

Ultra-high pressure
transducers to 15,000 bar



P3 Top Class BlueLine



P3MBP BlueLine

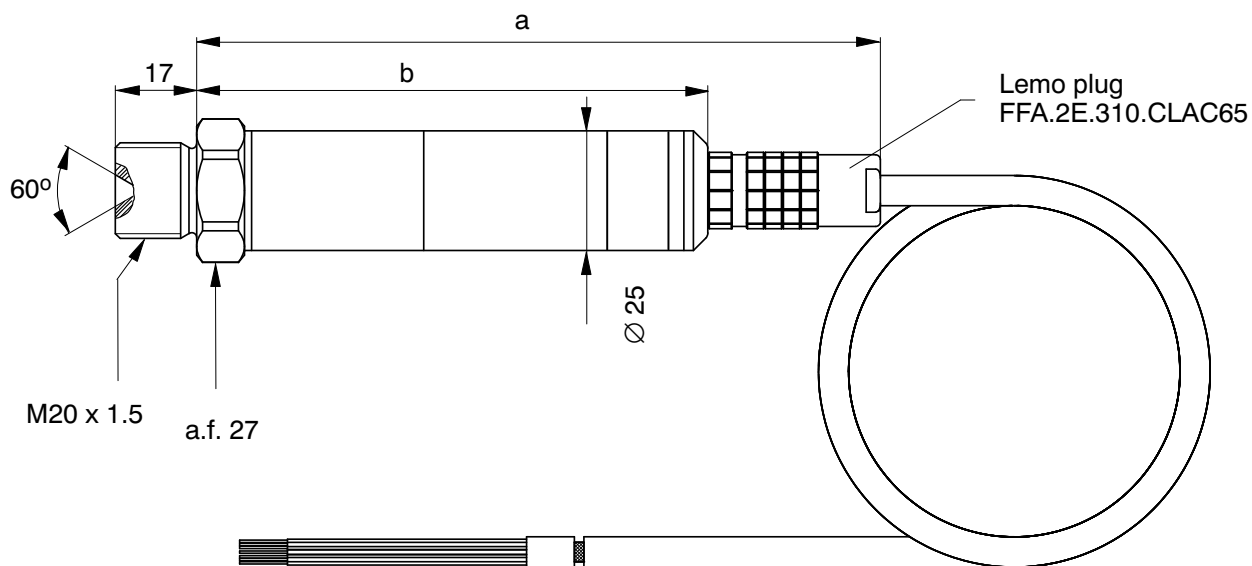
Special features

- For static and dynamic pressure variance, pressure peaks and pressure fluctuations
- Principle of measurement: foil strain gage
- Monolithic design, measuring body has no welded seam
- High number of load cycles

Top Class

- Better temperature response
- Individually documented values
- Improved accuracy class
- Closer sensitivity tolerance (suitable for parallel connection, for differential pressure measurement, for example)

Dimensions (in mm; 1 mm = 0.03937 inches)



Connection cable
1-Kab 170-3; 3 m
1-Kab 170-7; 7 m
(as an option)


	a	b
P3MBP BlueLine	143	107
P3 Top Class BlueLine	132	96

Specifications P3MBP BlueLine per DIN 16086

Type	P3MBP BlueLine			
Mechanical input quantities				
Pressure type		absolute pressure		
Principle of measurement		foil strain gage		
Measuring range, 0 bar...	bar	5000	10000	15000
Accuracy class ¹⁾		0.3	0.5	0.75
Output characteristics				
Nominal (rated) sensitivity	mV/V	1		
Sensitivity tolerance	%	< ± 0.3	< ± 0.6	< ± 0.8
Effect of temperature on zero signal in the nominal (rated) excitation voltage range per 10K, rel. to nominal (rated) sensitivity				
in the nominal (rated) temperature range	%	± 0.1	± 0.2	± 0.2
in the operating temperature range	%	± 0.15	± 0.25	± 0.25
Effect of temperature on sensitivity in the nominal (rated) excitation voltage range per 10K, rel. to actual value				
in the nominal (rated) temperature range	%	± 0.1	± 0.2	± 0.2
in the operating temperature range	%	± 0.3	± 0.4	± 0.4
Characteristic curve deviation (setting of initial point)	%	0.3	0.5	0.75
Repeatability per DIN 1319	%	< ± 0.05		

¹⁾ Accuracy class is not a DIN 16086 concept. The figure conforms to the maximum single deviation; that is the characteristic curve deviation (setting of initial point) and deviations as a result of temperature, related to a difference of 10 K.

