Data Sheet
D-FV-10A3200_2

Field IT
Variable Area Flowmeters
Armored Purgemeter
10A3200

Function
- The armored variable area flowmeter offers new possibilities for metering small flowrates of liquids and gases. The instrument is particularly well suited for metering cloudy, opaque or aggressive fluids.

Applications
- The instrument can be installed in Chemical, Petrochemical Industries, gas analyzers, process systems, well systems and wherever glass meter tubes cannot be used for safety reasons.

Essential Features
- Measures ranges from 0.26 to 800 GPH water or 1.7 to 3300 SCFH air.
- Easy to read percent or direct reading scale.
- Integral needle valve in the inlet or outlet (10A3220).
- Single and/or dual alarms
- Analog output signal 4-20 mA (10A3250/55)
- Differential pressure regulator (10A3220)
- Installation length only 90 mm (10A3220)
- Optional stainless steel indicator housing.



Armored Purgemeter
Series 10A3200

EUROTEC
TECNOLOGIE IMPIANTISTICHE - AUTOMAZIONE - TELECONTROLLO

Specifications

The following design options are available:

Model	Connections	Max. Flow Range (H_2O)
10A3220 10A3250	Horizontal ¼" NPT	≤ 100 l/h
10A3225/55	Vertical ¼" NPT Vertical 3/8" NPT Vertical ½" NPT Vertical 1" NPT Vertical 1" G	≤ 100 l/h 100 – 300 l/h 100 – 800 l/h 800 – 3000 l/h 800 – 3000 l/h

Flowrate Span: 1:10
For gas applications to 3200 l/h air flow range less than 1:10

Scale Design: Percent or direct reading scale

Scale Length: 60 mm (quarter circle)

Accuracy: ±6% of full scale

Reproducibility: ±0.5% of max.

Protection Class: IP 64, NEMA 3

Max. allowable pressure

Model 10A3225/55	1450 psi (100 bar), optional 2900psi (200 bar)
Model 10A3220/50	580 psi (40 bar)
Model 10A3220	w/differential pressure regulator 200 psi (14 bar)

Materials

Fluid Wetted Parts:
Float, orifice/meter tube, O-rings, fittings
Stainless Steel 1 4571 [316 Ti]/PVDF/PTFE
O-ring Viton A or Buna N

Non-fluid Wetted Parts

Housing cover	Polycarbonate or Stainless steel, with glass window
Base plate	Anodized aluminum, stainless steel as an option
Cover cap	Anodized aluminum stainless steel as an option

Weight

w/o DP regulator:	0.3 to 2.0 kg
with DP regulator:	1.6 kg

Temperature Specifications

Limits:

O-rings	O-Ring Viton A	300ºF (150ºC)
	O-Ring Buna N	248ºF (120ºC)
	O-Ring Kalrez	285ºF (140ºC)
Meter tube holder	PVDF	212ºF (100ºC)
	TFE	500ºF (260ºC)
Alarm transmitter	Non-Ex-design	176ºF (80ºC) T4
	Ex-Design	113ºF (45ºC) T6
Angular converter	Ex-Design	122ºF (50ºC) T4
		104ºF (40ºC) T6

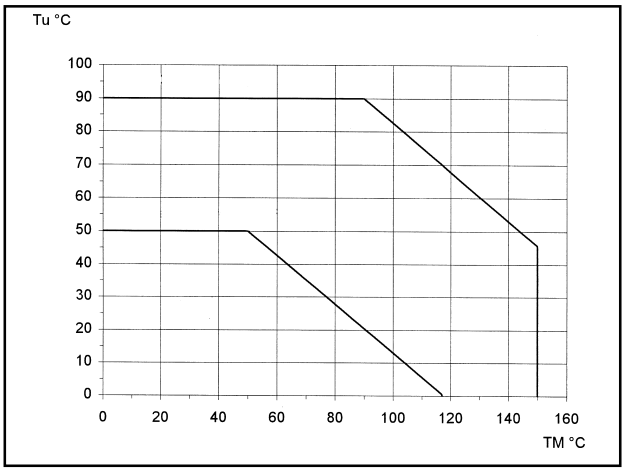


Fig.1: 10A3220/25 Non-Ex-Design (with/without Alarm Transmitter and Angular Converter

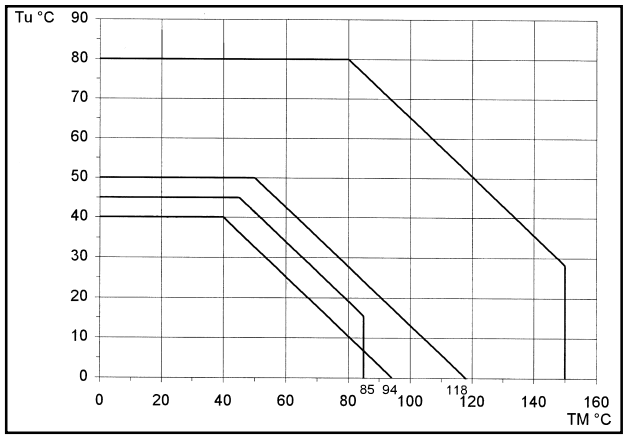


Fig.2: 10A3220/25 with Alarm Transmitter SJ 2, (EEx ia/ib IIC T4/T6, PTB No.: EX-83/2022) and Angular Converter OPF/Ex4, (EEx ib IIC T4/T6, 90C.980 14X)

T_A = Ambient temperature
T_F = Fluid temperature

Specifications, Accessories

Alarm Transmitter, Model D10A3220/25

Alarm contacts can be installed in the housing, which respond at min. and/or max. flowrate. They can be used to switch the power to pumps, magnet valves, etc. on or off.

