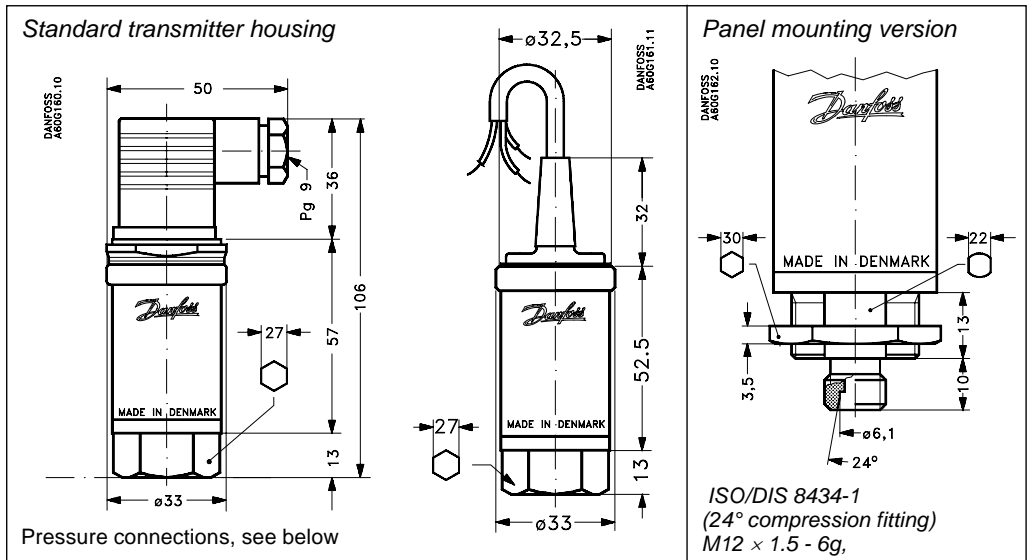


Pressure transmitters for industrial applications Types MBS 32 and MBS 33



- Designed for use in severe industrial environments
- CE-marked: EMC protected in accordance with EU EMC Directive
- Enclosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Temperature compensated, linearized and laser adjusted
- Output signals:
 - MBS 32: 0-5 V, 1-5 V, 1-6 V or 0-10 V d.c.
 - MBS 33: 4-20 mA
- Many different pressure connections
- Electrical connection through plug or cable

Dimensions



Pressure connections

DIN 16288-B6kt-G 1/4 A	1/4 in. Flare, 7/16-20 UNF	DIN 16288-B6kt-G 3/8 A	DIN 16288-B6kt-G 1/2 A	DIN 3852/3 M18 x 1.5 - 6g
DIN 3852-E-M22 x 1.5	DIN 3852-G 1/4 A	1/4-18 NPT	3/16-18 UNF-2A (SAE J514)	

Technical data

Performance (IEC 770)

Accuracy	$\leq \pm 0.8\% \text{ FS} / \leq \pm 0.3\% \text{ FS (typ.)}$
Non-linearity (Best fit straight line)	$\leq \pm 0.2\% \text{ FS}$
Hysteresis and repeatability	$\leq \pm 0.1\% \text{ FS}$
Thermal zero point shift	$\leq \pm 0.1\% \text{ FS}/10\text{K (typ.)}$ $\leq \pm 0.2\% \text{ FS}/10\text{K (max.)}$
Thermal sensitivity (span) shift	$\leq \pm 0.1\% \text{ FS}/10\text{K (typ.)}$ $\leq \pm 0.2\% \text{ FS}/10\text{K (max.)}$
Response time (10 to 90%)	< 4 ms
Max. operating pressure	See tables on page 4 and 5
Burst pressure	

Electrical specifications for 4 - 20 mA output signal, MBS 33

Rated output signal	4 to 20 mA
Supply voltage, U_B (polarity protected)	10 to 30 V d.c.
Supply voltage dependency	$\leq \pm 0.05\% \text{ FS}/10 \text{ V}$
Current limitation (linear output signal up to $1.5 \times$ rated range)	28 mA
Load R_L	$R_L \leq \frac{U_B - 10 \text{ V}}{0.02 \text{ A}} \quad [\Omega]$

