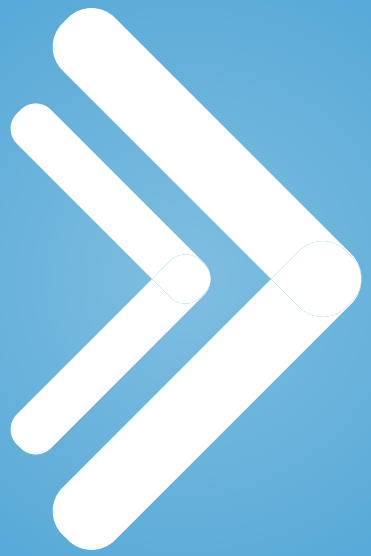
METRIC

TECHNICAL COMPANION GUIDE

Hunter®

ROTORS SPRAYS VALVES CONTROLLERS SENSORS CENTRAL CONTROLS

08
09



TECHNICAL COMPANION GUIDE

Welcome to the new Hunter Technical Companion Guide. Designed to facilitate a simple, intuitive work experience, the guide gives you all the charts, graphs and specification details in easy-to-locate sections. Divided by product categories, each section offers the information you need to turn irrigation components into a Hunter irrigation system. Depend on it.

1

OUR NEW SPECIFICATION BUILDER PROVIDES QUICK ACCESS, HELPING YOU BUILD THE CORRECT SPEC FOR YOUR HUNTER PROJECT. TECHNICALLY SPEAKING, IT'S EASY.

2

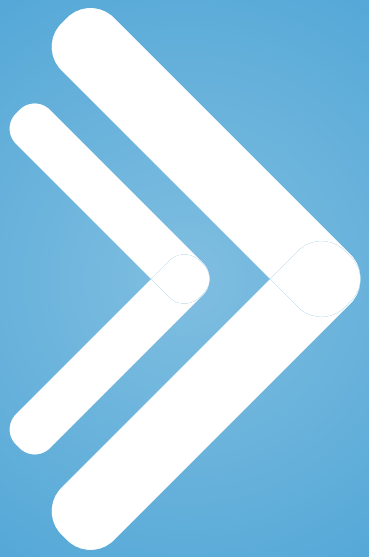
CHARTS AND GRAPHS HIGHLIGHT OPTIMAL DESIGN PRESSURES INDICATED IN BOLD BLUE. ALL YOU DO IS FOLLOW THE BLUE.

3

YOU'LL NO LONGER HAVE TO SEARCH FOR INFORMATION. EVERYTHING YOU NEED TO GET THE JOB DONE IS SYSTEMATICALLY ORGANIZED AND LOCATED THROUGHOUT THIS GUIDE. PLAN TO GET HOME AT A REASONABLE HOUR.

4

NEED TO KNOW MORE? EVERY PRODUCT HAS THE CATALOG PAGE NUMBER LISTED FOR QUICK CROSS- REFERENCE. AFTER ALL, WE'RE HERE TO HELP.

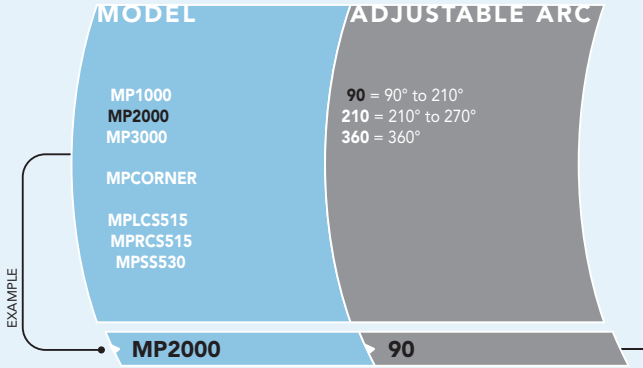


MP ROTATOR / MPR40

MP Rotator

SPECIFICATIONBUILDER

NEW!



MP2000* – 90

Note: MP Rotators are designed to operate in conjuction with a pop-up sprinkler or shrub sprinkler. See MPR40 product on page 5.

***Note:** Add "HT" to specify male thread

blue INFO IN THE CATALOG PAGE 9

MP Rotator Performance Data – Metric

MP1000
Radius: 2.5 to 4.6 m
Adjustable Arc and Full Circle
Color Code: Maroon or Olive

Arc	Pressure Bars	Pressure kPa	Color	Radius m	Flow LPH	Flow LPM	Precip mm/hr ■	Precip mm/hr ▲
90°	1.75	175	Maroon = 90° to 210°	---	---	---	---	---
	2.00	200		3.7	36	0.61	11	12
	2.25	225		3.8	38	0.63	10	12
	2.50	250		4.0	41	0.68	10	12
	2.75	**275**		**4.1**	**42**	**0.70**	**10**	**11**
	3.00	300		4.3	44	0.73	10	11
	3.25	325		4.3	45	0.75	10	11
	3.50	350		4.4	47	0.78	10	11
	3.75	375		4.6	49	0.81	9	11
180°	1.75	175		---	---	---	---	---
	2.00	200		3.7	72	1.20	11	12
	2.25	225		3.8	76	1.27	10	12
	2.50	250		4.0	81	1.35	10	12
	2.75	**275**		**4.1**	**84**	**1.40**	**10**	**11**
	3.00	300		4.3	88	1.46	10	11
	3.25	325		4.3	91	1.51	10	11
	3.50	350		4.4	94	1.56	10	11
	3.75	375		4.6	97	1.62	9	11
210°	1.75	175		---	---	---	---	---
	2.00	200		3.7	85	1.41	11	13
	2.25	225		3.8	89	1.48	10	12
	2.50	250		4.0	95	1.58	10	12
	2.75	**275**		**4.1**	**98**	**1.63**	**10**	**11**
	3.00	300		4.3	102	1.71	10	11
	3.25	325		4.3	106	1.76	10	11
	3.50	350		4.4	109	1.82	10	11
	3.75	375		4.6	113	1.89	9	11
270°	1.75	175		Coming Soon				
	2.00	200						
	2.25	225						
	2.50	250						
	2.75	**275**						
	3.00	300						
	3.25	325						
	3.50	350						
	3.75	375						
360°	1.75	175	Olive = 360°	---	---	---	---	---
	2.00	200		3.5	144	2.40	12	14
	2.25	225		3.8	153	2.55	11	13
	2.50	250		4.0	161	2.69	10	12
	2.75	**275**		**4.1**	**169**	**2.81**	**10**	**12**
	3.00	300		4.3	177	2.94	10	11
	3.25	325		4.3	183	3.05	10	11
	3.50	350		4.4	190	3.17	10	11
	3.75	375		4.5	195	3.25	10	11

MP2000
Radius: 4 to 6.4 m
Adjustable Arc and Full Circle
Color Code: Black, Green, or Red

Arc	Pressure Bars	Pressure kPa	Color	Radius m	Flow LPH	Flow LPM	Precip mm/hr ■	Precip mm/hr ▲
90°	1.75	175	Black = 90° to 210°	5.2	71	1.18	11	12
	2.00	200		5.5	74	1.23	10	11
	2.25	225		5.6	80	1.33	10	12
	2.50	250		5.8	86	1.43	10	12
	2.75	**275**		**6.1**	**91**	**1.52**	**10**	**11**
	3.00	300		6.4	94	1.57	9	11
	3.25	325		6.6	97	1.62	9	10
	3.50	350		6.7	101	1.68	9	10
	3.75	375		6.7	106	1.77	9	11
180°	1.75	175		4.9	133	2.22	11	12
	2.00	200		5.2	141	2.35	11	13
	2.25	225		5.3	150	2.50	11	13
	2.50	250		5.5	160	2.67	11	12
	2.75	**275**		**5.8**	**168**	**2.80**	**10**	**12**
	3.00	300		6.1	174	2.90	10	11
	3.25	325		6.2	182	3.03	9	11
	3.50	350		6.4	189	3.15	9	10
	3.75	375		6.4	193	3.22	9	11
210°	1.75	175		4.9	155	2.58	11	12
	2.00	200		5.2	165	2.75	11	13
	2.25	225		5.3	175	2.92	11	13
	2.50	250		5.5	185	3.08	10	12
	2.75	**275**		**5.8**	**195**	**3.25**	**10**	**12**
	3.00	300		6.1	205	3.42	10	11
	3.25	325		6.2	214	3.57	9	11
	3.50	350		6.4	222	3.70	9	10
	3.75	375		6.4	228	3.80	10	11
270°	1.75	175	Green = 210° to 270°	4.9	199	3.32	11	12
	2.00	200		5.2	212	3.53	11	13
	2.25	225		5.3	225	3.75	11	13
	2.50	250		5.5	238	3.97	10	12
	2.75	**275**		**5.8**	**249**	**4.15**	**10**	**12**
	3.00	300		6.1	261	4.35	10	11
	3.25	325		6.2	272	4.53	9	11
	3.50	350		6.4	282	4.70	9	10
	3.75	375		6.4	293	4.88	9	11
360°	1.75	175	Red = 360°	4.9	265	4.42	11	12
	2.00	200		5.2	283	4.72	11	13
	2.25	225		5.3	300	5.00	11	13
	2.50	250		5.5	317	5.28	10	12
	2.75	**275**		**5.8**	**333**	**5.55**	**10**	**12**
	3.00	300		6.1	348	5.80	10	11
	3.25	325		6.2	362	6.03	9	11
	3.50	350		6.4	375	6.25	9	10
	3.75	375		6.4	384	6.40	9	10

MP3000
Radius: 6.7 to 9.1 m
Adjustable Arc and Full Circle
Color Code: Blue, Yellow, or Gray

Arc	Pressure Bars	Pressure kPa	Color	Radius m	Flow LPH	Flow LPM	Precip mm/hr ■	Precip mm/hr ▲
90°	1.75	175	Blue = 90° to 210°	7.6	158	2.63	11	13
	2.00	200		8.2	166	2.77	10	11
	2.25	225		8.4	175	2.92	10	12
	2.50	250		8.5	185	3.08	10	12
	2.75	**275**		**9.1**	**195**	**3.25**	**9**	**11**
	3.00	300		9.1	203	3.38	10	11
	3.25	325		9.1	212	3.53	10	12
	3.50	350		9.1	220	3.67	11	12
	3.75	375		9.1	228	3.80	11	13
180°	1.75	175		7.6	329	5.48	11	13
	2.00	200		8.2	353	5.88	10	12
	2.25	225		8.4	373	6.22	11	12
	2.50	250		8.5	393	6.55	11	12
	2.75	**275**		**9.1**	**413**	**6.88**	**10**	**11**
	3.00	300		9.1	431	7.18	10	12
	3.25	325		9.1	449	7.48	11	12
	3.50	350		9.1	466	7.77	11	13
	3.75	375		9.1	481	8.02	12	13
210°	1.75	175		7.6	384	6.40	11	13
	2.00	200		8.2	411	6.85	10	12
	2.25	225		8.4	436	7.27	11	12
	2.50	250		8.5	459	7.65	11	12
	2.75	**275**		**9.1**	**481**	**8.02**	**10**	**11**
	3.00	300		9.1	502	8.37	10	12
	3.25	325		9.1	523	8.72	11	12
	3.50	350		9.1	542	9.03	11	13
	3.75	375		9.1	562	9.37	12	13
270°	1.75	175	Yellow = 210° to 270°	7.6	501	8.35	12	13
	2.00	200		8.2	530	8.83	10	12
	2.25	225		8.4	560	9.33	11	12
	2.50	250		8.5	589	9.82	11	12
	2.75	**275**		**9.1**	**619**	**10.32**	**10**	**11**
	3.00	300		9.1	646	10.77	10	12
	3.25	325		9.1	673	11.22	11	12
	3.50	350		9.1	701	11.68	11	13
	3.75	375		9.1	727	12.12	12	13
360°	1.75	175	Gray = 360°	7.6	659	10.98	11	13
	2.00	200		8.2	703	11.72	10	12
	2.25	225		8.4	745	12.42	11	12
	2.50	250		8.5	786	13.10	11	12
	2.75	**275**		**9.1**	**825**	**13.75**	**10**	**11**
	3.00	300		9.1	862	14.37	10	12
	3.25	325		9.1	897	14.95	11	12
	3.50	350		9.1	931	15.52	11	13
	3.75	375		9.1	964	16.07	12	13

SPECIFICATIONBUILDER

MODEL	POP-UP HEIGHT	OPTIONS
MPR40 = MPR40 (Includes factory-installed 40 PSI pressure regulator)	**00** = Shrub **04** = 4" Pop-up **06** = 6" Pop-up **12** = 12" Pop-up **CV** = Factory-installed check valve (Pop-up models only)	**MP ROTATORS** See MP Rotator Specification Guide for details
EXAMPLE: **MPR40**	**04-CV**	**MP200090**

MPR40 – 04-CV – MP200090

Note: MPR40 and MP Rotators are sold separately.

MODELS
MPR40-00 – Shrub
MPR40-04-CV – 4" Pop-up (10 cm)
MPR40-06-CV – 6" Pop-up (15 cm)
MPR40-12-CV – 12" Pop-up (30 cm)

DIMENSIONS
- Overall height:
  MPR40-04-CV – 5-7/8" (15.5 cm)
  MPR40-06-CV – 8-3/4" (22.5 cm)
  MPR40-12-CV – 16-1/8" (41 cm)
- 1/2" female inlet NPT
- Exposed diameter: 2-1/4" (5.7 cm)

OPERATING SPECIFICATIONS
- Recommended pressure range: 15 to 100 PSI (1.0 to 6.9 bars; 103 to 689 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m3/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 0.4" (10 mm) per hour with MP Rotators
- Factory-installed drain check valve for up to 14' (4.3 m) elevation change; "Check Valve" stamped on cap for easy identification

OPTIONS AVAILABLE
- Field-installed drain check valve (part # 437400)
- Field-installed black rubber cover (part # 469805)
- Field-installed reclaimed water identification snap-on cover (part # PROSRCCAP)
- Replacement check valve (part # 437400)

MP Rotator Performance Data – Metric

MP Corner
Radius: 2.4 to 4.6 m
Adjustable Arc
Color Code: Turquoise

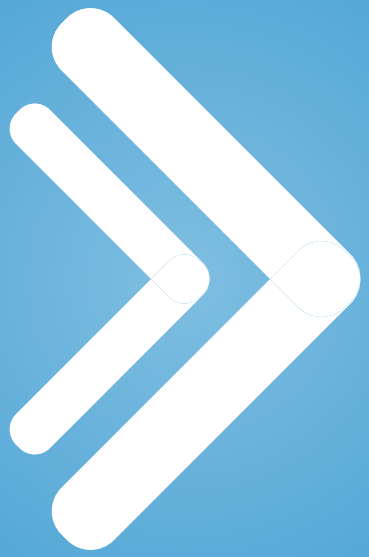
Arc	Pressure Bars	Pressure kPa	Color	Radius m	Flow LPH	Flow LPM
45°	1.75	175	Turquoise = 45° to 105°	---	---	---
	2.00	200		3.5	36	0.61
	2.25	225		3.8	38	0.63
	2.50	250		4.0	41	0.68
	2.75	**275**		**4.1**	**42**	0.70
	3.00	300		4.3	44	0.73
	3.25	325		4.3	45	0.75
	3.50	350		4.4	47	0.78
	3.75	375		4.5	49	0.81
90°	1.75	175		3.2	69	1.15
	2.00	200		3.5	76	1.27
	2.25	225		3.8	79	1.31
	2.50	250		4.0	84	1.40
	2.75	**275**		**4.1**	**86**	**1.44**
	3.00	300		4.3	94	1.57
	3.25	325		4.3	98	1.63
	3.50	350		4.4	100	1.67
	3.75	375		4.5	104	1.73
105°	1.75	175		3.2	80	1.34
	2.00	200		3.5	89	1.48
	2.25	225		3.8	92	1.53
	2.50	250		4.0	98	1.63
	2.75	**275**		**4.1**	**102**	**1.70**
	3.00	300		4.3	110	1.83
	3.25	325		4.3	113	1.88
	3.50	350		4.4	117	1.94
	3.75	375		4.5	120	2.00

MP Rotator Performance Data – Metric

MPLCS515
MPRCS515
MPSS530

Nozzle Model	Pressure Bars	Pressure kPa	Color	Unadjusted Radius LPH	Reduced Radius LPH	Precip Rate mm/hr
MP Left Strip	2.00	200	Ivory	43	30	12
	2.25	225		45	33	12
	2.50	250		48	35	12
	2.75	**275**		**50**	**36**	**12**
	3.00	300		52	38	12
	3.25	325		54	40	12
	3.50	350		56	41	12
	3.75	375		58	43	12
MP Right Strip	2.00	200	Copper	85	60	12
	2.25	225		90	66	12
	2.50	250		95	69	12
	2.75	**275**		**100**	**73**	**12**
	3.00	300		104	76	12
	3.25	325		108	79	12
	3.50	350		113	83	12
	3.75	375		117	86	12
MP Side Strip	2.00	200	Brown	43	30	12
	2.25	225		45	33	12
	2.50	250		48	35	12
	2.75	**275**		**50**	**36**	**12**
	3.00	300		52	38	12
	3.25	325		54	40	12
	3.50	350		56	41	12
	3.75	375		58	43	12

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



ROTORS

APPLICATIONS	PGJ	PGP	I-20ULTRA	I-25/31PLUS	I-35SIERRA	I-40/41	I-60	I-90
Spacings 15' to 35' (4.5m - 10.5m)	•		•					
Spacings 25' to 45' (7.5m - 13.5m)		•	•					
Spacings more than 45' (13.5m)				•	•	•	•	•
Residential	•	•	•					
Commercial/Institutional			•	•	•	•	•	•
Athletic Fields			•	•	•	•	•	•
High Vandalism Areas			•		•	•		
Low Pressure Systems	•	•					•	
Riser-Mounted Sprinklers	•	•	•					
Ground Cover and/or Shrubs	•	•	•					
Reclaimed Water	•	•	•	•	•	•	•	•

PGJ

MODELS

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

DIMENSIONS

- Overall height:
  PGJ-00 – 7″ (18 cm)
  PGJ-04 – 7-1/8″ (18 cm)
  PGJ-06 – 9-1/8″ (23 cm)
  PGJ-12 – 16-3/8″ (41 cm)
- 1/2″ female inlet
- Exposed diameter: 1-1/8″ (3 cm)

OPERATING SPECIFICATIONS

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

OPTIONS AVAILABLE

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

blue INFO IN THE CATALOG PAGE 15

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS
PGJ	**00** = Shrub **04** = 4″ Pop-up **06** = 6″ Pop-up **12** = 12″ Pop-up	**R** = Reclaimed Water Identifier **V** = Factory-installed Drain Check Valve (Pop-up Models Only)

EXAMPLE: PGJ | 06 | V

PGJ - 06 - V

PGJ Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip ■	Precip ▲
.75	2.0	200	4.6	0.14	2.4	14	16
	2.5	**250**	**4.9**	**0.16**	**2.7**	**13**	**15**
	3.0	300	5.2	0.18	3.0	13	15
	3.5	350	5.2	0.19	3.2	14	17
	4.0	400	5.5	0.20	3.4	13	15
1.0	2.0	200	5.5	0.19	3.2	13	15
	2.5	**250**	**5.5**	**0.21**	**3.5**	**14**	**16**
	3.0	300	5.8	0.23	3.8	14	16
	3.5	350	5.8	0.24	4.1	15	17
	4.0	400	6.1	0.25	4.2	14	16
1.5	2.0	200	6.4	0.29	4.8	14	16
	2.5	**250**	**6.4**	**0.32**	**5.4**	**16**	**18**
	3.0	300	6.7	0.36	6.0	16	18
	3.5	350	6.7	0.39	6.4	17	20
	4.0	400	7.0	0.40	6.7	16	19
2.0	2.0	200	7.3	0.37	6.2	14	16
	2.5	**250**	**7.3**	**0.42**	**7.1**	**16**	**18**
	3.0	300	7.6	0.48	8.0	17	19
	3.5	350	7.6	0.53	8.8	18	21
	4.0	400	7.9	0.56	9.3	18	20
2.5	2.0	200	8.2	0.49	8.1	14	17
	2.5	**250**	**8.2**	**0.54**	**9.0**	**16**	**18**
	3.0	300	8.5	0.59	9.8	16	19
	3.5	350	8.5	0.63	10.5	17	20
	4.0	400	8.8	0.65	10.9	17	19
3.0	2.0	200	9.1	0.56	9.3	13	15
	2.5	**250**	**9.1**	**0.64**	**10.6**	**15**	**18**
	3.0	300	9.4	0.72	12.0	16	19
	3.5	350	9.4	0.78	13.1	18	20
	4.0	400	9.8	0.82	13.7	17	20
4.0	2.0	200	10.1	0.83	13.8	16	19
	2.5	**250**	**10.1**	**0.89**	**14.8**	**18**	**20**
	3.0	300	10.4	0.94	15.7	17	20
	3.5	350	10.4	0.98	16.3	18	21
	4.0	400	10.7	1.00	16.7	18	20
5.0	2.0	200	11.0	1.06	17.6	18	20
	2.5	**250**	**11.0**	**1.11**	**18.5**	**18**	**21**
	3.0	300	11.3	1.17	19.4	18	21
	3.5	350	11.3	1.21	20.1	19	22
	4.0	400	11.6	1.23	20.5	18	21

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 – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip ■	Precip ▲
1	2.0	200	8.5	0.11	1.8	3	3
	2.5	250	8.5	0.13	2.1	4	4
	3.0	300	8.8	0.15	2.4	4	4
	3.5	**350**	**8.8**	**0.16**	**2.7**	**4**	**5**
	4.0	400	9.1	0.18	2.9	4	5
	4.5	450	9.1	0.19	3.2	5	5
2	2.0	200	8.8	0.16	2.6	4	5
	2.5	250	8.8	0.17	2.9	4	5
	3.0	300	9.1	0.19	3.2	5	5
	3.5	**350**	**9.1**	**0.21**	**3.5**	**5**	**6**
	4.0	400	9.4	0.22	3.7	5	6
	4.5	450	9.4	0.23	3.9	5	6
3	2.0	200	9.1	0.20	3.3	5	5
	2.5	250	9.1	0.22	3.7	5	6
	3.0	300	9.4	0.25	4.1	6	6
	3.5	**350**	**9.4**	**0.27**	**4.5**	**6**	**7**
	4.0	400	9.8	0.29	4.8	6	7
	4.5	450	9.8	0.31	5.1	6	7
4	2.0	200	9.8	0.27	4.4	6	6
	2.5	250	9.8	0.30	5.0	6	7
	3.0	300	10.1	0.34	5.6	7	8
	3.5	**350**	**10.1**	**0.37**	**6.2**	**7**	**8**
	4.0	400	10.4	0.40	6.6	7	9
	4.5	450	10.4	0.43	7.1	8	9
5	2.0	200	10.4	0.36	5.9	7	8
	2.5	250	10.4	0.39	6.5	7	8
	3.0	300	11.0	0.43	7.2	7	8
	3.5	**350**	**11.6**	**0.46**	**7.7**	**7**	**8**
	4.0	400	11.6	0.49	8.1	7	8
	4.5	450	11.6	0.51	8.6	8	9
6	2.0	200	10.4	0.45	7.5	8	10
	2.5	250	10.7	0.51	8.5	9	10
	3.0	300	11.0	0.57	9.4	9	11
	3.5	**350**	**11.6**	**0.61**	**10.2**	**9**	**11**
	4.0	400	11.6	0.66	10.9	10	11
	4.5	450	11.9	0.70	11.6	10	11
7	2.0	200	10.4	0.58	9.7	11	12
	2.5	250	11.0	0.65	10.8	11	12
	3.0	300	11.6	0.72	12.0	11	12
	3.5	**350**	**12.2**	**0.78**	**12.9**	**10**	**12**
	4.0	400	12.2	0.83	13.8	11	13
	4.5	450	12.2	0.88	14.6	12	14
8	2.0	200	11.3	0.71	11.8	11	13
	2.5	250	11.6	0.79	13.2	12	14
	3.0	300	11.9	0.87	14.5	12	14
	3.5	**350**	**12.5**	**0.94**	**15.6**	**12**	**14**
	4.0	400	12.5	1.00	16.6	13	15
	4.5	450	12.8	1.05	17.6	13	15
9	2.0	200	11.6	0.80	13.4	12	14
	2.5	250	11.6	0.92	15.4	14	16
	3.0	300	12.5	1.05	17.5	13	16
	3.5	**350**	**13.4**	**1.15**	**19.2**	**13**	**15**
	4.0	400	13.4	1.25	20.9	14	16
	4.5	450	13.7	1.35	22.4	14	17
10	2.0	200	12.2	1.14	19.0	15	18
	2.5	250	12.8	1.29	21.4	16	18
	3.0	300	13.4	1.44	24.0	16	18
	3.5	350	14.0	1.56	26.1	16	18
	4.0	**400**	**14.3**	**1.68**	**28.0**	**16**	**19**
	4.5	450	14.3	1.79	29.9	17	20
	5.0	500	14.6	1.90	31.7	18	21
11	2.0	200	12.8	1.55	25.9	19	22
	2.5	250	13.7	1.73	28.7	18	21
	3.0	300	14.0	1.90	31.7	19	22
	3.5	350	14.6	2.05	34.1	19	22
	4.0	**400**	**14.9**	**2.18**	**36.3**	**20**	**23**
	4.5	450	15.2	2.30	38.4	20	23
	5.0	500	15.5	2.42	40.4	20	23
12	2.0	200	12.8	2.03	33.8	25	29
	2.5	250	13.4	2.26	37.7	25	29
	3.0	300	14.3	2.51	41.8	24	28
	3.5	350	14.6	2.70	45.0	25	29
	4.0	**400**	**14.9**	**2.88**	**48.1**	**26**	**30**
	4.5	450	15.2	3.06	50.9	26	30
	5.0	500	15.8	3.22	53.7	26	30

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

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS
PGS = Shrub	ADJ, 360, ADV, 36V, ARV, 3RV	**XX** = 12 Standard Red Nozzles **LA** = 7 Low-Angle Nozzles **01 – 12** = Factory-Installed Standard Red Nozzle **1.5 – 8.0** = User-Installed Standard Blue Nozzle **4 – 10 LA** = Factory-Installed Low-Angle Nozzle
PGP = 4" Pop-up	ADJ, 360, ADV, 36V, ARV, 3RV	
PGH = 12" Pop-up	ADV, 36V, ARV, 3RV	
PGP-ATR = Advanced Technology Impact Replacement, Retrofits Rain Bird® Maxi-PAW and others	ADJ-B	

EXAMPLE: PGP | ADJ | LA → **PGP - ADJ - LA**

KEY TO FEATURES:
ADJ = Adjustable with no Check Valve
360 = Full-Circle with no Check Valve
ADV = Adjustable with Check Valve
ATR = 2-1/4" Pop-up, Adjustable with no Check Valve and #7 Standard Red Nozzle Factory-Installed
36V = Full-Circle with Check Valve
ARV = Adjustable, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve
ADJ-B = with Blue nozzle

PGP Gray Low Angle Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4	2.0	200	6.7	0.32	5.3	14	16
	2.5	250	7.0	0.35	5.9	14	17
	3.0	300	7.3	0.39	6.5	15	17
	3.5	**350**	**7.9**	**0.42**	**7.0**	**13**	**15**
	4.0	400	8.5	0.45	7.5	12	14
	4.5	450	8.5	0.47	7.9	13	15
5	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	**350**	**8.5**	**0.48**	**8.0**	**13**	**15**
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
6	2.0	200	9.1	0.47	7.9	11	13
	2.5	250	9.4	0.53	8.8	12	14
	3.0	300	9.8	0.59	9.8	12	14
	3.5	**350**	**10.1**	**0.64**	**10.6**	**13**	**15**
	4.0	400	10.7	0.68	11.3	12	14
	4.5	450	10.7	0.72	12.0	13	15
7	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.4	0.68	11.4	15	18
	3.0	300	10.1	0.75	12.5	15	17
	3.5	**350**	**10.7**	**0.80**	**13.3**	**14**	**16**
	4.0	400	11.3	0.85	14.1	13	15
	4.5	450	11.3	0.89	14.8	14	16
8	2.0	200	9.4	0.76	12.7	17	20
	2.5	250	9.8	0.84	14.1	18	20
	3.0	300	10.4	0.93	15.5	17	20
	3.5	**350**	**11.3**	**1.00**	**16.6**	**16**	**18**
	4.0	400	11.6	1.06	17.6	16	18
	4.5	450	11.6	1.12	18.6	17	19
9	2.0	200	10.1	0.96	16.0	19	22
	2.5	250	10.7	1.07	17.9	19	22
	3.0	300	11.3	1.19	19.8	19	22
	3.5	**350**	**12.2**	**1.28**	**21.3**	**17**	**20**
	4.0	400	12.8	1.37	22.8	17	19
	4.5	450	12.8	1.45	24.1	18	20
10	2.0	200	10.7	1.26	21.0	22	26
	2.5	250	11.3	1.40	23.4	22	25
	3.0	300	11.6	1.55	25.9	23	27
	3.5	350	12.2	1.67	27.8	22	26
	4.0	**400**	**12.8**	**1.78**	**29.7**	**22**	**25**
	4.5	450	12.8	1.89	31.4	23	27
P	Blank nozzle plug for turning off selected sprinklers during repairs, maintenance, etc.						

PGP Blue Standard Nozzle Performance Data – Metric

NEW!

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

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

blue INFO IN THE CATALOG PAGE 17

MODELS
PGS – Shrub
PGP – 4" Pop-up (10 cm)
PGH – 12" Pop-up (30 cm)
PGP-ATR – 2-1/4" Pop-up – Retrofits existing Rain Bird® Maxi-PAW™ and others

DIMENSIONS
- Overall height:
  PGS – 7-3/8" (19 cm)
  PGP – 7-3/8" (19 cm)
  PGH – 17" (43 cm)
- 3/4" female inlet NPT
- Exposed diameter: 1-3/4" (4 cm)

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

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

I-20 Ultra

MODELS
I-10 – Shrub
I-20 – 4" Pop-up (10 cm)
I-20-6P – 6" Pop-up (15 cm)
I-20-HP – 12" Pop-up (30 cm)

DIMENSIONS
- Overall height:
  I-10 – 7-3/4" (20 cm)
  I-20 – 7-3/8" (19 cm)
  I-20-6P – 9-7/8" (25 cm)
  I-20-HP – 17" (43 cm)
- 3/4" female inlet NPT
- Exposed diameter: 1-3/4" (4 cm)

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

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

SPECIFICATION BUILDER

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

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

KEY TO FEATURES:
ADJ = Adjustable Arc without Check Valve
360 = Full-Circle without Check Valve
ADV = Adjustable Arc with Check Valve
36V = Full-Circle with Check Valve
ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve
36S = Full-Circle, Stainless Steel Riser, with Check Valve
ARV = Adjustable Arc, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve
ARS = Adjustable Arc, Reclaimed Water, Stainless Steel Riser, with Check Valve
3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
1.0	2.0	200	9.1	0.20	3.3	5	5
	2.5	250	9.4	0.22	3.7	5	6
	3.0	300	9.4	0.25	4.1	6	6
	3.5	**350**	**9.4**	**0.27**	**4.5**	**6**	**7**
	4.0	400	9.8	0.29	4.8	6	7
	4.5	450	9.8	0.31	5.1	6	7
1.5	2.0	200	9.8	0.27	4.4	6	6
	2.5	250	9.8	0.30	5.0	6	7
	3.0	300	10.1	0.34	5.6	7	8
	3.5	**350**	**10.4**	**0.37**	**6.2**	**7**	**8**
	4.0	400	10.4	0.40	6.6	7	9
	4.5	450	10.4	0.43	7.1	8	9
2.0	2.0	200	9.8	0.36	5.9	7	9
	2.5	250	9.8	0.39	6.5	8	10
	3.0	300	10.4	0.43	7.2	8	9
	3.5	**350**	**11.0**	**0.46**	**7.7**	**8**	**9**
	4.0	400	11.0	0.49	8.1	8	9
	4.5	450	11.0	0.51	8.6	9	10
3.0	2.0	200	10.4	0.45	7.5	8	10
	2.5	250	10.4	0.51	8.5	9	11
	3.0	300	11.0	0.57	9.4	9	11
	3.5	**350**	**11.6**	**0.61**	**10.2**	**9**	**11**
	4.0	400	11.6	0.66	10.9	10	11
	4.5	450	11.6	0.70	11.6	10	12
3.5	2.0	200	10.4	0.58	9.7	11	12
	2.5	250	11.0	0.65	10.8	11	12
	3.0	300	11.3	0.72	12.0	11	13
	3.5	**350**	**11.6**	**0.78**	**12.9**	**12**	**13**
	4.0	400	11.6	0.83	13.8	12	14
	4.5	450	11.6	0.88	14.6	13	15
4.0	2.0	200	11.3	0.71	11.9	11	13
	2.5	250	11.6	0.80	13.3	12	14
	3.0	300	11.9	0.89	14.8	13	15
	3.5	**350**	**12.5**	**0.96**	**16.0**	**12**	**14**
	4.0	400	12.5	1.03	17.1	13	15
	4.5	450	12.8	1.09	18.2	13	15
6.0	2.0	200	10.7	0.94	15.7	17	19
	2.5	250	11.3	1.05	17.5	17	19
	3.0	300	11.9	1.17	19.4	16	19
	3.5	**350**	**13.1**	**1.26**	**21.0**	**15**	**17**
	4.0	400	13.1	1.34	22.4	16	18
	4.5	450	13.4	1.43	23.8	16	18
8.0	2.0	200	11.9	1.14	19.0	16	19
	2.5	250	12.5	1.29	21.4	16	19
	3.0	300	13.1	1.44	24.0	17	19
	3.5	350	13.4	1.56	26.1	17	20
	4.0	**400**	**13.7**	**1.68**	**28.0**	**18**	**21**
	4.5	450	14.3	1.79	29.9	17	20

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
.50 SR	2.0	200	5.2	0.08	1.3	6	7
	2.5	250	5.2	0.09	1.5	7	8
	3.0	300	5.2	0.10	1.7	8	9
	3.5	**350**	**5.5**	**0.12**	**1.9**	**8**	**9**
	4.0	400	5.5	0.13	2.1	8	10
	4.5	450	5.5	0.14	2.3	9	10
1.0 SR	2.0	200	5.2	0.17	2.9	13	15
	2.5	250	5.2	0.19	3.2	14	17
	3.0	300	5.2	0.21	3.6	16	18
	3.5	**350**	**5.5**	**0.23**	**3.8**	**15**	**18**
	4.0	400	5.5	0.25	4.1	16	19
	4.5	450	5.5	0.26	4.3	17	20
2.0 SR	2.0	200	5.2	0.31	5.2	23	27
	2.5	250	5.2	0.36	6.0	27	31
	3.0	300	5.2	0.41	6.9	31	35
	3.5	**350**	**5.5**	**0.45**	**7.6**	**30**	**35**
	4.0	400	5.5	0.49	8.2	33	38
	4.5	450	5.5	0.53	8.9	35	41

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
.75 SR	2.0	200	7.0	0.13	2.2	5	6
	2.5	250	7.0	0.15	2.4	6	7
	3.0	300	7.3	0.16	2.7	6	7
	3.5	**350**	**7.6**	**0.17**	**2.9**	**6**	**7**
	4.0	400	7.6	0.19	3.1	6	7
	4.5	450	7.6	0.20	3.3	7	8
1.5 SR	2.0	200	7.0	0.25	4.1	10	12
	2.5	250	7.0	0.28	4.6	11	13
	3.0	300	7.3	0.31	5.2	12	13
	3.5	**350**	**7.6**	**0.34**	**5.6**	**12**	**13**
	4.0	400	7.6	0.36	6.0	12	14
	4.5	450	7.6	0.39	6.4	13	15
3.0 SR	2.0	200	7.0	0.56	9.3	23	26
	2.5	250	7.0	0.60	10.0	24	28
	3.0	300	7.3	0.64	10.7	24	28
	3.5	**350**	**7.6**	**0.67**	**11.2**	**23**	**27**
	4.0	400	7.6	0.70	11.7	24	28
	4.5	450	7.6	0.73	12.1	25	29

Note: All precipitation rates are 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 – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
2.0 LA	2.0	200	7.6	0.36	6.0	12	14
	2.5	250	7.9	0.40	6.7	13	15
	3.0	300	8.2	0.45	7.4	13	15
	3.5	**350**	**8.5**	**0.48**	**8.0**	**13**	**15**
	4.0	400	8.8	0.52	8.6	13	15
	4.5	450	9.1	0.55	9.1	13	15
2.5 LA	2.0	200	8.2	0.47	7.9	14	16
	2.5	250	8.8	0.53	8.8	14	16
	3.0	300	9.4	0.59	9.8	13	15
	3.5	**350**	**10.1**	**0.64**	**10.6**	**13**	**15**
	4.0	400	10.4	0.68	11.3	13	15
	4.5	450	10.7	0.72	12.0	13	15
3.5 LA	2.0	200	8.8	0.62	10.3	16	18
	2.5	250	9.1	0.68	11.4	16	19
	3.0	300	10.1	0.75	12.5	15	17
	3.5	**350**	**10.7**	**0.80**	**13.3**	**14**	**16**
	4.0	400	11.0	0.85	14.1	14	16
	4.5	450	11.3	0.89	14.8	14	16
4.5 LA	2.0	200	8.8	0.76	12.7	19	23
	2.5	250	9.1	0.84	14.1	20	23
	3.0	300	10.1	0.93	15.5	18	21
	3.5	**350**	**10.7**	**1.00**	**16.6**	**18**	**20**
	4.0	400	11.0	1.06	17.6	18	20
	4.5	450	11.3	1.12	18.6	18	20

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
10	2.0	200	11.9	1.60	26.7	23	26
	2.5	250	12.5	1.80	30.0	23	27
	3.0	300	12.8	2.01	33.5	25	28
	3.5	350	13.1	2.18	36.3	25	29
	4.0	**400**	**13.7**	**2.34**	**39.0**	**25**	**29**
	4.5	450	14.0	2.49	41.5	25	29
13	2.0	200	12.2	2.08	34.6	28	32
	2.5	250	12.8	2.34	38.9	29	33
	3.0	300	13.1	2.61	43.4	30	35
	3.5	350	13.4	2.83	47.1	31	36
	4.0	**400**	**13.7**	**3.03**	**50.5**	**32**	**37**
	4.5	450	14.0	3.23	53.8	33	38

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
6.0 LA	2.0	200	9.4	0.94	15.6	21	24
	2.5	250	10.1	1.07	17.8	21	24
	3.0	300	10.7	1.20	20.0	21	24
	3.5	350	11.3	1.31	21.9	21	24
	4.0	**400**	**11.6**	**1.42**	**23.6**	**21**	**24**
	4.5	450	11.9	1.52	25.3	21	25
8.0 LA	2.0	200	10.7	1.28	21.3	22	26
	2.5	250	11.3	1.44	24.0	23	26
	3.0	300	11.6	1.61	26.9	24	28
	3.5	350	11.9	1.76	29.3	25	29
	4.0	**400**	**12.5**	**1.89**	**31.5**	**24**	**28**
	4.5	450	12.5	2.01	33.6	26	30

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

NEW!

