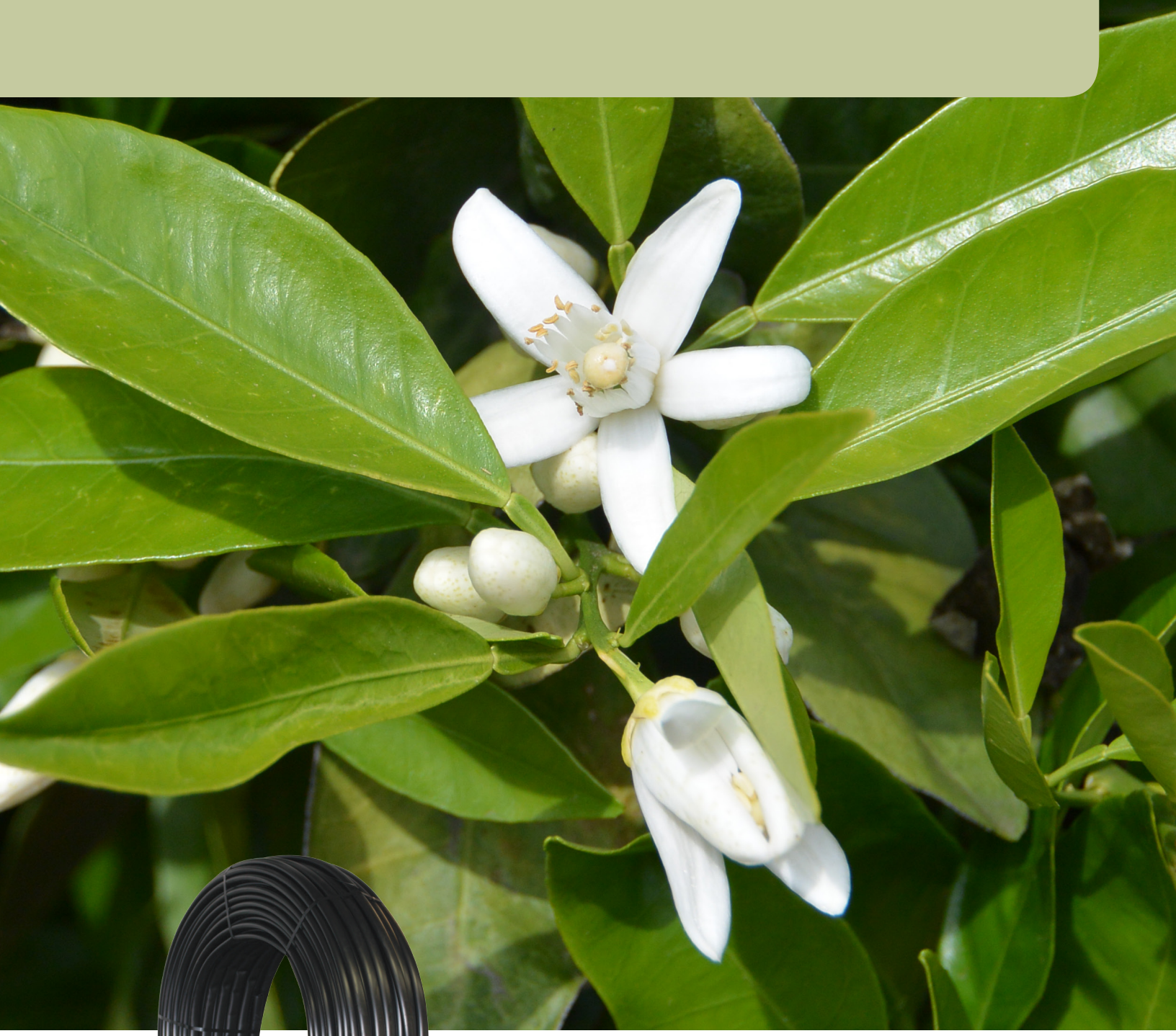


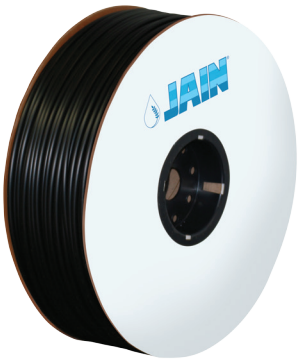
Irrigation Tubing

More Crop per Drop™

JAIN®

www.JAINSUSA.com

Irrigation Tubing



Distribution/Micro & Supply Tubing

Jain Irrigation uses the finest resins materials available to manufacture polyethylene supply tubing. Top quality materials are carefully processed with stringent adherence to quality standards. Multiple extrusion lines with a range of capabilities give great flexibility in producing product to meet orders. Distribution and Micro tubing extends emitter outlets to desired locations and fits over barbed outlet ports on fittings of emission devices.

