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METRALOOP EXPANSION JOINTS

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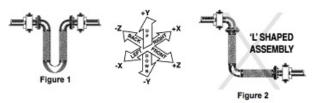
METRALOOP EXPANSION JOINTS

Metraloop expansion joints for seismic applications

A safe, cost-effective seismic expansion joint.

Piping used in applications and locations subject to seismic conditions have their own set of unexpected random movements and greater costs to overcome. There is a solution – the ultra-flexible Metraloop.

The random motion common to earthquakes requires that seismic expansion joints be capable of movement in any direction. Of the 6 possible directions, Metraloop sees axial movement of the hose in only two of them — compared to four in an "L" shaped assembly. Metraloop's orientation can be changed relative to the piping, further minimizing the likelihood of compressive movement.



Metraloop offers significant cost and safety benefits not found in comparable seismic expansion joints.

- It is an inexpensive alternative to dual-tied bellows expansion joints and especially ball joints.
- During an earthquake, it protects equipment by allowing boilers, chillers, fan-coil units and other systems to move independently of the building.
- Metraloops installed at the connection also prevent nozzles from cracking or shearing off.
- And the AGA-certified Metraloops, installed in gas lines as they cross
 the building's seismic joints or at the connection to gas-fired equipment,
 protect against fire and the devastation that results.

Typical installations of Metraloops for seismic service are shown in the figures above. For more detailed installation instructions for seismic applications, refer to the NUSIG (National Uniform, Seismic Installation Guidelines) book.

To assure operation in seismic applications, the Metraloop expansion loop has been accepted for use by the California Office of Statewide Health, Planning and Development and the City of Los Angeles; and certified by the American Gas Association.

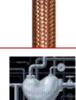
There's no limit to the seismic applications that Metraloop can handle. It can even be designed with lined hose for high velocity, double-braid for high pressures, and all stainless steel construction for media compatibility.



Find the Metraloop end fittings and sizes you need for your application?

Select your end fitting

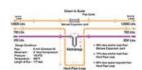
Temperature Correction Factors
Metraloop Options
Pressure Drop (Friction Loss) Charts



Show your pipes a little love during thermal expansion and contraction

Metraloop expansion joints exert a fraction of the anchor loads, requires fewer pipe guides, and takes less space.

Metraloop vs traditional methods to compensate for thermal and seismic expansion



Go configure!

See just a few of the crazy ways to configure the Metraloop expansion joint



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SWEAT ENDS

Copper sweat ends with bronze hose & braid († See Temp Correction Factor)

	PIPE	MODEL#	MOVEMENT	END TO END	LENGTH	PSI SINGLE BRAID	†PSI DOUBLE BRAID	*SPRING FORCE LBS.	WEIGHT LBS.	3D DRAWING
1/2"	(15mm)	MLS30050	±1.5"	5"	11"	706	1130	45	2	Revit Other CAD Files
1/2	(15111111)	MLS80050	±4"	8"	15"	706	1130	45	2.5	Revit Other CAD Files
3/4"	(20mm)	MLS30075	±1.5"	6"	15"	577	923	47	2	Revit Other CAD Files
3/4	(20111111)	MLS80075	±4"	9-1/2"	19"	577	7 925	47	2.5	Revit Other CAD Files
1"	(25mm)	MLS30100	±1.5"	6-1/2"	16"	470	752	53	2.5	Revit Other CAD Files
ı'	(25111111)	MLS80100	±4"	10-1/4"	21"	470	752	55	3	Revit Other CAD Files
1-1/4"	(30mm)	MLS30125	±1.5"	7-3/4"	17"	361	577	66	3.5	Revit Other CAD Files
1-1/4	(3011111)	MLS80125	±4"	11-1/4"	22"	301	577	00	4	Revit Other CAD Files
1-1/2"	(40mm)	MLS30150	±1.5"	9-1/4"	18"	329	526	70	4	Revit Other CAD Files
1-1/2	(4011111)	MLS80150	±4"	11-3/4"	24"	329	320		4.5	Revit Other CAD Files
2"	(50mm)	MLS30200	±1.5"	11-1/4"	21"	317	507	78	9	Revit Other CAD Files
	(5011111)	MLS80200	±4"	14"	26"	317	507	76	12	Revit Other CAD Files
2-1/2"	(65mm)	MLS30250	±1.5"	13"	21"	272	435	83	12	Revit Other CAD Files
2-1/2	(6511111)	MLS80250	±4"	15"	27"	212	435	03	18	Revit Other CAD Files
3"	(80mm)	MLS30300	±1.5"	14"	23"	201	222	90	18	Revit Other CAD Files
3	(ouililli)	MLS80300	±4"	16-1/2"	29"	201	201 322	90	24	Revit Other CAD Files
4"	(100mm)	MLS30400	±1.5"	18"	26"	142	227	120	26	Revit Other CAD Files
	(10011111)	MLS80400	±4"	22"	32"	142	221	120	31	Revit Other CAD Files