The alarm transmitter consists of a slot initiator and a switch amplifier. The switch amplifier is installed outside of the indicator housing. A control vane (4) initiates the switching procedure when it rotates into the slot initiator. The slot initiator can be positioned using a screw driver.

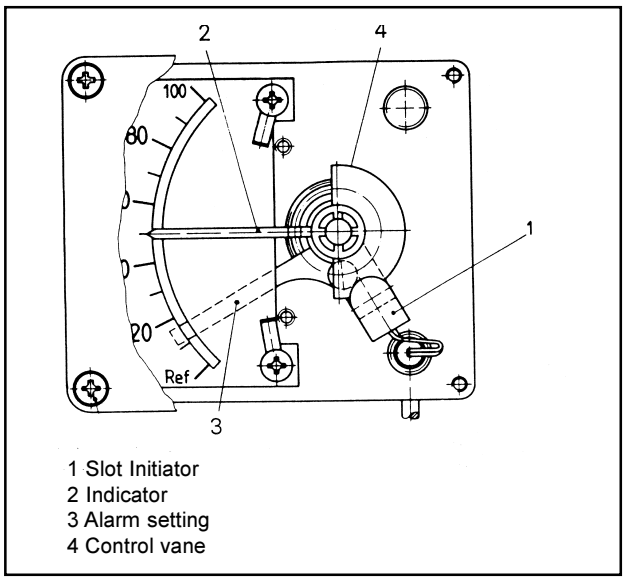


Fig. 3: Armored Purgemeter 10A3220 Indicator with Single Alarm

Alarm Transmitter

Slot Initiator Type SJ2-N (Pepperl & Fuchs)

Ambient Temperature

-20ºC to +45ºC

Certificate of Compliance

PTB 99 ATEX2219X; EEx ia IIc T6

Alarm Point Settings

Single alarm: min. 0 to 60%, max. 40 to 100%
Double alarm: min. range setting approx.5%

Setting Accuracy

±2% of max.

Switch Amplifier (remote)

Output

1 or 2 switch relays with potential free contacts

Power

max. 250 V, max. 2A

A Transmitter Power Supply is requiredfor the Alarm Signal Output - Examples

Amplifier	Supply Power	Channel
KFA5-SR2-Ex1.W P/N 163A012U01	115 V, AC	1 SPDT
KFA6-SR2-Ex1.W P/N 163A012U05	220 V, AC	1 SPDT
KFA5-SR2-Ex1. W. LB P/N 163A012U03	115 V, AC	1 DPDT
KFA6-SR2-Ex1. W. LB P/N 163A012U04	220 V, AC	1 DPDT
KFA5-SR2-Ex2.W P/N 163A012U02	115 V, AC	2 SPDT
KFA6-SR2-Ex2.W P/N 163A012U06	220 V, AC	2 SPDT
KFD2-SR2-Ex1.W P/N D163A011U03	24 V, DC	1 SPDT
KFD2-SR2-Ex2.W P/N D163A011U06	24 V, DC	2 SPDT
KFD2-SR2-Ex1.W.LB P/N 163A012U07	24 V, DC	1 DPDT

These switch amplifiers are models manufactured by Pepperl & Fuchs. Others could be used equally as well.

Electronic Converter Type: OPF Ex 4-2R/L.P. (Mfg'r. Tempress A/S)

Model 10A3250/55-Ex

The model 10A3250/55 flowmeters incorporate an angular converter. The converter is mounted on the pointer axis and converts the pointer position into a proportional 4-20 mA current value.

Output Signal 4-20 mA-/2-Wire

Umax = 30 V
Imax = 30 mA
Ci ≤ 50 nF; Li ≤ 360 µH

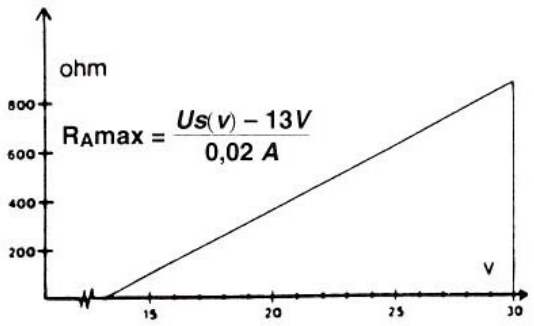
Ambient Temperature

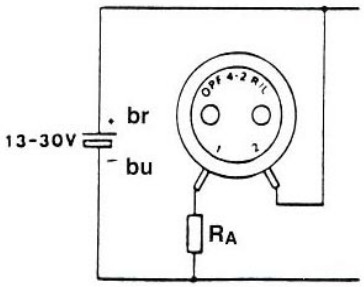
-20ºC to +40ºC

Certificate of Compliance No.

DEMCO- No. 90C.98014X, EEX ib IIC T6

Indicator with Analog Output Signal 4-20 mA / 2 wire





Differential Pressure Regulator, Model 53RT2110, Model 10A3220

The differential pressure regulator when used in conjunction with the purgemeter maintains the flowrate set using the needle valve at a constant value.

