

Golf Irrigation Product Catalog

GOLF IRRIGATION | *Built on Innovation*[®]

Hunter[®]



VOLUME 37

hunterindustries.com/golf

HUNTER FAMILY

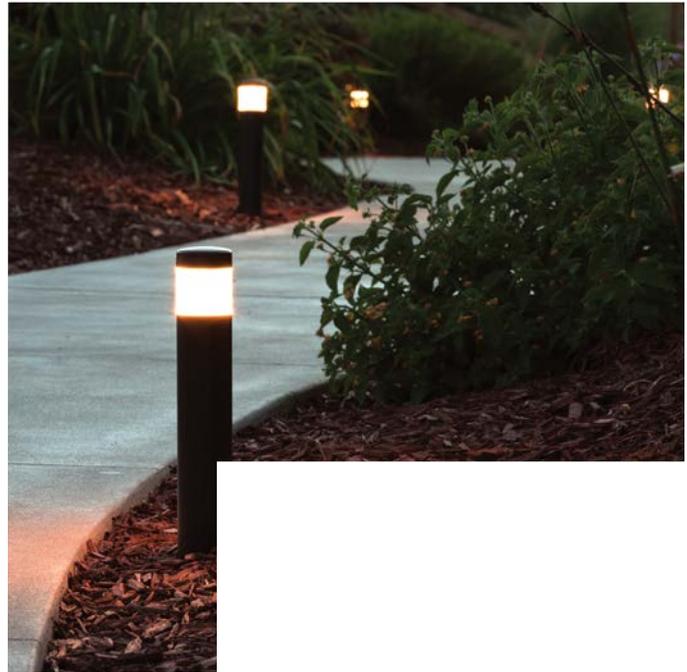
of Products

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



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

From rotors and valves to weather sensors and smart controllers, our philosophy is to produce products that allow landscape professionals to create optimal functionality and ambience while promoting sustainable resource use. We are committed to pushing the boundaries of technology and customer experience in every product and project we undertake. [Learn more at hunterindustries.com/products.](https://hunterindustries.com/products)



FX Luminaire is an industry-leading manufacturer of landscape and architectural lighting products. We focus on the advancement of LED technology and digital lighting control with zoning, dimming, and color adjustment capabilities. In addition, we offer a full spectrum of highly efficient lighting fixtures that can be utilized to create elegant landscape lighting systems for a range of golf course applications, from clubhouses to pathways. [Learn more at fxl.com.](https://fxl.com)



What's New **IN VOLUME 37**

AT HUNTER INDUSTRIES, WE KNOW THAT THE NEEDS OF GOLF COURSE SUPERINTENDENTS CONTINUE TO EVOLVE.

Irrigation simply must become more efficient. Today's professionals are calling for more than just high-performance products — they expect unwavering partnership from manufacturers, from conception to installation and beyond.

That's why we have redoubled our efforts to bring you solutions that meet and exceed golf course irrigation requirements. We've enhanced our world-class Pilot irrigation management platform and invested in groundbreaking rotor technology. All our products remain backed by industry-leading training and technical support.

TTS-800 Series Rotors

TTS-800 Series rotors provide maximum uniformity and longevity in the field. The high-torque gear drives are the strongest in the industry, so the challenges of reclaimed water use or poor water quality are mitigated.

An extra-large, fast-access flange compartment comfortably accommodates wire connections and other components.

Convenient, no-dig Total Top Serviceability means routine maintenance is a breeze.

See page 26 for more details.



Pilot Command Center Software

With newly enhanced Pilot Command Center software, superintendents can create hydraulically safe and efficient daily golf course watering plans faster than ever before. Pilot allows you to operate thousands of individually controlled sprinklers in seconds — right from the Command Center. From here, all watering changes can be performed from one easy-to-navigate screen.

See page 10 for more details.

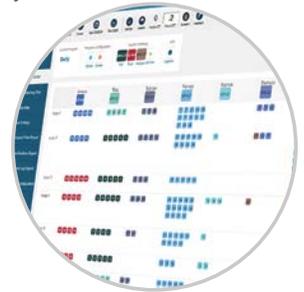


Table of CONTENTS

● PILOT NETWORK

- 9 Pilot Network
- 10 Pilot CCS
- 12 Pilot Field Controller Systems
- 14 Pilot Integrated Hub Systems
- 16 Weather Station
- 17 Maintenance Radio
- 17 ICD-HP

● GOLF ROTORS

- 22 TTS-800 Series
- 34 G-800 Series
- 42 B Series
- 50 G-900 Series

● SWING JOINTS AND ACCESSORIES

- 52 HSJ Swing Joints
- 55 Accessories
- 56 Tools

● LANDSCAPE SOLUTIONS

- 57 Landscape Solutions

● ROTORS

- 60 PGP® Ultra
- 61 PGP Ultra PRB
- 61 I-20 PRB
- 62 I-20
- 66 I-25
- 68 I-40
- 70 I-80
- 72 I-90

● MP ROTATOR®

- 74 MP Rotator
- 80 MP Rotator 800 Series

● SPRAY BODIES

- 83 Pro-Spray® PRS40

● VALVES

- 87 ICV
- 88 IBV
- 89 Accu Sync®
- 90 Quick Couplers
- 91 SnapLok™ Combo Kit

● LANDSCAPE AND ARCHITECTURAL LIGHTING

- 92 FX Luminaire

● HUNTER SUPPORT NETWORK

- 94 Hunter Support Network
- 95 Hunter Rapid Repair Kits

● TECHNICAL INFORMATION

- 98 Hunter Technical Services
- 99 Hunter University
- 100 Precipitation Rates
- 101 Conversion Factors
- 102 Symbols and Constants
- 103 Conductor Properties
- 103 Electrical Specifications
- 105 Current Requirement Charts
- 106 Ratios and Equations
- 107 Wire Data
- 108 Wire Sizing
- 109 Additional Data
- 110 Friction Loss Charts

● STATEMENT OF WARRANTY

- 118 Statement of Warranty



PILOT® NETWORK







PILOT NETWORK

TOTAL IRRIGATION CONTROL

PILOT COMMAND CENTER SOFTWARE



With industry-leading Pilot Command Center software (CCS), you can create a daily watering plan for thousands of individually controlled sprinklers in just minutes, right from an easy-to-navigate central screen. Pilot CCS allows you to safely balance sprinkler demand with water and electrical supply for the most efficient irrigation cycles possible.

PILOT INTEGRATED HUB SYSTEM

Thanks to integrated two-way modules, Pilot hub systems have a 999-station capacity and can run up to 120 stations simultaneously. Each hub has a plastic enclosure with a full-featured control panel. It can be used as a standalone device or connected to Pilot CCS as part of a Pilot network for flow-optimized irrigation management. Communication options within the Pilot network include wired, UHF radio, spread spectrum radio, or a mixture of all three.

PILOT FIELD CONTROLLER SYSTEM

The field controller has an 80-station capacity, so you can do more with less. Because each controller can run up to 20 stations at a time, they shorten your overall watering window. The full-featured controller has everything you need in a standalone field controller. For a fully automated, flow-optimized system, network all your controllers together with Pilot CCS. Communication options within the Pilot network include wired, UHF radio, spread spectrum radio, or a mixture of all three.

EASY TO PROGRAM AND MAINTAIN

Pilot CCS is an advanced software package designed to centrally manage all decision-making in a Pilot network. The heart of Pilot CCS is the Command Center. This convenient view allows you to quickly create and manage daily watering plans, tune the system to match your local environment, and produce hydraulically balanced watering instructions.

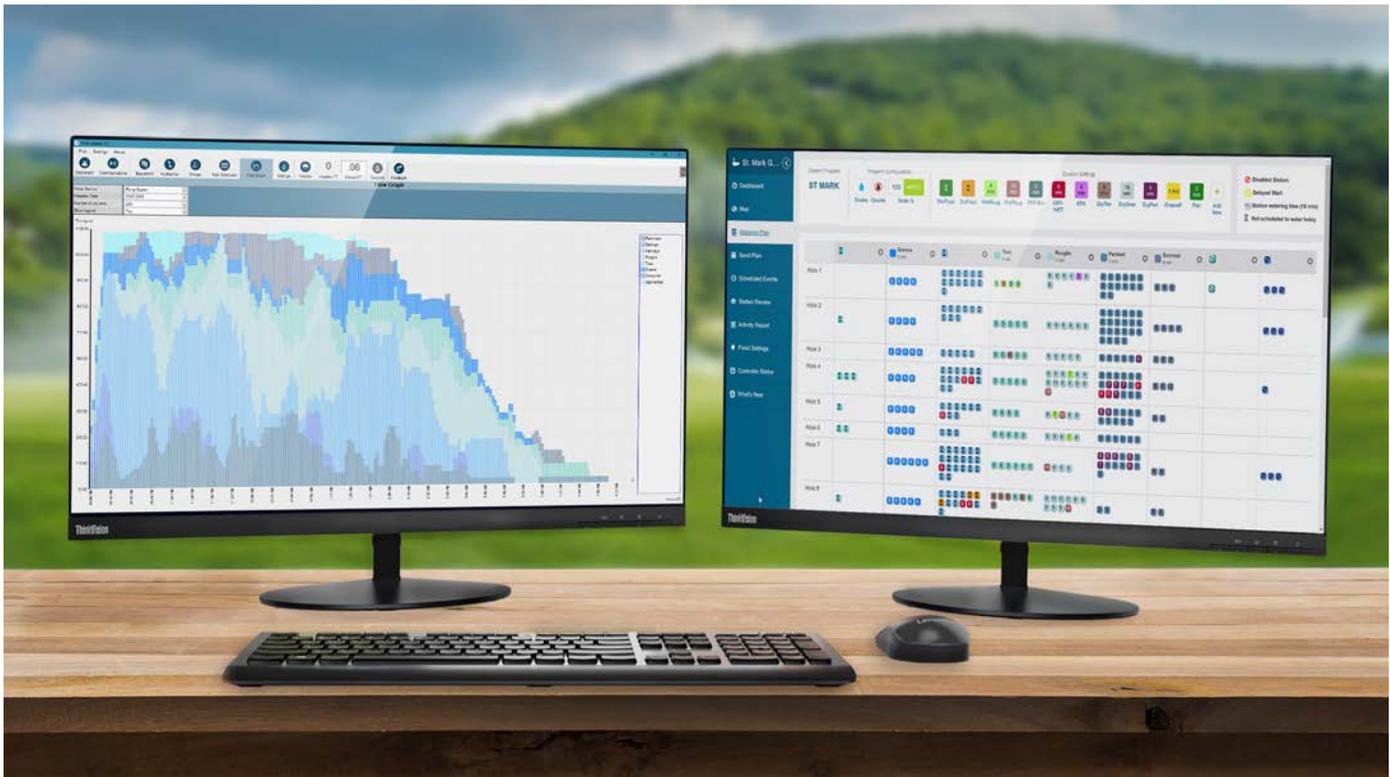
PILOT COMMAND CENTER SOFTWARE

PILOT NETWORK

Pilot Command Center software (CCS) is easy to use and has all the features you need to reliably and automatically water your course. Run times can be adjusted manually or determined automatically using ET. You create watering plans directly in the Command Center — a powerful irrigation planning tool that shows you every sprinkler on the course organized according to your management style.

PILOT SPECIFICATIONS

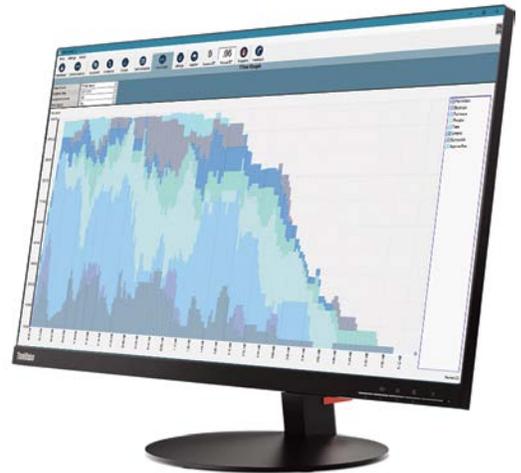
- First-year Pilot CCS packages include a complimentary one-year membership in the Hunter Support Network (HSN) and an uninterruptible power supply
- Operating system: 64-bit Windows®
- Maximum controllers or hubs: about 1,000
- Maximum two-way module stations: about 1 million
- Sprinkler run time options: minutes, inches, millimeters, or ET
- Hydraulic management: fully customizable down to individual stations
- Mapping: interactive and based on scalable vector graphics (SVG)



Windows is a trademark of Microsoft Corporation in the United States and/or other countries. Lenovo® and ThinkVision® are trademarks of Lenovo in the United States, other countries, or both.

SPEND LESS TIME RUNNING YOUR PUMP

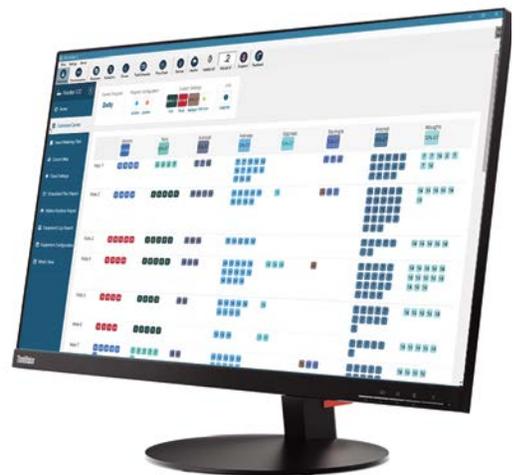
Pilot CCS uses your electrical and hydraulic data to efficiently balance sprinkler demand while maintaining flow at safe velocities. To protect your pump station and maintain optimal sprinkler uniformity, you can gradually step up irrigation in safe increments.



Flow Optimization

COMMAND CENTER

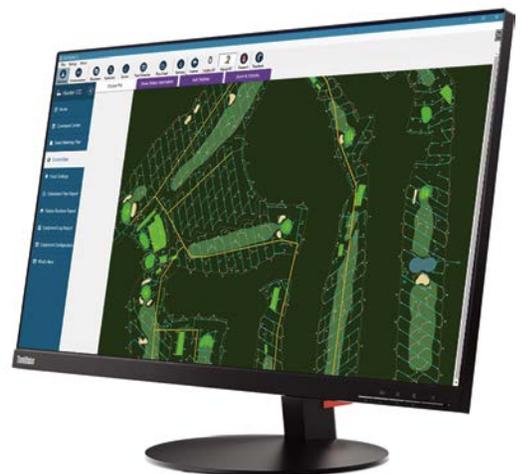
Planning daily watering for your course has never been simpler. The Command Center shows every sprinkler on the course, logically arranged according to your personal management requirements. You can easily make daily adjustments with just a few clicks of the mouse.



Command Center

MAPPING YOUR COURSE

Although having a map is not required, adding one allows you to run water by simply clicking the station symbols on the map. With this helpful feature, you can also monitor stations as they are running.



Maps

PILOT FIELD CONTROLLER SYSTEMS

Number of Stations: **80**
Type: **Field Controller**

FEATURES

- Five languages
- Up to 80 station outputs in 10-station increments
- Up to three Hunter golf valve-in-head rotors per station output
- Up to 20 simultaneous Hunter golf valve-in-head rotors active per controller
- 32 automatic schedules with eight start times per schedule
- Exclusive Safe-Toggle™ mechanical on-off-auto station switches
- 1-31 day skip-day scheduling
- One-touch rain shutdown up to 30 days or indefinitely
- One-touch Safe-Pause™ with 30-minute safety timer
- 1-300% run time seasonal adjustment
- Seasonal start time adjustment is used to quickly change all start times plus or minus 30 minutes



Pilot-FC Plastic Pedestal

Height: 39"
Width: 24"
Depth: 17"
Weight: 70 lbs.

POWER SUPPLY INPUT

Two voltage settings:

- 120 VAC nominal voltage at 60/50 Hz (100 to 132 VAC)
- 230 VAC nominal voltage at 50/60 Hz (200 to 260 VAC)

Current requirement:

- 1 amp under load at 110 VAC
- 0.7 amp under load at 230 VAC

For additional information, see electrical data on page 103.



Pilot-FI Field Interface

One is required with any Pilot network system. It is used to link the central computer to the field equipment. For indoor locations only.

Height: 12"
Width: 11½"
Depth: 3¼"
Weight: 4½ lbs.

OUTPUT VOLTAGE

- Station: 1 A at 24 VAC
- Hot post: 0.4 A at 24 VAC
- Capacity: Three standard 24 VAC Hunter golf rotors per output; 20 maximum simultaneously running stations

RADIO SYSTEMS

- UHF radio: 450-470 MHz; other UHF frequencies available for selected markets
- Spread spectrum radio: 915 MHz

WIRED SYSTEMS

- GCBL: Shielded two twisted pairs, 18 AWG
- GCBLA: Armored, shielded two twisted pairs, 18 AWG

PILOT-FI - SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Communication Options
Pilot-FI	Plastic pedestal (gray)	<p>HWR Wired communications</p> <p>UHF UHF radio (license required)</p> <p>LF 915 MHz spread-spectrum radio (no license needed)</p>

Examples:

Pilot-FI-HWR = Field interface with hardwire communications

Pilot-FI-UHF = Field interface with UHF radio communications

THE PILOT FIELD CONTROLLER IS ENGINEERED EXCLUSIVELY FOR GOLF COURSE IRRIGATION MANAGEMENT.



Water-Resistant Keypad
Large backlit display with convenient function buttons for the most commonly used features. Built-in system diagnostics make troubleshooting a breeze.

Safe-Toggle Station Switches and Diagnostic LED Indicators
Standard for all station outputs, these features provide quick troubleshooting and watering tools.

Conveniently Located Dual-Voltage (120/230 VAC) Junction Box
Features heavy-duty surge protection and even includes a spare fuse.

Easy to Service
The only tool required is a Phillips screwdriver, which is included with every controller.

Modular 10-Station Expansion Boards
Color-coded modular components have captured screws. This means no more lost screws, which simplifies assembly and troubleshooting.

Spacious Wiring Area
No exposed circuitry or loose wires. All circuit boards are encapsulated in polyurethane to protect them from moisture, insects, and temperature extremes.

PILOT-FC - SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Communication Options
Pilot-FC20 (20-station)	Plastic pedestal (gray) 120/230 VAC 60/50 Hz dual-voltage transformer	S Standalone field controller with no central communications
Pilot-FC30 (30-station)		HWR Wired communications
Pilot-FC40 (40-station)		UHF UHF radio (license required)
Pilot-FC50 (50-station)		LF 915 MHz spread-spectrum radio (no license needed)
Pilot-FC60 (60-station)		
Pilot-FC70 (70-station)		
Pilot-FC80 (80-station)		

Examples:
Pilot-FC40-S = 40-station, standalone field controller with no central communications
Pilot-FC70-HWR = 70-station field controller with wired communications

PILOT INTEGRATED HUB SYSTEMS

Number of Stations: **999**
Type: **Integrated Hub**

PILOT NETWORK

Integrated hub systems are one of the fastest growing forms of technology in irrigation control. A key advantage over field controller systems is that integrated hub systems use significantly less wire. This means lower costs, faster installation, and easier system diagnosis and repair if needed. Systems can be easily expanded — with minimal digging and disruption of landscaping — by adding more two-way modules (TWMs) instead of running additional wires.

Pilot embraces this cost-efficient approach. Pilot two-way modules are available with 1-, 2-, 4-, and 6-station outputs, making it possible to run each head on an entire green with a single device. In all, TWMs let you operate about 1,000 stations up to 1½ miles from a single hub.

Pilot two-way modules include built-in surge suppression, color-coded wire connections, true independent station control, programmable station addresses, and two-way feedback to the hub with confirmation and status indication. Pilot-SG surge suppressors are required when the system is designed and installed with golf rotors containing integrated TWMs.



TWM Hub

Water-Resistant Keypad

The backlit display and illuminated control panel mean you can easily access the hub, day or night

Diagnostic LED Indicators

For all functions on 250-station output modules

250-Station Output Modules

Enable your integrated hub system to expand with your course; start with 250 and grow to 999

Pilot TWMs

1- and 2-station:

Height: 3⅝"
Width: 1½"
Depth: 1"
Weight: 5 oz.

4- and 6-station:

Height: 3⅝"
Width: 1¾"
Depth: 1½"
Weight: 9 oz.



The distinct yellow design of TWMs makes them much easier to locate in dark valve boxes or buried in the soil.

PILOT-SG Surge Suppressor

All integrated TWM rotors include two 3M DBRY-6 splices for connection to the two-wire path. Integrated TWM systems require grounding with Pilot-SG surge suppressors coupled to an appropriate grounding plate or rod. Hunter recommends a minimum of one Pilot-SG for every 12 installed rotors or as per project specification.



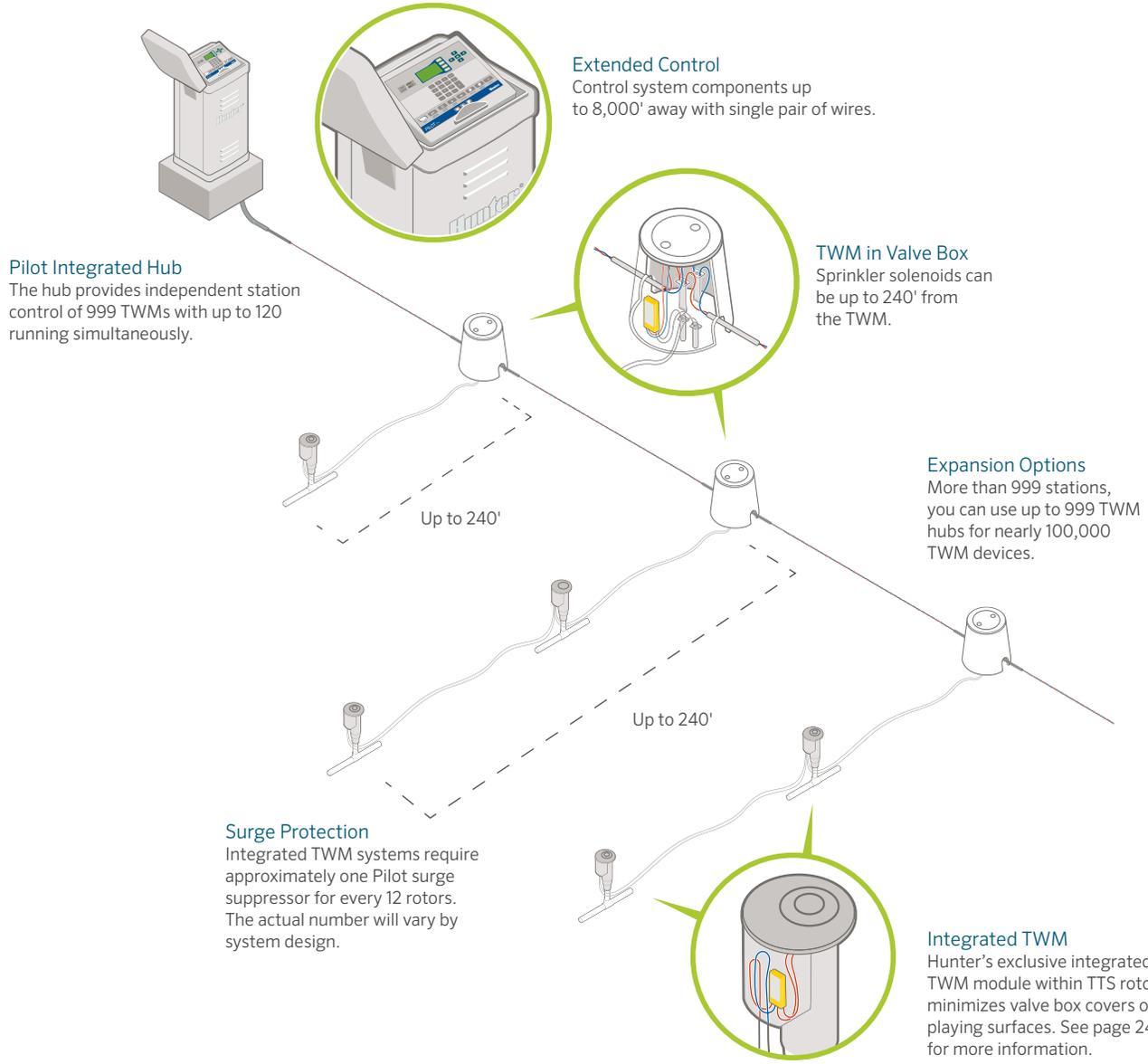
PILOT-DH - SPECIFICATION BUILDER ORDER 1 + 2 + 3

1 Model	2 Standard Features	3 Communication Options
Pilot-DH250 (250-station)	Plastic pedestal (gray)	S Standalone TWM hub with no central communications
Pilot-DH500 (500-station)		HWR Wired communications
Pilot-DH750 (750-station)		UHF UHF radio (license required)
Pilot-DH999 (999-station)		LF 915 MHz spread-spectrum radio (no license required)

Examples:

Pilot-DH250-S = 250-station, standalone TWM hub with no central communications

Pilot-DH999-HWR = 999-station TWM hub with wired communications



TWM - SPECIFICATION BUILDER ORDER 1		
1	Model	2 Standard Features
	Pilot-100	1-station TWM
	Pilot-200	2-station TWM
	Pilot-400	4-station TWM
	Pilot-600	6-station TWM
	Pilot-SG	Inline surge suppression (for integrated TWM rotor systems)
		Built-in surge suppressor
		DBRY-6 waterproof connectors included

Example:
Pilot-100 = 1-station TWM



Wireless Programming

This device is used to test, troubleshoot, and program integrated TWMs. It allows you to wirelessly link directly to TWMs without removing the TTS cover. You can also use it to update the coding inside the TWM's microprocessor.

See the ICD-HP on page 17

WEATHER STATION

Range: **Wireless, ½ mile**
 Type: **Weather Station**

FEATURES

- Includes built-in 60-day data logger: With onboard evapotranspiration (ET) calculation (modified Penman-Monteith equation for turf grass)
- Wireless package uses 2.4 GHz license-free technology
 - 2.4 GHz radio systems can reach up to 2,600'
 - In rural areas, try the license-free, 900 MHz radio for links up to 2,600'
- Wired systems use Hunter GCBL, direct-bury cable with a range of 400' (dedicated nine-pin serial computer port required)
- Optional solar panel kit provides wireless power
 - Simple installation and versatile mounting with onboard 800 mAh rechargeable gel cell battery with 18 VDC transformer and 20' power cable
- Weatherproof construction: With UV-stabilized enclosure, weatherproof external connectors and long-life coated circuit boards
- UL, c-UL, and CE certifications



TurfWeather Station

Height: 24"
 Width: 16"
 Depth: 15"
 Weight: 13 lbs.

COMPLETE PACKAGES INCLUDE HUNTER WEATHER SOFTWARE

Model	Description
TWHW	Wired communications to central computer (GCBL cable required)
TW24	2.4 GHz license-free radio communication to central computer
TW916	916 MHz license-free radio communication to central computer
TW922A	922 MHz license-free radio communication to central computer
TWSUN	Optional solar power kit for all TurfWeather models

MAINTENANCE RADIO

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

FEATURES

- Hunter's famous StraightTalk™ technology enables wireless remote control at ranges up to 2 miles whether or not the central computer is turned on
- Instant control of stations, blocks, and programs
- Instant audio confirmation of commands
- Easy commands that show in display before sending
- Compact size, industrial construction
- Suitable for two-way voice communication with crews and office
- High signal output: 2 watts, UHF (450-470 MHz)*

* License required



TRNR Radio
 Height: 4"
 Width: 2"
 Depth: 1¼"
 Weight: 7 oz.