[†] When ordering a Metraloop with double-braid, please include the letter "D" at the end of the Model #. Example: MLW30200D

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THREAD ENDS

Fittings - Sched. 40 Carbon Steel Hose & Braid - Series 300 Stainless Steel († See Temp Correction Factor)

PIPE SIZE	MODEL#	MOVEMENT	END TO	LENGTH	PSI SINGLE BRAID	†PSI DOUBLE BRAID	MAX SATURATED STEAM PRESS.	*SPRING FORCE LBS.	WEIGHT LBS.	3D DRAWING
1/2" (15mm)	MLT30050	±1.5"	12"	13"	1075	1720	300	45	3	Revit Other CAD Files
1/2 (1511111)	MLT80050	±4"	15"	17"	1075	1720	300	45	5.5	Revit Other CAD Files
3/4" (20mm)	MLT30075	±1.5"	12-1/4"	13"	792	1267	300	47	3	Revit Other CAD Files
3/4 (2011111)	MLT80075	±4"	15-1/4"	18"	792	1207	300	47	5.5	Revit Other CAD Files
1" (25mm)	MLT30100	±1.5"	12"	15"	571	914	300	53	5	Revit Other CAD Files
1 (2511111)	MLT80100	±4"	16"	20"	5/1	914	300	53	8	Revit Other CAD Files
1-1/4" (30mm)	MLT30125	±1.5"	13-1/2"	16"	531	850	300	66	7	Revit Other CAD Files
1-1/4 (3011111)	MLT80125	±4"	16-3/4"	21"	551	650		00	10	Revit Other CAD Files
1-1/2" (40mm)	MLT30150	±1.5"	15"	17"	472	755	300	70	10.5	Revit Other CAD Files
1-1/2 (4011111)	MLT80150	±4"	17-1/2"	23"	472	755	300	70	14.5	Revit Other CAD Files
2" (50mm)	MLT30200	±1.5"	18"	19"	500	750	300	78	15	Revit Other CAD Files
2 (5011111)	MLT80200	±4"	20"	25"	500	750	300	76	18	Revit Other CAD Files
2-1/2" (65mm)	MLT30250	±1.5"	21"	21"	387	619	300	83	23	Revit Other CAD Files
Z-1/Z (0011IIII)	MLT80250	±4"	21-1/2"	28"	301	619	300	03	29	Revit Other CAD Files
	MLT30300	±1.5"	26"	23"					39	Revit Other CAD Files

^{*} Spring Force: These values reflect the total force required to move the Metraloop its full rated movement for 150 P.S.I. at 70 F. For higher pressures please contact Metraflex.

^{**} Loops are available in half sections for ease of handling and shipping. If this option is selected add half inch to the "end to end" dimension.

3"	(80mm)	MLT80300	±4"	26"	30"	288	431	216	90	43	Revit Other CAD Files
	(100mm)	MLT30400	±1.5"	32"	28"	232	371	186	120	55	Revit Other CAD Files
*	(10011111)	MLT80400	±4"	32"	35"	232	3/1	100	120	59	Revit Other CAD Files

[†] When ordering a Metraloop with double-braid, please include the letter "D" at the end of the Model #. Example: MLW30200D

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150# FLANGED ENDS

Fittings - Sched. 40 Carbon/Steel Hose & Braid - Series 300 Stainless Steel († See Temp Correction Factor)