I-20/I-20 Blue Standard Nozzle Performance Data – Metric

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

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

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I-25/31 Plus

MODELS

I-25, I-31* – 3-1/2" (9 cm) Commercial duty rotor
I-25 HS, I-31 HS* – 3-1/2" (9 cm) High-speed commercial duty rotor
I-25-6P, I-31-6P* – 5-1/2" (14 cm) Commercial duty rotor
I-25-6P HS, I-31-6P HS* – 5-1/2" (14 cm) High-speed commercial duty rotor
*metric model number (bsp threads)

DIMENSIONS

- Overall height:
  I-25, I-31, I-25 HS, I-31 HS – 7-7/8" (20 cm)
  I-25-6P, I-31-6P, I-25-6P HS, I-31-6P HS – 10-1/4" (26 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 1-7/8" (5 cm)

OPERATING SPECIFICATIONS

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

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS
I-25, **I-31*** = 3-1/2" Pop-up	ADV, 36V, **ADS**, 36S, ARV, 3RV, ARS, 3RS, ADSHS, 36SHS	**XX** = Standard Set of 5 Nozzles **04 – 28** = Factory-Installed Nozzle Number
I-25-6P, I-31-6P* = 5-1/2" Pop-up * Metric Model Number (BSP Threaded Inlet)	ADV, 36V, ADS, 36S, ARV, 3RV, ARS, 3RS, ADSHS, 36SHS	

EXAMPLE: **I-25** | **ADS** | **25** → **I-25 - ADS - 25**

KEY TO FEATURES:
ADV = Adjustable Arc with Check Valve
36V = Full-Circle with Check Valve
ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve
36S = Full-Circle, Stainless Steel Riser, with Check Valve
ARV = Adjustable Arc, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve
ARS = Adjustable Arc, Reclaimed Water, Stainless Steel Riser, with Check Valve
3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve
ADSHS = ADS High-Speed Version
36SHS = 36S High-Speed Version

I-31 *Plus* Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4 Yellow	2.5	250	11.9	0.82	13.6	12	13
	3.0	300	12.2	0.91	15.2	12	14
	3.5	350	12.5	0.98	16.4	13	15
	4.0	400	12.5	1.05	17.5	13	16
	4.5	450	12.8	1.11	18.6	14	16
	5.0	500	13.1	1.18	19.6	14	16
5 White	2.5	250	12.8	0.95	15.9	12	13
	3.0	300	13.1	1.04	17.3	12	14
	3.5	350	13.4	1.11	18.5	12	14
	4.0	400	13.4	1.17	19.6	13	15
	4.5	450	13.7	1.24	20.6	13	15
	5.0	500	14.0	1.29	21.5	13	15
7 Orange*	2.5	250	13.4	1.44	24.0	16	19
	3.0	300	14.0	1.54	25.6	16	18
	3.5	350	14.3	1.61	26.9	16	18
	4.0	400	14.3	1.68	28.0	16	19
	4.5	450	14.6	1.75	29.1	16	19
	5.0	500	14.9	1.81	30.1	16	19
8 Lt Brown	2.5	250	14.0	1.65	27.5	17	19
	3.0	300	14.3	1.81	30.1	18	20
	3.5	350	14.9	1.94	32.3	17	20
	4.0	400	15.2	2.05	34.2	18	20
	4.5	450	15.2	2.16	36.0	19	22
	5.0	500	15.5	2.27	37.8	19	22
10 Lt. Green*	3.0	300	15.2	2.15	35.8	18	21
	3.5	350	15.5	2.32	38.6	19	22
	4.0	400	15.8	2.48	41.3	20	23
	4.5	450	16.2	2.63	43.9	20	23
	5.0	500	16.2	2.78	46.3	21	25
	5.5	550	16.5	2.94	48.9	22	25
13 Lt. Blue	3.0	300	15.8	2.38	39.6	19	22
	3.5	350	16.2	2.57	42.8	20	23
	4.0	400	16.5	2.75	45.7	20	23
	4.5	450	16.5	2.91	48.5	21	25
	5.0	500	16.8	3.07	51.2	22	25
	5.5	550	16.8	3.24	54.0	23	27
15 Gray*	3.0	300	16.8	2.86	47.7	20	24
	3.5	350	17.1	3.05	50.8	21	24
	4.0	400	17.4	3.22	53.7	21	25
	4.5	450	17.4	3.38	56.3	22	26
	5.0	500	17.4	3.53	58.8	23	27
	5.5	550	17.7	3.69	61.5	24	27
18 Red	3.0	300	17.4	3.08	51.4	20	24
	3.5	350	17.7	3.31	55.2	21	24
	4.0	400	18.0	3.52	58.7	22	25
	4.5	450	18.3	3.72	62.0	22	26
	5.0	500	18.9	3.91	65.2	22	25
	5.5	550	19.2	4.11	68.5	22	26
20 Dk. Brown*	4.0	400	18.6	3.97	66.2	23	27
	4.5	450	18.9	4.20	70.1	24	27
	5.0	500	19.2	4.42	73.7	24	28
	5.5	550	19.5	4.66	77.7	25	28
	6.0	600	19.8	4.86	81.0	25	29
	6.5	650	20.1	5.05	84.2	25	29
23 Dk. Green	4.0	400	19.2	4.88	81.3	26	31
	4.5	450	19.5	5.18	86.3	27	31
	5.0	500	19.8	5.47	91.1	28	32
	5.5	550	20.1	5.78	96.3	29	33
	6.0	600	20.1	6.04	100.6	30	34
	6.5	650	20.4	6.29	104.8	30	35
25 Dk. Blue*	4.0	400	19.8	5.23	87.1	27	31
	4.5	450	20.1	5.58	93.1	28	32
	5.0	500	20.4	5.92	98.7	28	33
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.60	110.0	30	34
	6.5	650	21.3	6.90	115.1	30	35
28 Black	4.5	450	20.1	5.93	98.8	29	34
	5.0	500	20.7	6.21	103.5	29	33
	5.5	550	21.3	6.52	108.6	29	33
	6.0	600	21.3	6.77	112.8	30	34
	6.5	650	21.6	7.01	116.9	30	35
	7.0	700	21.6	7.24	120.7	31	36

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

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
4 Yellow	2.5	250	11.0	0.81	13.6	14	16
	3.0	300	11.3	0.91	15.1	14	16
	3.5	350	11.6	0.99	16.4	15	17
	4.0	400	11.6	1.06	17.6	16	18
	4.5	450	11.6	1.13	18.8	17	19
	5.0	500	11.9	1.19	19.9	17	19
5 White	2.5	250	11.3	0.93	15.5	15	17
	3.0	300	11.6	1.04	17.3	16	18
	3.5	350	11.9	1.13	18.9	16	18
	4.0	400	12.2	1.22	20.3	16	19
	4.5	450	12.2	1.30	21.6	17	20
	5.0	500	12.5	1.38	22.9	18	20
7 Orange*	2.5	250	11.9	1.32	22.0	19	22
	3.0	300	12.2	1.46	24.3	20	23
	3.5	350	12.5	1.57	26.2	20	23
	4.0	400	12.8	1.68	27.9	20	24
	4.5	450	13.1	1.78	29.6	21	24
	5.0	500	13.4	1.87	31.1	21	24
8 Lt Brown	2.5	250	12.5	1.54	25.7	20	23
	3.0	300	12.8	1.72	28.6	21	24
	3.5	350	13.1	1.86	31.0	22	25
	4.0	400	13.4	2.00	33.3	22	26
	4.5	450	13.4	2.13	35.4	24	27
	5.0	500	13.7	2.25	37.5	24	28
10 Lt. Green*	3.0	300	13.7	2.15	35.8	23	26
	3.5	350	14.0	2.32	38.6	24	27
	4.0	400	14.3	2.48	41.3	24	28
	4.5	450	14.6	2.63	43.9	25	28
	5.0	500	14.9	2.78	46.3	25	29
	5.5	550	15.2	2.94	48.9	25	29
13 Lt. Blue	3.0	300	14.3	2.38	39.6	23	27
	3.5	350	14.6	2.57	42.8	24	28
	4.0	400	14.9	2.75	45.7	25	28
	4.5	450	15.2	2.91	48.5	25	29
	5.0	500	15.5	3.07	51.2	25	29
	5.5	550	15.5	3.24	54.0	27	31
15 Gray*	3.0	300	14.6	2.86	47.7	27	31
	3.5	350	14.9	3.05	50.8	27	32
	4.0	400	15.2	3.22	53.7	28	32
	4.5	450	15.5	3.38	56.3	28	32
	5.0	500	16.2	3.53	58.8	27	31
	5.5	550	16.5	3.69	61.5	27	31
18 Red	3.0	300	14.9	3.08	51.4	28	32
	3.5	350	15.2	3.31	55.2	29	33
	4.0	400	15.5	3.52	58.7	29	34
	4.5	450	16.2	3.72	62.0	29	33
	5.0	500	16.8	3.91	65.2	28	32
	5.5	550	17.4	4.11	68.5	27	31
20 Dk. Brown*	4.0	400	16.2	3.97	66.2	30	35
	4.5	450	16.5	4.20	70.1	31	36
	5.0	500	17.1	4.42	73.7	30	35
	5.5	550	17.7	4.66	77.7	30	34
	6.0	600	17.7	4.86	81.0	31	36
	6.5	650	18.0	5.05	84.2	31	36
23 Dk. Green	4.0	400	17.1	4.88	81.3	33	39
	4.5	450	17.4	5.18	86.3	34	40
	5.0	500	17.7	5.47	91.1	35	40
	5.5	550	18.3	5.78	96.3	35	40
	6.0	600	18.3	6.04	100.6	36	42
	6.5	650	18.6	6.29	104.8	36	42
25 Dk. Blue*	4.0	400	17.7	5.23	87.1	33	39
	4.5	450	18.3	5.58	93.1	33	39
	5.0	500	18.9	5.92	98.7	33	38
	5.5	550	19.5	6.29	104.9	33	38
	6.0	600	19.8	6.60	110.0	34	39
	6.5	650	20.1	6.90	115.1	34	39
28 Black	4.5	450	18.0	5.93	98.8	37	42
	5.0	500	18.3	6.21	103.5	37	43
	5.5	550	18.9	6.52	108.6	36	42
	6.0	600	19.5	6.77	112.8	36	41
	6.5	650	19.8	7.01	116.9	36	41
	7.0	700	20.4	7.24	120.7	35	40

* 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.

OPTIONS AVAILABLE

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

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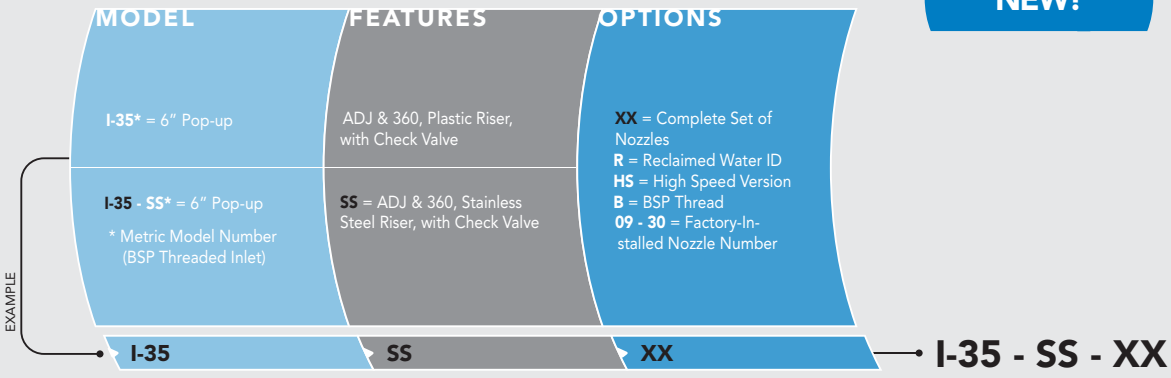
SPECIFICATION BUILDER



NEW!

I-35 Sierra

MODELS

- I-35 – 5-1/2" (14 cm) Plastic riser, Commercial duty rotor
- I-35-SS – 5-1/2" (14 cm) Stainless steel riser, Commercial duty rotor

DIMENSIONS

- Overall height: I-35, I-35-SS, I-35-HS – 10-3/8" (26 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 1-7/8" (5 cm)

OPERATING SPECIFICATIONS

- Discharge rate: 7.7 to 31.5 GPM (1.65 to 7.24 m3/hr; 27.5 to 120.7 l/min)
- Radius for I-35: 47' to 71' (14.0 to 21.6 m)
- Radius for I-35-HS: 42' to 67' (12.5 to 20.4 m)
- Recommended pressure range: 40 to 100 PSI (2.5 to 7.0 bars; 248 to 696 kPa)
- Operating pressure range: 40 to 100 PSI (2.5 to 7.0 bars; 248 to 696 kPa)
- Precipitation rates: approximately .67" to 1.2" (17 to 31 mm) per hour
- Nozzle trajectory: 25°

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

OPTIONS AVAILABLE

- For quick, light wetdowns of sports fields or any areas that require dust control, Hunter offers the high-speed version, I-35 HS, that cuts full circle rotation time from three minutes down to one
- Reclaimed water cover
- Factory-installed nozzles

I-35 Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
9 Light Brown	2.5	250	14.0	1.65	27.5	17	19
	3.0	300	14.3	1.81	30.1	18	20
	3.5	350	14.9	1.94	32.3	17	20
	4.0	400	15.2	2.05	34.2	18	20
	4.5	450	15.2	2.16	36.0	19	22
	5.0	500	15.5	2.27	37.8	19	22
12 Light Blue	3.0	300	15.8	2.38	39.6	19	22
	3.5	350	16.2	2.57	42.8	20	23
	4.0	400	16.5	2.75	45.7	20	23
	4.5	450	16.5	2.91	48.5	21	25
	5.0	500	16.8	3.07	51.2	22	25
	5.5	550	16.8	3.24	54.0	23	27
15 Grey	3.0	300	16.8	2.86	47.7	20	24
	3.5	350	17.1	3.05	50.8	21	24
	4.0	400	17.4	3.22	53.7	21	25
	4.5	450	17.4	3.38	56.3	22	26
	5.0	500	17.4	3.53	58.8	23	27
	5.5	550	17.7	3.69	61.5	24	27
18 Red	3.0	300	17.4	3.08	51.4	20	24
	3.5	350	17.7	3.31	55.2	21	24
	4.0	400	18.0	3.52	58.7	22	25
	4.5	450	18.3	3.72	62.0	22	26
	5.0	500	18.9	3.91	65.2	22	25
	5.5	550	19.2	4.11	68.5	22	26
21 Dark Brown	4.0	400	18.6	3.97	66.2	23	27
	4.5	450	18.9	4.20	70.1	24	27
	5.0	500	19.2	4.42	73.7	24	28
	5.5	550	19.5	4.66	77.7	25	28
	6.0	600	19.8	4.86	81.0	25	29
	6.5	650	20.1	5.05	84.2	25	29
24 Dark Green	4.0	400	19.2	4.88	81.3	26	31
	4.5	450	19.5	5.18	86.3	27	31
	5.0	500	19.8	5.47	91.1	28	32
	5.5	550	20.1	5.78	96.3	29	33
	6.0	600	20.1	6.04	100.6	30	34
	6.5	650	20.4	6.29	104.8	30	35
27 Dark Blue	4.0	400	19.8	5.23	87.1	27	31
	4.5	450	20.1	5.58	93.1	28	32
	5.0	500	20.4	5.29	98.7	28	33
	5.5	550	21.0	6.29	104.9	28	33
	6.0	600	21.0	6.60	110.0	30	34
	6.5	650	21.3	6.90	115.1	30	35
30 Black	4.5	450	20.1	5.93	98.8	29	34
	5.0	500	20.7	6.21	103.5	29	33
	5.5	550	21.3	6.52	108.6	29	33
	6.0	600	21.3	6.77	112.8	30	34
	6.5	650	21.6	7.01	116.9	30	35
	7.0	700	21.6	7.24	120.7	31	36

I-35 High-Speed Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
9 Light Brown	2.5	250	12.5	1.65	27.5	17	24
	3.0	300	12.8	1.81	30.1	18	25
	3.5	350	13.1	1.94	32.3	17	26
	4.0	400	13.4	2.05	34.2	18	26
	4.5	450	13.4	2.16	36.0	19	28
	5.0	500	13.7	2.27	37.8	19	28
12 Light Blue	3.0	300	14.3	2.38	39.6	23	27
	3.5	350	14.6	2.57	42.8	24	28
	4.0	400	14.9	2.75	45.7	25	28
	4.5	450	15.2	2.91	48.5	25	29
	5.0	500	15.5	3.07	51.2	25	29
	5.5	550	15.5	3.24	54.0	27	31
15 Grey	3.0	300	14.6	2.86	47.7	27	31
	3.5	350	14.9	3.05	50.8	27	32
	4.0	400	15.2	3.22	53.7	28	32
	4.5	450	15.5	3.38	56.3	28	32
	5.0	500	16.2	3.53	58.8	27	31
	5.5	550	16.5	3.69	61.5	27	31
18 Red	3.5	300	14.9	3.08	51.4	28	32
	4.0	350	15.2	3.31	55.2	29	33
	4.5	400	15.5	3.52	58.7	29	34
	4.5	450	16.2	3.72	62.0	29	33
	5.0	500	16.8	3.91	65.2	28	32
	5.5	550	17.4	4.11	68.5	27	31
21 Dark Brown	4.0	400	16.2	3.97	66.2	30	35
	4.5	450	16.5	4.20	70.1	31	36
	5.0	500	17.1	4.42	73.7	30	35
	5.5	550	17.7	4.66	77.7	30	34
	6.0	600	17.7	4.86	81.0	31	36
	6.5	650	18.0	5.05	84.2	31	36
24 Dark Green	4.0	400	17.1	4.88	81.3	33	39
	4.5	450	17.4	5.18	86.3	34	40
	5.0	500	17.7	5.47	91.1	35	40
	5.5	550	18.3	5.78	96.3	35	40
	6.0	600	18.3	6.04	100.6	36	42
	6.5	650	18.6	6.29	104.8	36	42
27 Dark Blue	4.0	400	17.7	5.23	87.1	33	39
	4.5	450	18.3	5.58	93.1	33	39
	5.0	500	18.9	5.29	98.7	33	38
	5.5	550	19.5	6.29	104.9	33	38
	6.0	600	19.8	6.60	110.0	34	39
	6.5	650	20.1	6.90	115.1	34	39
30 Black	4.5	450	18.0.	5.93	98.8	37	42
	5.0	500	18.3	6.21	103.5	37	43
	5.5	550	18.9	6.52	108.6	26	42
	6.0	600	19.5	6.77	112.8	36	41
	6.5	650	19.8	7.01	116.9	36	41
	7.0	700	20.4	7.24	120.7	35	40

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I-40/41 Group

MODELS
I-40, I-41* – 4" Heavy-duty rotor
I-42, I-43* – 4" High-speed heavy-duty rotor
I-40-6P, I-41-6P* – 5-1/2" Heavy-duty rotor
I-42-6P, I-43-6P* – 5-1/2" High-speed heavy-duty rotor
*metric model number (BSP threads)

DIMENSIONS
- I-40, I-41, I-42, I-43
  Overall height: 7-7/8" (20 cm)
- I-40-6P, I-41-6P, I-42-6P, I-43-6P
  Overall height: 10-1/4" (26 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 2" (5 cm)

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

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

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS
I-40, **I-41*** = 3-1/2" Pop-up **I-42**, **I-43*** = High-Speed	**ADS**, **36S**, **ARS**, **3RS**, **36S-ON**, **3RS-ON** **ADS**, **36S**, **ARS**, **3RS**	**XX** = Standard Set of 5 Nozzles **40 – 45** = Factory-Installed Nozzle Number (Models ADS, 36S, ARS, 3RS) **15 – 28** = Factory-Installed Nozzle Number (Models 36S-0N, 3RS-0N)
I-40-6P, **I-41-6P*** = 5-1/2" Pop-up	**ADS**, **36S**, **ARS**, **3RS**, **36S-ON**, **3RS-ON**	
I-42-6P, **I-43-6P*** = 5-1/2" Pop-up * Metric Model Number (BSP Threaded Inlet)	**ADS**, **36S**, **ARS**, **3RS**	

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

KEY TO FEATURES:
ADS = Adjustable Arc, Stainless Steel Riser, with Check Valve
36S = Full-Circle, Stainless Steel Riser, with Check Valve
ARS = Adjustable with Check Valve, Reclaimed Water and Stainless Steel Riser
3RS = Full-Circle, Reclaimed Water, Stainless Steel Riser, with Check Valve
36S-ON = Full-Circle, Dual Opposing Nozzle, Stainless Steel Riser, with Check Valve
3RS-ON = Full-Circle, Dual Opposing Nozzle, Reclaimed Water ID, Stainless Steel Riser, with Check Valve

I-41 Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
40	2.5	250	13.4	1.52	25.4	17	20
	3.0	300	13.7	1.68	28.0	18	21
	3.5	350	14.0	1.80	30.0	18	21
	4.0	400	14.0	1.92	32.0	20	23
	4.5	450	14.0	2.03	33.8	21	24
	5.0	500	14.3	2.13	35.5	21	24
41	3.0	300	14.9	2.16	36.0	19	22
	3.5	350	15.2	2.33	38.9	20	23
	4.0	400	15.5	2.49	41.5	21	24
	4.5	450	15.5	2.64	44.1	22	25
	5.0	500	15.8	2.79	46.5	22	26
	5.5	550	16.2	2.95	49.1	23	26
42	3.0	300	15.2	2.37	39.4	20	24
	3.5	350	15.5	2.54	42.4	21	24
	4.0	400	16.2	2.71	45.2	21	24
	4.5	450	16.5	2.87	47.8	21	24
	5.0	500	16.8	3.01	50.2	21	25
	5.5	550	17.1	3.17	52.9	22	25
43	3.0	300	16.8	2.87	47.9	20	24
	3.5	350	17.1	3.11	51.8	21	25
	4.0	400	17.4	3.33	55.6	22	26
	4.5	450	17.7	3.55	59.1	23	26
	5.0	500	18.0	3.75	62.4	23	27
	5.5	550	18.6	3.97	66.1	23	26
44	4.0	400	19.2	4.47	74.4	24	28
	4.5	450	19.5	4.75	79.1	25	29
	5.0	500	19.8	5.02	83.6	26	30
	5.5	550	20.1	5.31	88.5	26	30
	6.0	600	20.1	5.56	92.6	27	32
	6.5	650	20.4	5.80	96.6	28	32
45	4.0	400	20.1	5.07	84.4	25	29
	4.5	450	20.4	5.38	89.7	26	30
	5.0	500	20.7	5.68	94.7	26	31
	5.5	550	21.0	6.01	100.2	27	31
	6.0	600	21.3	6.28	104.7	28	32
	6.5	650	21.6	6.55	109.1	28	32

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

I-43 Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
40	2.5	250	12.2	1.52	25.4	20	24
	3.0	300	12.5	1.68	28.0	21	25
	3.5	350	12.8	1.80	30.0	22	25
	4.0	400	12.8	1.92	32.0	23	27
	4.5	450	13.1	2.03	33.8	24	27
41	3.0	300	13.1	2.16	36.0	25	29
	3.5	350	13.4	2.33	38.9	26	30
	4.0	400	13.4	2.49	41.5	28	32
	4.5	450	13.4	2.64	44.1	29	34
	5.0	500	13.7	2.79	46.5	30	34
	5.5	550	14.0	2.95	49.1	30	35
42	3.0	300	13.7	2.37	39.4	25	29
	3.5	350	14.0	2.54	42.4	26	30
	4.0	400	14.3	2.71	45.2	26	30
	4.5	450	14.6	2.87	47.8	27	31
	5.0	500	14.9	3.01	50.2	27	31
	5.5	550	15.2	3.17	52.9	27	32
43	3.0	300	14.9	2.87	47.9	26	30
	3.5	350	15.5	3.11	51.8	26	30
	4.0	400	15.8	3.33	55.6	27	31
	4.5	450	15.8	3.55	59.1	28	33
	5.0	500	15.8	3.75	62.4	30	34
	5.5	550	16.2	3.97	66.1	30	35
44	4.0	400	17.7	4.47	74.4	29	33
	4.5	450	17.7	4.75	79.1	30	35
	5.0	500	17.7	5.02	83.6	32	37
	5.5	550	18.3	5.31	88.5	32	37
	6.0	600	18.3	5.56	92.6	33	38
	6.5	650	18.3	5.80	96.6	36	40
45	4.0	400	18.3	5.07	84.4	30	35
	4.5	450	18.6	5.38	89.7	31	36
	5.0	500	18.9	5.68	94.7	32	37
	5.5	550	19.5	6.01	100.2	32	36
	6.0	600	19.8	6.28	104.7	32	37
	6.5	650	19.8	6.55	109.1	33	39

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

I-41 Dual Opposing Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
15 Gray	3.0	300	15.2	2.75	45.8	24	27
	3.5	350	15.8	2.91	48.5	23	27
	4.0	400	16.2	3.06	51.0	23	27
	4.5	450	16.8	3.20	53.3	23	26
	5.0	500	17.1	3.32	55.4	23	26
	5.5	550	17.4	3.46	57.7	23	26
18 Red	3.0	300	17.4	2.90	48.3	19	22
	3.5	350	17.7	3.15	52.5	20	23
	4.0	400	18.0	3.38	56.4	21	24
	4.5	450	18.0	3.61	60.1	22	26
	5.0	500	18.3	3.82	63.7	23	26
	5.5	550	18.9	4.05	67.5	23	26
20 Dk. Brown	4.0	400	18.9	4.26	71.1	24	28
	4.5	450	19.2	4.54	75.6	25	28
	5.0	500	19.5	4.80	80.0	25	29
	5.5	550	20.1	5.08	84.7	25	29
	6.0	600	19.8	5.32	88.7	27	31
	6.5	650	20.1	5.55	92.5	27	32
23 Dk. Green	4.0	400	19.5	4.55	75.8	24	28
	4.5	450	19.8	4.85	80.8	25	29
	5.0	500	20.1	5.14	85.6	25	29
	5.5	550	20.4	5.45	90.8	26	30
	6.0	600	20.7	5.71	95.1	27	31
	6.5	650	20.7	5.96	99.4	28	32
25 Dk. Blue*	4.0	400	20.1	4.92	82.1	24	28
	4.5	450	20.4	5.23	87.2	25	29
	5.0	500	20.7	5.52	92.0	26	30
	5.5	550	21.0	5.84	97.3	26	30
	6.0	600	21.3	6.10	101.7	27	31
	6.5	650	21.3	6.36	106.0	28	32
28 Black	4.5	450	21.0	6.38	106.4	29	33
	5.0	500	21.3	6.68	111.3	29	34
	5.5	550	21.9	7.00	116.7	29	34
	6.0	600	22.3	7.27	121.1	29	34
	6.5	650	22.6	7.52	125.3	30	34
	7.0	700	23.2	7.76	129.4	29	33

* Factory-installed nozzle

Note: All precipitation rates calculated for 360 degree operation.

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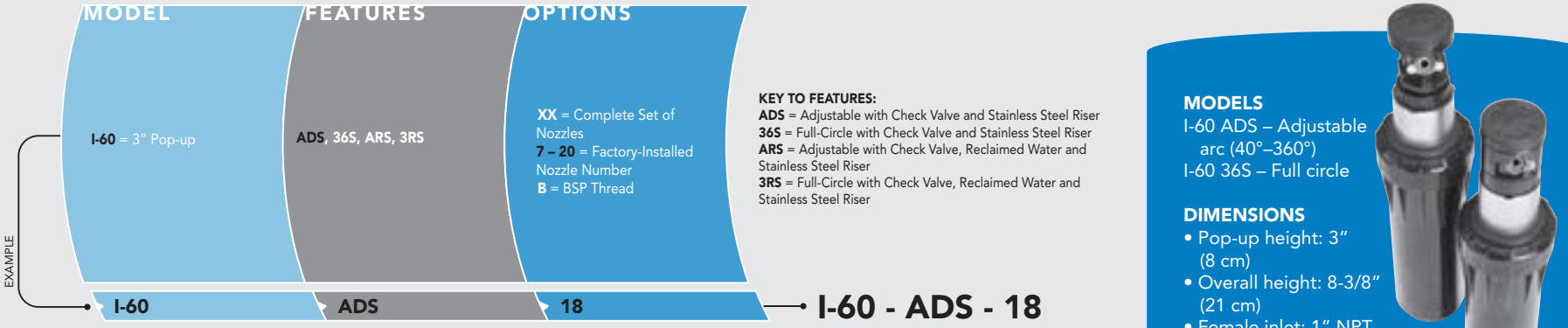
I-60



KEY TO FEATURES:
ADS = Adjustable with Check Valve and Stainless Steel Riser
36S = Full-Circle with Check Valve and Stainless Steel Riser
ARS = Adjustable with Check Valve, Reclaimed Water and Stainless Steel Riser
3RS = Full-Circle with Check Valve, Reclaimed Water and Stainless Steel Riser

I-60 ADS Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
7 Orange	2.5	250	14.9	1.41	23.5	13	15
	3.0	300	15.5	1.53	25.6	13	15
	3.5	350	15.8	1.63	27.2	13	15
	4.0	400	16.5	1.72	28.7	13	15
	4.5	450	16.5	1.80	30.1	13	15
10 Lt. Green	2.5	250	15.8	1.85	30.8	15	17
	3.0	300	16.5	2.02	33.7	15	17
	3.5	350	17.1	2.16	36.0	15	17
	4.0	400	17.7	2.29	38.2	15	17
	4.5	450	17.7	2.41	40.2	15	18
13 Lt. Blue*	2.5	250	16.8	2.27	37.8	16	19
	3.0	300	17.4	2.53	42.1	17	19
	3.5	350	17.7	2.73	45.5	17	20
	4.0	400	18.3	2.93	48.8	17	20
	4.5	450	18.3	3.11	51.8	19	21
15 Gray	2.5	250	17.4	2.70	45.1	18	21
	3.0	300	18.0	2.97	49.5	18	21
	3.5	350	18.3	3.18	53.0	19	22
	4.0	400	18.6	3.38	56.3	20	23
	4.5	450	18.9	3.56	59.4	20	23
18 Red	2.5	250	17.7	3.40	56.7	22	25
	3.0	300	18.3	3.71	61.9	22	26
	3.5	350	18.9	3.96	66.0	22	26
	4.0	400	19.5	4.19	69.8	22	25
	4.5	450	19.8	4.40	73.4	22	26
20 Dk. Brown	2.5	250	18.6	3.82	63.7	22	26
	3.0	300	19.2	4.12	68.7	22	26
	3.5	350	19.5	4.36	72.7	23	26
	4.0	400	19.8	4.58	76.3	23	27
	4.5	450	20.1	4.78	79.7	24	27

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

I-60 36S Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
7 Orange	2.5	250	15.2	1.41	23.5	12	14
	3.0	300	15.8	1.56	26.1	12	14
	3.5	350	16.5	1.69	28.1	12	14
	4.0	400	16.8	1.80	30.1	13	15
	4.5	450	17.4	1.91	31.9	13	15
10 Lt. Green	2.5	250	15.8	1.85	30.8	15	17
	3.0	300	16.5	2.02	33.7	15	17
	3.5	350	17.1	2.16	36.0	15	17
	4.0	400	17.4	2.29	38.2	15	18
	4.5	450	18.0	2.41	40.2	15	17
13 Lt. Blue*	2.5	250	16.8	2.29	38.1	16	19
	3.0	300	17.1	2.55	42.4	17	20
	3.5	350	17.7	2.76	45.9	18	20
	4.0	400	18.0	2.95	49.2	18	21
	4.5	450	18.6	3.14	52.3	18	21
15 Gray	2.5	250	17.4	2.71	45.2	18	21
	3.0	300	17.7	2.98	49.6	19	22
	3.5	350	18.3	3.19	53.2	19	22
	4.0	400	18.6	3.39	56.5	20	23
	4.5	450	18.9	3.57	59.5	20	23
18 Red	2.5	250	17.7	3.39	56.5	22	25
	3.0	300	18.0	3.73	62.2	23	27
	3.5	350	18.9	4.00	66.7	22	26
	4.0	400	19.5	4.26	70.9	22	26
	4.5	450	19.8	4.49	74.9	23	26
20 Dk. Brown	2.5	250	18.6	3.79	63.2	22	25
	3.0	300	18.9	4.13	68.8	23	27
	3.5	350	19.5	4.40	73.3	23	27
	4.0	400	19.8	4.64	77.4	24	27
	4.5	450	20.4	4.87	81.2	23	27

* Factory-installed nozzle
Note: All precipitation rates calculated for 360 degree operation.

MODELS
I-60 ADS – Adjustable arc (40°–360°)
I-60 36S – Full circle

DIMENSIONS
- Pop-up height: 3" (8 cm)
- Overall height: 8-3/8" (21 cm)
- Female inlet: 1" NPT or BSP
- Exposed diameter: 1-3/4" (4.45 cm)

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

I-60 36S
- Discharge rate: 6.5 to 20.8 GPM (1.48 to 4.72 m3/hr; 24.6 to 78.7 l/min)
- Radius: 51' to 67' (15.5 to 20.4 m)
- Recommended pressure range: 40 to 60 PSI (2.8 to 4.1 bars; 275 to 413 kPa)
- Operating pressure range: 20 to 100 PSI (1.4 to 6.9 bars; 137 to 689 kPa)
- Precipitation rates: approximately .25" to .55" (6 mm to 14 mm) per hour
- Nozzle trajectory: 25°

OPTIONS AVAILABLE
- Reclaimed water cover
- Factory-installed nozzles

blue INFO IN THE CATALOG PAGE 27

I-90

MODELS
I-90 36V – Full circle
I-90 ADV – Adjustable arc (40°–360°)

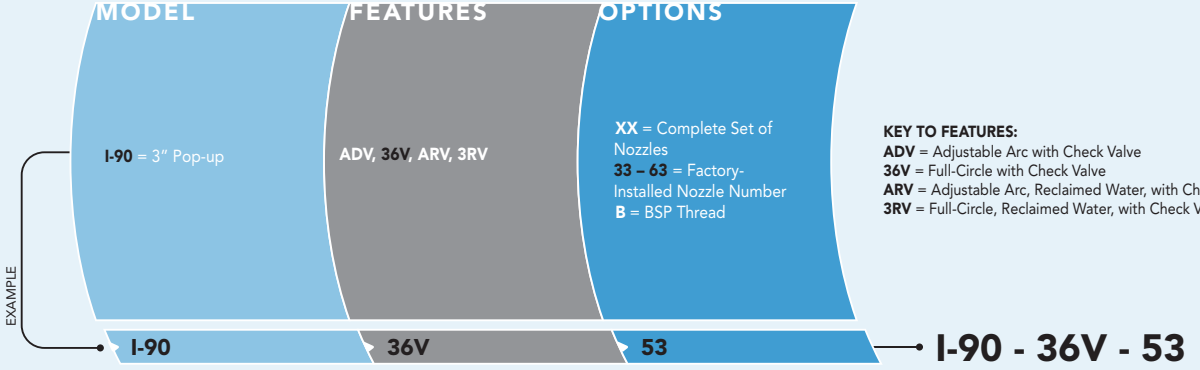
DIMENSIONS
- Pop-up height: 3" (7.6 cm)
- Female inlet: 1-1/2" NPT or BSP
- Exposed diameter: 3-1/2" (8.9 cm)
- Overall height: 11" (28 cm)

OPERATING SPECIFICATIONS
I-90 36V
- Discharge rate: 29.8 to 69.4 GPM (6.77 to 15.76 m3/hr, 113 to 263 l/min)
- Radius: 71' to 96' (21 to 29.3 m)
- Recommended pressure range: 60 to 100 PSI (4.1 to 6.9 bars; 275 to 689 kPa)
- Operating pressure range: 50 to 100 PSI (3.4 to 6.9 bars; 344 to 689 kPa)

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

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

SPECIFICATION BUILDER



KEY TO FEATURES:
ADV = Adjustable Arc with Check Valve
36V = Full-Circle with Check Valve
ARV = Adjustable Arc, Reclaimed Water, with Check Valve
3RV = Full-Circle, Reclaimed Water, with Check Valve

I-90-ADV Nozzle Performance Data – Metric

Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
33 Gray	4.0	400	20.1	6.84	114.1	34	39
	4.5	450	20.4	7.25	120.9	35	40
	5.0	500	20.4	7.64	127.4	37	42
	5.5	550	20.7	8.06	134.4	38	43
	6.0	600	20.7	8.42	140.3	39	45
	6.5	650	21.0	8.75	145.9	40	46
	7.0	700	21.3	9.08	151.3	40	46
38 Red	4.0	400	20.7	7.61	126.8	35	41
	4.5	450	21.0	8.07	134.5	37	42
	5.0	500	21.3	8.51	141.9	37	43
	5.5	550	21.9	8.99	149.8	37	43
	6.0	600	22.3	9.39	156.5	38	44
	6.5	650	22.6	9.77	162.9	38	44
	7.0	700	22.9	10.14	169.0	39	45
43 Dk. Brown	4.0	400	21.0	8.72	145.4	39	46
	4.5	450	21.3	9.18	153.0	40	47
	5.0	500	21.6	9.62	160.2	41	47
	5.5	550	21.9	10.08	168.0	42	48
	6.0	600	21.9	10.47	174.5	43	50
	6.5	650	22.3	10.84	180.7	44	51
	7.0	700	22.3	11.20	186.6	45	52
48 Dk. Green	4.0	400	21.6	9.73	162.2	42	48
	4.5	450	22.3	10.29	171.6	42	48
	5.0	500	22.9	10.83	180.4	41	48
	5.5	550	23.5	11.41	190.1	41	48
	6.0	600	23.8	11.89	198.1	42	49
	6.5	650	24.1	12.35	205.8	43	49
	7.0	700	24.7	12.79	213.2	42	48
53 Dk. Blue*	4.0	400	22.6	9.97	166.2	39	45
	4.5	450	23.2	10.65	177.5	40	46
	5.0	500	24.1	11.29	188.2	39	45
	5.5	550	24.7	12.00	200.0	39	45
	6.0	600	25.6	12.59	209.9	38	44
	6.5	650	26.2	13.17	219.4	38	44
	7.0	700	26.2	13.72	228.7	40	46
63 Black**	4.0	400	23.2	12.85	241.2	48	55
	4.5	450	24.4	13.42	223.6	45	52
	5.0	500	25.6	13.95	232.5	43	49
	5.5	550	26.2	14.52	241.9	42	49
	6.0	600	26.5	14.98	249.7	43	49
	6.5	650	26.8	15.43	257.1	43	50
	7.0	700	27.4	15.85	264.2	42	49

* Factory-installed nozzle
** Preliminary performance data
Note: All precipitation rates are calculated for 180-degree operation. For the precipitation rate for a 360-degree sprinkler, divide by 2.

I-90-36V Nozzle Performance Data – Metric

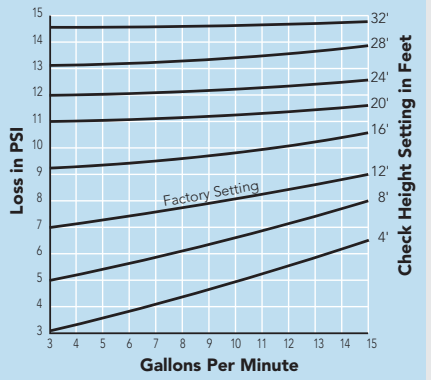
Nozzle	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
33 Gray	4.0	400	21.3	6.65	110.8	29	34
	4.5	450	21.9	7.05	117.4	29	34
	5.0	500	22.6	7.43	123.7	29	34
	5.5	550	23.2	7.84	130.6	29	34
	6.0	600	23.5	8.18	136.3	30	34
	6.5	650	23.8	8.51	141.8	30	35
	7.0	700	24.4	8.83	147.1	30	34
38 Red	4.0	400	22.3	7.45	124.2	30	35
	4.5	450	22.9	7.89	131.4	30	35
	5.0	500	23.8	8.29	138.2	29	34
	5.5	550	24.1	8.74	145.6	30	35
	6.0	600	24.1	9.10	151.7	31	36
	6.5	650	24.4	9.46	157.6	32	37
	7.0	700	25.0	9.80	163.3	31	36
43 Dk. Brown	4.0	400	23.2	8.51	141.9	32	37
	4.5	450	23.8	8.99	149.9	32	37
	5.0	500	24.1	9.45	157.4	33	38
	5.5	550	25.0	9.94	165.6	32	37
	6.0	600	25.0	10.35	172.4	33	38
	6.5	650	25.3	10.74	178.9	34	39
	7.0	700	25.6	11.11	185.2	34	39
48 Dk. Green	4.0	400	22.6	9.64	160.7	38	44
	4.5	450	23.8	10.18	169.7	36	42
	5.0	500	25.0	10.69	178.1	34	40
	5.5	550	26.2	11.24	187.2	33	38
	6.0	600	26.8	11.69	194.9	33	38
	6.5	650	27.1	12.13	202.1	33	38
	7.0	700	27.4	12.55	209.2	33	39
53 Dk. Blue*	4.0	400	23.5	10.49	174.8	38	44
	4.5	450	24.7	11.07	184.5	36	42
	5.0	500	25.9	11.62	193.6	35	40
	5.5	550	26.8	12.21	203.6	34	39
	6.0	600	27.1	12.71	211.8	35	40
	6.5	650	27.7	13.19	219.7	34	40
	7.0	700	28.0	13.64	227.4	35	40
63 Black**	4.0	400	25.0	12.77	212.8	41	47
	4.5	450	26.2	13.33	222.1	39	45
	5.0	500	27.4	13.85	230.8	37	43
	5.5	550	28.0	14.41	240.2	37	42
	6.0	600	28.3	14.87	247.9	37	43
	6.5	650	28.7	15.31	255.2	37	43
	7.0	700	29.3	15.73	262.2	37	42

* Factory-installed nozzle
** Preliminary performance data
Note: All precipitation rates are calculated for 360-degree operation.

blue INFO IN THE CATALOG PAGE 29

HCV

HCV Pressure Loss Chart

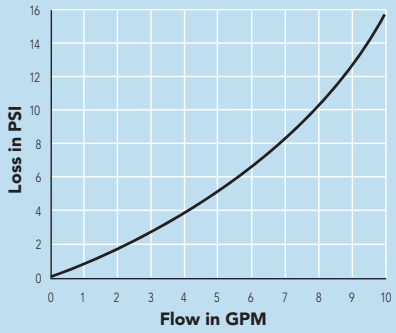


MODELS
HC-50F-50F – 1/2" Female inlet x 1/2" Female outlet
HC-50F-50M – 1/2" Female inlet x 1/2" Male outlet
HC-75F-75M – 3/4" Female inlet x 3/4" Male outlet

DIMENSIONS
- Overall height: 3" (8 cm)

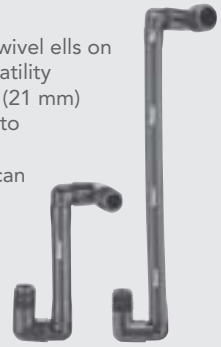
SJ Swing Joint

Swing Joint Friction Loss



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

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



Hunter Spiral Barb Elbows

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

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

Hunter Flexible Tubing

MODELS
HFT-100 - 100' roll

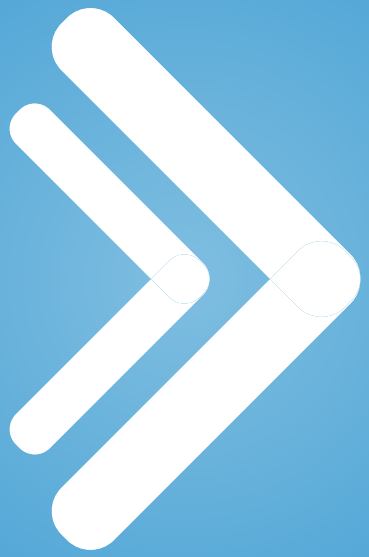
GENERAL FEATURES
- Inside diameter: .49"
- Operating pressure: up to 80 PSI
- Virgin linear low-density polyethylene material
- Meets ASTM D2104, D2239, D2737

PRO-FLEX Tubing

MODELS
PRO-FLEX - 100' roll

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

MORE INFO IN THE CATALOG PAGE 29

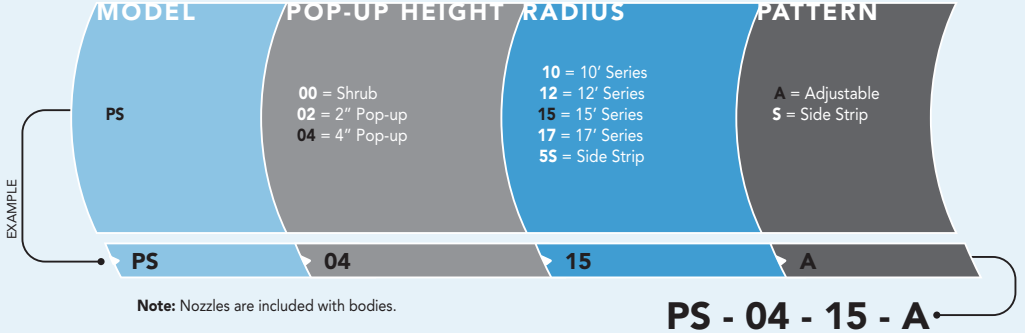


SPRAYS

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

PS

SPECIFICATION BUILDER



Note: Nozzles are included with bodies.

