Irrigation

Smart Water Products:
With growing demands and strained water resources, it's important to promote water-saving products, adopt "best practices" and educate customers about how to do more with less. Usually when we think of water conservation, or smart water products, we immediately think of commercial properties, parks or HOA's. But the single family residential homeowner can take advantage of these products at a reasonable price.

With an estimated 50% of the total water bill associated with outdoor water use, Smart Water products will have an immediate impact on their water bill. Plus, over watering can create hardscape damage, plant disease, water-related liability issues and more. Property maintenance costs go up, while turf and plant life growth deteriorates.

Proper watering practices can dramatically improve the entire outdoor experience.

In addition to saving water and money for your customers, many water districts around the country are offering rebates on Smart Water products. In many cases, the cost of the product is paid for by the rebate which means increased profits for you. For the most complete compilation of rebate programs by state, go to **HorizonOnline.com/rebates**.

Horizon is dedicated to helping our customers take full advantage of Smart Water products. Look for the Smart Water Symbol ( ) throughout the Source Book to easily identify water conserving products.

SPRAYS

RAIN BIRD

1800 SERIES

2", 4", 6", 12"

1800 Series spray heads have first-rate quality built in for reliable operation and long life.

Their superior components and features make them the spray heads of choice for a wide variety of applications.

- Exclusive co-molded wiper seal features in an encased plastic "cage" to provide unmatched resistance to grit, pressure and the environment. Additionally, the pressure-activated, multi-function seal design assures a positive seal without excess "flow-by" which enables more heads to be installed on the same valve
- Precision controlled flush at pop-down clears debris from unit, assuring positive stem retraction in all soil types
- Strong stainless steel spring provides reliable stem retraction
- Two-piece ratchet mechanism on all models allows easy nozzle pattern alignment and provides added durability
- Pre-installed orange 1800 Pop-Top™ flush plug blocks debris from entering after flushing. Allows for easy nozzle installation
- Constructed of time-proved UV-resistant plastic and corrosion resistant stainless steel parts, assuring long product life
- All sprinkler components are removable from the top without special tools, providing for quick and easy flushing and maintenance of the sprinkler
- Side and bottom inlets featured on 1806 and 1812 models

Specifications:
Spacing: 3' to 24'
Pressure: 15 psi to 70 psi
Flow-by: 0 psi at 8 psi or greater; .10 GPM otherwise

1800-SAM SERIES

4", 6", 12"

Ideal for use in areas with changing elevations. The 1800 SAM Series offers all 1800 Series features plus:

- Built-in Seal-A-Matic™ (SAM) check valve. Eliminates the need for under-the-head check valves. No parts to be installed at the site
- Traps water in lateral pipes in elevation changes of up to 80'. Reduces wear on system components by minimizing water hammer during start-up
- Prevents drainage from spray heads at lower elevations. Stops water waste. Ends landscape damage due to flooding and/or erosion
- Even stronger retract spring to accommodate elevation changes up to 8'. One of the strongest springs in the industry
- Designed for use with all Rain Bird plastic and brass spray head nozzles
- "SAM" stamped on cap for easy identification and maintenance

Specifications:
Spacing: 3' to 20'
Pressure: 25 psi to 70 psi
SAM capability: Holds up to 14' of head; 6 psi
SAM operable only when installed by bottom inlet

RAIN BIRD

1800-PRS SERIES WITH FLOW OPTIMIZER

4", 6", 12"

Designed for areas with high and/or widely fluctuating water pressures. The 1800 PRS Series has all 1800 Series features plus:

- Patented PRS pressure regulator built into the stem. No parts to be installed at the site. Saves time and money
- Maintains constant outlet pressure at 30 psi. Spray heads and nozzles perform best at 30 psi
- Ensures maximum spray head and nozzle performance, even with varying inlet pressures
- Restricts water loss by up to 70% if nozzle is removed or damaged. Saves water and money
- Reduces possibility of accidents and property damage. Recommended for vandal prone areas
- Ends misting and fogging caused by high pressure. Stops water waste. Ensures necessary watering occurs in high pressure or wind conditions
- Designed for use with all Rain Bird plastic and brass spray head nozzles
- "PRS" stamped on cap for easy identification and maintenance

Specifications:

Spacing: 3' to 20'
Pressure: 15 psi to 70 psi
Flow-by: 0 psi at 8 psi or greater; .10 GPM otherwise
Installation: side or bottom inlet; side inlet not recommended for freezing climates

1800-SAM-PRS SERIES

4", 6", 12"

Meets the needs for all spray areas, regardless of changing elevation or water pressures. Incorporates all 1800 Series SAM and PRS features stamped on the cap for easy identification and maintenance.

- Regulates nozzle pressure to an average 45 psi (3.1 bar) with inlet pressures of up to 70 psi (4.8 bar)
- SAM capability: holds up to 14 feet (4.2 m) of head; 6 psi
- Installation: bottom inlet only

Operating Range

Spacing: 13 to 24 feet (4.0 to 7.3 m)
Pressure: 25 to 70 psi (1.7 to 4.8 bar)

Specifications:

Spacing: 2.5' to 24'
Pressure: 25 psi to 70 psi
Flow-by: 0 psi at 8 psi or greater: .10 GPM otherwise
SAM capability: Holds up to 14' of head; 6 psi
SAM operable only when installed by bottom inlet

Models:

1804 SAM-P45: 4" pop-up height (10 cm)
1806 SAM-P45: 6" pop-up height (15 cm)
1812 SAM-P45: 12" pop-up height (30 cm)

RD1800™ SERIES SPRAY HEADS

Tough enough for your most challenging landscapes

- Debris pockets in the base of the spray body collect debris and prevent recirculation in the body during operation reducing wear.
- The co-molded, pressure activated, Triple-Blade Wiper Seal assures positive seal without excess "flow-by" which enables more heads to be installed on the same valve.
- Designed for use with all Rain Bird plastic spray head nozzles
- Parts developed to be resistant to corrosion in treated recycled water containing chlorine and other chemicals.

Specifications:

Spacing: 2.5 to 24 feet
3 to 18 feet with standard Rain Bird Spray Head Nozzles (MPR, VAN, U-Series). 13 to 24 feet with Rain Bird Rotary Nozzles

Pressure: 15 to 100 psi

Flow-by: SAM Models: 0 at 15 psi (1.0 bar) or greater; 0.5 gpm
All Other Models: 0 at 10 psi (0.7 bar) or greater; 0.5 gpm

Inlets: 1/2" (15/21) NPT female threaded

HOW TO SPECIFY:	
Model:	Optional Features
RD04-4"	S – Seal-A-Matic
RD04-6"	NP – Non-Potable cover
RD-12-12"	F – Flow-Shield Technology
P30 – 30	psi instem pressure regulation
P45 – 45	psi instem pressure regulation

HOW TO SPECIFY: 1804-SAM	
Model:	Optional Features:
1804	PRS
1806	SAM
1812	SAMPRS

Hunter®

PRO-SPRAY®

Shrub, 2", 3", 4", 6", 12"

Rugged, contractor-friendly spray for residential and commercial projects.

- Pressure-activated, multi-function, no flow-by wiper seal makes it easy to remove and clean
- Multi-thread buttress design withstands the harshest environments
- Compatible with all female threaded nozzles
- Ratcheting riser for quick arc alignment for making adjustments while sprinkler is operating
- Innovative "pull-ring" flush plug design allows limited flow permitting controlled directional flushing
- Factory-installed drain check valve for up to 10' (3 m) elevation change. "Check Valve" stamped on cap for easy ID

Specifications:

Pressure range: 15 psi to 100 psi
Flow-by: 0 psi at 10 psi or greater; .1 GPM otherwise
Precipitation rates: Approximately 1.5" per hour

HOW TO SPECIFY: PRO02 – 2" – Pop-up		
Model:	Size:	Style:
PROS00		Shrub
PROS02	2"	Pop-up
PROS03	3"	Pop-up
PROS04	4"	Pop-up
PROS06	6"	Pop-up
PROS12	12"	Pop-up
Also available in Reclaimed Version		

PRO-SPRAY PRS30

Shrub, 4", 6", 12"

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

- In-stem pressure regulation built-in for maximum nozzle efficiency, regardless of inlet pressure
- Multi-thread buttress design withstands the harshest environments
- Accepts adjustable, fixed and specialty nozzles
- Pressure activated, multi-function, no flow-by wiper seal is treated with UV inhibitors to ensure long life

Specifications:

Pressure range: 15 psi to 100 psi
Flow-by: 0 psi at 10 psi or greater; .1 GPM otherwise
Precipitation rates: Approximately 1.5" per hour

Options:

CV – Factory-installed check valve (not available for shrub)

How to Specify:

HOW TO SPECIFY: PRS 30 MODELS			
Model:	Size:	Style:	Options:
PROS-00-PRS30		Shrub	(blank) = No option
PROS-04-PRS30	4"	Pop -up	CV = Factory-installed drain check valve (pop-up models only)
PROS-06-PRS30	6"	Pop -up	
PROS-06-NSI-PRS30	6"	Pop -up	CV-R = Factory-installed reclaimed body cap (shrub molded in purple)
PROS-12-PRS30	12"	Pop -up	
PROS-12-NSI-PRS30	12"	Pop -up	6" and 12" models ordered as CV will come as (no side inlet)

Pro-Spray PRS40

Shrub, 2", 3", 4", 6", 12"

Calibrated at a consistent 40 psi, it is designed to provide optimal performance when combined with the MP Rotator.

- Built-in regulator set at 40 psi
- New easy-to-identify gray cap
- Factory-installed drain check valve
- Pressure activated, multifunction wiper seal has been designed to reduce flow-by
- Zero flush seal gives you surefire operation at low pressures and enables more sprinkler heads on the same zone

Specifications:

Recommended pressure range: 15 psi to 100 psi
Flow-by: 0 psi at 10 psi or greater; 0.1 GPM otherwise
Check height: Up to 14' elevation change

PRS40 MODELS	OPTIONS
PROS-00-PRS40 = 40 PSI regulated shrub adapter	(blank) = No option
PROS-04-PRS40-CV = 40 PSI regulated 4" pop-up	
PROS-06-PRS40-CV = 40 PSI regulated 6" pop-up	R = Factory-installed reclaimed body cap (shrub molded in purple)
PROS-06-NSI-PRS40-CV = 40 PSI regulated 6" pop-up with no side inlet	
PROS-12-PRS40-CV = 40 PSI regulated 12" pop-up	6" and 12" models ordered as CV will come as no side inlet
PROS-12-NSI-PRS40 = 40 PSI regulated 12" pop-up with no side inlet	

TORO 570Z SERIES

Shrub, 2”, 3”, 4”, 6”, 12”

- Zero-flush seal prevents flushing on pop-up, enabling more sprinklers to be placed on the same zone
- Retraction flushing clears debris for reliable pop-down
- Low-pressure sealing at 15 psi
- Small, 2” diameter black cap is less visible, reducing damage from exposure or vandals
- Ratcheting riser feature for easy and reliable arc adjustment
- Non-side-inlet models available on both 6” and 12” sprinkler bodies for sandy soils or applications prone to high pressure surges and spikes

Specifications:

Recommended operating pressure: 20 psi to 50 psi
Radius: 2’ to 18’
Max Pressure: 75 psi

HOW TO SPECIFY: 570Z – 6P – COM		
Model:	Size:	Options:
S — Shrub Z — Lawn Pop-up	2P = 2” 3P = 3” 4P = 4” 6P = 6” 12P = 12”	SI = Side Inlet for 6” and 12” COM = check valve

570ZXF SERIES SPRAY

Shrub, 4”, 6”, 12”

Features all of the benefits of the 570Z Series, plus the exclusive patented X-Flow® shutoff feature for added convenience.

- Flow rate: 0.05 GPM to 5.6 GPM
- Recommended operating pressure range: 20 psi to 50 psi
- Minimum operating pressure for COM models: 25 psi
- 2-year warranty

HOW TO SPECIFY: 570Z – 6P – XF – COM		
Model:	Size:	Options:
S — Shrub Z — Lawn Pop-up	4 — 4” 6 — 6” 12 — 12”	SI = Side Inlet COM = Check-Valve E = Effluent Water

570Z PRX SERIES SPRINKLERS

Shrub, 4”, 6”, 12”

Ideal for applications with high or varying operating pressure, including long lines and slopes.

- Recommended for systems with a minimum operating pressure of 40 psi
- Patented in-riser pressure regulator
- Maintains constant 30 psi outlet pressure
- Eliminates misting and fogging caused by pressures above 30 psi
- Patented X-Flow™ high-flow shut-off device built into the riser
- Restricts water loss by 98% if the nozzle is removed or damaged, eliminating potential erosion or safety issues
- Allows for nozzle and filter replacement or maintenance while the system is running
- Side inlet models available on 6” and 12” sprinkler bodies
- Check valve maintains up to 10’ in elevation change

Specifications:

Recommended operating pressure: 20 psi to 75 psi
Maximum operating pressure: 75 psi

HOW TO SPECIFY: 570Z – 6P – SI – PRX		
Model:	Size:	Options:
Z = Lawn pop-up S = Shrub	4P = 4” 6P = 6” 12P = 12”	SI = Side Inlet COM = Check-Valve E = Effluent Water

Toro 570Z PRX Shrub Adaptor
Patented in-riser pressure regulator maintains constant 30 psi outlet pressure.

RAIN BIRD

UNI-SPRAY SERIES

2", 4"

The UNI-Spray™ is designed for those applications where flexibility and convenience are primary.

- Pressure-activated wiper seal prevents excessive flow-by and water waste. Keeps debris from entering upon retraction
- Durable two-piece stem ratchet allows for quick and easy nozzle pattern alignment
- Internal parts removable from the top of the sprinkler for easy servicing
- Optional field-installed Seal-A-Matic™ check valve prevents low head drainage up to 5' of elevation difference

Specifications:

Pressure: 15 psi to 70 spi
Optimum pressure: 30 psi
Flow-by: 0 psi at 10 psi or greater; 0.50 GPM otherwise

Hunter

PS ULTRA SPRAY SERIES

2", 4", 6"

- Heavy duty wiper seal: Eliminates flow-by
- Extra large filter screen and nozzle screen provide double filtration
- Two-piece ratchet is stronger and more dependable, for reliable performance in the field
- Male threaded riser accommodates all Hunter female threaded nozzles
- Pre-installed Pro Adjustable Nozzle maximizes flexibility and performance
- Specifications:
- Discharge rate: 0.20 GPM to 5.6 GPM
- Radius: 9' to 19'
- Recommended pressure range: 20 psi to 70 psi
- Precipitation rates: 1.6" to 1.9" per hour

TORO

LPS SPRAY SERIES

2", 4"

- Available with pre-installed Toro Variable Arc Nozzles in five radii or as a body only
- Matched precipitation rate nozzles provide even coverage
- Easy to grip nozzles makes adjustments simple — wet or dry
- Riser accepts Toro male thread TVAN or MPR nozzles
- Optional check valve

Specifications

Radius: 2' to 18'
Recommended operating pressure range: 20 psi to 50 psi
Flow-by: 0 psi at 10 psi or greater
Inlet: 1/2" female-threaded

Irritrol SYSTEMS

IPRO SPRAY SERIES

2", 4", 6", 12"

- Pressure-activated seal with lubricant additive
- Pre-installed in-riser pressure regulator and/or check valve (optional)
- Retrofittable riser
- Male-threaded riser
- Pre-installed flush plug

Specifications:

Standard: 20 psi to 50 psi (max 75 psi)
CV: 25 psi to 50 psi (max 75 psi)
PR: 30 psi to 70 psi (max 75 psi)
Precipitation rate: 0.96" to 4.69" per hour
Spacing: 4' to 15'
Flow-by: 0 at 10 psi or greater; .1 GPM otherwise

RAIN BIRD

R-VAN SERIES NOZZLES

The World's First Hand-Adjustable Rotary Nozzles.

- Adjust arc and radius without tools
- Color coded for easy identification of R-VAN model
- Low precipitation rate reduces run-off and erosion
- Maintains efficient performance at high operating pressures without misting or fogging
- Compatible with all models of Rain Bird spray bodies in addition to a wide variety of risers and adapters
- Matched precipitation rates across radius and arcs simplify the design process
- Coverage up to 24' but when paired with Rain Bird 5000 Series Rotor matched precipitation rate (MPR) nozzles, irrigation designs from 13' to 35' (4,0m to 10,7m) can be easily handled
- Three-year trade warranty.

R-VAN1318 (Black)

ARC	Pressure (psi)	Radius* (ft.)	Flow (gpm)	■ Precip (in/hr)	▲ Precip (in/hr)
270° 	20	13	0.95	0.72	0.83
	25	14	1.12	0.69	0.80
	30	16	1.26	0.65	0.75
	35	16	1.35	0.64	0.74
	40	17	1.42	0.63	0.73
	45	18	1.51	0.60	0.69
	50	18	1.57	0.60	0.69
	55	18	1.62	0.60	0.69
180° 	20	13	0.75	0.72	0.83
	25	14	0.83	0.69	0.80
	30	16	0.85	0.65	0.75
	35	16	0.91	0.64	0.74
	40	17	0.98	0.63	0.73
	45	18	1.01	0.60	0.69
	50	18	1.07	0.60	0.69
	55	18	1.09	0.60	0.69
90° 	20	13	0.37	0.72	0.83
	25	14	0.39	0.69	0.80
	30	16	0.42	0.65	0.75
	35	16	0.47	0.64	0.74
	40	17	0.50	0.63	0.73
	45	18	0.50	0.60	0.69
	50	18	0.54	0.60	0.69
	55	18	0.58	0.60	0.69

R-VAN1724 (Yellow)

ARC	Pressure (psi)	Radius* (ft.)	Flow (gpm)	■ Precip (in/hr)	▲ Precip (in/hr)
270° 	20	17	1.77	0.76	0.88
	25	19	1.99	0.72	0.83
	30	21	2.26	0.70	0.81
	35	22	2.39	0.66	0.76
	40	23	2.55	0.63	0.73
	45	24	2.73	0.61	0.70
	50	24	2.76	0.61	0.70
	55	24	2.80	0.61	0.70
180° 	20	17	1.24	0.76	0.88
	25	19	1.30	0.72	0.83
	30	21	1.41	0.70	0.81
	35	22	1.55	0.66	0.76
	40	23	1.69	0.63	0.73
	45	24	1.83	0.61	0.70
	50	24	1.91	0.61	0.70
	55	24	1.98	0.61	0.70
90° 	20	17	0.59	0.76	0.88
	25	19	0.67	0.72	0.83
	30	21	0.73	0.70	0.81
	35	22	0.78	0.66	0.76
	40	23	0.85	0.63	0.73
	45	24	0.91	0.61	0.70
	50	24	0.98	0.61	0.70
	55	24	1.05	0.61	0.70

R-SERIES ROTARY NOZZLE

Part of the Rain Bird Smart Water product family.

- Highly efficient water distribution from 13' to 24'
- Fewer zones, faster installs — system complexity and cost are reduced because more heads can be installed per zone
- The low precipitation rate significantly reduces wasteful run-off and erosion
- Low flow rate and an expanded radius of throw solve existing spray zone inefficiencies

Specifications:

Pressure range: 20 psi to 55 psi (1,4 to 3,8 bars)Recommended Operating Pressure: 45 psi (3,1 bar)
Spacing: 13' to 24' (4,0 m to 7,3 m)
Adjustments: Arc and radius should be adjusted while water is running

R13-18 Series (Black)

Arc	Pressure psi	Radius* ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
R13-18F	20	13	1.31	0.75	0.86
	25	14	1.46	0.67	0.77
	30	16	1.60	0.61	0.70
	35	16	1.73	0.61	0.70
	40	17	1.85	0.61	0.70
	45	18	1.96	0.61	0.70
	50	18	2.07	0.61	0.70
	55	18	2.17	0.61	0.70
R13-18TQ	20	13	0.98	0.75	0.86
	25	14	1.10	0.67	0.77
	30	16	1.20	0.61	0.70
	35	16	1.30	0.61	0.70
	40	17	1.39	0.61	0.70
	45	18	1.47	0.61	0.70
	50	18	1.55	0.61	0.70
	55	18	1.62	0.61	0.70
R13-18TT	20	13	0.87	0.75	0.86
	25	14	0.97	0.67	0.77
	30	16	1.07	0.61	0.70
	35	16	1.15	0.61	0.70
	40	17	1.23	0.61	0.70
	45	18	1.31	0.61	0.70
	50	18	1.38	0.61	0.70
	55	18	1.44	0.61	0.70
R13-18H	20	13	0.65	0.75	0.86
	25	14	0.73	0.67	0.77
	30	16	0.80	0.61	0.70
	35	16	0.86	0.61	0.70
	40	17	0.92	0.61	0.70
	45	18	0.98	0.61	0.70
	50	18	1.03	0.61	0.70
	55	18	1.08	0.61	0.70
R13-18T	20	13	0.44	0.75	0.86
	25	14	0.49	0.67	0.77
	30	16	0.53	0.61	0.70
	35	16	0.58	0.61	0.70
	40	17	0.62	0.61	0.70
	45	18	0.65	0.61	0.70
	50	18	0.69	0.61	0.70
	55	18	0.72	0.61	0.70
R13-18Q	20	13	0.33	0.75	0.86
	25	14	0.37	0.67	0.77
	30	16	0.40	0.61	0.70
	35	16	0.43	0.61	0.70
	40	17	0.46	0.61	0.70
	45	18	0.49	0.61	0.70
	50	18	0.52	0.61	0.70
	55	18	0.54	0.61	0.70

Note: *Rotary Nozzles tested on 4 inch pop-ups.*
Performance data taken in zero wind conditions
**Radius refers to recommended spacing to achieve optimal precipitation rate and distribution uniformity with head to head spacing*
■ *Square spacing based on 50% diameter of throw*
▲ *Triangular spacing based on 50% diameter of throw*

R17-24 Series (Yellow)

Arc	Pressure psi	Radius* ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
R17-24F	20	17	2.45	0.79	0.92
	25	19	2.74	0.71	0.82
	30	21	3.00	0.65	0.75
	35	22	3.24	0.65	0.75
	40	23	3.46	0.65	0.75
	45	23	3.67	0.65	0.75
	50	24	3.87	0.65	0.75
	55	24	4.06	0.65	0.75
R17-24TQ	20	17	1.84	0.79	0.92
	25	19	2.05	0.71	0.82
	30	21	2.25	0.65	0.75
	35	22	2.43	0.65	0.75
	40	23	2.60	0.65	0.75
	45	23	2.76	0.65	0.75
	50	24	2.90	0.65	0.75
	55	24	3.05	0.65	0.75
R17-24TT	20	17	1.63	0.79	0.92
	25	19	1.83	0.71	0.82
	30	21	2.00	0.65	0.75
	35	22	2.16	0.65	0.75
	40	23	2.31	0.65	0.75
	45	23	2.45	0.65	0.75
	50	24	2.58	0.65	0.75
	55	24	2.71	0.65	0.75
R17-24H	20	17	1.22	0.79	0.92
	25	19	1.37	0.71	0.82
	30	21	1.50	0.65	0.75
	35	22	1.62	0.65	0.75
	40	23	1.73	0.65	0.75
	45	23	1.84	0.65	0.75
	50	24	1.94	0.65	0.75
	55	24	2.03	0.65	0.75
R17-24T	20	17	0.82	0.79	0.92
	25	19	0.91	0.71	0.82
	30	21	1.00	0.65	0.75
	35	22	1.08	0.65	0.75
	40	23	1.15	0.65	0.75
	45	23	1.22	0.65	0.75
	50	24	1.29	0.65	0.75
	55	24	1.35	0.65	0.75
R17-24Q	20	17	0.61	0.79	0.92
	25	19	0.68	0.71	0.82
	30	21	0.75	0.65	0.75
	35	22	0.81	0.65	0.75
	40	23	0.87	0.65	0.75
	45	23	0.92	0.65	0.75
	50	24	0.97	0.65	0.75
	55	24	1.02	0.65	0.75

Note: *Rotary Nozzles tested on 4 inch pop-ups.*
Performance data taken in zero wind conditions
**Radius refers to recommended spacing to achieve optimal precipitation rate and distribution uniformity with head to head spacing*
■ *Square spacing based on 50% diameter of throw*
▲ *Triangular spacing based on 50% diameter of throw*

RAIN BIRD

PLASTIC MPR NOZZLES

Matched Precipitation Rate (MPR) nozzles simplify the design process by allowing sprinklers with various arcs and radii to be mixed on the same circuit. Fit all Rain Bird spray heads and shrub adapters.

- Matched precipitation rates across sets and across patterns in 5 Series, 8 Series, 10 Series, 12 Series, and 15 Series for even water distribution and design flexibility
- 1800 Series white filter screens (shipped with nozzles) maintain precise radius adjustment and prevent clogging (5 and 8 Series nozzles are shipped with blue fine-mesh filter screens.)
- Stainless steel adjustment screw to adjust flow and radius

Specifications:

Pressure: 15 psi to 30 psi
Optimum pressure: 30 psi
Spacing: 3' to 20'

5 Series MPR

5° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
5F	15	3	0.29	2.07	2.39
	20	4	0.33	2.01	2.32
	25	4	0.37	1.62	1.87
	30	5	0.41	1.58	1.83
5H	15	3	0.14	2.07	2.39
	20	4	0.16	2.01	2.32
	25	4	0.18	1.62	1.87
	30	5	0.20	1.58	1.83
5Q	15	3	0.07	2.07	2.39
	20	4	0.08	2.01	2.32
	25	4	0.09	1.62	1.87
	30	5	0.10	1.58	1.83

Note: All MPR nozzles tested on 4" (10,2 cm) pop-ups.
■ Square spacing based on 50% diameter of throw.
▲ Triangular spacing based on 50% diameter of throw.
Performance data taken in zero wind conditions.
Note: Specify spray head body and nozzles separately. Refer to Price List for shipping unit quantities.
Note: Radius reduction over 25% of the normal throw of the nozzle is not recommended.

8 Series MPR

10° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
8F	15	5	0.74	2.07	2.39
	20	6	0.86	2.01	2.32
	25	7	0.96	1.62	1.87
	30	8	1.05	1.58	1.83
8H	15	5	0.37	2.07	2.39
	20	6	0.42	2.01	2.32
	25	7	0.47	1.62	1.87
	30	8	0.52	1.58	1.83
8Q	15	5	0.18	2.07	2.39
	20	6	0.21	2.01	2.32
	25	7	0.24	1.62	1.87
	30	8	0.26	1.58	1.83

8 FLT Series MPR

5° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
8H-FLT	15	6	0.56	3.36	3.88
	20	7	0.65	2.91	3.36
	25	7	0.72	2.60	3.01
	30	8	0.79	2.38	2.75
8Q-FLT	15	6	0.28	3.32	3.83
	20	7	0.32	2.87	3.32
	25	7	0.36	2.57	2.97
	30	8	0.39	2.35	2.71

Note: All MPR nozzles tested on 4" (10,2 cm) pop-ups.
■ Square spacing based on 50% diameter of throw.
▲ Triangular spacing based on 50% diameter of throw.
Performance data taken in zero wind conditions.

PLASTIC MPR NOZZLES (CONT.)

10 Series MPR

15° Trajectory				■	▲
Nozzle	**Pressure psi**	**Radius ft.**	**Flow GPM**	**Precip In/h**	**Precip In/h**
10F	15	7	1.16	2.28	2.63
	20	8	1.30	1.96	2.26
	25	9	1.44	1.71	1.98
	30	10	1.58	1.52	1.75
10H	15	7	0.58	2.28	2.63
	20	8	0.65	1.96	2.26
	25	9	0.72	1.71	1.98
	30	10	0.79	1.52	1.75
10Q	15	7	0.29	2.28	2.63
	20	8	0.33	1.96	2.26
	25	9	0.36	1.71	1.98
	30	10	0.39	1.52	1.75

Note: *All MPR nozzles tested on 4" (10,2 cm) pop-ups.*
■ *Square spacing based on 50% diameter of throw.*
▲ *Triangular spacing based on 50% diameter of throw.*
Performance data taken in zero wind conditions.

15 Series MPR

30° Trajectory				■	▲
Nozzle	**Pressure psi**	**Radius ft.**	**Flow GPM**	**Precip In/h**	**Precip In/h**
15F	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
15H	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83
15Q	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.62	1.87
	30	15	0.92	1.58	1.83

Note: *All MPR nozzles tested on 4" (10,2 cm) pop-ups.*
■ *Square spacing based on 50% diameter of throw.*
▲ *Triangular spacing based on 50% diameter of throw.*
Performance data taken in zero wind conditions.
Note: *Specify spray head body and nozzles separately. Refer to Price List for shipping unit quantities.*
Note: *Radius reduction over 25% of the normal throw of the nozzle is not recommended.*

12 Series MPR

30° Trajectory				■	▲
Nozzle	**Pressure psi**	**Radius ft.**	**Flow GPM**	**Precip In/h**	**Precip In/h**
12F	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
	30	12	2.60	1.74	2.01
12H	15	9	0.90	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
	30	12	1.30	1.74	2.01
12Q	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
	30	12	0.65	1.74	2.01

Note: *All MPR nozzles tested on 4" (10,2 cm) pop-ups.*
■ *Square spacing based on 50% diameter of throw.*
▲ *Triangular spacing based on 50% diameter of throw.*
Performance data taken in zero wind conditions.
Note: *Specify spray head body and nozzles separately. Refer to Price List for shipping unit quantities.*
Note: *Radius reduction over 25% of the normal throw of the nozzle is not recommended.*

15 Strip Series

30° Trajectory			
15EST	15	4 x 13	0.45
	20	4 x 14	0.50
	25	4 x 14	0.56
	30	4 x 15	0.61
15CST	15	4 x 26	0.89
	20	4 x28	1.00
	25	4x 28	1.11
	30	4 x 30	1.21
15RCS NEW	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49
15LCS NEW	15	3 x 11	0.35
	20	3 x 12	0.40
	25	4 x 14	0.45
	30	4 x 15	0.49
15SST	15	4 x 26	0.89
	20	4 x 28	1.00
	25	4 x 28	1.11
	30	4 x 30	1.21
9SST	15	9 x 15	1.34
	20	9 x 16	1.47
	25	9 x 18	1.60
	30	9 x 18	1.73

W *= Width of coverage pattern* ***L*** *= Length of coverage pattern*
Note: *Specify spray head body and nozzles separately.*
Refer to Price List for shipping unit quantities.
Note: *Radius reduction over 25% of the normal throw of the nozzle is not recommended.*

RAIN BIRD

HE-VAN SERIES NOZZLES

High Efficiency Variable Arc Nozzle

- Patent pending Flow Control Technology delivers superior close-in watering and uniform coverage across the entire spray pattern.
- Shorter run times
- Full adjustability from 0˚ to 360

Specifications:

Pressure: 15 psi to 30 psi

Range: 6-15'

8 Series HE-VAN

24° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	5	0.83	3.19	3.68
	20	6	0.96	2.56	2.95
	25	7	1.07	2.10	2.42
	30	8	1.17	1.76	2.03
270° Arc	15	5	0.62	3.19	3.68
	20	6	0.72	2.56	2.95
	25	7	0.80	2.10	2.42
	30	8	0.88	1.76	2.03
180° Arc	15	5	0.41	3.19	3.68
	20	6	0.48	2.56	2.95
	25	7	0.53	2.10	2.42
	30	8	0.59	1.76	2.03
90° Arc	15	5	0.21	3.19	3.68
	20	6	0.24	2.56	2.95
	25	7	0.27	2.10	2.42
	30	8	0.29	1.76	2.03

12 Series HE-VAN

23° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	9	1.67	1.99	2.30
	20	10	1.93	1.86	2.15
	25	11	2.16	1.72	1.99
	30	12	2.37	1.58	1.83
270° Arc	15	9	1.25	1.99	2.30
	20	10	1.45	1.86	2.15
	25	11	1.62	1.72	1.99
	30	12	1.77	1.58	1.83
180° Arc	15	9	0.84	1.99	2.30
	20	10	0.97	1.86	2.15
	25	11	1.08	1.72	1.99
	30	12	1.18	1.58	1.83
90° Arc	15	9	0.42	1.99	2.30
	20	10	0.48	1.86	2.15
	25	11	0.54	1.72	1.99
	30	12	0.59	1.58	1.83

10 Series HE-VAN

27° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	7	1.26	2.48	2.86
	20	8	1.46	2.19	2.53
	25	9	1.63	1.94	2.24
	30	10	1.78	1.72	1.98
270° Arc	15	7	0.95	2.48	2.86
	20	8	1.09	2.19	2.53
	25	9	1.22	1.94	2.24
	30	10	1.34	1.72	1.98
180° Arc	15	7	0.63	2.48	2.86
	20	8	0.73	2.19	2.53
	25	9	0.81	1.94	2.24
	30	10	0.89	1.72	1.98
90° Arc	15	7	0.32	2.48	2.86
	20	8	0.36	2.19	2.53
	25	9	0.41	1.94	2.24
	30	10	0.45	1.72	1.98

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

15 Series HE-VAN

25° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	11	2.62	2.08	2.40
	20	12	3.02	2.02	2.33
	25	14	3.38	1.66	1.92
	30	15	3.70	1.58	1.83
270° Arc	15	11	1.96	2.08	2.40
	20	12	2.27	2.02	2.33
	25	14	2.53	1.66	1.92
	30	15	2.78	1.58	1.83
180° Arc	15	11	1.31	2.08	2.40
	20	12	1.51	2.02	2.33
	25	14	1.69	1.66	1.92
	30	15	1.85	1.58	1.83
90° Arc	15	11	0.65	2.08	2.40
	20	12	0.76	2.02	2.33
	25	14	0.84	1.66	1.92
	30	15	0.93	1.58	1.83

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

RAIN BIRD

VAN SERIES NOZZLES

Adjustable nozzles for all standard and irregular-shaped turf and shrub areas. Fits all Rain Bird spray heads and shrub adaptors.

- Easy arc adjustment from 0° to 360° for 10, 12, 15 and 18-VAN; 0° to 330° for 4, 6 and 8-VAN
- Simple twist of center collar increases of decreases arc setting
- Captured screw slot prevents screwdriver strippage
- 12, 15, and 18-VAN have matched precipitation rates with Rain Bird MPR nozzles

Specifications:

Pressure: 15 psi to 30 psi
Optimum pressure: 30 psi

4 Series VAN

0° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
330° Arc	15	3	0.62	7.23	8.35
	20	3	0.70	8.17	9.43
	25	4	0.80	5.25	6.06
	30	4	0.88	5.78	6.67
270° Arc	15	3	0.52	7.42	8.57
	20	3	0.58	8.27	9.55
	25	4	0.66	5.29	6.11
	30	4	0.73	5.86	6.77
180° Arc	15	3	0.32	6.84	7.90
	20	3	0.37	7.91	9.13
	25	4	0.41	4.93	5.69
	30	4	0.45	5.41	6.25
90° Arc	15	3	0.21	8.98	10.37
	20	3	0.24	10.27	11.86
	25	4	0.26	6.26	7.23
	30	4	0.29	6.98	8.06

8 Series VAN

5° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
330° Arc	15	6	1.21	3.53	4.07
	20	7	1.36	2.91	3.36
	25	7	1.55	3.32	3.83
	30	8	1.70	2.79	3.22
270° Arc	15	6	1.11	3.95	4.55
	20	7	1.24	3.24	3.74
	25	7	1.41	3.69	4.25
	30	8	1.55	3.10	3.58
180° Arc	15	6	0.84	4.49	5.18
	20	7	0.97	3.81	4.40
	25	7	1.09	4.28	4.94
	30	8	1.19	3.58	4.13
90° Arc	15	6	0.51	5.46	6.29
	20	7	0.59	4.64	5.35
	25	7	0.66	5.19	5.98
	30	8	0.72	4.33	5.00

6 Series VAN

0° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
330° Arc	15	4	0.85	5.58	6.44
	20	5	0.96	4.03	4.65
	25	5	1.09	4.58	5.29
	30	6	1.20	3.50	4.04
270° Arc	15	4	0.79	6.34	7.32
	20	5	0.88	4.52	5.22
	25	5	1.00	5.13	5.92
	30	6	1.10	3.92	4.53
180° Arc	15	4	0.42	5.05	5.83
	20	5	0.49	3.77	4.35
	25	5	0.55	4.24	4.90
	30	6	0.60	3.21	3.71
90° Arc	15	4	0.26	6.26	7.23
	20	5	0.30	4.62	5.33
	25	5	0.34	5.24	6.05
	30	6	0.37	3.96	4.57

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

10 Series VAN

10° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	7	1.93	3.80	4.39
	20	8	2.32	3.50	4.04
	25	9	2.52	3.00	3.46
	30	10	2.60	2.50	2.89
270° Arc	15	7	1.45	3.80	4.39
	20	8	1.75	3.50	4.04
	25	9	1.89	3.00	3.46
	30	10	2.10	2.70	3.12
180° Arc	15	7	0.97	3.80	4.39
	20	8	1.20	3.50	4.04
	25	9	1.26	3.00	3.46
	30	10	1.45	2.80	3.23
90° Arc	15	7	0.48	3.80	4.39
	20	8	0.58	3.50	4.04
	25	9	0.63	3.00	3.46
	30	10	0.75	2.90	3.35

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

RAIN BIRD

VAN SERIES NOZZLES (CONTINUED)

Adjustable nozzles for all standard and irregular-shaped turf and shrub areas. Fits all Rain Bird spray heads and shrub adaptors.

- Easy arc adjustment from 0° to 360° for 10, 12, 15 and 18-VAN; 0° to 330° for 4, 6 and 8-VAN
- Simple twist of center collar increases of decreases arc setting
- Captured screw slot prevents screwdriver strippage
- 12, 15, and 18-VAN have matched precipitation rates with Rain Bird MPR nozzles

Specifications:

Pressure: 15 psi to 30 psi
Optimum pressure: 30 psi

12 Series VAN

15° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	9	1.56	1.86	2.14
	20	10	1.86	1.79	2.06
	25	11	2.12	1.68	1.95
	30	12	2.36	1.58	1.82
270° Arc	15	9	1.17	1.86	2.14
	20	10	1.39	1.79	2.06
	25	11	1.59	1.68	1.94
	30	12	1.77	1.58	1.82
180° Arc	15	9	0.78	1.86	2.14
	20	10	0.93	1.79	2.06
	25	11	1.06	1.68	1.95
	30	12	1.18	1.58	1.82
90° Arc	15	9	0.39	1.86	2.14
	20	10	0.46	1.79	2.06
	25	11	0.53	1.68	1.95
	30	12	0.59	1.58	1.82

15 Series VAN

23° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
270° Arc	15	11	1.95	2.07	2.39
	20	12	2.25	2.01	2.32
	25	14	2.48	1.62	1.87
	30	15	2.78	1.58	1.83
180° Arc	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83
90° Arc	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.62	1.87
	30	15	0.92	1.58	1.83

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

18 Series VAN

26° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
360° Arc	15	14	4.21	2.07	2.39
	20	15	4.70	2.01	2.32
	25	17	4.86	1.62	1.87
	30	18	5.32	1.58	1.83
270° Arc	15	14	3.16	2.07	2.39
	20	15	3.52	2.01	2.32
	25	17	3.65	1.62	1.87
	30	18	3.99	1.58	1.83
180° Arc	15	14	2.11	2.07	2.39
	20	15	2.35	2.01	2.32
	25	17	2.43	1.62	1.87
	30	18	2.66	1.58	1.83
90° Arc	15	14	1.05	2.07	2.39
	20	15	1.17	2.01	2.32
	25	17	1.22	1.62	1.87
	30	18	1.33	1.58	1.83

Note: *Turning the radius reduction screw may be required to achieve catalog radius and flow when the arc is set at less than maximum arc*

■ *Square spacing based on 50% diameter of throw*

▲ *Triangular spacing based on 50% diameter of throw*

Performance data taken in zero wind conditions

RAIN BIRD

U-SERIES NOZZLES

The patented U-Series nozzle is the first plastic nozzle with a second orifice for close-in watering and more uniform water distribution. Its unique patented design cuts watering times, saves water and money, and reduces waste. U-Series nozzles fit all Rain Bird sprinklers and shrub adapters and can be used with new and improved PCS screens.

Specifications:
Spacing: 5' to 15'
Pressure: 15 psi to 30 psi
Optimum pressure: 60 psi

- Additional orifice for close-in watering. Minimizes dry brown spots around spray heads
- Better, more uniform water distribution. Water flowing form both orifices combines to form a continuous water stream. Eliminates watering gaps for more uniform coverage throughout the entire watering area
- Lowest scheduling coefficient for most efficient watering. No need to overwater the entire watering area to make sure the dry sections get the water they need
- Reduces watering times
- Saves water and money/cuts waste

U10 Series Performance NEW

12° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
U-10F	15	7	1.16	2.07	2.39
	20	8	1.34	2.01	2.32
	25	9	1.50	1.62	1.87
	30	10	1.64	1.58	1.83
U-10H	15	7	0.58	2.07	2.39
	20	8	0.67	2.01	2.32
	25	9	0.75	1.62	1.87
	30	10	0.82	1.58	1.83
U-10T	15	7	0.39	2.07	2.39
	20	8	0.45	2.01	2.32
	25	9	0.50	1.62	1.87
	30	10	0.55	1.58	1.83
U-10Q	15	7	0.29	2.07	2.39
	20	8	0.33	2.01	2.32
	25	9	0.37	1.62	1.87
	30	10	0.41	1.58	1.83

U15 Series Performance

23° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
U-15F	15	11	2.60	2.07	2.39
	20	12	3.00	2.01	2.32
	25	14	3.30	1.62	1.87
	30	15	3.70	1.58	1.83
U-15TQ	15	11	1.95	2.07	2.39
	20	12	2.25	2.01	2.32
	25	14	2.48	1.62	1.87
	30	15	2.78	1.58	1.83
U-15TT	15	11	1.74	2.07	2.39
	20	12	2.01	2.01	2.32
	25	14	2.21	1.62	1.87
	30	15	2.48	1.58	1.83
U-15H	15	11	1.30	2.07	2.39
	20	12	1.50	2.01	2.32
	25	14	1.65	1.62	1.87
	30	15	1.85	1.58	1.83
U-15T	15	11	0.87	2.07	2.39
	20	12	1.00	2.01	2.32
	25	14	1.10	1.62	1.87
	30	15	1.23	1.58	1.83
U-15Q	15	11	0.65	2.07	2.39
	20	12	0.75	2.01	2.32
	25	14	0.82	1.62	1.87
	30	15	0.92	1.58	1.83

U8 Series Performance NEW

10° Trajectory

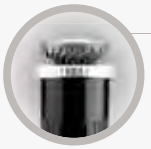
Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
U-8F	15	5	0.74	2.07	2.39
	20	6	0.86	2.01	2.32
	25	7	0.96	1.62	1.87
	30	8	1.05	1.58	1.83
U-8H	15	5	0.37	2.07	2.39
	20	6	0.42	2.01	2.32
	25	7	0.47	1.62	1.87
	30	8	0.52	1.58	1.83
U-8T	15	5	0.25	2.07	2.39
	20	6	0.29	2.01	2.32
	25	7	0.32	1.62	1.87
	30	8	0.35	1.58	1.83
U-8Q	15	5	0.18	2.07	2.39
	20	6	0.21	2.01	2.32
	25	7	0.24	1.62	1.87
	30	8	0.26	1.58	1.83

U12 Series Performance

23° Trajectory

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
U-12F	15	9	1.80	2.14	2.47
	20	10	2.10	2.02	2.34
	25	11	2.40	1.91	2.21
	30	12	2.60	1.74	2.01
U-12TQ	15	9	1.35	2.14	2.47
	20	10	1.58	2.02	2.34
	25	11	1.80	1.91	2.21
	30	12	1.95	1.74	2.01
U-12TT	15	9	1.20	2.14	2.47
	20	10	1.40	2.02	2.34
	25	11	1.60	1.91	2.21
	30	12	1.74	1.74	2.01
U-12H	15	9	0.90	2.14	2.47
	20	10	1.05	2.02	2.34
	25	11	1.20	1.91	2.21
	30	12	1.30	1.74	2.01
U-12T	15	9	0.60	2.14	2.47
	20	10	0.70	2.02	2.34
	25	11	0.80	1.91	2.21
	30	12	0.87	1.74	2.01
U-12Q	15	9	0.45	2.14	2.47
	20	10	0.53	2.02	2.34
	25	11	0.60	1.91	2.21
	30	12	0.65	1.74	2.01

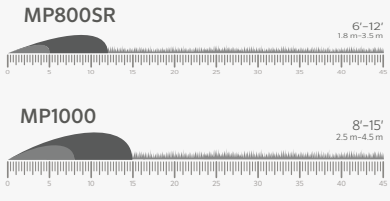
All U-Series nozzles tested on 4" (10.2) pop-ups. Performance data taken in zero wind conditions.
■ Square spacing based on 50% diameter of throw.
▲ Triangular spacing based on 50% diameter of throw.
***Note:** Radius reduction over 25% of the normal throw of the nozzle is not recommended.*



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

The MP Tool makes radius adjustments easy; matched precipitation is maintained at any arc or radius.

THE MP ROTATOR® IS THE NOZZLE OF CHOICE FOR WATER CONSERVATION. Hunter's MP Rotator delivers multi-trajectory streams at a slower rate, allowing water to gently soak into the soil, significantly reducing runoff. The MP Rotator's uniform distribution results in 30% less water use when compared to traditional sprays, and covers distances of up to 35'. And now, the **NEW** MP800SR offers increased versatility for spaces as tight as 6'.



RESIDENTIAL & COMMERCIAL IRRIGATION | *Built on Innovation®*
Learn more. Visit hunterindustries.com

Hunter®

Denotes Smart Water products

Horizon

Hunter

MP ROTATOR

Multi-stream technology maximizes the water-efficiency of your irrigation systems.

- Multiple rotating streams provide excellent uniformity
- Matched Precipitation even after arc and radius adjustment
- Low precipitation rate reduces runoff on slopes and tight soils
- Rotator® Technology proven in demanding agricultural conditions since 1987
- Easy arc adjustment, easy radius adjustment up to 25%, no nozzle to change
- Pressure range — 25 psi to 55 psi

Product Code	Description
MP1000	8' to 15'
MP2000	13' to 21'
MP3000	22' to 30'
MPCorner	8' to 15'
MPStrip	

MP ROTATOR PERFORMANCE DATA

● MP Corner
Radius: 8' to 15'
Adjustable Arc
Color Code: Turquoise

	Pressure (PSI)	Radius (ft.)	Flow (GPM)	Flow (GPH)	Precip in/hr ■	Precip in/hr ▲
45°	25	–	–	–	–	–
	30	12	0.17	10.2	0.43	0.50
	35	13	0.18	10.8	0.40	0.46
	40	**14**	**0.19**	**11.4**	**0.39**	**0.45**
	45	14	0.21	12.6	0.39	0.45
	50	14	0.22	13.2	0.38	0.43
	55	15	0.23	13.8	0.37	0.43
90°	25	11	0.31	18.6	–	–
	30	12	0.34	20.4	0.43	0.50
	35	13	0.36	21.6	0.40	0.46
	40	**14**	**0.39**	**23.4**	**0.39**	**0.45**
	45	14	0.41	24.6	0.39	0.45
	50	15	0.43	25.8	0.38	0.43
	55	15	0.46	27.6	0.37	0.43
105°	25	11	0.36	21.6	–	–
	30	12	0.39	23.4	0.43	0.50
	35	13	0.42	25.2	0.40	0.46
	40	**14**	**0.45**	**27**	**0.39**	**0.45**
	45	14	0.48	28.8	0.39	0.45
	50	15	0.51	30.6	0.38	0.43
	55	15	0.53	31.8	0.37	0.43

Bold = Recommended Pressure

MP ROTATOR® PERFORMANCE DATA

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

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

Bold = Recommended pressure is 40 PSI.

Notes: Strip pattern radius can be adjusted by 25%. MP Rotator is designed to maintain matched precipitation after radius adjustment.

MP ROTATOR® PERFORMANCE DATA

MP800SR
Radius: 0 to 14'
Adjustable Arc
● Lt Angle and Gray: 90° to 210°
● Lime Green and Gray: 360°

Arc	Pressure PSI	MAX RADIUS Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲	MIN RADIUS Radius ft.	Flow GPM
90°	30	8	0.17	0.90	1.04	6	0.13
	35	9	0.21	0.89	1.03	7	0.15
	40	**10**	**0.23**	**0.83**	**0.96**	**8**	**0.16**
	45	11	0.25	0.80	0.92	8	0.18
	50	11	0.27	0.79	0.92	9	0.19
	55	12	0.28	0.80	0.93	10	0.20
180°	30	8	0.33	0.88	1.02	6	0.26
	35	9	0.38	0.85	0.99	7	0.29
	40	**10**	**0.42**	**0.81**	**0.93**	**8**	**0.32**
	45	11	0.46	0.77	0.88	8	0.36
	50	11	0.48	0.76	0.88	9	0.38
	55	12	0.50	0.73	0.84	10	0.40
210°	30	8	0.35	0.80	0.93	6	0.30
	35	9	0.38	0.77	0.89	7	0.34
	40	**10**	**0.43**	**0.81**	**0.91**	**8**	**0.37**
	45	10	0.45	0.82	0.95	8	0.42
	50	11	0.49	0.73	0.85	9	0.44
	55	12	0.56	0.70	0.81	10	0.47
360°	30	8	0.66	0.89	1.03	6	0.47
	35	9	0.71	0.80	0.92	7	0.52
	40	**10**	**0.78**	**0.79**	**0.91**	**8**	**0.56**
	45	10	0.85	0.78	0.90	8	0.59
	50	11	0.88	0.73	0.85	9	0.63
	55	12	0.98	0.70	0.81	10	0.70

MP ROTATOR® PERFORMANCE DATA

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

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

	Pressure (PSI)	MP1000 Radius (ft.)	Flow (GPM)	Flow (GPH)	Precip in/hr ■	Precip in/hr ▲	MP2000 Radius (ft.)	Flow (GPM)	Flow (GPH)	Precip in/hr ■	Precip in/hr ▲
90°	25	–	–	–	–	–	17	0.31	18.6	0.41	0.48
	30	12	0.16	9.6	0.43	0.50	18	0.33	19.8	0.39	0.45
	35	13	0.18	10.8	0.40	0.46	19	0.37	22.2	0.39	0.46
	40	**14**	**0.19**	**11.4**	**0.39**	**0.45**	**20**	**0.4**	**24**	**0.39**	**0.44**
	45	14	0.2	12	0.39	0.45	21	0.42	25.2	0.37	0.42
	50	14	0.21	12.6	0.38	0.43	21	0.44	26.4	0.35	0.40
	55	15	0.22	13.2	0.37	0.43	21	0.47	28.2	0.37	0.43
180°	25	–	–	–	–	–	16	0.58	34.8	0.44	0.50
	30	12	0.32	19.2	0.43	0.50	17	0.63	37.8	0.42	0.49
	35	13	0.35	21	0.40	0.46	18	0.69	41.4	0.41	0.47
	40	**14**	**0.37**	**22.2**	**0.39**	**0.45**	**19**	**0.74**	**44.4**	**0.39**	**0.45**
	45	14	0.4	24	0.39	0.45	20	0.78	46.8	0.38	0.43
	50	14	0.41	24.6	0.38	0.43	21	0.83	49.8	0.36	0.41
	55	15	0.43	25.8	0.37	0.43	21	0.85	51	0.37	0.43
210°	25	–	–	–	–	–	16	0.68	40.8	0.44	0.50
	30	12	0.37	22.2	0.43	0.50	17	0.74	44.4	42	0.49
	35	13	0.41	24.6	0.40	0.46	18	0.80	48	0.41	0.47
	40	**14**	**0.43**	**25.8**	**0.39**	**0.45**	**19**	**0.86**	**51.6**	**0.39**	**0.45**
	45	14	0.46	27.6	0.39	0.45	20	0.91	55.2	0.38	0.43
	50	14	0.48	28.8	0.38	0.43	21	0.97	58.2	0.36	0.41
	55	15	0.50	30	0.37	0.43	21	1.01	60.6	0.37	0.43
270°	25	–	–	–	–	–	16	0.87	52.2	0.44	0.50
	30	12	0.48	29	0.43	0.50	17	0.95	57	0.42	0.49
	35	13	0.54	32	0.40	0.46	18	1.03	61.8	0.41	0.47
	40	**14**	**0.57**	**34**	**0.39**	**0.45**	**19**	**1.10**	**66**	**0.39**	**0.45**
	45	14	0.60	36	0.39	0.45	20	1.17	70.2	0.38	0.43
	50	14	0.63	38	0.38	0.43	21	1.23	73.8	0.36	0.41
	55	15	0.66	40	0.37	0.43	21	1.3	78	0.37	0.43
360°	25	–	–	–	–	–	16	1.16	69.6	0.44	0.50
	30	12	0.65	39	0.43	0.50	17	1.27	76.2	0.42	0.49
	35	13	0.71	42.6	0.40	0.47	18	1.37	82.2	0.41	0.47
	40	**14**	**0.75**	**45**	**0.39**	**0.46**	**19**	**1.47**	**88.2**	**0.39**	**0.45**
	45	14	0.80	48	0.39	0.45	20	1.56	93.6	0.38	0.43
	50	14	0.84	50.4	0.38	0.44	21	1.64	98.4	0.36	0.41
	55	15	0.87	52.2	0.37	0.43	21	1.7	102	0.37	0.43

MP ROTATOR® PERFORMANCE DATA

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

MP3500
Radius: 33' to 35'
Adjustable Arc
● Light Brown: 90° to 210°

	Pressure (PSI)	MP3000 Radius (ft.)	Flow (GPM)	Flow (GPH)	Precip in/hr ■	Precip in/hr ▲	MP3500 Radius (ft.)	Flow (GPM)	Flow (GPH)	Precip in/hr ■	Precip in/hr ▲
90°	25	25	0.69	41.4	0.43	0.49	33	1.04	62.4	0.37	0.42
	30	27	0.74	44.4	0.39	0.45	34	1.13	67.8	0.38	0.43
	35	28	0.80	48	0.39	0.45	34	1.21	72.6	0.40	0.47
	40	**30**	**0.86**	**51.6**	**0.37**	**0.43**	**35**	**1.28**	**76.8**	**0.40**	**0.46**
	45	30	0.91	54.6	0.39	0.45	35	1.38	82.8	0.43	0.50
	50	30	0.96	57.6	0.41	0.47	35	1.43	85.8	0.45	0.52
	55	30	1.01	60.6	0.43	0.50	35	1.50	90.0	0.47	0.54
180°	25	25	1.44	86.4	0.44	0.51	33	2.21	132.6	0.39	0.45
	30	27	1.58	94.8	0.42	0.48	34	2.24	134.4	0.37	0.43
	35	28	1.7	102	0.42	0.48	34	2.65	159.0	0.44	0.51
	40	**30**	**1.82**	**109.2**	**0.39**	**0.45**	**35**	**2.86**	**171.6**	**0.45**	**0.52**
	45	30	1.93	115.8	0.41	0.48	35	3.10	186.0	0.49	0.56
	50	30	2.04	122.4	0.44	0.50	35	3.21	192.6	0.50	0.58
	55	30	2.13	127.8	0.46	0.53	35	3.28	196.8	0.52	0.60
210°	25	25	1.68	100.8	0.44	0.51	33	2.59	155.4	0.39	0.45
	30	27	1.84	110.4	0.42	0.48	34	2.84	170.4	0.41	0.47
	35	28	1.99	119.4	0.42	0.48	34	3.08	184.8	0.44	0.51
	40	**30**	**2.12**	**127.2**	**0.39**	**0.45**	**35**	**3.29**	**197.4**	**0.44**	**0.51**
	45	30	2.25	135	0.41	0.48	35	3.54	212.4	0.48	0.55
	50	30	2.37	142.2	0.43	0.50	35	3.76	225.6	0.51	0.59
	55	30	2.49	149.4	0.46	0.53	35	3.94	236.4	0.53	0.61
270°	25	25	2.19	131.4	0.45	0.52					
	30	27	2.37	142.2	0.42	0.48					
	35	28	2.55	153	0.42	0.48					
	40	**30**	**2.73**	**163.8**	**0.39**	**0.45**					
	45	30	2.89	173.4	0.41	0.48					
	50	30	3.06	183.6	0.44	0.50					
	55	30	3.22	193.2	0.46	0.53					
360°	25	25	2.88	172.8	0.44	0.51					
	30	27	3.15	189	0.42	0.48					
	35	28	3.4	204	0.42	0.48					
	40	**30**	**3.64**	**218.4**	**0.39**	**0.45**					
	45	30	3.86	231.6	0.41	0.48					
	50	30	4.07	244.2	0.44	0.50					
	55	30	4.27	256.2	0.46	0.53					

Hunter®

PRO-SPRAY® NOZZLES

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

- Precision engineered to ensure that the entire area of coverage receives its intended amount of water
- Large filter screen that comes with every nozzle prevents clogging from debris and ensures uniform coverage
- Save labor by not having to adjust each nozzle to common patterns

PRO-SPRAY FIXED NOZZLES PERFORMANCE 5' & 8' RADIUS

			Nozzle 5 Blue 5 ft Radius Fixed ¼, ½, Full Trajectory 0°				Nozzle 8 Brown 8 ft Radius Fixed ¼, ⅓, ½, Full Trajectory 0°			
			5				8			
Arc	Position	Pressure	Radius	Flow	Precip in/hr		Radius	Flow	Precip in/hr	
		PSI	ft	GPM	■	▲	ft	GPM	■	▲
90°	Q	20	4	0.09	2.25	2.60	7	0.20	1.54	1.78
		25	4	0.11	2.54	2.94	8	0.22	1.33	1.53
		30	**5**	**0.12**	**1.80**	**2.08**	**8**	**0.24**	**1.46**	**1.69**
		35	6	0.13	1.36	1.57	9	0.26	1.25	1.45
		40	6	0.14	1.46	1.69	9	0.28	1.34	1.55
180°	H	20	4	0.19	2.25	2.60	7	0.38	1.49	1.72
		25	4	0.21	2.54	2.94	8	0.43	1.28	1.48
		30	**5**	**0.23**	**1.80**	**2.08**	**8**	**0.47**	**1.41**	**1.63**
		35	6	0.25	1.36	1.57	9	0.51	1.21	1.39
		40	6	0.27	1.46	1.69	9	0.54	1.29	1.49
360°	F	20	4	0.37	2.25	2.60	7	0.78	1.54	1.78
		25	4	0.42	2.54	2.94	8	0.88	1.33	1.53
		30	**5**	**0.47**	**1.80**	**2.08**	**8**	**0.97**	**1.46**	**1.69**
		35	6	0.51	1.36	1.57	9	1.05	1.25	1.45
		40	6	0.55	1.46	1.69	9	1.13	1.34	1.55

PRO-SPRAY FIXED NOZZLES PERFORMANCE 10' & 12' RADIUS

			Nozzle 10 Red 10 ft Radius Fixed ¼, ⅓, ½, Full Trajectory 15°				Nozzle 12 Green 12 ft Radius Fixed ¼, ⅓, ½, ⅔, ¾, Full Trajectory 28°			
			10				12			
Arc	Position	Pressure	Radius	Flow	Precip in/hr		Radius	Flow	Precip in/hr	
		PSI	ft	GPM	■	▲	ft	GPM	■	▲
90°	Q	20	9	0.34	1.63	1.88	11	0.54	1.71	1.98
		25	10	0.39	1.48	1.71	12	0.61	1.62	1.87
		30	**10**	**0.42**	**1.63**	**1.89**	**12**	**0.67**	**1.78**	**2.06**
		35	11	0.46	1.47	1.69	13	0.72	1.65	1.90
		40	11	0.49	1.57	1.82	13	0.78	1.77	2.04
180°	H	20	9	0.70	1.67	1.92	11	1.05	1.67	1.93
		25	10	0.79	1.53	1.76	12	1.18	1.58	1.83
		30	**10**	**0.88**	**1.69**	**1.95**	**12**	**1.30**	**1.74**	**2.01**
		35	11	0.95	1.52	1.75	13	1.42	1.61	1.86
		40	11	1.03	1.63	1.89	13	1.52	1.73	2.00
360°	F	20	9	1.29	1.53	1.77	11	2.17	1.72	1.99
		25	10	1.45	1.39	1.61	12	2.45	1.63	1.89
		30	**10**	**1.59**	**1.53**	**1.76**	**12**	**2.70**	**1.80**	**2.08**
		35	11	1.72	1.37	1.58	13	2.93	1.67	1.93
		40	11	1.84	1.46	1.69	13	3.15	1.80	2.07

PRO-SPRAY FIXED NOZZLES PERFORMANCE 15' & 17' RADIUS

			Nozzle 15 Black 15 ft Radius Fixed ¼, ⅓, ½, ⅔, ¾, Full Trajectory 28°				Nozzle 17 Grey 17 ft Radius Fixed ¼, ½ Trajectory 28°			
			15				17			
Arc	Position	Pressure	Radius	Flow	Precip in/hr		Radius	Flow	Precip in/hr	
		PSI	ft	GPM	■	▲	ft	GPM	■	▲
90°	Q	20	14	0.78	1.53	1.77	16	0.93	1.40	1.61
		25	15	0.88	1.51	1.74	17	1.05	1.39	1.61
		30	**15**	**0.97**	**1.67**	**1.92**	**17**	**1.15**	**1.54**	**1.77**
		35	16	1.06	1.59	1.84	18	1.25	1.49	1.72
		40	17	1.14	1.52	1.75	19	1.34	1.43	1.65
180°	H	20	14	1.51	1.48	1.71	16	1.91	1.43	1.66
		25	15	1.69	1.45	1.67	17	2.15	1.43	1.65
		30	**15**	**1.86**	**1.59**	**1.84**	**17**	**2.37**	**1.58**	**1.82**
		35	16	2.02	1.52	1.75	18	2.57	1.53	1.76
		40	17	2.16	1.44	1.66	19	2.76	1.47	1.70
360°	F	20	14	3.04	1.49	1.72				
		25	15	3.41	1.46	1.69				
		30	**15**	**3.75**	**1.61**	**1.85**	Use Hunter 17A Nozzle			
		35	16	4.07	1.53	1.76				
		40	17	4.36	1.45	1.68				

Hunter®

PRO-ADJUSTABLE NOZZLES

Cover all of the angles. Fine-tune nozzles for your specific needs.

