

Pipeline Ancillaries

Sight Glasses / Flow Indicators DA 3.10 - 4.40



Flow Indicator with Flag, Vane or Ball

Technical Data

Connection DN	15 - 250
Connection G	3/8 - 2
Nominal Pressure PN	16 - 40
Temperature	280 °C
Medium	liquids, gases and steam

Description

Sight glasses without flow indicator may be used for easy checking of fill levels, consistency, bi- or multiphase flows or condensate. They may also be used for mixtures of liquids, gases and vapours. Flow indicators fitted with a vane can be used for monitoring the flow of liquids, gases and biphasic fluids. Flow indicators fitted with an impeller are used for liquids and small flow volumes. Flow indicators fitted with a ball can be used for liquids and gases.

With internal indicator flag, for constant flow direction:

With 10-division scale glass, installation horizontal or vertical, scale only with soda lime glasses with PN 16 up to DN 100, with PN 40 up to DN 65, above without scale.

DA 3.10 with one glass, DA 4.10 with two glasses.

Nominal diameters G 3/8 - G 1 and DN 15 - 25 are without resetting spring as standard, subsequent installation is possible. All others are with resetting spring.

Installation position:

- » with resetting spring any position
- » without resetting spring horizontal with flag downwards, vertical only with flow from below upwards

With internal indicator flag, for alternating flow directions:

DA 3.20 with one glass, DA 4.20 with two glasses.

Nominal diameters G 3/8 - G 1 and DN 15 - 25 are without resetting spring as standard, subsequent installation is possible. All others are with resetting spring.

Installation position:

- » with resetting spring any position
- » without resetting spring horizontal with flag downwards

With impeller, for constant flow direction:

DA 3.30 with one glass, DA 4.30 with two glasses.

Installation position:

- » horizontal or vertical, for small flow rates ($v < 1$ m/s)

With ball, for constant flow direction:

DA 3.40 with one glass, DA 4.40 with two glasses.

Installation position:

- » vertical, only with flow from below upwards

Response threshold according to data sheet DA/2.1.091.1

Standard

- » soda lime glass

Options

- » various seal materials suitable for your medium
- » PTFE indicating vane or ball
- » borosilicate glass
- » special versions on request

Operating instructions, know how and safety instructions must be observed. All the pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



sensitivity in m^3/h see sheet DA 3.10/2.1.091.2

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Materials				
Type	3.10	4.10	3.20	4.20
Temperature	150 / 280 °C			
Body	PN 16	grey cast iron		
	PN 25 - 40	C 22.8 / St 37-2		
	PN 16 - 40	CrNiMo-steel		
Seal	Nova Universal			
Glasses	soda lime glass optional borosilicate glass (280 °C)			
Internals	CrNiMo-st	CrNiMo-steel / Ms		
Screws	5.6 zined			

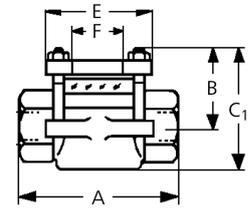
Materials				
Type	3.30	4.30	3.40	4.40
Temperature	80 °C		100 °C	
Body	PN 16	grey cast iron		
	PN 25 - 40	C 22.8 / St 37-2		
	PN 16 - 40	CrNiMo-steel		
Seal	Nova Universal			
Glasses	soda lime glass optional		borosilicate glass	
Internals	CrNiMo-steel / PBTP		CrNiMo-steel / Ms / PA	
Screws	5.6 zined			

Dimensions [mm] (sleeve)								
Maß	nominal pressure	nominal diameter G						
		3/8	1/2	3/4	1	1 1/4	1 1/2	2
A	PN 16 (GG-20)*	105	105	110	110	115	145	165
	PN 16 (SST 316L)	90	90	90	90	90	90	110
	PN 25/40	90	90	90	90	90	90	110
B	PN 16 - 40	70	70	70	70	70	70	90
C ₁		110	110	110	110	110	110	140
C ₂		140	140	140	140	140	140	180
E	PN 16 (GG-20)*	85	85	85	85	85	85	110
	PN 16 (SST 316L)	115	115	115	115	115	115	150
	PN 25/40	115	115	115	115	115	115	150
F	PN 16 - 40	50	50	50	50	50	50	66

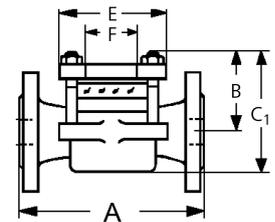
*PN 16 made of GG-20 not available:
type 3.10 - 3.40 G 1 1/4, type 4.10 - 4.40 G 1 1/2