PS - 04 - 15 - A

MODELS
PS-00 – Shrub
PS-02 – 2" Pop-up (5 cm)
PS-04 – 4" Pop-up (10 cm)

DIMENSIONS
- Overall height:
  PS-00 – 4-1/2" (11 cm)
  PS-02 – 4-1/2" (11 cm)
  PS-04 – 6-1/2" (16 cm)
- 1/2" female inlet NPT
- Exposed diameter: 1-1/4" (3 cm)

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

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

PS Side Strip Nozzle Performance Data – Metric

Color Code: Blue

Nozzle	Pressure Bars	Pressure kPa	Width x Length	Flow m³/hr	Flow l/min	Precip mm/hr
Model 5SS Side Strip	1.0	100	1.2 m x 8.0 m	0.22	4.2	23
	1.5	150	1.2 m x 8.5 m	0.25	4.6	25
	2.0	200	1.5 m x 9.0 m	0.29	5.0	21
	2.1	**210**	**1.5 m x 9.0 m**	**0.30**	**5.3**	**22**
	2.5	250	1.5 m x 9.5 m	0.33	5.7	23

PS Standard Nozzle Performance Data - Metric

			3.0 Meter Radius (10A) Adjustable from 1° to 360° Trajectory: 15° Color Code: Red					**3.7 Meter Radius (12A)** Adjustable from 1° to 360° Trajectory: 28° Color Code: Green					**4.6 Meter Radius (15A)** Adjustable from 1° to 360° Trajectory: 28° Color Code: Black					**5.2 Meter Radius (17A)** Adjustable from 1° to 360° Trajectory: 28° Color Code: White				
Arc	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
45°	1.0	100	2.1	0.04	0.63	68	79	2.7	0.05	0.81	53	61	3.4	0.07	1.19	50	57	4.7	0.09	1.54	33	39
	1.5	150	2.4	0.05	0.79	66	76	3.2	0.06	1.01	47	55	3.9	0.09	1.49	47	54	4.9	0.12	1.93	38	44
	2.0	200	2.9	0.06	0.92	53	61	3.6	0.07	1.18	44	51	4.5	0.10	1.75	41	48	5.1	0.14	2.26	42	48
	2.1	**210**	**3.0**	**0.06**	**0.95**	**50**	**58**	**3.7**	**0.07**	**1.22**	**43**	**49**	**4.6**	**0.11**	**1.80**	**41**	**47**	**5.2**	**0.14**	**2.32**	**41**	**47**
	2.5	250	3.5	0.06	1.04	41	47	4.2	0.08	1.34	36	42	5.2	0.12	1.98	35	40	5.7	0.15	2.55	38	43
90°	1.0	100	2.1	0.08	1.26	68	79	2.7	0.10	1.62	53	61	3.4	0.14	2.39	50	57	4.7	0.18	3.08	33	39
	1.5	150	2.4	0.09	1.57	66	76	3.2	0.12	2.02	47	55	3.9	0.18	2.98	47	54	4.9	0.23	3.85	38	44
	2.0	200	2.9	0.11	1.84	53	61	3.6	0.14	2.37	44	51	4.5	0.21	3.50	41	48	5.1	0.27	4.51	42	48
	2.1	**210**	**3.0**	**0.11**	**1.89**	**50**	**58**	**3.7**	**0.15**	**2.43**	**43**	**49**	**4.6**	**0.22**	**3.59**	**41**	**47**	**5.2**	**0.28**	**4.63**	**41**	**47**
	2.5	250	3.5	0.12	2.08	41	47	4.2	0.16	2.68	36	42	5.2	0.24	3.95	35	40	5.7	0.31	5.10	38	43
120°	1.0	100	2.1	0.10	1.68	68	79	2.7	0.13	2.16	53	61	3.4	0.19	3.18	50	57	4.7	0.25	4.11	33	39
	1.5	150	2.4	0.13	2.10	66	76	3.2	0.16	2.70	47	55	3.9	0.24	3.98	47	54	4.9	0.31	5.13	38	44
	2.0	200	2.9	0.15	2.46	53	61	3.6	0.19	3.16	44	51	4.5	0.28	4.66	41	48	5.1	0.36	6.01	42	48
	2.1	**210**	**3.0**	**0.15**	**2.52**	**50**	**58**	**3.7**	**0.19**	**3.24**	**43**	**49**	**4.6**	**0.29**	**4.79**	**41**	**47**	**5.2**	**0.37**	**6.18**	**41**	**47**
	2.5	250	3.5	0.17	2.78	41	47	4.2	0.21	3.57	36	42	5.2	0.32	5.27	35	40	5.7	0.41	6.80	38	43
180°	1.0	100	2.1	0.15	2.52	68	79	2.7	0.19	3.23	53	61	3.4	0.29	4.77	50	57	4.7	0.37	6.16	33	39
	1.5	150	2.4	0.19	3.14	66	76	3.2	0.24	4.04	47	55	3.9	0.36	5.97	47	54	4.9	0.46	7.70	38	44
	2.0	200	2.9	0.22	3.68	53	61	3.6	0.28	4.74	44	51	4.5	0.42	6.99	41	48	5.1	0.54	9.02	42	48
	2.1	**210**	**3.0**	**0.23**	**3.78**	**50**	**58**	**3.7**	**0.29**	**4.86**	**43**	**49**	**4.6**	**0.43**	**7.18**	**41**	**47**	**5.2**	**0.56**	**9.27**	**41**	**47**
	2.5	250	3.5	0.25	4.16	41	47	4.2	0.32	5.35	36	42	5.2	0.47	7.90	35	40	5.7	0.61	10.20	38	43
240°	1.0	100	2.1	0.20	3.35	68	79	2.7	0.26	4.31	53	61	3.4	0.38	6.37	50	57	4.7	0.49	8.21	33	39
	1.5	150	2.4	0.25	4.19	66	76	3.2	0.32	5.39	47	55	3.9	0.48	7.96	47	54	4.9	0.62	10.27	38	44
	2.0	200	2.9	0.29	4.91	53	61	3.6	0.38	6.31	44	51	4.5	0.56	9.32	41	48	5.1	0.72	12.03	42	48
	2.1	**210**	**3.0**	**0.30**	**5.04**	**50**	**58**	**3.7**	**0.39**	**6.49**	**43**	**49**	**4.6**	**0.57**	**9.57**	**41**	**47**	**5.2**	**0.74**	**12.35**	**41**	**47**
	2.5	250	3.5	0.33	5.55	41	47	4.2	0.43	7.14	36	42	5.2	0.63	10.54	35	40	5.7	0.82	13.60	38	43
270°	1.0	100	2.1	0.23	3.77	68	79	2.7	0.29	4.85	53	61	3.4	0.43	7.16	50	57	4.7	0.55	9.24	33	39
	1.5	150	2.4	0.28	4.72	66	76	3.2	0.36	6.06	47	55	3.9	0.54	8.95	47	54	4.9	0.69	11.55	38	44
	2.0	200	2.9	0.33	5.52	53	61	3.6	0.43	7.10	44	51	4.5	0.63	10.49	41	48	5.1	0.81	13.53	42	48
	2.1	**210**	**3.0**	**0.34**	**5.68**	**50**	**58**	**3.7**	**0.44**	**7.30**	**43**	**49**	**4.6**	**0.65**	**10.77**	**41**	**47**	**5.2**	**0.83**	**13.90**	**41**	**47**
	2.5	250	3.5	0.37	6.25	41	47	4.2	0.48	8.03	36	42	5.2	0.71	11.86	35	40	5.7	0.92	15.30	38	43
360°	1.0	100	2.1	0.30	5.03	68	79	2.7	0.39	6.47	53	61	3.4	0.57	9.55	50	57	4.7	0.74	12.32	33	39
	1.5	150	2.4	0.38	6.29	66	76	3.2	0.49	8.09	47	55	3.9	0.72	11.94	47	54	4.9	0.92	15.40	38	44
	2.0	200	2.9	0.44	7.37	53	61	3.6	0.57	9.47	44	51	4.5	0.84	13.98	41	48	5.1	1.08	18.04	42	48
	2.1	**210**	**3.0**	**0.45**	**7.57**	**50**	**58**	**3.7**	**0.58**	**9.73**	**43**	**49**	**4.6**	**0.86**	**14.36**	**41**	**47**	**5.2**	**1.11**	**18.53**	**41**	**47**
	2.5	250	3.5	0.50	8.33	41	47	4.2	0.64	10.71	36	42	5.2	0.95	15.81	35	40	5.7	1.22	20.40	38	43

blue INFO IN THE CATALOG PAGE 35

SPECIFICATION BUILDER

MODEL	POP-UP HEIGHT	NOZZLE SERIES	PATTERN
SRS	**00** = Shrub **02** = 2″ Pop-up **03** = 3″ Pop-up **04** = 4″ Pop-up **06** = 6″ Pop-up **12** = 12″ Pop-up	**5** = 5′ Series **8** = 8′ Series **10** = 10′ Series **12** = 12′ Series **15** = 15′ Series **17** = 17′ Series	**A** = Adjustable **T** = Third-Circle **Q** = Quarter-Circle **H** = Half-Circle **TT** = Two-Thirds-Circle **TQ** = Three-Quarter-Circle **F** = Full-Circle

EXAMPLE: SRS | 04 | 10 | H

SRS - 04 - 10H

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

blue INFO IN THE CATALOG PAGE 37

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

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

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

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

Pro Spray®

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

DIMENSIONS
- Overall height:
  PROS-02 – 4″(10 cm)
  PROS-03 – 5″ (12.5 cm)s
  PROS-04 – 5-7/8″ (15.5 cm)
  PROS-06 – 8-3/4″ (22.5 cm)
  PROS-12 – 16-1/8″ (41 cm)
- 1/2″ female inlet NPT
- Exposed diameter: 2-1/4″ (5.7 cm)

OPERATING SPECIFICATIONS
- Recommended pressure range: 15 to 70 PSI (1.0 to 4.8 bars; 103 to 482 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m3/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 1-1/2″ (38 mm) per hour

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

SPECIFICATION BUILDER

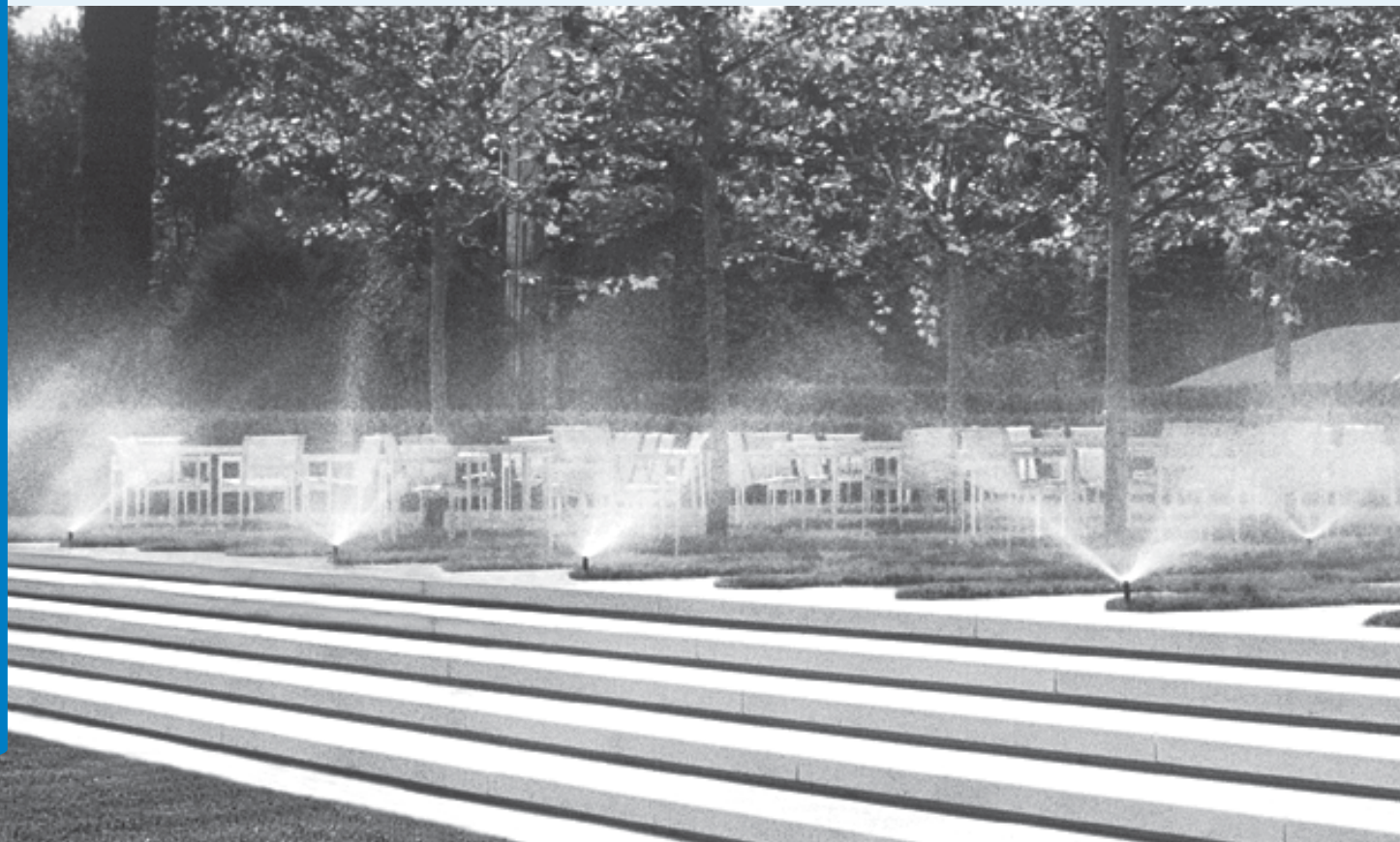
MODEL	POP-UP HEIGHT	OPTIONS	NOZZLE SERIES	PATTERN
PROS = Pro-Spray	**00** = Shrub **02** = 2″ Pop-up **03** = 3″ Pop-up **04** = 4″ Pop-up **06** = 6″ Pop-up **12** = 12″ Pop-up	**CV** = Factory-Installed Drain Check Valve (Pop-up Models Only) **CV-R** = Factory-Installed Reclaimed Body Cap	**5** = 5′ Series **8** = 8′ Series **10** = 10′ Series **12** = 12′ Series **15** = 15′ Series **17** = 17′ Series*	**A** = Adjustable **T** = Third-Circle **Q** = Quarter-Circle **H** = Half-Circle **TT** = Two-Thirds-Circle **TQ** = Three-Quarter-Circle **F** = Full-Circle

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

Note: Bodies and nozzles sold separately. Also compatible with Hunter's bubbler and specialty nozzles. * 17 Series available in Adjustable, Half, and Quarter-Circle patterns only. CV and CV-R models not available in 2″ or 3″ pop-ups.

PROS - 04 - CV - 15H

blue INFO IN THE CATALOG PAGE 39



SPECIFICATION BUILDER

MODEL	POP-UP HEIGHT	OPTIONS	NOZZLE SERIES	PATTERN
INST = Institutional Spray (Includes Factory-Installed Pressure Regulator)	**00** = Shrub **04** = 4" Pop-up **06** = 6" Pop-up **12** = 12" Pop-up	**CV** = Factory-Installed Drain Check Valve (Pop-up Models Only) **CV-R** = Factory Installed Reclaimed Body Cap	**5** = 5' Series **8** = 8' Series **10** = 10' Series **12** = 12' Series **15** = 15' Series **17** = 17' Series*	**A** = Adjustable **T** = Third-Circle **Q** = Quarter-Circle **H** = Half-Circle **TT** = Two-Thirds-Circle **TQ** = Three-Quarter-Circle **F** = Full-Circle

EXAMPLE: INST | 06 | CV | 15 | H

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

INST - 06 - CV - 15H

blue INFO IN THE CATALOG PAGE 41

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

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

OPERATING SPECIFICATIONS
- Recommended pressure range: 15 to 100 PSI (1.0 to 6.9 bars; 103 to 689 kPa)
- Flow-by: 0 at 10 PSI (.7 bars; 68 kPa) or greater; .1 GPM (0.02 m3/hr; 0.4 l/min) otherwise
- Precipitation rates: approximately 1-1/2" (38 mm) per hour

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

SPRAY NOZZLES

NEW!

Adjustable Arc Nozzles Performance Data – Metric

			2.4 Meter Radius Adjustable from 25° to 360° Trajectory: 0° Color Code: Brown — Nozzle **8A**					**3.0 Meter Radius** Adjustable from 25° to 360° Trajectory: 15° Color Code: Red — Nozzle **10A**					**3.7 Meter Radius** Adjustable from 25° to 360° Trajectory: 28° Color Code: Green — Nozzle **12A**					**4.6 Meter Radius** Adjustable from 25° to 360° Trajectory: 28° Color Code: Black — Nozzle **15A**					**5.2 Meter Radius** Adjustable from 25° to 360° Trajectory: 28° Color Code: Gray — Nozzle **17A**				
	Pressure		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr		Radius	Flow		Precip mm/hr	
Arc	Bars	kPa	m	m^3/hr	l/min	■	▲	m	m^3/hr	l/min	■	▲	m	m^3/hr	l/min	■	▲	m	m^3/hr	l/min	■	▲	m	m^3/hr	l/min	■	▲
45°	1.0	100	1.7	0.02	0.37	62	72	2.1	0.04	0.63	68	79	2.7	0.05	0.81	53	61	3.4	0.07	1.19	50	57	4.7	0.09	1.54	33	39
	1.5	150	2.1	0.03	0.47	51	59	2.4	0.05	0.79	66	76	3.2	0.06	1.01	47	55	3.9	0.09	1.49	47	54	4.9	0.12	1.93	38	44
	2.0	200	2.4	0.03	0.55	46	53	3.0	0.06	0.92	49	57	3.7	0.07	1.18	42	48	4.6	0.10	1.75	40	46	5.2	0.14	2.26	40	46
	2.1	**210**	**2.7**	**0.03**	**0.56**	**37**	**43**	**3.3**	**0.06**	**0.95**	**42**	**48**	**4.0**	**0.07**	**1.22**	**36**	**42**	**4.9**	**0.11**	**1.80**	**36**	**41**	**5.5**	**0.14**	**2.32**	**37**	**42**
	2.5	250	2.8	0.04	0.62	38	44	3.5	0.06	1.04	41	47	4.2	0.08	1.34	36	42	5.2	0.12	1.98	35	40	5.7	0.15	2.55	38	43
90°	1.0	100	1.7	0.04	0.75	62	72	2.1	0.08	1.26	68	79	2.7	0.10	1.62	53	61	3.4	0.14	2.39	50	57	4.7	0.18	3.08	33	39
	1.5	150	2.1	0.06	0.93	51	59	2.4	0.09	1.57	66	76	3.2	0.12	2.02	47	55	3.9	0.18	2.89	47	54	4.9	0.23	3.85	38	44
	2.0	200	2.4	0.07	1.09	46	53	3.0	0.11	1.84	49	57	3.7	0.14	2.37	42	48	4.6	0.21	3.50	40	46	5.2	0.27	4.51	40	46
	2.1	**210**	**2.7**	**0.07**	**1.12**	**37**	**43**	**3.3**	**0.11**	**1.89**	**42**	**48**	**4.0**	**0.15**	**2.43**	**36**	**42**	**4.9**	**0.22**	**3.59**	**36**	**41**	**5.5**	**0.28**	**4.63**	**37**	**42**
	2.5	250	2.8	0.07	1.24	38	44	3.5	0.12	2.08	41	47	4.2	0.16	2.68	36	42	5.2	0.24	3.95	35	40	5.7	0.31	5.10	38	43
120°	1.0	100	1.7	0.06	1.00	62	72	2.1	0.10	1.68	68	79	2.7	0.13	2.16	53	61	3.4	0.19	3.18	50	57	4.7	0.25	4.11	33	39
	1.5	150	2.1	0.07	1.24	51	59	2.4	0.13	2.10	66	76	3.2	0.16	2.70	47	55	3.9	0.24	3.98	47	54	4.9	0.31	5.13	38	44
	2.0	200	2.4	0.09	1.46	46	53	3.0	0.15	2.46	49	57	3.7	0.19	3.16	42	48	4.6	0.28	4.66	40	46	5.2	0.36	6.01	40	46
	2.1	**210**	**2.7**	**0.09**	**1.50**	**37**	**43**	**3.3**	**0.15**	**2.52**	**42**	**48**	**4.0**	**0.19**	**3.24**	**36**	**42**	**4.9**	**0.29**	**4.79**	**36**	**41**	**5.5**	**0.37**	**6.18**	**37**	**42**
	2.5	250	2.8	0.10	1.65	38	44	3.5	0.17	2.78	41	47	4.2	0.21	3.57	36	42	5.2	0.32	5.27	35	40	5.7	0.41	6.80	38	43
180°	1.0	100	1.7	0.09	1.49	62	72	2.1	0.15	2.52	68	79	2.7	0.19	3.23	53	61	3.4	0.29	4.77	50	57	4.7	0.37	6.16	33	39
	1.5	150	2.1	0.11	1.87	51	59	2.4	0.19	3.14	66	76	3.2	0.24	4.04	47	55	3.9	0.36	5.97	47	54	4.9	0.46	7.70	38	44
	2.0	200	2.4	0.13	2.19	46	53	3.0	0.22	3.68	49	57	3.7	0.28	4.74	42	48	4.6	0.42	6.99	40	46	5.2	0.54	9.02	40	46
	2.1	**210**	**2.7**	**0.13**	**2.25**	**37**	**43**	**3.3**	**0.23**	**3.78**	**42**	**48**	**4.0**	**0.29**	**4.86**	**36**	**42**	**4.9**	**0.43**	**7.18**	**36**	**41**	**5.5**	**0.56**	**9.27**	**37**	**42**
	2.5	250	2.8	0.15	2.47	38	44	3.5	0.25	4.16	41	47	4.2	0.32	5.35	36	42	5.2	0.47	7.90	35	40	5.7	0.61	10.20	38	43
240°	1.0	100	1.7	0.12	1.99	62	72	2.1	0.20	3.35	68	79	2.7	0.26	4.31	53	61	3.4	0.38	6.37	50	57	4.7	0.49	8.21	33	39
	1.5	150	2.1	0.15	2.49	51	59	2.4	0.25	4.19	66	76	3.2	0.32	5.39	47	55	3.9	0.48	7.96	47	54	4.9	0.62	10.27	38	44
	2.0	200	2.4	0.17	2.92	46	53	3.0	0.29	4.91	49	57	3.7	0.38	6.31	42	48	4.6	0.56	9.32	40	46	5.2	0.72	12.03	40	46
	2.1	**210**	**2.7**	**0.18**	**2.99**	**37**	**43**	**3.3**	**0.30**	**5.04**	**42**	**48**	**4.0**	**0.39**	**6.49**	**36**	**42**	**4.9**	**0.57**	**9.57**	**36**	**41**	**5.5**	**0.74**	**12.35**	**37**	**42**
	2.5	250	2.8	0.20	3.30	38	44	3.5	0.33	5.55	41	47	4.2	0.43	7.14	36	42	5.2	0.63	10.54	35	40	5.7	0.82	13.60	38	43
270°	1.0	100	1.7	0.13	2.24	62	72	2.1	0.23	3.77	68	79	2.7	0.29	4.85	53	61	3.4	0.43	7.16	50	57	4.7	0.55	9.24	33	39
	1.5	150	2.1	0.17	2.80	51	59	2.4	0.28	4.72	66	76	3.2	0.36	6.06	47	55	3.9	0.54	8.95	47	54	4.9	0.69	11.55	38	44
	2.0	200	2.4	0.20	3.28	46	53	3.0	0.33	5.52	49	57	3.7	0.43	7.10	42	48	4.6	0.63	10.49	40	46	5.2	0.81	13.53	40	46
	2.1	**210**	**2.7**	**0.20**	**3.37**	**37**	**43**	**3.3**	**0.34**	**5.68**	**42**	**48**	**4.0**	**0.44**	**7.30**	**36**	**42**	**4.9**	**0.65**	**10.77**	**36**	**41**	**5.5**	**0.83**	**13.90**	**37**	**42**
	2.5	250	2.8	0.22	3.71	38	44	3.5	0.37	6.25	41	47	4.2	0.48	8.03	36	42	5.2	0.71	11.86	35	40	5.7	0.92	15.30	38	43
360°	1.0	100	1.7	0.18	2.99	62	72	2.1	0.30	5.03	68	79	2.7	0.39	6.47	53	61	3.4	0.57	9.55	50	57	4.7	0.74	12.32	33	39
	1.5	150	2.1	0.22	3.73	51	59	2.4	0.38	6.29	66	76	3.2	0.49	8.09	47	55	3.9	0.72	11.94	47	54	4.9	0.92	15.40	38	44
	2.0	200	2.4	0.26	4.37	46	53	3.0	0.44	7.37	49	57	3.7	0.57	9.47	42	48	4.6	0.84	13.98	40	46	5.2	1.08	18.04	40	46
	2.1	**210**	**2.7**	**0.27**	**4.49**	**37**	**43**	**3.3**	**0.45**	**7.57**	**42**	**48**	**4.0**	**0.58**	**9.73**	**36**	**42**	**4.9**	**0.86**	**14.36**	**36**	**41**	**5.5**	**1.11**	**18.53**	**37**	**42**
	2.5	250	2.8	0.30	4.94	38	44	3.5	0.50	8.33	41	47	4.2	0.64	10.71	36	42	5.2	0.95	15.81	35	40	5.7	1.22	20.40	38	43

Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 2.1 Bars (210 kPa).

NEW MODELS!

Pro-Spray® Nozzles Performance Data

			1.5 Meter Radius (5ft.) Fixed (Q, H, F) Trajectory: 0° Code: Brown — Nozzle 5					2.4 Meter Radius (8ft.) Fixed (Q, T, H, F) Trajectory: 0° Code: Brown — Nozzle 8					3.0 Meter Radius (10ft.) Fixed (Q, T, H, F) Trajectory: 15° Code: Red — Nozzle 10					3.7 Meter Radius (12ft.) Fixed (Q, T, H, TT, TQ, F) Trajectory: 28° Code: Green — Nozzle 12					4.6 Meter Radius (15ft.) Fixed (Q, T, H, TT, TQ, F) Trajectory: 28° Code: Black — Nozzle 15					5.2 Meter Radius (17ft.) Fixed (Q, H) Trajectory: 28° Code: Grey — Nozzle 17				
		Pressure	Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr		Radius	Flow		Precip in/hr	
Arc	Pattern	Bars kPa	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲	m	m3/hr	l/min	■	▲
90°	Q	1.0 100	1.1	0.02	0.30	60	69	1.7	0.04	0.62	51	59	2.4	0.07	1.08	45	52	3.0	0.10	1.58	42	49	3.9	0.15	2.50	39	46	4.7	0.19	3.17	34	40
		1.5 150	1.3	0.02	0.38	54	62	2.1	0.05	0.84	46	53	2.7	0.08	1.33	44	50	3.4	0.12	2.00	42	48	4.2	0.18	3.06	42	48	4.9	0.23	3.88	39	45
		2.0 200	1.5	0.03	0.45	48	55	2.4	0.06	1.00	42	48	3.0	0.09	1.53	41	47	3.7	0.14	2.37	41	48	4.6	0.21	3.54	40	46	5.2	0.27	4.48	40	46
		2.1 210	1.5	**0.03**	**0.46**	**49**	**57**	**2.4**	**0.06**	**1.03**	**43**	**49**	**3.0**	**0.09**	**1.57**	**42**	**48**	**3.7**	**0.15**	**2.43**	**43**	**49**	**4.6**	**0.22**	**3.62**	**41**	**47**	**5.2**	**0.28**	**4.59**	**41**	**47**
		2.5 250	1.7	0.03	0.51	42	49	2.7	0.07	1.13	37	43	3.3	0.10	1.71	38	44	4.0	0.16	2.69	40	47	4.9	0.24	3.95	40	46	5.5	0.30	5.01	40	46
120°	T	1.0 100						1.7	0.05	0.83	51	59	2.4	0.09	1.44	45	52	3.0	0.13	2.11	42	49	3.9	0.20	3.33	39	46					
		1.5 150						2.1	0.07	1.12	46	53	2.7	0.11	1.77	44	50	3.4	0.16	2.67	42	48	4.2	0.24	4.08	42	48					
		2.0 200						2.4	**0.08**	1.33	42	48	3.0	0.12	20.4	41	47	3.7	0.19	3.16	41	48	4.6	0.28	4.71	40	46	**Use Hunter 17A Nozzle**				
		2.1 210						**2.4**	0.08	**1.37**	**43**	**49**	**3.0**	**0.13**	**2.09**	**42**	**48**	**3.7**	**0.19**	**3.25**	**43**	**49**	**4.6**	**0.29**	**4.83**	**41**	**47**					
		2.5 250						2.7	0.09	1.51	37	43	3.3	0.14	2.28	38	44	4.0	0.22	3.59	40	47	4.9	0.32	5.27	40	46					
180°	H	1.0 100	1.1	0.04	0.60	2.25	69	1.7	0.08	1.33	51	64	2.4	0.13	2.17	45	52	3.0	0.19	3.17	42	49	3.9	0.30	5.00	39	46	4.7	0.38	6.33	34	40
		1.5 150	1.3	0.05	0.76	2.54	62	2.1	0.10	1.69	46	53	2.7	0.16	2.65	44	50	3.4	0.24	4.01	42	48	4.2	0.37	6.12	42	48	4.9	0.47	7.76	39	45
		2.0 200	1.5	0.05	0.90	**1.80**	55	2.4	**0.12**	1.99	42	48	3.0	0.18	3.06	41	47	3.7	0.28	4.73	41	48	4.6	0.42	7.07	40	46	5.2	0.54	8.96	40	46
		2.1 210	1.5	**0.06**	**0.92**	1.36	**57**	**2.4**	0.12	**2.05**	**43**	**49**	**3.0**	**0.19**	**3.14**	**42**	**48**	**3.7**	**0.29**	**4.87**	**43**	**49**	**4.6**	**0.43**	**7.25**	**41**	**47**	**5.2**	**0.55**	**9.18**	**41**	**47**
		2.5 250	1.7	0.06	1.02	1.46	49	2.7	0.14	2.27	37	43	3.3	0.21	3.43	38	44	4.0	0.32	5.39	40	47	4.9	0.47	7.91	40	46	5.5	0.60	10.01	40	46
240°	TT	1.0 100																3.0	0.25	4.22	42	49	3.9	0.40	6.67	39	46					
		1.5 150																3.4	0.32	5.34	42	48	4.2	0.49	8.16	42	48					
		2.0 200						**Use Hunter 8A Nozzle**					**Use Hunter 10A Nozzle**				3.7	0.38	6.31	41	48	4.6	0.57	9.43	40	46	**Use Hunter 17A Nozzle**				
		2.1 210																**3.7**	**0.39**	**6.49**	**43**	**49**	**4.6**	**0.58**	**9.66**	**41**	**47**					
		2.5 250																4.0	0.43	7.18	40	47	4.9	0.63	10.54	40	46					
270°	TQ	1.0 100																3.0	0.29	4.75	42	49	3.9	0.45	7.50	39	46					
		1.5 150																3.4	0.36	6.01	42	48	4.2	0.55	9.19	42	48					
		2.0 200						**Use Hunter 8A Nozzle**					**Use Hunter 10A Nozzle**				3.7	0.43	7.10	41	48	4.6	0.64	10.61	40	46	**Use Hunter 17A Nozzle**				
		2.1 210																**3.7**	**0.44**	**7.30**	**43**	**49**	**4.6**	**0.65**	**10.87**	**41**	**47**					
		2.5 250																4.0	0.48	8.08	40	47	4.9	0.71	11.86	40	46					
360°	F	1.0 100	1.1	0.07	1.20	60	69	1.7	0.16	2.67	51	64	2.4	0.26	4.33	45	52	3.0	0.38	6.33	42	49	3.9	0.60	10.00	39	46					
		1.5 150	1.3	0.09	1.52	54	62	2.1	0.20	3.37	46	53	2.7	0.32	5.31	44	50	3.4	0.48	8.01	42	48	4.2	0.73	12.25	42	48					
		2.0 200	1.5	0.11	1.79	48	55	2.4	0.24	3.99	42	48	3.0	0.37	6.13	41	47	3.7	0.57	9.47	41	48	4.6	0.85	14.14	40	46	**Use Hunter 17A Nozzle**				
		2.1 210	1.5	**0.11**	**0.11**	**49**	**57**	**2.4**	**0.25**	**4.10**	**43**	**49**	**3.0**	**0.38**	**6.28**	**42**	**48**	**3.7**	**0.58**	**9.74**	**43**	**49**	**4.6**	**0.87**	**14.49**	**41**	**47**					
		2.5 250	1.7	0.12	0.12	42	49	2.7	0.27	4.54	37	43	3.3	0.41	6.85	38	44	4.0	0.65	10.78	40	47	4.9	0.95	15.81	40	46					

Note: The Institutional Spray's built-in pressure regulation controls output to a maximum of 2.1 Bars (210 kPa).

blue INFO IN THE CATALOG PAGES 42-45

SPRAY NOZZLES / BUBBLERS & BUBBLER NOZZLES

Short Radius Nozzles Performance Data – Metric

Arc	Pressure Bars	Pressure kPa	Color Code: Light Brown Nozzle	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Color Code: Light Green Nozzle	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲	Color Code: Light Blue Nozzle	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	2Q	0.6	0.01	0.23	153	177	4Q	1.2	0.04	0.69	115	133	6Q	1.8	0.11	1.84	136	157
	1.5	150		0.6	0.02	0.28	188	217		1.2	0.05	0.77	128	147		1.8	0.11	1.93	143	165
	2.0	200		0.6	0.02	0.33	217	250		1.2	0.05	0.82	137	158		1.8	0.12	2.00	148	171
	2.1	**210**		**0.6**	**0.02**	**0.33**	**222**	**257**		**1.2**	**0.05**	**0.84**	**139**	**160**		**1.8**	**0.12**	**2.01**	**149**	**172**
	2.5	250		0.6	0.02	0.36	242	280		1.2	0.05	0.87	145	168		1.8	0.12	2.06	152	176
180°	1.0	100	2H	0.6	0.03	0.46	153	177	4H	1.2	0.08	1.39	115	133	6H	1.8	0.22	3.67	136	157
	1.5	150		0.6	0.03	0.56	188	217		1.2	0.09	1.54	128	147		1.8	0.22	3.86	143	165
	2.0	200		0.6	0.04	0.65	217	250		1.2	0.10	1.65	137	158		1.8	0.22	4.00	148	171
	2.1	**210**		**0.6**	**0.04**	**0.67**	**222**	**257**		**1.2**	**0.10**	**1.67**	**139**	**160**		**1.8**	**0.22**	**4.03**	**149**	**172**
	2.5	250		0.6	0.04	0.73	242	280		1.2	0.10	1.74	145	168		1.8	0.23	4.12	152	176

Micro-Spray Nozzles Performance Data – Metric

Arc	Pressure Bars	Pressure kPa	Nozzle	Radius m	Flow m³/hr	Flow l/min	Precip mm/hr ■	Precip mm/hr ▲
90°	1.0	100	MS-Q	1.5	0.03	0.45	48	56
	3.0	300		1.5	0.03	0.53	56	65
	5.0	500		1.5	0.03	0.53	56	65
180°	1.0	100	MS-H	1.5	0.06	0.95	50	58
	3.0	300		1.5	0.06	1.06	56	65
	5.0	500		1.5	0.07	1.10	59	68
360°	1.0	100	MS-F	1.5	0.11	1.90	50	58
	3.0	300		1.5	0.13	2.12	56	65
	5.0	500		1.5	0.13	2.20	59	68

Strip Pattern Nozzle Performance Data – Metric

Color Code: Blue

Nozzle Model	Pressure Bars	Pressure kPa	Width x Length	Flow m³/hr	Flow l/min
LCS-515 Left-Corner Strip	1.0	100	1.2 m x 4.2 m	0.10	1.7
	1.5	150	1.2 m x 4.3 m	0.13	2.1
	2.0	200	1.5 m x 4.5 m	0.15	2.4
	2.1	**210**	**1.5 m x 4.5 m**	**0.15**	**2.5**
	2.5	250	1.5 m x 4.5 m	0.16	2.7
RCS-515 Right-Corner Strip	1.0	100	1.2 m x 4.2 m	0.10	1.7
	1.5	150	1.2 m x 4.3 m	0.13	2.1
	2.0	200	1.5 m x 4.5 m	0.15	2.4
	2.1	**210**	**1.5 m x 4.5 m**	**0.15**	**2.5**
	2.5	250	1.5 m x 4.5 m	0.16	2.7
SS-530 Side Strip	1.0	100	2.2 m x 8.5 m	0.21	3.5
	1.5	150	2.4 m x 8.5 m	0.25	4.2
	2.0	200	1.5 m x 9.0 m	0.29	4.9
	2.1	**210**	**1.5 m x 9.0 m**	**0.30**	**5.0**
	2.5	250	1.5 m x 9.0 m	0.33	5.5
ES-515 End Strip	1.0	100	1.1 m x 4.2 m	0.10	1.7
	1.5	150	1.2 m x 4.3 m	0.13	2.1
	2.0	200	1.5 m x 4.5 m	0.15	2.4
	2.1	**210**	**1.5 m x 4.5 m**	**0.15**	**2.5**
	2.5	250	1.5 m x 4.5 m	0.16	2.7
CS-530 Center Strip	1.0	100	2.2 m x 8.5 m	0.21	3.5
	1.5	150	2.4 m x 8.5 m	0.25	4.2
	2.0	200	1.5 m x 9.0 m	0.29	4.9
	2.1	**210**	**1.5 m x 9.0 m**	**0.30**	**5.0**
	2.5	250	1.5 m x 9.0 m	0.33	5.5
SS-918 Side Strip	1.0	100	2.4 m x 5.2 m	0.27	4.5
	1.5	150	2.7 m x 5.5 m	0.33	5.5
	2.0	200	2.7 m x 5.5 m	0.38	6.4
	2.1	**210**	**2.7 m x 5.5 m**	**0.39**	**6.5**
	2.5	250	2.7 m x 5.5 m	0.43	7.1

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

Adjustable from 25° to 360°
Color Code: Blue

Arc	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min
90°	1.0	100	2.1	0.06	0.9
	1.5	150	2.4	0.07	1.2
	2.0	200	2.4	0.08	1.3
	2.1	**210**	**2.4**	**0.08**	**1.4**
	2.5	250	2.7	0.09	1.5
180°	1.0	100	2.1	0.11	1.9
	1.5	150	2.4	0.14	2.3
	2.0	200	2.4	0.16	2.7
	2.1	**210**	**2.4**	**0.16**	**2.7**
	2.5	250	2.7	0.18	3.0
360°	1.0	100	2.1	0.23	3.8
	1.5	150	2.4	0.28	4.6
	2.0	200	2.4	0.32	5.3
	2.1	**210**	**2.4**	**0.33**	**5.5**
	2.5	250	2.7	0.36	6.0

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

Adjustable from 25° to 360°
Color Code: Blue

Arc	Pressure Bars	Pressure kPa	Radius m	Flow m³/hr	Flow l/min
90°	1.0	100	4.6	0.09	1.3
	1.5	150	4.9	0.10	1.6
	2.0	200	4.9	0.11	1.8
	2.1	**210**	**5.2**	**0.11**	**1.9**
	2.5	250	5.5	0.12	2.1
180°	1.0	100	4.6	0.16	2.6
	1.5	150	4.9	0.19	3.2
	2.0	200	4.9	0.22	3.7
	2.1	**210**	**5.2**	**0.23**	**3.8**
	2.5	250	5.5	0.25	4.1
360°	1.0	100	4.6	0.31	5.2
	1.5	150	4.9	0.38	6.4
	2.0	200	4.9	0.44	7.3
	2.1	**210**	**5.2**	**0.45**	**7.5**
	2.5	250	5.5	0.49	8.2

5-CST-B Bubbler Nozzle Performance Data – Metric

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

Note: Typical spacing 0.6 to 1.2 m.