Product Features

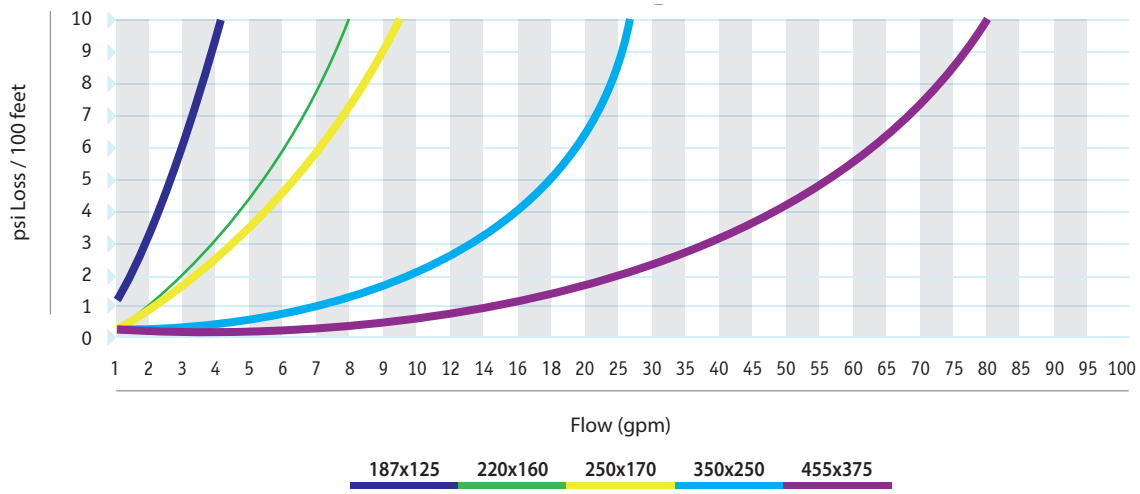
- Virtually every size is available in either polyethylene or flexible vinyl on weather resistant cardboard reels
- All Jain polyethylene tubing is manufactured using Union Carbide materials that offer the exclusive Fingerprint® identification feature and contain a minimum of 2% carbon black for UV protection
- Strict quality control procedures ensure highest uniformity and product quality
- Polyethylene and vinyl tubing are available in black (standard) and special colors (upon request)
- Complete information printed on the tubing indicates manufacturer, model number, dimensions, resin, and date of manufacture. As applicable, the coil length is also included.
- Hose may be ordered with holes pre-punched to ease field installation of emitters
- Convenient coil sizes and packaging to ease handling and installation
- The Industries Longest Warranty: 10 Years. (see price list for warranty details)

Flattened Tube Available

- Lower freight costs
- Less storage space
- More footage per truck

Micro/Distribution Tubing

Flow vs. Pressure



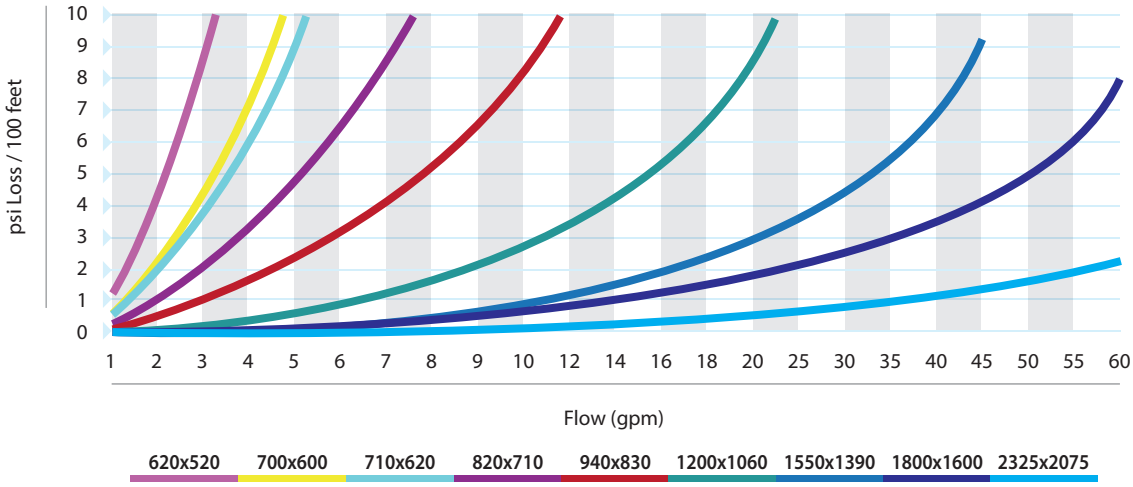
Micro/Distribution Tubing Friction Loss and Velocity