- Can be used on hillside topography, a curved flower bed or other special landscape installation
- Set nozzles at any angle from 25° to 360°
- With matched precipitation, they can be grouped together, even with different radii

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA 4', 6', 8', 10' RADIUS

		Nozzle 4A Lt. Green 4 ft Radius Adjustable from 0° to 360 Trajectory 0° — 4					Nozzle 6A Lt. Blue 6 ft Radius Adjustable from 0° to 360 Trajectory 0° — 6				Nozzle 8A Brown 8 ft Radius Adjustable from 0° to 360 Trajectory 0° — 8				Nozzle 10A Red 10 ft Radius Adjustable from 0° to 360 Trajectory 15° — 10			
Arc	Pressure	Radius	Flow	Precip in/hr			Radius	Flow	Precip in/hr		Radius	Flow	Precip in/hr		Radius	Flow	Precip in/hr	
	PSI	ft	GPM	■	▲		ft	GPM	■	▲	ft	GPM	■	▲	ft	GPM	■	▲
90°	20	3	0.19	4.57	5.28		5	0.30	3.21	3.70	7	0.23	1.83	2.11	9	0.39	1.86	2.15
	25	3	0.20	4.81	5.56		5	0.31	3.32	3.83	8	0.26	1.58	1.83	10	0.44	1.71	1.97
	30	**4**	**0.28**	**6.74**	**7.78**		**6**	**0.37**	**3.96**	**4.57**	**8**	**0.29**	**1.75**	**2.02**	**10**	**0.49**	**1.89**	**2.18**
	35	4	0.24	5.78	6.67		6	0.38	4.06	4.69	9	0.32	1.51	1.74	11	0.53	1.70	1.96
	40	4	0.25	5.90	6.81		6	0.40	4.28	4.94	9	0.34	1.62	1.87	11	0.57	1.83	2.11
180°	20	3	0.34	4.09	4.72		5	0.50	2.67	3.09	7	0.47	1.83	2.11	9	0.78	1.86	2.15
	25	3	0.38	4.57	5.28		5	0.54	2.89	3.33	8	0.53	1.58	1.83	10	0.89	1.71	1.97
	30	**4**	**0.45**	**5.41**	**6.25**		**6**	**0.60**	**3.21**	**3.70**	**8**	**0.58**	**1.75**	**2.02**	**10**	**0.98**	**1.89**	**2.18**
	35	4	0.46	5.53	6.39		6	0.64	3.42	3.95	9	0.63	1.51	1.74	11	1.07	1.70	1.96
	40	4	0.48	5.78	6.67		6	0.68	3.64	4.20	9	0.68	1.62	1.87	11	1.15	1.83	2.11
360°	20	3	0.66	3.97	4.58		4	1.05	2.81	3.24	7	0.93	1.83	2.11	9	1.57	1.86	2.15
	25	3	0.72	4.33	5.00		5	1.10	2.94	3.40	8	1.05	1.58	1.83	10	1.77	1.71	1.97
	30	**4**	**0.80**	**4.81**	**5.56**		**6**	**1.26**	**3.37**	**3.89**	**8**	**1.16**	**1.75**	**2.02**	**10**	**1.96**	**1.89**	**2.18**
	35	4	0.86	5.17	5.97		6	1.30	3.48	4.01	9	1.27	1.51	1.74	11	2.13	1.70	1.96
	40	4	0.90	5.41	6.25		6	1.40	3.74	4.32	9	1.36	1.62	1.87	11	2.30	1.83	2.11

Bold = Recommended pressure

PRO ADJUSTABLE NOZZLES PERFORMANCE DATA 12', 15', 17' RADIUS

		Nozzle 12A Green 12 ft Radius Adjustable from 0° to 360 Trajectory 28° — 12					Nozzle 15A Black 15 ft Radius Adjustable from 0° to 360 Trajectory 28° — 15					Nozzle 17A Grey 17 ft Radius Adjustable from 0° to 360 Trajectory 28° — 17			
Arc	Pressure	Radius	Flow	Precip in/hr			Radius	Flow	Precip in/hr		Pressure	Radius	Flow	Precip in/hr	
	PSI	ft	GPM	■	▲		ft	GPM	■	▲	PSI	ft	GPM	■	▲
90°	20	11	0.50	1.60	1.85		14	0.74	1.46	1.69	20	16	0.96	1.44	1.67
	25	12	0.57	1.52	1.76		15	0.84	1.44	1.66	25	17	1.09	1.45	1.67
	30	**12**	**0.63**	**1.68**	**1.95**		**15**	**0.93**	**1.59**	**1.84**	**30**	**17**	**1.20**	**1.60**	**1.85**
	35	13	0.69	1.56	1.80		16	1.01	1.52	1.76	35	18	1.31	1.55	1.79
	40	13	0.74	1.68	1.94		17	1.09	1.45	1.68	40	19	1.41	1.50	1.73
180°	20	11	1.01	1.60	1.85		14	1.49	1.46	1.69	20	16	1.92	1.44	1.67
	25	12	1.14	1.52	1.76		15	1.68	1.44	1.66	25	17	2.17	1.45	1.67
	30	**12**	**1.26**	**1.68**	**1.95**		**15**	**1.86**	**1.59**	**1.84**	**30**	**17**	**2.40**	**1.60**	**1.85**
	35	13	1.37	1.56	1.80		16	2.02	1.52	1.76	35	18	2.61	1.55	1.79
	40	13	1.48	1.68	1.94		17	2.18	1.45	1.68	40	19	2.81	1.50	1.73
360°	20	11	2.02	1.60	1.85		14	2.98	1.46	1.69	20	16	3.84	1.44	1.67
	25	12	2.28	1.52	1.76		15	3.37	1.44	1.66	25	17	4.34	1.45	1.67
	30	**12**	**2.52**	**1.68**	**1.95**		**15**	**3.72**	**1.59**	**1.84**	**30**	**17**	**4.80**	**1.60**	**1.85**
	35	13	2.74	1.56	1.80		16	4.05	1.52	1.76	35	18	5.22	1.55	1.79
	40	13	2.95	1.68	1.94		17	4.36	1.45	1.68	40	19	5.62	1.50	1.73

Bold = Recommended pressure

TORO

PRECISION™ PRESSURE COMPENSATING NOZZLES

- Uses 1/3 less flow to reach a radius of a conventional spray nozzle
- The H²O Chip generates a larger, more uniform droplet size resulting in consistency across the irrigated arc
- Male & female threaded models available
- Available in Pressure Compensating Device (PCD) versions

Performance Data Pressure-Compensating Precision™ Series Spray Nozzles

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
5Q	40	0.06	4.6	1.0	1.2
	50	0.08	5.1	1.2	1.4
	60	0.09	5.6	1.3	1.5
	70	0.11	6.2	1.5	1.7
5T	40	0.07	4.4	1.0	1.1
	50	0.11	4.9	1.3	1.5
	60	0.15	5.5	1.7	2.0
	70	0.19	6.0	2.0	2.4
5H	40	0.10	4.4	1.0	1.2
	50	0.13	4.9	1.1	1.3
	60	0.16	5.4	1.3	1.5
	70	0.19	6.0	1.4	1.6
5TT	40	0.14	4.3	1.1	1.3
	50	0.20	4.9	1.3	1.5
	60	0.25	5.4	1.4	1.7
	70	0.31	6.0	1.6	1.8
5TQ	40	0.15	4.3	1.0	1.2
	50	0.21	4.9	1.2	1.4
	60	0.26	5.6	1.4	1.6
	70	0.32	6.2	1.5	1.7
5F	40	0.17	4.0	1.0	1.2
	50	0.24	4.8	1.1	1.3
	60	0.31	5.5	1.2	1.4
	70	0.38	6.3	1.3	1.5

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
8Q	40	0.14	7.0	1.1	1.3
	50	0.17	7.7	1.2	1.3
	60	0.20	8.4	1.2	1.4
	70	0.23	9.1	1.3	1.4
8T	40	0.20	7.6	1.0	1.2
	50	0.24	8.0	1.1	1.3
	60	0.27	8.5	1.2	1.4
	70	0.31	8.9	1.3	1.5
8H	40	0.26	7.0	1.0	1.2
	50	0.33	7.6	1.1	1.3
	60	0.39	8.1	1.2	1.4
	70	0.46	8.7	1.3	1.4
8TT	40	0.34	7.0	1.0	1.1
	50	0.43	7.8	1.1	1.2
	60	0.52	8.5	1.2	1.4
	70	0.61	9.3	1.3	1.5
8TQ	40	0.41	7.2	1.0	1.1
	50	0.48	7.9	1.1	1.2
	60	0.55	8.6	1.1	1.3
	70	0.62	9.3	1.2	1.4
8F	40	0.55	7.0	1.1	1.2
	50	0.65	7.5	1.1	1.2
	60	0.74	8.0	1.1	1.3
	70	0.84	8.5	1.1	1.3

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
10Q	40	0.26	9.5	1.0	1.1
	50	0.28	10.0	1.1	1.2
	60	0.29	10.5	1.1	1.3
	70	0.31	11.1	1.2	1.4
10T	40	0.31	9.5	1.0	1.1
	50	0.36	10.0	1.1	1.2
	60	0.41	10.5	1.2	1.4
	70	0.46	11.0	1.3	1.5
10H	40	0.48	9.7	1.0	1.1
	50	0.53	10.1	1.1	1.2
	60	0.57	10.4	1.1	1.3
	70	0.62	10.8	1.2	1.4
10TT	40	0.63	9.6	1.0	1.1
	50	0.70	9.9	1.1	1.2
	60	0.77	10.3	1.1	1.3
	70	0.84	10.6	1.2	1.4
10TQ	40	0.71	9.5	1.0	1.1
	50	0.77	9.9	1.0	1.2
	60	0.82	10.3	1.1	1.2
	70	0.88	10.7	1.1	1.3
10F	40	0.95	9.6	1.0	1.1
	50	1.06	10.0	1.1	1.2
	60	1.16	10.5	1.1	1.3
	70	1.27	10.9	1.2	1.4

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
12Q	40	0.34	12.0	1.0	1.2
	50	0.39	12.2	1.1	1.3
	60	0.43	12.5	1.2	1.3
	70	0.48	12.7	1.2	1.4
12T	40	0.46	11.5	1.0	1.2
	50	0.50	11.8	1.0	1.2
	60	0.54	12.0	1.1	1.3
	70	0.58	12.3	1.1	1.3
12H	40	0.70	11.5	1.0	1.2
	50	0.75	11.8	1.0	1.2
	60	0.80	12.2	1.1	1.2
	70	0.85	12.5	1.1	1.2
12TT	40	0.90	11.4	1.0	1.2
	50	1.03	11.5	1.1	1.3
	60	1.16	11.5	1.2	1.3
	70	1.29	11.6	1.2	1.4
12TQ	40	1.05	11.4	1.0	1.2
	50	1.14	11.7	1.0	1.2
	60	1.23	12.0	1.1	1.3
	70	1.32	12.3	1.1	1.3
12F	40	1.35	11.5	1.0	1.1
	50	1.49	11.8	1.0	1.2
	60	1.63	12.2	1.1	1.3
	70	1.77	12.5	1.1	1.3

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
15Q	40	0.53	14.2	1.0	1.2
	50	0.59	14.5	1.1	1.2
	60	0.64	14.8	1.1	1.3
	70	0.70	15.1	1.2	1.3
15T	40	0.72	14.3	1.0	1.2
	50	0.77	14.8	1.0	1.2
	60	0.82	15.2	1.1	1.2
	70	0.87	15.7	1.1	1.2
15H	40	1.10	14.5	1.0	1.2
	50	1.20	14.3	1.1	1.2
	60	1.29	14.0	1.1	1.3
	70	1.39	13.8	1.2	1.3
15TT	40	1.45	14.5	1.0	1.2
	50	1.57	14.8	1.0	1.2
	60	1.68	15.0	1.1	1.2
	70	1.80	15.3	1.1	1.3
15TQ	40	1.60	14.0	0.9	1.0
	50	1.70	14.4	1.0	1.1
	60	1.80	14.8	1.0	1.2
	70	1.90	15.1	1.1	1.2
15F	40	2.20	14.5	1.0	1.2
	50	2.36	14.8	1.0	1.2
	60	2.52	15.1	1.1	1.2
	70	2.68	15.4	1.1	1.3

Arc	PSI	GPM	Radius	Precip.Rate ⊠ (in./hr.)	Precip. Rate ▲ (in./hr.)
4X30 SST	40	0.62	4x30	1.0	1.1
	50	0.65	4x30	1.0	1.2
	60	0.67	4x30	1.1	1.3
	70	0.70	4x30	1.1	1.3
4X15 LCS	40	0.32	4x15	1.0	1.2
	50	0.33	4x15	1.1	1.2
	60	0.34	4x15	1.1	1.3
	70	0.35	4x15	1.2	1.3
4X15 RCS	40	0.32	4x15	1.0	1.2
	50	0.33	4x15	1.1	1.2
	60	0.34	4x15	1.1	1.3
	70	0.35	4x15	1.2	1.3
4X18 SST	40	0.36	4X18	1.0	1.1
	50	0.37	4X18	1.0	1.2
	60	0.38	4X18	1.0	1.2
	70	0.39	4X18	1.0	1.2
4X9 LCS	40	0.18	4X9	1.0	1.1
	50	0.19	4X9	1.1	1.2
	60	0.20	4X9	1.1	1.2
	70	0.21	4X9	1.2	1.3
4X9 RCS	40	0.18	4X9	1.0	1.2
	50	0.19	4X9	1.1	1.2
	60	0.20	4X9	1.1	1.2
	70	0.21	4X9	1.2	1.3

TORO

PRECISION™ SERIES ROTATING NOZZLES

- Consistent speed of rotation not affected by pressure
- Maintains precipitation rate as radius is reduced
- Threads onto nearly all sprayheads and shrub adapters (male or female)
- Adjustable by hand or with included tool

Performance Data—Precision™ Series Rotating Nozzles—US

Arc	PSI	GPM	Radius	Precip.Rate ■ (in./hr.)	Precip. Rate ▲ (in./hr.)
45°	20	0.17	14.0	0.67	0.77
	30	0.19	15.0	0.65	0.75
	40	0.25	17.0	0.67	0.77
	50	0.31	18.5	0.70	0.81
	60	0.35	19.5	0.71	0.82
	75	0.43	22.0	0.68	0.79
90°	20	0.43	16.0	0.65	0.75
	30	0.49	17.5	0.62	0.71
	40	0.62	20.5	0.57	0.66
	50	0.75	22.5	0.57	0.66
	60	0.82	23.5	0.57	0.66
	75	0.92	25.0	0.57	0.65
120°	20	0.48	16.4	0.69	0.79
	30	0.57	17.5	0.72	0.83
	40	0.78	20.2	0.55	0.64
	50	0.97	22.5	0.55	0.64
	60	1.07	23.5	0.56	0.65
	75	1.18	25.0	0.55	0.63
180°	20	0.83	15.0	0.71	0.82
	30	0.94	17.0	0.63	0.72
	40	1.22	20.5	0.56	0.65
	50	1.46	22.5	0.56	0.64
	60	1.61	24.0	0.54	0.62
	75	1.81	26.0	0.52	0.60
240°	20	1.12	15.0	0.72	0.83
	30	1.27	17.0	0.63	0.73
	40	1.56	20.0	0.56	0.65
	50	1.80	21.5	0.56	0.65
	60	1.95	22.5	0.56	0.64
	75	2.20	24.0	0.55	0.64
270°	20	1.08	14.0	0.71	0.81
	30	1.23	16.0	0.62	0.71
	40	1.62	19.0	0.57	0.66
	50	2.00	21.5	0.55	0.64
	60	2.26	23.0	0.55	0.63
	75	2.60	25.0	0.53	0.61
360°	20	1.81	15.0	0.77	0.89
	30	2.00	17.2	0.65	0.75
	40	2.56	20.9	0.56	0.65
	50	3.09	22.9	0.57	0.65
	60	3.34	23.8	0.57	0.66
	75	3.68	25.6	0.54	0.62

TORO

MPR PLUS SPRAY NOZZLES

- Standard and special spray patterns
- Adjustment screw allows up to 25% reduction in radius and complete shutoff
- Five levels of trajectory
- Fine-mesh snap-in filter screens for lower flow nozzles

Specifications:

Flow rate: .05 GPM to 4.58 GPM

Recommended operating pressure: 20 psi to 50 psi

570 MPR Plus Spray Nozzle Performance Chart—U.S.

5' Series with 0 Trajectory ●

Pattern	Desc.	psi	GPM	Radius	Prec. Rate* △	Prec. Rate* □
90	5-Q	20	0.05	4	1.40	1.21
		30	0.09	5	1.61	1.40
		40	0.12	6	1.78	1.54
		50	0.15	6	1.86	1.62
	5-Q-PC	30-40	0.09	5	1.61	1.40
		40-75	0.10	5	1.79	1.55
120	5-T	20	0.07	4	1.47	1.27
		30	0.12	5	1.61	1.40
		40	0.16	6	1.78	1.54
		50	0.20	6	1.86	1.62
	5-T-PC	30-40	0.12	5	1.61	1.40
		40-75	0.13	5	1.79	1.55
180	5-H	20	0.10	4	1.40	1.21
		30	0.19	5	1.70	1.47
		40	0.23	6	1.70	1.47
		50	0.27	6	1.68	1.45
	5-H-PC	30-40	0.18	5	1.61	1.40
		40-75	0.20	5	1.79	1.55
240	5-TT	20	0.15	4	1.57	1.36
		30	0.25	5	1.68	1.45
		40	0.30	6	1.66	1.44
		50	0.35	6	1.63	1.41
	5-TT-PC	30-40	0.23	5	1.54	1.34
		40-75	0.27	5	1.81	1.57
270	5-TQ	20	0.20	4	1.86	1.61
		30	0.29	5	1.73	1.50
		40	0.34	6	1.68	1.45
		50	0.40	6	1.66	1.44
	5-TQ-PC	30-40	0.25	5	1.55	1.34
		40-75	0.29	5	1.73	1.50
360	5-F	20	0.25	4	1.75	1.51
		30	0.38	5	1.70	1.47
		40	0.45	6	1.66	1.44
		50	0.53	6	1.65	1.43
	5-F-PC	30-40	0.35	5	1.57	1.36
		40-75	0.39	5	1.75	1.51

8' Series with 5 Trajectory ●

Pattern	Desc.	psi	GPM	Radius	Prec. Rate* △	Prec. Rate* □
90	8-Q	20	0.17	7	1.55	1.34
		30	0.24	8	1.68	1.45
		40	0.26	9	1.61	1.39
		50	0.29	9	1.60	1.39
	8-Q-PC	30-40	0.22	8	1.54	1.33
		40-75	0.25	8	1.75	1.51
120	8-T	20	0.23	7	1.58	1.36
		30	0.30	8	1.57	1.36
		40	0.36	9	1.67	1.45
		50	0.40	9	1.66	1.44
	8-T-PC	30-40	0.29	8	1.52	1.32
		40-75	0.35	8	1.84	1.59
180	8-H	20	0.37	8	1.47	1.27
		30	0.50	8	1.75	1.51
		40	0.58	9	1.80	1.56
		50	0.65	9	1.80	1.56
	8-H-PC	30-40	0.44	8	1.54	1.33
		40-75	0.50	8	1.75	1.51
240	8-TT	20	0.56	7	1.92	1.66
		30	0.70	8	1.84	1.59
		40	0.80	9	1.86	1.61
		50	0.88	9	1.82	1.58
	8-TT-PC	30-40	0.59	8	1.55	1.34
		40-75	0.70	8	1.84	1.59
270	8-TQ	20	0.63	7	1.92	1.66
		30	0.76	8	1.77	1.53
		40	0.86	9	1.78	1.54
		50	0.93	9	1.71	1.48
	8-TQ-PC	30-40	0.64	8	1.49	1.29
		40-75	0.70	8	1.63	1.41
360	8-F	20	0.74	7	1.69	1.46
		30	1.00	8	1.75	1.51
		40	1.16	9	1.80	1.56
		50	1.30	9	1.80	1.56
	8-F-PC	30-40	0.85	8	1.49	1.29
		40-75	1.00	8	1.75	1.51

10' Series with 12 Trajectory ●

Pattern	Desc.	psi	GPM	Radius	Prec. Rate* △	Prec. Rate* □
90	10-Q	20	0.30	9	1.66	1.44
		30	0.40	10	1.79	1.55
		40	0.50	11	1.85	1.60
		50	0.60	12	1.86	1.62
	10-Q-PC	30-40	0.33	10	1.48	1.28
		40-75	0.37	10	1.66	1.43
120	10-T	20	0.42	9	1.74	1.51
		30	0.52	10	1.75	1.51
		40	0.65	11	1.80	1.56
		50	0.75	12	1.75	1.51
	10-T-PC	30-40	0.44	10	1.48	1.28
		40-75	0.50	10	1.68	1.45
180	10-H	20	0.60	9	1.66	1.44
		30	0.71	10	1.59	1.38
		40	0.85	11	1.57	1.36
		50	0.99	12	1.65	1.43
	10-H-PC	30-40	0.66	10	1.48	1.28
		40-75	0.75	10	1.68	1.45
240	10-TT	20	0.71	9	1.47	1.27
		30	0.97	10	1.63	1.41
		40	1.10	11	1.67	1.45
		50	1.19	11	1.65	1.43
	10-TT-PC	30-40	0.89	10	1.49	1.29
		40-75	1.00	10	1.68	1.45
270	10-TQ	20	0.82	9	1.51	1.31
		30	1.04	10	1.55	1.34
		40	1.20	11	1.62	1.41
		50	1.35	11	1.66	1.44
	10-TQ-PC	30-40	0.99	10	1.48	1.28
		40-75	1.09	10	1.63	1.41
360	10-F	20	1.11	9	1.72	1.49
		30	1.49	10	1.67	1.44
		40	1.61	11	1.63	1.42
		50	1.85	11	1.71	1.48
	10-F-PC	30-40	1.33	10	1.49	1.29
		40-75	1.51	10	1.69	1.46

12' Series with 23 Trajectory ●

Pattern	Desc.	psi	GPM	Radius	Prec. Rate* △	Prec. Rate* □
90	12-Q	20	0.40	11	1.48	1.28
		30	0.50	12	1.55	1.35
		40	0.60	13	1.64	1.42
		50	0.63	13	1.67	1.44
	12-Q-PC	30-40	0.48	12	1.49	1.29
		40-75	0.53	12	1.65	1.43
120	12-T	20	0.57	11	1.58	1.37
		30	0.72	12	1.68	1.45
		40	0.87	13	1.87	1.62
		50	0.97	13	1.93	1.67
	12-T-PC	30-40	0.64	12	1.49	1.29
		40-75	0.70	12	1.63	1.41
180	12-H	20	0.95	11	1.76	1.52
		30	1.09	12	1.69	1.47
		40	1.30	13	1.72	1.49
		50	1.55	14	1.77	1.53
	12-H-PC	30-40	0.96	12	1.49	1.29
		40-75	1.05	12	1.63	1.41
240	12-TT	20	1.12	11	1.55	1.35
		30	1.45	12	1.69	1.46
		40	1.63	13	1.75	1.52
		50	1.80	13	1.79	1.55
	12-TT-PC	30-40	1.28	12	1.49	1.29
		40-75	1.40	12	1.63	1.41
270	12-TQ	20	1.05	11	1.42	1.23
		30	1.55	12	1.61	1.39
		40	1.65	13	1.58	1.36
		50	1.80	13	1.59	1.38
	12-TQ-PC	30-40	1.44	12	1.49	1.29
		40-75	1.60	12	1.66	1.44
360	12-F	20	1.67	11	1.54	1.34
		30	2.19	12	1.70	1.47
		40	2.35	13	1.68	1.46
		50	2.70	13	1.79	1.55
	12-F-PC	30-40	1.92	12	1.49	1.29
		40-75	2.10	12	1.63	1.41

15' Series with 27 Trajectory ●

Pattern	Desc.	psi	GPM	Radius	Prec. Rate* △	Prec. Rate* □
90	15-Q	20	0.68	14	1.55	1.34
		30	0.85	15	1.69	1.46
		40	1.04	16	1.82	1.57
		50	1.23	16	2.15	1.86
	15-Q-PC	30-40	0.75	15	1.49	1.29
		40-75	0.81	15	1.61	1.40
120	15-T	20	0.95	14	1.75	1.52
		30	1.10	15	1.64	1.42
		40	1.30	16	1.82	1.57
		50	1.45	16	2.03	1.75
	15-T-PC	30-40	1.00	15	1.49	1.29
		40-75	1.10	15	1.64	1.42
180	15-H	20	1.37	13	1.79	1.55
		30	1.65	15	1.66	1.44
		40	2.02	16	1.77	1.53
		50	2.14	16	1.87	1.62
	15-H-PC	30-40	1.50	15	1.49	1.29
		40-75	1.65	15	1.64	1.42
240	15-TT	20	1.78	14	1.59	1.38
		30	2.20	15	1.64	1.42
		40	2.66	16	1.74	1.51
		50	2.84	16	1.86	1.61
	15-TT-PC	30-40	2.00	15	1.49	1.29
		40-75	2.20	15	1.64	1.42
270	15-TQ	20	2.10	13	1.85	1.61
		30	2.60	15	1.72	1.49
		40	3.00	16	1.86	1.61
		50	3.40	16	1.98	1.72
	15-TQ-PC	30-40	2.30	15	1.53	1.32
		40-75	2.50	15	1.66	1.44
360	15-F	20	2.85	13	1.89	1.63
		30	3.60	15	1.79	1.55
		40	4.20	16	1.84	1.59
		50	4.58	16	2.00	1.73
	15-F-PC	30-40	3.00	15	1.49	1.29
		40-75	3.30	15	1.64	1.42

Special Patterns ●

Pattern	Desc.	psi	GPM	Special Patterns Width	Special Patterns Length	Prec. Rate*
	4-EST	20	0.38	3'	x 12'	2.03
		30	0.45	4'	x 15'	1.44
		40	0.53	5'	x 18'	1.13
		50	0.60	6'	x 20'	0.96
	4-EST-PC	30-40	0.43	4'	x 15'	1.38
		40-75	0.50	4'	x 15'	1.61
	4-CST	20	0.75	3'	x 24'	2.01
		30	0.90	4'	x 30'	1.44
		40	1.04	4'	x 30'	1.67
		50	1.16	4'	x 31'	1.80
	4-CST-PC	30-40	0.86	4'	x 30'	1.38
		40-75	1.00	4'	x 30'	1.61
	9-SST	20	1.00	9'	x 18'	1.19
		30	1.20	9'	x 18'	1.43
		40	1.38	9'	x 20'	1.48
		50	1.55	10'	x 22'	1.36
	9-SST-PC	30-40	1.10	9'	x 18'	1.31
		40-75	1.20	9'	x 18'	1.43
	4-SST	20	0.65	4'	x 24'	1.30
		30	0.90	4'	x 30'	1.44
		40	1.04	4'	x 32'	1.56
		50	1.16	5'	x 33'	1.35
	4-SST-PC	30-40	0.88	4'	x 30'	1.41
		40-75	1.00	4'	x 30'	1.61
	2-SST	20	0.08	2'	x 5'	1.54
		30	0.09	2'	x 6'	1.44
		40	0.10	2'	x 7'	1.38
		50	0.12	3'	x 7'	1.10
	2-SST-PC	30-40	0.09	2'	x 6'	1.44
		40-75	0.10	2'	x 6'	1.61
	45-SST	20	0.46	4'	x 17'	1.30
		30	0.55	4'	x 18'	1.47
		40	0.63	4'	x 19'	1.60
		50	0.71	5'	x 19'	1.44
	45-SST-PC	30-40	0.50	4'	x 18'	1.34
		40-75	0.59	4'	x 18'	1.58

Radius shown in feet. Data based on 360 °.
= nozzles with PCOs.
Bolded type indicates optimal operating pressure.
*△ Precipitation rates are for triangular spacing, shown in inches per hour, calculated at 50% of diameter.
□ Precipitation rates are for square spacing, shown in inches per hour, calculated at 50% of diameter.
All performance specifications are based on the stated working pressure available at the base of the sprinkler head.

TORO

TVAN NOZZLES

- Compatible with any female threaded riser made, means one nozzle family can meet all your needs
- Stainless steel adjustment screw allows up to 25% radius reduction
- Easy grip top makes arc adjustment from 0°-360° a snap

Specifications:

Recommended operating pressure range: 20 psi to 50 psi
Maximum operating pressure: 75 psi

TVAN Variable Arc Nozzle Performance Data—US

Pattern	PSI	8 Series-Green				10 Series-Blue				12 Series-Brown				15' Series-Black				17' Series-Gray			
		GPM	Rad	Precip. Rate ▲	■	GPM	Rad	Precip. Rate ▲	■	GPM	Rad	Precip. Rate ▲	■	GPM	Rad	Precip. Rate ▲	■	GPM	Rad	Precip. Rate ▲	■
90°	20	0.58	7	5.26	4.56	0.59	9	3.24	2.81	0.76	10	3.38	2.93	1.06	15	2.09	1.81	1.25	16	2.17	1.88
	30	0.71	8	4.93	4.27	0.72	10	3.20	2.77	0.93	12	2.87	2.49	1.29	15	2.55	2.21	1.46	17	2.25	1.95
	40	0.82	9	4.50	3.90	0.84	10	3.73	3.24	1.07	12	3.30	2.86	1.49	16	2.59	2.24	1.68	18	2.31	2.00
	50	0.92	9	5.05	4.38	0.94	10	4.18	3.62	1.21	13	3.18	2.76	1.66	16	2.88	2.50	1.87	18	2.57	2.22
180°	20	0.81	7	3.67	3.18	0.94	9	2.58	2.24	1.35	10	3.00	2.60	1.71	14	1.94	1.68	1.95	15	1.93	1.67
	30	0.99	8	3.44	2.98	1.15	10	2.56	2.21	1.65	12	2.55	2.21	2.08	15	2.05	1.78	2.38	17	1.83	1.59
	40	1.15	8	3.99	3.46	1.33	10	2.96	2.56	1.91	12	2.95	2.55	2.40	15	2.37	2.05	2.74	17	2.11	1.83
	50	1.28	9	3.51	3.04	1.49	10	3.31	2.87	2.13	13	2.80	2.43	2.68	15	2.65	2.29	3.06	18	2.10	1.82
270°	20	1.08	7	3.27	2.83	1.37	9	2.51	2.17	1.90	11	2.33	2.02	2.41	14	1.82	1.58	2.69	14	2.03	1.76
	30	1.33	8	3.08	2.67	1.67	10	2.47	2.14	2.32	12	2.39	2.07	2.94	15	1.94	1.68	3.28	17	1.68	1.46
	40	1.53	8	3.54	3.07	1.92	10	2.85	2.47	2.68	12	2.76	2.39	3.38	15	2.23	1.93	3.76	17	1.93	1.67
	50	1.70	9	3.11	2.69	2.15	10	3.19	2.76	2.99	12	3.08	2.67	3.77	16	2.18	1.89	4.19	18	1.92	1.66
360°	20	1.25	7	2.84	2.46	1.73	9	2.37	2.06	2.27	10	2.52	2.19	2.69	13	1.77	1.53	3.05	17	1.17	1.02
	30	1.52	8	2.64	2.29	2.11	10	2.35	2.03	2.77	12	2.14	1.85	3.26	15	1.61	1.40	3.73	17	1.43	1.24
	40	1.75	9	2.40	2.08	2.42	10	2.69	2.33	3.12	12	2.41	2.09	3.79	15	1.87	1.62	4.26	18	1.46	1.27
	50	1.96	9	2.69	2.33	2.69	10	2.99	2.59	3.47	12	2.68	2.32	4.33	16	1.88	1.63	4.71	18	1.62	1.40

Shaded data indicates optimal operating pressure.
Radius shown in feet. Data based on 360°.

RAIN BIRD

1300A-F ADJUSTABLE FULL-CIRCLE BUBBLER

Designed for tree, shrub and flower areas.

- Fully adjustable flow
- Operates over a wide range of pressures
- Non-corrosive plastic and stainless steel construction for long life

Specifications:

Flow: 1 GPM to 2.3 GPM
Spacing: 1' to 3'
Pressure: 10 psi to 60 psi

1400 SERIES PRESSURE COMPENSATING FULL-CIRCLE BUBBLERS

Designed for irrigating tree, shrub and flower areas where pressure compensation is required.

- Low-flow rates shallow water to be absorbed as needed. Reduces run-off
- Flow will not fluctuate at pressures between 20 psi and 90 psi. Maintains even flow
- Trickle pattern on models 1401 and 1402; umbrella pattern on models 1404 and 1408

Specifications:

Flow: 0.25 GPM to 2 GPM
Spacing: 1' to 3'
Pressure: 20 psi to 90 psi

Product Code	Description
1401	0.25 GPM; full-circle, trickle pattern
1402	0.50 GPM; full-circle, trickle pattern
1404	1 GPM; full-circle, umbrella pattern
1408	2 GPM; full-circle, umbrella pattern

Hunter

BUBBLERS AND BUBBLER NOZZLES

Precise Delivery of Water to Roots

MULTI-STREAM BUBBLER PERFORMANCE DATA

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

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

PCN / PCB PERFORMANCE DATA

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

Note: Typical spacing 1 to 3 ft.
Flows shown for pressures between 15 and 70 PSI.

AFB PERFORMANCE DATA

Model	Flow GPM	Pattern Type
AFB	< 2.0	Trickle / Umbrella

5-CST-B BUBBLER NOZZLE PERFORMANCE DATA

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

TURFGRO

SWING ASSEMBLY

Manufactured using two TurfGro proprietary products — TG Swing Pipe and TG Spiral Barb Fittings — and a Lasco marlex elbow.

- 1/2" NPT, 3 axis (3L, Marlex ell on one end), 6" and 12" versions
- All components manufactured from the highest quality virgin raw material
- Operating pressure: Up to 150 psi

SWING PIPE

- Super flex design makes it easier to use than branded competitive products
- Texture on the tubing makes the swing pipe easier to grip — even when your hands are wet
- Operating pressure: Up to 80 psi
- Inside Diameter: .49"
- Meets industry standards: ASTM D2104, D2239, D2737

SPIRAL BARB FITTINGS

- Use with Swing Pipe to make a flexible swing
- Available in 1/2" and 3/4"

RAIN BIRD

ROOT WATERING SYSTEMS

Enables vital water, oxygen, and nutrients to bypass compacted soil and directly reach tree and shrub root systems.

- Helps prevent damage to hardscapes from tree roots
- Installed below grade for pleasing aesthetics
- Self-contained and factory assembled units for assured reliability
- Standard and mini version available

Standard RWS:

- 4" retaining cap and vandal resistant locking grate tops a 36" semi-rigid mesh tube
- Factory installed swing assemblies (excluding RWS-BGX) with a 1401 (0.25 GPM), 1402 (0.5 GPM), 1404 (1 GPM) or 1408 (2 GPM) bubbler on a fixed riser makes connecting to lateral lines easy
- Innovative design with a locking grate protects system from vandalism and the optional sand sock is ideal for use in sandy soil

RAIN BIRD

Mini Root Watering:

- 4" retaining cap and vandal resistant locking grate tops a 18" semi-rigid mesh tube
- Factory installed 1/2" spiral barb elbow with a 1401 or 1402 bubbler makes connecting to lateral lines easy
- Innovative design with a locking grate protects system from vandalism and the optional sand sock is ideal for use in sandy soil

HOW TO SPECIFY: RWS – X – X – X – XXXX – X					
Model:	Other Size:	Bubbler:	Optional:	Bubbler Model:	Reclaimed Water Option:
RWS: Root Watering Series	M: RWS-Mini (4" X 18") S: RWS-Supplemental (2" X 10")	B: Bubbler Pre-installed Bubbler: B: Bubbler Pre-installed	C: Check Valve	1401 1402 1404 1408	P: Purple Grate

SPX SERIES FLEXIBLE SWING PIPE

Specifications:

Inside diameter: .049"
Operating range up to 80 psi
Temperature up to 110°F

SPIRAL BARB SB FITTINGS

- Use with swing pipe to make a flexible swing
- Joint assembly for sprays and rotors
- Available in 1/2" and 3/4" sizes

Product Code	Description
SBE050	1/2" male NPT X 1/2" spiral barbed elbow
SBE075	3/4" male NPT X 3/4" spiral barbed elbow
SBA050	1/2" male NPT X 1/2" spiral barbed adapter
SBA075	3/4" male NPT X 3/4" spiral barbed adapter
SBCPLG	1/2" spiral barbed coupling
SBTEE	1/2" spiral barbed tee
SBFE050	1/2" female NPT X 1/2" spiral barbed elbow
SBNPTTEE	1/2" male NPT X 1/2" spiral barb X 1/2" spiral barb tee

RAIN BIRD

SWING ASSEMBLIES

- Connects sprinkler head to lateral pipes
- Prevents sprinkler heads or pipes from breaking when run over by equipment
- Allows easy adjustment of the heads to grade

Specifications:

Operating pressure up to 80 psi
Surge pressure up to 240 psi
Temperature up to 110°F

HOW TO SPECIFY: SA-6-050		
Model:	Length:	Inlet:
SA	6"	5050 = 1/2" X 1/2"
	12"	5075 = 1/2" X 3/4"
	18"	7575 = 3/4" X 3/4"

PARTS

- **PA-8S Plastic Shrub Adapter:** Plastic model which attaches nozzle to riser to irrigate ground cover and shrub areas
- **PA-80:** Converts pop-up stem to 1/2" male pipe thread

- **1800-EXT:** Extends all Rain Bird spray head models an additional 6 1/2" in height
- **1800 NP Cover:** Identifies spray head as part of non-potable water system

Hunter

HOW TO SPECIFY: RZWS – 18 – 25 – CV			
Model:	Size:	Bubbler Flow Rate:	Options:
RZWS = Root Zone Watering System	10 = 10"	25 = 0.25 GPM	CV = Check Valve
	18 = 18"	50 = 0.50 GPM	RZWS-SLEEVE
	36 = 36"		RZWS-CAP

SWING JOINT

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

Product Code	Description 12"
SJ506	1/2" threaded X 6" length
SJ512	1/2" threaded X 12" length
SJ7512	1/2" X 3/4" threaded X 12" length
SJ712	3/4" threaded X 12" length

HCV SERIES ADJUSTABLE CHECK VALVE

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

- Adjusts to compensate for elevational changes up to 23'
- Allows adjustment through sprinkler body before or after installation

Product Code	Description
HC50F50F	1/2" female inlet X 1/2" female outlet
HC50F50M	1/2" female inlet X 1/2" male outlet
HC75F75M	3/4" female inlet X 3/4" male outlet

Hunter

ROOT ZONE WATERING SYSTEMS

- Patented StrataRoot design distributes water to both near surface and deep roots
- Each unit is ready-to-install, making installation quick and easy
- Premium pressure compensating bubbler options — 0.25 GPM or 0.50 GPM
- Built in swing joint on bubbler models for maximum flexibility and ease of installation
- Durable pre-installed check valve option
- Recommended pressure range: 15 psi to 70 psi

FLO-CONTROL SWING CHECK VALVE

Useful on systems where fluid contains debris. No internal metal parts to corrode. Full flow.

- Only 1/2 psi back pressure required to close
- Schedule 40 PVC material

KSC1250S	1 1/4" Swing check valve, slip X slip
KSC1500S	1 1/4" Swing check valve, slip X slip
KSC2000S	2" Swing check valve, slip X slip
KSC1000T	1" Swing check valve, thread X thread
KSC1250T	1 1/4" Swing check valve, thread X thread
KSC1500S	1 1/2" Swing check valve, thread X thread
KSC2000T	2" Swing check valve, thread X thread

Hunter®

HUNTER PGJ ROTOR

Delivers all the benefits of a rotor in a compact, spray-sized package.

- Capable of working in tandem with larger rotors to combine big and small areas in a single zone, offering a convenience and efficiency sprays do not
- Radius adjustment screw allows fine tuning of spray, ensures positive nozzle retention
- 40° to 360° adjustable arc easily adjusts from top of sprinkler, up, down, wet or dry
- Water-lubricated gear drive for time proven reliable rotation year after year

PGJ Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.75	30	15'	0.64	0.55	0.63
	40	**16'**	**0.75**	**0.56**	**0.65**
	50	17'	0.85	0.57	0.65
1.0	30	18'	0.85	0.51	0.58
	40	**19'**	**1.0**	**0.53**	**0.62**
	50	19'	1.1	0.59	0.68
1.5	30	21'	1.3	0.57	0.66
	40	**22'**	**1.5**	**0.60**	**0.69**
	50	22'	1.7	0.68	0.78
2.0	30	24'	1.7	0.57	0.66
	40	**25'**	**2.0**	**0.62**	**0.71**
	50	25'	2.3	0.71	0.82
2.5	30	27'	2.2	0.58	0.67
	40	**28'**	**2.5**	**0.61**	**0.71**
	50	28'	2.8	0.69	0.79
3.0	30	30'	2.5	0.53	0.62
	40	**31'**	**3.0**	**0.60**	**0.69**
	50	31'	3.4	0.68	0.79
4.0	30	33'	3.7	0.65	0.76
	40	**34'**	**4.0**	**0.67**	**0.77**
	50	34'	4.8	0.72	0.83
5.0	30	36'	4.7	0.70	0.81
	40	**37'**	**5.0**	**0.70**	**0.81**
	50	37'	5.8	0.75	0.86

Specifications:

Flow rate: .64 GPM to 5.3 GPM
Radius: 15' to 37'
Pressure range: 20 psi to 100 psi
Arc setting: 40 to 360 degrees
Precipitation rates: Approximately 0.60" per hour at 40 psi
Nozzle trajectory: Approximately 14°
1/2" female inlet NPT

Product Code	Description
PGJ00	Shrub
PGJ04	4" Pop-up
PGJ06	6" Pop-up
PGJ12	12" Pop-up

HOW TO SPECIFY: PGJ – 06 – V		
Model:	Code:	Options:
PGJ	00 = Shrub 04 = 4" 06 = 6" 12 = 12"	R = Reclaimed water identifier V = Factory-installed drain check valve

HUNTER PGP-ADJ ROTOR

The world's best selling residential and light commercial rotor. Proven reliable, easy to install and adjust.

- Integral rubber cover keeps dirt out, won't fall off
- Complete set of interchangeable nozzles, including 12 standard or seven low-angle
- Variable stator keeps rotation speed consistent regardless of nozzle size or pressure
- Large dirty water screen puts an end to nozzle clogging
- Water-lubricated gear drive
- Provides more even distribution
- Superior scheduling coefficient that eliminates the problem of under- and overwatered areas of the landscape

Specifications:

Flow rate: .5 GPM to 14.4 GPM
Radius: 22' to 52'
Pressure: 30 psi to 70 psi
Operating pressure range: 20 psi to 100 psi
3/4" female inlet NPT

Product Code	Description
PGPADJ	4" Adjustable pop-up

HUNTER PGP ULTRA

This upgrade of the PGP is packed with new features.

- Automatic arc returns to the original arc regardless of where the turret is turned
- The patented, non-strippable, vandal proof drive mechanism enables the turret to be turned without causing damage
- Patented non-reversing 360 for part - and full-circle in one model, from 50 to 360 degrees
- Available in shrub, 4", and 12"
- Optional factory-installed drain check valve for up to 10' of elevation change. Saves water, reduce liability

Product Code	Description
PGP-00	Shrub
PGP-04	4" Pop-up
PGP-12-V	12" Pop-up

Specifications:

Flow rate: 0.36 to 14.8 GPM
Recommended rate change: 30 to 25
Radius: 17' to 47'
Recommended pressure range: 30 psi to 70 psi
Operating pressure range: 20 psi to 100 psi
3/4" Female inlet NPT

PGP Gray Low Angle Nozzle Performance Data

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

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

PGP Blue Standard Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
1.5	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	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	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	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	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	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	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	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

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

PGP Red Standard Nozzle Performance Data

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

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

PGP ULTRA BLUE STANDARD NOZZLE PERFORMANCE DATA

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

PGP ULTRA GREEN HIGH FLOW NOZZLE PERFORMANCE DATA

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

PGP ULTRA GRAY LOW ANGLE NOZZLE PERFORMANCE DATA

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
2.0 ● LA Gray	30	25	1.6	0.49	0.57
	40	27	1.9	0.50	0.58
	50	**28**	**2.1**	**0.52**	**0.60**
	60	30	2.3	0.49	0.57
	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**
	40	32	3.9	0.73	0.85
	50	35	4.4	0.69	0.80
4.0 ● LA Gray	60	37	4.7	0.66	0.76
	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

PGP ULTRA BLACK SHORT RADIUS NOZZLE PERFORMANCE DATA (18'/25')

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

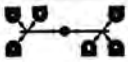
Bold = Recommended pressure

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

PGP ULTRA NOZZLES

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

Dk. Green High Flow (P/N 444800)



Black Short Radius (P/N 466100)

HUNTER I-20

22 nozzles, 17' to 46' radius and six body choices.

- Patented non-reversing 360: Part and full circle in one model, 50° to 360°
- FloStop closes the flow of water from individual sprinkler heads while the system is running
- Features FloStop® Control, which closes the flow of water from individual sprinkler heads while the system is running. Ideal for changing nozzles or turning off specific heads during maintenance and construction.
- Drain check valve saves water, reduces liability, and increases system life
- Automatic arc return: Returns to the original arc regardless of where the turret is turned

Specifications:

Discharge rate: 0.36 GPM to 14.8 GPM
Radius: 17' to 46'
Pressure range: 30 psi to 70 psi
Operating pressure range: 20 to 100 psi
Precipitation rates: Approximately 0.4"
1" Female inlet NPT

Model:	Features:	Options:
I-20-00 = Shrub	ADV, 36V. ARV. 3RV	XX = Complete set of nozzles
I-20 = 4" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS, ADJ, 360	1.0 to 8.0 = Factory-installed standard nozzles
I-20-6P = 6" Pop-up	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS	2.0 LA to 4.5 LA = Factory-installed low angle nozzles
I-20-HP = 12" Pop-up	ADV, 36V, ARV, 3RV	

Key to Features:	
ADJ =	Adjustable with no check valve
36S =	Fill-circle with check valve and stainless steel riser
360 =	Full-circle with no check valve
ARV =	Adjustable, reclaimed water, with check valve
ADV =	Adjustable with check valve
3RV =	Full-Circle, reclaimed water, with check valve
36V =	Full-circle with check valve
ARS =	Adjustable, reclaimed water and stainless steel riser
ADS =	Adjustable with check valve and stainless steel riser
3RS =	Full-Circle, reclaimed water and stainless steel riser

Product Code	Description
I-10	Shrub
I-20	4" Pop-up
I-20-6P	6" Pop-up
I-20-HP	12" Pop-up

PGP Grey Low Angle Performance Data

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

Notes:

Bold = Recommended pressure.

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

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

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

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

I-20 High Flow Nozzles Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
10	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	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	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	40	37	6.7	0.94	1.09
	50	39	7.7	0.97	1.13
	60	**41**	**8.5**	**0.97**	**1.12**
	70	41	9.2	1.05	1.22

I-20 Ultra 18' Short Radius Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.50 SR	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	30	17'	0.78	0.52	0.60
	40	17'	0.90	0.60	0.69
	50	**18'**	**1.0**	**0.59**	**0.69**
	60	19'	1.1	0.59	0.68
2.0 SR	30	17'	1.4	0.93	1.06
	40	17'	1.7	1.13	1.31
	50	**18'**	**2.0**	**1.19**	**1.37**
	60	19'	2.2	1.17	1.35

I-20 Ultra 25' Short Radius Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
.75 SR	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	30	23'	1.1	0.40	0.46
	40	24'	1.3	0.43	0.50
	50	**25'**	**1.5**	**0.46**	**0.53**
	60	26'	1.6	0.46	0.53
3.0 SR	30	23'	2.5	0.91	1.05
	40	24'	2.7	0.90	1.04
	50	**25'**	**3.0**	**0.92**	**1.07**
	60	26'	3.1	0.88	1.02

HUNTER I-25 ULTRA 1" ROTOR

More Distance, Larger Radius.

- Easy arc adjustment (50° to 360°): Full and part-circle operation in a single rotor helps reduce stock
- Automatic arc return: Returns to the original arc regardless of where the turret is turned
- Non-strippable, vandal-proof drive mechanism enables the turret to be turned without causing damage
- 12 color-coded nozzles: Easy to identify, great distribution uniformity
- Optional stainless steel riser: Perfect for harsh soil conditions
- Available in 4" or 6" pop up
- Drain check valve for up to 10' of elevation change: Conserves water, reduces liability

Specifications:

Flow rate: 3.8 GPM to 31.5 GPM
Radius: 37' to 71'
Recommended pressure range: 40 psi to 100 psi
Operating pressure range: 40 psi to 100 psi
Precipitation rates: 0.4 in/hr approx.

Product Code	Description
I-25-04	3 1/2" Plastic riser, commercial duty rotor
I-25-04-SS	3 1/2" Stainless steel riser, commercial duty rotor
I-25-04-SS-HS	3 1/2" High speed, stainless steel riser, commercial duty rotor
I-25-06	5 1/2" Plastic riser, commercial duty rotor
I-25-06-SS	5 1/2" Stainless steel riser, commercial duty rotor
I-25-06-SS-HS	5 1/2" High speed, stainless steel riser, commercial duty rotor

I-25 Ultra Nozzle Performance Data

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

* 5 standard nozzles included with each sprinkler.
Note: All preciptation rates calculated for 180 degree operation. For the precipitation rate for a 360 degree sprinkler, divide by 2.

HUNTER I-40 1" ROTOR

Number one choice for sports facilities worldwide—ideal for parks and commercial sites.

- Easy arc adjustment (50° to 360°): Full and part-circle operation in a single rotor helps reduce stock
- Automatic arc return: Returns to the original arc regardless of where the turret is turned
- Non-strippable, vandal-proof drive mechanism enables the turret to be turned without causing damage
- Primary nozzle system has six interchangeable nozzles for consistent coverage with a radius from 45' to 70'
- Available in 4" or 6" pop up

Specifications:

Discharge rate: 7.0 GPM to 28.2 GPM
Radius I-40: 44' to 69'
Radius I-40-ON: 52' to 76'
Flow rate: I-40: 7.6 to 29.5 GPM
Flow rate: 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

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	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

I-40 NOZZLE PERFORMANCE DATA

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

I-40 HIGH-SPEED NOZZLE PERFORMANCE DATA

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

I-40 NOZZLES

Standard/High-Speed

I-40 Opposing Nozzle 360° Model

I-40 DUAL OPPOSING NOZZLE PERFORMANCE DATA

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

* Factory-installed nozzle

Notes:

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

I-40 NOZZLES

Opposing

Front

Back

HUNTER I-90

Longest distance rotary sprinkler for parks, sports fields, and public areas.

- With primary and secondary nozzles on opposite sides of the turret, streams arc in opposing directions and provide highly efficient coverage at every range of throw
- Eight standard 22.5 degree trajectory nozzles or the eight 15 degree nozzles for low-angle applications
- Check valve saves water, reduces liability, and increases system life

MODEL	STANDARD FEATURES
I-90 = 3" pop-up	Plastic riser, check valve, and 8 nozzles

FEATURE OPTIONS		NOZZLE OPTIONS
ADV, ARV, 36V, 3[illegible]V	ADV = Adjustable arc ARV = Adjustable arc and reclaimed water ID 36V = Full circle, opposing nozzles 3[illegible]V = Full circle, opposing nozzles and reclaimed water ID	#25 to #73 = Factory installed nozzle number

Specifications:

Radius: 63' to 101'
Flow rate: 22 to 83 GPM
Recommended pressure range: 60 to 110 PSI
Operating pressure range: 50 to 120 PSI
Precipitation rates: 0.75 in/hr approx.
Nozzle trajectory: 22.5 degrees

I-90-ADV Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
25 Lt. Blue NEW	60	63	22.0	1.07	1.23
	70	64	24.9	1.17	1.35
	80	65	27.5	1.25	1.45
	90	67	28.8	1.24	1.43
	100	68	30.6	1.27	1.47
33 Gray	60	67	30.7	1.32	1.52
	70	67	33.1	1.42	1.64
	80	68	35.5	1.48	1.71
	90	69	37.7	1.52	1.76
	100	70	39.8	1.56	1.81
38 Red	60	69	34.0	1.37	1.59
	70	70	36.9	1.45	1.67
	80	72	39.8	1.48	1.71
	90	73	42.3	1.53	1.76
	100	75	44.1	1.51	1.74
43 Dk. Brown	60	70	38.7	1.52	1.76
	70	71	42.0	1.60	1.85
	80	72	44.5	1.65	1.91
	90	73	47.6	1.72	1.99
	100	73	48.3	1.74	2.01
48 Dk. Green	70	75	47.0	1.61	1.86
	80	77	50.2	1.63	1.88
	90	79	53.3	1.64	1.90
	100	81	56.0	1.64	1.90
53 Dk. Blue*	70	79	48.5	1.50	1.73
	80	81	53.4	1.57	1.81
	90	85	57.0	1.52	1.75
	100	86	59.5	1.55	1.79
63 Black	70	84	60.9	1.66	1.92
	80	86	63.8	1.66	1.92
	90	88	66.5	1.65	1.91
	100	90	69.8	1.66	1.92
73 Orange NEW	80	90	66.9	1.59	1.84
	90	92	69.7	1.59	1.83
	100	95	72.8	1.55	1.79
	110	98	76.2	1.53	1.76

I-90-36V Nozzle Performance Data

Nozzle	Pressure PSI	Radius ft.	Flow GPM	Precip in/hr ■	Precip in/hr ▲
25 Lt. Blue NEW	60	69	25.5	0.52	0.60
	70	71	27.8	0.53	0.61
	80	73	30.2	0.55	0.63
	90	75	31.7	0.54	0.63
	100	77	33.9	0.55	0.64
33 Gray	60	71	29.8	0.57	0.66
	70	74	32.2	0.57	0.65
	80	76	34.4	0.57	0.66
	90	78	36.8	0.58	0.67
	100	80	38.6	0.58	0.67
38 Red	60	74	33.3	0.59	0.68
	70	77	36.1	0.59	0.68
	80	79	38.4	0.59	0.68
	90	80	40.9	0.62	0.71
	100	82	42.8	0.61	0.71
43 Dk. Brown	60	77	38.1	0.62	0.71
	70	79	40.9	0.63	0.73
	80	82	43.9	0.63	0.73
	90	83	46.5	0.65	0.75
	100	84	48.5	0.66	0.76
48 Dk. Green	70	82	46.3	0.66	0.77
	80	86	49.6	0.65	0.75
	90	89	52.5	0.64	0.74
	100	90	54.8	0.65	0.75
53 Dk. Blue*	70	85	50.5	0.67	0.78
	80	88	53.5	0.66	0.77
	90	90	57.4	0.68	0.79
	100	92	59.5	0.68	0.78
63 Black	70	90	60.6	0.72	0.83
	80	92	63.2	0.72	0.83
	90	94	65.9	0.72	0.83
	100	96	69.4	0.72	0.84
73 Orange NEW	80	95	72.1	0.77	0.89
	90	97	75.9	0.78	0.90
	100	99	79.5	0.78	0.90
	110	101	83.0	0.78	0.90

*Factory-installed nozzle
**Preliminary performance data
Note: All ADV precipitation rates are calculated for 180-degree operation.
For 360-degree rates, divide by 2. Precipitation rates for the 36V model are calculated at 360-degrees.

RAIN BIRD

RAIN BIRD 3500 SERIES

Part-circle rotor pop-up sprinklers.

- Top-adjust arc adjustment requiring only a flat blade screwdriver
- Water-lubricated gear drive design for durable, reliable operation
- 40° to 360° part-circle arc rotation and reversing full-circle rotation in one
- Attached nozzle tree of six Rain Curtain™ nozzles
- Radius adjustment screw allows up to 35% radius reduction without changing nozzles
- Dual action, positive stop wiper seal protects internals from debris and assures positive pop-up and retraction
- Easily removable filter screen

Specifications:

Precipitation rate: .37" to .72" per hour
Radius: 15' to 35'
Pressure: 25 psi to 55 psi
Flow rate: .54 GPM to 4.6 GPM
1/2" NPT female bottom threaded inlet
Reversing Full-and Part-circle adjustment: 40° to 360°

3500 Nozzle Performance Data

Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
25	0.75	15	0.54	0.46	0.53
	1.0	20	0.77	0.37	0.43
	1.5	23	1.06	0.39	0.45
	2.0	27	1.40	0.37	0.43
	3.0	29	2.17	0.50	0.57
	4.0	31	2.97	0.59	0.69
35	0.75	17	0.67	0.45	0.52
	1.0	21	0.92	0.40	0.46
	1.5	23	1.28	0.47	0.54
	2.0	27	1.69	0.45	0.52
	3.0	31	2.60	0.52	0.60
	4.0	33	3.58	0.63	0.73
45	0.75	17	0.77	0.51	0.59
	1.0	21	1.06	0.46	0.53
	1.5	24	1.48	0.49	0.57
	2.0	27	1.93	0.51	0.59
	3.0	31	3.00	0.60	0.69
	4.0	35	4.13	0.65	0.75
55	0.75	18	0.85	0.51	0.58
	1.0	22	1.18	0.47	0.54
	1.5	24	1.65	0.55	0.64
	2.0	28	2.15	0.53	0.61
	3.0	32	3.25	0.61	0.71
	4.0	35	4.60	0.72	0.83

Precipitation rates based on half-circle operation
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw
Performance data collected in zero wind conditions
Performance data derived from tests that conform with ASAE Standards; ASAE S398.1. See page 224 for complete ASAE Test Certification Statement.

Product Code	Description
3500-S-PC	Shrub
3500-S-PC-SAM	Shrub Seal-A-Matic
3504-PC	4" Pop-up
3504-PC-N	4" Pop-up, non-potable
3504-PC-SAM	4" Pop-up Seal-A-Matic
3504-PC-SAM-N	4" Pop-up Seal-A-Matic, non-potable

HOW TO SPECIFY: 3504-S-PC-SAM-N

Model:	Rotation:	Options:
3500 Series Rotor 4" pop-up	PC = 40° to 360°	S = Shrub model rotation SAM = Seal-A-Matic N = Non-potable cover

A heavy-duty seal is just the start. Learn what sets 5000 series rotors apart at **www.rainbird.com/5000rotor**.

Choosing a rotor without leaks.

That's intelligent.

The Rain Bird® 5000 series rotor with an oversized wiper seal.

If your current seals are too thin to stop leaks, switch to Rain Bird® 5000 series rotors. With five times the sealing surface, they offer the industry's most reliable performance.

You can be confident our oversized seal will:

- Prevent leaks
- Protect internals
- Provide reliable popup and retraction

RAIN BIRD®

RAIN BIRD 5000/5000 PLUS SERIES

The Next Evolution in Rotor Performance.

- Faster maintenance with a new self-cleaning arc adjustment screw
- Available in 4", 6", 12", Shrub, and Stainless Steel (5000 Plus/5000 Plus PRS 4" and 6" only) models
- Heavy-duty cover assembly for extra durability in residential or commercial applications
- Flow Shut-Off device to stop the flow of water to a particular head while the system is still in operation
- Slip clutch mechanism for quick adjustment on installation
- Heavy-duty retract spring assures positive pop-down
- Award-winning MPR nozzle set simplifies design and installation by providing matched precipitation from 25' to 35' (see side box)
- Optional in-stem pressure regulator (PRS) reduces operating pressure to 45 psi for optimal nozzle performance
- Part-Circle units (PC) are adjustable from 40° to 360° degrees
- Full-Circle units (FC) are 360° only

Specifications:

Precipitation rate: 0.20' to 1.01' per hour
Radius: 25' to 50'
Radius may be reduced up to 25% with radius reduction screw
Pressure: 25 psi to 65 psi
Flow Rate: 0.73 GPM to 9.63 GPM
3/4" Female inlet NPT

5000/5000 Plus Low Angle Nozzle Performance Data

Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
25	1.0 LA	25	0.76	0.23	0.27
	1.5 LA	27	1.15	0.30	0.35
	2.0 LA	29	1.47	0.34	0.39
	3.0 LA	29	2.23	0.51	0.59
35	1.0 LA	28	0.92	0.23	0.26
	1.5 LA	30	1.38	0.30	0.34
	2.0 LA	31	1.77	0.35	0.41
	3.0 LA	33	2.68	0.47	0.55
45	1.0 LA	29	1.05	0.24	0.28
	1.5 LA	31	1.58	0.32	0.37
	2.0 LA	32	2.02	0.38	0.44
	3.0 LA	35	3.07	0.48	0.56
55	1.0 LA	29	1.17	0.27	0.31
	1.5 LA	31	1.76	0.35	0.41
	2.0 LA	33	2.24	0.40	0.46
	3.0 LA	36	3.41	0.51	0.58
65	1.0 LA	29	1.27	0.29	0.34
	1.5 LA	31	1.92	0.38	0.44
	2.0 LA	33	2.45	0.43	0.50
	3.0 LA	36	3.72	0.55	0.64

Precipitation rates based on half-circle operation
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw
Performance data collected in zero wind conditions
Performance data derived from tests that conform with ASAE Standards; ASAE S398.1.
See page 224 for complete ASAE Test Certification Statement.

5000/5000 Plus Nozzle Performance Data

Pressure (psi)	Nozzle	Radius (ft.)	Flow (GPM)	Precip In/h ■	Precip In/h ▲
25	1.5	33	1.12	0.20	0.23
	2.0	35	1.50	0.24	0.27
	2.5	35	1.81	0.28	0.33
	3.0	36	2.26	0.34	0.39
	4.0	37	2.91	0.41	0.47
	5.0	39	3.72	0.47	0.54
	6.0	39	4.25	0.54	0.62
	8.0	36	5.90	0.88	1.01
35	1.5	34	1.35	0.22	0.26
	2.0	36	1.81	0.27	0.31
	2.5	37	2.17	0.31	0.35
	3.0	38	2.71	0.36	0.41
	4.0	40	3.50	0.42	0.49
	5.0	41	4.47	0.51	0.59
	6.0	43	5.23	0.54	0.63
	8.0	43	7.06	0.74	0.85
45	1.5	35	1.54	0.24	0.28
	2.0	37	2.07	0.29	0.34
	2.5	37	2.51	0.35	0.41
	3.0	40	3.09	0.37	0.43
	4.0	42	4.01	0.44	0.51
	5.0	45	5.09	0.48	0.56
	6.0	46	6.01	0.55	0.63
	8.0	47	8.03	0.70	0.81
55	1.5	35	1.71	0.27	0.31
	2.0	37	2.30	0.32	0.37
	2.5	37	2.76	0.39	0.45
	3.0	40	3.47	0.42	0.48
	4.0	42	4.44	0.48	0.56
	5.0	45	5.66	0.54	0.62
	6.0	47	6.63	0.58	0.67
	8.0	50	8.86	0.68	0.79
65	1.5	34	1.86	0.31	0.36
	2.0	35	2.52	0.40	0.46
	2.5	37	3.01	0.42	0.49
	3.0	40	3.78	0.45	0.53
	4.0	42	4.83	0.53	0.61
	5.0	45	6.16	0.59	0.68
	6.0	48	7.22	0.60	0.70
	8.0	50	9.63	0.74	0.86

How To Specify

Model	Standard Features	Optional Features		Nozzle Options
5000 Shrub	Slip clutch left edge finder 8 Standard 25 degree nozzles 4 low angle 10 degree nozzles Keyed nozzle port Part Circle (PC) Full Circle (FC)	PL R S NP SS	"Plus" Flow Shut off PRS Pressure Regulation SAM Check Valve Non Potable Stainless Steel Riser	Pre-installed 1.5 2.0 3.0 4.0 *Pre-nozzled rotors only available on specific models.*
5004				
5006				
5012				

Examples

5000PCS	Shrub, part circle, with check valve
5004PC2.0	4" Pop up, part circle, with 2.0 nozzle
5006PCPLRS	6" Pop up, part circle, with flow shut off, pressure regulation, and check valve

RAIN BIRD 5000/5000 PLUS MPR NOZZLES

Achieve Matched Precipitation Rate Between 25' and 35'.

Rain Bird 5000/5000 Plus MPR nozzles simplify both the design process and the installation of rotors, because they reliably deliver matched precipitation rates within and between rotor radii from 25'to 35'. Without having to use fixed arc plates, designers and installers can achieve MPR using either 5000 Series or 5000 Plus Series Rotors. Superior flexibility in arc adjustment minimizes the risks of over- or under-watering.

- Three nozzle trees of 25', 30', and 35' radii
- Each tree contains a Q (90°), T (120°), H (180°), and F (360°) nozzle
- No fixed arc plate required
- Compatible with both the 5000 and 5000 Plus Rotor Series
- Rain Curtain™ Technology provides:
  - Large droplets for consistent performance
  - Effective close-in watering Even distribution over the entire radius
  - Precipitation rate of 0.60 in./hr reduces run-off and erosion

5000-MPR-30 Nozzle Performance Data

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
Quarter	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
Third	25	29	1.34	0.46	0.53
	35	30	1.62	0.52	0.60
	45	30	1.85	0.59	0.69
	55	30	2.06	0.66	0.76
	65	30	2.24	0.72	0.83
Half	25	29	2.15	0.49	0.57
	35	30	2.59	0.55	0.64
	45	30	2.96	0.63	0.73
	55	30	3.30	0.71	0.82
	65	30	3.60	0.77	0.89
Full	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

5000-MPR-25 Nozzle Performance Data

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
Quarter	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
Third	25	23	1.00	0.55	0.63
	35	24	1.21	0.61	0.70
	45	25	1.38	0.64	0.74
	55	25	1.53	0.71	0.82
	65	25	1.67	0.77	0.89
Half	25	23	1.44	0.52	0.61
	35	24	1.73	0.58	0.67
	45	25	1.98	0.61	0.70
	55	25	2.21	0.68	0.79
	65	25	2.41	0.74	0.86
Full	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

5000-MPR-35 Nozzle Performance Data

Nozzle	Pressure psi	Radius ft.	Flow GPM	Precip In/h ■	Precip In/h ▲
Quarter	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
Third	25	32	1.77	0.50	0.58
	35	34	2.15	0.54	0.62
	45	35	2.46	0.58	0.67
	55	35	2.74	0.65	0.75
	65	35	2.99	0.70	0.81
Half	25	32	2.75	0.52	0.60
	35	34	3.33	0.55	0.64
	45	35	3.81	0.60	0.69
	55	35	4.23	0.66	0.77
	65	35	4.62	0.73	0.84
Full	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

RAIN BIRD 5505 SERIES ROTOR

Built tough to withstand the harshest conditions present in commercial rotor applications.

- Color coded Rain Curtain™ nozzles give you optimal water distribution and close-in watering for greener grass with less water.
- Continuous full and part circle operation in one unit.
- Easy, wet, dry arc adjustment with slotted screwdriver through top of rotor from 50° to 330° part-circle, 360° non-reversing full-circle.
- Left and right side trips adjustable for ease of installation without turning the case and loosening the pipe connection.
- Seal-A-Matic™ (SAM) check device/riser to help prevent low head drainage.

Specifications:

3/4" (20/27) NPT or BSP female threaded inlet

SAM check device holds up to 10 feet (3,1 m) of head

Nozzle outlet trajectory is 22°

Operating Range:

Precipitation Rate: 0.21 to 1.48 in/hr (6,3 to 33,8 mm/h)

Radius: 17 to 55 feet (5,2 to 16,8m)

Pressure: 40 to 90 psi (2,1 to 6,2 Bars)

Flow: 1.2 to 15.5 gpm (0,32 to 3,52 m3/h; 4,52 to 58,66 l/m)

5500 Nozzle Performance Data

Pressure psi	Nozzle	Radius ft.	Flow gpm	Precip In/h	Precip In/h
30	2	33	1.2	0.21	0.25
	3	35	2.3	0.36	0.42
	4	37	2.4	0.34	0.39
	5	37	2.6	0.37	0.42
	6	39	4.2	0.53	0.61
	8	39	5.3	0.67	0.77
40	2	37	1.6	0.23	0.26
	3	39	2.7	0.34	0.39
	4	41	2.9	0.33	0.38
	5	41	3.5	0.40	0.46
	6	45	4.8	0.46	0.53
	8	45	6.4	0.61	0.70
	10	41	7.5	0.86	0.99
	12	39	10.1	1.28	1.48
50	2	37	1.7	0.24	0.28
	3	41	3.0	0.34	0.40
	4	43	3.3	0.34	0.40
	5	45	3.8	0.36	0.42
	6	47	5.4	0.47	0.54
	8	49	7.3	0.59	0.68
	10	47	8.9	0.78	0.90
	12	45	11.1	1.06	1.22
60	2	37	1.9	0.27	0.31
	3	41	3.3	0.38	0.44
	4	45	3.6	0.34	0.40
	5	47	4.8	0.42	0.48
	6	47	6.0	0.52	0.60
	8	51	8.2	0.61	0.70
	10	51	9.7	0.72	0.83
	12	51	12.3	0.91	1.05
70	2	39	2.1	0.27	0.31
	3	43	3.5	0.36	0.42
	4	45	3.9	0.37	0.43
	5	47	5.1	0.44	0.51
	6	47	6.5	0.57	0.65
	8	53	8.8	0.60	0.70
	10	53	11.1	0.76	0.88
	12	53	13.5	0.93	1.07
80	2	39	2.3	0.29	0.34
	3	43	3.8	0.40	0.46
	4	45	4.2	0.40	0.46
	5	47	5.5	0.48	0.55
	6	49	7.0	0.56	0.65
	8	53	9.5	0.65	0.75
	10	55	12.1	0.77	0.89
	12	55	14.4	0.92	1.06
90	10	55	13.1	0.83	0.96
	12	55	15.5	0.99	1.14

5500 Short Radius Nozzle Performance Data

Pressure psi	Nozzle	Radius ft.	Flow gpm	Precip In/h	Precip In/h
30	18S	17	1.4	0.93	1.08
	22S	19	1.4	0.75	0.86
	26S	25	1.4	0.43	0.50
	30S	25	1.7	0.52	0.60
40	18S	19	1.5	0.80	0.92
	22S	21	1.6	0.70	0.81
	26S	25	1.9	0.59	0.68
	30S	29	1.8	0.41	0.48
50	18S	21	1.8	0.79	0.91
	22S	23	1.8	0.66	0.76
	26S	29	2.1	0.48	0.56
	30S	31	2.0	0.40	0.46
60	18S	23	2.0	0.73	0.84
	22S	25	2.0	0.62	0.71
	26S	29	2.4	0.55	0.63
	30S	33	2.2	0.39	0.45
70	18S	23	2.2	0.80	0.92
	22S	25	2.3	0.71	0.82
	26S	29	2.8	0.64	0.74
	30S	35	2.8	0.44	0.51
80	18S	25	2.4	0.74	0.85
	22S	27	2.5	0.66	0.76
	26S	29	3.1	0.71	0.82
	30S	35	3.1	0.49	0.56

How To Specify

5505 - SS - NP - 12

- **Model**: 5500 Series, 8005 Series
- **Optional Feature**: Stainless steel riser
- **Optional Feature**: Non-potable rubber cover
- **Nozzle Size**: 12

Note: For non-U.S. applications, it is necessary to specify NPT or BSP thread type.

RAIN BIRD FALCON® 6504 ROTOR

Closed-case rotor for schools, cemeteries, athletic fields, parks and other large turf areas.

- Easy arc adjustment (part circle model) through top of rotor from 40° to 360°
- Water-lubricated gear drive for reliable, durable rotation
- Removable Seal-A-Matic™ (SAM) check device prevents puddling and erosion caused by low-head drainage
- Rain Curtain™ nozzles have three ports for optimal long-range, mid-range, and close-in watering, for green grass even in the heat of summer
- Radius adjustment screw allows radius reduction up to 25% without changing nozzles

Specifications:

Flow rate: 2.9 GPM to 21.7 GPM
Radius: 39' to 65'
Pressure: 30 psi to 90 psi
Precipitation rate: .37" to 1.14" per hour
1" Female inlet NPT

Product Code	Description
F4FC	Full-Circle
F4PC	Part-Circle
F4FCSS	Full-Circle, stainless steel
F4PCSS	Part-Circle, stainless steel
F4FCNP	Full-Circle, non-potable cover
F4PCNP	Part-Circle, non-potable cover
F4FCSSHS	Full-Circle, stainless steel, high-speed
F4PCSSHS	Part-Circle, stainless steel, high-speed
F4FCSSNP	Full-Circle, stainless steel, non-potable cover
F4PCSSNP	Part-Circle, stainless steel, non-potable cover

HOW TO SPECIFY: F4 – PC – SS – HS		
Model:	**Rotation:**	**Options:**
F4	PC = 40° to 360°	SS = Stainless steel riser
	FC = 360	NP = Non-potable cover
		HS = High-speed rotor

6504 Nozzle Performance Data

Pressure (psi)	Nozzle	Radius (ft.)	Flow (GPM)	Precip In/h ■	Precip In/h ▲
30	4	39	2.9	0.37	0.42
	6	43	4.2	0.44	0.5
40	4	41	3.3	0.38	0.44
	6	45	4.9	0.47	0.54
	8	49	6.6	0.53	0.61
	10	51	8.1	0.6	0.69
	12	53	9.7	0.66	0.77
	14	55	11.3	0.72	0.83
	16	55	12.6	0.8	0.93
	18	59	13.7	0.76	0.87
50	4	41	3.7	0.42	0.49
	6	49	5.5	0.44	0.51
	8	51	7.4	0.55	0.63
	10	53	9.1	0.62	0.72
	12	55	11	0.7	0.81
	14	59	12.7	0.7	0.81
	16	61	14.3	0.74	0.85
	18	59	15.4	0.85	0.98
60	4	41	4	0.46	0.53
	6	47	6	0.52	0.6
	8	51	8.2	0.61	0.7
	10	55	10	0.64	0.73
	12	57	12.2	0.72	0.83
	14	61	14	0.72	0.84
	16	63	15.7	0.76	0.88
	18	63	17.1	0.83	0.96
70	4	41	4.4	0.5	0.58
	6	49	6.3	0.51	0.58
	8	51	8.9	0.66	0.76
	10	57	10.8	0.64	0.74
	12	59	13.2	0.73	0.84
	14	61	15.2	0.79	0.91
	16	63	16.9	0.82	0.95
	18	65	18.3	0.83	0.96
80	4	43	4.6	0.48	0.55
	6	49	6.9	0.55	0.64
	8	53	9.4	0.64	0.74
	10	55	11.6	0.74	0.85
	12	61	14	0.72	0.84
	14	61	16.2	0.84	0.97
	16	63	18.1	0.88	1.01
	18	65	19.6	0.89	1.03
90	18	65	21.7	0.99	1.14

RAIN BIRD 8005 ROTOR

Built rugged to withstand the harsh conditions and vandalism present in commercial rotor applications.