Electrical specifications for 0 - 10 V d.c. output signal, MBS 32

Rated output signal (short-circuit protected)	0 to 10 V d.c.
Supply voltage, U_B (polarity protected)	15 to 30 V d.c.
Supply current consumption	< 8 mA
Supply voltage dependency	$\leq \pm 0.05\% \text{ FS}/10 \text{ V}$
Output impedance	$\leq 25 \Omega$
Load, R_L	$R_L \geq 15 \text{ k}\Omega$

Electrical specifications for 0-5 V, 1-5 V or 1-6 V d.c. output signal, MBS 32

Rated output signal (short-circuit protected)	0 to 5 V, 1 to 5 V or 1 to 6 V d.c.
Supply voltage, U_B (polarity protected)	9 to 30 V d.c.
Supply current consumption	$\leq 5 \text{ mA}$
Supply voltage dependency	$\leq \pm 0.05\% \text{ FS}/10 \text{ V}$
Output impedance	$\leq 25 \Omega$
Load, R_L	$R_L \geq 10 \text{ k}\Omega$

Environmental conditions

Operating temperature range	-40 to 85°C		
Compensated temperature range	0 to 80°C		
Transport temperature range	-50 to 85°C		
EMC - Emission	EN 50081-1		
EMC - Immunity	Electrostatic discharge	Air 8 kV	EN 50082-2 (IEC 801-2)
		Contact 4 kV	EN 50082-2 (IEC 801-2)
	RF field	10 V/m, 26 MHz - 1 GHz	EN 50082-2 (IEC 801-3)
	conducted	$3 V_{\text{rms}}$, 150 kHz - 30 MHz	EN 50082-2 (IEC 801-6)
	Transient	burst 4 kV (CM)	EN 50082-2 (IEC 801-4)
	surge 1 kV (CM,DM)	EN 50082-2 (IEC 801-5)	
Insulation resistance		> 100 M Ω at 500 V d.c.	
Mains frequency test	500 V, 50 Hz	SEN 361503	
Vibration stability	Sinusoidal	20 g, 25 Hz - 2 kHz	IEC 68-2-6
	Random	7,5 g _{rms} , 5 Hz - 1 kHz	IEC 68-2-34, IEC 68-2-36
Shock resistance	Shock	500 g / 1 ms	IEC 68-2-27
	Free fall		IEC 68-2-32
Enclosure	Plug version		IP 65 - IEC 529
	Cable version		IP 67 - IEC 529

Mechanical characteristics

Material	Wetted parts	DIN 17440-1.4404 (AISI 316 L)
	Housing	DIN 17440-1.4404 (AISI 316 L)
Weight		0.3 kg

Pressure connections

Dimensions					See panel mounting version on page 1
Pressure connection	DIN 16288-B6kt-G 1/4 A	DIN 3852-G 1/4 A	DIN 16288-B6kt-G 3/8 A	DIN 16288-B6kt-G 1/2 A	ISO/DIS 8434-1 (24° compres. fitting) M12 x 1.5 - 6g
PN	630 bar	630 bar	630 bar	630 bar	250 bar
Gasket		O ring, 13.3 x 1.8, NBR			
Type no.	MBS 3X-XXXX-XAB04	MBS 3X-XXXX-XBB04	MBS 3X-XXXX-XAB06	MBS 3X-XXXX-XAB08	MBS 3X-XXXX-XAE07



Dimensions					
Pressure connection	1/4 in. Flare, 7/16 -20 UNF	9/16-18 UNF-2A (SAE J514)	1/4-18 NPT	DIN 3852/3 M18 x 1.5 - 6g	DIN 3852-E-M22 x 1.5
PN	630 bar	630 bar	630 bar	630 bar	400 bar
Gasket		O ring, 12 x 2, NBR		O ring, 15.4 x 2.1, NBR	DIN 3869-22-NBR
Type no.	MBS 3X-XXXX-XAD08	MBS 3X-XXXX-XBD10	MBS 3X-XXXX-XAC04	MBS 3X-XXXX-XBA12	MBS 3X-XXXX-XBA16

Electrical connection



DIN 43650 plug version 	MBS 33 (4 to 20 mA output) 	MBS 32 (0-5 V, 1-5 V, 1-6 V or 0-10 V d.c. output)
	Connected to transmitter housing	Connected to transmitter housing

