVB	100 = 1" Atmospheric Vacuum Breaker		

AVB VACUUM BREAKERS

What do you do if a portion of your irrigated landscape is elevated above your main line (such as a hill or a slope), or if you have an isolated zone or drip applications? Install a heavy-duty AVB downstream of remote control valves to ensure that no unwanted water flows back into your system while it is not in operation.

AVB Pressure Loss in PSI

GPM	1"
1	<1.0
5	<1.0
10	1.2
15	2.2
20	3.6
25	5.2
30	7.0

AVB Pressure Loss in Bars

m³/hr	1"
0.23	<0.07
1.14	<0.07
2.27	0.08
3.41	0.15
4.54	0.25
5.68	0.36
6.81	0.48

AVB Pressure Loss in kPa

l/min	1" Globe
4.0	<6.89
19.0	<6.89
38.0	8.27
52.0	15.17
76.0	24.82
95.0	35.85
114.0	48.26



PGV

A complete line-up of rugged, professional-grade valves designed to handle the full range of landscape needs.

This hard working, heavy-duty performer offers you the best features of our top-of-the-line valves...more than enough to handle the rigors of whatever your site has to offer. For smaller landscape applications, the PGV is available in four 1" body configurations, in either an angle, globe, male x male, or male x barb design. In turn, each model is available as either flow control or non-flow control versions. For larger landscape applications, the PGV comes in both 1½" and 2" globe/angle models (with flow control). All models feature durable high-grade construction and a rugged diaphragm with a support to prevent stress failure.



FEATURES & BENEFITS



Heavy-duty Hunter solenoid

Provides dependable operation and long life

High grade construction, 150 PSI rating

Made of durable materials to resist wear

Internal & external manual bleed

Two options for manual operation

Flow control with non-rising handle

Adjust the flow of each zone on a system

Rigid diaphragm support

Works to prevent stress failure in tough conditions

Globe and angle configurations

Easy to use in any application

Captive bonnet bolts and solenoid plunger

No lost parts during servicing

Accu-Set™ pressure regulator compatible

Dial setting pressure regulation for precise system control

MODELS

- PGV-100G – 1" plastic globe valve, no flow control
- PGV-101G – 1" plastic globe valve with flow control
- PGV-100A – 1" plastic angle valve, no flow control
- PGV-101A – 1" plastic angle valve with flow control
- PGV-100MB – 1" plastic globe valve, no flow control, male thread x 1" barb
- PGV-101MB – 1" plastic globe valve, with flow control, male thread x barb
- PGV-100MB125 – 1" plastic globe valve, no flow control, male thread x 1¼" barb
- PGV-101MB125 – 1" plastic globe valve, with flow control, male thread x 1¼" barb
- PGV-100MM – 1" plastic globe valve, no flow control, male x male thread
- PGV-101MM – 1" plastic globe valve, with flow control, male x male thread
- PGV-151 – 1½" plastic angle/globe valve with flow control
- PGV-201 – 2" plastic angle/globe valve with flow control

DIMENSIONS

- 1" Globe and Male x Male: 5" H x 4½" L x 2½" W (13 cm H x 11 cm L x 6 cm W)
- 1" Male x Barb: 5" H x 5½" L x 2½" W (13 cm H x 14 cm L x 6 cm W)
- 1" Angle: 5½" H x 3½" L x 2¾" W (14 cm H x 9 cm L x 7 cm W)
- 1½" Globe/Angle: 7½" H x 5¾" L x 4½" W (19 cm H x 15 cm L x 11 cm W)
- 2" Globe/Angle: 8" H x 6¾" L x 5¼" W (20 cm H x 17 cm L x 13 cm W)

OPERATING SPECIFICATIONS

- Flow: .2 to 120 GPM (0.04 to 27.2 m³/hr; 0.7 to 454.2 l/min)
- Pressure: 20 to 150 PSI (1.4 to 10.3 bars; 138 to 1034 kPa)
- Ambient temperature: up to 150° F (66° C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles

OPTIONS AVAILABLE

- Accu-Set™ pressure regulator
- Reclaimed water identification handle
PGV-101 models (part # 269205) for PGV-151/201 models (part # 607105)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # PCZ101)

PGV Pressure Loss in PSI

GPM	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
1	1.1	1.0				
5	1.9	1.0				
10	1.9	1.0				
15	1.6	1.0				
20	3.3	2.0	3.0	3.0	1.0	1.0
30	6.1	3.0	3.0	3.0	1.0	2.0
40			3.0	3.0	2.0	2.0
50			4.0	3.5	1.0	1.0
60			5.0	4.0	2.0	2.0
80			5.5	4.5	3.0	2.0
100			9.0	8.0	5.0	3.0
120			11.5	10.5	6.0	5.0
135					8.0	7.0
150					10.0	9.0

PGV Pressure Loss in Bars

m³/hr	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
0.23	0.08	0.07				
1.14	0.13	0.07				
2.27	0.13	0.07				
3.41	0.11	0.07				
4.54	0.23	0.14	0.21	0.21	0.07	0.07
6.81	0.42	0.21	0.21	0.21	0.07	0.14
9.08			0.21	0.21	0.14	0.14
11.36			0.28	0.24	0.07	0.07
13.63			0.34	0.28	0.14	0.14
18.17			0.38	0.31	0.21	0.14
22.71			0.63	0.56	0.34	0.21
27.25			0.81	0.74	0.41	0.34
30.66					0.56	0.49
34.10					0.70	0.63

PGV Pressure Loss in kPa

l/min	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
3.8	7.58	6.89				
18.9	13.10	6.89				
37.9	13.10	6.89				
56.8	11.03	6.89				
75.7	22.75	13.79	20.70	20.70	6.90	6.90
113.5	42.06	20.68	20.70	20.70	6.90	13.80
151.4			20.70	20.70	13.80	13.80
189.3			27.60	24.10	6.90	6.90
227.1			34.50	27.60	13.80	13.80
302.8			37.90	31.00	20.70	13.80
378.5			63.00	56.00	34.50	20.70
454.2			80.50	74.00	41.40	34.50
662.4					56.00	49.00
757.0					70.70	63.00

Charts based on full-open flow control position.

SPECIFICATION GUIDE

EXAMPLE: **PGV - 100G - S - AS**

MODEL PGV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	100G = 1" Globe Valve, no Flow Control 101G = 1" Globe Valve, with Flow Control 100A = 1" Angle Valve, no Flow Control 101A = 1" Angle Valve, with Flow Control 100MB = 1" Globe Valve, no Flow Control, Male Thread x 1" Barb 100MB125 = 1" Globe Valve, no Flow Control, Male Thread x 1¼" Barb 101MB = 1" Globe Valve, with Flow Control, Male Thread x Barb 101MB125 = 1" Globe Valve, with Flow Control, Male Thread x 1¼" Barb 100MM = 1" Globe Valve, no Flow Control, Male x Male 101MM = 1" Globe Valve, with Flow Control, Male x Male 151 = 1½" Globe/Angle Valve, with Flow Control 201 = 2" Globe/Angle Valve, with Flow Control	S = Slip x Slip (1" Models Only) B = BSP Threads DC = DC Latching Solenoid LS = Less Solenoid	AS = Accu-Set™ Pressure Regulator (1½" and 2" Models Only) R = Reclaimed Water Identification Handle or Tag CC = Conduit Cover



All models of PGV valves feature internal manual bleed, ensuring a neat, dry valve box.



All models of PGV valves have captive screws, diaphragm, and spring.



All models of PGV valves have external manual bleed.

PGV Jar-Top

Maximum convenience, reliability, and ease of service in a residential valve.

Now it's possible to service a Hunter valve without using any tools to gain access to the inner workings of the product. Product maintenance has never been easier! And with this simplicity, you don't give up any quality or performance as these valves boast more than enough features to handle the demands of whatever your site has to offer. Choose from a wide range of different configurations for the many different styles of installations that vary from region to region. All models feature durable, high-grade, corrosive- and UV-resistant PVC construction and a rugged double-beaded, leak-proof diaphragm with support to prevent stress failure. Plus, you'll find a fully-encapsulated solenoid that guarantees reliable operation time after time.



All it takes is a simple twist of the wrist to unscrew the top of the valve, making PGV Jar-Top the industry's fastest valve to service.

FEATURES & BENEFITS

Jar-Top bonnet

Intuitive design makes it easy to access the valve; no tools necessary

Heavy-duty Hunter solenoid

Provides dependable operation and long life

High grade construction

Made of durable materials and stainless steel to resist wear

Internal and external manual bleed

Two choices for manual operation

Flow control option

Adjusts the flow of each zone on a system to deliver optimum nozzle performance

Rigid diaphragm support

Works to prevent stress failure in tough conditions

Common parts to other Hunter valves

Diaphragm is interchangeable with PGV, SRV, and ASV series 1" valves; solenoid fits all Hunter plastic valves



MODELS

- PGV-100JT-G – 1" plastic globe valve, Jar-Top Bonnet, no flow control
- PGV-101JT-G – 1" plastic globe valve, Jar-Top Bonnet, with flow control
- PGV-100JT-GS – 1" plastic globe valve, Jar-Top Bonnet, no flow control, female slip
- PGV-101JT-GS – 1" plastic globe valve, Jar-Top Bonnet, with flow control, female slip
- PGV-100JT-MB – 1" plastic globe valve, Jar-Top Bonnet, no flow control, male thread x 1" barb
- PGV-101JT-MB – 1" plastic globe valve, Jar-Top Bonnet, with flow control, male thread x barb
- PGV-100JT-MB125 – 1" plastic globe valve, Jar-Top Bonnet, no flow control, 1" male thread x 1¼" barb
- PGV-101JT-MB125 – 1" plastic globe valve, Jar-Top Bonnet, with flow control, 1" male thread x 1¼" barb
- PGV-100JT-MM – 1" plastic globe valve, Jar-Top Bonnet, no flow control, male x male thread
- PGV-101JT-MM – 1" plastic globe valve, Jar-Top Bonnet, with flow control, male x male thread
- PGV-100JT-MB075 – 1" plastic globe valve, Jar-Top Bonnet, no flow control, 1" male thread x ¾" barb
- PGV-101JT-MB075 – 1" plastic globe valve, Jar-Top Bonnet, with flow control, 1" male thread x ¾" barb

DIMENSIONS

- 1" Globe: 5½" H x 4¾" L x 3¼" W
- 1" Male x Male: 5½" H x 5¼" L x 3¼" W
- 1" Male x Barb: 5½" H x 5⅞" L x 3¼" W
- 1" Male x 1¼" Barb: 5½" H x 5⅞" L x 3¼" W

OPERATING SPECIFICATIONS

- Flow: .2 to 30 GPM (0.04 to 6.81 m³/hr; 0.7 to 113.5 l/min)
- Pressure: 20 to 150 PSI (1.4 to 10.3 bars; 138 to 1034 kPa)
- Ambient temperature: up to 150°F (66°C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles

OPTIONS AVAILABLE

- Reclaimed water identification handle for flow control models only (part # 269205)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # PCZ101)

PGV Jar-Top Pressure Loss in PSI

GPM	1"
1	1.1
5	1.9
10	1.9
15	1.6
20	3.3
30	6.1

PGV Jar-Top Pressure Loss in Bars

m³/hr	1"
0.23	0.08
1.14	0.13
2.27	0.13
3.41	0.11
4.54	0.23
6.81	0.42



Landscapes vary from house to house, installation styles vary from region to region. With a wide range of models, there's a PGV Jar-Top just right for your needs.

A COMPLETE LINE-UP OF CHOICES

No matter what method of installation you prefer, the PGV Jar-Top offers a model to match your particular requirements:



THREADED

1" threaded inlet and outlet.



SLIP

For direct, leak-free solvent weld connections to PVC pipe.



MALE X BARB

Specifically designed for use with polyethylene piping systems. Requires fewer fittings and allows faster installation. Choice of ¾", 1", or 1¼" barb outlets for compatibility with different systems.

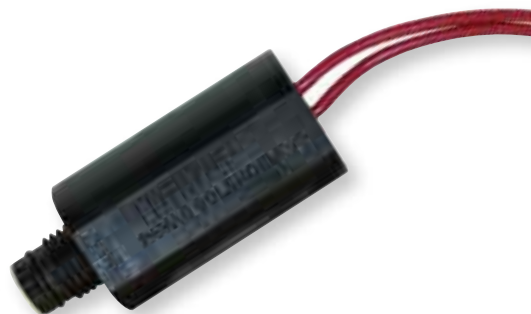


MALE X MALE

Designed for use with "union style" manifold tees for quick installation.



Tool-free access and captive parts - It doesn't get any easier to service a valve.



Heavy-duty Hunter solenoid provides dependable operation and long life

SPECIFICATION GUIDE

EXAMPLE: **PGV - 100JT - S - R**

MODEL PGV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	100JT = 1" Globe Jar-Top Valve, no Flow Control 101JT = 1" Globe Jar-Top Valve, with Flow Control	G = NPT Threads S = Slip x Slip B = BSP Threads MM = Male x Male (NPT) MMB = Male x Male (BSP) MB = Male x 1" Barb MB075 = Male x ¾" Barb MB125 = Male x 1¼" Barb LS = Less Solenoid (Only available on 101JTG, 100JTG, 101JTB, 100JTB)	R = Reclaimed Water Identification Handle DC = DC Latching Solenoid CC = Solenoid Conduit Cover

HPV

A heavy-duty residential valve made specifically to handle demanding situations.

Built to work. Built to last. The Hunter HPV is a valve that's both. Because this is a valve with every feature you could ask for to attain long-lasting, heavy-duty performance. Rigid internal support to prevent stress failure in high pressure situations. A unique porting system with a superior ability to filter dirty water that also closes slowly to suppress water hammer. Low-flow capability for effective drip applications. A captive diaphragm, solenoid plunger, and bonnet screws, so lost parts are never a problem. There's even a flow control option that assures efficient operation when accurate flow management is required. For residential and light commercial applications, the Hunter HPV plastic valve is built to take whatever your site is dishing out.



To attain the highest standards for quality control, Hunter routinely water tests all valve models at maximum and minimum pressures as well as maximum and minimum flows.

FEATURES & BENEFITS



Heavy-duty Hunter solenoid

Long-life, reliable operation

Captive solenoid plunger

No more lost parts when servicing

Internal manual bleed

Keeps valve box dry

Optional flow control

Adjust the flow of each zone on a system

Captive bonnet screws

No more lost parts

Self-flushing filtering system

Handles dirty water with ease

Fully supported diaphragm

Tolerates high pressure installations



IT'S A DIRTY JOB, BUT HUNTER VALVES CAN DO IT

Hunter valves are specifically engineered to handle conditions where clean water is not an option. When you're drawing from a well, lake, reservoir, or any other source of dirty water, turn the job over to a Hunter valve. Our HPV's unique filtering mechanism is flushed with turbulent water every single time the valve opens and closes to ensure consistent, reliable operation. Its filter also works to eliminate valve failure, with an innovative design that protects the upper diaphragm chamber from debris (if your system contends with a non-potable supply of water, or your water source has algae or other biological contaminants, we recommend our ICV valve with Filter Sentry™).



MODELS

- HPV-100G – 1" plastic globe valve
- HPV-101G – 1" plastic globe valve, with flow control
- HPV-100A – 1" plastic angle valve
- HPV-101A – 1" plastic angle valve, with flow control

DIMENSIONS

- Globe Valve:
5¼" H x 4½" L x 2¾" W (13 cm H x 11 cm L x 7 cm W)
- Angle Valve: 5½" H x 3½" L x 2¾" W (14 cm H x 9 cm L x 7 cm W)
- Female inlet/outlet: 1" NPT, BSP, or Slip

OPERATING SPECIFICATIONS

- Flow: .4 to 40 GPM (0.09 to 9.1 m³/hr; 1.5 to 151 l/min)
- Pressure: 20 to 150 PSI (1.4 to 10.3 bars; 138 to 1034 kPa)
- Ambient temperature: up to 150°F (66°C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles

OPTIONS AVAILABLE

- Reclaimed water identification handle (part # 269205)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)

HPV Pressure Loss in PSI

GPM	1" Globe	1" Angle
1	1.0	1.0
5	2.0	1.5
10	2.0	1.7
15	1.8	1.4
20	2.5	1.5
25	3.6	2.0
30	5.5	2.9
35	7.7	4.2
40	10.5	5.7

HPV Pressure Loss in Bars

m³/hr	1" Globe	1" Angle
0.23	0.10	0.10
1.14	0.10	0.10
2.27	0.10	0.10
3.41	0.10	0.10
4.54	0.20	0.10
5.68	0.20	0.10
6.81	0.40	0.20
7.95	0.50	0.30
9.00	0.70	0.40

HPV Pressure Loss in kPa

l/min	1" Globe	1" Angle
3.8	6.90	6.90
18.9	13.80	10.30
37.9	13.80	11.70
56.8	12.40	9.70
75.7	17.20	10.30
94.6	24.80	13.80
113.6	37.90	20.00
132.5	53.10	29.00
151.4	72.40	39.30

Charts based on full-open flow control position.

SPECIFICATION GUIDE

EXAMPLE: **HPV - 101G - S - DC**

MODEL HPV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	100G = 1" Globe Valve, no Flow Control 101G = 1" Globe Valve, with Flow Control 100A = 1" Angle Valve, no Flow Control 101A = 1" Angle Valve, with Flow Control	S = Slip x Slip (Globe Only) B = BSP Threads LS = Less Solenoid	R = Reclaimed Water Identification Handle DC = DC Latching Solenoid CC = Solenoid Conduit Cover

ICV

The top-of-the-line valve you can count on for superior durability and ability to handle exceptionally high pressures.

For a long-lasting valve that can deliver dependable performance at commercial sites, this is the heavy-duty workhorse you can count on. Created to handle the wide range of conditions different sites will bring, this valve includes both a fabric reinforced diaphragm and flow control as standard features, and can consistently withstand pressures of up to 220 PSI while handling the continual hammer that such forces will produce. The ICV also offers the added option of the Accu-Set™ pressure regulator to maintain a safe, constant water pressure level. Plus, it's exceptionally easy to service, with bonnet fasteners that can be loosened and tightened using a variety of common contractor tools.



FEATURES & BENEFITS



Glass-filled nylon construction

220 PSI rated for maximum strength and sturdiness

Internal and external manual bleed

Two choices for manual operation

Captive solenoid plunger

No more lost parts when servicing

Captive bonnet bolts with matching brass body inserts

Provide ease of service, eliminate lost parts

Fabric reinforced diaphragm

Provides reliable operation up to 220 PSI

Optional reclaimed water identification handle

For field identification of non-potable water supply



MODELS

- ICV-101G – 1" plastic globe valve
- ICV-151G – 1½" plastic globe valve
- ICV-201G – 2" plastic globe valve
- ICV-301E – 3" plastic globe/angle valve
- Accu-Set™ Pressure Regulator

DIMENSIONS

- ICV-101G: 5½" H x 4¾" L x 4" W
(14 cm H x 12 cm L x 10.2 cm W)
- ICV-151G: 7⅞" H x 6⅞" L x 5½" W
(18 cm H x 17.5 cm L x 14 cm W)
- ICV-201G: 7⅞" H x 6⅞" L x 5½" W
(18 cm H x 17.5 cm L x 14 cm W)
- ICV-301E: 10¾" H x 9¼" L x 7⅜" W
(27.3 cm H x 23.5 cm L x 18.7 cm W)
- Female inlet/outlet: 1", 1½", 2" & 3" NPT or BSP

OPERATING SPECIFICATIONS

- Flow: 0.10 to 300 GPM (0.06 to 68.10 m³/hr; 0.9 to 1,135.5 l/min)
- Pressure: 20 to 220 PSI (1.4 to 15.0 bars; 138 to 1500 kPa)
- Ambient temperature: up to 150° F (66° C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles
- Accu-Set: 20 PSI (1.4 bars, 138 kPa) minimum operating pressure. Regulates from 20 to 100 PSI (1.4 to 7.0 bars; 138 to 689 kPa)

OPTIONS AVAILABLE

- Accu-Set pressure regulator
- Reclaimed water ID handle (part # 561205 - 1", 1½", & 2") (part # 515005 - 3")
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # ICZ101)



Accu-Set™: FINALLY, A PRESSURE REGULATOR THAT'S EASY TO SET

With the added option of Accu-Set on a Hunter ICV valve, you can reliably adjust and regulate pressures anywhere from 20 to 100 PSI, and be certain the setting you select will never waver. Accu-Set can be field installed to any ICV valve in seconds, without tools. Plus, the best part is the ease of setting the unit—just turn to the pressure you want on the easy-reading dial. No other pressure regulating device is as simple to use (just one more reason to choose Hunter).



ICV Pressure Loss in PSI

GPM	3"				
	1"	1½"	2"	Globe	Angle
0.1	2.0				
0.5	2.0				
1.0	2.0				
5.0	4.0				
10.0	3.0				
15.0	3.0				
20.0	3.0	1.5			
30.0	4.0	1.5			
40.0	7.0	1.7	0.8		
50.0		2.2	1.2		
60.0		3.0	1.7		
75.0		3.9	2.4		
90.0		5.5	3.2		
100.0		7.0	4.2		
120.0		10.9	6.5		
135.0		12.7	7.9		
150.0		16.2	9.8	2.5	1.9
175.0			13.3	3.0	2.4
200.0			17.7	4.1	3.3
225.0				5.3	4.3
250.0				6.7	5.5
275.0				8.3	6.9
300.0				10.1	8.5

Charts based on full-open flow control position.

ICV Pressure Loss in Bars

m³/hr	3"				
	1"	1½"	2"	Globe	Angle
0.06	0.14				
0.11	0.14				
0.23	0.14				
1.14	0.28				
2.27	0.21				
3.41	0.21				
4.54	0.21	0.10			
6.81	0.28	0.10			
9.08	0.48	0.12	0.05		
11.36		0.15	0.08		
13.63		0.21	0.12		
17.03		0.27	0.16		
20.44		0.38	0.22		
22.71		0.48	0.29		
27.25		0.75	0.45		
30.66		0.87	0.54		
34.10		1.12	0.67	.17	.13
39.70			0.92	.20	.16
45.42			1.22	.28	.23
51.10				.36	.30
56.80				.46	.38
62.50				.57	.48
68.10				.70	.59

ICV Pressure Loss in kPa

l/min	3"				
	1"	1½"	2"	Globe	Angle
0.9	13.7				
1.9	13.7				
3.8	13.7				
18.9	27.5				
37.9	20.6				
56.8	20.6				
75.7	20.6	10.3			
113.5	27.5	10.3			
151.4	48.2	11.7	5.5		
189.2		15.1	8.2		
227.1		20.6	11.7		
283.8		26.8	16.5		
340.6		37.9	22.0		
378.5		48.2	28.9		
454.2		75.1	44.8		
510.9		87.5	54.4		
567.8		111.6	67.5	17.2	13.1
662.4			91.7	20.7	16.5
757.0			122.0	28.3	22.8
851.6				36.5	29.6
946.3				46.2	37.9
1040.9				57.2	47.6
1135.5				69.6	58.6

SPECIFICATION GUIDE

EXAMPLE: **ICV - 201G - FS - AS**

MODEL ICV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	101G = 1" Globe Valve 151G = 1½" Globe Valve 201G = 2" Globe Valve 301 = 3" Globe Valve	FS = Filter Sentry™ B = BSP Threads DC = DC Latching Solenoid	AS = Accu-Set™ Pressure Regulator R = Reclaimed Water Identification Handle CC = Conduit Cover

ICV Filter Sentry™

*A heavy-duty, high pressure workhorse,
with the added benefit of contamination protection.*

Dirt. It's a valve's biggest enemy. But aren't filters supposed to keep a valve dirt free? Well, most can keep out the big stuff, but what about the microscopic particles—like minerals and algae—that can build up on the diaphragm filter? After all, that kind of contamination, over time, can lead to the product's premature failure. That's why Hunter developed Filter Sentry™, a scouring mechanism which continuously works whenever the ICV is operating. Added to all the other outstanding features of the ICV, it results in the most durable and reliable valve available that can consistently withstand pressures of up to 220 PSI. The ICV Filter Sentry. When it comes to valve performance, there's no better way to stand guard over dirt.



FEATURES & BENEFITS



Glass-filled nylon construction

220 PSI rated for maximum strength and sturdiness

Internal and external manual bleed

Two choices for manual operation

Captive solenoid plunger

No more lost parts when servicing

Captive bonnet bolts with matching brass body inserts

Provide ease of service, eliminate lost parts

Fabric reinforced diaphragm

Provides reliable operation up to 220 PSI

Patented Filter Sentry™ system

Automatically cleans the filter

Optional reclaimed water identification handle

For field identification of non-potable water supply



MODELS

- ICV-101G-FS – 1" plastic globe valve with Filter Sentry™
- ICV-151G-FS – 1½" plastic globe valve with Filter Sentry
- ICV-201G-FS – 2" plastic globe valve with Filter Sentry
- ICV-301E-FS – 3" plastic globe/angle valve with Filter Sentry
- Accu-Set™ pressure regulator

DIMENSIONS

- ICV-101G
5½" H x 4¾" L x 4" W
(14 cm H x 12 cm L x 10.2 cm W)
- ICV-151G
7⅞" H x 6⅞" L x 5½" W
(18 cm H x 17.5 cm L x 14 cm W)
- ICV-201G
7⅞" H x 6⅞" L x 5½" W
(18 cm H x 17.5 cm L x 14 cm W)
- ICV-301E
10¾" H x 9¼" L x 7⅞" W
(27.3 cm H x 23.5 cm L x 18.7 cm W)
- Female inlet/outlet: 1", 1½", 2" & 3" NPT or BSP

OPERATING SPECIFICATIONS

- Flow: 0.10 to 300 GPM
(0.06 to 68.10 m³/hr; 0.9 to 1,135.5 l/min)
- Pressure: 20 to 220 PSI
(1.4 to 15.0 bars; 138 to 1500 kPa)
- Ambient temperature: up to 150°F (66°C)
- Heavy-duty solenoid: 24VAC, 370mA inrush current, 190mA holding current, 60 cycles; 475mA inrush current, 230mA holding current, 50 cycles
- Accu-Set: 20 PSI (1.4 bars, 138 kPa) minimum operating pressure. Regulates from 20 to 100 PSI (1.4 to 7.0 bars; 138 to 689 kPa)

OPTIONS AVAILABLE

- Accu-Set pressure regulator
- Reclaimed water ID handle
(part # 561205 - 1", 1½" & 2") (part # 515005 - 3")
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # ICZ101)

A SUPERIOR SELF-CLEANING SYSTEM

The ICV standard filter can become clogged by large amounts of small debris commonly found in reclaimed water, wells, or in lakes and ponds. But with Filter Sentry™, the filter is scoured clean by a wiper that slides up and strokes the full length of the filter when the valve opens. The wiper continues to provide scrubbing action on the upper part of the filter during valve operation. For your convenience, Filter Sentry can be added easily after the valve is installed.



ICV Pressure Loss in PSI

GPM	3"				
	1"	1½"	2"	Globe	Angle
0.1	2.0				
0.5	2.0				
1.0	2.0				
5.0	4.0				
10.0	3.0				
15.0	3.0				
20.0	3.0	1.5			
30.0	4.0	1.5			
40.0	7.0	1.7	0.8		
50.0		2.2	1.2		
60.0		3.0	1.7		
75.0		3.9	2.4		
90.0		5.5	3.2		
100.0		7.0	4.2		
120.0		10.9	6.5		
135.0		12.7	7.9		
150.0		16.2	9.8	2.5	1.9
175.0			13.3	3.0	2.4
200.0			17.7	4.1	3.3
225.0				5.3	4.3
250.0				6.7	5.5
275.0				8.3	6.9
300.0				10.1	8.5

ICV Pressure Loss in Bars

m³/hr	3"				
	1"	1½"	2"	Globe	Angle
0.06	0.14				
0.11	0.14				
0.23	0.14				
1.14	0.28				
2.27	0.21				
3.41	0.21				
4.54	0.21	0.10			
6.81	0.28	0.10			
9.08	0.48	0.12	0.05		
11.36		0.15	0.08		
13.63		0.21	0.12		
17.03		0.27	0.16		
20.44		0.38	0.22		
22.71		0.48	0.29		
27.25		0.75	0.45		
30.66		0.87	0.54		
34.10		1.12	0.67	.17	.13
39.70			0.92	.20	.16
45.42			1.22	.28	.23
51.10				.36	.30
56.80				.46	.38
62.50				.57	.48
68.10				.70	.59

ICV Pressure Loss in kPa

l/min	3"				
	1"	1½"	2"	Globe	Angle
0.9	13.7				
1.9	13.7				
3.8	13.7				
18.9	27.5				
37.9	20.6				
56.8	20.6				
75.7	20.6	10.3			
113.5	27.5	10.3			
151.4	48.2	11.7	5.5		
189.2		15.1	8.2		
227.1		20.6	11.7		
283.8		26.8	16.5		
340.6		37.9	22.0		
378.5		48.2	28.9		
454.2		75.1	44.8		
510.9		87.5	54.4		
567.8		111.6	67.5	17.2	13.1
662.4			91.7	20.7	16.5
757.0			122.0	28.3	22.8
851.6				36.5	29.6
946.3				46.2	37.9
1040.9				57.2	47.6
1135.5				69.6	58.6

Charts based on full-open flow control position.

SPECIFICATION GUIDE

EXAMPLE: **ICV - 201G - FS - AS**

MODEL ICV	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
	101G = 1" Globe Valve 151G = 1½" Globe Valve 201G = 2" Globe Valve 301 = 3" Globe Valve	FS = Filter Sentry B = BSP Threads DC = DC Latching Solenoid	AS = Accu-Set Pressure Regulator R = Reclaimed Water Identification Handle CC = Conduit Cover

HBV

Constructed of solid brass to handle tough conditions and resist contamination.

An internal self-flushing filter and self-cleaning metering rod help eliminate dirt particles before they enter the solenoid chamber, effectively making this valve contamination-resistant. The HBV also features a stainless steel solenoid seat, built-in flow control to assure accurate flow management, and a surgical-quality toggle switch that provides easy manual operation through internal downstream bleed. So rugged and reliable, dirty water will never be a problem again!



FEATURES & BENEFITS

Heavy-duty toggle switch

Makes manual operation easy

Stainless steel seat in solenoid chamber

Prevents rust and corrosion

Slow closure

Stops water hammer, surge, and noise

Reinforced 600 lb. test diaphragm with integral O-ring seal

Long life under extreme pressures

MODELS

- HBV-101E – 1" brass globe valve
- HBV-151E – 1½" brass globe valve
- HBV-201E – 2" brass globe valve
- HBV-301E – 3" brass globe valve

DIMENSIONS

- HBV-101E – 4½" H x 4⅜" L x 5½" W
(11 cm H x 11 cm L x 14 cm W)
- HBV-151E – 8" H x 6" L x 8" W
(20 cm H x 15 cm L x 20 cm W)
- HBV-201E – 9" H x 7" L x 9" W
(23 cm H x 18 cm L x 23 cm W)
- HBV-301E – 10" H x 11½" L x 10" W
(25 cm H x 29 cm L x 25 cm W)
- HBV-101EP – 4½" H x 4⅜" L x 5½" W
(11 cm H x 11 cm L x 14 cm W)
- HBV-151EP – 8" H x 6" L x 7½" W
(20 cm H x 15 cm L x 19 cm W)
- HBV-201EP – 9" H x 7" L x 7¾" W
(23 cm H x 18 cm L x 20 cm W)
- HBV-301EP – 10" H x 11½" L x 11" W
(25 cm H x 29 cm L x 28 cm W)
- Female inlet/outlet: NPT or BSP

OPERATING SPECIFICATIONS

- Flow: 5 to 360 GPM
(1.14 to 81.8 m³/hr; 18.9 to 1362 l/min)
- Pressure: 20 to 200 PSI (1.4 to 14.0 bars; 138 to 1379 kPa) Note: Inlet pressure must exceed outlet pressure by a minimum of 15 PSI (1.0 bars; 103 kPa) on pressure regulated models
- Electrical: 24VAC, 50/60 cycle solenoid power requirement – 335mA (.335A; 8VA) inrush current; 200mA (.200A; 4.9VA) holding current

OPTIONS AVAILABLE

- Pressure regulation
- BSP threads
- 12-volt DC latching solenoid, field installed (part # S16305)

HBV Pressure Loss in PSI					HBV Pressure Loss in Bars					HBV Pressure Loss in kPa				
GPM	1"	1½"	2"	3"	m³/hr	1"	1½"	2"	3"	l/min	1"	1½"	2"	3"
5	0.2				1.14	0.00				18.9	1.10			
10	0.8				2.27	0.10				37.9	5.20			
15	1.5				3.41	0.10				56.8	10.30			
20	2.6	0.5			4.54	0.20	0.00			75.7	17.90	3.10		
30	5.7	1.0			6.81	0.40	0.10			113.6	39.30	6.90		
40	10.0	1.7	0.5		9.09	0.70	0.10	0.00		151.4	68.90	11.70	3.70	
50	15.6	2.7	0.8		11.36	1.10	0.20	0.10		189.3	110.00	18.30	5.70	
60	22.0	3.8	1.2		13.63	1.50	0.30	0.10		227.1	151.90	26.20	8.30	
70		5.1	1.6		15.90		0.40	0.10		265.0		35.20	11.00	
80		6.6	2.1		18.17		0.50	0.10		302.8		45.50	14.10	
90		8.3	2.6		20.44		0.60	0.20		340.7		57.20	17.90	
100		10.1	3.2	2.4	22.72		0.70	0.20	0.20	378.5		69.60	22.10	16.00
120		14.8	4.6	2.5	27.26		1.00	0.30	0.20	454.2		102.20	31.70	17.00
140		19.0	6.3	2.5	31.80		1.30	0.40	0.20	530.0		131.20	43.40	17.00
160		23.1	8.0	2.9	36.35		1.60	0.60	0.20	605.7		159.40	55.20	20.00
200			13.9	4.0	45.43			1.00	0.30	757.1			95.80	28.00
240				6.0	54.51				0.40	908.4				41.00
280				8.2	63.59				0.60	1059.8				57.00
320				10.7	72.68				0.70	1211.2				74.00
360				13.2	81.76				1.90	1362.6				91.00

Charts based on full-open non-regulated setting position. Minimum flow on 1" valve is 2.5 gpm.