ICD-HP

Type: **Two-Way Module Programmer**

FEATURES

- Wirelessly program TWM addresses
- Program TWM station numbers in any order, or skip stations for future expansion
- Turn stations on and view solenoid status, current in milliamps, and more
- Built-in voltmeter for testing communication path
- Communicates with TWMs directly through plastic case; wireless electromagnetic induction saves waterproof connectors
- Communicates through the top of integrated TWM rotor cases; no cover removal required



ICD-HP
 Height: 8¼"
 Width: 3⅞"
 Depth: 2"

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

ICD-HP



ROTOR SOLUTIONS FOR EVERY GOLF COURSE

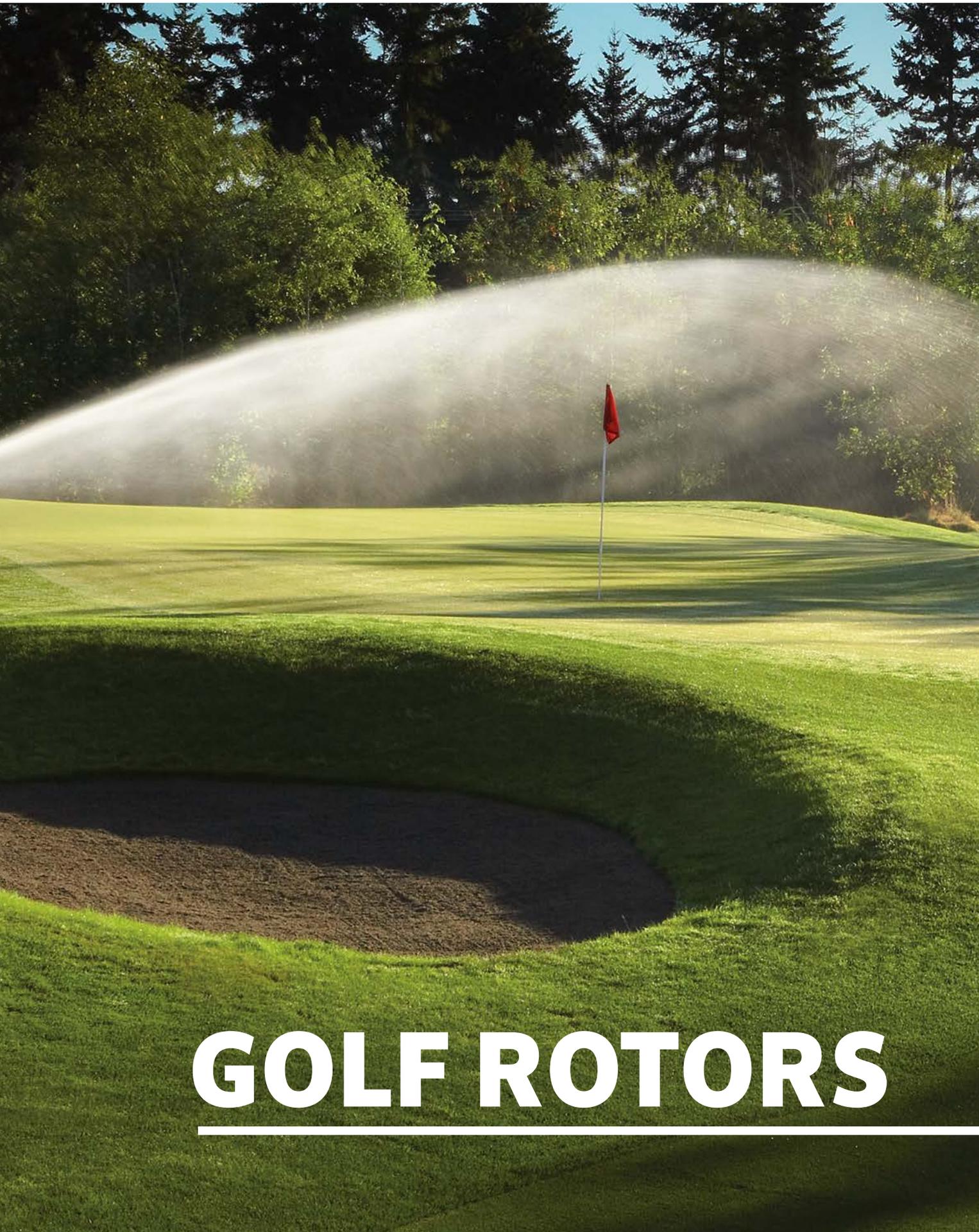
INTRODUCING THE TTS-800 SERIES: THE MOST ADVANCED ROTORS IN THE GOLF INDUSTRY

Over the last three decades, Hunter Industries has built a longstanding reputation for innovation in the golf industry. Introductions such as the first Windows-based central control system, the first Total-Top-Service (TTS) rotors, the first Decoder-In-Head (DIH) rotors with integrated two-way modules, and the powerful and water-efficient G85 gear-drives are among these revolutionary innovations.

Now, we are proud to advance our legacy of firsts with our all-new TTS-800 Series rotors — the most innovative and technologically advanced rotors in the industry. TTS-800 Series rotors provide maximum uniformity and longevity in the field. The high-torque gear drives are the strongest in the industry, so the potential challenges of reclaimed water use or poor water quality are mitigated. The fast-access flange compartment is the largest in the industry and can accommodate full-sized DBRY-6 splice connectors. And with no-dig Total Top Serviceability, the TTS-800 provides solenoid and pressure regulator servicing without mainline depressurization, making routine maintenance a breeze.

So, whether your irrigation requirements fall into our budget-conscious B-Series category, the advanced G-800 Series rotors, or our top-of-the-line TTS-800 Series rotors, Hunter Industries offers total solutions that will exceed your expectations and ensure beautiful, playable courses for years to come.





GOLF ROTORS



UNIFORMITY YOU CAN COUNT ON

Playability and water efficiency go hand-in-hand when it comes to golf course management. This means great distribution uniformity and proper irrigation scheduling are crucial to ensuring world-class performance and beautiful results.

Healthy, playable turf starts with a well-designed irrigation system and top-level golf rotors — like Hunter's ultra-reliable TTS-880 and TTS-885, with their superior distribution uniformity. Couple this with the best support team in the business, and Hunter's golf solutions are second to none.

At Hunter Golf, we pride ourselves in providing products that set the standard in efficiency. Each year, we work directly with golf course superintendents worldwide to conduct comprehensive irrigation system audits that maximize water savings, reduce operating costs, and enhance the golf experience for players and course managers alike.

Choose Hunter Golf products for best-in-class performance and enhanced playability.

GEAR DRIVES

POWER, PERFORMANCE, AND VERSATILITY



POWERFUL GEAR DRIVES

MEET THE G-80 FULL-CIRCLE DIRECT-DRIVE DYNAMO

In 2013, Hunter introduced the revolutionary G-85 gear-drive, the most powerful in the golf industry. Since then, the G-85's reputation for power, performance, and versatility have earned the respect of professionals industry-wide. While the G-85 has an adjustable arc drive with triple forward-facing nozzles, it can also be adjusted to non-reversing full-circle rotation. In addition, the G-85 can be configured at the factory as a G-84 in an opposing-nozzle full-circle configuration.

Now, in 2019, Hunter completes the trilogy with the introduction of the new direct-drive G-80 full-circle dynamo — with power to spare. The dedicated full-circle G-80 melds the tried and proven 2006 to 2018 G-80 gearbox with the G-85's outstanding platform to create the best full-circle gear drive in the golf industry.

DUAL-TRAJECTORY FLEXIBILITY



Standard Nozzles



Low-Angle Nozzles

The G-80 and the G-84/G-85 gear drives share the same primary nozzle sets. Each gear drive has dedicated short and mid-range nozzles that when combined with the primary nozzles create the uniformity you can count on. Choose from a wide assortment of efficient wind-fighting 22.5° standard trajectory nozzles, or 15° low-angle trajectory nozzles.

Either way, there is a perfect match for your unique course conditions and problem-solving needs. Regardless of the version you choose, changing nozzles is fast and easy with Hunter's exclusive QuickChange technology.

TTS-800 VIH GOLF ROTORS

ADVANCED FEATURES

Total-Top-Service (TTS)



Access Everything Through the Top

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



Large and Flexible Yardage Marker Capabilities

Oversized marker plates with standard black or red, white, blue, and purple options



Largest Flange Compartment in the Industry

Spacious cavity with enough room for full-sized 3M DBRY-6 splice connectors



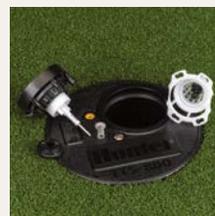
Unitized Inlet Valve Design Includes Serviceable Components

Contamination damage is quickly resolved with replaceable valve seat and seat-seal



Easy Access and Servicing of Solenoid and Pressure Regulators

Color-coded components are removed and replaced without mainline depressurization



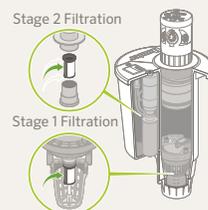
Exclusive Inlet Valve Includes Self-Cleaning Capabilities

Filter Sentry® technology wipes debris from the stainless-steel screen with every activation



Single-Point Fast-Access to Flange Compartment

Extra-thick compartment lid is retained with stainless-steel ¼-turn fastener



Two-Stage Serviceable Filtration in Valve Circuitry

Oversize stainless-steel screens at inlet valve and pilot valve are easily cleaned or replaced



Heavy-Duty Flanged and Ribbed Body Design

Impact-resistant and ultra-durable design includes extra-strength PVC Acme inlet



Three Cable Entry Ports at Base of Flange Compartment

Makes splice and cable connections fast, easy, and organized



Low-Bounce Rubber Cover Kit

Impact-absorbing design reduces ball ricochet around the greens



No-Bounce Turf Cup Kit

Recessed turf cup design is aesthetically clean and eliminates ball ricochet

TTS-800 DIH GOLF ROTORS

ADVANCED FEATURES



Access Everything, Including Two-Way Modules, Through the Top

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



Largest Flange DIH Compartment in the Industry

Spacious cavity with enough room for two-way modules and full-sized 3M DBRY-6 splice connectors



Two-Way Modules Are Housed in the DIH Rotor's Spacious Flange Compartment

Improves playability and eliminates unsightly enclosures around the course



Programming Two-Way Modules Wirelessly From the Surface with No Disassembly

Quick and easy to program and perform diagnostics before or after installation with ICD-HP



Individual Two-Way Module and Solenoid Components Within Flange Compartment

Isolated/separated configuration minimizes yearly maintenance costs



Two-Station DIH Rotor Option

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



State-of-the-Art Surge Suppression

Earth grounding is easily added with the Pilot-SG surge protector



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

Makes splice and cable connections fast, easy, and clean



Seamless No-Splice Connection Between Two-Way Module and Solenoid

With no connectors, maintains ongoing electrical continuity



Durability, Efficiency, and Reliability from the Makers of the Industry's First TTS and DIH Rotors

Peace of mind from the world's leading producer of gear-driven rotors

TTS-800 SERIES

Model: **TTS-880**
 Radius: **49' to 97'**
 Flow: **14.2 to 58.5 GPM**

FEATURES

- Model: TTS-880 – Full-circle
- Dual-trajectory, color-coded nozzles:
 - 10 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Stainless-steel riser
- Water-lubricated gear drive
- ▶ All TTS-800 VIH advanced features
- ▶ All TTS-800 DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 49' to 97'
- Flow: 14.2 to 58.5 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C – Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D – Decoder Valve-in-Head with all “E” specifications below*
- DD – Two-station Decoder Valve-in-Head with all “E” specifications below*
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



TTS-880
 Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

TTS-880 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
GT-880 = Full-circle	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	15 to 53 = Installed G880 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 15 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:
 GT-880 - E - 48 - P8 - S = GT-880 full-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

TTS-880 NOZZLE PERFORMANCE DATA*							
Nozzle Set		Pressure	Radius	Flow	Precip in/hr		
		PSI	ft.	GPM	■	▲	
●							
Tan	15 White	●	50	49	14.2	0.57	0.66
803611		●	60	51	15.7	0.58	0.67
		●	65	52	16.4	0.58	0.67
		●	70	53	17.0	0.58	0.67
		●	80	55	18.2	0.58	0.67
●							
Tan	18 Orange	●	50	56	17.2	0.53	0.61
803611		●	60	58	18.8	0.54	0.62
		●	65	59	19.7	0.54	0.63
		●	70	60	20.0	0.53	0.62
		●	80	61	21.2	0.55	0.63
●							
Tan	20 Brown	●	50	57	18.4	0.55	0.63
803611		●	60	59	20.3	0.56	0.65
		●	65	61	21.4	0.55	0.64
		●	70	63	21.6	0.52	0.60
		●	80	64	22.7	0.53	0.62
●							
Tan	23 Green	●	50	63	21.6	0.52	0.60
803611		●	60	65	23.0	0.52	0.61
		●	65	66	24.0	0.53	0.61
		●	70	67	24.9	0.53	0.62
		●	80	68	26.6	0.55	0.64
●							
Tan	25 Blue	●	65	71	28.6	0.55	0.63
803611		●	70	73	29.7	0.54	0.62
		●	80	74	31.7	0.56	0.64
		●	90	75	33.7	0.58	0.67
		●	100	77	35.8	0.58	0.67
●							
Tan	33 Gray	●	65	74	30.9	0.54	0.63
803611		●	70	75	32.0	0.55	0.63
		●	80	77	34.2	0.56	0.64
		●	90	79	36.2	0.56	0.64
		●	100	81	38.2	0.56	0.65
●							
Tan	38 Red	●	65	77	35.1	0.57	0.66
803611		●	70	79	36.6	0.56	0.65
		●	80	82	38.9	0.56	0.64
		●	90	84	41.3	0.56	0.65
		●	100	87	43.6	0.55	0.64
●							
Tan	43 Dk. Brown	●	-	-	-	-	-
803611		●	70	83	41.3	0.58	0.67
		●	80	85	43.6	0.58	0.67
		●	90	87	46.3	0.59	0.68
		●	100	89	48.8	0.59	0.68
●							
Dk. Brown	48 Dk. Green	●	-	-	-	-	-
803610		●	70	90	46.9	0.56	0.64
		●	80	92	48.9	0.56	0.64
		●	90	94	50.5	0.55	0.63
		●	100	96	53.5	0.56	0.65
●							
Dk. Brown	53 Dk. Blue	●	-	-	-	-	-
803610		●	70	91	49.8	0.58	0.67
		●	80	93	52.2	0.58	0.67
		●	90	95	55.5	0.59	0.68
		●	100	97	58.5	0.60	0.69

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

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

TTS-880 STANDARD NOZZLES TTS-880 LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%



Easy-Access Servicing

An extra-thick compartment lid is retained with a ¼-turn, stainless-steel, single-point fastener.



Spacious Flange Compartment

The largest and deepest compartment in the industry offers plenty of room for full-sized DBRY-6 splice connectors.

TTS-800 SERIES

Model: **TTS-884**
 Radius: **49' to 97'**
 Flow: **14.2 to 58.5 GPM**

FEATURES

- Model: TTS-884 – Full-circle
- Dual-trajectory, color-coded nozzles:
 - 10 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Stainless-steel riser
- Water-lubricated gear drive
- ▶ All TTS-800 VIH advanced features
- ▶ All TTS-800 DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 49' to 97'
- Flow: 14.2 to 58.5 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C – Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D – Decoder Valve-in-Head with all “E” specifications below*
- DD – Two-station Decoder Valve-in-Head with all “E” specifications below*
- E – Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = *TTS and DIH Advanced Features detailed on pages 22 and 24*



TTS-884
 Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

TTS-884 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
GT-884 = Full-circle (convertible to forward-facing adjustable arc rotor)	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	15 to 53 = Installed G880 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 15 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:
 GT-884 - E - 48 - P8 - S = GT-884 full-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

TTS-884 NOZZLE PERFORMANCE DATA*							
Nozzle Set			Pressure	Radius	Flow	Precip in/hr	
			PSI	ft.	GPM	■	▲
●	○	●	50	49	14.2	0.57	0.66
Tan	15	Gray	60	51	15.7	0.58	0.67
803611		White	65	52	16.4	0.58	0.67
		315317	70	53	17.0	0.58	0.67
			80	55	18.2	0.58	0.67
●	○	●	50	56	17.2	0.53	0.61
Tan	18	Gray	60	58	18.8	0.54	0.62
803611		Orange	65	59	19.7	0.54	0.63
		315317	70	60	20.0	0.53	0.62
			80	61	21.2	0.55	0.63
●	○	●	50	57	18.4	0.55	0.63
Tan	20	Gray	60	59	20.3	0.56	0.65
803611		Brown	65	61	21.4	0.55	0.64
		315317	70	63	21.6	0.52	0.60
			80	64	22.7	0.53	0.62
●	○	●	50	63	21.6	0.52	0.60
Tan	23	Lt. Blue	60	65	23.0	0.52	0.61
803611		Green	65	66	24.0	0.53	0.61
		315311	70	67	24.9	0.53	0.62
			80	68	26.6	0.55	0.64
●	○	●	65	71	28.6	0.55	0.63
Tan	25	Lt. Blue	70	73	29.7	0.54	0.62
803611		Blue	80	74	31.7	0.56	0.64
		315311	90	75	33.7	0.58	0.67
			100	77	35.8	0.58	0.67
●	○	●	65	74	30.9	0.54	0.63
Tan	33	Lt. Blue	70	75	32.0	0.55	0.63
803611		Gray	80	77	34.2	0.56	0.64
		315311	90	79	36.2	0.56	0.64
			100	81	38.2	0.56	0.65
●	○	●	65	77	35.1	0.57	0.66
Tan	38	Lt. Blue	70	79	36.6	0.56	0.65
803611		Red	80	82	38.9	0.56	0.64
		315311	90	84	41.3	0.56	0.65
			100	87	43.6	0.55	0.64
●	○	●	-	-	-	-	-
Tan	43	Blue	70	83	41.3	0.58	0.67
803611		Dk. Brown	80	85	43.6	0.58	0.67
		315315	90	87	46.3	0.59	0.68
			100	89	48.8	0.59	0.68
●	○	●	-	-	-	-	-
Dk. Brown	48	Dk. Blue	70	90	46.9	0.56	0.64
803610		Dk. Green	80	92	48.9	0.56	0.64
		833500	90	94	50.5	0.55	0.63
			100	96	53.5	0.56	0.65
●	○	●	-	-	-	-	-
Dk. Brown	53	Dk. Blue	70	91	49.8	0.58	0.67
803610		Dk. Blue	80	93	52.2	0.58	0.67
			90	95	55.5	0.59	0.68
			100	97	58.5	0.60	0.69

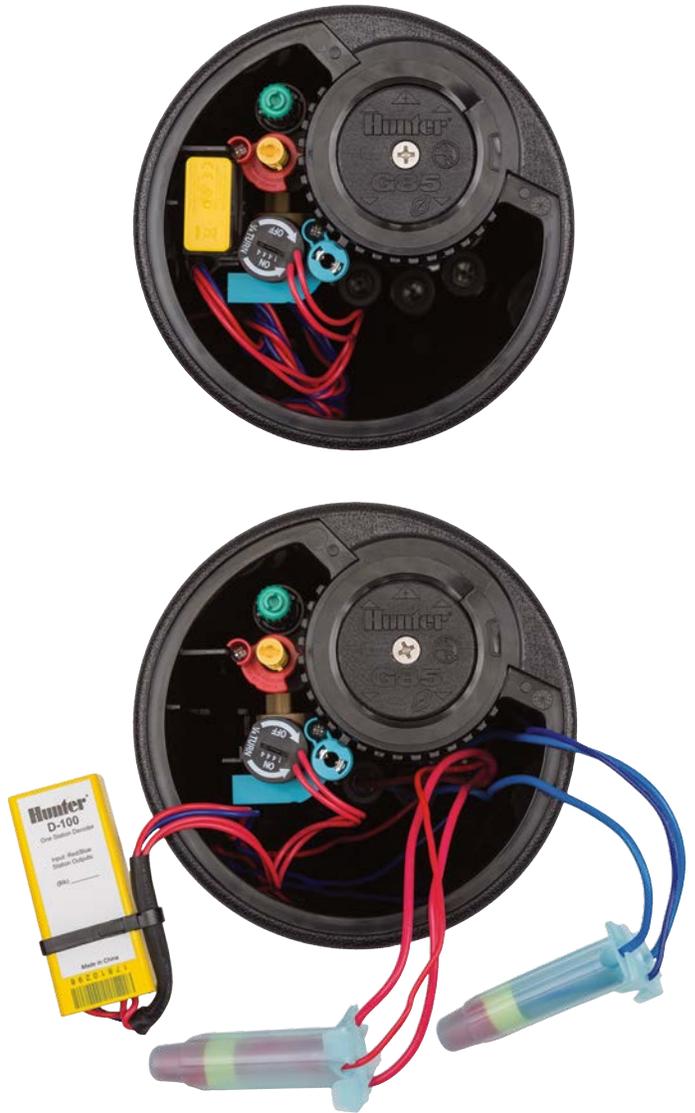
● = Nozzle plug P/N 315300 installed in the front side of the nozzle housing.

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

TTS-884 STANDARD NOZZLES TTS-884 LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%



Room to Spare

Adding a two-way module does not reduce flange compartment space. The exclusive configuration provides extra room for full-sized DBRY-6 splice connectors and multiple cables.

TTS-800 SERIES

Model: **TTS-885**
 Radius: **37' to 94'**
 Flow: **8.9 to 59.6 GPM**

FEATURES

- Model: TTS-885 - True full-circle/adjustable part-circle (60° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Dual-trajectory, color-coded nozzles:
 - 12 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #10 to #53
- Exclusive PressurePort™ nozzle technology
- Contour “Back-Nozzle” capabilities
- Ratcheting stainless-steel riser
- Water-lubricated gear drive
- ▶ All TTS-800 VIH advanced features
- ▶ All TTS-800 DIH advanced features



TTS-885
 Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

OPERATING SPECIFICATIONS

- Radius: 37' to 94'
- Flow: 8.9 to 59.6 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C - Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D - Decoder Valve-in-Head with all “E” specifications below*
- DD - Two-station Decoder Valve-in-Head with all “E” specifications below*
- E - Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190mA (350mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24

TTS-885 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
GT-885 = Full/Part-Circle 60°-360° Arc Range	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	10 to 53 = Installed G885 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 10 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:

GT-885 - E - 48 - P8 - S = GT-885 full/part-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

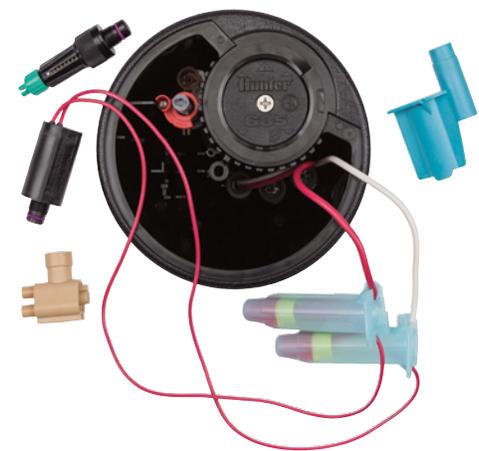
TTS-885 NOZZLE PERFORMANCE DATA*							
Nozzle Set			Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
						■	▲
Orange	10	Dk. Green	50	37	8.9	0.63	0.72
803603		315312	60	39	9.8	0.62	0.72
●			65	41	10.2	0.58	0.67
●		Lt. Green	●	-	-	-	-
Orange	13	White	50	47	11.4	0.50	0.57
803603		315314	60	48	12.3	0.51	0.59
●			65	49	12.9	0.52	0.60
●		Lt. Blue	●	-	-	-	-
Orange	15	White	50	52	12.9	0.46	0.53
803603		315314	60	52	14.5	0.52	0.60
●			65	53	14.9	0.51	0.59
●			70	53	15.5	0.53	0.61
●		White	●	80	54	16.5	0.54
Orange	18	Lt. Green	50	57	16.6	0.49	0.57
803603		315313	60	58	17.8	0.51	0.59
●			65	59	18.6	0.51	0.59
●			70	60	19.4	0.52	0.60
●		Orange	●	80	61	20.5	0.53
Orange	20	Lt. Green	50	59	17.9	0.49	0.57
803603		315313	60	61	19.5	0.50	0.58
●			65	62	19.8	0.50	0.57
●			70	63	20.6	0.50	0.58
●		Tan	●	80	64	22.1	0.52
Orange	23	Lt. Green	50	65	20.2	0.46	0.53
803603		315313	60	66	22.1	0.49	0.56
●			65	67	23.9	0.51	0.59
●			70	67	24.2	0.52	0.60
●		Green	●	80	69	25.9	0.52
Red	25	Green	65	71	28.3	0.54	0.62
803602		315310	70	72	29.3	0.54	0.63
●			80	73	31.5	0.57	0.66
●			90	74	33.4	0.59	0.68
●		Blue	●	100	75	35.4	0.61
Red	33	Green	65	72	30.6	0.57	0.66
803602		315310	70	73	31.6	0.57	0.66
●			80	75	33.9	0.58	0.67
●			90	77	35.8	0.58	0.67
●		Gray	●	100	79	37.9	0.58
Red	38	Green	65	76	34.9	0.58	0.67
803602		315310	70	78	36.2	0.57	0.66
●			80	80	39.1	0.59	0.68
●			90	82	41.2	0.59	0.68
●		Red	●	100	84	43.5	0.59
Red	43	Green	-	-	-	-	-
803602		315310	70	81	41.2	0.60	0.70
●			80	83	43.5	0.61	0.70
●			90	86	46.2	0.60	0.69
●		Dk. Brown	●	100	89	48.7	0.59
Dk. Red	48	Dk. Green	-	-	-	-	-
803601		315312	70	83	46.3	0.65	0.75
●			80	85	48.4	0.64	0.74
●			90	89	51.7	0.63	0.73
●		Dk. Green	●	100	91	54.5	0.63
Dk. Red	53	Dk. Green	-	-	-	-	-
803601		315312	70	87	50.7	0.64	0.74
●			80	89	53.1	0.65	0.75
●			90	92	56.4	0.64	0.74
●		Dk. Blue	●	100	94	59.6	0.65

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

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

TTS-885 STANDARD NOZZLES

TTS-885 LOW-ANGLE NOZZLES**



Reduced Downtime

There is no need to depressurize the mainline for solenoid and pressure regulator servicing.



Total-Top-Service Solution

From the originators of TTS technology, Hunter's no-dig TTS-800 rotors provide total-top-servicing of every serviceable component.

TTS-800 SERIES

Model: **TTS-835**
 Radius: **18' to 50'**
 Flow: **1.9 to 12.8 GPM**

FEATURES

- Model: TTS-835: Full/Part-circle (50° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Nozzle choices: 8 multi-trajectory (15° to 25°)
- Nozzle range: #2 to #12
- Water-lubricated gear drive
- ▶ All TTS-800 VIH advanced features
- ▶ All TTS-800 DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 18' to 50'
- Flow: 1.9 to 12.8 GPM
- Pressure range: 40 to 65 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C - Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D - Decoder Valve-in-Head with all "E" specifications below*
- DD - Two-station Decoder Valve-in-Head with all "E" specifications below*
- E - Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



TTS-835
 Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

TTS-835 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
GT-835 = Full/Part-Circle 50 to 360°	C = Check-O-Matic * D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	6 = Installed G835 Nozzle * * SSU = #6 Includes 8-nozzle rack	P5 = 50 PSI (nozzles 2 to 12) P6 = 65 PSI (nozzles 10 to 12) * SSU = P5/#6	S = SSU * * Standard Stocking Unit

Examples:

GT-835 - 6 - P5 - S = GT-835 full/part-circle electric valve-in-head, installed #6 nozzle, 50 PSI regulation, standard stocking unit model

TTS-835 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
2 Yellow	40	18	1.9	0.56	0.65
	50	20	2.1	0.51	0.58
	60	22	2.4	0.48	0.55
	65	23	2.6	0.47	0.55
3 Yellow	40	23	3.0	0.55	0.63
	50	25	3.2	0.49	0.57
	60	27	3.5	0.46	0.53
4 Yellow	65	28	3.6	0.44	0.51
	40	25	3.9	0.60	0.69
	50	28	4.1	0.50	0.58
	60	30	4.4	0.47	0.54
5 Yellow	65	31	4.6	0.46	0.53
	40	29	4.7	0.54	0.62
	50	32	5.0	0.47	0.54
	60	33	5.3	0.47	0.54
6 Yellow	65	35	5.4	0.42	0.49
	40	32	6.0	0.56	0.65
	50	35	6.3	0.50	0.57
	60	37	6.6	0.46	0.54
8 Yellow	65	39	6.8	0.43	0.50
	40	36	7.8	0.58	0.67
	50	39	8.0	0.51	0.58
	60	42	8.3	0.45	0.52
10 Yellow	65	43	8.5	0.44	0.51
	40	39	9.7	0.61	0.71
	50	43	10.1	0.53	0.61
	60	45	10.3	0.49	0.57
12 Yellow	65	47	10.5	0.46	0.53
	40	44	12.0	0.60	0.69
	50	47	12.2	0.53	0.61
	60	48	12.5	0.52	0.60
65	50	12.8	0.49	0.57	

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

TTS-835 NOZZLES



Optional Yardage Marker Colors

Extra-large snap-in marker plates are available in standard black as well as optional red, white, and blue to meet every golf course preference. Or, choose the purple plate for identification when courses are using reclaimed water.