Cable version 	MBS 33 (4 to 20 mA output) 	MBS 32 (0-5 V, 1-5 V, 1-6 V or 0-10 V d.c. output)
	① Brown ② Black ③ Red ④ Orange Not connected to transmitter housing	① Red ② Black ③ Brown ④ Orange Not connected to transmitter housing

Ordering standard
version MBS 33MBS 33 for **absolute pressure** measuring, 4-20 mA output signal, G 1/2 A pressure connection

Pressure connection	Pressure ranges P_{abs}	Max. operation pressure	Min. burst pressure	DIN 43650 plug versions		Cable versions (2 m. PE)	
							
				Type no.	Code no.	Type no.	Code no.
DIN 16288-B 6kt-G 1/2 A	0-1 bar	2 bar	300 bar	MBS 33-1021-1AB08	060G3036	MBS 33-1021-3AB08	060G3086
	0-1.6 bar	8 bar	300 bar	MBS 33-1221-1AB08	060G3037	MBS 33-1221-3AB08	060G3087
	0-2.5 bar	8 bar	300 bar	MBS 33-1421-1AB08	060G3038	MBS 33-1421-3AB08	060G3088
	0-4 bar	8 bar	300 bar	MBS 33-1621-1AB08	060G3039	MBS 33-1621-3AB08	060G3089
	0-6 bar	20 bar	300 bar	MBS 33-1821-1AB08	060G3040	MBS 33-1821-3AB08	060G3090
	0-10 bar	20 bar	300 bar	MBS 33-2021-1AB08	060G3041	MBS 33-2021-3AB08	060G3091
	0-16 bar	50 bar	300 bar	MBS 33-2221-1AB08	060G3042	MBS 33-2221-3AB08	060G3092
0-25 bar	50 bar	300 bar	MBS 33-2421-1AB08	060G3043	MBS 33-2421-3AB08	060G3093	

MBS 33 for **gauge (relative) pressure** measuring, 4-20 mA output signal, G 1/2 A pressure connection

Pressure connection	Pressure ranges P_e	Max. operation pressure	Min. burst pressure	DIN 43650 plug versions		Cable versions (2 m. PE)	
							
				Type no.	Code no.	Type no.	Code no.
DIN 16288-B 6kt-G 1/2 A	0-1 bar	2 bar	50 bar	MBS 33-1011-1AB08	060G3006	MBS 33-1011-3AB08	060G3056
	0-1.6 bar	8 bar	50 bar	MBS 33-1211-1AB08	060G3007	MBS 33-1211-3AB08	060G3057
	0-2.5 bar	8 bar	50 bar	MBS 33-1411-1AB08	060G3008	MBS 33-1411-3AB08	060G3058
	0-4 bar	8 bar	50 bar	MBS 33-1611-1AB08	060G3009	MBS 33-1611-3AB08	060G3059
	0-6 bar	20 bar	50 bar	MBS 33-1811-1AB08	060G3010	MBS 33-1811-3AB08	060G3060
	0-10 bar	20 bar	50 bar	MBS 33-2011-1AB08	060G3011	MBS 33-2011-3AB08	060G3061
	0-16 bar	50 bar	100 bar	MBS 33-2211-1AB08	060G3012	MBS 33-2211-3AB08	060G3062
	0-25 bar	50 bar	100 bar	MBS 33-2411-1AB08	060G3013	MBS 33-2411-3AB08	060G3063
	0-40 bar	100 bar	300 bar	MBS 33-2611-1AB08	060G3014	MBS 33-2611-3AB08	060G3064
	0-60 bar	200 bar	800 bar	MBS 33-2811-1AB08	060G3015	MBS 33-2811-3AB08	060G3065
	0-100 bar	200 bar	800 bar	MBS 33-3011-1AB08	060G3016	MBS 33-3011-3AB08	060G3066
	0-160 bar	400 bar	800 bar	MBS 33-3211-1AB08	060G3017	MBS 33-3211-3AB08	060G3067
	0-250 bar	600 bar	2000 bar	MBS 33-3411-1AB08	060G3018	MBS 33-3411-3AB08	060G3068
	0-400 bar	600 bar	2000 bar	MBS 33-3611-1AB08	060G3019	MBS 33-3611-3AB08	060G3069
0-600 bar	900 bar	2000 bar	MBS 33-3811-1AB08	060G3020	MBS 33-3811-3AB08	060G3070	

