

## FD SERIES FLOWMETERS

Variable area flowmeters with glass measuring tube for small and large flows, suitable for gases and liquids.

### APPLICATIONS

Flowmeters can be used in the following industries: chemical and petrochemical, pulp and paper, food and sugar, pharmaceutical, glass, textile, mining, metallurgical and galvanizing industry. The instruments can also be used by manufacturers of water treatment plants, wine, thermal, hospital and anti-pollution plants.

### TECHNICAL DATA

- Accuracy:  $\pm 2\%$  f.s.
- Max. working temperature: 60°C.  
On request, versions can be made for use in temps. up to 200°C.
- Length of reading scale:
  - 230 mm. for all types up to mod. FD-5b
  - 340 mm. for types FD-Z1, FD-Z2, FD-Z3.
- Measuring range: 1÷10
- Guided float (only on metal version):
  - for gases as from mod FD-2b
  - for liquids as from mod. FD-3b.



The direct reading flowmeters of the FD series have a rigid support structure consisting of 4 C/steel columns. The connections to the process can be threaded or flanged. The measuring tube is made of boron-silicate glass which is perfectly calibrated and therefore easily replaced by the user without needing to change the float. It is sealed with adjustable gaskets and glands.

The following table shows, for each type of instrument, the standard flows of water at 20°C and of air at 20°C and 760 mm. Hg.

MODEL	METALLIC STRUCTURE		PLASTIC STRUCTURE
	Std. flows of H <sub>2</sub> O (l/h)	Std. flows of air (Nm <sup>3</sup> /h) (1)	Std. flows H <sub>2</sub> O (l/h)
FD - 0 - 1	1	0,8* - 2,2*	1
FD - 0 - 2	3 - 12	2,5* - 6*	3
FD - 0 - 3	6	1,3* - 3,5*	-
FD - 0 - 4	4 - 16	3* - 10*	4
FD - 1 - 1	10 - 30	7* - 16*	10
FD - 1 - 2	40	22*	12
FD - 1 - 3	50 - 100	1,5 - 2 - 2,5 - 4	35 - 60 - 100
FD - 2	150	3 - 4	130
FD - 2b	200 - 250	5 - 6	200 - 250
FD - 3	300 - 400 - 500 - 600 - 700	7 - 8 - 10 - 12	300 - 350 - 400 - 500 - 600
FD - 3b	700 - 800 - 1000	15 - 20 - 25	900 - 1200 - 1400
FD - 4	1500 - 2000 - 2500 - 3000	30 - 35 - 40 - 50 - 60	1500 - 2000 - 2500 - 3000
FD - 5b	4000 - 5000 - 6000	90	4000 - 5500
FD - Z1	8000	100 - 120	8000
FD - Z2	10000 - 13000 - 16000	150 - 200	10000 - 12000 - 15000
FD - Z3	20000 - 25000 - 30000	300 - 400	18000 - 25000 - 28000

1) Flows marked with \* are in NI/min.

## STANDARD SIZES AND CONNECTIONS

MOD.	metal struc.			plastic struc.			E (1)			C (2)							P(3) (mm H <sub>2</sub> O)	1) Standard threading to UNI - ISO/228.1  2) Standard flan- ge connection to UNI PN 10, ANSI 150 RF  3) Pressure drop at max. flow. sime
	A (mm)	D (mm)	B (mm)	A (mm)	D (mm)	B (mm)				DN			ANSI					
FD-0-1	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-0-2	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-0-3	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-0-4	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-1-1	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-1-2	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-1-3	506	378	55	542	412	82	1/4"	1/2"	-	15	-	-	-	-	1/2"	-	-	50
FD-2	506	380	65	542	412	82	1/4"	1/2"	-	15	20	-	-	-	1/2"	3/4"	-	50
FD-2b	506	380	65	556	432	95	1/4"	1/2"	3/4"	15	20	25	-	-	1/2"	3/4"	-	100
FD-3	510	390	80	556	432	95	1/2"	3/4"	1"	15	20	25	32	1/2"	3/4"	1"	1 1/4"	150
FD-3b	510	390	80	556	434	100	1/2"	3/4"	1"	15	20	25	32	1/2"	3/4"	1"	1 1/4"	300
FD-4	510	395	92	556	444	116	1"	1 1/4"	1 1/2"	20	25	32	40	3/4"	1"	1 1/4"	1 1/2"	500
FD-5b	522	430	112	556	452	140	1"	1 1/4"	1 1/2"	25	32	40	50	1"	1 1/4"	1 1/2"	2"	550
FD-Z1	625	535	112	677	573	140	1"	1 1/4"	1 1/2"	25	32	40	50	1"	1 1/4"	1 1/2"	2"	600
FD-Z2	629	535	138	707	573	164	1 1/2"	2"	-	32	40	50	65	1 1/4"	1 1/2"	2"	2 1/2"	400
FD-Z3	653	580	167	707	593	182	2"	2 1/2"	3"	50	65	80	-	2	2 1/2"	3"	-	500

## MATERIALS

CODE FOR:	Materials	Carbon steel	AISI 304	AISI 316	PVC	MOPLEN	PVDF
	Body and wet parts	A	I	J	P	M	PF
	Float	/	/	J (1)	P	M	PF
	gaskets	Neoprene (N)	Viton (V)	Teflon (T)			

1) From models FD-0-1 to FD-1-2 the float is in hard metal or black glass depending on the flow.

Flowmeters in the FD series are usually supplied with structures and connections for a nominal pressure of 10 Bar for metallic versions up to mod. FD-4; 8 Bar for mod. FD-5b, FD-Z1, FD-Z2; 6 Bar for mod. FD-Z3 and all plastic versions.

## ACCESSORIES

- Min. / Max. flow alarms by inductive proximity transducers (and power supply of 220 V - 110 V - 24 V/50 Hz) with output on SPDT 5 A, 220 VAC switches. Can be used on metal instruments but with the minimum structure of FD-3 (from 10 l/h to 30 m<sup>3</sup>/h of H<sub>2</sub>O).
- Protection in transparent plastic material.

## HOW TO ORDER:

Example: FD 1 - 3 - I - J - N  
 FD -1-3 model  
 I body and wet parts  
 J float in AISI 316  
 N Neoprene gaskets

Where there are fluids other than water, the following data is required: type of fluid, specific gravity, viscosity, temperature, and pressure under operating conditions.