- Five year trade warranty
- Memory Arc® returns the rotor to its original arc setting
- Non-strippable drive mechanism prevents damage from vandals
- Brass reinforcing shaft of the nozzle turret to riser withstands vandal kick
- Optional stainless steel riser model helps deter vandalism on public turf areas
- Full and part circle operation in one unit to reduce inventory requirements
- Easy, wet, dry arc adjustment with slotted screwdriver through top of rotor from 50° to 330° part-circle, 360° non-reversing full-circle
- Left and right side trips adjustable for ease of installation without turning the case and loosening the pipe connection
- Seal-A-Matic™ (SAM) check device/riser to help prevent low head drainage

Specifications:

Radius: 57' to 81'
Precipitation rate: 0.48 to 1.23 inches per hour (12 to 31 mm/h)
Pressure: 50 to 100 psi (3.5 to 6.9 bar)
Flow: 11.1 to 36.3 gpm
1" (26/34) female NPT or BSP threaded inlet
SAM check device holds up to 10'

Product Code	Description
8005	1" NPT female threaded inlet (plastic riser stem)
8005-SS	1" NPT female threaded inlet

HOW TO SPECIFY: 8005-SS-NP-26		
Model:	**Nozzle Size:**	**Options:**
8005	04-black 06-light blue 08-dark green 10-gray 12-beige 14-light green 16-dark brown 18-dark blue 20-red 22-yellow 24-orange 26-white	SS = Stainless steel riser NP = Non-potable cover

8005 Nozzle Performance Data

Pressure psi	Nozzle	Radius ft.	Flow gpm	■ Precip In/h	▲ Precip In/h
50	04	39	3.8	0.48	0.56
	06	45	5.6	0.53	0.62
	08	49	6.6	0.53	0.61
	10	53	9.3	0.64	0.74
	12	57	11.1	0.66	0.76
	14	59	12.6	0.70	0.81
	16	61	14.3	0.74	0.85
	18	63	16.1	0.78	0.90
	20	65	18.6	0.85	0.98
	22	65	20.7	0.94	1.09
	24	63	22.3	1.08	1.25
	26	65	24.3	1.11	1.28
60	04	39	3.8	0.48	0.56
	06	45	6.1	0.58	0.67
	08	49	8.4	0.67	0.78
	10	53	10.1	0.69	0.80
	12	59	12.0	0.66	0.77
	14	61	14.3	0.74	0.85
	16	65	15.9	0.72	0.84
	18	65	17.8	0.81	0.94
	20	67	20.1	0.86	1.00
	22	71	23.2	0.89	1.02
	24	69	24.7	1.00	1.15
	26	73	26.7	0.96	1.11
70	04	39	4.7	0.60	0.69
	06	45	6.7	0.64	0.74
	08	49	9.0	0.72	0.83
	10	55	11.1	0.71	0.82
	12	59	13.2	0.73	0.84
	14	63	15.3	0.74	0.86
	16	67	17.2	0.74	0.85
	18	67	19.3	0.83	0.96
	20	71	22.0	0.84	0.97
	22	73	25.2	0.91	1.05
	24	75	27.0	0.92	1.07
	26	75	29.4	1.01	1.16
80	04	39	5.0	0.63	0.73
	06	45	7.1	0.68	0.78
	08	49	9.8	0.79	0.91
	10	55	11.8	0.75	0.87
	12	61	14.2	0.73	0.85
	14	63	16.4	0.80	0.92
	16	67	18.6	0.80	0.92
	18	69	20.9	0.85	0.98
	20	71	23.9	0.91	1.05
	22	75	27.3	0.93	1.08
	24	77	29.2	0.95	1.10
	26	79	31.5	0.97	1.12
90	12	61	14.7	0.76	0.88
	14	65	17.9	0.82	0.94
	16	69	20.0	0.81	0.93
	18	71	22.2	0.85	0.98
	20	73	25.3	0.91	1.06
	22	75	29.1	1.00	1.15
	24	79	31.0	0.96	1.10
	26	79	33.7	1.04	1.20
100	20	75	26.8	0.85	0.97
	22	77	30.7	1.00	1.15
	24	79	32.8	1.01	1.17
	26	81	36.3	1.07	1.23

Precipitation rates based on half-circle operation
■ Square spacing based on 50% diameter of throw
▲ Triangular spacing based on 50% diameter of throw
Performance data collected in zero wind conditions
Performance data derived from tests that conform with ASAE Standards; ASAE S398.1.
See page 224 for complete ASAE Test Certification Statement.

TORO T5 SERIES ROTOR

A multi-purpose, basic featured rotor for all standard residential and commercial uses.

- Optional RapidSet™ Arc Adjustment - all the arc adjustments can be made quickly, with a few twists of the nozzle turret, with no tools required
- Easily replaces many competitive units in the same footprint but delivers an extra inch of pop-up
- In-ground profile of any standard 4" pop-up, but delivers a full 5" pop-up
- Highly engineered nozzles deliver maximum irrigation efficiency from a nozzle tree of eight standard and four low angle nozzles
- Part- and full-circle sprinkler in one head with optional check valve
- An optional check valve is available with a hold back strength of 7' of elevation change

Specifications:

Radius: 25' to 50'
Flow rate: .76 GPM to 9.63 GPM
Recommended operating pressure range: 25 psi to 65 psi (maximum — 75 psi)
Trajectory: 25° standard, 10° low angle
Pop-up to nozzle: 5"
Inlet: 3/4" NPT

Product Code	Description
T5P	5" Lawn Pop-up w/o check valve
T5S	T5 Shrub
T5HP	5" Lawn Pop-up High Pop

T-5 Low Angle Nozzle Performance Data

Nozzle	psi	Radius	GPM	Precipitation Rate (in/hr) ■	(in/hr) ▲
1.5LA	25	25	0.76	0.23	0.27
	35	28	0.92	0.23	0.26
	45	29	1.05	0.24	0.28
	55	29	1.17	0.27	0.31
	65	29	1.27	0.29	0.34
2.0LA	25	27	1.15	0.30	0.35
	35	30	1.38	0.30	0.34
	45	31	2.58	0.32	0.37
	55	31	2.76	0.35	0.41
	65	31	2.92	0.38	0.44
2.5LA	25	29	1.47	0.34	0.39
	35	31	2.77	0.35	0.41
	45	32	2.02	0.38	0.44
	55	33	2.24	0.40	0.46
	65	33	3.45	0.43	0.50
3.0LA	25	29	2.23	0.51	0.59
	35	33	2.68	0.47	0.55
	45	35	3.07	0.48	0.56
	60	36	2.41	0.51	0.58
	65	36	3.72	0.55	0.64

1. Precipitation rates based on half-circle operation 2. ■ Square spacing based on 50% diameter of throw. 3. ▲ Triangular spacing base on 50% diameter of throw.

T-5 Nozzle Performance Data

Nozzle	PSI	Radius	GPM	Precipitation Rate (in/hr)▲	(in/hr)■
1.5	25	33	1.15	0.23	0.20
	35	34	1.38	0.27	0.23
	45	35	1.59	0.29	0.25
	55	35	1.74	0.32	0.27
	65	36	1.88	0.32	0.28
2.0	25	35	1.45	0.26	0.23
	35	36	1.80	0.31	0.27
	45	37	2.12	0.34	0.30
	55	37	2.30	0.37	0.32
	65	37	2.58	0.42	0.36
2.5	25	35	1.75	0.32	0.28
	35	36	2.20	0.38	0.33
	45	37	2.55	0.41	0.36
	55	37	2.80	0.45	0.39
	65	37	3.05	0.50	0.43
3.0 Standard	25	36	2.20	0.38	0.33
	35	38	2.60	0.40	0.35
	45	40	3.05	0.42	0.37
	55	40	3.52	0.49	0.42
	65	40	3.80	0.53	0.46
4.0	25	37	2.95	0.48	0.41
	35	40	3.55	0.49	0.43
	45	42	4.10	0.52	0.45
	55	42	4.45	0.56	0.49
	65	43	4.85	0.58	0.50
5.0	25	39	3.75	0.55	0.47
	35	41	4.50	0.60	0.52
	45	43	5.10	0.61	0.53
	55	45	5.75	0.63	0.55
	65	45	6.10	0.67	0.58
6.0	25	39	4.20	0.61	0.53
	35	43	5.20	0.63	0.54
	45	46	6.05	0.64	0.55
	55	47	6.65	0.67	0.58
	65	48	7.25	0.70	0.61
8.0	25	36	5.75	0.99	0.85
	35	43	7.10	0.85	0.74
	45	47	8.05	0.81	0.70
	55	48	8.95	0.86	0.75
	65	50	9.70	0.86	0.75

Low Angle Nozzle Performance Data

Nozzle	PSI	Radius	GPM	Precipitation Rate (in/hr)▲	(in/hr) ■
1.0LA	25	25	0.74	0.26	0.23
	35	28	0.94	0.27	0.23
	45	28	1.02	0.29	0.25
	55	29	1.14	0.30	0.26
	65	29	1.25	0.33	0.29
1.5LA	25	27	1.10	0.34	0.29
	35	30	1.35	0.33	0.29
	45	31	1.52	0.35	0.30
	55	31	1.75	0.40	0.35
	65	31	1.90	0.44	0.38
2.0LA	25	29	1.40	0.37	0.32
	35	31	1.72	0.40	0.34
	45	32	2.05	0.45	0.39
	55	33	2.25	0.46	0.40
	65	33	2.45	0.50	0.43
3.0LA	25	29	2.20	0.58	0.50
	35	33	2.60	0.53	0.46
	45	34	3.05	0.59	0.51
	55	36	3.40	0.58	0.51
	65	36	3.70	0.63	0.55

Data based on 180°.

Specifying Information—T5 Rotor

T5XX XXXX CK E-RS

Descrip.	Body	Optional	Nozzle			Optional	Optional
T5	XX	CK	XXXX			E	RS
T5—T5 Series Rotor	P—Lawn Pop S—Shrub HP—High Pop	CK—Check Valve*	1.5—1.5 GPM 2.0—2.0 GPM 2.5—2.5 GPM 3.0—3.0 GPM	4.0—4.0 GPM 5.0—5.0 GPM 6.0—6.0 GPM 8.0—8.0 GPM	Low Angle Nozzle 1.0LA—1.0 GPM 1.5LA—1.5 GPM 2.0LA—2.0 GPM 3.0LA—3.0 GPM	E—Effluent	RS—RapidSet™ (optional for lawn models only)

Example: A T5 Lawn Pop-up sprinkler with a 2.5 nozzle, would be specified as: **T5P-2.5**

* Check Valve is standard on all shrub models

Denotes Smart Water products

TORO TR50XT SERIES ROTOR

Ideal for both residential and commercial applications, the TR50XT Series rotors are simple to adjust with precise setting accuracy – making fine tuning easier than ever

- X-Flow® Shutoff Device allows one sprinkler to be shut-off while all the others on the same line are still running
- Exclusive Trujectory™ Adjustment allows fine-tuning of nozzle spray trajectory - make adjustments from 5° to 25° to compensate for wind, low-hanging branches or throwing water from the top of slopes
- TruArc™ For Easy Arc Set eliminates "palming" of a sprinkler to check the final arc setting—visual arc set from arrow on cap to arrow on riser
- Smart Arc™ Memory safely returns sprinkler to previously set arc if vandalized

Specifications:

TR50XT Radius: 28' to 48'
TR50XT Flow rate: 1.0 GPM to 9.80 GPM
Recommended operating pressure: 30 psi to 70 psi
Maximum operating pressure: 75 psi
3/4" Female inlet NPT

HOW TO SPECIFY: TR50XT XX XX E			
Model:	**Body:**	**Nozzles:**	**Options:**
TR50XT	S – Shrub	15 to 1.5	E = Effluent
	HP – High-pop	20 to 2.0	
	PSS – Stainless Steel Riser	30 to 3.0	
		45 to 4.5	
		60 to 6.5	
		75 to 7.5	
		90 to 9.0	

Specifying Information—TR50XT

TR50XT XX-XX-E			
Description	**Body**	**Nozzle**	**Optional**
TR50XT	XX	XX	E
TR50XT—TR50XT Series Rotor	P—Lawn Pop-up S—Shrub HP—High-pop PSS—Stailess Steel Riser	10—1.0 45—4.5 15—1.5 60—6.0 20—2.0 75—7.5 30—3.0 90—9.0	E—Effluent
Example: A TR50XT Series sprinkler with High-pop and a 6.0 nozzle, would be specified as: **TR50XT-HP-60**			

TR50XT TR50XPSS Performance Data

Nozzle Size	psi	Flow	5° Radius	5° Precip. Rate* ▲	5° Precip. Rate* ■	15° Radius	15° Precip. Rate* ▲	15° Precip. Rate* ■	25° Radius	25° Precip. Rate* ▲	25° Precip. Rate* ■
1.0 Yellow	30	1.0	20	0.28	0.24	26	0.16	0.14	30	0.12	0.11
	40	1.1	21	0.28	0.24	27	0.18	0.15	30	0.14	0.12
	50	1.3	22	0.30	0.26	27	0.20	0.17	31	0.15	0.13
	60	1.4	25	0.26	0.23	28	0.20	0.17	31	0.17	0.15
	70	1.5	25	0.29	0.25	28	0.22	0.19	31	0.18	0.16
1.5 Orange	30	1.2	28	0.18	0.15	30	0.15	0.13	34	0.12	0.10
	40	1.4	29	0.19	0.17	31	0.16	0.14	35	0.13	0.11
	50	1.6	29	0.21	0.18	32	0.18	0.15	36	0.14	0.12
	60	1.7	31	0.21	0.18	32	0.19	0.16	36	0.15	0.13
	70	1.9	31	0.22	0.19	32	0.21	0.18	35	0.18	0.15
2.0 Red	30	1.7	31	0.19	0.17	32	0.18	0.16	36	0.14	0.12
	40	1.9	31	0.22	0.19	34	0.18	0.16	38	0.15	0.13
	50	2.2	32	0.24	0.21	35	0.20	0.17	38	0.17	0.14
	60	2.4	33	0.25	0.22	36	0.20	0.18	39	0.18	0.15
	70	2.6	33	0.27	0.23	36	0.22	0.19	39	0.20	0.17
3.0* Black	30	2.3	31	0.27	0.23	34	0.23	0.20	38	0.18	0.16
	40	2.6	31	0.31	0.26	35	0.25	0.21	40	0.19	0.16
	50	3.0	33	0.30	0.26	36	0.26	0.22	41	0.20	0.17
	60	3.3	35	0.31	0.27	38	0.26	0.23	42	0.21	0.18
	70	3.6	35	0.32	0.28	39	0.27	0.23	44	0.21	0.18
4.5 Blue	30	3.6	31	0.42	0.36	34	0.35	0.30	39	0.26	0.23
	40	4.1	32	0.44	0.38	35	0.38	0.33	40	0.28	0.24
	50	4.6	34	0.45	0.39	37	0.39	0.33	41	0.31	0.27
	60	5.1	35	0.48	0.41	38	0.39	0.34	42	0.32	0.28
	70	5.6	36	0.48	0.42	39	0.41	0.35	42	0.35	0.31
6.0 Green	30	4.4	31	0.51	0.44	35	0.40	0.35	41	0.29	0.25
	40	5.0	32	0.56	0.48	37	0.42	0.36	42	0.32	0.28
	50	5.7	35	0.53	0.46	40	0.39	0.34	43	0.34	0.30
	60	6.3	37	0.51	0.44	40	0.45	0.39	43	0.39	0.33
	70	6.8	38	0.54	0.47	41	0.45	0.39	45	0.38	0.33
7.5 Brown	30	4.9	34	0.47	0.41	35	0.45	0.39	41	0.32	0.28
	40	5.6	36	0.49	0.42	36	0.48	0.41	41	0.38	0.33
	50	6.3	35	0.57	0.49	37	0.52	0.45	42	0.40	0.35
	60	6.9	36	0.61	0.53	38	0.55	0.47	42	0.44	0.38
	70	7.5	37	0.63	0.54	38	0.58	0.50	43	0.45	0.39
9.0 Gray	30	6.1	34	0.59	0.51	34	0.59	0.51	42	0.38	0.33
	40	7.0	35	0.64	0.55	35	0.65	0.57	42	0.44	0.38
	50	8.0	35	0.73	0.63	37	0.65	0.56	44	0.46	0.40
	60	8.9	35	0.80	0.70	39	0.66	0.58	45	0.50	0.43
	70	9.8	37	0.82	0.71	40	0.68	0.59	47	0.50	0.44

Shaded areas represent optimum operating pressure for that nozzle size.
**Factory installed nozzle.*

TORO T7 SERIES ROTOR

A multi-purpose, basic featured rotor for all standard residential and commercial uses.

- Arc setting indicator on top of the rotor allows for easy wet or dry adjustments from 45°-360°.
- High efficiency nozzle single port design ensures water is evenly distributed across the pattern without putting too much water near the head, which prevents seed from washing away.
- Smart Arc™ memory safely returns sprinkler to previously set arc if vandalized.
- Standard check valve to prevent low head drainage.
- Available in low-flow models (identified by "circle L" on rubber cover), for short radius (38'-53') applications, such as baseball infields.

Specifications:

Radius: Low-flow models: 38'-53' (11,6 - 16,2m);

High-flow models: 46'-83' (14,0 - 25,0m)

Flow: Low-flow models: 1.7-13.0 gpm (6,4-49, 2 lpm);
High-flow models: 6.8-30.5 gpm (25,4-116 lpm)

Trajectory: 25°

Arc: Full Circle; Part-circle Adjustable; Part/Full circle in One

Recommended Operating Pressure:
40-100 PSI (2.8 - 6.9 BAR)

Inlet: 1" (2.5 cm)

Pop-Up Height: 5 3/4" (14.6 cm)

T7 Performance Data - Low Flow Models

Nozzle	Press. (PSI)	Radius (FT)	Flow Rate (GPM)	Precip Rate (in/hr) ▲	Precip Rate (in/hr) ■
2.0	40	40	1.73	0.25	0.22
	50	42	1.96	0.29	0.25
	60	42	2.17	0.30	0.26
	70	41	2.36	0.33	0.28
	80	42	2.54	0.35	0.31
	90	41	2.71	0.36	0.31
	100	41	2.88	0.38	0.33
3.0	40	41	2.43	0.36	0.31
	50	42	2.77	0.39	0.33
	60	41	3.10	0.41	0.36
	70	41	3.38	0.45	0.39
	80	42	3.64	0.46	0.40
	90	41	3.89	0.47	0.41
	100	43	4.06	0.49	0.42
4.5	40	38	4.07	0.63	0.54
	50	41	4.65	0.62	0.53
	60	41	5.17	0.68	0.59
	70	42	5.64	0.71	0.62
	80	42	6.08	0.77	0.66
	90	43	6.49	0.78	0.68
	100	43	6.88	0.83	0.72
6.0	40	43	4.92	0.59	0.51
	50	46	5.63	0.59	0.51
	60	48	6.27	0.61	0.52
	70	50	7.05	0.65	0.57
	80	49	7.37	0.68	0.59
	90	50	7.87	0.70	0.61
	100	50	8.37	0.74	0.64
7.5	40	44	5.78	0.66	0.58
	50	46	6.63	0.70	0.60
	60	48	7.37	0.71	0.62
	70	50	8.05	0.75	0.65
	80	51	8.73	0.78	0.67
	90	52	9.46	0.84	0.73
	100	52	9.89	0.81	0.70
9.0	40	45	7.33	0.81	0.70
	50	49	8.44	0.78	0.68
	60	51	9.39	0.80	0.70
	70	54	10.43	0.83	0.72
	80	55	11.27	0.83	0.72
	90	55	12.05	0.89	0.77
	100	56	12.74	0.90	0.78

* Pre-installed nozzle
Data based on 180°

T7 Performance Data - High Flow Models

Nozzle	Press. (PSI)	Radius (FT)	Flow Rate (GPM)	Precip Rate (in/hr) ▲	Precip Rate (in/hr) ■
7.0	40	46.3	6.81	0.715	0.620
	50	48.7	7.41	0.746	0.646
	60	49.0	8.10	0.782	0.677
	70	50.3	8.90	0.824	0.714
	80	52.0	9.67	0.827	0.716
	90	52.0	10.27	0.845	0.732
	100	53.3	10.85	0.827	0.716
9.0	40	47.3	7.54	0.759	0.657
	50	50.7	8.25	0.734	0.635
	60	50.3	8.91	0.762	0.660
	70	52.0	9.81	0.807	0.699
	80	53.7	10.49	0.800	0.693
	90	53.3	11.20	0.823	0.713
	100	54.0	11.83	0.839	0.727
12.0*	40	50.3	9.95	0.885	0.767
	50	53.3	10.55	0.902	0.781
	60	56.7	11.53	0.913	0.791
	70	59.0	12.54	0.956	0.828
	80	59.7	13.51	0.993	0.860
	90	60.7	14.38	1.020	0.883
	100	63.0	15.18	1.039	0.900
16.0	40	52.3	13.42	1.062	0.920
	50	57.0	14.96	1.061	0.919
	60	60.0	15.79	1.044	0.904
	70	61.0	17.13	1.094	0.948
	80	63.7	18.41	1.100	0.953
	90	64.3	19.64	1.136	0.984
	100	65.7	20.80	1.166	1.009
20.0	40	52.0	16.10	1.275	1.104
	50	57.3	18.40	1.216	1.053
	60	61.0	19.56	1.209	1.047
	70	63.7	21.01	1.256	1.087
	80	66.3	22.58	1.188	1.029
	90	68.0	23.99	1.225	1.061
	100	70.3	25.29	1.253	1.085
24.0	40	58.7	15.46	1.272	1.101
	50	60.3	17.69	1.093	0.946
	60	63.7	19.76	1.107	0.959
	70	66.3	21.61	1.138	0.985
	80	68.3	23.29	1.154	0.999
	90	70.0	24.87	1.196	1.036
	100	72.3	26.30	1.160	1.005
27.0	40	55.0	19.37	1.424	1.233
	50	64.3	21.98	1.157	1.002
	60	71.0	23.82	1.051	0.910
	70	72.3	25.67	1.101	0.954
	80	73.0	27.34	1.141	0.988
	90	74.3	29.03	1.179	1.021
	100	75.0	30.52	1.207	1.045

T7 Rotor Model List

Model	Description
• T7P-02	1" (25mm) Rotor
• T7P-02E	1" (25mm) Rotor, Effluent Indicator
• T7P-02L	1" (25mm) Rotor, Low Flow
• T7P-02LE	1" (25mm) Rotor, Low Flow, Effluent Indicator
• T7PSS-02	1" (25mm) Stainless Steel Rotor
• T7PSS-02E	1" (25mm) Stainless Steel Rotor, Effluent Indicator
• T7PSS-02L	1" (25mm) Rotor, Low Flow
• T7PSS-02LE	1" (25mm) Rotor, Low Flow, Effluent Indicator

Specifying Information—T7 Sprinkler

T7PXX-02XX

Descrip.	Optional	Thread	Optional
T7P	SS	02	E
T7P—Sports Rotor	SS—Stainless Steel Riser	NPT Thread	E—Effluent L—Low Flow

Example: A low flow T7P sprinkler with a stainless steel riser and effluent rubber cover would be specified as **T7PSS-02LS**

Denotes Smart Water products

Overview:

There are two specific categories of Smart Water control systems — EvapoTranspiration (ET) and Moisture. The more common category is the ET-based controller. Utilizing historical rainfall data, on-site weather stations or paging technology via weather satellites, ET controllers measure wind, rain and solar radiation and automatically adjust irrigation run times accordingly.

Moisture-based controllers utilize in-ground sensors to measure soil moisture content and drive irrigation schedules. Moisture based systems range from simple on/off sensors to digital systems that read both moisture and salinity (EC) content in the soil profile.

Both categories of Smart Water systems can save from 30% to 50% in water use over traditional controllers. It's all in the purpose of the system — traditional controllers did a great job of irrigating plant material. Smart Water controllers take the next step and actively manage water.

Water Rebates:

Many government agencies around the country are offering rebates on smart water products: controllers, sensors, sprays and nozzles. For a complete list of available rebates by state, please go to our website: horizononline.com/resources.

RAIN BIRD

ESP-SMTE SMART IRRIGATION CONTROLLER

Combining the proven simplicity of the Extra Simple Programming (ESP) controller family with the accuracy of weather-based control.

- Not only suspends irrigation during rain, it measures instantaneous rainfall amounts, determines the effective rainfall and calculates exactly how much to adjust your watering schedule to prevent over-watering and under-watering.
- Expandable modular design easily expands from 4 stations up to 22 stations with the addition of optional hot-swappable expansion modules.
- Zone specific water calculations
- Cycle and Soak™ feature allows you to take into account soil conditions when it calculates run time, reducing run-off

Controller Features:

EPA Water Sense labeled

Expandable to 22 zones

English/Spanish button easily switches languages

Weather sensor sends rainfall and temperature data to the controller

Large LCD display

Electrical Specifications:

Input Required: 120VAC +/- 10%

Output: 25.5VAC 1A

Surge Protection: Primary input side has (2) built-in MOV's (metal oxide varistor) to protect circuitry. Output side has(2) built-in MOV's for each valve station.

Power back-up: Lithium coin-cell battery maintains time and date while non-volatile memory maintains the schedule.

Multi-valve station capacity: Up to two 24VAC, 7VA solenoid valves per station plus a master valve.

Product Code	Description
ESP4SMTEI	4 Zone Indoor Modular Smart Controller with weather sensor
ESP4SMTE	4 Zone Outdoor Modular Smart Controller with weather sensor
ESP4SMTEUPG	Upgrade kit to convert existing ESP Modular into ESP-SMTe
ESPSM3	3-Zone Expansion Module
ESP4SMTEUPG	6-Zone Expansion Module

RAIN BIRD

ESP-ET SERIES CONTROLLER

12-200 Station Smart Controller

- Make real-time adjustments to the irrigation schedule based on hourly weather information and manage available water capacity to shorten irrigation times.
- Water Savings of 20 – 50% over traditional time based irrigation control.
- Wind interrupt prevent overspray during high wind conditions
- Setup Wizard walks user through all key setup parameters.
- 8- or 12-stations base unit expandable to 48 stations with 4-, 8- and 12-Station Modules
- Flow Smart Module™ factory installed or field upgradable
- SimulStations™ are programmable to allow up to 5 stations to operate at the same time
- Flo-Watch protection for high and low flow conditions with user defined reactions
- FloManager manages hydraulic demand, making full use of available water to shorten total watering time

WaterSense Meets EPA Criteria

Operating Features:

Station timing: 0 min to 12 hrs

Seasonal Adjust: 0% to 300% (16 hrs maximum station run time)

4 independent programs (ABCD)

ABCD programs can overlap

8 start times per program

Program Day Cycles include Custom days of the week, Odd, Odd31, Even, and Cyclical dates

Manual station, program, test program

Model	Description
ESPLXME-ET	ESP12LXME with ETCLX
ESPLXD-ET	ESPLXD with ETCLX

Weathermatic™
Water Conserving Innovation

SMARTLINE CONTROLLER

- "Basic" and "Smart" mode makes the controller flexible and easy to use
- ET Watering adjusts the duration, frequency, and soak time based on weather data, sprinkler, soil and plant type.
- SmartLink Network gives you access to your SmartLine controllers via your computer, tablet, or smartphone.
- Built in valve locator finds hidden valves by simply listening for the audible chatter of the solenoid created by a unique electrical frequency

Product Code	Description
SL800	4-Zone base model, expandable to 8 zones (Indoor only)
SL1600	4-Zone base model, expandable to 16 zones (Indoor only)
SL1624	16-Zone base model, expandable to 24 zones (Indoor/Outdoor rated)
SL4800	12-Zone base model, expandable to 48 zones (Indoor/Outdoor rated)
SLM2	2-Zone module for use in the SL800 (Indoor/Outdoor rated)
SLM4	4-Zone module for use in the SL1600, SL1624, SL4800 (Indoor/Outdoor rated)
SLM12	12-Zone module for use in the SL1624, SL4800 (Indoor/Outdoor rated)

SmartLink™
Wireless Landscape Network

SMARTLINK 2.0 NETWORK

Manage all of your sites from any computer,or mobile device, and a web browser – no software to install, no expensive hardware to purchase.

- Web based application
- Unlimited accounts, unlimited sites, unlimited controllers
- Reports include historical water use, historical temperature overlays, total gallons used per site/controller/zone
- Set low/high flow threshold and receive email alerts when threshold is passed
- Requires SmartLine or ProLine controller with SmartLink Aircard installed.
- Yearly subscription fee

SLRC WIRELESS REMOTE CONTROL

- Handheld remote control for wireless zone operation of any SmartLine® SL800, SL1600 Series or SL4800 controller – requires controller firmware version 1.08 or later and SLHUB-RF wireless receiver hub (included in remote kit)
- Operates on a bi-directional, spread spectrum 2.4 GHz frequency for superior range and reliability
- 600' line of sight operation
- LCD provides zone number, RF signal indication, and an hourglass icon for zone run time

Product Code	Description
SLRC-HH	Handheld Remote Only
SLHUB-RF	Internal Mount Wireless Receiver Hub
SLRC-ADAPTER	Internal/External Mount Wireless Receiver Hub with RJ-11 Connector
SLRC-KIT-ADP	Handheld Remote & SLRC-ADAPTER
SLRC-KIT-HUB	Handheld Remote & SLHUB-RF
SLRC-CLIP	Protective Belt Clip for SLRC-HH Remote
SLRC-LINK	SmartLink includes 25' Telephone Line & Outdoor RJ-11 Connection Port

SLW1 & SLW5 WEATHER STATIONS

- Real-time weather data recording and processing enables ET-based water scheduling to occur
- Weather data is used to create powerful reporting when connected to the SmartLink™ Network
- Adjustable rain sensor - 1/8, 1/4, 1/2, and 3/4 inch
- Prevents watering during freezing weather - below 37ºF/3ºC
- SLW5 900mhz Range - 1,500ft LOS
- SLW1 Includes - 35ft of cable
- Wireless Version - SLW5
- Wired Version - SLW1

TORO

WaterSense · Meets EPA Criteria

EVOLUTION® SERIES

With an intuitive interface and exclusive features for "smart" control, the new Toro® EVOLUTION® is an easy choice for residential and light-commercial applications.

- Web based application
- Unlimited accounts, unlimited sites, unlimited controllers
- Reports include historical water use, historical temperature overlays, total gallons used per site/controller/zone
- Set low/high flow threshold and receive email alerts when threshold is passed
- Record estimated cost of repairs
- Requires SmartLine or ProLine controller with SmartLink Aircard installed.
- Yearly subscription fee

SMART CONNECT ADD-ON DEVICES

Wireless ET Sensor

Uses live temperature and solar measurements as well as historical data to calculate amount of water needed from the irrigation system

Handheld Remote

Makes maintenance checks a snap, allowing you to run sprinklers or schedules from up to 1000 feet away

Smart Connect® Plug-In Receiver

Installs easily to the backside of the controller, allows you to communicate with all Add-On devices

EVOLUTION® Scheduling-Advisor™ Software

Programming can be transferred from your computer to the controller with a USB drive

Precision Soil Sensor

Up to three soil sensors can be used to monitor the moisture level of the soil.

THE EVOLUTION® OF CONTROL

ALL IN ONE!

ALWAYS AVAILABLE AT: Horizon


Toro® Smart Connect®

Smart Connect® is a Smarter Way

Different customers have different needs. That's why the award-winning EVOLUTION® Controller can be customized with up to four Smart Connect® Add-Ons – all wirelessly connected to a single receiver that fits neatly inside the controller.

- Install the optional, EPA WaterSense® approved ET Sensor, or up to three easy-to-install wireless soil sensors, to automatically control zone runtimes – saving water and your time.
- Install the optional wireless relays for integrated control of fountain pumps, outdoor lighting, or even holiday lighting.
- Install the wireless Handheld Remote to make system testing a breeze.


Precision™ Soil Sensor


Wireless ET Sensor


Handheld Remote


Auxiliary Relay

Learn more at:
www.toro.com/EVOLUTION

100 TORO A CENTURY OF INNOVATION

Hunter

PRO-C

Pro-C Light Commercial and Residential Controller

The fixed 6 and 12 station models offer affordability in a high-end residential controller, with the flexibility to expand on demand due to its modular design

- Flexible design: Modular model offers 4–16 stations, or choose fixed 6 or 12 station models
- Will easily accommodate Hunter's Solar Sync® without additional wiring.
- Lighting programs built in for upgrade to landscape lighting
- The Quick Check feature makes field wiring issues easy to assess with the push of a button. Quick Check displays an ERR message when a field wiring short is detected on a particular station number. Solar-Sync delay feature for a delay up to 99 days

Specifications

Independent programs: 3
Start times per program: 4
Max. station run time: 6 hours

Model	Description
PC-4	4-station base modular controller outdoor
PC-4i	4-station base modular controller indoor
PCC-6	6-station controller outdoor
PCC-6i	6-station controller outdoor
PCC-12	12-station controller outdoor
PCC-12i	12-station controller indoor
PCM-300	3-station plug-in module
PCM-900	9-station plug-in module

(Use to increase from 7 to 16 stations only).

By adding a Solar Sync™ to your Hunter controller, it transforms into a smart controller using local weather conditions to tailor watering schedules to actual conditions on the site. A Hunter controller with Solar Sync has been independently proven to have a detailed list of water saving features and has been approved by the EPA as a WaterSense Smart Watering Controller.

X-CORE RESIDENTIAL CONTROLLER

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

- Easy dial programming makes the XC easy to operate
- Easy on-screen adjustment alters the amount of watering to accommodate changing weather conditions
- Three independent programs with four start times. Each accommodates a wide range of watering requirements
- Non-volatile memory retains current time, day and program data
- Choice of independent day scheduling for maximum watering flexibility (select days of the week, true odd/even or interval watering)
- Weather sensor compatible
- Replaceable lithium battery (included)

Specifications:

Start times: Four per day, per program for up to 12 daily starts
Station run time: 0 minutes to 4 hours in 1-minute increments
Program schedule: Seven-day calendar true odd/even programming with 365-day calendar clock or interval watering (up to 31 days)

Model	Description
XC-200i	2-station indoor controller
XC-400	4-station outdoor controller
XC-400i	4-station indoor controller
XC-600	6-station outdoor controller
XC-600i	6-station indoor controller
XC-800	8-station outdoor controller
XC-800i	8-station indoor controller

ICC

Eight stations, expandable up to 48 stations (outdoor).

Superior flexibility, ease of use and outstanding water management.

- Versatile modular design provides easy addition of more stations and simplified inventory management
- Four fully-independent programs each with separate day cycles and eight start times
- Independent day schedule options for each program — select days of the week, true odd/even days, skip days up to 31 days
- Cycle and Soak capability by station
- Programmable pump circuit by station to accommodate dual-water sources
- Supplied with connection for SRR and ICR remote controls

Electrical Specifications:

Transformer input: 120/240 VAC, 50/60 Hz
Station output: 24 VAC, 0.56 amps
Transformer output: 24 VAC, 1.5 amps
ICC metal controller: ICC Plastic Pedestal Controller
Metal cabinet: 16" H X 12 1/4" W X 4 3/4" D
Metal pedestal: 30" H X 11 3/8" W X 4" D
Plastic pedestal: 38 3/16" H X 20 1/2" W X 15 1/8" D

Hunter

I-CORE

Designed specifically for demanding commercial and high-end residential applications.

- Modular controller expandable from 6 stations to 30 stations (plastic cabinet) and 42 stations (metal cabinet) with 6-station ICM modules
- Unique module design allows servicing of module without removing field wires from the controller
- Large, easy to read, backlit graphics display
- Removable front panel for remote programming
- Seasonal Adjustment by Program (globally, monthly, or daily by Solar Sync)
- Seasonal adjustment: 0% to 300%
- 4 independent programs (A, B, C, & D)
- Multi-language capability, programmable in six different languages
- Diagnostic Dashboard™ continually monitors and displays system operation for flow, station and sensor status
- Automatic short circuit detection, skips shorted stations and continues watering, no fuses to replace

Product Code	Description
IC-600PL	6-station outdoor controller,expandable to 30 stations, plastic cabinet
IC-600M	6-station outdoor controller, expandable to 42 stations, powder coated metal cabinet.
ICM-600	6-station module for use with all I-Core controllers
IC-600PP	6-station outdoor controller, expandable to 42 stations, with plastic pedestal
ACC-PED	Metal pedestal for ACC and I-Core controllers

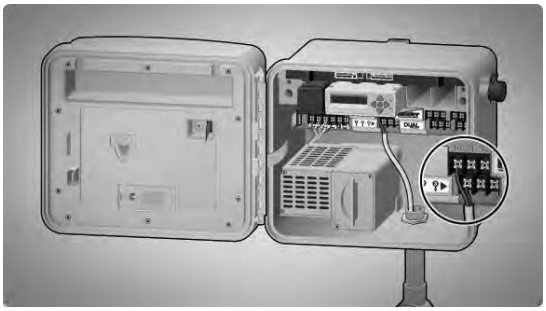
Metal Cabinet		
Desired Station Configuration	Order Base Unit	Plus Number of Modules Specify as:
6 Zone	one IC-600-M	no module needed IC-601-M
12 Zone	one IC-600-M	one ICM-600 IC-1201-M
18 Zone	one IC-600-M	two ICM-600 IC-1801-M
24 Zone	one IC-600-M	three ICM-600 IC-2401-M
30 Zone	one IC-600-M	four ICM-600 IC-3001-M
36 Zone	one IC-600-M	five ICM-600 IC-3601-M
42 Zone	one IC-600-M	six ICM-600 IC-4201-M

Plastic Cabinet		
Desired Station Configuration	Order Base Unit	Plus Number of Modules Specify as:
6 Zone	one IC-600-PL	no module needed IC-601-PL
12 Zone	one IC-600-PL	one ICM-600 IC-1201-PL
18 Zone	one IC-600-PL	two ICM-600 IC-1801-PL
24 Zone	one IC-600-PL	three ICM-600 IC-2401-PL
30 Zone	one IC-600-PL	four ICM-600 IC-3001-PL

DUAL FOR I-CORE

Use Dual to Convert the I-Core to a Two-Wire Controller

- Designed to bring the convenience and efficiency of two-wire technology to all, the DUAL system can operate up to 48 zones via a single pair of wires, at distances up to 7,500 feet
- Decoder station sizes available: 1, 2
- Field programmable decoders (no serial numbers to enter)
- Number of 2-wire paths:



Model	Description
DUAL48M	DUAL decoder output module. Plug-in module converts any I-CORE controller to 2-wire decoder system (up to 48 stations maximum)
DUAL-1	DUAL 1-station decoder (includes 2 DBRY-6 connectors)
DUAL-2	DUAL 2-station decoder (includes 2 DBRY-6 connectors)
DUAL-3	DUAL surge arrestor (includes 4 DBRY-6 connectors)

ID WIRE MODEL GUIDE

14 AWG standard decoder cable		12 AWG long range, heavy duty decoder cable	
ID1GRY	Gray jacket	ID2GRY	Gray jacket
ID1PUR	Purple Jacket	ID2PUR	Purple Jacket
ID1YLW	Yellow Jacket	ID2YLW	Yellow Jacket
ID1ORG	Orange Jacket	ID2ORG	Orange Jacket
ID1BLU	Blue Jacket	ID2BLU	Blue Jacket
ID1TAN	Tan Jacket	ID2TAN	Tan Jacket

Hunter®

ACC CONTROLLER

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

- Real-time flow monitoring in stand-alone mode, learns flow by station and automatically responds to incorrect flow
- Stations expand with plug-in modules, providing easy addition of more stations and simplified inventory management
- Easy modular upgrade to 2-way communication with central control
- Six fully-independent programs (plus four custom programs)
- Maximum scheduling choices (select days of the week, true odd/even days, skip days up to 31 days)
- Cycle and Soak capability by station allows run times to be divided into repeat cycles to minimize runoff
- Remote control ready
- Watering Window Manager™ allows user to define hours when no watering is allowed; will override any user-set programs that enter that time frame
- Multiple sensor capability accommodates devices for weather and flow to provide automatic system shutoff in abnormal conditions HUNTER ICD-HP PROGRAMMER

Model	Description
ACC-1200	12-Station base unit controller, expands to 42 stations, metal cabinet
ACC-1200-SS	12-Station base unit controller, expands to 42 stations, stainless wall mount
ACC-1200-PP	12-Station base unit controller, expands to 42 stations, plastic pedestal
ACM-600	6-Station plug-in module for use with the ACC-1200 series controllers
AGM-600	6-Station plug-in module for use with the ACC-1200 series controllers (extreme service lightning protection version)

ICD-HP PROGRAMMER

The indispensable field tool for the decoder professional.

- Set and re-write decoder station numbers — Change any station number in the field, without disconnecting decoders
- Assign station numbers in any order (multi-station decoders) — No need to program sequentially — even skip station outputs for future expansion
- Turn stations on/off at the valve box — Activate valves, view current draw, check solenoid status
- Sensor tester — Check Hunter Clik and Flow Sensor inputs and outputs
- Multimeter functions — Check line voltage and other key readings in the field

ACC DECODER

- The 2-wire decoder version of Hunter's most powerful controller for command of large and sophisticated sites
- Real-time flow monitoring in standalone mode learns flow by station and automatically responds to incorrect flow
- Simple 2-wire decoder installation
- Up to 99 stations plus the ability to have remote sensors
- Up to six 2-wire paths of up to 15,000 ft./4.5 km each for economical wiring for the largest systems
- Diagnostic output LEDs and electrical current displays station activity and line status at a glance
- Field programmable decoders with built-in surge protection
- Easy modular upgrade to 2-way communication with central control
- Run pumps and master valves via conventional or decoder outputs

Product Code	Description
ACC-99D	2-Wire Decoder Controller with 99 station capacity, wall mount metal cabinet
ICD-100	Single-station decoder with surge suppression and ground wire
ICD-200	2-Station decoder with surge suppression and ground wire
ICD-400	4-Station decoder with surge suppression and ground wire
ICD-600	6-Station decoder with surge suppression and ground wire

Electrical Specifications:

Transformer input: 120/230 VAC, 50/60 Hz, 2A max at 120V, 1A max at 230V
Transformer output: 24 VAC, 4A, at 120 VAC
Decoder line (path) output: 34V peak-to-peak
Decoder power draw: 40 mA per active output
Solenoid capacity: Two standard 24 VAC Hunter solenoids per output within 100 ft./33 m runs, up to 14 solenoids max simultaneous (includes dual P/MV outputs)
Wiring, decoder to solenoid: Standard pair 18 awg/1 mm to 100 ft./33 m (twisted improves surge resistance)

ACC-99D DECODER

Two-wire decoder system for ACC.

- Control up to 99 stations
- Two-wire technology saves copper wire, simplifies troubleshooting, permits rapid addition of new stations, minimizes trenching, and permits remote sensor monitoring over the two-wire path.

Specifications:

Max. distance to decoder

(14 AWG) wire path: 10,000 ft

(12 AWG) wire path: 15,000 ft

Wiring, Decoder to solenoid: 150 ft. max

6 two-wire output paths to field decoders

Model	Description
ACC-99D	2-Wire decoder controller with 99 station capacity, metal cabinet
ACC-99D-SS	2-Wire decoder controller with 99 station capacity, stainless wall mount
ACC-99D-PP	2-Wire decoder controller with 99 station capacity, plastic pedestal

Decoder Model	Description
ICD-100	Single-station decoder with surge suppression and ground wire
ICD-200	2-station decoder with surge suppression and ground wire
ICD-400	4-station decoder with surge suppression and ground wire
ICD-600	6-station decoder with surge suppression and ground wire
ICD-SEN	2-input sensor decoder with surge suppression and ground wire

ID WIRE MODEL GUIDE

14 AWG standard decoder cable		12 AWG long range, heavy duty decoder cable	
ID1GRY	Gray jacket	ID2GRY	Gray jacket
ID1PUR	Purple Jacket	ID2PUR	Purple Jacket
ID1YLW	Yellow Jacket	ID2YLW	Yellow Jacket
ID1ORG	Orange Jacket	ID2ORG	Orange Jacket
ID1BLU	Blue Jacket	ID2BLU	Blue Jacket
ID1TAN	Tan Jacket	ID2TAN	Tan Jacket

HUNTER REMOTES

ROAM REMOTE

Roam wire-free for simple remote operation.

- Remote operation of any station or program from up to 1,000' away
- 128 different programmable addresses so you can use multiple ROAM remotes in the same neighborhood
- Modify the run time without changing the regular program
- Operates on four AAA batteries (included) for up to one year of operation
- Automatic shutoff extends battery life
- Compatible with most Hunter controllers

ROAM XL

Long range remote for commercial projects.

- For large-scale sites such as shopping centers, industrial complexes, college campuses, and multi-unit housing complexes.
- Up to 2 mile range for remote manual operation of Hunter irrigation systems
- Designed to work with Hunter X-Core, Pro-C, PCC, I-Core and ACC controllers through a SmartPort® connection
- 128 different programmable addresses
- Display shows remaining battery life
- Maximum stations supported: 240

Product Code	Description
ROAMKIT	Transmitter and Receiver (SmartPort® Connector included)
ROAMTR	Replacement Transmitter
ROAMR	Replacement Receiver

RAIN BIRD

STPI SERIES

Rain Bird's Simple-to-Program (STPi) Controllers are the easiest controllers in the irrigation industry to program and operate.

- Independent zone control gives you the flexibility to easily accommodate the diverse watering needs of each zone
- The STPi controller allows you to use multiple start times per day on an individual zone basis, helping you maintain a healthier lawn and garden
- The Adjust Water feature enables you to easily increase or decrease the irrigation schedule as needed
- In the event of a prolonged rain, you can easily suspend the irrigation schedule up to 72 hours using the controller's Rain Delay feature
- The Water Now feature allows you to simply apply additional water to irrigate a zone without impacting that zone's previously set schedule
- To help manage water restrictions, the controller can be set up to only water on specific days of the week or "odd or even" days
- The current date and time, as well as the irrigation schedule are saved in the event of a power outage due to the controller's non-volatile memory

Product Code	Description
STP-400i	4 zone indoor
STP-600i	6 zone indoor
STP-900i	9 zone indoor

ESP MODULAR SERIES

4, 6, 8 stations (indoor/outdoor)

Designed for residential and light commercial landscapes where flexibility to adapt to growing landscaping needs is key.

- Easily upgrades from a four-station base model to 13 stations with the addition of 3-station modules
- Hot-swappable modules can be installed while the controller is in operation and in any position
- 365-day calendar with leap year intelligence
- Four irrigation cycle modes for maximum flexibility and compliance to all major watering restrictions
- Non-volatile memory maintains the irrigation schedule indefinitely during a power outage
- Global season adjust (0% to 200%) allows the user to alter the run time of all the valves in every program with the push of a button
- Remote ready connector enables the controller to be used with Rain Bird's RM1 and RMX1 multi-function remote control systems

Operating Specifications:

Number of programs: Three independent
Automatic starts: Four per program, 12 total
Station timing: 0 to 4 hours for all stations

Electrical Specifications:

Input required: 120 VAC ± 20%, 60Hz / 230 VAC ± 20%, 50Hz / 240 VAC
± 20%, 50Hz
Output: 25.5 VAC, 1 amp
Multi-valve station capacity: Up to two 24 VAC, 7 VA solenoid valves per station plus a master valve

Product Code	Description
ESP4Mi	4-Station controller, indoor model
ESP4M	4-Station controller, outdoor model
ESP-SM3	3-Station Module

ESP LX MODULAR CONTROLLER

Smart Features. Smart Cartridges. Smart Choice.

- Configurable up to 32 stations
- Cycle+Soak™
- Programmable valve delay
- Sensor override by station
- Master valve by station
- Calendar day off
- Total program and valve run times
- Automatic Seasonal Adjust, which lets you program water adjustments by month for the entire year, and it makes the changes automatically

Product Code	Description
ESPLXMI	ESP-LX Modular Controller, 8-Station Indoor, 120 VAC
ESPLXM	ESP-LX Modular Controller, 8-Station Outdoor, 120 VAC
ESPLXMSM4	Additional 4-Station Module
ESPLXMSM8	Additional 8-Station Module

RAIN BIRD

ESP-MC SERIES CONTROLLERS

8, 12, 16, 24, 28, 32, 36, 40 stations

Advanced water-management tool in an easy-to-use package.

- 12-hour watering duration for any or all stations to aid in drip compatibility
- Four independent programs, with eight start times each, allow mixed irrigation applications in a single controller
- All programs can overlap to maximize hydraulic efficiency and minimize watering time
- Upgradeable to Maxicom2® satellite
- Programmable rain delay enables system to stay off for up to 99 days with auto-restart
- Water budget by program provides adjustments from 0% to 300% in 1% increments (up to a maximum run time of 16 hours)
- Rain Bird's exclusive Cycle+Soak™ by station allows the total station run time to be split into usable cycles, minimizing puddling and runoff

Operating Specifications:

Number of programs: Four independent programs with eight start times each
Automatic starts: 32 starts total, eight per program per day
Station timing: A, B, C, D — 0 to 2 hours in 1-minute increments; 2 to 12 hours in 10-minute increments
Rain delay: Programmable 1 to 99 days

Electrical Specifications:

Input required: 117 VAC ± 10%, 60 Hz
Output: 26.5 VAC, 2.5 amps
Multi-valve station capacity: Up to two 24 VAC, 7 VA solenoid valves per station plus a master valve or pump start relay

Product Code	Description
ESP8MC	8 Stations
ESP12MC	12 Stations
ESP16MC	16 Stations
ESP24MC	24 Stations
ESP28MC	28 Stations
ESP32MC	32 Stations
ESP36MC	36 Stations
ESP40MC	40 Stations

ESP-RZX SERIES CONTROLLERS

4, 6 or 8 Zone Contractor-Grade controller for residential use

- Zone based scheduling, allows for independent schedules assigned to each zone. (Run times, Start Times and Watering Days are customizable by zone)
- Contractor Rapid Programming™ automatically copies the Start Times and Watering Days from zone 1 to all remaining zones at initial set up
- 6 independent Start Times per zone
- 4 Watering Days options by zone: Custom days of week, ODD calendar days, EVEN calendar days, Cyclic (every 1 – 14 days)
- Manually water ALL or SINGLE zone on demand

Operating Specifications:

Station timing: 0 to 199 min
Seasonal Adjust; -90% to +100%
Independent schedule per zone
6 Start Times per zone
Program Day Cycles include Custom days of the week, Odd, Even, & Cyclical dates

Model	Description
RZX4i	Indoor 4 Station ESP-RZX
RZX6i	Indoor 6 Station ESP-RZX
RZX8i	Indoor 8 Station ESP-RZX
RZX4	Outdoor 4 Station ESP-RZX
RZX6	Outdoor 6 Station ESP-RZX
RZX8	Outdoor 8 Station ESP-RZX

RAIN BIRD

ESP-ME SERIES CONTROLLERS

4-22 Station Modular Indoor or Outdoor Controller

- Extra Simple Programming makes it easy for your crew to meet each landscape's unique needs.
- The scalability of the ESP-Me and the choice of installing either 3- or 6-station modules mean more flexibility and a competitive edge.
- ESP-Me offers One-Touch Watering, giving you an easy way to turn the system on.
- Industry's largest LCD screen
- Contractor Default™ allows you to easily restore original programming in just two steps. Rain Bird® ESP-Me Series Controllers

Model	Description
ESP4MEI	4 station indoor model
ESP4ME	4 station outdoor model
ESPSM3	3 station module
ESPSM6	6 station module

ESP-LXME CONTROLLER

The ESP-LXME Enhanced Controller offers flow sensing and management with modular station capacity from 8 to 48 stations.

- Ideal for a wide variety of applications including light-commercial, commercial, and industrial irrigation systems.
- A large easy-to-read display plus quick-programming features such as Rain Bird's exclusive Program Review that shows more station settings at once so you can confirm your program faster.
- Configurable up to 48 stations
- Flexible programming options, including Cycle+Soak™, programmable valve delay, sensor override by station, master valve by station, calendar day off, and total program and valve run times
- Dynamic station numbering eliminates station numbering gaps
- Weather Sensor input with override switch
- 6 user-selectable languages

ESP-LXMEF

Features a standard Flow Smart Module™ for flow learning, logging and problem reaction. Flo-Watch™ protection monitors high and low flow conditions with user-defined reactions.

Operating Features:

Station timing: 0 min to 12 hrs
Seasonal Adjust: 0% to 300% (16 hrs maximum station run time)
4 independent programs (ABCD)
ABCD programs can overlap
8 start times per program
Program Day Cycles include Custom days of the week, Odd, Odd31, Even, and Cyclical dates
Manual station, program, test program

Model	Description
ESP8LXME	8-Station Controller, 120VAC
ESP12LXME	12-Station Controller, 120VAC
ESP8LXMEF	8-Station Controller with Flow Smart Module, 120VAC
ESP12LXMEF	12-Station Controller with Flow Smart Module, 120VAC
FSMLXME	Flow Smart Module for ESPLXME Controller
ESPLXMSM4	4-Station Module for ESP-LXME Controller
ESPLXMSM8	8-Station Module for ESP-LXME Controller
ESPLXMSM12	12-Station Module for ESP-LXME Controller
ESPLXMEFP	ESPLXME Controller Front Panel Only
LXMM	Metal Wall Mount Enclosure for ESP-LX Series Controllers
LXMMPED	Metal Pedestal for ESP-LX Series Controllers

RAIN BIRD

ESP-LXD DECODER CONTROLLER

The ESP-LXD controller has been designed to maintain the look, feel and ease of programming of the ESP-Series controllers, while offering a 2-wire path for decoder-based irrigation.

- Can manage up to 50 stations and is easily expandable to up to 200 stations
- From Cycle+Soak™ to Contractor Default Program™, the ESP-LXD offers innovative features proven to cut installation expenses, troubleshooting time and water use.
- A modular design makes the ESP-LXD the perfect fit for a range of large residential and commercial projects—from the straightforward to the most complex.
- FloManager® ensures you don't overtax your water supply, while Flo-Watch™ quickly identifies and isolates high or low flow situations, such as mainline breaks.
- Rain Bird® Field Decoders provide easy, cost-effective installation and expansion for the ESP-LXD Decoder Controller.

Operating Features:

Station timing: 0 min to 12 hrs
Seasonal Adjust: 0% to 300% (16 hrs maximum station run time)
4 independent programs (ABCD)
ABCD programs can overlap
8 start times per program
Program Day Cycles include Custom days of the week, Odd, Odd31, Even, and Cyclical dates
Manual station, program, test program

Model	Description
ESP-LXD	Outdoor controller
ESPLXD-SM75	75-station module

Irritrol SYSTEMS

RAIN DIAL-R SERIES

6, 9, and 12 stations
Residential, Commercial Outdoor/Indoor

- Climate Logic® ready
- Remote control ready
- RainSensor™ ready
- Three independent programs
- Water budgeting
- 365-day calendar for odd/even date watering
- Water well recovery (delay between stations)
- Master valve/pump start circuit assignable per station
- Test all stations program

Model	Number of Stations	Outdoor/Indoor
RD600-EXT-R	6	outdoor
RD900-EXT-R	9	outdoor
RD1200-EXT-R	12	outdoor
RD600-INT-R	6	indoor
RD900-INT-R	9	indoor
RD1200-INT-R	12	indoor
RD6-MOD-R	6-station Module assembly	
RD9-MOD-R	9-station Module assembly	
RD12-MOD-R	12-station Module assembly	

TOTAL CONTROL® - R

6, 9, 12, 15, 18, 24, 36 & 48 Stations
Residential, Light Commercial, Commercial
Outdoor/Indoor

- Climate Logic® compatible
- New "R" models are remote-ready
- Four independent programs offer concurrent operation capability
- Seven-day calendar, odd/even day or day-interval options
- Programmable master valve On/Off per program
- Non-volatile memory
- `Snap-out design

Model	Number of Stations	Outdoor/Indoor
TC-6EX-R	6	outdoor
TC-9EX-R	9	outdoor
TC-12EX-R	12	outdoor
TC-15EX-R	15	outdoor
TC-18EX-R	18	outdoor
TC-24EX-R	24	outdoor
TC-36EX-R	36	outdoor (metal cabinet)
TC-48EX-R	48	outdoor (metal cabinet)
TC-6IN-R	6	indoor
TC-9IN-R	9	indoor
TC-12IN-R	12	indoor
TC-6MOD-R	6	Module assemble, 6-Station
TC-12MOD-R	12	Module assemble, 12-Station
TC-15MOD-R	15	Module assemble, 15-Station
TC-18MOD-R	18	Module assemble, 18-Station

MC-E (BLUE) SERIES

4, 6, 8, 12, 18, 24, 30, 36, 42 and 48 Stations
Residential and Commercial
Outdoor/indoor

- Climate Logic® compatible
- Flow monitoring with diagnostics and 3 types of alarms
- Models with station counts from 4 up to 48
- Eight independent programs
- Commercial-grade, heavy-duty, lockable, weather resistant cabinets and pedestals
- Large, 32-character, backlit display with programming prompts
- Backward compatible face panel to existing MC Plus-B cabinets on site

Model	Number of Stations	Outdoor/Indoor
MC-4E	4	P-2B
MC-6E	6	P-2B
MC-8E	8	P-2B
MC-12E	12	P-2B
MC-18E	18	P-6B
MC-24E	24	P-6B
MC-30E	30	P-6B
MC-36E	36	P-6B
MC-42E	42	P-6B
MC-48E	48	P-6B

RKD DECODER CONTROLLER

Stand-alone, decoder-based, 2-wire controller supporting from 1 to 100 Stations

- Can operate up to 12 Stations simultaneously and run 10 programs concurrently
- Uses the RKLD-050 programmable line decoder, which can be addressed and tested at the controller
- Mist Manager — Valve operations controllable in 1-second increments
- FloStack™ — Program stacking based on flow for up to 10 simultaneous programs
- RealNet — Real-time, Internet-based water management via GPRS wireless
- Intelliset — Smart irrigation using a host of ET-based capabilities

Operating Features:

Programs: 10 + 1 test program
Concurrent Programs: 10
Start times: 12 per program
Calendar: 14 days or Odd/Even
Station Run Times: 0 to 999 minutes: 1-second increments (< 4 minutes); 1 minute increments (4 to 999 minutes)
Water Budget: 0% to 250% in 1% increments

Electrical Specifications:

Electrical: Input: 120 VAC, Output: 24 VAC
Maximum Stations: 100
Maximum Active Valves: 12
Master Valves: 1
Booster Pumps: 2 (1 per program)

Add-Ons:

RKLD-050 — Line Decoder
The decoder receives power and control signals via the 2-wire path.

Product Code
RKD

RKS CONTROLLER

A conventional controller perfect for projects that require retrofitting existing systems.

- Designed to convert conventional systems to Tucor's innovative Total-Cycle Management system
- Supports from 1 to 100 valves, operates up to 12 stations simultaneously
- Can run 10 programs concurrently
- Unique Add-a-Zone program allows you to add stations one at a time as your system grows
- Available in 25-station modules

Product Code
RKD

TMC 212 SERIES CONTROLLER

Modular controller can expand to 12 stations, making it a fit for a variety of residential applications.

- 2 to 12 stations, expandable with two-station modules (base model comes with four stations)
- Three fully independent programs with four start times per program
- Hot-swappable station modules
- Automatic short detection for circuit protection and faster troubleshooting

Specifications:

Number of Stations: 2 to 12
Number of Programs: 3
Number of Start Times: 4 per program
Run Time: 4 hours
Programming Options: Days of the Week; Odd/Even; Interval
Valves: 2

Product Code	Description
TMC-212-ID	4-Station controller, indoor
TMC-212-OD	4-Station controller, outdoor
MOD02	2-Station expansion module

424E SERIES

Combines sophisticated features with simple operation to provide a customizable controller.

- Station count modularity from four to 24 stations using 4- and 8-station modules for flexibility
- Standard or High Surge modules provide options to meet regional lightning protection needs
- Monitor and react to system leaks or breaks
- Options for connection of up to four Master Valve or Pump Start Relays utilizing TSM-4F and TSM-8F modules
- Ability to set run times for less than a minute provides efficient watering for planter box, misting cycle, nursery, or syringe cycle needs
- Removable timing mechanism can be powered by 9V battery allowing for easy and comfortable programming
- Compatible with TMR-1 Maintenance Remote

Specifications:

Number of Stations: 4 to 24
Number of Programs: 4
Number of Start Times: 16
Run Time: 8 hours
Programming Options: Days of the Week; Odd/Even; Interval
Valves: 2

Product Code	Description
TMC-424-ID	4- to 24-Stations, Enhanced, Indoor
TMC-424-OD	4- to 24-Stations, Enhanced, Outdoor
TSM-4	4-Station, Standard-Surge
TSM-4H	4-Station, High-Surge
TSM-4F	4-Station, High-Surge and Flow-Sensing
TSM-8	8-Station, Standard-Surge
TSM-8H	8-Station, High-Surge
TSM-8F	8-Station, High-Surge and Flow-Sensing

MAINTENANCE REMOTE

This powerful tool enables a single operator to perform irrigation checks and operate the system up to 1.5 miles away.

- 999 programmable receiver addresses enable true multi-controller/multi-site compatibility
- Quick Connect System allows receiver to easily be moved from one controller to another
- Controller compatibility: Toro TMC-212, TMC-424 and GreenKeeper® 212, Irritrol KwikDial® and RainDial® Plus

TMR-1-KIT	Complete kit: transmitter, receiver, circular connector/cable assembly, carrying case
TMR-1-TX	Hand-held transmitter
TMR-1-RX	Receiver, circular connector assembly
TMR-1-CC	Circular Connector

Product Code	Description
TMR1KIT–KIT	Complete Kit: Transmitter, Receiver, Circular Connector/Cable Assembly, Wall Charger, Batteries, Carrying Case

EZ REMOTE

Offer convenient remote capability through the optional EZ-Remote hand-held available for easy installation and servicing.

- Simple command set
- Accesses controller and satellite features from the field
- System On and Off command activation
- Range: 160'

Product Code	Description
EZR100TORO	Toro EZZ Remote

RAINMASTER CONTROLLERS

RME SENTAR II

6, 12, 18, 24, 30, 36 stations

Rain Master's "work horse" feature packed controller, targeted for heavy duty commercial, municipal, government, HOA, school and park district applications.

- Flow Sensing allows for total flow control and break detection (requires flow sensor)
- Four (4) completely independent programs with five (5) start times, for a total of 20 possible start times per day.
- Programmable rain shut down allows the selection of the number of days the controller will stay off (in rain shut down mode) before it goes back into the automatic mode.
- A "real time" clock holds the actual time during power outages without batteries. This eliminates the need to reset the clock every time the power goes out.
- Multiple displays provide a truly simple way of programming and information recall

Electrical Specifications:

Input required: 105 VAC to 130 VAC, 50/60 Hz, .5 amps maximum, .1 amps idle

Output: 24 VAC, 1.5 amps maximum total output (36 VA) 1 amp per station or Master Valve

Product Code	Description
RME6SE	Rainmaster RME Sentar II, 6 stations
RME12SE	Rainmaster RME Sentar II, 12 stations
RME18SE	Rainmaster RME Sentar II, 18 stations
RME24SE	Rainmaster RME Sentar II, 24 stations
RME30SE	Rainmaster RME Sentar II, 30 stations
RME46SE	Rainmaster RME Sentar II, 36 stations

Hunter®

SOLAR SYNC™

The Solar Sync ET sensor is an advanced weather sensor that calculates evapotranspiration (ET) and adjusts Hunter controllers daily based on local weather conditions

Model	Description
SOLAR-SYNC	Solar Sync kit for use with PCC and Pro-C controllers. Includes Solar Sync Sensor and module
SOLAR-SYNC-SEN	Solar Sync for use with ACC and X-Core controllers. Includes Solar Sync Sensor only (module not needed for X-Core, I-Core and ACC controllers)
WSS	Wireless Solar Sync for use with PCC and Pro-C controllers. Includes Wireless Solar Sync Sensor, Wireless Receiver, and module
WSS-SEN	Wireless Solar Sync for use with ACC and X-Core controllers. Includes Wireless Solar Sync Sensor and wireless receiver. (Module not required for X-Core, I-Core and ACC controllers)

ET SYSTEM

Advanced ET Weather Control For for Pro-C family controllers. Using highly advanced technology, the Hunter ET System measures key climatic conditions to calculate local evapotranspiration (ET) factors.

Model	Description
ET-SYSTEM	ET Sensor and module for use with PCC and Pro-C controllers
ET-WIND	Optional anemometer add-on to ET Sensor to gather wind speed data
ET-SENSOR	Sensor only for use with IMMS-ET installations

MINI-WEATHER STATION

Compact sensor that monitors wind, rain, freezing temperatures, and shuts the irrigation system off as weather conditions require.

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

FLOW-SYNC®

A simple and economical solution for metering and reacting to actual flow conditions. A proven water saver, the Hunter Flow Sync (HFS) connects to the ACC and I-Core controllers to measure actual flow, and provides automatic reaction to high or low flow conditions during irrigation.

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

Hunter®

SOIL-CLIK™

The Soil-Clik probe uses proven technology to measure moisture within the root zone. When the probe senses that the soil has reached its desired moisture level, it will shut down irrigation, preventing water waste.

Model	Description
SOILCLIK	Soil-Clik moisture sensor module and probe

RAIN-CLIK™

With built-in Quick Response technology, the Hunter Rain-Clik and Wireless Rain-Clik can command a controller to shut off right when it starts to rain, rather than waiting for an accumulated amount of rainfall.

Model	Description
RAIN-CLICK	Rain-Clik sensor
RFC	Rain/Freeze-Clik sensor
WR-CLIK	Rain/Freeze-Clik sensor
WRF-CLIK	Wireless rain/Freeze-Clik system

MINI-CLIK®

Hunter's Mini Clik rain sensor provides the simplest, most effective way to prevent sprinklers from running during or after any level of rainfall. The Mini-Clik stops scheduled irrigation when it detects a pre-set level of rain has fallen. Mini-Clik is compatible with all Hunter controllers.

Model	Description
MINI-CLIK	Rain Sensor
MINI-CLIK-NO	Rain Sensor with normally open switch
MINI-CLIK-C	Rain Sensor with conduit mount
MINI-CLIK-HV	Rain Sensor for high voltage application (120/240 VAC)

WIND-CLIK™

The Hunter Wind-Clik saves water and enhances system efficiency by shutting off irrigation during high wind conditions. Works with fountain systems to eliminate overspray in windy conditions.

Model	Description
WIND-CLIK	Wind sensor interrupts/returns irrigation when programmed wind speed is measured

FLOW-CLIK®

The Hunter Wind-Clik saves water and enhances system efficiency by shutting off irrigation during high wind conditions. Works with fountain systems to eliminate overspray in windy conditions.

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

FREEZE-CLIK®

The Hunter Wind-Clik saves water and enhances system efficiency by shutting off irrigation during high wind conditions. Works with fountain systems to eliminate overspray in windy conditions.

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

The Most **Environmentally Responsible** *Control System*

Above and Below—Get the whole picture with the latest advances in water-saving technology. Now, the Pro-C includes a Solar Sync dial position, making it easy to upgrade and program smart control without additional wiring. Use Solar Sync with our new Soil-Clik moisture sensor to measure both climate and soil conditions. Solar Sync uses ET to adjust application amounts when irrigation is needed. Soil-Clik prevents watering when soil moisture levels have been reached. Together they're the ultimate environmentally responsive solution.

The Pro-C and all AC powered Hunter controllers are now EPA WaterSense labeled when paired with the Solar Sync weather sensor.

RESIDENTIAL & COMMERCIAL IRRIGATION | *Built on Innovation®*
Learn more. Visit hunterindustries.com

Hunter®

Denotes Smart Water products

Irritrol SYSTEMS

IRRITROL RAIN SENSOR SERIES

Rain and Freeze Sensors.

Residential, Light Commercial, Commercial.