GOLF ROTORS



Low-Bounce Rubber Cover Kit - PN 987200SP

Reduce the incoming bounce from balls hitting rotors that are surrounding the greens.



No-Bounce Turf Cup Kit - PN 987100SP

Eliminate errant bounces from balls hitting greens surrounding rotors with this subsurface rotor-mounting solution.

G-800 SERIES

Model: **G-880**
 Radius: **49' to 97'**
 Flow: **14.2 to 58.5 GPM**

FEATURES

- Model: G-884 – Full-circle
- Dual-trajectory, color-coded nozzles:
 - 10 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Stainless-steel riser
- Water-lubricated gear drive
- ▶ Select TTS advanced features
- ▶ Select DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 49' to 97'
- Flow: 14.2 to 58.5 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C – Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through-the-top connections
- D – Decoder Valve-in-Head with all “E” specifications below*
- DD – Two-station Decoder Valve-in-Head with all “E” specifications below*
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



G-880C

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme



G-880E

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

G-880 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G-880 = Full-circle	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	15 to 53 = Installed G880 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 15 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:

G-880 - E - 48 - P8 - S = G-880 full-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G-880 NOZZLE PERFORMANCE DATA*							
Nozzle Set		Pressure	Radius	Flow	Precip in/hr		
		PSI	ft.	GPM	■	▲	
●		50	49	14.2	0.57	0.66	
Tan	15	60	51	15.7	0.58	0.67	
●		65	52	16.4	0.58	0.67	
●		70	53	17.0	0.58	0.67	
●		80	55	18.2	0.58	0.67	
803611		White	315317				
●		50	56	17.2	0.53	0.61	
Tan	18	60	58	18.8	0.54	0.62	
●		65	59	19.7	0.54	0.63	
●		70	60	20.0	0.53	0.62	
●		80	61	21.2	0.55	0.63	
803611		Orange	315317				
●		50	57	18.4	0.55	0.63	
Tan	20	60	59	20.3	0.56	0.65	
●		65	61	21.4	0.55	0.64	
●		70	63	21.6	0.52	0.60	
●		80	64	22.7	0.53	0.62	
803611		Brown	315317				
●		50	63	21.6	0.52	0.60	
Tan	23	60	65	23.0	0.52	0.61	
●		65	66	24.0	0.53	0.61	
●		70	67	24.9	0.53	0.62	
●		80	68	26.6	0.55	0.64	
803611		Green	315311				
●		65	71	28.6	0.55	0.63	
Tan	25	70	73	29.7	0.54	0.62	
●		80	74	31.7	0.56	0.64	
●		90	75	33.7	0.58	0.67	
●		100	77	35.8	0.58	0.67	
803611		Blue	315311				
●		65	74	30.9	0.54	0.63	
Tan	33	70	75	32.0	0.55	0.63	
●		80	77	34.2	0.56	0.64	
●		90	79	36.2	0.56	0.64	
●		100	81	38.2	0.56	0.65	
803611		Gray	315311				
●		65	77	35.1	0.57	0.66	
Tan	38	70	79	36.6	0.56	0.65	
●		80	82	38.9	0.56	0.64	
●		90	84	41.3	0.56	0.65	
●		100	87	43.6	0.55	0.64	
803611		Red	315311				
●		-	-	-	-	-	
Tan	43	70	83	41.3	0.58	0.67	
●		80	85	43.6	0.58	0.67	
●		90	87	46.3	0.59	0.68	
●		100	89	48.8	0.59	0.68	
803611		Dk. Brown	315315				
●		-	-	-	-	-	
Dk. Brown	48	70	90	46.9	0.56	0.64	
●		80	92	48.9	0.56	0.64	
●		90	94	50.5	0.55	0.63	
●		100	96	53.5	0.56	0.65	
803610		Dk. Green	833500				
●		-	-	-	-	-	
Dk. Brown	53	70	91	49.8	0.58	0.67	
●		80	93	52.2	0.58	0.67	
●		90	95	55.5	0.59	0.68	
●		100	97	58.5	0.60	0.69	
803610		Dk. Blue	833500				

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

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

G-880 STANDARD NOZZLES

G-880 LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%



TTS Means Convenience and Versatility

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

G-800 SERIES

Model: **G-884**
 Radius: **49' to 97'**
 Flow: **14.2 to 58.5 GPM**

FEATURES

- Model: G-884 – Full-circle
- Dual-trajectory, color-coded nozzles:
 - 10 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Stainless-steel riser
- Water-lubricated gear drive
- ▶ Select TTS advanced features
- ▶ Select DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 49' to 97'
- Flow: 14.2 to 58.5 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C – Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D – Decoder Valve-in-Head with all “E” specifications below*
- DD – Two-station Decoder Valve-in-Head with all “E” specifications below*
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



G-884C

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: ½" Acme



G-884E

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: ½" Acme

G-884 – SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G-884 = Full-circle (convertible to forward-facing adjustable arc rotor)	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	15 to 53 = Installed G880 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 15 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:

G-884 - E - 48 - P8 - S = G884 full-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G-884 NOZZLE PERFORMANCE DATA*							
Nozzle Set		Pressure	Radius	Flow	Precip in/hr		
		PSI	ft.	GPM	■	▲	
●		50	49	14.2	0.57	0.66	
Tan	15	60	51	15.7	0.58	0.67	
●		65	52	16.4	0.58	0.67	
●		70	53	17.0	0.58	0.67	
803611		80	55	18.2	0.58	0.67	
●		50	56	17.2	0.53	0.61	
Tan	18	60	58	18.8	0.54	0.62	
●		65	59	19.7	0.54	0.63	
●		70	60	20.0	0.53	0.62	
803611		80	61	21.2	0.55	0.63	
●		50	57	18.4	0.55	0.63	
Tan	20	60	59	20.3	0.56	0.65	
●		65	61	21.4	0.55	0.64	
●		70	63	21.6	0.52	0.60	
803611		80	64	22.7	0.53	0.62	
●		50	63	21.6	0.52	0.60	
Tan	23	60	65	23.0	0.52	0.61	
●		65	66	24.0	0.53	0.61	
●		70	67	24.9	0.53	0.62	
803611		80	68	26.6	0.55	0.64	
●		65	71	28.6	0.55	0.63	
Tan	25	70	73	29.7	0.54	0.62	
●		80	74	31.7	0.56	0.64	
●		90	75	33.7	0.58	0.67	
803611		100	77	35.8	0.58	0.67	
●		65	74	30.9	0.54	0.63	
Tan	33	70	75	32.0	0.55	0.63	
●		80	77	34.2	0.56	0.64	
●		90	79	36.2	0.56	0.64	
803611		100	81	38.2	0.56	0.65	
●		65	77	35.1	0.57	0.66	
Tan	38	70	79	36.6	0.56	0.65	
●		80	82	38.9	0.56	0.64	
●		90	84	41.3	0.56	0.65	
803611		100	87	43.6	0.55	0.64	
●		-	-	-	-	-	
Tan	43	70	83	41.3	0.58	0.67	
●		80	85	43.6	0.58	0.67	
●		90	87	46.3	0.59	0.68	
803611		100	89	48.8	0.59	0.68	
●		-	-	-	-	-	
Dk. Brown	48	70	90	46.9	0.56	0.64	
●		80	92	48.9	0.56	0.64	
●		90	94	50.5	0.55	0.63	
803610		100	96	53.5	0.56	0.65	
●		-	-	-	-	-	
Dk. Brown	53	70	91	49.8	0.58	0.67	
●		80	93	52.2	0.58	0.67	
●		90	95	55.5	0.59	0.68	
803610		100	97	58.5	0.60	0.69	

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

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

G-884 STANDARD NOZZLES

G-884 LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%



G-885 Decoder-In-Head TTS Rotor

TTS Flange Compartment

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

G-800 SERIES

Model: **G-885**
 Radius: **37' to 94'**
 Flow: **8.9 to 59.6 GPM**

FEATURES

- Model: G-885 – True full-circle/adjustable part-circle (60° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Dual-trajectory, color-coded nozzles:
 - 12 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #10 to #53
- Exclusive PressurePort™ nozzle technology
- Contour “Back-Nozzle” capabilities
- Ratcheting Stainless-steel riser
- Water-lubricated gear drive
- ▶ Select TTS advanced features
- ▶ Select DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 37' to 94'
- Flow: 8.9 to 59.6 GPM
- Pressure range: 50 to 100 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C – Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D – Decoder Valve-in-Head with all “E” specifications below*
- DD – Two-station Decoder Valve-in-Head with all “E” specifications below*
- E – Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



G-885C

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme



G-885E

Pop-up height: 3¾"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

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

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G-885 = Full/Part-Circle 60°-360° Arc Range	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	10 to 53 = Installed G885 Nozzle* * SSU = #18, #23, #25, or #48	P5 = 50 PSI (nozzles 10 to 18) P6 = 65 PSI (nozzles 18 to 25) P8 = 80 PSI (nozzles 25 to 53) * SSU = P5/#18, P6/#23 P8/#25, P8/#48	S = SSU* * Standard Stocking Unit

Example:

G-885 - E - 48 - P8 - S = G885 full/part-circle electric valve-in-head, installed #48 nozzle, 80 PSI regulation, standard stocking unit model

G-885 NOZZLE PERFORMANCE DATA*							
Nozzle Set			Pressure	Radius	Flow	Precip in/hr	
			PSI	ft.	GPM	■	▲
Orange		Dk. Green	50	37	8.9	0.63	0.72
803603		315312	60	39	9.8	0.62	0.72
●			65	41	10.2	0.58	0.67
		Lt. Green	●	-	-	-	-
Orange		White	50	47	11.4	0.50	0.57
803603		315314	60	48	12.3	0.51	0.59
●			65	49	12.9	0.52	0.60
		Lt. Blue	●	-	-	-	-
Orange		White	50	52	12.9	0.46	0.53
803603		315314	60	52	14.5	0.52	0.60
●			65	53	14.9	0.51	0.59
			70	53	15.5	0.53	0.61
		White	●	80	54	16.5	0.54
Orange		Lt. Green	50	57	16.6	0.49	0.57
803603		315313	60	58	17.8	0.51	0.59
●			65	59	18.6	0.51	0.59
		Orange	●	80	61	20.5	0.53
Orange		Lt. Green	50	59	17.9	0.49	0.57
803603		315313	60	61	19.5	0.50	0.58
●			65	62	19.8	0.50	0.57
		Tan	●	80	64	22.1	0.52
Orange		Lt. Green	50	65	20.2	0.46	0.53
803603		315313	60	66	22.1	0.49	0.56
●			65	67	23.9	0.51	0.59
		Green	●	80	69	25.9	0.52
Red		Green	65	71	28.3	0.54	0.62
803602		315310	70	72	29.3	0.54	0.63
●			80	73	31.5	0.57	0.66
			90	74	33.4	0.59	0.68
		Blue	●	100	75	35.4	0.61
Red		Green	65	72	30.6	0.57	0.66
803602		315310	70	73	31.6	0.57	0.66
●			80	75	33.9	0.58	0.67
			90	77	35.8	0.58	0.67
		Gray	●	100	79	37.9	0.58
Red		Green	65	76	34.9	0.58	0.67
803602		315310	70	78	36.2	0.57	0.66
●			80	80	39.1	0.59	0.68
			90	82	41.2	0.59	0.68
		Red	●	100	84	43.5	0.59
Red		Green	-	-	-	-	-
803602		315310	70	81	41.2	0.60	0.70
●			80	83	43.5	0.61	0.70
		Dk. Brown	●	90	86	46.2	0.60
			100	89	48.7	0.59	0.68
Dk. Red		Dk. Green	-	-	-	-	-
803601		315312	70	83	46.3	0.65	0.75
●			80	85	48.4	0.64	0.74
		Dk. Green	●	90	89	51.7	0.63
			100	91	54.5	0.63	0.73
Dk. Red		Dk. Green	-	-	-	-	-
803601		315312	70	87	50.7	0.64	0.74
●			80	89	53.1	0.65	0.75
			90	92	56.4	0.64	0.74
	Dk. Blue	●	100	94	59.6	0.65	0.75

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

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

G-885 STANDARD NOZZLES

G-885 LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%



Contour “Back-Nozzle” Capabilities

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

CONTOUR BACK-NOZZLE PERFORMANCE DATA

P/N	Color	Profile	65 PSI		80 PSI	
			Radius	GPM	Radius	GPM
803604	Peach		25	3.4	27	3.9
803603	Orange		28	3.8	29	4.2
803602	Red		31	4.2	33	4.5
803601	Dk. Red		34	4.6	36	4.9
315314	White		37	2.8	38	2.9
315313	Lt. Green		42	4.3	44	4.7
315310	Green		46	5.2	48	5.7
315312	Dk. Green		49	7.9	51	8.8

TTS-885/G-885 CONTOUR BACK-NOZZLES



QuickSet-360 with Ratcheting Riser

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

G-800 SERIES

Model: **G-835**
 Radius: **18' to 50'**
 Flow: **1.9 to 12.8 GPM**

FEATURES

- Model: G-835: Full/Part-circle (50° to 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Nozzle choices: 8 multi-trajectory (15° to 25°)
- Nozzle range: #2 to #12
- Water-lubricated gear drive
- ▶ Select TTS advanced features
- ▶ Select DIH advanced features

OPERATING SPECIFICATIONS

- Radius: 18' to 50'
- Flow: 1.9 to 12.8 GPM
- Pressure range: 40 to 65 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C - Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D - Decoder Valve-in-Head with all "E" specifications below*
- DD - Two-station Decoder Valve-in-Head with all "E" specifications below*
- E - Electric Valve-In-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350 mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = TTS and DIH Advanced Features detailed on pages 22 and 24



G-835C

Pop-up height: 3"
 Overall height: 11¾"
 Flange diameter: 7¾"
 Female inlet: 1½" Acme



G-835E

Pop-up height: 3"
 Overall height: 11¾"
 Flange diameter: 7¼"
 Female inlet: 1½" Acme

G-835 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G-835 = Full/Part-Circle 50 to 360°	C = Check-O-Matic * D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	6 = Installed G835 Nozzle * * SSU = #6 Includes 8-nozzle rack	P5 = 50 PSI (nozzles 2 to 12) P6 = 65 PSI (nozzles 10 to 12) * SSU = P5/#6	S = SSU * * Standard Stocking Unit

Examples:

G-835-E - 6 - P5 - S = G835 full/part-circle electric valve-in-head, installed #6 nozzle, 50 PSI regulation, standard stocking unit model

G-835 NOZZLE PERFORMANCE DATA*

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
2 ● Yellow	40	18	1.9	0.56	0.65
	50	20	2.1	0.51	0.58
	60	22	2.4	0.48	0.55
	65	23	2.6	0.47	0.55
3 ● Yellow	40	23	3.0	0.55	0.63
	50	25	3.2	0.49	0.57
	60	27	3.5	0.46	0.53
	65	28	3.6	0.44	0.51
4 ● Yellow	40	25	3.9	0.60	0.69
	50	28	4.1	0.50	0.58
	60	30	4.4	0.47	0.54
	65	31	4.6	0.46	0.53
5 ● Yellow	40	29	4.7	0.54	0.62
	50	32	5.0	0.47	0.54
	60	33	5.3	0.47	0.54
	65	35	5.4	0.42	0.49
6 ● Yellow	40	32	6.0	0.56	0.65
	50	35	6.3	0.50	0.57
	60	37	6.6	0.46	0.54
	65	39	6.8	0.43	0.50
8 ● Yellow	40	36	7.8	0.58	0.67
	50	39	8.0	0.51	0.58
	60	42	8.3	0.45	0.52
	65	43	8.5	0.44	0.51
10 ● Yellow	40	39	9.7	0.61	0.71
	50	43	10.1	0.53	0.61
	60	45	10.3	0.49	0.57
	65	47	10.5	0.46	0.53
12 ● Yellow	40	44	12.0	0.60	0.69
	50	47	12.2	0.53	0.61
	60	48	12.5	0.52	0.60
	65	50	12.8	0.49	0.57

G-835 NOZZLES

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

**QuickSet-360**

With Hunter's QuickCheck arc mechanism and patented QuickSet-360 non-reversing full-circle feature in a variable arc rotor, adjustments are fast, easy, and more flexible than ever before. Now available on all TTS-800, G-800 Series, and B Series adjustable arc rotors.

B SERIES

Models: **G-80B**
 Radius: **49' to 97'**
 Flow: **14.2 to 58.5 GPM**

FEATURES

- Models: G-80B: Full-circle opposing nozzles
- Dual-trajectory, color-coded nozzles:
 - 10 standard trajectory (22.5°)
 - 9 low-angle trajectory (15°)
- Nozzle range: #15 to #53
- Exclusive PressurePort™ nozzle technology
- Ratcheting stainless-steel riser
- Water-lubricated gear drives
- Check height up to 10' in elevation change

OPERATING SPECIFICATIONS

- G-80B
 - Radius: 49' to 97'
 - Flow: 14.2 to 58.5 GPM
 - Pressure range: 65 to 100 PSI
- All B Series rotors are pressure rated at 150 PSI



G-80B
 Pop-up height: 3"
 Overall height: 9 5/8"
 Flange diameter: 5 3/8"
 Female inlet: 1 1/4" Acme

GOLF ROTORS

G-80B - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G-80 = Full-circle	B = Block rotor with check valve	15 to 53 = Installed G80 Nozzle* * SSU = #18, #25, or #48	S = SSU* * Standard Stocking Unit

Example:

G-80 - B - 25 - S = G80 full-circle block rotor, installed #25 nozzle, standard stocking unit model

G-80B NOZZLE PERFORMANCE DATA*

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

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

G-80B NOZZLES



LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%

B SERIES

Models: **G-84B and G-85B**
 Radius: **37' to 97'**
 Flow: **8.9 to 58.5 GPM**

FEATURES

- Models:
 - G-84B: Full-circle opposing nozzles
 - G-85B: True full-circle/adjustable part-circle (60° to 360°)
- QuickCheck™ arc mechanism (G85B)
- QuickSet-360 arc mechanism (G85B)
- Dual-trajectory, color-coded nozzles:
 - G-84B: 10 standard trajectory (22.5°)
 - G-85B: 12 standard trajectory (22.5°)
- G-84B and G-85B: 9 low-angle trajectory (15°)
- Nozzle range:
 - G-84B: #15 to #53
 - G-85B: #10 to #53
- Exclusive PressurePort™ nozzle technology
- Contour “Back-Nozzle” capabilities (G85B)
- Ratcheting stainless-steel riser
- Water-lubricated gear drives
- Check height up to 10' in elevation change

OPERATING SPECIFICATIONS

- G-84B
 - Radius: 49' to 97'
 - Flow: 14.2 to 58.5 GPM
 - Pressure range: 65 to 100 PSI
- G-85B
 - Radius: 37' to 94'
 - Flow: 8.9 to 59.6 GPM
 - Pressure range: 50 to 100 PSI
- All B Series rotors are pressure rated at 150 PSI



G-84B
 Pop-up height: 3"
 Overall height: 9 5/8"
 Flange diameter: 5 3/8"
 Female inlet: 1/4" Acme



G-85B
 Pop-up height: 3"
 Overall height: 9 5/8"
 Flange diameter: 5 3/8"
 Female inlet: 1/4" Acme

G-84B AND G-85B - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G-84 = Full-circle	B = Block rotor with check valve	15 to 53 = Installed G84 Nozzle* * SSU = #18, #25, and #48	S = SSU* * Standard Stocking Unit
G-85 = Full/Part-Circle 60° - 360°	B = Block rotor with check valve	10 to 53 = Installed G85 Nozzle** ** SSU = #18, #25, and #48	S = SSU* * Standard Stocking Unit

Example:
G-84 - B - 25 - S = G80 full-circle block rotor, installed #25 nozzle, standard stocking unit model

G-84B NOZZLE PERFORMANCE DATA*

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

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

G-84B NOZZLES



G-85B NOZZLES



LOW-ANGLE NOZZLES**



** Low-angle nozzles reduce radius by 15%

G-85B NOZZLE PERFORMANCE DATA*

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

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

* Complies to ASAE standard. All precipitation rates calculated

B SERIES

Models: **G-70B and G-75B**
 Radius: **47' to 75'**
 Flow: **7.7 to 33.7 GPM**

FEATURES

- Models:
 - G-70B: Full-circle
 - G-75B: Full/Part-circle (50° to 360°)
- QuickCheck™ arc mechanism (G75B)
- QuickSet-360 arc mechanism (G75B)
- Nozzle choices:
 - G-70B: 6 standard trajectory (25°)
 - G-75B: 9 standard trajectory (25°)
- Nozzle range:
 - G-70B: #15 to #28
 - G-75B: #8 to #28
- Exclusive PressurePort™ nozzle technology
- Water-lubricated gear drive
- Check height up to 10' in elevation change

OPERATING SPECIFICATIONS

- G-70B
 - Radius: 53' to 75'
 - Flow: 13 to 33.7 GPM
 - Pressure range: 50 to 100 PSI
- G-75B
 - Radius: 47' to 71'
 - Flow: 7.7 to 32.3 GPM
 - Pressure range: 40 to 100 PSI
- All B Series rotors are pressure rated at 150 PSI



G-70B
 Pop-up height: 3"
 Overall height: 9"
 Flange diameter: 4¾"
 Female inlet: 1¼" Acme



G-75B
 Pop-up height: 3"
 Overall height: 9"
 Flange diameter: 4¾"
 Female inlet: 1¼" Acme

G-70B AND G-75B - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options
G-70 = Full-circle	B = Block Rotor with Check Valve	25 = Installed G70 Nozzle * * Available in SSU model only SSU = #25 Includes nozzle pack	S = SSU * * Standard Stocking Unit
G-75 = Full/Part-Circle, 50° - 360° Arc Range	B = Block Rotor with Check Valve	25 = Installed G75 Nozzle ** ** Available in SSU model only SSU = #25 Includes nozzle pack	S = SSU * * Standard Stocking Unit

Example:
G-70 - B - 25 - S = G70 full-circle block rotor, installed #25 nozzle with nozzle pack, standard stocking unit model

G-70B NOZZLE PERFORMANCE DATA*					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
15 ● Gray	50	53	13.0	0.45	0.51
	60	54	14.1	0.47	0.54
	65	55	14.8	0.47	0.54
	70	56	15.5	0.48	0.55
18 ● Red	50	58	14.2	0.41	0.47
	60	59	15.9	0.44	0.51
	65	60	16.3	0.44	0.50
	70	60	16.9	0.45	0.52
20 ● Dk. Brown	60	61	18.8	0.49	0.56
	65	62	19.6	0.49	0.57
	70	63	20.5	0.50	0.57
	80	64	22.0	0.52	0.60
23 ● Dk. Green	60	63	20.1	0.49	0.56
	65	65	21.0	0.48	0.55
	70	65	21.9	0.50	0.58
	80	66	23.4	0.52	0.60
25 ● Dk. Blue	60	65	21.8	0.50	0.57
	65	67	22.5	0.48	0.56
	70	67	23.6	0.51	0.58
	80	69	25.3	0.51	0.59
28 ● Black	70	71	28.1	0.54	0.62
	80	71	29.9	0.57	0.66
	90	73	31.8	0.57	0.66
	100	75	33.7	0.58	0.67

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

G-75B NOZZLE PERFORMANCE DATA*					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
8 ● Lt. Brown	40	47	7.7	0.34	0.39
	50	49	8.3	0.33	0.38
	60	50	9.2	0.35	0.41
	65	50	9.5	0.37	0.42
	70	51	9.9	0.37	0.42
10 ● Lt. Green	50	53	10.9	0.37	0.43
	60	54	12.0	0.40	0.46
	65	54	12.5	0.41	0.48
	70	55	13.1	0.42	0.48
13 ● Lt. Blue	80	56	14.3	0.44	0.51
	50	55	11.2	0.36	0.41
	60	56	12.3	0.38	0.44
	65	56	12.8	0.39	0.45
15 ● Gray	70	57	13.3	0.39	0.45
	80	57	14.3	0.42	0.49
	50	57	13.4	0.40	0.46
	60	58	14.3	0.41	0.47
18 ● Red	65	59	14.8	0.41	0.47
	70	59	15.3	0.42	0.49
	80	60	16.4	0.44	0.51
	50	60	14.5	0.39	0.45
20 ● Dk. Brown	60	61	15.7	0.41	0.47
	65	61	16.3	0.42	0.49
	70	62	16.9	0.42	0.49
	80	63	18.2	0.44	0.51
23 ● Dk. Green	60	62	17.8	0.45	0.51
	65	62	18.2	0.46	0.53
	70	63	19.2	0.47	0.54
	80	64	20.5	0.48	0.56
25 ● Dk. Blue	90	65	21.8	0.50	0.57
	60	64	21.9	0.51	0.59
	65	65	21.4	0.49	0.56
	70	65	23.6	0.54	0.62
28 ● Black	80	66	25.6	0.57	0.65
	90	67	27.0	0.58	0.67
	60	65	23.5	0.54	0.62
	65	65	24.8	0.56	0.65
25 ● Dk. Blue	70	67	25.6	0.55	0.63
	80	69	27.3	0.55	0.64
	90	71	29.0	0.55	0.64
	70	66	26.9	0.59	0.69
28 ● Black	80	68	28.9	0.60	0.69
	90	70	30.6	0.60	0.69
	100	71	32.3	0.62	0.71

G-70B AND G-75B NOZZLES



G-70B



G-75B

GOLF ROTORS

B SERIES

Model: **G-35B**
 Radius: **18' to 50'**
 Flow: **1.9 to 12.8 GPM**

FEATURES

- Model: G-35B: Full/Part-Circle (50° - 360°)
- QuickCheck™ arc mechanism
- QuickSet-360 arc mechanism
- Nozzle choices:
 - 8 multi-trajectory 15°-25°
- Nozzle range:
 - #2 to #12
- Water-lubricated gear drive
- Check height up to 10' in elevation change

OPERATING SPECIFICATIONS

- G-35B
 - Radius: 18' to 50'
 - Flow: 1.9 to 12.8 GPM
 - Pressure range: 40 to 65 PSI
 - All B Series rotors are pressure rated at 150 PSI



G35B

Pop-up height: 3"
 Overall height: 9"
 Flange diameter: 4¾"
 Female inlet: 1¼" Acme

G-35B - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4

1 Model	2 Valve Options	3 Nozzle	4 Options*
G-35 = Full/Part-Circle 50° to 360°	B = Block rotor with check valve	6 = Installed G35 Nozzle* * Available in SSU model only SSU = #6 Includes nozzle rack	S = SSU* * Standard Stocking Unit

Example:

G-35 - B - 6 - S = G35 full/part-circle block rotor, installed #6 nozzle with nozzle rack, standard stocking unit model

G-35B NOZZLE PERFORMANCE DATA*

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
2 ● Yellow	40	18	1.9	0.56	0.65
	50	20	2.1	0.51	0.58
	60	22	2.4	0.48	0.55
	65	23	2.6	0.47	0.55
3 ● Yellow	40	23	3.0	0.55	0.63
	50	25	3.2	0.49	0.57
	60	27	3.5	0.46	0.53
	65	28	3.6	0.44	0.51
4 ● Yellow	40	25	3.9	0.60	0.69
	50	28	4.1	0.50	0.58
	60	30	4.4	0.47	0.54
	65	31	4.6	0.46	0.53
5 ● Yellow	40	29	4.7	0.54	0.62
	50	32	5.0	0.47	0.54
	60	33	5.3	0.47	0.54
	65	35	5.4	0.42	0.49
6 ● Yellow	40	32	6.0	0.56	0.65
	50	35	6.3	0.50	0.57
	60	37	6.6	0.46	0.54
	65	39	6.8	0.43	0.50
8 ● Yellow	40	36	7.8	0.58	0.67
	50	39	8.0	0.51	0.58
	60	42	8.3	0.45	0.52
	65	43	8.5	0.44	0.51
10 ● Yellow	40	39	9.7	0.61	0.71
	50	43	10.1	0.53	0.61
	60	45	10.3	0.49	0.57
	65	47	10.5	0.46	0.53
12 ● Yellow	40	44	12.0	0.60	0.69
	50	47	12.2	0.53	0.61
	60	48	12.5	0.52	0.60
	65	50	12.8	0.49	0.57

G-35B NOZZLES

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

G-900 SERIES

Models: **G-990 and G-995**
 Radius: **66' to 103'**
 Flow: **29.5 to 83.8 GPM**

FEATURES

- Models:
 - G-990 - Full-circle
 - G-995 - Adjustable arc (40°-360°)
- QuickCheck™ arc mechanism
- Dual-trajectory, nozzle choices:
 - 8 standard trajectory (22.5°)
 - 8 low angle trajectory (15°)
- Nozzle range: #25 to #73
- Exclusive PressurePort™ nozzle technology
- Contour “Back-Nozzle” capabilities
- Water-lubricated gear drive
- ▶ [Select TTS advanced features](#)
- ▶ [Select DIH advanced features](#)

OPERATING SPECIFICATIONS

- G-990
 - Radius: 73' to 103'
 - Flow: 30.5 to 83.3 GPM
 - Pressure range: 80 to 120 PSI
- G-995
 - Radius: 66' to 97'
 - Flow: 29.5 to 83.8 GPM
 - Pressure range: 80 to 120 PSI
- All TTS rotors are pressure rated at 150 PSI

OPTIONS

- C - Check-O-Matic checks up to 25' in elevation change and readily converts to Normally Open Hydraulic with through the top connections
- D - Decoder Valve-in-Head with all “E” specifications below*
- DD - Two-station Decoder Valve-in-Head with all “E” specifications below*
- E - Electric Valve-in-Head with adjustable pressure regulation, on-off-auto selector, 190 mA (350mA inrush) solenoid with captive plunger and internal downstream bleed

* All DIH rotors include two 3M DBRY-6 splices for connection to the two-wire path. See page 15 for critical recommendations on grounding DIH rotors.