Charts based on full-open non-regulated setting position. Minimum flow on 1" valve is 0.57 m³/hr.

Charts based on full-open non-regulated setting position. Minimum flow on 1" valve is 9.5 l/min.

SPECIFICATION GUIDE

EXAMPLE: **HBV - 201E - P**

MODEL	FEATURES	OPTIONS
HBV	101E = 1" Globe Valve 151E = 1½" Globe Valve 201E = 2" Globe Valve 301E = 3" Globe Valve	P = Pressure Regulation B = BSP Threads DC = DC Latching Solenoid (Field Installed)

Controllers



	SRC Plus	XC	Pro-C	ICC PLASTIC CABINET	ICC METAL CABINET	ICC STAINLESS STEEL CABINET	ICC PLASTIC PEDESTAL	ACC METAL CABINET	ACC PLASTIC PEDESTAL
Applications									
Residential	✓	✓	✓	✓					
Light Commercial			✓	✓	✓	✓	✓	✓	✓
Large Commercial/Institutional				✓	✓	✓	✓	✓	✓
Type of Controller									
Indoor	✓	✓	✓	✓	✓	✓		✓	✓
Outdoor		✓	✓	✓	✓	✓	✓	✓	✓
Pedestal Mounting					✓	✓	✓	✓	✓
Features									
Number of Programs	3	3	3	4	4	4	4	6	6
Master Valve/Pump Start Circuit	✓	✓	✓	✓	✓	✓	✓	✓	✓
Seasonal Adjust/Water Budget		✓	✓	✓	✓	✓	✓	✓	✓
Programmable Rain Delay		✓	✓	✓	✓	✓	✓	✓	✓
Rain Sensor Bypass	✓	✓	✓	✓	✓	✓	✓	✓	✓
True Odd/Even Watering	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interval Watering		✓	✓	✓	✓	✓	✓	✓	✓
Cycle and Soak				✓	✓	✓	✓	✓	✓
Programmable Delay Between Stations		✓	✓	✓	✓	✓	✓	✓	✓
Test Program	✓	✓	✓	✓	✓	✓	✓	✓	✓
Non-Volatile Memory	✓	✓	✓	✓	✓	✓	✓	✓	✓
Real Time Flow Sensing								✓	✓
Accessories									
Remote Control Ready	✓		✓	✓	✓	✓	✓	✓	✓
Upgradeable to Central Control	✓		✓	✓	✓	✓	✓	✓	✓

SRC Plus

Simple. Convenient. Economical. The versatile controller that delivers Hunter quality to smaller sites.

Sophisticated technology and built-in convenience isn't limited to just the most expensive products. The SRC Plus controller offers a proven track record of Hunter quality and reliability, as well as some of the features you'd assume might only be available on high-priced units. The SRC offers dial programming and a full three programs, each with four start times, plus such conveniences as a built-in 365-day calendar and a rain sensor bypass circuit—just the right features for the needs of smaller landscapes. Available in either 6- or 9-station models, the SRC is housed in a rugged cabinet that offers a polished, professional look. For economy, simplicity, and dependability...you won't find a better value.



Easy one-button manual start and advance is offered on all Hunter dial controllers.

FEATURES & BENEFITS



Dial programming

Easy program entry for installers and end-users

3 programs (A, B, C) with multiple start times

Accommodates repeat watering requirements

365-day calendar

Accommodates odd/even watering restrictions, maximum flexibility

Rain sensor bypass

Quick override of rain sensor, no separate switch required

Large wiring compartment with handy terminal strip

Fast installation, extra space to work

Non-volatile memory

Excellent insurance against unreliable power; retains program data without the need for a battery

Remote control ready

Supplied with SmartPort® wiring harness connection for SRR and ICR remote controls

MODELS

- SRC-600i – 6-station, Indoor Model with 120 VAC Plug-in Transformer
- SRC-900i – 9-station, Indoor Model with 120 VAC Plug-in Transformer
- SRC-601i – 6-station, Indoor Model without Plug-in Transformer
- SRC-901i – 9-station, Indoor Model without Plug-in Transformer

DIMENSIONS

- SRC Plus: 8¼" H x 8½" W x 2¼" D
(21 cm H x 22 cm W x 6 cm D)

SPECIFICATIONS & FEATURES

- Station run time: 0-99 minutes in 1-minute increments
- Start times: 4 per day, per program, for up to 12 daily starts
- Day schedule: 7-day calendar or true odd-even programming with 365-day calendar clock
- AM/PM or 24 hour clock option
- Start time stacking
- One button manual start and advance
- Transformer input: 120VAC, 60 Hz (transformer not included with export units)
- Transformer output: 24VAC, 0.75A
- Station output: 24VAC, 0.35A per station
- Maximum total output: 24VAC, 0.7A, includes master valve circuit
- Battery: Not required for program backup. 9 volt alkaline battery may be used to program controller in absence of AC power.
- Non-volatile memory for program data (no battery required to maintain program)
- Master valve output: 24VAC, 0.35A
- Surge protection: primary MOV-type
- Rain sensor override compatible with most major brands
- Test program feature allows for quick system checks.
- Preset test cycle on program "C"
- UL listed
- Central control compatible with Hunter IMMS™ system
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Electronic Short Circuit Protection; automatically detects and skips shorted stations, no fuses to replace



The SRC's standard indoor cabinet is good looking and extra sturdy, and can be used with or without the protective door.

AS EASY TO INSTALL AS IT IS TO USE

The SRC Plus controller is easy to use. Even easier to install, with an exceptionally large wiring compartment and a handy provision for conduit, as well as a wall mounting bracket. There's no measuring, no pilot holes, no special templates necessary. Just position the bracket, install two screws (provided), and hang the controller. Once again, easy does it.



MAKE YOUR SIMPLE AND RELIABLE CONTROLLER EVEN SIMPLER

Now you can make your user-friendly SRC Plus controller even easier to operate with the optional SRR remote control. Imagine the convenience of being able to manually activate any zone from anywhere in a yard—up to 450 feet from the controller. For more information on this handy option, see page 82.

SPECIFICATION GUIDE

EXAMPLE: **SRC - 600i**

MODEL	FEATURES
SRC	600i = 6-Station Controller, Indoor Model with 120 VAC Plug-in Transformer 900i = 9-Station Controller, Indoor Model with 120 VAC Plug-in Transformer 601i = 6-Station Controller, Indoor Model without Plug-in Transformer 901i = 9-Station Controller, Indoor Model without Plug-in Transformer



Compatible with Hunter rain sensors.

Entry-level residential controller with extra flexibility, features, and memory.

The new Hunter XC presents handy water management control in a compact, user-friendly controller that is capable of meeting the irrigation requirements for a wide range of residential landscapes. Simply put, the XC brings a whole lot extra to a small controller. Like extra power...the XC offers a choice of 2-, 4-, 6-, and 8-station models, each with plenty of might to operate one or two valves per station plus a pump start relay or master valve. Extra features...including global seasonal adjustment and a 365-day calendar to make water savings easier, plus a default system that permits retrieval of the original program entered into the controller. Extra flexibility...with three programs (each with four start times), multiple scheduling formats, and the ability to select sensor input by station. And extra memory...with a non-volatile on-board program backup and a high-energy lithium battery for timekeeping to assure you'll never have to reprogram the controller due to power outages. The choice for those who demand outstanding reliability, the XC is where to turn for extra peace of mind.

FEATURES & BENEFITS



Easy dial programming

Enhanced dial and push button programming makes the XC easy to operate

Global seasonal adjustment (0% to 150%)

Easy on-screen adjustment alters the amount of watering to accommodate changing weather conditions

3 independent programs with 4 start times each

Accommodates a wide range of watering requirements

Non-volatile memory

Excellent insurance against unreliable power; retains current time, day, and program data

Choice of independent day scheduling

For maximum watering flexibility (select days of the week, true odd/even, or interval watering)

Weather sensor compatible

Incorporates hook-up capability to rain, temperature, or wind sensors

Easy-Retrieve™ memory

Ability to retrieve your preferred program, stored in backup memory

Replaceable lithium battery (included)

For backup timekeeping and to enable remote programming of the controller

MODELS

- XC-200i/201i – 2-station indoor controller
- XC-400i/401i – 4-station indoor controller
- XC-400/401 – 4-station outdoor controller
- XC-600i/601i – 6-station indoor controller
- XC-600/601 – 6-station outdoor controller
- XC-800i/801i – 8-station indoor controller
- XC-800/801 – 8-station outdoor controller

DIMENSIONS

- Indoor Model: 6½" H x 5¾" W x 2" D
(16.5 cm H x 14.6 cm W x 5 cm D)
- Outdoor Model: 8⅝" H x 7" W x 3¾" D
(22 cm H x 17.8 cm W x 9.5 cm D)

SPECIFICATIONS & FEATURES

- Outdoor models, transformer with internal junction box
- Indoor models, with plug-in transformer
- 3 programs, A, B, C
- Start times: 4 per day, per program for up to 12 daily starts
- Station run time: 0 minutes to 4 hours in 1-minute increments
- Day schedule: 7-day calendar true odd/even programming with 365-day calendar clock, or interval watering (up to 31 days)
- AM/PM or 24 hour clock option
- Automated chronological ordering of start times/ start time stacking
- One-button manual start and advance
- Seasonal adjust: 0% to 150%
- Transformer input: 120VAC, 60 Hz (domestic model)
- Transformer output: 24VAC, 1.0 amps (capable of operating equivalent of 3 solenoids simultaneously)
- Station output: .56 amps
- Electronic short circuit detection
- Battery: 3V lithium (included) for remote programming and timekeeping, not required for program backup
- Programmable delay between stations
- Rain sensor bypass switch compatible with micro-switch based sensors, displays when sensor is active
- Programmable sensor input by station
- Original program can be saved in non-volatile memory and retrieved later if needed
- Programmable rain delay from 1 to 7 days
- Programmable event day off allows specific day(s) to be designated as always "off"
- Hunter Quick Check™ helps troubleshoot field wiring issues
- Test program feature allows for quick system checks
- UL Listed/CE Approved



Available in indoor or outdoor models, the XC offers reliable operation for small residential systems.

RELIABILITY AND DEPENDABILITY ARE BUILT-IN

The XC controller brings peace of mind to installers and homeowners with a non-volatile memory that maintains the current program, plus correct day and time in the event of a power outage. The "Easy-Retrieve" memory holds the installers preferred program as a permanent backup that can easily be reinstalled over any temporary program changes made by end-users. In addition, the XC comes complete with a factory installed lithium back-up battery that can easily be replaced if needed. These features ensure that the correct irrigation program is always available and your valuable landscape stays in perfect condition.



Replaceable lithium battery (included).



SPECIFICATION GUIDE

EXAMPLE: **XC - 601i - E**

MODEL	TRANSFORMER	INDOOR/OUTDOOR	OPTIONS
XC-2 = 2 stations (indoor model only) XC-4 = 4 stations XC-6 = 6 stations XC-8 = 8 stations	00 = 120V 01 = 230/240V	Outdoor Model Standard, unless "i" noted for Indoor Mount (see below) i = Indoor Model	A = Australian Markets 240VAC (Outdoor Model Supplied with Cord) E = European Markets 230VAC

Pro-C

A complete family of modular, full-featured residential and light commercial controllers.

No need to bring along a variety of different-sized controllers to see which one is best for the job. With its ability to customize to the particular size you need (from 3 to 15 stations), the Pro-C will always be the right choice. A modular system also makes inventory a breeze—there are only three different units to stock (indoor cabinets, outdoor cabinets and station modules). But, modularity isn't all this controller has to offer, with great features such as three programs with multiple start times, independent day scheduling options, "one touch" manual start and rapid advance, a programmable event day off, robust heavy-duty locking plastic cabinet, and superior surge protection. Pro-C: delivering maximum flexibility for landscapes that require a minimal number of stations.



Innovative modular design allows the Pro-C to be custom tailored to any project.

FEATURES & BENEFITS



Versatile modular design

Simplified inventory management; easily customize unit to desired number of stations

Large LCD display for simplified programming

Easy to read for schedule review and entry

3 programs (A, B, C) with multiple start times

Independent programming handles many different watering requirements

Choice of independent day scheduling options

Days of the week, odd/even, or 31-day interval for maximum flexibility

Global water budget/seasonal adjustment

Easily change run time of all zones from 10% to 150%

Non-volatile memory

Holds programs indefinitely; excellent insurance against unreliable power

Superior surge protection and self-diagnostic short circuit protection

Microcircuits are protected from electrical spikes, no fuses to worry about

Remote control ready

Supplied with connection for SRR and ICR remote controls

"Best Buy" in the April 2006 edition of Consumers Digest.

MODELS

- PC-300i – 3-station base unit controller, indoor model, plug-in transformer, expands to 15 stations
- PC-300 – 3-station base unit controller, outdoor model, internal transformer, expands to 15 stations
- PC-301i – International model 3-station base model indoor plastic cabinet with plug-in transformer, expands to 15 stations
- PC-301 – International model 3-station base unit controller, outdoor model, internal transformer, expands to 15 stations
- PCM-300 – 3-station plug-in module for use with any PC controller model
- PCM-900 – 9-station plug-in module for use with any PC controller model (expands Pro-C station capability to 15 stations with 1 PCM-300 installed)

DIMENSIONS

- Indoor Model: 8.3" H x 9.6" W x 3.7" D (21.1 cm H x 24.4 cm W x 9.4 cm D)
- Outdoor Model: 8.9" H x 9.9" W x 4.3" D (22.6 cm H x 25.1 cm W x 10.9 cm D)

SPECIFICATIONS & FEATURES

- Outdoor models, 120VAC transformer with internal junction box
- Indoor model, 120VAC three prong plug-in transformer
- Station output 24VAC .56 Amps
- Transformer output 24VAC 1.0 Amps
- Capable of operating equivalent of 3 solenoids simultaneously
- Operating Temperature: 0 to 150° F
- NEMA rated outdoor cabinet
- CE/UL Listed
- 4 start times per program for repeat watering needs
- Up to six hours run time on each station
- Automated chronological ordering of start times/start time stacking
- 365-day calendar with leap year intelligence
- Programmable event day off allows specific day(s) to be designated as always "off"
- Rain Sensor bypass switch compatible with micro-switch based sensors, displays when sensor is active
- Programmable delay between stations of zero seconds to 4 hours for well recovery or slow-closing valves
- Programmable rain delay for 1 to 7 days
- Compatible with Hunter's SRR and ICR remote control system
- Programmable pump/master valve circuit by station
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Automatic module recognition; automatically identifies stations when modules are installed or removed
- Non-volatile memory backs up watering programs and current date and time
- Electronic short circuit protection; detects and skips shorted stations, no fuse to replace

REMOVABLE FACE PLATE:

THE POWER OF DESKTOP PROGRAMMING IS IN YOUR HANDS



With the removable face plate on the Pro-C controller, simply detach the front panel of the unit and perform programming functions from a variety of different locations. Take the face plate with you and walk around the yard as you set the program (visiting each different zone as you program it). Program the controller from the comfort of your office before taking it to the customer's site for installation. Or, hand the panel over to your customer during installation and let them sample the programming features.

MODULES: CUSTOM-SIZE CONTROLLER TO THE PROJECT

It's designed to fit virtually any residential or light commercial need. It's designed for flexibility right at the job site. It's designed to keep an installer's inventory to a minimum. What is it? It's the modular design of the Hunter Pro-C controller. Beginning with a 3-station base unit,



you can expand the controller up to 15 stations. Thus, a contractor no longer needs to stock ten different types of controllers (3-, 6-, 9-, 12-, and 15-station units in both indoor and outdoor models)...he simply needs to keep on hand just four items (indoor and outdoor Pro-C base units and 3-station and 9-station modules).



Pro-C QUICK REFERENCE CHART

Desired Station Configuration	Order Base Unit	Plus Number of modules	Specify as:
3 Zone	PC-300 or PC-300i	no module needed	PC-300 or PC 300i
6 Zone	PC-300 or PC-300i	one PCM-300	PC-600 or PC 600i
9 Zone	PC-300 or PC-300i	two PCM-300	PC-900 or PC 900i
12 Zone	PC-300 or PC-300i	three PCM-300	PC-1200 or PC 1200i
15 Zone	PC-300 or PC-300i	one PCM-300 & one PCM-900	PC-1500 or PC 1500i

SPECIFICATION GUIDE

EXAMPLE: PC - 301i - E		
MODEL	FEATURES	OPTIONS
PC = Pro-C Controller	300i = 3-Station Base Unit Controller, Indoor Model, Plug-in Transformer, Expands to 15 Stations 300 = 3-Station Base Unit Controller, Outdoor Model, Internal Transformer, Expands to 15 Stations	
PC = Pro-C Controller	301i = International Model 3-Station Base Unit Controller, Indoor Model, Plug-in Transformer, Expands to 15 Stations 301 = International Model 3-Station Base Unit Controller, Outdoor Model, Internal Transformer, Expands to 15 Stations	E = 230 VAC with European Connections A = 240 VAC with Australian Connections (Outdoor Model has Internal Transformer with Cord)
PCM	300 = 3-Station Plug-in Module for use with any PC Controller Model 900 = 9-Station Plug-in Module for use with any PC Controller Model	

Superior flexibility, ease of use, and outstanding water management. All together in one commercial controller.

Hunter introduced the concept of personalized construction for controllers—allowing custom tailoring to more effectively handle the odd number of stations a system may require—and the acceptance has been overwhelming. Then again, why shouldn't it be? After all, nothing else makes more sense when seeking the ideal choice to run irrigation systems at virtually any commercial site, from schools, parks, and sports fields to hotels, resorts, and apartment buildings. The idea is a simple one: a controller that's "built" by combining sets of "modules" to create a system that can handle up to 48 stations and handle the different irrigation needs for turf, shrubs, and flower beds, as well as any special watering restrictions. Whatever size you choose, you'll enjoy all the features one could want: dial programming; a large easy-to-read display; programmable master valve; 365-day calendar; rain sensor bypass; seasonal adjustment; a choice of plastic, metal, or stainless steel cabinets; and Hunter's simplified user set-up. Hunter ICC, for the ultimate in flexibility.



To run a test program on the ICC, simply press the PRG button.

FEATURES & BENEFITS

Versatile modular design

Provides easy addition of more stations and simplified inventory management, and easy servicing

4 fully-independent programs

Each with separate day cycles and 8 start times, offering total flexibility for complex landscapes, two programs can run concurrently

Independent day schedule options for each program

Maximize scheduling choices (select days of the week, true odd/even days, skip days up to 31 days)

Non-volatile 100-year memory

Program data is retained during power outages, without need for battery

Programmable pump circuit by station

Use pump only when needed; accommodate dual water sources

Cycle and Soak capability by station

Allows run times to be divided into repeat cycles to minimize run-off

Remote control ready

Supplied with connection for SRR and ICR remote controls



MODELS

- ICC-800-PL – 8-station controller, plastic cabinet, 32-station capacity
- ICC-801-PL – International model, 8-station controller, plastic cabinet, internal transformer, expands to 32-stations
- ICM-400 – 4-station module for use with any ICC
- ICM-800 – 8-station module for use with any ICC

DIMENSIONS

- Plastic Cabinet:
11" H x 13¼" W x 4¾" D
(25.7 cm H x 33.7 cm W x 12.1 cm D)

SPECIFICATIONS & FEATURES

- Transformer input: 120/240VAC, 50/60Hz
- Transformer output: 24VAC, 1.5A
- Station output: 24VAC, 0.56A (2 valves)
- Maximum total output: 24VAC, 1.4A (5 valves), includes master valve circuit
- Master valve output: 24VAC, 0.28A
- Rain sensor override compatible with most brands utilizing a normally closed micro switch
- Seasonal adjustment: 10 to 150%
- Program "D" can run simultaneously with Program A, B, or C for drip
- Self-diagnostic circuit breaker: Skips shorted stations and continues watering, no fuses to replace
- Station run times: Programs A, B, and C, 2 hours; Program D, 12 hours
- Programmable delay between stations up to 10 hours
- Programmable rain delay up to 7 days
- UL listed
- 365 day calendar
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Compatible with Hunter's SRR and ICR remote control systems
- All models NEMA 3R rated for weather resistance
- One button manual start and advance
- Cycle and Soak capability by station



MODULES: "CUSTOMIZE" A CONTROLLER TO THE SIZE YOU NEED

It's an idea that makes so much sense...while saving you so many dollars. Using modules that consist of four or eight stations each to build a controller up to the total number of stations desired works for both the contractor and property owner. For the professionals who stock and carry controllers, modules make inventory control easy—there's no need to estimate how many of each size controller you need to keep on hand. Now you simply stock modules. And that means, for customers whose systems require a non-standard number of stations, with modules you can customize the controller to the exact needs of the project—even if those needs change as the project grows.



ICC QUICK REFERENCE CHART

PLASTIC CABINET

Desired Station Configuration	Order Base Unit	Plus Number of modules	Specify as:
8 Zone	one ICC-800-PL	no module needed	ICC-800PL
12 Zone	one ICC-800-PL	one ICM-400	ICC-1200PL
16 Zone	one ICC-800-PL	one ICM-800	ICC-1600PL
20 Zone	one ICC-800-PL	one ICM-800 and one ICM 400	ICC-2000PL
24 Zone	one ICC-800-PL	two ICM-800	ICC-2400PL
28 Zone	one ICC-800-PL	two ICM-800 and one ICM 400	ICC-2800PL
32 Zone	one ICC-800-PL	three ICM-800	ICC-3200PL

SPECIFICATION GUIDE

EXAMPLE: **ICC - 800-PL**

MODEL	FEATURES
ICC	800-PL = 8-Station Base Unit Controller, Plastic Cabinet, Internal Transformer, Expands to 32 Stations 801-PL = 8-Station Base Unit Controller, Plastic Cabinet, Internal Transformer, Expands to 32 Stations (International Model)
ICM	400 = 4-Station Plug-in Module for use with any ICC Controller Model 800 = 8-Station Plug-in Module for use with any ICC Controller Model

ICC Metal

The heavy-duty, feature-filled commercial controller versatile enough to handle most any site.

We've taken the advantage that modular design has to offer and combined it with the ultimate in durability to create the ideal heavy-duty commercial controller. The metal or stainless steel versions of the ICC include all of the great features that have made this unit the outstanding choice for water management among all controllers in its class. A large easy-to-read display. Hunter's simplified user set-up. Dial programming. 365-day calendar clock. Seasonal adjustment. Programmable master valve. Rain sensor bypass. It's all here. But what sets these ICC controllers apart is the added benefit of superior construction—your choice of metal or stainless steel cabinets, each built to handle the toughest of outdoor environments, each built to withstand the possibility of vandalism. In addition, these two versions also can handle an even greater number of stations...up to 48 zones!

FEATURES & BENEFITS



Versatile modular design

Provides easy addition of more stations and simplified inventory management, and easy servicing

4 fully-independent programs

Each with separate day cycles and 8 start times, offering total flexibility for complex landscapes, two programs can run concurrently

Independent day schedule options for each program

Maximize scheduling choices (select days of the week, true odd/even days, skip days up to 31 days)

Non-volatile 100-year memory

Program data is retained during power outages, without need for battery

Programmable pump circuit by station

Use pump only when needed; accommodate dual water sources

Cycle and Soak capability by station

Allows run times to be divided into repeat cycles to minimize run-off

Remote control ready

Supplied with connection for SRR and ICR remote controls



MODELS

- ICC-800-M – 8-station controller, metal cabinet, 48-station capacity
- ICC-800-SS – 8-station controller, stainless steel cabinet, 48-station capacity
- ICC-PED – pedestal for the ICC-800-M
- ICC-PED-SS – pedestal for the ICC-800-SS
- ICM-800-PP – 8-station controller, plastic pedestal cabinet, 48-station capacity, remote ready with factory installed SmartPort®
- ICM-400 – 4-station module (for use with any ICC)
- ICM-800 – 8-station module (for use with any ICC)

DIMENSIONS

- Metal Cabinet:
16" H x 12¼" W x 4¾" D
(40.6 cm H x 31.1 cm W x 12.1 cm D)
- Metal Pedestal:
30" H x 11 ¾" W x 4" D
(76.2 cm H x 28.9 cm W x 10.2 cm D)
- Plastic Pedestal: 38 ¾" H x 20 ½" W x 15 ⅞" D
(97 cm H x 52 cm W x 38 cm D)

SPECIFICATIONS & FEATURES

- Transformer input: 120/240VAC, 50/60Hz
- Transformer output: 24VAC, 1.5A
- Station output: 24VAC, 0.56A (2 valves)
- Maximum total output: 24VAC, 1.4A (5 valves), includes master valve circuit
- Master valve output: 24VAC, 0.28A
- Rain sensor override compatible with most brands utilizing a normally closed micro switch
- Seasonal adjustment: 10 to 150%
- Program "D" can run simultaneously with program A, B, or C for drip
- Self-diagnostic circuit breaker: Skips shorted stations and continues watering, no fuses to replace
- Station run times: Programs A, B, and C, 2 hours; Program D, 12 hours
- Programmable delay between stations up to 10 hours
- Programmable rain delay up to 7 days
- UL listed
- 365 day calendar
- Optional pedestal wiring board/terminal strip
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Compatible with Hunter's SRR and ICR remote control systems
- All models NEMA 3R rated for weather resistance
- One button manual start and advance
- Cycle and Soak capability by station

PEDESTALS MAKE ICC A STRONG CASE FOR BEING YOUR #1 CHOICE

Available for outdoor ICC installations that do not call for wall mounting, sturdy stainless steel, metal, and plastic pedestals stand up to harsh environments. With ample space for 48-stations of field wiring, ICC Metal Pedestals can be fitted with an optional wiring board (part # ICC-PWB) that makes it easier to work with large gauge wire. The ICC-PWB also provides added surge protection for increased lightning strike resistance. Hunter ICC Plastic Pedestals are factory assembled with a remote ready SmartPort® connector while removable front and back doors provide plenty of room for components such as pump start relays or Wireless Rain-Click™. Plus, the unit can be upgraded to an IMMS™ Satellite Controller at a later date.



ICC QUICK REFERENCE CHART

METAL OR STAINLESS STEEL CABINETS

Desired Station Configuration	Order Base Unit	Plus Number of modules	Specify as:
8 Zone	one ICC-800-M	no additional module needed	ICC-800M
12 Zone	one ICC-800-M	one ICM-400	ICC-1200M
16 Zone	one ICC-800-M	one ICM-800	ICC-1600M
20 Zone	one ICC-800-M	one ICM-800 and one ICM 400	ICC-2000M
24 Zone	one ICC-800-M	two ICM-800	ICC-2400M
28 Zone	one ICC-800-M	two ICM-800 and one ICM 400	ICC-2800M
32 Zone	one ICC-800-M	three ICM-800	ICC-3200M
36 Zone	one ICC-800-M	three ICM-800 and one ICM 400	ICC-3600M
40 Zone	one ICC-800-M	four ICM-800	ICC-4000M
44 Zone	one ICC-800-M	four ICM-800 and one ICM 400	ICC-4400M
48 Zone	one ICC-800-M	five ICM-800	ICC-4800M

Note: For Stainless Steel cabinet, replace "M" with "SS"

SPECIFICATION GUIDE

EXAMPLE: **ICC - 800-PL**

MODEL	FEATURES	OPTIONS USER INSTALLED
ICC	800-M = 8-Station Base Unit Controller, Metal Cabinet, Internal Transformer, Expands to 48 Stations 800-SS = 8-Station Base Unit Controller, Stainless Steel Cabinet, Internal Transformer, Expands to 48 Stations 800-PP = 8-Station Base Controller, Plastic pedestal cabinet, Expands to 48-stations, Remote Ready with Factory Installed SmartPort®	PED = Optional Metal Pedestal PED-SS = Optional Stainless Steel Pedestal PWB = Pedestal Wiring Board
ICM	400 = 4-Station Plug-in Module for use with any ICC Controller Model 800 = 8-Station Plug-in Module for use with any ICC Controller Model	

Hunter's most powerful controller for command of large and sophisticated sites

The ACC brings the convenience and versatility of modularity to the most advanced controller the company has ever created. The adaptable modular design not only allows configuration to the number of stations you desire, it also makes it easy to upgrade to true 2-way communication with a Hunter central control system. Customize your controller in the field with the features you need: plug-in modules add stations and add central control communication capability. But what truly sets the ACC apart are its many features, most notably real-time flow sensing. This feature allows the controller to dynamically respond to flow changes by station and track system water use. The ACC also boasts a total of 6 independent and 4 custom programs and the unique ability to assist the water manager in conforming to "watering windows." Plus, the ACC's large backlit LCD display offers the user a convenient means to personalize on-screen station and program names.



FEATURES & BENEFITS

Real-time flow sensing in standalone mode

Learns flow by station and automatically responds to incorrect flow

Stations expand with plug-in modules

Provides easy addition of more stations and simplified inventory management

Easy modular upgrade to 2-way communication with central control

Simple plug-in modules upgrade ACC to hardwire, modem, or radio control

6 fully-independent programs (plus 4 custom programs)

Standard programs each have separate day cycles and 10 start times, offering total flexibility for complex landscapes

Independent day schedule options for each program

Maximum scheduling choices (select days of the week, true odd/even days, skip days up to 31 days)

Non-volatile 100-year memory

Program data is retained during power outages, no battery required

Cycle and Soak capability by station

Allows run times to be divided into repeat cycles to minimize runoff

Remote control ready

Pre-wired to directly accept Hunter ICR remote control—plug and go!

Watering Window Manager™

User defines hours where no watering is allowed; will override any user-set programs that enter that time frame

Multiple sensor hookups

Accommodates devices for weather and flow to provide automatic system shutoff in abnormal conditions



SPECIFICATION GUIDE

EXAMPLE: **ACC - 1200 - PED**

MODEL ACC	FEATURES	OPTIONS USER INSTALLED
	1200 = 12-Station Base Unit Controller, Metal Cabinet, Expands to 42 Stations 1200PP = 12-Station Base Unit Controller, Plastic Pedestal, Expands to 42 Stations 99D = 2-Wire Decoder Controller with 99 Station Capacity, Metal Cabinet* 99DPP = 2-Wire Decoder Controller with 99 Station Capacity, Plastic Pedestal*	PED = Optional Metal Pedestal
ACM	600 = 6-Station Plug-in Module for use with any ACC Controller Model	
AGM	600 = 6-Station Plug-in Module with Extreme Service Surge Protection	
ACC-COM	HWR = Hardwire Connection Communication Module for "Satellite" Installations POTS = Regular Dial-up Telephone (RJ-11) Connection Communication Module for "Satellite" Installations GSM = Cellular Connection Communication Module (Cell Phone & Antenna Included) for "Satellite" Installations GSM-E = Cellular Connection Communication Module (Cell Phone & Antenna Included) for International "Satellite" Installations	
ACC-HWIM RAD3	Terminal for Hardwire Connections (In- and Outbound Wire) UHF Radio Communications Module (Antenna not Included)	
HFS	Hunter Flow Sensor, requires the use of an FCT-xxx tee fitting (see page 99)	

* See ACC-99D product pages (pgs. 78-79) for detailed information.

MODELS*

- ACC-1200 – 12-station controller, metal cabinet, 42-station capacity
 - ACC-1200-PP – 12 station controller, plastic pedestal, 42-station capacity
 - ACC-99D – 2-Wire decoder controller with 99 station capacity, metal cabinet
 - ACC-99DPP – 2-Wire decoder controller with 99 station capacity, plastic pedestal
 - ACM-600 – 6-station module for use with any ACC
 - AGM-600 – 6-station module with Extreme Service surge protection
 - HFS – Hunter flow sensor, requires the use of an FCT-xxx
 - ACC-PED – Metal pedestal for use with ACC-1200
- *See Page 89 for IMMS™ Communication Options

DIMENSIONS

- ACC Cabinet :
12 $\frac{3}{8}$ " H x 15 $\frac{1}{2}$ " W x 67 $\frac{1}{16}$ " D
(31.4 cm H x 39.4 cm W x 16.4 cm D)
- ACC Metal Pedestal:
36 $\frac{1}{8}$ " H x 15 $\frac{1}{2}$ " W x 5" D
(91.5 cm H x 39.4 cm W x 12.7 cm D)
- ACC Plastic Pedestal:
38 $\frac{3}{8}$ " H x 21 $\frac{9}{16}$ " W x 157 $\frac{1}{8}$ " D
(97.5 cm H x 54.6 cm W x 40.3 cm D)

SPECIFICATIONS & FEATURES

- Transformer input: 120/230VAC, 50/60Hz; 2A at 120VAC, 1A at 230VAC, Maximum
- Transformer output: 24VAC, 4A, 110VA
- Station output: 24VAC, 0.56A (2 valves)
- Maximum total output: 24VAC, 4A (14 valves), includes master valve circuits
- Two master valve outputs: 24VAC, 0.28A each
- Seasonal adjustment: 0 to 300% in 1% increments, by program
- All programs can run simultaneously
- Self-diagnostic circuit breaker: skips shorted stations and continues watering
- Station run times: 1 second minimum to 6 hours maximum
- Programmable delay between stations of up to 4 hours
- UL, C-UL, CE, C-tick
- 365 day calendar
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Upgrade to ET capability
- Real-time Flow Monitoring capability built in, with actual flow histories (in GPM or metric) available when connected to Hunter HFS or other compatible flow meters.
- Flow-learning mode by station, with station-level diagnostics and alarm shutdowns.
- Easy Retrieve™ backup feature can restore schedules, run times, names and other settings to a saved setup
- Programmable Stack and Overlap settings, including SmartStack™.
- Alphanumeric names up to 13 characters for each program, station (zone) or group, with programmable customer contact screen.

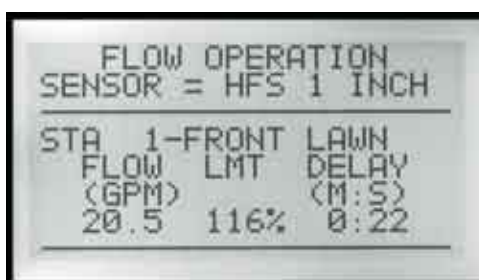


ACC PEDESTAL MODELS

Featuring the highest-grade construction, the ACC plastic pedestal can stand up to the harshest conditions Mother Nature (and humans) can dish out. The plastic pedestal is rust-proof, weather-resistant, and UV-tested to prevent fading...plus, it won't dent. In addition, you won't believe the amount of space in its interior. There's ample room to accommodate all of your field wiring and central control wiring needs, and it's even possible to permanently install the receiver for an ICR remote control.