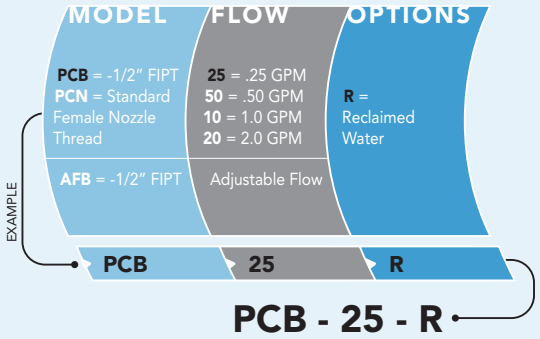
Multi-Stream Bubbler Nozzle – Metric

Arc	Model	Pressure Bars	Pressure kPa	Flow m³/hr	Flow l/min	Radius m
	MSBN-25Q	2.0	200	0.06	0.9	0.30
	MSBN-50Q	2.0	200	0.11	1.9	0.46
	MSBN-50H	2.0	200	0.11	1.9	0.30
	MSBN-10H	2.0	200	0.23	3.8	0.46
	MSBN-10F	2.0	200	0.23	3.8	0.30
	MSBN-20F	2.0	200	0.45	7.6	0.46

Note: Typical spacing 0.6 to 1.2 m.

blue INFO IN THE CATALOG PAGES 42-45

SPECIFICATIONBUILDER



PCB / PCN & AFB Performance Data

Model	Pressure Bars	Pressure kPa	Flow m3/hr	Flow l/min	Pattern Type
25	2.0	200	0.06	0.9	Trickle
50	2.0	200	0.11	1.9	Trickle
10	2.0	200	0.23	3.8	Umbrella
20	2.0	200	0.45	7.6	Umbrella

Note: Typical spacing 0.3 to 0.9 m.

RZWS Root Zone Watering System

MODELS

RZWS-10 – 10" long RZWS, comes ready for customer provided irrigation hardware, swing joint and check valve not included

RZWS-10-25 – 10" long RZWS with installed 0.25 GPM bubbler, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-10-25-CV – 10" long RZWS with installed 0.25 GPM bubbler, check valve, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-18 – 18" long RZWS, comes ready for customer provided irrigation hardware, swing joint and check valve not included

RZWS-18-25 – 18" long RZWS with installed 0.25 GPM bubbler, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-18-25-CV – 18" long RZWS with installed 0.25 GPM bubbler, check valve, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-18-50 – 18" long RZWS with installed 0.50 GPM bubbler, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-18-50-CV – 18" long RZWS with installed 0.50 GPM bubbler, check valve, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-36 – 36" long RZWS, comes ready for customer provided irrigation hardware, swing joint and check valve not included

RZWS-36-25 – 36" long RZWS with installed 0.25 GPM bubbler, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-36-25-CV – 36" long RZWS with installed 0.25 GPM bubbler, check valve, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-36-50 – 36" long RZWS with installed 0.50 GPM bubbler, internal plumbing, and 1/2" swing joint for connnection to 1/2" pipe

RZWS-36-50-CV – 36" long RZWS with installed 0.50 GPM bubbler, check valve, internal plumbing, and 1/2" swing joint for connection to 1/2" pipe

RZWS-SLEEVE – Field installed sleeve made from landscape filter fabric for use in sandy soils

RZWS-CAP – Replacement cap for all RZWS models

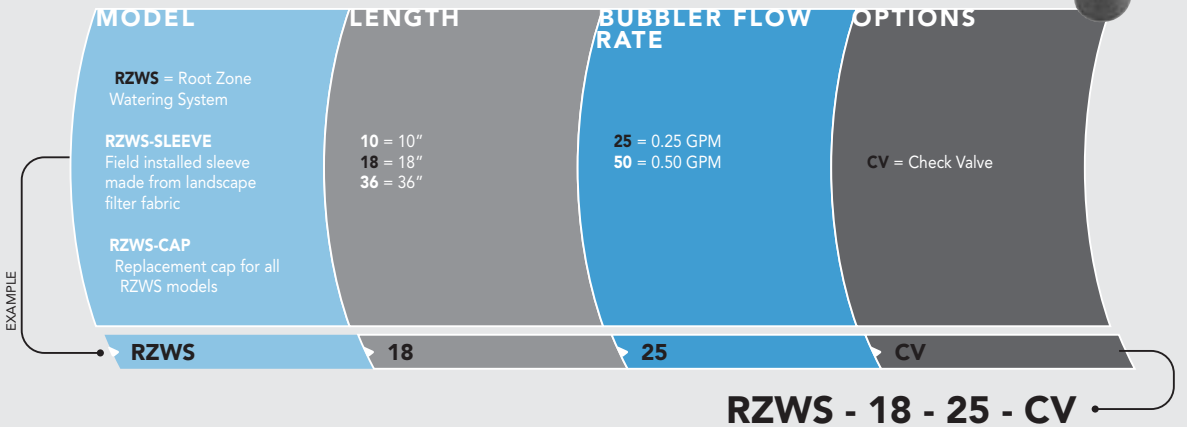
DIMENSIONS

- RZWS-10 – 2" Diameter x 10" Long
- RZWS-18 – 3" Diameter x 18" Long
- RZWS-36 – 3" Diameter x 36" Long

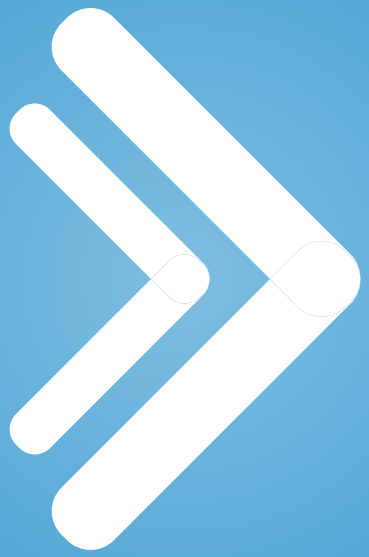
SPECIFICATIONS

- Recommended pressure range: 15 to 70 PSI

SPECIFICATIONBUILDER



MORE INFO IN THE CATALOG PAGE 46



VALVES

APPLICATIONS	SRV	Pro-ASV	PGV	PGV Jar Top	HPV	ICV	ICV Filter Sentry™	IBV	IBV Filter Sentry™
Residential	•	•	•	•	•				
Commercial/Institutional			•		•	•	•	•	•
Flow Control	•	•	•	•	•	•	•	•	•
Angle Valve Configuration		•	•		•				
High-Pressure Systems						•	•	•	•
Pressure Regulation			•			•	•	•	•
Reclaimed Water	•	•	•	•	•	•	•	•	•
Brackish/Algae Contaminated Water							•		•

SRV

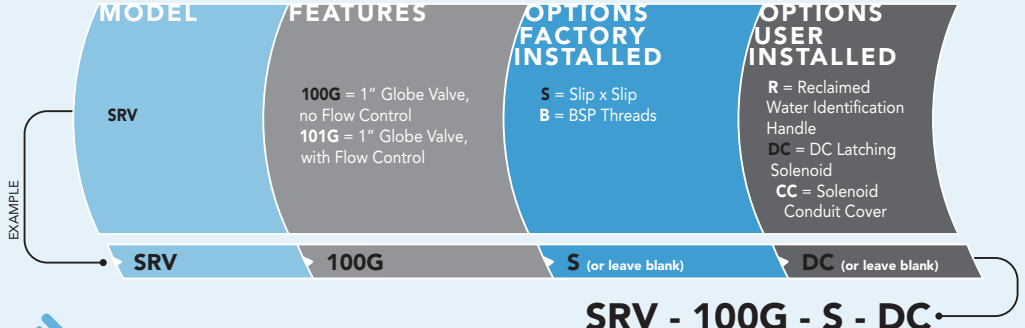
MODELS

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

DIMENSIONS

- 5" H x 4-1/2" L x 2-1/2" W (13 cm H x 11 cm L x 6 cm W)
- Female inlet/outlet: 1" NPT, BSP, or Slip

SPECIFICATIONBUILDER



SRV - 100G - S - DC

blue INFO IN THE CATALOG PAGE 51

OPERATING SPECIFICATIONS

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

OPTIONS AVAILABLE

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

PRO-ASV

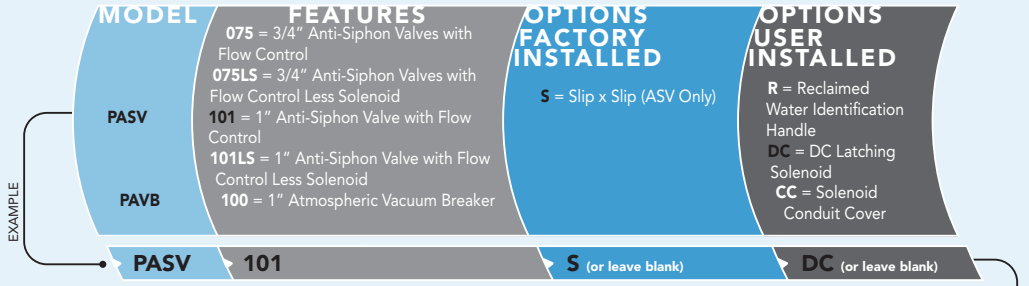
MODELS

PASV-075 – 3/4" anti-siphon electric valve with flow control, NPT inlets
PASV-101 – 1" anti-siphon electric valve with flow control, NPT inlets
PASV-075-S – 3/4" anti-siphon electric valve with flow control, Slip inlets
PASV-101-S – 1" anti-siphon electric valve with flow control, Slip inlets
PAVB-100 – 1" Atmospheric vacuum breaker, NPT inlets

DIMENSIONS

- PASV-075 – 5-1/2" H x 5-3/4" L x 2-1/2" W (14 cm H x 11 cm L x 6 cm W) Female inlet/outlet: 3/4" NPT or Slip
- PASV-101 – 5-1/2" H x 6-1/4" L x 2-1/2" W (14 cm H x 15.9 cm L x 6 cm W) Female inlet/outlet: 1" NPT or Slip
- PAVB-100 – 4-1/2" H x 6-1/2" L x 2-1/2" W (11.5 cm H x 15.9 cm L x 6 cm W) Female inlet/outlet: 1" NPT

SPECIFICATIONBUILDER



PASV - 101 - S - DC

blue INFO IN THE CATALOG PAGE 53

OPERATING SPECIFICATIONS

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

OPTIONS AVAILABLE

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

AVB Pressure Loss in kPa

l/min	1" Globe
4.0	6.8
20.0	7.1
40.0	8.5
55.0	15.4
75.0	24.2
95.0	35.8
115.0	48.6

AVB Pressure Loss in Bars

m^3/hr	1"
0.25	0.06
1.00	0.06
2.50	0.08
3.50	0.16
4.50	0.25
5.50	0.35
7.00	0.50

SPECIFICATIONBUILDER

MODEL	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
PGV	**100G** = 1" Globe Valve, no Flow Control **101G** = 1" Globe Valve, with Flow Control **100A** = 1" Angle Valve, no Flow Control **101A** = 1" Angle Valve, with Flow Control **100MB** = 1" Globe Valve, no Flow Control, Male Thread x 1" Barb **100MB125** = 1" Globe Valve, no Flow Control, Male Thread x 1-1/4" Barb **101MB** = 1" Globe Valve, with Flow Control, Male Thread x Barb **101MB125** = 1" Globe Valve, with Flow Control, Male Thread x 1-1/4" Barb **100MM** = 1" Globe Valve, no Flow Control, Male x Male **101MM** = 1" Globe Valve, with Flow Control, Male x Male **151** = 1-1/2" Globe/Angle Valve, with Flow Control **201** = 2" Globe/Angle Valve, with Flow Control	**S** = Slip x Slip (1" Models Only) **B** = BSP Threads **DC** = DC Latching Solenoid **LS** = Less Solenoid	**AS** = Accu-Set™ Pressure Regulator (1-1/2" and 2" Models Only) **R** = Reclaimed Water Identification Handle **CC** = Conduit Cover
EXAMPLE: PGV	100G	S (or leave blank)	AS (or leave blank)

PGV - 100G - S - AS

SRV Pressure Loss in kPa

l/min	1" Globe
4.0	7.6
20.0	13.1
40.0	12.8
55.0	13.4
75.0	22.3
95.0	34.5
115.0	42.5

SRV Pressure Loss in Bars

m³/hr	1" Globe
0.25	0.08
1.00	0.10
2.50	0.13
3.50	0.13
4.50	0.21
5.50	0.30
7.00	0.46

Charts based on full-open flow control position.

Pro-ASV Pressure Loss in kPa

l/min	¾"	1"
4.0	7.7	7.7
20.0	11.2	11.2
40.0	17.6	17.6
55.0	23.8	23.8
75.0	34.1	34.1
95.0		46.7
115.0		61.5

Pro-ASV Pressure Loss in Bars

m³/hr	¾"	1"
0.25	0.04	0.04
1.00	0.08	0.08
2.50	0.18	0.18
3.50	0.26	0.26
4.50	0.35	0.35
5.50		0.45
7.00		0.62

Charts based on full-open flow control position.

PGV Pressure Loss in kPa

l/min	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
4.0	8.20	6.84				
20.0	9.66	6.84				
40.0	13.20	6.84				
55.0	11.03	6.84				
75.0	21.62	13.71	20.08	21.57	4.13	8.82
95.0	31.07	15.60	20.43	20.85	5.71	9.19
115.0	43.24	21.07	21.09	20.52	7.32	9.62
135.0			22.08	20.60	8.95	10.13
200.0			27.48	23.60	14.41	12.28
325.0			47.38	41.25	25.63	18.55
400.0			65.32	59.34	32.81	23.66
500.0			96.24	92.21	42.91	32.05
625.0					56.38	45.07
775.0					73.78	64.40

PGV Pressure Loss in Bars

m³/hr	1" Globe	1" Angle	1½" Globe	1½" Angle	2" Globe	2" Angle
0.25	0.10	0.07				
1.00	0.10	0.07				
2.50	0.12	0.08				
3.50	0.16	0.09				
4.50	0.22	0.12	0.21	0.22	0.08	0.08
7.00	0.44	0.22	0.22	0.21	0.08	0.08
9.00			0.24	0.21	0.09	0.09
11.00			0.26	0.23	0.11	0.09
13.50			0.31	0.26	0.14	0.10
18.00			0.44	0.37	0.21	0.14
22.50			0.62	0.53	0.31	0.22
27.00			0.84	0.75	0.44	0.33
30.50					0.56	0.45
34.00					0.70	0.59

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 55

DIMENSIONS

- 1" Globe and Male x Male: 5" H x 4-1/2" L x 2-1/2" W (13 cm H x 11 cm L x 6 cm W)
- 1" Male x Barb: 5" H x 5-1/2" L x 2-1/2" W (13 cm H x 14 cm L x 6 cm W)
- 1" Angle: 5-1/2" H x 3-1/2" L x 2-3/4" W (14 cm H x 9 cm L x 7 cm W)
- 1-1/2" Globe/Angle: 7-1/2" H x 5-3/4" L x 4-1/2" W (19 cm H x 15 cm L x 11 cm W)
- 2" Globe/Angle: 8" H x 6-3/4" L x 5-1/4" W (20 cm H x 17 cm L x 13 cm W)

OPERATING SPECIFICATIONS

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

OPTIONS AVAILABLE

- Accu-Set™ pressure regulator
- Reclaimed water identification handle PGV-101 models (part # 269205) for PGV-151/201 models (part # 412705)
- DC latching solenoid (part # 458200)
- Solenoid conduit cover (part # 464322)
- Drip Irrigation Valve Kit (part # PCZ101)

MODELS

PGV-100G – 1" plastic globe valve, no flow control
PGV-101G – 1" plastic globe valve with flow control
PGV-100A – 1" plastic angle valve, no flow control
PGV-101A – 1" plastic angle valve with flow control
PGV-100MB – 1" plastic globe valve, no flow control, male thread x 1" barb
PGV-101MB – 1" plastic globe valve, with flow control, male thread x barb
PGV-100MB125 – 1" plastic globe valve, no flow control, male thread x 1-1/4"barb
PGV-101MB125 – 1" plastic globe valve, with flow control, male thread x 1-1/4" barb
PGV-100MM – 1" plastic globe valve, no flow control, male x male thread
PGV-101MM – 1" plastic globe valve, with flow control, male x male thread
PGV-151 – 1-1/2" plastic angle/globe valve with flow control
PGV-201 – 2" plastic angle/globe valve with flow control

PGV Jar-Top

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS FACTORY INSTALLED	OPTIONS USER INSTALLED
PGV	**100JT** = 1" Globe Jar-Top Valve, no Flow Control **101JT** = 1" Globe Jar-Top Valve, with Flow Control	**G** = NPT Threads **S** = Slip x Slip **B** = BSP Threads **MM** = Male x Male (NPT) **MMB** = Male x Male (BSP) **MB** = Male x 1" Barb **MB075** = Male x 3/4" Barb **MB125** = Male x 1-1/4" Barb **LS** = Less Solenoid (Only available on 101JTG, 100JTG, 101JTB, 100JTB	**R** = Reclaimed Water Identification Handle **DC** = DC Latching Solenoid **CC** = Solenoid Conduit Cover

EXAMPLE: PGV | 101JT | S (or leave blank) | R (or leave blank)

PGV - 101JT - S - R

MODELS

PGV-100JT-G – 1" plastic globe valve, Jar-Top Bonnet, no flow control

PGV-101JT-G – 1" plastic globe valve, Jar-Top Bonnet, with flow control

PGV-100JT-GS – 1" plastic globe valve, Jar-Top Bonnet, no flow control, female slip

PGV-101JT-GS – 1" plastic globe valve, Jar-Top Bonnet, with flow control, female slip

PGV-100JT-MB – 1" plastic globe valve, Jar-Top Bonnet, no flow control, male thread x 1" barb

PGV-101JT-MB – 1" plastic globe valve, Jar-Top Bonnet, with flow control, male thread x barb

PGV-100JT-MB125 – 1" plastic globe valve, Jar-Top Bonnet, no flow control, 1" male thread x 1-1/4" barb

PGV-101JT-MB125 – 1" plastic globe valve, Jar-Top Bonnet, with flow control, 1" male thread x 1-1/4" barb

PGV-100JT-MM – 1" plastic globe valve, Jar-Top Bonnet, no flow control, male x male thread

PGV-101JT-MM – 1" plastic globe valve, Jar-Top Bonnet, with flow control, male x male thread

PGV-100JT-MB075 – 1" plastic globe valve, Jar-Top Bonnet, no flow control, 1" male thread x 3/4" barb

PGV-101JT-MB075 – 1" plastic globe valve, Jar-Top Bonnet, with flow control, 1" male thread x 3/4" barb

DIMENSIONS

- 1" Globe: 5-1/2" H x 4-3/4" L x 3-1/4" W
- 1" Male x Male: 5-1/2" H x 5-1/4" L x 3-1/4" W
- 1" Male x Barb: 5-1/2" H x 5-7/8" L x 3-1/4" W
- 1" Male x 1-1/4" Barb: 5-1/2" H x 5-7/8" L x 3-1/4" W

PGV Jar-Top Pressure Loss in kPa

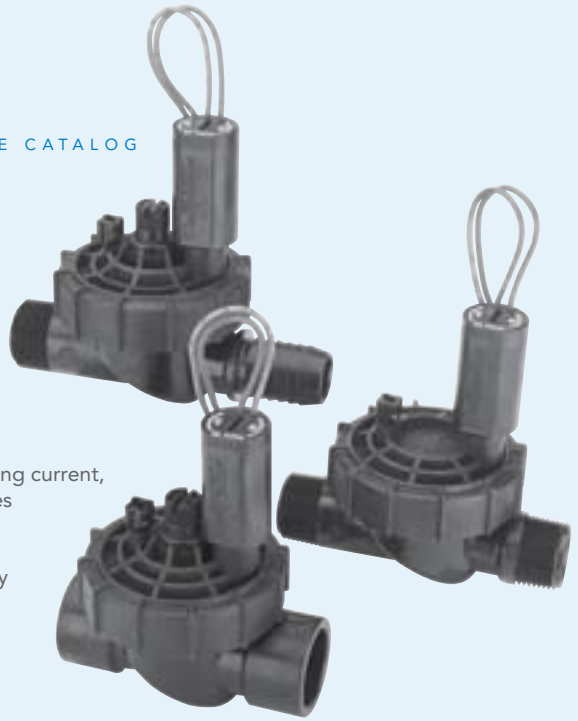
l/min	1"
4.0	8.20
20.0	9.66
40.0	13.20
55.0	11.03
75.0	21.62
95.0	31.07
115.0	43.24

PGV Jar-Top Pressure Loss in Bars

m^3/hr	1"
0.25	0.08
1.00	0.10
2.50	0.13
3.50	0.13
4.50	0.21
5.50	0.30
6.50	0.46

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 57



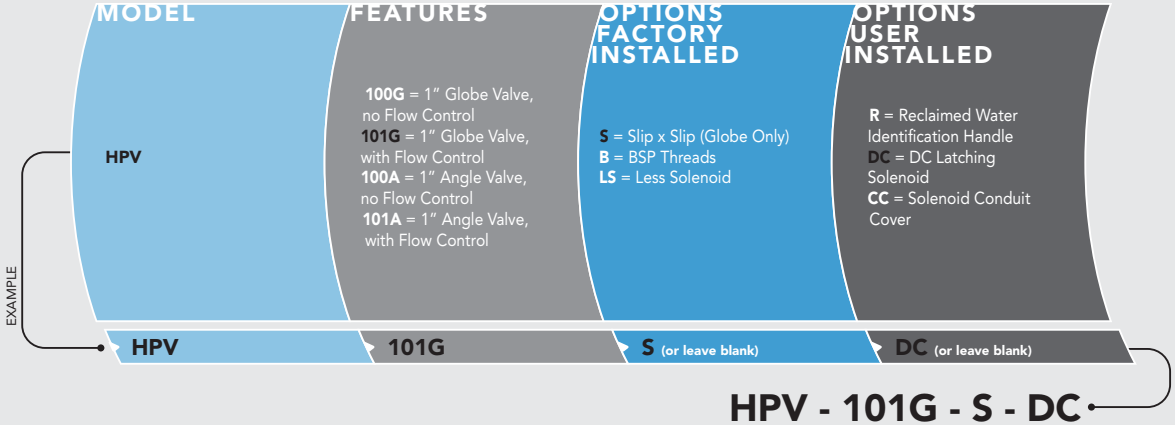
OPERATING SPECIFICATIONS

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

OPTIONS AVAILABLE

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

HPV



HPV - 101G - S - DC

HPV Pressure Loss in kPa

l/min	1" Globe	1" Angle
4.0	7.1	7.1
20.0	9.6	8.4
40.0	9.9	7.9
55.0	12.3	8.6
75.0	18.4	11.1
95.0	27.7	15.4
115.0	40.3	21.5
135.0	56.1	29.3
160.0	80.6	41.5

HPV Pressure Loss in Bars

m^3/hr	1" Globe	1" Angle
0.25	0.11	0.12
1.00	0.09	0.10
2.50	0.09	0.07
3.50	0.11	0.08
4.50	0.16	0.10
5.50	0.24	0.14
6.50	0.34	0.19
8.00	0.53	0.30
9.00	0.68	0.39

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 59

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

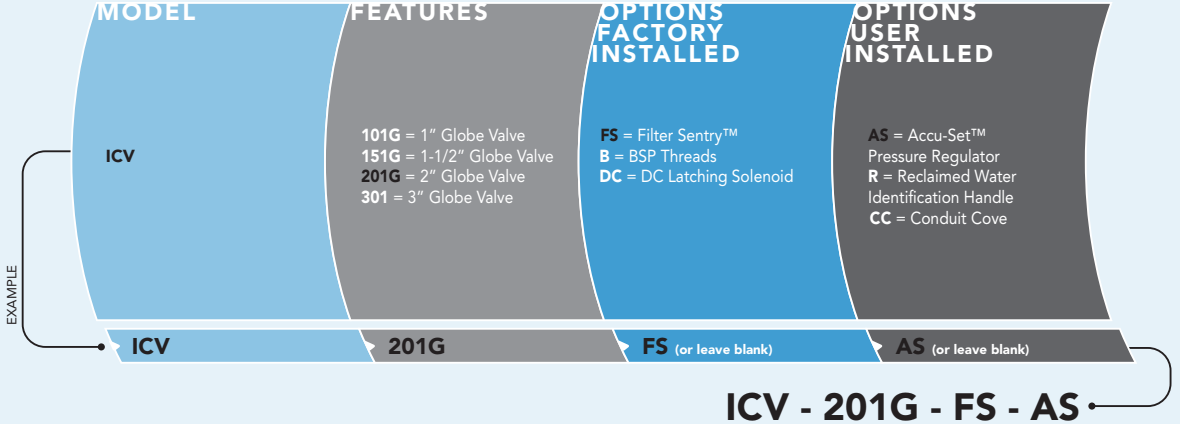
DIMENSIONS
- Globe Valve:
  5-1/4" H x 4-1/2" L x 2-3/4" W
  (13 cm H x 11 cm L x 7 cm W)
- Angle Valve:
  5-1/2" H x 3-1/2" L x 2-3/4" W
  (14 cm H x 9 cm L x 7 cm W)
- Female inlet/outlet: 1" NPT, BSP, or Slip

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

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

ICV

SPECIFICATION BUILDER



ICV - 201G - FS - AS

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

DIMENSIONS
- ICV-101G:
  5-1/2" H x 4-3/4" L x 4" W
  (14 cm H x 12 cm L x 10.2 cm W)
- ICV-151G:
  71/8" H x 6-7/8" L x 5-1/2" W
  (18 cm h x 17.5 cm L x 14 cm W)
- ICV-201G:
  71/8" H x 6-7/8" L x 5-1/2" W
  (18 cm H x 17.5 cm L x 14 cm W)
- ICV-301:
  10-3/4" H x 9-1/4" L x 7-3/8" W
  (27.3 cm H x 23.5 cm L x 18.7 cm W)
- Female inlet/outlet: 1", 1-1/2", 2" & 3" NPT or BSP

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

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

ICV Pressure Loss in kPa

				3"	
l/min	1"	1½"	2"	Globe	Angle
1.0	13.7				
2.0	13.7				
4.0	13.7				
20.0	17.2				
40.0	20.1				
60.0	20.1				
75.0	20.1	9.6			
115.0	29.2	10.1			
150.0	48.0	11.6	4.9		
190.0		14.6	7.0		
225.0		18.1	9.3		
280.0		25.8	14.0		
340.0		36.9	20.4		
380.0		45.8	25.5		
450.0		64.7	36.0		
510.0		83.9	46.5		
565.0		104.1	57.4	16.1	12.0
660.0			79.2	22.2	17.0
750.0			103.1	29.0	22.5
850.0				37.6	29.7
950.0				47.4	38.0
1050.0				58.4	47.4
1135.0				68.7	56.3

ICV Pressure Loss in Bars

				3"	
m^3/hr	1"	1½"	2"	Globe	Angle
0.05	0.14				
0.10	0.14				
0.25	0.14				
1.00	0.17				
2.50	0.19				
3.50	0.21				
4.50	0.24	0.10			
7.00	0.33	0.11			
9.00	0.45	0.12	0.05		
11.00		0.15	0.07		
13.50		0.20	0.10		
17.00		0.29	0.15		
20.50		0.42	0.22		
23.00		0.52	0.28		
27.00		0.72	0.39		
30.50		0.93	0.50		
34.00		1.16	0.63	0.15	0.13
40.00			0.88	0.20	0.16
45.50			1.15	0.26	0.23
51.00				0.34	0.30
57.00				0.43	0.38
62.50				0.53	0.48
68.00				0.64	0.59

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 61

SPECIFICATION BUILDER

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

EXAMPLE: HPV | 201G | FS (or leave blank) | AS (or leave blank)

ICV - 201G - FS - AS

ICV Pressure Loss in kPa

l/min	1"	1½"	2"	3" Globe	3" Angle
1.0	13.7				
2.0	13.7				
4.0	13.7				
20.0	17.2				
40.0	20.1				
60.0	20.1				
75.0	20.1	9.6			
115.0	29.2	10.1			
150.0	48.0	11.6	4.9		
190.0		14.6	7.0		
225.0		18.1	9.3		
280.0		25.8	14.0		
340.0		36.9	20.4		
380.0		45.8	25.5		
450.0		64.7	36.0		
510.0		83.9	46.5		
565.0		104.1	57.4	16.1	12.0
660.0			79.2	22.2	17.0
750.0			103.1	29.0	22.5
850.0				37.6	29.7
950.0				47.4	38.0
1050.0				58.4	47.4
1135.0				68.7	56.3

ICV Pressure Loss in Bars

m³/hr	1"	1½"	2"	3" Globe	3" Angle
0.05	0.14				
0.10	0.14				
0.25	0.14				
1.00	0.17				
2.50	0.19				
3.50	0.21				
4.50	0.24	0.10			
7.00	0.33	0.11			
9.00	0.45	0.12	0.05		
11.00		0.15	0.07		
13.50		0.20	0.10		
17.00		0.29	0.15		
20.50		0.42	0.22		
23.00		0.52	0.28		
27.00		0.72	0.39		
30.50		0.93	0.50		
34.00		1.16	0.63	0.15	0.13
40.00			0.88	0.20	0.16
45.50			1.15	0.26	0.23
51.00				0.34	0.30
57.00				0.43	0.38
62.50				0.53	0.48
68.00				0.64	0.59

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 63

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

DIMENSIONS
- ICV-101G
  5-1/2" H x 4-3/4" L x 4" W
  (14 cm H x 12 cm L x 10.2 cm W)
- ICV-151G
  7-1/8" H x 6-7/8" L x 5-1/2" W
  (18 cm h x 17.5 cm L x 14 cm W)
- ICV-201G
  7-1/8" H x 6-7/8" L x 5-1/2" W
  (18 cm H x 17.5 cm L x 14 cm W)
- ICV-301
  10-3/4" H x 9-1/4" L x 7-3/8" W
  (27.3 cm H x 23.5 cm L x 18.7 cm W)
- Female inlet/outlet: 1", 1-1/2", 2" & 3" NPT or BSP

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

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

IBV

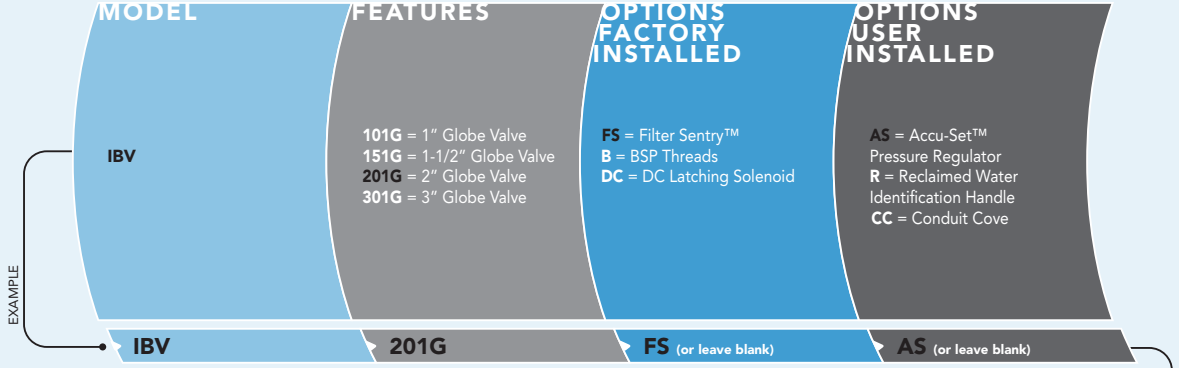
MODELS
IBV-101G – 1" brass globe valve
IBV-151G – 1-1/2" brass globe valve
IBV-201G – 2" brass globe valve
IBV-301G – 3" brass globe

DIMENSIONS
- IBV-101G
  4-1/2" H x 3-3/4" L x 5-1/4" W
  (11.4 cm H x 9.3 cm L x 13.1 cm W)
- IBV-151G
  6-1/4" H x 5-1/4" L x 6-1/8" W
  (15.7 cm H x 13.2 cm L x 16.3 cm W)
- IBV-201G
  6-1/16" H x 5-1/4" L x 6-15/16" W
  (15.4 cm H x 13.2 cm L x 17.6 cm W)
- IBV-301G
  9-5/16" H x 7-1/4" L x 9-1/8" W
  (23.6 cm H x 18.3 cm L x 23 cm W)
- Female inlet/outlet: 1", 1-1/2", 2" & 3" NPT or BSP

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

OPTIONS AVAILABLE
- Accu-Set pressure regulator

SPECIFICATION BUILDER



IBV - 201G - FS - AS

IBV Pressure Loss in kPa

l/min	1"	1½"	2"	3"
1.0	13.7			
2.0	13.7			
4.0	13.7			
20.0	17.2			
40.0	20.1			
60.0	20.1			
75.0	20.1	9.6		
115.0	29.2	10.1		
150.0	48.0	11.6	4.9	
190.0		14.6	7.0	
225.0		18.1	9.3	
280.0		25.8	14.0	
340.0		36.9	20.4	
380.0		45.8	25.5	
450.0		64.7	36.0	
510.0		83.9	46.5	
565.0		104.1	57.4	16.1
660.0			79.2	22.2
750.0			103.1	29.0
850.0				37.6
950.0				47.4
1050.0				58.4
1135.0				68.7

IBV Pressure Loss in Bars

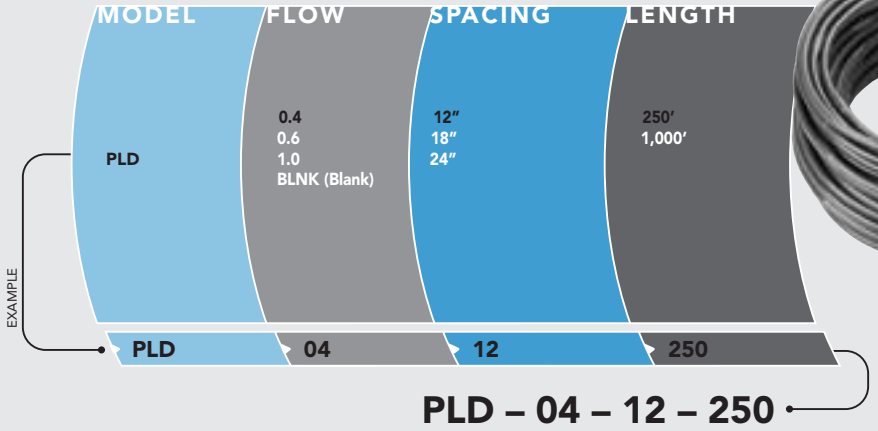
m3/hr	1"	1½"	2"	3"
0.05	0.14			
0.10	0.14			
0.25	0.14			
1.00	0.17			
2.50	0.19			
3.50	0.21			
4.50	0.24	0.10		
7.00	0.33	0.11		
9.00	0.45	0.12	0.05	
11.00		0.15	0.07	
13.50		0.20	0.10	
17.00		0.29	0.15	
20.50		0.42	0.22	
23.00		0.52	0.28	
27.00		0.72	0.39	
30.50		0.93	0.50	
34.00		1.16	0.63	0.15
40.00			0.88	0.20
45.50			1.15	0.26
51.00				0.34
57.00				0.43
62.50				0.53
68.00				0.64

Charts based on full-open flow control position.

blue INFO IN THE CATALOG PAGE 65

Landscape Drip Line

SPECIFICATIONBUILDER



OPERATING SPECIFICATIONS

- Pressure Compensating, Non-draining emitters
- Operating Pressure Range of 15-50 PSI (1.0 to 3.5 bar)
- Recommended Filtration:120 Mesh
- Accepts 17mm Insert Fittings

Maximum Lateral Length (meters) at 3.0 Bar / Emitter Spacing (inches)

Flow Rate (LPH)	.030	.045	.060
1.75	213	295	368
2.35	135	185	232
3.75	129	179	223

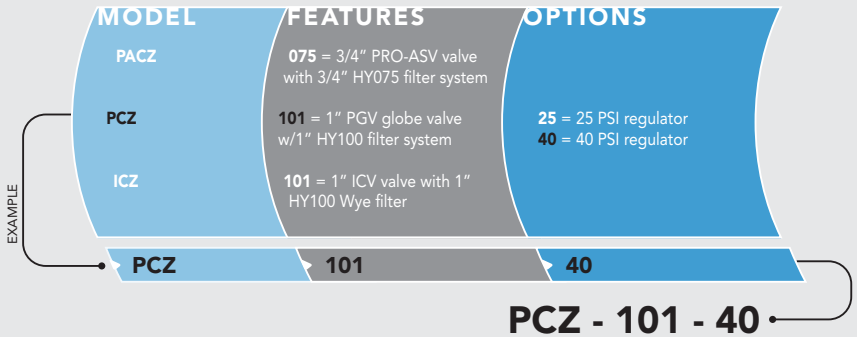
LPM / 100' Quick Reference Chart

	12"	18"	24"
1.20	2.5	1.7	1.3
2.30	3.8	2.5	1.9
3.80	6.4	4.2	1.6

MORE INFO IN THE CATALOG PAGE 66

Drip Zone Control Kits

SPECIFICATIONBUILDER



PCZ-101

ICZ-101

PACZ-075

MODELS

PACZ-075 - 3/4" anti-siphon control zone kit
PCZ-101 - 1" control zone kit
ICZ-101 - 1" control zone kit
HY075 - 3/4" MPT plastic Wye strainer with stainless steel 150 mesh screen
HY100 - 1" MPT plastic Wye strainer with stainless steel 150 mesh screen

OPERATING SPECIFICATIONS

- Flow: .5 to 20 GPM (30 to 1200 GPH; 0.12 to 9.60 m3/hr, 1.9 to 76 l/min)
- Pressure: 15 to 120 PSI (1.0 to 8.0 bar; 100 to 800 kPa)
- Temperature: up to 150˚F (66˚C)
- Heavy-duty solenoid: 24 AC, 370 mA inrush current, 190 mA holding current, 60 cycles; 475 mA inrush current, 230 mA holding current, 50 cycles

MORE INFO IN THE CATALOG PAGE 67

Quick Couplers

SPECIFICATION BUILDER

MODEL	BODY	COVER	OPTIONS
HQ = Quick Coupler	**3** = 3/4" inlet, 1-piece body **5** = 1" inlet, 1-piece body **33D** = 3/4" inlet, 2-piece body **44** = 1" inlet, 2-piece body	**RC** = Yellow rubber cover **LRC** = Yellow locking rubber cover	**AW** = Acme key with anti-rotation wings* **B** = BSP threads** **R** = Purple locking cover (for reclaimed water sites)***
HK = Coupler Key	**33** = 3/4" valve, 3/4" key inlet **44** = 1" valve, 1" key inlet **44A** = 1" valve, Acme key inlet **55** = 1" valve, 1-1/4" key inlet		* only available in body 44 ** only available in body 5 *** only available LRC Models
HS = Hose Swivel	**0** = 3/4" inlet x 3/4" hose outlet **1** = 1" inlet x 3/4" hose outlet **2** = 1" inlet x 1" hose outlet **1B** = 1" inlet x 3/4" BSP outlet **2B** = 1" inlet x 1" BSP outlet		

EXAMPLE: **HQ** | **44** | **LRC** | **AW**

HQ - 44 - LRC - AW

Reclaimed Water Products

ROTORS-FACTORY INSTALLED ID CAP

MPR40:
- MPR40-00
- MPR40-04
- MPR40-06
- MPR40-12

PGJ:
- PGJ-00-R
- PGJ-04-R
- PGJ-06-R
- PGJ-12-R

PGP:
- PGS-ARV
- PGS-3RV
- PGP-ARV
- PGP-3RV
- PGH-ARV
- PGH-3RV

I-10/20 Ultra:
- I-10-ARV
- I-10-3RV
- I-20-ARV
- I-20-3RV
- I-20-ARS
- I-20-3RS
- I-20-6P-ARV
- I-20-6P-3RV
- I-20-6P-ARS
- I-20-6P-3RS
- I-20-HP-ARV
- I-20-HP-3RV

I-25 Plus:
- I-25-ARV
- I-25-3RV
- I-25-ARS
- I-25-3RV
- I-25-6P-ARV
- I-25-6P-3RV
- I-25-6P-ARS
- I-25-6P-36S

I-35:
- I-35
- I-35-SS

I-40:
- I-40-ARS
- I-40-3RS
- I-40-3RS-ON
- I-40-6P-ARS
- I-40-6P-3RS
- I-40-6P-3RS-ON

I-60:
- I-60-ARS
- I-60-3RS

I-90:
- I-90-ARV
- I-90-3RV

SPRAYS

PS:
- Identification ring field-install part #: 461844

SRS:
- Reclaimed water identification cap field-install part #: 349800

Pro-Spray®:
Factory Installed:
- PRO-00-R - shrub adapter
- PRO-04-CV-R
- PRO-06-CV-R
- PRO-12-CV-R

Field Installed:
- Reclaimed water identification snap-on cover part #: 469800
- Reclaimed water thread-on body cap part #: 458520
- Reclaimed water thread-on body cap, Pro-Spray with Check Valve ID part #: 458525

Institutional Spray:
Factory Installed:
- INST-00-R - shrub adapter
- INST-04-CV-R
- INST-06-CV-R
- INST-12-CV-R

Field Installed:
- Reclaimed water identification snap-on cover part #: 469805
- Reclaimed water thread-on body cap part #: 458530
- Reclaimed water thread-on body cap, Institutional Spray with Check Valve ID part #: 458535