	187x125		220x160		250x170		350x250		455x375	
	0.125		0.16		0.17		455x375		0.375	
	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity
gph	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps
1	0.85	0.44	0.26	0.27	0.20	0.24	0.03	0.11	0.00	0.05
2	2.86	0.87	0.89	0.53	0.66	0.47	0.11	0.22	0.02	0.10
3	5.82	1.31	1.80	0.80	1.35	0.71	0.22	0.33	0.03	0.15
4	9.63	1.74	2.98	1.06	2.24	0.94	0.36	0.44	0.05	0.19
5	14.23	2.18	4.41	1.33	3.30	1.18	0.53	0.54	0.08	0.24
6	19.58	2.61	6.06	1.59	4.54	1.41	0.73	0.65	0.11	0.29
7	25.64	3.05	7.94	1.86	5.95	1.65	0.95	0.76	0.14	0.34
8	32.39	3.48	10.03	2.13	7.52	1.88	1.20	0.87	0.18	0.39
9	39.80	3.92	12.32	2.39	9.24	2.12	1.48	0.98	0.22	0.44
10	47.86	4.35	14.82	2.66	11.11	2.35	1.78	1.09	0.26	0.48
12	65.85	5.22	20.39	3.19	15.29	2.82	2.45	1.31	0.36	0.58
14	86.25	6.09	26.70	3.72	20.02	3.29	3.21	1.52	0.47	0.68
16	108.95	6.96	33.73	4.25	25.29	3.76	4.05	1.74	0.59	0.77
18	133.89	7.83	41.45	4.78	31.08	4.24	4.98	1.96	0.73	0.87
20	161.00	8.70	49.84	5.31	37.37	4.71	5.98	2.18	0.87	0.97
25	237.91	10.88	73.65	6.64	55.22	5.88	8.84	2.72	1.29	1.21
30			101.33	7.97	75.97	7.06	12.16	3.26	1.77	1.45
35			132.70	9.30	99.50	8.24	15.93	3.81	2.32	1.69
40			167.64	10.63	125.69	9.41	20.12	4.35	2.93	1.93
45					154.46	10.59	24.73	4.90	3.60	2.18
50							29.74	5.44	4.33	2.42
55							35.14	5.98	5.12	2.66
60							40.92	6.53	5.96	2.90
65							47.07	7.07	6.86	3.14
70							53.58	7.62	7.81	3.38
75							60.46	8.16	8.81	3.63
80							67.69	8.70	9.86	3.87
85							75.27	9.25	10.97	4.11
90							83.18	9.79	12.12	4.35
95							91.44	10.34	13.33	4.59
100									14.58	4.84

Green Boxes: Not Recommended to use tubing above 5 fps

Supply Tubing

Flow vs. Pressure Loss



Supply Tubing Friction Loss and Velocity

	455x375		620x520		700x600		710x620		820x710	
	0.375		0.52		0.60		0.62		0.71	
	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity
gph	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps
1	5.96	2.90	1.26	1.51	0.64	1.13	0.55	1.06	0.29	0.81
2	20.06	5.80	4.25	3.02	2.15	2.27	1.84	2.12	0.97	1.62
3	40.78	8.70	8.63	4.53	4.37	3.40	3.74	3.18	1.97	2.43
4	67.46	11.61	14.28	6.04	7.24	4.53	6.19	4.25	3.25	3.24
5			21.10	7.54	10.69	5.67	9.15	5.31	4.81	4.05
6			29.03	9.05	14.71	6.80	12.59	6.37	6.61	4.86
7			38.02	10.56	19.27	7.93	16.49	7.43	8.66	5.67
8					24.34	9.07	20.83	8.49	10.94	6.47
9					29.91	10.20	25.60	9.55	13.44	7.28
10							30.78	10.61	16.17	8.09
12									22.24	9.71
14									29.13	11.33