REAL-TIME FLOW SENSING: IMMEDIATE RESPONSE TO ABNORMAL FLOWS

Real-time flow sensing will identify a system's low flow or overflow conditions instantaneously, before resulting damage (to either the system or surrounding landscape) can occur. The user determines the threshold for what will be recognized as a "highest flow rate" and "lowest flow rate." When the limits are exceeded, the ACC identifies the problem stations, shuts off affected areas, and resumes watering with remaining stations. To bring real-time flow sensing to the ACC, simply add the HFS flow sensor and the corresponding FCT sensor body your piping requires (see page 97).



The large backlit LCD display provides lots of information and easily steps the user through the programming process.



Put an end to flow emergencies forever! To bring real-time flow sensing to the ACC, simply add the HFS flow sensor and the corresponding FCT sensor body your piping requires.

ACC QUICK REFERENCE CHART

Desired Station Configuration	Order Base Unit	Plus Number of modules	Specify as:
12 Zone	one ACC-1200	no additional module needed	ACC-1200
18 Zone	one ACC-1200	one ACM-600	ACC-1800
24 Zone	one ACC-1200	two ACM-600	ACC-2400
30 Zone	one ACC-1200	three ACM-600	ACC-3000
36 Zone	one ACC-1200	four ACM-600	ACC-3600
42 Zone	one ACC-1200	five ACM-600	ACC-4200

ACC Decoder Controller

The two-wire decoder version of Hunter's most powerful controller for command of large and sophisticated sites.

The versatility of the ACC controller grows even more powerful with the addition of the all-new, two-wire decoder system from Hunter. ACC-99D uses two-wire decoders to control up to 99 stations without giving up the arsenal of features in the ACC! The powerful overlapping, stacking array of programs, along with ACC's dual programmable pump/master valve outputs, real-time flow monitoring, and up to four programmable sensor inputs, take full advantage of this controller's high capacity.

Decoder installations are the fastest growing technology in irrigation control. Why? Because it saves copper wire, simplifies troubleshooting, permits rapid addition of new stations, minimizes trenching, and now, permits remote sensor operation over the two-wire path.

The ACC-99D, Hunter's most powerful controller teamed with the most versatile decoders in the industry...an unbeatable combination for large sites with changing needs.



FEATURES & BENEFITS



SPECIFICATION GUIDE

EXAMPLE: **ACC - 99D - PED**

MODEL	FEATURES	OPTIONS USER INSTALLED
ACC	99D = 2-Wire Decoder Controller with 99 Station Capacity, Metal Cabinet 99DPP = 2-Wire Decoder Controller with 99 Station Capacity, Plastic Pedestal	PED = Optional Metal Pedestal
ICD	100 = Single-station Decoder with Surge Suppression and Ground Wire 200 = Two-station Decoder with Surge Suppression and Ground Wire 400 = Four-station Decoder with Surge Suppression and Ground Wire 600 = Six-station Decoder with Surge Suppression and Ground Wire SEN = Two Input Sensor Decoder with Surge Suppression and Ground Wire	
IDWIRE1 IDWIRE2	14 Awg Decoder Wire (Up to 10,000 Ft./3km) 12 Awg Decoder Wire (Up to 15,000 Ft./4.5km)	
ACC-COM*	HWR = Hardwire Connection Communication Module for "Satellite" Installations POTS = Regular Dial-up Telephone (RJ-11) Connection Communication Module for "Satellite" Installations GSM = Cellular Connection Communication Module for "Satellite" Installations GSM-E = Cellular Connection Communication Module (Cell Phone & Antenna Included) for International "Satellite" Installations	
ACC-HWIM RAD3	Terminal for Hardwire Connections (In- and Outbound Wire) UHF Radio Communications Module (Antenna not Included)	
HFS	Hunter Flow Sensor, requires the use of an FCT-xxx tee fitting (see page 97)	

Real-time flow sensing in standalone mode

Learns flow by station and automatically responds to incorrect flow

Simple two-wire decoder installation

Up to 99 stations plus the ability to have remote sensor decoders

Up to 6 two-wire paths of up to 15,000 feet/4.5 kilometers each

Economical wiring for the largest systems

Diagnostic output LEDs and electrical current display

Displays station activity and line status at a glance

Field programmable decoders with built-in surge protection

No complicated serial numbers or extra lightning devices

Easy modular upgrade to 2-way communication with central control

Simple plug-in modules upgrade ACC to hardwire, modem, or radio control

Programmable pump/master valve assignments

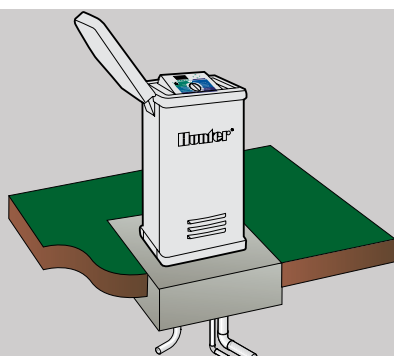
Run pumps and master valves via conventional or decoder outputs

Non-volatile 100-year memory

Program data is retained during power outages, no battery required

Multiple sensor hookups

Accommodate devices for weather and flow to provide automatic system shutoff in abnormal conditions

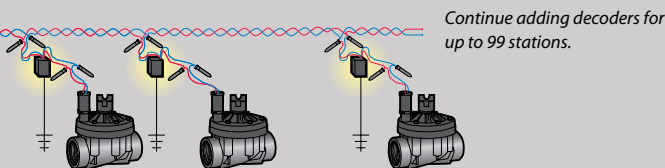


Each decoder has built-in surge suppression and grounding wire. Not all decoders require grounding; visit www.hunterindustries.com for complete details.

DECODERS, WIRING, AND WIRE PATHS

Each ACC-99D permits operation of 99 stations over one or more two-wire "paths" to the field. The full line of decoders comes in 1, 2, 4, and 6-station waterproof configurations...each with built-in surge suppression (no external surge suppression devices required)! You can even add in-line sensor decoders to monitor remote sensors, via the two-wire paths.

Hunter's color-coded, twisted pair IDWIRE is a cost-effective, easily-installed, direct burial wiring solution that resists surges and electrical noise, while providing high tensile strength for permanent in-ground installation. The wire may also be spliced to follow piping in complex installations.



MODELS

- ACC-99D – 2-Wire Decoder Controller with 99 station capacity, wall mount metal cabinet
- ACC-99DPP – 2-Wire Decoder Controller with 99 station capacity, plastic pedestal
- ICD-100 – Single-station decoder with surge suppression and ground wire
- ICD-200 – Two-station decoder with surge suppression and ground wire
- ICD-400 – Four-station decoder with surge suppression and ground wire
- ICD-600 – Six-station decoder with surge suppression and ground wire
- ICD-SEN – Two input sensor decoder with surge suppression and ground wire
- IDWIRE1 – 14 AWG/1.6 mm dia. decoder wire (up to 10,000 ft./3 km)
- IDWIRE2 – 12 AWG/2mm dia. decoder wire (up to 15,000 ft./4.5 km)
- HFS – Hunter flow sensor, requires the use of an FCT-xxx
- ACC-PED – Metal Pedestal for use with ACC-99D

DIMENSIONS

- ACC-99D Cabinet: 12 $\frac{3}{8}$ " H x 15 $\frac{1}{2}$ " W x 6 $\frac{7}{16}$ " D (31.4 cm H x 39.4 cm W x 16.4 cm D)
- ACC-99D Metal Pedestal: 36 $\frac{1}{8}$ " H x 15 $\frac{1}{2}$ " W x 5" D (91.5 cm H x 39.4 cm W x 12.7 cm D)
- ACC-99D Plastic Pedestal: 38 $\frac{3}{8}$ " H x 21 $\frac{1}{8}$ " W x 15 $\frac{5}{8}$ " D (97.5 cm H x 54.6 cm W x 40.3 cm D)
- Decoders:
 - ICD-100, 200, ICD-SEN - 3 $\frac{3}{8}$ " H* x 1 $\frac{1}{2}$ " W x 1 $\frac{1}{2}$ " D (92 mm H* x 38 mm W x 12.7 mm D)
 - ICD-400, 600 - 3 $\frac{3}{8}$ " H* x 1 $\frac{3}{4}$ " W x 1 $\frac{1}{2}$ " D (92 mm H* x 46 mm W x 38 mm D)
- Wire leads (all) - 18" L, 18 AWG dia. (46 cm L, 1 mm dia.)

*Not including wire leads.

EARTH GROUNDING: The Hunter Difference

ACC-99D does not require any special surge modules or other devices. Each decoder includes a built-in earth ground wire...ground as many as you need (based on frequency of lightning in your area), with conventional earth grounding hardware.

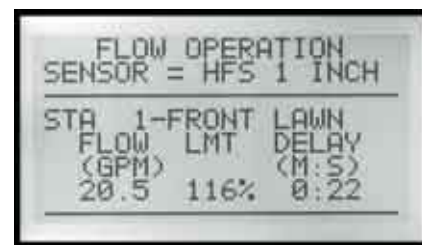


SPECIFICATIONS AND FEATURES

- Transformer Input: 120/230VAC, 50/60 Hz, 2A max at 120V, 1A max at 230V.
- Transformer output: 24VAC, 4A, @ 120VAC
- Decoder Line (path) output: 34V peak-to-peak
- Decoder Power draw: 40 mA per active output
- Solenoid capacity: 2 standard 24 VAC Hunter solenoids per output within 100 ft./33 m runs, up to 14 solenoids max simultaneous (includes dual P/MV outputs)
- Wiring, Decoder to solenoid: standard pair 18 AWG/ 1 mm to 100 ft./33 m (twisted improves surge resistance)
- 6 two-wire output paths to field decoders
- Two-way confirmation of decoder activation
- Two-way monitoring of sensor connections (ICD-SEN)
- Diagnostic LEDs with line status, signal activity, decoder and status
- Programmable decoder station IDs (from controller panel)

ACC-99D Decoder Systems include all standard features of the ACC controller, including:

- 6 automatic programs, with 4 custom manual (auxiliary) programs
- Dual pump/master valve outputs programmable by station
- 1 flow meter (diagnostics to station level) and up to 4 sensor inputs (programmable to program level)
- Programmable overlap or SmartStack by program with simultaneous station groups.
- Seasonal adjust, 0 to 300% in 1% increments by program
- Flow learning mode by station with programmable alarm thresholds
- Station run times up to 6 hours with programmable delay between stations (up to 4 hours)
- Self-diagnostic circuit breaker skips shorted stations and continues watering
- SmartPort® equipped for wireless remote control
- Test program feature allows for quick system checks
- IMMS 2.0 central system compatible
- Upgrade to ET capability
- Real-time Flow Monitoring capability built in, with actual flow histories (in GPM or metric) available when connected to Hunter HFS or other compatible flow meters.
- Flow-learning mode by station, with station-level diagnostics and alarm shutdowns.
- Easy Retrieve™ backup feature can restore schedules, run times, names and other settings to a saved setup



The large backlit LCD display provides lots of information and easily steps the user through the programming process.

POWER, FLEXIBILITY, RELIABILITY...

In a Package Your Crews Can Already Operate

Hunter's remarkable ACC-99D decoder output module simplifies decoder installation and troubleshooting. The ability to operate (and add) large numbers of irrigation solenoids over a single pair of wires has never been easier...or more competitive. Best of all, ACC-99D programs like the rest of your controllers, with simple dial-and-button controls.

Electrically efficient decoders permit simultaneous operation of up to 12 solenoids, plus dual pump/master valve combinations. A full range of multi-station decoders (1, 2, 4, and 6) features independent station control for manifolded or clustered valves.

ACC-99D provides true two-way decoder control: each decoder confirms its on/off commands and status back to the controller, every time it is activated. This is especially important because ACC-99D can operate dozens of solenoids, miles or kilometers away.

ET System

Gathers weather data on site, continuously self-adjusts to calculate the ideal program for your landscape

Take the guesswork out of irrigation scheduling, by using your own state-of-the-art weather station to track your local microclimate and automatically calculate a scientific irrigation program! The Hunter ET System is an easy-to-add-on accessory (for any Hunter controller that operates with a SmartPort® system) that measures key climatic conditions, and uses them to calculate your local Evapotranspiration (ET) factor. ET is the combination of two separate processes whereby water is lost from the soil surface by evaporation and from the plant by transpiration. By taking into account the rate at which water is consumed by weather conditions, the ET System will initiate a new schedule to replenish only the water that is actually needed for your sprinkler system, plants, and soil conditions. And our WiltGard™ technology can intervene to trigger protective watering when extreme conditions threaten your plants. The result is a dramatic savings in your water bill (about 30%, on average), healthier root zones, and your participation in conserving our precious natural resources.



ET System Module



ET System Sensor
(Shown with optional ET WIND)

FEATURES & BENEFITS



Calculates Evapotranspiration (ET) for your local microclimate

Automatically creates a scientific program and downloads it to your standard controller

Saves water and money

Minimizes water waste, applies just the water your plants need

WiltGard™ technology

Enables it to trigger protective watering when extreme conditions threaten your plants

True station-specific database determines appropriate watering

ET information combines with each zone's particular plant, soil, sun, and sprinkler data

Easily upgrades most Hunter controllers to weather-based control

Works with SRC, Pro-C, ICC, ACC

Non-volatile memory

Retains your program and site information in event of a power failure



Set detailed information for each station's plant, soil, sun, and sprinkler types from our on-board menus—or set your own custom values.

No More Sprinklers Running in the Rain!

Each ET System has a simple user interface, so you can select from a menu of common sprinkler, plant, and soil types, or create your own custom factors. The system's sensor array includes solar radiation, relative humidity, temperature, a rain gauge that tracks precipitation, plus an optional anemometer for wind speed. The ET System stops wasteful irrigation after naturally occurring rainfall, and automatically resumes sprinkler operation when conditions return to dry.



MODELS

- ET SYSTEM – ET Sensor with outdoor interface ET Module
- ET WIND – Optional anemometer for wind speed

DIMENSIONS

- ET Module – 6" H x 4" W x 1.75" D (153 mm H x 102 mm W x 45 mm D)
- ET Sensor – 10½" H x 7¼" W x 12⅞" D (26.7 mm H x 18.4 mm W x 30.8 mm D)
- ET Sensor with pole brackets – 10½" H x 7¼" W x 13" D (26.7 mm H x 18.4 mm W x 33.0 mm D)
- ET Sensor with ET Wind – 11½" H x 7¼" W x 19⅞" D (29.2 mm H x 18.4 mm W x 50.5 mm D)
- ET Sensor and ET Wind with pole brackets – 11½" H x 7¼" W x 20¾" D (29.2 mm H x 18.4 mm W x 52.7 mm D)

SPECIFICATIONS

- Power Input: 24 VAC, 50/60Hz (from host controller)
- Current draw: 20 ma, max
- Non-volatile memory
- Replaceable 10-year lithium battery
- Wiring:
 - ET Module power, SmartPort
 - ET Sensor, 2 x 18 AWG/1 mm
- Max distance, ET Module from controller: 6 ft./2 m
- Max distance, ET Sensor from module: 100 ft./30 m

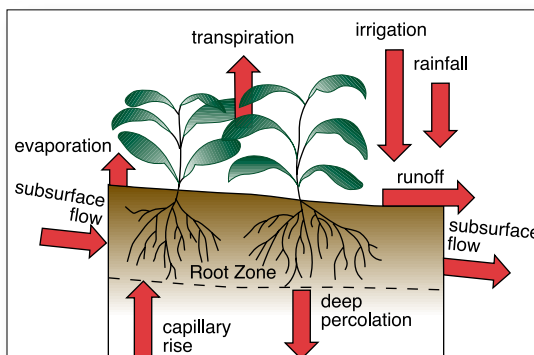
SPECIFICATION GUIDE

EXAMPLE: ET SYSTEM

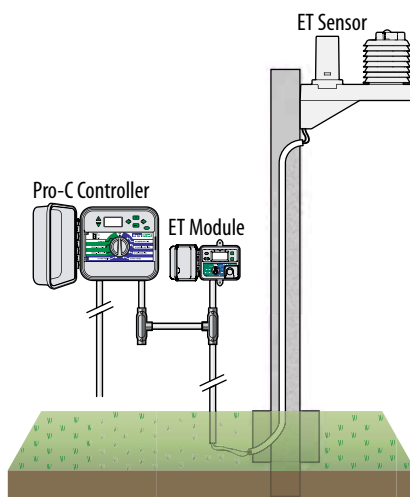
MODEL
ET SYSTEM = ET Sensor with outdoor interface ET module, for direct connection to Hunter SmartPort® enabled controllers
ET WIND = Optional anemometer for wind speed

ET and Irrigation: Working with Climate

Plants evaporate moisture through their leaves, and replenish it through their roots. In turn, conditions such as sunlight, temperature, humidity, and wind dictate the rate at which the plants lose their moisture. ET-based irrigation measures these



conditions and replenishes only the amount of water lost to plant transpiration and soil evaporation. Factors such as the precipitation rate of your sprinklers, the crop coefficient of your plant types, and the infiltration rate and holding capacity of your soils are taken into account with simple menu selections.



The ET Sensor can be conveniently wall or pole mounted up to 100 feet away from the ET Module.

Upgrade Any of These Standard Hunter Controllers to Weather-based Control

- SRC/SRC Plus Controllers
- Pro-C Controllers
- ICC Controllers
- ACC Controllers
- ACC-99D Controllers (Up to 48 stations)

SRR

Activate sprinklers without walking back and forth to the controller. Easy to use at an easy to handle price.

How does Hunter make their already easy-to-use residential controllers even easier to use? With the industry's most convenient and economical remote crafted specifically for residential use. Nothing else makes it easier for a homeowner to operate their automatic irrigation system. With the SRR, the power to control your landscape's watering is right in your hands. This handy accessory makes it possible for you to operate your system without having to walk to (and manually operate) the controller. And, considering many homes have their controller located inside the garage, by using the SRR, you can access your system without the inconvenience of pulling up that big door and working your way around parked cars and stored items. Best of all, you'll find that the SRR offers features that other remotes don't—including sturdy ABS construction, large LCD display and 4-button operation, 8 different run-time settings, and a transmission range up to 450 feet—all at a price that can't be beat.

FEATURES & BENEFITS



Remote operation of any station or program

Signal transmits up to 450 feet away

128 different programmable security codes

Allows multiple SRR systems to be used in the same area

Operates on one 9V battery for up to a year

Automatic shutoff extends battery life when not in use

Variable remote-activated station run times

Allows a one-time change in duration without affecting regular program

Weather-resistant connection port

Allows temporary outdoor connection of remote receiver



With its simple 4-button operation and sizeable transmission range, the SRR makes a handy addition to a homeowner's automatic irrigation system.

MODELS

SRR-KIT – Transmitter, receiver, wiring harness and owner's manual

SRR-SCWH – Connection Kit with 25' shielded cable

SRR-TR – Transmitter

SRR-R – Receiver

DIMENSIONS

- Transmitter: 4¾" H x 2½" W x 1¼" D (12 cm H x 6 cm W x 3 cm D)
- Receiver: 4¾" H x 2½" W x 1" D (12 cm H x 6 cm W x 2.5 cm D)

SPECIFICATIONS & FEATURES

- Address range: 0 to 127
- Maximum stations supported: 48
- Run times: Eight settings from 1 to 30 min
- Range: Up to 450' (137 m) line of sight
- Transmitter: 9V alkaline battery (not included)
- Receiver: 24VAC, 0.01 Amps from controller
- System Operating Frequency: 315 MHz
- Install SmartPort® up to 50' from controller (use shielded cable wiring harness)
- No FCC license required

SRR: ADDED CONVENIENCE FOR YOU AND YOUR CUSTOMERS

The SRR represents the ultimate in convenience for homeowners. Be sure to tell your customers how the SRR can make operating their system easier for them. They can activate zones with their SRC, Pro-C, or ICC controller from anywhere in their yard, without having to walk back to the garage. That's convenience!



SPECIFICATION GUIDE

EXAMPLE: **SRR - KIT**

MODEL	FEATURES
SRR	SCWH = 25' Shielded Cable Connection Kit KIT = Transmitter, Receiver and Wiring Harness TR = Transmitter R = Receiver

ICR

Reliable and powerful long-range, multi-site remote control.

For shopping centers, industrial complexes, college campuses, condominiums, and other expansive sites, if a remote control is going to work it needs the power to cover long-range distances. The ICR has a signal strong enough to go through obstructions such as buildings, walls, or trees and communicate with a controller for a half mile or more. And, when nothing is in its path, the ICR can function up to two miles from the controller. The ICR is a single unit that can be carried from job to job and used to remotely access dozens of different irrigation systems (including any Hunter controller that operates with a SmartPort® system). That eliminates going back and forth to the controller to start or stop a cycle during maintenance or installation. And, the task of winterizing a system becomes a one-person job instead of two.

FEATURES & BENEFITS



Over ½ mile typical range

Control sprinklers, valves, and pumps without going directly to the controller

Compatible with all Hunter controllers

Designed to work with all Hunter ICC, Pro-C, and SRC controllers through a SmartPort® connection

Large LCD display, push button operation

User-friendly features make the remote simple to use

Variable remote activated station run times

Allows a one-time change in station run time duration without affecting the regular program

Operates on 4 AA batteries for up to a year

Automatic shutoff extends battery life when not in use

128 different programmable security codes

Allows multiple ICR receivers to be used in the same area

MODELS

ICR-KIT – Complete Kit: transmitter, receiver, and wiring harness, 4 AA alkaline batteries

ICR-TR – Hand held transmitter only

ICR-R – Receiver unit only

DIMENSIONS

- Transmitter (without antenna): 6½" H x 3¼" W x 1¼" D (16.5 cm H x 8.3 cm W x 3.2 cm D)
- Receiver (without antenna): 6¼" H x 3" W x 1¼" D (15.9 cm H x 7.6 cm W x 3.2 cm D)

SPECIFICATIONS & FEATURES

- Address range: 0 to 127
- Maximum stations supported: 48
- Run times: Eight settings from 1-30 minutes
- Range: Up to ½ mile obstructed, up to 2 mile line of sight
- Temperature: 0-150° F
- Humidity: Up to 100%
- Transmitter: 4 AA alkaline batteries (included)
- Receiver: 24VAC, 0.05 Amps from controller through a SmartPort® connector
- System operating frequency: 27 MHz band
- Install SmartPort up to 50' from controller (use SRR-SCWH shielded cable wiring harness)
- No FCC license required
- Rugged plastic carrying case included

SPECIFICATION GUIDE

EXAMPLE: **ICR - KIT**

MODEL

ICR

FEATURES

KIT = Transmitter, Receiver, Wiring Harness and Carrying Case
TR = Hand-Held Transmitter
R = Receiver Unit
CASE = Plastic Carrying Case

OPTIONS

A = Australia and Other Markets

Consult with factory for compatibility in export markets.



The ICR's carrying case is a convenient way to carry the transmitter, receiver, and accessories from site to site.

SVC Smart Valve Controllers

Reliable battery-powered control without the need of electric connection.

For isolated sites or power-restricted areas, and for the special needs of drip zones, Hunter provides the ideal economical answer. The SVC mounts to a valve solenoid quickly and easily—without screws, drills, or additional wires—and the unit's solid construction ensures it can handle the harsh environment of a valve box. The SVC operates off a single 9-volt battery that's guaranteed to provide power through a full season. Along with exceptional reliability, it's also a breeze to program, with an easy-to-read LCD display instead of cumbersome buttons and knobs. Up to nine start times are available, offering the flexibility to handle watering schedules for such things as establishing new turf or irrigating steep slopes with low infiltration rates.

FEATURES & BENEFITS

User-friendly programming

Same easy-to-use programming style as all Hunter controllers

Latching solenoid design for minimal power consumption

9 Volt battery guaranteed to last longer than one full season

Fully submersible and waterproof to 12 feet

No moisture intrusion, even in humid valve box environments

Irrigate landscapes in remote locations

Helps reduce system installation costs

Flexible programming options

Choice of days-of-the-week or 31-day interval scheduling

Sealed battery compartment

Customized design features resin-sealed electrical components that withstand water intrusion

Weather sensor compatible

Accommodates Hunter Mini-Clik®, Rain-Clik™, and Freeze-Clik® sensors



The SVC-400 permits automatic control of up to 4 zone valves.

MODELS

SVC-100 — Smart Valve Controller, solenoid attached (installs to any Hunter valve)

SVC-100-VALVE — Smart Valve Controller, complete kit, factory-installed on 1" PGV flow control valve (solenoid included)

SVC-100-VALVE-B — Smart Valve Controller, complete kit, factory-installed on 1" PGV flow control valve (solenoid included) with BSP threads

SVC-200 — 2-station Smart Valve Controller (solenoids ordered separately)

SVC-400 — 4-station Smart Valve Controller (solenoids ordered separately)

DC latching solenoid (part # 458200); designed to fit all Hunter plastic valves

DIMENSIONS

Controller: 3¼" D x 2" H

SPECIFICATIONS & FEATURES

- Station run time: 0 to 240 minutes in 1-minute increments
- Start times: 9 per day
- 7-day calendar or interval (1-31 day) watering
- AM/PM or 24-hour clock option
- Easy to understand icon-based display
- Simplified one button manual operation
- Programmable rain delay for 1 to 7 days
- Operates valves up to 100' away from controller using 18 AWG wire
- Battery: Standard 9 volt alkaline battery (not included), one year minimum life; battery not required for program backup
- Memory: Non-volatile for program data
- 2 feet of prewired cable included (SVC-100)
- Clip bracket for simple installation
- Rubber cover prevents dirt and debris from accumulating on the display
- Weather sensor compatible
- Controller compatible with most common 2-wire 6-9 volt DC battery-operated solenoids (consult factory for list)
- Can operate up to 4 valves simultaneously (with SVC-400)

SPECIFICATION GUIDE

EXAMPLE: **SVC - 100**

MODEL	FEATURES
SVC	
100	= Single-Station Controller (Solenoid Included)
100-VALVE	= Single-Station Controller with PGV-101G Valve
100-VALVE-B	= Single-Station Controller with PGV-101G-B Valve (BSP Threads)
200	= 2-Station Controller (solenoids ordered separately)
400	= 4-Station Controller (solenoids ordered separately)



Wireless Valve System

Rugged, reliable, multi-station, multi-function, battery-powered controller and programmer.

Traffic medians, roundabouts, rural properties, construction sites, municipal parks...all places that lack standard electric power. But with the Wireless Valve System, Hunter makes it possible for each to enjoy the benefits of automatic irrigation. Battery life is guaranteed through a full season, making replacement a simple annual task. And there's no need to reach inside the valve box to hook up a field transmitter and download program instructions; the programmer can communicate with the controller from up to 100 feet away. Combined with the user-friendly operating features, there's no battery-powered unit on the market that's easier to program. Plus, with all installed components hidden safely underground and out of view, only the Wireless Valve System is truly vandal-resistant.



The Wireless Valve Programmer allows you to check or reprogram a Wireless Valve Controller that is installed on a traffic median without having to cross a busy roadway.

FEATURES & BENEFITS



Wireless, radio-controlled operation up to 100 feet away

Perform system checks, programming without direct access to the controller

Latching solenoid design for minimal power consumption

9 Volt battery guaranteed to last longer than one full season

Fully submersible and waterproof to 12 feet

No moisture intrusion, even in humid valve box environments

Each valve set up with own start time, run time, and day schedule

Plant types with different requirements receive the exact watering they need

Controller attaches out of sight in valve box

The ultimate in vandal-resistance

Double-sealed battery compartment

O-ring seal near threads, second seal inside cap withstand water intrusion

Weather sensor compatible

Accommodates Hunter Mini-Clik®, Rain-Clik™, and Freeze-Clik® sensors

SPECIFICATION GUIDE

EXAMPLE: **WVC - 200**

MODEL	FEATURES	OPTIONS
WVC	100 = 1-Station Controller (Solenoid Sold Separately) 200 = 2-Station Controller (Solenoid(s) Sold Separately) 400 = 4-Station Controller (Solenoid(s) Sold Separately)	E = Europe Markets (868 Mhz)
WVP	Wireless Valve Programmer	

Consult with factory for compatibility in export markets.

MODELS

WVC-100 – 1-station Wireless Valve Controller (order solenoid separately)

WVC-200 – 2-station Wireless Valve Controller (order solenoid(s) separately)

WVC-400 – 4-station Wireless Valve Controller (order solenoid(s) separately)

WVP – Wireless Valve Programmer

DC latching solenoid (part # 458200); designed to fit all Hunter plastic valves

DIMENSIONS

WVC – 3¼" D x 5" H

WVP – 3" W x 11½" L x 2" H

SPECIFICATIONS & FEATURES

- Wireless, radio controlled operation up to 100' away
- Station run time: 0-240 minutes in 1-minute increments
- Operates valves up to 100 feet away from controller using 18 AWG wire
- Start times: 9 per day
- 7-day calendar or interval (1-31 day) watering
- AM/PM or 24-hour clock option
- Start time stacking
- Simplified manual operation
- Programmable rain delay for 1 to 7 days
- Solenoids: Compatible with most common 2-wire 6-9 volt DC battery-operated solenoids (consult factory for list)
- Battery: Standard 9 volt alkaline battery (not included), one year minimum life; battery not required for program backup
- Memory: Non-volatile for program data
- Weather sensor compatible
- Frequency of operation: 900 MHz ISM Band (U.S./Australia) 869.85 MHz (Europe)
- No FCC license required





IMMS™ 2.0

The affordable water management tool to monitor and control a network of irrigation systems from a single central location.

The Irrigation Management and Monitoring System™ brings affordable central computerized control of standard irrigation controllers within the reach of any water manager's budget, and usually pays for itself in the first year of operation.



IMMS was introduced as a remote programming and alarm monitoring tool for Hunter's established roster of popular controllers. Now, this innovative central system adds a whole new dimension to your command and control, allowing access to the two-way communication and flow monitoring power of the new ACC, Advanced Commercial Controller. Experience simplified communications, real time flow metering, station level diagnostics, and industrial strength irrigating power...all through the industry's most affordable control software.



IMMS PUTS YOU IN CONTROL...

- Click the computer mouse, see an entire month's irrigation in calendar format at a glance. Edit it, print it, and send it to the field.
- Your choice of communications: hardwired cable, telephone, UHF radio, and even cellular. Choose one or mix and match.
- Be notified of line breaks and weather conditions miles away, while smart interfaces in the field automatically order shutdowns to prevent damage. IMMS 2.0 features more frequent alarm checks.
- Graph calculated flow and estimated water costs of schedules before they run.
- Retrieve and report actual flow records, by site, controller, program, or station (ACC only).



...ACC GIVES YOU COMPLETE COMMAND

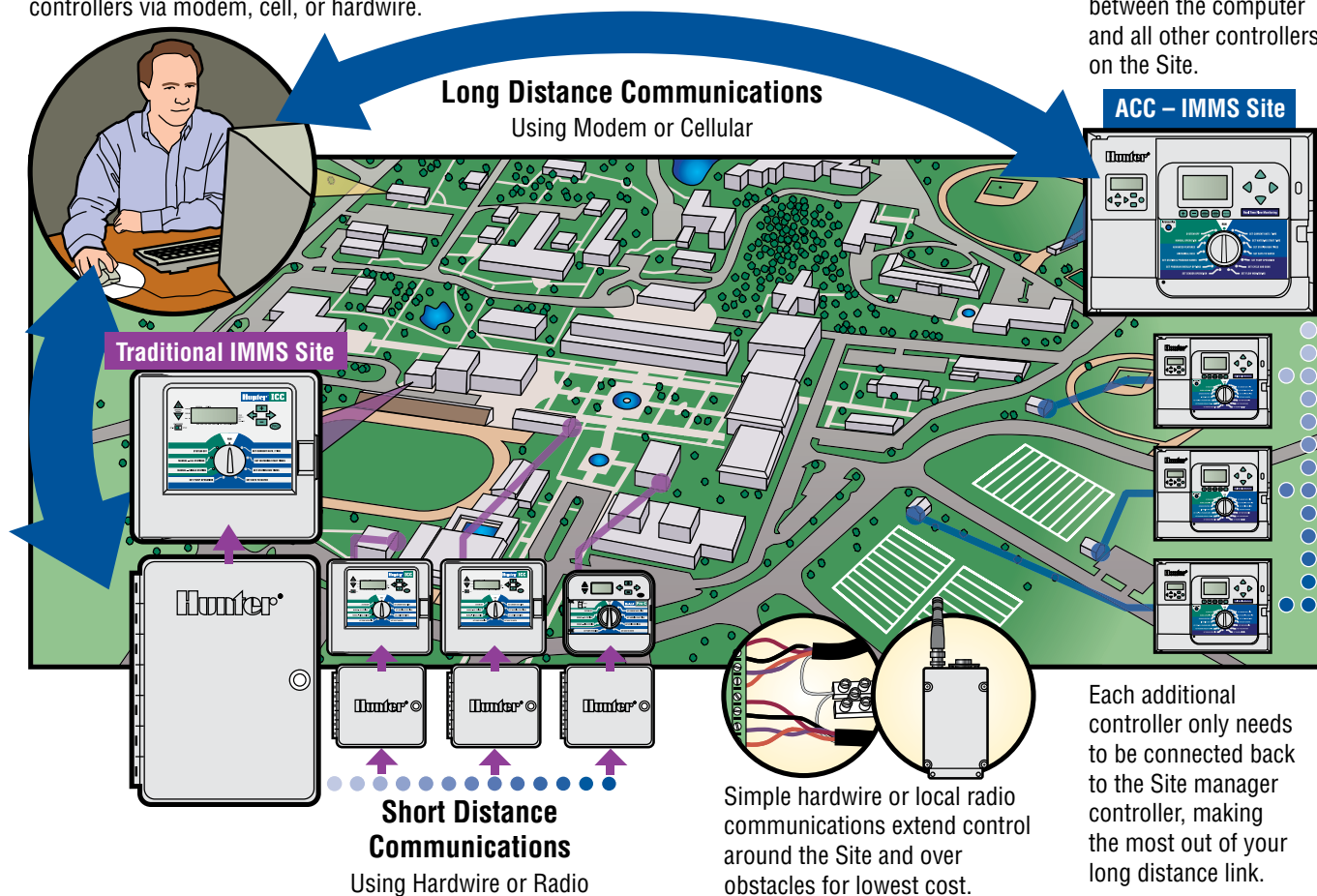


- Send out and retrieve controller programs and status from the field.
- Access actual flow histories (with the optional HFS Flow Sensor).
- Communicate through the optional internal communications interface.
- Create and remote-start Custom Manual Programs for unique irrigation events.
- Stack programs or run them independently. **Predict and display every start and stop time** of even the most complex irrigation schedules.

