

# Calibration Factors for F3.0/3.3 flow sensors



## 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.

Flow range is the minimum and maximum which may be measured within stated accuracy. This corresponds to the flow velocity range of 0.15 to 8 m/s (0.5 to 25 ft./sec.).

### K Factors for Tee Fittings

Fitting Size	K Factors				Flow Range – m <sup>3</sup> /h		Flow Range – USGPM	
	PVC	PP	PVDF	316L SS	Minimum	Maximum	Minimum	Maximum
1/2"	235.45	212.17	225.06	–	0.09	5.1	0.42	22.4
3/4"	142.46	135.32	139.38	157.06	0.17	9.0	0.75	39.8
1"	91.53	89.36	94.66	92.84	0.26	14.1	1.17	62.2
1-1/4"	51.57	48.94	51.37	51.52	0.43	23.2	1.91	102.0
1-1/2"	42.89	42.10	43.07	–	0.68	36.2	2.99	159.3

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

Fitting Size	Schedule 40				Schedule 80			
	ID	K Factor	Flow Range		ID	K Factor	Flow Range	
			m <sup>3</sup> /h	USGPM			m <sup>3</sup> /h	USGPM
2"	2.047	25.97	1.15 – 61	5 – 270	1.913	29.74	1.0 – 53	4.4 – 235
2-1/2"	2.445	17.76	1.6 – 87	7 – 380	2.290	20.25	1.4 – 77	6.3 – 340
3"	3.042	10.92	2.5 – 135	11 – 590	2.864	12.36	2.2 – 120	9.9 – 530
4"	3.998	5.79	4.4 – 233	19 – 1,030	3.786	6.47	3.9 – 209	17.3 – 920
5"	5.016	3.61	6.9 – 367	30 – 1,600	4.768	4.00	6.2 – 332	27.4 – 1,460
6"	6.031	2.39	9.9 – 531	44 – 2,340	5.709	2.68	8.9 – 476	39.3 – 2,090
8"	7.941	1.30	17.2 – 920	76 – 4,050	7.565	1.46	15.7 – 835	68.9 – 3,680

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

Pipe Size	Schedule 40		Schedule 80	
	ID	K Factor	ID	K Factor
2"	2.047	21.93	1.913	25.11
2-1/2"	2.445	15.26	2.290	17.40
3"	3.042	10.30	2.864	11.62
4"	3.998	5.06	3.786	5.64
5"	5.016	3.19	4.768	3.53
6"	6.031	2.13	5.709	2.38
8"	7.941	1.21	7.565	1.33
10"	9.976	0.73	9.493	0.81
12"	11.888	0.51	11.294	0.57
14"	13.072	0.48	12.412	0.53
16"	14.936	0.36	14.224	0.39
18"	16.809	0.27	16.014	0.29
20"	18.743	0.22	17.814	0.24
24"	22.544	0.15	21.418	0.17

### 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

## ULF Sensors

Ends	Flow Range		ULFH Hall Effect Pulses per Litre (K Factor)	ULFR Reed Effect Pulses per Litre (K Factor)	Min. Flow without Field Calibration		Min. Flow with Field Calibration	
	l/h	USGPM			l/h	USGPM	l/h	USGPM
1/4"	1.5–100	0.0066–0.44	8,431	2,108	8	0.035	1.5	0.0066
1/4"	6–250	0.0264–1.10	3,394	848	15	0.066	6.0	0.0264