Max. allow. Differential Pressure
100 psi (7 bar)

Connections
1/4” NPT

Materials

Housing
Stn. stl. 1.4571 [316Ti]

Diaphragm
Viton A (max. 150ºC)*

O-Rings
Viton A*

Springs
Stn. Stl. 1.4401 [316]

Valve Seat and Shaft
Stn. stl. 1.4401 [316]

Connecting Piping
Stn. stl. 1.4401 [316]

Pipe Coupling
Stn. stl. 1.4401 [316]

**For Ammonia Buna N is required, max. 120ºC*

CAPACITY TABLE 1
Float & Metering Tube

Maximum Flow (1/4" NPT Vertical or Horizontal Connections)

Water		Air		Vstd [1]	Pdiff [2]	Pstat [3]	Pmin [4]	DP [5] Inches	Capacity Code
Sp. Gr. 1.0		1013 Mbar 0ºC	14.7 Psia 70ºF						
l/h	GPH	N l/h	SCFH	cps	psi	psig	psig	W.C.	.
1	0.26	35	1.7	4	10.2	14.5	-	3.2	01
1.6	0.42	54	2.4	4	10.2	14.5	-	3.2	02
2.5	0.66	100	3.6	6	10.2	14.5	-	3.2	03
4	1.05	160	5.8	6	10.2	14.5	-	3.2	04
6	1.6	230	8.2	18	10.2	14.5	-	3.2	05
10	26	350	12.5	18	10.2	14.5	-	3.2	06
16	4.2	540	19	18	10.2	14.5	-	3.2	07
25	6.6	850	30	18	10.2	14.5	-	3.6	08
40	10.5	1250	46	18	10.2	14.5	-	4.2	09
60	16	1900	70	18	10.2	14.5	-	5.0	10
100	26	3100	115	12	-	14.5	-	6.8	11

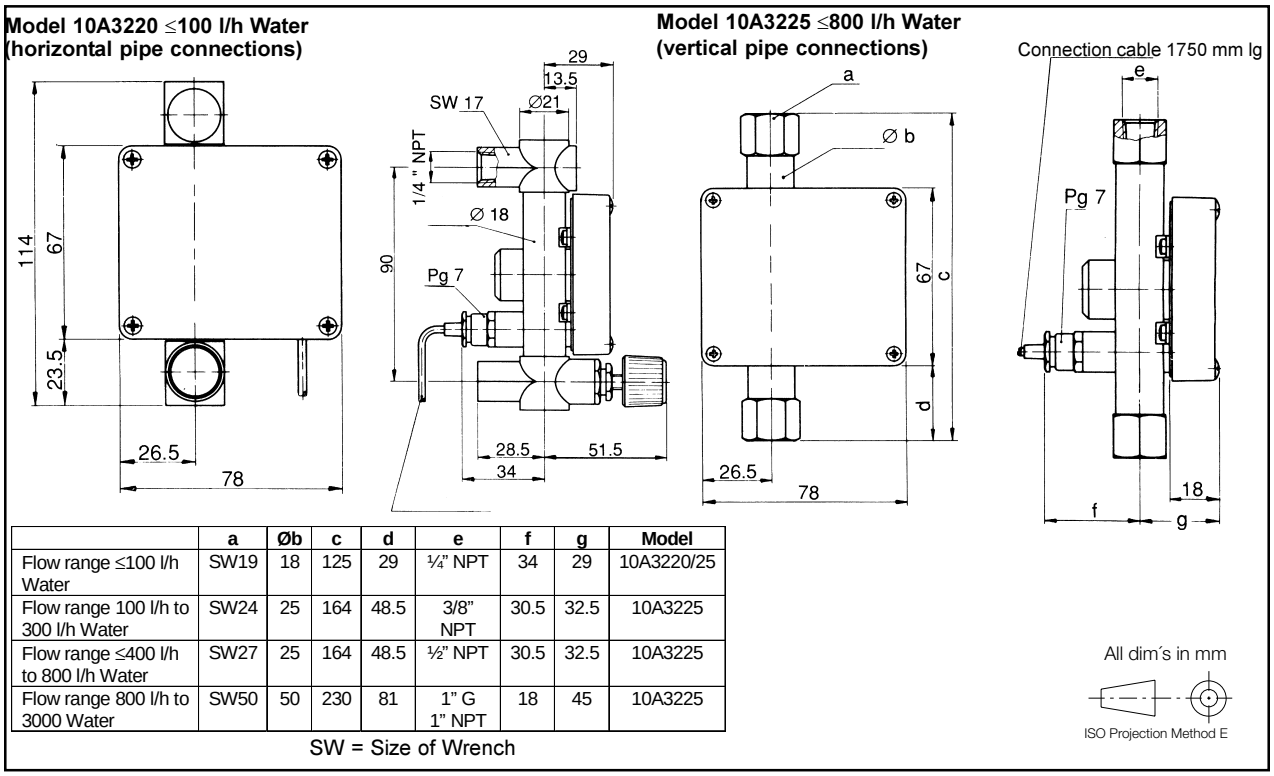
CAPACITY TABLE 2
Float & Orifice

Maximum Flow (Vertical Connections Only)

