

FLOW RATE INDICATOR AND CONTROLLER BMV



- For vertical mounting
- By side analogical indicator
- Free of pressure changes effect
- Brass or stainless steel construction
- 1 adjustable switch
- Range from 0.1 to 50 L/min in 7 scales
- 300 bar as a maximum (water at 20°C)
- 100°C as a maximum

DESCRIPTION

The BMV flow rate indicator is a variable area flow rate indicator. The instrument must be mounted on a vertical pipe with ascending flow. The acceptable fluid viscosity is close to water viscosity. These instruments may be available for airflow rate indication and control: on request.

The built in magnet of the diver drives the indicator. Coupling of both devices allow a continuous indication even with quick changes in the flow rate. The Reed contact, by side, is continuously adjustable. The switch is bi-stable and NO (*normally open with flow less*). It acts when the diver passes in front of it.

TECHNICAL FEATURES

Maximal pressure	Brass: 200 bar Stainless steel: 300 bar
Temperature:	0...100°C (160°C on request)
Scale:	In L/min of water at 20°C
Accuracy:	5 %
Bi-stable switch	NO (<i>flow less</i>), 250 V / 1.5 A / 50 VA Protection: IP 65 Connector: 43650 – cable inlet: PG 9
Brass model	wetted parts: brass and NBR seals
Stainless steel model	wetted parts: SS316 and FPM seals
Options (on request)	
Switch:	Change over contact ATEX certified switch for Ex area
Seals:	FPM, NBR, EPDM

Caution:

Verify the right correspondence of the switching power of the switch and your process device. A protective relay is described on data sheet 250-02.

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**FLOW RATE INDICATOR
AND CONTROLLER
BMV**

02-10-2009

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DEB

721-01/1

CODE NUMBERS AND REFERENCES

Type	Brass	Stainless steel	Range water 20°C, L/mn	R	S/P mm	D mm	D ₁ mm	B mm	T mm	L mm	Mass g
BMV-1 R	721 300	721 500	0,1 - 1,5	¼"	27	30	47	71	14	131	850
BMV-3 R	721 310	721 510	0,2 - 3,0	¼"	27	30	47	71	19	131	850
BMV-8 R	721 320	721 520	0,3 - 8,0	¼"	27	30	47	71	19	131	850
BMV-12 R	721 330	721 530	1 - 12	¼"	27	30	47	71	19	131	850
BMV-18 R	721 340	721 540	2 - 18	½"	27	30	47	71	17	148	1 010
BMV-35 R	721 345	721 545	3 - 35	¾"	34	40	57	76	18	152	1 500
BMV-50 R	721 350	721 550	4 - 50	1"	40	40	57	76	19	156	1 500

SWITCHES: Features

The switch fits on the dovetail (*rear face*) and is continuously adjustable; the position is secured with a blocking screw. The plastic DIN plug (*DIN 43650*) is IP65, with a cable inlet PG9.

Standard contact, NO (flow less)

Max. 230 V / 1 A / 50 VA

Change over contact (*Option*)

Max. 250 V / 1.5 A / 50 VA

ATEX certified contact

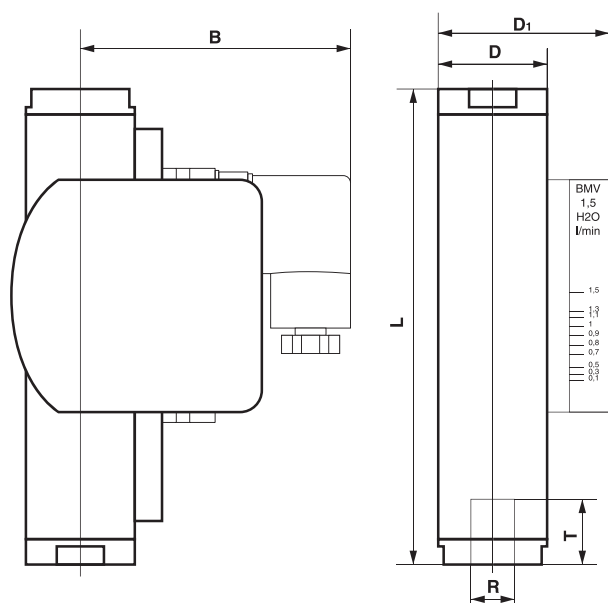
EEx m T6 - **NO** max. 250 V / 2 A / 60 VA – Change over contact max. 250 V / 1 A / 30 VA