HOW IMMS WORKS:

The central computer with IMMS software communicates with all controllers via modem, cell, or hardwire.

The first controller on each Site manages communications between the computer and all other controllers on the Site.



INTERFACES. Each controller requires one for communications with the central. Connect to Hunter controllers with 5-conductor sprinkler wire or internal interface in ACC.

COMMUNICATIONS. The central computer uses special hardwired cable (GCBL) for local sites, and dial-up telephone lines or cellular to remote sites. Interfaces on each individual site can be networked with hardwired cable or UHF radio (FCC license required for radio).

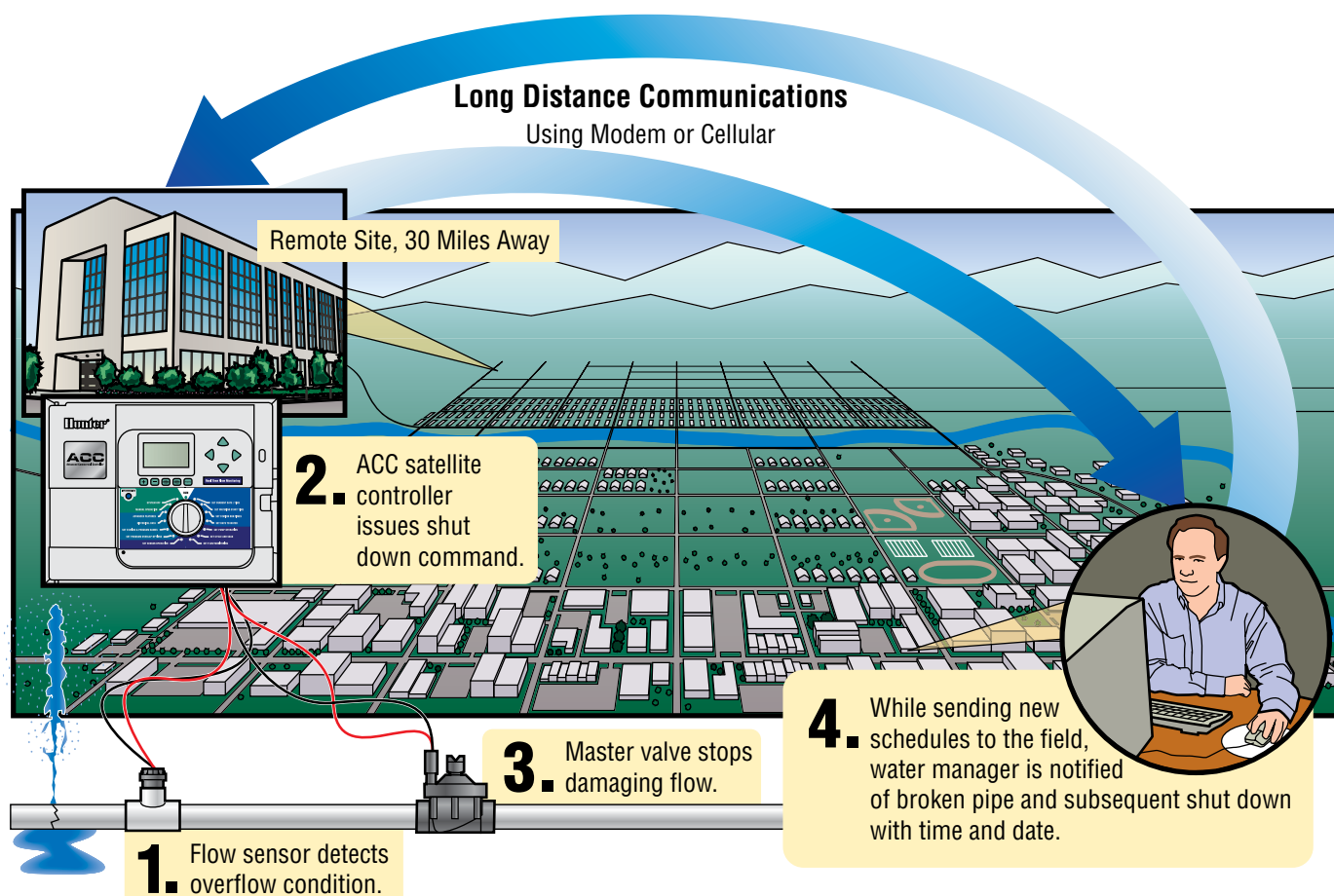
CLIK SENSORS. Connected to the interfaces for off-line alarm protection (doesn't need the computer) and on-line alarm notification (received on your next communication) of rain, freeze, or wind shutdowns.

HUNTER FLOW SENSOR. With the HFS wired into your ACC controllers, add station level diagnostics and real-time flow monitoring!

NOTE: For information regarding hardwire and dial-up modem connections, refer to page 133.

IMMS™ 2.0

The affordable water management tool to monitor and control a network of irrigation systems from a single central location.



PUT IMMS TO WORK FOR YOU:

*How can a busy irrigation manager be everywhere at once?
How do you know what's really going on in the field?
How do you protect the landscaping investments of multiple customers?
How do you do it all, 24 hours a day...and still keep costs under control?*

It's simple.

IMMS software automatically downloads new schedules, and checks for alarms, over thousands of feet or thousands of miles. Printable reports and water usage graphs insure that you (or your clients) are kept in the know. Seasonal adjustments and water savings are a couple of clicks away, rather than a drive across town. And it's all available to you 'round the clock from one convenient, centralized location.

Save the costs of driving around town by dialing up remote sites.

Simplify using the water-saving features of Hunter controllers.

Know what's up in the field before your customers do with sensor reporting.

For more information on lowest-cost system design and performance enhancing accessories, visit us on the Web at www.HunterIndustries.com and follow the IMMS links.

WHAT YOU NEED TO GET STARTED:**IMMS Basic Components**

The essential ingredients to create central control using Hunter's established line-up of residential and commercial controllers



IMMS-CCC: Used for hardwired connections to the field from the central computer. Limit one per system, not required for modem communications.

IMMS-SI: First interface on each Site, available in two versions. The –HW is hardwire cable and cellular module ready, with simple color-coded wire connections; the –MOD is equipped with internal dial-up modem for direct telephone jack connection. Weather-proof case.

IMMS-CELL-GSM: Optional Cellular Communications Module for GSM systems—goes where your phone company doesn't!

IMMS-CI-HW: Interface for each additional controller on a Site. Communicates with SI via hardwired cable or UHF radio (license required). Weatherproof, color-coded, small...put one at each additional controller.

IMMS-R: Optional UHF radio communications module, for SI and CIs. Optional external antenna IMMS-ANT-3 for extended coverage, or directional IMMS-ANT-YAGI 3 for tough coverage situations.

ICC-SAT-800-PP: Weatherproof plastic pedestal, available with ICC controller and IMMS interfaces pre-wired. Optional lid antenna IMMS-ANT-2 not shown, internal to lid (see ICC section).

IMMS ACC Communication Modules

Enhanced central control with the advanced technology of the world's smallest dial-based, full-featured, modular controller

ACC-COM-HWR: Communicates with central via hardwire. Requires ACC-HWIM.

ACC-COM-POTS: Communicates with central via Telephone Line (POTS).

ACC-COM-GSM: Communicates with central via GSM Cell modem. For use in North America only. Cell antenna included.

ACC-COM-GSM-E: Communicates with central via GSM Cell modem. For use outside North America. Cell antenna included.

ACC-HWIM: Hardware Interface Module allows hardwire communication between devices. Requires any one of the ACC-COM-xxx to be installed in ACC.

RAD3: Includes UHF radio, cable and mounting hardware. Requires any one of the ACC-COM-xxx to be installed in the ACC. Antenna sold separately.

ACC-RADINT-Kit: ACC International Radio Kit, includes I/O cable, adapter plate, and mounting screws. Requires any one of the ACC-COM-xxx to be installed in the ACC. Does not include radio or antenna.

APPBRKT: Bracket required to install any ACC-COM Module into an ACC Plastic Pedestal. Includes all necessary mounting hardware and cables.

IMMS-ANT3: Antenna for use with RAD3 and ACC-1200.

IMMS-ANT2: Antenna for use with RAD3 and ACC-1200-PP (inside pedestal lid).

IMMS-ANT-YAGI 3: Directional UHF antenna for CI locations.

HFS Hunter Flow Sensor

Add this option to enable your controller to identify a system's low flow or overflow conditions instantaneously, before resulting damage (to either the system or surrounding landscape) can occur. Measures flow in inches or metric units.

HFS: Hunter flow sensor, requires the use of an FCT-xxx on page 99.





Mini-Clik®

The world's most simple, accurate, rugged, and reliable rain sensors.

There's nothing more embarrassing—or more wasteful or costly—than an irrigation system that runs when it doesn't have to...in the rain. Mini-Clik® provides the simplest, most effective way to prevent sprinklers from coming on during or after precipitation. It easily installs on any automatic irrigation system, then shuts sprinklers off in a storm and keeps them off, automatically compensating for the amount of rainfall that occurred. Disks absorb water and expand proportionally to the amount of rain that fell (e.g., a small cloudburst would result in little absorption, a 6" thunderstorm would lead to more absorption and expansion). As the moisture-laden disks expand, they eventually activate a switch that interrupts the circuit from the controller to the solenoid valves. Once dry, they contract and release the switch. Thus, Mini-Clik automatically resets without ever affecting your controller. There's no better way to ensure that a system isn't watering when it isn't necessary.



By compensating for the effects of natural rainfall, the Mini-Clik saves water and typically pays for itself in just one season.

FEATURES & BENEFITS



Easily installs on any automatic irrigation system

Versatile enough to work with all popular controllers

Patented mechanism cannot be fouled by dirt or debris

Reliable operation, no false shutdowns

Adjusts to actuate at various rainfall quantities

Set from 1/8" to 1" based upon your local conditions

Includes 25 feet of 20 gauge two conductor wire

Fast and easy mounting out of sight

5-year warranty

Your guarantee of dependable operation



SENSOR GUARD: VANDAL RESISTANCE AND RAIN SENSOR ALL-IN-ONE

Combining the reliability of a Mini-Clik Rain Sensor with the security of a compact vandal resistant enclosure, the Sensor Guard is perfect for sports facilities, golf courses, and municipal sites. Easy to install, the Sensor Guard includes a Mini-Clik conduit rain sensor plus stainless steel mounting bolts and a drill template. For peace of mind, you'll want to get your hands on the rain sensor that's designed to keep others' hands off.

Model: SG-MC



MODELS

- MINI-CLIK – standard Mini-Click model
- MINI-CLIK-HV – code approved for liquid tight electrical fittings for 120 or 240 volt wiring applications
- MINI-CLIK-C – ½" female threaded inlet at bottom
- MINI-CLIK-NO – normally open switch
- MINI-CLIK-C-NO – ½" female threaded inlet at bottom, normally open switch

DIMENSIONS

- Height: 5"
- Length: MINI-CLIK: 6"
MINI-CLIK-HV: 7½"

OPERATING SPECIFICATIONS

- Switch Rating: 5 amps, at 125/250VAC
- Wiring: MINI-CLIK and MINI-CLIK-C: Typically interrupts the common ground wire between the solenoid valves and the controller
MINI-CLIK-HV: For use with high voltage irrigation systems, and systems using pumps drawing less than 10 amps peak
MINI-CLIK-NO: for use with controllers that require a normally open sensor switch
- Included: 25 ft. of #20 two conductor wire, two mounting screws, controller identification label and detailed instructions
- UL listed
- Optional metal gutter mount for Mini-Click (order SGM - see page 94 for photo)

MINI-CLIK RAIN SENSORS

All Mini-Click rain sensors are UL Listed and available in three different models to accommodate your particular wiring needs.

MINI-CLIK



The standard Mini-Click model, for use in most applications. Constructed of high impact thermoplastic and aluminum. Simple click-stop settings accurately measure rainfall in quantities of 1/8" to 1". Reset rate is adjustable.
Model: MINI-CLIK

MINI-CLIK-C



Features a ½" female threaded inlet at the bottom to accommodate any type of conduit to enclose wire. Electrical PVC or plumbing PVC pipe can be used with this unit since it is intended for 24 volt applications.
Model: MINI-CLIK-C

MINI-CLIK-HV



Adds in code approved liquid-tight electrical fittings for 120 or 240 volt wiring applications. Also includes 18 inches of 16 AWG installation wire. Integral bracket with supplied electrical fittings and conduit. Ready to mount on any standard junction box.
Model: MINI-CLIK-HV

SPECIFICATION GUIDE

EXAMPLE: **MINI-CLIK - HV**

MODEL	OPTIONS
MINI-CLIK	HV = High Voltage Model for 110/220VAC Applications C = Conduit Mount NO = Normally Open Switch

Note: For Mini-Click in Sensor Guard enclosure, specify SG-MC. To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in Hunter SRC, Pro-C, and ICC controllers.

SGM = Optional Gutter Mount

BYPASS SWITCH BOX: GIVE ANY AUTOMATIC CONTROLLER'S REMOTE SENSORS THE CAPABILITY TO BYPASS

It's the easy way to put a system in the manual mode as would be needed during servicing and troubleshooting operations. Featuring a compact, heavy-duty switch mechanism, the Bypass Switch Box mounts quickly and easily with its no-strip wire connectors and supplied adhesive tape.



Rain-Clik™

The reliable rain sensor with instant shutoff.

Most rain-sensing devices must first accumulate a set amount of rainfall before a switch is activated that interrupts the circuit from the controller and shuts off the system. In that “accumulation time,” the system will continue to water, giving the appearance a precious resource is being wasted...exactly the opposite impression a municipality, a business, or an upstanding citizen would like to convey. Only the Hunter Rain-Clik™, with its unique Quick Response™ feature, can command a controller to shut off immediately—not after a quarter- or a half-inch, but right when it starts to rain. The Rain-Clik can be mounted on an eave or any flat vertical surface like a wall or fence. A gutter mount is also available that allows for easy installation of the Rain-Clik on the edge of a gutter.



Hunter Rain-Clik products are the industry's only rain sensors that shut off an irrigation system at the first drop of rain.

FEATURES & BENEFITS



Shown with optional SGM gutter mount kit.

Hunter's unique Quick Response feature

No need for water to accumulate for shutoff

Rugged construction

Heavy-duty polycarbonate housing and metal extension arm

Set a maximum dry-out period

Adjust the irrigation re-start to account for varying amounts of rain

Maintenance-free patented sensing mechanism

No callbacks—just set it and forget it

Includes 25' of 20 gauge two-conductor wire

Simple to add on to a new or existing installation

Optional bypass switch

Adds flexibility to the system

5-year warranty

Hunter backs up its products with the industry's best guarantee

MODELS

Rain-Clik – standard (normally closed switch)

Rain-Clik-NO – normally open switch

RFC – Rain and freeze sensor (normally closed switch)

DIMENSIONS

- 3¼" D x 2" H

OPERATING SPECIFICATIONS

- Wiring: normally closed or normally open
- Time to turn off irrigation system: 2 to 5 minutes for the Quick Response feature
- Time to reset the Quick Response unit: 4 hours maximum under dry, sunny conditions
- Time to reset: 3 days maximum under dry, sunny conditions for the total rainfall compensation unit
- Operating temperature: 32°F to 130°F (0°C to 54°C)
- Vent ring allows for adjustment of reset delay
- UV colorfast and stable materials
- UL listed
- Optional gutter mount for Rain-Clik (order SGM)
- Freeze sensor shuts system off when temperatures fall below 37°F (Rain/Freeze-Clik Model)

ELECTRICAL SPECIFICATIONS

- 24 volt, 3 AMP Switch

SPECIFICATION GUIDE

EXAMPLE: **RAIN-CLIK**

MODEL
RAIN-CLIK

OPTION
NO = Normally Open Switch

RFC = Rain/Freeze-Clik Sensor Combo

Note: To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in all Hunter controllers.

SGM = Optional Gutter Mount



Rain/Freeze-Clik controls system operation during freezing temperatures.

Wireless Rain-Clik™

SENSORS

If the thought of running wires from a controller has kept you from adding rain sensors to your systems, now there's a hassle-free alternative. The Hunter Wireless Rain-Clik™ attaches quickly and easily—simply install the receiver unit next to your irrigation controller, then install the transmitter anywhere that the device can receive representative rainfall. No ladders needed to attach to a high outcropping on a building, no messy wires to hide out of view. What also sets a Hunter Rain-Clik apart are features no other rain-sensing device offers. The unique Quick Response™ feature allows the product to shut off immediately when it starts to rain. And, unlike its competition, Hunter's sophisticated sensing mechanism cannot be fouled by debris, giving the Wireless Rain-Clik the most highly accurate operation.



Wireless Rain-Clik Receiver

Wireless Rain-Clik Sensor (Freeze Sensing Optional)

FEATURES & BENEFITS



Improved metal mounting mechanism easily installs on fences or eaves.

Hassle-free, wire-free easy installation

Simple to add on to a new or existing installation

Hunter's unique Quick Response feature

No need for water to accumulate for shutoff

Rugged construction

Heavy-duty polycarbonate housing and metal extension arm

Set a maximum dry-out period

Adjust the irrigation re-start to account for varying amounts of rain

Operates up to 300' from the receiver unit

Typical wired system limitations vanish

Maintenance-free design

With a 10-year battery life there is no need to replace batteries

Built-in bypass switch on receiver panel

Adds flexibility to the system

Wireless Rain/Freeze-Clik

Freeze sensor eliminates ice on landscapes, walkways, and roadways

MODELS

WRC – Wireless Rain-Clik (315 MHz for domestic markets)

WRC-INT – Wireless Rain-Clik (433 MHz for Europe, Australia and other markets)

WRFC – Wireless Rain/Freeze-Clik (315 MHz for domestic markets)

SGM – Sensor gutter mount

DIMENSIONS

- 3¼" D x 4" H

OPERATING SPECIFICATIONS

- Wiring: normally closed or normally open
- Time to turn off irrigation system: 2 to 5 minutes for Quick Response
- Time to reset Quick Response unit: 4 hours maximum under dry sunny conditions
- Time to reset: 3 days maximum under dry, sunny conditions for the total rainfall compensation unit
- Operating temperature: 32°F to 130°F (0°C to 54°C)
- Vent ring allows for adjustment of reset delay
- UV colorfast and stable
- UL listed, FCC/DOC approved, suitable for use in Australia, CUL (CSA), CE
- Rain sensor transmitting range: up to 1,000 feet line of sight*
- Optional gutter mount for Rain-Clik (order SGM)
- WRFC shuts system off when temperatures fall below 37°F
- 10 year maintenance-free battery

ELECTRICAL SPECIFICATIONS

- Receiver power: 22-28VAC, 100 mA (from timer transformer)
- Receiver includes built-in bypass switch, no extra switch required
- Works with all standard controllers

* Range estimate is for WRC (domestic models)

SPECIFICATION GUIDE

EXAMPLE: **WRC-INT**

MODEL	OPTION
WRC = Wireless Rain-Clik™	INT = Europe/Australia and other markets (433 mHz operating frequency)*

WRFC = Wireless Rain/Freeze-Clik

SGM = Optional Gutter Mount

* Consult with factory for compatibility in export markets.

Freeze-Click®

Control irrigation system operation during freezing temperatures.



SPECIFICATION GUIDE

EXAMPLE: **FREEZE-CLICK - REV**

MODEL
FREEZE-CLICK

OPTION
REV = Reverse Switching

Note: To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in all Hunter controllers.

FEATURES & BENEFITS

Installs simply and easily

No adjustment necessary

Double-epoxy sealed sensing element

Aids the accuracy of temperature sensing

Can be used in conjunction with other sensors

Enhances the overall automation of irrigation systems

5-year warranty

Your guarantee of dependable operation

SPECIFICATIONS

- Length: 4½"
 - Temperature set point: 3°C +/- 2°C (37°F)
 - Temperature differential: +/- 1°C
 - Electrical rating: 24VAC 6 amps
 - UL listing: Class II Low Voltage (24 volt use only)
 - Switching: Closed-above 3°C; Open- below 3°C (Reverse switching model)
 - Included: 25 ft. of #20 two conductor wire, two mounting screws and detailed instructions
 - UL listed
- Special Usage Note:** For landscape applications only. Not for crop protection. A freeze sensor should only be used as part of a sound irrigation system management program, including regular system visual checks

Wind-Click®

Control irrigation system operation during high wind conditions.



SPECIFICATION GUIDE

EXAMPLE: **WIND-CLICK**

MODEL
WIND-CLICK

Note: To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in all Hunter controllers.

FEATURES & BENEFITS

Designed for two types of operation

Either "normally open" or "normally closed" wiring

Adjusts to actuate at various wind speeds

Sets to shut down system from 12 to 35 mph

Adjustable reset wind speeds

Set from 8 to 24 mph, based on local conditions

Can control fountain systems

Eliminates overspray in windy conditions

SPECIFICATIONS

- Height: 3.9"
- Wind vane diameter: 5"
- Switch rating: 120VAC 5 amps
- Rated: 24 volts 5 amps as wired
- Wire "normally open" or "normally closed"
- Wind speed adjustment:
Actuation: 12 to 35 mph
Reset: 8 to 24 mph
- Mounts: Slip fits over 2" PVC pipe or attaches to ½" conduit with adapter (supplied with unit)

Mini-Weather Station

Control irrigation system operation with sensors for wind, rain, and temperature.



FEATURES & BENEFITS

Easily installs on auto irrigation system

Versatile enough to meet your particular needs

Shuts system off in rainy conditions

Sets from ¼" to 1" based on your local conditions

Sets to shut down system from 12 to 35 mph winds

Choose the wind speed most effective for your area

Shuts off water at 37°F

Eliminates ice on landscapes, walkways, roadways

"Best Buy" in the April 2006 edition of Consumers Digest.

SPECIFICATIONS

- Electrical rating: 120 volts, 5 amps max
- Mini-Click-C - Adjustable settings: measure rainfall in quantities of ¼" to 1"
- Wind-Click
Wind vane diameter: 5"
Wind speed adjustments:
Actuation: 12 to 35 mph
Reset: 8 to 24
- Freeze-Click temperature set point:
37°F (3°C) +/- 2°C
Temperature differential: +/- 1°C
Sensor element: Double epoxy sealed, weatherproof

SPECIFICATION GUIDE

EXAMPLE: **MWS - FR**

MODEL
MWS = Wind and Rain Sensors

OPTION
FR = Combines Wind, Rain and Freeze Sensors

Note: To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in all Hunter controllers.

HFS

Measures real-time flow with ACC controllers.

Hunter Flow Sensor (HFS) connects to ACC family controllers to measure actual flow, and provide automatic reaction to high or low flow conditions during irrigation. Designed for installation in up to 4" (100 mm) pipe. HFS provides a simple and economical solution for metering and reacting to actual flow conditions.

FEATURES & BENEFITS

Compatible with all ACC family controllers

Simple two-wire connection up 1000'/330 m

Fits 1" to 4" (25 mm to 400 mm) pipe

Single sensor adapts to wide range of installations with glue-in FCT tee fittings

View accurate flow readings, as historical reports and in real time

Reports water use and provides turf-saving shutdowns, when combined with master valve installation



Flow-Clik™

Automatically shuts down system if an overflow condition occurs.

A ruptured pipe or broken sprinkler left undetected can result in substantial damage. Plants and ground cover can be flooded, and slopes can be eroded. The Flow-Clik™ can help identify a break before any damage can occur. The Flow-Clik can be programmed at a specified level of flow; once that level is exceeded, the electrical circuit is broken and the valves are shut off. The amount of water loss in the event of high external leakage is substantially reduced.

FEATURES & BENEFITS



Compatible with all commercial and residential piping systems

Large flow range provides complete flexibility

Customized calibration for precise system control

Every irrigation system is set individually with a single push button

Multi-color LED provides system status

Displays if power is applied and whether flow is acceptable

FLOW RANGE			
FLOW SENSOR DIAMETER	OPERATING RANGE (GPM)		
	MINIMUM*	SUGGESTED MAXIMUM**	MAXIMUM (for sensor)
1"	6	17	50
1½"	13	35	100
2"	20	55	200
3"	40	120	300
4"	60	200	400

* Minimum recommended flow for the highest flow zone for your system

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

NOTE: Highest flow zone within irrigation system should not be more than 75% maximum available system flow.

SPECIFICATION GUIDE

EXAMPLE: **FLOW-CLIK - 150**

MODEL

HFS = Real time flow meter for ACC controllers
FLOW-CLIK = Standard Version for all 24VAC Controllers (includes sensor and interface panel)
FLOW-CLIK IMMS = Version for use with IMMS™ Central Control (includes sensor only - interface panel not required for IMMS™)

FEATURES

100 = 1" Schedule 40 Sensor Body
150 = 1½" Schedule 40 Sensor Body
158 = 1½" Schedule 80 Sensor Body
200 = 2" Schedule 40 Sensor Body
208 = 2" Schedule 80 Sensor Body
300 = 3" Schedule 40 Sensor Body
308 = 3" Schedule 80 Sensor Body
400 = 4" Schedule 40 Sensor Body

NOTE = Order Flow-Clik Sensor Bodies Separately (FCT series)

DIMENSIONS

FCT Sensor Bodies:

FCT 100 (4.8" H x 2.3" W x 4.5" L) Sch. 40
 FCT 150 (5.4" H x 2.3" W x 4.6" L) Sch. 40
 FCT 158 (5.4" H x 2.3" W x 5.1" L) Sch. 80
 FCT 200 (5.9" H x 2.7" W x 4.7" L) Sch. 40
 FCT 208 (6.0" H x 2.9" W x 5.4" L) Sch. 80
 FCT 300 (7.0" H x 4.0" W x 6.2" L) Sch. 40
 FCT 308 (7.0" H x 4.2" W x 6.4" L) Sch. 80
 FCT 400 (6.5" H x 5" W x 6.5" L) Sch. 40

Interface Panel (Flow-Clik Only):

(4.5" H x 5.5" W x 1.5" D) Not required for Flow-Clik IMMS

OPERATING SPECIFICATIONS

- Temperature: 0-150 degrees F
- Pressures: up to 200 PSI
- Humidity: up to 100%

FLOW-CLIK INTERFACE PANEL

- 36" leads provided for easy wiring to controller (2 wires to controller 24VAC terminals and 2 wires to sensor and terminals)

ELECTRICAL SPECIFICATIONS

- Current draw: @24VAC .025 Amps
- Switching current: 2.0 Amps
- Maximum distance between interface panel and sensor = 1000 ft. (18 gauge minimum wire size)
 2 wires required for Flow-Clik Sensor,
 4 wires required for Flow-Clik IMMS Sensor to IMMS Interface

FLOW-CLIK ADDITIONAL FEATURES

- Programmable start up delay (0 to 300 Seconds)
- Programmable interrupt period (2 to 60 Minutes)
- System status indicator light
- One button system calibration to highest flow zone



Miscellaneous Products



Miscellaneous Products

HCV

An economical water-saver that eliminates low head drainage for sprinklers located on slopes.



Patented top adjustment
can be field set
without disassembly.



FEATURES & BENEFITS

Adjustment access from top of valve

Allows adjustment through sprinkler body, before or after installation

Adjusts to compensate for elevational changes up to 32 feet

Maximum flexibility

Variety of inlet and outlet options

Reduces need for additional fittings

Meets schedule 80 specifications

Durable under high pressure

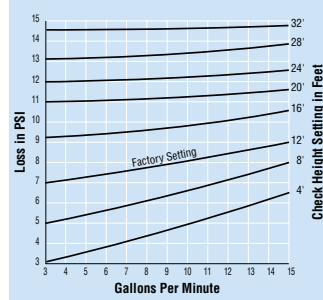
MODELS

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

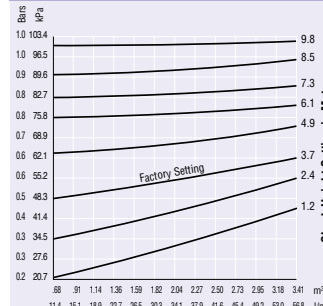
DIMENSIONS

- Overall height: 3" (8 cm)

HCV Pressure Loss Chart



HCV Pressure Loss Chart in Bars & kPa



PSR

For systems that use a pump to provide water, the relay that delivers reliability at an economical price.



FEATURES & BENEFITS

NEMA 3R rated locking enclosure

Enclosure has a high rating for outdoor use and is weatherproof, secure, rust-resistant, and shock proof

Choice of 3 different models

Internal hardware has been sized accordingly to fit your particular voltage and landscape requirements

24VAC flying leads

Makes connections to controller quick and easy

Compact design

Enclosure measures 6½" H x 7½" W x 4½" D

UL approved

The PSR-22 meets the demanding electrical requirements necessary for UL approval for both relay and cabinet. The PSR-52 and PSR-53 contain UL approved contactors.

ELECTRICAL SPECIFICATIONS

MODELS	SINGLE PHASE		3 PHASE	MAX FULL LOAD	MAX RESISTIVE	COIL VA	
	HP @ 110VAC	HP @ 240VAC	HP @ 240VAC	AMPS	AMPS	INRUSH (AMPS)	HOLDING (AMPS)
PSR-22	2*	5*	N/A	22	22	31 (1.29)	7 (.29)
PSR-52	5	7.5	N/A	40	50	56 (2.33)	6 (.25)
PSR-53	5	7.5	10	40	50	56 (2.33)	6 (.25)

* Approximate horsepower

PRO-FLEX Tubing



Introducing the Hunter PRO-FLEX, a professional flexible tubing that's more resistant to kinks. Constructed of linear low density polyethylene, PRO-FLEX is ideal for use in all climates and can withstand operating pressures up to 80 PSI. Plus, it's compatible with all types of spiral barb fittings.

MODELS

PRO-FLEX - 100' roll

GENERAL FEATURES

- Engineered to resist kinking
- Inside diameter: .49"
- Operating pressure: up to 80 PSI
- Virgin linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

Hunter Flexible Tubing



HFT-100 - Flexible linear low density poly for use in all climates.

MODELS

HFT-100 - 100' roll

GENERAL FEATURES

- Inside diameter: .49"
- Operating pressure: up to 80 PSI
- Virgin linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

Hunter Spiral Barb Elbows



Single spiral barb allows for quick and easy insertion.

Single "locking" barb seals elbow firmly into tubing.

MODELS

HSBE-050 - 1/2" male NPT x spiral barb elbow
HSBE-075 - 3/4" male NPT x spiral barb elbow

GENERAL FEATURES

- For use with PRO-FLEX Tubing and Hunter Flexible Tubing (HFT-100)
- Acetel material for sharp barbs
- Operating pressure up to 80 PSI (5.5 bars; 551 kPa)
- Compatible with PRO-FLEX, HFT and other brands

SJ Swing Joint

Easily adjusts sprinklers to proper height and position, and eliminates broken risers.



Typical swing joint installation.

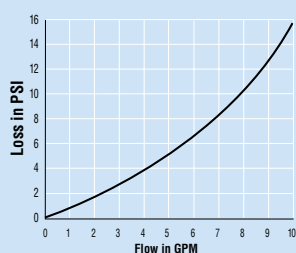
MODELS

SJ-506 - 1/2" threaded x 6" (15 cm) length standard
SJ-506-R - 1/2" threaded x 6" (15 cm) length retrofit
SJ-7506 - 1/2" x 3/4" threaded x 6" (15 cm) length
SJ-706 - 3/4" threaded x 6" (15 cm) length
SJ-512 - 1/2" threaded x 12" (30 cm) length
SJ-7512 - 1/2" x 3/4" threaded x 12" (30 cm) length
SJ-712 - 3/4" threaded x 12" (30 cm) length

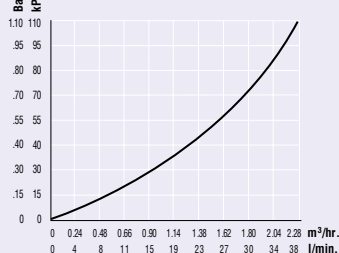
GENERAL FEATURES

- Standard configuration has swivel ells on both ends for maximum versatility
- Retrofit version has a 13/16" (21 mm) hex nut for easy threading into horizontally oriented fittings
- Unique patented swivel ells can be installed to virtually any configuration, leak free
- Pressure rated to 150 PSI (10.3 bars; 1034 kPa)

Swing Joint Friction Loss



Swing Joint Friction Loss - Metric



Quick Couplers

Heavy-duty red brass and stainless steel construction with spring-loaded covers and unique anti-rotation stabilizer option.



Hunter's HQ Quick-Coupling Valves are innovative, high-value products designed specifically for all projects that require quick water access while maintaining in-ground durability and vandal resistance. Our HQs are engineered for years of daily use and designed for maximum reliability. With heavy-duty red brass and stainless steel construction, all HQs feature our TuffTop™ spring-loaded locking or non-locking covers. The unique WingThing™ models feature anti-rotation stabilizers for added vandal-resistance and operational durability. One-piece and two-piece models are available. The two-piece body design allows field maintenance of the valve's upper seal without depressurizing the irrigation system. All locking cover models have a purple cover option making them suitable for use on reclaimed water projects. All models are configured for retro-compatibility with the popular brands installed over the years. HQ—the Hunter-tough quick-coupler product line.