▶ = [TTS and DIH Advanced Features detailed on pages 22 and 24](#)



G-990C
 Pop-up height: 3"
 Overall height: 13¼"
 Flange diameter: 7½"
 Femal inlet: 1½" Acme



G-995E
 Pop-up height: 3"
 Overall height: 13¼"
 Flange diameter: 7½"
 Female inlet: 1½" Acme

G-990 AND G-995 - SPECIFICATION BUILDER: ORDER 1 + 2 + 3 + 4 + 5

1 Model	2 Valve Options	3 Nozzle	4 Regulation*	5 Options
G-990 = Full-circle	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head	25 to 73 = Installed G990 Nozzle*	P8 = 80 PSI (nozzles 25 to 53) P1 = 100 PSI (nozzles 53 to 73) P2 = 120 PSI (nozzle 73)	S = SSU*
G-995 = Adjustable Arc 40° - 360°	C = Check-O-Matic* D = Decoder Valve-in-Head DD = Two-station Decoder Valve-in-Head E = Electric Valve-in-Head * Converts to N.O. Hydraulic Valve-in-Head	25 to 73 = Installed G995 Nozzle* * SSU = #25 or #53	P8 = 80 PSI (nozzles 25 to 53) P1 = 100 PSI (nozzles 53 to 73) P2 = 120 PSI (nozzle 73) * SSU = P8/#25 P8/#53	S = SSU* * Standard Stocking Unit

Example:
G-990 - E - 53 - P8 - S = G990 full-circle electric valve-in-head, installed #53 nozzle, 80 PSI regulation, standard stocking unit model

G-990 NOZZLE PERFORMANCE DATA*					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
25 ● Lt. Blue	80	73	30.5	0.55	0.64
	90	75	32.4	0.55	0.64
	100	76	34.3	0.57	0.66
	110	78	36.5	0.58	0.67
	120	79	38.4	0.59	0.68
33 ● Gray	80	77	36.3	0.59	0.68
	90	78	38.4	0.61	0.70
	100	80	40.6	0.61	0.71
	110	81	42.7	0.63	0.72
	120	82	44.9	0.64	0.74
38 ● Red	80	80	40.6	0.61	0.71
	90	82	42.9	0.61	0.71
	100	83	45.3	0.63	0.73
	110	85	47.7	0.64	0.73
	120	86	50.2	0.65	0.75
43 ● Dk. Brown	80	83	46.2	0.65	0.75
	90	84	48.6	0.66	0.77
	100	85	50.9	0.68	0.78
	110	86	53.4	0.69	0.80
	120	87	55.9	0.71	0.82
48 ● Dk. Green	80	86	49.6	0.65	0.75
	90	89	52.5	0.64	0.74
	100	90	54.8	0.65	0.75
	110	91	57.3	0.67	0.77
	120	92	59.5	0.68	0.78
53 ● Dk. Blue	80	89	54.2	0.66	0.76
	90	90	56.7	0.67	0.78
	100	92	59.2	0.67	0.78
	110	93	61.7	0.69	0.79
	120	94	64.2	0.70	0.81
63 ● Black	80	92	63.2	0.72	0.83
	90	94	65.9	0.72	0.83
	100	96	69.4	0.72	0.84
	110	97	72.0	0.74	0.85
	120	98	74.9	0.75	0.87
73 ● Orange	80	96	72.1	0.75	0.87
	90	98	75.0	0.75	0.87
	100	99	77.8	0.76	0.88
	110	102	80.5	0.74	0.86
	120	103	83.3	0.76	0.87

G-995 NOZZLE PERFORMANCE DATA*					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■ ▲	
25 ● Lt. Blue	80	66	29.5	0.65	0.75
	90	67	31.5	0.68	0.78
	100	68	33.2	0.69	0.80
	110	69	35.6	0.72	0.83
	120	69	37.5	0.76	0.88
33 ● Gray	80	68	36.2	0.75	0.87
	90	69	38.2	0.77	0.89
	100	70	40.4	0.79	0.92
	110	71	42.6	0.81	0.94
	120	72	44.8	0.83	0.96
38 ● Red	80	72	40.6	0.75	0.87
	90	73	43.0	0.78	0.90
	100	75	45.4	0.78	0.90
	110	76	47.6	0.79	0.92
	120	77	50.0	0.81	0.94
43 ● Dk. Brown	80	74	46.1	0.81	0.94
	90	74	48.5	0.85	0.98
	100	75	50.7	0.87	1.00
	110	77	53.4	0.87	1.00
	120	78	55.7	0.88	1.02
48 ● Dk. Green	80	77	50.2	0.81	0.94
	90	79	52.6	0.81	0.94
	100	81	55.1	0.81	0.93
	110	82	57.5	0.82	0.95
	120	83	60.5	0.85	0.98
53 ● Dk. Blue	80	81	54.9	0.81	0.93
	90	84	57.2	0.78	0.90
	100	86	59.5	0.77	0.89
	110	87	62.1	0.79	0.91
	120	88	64.4	0.80	0.92
63 ● Black	80	86	62.3	0.81	0.94
	90	88	65.5	0.81	0.94
	100	90	69.0	0.82	0.95
	110	91	71.9	0.84	0.97
	120	92	74.7	0.85	0.98
73 ● Orange	80	89	72.7	0.88	1.02
	90	91	75.4	0.88	1.01
	100	93	78.1	0.87	1.00
	110	95	80.9	0.86	1.00
	120	97	83.8	0.86	0.99

G-900 NOZZLES

G-900 LOW-ANGLE NOZZLES**

** Low-angle nozzles reduce radius by 15%

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



Contour “Back-Nozzle” Capabilities

Choose any nozzle from the PGP, I-40, and G70 nozzle racks, or from the short- and mid-range G-900 nozzles.

SWING JOINTS AND ACCESSORIES

SWING JOINTS



HSJ SWING JOINTS

ADVANCED FEATURES



Proven Products, Proven Partners

Over the last three decades, Hunter has grown to become the world-leading producer of gear-driven rotors and well known for its quality products and excellent customer support. LASCO®, with over 50 years in business, is widely recognized as the industry's leading producer of PVC irrigation fittings and swing joints and is well known for its outstanding customer support in the golf irrigation market. Therefore, when Hunter sought out a partner for Hunter-branded swing joints, the choice was immediately clear.

We are proud to introduce Hunter HSJ Swing Joints by LASCO — a proven team with time-tested solutions for the golf irrigation market. HSJs are available in a multitude of inlet, outlet, size, and length configurations for every course and preference.

Upgrade Your Rotor Warranty

Include Hunter HSJ Swing Joints with your golf rotor order and qualify for a 5-year component exchange warranty. Swing Joints must be purchased from an authorized Hunter Golf Distributor to qualify.



LASCO is a trademark of LASCO Fittings Inc.

HSJ SWING JOINTS

BY LASCO FITTINGS INC.

FEATURES

- Heavy-duty prefabricated PVC swing joints with O-ring seals
- Available in all popular inlet and outlet configurations
- Choose from 8", 12" and 18" lay arm lengths and Single Top-Out or Triple Top-Out designs
- Unique SnapLok™ outlet with brass threads offers excellent support and durability for quick coupler installations
- Match HSJ swing joint and Hunter golf rotor purchases to qualify for an upgraded 5-year component exchange golf rotor warranty*



Swing Joints

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

* Must be purchased from an authorized Hunter Golf Distributor to qualify for extended warranty program

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

1 Model	2 Inlet Type (from pipe fitting)	3 Outlet Type (to sprinkler inlet)	4 Outlet Style	5 Lay Length
HSJ-0 = ¾" Commercial Swing Joint	2 = Spigot - Short (inlet 4 recommended) 3 = Male - NPT	2 = Male - NPT 3 = Enlarging - to 1½" Male NPT*	2 = Single Top-Out	8 = 8" Lay Arm*
HSJ-1 = 1" Heavy-Duty Swing Joint	4 = Male - Acme* 7 = Spigot - 4" Long**	6 = Enlarging - to 1½" (40 mm) Male BSP* 8 = Enlarging - to 1½" Male Acme*	4 = Triple Top-Out*	12 = 12" Lay Arm
HSJ-2 = 1¼" Heavy-Duty Swing Joint	M = Main Acme H-Connection *** P = Main Acme V-Connection ****	0 = Male Acme A = Enlarging/Reducing - to 1¼" Male Acme**		18 = 18" Lay Arm**
HSJ-3 = 1½" Heavy-Duty Swing Joint	<i>* Not available in HSJ-0 or HSJ-3. Use "M" inlet for HSJ-3.</i> <i>** Not available in HSJ-0.</i> <i>*** Horizontal connection reduces from 1½" Acme to swing joint size</i> <i>**** Vertical connection reduces from 1½" Acme to swing joint size</i>	S = Male - Brass NPT SnapLok™ *** <i>* Not available in HSJ-0 or HSJ-3</i> <i>** Not available in HSJ-0 and HSJ-2</i> <i>***HSJ-1 model only - for quick coupler</i>	<i>* Not available in S Outlet Type</i>	<i>* HSJ-0 only</i>

Example:

HSJ - 3 - M - 0 - 2 - 12 = HSJ 1½" heavy-duty swing joint, 1½" male Acme horizontal connection to mainline tee, 1½" male Acme single top outlet, 12" lay arm length.

ACME ADAPTER FITTINGS

1¼" Models



1¼" male Acme x 1" female NPT	P/N 109325
1¼" male Acme x 1" female BSP	P/N 105329
1¼" male Acme x 1¼" female NPT	P/N 474800
1¼" male Acme x 1¼" female BSP	P/N 474900
1¼" male Acme x 1½" female NPT	P/N 104153
1¼" male Acme x 1½" female BSP	P/N 107262

1½" Models



1½" male Acme x 1" female NPT	P/N 475400
1½" male Acme x 1" female BSP	P/N 475500
1½" male Acme x 1¼" female NPT	P/N 475200
1½" male Acme x 1¼" female BSP	P/N 475300
1½" male Acme x 1½" female NPT	P/N 475000
1½" male Acme x 1½" female BSP	P/N 475100

Acme x Acme Models



1½" male Acme x 1" Acme female	P/N 225300
1½" male Acme x 1¼" Acme female	P/N 225400
1¼" male Acme x 1" Acme female	P/N 225500



B2B Tee Assembly

1½" Acme threaded tee and 1½" adapter for connecting two swing joints to a single mainline connection in back-to-back installations around greens.

P/N = HSJ-305-015-3 = NPT inlet
 P/N = HSJ-305-015-6 = BSP inlet
 P/N = HSJ-305-015-M = Acme inlet (shown)

SnapLok is a trademark of LASCO Fittings Inc.

ROTOR ACCESSORIES

HOSE SWIVEL ADAPTERS

Models

- Hose swivel adapter for G90 and G-900 Series (fits ¾" and 1" hose) - P/N G90HS100
- Hose swivel adapter for TTS-800 and G-800 Series (fits ¾" and 1" hose) - P/N G-800HS100



Hose Swivel Adapters

RUBBER COVER AND TURF CUP KITS

Models

- TTS-800 Low-bounce rubber cover kit P/N 987200SP
- TTS-800 No-bounce turf cup kit P/N 987100SP
- G990 Rubber cover kit (date codes 0611 and prior only) - P/N 473800
- G995 Rubber cover kit (also G990 date codes 0711 and after) - P/N 473900



Rubber Cover Kit

SPOTSHOT

SPOTSHOT HOSE-END NOZZLE

Models

- ¾" Hose thread inlet - P/N 160700
- 1" Hose thread inlet - P/N 160705

Features

- Variable nozzle stream choices:
 - Jet - Tightly focused stream for power washing
 - Soak - Medium stream for dust control areas
 - Fan - Broad light stream for turf hot spots

Operating Specifications

- Flow: 35 GPM at 80 PSI*

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



SpotShot Hose-End Nozzles

¾" P/N 160700

1" P/N 160705

Jet-Stream Nozzle



Soak-Stream Nozzle



Fan-Stream Nozzle



TOOLS



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



**Valve Insertion/
Removal Tool**
P/N 604000SP
G-800 Series



**Valve Insertion/
Removal Tool**
P/N 280500SP
G-900/G90 Series



**Valve and Snap Ring
Insertion/Removal Pliers**
P/N 475600SP
G-800 Series



Snap Ring Removal Tool
P/N 251000SP
All Golf Models



"T"-Handle Tool
P/N 319100SP



Hand Pump
P/N 217500SP



Pitot Gauge
P/N 280100SP



Hunter Wrench
P/N 172000SP



**Nozzle Removal/
Installation Tool**
P/N 803700SP
G85B, G885 Short- and
Midrange Nozzles



Riser Pressure Gauge
P/N 991200SP
G-80 (2019), G85 and G85 Risers

ACCESSORIES



LANDSCAPE SOLUTIONS

From clubhouse grounds and perimeters to driveways and walking paths, golf irrigation needs extend well past the course itself. Our full spectrum of industry-leading irrigation solutions will help ensure beautiful, thriving landscapes across all areas of your property.



ROTORS



ROTORS

PGP® ULTRA

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

FEATURES

- Models: Shrub, 4", 12"
- Arc setting: 50° to 360°
- Factory-installed rubber cover
- Through-the-top arc adjustment
- QuickCheck™ arc mechanism
- Water-lubricated gear drive
- Nozzle choices: 34
- Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.5 Low-Angle Gray, 0.50 to 3.0 Black, 6.0 to 13.0 Green, MPR-25, MPR-30, MPR-35
- Warranty period: 5 years
- ▶ Automatic arc return
- ▶ Non-strippable drive
- ▶ Part- and full-circle in one model
- ▶ Headed and slotted setscrew
- ▶ Reclaimed water ID
- ▶ Drain check valve (up to 10' of elevation)

OPERATING SPECIFICATIONS

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



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



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



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



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



PGP Ultra
 Easy arc and radius adjustment

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
PGP-00 = Shrub PGP-04 = 4" Pop-up PGP-12 = 12" Pop-up	Adjustable arc, plastic riser, 8 standard nozzles, and 4 low-angle nozzles	(blank) = No option CV = Drain check valve CV-R = Drain check valve and reclaimed water ID	Blue 1.5 - 8.0 Gray Low-Angle Black Short-Radius Green High-Flow MPR-25-Q, T, H, F MPR-30-Q, T, H, F MPR-35-Q, T, H, F 1.5 to 4.0 = only nozzles 1.5 - 4.0 can be factory-installed

Examples:

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

ROTORS

PGP® ULTRA & I-20 PRB

PRESSURE-REGULATED BODY

Radius: **17' to 46'**
 Flow: **0.36 to 9.8 GPM**
 Inlet: **3/4"**

FEATURES

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



PGP-04-PRB
 Overall height: 8 1/4"
 Pop-up height: 4"
 Exposed diameter: 1 3/4"
 Inlet size: 3/4"

OPERATING SPECIFICATIONS

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

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

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

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

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

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

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

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

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



I-20-04-PRB
 Overall height: 8 1/4"
 Pop-up height: 4"
 Exposed diameter: 1 3/4"
 Inlet size: 3/4"



I-20-06-PRB
 Overall height: 10 5/8"
 Pop-up height: 6"
 Exposed diameter: 1 3/4"
 Inlet size: 3/4"

ROTORS

I-20

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

FEATURES

- Models plastic riser: Shrub, 4", 6", 12"
 - Models stainless-steel riser: 4", 6"
 - Arc setting: 50° to 360°
 - Factory-installed rubber cover
 - Through-the-top arc adjustment
 - QuickCheck™ arc mechanism
 - Water-lubricated gear drive
 - Nozzle choices: 34
 - Nozzle racks: 1.5 to 8.0 Blue, 2.0 to 4.5 Low-Angle Gray, 0.50 to 3.0 Short-Radius Black, 6.0 to 13.0 Green, MPR-25, MPR-30, MPR-35
 - Warranty period: 5 years
- ▶ Automatic arc return
 - ▶ Non-strippable drive
 - ▶ Part- and full-circle in one model
 - ▶ Headed and slotted setscrew
 - ▶ FloStop® control
 - ▶ Reclaimed water ID
 - ▶ Stainless-steel riser
 - ▶ Drain check valve (up to 10' of elevation)

OPERATING SPECIFICATIONS

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



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

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-00 = Shrub I-20-04 = 4" Pop-up I-20-06 = 6" Pop-up I-20-12 = 12" Pop-up	Adjustable arc, plastic riser, check valve, 8 standard nozzles, and 4 low-angle nozzles	(blank) = No option NCV = Without check valve (only available on 4" model) R = Drain check valve and reclaimed water ID	Blue 1.5 - 8.0 Gray Low-Angle Black Short-Radius Green High-Flow MPR-25-Q, T, H, F MPR-30-Q, T, H, F MPR-35-Q, T, H, F 1.5 to 4.0 = only nozzles 1.5 - 4.0 can be factory-installed

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

1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-20-04-SS = 4" Pop-up I-20-06-SS = 6" Pop-up	Adjustable arc, stainless-steel riser, check valve, 8 standard nozzles, and 4 low-angle nozzles	(blank) = No option NCV = Without check valve (only available on 4" model) R = Drain check valve and reclaimed water ID	Blue 1.5 - 8.0 Gray Low Angle Black Short Radius Green High Flow MPR-25-Q, T, H, F MPR-30-Q, T, H, F MPR-35-Q, T, H, F 1.5 to 4.0 = only nozzles 1.5 - 4.0 can be factory-installed

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



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



I-20-04
 Overall height: 7½"
 Pop-up height: 4"
 Exposed diameter: 1¾"
 Inlet size: ¾"



I-20-06
 Overall height: 9¾"
 Pop-up height: 6"
 Exposed diameter: 1¾"
 Inlet size: ¾"



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

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

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

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

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

Bold = Recommended pressure

Note:

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

PGP ULTRA / I-20 / PRB NOZZLES

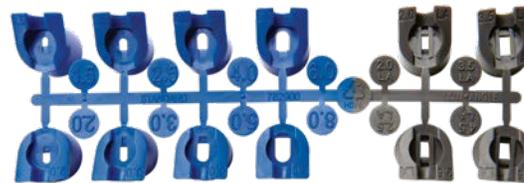


Blue Standard / Gray Low Angle (P/N 782900)



Flat-front nozzle

Convenient Nozzle Rack



I-20 04 with PRB body



Pressure Regulation

Continual operating pressure of 45 PSI

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

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

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

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

Bold = Recommended pressure

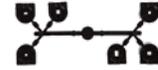
Note:

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

PGP ULTRA / I-20 / PRB NOZZLES



Dk. Green High Flow (P/N 444800)



Black Short Radius (P/N 466100)

ROTORS

I-20 with Blue Standard Nozzle



PGP® ULTRA / I-20 / PRB MPR-25 NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
90° 	25	23	0.74	0.54	0.62
	35	24	0.88	0.59	0.68
	45	25	1.00	0.62	0.71
	55	25	1.11	0.68	0.79
	65	25	1.21	0.75	0.86
120° 	25	23	1.00	0.55	0.63
	35	24	1.21	0.61	0.70
	45	25	1.38	0.64	0.74
	55	25	1.53	0.71	0.82
180° 	25	23	1.44	0.52	0.61
	35	24	1.73	0.58	0.67
	45	25	1.98	0.61	0.70
	55	25	2.21	0.68	0.79
360° 	25	23	2.78	0.51	0.58
	35	24	3.34	0.56	0.64
	45	25	3.82	0.59	0.68
	55	25	4.25	0.65	0.76
	65	25	4.63	0.71	0.82

MPR-25 NOZZLE



PGP ULTRA / I-20 / PRB MPR-35 NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
90° 	25	32	1.40	0.53	0.61
	35	34	1.67	0.56	0.64
	45	35	1.92	0.60	0.70
	55	35	2.13	0.67	0.77
	65	35	2.31	0.73	0.84
120° 	25	32	1.77	0.50	0.58
	35	34	2.15	0.54	0.62
	45	35	2.46	0.58	0.67
	55	35	2.74	0.65	0.75
180° 	25	32	2.75	0.52	0.60
	35	34	3.33	0.55	0.64
	45	35	3.81	0.60	0.69
	55	35	4.23	0.66	0.77
360° 	25	32	5.36	0.50	0.58
	35	34	6.62	0.55	0.64
	45	35	7.58	0.60	0.69
	55	35	8.43	0.66	0.76
	65	35	9.18	0.72	0.83

MPR-35 NOZZLE



PGP ULTRA / I-20 / PRB MPR-30 NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
90° 	25	29	1.03	0.47	0.54
	35	30	1.23	0.53	0.61
	45	30	1.40	0.60	0.69
	55	30	1.56	0.67	0.77
	65	30	1.69	0.72	0.83
120° 	25	29	1.34	0.46	0.53
	35	30	1.62	0.52	0.60
	45	30	1.85	0.59	0.69
	55	30	2.06	0.66	0.76
180° 	25	29	2.15	0.49	0.57
	35	30	2.59	0.55	0.64
	45	30	2.96	0.63	0.73
	55	30	3.30	0.71	0.82
360° 	25	29	4.24	0.49	0.56
	35	30	5.08	0.54	0.63
	45	30	5.78	0.62	0.71
	55	30	6.39	0.68	0.79
	65	30	6.92	0.74	0.85

MPR-30 NOZZLE



PGP 04 Ultra with MPR-30 Nozzle



I-25

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

FEATURES

- Models plastic riser: 4", 6"
 - Models stainless-steel riser: 4", 6"
 - Arc setting: 50° to 360°
 - Factory-installed rubber cover
 - Through-the-top arc adjustment
 - QuickCheck™ arc mechanism
 - Water-lubricated gear drive
 - Nozzle choices: 12
 - Nozzle range: #4 to #28
 - Warranty period: 5 years
- ▶ Automatic arc return
 - ▶ Non-strippable drive
 - ▶ Part- and full-circle in one model
 - ▶ Color-coded nozzles
 - ▶ Reclaimed water ID
 - ▶ Stainless-steel riser
 - ▶ Drain check valve (up to 10' of elevation)



I-25-04

Overall height: 7½"
 Pop-up height: 4"
 Exposed diameter: 1¼"
 Inlet size: 1"



I-25-06

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

OPERATING SPECIFICATIONS

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



I-25 Reclaimed

Available as a factory-installed option on all models



I-25 High Speed

Available as a factory-installed option on stainless-steel models

ROTORS

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

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

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

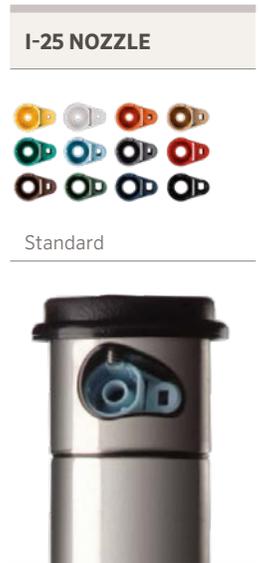
1 Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-25-04-SS = 4" Pop-up I-25-06-SS = 6" Pop-up	Adjustable arc, stainless-steel riser, check valve, and 5 nozzles	(blank) = No option R = Reclaimed water ID HS = High speed HS-R = High speed and reclaimed water ID	#4 to #28 = Factory-installed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

Examples:

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

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

I-25 HIGH-SPEED NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
04 ● Yellow	40	37	3.8	0.53	0.62
	50	38	4.3	0.57	0.66
	60	38	4.7	0.63	0.72
	70	39	5.1	0.65	0.75
05 ○ White	40	38	4.4	0.59	0.68
	50	39	4.8	0.61	0.70
	60	40	5.3	0.64	0.74
	70	41	5.6	0.64	0.74
07 ● Orange*	40	40	6.6	0.79	0.92
	50	41	7.0	0.80	0.93
	60	42	7.5	0.82	0.95
	70	44	7.9	0.79	0.91
08 ● Lt. Brown	40	42	7.7	0.84	0.97
	50	43	8.3	0.86	1.00
	60	44	9.2	0.91	1.06
	70	45	9.9	0.94	1.09
10 ● Lt. Green*	50	46	10.1	0.92	1.06
	60	48	11.1	0.93	1.07
	70	49	12.1	0.97	1.12
	80	50	12.9	0.99	1.15
13 ● Lt. Blue	50	48	11.2	0.94	1.08
	60	49	12.3	0.99	1.14
	70	51	13.3	0.98	1.14
	80	51	14.3	1.06	1.22
15 ● Gray*	50	49	13.4	1.07	1.24
	60	51	14.3	1.06	1.22
	70	53	15.2	1.04	1.20
	80	54	16.4	1.08	1.25
18 ● Red	50	50	14.5	1.12	1.29
	60	53	15.7	1.08	1.24
	70	55	16.9	1.08	1.24
	80	57	18.2	1.08	1.25
20 ● Dk. Brown*	60	53	17.8	1.22	1.41
	70	56	19.2	1.18	1.36
	80	58	20.5	1.17	1.35
	90	59	21.8	1.21	1.39
23 ● Dk. Green	60	56	21.9	1.34	1.55
	70	58	23.6	1.35	1.56
	80	60	25.6	1.37	1.58
	90	61	27.0	1.40	1.61
25 ● Dk. Blue*	60	58	23.5	1.34	1.55
	70	62	25.5	1.28	1.47
	80	64	28.0	1.32	1.52
	90	66	29.5	1.30	1.51
28 ● Black	70	60	26.9	1.44	1.66
	80	62	28.7	1.44	1.66
	90	65	30.6	1.39	1.61
	100	67	31.5	1.35	1.56



* 5 standard nozzles included with each sprinkler.