Connection Size	Water		Air		Vstd [1]	Pdiff [2]	Pstat [3]	Pmin [4]	DP [5] Inches	Capacity Code
	Sp. Gr. 1.0		1013 Mbar 0ºC	14.7 Psia 70ºF						
	l/h	GPH	N l/h	SCFH	cps	psi	psig	psig	W.C.	.
3/8"	100	26	3200	115	8	-	58	4.5	24	20
	160	42	5000	180	8	-	58	4.5	28	21
	200	52	6200	220	8	-	58	4.5	32	22
	250	66	7800	290	8	-	58	4.5	36	23
	300	78	9200	330	8	-	58	4.5	40	24
1/2"	400	105	12500	460	4	-	58	7.3	30	30
	500	135	15000	560	4	-	58	7.3	34	31
	600	160	18000	660	4	-	58	7.3	38	32
	700	190	21000	780	4	-	58	7.3	46	33
	800	210	24000	880	4	-	58	7.3	52	34
1"	l/h	GPM	N l/h	SCFM						
	800	3.5	24000	14.7	3	-	232	5.8	24	40
	1000	4.3	30000	18.3	3	-	232	5.8	25	41
	1600	7.0	48000	28.3	3	-	232	5.8	30	42
	2000	9.0	60000	36.7	3	-	232	5.8	34	43
	2500	11.0	74000	45.0	3	-	232	5.8	42	44
	3000	13.3	89000	55.0	3	-	232	5.8	52	45

[1] Vstd: Allowable viscosity without calibration.
[2] Pdiff: Min. required ΔP in psi if operating with differential pressure regulator. "-" not available.
[3] Pstat: Min. required pressure in psig to eliminate float bounce, without using twisted guide rod float.
[4] Pmin: Min. required pressure in psig with gas damping (twisted rod). "-" not available.
[5] ΔP: Total pressure loss at maximum flow.

Dimensions 10A3220/25



	a	Øb	c	d	e	f	g	Model
Flow range ≤100 l/h Water	SW19	18	125	29	¼" NPT	34	29	10A3220/25
Flow range 100 l/h to 300 l/h Water	SW24	25	164	48.5	3/8" NPT	30.5	32.5	10A3225
Flow range ≤400 l/h to 800 l/h Water	SW27	25	164	48.5	½" NPT	30.5	32.5	10A3225
Flow range 800 l/h to 3000 Water	SW50	50	230	81	1" G 1" NPT	18	45	10A3225

Fig. 4: Model 10A3220, 25 to 800 l/h Water

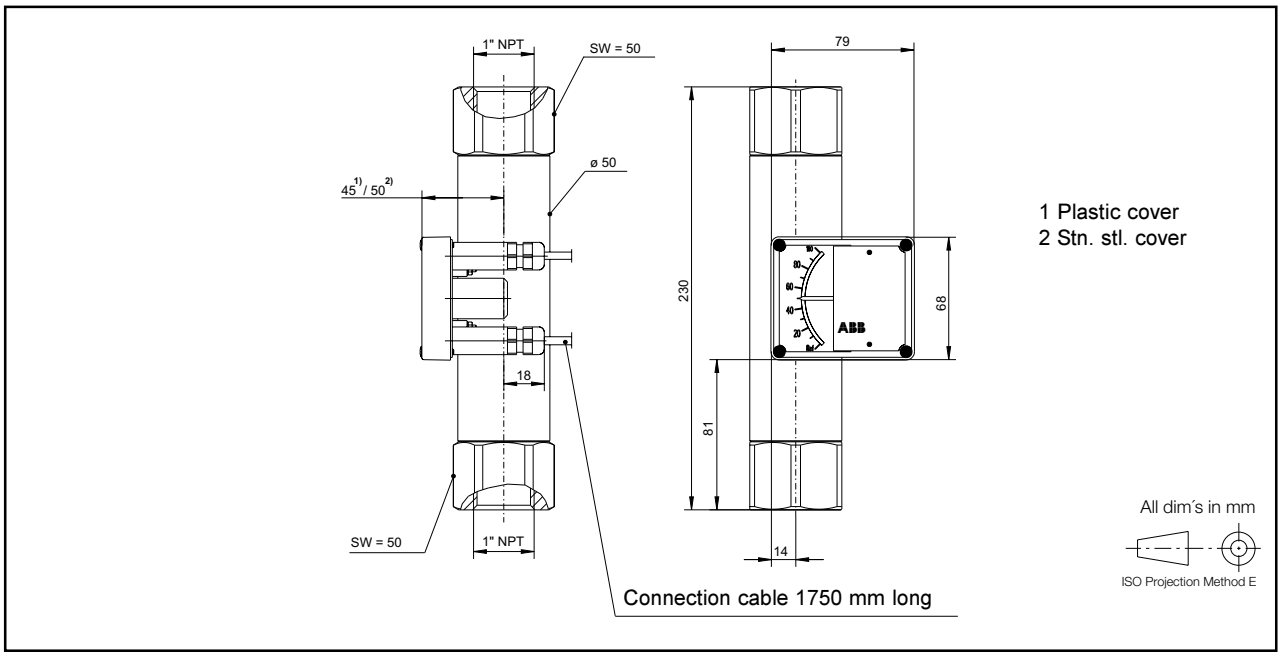
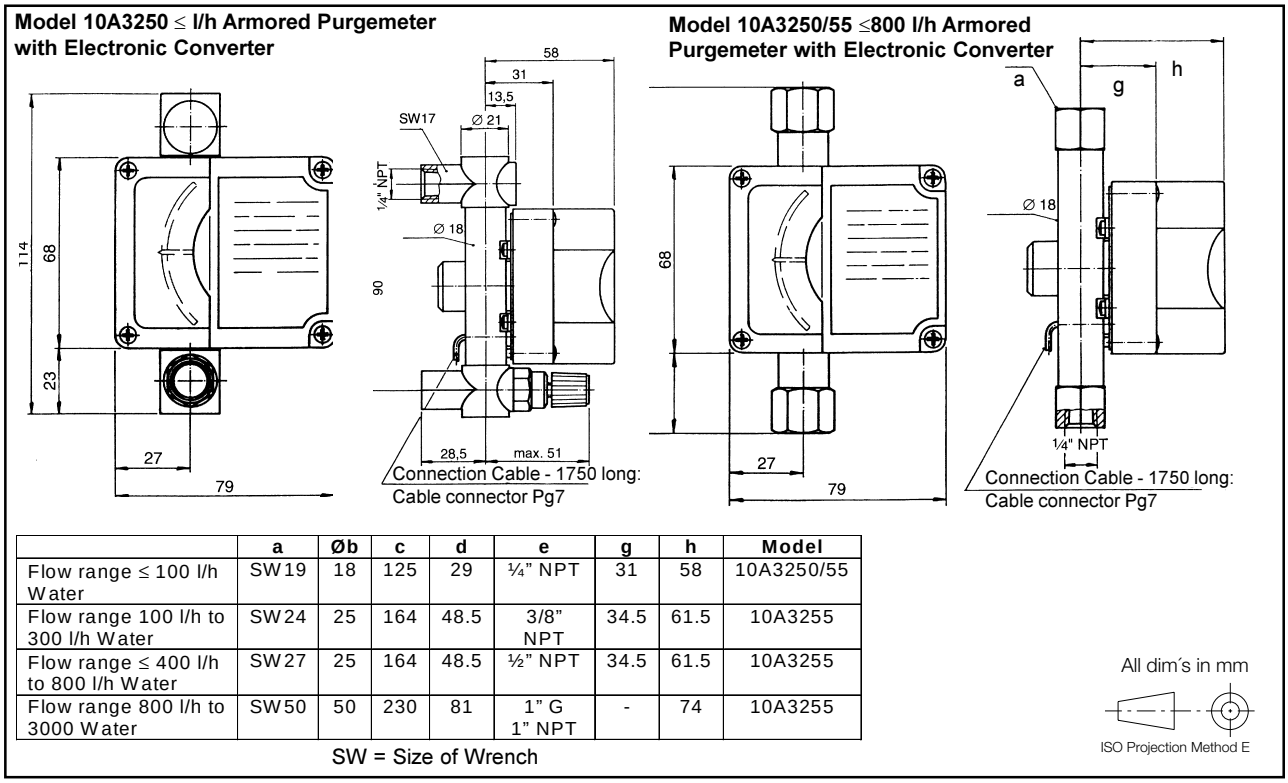