PIPE SIZE	MODEL#	MOVEMENT	END TO	LENGTH	PSI SINGLE BRAID	†PSI DOUBLE BRAID	MAX SATURATED STEAM PRESS.	*SPRING FORCE LBS.	WEIGHT LBS.	3D DRAWING
2" (50)	MLF30200	±1.5"	12-1/2"	19"	500	750	200	70	21	Revit Other CAD Files
2" (50mm)	MLF80200	±4"	14-1/2"	25"	500	750	300	78	24	Revit Other CAD Files
2-1/2" (65mm)	MLF30250	±1.5"	15-1/2"	21"	387	619	300	83	30	Revit Other CAD Files
2-1/2 (6511111)	MLF80250	±4"	16"	28"	II II	010	300	03	36	Revit Other CAD Files
3" (80mm)	MLF30300	±1.5"	18-1/2"	23"	288	431	216	90	46	Revit Other CAD Files
3" (80mm)	MLF80300	±4"	18-1/2"	30"	288	431	216	90	50	Revit Other CAD Files
4" (100mm)	MLF30400	±1.5"	24-1/2"	28"	232	371	183	120	63	Revit Other CAD Files
4" (100mm)	MLF80400	±4"	24-1/2"	35"	232	3/1	103	120	69	Revit Other CAD Files
5" (125mm)	MLF30500	±1.5"	30-1/2"	32"	191	306	153	186	91	Revit Other CAD Files
5" (125mm)	MLF80500	±4"	30-1/2"	40"	191	300	155	100	101	Revit Other CAD Files
6" (150mm)	MLF30600	±1.5"	36-1/2"	37"	165	264	132	202	148	Revit Other CAD Files
6" (150mm)	MLF80600	±4"	36-1/2"	46"		204	132	202	163	Revit Other CAD Files
8" (200mm)	MLF30800	±1.5"	48-1/2"	48"	242	230	115	260	287	Revit Other CAD Files
8" (200mm)	MLF80800	±4"	48-1/2"	58"	212	230	115	260	309	Revit Other CAD Files
10" (250mm)	MLF31000	±1.5"	60-1/2"	55"	175	200	100	283	453	Revit Other CAD Files
10" (250mm)	MLF81000	±4"	60-1/2"	67"	1/5	200	100	283	484	Revit Other CAD Files
12" (300mm)	MLF31200	±1.5"	72-1/2"	63"	160	188	94	390	636	Revit Other CAD Files
12" (300mm)	MLF81200	±4"	72-1/2"	74"	160	100	94	390	666	Revit Other CAD Files
4411 (055)	MLF31400	±1.5"	84-1/2"	71"	440	405	00	700	636	Revit Other CAD Files
14" (355mm)	MLF81400	±4"	84-1/2"	80.5"	110	125	63	706	666	Revit Other CAD Files
40" ** (400)	MLF31600	±1.5"	96-1/2"	78.5"	440	470	05	000	636	Revit Other CAD Files
16" ** (400mm)	MLF81600	±4"	96-1/2"	91.5"	110	170	85	900	666	Revit Other CAD Files
18" ** (455mm)	MLF31800	±1.5"	108-1/2"	86.5"	0.5	150	75	1000	636	Revit Other CAD Files
18" ** (455mm)	MLF81800	±4"	108-1/2"	100"	85	150	75	1000	666	Revit Other CAD Files

[†] When ordering a Metraloop with double-braid, please include the letter "D" at the end of the Model #. Example: MLW30200D

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WELD ENDS

Fittings - Sched. 40 Carbon/Steel Hose & Braid - Series 300 Stainless Steel († See Temp Correction Factor)

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^{*} Spring Force: These values reflect the total force required to move the Metraloop its full rated movement for 150 P.S.I. at 70 F. For higher pressures please contact Metraflex.

^{**} Loops are available in half sections for ease of handling and shipping. If this option is selected add half inch to the "end to end" dimension.

^{*} Spring Force: These values reflect the total force required to move the Metraloop its full rated movement for 150 P.S.I. at 70 F. For higher pressures please contact Metraflex.

^{**} Loops are available in half sections for ease of handling and shipping. If this option is selected add half inch to the "end to end" dimension.