FEATURES & BENEFITS



100% interchangeable with Rain Bird®, Toro®, and Buckner®

Protects your investment and simplifies ease of use

Red brass and stainless steel construction

Heavy-duty construction for long life and rugged performance

TuffTop thermoplastic locking and non-locking covers

Safety and durability over the years to come

WingThing stabilization and Acme key connection

Unique anti-rotation model also includes adjustable flow control

Stainless steel lug on 1" and 1¼" keys

Non-wearing lug offers easy engagement and smooth operation

Spring-loaded covers with stainless steel springs

Positive closing and protection for valve's sealing components

CROSS REFERENCE CHART – *For detailed cross-branding information, see page 116.*

HQ - Quick Couplers

HUNTER	RAIN BIRD	TORO	BUCKNER
HQ-3RC	3RC	473-00, 473-01	QB3RC07
HQ-33DRC	33DRC		QB33RC07
HQ-33DLRC	33DLRC, 33DNP		QB33LRC07, QB33NP07
HQ-44RC	44RC	474-21	QB44RC10
HQ-44LRC	44LRC, 44NP	474-24	QB44LRC10, QB44NP10
HQ-44RC-AW		474-21	QB44RCATAR10
HQ-44LRC-AW	4NP-Acme	474-44	QB44LRCATAR10, QB44NPATAR10
HQ-5RC	5RC	475-00, 475-01	QBRB5RC10
HQ-5LRC	5LRC, 5NP	475-03, 475-04	QBRB5LRC10, QBRB5NP10
HQ-5RC-B	5RC-BSP		QBRB5RC10BS
HQ-5LRC-B	5LRC-BSP		QBRB5LRC10BS, QBRB5NP10BS

HK - Keys

HUNTER	RAIN BIRD	TORO	BUCKNER
HK-33	33K, 33DK	463-01	QB33K07
HK-44	44K	464-01	QB44K10
HK-44A	4K-Acme	464-03	QB44KAT10
HK-55	55K-1	465-01	QB5RK10

HK - Swivels

HUNTER	RAIN BIRD	TORO	BUCKNER
HS-0	SH-0	477-00	HS075
HS-1	SH-1	477-01	HS100
HS-2	SH-2	477-02	HS101
HS-1-B			HS100BS
HS-2-B			HS101BS

HQ – Quick Couplers:

MODEL	INLET THREADS	SLOTS	BODY	COLOR*	LOCKING	KEY	SWIVELS
HQ-3RC	¾" NPT	2	1 - Piece	Yellow	No	HK-33	HS-0
HQ-33DRC	¾" NPT	2	2 - Piece	Yellow	No	HK-33	HS-0
HQ-33DLRC	¾" NPT	2	2 - Piece	Yellow	Yes	HK-33	HS-0
HQ-44RC	1" NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-44LRC	1" NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-44RC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-5RC	1" NPT	2	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" NPT	2	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2
HQ-5RC-B	1" BSP	2	1 - Piece	Yellow	No	HK-55	HS-1-B or HS-2-B
HQ-5LRC-B	1" BSP	2	1 - Piece	Yellow	Yes	HK-55	HS-1-B or HS-2-B

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

HK – Keys:

MODEL	INLET STYLE	OUTLET THREADS	COUPLERS	SWIVELS
HK-33	¾" w/Single lug	¾" Male NPT and ½" Female NPT	HQ-3RC, HQ-33DRC, HQ-33DLRC	HS-0
HK-44	1" w/Single stainless lug	1" Male NPT and ¾" Female NPT	HQ-44RC, HQ-44LRC	HS-1 or HS-2
HK-44A	1" w/Acme thread	1" Male NPT and ¾" Female NPT	HQ-44RC-AW, HQ-44LRC-AW	HS-1 or HS-2
HK-55	1¼" w/Single stainless lug	1" Male NPT	HQ-5RC, HQ-5LRC, HQ-5RC-B, HQ-5LRC-B	HS-1, HS-2, HS-1-B, HS-2-B

HS – Swivels:

MODEL	INLET x OUTLET THREADS	COUPLERS	KEYS
HS-0	¾" Female NPT x ¾" Male Hose	HQ-3RC, HQ-33DRC, HQ-33DLRC	HK-33
HS-1	1" Female NPT x ¾" Male Hose	HQ-44RC, HQ-44LRC, HQ-44RC-AW, HQ-44LRC-AW, HQ-5RC, HQ-5LRC	HK-44, HK-44A, HK-55
HS-2	1" Female NPT x 1" Male Hose	HQ-44RC, HQ-44LRC, HQ-44RC-AW, HQ-44LRC-AW, HQ-5RC, HQ-5LRC	HK-44, HK-44A, HK-55
HS-1-B	1" Female NPT x ¾" Male BSP	HQ-5RC-B, HQ-5LRC-B	HK-55
HS-2-B	1" Female NPT x 1" Male BSP	HQ-5RC-B, HQ-5LRC-B	HK-55

HLK – Locking Cover Key:

MODEL	COUPLERS
HLK	HQ-33DLRC, HQ-44LRC, HQ-44LRC-AW, HQ-5LRC, HQ-5LRC-B



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

SPECIFICATION GUIDE

EXAMPLE: **HQ-44-LRC-AW**

MODEL	BODY	COVER	OPTIONS
HQ = Quick Coupler	3 = ¾" inlet, 1-piece body 5 = 1" inlet, 1-piece body 33D = ¾" inlet, 2-piece body 44 = 1" inlet, 2-piece body	RC = Yellow rubber cover LRC = Yellow locking rubber cover	AW = Acme key with anti-rotation wings* B = BSP threads** R = Purple locking cover (for reclaimed water sites)
HK = Coupler Key	33 = ¾" valve, ¾" key inlet 44 = 1" valve, 1" key inlet 44A = 1" valve, Acme key inlet 55 = 1" valve, 1¼" key inlet		* only available in body 44 ** only available in body 5
HS = Hose Swivel	0 = ¾" inlet x ¾" hose outlet 1 = 1" inlet x ¾" hose outlet 2 = 1" inlet x 1" hose outlet 1B = 1" inlet x ¾" BSP outlet 2B = 1" inlet x 1" BSP outlet		

Drip Control Zone Kits

*Convenient and reliable solutions
for automatic control of a drip zone.*

For years, Hunter has produced rugged, dependable valves. Now, there are pre-assembled kits that bring together these popular valves with both a filter and a pressure regulator, providing you with a complete control zone. The main element of these kits is the brawny Hunter valve, featuring high-grade material construction designed to handle the toughest conditions a job site can offer. Additional durability comes courtesy of a standard stainless steel screen, available in 100 and 150 mesh sizes. Rounding out the elements of kits are a pressure regulator that maintains the outlet pressure to a level suitable for drip zones. Save both time and labor with the PCZ, PACZ, or the ICZ. Three handy kits that include everything you need.

FEATURES & BENEFITS

Pre-assembled control zone

Kit is sold fully assembled saving you time and labor

Stainless steel screen filtration

Filter element is made from stainless steel ensuring long lasting protection against clogged drip emitters

Pressure regulator (controls dynamic pressure to 25 PSI)

Protects barbed connections within drip zone from fatiguing and leaking

MODELS

PACZ-075 - ¾" anti-siphon control zone kit

PCZ-101 - 1" control zone kit

ICZ-101 - 1" control zone kit

HY075 - ¾" MPT plastic Wye strainer with stainless steel 150 mesh screen

HY100 - 1" MPT plastic Wye strainer with stainless steel 150 mesh screen

OPERATING SPECIFICATIONS

- Flow: .5 to 20 GPM
(30 to 1200 GPH; 0.12 to 9.60 m³/hr, 1.9 to 76 l/min)
- Pressure: 15 to 120 PSI
(1.0 to 8.0 bar; 100 to 800 kPa)
- Temperature: up to 150°F (66°C)
- Heavy-duty solenoid: 24 AC, 370 mA inrush current, 190 mA holding current, 60 cycles; 475 mA inrush current, 230 mA holding current, 50 cycles

SPECIFICATION GUIDE

EXAMPLE: **PCZ-101-40**

MODEL	FEATURES	OPTIONS
PACZ	075 = ¾" ASV valve with ¾" HY075 filter system	25 = 25 PSI regulator 40 = 40 PSI regulator
PCZ	101 = 1" PGV globe valve w/1" HY100 filter system	
ICZ	101 = 1" ICV valve with 1" HY100 Wye filter	



Reclaimed Water Products

Rotors, sprays, and valves can be clearly identified as being supplied by a non-potable source of water.

ROTORS-FACTORY INSTALLED ID CAP

PGJ:

- PGJ-00-R
- PGJ-04-R
- PGJ-06-R
- PGJ-12-R

PGP:

- PGS-ARV
- PGS-3RV
- PGP-ARV
- PGP-3RV
- PGH-ARV
- PGH-3RV

I-10/20 Ultra:

- I-10-ARV
- I-10-3RV
- I-20-ARV
- I-20-3RV
- I-20-ARS
- I-20-3RS
- I-20-6P-ARV
- I-20-6P-3RV
- I-20-6P-ARS
- I-20-6P-3RS
- I-20-HP-ARV
- I-20-HP-3RV

I-25 Plus:

- I-25-ARV
- I-25-3RV
- I-25-ARS
- I-25-3RV
- I-25-6P-ARV
- I-25-6P-3RV
- I-25-6P-ARS
- I-25-6P-3RS

I-40:

- I-40-ARS
- I-40-3RS
- I-40-3RS-ON
- I-40-6P-ARS
- I-40-6P-3RS
- I-40-6P-3RS-ON

I-60:

- I-60-ARS
- I-60-3RS

I-90:

- I-90-ARV
- I-90-3RV

SPRAYS

PS:

- Identification ring field-install part #: 461844

SRS:

- Reclaimed water identification cap field-install part #: 349800

Pro-Spray®:

Factory Installed:

- PRO-00-R - shrub adapter
- PRO-04-CV-R
- PRO-06-CV-R
- PRO-12-CV-R

Field Installed:

- Reclaimed water identification snap-on cover part #: 469800
- Reclaimed water thread-on body cap part #: 458520
- Reclaimed water thread-on body cap, Pro-Spray with Check Valve ID part #: 458525

Institutional Spray:

Factory Installed:

- INST-00-R - shrub adapter
- INST-04-CV-R
- INST-06-CV-R
- INST-12-CV-R

Field Installed:

- Reclaimed water identification snap-on cover part #: 469805
- Reclaimed water thread-on body cap part #: 458530
- Reclaimed water thread-on body cap, Institutional Spray with Check Valve ID part #: 458535

VALVES:

1" PGV, SRV, HPV & ASV:

- Reclaimed water identification handle field-install part #: 269205

PGV-151 & PGV-201:

- Reclaimed water identification handle field-install part #: 412705

ICV-101, ICV-151 & ICV-201:

- Reclaimed water identification handle field-install part #: 561205

ICV-301:

- Reclaimed water identification handle field-install part #: 515005

QUICK COUPLERS (Factory Installed):

- HQ-33DLRC
- HQ-44LRC
- HQ-44LRC-AW
- HQ-5LRC
- HQ-5LRC-B



Accessories

A full range of convenient service tools and auxiliary items for sprinklers that save time and make jobs easier.

HAND PUMP



"T" HANDLE TOOL



ROTOR PRESSURE GAUGE



HAND PUMP

- Used for emptying water from valve boxes and sprinkler bodies. part # 460302

"T" HANDLE TOOL

- Nozzle insertion, lift-up and arc adjustment tool for most rotors. part # 319100

ROTOR PRESSURE GAUGE

- Fits nozzle orifice on PGP. part # 129900

ROTOR PITOT GAUGE



NOZZLE INSERTION COLLAR



SHRUB ROTOR STAKING KIT



ROTOR PITOT GAUGE

- Unique "stay dry" design adjusts to fit all rotors. part # 280100

NOZZLE INSERTION COLLAR

- For easy field installation of nozzles on all rotors except PGJ, I-60, and I-90. part # 123200

SHRUB ROTOR STAKING KIT

- For easy staking of PGS, I-10, and other rotors. Reduces liability. part # 463551

STABILIZER FLANGE



SJA SWING JOINT



Integrated PVC tee

Glue in place for fast leak-free connection

Heavy-duty PVC flex tubing

Bends at sharp angles without any flow disruption or leaks

Pressure rated to 150 PSI

Built tough to take the pressure

For use with sprays or rotors

Models available with 1/2" or 3/4" male fittings



Simply glue the integral slip tee fitting, thread on sprinkler and flex to desired location.

SUB-SURFACE STABILIZER FLANGE

- For I-25/I-31 Plus and I-40/I-41 Group sprinklers when additional stabilization is required. part # 222700

SJA SWING JOINT MODELS

- SJA-402-101-12 – 12" swing assembly:
3/4" PVC pipe tee x 1/2" male outlet elbow
- SJA-402-130-12 – 12" swing assembly:
1" PVC pipe tee x 1/2" male outlet elbow
- SJA-402-007-12 – 12" swing assembly:
3/4" PVC pipe tee x 3/4" male outlet elbow
- SJA-402-131-12 – 12" swing assembly:
1" PVC pipe tee x 3/4" male outlet elbow



Design Resources

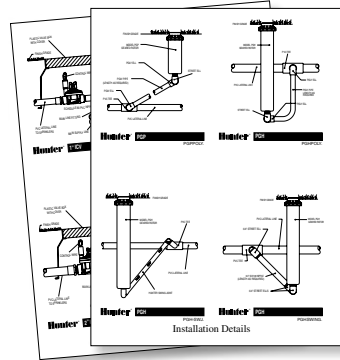
No one in the industry can match our full array of helpful aids created specifically to support irrigation designers.

IRRIGATION DESIGNER'S INFORMATION BINDER



Created specifically to put all the essential information that a designer needs in one easy-to-reference guide. This complete resource center contains details on every Hunter product—from sprays to rotors, valves to controllers—including operational specifications and performance data. part # LIT-133

PRODUCT INSTALLATION ILLUSTRATIONS



A picture is worth a thousand words. And these easy-to-understand detailed line drawings show the proper way to install every one of Hunter's products, and make a wise addition to a set of plans for any project. Available in either printed format, as part of our Irrigation Specification CD-ROM or as a download from our website. Printed Version part # LIT-141

TYPICAL SPORTS FIELD PLANS



From football to soccer, baseball to cricket, you'll find a standard layout for installing an irrigation system for virtually any major sporting field. Available in printed format or as part of the Design Tools CD for use with most popular drafting programs, these handy plans can be opened and modified for the requirements of the specific site. Printed Plans in Binder part # LIT-037B

HUNTER TECHNICAL MANUAL



So chock full of information that you'll consider this to be the reference bible for the irrigation industry. Filled with hundreds of charts, formulas and other reference data, it will provide the easy way to solve complex design problems. part # LIT-194

IRRIGATION SPECIFICATION CD



A handy disc that contains essential resources for irrigation professionals involved in the design and specification of irrigation systems. Includes electronic versions of Typical Sports Field Plans and Product Installation Illustrations (compatible with many CAD programs), plus Written Product Specifications (MS Word and .txt formats). Can also be downloaded from our website at www.hunterindustries.com. part # LIT-249

Precipitation Rates


A brief overview for the irrigation professional on how to calculate this important information.


WHAT IS "PRECIPITATION RATE"?


If someone said they were caught in a rainstorm that dropped one inch of water in an hour, you would have some idea of how "hard" or "heavily" the rain came down. A rainstorm that covers an area with one inch of water in one hour has a "precipitation rate" of one inch per hour (1 in/hr or 25 mm/hr). Similarly, the precipitation rate is the "speed" at which a sprinkler or an irrigation system applies water.

MATCHED PRECIPITATION RATES

A zone or system in which all the heads have similar precipitation rates is said to have "matched precipitation rates." Systems that have matched precipitation rates reduce wet and dry spots and excessive run times which lead to high water consumption and increased costs. Knowing that sprinkler spacing, flow rates, and arcs of coverage affect precipitation rates, a general rule of thumb is: as the spray arc doubles, so should the flow.

 ...90° Arc = 1 GPM
(0.23 m³/hr; 3.8 l/min)

 ...180° Arc = 2 GPM
(0.45 m³/hr; 7.6 l/min)

 ...360° Arc = 4 GPM
(0.91 m³/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.

The nozzle performance charts found in this catalog have two columns that show the approximate precipitation rates for the sprinklers at a given pressure, radius (spacing) and flow. The column on the left with the ■ symbol shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The formula used to calculate the precipitation rate in this case is the "Sprinkler Spacing Method–Any Arc and Any Spacing" equation, found below. The column on the right with the ▲ symbol shows the precipitation rate for the sprinklers when they are laid out in an equilateral triangular spacing pattern. The formula used to calculate the precipitation rate in this case is the "Sprinkler Spacing Method–Equilateral Triangular Spacing" equation, also found below.

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 (■):

$$\text{P.R. (in/hr)} = \frac{\text{GPM (for any Arc)} \times 34,650}{\text{Degrees of Arc} \times \text{Head Spacing (ft)} \times \text{Row Spacing (ft)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{m}^3/\text{hr (for any Arc)} \times 360,000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{l/min (for any Arc)} \times 21,600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

Equilateral Triangular Spacing (▲):

$$\text{P.R. (in/hr)} = \frac{\text{GPM of 360 Arc} \times 96.25}{(\text{Head Spacing})^2 \times .866} \quad \text{P.R. (mm/hr)} = \frac{\text{l/min of 360 Arc} \times 60}{(\text{Head Spacing})^2 \times .866}$$

$$\text{P.R. (mm/hr)} = \frac{\text{m}^3/\text{hr of 360 Arc} \times 1,000}{(\text{Head Spacing})^2 \times .866}$$

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.

$$\text{P.R. (in/hr)} = \frac{\text{Total GPM} \times 96.25}{\text{Total Area}} \quad \text{P.R. (mm/hr)} = \frac{\text{l/min} \times 60}{\text{Total Area}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{m}^3/\text{hr} \times 1,000}{\text{Total Area}}$$

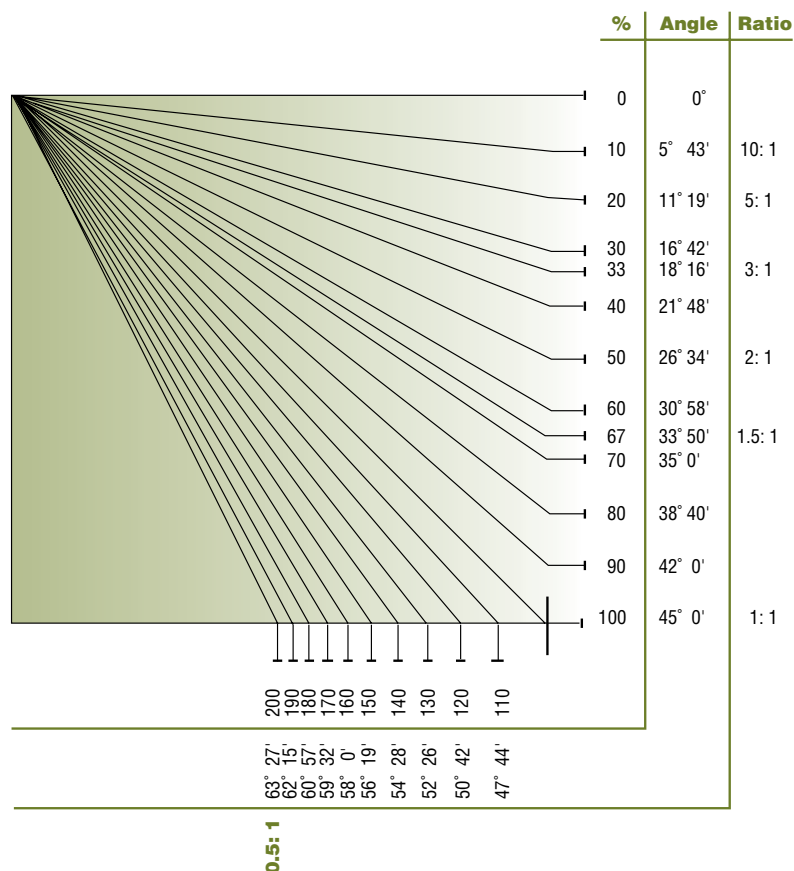
For more information on precipitation rates, ask for Hunter's LIT-084, *Reviewing the Basics of Matched Precipitation*.

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	2.540
	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	bars	0.068948
	bars	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

Slope Equivalents

Percent, Angle, and Ratio



Slope Irrigation

Maximum precipitation rates for slopes.

The maximum precipitation values listed below are those suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil condition and condition of ground cover.

SOIL TEXTURE	0 to 5% slope		5 to 8% slope		8 to 12% slope		12% + slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	2.00	2.00	2.00	1.50	1.50	1.00	1.00	0.50
Coarse sandy soils over compact subsoils	1.75	1.50	1.25	1.00	1.00	0.75	0.75	0.40
Light sandy loams uniform	1.75	1.00	1.25	0.80	1.00	0.60	0.75	0.40
Light sandy loams over compact subsoils	1.25	0.75	1.00	0.50	0.75	0.40	0.50	0.30
Uniform silt loams	1.00	0.50	0.80	0.40	0.60	0.30	0.40	0.20
Silt loams over compact subsoil	0.60	0.30	0.50	0.25	0.40	0.15	0.30	0.10
Heavy clay or clay loam	0.2	0.15	0.15	0.1	0.12	0.08	0.1	0.06

Replacement Guide

Receive Hunter quality and Hunter performance with the right substitute for your non-Hunter sprinklers.

Bringing together a combination of intelligent design, carefully controlled manufacturing, and regular testing to ensure conformity to the strictest standards, Hunter has been able to create what performance studies have shown to be truly exceptional nozzles. Essentially, we have made the science of developing superior nozzles—and thus, superior sprinkler—look easy. In the process, we have also made it easy for you to determine exactly which of these high performance sprinklers make the appropriate choice for you to install as an alternative to your current product that does not carry the Hunter label. Simply consult our comprehensive replacement guide and you'll quickly see there's a better quality, better performing sprinkler from Hunter that will fit whatever irrigation need you have.

Residential and Light Commercial Rotary and Spray Sprinklers

Spray Sprinklers

To Replace	Use Hunter Nozzle	
All Manufacturers		
7" Radius	7A	
10" Radius	10A	
12" Radius	12A	
15" Radius	15A	
17" Radius	17A	
Side Strip	5SS	

PGJ Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
3500	0.75	.75
	1.0	1.0
	1.5	1.5
	2.0	2.0
	3.0	3.0
	4.0	4.0
T-Bird T-22	.65 (Blue)	.75
	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0

To Replace	Use Hunter Nozzle	
Rain Bird®		
T-Bird T-30	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0
	5.0 (Green)	5.0
Nelson®		
5500	#51	.75
	#52	1.5
	#53	2.0
	#54	2.5
Toro®		
300 / 340	01	.75
Stream Rotor	02	1.5
	03	3.0

PGP® Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
Mini-Paw® 15103	07 (Black)	6
	09 (Green)	7
Maxi-Paw™ 2045	06 (Red)	5
	07 (Black)	6
	08 (Blue)	8
	10 (Yellow)	9
	12 (Beige)	10
R-50	1.5 (Black)	5
	2.0 (Brown)	7
	3.0 (Gray)	8
	4.0 (Yellow)	9
	6.0 (Green)	11
T-Bird T-30	1.3 (Black)	4
	2.5 (Gray)	6
	5.0 (Green)	9
T-Bird T-40, 5000	1.5 (Black)	5
	2.0 (Brown)	7
	3.0 (Gray)	8
	4.0 (Yellow)	9
	6.0 (Green)	11
15111	10 (5/62" nozzle)	9
21A, 27A	10 (5/32" nozzle)	9
25	10 (5/62" nozzle)	9
31A, 37A	14 (7/32" nozzle)	11
35	12 (3/16" nozzle)	10

To Replace	Use Hunter Nozzle	
Toro®		
300 Stream Rotor	308-XX-02	4
	308-XX-03	7
	316-XX-02	7
	316-XX-03	10
XP 300 Series	XP-300-090-07	4
	180-07	7
	360-07	10
	090-09	5
	180-09	8
	360-09	11
	090-10	5
	180-10	9
	360-10	12
Super 600	1.3	4
	2.5	7
	5.0	10
	6.0	10
Super 700	1.3	3
	1.5	4
	2.0	5
	3.0	7
	4.5	8
	6.0	9
	7.5	10
	9.0	11

To Replace	Use Hunter Nozzle	
Nelson®		
Mini Rotor®	6702 (Green)	5
	6703 (Red)	7
	6704 (Black)	8
6760	see "Single Nozzle"	
Pro 6000	Use Hunter 4-11	
Pro 6500	61	6
	62	9
	63	10
	64	11
Weathermatic®		
G40P & G40FS		7
G50P		9
G50F		11
G60P & G40F		10
G60F		12
TJ2/TJ3	Use Hunter 4-12	
Single Nozzle	All impact mfrs.	
	7/64"	5
	1/8"	7
	9/64"	8
	5/32"	9
	11/64"	9
	3/16"	10
	13/64"	11
	7/32"	11

Residential and Light Commercial Rotary and Spray Sprinklers

I-20 Ultra Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
Mini-Paw® 15103	07 (Black)	3.0
	09 (Green)	3.5
Maxi-Paw™ 2045	06 (Red)	2.0
	07 (Black)	3.0
	08 (Blue)	4.0
	10 (Yellow)	6.0
R-50	12 (Beige)	8.0
	1.5 (Black)	2.0
	2.0 (Brown)	3.0
	3.0 (Gray)	4.0
T-Bird T-30	4.0 (Yellow)	6.0
	6.0 (Green)	8.0
	1.0 (Red)	1.0
	1.3 (Black)	1.5
T-Bird T-40, 5000	2.0 (Brown)	2.0
	2.5 (Gray)	3.0
	4.0 (Yellow)	3.5
	5.0 (Green)	6.0
15111	1.5 (Black)	2.0
	2.0 (Brown)	3.5
	3.0 (Gray)	4.0
	4.0 (Yellow)	6.0
21A, 27A	6.0 (Green)	8.0
	10	6.0
25	10	6.0

<i>To Replace</i>	<i>Use Hunter Nozzle</i>		
Toro®			
300 Stream	304-XX-02	1.0	
Rotor	308-XX-02	1.5	
	316-XX-02	3.5	
	304-XX-03	1.5	
	308-XX-03	3.5	
	316-XX-03	8.0	
XP 300	090-07	1.5	
	180-07	3.5	
	360-07	8.0	
	090-09	2.0	
	180-09	4.0	
	360-09	8.0	
	090-10	3.0	
	180-10	6.0	
	Super 600	1.3	1.5
		2.5	3.5
	5	8.0	
Super 700	1	1.0	
	1.5	1.5	
	2	2.0	
	3	3.5	
	4.5	4.0	
	6	6.0	
	7.5	8.0	

To Replace	Use Hunter Nozzle	
Nelson®		
Mini Rotor®	6702 (Green)	2.0
	6703 (Red)	3.5
	6704 (Black)	4.0
6706	see "Single Nozzle"	
Pro 6000	4	1.0
	5	1.5
	6	2.0
	7	3.0
	8	4.0
	9	6.0
	10	8.0
	Pro 6500	61
62		6.0
63		8.0
Weathermatic®		
G40P & G40FS		3.5
G50P		6.0
G60P & G40F		8.0
TJ2 & T3	4	1.5
	5	2.5
	6	3.0
	7	3.5
	8	4.0
	9	6.0
	10	8.0
	Single Nozzle	All impact mfrs.
	7/64" #	2.0
	1/8" #	3.5
	9/64" #	4.0
	5/32" #	6.0
	11/64" #	6.0

Replacing Sprinklers?



Hunter's wide selection of nozzle options for rotary and spray sprinklers means there's an easy match for virtually every existing system. If you need assistance selecting a sprinkler or nozzle for your project,

contact the Hunter DATA Line: 800-733-2823.

Replacement Guide

(Continued)

Residential and Light Commercial Rotary and Spray Sprinklers

I-25 Plus Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
FALCON	4 (Black)	4 (Yellow)
	6 (Lt. Blue)	5 (White)
	8 (Dk. Green)	7 (Orange)
	10 (Gray)	8 (Lt. Brown)
	12 (Beige)	10 (Lt. Green)
	14 (Lt. Green)	13 (Lt. Blue)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
41-51A	18 x 11.5	20 (Dk. Brown)
41-51A	13 x 11	13 (Lt. Blue)
47A	16	13 (Lt. Blue)
37A	14	8 (Lt. Brown)
7005	4 (Black)	4 (Yellow)
	6 (Lt. Blue)	5 (White)
	8 (Dk. Green)	8 (Lt. Brown)
	10 (Gray)	10 (Lt. Green)
	12 (Beige)	13 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
8005	12 (Beige)	13 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
	20 (Red)	23 (Dk. Green)
	22 (Yellow)	25 (Dk. Blue)
	24 (Orange)	28 (Black)

To Replace	Use Hunter Nozzle	
Toro®		
2001	6 (Yellow)	7 (Orange)
	9 (Red)	8 (Lt. Brown)
	12 (Brown)	10 (Lt. Green)
	18 (Blue)	18 (Red)
	24 (Green)	25 (Dk. Blue)
640	40	8 (Lt. Brown)
	41	10 (Lt. Green)
	42	13 (Lt. Blue)
	43	15 (Gray)
	44	20 (Dk. Brown)
Nelson®		
7000 & 7500	1	7 (Orange)
	2	8 (Lt. Brown)
	3	10 (Lt. Green)
	4	13 (Lt. Blue)
	5	15 (Gray)
	6	20 (Dk. Brown)
	7	23 (Dk. Green)
	8	25 (Dk. Blue)

To Replace	Use Hunter Nozzle	
Thompson®		
186/187	P-Nozzle	5 (White)
	Q-Nozzle	7 (Orange)
	R-Nozzle	13 (Lt. Blue)
	S-Nozzle	15 (Gray)
	T-Nozzle	18 (Red)
	U-Nozzle	23 (Dk. Green)
	VS-Nozzle	28 (Black)
	V-Nozzle	28 (Black)
	W-Nozzle	28 (Black)
Single Nozzle	All impact mfrs.	
	5/32"	4 (Yellow)
	11/64"	5 (White)
	3/16"	7 (Orange)
	13/64"	8 (Lt. Brown)
	7/32"	10 (Lt. Green)
	15/64"	13 (Lt. Blue)
	1/4"	15 (Gray)
	17/64"	20 (Dk. Brown)

I-40 Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
41-51A	18 x 11.5	44
41-51A	13 x 11	43
47A-SAM	16	42
37A	14	41
65 SERIES	16	42
8005	12 (Beige)	41
	14 (Lt. Green)	43
	16 (Dk. Brown)	43
	18 (Dk. Blue)	44
	20 (Red)	44
	22 (Yellow)	45

To Replace	Use Hunter Nozzle	
Rain Bird®		
TALON	14	42
	16	43
	18	44
	20	45
	22	45
Thompson®		
186/7	R-Nozzle	42
	S-Nozzle	43
	T-Nozzle	43
188/9	U-Nozzle	44
	V-Nozzle	45

To Replace	Use Hunter Nozzle	
Toro®		
640	Use Hunter 40-44	
Single Nozzle	All impact mfrs.	
	15/64"	41
	1/4"	42
	17/64"	43
	9/32"	43

Quick Couplers, Keys, Swivels and Locking Cover Key

HQ-Quick Couplers

To Replace	Use Hunter HQ:		
Rain Bird®	Toro®	Buckner	West AG/Storm
3RC	473-00, 473-01	QB3RC07	4V075-RY/QCV075-R
			HQ-3RC
33DRC		QB33RC07	4V133-4A-RY/QCV133-4A-R
			HQ-33DRC
33DLRC, 33DNP		QB33LRC07, QB33NP07	4V133-4A-RLY, 4V133-4A-RL-NP/ QCV133-4A-RL-2, QCV133-4A-N-2
			HQ-33DLRC
44RC	474-21	QB44RC10	4V144-RY/QCV144-R
			HQ-44RC
44LRC, 44NP	474-24	QB44LRC10, QB44NP10	4V144-RLY, 4V144-RL-NP/ QCV144-RL, QCV144-N
			HQ-44LRC
	474-21	QB44RCATAR10	
			HQ-44RC-AW
4NP-Acme	474-44	QB44LRCATAR10, QB44NPATAR10	
			HQ-44LRC-AW
5RC	475-00, 475-01	QBRB5RC10	4V101-RY/QCV101-R
			HQ-5RC
5LRC, 5NP	475-03, 475-04	QBRB5LRC10, QBRB5NP10	4V101-RLY, 4V101-RL-NP/ QCV101-RL, QCV101-N
			HQ-5LRC
5RC-BSP		QBRB5RC10BS	4V101-RY-BS/QCV101-R-BS
			HQ-5RC-B
5LRC-BSP		QBRB5LRC10BS, QBRB5NP10BS	4V101-RLY-BS, 4V101-RL-NP-BS/ QCV101-RL-BS, QCV101-N-BS
			HQ-5LRC-B

HK-Keys, HS-Swivels & HLK-Locking Cover Key

To Replace	Use Hunter HK:		
Rain Bird®	Toro®	Buckner	West AG/Storm
33K, 33DK	463-01	QB33K07	4C075/C075
			HK-33
44K	464-01	QB44K10	4C100/C100
			HK-44
4K-Acme	464-03	QB44KAT10	4C100A/C100A
			HK-44A
55K-1	465-01	QB55K10	4C101/C101
			HK-55

To Replace	Use Hunter HS:		
Rain Bird®	Toro®	Buckner	West AG/Storm
SH-0	477-00	HS075	4HS-075/HS075
			HS-0
SH-1	477-01	HS100	4HS-100/HS-100
			HS-1
SH-2	477-02	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

To Replace	Use Hunter HLK:		
Rain Bird®	Toro®	Buckner	West AG/Storm
2049	491-02	TLK	VLCK
			HLK

Installation Guide

SRS, Pro-Spray®, and Institutional Spray Sprinklers

Installation Instructions

1. Install screen into riser opening and screw any female-threaded spray nozzle onto riser.
2. Ratchet riser (Fig. 1) to align the right edge of the spray arc (looking from "behind" the sprinkler) to the right edge of the area to be irrigated.

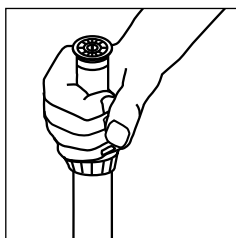


Fig. 1

Arc Adjustment

The Hunter Adjustable Arc nozzles come from the factory with a preset arc of 25°.

1. Hold the perimeter of the nozzle with fingers and turn the nozzle counterclockwise to increase the arc. (Fig. 2)
2. To decrease the arc, hold the perimeter of the nozzle with fingers and turn the nozzle clockwise.

NOTE: The arc can also be increased or decreased by using a flat-bladed screwdriver.

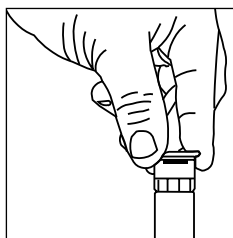


Fig. 2

Radius Adjustment

1. Hold the nozzle arc stationary with fingers, or with the two pins on the side of the Hunter wrench between any of the nozzle spokes. (Fig. 3)
2. Adjust the radius with a flat-bladed screwdriver by turning the center screw clockwise to reduce the radius.