VALVES

1" PGV, SRV, HPV & Pro-ASV:
- Reclaimed water identification handle field-install part #: 269205

PGV-151 & PGV-201:
- Reclaimed water identification handle field-install part #: 412705

ICV-101, ICV-151 & ICV-201:
- Reclaimed water identification handle field-install part #: 561205

ICV-301:
- Reclaimed water identification handle field-install part #: 515005

QUICK COUPLERS

(Factory Installed):
- HQ-33DLRCR
- HQ-44LRCR
- HQ-44LRC-AWR
- HQ-5LRCR
- HQ-5LRC-BR

MORE INFO IN THE CATALOG PAGE 69

CROSS REFERENCE CHART – *For detailed cross-branding information, see pages 71.*

HQ - Quick Couplers

HUNTER	RAIN BIRD	TORO	BUCKNER
HQ-3RC	3RC	473-00, 473-01	QB3RC07
HQ-33DRC	33DRC		QB33RC07
HQ-33DLRC	33DLRC, 33DNP		QB33LRC07, QB33NP07
HQ-44RC	44RC	474-21	QB44RC10
HQ-44LRC	44LRC, 44NP	474-24	QB44LRC10, QB44NP10
HQ-44RC-AW		474-21	QB44RCATAR10
HQ-44LRC-AW	4NP-Acme	474-44	QB44LRCATAR10, QB44NPATAR10
HQ-5RC	5RC	475-00, 475-01	QBRB5RC10
HQ-5LRC	5LRC, 5NP	475-03, 475-04	QBRB5LRC10, QBRB5NP10
HQ-5RC-B	5RC-BSP		QBRB5RC10BS
HQ-5LRC-B	5LRC-BSP		QBRB5LRC10BS, QBRB5NP10BS

HK - Keys

HUNTER	RAIN BIRD	TORO	BUCKNER
HK-33	33K, 33DK	463-01	QB33K07
HK-44	44K	464-01	QB44K10
HK-44A	4K-Acme	464-03	QB44KAT10
HK-55	55K-1	465-01	QB5RK10

HK - Swivels

HUNTER	RAIN BIRD	TORO	BUCKNER
HS-0	SH-0	477-00	HS075
HS-1	SH-1	477-01	HS100
HS-2	SH-2	477-02	HS101
HS-1-B			HS100BS
HS-2-B			HS101BS

HQ – Quick Coupler Specifications:

MODEL	INLET THREADS	SLOTS	BODY	COLOR*	LOCKING	KEY	SWIVELS
HQ-3RC	3/4" NPT	2	1 - Piece	Yellow	No	HK-33	HS-0
HQ-33DRC	3/4" NPT	2	2 - Piece	Yellow	No	HK-33	HS-0
HQ-33DLRC	3/4" NPT	2	2 - Piece	Yellow	Yes	HK-33	HS-0
HQ-44RC	1" NPT	1	2 - Piece	Yellow	No	HK-44	HS-1 or HS-2
HQ-44LRC	1" NPT	1	2 - Piece	Yellow	Yes	HK-44	HS-1 or HS-2
HQ-44RC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	No	HK-44A	HS-1 or HS-2
HQ-44LRC-AW	1" NPT	Acme	2 - Piece Wing**	Yellow	Yes	HK-44A	HS-1 or HS-2
HQ-5RC	1" NPT	2	1 - Piece	Yellow	No	HK-55	HS-1 or HS-2
HQ-5LRC	1" NPT	2	1 - Piece	Yellow	Yes	HK-55	HS-1 or HS-2
HQ-5RC-B	1" BSP	2	1 - Piece	Yellow	No	HK-55	HS-1-B or HS-2-B
HQ-5LRC-B	1" BSP	2	1 - Piece	Yellow	Yes	HK-55	HS-1-B or HS-2-B

** All locking cover models are available with purple covers for reclaimed water applications. **Anti-rotation stabilization wings.*

HK – Key Specifications:

MODEL	INLET STYLE	OUTLET THREADS	COUPLERS	SWIVELS
HK-33	3/4" w/Single lug	3/4" Male NPT and -1/2" Female NPT	HQ-3RC, HQ-33DRC, HQ-33DLRC	HS-0
HK-44	1" w/Single stainless lug	1" Male NPT and 3/4" Female NPT	HQ-44RC, HQ-44LRC	HS-1 or HS-2
HK-44A	1" w/Acme thread	1" Male NPT and 3/4" Female NPT	HQ-44RC-AW, HQ-44LRC-AW	HS-1 or HS-2
HK-55	1-1/4" w/Single stainless lug	1" Male NPT	HQ-5RC, HQ-5LRC, HQ-5RC-B, HQ-5LRC-B	HS-1, HS-2, HS-1-B, HS-2-B

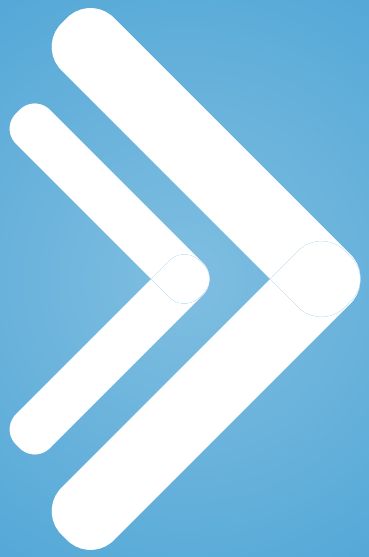
HS – Swivel Specifications:

MODEL	INLET x OUTLET THREADS	COUPLERS	KEYS
HS-0	3/4" Female NPT x 3/4" Male Hose	HQ-3RC, HQ-33DRC, HQ-33DLRC	HK-33
HS-1	1" Female NPT x 3/4" Male Hose	HQ-44RC, HQ-44LRC, HQ-44RC-AW, HQ-44LRC-AW, HQ-5RC, HQ-5LRC	HK-44, HK-44A, HK-55
HS-2	1" Female NPT x 1" Male Hose	HQ-44RC, HQ-44LRC, HQ-44RC-AW, HQ-44LRC-AW, HQ-5RC, HQ-5LRC	HK-44, HK-44A, HK-55
HS-1-B	1" Female NPT x 3/4" Male BSP	HQ-5RC-B, HQ-5LRC-B	HK-55
HS-2-B	1" Female NPT x 1" Male BSP	HQ-5RC-B, HQ-5LRC-B	HK-55

HLK – Locking Cover Key:

MODEL	COUPLERS
HLK	HQ-33DLRC, HQ-44LRC, HQ-44LRC-AW, HQ-5LRC, HQ-5LRC-B HQ-33DLRCR, HQ-44LRCR, HQ-44LRC-AWR, HQ-5LRCR, HQ-5LRCBR

MORE INFO IN THE CATALOG PAGE 68

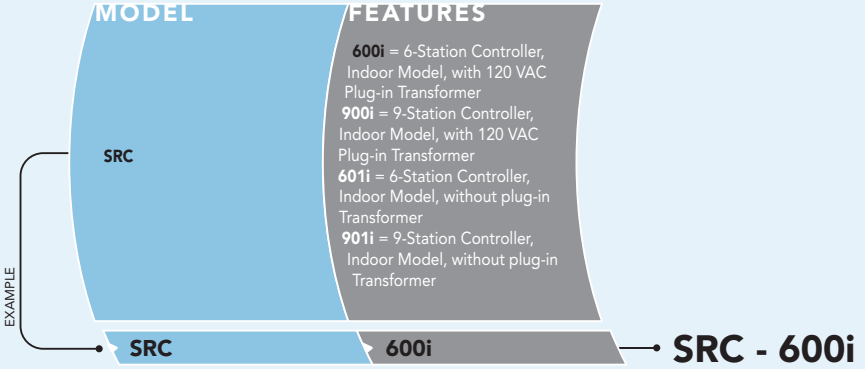


CONTROLLERS / SENSORS

APPLICATIONS	SRC Plus	XC	PRO-C	ICC Plastic Cabinet	ICC Metal Cabinet	ICC Stainless Steel Cabinet	ICC Plastic Pedestal	ACC Metal Cabinet	ACC Plastic Pedestal	SVC	WVS
Residential	•	•	•	•						•	•
Light Commercial			•	•	•	•	•	•	•	•	•
Light Commercial/Institutional				•	•	•	•	•	•	•	•
TYPE OF CONTROLLER											
Indoor	•	•	•	•	•	•		•	•		
Outdoor		•	•	•	•	•	•	•	•	•	•
Pedestal Mounting				•	•	•	•	•			
FEATURES											
Number of Programs	3	3	3	4	4	4	4	6	6	per zone	per zone
Master Valve/Pump Start Circuit	•	•	•	•	•	•	•	2	2		
Seasonal Adjust/Water Budget		•	•	•	•	•	•	•	•		
Programmable Rain Delay		•	•	•	•	•	•	•	•		
Rain Sensor Bypass	•	•	•	•	•	•	•	•	•		
True Odd/Even Watering	•	•	•	•	•	•	•	•	•		
Interval Watering		•	•	•	•	•	•	•	•	•	•
Cycle and Soak				•	•	•	•	•	•		
Programmable Delay Between Stations		•	•	•	•	•	•	•	•		
Test Program	•	•	•	•	•	•	•	•	•		
Non-Volatile Memory	•	•	•	•	•	•	•	•	•	•	•
Real Time Flow Sensing								•	•		
Battery Operated										•	•
ACCESSORIES											
Remote Control Ready	•		•	•	•	•	•	•	•		
Upgradable to Central Control	•		•	•	•	•	•	•	•		

SRC Plus

SPECIFICATION BUILDER



MODELS

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

DIMENSIONS

- SRC Plus: 8-1/4" H x 8-1/2" W x 2-1/4" D (21 cm H x 22 cm W x 6 cm D)

SPECIFICATIONS & FEATURES

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

blue INFO IN THE CATALOG PAGE 73

MODEL	TRANSFORMER	INDOOR/ OUTDOOR	OPTIONS
XC-2 = 2 stations (indoor model only) **XC-4 =** 4 stations **XC-6 =** 6 stations **XC-8 =** 8 stations	**00 =** 120V **01** = 230/240V	Outdoor Model Standard, unless "i" noted for Indoor Mount *(see below)* **i** = Indoor Model	**A** = Australian Markets 240VAC (Outdoor Model Supplied with Cord) **E** = Europe 230VAC
EXAMPLE: **XC-6**	**00**	**i**	Leave blank if no option chosen

XC - 600i

SPECIFICATIONS & FEATURES CONT'D

- Programmable event day off allows specific day(s) to be designated as always "off"
- Hunter Quick Check™ helps troubleshoot field wiring issues
- Test program feature allows for quick system checks
- UL Listed/CE Approved

blue INFO IN THE CATALOG PAGE 75

MODELS

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

DIMENSIONS

- Indoor Model: 6-1/2" H x 5-3/4" W x 2" D (16.5 cm H x 14.6 cm W x 5 cm D)
- Outdoor Model: 8-5/8" H x 7" W x 3-3/4" D (22 cm H x 17.8 cm W x 9.5 cm D)

SPECIFICATIONS & FEATURES

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

PRO-C

SPECIFICATION BUILDER

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

EXAMPLE: **PC** | **300** | Leave blank if no option chosen → **PC - 300**

MODELS

PC-300i – 3-station base unit controller, indoor model, plug-in transformer, expands to 15 stations

PC-300 – 3-station base unit controller, outdoor model, internal transformer, expands to 15 stations

PC-301i – International model 3-station base model indoor plastic cabinet with plug-in transformer, expands to 15 stations

PC-301 –International model 3-station base unit controller, outdoor model, internal transformer, expands to 15 stations

PCM-300 – 3-station plug-in module for use with any PC controller model

PCM-900 – 9-station plug-in module for use with any PC controller model (expands Pro-C station capability to 15 stations with 1 PCM-300 installed)

DIMENSIONS

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

SPECIFICATIONS & FEATURES

- Outdoor models, 120VAC transformer with internal junction box
- Indoor model, 120VAC three prong plug-in transformer
- Station output 24VAC .56 Amps
- Transformer output 24VAC 1.0 Amps
- Capable of operating equivalent of 3 solenoids simultaneously
- Operating Temperature: 0 to 150˚ F
- NEMA rated outdoor cabinet
- CE/UL Listed
- 4 start times per program for repeat watering needs
- Up to six hours run time on each station
- Automated chronological ordering of start times/start time stacking

Pro-C QUICK REFERENCE CHART

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

SPECIFICATIONS & FEATURES CONT'D

- 365-day calendar
- Programmable event day off allows specific day(s) to be designated as always "off"
- Rain Sensor bypass switch compatible with micro-switch based sensors, displays when sensor is active
- Programmable delay between stations of zero seconds to 4 hours for well recovery or slow-closing valves
- Programmable rain delay for 1 to 7 days
- Compatible with Hunter's SRR and ICR remote control system
- Programmable pump/master valve circuit by station
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Automatic module recognition; automatically identifies stations when modules are installed or removed
- Non-volatile memory backs up watering programs and current date and time
- Electronic short circuit protection; detects and skips shorted stations, no fuse to replace

blue INFO IN THE CATALOG PAGE 77

SPECIFICATION BUILDER

MODEL	FEATURES
ICC	**800-PL** = 8-Station Base Unit Controller, Plastic Cabinet, Internal Transformer, Expands to 32 Stations **801-PL** **800-M** = 8-Station Base Unit Controller, Metal Cabinet, Internal Transformer, Expands to 48 Stations **800-SS** = 8-Station Base Unit Controller, Stainless Steel Cabinet, Internal Transformer, Expands to 48 Stations **800-PP** = 8-Station Base Unit Controller, Plastic Pedestal, Internal Transformer, Expands to 48 Stations
ICM	**400** = 4-Station Plug-in Module for use with any ICC Controller Model **800** = 8-Station Plug-in Module for use with any ICC Controller Model
ICC	**PED** = Optional Metal Pedestal **PED-SS** = Optional Stainless Steel Pedestal **PWB** = Pedestal Wiring Board

EXAMPLE

ICC | 800-PL

ICC - 800-PL

ICC QUICK REFERENCE CHART

PLASTIC CABINET

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

MODELS

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

DIMENSIONS

- Plastic Cabinet: 11" H x 13-1/4" W x 4-3/4" D (25.7 cm H x 33.7 cm W x 12.1 cm D)

SPECIFICATIONS & FEATURES

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

blue INFO IN THE CATALOG PAGE 79

ICC Metal

MODELS

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

DIMENSIONS

- Metal Cabinet: 16" H x 12-1/4" W x 4-3/4" D (40.6 cm H x 31.1 cm W x 12.1 cm D)
- Metal Pedestal: 30" H x 11-3/8" W x 4" D (76.2 cm H x 28.9 cm W x 10.2 cm D)
- Plastic Pedestal: 38-3/16 " H x 20-1/2" W x 15-1/8" D (97 cm H x 52 cm W x 38 cm D)

SPECIFICATIONS & FEATURES

- Transformer input: 120/240VAC, 50/60Hz
- Transformer output: 24VAC, 1.5A
- Station output: 24VAC, 0.56A (2 valves)
- Maximum total output: 24VAC, 1.4A (5 valves), includes master valve circuit
- Master valve output: 24VAC, 0.28A
- Rain sensor override compatible with most brands utilizing a normally closed micro switch
- Seasonal adjustment: 10 to 150%
- Program "D" can run simultaneously with program A, B, or C for drip
- Self-diagnostic circuit breaker: Skips shorted stations and continues watering, no fuses to replace
- Station run times: Programs A, B, and C, 2 hours; Program D, 12 hours
- Programmable delay between stations up to 10 hours
- Programmable rain delay up to 7 days
- UL listed
- 365 day calendar

SPECIFICATION BUILDER

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

EXAMPLE: ICC | 800-PP | Leave blank if no option chosen

ICC - 800-PP

SPECIFICATIONS & FEATURES CONT'D

- Optional pedestal wiring board/terminal strip
- Hunter Quick Check™ helps troubleshoot field wiring problems
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ system
- Compatible with Hunter's SRR and ICR remote control systems
- All models NEMA rated for weather resistance
- One button manual start and advance
- Cycle and Soak capability by station

ICC QUICK REFERENCE CHART

METAL OR STAINLESS STEEL CABINETS

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

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

blue INFO IN THE CATALOG PAGE 81

SPECIFICATIONBUILDER

MODEL	FEATURES	OPTIONS USER INSTALLED
ACC	**1200** = 12-Station Base Unit Controller, Metal Cabinet, Expands to 42 Stations **1200PP** = 12-Station Base Unit Controller, Plastic Pedestal, Expands to 42 Stations **99D** = 2-Wire Decoder Controller with 99 Station Capacity, Metal Cabinet* **99DPP** = 2-Wire Decoder Controller with 99 Station Capacity, Plastic Pedestal*	**PED** = Optional Metal Pedestal **PP** = Optional Plastic Pedestal
ACM	**600** = 600 = 6 Station Plug-in Module for use with ACC1200 series controllers	
HFS	Hunter Flow Sensor, requires the use of an FCT-xxx	
ACC-COM*	**HWR** = Hardwire Connection Communication Module for "Satellite" Installations **POTS** = Regular Dial-up Telephone (RJ-11) Connection Communication Module for "Satellite" Installations **GSM** = Cellular Connection Communication Module (Cell Phone & Antenna Included) for "Satellite" Installations Terminal for Hardwire Connections (In- and Outbound Wire) UHF Radio Communications Module (Antenna not Included)	
ACC-HWIM	Hardwire Interface Module for GCBL cable connections	
RAD3	UHF Radio Module for wireless communications, 450 – 470 MHz (license required)	

EXAMPLE: **ACC** | **1200** | Leave blank if no option chosen

* See ACC–99D Brochure (LIT-394) for detailed information.

ACC - 1200

ACC QUICK REFERENCE CHART

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

SPECIFICATIONS & FEATURES CONT'D

- Programmable delay between stations of up to 6 hours
- UL, C-UL, CE, C-tick
- 365 day calendar
- Test program feature allows for quick system checks
- Central control compatible with Hunter IMMS™ 2.0 system
- Real-time Flow Monitoring capability built in, with actual flow histories (in GPM or metric) available when connected to Hunter HFS or other compatible flow meters.
- Flow-learning mode by station, with station-level diagnostics and alarm shutdowns.
- Easy Retrieve™ backup feature can restore schedules, run times, names and other settings to a saved setup
- Programmable Stack and Overlap settings, including SmartStack™.
- Alphanumeric names for each program, station (zone) or group, with programmable customer contact screen.
- Maximum 1 Flow Meter and 4 Clik sensors per controller, with programmable response by program.
- Smartport equipped for wireless remote control.

blue INFO IN THE CATALOG PAGE 83

MODELS

ACC-1200 – 12-station controller, metal cabinet, 42-station capacity
ACC-1200-PP – 12 station controller, plastic pedestal, 42-station capacity
ACM-600 – 6-station module for use with any ACC
AGM-600 – 6-station module with Extreme Service surge protection
HFS – Hunter flow sensor, requires the use of an FCT-xxx, Maximum 1 flow meter per controller, up to 1000 ft/330m.
ACC-PED – Metal pedestal for use with ACC-1200

DIMENSIONS

- ACC Cabinet:
  12-3/8" H x 15-1/2" W x 6-7/16" D
  (31.4 cm H x 39.4 cm W x 16.4 cm D)
- ACC Metal Pedestal:
  36-1/8" H x 15-1/2" W x 5" D
  (91.5 cm H x 39.4 cm W x 12.7 cm D)
- ACC Plastic Pedestal:
  383/8" H x 21-9/16" W x 15-7/8" D
  (97.5 cm H x 54.6 cm W x 40.3 cm D)

SPECIFICATIONS & FEATURES

- Transformer input: 120/230VAC, 50/60Hz; 2A at 120VAC, 1A at 230VAC, Maximum
- Transformer output: 24VAC, 4A, 110VA
- Station output: 24VAC, 0.56A (2 Hunter solenoids)
- Maximum total output: 24VAC, 4A (14 valves), includes master valve circuits
- Two master valve outputs: 24VAC, 0.32A each
- Seasonal adjustment: 0 to 300% in 1% increments, by program
- All programs can run simultaneously
- Self-diagnostic circuit breaker: skips shorted stations and continues watering
- Station run times: 1 second minimum to 6 hours maximum

ACC Decoder

SPECIFICATION BUILDER

MODEL	FEATURES	OPTIONS USER INSTALLED
ACC	**99D** = 2-Wire Decoder Controller with 99 Station Capacity, Metal Cabinet* **99DPP** = 2-Wire Decoder Controller with 99 Station Capacity, Plastic Pedestal*	**PED** = Optional Metal Pedestal **PP** = Optional Plastic Pedestal
ICD IDWIRE* (See tables)	**100** = Single-station Decoder with Surge Suppression and Ground Wire **200** = Two-station Decoder with Surge Suppression and Ground Wire **400** = Four-station Decoder with Surge Suppression and Ground Wire **600** = Six-station Decoder with Surge Suppression and Ground Wire **SEN** = Two Input Sensor Decoder with Surge Suppression and Ground Wire 14 Awg Decoder Wire (Up to 10,000 Ft./3km) 12 Awg Decoder Wire (Up to 15,000 Ft./4.5km)	
HFS	Hunter Flow Sensor, requires an FCT-xxx	
ACC-COM	**HWR** = Hardwire Connection Communication Module for "Satellite" Installations **POTS** = Regular Dial-up Telephone (RJ-11) Connection Communication Module for "Satellite" Installations **GSM** = Cellular Connection Communication Module for "Satellite" Installations Terminal for Hardwire Connections (In- and Outbound Wire) UHF Radio Communications Module (Antenna not Included)	
ACC-HWIM	Hardwire Interface Module for GCBL cable connections	
RAD3	UHF Radio Module for wireless communications, 450 – 470 MHz (license required)	

EXAMPLE: ACC | 99D | Leave blank if no option chosen → **ACC - 99D**

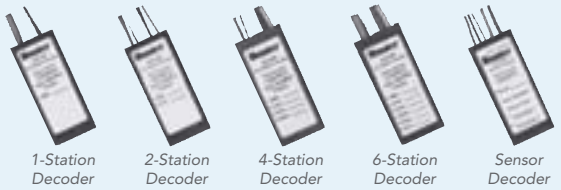
MODELS

ACC-99D – 2-Wire Decoder Controller with 99 station capacity, wall mount metal cabinet
ACC-99DPP – 2-Wire Decoder Controller with 99 station capacity, plastic pedestal
ICD-100 – Single-station decoder with surge suppression and ground wire
ICD-200 – Two-station decoder with surge suppression and ground wire
ICD-400 – Four-station decoder with surge suppression and ground wire
ICD-600 – Six-station decoder with surge suppression and ground wire
ICD-SEN – Two input sensor decoder with surge suppression and ground wire
HFS – Hunter flow sensor, requires the use of an FCT-xxx
ACC-PED – Metal Pedestal for use with ACC-99D

DIMENSIONS

- ACC-99D Cabinet : 123/8" H x 15-1/2" W x 6-7/16" D (31.4 cm H x 39.4 cm W x 16.4 cm D)
- ACC-99D Metal Pedestal: 36-1/8" H x 15-1/2" W x 5" D (91.5 cm H x 39.4 cm W x 12.7 cm D)
- ACC-99D Plastic Pedestal: 38-3/8" H x 21-9/16" W x 15-7/8" D (97.5 cm H x 54.6 cm W x 40.3 cm D)
- Decoders: ICD-100, 200, ICD-SEN - 3-5/8" H* x 1-1/2" W x 1/2" D (92 mm H* x 38 mm W x 12.7 mm D) ICD-400, 600 - 3-5/8" H* x 1-3/4 " W x 1-1/2" D (92 mm H* x 46 mm W x 38 mm D)

*Not including wire leads.



1-Station Decoder | *2-Station Decoder* | *4-Station Decoder* | *6-Station Decoder* | *Sensor Decoder*

SPECIFICATIONS & FEATURES

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

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

- 6 automatic programs, with 4 custom manual (auxiliary) programs
- Dual pump/master valve outputs programmable by station
- 1 flow meter (diagnostics to station level) and up to 4 sensor inputs (programmable to program level)
- Programmable overlap or SmartStack by program with simultaneous station groups.
- Seasonal adjust, 0 to 300% in 1% increments by program

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SPECIFICATION BUILDER

*IDWIRE TABLES

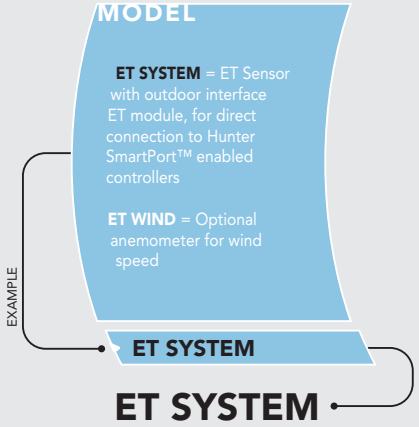
14 AWG/2MM² STANDARD DECODER CABLE (UP TO 10,000 FT./3KM)

ID1GRY	Gray jacket
ID1PUR	Purple jacket
ID1YLW	Yellow jacket
ID1ORG	Orange jacket
ID1BLU	Blue jacket
ID1TAN	Tan jacket
IDWIRE1	Unjacketed

12 AWG/3.3MM² LONG RANGE, HEAVY-DUTY DECODER CABLE

ID2GRY	Gray jacket
ID2PUR	Purple jacket
ID2YLW	Yellow jacket
ID2ORG	Orange jacket
ID2BLU	Blue jacket
ID2TAN	Tan jacket
IDWIRE2	Unjacketed

- Flow learning mode by station with programmable alarm thresholds
- Station run times up to 6 hours with programmable delay between stations (up to 6 hours)
- SmartPort® equipped for wireless remote control
- IMMS 2.0 central system compatible
- Real-time Flow Monitoring capability built in, with actual flow histories (in GPM or metric) available when connected to Hunter HFS or other compatible flow meters.
- Flow-learning mode by station, with station-level diagnostics and alarm shutdowns.
- Easy Retrieve™ backup feature can restore schedules, run times, names and other settings to a saved setup



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

DIMENSIONS
- ET Module – 6" H x 4" W x 1-3/4" D (153 mm H x 102 mm W x 45 mm D)
- ET Sensor – 10-1/2" H x 7-1/4" W x 12-1/8" D (26.7 mm H x 18.4 mm W x 30.8 mm D)
- ET Sensor with pole brackets – 10-1/2" H x 7-1/4" W x 13" D (26.7 mm H x 18.4 mm W x 33.0 mm D)
- ET Sensor with ET Wind – 11-1/2" H x 7-1/4" W x 19-7/8" D (29.2 mm H x 18.4 mm W x 50.5 mm D)
- ET Sensor and ET Wind with pole brackets – 11-1/2" H x 7-1/4" W x 20-3/4" D (29.2 mm H x 18.4 mm W x 52.7 mm D)

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

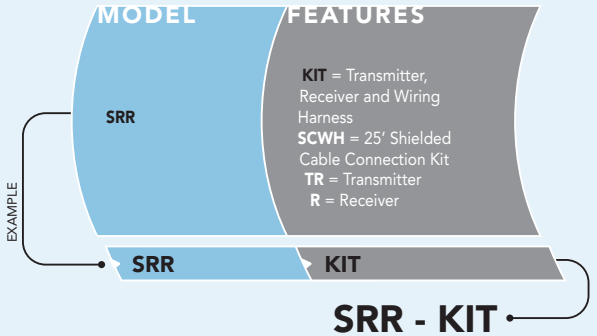
SRR

MODELS
SRR-KIT – Transmitter, receiver, wiring harness and owner's manual
SRR-SCWH – Connection Kit with 25' shielded cable
SRR-TR – Transmitter
SRR-R – Receiver

DIMENSIONS
- Transmitter: 4-3/4" H x 2-1/2" W x 1-1/4" D (12 cm H x 6 cm W x 3 cm D)
- Receiver: 4-3/4" H x 2-1/2" W x 1" D (12 cm H x 6 cm W x 2.5 cm D)

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

SPECIFICATION BUILDER



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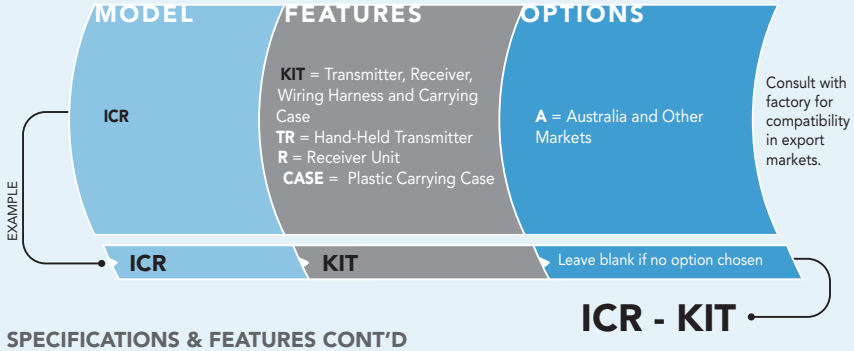
ICR

MODELS
ICR-KIT – Complete Kit: transmitter, receiver, and wiring harness, 4 AA alkaline batteries
ICR-TR – Hand held transmitter only
ICR-R – Receiver unit only

DIMENSIONS
- Transmitter (without antenna): 6-1/2" H x 3-1/4" W x 1-1/4" D (16.5 cm H x 8.3 cm W x 3.2 cm D)
- Receiver (without antenna): 6-1/4" H x 3" W x 1-1/4" D (15.9 cm H x 7.6 cm W x 3.2 cm D)

SPECIFICATIONS & FEATURES
- Address range: 0 to 127
- Maximum stations supported: 48 (SRC, Pro-C, ICC), 99 (ACC)
- Run times: Eight settings from 1-30 minutes
- Range: Up to 1/2 mile obstructed, up to 2 mile line of sight
- Temperature: 0-150˚ F
- Humidity: Up to 100%
- Transmitter: 4 AA alkaline batteries (included)

SPECIFICATION BUILDER



SPECIFICATIONS & FEATURES CONT'D
- Receiver: 24VAC, from controller through a SmartPort® connector
- System operating frequency: 27 MHz band
- Install SmartPort up to 50' from controller (use SRR-SCWH shielded cable wiring harness)
- No FCC license required
- Rugged plastic carrying case included

blue INFO IN THE CATALOG PAGE 89

SVC Smart Valve Controllers

SPECIFICATION BUILDER

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

EXAMPLE: SVC + 100 = **SVC - 100**

SPECIFICATIONS & FEATURES CONT'D

- Easy to understand icon-based display
- Simplified one button manual operation
- Programmable rain delay for 1 to 7 days
- Operates valves up to 100' away from controller using 18 AWG wire
- Battery: Standard 9 volt alkaline battery (not included), one year minimum life; battery not required for program backup
- Memory: Non-volatile for program data
- 2 feet of prewired cable included (SVC-100)
- Clip bracket for simple installation
- Rubber cover prevents dirt and debris from accumulating on the display
- Weather sensor compatible
- Controller compatible with most common 2-wire 6-9 volt DC battery-operated solenoids (consult factory for list)
- Can operate up to 4 valves simultaneously (with SVC-400)

MODELS

SVC-100 – Smart Valve Controller, solenoid attached (installs to any Hunter valve)
SVC-100-VALVE – Smart Valve Controller, complete kit, factory-installed on 1" PGV flow control valve (solenoid included)
SVC-100-VALVE-B – Smart Valve Controller, complete kit, factory-installed on 1" PGV flow control valve (solenoid included) with BSP threads
SVC-200 – 2-station Smart Valve Controller (solenoids ordered separately)
SVC-400 – 4-station Smart Valve Controller (solenoids ordered separately)
DC latching solenoid (part # 458200); designed to fit all Hunter plastic valves

DIMENSIONS

Controller: 3-1/4" D x 2" H

blue INFO IN THE CATALOG PAGE 90

SPECIFICATIONS & FEATURES

- Station run time: 0 to 240 minutes in 1-minute increments
- Start times: 9 per day
- 7-day calendar or interval (1-31 day) watering
- AM/PM or 24-hour clock option

Wireless Valve System

SPECIFICATION BUILDER

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

Consult with factory for compatibility in export markets.

EXAMPLE: ICR + KIT = **WVC - 200**

SPECIFICATIONS & FEATURES CONT'D

- Programmable rain delay for 1 to 7 days
- Solenoids: Compatible with most common 2-wire 6-9 volt DC battery-operated solenoids (consult factory for list)
- Battery: Standard 9 volt alkaline battery (not included), one year minimum life; battery not required for program backup
- Memory: Non-volatile for program data
- Weather sensor compatible
- Frequency of operation: 900 MHz ISM Band (U.S./Australia) 869.85 MHz (Europe)
- No FCC license required

MODELS

WVC-100 – 1-station Wireless Valve Controller (order solenoid separately)
WVC-200 – 2-station Wireless Valve Controller (order solenoid(s) separately)
WVC-400 – 4-station Wireless Valve Controller (order solenoid(s) separately
WVP – Wireless Valve Programmer
DC latching solenoid (part # 458200); designed to fit all Hunter plastic valves

DIMENSIONS

WVC – 3-1/4" D x 5" H
WVP – 3" W x 11-1/2" L x 2" H

blue INFO IN THE CATALOG PAGE 91

SPECIFICATIONS & FEATURES

- Wireless, radio controlled operation up to 100' away
- Station run time: 0-240 minutes in 1-minute increments
- Operates valves up to 100 feet away from controller using 18 AWG wire
- Start times: 9 per day
- 7-day calendar or interval (1-31 day) watering
- AM/PM or 24-hour clock option
- Start time stacking
- Simplified manual operation

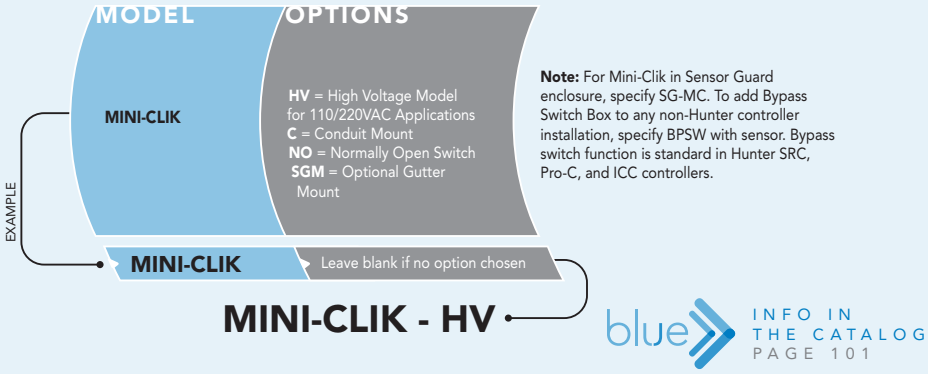
Mini-Clik®

MODELS
MINI-CLIK – standard Mini-Clik model
MINI-CLIK-HV – code approved for liquid tight electrical fittings for 120 or 240 volt wiring applications
MINI-CLIK-C – 1/2" female threaded inlet at bottom
MINI-CLIK-NO – normally open switch
MINI-CLIK-C-NO – 1/2" female threaded inlet at bottom, normally open switch

DIMENSIONS
- Height: 5"
- Length:
  MINI-CLIK: 6"
  MINI-CLIK-HV: 7-1/2"

OPERATING SPECIFICATIONS
- Switch Rating: 5 amps, at 125/250VAC
- Wiring: MINI-CLIK and MINI-CLIK-C: Typically interrupts the common ground wire between the solenoid valves and the controller

SPECIFICATION BUILDER

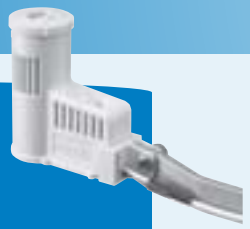


Note: For Mini-Clik in Sensor Guard enclosure, specify SG-MC. To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in Hunter SRC, Pro-C, and ICC controllers.

blue INFO IN THE CATALOG PAGE 101

OPERATING SPECIFICATIONS CONT'D
MINI-CLIK-HV: For use with high voltage irrigation systems, and systems using pumps drawing less than 10 amps peak
MINI-CLIK-NO: for use with controllers that require a normally open sensor switch
- Included: 25 ft. of #20 two conductor wire, two mounting screws, controller identification label and detailed instructions
- UL listed
- Optional user installed metal gutter mount for Mini-Clik (order SGM)

Rain-Clik™

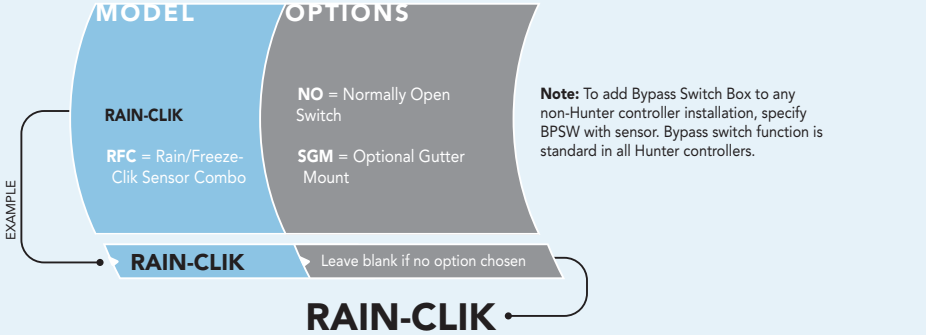


MODELS
Rain-Clik – standard (normally closed switch)
Rain-Clik-NO – normally open switch
RFC – Rain and freeze sensor (normally closed switch)

DIMENSIONS
- 3-1/4" D x 2" H

OPERATING SPECIFICATIONS
- Wiring: normally closed or normally open
- Time to turn off irrigation system: 2 to 5 minutes for the Quick Response feature
- Time to reset the Quick Response unit: 4 hours maximum under dry, sunny conditions
- Time to reset: 3 days maximum under dry, sunny conditions for the total rainfall compensation unit
- Operating temperature: 32˚F to 130˚F (0˚C to 54˚C)
- Vent ring allows for adjustment of reset delay
- UV colorfast and stable materials

SPECIFICATION BUILDER



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

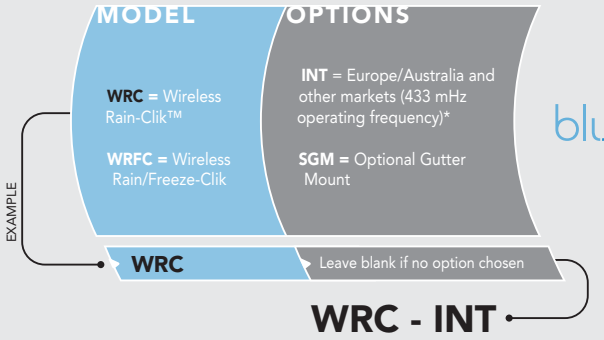
blue INFO IN THE CATALOG PAGE 102

OPERATING SPECIFICATIONS CONT'D
- UL listed
- Optional user installed gutter mount for Rain-Clik (order SGM)
- Freeze sensor shuts system off when temperatures fall below 37˚F (Rain/Freeze-Clik Model)

ELECTRICAL SPECIFICATIONS
- 24 volt, 3 AMP Switch

Wireless Rain-Clik™

SPECIFICATION BUILDER



* Consult with factory for compatibility in export markets.

blue INFO IN THE CATALOG PAGE 102

OPERATING SPECIFICATIONS CONT'D

- UL listed, FCC/DOC approved, suitable for use in Australia, CUL (CSA), CE
- Rain sensor transmitting range: up to 1,000 feet line of sight*
- Optional user installed gutter mount for Rain-Clik (order SGM)
- WRFC shuts system off when temperatures fall below 37˚F (3˚C)
- 10 year maintenance-free battery

ELECTRICAL SPECIFICATIONS

- Receiver power: 24VAC, (from controller)
- Receiver includes built-in bypass switch, no extra switch required
- Works with all standard controllers

MODELS

WRC – Wireless Rain-Clik (315 MHz for domestic markets)
WRC-INT – Wireless Rain-Clik (433 MHz for Europe, Australia and other markets)
WRFC – Wireless Rain/Freeze-Clik (315 MHz for domestic markets)
SGM – Sensor gutter mount

DIMENSIONS

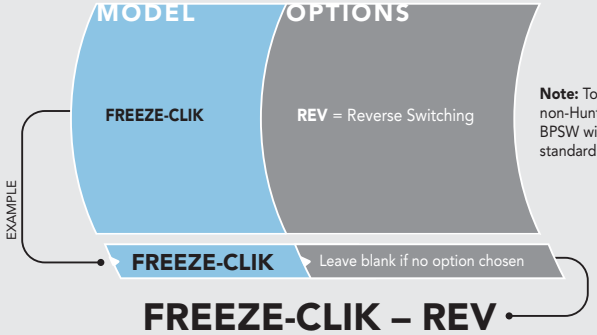
- 3-1/4" D x 4" H

OPERATING SPECIFICATIONS

- Wiring: normally closed or normally open
- Time to turn off irrigation system: 2 to 5 minutes for Quick Response
- Time to reset Quick Response unit: 4 hours maximum under dry sunny conditions
- Time to reset: 3 days maximum under dry, sunny conditions for the total rainfall compensation unit
- Operating temperature: 32˚F to 130˚F (0˚C to 54˚C)
- Vent ring allows for adjustment of reset delay
- UV colorfast and stable

Freeze-Clik®

SPECIFICATION BUILDER



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

blue INFO IN THE CATALOG PAGE 104

SPECIFICATIONS

- Length: 4-1/2"
- Temperature set point: 37˚F (3˚C +/- 2˚C)
- Temperature differential: +/- 1˚C
- Electrical rating: 24VAC 6 amps
- UL listing: Class II Low Voltage (24 volt use only)
- Switching: Closed-above 3˚C; Open-below 3˚C (Reverse switching model)
- Included: 25 ft. of #20 two conductor wire, two mounting screws and detailed instructions
- UL listed

Special Usage Note: For landscape applications only. Not for crop protection. A freeze sensor should only be used as part of a sound irrigation system management program, including regular system visual checks.