PIPE SIZE	MODEL#	MOVEMENT	END TO	LENGTH	PSI SINGLE BRAID	†PSI DOUBLE BRAID	SATURATED STEAM PRESS.	*SPRING FORCE LBS.	WEIGHT LBS.	3D DRAWING
4/01 (45)	MLW30050	±1.5"	6"	13"	4075	4700	000	45	2.5	Revit Other CAD Files
1/2" (15mm)	MLW80050	±4"	9"	17"	1075	1720	300	45	5	Revit Other CAD Files
2/4" (20)	MLW30075	±1.5"	5-1/4"	13"	792	4007	300	47	2.5	Revit Other CAD Files
3/4" (20mm)	MLW80075	±4"	9-1/4"	18"	792	1267	300	47	5	Revit Other CAD Files
1" (25mm)	MLW30100	±1.5"	6"	15"	571	914	300	53	4	Revit Other CAD Files
1" (25mm)	MLW80100	±4"	10"	20"	5/1	914	300	55	7	Revit Other CAD Files
1-1/4" (30mm)	MLW30125	±1.5"	7-1/2"	16"	531	850	300	66	6	Revit Other CAD Files
1-1/4 (3011111)	MLW80125	±4"	10-3/4"	21"	551	650	300	00	9	Revit Other CAD Files
1-1/2" (40mm)	MLW30150	±1.5"	9"	17"	472	755	300	70	9	Revit Other CAD Files
1-1/2 (4011111)	MLW80150	±4"	11-1/2"	23"	472	755	300	70	13	Revit Other CAD Files
2" (50mm)	MLW30200	±1.5"	12"	19"	500	750	300	78	13	Revit Other CAD Files
2" (50mm)	MLW80200	±4"	14"	25"	500	750	300	70	16	Revit Other CAD Files
2-1/2" (65mm)	MLW30250	±1.5"	15"	21"	387	619	300	83	20	Revit Other CAD Files
2-1/2 (0311111)	MLW80250	±4"	15-1/2"	28"	367	019	300	65	26	Revit Other CAD Files
3" (80mm)	MLW30300	±1.5"	18"	23"	288	431	216	90	35	Revit Other CAD Files
3 (6011111)	MLW80300	±4"	18"	30"	200	431	210	90	39	Revit Other CAD Files
4" (100mm)	MLW30400	±1.5"	24"	28"	232	371	186	120	48	Revit Other CAD Files
4 (10011111)	MLW80400	±4"	24"	35"	232	3/1	160	120	54	Revit Other CAD Files
5" (125mm)	MLW30500	±1.5"	30"	32"	191	306	153	186	81	Revit Other CAD Files
5" (125mm)	MLW80500	±4"	30"	40"	191	306	155	100	91	Revit Other CAD Files
6" (150mm)	MLW30600	±1.5"	36"	37"	165	264	132	202	125	Revit Other CAD Files
6 (15011111)	MLW80600	±4"	36"	46"	105	204	132	202	140	Revit Other CAD Files
8" (200mm)	MLW30800	±1.5"	48"	48"	212	230	115	260	245	Revit Other CAD Files
8" (200mm)	MLW80800	±4"	48"	58"	212	230	115	200	267	Revit Other CAD Files
10" (250mm)	MLW31000	±1.5"	60"	55"	175	200	100	202	403	Revit Other CAD Files
10" (250mm)	MLW81000	±4"	60"	67"	1/5	200	100	383	434	Revit Other CAD Files
13" (200)	MLW31200	±1.5"	72"	63"	160	188	94	390	556	Revit Other CAD Files
12" (300mm)	MLW81200	±4"	72"	74"	100	100	94	290	586	Revit Other CAD Files

[†] When ordering a Metraloop with double-braid, please include the letter "D" at the end of the Model #. Example: MLW30200D

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GROOVED ENDS

Fittings - Sched. 40 Carbon/Steel Hose & Braid - Series 300 Stainless Steel († See Temp Correction Factor)

II .	PIPE SIZE	MODEL#	MOVEMENT	FACE TO	LENGTH	PSI SINGLE BRAID	†PSI DOUBLE BRAID	*SPRING FORCE LBS.	WEIGHT LBS.	3D DRAWING
2"	(50mm)	MLG30200	±1.5"	18"	19"	E00	750	78	15	Revit Other CAD Files
2	(5011111)	MLG80200	±4"	20"	25"	500	500 750	76	18	Revit Other CAD Files
2-1/2"	(05)	MLG30250	±1.5"	21"	21"	387	619	83	23	Revit Other CAD Files
2-1/2	(65mm)	MLG80250	±4"	21-1/2"	28"	387	619	83	29	Revit Other CAD Files
3"	(80mm)	MLG30300	±1.5"	24"	23"	288	431	90	39	Revit Other CAD Files
-	(/////									

^{*} Spring Force: These values reflect the total force required to move the Metraloop its full rated movement for 150 P.S.I. at 70 F. For higher pressures please contact Metraflex.

^{**} Loops are available in half sections for ease of handling and shipping. If this option is selected add half inch to the "end to end" dimension.