- Constant communication between transmitter & receiver
- Versatile mounting options
- Signal strength indicator
- SMART BYPASS™ for easy system override
- Patented wireless technology Irritrol Rain Sensor Series

Product Code	Description	Wireless
RS1000	Wireless Rain Sensor	Yes
RFS1000	Wireless Rain/Freeze Sensor	Yes
RS500	Rain Sensor	No

IRRITROL CLIMATE LOGIC®

For simple, water saving, weather-following, automatic irrigation control.

- Built-in radios
- Temperature sensor for monitoring air temp
- Rain sensor
- Solar sensor
- Receiver module
- Optional remote control

Model	Description
CL-100-Wireless	Wireless weather sensor and module
CL-W1	Wireless weather sensor
CL-M1	Wireless receiver module
CL-R1	Remote control (transmitter only)
CL-MR	Mini-receiver (receiver only)
R-100-KIT	Mini remote kit (transmitter & receiver

RAIN BIRD

RAIN BIRD® RSD SERIES RAIN SENSOR

Dial into the Convenience and Value.

- Automatic rain shutoff prevents overwatering due to natural precipitation
- Robust, reliable design reduces service call backs
- Moisture sensing disks work in a variety of climates
- Different sensor mounts permit speed and flexibility on the job site Rain Bird® RSD Series Rain Sensor

RSD-CEX

Rain sensor with threaded adapter, extension wire

Product Code	Description
RSD-BEx	Rain sensor w/latching bracket, extension wire

RAIN BIRD

RAIN BIRD® SMRT-Y SOIL MOISTURE SENSOR KIT

Turns any controller into a smart controller.

- The sensor takes soil moisture readings every 10 minutes
- When the sensor detects dry conditions prior to the normal watering cycle, that cycle is allowed
- When the soil moisture is above the set threshold, the watering cycle is suspended to avoid wasting water
- Advanced Time Domain Transmissometry (TDT) digital sensor enables highly accurate readings that are independent of soil temperature and electrical conductivity (EC)

Product Code	Description
SMRT-Y	Complete Kit Includes: • Controller User Interface • In-Ground Soil Moisture Sensor • Anodized, rust-proof screws, 1.5" (two per package) • Wire nuts — 5 blue, 2 gray, 1 yellow • Multilingual instruction manual, "Quick Start" Guide and sticker that reads: "This controller is connected to a Rain Bird Soil Moisture Sensor

RAIN BIRD WR2 RAIN FREEZE SENSOR

Saving water and so much more.

- LCD Screen
- Signal strength indicators on sensor and LCD screen
- Versatile mounting bracket
- Pair one sensor with up to four controller interfaces
- Six rainfall set points on controller interface
- Quick Shut-Off
- Three adjustable low temperature points
- Dual built-in antennas

Product Code	Description
WR2-RC	Rain Combo
WR2-RFC	Rain/Freeze Combo
WR2-RS	Rain Sensor Only
WR2-RFS	Rain/Freeze Sensor Only
WR2-RFI	Rain/Freeze Controller Interface Only

TORO

TORO PRECISION™ SOIL SYSTEM

- Works with most irrigation controllers to prevent overwatering
- Wireless communication up to 500' (152m) line-of-sight
- The sensor will automatically detect the soil type and adjust all calculations accordingly.

TORO RAIN SENSORS

- Wired or wireless options
- Smart Bypass™ allows for system override at any time and resets automatically.

Model	Description
TRS	Wired model
TWRS	Wireless model
TWRFS	Wireless rain/freeze

BATTERY OPERATED AND SOLAR CONTROLLERS

Hunter

HUNTER NODE CONTROLLER

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

- Battery powered (9 volt battery)
- Compatible with solar panel kit
- Number of stations: 1, 2, 4, 6
- Enclosure: Outdoor
- Independent programs: 3
- Start times per program: 4
- Max. station run time: 6 hrs
- Master Valve operation (available in 2, 4, 6 station models)
- Programmable Off

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

OPTIONS:

458200	DC latching solenoid
SPNODE	Solar Panel kit for Node

XC HYBRID WITH SOLAR PANEL OPTION

Battery-Powered Controller Delivers the Power Without The Plug

- Easy dial programming
- Simple on-screen adjustment modulates watering to accommodate changing weather conditions.
- Three independent programs with four start times each
- Plastic version uses 6 AA batteries, stainless steel uses 6 C batteries

Model	Description
XCH-600	Plastic Indoor/Outdoor Model, 6 Stations
XCH-1200	Plastic Indoor/Outdoor Model, 12 Stations
XCH-600-SS	Stainless Steel Indoor/Outdoor Model, 6 Stations
XCH-1200-SS	Stainless Steel Indoor/Outdoor Model, 6 Stations
NODE-100-VALVE	Stainless Steel Indoor/Outdoor Model, 12 Stations
SPXCH	Optional Solar Panel

RAIN BIRD

RAIN BIRD TBOS-II™ SERIES BATTERY-OPERATED IRRIGATION CONTROLLERS

Commercial Level Control for Battery-Operated Systems

- Ideal for commercial applications, including municipal parks, street and highway landscape projects, and construction projects
- Convenient durable option for providing uninterrupted irrigation while AC-power is not available
- One TBOS II field transmitter programs and unlimited number of TBOS-II and/or TBOS control modules
- New user interface with drop down menu and direct access to main screen for easy navigation

Model	Description
TBOSCM1	1 station control module
TBOSCM2	2 station control module
TBOSCM3	3 station control module
TBOSCM4	4 station control module
TBOSCM6	6 station control module
TBOS2FTUS	Field Transmitter

DIG CORPORATION

DIG LEIT 4000 CONTROLLER

A self-contained, water management irrigation controller that harnesses ambient light (solar) as a power source, helpful in today's sustainable green solutions.

- Operates four, six, or eight stations and a master valve or pump start without AC power hookup, batteries or conventional solar panels (master valve or pump start replaces station eight when required)
- Programming is easy using a self-guiding menu and four durable sealed buttons
- Multi-lingual software (Spanish, Italian, and French)
- Simple to install, easy-access wire connector accommodates standard irrigation wire up to 12 gauge
- Watering durations from 1 minute to 5 hours and 59 minutes

Model	Description
LEIT 4004	Four station plus MV/P
LEIT 4006	Six station plus MV/P
LEIT 4008	Eight station including MV/P

DIG water matters

DIG LEIT-X & LEIT-XRC

The LEIT X Controller and the LEIT XRC Wireless Controller are advanced, ambient light (solar) powered, multi-functional, self-contained water management irrigation controllers that, together with the LEIT Link Remote Control Handset, provide a cost-effective solution for all irrigation applications.

- Environmentally friendly, using light (solar) as a source of energy
- Operates up to 28 stations plus a master valve or pump start
- LEIT XRC has a remote programming and management capability using the LEIT Link remote control handset
- Status Report provides information on active programs or valves, month deactivation, rain stop, remote or local mode and station progress
- History Report allows the user to review the controller operating history for a total watering time of each valve with overall run time total, and manual run time totals.

Model	Description
LEIT X10	10 station plus MV/P
LEIT X12	12 station plus MV/P
LEIT X16	16 station plus MV/P
LEIT X20	20 station plus MV/P
LEIT X24	24 station plus MV/P
LEIT X28	28 station plus MV/P

LEIT XRC SYSTEM CONTROLLER

Model	Description
LEIT XRC04	Wireless weather sensor
LEIT XRC24	Wireless receiver module
LEIT XRC06	Remote control (transmitter only)
LEIT XRC28	Mini-receiver (receiver only)
LEIT XRC08	Mini remote kit (transmitter & receiver
LEIT XRC10	Wireless receiver module
LEIT XRC12	Remote control (transmitter only)
LEIT XRC16	Mini-receiver (receiver only)
LEIT XRC20	Mini remote kit (transmitter & receiver

LINK REMOTE CONTROL HANDSET

Model	Description
LEIT MULTI-PRO™	Up to 99 controllers
LEIT MASTER™	99 controllers with 99 groups

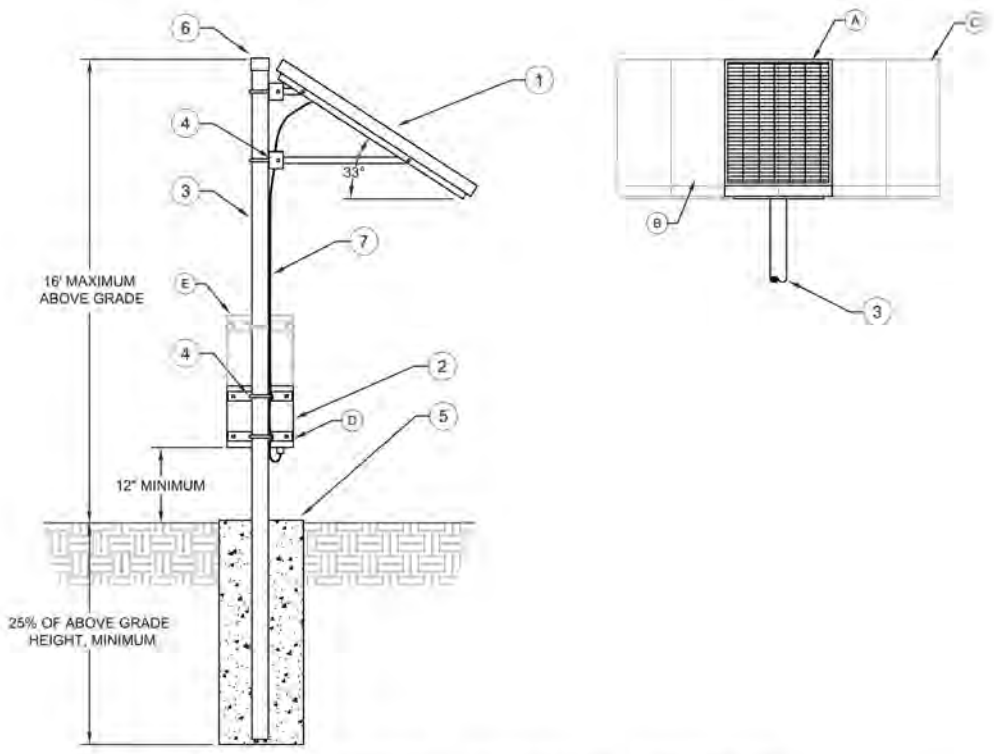
Horizon RainSafe

All solar power installations require onsite evaluation of placement prior to installation. Please contact Horizon for additional specification support.

HORIZON SOLAR SOLUTION

For either new or existing commercial sites, the Horizon Solar Rain Safe is a solar solution which offers a limitless supply of clean, safe and renewable energy. Unlike conventional power, there are no reoccurring power costs and in conjunction with other Horizon Smart Water landscape products, your landscape is that more green.

Horizon Rain Safe Solar Power Supplies:



SOLAR POWER SUPPLY LEGEND

1. SOLAR ARRAY (135 WATT, CUSTOMIZED FOR SITE REQUIREMENTS)
   - A LEVEL 1 AND 2: ONE PANEL
   - B LEVEL 3: TWO PANELS
   - C LEVEL 4: THREE PANELS
2. CONTROL MODULE, CONTAINING BATTERIES, CHARGING EQUIPMENT AND CIRCUIT BREAKERS
   - D LEVEL 1, 2 AND 3: 15"H x 15"W x 16"D
   - E LEVEL 4: 32"H x 15"W x 16"D
3. 3" OR 4" GALVANIZED POLE, SIZED AS REQUIRED BY SITE CONFIGURATION, SUPPLIED BY CONTRACTOR
4. UNI-MOUNT ASSEMBLY (ARRAY: SIDE OF POLE OR TOP OF POLE MOUNT, INTERCHANGABLE BASED ON AVAILABILITY)
5. 3, 0000 PSI MINIMUM CONCRETE FOOTING, 12" x 12" x DEPTH DEPENDANT ON POLE LENGTH, SUPPLIED BY CONTRACTOR
6. CAP ASSEMBLY, SUPPLIED BY CONTRACTOR
7. ¾" FLEX CONDUIT, SUPPLIED BY CONTRACTOR

No. | Revisions | Date

Horizon

HORIZON
SOLAR POWER SUPPLY

LEVEL 1
LEVEL 2
LEVEL 3
LEVEL 4

Designed By:
Drawn By: EdS
Checked By: JH
Date: 7-7-09
Sheet No.
1 of XX

Denotes Smart Water products

RAIN BIRD

DV SERIES/DVF SERIES

3/4", 1"

Economical irrigation valve for residential and light commercial applications.

- Double-filtered pilot-flow design for maximum reliability
- Balanced-pressure diaphragm for long life
- External bleed to manually flush system of dirt and debris during installation and system start-up
- Internal bleed for spray-free manual operation
- Energy-efficient, low-power encapsulated solenoid with captured plunger and 90 mesh solenoid filter
- Operates in low-flow and Xerigation® applications when the RBY filter is installed upstream
- Flow control option offers unique, easy-to-turn, patented pressure assisted flow control mechanism (1" only)

HOW TO SPECIFY: 100 - DV - MB		
Size:	Model:	Options:
075: 3/4" 100: 1"	DV	A — Angle F — Flow control SS — slip X slip

Specifications:

Pressure: 15 psi to 150 psi
Flow: 0.2 GPM to 22 GPM (3/4") and 0.2 GPM to 40 GPM (1")
Power: 24 VAC 50/60 solenoid
Inrush current: 0.30 amps at 60 Hz
Holding current: 0.19 amps at 60 Hz

Product Code	Description
075-DV	3/4" DV Valve
100-DV	1" DV Valve
100-DV-SS	1" DV Valve, slip X slip
100-DV-A	1" DV Valve, angle
100-DV-MB	1" DV Valve, male X barb
100-DVF	1" DVF Valve
100-DVF-SS	1" DVF Valve slip X slip
100-DVF-A	1" DVF Valve, angle
100-DVF-MB	1" DVF Valve, male X barb

PGA SERIES

1", 1 1/2", 2"

Plastic globe/angle valve offers versatility at an affordable price.

- Rugged PVC construction for reliable operation
- One-piece solenoid with captured plunger and spring for easy servicing prevents parts loss in the field
- Non-rising flow control handle adjusts water flow as needed
- Manual internal bleed
- Double filtered pilot flow prevents clogging solenoid ports

Specifications:

Pressure: 15 psi to 150 psi
Flow: 0.2 GPM to 150 GPM
Power: 24 VAC 50/60 solenoid
Inrush current: 0.41 amps at 60 Hz
Holding current: 0.28 amps at 60 Hz

Product Code	Description
100PGA	1" PGA Valve
150PGA	1 1/2" PGA Valve
200PGA	2" PGA Valve

Denotes Smart Water products

Hunter

PGV SERIES

1", 1 1/2", 2"

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

- High grade construction with 150 psi rating
- Flow control with non-rising handle allows for adjustment of flow at each zone
- Internal manual bleed is easy to use and keeps valve box dry
- Globe and angle configurations
- Captive bonnet bolts and solenoid plunger
- 1" model also available with Jar-Top bonnet for easy access to the valve with no tools

Specifications:

Flow: 0.2 GPM to 120 GPM
Pressure: 20 psi to 150 psi
Power: 24 VAC
Inrush current: 0.37 amps
Holding current: 0.19 amps

HOW TO SPECIFY: PGV - 100G - S	
Model:	Options:
100G = 1" globe, no flow control 101G = 1" globe, with flow control 100A = 1" angle, no flow control 101A = 1" angle, with flow control 100JT = 1" globe jar-top, no flow control 101JT = 1" globe jar-top, with flow control 100MB = 1" globe, no flow control, male X barb 100MM = 1" globe, no flow control, male X male 101MM = 1" globe, with flow control, male X male 151 = 1 1/2" globe/angle, with flow control 201 = 2" globe/angle, with flow control	S = slip X slip B = BSP Thread DC = latching solenoid

TORO

TPV/TPVF VALVE

1"

- Flow ranges from 0.1 GPM to 40 GPM
- Rugged, Double-Beaded Santoprene® diaphragm
- Patented DBS Technology™ (Debris Bypass System)
- Encapsulated injection-molded solenoid with a captured plunger
- Optional flow control allows precise zone adjustment and manual shutoff

Specifications:

Flow Range: 0.1 GPM to 40 GPM
Operating Pressure: Electric — 10 psi to 175 psi
Burst pressure safety rating: 1000 psi

HOW TO SPECIFY: TPVX100XXXX			
Description:	Flow Control:	Size:	Body Style:
TPV — TPV Valve	F — With Flow Control	100 — 1"	MM — Male X Male S — Slip MB — Male X Barb Solenoid DC — DCLS-P Latching Solenoid

Irritrol SYSTEMS

2400/2600 SERIES ELECTRIC VALVE

1”

Designed primarily for residential use, deliver reliable performance and convenient operation.

- Rugged, double-beaded Santoprene® diaphragm provides leak-proof seal
- Globe or angle construction
- Manual internal and external bleed (flush mode)
- Encapsulated solenoid and captive hex plunger
- Easily serviced without removal from the system
- Floating bleed tube allows thermal expansion without affecting performance

Specifications:

Flow: 0.25 GPM to 30 GPM
Pressure: 10 psi to 150 psi
Power: 24 VAC
Inrush current: 0.4 amps
Holding current: 0.2 amps

HOW TO SPECIFY: 2400 - S - F		
Model:	Configuration:	Flow Control:
2400 = 1” globe 2400 = 1” angle	S = slip X slip T = NPT threads B = male X barb M = male X male	F = with flow control

2500 SERIES

1”

Built on the 205 series, debris-tolerant valves designed primarily for residential and light commercial use.

- Manual internal and external bleed
- Full stainless steel metering system
- Debris-tolerant, floating metering system design suitable for wells and dirty water applications
- High-flow, low friction-loss design
- High strength ribbed bonnet
- Removable, tamper-resistant flow control handle

Specifications:

Flow: 0.25 GPM to 30 GPM
Pressure: 10 psi to 150 psi
Power: 24 VAC
Inrush current: 0.4 amps
Holding current: 0.2 amps

Product Code	Description
2500S	1” valve slip X slip, no flow control
2500SF	1” valve slip X slip, with flow control
2500T	1” valve NPT thread, no flow control
2500FT	1” valve NPT thread, with flow control

ANTI-SIPHON VALVES

Irritrol SYSTEMS

205 SERIES

1”

Offers debris-tolerant operation and a high-flow, low-friction-loss design for optimum performance in recycled-water applications.

- Optional flow control allows precise flow adjustment and manual shutoff
- Heavy-duty corrosion- and UV-resistant PVC construction
- Encapsulated solenoid and captive hex plunger
- Buna-N valve seat seal
- Manual external bleed

Specifications:

Flow: 2 GPM to 30 GPM
Pressure: 10 psi to 150 psi
Power: 24 VAC
Inrush current: 0.4 amps
Holding current: 0.2 amps

Product Code	Description
205S	1” valve slip X slip, no flow control
205SF	1” valve slip X slip, with flow control
205T	1” valve NPT thread, no flow control
205TF	1” valve NPT thread, with flow control

Weather matic®

1200 SERIES (SILVER BULLET)

1”

- Fail safe “reverse flow” design insures that the valve will remain closed in the event of a diaphragm wall failure and extends diaphragm life
- Excellent for micro-irrigation, valve will operate as low as 1 GPH
- Dual diaphragm ports
- Internal manual bleed lever opens and closes the valve with a flip of the finger
- Heavy-duty glass filled body
- Shock cone incorporated in the diaphragm slows the water during closing to minimize water hammer

Specifications:

Pressure: up to 150 psi
Power: 24 VAC
Inrush: 9.77 VA
Holding: 6.2 VA

Product Code	Description
12024E10-H	1” FIP
12024EF-10-H	1” FIP with flow control
12024EF-15-H	1 1/2” FIP with flow control
12024EF-20-H	2” FIP with flow control

RAIN BIRD

ASVF SERIES

3/4”, 1”

Economical irrigation valve and atmospheric backflow presenter for residential and light commercial applications.

- Combination reliable DVF valve and atmospheric backflow preventer in one unit
- Incorporates all features of DV and DVF Series valves
- I.A.P.M.O. and A.S.S.E. listing approved

Specifications:

Pressure: 15 psi to 150 psi
Flow: 0.2 GPM to 22 GPM (3/4”) and 0.2 GPM to 40 GPM (1”)
Power: 24 VAC 50/60 solenoid
Inrush current: 0.30 amps at 60 Hz
Holding current: 0.19 amps at 60 Hz

Product Code	Description
075ASVF	3/4” anti-siphon valve
100ASVF	1” anti-siphon valve

Hunter®

PGV-ASV ANTI-SIPHON VALVE

3/4” & 1”

- Atmospheric backflow prevention in an economical valve designed for residential and light commercial use
- Heavy-duty Hunter solenoid: Provides dependable operation and long life
- High grade construction: Made of durable PVC and stainless steel to resist wear
- Internal manual bleed: Easy to use and keeps valve area dry
- Standard flow control: Adjust the flow of each zone on a system
- Optional slip configuration: Permits direct solvent connection to PVC pipe
- Rigid diaphragm support: Works to prevent stress failure in tough conditions
- Captive solenoid plunger and anti-siphon poppet: No lost parts during routine service

Specifications:

Flow: 1 GPM to 30 GPM (0.23 to 6.8 m3/hr; 3.8 to 114 l/min)
Pressure: 20 psi to 150 psi

Product Code	Description
205S	1” valve slip X slip, no flow control
205SF	1” valve slip X slip, with flow control
205T	1” valve NPT thread, no flow control
205TF	1” valve NPT thread, with flow control

Irritrol SYSTEMS

2700 SERIES

3/4", 1"

Offer the ultimate in performance, reliability and ease-of-use for a wide variety of residential applications.

- Rugged, double-beaded Santoprene® diaphragm provides leak-proof seal
- Buna-N valve seat seal
- Manual internal and external bleed
- Easily serviced without removal from system
- Electric H-body with atmospheric vacuum breaker

Specifications:

Flow: .25 GPM to 30 GPM
Pressure: 10 psi to 150 psi
Power: 24 VAC
Inrush current: .4 amps
Holding current: .2 amps

Product Code	Description
2711APR	3/4" anti-siphon valve, stainless screws
2713APR	1" anti-siphon valve, stainless screws
2711DPR	3/4" anti-siphon valve, threaded
2713DPR	1" anti-siphon valve, threaded

PLASTIC COMMERCIAL

RAIN BIRD

PEB/PESB SERIES

1", 1 1/2", 2"

Industrial-strength glass-filled nylon globe valves for commercial applications.

- Durable glass-filled nylon construction for long life and reliable performance
- Stainless steel studs molded into the body resist thread damage
- Slow closing to prevent water hammer and subsequent system damage
- One-piece solenoid with captured plunger and spring for easy servicing
- Flow control handle adjusts water flow as needed
- Internal and external bleed
- Plastic scrubber on PESB valve scrapes the stainless steel screen to clean and break down grit and plant material

Specifications:

Pressure: 20 psi to 200 psi
Flow: 0.25 GPM to 200 GPM
Power: 24 VAC, 50/60 Hz solenoid
Inrush current: 0.41 amps at 60 Hz
Holding current: 0.28 amps at 60 Hz

Product Code	Description
100PEB	1" plastic valve
100PESB	1" plastic valve with scrubber
150PEB	1 1/2" plastic valve
150PESB	1 1/2" plastic valve with scrubber
200PEB	2" plastic valve
200PESB	2" plastic valve with scrubber

Hunter

ICV SERIES

1", 1 1/2", 2"

Superior durability and ability to handle exceptionally high pressures.

- Glass-filled nylon construction for 220 psi rated maximum strength and sturdiness
- Captive bonnet bolts and solenoid, plunger provide ease of service, eliminates lost parts
- Fabric reinforced diaphragm

Specifications:

Flow: .10 GPM to 300 GPM
Pressure: 20 psi to 220 psi
Power: 24 VAC
Inrush current: .37 amps
Holding current: .19 amps

Product Code	Description
ICV-101G	1" plastic globe valve
ICV-151G	1 1/2" plastic globe valve
ICV-201G	2" plastic globe valve

Hunter

ICV FILTER SENTRY™ SERIES

Patented Filter Sentry system automatically cleans the filter.

- Filter Sentry™ is a scouring mechanism which continuously works whenever the ICV is operating
- Clears away small debris commonly found in reclaimed water, wells, or in lakes and ponds

Product Code	Description
ICVGFS	1" plastic globe valve with Filter Sentry
ICV151GFS	1 1/2" plastic globe valve with Filter Sentry
ICV201GFS	2" plastic globe valve with Filter Sentry
ICV-301EFS	3" plastic globe/angle valve with Filter Sentry

Irritrol SYSTEMS

700 SERIES

3/4", 1", 1 1/2", 2"

Straight through flow path for minimum pressure loss makes these glove valves ideal for a variety of challenging light commercial and commercial applications.

- Self-flushing, 150-mesh, stainless steel filter screen on 1"-, 1 1/2"- and 2" models
- Unique straight-through flow path provides low pressure loss and superior regulation
- Slow-closing design prevents water hammer
- Compact, low-profile design
- Three-way stainless steel bonnet screws with threaded brass inserts accept Phillips, flat-blade and hex-driver tools
- Tough glass-reinforced nylon, stainless steel and brass construction

Specifications:

Flow: 2 GPM to 180 GPM
Pressure: 10 psi to 150 psi
Power: 24 VAC
Inrush current: .4 amps
Holding current: .2 amps

Product Code	Description
700B75	3/4" 700 Series valve
7001	1" 700 Series valve
70015	1 1/2" 700 Series valve
7002	2" 700 Series valve

IRRITROL 100 SERIES (CENTURY PLUS)

1", 1 1/2", 2", 3"

Heavy-duty glove/angle valves designed primarily for commercial applications and offering superior performance and durability under the most demanding conditions.

- 200 psi rating
- Tough, glass-reinforced nylon, stainless steel and brass construction withstands high temperatures and system surges under pressure
- Rugged, double-beaded, nylon reinforced Buna-N diaphragm provides leak-proof seal
- Positive O-ring seal on inlet plug prevents leaks without damaging seal threads
- Molded-in and anchored studs allow positive bonnet attachment and removal
- Brass flow control stem on 2" and 3" models

Specifications:

Flow: 5 GPM to 300 GPM
Pressure: 10 psi to 200 psi
Power: 24 VAC
Inrush current: .4 amps
Holding current: .2 amps

Product Code	Description
100P1	1" 100 Series valve
100P15	1 1/2" 100 Series valve
100P2	2" 100 Series valve
100P3	3" 100 Series valve

TORO

P220 VALVE

1", 1 1-2", 2", 3"

- The Spike-Guard™ solenoid features very low power consumption, which reduces wire size requirements, allows twice as many valves to run simultaneously on a transformer and lowers power costs
- Offers nearly three times the lightning protection of competitive products
- Tough, glass-filled nylon and stainless steel construction
- Pressure regulates in electric or manual modes and is serviceable under pressure
- No external tubing for either electric or pressure-regulating models
- Low-flow capability down to 5 GPM (20 LPM) with EZReg®

Specifications:

Flow range:
1" — 5 GPM-35 GPM
1 1-2" — 30 GPM-110 GPM
2" — 80 GPM-180 GPM
3" — 150 GPM-300 GPM

Burst pressure safety rating:

750 psi

Body styles:

Globe/Angle valve — 1", 1 1-2", 2", 3" female threads

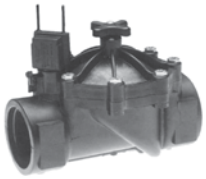
HOW TO SPECIFY: P220 2X X X			
Model:	Configuration:	Solenoid:	Size:
P220 — P-220 Series Plastic Valve	26—NPT, Electric	0—Solenoid	4 — 1"
	27—NPT, Pressure-regulated (5-100)	6—Less Solenoid	6 — 1 1 2"
		9—DC Latching Solenoid	8 — 2"
			0 — 3"

Options for P-220 Series:

EZR-30 EZReg, 5-30 psi Regulator Module

EZR-100 EZReg, 5-100 psi Regulator Module

Weather matic®



21000CR SERIES

1", 1 1/2", 2"

- Fail safe "reverse flow" design insures that the valve will remain closed in the event of a diaphragm wall failure and extends diaphragm life
- Excellent for micro-irrigation, valve will operate as low as 1 GPH
- Dual flexing diaphragm ports provide great contamination resistance in dirty water or reclaimed applications
- Internal manual bleed lever opens and closes the valve with a flip of the finger
- M24E solenoid with stainless steel actuator
- Optional XPR regulator senses inlet pressure and maintains constant outlet pressure

Specifications:

Pressure: up to 150 psi
Power: 24 VAC
Inrush: 9.77 VA
Holding: 6.2 VA

Product Code	Description
21024E10	1" 21000 valve
21024E15	1 1/2" 21000 valve
21024E20	2" 21000 valve

11000CR SERIES (BLACK MAX)

1", 1 1/2", 2"

- Fail safe "reverse flow" design insures that the valve will remain closed in the event of a diaphragm wall failure and extends diaphragm life
- Excellent for micro-irrigation valve will operate as low as 1 GPH
- Dual flexing diaphragm ports provide great contamination resistance in dirty water or reclaimed applications
- Internal manual bleed lever open and closes the valve with a flip of the finger
- Heavy-duty commercial glass filled body
- Optional XPR regulator senses inlet pressure and maintains constant outlet pressure

Specifications:

Pressure: up to 200 psi
Power: 24 VAC
Inrush: 9.86 VA
Holding: 5.69

Product Code	Description
11024FCR10	1" 11000 Series valve
11024FCR15	1 1/2" 11000 Series valve
11024FCR20	2" 11000 Series valve

RAIN BIRD

300PBE/300PBES

3”

Built tough to offer long life and efficient, trouble-free performance – even under harsh conditions.

- Unique hybrid construction featuring durable red brass body and glass-filled nylon bonnet for long life at a value price
- Globe and angle configuration for flexibility in design and installation
- Robust solenoid provides dependable performance even during constant operation
- Internal and external bleed
- BPES only: Patented nylon scrubber scrapes a stainless steel screen to clean and break down grit and plant material

Specifications:

Pressure: 20 psi to 200 psi
Flow: 60 GMP to 300 GMP
Power: 24 VAC
Inrush current: 0.41 amps at 60 Hz
Holding current: 0.28 amps at 60 Hz

Product Code	Description
300BPE	3” brass/plastic valve
300BPES	3” brass/plastic valve with scrubber

EFB-CP SERIES

1”, 1 1/4”, 1 1/2”, 2”

Durable brass valve with a contamination-proof, self-flushing screen for reliable performance in commercial dirty water applications.

- Red brass construction for longer life and more rugged performance
- Fabric-reinforced diaphragm for longer life
- Normally closed, reverse flow design ensures valve will fail in the closed position. Prevents flooding, water waste and landscape damage
- Contamination-proof, self-flushing filter screen resists debris build-up
- Water flow continuously flushes the screen, dislodging particles and debris before they can accumulate and clog the filter
- Flow control handle adjusts water flow as needed

Specifications:

Pressure: 15 psi to 200 psi
Flow: 5 GPM to 200 GPM
Power: 24 VAC
Inrush current: 0.41 amps at 60 Hz
Holding current: 0.28 amps at 60 Hz

Product Code	Description
100-EFBCP	1” brass valve
125-EFBCP	1 1/4” brass valve
150-EFBCP	1 1/2” brass valve
200-EFBCP	2” brass valve

Hunter

IBV

1", 1 1/2" 2", & 3"

- Solid brass construction
- 220 psi rated for maximum strength
- Fabric reinforced EPDM diaphragm and EPDM seat provides reliable operation in all water conditions
- Stainless steel flow control stem for maximum strength and durability
- Internal and external manual bleed
- With Filter Sentry™ for a superior self-cleaning system

Specifications:

Flow: 0.10 GPM to 300 GPM
Pressure: 20 psi to 220 psi
Temperature: up to 150˚F (66˚C)
Heavy-duty solenoid: 24 VAC, 370 mA inrush current, 190 mA holding current, 60 cycles; 475 mA inrush current, 230 mA holding current, 50 cycles

Product Code	Description
IBV-101G	1" brass globe valve
IBV-151G	1 1/2" brass globe valve
IBV-201G	2" brass globe valve
IBV-301G	3" brass globe

HOW TO SPECIFY: IBV - 201G - FS - AS	
Model:	Features:
IBV	101G = 1" Globe Valve 151G = 1 1/2" Globe Valve 201G = 2" Globe Valve 301G = 3" Globe Valve

Options-Factory Installed

FS = Filter Sentry™
B = BSP Threads
DC = DC Latching Solenoid

Options-User Installed

AS = Accu-Set™ Pressure Regulator
R = Reclaimed Water Identification Handle
CC = Conduit Cover

PRESSURE REGULATORS

RAIN BIRD

PRESSURE REGULATING MODULE

Great way to regulate outlet pressure at the valve regardless of incoming pressure fluctuations.

- Regulates and maintains constant outlet pressure between 15 psi and 100 psi
- Fits all Rain Bird PGA, PEB, PESB, GB, EFB-CP, PGE an BPES series valves

Product Code	Description
PRS-D	15 to 100 psi

Hunter

ACCU-SYNC

Regulating pressure at the valve enhances efficiency and system reliability

- Adjustable model enables the zone pressure to be set anywhere between 20 and 100 PSI
- Fixed models remove the guesswork and can be installed throughout any system easily

Model	Description	Application
AS-ADJ	Adjustable 20-100PSI	For full customization
AS-20	Fixed 20 PSI	Ideal for point source micro irrigation systems
AS-30	Fixed 30 PSI	Ideal for spray systems
AS-40	Fixed 40 PSI	Ideal for MP Rotator and large in-line drip systems
AS-50	Fixed 50 PSI	Ideal for mid-range rotors
AS-70	Fixed 70 PSI	Ideal for large rotors

TORO

EZREG®

- Can regulate with flows of only 5 GPM (1" valve)
- Only requires 10 psi differential to operate
- Perfect for retrofit projects and can be easily and quickly installed

Product Code	Description
EZREG	EZ-Reg Regulator

Irritrol SYSTEMS

IRRITROL OMNIREG PRESSURE REGULATOR

Enables user to quickly and accurately set the exact downstream pressure required for any application.

- Desired pressure may be set with water on or off
- One model fits all heavy-duty commercial 100 Series, 700 Series, 200B and 311A Series valve
- Requires only 1 GMP to operate
- Maintains constant downstream pressure, regardless of widely varying inlet pressure
- Delivers an accuracy of ± 3 psi

Product Code	Description
OMR30	5 psi-30 psi
ORM100	5 psi-100 psi

MANUAL ZONE CONTROL VALVES

100 SERIES GLOBE MANUAL ZONE VALVE

200 SERIES ANGLE MANUAL ZONE VALVE

300 SERIES ANGLE WITH UNION MANUAL ZONE VALVE

Time-proven brass manual valves for individual operation of irrigation system zones. Can be installed above or below ground.

- Rubber disc seating surface for frequent use applications
- Full size waterways for low pressure loss
- Easily converted to automatic operation with electric adapters

Product Code	Description
100 Series	
SV075	3/4" 100 series straight valve with rising stem
SV100	1" 100 series straight valve with rising stem
SV125	1 1/4" 100 series straight valve with rising stem
SV150	1 1/2" 100 series straight valve with rising stem
SV200	2" 100 series straight valve with rising stem

Product Code	Description
200 Series	
AV075	3/4" 200 series angle valve with rising stem
AV100	1" 200 series angle valve with rising stem
AV125	1 1/4" 200 series angle valve with rising stem
AV150	1 1/2" 200 series angle valve with rising stem
AV200	2" 200 series angle valve with rising stem

Product Code	Description
300 Series	
AVU075	3/4" 300 series angle valve with union with rising stem
AVU100	1" 300 series angle valve with union with rising stem
AVU125	1 1/4" 300 series angle valve with union with rising stem
AVU150	1 1/2" 300 series angle valve with union with rising stem
AVU200	2" 300 series angle valve with union with rising stem

Product Code	Description
200 Series	
AV075	3/4" 200 series angle valve with rising stem
AV100	1" 200 series angle valve with rising stem
AV125	1 1/4" 200 series angle valve with rising stem
AV150	1 1/2" 200 series angle valve with rising stem
AV200	2" 200 series angle valve with rising stem

Product Code	Description
300 Series	
AVU075	3/4" 300 series angle valve with union with rising stem
AVU100	1" 300 series angle valve with union with rising stem
AVU125	1 1/4" 300 series angle valve with union with rising stem
AVU150	1 1/2" 300 series angle valve with union with rising stem
AVU200	2" 300 series angle valve with union with rising stem

BRASS HOSE BIBS

Heavy duty brass design. All models accept 3/4" hose thread.

Product Code	Description
HB050M	1/2" male inlet hose bib
HB050F	1/2" female inlet hose bib
HB075M	3/4" male inlet hose bib
HB075F	3/4" female inlet hose bib

BENT NOSE GARDEN VALVES

- Install on standpipes for connection of garden hoses. Sure seal gaskets and washers
- "L" models feature loose key design for vandal resistance
- Full flow inlet and outlet

Product Code	Description
GV050	1/2" female inlet to 3/4" male hose garden valve
GV050L	1/2" female inlet to 3/4" male hose garden valve with loose key design
GV075	3/4" female inlet to 3/4" male hose garden valve
GV075L	3/4" female inlet to 3/4" male hose garden valve with loose key design
GV100	1" female inlet to 3/4" male hose garden valve
GV100L	1" female inlet to 3/4" male hose garden valve with loose key design
	Key for opening "loose key" valves

BRASS GATE VALVES

- Threaded brass gate valves suitable for residential, commercial and industrial use
- 200 psi
- Not recommended for throttling water flow

Product Code	Description
GV005	1/2" Threaded gate valve
GV007	3/4" Threaded gate valve
GV010	1" Threaded gate valve
GV012	1 1/4" Threaded gate valve
GV015	1 1/2" Threaded gate valve
GV020	2" Threaded gate valve
GV025	2 1/2" Threaded gate valve
GV030	3"

BRASS BALL VALVES

- Threaded brass ball valves ideal for frequent on-off use
- Full-port design for low pressure loss
- 400 psi

Product Code	Description
BBV005	1/2" Threaded ball valve
BBV007	3/4" Threaded ball valve
BBV010	1" Threaded ball valve
BBV012	1 1/4" Threaded ball valve
BBV015	1 1/2" Threaded ball valve
BBV020	2" Threaded ball valve
BBV025	2 1/2" Threaded ball valve
BBV030	3" Threaded ball valve

PVC VALVES

- Designed for reliability, speed and easy operation
- 150 psi working pressure at 73°F (22°C)
- Suitable for Schedule 40 and 80 Pipe

Product Code	Description
PBV005S	1/2" PVC ball valve, slip x slip
PBV005T	1/2" PVC ball valve, threaded
PBV007S	3/4" PVC ball valve, slip x slip
PBV007T	3/4" PVC ball valve, threaded
PBV010S	1" PVC ball valve, slip x slip
PBV010T	1" PVC ball valve, threaded
PBV012S	1 1/2" PVC ball valve, slip x slip
PBV012T	1 1/2" PVC ball valve, threaded
PBV015S	1 1/2" PVC ball valve, slip x slip
PBV015T	1 1/2" PVC ball valve, threaded
PBV020S	2" PVC ball valve, slip x slip
PBV020T	2" PVC ball valve, threaded
PBV030S	3" PVC ball valve, slip x slip
PBV030T	3" PVC ball valve, threaded
PBV040S	4" PVC ball valve, slip x slip
PBV040T	4" PVC ball valve, threaded

TURFGRO®

RAIN BIRD.

QUICK COUPLING VALVES

- Available in 3/4" and 1" Female NPT inlet
- Lid stays closed by strong positive-action spring
- High visibility TuffTop or brass lids available
- Constructed of solid red brass for durability, economy and recyclability
- Corrosion resistant stainless steel spring and self-flushing brass plunger
- Wrench flats at base for easy installation
- Drain hole in body to minimize debris collection
- Chevron-shaped wiper seal to reduce leakage around key while inserted
- Self cleaning seal design
- Flow ranges from 5 GPM to 100 GPM
- Handles pressures up to 150 psi

Product Code	Description
TG3RC	3/4" Single Slot, Yellow Cover
TG33DRC	3/4" Double Slot, Yellow Top
TG33DLRC	3/4" Double Slot, Yellow Top
TG33DNP	3/4" Double Slot, Locking Cover
TG44RC	1" Single Slot, Yellow Cover
TG44LRC	1" Single Slot, Locking Yellow Cover
TG44NP	1" Single Slot, Locking Lavender
TG44NPAT10	1" Acme Thread Qc Valve Np
TG5LRC	1" Double Slot, Locking Yellow Cover
TG5NP	1" Double Slot, Locking Lavender Cover
TG5RC	1" Double Slot, Yellow Cover

TG33DK	3/4" TurfGro Quick Coupler Keys
TG44K	1" TurfGro Quick Coupler Keys

TGSH0	Hose Swivel Ell 3/4" to 3/4" MIPT
TGSH1	TurfGro Hose Swivel Ell 1" NPT X 3/4" MIPT
TGSH2	TurfGro Hose Swivel Ell 1" NPT X 1" MIPT

QUICK COUPLING VALVES

Industrial-strength brass quick-coupling valves for convenient water access.

- Red brass construction for long life and rugged performance
- Yellow thermoplastic cover for durability
- One-piece body design (models 3RC, 5RC and 7)
- Two-piece body design for easy servicing (models 33DRC, 44LRC and 44RC)
- Strong corrosion-resistant stainless steel spring prevents leakage
- Also available with non-potable cover

Specifications:

Pressure: 5 psi to 125 psi
Flow: 10 GPM to 125 GPM

Product Code	Description
3RC	3/4" rubber cover, 1-piece body
33DRC	3/4" double track key lug, rubber cover, 2-piece body
33DLRC	3/4" double track key lug, locking rubber cover, 2-piece body
33DNP	3/4" 2-piece body, non-potable cover
44RC	1" rubber cover, 2-piece body
44LRC	1" locking rubber cover, 2-piece body
44NP	1", 2-piece body, non-potable cover
5RC	1" rubber cover, 1-piece body
5LRC	1" locking rubber cover, 1-piece body
5NP	1" 1-piece body, non-potable cover
7	1 1/2" metal cover, 1-piece body

Product Code	Description
Rain Bird Valve Keys	
33DK	3/4" quick-coupling valve
44K	1" quick-coupling valve, 2-piece body
55K	1 for 1" quick-coupling valve, one-piece body
7K	1 1/2" quick-coupling valve

INTRODUCING THE NEW RAIN BIRD® XFCV DRIPLINE WITH HEAVY-DUTY CHECK VALVE

WHEN YOU NEED A CHECK VALVE DRIPLINE CHOOSE XFCV WITH 8 FEET OF HOLDBACK

ELEVATED PERFORMANCE
Keeps dripline charged with water even with elevation changes to 8 feet

GREATER FLEXIBILITY
Rain Bird's proprietary blend provides industry-leading flexibility for easy design and installation

CONSERVES WATER
Prevents puddling and water loss at the low point of the dripline

LEED COMPLIANT
Contains at least 20% post consumer recycled polyethylene which qualifies for LEED credit 4.2

RAIN BIRD'S PROFESSIONAL CUSTOMER SATISFACTION POLICY
XF Series Dripline offers five (5) years on product workmanship and seven (7) years on environmental stress cracking

NETAFIM™

TECHLINE® CV DRIPPERLINE

- 2 psi check valve in each dripper
- All drippers turn on and off at the same time, maximizing balance of application
- Holds back up to 4 1/2' of water (elevation change)
- Precise and equal amounts of water are delivered over a broad pressure range
- Flushes debris as it is detected, throughout operation, not just at the beginning or end of a cycle, ensuring uninterrupted dripper operation
- Unique dripper design with physical root barrier
- Self-contained, one-piece dripperline construction assures reliable, easy installation
- UV resistant, withstands heat and direct sun — for on-surface installations

Applications:

- Subsurface or on-surface installations
- Slopes
- Curved, angular or narrow planting areas
- High-traffic/high-liability areas
- Areas subject to vandalism
- High-wind areas
- Turf, shrubs, trees and flowers
- At-grade windows
- Sports turf, tennis courts and golf courses
- Green walls
- Rooftop gardens
- Raised planters
- Auto dealerships

HOW TO SPECIFY:		
Dripper Flow Rate:	Dripper Spacing:	Coil Length:
0.26 GPH = 26, 0.4 GPH = 4, 0.6 GPH = 6, 0.9 GPH = 9	12" = 12, 18" = 18, 24" = 24	100' = 01, 250' = 025, 1,000' = 10

Techline® CV general guidelines

Description						
	Turf			Shrub and Ground Cover		
Specifications	Clay Soil	Loamy Soil	Sandy Soil	Clay Soil	Loamy Soil	Sandy Soil
Dripper Flow (GPH)	0.26	0.4	0.6	0.26	0.4	0.6
Dripper Interval (in.)	18	12	12	18	18	12
Lateral (Row) Spacing (in.)	18-22	18-22	12-16	18-24	18-24	16-20
Burial Depth	On-surface or bury evenly throughout the zone to a maximum of 6"					
Application Rate (in./hour)	.19 -.15	.43 -.35	.96 -.72	.19 -.14	.29 -.21	.72 -.58
Time to Apply 1/4" of Water (min.)	79-100	35-43	16-21	79-107	52-71	21-26
*Following these maximum spacing guidelines, dripper flow section can be increased if desired by the designer.						

Techline CV Ordering Information

Flow Rate	Coil Label Code	Dripper Spacing	Coil Length	Model Number
0.26 GPH	▼	12"	1,000'	TLCV26-1210
			250'	TLCV26-12025
			100'	TLCV26-1201
	■	18"	1,000'	TLCV26-1810
			250'	TLCV26-18025
			100'	TLCV26-1801
0.4 GPH	▼	12"	1,000'	TLCV4-1210
			250'	TLCV4-12025
			100'	TLCV4-1201
	■	18"	1,000'	TLCV4-1810
			250'	TLCV4-18025
			100'	TLCV4-1801
0.6 GPH	▼	12"	1,000'	TLCV6-1210
			250'	TLCV6-12025
			100'	TLCV6-1201
	■	18"	1,000'	TLCV6-1810
			250'	TLCV6-18025
			100'	TLCV6-1801
	●	24"	1,000'	TLCV6-2410
			250'	TLCV6-24025
			100'	TLCV6-2401
0.9 GPH	▼	12"	1,000'	TLCV9-1210
			250'	TLCV9-12025
			100'	TLCV9-1201
	□	18"	1,000'	TLCV9-1810
			250'	TLCV9-18025
			100'	TLCV9-1801
	○	24"	1,000'	TLCV9-2410
			250'	TLCV9-24025
			100'	TLCV9-2401
Blank Tubing			1,000'	TLCV010
			250'	TLCV0025
			100'	TLCV001

What are the Benefits of Drip Irrigation?

- Water savings, since only those areas directly around the plant's root zone are irrigated
- Plants undergo less stress from variations in soil moisture. Plant appearance is enhanced
- Constant moisture improves plant growth
- Prevents excess surface water build-up and reduces evaporation
- The low application rate and the use of automatic timers results in precise water control
- Weed growth is reduced
- System can be designed for use in all types of terrain and soil
- System's low flow rate allows irrigation of larger areas and more plants can be watered at once
- Drip irrigation systems are usually installed at costs considerably less than those of an underground sprinkler, bubbler, or shrub spray system
- Through the use of fertilizer dispensers, chemicals and nutrients can be fed directly to the plant in controlled quantities
- The water application rate can be tailored to fit each individual plant. This is accomplished by the use of different quantities of emitters and emitters with different discharge rates

RAIN BIRD

XFCV DRIPLINE WITH HEAVY-DUTY CHECK VALVE

- Patent-pending 3.5 psi check valve technology keeps the dripline charged with water at all times, increasing uniformity of watering
- Conserves water by eliminating the need to recharge the line at the beginning of each watering cycle
- Most effective dripline in the industry addressing applications where elevation changes exist
- Helps to prevent over-watering at the low-point in the zone

Operating Range:

Opening Pressure: 14.5 psi
Pressure: 20 to 60 psi
Flow Rates: 0.6 and 0.9 gph

Temperature:

Water: Up to 100°F
Ambient: Up to 125°F

Specifications:

12" & 18" spacing
Coil lengths: 100' and 500' coils
Coil Color: Brown

Models:

XFCV0612100	XFCV0912100
XFCV0612500	XFCV0912500
XFCV0618100	XFCV0918100
XFCV0618500	XFCV0918500

XFCV Dripline Maximum Lateral Length

n	SMa i a a ng	
12" Spacing	Nominal Flow (GPH):	
	0.6	0.9
20	192	136
30	289	205
40	350	248
50	397	281
60	436	309
18" Spacing	Nominal Flow (GPH):	
	0.6	0.9
20	254	215
30	402	337
40	498	416
50	573	477
60	637	529

XFD™ DRIPLINE

Flexible, pressure compensating inline emitter tubing for irrigating ground cover, dense plantings, hedge rows and more.

- Rain Bird's proprietary blend provides industry leading flexibility allowing for tighter turns with fewer elbows for fast and easy installation
- Dual-layered tubing (brown over black or purple over black) provides unmatched resistance to chemicals, UV damage and algae growth
- Low profile emitter design results in reduced friction loss, allowing longer lateral runs and more cost-effective system design
- Clog-resistant design ensures that water will keep flowing to your plant material

Operating Range:

Pressure: 8.5 to 60 psi (0.58 to 4.14 bar)
Flow rates: 0.4, 0.6 and 0.9 gph (1.5 l/h, 2.3 l/h and 3.5 l/h)
Temperature: Up to 100° F (43.3 C) water; up to 125 F (51.7° C) ambient
Required filtration: 120 mesh

Specifications:

Spacing: 12", 18" or 24"
Lengths: 100', 250', and 500' coils

XFD On-Surface Dripline Models

Model	Flow gph	Spacing in.	Coil Length ft.
XFD-04-12-100	0.40	12	100
XFD-04-12-500	0.40	12	500
XFD-04-18-100	0.40	18	100
XFD-04-18-500	0.40	18	500
XFD-06-12-100	0.60	12	100
XFD-06-12-250	0.60	12	250
XFD-06-12-500	0.60	12	500
XFD-06-18-100	0.60	18	100
XFD-06-18-250	0.60	18	250
XFD-06-18-500	0.60	18	500
XFD-06-24-500	0.60	24	500
XFD-09-12-100	0.90	12	100
XFD-09-12-250	0.90	12	250
XFD-09-12-500	0.90	12	500
XFD-09-18-100	0.90	18	100
XFD-09-18-250	0.90	18	250
XFD-09-18-500	0.90	18	500
XFD-09-24-500	0.90	24	500
XFDP-04-12-500 (Purple)	0.40	12	500
XFDP-04-18-500 (Purple)	0.40	18	500
XFDP-06-12-500 (Purple)	0.60	12	500
XFDP-06-18-500 (Purple)	0.60	18	500
XFDP-09-12-500 (Purple)	0.90	12	500
XFDP-09-18-500 (Purple)	0.90	18	500

XFD Dripline Maximum Lateral Length

Inlet Pressure (PSI)	Maximum Lateral Length (feet)		
12" Spacing	Nominal Flow (GPH):		
	0.4	0.6	0.9
15	352	273	155
20	399	318	169
30	447	360	230
40	488	395	255
50	505	417	285
60	573	460	290

Inlet Pressure (PSI)	Maximum Lateral Length (feet)		
18" Spacing	Nominal Flow (GPH):		
	0.4	0.6	0.9
15	374	314	250
20	417	353	294
30	481	413	350
40	530	465	402
50	610	528	420
60	734	596	455

Inlet Pressure (PSI)	Maximum Lateral Length (feet)	
24" Spacing	Nominal Flow (GPH):	
	0.6	0.9
15	424	322
20	508	368
30	586	414
40	652	474
50	720	488
60	780	514

XFS™ DRIPLINE

The reliable and durable sub-surface drip solution for turf and non-turf applications.

- Copper colored for easy identification and it ensures the copper chip is on the inside – protecting the emitter from root intrusion
- Grit-tolerant emitter resists clogging by using an extra-wide flow path combined with a self-flushing action
- Rain Bird's proprietary blend provides industry leading flexibility allowing for tighter turns with fewer elbows for fast and easy installation

Operating Range:

Pressure: 8.5 to 60 psi
Flow rates: 0.6 and 0.9 gph
Temperature:
Water: Up to 100°F
Ambient: Up to 125°F
Required Filtration: 120 mesh

Specifications:

12", 18", 24" spacing
Available in 100' and 500' coils
Coil Color: Copper

Models:

XFS-06-12-100
XFS-06-12-500
XFS-06-18-100
XFS-06-18-500
XFS-06-24-500
XFS-09-12-100
XFS-09-12-500
XFS-09-18-100
XFS-09-18-500
XFS-09-24-500
XFSP-06-12-500
XFSP-06-18-500
XFSP-09-12-500
XFSP-09-18-500

XFS Dripline Maximum Lateral Length

Inlet Pressure (PSI)	Maximum Lateral Length (feet)	
12" Spacing	Nominal Flow (GPH):	
	0.6	0.9
15	273	155
20	318	169
30	360	230
40	395	255
50	417	285
60	460	290

Inlet Pressure (PSI)	Maximum Lateral Length (feet)	
18" Spacing	Nominal Flow (GPH):	
	0.6	0.9
15	314	250
20	353	294
30	413	350
40	465	402
50	528	420
60	596	455

Inlet Pressure (PSI)	Maximum Lateral Length (feet)	
24" Spacing	Nominal Flow (GPH):	
	0.6	0.9
15	424	322
20	508	368
30	586	414
40	652	474
50	720	488
60	780	514

TORO

DL2000® SERIES

- Patented, non-toxic ROOTGUARD® technology guards against root intrusion
- Flexible, sturdy design fits into unusual spaces
- Pressure-compensating emitters for uniform water application
- Easy to install, requires minimal maintenance
- Precise watering puts water where it's needed; avoids water marks on expensive hardscapes, glass or signage

Specifications:

Flow rate: .53/1.06 GPH
Inside diameter: 0.620"
Outside diameter: 0.710"
Operating pressure: (P) 15 psi to 60 psi

Product Code	Description
RGP-212-01	0.50 GPH, 12" emitter spacing, 100' coil
RGP-412-01	1.00 GPH, 12" emitter spacing, 100' coil
RGP-218-01	0.50 GPH, 18" emitter spacing, 100' coil
RGP-418-01	1.00 GPH, 18" emitter spacing, 100' coil
RGP-212-05	0.50 GPH, 12" emitter spacing, 500' coil
RGP-412-05	1.00 GPH, 12" emitter spacing, 500' coil
RGP-218-05	0.50 GPH, 18" emitter spacing, 500' coil
RGP-418-05	1.00 GPH, 18" emitter spacing, 500' coil
RGP-212-10	0.50 GPH, 12" emitter spacing, 1000' coil
RGP-412-10	1.00 GPH, 12" emitter spacing, 1000' coil
RGP-218-10	0.50 GPH, 18" emitter spacing, 1000' coil
RGP-418-10	1.00 GPH, 18" emitter spacing, 1000' coil

Hunter®

PLD PROFESSIONAL LANDSCAPE DRIP LINE

Applies water slowly and evenly for consistent distribution.

- In-line pressure-compensating emitters provide consistent high-quality performance
- Built-in check valve prevents emitter clogging and wasteful runoff
- Flexible, kink and UV resistant
- Emitter check height of 5'
- Available emitter spacing of 12", 18", or 24"
- Emitter flow rates available in 0.4, 0.6, or 1.0 GPH
- Blank tubing available (no emitters)
- Comes in 100, 250 and 1,000 ft. rolls

Specifications:

Operating pressure range: 15 to 50 PSI
Recommended filtration: 120 Mesh
Accepts 17 mm insert fittings

Models:

XFS-06-12-100
XFS-06-12-500
XFS-06-18-100
XFS-06-18-500
XFS-06-24-500
XFS-09-12-100
XFS-09-12-500
XFS-09-18-100
XFS-09-18-500
XFS-09-24-500
XFSP-06-12-500
XFSP-06-18-500
XFSP-09-12-500
XFSP-09-18-500

Spacing:

12 = 12"
18 = 18"
24 = 24"

Length:

100 = 100'
250 = 250"
1K = 1,000'

Options:

R = Reclaimed

Notes:

100' rolls only available in models PLD-BLNK, PLD-06-12-100, PLD-10-12-100, and PLD-10-18-100

PLD Maximum Line Length Chart — 0.4 GPH

Pressure (PSI)	Emitter Spacing Maximum Lateral Lenth (ft) 12"	18"	24"
15.0	344	475	594
20.0	479	660	823
25.0	509	703	879
30.0	535	742	928
35.0	584	808	1010
40.0	627	868	1086
45.0	646	894	1119
50.0	689	957	1200

PLD Maximum Line Length Chart — 0.6 GPH

Pressure (PSI)	Emitter Spacing Maximum Lateral Lenth (ft) 12"	18"	24"
15.0	190	261	325
20.0	279	384	479
25.0	331	459	574
30.0	394	490	614
35.0	390	542	679
40.0	420	585	735
45.0	436	607	761
50.0	472	654	819

PLD Maximum Line Length Chart — 1.0 GPH

Pressure (PSI)	Emitter Spacing Maximum Lateral Lenth (ft) 12"	18"	24"
15.0	141	193	240
20.0	203	283	354
25.0	243	339	427
30.0	259	361	453
35.0	289	401	502
40.0	312	432	541
45.0	322	447	561
50.0	344	482	606

*Maximum single lateral length at 0% slope

Irrigation

DISTRIBUTION TUBING

NETAFIM™

TECHLINE CV

Maximum Uniformity in Subsurface and On-Surface Including Slopes

- 2 psi check valve in each emitter delivers more precise watering
- Unique patented emitter design with physical root barrier
- Continuous self-flushing emitter design flushes debris as it is detected, ensuring uninterrupted operation
- Flexible UV resistant tubing adapts to any planting area shape

TECHLINE CV NOW MADE WITH POST CONSUMER RECYCLED MATERIAL

SPECIFYING MODEL NUMBER

Reference for Ordering Information Chart

SAMPLE MODEL NUMBER: TLCV4-1210

A — Techline CV Dripline = TLCV

1 EMITTER FLOW RATE	2 EMITTER SPACING	3 COIL LENGTH
0.26 GPH = 26	12" = 12	100' = 01
0.4 GPH = 4	18" = 18	250' = 025
0.6 GPH = 6	24" = 24	500' = 05
0.9 GPH = 9		1,000' = 10

RAIN BIRD

XQ ¼" DISTRIBUTION TUBING

Maximum Uniformity in Subsurface and On-Surface Including Slopes

- Unique blend of polymers that give it the flexibility of vinyl with hold of poly.
- New textured finish improves handling.
- Self extracting coiling feature makes it easy to use, store and eliminates waste.
- Patent Pending XQ Bucket makes using and storing large coils easy and efficient.
- 60 psi rating exceeds competitor's specifications

Model Number	Description
XQ100	XQ 1/4" POLYETHYLENE DISTRIBUTION TUBING 100FT
XQ1000	XQ 1/4" POLYETHYLENE DISTRIBUTION TUBING 1000FT
XQ1000B	XQ 1/4" POLYETHYLENE DISTRIBUTION TUBING 1000FT

CONTROL ZONE KITS

Control Zone Kits provide all of the components necessary to control flow, pressure and filtration for a low-volume irrigation zone. These convenient kits provide automatic control of a drip irrigation zone when connected to an irrigation controller. There are several options to fit your needs.

Control Zone Selection Steps

1. Calculate flow rate requirements for drip zone
2. If less than 5 GPM, choose Low Flow kit
3. If greater than 5 GPM, choose Medium Flow kit

RAIN BIRD

XCZ-075-PRF

3/4" pre-assembled kit with Low Flow in-line valve and Pressure Regulating Filter.

- Low Flow Valve is the only valve on the market that can effectively handle low flows (below three GPM (0,19 l/s)) without weeping

Specifications:

Flow: 0.2 GPM to 5 GPM (0,01 to 0,32 l/s)
Inlet pressure: 20 psi to 120 psi (1,4 to 8,3 bar)
Regulated pressure: 30 psi (2,1 bar)
Filtration: 200 mesh (75 micron)
Connections: 3/4" inlet and outlet
Size: 10" (25 cm) overall length

XCZ-100-PRF

- 1" pre-assembled kit with in-line DV valve and Pressure Regulating Filter

Specifications:

Flow: 3 GPM to 15 GPM (0,19 to 0,95 l/s)
Inlet pressure: 20 psi to 120 psi (1,4 to 8,3 bar)
Regulated pressure: 40 psi (2,8 bar)
Filtration: 200 mesh (75 micron)
Connections: 1" inlet and outlet (NPT)
Size: 10" (25 cm) overall length

XCZ-100-PRB-COM

Commercial kit includes a 1" in-line scrubber valve and pressure regulating quick check basket filter.

- The PESB valve provides a patented scrubbing action, making this kit ideal for dirty water applications
- Pressure Regulating Quick Check Basket Filter has a clear indicator that goes from red to green, telling you when to clean the filter

Specifications:

Flow: 3 GPM to 20 GPM (0,19 to 1,27 l/s)
Inlet pressure: 20 psi to 150 psi (1,4 to 10,3 bar)
Regulated pressure: 40 psi (2,8 bar)
Filtration: 200 mesh (75 micron)
Connections: 1" inlet and outlet (NPT)

Denotes Smart Water products

Horizon

RAIN BIRD

XCZNVPRF

Valveless Control Zone Kit.

- Pressure-Regulating (P/R) Filter reduces the number of components in a control zone
- Combination unit reduces the number of connections
- 30 psi or 40 psi pressure regulator is integrated into filter body
- 3/4" units: 0.50 GPM to 5 GPM

Product Code	Description
XCZ075PRF	Rain Bird 3/4" PRF Control Zone Kit
XCZ100PRF	Rain Bird 1" PRF Control Zone Kit
XCZ100BCOM	1" Commercial Xeri Control Zone
XCZNVPRF	Rain Bird valveless Control Zone Kit

AGRIFIM Quality Products by NDS

DRIP ZONE KIT

150 MESH Filter, 30 psi Regulator.

- Easy installation
- Fits 680-710 OD PE tubing for a wide range of PE tubing, saving the need to have additional products
- 3/4" or 1" inlet easily installs on 3/4" or 1" discharges
- 150 mesh filter prevents debris entering drip system
- 30 psi regulator will operate a wide range of micro products

Hunter

PCZ-101 DRIP ZONE CONTROL KIT

1" PGV globe valve with 1" HY100 filter system with 25 psi regulator.

- Pressure regulator (controls dynamic pressure to 25 psi or 40 psi) protects barbed connections within drip zone from fatiguing and leaking
- Kit is sold fully assembled saving you time and labor
- Filter element is made from stainless steel ensuring long-lasting protection against clogging drip emitters

Specifications:

Flow: .5 GPM to 15 GPM (30 GPH to 900 GPH; 0.12 to 3.45 m3/hr, 1.9 to 57 l/min)
Pressure: 15 psi to 120 psi

Product Code	Description
PCZ-101-25	Hunter 25 psi Control Zone Kit
PCZ-101-40	Hunter 40 psi Control Zone Kit

ICZ DRIP ZONE CONTROL KIT

1" ICV valve with 1" HY100 Wye filter and 25 PSI high-flow regulator.

- Glass-filled nylon valve delivers the highest strength and reliability in a control zone valve
- Filter element is made from stainless steel ensuring long lasting protection against clogging drip emitters
- Kit is sold fully assembled saving you time and labor
- High flow capabilities allows up to 25 GPM of flow for high demand commercial sites

Specifications:

Flow: .5 GPM to 20 GPM (30 GPH to 1200 GPH; 0.12 m3/hr to 9.60 m3/hr, 1.9 l/min to 76 l/min)
Pressure: 15 psi to 120 psi (1 bar to 8 bar; 100 kPa to 800 kPa)
Temperature: Up to 150˚F (66˚C)
Heavy-duty solenoid: 24 AC, 370 mA inrush current, 190 mA holding current, 60 cycles; 475 mA inrush current, 230 mA holding current, 50 cycles

Product Code	Description
ICZ10125	Institutional Control Kit with 1" ICV Valve and 25 psi
ICZ10140	Institutional Control Kit with 1" ICV Valve and 40 psi

AGRIFIM

PC PLUS™ EMITTERS

- Pressure-compensating emitter
- Available in three flow rates
- Maintain discharge rate from 10 psi to 40 psi

Product Code	Description
PCP5	0.5 GPH (red)
PCP10	1 GPH (black)
PCP20	2 GPH (green)

SUPER-FLO™ EMITTERS

- Designed to be taken apart simply by twisting
- Standard 1/4" barbed inlet at the base, plus a 1/4" barbed outlet on the side
- Non-compensating
- Operates at 10 psi to 30 psi

Product Code	Description
TAE10	1 GPH (black)
TAE20	2 GPH (green)
TAE40	4 GPH (blue)

RAIN BIRD

XERI-BUG™ EMITTERS

Single outlet, pressure-compensating emission device.

- Flow rates from 0.5 GPH to 2 GPH
- Delivers uniform flow throughout a wide pressure range (15 psi to 50 psi)
- Inlet and outlet barb securely retains 1/4" distribution tubing

Product Code	Description
XB05	0.5 GPH, barb inlet (blue)
XB10	1 GPH, barb inlet (black)
XB20	2 GPH, barb inlet (red)
XBT10	1 GPH, 1/2" FPT inlet
XBT20	2 GPH, 1/2" FPT inlet

PRESSURE-COMPENSATING MODULES

Single outlet, pressure-compensating higher flow emission devices.

- Higher flow ideal for watering larger shrubs and trees and for precisely regulating water flow to Xeri-Bubblers and Xeri-Sprays
- Flow rates from 5 GPH to 24 GPH
- Pressure 15 psi to 50 psi

Product Code	Description
PC05	5 GPH (light brown)
PC07	7 GPH (violet)
PC10	10 GPH (green)
PC12	12 GPH (dark brown)
PC18	18 GPH (white)
PC24	24 GPH (orange)

TORO

DBK CLASSIC EMITTERS

Proven, reliable non-pressure compensating emitter with take-apart design.

- Flow rates from 1 GPH to 4 GPH
- Economic emitter for troublefree applications

Product Code	Description
DBK04	1 GPH, barb inlet (black)
DBK08	2 GPH, barb inlet (red)
DBK16	4 GPH, barb inlet (maroon)

DPJ TURBO-SC® PLUS EMITTERS

Pressure-compensating emitter ideal for use with difficult topographical conditions.

- Take-apart design permits easy on-site inspection and cleaning
- Available in three flow rates (.05, 1, 2)
- Large, self-flushing, turbulent flow path for higher resistance to plugging

Product Code	Description
SB06	0.6 GPH (green)
SB10	1 GPH (blue)
SB20	2 GPH (red)

TORO

NGE® NEW GENERATION EMITTERS

Uniform flow rates make the NGE ideal for use in difficult topographical conditions

- Unique emitter design allows the emitter to self-flush during operation
- Pressure compensation diaphragm stops the emitter from draining below 2-3 psi preventing complete drainage of the system
- Coefficient of Variation (CV) of 3% or less

Product Code	Description
DPC02	0.5 GPH
DPC03	0.8 GPH
DPC04	1 GPH
DPC08	2.1 GPH

BOWSMiTH

SB" EMITTERS

- Non-Stop® flow path
- Single barb outlet
- 0.250" and 0.175" barbs on opposite ends

Product Code	Description
SB06	0.6 GPH (green)
SB10	1 GPH (blue)
SB20	2 GPH (red)

"SL200 SERES EMITTERS

- Non-Stop® flow path
- Single outlet, 1/2" FPT inlet

Product Code	Description
SL206	0.6 GPH (green)
SL210	1 GPH (blue)
SL220	2 GPH (red)

JAIN Jain Irrigation Systems Ltd.

CHAPIN SPRAY TUBES

("N" for nursery containers, "P" for pots.)