Test report P3MBP BlueLine

 <h1 style="margin: 0;">Prüfprotokoll</h1> <p style="margin: 0; font-size: small;">test certificate / protocole d'essai</p>	
Type: P3MBP / Blue Line <small>Type / Type</small> Nennmessbereich: 5000 bar <small>nominal pressure</small> Identifizierung: 143310284 <small>serial no. / N° ident.</small>	Auftrag: 801141172 <small>order no. / commande</small> Prüfer: Kozacki <small>examinateur / contrôleur</small> Datum: 2010-09-30 <small>test date / date d'essai</small>
Prüfergebnisse: <small>test results / résultats d'essai</small>	
Eingangsgröße des Messbereichs [%] <small>input quantity / échelle de mes.</small>	Ausgangsgröße [mV/V] <small>output quantity / résultat</small>
0 50 100 50 0	0.0000 0.4981 1.0006 0.4993 0.0001
<p>Die Prüfergebnisse über 3000 Bar sind extrapolierte Werte. Der maximale Prüfdruck beträgt 3000 Bar. The test results exceeding 3000 Bar are extrapolated values. The maximum pressure for testing amounts to 3000 Bar. Les résultats d'essai supérieurs à 3000 Bar sont des valeurs extrapolées. La pression maximale d'essai est de 3000 Bar.</p>	
Aus den Prüfungsergebnissen berechnete und sonstige messtechnische Eigenschaften : <small>calculated characteristics calculated from the measuring results and other relevant characteristics calculated as part of the results of the test</small>	
Kennwert C [mV/V] <small>sensitivity / sensibilité</small>	1.0006
Kennlinienabweichung, Anfangspunkteinstellung [%/C] <small>combined error / erreur combinée</small>	0.150
Relative Umkehrspanne [%/C] <small>relative hysteresis / hystérésis relatif</small>	0.124
Allgemeine Zusatzinformationen: <small>general information / informations complémentaires</small>	
<p><small>Aus weiteren messtechnischen Eigenschaften des Auftrags und durch Typprüfungen und laufende Produktkontrollen des Qualitätsmanagements abgeleitet. All other metrological characteristics of the hardware are derived by type testing and regular product audits of the quality management. Toutes les autres caractéristiques techniques du matériel sont dérivées par le service qualité, au moyen d'essais de type et de contrôles en cours de production.</small></p>	
Zertifiziert nach ISO 9001 und ISO 14001 (DQS-09001) <small>ISO 9001 and ISO 14001 certified / DQS-09001 certified</small>	Akreditiertes DKD-Kalibrierlaboratorium und EMV-Prüflaboratorium <small>accredited DKD calibration laboratory and EMC testing laboratory</small> <small>certification number: no. 1201 in accordance with DIN EN ISO 17025</small> DKD-KO-0101; D-PL-12029-01
Hettinger Baldwin Messtechnik GmbH im Tiefen See 48 0-64293 Darmstadt <small>Angabe: 10/04 Version 3</small> <small>05.01.2011 Moos</small>	

Information on the linearity of the individual transducer

Information on the sensitivity, characteristic curve deviation and rel. reversibility error of the individual transducer.

Specifications P3 Top Class BlueLine per DIN 16086

Type	P3 Top Class BlueLine			
Mechanical input quantities				
Pressure type		absolute pressure		
Principle of measurement		foil strain gage		
Measuring range, 0 bar...	bar	5000	10000	15000
Accuracy class ¹⁾		0.25	0.4	0.6
Output characteristics				
Nominal (rated) sensitivity	mV/V	1		
Sensitivity tolerance	%	< ±0.2	< ±0.4	< ±0.8
Zero signal tolerance	%	< ±1		
Creep upon unloading 15 min	%	< ±0.03		
Effect of temperature on zero signal in the nominal (rated) excitation voltage range per 10K, rel. to nominal (rated) sensitivity in the nominal (rated) temperature range in the operating temperature range	 % %	 ±0.05 ±0.10		
Effect of temperature on sensitivity in the nominal (rated) excitation voltage range per 10K, rel. to actual value in the nominal (rated) temperature range over 0 °C in the nominal (rated) temperature range below 0 °C in the operating temperature range	 % % %	 ±0.05 ±0.1 ±0.2		
Characteristic curve deviation (setting of initial point)	%	0.25	0.4	0.6
Rel. interpolation error (max. deviation of a cubic interpolation function over the test series)	%	0.05	0.25	–
Long-term stability of zero signal and span (data per year)	%	0.2		
Repeatability per DIN 1319	%	< ±0.05		

¹⁾ Accuracy class is not a DIN 16086 concept. The figure conforms to the maximum single deviation; that is the characteristic curve deviation (setting of initial point) and deviations as a result of temperature, related to a difference of 10 K.