Atex II 2G EEx m II T6 - **NO** max. 250 V / 2 A / 60 VA – Change over contact max. 45 V / 1 A

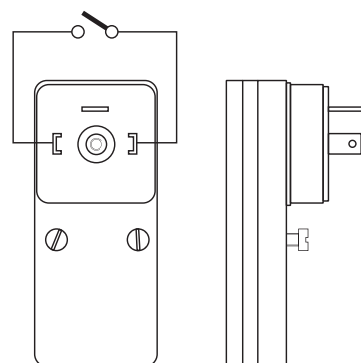
MOUNTING

- The flow indicators BMV are designed for a vertical mounting with an ascending flow.
- The fluid should be free of solid particles (*a filter could be used before the BMV*).
- All area must be free of magnetic fields.
- The fittings and or adaptors must be non-magnetic (*made of brass, stainless steel or plastic*).
- Any magnetic device should be at least above 10 cm from the BMV.

DIMENSIONS



The detection loop is OPEN when the flow rate is lower than the trigger point.



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FLOW RATE INDICATOR
AND CONTROLLER
BMV

02-10-2009

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721-01/2

Flow rate controller and indicator DUG



- Works in all positions
- Reading on a graduated glass tube
- Pressure without effect
- Construction: brass or stainless steel
- Adjustable contact NO (change over contact on request)
- Scale: 11 ranges from 0.2 up to 250 L/min /Water /20°C
- Pressure up to 10 bar /20°C
- Temperature up to 100°C (160°C on request)

PRINCIPLE

The flow rate controller DUG operates with the float measuring principle. It is recommended for fluids with a viscosity close to water viscosity.

TECHNICAL FEATURES

Pressure drop:	0.02 to 0.8 bar (depending of model)
Maximal temperature:	100°C (160°C on request)
Accuracy:	+/-5% Full Scale
Contact:	NO – Hysteresis 1.5 mm approximately
Connector:	DIN 43650 – IP65
Maximal pressure:	10 bar
Wetted parts:	Brass or stainless steel, Duran 50, gaskets
Construction	Housing in anodised aluminium Connections in stainless steel 316 Ti Float in brass or stainless steel 316 Ti Glass tube in Duran 50 Spring in stainless steel 316 Ti Gasket in NBR

Options (factory options)

Gasket:	FPM or EPDM
Contact:	Change over contact or ATEX certified contact

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Flow rate controller
and indicator
DUG

18-07-2007

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SWITCH – Characteristics

The switch is SPST type, NO / no flow. Reversing the contact, it is possible to have the NC action. The adjustment is continuous, sliding the switch on a guide and fixed it up with a screw. The output connection is realized through an IP 65 connector DIN 43650, PG 9.

Standard switch:

NO contact, switching power 230 V / 1 A / 50 VA

Change over contact:

On request, switching power 250 V / 1.5 A / 50 VA

ATEX certified contacts, on request

EEx m II T6: NO, 250 V / 2 A / 60 VA, cable output 1 m long
Change over, 250 V / 1 A / 60 VA

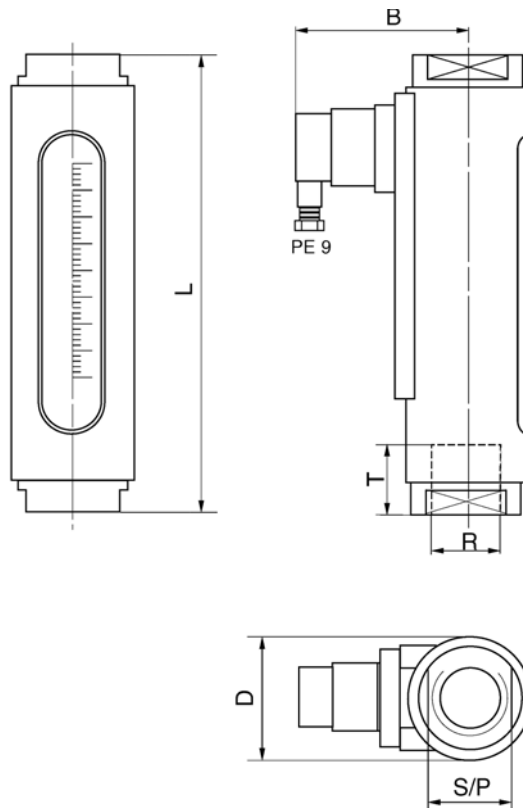
EEx ia II C T6: NO, 45 V / 1 A
Change over, 45 V / 1 A