Flow-Clik™

DIMENSIONS

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

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

OPERATING SPECIFICATIONS

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

FLOW-CLIK INTERFACE PANEL

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

ELECTRICAL SPECIFICATIONS

- Current draw: @24VAC .025 Amps
- Switching current: 2.0 Amps
- Maximum distance between interface panel and sensor = 1000 ft. (18 gauge minimum wire size) 2 wires required for Flow-Clik Sensor, HFS; 4 wires required for Flow-Clik IMMS Sensor to SI/CI Interface Flow-Clik Additional features
- Programmable start up delay (0 to 300 Seconds)
- Programmable interrupt period (2 to 60 Minutes)
- System status indicator light
- One button system calibration to highest flow zone

FLOW RANGE

FLOW SENSOR DIAMETER	OPERATING RANGE (GPM)		
	MINIMUM*	SUGGESTED MAXIMUM**	MAXIMUM *(for sensor)*
1"	23	64	189
1-1/2"	49	133	379
2"	76	208	757
3"	151	454	1136
4"	227	757	1514

* Minimum recommended flow for the highest flow zone for your system.
** Good design practice dictates the maximum flow not to exceed 5ft/sec. Suggested maximum flow is based upon Class 200 IPS plastic pipe.
NOTE: Highest flow zone within irrigation system should not be more than 75% maximum available system flow.

SPECIFICATION BUILDER

MODEL	FEATURES
FLOW-CLIK	= Standard Version for all 24VAC Controllers (includes sensor and interface panel)
FLOW-CLIK IMMS	= Version for use with IMMS SI/CI only (includes sensor only–interface panel not required for IMMS 1 interfaces)
FCT	**100** = 1" Schedule 40 Sensor Body **150** = 1-1/2" Schedule 40 Sensor Body **158** = 1-1/2" Schedule 80 Sensor Body **200** = 2" Schedule 40 Sensor Body **208** = 2" Schedule 80 Sensor Body **300** = 3" Schedule 40 Sensor Body **308** = 3" Schedule 80 Sensor Body **400** = 4" Schedule 40 Sensor Body

Note: Order Flow-Clik Sensor Bodies separately (FCT series).

EXAMPLE

FLOW-CLIK | 150

FLOW-CLIK – 150

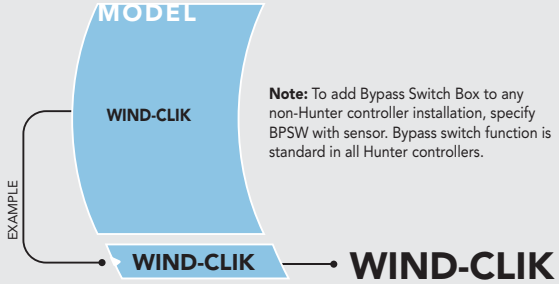
HFS

One flow meter per ACC controller max. See Flow-Clik chart (left) for minimum/maximum flows (or ICD-SEN sensor decoders).

blue INFO IN THE CATALOG PAGE 104

Wind-Clik®

SPECIFICATIONBUILDER



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

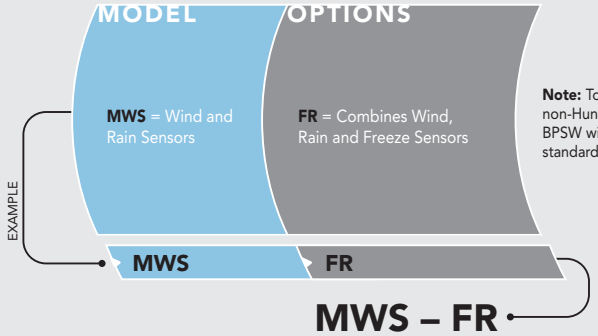
blue INFO IN THE CATALOG PAGE 105

SPECIFICATIONS

- Height: 3.9”
- Wind vane diameter: 5”
- Switch rating: 24VAC 5 amps
- Rated: 24 volts 5 amps as wired
  Wire “normally open” or “normally closed”
- Wind speed adjustment:
  Actuation: 12 to 35 mph
  Reset: 8 to 24 mph
- Mounts: Slip fits over 2” PVC pipe or attaches to 1/2” conduit with adapter (supplied with unit)

Mini Weather Station

SPECIFICATIONBUILDER

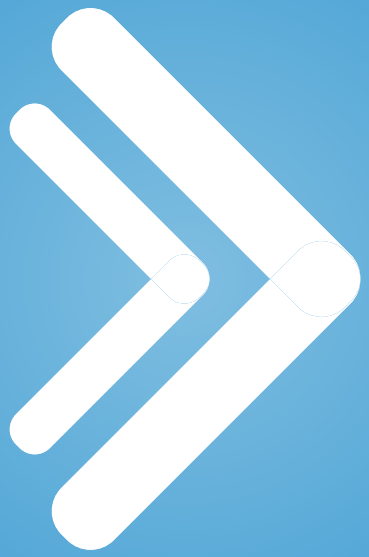


Note: To add Bypass Switch Box to any non-Hunter controller installation, specify BPSW with sensor. Bypass switch function is standard in all Hunter controllers.

blue INFO IN THE CATALOG PAGE 105

SPECIFICATIONS

- Electrical rating: 24VAC, 5 amps max
- Mini-Clik-C - Adjustable settings: measure rainfall in quantities of 1/8” to 1”
- Wind-Clik
  Wind vane diameter: 5”
  Wind speed adjustments:
  Actuation: 12 to 35 mph
  Reset: 8 to 24
- Freeze-Clik temperature set point:
  37˚F (3˚C +/- 2˚C)
  Temperature differential: +/- 1˚C



CENTRAL CONTROLS

IMMS™ 2.0 / ACC Components

IMMS 2.0 Software System Requirements
Windows XP Pro/Home or Vista, 2GHz processor,
Minimum 512MB RAM

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

ACC-COM-HWR: Communicates with central via hardwire GCBL, downstream with hardwire or radio. Use with all client controllers.

ACC-COM-POTS: Communicates with central via Telephone Line (POTS) downstream with hardwire or radio.

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

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

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

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

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

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

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

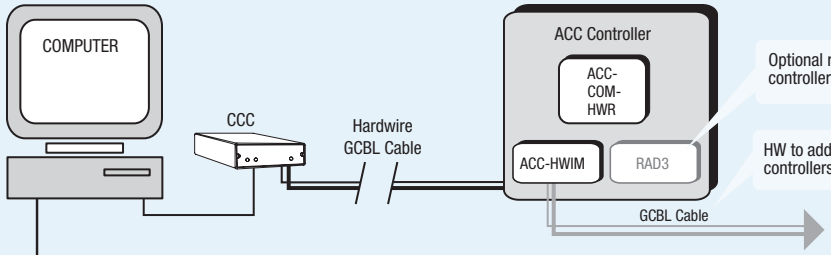
IMMS-ANT-YAGI 3: Directional UHF antenna for CI locations.

HFS Hunter Flow Sensor
Add this option to enable your controller to identify a system's low flow or overflow conditions instantaneously, before resulting damage (to either the system or surrounding landscape) can occur. Measures flow in inches or metric units. Maximum 1 flow meter per controller.

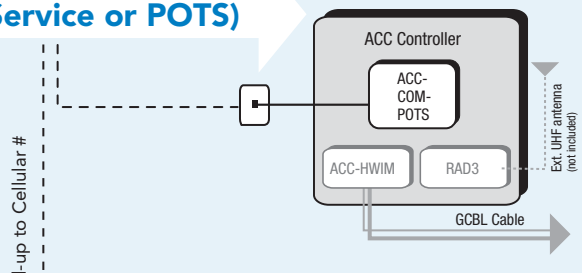
Block Diagrams

ACC Communications Connections

3 different sites, each with its own link to the central computer.



Dial-up Telephone (Plain Old Telephone Service or POTS)



All "satellite" installations require the correct COM module inside the ACC:

- **ACC-COM-HWR:** hardwire/radio connection.
- **ACC-COM-POTS:** regular dial-up telephone (RJ-11)
- **ACC-COM-GSM:** cellular connection (cell phone & antenna included).
- **ACC-COM-GSM-E:** cellular connection for most sites outside or North America (GSM modem and antenna included)

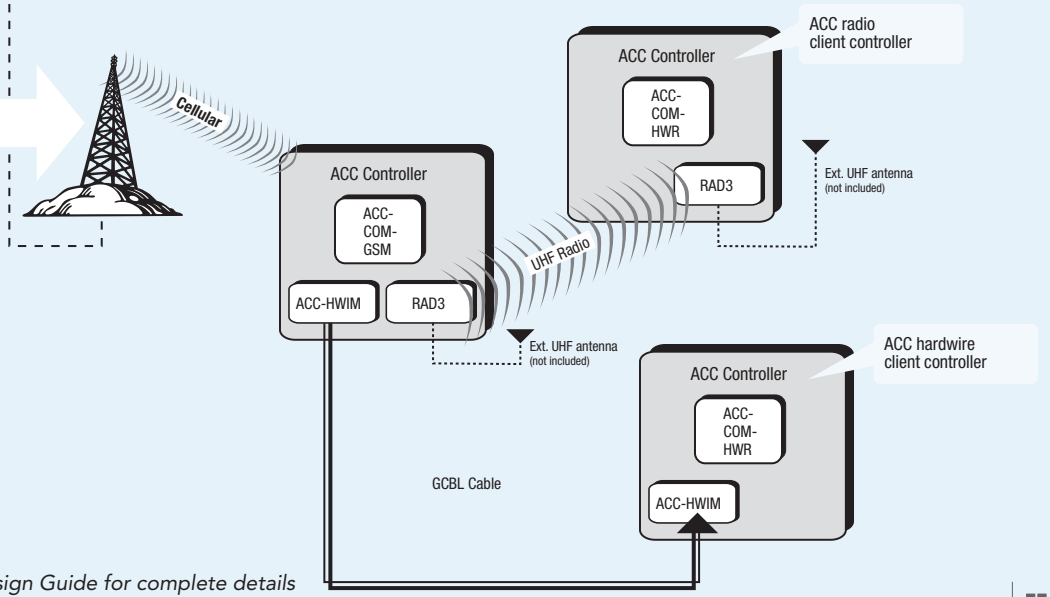
Hardwire connections (in or out) also require one ACC-HWIM terminal, for in- and outbound wire.

UHF radio communications require RAD3 radio module (antenna not included).

ACC-HWIM & RAD3 may be added to any COM module.

Cellular/Mobile Communications

Cellular GSM Site developed with additional radio and hardwire controllers, as an example.



See Hunter ACC System Design Guide for complete details

IMMS™ 2.0 / SI & CI Components

SPECIFICATIONBUILDER

MODEL	COMPONENT	COMMUNICATIONS	POWER OPTIONS
IMMS	**SI** = Site Interface **CI** = Controller Interface **CCC** = Central Computer Communication Unit **CD** = Software	**MOD** = Modem **HW** = Hardwire	**A** = Australian, 240VAC **E** = Euro/International, 230VAC
EXAMPLE: IMMS	SI	HW	

IMMS – SI – HW

For use with Hunter ICC, Pro-C and SRC controllers.
(see preceding pages for ACC options)

IMMS-CCC | IMMS-SI | IMMS-CI-HW | IMMS-R | IMMS-SAT-800-PP

WHAT YOU NEED TO GET STARTED:

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

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

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

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

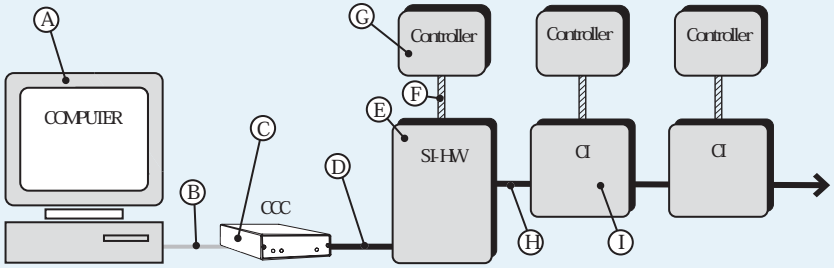
IMMS-CI-HW: Interface for each additional controller on a Site. Communicates with SI via hardwired cable or UHF radio (license required). Weatherproof, color-coded, small…put one at each additional controller.

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

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

Hardwire Connections:

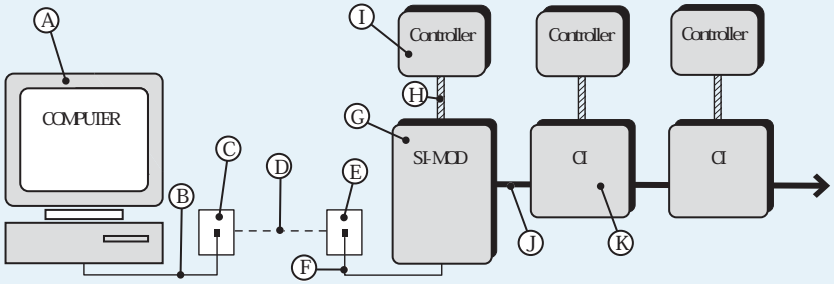
(A) Computer (Windows® XP, Home or Pro edition) connected via
(B) Serial cable (only) to
(C) CCC (6 ft./2 m, max), connected via
(D) GCBL cable (10,000 ft./3 km, max) to
(E) SI, connected via
(F) 18/5 (6 ft./2 m, max) to
(G) Hunter Controller, and via
(H) more GCBL to subsequent
(I) CI (10,000 ft./3 km, max) and associated controller, etc., up to 100 max controllers.



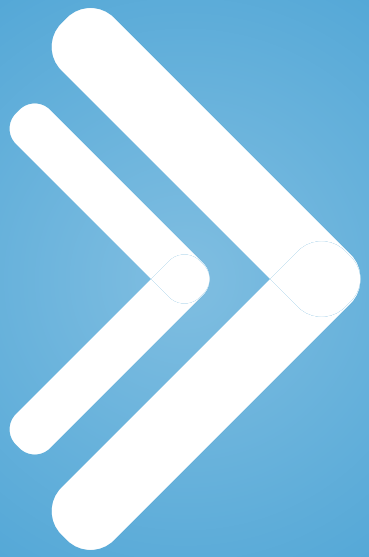
Note: No forks, tees, splices, or loops are required or permitted in communications path.

Dial-up Modem Connections:

(A) Computer (Windows® XP, Home or Pro edition) with internal modem, connected with
(B) RJ-11 cable (6 ft./2 m, max) to
(C) analog phone system jack, connected via
(D) public telephone network (no limit), to
(E) dedicated analog line wall jack, via
(F) RJ-11 cable (6 ft./2 m, max) to
(G) SI-MOD, connected via
(H) 18/5 (6 ft./2 m, max) to
(I) Hunter Controller and via
(J) more GCBL to subsequent
(K) CI (10,000 ft./3 km, max) and associated controller, etc., up to 100 max controllers per site.



Notes: Modem systems may include up to 100 different sites, each with up to 100 controllers. The first controller at each site must be connected to an SI-MOD as shown. IMMS dials up each site (via D, above), one at a time. No forks, tees, splices, or loops are required or permitted in communications path on each site. Modem systems may coexist with ONE hardwired site–the computer may use the serial port to communicate with a local site via the CCC (Hardwired connections, at top of page), and use its internal modem to communicate with up to 99 additional dial-up modem sites (as shown in the Dial-up Modem diagram).



TECHNICAL INFO

Precipitation Rates

A brief overview for the irrigation professional on how to calculate this important information.

The nozzle performance charts found in this catalog have two columns that show the approximate precipitation rates for the sprinklers at a given pressure, radius (spacing) and flow. The column on the left with the ■ symbol shows the precipitation rate for the sprinklers when they are laid out in a square pattern. The formula used to calculate the precipitation rate in this case is the "Sprinkler Spacing Method–Any Arc and Any Spacing" equation, found below. The column on the right with the ▲ symbol shows the precipitation rate for the sprinklers when they are laid out in an equilateral triangular spacing pattern. The formula used to calculate the precipitation rate in this case is the "Sprinkler Spacing Method–Equilateral Triangular Spacing" equation, also found below.

WHAT IS "PRECIPITATION RATE"?

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

MATCHED PRECIPITATION RATES

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

...90° Arc = 1 GPM
(0.23 m^3/hr; 3.8 l/min)

...180° Arc = 2 GPM
(0.45 m^3/hr; 7.6 l/min)

...360° Arc = 4 GPM
(0.91 m^3/hr; 15.1 l/min)

The flow rate of half-circle heads must be two times the flow rate of the quarter-circle heads, and the full-circle heads must have two times the flow rate of the half-circle heads. In the illustration, the same amount of water is applied to each quarter circle area and precipitation is therefore matched.

CALCULATING PRECIPITATION RATES

Depending upon the construction of the irrigation system, the precipitation rate may be calculated by either a "sprinkler spacing" or a "total area" method.

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

Any Arc and Any Spacing (■):

$$\text{P.R. (in/hr)} = \frac{\text{GPM (for any Arc)} \times 34{,}650}{\text{Degrees of Arc} \times \text{Head Spacing (ft)} \times \text{Row Spacing (ft)}}$$

$$\text{P.R. (mm/hr)} = \frac{m^3\text{/hr (for any Arc)} \times 360{,}000}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

$$\text{P.R. (mm/hr)} = \frac{\text{l/min (for any Arc)} \times 21{,}600}{\text{Degrees of Arc} \times \text{Head Spacing (m)} \times \text{Row Spacing (m)}}$$

Equilateral Triangular Spacing (▲):

$$\text{P.R. (in/hr)} = \frac{\text{GPM of 360 Arc} \times 96.25}{(\text{Head Spacing})^2 \times .866} \qquad \text{P.R. (mm/hr)} = \frac{\text{l/min of 360 Arc} \times 60}{(\text{Head Spacing})^2 \times .866}$$

$$\text{P.R. (mm/hr)} = \frac{m^3\text{/hr of 360 Arc} \times 1{,}000}{(\text{Head Spacing})^2 \times .866}$$

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

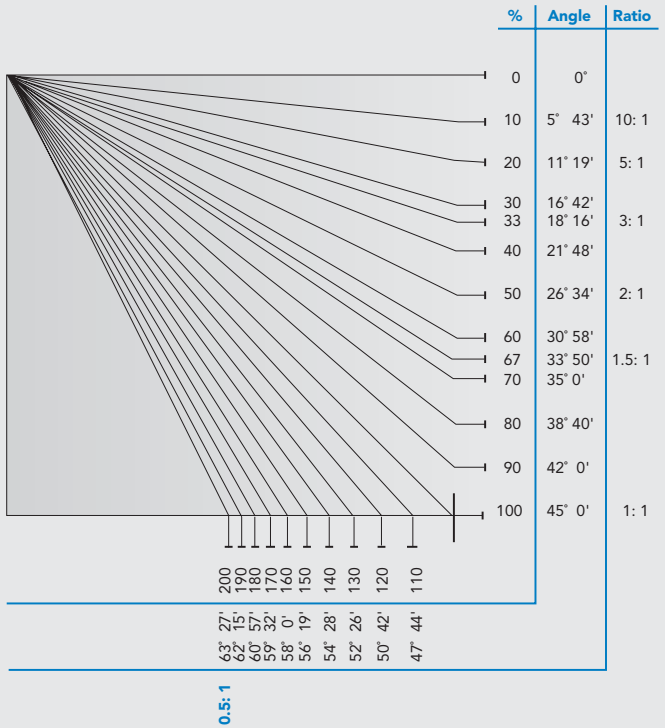
$$\text{P.R. (in/hr)} = \frac{\text{Total GPM} \times 96.25}{\text{Total Area}} \qquad \text{P.R. (mm/hr)} = \frac{\text{l/min} \times 60}{\text{Total Area}}$$

$$\text{P.R. (mm/hr)} = \frac{m^3\text{/hr} \times 1{,}000}{\text{Total Area}}$$

For more information on precipitation rates, ask for Hunter's LIT-084, *Reviewing the Basics of Matched Precipitation.*

Slope Equivalents

Percent, Angle, and Ratio



Slope Irrigation

Maximum precipitation rates for slopes.

The maximum precipitation values listed below are those suggested by the United States Department of Agriculture. The values are average and may vary with respect to actual soil condition and condition of ground cover.

SOIL TEXTURE	0 to 5% slope		5 to 8% slope		8 to 12% slope		12% + slope	
	Cover	Bare	Cover	Bare	Cover	Bare	Cover	Bare
Coarse sandy soils	2.00	2.00	2.00	1.50	1.50	1.00	1.00	0.50
Coarse sandy soils over compact subsoils	1.75	1.50	1.25	1.00	1.00	0.75	0.75	0.40
Light sandy loams uniform	1.75	1.00	1.25	0.80	1.00	0.60	0.75	0.40
Light sandy loams over compact subsoils	1.25	0.75	1.00	0.50	0.75	0.40	0.50	0.30
Uniform silt loams	1.00	0.50	0.80	0.40	0.60	0.30	0.40	0.20
Silt loams over compact subsoil	0.60	0.30	0.50	0.25	0.40	0.15	0.30	0.10
Heavy clay or clay loam	0.2	0.15	0.15	0.1	0.12	0.08	0.1	0.06

Conversion Factors

To Convert	From	To	Multiply By
AREA	acres	foot^2	43560
	acres	meter^2	4046.8
	meter^2	foot^2	10.764
	foot^2	inch^2	144
	inch^2	centimeter^2	6.452
	hectares	meter^2	10000
	hectares	acres	2.471
POWER	kilowatts	horsepower	1.341
FLOW	foot^3/minute	meter^3/second	0.0004719
	foot^3/second	meter^3/second	0.02832
	yards^3/minute	meter^3/second	0.01274
	gallon/minute	meter^3/hour	0.22716
	gallon/minute	liter/minute	3.7854
	gallon/minute	liter/second	0.06309
	meter^3/hour	liter/minute	16.645
	meter^3/hour	liter/second	0.2774
	liter/minute	liter/second	60
LENGTH	foot	inch	12
	inch	centimeter	2.540
	foot	meter	0.30481
	kilometer	miles	0.6214
	miles	foot	5280
	miles	meter	1609.34
	millimeter	inch	0.03937
PRESSURE	PSI	kilopascals	6.89476
	PSI	bars	0.068948
	bars	kilopascals	100
	PSI	feet of head	2.31
VELOCITY	feet/second	meter/second	0.3048
VOLUME	feet^3	gallon	7.481
	feet^3	liter	28.32
	meter^3	feet^3	35.31
	meter^3	yard^3	1.3087
	yard^3	feet^3	27
	yard^3	gallon	202
	acres/feet	foot^3	43,560
	gallon	meter^3	0.003785
	gallon	liter	3.785
	imperial gallon	gallon	1.833

See LIT 194 - Hunter Technical Manual for complete details

Replacement Guide

Receive Hunter quality and Hunter performance with the right substitute for your non-Hunter sprinklers.

Bringing together a combination of intelligent design, carefully controlled manufacturing, and regular testing to ensure conformity to the strictest standards, Hunter has been able to create what performance studies have shown to be truly exceptional nozzles. Essentially, we have made the science of developing superior nozzles–and thus, superior sprinkler–look easy. In the process, we have also made it easy for you to determine exactly which of these high performance sprinklers make the appropriate choice for you to install as an alternative to your current product that does not carry the Hunter label. Simply consult our comprehensive replacement guide and you'll quickly see there's a better quality, better performing sprinkler from Hunter that will fit whatever irrigation need you have.

RESIDENTIAL AND LIGHT COMMERCIAL ROTARY AND SPRAY SPRINKLERS

PGP® Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
Mini-Paw®		
	07 (Black)	6
15103		
	09 (Green)	7
Maxi-Paw™		
	06 (Red)	5
2045		
	07 (Black)	6
	08 (Blue)	8
	10 (Yellow)	9
	12 (Beige)	10
R-50	1.5 (Black)	5
	2.0 (Brown)	7
	3.0 (Gray)	8
	4.0 (Yellow)	9
	6.0 (Green)	11
T-Bird T-30	1.3 (Black)	4
	2.5 (Gray)	6
	5.0 (Green)	9
5000 Series	1.5	5 Red
		1.5 Blue
	2.0	7 Red
		2.0 Blue
	2.5	2.5 Blue
	3.0	8 Red
		3.0 Blue
	4.0	9 Red
		4.0 Blue
	5.0	5.0 Blue
	6.0	6.0 Blue
	8.0	8.0 Blue
15111	10 ($^{5}/_{32}$" nozzle)	9
21A, 27A	10 ($^{5}/_{32}$" nozzle)	9
25	10 ($^{5}/_{32}$" nozzle)	9
31A, 37A	14 ($^{7}/_{32}$" nozzle)	11
35	12 ($^{3}/_{16}$" nozzle)	10

PGJ Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
3500	0.75	.75
	1.0	1.0
	1.5	1.5
	2.0	2.0
	3.0	3.0
	4.0	4.0
T-Bird T-22	.65 (Blue)	.75
	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0

To Replace	Use Hunter Nozzle	
Rain Bird®		
T-Bird T-30	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	2.5
	4.0 (Yellow)	4.0
	5.0 (Green)	5.0
Nelson®		
5500	#51	.75
	#52	1.5
	#53	2.0
	#54	2.5
Toro®		
300 / 340	01	.75
Stream Rotor	02	1.5
	03	3.0

To Replace	Use Hunter Nozzle	
Toro®		
300 Stream Rotor	308-XX-02	4
	308-XX-03	7
	316-XX-02	7
	316-XX-03	10
XP 300 Series	XP-300-090-07	4
	180-07	7
	360-07	10
	090-09	5
	180-09	8
	360-09	11
	090-10	5
	180-10	9
	360-10	12
Super 600	1.3	4
	2.5	7
	5.0	10
	6.0	10
Super 700	1.3	3
	1.5	4
	2.0	5
	3.0	7
	4.5	8
	6.0	9
	7.5	10
	9.0	11

To Replace	Use Hunter Nozzle	
Nelson®		
Mini Rotor®	6702 (Green)	5
	6703 (Red)	7
	6704 (Black)	8
6760	see "Single Nozzle"	
Pro 6000	Use Hunter 4-11	
Pro 6500	61	6
	62	9
	63	10
	64	11
Weathermatic®		
G40P & G40FS		7
G50P		9
G50F		11
G60P & G40F		10
G60F		12
TJ2/TJ3	Use Hunter 4-12	
Single Nozzle	**All impact mfrs.**	
	$^{7}/_{64}$"	5
	$^{1}/_{8}$"	7
	$^{9}/_{64}$"	8
	$^{5}/_{32}$"	9
	$^{11}/_{64}$"	9
	$^{3}/_{16}$"	10
	$^{13}/_{64}$"	11
	$^{7}/_{32}$"	11

RESIDENTIAL AND LIGHT COMMERCIAL ROTARY AND SPRAY SPRINKLERS

I-20 *Ultra* Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
Mini-Paw® 15103	07 (Black)	3.0
	09 (Green)	3.5
Maxi-Paw™ 2045	06 (Red)	2.0
	07 (Black)	3.0
	08 (Blue)	4.0
	10 (Yellow)	6.0
	12 (Beige)	8.0
R-50	1.5 (Black)	2.0
	2.0 (Brown)	3.0
	3.0 (Gray)	4.0
	4.0 (Yellow)	6.0
	6.0 (Green)	8.0
T-Bird T-30	1.0 (Red)	1.0
	1.3 (Black)	1.5
	2.0 (Brown)	2.0
	2.5 (Gray)	3.0
	4.0 (Yellow)	3.5
	5.0 (Green)	6.0
5000 Series	1.5	2.0
		1.5 Blue
	2.0	3.5
		2.0 Blue
	2.5	2.5 Blue
	3.0	4.0
		3.0 Blue
	4.0	6.0
		4.0 Blue
	5.0	5.0 Blue
	6.0	6.0 Blue
	8.0	8.0 Blue
5005 Series	2	2.0
		2.0 Blue
	3	3.5
		3.0 Blue
	4	3.5
		3.0 Blue
	5	4.0
		4.0 Blue
	6	6.0
		6.0 Blue
	8	8.0
		8.0 Blue
	10	10 Green
	12	10 Green
15111	10	6.0
21A, 27A	10	6.0
25	10	6.0

To Replace	Use Hunter Nozzle	
Toro®		
300 Stream	304-XX-02	1.0
Rotor	308-XX-02	1.5
	316-XX-02	3.5
	304-XX-03	1.5
	308-XX-03	3.5
	316-XX-03	8.0
XP 300	090-07	1.5
	180-07	3.5
	360-07	8.0
	090-09	2.0
	180-09	4.0
	360-09	8.0
	090-10	3.0
	180-10	6.0
Super 600	1.3	1.5
	2.5	3.5
	5	8.0
Super 700	1	1.0
	1.5	1.5
	2	2.0
	3	3.5
	4.5	4.0
	6	6.0
	7.5	8.0

To Replace	Use Hunter Nozzle	
Nelson®		
Mini Rotor®	6702 (Green)	2.0
	6703 (Red)	3.5
	6704 (Black)	4.0
6706	see "Single Nozzle"	
Pro 6000	4	1.0
	5	1.5
	6	2.0
	7	3.0
	8	4.0
	9	6.0
	10	8.0
Pro 6500	61	3.0
	62	6.0
	63	8.0
Weathermatic®		
G40P & G40FS		3.5
G50P		6.0
G60P & G40F		8.0
TJ2 & T3	4	1.5
	5	2.5
	6	3.0
	7	3.5
	8	4.0
	9	6.0
	10	8.0
Single Nozzle		**All impact mfrs.**
	$^{7}/_{64}$"	2.0
	$^{1}/_{8}$"	3.5
	$^{9}/_{64}$"	4.0
	$^{5}/_{32}$"	6.0
	$^{11}/_{64}$"	6.0

Spray Sprinklers

To Replace	Use Hunter Product	
All Manufacturers		
Nozzles	8' Radius	8A
	10' Radius	10A
	12' Radius	12A
	15' Radius	15A
	17' Radius	17A
Rain Bird 1800	Pro-Spray	
	SRS	
1800 SAM	Pro-Spray-CV	
1800 SAM PRS	INST-CV	
Uni-Spray	SRS	
	PS	

Replacement Guide Cont'd

Residential and Light Commercial Rotary and Spray Sprinklers

I-25 *Plus* Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Rain Bird®		
FALCON	4 (Black)	4 (Yellow)
	6 (Lt. Blue)	5 (White)
	8 (Dk. Green)	7 (Orange)
	10 (Gray)	8 (Lt. Brown)
	12 (Beige)	10 (Lt. Green)
	14 (Lt. Green)	13 (Lt. Blue)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
41-51A	18 x 11.5	20 (Dk. Brown)
41-51A	13 x 11	13 (Lt. Blue)
47A	16	13 (Lt. Blue)
37A	14	8 (Lt. Brown)
7005	4 (Black)	4 (Yellow)
	6 (Lt. Blue)	5 (White)
	8 (Dk. Green)	8 (Lt. Brown)
	10 (Gray)	10 (Lt. Green)
	12 (Beige)	13 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
8005	12 (Beige)	13 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	20 (Dk. Brown)
	20 (Red)	23 (Dk. Green)
	22 (Yellow)	25 (Dk. Blue)
	24 (Orange)	28 (Black)

To Replace	Use Hunter Nozzle	
Toro®		
2001	6 (Yellow)	7 (Orange)
	9 (Red)	8 (Lt. Brown)
	12 (Brown)	10 (Lt. Green)
	18 (Blue)	18 (Red)
	24 (Green)	25 (Dk. Blue)
640	40	8 (Lt. Brown)
	41	10 (Lt. Green)
	42	13 (Lt. Blue)
	43	15 (Gray)
	44	20 (Dk. Brown)
Nelson®		
7000 & 7500	1	7 (Orange)
	2	8 (Lt. Brown)
	3	10 (Lt. Green)
	4	13 (Lt. Blue)
	5	15 (Gray)
	6	20 (Dk. Brown)
	7	23 (Dk. Green)
	8	25 (Dk. Blue)

To Replace	Use Hunter Nozzle	
Thompson®		
186/187	P-Nozzle	5 (White)
	Q-Nozzle	7 (Orange)
	R-Nozzle	13 (Lt. Blue)
	S-Nozzle	15 (Gray)
	T-Nozzle	18 (Red)
	U-Nozzle	23 (Dk. Green)
	VS-Nozzle	28 (Black)
	V-Nozzle	28 (Black)
	W-Nozzle	28 (Black)
Single Nozzle		**All impact mfrs.**
	5/32"	4 (Yellow)
	11/64"	5 (White)
	3/16"	7 (Orange)
	13/64"	8 (Lt. Brown)
	7/32"	10 (Lt. Green)
	15/64"	13 (Lt. Blue)
	1/4"	15 (Gray)
	17/64"	20 (Dk. Brown)

I-35 Sierra Gear Driven Rotary Sprinklers

To Replace	Use Hunter Nozzle	
Toro®		
2001	9 (Red)	9 (Lt. Brown)
	18 (Blue)	18 (Red)
	24 (Green)	24 (Dk. Blue)
640	40	9 (Lt. Brown)
	42	12 (Lt. Blue)
	43	15 (Gray)
	44	21 (Dk. Brown)
Nelson®		
7000 & 7500	2	9 (Lt. Brown)
	4	12 (Lt. Blue)
	5	15 (Gray)
	6	21 (Dk. Brown)
	7	24 (Dk. Green)
	8	27 (Dk. Blue)

To Replace	Use Hunter Nozzle	
Thompson®		
186/187	R-Nozzle	12 (Lt. Blue)
	S-Nozzle	15 (Gray)
	T-Nozzle	18 (Red)
	U-Nozzle	24 (Dk. Green)
	VS-Nozzle	30 (Black)
	V-Nozzle	30 (Black)
	W-Nozzle	30 (Black)
Single Nozzle		**All impact mfrs.**
	13/64"	9 (Lt. Brown)
	15/64"	12 (Lt. Blue)
	1/4"	15 (Gray)
	17/64"	21 (Dk. Brown)

To Replace	Use Hunter Nozzle	
Rain Bird®		
FALCON	10 (Gray)	9 (Lt. Brown)
	14 (Lt. Green)	12 (Lt. Blue)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	21(Dk. Brown)
41-51A	18 x 11.5	21 (Dk. Brown)
41-51A	13 x 11	12 (Lt. Blue)
47A	16	12 (Lt. Blue)
37A	14	9 (Lt. Brown)
7005	8 (Dk. Green)	9 (Lt. Brown)
	12 (Beige)	12 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	21 (Dk. Brown)
8005	12 (Beige)	12 (Lt. Blue)
	14 (Lt. Green)	15 (Gray)
	16 (Dk. Brown)	18 (Red)
	18 (Dk. Blue)	21 (Dk. Brown)
	20 (Red)	24 (Dk. Green)
	22 (Yellow)	27 (Dk. Blue)
	24 (Orange)	30 (Black)

Residential and Light Commercial Rotary and Spray Sprinklers & Quick Couplers, Keys, Swivels and Locking Cover Key

I-40 Gear Driven Rotary Sprinklers

To Replace		Use Hunter Nozzle
Rain Bird®		
41-51A	18 x 11.5	44
41-51A	13 x 11	43
47A-SAM	16	42
37A	14	41
65 SERIES	16	42
8005	12 (Beige)	41
	14 (Lt. Green)	43
	16 (Dk. Brown)	43
	18 (Dk. Blue)	44
	20 (Red)	44
	22 (Yellow)	45

To Replace		Use Hunter Nozzle
Rain Bird®		
TALON	14	42
	16	43
	18	44
	20	45
	22	45
Thompson®		
186/7	R-Nozzle	42
	S-Nozzle	43
	T-Nozzle	43
188/9	U-Nozzle	44
	V-Nozzle	45

To Replace		Use Hunter Nozzle
Toro®		
640		Use Hunter 40-44
Single Nozzle		**All impact mfrs.**
	15/64"	41
	1/4"	42
	17/64"	43
	9/32"	43

HQ-Quick Couplers

To Replace				Use Hunter HQ:
Rain Bird®	**Toro®**	**Buckner**	**West AG/Storm**	
3RC	473-00, 473-01	QB3RC07	4V075-RY/QCV075-R	**HQ-3RC**
33DRC		QB33RC07	4V133-4A-RY/QCV133-4A-R	**HQ-33DRC**
33DLRC, 33DNP		QB33LRC07, QB33NP07	4V133-4A-RLY, 4V133-4A-RL-NP/QCV133-4A-RL-2, QCV133-4A-N-2	**HQ-33DLRC**
44RC	474-21	QB44RC10	4V144-RY/QCV144-R	**HQ-44RC**
44LRC,44NP	474-24	QB44LRC10, QB44NP10	4V144-RLY, 4V144-RL-NP/QCV144-RL, QCV144-N	**HQ-44LRC**
	474-21	QB44R-CATAR10		**HQ-44RC-AW**
4NP-Acme	474-44	QB44LR-CATAR10, QB44NPA-TAR10		**HQ-44LRC-AW**
5RC	475-00, 475-01	QBRB5RC10	4V101-RY/QCV101-R	**HQ-5RC**
5LRC, 5NP	475-03, 475-04	QBRB5LRC10, QBRB5NP10	4V101-RLY, 4V101-RL-NP/QCV101-RL, QCV101-N	**HQ-5LRC**
5RC-BSP		QBRB5RC10BS	4V101-RY-BS/QCV101-R-BS	**HQ-5RC-B**
5LRC-BSP		QBRB5L-RC10BS, QBRB-5NP10BS	4V101-RLY-BS, 4V101-RL-NP-BS/QCV101-RL-BS, QCV101-N-BS	**HQ-5LRC-B**

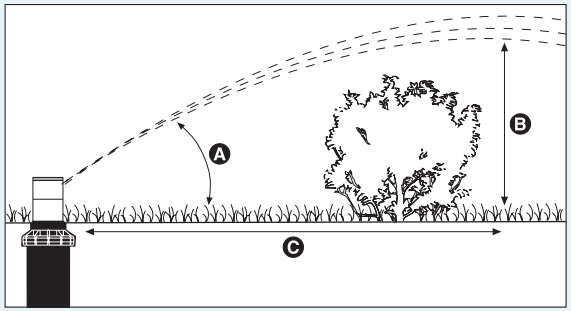
HK-Keys, HS-Swivels & HLK-Locking Cover Key

To Replace				Use Hunter HK:
Rain Bird®	**Toro®**	**Buckner**	**West AG/Storm**	
33K, 33DK	463-01	QB33K07	4C075/C075	**HK-33**
44K	464-01	QB44K10	4C100/C100	**HK-44**
4K-Acme	464-03	QB44KAT10	4C100A/C100A	**HK-44A**
55K-1	465-01	QB5RK10	4C101/C101	**HK-55**

To Replace				Use Hunter HS:
Rain Bird®	**Toro®**	**Buckner**	**West AG/Storm**	
SH-0	477-00	HS075	4HS-075/HS075	**HS-0**
SH-1	477-01	HS100	4HS-100/HS-100	**HS-1**
SH-2	477-02	HS101	4HS-101/HS-101	**HS-2**
		HS100BS	4HS-100-BS/HS-100-BS	**HS-1-B**
		HS101BS	4HS-101-BS/HS-101-BS	**HS-2-B**

Height of Spray

How to determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern.



These rotor nozzle trajectory charts are designed to help determine how close a sprinkler can be placed to an object such as a fence or hedge without obstructing the spray pattern. All information shown is at optimum operating pressures.

Hunter Nozzle Height and Trajectory Chart

Model	Nozzle No.	Pressure in PSI	A Degrees of Trajectory	B Max Height of Spray (ft.)	C Distance from head (ft.) to Maximum Height
PGJ	.75	40	10	2'	4'
	1.0	40	10	2'	8'
	1.5	40	10	3'	12'
	2.0	40	15	5'	16'
	2.5	40	12	5'	20'
	3.0	40	15	5'	20'
	4.0	40	15	5'	22'
	5.0	40	15	6'	24'
PGP®	1	50	26	7'	22'
	2	50	26	7'	22'
	3	50	26	8'	23'
	4	50	26	8'	23'
	5	50	27	9'	26'
	6	50	27	10'	28'
	7	50	26	11'	30'
	8	50	26	11'	30'
	9	50	27	12'	32'
	10	60	25	13'	32'
	11	60	25	13'	38'
	12	60	25	13'	40'
PGP Low Angle	4	50	15	5'	22'
	5	50	15	4'	22'
	6	50	14	4'	22'
	7	50	14	4'	22'
	8	50	14	5'	24'
	9	50	15	5'	26'
	10	60	15	6'	30'
PGP Blue	1.5	45	25	8'	23'
	2.0	45	25	8'	23'
	2.5	45	25	9'	26'
	3.0	45	25	10'	28'
	4.0	45	25	11'	30'
	5.0	45	25	11'	30'
	6.0	55	25	12'	32'
	8.0	55	25	13'	32'
I-20 Ultra	1.0	50	26	8'	23'
	1.5	50	26	8'	23'
	2.0	50	27	9'	26'
	3.0	50	27	10'	28'
	3.5	50	26	11'	30'
	4.0	50	26	11'	30'
	6.0	50	27	12'	32'
	8.0	60	25	13'	32'
I-20 Ultra Blue	1.5	45	25	8'	23'
	2.0	45	25	8'	23'
	2.5	45	25	9'	26'
	3.0	45	25	10'	28'
	4.0	45	25	11'	30'
	5.0	45	25	11'	30'
	6.0	55	25	12'	32'
	8.0	55	25	13'	32'

Note: All performance data is derived from testing at 4" above finished grade.