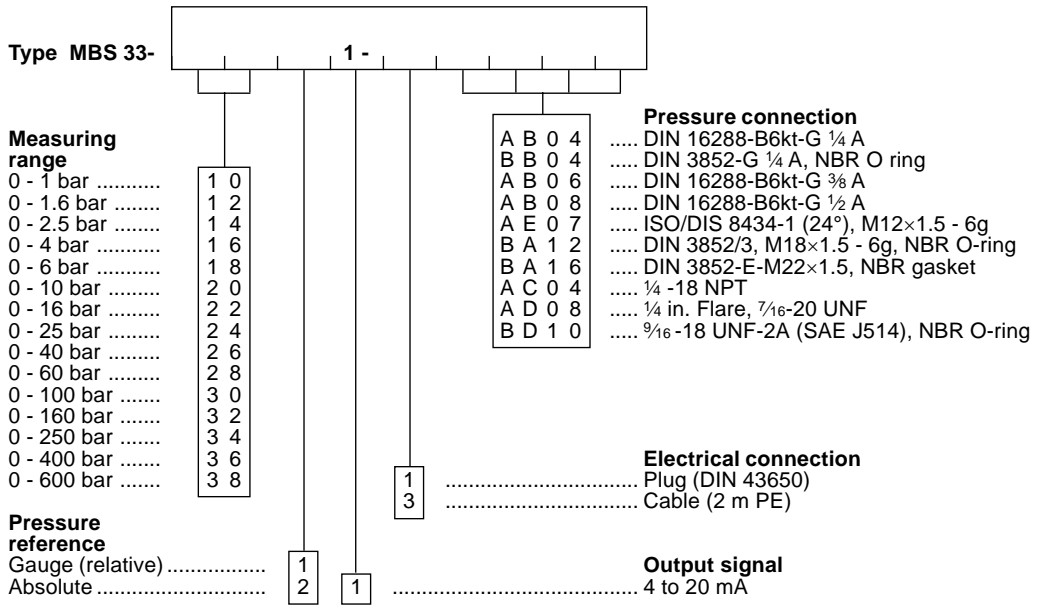
**Ordering standard
version MBS 32**
*MBS 32 for **absolute pressure** measuring, 1-6 V or 0-10 V output signal, G ½ A pressure connection, DIN 43650 plug*

Pressure connection	Pressure ranges P_{abs}	Max. operation pressure	Min. burst pressure	1-6 V d.c. output signal		0-10 V d.c. output signal	
				Type no.	Code no.	Type no.	Code no.
DIN 16288-B 6kt-G ½ A	0-1 bar	2 bar	300 bar	MBS 32-1024-1AB08	060G1272	MBS 32-1025-1AB08	060G1264
	0-1.6 bar	8 bar	300 bar	MBS 32-1224-1AB08	060G1273	MBS 32-1225-1AB08	060G3050
	0-2.5 bar	8 bar	300 bar	MBS 32-1424-1AB08	060G1274	MBS 32-1425-1AB08	060G1266
	0-4 bar	8 bar	300 bar	MBS 32-1624-1AB08	060G1275	MBS 32-1625-1AB08	060G1267
	0-6 bar	20 bar	300 bar	MBS 32-1824-1AB08	060G1276	MBS 32-1825-1AB08	060G1268
	0-10 bar	20 bar	300 bar	MBS 32-2024-1AB08	060G1277	MBS 32-2025-1AB08	060G1269
	0-16 bar	50 bar	300 bar	MBS 32-2224-1AB08	060G1278	MBS 32-2225-1AB08	060G1270
	0-25 bar	50 bar	300 bar	MBS 32-2424-1AB08	060G1279	MBS 32-2425-1AB08	060G1271