Note:

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

I-40

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

FEATURES

- Models stainless riser: 4", 6"
 - Arc setting: 50° to 360°
 - Factory-installed rubber cover
 - Nozzle choices: 12
 - Nozzle ranges I-40: #8 to #25
 - Nozzle ranges I-40-ON: #15 to #28
 - Through-the-top arc adjustment
 - QuickCheck™ arc mechanism
 - Water-lubricated gear drive
 - Warranty period: 5 years
- ▶ Opposing nozzle 360 degree model
 - ▶ Automatic arc return
 - ▶ Non-strippable drive
 - ▶ Part- and full-circle in one model
 - ▶ Color-coded nozzles
 - ▶ Reclaimed water ID
 - ▶ Stainless-steel riser
 - ▶ Drain check valve (up to 15' of elevation)

OPERATING SPECIFICATIONS

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



I-40-04
 Overall height: 7 7/8"
 Pop-up height: 4"
 Exposed diameter: 2"
 Inlet size: 1"



I-40-06
 Overall height: 10 1/4"
 Pop-up height: 6"
 Exposed diameter: 2"
 Inlet size: 1"



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



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

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

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

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

1 Opposing Nozzle Model	2 Standard Features	3 Feature Options	4 Nozzle Options
I-40-04-SS-ON = 4" Pop-up I-40-06-SS-ON = 6" Pop-up	Full-circle, opposing nozzle, stainless-steel riser, check valve and 6 nozzles	(blank) = No option ON = Full circle opposing nozzles ON-R = Full-circle opposing nozzles and reclaimed water ID HS = High speed HS-R = High speed and reclaimed water ID R = Reclaimed water ID	#15 to #28 = Factory-installed nozzle number

Examples:

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

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

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



I-40 Opposing Nozzle 360° Model



I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft	Flow GPM	Precip in/hr	
				■	▲
15 Gray 	50	52	13.0	0.46	0.53
	60	54	13.2	0.44	0.50
	70	56	14.4	0.44	0.51
	80	57	15.5	0.46	0.53
18 Red 	50	58	13.7	0.39	0.45
	60	59	15.2	0.42	0.49
	70	60	16.6	0.44	0.51
20 Dk. Brown 	50	63	19.1	0.46	0.53
	60	64	20.9	0.49	0.57
	80	66	22.3	0.49	0.57
	90	66	23.9	0.53	0.61
23 Dk. Green 	60	65	20.4	0.46	0.54
	70	66	22.3	0.49	0.57
	80	67	24.0	0.51	0.59
25 Dk. Blue* 	60	66	22.0	0.49	0.56
	70	68	24.0	0.50	0.58
	80	69	25.9	0.52	0.60
28 Black 	90	70	27.2	0.53	0.62
	70	70	28.9	0.57	0.66
	80	72	30.9	0.57	0.66
	90	74	32.9	0.58	0.67
	100	76	33.7	0.56	0.65

* Factory-installed nozzle

Notes:

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



ROTORS

I-80

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

FEATURES

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



180-00-SS Riser Mount
180-00-SS-ON Riser Mount
 Overall height: 9¾"
 Exposed diameter: 2¼"
 Inlet size: 1½"



180-04-SS Pop-up
180-04-SS-ON Pop-up
 Overall height: 9¾"
 Pop-up height: 3¾"
 Exposed diameter: 4¾"
 Inlet size: 1" and 1½"



180-04-SS-TC Turf Cup
180-04-SS-ON-TC Turf Cup
 Overall height: 11½"
 Pop-up height: 3¾"
 Exposed diameter: 3½"
 Inlet size: 1" and 1½"



I-80 Reclaimed
 Factory-installed option



I-80 Turf Cup Kit
 P/N 959400



I-80 Rubber Cover Kit
 P/N 959300

OPERATING SPECIFICATIONS

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

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

1 Model	2 Standard Features	3 Featured Options	4 Nozzle Options
180-00-SS = Riser mount 180-04-SS = 4" Pop-up 180-04-SS-TC = 4" Pop-up with turf cup	Adjustable arc, stainless-steel riser Adjustable arc, stainless-steel riser, check-valve Adjustable arc, stainless-steel riser, check-valve factory-installed turf cup	(blank) = No option R = Reclaimed water ID* * TC reclaimed ID not available	#10 to #53 = Factory-installed nozzle number* * I-80 rotors only available with factory-installed nozzles (no nozzle packs included)
180-00-SS-ON = Riser mount 180-04-SS-ON = 4" Pop-up 180-04-SS-ON-TC = 4" Pop-up with turf cup	Full-circle, opposing nozzle, stainless-steel riser Full-circle, opposing nozzle, stainless-steel riser, check valve Full-circle, opposing nozzle, stainless-steel riser, check valve, factory-installed turf cup	(blank) = No option R = Reclaimed water ID* * TC reclaimed ID not available	#15 to #53 = Factory-installed nozzle number* * I-80 rotors only available with factory-installed nozzles (no nozzle packs included)

Example:

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

180-ON NOZZLE PERFORMANCE DATA*

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

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

180-ON NOZZLES



I-80 NOZZLES



LOW-ANGLE NOZZLES**



I-80 NOZZLE PERFORMANCE DATA*

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

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

* Complies to ASAE standard. All precipitation rates calculated

**Low-angle nozzles reduce radius by 15%

I-90

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

FEATURES

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



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

OPERATING SPECIFICATIONS

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

USER-INSTALLED OPTION

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



Turf Cup Kit
 P/N 467955



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



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

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

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

Examples:

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

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

* Factory-installed nozzle

Notes:

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

I-90-36V NOZZLE PERFORMANCE DATA					
Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr	
				■	▲
25 ● Lt. Blue	80	73	30.5	0.55	0.64
	90	75	32.4	0.55	0.64
	100	76	34.3	0.57	0.66
	110	78	36.5	0.58	0.67
33 ● Gray	80	77	36.3	0.59	0.68
	90	78	38.4	0.61	0.70
	100	80	40.6	0.61	0.71
	110	81	42.7	0.63	0.72
38 ● Red	80	80	40.6	0.61	0.71
	90	82	42.9	0.61	0.71
	100	83	45.3	0.63	0.73
	110	85	47.7	0.64	0.73
43 ● Dk. Brown	80	83	46.2	0.65	0.75
	90	84	48.6	0.66	0.77
	100	85	50.9	0.68	0.78
	110	86	53.4	0.69	0.80
	120	86	53.4	0.69	0.80
48 ● Dk. Green	80	86	49.6	0.65	0.75
	90	89	52.5	0.64	0.74
	100	90	54.8	0.65	0.75
	110	91	57.3	0.67	0.77
53 ● Dk. Blue*	80	89	54.2	0.66	0.76
	90	90	56.7	0.67	0.78
	100	92	59.2	0.67	0.78
	110	93	61.7	0.69	0.79
	120	94	64.2	0.70	0.81
	120	94	64.2	0.70	0.81
63 ● Black	80	92	63.2	0.72	0.83
	90	94	65.9	0.72	0.83
	100	96	69.4	0.72	0.84
	110	97	72.0	0.74	0.85
	120	98	74.9	0.75	0.87
	120	98	74.9	0.75	0.87
73 ● Orange	80	96	72.1	0.75	0.87
	90	98	75.0	0.75	0.87
	100	99	77.8	0.76	0.88
	110	102	80.5	0.74	0.86
	120	103	83.3	0.76	0.87

I-90 NOZZLES



ADV and 36V



Low-Angle ADV and 36V**

** Low-angle nozzles reduce radius by 15%

I-90



MP ROTATOR[®]



MP ROTATOR



ADVANCED FEATURES

AUTOMATIC MATCHED PRECIPITATION

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

DOUBLE-POP

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

DISTRIBUTION UNIFORMITY

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

LOW PRECIPITATION RATE

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

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

MP800 SERIES

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

MP ROTATOR®

Radius: 8' to 35'

FEATURES

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

OPERATING SPECIFICATIONS

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

OPTIONS

- Specify Pro-Spray® PRS40 pop-up for accurate pressure regulation at 40 PSI
- Adding "HT" will specify male threaded nozzles
- ▶ = *Advanced Feature descriptions on page 75*

MP1000 8' to 15' radius



MP1000-90
90° to 210°



MP1000-210
210° to 270°



MP1000-360
360°

MP2000 13' to 21' radius



MP2000-90
90° to 210°



MP2000-210
210° to 270°



MP2000-360
360°

MP3000 22' to 30' radius



MP3000-90
90° to 210°



MP3000-210
210° to 270°



MP3000-360
360°

MP ROTATOR - SPECIFICATION BUILDER: ORDER 1 + 2

1 Model	2 Options
MP1000-90 = 8' to 15' radius, adjustable from 90° to 210°	(blank) = No option HT = Male threaded version <i>(Not available in 3500 and 1000-210)</i>
MP1000-210 = 8' to 15' radius, adjustable from 210° to 270°	
MP1000-360 = 8' to 15' radius, 360°	
MP2000-90 = 13' to 21' radius, adjustable from 90° to 210°	
MP2000-210 = 13' to 21' radius, adjustable from 210° to 270°	
MP2000-360 = 13' to 21' radius, 360°	
MP3000-90 = 22' to 30' radius, adjustable from 90° to 210°	
MP3000-210 = 22' to 30' radius, adjustable from 210° to 270°	
MP3000-360 = 22' to 30' radius, 360°	
MP3500-90 = 31' to 35' radius, adjustable from 90° to 210°	
MPLCS-515 = Left corner strip, 5' x 15'	
MPRCS-515 = Right corner strip, 5' x 15'	
MPSS-530 = Side strip, 5' x 30'	
MP-CORNER = 8' to 15' radius, adjustable from 45° to 105°	

Examples:

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

MP ROTATOR PERFORMANCE DATA

Arc	Pressure PSI	MP1000 Radius: 8' to 15' Adjustable Arc and Full-Circle					MP2000 Radius: 13' to 21' Adjustable Arc and Full-Circle					MP3000 Radius: 22' to 30' Adjustable Arc and Full-Circle				
		Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■ ▲	Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■ ▲	Radius ft.	Flow GPM	Flow GPH	Precip in/hr ■ ▲			
90° ■	25	--	--	--	--	17	0.34	20.4	0.45	0.52	25	0.71	42.6	0.44	0.51	
	30	12	0.17	10.2	0.45	0.52	18	0.38	22.8	0.45	0.52	27	0.76	45.6	0.40	0.46
	35	13	0.19	11.4	0.43	0.50	19	0.40	24.0	0.43	0.49	28	0.82	49.2	0.40	0.46
	40	14	0.21	12.6	0.41	0.48	20	0.43	25.8	0.41	0.48	30	0.86	51.6	0.37	0.42
	45	14	0.23	13.8	0.45	0.52	21	0.46	27.6	0.40	0.46	30	0.90	54.0	0.39	0.44
	50	15	0.25	15.0	0.43	0.49	21	0.47	28.2	0.41	0.47	30	0.95	57.0	0.41	0.47
180° ●	25	--	--	--	--	16	0.6	36.0	0.45	0.52	25	1.44	86.4	0.44	0.51	
	30	12	0.34	20.4	0.45	0.52	17	0.64	38.4	0.43	0.49	27	1.58	94.8	0.42	0.48
	35	13	0.38	22.8	0.43	0.50	18	0.71	42.6	0.42	0.49	28	1.70	102.0	0.42	0.48
	40	14	0.42	25.2	0.41	0.48	19	0.77	46.2	0.41	0.47	30	1.82	109.2	0.39	0.45
	45	14	0.44	26.4	0.43	0.50	20	0.85	51.0	0.41	0.47	30	1.93	115.8	0.41	0.48
	50	15	0.50	30.0	0.43	0.49	21	0.91	54.6	0.40	0.46	30	2.04	122.4	0.44	0.50
210° ●	25	--	--	--	--	16	0.72	43.2	0.46	0.54	25	1.68	100.8	0.44	0.51	
	30	12	0.40	24.0	0.46	0.53	17	0.75	45.0	0.43	0.49	27	1.84	110.4	0.42	0.48
	35	13	0.45	27.0	0.44	0.51	18	0.81	48.6	0.41	0.48	28	1.99	119.4	0.42	0.48
	40	14	0.49	29.4	0.41	0.48	19	0.86	51.6	0.39	0.45	30	2.12	127.2	0.39	0.45
	45	14	0.51	30.6	0.43	0.50	20	0.91	54.6	0.38	0.43	30	2.25	135.0	0.41	0.48
	50	15	0.57	34.2	0.42	0.48	21	0.98	58.8	0.37	0.42	30	2.37	142.2	0.43	0.50
270° ●	25	--	--	--	--	16	0.87	52.2	0.44	0.50	25	2.19	131.4	0.45	0.52	
	30	12	0.48	28.8	0.43	0.49	17	0.95	57.0	0.42	0.49	27	2.37	142.2	0.42	0.48
	35	13	0.53	31.8	0.40	0.46	18	1.03	61.8	0.41	0.47	28	2.55	153.0	0.42	0.48
	40	14	0.63	37.8	0.41	0.48	19	1.10	66.0	0.39	0.45	30	2.73	163.8	0.39	0.45
	45	14	0.67	40.2	0.44	0.51	20	1.17	70.2	0.38	0.43	30	2.89	173.4	0.41	0.48
	50	15	0.72	43.2	0.41	0.47	21	1.23	73.8	0.36	0.41	30	3.06	183.6	0.44	0.50
360° ●	25	--	--	--	--	16	1.20	72.0	0.45	0.52	25	2.88	172.8	0.44	0.51	
	30	12	0.69	41.4	0.46	0.53	17	1.28	76.8	0.43	0.49	27	3.15	189.0	0.42	0.48
	35	13	0.77	46.2	0.44	0.51	18	1.37	82.2	0.41	0.47	28	3.40	204.0	0.42	0.48
	40	14	0.84	50.4	0.41	0.48	19	1.48	88.8	0.39	0.46	30	3.64	218.4	0.39	0.45
	45	14	0.88	52.8	0.43	0.50	20	1.57	94.2	0.38	0.44	30	3.86	231.6	0.41	0.48
	50	15	0.98	58.8	0.42	0.48	21	1.68	100.8	0.37	0.42	30	4.07	244.2	0.44	0.50
55	15	1.01	60.6	0.43	0.50	21	1.74	104.4	0.38	0.44	30	4.27	256.2	0.46	0.53	

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

Works best with Pro-Spray PRS40



For Pro-Spray PRS40 information see page 83

MP ROTATOR PERFORMANCE DATA

MP3500

Radius: 31' to 35'

Adjustable Arc

● Light Brown: 90°

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

MP3500 31' to 35' radius



MP3500-90
90° to 210°

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

MP ROTATOR PERFORMANCE DATA

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

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

MP Strips



MPLCS-515
Left Corner Strip
5' x 15'



MPRCS-515
Right Corner Strip
5' x 15'



MPSS-530
Side Strip
5' x 30'

Bold = Recommended Pressure

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

MP ROTATOR PERFORMANCE DATA

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

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

Bold = Recommended Pressure

MP Corner



MP-CORNER
 Corner
 8' to 15'

Male Threaded



MP-HT
 Male Threaded

MP Accessories



MPTOOL
 Adjusts all MP Rotators



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

MP Rotator



MP Tool for easy adjustments



MP ROTATOR® 800 SERIES

Radius: 6' to 16'

FEATURES

- Provides coverage from 6' to 16'
- Radius can be reduced up to approximately 25% on all models
- Color-coded for easy identification
- Removable filter screen prevents large objects from clogging nozzle
- Wind-resistant, multi-stream technology
- Adjustable arc and radius
- ▶ Automatic matched precipitation
- ▶ Double-pop feature
- ▶ Distribution uniformity
- ▶ Low precipitation rate

OPERATING SPECIFICATIONS

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

OPTIONS

- Specify Pro-Spray® PRS40 pop-up for accurate pressure regulation to achieve typical radius settings
- Specify Pro-Spray PRS30 for accurate pressure regulation to achieve minimum radius settings
- ▶ = *Advanced Feature descriptions on page 75*

MP800SR 6' to 12' radius



MP800SR-90
90° to 210°



MP800SR-360
360°

MP815 8' to 16' radius



MP815-90
90° to 210°



MP815-210
210° to 270°



MP815-360
360°

MP800SR-90



MP815-90



MP ROTATOR PERFORMANCE DATA

MP800SR

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

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

MP ROTATOR PERFORMANCE DATA

MP815

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

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

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

MP ROTATOR



SPRAY BODIES

SPRAYS

PRO-SPRAY® PRS40

PRESSURE-REGULATED

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

FEATURES

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

OPERATING SPECIFICATIONS

- Operational pressure range: 15 to 100 PSI

FACTORY-INSTALLED OPTIONS

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

USER INSTALLED OPTIONS

- Reclaimed water ID cap (P/N 458562)
- Snap-on reclaimed cover (P/N PROS-RC-CAP)



PRS40 Reclaimed

PRS40 models include optional factory-installed purple reclaimed caps



Related Solutions: MP Rotator

PRS40 is designed specifically for the MP Rotator®



PROS-00-PRS40

Retracted height: 4½"
 Inlet size: ½"



PROS-04-PRS40-CV

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



PROS-06-PRS40-CV

Retracted height: 8¾"
 Pop-up height: 6"
 Exposed diameter: 2¼"
 Inlet size: ½"



PROS-12-PRS40-CV

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

SPRAYS

PRS40 – SPECIFICATION BUILDER: ORDER 1 + 2

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

Examples:

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



VALVES



ADVANCED FEATURES

DURABLE AND RELIABLE

FLOW CONTROL



Available on:
ICV, IBV

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

ACCU SYNC® PRESSURE REGULATION



Available on:
ICV, IBV

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

RECLAIMED WATER IDENTIFICATION



Available on:
ICV, IBV

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

FILTER SENTRY™



Available on:
ICV, IBV

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

NEW RECLAIMED ICV VALVE



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

VALVES COMPARISON CHART

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

ICV

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

FEATURES

- Sizes: 1", 1½", 2", 3"
- External and internal manual bleed allows quick and easy at-the-valve activation
- Glass-filled nylon construction results in the highest pressure rating
- Double-beaded diaphragm seal design assures leak-free performance
- Fabric-reinforced EPDM diaphragm and EPDM seat ensure greater performance in all water conditions
- Optional DC latching solenoids enable Hunter's battery-powered controllers
- Captive bonnet bolts provide hassle-free valve maintenance
- Low-flow capability allows for use of Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 150°F
- Warranty period: 5 years
- ▶ Flow control
- ▶ Filter Sentry™
- ▶ Optional reclaimed water ID tag
- ▶ Accu Sync® pressure regulation

OPERATING SPECIFICATIONS

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

SOLENOID SPECIFICATIONS

- 24 VAC solenoid
 - 350 mA inrush, 190 mA holding, 60 Hz
 - 370 mA inrush, 210 mA holding, 50 Hz
- ▶ = *Advanced Feature descriptions on page 85*



ICV-101G
Inlet Diameter: 1"
Height: 5½"
Length: 4¾"
Width: 4"



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



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



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



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

Filter Sentry



ICV PRESSURE LOSS IN PSI

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

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

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

Examples:

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

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

IBV

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

FEATURES

- Factory-installed Filter Sentry™ diaphragm
- External and internal manual bleed allows quick and easy at-the-valve activation
- Double-beaded diaphragm seal design assures leak-free performance
- Fabric-reinforced EPDM diaphragm and EPDM seat ensure superior performance in all conditions
- Optional DC latching solenoids enable Hunter's battery-powered controllers
- Low-flow capability allows use of Hunter's micro irrigation products
- Encapsulated 24 VAC solenoid with captive plunger for hassle-free service
- Temperature rating: 150°F
- Warranty period: 5 years
- ▶ Heavy-duty flow control
- ▶ Accu Sync® pressure regulation

OPERATING SPECIFICATIONS

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

SOLENOID SPECIFICATIONS

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

FACTORY-INSTALLED OPTIONS

- DC latching solenoid

USER INSTALLED OPTIONS

- Solenoid conduit cover (P/N 464322)
- DC latching solenoid (P/N 458200)
- Accu Sync pressure regulator
- Reclaimed water ID tag (P/N 700392)
- ▶ = *Advanced Feature descriptions on page 86*



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



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



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



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

Filter Sentry



IBV PRESSURE LOSS IN PSI

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

Note:

Charts based on full-open flow control position

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

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

ACCU SYNC®

Type: **Pressure Regulator**

OPERATING SPECIFICATIONS

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

ACCU SYNC VALVE RECOMMENDED FLOW RANGE

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

ACCU SYNC APPLICATIONS

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

ADJUSTABLE



AS-ADJ
Height with solenoid: 3¼"

ADAPTER



SOLENOID ADAPTER
Included with all Accu Sync models

FIXED



AS-30
Height with solenoid: 3¼"



AS-40
Height with solenoid: 3¼"



AS-50
Height with solenoid: 3¼"



AS-70
Height with solenoid: 3¼"



Installation

Accu Sync shown installed on ICV and PGV valves.

QUICK COUPLERS

Size: $\frac{3}{4}$ ", 1"
Pressure Rating: 150 PSI

FEATURES

- 100% interchangeable with major brands*
- Red brass and stainless-steel construction
- Heavy-duty thermoplastic locking and non-locking covers
- Optional winged stabilization and Acme key connection
- Stainless-steel lug on 1" and 1 $\frac{1}{4}$ " keys
- Spring-loaded covers with stainless-steel springs for positive closing and protection of valve's sealing components
- Warranty period: 5 years



Quick Couplers



Non-locking

Locking

Reclaimed

Reclaimed Water Option

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

HQ PRESSURE LOSS IN PSI

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

QUICK COUPLER, KEY, AND HOSE SWIVEL CHARTS

Model	Inlet Threads	Slots	Body	Color*	Locking	Key	Swivels
HQ-3RC	$\frac{3}{4}$ "	2	1 - Piece	Yellow	No	HK-33	HS-0
HQ-33DRC	$\frac{3}{4}$ "	2	2 - Piece	Yellow	No	HK-33	HS-0
HQ-33DLRC	$\frac{3}{4}$ "	2	2 - Piece	Yellow	Yes	HK-33	HS-0
HQ-44RC	1" NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-44LRC	1" NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-44RC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-5RC	1" NPT	1	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" NPT	1	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2

Notes:

* All locking cover models are available with purple covers for reclaimed water applications.

** Anti-rotation stabilization wings.

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

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

Examples:

- HQ3 - RC** = HQ3 valve with rubber cover
- HQ44 - LRC** = HQ44 valve with locking rubber cover
- HQ44 - LRC - R** = HQ44 valve with locking rubber cover and reclaimed water ID
- HQ44 - LRC - AW - R** = HQ44 valve, with locking rubber cover, Acme key socket with anti-rotation wings and reclaimed water ID

KEYS

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

HS HOSE SWIVELS

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

SNAPLOK COMBO KITS

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

FEATURES

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

See the HSJ swing joints on page 54



Quick Coupler with SnapLok
Equipped HSJ-1 swing joint

SNAPLOK COMBO KITS

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

EXPERIENCE ALL WALKS OF LIGHT

LANDSCAPE AND ARCHITECTURAL LIGHTING

FX Luminaire provides industry-leading landscape and architectural lighting solutions with a focus on the advancement of LED technology and digital lighting control with zoning, dimming, and color adjustment capabilities.

DESIGNER AND STANDARD SERIES FIXTURES

FX Luminaire offers a range of classic and contemporary lighting fixtures in all configurations, from up lights and down lights to path lights and specialty lights.

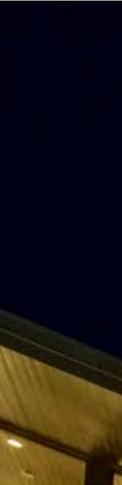
Our fixture classification system is based on material construction, performance, and price. This helps you quickly identify common fixtures and create lighting packages for any project or budget. All FX Luminaire fixtures are made with top-quality materials and backed by the industry's best support team.

LUXOR® CONTROLLER

With Luxor technology, you can liven up your clubhouse, course pathways, or property entryways to complement any occasion with 30,000 colors. Design one-of-a-kind holiday displays, create ambience for weddings, add company colors for corporate events, or simply adjust hues to match vegetation as the seasons change.

With a Luxor system, you can also create up to 250 adjustable lighting groups that can be turned on independently and dimmed from 1-100%.

The Luxor app provides ultimate flexibility and convenience when designing with Luxor lighting systems. With the app, you can adjust fixture intensities and colors, program up to 40 calendar-based themes, and fine-tune your color palette — right from the palm of your hand!





LIGHTING

FXLuminaire®

LANDSCAPE LIGHTING | Learn more. Visit fxl.com

HUNTER SUPPORT NETWORK



With membership in the Hunter Support Network (HSN), you are entitled to a host of exclusive services and benefits to provide optimal central control system performance and a healthy irrigation system year-round. HSN establishes an additional layer of confidence that your irrigation system is working as expected at all times.

Whether you are setting up for an important tournament, starting a renovation, or recovering from storm damage, HSN gives you the safety net you need to ensure playable turf. As an HSN member, we stand ready to serve your needs, from remote or on-site troubleshooting and staff training to replacement equipment shipped overnight. Become a member today!

HSN MEMBERSHIP BENEFITS

- The first year of HSN membership is included with the purchase of Pilot central control
 - Includes uninterruptible power supply/battery backup
- Unlimited telephone support for software and hardware installed on the golf course will be provided by Hunter Technical Service, or one of our Authorized Service Providers (ASP)
- Hunter Field Service Manager (FSM) or ASP system commissioning for first-year members with new Pilot® systems
 - Complete control system diagnostics
 - Computer setup and programming
 - Communications setup and testing
 - Field wiring diagnostics and benchmark report
 - Equipment grounding test
- Online Hunter Golf Forum membership
- On-site training from a Hunter FSM
- Pilot field interface next business day replacement
- Field interface communication module next business day replacement
- Loaner Pilot PC eligibility with next business day shipping
- Remote assistance/desktop sharing support
- Free Pilot standard software/firmware updates
- Members-only pricing on premium software upgrades
- Members-only pricing on Rapid Repair Kits

HUNTER SUPPORT NETWORK

Plan	Description
HSNPILOT	One-Year Hunter Support Network (HSN) Membership

Notes:

*One year of HSN membership is included with the purchase of Pilot central control. Purchase HSNPILOT for service in year two and beyond.

To learn more about HSN membership and Rapid Repair Kits, contact your Authorized Hunter Golf Distributor.

HUNTER RAPID REPAIR KITS

Having the right parts on hand is crucial to uninterrupted water management. With HSN membership, you receive special discounts on customized Rapid Repair Kits — an industry first. That way, you have critical parts on hand in case of an emergency, with little to no course downtime, minimum hassle, and no shipping delay. There are kits available for all Pilot systems, including integrated two-way module (TWM) and conventional controllers, plus all communications options.