Hunter Nozzle Height and Trajectory Chart

Model	Nozzle No.	Pressure in PSI	A Degrees of Trajectory	B Max Height of Spray (ft.)	C Distance from head (ft.) to Maximum Height
I-20 Ultra Low Angle	2.0LA	50	13	5'	22'
	2.5LA	50	13	4'	22'
	3.5LA	50	13	4'	22'
	4.5LA	50	13	4'	22'
I-20 Ultra Short Radius	.50	50	15	5'	8'
	1.0	50	14	6'	9'
	2.0	50	3	1'	6'
I-20 Ultra Short Radius	.75	50	22	7'	13'
	1.5	50	18	7'	13'
	3.0	50	8	1'	6'
I-25 Plus	4	50	25	9'	22'
	5	50	25	11'	28'
	7	50	25	10'	28'
	8	50	25	11'	28'
	10	60	25	12'	30'
	13	60	25	13'	31'
	15	60	25	12'	31'
	18	60	25	15'	34'
	20	70	25	15'	35'
	23	70	25	16'	38'
	25	70	25	16'	38'
	28	70	25	17'	40'
I-35 Sierra	9	50	25	11'	28'
	12	60	25	13'	31'
	15	60	25	12'	31'
	18	60	25	15'	34'
	21	70	25	15'	35'
	24	70	25	16'	38'
	27	70	25	16'	38'
	30	70	25	17'	40'
I-40 ADS/36S 36S-ON	40	50	25	12'	32'
	41	60	25	14'	32'
	42	60	25	14'	34'
	43	60	25	15'	42'
	44	70	25	17'	46'
	45	70	25	17'	48'
I-60 ADS	7	60	20	10'	28'
	10	60	20	13'	38'
	13	60	20	13'	38'
	15	60	20	14'	40'
	18	60	20	14'	40'
	20	60	20	15'	46'
I-60 36S	7	60	20	13'	36'
	10	60	20	14'	40'
	13	60	20	14'	41'
	15	60	20	14'	42'
	18	60	20	14'	43'
	20	60	20	17'	50'
I-90 ADV	33	80	22	15'	42'
	38	80	22	16'	48'
	43	80	22	16'	48'
	48	80	22	17'	54'
	53	80	22	17'	56'
	63	80	22	18'	64'
I-90 36V	33	80	22	17'	46'
	38	80	22	17'	50'
	43	80	22	17'	54'
	48	80	22	17'	56'
	53	80	22	17'	58'
	63	80	22	18'	62'

Note: All performance data is derived from testing at 4" above finished grade.

PVC Class 125 IPS Plastic Pipe

(1120, 1220) SDR 32.5 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1" through 6", Flow GPM 1 through 600

SIZE	1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	1.211		1.548		1.784		2.229		2.699		3.284		4.224		6.217		ID
WALL THK	0.052		0.056		0.058		0.073		0.088		0.108		0.138		0.204		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.27	0.02	0.17	0.01	0.12	0.00											1
2	0.55	0.06	0.34	0.02	0.25	0.01	0.16	0.00									2
3	0.83	0.13	0.51	0.04	0.38	0.02	0.24	0.01									3
4	1.11	0.22	0.68	0.07	0.51	0.03	0.32	0.01	0.22	0.00							4
5	1.39	0.33	0.85	0.10	0.64	0.05	0.41	0.02	0.28	0.01							5
6	1.66	0.46	1.02	0.14	0.76	0.07	0.49	0.02	0.33	0.01							6
7	1.94	0.62	1.19	0.19	0.89	0.09	0.57	0.03	0.39	0.01	0.26	0.00					7
8	2.22	0.79	1.36	0.24	1.02	0.12	0.65	0.04	0.44	0.02	0.30	0.01					8
9	2.50	0.98	1.53	0.30	1.15	0.15	0.73	0.05	0.50	0.02	0.34	0.01					9
10	2.78	1.19	1.70	0.36	1.28	0.18	0.82	0.06	0.56	0.02	0.37	0.01					10
11	3.06	1.42	1.87	0.43	1.41	0.22	0.90	0.07	0.61	0.03	0.41	0.01					11
12	3.33	1.67	2.04	0.51	1.53	0.25	0.98	0.09	0.67	0.03	0.45	0.01	0.27	0.00			12
14	3.89	2.22	2.38	0.67	1.79	0.34	1.14	0.11	0.78	0.05	0.52	0.02	0.32	0.01			14
16	4.45	2.85	2.72	0.86	2.05	0.43	1.31	0.15	0.89	0.06	0.60	0.02	0.36	0.01			16
18	5.00	3.54	3.06	1.07	2.30	0.54	1.47	0.18	1.00	0.07	0.68	0.03	0.41	0.01			18
20	5.56	4.31	3.40	1.30	2.56	0.65	1.64	0.22	1.12	0.09	0.75	0.03	0.45	0.01			20
22	6.12	5.14	3.74	1.56	2.82	0.78	1.80	0.26	1.23	0.10	0.83	0.04	0.50	0.01			22
24	6.67	6.04	4.08	1.83	3.07	0.92	1.97	0.31	1.34	0.12	0.90	0.05	0.54	0.01			24
26	7.23	7.00	4.42	2.12	3.33	1.06	2.13	0.36	1.45	0.14	0.98	0.05	0.59	0.02			26
28	7.78	8.03	4.76	2.43	3.58	1.22	2.29	0.41	1.56	0.16	1.05	0.06	0.64	0.02			28
30	8.34	9.13	5.10	2.76	3.84	1.39	2.46	0.47	1.68	0.18	1.13	0.07	0.68	0.02			30
35	9.73	12.14	5.95	3.68	4.48	1.84	2.87	0.62	1.96	0.25	1.32	0.09	0.80	0.03	0.36	0.00	35
40	11.12	15.55	6.81	4.71	5.12	2.36	3.28	0.80	2.24	0.31	1.51	0.12	0.91	0.04	0.42	0.01	40
45	12.51	19.34	7.66	5.86	5.76	2.94	3.69	0.99	2.52	0.39	1.70	0.15	1.02	0.04	0.47	0.01	45
50	13.91	23.50	8.51	7.12	6.40	3.57	4.10	1.21	2.80	0.48	1.89	0.18	1.14	0.05	0.52	0.01	50
55	15.30	28.04	9.36	8.49	7.05	4.26	4.51	1.44	3.08	0.57	2.08	0.22	1.25	0.06	0.58	0.01	55
60	16.69	32.94	10.21	9.98	7.69	5.00	4.92	1.69	3.36	0.67	2.26	0.26	1.37	0.08	0.63	0.01	60
65	18.08	38.21	11.06	11.57	8.33	5.80	5.33	1.96	3.64	0.77	2.45	0.30	1.48	0.09	0.68	0.01	65
70	19.47	43.83	11.91	13.27	8.97	6.65	5.74	2.25	3.92	0.89	2.64	0.34	1.60	0.10	0.73	0.02	70
75			12.76	15.08	9.61	7.56	6.15	2.56	4.20	1.01	2.83	0.39	1.71	0.11	0.79	0.02	75
80			13.62	17.00	10.25	8.52	6.56	2.88	4.48	1.14	3.02	0.44	1.82	0.13	0.84	0.02	80
85			14.47	19.02	10.89	9.53	6.98	3.23	4.76	1.27	3.21	0.49	1.94	0.14	0.89	0.02	85
90			15.32	21.14	11.53	10.60	7.39	3.59	5.04	1.41	3.40	0.54	2.05	0.16	0.95	0.02	90
95			16.17	23.37	12.17	11.71	7.80	3.96	5.32	1.56	3.59	0.60	2.17	0.18	1.00	0.03	95
100			17.02	25.69	12.81	12.88	8.21	4.36	5.60	1.72	3.78	0.66	2.28	0.19	1.05	0.03	100
110			18.72	30.65	14.10	15.37	9.03	5.20	6.16	2.05	4.16	0.79	2.51	0.23	1.16	0.04	110
120					15.38	18.06	9.85	6.11	6.72	2.41	4.53	0.93	2.74	0.27	1.26	0.04	120
130					16.66	20.94	10.67	7.09	7.28	2.79	4.91	1.08	2.97	0.32	1.37	0.05	130
140					17.94	24.02	11.49	8.13	7.84	3.20	5.29	1.23	3.20	0.36	1.47	0.06	140
150					19.22	27.30	12.31	9.24	8.40	3.64	5.67	1.40	3.43	0.41	1.58	0.06	150
160							13.13	10.41	8.96	4.10	6.05	1.58	3.65	0.46	1.68	0.07	160
170							13.96	11.65	9.52	4.59	6.43	1.77	3.88	0.52	1.79	0.08	170
180							14.78	12.95	10.08	5.10	6.80	1.96	4.11	0.58	1.90	0.09	180
190							15.60	14.31	10.64	5.64	7.18	2.17	4.34	0.64	2.00	0.10	190
200							16.42	15.74	11.20	6.20	7.56	2.39	4.57	0.70	2.11	0.11	200
225							18.47	19.57	12.60	7.72	8.51	2.97	5.14	0.87	2.37	0.13	225
250									14.00	9.38	9.45	3.61	5.71	1.06	2.63	0.16	250
275									15.40	11.19	10.40	4.31	6.28	1.27	2.90	0.19	275
300									16.80	13.15	11.34	5.06	6.86	1.49	3.16	0.23	300
325									18.20	15.25	12.29	5.87	7.43	1.72	3.43	0.26	325
350									19.60	17.49	13.24	6.73	8.00	1.98	3.69	0.30	350
375											14.18	7.65	8.57	2.25	3.95	0.34	375
400											15.13	8.62	9.14	2.53	4.22	0.39	400
425											16.07	9.65	9.71	2.83	4.48	0.43	425
450											17.02	10.72	10.29	3.15	4.75	0.48	450
475											17.96	11.85	10.86	3.48	5.01	0.53	475
500											18.91	13.03	11.43	3.83	5.27	0.58	500
550													12.57	4.57	5.80	0.70	550
600													13.72	5.37	6.33	0.82	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Class 160 IPS Plastic Pipe

(1120, 1220) SDR 26 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1" through 6", Flow GPM 1 through 600

SIZE	1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	1.195		1.532		1.754		2.193		2.655		3.230		4.154		6.115		ID
WALL THK	0.060		0.064		0.073		0.091		0.110		0.135		0.173		0.225		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.28	0.02	0.17	0.01	0.13	0.00											1
2	0.57	0.06	0.34	0.02	0.26	0.01	0.16	0.00									2
3	0.85	0.14	0.52	0.04	0.39	0.02	0.25	0.01									3
4	1.14	0.23	0.69	0.07	0.53	0.04	0.33	0.01	0.23	0.00							4
5	1.42	0.35	0.86	0.11	0.66	0.05	0.42	0.02	0.28	0.01							5
6	1.71	0.49	1.04	0.15	0.79	0.08	0.50	0.03	0.34	0.01	0.20	0.00					6
7	1.99	0.66	1.21	0.20	0.92	0.10	0.59	0.03	0.40	0.01	0.27	0.01					7
8	2.28	0.84	1.39	0.25	1.06	0.13	0.67	0.04	0.46	0.02	0.31	0.01					8
9	2.57	1.05	1.56	0.31	1.19	0.16	0.76	0.05	0.52	0.02	0.35	0.01					9
10	2.85	1.27	1.73	0.38	1.32	0.20	0.84	0.07	0.57	0.03	0.39	0.01					10
11	3.14	1.52	1.91	0.45	1.45	0.23	0.93	0.08	0.63	0.03	0.43	0.01					11
12	3.42	1.78	2.08	0.53	1.59	0.28	1.01	0.09	0.69	0.04	0.46	0.01	0.28	0.00			12
14	3.99	2.37	2.43	0.71	1.85	0.37	1.18	0.12	0.81	0.05	0.54	0.02	0.33	0.01			14
16	4.57	3.04	2.78	0.91	2.12	0.47	1.35	0.16	0.92	0.06	0.62	0.02	0.37	0.01			16
18	5.14	3.78	3.12	1.13	2.38	0.58	1.52	0.20	1.04	0.08	0.70	0.03	0.42	0.01			18
20	5.71	4.59	3.47	1.37	2.65	0.71	1.69	0.24	1.15	0.09	0.78	0.04	0.47	0.01			20
22	6.28	5.48	3.82	1.64	2.91	0.85	1.86	0.29	1.27	0.11	0.86	0.04	0.52	0.01			22
24	6.85	6.44	4.17	1.92	3.18	1.00	2.03	0.34	1.38	0.13	0.93	0.05	0.56	0.02			24
26	7.42	7.47	4.51	2.23	3.44	1.15	2.20	0.39	1.50	0.15	1.01	0.06	0.61	0.02			26
28	7.99	8.57	4.86	2.56	3.71	1.32	2.37	0.45	1.62	0.18	1.09	0.07	0.66	0.02			28
30	8.57	9.74	5.21	2.91	3.97	1.50	2.54	0.51	1.73	0.20	1.17	0.08	0.70	0.02			30
35	9.99	12.95	6.08	3.87	4.64	2.00	2.96	0.68	2.02	0.27	1.36	0.10	0.82	0.03	0.38	0.00	35
40	11.42	16.59	6.95	4.95	5.30	2.56	3.39	0.86	2.31	0.34	1.56	0.13	0.94	0.04	0.43	0.01	40
45	12.85	20.63	7.82	6.16	5.96	3.19	3.81	1.08	2.60	0.42	1.75	0.16	1.06	0.05	0.49	0.01	45
50	14.28	25.07	8.69	7.49	6.63	3.88	4.24	1.31	2.89	0.52	1.95	0.20	1.18	0.06	0.54	0.01	50
55	15.71	29.91	9.56	8.93	7.29	4.62	4.66	1.56	3.18	0.62	2.15	0.24	1.30	0.07	0.60	0.01	55
60	17.14	35.14	10.43	10.49	7.95	5.43	5.09	1.83	3.47	0.72	2.34	0.28	1.41	0.08	0.65	0.01	60
65	18.57	40.76	11.29	12.17	8.62	6.30	5.51	2.12	3.76	0.84	2.54	0.32	1.53	0.09	0.70	0.01	65
70	19.99	46.76	12.16	13.96	9.28	7.23	5.93	2.44	4.05	0.96	2.73	0.37	1.65	0.11	0.76	0.02	70
75			13.03	15.86	9.94	8.21	6.36	2.77	4.34	1.09	2.93	0.42	1.77	0.12	0.81	0.02	75
80			13.90	17.88	10.60	9.25	6.78	3.12	4.63	1.23	3.12	0.47	1.89	0.14	0.87	0.02	80
85			14.77	20.00	11.27	10.35	7.21	3.49	4.91	1.38	3.32	0.53	2.00	0.16	0.92	0.02	85
90			15.64	22.23	11.93	11.51	7.63	3.88	5.20	1.53	3.51	0.59	2.12	0.17	0.98	0.03	90
95			16.51	24.58	12.59	12.72	8.05	4.29	5.49	1.69	3.71	0.65	2.24	0.19	1.03	0.03	95
100			17.38	27.03	13.26	13.99	8.48	4.72	5.78	1.86	3.91	0.72	2.36	0.21	1.09	0.03	100
110			19.12	32.24	14.58	16.69	9.33	5.63	6.36	2.22	4.30	0.86	2.60	0.25	1.20	0.04	110
120					15.91	19.61	10.18	6.61	6.94	2.61	4.69	1.01	2.83	0.30	1.30	0.05	120
130					17.24	22.74	11.02	7.67	7.52	3.03	5.08	1.17	3.07	0.34	1.41	0.05	130
140					18.56	26.09	11.87	8.80	8.10	3.47	5.47	1.34	3.31	0.39	1.52	0.06	140
150					19.89	29.64	12.72	10.00	8.68	3.94	5.86	1.52	3.54	0.45	1.63	0.07	150
160							13.57	11.27	9.26	4.45	6.25	1.71	3.78	0.50	1.74	0.08	160
170							14.42	12.61	9.83	4.97	6.64	1.92	4.01	0.56	1.85	0.09	170
180							15.27	14.02	10.41	5.53	7.03	2.13	4.25	0.63	1.96	0.10	180
190							16.11	15.49	10.99	6.11	7.43	2.35	4.49	0.69	2.07	0.11	190
200							16.96	17.03	11.57	6.72	7.82	2.59	4.72	0.76	2.18	0.12	200
225							19.08	21.19	13.02	8.36	8.79	3.22	5.31	0.95	2.45	0.14	225
250									14.47	10.16	9.77	3.91	5.91	1.15	2.72	0.18	250
275									15.91	12.12	10.75	4.67	6.50	1.37	3.00	0.21	275
300									17.36	14.24	11.73	5.49	7.09	1.61	3.27	0.25	300
325									18.81	16.51	12.70	6.36	7.68	1.87	3.54	0.29	325
350											13.68	7.30	8.27	2.15	3.81	0.33	350
375											14.66	8.29	8.86	2.44	4.09	0.37	375
400											15.64	9.35	9.45	2.75	7.36	0.42	400
425											16.62	10.46	10.04	3.07	4.63	0.47	425
450											17.59	11.62	10.63	3.42	4.90	0.52	450
475											18.57	12.85	11.23	3.78	5.18	0.58	475
500											19.55	14.13	11.82	4.15	5.45	0.63	500
550													13.00	4.96	6.00	0.76	550
600													14.18	5.82	6.54	0.89	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Class 200 IPS Plastic Pipe

(1120, 1220) SDR 21 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 3/4" through 6", Flow GPM 1 through 600

SIZE	3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	.930		1.189		1.502		1.720		2.149		2.601		3.166		4.072		5.993		ID
WALL THK	.060		0.063		0.079		0.090		0.113		0.137		0.167		0.214		0.316		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.47	0.06	0.28	0.02	0.18	0.01	0.13	0.00											1
2	0.94	0.22	0.57	0.07	0.36	0.02	0.27	0.01	0.17	0.00									2
3	1.42	0.46	0.86	0.14	0.54	0.04	0.41	0.02	0.26	0.01	0.18	0.00							3
4	1.89	0.79	1.15	0.24	0.72	0.08	0.55	0.04	0.35	0.01	0.24	0.01							4
5	2.36	1.20	1.44	0.36	0.90	0.12	0.68	0.06	0.44	0.02	0.30	0.01							5
6	2.83	1.68	1.73	0.51	1.08	0.16	0.82	0.08	0.53	0.03	0.36	0.01	0.24	0.00					6
7	3.30	2.23	2.02	0.67	1.26	0.22	0.96	0.11	0.61	0.04	0.42	0.01	0.28	0.01					7
8	3.77	2.85	2.30	0.86	1.44	0.28	1.10	0.14	0.70	0.05	0.48	0.02	0.32	0.01					8
9	4.25	3.55	2.59	1.07	1.62	0.34	1.24	0.18	0.79	0.06	0.54	0.02	0.36	0.01					9
10	4.72	4.31	2.88	1.30	1.80	0.42	1.37	0.22	0.88	0.07	0.60	0.03	0.40	0.01					10
11	5.19	5.15	3.17	1.56	1.98	0.50	1.51	0.26	0.97	0.09	0.66	0.03	0.44	0.01					11
12	5.66	6.05	3.46	1.83	2.17	0.59	1.65	0.30	1.06	0.10	0.72	0.04	0.48	0.02	0.29	0.00			12
14	6.60	8.05	4.04	2.43	2.53	0.78	1.93	0.40	1.23	0.14	0.84	0.05	0.56	0.02	0.34	0.01			14
16	7.55	10.30	4.61	3.11	2.89	1.00	2.20	0.52	1.41	0.17	0.96	0.07	0.65	0.03	0.39	0.01			16
18	8.49	12.81	5.19	3.87	3.25	1.24	2.48	0.64	1.59	0.22	1.08	0.09	0.73	0.03	0.44	0.01			18
20	9.43	15.58	5.77	4.71	3.61	1.51	2.75	0.78	1.76	0.26	1.20	0.10	0.81	0.04	0.49	0.01			20
22	10.38	18.58	6.34	5.62	3.97	1.80	3.03	0.93	1.94	0.32	1.32	0.12	0.89	0.05	0.54	0.01			22
24	11.32	21.83	6.92	6.60	4.34	2.12	3.30	1.09	2.12	0.37	1.44	0.15	0.97	0.06	0.59	0.02			24
26	12.27	25.32	7.50	7.65	4.70	2.46	3.58	1.27	2.29	0.43	1.56	0.17	1.05	0.07	0.63	0.02			26
28	13.21	29.04	8.08	8.78	5.06	2.82	3.86	1.46	2.47	0.49	1.68	0.19	1.13	0.07	0.68	0.02			28
30	14.15	33.00	8.65	9.98	5.42	3.20	4.13	1.66	2.65	0.56	1.80	0.22	1.22	0.09	0.73	0.02	0.34	0.00	30
35	16.51	43.91	10.10	13.27	6.32	4.26	4.82	2.20	3.09	0.75	2.11	0.29	1.42	0.11	0.86	0.03	0.39	0.01	35
40	18.87	56.23	11.54	17.00	7.23	5.45	5.51	2.82	3.53	0.95	2.41	0.38	1.62	0.14	0.98	0.04	0.45	0.01	40
45			12.98	21.14	8.13	6.78	6.20	3.51	3.97	1.19	2.71	0.47	1.83	0.18	1.10	0.05	0.51	0.01	45
50			14.42	25.70	9.04	8.24	6.89	4.26	4.41	1.44	3.01	0.57	2.03	0.22	1.23	0.06	0.56	0.01	50
55			15.87	30.66	9.94	9.83	7.58	5.09	4.85	1.72	3.31	0.68	2.23	0.26	1.35	0.08	0.62	0.01	55
60			17.31	36.02	10.85	11.55	8.27	5.97	5.30	2.02	3.61	0.80	2.44	0.31	1.47	0.09	0.68	0.01	60
65			18.75	41.77	11.75	13.40	8.96	6.93	5.74	2.35	3.92	0.93	2.64	0.36	1.59	0.10	0.73	0.02	65
70					12.65	15.37	9.65	7.95	6.18	2.69	4.22	1.06	2.84	0.41	1.72	0.12	0.79	0.02	70
75					13.56	17.47	10.34	9.03	6.62	3.06	4.52	1.21	3.05	0.46	1.84	0.14	0.85	0.02	75
80					14.46	19.68	11.03	10.18	7.06	3.44	4.82	1.36	3.25	0.52	1.96	0.15	0.90	0.02	80
85					15.37	22.02	11.72	11.39	7.50	3.85	5.12	1.52	3.45	0.59	2.09	0.17	0.96	0.03	85
90					16.27	24.48	12.41	12.66	7.95	4.28	5.42	1.69	3.66	0.65	2.21	0.19	1.02	0.03	90
95					17.18	27.06	13.10	13.99	8.39	4.74	5.72	1.87	3.86	0.72	2.33	0.21	1.07	0.03	95
100					18.08	29.76	13.79	15.39	8.83	5.21	6.03	2.06	4.07	0.79	2.46	0.23	1.13	0.04	100
110					19.89	35.50	15.17	18.36	9.71	6.21	6.63	2.45	4.47	0.94	2.70	0.28	1.24	0.04	110
120							16.54	21.57	10.60	7.30	7.23	2.88	4.88	1.11	2.95	0.33	1.36	0.05	120
130							17.92	25.02	11.48	8.47	7.84	3.34	5.29	1.29	3.19	0.38	1.47	0.06	130
140							19.30	28.70	12.36	9.71	8.44	3.84	5.69	1.47	3.44	0.43	1.59	0.07	140
150									13.25	11.04	9.04	4.36	6.10	1.68	3.69	0.49	1.70	0.08	150
160									14.13	12.44	9.64	4.91	6.51	1.89	3.93	0.55	1.81	0.08	160
170									15.01	13.91	10.25	5.50	6.91	2.11	4.18	0.62	1.93	0.09	170
180									15.90	15.47	10.85	6.11	7.32	2.35	4.42	0.69	2.04	0.11	180
190									16.78	17.10	11.45	6.75	7.73	2.60	4.67	0.76	2.15	0.12	190
200									17.66	18.80	12.06	7.43	8.14	2.85	4.92	0.84	2.27	0.13	200
225									19.87	23.38	13.56	9.24	9.15	3.55	5.53	1.04	2.55	0.16	225
250											15.07	11.23	10.17	4.31	6.15	1.27	2.83	0.19	250
275											16.58	13.39	11.19	5.15	6.76	1.51	3.12	0.23	275
300											18.09	15.74	12.21	6.05	7.38	1.78	3.40	0.27	300
325											19.60	18.25	13.22	7.01	7.99	2.06	3.69	0.31	325
350													14.24	8.05	8.61	2.36	3.97	0.36	350
375													15.26	9.14	9.22	2.69	4.25	0.41	375
400													16.28	10.30	9.84	3.03	4.54	0.46	400
425													17.29	11.53	10.45	3.39	4.82	0.52	425
450													18.31	12.81	11.07	3.77	5.11	0.57	450
475													19.33	14.16	11.68	4.16	5.39	0.63	475
500															12.30	4.58	5.67	0.70	500
550															13.53	5.46	6.24	0.83	550
600															14.76	6.42	6.81	0.98	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Class 315 IPS Plastic Pipe

(1120, 1220) SDR 13.5 C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1/2" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.716		0.894		1.121		1.414		1.618		2.023		2.449		2.982		3.834		5.643		ID
WALL THK	0.062		0.078		0.097		0.123		0.141		0.176		0.213		0.259		0.333		0.491		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	0.79	0.22	0.51	0.07	0.32	0.02	0.20	0.01	0.15	0.00											1
2	1.59	0.78	1.02	0.27	0.64	0.09	0.40	0.03	0.31	0.01	0.19	0.00									2
3	2.38	1.65	1.53	0.56	0.97	0.19	0.61	0.06	0.46	0.03	0.29	0.01	0.20	0.00							3
4	3.18	2.82	2.04	0.96	1.29	0.32	0.81	0.10	0.62	0.05	0.39	0.02	0.27	0.01							4
5	3.97	4.26	2.55	1.45	1.62	0.48	1.02	0.16	0.77	0.08	0.49	0.03	0.34	0.01	0.22	0.00					5
6	4.77	5.97	3.06	2.03	1.94	0.67	1.22	0.22	0.93	0.11	0.59	0.04	0.40	0.02	0.27	0.01					6
7	5.57	7.95	3.57	2.70	2.27	0.90	1.42	0.29	1.09	0.15	0.69	0.05	0.47	0.02	0.32	0.01					7
8	6.36	10.18	4.08	3.45	2.59	1.15	1.63	0.37	1.24	0.19	0.79	0.06	0.54	0.03	0.36	0.01					8
9	7.16	12.66	4.59	4.30	2.92	1.43	1.83	0.46	1.40	0.24	0.89	0.08	0.61	0.03	0.41	0.01					9
10	7.95	15.38	5.10	5.22	3.24	1.74	2.04	0.56	1.55	0.29	0.99	0.10	0.68	0.04	0.45	0.01	0.27	0.00			10
11	8.75	18.35	5.61	6.23	3.57	2.07	2.24	0.67	1.71	0.35	1.09	0.12	0.74	0.05	0.50	0.02	0.30	0.01			11
12	9.55	21.56	6.12	7.32	3.89	2.43	2.44	0.79	1.87	0.41	1.19	0.14	0.81	0.05	0.55	0.02	0.33	0.01			12
14	11.14	28.69	7.14	9.74	4.54	3.24	2.85	1.05	2.18	0.54	1.39	0.18	0.95	0.07	0.64	0.03	0.38	0.01			14
16	12.73	36.74	8.16	12.47	5.19	4.15	3.26	1.34	2.49	0.70	1.59	0.23	1.08	0.09	0.73	0.04	0.44	0.01			16
18	14.32	45.69	9.18	15.51	5.84	5.16	3.67	1.67	2.80	0.87	1.79	0.29	1.22	0.12	0.82	0.04	0.49	0.01			18
20	15.91	55.54	10.20	18.86	6.49	6.27	4.08	2.03	3.11	1.05	1.99	0.35	1.36	0.14	0.91	0.05	0.55	0.02			20
22	17.50	66.26	11.23	22.50	7.14	7.48	4.48	2.42	3.42	1.25	2.19	0.42	1.49	0.17	1.00	0.06	0.61	0.02			22
24	19.10	77.84	12.25	26.43	7.79	8.79	4.89	2.84	3.74	1.47	2.39	0.50	1.63	0.20	1.10	0.08	0.66	0.02			24
26			13.27	30.65	8.44	10.19	5.30	3.29	4.05	1.71	2.59	0.58	1.76	0.23	1.19	0.09	0.72	0.03			26
28			14.29	35.16	9.09	11.69	5.71	3.78	4.36	1.96	2.79	0.66	1.90	0.26	1.28	0.10	0.77	0.03	0.35	0.00	28
30			15.31	39.95	9.74	13.29	6.12	4.29	4.67	2.23	2.99	0.75	2.04	0.30	1.37	0.11	0.83	0.03	0.38	0.01	30
35			17.86	53.15	11.36	17.68	7.14	5.71	5.45	2.96	3.48	1.00	2.38	0.39	1.60	0.15	0.97	0.04	0.44	0.01	35
40					12.98	22.64	8.16	7.31	6.23	3.80	3.98	1.28	2.72	0.51	1.83	0.19	1.11	0.06	0.51	0.01	40
45					14.61	28.15	9.18	9.10	7.01	4.72	4.48	1.59	3.06	0.63	2.06	0.24	1.24	0.07	0.57	0.01	45
50					16.23	34.22	10.20	11.06	7.79	5.74	4.98	1.94	3.40	0.76	2.29	0.29	1.38	0.09	0.64	0.01	50
55					17.85	40.83	11.22	13.19	8.57	6.85	5.48	2.31	3.74	0.91	2.52	0.35	1.52	0.10	0.70	0.02	55
60					19.48	47.97	12.24	15.50	9.35	8.04	5.98	2.71	4.08	1.07	2.75	0.41	1.66	0.12	0.76	0.02	60
65							13.26	17.97	10.13	9.33	6.48	3.15	4.42	1.24	2.98	0.48	1.80	0.14	0.83	0.02	65
70							14.28	20.62	10.90	10.70	6.97	3.61	4.76	1.42	3.21	0.55	1.94	0.16	0.89	0.02	70
75							15.30	23.43	11.68	12.16	7.47	4.10	5.10	1.62	3.44	0.62	2.08	0.18	0.96	0.03	75
80							16.32	26.40	12.46	13.71	7.97	4.62	5.44	1.82	3.67	0.70	2.22	0.21	1.02	0.03	80
85							17.34	29.54	13.24	15.33	8.47	5.17	5.78	2.04	3.89	0.78	2.35	0.23	1.08	0.04	85
90							18.36	32.84	14.02	17.05	8.97	5.75	6.12	2.27	4.12	0.87	2.49	0.26	1.15	0.04	90
95							19.38	36.30	14.80	18.84	9.47	6.35	6.46	2.51	4.35	0.96	2.63	0.28	1.21	0.04	95
100									15.58	20.72	9.96	6.99	6.80	2.76	4.58	1.06	2.77	0.31	1.28	0.05	100
110									17.14	24.72	10.96	8.34	7.48	3.29	5.04	1.26	3.05	0.37	1.40	0.06	110
120									18.70	29.04	11.96	9.79	8.16	3.87	5.50	1.48	3.33	0.44	1.53	0.07	120
130											12.96	11.36	8.84	4.48	5.96	1.72	3.60	0.51	1.66	0.08	130
140											13.95	13.03	9.52	5.14	6.42	1.97	3.88	0.58	1.79	0.09	140
150											14.95	14.81	10.20	5.84	6.88	2.24	4.16	0.66	1.92	0.10	150
160											15.95	16.69	10.88	6.59	7.34	2.53	4.44	0.74	2.04	0.11	160
170											16.94	18.67	11.56	7.37	7.79	2.83	4.71	0.83	2.17	0.13	170
180											17.94	20.75	12.24	8.19	8.25	3.14	4.99	0.93	2.30	0.14	180
190											18.94	22.94	12.92	9.05	8.71	3.47	5.27	1.02	2.43	0.16	190
200											19.93	25.23	13.60	9.95	9.17	3.82	5.55	1.12	2.56	0.17	200
225													15.30	12.38	10.32	4.75	6.24	1.40	2.88	0.21	225
250													17.00	15.05	11.47	5.77	6.93	1.70	3.20	0.26	250
275													18.70	17.95	12.61	6.89	7.63	2.03	3.52	0.31	275
300															13.76	8.09	8.32	2.38	3.84	0.36	300
325															14.91	9.39	9.02	2.76	4.16	0.42	325
350															16.05	10.77	9.71	3.17	4.48	0.48	350
375															17.20	12.23	10.40	3.60	4.80	0.55	375
400															18.35	13.79	11.10	4.06	5.12	0.62	400
425															19.49	15.42	11.79	4.54	5.44	0.69	425
450																	12.49	5.05	5.76	0.77	450
475																	13.18	5.58	6.08	0.85	475
500																	13.87	6.14	6.40	0.94	500
550																	15.26	7.32	7.04	1.12	550
600																	16.65	8.60	7.68	1.31	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Schedule 40 IPS Plastic Pipe

(1120, 1220) C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1/2" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL THK	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.43	0.60	0.11	0.37	0.03	0.21	0.01	0.15	0.00											1
2	2.11	1.55	1.20	0.39	0.74	0.12	0.42	0.03	0.31	0.02	0.19	0.00									2
3	3.16	3.28	1.80	0.84	1.11	0.26	0.64	0.07	0.47	0.03	0.28	0.01	0.20	0.00							3
4	4.22	5.60	2.40	1.42	1.48	0.44	0.85	0.12	0.62	0.05	0.38	0.02	0.26	0.01							4
5	5.27	8.46	3.00	2.15	1.85	0.66	1.07	0.18	0.78	0.08	0.47	0.02	0.33	0.01	0.21	0.00					5
6	6.33	11.86	3.60	3.02	2.22	0.93	1.28	0.25	0.94	0.12	0.57	0.03	0.40	0.01	0.26	0.01					6
7	7.38	15.77	4.20	4.01	2.59	1.24	1.49	0.33	1.10	0.15	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.44	20.20	4.80	5.14	2.96	1.59	1.71	0.42	1.25	0.20	0.76	0.06	0.53	0.02	0.34	0.01					8
9	9.49	25.12	5.40	6.39	3.33	1.97	1.92	0.52	1.41	0.25	0.85	0.07	0.60	0.03	0.39	0.01					9
10	10.55	30.54	6.00	7.77	3.70	2.40	2.14	0.63	1.57	0.30	0.95	0.09	0.66	0.04	0.43	0.01					10
11	11.60	36.43	6.60	9.27	4.07	2.86	2.35	0.75	1.73	0.36	1.05	0.11	0.73	0.04	0.47	0.02					11
12	12.65	42.80	7.21	10.89	4.44	3.36	2.57	0.89	1.88	0.42	1.14	0.12	0.80	0.05	0.52	0.02	0.30	0.00			12
14	14.76	56.94	8.41	14.48	5.19	4.47	2.99	1.18	2.20	0.56	1.33	0.17	0.93	0.07	0.60	0.02	0.35	0.01			14
16	16.87	72.92	9.61	18.55	5.93	5.73	3.42	1.51	2.51	0.71	1.52	0.21	1.07	0.09	0.69	0.03	0.40	0.01			16
18	18.98	90.69	10.81	23.07	6.67	7.13	3.85	1.88	2.83	0.89	1.71	0.26	1.20	0.11	0.78	0.04	0.45	0.01			18
20	21.09	110.23	12.01	28.04	7.41	8.66	4.28	2.28	3.14	1.08	1.90	0.32	1.33	0.13	0.86	0.05	0.50	0.01			20
22			13.21	33.45	8.15	10.33	4.71	2.72	3.46	1.29	2.10	0.38	1.47	0.16	0.95	0.06	0.55	0.01			22
24			14.42	39.30	8.89	12.14	5.14	3.20	3.77	1.51	2.29	0.45	1.60	0.19	1.04	0.07	0.60	0.02			24
26			15.62	45.58	9.64	14.08	5.57	3.17	4.09	1.75	2.48	0.52	1.74	0.22	1.12	0.08	0.65	0.02			26
28			16.82	52.28	10.38	16.15	5.99	4.25	4.40	2.01	2.67	0.60	1.87	0.25	1.21	0.09	0.70	0.02			28
30			18.02	59.41	11.12	18.35	6.42	4.83	4.72	2.28	2.86	0.68	2.00	0.29	1.30	0.10	0.75	0.03			30
35					12.97	24.42	7.49	6.43	5.50	3.04	3.34	0.90	2.34	0.38	1.51	0.13	0.88	0.04	0.38	0.00	35
40					14.83	31.27	8.56	8.23	6.29	3.89	3.81	1.15	2.67	0.49	1.73	0.17	1.00	0.04	0.44	0.01	40
45					16.68	38.89	9.64	10.24	7.08	4.84	4.29	1.43	3.01	0.60	1.95	0.21	1.13	0.06	0.49	0.01	45
50					18.53	47.27	10.71	12.45	7.87	5.88	4.77	1.74	3.34	0.73	2.16	0.26	1.25	0.07	1.55	0.01	50
55							11.78	14.85	8.65	7.01	5.25	2.08	3.68	0.88	2.38	0.30	1.38	0.08	0.61	0.01	55
60							12.85	17.45	9.44	8.24	5.72	2.44	4.01	1.03	2.60	0.36	1.51	0.10	0.66	0.01	60
65							13.92	20.23	10.23	9.56	6.20	2.83	4.35	1.19	2.81	0.41	1.63	0.11	0.72	0.02	65
70							14.99	23.21	11.01	10.96	6.68	3.25	4.68	1.37	3.03	0.48	1.76	0.13	0.77	0.02	70
75							16.06	26.37	11.80	12.46	7.16	3.69	5.01	1.56	3.25	0.54	1.88	0.14	0.83	0.02	75
80							17.13	29.72	12.59	14.04	7.63	4.16	5.35	1.75	3.46	0.61	2.01	0.16	0.88	0.02	80
85							18.21	33.26	13.37	15.71	8.11	4.66	5.68	1.96	3.68	0.68	2.13	0.18	0.94	0.02	85
90							19.28	36.97	14.16	17.46	8.59	5.18	6.02	2.18	3.90	0.76	2.26	0.20	0.99	0.03	90
95									14.95	19.30	9.07	5.72	6.35	2.41	4.11	0.84	2.39	0.22	1.05	0.03	95
100									15.74	21.22	9.54	6.29	6.69	2.65	4.33	0.92	2.51	0.25	1.10	0.03	100
110									17.31	25.32	10.50	7.51	7.36	3.16	4.76	1.10	2.76	0.29	1.22	0.04	110
120									18.88	29.75	11.45	8.82	8.03	3.72	5.20	1.29	3.02	0.34	1.33	0.05	120
130											12.41	10.23	8.70	4.31	5.63	1.50	3.27	0.40	1.44	0.05	130
140											13.36	11.74	9.37	4.94	6.06	1.72	3.52	0.46	1.55	0.06	140
150											14.32	13.33	10.03	5.62	6.50	1.95	3.77	0.52	1.66	0.07	150
160											15.27	15.03	10.70	6.33	6.93	2.20	4.02	0.59	1.77	0.08	160
170											16.23	16.81	11.37	7.08	7.36	2.46	4.27	0.66	1.88	0.09	170
180											17.18	18.69	12.04	7.87	7.80	2.74	4.53	0.73	1.99	0.10	180
190											18.14	20.66	12.71	8.70	8.23	3.02	4.78	0.81	2.10	0.11	190
200											19.09	22.72	13.38	9.57	8.66	3.33	5.03	0.89	2.21	0.12	200
225													15.05	11.90	9.75	4.14	5.66	1.10	2.49	0.15	225
250													16.73	14.47	10.83	5.03	6.29	1.34	2.77	0.18	250
275													18.40	17.26	11.92	6.00	6.92	1.60	3.05	0.22	275
300															13.00	7.05	7.55	1.88	3.32	0.26	300
325															14.08	8.17	8.18	2.18	3.60	0.30	325
350															15.17	9.38	8.81	2.50	3.88	0.34	350
375															16.25	10.65	9.43	2.84	4.15	0.39	375
400															17.33	12.01	10.06	3.20	4.43	0.44	400
425															18.42	13.43	10.69	3.58	4.71	0.49	425
450															19.50	14.93	11.32	3.98	4.99	0.54	450
475																	11.95	4.40	5.26	0.60	475
500																	12.58	4.84	5.54	0.66	500
550																	13.84	5.77	6.10	0.79	550
600																	15.10	6.78	6.65	0.92	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