Green Boxes: Not Recommended to use tubing above 5 fps

Supply Tubing

Supply Tubing Friction Loss and Velocity

	940x830		1200x1060		1550x1390		1800x1600		2325x2075	
	0.83		1.06		1.39		1.6		2.075	
	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity
gph	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps
1	0.14	0.59	0.04	0.36	0.01	0.21	0.01	0.16	0.00	0.09
2	0.46	1.18	0.14	0.73	0.04	0.42	0.02	0.32	0.01	0.19
3	0.94	1.78	0.29	1.09	0.08	0.63	0.04	0.48	0.01	0.28
4	1.55	2.37	0.48	1.45	0.13	0.84	0.07	0.64	0.02	0.38
5	2.29	2.96	0.72	1.82	0.20	1.06	0.10	0.80	0.03	0.47
6	3.15	3.55	0.99	2.18	0.27	1.27	0.14	0.96	0.04	0.57
7	4.12	4.15	1.29	2.54	0.36	1.48	0.18	1.12	0.05	0.66
8	5.21	4.74	1.63	2.90	0.45	1.69	0.23	1.28	0.07	0.76
9	6.40	5.33	2.00	3.27	0.55	1.90	0.28	1.43	0.08	0.85
10	7.70	5.92	2.41	3.63	0.66	2.11	0.34	1.59	0.10	0.95
12	10.59	7.11	3.31	4.36	0.91	2.53	0.47	1.91	0.14	1.14
14	13.87	8.29	4.34	5.08	1.20	2.96	0.61	2.23	0.18	1.33
16	17.53	9.48	5.48	5.81	1.51	3.38	0.78	2.55	0.23	1.52
18	21.54	10.66	6.74	6.54	1.86	3.80	0.95	2.87	0.28	1.71
20			8.10	7.26	2.24	4.22	1.15	3.19	0.33	1.90
25			11.98	9.08	3.31	5.28	1.69	3.98	0.49	2.37
30			16.48	10.89	4.55	6.34	2.33	4.78	0.68	2.84
35					5.96	7.39	3.05	5.58	0.89	3.32
40					7.52	8.45	3.86	6.38	1.12	3.79
45					9.24	9.50	4.74	7.17	1.38	4.26
50							5.70	7.97	1.66	4.74
55							6.73	8.77	1.96	5.21
60							7.84	9.56	2.28	5.69

Green Boxes: Not Recommended to use tubing above 5 fps

IPS Vinyl Pipe

IPS Flexible Vinyl Pipe offers more flexibility, durability and shock resistance to an irrigation system than standard PVC pipe can provide.

Product Features

- Heavy duty pipe for use as risers or swing joints
- Heavy wall thickness makes tight bends possible without kinking
- Available in 1/2" 3/4" and 1" IPS (Iron Pipe Size)
- Coils of 100' and 200' in 1/2" and 3/4" sizes, 100' in 1" size
- Pre-cut lengths are also available
- Flexible pipe can be readily assembled using standard Schedule 40 PVC fittings with flexible to rigid PVC adhesive (IPS #2795 or equivalent)

IPS Flexible Vinyl Pipe Usage

- For use in connecting submain to drip hose lateral
- To easily and inexpensively repair breaks in rigid PVC pipe
- To easily get around, under or over obstacles
- To carry irrigation water to interior and exterior planters, arbors, waterfalls, etc.

Algae Resistant High Flow IPS Flexible Vinyl Pipe

Algae resistant high flow IPS Flexible Vinyl Pipe offers resistance to algae growth along with great flow performance, flexibility, durability and shock resistance.

Additional Product Features

- Algaecide compound integrally extruded with the pipe for long term resistance to algae growth
- Coils of 200' lengths for 1/2" and 3/4" sizes
- Conforms to ASTM D-2287

Pressure Rating

There are no established standards for pressure rating non-reinforced vinyl pipe for the irrigation industry. Several of the large manufacturers of industrial non- reinforced clear vinyl tubing use working pressures that are calculated at a 1:5 ratio relative to burst pressure.

Jain Vinyl IPS Pipe was tested independently by the United States Testing Laboratory to determine burst strength according to ASTM D-1599 at 73 °F and at 120 °F, for ½", ¾" and 1" sizes. Using the lowest value of hoop stress at burst for all samples at 73 °F, the following suggested maximum operating pressures are derived, using a conservative 1:6 ratio.