RAPID REPAIR KIT COMPONENTS



PILOTFPFC
P/N 803700
Pilot Facepack for
Conventional Field Controller



527300
Facepack to Backplane
Wiring Harness



PILOTFC010
10-Station Output Module



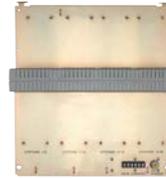
PILOTHWR
Hardwire Communication Module



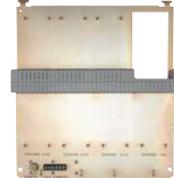
PILOTMODUHF
Radio Communication Module



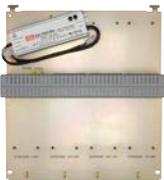
PILOTDH250EXP
Pilot TWM Hub 250-Station
Expansion Kit (Module and
Power Supply)



411600
Front Plane Kit/Midplane
Assembly



PILOTFCBP
Backplane Kit (Includes
527300 Wiring Harness)



411601
Front Plane Kit, TWM Hub
(No Harness), Midplane
Assembly, Screws



PILOTFPDH
TWM Hub Facepack

RAPID REPAIR KIT OPTIONS

HSNFC40HWRK Pilot FC 40-Station Hardwire Kit	HSNFC80HWRK Pilot FC 80-Station Hardwire Kit	HSNFC40UHFK Pilot FC 40-Station UHF Kit	HSNFC80UHFK Pilot FC 80-Station UHF Kit	HSNDHHWRK Pilot TWM Hub Hardwire Kit	HSNDHUHFK Pilot TWM Hub with UHF Radio Kit
PILOTFPFC	PILOTFPFC	PILOTFPFC	PILOTFPFC	PILOTFPDH	PILOTFPDH
527300	527300	527300	527300	527300	527300
PILOTFC010	PILOTFC010 (x2)	PILOTFC010	PILOTFC010 (x2)	PILOTDH250EXP	PILOTDH250EXP
411600	411600	411600	411600	411601	411601
PILOTHWR	PILOTHWR	PILOTFCBP	PILOTFCBP	PILOTHWR	PILOTMODUHF
	PILOTFCBP	PILOTMODUHF	PILOTMODUHF		

HUNTER SUPPORT NETWORK



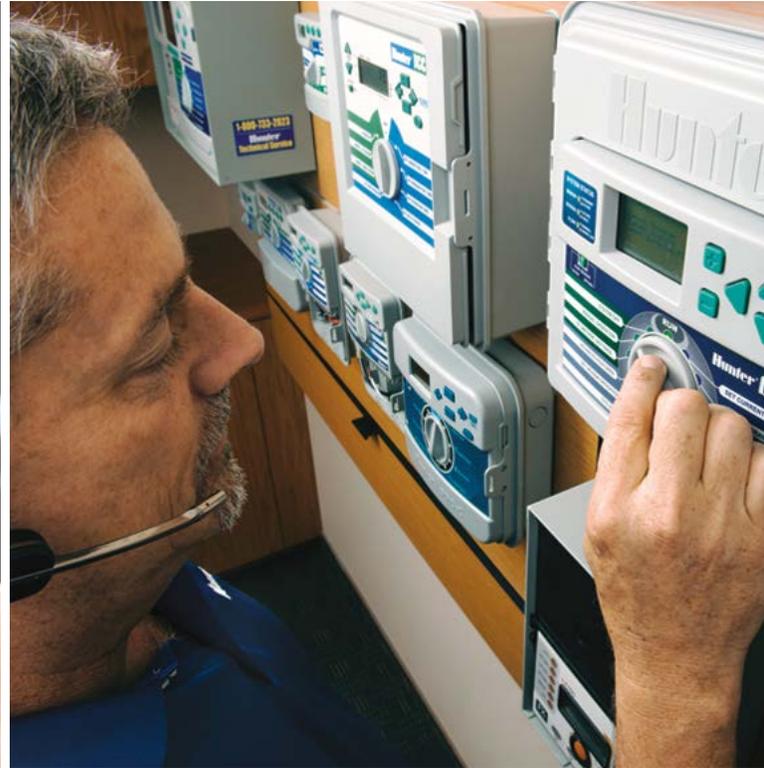
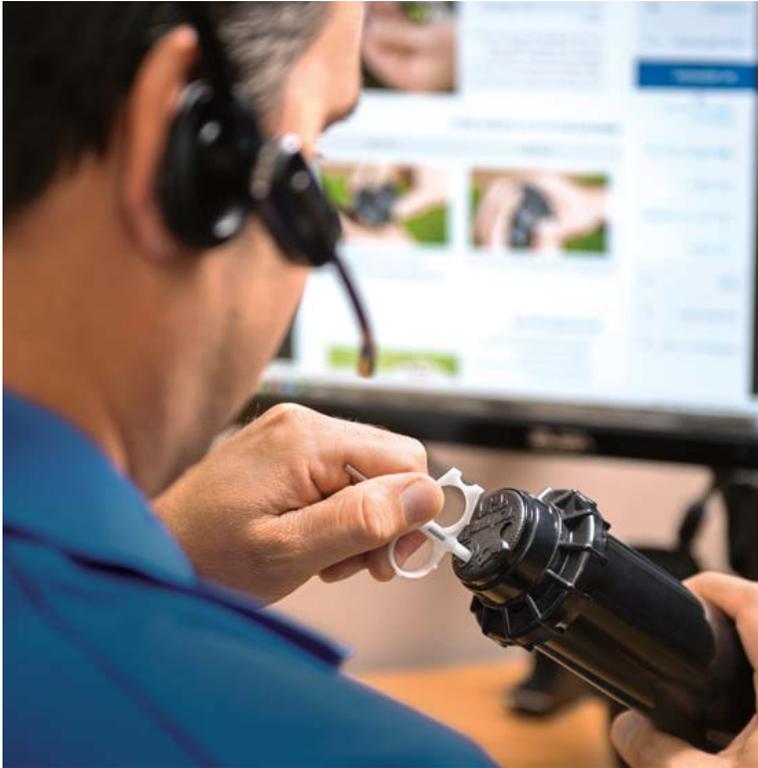
TECHNICAL

TECHNICAL INFORMATION



HUNTER

Technical Services



Our Technical Services Team has 200 years of combined industry expertise.

Anyone can sell you products. At Hunter, we've always believed the difference lies in providing world-class product support to make your job easier. When you need technical help, whether it's to ask a quick question or to get product-specific troubleshooting assistance, you can count on Hunter's Technical Services Team to provide the best support in the industry. Our knowledgeable experts are always available to help you.

In addition, our Field Service Team provides on-site training and troubleshooting assistance with central control, integrated two-way module systems, and other commercial, residential, municipal, and golf course installations. Their combined experience of 200+ years in the industry is invaluable when you need factory support by phone, remote desktop, or at the job site.

Contact Us

Phone: 1-800-733-2823, Mon-Fri, 6 a.m.-4 p.m. PST/PDT

Email: huntertechnicalsupport@hunterindustries.com

After Hours: Leave us a voice message and someone from our team will return your call the next business day

Online Product Information

Visit our Support Library for instructional videos, owner's manuals, installation details, articles, and more.

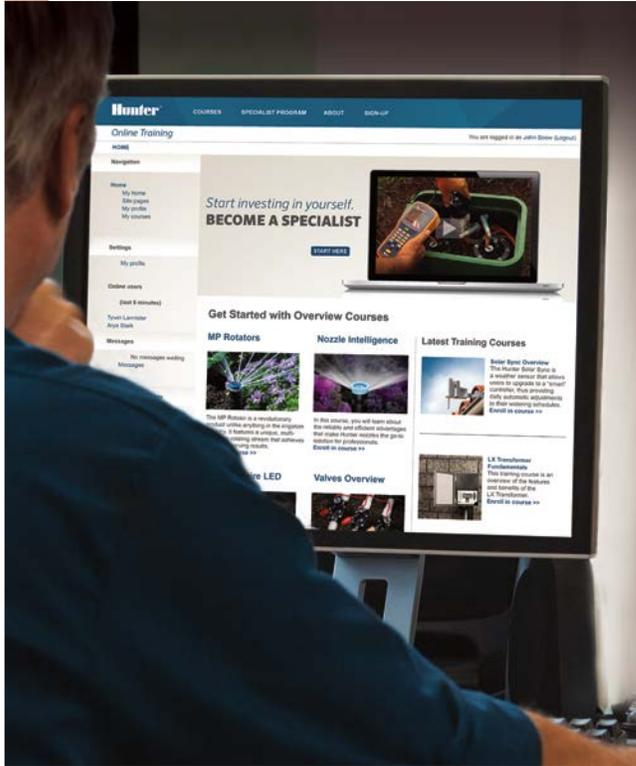
Rotors, Controllers, Sensors, Drip/Micro Irrigation, Valves, Sprays, Nozzles, FX Luminaire, and Water Management Software

hunterindustries.com/support

Hablamos Español

Tenemos varios técnicos que hablan español para ayudarle. Soporte por línea esta disponible también:

hunterindustries.com/es/support



HUNTER University

This unique online training program is designed to equip contractors, distributors, and other professionals with the knowledge to become familiar with Hunter products.

To get started:

1. Access the training website:

- Visit training.hunterindustries.com.
- Log in or create a new account.
- Click on courses, enroll at no cost, watch the training module, and take the quiz.

2. Take courses for the level you choose:

- Click on the Specialist Program and choose the level you need.
- Click on the courses required for each level and enroll in the courses.
- Watch the training module and take the quiz.

3. Apply for your certificate:

- Submit the Completion Notification Form for each level.
- Obtain your certificate and use your membership card. You may use your certificates to apply for Continuing Education Unit Credits through the Irrigation Association.

Choose from three levels of training:

Technician Level: Basic knowledge of the entire Hunter product line

Specialist Level: In-depth knowledge on a particular product

Expert Level: Thorough knowledge on a product category

PRECIPITATION RATES

In this section, the “Sprinkler Spacing Method–Any Arc and Any Spacing” equation is used to calculate precipitation rates. The first set of equations with the ■ shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The next set with the ▲ shows the precipitation rate for the sprinklers laid out in an equilateral triangular spacing pattern. This is the “Sprinkler Spacing Method–Equilateral Triangular Spacing” equation.

What is “precipitation rate”?

If someone said they were caught in a rainstorm that dropped one inch of water in an hour, you would have some idea of how hard or heavily the rain came down. A rainstorm that covers an area with one inch of water in one hour has a precipitation rate of one inch per hour (1 in/hr or 25 mm/hr). Similarly, the precipitation rate is the speed at which a sprinkler or an irrigation system applies water.

Matched Precipitation Rates

A zone or system in which all the heads have similar precipitation rates is said to have matched precipitation rates. Systems that have matched precipitation rates reduce wet and dry spots and excessive run times, which lead to high water consumption and increased costs. Knowing that sprinkler spacing, flow rates, and arcs of coverage affect precipitation rates, a general guideline is: as the spray arc doubles, so should the flow.

	90° Arc = 1 GPM (0.23 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.

CALCULATING PRECIPITATION RATES

Depending upon the construction of the irrigation system, the precipitation rate may be calculated by either a Sprinkler Spacing or a Total Area method.

Sprinkler Spacing Method (■)

The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:

Any Arc and Any Spacing (■):

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

Sprinkler Spacing Method (▲)

The precipitation rate should be calculated for each individual zone. If all sprinkler heads on the zone have the same spacing, flow rate, and arc of coverage, use one of the following formulas:

Equilateral Triangular Spacing (▲):

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

Total Area Method

The precipitation rate for a system is the average precipitation rate of all sprinklers in an area, regardless of the spacing, flow rate, or arc for each head. The Total Area Method calculates all the flows of all of the heads in any given area.

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

CONVERSION FACTORS

CONVERSION FACTORS			
To Convert	From	To	Multiply By
Area	acres	foot ²	43560
	acres	meter ²	4046.8
	meter ²	foot ²	10.764
	foot ²	inch ²	144
	inch ²	centimeter ²	6.452
	hectare	meter ²	10000
	hectare	acre	2.471
Power	kilowatts	horsepower	1.341
Flow	foot ³ /minute	meter ³ /second	0.0004719
	foot ³ /second	meter ³ /second	0.02832
	yards ³ /minute	meter ³ /second	0.01274
	gallon/minute	meter ³ /hour	0.22716
	gallon/minute	liter/minute	3.7854
	gallon/minute	liter/second	0.06309
	meter ³ /hour	liter/minute	16.645
	meter ³ /hour	liter/second	0.2774
	liter/minute	liter/second	60
Length	foot	inch	12
	inch	centimeter	2.54
	foot	meter	0.30481
	kilometer	miles	0.6214
	mile	foot	5280
	mile	meter	1609.34
	millimeter	inch	0.03937
Pressure	PSI	kilopascals	6.89476
	PSI	bar	0.068948
	bar	kilopascals	100
	PSI	feet of head	2.31
Velocity	feet/second	meter/second	0.3048
Volume	feet ³	gallon	7.481
	feet ³	liter	28.32
	meter ³	feet ³	35.31
	meter ³	yard ³	1.3087
	yard ³	feet ³	27
	yard ³	gallon	202
	acres/feet	foot ³	43,560
	gallon	meter ³	0.003785
	gallon	liter	3.785
	imperial gallon	gallon	1.833

SYMBOLS AND CONSTANTS

SYMBOLS AND CONSTANTS			
Symbol	Description	U.S. Units	SI Units
a	Cross-sectional area of pipe flow	inches ² (in ²)	millimeters ² (mm ²)
C	Hazen-Williams roughness coefficient	none/unitless	none/unitless
Cu	Christiansen's coefficient of uniformity	percent (%)	percent (%)
d	inside diameter of pipe	inches (in)	millimeters (mm)
Dt	diameter of throw of a sprinkler	feet (ft)	meters (m)
DU	distribution uniformity	percent (%)	percent (%)
ETc	crop evapotranspiration	inches per day (in/day)	millimeters per day (mm/day)
ETO	reference evapotranspiration	inches per day (in/day)	millimeters per day (mm/day)
I	electrical current	amps (A), milliamps (mA)	amps (A), milliamps (mA)
ID	inside diameter of pipe	inches (in)	millimeters (mm)
hf	energy loss due to friction	feet of water (ft)	meters of water (m)
Kc	crop coefficient	percent (%)	percent (%)
ks	constant used to compute sprinkler spacing	none/unitless	none/unitless
L	spacing between lateral lines	feet (ft)	meters (m)
MAD	management allowable depletion	none/unitless	none/unitless
MC	maximum coverage for single-row sprinklers	feet (ft)	meters (m)
OD	outside diameter of pipe	inches (in)	millimeters (mm)
P	pressure of water	pounds per inch ² (PSI)	kilopascals (kPa), bars (bar)
PR	precipitation rate	inches per day (in/day)	millimeters per day (mm/day)
Po	sprinkler operating pressure	pounds per inch ² (PSI)	kilopascals (kPa), bars (bar)
Q	flow of water in a pipe	gallons per minute (GPM)	cubic meters per hour (m ³ /hr), liters per second (lps)
R	electrical resistance	ohms (Ω)	ohms (Ω)
Rt	radius of throw	feet (ft)	meters (m)
S	sprinkler spacing	feet (ft)	meters (m)
SC	scheduling coefficient	none/unitless	none/unitless
v	average velocity of water in pipe	feet per second (fps)	meters per second (mps)
Vo	electrical voltage	volts (V)	volts (V)

CONDUCTOR PROPERTIES

American Wire Gauge (AWG)	N° of Wire Strands	Diameter (in)	Conductor Resistance (ohms/1,000 ft)					
			Copper 75°C (167°F)	Copper 25°C (77°F)	Copper 20°C (68°F)	Aluminum 75°C (167°F)	Aluminum 25°C (77°F)	Aluminum 20°C (68°F)
1	19	0.332	0.15	0.13	0.13	0.25	0.21	0.21
2	7	0.292	0.19	0.16	0.16	0.32	0.27	0.26
3	7	0.260	0.25	0.21	0.20	0.40	0.34	0.33
4	7	0.232	0.31	0.26	0.25	0.51	0.42	0.42
6	7	0.184	0.49	0.41	0.40	0.81	0.68	0.66
8	1	0.128	0.76	0.64	0.63	1.26	1.05	1.03
10	1	0.102	1.21	1.02	1.00	2.00	1.67	1.64
12	1	0.081	1.93	1.62	1.59	3.18	2.66	2.60
14	1	0.064	3.07	2.57	2.53	5.06	4.23	4.14
16	1	0.051	4.89	4.10	4.02	8.05	6.77	6.59
18	1	0.040	7.77	6.52	6.39	12.80	10.69	10.48

Source

Values for 75°C come from National Electric Code (NEC) 1996 edition, table 8.
 Values for 25°C and 20°C are computed with the formula given in footnote 2 of table 8.

Where

a for copper = 0.00323 at 75°C
 a for aluminum = 0.00330 at 75°C

PILOT-FC FIELD CONTROLLER ELECTRICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

SUPPLY VOLTAGE

Two voltage settings

- 120 VAC nominal voltage at 60/50 Hz (100 to 132 VAC)
- 230 VAC nominal voltage at 50/60 Hz (200 to 260 VAC)

Current requirement

- 1 amp under load at 110 VAC
- 0.7 amp under load at 230 VAC

For information on current requirements for various controller configurations, see chart on page 105.

OUTPUT VOLTAGE

Station: 1 A at 24 VAC
 Hot post: 0.4 A at 24 VAC

CAPACITIES

Station Capacity

80 stations
 Up to 20 stations can run simultaneously²

Station Solenoid Load

Up to four 24 VAC Hunter golf solenoids per station output³

1. To prevent damage, all PilotFC controllers are shipped with the supply voltage set to 230 VAC.
2. One 24 VAC Hunter golf solenoid per station.
3. Multiple solenoids connected to a single station will reduce total simultaneous stations.

PILOT-DH TWO-WAY HUB ELECTRICAL SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

SUPPLY VOLTAGE

Auto-switching power supply

- 120 VAC nominal voltage at 60/50 Hz (100 to 132 VAC)
- 230 VAC nominal voltage at 50/60 Hz (200 to 277 VAC)

Current requirement depends on system design and configuration

- 2 A under load at 110 VAC (typical)
- 1 A under load at 230 VAC (typical)
- Contact Hunter for additional information

CAPACITIES

Integrated Two-Way Module Capacity

Up to 999 integrated two-way modules per Pilot-DH two-way hub
Up to 120 24 VAC Hunter golf solenoids on at one time²

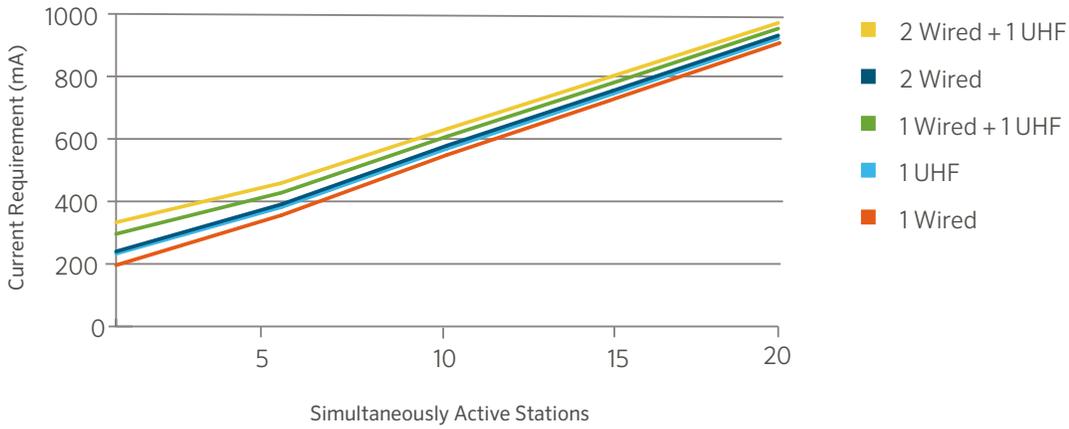
Integrated Two-Way Module Solenoid Load

Up to two 24 VAC Hunter golf solenoids per integrated two-way module³

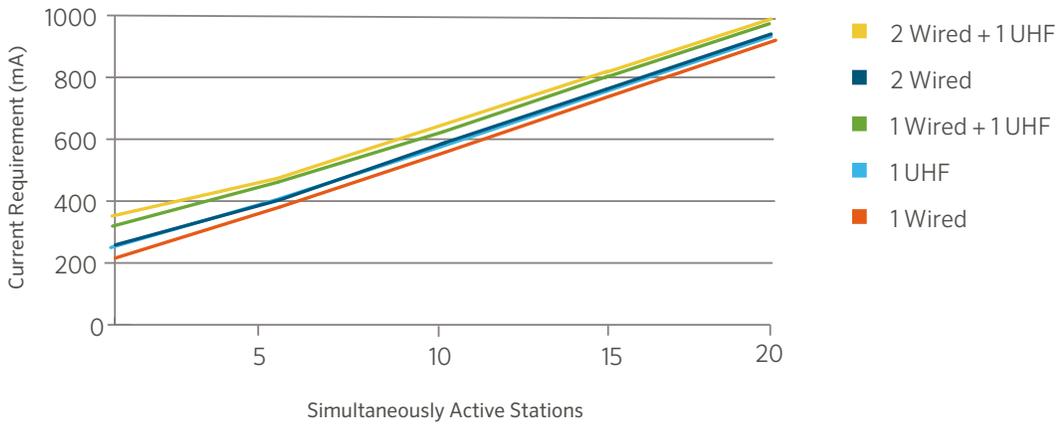
1. The Pilot-DH hub automatically detects supply voltage and frequency.
2. Depends on configuration. Pilot-DH will run up to 30 stations simultaneously per output module.
3. Two solenoids per integrated two-way module does not reduce the maximum simultaneous station count.

PILOT-FC CURRENT REQUIREMENT CHARTS

PILOT-FC FIELD CONTROLLER CURRENT REQUIREMENTS: 110 VAC/60 HZ Supply Voltage, 10 to 40 Stations Various Loads and Communication Options



PILOT-FC FIELD CONTROLLER CURRENT REQUIREMENTS: 110 VAC/60 HZ Supply Voltage, 50 to 80 Stations Various Loads and Communication Options



STANDARD DIMENSIONAL RATIO (SDR)

In pressure-rated pipe, the standard dimensional ratio (SDR) relates a pipe's wall thickness to its outside diameter according to the following formula.

$$\text{SDR} = \frac{\text{Outside diameter}}{\text{Minimum wall thickness}}$$

Example

Find the minimum wall thickness for a 10" SDR 11 HDPE pipe. The outside of this pipe is 10.75". Rearrange the SDR formula to solve for wall thickness.

$$\text{Minimum Wall Thickness} = \frac{\text{Outside diameter}}{\text{SDR}}$$

$$\text{Minimum Wall Thickness} = \frac{10.75''}{11}$$

$$\text{Minimum Wall Thickness} = 0.977''$$

VELOCITY VALUES AND PRESSURE LOSS EQUATIONS

$$v = \frac{0.40813Q}{d^2}$$

Where:

v = velocity of water in feet per second (FPS)

Q = flow rate in gallons per minute (GPM)

d = inside diameter of pipe in inches (in)

0.40813 = unit conversion factor

$$h_f = 0.433 [0.2083 (L/C)^{1.852} (Q^{1.852} / d^{4.8655})]$$

Where:

h_f = pressure lost due to friction through L feet of pipe (PSI/100)

L = length of pipe in feet (ft) (L-100)

Q = flow rate in fallons per minute (GPM)

d = inside diameter of pipe in inches (in)

0.2083 = unit conversion factor

0.433 feet of head per PSI

For water at 60° F (16°C)

WIRE DATA

STANDARD ANNEALED COPPER AT 20°C

American Wire Gauge	Metric Wire Gauge	Diameter (Mils)	Diameter (mm)	Resistance (Per mft Ohms)	Resistance (Per km Ohms)
1		289.3	7.348	0.9239	0.4065
	7		7		0.448
2		257.6	6.543	0.1563	0.5128
	6		6		0.6098
3		229.4	5.827	0.1971	0.6466
4		204.3	5.189	0.2485	0.8152
	5		5		0.08781
5		181.9	4.62	0.3134	1.028
	4.5		4.5		1.084
6		162	4.115	0.3952	1.297
	4		4		1.372
7		144.3	3.665	0.4981	1.634
	3.5		3.5		1.792
8		128.5	3.264	0.6281	2.061
	3		3		2.439
9		114.4	2.906	0.7925	2.6
10		101.9	2.588	0.9988	3.277
	2.5		2.5		3.512
11		90.7	2.3	1.26	4.14
12		80.8	2.05	1.59	5.21
	2		2		5.49
13		72	1.83	2	6.56
	1.8		1.8		6.78
14		64.1	1.63	2.52	8.28
	1.6		1.6		8.58
15		57.1	1.45	3.18	10.4
	1.4		1.4		11.2
16		50.8	1.29	4.02	13.2
	1.2		1.2		15.2
17		45.3	1.15	5.05	16.6
18		40.3	1.02	6.39	21
	1		1		22
19		35.9	0.912	8.05	26.4
	0.9		0.9		27.1
20		32	0.813	10.1	33.2

WIRE SIZING

REQUIRED INFORMATION

Actual one-way length of wire between the controllers and the power source or the controllers and valves

Allowable voltage loss along the wire circuit

Accumulative current flowing through the wire section being sized in amperes

RESISTANCE IS CALCULATED USING THIS FORMULA:

$$R = \frac{1000 \times AVL}{2L \times I}$$

R = Maximum allowable resistance of wire in ohms per 1,000'

AVL = Allowable voltage loss

L = Wire length (one way)

I = Inrush current

AVL for controller power wire sizing is calculated by subtracting the minimum operating voltage required by the controller from the minimum available voltage at the power source.

AVL for valve wire sizing is calculated by subtracting minimum solenoid operating voltage from controller output voltage. This number will vary depending on the manufacturer and in some cases with line pressure.

VALVE WIRE SIZING EXAMPLE

Given: The distance from the controller to the valve is 1,800'. The controller output is 24 V. The valve has a minimum operating voltage of 20 V and an inrush current of 370 mA (0.37 A).

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

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

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

So, wire resistance cannot exceed 3.00 ohms per 1,000'. Now go to table #1 and select the proper wire size. Since 18 gauge wire has more resistance than 3.00 ohms per 1,000', choose 14 gauge wire.

Table 2 is a quick reference and is set up to provide maximum wire runs given the information at the bottom of the table.

TABLE 1: RESISTANCE OF COPPER WIRE

Wire Size (AWG)	Resistance at 20°C (68°F) (ohms per 1,000')
18	6.39
16	4.02
14	2.52
12	1.59
10	1
8	0.63
6	0.4
4	0.25

TABLE 2: VALVE WIRE SIZING

Ground Wire	Control Wire						
	18	16	14	12	10	8	6
18	850	1040	1210	1350	1460	1540	1590
16	1040	1340	1650	1920	2150	2330	2440
14	1210	1650	2150	2630	3080	3450	3700
12	1350	1920	2630	3390	4170	4880	5400
10	1460	2150	3080	4170	5400	6670	7690
8	1540	2330	3450	4880	6670	8700	10530
6	1590	2440	3700	5400	7690	10530	13330

Notes:

Maximum one-way distance in feet between controller and valve heavy-duty solenoid: 24 VAC, 350 mA inrush current, 190 mA holding current, 60 Hz; 370 mA inrush current, 210 mA holding current, 50 Hz.

ADDITIONAL DATA

WIRE SIZE REFERENCE CHART

Wire Size (AWG)	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	Wire Size (AWG)
18	6	12	20	35	49	80	110	175					18
16	5	10	16	30	42	67	97	150					16
14	4	6	10	18	25	40	56	88	120	150			14
12	3	5	7	15	20	33	50	75	102	130	205		12
10	1	3	6	13	16	27	40	63	85	110	170		10
8	1	2	4	6	9	16	25	35	50	65	105	150	8
6	1	1	3	3	5	10	15	22	32	40	63	92	6
4		1	1	2	4	7	10	16	24	30	48	70	4
2		1	1	2	2	5	9	12	18	22	36	54	2
0			1	1	2	3	5	8	12	15	24	36	0
00			1	1	1	2	4	7	10	14	21	31	00
000				1	1	2	3	6	8	11	18	26	000
0000				1	1	1	2	5	7	10	15	22	0000

Notes:

Approximate number of wires to be installed in conduit or tubing.
Maximum number of wires in conduit or sleeving.

ESTIMATING PIPE SIZE

Nominal Pipe Size	Approximate String Length in Inches		
	Copper Pipe	Galvanized (Sch. 40 Steel)	PVC Pipe
½"	2"	2⅝"	2⅝"
⅝"	2⅜"		
¾"	2¾"	3⅝"	3⅝"
1"	3½"	4⅞"	4⅞"
1¼"	4⅝"	5⅜"	5⅜"
1½"	5⅞"	6"	6"
2"	6¾"	7⅞"	7⅞"

Notes:

To determine the nominal size of a pipe, wrap a string around the pipe and compare its length to the chart above.