- Economical
- Uniform water distribution
- Easy to install
- Available in 12, 18, 24, 30, 36, 48, 60, 72 in. tube lengths
- P.E. tubing type: .076 I.D. for Type "P" and .128 for Type "N"

Recommended flow rates for optimum coverage:	
Container Size	Flow in GPM
6" to 8"	0.07
10" to 12"	0.08
5 gals. to 15 gals.	0.10
20 gals. or more	0.12

Product Code	Description
STP	"P" type spray tube
STN	"N" type spray tube

MULTI-OUTLET EMMITERS

BOWSMiTH

"M200" SERIES EMITTERS

- Non-Stop® flow path
- Six outlets open, 0.250" barb inlet
- Includes full set of elbow/outlet caps and line plugs

Product Code	Description
M206	0.6 GPH (green)
M210	1 GPH (blue)
M220	2 GPH (red)

ML200 SERIES EMITTERS

- Six outlets open, 1/2" FPT inlet
- Includes full set of elbow/outlet caps and line plugs

Product Code	Description
ML206	0.6 GPH (2.3 LPH) (Green Cap) each open outlet
ML210	1 GPH (3.8 LPH) (Blue Cap) each open outlet
ML220	2 GPH (7.6 LPH) (Red Cap) each open outlet

BOWSMITH

SERIES 2000 FLOW DISTRIBUTOR

- Six outlets open, 1/2" FPT inlet
- Pressure regulator operates on supply pressure from 15 psi to 100 psi
- Includes full set of elbow/outlet caps and line plugs

Product Code	Description
FD2010	1 GPH (blue)
FD2020	2 GPH (red)

RAIN BIRD

MULTI-OUTLET XERI-BUG™

- Pressure-compensating design delivers uniform flow throughout a side pressure range (15 psi to 50 psi)
- Six-outlet emitter supplied with one outlet opened
- Flow: 0.5, 1 or 2 GPH
- Self-flushing action minimizes clogging

Product Code	Description
XB056	0.5 GPH barb inlet (blue)
XB106	1 GPH barb inlet (black)
XB206	20 GPH barb inlet (red)
XBT056	0.5 GPH 1/2" FPT inlet (blue)
XBT106	1 GPH 1/2" FPT inlet (black)
XBT206	2 GPH 1/2" FPT inlet (red)

XERI-BIRD 8 MULTI-OUTLET EMITTERS

- Threads on to any 1/2" riser and delivers water to multiple locations for increased system flexibility
- Eight bottom-mounted, sure-grip barbed outlets securely retain 1/4" distribution tubing
- Flow 0 GPH to 24 GPH, 15 psi to 50 psi

Product Code	Description
XBD80	8 unit includes seven removeable port plugs
XBD81	8 unit with eight 1 GPH Xeri-Bug emitters factory installed

RAIN BIRD

6 OUTLET MANIFOLD

- 1/2" (15/21) FPT inlet threads onto 1/2" riser and provides a manifold with six free-flowing 1.4" barb outlets
- Each barb outlet is sealed with a durable plastic cap
- Plastic caps remove easily, allowing for a drip area that can be customized with up to six different emission devices
- Use the EMT-6XERI with Xeri-Bugs and Xeri-Bubbler

Operating Range:
Pressure: 15 psi to 50 psi
(1,0 to 3,5 bars)

Product Code
EMT-6XERI

ADJUSTABLE EMITTERS

AGRIFIM Quality Products by NDS

DIAL-A-FLO EMITTERS

Adjustable emitter available in a variety of configurations and spray patterns.

- Cap is calibrated so that as it is rotated, the flow rate and the radius changes
- Available with either a barbed or threaded inlet, and with a barbed inlet on a stake

Product Code	Description
DAFB	1/4" barbed inlet, Radius: 360 – 360°, 8 stream, 0 GPH to 10 GPH
DAFT	1/4" threaded inlet, Radius: 180 – 180°, 5 stream, 0 GPH to 10 GPH
DAFU	1/4" FIPT inlet, Radius: FAN – 360°, fan stream, 0 GPH to 20 GPH
DAFS	1/4" barb on a 6' stake, Radius: BUB – Umbrella bubbler, 0 GPH to 25 GPH

AGRIFIM

MAXI-FLO™ BUBBLER

- Six-outlet, pressure compensating emitter
- Discharge rate remains constant, regardless of how many outlets are used
- Each outlet has a barbed horizontal connection making it extremely simple to attach to the tubing
- Pressure: 2 psi to 80 psi

Product Code	Description
MFBL2	2 GPH, 1/2" FIPT
MFBL6	6 GPH, 1/2" FIPT
MFBL10	10 GPH, 1/2" FIPT
MFBL20	20 GPH, 1/2" FIPT
MFBA	0 GPH to 20 GPH, adjustable flow, 1/2" FIPT with shut-off capability

CUATRO-FLO™ BUBBLER

- Four outlet, pressure compensating bubbler with a 1/2" female pipe thread inlet
- Each outlet swivels and can accept 1/4" distribution tubing.
- Non-adjustable.
- Operating range from 20 to 80 psi

Product Code	Description
CF	3/4" MIPT 2: 2 GPH (blue)
CFL	1/2" FIPT 6: 6 GPH (black)
10	10 GPH (red)
20	20 GPH (green)

RAIN BIRD

XERI-BUBBLER™

- Adjust flow and radius by turning outer cap
- Clean by completely unscrewing cap from base unit
- SXB series flow: 0 GPH to 13 GPH
  UXB series flow: 0 GPH to 35 GPH
- Pressure 15 psi to 30 psi

HOW TO SPECIFY :		
Model:	Radius:	Connection:
SXB – Stream	180 – half-circle, 5 streams 360 – full-circle, 8 streams	050 – 1/2" FIPT 025 – 1/4" barb SPYK – 5" spike
UXB – Umbrella		050 – 1/2" FIPT 025 – 1/4" barb SPYK – 5" spike

Jain Irrigation Systems Ltd.

PEPCO OCTA-BUBBLER®

- Delivers water to multiple locations
- Optional plugs for unused ports
- Suitable for retrofitting zones
- Pressure compensation range 20-60 psi
- Flow rates 2, 6, 10 & 20 GPH

Product Code	Description
OCT816	Blue low flow bubbler (2 GPH/outlet), eight swivel ports, .250 barb outlet, 1/2" FPT inlet
OCT856	Black med flow bubbler (6 GPH/outlet), eight swivel ports, .250 barb outlet, 1/2" FPT inlet
OCT896	Red high flow bubbler (10 GPH/outlet), eight swivel ports, .250 barb outlet, 1/2" FPT inlet
OCT8186	Green ex-high flow bubbler (20 GPH/outlet), eight swivel ports, .250 barb outlet, 1/2" FPT inlet

PEPCO QB2

- Color-coded flow rates
- Good for retrofitting zones
- ½" FPT inlet
- Clog resistant
- Pressure compensation range 20-60 psi
- Flow rates 2, 6, 10 & 20 GPH

Product Code	Description
QB2-16	Blue low flow (2 GPH/outlet) 1/2" FPT inlet,
QB2-56	Black med flow (6 GPH/outlet) 1/2" FPT inlet,
QB2-96	Red high flow (10 GPH/outlet) 1/2" FPT inlet
QB2-186	Green extra high flow (20 GPH/outlet) 1/2" FPT inlet

RAIN BIRD

XERI-POP™

Easy to install and reconfigure, making them ideal for seasonal flower and planting beds.

- Operates with 20 psi to 50 psi base pressure when water is supplied via 1/4" distribution tubing
- Can readily connect to 1/2" or 3/4" polyethylene tubing
- Can use Multi-Port nozzle for Xeri-Pop, 5 series MPR, 5 series plastic bubbler or 8 series MPR nozzle

Product Code	Description
XP400X	4" pop-up
XP600X	6" pop-up
XP1200X	12" pop-up

AGRIFIM

HYDRO-POP™

- Designed specifically for low-volume irrigation and can operate at very low pressures — requires just 15 psi for extension
- Can be used with most Agrifim emitters and bubblers
- Available with two inlet connections — 1/2 MIPT or compression fit

Product Code	Description
HYP250	9" pop-up riser with 1/4" compression fit
HYP500	9" pop-up riser with 1/4" MIPT inlet
HYPJ250	5" pop-up riser with 1/4" compression fit
HYPJ500	5" pop-up riser with 1/4" MIPT inlet

FILTERS

RAIN BIRD

PRESSURE-REGULATING FILTER

- Reduces the number of components in a control zone, making it smaller and easier to install
- P/R RBY Filter Cap has sealing o-ring and unthreads to provide access to the filter element for easy cleaning
- P/R Back Flush Filter provides self-cleaning action with every cycle, as debris is flushed every time the system is turned on and off
- 30 psi or 40 psi pressure regulator is integrated into filter body

Specifications:

Flow: 3/4" units: 0.50 GPM to 5 GPM
1" units: 3 GPM to 15 GPM
Inlet pressure: 20 psi to 150 psi
Regulated pressure: 3/4" units: 30 psi
1" units: 40 psi

Product Code	Description
PRF-075-RBY	3/4" P/R RBY Filter
PRF-100-RBY	1" P/R RBY Filter

QUICK-CHECK BASKET FILTER

- A clear indicator top that goes from green to red when the filter is full, telling you when to clean the filter
- Reduces maintenance and takes the guess work out of cleaning the filter
- Threaded top makes it easy to remove and clean the stainless-steel element
- "No Spill" feature ensures that the dirt and debris does not fall out of the basket filter element when you remove it for cleaning
- Rugged design incorporates four Buna N o-rings for leak-free performance and is rated up to 150 psi

QUICK-CHECK BASKET FILTER (CONT.)

Product Code	Description
QKCHK-075	3/4" Inlet/Outlet
QKCHK-100	1" Inlet/Outlet
PRB-QKCHK-100	1" Inlet/Outlet; Pressure Regulating

IN-LINE WYE FILTERS

Used in conjunction with a valve and pressure regulator, it protects the downstream components in a drip irrigation system.

- Provides 150 psi pressure rating through MPT connections
- Flow: 3/4" units: 0.20 GPM to 12 GPM, 1/2" units: 0.20 GPM to 18 GPM
- Pressure: 20 psi to 150 psi

Product Code	Description
RBY075MPTX	3/4" with 200 mesh screen
RBY100MPTX	1" inline with 200 mesh screen

Replacement filters available in three configurations:

RBY100XM — 100 mesh
RBY150MX — 150 mesh
RBY200MX — 200 mesh

"Y" FILTERS

Filter traps all dirt and prevents plugging of the emitters.

- With 150 mesh polyester screen element
- 10 GPM capacity
- 150 psi maximum pressure

Product Code	Description
YS75	Agrifim 3/4" Drip Filter
DF075	Netafim 3/4" Drip Filter

PRESSURE REGULATORS

RAIN BIRD

INLINE PRESSURE REGULATORS

- Can be installed above or below ground
- Preset outlet pressures: 30 psi, 40 psi, 50 psi
- 3/4" or 1" female-threaded inlet and outlet
- 10 psi to 150 psi

Product Code	Description
PSIL30X075	3/4" 30 psi for low flow (0.10 GPM to 5 GPM; 6 GPH to 300 GPH)
PSIM30X075	3/4" 30 psi for medium flow (2 GPM to 10 GPM; 120 GPH to 600 GPH)
PSIM40X075	3/4" 40 psi for medium flow (2 GPM to 10 GPM; 120 GPH to 600 GPH)
PSIM40X100	1" 40 psi for medium flow (2 GPM to 10 GPM; 120 GPH to 600 GPH)

DRIP HOSE COMPRESSION FITTINGS

RAIN BIRD

EASY FIT COMPRESSON FITTINGS

Accept all 1/2" poly tubing from .630" to .710" outside diameter.

Product Code	Description
MDCF50FPT	1/2" FPT Adapter
MDCF50MPT	1/2" MPT Adapter
MDCF75FPT	3/4" FPT Adapter
MDCF75FHT	3/4" FHT Adapter
MDCF75MPT	3/4" MPT Adapter
MDCFCAP	Flush cap adapter
MDCFPCAP	Flush cap adapter, purple
MDFTEE	Drip Tee
MDCFEL	Elbow
MDCFCOUP	Coupling

DRIP TUBE INSERT FITTINGS

RAIN BIRD

XF INSERT FITTINGS

Shut-off/flow control valve used with 1/4" distribution tubing.

- Complete line of 17 mm insert fittings to simplify installation of XF Dripline.
- High quality barbs grab tubing for a secure fit.
- Unique barb design to reduce insertion force and still retain a secure fit.
- Non-obtrusive colored fittings to complement natural earth tones.
- Pressure: 0 – 50 psi

	MODEL	DESCRIPTION	APPLICATION
	XFF-COUP	Barb coupling 17 x 17mm Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	For 2-way joints
	XFF-ELBOW	Barb elbow 17 x 17mm Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	Elbow joint connection
	XFF-TEE	Barb tee 17 x 17 x 17mm Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	For 3-way joints
	XFF-MA-050	Barb male adapter 17mm x ½" MPT Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	For transition from ½" pipe to XF series dripline
	XFF-MA-075	Barb male adapter 17mm x ¾" MPT Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	For transition from ¾" pipe to XF series dripline
	XFF-TMA-050	Tee male adapter 17mm x ½" MPT x 17mm Operating pressure: 0 to 50 psi (0.0 to 3.5 bar)	For a 3-way joint connection to ½" pipe

VALVES

AGRIFIM
Quality Products by NDS

AGRIFIM 1/4" MICRO-VALVE

Shut-off/flow control valve used with 1/4" distribution tubing.

Product Code
MV25

RAIN BIRD

LOW FLOW VALVE

Made especially for drip irrigation systems. Contains all features of DV valve.

- Unique "double-knife" diaphragm coupled with 1/2" diameter seat for flawless operation at low flow rates
- External and internal bleed
- Flow: 0.20 GPM to 8 GPM; 15 psi to 150 psi

Product Code	Description
LFV075	3/4" valve
LFV100	1" valve

FAN SPRAYS AND STAKE ASSEMBLIES

RAIN BIRD

XERI SPRAY™

Adjust flow/radius by turning integral ball valve.

- Uniform emission pattern provides excellent distribution
- 10-32 self-tapping threads fit into 1□2" X 10 — 32 adapter
- (10-32A); 1800 Xeri-Bubbler™ adapter (XBA-1800); and polyflex riser (PFR-12)
- Ideal for ground cover, mass plantings, annual flower beds and containers

Operating Range:

Flow: 0 GPH to 31 GPH (0 l/h to 120,1 l/h)
Pressure: 10 psi to 30 psi (0,75 to 2,0 bar)
Radius: 0' to 13.4' (0 m to 4,1 m) full-circle; 0' to 10.6' (0 m to 3,2 m) quarter and half circle

Product Code	Description
XS-90	Quarter circle, spray
XS-180	Half circle, spray
XS-360	Full circle, stream spray
360 ADJ Mister	Full circle, adjustable mister

XERI SPRAY™ 360° TRUE SPRAY

True micro spray with full-circle fan spray pattern.

- Adjust flow/radius by turning outer cap
- Ideal for mass plantings, ground cover, annual flower beds and containers
- Easily cleaned by completely unscrewing cap from base unit

Operating Range:

Flow: 0 GPH to 24.5 GPH (0 l/h to 94,9 l/h)
Pressure: 15 psi to 30 psi (1,0 bar to 2,0 bar)
Radius: 0' to 6.7' (0 m to 2,0 m)

Product Code	Description
XS-360TS-SPYK	5" spike

1/4" TUBING STAKE

- Holds distribution tubing and emitter or Diffuser Bug Cap in desired location

Product Code
TS025
TS025WCAP (w/cap)

FAN SPRAYS AND STAKE ASSEMBLIES (CONT.)

AGRIFIM

AGRIFIM STAKE ASSEMBLIES

- Various stake assemblies are available in a pre-assembled form. The 1/4" connector on the end of the vinyl tubing is simply attached to the supply tubing and the system is ready to go

HOW TO SPECIFY :			
Model	Jet Assembly	Rotation	Base
TA24: 24" vinyl tubing	1 – 1 piece	F – 360°	3 - black
with S12 stake	2 – 2 pieces	H – 180°	4 – blue
TA244: no jet	3 – 3 pieces	Q – 90°	5 – green
TA245: Dial-A-Flo (DAFB360)			6 – red
TA246: Micro-Flo sprinkler			7 – white

RISERS

RAIN BIRD

RAIN BIRD® 12" POLYFELX RISER

- Accepts Xeri-Bubbler™ and Xeri-Spray™ emission devices

Product Code
PFR12

ACCESSORIES

RAIN BIRD

XERIMAN™ TOOL

- Provides fast and easy, one-step installation of Xeri-Bug™ emitters; PC Modules and 1/4" barbed insert fittings directly into 1/2" or 3/4" drip tubing such as Xeri-Tube™

Product Code
XM-TOOL

1/4" SELF PIERCING BARB CONNECTOR

- Can be inserted into distribution tubing using an XM tool or Bug Gun to provide a transfer fitting for 1/4" distribution tubing

Product Code
SPB025

XF FITTING INSERTION TOOL

Tool aids in reducing the effort required to insert fittings into the dripline tube.

- Works with Rain Bird XF flanged fittings

Product Code
FITINS-TOOL

Denotes Smart Water products

Horizon Distributors carries all of the commonly requested diameters and lengths of both PE (polyethylene) and IPS Flex PVC Pipe including:

Large Bore PE Tubing Sizes	
Product Code	**Description**
Poly Drip Tubing	.620 X .520 Black
Poly Drip Tubing	.700 X .600 Black
Poly Drip Tubing	.710 X .620 Black
Poly Drip Tubing	.710 X .620 Blue STRP
Poly Drip Tubing	.710 X .620 Purple STRP
Poly Drip Tubing	.710 X .620 Yellow STRP
Poly Drip Tubing	.927 X .817 Black
Poly Drip Tubing	.927 X .817 Blue STRP
Poly Drip Tubing	.927 X .817 Purple STRP
Poly Drip Tubing	.927 X .817 Yelow STRP
Poly Drip Tubing	.940 X .820 Black
Poly Drip Tubing	1.20 X 1.06 Black

Small Bore PE Tubing Sizes	
Product Code	**Description**
Poly Drip Tubing	.185 X .125 Vinyl
Poly Drip Tubing	.187 X .125 PE
Poly Drip Tubing	.220 X .160 PE
Poly Drip Tubing	.220 X .160 Vinyl
Poly Drip Tubing	.250 X .170 PE
Poly Drip Tubing	.250 X .170 Vinyl

Specific Drip Irrigation Installation Information

- Connecting Drip Tubing
  Drip lines can be connected directly to existing hose bibs. Typical hose bib connections include an atmospheric vacuum breaker, in-line filter, pre-set pressure regulator and swivel adaptert that connects directly to the tubing. Drip lines can be connected to a specific in-line zone valve or to a combination anti-siphon valve. The typical installation requires a Y-filter and a pre-set pressure regulator. In this situation, the drip zone can be operated automatically with the rest of the irrigation system from the controller.
- Retrofitting Existing Spray Sprinkler Systems to Drip
  Existing networks of spray sprinklers in shrubbery areas can quickly and easily be adapted to a more efficient and vandal-resistant drip system. First, the zone's control equipment must be upgraded to include a filter, pressure regulator and control valve with low flow capability. Then, existing sprays can be removed and replaced with multiple-outlet emitters. Distribution tubing is used to carry water from the emitters directly to the plants.
- Drip Systems Require Filtration
  Pressure regulators are typically preset to 20 or 30 psi. Pressure regulators are used for reducing pressures to proper levels for low volume system operation. Regulating pressure is important since high pressures cause emitters to blow off and fittings to separate from drip tubing.
- Water Delivery Tubing or Piping
  Water can be transported from the drip zone control valve through either conventional PVC pipe or polyethylene tubing. In the case of a system that utilizes PVC piping, emitters are typically mounted to nipples rising from the PVC line. This may be a convenient method when retrofitting an existing conventional spray head system.

  Polyethylene tubing can be run directly from the valve, either above or under the ground, and emitters placed anywhere along the tubing run. A mixed system uses PVC pipe from the valve to the vicinity of irrigation and changes to polyethylene at nipples rising from tees and elbows in the pipe.

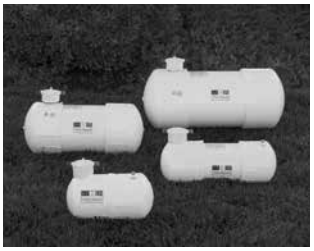
  Distribution 1/2" tubing is designed to be used near the point of water delivery. They are typically connected to the outlets of drip emitters to place water directly at the base of a specific plant.
- A Wide Selection of Emitters
  Drip emitters apply water at very slow application rates. Bubblers are designed for use in shorter watering cycles when faster application rates are desired. Microsprays are designed for general planted areas, such as groundcover. Emitter line is tubing with in-line emitters placed at specific intervals and is ideal for row plantings, or loops around shrubs and trees.

Please contact your local Horizon Sales Representative for more information.

Fertigation is the application of fertilizers, soil amendments, or other water soluble products through an irrigation system.

Benefits of fertigation over traditional broadcast or drop fertilizing methods include:

- Increased nutrient absorption by plants
- Reduction in fertilizer and chemicals needed
- Reduced leaching to the water table
- Reduction in water usage due to the plant's resulting increased root mass being able to trap and hold water
- Application of nutrients at the precise time they are needed and at the rate they are utilized



EZ-FLO SYSTEMS

EZ-FLO Main Line Systems feed the entire landscape automatically every time you water.

- Engineered to handle static water pressure even when your irrigation system is off
- When operating, the systems do not cause any measurable pressure loss
- Can be installed in minutes
- Main-line systems come in seven sizes — the size of the tank determines the refill frequency
- All models are equipped with shutoff valves for ease of refill and a pressure relief valve that releases and resets when water pressure in the tank exceeds 150lbs. per square inch
- EZ-FLO's patented flow technologies ensure that the proportion of fertilizer to water remains constant from the beginning of the cycle until the tank is depleted of fertilizer

Product Code	Description
EZ 001-CX	1.5 gals.
EZ 003-CX	2.5 gals.
EZ 005-FX	5 gals.
EZ 010-FX	10 gals.
EZ 010-HC	10 gals. (High Capacity)
EZ 020-HC	20 gals. (High Capacity)
EZ 030-HC	30 gals. (High Capacity)

BALL VALVE COUPLING CONNECTION

- Used to connect the EZ-FLO system to the irrigation flow line before or after the valve with the 1/4" flexible tubing
- Available in sizes ranging from 3/4" to 4" with socket X socket connections for gluing into PVC pipe
- Manufactured from Schedule 40 PVC with 1/4" nylon barbed tubing connections
- Highly recommended for use with EZ005-FX and EZ010-FX models and REQUIRED FOR all High Capacity (HC) main line units

Product Code	Description
EZCBV075	3/4" coupling connection w/ball valve
EZCBZ100	1" coupling connection w/ball valve
EZCBZ125	1 1/4" coupling connection w/ball valve
EZCBZ150	1 1/2" coupling connection w/ball valve
EZCBZ175	1 3/4 " coupling connection w/ball valve
EZCBZ200	2" coupling connection w/ball valve
EZCBZ250	2 1/2" coupling connection w/ball valve
EZCBZ300	3" coupling connection w/ball valve
EZCBZ400	4" coupling connection w/ball valve

See page 281 for a list of all fertilizers available for use with EZ-FLO injector systems.

EZ FLO

STANDARD SLIP COUPLING CONNECTION

- Available in sizes ranging from 3/4" to 4" with socket X socket connections for gluing into PVC pipe
- Manufactured from Schedule 40 PVC with 1/4" nylon barbed tubing connections
- Used to connect the EZ-FLO system to the irrigation flow line before or after the valve with the 1/4" flexible tubing provided with every EZ-FLO system
- Required for complex system designs or when the elevation of zone valves downstream from the installation point are at an elevation of 10' or more above the installation point
- Provide the ability to adjust the differential pressure between the inlet and outlet connections to the irrigation flow line
- Highly recommended for use with EZ005-FX and EZ010-FX models and REQUIRED FOR all High Capacity (HC) main line units

Product Code	Description
ECZ075	3/4" coupling connection
EZC100	1" coupling connection
EZC125	1 1/4" coupling connection
EZC150	1 1/2" coupling connection
EZC175	1 3/4" coupling connection
EZC200	2" coupling connection
EZC250	2 1/2" coupling connection
EZC300	3" coupling connection
EZC400	4" coupling connection

FertileEarth™

FERTILE EARTH PROFEEDER

Fertigation and all-natural pest control for landscape professionals.

- Installs in a standard valve box
- Auto-regulating design
- Water pressure: 25 psi to 125 psi
- Water flow: 1.5 GPM to 30 GPM
- Easy to service and repair
- Very low friction loss
- Works with drip, pop-up or impact installed in the same system
- All-mechanical design
- Liquid Life™ fertilizer
- Easy to refill Quick Connect bottle
- Safe for use around kids & pets
- Use the SmartFeeder™ as an all-natural pest-control system

FEBCO BACKFLOW PREVENTION

WILKINS a ZURN company

FEBCO 850 SERIES

- Used to prevent backflow of pollutants that are objectionable but not toxic
- May be installed under continuous pressure and may be subjected to backpressure
- For use in sprinkler systems and fire protection systems without chemical additives

Specifications:

Maximum working water pressure: 175 psi
Hydrostatic test pressure: 350 psi
Temperature range: 32°F to 140°F

Product Code	Description
85007	3/4" Double check valve
85010	1" Double check valve
85015	1 1/2" Double check valve
85020	2" Double check valve
850U007	3/4" Union ball double check valve
850U010	1" Union ball double check valve

WILKINS 950XL AND 950XLT SERIES

Designed for installation on potable water lines to protect against both back-siphonage and backpressure of polluted water into the potable water supply.

- Double check valve assembly complete with two full port valves and four ball valve test cocks

Specifications:

Maximum working water pressure: 175 psi
Maximum working water temperature: 180°F
Hydrostatic test pressure: 350 psi

Product Code	Description
950XL007	3/4" XL Series
950XL010	1" XL Series
950XL012	1 1/4" XL Series
950XL015	1 1/2" XL Series
950XL020	2" XL Series
950XLT007	3/4" XLT Series
950XLT010	1" XLT Series
950XLT012	1 1/4" XLT Series
950XLT015	1 1/2" XLT Series
950XLT020	2" XLT Series
950XLTU007	3/4" XLT Series with union ball valves
950XLTU010	1" XLT Series with union ball valves
950XLTU012	1 1/4" XLT Series with union ball valves
950XLTU015	1 1/2" XLT Series with union ball valves
950XLTU020	2" XLT Series with union ball valves

DOUBLE CHECK VALVE ASSEMBLY (CONT.)

WILKINS
a ZURN company

WILKINS MODEL 350

Designed for installation on potable water lines to protect against both back-siphonage and backpressure of polluted water into the potable water supply.

- Easy to test. Top access to test cocks, shutoff valves and check assembly
- Entire flow housing is removable to enable check access for cleaning or repair
- Easy to winterize by removing wetted components between shut off valves
- Simple design — composite housing and check modules resist corrosion

Specifications:

Maximum working water pressure: 175 psi
Maximum working water temperature: 180°F
Hydrostatic test pressure: 350 psi

Product Code	Description
350007	3/4" 350 Double Check Backflow Assembly
350010	1" 350 Double Check Backflow Assembly

CONBRACO

CONBRACO 2" 40-100-T2 SERIES

Product Code	Description
40104T2	3/4" Double Check Backflow Preventer
40105T2	1" Double Check Backflow Preventer
40107T2	1 1/2" Double Check Backflow Preventer
401087T2	2" Double Check Backflow Preventer

PRESSURE VACCUUM BREAKER ASSEMBLY

FEBCO
BACKFLOW PREVENTION

FEBCO 765 SERIES

- All bronze body for durability
- One check valve and an air opening port in one assembly
- Lightweight poppet seals air opening under minimum flow conditions
- Simple service procedures
- All internal parts serviceable in line from the top of the unit
- Designed for minimum head loss
- Engineered plastic bonnet protect valve bodies from freeze damage
- Optional union end ball valves for easy removal and ultimate freeze protection

Specifications:

Maximum working water pressure: 150 psi
Hydrostatic test pressure: 300 psi
Temperature range: 32°F to 140°F

Product Code	Description
765005	1/2" Pressure vacuum breaker
765007	3/4" Pressure vacuum breaker
765010	1" Pressure vacuum breaker
765012	1 1/4" Pressure vacuum breaker
765015	1 1/2" Pressure vacuum breaker
765020	2" Pressure vacuum breaker
765UB007	3/4" PVB with union ball valve
765UB010	1" PVB with union ball valve

PRESSURE VACCUUM BREAKER ASSEMBLY (CONT.)

WILKINS
a ZURN company

WILKINS 720 SERIES

The valve isolates non-potable or irrigation lines from the potable water systems. It has the ability to withstand supply pressure for long periods and to prevent backflow of hazardous and non-hazardous water into the potable water system in back-siphonage conditions only.

Specifications:

Maximum working water pressure: 150 psi
Maximum working water temperature: 110°F
Hydrostatic test pressure: 300 psi

Product Code	Description
720A005	1/2" Backflow PVB
720A007	3/4" Backflow Pressure Vacuum Breaker
720A010	1" Backflow Pressure Vacuum Breaker
720A012	1 1/4" Backflow Pressure Vacuum Breaker
720A015	1 1/2" Backflow Pressure Vacuum Breaker
720A020	2" Backflow Pressure Vacuum Breaker

CONBRACO

CONBRACO 1" 4V-500 SERIES

Product Code	Description
4V50402	3/4" Pressure Vacuum Breaker
4V50502	1" Pressure Vacuum Breaker

REDUCED PRESSURE ASSEMBLY

FEBCO
BACKFLOW PREVENTION

FEBCO 825Y SERIES

- Reliable FEBCO quality in traditional "Y" pattern design
- All internal parts serviceable without removing unit
- Angle pattern available (product code 825YA)

Specifications:

Maximum working water pressure: 175 psi
Hydrostatic test pressure: 350 psi
Temperature range: 32°F to 140°F

Product Code	Description
825Y007	3/4" 825Y Series
825Y010	1" 825Y Series
825Y012	1 1/4" 825Y Series
825Y015	1 1/2" 825Y Series
825Y020	2" 825Y Series

REDUCED PRESSURE ASSEMBLY (CONT.)

FEBCO
BACKFLOW PREVENTION

FEBCO 825YA SERIES

- Low head loss for optimum performance
- Compact design simplifies retrofit
- Field-tested design for reliability and performance
- Replaceable relief valve seat ring for longer life

Specifications:

Maximum working water pressure: 175 psi
Hydrostatic test pressure: 350 psi
Temperature range: 32°F to 140°F

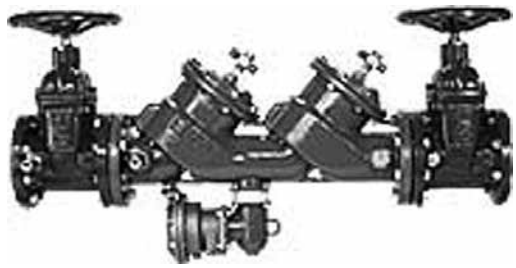
Product Code	Description
825YA007	3/4" 825YA Series
825YA010	1" 825YA Series
825YA015	1 1/2" 825YA Series
825YA020	2" 825YA Series

FEBCO 860 SERIES

- Ductile iron body for superior strength and lightweight
- Patented spring-loaded swing checks for reliability and low head loss
- 100% fusion epoxy coated inside and out
- Modular bottom mount relief valve
- Simple service procedures require no tools
- Cast in lifting hooks for easy, safe installation
- Bulkhead fittings eliminate all threaded holes in body and cover

Specifications:

Maximum working water pressure: 175 psi
Hydrostatic test pressure: 350 psi
Temperature range: 32°F to 140°F



Product Code	Description
860005	1/2" 860 Series RPA
860007	3/4" 860 Series RPA
860010	1" 860 Series RPA
860012	1 1/4" 860 Series RPA
860015	1 1/2" 860 Series RPA
860020	2" 860 Series RPA
860025	2 1/2" 860 Series RPA
860030	3" 860 Series RPA
860040	4" 860 Series RPA
860060	6" 860 Series RPA

WILKINS
a ZURN company

WILKINS 975XL SERIES

- Prevents the reverse flow of water, gases or other substances into the distribution system of the potable water supply
- Pressure differential relief valve between two independent spring-loaded "Y" type center guided check valves complete with two full port ball valves and four ball valve test cocks

Specifications:

Maximum working water pressure: 175 psi
Maximum working water temperature: 180°F

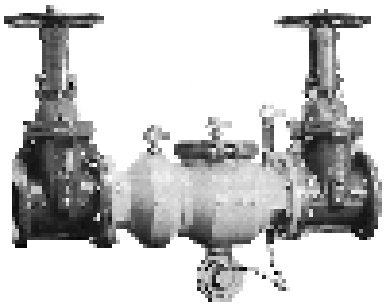
Product Code	Description
12-975XL2	1/2" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP
34-975XL2	3/4" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP
1-975XL2	1" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP
114-975XL2	1-1/4" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP
112-975XL2	1-1/2" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP
2-975XL2	2" Reduced Pressure Principle Assy, Lead-Free, FNTP x FNTP

Lead Free products contain a weighted average lead content less than 0.25% for wetted surfaces.

WILKINS 375 SERIES

2 1/2" to 4"

Designed for installation on potable water lines to protect against both back-siphonage and backpressure of contaminated water into the potable water supply.



Specifications:

Maximum working water pressure: 175 psi
Maximum working water temperature: 140°F
Hydrostatic test pressure: 350 psi
With NRS shut-off valves

Product Code	Description
1-375XL	1" Reduced Pressure Principle Assy, Lead-Free, Composite Vessel, FNTP x FNTP
2-375XL	2" Reduced Pressure Principle Assy, Lead-Free, Composite Vessel, FNTP x FNTP
3-375OSY	3" Reduced Pressure Principle Assy, Lead-Free, Flanged Body, Flanged OSY x Flanged OSY
4-375	4" Reduced Pressure Principle Assy, Lead-Free, Flanged Body, Flanged OSY x Flanged OSY

Lead Free products contain a weighted average lead content less than 0.25% for wetted surfaces.

SINGLE WALL PIPE

ADS single-wall corrugated HDPE pipe is ideal for drainage projects where flexibility, light weight and low cost are important.

Product Code	Description
3010010	3" Flex perforated pipe, 10' length
3010100	3" Flex perforated pipe, 100' length
3010300	3" Flex perforated pipe, 300' length
4010010	4" Flex perforated pipe, 10' length
4010100	4" Flex perforated pipe, 100' length
4010250	4" Flex perforated pipe, 250' length
6010010	6" Flex perforated pipe, 10' length
6010100	6" Flex perforated pipe, 100' length
8010020	8" Flex perforated pipe, 20' length
10010020	10" Flex perforated pipe, 20' length
12010020	12" Flex perforated pipe, 20' length
15010020	15" Flex perforated pipe, 20' length
18010020	18" Flex perforated pipe, 20' length
3510010	3" Flex solid pipe, 10' length
3510100	3" Flex solid pipe, 100' length
3510300	3" Flex solid pipe, 300' length
4510010	4" Flex solid pipe, 10' length
4510100	4" Flex solid pipe, 100' length
4510250	4" Flex solid pipe, 250' length
6510010	6" Flex solid pipe, 10' length
6510100	6" Flex solid pipe, 100' length
8510020	8" Flex solid pipe, 20' length
10510020	10" Flex solid pipe, 20' length
12510020	12" Flex solid pipe, 20' length
15510020	15" Flex solid pipe, 20' length
18510020	18" Flex solid pipe, 20' length
24510020	24" Flex solid pipe, 20' length

SINGLE WALL PIPE WITH SOCK

This pipe features a factory-installed synthetic wrap "sock" that prevents the entry of particles into the drainage line. Ideal for use in sand-based golf applications or to eliminate the need for landscape fabric.

Product Code	Description
03730100BS	3" Flex perforated pipe with filter sock, 100' roll
04730100BS	4" Flex perforated pipe with filter sock, 100' roll
06730100BS	6" Flex perforated pipe with filter sock, 100' roll
0420HA	4" Filter sock only, 100' roll

DUAL WALL PIPE

N-12 dual wall pipe has a smooth interior wall and a corrugated exterior wall and offers exceptional hydraulics and strength. N-12 provides superior corrosion and abrasion resistance. N-12 is available in recycled materials per ASTM F-2648 or virgin materials per AASHTO.

Product Code	Description
N-12 Plain End per ASTM F-2648	Horizon Distributors offer all of the commonly specified dual wall corrugated polyethylene pipe configurations from 4" to 60". Plain end, in-line ball couplings and assorted fittings.
N-12 Water Tight per ASTM F-2648	
N-12 Soil Tight per ASTM F-2648	
N-12 Plain End per AASHTO	
N-12 Water Tight per AASHTO	
N-12 Soil Tight per AASHTO	

Plain End

Water Tight

Soil Tight

ADS TRIPLE WALL PIPE

ADS 3000 Triple Wall pipe is triple bonded polyethylene for exceptional pipe stiffness. With smooth inner and outer walls and corrugated structural core, ADS 3000 pipe is designed to have superior pipe stiffness to that of PVC sewer and drain pipe, yet priced to compete.

Product Code	Description
3520010	3" Triple wall sewer & drain perforated pipe, 10' length
4520010	4" Triple wall sewer & drain perforated pipe, 10' length
3550010	3" Triple wall sewer & drain solid pipe, 10' length
4550010	4" Triple wall sewer & drain solid pipe, 10' length

Single Wall

Single Wall with Sock

Triple Wall

Denotes Smart Water products

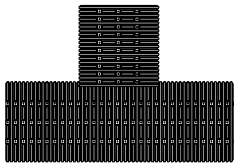
Irrigation

ADVANEDGE® PIPE

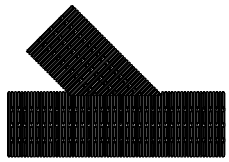
Panel-shaped AdvanEDGE HDPE is utilized for building foundation drainage, golf courses, athletic fields, airport runways, railroad truck ballast and perimeter curtain drains.

- Easy to install
- Durable
- Available with fabric or without fabric

Product Code	Description
04900100	12" Panel pipe no fabric, 100' length
04910100	12" Panel pipe 3.5 oz Typar fabric, 100' length
04930100	12" Panel pipe 4.0 oz. Typar fabric, 100' length
04930400	12" Panel pipe 4.0 oz. Typar fabric, 400' length
04930112	12" Panel pipe 4.0 oz. Typar fabric, 112' length
04940100	12" Panel pipe knitted polyester sock, 100' length
04950100	12" Panel pipe 4.0 oz Amoco fabric (grey), 100' length
06900100	18" Panel pipe no fabric, 100' length
06930100	18" Panel pipe 4.0 oz fabric, 100' length
06931600	18" Panel pipe 4.0 oz fabric, 1,600' length
06950100	18" Panel pipe Needlepunched fabric, 100' length



Fabricated Tee (Horizontal)



Fabricated Wye (Horizontal)

Fabricated Cross Tee

Fabricated Tee with Side Outlet

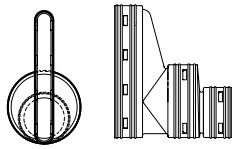
Fabricated Cross Wye

ADVANEDGE® PIPE FITTINGS

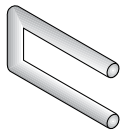
Panel-shaped AdvanEDGE HDPE is utilized for building foundation drainage, golf courses, athletic fields, airport runways, railroad truck ballast and perimeter curtain drains.

Product Code	Description
1432AA	12" Panel pipe snap end cap
1632AA	18" Panel pipe snap end cap
1411AA	12" Panel pipe external split coupler
1611AA	18" Panel pipe external split coupler
1480AA	12" Panel pipe wye
0840MB	12" & 18" Panel pipe coupling pin (2/pack)
1472AA	12" Panel pipe end outlet
1672AA	18" Panel pipe end outlet
1471AA	18" Panel pipe side outlet
1671AA	18" Panel pipe side outlet
1432AN	12" Panel pipe flat outlet
1460AN	12" Panel pipe fabricated tee
1660AN	18" Panel pipe fabricated tee
1460ANH	12" Panel pipe horizontal fabricated tee
1660ANH	18" Panel pipe horizontal fabricated tee
1464ANH	12" Panel pipe fabricated tee with side outlet
1464ANH81	12" Panel pipe fabricated tee with perforated side outlet
1436ANH	12" Panel pipe fabricated horizontal cross tee
1480AN	12" Panel pipe fabricated wye
1680AN	18" Panel pipe fabricated wye
1480ANH	12" Panel pipe fabricated horizontal wye
1680ANH	18" Panel pipe fabricated horizontal wye
1438ANH	12" Panel pipe fabricated cross wye

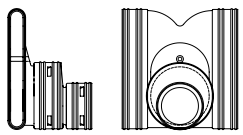
End Cap



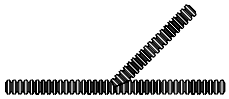
End Outlet



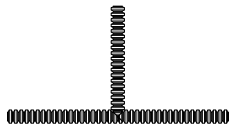
Coupling Pin



Side Outlet



FABRICATED WYE



Fabricated Tee

Denotes Smart Water products

HINGED TEE

Hinged corrugated tee fits on 4" singlewall pipe and N-12® dual wall pipe. Hinged corrugated tee will fasten securely to pipe and allow for ease of use in the field.

Product Code	Description
0421AAHF	4" Hinged tee with clips

EXPANDABLE DOWNSPOUT ADAPTER

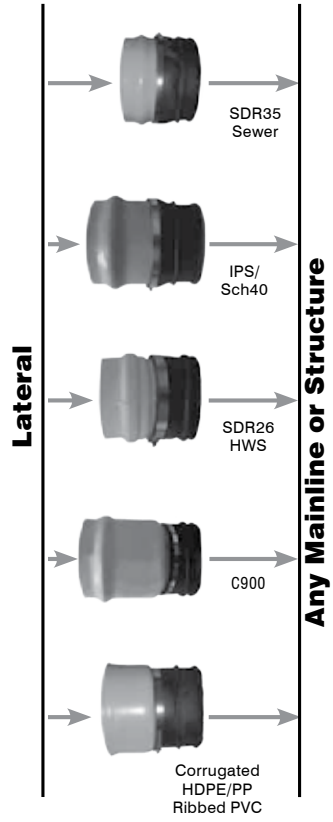
Adapter comes in 8½" compressed length and expands to 16". Bends from 45° to 90° angles. Angles around landscaping and easily bent to move for mowing.

Product Code	Description
0473AA	2"x3" Downspout Fitting
0474AA	3"x4" Downspout Fitting

INSERTA TEE® FITTINGS

Compression fits into the cored wall of a mainline and requires no special tools. Designed to connect 2”-30” services to mainlines.

Product Code	Description
2IPS8N12	2” IPS/SCH40 into 8” corrugated HDPE pipe
2IPS10N12	2” IPS/SCH40 into 10” corrugated HDPE pipe
2IPS12N12	2” IPS/SCH40 into 12” corrugated HDPE pipe
2IPS8P35	2” IPS/SCH40 into 8” SDR35
4IPSFB8N12	4” IPS/SCH40 into 8” corrugated HDPE pipe
4IPSFB10N12	4” IPS/SCH40 into 10” corrugated HDPE pipe
4IPSFB12N12	4” IPS/SCH40 into 12” corrugated HDPE pipe
4P26FB8N12	4” SDR26 into 8” corrugated HDPE pipe
4P26FB10N12	4” SDR26 into 10” corrugated HDPE pipe
4P26FB12N12	4” SDR26 into 12” corrugated HDPE pipe
4P26FB18N12	4” SDR26 into 18” corrugated HDPE pipe
4P26FB8P35	4” SDR into 8” SDR35
4P26FB12P35	4” SDR into 12” SDR35
4N1210N12	4” corrugated HDPE into 10” corrugated HDPE pipe
4N1212N12	4” corrugated HDPE into 12” corrugated HDPE pipe
4N1218N12	4” corrugated HDPE into 18” corrugated HDPE pipe
6IPSFB8N12	6” IPS/SCH40 into 8” corrugated HDPE pipe
6IPSFB10N12	6” IPS/SCH40 into 10” corrugated HDPE pipe
6IPSFB12N12	6” IPS/SCH40 into 12” corrugated HDPE pipe
6IPSFB18N12	6” IPS/SCH40 into 18” corrugated HDPE pipe
6P26FB8N12	6” SDR26 into 8” corrugated HDPE pipe
6P26FB10N12	6” SDR26 into 10” corrugated HDPE pipe
6P26FB12N12	6” SDR26 into 12” corrugated HDPE pipe
6P26FB18N12	6” SDR26 into 18” corrugated HDPE pipe
6P26FB8P35	6” SDR26 into 8” SDR35
6P26FB12P35	6” SDR26 into 12” SDR35
6N1210N12	6” corrugated HDPE into 10” corrugated HDPE pipe
6N1212N12	6” corrugated HDPE into 12” corrugated HDPE pipe
6N1218N12	6” corrugated HDPE into 18” corrugated HDPE pipe
8P3512N12	8” SDR35 into 12” corrugated HDPE pipe
8P3518N12	8” SDR35 into 18” corrugated HDPE pipe
8P3524N12	8” SDR35 into 24” corrugated HDPE pipe
8P3512P35	8” SDR35 into 12” SDR35
8P3518P35	8” SDR35 into 18” SDR35
8N1212N12	8” corrugated HDPE pipe into 12” corrugated HDPE pipe
8N1218N12	8” corrugated HDPE pipe into 18” corrugated HDPE pipe



INSERTA TEE® SAWS

INSERTA TEE hole saws are custom made to our specifications and sizing and are color coded for easy identification. Each saw is meant for a specific pipe or structure material.

Product Code	Description
Y412	4½” Yellow Series hole saw for PVC
Y612	6½” Yellow Series hole saw for PVC
Y834	8¾” Yellow Series hole saw for PVC
R412	4½” Red Series hole saw for corrugated HDPE
R612	6½” Red Series hole saw for corrugated HDPE
R834	8¾” Red Series hole saw for corrugated HDPE

Denotes Smart Water products

Horizon

NONWOVEN GEOTEXTILES

Nonwoven geotextiles are used to stabilize roadways and can be used on drainage systems to filter solid particles.

Product Code	Description
0311TG	3 oz. lightweight nonwoven, 150" x 360'
0311TS	3 oz. lightweight nonwoven, 180" x 360'
0351TC	3.5 oz. lightweight nonwoven, 24" x 360'
0351TA	3.5 oz. lightweight nonwoven, 36" x 360'
0351TB	3.5 oz. lightweight nonwoven, 48" x 360'
0351TT	3.5 oz. lightweight nonwoven, 90" x 360'
0351TG	3.5 oz. lightweight nonwoven, 150" x 360'
0351TS	3.5 oz. lightweight nonwoven, 180" x 360'
0401TT	4 oz. lightweight nonwoven, 90" x 360'
0401TG	4 oz. lightweight nonwoven, 150" x 360'
0401TS	4 oz. lightweight nonwoven, 180" x 360'
0451TG	4.5 oz. lightweight nonwoven, 150" x 360'
0451TS	4.5 oz. lightweight nonwoven, 180" x 360'
0601TG	6 oz. medium weight nonwoven, 150" x 360'
0601TS	6 oz. medium weight nonwoven, 180" x 300'
0701TE	7 oz. medium weight nonwoven, 72" x 360'
0701TG	7 oz. medium weight nonwoven, 150" x 360'
0701TS	7 oz. medium weight nonwoven, 180" x 300'
0801TG	8 oz. medium weight nonwoven, 150" x 360'
0801TS	8 oz. medium weight nonwoven, 180" x 300'

TURF REINFORCEMENT MATS

Turf reinforcement mats enhance the natural ability of plants to protect soil from erosion and improve water quality.

Product Code	Description
PP58GTR	7.5' X 120' Turf reinforcement mat
PP510GTR	7.5' X 120' Turf reinforcement mat
PP512GTR	7.5' x 120' Turf reinforcement mat
PP5HD8GTR	8' x 112.5' High performance turf reinforcement mat

WOVEN GEOTEXTILES

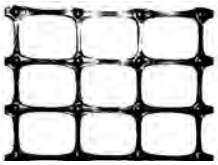
Woven geotextiles are manufactured from extruded polypropylene monofilaments interlaced to form a dimensionally stable construction fabric. This produces a premium filter that is extremely resistant to soil and biological clogging.

Product Code	Description
200WTK	200 grab tensile woven, 150" x 432'
200WTS	200 grab tensile woven, 180" x 360'
200WTM	200 grab tensile woven, 210" x 300'
315WTK	315 grab tensile woven, 150" x 360'
315WTM	315 grab tensile woven, 210" x 257'
315WTS	315 grab tensile woven, 180" x 300'

GEOGRIDS

Geogrids are used for soil reinforcement such as bare reinforcement and soft soil stabilization.

Product Code	Description
BX114GG	13.1' X 246' biaxial geogrid
BX124GG	13.1' X 164' biaxial geogrid
BX134GG	13.1' X 164' biaxial geogrid
BX414GG	13.1' X 246' biaxial geogrid



Denotes Smart Water products

FLEXSTORM® CATCH-IT FILTERS

The FLEXSTORM CATCH-IT system is a temporary inlet protection filter and storm water runoff control. Filter includes a bypass protection to prevent jobsite ponding. Units install in 30 seconds and may be used for landscape construction, roads, parking lots, floor drains, maintenance and residential development.

Product Code	Description
62SSQFX	Small square filter up to 18" x 18"
62MSQFX	Medium square filter up to 24" x 24"
6212NYFX	12" Round filter
6218NYFX	18" Round filter
6224NYFX	24" Round filter

FLEXSTORM® PURE FILTERS

The FLEXSTORM PURE system is a permanent inlet protection and storm water runoff control filter. PURE inlet filters fit any drainage structure and are available with site-specific filter bags providing various filtration levels. May be utilized in car washes, loading ramps, landscapes, parking lots, dock drains, maintenance and industrial.

Product Code	Description
62MHDPCP	Medium square filter up to 24" x 24" (Hydrocarbon removal)
62MHDRPCP	Medium round filter up to 24" (Hydrocarbon removal)
62MHDFX	Medium square filter up to 24" x 24"
62MHDFXP	Medium square filter up to 24" x 24" (Hydrocarbon removal)

OPEN THROAT CURB INLET

FX: woven bag at 82% filtration efficiency for construction sediment load

PC: woven with Adsorb-it line targeting small particle and hydrocarbon removal

FX+ and PC+ bags include ClearTec skimmer pouches for additional hydrocarbon removal capabilities

Product Code	Description
62HDWM1FX	Small wall mount up to 48"
62HDWM2FX	Medium wall mount between 48" & 96"

Denotes Smart Water products

NDS STYRENE SEWER DRAIN FITTINGS

NDS

STYRENE DOWNSPOUT ADAPTER

Product Code	Description
STY3DS	3"
STY4DS	4"

STYRENE COUPLING

Product Code	Description
STY3COUP	3"
STY4COUP	4"
STY6COUP	6"

STYRENE TEE

Product Code	Description
STY3TEE	3"
STY4TEE	4"
STY6TEE	6"

STYRENE 45° WYE

Product Code	Description
STY3WYE	3"
STY4WYE	4"
STY6WYE	6"

STYRENE 90° ELBOW SHORT

Product Code	Description
STY390	3"
STY490	4"
STY690	6"

STYRENE 90° LONG TURN ELBOW

Product Code	Description
STY3LT90	3"
STY4LT90	4"
STY6LT99	6"

STYRENE 45° ELBOW

Product Code	Description
STY345	3"
STY445	4"
STY645	6"

STYRENE 22.5° ELBOW

Product Code	Description
STY3225	3" Styrene 22.5° elbow
STY4225	4" Styrene 22.5° elbow
STY6225	6" Styrene 22.5° elbow

STYRENE END CAP

Product Code	Description
STY3CAP	3" Styrene end cap
STY4CAP	4" Styrene end cap
STY6CAP	6" Styrene end cap

STYRENE REPAIR COUPLING

Product Code	Description
STY3RCOUP	3"
STY4RCOUP	4" S

STYRENE THREADED PLUG

Product Code	Description
STY3PLUG	3"
STY4PLUG	4"

REDUCER COUPLING

Product Code	Description
STY4X3COUP	4" X 3"
STY6X4COUP	6" X 4"

STYRENE REDUCER BUSHING

Product Code	Description
STY4X3RB	4" X 3"
STY6X4RB	6" X 4"

STYRENE CLEANOUT FEMALE ADAPTER

Product Code	Description
STY3FA	3"
STY4FA	4"
STY6FA	6"

STYRENE SANITARY TEE

Product Code	Description
STY3SANTEE	3"
STY4SANTEE	4"

NDS PVC SEWER DRAIN FITTINGS

NDS

PVC DOWNSPOUT ADAPTER

Product Code	Description
PVC3DS	3" PVC Downspout adapter
PVC4DS	4" PVC Downspout adapter

PVC COUPLING

Product Code	Description
PVC3COUP	3" PVC Coupling
PVC4COUP	4" PVC Coupling
PVC6COUP	6" PVC Coupling

PVC TEE

Product Code	Description
PVC3T	3" PVC Tee
PVC4T	4" PVC Tee
PVC6T	6" PVC Tee

PVC SANITARY TEE

Product Code	Description
PVC3SANT	3" PVC Sanitary tee
PVC4SANT	4" PVC Sanitary tee
PVC4SANT	6" PVC Sanitary tee

PVC 45° WYE

Product Code	Description
PVC3Y	3" PVC 45° Wye
PVC4Y	4" PVC 45° Wye
PVC6Y	6" PVC 45° Wye

PVC 90° ELBOW SHORT

Product Code	Description
PVC390	3" PVC 90° Elbow short
PVC490	4" PVC 90° Elbow short
PVC690	6" PVC 90° Elbow short

PVC 90° LONG TURN ELBOW

Product Code	Description
PVC3LT90	3" PVC 90° Elbow long turn
PVC4LT90	4" PVC 90° Elbow long turn
PVC6LT90	6" PVC 90° Elbow long turn

NDS PVC SEWER DRAIN FITTINGS (CONT.)

PVC 45° ELBOW

Product Code	Description
PVC345	3" PVC 45° Elbow
PVC445	4" PVC 45° Elbow
PVC645	6" PVC 45° Elbow

PVC 22.5° ELBOW

Product Code	Description
PVC3225	3" PVC 22.5° Elbow
PVC4225	4" PVC 22.5° Elbow
PVC6225	6" PVC 22.5° Elbow

PVC END CAP

Product Code	Description
PVC3CAP	3" PVC End cap
PVC4CAP	4" PVC End cap
PVC6CAP	6" PVC End cap

PVC REPAIR COUPLING

Product Code	Description
PVC3RCOUP	3" PVC Repair coupling
PVC4RCOUP	4" PVC Repair coupling

PVC PLUG

Product Code	Description
PVC3PLUG	3" PVC Threaded plug
PVC4PLUG	4" PVC Threaded plug

REDUCER COUPLING

Product Code	Description
PVC4X3COUP	4" X 3" Reducer coupling
PVC6X4COUP	6" X 4" Reducer coupling

PVC REDUCER BUSHING

Product Code	Description
PVC4X3RB	4" X 3" Reducer bushing
PVC6X4RB	6" X 4" Reducer bushing

PVC CLEANOUT FEMALE ADAPTER

Product Code	Description
PVC3FA	3" Female adapter
PVC4FA	4" Female adapter
PVC6FA	6" Female adapter

NDS EZFLOW™

Spend less time installing and more time living.

- Lightweight, easy to use, versatile and environmentally friendly
- The patented EZflow system replaces gravel with geosynthetic aggregate in septic system drainfields and subsurface water management
- Ideal for septic leachfields, foundations, curtain and landscaping drains, retaining walls, golf course drainage, and sports complexes
- Preassembled, lightweight EZflow units can be transported and installed by a single worker
- May be used in conjunction with additional 10' lengths of geosynthetic aggregate, without pipe, when additional drainage is needed
- 5' and 10' lengths with either a 3" or 4" (depending on bundle diameter) corrugated pipe surrounded by geosynthetic aggregate and enclosed in a high strength polystyrene netting

Product Code	Description
EZ0701	EZflow™ Pipe 7" X 10' 3" Slotted
EZ10001	EZflow™ Pipe 10" X 10' 4" Slotted

Denotes Smart Water products

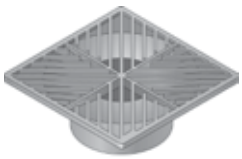
NDS

ROUND GRATES

Product Code	Description
NDS14	3" Round grate, black
NDS16	3" Round grate, green
NDS16S	3" Round grate, sand
NDS11	4" Round grate, black
NDS13	4" Round grate, green
NDS13S	4" Round grate, sand
NDS40	6" Round grate, black
NDS50	6" Round grate, green
NDS60S	6" Round grate, sand
NDS10	8" Round grate, black
NDS20	8" Round grate, green
NDS30S	8" Round grate, sand

SQUARE GRATES

Product Code	Description
NDS04	6" Square grate, black
NDS05	6" Square grate, green
NDS06S	6" Square grate, sand
NDS950	9" Square grate, green
NDS970	9" Square grate, black
NDS970S	9" Square grate, sand



ATRIUM GRATES

Product Code	Description
NDS70	3" Atrium grate, green
NDS74	3" Atrium grate, black
NDS74S	3" Atrium grate, sand
NDS75	4" Atrium grate, green
NDS78	4" Atrium grate, black
NDS78S	4" Atrium grate, sand
NDS80	6" Atrium grate, green
NDS90	6" Atrium grate, black
NDS90S	6" Atrium grate, sand

FLO-WELL®

Lightweight dry well system that is used to collect and discharge unwanted water back into the subsoil. No need for piping systems to transport storm water to a far-off discharge point. No special equipment is required for installation. The modular design creates greater flexibility, and the Flo-Well can be either stacked or connected for increased capacity.

Product Code	Description
FWAS24 NDS	24" Diam x 28 3/4" H Flo-Well® storm water leaching
FWAS24C NDS	24" Diam Flo-Well®cover only
FWBP24 NDS	24" Diam Flo-Well® bottom only
FWSD69 NDS	4" SCH40 Surface drain inlet w/ grate
FWSPS3	NDS Flo-Well® side panels/extension only

SPEE-D BASINS

Quick installation catch basins that accept 6" round grates or drainage adaptors. Single or multiple outlet designs compatible with 3" and 4" corrugated or PVC drainage pipe.

Product Code	Description
NDS101	Spee-D 6" basin single 3" X 4" locking outlet
NDS201	Spee-D 6" basin double 3" X 4" locking outlets

POP-UP DRAINAGE EMITTER

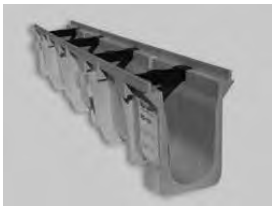
An easy, safe and an efficient solution.

- Allows water to be diverted and released to water-safe areas away from structures, erosion-prone landscapes and poor drainage areas
- Allows captured water to flow through the drainage pipe and away from structural foundations to safe or useful areas
- Opened by the hydrostatic pressure of water flowing through the drain pipe
- Emitter with elbow may be used with Flo-Well® to relieve overflow
- Can now be installed in vertical applications—ideal for discharging water from retaining walls and street curbs

Product Code	Description
NDS1241	NDS 3" & 4" Universal adapter w/ 4" spigot
NDS321	NDS 3" Pop-up drainage emitter w/ elbow
NDS421	NDS 4" Pop-up drainage emitter w/ elbow
NDS625	NDS 6" Pop-up drainage emitter w/ Spee-D basin

DURA SLOPE™ CHANNEL DRAIN

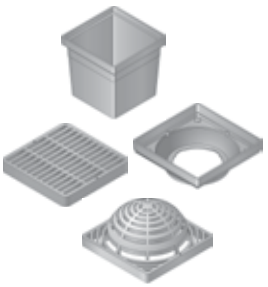
- Lightweight 4' modular sections for easier handling and installation and lower freight costs
- 2" radius bottom minimizes debris build-up
- Polyethylene material is durable and inexpensive
- Less breakage versus concrete
- Bottom outlet on each channel section increases system versatility and requires fewer accessories
- 0.7% built-in slope maintains optimum flow rates throughout system



Horizon Distributors supports the Dura Slope™ Channel Drain product line. Please contact your local Horizon Representative for more information.

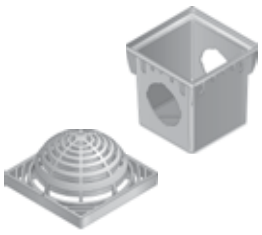
9" CATCH BASIN SERIES

Product Code	Description
NDS900	9" X 9" Catch basin 2-opening
NDS916	9" X 9" Catch basin 7 3/8" extension
NDS930	9" X 9" Low profiler adapter
NDS980	9" Square grate, black
NDS981	9" Atrium grate, black
NDS990	9" Square grate, green
NDS991	9" Atrium grate, green
NDS999S	9" Square grate, sand



12" CATCH BASIN SERIES

Product Code	Description
NDS1200	12" X 12" Catch basin 2-opening
NDS1211	12" Square grate, black
NDS1212	12" Square grate, green
NDS1212S	12" Square grate, sand
NDS1216	12" X 12" Catch basin 7 1/8" extension
NDS1230	12" X 12" Low profile adapter
NDS1280	12" Atrium grate, green
NDS1290	12" Atrium grate, black
NDS1290S	12" Atrium grate, sand



OUTLETS

Product Code	Description
NDS1206	6" Universal plug adapter
NDS1241	3" & 4" Universal adapter w/ 4" spigot
NDS1243	3" & 4" Universal locking outlet
NDS1245	3" & 4" Universal offset outlet
NDS1266	6" Universal locking outlet

MINI CHANNEL™ DRAINS

Low-cost alternative to Spee-D Channel. Excellent for light duty applications including residential pools, patios, spas and tennis courts.

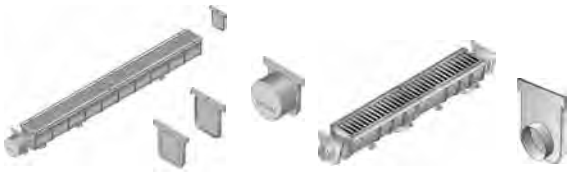
Product Code	Description
NDS543	3' Channel grate, black
NDS552B	1' Brass channel grate, satin brass
NDS500	6' Mini channel drain, gray

SPEE-D CHANNEL™ DRAINS

Product Code	Description
NDS244	2' Channel grate, black
NDS400	4' Channel drain, gray
NDS400-10	10' Channel drain, gray

PROFILE CHANNEL DRAINS

Unique patented flying buttress design provides load bearing support from both sides as well as underneath. Available in four sizes: Dura Channel for traffic applications and large flow capacities, Spee-D for driveways, large decks and commercial areas, Mini for landscapes, pools or decks and Micro for residential pools and spas.



Product Code	Description
NDS764	NDS Pro series 3" X 39 3/4" channel & grate drain kit
NDS712	NDS Pro series 3" channel end cap

LASCO Fittings, Inc.

TEE

SLIP X SLIP X SLIP

Product Code	Size (In.)	Carton (QTY.)
401003	3/8	100
401005	1/2	50
401007	3/4	50
401010	1	50
401012	1 1/4	25
401015	1 1/2	25
401020	2	25
401025	2 1/2	10
401030	3	10
401040	4	5
401050	5	4
401060	6	4
401080	8	2

TEE REDUCING

(SLIP X SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
401094	3/4 X 1/2 X 1/2	50
401101	3/4 X 3/4 X 1/2	50
401122	1 X 1/2 X 1	50
401124	1 X 3/4 X 1/2	50
401125	1 X 3/4 X 3/4	50
401126	1 X 3/4 X 1	50
401130	1 X 1 X 1/2	50
401131	1 X 1 X 3/4	50
401157	1 1/4 X 1 X 3/4	25

TEE REDUCING (SLIP X SLIP X SLIP) CONT.

Product Code	Size (In.)	Carton (QTY.)
401158	1 1/4 X 1 X 1	25
401166	1 1/4 X 1 1/4 X 1/2	25
401167	1 1/4 X 1 1/4 X 3/4	25
401168	1 1/4 X 1 1/4 X 1	25
401209	1 1/2 X 1 1/2 X 1/2	25
401210	1 1/2 X 1 1/2 X 3/4	25
401211	1 1/2 X 1 1/2 X 1	25
401212	1 1/2 X 1 1/2 X 1 1/4	25
401239	2 X 1 1/2 X 1	10
401241	2 X 1 1/2 X 1 1/2	10
401247	2 X 2 X 1/2	10
401248	2 X 2 X 3/4	10
401249	2 X 2 X 1	10
401250	2 X 2 X 1 1/14	10
401251	2 X 2 X 1 1/2	10
401287	2 1/2 X 2 1/2 X 1/2	10
401288	2 1/2 X 2 1/2 X 3/4	10
401289	2 1/2 X 2 1/2 X 1	10
401290	2 1/2 X 2 1/2 X 1 1/4	10
401291	2 1/2 X 2 1/2 X 1 1/2	10
401292	2 1/2 X 2 1/2 X 2	10
401333	3 X 3 X 1/2	10
401334	3 X 3 X 3/4	10
401335	3 X 3 X 1	10
401336	3 X 3 X 1 1/4	10
401337	3 X 3 X 1 1/2	10
401338	3 X 3 X 2	10
401416	4 X 4 X 3/4	4
401417	4 X 4 X 1	4
401419	4 X 4 X 1 1/2	5
401420	4 X 4 X 2	5

TEE REDUCING (SLIP X SLIP X SLIP) CONT.

Product Code	Size (In.)	Carton (QTY.)
401422	4 X 4 X 3	5
401486	5 X 5 X 2	5
401488	5 X 5 X 3	5
401490	5 X 5 X 4	5
401528	6 X 6 X 2	5
401530	6 X 6 X 3	5
401532	6 X 6 X 4	5
401582	8 X 8 X 4	2
401585	8 X 8 X 6	2

(SLIP X SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
402005	1/2	50
402007	3/4	50
402010	1	50
402012	1 1/4	25
402015	1 1/2	25
402020	2	10
402030	3	10
402040	4	5

TEE REDUCING

(SLIP X SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
402071	1/2 X 1/2 X 1/8	50
402072	1/2 X 1/2 X 1/4	50
402074	1/2 X 1/2 X 3/4	50
402094	3/4 X 1/2 X 1/2	50
402095	3/4 X 1/2 X 3/4	50
402101	3/4 X 3/4 X 1/2	50
402124	1 X 3/4 X 1/2	50
402125	1 X 3/4 X 3/4	50
402130	1 X 1 X 1/2	50
402131	1 X 1 X 3/4	50

TEE REDUCING (SLIP X SLIP X FIPT) CONT.

Product Code	Size (In.)	Carton (QTY.)
402156	1 1/4 X 1 X 1/2	25
402157	1 1/4 X 1 X 3/4	25
402166	1 1/4 X 1 1/4 X 1/2	25
402167	1 1/4 X 1 1/4 X 3/4	25
402168	1 1/4 X 1 1/4 X 1	25
402199	1 1/2 X 1 1/4 X 1/2	25
402202	1 1/2 X 1 1/4 X 1	25
402209	1 1/2 X 1 1/2 X 1/2	25
402210	1 1/2 X 1 1/2 X 3/4	25
402211	1 1/2 X 1 1/2 X 1	25
402212	1 1/2 X 1 1/2 X 1 1/4	25
402239	2 X 1 1/2 X 1	10
402247	2 X 2 X 1/2	10
402248	2 X 2 X 3/4	10
402249	2 X 2 X 1	10
402250	2 X 2 X 1 1/4	10
402251	2 X 2 X 1 1/2	10
402287	2 1/2 X 2 1/2 X 1/2	10
402288	2 1/2 X 2 1/2 X 3/4	10
402289	2 1/2 X 2 1/2 X 1	10
402290	2 1/2 X 2 1/2 X 1 1/4	10
402291	2 1/2 X 2 1/2 X 1 1/2	10
402292	2 1/2 X 2 1/2 X 2	10
402333	3 X 3 X 1/2	10
402334	3 X 3 X 3/4	10
402335	3 X 3 X 1	10
402337	3 X 3 X 1 1/2	10
402338	3 X 3 X 2	10
402417	4 X 4 X 1	5
402418	4 X 4 X 1 1/4	5
402419	4 X 4 X 1 1/2	5
402420	4 X 4 X 2	5
402422	4 X 4 X 3	5
402528	6 X 6 X 2	5

LASCO Fittings, Inc.