Extended test report

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Test report P3 Top Class BlueLine

Page 2

Hottinger Baldwin Messtechnik GmbH

Im Tiefen See 45
D-84021 Dornbirn
Zertifiziert nach ISO 9001 und ISO 14001
ISO 9001 seit 02.10.2011 / Certified / Certification since 02.10.2011

Akkreditierung gemäß DIN EN ISO 9001
Akkreditierung gemäß DIN EN ISO 14001

Prüfprotokoll

Top Class

Typ: P3
Meßbereich in bar: 5000Bar
Ident-Nr.: 110213001
Datum: 15.02.2007

Auftrag: 801021987
Prüfer: Schmitt
Datum: 15.02.2007

Normenwert - Ausgangsspanne in mV/V
nominal sensitivity, range at full scale / Sensitivité

1.0000

Prüfbedingungen:
test conditions / conditions d'essai

Eingangsspannung in bar
input quantity / entrée d'essai

Ausgangsspannung in mV/V
output quantity / sortie d'essai

steigende Last
increasing load

fallende Last
decreasing load

0
1000
2000
2500
3000
4000
5000

0.0000
0.1980
0.3970
0.4968
0.5967
0.7970
0.9981

Aus den Prüfergebnissen berechnete messtechnische Kenngrößen:
Measurement results calculated from the test results

Kennwert Ausgangsspanne C in mV/V
coefficient, output span / coefficient de sortie

0.9981

Kennwert Ausgangsspanne C in mV/V
coefficient, output span / coefficient de sortie

0.135

Relative Hysterese in %
relative hysteresis / hysteresis relat.

0.028

Maximale Interpolationsabweichung in %
Maximal interpolation deviation

0.0339

Koeffizienten der kubischen Ausgleichsfunktion der Form:
coefficients of a cubic interpolation function through the measuring data / Coefficients de la fonction d'interpolation cubique des séries de mesures

R 12.3043732

S -56.78690021

T 5055.801513

Allgemeine Zusatzinformationen:

Alle weiteren messtechnischen Eigenschaften des Auftrags und durch Temperatur und Feuchtigkeit bedingte Drift sind außer der Genauigkeitsangabe angegeben. Die angegebenen Abweichungen der Messwerte sind unter Berücksichtigung der angegebenen Messunsicherheit zu verstehen. Die angegebenen Messwerte sind nur für die angegebenen Messbedingungen gültig. Die angegebenen Messwerte sind nur für die angegebenen Messbedingungen gültig.