CLIMATE ETp TABLE

Climate*	Inches Daily
Cool Humid	0.10 to 0.15
Cool Dry	0.15 to 0.20
Warm Humid	0.15 to 0.20
Warm Dry	0.20 to 0.25
Hot Humid	0.20 to 0.30
Hot Dry	0.30 to 0.45

Notes:

- * Cool = under 70°F as an average midsummer high
- * Warm = between 70° and 90° F as midsummer highs
- * Hot = over 90°F
- * Humid = over 50% as average mid summer relative humidity (dry=under 50%)

FRICITION LOSS CHARTS: SCHEDULE 40 PVC

ASTM 1785 C=150 • PSI loss per 100 ft. of pipe

Nominal Size Pipe ID	1" 1.029		1¼" 1.360		1½" 1.590		2" 2.047		2½" 2.445		3" 3.042		4" 3.998		6" 6.031	
	Velocity FPS	PSI Loss														
1	0.39	0.04	0.22	0.01	0.16	0.00	0.10	0.00	0.07	0.00	0.04	0.00	0.03	0.00	0.01	0.00
2	0.77	0.13	0.44	0.03	0.32	0.02	0.19	0.00	0.14	0.00	0.09	0.00	0.05	0.00	0.02	0.00
3	1.16	0.28	0.66	0.07	0.48	0.03	0.29	0.01	0.20	0.00	0.13	0.00	0.08	0.00	0.03	0.00
4	1.54	0.48	0.88	0.12	0.65	0.06	0.39	0.02	0.27	0.01	0.18	0.00	0.10	0.00	0.04	0.00
5	1.93	0.73	1.10	0.19	0.81	0.09	0.49	0.03	0.34	0.01	0.22	0.00	0.13	0.00	0.06	0.00
6	2.31	1.02	1.32	0.26	0.97	0.12	0.58	0.04	0.41	0.02	0.26	0.01	0.15	0.00	0.07	0.00
7	2.70	1.36	1.54	0.35	1.13	0.16	0.68	0.05	0.48	0.02	0.31	0.01	0.18	0.00	0.08	0.00
8	3.08	1.74	1.77	0.45	1.29	0.21	0.78	0.06	0.55	0.03	0.35	0.01	0.20	0.00	0.09	0.00
9	3.47	2.17	1.99	0.56	1.45	0.26	0.88	0.08	0.61	0.03	0.40	0.01	0.23	0.00	0.10	0.00
10	3.85	2.63	2.21	0.68	1.61	0.32	0.97	0.09	0.68	0.04	0.44	0.01	0.26	0.00	0.11	0.00
12	4.63	3.69	2.65	0.95	1.94	0.44	1.17	0.13	0.82	0.05	0.53	0.02	0.31	0.01	0.13	0.00
14	5.40	4.91	3.09	1.26	2.26	0.59	1.36	0.17	0.96	0.07	0.62	0.03	0.36	0.01	0.16	0.00
16	6.17	6.29	3.53	1.62	2.58	0.76	1.56	0.22	1.09	0.09	0.71	0.03	0.41	0.01	0.18	0.00
18	6.94	7.82	3.97	2.01	2.91	0.94	1.75	0.28	1.23	0.12	0.79	0.04	0.46	0.01	0.20	0.00
20	7.71	9.51	4.41	2.45	3.23	1.14	1.95	0.33	1.37	0.14	0.88	0.05	0.51	0.01	0.22	0.00
22	8.48	11.35	4.85	2.92	3.55	1.37	2.14	0.40	1.50	0.17	0.97	0.06	0.56	0.02	0.25	0.00
24	9.25	13.33	5.30	3.43	3.87	1.60	2.34	0.47	1.64	0.20	1.06	0.07	0.61	0.02	0.27	0.00
26			5.74	3.98	4.20	1.86	2.53	0.54	1.78	0.23	1.15	0.08	0.66	0.02	0.29	0.00
28			6.18	4.57	4.52	2.13	2.73	0.62	1.91	0.26	1.23	0.09	0.71	0.02	0.31	0.00
30			6.62	5.19	4.84	2.43	2.92	0.71	2.05	0.30	1.32	0.10	0.77	0.03	0.34	0.00
35			7.72	6.90	5.65	3.23	3.41	0.94	2.39	0.40	1.54	0.14	0.89	0.04	0.39	0.00
40			8.83	8.84	6.46	4.13	3.90	1.21	2.73	0.51	1.76	0.18	1.02	0.05	0.45	0.01
45			9.93	10.99	7.26	5.14	4.38	1.50	3.07	0.63	1.98	0.22	1.15	0.06	0.50	0.01
50					8.07	6.25	4.87	1.83	3.41	0.77	2.21	0.27	1.28	0.07	0.56	0.01
55					8.88	7.45	5.36	2.18	3.75	0.92	2.43	0.32	1.40	0.08	0.62	0.01
60					9.69	8.76	5.84	2.56	4.10	1.08	2.65	0.37	1.53	0.10	0.67	0.01
65							6.33	2.97	4.44	1.25	2.87	0.43	1.66	0.11	0.73	0.02
70							6.82	3.41	4.78	1.44	3.09	0.50	1.79	0.13	0.79	0.02
75							7.31	3.87	5.12	1.63	3.31	0.56	1.92	0.15	0.84	0.02
80							7.79	4.36	5.46	1.84	3.53	0.63	2.04	0.17	0.90	0.02
85							8.28	4.88	5.80	2.06	3.75	0.71	2.17	0.19	0.95	0.03
90							8.77	5.43	6.14	2.29	3.97	0.79	2.30	0.21	1.01	0.03
95							9.25	6.00	6.49	2.53	4.19	0.87	2.43	0.23	1.07	0.03
100							9.74	6.60	6.83	2.78	4.41	0.96	2.55	0.25	1.12	0.03
110									7.51	3.32	4.85	1.15	2.81	0.30	1.23	0.04
120									8.19	3.90	5.29	1.35	3.06	0.36	1.35	0.05
130									8.88	4.52	5.73	1.56	3.32	0.41	1.46	0.06
140									9.56	5.18	6.17	1.79	3.57	0.47	1.57	0.06
150											6.62	2.03	3.83	0.54	1.68	0.07
160											7.06	2.29	4.09	0.61	1.80	0.08
170											7.50	2.56	4.34	0.68	1.91	0.09
180											7.94	2.85	4.60	0.75	2.02	0.10
190											8.38	3.15	4.85	0.83	2.13	0.11
200											8.82	3.47	5.11	0.92	2.24	0.12
225											9.92	4.31	5.75	1.14	2.52	0.15
250													6.38	1.39	2.81	0.19
275													7.02	1.65	3.09	0.22
300													7.66	1.94	3.37	0.26
325													8.30	2.25	3.65	0.30
350													8.94	2.58	3.93	0.35
375													9.58	2.94	4.21	0.40
400															4.49	0.45
425															4.77	0.50
450															5.05	0.56
475															5.33	0.62
500															5.61	0.68
525															5.89	0.74
550															6.17	0.81
575															6.45	0.88
600															6.73	0.95
625															7.01	1.02
650															7.29	1.10
675															7.57	1.18
700															7.85	1.26
725															8.14	1.35

FRICITION LOSS CHARTS: SCHEDULE 80 PVC

ASTM 1785 C=150 • PSI loss per 100 ft. of pipe																
Nominal Size Pipe ID	1" 0.935		1¼" 1.254		1½" 1.476		2" 1.913		2½" 2.289		3" 2.864		4" 3.786		6" 5.709	
	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
1	0.47	0.06	0.26	0.01	0.19	0.01										
2	0.93	0.21	0.52	0.05	0.37	0.02	0.22	0.01								
3	1.40	0.45	0.78	0.11	0.56	0.05	0.33	0.01								
4	1.87	0.77	1.04	0.18	0.75	0.08	0.45	0.02	0.31	0.01						
5	2.33	1.16	1.30	0.28	0.94	0.13	0.56	0.04	0.39	0.01						
6	2.80	1.63	1.56	0.39	1.12	0.18	0.67	0.05	0.47	0.02	0.30	0.01				
7	3.27	2.17	1.82	0.52	1.31	0.24	0.78	0.07	0.55	0.03	0.35	0.01				
8	3.73	2.78	2.08	0.67	1.50	0.30	0.89	0.09	0.62	0.04	0.40	0.01				
9	4.20	3.45	2.34	0.83	1.69	0.37	1.00	0.11	0.70	0.04	0.45	0.01				
10	4.67	4.20	2.60	1.01	1.87	0.46	1.12	0.13	0.78	0.05	0.50	0.02				
12	5.60	5.88	3.11	1.41	2.25	0.64	1.34	0.18	0.93	0.08	0.60	0.03				
14	6.54	7.83	3.63	1.88	2.62	0.85	1.56	0.24	1.09	0.10	0.70	0.03				
16	7.47	10.03	4.15	2.40	3.00	1.09	1.78	0.31	1.25	0.13	0.80	0.04	0.46	0.01		
18	8.40	12.47	4.67	2.99	3.37	1.35	2.01	0.38	1.40	0.16	0.90	0.05	0.51	0.01		
20	9.34	15.16	5.19	3.63	3.75	1.64	2.23	0.47	1.56	0.19	1.00	0.07	0.57	0.02		
22			5.71	4.33	4.12	1.96	2.45	0.56	1.71	0.23	1.09	0.08	0.63	0.02		
24			6.23	5.09	4.50	2.30	2.68	0.65	1.87	0.27	1.19	0.09	0.68	0.02		
26			6.75	5.91	4.87	2.67	2.90	0.76	2.03	0.32	1.29	0.11	0.74	0.03		
28			7.27	6.78	5.25	3.07	3.12	0.87	2.18	0.36	1.39	0.12	0.80	0.03		
30			7.79	7.70	5.62	3.48	3.35	0.99	2.34	0.41	1.49	0.14	0.85	0.04		
35			9.08	10.24	6.56	4.63	3.90	1.31	2.73	0.55	1.74	0.18	1.00	0.05	0.44	0.01
40					7.49	5.93	4.46	1.68	3.12	0.70	1.99	0.24	1.14	0.06	0.50	0.01
45					8.43	7.38	5.02	2.09	3.51	0.87	2.24	0.29	1.28	0.08	0.56	0.01
50					9.37	8.97	5.58	2.54	3.89	1.06	2.49	0.36	1.42	0.09	0.63	0.01
55							6.13	3.03	4.28	1.27	2.74	0.43	1.57	0.11	0.69	0.01
60							6.69	3.56	4.67	1.49	2.99	0.50	1.71	0.13	0.75	0.02
65							7.25	4.13	5.06	1.72	3.23	0.58	1.85	0.15	0.81	0.02
70							7.81	4.74	5.45	1.98	3.48	0.66	1.99	0.17	0.88	0.02
75							8.36	5.38	5.84	2.25	3.73	0.76	2.14	0.19	0.94	0.03
80							8.92	6.07	6.23	2.53	3.98	0.85	2.28	0.22	1.00	0.03
85							9.48	6.79	6.62	2.83	4.23	0.95	2.42	0.25	1.06	0.03
90									7.01	3.15	4.48	1.06	2.56	0.27	1.13	0.04
95									7.40	3.48	4.73	1.17	2.70	0.30	1.19	0.04
100									7.79	3.83	4.98	1.29	2.85	0.33	1.25	0.04
110									8.57	4.57	5.47	1.54	3.13	0.39	1.38	0.05
120									9.35	5.37	5.97	1.80	3.42	0.46	1.50	0.06
130											6.47	2.09	3.70	0.54	1.63	0.07
140											6.97	2.40	3.99	0.62	1.75	0.08
150											7.46	2.73	4.27	0.70	1.88	0.10
160											7.96	3.07	4.56	0.79	2.00	0.11
170											8.46	3.44	4.84	0.88	2.13	0.12
180											8.96	3.82	5.13	0.98	2.25	0.13
190											9.45	4.23	5.41	1.09	2.38	0.15
200											9.95	4.65	5.69	1.20	2.50	0.16
225													6.41	1.49	2.82	0.20
250													7.12	1.81	3.13	0.24
275													7.83	2.16	3.44	0.29
300													8.54	2.53	3.76	0.34
325													9.25	2.94	4.07	0.40
350													9.97	3.37	4.38	0.46
375															4.70	0.52
400															5.01	0.58
425															5.32	0.65
450															5.63	0.73
475															5.95	0.80
500															6.26	0.88
525															6.57	0.97
550															6.89	1.05
575															7.20	1.15
600															7.51	1.24
625															7.83	1.34
650															8.14	1.44
675															8.45	1.54
700															8.77	1.65

FRICION LOSS CHARTS: CLASS 160 SDR 26 PVC IPS 160 PSI

ANSI/ASAE S376.2 ASTM D2241 C=150 • PSI loss per 100 ft. of pipe																		
Nominal Size	1½"		2"		2½"		3"		4"		6"		8"		10"		12"	
Pipe OD	1.950		2.375		2.875		3.500		4.500		6.625		8.625		10.750		12.750	
Min. Wall	0.073		0.091		0.110		0.135		0.173		0.255		0.332		0.413		0.490	
Pipe ID	1.734		2.173		2.635		3.210		4.134		6.084		7.921		11.710		11.710	
Flow (GPM)	Velocity	PSI																
	FPS	Loss																
1	0.14	0.00																
2	0.27	0.01	0.17	0.00														
3	0.41	0.02	0.26	0.01														
4	0.54	0.04	0.35	0.01	0.24	0.00												
5	0.68	0.06	0.43	0.02	0.29	0.01												
10	1.36	0.21	0.86	0.07	0.59	0.03	0.40	0.01										
15	2.04	0.44	1.30	0.15	0.88	0.06	0.59	0.02	0.36	0.01								
20	2.71	0.75	1.73	0.25	1.18	0.10	0.79	0.04	0.48	0.01								
25	3.39	1.13	2.16	0.38	1.47	0.15	0.99	0.06	0.60	0.02								
30	4.07	1.59	2.59	0.53	1.76	0.21	1.19	0.08	0.72	0.02								
35	4.75	2.12	3.03	0.71	2.06	0.28	1.39	0.11	0.84	0.03	0.39	0.00	0.23	0.00	0.15	0.00	0.10	0.00
40	5.43	2.71	3.46	0.90	2.35	0.35	1.58	0.14	0.96	0.04	0.44	0.01	0.26	0.00	0.17	0.00	0.12	0.00
45	6.11	3.37	3.89	1.12	2.65	0.44	1.78	0.17	1.07	0.05	0.50	0.01	0.29	0.00	0.19	0.00	0.13	0.00
50	6.79	4.10	4.32	1.37	2.94	0.53	1.98	0.20	1.19	0.06	0.55	0.01	0.33	0.00	0.21	0.00	0.15	0.00
55	7.47	4.89	4.75	1.63	3.23	0.64	2.18	0.24	1.31	0.07	0.61	0.01	0.36	0.00	0.23	0.00	0.16	0.00
60	8.14	5.74	5.19	1.92	3.53	0.75	2.38	0.29	1.43	0.08	0.66	0.01	0.39	0.00	0.25	0.00	0.18	0.00
70	9.50	7.64	6.05	2.55	4.11	1.00	2.77	0.38	1.67	0.11	0.77	0.02	0.46	0.00	0.29	0.00	0.21	0.00
80			6.91	3.26	4.70	1.28	3.17	0.49	1.91	0.14	0.88	0.02	0.52	0.01	0.33	0.00	0.24	0.00
90			7.78	4.06	5.29	1.59	3.56	0.61	2.15	0.18	0.99	0.03	0.59	0.01	0.38	0.00	0.27	0.00
100			8.64	4.93	5.88	1.93	3.96	0.74	2.39	0.22	1.10	0.03	0.65	0.01	0.42	0.00	0.30	0.00
150					8.82	4.09	5.94	1.57	3.58	0.46	1.65	0.07	0.98	0.02	0.63	0.01	0.45	0.00
200							7.92	2.67	4.78	0.78	2.21	0.12	1.30	0.03	0.84	0.01	0.60	0.00
250							9.90	4.03	5.97	1.18	2.76	0.18	1.63	0.05	1.05	0.02	0.74	0.01
300									7.16	1.65	3.31	0.25	1.95	0.07	1.26	0.02	0.89	0.01
350									8.36	2.20	3.86	0.34	2.28	0.09	1.47	0.03	1.04	0.01
400									9.55	2.81	4.41	0.43	2.60	0.12	1.67	0.04	1.19	0.02
450											4.96	0.53	2.93	0.15	1.88	0.05	1.34	0.02
500											5.51	0.65	3.25	0.18	2.09	0.06	1.49	0.03
550											6.06	0.77	3.58	0.21	2.30	0.07	1.64	0.03
600											6.62	0.91	3.90	0.25	2.51	0.09	1.79	0.04
700											7.72	1.21	4.55	0.34	2.93	0.11	2.08	0.05
800											8.82	1.55	5.20	0.43	3.35	0.15	2.38	0.06
900											9.92	1.93	5.85	0.53	3.77	0.18	2.68	0.08
1,000													6.50	0.65	4.19	0.22	2.98	0.10
1,100													7.16	0.77	4.60	0.26	3.27	0.12
1,200													7.81	0.91	5.02	0.31	3.57	0.14
1,300													8.46	1.05	5.44	0.36	3.87	0.16
1,400													9.11	1.21	5.86	0.41	4.17	0.18
1,500													9.76	1.37	6.28	0.47	4.46	0.21
1,600														6.70	0.53	4.76	0.23	
1,700															7.12	0.59	5.06	0.26
1,800															7.54	0.66	5.36	0.29
1,900															7.95	0.73	5.66	0.32
2,000															8.37	0.80	5.95	0.35
2,100															8.79	0.88	6.25	0.38
2,200															9.21	0.96	6.55	0.42
2,300															9.63	1.04	6.85	0.45
2,400																7.14	0.49	
2,500																7.44	0.53	
2,600																7.74	0.57	
2,700																8.04	0.61	
2,800																8.33	0.65	
2,900																8.63	0.70	
3,000																8.93	0.74	
3,250																9.67	0.86	

FRICITION LOSS CHARTS: CLASS 200 SDR 21 PVC IPS

ANSI/ASAE S376.2 ASTM D2241 C=150 • PSI loss per 100 ft. of pipe																		
Nominal Size	1½"		2"		2½"		3"		4"		6"		8"		10"		12"	
Pipe OD	1.950		2.375		2.875		3.500		4.500		6.625		8.625		10.750		12.750	
Min. Wall	0.090		0.113		0.137		0.167		0.214		0.316		0.410		0.511		0.606	
Pipe ID	1.700		2.129		2.581		3.146		4.046		5.955		7.755		9.666		11.464	
Flow (GPM)	Velocity FPS	PSI Loss																
1	0.14	0.00	0.09	0.00														
2	0.28	0.01	0.18	0.00														
3	0.42	0.02	0.27	0.01														
4	0.56	0.04	0.36	0.01	0.25	0.01												
5	0.71	0.06	0.45	0.02	0.31	0.01												
10	1.41	0.23	0.90	0.08	0.61	0.03	0.41	0.01										
15	2.12	0.49	1.35	0.16	0.92	0.06	0.62	0.02										
20	2.82	0.83	1.80	0.28	1.23	0.11	0.82	0.04	0.50	0.01								
25	3.53	1.25	2.25	0.42	1.53	0.16	1.03	0.06	0.62	0.02								
30	4.24	1.75	2.70	0.59	1.84	0.23	1.24	0.09	0.75	0.03								
35	4.94	2.33	3.15	0.78	2.14	0.31	1.44	0.12	0.87	0.03	0.40	0.01	0.24	0.00	0.15	0.00	0.11	0.00
40	5.65	2.98	3.60	1.00	2.45	0.39	1.65	0.15	1.00	0.04	0.46	0.01	0.27	0.00	0.17	0.00	0.12	0.00
45	6.35	3.71	4.05	1.24	2.76	0.49	1.86	0.19	1.12	0.05	0.52	0.01	0.31	0.00	0.20	0.00	0.14	0.00
50	7.06	4.51	4.50	1.51	3.06	0.59	2.06	0.23	1.25	0.07	0.58	0.01	0.34	0.00	0.22	0.00	0.16	0.00
55	7.77	5.38	4.95	1.80	3.37	0.71	2.27	0.27	1.37	0.08	0.63	0.01	0.37	0.00	0.24	0.00	0.17	0.00
60	8.47	6.32	5.40	2.12	3.68	0.83	2.47	0.32	1.50	0.09	0.69	0.01	0.41	0.00	0.26	0.00	0.19	0.00
70	9.89	8.41	6.30	2.81	4.29	1.10	2.89	0.42	1.75	0.12	0.81	0.02	0.48	0.01	0.31	0.00	0.22	0.00
80			7.20	3.60	4.90	1.41	3.30	0.54	1.99	0.16	0.92	0.02	0.54	0.01	0.35	0.00	0.25	0.00
90			8.10	4.48	5.51	1.76	3.71	0.67	2.24	0.20	1.04	0.03	0.61	0.01	0.39	0.00	0.28	0.00
100			9.00	5.45	6.13	2.14	4.12	0.82	2.49	0.24	1.15	0.04	0.68	0.01	0.44	0.00	0.31	0.00
150					9.19	4.53	6.19	1.73	3.74	0.51	1.73	0.08	1.02	0.02	0.66	0.01	0.47	0.00
200							8.25	2.94	4.99	0.87	2.30	0.13	1.36	0.04	0.87	0.01	0.62	0.01
250									6.23	1.31	2.88	0.20	1.70	0.06	1.09	0.02	0.78	0.01
300									7.48	1.83	3.45	0.28	2.04	0.08	1.31	0.03	0.93	0.01
350									8.73	2.44	4.03	0.37	2.38	0.10	1.53	0.04	1.09	0.02
400									9.97	3.12	4.60	0.48	2.71	0.13	1.75	0.05	1.24	0.02
450											5.18	0.59	3.05	0.16	1.97	0.06	1.40	0.02
500											5.75	0.72	3.39	0.20	2.18	0.07	1.55	0.03
550											6.33	0.86	3.73	0.24	2.40	0.08	1.71	0.04
600											6.91	1.01	4.07	0.28	2.62	0.10	1.86	0.04
700											8.06	1.34	4.75	0.37	3.06	0.13	2.17	0.06
800											9.21	1.72	5.43	0.48	3.49	0.16	2.48	0.07
900													6.11	0.59	3.93	0.20	2.79	0.09
1,000													6.79	0.72	4.37	0.25	3.11	0.11
1,100													7.46	0.86	4.81	0.29	3.42	0.13
1,200													8.14	1.01	5.24	0.35	3.73	0.15
1,300													8.82	1.17	5.68	0.40	4.04	0.17
1,400													9.50	1.34	6.12	0.46	4.35	0.20
1,500															6.55	0.52	4.66	0.23
1,600															6.99	0.59	4.97	0.26
1,700															7.43	0.66	5.28	0.29
1,800															7.86	0.73	5.59	0.32
1,900															8.30	0.81	5.90	0.35
2,000															8.74	0.89	6.21	0.39
2,100															9.17	0.97	6.52	0.42
2,200															9.61	1.06	6.83	0.46
2,300																	7.14	0.50
2,400																	7.45	0.54
2,500																	7.76	0.59
2,600																	8.07	0.63
2,700																	8.38	0.68
2,800																	8.70	0.72
2,900																	9.01	0.77
3,000																	9.32	0.82
3,250																		

FRICITION LOSS CHARTS: 315 SDR 13.5 PVC IPS PLASTIC PIPE

ANSI/ASAE S376.2 ASTM D2241 C=150 • PSI loss per 100 ft. of pipe

Nominal Size Pipe OD Min. Wall Pipe ID	1½"		2"		2½"		3"		4"		6"	
	1.900 0.141 1.7		2.375 0.176 2.129		2.875 0.213 2.581		3.500 0.259 3.146		4.500 0.333 4.046		6.625 0.491 5.955	
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
1	0.14	0.00										
2	0.28	0.01	0.18	0.00								
3	0.42	0.02	0.27	0.01								
4	0.56	0.04	0.36	0.01	0.25	0.01						
5	0.71	0.06	0.45	0.02	0.31	0.01						
10	1.41	0.23	0.90	0.08	0.61	0.03	0.41	0.01				
12	1.69	0.32	1.08	0.11	0.74	0.04	0.49	0.02				
14	1.98	0.43	1.26	0.14	0.86	0.06	0.58	0.02				
16	2.26	0.55	1.44	0.18	0.98	0.07	0.66	0.03	0.40	0.01		
18	2.54	0.68	1.62	0.23	1.10	0.09	0.74	0.03	0.45	0.01		
20	2.82	0.83	1.80	0.28	1.23	0.11	0.82	0.04	0.50	0.01		
22	3.11	0.99	1.98	0.33	1.35	0.13	0.91	0.05	0.55	0.01		
24	3.39	1.16	2.16	0.39	1.47	0.15	0.99	0.06	0.60	0.02		
26	3.67	1.34	2.34	0.45	1.59	0.18	1.07	0.07	0.65	0.02		
28	3.95	1.54	2.52	0.52	1.72	0.20	1.15	0.08	0.70	0.02		
30	4.24	1.75	2.70	0.59	1.84	0.23	1.24	0.09	0.75	0.03	0.35	0.00
35	4.94	2.33	3.15	0.78	2.14	0.31	1.44	0.12	0.87	0.03	0.40	0.01
40	5.65	2.98	3.60	1.00	2.45	0.39	1.65	0.15	1.00	0.04	0.46	0.01
45	6.35	3.71	4.05	1.24	2.76	0.49	1.86	0.19	1.12	0.05	0.52	0.01
50	7.06	4.51	4.50	1.51	3.06	0.59	2.06	0.23	1.25	0.07	0.58	0.01
55	7.77	5.38	4.95	1.80	3.37	0.71	2.27	0.27	1.37	0.08	0.63	0.01
60	8.47	6.32	5.40	2.12	3.68	0.83	2.47	0.32	1.50	0.09	0.69	0.01
65	9.18	7.33	5.85	2.45	3.98	0.96	2.68	0.37	1.62	0.11	0.75	0.02
70	9.89	8.41	6.30	2.81	4.29	1.10	2.89	0.42	1.75	0.12	0.81	0.02
75			6.75	3.20	4.59	1.25	3.09	0.48	1.87	0.14	0.86	0.02
80			7.20	3.60	4.90	1.41	3.30	0.54	1.99	0.16	0.92	0.02
85			7.65	4.03	5.21	1.58	3.51	0.60	2.12	0.18	0.98	0.03
90			8.10	4.48	5.51	1.76	3.71	0.67	2.24	0.20	1.04	0.03
95			8.55	4.96	5.82	1.94	3.92	0.74	2.37	0.22	1.09	0.03
100			9.00	5.45	6.13	2.14	4.12	0.82	2.49	0.24	1.15	0.04
105			9.45	5.96	6.43	2.34	4.33	0.89	2.62	0.26	1.21	0.04
110			9.90	6.50	6.74	2.55	4.54	0.97	2.74	0.29	1.27	0.04
115					7.05	2.77	4.74	1.06	2.87	0.31	1.32	0.05
120					7.35	2.99	4.95	1.14	2.99	0.34	1.38	0.05
125					7.66	3.23	5.15	1.23	3.12	0.36	1.44	0.06
130					7.96	3.47	5.36	1.33	3.24	0.39	1.50	0.06
135					8.27	3.72	5.57	1.42	3.37	0.42	1.55	0.06
140					8.58	3.98	5.77	1.52	3.49	0.45	1.61	0.07
145					8.88	4.25	5.98	1.62	3.62	0.48	1.67	0.07
150					9.19	4.53	6.19	1.73	3.74	0.51	1.73	0.08
155					9.50	4.81	6.39	1.84	3.86	0.54	1.78	0.08
160					9.80	5.10	6.60	1.95	3.99	0.57	1.84	0.09
165							6.80	2.06	4.11	0.61	1.90	0.09
170							7.01	2.18	4.24	0.64	1.96	0.10
175							7.22	2.30	4.36	0.68	2.01	0.10
180							7.42	2.42	4.49	0.71	2.07	0.11
185							7.63	2.55	4.61	0.75	2.13	0.11
190							7.83	2.68	4.74	0.79	2.19	0.12
195							8.04	2.81	4.86	0.83	2.24	0.13
200							8.25	2.94	4.99	0.87	2.30	0.13
225							9.28	3.66	5.61	1.08	2.59	0.16
250									6.23	1.31	2.88	0.20
275									6.86	1.56	3.16	0.24
300									7.48	1.83	3.45	0.28
325									8.10	2.13	3.74	0.32
350									8.73	2.44	4.03	0.37
375									9.35	2.77	4.32	0.42
400									9.97	3.12	4.60	0.48
425											4.89	0.53
450											5.18	0.59
475											5.47	0.65
500											5.75	0.72
525											6.04	0.79
550											6.33	0.86
575											6.62	0.93