TEE
(FIPT X FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
405005	1/2	50
405007	3/4	50
405010	1	50
405012	1 1/4	25
405015	1 1/2	25

90° ELL REDUCING
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
406101	3/4 X 1/2	50
406130	1 X 1/2	50
406131	1 X 3/4	50
406168	1 1/4 X 1	25
406211	1 1/2 X 1	25
406212	1 1/2 X 1 1/4	25
406249	2 X 1	25
406251	2 X 1 1/2	25

90° ELL REDUCING
(SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
407074	1/2 X 3/4	50
407101	3/4 X 1/2	50
407130	1 X 1/2	50
407131	1 X 3/4	50
407168	1 1/4 X 1	25
407211	1 1/2 X 1	25
407212	1 1/2 X 1 1/4	25
407249	2 X 1	25
407250	2 X 1 1/4	10
407251	2 X 1 1/2	10

90° STREET ELL
(MIPT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
410005	1/2	50
410007	3/4	50
410010	1	50
410012	1 1/4	25
410015	1 1/2	25
410020	2	10
410101	3/4 X 1/2	50

90° ELL
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
406003	3/8	100
406005	1/2	50
406007	3/4	50
406010	1	50
406012	1 1/4	25
406015	1 1/2	25
406020	2	25
406025	2 1/2	10
406030	3	10
406040	4	5
406050	5	5
406060	6	4
406080	8	3

90° ELL
(FIPT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
407005	1/2	50
407007	3/4	50
407010	1	50
407012	1 1/4	25
407015	1 1/2	25
407020	2	10
407025	2 1/2	10
407030	3	10
407040	4	5

90° ELL
(FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
408005	1/2	50
408007	3/4	50
408010	1	50
408012	1 1/4	25
408015	1 1/2	25
408020	2	0

90° STREET ELL
(SP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
409005	1/2	50
409007	3/4	50
409010	1	50
409012	1 1/4	25
409015	1 1/2	25
409020	2	10

90° STREET ELL
(SP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
411007	3/4	50
411010	1	50

90° STREET ELL
(MIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
412005	1/2 PVC	50
412007	3/4 PVC	50
412010	1 PVC	50
412012	1 1/4 PVC	25
412015	1 1/2 PVC	25
M412005	1/2 Poly*	50
M412007	3/4 Poly*	50
M412010	1 Poly*	50
*Not listed by NSF		

LASCO Fittings, Inc.

SIDE OUTLET
90° ELL
(SLIP X SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
414005	1/2	50
414101	3/4 X 3/4 X 1/2	50
414130	1 X 1 X 1/2	25

CROSS
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
420005	1/2	50
420007	3/4	50
420010	1	50
420012	1 1/4	25
420015	1 1/2	25
420020	2	10
420025	2 1/2	8
420030	3	10
420040	4	5

COUPLING
(FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
430005	1/2	100
430007	3/4	50
430010	1	50
430101	3/4 X 1/2	50
43000545	1/2 Gray	100
43000745	3/4 Gray	50
43010145	3/4 X 1/2 Gray	50

FEMALE ADAPTER (SLIP X FIPT) CONT.

Product Code	Size (In.)	Carton (QTY.)
435015	1 1/2	25
435020	2	25
435025	2 1/2	10
435030	3	10
435040	4	5
435060	6	4

45° ELL
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
417005	1/2	50
417007	3/4	50
417010	1	50
417012	1 1/4	25
417015	1 1/2	25
417020	2	25
417025	2 1/2	10
417030	3	10
417040	4	5
417050	5	5
417060	6	4
417080	8	4

COUPLING
(SLIP)

Product Code	Size (In.)	Carton (QTY.)
429003	3/8	100
429005	1/2	100
429007	3/4	50
429010	1	50
429012	1 1/4	25
429015	1 1/2	25
429020	2	25
429025	2 1/2	10
429030	3	10
429040	4	5
429050	5	4
429060	6	5
429080	8	4

RISER EXTENDER
(MIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
434005	1/2 X 2 1/16 lg.	50
434007	3/4 X 1 5/8 lg.	50
439005	1/2	50

FEMALE ADAPTER
(SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
435005	1/2	100
435007	3/4	50
435010	1	50
435012	1 1/4	25

FEMALE ADAPTER REDUCING
(SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
435074	1/2 X 3/4	50
435101	3/4 X 1/2	50
435102	3/4 X 1	50
435131	1 X 3/4	50

MALE ADAPTER
(MIPT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
436005	1/2	100
436007	3/4	50
436010	1	50
436012	1 1/4	25
436015	1 1/2	25
436020	2	25
436025	2 1/2	10
436030	3	10
436040	4	5

LASCO Fittings, Inc.

MALE ADAPTER REDUCING
(MIPT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
436073	1/4 X 3/8	100
436074	1/2 X 3/4	50
436101	3/4 X 1/2	50
436102	3/4 X 1	50
436131	1 X 3/4	50
436132	1 X 1 ¼	25
436168	1 1/4 X 1	25
436169	1 1/4 X 1 1/2	25
436212	1 1/2 X 1 1/4	25
436213	1 1/2 X 2	10
436251	2 X 1 1/2	10
436252	2 X 2 1/2	10
436293	2 1/2 X 3	10
436341	3 X 4	10

REDUCER BUSHING
(SP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
437073	1/2 X 3/8	100
437101	3/4 X 1/2	100
437130	1 X 1/2	100
437131	1 X 3/4	100
437166	1 1/4 X 1/2	25
437167	1 1/4 X 3/4	25
437168	1 1/4 X 1	25
437209	1 1/2 X 1/2	25
437210	1 1/2 X 3/4	25
437211	1 1/2 X 1	25
437212	1 1/2 X 1 1/4	25

REDUCER BUSHING (SP X SLIP) CONT .

Product Code	Size (In.)	Carton (QTY.)
437247	2 X 1/2	10
437248	2 X 3/4	10
437249	2 X 1	10
437250	2 X 1 1/4	10
437251	2 X 1 1/2	25
437287	2 1/2 X 1/2	10
437288	2 1/2 X 3/4	10
437289	2 1/2 X 1	10
437290	2 1/2 X 1 1/4	10
437291	2 1/2 X 1 1/2	10
437292	2 1/2 X 2	10
437334	3 X 3/4	10
437335	3 X 1	10
437336	3 X 1 1/4	10
437337	3 X 1 1/2	10
437338	3 X 2	10
437339	3 X 2 1/2	10
437420	4 X 2	5
437421	4 X 2 1/2	5
437422	4 X 3	5
437488	5 X 3	5
437490	5 X 4	4
437528	6 X 2	5
437530	6 X 3	5
437532	6 X 4	5
437534	6 X 5	5
437582	8 X 4	5
437585	8 X 6	5

REDUCER BUSHING
(SP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
438071	1/2 X 1/8	100
438072	1/2 X 1/4	100
438073	1/2 X 3/8	100
438098	3/4 X 1/4	50
438101	3/4 X 1/2	100
438130	1 X 1/2	100
438131	1 X 3/4	100
438166	1 1/4 X 1/2	25
438167	1 1/4 X 3/4	25
438168	1 1/4 X 1	25
438209	1 1/2 X 1/2	25

REDUCER BUSHING (SP X FIPT) CONT .

Product Code	Size (In.)	Carton (QTY.)
438210	1 1/2 X 3/4	25
438211	1 1/2 X 1	25
438212	1 1/2 X 1 1/4	25
438247	2 X 1/2	10
438248	2 X 3/4	10
438249	2 X 1	10
438250	2 X 1 1/4	10
438251	2 X 1 1/2	10
438289	2 1/2 X 1	10
438290	2 1/2 X 1 1/4	10
438291	2 1/2 X 1 1/2	10
438292	2 1/2 X 2	10
438335	3 X 1	10
438337	3 X 1 1/2	10
438338	3 X 2	10
438339	3 X 2 1/2	10
438420	4 X 2	5
438421	4 X 2 1/2	5
438422	4 X 3	5

THREADED BUSHING
(MIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
439005	1/2 X 1/2	50
439052	3/8 X 1/4	50
439072	1/2 X 1/4	50
439073	1/2 X 3/8	50
439098	3/4 X 1/4	50
439099	3/4 X 3/8	50
439101	3/4 X 1/2	50
439130	1 X 1/2	50
439131	1 X 3/4	50
439166	1 1/4 X 1/2	25
439167	1 1/4 X 3/4	25
439168	1 1/4 X 1	25
439209	1 1/2 X 1/2	25
439210	1 1/2 X 3/4	25
439211	1 1/2 X 1	25
439212	1 1/2 X 1 1/4	25

THREADED BUSHING (MIPT X FIPT) CONT .

Product Code	Size (In.)	Carton (QTY.)
439249	2 X 1	10
439250	2 X 1 1/4	10
439251	2 X 1 1/2	10
439292	2 1/2 X 2	10
439338	3 X 2	5

CAP (SLIP)

Product Code	Size (In.)	Carton (QTY.)
447005	1/2	100
447007	3/4	100
447010	1	50
447012	1 1/4	25
447015	1 1/2	25
447020	2	25
447025	2 1/2	10
447030	3	10
447040	4	5
447050	5	5
447060	6	5
447080	8	4

CAP (FIPT)

Product Code	Size (In.)	Carton (QTY.)
448005	1/2	100
448007	3/4	100
448010	1	50
448012	1 1/4	25
448015	1 1/2	25
448020	2	10
448025	2 1/2	10
448030	3	10
448040	4	5

SCHEDULE 40 FITTINGS (CONT.)

LASCO Fittings, Inc.

PLUG
(SP)

Product Code	Size (In.)	Carton (QTY.)
449005	1/2	50
449007	3/4	50
449010	1	50
449012	1 1/4	25
449015	1 1/2	25
449020	2	10

PLUG
(MIPT)

Product Code	Size (In.)	Carton (QTY.)
450005	1/2	50
450007	3/4	50
450010	1	50
450012	1 1/4	25
450015	1 1/2	25
450020	2	10
450025	2 1/2	10
450030	3	10
450040	4	5

ADAPTER
(INSERT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
474007	3/4	50
474010	1	50
474015	1 1/2	25

NESTED COUPLING
(SLIP)

Product Code	Size (In.)	Carton (QTY.)
429005N	1/2	100
429007N	3/4	50
429010N	1	50

FITTING ADAPTER
(SP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
478010	1	25
478012	1 1/4	25

SCHEDULE 80 FITTINGS

LASCO Fittings, Inc.

Product Code	Size (In.)	Carton (QTY.)
801-005	1/2	25
801-007	3/4	25
801-010	1	25
801-012	1 1/4	10
801-015	1 1/2	10
801-020	2	10
801-025	2 1/2	5
801-030	3	5
801-040	4	5
801-060	6	4
801-080	8	2

REDUCING TEE
(SLIP X SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
801-101	3/4 X 3/4 X 1/2	25
801-130	1 X 1 X 1/2	25
801-131	1 X 1 X 3/4	25
801-210	1 1/2 X 1 1/2 X 3/4	10
801-211	1 1/2 X 1 1/2 X 1	10
801-248	2 X 2 X 3/4	10
801-249	2 X 2 X 1	10

REDUCING TEE (SLIP X SLIP X SLIP) CONT.

Product Code	Size (In.)	Carton (QTY.)
801-250	2 X 2 X 1 1/4	10
801-290	2 1/2 X 2 1/2 X 1 1/4	5
801-292	2 1/2 X 2 1/2 X 2	5
801-337	3 X 3 X 1 1/2	5
801-338	3 X 3 X 2	5
801-420	4 X 4 X 2	5
801-422	4 X 4 X 3	5

TEE
(SLIP X SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
802-005	1/2	25
802-007	3/4	25
802-010	1	25
802-015	1 1/2	10
802-020	2	10
802-250	2 X 2 X 1 1/4	10
802-251	2 X 2 X 1 1/2	10
802-291	2 1/2 X 2 1/2 X 1 1/2	5

LASCO Fittings, Inc.

TEE
(FIPT X FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
805-003	3/8	25
805-005	1/2	25
805-007	3/4	25
805-010	1	25
805-012	1 1/4	10
805-015	1 1/2	10
805-020	2	10
805-025	2 1/2	5
805-030	3	5

90° ELL
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
806-005	1/2	25
806-007	3/4	25
806-010	1	25
806-012	1 1/4	10
806-015	1 1/2	10
806-020	2	10
806-025	2 1/2	5
806-030	3	5
806-040	4	5
806-060	6	4
806-080	8	2

90° ELL
(SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
807-005	1/2	25
807-007	3/4	25
807-010	1	25
807-012	1 1/4	10
807-015	1 1/2	10
807-020	2	10

90° ELL
(FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
808-005	1/2	25
808-007	3/4	25
808-010	1	25
808-012	1 1/4	10
808-015	1 1/2	10
808-020	2	10
808-030	3	5
808-040	4	5

45° ELL
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
817-005	1/2	25
817-007	3/4	25
817-010	1	25
817-012	1 1/4	10

45° ELL (SLIP X SLIP) CONT.		
Product Code	**Size (In.)**	**Carton (QTY.)**
817-015	1 1/2	10
817-020	2	10
817-025	2 1/2	5
817-030	3	5
817-040	4	5
817-060	6	4
817-080	8	2

45° ELL
(FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
819-007	3/4	25
819-010	1	25
819-012	1 1/4	10
819-015	1 1/2	10
819-020	2	10

COUPLING
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
829-005	1/2	25
829-007	3/4	10
829-010	1	25
829-012	1 1/4	10
829-015	1 1/2	10
829-020	2	10
829-025	2 1/2	5
829-030	3	5
829-040	4	5
829-060	6	5
829-080	8	4

REDUCER COUPLING
(SLIP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
829-131	1 X 3/4	25
829-168	1 1/4 X 1	10

COUPLING
(FIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
830-005	1/2	25
830-007	3/4	25
830-010	1	25
830-012	1 1/4	10
830-015	1 1/2	10
830-020	2	10
830-025	2 1/2	5

LASCO Fittings, Inc.

(SLIP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
835-007	3/4	25
835-010	1	25
835-012	1 1/4	10
835-015	1 1/2	10
835-020	2	10
835-025	2 1/2	5
835-030	3	5
835-040	4	5

MALE ADAPTER
(MIPT X SLIP)

Product Code	Size (In.)	Carton (QTY.)
836-005	1/2	25
836-007	3/4	25
836-010	1	25
836-012	1 1/4	10
836-015	1 1/2	10
836-020	2	10
836-025	2 1/2	5
836-030	3	5
836-040	4	5

REDUCER BUSHING — FLUSH STYLE
(SP X SLIP)

Product Code	Size (In.)	Carton (QTY.)
837-072	1/2 X 1/4	25
837-101	3/4 X 1/2	25
837-130	1 X 1/2	25
837-131	1 X 3/4	25
837-167	1 1/4 X 3/4	10
837-168	1 1/4 X 1	10
837-209	1 1/2 X 1/2	10
837-210	1 1/2 X 3/4	10
837-211	1 1/2 X 1	10
837-212	1 1/2 X 1 1/4	10
837-247	2 X 1/2	10
837-248	2 X 3/4	10
837-249	2 X 1	10
837-250	2 X 1 1/4	10
837-251	2 X 1 1/2	10
837-289	2 1/2 X 1	10
837-291	2 1/2 X 1 1/2	10
837-292	2 1/2 X 2	10
837-335	3 X 1	5
837-336	3 X 1 1/4	5
837-337	3 X 1 1/2	5
837-338	3 X 2	5
837-339	3 X 2 1/2	5
837-420	4 X 2	5
837-422	4 X 3	5
837-530	6 X 3	5
837-532	6 X 4	5
837-585	8 X 6	5

REDUCER BUSHING — FLUSH STYLE
(SP X FIPT)

Product Code	Size (In.)	Carton (QTY.)
838-101	3/4 X 1/2	25
838-130	1 X 1/2	25
838-131	1 X 3/4	25
838-167	1 1/4 X 3/4	10
838-168	1 1/4 X 1	10
838-209	1 1/2 X 1/2	10
838-210	1 1/2 X 3/4	10
838-211	1 1/2 X 1	10
838-247	2 X 1/2	10
838-248	2 X 3/4	10
838-249	2 X 1	10
838-251	2 X 1 1/2	10
838-292	2 1/2 X 2	10
838-338	3 X 2	5
838-339	3 X 2 1/2	5
838-420	4 X 2	5
838-422	4 X 3	5
838-532	6 X 4	5

REDCUER BUSHING — FLUSH STYLE
(MIPT X FIPT)

Product Code	Size (In.)	Carton (QTY.)
839-072	1/2 X 1/4	25
839-073	1/2 X 3/8	25
839-098	3/4 X 1/4	25
839-101	3/4 X 1/2	25
839-128	1 X 1/4	25
839-129	1 X 3/8	25
839-130	1 X 1/2	25
839-131	1 X 3/4	25
839-166	1 1/4 X 1/2	10
839-168	1 1/4 X 1	10
839-211	1 1/2 X 1	10
839-212	1 1/2 X 1 1/4	10
839-248	2 X 3/4	10
839-249	2 X 1	10
839-250	2 X 1 1/4	10
839-251	2 X 1 1/2	10
839-292	2 1/2 X 2	5

LASCO Fittings, Inc.

CAP (SLIP)

Product Code	Size (In.)	Carton (QTY.)
847-005	1/2	25
847-007	3/4	25
847-010	1	25
847-012	1 1/4	10
847-015	1 1/2	10
847-020	2	10
847-025	2 1/2	5
847-030	3	5
847-040	4	5
847-060	6	4

PLUG

(MIPT)

Product Code	Size (In.)	Carton (QTY.)
850-002	1/4	25
850-010	1	25
850-012	1 1/4	10
850-015	1 1/2	10
850-020	2	10
850-025	2 1/2	5
850-030	3	5
850-040	4	5

CAP (FIPT)

Product Code	Size (In.)	Carton (QTY.)
848-005	1/2	25
848-007	3/4	25
848-010	1	25
848-012	1 1/4	10
848-020	2	10
848-025	2 1/2	5
848-030	3	5
848-040	4	5

LASCO PUSH FITTINGS	
Description	**Lasco Part #**
837-072	LP01-007
837-101	LP01-010
837-130	LP06-007
837-131	LP06-010
837-167	LP29-007
837-168	LP29-010
837-209	LP47-007
837-210	LP47010
837-211	LP2918-007
837-212	LP2918-010
837-247	3535-007
837-248	3535-101
837-249	3535-130
837-250	3535-131
837-251	3500-007
837-289	3500-010
837-291	3529-101
837-292	3529-130
837-335	3529-131

ULTRA-VIOLET RESISTANT FITTINGS

Horizon Distributors offer all of the commonly specified and requested UVR Fittings – from 1/2" to 4"

Please call your local Horizon Sales Representative for more information.

For almost 50 years, PVC (poly-vinyl-chloride) piping has been successfully specified and installed in sprinkler irrigation systems. Various sizes and types of PVC pipe are available to meet the needs of virtually any flow and pressure requirement.

PVC piping is durable, easy to move, and simple to install. It is not subject to rot, corrosion or build-up. PVC pressure pipe carried by Horizon is of the highest quality, strictly manufactured to ASTM specifications and many types are certified for use in potable water systems by the National Sanitary Foundation.

Contact your nearest Horizon location regarding delivery of large quantities of PVC pipe directly to your job site.

PVC is sold in 20' lengths with bell-end.

CLASS 125 SDR 32.5 PVC PIPE

125 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
41243	1 1/4" Class 125	4000'
41280	1 1/2" Class 125	3600'
41345	2" Class 125	2800'
41410	2 1/2" Class 125	2240'
41470	3" Class 125	1500'
41660	6' Class 125	400'
41695	8" Class 125	280'

CLASS 160 SDR 26 PVC PIPE

160 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
45243	1 1/4" Class 160	4000'
45280	1 1/2" Class 160	3600'
45345	2" Class 160	2800'
45410	2 1/2" Class 160	2240'
45470	3" Class 160	1500'
47075	4' Class 160	580'
47120	6" Class 160	400'

CLASS 200 SDR 21 PVC PIPE

200 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
46157	3/4" Class 200	6600'
46207	1" Class 200	5400'
46243	1 1/4" Class 200	4000'
46285	1 1/2" Class 200	3600'
46345	2" Class 200	2800'
46410	2 1/2" Class 200	2240'
46470	3" Class 200	1500'
47275	4' Class 200	580'
47320	6" Class 200	400'
47335	8" Class 200	280'

CLASS 315 SDR 13.5 PVC PIPE

315 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
46105	1/2" Class 315	8400'
46025	2' Class 315	2800'
46035	2 1/2" Class 315	2240'
46045	3" Class 315	1500'
46055	4" Class 315	580'

SCHEDULE 40 PVC PIPE

ASTM D-1785

Product Code	Description	Foot per Pallet
42015	1/2" Schedule 40	8400'
42030	3/4" Schedule 40	6600'
42046	1" Schedule 40	5400'
42056	1 1/4" Schedule 40	4000'
42070	1 1/2" Schedule 40	3600'
42085	2" Schedule 40	2800'
42102	2 1/2" Schedule 40	2240'
42111	3" Schedule 40	1500'
42120	4" Schedule 40	580'
42130	6" Schedule 40	400'
45695	8" Schedule 40	280'

SCHEDULE 80 PVC PIPE

ASTM D-1785

Product Code	Description	Foot per Pallet
43010	1/2" Schedule 80	5200'
43025	3/4" Schedule 80	4400'
43045	1" Schedule 80	5200'
43065	1 1/4" Schedule 80	4000'
43080	1 1/2" Schedule 80	2360'
43095	2" Schedule 80	1860'
43115	2 1/2" Schedule 80	1160'
43120	3" Schedule 80	1500'
43135	4" Schedule 80	580'
43150	6" Schedule 80	400'
43165	8" Schedule 80	280'

CLASS 125/SDR 32.5 GASKET JOINT PVC PIPE

125 PSI RATED - ASTM D-2241

Product Code	Description	Foot per Pallet
49044	4" Class 125 Gasket Joint	760'
49045	5" Class 125 Gasket Joint	460'
49046	6" Class 125 Gasket Joint	360'
49048	8" Class 125 Gasket Joint	280'

CLASS 160/SDR 26 GASKET JOINT PVC PIPE

160 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
48110	3" Class 160 Gasket Joint	1160'
48130	4" Class 160 Gasket Joint	760'
48170	6" Class 160 Gasket Joint	360'
48190	8" Class 160 Gasket Joint	280'

CLASS 200/SDR 21 GASKET JOINT PVC PIPE

200 psi rated ASTM D-2241

Product Code	Description	Foot per Pallet
48511	3" Class 200 Gasket Joint	1160'
48531	4" Class 200 Gasket Joint	760'
48571	6" Class 200 Gasket Joint	360'
48591	8" Class 200 Gasket Joint	280'

PURPLE RECLAIMED WATER PVC PIPE

Product Code	Description	Foot per Pallet
57030	3/4" Class 200 Purple	6600'
57045	1" Class 200 Purple	5400'
57055	1 1/4" Class 200 Purple	4000'
57070	1 1/2" Class 200 Purple	3600'
57085	2" Class 200 Purple	2800'
570100	2 1/2" Class 200 Purple	2240'
57110	3" Class 200 Purple	1500'
57425	2" Class 315 Purple	2800'
57435	2 1/2" Class 315 Purple	2240'
57445	3" Class 315 Purple	1500'
57455	4" Class 315 Purple	580'
57215	1/2" Schedule 40 Purple	8400'
57230	3/4" Schedule 40 Purple	6600'
57245	1" Schedule 40 Purple	5400'
57255	1 1/4" Schedule 40 Purple	4000'
57270	1 1/2" Schedule 40 Purple	3600'
57285	2" Schedule 40 Purple	2800'
57300	2 1/2" Schedule 40 Purple	2240'
57310	3" Schedule 40 Purple	1500'
57320	4" Schedule 40 Purple	580'
57180	3" Class 200 Purple Gasket Joint	1160'
57187	4" Class 200 Purple Gasket Joint	760'
57195	6" Class 200 Purple Gasket Joint	360'

HIGH-DENSITY POLYETHYLENE PIPE:

Horizon Distributors can supply all of the commonly specified HDPE products. Please call your local Horizon Sales Representative for more information.

SCHEDULE 80 THREADED NIPPLES

1/2" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty.)
205011	1/2 X1-1/8 CL TBE	50
205020	1/2 X 2 TBE	50
205030	1/2 X 3 TBE	50
205040	1/2 X 4 TBE	50
205060	1/2 X 6 TBE	50
205080	1/2 X 8 TBE	50
205100	1/2 X 10 TBE	50
205120	1/2 X 12 TBE	50
205180	1/2 X 18 TBE	50
205240	1/2 X 24 TBE	50
205300	1/2 X 30 TBE	50
205360	1/2 X 36 TBE	50
205480	1/2 X 48 TBE	50

3/4" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty.)
207013	3/4 X CL TBE	50
207020	3/4 X 2 TBE	50
207030	3/4 X 3 TBE	50
207040	3/4 X 4 TBE	50
207060	3/4 X 6 TBE	50
207080	3/4 X 8 TBE	50
207100	3/4 X 10 TBE	50
207120	3/4 X 12 TBE	50
207180	3/4 X 18 TBE	50
207240	3/4 X 24 TBE	25

1" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
210015	1 X CL TBE	50
210020	1 X 2 TBE	50
210030	1 X 3 TBE	50
210040	1 X 4 TBE	50
210060	1 X 6 TBE	50
210080	1 X 8 TBE	50
210100	1 X 10 TBE	50
210120	1 X 12 TBE	50
210180	1 X 18 TBE	50
210240	1 X 24 TBE	20
210300	1 X 30 TBE	20
210360	1 X 36 TBE	20
210480	1 X 48 TBE	20

1 1/4" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
212016	1-1/4 X CL TBE	25
212020	1-1/4 X 2 TBE	25
212030	1-1/4 X 3 TBE	25
212040	1-1/4 X 4 TBE	25
212060	1-1/4 X 6 TBE	25
212080	1-1/4 X 8 TBE	25
212100	1-1/4 X 10 TBE	25
212120	1-1/4 X 12 TBE	25

1 1/2" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
215017	1-1/2 X 1-3/4 TBE	25
215020	1-1/2 X 2 TBE	25
215025	1-1/2 X 2-1/2 TBE	25
215030	1-1/2 X 3 TBE	25
215040	1-1/2 X 4 TBE	25
215060	1-1/2 X 6 TBE	25
215080	1-1/2 X 8 TBE	25
215100	1-1/2 X 10 TBE	25
215120	1-1/2 X 12 TBE	25
215180	1-1/2 X 18 TBE	25

2" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
220020	2 X 2 CL TBE	10
220030	2 X 3 TBE	10
220040	2 X 4 TBE	10
220060	2 X 6 TBE	10
220080	2 X 8 TBE	10
220100	2 X 10 TBE	10
220120	2 X 12 TBE	15
220180	2 X 18 TBE	10
220240	2 X 24 TBE	10

2 1/2" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
225025	2-1/2 X CL TBE	5
225040	2-1/2 X 4 TBE	5
225060	2-1/2 X 6 TBE	5
225120	2-1/2 X 12 TBE	10

3" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
230026	3 X CL TBE	5
230040	3 X 4 TBE	5
230060	3 X 6 TBE	5
230100	3 X 10 TBE	5
230120	3 X 12 TBE	5
230180	3 X 18 TBE	5

4" Sch 80 Threaded Nipples

Product Code	Description	Carton (Qty .)
240028	4 X CL TBE	5
240060	4 X 6 TBE	5
240080	4 X 8 TBE	5
240100	4 X 10 TBE	5
240120	4 X 12 TBE	5

GALVANIZED THREADED NIPPLES

1/2" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G005CL	1/2" X close	25
G005020	1/2" X 2"	25
G005030	1/2" X 3"	25
G005040	1/2" X 4"	25
G005050	1/2" X 5"	25
G005060	1/2" X 6"	25
G005080	1/2" X 8"	25
G005100	1/2" X 10"	25
G005120	1/2" X 12"	25
G005160	1/2" X 16"	1
G005180	1/2" X 18"	5
G005240	1/2" X 24"	5
G005300	1/2" X 30"	5
G005360	1/2" X 36"	5

NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G120CL	1 1/4" X close	25
G012020	1 1/4" X 2"	25
G012030	1 1/4" X 3"	25
G012040	1 1/4" X 4"	25
G012060	1 1/4" X 6"	25
G012080	1 1/4" X 8"	10
G012120	1 1/4" X 12"	10
G012180	1 1/4" X 18"	1
G012240	1 1/2" X 24"	1
G012300	1 1/4" X 30"	1
G012360	1 1/4" X 36"	1

2 1/2" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G025030	2 1/2" X 3"	1
G025040	2 1/2" X 4"	1
G025060	2 1/2" X 6"	1
G025080	2 1/2" X 8"	1
G025120	2 1/2" X 12"	1
G025180	2 1/2" X 18"	1
G025240	2 1/2" X 24"	1
G025300	2 1/2" X 30"	1
G025360	2 1/2" X 36"	1

3/4" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G007CL	3/4" X close	25
G007020	3/4" X 2"	25
G007030	3/4" X 3"	25
G007040	3/4" X 4"	25
G007060	3/4" X 6"	25
G007080	3/4" X 8"	25
G007100	3/4" X 10"	25
G007120	3/4" X 12"	25
G007140	3/4" X 14"	1
G007180	3/4" X 18"	5
G007240	3/4" X 24"	5
G007300	3/4" X 30"	5
G007360	3/4" X 36"	5

1 1/2" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G015CL	1 1/2" X close	25
G015020	1 1/2" X 2"	25
G015030	1 1/2" X 3"	25
G015040	1 1/2" X 4"	25
G015060	1 1/2" X 6"	25
G015080	1 1/2" X 8"	10
G015100	1 1/2" X 10"	10
G015120	1 1/2" X 12"	10
G015180	1 1/2" X 18"	1
G015240	1 1/2" X 24"	1
G015300	1 1/2" X 30"	1
G015360	1 1/2" X 36"	1

3" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G030CL	3" X close	1
G030030	3" X 3"	1
G030040	3" X 4"	1
G030060	3" X 6"	1
G030080	3" X 8"	1
G030100	3" X 10"	1
G030120	3" X 12"	1
G030180	3" X 18"	1
G030240	3" X 24"	1
G030300	3" X 30"	1
G030360	3" X 36"	1

1" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G010CL	1" X close	25
G010020	1" X 2"	25
G010030	1" X 3"	25
G010040	1" X 4"	25
G010050	1" X 5"	25
G010060	1" X 6"	25
G010080	1" X 8"	25
G010100	1" X 10"	25
G010120	1" X 12"	25
G010140	1" X 14"	1
G010180	1" X 18"	1
G010240	1" X 24"	1
G010300	1" X 30"	1
G010360	1" X 36"	1

2" GALVANIZED THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
G020CL	2" X close	25
G020030	2" X 3"	25
G020040	2" X 4"	25
G020060	2" X 6"	25
G020080	2" X 8"	10
G020100	2" X 10"	10
G020120	2" X 12"	10
G020180	2" X 18"	1
G020240	2" X 24"	1
G020300	2" X 30"	1
G020360	2" X 36"	1

GALVANIZED THREADED NIPPLES (CONT.)

GALVANIZED IRON PIPE T & C	
Product Code	**Size**
GI075	3/4"
GI100	1"
GI125	1 1/4"
GI150	1 1/2"
GI200	2"
GI250	2 1/2"
GI300	3"
GI400	4"

GALVANIZED FITTINGS

GALVANIZED TEE		
Product Code	**Size**	**Carton (Qty .)**
FG-200G	1/2"	40
FG-200I	3/4"	35
FG-200K	1"	20
FG-200L	1 1/4"	15
FG-200M	1 1/2"	15
FG-200N	2"	10
FG-200P	2 1/2"	1
FG-200Q	3"	1

GALVANIZED ELBOW (FIPT X FIPT)		
Product Code	**Size**	**Carton (Qty .)**
G00590	1/2"	50
G00790	3/4"	35
G01090	1"	20
G01290	1 1/4"	20
G01590	1 1/2"	20
G02090	2"	8
G02590	2 1/2"	9
G03090	3"	7
G04090	4"	1

GALVANIZED STREET ELBOW (MIPT X FIPT)		
Product Code	**Size**	**Carton (Qty .)**
G005ST90	1/2"	60
G007ST90	3/4"	35
G010ST90	1"	30
G012ST90	1 1/4"	25
G015ST90	1 1/2"	18
G020ST90	2"	10

GALVANIZED FITTINGS

GALVANIZED 45° ELBOW (FIPT X FIPT)		
Product Code	**Size**	**Carton (Qty .)**
G00745	3/4"	40
G01045	1"	20
G02045	2"	12
G02545	2 1/2"	27

GALVANIZED COUPLING		
Product Code	**Size**	**Carton (Qty .)**
G005C	1/2"	60
G007C	3/4"	50
G010C	1"	50
G012C	1 1/4"	32
G015C	1 1/2"	18
G020C	2"	12
G030C	3"	12
G040C	4"	1

GALVANIZED REDUCER COUPLING		
Product Code	**Size**	**Carton (Qty .)**
G005002C	1/2" X 1/4"	1
G007005C	3/4" X 1/2"	60
G010007C	1" X 3/4"	25
G012010C	1 1/4" X 1"	20
G015012C	1 1/2" X 1 1/4"	30
G020015C	2" X 1 1/2"	12
G030020C	3" X 2"	8
G040030C	4" X 3"	6

GALVANIZED REDUCER BUSHING HEXAGON STYLE		
Product Code	**Size**	**Carton (Qty .)**
G005002B	1/2" X 1/4"	1
G007005B	3/4" X 1/2"	1
G010005B	1" X 1/2"	50
G010007B	1" X 3/4"	50
G012007B	1 1/4" X 3/4"	30
G012010B	1 1/4" X 1"	30
G015010B	1 1/2" X 1"	25
G015012B	1 1/2" X 1 1/4"	25
G015015B	1 1/2" X 1 1/2"	25
G020010B	2" X 1"	20
G020012B	2" X 1 1/4"	20
G020015B	2" X 1 1/2"	20
G025020B	2 1/2" X 2"	15
G030010B	3" X 1"	12
G030020B	3" X 2"	12
G030025B	3" X 2 1/2"	12

GALVANIZED CAP		
Product Code	**Size**	**Carton (Qty .)**
G005CAP	1/2"	75
G007CAP	3/4"	40
G010CAP	1"	35
G015CAP	1 1/2"	25
G020CAP	2"	18
G040CAP	4"	7

PLUG THREADED		
Product Code	**Size**	**Carton (Qty .)**
G005P	1/2"	50
G007P	3/4"	1
G010P	1"	20
G015P	1 1/2"	30
G020P	2"	20
G025P	2 1/2"	1
G030P	3"	1
G040P	4"	1
G060P	6"	1
G080P	8"	1

GALVANIZED FITTINGS (CONT.)

GALVANIZED UNION		
Product Code	**Size**	**Carton (Qty .)**
G005U	1/2"	50
G007U	3/4"	35
G010U	1"	20
G012U	1 1/4"	15
G015U	1 1/2"	10
G020U	2"	6
G025U	2 1/2"	4
G030U	3"	1
G040U	4"	1

CAST IRON FLANGED FITTINGS

CAST IRON COMPANION FLANGE	
Product Code	**Size**
17TH 1020	2"
17TH 1025	2 1/2"
17TH 1030	3"
17TH 1040	4"
17TH 1060	6"

BRASS THREADED NIPPLES

1/2" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
B005CL	1/2" X close	25
B005030	1/2" X 3"	1
B005060	1/2" X 6"	1

3/4" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
501-050000	3/4" X close	25
501-050050	3/4" X 2"	25
501-050090	3/4" X 3"	25
501-050130	3/4" X 4"	25
501-050210	3/4" X 6"	25
501-050290	3/4" X 8"	25
501-050370	3/4" X 10"	25
501-050450	3/4" X 12"	25
501-050510	3/4" X 18"	5
501-050570	3/4" X 24"	5
501-050630	3/4" X 30"	5

1" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
501-060000	1" X close	25
501-060050	1" X 2"	25
501-060090	1" X 3"	25
501-060130	1" X 4"	25
501-060210	1" X 6"	25
501-060290	1" X 8"	25
501-060450	1" X 12"	25
501-060510	1" X 18"	5
501-060570	1" X 24"	5
501-060630	1" X 30"	5
501-060690	1" X 36"	5

1 1/4" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
501-070000	1 1/4" X close	25
501-070090	1 1/4" X 3"	25
501-070130	1 1/4" X 4"	25
501-070210	1 1/4" X 6"	25
501-070290	1 1/4" X 8"	25
501-070450	1 1/4" X 12"	10
501-070510	1 1/4" X 18"	5
501-070570	1 1/4" X 24"	5
501-070630	1 1/4" X 30"	5
501-070690	1 1/4" X 36"	5

BRASS THREADED NIPPLES (CONT.)

1 1/2" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
501-080000	1 1/2" X close	25
501-080090	1 1/2" X 3"	25
501-080130	1 1/2" X 4"	25
501-080210	1 1/2" X 6"	25
501-080290	1 1/2" X 8"	25
501-080450	1 1/2" X 12"	10
501-080510	1 1/2" X 18"	5
501-080570	1 1/2" X 24"	5
501-080630	1 1/2" X 30"	5
501-080690	1 1/2" X 36"	5

2" BRASS THREADED NIPPLES		
Product Code	**Size**	**Carton (Qty .)**
501-090090	2" X 3"	25
501-090130	2" X 4"	25
501-090210	2" X 6"	25
501-090290	2" X 8"	25
501-090450	2" X 12"	10
501-090510	2" X 18"	5
501-090570	2" X 24"	5
501-090630	2" X 30"	5
501-090690	2" X 36"	5

BRASS FITTINGS

BRASS TEE	
Product Code	**Size**
B005T	1/2"
B007T	3/4"
B010T	1"
B012T	1 1/4"

BRASS FITTINGS (CONT.)

BRASS 90° ELBOW	
Product Code	Size
B00590	1/2"
B00790	3/4"
B01090	1"
B01290	1 1/4"
B01590	1 1/2"
B02090	2"

BRASS STREET ELBOW (MIPT X FIPT)	
Product Code	Size
B005ST90	1/2"
B007ST90	3/4"
B010ST90	1"
B012ST90	1 1/4"
B015ST90	1 1/2"
B020ST90	2"

BRASS COUPLING	
Product Code	Size
B005C	1/2"
B007C	3/4"
B010C	1"
B012C	1 1/4"
B015C	1 1/2"
B020C	2"

BRASS REDUCER BUSHING HEXAGON STYLE	
Product Code	Size
B005007HEX	1/2" X 1/4"
B007005HEX	3/4" X 1/2"
B010005HEX	1" X 1/2"
B010007HEX	1" X 3/4"
B012007HEX	1 1/4" X 3/4"
B012010HEX	1 1/4" X 1"
B015010HEX	1 1/2" X 1"
B015012HEX	1 1/2" X 1 1/4"
B020010HEX	2" X 1"
B020012HEX	2" X 1 1/4"
B020015HEX	2" X 1 1/2"

BRASS UNIION	
Product Code	Size
B005U	1/2"
B007U	3/4"
B010U	1"
B012U	1 1/4"
B015U	1 1/2"
B020U	2"

COPPER FITTINGS

COPPER TEE (C X C X C)	
Product Code	Size
C005T	1/2"
C007T	3/4"
C010T	1"
C012T	1 1/4"
C015T	1 1/2"
C020T	2"

COPPER 90° ELBOW (C X C)	
Product Code	Size
C00590	1/2"
C00790	3/4"
C01090	1"
C01290	1 1/4"
C01590	1 1/2"
C02090	2"

COPPER 45° ELBOW (C X C)	
Product Code	Size
C00545	1/2"
C00745	3/4"
C01045	1"
C01545	1 1/2"
C02045	2"

COPPER COUPLING	
Product Code	Size
C005C	1/2"
C007C	3/4"
C010C	1"
C012C	1 1/4"
C015C	1 1/2"
C020C	2"

COPPER FEMALE ADAPTER (C X FIPT)	
Product Code	Size
C005FA	1/2"
C007FA	3/4"
C010FA	1"
C012FA	1 1/4"
C015FA	1 1/2"
C020FA	2"

COPPER MALE ADAPTER (MIPT X C)	
Product Code	Size
C005MA	1/2"
C007MA	3/4"
C010MA	1"
C012MA	1 1/4"
C015MA	1 1/2"
C020MA	2"

COPPER CAP	
Product Code	Size
C005CAP	1/2"
C007CAP	3/4"
C010CAP	1"
C015CAP	1 1/2"

COPPER UNION (C X C)	
Product Code	Size
C007U	3/4"
C010U	1"
C012U	1 1/4"
C015U	1 1/2"
C020U	2"

COPPER PIPE

TYPE K HARD COPPER PIPING	
Product Code	Size
C005K	1/2"
C007K	3/4"
C010K	1"
C012K	1 1/4"
C015K	1 1/2"
C020K	2"
C030K	3"

MEDIUM BODIED CEMENTS

WELD-ON 705™ CLEAR/GRAY/WHITE

Medium bodied, fast setting, PVC cement for all classes and schedules of pipe and fittings with interface fit through 6" diameter, Schedule 80 through 4" diameter. This product may also be used on PVC foam core pipe. Can be used without primer on non-pressure systems if local codes permit.

Product Code	Description
705G	IPS 705 clear gal.
705HP	IPS 705 clear half pt.
705P	IPS 705 clear pt.

WELD-ON 721™ BLUE

Medium bodied, fast setting, PVC cement for all classes and schedules of pipe and fittings with interface fit though 6" diameter, Schedule 80 through 4" diameter. Can be used without primer on non-pressure systems if local codes permit. This product may also be used on PVC foam core pipe.

Product Code	Description
721G	IPS 721 blue gal.
721HP	IPS 721 blue half pt.
721P	IPS 721 blue pt.
721Q	IPS 721 blue qt.

HEAVY BODIED CEMENTS

WELD-ON 711™ GRAY

Heavy bodied, medium setting, PVC cement for all classes and schedules of pipe and fittings with interface fit, including Schedule 80 through 12" diameter. It has good gap filling properties and its medium set allows more working time in warm weather.

Product Code	Description
711G	IPS 711 gray gal.
711HP	IPS 711 gray half pt.
711P	IPS 711 gray pt.
711Q	IPS 711 gray qt.

SPECIALTY CEMENTS

WELD-ON 725™ "WET 'R DRY"™ AQUA BLUE

Medium bodied, extremely fast setting, PVC cement for all classes and schedules of rigid and flexible pipe and fittings with interface fit through 6" diameter, Schedule 80 through 4" diameter. Specially formulated for applications where conditions are wet and/or dry when quick pressurization is desired. Can be used without primer on non-pressure systems if local codes permit.

Product Code	Description
725G	IPS 725 Wet R Dry gal.
725HP	IPS 725 Wet R Dry half pt.
725P	IPS 725 Wet R Dry pt.
725Q	IPS 725 Wet R Dry qt.

WELD-ON 795™ CLEAR

Medium bodied, fast setting, PVC cement for all flex/flex & flex/rigid PVC pipe and fittings with interface fit through 6" diameter, Schedule 80 through 3" diameter. Excellent product for flex/rigid applications. It has an elastomer in the formulation which allows a more flexible joint.

Product Code	Description
795G	IPS 795 clear gal.
795HP	IPS 795 clear half pt.
795P	IPS 795 clear pt.
795Q	IPS 795 clear qt.

PRIMERS & CLEANERS

WELD-ON P-68™ PRIMER PURPLE/CLEAR

Quality low VOC primer essential for proper softening and preparation of PVC and CPVC pipe and fitting surfaces. The strong action of P-68 primer rapidly softens and dissolves the joining surfaces of PVC and CPVC pipe and fittings. Available in clear and purple; the latter allows easy identification when used on the joining surfaces.

PRIMERS & CLEANERS (CONT.)

WELD-ON P-70™ PRIMER PURPLE/CLEAR

The most aggressive primer commercially available. Excellent product for cold weather applications. If used properly, will soften the surfaces of PVC and CPVC pipe and fittings which is necessary for the proper solvent welding of the materials. Meets ASTF F-656 & SCAQMD 1168 Industry listings.

Product Code	Description
P70G	IPS P70 primer purple gal.
P70HP	IPS P70 primer purple half pt.
P70P	IPS P70 primer purple pt.
P70Q	IPS P70 primer purple qt.

WELD-ON P-75™ WET 'R DRY™

WELD-ON® P-75™ Wet 'R Dry™ is an aqua blue, low VOC emission, non-bodied, very fast acting, primer specially formulated to be used with 725™ Wet 'R Dry™ low VOC PVC solvent cement. It can also be used with other WELD-ON PVC solvent cements to prepare PVC pipe and fitting surfaces for bonding.

Product Code	Description
P75Q	IPS P75 primer qt.

PVC LOW VDC MEDIUM BODIED CEMENTS

WELD-ON 2705™ CLEAR

Medium bodied, fast setting, PVC cement for all classes and schedules of pipe and fittings with interface fit through 6" diameter, Schedule 80 through 4" diameter. This product may also be used on PVC foam core pipe. Can be used without primer on non-pressure systems if local codes permit.

Product Code	Description
2705G	Gal. clear low VOC glue
2705HP	1/2 pt. clear low VOC glue
2705P	Pt. clear low VOC glue
2705Q	Qt. clear low VOC glue

WELD-ON 2721™ BLUE

Medium bodied, fast setting, PVC cement for all classes and schedules with interface fit through 6" diameter, Schedule 80 through 4" diameter. This product may also be used on PVC foam core pipe. Can be used without primer on non-pressure systems if local codes permit.

Product Code	Description
2721G	Gal. blue low VOC glue
2721HP	1/2 pt. blue low VOC glue
2721P	Pt. blue low VOC Glue
2721Q	Qt. blue low VOC glue

PVC LOW VDC HEAVY BODIED CEMENTS (CONT.)

WELD-ON 2711™ GRAY

Heavy bodied, medium setting, PVC cement for all classes and schedules with interface fit, including Schedule 80 through 12" diameter. It has good gap filling properties and its medium set allows more working time in warm weather.

Product Code	Description
2711G	Gal. gray low VOC glue
2711HP	1/2 pt. gray low VOC glue
2711P	Pt. gray low VOC glue
2711Q	Qt. gray low VOC glue

PVC LOW VDC SPECIALTY CEMENTS

WELD-ON 2725™ "WET 'R DRY"™ AQUA BLUE

Medium bodied, extremely fast setting, PVC cement for all classes and schedules of rigid and flexible pipe with interface fit through 6" diameter, Schedule 80 through 4" diameter. Specially formulated for applications where conditions are wet and/or dry when quick pressurization is desired. Can be used without primer on non-pressure systems if local codes permit.

Product Code	Description
2725G	IPS 2725 gal. Wet R Dry low VOC glue
2725HP	1/2 pt. Wet R Dry low VOC glue
2725P	Pt. Wet R Dry low VOC glue
2725Q	Qt. Wet R Dry low VOC glue

WELD-ON 2795™ CLEAR

Medium bodied, fast setting, PVC cement for all flex/flex & flex/rigid PVC pipe and fittings with interface fit through 6" diameter, Schedule 80 through 3" diameter. Excellent product for flex/rigid applications. It has an elastomer in the formulation which allows a more flexible joint.

Product Code	Description
2795G	Gal. flex low VOC glue
2795HP	1/2 pt. flex low VOC glue
2795P	Pt. flex low VOC glue
2795Q	Qt. flex low VOC glue

PVC SPECIALTY CEMENTS OFFER LESS SET & CURE TIMES!

SOLVENT CEMENTS

CHRISTY'S RED HOT GLUE

- Available in regular and environmentally safe "Low VOC" formulations
- Excellent for wet or damp conditions
- Very fast setting
- Can be used "as is" through 6" diameter piping, unless local code requires a primer
- Blue in color to show you quantity applied
- Has excellent "gap-filling" capability
- The preferred solvent cement of many professionals
- Suitable for potable water, DWV, sewer, conduit, sprinkler, pool, spa and PVC flex-vinyl applications
- NSF-IAPMO listed

Product Code	Description
RH-RHBG-1	Gal. container
RH-RHBG-Qt	Qt. container
RH-RHBG-PT	Pt. container

Oatey®

OATEY SOLVENTS ALL PURPOSE CEMENT

- Medium-bodied milky clear cement for ABS, PVC or CPVC up to 6" diameter
- Recommended for pipe and fittings Sch. 40 and Sch. 80, potable water, pressure pipe, gas, conduit and DWV
- Recommended application temperature 40°F to 100°F
- Meets performance requirements of ASTM D-2564, D-2235, F-493

Product Code	Description
30324	Clear regular body pvc. cm. gal.
30336S	Clear regular body pvc. cm. qt.
30346S	Clear regular body pvc. cm. pt.

PLASTI-WELD™

PLASTI-WELD™ 903 SERIES NSF PURPOSE PRIMERS

- Purple-tinted aggressive primer for use on PVC pipe and fittings
- Can be used with all schedules and diameters of pipe
- Softens the pipe surface to allow a fast, secure solvent weld
- Meets NSF standards where required or specified

Product Code	Description
90324	Purple primer gal.
90336S	Purple primer qt.
90346S	Purple primer pt.

SOLVENT CEMENTS (CONT.)

UNI-WELD

UNI-WELD 9300 SERIES CLEAR PRIMERS

- A clear aggressive primer for use on PVC pipe
- Can be used with all schedules and diameters of pipe
- Softens the pipe in preparation for solvent cement
- Does not apply a purple stain to the conduit

Product Code	Description
9324	Clear primer gal.
9336S	Clear primer qt.
9346S	Clear primer pt.

UNI-WELD TURF-TITE™ 2400 SERIES MEDIUM BLUE "HOT"

- Recommended for solvent welding all schedules and classes of PVC pipe and fittings up to 6" diameter Fast-setting cement specially formulated for wet conditions and/or quick pressurization
- Can be used as a one-step (no primer necessary) where local codes permit for non-pressure piping systems up to 4" diameter
- Can be used for potable water, sewer and drain, waste and vent systems

Product Code	Description
TURFTITEG	Turf-Tite medium blue "Hot", gal. container
TURFTITEQ	Turf-Tite medium blue "Hot", qt. container
TURFTITEP	Turf-Tite medium blue "Hot", pt. container

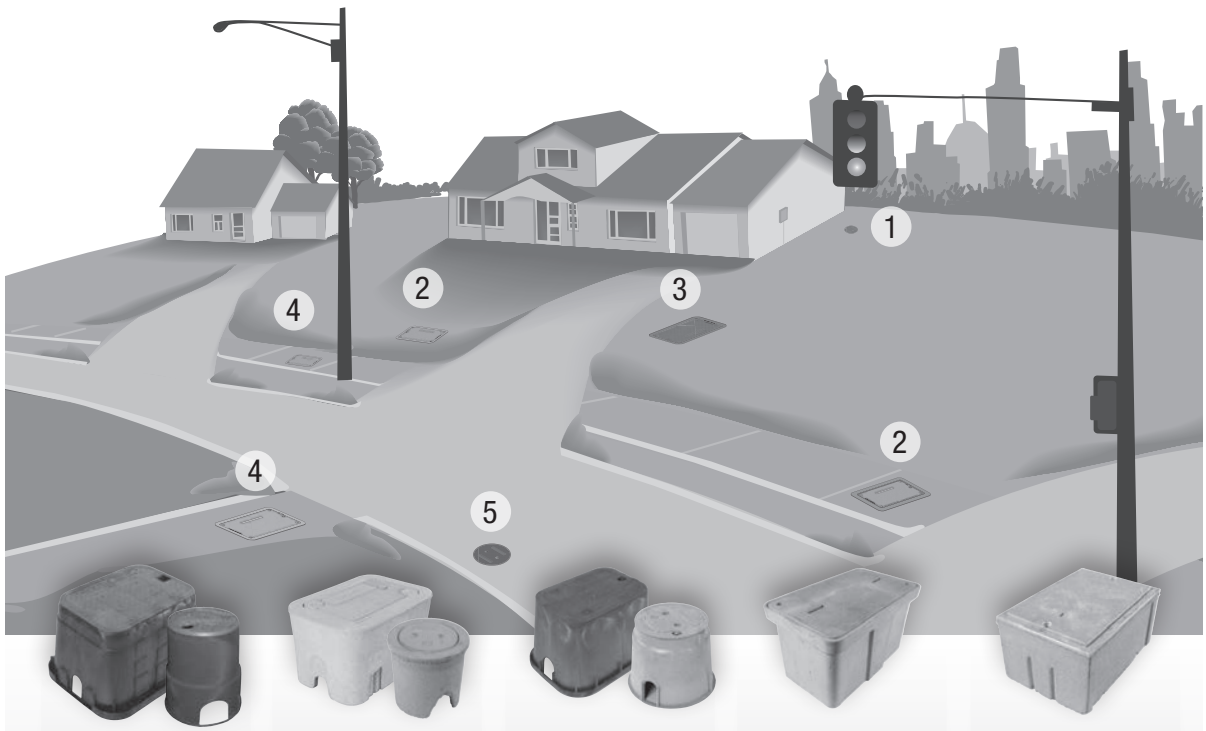
WELD-ON APPLICATORS AND ACCESSORIES

IPS WELD-ON

Product Code	Description
3020	Roll-A-Weld 3" roller for pipe diameters from 3" through 6"; fits MT-653 empty quart triple tight neck
6020	Roll-A-Weld 4" roller for pipe diameters from 3" through 8"; fits standard quart can as well as MT-651 empty quart can
7020	Jumbo Roll-A-Weld 7" roller for pipe diameters of 6" or larger; fits MT-648 empty gallon can and cements available in wide mouth cans
4020	4" swab for pipe diameters of 6" and larger; fits MT-648 empty gallon can and cements and primers available in wide mouth cans
5020	4" swab for pipe diameters from 3" through 8"; fits standard quart can as well as MT-651 empty quart can
8020	4" cotton swab with wire handle for use on pipe with 6" diameter or larger
Can-Mate Daubers	Adjustable plastic applicator with telescoping stem to fit all cans (except 1/4 pint). Available in 1/2", 3/3/4" and 1 1/4" dauber sizes
Cap Dauber	DH dauber fits 1/4 and 1/2 pint cans. DP daubers fit 1/2 pint and pint cans. DQ daubers fit quart cans. Available in 3/8", 1/2", 3/4" and 1 1/2"

Oldcastle® Enclosure Solutions

The Right Enclosure • The Right Load Rating • The Right Application



1 CARSON Plastic

Value-engineered TrussT series offers top-down strength.

2 CHRISTY Concrete

Christy R-Series concrete is reliable and cost effective with chip-resistant guards.

3 CARSON Plastic

Specification Grade products offer lasting durability for a variety of projects.

4 H-SERIES Polymer

H-Series polymer concrete offers high strength with lower weight than concrete.

5 CHRISTY Concrete

With a galvanized steel cover and frame in place, these Christy boxes are traffic rated.

LOAD RATINGS

Enclosures must withstand loads *reasonable to expect* based on the installation location. Our bodies and lids are rated for performance to help you match Oldcastle brands with your application.

- Pedestrian Traffic Only
- Pedestrian Traffic and Non-Deliberate Micro-Motor Traffic
- Non-Deliberate Heavy Vehicular Traffic
- Deliberate Roadway Traffic

(800) 735-5566

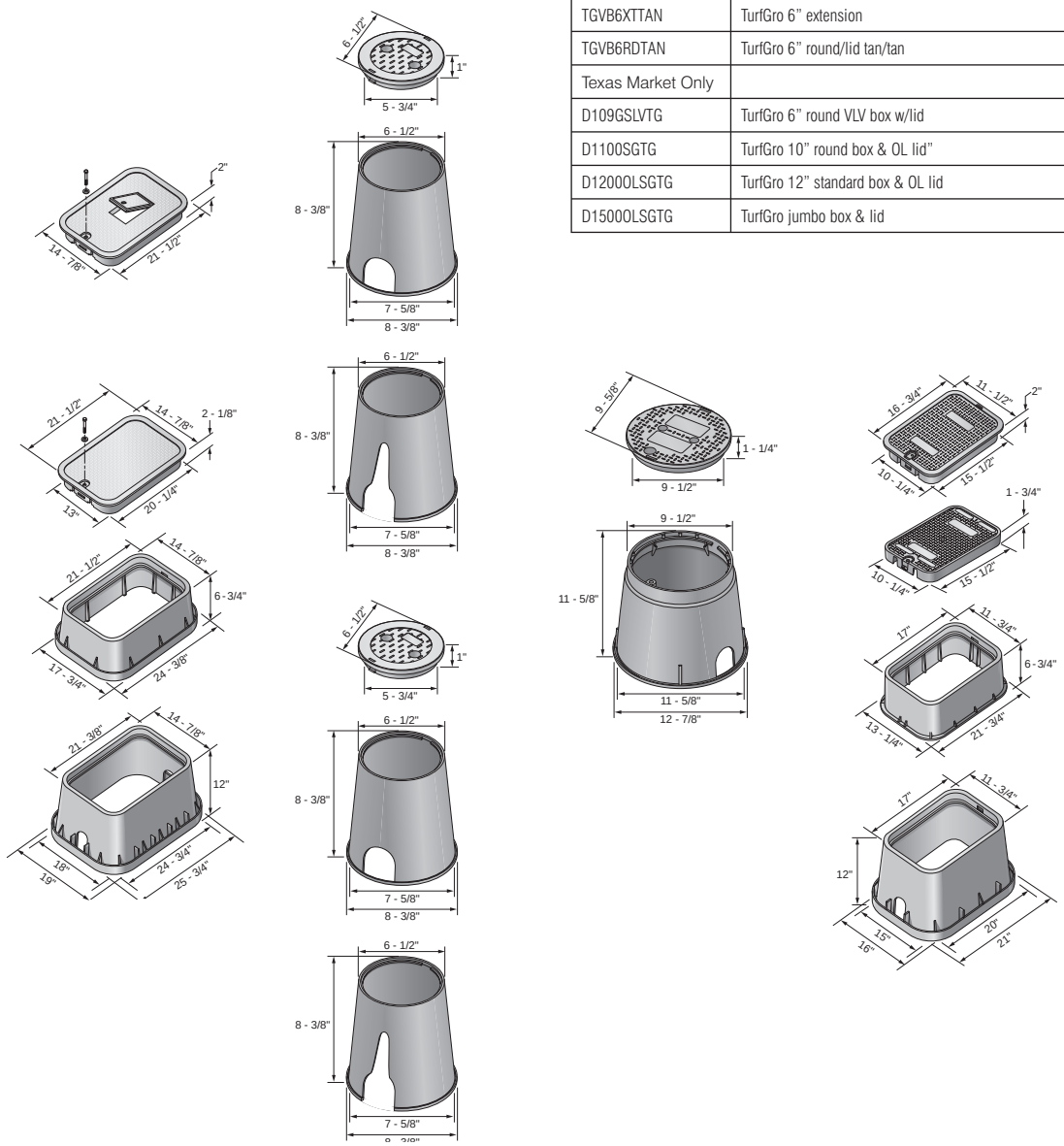
oldcastleprecast.com/enclosuresolutions

TURFGRO

TurfGro Valve Boxes are high-quality, cost-competitive plastic access boxes for housing irrigation control valves. The TurfGro Standard Series valve boxes and covers are injection molded of structural foam polyolen material with a heat index between 10 to 12. Available in a variety of sizes, TurfGro valve boxes provide a value alternative for residential and light commercial projects.

SKU availability depends on the market. Contact your local Horizon location for more information.

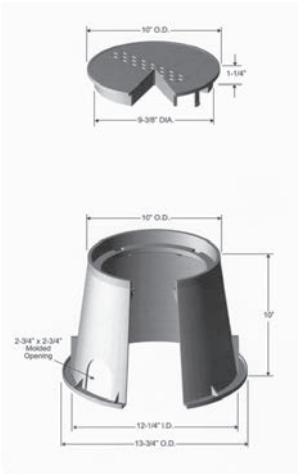
Product Code	Description
TGVB6RD	TurfGro 6" round w/lid green/green
TGVB10RD	TurfGro 10" round w/lid green/green
TGVBSTD	TurfGro 14" X 19" box w/lid green/green
TGVBJUMBO	TurfGro jumbo box w/lid green/green
TGVB6RDBLK	TurfGro 6" round black/green
TGVB10RDBLK	TurfGro 10" round black/green
TGVBSTDBLK	TurfGro 14" X 19" box w/lid black/green
TGVBJUMBOBLK	TurfGro jumbo box w/lid black/green
TGVB10RDTAN	TurfGro 10" round w/lid sand/sand
TGVBSTDTAN	TurfGro 14" X 19" box w/lid sand/sand
TGVBSTDTAN	TurfGro 14" X 19" box w/lid sand/sand
TGVBJUMBOTAN	TurfGro jumbo box w/lid sand/sand
TGVB6XTTAN	TurfGro 6" extension
TGVB6RDTAN	TurfGro 6" round/lid tan/tan
Texas Market Only	
D109GSLVTG	TurfGro 6" round VLV box w/lid
D1100SGTG	TurfGro 10" round box & OL lid"
D12000LSGTG	TurfGro 12" standard box & OL lid
D15000LSGTG	TurfGro jumbo box & lid



CARSON INDUSTRIES LLC

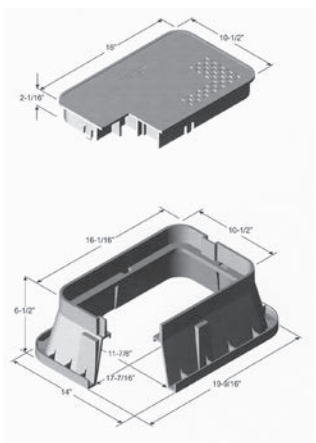
Res/Com Valve Boxes

Carson brand quality is a complete line of residential/commercial grade access boxes for irrigation systems. Manufactured using high pressure, straight injection molding, these valve boxes are available in popular sizes for all residential and commercial applications



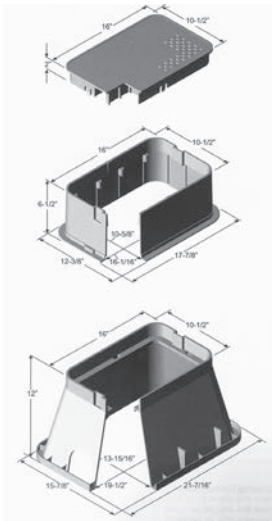
011 10" ROUND VALVE BOX

Product Code	Options	Color	Part #
011 10" Round	Body & Cover	Black/Green	00111002
	Body	Black	00112002
	Cover	Green	001140010



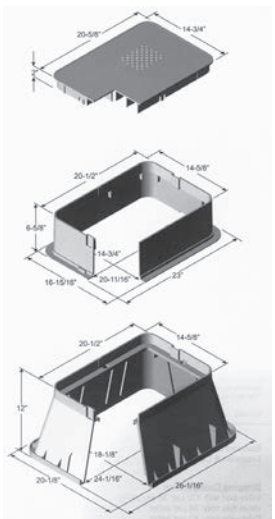
10156 6" FLARED VALVE BOX

Product Code	Options	Color	Part #
10156 6" Flared	Box w/ICV Lid	Black/Green	10151234
	Box Only	Black	14193002
	ICV Lid Only	Green	14194001



1015 — 12 STANDARD 12"

Product Code	Options	Color	Part #
1015 -12 Standard 12"	Box w/ICV Lid	Black/Green	10151008
	Box Only	Black	14192005
	ICV Lid Only	Green	10154072
	6" Extension	Tan	10151235
	6" Extension with ICV Lid	Tan	10151235

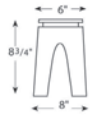


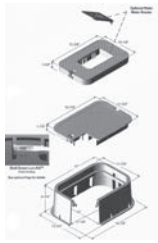
012 — 12 12" JUMBO

Product Code	Options	Color	Part #
012-12 12" Jumbo	Box w/ICV Lid	Green	012201014
	Box Only	Black	012202005
	ICV Lid Only	Green	013244001
	6" Extension	Black	014193002
	6" Extension with ICV Lid Black/Green	Green	012201002

Specification Grade Valve Boxes

The most complete line of plastic access boxes for housing irrigation control valves available. Found on golf courses, community parks, business parks and schools, Carson valve boxes are the strongest and best performing products of their kind. Manufactured using a unique low pressure structural foam molding process, Carson has the valve box to meet any of your engineering specification needs.



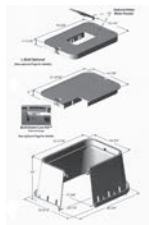


510 EMITTER

Product Code	Options	Color	Part #
510 Emitter	Body & Cover (T-style)	Black	5101001

510 EMITTER

Product Code	Options	Color	Part #
510 Emitter	Body & Cover (T-style)	Black	5101001



708 ECONO

Product Code	Options	Color	Part #
708 Econo	Body & Cover	Tan	07081002
	Body	Purple	07081008
	Cover (T-style)	Tan	07084006

708 ECONO

Product Code	Options	Color	Part #
708 Econo	Body & Cover	Tan	07081002
	Body	Purple	07081008
	Cover (T-style)	Tan	07084006

809 DELUXE ECONO

Product Code	Options	Color	Part #
809 Deluxe Econo	Body & Cover	Green	08091001
	Body	Green	08092001
	Cover (T-style)	Green	08094001

809 DELUXE ECONO

Product Code	Options	Color	Part #
809 Deluxe Econo	Body & Cover	Green	08091001
	Body	Green	08092001
	Cover (T-style)	Green	08094001

MODEL 910

Product Code	Options	Color	Part #
Model 910	Body & Cover	Available in: Green, gray, black, tan, violet	910104
	Body		91010
	Cover (T-style)		9104

MODEL 910

Product Code	Options	Color	Part #
Model 910	Body & Cover	Available in: Green, gray, black, tan, violet	910104
	Body		91010
	Cover (T-style)		9104

OLDCASTLE PRECAST CONCRETE VALVE BOXES

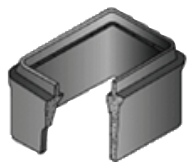
Oldcastle Precast®

Oldcastle concrete boxes are manufactured with a high-density reinforced concrete. They feature non-settling shoulders to maintain grade level and facilitate appropriate backfilling. Etched, UV-resistant polyethylene face is anchored in the concrete design for maximum durability.

MODEL B9 CONCRETE UTILITY BOX AND LID CODES

Measures 10 1/4" X 17 1/4" inside at the base.

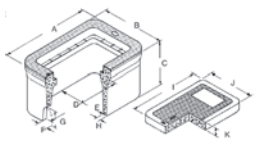
Product Code	Description
B9	Concrete Box
B9C	Cast Iron Lid "Water"
B9D	Concrete Lid "Water"
B9DE	Concrete Lid "Electric"
B9DRCV	Concrete Lid "RCV"
B9DS	Concrete Lid "Sewer"
FL9D	Flibrelyte Lid "Water"



MODEL B16 CONCRETE UTILITY BOX AND LID CODES

Measures 12" X 22 1/4" inside at the base.

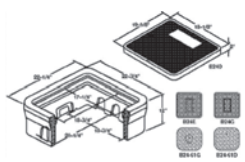
Product Code	Description
B16	Concrete Box
B16C	Cast Iron Lid "Water"
B16D	Concrete Lid "Water"
B16DE	Concrete Lid "Electric"



MODEL B24 CONCRETE UTILITY BOX AND LID CODES

Measures 18" X 19 1/2" inside at the base.

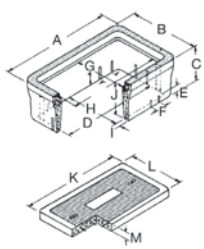
Product Code	Description
B24	Concrete Box
B24D	Concrete Lid "Water"



MODEL B36 CONCRETE UTILITY BOX AND LID CODES

Measures 17 1/4" X 30" inside at the base.

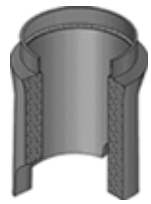
Product Code	Description
B36	Concrete Box
B36D	Concrete Lid "Water"
B36DI	Concrete Lid "Irrigation"
B36DSC	Concrete Lid "Sprinkler Control"



MODEL F8 CONCRETE ROUND BOX AND LID CODES

Measures 8" inside diameter at the base and 12" in height.

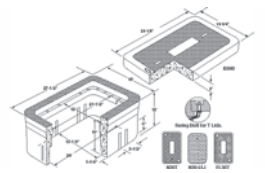
Product Code	Description
F8	Concrete Box
F8CLID	Cast Iron Lid "Water"
F8R	Concrete Lid "Water"
F8RCO	Concrete Lid "Clean Out"
F8RE	Concrete Lid "Electric"
F8RGV	Concrete Lid "Gate Valve"
F8RCQV	Concrete Lid "CQV"
F8RS	Concrete Lid "Sewer"



MODEL N30 ELECTRICAL BOX

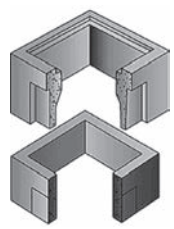
Measures 13 1/4" X 24".

