

Equivalent resistance of bends, fittings, and valves, length of straight pipe in feet *

	Screwed fittings				90° welding elbows & smooth bends						Miter elbows (No. of miters)					Welding tees		Valves (screwed, flanged, or welded)				
	45° ell	90° ell	180° close return bends	Tee	R/d = 1	R/d = 1-1/2	R/d = 2	R/d = 4	R/d = 6	R/d = 8	1-45°	1-60°	1-90°	2-90°	3-90°	Forge d	Miter	Gate	Globe	Angle	Swing Check	
k factor =	0.42	0.90	2.00	1.80	0.48	0.36	0.27	0.21	0.27	0.36	0.45	0.90	1.80	0.60	0.45	1.35	1.80	0.21	10	5.0	2.5	
L/d' ratio n =	14	30	67	60	16	12	9	7	9	12	15	30	60	20	15	45	60	7	333	167	83	
Nom. Pipe Size (inches)																						
Inside diam. d (inches) Sched. 40	L = equivalent length in feet of schedule 40 (standard weight) straight pipe																					
1/2	0.622	0.73	1.55	3.47	3.10	0.83	0.62	0.47	0.36	0.47	0.62	0.78	1.55	3.10	1.04	0.78	2.33	3.10	0.36	17.3	8.65	4.32
3/4	0.824	0.96	2.06	4.60	4.12	1.10	0.82	0.62	0.48	0.62	0.82	1.03	2.06	4.12	1.37	1.03	3.09	4.12	0.48	22.9	11.4	5.72
1	1.049	1.22	2.62	5.82	5.24	1.40	1.05	0.79	0.61	0.79	1.05	1.31	2.62	5.24	1.75	1.31	3.93	5.24	0.61	29.1	14.6	7.27
1-1/4	1.380	1.61	3.45	7.66	6.90	1.84	1.38	1.03	0.81	1.03	1.38	1.72	3.45	6.90	2.30	1.72	5.17	6.90	0.81	38.3	19.1	9.58
1-1/2	1.610	1.88	4.02	8.95	8.04	2.14	1.61	1.21	0.94	1.21	1.61	2.01	4.02	8.04	2.68	2.01	6.04	8.04	0.94	44.7	22.4	11.2
2	2.067	2.41	5.17	11.5	10.3	2.76	2.07	1.55	1.21	1.55	2.07	2.58	5.17	10.3	3.45	2.58	7.75	10.3	1.21	57.4	28.7	14.4
2-1/2	2.469	2.88	6.16	13.7	12.3	3.29	2.47	1.85	1.44	1.85	2.47	3.08	6.16	12.3	4.11	3.08	9.25	12.3	1.44	68.5	34.3	17.1
3	3.068	3.58	7.67	17.1	15.3	4.09	3.07	2.30	1.79	2.30	3.07	3.84	7.67	15.3	5.11	3.84	11.5	15.3	1.79	85.2	42.6	21.3
4	4.026	4.70	10.1	22.4	20.2	5.37	4.03	3.02	2.35	3.02	4.03	5.04	10.1	20.2	6.71	5.04	15.1	20.2	2.35	112.0	56.0	28.0
5	5.047	5.88	12.6	28.0	25.2	6.72	5.05	3.78	2.94	3.78	5.05	6.30	12.6	25.2	8.40	6.30	18.9	25.2	2.94	140.0	70.0	35.0
6	6.065	7.07	15.2	33.8	30.4	8.09	6.07	4.55	3.54	4.55	6.07	7.58	15.2	30.4	10.1	7.58	22.8	30.4	3.54	168.0	84.1	42.1
8	7.981	9.31	20.0	44.6	40.0	10.6	7.98	5.98	4.65	5.98	7.98	9.97	20.0	40.0	13.3	9.97	29.9	40.0	4.65	222.0	111.0	55.5
10	10.02	11.7	25.0	55.7	50.0	13.3	10.0	7.51	5.85	7.51	10.0	12.5	25.0	50.0	16.7	12.5	37.6	50.0	5.85	278.0	139.0	69.5
12	11.94	13.9	29.8	66.3	59.6	15.9	11.9	8.95	6.96	8.95	11.9	14.9	29.8	59.6	19.9	14.9	44.8	59.6	6.96	332.0	166.0	83.0
14	13.13	15.3	32.8	73.0	65.6	17.5	13.1	9.85	7.65	9.85	13.1	16.4	32.8	65.6	21.9	16.4	49.2	65.6	7.65	364.0	182.0	91.0
16	15.00	17.5	37.5	83.5	75.0	20.0	15.0	11.2	8.75	11.2	15.0	18.8	37.5	75.0	25.0	18.8	56.2	75.0	8.75	417.0	208.0	104.0
18	16.88	19.7	42.1	93.8	84.2	22.5	16.9	12.7	9.85	12.7	16.9	21.1	42.1	84.2	28.1	21.1	63.2	84.2	9.85	469.0	234.0	117.0
20	18.81	22.0	47.0	105.0	94.0	25.1	18.8	14.1	11.0	14.1	18.8	23.5	47.0	94.0	31.4	23.5	70.6	94.0	11.0	522.0	261.0	131.0
24	22.63	26.4	56.6	126.0	113.0	30.2	22.6	17.0	13.2	17.0	22.6	28.3	56.6	113.0	37.8	28.3	85.0	113.0	13.2	629.0	314.0	157.0

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FLOW DATA THROUGH MUELLER SERVICE MATERIALS EXPRESSED AS EQUIVALENT LENGTHS OF STRAIGHT PIPE

Size	Fitting	Equivalent Length in Feet	
		Sched. 40 Steel	Type K Copper
1/2"	Corp. Stop	9.16	6.12
3/4"	Corp. Stop	6.08	5.86
1"	Corp. Stop	5.86	6.67
1-1/4"	Corp. Stop	8.16	7.46
1-1/2"	Corp. Stop	7.82	7.70
2"	Corp. Stop	7.48	8.38
1/2"	CurbStop	4.73	3.14
3/4"	CurbStop	3.55	4.04
1"	CurbStop	3.37	3.85
1-1/4"	CurbStop	4.08	3.56
1-1/2"	CurbStop	4.43	4.43
2"	-	4.38	4.79
5/8"	H- 10890- 10891 Meter Coupling	.69	.28
3/4"	H- 10890- 10891 Meter Coupling	1.28	.89
5/8"	H- 10892 Meter Coupling	2.48**	1.22**
3/4"	H- 10892 Meter Coupling	1.70	1.09

Size	Meter Yokes Catalog Number	Riser	Equivalent Length in Feet	
			Sched. 40 Steel	Type K Copper
5/8" x 3/4"	H-14111	-	7.8	5.65
5/8" x 3/4"	H- 14121	-	8.33	5.96
5/8" x 3/4"	H- 14026	9"	15.35	12.80
5/8" x 3/4"	H- 14020	9"	10.20	7.18
5/8" x 3/4"	H- 14020	15"	11.30	7.92
5/8" x 3/4"	H- 14020	18"	14.60	10.20
5/8" x 3/4"	H- 14090	20"	12.50	9.15
5/8" x 3/4"	H- 10840	-	11.50	7.83

** Referred to 1/2" Pipe.

NOTE: Only a partial list of Mueller Meter Yokes are in above list. Generally a flat allowance of 10 feet of pipe is adequate for any Meter Yoke as few services are designed with narrow friction allowances.