FRICITION LOSS CHARTS: HDPE DR 13.5 128 PSI

ANSI/ASAE S376.2 PE3408 ASTM D2239 C=150 • PSI loss per 100 ft. of pipe

Nominal Size Pipe OD Min. Wall Pipe ID	3"		4"		6"		8"		10"		12"		14"		16"		18"	
	3.500		4.500		6.625		8.625		10.750		12.750		14.000		16.000		18.000	
	0.275		0.353		0.521		0.678		0.844		1.001		1.099		1.256		1.413	
	2.950		3.794		5.583		7.269		9.062		10.748		11.802		13.488		15.174	
Flow (GPM)	Velocity FPS	PSI Loss																
50	2.34	0.31	1.42	0.09	0.65	0.01												
60	2.81	0.43	1.70	0.13	0.79	0.02												
70	3.28	0.58	1.98	0.17	0.92	0.03												
80	3.75	0.74	2.27	0.22	1.05	0.03												
90	4.22	0.92	2.55	0.27	1.18	0.04												
100	4.69	1.11	2.84	0.33	1.31	0.05	0.77	0.01										
120	5.63	1.56	3.40	0.46	1.57	0.07	0.93	0.02										
140	6.57	2.08	3.97	0.61	1.83	0.09	1.08	0.03										
160	7.50	2.66	4.54	0.78	2.09	0.12	1.24	0.03										
180	8.44	3.31	5.10	0.97	2.36	0.15	1.39	0.04										
200	9.38	4.02	5.67	1.18	2.62	0.18	1.54	0.05	0.99	0.02	0.71	0.01						
220			6.24	1.41	2.88	0.22	1.70	0.06	1.09	0.02	0.78	0.01						
240			6.80	1.66	3.14	0.25	1.85	0.07	1.19	0.02	0.85	0.01						
260			7.37	1.92	3.40	0.29	2.01	0.08	1.29	0.03	0.92	0.01						
280			7.94	2.21	3.67	0.34	2.16	0.09	1.39	0.03	0.99	0.01						
300			8.51	2.51	3.93	0.38	2.32	0.11	1.49	0.04	1.06	0.02						
320			9.07	2.82	4.19	0.43	2.47	0.12	1.59	0.04	1.13	0.02	0.94	0.01				
340			9.64	3.16	4.45	0.48	2.63	0.13	1.69	0.05	1.20	0.02	1.00	0.01				
360					4.71	0.54	2.78	0.15	1.79	0.05	1.27	0.02	1.05	0.01				
380					4.98	0.59	2.94	0.16	1.89	0.06	1.34	0.02	1.11	0.02				
400					5.24	0.65	3.09	0.18	1.99	0.06	1.41	0.03	1.17	0.02				
450					5.89	0.81	3.48	0.22	2.24	0.08	1.59	0.03	1.32	0.02	1.01	0.01		
500					6.55	0.99	3.86	0.27	2.48	0.09	1.77	0.04	1.47	0.03	1.12	0.01		
550					7.20	1.18	4.25	0.33	2.73	0.11	1.94	0.05	1.61	0.03	1.23	0.02		
600					7.86	1.38	4.63	0.38	2.98	0.13	2.12	0.06	1.76	0.04	1.35	0.02		
650					8.51	1.60	5.02	0.44	3.23	0.15	2.30	0.07	1.90	0.04	1.46	0.02		
700					9.17	1.84	5.41	0.51	3.48	0.17	2.47	0.08	2.05	0.05	1.57	0.03	1.24	0.01
750					9.82	2.09	5.79	0.58	3.73	0.20	2.65	0.09	2.20	0.05	1.68	0.03	1.33	0.02
800							6.18	0.65	3.98	0.22	2.83	0.10	2.34	0.06	1.79	0.03	1.42	0.02
850							6.57	0.73	4.22	0.25	3.00	0.11	2.49	0.07	1.91	0.04	1.51	0.02
900							6.95	0.81	4.47	0.28	3.18	0.12	2.64	0.08	2.02	0.04	1.60	0.02
950							7.34	0.90	4.72	0.31	3.36	0.13	2.78	0.08	2.13	0.04	1.68	0.02
1,000							7.72	0.99	4.97	0.34	3.53	0.15	2.93	0.09	2.24	0.05	1.77	0.03
1,050							8.11	1.08	5.22	0.37	3.71	0.16	3.08	0.10	2.36	0.05	1.86	0.03
1,100							8.50	1.18	5.47	0.40	3.89	0.18	3.22	0.11	2.47	0.06	1.95	0.03
1,150							8.88	1.28	5.72	0.44	4.06	0.19	3.37	0.12	2.58	0.06	2.04	0.04
1,200							9.27	1.38	5.96	0.47	4.24	0.21	3.52	0.13	2.69	0.07	2.13	0.04
1,250							9.66	1.49	6.21	0.51	4.42	0.22	3.66	0.14	2.80	0.07	2.22	0.04
1,300									6.46	0.55	4.59	0.24	3.81	0.15	2.92	0.08	2.30	0.04
1,350									6.71	0.59	4.77	0.26	3.96	0.16	3.03	0.08	2.39	0.05
1,400									6.96	0.63	4.95	0.27	4.10	0.17	3.14	0.09	2.48	0.05
1,450									7.21	0.67	5.12	0.29	4.25	0.19	3.25	0.10	2.57	0.05
1,500									7.45	0.71	5.30	0.31	4.40	0.20	3.37	0.10	2.66	0.06
1,550									7.70	0.76	5.48	0.33	4.54	0.21	3.48	0.11	2.75	0.06
1,600									7.95	0.80	5.65	0.35	4.69	0.22	3.59	0.12	2.84	0.07
1,650									8.20	0.85	5.83	0.37	4.83	0.24	3.70	0.12	2.92	0.07
1,700									8.45	0.90	6.01	0.39	4.98	0.25	3.81	0.13	3.01	0.07
1,750									8.70	0.95	6.18	0.41	5.13	0.26	3.93	0.14	3.10	0.08
1,800									8.95	1.00	6.36	0.44	5.27	0.28	4.04	0.14	3.19	0.08
1,850									9.19	1.05	6.54	0.46	5.42	0.29	4.15	0.15	3.28	0.09
1,900									9.44	1.11	6.71	0.48	5.57	0.31	4.26	0.16	3.37	0.09
1,950									9.69	1.16	6.89	0.51	5.71	0.32	4.37	0.17	3.46	0.09
2,000									9.94	1.22	7.07	0.53	5.86	0.34	4.49	0.18	3.55	0.10
2,100											7.42	0.58	6.15	0.37	4.71	0.19	3.72	0.11
2,200											7.77	0.63	6.45	0.40	4.94	0.21	3.90	0.12
2,300											8.13	0.69	6.74	0.44	5.16	0.23	4.08	0.13
2,400											8.48	0.74	7.03	0.47	5.38	0.25	4.25	0.14
2,500											8.83	0.80	7.33	0.51	5.61	0.27	4.43	0.15
2,600											9.19	0.86	7.62	0.55	5.83	0.29	4.61	0.16
2,700											9.54	0.92	7.91	0.59	6.06	0.31	4.79	0.17
2,800											9.89	0.99	8.20	0.63	6.28	0.33	4.96	0.18
2,900													8.50	0.67	6.51	0.35	5.14	0.20
3,000													8.79	0.71	6.73	0.37	5.32	0.21
3,500															7.85	0.50	6.20	0.28
4,000															8.97	0.63	7.09	0.36
4,500																	7.98	0.44
5,000																	8.86	0.54

FRICITION LOSS CHARTS: HDPE DR 11 160 PSI

ANSI/ASAE S376.2 PE3408 ASTM D2239 C=150 • PSI loss per 100 ft. of pipe

Nominal Size Pipe OD Min. Wall Pipe ID Flow (GPM)	3"		4"		6"		8"		10"		12"		14"		16"		18"										
	3.500 0.318 2.826	Velocity FPS	PSI Loss	4.500 0.409 3.632	Velocity FPS	PSI Loss	6.625 0.602 5.349	Velocity FPS	PSI Loss	8.625 0.784 6.963	Velocity FPS	PSI Loss	10.750 0.977 8.678	Velocity FPS	PSI Loss	12.750 1.159 10.292	Velocity FPS	PSI Loss	14.000 1.273 11.300	Velocity FPS	PSI Loss	16.000 1.455 12.914	Velocity FPS	PSI Loss	18.000 1.636 14.532	Velocity FPS	PSI Loss
50	2.56	0.38	1.55	0.11	0.71	0.02																					
60	3.07	0.53	1.86	0.16	0.86	0.02																					
70	3.58	0.71	2.17	0.21	1.00	0.03																					
80	4.09	0.91	2.48	0.27	1.14	0.04																					
90	4.60	1.13	2.78	0.33	1.28	0.05																					
100	5.11	1.37	3.09	0.41	1.43	0.06	0.84	0.02																			
120	6.13	1.93	3.71	0.57	1.71	0.09	1.01	0.02																			
140	7.16	2.56	4.33	0.76	2.00	0.11	1.18	0.03																			
160	8.18	3.28	4.95	0.97	2.28	0.15	1.35	0.04																			
180	9.20	4.08	5.57	1.20	2.57	0.18	1.52	0.05																			
200			6.19	1.46	2.85	0.22	1.68	0.06	1.08	0.02	0.77	0.01															
220			6.81	1.75	3.14	0.27	1.85	0.07	1.19	0.03	0.85	0.01															
240			7.43	2.05	3.42	0.31	2.02	0.09	1.30	0.03	0.92	0.01															
260			8.04	2.38	3.71	0.36	2.19	0.10	1.41	0.03	1.00	0.01															
280			8.66	2.73	3.99	0.41	2.36	0.11	1.52	0.04	1.08	0.02															
300			9.28	3.10	4.28	0.47	2.53	0.13	1.63	0.04	1.16	0.02															
320			9.90	3.49	4.56	0.53	2.69	0.15	1.73	0.05	1.23	0.02	1.02	0.01													
340					4.85	0.59	2.86	0.16	1.84	0.06	1.31	0.02	1.09	0.02													
360					5.14	0.66	3.03	0.18	1.95	0.06	1.39	0.03	1.15	0.02													
380					5.42	0.73	3.20	0.20	2.06	0.07	1.46	0.03	1.21	0.02													
400					5.71	0.80	3.37	0.22	2.17	0.08	1.54	0.03	1.28	0.02													
450					6.42	1.00	3.79	0.28	2.44	0.09	1.73	0.04	1.44	0.03													
500					7.13	1.21	4.21	0.34	2.71	0.12	1.93	0.05	1.60	0.03	1.22	0.02											
550					7.85	1.45	4.63	0.40	2.98	0.14	2.12	0.06	1.76	0.04	1.35	0.02											
600					8.56	1.70	5.05	0.47	3.25	0.16	2.31	0.07	1.92	0.04	1.47	0.02											
650					9.27	1.97	5.47	0.55	3.52	0.19	2.50	0.08	2.08	0.05	1.59	0.03											
700					9.99	2.26	5.89	0.63	3.79	0.21	2.70	0.09	2.24	0.06	1.71	0.03	1.35	0.02									
750							6.31	0.71	4.06	0.24	2.89	0.11	2.40	0.07	1.84	0.04	1.45	0.02									
800							6.73	0.80	4.34	0.28	3.08	0.12	2.56	0.08	1.96	0.04	1.55	0.02									
850							7.16	0.90	4.61	0.31	3.28	0.13	2.72	0.09	2.08	0.04	1.64	0.03									
900							7.58	1.00	4.88	0.34	3.47	0.15	2.88	0.09	2.20	0.05	1.74	0.03									
950							8.00	1.10	5.15	0.38	3.66	0.16	3.04	0.10	2.32	0.05	1.84	0.03									
1,000							8.42	1.21	5.42	0.42	3.85	0.18	3.20	0.12	2.45	0.06	1.93	0.03									
1,050							8.84	1.33	5.69	0.46	4.05	0.20	3.36	0.13	2.57	0.07	2.03	0.04									
1,100							9.26	1.45	5.96	0.50	4.24	0.22	3.52	0.14	2.69	0.07	2.13	0.04									
1,150							9.68	1.57	6.23	0.54	4.43	0.24	3.68	0.15	2.81	0.08	2.22	0.04									
1,200									6.50	0.58	4.62	0.25	3.84	0.16	2.94	0.08	2.32	0.05									
1,250									6.77	0.63	4.82	0.27	4.00	0.17	3.06	0.09	2.42	0.05									
1,300									7.05	0.68	5.01	0.29	4.16	0.19	3.18	0.10	2.51	0.06									
1,350									7.32	0.73	5.20	0.32	4.31	0.20	3.30	0.10	2.61	0.06									
1,400									7.59	0.78	5.39	0.34	4.47	0.21	3.43	0.11	2.71	0.06									
1,450									7.86	0.83	5.59	0.36	4.63	0.23	3.55	0.12	2.80	0.07									
1,500									8.13	0.88	5.78	0.38	4.79	0.24	3.67	0.13	2.90	0.07									
1,550									8.40	0.94	5.97	0.41	4.95	0.26	3.79	0.14	3.00	0.08									
1,600									8.67	0.99	6.16	0.43	5.11	0.28	3.92	0.14	3.09	0.08									
1,650									8.94	1.05	6.36	0.46	5.27	0.29	4.04	0.15	3.19	0.09									
1,700									9.21	1.11	6.55	0.48	5.43	0.31	4.16	0.16	3.29	0.09									
1,750									9.48	1.17	6.74	0.51	5.59	0.32	4.28	0.17	3.38	0.10									
1,800									9.76	1.24	6.94	0.54	5.75	0.34	4.41	0.18	3.48	0.10									
1,850											7.13	0.57	5.91	0.36	4.53	0.19	3.58	0.11									
1,900											7.32	0.60	6.07	0.38	4.65	0.20	3.67	0.11									
1,950											7.51	0.63	6.23	0.40	4.77	0.21	3.77	0.12									
2,000											7.71	0.66	6.39	0.42	4.89	0.22	3.87	0.12									
2,100											8.09	0.72	6.71	0.46	5.14	0.24	4.06	0.13									
2,200											8.48	0.78	7.03	0.50	5.38	0.26	4.25	0.15									
2,300											8.86	0.85	7.35	0.54	5.63	0.28	4.45	0.16									
2,400											9.25	0.92	7.67	0.58	5.87	0.30	4.64	0.17									
2,500											9.63	0.99	7.99	0.63	6.12	0.33	4.83	0.18									
2,600													8.31	0.68	6.36	0.35	5.02	0.20									
2,700													8.63	0.72	6.61	0.38	5.22	0.21									
2,800													8.95	0.78	6.85	0.40	5.41	0.23									
2,900													9.27	0.83	7.10	0.43	5.60	0.24									
3,000													9.59	0.88	7.34	0.46	5.80	0.26									
3,500															8.57	0.61	6.76	0.34									
4,000															9.79	0.78	7.73	0.44									
4,500																	8.70	0.55									
5,000																	9.66	0.67									

TECHNICAL

FRICITION LOSS CHARTS: HDPE DR 9 200 PSI

ANSI/ASAE S376.2 PE3408 ASTM D2239 C=150 • PSI loss per 100 ft. of pipe																		
Nominal Size Pipe OD Min. Wall Pipe ID	3"		4"		6"		8"		10"		12"		14"		16"		18"	
	3.500 0.389 2.674		4.500 0.500 3.440		6.625 0.736 5.065		8.625 0.958 6.593		10.750 1.194 8.218		12.750 1.417 9.746		14.000 1.556 10.700		16.000 1.778 12.230		18.000 2.000 13.760	
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
50	2.85	0.50	1.72	0.15	0.80	0.02												
60	3.42	0.70	2.07	0.20	0.95	0.03												
70	4.00	0.93	2.41	0.27	1.11	0.04												
80	4.57	1.19	2.76	0.35	1.27	0.05												
90	5.14	1.48	3.10	0.43	1.43	0.07												
100	5.71	1.80	3.45	0.53	1.59	0.08	0.94	0.02										
120	6.85	2.52	4.14	0.74	1.91	0.11	1.13	0.03										
140	7.99	3.35	4.83	0.98	2.23	0.15	1.31	0.04										
160	9.13	4.29	5.52	1.26	2.55	0.19	1.50	0.05	0.97	0.02								
180			6.21	1.57	2.86	0.24	1.69	0.07	1.09	0.02								
200			6.90	1.91	3.18	0.29	1.88	0.08	1.21	0.03								
220			7.59	2.27	3.50	0.35	2.07	0.10	1.33	0.03								
240			8.28	2.67	3.82	0.41	2.25	0.11	1.45	0.04	1.03	0.02						
260			8.97	3.10	4.14	0.47	2.44	0.13	1.57	0.04	1.12	0.02						
280			9.66	3.55	4.45	0.54	2.63	0.15	1.69	0.05	1.20	0.02						
300					4.77	0.61	2.82	0.17	1.81	0.06	1.29	0.03	1.07	0.02				
320					5.09	0.69	3.00	0.19	1.93	0.07	1.37	0.03	1.14	0.02				
340					5.41	0.77	3.19	0.21	2.05	0.07	1.46	0.03	1.21	0.02				
360					5.73	0.86	3.38	0.24	2.18	0.08	1.55	0.04	1.28	0.02				
380					6.05	0.95	3.57	0.26	2.30	0.09	1.63	0.04	1.35	0.03				
400					6.36	1.05	3.76	0.29	2.42	0.10	1.72	0.04	1.43	0.03				
450					7.16	1.30	4.23	0.36	2.72	0.12	1.93	0.05	1.60	0.03	1.23	0.02		
500					7.95	1.58	4.69	0.44	3.02	0.15	2.15	0.07	1.78	0.04	1.36	0.02		
550					8.75	1.89	5.16	0.52	3.32	0.18	2.36	0.08	1.96	0.05	1.50	0.03		
600					9.55	2.22	5.63	0.62	3.63	0.21	2.58	0.09	2.14	0.06	1.64	0.03	1.29	0.02
650							6.10	0.71	3.93	0.24	2.79	0.11	2.32	0.07	1.77	0.04	1.40	0.02
700							6.57	0.82	4.23	0.28	3.01	0.12	2.50	0.08	1.91	0.04	1.51	0.02
750							7.04	0.93	4.53	0.32	3.22	0.14	2.67	0.09	2.05	0.05	1.62	0.03
800							7.51	1.05	4.83	0.36	3.44	0.16	2.85	0.10	2.18	0.05	1.72	0.03
850							7.98	1.17	5.14	0.40	3.65	0.18	3.03	0.11	2.32	0.06	1.83	0.03
900							8.45	1.30	5.44	0.45	3.87	0.19	3.21	0.12	2.46	0.06	1.94	0.04
950							8.92	1.44	5.74	0.49	4.08	0.22	3.39	0.14	2.59	0.07	2.05	0.04
1,000							9.39	1.58	6.04	0.54	4.30	0.24	3.56	0.15	2.73	0.08	2.16	0.04
1,050							9.86	1.73	6.35	0.59	4.51	0.26	3.74	0.16	2.87	0.09	2.26	0.05
1,100									6.65	0.65	4.73	0.28	3.92	0.18	3.00	0.09	2.37	0.05
1,150									6.95	0.70	4.94	0.31	4.10	0.19	3.14	0.10	2.48	0.06
1,200									7.25	0.76	5.16	0.33	4.28	0.21	3.27	0.11	2.59	0.06
1,250									7.55	0.82	5.37	0.36	4.46	0.23	3.41	0.12	2.69	0.07
1,300									7.86	0.88	5.59	0.38	4.63	0.24	3.55	0.13	2.80	0.07
1,350									8.16	0.95	5.80	0.41	4.81	0.26	3.68	0.14	2.91	0.08
1,400									8.46	1.01	6.02	0.44	4.99	0.28	3.82	0.15	3.02	0.08
1,450									8.76	1.08	6.23	0.47	5.17	0.30	3.96	0.16	3.13	0.09
1,500									9.06	1.15	6.45	0.50	5.35	0.32	4.09	0.17	3.23	0.09
1,550									9.37	1.22	6.66	0.53	5.53	0.34	4.23	0.18	3.34	0.10
1,600									9.67	1.30	6.87	0.56	5.70	0.36	4.37	0.19	3.45	0.11
1,650									9.97	1.37	7.09	0.60	5.88	0.38	4.50	0.20	3.56	0.11
1,700											7.30	0.63	6.06	0.40	4.64	0.21	3.66	0.12
1,750											7.52	0.67	6.24	0.42	4.78	0.22	3.77	0.12
1,800											7.73	0.70	6.42	0.45	4.91	0.23	3.88	0.13
1,850											7.95	0.74	6.59	0.47	5.05	0.24	3.99	0.14
1,900											8.16	0.78	6.77	0.49	5.18	0.26	4.10	0.14
1,950											8.38	0.81	6.95	0.52	5.32	0.27	4.20	0.15
2,000											8.59	0.85	7.13	0.54	5.46	0.28	4.31	0.16
2,100											9.02	0.93	7.49	0.59	5.73	0.31	4.53	0.17
2,200											9.45	1.02	7.84	0.65	6.00	0.34	4.74	0.19
2,300											9.88	1.11	8.20	0.70	6.28	0.37	4.96	0.21
2,400													8.56	0.76	6.55	0.40	5.17	0.22
2,500													8.91	0.82	6.82	0.43	5.39	0.24
2,600													9.27	0.88	7.09	0.46	5.60	0.26
2,700													9.62	0.95	7.37	0.49	5.82	0.28
2,800													9.98	1.01	7.64	0.53	6.04	0.30
2,900															7.91	0.56	6.25	0.32
3,000															8.19	0.60	6.47	0.34
3,500															9.55	0.80	7.54	0.45
4,000																	8.62	0.58
4,500																	9.70	0.72
5,000																	10.78	0.87

STATEMENT OF WARRANTY

Hunter Residential and Commercial Irrigation

Hunter Industries Incorporated ("Hunter") warrants the following products to be free of defects in materials or workmanship under normal use in landscape irrigation applications for the specified period of time outlined below from the original date of manufacture:

ONE YEAR	ROTORS	SRM	MICRO	Micro Sprays, PLD Fittings, Rigid Risers, Automatic Flush Valves
	ROTORS	PGP®-ADJ, PGJ	CONTROLLERS	XC Hybrid, X-Core®, Pro-C® Families, HC, Pro-HC, Pro-C Hydrawise, ROAM, NODE, WVP, WVC, PSR, BTT
TWO YEARS	SPRAYS	PS Ultra	SENSORS	ET Sensor, HC Flow Meter
	NOZZLES	Spray Nozzles, PCN, PCB, AFB, MSBN	MICRO	ACZ, PCZ, RZWS, Point Source Emitters, Tubing, Multi-Port Emitters, IH Risers, MLD, Eco-Indicator, Multi-Purpose Box, Senninger Regulators, Filters, PLD-LOC Fittings, Air Relief Valves
	VALVES	PGV, PSR	ACCESSORIES	HCV, SJ, FLEXsg, HSBE, SpotShot, RZB
	CONTROLLERS	ROAM XL	MP ROTATOR®	All
FIVE YEARS	ROTORS	PGP Ultra, I-20, I-25, I-40, I-80, I-90	CENTRAL	IMMS Central Control Products
	SPRAYS	Pro-Spray®, Pro-Spray PRS30, Pro-Spray PRS40	SENSORS	Clik Sensors, Solar Sync®, Flow Sync®, MWS, Wireless Flow Sensor
	VALVES	HQ, ICV, IBV, Accu Sync®	MICRO	ICZ, HDL, Eco-Mat®, Eco-Wrap®
	CONTROLLERS	I-Core®/ DUAL®, and ACC/ACC2 controller families, ICD and Dual Decoder Products, ICC2, HCC		

Hunter Golf and ST System Irrigation Component* Warranty Products

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

ONE YEAR	GOLF CONTROLLERS	Pilot® CCS, Pilot FI, Pilot FCS, Pilot IHS
	GOLF ROTORS	TTS-800 Series, G-800 Series, B Series, G-900 Series, RT Series
THREE YEARS	GOLF INTEGRATED TWO-WAY MODULES	Pilot 100, Pilot 200, Pilot 400, Pilot 600, Pilot SG
	GOLF ROTORS	Golf rotor component warranty extended to five years with one-for-one purchase of HSJ Swing Joint from authorized Hunter Golf distributor.
FIVE YEARS	SWING JOINTS	HSJ-0, HSJ-1, HSJ-2, HSJ-3, HSJ-4, HSJ-5
	ST ROTORS	ST-90, STG-900, ST-1200, ST-1600
	ST ACCESSORIES	All model number starting with "ST"
	COMPUTER, PRINTERS & ACCESSORIES, MAINTENANCE RADIO & BATTERY	Equipment manufacturer's warranty (no Hunter warranty)

* Warranty covers repair, replacement, or repurchase of individual defective component assemblies contained within the product. Returns of complete finished goods are not allowed under warranty without prior approval from the Hunter Product Manager.

If used for agricultural applications, Hunter limits the warranty for its spray, MP Rotator, and rotor products to a period of one (1) year from original date of manufacture. This agriculture limitation supersedes all other warranties expressed or implied. **Hunter warrants the battery life of the Wireless Rain-Clik and Wireless Solar Sync sensors for 10 years.**



Statement of Warranty Continued

If a defect in a Hunter product is discovered during the applicable warranty period, Hunter will repair or replace, at its option, the product or the defective part. This warranty does not extend to repairs, adjustments, or replacement of a Hunter product or part that results from misuse, negligence, alteration, modification, tampering, or improper installation and/or maintenance of the product. This warranty extends only to the original installer of the Hunter product. If a defect arises in a Hunter product during the warranty period, contact your local Hunter Authorized Distributor.

Hunter's warranty applies only to products installed as specified and used as intended for irrigation purposes. Hunter's warranty shall be limited to defects in materials and workmanship during the warranty period, and shall not extend to situations in which the product was subjected to improper design, installation, operation, maintenance, application, abuse, improper electrical current, grounding, service other than by Hunter-authorized agents, operating conditions other than that for which it was designed, or in systems using water containing corrosive chemicals, electrolytes, sand, dirt, silt, rust, or agents that otherwise attack and degrade plastics. Hunter's warranty does not cover component failures caused by lightning strikes, electrical power surges, or unconditioned power supplies. If products are repurchased, the price to Distributor for such products in effect at the time of return will apply.

Hunter's obligation to repair, replace, or repurchase its products or product components as set forth above is the sole and exclusive warranty extended by Hunter. There are no other warranties, expressed or implied, including warranties of merchantability and warranties of fitness for a particular purpose. Hunter will not be liable to a distributor or to any other party in strict liability, tort, contract, or any other manner for any damages caused or claimed to be caused as a result of any design of or defect in Hunter's products, or for any special, incidental, or consequential damages of any nature.

Where applicable, Hunter's statement of warranty complies with local directives.

If you have any questions concerning the warranty or its application, email HunterTechnicalSupport@hunterindustries.com.

ASAE CERTIFICATION STATEMENT

Hunter Industries Incorporated certifies that pressure, flow rate, and radius data for these products were determined and listed in accordance with ASAE Standard S398.1, Procedure for Sprinkler Testing and Performance Reporting, and are representative of performance of production sprinklers at the time of publication. Actual product performance may differ from the published specifications due to normal manufacturing variations and sample selection. All other specifications are solely the recommendation of Hunter Industries Incorporated.



Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.

Gregory R. Hunter, CEO of Hunter Industries

Gene Smith, President, Landscape Irrigation and Outdoor Lighting

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

USA HEADQUARTERS

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

MEXICO

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

EUROPE

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

AUSTRALIA

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

MIDDLE EAST

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

CHINA

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