CODE NUMBERS AND REFERENCES

Reference	Brass model	Stainless model	Range L/mn water	R on request	R Standard	S/P mm	D mm	B mm	T mm	L mm	Weight g
DUG-4	725 100	725 200	0,2 to 4	1/2"	1/4"	32	43	73	14	132	625
DUG-6	725 107	725 207	0,4 to 6	1/2"	1/4"	32	43	73	14	132	625
DUG-8	725 109	725 209	0,5 to 8	1/2"	1/4"	32	43	73	14	132	625
DUG-14	725 120	725 220	1 to 14	1/2"	1/4"	32	43	73	14	135	625
DUG-28	725 123	725 223	1 to 28		1/2"	32	43	73	15	135	650
DUG-45	725 126	725 226	2,5 to 45		3/4"	32	43	73	18	167	850
DUG-80	725 131	725 231	2 to 80	3/4"	1"	41	50	76	19	184	1 000
DUG-110	725 135	725 235	6 to 110		1"	41	50	76	19	184	1 000
DUG-150	725 137	725 237	15 to 150		1" 1/4	50	55	79	21	216	1 300
DUG-220	725 139	725 239	30 to 220		1" 1/4	55	60	81	21	210	1 700
DUG-250	725 141	725 241	35 to 250		1" 1/4	50	55	79	21	222	1 400

MOUNTING

DUG flow controllers are designed to work in any position. The medium has to be free of any particles (a filter could be installed ahead). Do not install them in places where are magnetic fields. Use non-magnetic fittings for connection (plastic, brass or stainless). Any ferrous material part should be at a distance of 10 mm as a minimum. Switching power of contact: check your installation; if necessary use an amplifier relay (documentation 250). Set point adjustment: adjust the arrow in relation to the desired graduation.



Flow rate controller
and indicator
DUG

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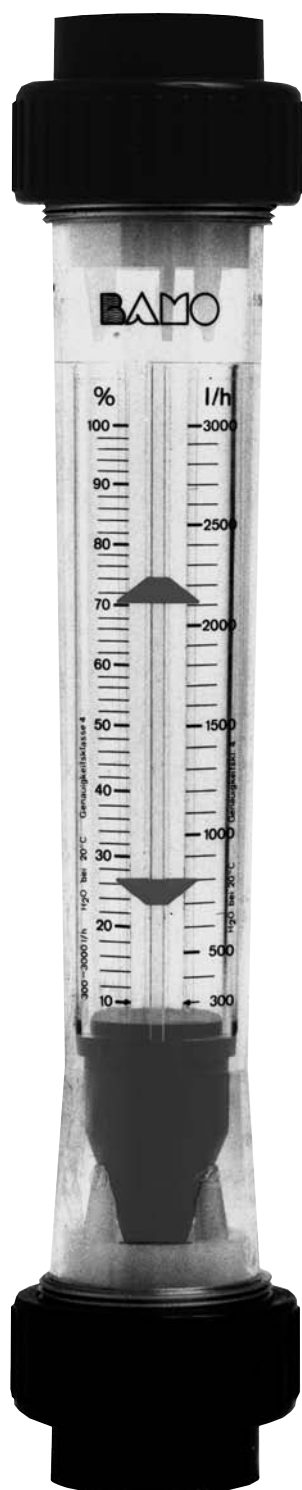
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725 I1 02 F

Variable area flow indicator IDP



- For aggressive or neutral fluids
- Corrosion and shockproof
- Construction: all in plastic materials
- PVC - Trogamid (PA) - Polysulfon (PSU) - PVDF
- 0-50 m³/h water in 14 scales
- Air - HCl - NaOH - ...
- Direct reading plus 2 set point indicators
- Alarm contacts in option
- Accuracy: Class 4
- Radial mounting: vertical, ascending flow

TECHNICAL FEATURES

Max. pressure at 20 °C	PVC union: PN 10 - Cast iron union: PN 16
Temperature limits	PVC: 0...50°C (water) Trogamid: 0...80°C (water) Polysulfon: 0...120°C (water)
Float:	PVDF
Float stopper:	PVDF
Seals:	EPDM
Union (standard model):	PVC, to glue on site
Scales:	in % (0...100%) and in l/h water at 20°C
Chemical resistance:	PVC for acid, neutral or basic liquids Trogamid for neutral and basic fluids Polysulfon for Acids – Please inquire.

