motralec Danfoss Pressure transmitter Type MBS 4510 For industrial applica· DEMANDE DE PRIX >
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Data Sheet

Pressure transmitter Type **MBS 4510**

For industrial applications



The high accuracy flush diaphragm pressure transmitter MBS 4510 is designed for use in non-uniform, high viscous or crystallizing media within industrial applications, and offers a reliable pressure measurement, even under harsh environmental conditions.

The flexible pressure transmitter programme covers a 4 – 20 mA output signal, absolute or gauge (relative) versions, measuring ranges from 0 – 0.25 to 0 – 25 bar zero and span adjustment. A rotatable plug connection and a G1A conic pressure connection with flush mounted diaphragm.

Excellent vibration stability, robust construction, and a high degree of EMC/EMI protection equip the pressure transmitter to meet the most stringent industrial requirements.

Features

- Designed for use in severe industrial environments
- Enslosure and wetted parts of acid-resistant stainless steel (AISI 316L)
- Pressure ranges in relative (gauge) or absolute up to 25 bar
- Output signal: 4 – 20 mA
- Temperature compensated and laser calibrated
- Accuracy 0.5% FS
- Zero and span adjustment
- USDA-H1 approved oil filling
- For use in Zone 2 explosive atmosphere

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Product specification

Technical data

Table 1: Performance (EN 60770)

Accuracy (incl. non-linearity, hysteresis and repeatability)			≤ ± 0.2% FS (typ.)
			≤ ± 0.5% FS (max.)
Non-linearity BFSL (conformity)			≤ ± 0.2% FS
Hysteresis and repeatability			≤ ± 0.1% FS
Thermal zero point shift	Measuring range:	0 – 250 mbar	≤ ± 0.4% FS / 10K
		0 – 400 mbar	≤ ± 0.3% FS / 10K
		≥ 0 – 600 mbar	≤ ± 0.2% FS / 10K
Thermal sensitivity (span) shift	Measuring range:	0 – 250 mbar	≤ ± 0.4% FS / 10K
		0 – 400 mbar	≤ ± 0.35% FS / 10K
		≥ 0 – 600 mbar	≤ ± 0.2% FS / 10K
Response time			< 4 ms
Durability, P: 10 – 90% FS			> 10 × 10^6 cycles
Zero point adjustment	Measuring range:	0 – 0.25 to 0 – 10 bar	-5 – 20% FS
		0 – 16 to 0 – 25 bar	-5 – 10% FS
Span adjustment	Measuring range:	0 – 0.25 to 0 – 25 bar	-5 – 5% FS

Table 2: Available measuring ranges

Pressure range [bar]	Max. Overload pressure [bar]	Burst pressure [bar]
-0.25 – 0.50	2	50
0.00 – 0.25	2	50
0.00 – 0.40	2	50
0.00 – 0.60	2	50
0.00 – 1.00	2	50
0.00 – 1.60	8	50
0.00 – 2.50	8	50
0.00 – 4.00	8	50
0.00 – 6.00	20	50
0.00 – 10.00	20	50
0.00 – 16.00	100	100
0.00 – 25.00	100	100

Table 3: Electrical specifications

Nom. output signal (short-circuit protected)	4 – 20 mA
Supply voltage [U_B], polarity protected	10 – 30 V DC
Supply voltage dependency	≤ ± 0.1% FS / 10 V
Current limitation (linear output signal up to 1.5 × rated range)	28 mA (typ.)
Load [R_L] (load connected to 0 V)	$R_L \leq (U_B - 10\ V) / 0.02\ A\ [\Omega]$

Table 4: Environmental conditions

Sensor temperature range	Normal		-40 – 85 °C
	ATEX Zone 2		-10 – 85 °C
Media temperature range			115 - (0.35 × ambient temperature)
Ambient temperature range			-10 – 85 °C
Compensated temperature range			0 – 80 °C
Transport / Storage temperature range			-25 – 85 °C
EMC – Emission			EN 61000-6-3
EMC – Immunity			EN 61000-6-2
Insulation resistance			> 100 MΩ at 100 V
Mains frequency test			Based on SEN 361503
Vibration stability	Sinusoidal	15.9 mm-pp, 5 Hz – 25 Hz	IEC 60068-2-6
		20 g, 25 Hz – 2 kHz	
	Random	7.5 g_{rms}, 5 Hz – 1 kHz	IEC 60068-2-64

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Shock resistance	Shock	500 g / 1 ms	IEC 60068-2-27
	Free fall	1 m	IEC 60068-2-32
Enclosure (depending on electrical connection)			IP65

Table 5: Explosive atmospheres

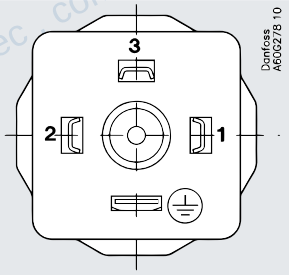
Zone 2 applications[1]	CE Ex II 3G Ex nA IIA T3 Gc -20C<Ta<85C	EN60079-0; EN60079-15;