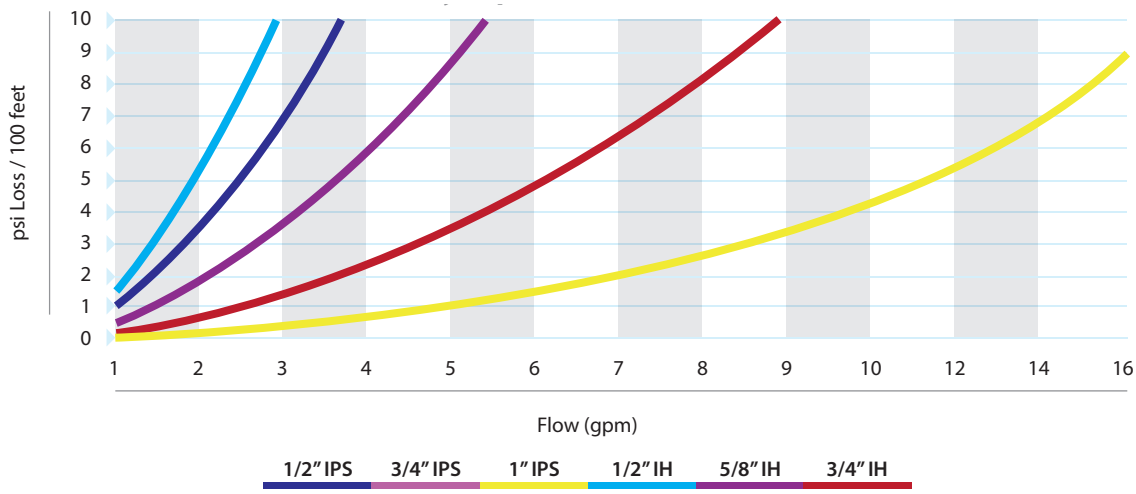
Suggested Maximum Operating Pressure at Specified Temperature

	IPS Flexible Vinyl Pipe			Algae Resistant High Flow IPS Flexible Vinyl Pipe	
Operating Temperature	1/2" IPS Pipe	3/4" IPS Pipe	1" IPS Pipe	1/2" ARHF IPS Pipe	3/4" ARHF IPS Pipe
73 degrees F	65 psi	53 psi	49 psi	62 psi	53 psi

IPS Vinyl Pipe Specifications

Physical & Thermal Properties				
Shore Durometer– A Scale (ASTM-D676)	Specific Gravity (ASTM-D792)	Brittle Temperature (ASTM D-746)	Ultimate Elongation (ASTM D-4120)	Ultimate Tensile Strength (ASTM-D412)
Instantaneous: 92 10 second delay: 88	1.40 +.02	-22 °F	265%	2900 psi

Flow vs. Pressure Loss



IPS Flexible Tubing Friction Loss

	1/2" IPS		3/4" IPS		1" IPS		1/2" IH		5/8" IH		3/4" IH	
	0.375		0.52		0.60		0.62		0.71		0.750	
	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity	Friction Loss	Velocity
gph	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps	psi/100	fps
1	1.00	1.37	0.23	0.74	0.07	0.45	1.52	1.63	0.53	1.04	0.22	0.73
2	3.37	2.74	0.78	1.48	0.23	0.89	5.11	3.26	1.77	2.09	0.75	1.45
3	6.85	4.11	1.59	2.22	0.48	1.34	10.40	4.90	3.60	3.13	1.52	2.18
4	11.33	5.47	2.64	2.96	0.79	1.78	17.20	6.53	5.96	4.18	2.51	2.90
5	16.74	6.84	3.90	3.71	1.16	2.23	25.42	8.16	8.81	5.22	3.70	3.63
6	23.02	8.21	5.36	4.45	1.60	2.67	34.97	9.79	12.12	6.27	5.10	4.35
7			7.02	5.19	2.10	3.12			15.87	7.31	6.68	5.08
8			8.87	5.93	2.65	3.56					8.43	5.80
9			10.90	6.67	3.26	4.01					10.36	6.53
10			13.11	7.41	3.92	4.45						
12					5.39	5.35						
14					7.05	6.24						
16					8.91	7.13						

Cut Length IPS Flexible Tubing Friction Loss

Desc.	1/2" IPS	3/4" IPS	1" IPS	1/2" IH	5/8" IH	3/4" IH
ID	0.546	0.742	0.957	0.50	0.625	0.75
Velocity	5	5	5	5	5	5
gpm	3.65	6.75	11.22	3.06	4.79	6.89
Cut Length	Friction Loss	Friction Loss	Friction Loss	Friction Loss	Friction Loss	Friction Loss
inches	psi	psi	psi	psi	psi	psi
12	0.097	0.066	0.048	0.108	0.082	0.065
18	0.145	0.099	0.072	0.162	0.122	0.097
24	0.193	0.132	0.096	0.216	0.163	0.130
30	0.242	0.165	0.120	0.270	0.204	0.162
36	0.290	0.198	0.144	0.324	0.245	0.195
42	0.338	0.231	0.168	0.378	0.286	0.227
48	0.387	0.263	0.192	0.432	0.326	0.260
60	0.483	0.329	0.240	0.539	0.408	0.325
72	0.580	0.395	0.288	0.647	0.490	0.390

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