Caution: it is necessary to take care of unions temperature limits.

SPECIFICATION

Example: IDP 100 T PVDF A

IDP:	Plastic flow indicator
100:	Beginning of scale (end of scale is x 10)
T:	Calibrated tube in PVC (V), Trogamid (T), Polysulfon (P) or (PVDF)
PVDF:	PVDF float
A:	Including a magnet for switch control (option)

OPTIONS

Connections:	Cast iron or stainless steel unions, flanges and collars With flat seals PVC, PPH, PVDF or stainless
Seals:	FPM
Special scales:	Air (1...9 bar absolute - 20 °C) with Trogamid IDP only HCl (30 %), Na OH (30 and 50 %)

With your request, please specify the fluid, temperature and pressure.

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Variable area flow indicator IDP

20-05-2009

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IDP Type	ND	d mm	R	Scale l/h water at 20°C	Code numbers			
					PVC	PVC-A	Polysulfon	Polysulfon-A
15	25	32	1"	15 - 150	P127 854	P127 856	P127 860	P127 862
30				30 - 300	P46 275	P47 579	P46 329	P47 633
60				60 - 600	P46 276	P47 580	P46 330	P47 634
100				100 - 1 000	P46 277	P47 581	P46 331	P47 635
150	32	40	1" ¼	150 - 1 500	P46 279	P47 583	P46 333	P47 637
250				250 - 2 500	P46 280	P47 584	P46 334	P47 638
200	40	50	1" ½	200 - 2 000	P46 284	P47 588	P46 338	P47 642
300				300 - 3 000	P46 285	P47 589	P46 339	P47 643
400	50	63	2"	400 - 4 000	P46 289	P47 593	P46 343	P47 647
600				600 - 6 000	P46 290	P47 594	P46 344	P47 648
1 000				1 000 - 10 000	P46 291	P47 595	P46 345	P47 649
1 500	65	75	2" ½	1 500 - 15 000	P46 295	P47 599	P46 349	P47 653
2 500				2 500 - 25 000	P46 296	P47 600	P46 350	P47 654
10 000				10 000 - 50 000	P127 865	P127 867	P127 871	P127 873

IDP Type	ND	Scale l/h water at 20°C	Code numbers			
			Trogamid	Trogamid-A	PVDF	PVDF-A
15	25	15 - 150	P127 857	P127 859	P127 863	P127 864
30		30 - 300	P46 302	P47 606	P46 356	P47 660
60		60 - 600	P46 303	P47 607	P46 357	P47 661
100		100 - 1 000	P46 304	P47 608	P46 358	P47 662
150	32	150 - 1 500	P46 306	P47 610	P46 360	P47 664
250		250 - 2 500	P46 307	P47 611	P46 361	P47 665
200	40	200 - 2 000	P46 311	P47 615	P46 365	P47 669
300		300 - 3 000	P46 312	P47 616	P46 366	P47 670
400	50	400 - 4 000	P46 316	P47 620	P46 370	P47 674
600		600 - 6 000	P46 317	P47 621	P46 371	P47 675
1 000		1 000 - 10 000	P46 318	P47 622	P46 372	P47 676
1 500	65	1 500 - 15 000	P46 322	P47 626	P46 376	P47 680
2 500		2 500 - 25 000	P46 323	P47 627	P46 377	P47 681
10 000		10 000 - 50 000	P127 868	P127 870	P127 874	P127 875

ND	d	R	Dimensions mm (1)						ΔP (1) mbar	ΔP (2) mbar	Weight /g
			G	D	L	L1	L2				
25	32	1"	1" ½	60	350	356	400	12,3	15,9	475	
32	40	1" ¼	2"	72	350	356	408	12,3	15,9	710	
40	50	1" ½	2" ¼	83	350	356	418	12,3	15,9	1,050	
50	63	2"	2" ¾	103	350	356	432	22,2	27,1	1,530	
65	75	2" ½	3" ½	122	350	356	444	33,7	40,0	2,100	

(1) Not availables for PVDF units.