Fig. 5: Model 10A3225, 800 to 3000 l/h Water

Dimensions 10A3250/55



	a	Øb	c	d	e	g	h	Model
Flow range ≤ 100 l/h Water	SW19	18	125	29	¼" NPT	31	58	10A3250/55
Flow range 100 l/h to 300 l/h Water	SW24	25	164	48.5	3/8" NPT	34.5	61.5	10A3255
Flow range ≤ 400 l/h to 800 l/h Water	SW27	25	164	48.5	½" NPT	34.5	61.5	10A3255
Flow range 800 l/h to 3000 Water	SW50	50	230	81	1" G 1" NPT	-	74	10A3255

SW = Size of Wrench

Fig. 6: Model 10A3250, 25 to 800 l/h Water

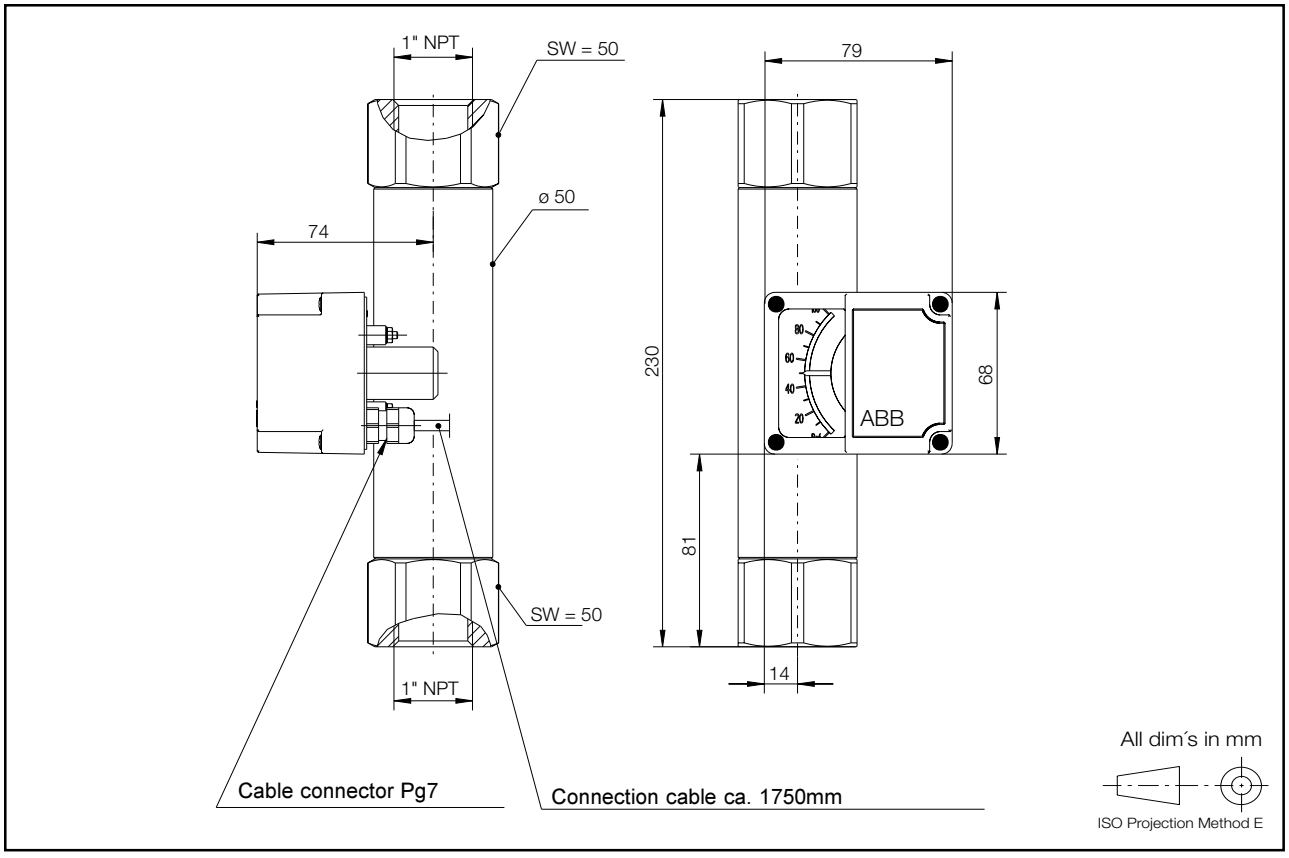


Fig.7: Model 10A3255, 800 to 3000 l/h Water

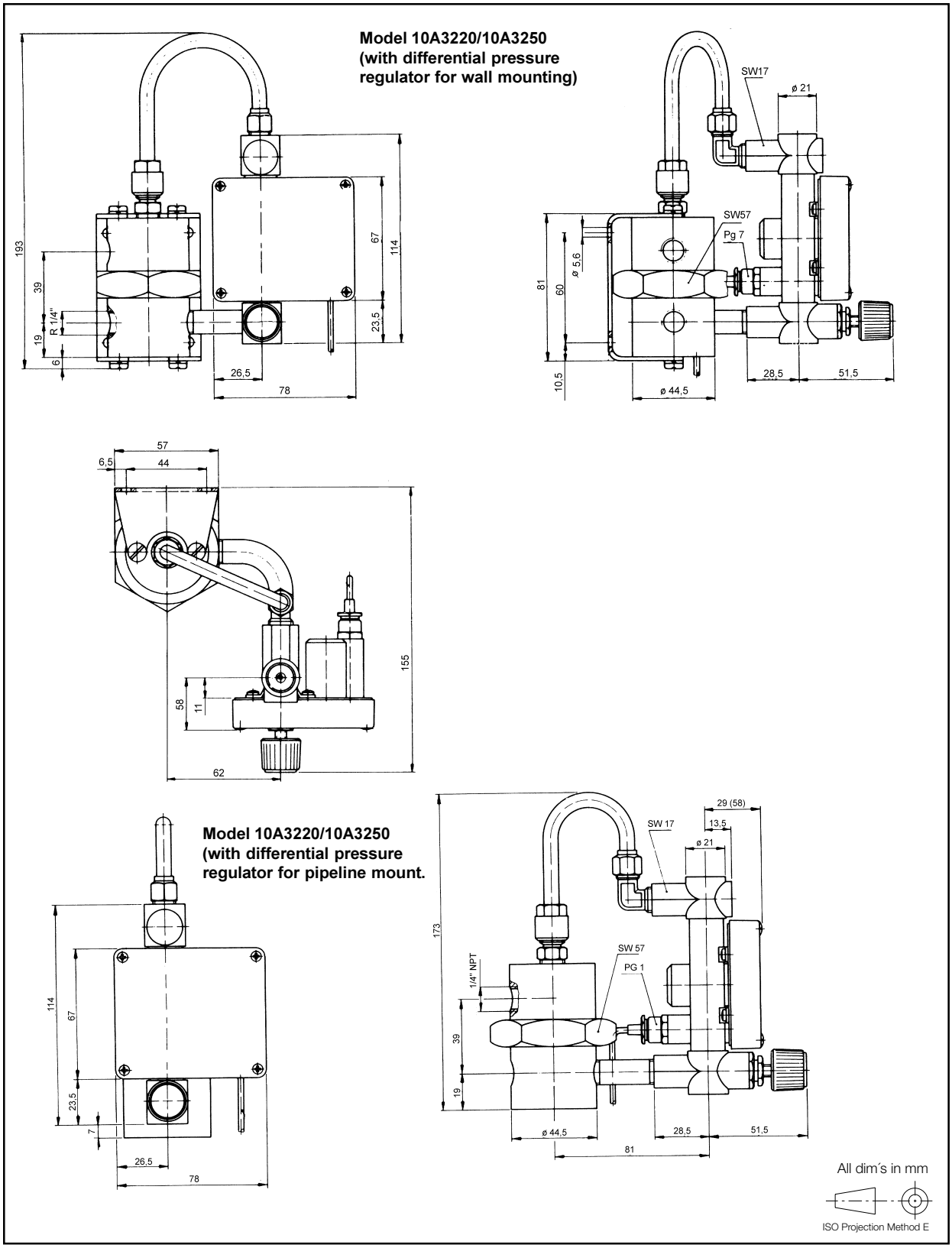
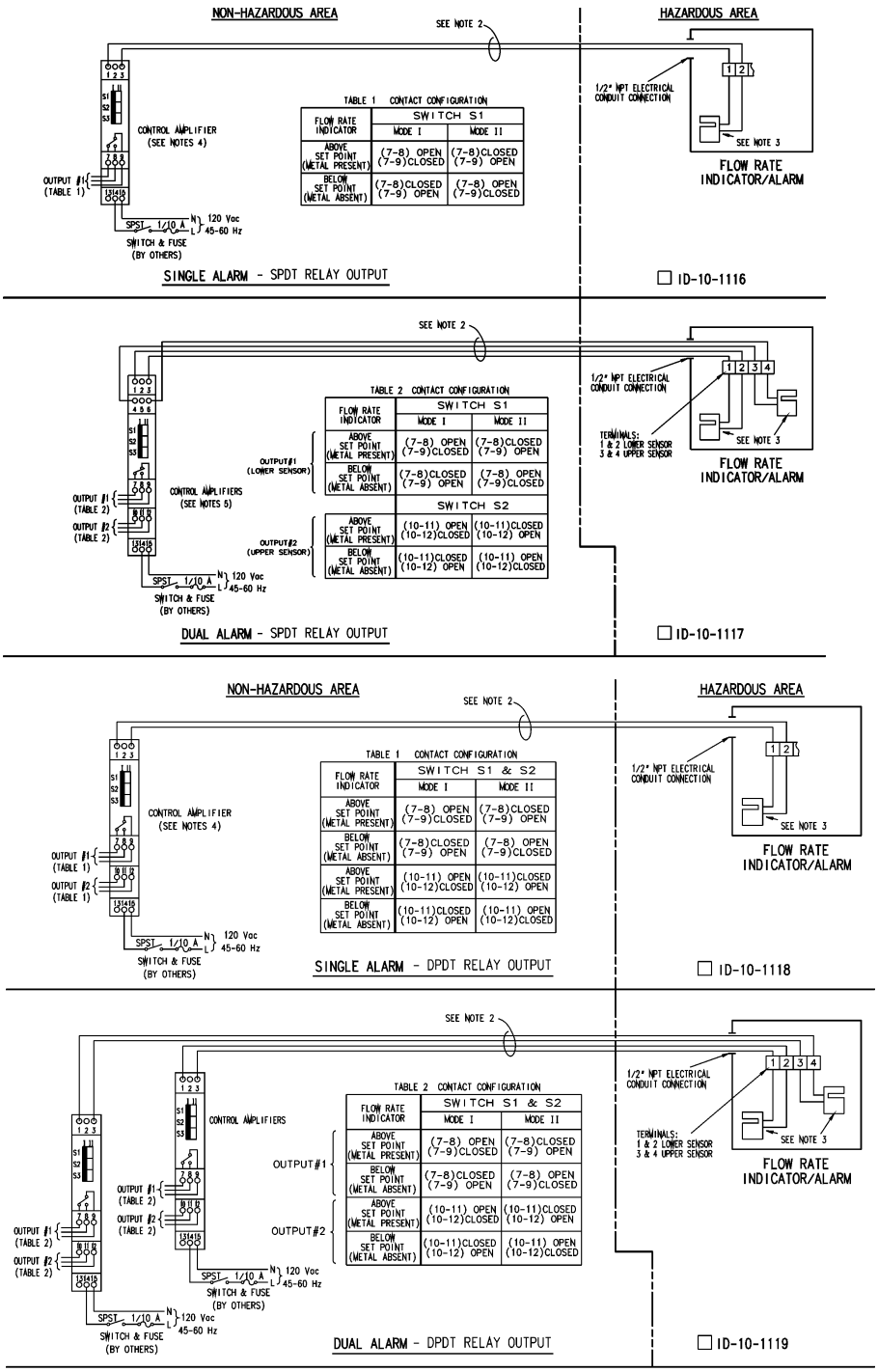

