

# Calibration Factors for Electromagnetic Flow Transmitters



## Calibration (K) Factors & Flow Ranges

Calibration (K) factors are the numbers that must be programmed into the instruments. They convert the pulse output from the sensor (**pulses per litre**) to instrument readings and depend on the inside diameter of the pipe and specific fitting.

F3.60M and F9.60M magmeters are factory calibrated for 5 m/s velocity. F.S. is the Flow Rate value (l/s and USGPM) at 5 m/s.

### K Factors for Tee Fittings

Fitting Size	PVC			PP			PVDF			316L SS		
	K	l/s	USGPM	K	F.S. l/s	USGPM	K	F.S. l/s	USGPM	K	F.S. l/s	USGPM
1/2"	462.04	1.08	17.12	510.01	0.98	15.53	510.01	0.98	15.53	-	-	-
3/4"	272.89	1.83	29.00	294.29	1.56	24.73	294.29	1.70	26.94	308.21	1.62	25.68
1"	157.86	3.17	50.24	178.60	2.59	41.05	178.60	2.80	44.38	177.84	2.81	44.54
1-1/4"	101.60	4.92	77.98	105.74	4.02	63.72	105.74	4.73	74.97	88.85	5.63	89.24
1-1/2"	63.72	7.85	124.42	67.60	6.31	100.01	67.60	7.40	117.29	-	-	-

### K Factors for Plastic Saddles installed on PVC Pipe

Fitting Size	Schedule 40				Schedule 80			
	ID	K Factor	F.S. l/s	F.S. USGPM	ID	K Factor	F.S. l/s	F.S. USGPM
2"	2.047	47.10	10.6	168.2	1.913	53.93	9.3	146.9
2-1/2"	2.445	33.05	15.1	240.0	2.290	37.67	13.3	210.3
3"	3.042	21.33	23.4	371.5	2.864	24.06	20.8	329.4
4"	3.998	16.00	40.5	641.7	3.786	17.84	36.3	575.5
5"	5.016	12.44	63.7	1,010.1	4.768	13.77	57.6	912.7
6"	6.031	5.43	92.1	1,460.3	5.709	6.06	82.6	1,308.8
8"	7.941	3.13	159.7	2,531.7	7.565	3.45	145.0	2,298.3

### K Factors for Metal Clamp Saddles and Weld-On Adaptors on CS or Stainless Steel Pipe

Pipe Size	Schedule 80			
	ID	K Factor	F.S. l/s	USGPM
1-1/2"	1.500	53.74	9.30	147.41
2"	1.913	43.60	11.47	181.80
2-1/2"	2.290	26.22	19.07	302.26
3"	2.864	19.02	26.29	416.70
4"	3.786	11.28	44.32	702.48
5"	4.768	7.43	67.30	1,066.73
6"	5.709	5.10	98.13	1,555.39
8"	7.565	3.00	166.92	2,645.74
10"	9.493	1.91	261.85	4,150.41
12"	11.294	1.35	369.82	5,861.77
14"	12.412	1.12	447.32	7,088.74
16"	14.224	0.83	600.96	9,525.41
18"	16.014	0.62	801.28	12,700.55
20"	17.814	0.52	961.54	15,240.72
24"	21.418	0.36	1,373.63	21,772.48

### Installation Weld-On Adaptor for Metal Pipe

For Weld-On Adaptors on metal pipe, where the pipe inside diameter (ID<sub>1</sub>) is different from the values shown in the chart to the left, use the following correction equation to calculate the new K factor (K<sub>1</sub>).

$$K_1 = K \left( \frac{ID}{ID_1} \right)^2$$

- ID, K - Values from the chart to the left
- ID<sub>1</sub> - Inside diameter of pipe (different from sch 40 or sch 80)
- K<sub>1</sub> - New K factor to be inputted into instruments