ΔP (1) : Pressure loss for with WATER at 20°C

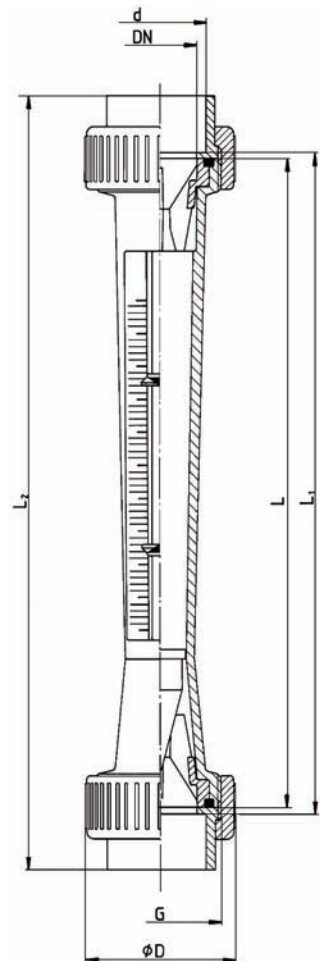
ΔP (2) : Pressure loss for with AIR at 20°C

ND	Ø	Options code numbers							
		Seals		Threaded connection		Union		Flange	
		FPM	Cast iron	St. steel	PVC	PPH	PVC	PPH	
25	32	P53 959	730 303	730 305	730 301	730 302	730 306	730 307	
32	40	P53 960	730 353	730 355	730 351	730 352	730 356	730 357	
40	50	P53 961	730 403	730 405	730 401	730 402	730 406	730 407	
50	65	P53 962	730 503	730 505	730 501	730 502	730 506	730 507	
65	75	P53 963	730 603	-	730 601	730 602	730 606	730 607	

ELECTRICAL SWITCHES

The flow meter has to be equipped with a magnetic float PVDF A

Switching power	: 10 VA / 100 V AC / 0.5 A
Status NO with flow-less	: Code number P 48119
NC with flow-less	: Code number P113 131
Protection	: IP 65, DIN plug (acc. to DIN EN 175301-803)
Temperature limits	: Room 0...55°C, Fluid 0...55°C



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Variable area flow indicator
IDP

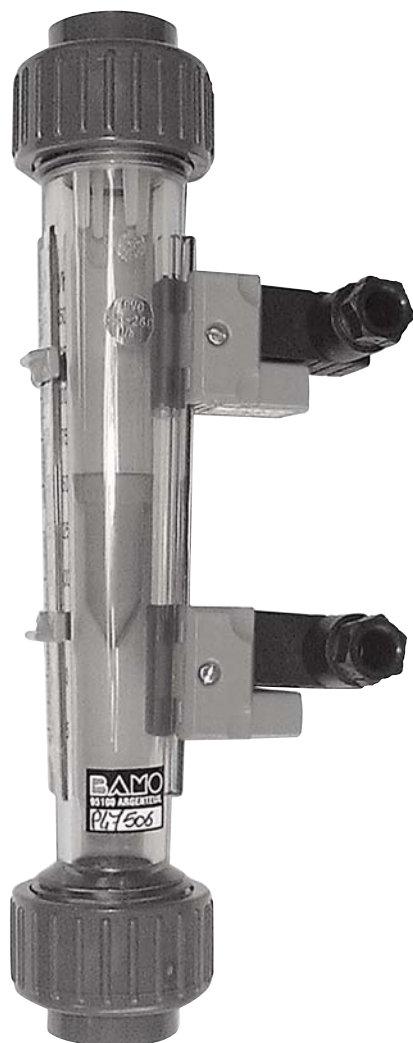
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Variable area flow indicator PDP



- For aggressive or neutral fluids
- Corrosion and shockproof
- Construction: all in plastic materials
- PVC – Trogamid (PA) – Polysulfon (PSU) - PVDF
- 3 to 1500 l/h water in 9 scales
- Direct reading
- 2 set point indicators
- Alarm contacts in option
- Accuracy: Class 4
- Radial mounting: vertical, ascending flow

TECHNICAL FEATURES

Maximal pressure at 20 °C	PVC union: PN 10 - cast iron union: PN 16
Temperature limits	PVC: 0...50°C (water) Trogamid: 0...80°C (water) Polysulfon: 0...120°C (water)
Float:	PVDF
Float stopper:	PVDF
Seals:	EPDM
Union (standard model):	PVC, to glue on site
Scales:	in % (0...100%) and in l/h water at 20°C
Chemical resistance:	PVC for acid, neutral or basic liquids Trogamid for neutral and basic fluids Polysulfon for Acids – Please inquire

Caution: it is necessary to take care of temperature limits of unions.