NOTE: The radius should not be reduced more than 25%. The nozzles are preset at the factory for maximum radius.

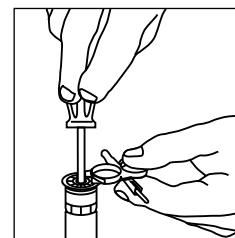


Fig. 3

PS Spray Sprinklers

Installation Instructions

1. DO NOT REMOVE THE NOZZLE. The filter screen is accessible from the bottom of the riser.
2. Ratchet riser (Fig. 4) to align the raised dot on top of each nozzle with what will be the right edge of the spray arc (looking from "behind" the sprinkler).

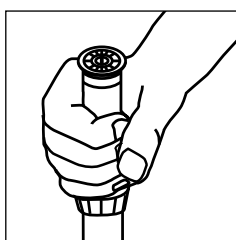


Fig. 4

Arc Adjustment

1. Insert the hex end of the Hunter wrench into the stainless steel hex screw and turn the screw counterclockwise to increase the arc. (Fig. 5)

NOTE: The nozzle turns with the screw and both the arc of coverage and the discharge rate are increased. Do not use the Hunter wrench sideways in the spokes to adjust the arc. The flow will not adjust proportionately to the arc.

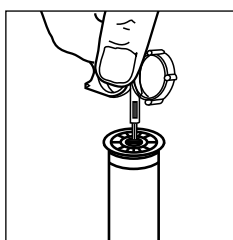


Fig. 5

Radius Adjustment

1. Hold the plastic nozzle stationary by inserting the two pins on the side of a Hunter wrench between any of the nozzle spokes. (Fig. 6)
2. With a second Hunter wrench, turn the stainless steel hex screw clockwise to decrease, and counterclockwise to increase, the radius and discharge rate.

NOTE: The radius should not be reduced more than 25%. The sprinkler is preset at the factory for maximum radius.

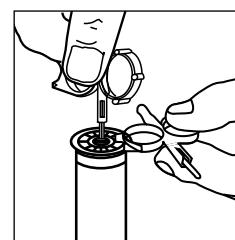


Fig. 6

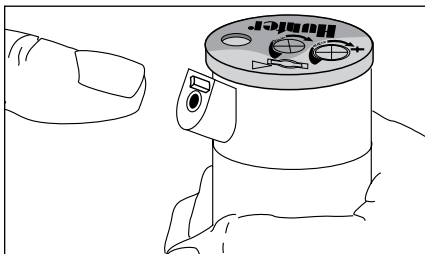
Download complete product user's guides or controller owners manuals from our website at www.HunterIndustries.com.



Installation Guide

(Continued)

PGJ, PGP®, and I-20 Ultra Rotary Sprinklers Nozzle Installation

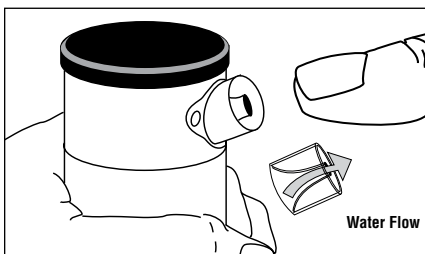


1. Insert the plastic key end of the Hunter wrench into the lifting socket of the sprinkler and turn 90°. Pull the riser up to gain access to the nozzle socket.
2. Using the hex key of the Hunter wrench, turn the radius adjustment screw counterclockwise to be sure it is not blocking the nozzle socket opening. If a nozzle is already installed, it can be removed by backing out the adjustment screw and turning on the water, or by pulling outward on the nozzle "ears" with a pair of needle-nosed pliers.
3. Slip the desired nozzle into the nozzle socket. Note that the socket is angled up 25°, and that the I-20 Ultra nozzle has a flat top. The "ears" should be adjusted so that the nozzle range screw threads

directly down between them. Then tighten the nozzle range screw. The raised bump with an arrow on the rubber cover will always indicate the location of the nozzle and direction of water flow when the sprinkler is retracted.

4. Turn nozzle-retainer/radius-adjustment screw counterclockwise to increase radius, clockwise to decrease radius.
5. If larger radius is desired, install larger nozzle (this will also increase precipitation rate). If smaller radius is desired, install smaller nozzle (this will also decrease precipitation rate).

I-25 Plus, I-40 Group, and I-90 Rotary Sprinklers Nozzle Installation



1. Insert the plastic key end of the Hunter wrench into the lifting socket of the sprinkler and turn 90°. Pull the riser up to gain access to the nozzle socket.
2. Using the Hunter wrench, loosen the nozzle-retainer/range-adjustment screw. If a nozzle is already installed in the sprinkler, it may be removed by briefly turning on the water or by pulling outward on the nozzle with a pair of needle-nosed pliers. Discard nozzle if removed with pliers.

3. Slip the desired new nozzle into the nozzle socket. Note that the socket is angled up 25°. Push all the way in. Tighten the nozzle-retainer/range-adjustment screw.
4. Turn nozzle-retainer/radius-adjustment screw counterclockwise to increase radius, clockwise to decrease radius.
5. If larger radius is desired, install larger nozzle (this will also increase precipitation rate). If smaller radius is desired, install smaller nozzle (this will also decrease precipitation rate).

I-60 Nozzle Installation

Tools needed: T-handle tool part # 319100, riser service tool part # 279100, Hunter wrench or $\frac{3}{32}$ " Allen.

Preparation

Unscrew the body cap from the body of the sprinkler. Remove the body cap. Using the key end of the Hunter wrench, pull up on the riser assembly to remove it from the body. Place the riser assembly's lower end into the base of riser service tool part # 279100. Press the tool's metal bar down over the riser spring. Continue compressing the spring until the bar enters the slots in the tool's base. Rotate the bar to engage with the tool's base, thereby holding the spring under tension.

Nozzle Removal and Replacement

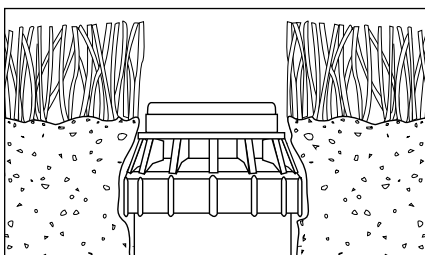
I-60-36S: The nozzle is retained in the nozzle housing by a setscrew. To remove the nozzle, back out the setscrew so that the nozzle will clear. Rotate the nozzle housing to place the diffuser yoke at its lowest position in order to provide clearance. Grasp a nozzle tab with pliers and pull to remove.

I-60-ADS: The nozzle is retained in the nozzle housing by a setscrew. To remove the nozzle, first slide the diffuser pins to the extreme left, from the viewer's perspective, past the black stop post.

All Models: Place the replacement nozzle in the housing. Press firmly to fully seat the nozzle so that it will clear the retaining setscrew. This can be accomplished with the T-handle tool's open end. Run the setscrew down to retain the nozzle, taking care not to run it down so far as to interfere with the nozzle stream. For I-60-ADS models, ensure the diffuser pins are placed back in line with the nozzle.

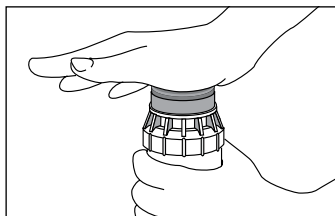
Visually check for proper assembly of nozzles and setscrews. Reverse the preparation procedure to reassemble the unit.

PGJ, PGP®, I-20 Ultra, I-25 Plus, I-40 Group, I-60, and I-90 Rotary Sprinklers Pop-up Installation



PGJ, PGP, I-20 Ultra, I-25 Plus, I-40 Group, I-60 pop-up and I-90 sprinklers should be installed at grade as shown here. Manually rotate sprinkler nozzle from stop to stop to determine sprinkler orientation.

PGJ, PGP®, I-20 Ultra, I-25 Plus, I-40 Group, and I-90 Rotary Sprinklers Arc Adjustment



Arc Adjustment

Adjustable heads are preset to approximately 180°. Sprinklers may be adjusted with water on or off. It is recommended that initial adjustments be made before installation.

1. Using the palm of your hand, rotate the nozzle turret counterclockwise to the left stop to complete any interrupted rotation cycle.
2. Rotate the nozzle turret clockwise to the right stop. This is the fixed side of the arc. The nozzle turret must be held in this position for arc adjustments. The right stop does not change.

To increase arc:

1. Insert the plastic key end of the Hunter wrench into the adjustment socket.
2. While holding the nozzle turret at the right stop, turn the wrench clockwise. Each 360° turn of the wrench increases arc 90° (45° for I-25 Plus and I-40 group).
3. Wrench will stop turning or there will be a ratcheting noise when adjusted to the maximum arc (360°).
4. Adjust to any arc between 40° and 360°.

To decrease arc:

1. Insert the plastic key end of the Hunter wrench into the adjustment socket.
2. While holding the nozzle turret at the right stop, turn the wrench counterclockwise. Each 360° turn of the wrench decreases arc 90° (45° for I-25 Plus and I-40 group).
3. Wrench will stop turning or there will be a ratcheting noise when adjusted to the minimum arc (40°).

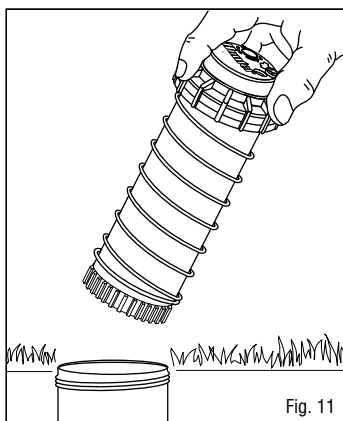
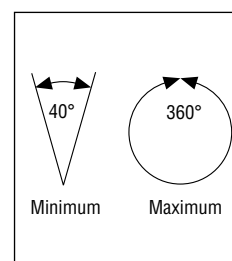
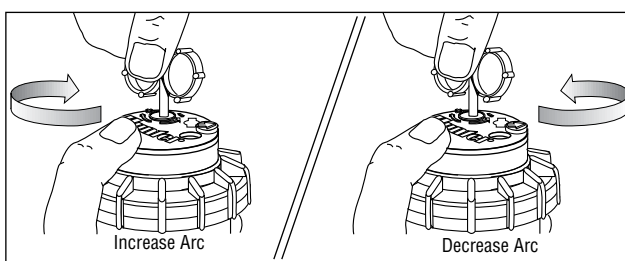


Fig. 11

Aligning the Right (Fixed) Side of Arc

If the right side of the arc is not properly aligned, the results may be a wet walkway or a dry turf area. The right side arc can easily be realigned. One way to realign the right stop is to turn the whole sprinkler body assembly and the fitting below it, left or right to the desired position. This may require temporary removal of the soil around the sprinkler to allow you to grip the sprinkler housing.

Another way to reset the right arc is to unscrew the body cap counterclockwise and remove the internal assembly from the body. Once removed, rotate the nozzle turret

to the right stop, screw the internal assembly back into the body with the nozzle aligned to the right side of the area you want irrigated (Fig. 11). At this point you have realigned the right arc stop, and you can adjust the left arc to an appropriate setting.

Note: It is not necessary to dig up and remove the whole sprinkler to realign the right arc.

Accu-Set™ Pressure Regulator

Installing the Accu-Set Pressure Regulator

1. Remove the solenoid from the Hunter PGV or ICV irrigation valve. (Also remove the flow control knob on the 1" ICV.) See Figure 12.
2. Thread the solenoid onto the Accu-Set.
3. Before threading, align the Accu-Set over the solenoid seat and position the Schrader valve portion of the Accu-Set towards the flow control handle.
* See Figure 13.
4. Thread the Accu-Set into the solenoid area of the valve.

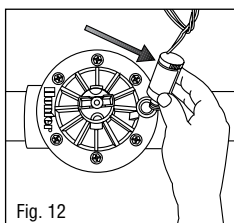


Fig. 12

Setting the Accu-Set Pressure Regulator

1. Turn the clear dial on the top of the Accu-Set until the arrow underneath the clear dial is pointing to the desired downstream pressure. See Figure 14.
2. The white colored scale is for "PSI," the yellow colored scale is for "bar."

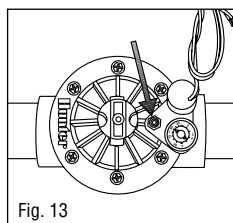


Fig. 13

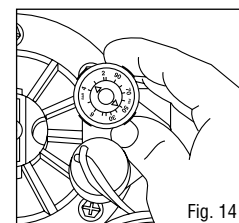
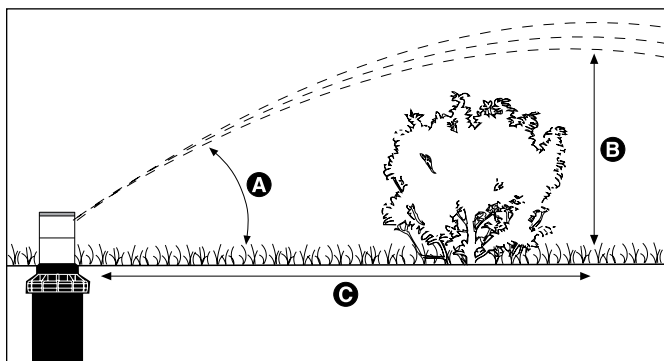


Fig. 14

* The Schrader valve is for specifications requiring checking or setting pressure using a gauge, but the Accu-Set can easily be set without it. When using the Schrader valve to measure pressure, remember that the pressure reading will measure higher than the face of the Accu-Set (because the Accu-Set is adjusted for downstream pressure, while the Schrader valve is measuring pressure right at the valve). The pressure will be 2 to 8 PSI lower in the pipe, depending on many factors such as flow and pipe size.

Height of Spray

How to determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern.



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 in PSI	A Degrees of Trajectory	B Max Height of Spray (ft.)	C Distance from head (ft.) to Maximum Height
PGJ	.75	40	10	2'	4'
	1.0	40	10	2'	8'
	1.5	40	10	3'	12'
	2.0	40	15	5'	16'
	2.5	40	12	5'	20'
	3.0	40	15	5'	20'
	4.0	40	15	5'	22'
PGP®	5.0	40	15	6'	24'
	1	50	26	7'	22'
	2	50	26	7'	22'
	3	50	26	8'	23'
	4	50	26	8'	23'
	5	50	27	9'	26'
	6	50	27	10'	28'
	7	50	26	11'	30'
	8	50	26	11'	30'
	9	50	27	12'	32'
	10	60	25	13'	32'
	11	60	25	13'	38'
PGP Low Angle	12	60	25	13'	40'
	4	50	15	5'	22'
	5	50	15	4'	22'
	6	50	14	4'	22'
	7	50	14	4'	22'
	8	50	14	5'	24'
	9	50	15	5'	26'
I-20 Ultra	10	60	15	6'	30'
	1.0	50	26	8'	23'
	1.5	50	26	8'	23'
	2.0	50	27	9'	26'
	3.0	50	27	10'	28'
	3.5	50	26	11'	30'
	4.0	50	26	11'	30'
	6.0	50	27	12'	32'
	8.0	60	25	13'	32'

Note: All performance data is derived from testing at 4" above finished grade.

Hunter Nozzle Height and Trajectory Chart

Model	Nozzle No.	Pressure in PSI	A Degrees of Trajectory	B Max Height of Spray (ft.)	C Distance from head (ft.) to Maximum Height
I-20 Ultra Low Angle	2.0LA	50	13	5'	22'
	2.5LA	50	13	4'	22'
	3.5LA	50	13	4'	22'
	4.5LA	50	13	4'	22'
I-20 Ultra Short Radius	.50	50	15	5'	8'
	1.0	50	14	6'	9'
	2.0	50	3	1'	6'
I-20 Ultra Short Radius	.75	50	22	7'	13'
	1.5	50	18	7'	13'
	3.0	50	8	1'	6'
I-25 Plus	4	50	25	9'	22'
	5	50	25	11'	28'
	7	50	25	10'	28'
	8	50	25	11'	28'
	10	60	25	12'	30'
	13	60	25	13'	31'
	15	60	25	12'	31'
	18	60	25	15'	34'
	20	70	25	15'	35'
	23	70	25	16'	38'
	25	70	25	16'	38'
	28	70	25	17'	40'
I-40 ADS/36S	40	50	25	12'	32'
	41	60	25	14'	32'
	42	60	25	14'	34'
	43	60	25	15'	42'
	44	70	25	17'	46'
	45	70	25	17'	48'
I-60 ADS	7	60	20	10'	28'
	10	60	20	13'	38'
	13	60	20	13'	38'
	15	60	20	14'	40'
	18	60	20	14'	40'
	20	60	20	15'	46'
I-60 36S	7	60	20	13'	36'
	10	60	20	14'	40'
	13	60	20	14'	41'
	15	60	20	14'	42'
	18	60	20	14'	43'
	20	60	20	17'	50'
I-90 ADV	33	80	22	15'	42'
	38	80	22	16'	48'
	43	80	22	16'	48'
	48	80	22	17'	54'
	53	80	22	17'	56'
	63	80	22	18'	64'
I-90 36V	33	80	22	17'	46'
	38	80	22	17'	50'
	43	80	22	17'	54'
	48	80	22	17'	56'
	53	80	22	17'	58'
	63	80	22	18'	62'

Note: All performance data is derived from testing at 4" above finished grade.

Friction Loss Charts

PVC Class 125 IPS Plastic Pipe

(1120, 1220) SDR 32.5 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1" through 6", Flow GPM 1 through 600

SIZE OD ID WALL THK	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	SIZE OD ID WALL THK										
	1.315 1.211 0.052	1.660 1.548 0.056	1.900 1.784 0.058	2.375 2.229 0.073	2.875 2.699 0.088	3.500 3.284 0.108	4.500 4.224 0.138	6.625 6.217 0.204											
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.27	0.02	0.17	0.01	0.12	0.00													1
2	0.55	0.06	0.34	0.02	0.25	0.01													2
3	0.83	0.13	0.51	0.04	0.38	0.02													3
4	1.11	0.22	0.68	0.07	0.51	0.03	0.32	0.01	0.22	0.00									4
5	1.39	0.33	0.85	0.10	0.64	0.05	0.41	0.02	0.28	0.01									5
6	1.66	0.46	1.02	0.14	0.76	0.07	0.49	0.02	0.33	0.01									6
7	1.94	0.62	1.19	0.19	0.89	0.09	0.57	0.03	0.39	0.01	0.26	0.00							7
8	2.22	0.79	1.36	0.24	1.02	0.12	0.65	0.04	0.44	0.02	0.30	0.01							8
9	2.50	0.98	1.53	0.30	1.15	0.15	0.73	0.05	0.50	0.02	0.34	0.01							9
10	2.78	1.19	1.70	0.36	1.28	0.18	0.82	0.06	0.56	0.02	0.37	0.01							10
11	3.06	1.42	1.87	0.43	1.41	0.22	0.90	0.07	0.61	0.03	0.41	0.01							11
12	3.33	1.67	2.04	0.51	1.53	0.25	0.98	0.09	0.67	0.03	0.45	0.01	0.27	0.00					12
14	3.89	2.22	2.38	0.67	1.79	0.34	1.14	0.11	0.78	0.05	0.52	0.02	0.32	0.01					14
16	4.45	2.85	2.72	0.86	2.05	0.43	1.31	0.15	0.89	0.06	0.60	0.02	0.36	0.01					16
18	5.00	3.54	3.06	1.07	2.30	0.54	1.47	0.18	1.00	0.07	0.68	0.03	0.41	0.01					18
20	5.56	4.31	3.40	1.30	2.56	0.65	1.64	0.22	1.12	0.09	0.75	0.03	0.45	0.01					20
22	6.12	5.14	3.74	1.56	2.82	0.78	1.80	0.26	1.23	0.10	0.83	0.04	0.50	0.01					22
24	6.67	6.04	4.08	1.83	3.07	0.92	1.97	0.31	1.34	0.12	0.90	0.05	0.54	0.01					24
26	7.23	7.00	4.42	2.12	3.33	1.06	2.13	0.36	1.45	0.14	0.98	0.05	0.59	0.02					26
28	7.78	8.03	4.76	2.43	3.58	1.22	2.29	0.41	1.56	0.16	1.05	0.06	0.64	0.02					28
30	8.34	9.13	5.10	2.76	3.84	1.39	2.46	0.47	1.68	0.18	1.13	0.07	0.68	0.02					30
35	9.73	12.14	5.95	3.68	4.48	1.84	2.87	0.62	1.96	0.25	1.32	0.09	0.80	0.03	0.36	0.00			35
40	11.12	15.55	6.81	4.71	5.12	2.36	3.28	0.80	2.24	0.31	1.51	0.12	0.91	0.04	0.42	0.01			40
45	12.51	19.34	7.66	5.86	5.76	2.94	3.69	0.99	2.52	0.39	1.70	0.15	1.02	0.04	0.47	0.01			45
50	13.91	23.50	8.51	7.12	6.40	3.57	4.10	1.21	2.80	0.48	1.89	0.18	1.14	0.05	0.52	0.01			50
55	15.30	28.04	9.36	8.49	7.05	4.26	4.51	1.44	3.08	0.57	2.08	0.22	1.25	0.06	0.58	0.01			55
60	16.69	32.94	10.21	9.98	7.69	5.00	4.92	1.69	3.36	0.67	2.26	0.26	1.37	0.08	0.63	0.01			60
65	18.08	38.21	11.06	11.57	8.33	5.80	5.33	1.96	3.64	0.77	2.45	0.30	1.48	0.09	0.68	0.01			65
70	19.47	43.83	11.91	13.27	8.97	6.65	5.74	2.25	3.92	0.89	2.64	0.34	1.60	0.10	0.73	0.02			70
75			12.76	15.08	9.61	7.56	6.15	2.56	4.20	1.01	2.83	0.39	1.71	0.11	0.79	0.02			75
80			13.62	17.00	10.25	8.52	6.56	2.88	4.48	1.14	3.02	0.44	1.82	0.13	0.84	0.02			80
85			14.47	19.02	10.89	9.53	6.98	3.23	4.76	1.27	3.21	0.49	1.94	0.14	0.89	0.02			85
90			15.32	21.14	11.53	10.60	7.39	3.59	5.04	1.41	3.40	0.54	2.05	0.16	0.95	0.02			90
95			16.17	23.37	12.17	11.71	7.80	3.96	5.32	1.56	3.59	0.60	2.17	0.18	1.00	0.03			95
100			17.02	25.69	12.81	12.88	8.21	4.36	5.60	1.72	3.78	0.66	2.28	0.19	1.05	0.03			100
110			18.72	30.65	14.10	15.37	9.03	5.20	6.16	2.05	4.16	0.79	2.51	0.23	1.16	0.04			110
120					15.38	18.06	9.85	6.11	6.72	2.41	4.53	0.93	2.74	0.27	1.26	0.04			120
130					16.66	20.94	10.67	7.09	7.28	2.79	4.91	1.08	2.97	0.32	1.37	0.05			130
140					17.94	24.02	11.49	8.13	7.84	3.20	5.29	1.23	3.20	0.36	1.47	0.06			140
150					19.22	27.30	12.31	9.24	8.40	3.64	5.67	1.40	3.43	0.41	1.58	0.06			150
160							13.13	10.41	8.96	4.10	6.05	1.58	3.65	0.46	1.68	0.07			160
170							13.96	11.65	9.52	4.59	6.43	1.77	3.88	0.52	1.79	0.08			170
180							14.78	12.95	10.08	5.10	6.80	1.96	4.11	0.58	1.90	0.09			180
190							15.60	14.31	10.64	5.64	7.18	2.17	4.34	0.64	2.00	0.10			190
200							16.42	15.74	11.20	6.20	7.56	2.39	4.57	0.70	2.11	0.11			200
225							18.47	19.57	12.60	7.72	8.51	2.97	5.14	0.87	2.37	0.13			225
250									14.00	9.38	9.45	3.61	5.71	1.06	2.63	0.16			250
275									15.40	11.19	10.40	4.31	6.28	1.27	2.90	0.19			275
300									16.80	13.15	11.34	5.06	6.86	1.49	3.16	0.23			300
325									18.20	15.25	12.29	5.87	7.43	1.72	3.43	0.26			325
350									19.60	17.49	13.24	6.73	8.00	1.98	3.69	0.30			350
375											14.18	7.65	8.57	2.25	3.95	0.34			375
400											15.13	8.62	9.14	2.53	4.22	0.39			400
425											16.07	9.65	9.71	2.83	4.48	0.43			425
450											17.02	10.72	10.29	3.15	4.75	0.48			450
475											17.96	11.85	10.86	3.48	5.01	0.53			475
500											18.91	13.03	11.43	3.83	5.27	0.58			500
550													12.57	4.57	5.80	0.70			550
600													13.72	5.37	6.33	0.82			600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Friction Loss Charts

PVC Class 160 IPS Plastic Pipe

(1120, 1220) SDR 26 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1" through 6", Flow GPM 1 through 600

SIZE OD ID WALL THK	1" 1.315 1.195 0.060	1-1/4" 1.660 1.532 0.064	1-1/2" 1.900 1.754 0.073	2" 2.375 2.193 0.091	2-1/2" 2.875 2.655 0.110	3" 3.500 3.230 0.135	4" 4.500 4.154 0.173	6" 6.625 6.115 0.225	SIZE OD ID WALL THK										
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.28	0.02	0.17	0.01	0.13	0.00													1
2	0.57	0.06	0.34	0.02	0.26	0.01													2
3	0.85	0.14	0.52	0.04	0.39	0.02													3
4	1.14	0.23	0.69	0.07	0.53	0.04	0.33	0.01	0.23	0.00									4
5	1.42	0.35	0.86	0.11	0.66	0.05	0.42	0.02	0.28	0.01									5
6	1.71	0.49	1.04	0.15	0.79	0.08	0.50	0.03	0.34	0.01	0.20	0.00							6
7	1.99	0.66	1.21	0.20	0.92	0.10	0.59	0.03	0.40	0.01	0.27	0.01							7
8	2.28	0.84	1.39	0.25	1.06	0.13	0.67	0.04	0.46	0.02	0.31	0.01							8
9	2.57	1.05	1.56	0.31	1.19	0.16	0.76	0.05	0.52	0.02	0.35	0.01							9
10	2.85	1.27	1.73	0.38	1.32	0.20	0.84	0.07	0.57	0.03	0.39	0.01							10
11	3.14	1.52	1.91	0.45	1.45	0.23	0.93	0.08	0.63	0.03	0.43	0.01							11
12	3.42	1.78	2.08	0.53	1.59	0.28	1.01	0.09	0.69	0.04	0.46	0.01	0.28	0.00					12
14	3.99	2.37	2.43	0.71	1.85	0.37	1.18	0.12	0.81	0.05	0.54	0.02	0.33	0.01					14
16	4.57	3.04	2.78	0.91	2.12	0.47	1.35	0.16	0.92	0.06	0.62	0.02	0.37	0.01					16
18	5.14	3.78	3.12	1.13	2.38	0.58	1.52	0.20	1.04	0.08	0.70	0.03	0.42	0.01					18
20	5.71	4.59	3.47	1.37	2.65	0.71	1.69	0.24	1.15	0.09	0.78	0.04	0.47	0.01					20
22	6.28	5.48	3.82	1.64	2.91	0.85	1.86	0.29	1.27	0.11	0.86	0.04	0.52	0.01					22
24	6.85	6.44	4.17	1.92	3.18	1.00	2.03	0.34	1.38	0.13	0.93	0.05	0.56	0.02					24
26	7.42	7.47	4.51	2.23	3.44	1.15	2.20	0.39	1.50	0.15	1.01	0.06	0.61	0.02					26
28	7.99	8.57	4.86	2.56	3.71	1.32	2.37	0.45	1.62	0.18	1.09	0.07	0.66	0.02					28
30	8.57	9.74	5.21	2.91	3.97	1.50	2.54	0.51	1.73	0.20	1.17	0.08	0.70	0.02					30
35	9.99	12.95	6.08	3.87	4.64	2.00	2.96	0.68	2.02	0.27	1.36	0.10	0.82	0.03	0.38	0.00			35
40	11.42	16.59	6.95	4.95	5.30	2.56	3.39	0.86	2.31	0.34	1.56	0.13	0.94	0.04	0.43	0.01			40
45	12.85	20.63	7.82	6.16	5.96	3.19	3.81	1.08	2.60	0.42	1.75	0.16	1.06	0.05	0.49	0.01			45
50	14.28	25.07	8.69	7.49	6.63	3.88	4.24	1.31	2.89	0.52	1.95	0.20	1.18	0.06	0.54	0.01			50
55	15.71	29.91	9.56	8.93	7.29	4.62	4.66	1.56	3.18	0.62	2.15	0.24	1.30	0.07	0.60	0.01			55
60	17.14	35.14	10.43	10.49	7.95	5.43	5.09	1.83	3.47	0.72	2.34	0.28	1.41	0.08	0.65	0.01			60
65	18.57	40.76	11.29	12.17	8.62	6.30	5.51	2.12	3.76	0.84	2.54	0.32	1.53	0.09	0.70	0.01			65
70	19.99	46.76	12.16	13.96	9.28	7.23	5.93	2.44	4.05	0.96	2.73	0.37	1.65	0.11	0.76	0.02			70
75			13.03	15.86	9.94	8.21	6.36	2.77	4.34	1.09	2.93	0.42	1.77	0.12	0.81	0.02			75
80			13.90	17.88	10.60	9.25	6.78	3.12	4.63	1.23	3.12	0.47	1.89	0.14	0.87	0.02			80
85			14.77	20.00	11.27	10.35	7.21	3.49	4.91	1.38	3.32	0.53	2.00	0.16	0.92	0.02			85
90			15.64	22.23	11.93	11.51	7.63	3.88	5.20	1.53	3.51	0.59	2.12	0.17	0.98	0.03			90
95			16.51	24.58	12.59	12.72	8.05	4.29	5.49	1.69	3.71	0.65	2.24	0.19	1.03	0.03			95
100			17.38	27.03	13.26	13.99	8.48	4.72	5.78	1.86	3.91	0.72	2.36	0.21	1.09	0.03			100
110			19.12	32.24	14.58	16.69	9.33	5.63	6.36	2.22	4.30	0.86	2.60	0.25	1.20	0.04			110
120					15.91	19.61	10.18	6.61	6.94	2.61	4.69	1.01	2.83	0.30	1.30	0.05			120
130					17.24	22.74	11.02	7.67	7.52	3.03	5.08	1.17	3.07	0.34	1.41	0.05			130
140					18.56	26.09	11.87	8.80	8.10	3.47	5.47	1.34	3.31	0.39	1.52	0.06			140
150					19.89	29.64	12.72	10.00	8.68	3.94	5.86	1.52	3.54	0.45	1.63	0.07			150
160							13.57	11.27	9.26	4.45	6.25	1.71	3.78	0.50	1.74	0.08			160
170							14.42	12.61	9.83	4.97	6.64	1.92	4.01	0.56	1.85	0.09			170
180							15.27	14.02	10.41	5.53	7.03	2.13	4.25	0.63	1.96	0.10			180
190							16.11	15.49	10.99	6.11	7.43	2.35	4.49	0.69	2.07	0.11			190
200							16.96	17.03	11.57	6.72	7.82	2.59	4.72	0.76	2.18	0.12			200
225							19.08	21.19	13.02	8.36	8.79	3.22	5.31	0.95	2.45	0.14			225
250									14.47	10.16	9.77	3.91	5.91	1.15	2.72	0.18			250
275									15.91	12.12	10.75	4.67	6.50	1.37	3.00	0.21			275
300									17.36	14.24	11.73	5.49	7.09	1.61	3.27	0.25			300
325									18.81	16.51	12.70	6.36	7.68	1.87	3.54	0.29			325
350											13.68	7.30	8.27	2.15	3.81	0.33			350
375											14.66	8.29	8.86	2.44	4.09	0.37			375
400											15.64	9.35	9.45	2.75	4.36	0.42			400
425											16.62	10.46	10.04	3.07	4.63	0.47			425
450											17.59	11.62	10.63	3.42	4.90	0.52			450
475											18.57	12.85	11.23	3.78	5.18	0.58			475
500											19.55	14.13	11.82	4.15	5.45	0.63			500
550													13.00	4.96	6.00	0.76			550
600													14.18	5.82	6.54	0.89			600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Class 200 IPS Plastic Pipe

(1120, 1220) SDR 21 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 3/4" through 6", Flow GPM 1 through 600

SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	SIZE
OD	1.050	1.315	1.660	1.900	2.375	2.875	3.500	4.500	6.625	OD
ID	.930	1.189	1.502	1.720	2.149	2.601	3.166	4.072	5.993	ID
WALL THK	.060	0.063	0.079	0.090	0.113	0.137	0.167	0.214	0.316	WALL THK

FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.47	0.06	0.28	0.02	0.18	0.01	0.13	0.00													1
2	0.94	0.22	0.57	0.07	0.36	0.02	0.27	0.01	0.17	0.00											2
3	1.42	0.46	0.86	0.14	0.54	0.04	0.41	0.02	0.26	0.01	0.18	0.00									3
4	1.89	0.79	1.15	0.24	0.72	0.08	0.55	0.04	0.35	0.01	0.24	0.01									4
5	2.36	1.20	1.44	0.36	0.90	0.12	0.68	0.06	0.44	0.02	0.30	0.01									5
6	2.83	1.68	1.73	0.51	1.08	0.16	0.82	0.08	0.53	0.03	0.36	0.01	0.24	0.00							6
7	3.30	2.23	2.02	0.67	1.26	0.22	0.96	0.11	0.61	0.04	0.42	0.01	0.28	0.01							7
8	3.77	2.85	2.30	0.86	1.44	0.28	1.10	0.14	0.70	0.05	0.48	0.02	0.32	0.01							8
9	4.25	3.55	2.59	1.07	1.62	0.34	1.24	0.18	0.79	0.06	0.54	0.02	0.36	0.01							9
10	4.72	4.31	2.88	1.30	1.80	0.42	1.37	0.22	0.88	0.07	0.60	0.03	0.40	0.01							10
11	5.19	5.15	3.17	1.56	1.98	0.50	1.51	0.26	0.97	0.09	0.66	0.03	0.44	0.01							11
12	5.66	6.05	3.46	1.83	2.17	0.59	1.65	0.30	1.06	0.10	0.72	0.04	0.48	0.02	0.29	0.00					12
14	6.60	8.05	4.04	2.43	2.53	0.78	1.93	0.40	1.23	0.14	0.84	0.05	0.56	0.02	0.34	0.01					14
16	7.55	10.30	4.61	3.11	2.89	1.00	2.20	0.52	1.41	0.17	0.96	0.07	0.65	0.03	0.39	0.01					16
18	8.49	12.81	5.19	3.87	3.25	1.24	2.48	0.64	1.59	0.22	1.08	0.09	0.73	0.03	0.44	0.01					18
20	9.43	15.58	5.77	4.71	3.61	1.51	2.75	0.78	1.76	0.26	1.20	0.10	0.81	0.04	0.49	0.01					20
22	10.38	18.58	6.34	5.62	3.97	1.80	3.03	0.93	1.94	0.32	1.32	0.12	0.89	0.05	0.54	0.01					22
24	11.32	21.83	6.92	6.60	4.34	2.12	3.30	1.09	2.12	0.37	1.44	0.15	0.97	0.06	0.59	0.02					24
26	12.27	25.32	7.50	7.65	4.70	2.46	3.58	1.27	2.29	0.43	1.56	0.17	1.05	0.07	0.63	0.02					26
28	13.21	29.04	8.08	8.78	5.06	2.82	3.86	1.46	2.47	0.49	1.68	0.19	1.13	0.07	0.68	0.02					28
30	14.15	33.00	8.65	9.98	5.42	3.20	4.13	1.66	2.65	0.56	1.80	0.22	1.22	0.09	0.73	0.02	0.34	0.00			30
35	16.51	43.91	10.10	13.27	6.32	4.26	4.82	2.20	3.09	0.75	2.11	0.29	1.42	0.11	0.86	0.03	0.39	0.01			35
40	18.87	56.23	11.54	17.00	7.23	5.45	5.51	2.82	3.53	0.95	2.41	0.38	1.62	0.14	0.98	0.04	0.45	0.01			40
45			12.98	21.14	8.13	6.78	6.20	3.51	3.97	1.19	2.71	0.47	1.83	0.18	1.10	0.05	0.51	0.01			45
50			14.42	25.70	9.04	8.24	6.89	4.26	4.41	1.44	3.01	0.57	2.03	0.22	1.23	0.06	0.56	0.01			50
55			15.87	30.66	9.94	9.83	7.58	5.09	4.85	1.72	3.31	0.68	2.23	0.26	1.35	0.08	0.62	0.01			55
60			17.31	36.02	10.85	11.55	8.27	5.97	5.30	2.02	3.61	0.80	2.44	0.31	1.47	0.09	0.68	0.01			60
65			18.75	41.77	11.75	13.40	8.96	6.93	5.74	2.35	3.92	0.93	2.64	0.36	1.59	0.10	0.73	0.02			65
70					12.65	15.37	9.65	7.95	6.18	2.69	4.22	1.06	2.84	0.41	1.72	0.12	0.79	0.02			70
75					13.56	17.47	10.34	9.03	6.62	3.06	4.52	1.21	3.05	0.46	1.84	0.14	0.85	0.02			75
80					14.46	19.68	11.03	10.18	7.06	3.44	4.82	1.36	3.25	0.52	1.96	0.15	0.90	0.02			80
85					15.37	22.02	11.72	11.39	7.50	3.85	5.12	1.52	3.45	0.59	2.09	0.17	0.96	0.03			85
90					16.27	24.48	12.41	12.66	7.95	4.28	5.42	1.69	3.66	0.65	2.21	0.19	1.02	0.03			90
95					17.18	27.06	13.10	13.99	8.39	4.74	5.72	1.87	3.86	0.72	2.33	0.21	1.07	0.03			95
100					18.08	29.76	13.79	15.39	8.83	5.21	6.03	2.06	4.07	0.79	2.46	0.23	1.13	0.04			100
110					19.89	35.50	15.17	18.36	9.71	6.21	6.63	2.45	4.47	0.94	2.70	0.28	1.24	0.04			110
120							16.54	21.57	10.60	7.30	7.23	2.88	4.88	1.11	2.95	0.33	1.36	0.05			120
130							17.92	25.02	11.48	8.47	7.84	3.34	5.29	1.29	3.19	0.38	1.47	0.06			130
140							19.30	28.70	12.36	9.71	8.44	3.84	5.69	1.47	3.44	0.43	1.59	0.07			140
150									13.25	11.04	9.04	4.36	6.10	1.68	3.69	0.49	1.70	0.08			150
160									14.13	12.44	9.64	4.91	6.51	1.89	3.93	0.55	1.81	0.08			160
170									15.01	13.91	10.25	5.50	6.91	2.11	4.18	0.62	1.93	0.09			170
180									15.90	15.47	10.85	6.11	7.32	2.35	4.42	0.69	2.04	0.11			180
190									16.78	17.10	11.45	6.75	7.73	2.60	4.67	0.76	2.15	0.12			190
200									17.66	18.80	12.06	7.43	8.14	2.85	4.92	0.84	2.27	0.13			200
225									19.87	23.38	13.56	9.24	9.15	3.55	5.53	1.04	2.55	0.16			225
250											15.07	11.23	10.17	4.31	6.15	1.27	2.83	0.19			250
275											16.58	13.39	11.19	5.15	6.76	1.51	3.12	0.23			275
300											18.09	15.74	12.21	6.05	7.38	1.78	3.40	0.27			300
325											19.60	18.25	13.22	7.01	7.99	2.06	3.69	0.31			325
350													14.24	8.05	8.61	2.36	3.97	0.36			350
375													15.26	9.14	9.22	2.69	4.25	0.41			375
400													16.28	10.30	9.84	3.03	4.54	0.46			400
425													17.29	11.53	10.45	3.39	4.82	0.52			425
450													18.31	12.81	11.07	3.77	5.11	0.57			450
475													19.33	14.16	11.68	4.16	5.39	0.63			475
500															12.30	4.58	5.67	0.70			500
550															13.53	5.46	6.24	0.83			550
600															14.76	6.42	6.81	0.98			600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Friction Loss Charts

PVC Class 315 IPS Plastic Pipe

(1120, 1220) SDR 13.5 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes ½" through 6", Flow GPM 1 through 600

SIZE OD ID WALL THK	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	SIZE OD ID WALL THK										
	0.840 0.716 0.062	1.050 0.894 0.078	1.315 1.121 0.097	1.660 1.414 0.123	1.900 1.618 0.141	2.375 2.023 0.176	2.875 2.449 0.213	3.500 2.982 0.259	4.500 3.834 0.333	6.625 5.643 0.491											
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.79	0.22	0.51	0.07	0.32	0.02	0.20	0.01	0.15	0.00											1
2	1.59	0.78	1.02	0.27	0.64	0.09	0.40	0.03	0.31	0.01	0.19	0.00									2
3	2.38	1.65	1.53	0.56	0.97	0.19	0.61	0.06	0.46	0.03	0.29	0.01	0.20	0.00							3
4	3.18	2.82	2.04	0.96	1.29	0.32	0.81	0.10	0.62	0.05	0.39	0.02	0.27	0.01							4
5	3.97	4.26	2.55	1.45	1.62	0.48	1.02	0.16	0.77	0.08	0.49	0.03	0.34	0.01	0.22	0.00					5
6	4.77	5.97	3.06	2.03	1.94	0.67	1.22	0.22	0.93	0.11	0.59	0.04	0.40	0.02	0.27	0.01					6
7	5.57	7.95	3.57	2.70	2.27	0.90	1.42	0.29	1.09	0.15	0.69	0.05	0.47	0.02	0.32	0.01					7
8	6.36	10.18	4.08	3.45	2.59	1.15	1.63	0.37	1.24	0.19	0.79	0.06	0.54	0.03	0.36	0.01					8
9	7.16	12.66	4.59	4.30	2.92	1.43	1.83	0.46	1.40	0.24	0.89	0.08	0.61	0.03	0.41	0.01					9
10	7.95	15.38	5.10	5.22	3.24	1.74	2.04	0.56	1.55	0.29	0.99	0.10	0.68	0.04	0.45	0.01	0.27	0.00			10
11	8.75	18.35	5.61	6.23	3.57	2.07	2.24	0.67	1.71	0.35	1.09	0.12	0.74	0.05	0.50	0.02	0.30	0.01			11
12	9.55	21.56	6.12	7.32	3.89	2.43	2.44	0.79	1.87	0.41	1.19	0.14	0.81	0.05	0.55	0.02	0.33	0.01			12
14	11.14	28.69	7.14	9.74	4.54	3.24	2.85	1.05	2.18	0.54	1.39	0.18	0.95	0.07	0.64	0.03	0.38	0.01			14
16	12.73	36.74	8.16	12.47	5.19	4.15	3.26	1.34	2.49	0.70	1.59	0.23	1.08	0.09	0.73	0.04	0.44	0.01			16
18	14.32	45.69	9.18	15.51	5.84	5.16	3.67	1.67	2.80	0.87	1.79	0.29	1.22	0.12	0.82	0.04	0.49	0.01			18
20	15.91	55.54	10.20	18.86	6.49	6.27	4.08	2.03	3.11	1.05	1.99	0.35	1.36	0.14	0.91	0.05	0.55	0.02			20
22	17.50	66.26	11.23	22.50	7.14	7.48	4.48	2.42	3.42	1.25	2.19	0.42	1.49	0.17	1.00	0.06	0.61	0.02			22
24	19.10	77.84	12.25	26.43	7.79	8.79	4.89	2.84	3.74	1.47	2.39	0.50	1.63	0.20	1.10	0.08	0.66	0.02			24
26			13.27	30.65	8.44	10.19	5.30	3.29	4.05	1.71	2.59	0.58	1.76	0.23	1.19	0.09	0.72	0.03			26
28			14.29	35.16	9.09	11.69	5.71	3.78	4.36	1.96	2.79	0.66	1.90	0.26	1.28	0.10	0.77	0.03	0.35	0.00	28
30			15.31	39.95	9.74	13.29	6.12	4.29	4.67	2.23	2.99	0.75	2.04	0.30	1.37	0.11	0.83	0.03	0.38	0.01	30
35			17.86	53.15	11.36	17.68	7.14	5.71	5.45	2.96	3.48	1.00	2.38	0.39	1.60	0.15	0.97	0.04	0.44	0.01	35
40					12.98	22.64	8.16	7.31	6.23	3.80	3.98	1.28	2.72	0.51	1.83	0.19	1.11	0.06	0.51	0.01	40
45					14.61	28.15	9.18	9.10	7.01	4.72	4.48	1.59	3.06	0.63	2.06	0.24	1.24	0.07	0.57	0.01	45
50					16.23	34.22	10.20	11.06	7.79	5.74	4.98	1.94	3.40	0.76	2.29	0.29	1.38	0.09	0.64	0.01	50
55					17.85	40.83	11.22	13.19	8.57	6.85	5.48	2.31	3.74	0.91	2.52	0.35	1.52	0.10	0.70	0.02	55
60					19.48	47.97	12.24	15.50	9.35	8.04	5.98	2.71	4.08	1.07	2.75	0.41	1.66	0.12	0.76	0.02	60
65							13.26	17.97	10.13	9.33	6.48	3.15	4.42	1.24	2.98	0.48	1.80	0.14	0.83	0.02	65
70							14.28	20.62	10.90	10.70	6.97	3.61	4.76	1.42	3.21	0.55	1.94	0.16	0.89	0.02	70
75							15.30	23.43	11.68	12.16	7.47	4.10	5.10	1.62	3.44	0.62	2.08	0.18	0.96	0.03	75
80							16.32	26.40	12.46	13.71	7.97	4.62	5.44	1.82	3.67	0.70	2.22	0.21	1.02	0.03	80
85							17.34	29.54	13.24	15.33	8.47	5.17	5.78	2.04	3.89	0.78	2.35	0.23	1.08	0.04	85
90							18.36	32.84	14.02	17.05	8.97	5.75	6.12	2.27	4.12	0.87	2.49	0.26	1.15	0.04	90
95							19.38	36.30	14.80	18.84	9.47	6.35	6.46	2.51	4.35	0.96	2.63	0.28	1.21	0.04	95
100									15.58	20.72	9.96	6.99	6.80	2.76	4.58	1.06	2.77	0.31	1.28	0.05	100
110									17.14	24.72	10.96	8.34	7.48	3.29	5.04	1.26	3.05	0.37	1.40	0.06	110
120									18.70	29.04	11.96	9.79	8.16	3.87	5.50	1.48	3.33	0.44	1.53	0.07	120
130											12.96	11.36	8.84	4.48	5.96	1.72	3.60	0.51	1.66	0.08	130
140											13.95	13.03	9.52	5.14	6.42	1.97	3.88	0.58	1.79	0.09	140
150											14.95	14.81	10.20	5.84	6.88	2.24	4.16	0.66	1.92	0.10	150
160											15.95	16.69	10.88	6.59	7.34	2.53	4.44	0.74	2.04	0.11	160
170											16.94	18.67	11.56	7.37	7.79	2.83	4.71	0.83	2.17	0.13	170
180											17.94	20.75	12.24	8.19	8.25	3.14	4.99	0.93	2.30	0.14	180
190											18.94	22.94	12.92	9.05	8.71	3.47	5.27	1.02	2.43	0.16	190
200											19.93	25.23	13.60	9.95	9.17	3.82	5.55	1.12	2.56	0.17	200
225													15.30	12.38	10.32	4.75	6.24	1.40	2.88	0.21	225
250													17.00	15.05	11.47	5.77	6.93	1.70	3.20	0.26	250
275													18.70	17.95	12.61	6.89	7.63	2.03	3.52	0.31	275
300															13.76	8.09	8.32	2.38	3.84	0.36	300
325															14.91	9.39	9.02	2.76	4.16	0.42	325
350															16.05	10.77	9.71	3.17	4.48	0.48	350
375															17.20	12.23	10.40	3.60	4.80	0.55	375
400															18.35	13.79	11.10	4.06	5.12	0.62	400
425															19.49	15.42	11.79	4.54	5.44	0.69	425
450																	12.49	5.05	5.76	0.77	450
475																	13.18	5.58	6.08	0.85	475
500																	13.87	6.14	6.40	0.94	500
550																	15.26	7.32	7.04	1.12	550
600																	16.65	8.60	7.68	1.31	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Schedule 40 IPS Plastic Pipe

(1120, 1220) C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes ½" through 6", Flow GPM 1 through 600

SIZE OD ID WALL THK	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE OD ID WALL THK
	0.840 0.622 0.109		1.050 0.824 0.113		1.315 1.049 0.133		1.660 1.380 0.140		1.900 1.610 0.145		2.375 2.067 0.154		2.875 2.469 0.203		3.500 3.068 0.216		4.500 4.026 0.237		6.625 6.065 0.280		
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.43	0.60	0.11	0.37	0.03	0.21	0.01	0.15	0.00	0.19	0.00									1
2	2.11	1.55	1.20	0.39	0.74	0.12	0.42	0.03	0.31	0.02	0.38	0.01									2
3	3.16	3.28	1.80	0.84	1.11	0.26	0.64	0.07	0.47	0.03	0.58	0.01	0.20	0.00							3
4	4.22	5.60	2.40	1.42	1.48	0.44	0.85	0.12	0.62	0.05	0.70	0.02	0.26	0.01							4
5	5.27	8.46	3.00	2.15	1.85	0.66	1.07	0.18	0.78	0.08	0.87	0.02	0.33	0.01	0.21	0.00					5
6	6.33	11.86	3.60	3.02	2.22	0.93	1.28	0.25	0.94	0.12	1.07	0.03	0.40	0.01	0.26	0.01					6
7	7.38	15.77	4.20	4.01	2.59	1.24	1.49	0.33	1.10	0.15	1.25	0.05	0.46	0.02	0.30	0.01					7
8	8.44	20.20	4.80	5.14	2.96	1.59	1.71	0.42	1.25	0.20	1.42	0.06	0.53	0.02	0.34	0.01					8
9	9.49	25.12	5.40	6.39	3.33	1.97	1.92	0.52	1.41	0.25	1.60	0.07	0.60	0.03	0.39	0.01					9
10	10.55	30.54	6.00	7.77	3.70	2.40	2.14	0.63	1.57	0.30	1.79	0.09	0.66	0.04	0.43	0.01					10
11	11.60	36.43	6.60	9.27	4.07	2.86	2.35	0.75	1.73	0.36	1.99	0.11	0.73	0.04	0.47	0.02					11
12	12.65	42.80	7.21	10.89	4.44	3.36	2.57	0.89	1.88	0.42	2.19	0.12	0.80	0.05	0.52	0.02	0.30	0.00			12
14	14.76	56.94	8.41	14.48	5.19	4.47	2.99	1.18	2.20	0.56	2.42	0.17	0.93	0.07	0.60	0.02	0.35	0.01			14
16	16.87	72.92	9.61	18.55	5.93	5.73	3.42	1.51	2.51	0.71	2.74	0.21	1.07	0.09	0.69	0.03	0.40	0.01			16
18	18.98	90.69	10.81	23.07	6.67	7.13	3.85	1.88	2.83	0.89	3.07	0.26	1.20	0.11	0.78	0.04	0.45	0.01			18
20	21.09	110.23	12.01	28.04	7.41	8.66	4.28	2.28	3.14	1.08	3.39	0.32	1.33	0.13	0.86	0.05	0.50	0.01			20
22			13.21	33.45	8.15	10.33	4.71	2.72	3.46	1.29	3.69	0.38	1.47	0.16	0.95	0.06	0.55	0.01			22
24			14.42	39.30	8.89	12.14	5.14	3.20	3.77	1.51	3.99	0.45	1.60	0.19	1.04	0.07	0.60	0.02			24
26			15.62	45.58	9.64	14.08	5.57	3.17	4.09	1.75	4.29	0.52	1.74	0.22	1.12	0.08	0.65	0.02			26
28			16.82	52.28	10.38	16.15	5.99	4.25	4.40	2.01	4.67	0.60	1.87	0.25	1.21	0.09	0.70	0.02			28
30			18.02	59.41	11.12	18.35	6.42	4.83	4.72	2.28	5.00	0.68	2.00	0.29	1.30	0.10	0.75	0.03			30
35					12.97	24.42	7.49	6.43	5.50	3.04	5.72	0.90	2.34	0.38	1.51	0.13	0.88	0.04	0.38	0.00	35
40					14.83	31.27	8.56	8.23	6.29	3.89	6.41	1.15	2.67	0.49	1.73	0.17	1.00	0.04	0.44	0.01	40
45					16.68	38.89	9.64	10.24	7.08	4.84	7.20	1.43	3.01	0.60	1.95	0.21	1.13	0.06	0.49	0.01	45
50					18.53	47.27	10.71	12.45	7.87	5.88	7.99	1.74	3.34	0.73	2.16	0.26	1.25	0.07	1.55	0.01	50
55							11.78	14.85	8.65	7.01	8.21	2.08	3.68	0.88	2.38	0.30	1.38	0.08	0.61	0.01	55
60							12.85	17.45	9.44	8.24	8.96	2.44	4.01	1.03	2.60	0.36	1.51	0.10	0.66	0.01	60
65							13.92	20.23	10.23	9.56	9.77	2.83	4.35	1.19	2.81	0.41	1.63	0.11	0.72	0.02	65
70							14.99	23.21	11.01	10.96	10.97	3.25	4.68	1.37	3.03	0.48	1.76	0.13	0.77	0.02	70
75							16.06	26.37	11.80	12.46	11.91	3.69	5.01	1.56	3.25	0.54	1.88	0.14	0.83	0.02	75
80							17.13	29.72	12.59	14.04	12.95	4.16	5.35	1.75	3.46	0.61	2.01	0.16	0.88	0.02	80
85							18.21	33.26	13.37	15.71	13.86	4.66	5.68	1.96	3.68	0.68	2.13	0.18	0.94	0.02	85
90							19.28	36.97	14.16	17.46	14.77	5.18	6.02	2.18	3.90	0.76	2.26	0.20	0.99	0.03	90
95									14.95	19.30	9.07	5.72	6.35	2.41	4.11	0.84	2.39	0.22	1.05	0.03	95
100									15.74	21.22	9.54	6.29	6.69	2.65	4.33	0.92	2.51	0.25	1.10	0.03	100
110									17.31	25.32	10.50	7.51	7.36	3.16	4.76	1.10	2.76	0.29	1.22	0.04	110
120									18.88	29.75	11.45	8.82	8.03	3.72	5.20	1.29	3.02	0.34	1.33	0.05	120
130											12.41	10.23	8.70	4.31	5.63	1.50	3.27	0.40	1.44	0.05	130
140											13.36	11.74	9.37	4.94	6.06	1.72	3.52	0.46	1.55	0.06	140
150											14.32	13.33	10.03	5.62	6.50	1.95	3.77	0.52	1.66	0.07	150
160											15.27	15.03	10.70	6.33	6.93	2.20	4.02	0.59	1.77	0.08	160
170											16.23	16.81	11.37	7.08	7.36	2.46	4.27	0.66	1.88	0.09	170
180											17.18	18.69	12.04	7.87	7.80	2.74	4.53	0.73	1.99	0.10	180
190											18.14	20.66	12.71	8.70	8.23	3.02	4.78	0.81	2.10	0.11	190
200											19.09	22.72	13.38	9.57	8.66	3.33	5.03	0.89	2.21	0.12	200
225													15.05	11.90	9.75	4.14	5.66	1.10	2.49	0.15	225
250													16.73	14.47	10.83	5.03	6.29	1.34	2.77	0.18	250
275													18.40	17.26	11.92	6.00	6.92	1.60	3.05	0.22	275
300															13.00	7.05	7.55	1.88	3.32	0.26	300
325															14.08	8.17	8.18	2.18	3.60	0.30	325
350															15.17	9.38	8.81	2.50	3.88	0.34	350
375															16.25	10.65	9.43	2.84	4.15	0.39	375
400															17.33	12.01	10.06	3.20	4.43	0.44	400
425															18.42	13.43	10.69	3.58	4.71	0.49	425
450															19.50	14.93	11.32	3.98	4.99	0.54	450
475																	11.95	4.40	5.26	0.60	475
500																	12.58	4.84	5.54	0.66	500
550																	13.84	5.77	6.10	0.79	550
600																	15.10	6.78	6.65	0.92	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

(1120, 1220) C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes ½" through 6", Flow GPM 1 through 600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Polyethylene (PE) SDR-Pressure Rated Tube

(2306, 3206, 3306) SDR 7, 9, 11.5, 15 C=140, PSI loss per 100 feet of tube (PSI/100 FT), Sizes ½" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.15	0.00	0.09	0.00									1
2	2.10	1.76	1.20	0.45	0.74	0.14	0.42	0.04	0.31	0.02	0.19	0.01									2
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.28	0.01	0.20	0.00							3
4	4.21	6.35	2.40	1.62	1.48	0.50	0.85	0.13	0.62	0.06	0.38	0.02	0.26	0.01							4
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.78	0.09	0.47	0.03	0.33	0.01	0.21	0.00					5
6	6.32	13.46	3.60	3.43	2.22	1.06	1.28	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01					6
7	7.38	17.91	4.20	4.56	2.59	1.41	1.49	0.37	1.10	0.18	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.43	22.93	4.80	5.84	2.96	1.80	1.71	0.47	1.25	0.22	0.76	0.07	0.53	0.03	0.34	0.01					8
9	9.49	28.52	5.40	7.26	3.33	2.24	1.92	0.59	1.41	0.28	0.85	0.08	0.60	0.03	0.39	0.01					9
10	10.54	34.67	6.00	8.82	3.70	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.66	0.04	0.43	0.01					10
11	11.60	41.36	6.00	10.53	4.07	3.25	2.35	0.86	1.73	0.40	1.05	0.12	0.73	0.05	0.47	0.02	0.27	0.00			11
12	12.65	48.60	7.21	12.37	4.44	3.82	2.57	1.01	1.88	0.48	1.14	0.14	0.80	0.06	0.52	0.02	0.30	0.01			12
14	14.76	64.65	8.41	16.46	5.19	5.08	2.99	1.34	2.20	0.63	1.33	0.19	0.93	0.08	0.60	0.03	0.35	0.01			14
16	16.87	82.79	9.61	21.07	5.93	6.51	3.42	1.71	2.51	0.81	1.52	0.24	1.07	0.10	0.69	0.04	0.40	0.01			16
18	18.98	102.97	10.81	26.21	6.67	8.10	3.85	2.13	2.83	1.01	1.71	0.30	1.20	0.13	0.78	0.04	0.45	0.01			18
20			12.01	31.86	7.41	9.84	4.28	2.59	3.14	1.22	1.90	0.36	1.33	0.15	0.86	0.05	0.50	0.01			20
22			13.21	38.01	8.15	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02			22
24			14.42	44.65	8.89	13.79	5.14	3.63	3.77	1.72	2.29	0.51	1.60	0.21	1.04	0.07	0.60	0.02			24
26			15.62	41.79	9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.12	0.09	0.65	0.02			26
28			16.82	59.41	10.38	18.35	5.99	4.83	4.40	2.28	2.67	0.68	1.87	0.29	1.21	0.10	0.70	0.03			28
30			18.02	67.50	11.12	20.85	6.42	5.49	4.72	2.59	2.86	0.77	2.00	0.32	1.30	0.11	0.75	0.03	0.33	0.00	30
35					12.97	27.74	7.49	7.31	5.50	3.45	3.34	1.02	2.34	0.43	1.51	0.15	0.88	0.04	0.38	0.01	35
40					14.83	35.53	8.56	9.36	6.29	4.42	3.81	1.31	2.67	0.55	1.73	0.19	1.00	0.05	0.44	0.01	40
45					16.68	44.19	9.64	11.64	7.08	5.50	4.29	1.63	3.01	0.69	1.95	0.24	1.13	0.06	0.49	0.01	45
50					18.53	53.71	10.71	14.14	7.87	6.68	4.77	1.98	3.34	0.83	2.16	0.29	1.25	0.08	0.55	0.01	50
55							11.78	16.87	8.65	7.97	5.25	2.36	3.68	1.00	2.38	0.35	1.38	0.09	0.61	0.01	55
60							12.85	19.82	9.44	9.36	5.72	2.78	4.01	1.17	2.60	0.41	1.51	0.11	0.66	0.01	60
65							13.92	22.99	10.23	10.86	6.20	3.22	4.35	1.36	2.81	0.47	1.63	0.13	0.72	0.02	65
70							14.99	26.37	11.01	12.46	6.68	3.69	4.68	1.56	3.03	0.54	1.76	0.14	0.77	0.02	70
75							16.06	29.97	11.80	14.16	7.16	4.20	5.01	1.77	3.25	0.61	1.88	0.16	0.83	0.02	75
80							17.13	33.77	12.59	15.95	7.63	4.73	5.35	1.99	3.46	0.69	2.01	0.18	0.88	0.03	80
85							18.21	37.79	13.37	17.85	8.11	5.29	5.68	2.23	3.68	0.77	2.13	0.21	0.94	0.03	85
90							19.28	42.01	14.16	19.84	8.59	5.88	6.02	2.48	3.90	0.86	2.26	0.23	0.99	0.03	90
95									14.95	21.93	9.07	6.50	6.35	2.74	4.11	0.95	2.39	0.25	1.05	0.03	95
100									15.74	24.12	9.54	7.15	6.69	3.01	4.33	1.05	2.51	0.28	1.10	0.04	100
110									17.31	28.77	10.50	8.53	7.36	3.59	4.76	1.25	2.76	0.33	1.22	0.05	110
120									18.88	33.80	11.45	10.02	8.03	4.22	5.20	1.47	3.02	0.39	1.33	0.05	120
130											12.41	11.62	8.70	4.90	5.63	1.70	3.27	0.45	1.44	0.06	130
140											13.36	13.33	9.37	5.62	6.06	1.95	3.52	0.52	1.55	0.07	140
150											14.32	15.15	10.03	6.38	6.50	2.22	3.77	0.59	1.66	0.08	150
160											15.27	17.08	10.70	7.19	6.93	2.50	4.02	0.67	1.77	0.09	160
170											16.23	19.11	11.37	8.05	7.36	2.80	4.27	0.75	1.88	0.10	170
180											17.18	21.24	12.04	8.95	7.08	3.11	4.53	0.83	1.99	0.11	180
190											18.14	23.48	12.71	9.89	8.23	3.44	4.78	0.92	2.10	0.12	190
200											19.09	25.81	13.38	10.87	8.66	3.78	5.03	1.01	2.21	0.14	200
225													15.05	13.52	9.75	4.70	5.66	1.25	2.49	0.17	225
250													16.73	16.44	10.83	5.71	6.29	1.52	2.77	0.21	250
275													18.40	19.61	11.92	6.82	6.92	1.82	3.05	0.25	275
300															13.00	8.01	7.55	2.13	3.32	0.29	300
325															14.08	9.29	8.18	2.48	3.60	0.34	325
350															15.17	10.65	8.81	2.84	3.88	0.39	350
375															16.25	12.10	9.43	3.23	4.15	0.44	375
400															17.33	13.64	10.06	3.64	4.43	0.50	400
425															18.42	15.26	10.69	4.07	4.71	0.55	425
450															19.50	16.97	11.32	4.52	4.99	0.62	450
475																	11.95	5.00	5.26	0.68	475
500																	12.58	5.50	5.54	0.75	500
550																	13.84	6.56	6.10	0.89	550
600																	15.10	7.70	6.65	1.05	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Friction Loss Charts

Schedule 40 Standard Steel Pipe

PSI loss per 100 feet of tube (PSI/100 FT) C=100, Sizes ½" through 6", Flow GPM 1 through 600

SIZE OD ID WALL THK	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE OD ID WALL THK
	0.840 0.622 0.109		1.050 0.824 0.113		1.315 1.049 0.133		1.660 1.380 0.140		1.900 1.610 0.145		2.375 2.067 0.154		2.875 2.469 0.203		3.500 3.068 0.216		4.500 4.026 0.237		6.625 6.065 0.280		
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.91	0.60	0.23	0.37	0.07	0.21	0.02	0.15	0.01	0.09	0.00									1
2	2.10	3.28	1.20	0.84	0.74	0.26	0.42	0.07	0.31	0.03	0.19	0.01	0.13	0.00							2
3	3.16	6.95	1.80	1.77	1.11	0.55	0.64	0.14	0.47	0.07	0.28	0.02	0.20	0.01	0.13	0.00					3
4	4.21	11.85	2.40	3.02	1.48	0.93	0.85	0.25	0.62	0.12	0.38	0.03	0.26	0.01	0.17	0.01					4
5	5.27	17.91	3.00	4.56	1.85	1.41	1.07	0.37	0.78	0.18	0.47	0.05	0.33	0.02	0.21	0.01					5
6	6.32	25.10	3.60	6.39	2.22	1.97	1.28	0.52	0.94	0.25	0.57	0.07	0.40	0.03	0.26	0.01					6
7	7.38	33.40	4.20	8.50	2.59	2.63	1.49	0.69	1.10	0.33	0.66	0.10	0.46	0.04	0.30	0.01					7
8	8.43	42.77	4.80	10.89	2.96	3.36	1.71	0.89	1.25	0.42	0.76	0.12	0.53	0.05	0.34	0.02	0.20	0.00			8
9	9.49	53.19	5.40	13.54	3.33	4.18	1.92	1.10	1.41	0.52	0.85	0.15	0.60	0.06	0.39	0.02	0.22	0.01			9
10	10.54	64.65	6.00	16.46	3.70	5.08	2.14	1.34	1.57	0.63	0.95	0.19	0.66	0.08	0.43	0.03	0.25	0.01			10
11	11.60	77.13	6.60	19.63	4.07	6.07	2.35	1.60	1.73	0.75	1.05	0.22	0.73	0.09	0.47	0.03	0.27	0.01			11
12	12.65	90.62	7.21	23.07	4.44	7.13	2.57	1.88	1.88	0.89	1.14	0.26	0.80	0.11	0.52	0.04	0.30	0.01			12
14	14.76	20.56	8.41	30.69	5.19	9.48	2.99	2.50	2.20	1.18	1.33	0.35	0.93	0.15	0.60	0.05	0.35	0.01			14
16	16.87	54.39	9.61	39.30	5.93	12.14	3.42	3.20	2.51	1.51	1.52	0.45	1.07	0.19	0.69	0.07	0.40	0.02			16
18	18.98	92.02	10.81	48.88	6.67	15.10	3.85	3.98	2.83	1.88	1.71	0.56	1.20	0.23	0.78	0.08	0.45	0.02			18
20			12.01	59.41	7.41	18.35	4.28	4.83	3.14	2.28	1.90	0.68	1.33	0.29	0.86	0.10	0.50	0.03			20
22			13.21	70.88	8.15	21.90	4.71	5.77	3.46	2.72	2.10	0.81	1.47	0.34	0.95	0.12	0.55	0.03	0.24	0.00	22
24			14.42	83.27	8.89	25.72	5.14	6.77	3.77	3.20	2.29	0.95	1.60	0.40	1.04	0.14	0.60	0.04	0.26	0.01	24
26			15.62	96.57	9.64	29.83	5.57	7.86	4.09	3.71	2.48	1.10	1.74	0.46	1.12	0.16	0.65	0.04	0.28	0.01	26
28			16.82	110.8	10.38	34.22	5.99	9.01	4.40	4.26	2.67	1.26	1.87	0.53	1.21	0.18	0.70	0.05	0.31	0.01	28
30			18.02	125.9	11.12	38.89	6.42	10.24	4.72	4.84	2.86	1.43	2.00	0.60	1.30	0.21	0.75	0.06	0.33	0.01	30
35					12.97	51.74	7.49	13.62	5.50	6.44	3.34	1.91	2.34	0.80	1.51	0.28	0.88	0.07	0.38	0.01	35
40					14.83	66.25	8.56	17.45	6.29	8.24	3.81	2.44	2.67	1.03	1.73	0.36	1.00	0.10	0.44	0.01	40
45					16.68	82.40	9.64	21.70	7.08	10.25	4.29	3.04	3.01	1.28	1.95	0.44	1.13	0.12	0.49	0.02	45
50					18.53	100.2	10.71	26.37	7.87	12.46	4.77	3.69	3.34	1.56	2.16	0.54	1.25	0.14	0.55	0.02	50
55							11.78	31.47	8.65	14.86	5.25	4.41	3.68	1.86	2.38	0.65	1.38	0.17	0.61	0.02	55
60							12.85	36.97	9.44	17.46	5.72	5.18	4.01	2.18	2.60	0.76	1.51	0.20	0.66	0.03	60
65							13.92	42.88	10.23	20.25	6.20	6.00	4.35	2.53	2.81	0.88	1.63	0.23	0.72	0.03	65
70							14.99	49.18	11.01	23.23	6.68	6.89	4.68	2.90	3.03	1.01	1.76	0.27	0.77	0.04	70
75							16.06	55.89	11.80	26.40	7.16	7.83	5.01	3.30	3.25	1.15	1.88	0.31	0.83	0.04	75
80							17.13	62.98	12.59	29.75	7.63	8.82	5.35	3.72	3.46	1.29	2.01	0.34	0.88	0.05	80
85							18.21	70.47	13.37	33.29	8.11	9.87	5.68	4.16	3.68	1.44	2.13	0.39	0.94	0.05	85
90							19.28	78.33	14.16	37.00	8.59	10.97	6.02	4.62	3.90	1.61	2.26	0.43	0.99	0.06	90
95									14.95	40.90	9.07	12.13	6.35	5.11	4.11	1.78	2.39	0.47	1.05	0.06	95
100									15.74	44.97	9.54	13.33	6.69	5.62	4.33	1.95	2.51	0.52	1.10	0.07	100
110									17.31	53.66	10.50	15.91	7.36	6.70	4.76	2.33	2.76	0.62	1.22	0.08	110
120									18.88	63.04	11.45	18.69	8.03	7.87	5.20	2.74	3.02	0.73	1.33	0.10	120
130											12.41	21.68	8.70	9.13	5.63	3.17	3.27	0.85	1.44	0.12	130
140											13.36	24.87	9.37	10.47	6.06	3.64	3.52	0.97	1.55	0.13	140
150											14.32	28.26	10.03	11.90	6.50	4.14	3.77	1.10	1.66	0.15	150
160											15.27	31.84	10.70	13.41	6.93	4.66	4.02	1.24	1.77	0.17	160
170											16.23	35.63	11.37	15.01	7.36	5.22	4.27	1.39	1.88	0.19	170
180											17.18	39.61	12.04	16.68	7.80	5.80	4.53	1.55	1.99	0.21	180
190											18.14	43.78	12.71	18.44	8.23	6.41	4.78	1.71	2.10	0.23	190
200											19.09	48.14	13.38	20.28	8.66	7.05	5.03	1.88	2.21	0.26	200
225													15.08	25.22	9.75	8.76	5.66	2.34	2.49	0.32	225
250													16.73	30.65	10.83	10.65	6.29	2.84	2.77	0.39	250
275													18.40	36.57	11.92	12.71	6.92	3.39	3.05	0.46	275
300															13.00	14.93	7.55	3.98	3.32	0.54	300
325															14.08	17.32	8.18	4.62	3.60	0.63	325
350															15.17	19.87	8.81	5.30	3.88	0.72	350
375															16.25	22.57	9.43	6.02	4.15	0.82	375
400															17.33	25.44	10.06	6.78	4.43	0.92	400
425															18.42	28.46	10.69	7.59	4.71	1.03	425
450															19.50	31.64	11.32	8.43	4.99	1.15	450
475																	11.95	9.32	5.26	1.27	475
500																	12.58	10.25	5.54	1.40	500
550																	13.84	12.23	6.10	1.67	550
600																	15.10	14.37	6.65	1.96	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Type K Copper Water Tube