N30BOX	Concrete Box
N30T	Concrete Lid "Water" Bolt Down
N30TE	Concrete Lid "Electric" Bolt Down
N30TI	Concrete Lid "Irrigation" Bolt Down
N30TSC	Concrete Lid "Sprinkler Control" Bolt Down



MODEL 64 CONCRETE DRAIN BOX

Measures 18 3/8" X 18 3/8".



Horizon Distributors offers all of the commonly specified Concrete Valve Box/Precast Enclosure Solution SKUs.

Please contact your local Horizon Sales Representative for more information.

Regency Wire & Cable

Product Code	Description	Roll Size
18DB3500	18 gauge, 3 strand, direct burial wire	500'
18DB31000	18 gauge, 3 strand, direct burial wire	1000'
18DB4250	18 gauge, 4 strand, direct burial	250'
18DB41000	18 gauge, 4 strand, direct burial	1000'
18DB5250	18 gauge, 5 strand, direct burial	250'
18DB51000	18 gauge, 5 strand, direct burial	1000'
18DB6250	18 gauge, 6 strand, direct burial	250'
18DB61000	18 gauge, 6 strand, direct burial	1000'
18DB7250	18 gauge, 7 strand, direct burial	250'
18DB71000	18 gauge, 7 strand, direct burial	1000'
18DB8250	18 gauge, 8 strand, direct burial	250'
18DB81000	18 gauge, 8 strand, direct burial	1000'
18DB9250	18 gauge, 9 strand, direct burial	250'
18DB91000	18 gauge, 9 strand direct burial	1000'
18DB10250	18 gauge, 10 strand, direct burial	250'
18DB101000	18 gauge, 10 strand, direct burial	1000'
18DB13250	18 gauge, 13 strand, direct burial	250'
18DB131000	18 gauge, 13 strand, direct burial	1000'

Product Code	Description	Roll Size
12LC10	12/2 Landscape Lighting Cable	250'
12LC	12/2 Landscape Lighting Cable	500'
10LC10	10/2 Landscape Lighting Cable	250'
08LC10	8/2 Landscape Lighting Cable	250'
10LC1100	10/2 Landscape Lighting Cable	2100'
16LC11	16/2 Landscape Lighting Cable	2500'
08LC11	8/2 Landscape Lighting Cable	2500'
16LC1100	16/2 Landscape Lighting Cable	2100'
12LC12	12/2 Landscape Lighting Cable	21000'
16LC10	16/2 Landscape Lighting Cable	2250'
8LC1100	8/2 Landscape Lighting Cable	2100'

Product Code	Description	Roll Size
14R5	14/1 AWG UF Wire, Red	500'
14R25	14/1 AWG UF Wire, Red	2500'
14UF11	14/1 AWG UF Wire, Black	500'
14UF15	14/1 AWG UF Wire, Black	2500'
14UF71	14/1 AWG UF Wire, Brown	560'
14UF45	14/1 AWG UF Wire, Blue	2500'
14UF85	14/1 AWG UF Wire, Orange	2500'
14UFA5	14/1 AWG UF Wire, Pink	2500'
14UF65	14/1 AWG UF Wire, Yellow	2500'
14UFC5	14/1 AWG UF Wire, Tan	2500'
14UFB1	14/1 AWG UF Wire, Purple	500'
14UF55	14/1 AWG UF Wire, Green	2500'
14UF31	12/1 AWG UF Wire, Red	500'
14UF35	12/1 AWG UF Wire, Red	2500'
14UF15	12/1 AWG UF Wire, Black	2500'
14UF11	12/1 AWG UF Wire, White	500'
14UF25	12/1 AWG UF Wire, White	2500'

DECODER CABLES

TUCOR® CONTROL CABLE

Tucor control cable is designed to operate valve decoders and sensor decoders. It consists of bare copper conductors insulated with PVC and a high density polyethylene direct burial jackets. Operating two valves simultaneously the cable can stretch to 11,200' on 18-gauge and 27,300' on 14-gauge. 12-gauge is available on special order.

Product Code	Description
TW18/2	Tucor 18/2 COM Wire
TW16/2	Tucor 16/2 COM Wire
TW14/2	Tucor 14/2 COM Wire

Decoder Wire by Manufacturer

	Paige Electric		AWG & No. of Conductors	Colors	
	Part No.	Spec No.		Conductors	Outer Jacket
Hunter 	170116RB	P7313	14/2c	Red & Blue	None
	170109B		12/2c		
	170801BU	P7354D	14/2c		Blue
	170801GY				Gray
	170801OG				Orange
	170801PR				Purple
	170801TN				Tan
	170801YL				Yellow
	170802BU		12/2c		Blue
	170802GY				Gray
	170802OG				Orange
	170802PR				Purple
	170802TN				Tan
	170802YL				Yellow
Rain Bird 	180115	P7072D	14/2c	Red & Black	Red
	180126				White
	180127				Black
	180114				Orange
	180116				Blue
	180118				Yellow
	1801181				Purple
	1801182				Brown
	1801151				Pink
	1801183				Gray
	180117				Green
	180161		12/2c		Red
	180160				Black
	180165				Orange
	180162				Blue
	180163				Yellow
	180168				Purple
	180166				Brown
	180167				Gray
	180164				Green
Toro 	170116BKWT	P7313	14/2c	Black & White	None
	170800	P7350D			Red
	170800BK				Red & Black Stripe
	170800GN				Red & Green Stripe
	170800YL				Red & Yellow Stripe

ALSO AVAILABLE AT YOUR HORIZON STORE:

FC005 ..... 1/2 Flex Condui
C40010 ..... 1" Schedule 40
C40007 ..... 3/4" Schedule 4
C40020 ..... 2" Schedule 40
C40005 ..... 1/2" Schedule 4
C40015 ..... 1-1/2" Schedule
C40012 ..... 1-1/4" Schedule
C40030 ..... 3" sch40 Condui
SW010 ..... 1" PVC Sweep
SW007 ..... 3/4" PVC Sweep
SW020 ..... 2" PVC Sweep
SW005 ..... 1/2" PVC Sweep
SW030 ..... 3" PVC Sweep Sc
SW040 ..... 4" PVC Sweep Sc
005CBCG ..... 1/2" Conduit Bo
005LMA ..... 1/2" Liquid Tig
005LT90 ..... 1/2" Liquid Tig
K61135 ..... King Con Blk/Wh
K10222 ..... King Wire Conn.
K61235 ..... King Con Blk/Gr
K20111 ..... King Wire Conn.
K61335 ..... King Conn Lrg B
K10241 ..... King Conn Blue/
K61146 ..... King Conn Small
K20136 ..... King Conn Tan
K61350 ..... King Conn Lrg B
DBYKIT ..... 3M Direct Buria
DBYBULK ..... 3M "Bulk" Splic
DBRKIT ..... 3M Direct Buria
DBRBULK ..... 3M "Bulk" Splic
316IR ..... 3M Low Volt Con
3M314BOX 314-Box
UAL ..... 3M UAL Connecto
DS400 ..... Dri Splice Conn
DS100 ..... Dri Splice Conn
DS300 ..... Dri Splice Seal
K67075 ..... Wire Nut Yellow
WADEWC14 ..... WC-14
WADEWC16 ..... WC-16

Electrical Conduit	
PC Schedule 40, UL listed conduit	
58015	1/2" PVC electrical conduit
58025	3/4" PVC electrical conduit
58035	1" PVC electrical conduit
58045	1 1/4" PVC electrical conduit
58055	1 1/2" PVC electrical conduit
58065	2" PVC electrical conduit
58075	2 1/2" PVC electrical conduit
58085	3" PVC electrical conduit
58095	4" PVC electrical conduit

Electrical Conduit Fittings	
Conduit 90° Sweep Elbows	
E050SWEEP	1/2" PVC sweep elbow
E075SWEEP	3/4" PVC sweep elbow
E100SWEEP	1" PVC sweep elbow
E125SWEEP	1 1/4" PVC sweep elbow
E150SWEEP	1 1/2" PVC sweep elbow
E200SWEEP	2" PVC sweep elbow
E250SWEEP	2 1/2" PVC sweep elbow
E300SWEEP	3" PVC sweep elbow
E400SWEEP	4" PVC sweep elbow

Conduit Couplers (S x S)	
EC050	1/2" PVC conduit coupler
EC075	3/4" PVC conduit coupler
EC100	1" PVC conduit coupler
EC125	1 1/4" PVC conduit coupler
EC150	1 1/2" PVC conduit coupler
EC200	2" PVC conduit coupler
EC250	2 1/2" PVC conduit coupler
EC300	3" PVC conduit coupler
EC400	4" PVC conduit coupler

Conduit Steel Lock nuts	
ELN050	1/2" steel electrical lock nut
ELN075	3/4" steel electrical lock nut
ELN100	1" steel electrical lock nut
ELN125	1 1/4" steel electrical lock nut
ELN150	1 1/2" steel electrical lock nut
ELN200	2" steel electrical lock nut

Conduit Female Adapters (FIPT x SLIP)	
EFA050	1/2" PVC conduit female adapter
EFA075	3/4" PVC conduit female adapter
EFA100	1" PVC conduit female adapter
EFA125	1 1/4" PVC conduit female adapter

Conduit Male Adapters (MIPT x SLIP)	
EMA050	1/2" PVC conduit male adapter
EMA075	3/4" PVC conduit male adapter
EMA100	1" PVC conduit male adapter
EMA125	1 1/4" PVC conduit male adapter
EMA150	1 1/2" PVC conduit male adapter
EMA200	2" PVC conduit male adapter

Conduit Boxes and Covers	
ECB050	1/2" Conduit box
ECB075	3/4" Conduit box
ELCB050	1/2" Conduit box, 90°
ELCB075	3/4" Conduit box, 90°

Conduit Female Adapters (FIPT x SLIP)	
EFA050	1/2" PVC conduit female adapter
EFA075	3/4" PVC conduit female adapter
EFA100	1" PVC conduit female adapter
EFA125	1 1/4" PVC conduit female adapter

Conduit Male Adapters (MIPT x SLIP)	
EMA050	1/2" PVC conduit male adapter
EMA075	3/4" PVC conduit male adapter
EMA100	1" PVC conduit male adapter
EMA125	1 1/4" PVC conduit male adapter
EMA150	1 1/2" PVC conduit male adapter
EMA200	2" PVC conduit male adapter

Conduit Steel Lock Nuts	
ELN050	1/2" steel electrical lock nut
ELN075	3/4" steel electrical lock nut
ELN100	1" steel electrical lock nut
ELN125	1 1/4" steel electrical lock nut
ELN150	1 1/2" steel electrical lock nut
ELN200	2" steel electrical lock nut

Conduit Boxes and Covers	
ECB050	1/2" Conduit box
ECB075	3/4" Conduit box
ELCB050	1/2" Conduit box, 90°
ELCB075	3/4" Conduit box, 90°

PRO-700 WIRE AND VALVE LOCATOR

- Fault locator for irrigation contractors and maintenance personnel
- Tracks irrigation wires, finds missing valves, and detects damage to vulnerable underground cabling
- 27 inch receiver, external speaker, and "D" transmitter battery power
- Enlarged analog meters for easy viewing of power levels on the transmitter and receiver

PRO871 DUAL FREQUENCY CABLE LOCATOR

- Locates buried wires and cables
- Dual frequency capability
- Inductive clamp included (Pro871C)
- Audible (Speaker or Headset) or visual power indicators
- Low battery indicator
- Null or peak reception options with volume control
- Custom molded case
- Uses 8 "D" cell batteries (not included)

GFL3000 GROUND FAULT LOCATOR

- Locates buried ground faults
- Dual power capability (Hi/Lo)
- Audible 'On' beeper
- Battery power indicator
- Custom molded case
- Rechargeable battery (Includes Battery and Charger)

PRO300 RESIDENTIAL WIRE AND VALVE LOCATOR

- The perfect fit for the contractor working primarily with smaller wired systems
- Great for residential sprinkler systems
- The Pro300 comes complete with transmitter/ case, receiver, antenna, and ground stake
- Output Frequency — 2Khz
- Output Power — 350 VAC P-P
- Transmitter Power — 8 C Type Batteries
- Receiver Power — one 9V Square Battery

PRO90 AUTOMATIC MULTIMETER

- Automatically looks for voltage from 1.3 to 600V AC or to 1000 volts DC. If it sees it, it measures it including automatically setting the correct range and determining AC or DC.
- If it does not see voltage, it automatically switches to resistance or ohm measurement, again auto-ranging
- The clamp is used for measuring AC currents from .9 to 400 Amps

PRO110 TONE GENERATOR

- Rugged design
- Visual indication: Tone generation
- 9V alkaline battery with up to 100 hrs. operation
- Test lead fitted with crocodile clip & RJ11 plug
- Waterproof heavy duty design

PRO210 PROBE

- Waterproof heavy duty design
- Audio indication of test signal
- Visual ON indication
- 5 Digitally controlled sensitivity settings
- High gain 46 dB
- Headset socket
- Ergonomically designed for right or left handed use
- 9V alkaline battery

PRO-220K TONE AND PROBE KIT

- A durable, reliable tone and probe kit designed for identifying the termination point of any wire
- Used for identifying where a particular solenoid is connected into the clock or controller

PRO-48 SOLENOID ACTIVATOR/ CHATTERBOX

- Activates and holds solenoids open
- Generates and traces 1Khz tracing tone
- Checks clock 24V power output
- Tests for open or shorted wiring
- Uses two 9V batteries (not included)

PRO-48K SOLENOID ACTIVATOR KIT

Consists of a Pro48 Activator, the Pro220 Tone Probe, and a Pro22 carrying case

TESTING EQUIPMENT (CONT.)

PRO290

- Tracks underground wires including landscape lighting and fence
- Won't damage lights (125 mw Output)
- Ground condition LED
- Detachable antenna
- Receiver volume control
- Standard 33khz tracking signal
- Ground stake included
- Transmitter automatic off switch
- Uses 8 C Batteries and one 9V (not included)

ACCESSORIES

Product Code	Description
PRO700	Wire and Valve Locator
PRO871C	Pro871 w/Inductive Clamp
GFL3000	Ground Fault Locator
PRO300	Mini Wire and Valve Locator
PRO90	Automatic Multimeter
PRO110	Tone Generator
PRO210	Tone Probe
PRO220K	Tone Probe Kit
PRO48	Multi-Function Irrigation System Tester
PRO48K	Multi-Function Irrigation System Tester, With Case

MISCELANEOUS ACCESSORIES

MISCELLANEOUS ACCESSORIES

Product Code	Description
SERCONQ	Tip-N-Measure Service Container qt.
SERCONG	Tip-N-Measure Service Container gal.
RU168501	5 Gal. Water Cooler
WD40	WD-40 11 oz.
35251	1lb. Bag Of Rag
TCGB350	Trash Bags Box

ALSO AVAILABLE AT YOUR HORIZON STORE:

BRUTEGRAY	BRUTE GRAY TRASH CAN
4024	4 X 24 Rebar
4036	4 X 36 Rebar
ECORD5	5' Electrical Cord
86001	Electrical Tape
T10MIL	Pipe Wrap
T007	3/4" X 520" Teflon Tape
20602N	Duct Tape
T010	1" X 520" Teflon Tape
TC-5736	1/2" X 520" Tefon Tape
TARPP	7' X 7' Poly Tarp
1250	7' X 7' Burlap Tarp
TD31	31" Tie Down
TD41	41" Tie Down
TD20	20" Tie Down
TR50	Rope 3/8 X 50' Coil

MISCELANEOUS ACCESSORIES (CONT.)

HOSE END PRODUCTS

TC-5706	#6 Hose Clamp
TC-5708	#8 Hose Clamp
TC-5716	#16 Hose Clamp
SSC8712	#12 Hose Clamp
TC-5720	#20 Hose Clamps
TC-5724	#24 Hose Clamp
TC-5710	#10 Hose Clamp
TC-5728	#28 Hose Clamp
TC-5740	#40 Hose Clamp
TC-5732	#32 Hose Clamp
TC-5736	#36 Hose Clamp
TC-5756	# 56 Hose Clamp
TC-5748	# 48 Hose Clamp
BHF12	Swivel 3/4" to 3/4" F Pipe
BHF8	3/4" M 1/2" F
BHF13	Swivel 3/4" Fem to 1/2" F Pipe
BHF9	Fitting 3/4" Female 3/4 Male 1/2"
BHF7	Swivel 3/4" Female to 3/4" F Hose
BHF10	Fitting 3/4" Male Hose to 1/2" M
BHF6	3/4" Male Hose x 3/4" M Hose
50312	Brass Y Connect

HOSE

10034100	3/4" x 100' Garden Hose
10010100	1" x 100' 6 Ply Hose
10010050	1" x 50' 6 Ply Hose
10034050	3/4" x 50' 8 Ply Hose
10058100	5/8" x 100' 8 Ply Hose
25034075	3/4" x 75' Commercial Hose 6 Ply
29058050	5/8" x 50' Commercial Hose 6 Ply
29058075	5/8" x 75' Commercial Hose 6 Ply

ADDITIONAL ACCESSORIES- MARKING TOOLS

MKPSTICK	Marking Gun
DOLOMARK	Dolomark Marking Chalk
FR	Red Flag
FY	Yello Flag
FB	Blue Flag
FO	Orange Flag
FW	White Flag
FP	Pink Flag
FG	Green Flag
PFLAG	Pesticide Flag
FLAGCHEM	Flag Chemical N
PFO	Marking Paint Florescent Orange
PW	Marking Paint White
PFP	Marking Paint Florescent Pink
PFR	Marking Paint Florescent Red
PFG	Marking Paint Florescent Green
PR	Marking Paint Red
PFB	Marking Paint,Florescent Blue
PB	Marking Paint Blue
PPU	Marking Paint Purple
PY	Marking Paint Yellow
FTP	Flagging Tape Purple
FTG	Flagging Tape Green
FTBU	Flagging Tape Blue
CTY	3" X 1000' Barricade
TCAUTION	3" Caution Tape
TRECLAIMD	3" X 1000' Detectable
3BWDET	3" X 1000' Detectable

Note: Conversions listed in these pages are not exact. Refer to sources such as Handbook of Chemistry and Physics and C.R.C. Standard Math Tables by the Chemical Rubber Company, Scientific Tables by Ciba-Geigy Ltd., Websters Desk Encyclopedia by Griesewood and Dempsey, Conversion Factors by Forney's Inc., Conversions by Cahn Instruments and Technical Reference Handbook by E.P. Rasis for more detailed conversions and specifications.

Area

Convert From	Into	Multiply By
acres	hectares or sq. hectometer	0.4047
	sq. feet	43,560
	sq. meters	4,047
	sq. miles	0.0015625
	sq. yards	4,840
	sq. inches	6,272,640
square feet	acres	2.4702×10^{-8}
	sq. centimeters	929.03
	sq. feet	144
	sq. meters	0.0929
	sq. miles	3.58701×10^{-8}
	sq. millimeters	9.29×104
	sq. yards	0.1111
square inches	acres	1.594×10^{-7}
	sq. centimeters	6.4516
	sq. feet	0.00694
	sq. meters	0.000645
	sq. miles	2.491×10^{-10}
	sq. millimeters	645.16
square miles	acres	640
	hectares	258.999
	sq. feet	2.78783×107
	sq. kilometers	2.5899
	sq. meters	258,999
	sq. yards	3,098,000 (3.098×10^6)
square yards	acres	0.000207
	hectares	8.3613×10^{-5}
	sq. centimeters	8,361.27
	sq. feet	9
	sq. inches	1296
	sq. meters	0.8361
	sq. miles	3.228×10^{-7}

Flow

Convert From	Into	Multiply By
cu. feet per minute	acre-feet/hr	0.00138
	acre-feet/min	2.2956×10^{-5}
	cu. meters/sec	0.00047195
	gallons (US)/min	7.48052
	liters/sec	0.47193
cu. feet per second	acres-inches/hr	0.99173
	cu. meters/sec	0.02832
	gallons/min	448.83
	liters/min	1,698.96
	liters/sec	28.316
	millions gallons/day	0.64632
gallons per day	cu. feet/hour	0.00557
gallons per hour	acre-feet/hour	3.0689×10^{-6}
	cu. feet/hour	0.13368
	cu. meters/minute	6.309×10^{-5}
	gallons/minute	0.0166667
	liters/hour	3.7853
gallons per minute	acre-feet/day	0.0044192
	cu. feet/hour	8.0208
	cu. feet/second	0.002228
	cu. meters/hour	0.2268
	cu. meters/second	0.000063
	gallons/hour	60
	liters/minute	3.7853
	liters/second	0.06308

Weight

Convert From	Into	Multiply By
ounces	grams	28.349
	kilograms	0.02835
	pounds	0.0625
	tons (metric)	2.835×10^{-5}
	tons (short)	3.125×10^{-5}
pounds	drams	256
	dynes	444,800
	grains	7,000
	grams	453.59
	kilograms	0.4536
	ounces	16
	tons (long)	0.0004464
	tons (metric)	0.0004536
	tons (short)	0.0005
pounds of water	cu. feet	0.01602
	cu. inches	27.68
	gallons	0.1198
	liters	0.4545
tons (short)	dynes	8.8964×10^8
	kilograms	907.18
	ounces	32,000
	pounds	2,000
	tons (long)	0.89286
	tons (metric)	0.90718

Length

Convert From	Into	Multiply By
feet	centimeters	30.48
	inches	12
	kilometers	3.048×10^{-4}
	meters	0.3048
	microns	304,800
	miles	0.000189
	millimeters	304.8
	yards	0.333333
inches	centimeters	2.54
	feet	0.08333
	meters	0.0254
	microns	25,400
	miles	1.578×10^{-5}
	millimeters	25.4
	mils	1,000
	yards	0.0278
miles	centimeters	160,934
	feet	5,280
	furlongs	8
	inches	63,360
	kilometers	1.609344
	light years	1.701×10^{-12}
	meters	1,609.344
	yards	1.701×10^{-12}
yards	centimeters	91.44
	cubits	2
	fathoms	0.5
	feet	3
	furlongs	0.004545
	inches	36
	kilometers	9.144×10^{-4}
	meters	0.9144
	miles	5.682×10^{-4}
	millimeters	914.4

CONVERSIONS (CONT.)

Pressure Loss		
Convert From	**Into**	**Multiply by**
pounds per sq. inch (psi) per 100 feet	bars/100 meters	0.226
	kilopascals/100 meters	22.621
	meters/100 meters	2.31

Temperature		
Convert From	**Into**	**Multiply by**
Centigrade	Fahrenheit	(ºC x 1.8) + 32
Fahrenheit	Centigrade	(ºF –32) / 1.8

Velocity		
Convert From	**Into**	**Multiply by**
feet per minute	centimeters/second	0.508
	kilometers/hour	0.018288
	kilometers/minute	0.000348
	meters/minute	0.3048
	meters/second	0.00508
	miles/hour	0.011364
feet per second	centimeters/second	30.48
	kilometers/hour	1.09728
	kilometers/minute	0.01829
	meters/minute	18.288
	meters/second	0.3048
	miles/hour	0.681818
feet per (second x second)	centimeters/(second x second)	30.48
	kilometers/(hr x second)	1.0973
	meters/(second x second)	0.3048
gravity constant	cm/(second x second)	980.6
	feet/(second x second)	32.17
inches per hour	centimeters/hour	152.4
	feet/hour	5
	miles/hour	1.5783 x 10-4
inches per minute	entimeters/hour	152.4
	feet/hour	5
	feet/second	0.0013889
	miles/hour	0.000947
miles per hour	centimeters/second	44.704
	feet/hour	5,280
	feet/minute	88
	feet/second	1.4667
	kilometers/hour	1.6094
	kilometers/minute	0.0268
	knots (international)	0.86897
	meters/minute	26.822
	miles/minute	0.01667

CHARTS

Installation of Channel Drains
Standard Installation

Excavate a trench to accommodate the channel and bedding concrete. Erect a string line at each end of the drain run as a guide for laying the channels to the required level. Begin channel installation at the evacuation or discharge end of the run where the outlet or outlets are located. Install channel end-to-end PVC cementing sections together. Design bottom or end outlets into the channel run in the appropriate location and glue to the drain pipe or fittings. PVC cement end-caps where appropriate. Using either NDS stakes, 1/2" or 5/8" rebar or wood stakes, anchor channel to the trench bed every 24" on each side of channel. Backfill with either concrete sand.

Hunter®

Special thanks to Horizon's strategic partner Hunter Industries for supplying the charts and formulas for this section.

U.S. MESH	INCHES	MICRONS	MILLIMETERS
3	0.2650	6730	6.730
4	0.1870	4760	4.760
5	0.1570	4000	4.000
6	0.1320	3360	3.360
7	0.1110	2830	2.830
8	0.0937	2380	2.380
10	0.0787	2000	2.000
12	0.0661	1680	1.680
14	0.0555	1410	1.410
16	0.0469	1190	1.190
18	0.0394	1000	1.000
20	0.0331	841	0.841
25	0.0280	707	0.707
30	0.0232	595	0.595
35	0.0197	500	0.500
40	0.0165	400	0.400
45	0.0138	354	0.354
50	0.0117	297	0.297
60	0.0098	250	0.250
70	0.0083	210	0.210
80	0.0070	177	0.177
100	0.0059	149	0.149
120	0.0049	125	0.125
140	0.0041	105	0.105
170	0.0035	88	0.088
200	0.0029	74	0.074
230	0.0024	63	0.063
270	0.0021	53	0.053
325	0.0017	44	0.044
400	0.0015	37	0.037

Mesh Sizes and Microns

What does mesh size mean? Figuring out mesh sizes is simple. All you do is count the number of openings in one inch of screen (in the United States, anyway.) The number of openings is the mesh size. So a 4 mesh screen means there are four little squares across one linear inch of screen. A 100 mesh screen has 100 openings, and so on. Note, therefore that as the number describing the mesh size increases, the size of the particles decreases. Higher numbers = finer powder. Mesh size is not a precise measurement of particle size. Screens can be made with different thicknesses of wire. The thicker the wires, the smaller the particle passing through that screen, and vice versa.

What do the minus (-) and plus (+) plus signs mean when describing mesh sizes? Here's a simple example of how they work. –200 mesh aluminum would mean that all particles will pass through a 200 mesh screen. A +200 mesh aluminum means that all the particles are retained on a 200 mesh screen.

How fine do screens get? That depends on the wire thickness. But the supplier of our screens does not offer any screens finer than 500 mesh. [0]If you think about it, the finer the weave, the closer the wires get together, eventually leaving no space between them at all. So, beyond 325-400 mesh, we usually describe particle size in "microns."

What is a micron? A micron is another measurement we use for measuring particle size. A micron is one-millionth of a meter or one twenty-five thousandth of an inch.

This table is adapted from a post made by Ken Kosanke to the PML and previously published in a PGII Bulletin.

U.S. Standard * Space between wires			
Sieve Mesh No.	Inches	Microns**	Typical material
14	0.056	1400	
28	0.028	700	Beach sand
60	0.0098	250	Fine sand
100	0.0059	150	
200	0.0030	74	Portland cement
325	0.0017	44	Silt
400	0.0015	37	Plant Pollen
(1200)	0.0005	12	Red Blood Cell
(2400)	0.0002	6	
(4800)	0.0001	2	Cigarette smoke

* The mesh numbers in parentheses are too small to exist as actual screen sizes; they are estimated and included just for reference

This page gleaned from the colonial virginia high power

Slope

Slope, as used in irrigation, is a measure of the incline of an area. The greater the incline, the greater the tendency for runoff.

$$S = \frac{Rise}{Run}$$

Where:

S = the percent of slope
Rise = the net elevation change in elevation between two points
Run = the horizontal distance between the two points

Friction Loss in Pipe

Also known as the Hazen-Williams equation, it is the most commonly used formula for calculating pressure loss in PVC pipe.

$$h_f = 0.00090194 \left(\frac{100}{C}\right)^{1.852} \frac{Q^{1.852}}{d^{4.866}} L$$

Where:

h_f = head loss due to friction in pounds per square inch (psi)
C = Hazen Williams coefficient for roughness of the inside of the pipe
Q = flow in gallons per minute (gpm)
d = inside diameter of pipe in inches
L = length of pipe in feet

Water Horsepower Requirements

Used to calculate the amount of power required to pump a given volume of water at a specified head.

$$WHP = \frac{GPM \times TDH}{3960}$$

Where:

WHP = horsepower output required
GMP = gallons per minute flow from the pump
TDH = Total Dynamic Head in feet of head
3960 = constant used to convert flow and head into horsepower

Scheduling Coefficient

A scheduling coefficient is used to measure the uniformity of water distribution by relating the lowest precipitation rate for any contiguous region within an irrigated area to the overall precipitation rate of the entire area.

$$SC = \frac{PR}{LPR}$$

Where:

SC = Scheduling Coefficient, 1.0 would be perfect uniformity
PR = Precipitation Rate
LPR = Lowest Precipitation Rate in the irrigated area

Example:

In a catchment test, collectors are placed at two foot intervals. The average precipitation rate is calculated to be 1.6 in/hr. The lowest precipitation rate of all catchments was 0.8 in/hr. What is the Scheduling Coefficient?

$$SC = \frac{1.6}{0.8}$$

$$SC = 2.0$$

Sprinkler Run Time

The sprinkler run time formula calculates the number of minutes required to apply enough water to replace the water lost by evapotranspiration for a specific crop irrigated with a system at a particular precipitation rate and efficiency.

The "run time" is calculated using the following formula.

$$T = \frac{60 \times D \times Et_o \times K_c}{PR \times IE}$$

Where:

T = sprinkler run time in minutes
60 = constant for conversion of area, flow, inches per hour and inches per day into common units
D = watering frequency in days
Et_o = reference evapotranspiration rate, in inches per day
K_c = crop coefficient, decimal
PR = precipitation rate of the area, in inches per hour
IE = application efficiency of the system, percent

Example:

Determine the sprinkler run time for an athletic field with a daily Et_o of 0.15 inches and a crop coefficient for the warm season turf of 0.70. The watering schedule is set for every three days. The sprinkler precipitation rate is 0.50 in/hr with an application efficiency of 75%.

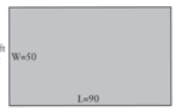
$$T = \frac{60 \times 3 \times 0.15" \times .70}{0.50" \times 75\%} = \frac{60 \times 3 \times 0.15" \times .70}{0.50" \times 75\%}$$

T = 50 minutes every 3 days

How to Calculate Areas

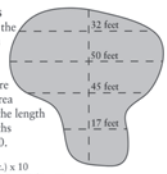
Square or rectangle

Area = L x W
L = length
W = width
A = 90 ft x 50 ft
= 4,500 sq ft



Irregular shapes

Find the length of the longest line across the area. Every 10 ft along the length line, measure the width of the area at right angles to the length line. Total all widths and multiply by 10.

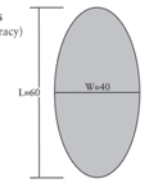


Area = (A + B + C, etc.) x 10
= (32 ft + 50 ft + 45 ft + 17 ft) x 10
= 144 x 10
= 1,440 sq ft

Ovals or egg shapes

(within 5 percent accuracy)

Area = 0.8 L x W
L = length
W = width at midpoint
Area = 0.8 x 60 x 40 ft
= 1,920 sq ft



Triangle

Area = 0.5 x B x H
B = base
H = height
Area = 0.5 x 125 ft x 75 ft
= 4,687 sq ft

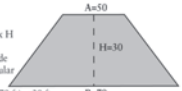
Circle

(within 5 percent accuracy)

Area = 0.8 D²
D = diameter
Area = 0.8 x 50 ft x 50 ft
= 2,000s sq ft

Trapezoid

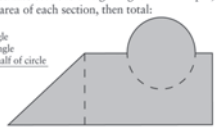
Area = 0.5 x (A + B) x H
A = one parallel side
B = second parallel side
H = height perpendicular to parallel sides
Area = 0.5 x (50 ft + 70 ft) x 30 ft
= 0.5 x 120 ft x 30 ft
= 1,800 sq ft



Unusual shapes

Divide the area into sections of regular geometric shapes, calculate the area of each section, then total:

Area of triangle
+ Area of rectangle
+ Area of one-half of circle
= Total area



Circle

Area = πr²
π = 3.14
R = radius
Area = 3.14 x (30 ft x 30 ft)
= 2,826 sq ft

Precipitation Rate

Two formulas are shown below, the first is most useful when comparing precipitation rates between different types of sprinklers or calculating precipitation rates on areas with a single type of sprinkler and uniform head and row spacing. The second method is better suited to areas where sprinkler head flows or spacing varies. Metric versions are shown in parenthesis.

Precipitation Rate - Method #1 - Individual Head Method

$$PR = \frac{34650 \times GPM\ (\text{for any arc})}{\text{Degrees Arc} \times \text{Head Spacing} \times \text{Row Spacing}} \qquad \left(PR = \frac{\text{m/hr (for any arc)} \times 360{,}000}{\text{Degrees of arc} \times \text{Head spacing (m)} \times \text{Row Spacing (m)}} = \text{mm/hr}\right)$$

$$\left(PR = \frac{\text{l/min (for any arc)} \times 21{,}600}{\text{Degrees of arc} \times \text{Head spacing (m)} \times \text{Row Spacing (m)}} = \text{mm/hr}\right)$$

Where:

PR	=	precipitation rate in inches per hour
GPM	=	flow for a given sprinkler of any arc, in gallons per minute
Degrees Arc	=	the arc of the given sprinkler in degrees
Head Spacing	=	the space between the heads in a row, in feet
Row Spacing	=	the space between rows of heads, in feet
34650	=	constant for conversion of area and flow into common units

Example:

What is the precipitation rate for a 270 degree sprinkler with 6.8 gpm spaced at 28' by 30'?

$$PR = \frac{34{,}650 \times 6.8}{270 \times 28 \times 30}$$

PR = 1.04 in./hr.

Precipitation Rate - Method #2 - Total Area Method

$$PR = \frac{96.25 \times \text{Total GPM}}{\text{Total Area}} \qquad \left(PR = \frac{\text{Total m³/hr} \times 1{,}000}{\text{Total Area (m²)}} = \text{mm/hr}\right) \quad \left(PR = \frac{\text{Total l/min} \times 60}{\text{Total Area (m²)}} = \text{mm/hr}\right)$$

Where:

PR	=	precipitation rate in inches per hour
Total GPM	=	total flow from all sprinklers in the given area in gallons per minute
Total Area	=	the given irrigated area in square feet
96.25	=	constant for conversion of area and flow into common units

Example:

What is the average precipitation rate for a section of turf 325' by 80' if the total flow from all sprinklers in the area is 112 gpm.

$$PR = \frac{96.25 \times 112}{(325 \times 80)}$$

PR = 0.41 in./hr.

Average Number of Sprinklers per Acre

Square and/or Rectangular Spacing

Spacing in Feet	Heads Per Acre	Spacing In Feet	Heads Per Acre
10 x 10	435.6	30 x 60	24.2
11 x 11	360.0	40 x 40	27.2
12 x 12	302.4	40 x 50	21.8
13 x 13	257.6	40 x 60	18.2
14 x 14	222.3	40 x 80	13.6
15 x 15	193.5	50 x 50	17.4
16 x 16	170.0	50 x 60	14.5
17 x 17	150.8	50 x 70	12.4
18 x 18	134.3	50 x 80	10.9
19 x 19	120.6	60 x 60	12.1
20 x 20	109.0	60 x 70	10.4
20 x 30	72.7	60 x 80	9.1
20 x 40	54.5	70 x 70	8.9
20 x 50	43.5	70 x 80	7.8
20 x 60	36.3	70 x 90	6.9
25 x 25	69.7	80 x 80	6.8
30 x 30	48.4	80 x 90	6.1
30 x 40	36.3	80 x 100	5.5
30 x 50	29.0	100 x 100	4.4

Average Number of Sprinklers per Acre

Equilateral Triangular Spacing

Spacing In Feet	Heads Per Acre	Spacing In Feet	Heads Per Acre
10	504	66	11.5
11	418	68	10.9
12	348	70	10.3
13	296	72	9.7
14	256	74	9.2
15	224	76	8.7
16	196	78	8.3
17	175	80	7.9
18	155	82	7.5
19	140	84	7.1
20	125	86	6.8
21	114	88	6.5
22	105	90	6.2
23	96	92	5.9
24	87	94	5.7
25	80	96	5.5
26	74	98	5.2
27	69	100	5.0
28	64	102	4.8
29	60	104	4.6
30	56	106	4.5
32	49	108	4.3
34	44	110	4.2
36	39	112	4.0
38	35	114	3.9
40	31	116	3.7
42	28.5	118	3.6
44	26.0	120	3.5
46	23.7	122	3.4
48	21.8	124	3.3
50	20.0	126	3.2
52	18.6	128	3.1
54	17.2	130	3.0
56	16.0	132	2.9
58	15.0	134	2.8
60	14.0	136	2.7
62	13.1	138	2.6
64	12.3	140	2.5

The theoretical figures above represent the minimum number of sprinklers required to cover a square acre (208.7' x 208.7') with the most economical placement of sprinklers possible. Actual layouts to match individual field conditions may require additional sprinklers. This table should only be used for estimating purposes.

Precipitation Rate – Minimum Rate Required

This formula is used to determine the minimum precipitation rate than can be used to deliver the required water during the peak period of water usage.

$$\text{Minimum PR} = \frac{ET \times \text{Total Acres}}{\text{Hours Avail.} \times \text{Acre per Section} \times \text{Valves} \times \text{Efficiency}}$$

Where:

Minimum PR	=	minimum required precipitation rate in inches per hour
ET	=	amount of water to be applied in inches per day, including crop coefficient
Total Acres	=	the area to be irrigated in acres
Hours Avail.	=	hours available for irrigation each day
Acres per Section	=	average area covered by one control valve in acres
Valves	=	number of valves operating at one time
Efficiency	=	system operating efficiency in decimal equivalent of percent

Example:

What is the minimum precipitation rate that will deliver 0.28 inches of water to 15 acres under the following conditions:

- during a 12 hour period
- the average section is 0.40 acres (17,424 sq. ft.)
- there will be two valves operating at one time
- the system efficiency is 75%

$$\frac{0.28 \times 15}{12 \times 0.40 \times 2 \times .75}$$

= 0.58 in./hr. minimum precipitation rate required

AB 325, California Calculation of Estimated Applied Water Use (EWU)

This formula is used to calculate the estimated amount of water used in one hydrozone of a landscape (the hydrozone may be one control valve or several with similar water requirements). All hydrozones would be added together to determine the Estimated Applied Water Use (EWU) for an entire project. The EWU must be less than the Maximum Applied Water Allowance (MAWA), as shown in the next formula, in order to receive project approval. The use of this formula was mandated by California State assembly bill 325.

$$EWU = \frac{Et_o \times PF \times HA \times 0.62}{IE}$$

Where:

- EWU = the estimated water use in gallons per day
- Et_o = potential daily evapotranspiration for the worst case scenario, in inchesper day
- PF = Plant Factor (Crop Coefficient), percent in decimal form
- HA = hydrozone area in square feet
- IE = Irrigation Efficiency or Distribution Uniformity, percent in decimal form
- 0.62 = constant for conversion of units to gallons per day

Example:

You want to determine the EWU for a rectangular lawn area with the following characteristics

- the estimated worst case Et_o is 0.40 inches per day
- for the warm season turf you are using, the crop coefficient has been determined to be 60% (0.60)
- 380 ft. long by 260 ft. wide (98,800 sq. ft.)
- the system efficiency has been estimated at 75% (0.75)

$$EWU = \frac{0.40 \times 0.60 \times 98{,}800 \times 0.62}{0.75}$$

$$EWU = \frac{14{,}701.44}{0.75}$$

EWU = 19,601.92 gallons per day

Coefficient of Uniformity

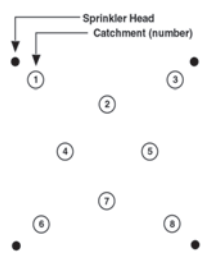
This formula is used to measure the variability of water distribution over a given area. It is calculated by using a series of catchments and comparing the average (mean) catchment and the deviation from that average. This formula was developed by J.E. Christiansen.

$$C_u = 100 \left(1.0 - \frac{\sum x}{mn}\right)$$

Where:

- C_u = Uniformity Coefficient
- x = the deviation of individual observations or catchments
- $\sum x$ = the sum of the deviations of individual observations from the mean value, m
- m = mean value of all observations in the distribution
- n = number of observations in the distribution
- 100 = constant for conversion to percent

Example:



Catchment #	Catchment Quantity (ml)	Deviation From Mean (mean = 46.75 ml)
1	48	1.25
2	51	4.25
3	44	2.75
4	41	5.75
5	45	1.75
6	44	2.75
7	50	3.25
8	51	4.25
	Total	26.00

Note: catchment may be expressed in any convenient unit (i.e. milliliters, ounces, etc.), as long as all catchments are measured in the same units.

In a landscape area, eight catchments are placed between sprinklers and the above observations recorded. What is the Coefficient of Uniformity?

$$C_u = 100 \left(1.0 - \frac{26.00}{46.75 \times 8}\right)$$

$$C_u = 93.0$$

Distribution Uniformity

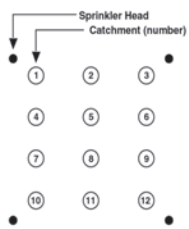
This formula is one of several that are titled Distribution Uniformity. It is used to estimate the variation in water application between sprinklers resulting from pressure variation, improper nozzle selection or lack of maintenance.

$$DU = 100 \times \left(\frac{MQ1}{M}\right)$$

Where:

- DU = Distribution Uniformity expressed as a percent
- MQ1 = mean of observations in lowest 25% of the distribution
- M = mean of distribution
- 100 = constant for conversion to percent

Example:



Catchment #	Quantity after 15 minutes in milliliters
1	13*
2	18*
3	22
4	17*
5	19
6	23
7	19
8	21
9	22
10	23
11	24
12	22
Total	243

*Lowest 1/4 = 48

Note: catchment may be measured in any units (inches, ounces, millimeters, etc.)

$$DU = 100 \times \left(\frac{48 \div 3}{243 \div 12}\right)$$

$$DU = 100 \times \left(\frac{16}{20.25}\right)$$

DU = 100 x 0.79

DU = 79%

CRESLINE®
CRESLINE PLASTIC PIPE CO., INC.

SDR - 26

Pressure Drop Of Water Per 100 Ft. Of Pipe

SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		8		SIZE
GALLONS PER MINUTE	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	GALLONS PER MINUTE
1	.79	.21	.47	.06	.29	.02																	1
2	1.57	.76	.94	.22	.57	.06																	2
3	2.36	1.61	1.42	.46	.86	.14	.52	.04															3
4	3.15	2.74	1.89	.79	1.14	.23	.69	.07	.54	.04													4
5	3.94	4.14	2.36	1.19	1.43	.35	.87	.10	.67	.05													5
6	4.73	5.80	2.83	1.67	1.72	.49	1.04	.14	.80	.08													6
8	6.30	9.87	3.78	2.84	2.29	.84	1.39	.24	1.06	.13	.68	.04											8
10	7.88	14.91	4.72	4.29	2.86	1.27	1.74	.37	1.33	.20	.85	.07	.58	.03									10
15			7.08	9.08	4.29	2.68	2.61	.78	2.00	.41	1.27	.14	.87	.05									15
20			9.44	15.46	5.72	4.57	3.49	1.33	2.66	.70	1.70	.24	1.16	.09	.78	.04							20
25					7.15	6.90	4.35	2.01	3.33	1.06	2.12	.36	1.45	.14	.97	.05							25
30					8.58	9.67	5.22	2.81	4.00	1.49	2.55	.50	1.74	.20	1.17	.08							30
35							6.10	3.74	4.66	1.98	2.98	.67	2.03	.27	1.35	.10							35
40							6.95	4.79	5.33	2.54	3.40	.86	2.32	.34	1.56	.13	.94	.04					40
45									6.00	3.16	3.84	1.06	2.61	.42	1.75	.16	1.06	.05					45
50									6.66	3.84	4.25	1.29	2.90	.51	1.95	.19	1.18	.06					50
60									8.00	5.38	5.10	1.81	3.48	.72	2.33	.27	1.41	.08					60
70									9.32	7.15	5.95	2.41	4.06	.96	2.72	.36	1.65	.11					70
80											6.80	3.08	4.64	1.23	3.11	.46	1.88	.14					80
90											7.65	3.84	5.22	1.53	3.50	.58	2.12	.17					90
100											8.50	4.66	5.80	1.85	3.89	.70	2.35	.20	1.09	.03			100
125											10.60	7.04	7.25	2.80	4.86	1.06	2.94	.31	1.36	.05			125
150													8.00	3.93	5.81	1.48	3.53	.43	1.64	.07			150
175													10.15	5.22	6.81	1.97	4.11	.58	1.91	.09			175
200															7.78	2.60	4.70	.76	2.18	.12			200
225															8.75	3.17	5.29	.92	2.45	.14			225
250															9.73	3.81	5.88	1.12	2.73	.17			250
275															10.70	4.55	6.46	1.33	3.00	.20			275
300																	7.05	1.56	3.27	.24	1.96	.07	300
325																	7.64	1.81	3.54	.28	2.12	.08	325
350																	8.23	2.08	3.82	.32	2.29	.09	350
375																	8.81	2.36	4.09	.36	2.46	.11	375
400																	9.40	2.66	4.36	.41	2.62	.12	400
425																	9.99	2.98	4.63	.46	2.77	.13	425
450																	10.58	3.31	4.91	.51	2.95	.15	450
475																			5.18	.56	3.09	.16	475
500																			5.45	.62	3.27	.18	500
550																			6.00	.73	3.60	.21	550
600																			6.54	.86	3.93	.25	600
650																					4.26	.29	650
700																					4.58	.33	700
750																					4.91	.38	750
800																					5.24	.43	800
900																					5.89	.53	900
1000																					6.55	.65	1000

Note: All pressure drops calculated using the Williams and Hazen formula with: C=150

Recommended operating conditions shown above heavy line in charts.

SDR - 21

Pressure Drop Of Water Per 100 Ft. Of Pipe

SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		8"		SIZE
GALLONS PER MINUTE	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	GALLONS PER MINUTE
1	.79	.21	.47	.06	.29	.02																	1
2	1.57	.76	.94	.22	.57	.06																	2
3	2.36	1.61	1.42	.46	.86	.14	.54	.04															3
4	3.15	2.74	1.89	.79	1.14	.23	.73	.08	.55	.04													4
5	3.94	4.14	2.36	1.19	1.43	.35	.91	.12	.69	.06													5
6	4.73	5.80	2.83	1.67	1.72	.49	1.09	.16	.83	.08													6
8	6.30	9.87	3.78	2.84	2.29	.84	1.45	.28	1.10	.14	.71	.05											8
10	7.88	14.91	4.72	4.29	2.86	1.27	1.81	.42	1.38	.21	.89	.07	.60	.03									10
15			7.08	9.08	4.29	2.68	2.72	.89	2.07	.45	1.33	.15	.90	.06									15
20			9.44	15.46	5.72	4.57	3.63	1.51	2.76	.77	1.77	.26	1.20	.10	.84	.04							20
25					7.15	6.90	4.54	2.28	3.45	1.16	2.21	.39	1.50	.15	1.05	.06							25
30					8.58	9.67	5.45	3.20	4.15	1.62	2.65	.54	1.81	.22	1.26	.09							30
35							6.35	4.25	4.83	2.16	3.10	.72	2.10	.29	1.49	.11							35
40							7.26	5.45	5.52	2.76	3.54	.92	2.41	.37	1.68	.15	.98	.04					40
45							8.17	6.77	6.20	3.43	3.98	1.14	2.71	.45	1.90	.18	1.10	.05					45
50							9.08	8.23	6.90	4.17	4.42	1.39	3.01	.56	2.11	.22	1.23	.06					50
60							10.89	11.53	8.29	5.84	5.30	1.95	3.61	.80	2.39	.31	1.48	.09					60
70											6.19	2.59	4.21	1.04	2.96	.41	1.72	.12					70
80											6.77	3.32	4.82	1.32	3.38	.53	1.97	.15					80
90											7.10	4.12	5.42	1.64	3.80	.66	2.22	.19					90
100											7.95	5.01	6.02	2.00	4.21	.81	2.46	.23	1.14	.04			100
125													7.50	3.00	5.27	1.21	3.08	.35	1.43	.05			125
150													9.03	4.24	6.33	1.70	3.69	.49	1.71	.07			150
175													10.05	5.64	7.37	2.23	4.30	.65	1.99	.09			175
200															8.42	2.90	4.92	.83	2.28	.13			200
225															9.48	3.58	5.54	1.03	2.57	.15			225
250															10.60	4.36	6.15	1.25	2.85	.19			250
275															11.60	5.21	6.78	1.50	3.27	.22			275
300																	7.38	1.76	3.42	.28	2.04	.08	300
325																	8.00	2.04	3.71	.31	2.21	.09	325
350																	8.60	2.34	3.99	.36	2.38	.10	350
375																	9.22	2.66	4.28	.41	2.54	.12	375
400																	9.86	2.98	4.56	.46	2.72	.13	400
425																	10.45	3.35	4.86	.51	2.89	.15	425
450																	11.10	3.73	5.14	.57	3.06	.16	450
475																			5.42	.63	3.23	.18	475
500																			5.71	.69	3.40	.20	500
550																			6.28	.82	3.74	.24	550
600																					4.08	.28	600
650																					4.42	.32	650
700																					4.76	.37	700
750																					5.10	.42	750
800																					5.44	.48	800
900																					6.12	.59	900
1000																					6.79	.72	1000

CRESLINE®
CRESLINE PLASTIC PIPE CO., INC.

SCH 40 IPS

Pressure Drop Of Water Per 100 Ft. Of Pipe

SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		8"		SIZE
GALLONS PER MINUTE	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	GALLONS PER MINUTE
1	1.05	.43	.60	.11	.37	.03																	1
2	2.11	1.55	1.20	.39	.74	.12	.43	.03															2
3	3.17	3.27	1.80	.83	1.11	.26	.64	.07	.47	.03													3
4	4.22	5.57	2.41	1.42	1.48	.44	.86	.11	.63	.05													4
5	5.28	8.42	3.01	2.15	1.86	.66	1.07	.17	.79	.08													5
6	6.33	11.81	3.61	3.01	2.23	.93	1.29	.24	.95	.11	.57	.03											6
8	8.44	20.10	4.81	5.12	2.97	1.58	1.72	.42	1.26	.20	.76	.06	.54	.02									8
10	10.55	30.37	6.02	7.73	3.71	2.39	2.15	.63	1.58	.30	.96	.09	.67	.04									10
15			9.02	16.37	5.57	5.06	3.22	1.33	2.36	.63	1.43	.19	1.01	.08	.65	.03							15
20					7.42	8.61	4.29	2.27	3.15	1.07	1.91	.32	1.34	.13	.87	.05							20
25					9.28	13.01	5.36	3.42	3.94	1.63	2.39	.48	1.67	.20	1.08	.07							25
30					11.14	18.22	6.43	4.80	4.73	2.27	2.87	.67	2.01	.28	1.30	.10							30
35							7.51	6.38	5.52	3.01	3.35	.89	2.35	.38	1.52	.13	.88	.03					35
40							8.58	8.17	6.30	3.86	3.82	1.14	2.64	.48	1.73	.17	1.01	.04					40
45							9.65	10.16	7.09	4.80	4.30	1.42	3.01	.60	1.95	.21	1.13	.05					45
50							10.72	12.35	7.88	5.83	4.78	1.73	3.35	.73	2.17	.25	1.26	.07					50
60									9.46	8.17	5.74	2.42	4.02	1.02	2.60	.35	1.51	.09					60
70									11.03	10.87	6.69	3.22	4.69	1.36	3.04	.47	1.76	.12					70
80											7.65	4.13	5.36	1.74	3.47	.60	2.02	.16					80
90											8.60	5.13	6.03	2.16	3.91	.75	2.27	.20					90
100											9.56	6.23	6.70	2.63	4.34	.91	2.52	.24	1.11	.03			100
125											11.95	9.42	8.38	3.97	5.42	1.38	3.15	.37	1.39	.05			125
150													10.05	5.56	6.51	1.93	3.78	.51	1.67	.07			150
175															7.59	2.57	4.41	.68	1.94	.09			175
200															8.68	3.40	5.04	.90	2.22	.12			200
225															9.76	4.09	5.67	1.09	2.50	.15			225
250															10.85	4.97	6.30	1.32	2.78	.18			250
275																	6.93	1.58	3.05	.21			275
300																	7.56	1.85	3.33	.25	1.96	.07	300
325																	8.19	2.15	3.61	.29	2.12	.08	325
350																	8.82	2.47	3.89	.34	2.29	.09	350
375																	9.45	2.80	4.17	.38	2.46	.11	375
400																	10.08	3.16	4.44	.43	2.62	.12	400
425																			4.72	.48	2.77	.13	425
450																			5.00	.53	2.95	.15	450
475																			5.28	.59	3.09	.16	475
500																			5.55	.65	3.27	.18	500
550																			6.11	.78	3.60	.21	550
600																			6.67	.91	3.93	.25	600
650																			7.22	1.06	4.26	.29	650
700																			7.78	1.21	4.58	.33	700
750																			8.33	1.38	4.91	.38	750
800																			8.89	1.58	5.24	.43	800
900																					5.89	.53	900
1000																					6.55	.65	1000

SIZE	10"		12"	
GALLONS PER MINUTE	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.
450	1.85	.05		
475				
500	2.05	.06		
550	2.26	.07		
600	2.46	.08		
650	2.67	.10		
700	2.87	.11		
750	3.08	.12	2.17	.05
800	3.29	.14	2.31	.06
900	3.70	.17	2.60	.07
1000	4.11	.21	2.89	.09
1100	4.52	.25	3.18	.11
1200	4.93	.30	3.47	.13
1300	5.34	.34	3.76	.15
1400	5.75	.39	4.05	.17
1500	6.16	.45	4.34	.19
1750	7.19	.60	5.35	.25
2000	8.21	.76	5.78	.32
2250			6.51	.40
2500			7.23	.49

Note: This chart is also valid for:

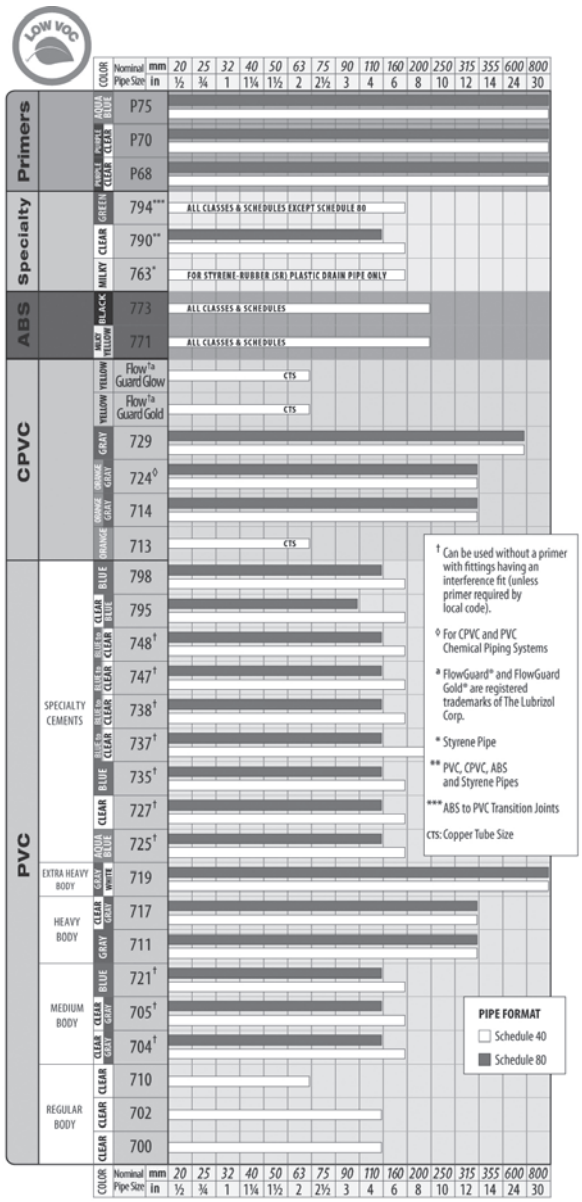
CRESLINE NT Form No. 161-NT

CRESLINE HD Form No. 161-HD

SCH 80 IPS

Pressure Drop Of Water Per 100 Ft. Of Pipe

SIZE	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		2 1/2"		3"		4"		6"		8"		SIZE
GALLONS PER MINUTE	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	VELOCITY FEET PER SECOND	PRESSURE DROP POUNDS PER SQ. IN.	GALLONS PER MINUTE
1	1.37	.81	.74	.18	.45	.05																	1
2	2.74	2.92	1.48	.65	.89	.19	.50	.05															2
3	4.11	6.18	2.23	1.39	1.34	.40	.75	.10	.54	.04													3
4	5.48	10.52	2.97	2.36	1.78	.69	1.00	.17	.73	.08													4
5	6.85	15.89	3.71	3.57	2.23	1.04	1.25	.25	.91	.12													5
6	8.22	22.27	4.45	5.01	2.68	1.45	1.50	.35	1.09	.16	.65	.05											6
8	10.96	37.92	5.93	8.52	3.57	2.47	2.00	.60	1.45	.28	.87	.08	.61	.03									8
10			7.42	12.88	4.46	3.73	2.50	.91	1.81	.42	1.09	.12	.75	.05									10
15			11.13	27.27	6.69	7.91	3.75	1.93	2.72	.89	1.63	.25	1.13	.10	.73	.04							15
20					8.92	13.46	5.00	3.29	3.63	1.51	2.17	.43	1.51	.18	.97	.06							20
25					11.15	20.34	6.25	4.97	4.54	2.28	2.72	.65	1.89	.27	1.21	.09							25
30							7.50	6.97	5.45	3.20	3.26	.92	2.27	.38	1.46	.13							30
35							8.75	9.27	6.35	4.25	3.80	1.22	2.65	.51	1.70	.17	.98	.04					35
40							10.00	11.87	7.26	5.45	4.35	1.56	3.03	.65	1.94	.22	1.12	.06					40
45									8.17	6.77	4.89	1.94	3.41	.81	2.19	.27	1.25	.07					45
50									9.08	8.23	5.43	2.36	3.78	.98	2.43	.33	1.39	.09					50
60									10.89	11.53	6.52	3.31	4.54	1.37	2.91	.47	1.67	.12					60
70											7.61	4.40	5.30	1.83	3.40	.62	1.95	.16					70
80											8.69	5.63	6.06	2.34	3.89	.79	2.23	.21					80
90											9.78	7.00	6.81	2.91	4.37	.99	2.51	.26					90
100											10.87	8.51	7.57	3.53	4.86	1.20	2.79	.31	1.23	.04			100
125													9.46	5.34	6.07	1.81	3.49	.47	1.54	.06			125
150													11.35	7.43	7.29	2.54	4.19	.66	1.85	.09			150
175															8.50	3.38	4.88	.88	2.15	.12			175
200															9.71	4.47	5.58	1.16	2.46	.16			200
225															10.93	5.38	6.28	1.40	2.77	.19			225
250																	6.98	1.70	3.08	.23			250
275																	7.67	2.03	3.38	.28			275
300																	8.37	2.38	3.69	.32	2.14	.09	300
325																	9.07	2.76	4.00	.38	2.32	.10	325
350																	9.77	3.16	4.31	.43	2.50	.12	350
375																	10.46	3.59	4.61	.49	2.68	.13	375
400																			4.92	.55	2.86	.15	400
425																			5.23	.62	3.04	.17	425
450																			5.54	.69	3.21	.18	450
475																			5.85	.76	3.39	.20	475
500																			6.15	.83	3.57	.22	500
550																			6.77	1.00	3.93	.27	550
600																			7.38	1.17	4.28	.31	600
650																			8.00	1.36	4.64	.37	650
700																			8.61	1.56	5.00	.42	700
750																			9.23	1.77	5.36	.48	750
800																			9.85	2.03	5.71	.54	800
900																					6.43	.67	900
1000																					7.14	.81	1000



Average Initial Set Schedule For WELD-ON® PVC / CPVC Solvent Cements**

Temperature Range	Pipe Sizes ½" to 1¼"	Pipe Sizes 1½" to 2"	Pipe Sizes 2½" to 8"	Pipe Sizes 10" to 15"	Pipe Sizes 15"+
60°-100°F	2 minutes	5 minutes	30 minutes	2 hours	4 hours
40°-60°F	5 minutes	10 minutes	2 hours	8 hours	16 hours
0°-40°F	10 minutes	15 minutes	12 hours	24 hours	48 hours

Note - Initial set schedule is the necessary time to allow before the joint can be carefully handled. In damp or humid weather allow 50% more set time.

Average Joint Cure Schedule For WELD-ON PVC / CPVC Solvent Cements**

Relative Humidity 60% or Less	Cure Time Pipe Sizes ½" to 1¼"		Cure Time Pipe Sizes 1½" to 2"		Cure Time Pipe Sizes 2½" to 8"		Cure Time Pipe Sizes 10" to 15"	Cure Time Pipe Sizes 15"+
Temperature range during assembly and cure periods	up to 160 psi	above 160 psi to 370 psi	up to 160 psi	above 160 psi to 315 psi	up to 160 psi	above 160 psi to 315 psi	up to 100 psi	up to 100 psi
60°-100°F	15 min	6 hrs	30 min	12 hrs	1½ hrs	24 hrs	48 hrs	72 hrs
40°-60°F	20 min	12 hrs	45 min	24 hrs	4 hrs	48 hrs	96 hrs	6 days
0°-40°F	30 min	48 hrs	1 hour	96 hrs	72 hrs	8 days	8 days	14 days

Note - Joint cure schedule is the necessary time to allow before pressurizing system. In damp or humid weather allow 50% more cure time.

**These figures are estimates based on our laboratory tests; extended set and cure times are required for chemical applications. Due to the many variables in the field, these figures should be used as a general guide only.

Average Number of Joints/Qt. of WELD-ON Cement*

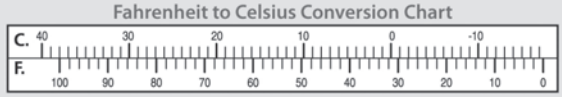
Pipe Diameter	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	15"	18"
Number of Joints	300	200	125	90	60	40	30	10	5	2-3	1-2	¾	½

***For Primer**: **Double the number of joints shown for cement**. These figures are estimates based on our laboratory tests. Due to the many variables in the field, these figures should be used as a general guide only.
Note: 1 Joint = 1 Socket

Pipe Size Equivalent Chart - Inches/Millimeters

in.	½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	18"	24"	30"
mm.	20	25	32	40	50	63	75	90	110	160	200	250	315	355	450	600	800

Fahrenheit to Celsius Conversion Chart



WELD-ON IPS CORPORATION

* For additional product application data, visit the Weld-On web site at www.ipscorp.com/weldon.

SCIGRIP | QUICK SELECTION CHART | WELD-ON

ABS	Acrylic Cell Cast	Acrylic Cross-Linked	Acrylic Extruded	Butyrate	Concrete	Fiberglass	Metal	PETG	Polycarbonate	Polyester	Polyurethane	PVC (Rigid)	PVC (Flexible)	PVC (Foamed)	Styrene	Wood	
2354 1707/4707 55/58	16 1802 40/42	10/11 40/42	16 1802 40/42	16 55/58 40/42	10/11 45	10/11 45	45 10/11	16 55/58 40/42	16 55/58 40/42	40/42 10/11	66 4784 55/58	10/11 16/4052 45	45	16 40/42 45	16 1802	45	ABS
16 1802 40/42	40/42 3/4/4SC 16	10/11 40/42	40/42 3/4/4SC 16	16 40/42 45	10/11 45	10/11 45	10/11 45	10/11 40/42 16	16 40/42 45	40/42 10/11	66 4784	40/42 16 4052	45	16 40/42 45	16 4052 10/11	45	Acrylic Cell Cast
10/11 40/42	10/11 40/42	10/11 40/42	10/11 40/42	40/42 10/11 45	10/11 45	10/11 45	10/11 45	10/11 40/42 45	10/11 40/42 45	40/42 10/11	40/42 10/11	10/11 40/42 45	45	40/42 45	10/11 40/42	10/11 45	Acrylic Cross-Linked
16 1802 40/42	40/42 3/4/4SC 16	10/11 40/42	40/42 3/4/4SC 16	16 40/42 45	10/11 45	10/11 45	10/11 45	10/11 40/42 16	10/11 40/42 45	40/42 10/11	66 4784	40/42 16 4052	45	16 40/42 45	16 4052 10/11	45	Acrylic Extruded
16 55/58 45/40/42	16 40/42 45	40/42 10/11 45	16 40/42 45	3/4/4SC 2007/16 55/58	10/11 45	10/11 45	45 10/11	16 55/58 40/42	16 55/58 40/42	40/42 10/11 45	66 4784 55/58	16 55/58 40/42	66 4784 45	66 40/42 45	1802 16 45	45 10/11	Butyrate
10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11	10/11 45	45	10/11 45	10/11 45	10/11 45	Concrete
10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11	10/11 45	45	10/11 45	10/11 45	10/11 45	Fiberglass
45 10/11	10/11 45	10/11 45	10/11 45	45 10/11	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11 45	10/11	10/11 45	45	45 10/11	10/11 45	10/11 45	Metal
16 55/58 40/42	10/11 40/42 16	10/11 40/42 45	10/11 40/42 16	16 55/58 40/42	10/11 45	10/11 45	10/11 45	55/58 3/4/4SC 40/42	55/58 40/42 45	40/42 45	10/11	10/11 40/42 16	45	16 40/42 45	16 10/11	45	PETG
16 55/58 40/42	16 40/42 45	10/11 40/42 45	10/11 40/42 45	16 55/58 40/42	10/11 45	10/11 45	10/11 45	55/58 40/42 45	55/58 3/4/4SC 16	40/42 10/11 45	10/11	40/42 10/11 16	45	16 40/42 45	10/11 16 1802	45	Polycarbonate
40/42 10/11	40/42 10/11	40/42 10/11	40/42 10/11	40/42 10/11 45	10/11 45	10/11 45	10/11 45	40/42 45	40/42 10/11 45	40/42 10/11 45	10/11 1829	40/42 10/11	45	10/11 40/42 45	40/42 10/11	10/11 1829	Polyester
66 4784 55/58	66 4784	40/42 10/11	66 4784	66 4784 55/58	10/11	10/11	10/11	10/11	10/11	10/11 1829	66 4784 55/58	66 4784	66 4784 45	66 4784	10/11 45	45	Polyurethane
10/11 16/4052 45	40/42 16 4052	10/11 40/42 45	40/42 16 4052	16 55/58 40/42	10/11 45	10/11 45	10/11 45	10/11 40/42 16	40/42 10/11 16	40/42 10/11	66 4784	2007 10/11/40/42 4007	2007 45	16 2007 40/42/45	10/11 16 1802	45	PVC (Rigid)
45	45	45	45	66 4784 45	45	45	45	45	45	45	66 4784 45	2007 45	2007 66/4784 45	2007 45	2007 45	45	PVC (Flexible)
16 40/42 45	16 40/42 45	40/42 45	16 40/42 45	16 40/42 45	10/11 45	10/11 45	45 10/11	16 40/42 45	16 40/42 45	10/11 40/42 45	66 4784	16 2007 40/42/45	2007 45	2007 16 40/42/45	1802 16 45	45 10/11	PVC (Foamed)
16 1802	16 4052 10/11	10/11 40/42	16 4052 10/11	1802 16 45	10/11 45	10/11 45	10/11 45	16 10/11	10/11 16 1802	40/42 10/11	10/11 45	10/11 16 1802	2007 45	1802 16 45	4807 16 1802	45	Styrene
45	45	10/11 45	45	45 10/11	10/11 45	10/11 45	10/11 45	45	45	10/11 1829	45	45	45	45 10/11	45	45	Wood

Golf

Rain Bird

Aeration

WE SERVICE WHAT WE SELL!
SEE PAGE 213 FOR HORIZON SERVICE CENTERS.