Model 10A3220/10A3250
(with differential pressure
regulator for wall mounting)
193
39
19
6
R 1/4"
67
114
23,5
26,5
78
SW17
ø 21
SW57
Pg 7
81
60
ø 5,6
10,5
ø 44,5
28,5
51,5
57
6,5
44
155
58
11
62
Model 10A3220/10A3250
(with differential pressure
regulator for pipeline mount.
114
67
23,5
7
26,5
78
29 (58)
13,5
SW 17
ø 21
173
SW 57
PG 1
1/4" NPT
39
19
ø 44,5
28,5
51,5
81
All dim´s in mm
ISO Projection Method E

Fig. 8:



Notes:

1. *For intrinsically safe installations, all wiring to be in accordance with ANSI/ISA RP12.6.*

2a. *• for intrinsically safe transmitter installations using one (1) sensor.*
• for non-hazardous or Div 2 transmitter installations using (2) sensors.
Field wiring between flowmeter and control amplifier(s) should be twisted pair, 25 awg or larger. Maximum cable length per Table 1. All field wiring by others.

b. *• for intrinsically safe transmitter installations using two (2) sensors.*
Field wiring between flowmeter and control amplifiers must be two (2) independent twisted pairs. 25 awg or larger. Maximum cable length per Table 1. All field wiring by others.