[1] When used in ATex Zone 2 areas at temperatures <-10 °C the cable and plug must be protected against impact

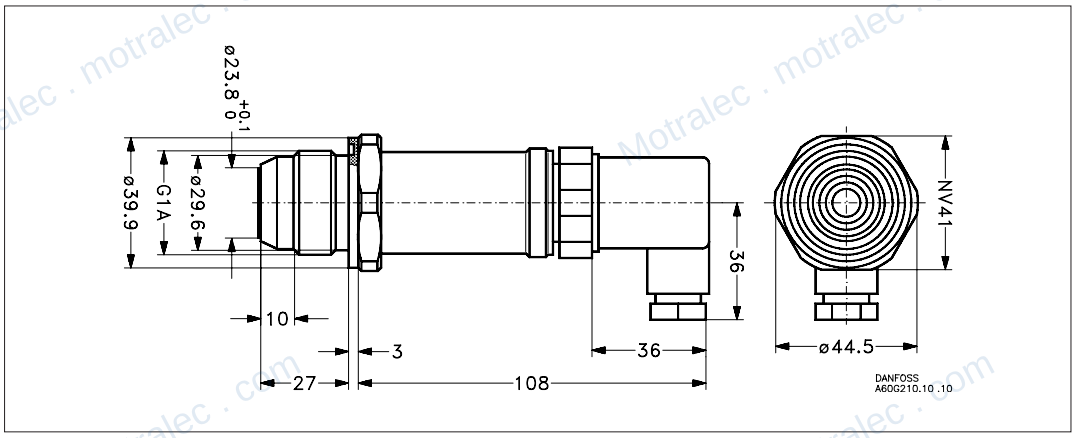
Table 6: Mechanical characteristics

Materials	Wetted parts	EN 10088-1; 1.4404 (AISI 316 L)
	Enclosure	EN 10088-1; 1.4404 (AISI 316 L)
	Electrical connections	Glass filled polyamid PA 6.6
Gasket (above thread)		DIN 3869-33-NBR
Net weight (depending on pressure connection and electrical connection)		0.4 kg

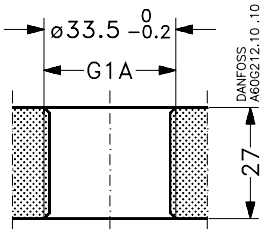
Electrical connections

Electrical connection	4 – 20 mA output (2 wire)
 EN 175301-803-A, Pg 9	Pin 1: + supply Pin 2: ÷ supply Pin 3: Not used Earth: Connected to MBS enclosure

Dimensions



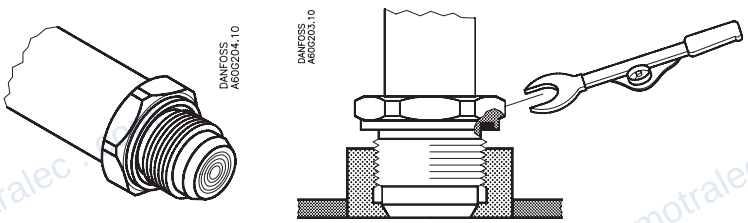
Threaded hole
(Sealing above thread)



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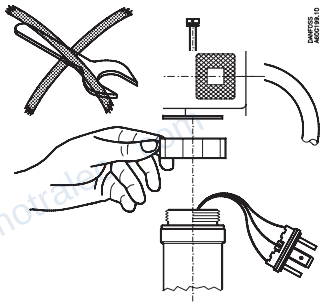
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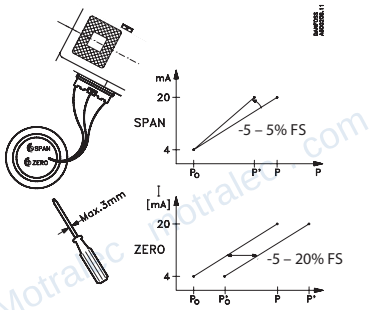
Installation



Tightening torque 60 Nm. Zero deviation of approx. 3 mbar can occur. (Can be adjusted)