Accepted HBM Version: 0101/01

The following data applies to P3MBP BlueLine and P3 Top Class BlueLine

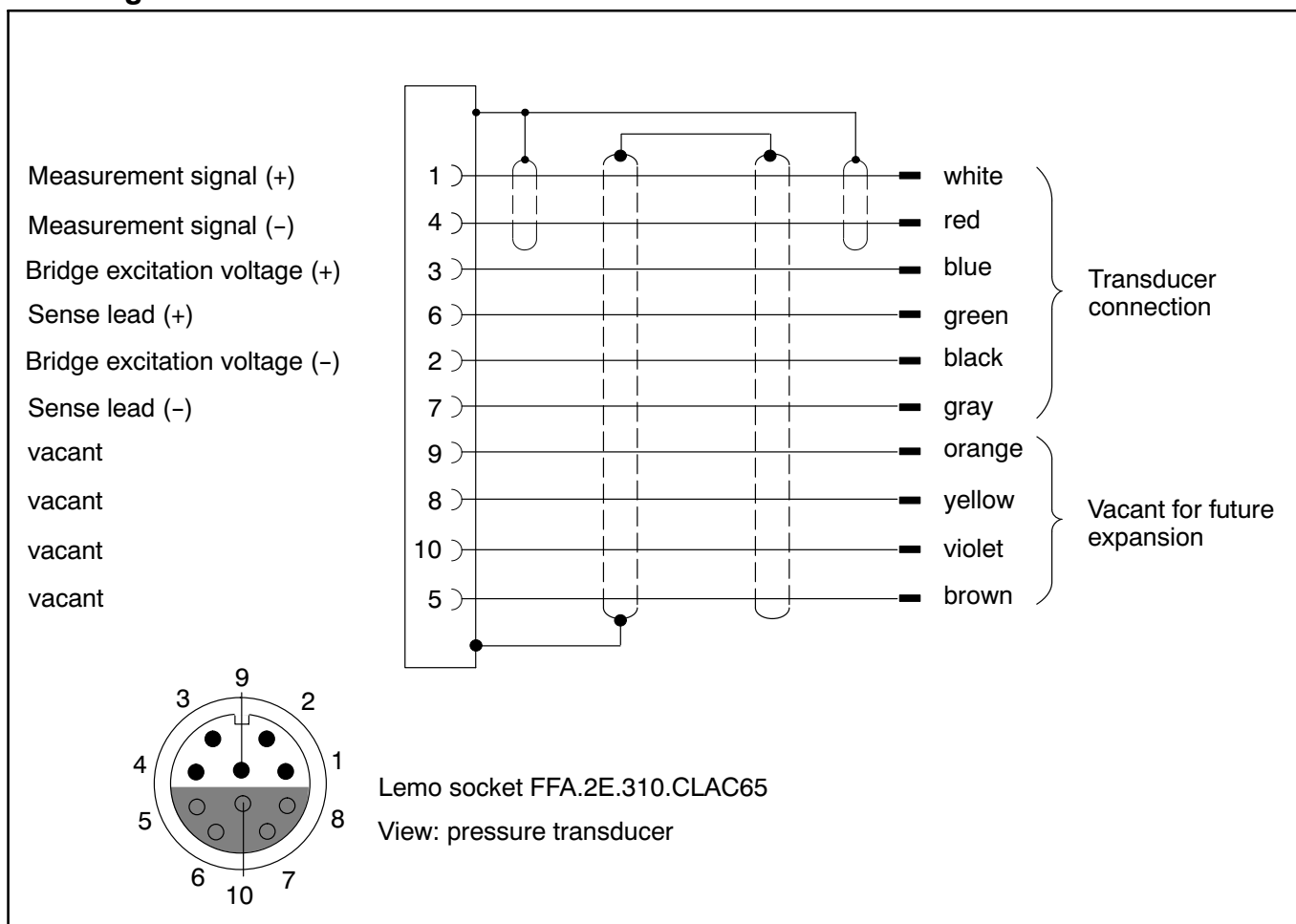
Mechanical input quantities				
Measuring range, 0 bar...	bar	5000	10000	15000
Initial value	bar	0		
Operating range at reference temperature	%	120		110
Overload limit at reference temperature	%	120		110
Test pressure	%	195	150	100
Dynamic loading				
Permissible pressure	%	100		
Permissible oscillation width to achieve a typical 10,000,000 DIN 50100 load cycles	bar	3500	5000	6000
Dead volume	mm ³	615	150	100
with supplied packing ¹⁾	mm ³	200	-	-
Control volume	mm ³	approx. 1		
Output characteristics				
Fundamental resonance frequency	kHz	> 100		
Input resistance at reference temperature	Ω	350 ± 5		
Output resistance at reference temperature	Ω	350 ± 1.5		
Insulation resistance	MΩ	5000		
Electrical strength	V	90		
Excitation voltage				
Reference excitation voltage	V	5		
Nominal (rated) excitation voltage	V	0.5 ... 7.5		
Operating range	V	0.5 ... 12		
Ambient conditions				
Permissible voltage between measuring circuit and transducer ground at reference temperature	V	50		
Materials for parts which come into contact with the environment (type-dependent)		1.4301; 1.4541; 1.4542; 1.6354 PU / chrome-plated and nickel-plated brass		
Reference temperature	°C	+23		
Nominal (rated) temperature range	°C	-10...+80		
Operating temperature range	°C	-40...+100		
Storage temperature range	°C	-40...+100		
Impact resistance (tested to DIN 40 046)				
Impact acceleration	m/s ²	1000		
Impact duration	ms	4		
Impact form		Half sine wave		
Acceleration sensitivity per 10 m/s ² for exciting frequencies of < 20% of natural frequency	%	< ± 0.001		
Mechanical specifications				
Pressure connection		M20 x 1.5 with 60° inner cone for use with 58° double cone		
Electrical connection		Lemo connector ERA.2E.310.SLL		
Bending radius of the connection cable, min.				
static	mm	35		
dynamic	mm	75		
Mounting position		any		
Weight without cable, approx.	g	200		
Degree of protection		IP67		