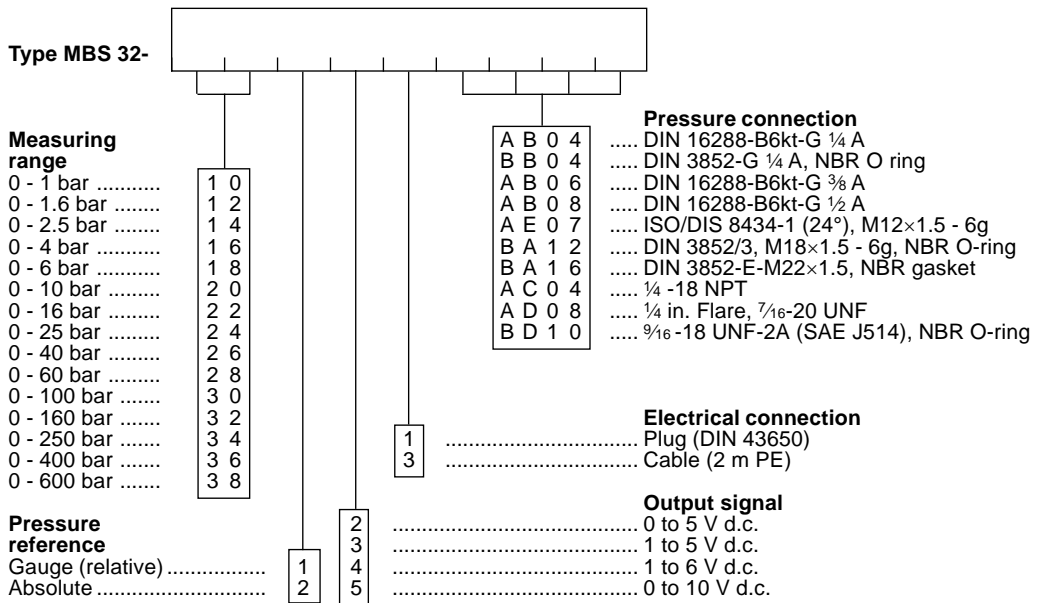
*MBS 32 for **gauge (relative) pressure** measuring, 1-6 V or 0-10 V output signal, G ½ A pressure connection, DIN 43650 plug*

Pressure connection	Pressure ranges P_e	Max. operation pressure	Min. burst pressure	1-6 V d.c. output signal		0-10 V d.c. output signal	
				Type no.	Code no.	Type no.	Code no.
DIN 16288-B 6kt-G ½ A	0-1 bar	2 bar	50 bar	MBS 32-1014-1AB08	060G1280	MBS 32-1015-1AB08	060G1222
	0-1.6 bar	8 bar	50 bar	MBS 32-1214-1AB08	060G1281	MBS 32-1215-1AB08	060G1223
	0-2.5 bar	8 bar	50 bar	MBS 32-1414-1AB08	060G1282	MBS 32-1415-1AB08	060G1224
	0-4 bar	8 bar	50 bar	MBS 32-1614-1AB08	060G3285	MBS 32-1615-1AB08	060G1225
	0-6 bar	20 bar	50 bar	MBS 32-1814-1AB08	060G1284	MBS 32-1815-1AB08	060G1226
	0-10 bar	20 bar	50 bar	MBS 32-2014-1AB08	060G3079	MBS 32-2015-1AB08	060G2085
	0-16 bar	50 bar	100 bar	MBS 32-2214-1AB08	060G1286	MBS 32-2215-1AB08	060G1228
	0-25 bar	50 bar	100 bar	MBS 32-2414-1AB08	060G1287	MBS 32-2415-1AB08	060G1229
	0-40 bar	100 bar	300 bar	MBS 32-2614-1AB08	060G1288	MBS 32-2615-1AB08	060G1239
	0-60 bar	200 bar	800 bar	MBS 32-2814-1AB08	060G1289	MBS 32-2815-1AB08	060G1249
	0-100 bar	200 bar	800 bar	MBS 32-3014-1AB08	060G1290	MBS 32-3015-1AB08	060G1259
	0-160 bar	400 bar	800 bar	MBS 32-3214-1AB08	060G1291	MBS 32-3215-1AB08	060G1260
	0-250 bar	600 bar	2000 bar	MBS 32-3414-1AB08	060G3080	MBS 32-3415-1AB08	060G1261
0-400 bar	600 bar	2000 bar	MBS 32-3614-1AB08	060G1293	MBS 32-3615-1AB08	060G1262	
0-600 bar	900 bar	2000 bar	MBS 32-3814-1AB08	060G1294	MBS 32-3815-1AB08	060G1263	