Adjustment



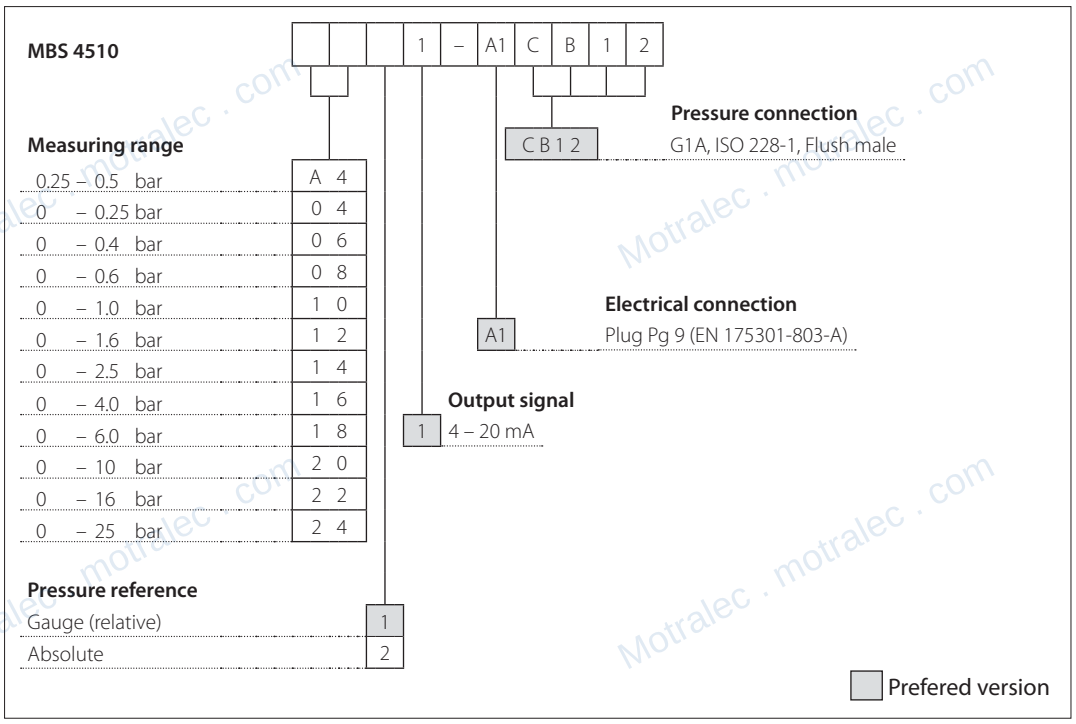


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Ordering

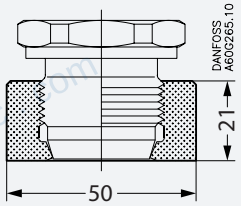
Ordering standard



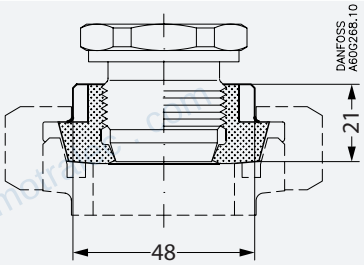
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Accessories

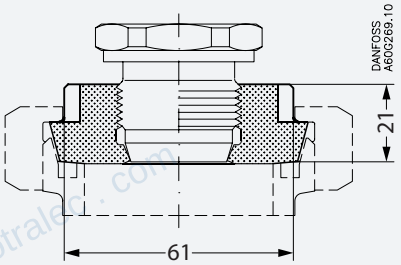
Welding nipple for conic metal/metal seal
Code no.: 060G2501



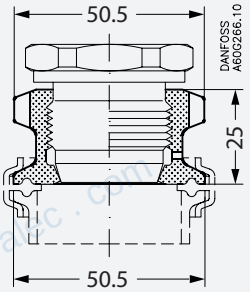
DIN 11851 (dairy connection), DN40
Code no.: 060G2505



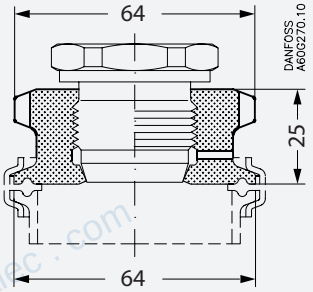
DIN 11851 (dairy connection), DN50
Code no.: 060G2506



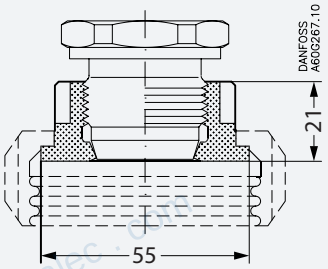
Clamp, ISO 2852, 1½ in.
Code no.: 060G2502



Clamp, ISO 2852, 2 in.
Code no.: 060G2510



SMS 1145 connection, 1½ in.
Code no.: 060G2503



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Certificates, declarations, and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

Some approvals may change over time. You can check the most current status at danfoss.com or contact your local Danfoss representative if you have any questions.

Table 7: Certificates and declarations

File name	Document type	Document topic	Approval authority
E227388	Explosive - Safety Certificate	Hazardous Locations	UL
E31024	Electrical - Safety Certificate	-	UL
E311982	Electrical - Safety Certificate	-	UL
B-BK-60210-1170_19	Food and Health - Performance Certificate	-	PZH
DK.C.30.018.A 31316	Measuring - Performance Certificate	-	GOST
CN.C.30.004.A 59728-1	Measuring - Performance Certificate	-	GOST
060R3160.00	Manufacturers Declaration	China RoHS	Danfoss
064R9402.00	Manufacturers Declaration	PED	Danfoss
064G9615.06	EU Declaration	ATEX/EMCD/RoHS	Danfoss
1786330	Explosive - Safety Certificate	-	CSA

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