SPECIFICATION

Example: PDP 10 T PVDF A

IDP:	Small plastic flow indicator
10:	Beginning of scale (end of scale is x 10)
T:	Calibrated tube in PVC (V), Trogamid (T),
Polysulfon (P), PVDF	
PVDF:	PVDF float
A:	Including a magnet for switch control (option)

OPTIONS

Connections:	Cast iron or stainless steel unions, flanges and collars
Seals:	With flat seals PVC, PPH, PVDF or stainless FPM

With your request, please specify the fluid, temperature and pressure.

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Variable area flow indicator PDP

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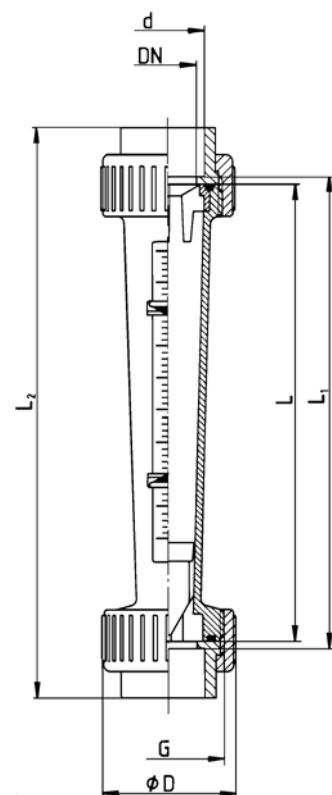
PDP type	ND	d mm	R	Scale l/h water at 20°C	Codes numbers			
					PVC	PVC-A	Polysulfon	Polysulfon-A
2	10	16	3/8"	3 - 24	P47 500	P47 683	P47 532	P47 715
5				5 - 60	P47 501	P47 684	P47 533	P47 716
10				10 - 100	P47 502	P47 685	P47 534	P47 717
15	15	20	1/2"	15 - 150	P47 505	P47 688	P47 537	P47 720
20				25 - 250	P47 506	P47 689	P47 538	P47 721
40	20	25	3/4"	40 - 400	P47 509	P47 692	P47 541	P47 724
60				60 - 600	P47 510	P47 693	P47 542	P47 725
100	25	32	1"	100 - 1 000	P47 514	P47 697	P47 546	P47 729
150				150 - 1 500	P47 515	P47 698	P47 547	P47 730

PDP type	ND	Scale l/h water at 20°C	Codes numbers			
			Trogamid	Trogamid-A	PVDF	PVDF-A
2	10	3 - 24	P47 516	P47 699	P47 548	P47 731
5		5 - 60	P47 517	P47 700	P47 549	P47 732
10		10 - 100	P47 518	P47 701	P47 550	P47 733
15	15	15 - 150	P47 521	P47 704	P47 553	P47 736
20		25 - 250	P47 522	P47 705	P47 554	P47 737
40	20	40 - 400	P47 525	P47 708	P47 557	P47 740
60		60 - 600	P47 526	P47 709	P47 558	P47 741
100	25	100 - 1 000	P47 530	P47 713	P47 562	P47 745
150		150 - 1 500	P47 531	P47 714	P47 563	P47 746

ND	d	R	Dimensions /mm (1)					ΔP mbar
			G	D	L	L1	L2	
10	16	3/8"	3/4"	35	165	171	199	3,3
15	20	1/2"	1"	43	170	176	208	2,5
20	25	3/4"	1" 1/4	53	185	191	229	6,1
25	32	1"	1" 1/2	60	200	206	250	6,1

(1) Not availables for PVDF units

ND	Ø	Options codes numbers						
		Seals	Threaded connection			Union	Flange	
		FPM	Cast iron	St. steel	PVC	PPH	PVC	PPH
10	16	P53 955	730 100	730 105	730 101	730 102	730 106	730 107
15	20	P53 956	730 200	730 205	730 201	730 202	730 206	730 207
20	25	P53 957	730 250	730 255	730 251	730 252	730 256	730 257
25	32	P53 959	730 300	730 305	730 301	730 302	730 306	730 307



ELECTRICAL SWITCHES

The flow meter has to be equipped with a magnetical float PVDF A

Switching power	: 10 VA / 100 V AC / 0.5 A
Status NO with flow-less	: Code number P 48119
NC with flow-less	: Code number P 113 131
Protection	: IP 65, DIN plug (acc. to DIN EN 175301-803)
Temperature limits	: Room 0...50°C, Fluid 0...55°C



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Plastic flowmeter indicator
PDP

24-02-2009

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