Ordering, special versions with 4 - 20 mA output, MBS 33



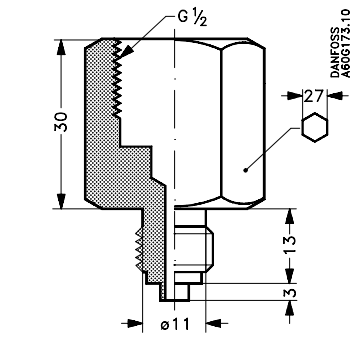
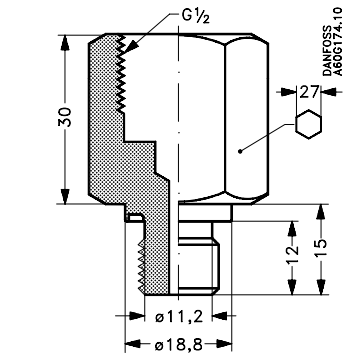
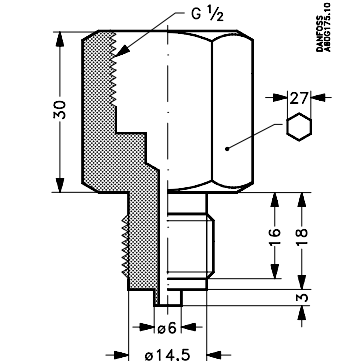
Ordering, special versions with 0-5, 1-5, 1-6 or 0-10 V d.c. output MBS 32

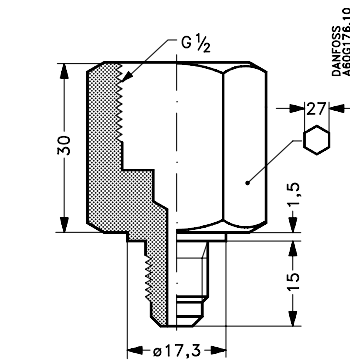
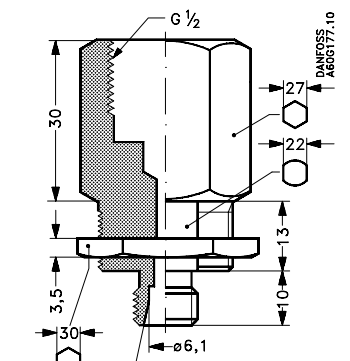
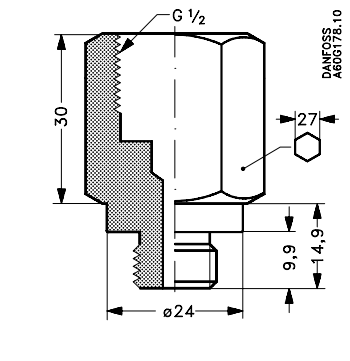


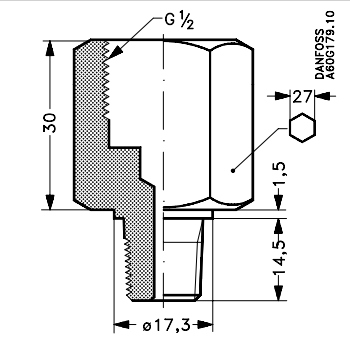
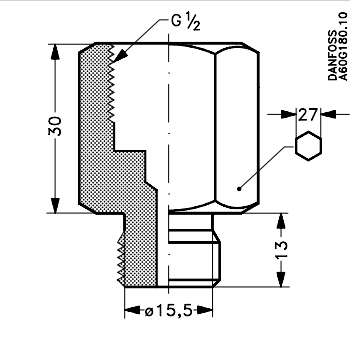
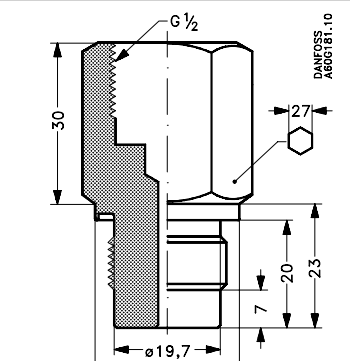
Accessories