3. *Pepperl & Fuchs slot sensor SJ 3.5N.*
4. *Pepperl & Fuchs control amplifier (relay) KFA5-SR2-Ex1.W (SPDT); KFA5-SR2-Ex1.W. LB (DPDT)*
5. *Pepperl & Fuchs control amplifier (relay) KFA5-SR2-Ex2.W (SPDT)*
6. *Contacts are unpowered and are rated at 2 A, 250V; relay contacts are shown de-energized. Relay contacts are not to be paralleled to increase contact rating.*

Table 1 Cable Length

Transmitter Location	Maximum Length (Note 1)	
Non-Hazardous or Div 2	1 mi.	1.5 km
Class I, Div 1, Groups A & B	3000 ft.	900 m
Class I, Div 1, Groups C & D Class II, Div 1, Groups E, F & G	1 mi.	1.5 km

Cable Capacitance ≤60 pF/ft (197pF/m)
Inductance ≤0.2 µH/ft (0.656 µH/m)

MODEL NUMBER DESIGNATION

Armored Purgemeter 10A32 _ _ D _ _ _ _ _ _ _ _ _

Secondary
- Indicator w/wo Alarm 2
- Indicator w/ Transmitter 5

Construction
- Horizontal Screw Connection (Only for 1/4" dia. tube) ... 0
- Vertical Screw Connection 5

Design Level ..... D

Integral Needle Valve Position (for 1/4" tubes only)
- Without ..... A
- Inlet Fitting, for 10A3220 only ..... N
- Outlet Fitting, for 10A3220 only (recommended for liquids) ..... M

Material of Construction (Meter tube holders & o-rings)
- PVDF (KYNAR) & Viton o-rings, 1/4" 1
- PVDF (KYNAR) & Buna N o-rings, 1/4" 2
- PTFE (TEFLON) & KALREZ o-rings, 1/4" 3
- Without & Viton o-rings, 3/8, 1/2, 1" 4
- Without & Buna N, 3/8, 1/2, 1" 5
- Without & KALREZ, 3/8, 1/2, 1" 6

Certifications
- Without ..... A
- Certificate of Conformance ..... B
- Pressure Test C
- Material Certificate (EN 1204-3.1B) plus Pressure Test (AD-2000) ..... D
- Others ..... Z

Float Design
- Standard float design 0
- Twisted guide rod float for gas service (sizes > 1/4") 1

Indicator Housing Material
- Polycarbonate Cover, aluminum back (NA with transmitter) ..... A
- Stainless Steel & Glass Cover, Stainless steel back (NA with transmitter) ..... E
- Stainless Steel & Glass Cover, Stainless steel back (for transmitter option) ..... F

Output Signal
- Indicator w/o Output Signal 0
- Indicator w/ Minimum Alarm 1
- Indicator w/ Maximum Alarm 2
- Indicator w/ Minimum/Maximum Alarm 3
- Indicator w/Analog-Output 4-20 mA/2-Wire 4

Differential Pressure Regulator (with connection pipes)
- Not Required ..... A
- 316 Stainless Steel (For Model 10A3220 1/4" dia. tube only) ..... T

Regulator Mounting
- Pipe Mounting 1
- Wall Mounting (with Differential Pressure Regulator) 2

Connection Type
- 1/4" NPT (100 l/h or less) ..... A
- 3/8" NPT (100 to 300 l/h) (3/8" tube) ..... K
- 1/2" NPT (100 to 300 l/h) (3/8" tube) ..... M
- 1/2" NPT (400 to 800 l/h) (1/2" tube) ..... N
- 1" NPT (800 to 3000 l/h) (1" tube) ..... P
- 1" G (800 to 3000 l/h) (1" tube) ..... Q

Armored Purgemeter 10A32_ _ _ _ _ _ _ _ _ _ _ _

Instrument Name Tag 1

External Alarm Relay
- None 0
- SPDT Single Alarm - 115Vac 1
- SPDT Dual Alarm - 115Vac 2
- DPDT Single (or Dual-requires 2 relays) Alarm - 115Vac 3
- SPDT Single Alarm - 220 Vac 4
- SPDT Dual Alarm - 220 Vac 5
- DPDT Single (or Dual - requires 2 relays) Alarm - 220 Vac 6
- SPDT Single Alarm - 24 Vdc 7
- SPDT Dual Alarm - 24 Vdc 8
- DPDT Single (or Dual - requires 2 relays) Alarm - 24 Vdc 9

Flow Range
(l/h water flow (Select from Spec Sheet or Computer Sizing Disk))

1/4" Diameter Tube
- 1 l/h 01
- 1.6 l/h 02
- 2.5 l/h 03
- 4 l/h 04
- 6 l/h 05
- 10 l/h 06
- 16 l/h 07
- 25 l/h 08
- 40 l/h 09
- 60 l/h 10
- 100 l/h 11

3/8" Diameter Tube
- 100 l/h 20
- 160 l/h 21
- 200 l/h 22
- 250 l/h 23
- 300 l/h 24

1/2" Diameter Tube
- 400 l/h 30
- 500 l/h 31
- 600 l/h 32
- 700 l/h 33
- 800 l/h 34

1" Diameter Tube
- 800 l/h 40
- 1000 l/h 41
- 1600 l/h 42
- 2000 l/h 43
- 2500 l/h 44
- 3000 l/h 45

Scale Type
- From Computer Sizing Program ..... -

Scale Design
- Direct Reading ..... D
- Percent ..... P

Accuracy
- Standard ±6% of maximum flow ..... B
- Calibrated ±3% of maximum flow C
- Gas Service
- Liquid, viscosity under V.I.C.
- Liquids, viscosity over V.I.C. & less than 100 ctks
- Liquids, viscosity over V.I.C. & greater than 100 ctks

External Needle Valve (316 sst) & Nipple (unassembled)
- 1/4" NPT PN 614C068U01
- 3/8" NPT PN 614C068U02
- 1/2" NPT PN 614C068U03
- 1" NPT PN 614C068U05

Instruction Manual: PND10A3220

CF = Consult Factory

Note

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