PSI loss per 100 feet of tube (PSI/100 FT) C=140, Sizes 1/2" through 3", Flow GPM 1 through 600

SIZE	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	SIZE
OD	0.625	0.750	0.875	1.125	1.375	1.625	2.125	2.625	3.125	OD
ID	0.527	0.652	0.745	0.995	1.245	1.481	1.959	2.435	2.907	ID
WALL THK	0.049	0.049	0.065	0.065	0.065	0.072	0.083	0.095	0.109	WALL THK

FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.46	1.09	0.95	0.39	0.73	0.20	0.41	0.05	0.26	0.02	0.18	0.01	0.10	0.00							1
2	2.93	3.94	1.91	1.40	1.47	0.73	0.82	0.18	0.52	0.06	0.37	0.03	0.21	0.01							2
3	4.40	8.35	2.87	2.97	2.20	1.55	1.23	0.38	0.78	0.13	0.55	0.05	0.31	0.01	0.20	0.00					3
4	5.87	14.23	3.83	5.05	2.94	2.64	1.64	0.65	1.05	0.22	0.74	0.09	0.42	0.02	0.27	0.01	0.19	0.00			4
5	7.34	21.51	4.79	7.64	3.67	3.99	2.06	0.98	1.31	0.33	0.93	0.14	0.53	0.04	0.34	0.01	0.24	0.01			5
6	8.81	30.15	5.75	10.70	4.41	5.60	2.47	1.37	1.57	0.46	1.11	0.20	0.63	0.05	0.41	0.02	0.28	0.01			6
7	10.28	40.11	6.71	14.24	5.14	7.44	2.88	1.82	1.84	0.61	1.30	0.26	0.74	0.07	0.48	0.02	0.33	0.01			7
8	11.75	51.37	7.67	18.24	5.88	9.53	3.29	2.33	2.10	0.78	1.48	0.34	0.85	0.09	0.55	0.03	0.38	0.01			8
9	13.22	63.89	8.63	22.68	6.61	11.86	3.70	2.90	2.36	0.97	1.67	0.42	0.95	0.11	0.61	0.04	0.43	0.02			9
10	14.69	77.66	9.59	27.57	7.35	14.41	4.12	3.53	2.63	1.18	1.86	0.51	1.06	0.13	0.68	0.05	0.48	0.02			10
11	16.15	92.65	10.55	32.89	8.08	17.19	4.53	4.21	2.89	1.41	2.04	0.61	1.16	0.16	0.75	0.05	0.53	0.02			11
12	17.62	108.85	11.51	38.64	8.82	20.20	4.94	4.94	3.15	1.66	2.23	0.71	1.27	0.18	0.82	0.06	0.57	0.03			12
14			13.43	51.41	10.29	26.87	5.76	6.57	3.68	2.21	2.60	0.95	1.48	0.24	0.95	0.08	0.67	0.04			14
16			15.35	65.83	11.76	34.41	6.59	8.42	4.21	2.83	2.97	1.22	1.70	0.31	1.10	0.11	0.77	0.05			16
18			17.27	81.88	13.23	42.80	7.41	10.47	4.73	3.52	3.34	1.51	1.91	0.39	1.23	0.13	0.86	0.06			18
20			19.19	99.53	14.70	52.02	8.24	12.73	5.26	4.28	3.72	1.84	2.12	0.47	1.37	0.16	0.96	0.07			20
22					16.17	62.06	9.06	15.18	5.79	5.10	4.09	2.19	2.33	0.56	1.51	0.20	1.06	0.08			22
24					17.64	72.92	9.89	17.84	6.31	5.99	4.46	2.58	2.55	0.66	1.65	0.23	1.15	0.10			24
26					19.11	84.57	10.71	20.69	6.84	6.95	4.83	2.99	2.76	0.77	1.78	0.27	1.25	0.11			26
28							11.53	23.73	7.37	7.98	5.20	3.43	2.97	0.88	1.92	0.30	1.35	0.13			28
30							12.36	26.97	7.89	9.06	5.58	3.89	3.18	1.00	2.06	0.35	1.44	0.15			30
35							14.42	35.88	9.21	12.06	6.51	5.18	3.72	1.33	2.40	0.46	1.68	0.19			35
40							16.48	45.95	10.52	15.44	7.44	6.63	4.25	1.70	2.75	0.59	1.93	0.25			40
45							18.54	57.15	11.84	19.20	8.37	8.25	4.78	2.12	3.00	0.73	2.17	0.31			45
50									13.16	23.34	9.30	10.03	5.31	2.57	3.44	0.89	2.41	0.38			50
55									14.47	27.85	10.23	11.97	5.84	3.07	3.78	1.06	2.65	0.45			55
60									15.79	32.71	11.16	14.06	6.37	3.60	4.12	1.25	2.89	0.53			60
65									17.10	37.94	12.09	16.31	6.91	4.18	4.47	1.45	3.13	0.61			65
70									18.42	43.52	13.02	18.70	7.44	4.80	4.81	1.66	3.37	0.70			70
75									19.74	49.46	13.95	21.25	7.97	5.45	5.16	1.89	3.62	0.80			75
80											14.88	23.95	8.50	6.14	5.50	2.13	3.86	0.90			80
85											15.81	26.80	9.03	6.87	5.84	2.38	4.10	1.01			85
90											16.74	29.79	9.56	7.64	6.19	2.65	4.34	1.12			90
95											17.67	32.93	10.09	8.44	6.53	2.93	4.58	1.24			95
100											18.60	36.21	10.63	9.28	6.88	3.22	4.82	1.36			100
110													11.69	11.08	7.56	3.84	5.31	1.62			110
120													12.75	13.01	8.25	4.52	5.79	1.91			120
130													13.82	15.09	8.94	5.24	6.27	2.21			130
140													14.88	17.31	9.63	6.01	6.75	2.54			140
150													15.94	19.67	10.32	6.83	7.24	2.88			150
160													17.01	22.17	11.00	7.69	7.72	3.25			160
170													18.07	24.81	11.69	8.61	8.20	3.64			170
180													19.13	27.58	12.38	9.57	8.69	4.04			180
190															13.07	10.58	9.17	4.47			190
200															13.76	11.63	9.65	4.91			200
225															15.48	14.47	10.86	6.11			225
250															17.20	17.58	12.07	7.43			250
275															18.92	20.98	13.27	8.86			275
300																	14.48	10.41			300
325																	15.69	12.07			325
350																	16.89	13.85			350
375																	18.10	15.73			375
400																	19.31	17.73			400
425																					425
450																					450
475																					475
500																					500
550																					550
600																					600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Friction Loss Charts

Type L Copper Water Tube

PSI loss per 100 feet of tube (PSI/100 FT) C=140, Sizes 1/2" through 2 1/2", Flow GPM 1 through 600

SIZE OD ID WALL THK	1/2" 0.625 0.542 0.040	5/8" 0.750 0.666 0.042	3/4" 0.875 0.785 0.045	1" 1.125 1.025 0.050	1-1/4" 1.375 1.265 0.055	1-1/2" 1.625 1.505 0.060	2" 2.125 1.985 0.070	2-1/2" 2.625 2.465 0.080	SIZE OD ID WALL THK										
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.39	0.95	0.92	0.35	0.66	0.16	0.39	0.04	0.25	0.02	0.18	0.01	0.10	0.00					1
2	2.78	3.44	1.84	1.26	1.32	0.57	0.78	0.15	0.51	0.06	0.36	0.02	0.21	0.01					2
3	4.17	7.29	2.76	2.67	1.99	1.20	1.17	0.33	0.76	0.12	0.54	0.05	0.31	0.01	0.20	0.00			3
4	5.56	12.41	3.68	4.56	2.65	2.05	1.55	0.56	1.02	0.20	0.72	0.09	0.41	0.02	0.27	0.01			4
5	6.94	18.77	4.60	6.89	3.31	3.09	1.94	0.85	1.27	0.30	0.90	0.13	0.52	0.03	0.34	0.01			5
6	8.33	26.31	5.52	9.65	3.97	4.34	2.33	1.18	1.53	0.43	1.08	0.18	0.62	0.05	0.40	0.02			6
7	9.72	35.00	6.44	12.84	4.63	5.77	2.72	1.58	1.78	0.57	1.26	0.24	0.72	0.06	0.47	0.02			7
8	11.11	44.82	7.36	16.45	5.30	7.39	3.11	2.02	2.04	0.72	1.44	0.31	0.83	0.08	0.54	0.03			8
9	12.50	55.74	8.28	20.45	5.96	9.19	3.50	2.51	2.29	0.90	1.62	0.39	0.93	0.10	0.60	0.04			9
10	13.89	67.75	9.20	24.86	6.62	11.17	3.88	3.05	2.55	1.10	1.80	0.47	1.04	0.12	0.67	0.04			10
11	15.28	80.83	10.12	29.66	7.28	13.33	4.27	3.64	2.80	1.31	1.98	0.56	1.14	0.15	0.74	0.05			11
12	16.67	94.96	11.04	34.85	7.95	15.66	4.66	4.28	3.06	1.54	2.16	0.66	1.24	0.17	0.81	0.06			12
14	19.44	126.34	12.88	46.36	9.27	23.67	5.44	5.69	3.57	2.04	2.52	0.88	1.45	0.23	0.94	0.08			14
16			14.72	59.37	10.59	26.68	6.21	7.28	4.08	2.62	2.88	1.12	1.66	0.29	1.07	0.10			16
18			16.56	73.84	11.92	33.18	6.99	9.06	4.59	3.25	3.24	1.40	1.86	0.36	1.21	0.13			18
20			18.40	89.75	13.24	40.33	7.77	11.01	5.10	3.96	3.60	1.70	2.07	0.44	1.34	0.15			20
22					14.57	48.11	8.54	13.14	5.61	4.72	3.96	2.03	2.28	0.53	1.48	0.18			22
24					15.89	56.53	9.32	15.44	6.12	5.55	4.32	2.38	2.49	0.62	1.61	0.22			24
26					17.21	65.56	10.10	17.90	6.63	6.43	4.68	2.76	2.69	0.72	1.75	0.25			26
28					18.54	75.21	10.87	20.54	7.14	7.38	5.04	3.17	2.90	0.82	1.88	0.29			28
30					19.86	85.46	11.65	23.33	7.65	8.38	5.40	3.60	3.11	0.94	2.01	0.33			30
35							13.59	31.04	8.92	11.15	6.30	4.79	3.62	1.25	2.35	0.43			35
40							15.53	39.75	10.20	14.28	7.21	6.13	4.14	1.59	2.69	0.56			40
45							17.48	49.44	11.47	17.76	8.11	7.63	4.66	1.98	3.02	0.69			45
50							19.42	60.10	12.75	21.59	9.01	9.27	5.18	2.41	3.36	0.84			50
55									14.02	25.76	9.91	11.06	5.70	2.88	3.69	1.00			55
60									15.30	30.26	10.81	13.00	6.21	3.38	4.03	1.18			60
65									16.57	35.10	11.71	15.07	6.73	3.92	4.36	1.37			65
70									17.85	40.26	12.61	17.29	7.25	4.50	4.70	1.57			70
75									19.12	45.75	13.51	19.65	7.77	5.11	5.04	1.78			75
80											14.41	22.14	8.28	5.76	5.37	2.01			80
85											15.31	24.77	8.80	6.44	5.71	2.25			85
90											16.21	27.54	9.32	7.16	6.04	2.50			90
95											17.11	30.44	9.84	7.91	6.38	2.76			95
100											18.01	33.47	10.35	8.70	6.71	3.03			100
110											19.81	39.93	11.39	10.38	7.39	3.62			110
120													12.43	12.20	8.06	4.25			120
130													13.46	14.15	8.73	4.93			130
140													14.50	16.23	9.40	5.66			140
150													15.53	18.44	10.07	6.43			150
160													16.57	20.78	10.74	7.24			160
170													17.60	23.25	11.41	8.11			170
180													18.64	25.85	12.09	9.01			180
190															12.76	9.96			190
200															13.43	10.95			200
225															15.11	13.62			225
250															16.79	16.56			250
275															18.47	19.75			275
300																			300
325																			325
350																			350
375																			375
400																			400
425																			425
450																			450
475																			475
500																			500
550																			550
600																			600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Additional Data

PRESSURE LOSS IN VALVES AND FITTINGS Equivalent Length in Feet of Standard Steel Pipe

Nominal Pipe Size	Globe Valve	Angle Valve	Sprinkler Angle Valve	Gate Valv	Side Outlet Std. Tee	Run of Std. Tee	Std. Elbow	45 Elbow
1/2	17	9	2	0.4	4	1	2	1
3/4	22	12	3	0.5	5	2	3	1
1	27	15	4	0.6	6	2	3	2
1 1/4	38	18	5	0.8	8	3	4	2
1 1/2	45	22	6	1.0	10	3	5	2
2	58	28	7	1.2	12	4	6	3
2 1/2	70	35	9	1.4	14	5	7	3
3	90	45	11	1.8	18	6	8	4
4	120	60	15	2.3	23	7	11	5
6	170	85	20	3.3	33	12	17	8

CLIMATE ETp TABLE

Climate*	Inches Daily
Cool Humid	.10 -.15
Cool Dry	.15 -.20
Warm Humid	.15 -.20
Warm Dry	.20 -.25
Hot Humid	.20 -.30
Hot Dry	.30 -.45
Worst case	
**"Cool" equals under 70°F as an average mid-summer high.	
"Warm" equals between 70° and 90°F as mid-summer highs.	
"Hot" equals over 90°F. "Humid" equals over 50% as average mid-summer relative humidity (dry=under 50%).	

ESTIMATING PIPE SIZE

To determine the nominal size of a pipe, wrap a string around the pipe and compare its length to the chart below.

Nominal Pipe Size	Copper Pipe	Galvanized Steel (Sch. 40 Steel)	PVC Pipe
Approximate String Length in Inches			
1/2"	2"	2 5/8"	2 5/8"
5/8"	2 3/8"	—	—
3/4"	2 3/4"	3 1/4"	3 1/4"
1"	3 1/2"	4"	4"
1 1/4"	4 3/8"	5"	5"
1 1/2"	5 1/8"	6"	6"
2"	6 3/4"	7 1/2"	7 1/2"

MAXIMUM NUMBER OF WIRES TO BE INSTALLED IN CONDUIT OR TUBING

WIRE SIZE (AWG)	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	WIRE SIZE (AWG)
18	6	12	20	35	49	80	110	175					18
16	5	10	16	30	42	67	97	150					16
14	4	6	10	18	25	40	56	88	120	150			14
12	3	5	7	15	20	33	50	75	102	130	205		12
10	1	3	6	13	16	27	40	63	85	110	170		10
8	1	2	4	6	9	16	25	35	50	65	105	150	8
6	1	1	3	3	5	10	15	22	32	40	63	92	6
4		1	1	2	4	7	10	16	24	30	48	70	4
2			1	1	2	5	9	12	18	22	36	54	2
0				1	1	2	3	5	8	12	15	24	0
00					1	1	2	4	7	10	14	21	00
000						1	1	2	3	6	8	11	000
0000							1	1	2	5	7	10	0000

PRESSURE LOSS THROUGH DISC-TYPE WATER METERS AWWA STANDARD PRESSURE LOSS: (PSI)

FLOW GPM	NORMAL SIZE							FLOW GPM
	5/8	3/4	1	1-1/2	2	3	4	
1	0.2	0.1						1
2	0.3	0.2						2
3	0.4	0.3						3
4	0.6	0.5	0.1					4
5	0.9	0.6	0.2					5
6	1.3	0.7	0.3					6
7	1.8	0.8	0.4					7
8	2.3	1.0	0.5					8
9	3.0	1.3	0.6					9
10	3.7	1.6	0.7					10
11	4.4	1.9	0.8					11
12	5.1	2.2	0.9					12
13	6.1	2.6	1.0					13
14	7.2	3.1	1.1					14
15	8.3	3.6	1.2					15
16	9.4	4.1	1.4	0.4				16
17	10.7	4.6	1.6	0.5				17
18	12.0	5.2	1.8	0.6				18
19	13.4	5.8	2.0	0.7				19
20	15.0	6.5	2.2	0.8				20
22		7.9	2.8	1.0				22
24		9.5	3.4	1.2				24
26		11.2	4.0	1.4				26
28		13.0	4.6	1.6				28
30		15.0	5.3	1.8	0.7			30
32			6.0	2.1	0.8			32
34			6.9	2.4	0.9			34
36			7.8	2.7	1.0			36
38			8.7	3.0	1.2			38
40			9.6	3.3	1.3			40
42			10.6	3.6	1.4			42
44			11.7	3.9	1.5			44
46			12.8	4.2	1.6			46
48			13.9	4.5	1.7			48
50			15.0	4.9	1.9			50
52				5.3	2.1			52
54				5.7	2.2			54
56				6.2	2.3			56
58				6.7	2.5	1.0		58
60				7.2	2.7	1.1		60
65				8.3	3.2	1.3		65
70				9.8	3.7	1.5		70
75				11.3	4.3	1.6		75
80				12.8	4.9	2.0	0.7	80
90				16.1	6.2	2.5	0.8	90
100				20.0	7.8	2.9	0.9	100
110					9.5	3.4	1.0	110
120					11.3	3.9	1.2	120
130					13.0	4.5	1.4	130
140					15.1	5.1	1.6	140
150					17.3	5.8	1.8	150
160					20.0	6.5	2.1	160
170						7.2	2.4	170
180						8.0	2.7	180
190						9.0	3.0	190
200						11.0	3.2	200
220						13.0	3.9	220
240						15.0	4.7	240
260						17.3	5.5	260
280						20.0	6.3	280
300							7.2	300
350							10.0	350
400							13.0	400
450							16.2	450
500							20.0	500

Wire Sizing

Resistance Method

Required Information

- Actual one-way length of wire between the controllers and the power source or the controllers and valves
- Allowable voltage loss along the wire circuit
- Accumulative current flowing through the wire section being sized in amperes

Resistance is calculated using this formula:

$$R = \frac{1000 \times AVL}{2L \times I}$$

R = Maximum Allowable Resistance of wire in ohms per 1000 feet

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 1800 feet. The controller output is 24V. The valve has a minimum operating voltage of 20V and an inrush current of 370 mA (0.37 Amps).

$$R = \frac{1000 \times 4}{2(1800) \times 0.37}$$

$$R = \frac{4000}{1332}$$

$$R = 3.00 \text{ ohms/1000 feet}$$

So, wire resistance can not exceed 3.00 ohms per 1000 feet. Now go to table #1 and select the proper wire size. Since 16 gauge wire has more resistance than 3.00 ohms per 1000 feet, choose 14 gauge wire.

Table 2 is a quick reference and is set up to provide maximum wire runs given the information at the bottom of the table.

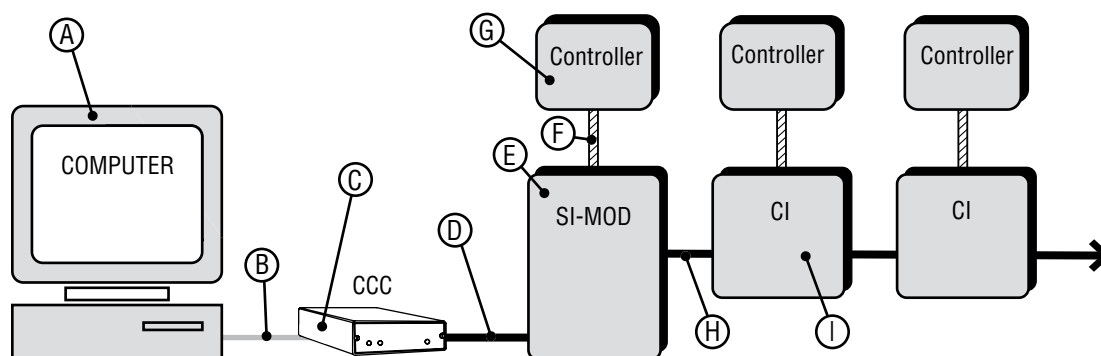
Table 1	
Resistance of Copper Wire	
Wire Size AWG No.	Resistance at 20° C (68° F) ohms per 1000 feet
18	6.39
16	4.02
14	2.52
12	1.59
10	1.00
8	0.63
6	0.40
4	0.25

Table 2							
Valve Wire Sizing (Maximum One-Way Distance in Feet Between Controller and Valve)							
Ground Wire	Control Wire						
	18	16	14	12	10	8	6
18	850	1040	1210	1350	1460	1540	1590
16	1040	1340	1650	1920	2150	2330	2440
14	1210	1650	2150	2630	3080	3450	3700
12	1350	1920	2630	3390	4170	4880	5400
10	1460	2150	3080	4170	5400	6670	7690
8	1540	2330	3450	4880	6670	8700	10530
6	1590	2440	3700	5400	7690	10530	13330
Solenoid: 24VAC, Pressure: 150 PSI, Voltage Drop: 4V, Min. Operating Voltage: 20V, Amperage Peak: .37A							

IMMS™ Connections

Block Diagrams

Hardwire Connections

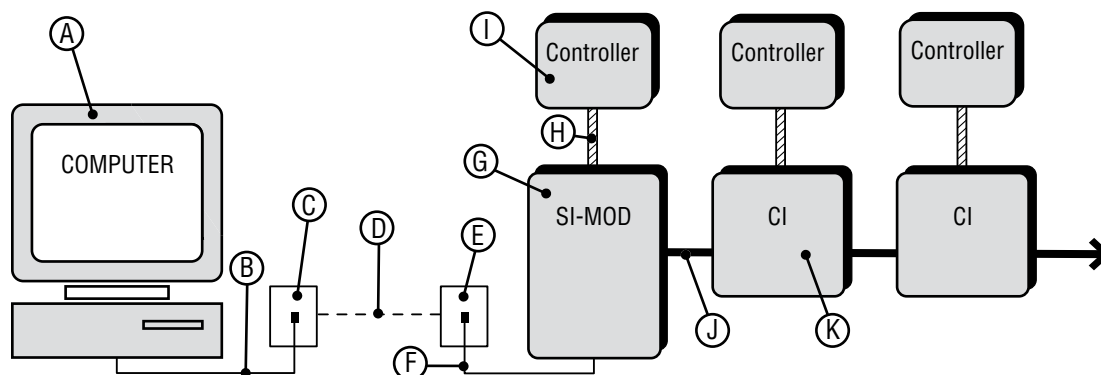


Hardwire Connections:

- | | |
|---|---|
| <p>(A) Computer (Windows® 2000 or XP, Home or Pro edition) connected via</p> <p>(B) Serial cable (only) to</p> <p>(C) CCC (6 ft./2 m, max), connected via</p> <p>(D) GCBL cable (10,000 ft./3 km, max) to</p> <p>(E) SL connected via</p> | <p>(F) 18/5 (6 ft./2 m, max) to</p> <p>(G) Hunter Controller, and via</p> <p>(H) more GCBL to subsequent</p> <p>(I) CI (10,000 ft./3 km, max) and associated controller, etc., up to 100 max controllers.</p> |
|---|---|

Note: No forks, tees, splices, or loops are required or permitted in communications path.

Dial-up Modem Connections



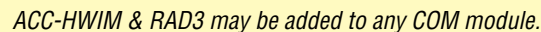
Dial-up Modem Connections:

- (A) Computer (Windows® 2000 or XP, Home or Pro edition) with internal modem, connected with
- (B) RJ-11 cable (6 ft./2 m, max) to
- (C) analog phone system jack, connected via
- (D) public telephone network (no limit), to
- (E) dedicated analog line wall jack, via
- (F) RJ-11 cable (6 ft./2 m, max) to
- (G) SI-MOD, connected via
- (H) 18/5 (6 ft./2 m, max) to
- (I) Hunter Controller and via
- (J) more GCBL to subsequent
- (K) CI (10,000 ft./3 km, max) and associated controller, etc., up to 100 max controllers per site.

Notes: Modem systems may include up to 100 different sites, each with up to 100 controllers. The first controller at each site must be connected to an SI-MOD as shown. IMMS dials up each site (via D, above), one at a time. No forks, tees, splices, or loops are required or permitted in communications path on each site. Modem systems may coexist with ONE hardwired site—the computer may use the serial port to communicate with a local site via the CCC (Hardwired connections, at top of page), and use its internal modem to communicate with up to 99 additional dial-up modem sites (as shown in the Dial-up Modem diagram).

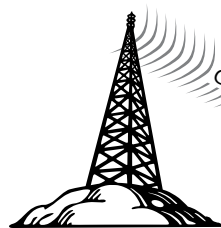
Block Diagrams (Continued)

3 different sites, each with its own link from SI to computer.



Dial-up to Cellular

Cellular GSM Site developed with additional radio and hardware controllers, as an example.



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Title _____

Your Company Name _____

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Country _____

Phone (_____) _____ FAX (_____) _____
Area Code Area Code

E-mail address _____

2. Which of the following services are conducted by your company/organization? (check all that apply)

Irrigation Installation: _____ Residential _____ Commercial _____ Golf

Irrigation System Maintenance: _____ Residential _____ Commercial _____ Golf

Irrigation Design: _____ Residential _____ Commercial _____ Golf

Landscape Installation: _____ Residential _____ Commercial _____ Golf

Landscape Maintenance: _____ Residential _____ Commercial _____ Golf

3. How many employees at your location are involved with irrigation? _____

4. What are your preferred brands and models for each of the following (please fill out as completely as possible):

Residential Rotary Sprinkler

Residential Valve

Preferred _____

Preferred _____

2nd choice _____

2nd choice _____

Commercial Rotary Sprinkler

Commercial Valve

Preferred _____

Preferred _____

2nd choice _____

2nd choice _____

Spray Head

Residential Controller

Preferred _____

Preferred _____

2nd choice _____

2nd choice _____

Commercial Controller

Preferred _____

2nd choice _____

5. What local distributor is your primary supplier (distributor) for irrigation equipment? _____
(if applicable)

6. What is your company's total annual sales volume in irrigation installation and maintenance?
(please circle answer – if applicable)

A. Less than \$50,000

B. \$50,000 to \$250,000

C. \$250,000 to \$500,000

D. \$500,000 to \$750,000

E. Over \$750,000

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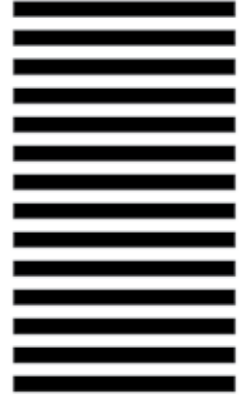
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Hunter®



STATEMENT OF WARRANTY

Hunter Industries Incorporated ("Hunter") warrants all Hunter Professional Series products (PGP® family, PGJ, PS, SRS, Pro-Spray®, PCN, PCB, AFB, HPV, PGV, ASV, SRV, SRC, EC, XC, Pro-C, SRR, SVC, WVP, WVS, PCZ, ICZ, PSR, HCV, SJ) to be free of defects in materials or workmanship under normal use for a period of two (2) years from the original date of manufacture. SRM Sprinklers are warranted to be free of defects in materials or workmanship under normal use for a period of one (1) year from date of manufacture. Institutional Series sprinklers (models: Institutional Spray, I-10, I-20, I-25/31, I-40/41/42/43, I-60, I-90), ICC, ACC and IDS controllers, ICR Remotes, IMMS™ Central Control Products, Weather Sensors, and ICV plastic and HBV brass valves are warranted to be free of defects in materials or workmanship under normal use for five (5) years from the original date of manufacture. If a defect in a Hunter product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part.

This warranty does not extend to repairs, adjustments, or replacement of a Hunter product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the Hunter product.

If a defect arises in a Hunter product or part during the warranty period, you should contact your local Hunter Authorized Distributor.

HUNTER'S OBLIGATION TO REPAIR OR REPLACE ITS PRODUCTS AS SET FORTH ABOVE IS THE SOLE AND EXCLUSIVE WARRANTY SET FORTH BY HUNTER. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. HUNTER WILL NOT BE LIABLE TO ANY PARTY IN STRICT LIABILITY, TORT, CONTRACT, OR ANY OTHER MANNER FOR DAMAGES CAUSED OR CLAIMED TO BE CAUSED AS A RESULT OF ANY DESIGN OR DEFECT IN HUNTER'S PRODUCTS, OR FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE.

If you have any questions concerning the warranty or its application, please write to:
Marketing Department, Hunter Industries Incorporated,
1940 Diamond Street, San Marcos, CA 92078, U.S.A.

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.

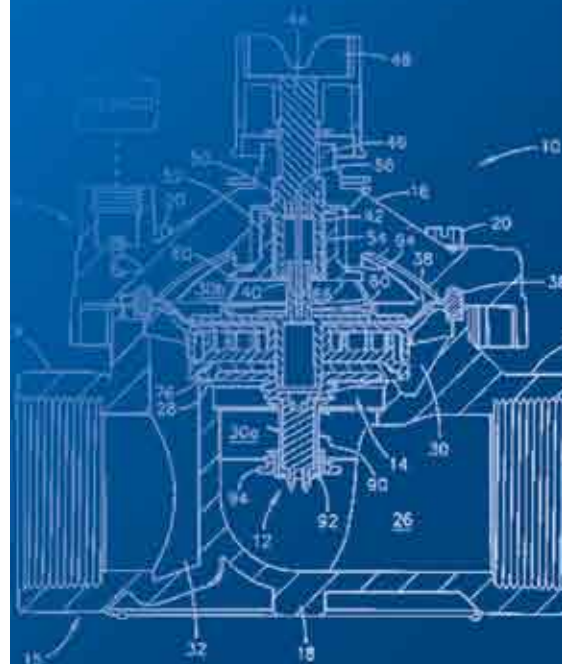


FIG. 1

Hunter®

2006-2007 Irrigation Products Catalog

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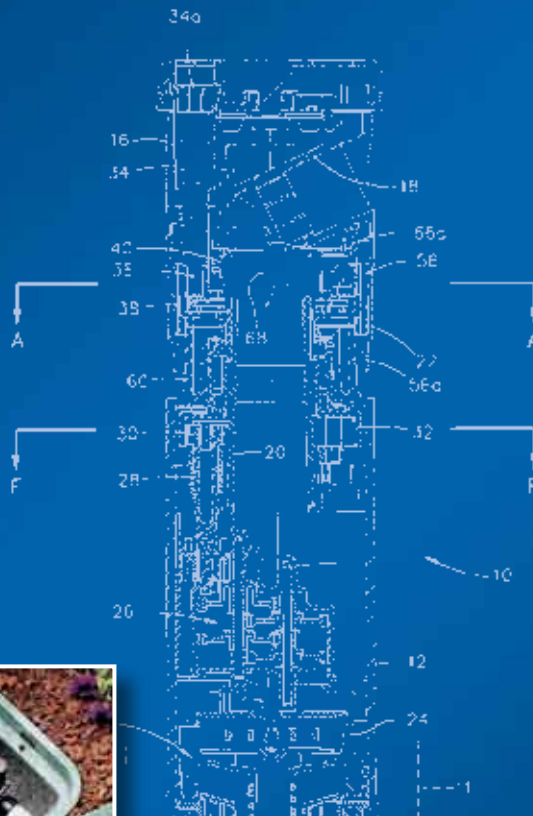
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