Description	Code no.
Pg 9 adaptor for armoured hose external Ø12.6 → 15.6 mm	060G0211
Wall bracket	060G0213
Condensation loop: 1 m stainless capillary tube with 2 x G ½ unions	060-0169
Adapter with integrated pulse snubber G ½ A	060G0252
Adapter with integrated pulse snubber G ⅜ A	060G0251
Adapter with integrated pulse snubber NPT ¼	060G0250
Plug DIN 43650 IP67 with 5 m cable	060G1034

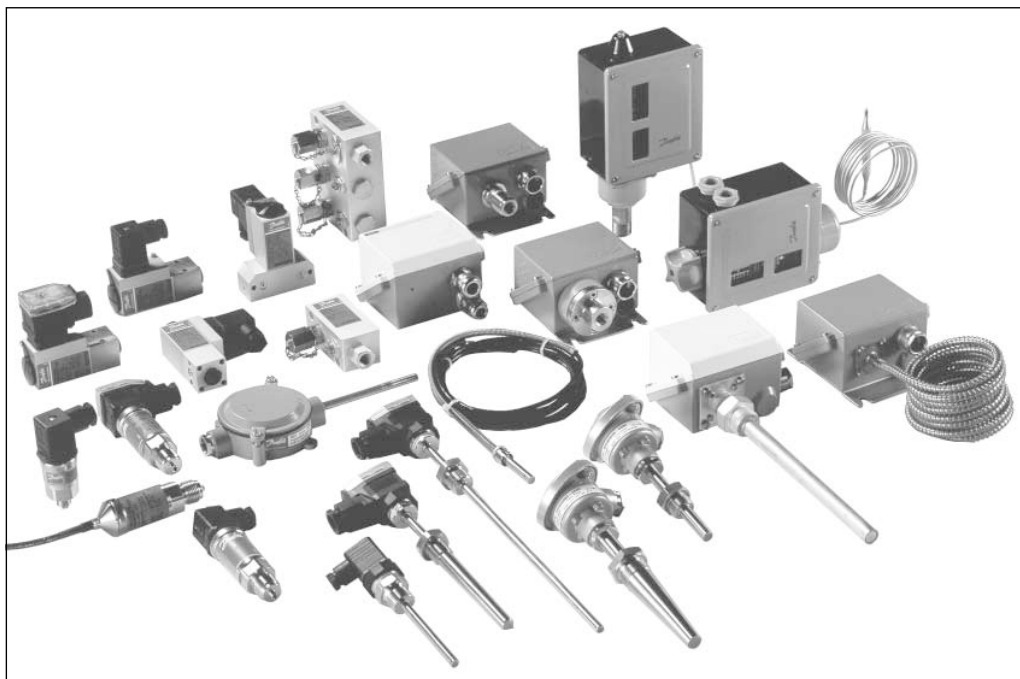
Standard female-male adapters

Female connection	ISO 228/1-G 1/2	ISO 228/1-G 1/2	ISO 228/1-G 1/2
Adapter dimensions			
Male connection	DIN 16288-B6kt-G 1/4 A	DIN 3852-G 1/4 A	DIN 16288-B6kt-G 3/8 A
PN	630 bar	630 bar	630 bar
Gasket		O-ring, 13.3 x 1.8, NBR	
Code no.	060G1021	060G1022	060G1023

Female connection	ISO 228/1-G 1/2	ISO 228/1-G 1/2	ISO 228/1-G 1/2
Adapter dimensions			
Male connection	1/4 in. Flare, 7/16-20 UNF	ISO/DIS 8434-1 (24° compression fitting) M12 x 1.5 - 6g	1/16-18 UNF-2A, (SAE J514)
PN	630 bar	250 bar	630 bar
Gasket			O-ring, 12 x 2, NBR
Code no.	060G1024	060G1025	060G1026

Female connection	ISO 228/1-G 1/2	ISO 228/1-G 1/2	ISO 228/1-G 1/2
Adapter dimensions			
Male connection	1/4-18 NPT	DIN 3852/3 M18 x 1.5 - 6g	DIN 3852-E-M22 x 1.5
PN	630 bar	630 bar	400 bar
Gasket		O-ring, 15.4 x 2.1, NBR	DIN 3869-22-NBR
Code no.	060G1027	060G1028	060G1029

Adapter material: Stainless steel W.nr 1.4404/AISI 316L



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