		MLG80300	±4"	24"	30"				43	Revit Other CAD Files
4"	(100mm)	MLG30400	±1.5"	30"	28"	232	371	120	54	Revit Other CAD Files
4	(10011111)	MLG80400	±4"	30"	35"	232	3/1	120	60	Revit Other CAD Files
5"	(125mm)	MLG30500	±1.5"	36"	32"	191	306	186	89	Revit Other CAD Files
5	(12311111)	MLG80500	±4"	36"	40"	191	306	100	99	Revit Other CAD Files
6"	(150mm)	MLG30600	±1.5"	42"	37"	165	264	202	135	Revit Other CAD Files
	(15011111)	MLG80600	±4"	42"	46"	105	204	202	150	Revit Other CAD Files
8"	(200mm)	MLG30800	±1.5"	56"	48"	212	230	260	264	Revit Other CAD Files
Ů	(20011111)	MLG80800	±4"	56"	58"	212	230	260	286	Revit Other CAD Files
10"	(250mm)	MLG31000	±1.5"	68"	55"	175	200	283	430	Revit Other CAD Files
10	(25011111)	MLG81000	±4"	68"	67"	175	200	203	461	Revit Other CAD Files
12"	(300mm)	MLG31200	±1.5"	80"	63"	160	188	390	592	Revit Other CAD Files
'2	(SOOTHIII)	MLG81200	±4"	80"	74"	100	100		622	Revit Other CAD Files

[†] When ordering a Metraloop with double-braid, please include the letter "D" at the end of the Model #. Example: MLW30200D

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TEMPERATURE CORRECTION FACTORS

For safe working pressures above 70°F multiply the pressures shown at 70°F by the correction factor for the required temperature.

TEMPERATURE °F	CORRECTION FACTOR					
TEMPERATURE F	BRONZE	STAINLESS STEEL				
70 °	1.0	1.0				
200 °	.89	.92				
300 °	.83	.86				
400 °	.78	.82				
500 °	-	.77				
600 °	-	.73				

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Metraloop Options

The sizes, pressures and movements shown reflect our standard Metraloops. Higher pressure, greater movements and special materials, such as all stainless steel construction are available. Please contact your local Metraflex representative or the factory for more information.

Metraflex reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligation.

Refer to the following pages for installation configurations and technical assistance.

- Metraloop vs. bellows expansion joints and hard pipe loops
- Seismic applications

Configurations for commercial building installation & CAD downloads

• Thermal applications

Solving fit and function problems -- Engineering Case Studies

Technical assist

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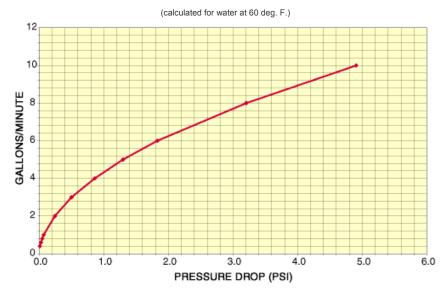
Pressure Drop (Friction Loss) Charts

Use the charts below for all styles (except copper) of Metraloop expansion loops and Fireloops and all end fittings. Please contact factory for copper expansion loop (MLS) pressure loss information.

^{*} Spring Force: These values reflect the total force required to move the Metraloop its full rated movement for 150 P.S.I. at 70 F. For higher pressures please contact Metraflex.

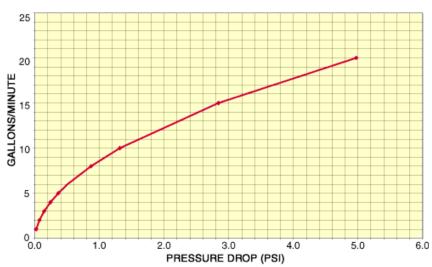
^{**} Loops are available in half sections for ease of handling and shipping. If this option is selected add half inch to the "end to end" dimension.

1/2" PIPE

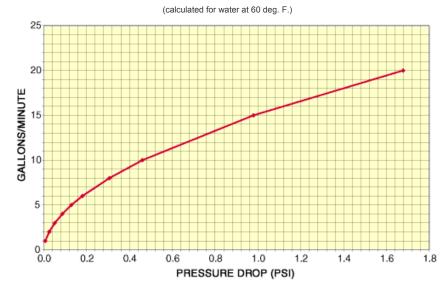


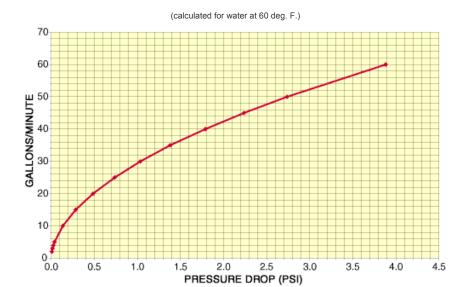
3/4" PIPE

(calculated for water at 60 deg. F.)