RAIN BIRD

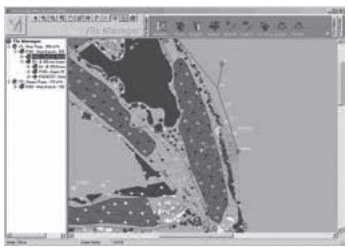
Rain Bird® Central Control Systems are designed with ease of use in mind.

These systems effectively integrate advanced technologies and optional software to arrive at solutions that manage water use responsibly to save money and reduce utility costs, while continually enhancing course appearance and improving playability.

CIRRUS™ CENTRAL CONTROL SYSTEM

The Golf Industry's Only Full-Featured Central Control System. Now with RainWatch.™

By combining Computer Aided Design (CAD) with GPS technology, Cirrus™ shows you your course like no other central control system can. With state-of-the-art ET-based scheduling, customized course graphics and multiple mapping options, controlling your irrigation system is fast and easy.

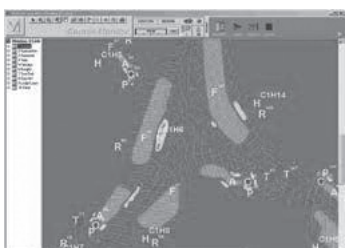


Currus Flo-Manager

NIMBUS™ II CENTRAL CONTROL SYSTEM

Easy, Intuitive Map-Based Irrigation Control. Now with RainWatch™

For a superior combination of ET-based scheduling, advanced flow management and Windows-based simplicity, Nimbus™ II is an excellent choice to efficiently control all irrigation applications on up to three individual courses with a maximum of 54 holes.

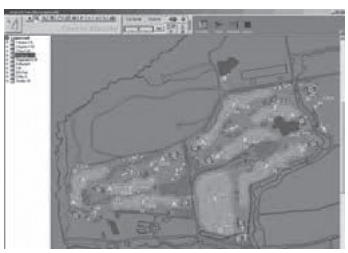


Nimbus II Course Monitor

STRATUS™ II CENTRAL CONTROL SYSTEM

Two-Wire, Wireless and Decoder Central Control System. Now with RainWatch.™

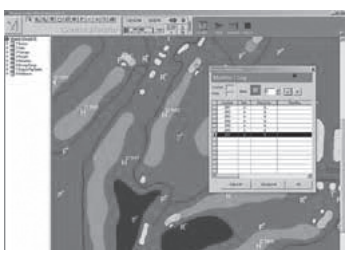
For easy-to-use, time- or ET-based scheduling, there's really only one choice — Stratus™ II — the one irrigation central control system that combines the point-and-click simplicity of Windows® with intuitive Rain Bird features to control up to as many as 27 holes.



Stratus II Course Monitor

STRATUS LT™ CENTRAL CONTROL SYSTEM

Total Control. In Record Time. No Experience Required. The Rain Bird Start-up Wizard built right into StratusLT™ will have you watering your 18-hole golf course in no time — from the greens to the roughs, clubhouse to driving range — without having to become a computer expert or spend extensive time learning to operate the system. StratusLT now supports ET-based scheduling with WS-PRO LT and a weather software module.



StratusLT Map

CENTRAL CONTROL SYSTEMS – STANDARD CENTRAL CONTROL FEATURES

CENTRAL CONTROL COMPARISON CHART

		CIRRUS™	NIMBUS™ II	STRATUS™ II	STRATUS LT™
FEATURES	Real-time decision making	✓	✓	✓	✓
	Radio communication option	✓	✓	✓	✓
	Works with all Rain Bird satellites	✓	✓	✓	✓
	Works with decoders	✓	✓	✓	✓
	Works with Rain Bird Integrated Control™ System (ICS)	✓	✓	✓	✓
	Works with FREEDOM™ System	✓	✓	✓	✓
	Works with Rain Bird® MI Series Mobile Controller	✓	✓	✓	✓
	Number of 2-wire satellite wire groups standard	4	4	2	1
	Number of IC™ wire groups standard	4	4	1	1
	Maximum number of interfaces – Hybrid (same or mix)	12	3	2	–
	Maximum number of 2-wire satellite wire groups – Hybrid	48**	12**	4**	–
	Maximum number of 2-wire satellite stations	32,256**	8,064**	2,688†	672
	Maximum number of wireless satellite stations	32,256**	8,064**	2,688†	672
	Maximum number of IC™ stations	36,000‡	9,000‡	3,000‡	750
	Number of decoders/solenoids standard	500/1,000	500/1,000	500/1,000	200/400
	Maximum number of decoder/solenoids – Hybrid	6,000/12,000Δ	1,500/3,000Δ	700/1,400Δ	300/600 with LDI◊
	Number of active decoder solenoids	40/LDI	40/LDI	40 with LDI	15 with SDI
	Maximum number of weather stations	5	5	1	1 (WS-PRO LT only)
	Maximum number of pump stations	6	6	6	2
PROGRAMMING	Standard/QuickIRR™/SimpleIRR™	✓	✓	✓	✓
	Number of courses	3	3	2	1
	Number of holes	54	54	27	18
	Number of Flo-Zones™	500	500	500	50
	Programs	Unlimited	Unlimited	500	250
	Schedules	50 per program	50 per program	25 per program	25 per program
	Irrigation programs – active simultaneous	50	50	20	10
SOFTWARE FEATURES	Flo-Manager® - Dynamic Power and Hydraulic Management	✓	✓	✓	✓
	Flo-Guard™	✓	✓	✓	✓
	ET Management (fully automatic)	✓	Optional	Optional	Optional
	ET-Based scheduling	✓	✓	✓	✓
	ET Spreadsheet™ Analysis	✓	✓	✓	✓
	Rain Bird® MI Series Mobile Controller	✓	✓	✓	✓
	Wireless satellite radio diagnostics	✓	✓	✓	✓
	Comprehensive decoder diagnostics	✓	✓	✓	✓
	Advanced IC™ diagnostics	✓	✓	✓	✓
	Real-Time Run Log	✓	✓	✓	✓
	Report Generation	✓	✓	✓	–
	Water Budgeting 0 – 300%	✓	✓	✓	✓
	Rain Bucket™ – accumulated rainfall	✓	Optional	Optional	Optional
	Rain Sensor	✓	✓	✓	✓
	Rain Watch™	✓	✓	✓	✓
	QuickStart™	✓	✓	✓	✓
	Help Screens	✓	✓	✓	✓
	Course Monitor™	✓	✓	✓	✓
	Hole View	✓	✓	✓	✓
	Projected flow (Dryrun™)	✓	✓	✓	✓
	Graphics – Course View™	✓	✓	✓	✓
	Import GPS, CAD or Aerial photo	✓	✓	✓	✓
	Visual Monitoring – Area	✓	✓	✓	✓
	Visual Monitoring – Station level	✓	Optional	Optional	–
	Smart Weather™ Alarms	✓	Optional	Optional	–
	Precipitation Data	✓	✓	✓	✓
	Rotor Data	✓	✓	✓	✓
	Cycle + Soak™	✓	✓	✓	✓
SOFTWARE MODULES	Automatic ET	✓	Optional	Optional	Optional
	Smart Weather™	✓	Optional	Optional	–
	Additional Weather Stations	✓	Optional	Optional	–
	Smart Sensors™ with Flo-Watch™	✓	Optional	Optional	Optional
	Rain Bird® Messenger™	✓	Optional	Optional	Optional
	Hybrid – Additional interfaces (same or mix)	✓	Optional	Optional	–
	The FREEDOM System™	✓	Optional	Optional	Optional
	Map Utilities™	✓	Optional	Optional	Optional
	Station Layers – Map/Operations	✓	Optional	Optional	–
	Smart Pump™	✓	Optional	Optional	Optional
	Additional Wire Groups	✓	✓	Optional	–

** Possible with Hybrid Module and additional MIM™(s) † Possible with Hybrid Module and additional Wire Groups Module(s) ‡ Possible with Hybrid Module and additional ICI(s) Δ Possible with Hybrid Module and additional LDI(s) ◊ Possible using a LDI instead of Standard SDI. Hybrid not required.

RAIN BIRD

MI SERIES MOBILE CONTROLLERS

- Remote access to your central control is now as convenient as the Internet, with mobile control. This software runs on your central control computer to provide remote irrigation control via a web-enabled cell phone.
- Rain Bird® MI Series Mobile Controllers are designed to work on a standard cell phone with Internet connectivity and offer far more remote options than anything else available.
- Once connected to the Internet, up to 9 remote users can simultaneously control sprinklers and programs, review system activity or directly change settings on both sprinklers and irrigation programs. All activity is logged for convenient review.
- Available in Basic, Advanced and Professional versions, you can turn sprinklers and programs on and off, see which sprinklers and programs are running, how much they are using and how long they have been running.

*Phone not included.

System Requirements

- Designed for Windows® XP SP2 or Windows® 7 32-bit.
- Requires an Internet connection to the central control computer.
- Requires a smart phone or tablet.

Feature Comparison

LINK NAME	ADVANCED	PROFESSIONAL
Satellites (Areas)/Stations	X	X
Programs/Schedules	X	X
Diagnostics		X
Accessories		X
Alarm Log		X
Cancel All	X	X

Accessories

LINK NAME	ADVANCED	PROFESSIONAL
Water Budget		X
Demand Flow	X	X
Smart Pump™		X
Smart Weather™		X
Activity Log	X	X
Online Users	X	X

How to Specify

MI – XXXX(X)

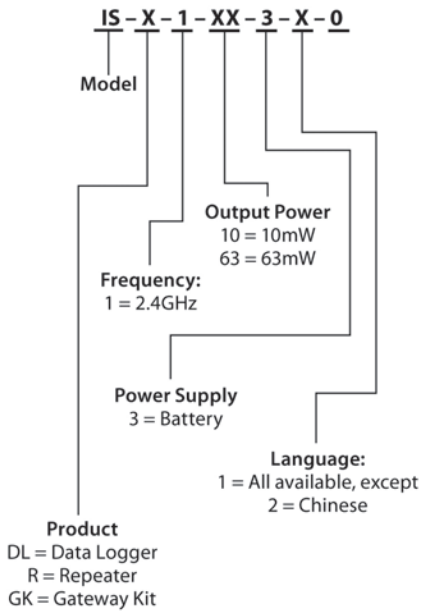
Model
MI

Control Type
ADVANCED
PROF

RAIN BIRD® ISS INTEGRATED SENSOR SYSTEM

- Upgradeable — Plug in Output Station Modules (OSM) to expand station capacity to 72 stations, in 8 station increments
- Automatically adjust sprinkler run times to reach and maintain desired moisture levels, minimizing water consumption, resulting in healthier turf and better playing conditions.
- Automatically adjust sprinkler run times to reach and maintain desired moisture levels, minimizing water consumption, resulting in healthier turf and better playing conditions.
- Zero calibration
- The ISS uses a proven wireless mesh network which ensures the necessary range of transmission and a secured traffic from the data logger to the Soil Manager™ software.

How to Specify



Note: Check country of use output power regulations before ordering.

RAIN BIRD FIELD CONTROLS

Rain Bird® Field Control Systems are engineered to deliver the trusted performance that golf course professionals need to optimize course appearance and playability.

IC SYSTEM™

Connects central control directly to the rotor or valve.

- Upgradeable — Plug in Output Station Modules (OSM) to expand station capacity to 72 stations, in 8 station increments
- Fewer splices and less wire require less time and effort to install
- Offers tear off bar codes and an easy to use scanner to simplify the creation of the central control system database for quick operation.
- No satellite controllers to design around or conceal.
- Capable of intelligent, two–way communication with each and every ICM on the golf course.

System Capacity*

750 ICMs per Output Wire Path, 1500 ICMs per Output Driver Board, 3000 ICMs per IC Interface (ICI), up to 36,000 ICMs with Cirrus.

* Specific System Capacity is dependent on the Central Control System ICI

Electrical Input

100 VAC Nominal 91-110 VAC @ 60 HZ +/- 2 HZ
115 VAC Nominal 98-132 VAC
220-240 VAC Nominal 208-255 VAC.

Electrical Output

26.5 VAC, 1.25 AMP Per Wire Path.

Compatibility

Rain Bird EAGLE™ 500, 700 and some 900 Series Rotors, and Rain Bird PES-B, PEB, PGA, EFB, and BPE Electric Valves with ICM Adapter.

PAR+ES CONTROLLER

The easy-to-program, central control-ready Rain Bird® PAR+ES Controller features 72-Station capability, unlimited programs with central control, premium surge protection, extensive diagnostics and a best-in-class pedestal enclosure.

- Standalone, two-wire and LINK.
- Works with any Rain Bird Central Control System.
- Large, raised control buttons with clear, descriptive icons and a high-contrast Liquid Crystal Display (LCD) panel make programming easy
- Available in 16 to 32- and 56-station base configurations and can be easily upgraded in 8-station increments.
- Perfect for syringing or putting down fertilizer, multi manual allows to manually launch as many stations as necessary.

Configurations
– PAR+ES standalone controller in a plastic pedestal.
– PAR+ES satellite with two-wire module in a plastic pedestal.
– PAR+ES satellite with Link (wireless) module in a plastic pedestal

Station Capacity
72 stations, up to 16 solenoids operating simultaneously (60 Hz)

Electrical Input
– (50/60 Hz) 117 VAC Nominal 98 to 132 VAC
– -220 VAC Nominal 208 to 232 VAC
– - 240 VAC Nominal 225 to 255 VAC

Electrical Output
26.5 VAC, 5.25 AMP.

Station Load Capacity
Up to four (4) 24 VAC, seven (7) VA solenoids per station

PAR+ES DECODER CONTROLLER

The PAR+ES Sat Decoder combines the features and benefits of a controller system with those of a decoder system.

- Operates as a standalone controller or add a Rain Bird® Central Control System for greater control.
- Operates up to 72 decoder addresses

GEAR DRIVEN ROTORS

Rain Bird Gear-Driven Rotors are engineered to efficiently manage water, while promoting a lush, highly profitable course, through minimal maintenance requirements, worry-free performance and maximum water distribution uniformity. Trusted by golf course professionals everywhere, particularly those in drought prone areas, these innovative rotors deliver optimal playing surfaces, high durability and reduced water costs.

RAIN BIRD 700/751 SERIES

Offering proven Rain Bird durability and distribution uniformity, these cost efficient rotors are also backward-compatible with existing Rain Bird rotor cases. Rapid-Adjust Technology featuring MemoryArc.™ on new Rain Bird® 751 Golf Rotors allows you to easily adjust watering on greens, fairways or roughs for unmatched versatility and precise control.

- Turn-of-a-Screw Flexibility with Rapid-Adjust Technology on 751 Rotors (see graphic)
- High efficiency nozzles with large droplets that cut through harsh winds and reliable and consistent pressure regulation
- Backward-compatibility with every 700 Series EAGLE™ Rotor manufactured since 1992

SPECIFICATIONS:

Radius

Rain Bird 700 Series: 56' to 79' (17.1 m to 24.1 m)

Rain Bird 751 Series: 35' to 75' (10.7 m to 22.9 m)

Flow Rate

700 Series: 16.3 to 43.9 gpm (1.03 to 2.76 l/s) (3.70 to 9.95 m3/h)

751 Series: 7.0 to 37.7 gpm (0.44 to 2.38 l/s) (1.59 to 8.56 m3/h)

Arc

700 Series: Full-circle 360°

751 Series: Full-circle 360°; Adjustable 30° to 345°

Maximum Inlet Pressure

Models 700/751E and IC: 150 psi (10.3 bars)

Models 700/751S/H and B: 100 psi (6.9 bars)

Pressure Regulation Range

60 to 100 psi (4.1 to 6.9 bars)

FULL CIRCLE
700E: Electric
700IC: Integrated Control
700S/H: Combined use Stopamatic (SAM) or Hydraulic (N.O.)*
700B: Seal-A-Matic™ device

FULL and PART-CIRCLE
700E: Electric
700IC: Integrated Control
700S/H: Combined use Stopamatic (SAM) or Hydraulic (N.O.)*
700B: Seal-A-Matic™ device

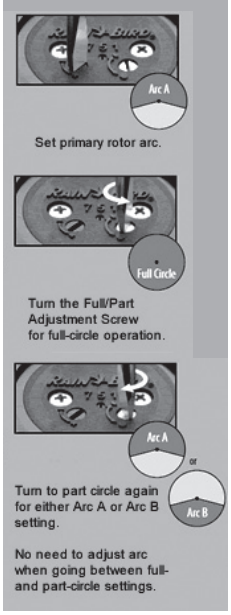
700 SERIES PERFORMANCE DATA — U.S.

Base Pressure (psi)	50		60		70		80		90		100	
	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)
WIND TOLERANT NOZZLES												
#16 - Gray	-	-	56	16.3	56	17.5	60	18.5	62	20.2	63	21.1
#18 - Red	-	-	58	19.0	61	20.9	65	22.3	65	23.2	65	24.2
#22 - Black	-	-	-	-	65	27.6	65	34.8	67	38.8	71	40.5
DUAL SPREADER™ NOZZLES												
#28 - White	57	18.0	59	19.7	59	21.3	61	22.8	61	24.1	61	25.5
#32 - Blue	61	21.9	63	22.8	65	24.5	65	27.4	67	29	67	29.6
#36 - Yellow	65	23.2	65	25.5	65	27.5	67	29.5	65	31.2	67	32.9
#40 - Orange	65	25.5	67	27.8	71	29.8	71	31.9	73	33.9	73	35.6
#44 - Green	-	-	71	30.7	69	33.0	71	35.2	75	37.5	75	39.5
#48 - Black	-	-	-	-	73	37.0	77	39.4	79	41.8	77	43.8

751 SERIES PERFORMANCE DATA — U.S.

Base Pressure (psi)	50		60		70		80		90		100	
	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)	Radius (ft)	Flow (gpm)
WIND TOLERANT NOZZLES												
#16 WTN - Gray	-	-	60	15.7	62	16.7	62	17.8	64	18.8	66	20.4
#18 WTN - Red	-	-	63	18.8	63	20.0	65	21.4	67	22.7	67	24.0
#22 WTN - Black	-	-	-	-	65	27.6	65	35.8	67	37.6	71	41.1
DUAL SPREADER™ NOZZLES												
#20 - Gray	37	7.0	39	7.8	39	8.4	41	8.9	-	-	-	-
#22 - Red	40	8.3	45	9.5	45	10.2	43	10.8	-	-	-	-
#28 - White	55	15.2	57	16.8	59	18.1	59	19.3	59	20.5	57	21.5
#32 - Blue	59	17.1	61	18.6	61	20	61	21.4	63	22.5	63	23.9
#36 - Yellow	61	19.1	63	20.8	65	22.6	67	24	69	25.5	69	26.5
#40 - Orange	63	21.7	67	23.8	69	25.6	71	27.5	71	28.9	71	30.7
#44 - Green	-	-	65	26.3	69	28.3	71	30.4	71	32.1	73	34.1
#48 - Black	-	-	-	-	69	31.4	73	33.7	75	35.7	73	37.7

Introducing Rapid Adjust Technology featuring MemoryArc™



EAGLE 900/950 SERIES CLOSED CASE ROTORS

EAGLE 900/950 CLOSED CASE ROTORS

For fairways and the rough, the EAGLE 900/950 rotor series provides superior coverage.

- True close-cased construction extends the life of the rotor by protecting the motor from debris, outside elements and environmental changes.
- The industry's only self-flushing mode at pop-up and pop-down adds another barrier to debris that is crucial in fine sands and silty soil types.
- Available in full- and part-circle versions, with a choice of electric, hydraulic, and Stop-a-Matic (SAM) models.
- Unique flow-around-the-motor design reduces friction and ensures reliable performance with all water types.

SPECIFICATIONS:

Radius

EAGLE 900 Series: 63' to 97' (19.2 m to 29.6 m)

EAGLE 950 Series: 70' to 92' (21.3 m to 28.0 m)

Flow Rate

EAGLE 900 Series: 21.4 to 57.1 gpm (1.35 to 3.60 l/s) (4.85 to 12.97 m©ø/h)

EAGLE 950 Series: 19.5 to 59.4 gpm (1.23 to 3.75 l/s) (4.43 to 13.49 m©ø)

Arc

EAGLE 900 Series: Full-circle, 360°

EAGLE 950 Series: 40° to 345°

Maximum Inlet Pressure

Models 900E/IC, 950E/IC: 150 psi (10.3 bars)

Models 900S/H, 950S/H: 100 psi (6.9 bars)

Pressure Regulation Range

60 to 100 psi (4.1 to 6.9 bars)

FULL CIRCLE
EAGLE 900E: Electric
EAGLE 900 IC: Integrated Control
EAGLE 900S/H: Combined use Stop-a-Matic (SAM) or Hydraulic (N.O.)*

FULL and PART-CIRCLE
EAGLE 950E: Electric
EAGLE 950 IC: Integrated Control
EAGLE 950S/H: Combined use Stop-a-Matic (SAM) or Hydraulic (N.O.)*

EAGLE 900 SERIES PERFORMANCE DATA — U.S.

HIGH PERFORMANCE NOZZLES

Base Pressure (psi)	#44 BLUE Radius (ft)	#44 BLUE Flow (gpm)	#48 YELLOW Radius (ft)	#48 YELLOW Flow (gpm)	#52 ORANGE Radius (ft)	#52 ORANGE Flow (gpm)	#56 GREEN Radius (ft)	#56 GREEN Flow (gpm)	#60 BLACK Radius (ft)	#60 BLACK Flow (gpm)	#64 RED Radius (ft)	#64 RED Flow (gpm)
60	63	21.4	73	28.9	75	31.9	—	—	—	—	—	—
70	67	23.5	73	31.9	79	34.6	83	40.7	87	43.2	91	47.2
80	71	24.7	75	34.1	81	37.1	85	43.5	91	49.5	93	51.0
90	71	26.5	77	35.0	81	39.5	87	46.4	91	49.5	95	54.0
100	73	27.9	77	36.2	83	41.8	89	49.1	91	52.2	97	57.1

EAGLE 950 SERIES PERFORMANCE DATA — U.S.

NOZZLES

Base Pressure (psi)	#18 WHITE-C Radius (ft)	#18 WHITE-C Flow (gpm)	#20 GRAY-C Radius (ft)	#20 GRAY-C Flow (gpm)	#22 BLUE-C Radius (ft)	#22 BLUE-C Flow (gpm)	#24 YELLOW-C Radius (ft)	#24 YELLOW-C Flow (gpm)	#26 ORANGE Radius (ft)	#26 ORANGE Flow (gpm)	#28 GREEN Radius (ft)	#28 GREEN Flow (gpm)	#30 BLACK Radius (ft)	#30 BLACK Flow (gpm)	#32 BROWN Radius (ft)	#32 BROWN Flow (gpm)
60	70	19.5	72	23.0	74	26.5	76	30.8	78	36.0	—	—	—	—	—	—
70	72	21.3	74	25.1	76	28.8	80	33.5	82	38.7	84	42.9	84	47.3	84	50.4
80	74	22.9	76	27.0	80	30.9	84	36.0	84	41.5	86	47.3	86	50.4	85	53.1
90	75	24.4	78	28.7	82	32.9	88	38.4	86	43.4	89	48.5	90	52.9	88	55.6
100	76	25.8	80	300.5	84	34.6	90	40.5	88	46.7	91	52.2	92	55.8	92	59.4

RAIN BIRD

EAGLE 351B SERIES

The first golf-quality short-throw irrigation rotor. With an ideal adjustable range for tee boxes, small greens, and other limited irrigation areas, the EAGLE 351B uses a nozzle technology that exceeds all other brands, specifically designed for efficient water distribution.

- Control the arc with a flathead screwdriver, without turning the case, for precision coverage in tiny spaces.
- As requested by superintendents, the radius of throw is a versatile 18' to 55' for irrigating tight areas
- Built to withstand golf course irrigation system water pressure; operates at pressure from 60 to 90 psi, and can sustain up to 100 psi
- The Rain Bird® Memory Arc® feature returns the rotor to its original arc setting when it has been forcibly turned beyond the trip points of the set arc
- Nozzle pop-up height of 3.25" from top of the case to the center of the nozzle clears the taller grasses

SPECIFICATIONS:

Radius
18 to 55 feet (5,5 to 16,8 m)

Flow Rate
1.5 to 15.5 gpm (0,09 to 0,98 l/s) iáFull-Circle Mode: 360¨ ¬ less than or equal to 180 seconds; 120 seconds nominally

Arc
EAGLE 351B: 360° in full-circle mode; adjustable from 50° to 330° in part-circle mode

Maximum Inlet Pressure
Model 351B: 100 psi (6,9 bar)

Recommended Operating Pressure
60 psi (4,1 bar), 70 psi (4,8 bar), 80 psi (5,5 bar)

Part-Circle Mode
180° less than or equal to 90 seconds; 60 seconds nominally

Inlet Threads
1" (2,5cm) (26/36) ACME

Holdback
10' (3,1m) of elevation

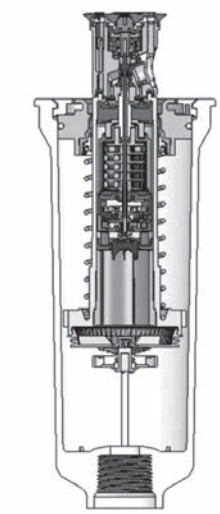
Nozzle Trajectory
17° and 25°

Maximum Stream Height
13' (4 m)

EAGLE 351B SERIES PERFORMANCE DATA — U.S.

BASE PRESSURE

	Nozzle	60 PSI Radius (ft)	60 PSI Flow (gpm)	70 PSI Radius (ft)	70 PSI Flow (gpm)	80 PSI Radius (ft)	80 PSI Flow (gpm)	90 PSI Radius (ft)	90 PSI Flow (gpm)
LOW FLOW	18S White	18	1.8	20	1.9	20	2.0	22	2.2
	22S Dark Gray	22	2.2	22	2.4	24	2.5	26	2.7
	26S Dark Orange	24	2.6	24	2.8	26	3.1	26	3.2
	30S Light Green	30	3.0	30	3.1	32	3.2	32	3.4
	36S Brown	34	3.6	34	3.8	34	4.2	36	4.4
HIGH FLOW	18M Ivory	20	4.0	22	4.2	22	4.4	24	4.7
	26M Medium Orange	24	5.6	24	6.0	26	6.5	26	6.9
	30M Green	30	5.7	30	6.2	32	6.6	32	7.1
	36M Light Brown	34	7.1	34	7.8	34	8.4	36	8.9
LONG THROW	40 Orange	40	2.1	40	2.3	42	2.4	42	2.5
	44 Red	44	3.5	46	3.6	46	4.1	46	4.3
	48 Blue	48	5.8	48	6.4	48	6.8	48	7.0
	54 Beige	50*	12.4*	54*	13.5*	56*	14.6*	56*	15.5*



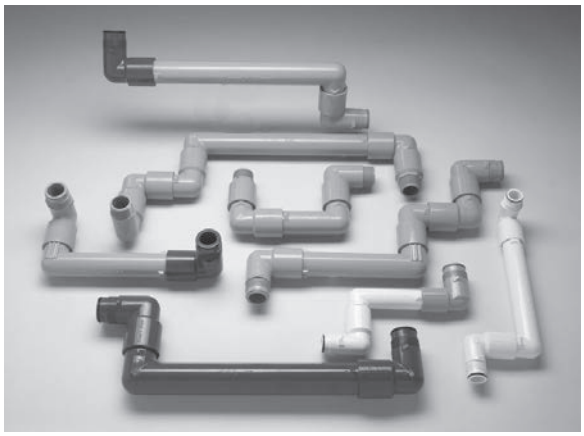
SWING JOINTS

RAIN BIRD

SWING JOINTS

Innovative elbow design reduces pressure losses by over 50%.

- Superior flow characteristics through an innovative swept elbow design* that reduces pressure loss by over 50% compared to other swing joints.
- Excellent structural integrity from the swept elbow design reduces the costs associated with fatigue-related failures.
- Double O-ring protection provides a better seal ensuring joints are kept clean and can be repositioned more easily.



SWING FAMILY

SPECIFICATIONS:

Pressure Rating
- 315 psi (21,7 Bars) @ 73ºF (22,8ºC)

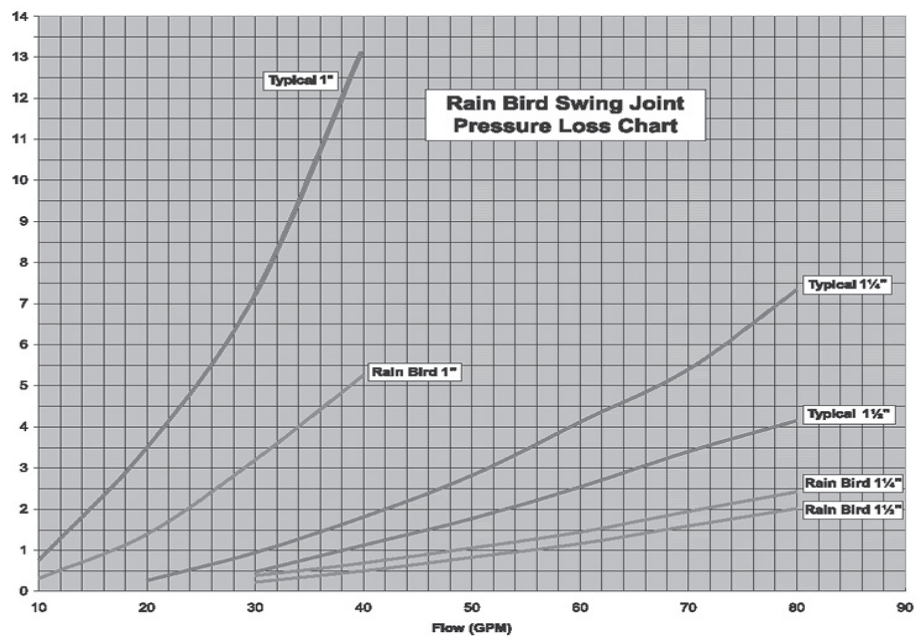
Diameters
- 1" (2,5 cm), 1 1/4" (3,2 cm), and 1 1/2" (3,8 cm)

Lengths
- 8" (20,3 cm), 12" (30,5 cm), and 18" (45,7 cm)

Inlet type
- NPT, BSP, ACME, spigot, metric spigot, socket

Outlet thread type
- NPT, BSP, or ACME
- Enlarging NPT, BSP, or ACME outlets are also available on 1" (2,5 cm) and 1 1/4" (3,2 cm) swing joints for connections to many rotors with 1 1/4" (3,2 cm) and 1 1/2" (3,8 cm) inlet sizes respectively (no additional adapters required).

Outlet configuration
- Single-top or triple-top



UNDERGROUND HOSE REELS

RAINBIRD UNDERGROUND HOSE REELS

Makes syringing greens economical and efficient while cutting down on turf wear.

- Less interruption and inconvenience for golfers
- More professional look for your course
- Saves time and reduces employee fatigue

HOSE END NOZZLES

RAIN BIRD

Get the right flow for the right application with water-intelligent Rain Bird® hose-end nozzles.

Variety of nozzle options provides improved flow control for the right application

- Quick Connect couplers allow you to switch between nozzles in seconds
- Adjustable spray patterns deliver the right water distribution for each application
- Powder-coated aluminum construction for added durability
- Durable rubber bumper made to last
- Manufactured in the U.S.A.

Specifications

Nozzle Inlet Threads:
1" (25mm) in High Flow, Mid-Flow and Low Flow models (NPSH)
0.75" (19mm) in Mid-Flow model (GHT)

Product Code	Description	Max Flow Rate*	Optimal Flow Rate
NZ0100HF	High Flow Nozzle with 1" (25mm) inlet NPSH	98 GPM (6.1 lps)**	20/60 GPM (1.3/3.8 lps)
NZ0100MF	Mid-Flow Nozzle with 1" (25mm) inlet NPSH	57 GPM (3.6 lps)	35 GPM (2.2 lps)
NZ0075MF	Mid-Flow Nozzle with 0.75" (19mm) inlet GHT	57 GPM (3.6 lps)	35 GPM (2.2 lps)
NZ0100LF	Low Flow Nozzle with 1" (25mm) inlet NPSH	54 GPM (3.4 lps)	10/24 GPM (0.6/1.5 lps)
NZM100	1" Male Quick Connect Coupler NPSH	n/a	n/a
NZF100	1" Female Quick Connect Coupler NPSH	n/a	n/a
NZF075	0.75" Female Quick Connect Coupler GHT	n/a	n/a

ROTOR SERVICE TOOLS

RAINBIRD ROTOR SERVICE TOOLS

A full line of quality tools for the service and maintenance of Rain Bird golf rotors constructed of heavy-duty metal alloys and durable plastic.

- Snap ring pliers
- Valve insertion tool
- EAGLE selector service toolkey
- Universal hose adaptor
- 7" & 18" selector valve key
- 351B rotor tool & hold-up tool

AERATION/ALGAE CONTROL

Horizon Distributors supports the sales and service of the following aeration products:

- Otterbine Barebo, Inc.
- Aqua Master®

RAIN BIRD® ALGAE CONTROL SYSTEM™ (ACS)

Non-toxic, chemical free control system that uses state-of-the-art ultrasonic technology to eliminate and control algae growth. Submerged just beneath the surface, it generates ultrasonic waves that inhibit the growth and spread of algae.

COST SAVINGS

- Average return on investment (ROI) is 2 years
- Eliminate costly chemical applications
- Reduce labor costs
- Easy to use and maintain

RAIN BIRD

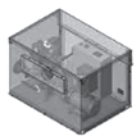
Pumps and Filtration
Pump Station Platforms Quick Reference Guide

PUMP STATION PLATFORMS QUICK REFERENCE GUIDE

LP SERIES

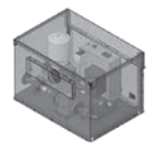
HES1

- One horizontal end suction pump
- 5 to 10 HP motor with VFD
- Up to 100 psi (6.9 bar)
- Up to 200 gpm (12.6 lps, 45.4 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display



VM1

- One vertical multistage pump
- 1 to 2 HP motor with VFD
- Up to 50 psi (3.5 bar)
- Up to 60 gpm (362.8 lps, 13.6 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display



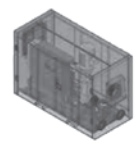
D SERIES

HES1

- One horizontal end suction pump
- 5 to 20 HP motor with VFD
- Up to 130 psi (9.0 bar)
- Up to 350 gpm (22.1 lps, 79.5 m³/h)
- Powder-coated steel enclosure
- Monochrome touch-panel display

VM1

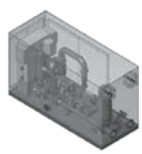
- One vertical multistage pump
- 3 to 15 HP motor with VFD
- Up to 115 psi (7.9 bar)
- Up to 200 gpm (12.6 lps, 45.4 m³/h)
- Powder-coated steel enclosure
- Monochrome touch-panel display



M SERIES

HES1

- One horizontal end suction pump
- 20 to 50 HP motor with VFD
- Up to 120 psi (8.3 bar)
- Up to 600 gpm (37.9 lps, 136 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display



VM1

- One vertical multistage pump
- 15 to 60 HP motor with VFD
- Up to 155 psi (10.7 bar)
- Up to 500 gpm (31.5 lps, 114 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display

COMPACT DECK

VT1

- 25 to 75 HP motors with VFD
- Up to 140 psi (9.7 bar)
- Up to 500 gpm (31.5 lps, 114 m³/h)
- Color touch-panel display

VT2

- 25 to 75 HP motors with VFD
- Up to 140 psi (9.7 bar)
- Up to 1600 gpm (101 lps, 363 m³/h)
- Color touch-panel display

LARGE DECK

VT2

- Large Deck to accommodate optional integrated filtration
- 25 to 75 HP motors with VFD
- Up to 140 psi (9.7 bar)
- Up to 1600 gpm (101 lps, 363 m³/h)
- Color touch-panel display

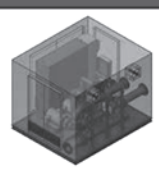
VT3

- Large Deck to accommodate optional integrated filtration
- 40 to 75 HP motors with VFD
- Up to 140 psi (9.7 bar)
- Up to 2400 gpm (151 lps, 545 m³/h)
- Color touch-panel display

PUMP STATION PLATFORMS

HES2

- Two horizontal end suction pumps
- 20 to 60 HP motors with VFD
- Up to 124 psi (8.6 bar)
- Up to 1200 gpm (76 lps, 273 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display

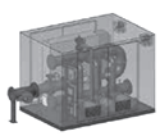


VM2

- Two vertical multistage pumps
- 25 to 60 HP motor with VFD
- Up to 150 psi (10.3 bar)
- Up to 1000 gpm (63.1 lps, 227 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display

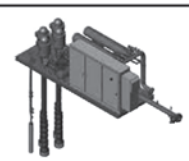
HES3

- Three horizontal end suction pumps
- 20 to 60 HP motors with VFD
- Up to 124 psi (8.6 bar)
- Up to 1800 gpm (114 lps, 409 m³/h)
- Aluminum Enclosure
- Monochrome touch-panel display



VT4-LARGE

- Large Deck to accommodate optional integrated filtration
- 40 to 75 HP motors with VFD
- Up to 140 psi (9.7 bar)
- Up to 3000 gpm (189 lps, 681 m³/h)
- Color touch-panel display



PANEL ONLY

- Controls 1-6 pumps, up to 100 HP each
- VFD or VPM
- Flow meter and pressure transducer included.

Water Management

Central Control

Pumps

Water Management

ETwater™
Intelligent Water Management

ETWATER SMART CONTROLLER 205

The first smart irrigation controller to complete the Irrigation Association's (IA) Smart Water Application Technology test protocol.

- Capacity to manage up to 48 valves
- Purchase as few as 16 stations and add plug–in 8 station modules as needed
- Connects via wireless, standard telephone line, or powerline for receiving daily schedule adjustments and sending alert messages
- Easy–to–use keypad for viewing programs, manual valve operation and other system functions
- Standard connections for rain switch, master pump, and master valve
- Convenient panel retrofit for upgrading selected existing controller brands. No enclosure or valve re–wiring needed
- Compact cabinet design suitable for wall mounting and selected pedestal installations

Electrical Specifications:

Transformer Input: 110 VAC
Transformer Output: 24 VAC 1.875 Amps
ETL and FCC approved

Connectivity Options:

Cellular wireless
Standard phone line
Powerline

HERMITCRAB 2 WITH FLOW MONITORING

Upgrades conventional controllers to ETwater Internet-based technology.

- Capacity up to 48 stations
- Great value: make your conventional controller "smart" for much less than the cost of a new smart controller.
- With 20-50% water savings possible, payback can be just a few months.
- "Plug and Play" installation in under 10 minutes.
- Compatible with most major controller brands.
- **Remote monitoring + management via the web.**

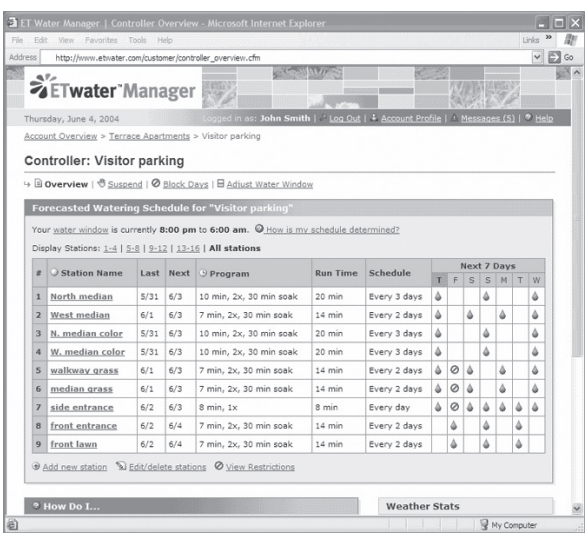
ETWATER SMART MANAGER

Gives you complete desktop control over all your sites, reducing hours in the field.

- Weather–based watering schedules with ET and rain adjustments automatically generated on a daily basis for all stations
- Reliable, local weather data is provided across the U.S. from a network of over 8,500 local weather stations monitored around the clock
- Easy–to–use Web interface with controls for all critical functions — setting water windows, choosing blocked days and making watering adjustments
- Easy step–by–step configuration process enables system to generate a customized watering schedule for each station to optimize water use and minimize runoff
- Automatic email alerts notify you of any unauthorized changes in watering schedules, interruptions in watering, or other potential controller performance issues

Requirements:

Active e-mail address
Browser: Internet Explorer 5.0 and higher, Apple Safari 2.0, and Mozilla 2.



TUCOR TWO-WIRE CENTRAL CONTROL SYSTEM

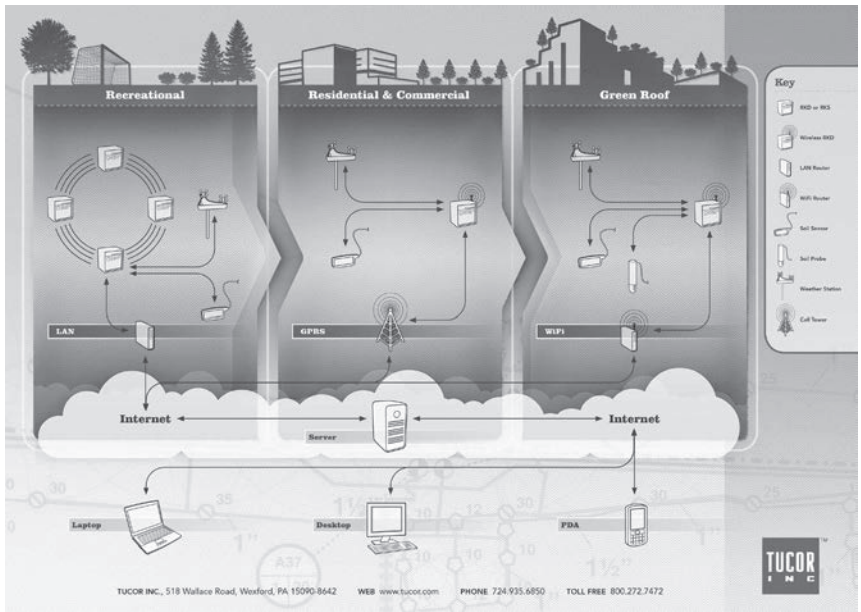
Water Management

Markets Supported: CA, WA, OR, ID, CO, NV, AZ

Tucor's Total-Cycle Management solution uses weather stations in combination with soil-moisture sensors to provide the most accurate data about your site's irrigation needs. And accurate data means accurate irrigation, so you use only the water you need, conserving water and promoting plant health. By combining both climate and soil monitoring technologies — along with Tucor's intelligent controllers — Total-Cycle Management provides you with irrigation scheduling you can trust.

HORIZON IS PROUD TO BE AN EXCLUSIVE DISTRIBUTOR OF TUCOR CONTROL SYSTEMS.

The Tucor TWCNV can be fully managed from the "Total Cycle Management" interface and all Tucor Controllers can now schedule adjust from On Site Weather Station ET rate data or a nationwide network of weather data sites.



Two-Wire Technology

Two-wire technology is revolutionizing the irrigation industry. With a conventional controller irrigation system, you are forced to run wires directly from the controller to every single valve. But with a two-wire system, you use just one, small-gauge, two-wire cable from the controller across the entire system. Just one cable connects to field decoders and valves like a string of ornamental lights.

Two-wire technology provides several advantages over a conventional system:

- Ease of installation. You only have to install — and dig — one wire line per system as opposed to one wire line per valve
- Ease of expansion. Two-wire allows you to expand a new or existing irrigation system indefinitely because you don't have to re-wire your system when making expansions or modifications. The unique two-wire technology allows you to infinitely add to an existing irrigation system, using just one two-wire cable to control the entire system
- Cost reduction. You save money on expensive copper cable; in fact, you can save as much as 80% over conventional wire systems

Total-Cycle Management

Tucor's Total-Cycle Management solution uses weather stations in combination with soil-moisture sensors to provide the most accurate data about your site's irrigation needs. And accurate data means accurate irrigation, so you use only the water you need, conserving water and promoting plant health.

Before Tucor's Total-Cycle Management, irrigation systems provided water monitoring via soil or climate data – not both. But each of these methods has drawbacks when used alone. For example, soil-moisture sensors and probes may not be practical for projects with inconsistent soil types. Weather stations, on the other hand, do not measure the soil's true water content, watering based on climate conditions when the soil could be saturated. By combining these two technologies – along with Tucor's intelligent controllers – Total-Cycle Management provides you with irrigation scheduling you can trust

NEW PRODUCT OFFERING!

The New Tucor 3D is designed to retrofit existing systems which eliminates the need for:

1. Cumbersome and landscape disrupting, trenching and wiring installations when adding a flow sensor and/or master valve
2. Battery operated controllers used to overcome poor system wiring conditions
3. Adding irrigation valves without costly, cumbersome and landscape disrupting, trenching and wiring installations

Water Management

TUCOR TWO-WIRE CENTRAL CONTROL SYSTEM (CONT.)

RKD CONTROLLER

- Stand-alone, decoder-based, 2-wire controller supporting from 1-100 Stations (valves)
- Can operate up to 12 Stations simultaneously and run 10 Programs concurrently
- Uses the RKLD-050 programmable line decoder, which can be addressed and tested at the controller
- Mist Manager ——Valve operations controllable in one second increments
- FloStack™ — Program stacking based on flow for up to 10 simultaneous Programs
- RealNet — Real-time, Internet-based water management via GPRS wireless
- Intelliset — Smart irrigation using a host of ET-based capabilities

TUCOR TWC FLOWMASTER CONTROLLER

- Provide central control of 25 to 500 valves using reliable decoder-based two-wire technology
- System is easily extended without the need of installing additional wires back to the controller
- Supports two-way communications allowing it to read external sensors such as flow meters
- Supported with Windows-based, multi-site software

Flowmaster controllers come in three versions:

- COM-25/50 for individual control of up to 50 valves
- TWC-NV 50 / 100 / 150 / 200 for up to 200 valves
- PROCOM 50 / 100 / 200 /300 / 400 / 500 for up to 500 valves

TUCOR CONVENTIONAL CENTRAL CONTROL SYSTEM

RKS CONTROLLER

- A conventional controller perfect for projects that require retrofitting existing systems
- Designed to convert conventional systems to Tucor's innovative Total-Cycle Management system
- Supports from 1 to 100 valves, operates up to 12 stations simultaneously, and can run 10 programs concurrently
- Unique Add-a-Zone program allows you to add stations one at a time as your system grows
- Up to three 25-station expansion boards can be added to the base controller via hard wiring or wirelessly with Tucor's own ZigBee-based mesh radios
- Available in 25-station modules

The Tucor **TWCNV** can be fully managed from the "Total Cycle Management" interface and all Tucor Controllers can now schedule adjust from On Site Weather Station ET rate data or a nationwide network of weather data sites.

RAIN BIRD MAXICOM CENTRAL CONTROL SYSTEM

RAIN BIRD MAXICOM² ®

The Maxicom² Irrigation Central Control Systems is designed for multi-site commercial or industrial irrigation applications. Hundreds of sites and weather sources can be controlled and monitored from one location.

A Maxicom² system utilizes a Central Controller installed at a primary location. Information is transmitted from this Central Controller to Cluster Control Units (CCU) or ESP-SITE Satellite Controllers in the field. The CCU acts as the system's "computer-in-the-field," allowing the ability to control hundreds of remote sites from one Central Controller. The CCU can monitor, communicate to, and manage as many as 28 ESP-SAT Satellite controllers or other field devices via a variety of hardwire and wireless communications options.

- Low Flow Alarm feature is designed to notify users when the flow in a designated section of the irrigation system falls below a pre-determined threshold level
- Ability to program to irrigate on Odd, Even, or Odd31 days
- Irrigation start days are easily scheduled to meet complex watering requirements
- Station operating times or the number of days between operation can be automatically adjusted in response to changing daily ET (Evapotranspiration) values supplied by a Rain Bird Weather Station or other ET source
- Cycle+Soak™ feature optimizes the application of water on sites with poor drainage sites, slopes, and heavy soil areas
- Operation of lighting systems (such as athletic field lighting), security gates, fountains, pumps, sensors, or other systems can also be managed from one central Maxicom² location

Software Features:

Graphical User Interface (Windows)	Cycle+Soak™
Automated ET (with Min/Max ET)	Irrigation water windows
ET Checkbook™	Control of non-irrigation applications
Flo-Manager™	Event calendar scheduling
Flo-Watch™	Water usage logs

MAXICOM2® CLUSTER CONTROL UNITS (CCU)

NOW AVAILABLE!

★ ***900Mghz Spread Spectrum Radio (no ongoing FCC frequency licensing required)***

★ ***CCU now offers available GPRS / Cellular Modem Connection for Verizon and Sprint from Central Computer (cellular data service requires separate "from carrier" data plan)***

Serve as an interface between the central controller and field satellites (ESP-MC-SAT Series) on the Maxicom² system.

- Operates up to 28 satellites, pulse decoders, or sensor decoders
- Operates up to SIX satellites, pulse decoders, or sensor decoders
- LED display that provides current satellite status
- Stores and executes schedule instructions from the central computer
- Utilizes Flo-Watch™ to monitor hydraulic conditions in the field, checking for breaks in system piping, or valve malfunctions. Will automatically identify where the problem is located, initiate valve or mainline shutdown to isolate the problem area, and continue with irrigation for the remaining available valves
- Utilizes Flo-Manager™ to monitor and sequence valves scheduled to be turned on, so expected demand does not exceed the hydraulic capacity of POCs

Water Management

ESP-SAT SERIES CONTROLLERS

SATELLITE CONTROLLER FOR MAXICOM² ® OR SITECONTROL

- Advanced water-management commercial-duty tool in an easy-to-use package
- Serves as a field satellite controller for the Rain Bird Maxicom² and SiteControl central control systems
- Four programs, a real-time calendar, Rain Bird's exclusive Cycle+Soak™ water management feature

Specifications:

Input required: 117 VAC ± 10 %, 60Hz
Output: 26.5 VAC, 2.5A
Station Load Capacity: Up to two 24 VAC, 7VA solenoid valves per station plus a master valve or pump start relay

Product Code	Description
ESP-12-SAT-TW-WM	12 stations, two wire, wall mount
ESP-16-SAT-TW-WM	16 stations, two wire, wall mount
ESP-24-SAT-TW-WM	24 stations, two wire, wall mount
ESP-32-SAT-TW-WM	32 stations, two wire, wall mount
ESP-40-SAT-TW-WM	40 stations, two wire, wall mount
ESP-12-SAT-LINK-WM	12 stations, Link radio, wall mount
ESP-16-SAT-LINK-WM	16 stations, Link radio, wall mount
ESP-24-SAT-LINK-WM	24 stations, Link radio, wall mount
ESP-32-SAT-LINK-WM	32 stations, Link radio, wall mount
ESP-40-SAT-LINK-WM	40 stations, Link radio, wall mount
ESP-12-SAT-TW-SS	12 stations, two wire, stainless steel pedestal
ESP-16-SAT-TW-SS	16 stations, two wire, stainless steel pedestal
ESP-24-SAT-TW-SS	24 stations, two wire, stainless steel pedestal
ESP-32-SAT-TW-SS	32 stations, two wire, stainless steel pedestal
ESP-40-SAT-TW-SS	40 stations, two wire, stainless steel pedestal
ESP-12-SAT-LINK-SS	12 stations, Link radio, stainless steel pedestal
ESP-16-SAT-LINK-SS	16 stations, Link radio, stainless steel pedestal
ESP-24-SAT-LINK-SS	24 stations, Link radio, stainless steel pedestal
ESP-32-SAT-LINK-SS	32 stations, Link radio, stainless steel pedestal
ESP-40-SAT-LINK-SS	40 stations, Link radio, stainless steel pedestal

ESP-SITE SATELLITE SERIES

12, 16, 24, 32, 40 STATION FIELD SATELLITE

This controller combines the capabilities of the Cluster Control Unit (CCU) with all the power of an ESP-SAT controller. Powerful enough for large sites yet flexible for smaller applications.

- Stores and executes schedule instructions from the central computer
- Operates up to 40 stations
- Communicates with central computer via telephone, hardwire, radio or fiber-optic cable
- Four programs with eight start times each allow mixed irrigation applications in a single controller
- Two master valve terminals, one programmable by station, provide better control
- 365-day calendar with leap year intelligence for one-time date and time setting
- Event day off option to set any day of the month as a non-watering day for all programs
- Programmable rain delay enables system to stay off for specified period with auto-restart
- Water budget by program provides adjustments from 0% to 300% in 1% increments

HOW TO SPECIFY: ESP-24SAT-2W		
Model:	Mounting:	Number of Stations Satellite:
ESP (120VAC) IESP (230 VAC)	W: Metal Wall Mount S: Stainless Steel	12SITE: 12 stations 16SITE: 16 stations 24SITE: 24 stations 28SITE: 28 stations 32SITE: 32 stations 36SITE: 36 stations 40SITE: 40 stations

Other Rain Bird Central Control Products available at Horizon Distributors include: IQ System, MDC Two Wire Control System, SiteControl and related flow sensing, decoders and remote control applications. Please contact your local Horizon Sales Representative for more information on these products.

Note: Not available in all markets — please call for pricing information

TORO SENTINAL CENTRAL CONTROL

- Powerful, yet simple-to-use software is ideal for large sites such as cities, business parks and school districts
- Central control software
- Simple To Use
- Microsoft® Windows-based software — daily operations and scheduling are made quick and easy
- ET-based watering, flow sensing and optimization, view water usage and compare to historical
- Communication options like radio, telephone, cellular, and Ethernet can be mixed and matched to meet system needs
- Stores irrigation programs in the computer while allowing irrigation control at the satellite level, ensuring the loss of a component does not result in the loss of irrigation across the system
- All centrals come with a minimum of two years of NSN support — unlimited 24-hour toll-free support with 24/7/365 emergency paging

Three Choices Of Central Packages

1) Software only
2) Software and radio communications interface
3) Central controller, software and radio communications interface

HORIZON IS THE EXCLUSIVE DISTRIBUTOR OF SENTINEL IN ARIZONA AND NORTHERN CALIFORNIA

Specifications and Features:

- Control up to 999 field satellites
- Group controllers into “systems” for system-wide adjustments:
  - Rain Days
  - Percent Adjust
  - ET-Adjustment from shared weather source
- Extensive reporting features:
  - Run time reports
  - Water usage
  - Alarms
  - Logging of system changes
- Water use, rain and ET accumulation
- Flow optimizing to maintain optimum flow and shorten water window
- Ability to redefine valve sequence without physically changing wire terminations in field satellite

CENTRAL SOFTWARE/COMPUTER MODELS

Product Code	Description
SGIS-1-T	Software Only w/two years of NSN Support
SGIS-0-1	Software, Peripheral Hardware w/two years of NSN Support
SGIS-1-0	Software, Computer Equip, Peripheral Hardware w/two years of NSN Support

NSN SUPPORT EXTENSION MODELS

Product Code	Description
SSE-T-1	1-year Extension for SGIS-0-1 of SGIS-1-T
SSE-T-3	3-year Extension for SGIS-0-1 of SGIS-1-T
SSE-C-1	1-year Extension for SGIS-1-0 (w/computer warranty)
SSE-C-3	3-year Extension for SGIS-1-0 (w/computer warranty)

Water Management

TORO SENTINAL® CONTROLLER

- Decoder, Two Wire, Valve Controller to 204 Stations
- Modular, remote ready, flow-sensor ready
- Flow Sensing
- Reads, displays and reacts to under and over flow situations and track water usage. No additional circuit boards are required
- Options for three levels of surge protection
- Weather Based Irrigation
- Sentinel waters according to ET values by using one or a number of onsite weather stations
- Flip the toggle switch to manually operate stations
- Available Wireless Output Board(s), with Enclosure in 12 & 24 Stations Configurations to 96 Stations Maximum
- True Two-Way Communication
- Allows for changes in the field to be uploaded to the central computer and allows feedback to a hand held radio in stand-alone mode

Input:

- 120 VAC, 60 Hz
- 0.4A (maximum)

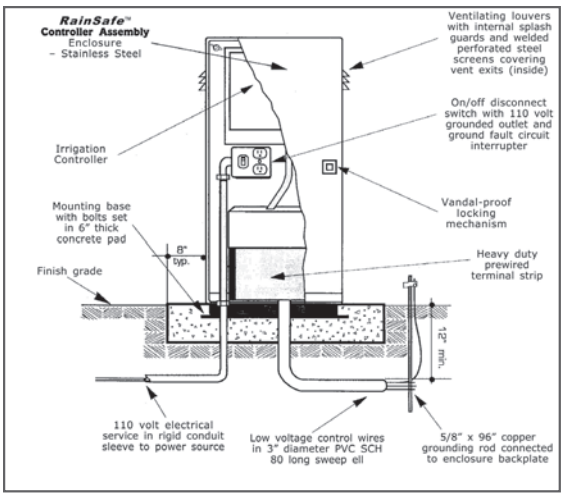
- Station output power:
  - 24 VAC
  - 0.25 Amps per station; 2 Amps maximum
- Station draw: Six stations and pump maximum (also limited by software)
- Surge protection: Level 4, 24V output boards, 20 KV @ 10 KVA
- UL Listed

Specifications and Features:

- 16 programs
- Eight start times per program
- 6-week or 365-day scheduling calendar
- Station runtimes from one minute to four hours and 15 minutes
- Global adjustment from 0% to 255%
- Percent adjust by program from 0% to 255%
- Ability to operate from one to six programs simultaneously
- Flow sensor ready
- Handheld remote ready
- Two sensor inputs included for rain sensors or other switch sensors
- Ability to connect to a laptop to download large station count programs
- Upgrade to a central computer system without additional field satellite hardware or costs
- Program single or multiple stations to operate sequentially or start a program or multiple programs with just a few keystrokes
- Ability to read open- or closed-contact switches in any station count configuration
- Current monitor will disable a station if excessive amp draw is detected
- Non-volatile memory will retain all programming and real-time data for 10 years
- Field-satellite-diagnostics capable when used with a troubleshooting kit reducing downtime and warranty costs
- Multi-language display: English, Spanish, French and Italian
- Operating Temperature: 14° to 140° F

OPTIONAL ACCESSORIES:

Product Code	Description
TRS	Wired RainSensor
TWRS/TWRFS	Wireless RainSensor or Wireless Rain/Freeze Sensor
TFS	Flow Sensors
SHHR	Hand Held Remote
SSAK	Sentinel Satellite Assembly with Keypad
SSAMN	Sentinel MapTo Assembly



HORIZON RAINSAFE ENCLOSURES

Complete corrosion- and vandal-resistant system custom designed to your specifications.

The RainSafe™ Controller Enclosure Assembly offers complete protection for your valuable irrigation control system. The system is available with many pre-wired options, including a master valve relay suitable for two controllers, a pump start relay and a bypass assembly for moisture sensors, rain check devices or radio remote control. When you specify the controller model(s) you want along with the electrical options, Horizon will build a complete, ready-to-install system customized to your exact specifications.

Features:

- 100% stainless steel construction with brushed stainless steel finish
- Three-point locking mechanism, flush-mounted access handle, and heavy duty continuous hinge
- Removable, predrilled backboard for easy installation
- Stainless steel mounting hardware and template included

Benefits:

- Rustproof durability
- Hinged for maximum security
- Easy access to plans and scheduling information

Standard Components:

- Consists of a stainless steel, vandal-resistant enclosure, stainless steel predrilled removable backboard, controller, terminal strip and 117V outlet
- Electrical junction box contains a key-operated on/off switch and a duplex receptacle equipped with a ground fault interrupt circuit
- A prelabeled, prewired terminal strip clearly indicates the proper points of connection for all wiring

Assembly Options:

- Rain sensor WCS-DDC/WSS ENC: prohibits a cycle start during rain. Includes sensor bypass switch
- Rain switch bypass: Allows overriding of rain sensing devices
- Antenna: Permanent antenna for use with radio remote devices
- Remote ready: Permanent remote connector
- Master valve power assembly: Allows use of one master valve with multiple controllers
- Master valve replay: Allows the controller's 24V AC Master valve circuit to start a higher voltage pump motor
- Sensor bypass: Used to override up to four sensors
- RJ11 phone jack: Allows quick connection to telephone service
- Valve surge kit: Protects valve output circuit from field power surges
- Primary power surge kit: Protects internal components from primary power surges
- High temperature cooling: Thermostatically controlled fan with on/off switch operated by 110V AC to avoid overheating

Water Management

PUMPING SOLUTIONS

BARRETT PUMPS IRRIBOOST®

Horizon is the exclusive distributor of Barrett pumps in the West.

- Heavy duty cast iron bronze fitted centrifugal commercial pumps with back-pullout design, mechanical seals, and 175 psi working pressure
- Industrial NEMA 4X corrosion resistant enclosures complete with industrial duty contactors, circuit breakers, and motor overload protectors. 600 VAC rated power and control wiring, panel compatible with all irrigation controllers
- Heavy duty Type L copper on systems under 300 GPM, and fusion bonded epoxy coated schedule 40 welded steel on systems over 300 GPM
- Industrial service full lug elastomer-lined, wafer-style butterfly valves or all bronze ball valves, and heavy duty cast iron, bronze fitted wafer silent check valves or all bronze stainless trim disk check valves on all systems

Design assistance available:

Specifications and drawings designed specifically for your application
All Irriboost CAD drawings and specifications available on diskette

SMALL SYSTEMS

For low flow and pressure:

- Designed primarily for low flow, low-to-medium boost applications such as residential or small commercial systems
- Utilizes a multistage end suction, close-coupled centrifugal pump
- 1/2 hp to 3/4 hp range
- 20 GPM flow rate or less
- 30 psi to 55 psi boost range
- 1 1/4" piping

For low flow and moderate pressure:

- Designed primarily for low flow, low-to-medium boost applications such as larger residential or small commercial systems
- Utilizes a multistage end suction, close-coupled centrifugal pump
- 3/4 hp to 1.5 hp range
- 35 GPM flow rate or less
- 30 psi to 65 psi boost range
- 1 1/4" to 2" piping

For low to moderate flow and pressure:

- Designed primarily for low flow, low-to-medium boost applications such as larger residential or small commercial systems
- Equipped with variable speed drive to provide constant pressure output
- Utilizes a multistage end suction, close-coupled centrifugal pump, or vertical multistage centrifugal pump
- 3/4 hp to 3 hp range
- 65 GPM flow rate or less
- 30 psi to 85 psi boost range
- 1 1/4" to 2" piping

Please contact your local Horizon Representative for a site-specific pump quotation.

SMALL TO LARGE BOOST PUMP SYSTEMS

For low to moderate flow, low to moderate pressure:

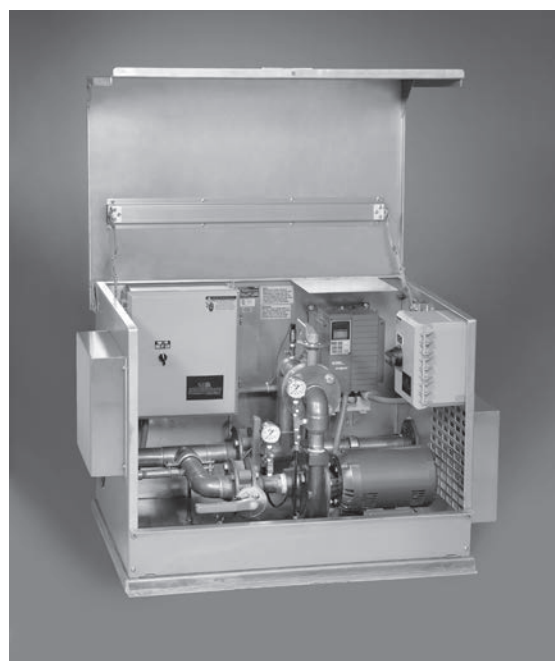
- Designed primarily for medium flow, low-to-medium boost applications such as small and medium sized commercial and park systems
- Utilizes a single stage end suction, close-coupled centrifugal pump
- 3/4 hp to 7.5 hp range
- 70 GPM flow rate or less
- 20 psi to 70 psi boost range
- 2" to 2 1/2" piping

For moderate to high flow and pressure:

- Designed primarily for medium-to-high flow, low-to- medium boost applications such as small-to-large sized commercial and park systems
- Utilizes a horizontal end suction, close-coupled centrifugal pump
- 2 hp to 75 hp range
- 50 GPM to 700 GPM flow rate range
- 0 to 80 psi boost range
- 2" to 6" piping

For low to high flow, moderate to high pressure:

- Designed primarily for low-to-medium flow, medium-to- high boost applications such as small-to-medium sized commercial and park systems with high pressure boost requirements
- Utilizes a vertical multistage centrifugal pump
- Works well with variable speed drive controls
- 3/4 hp to 40 hp range
- 5 GPM to 360 GPM flow rate range
- 30 psi to 200 psi boost range
- 2" to 6" piping



RAIN BIRD COMMERCIAL PUMPS AND BOOSTER PUMPS

Rain Bird offers a variety of pump station options to meet your needs including:

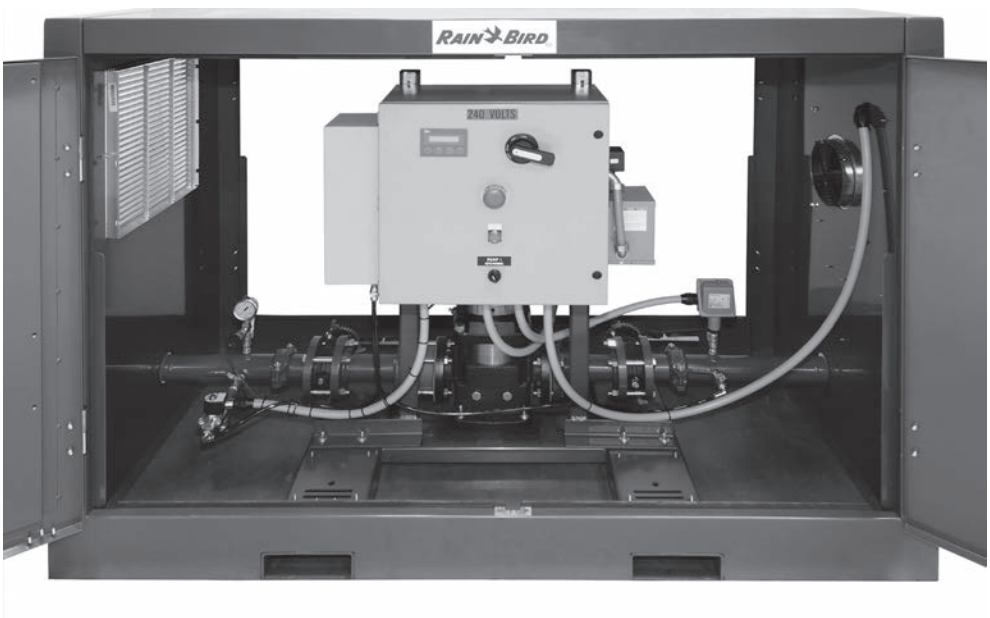
- CHIE Series (Single and Dual Pump VFD) — Flows up to 80 GPM
- Integrated Plug-n-Pump Stations (Models: D/DP/DPX) — Flows up to 300 GPM
- Intermediate Flow Pump Stations — Flows up to 750 GPM
- Main Irrigation Pump Stations — Flows up to 10,000 GPM
- Water Feature Pump Stations — Flows up to 10,000 GPM and Greater
- Additional Product Options include: Pump Manager and Filtration

Pump Stations from Rain Bird feature a reliable Variable Frequency Drive (VFD). VFD technology has proven to be an efficient method to reduce energy costs and minimize system water.

Horizon Distributors supports the specification, sales and service of Rain Bird Pump Stations. Please contact your local Horizon Sales Representative for more information.

Rain Bird Pump Station Product Line

Product	Flow (GPM)	Pumps (HP)	Applications
Integrated Plug-n-Pump - Marine	0 to 150	Up to 10	Large residential turf, drip, boost applications
Integrated Plug-n-Pump - PCE	0 to 300	Up to 30	Schools, Parks, Sports Field, Roads, Medians
Intermediate Flow Pump Station	0 to 750	Up to 60	Resorts, Large Parks, Nurseries, Zoos, Botanic Gardens, Racetracks, Stadiums
Large Commercial Pump Station	0 to 10,000	Up to 100 and greater	Large developments, Waterfalls, Water features



HORIZON DISTRIBUTORS ALSO SUPPORTS PUMP SPECIFICATIONS FROM WATERTRONICS, FLOWTRONEX AND MUNRO PUMPS.