Dimensional Drawing

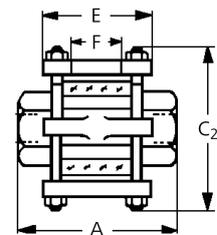
sleeve
DA 3.10
DA 3.20
DA 3.30
DA 3.40



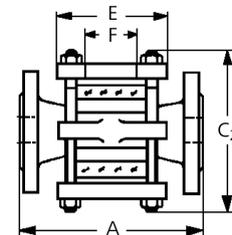
flange
DA 3.10
DA 3.20
DA 3.30
DA 3.40



sleeve
DA 4.10
DA 4.20
DA 4.30
DA 4.40



flange
DA 4.10
DA 4.20
DA 4.30
DA 4.40



Dimensions [mm] (flange)

size	nominal pressure	nominal diameter DN													
		15	20	25	32	40	50	65	80	100	125	150	200*	250*	
A	PN 16 (GG-20)	140	150	160	180	200	230	200	260	300	350	400	600	650	
**	PN 16 (SST 316L)	164	168	168	172	178	202	290	on request						
**	PN 25/40	166	170	170	174	180	206	290	on request						
B	PN 16 - 40	70	70	70	70	70	90	90	110	125	135	135	230	250	
C ₁		110	110	110	110	110	140	140	160	195	205	205	340	390	
C ₂		140	140	140	140	140	180	180	220	250	270	270	460	500	
E	PN 16 (GG-20)	85	85	85	85	85	110	120	130	190	210	210	285	285	
	PN 16 (SST 316L)	115	115	115	115	115	150	150	on request						
	PN 25/40	115	115	115	115	115	150	150	on request						
F	PN 16 - 40	50	50	50	50	50	66	66	80	100	110	110	175	175	

Weights [kg]

design	nominal diameter G	nominal diameter DN																			
		3/8	1/2	3/4	1	1 1/4	1 1/2	2	15	20	25	32	40	50	65	80	100	125	150	200	250
with 1 glass	PN 16	2,6	2,6	2,8	3	3	3	5	4	4	5	6	7	12	13	18	26	36	43	80	126
	PN 25/40	4,5	4,5	4,5	5	5	5	9	6	7	7	9	9	14	15	on request					
with 2 glasses	PN 16	2,6	2,6	2,8	3	3	4	7	4	4	5	6	7	10	13	17	26	36	43	80	126
	PN 25/40	4,5	4,5	4,5	5	5	5	10	6	7	8	9	9	15	15	on request					

Special designs on request.
The pressure has always been indicated as overpressure.
Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

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Sensitivity [m ³ /h] BSPT-Female Connection PN 16/40							
type	nominal diameter G						
	3/8	1/2	3/4	1	1 1/4	1 1/2	2
3.10	0.2	0.2	0.2	0.25	1.2	1.4	1.5
3.12	1.5	1.5	1.5	1.5	1.7	1.7	1.9
3.20	0.2	0.2	0.2	0.2	0.8	0.8	0.9
3.22	1.5	1.5	1.5	1.5	1.7	1.7	1.9
3.30	0.1	0.12	0.15	0.3	0.4	0.4	1.3
3.40	0.15	0.15	0.35	0.4	0.6	0.8	1.3
4.10	0.2	0.2	0.2	0.25	1.2	1.4	1.5
4.20	0.2	0.2	0.2	0.2	0.8	0.8	0.9
4.30	0.1	0.12	0.15	0.3	0.4	0.4	1.3
4.40	0.15	0.15	0.35	0.4	0.6	0.8	1.3

Sensitivity [m ³ /h] Flange Connection PN 16/40													
type	nominal diameter DN												
	15	20	25	32	40	50	65	80	100	125	150	200	250
3.10	0.18	0.18	0.18	1.2	1.2	1.5	1.5	2.5	5	8	8	on request	
3.12	1.5	1.5	1.5	1.7	1.7	1.9	2	-	-	-	-	-	-
3.20	0.2	0.2	0.2	0.8	0.8	0.9	1.2	1.6	2	2.5	2.5	on request	
3.22	1.5	1.5	1.5	1.7	1.7	1.9	2	-	-	-	-	-	-
3.30	0.12	0.15	0.2	0.25	0.3	1.2	-	-	-	-	-	-	-
3.40	0.15	0.2	0.35	0.5	0.6	1	-	-	-	-	-	-	-
4.10	0.18	0.18	0.18	1.2	1.2	1.5	1.5	2.5	5	8	8	on request	
4.20	0.2	0.2	0.2	0.8	0.8	0.9	1.2	1.6	2	2.5	2.5	on request	
4.30	0.12	0.15	0.2	0.25	0.3	1.2	-	-	-	-	-	-	-
4.40	0.15	0.2	0.35	0.5	0.6	1	-	-	-	-	-	-	-

sensitivity for water, 20 °C, horizontal installation, app. rate in m³/h

Special designs on request.

The pressure has always been indicated as overpressure.

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