



Flow Straightener and Downstream Pipe

Models FS and SP

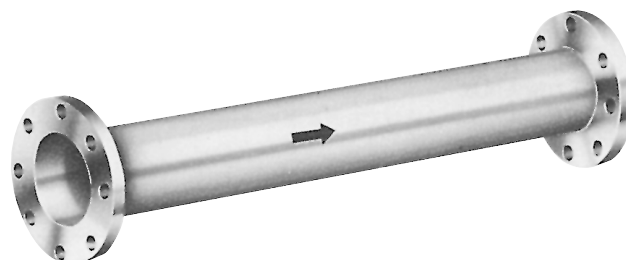
GENERAL SPECIFICATION
GS. No. GCF001-8-E

■ GENERAL

A flow straightener is a straightening device designed to make a flowing stream of fluid relatively free of turbulence, thereby permitting flowrate measurements by a TURBINE METER or DELTA FLOWMETER, which is susceptible to eddies, circular flows, ununiform distribution of flow velocity, etc. created by existing pipeline arrangements (elbows, reducers, valves, etc.) or by the type of pumps used, always under consistent conditions.

A straight pipe section 15D to 50D long (D: pipe dia.) is traditionally provided upstream of the meter, but this flow straightener 12D long offers superior straightening effects than with a straight pipe section.

It requires a short pipe section longer than 5D down-



stream and we supply a 5D short pipe as a standard downstream pipe.

With this flow straightener and downstream short pipe used in conjunction with a TURBINE METER, DELTA FLOWMETER, or other flowmeter, you can expect the best performance stated for the flowmeter itself in the spec. sheet.

■ GENERAL SPECIFICATIONS

Item	Name	Flow straightener	Downstream Pipe
Materials	* Body	Steel	STPG370, STPY400, SB410
		Stainless steel	SUS304TP, SUS316TP
	* Flanges	Steel	SS400, SF440A, SFVC2A
		Stainless steel	SUS304, SUS316, SUSF304, SUSF316
	Inner tube	SUS304, SUS316	—
Pressure ratings		JIS 10K, 20K, 30K, ANSI 150, 300 Above 400mm in nominal size, JIS 10K, ANSI 150 only	
Max. operating pressure		Depends on flange rating.	
Operating temp. range (fluid temp.)	Steel	-10~ +300°C With SS400 flanges and STPY400/SB410 outer case, 0~300°C	
	Stainless steel	-196~ +300°C	
Finish		Munsell 2.5G 8/2 (Stainless steel body remains uncoated.)	

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■ PRESSURE LOSSES OF FLOW STRAIGHTENER

$$\Delta P = C \cdot \rho \cdot Q^2$$

ΔP = Pressure loss (mmH₂O)

ρ = Density (kg/m³)

Q = Flow rate (m³/h)

C = Pressure loss coefficient
(Decided by each bore size)

Press. loss coefficient C

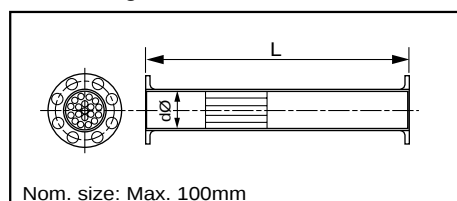
Nom. size (mm)	Press. loss coefficient (C)
20	4.26×10^{-2}
25	1.63×10^{-2}
32	5.63×10^{-3}
40	3.10×10^{-3}
50	1.16×10^{-3}

Nom. size (mm)	Press. loss coefficient (C)
80	2.40×10^{-4}
100	8.16×10^{-5}
150	1.72×10^{-5}
200	5.60×10^{-6}
250	2.33×10^{-6}

Nom. size (mm)	Press. loss coefficient (C)
300	1.13×10^{-6}
350	7.23×10^{-7}
400	3.84×10^{-7}
500	1.56×10^{-7}
600	7.70×10^{-8}

■ DIMENSIONS

● Flow Straightener Outline Dimensions

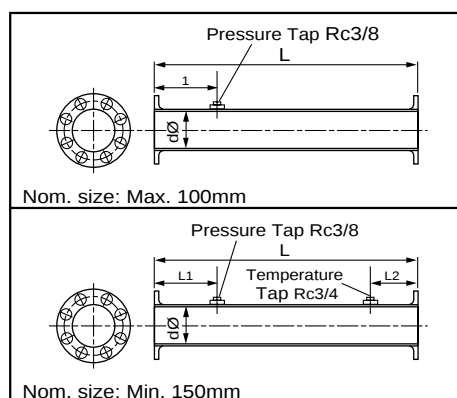


● FS Series

Model	Nom. size (mm)	Dimensions, mm		Approx. Mass (kg)		
		dØ	L	JIS 10 K	JIS 20 K ANSI 150	JIS 30 K ANSI 300
FS 3/8 02	20(3/4")	21.4	240	2.1	2.2	3.7
FS 3/8 03	25(1")	27.2	300	4	4	5
FS 3/8 91	32(1 1/4")	35.5	400	4.4	4.6	5.7
FS 3/8 04	40(1 1/2")	41.2	480	6	6	8
FS 3/8 05	50(2")	52.7	600	8	8	10
FS 3/8 08	80(3")	78.1	960	17	20	24
FS 3/8 10	100(4")	102.3	1200	27	31	40
FS 3/8 15	150(6")	151	1800	66	75	87
FS 3/8 20	200(8")	199.9	2400	130	140	160
FS 3/8 25	250(10")	248.8	3000	220	240	270
FS 3/8 30	300(12")	297.9	3600	340	370	410
FS 3/8 35	350(14")	333.4	4200	470	510	570
FS 3/8 40	400(16")	390.6	4800	490	520*	—
FS 3/8 50	500(20")	489	6000	870	930*	—
FS 3/8 60	600(24")	584.2	7200	1590	1670*	—

*: ANSI Class 150

● Downstream Pipe Outline Dimensions



● SP Series

Model	Nom. size (mm)	Dimensions, mm				Approx. Mass (kg)		
		dØ	L	L ₁	L ₂	JIS10K	JIS20K ANSI 150	JIS30K ANSI 300
SP 3/8 02	20(3/4")	21.4	125	62.5	—	1.8	2.3	3
SP 3/8 03	25(1")	27.2	125	62.5	—	3	3	4
SP 3/8 91	32(1 1/4")	35.5	160	80	—	3.6	3.8	4.9
SP 3/8 04	40(1 1/2")	41.2	200	80	—	4	4	7
SP 3/8 05	50(2")	52.7	250	100	—	6	6	8
SP 3/8 08	80(3")	78.1	400	160	—	10	13	17
SP 3/8 10	100(4")	102.3	500	200	—	15	19	28
SP 3/8 15	150(6")	151.0	750	300	120	34	42	55
SP 3/8 20	200(8")	199.9	1000	400	200	58	70	92
SP 3/8 25	250(10")	248.8	1250	500	250	100	120	150
SP 3/8 30	300(12")	297.9	1500	600	300	150	180	220
SP 3/8 35	350(14")	333.4	1750	700	350	210	250	310
SP 3/8 40	400(16")	390.6	2000	800	400	210	250*	—
SP 3/8 50	500(20")	489.0	2500	1000	500	370	420*	—
SP 3/8 60	600(24")	584.2	3000	1200	600	670	750*	—

*: ANSI Class 150

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