PVC Schedule 80 IPS Plastic Pipe

(1120, 1220) C=150, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1/2" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.546		0.742		0.957		1.278		1.500		1.939		2.323		2.900		3.826		5.761		ID
WALL THK	0.147		0.154		0.179		0.191		0.200		0.218		0.276		0.300		0.337		0.432		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.36	0.81	0.74	0.18	0.44	0.05	0.24	0.01	0.18	0.01	0.10	0.00									1
2	2.73	2.92	1.48	0.66	0.89	0.19	0.49	0.05	0.36	0.02	0.21	0.01	0.15	0.00							2
3	4.10	6.19	2.22	1.39	1.33	0.40	0.74	0.10	0.54	0.05	0.32	0.01	0.22	0.01							3
4	5.47	10.54	2.96	2.37	1.78	0.69	0.99	0.17	0.72	0.08	0.43	0.02	0.30	0.01							4
5	6.84	15.93	3.70	3.58	2.22	1.04	1.24	0.25	0.90	0.12	0.54	0.03	0.37	0.01	0.24	0.00					5
6	8.21	22.33	4.44	5.02	2.67	1.46	1.49	0.36	1.08	0.16	0.65	0.05	0.45	0.02	0.29	0.01					6
7	9.58	29.71	5.18	6.68	3.11	1.94	1.74	0.47	1.26	0.22	0.75	0.06	0.52	0.03	0.33	0.01					7
8	10.94	38.05	5.92	8.56	3.56	2.48	1.99	0.61	1.45	0.28	0.86	0.08	0.60	0.03	0.38	0.01					8
9	12.31	47.33	6.66	10.64	4.00	3.09	2.24	0.76	1.63	0.35	0.97	0.10	0.68	0.04	0.43	0.01					9
10	13.68	57.52	7.41	12.93	4.45	3.75	2.49	0.92	1.81	0.42	1.08	0.12	0.75	0.05	0.48	0.02	0.27	0.00			10
11	15.05	68.63	8.15	15.43	4.90	4.47	2.74	1.10	1.99	0.50	1.19	0.14	0.83	0.06	0.53	0.02	0.30	0.01			11
12	16.42	80.63	8.89	18.13	5.34	5.26	2.99	1.29	2.17	0.59	1.30	0.17	0.90	0.07	0.58	0.02	0.33	0.01			12
14			10.37	24.12	6.23	6.99	3.49	1.71	2.53	0.79	1.51	0.23	1.05	0.09	0.67	0.03	0.39	0.01			14
16			11.85	30.88	7.12	8.95	3.99	2.19	2.90	1.01	1.73	0.29	1.20	1.12	0.77	0.04	0.44	0.01			16
18			13.33	38.41	8.01	11.14	4.49	2.73	3.26	1.26	1.95	0.36	1.36	0.15	0.87	0.05	0.50	0.01			18
20			14.82	46.69	8.90	13.54	4.99	3.31	3.62	1.52	2.17	0.44	1.51	0.18	0.97	0.06	0.55	0.02			20
22			16.30	55.70	9.80	16.15	5.49	3.95	3.98	1.81	2.38	0.52	1.66	0.22	1.06	0.07	0.61	0.02			22
24			17.78	65.44	10.69	18.97	5.99	4.64	4.35	2.13	2.60	0.61	1.81	0.25	1.16	0.09	0.66	0.02			24
26			19.26	75.90	11.58	22.01	6.49	5.39	4.71	2.47	2.82	0.71	1.96	0.29	1.26	0.10	0.72	0.03			26
28					12.47	25.24	6.99	6.18	5.07	2.83	3.03	0.81	2.11	0.34	1.35	0.11	0.78	0.03			28
30					13.36	28.69	7.49	7.02	5.43	3.22	3.25	0.92	2.26	0.38	1.45	0.13	0.83	0.03	0.36	0.00	30
35					15.59	38.16	8.74	9.34	6.34	4.29	3.79	1.23	2.64	0.51	1.69	0.17	0.97	0.05	0.43	0.01	35
40					17.81	48.87	9.99	11.96	7.25	5.49	4.34	1.57	3.02	0.65	1.94	0.22	1.11	0.06	0.49	0.01	40
45							11.24	14.88	8.16	6.83	4.88	1.96	3.40	0.81	2.18	0.28	1.25	0.07	0.55	0.01	45
50							12.49	18.09	9.06	8.30	5.42	2.38	3.78	0.99	2.42	0.34	1.39	0.09	0.61	0.01	50
55							13.73	21.58	9.97	9.90	5.96	2.84	4.15	1.18	2.66	0.40	1.53	0.10	0.67	0.01	55
60							14.98	25.35	10.87	11.63	6.51	3.33	4.53	1.38	2.91	0.47	1.67	0.12	0.73	0.02	60
65							16.23	29.40	11.78	13.49	7.05	3.87	4.91	1.61	3.15	0.55	1.81	0.14	0.79	0.02	65
70							17.48	33.72	12.69	15.47	7.59	4.44	5.29	1.84	3.39	0.63	1.95	0.16	0.86	0.02	70
75							18.73	38.32	13.59	17.58	8.13	5.04	5.67	2.09	3.63	0.71	2.09	0.18	0.92	0.03	75
80							19.98	43.19	14.50	19.81	8.68	5.68	6.04	2.36	3.88	0.80	2.22	0.21	0.98	0.03	80
85									15.41	22.16	9.22	6.36	6.42	2.63	4.12	0.90	2.36	0.23	1.04	0.03	85
90									16.32	24.64	9.76	7.07	6.80	2.93	4.36	1.00	2.50	0.26	1.10	0.04	90
95									17.22	27.23	10.30	7.81	7.18	3.24	4.60	1.10	2.64	0.29	1.16	0.04	95
100									18.13	29.95	10.85	8.59	7.56	3.57	4.85	1.21	2.78	0.31	1.22	0.04	100
110									19.94	35.73	11.93	10.25	8.31	4.25	5.33	1.45	3.06	0.38	1.35	0.05	110
120											13.02	12.04	9.07	5.00	5.82	1.70	3.34	0.44	1.47	0.06	120
130											14.10	13.96	9.82	5.60	6.30	1.97	3.62	0.51	1.59	0.07	130
140											15.19	16.02	10.58	6.65	6.79	2.27	3.90	0.59	1.72	0.08	140
150											16.27	18.20	11.34	7.56	7.27	2.57	4.18	0.67	1.84	0.09	150
160											17.36	20.51	12.09	8.51	7.76	2.89	4.45	0.75	1.96	0.10	160
170											18.44	22.95	12.85	9.53	8.24	3.24	4.73	0.84	2.08	0.11	170
180											19.53	25.51	13.60	10.59	8.73	3.60	5.01	0.93	2.21	0.13	180
190													14.36	11.71	9.21	3.98	5.29	1.03	2.33	0.14	190
200													15.12	12.87	9.70	4.37	5.57	1.14	2.45	0.16	200
225													17.01	16.01	10.91	5.44	6.27	1.41	2.76	0.19	225
250													18.90	19.46	12.12	6.61	6.96	1.72	3.07	0.23	250
275															13.34	7.89	7.66	2.05	3.38	0.28	275
300															14.55	9.27	8.36	2.41	3.68	0.33	300
325															15.76	10.75	9.05	2.79	3.99	0.38	325
350															16.97	12.33	9.75	3.20	4.30	0.44	350
375															18.19	14.01	10.45	3.64	4.60	0.50	375
400															19.40	15.79	11.14	4.10	4.91	0.56	400
425																	11.84	4.59	5.22	0.63	425
450																	12.54	5.10	5.53	0.70	450
475																	13.23	5.64	5.83	0.77	475
500																	13.93	6.20	6.14	0.85	500
550																	15.32	7.40	6.76	1.01	550
600																	16.72	8.69	7.37	1.19	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Polyethylene (PE) SDR-Pressure Rated Tube

(2306, 3206, 3306) SDR 7, 9, 11.5, 15 C=140, PSI loss per 100 feet of tube (PSI/100 FT), Sizes 1/2" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.49	0.60	0.12	0.37	0.04	0.21	0.01	0.15	0.00	0.09	0.00									1
2	2.10	1.76	1.20	0.45	0.74	0.14	0.42	0.04	0.31	0.02	0.19	0.01									2
3	3.16	3.73	1.80	0.95	1.11	0.29	0.64	0.08	0.47	0.04	0.28	0.01	0.20	0.00							3
4	4.21	6.35	2.40	1.62	1.48	0.50	0.85	0.13	0.62	0.06	0.38	0.02	0.26	0.01							4
5	5.27	9.60	3.00	2.44	1.85	0.76	1.07	0.20	0.78	0.09	0.47	0.03	0.33	0.01	0.21	0.00					5
6	6.32	13.46	3.60	3.43	2.22	1.06	1.28	0.28	0.94	0.13	0.57	0.04	0.40	0.02	0.26	0.01					6
7	7.38	17.91	4.20	4.56	2.59	1.41	1.49	0.37	1.10	0.18	0.66	0.05	0.46	0.02	0.30	0.01					7
8	8.43	22.93	4.80	5.84	2.96	1.80	1.71	0.47	1.25	0.22	0.76	0.07	0.53	0.03	0.34	0.01					8
9	9.49	28.52	5.40	7.26	3.33	2.24	1.92	0.59	1.41	0.28	0.85	0.08	0.60	0.03	0.39	0.01					9
10	10.54	34.67	6.00	8.82	3.70	2.73	2.14	0.72	1.57	0.34	0.95	0.10	0.66	0.04	0.43	0.01					10
11	11.60	41.36	6.00	10.53	4.07	3.25	2.35	0.86	1.73	0.40	1.05	0.12	0.73	0.05	0.47	0.02	0.27	0.00			11
12	12.65	48.60	7.21	12.37	4.44	3.82	2.57	1.01	1.88	0.48	1.14	0.14	0.80	0.06	0.52	0.02	0.30	0.01			12
14	14.76	64.65	8.41	16.46	5.19	5.08	2.99	1.34	2.20	0.63	1.33	0.19	0.93	0.08	0.60	0.03	0.35	0.01			14
16	16.87	82.79	9.61	21.07	5.93	6.51	3.42	1.71	2.51	0.81	1.52	0.24	1.07	0.10	0.69	0.04	0.40	0.01			16
18	18.98	02.97	10.81	26.21	6.67	8.10	3.85	2.13	2.83	1.01	1.71	0.30	1.20	0.13	0.78	0.04	0.45	0.01			18
20			12.01	31.86	7.41	9.84	4.28	2.59	3.14	1.22	1.90	0.36	1.33	0.15	0.86	0.05	0.50	0.01			20
22			13.21	38.01	8.15	11.74	4.71	3.09	3.46	1.46	2.10	0.43	1.47	0.18	0.95	0.06	0.55	0.02			22
24			14.42	44.65	8.89	13.79	5.14	3.63	3.77	1.72	2.29	0.51	1.60	0.21	1.04	0.07	0.60	0.02			24
26			15.62	41.79	9.64	16.00	5.57	4.21	4.09	1.99	2.48	0.59	1.74	0.25	1.12	0.09	0.65	0.02			26
28			16.82	59.41	10.38	18.35	5.99	4.83	4.40	2.28	2.67	0.68	1.87	0.29	1.21	0.10	0.70	0.03			28
30			18.02	67.50	11.12	20.85	6.42	5.49	4.72	2.59	2.86	0.77	2.00	0.32	1.30	0.11	0.75	0.03	0.33	0.00	30
35					12.97	27.74	7.49	7.31	5.50	3.45	3.34	1.02	2.34	0.43	1.51	0.15	0.88	0.04	0.38	0.01	35
40					14.83	35.53	8.56	9.36	6.29	4.42	3.81	1.31	2.67	0.55	1.73	0.19	1.00	0.05	0.44	0.01	40
45					16.68	44.19	9.64	11.64	7.08	5.50	4.29	1.63	3.01	0.69	1.95	0.24	1.13	0.06	0.49	0.01	45
50					18.53	53.71	10.71	14.14	7.87	6.68	4.77	1.98	3.34	0.83	2.16	0.29	1.25	0.08	0.55	0.01	50
55							11.78	16.87	8.65	7.97	5.25	2.36	3.68	1.00	2.38	0.35	1.38	0.09	0.61	0.01	55
60							12.85	19.82	9.44	9.36	5.72	2.78	4.01	1.17	2.60	0.41	1.51	0.11	0.66	0.01	60
65							13.92	22.99	10.23	10.86	6.20	3.22	4.35	1.36	2.81	0.47	1.63	0.13	0.72	0.02	65
70							14.99	26.37	11.01	12.46	6.68	3.69	4.68	1.56	3.03	0.54	1.76	0.14	0.77	0.02	70
75							16.06	29.97	11.80	14.16	7.16	4.20	5.01	1.77	3.25	0.61	1.88	0.16	0.83	0.02	75
80							17.13	33.77	12.59	15.95	7.63	4.73	5.35	1.99	3.46	0.69	2.01	0.18	0.88	0.03	80
85							18.21	37.79	13.37	17.85	8.11	5.29	5.68	2.23	3.68	0.77	2.13	0.21	0.94	0.03	85
90							19.28	42.01	14.16	19.84	8.59	5.88	6.02	2.48	3.90	0.86	2.26	0.23	0.99	0.03	90
95									14.95	21.93	9.07	6.50	6.35	2.74	4.11	0.95	2.39	0.25	1.05	0.03	95
100									15.74	24.12	9.54	7.15	6.69	3.01	4.33	1.05	2.51	0.28	1.10	0.04	100
110									17.31	28.77	10.50	8.53	7.36	3.59	4.76	1.25	2.76	0.33	1.22	0.05	110
120									18.88	33.80	11.45	10.02	8.03	4.22	5.20	1.47	3.02	0.39	1.33	0.05	120
130											12.41	11.62	8.70	4.90	5.63	1.70	3.27	0.45	1.44	0.06	130
140											13.36	13.33	9.37	5.62	6.06	1.95	3.52	0.52	1.55	0.07	140
150											14.32	15.15	10.03	6.38	6.50	2.22	3.77	0.59	1.66	0.08	150
160											15.27	17.08	10.70	7.19	6.93	2.50	4.02	0.67	1.77	0.09	160
170											16.23	19.11	11.37	8.05	7.36	2.80	4.27	0.75	1.88	0.10	170
180											17.18	21.24	12.04	8.95	7.08	3.11	4.53	0.83	1.99	0.11	180
190											18.14	23.48	12.71	9.89	8.23	3.44	4.78	0.92	2.10	0.12	190
200											19.09	25.81	13.38	10.87	8.66	3.78	5.03	1.01	2.21	0.14	200
225													15.05	13.52	9.75	4.70	5.66	1.25	2.49	0.17	225
250													16.73	16.44	10.83	5.71	6.29	1.52	2.77	0.21	250
275													18.40	19.61	11.92	6.82	6.92	1.82	3.05	0.25	275
300															13.00	8.01	7.55	2.13	3.32	0.29	300
325															14.08	9.29	8.18	2.48	3.60	0.34	325
350															15.17	10.65	8.81	2.84	3.88	0.39	350
375															16.25	12.10	9.43	3.23	4.15	0.44	375
400															17.33	13.64	10.06	3.64	4.43	0.50	400
425															18.42	15.26	10.69	4.07	4.71	0.55	425
450															19.50	16.97	11.32	4.52	4.99	0.62	450
475																	11.95	5.00	5.26	0.68	475
500																	12.58	5.50	5.54	0.75	500
550																	13.84	6.56	6.10	0.89	550
600																	15.10	7.70	6.65	1.05	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Schedule 40 Standard Steel Pipe

PSI loss per 100 feet of tube (PSI/100 FT) C=100, Sizes 1/2" through 6", Flow GPM 1 through 600

SIZE	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"		6"		SIZE
OD	0.840		1.050		1.315		1.660		1.900		2.375		2.875		3.500		4.500		6.625		OD
ID	0.622		0.824		1.049		1.380		1.610		2.067		2.469		3.068		4.026		6.065		ID
WALL THK	0.109		0.113		0.133		0.140		0.145		0.154		0.203		0.216		0.237		0.280		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.05	0.91	0.60	0.23	0.37	0.07	0.21	0.02	0.15	0.01	0.09	0.00									1
2	2.10	3.28	1.20	0.84	0.74	0.26	0.42	0.07	0.31	0.03	0.19	0.01	0.13	0.00							2
3	3.16	6.95	1.80	1.77	1.11	0.55	0.64	0.14	0.47	0.07	0.28	0.02	0.20	0.01	0.13	0.00					3
4	4.21	11.85	2.40	3.02	1.48	0.93	0.85	0.25	0.62	0.12	0.38	0.03	0.26	0.01	0.17	0.01					4
5	5.27	17.91	3.00	4.56	1.85	1.41	1.07	0.37	0.78	0.18	0.47	0.05	0.33	0.02	0.21	0.01					5
6	6.32	25.10	3.60	6.39	2.22	1.97	1.28	0.52	0.94	0.25	0.57	0.07	0.40	0.03	0.26	0.01					6
7	7.38	33.40	4.20	8.50	2.59	2.63	1.49	0.69	1.10	0.33	0.66	0.10	0.46	0.04	0.30	0.01					7
8	8.43	42.77	4.80	10.89	2.96	3.36	1.71	0.89	1.25	0.42	0.76	0.12	0.53	0.05	0.34	0.02	0.20	0.00			8
9	9.49	53.19	5.40	13.54	3.33	4.18	1.92	1.10	1.41	0.52	0.85	0.15	0.60	0.06	0.39	0.02	0.22	0.01			9
10	10.54	64.65	6.00	16.46	3.70	5.08	2.14	1.34	1.57	0.63	0.95	0.19	0.66	0.08	0.43	0.03	0.25	0.01			10
11	11.60	77.13	6.60	19.63	4.07	6.07	2.35	1.60	1.73	0.75	1.05	0.22	0.73	0.09	0.47	0.03	0.27	0.01			11
12	12.65	90.62	7.21	23.07	4.44	7.13	2.57	1.88	1.88	0.89	1.14	0.26	0.80	0.11	0.52	0.04	0.30	0.01			12
14	14.76	20.56	8.41	30.69	5.19	9.48	2.99	2.50	2.20	1.18	1.33	0.35	0.93	0.15	0.60	0.05	0.35	0.01			14
16	16.87	54.39	9.61	39.30	5.93	12.14	3.42	3.20	2.51	1.51	1.52	0.45	1.07	0.19	0.69	0.07	0.40	0.02			16
18	18.98	92.02	10.81	48.88	6.67	15.10	3.85	3.98	2.83	1.88	1.71	0.56	1.20	0.23	0.78	0.08	0.45	0.02			18
20			12.01	59.41	7.41	18.35	4.28	4.83	3.14	2.28	1.90	0.68	1.33	0.29	0.86	0.10	0.50	0.03			20
22			13.21	70.88	8.15	21.90	4.71	5.77	3.46	2.72	2.10	0.81	1.47	0.34	0.95	0.12	0.55	0.03	0.24	0.00	22
24			14.42	83.27	8.89	25.72	5.14	6.77	3.77	3.20	2.29	0.95	1.60	0.40	1.04	0.14	0.60	0.04	0.26	0.01	24
26			15.62	96.57	9.64	29.83	5.57	7.86	4.09	3.71	2.48	1.10	1.74	0.46	1.12	0.16	0.65	0.04	0.28	0.01	26
28			16.82	110.8	10.38	34.22	5.99	9.01	4.40	4.26	2.67	1.26	1.87	0.53	1.21	0.18	0.70	0.05	0.31	0.01	28
30			18.02	125.9	11.12	38.89	6.42	10.24	4.72	4.84	2.86	1.43	2.00	0.60	1.30	0.21	0.75	0.06	0.33	0.01	30
35					12.97	51.74	7.49	13.62	5.50	6.44	3.34	1.91	2.34	0.80	1.51	0.28	0.88	0.07	0.38	0.01	35
40					14.83	66.25	8.56	17.45	6.29	8.24	3.81	2.44	2.67	1.03	1.73	0.36	1.00	0.10	0.44	0.01	40
45					16.68	82.40	9.64	21.70	7.08	10.25	4.29	3.04	3.01	1.28	1.95	0.44	1.13	0.12	0.49	0.02	45
50					18.53	100.2	10.71	26.37	7.87	12.46	4.77	3.69	3.34	1.56	2.16	0.54	1.25	0.14	0.55	0.02	50
55							11.78	31.47	8.65	14.86	5.25	4.41	3.68	1.86	2.38	0.65	1.38	0.17	0.61	0.02	55
60							12.85	36.97	9.44	17.46	5.72	5.18	4.01	2.18	2.60	0.76	1.51	0.20	0.66	0.03	60
65							13.92	42.88	10.23	20.25	6.20	6.00	4.35	2.53	2.81	0.88	1.63	0.23	0.72	0.03	65
70							14.99	49.18	11.01	23.23	6.68	6.89	4.68	2.90	3.03	1.01	1.76	0.27	0.77	0.04	70
75							16.06	55.89	11.80	26.40	7.16	7.83	5.01	3.30	3.25	1.15	1.88	0.31	0.83	0.04	75
80							17.13	62.98	12.59	29.75	7.63	8.82	5.35	3.72	3.46	1.29	2.01	0.34	0.88	0.05	80
85							18.21	70.47	13.37	33.29	8.11	9.87	5.68	4.16	3.68	1.44	2.13	0.39	0.94	0.05	85
90							19.28	78.33	14.16	37.00	8.59	10.97	6.02	4.62	3.90	1.61	2.26	0.43	0.99	0.06	90
95									14.95	40.90	9.07	12.13	6.35	5.11	4.11	1.78	2.39	0.47	1.05	0.06	95
100									15.74	44.97	9.54	13.33	6.69	5.62	4.33	1.95	2.51	0.52	1.10	0.07	100
110									17.31	53.66	10.50	15.91	7.36	6.70	4.76	2.33	2.76	0.62	1.22	0.08	110
120									18.88	63.04	11.45	18.69	8.03	7.87	5.20	2.74	3.02	0.73	1.33	0.10	120
130											12.41	21.68	8.70	9.13	5.63	3.17	3.27	0.85	1.44	0.12	130
140											13.36	24.87	9.37	10.47	6.06	3.64	3.52	0.97	1.55	0.13	140
150											14.32	28.26	10.03	11.90	6.50	4.14	3.77	1.10	1.66	0.15	150
160											15.27	31.84	10.70	13.41	6.93	4.66	4.02	1.24	1.77	0.17	160
170											16.23	35.63	11.37	15.01	7.36	5.22	4.27	1.39	1.88	0.19	170
180											17.18	39.61	12.04	16.68	7.80	5.80	4.53	1.55	1.99	0.21	180
190											18.14	43.78	12.71	18.44	8.23	6.41	4.78	1.71	2.10	0.23	190
200											19.09	48.14	13.38	20.28	8.66	7.05	5.03	1.88	2.21	0.26	200
225													15.08	25.22	9.75	8.76	5.66	2.34	2.49	0.32	225
250													16.73	30.65	10.83	10.65	6.29	2.84	2.77	0.39	250
275													18.40	36.57	11.92	12.71	6.92	3.39	3.05	0.46	275
300															13.00	14.93	7.55	3.98	3.32	0.54	300
325															14.08	17.32	8.18	4.62	3.60	0.63	325
350															15.17	19.87	8.81	5.30	3.88	0.72	350
375															16.25	22.57	9.43	6.02	4.15	0.82	375
400															17.33	25.44	10.06	6.78	4.43	0.92	400
425															18.42	28.46	10.69	7.59	4.71	1.03	425
450															19.50	31.64	11.32	8.43	4.99	1.15	450
475																	11.95	9.32	5.26	1.27	475
500																	12.58	10.25	5.54	1.40	500
550																	13.84	12.23	6.10	1.67	550
600																	15.10	14.37	6.65	1.96	600

Note: Shaded areas of chart indicate velocities over 5' per second. Use with Caution.

Type K Copper Water Tube

PSI loss per 100 feet of tube (PSI/100 FT) C=140, Sizes 1/2" through 3", Flow GPM 1 through 600

SIZE	1/2"		5/8"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		SIZE
OD	0.625		0.750		0.875		1.125		1.375		1.625		2.125		2.625		3.125		OD
ID	0.527		0.652		0.745		0.995		1.245		1.481		1.959		2.435		2.907		ID
WALL THK	0.049		0.049		0.065		0.065		0.065		0.072		0.083		0.095		0.109		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.46	1.09	0.95	0.39	0.73	0.20	0.41	0.05	0.26	0.02	0.18	0.01	0.10	0.00					1
2	2.93	3.94	1.91	1.40	1.47	0.73	0.82	0.18	0.52	0.06	0.37	0.03	0.21	0.01					2
3	4.40	8.35	2.87	2.97	2.20	1.55	1.23	0.38	0.78	0.13	0.55	0.05	0.31	0.01	0.20	0.00			3
4	5.87	14.23	3.83	5.05	2.94	2.64	1.64	0.65	1.05	0.22	0.74	0.09	0.42	0.02	0.27	0.01	0.19	0.00	4
5	7.34	21.51	4.79	7.64	3.67	3.99	2.06	0.98	1.31	0.33	0.93	0.14	0.53	0.04	0.34	0.01	0.24	0.01	5
6	8.81	30.15	5.75	10.70	4.41	5.60	2.47	1.37	1.57	0.46	1.11	0.20	0.63	0.05	0.41	0.02	0.28	0.01	6
7	10.28	40.11	6.71	14.24	5.14	7.44	2.88	1.82	1.84	0.61	1.30	0.26	0.74	0.07	0.48	0.02	0.33	0.01	7
8	11.75	51.37	7.67	18.24	5.88	9.53	3.29	2.33	2.10	0.78	1.48	0.34	0.85	0.09	0.55	0.03	0.38	0.01	8
9	13.22	63.89	8.63	22.68	6.61	11.86	3.70	2.90	2.36	0.97	1.67	0.42	0.95	0.11	0.61	0.04	0.43	0.02	9
10	14.69	77.66	9.59	27.57	7.35	14.41	4.12	3.53	2.63	1.18	1.86	0.51	1.06	0.13	0.68	0.05	0.48	0.02	10
11	16.15	92.65	10.55	32.89	8.08	17.19	4.53	4.21	2.89	1.41	2.04	0.61	1.16	0.16	0.75	0.05	0.53	0.02	11
12	17.62	108.85	11.51	38.64	8.82	20.20	4.94	4.94	3.15	1.66	2.23	0.71	1.27	0.18	0.82	0.06	0.57	0.03	12
14			13.43	51.41	10.29	26.87	5.76	6.57	3.68	2.21	2.60	0.95	1.48	0.24	0.95	0.08	0.67	0.04	14
16			15.35	65.83	11.76	34.41	6.59	8.42	4.21	2.83	2.97	1.22	1.70	0.31	1.10	0.11	0.77	0.05	16
18			17.27	81.88	13.23	42.80	7.41	10.47	4.73	3.52	3.34	1.51	1.91	0.39	1.23	0.13	0.86	0.06	18
20			19.19	99.53	14.70	52.02	8.24	12.73	5.26	4.28	3.72	1.84	1.12	0.47	1.37	0.16	0.96	0.07	20
22					16.17	62.06	9.06	15.18	5.79	5.10	4.09	2.19	2.33	0.56	1.51	0.20	1.06	0.08	22
24					17.64	72.92	9.89	17.84	6.31	5.99	4.46	2.58	2.55	0.66	1.65	0.23	1.15	0.10	24
26					19.11	84.57	10.71	20.69	6.84	6.95	4.83	2.99	2.76	0.77	1.78	0.27	1.25	0.11	26
28							11.53	23.73	7.37	7.98	5.20	3.43	2.97	0.88	1.92	0.30	1.35	0.13	28
30							12.36	26.97	7.89	9.06	5.58	3.89	3.18	1.00	2.06	0.35	1.44	0.15	30
35							14.42	35.88	9.21	12.06	6.51	5.18	3.72	1.33	2.40	0.46	1.68	0.19	35
40							16.48	45.95	10.52	15.44	7.44	6.63	4.25	1.70	2.75	0.59	1.93	0.25	40
45							18.54	57.15	11.84	19.20	8.37	8.25	4.78	2.12	3.00	0.73	2.17	0.31	45
50									13.16	23.34	9.30	10.03	5.31	2.57	3.44	0.89	2.41	0.38	50
55									14.47	27.85	10.23	11.97	5.84	3.07	3.78	1.06	2.65	0.45	55
60									15.79	32.71	11.16	14.06	6.37	3.60	4.12	1.25	2.89	0.53	60
65									17.10	37.94	12.09	16.31	6.91	4.18	4.47	1.45	3.13	0.61	65
70									18.42	43.52	13.02	18.70	7.44	4.80	4.81	1.66	3.37	0.70	70
75									19.74	49.46	13.95	21.25	7.97	5.45	5.16	1.89	3.62	0.80	75
80											14.88	23.95	8.50	6.14	5.50	2.13	3.86	0.90	80
85											15.81	26.80	9.03	6.87	5.84	2.38	4.10	1.01	85
90											16.74	29.79	9.56	7.64	6.19	2.65	4.34	1.12	90
95											17.67	32.93	10.09	8.44	6.53	2.93	4.58	1.24	95
100											18.60	36.21	10.63	9.28	6.88	3.22	4.82	1.36	100
110													11.69	11.08	7.56	3.84	5.31	1.62	110
120													12.75	13.01	8.25	4.52	5.79	1.91	120
130													13.82	15.09	8.94	5.24	6.27	2.21	130
140													14.88	17.31	9.63	6.01	6.75	2.54	140
150													15.94	19.67	10.32	6.83	7.24	2.88	150
160													17.01	22.17	11.00	7.69	7.72	3.25	160
170													18.07	24.81	11.69	8.61	8.20	3.64	170
180													19.13	27.58	12.38	9.57	8.69	4.04	180
190															13.07	10.58	9.17	4.47	190
200															13.76	11.63	9.65	4.91	200
225															15.48	14.47	10.86	6.11	225
250															17.20	17.58	12.07	7.43	250
275															18.92	20.98	13.27	8.86	275
300																	14.48	10.41	300
325																	15.69	12.07	325
350																	16.89	13.85	350
375																	18.10	15.73	375
400																	19.31	17.73	400
425																			425
450																			450
475																			475
500																			500
550																			550
600																			600

Note: Shaded areas of chart indicate velocities over 5 per second. Use with Caution.

Type L Copper Water Tube

PSI loss per 100 feet of tube (PSI/100 FT) C=140, Sizes 1/2" through 2-1/2", Flow GPM 1 through 600

SIZE	1/2"		5/8"		3/4"		1"		1-1/4"		1-1/2'		2'		2-1/2"		SIZE
OD	0.625		0.750		0.875		1.125		1.375		1.625		2.125		2.625		OD
ID	0.542		0.666		0.785		1.025		1.265		1.505		1.985		2.465		ID
WALL THK	0.040		0.042		0.045		0.050		0.055		0.060		0.070		0.080		WALL THK
FLOW GPM	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	VELOCITY FPS	PSI LOSS	FLOW GPM
1	1.39	0.95	0.92	0.35	0.66	0.16	0.39	0.04	0.25	0.02	0.18	0.01	0.10	0.00			1
2	2.78	3.44	1.84	1.26	1.32	0.57	0.78	0.15	0.51	0.06	0.36	0.02	0.21	0.01			2
3	4.17	7.29	2.76	2.67	1.99	1.20	1.17	0.33	0.76	0.12	0.54	0.05	0.31	0.01	0.20	0.00	3
4	5.56	12.41	3.68	4.56	2.65	2.05	1.55	0.56	1.02	0.20	0.72	0.09	0.41	0.02	0.27	0.01	4
5	6.94	18.77	4.60	6.89	3.31	3.09	1.94	0.85	1.27	0.30	0.90	0.13	0.52	0.03	0.34	0.01	5
6	8.33	26.31	5.52	9.65	3.97	4.34	2.33	1.18	1.53	0.43	1.08	0.18	0.62	0.05	0.40	0.02	6
7	9.72	35.00	6.44	12.84	4.63	5.77	2.72	1.58	1.78	0.57	1.26	0.24	0.72	0.06	0.47	0.02	7
8	11.11	44.82	7.36	16.45	5.30	7.39	3.11	2.02	2.04	0.72	1.44	0.31	0.83	0.08	0.54	0.03	8
9	12.50	55.74	8.28	20.45	5.96	9.19	3.50	2.51	2.29	0.90	1.62	0.39	0.93	0.10	0.60	0.04	9
10	13.89	67.75	9.20	24.86	6.62	11.17	3.88	3.05	2.55	1.10	1.80	0.47	1.04	0.12	0.67	0.04	10
11	15.28	80.83	10.12	29.66	7.28	13.33	4.27	3.64	2.80	1.31	1.98	0.56	1.14	0.15	0.74	0.05	11
12	16.67	94.96	11.04	34.85	7.95	15.66	4.66	4.28	3.06	1.54	2.16	0.66	1.24	0.17	0.81	0.06	12
14	19.44	126.34	12.88	46.36	9.27	23.67	5.44	5.69	3.57	2.04	2.52	0.88	1.45	0.23	0.94	0.08	14
16			14.72	59.37	10.59	26.68	6.21	7.28	4.08	2.62	2.88	1.12	1.66	0.29	1.07	0.10	16
18			16.56	73.84	11.92	33.18	6.99	9.06	4.59	3.25	3.24	1.40	1.86	0.36	1.21	0.13	18
20			18.40	89.75	13.24	40.33	7.77	11.01	5.10	3.96	3.60	1.70	2.07	0.44	1.34	0.15	20
22					14.57	48.11	8.54	13.14	5.61	4.72	3.96	2.03	2.28	0.53	1.48	0.18	22
24					15.89	56.53	9.32	15.44	6.12	5.55	4.32	2.38	2.49	0.62	1.61	0.22	24
26					17.21	65.56	10.10	17.90	6.63	6.43	4.68	2.76	2.69	0.72	1.75	0.25	26
28					18.54	75.21	10.87	20.54	7.14	7.38	5.04	3.17	2.90	0.82	1.88	0.29	28
30					19.86	85.46	11.65	23.33	7.65	8.38	5.40	3.60	3.11	0.94	2.01	0.33	30
35							13.59	31.04	8.92	11.15	6.30	4.79	3.62	1.25	2.35	0.43	35
40							15.53	39.75	10.20	14.28	7.21	6.13	4.14	1.59	2.69	0.56	40
45							17.48	49.44	11.47	17.76	8.11	7.63	4.66	1.98	3.02	0.69	45
50							19.42	60.10	12.75	21.59	9.01	9.27	5.18	2.41	3.36	0.84	50
55									14.02	25.76	9.91	11.06	5.70	2.88	3.69	1.00	55
60									15.30	30.26	10.81	13.00	6.21	3.38	4.03	1.18	60
65									16.57	35.10	11.71	15.07	6.73	3.92	4.36	1.37	65
70									17.85	40.26	12.61	17.29	7.25	4.50	4.70	1.57	70
75									19.12	45.75	13.51	19.65	7.77	5.11	5.04	1.78	75
80											14.41	22.14	8.28	5.76	5.37	2.01	80
85											15.31	24.77	8.80	6.44	5.71	2.25	85
90											16.21	27.54	9.32	7.16	6.04	2.50	90
95											17.11	30.44	9.84	7.91	6.38	2.76	95
100											18.01	33.47	10.35	8.70	6.71	3.03	100
110											19.81	39.93	11.39	10.38	7.39	3.62	110
120													12.43	12.20	8.06	4.25	120
130													13.46	14.15	8.73	4.93	130
140													14.50	16.23	9.40	5.66	140
150													15.53	18.44	10.07	6.43	150
160													16.57	20.78	10.74	7.24	160
170													17.60	23.25	11.41	8.11	170
180													18.64	25.85	12.09	9.01	180
190															12.76	9.96	190
200															13.43	10.95	200
225															15.11	13.62	225
250															16.79	16.56	250
275															18.47	19.75	275
300																	300
325																	325
350																	350
375																	375
400																	400
425																	425
450																	450
475																	475
500																	500
550																	550
600																	600

Note: Shaded areas of chart indicate velocities over 5 per second. Use with Caution.

Additional Data

MAXIMUM NUMBER OF WIRES TO BE INSTALLED IN CONDUIT OR TUBING

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

PRESSURE LOSS IN VALVES AND FITTINGS

Equivalent Length in Feet of Standard Steel Pipe

Nominal Pipe Size	Globe Valve	Angle Valve	Sprinkler Angle Valve	Gate Valv	Side Outlet Std. Tee	Run of Std. Tee	Std. Elbow	45 Elbow
½	17	9	2	0.4	4	1	2	1
¾	22	12	3	0.5	5	2	3	1
1	27	15	4	0.6	6	2	3	2
1¼	38	18	5	0.8	8	3	4	2
1½	45	22	6	1.0	10	3	5	2
2	58	28	7	1.2	12	4	6	3
2½	70	35	9	1.4	14	5	7	3
3	90	45	11	1.8	18	6	8	4
4	120	60	15	2.3	23	7	11	5
6	170	85	20	3.3	33	12	17	8

CLIMATE ETp TABLE

Climate*	Inches Daily
Cool Humid	.10 -.15
Cool Dry	.15 -.20
Warm Humid	.15 -.20
Warm Dry	.20 -.25
Hot Humid	.20 -.30
Hot Dry	.30 -.45
	↑ Worst case

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

ESTIMATING PIPE SIZE

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

Nominal Pipe Size	Copper Pipe	Galvanized Steel (Sch. 40 Steel)	PVC Pipe
	Approximate String Length in Inches		
½"	2"	2⅝"	2⅝"
⅝"	2⅜"	–	–
¾"	2¾"	3¼"	3¼"
1"	3½"	4"	4"
1¼"	4⅜"	5"	5"
1½"	5⅛"	6"	6"
2"	6¾"	7½"	7½"

PRESSURE LOSS THROUGH DISC-TYPE WATER METERS

FLOW GPM	NORMAL SIZE							FLOW GPM
	5/8	3/4	1	1-1/2	2	3	4	
1	0.2	0.1						1
2	0.3	0.2						2
3	0.4	0.3						3
4	0.6	0.5	0.1					4
5	0.9	0.6	0.2					5
6	1.3	0.7	0.3					6
7	1.8	0.8	0.4					7
8	2.3	1.0	0.5					8
9	3.0	1.3	0.6					9
10	3.7	1.6	0.7					10
11	4.4	1.9	0.8					11
12	5.1	2.2	0.9					12
13	6.1	2.6	1.0					13
14	7.2	3.1	1.1					14
15	8.3	3.6	1.2					15
16	9.4	4.1	1.4	0.4				16
17	10.7	4.6	1.6	0.5				17
18	12.0	5.2	1.8	0.6				18
19	13.4	5.8	2.0	0.7				19
20	15.0	6.5	2.2	0.8				20
22		7.9	2.8	1.0				22
24		9.5	3.4	1.2				24
26		11.2	4.0	1.4				26
28		13.0	4.6	1.6				28
30		15.0	5.3	1.8	0.7			30
32			6.0	2.1	0.8			32
34			6.9	2.4	0.9			34
36			7.8	2.7	1.0			36
38			8.7	3.0	1.2			38
40			9.6	3.3	1.3			40
42			10.6	3.6	1.4			42
44			11.7	3.9	1.5			44
46			12.8	4.2	1.6			46

FLOW GPM	NORMAL SIZE							FLOW GPM
	5/8	3/4	1	1-1/2	2	3	4	
48			13.9	4.5	1.7			48
50			15.0	4.9	1.9			50
52				5.3	2.1			52
54				5.7	2.2			54
56				6.2	2.3			56
58				6.7	2.5	1.0		58
60				7.2	2.7	1.1		60
65				8.3	3.2	1.3		65
70				9.8	3.7	1.5		70
75				11.3	4.3	1.6		75
80				12.8	4.9	2.0	0.7	80
90				16.1	6.2	2.5	0.8	90
100				20.0	7.8	2.9	0.9	100
110					9.5	3.4	1.0	110
120					11.3	3.9	1.2	120
130					13.0	4.5	1.4	130
140					15.1	5.1	1.6	140
150					17.3	5.8	1.8	150
160					20.0	6.5	2.1	160
170						7.2	2.4	170
180						8.0	2.7	180
190						9.0	3.0	190
200						11.0	3.2	200
220						13.0	3.9	220
240						15.0	4.7	240
260						17.3	5.5	260
280						20.0	6.3	280
300							7.2	300
350							10.0	350
400							13.0	400
450							16.2	450
500							20.0	500

Wire Sizing

Required Information

- Actual one-way length of wire between the controllers and the power source or the controllers and valves
- Allowable voltage loss along the wire circuit
- Accumulative current flowing through the wire section being sized in amperes

Resistance is calculated using this formula:

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

R = Maximum Allowable Resistance of wire in ohms per 1000 feet
AVL = Allowable voltage loss
L = Wire length (one way)
I = Inrush current

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

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

Valve Wire Sizing Example:
Given: The distance from the controller to the valve is 1800 feet. The controller output is 24V. The valve has a minimum operating voltage of 20V and an inrush current of 370 mA (0.37 Amps).

$$R = \frac{1000 \times 4}{2(1800) \times 0.37}$$

$$R = \frac{4000}{1332}$$

$$R = 3.00 \text{ ohms/1000 feet}$$

So, wire resistance can not exceed 3.00 ohms per 1000 feet. Now go to table #1 and select the proper wire size. Since 16 gauge wire has more resistance than 3.00 ohms per 1000 feet, choose 14 gauge wire.

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

Table 1

Resistance of Copper Wire

Wire Size AWG No.	Resistance at 20° C (68° F) ohms per 1000 feet
18	6.39
16	4.02
14	2.52
12	1.59
10	1.00
8	0.63
6	0.40
4	0.25

Table 2

Valve Wire Sizing (Maximum One-Way Distance in Feet Between Controller and Valve)

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

Solenoid: 24VAC, Pressure: 150 PSI, Voltage Drop: 4V,
Min. Operating Voltage: 20V, Amperage Peak: .37A

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