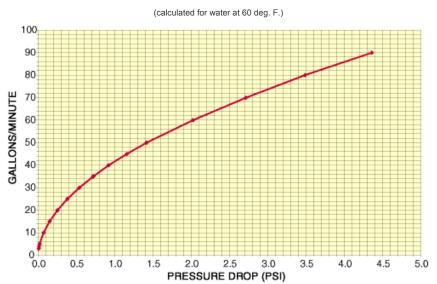


1" PIPE

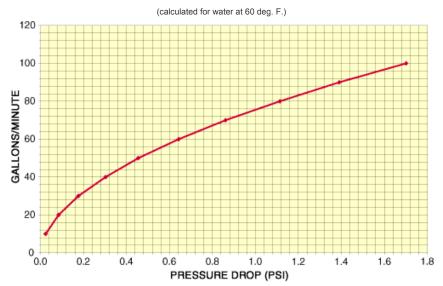




1-1/2" PIPE

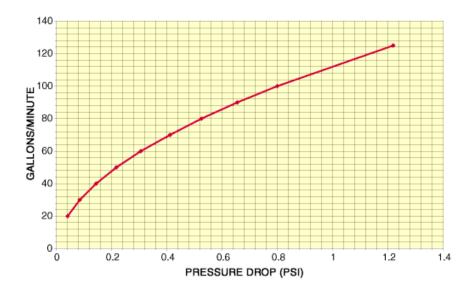


2" PIPE

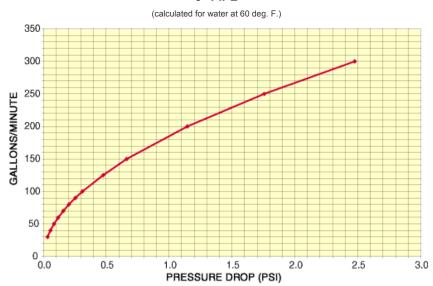


2-1/2" PIPE

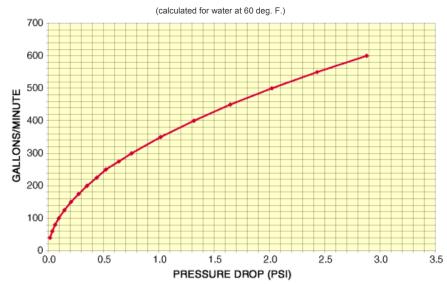
(calculated for water at 60 deg. F.)



3" PIPE

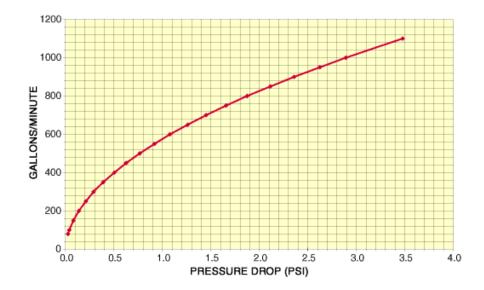


4" PIPE

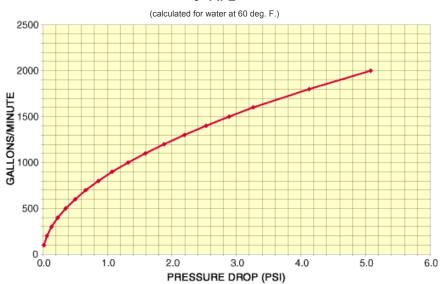


5" PIPE

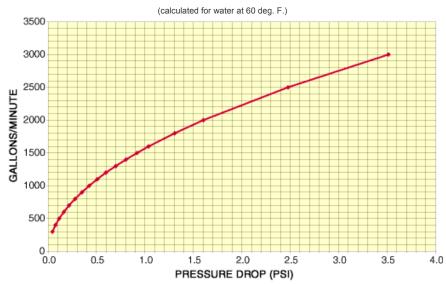
(calculated for water at 60 deg. F.)



6" PIPE



8" PIPE



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