¹⁾ Packing is only used for the 5000 bar measuring range

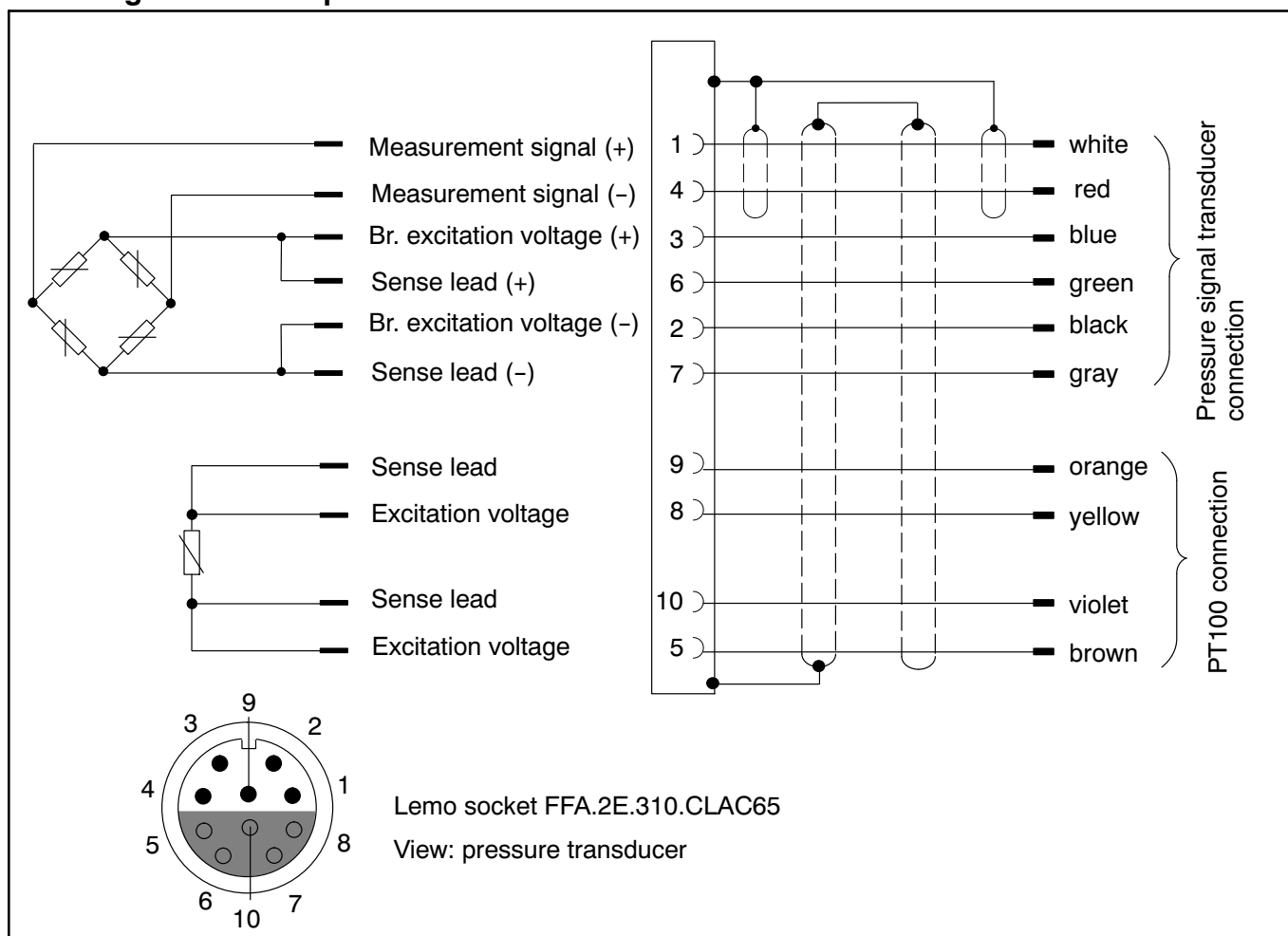
Economical, standard versions available from stock:

Measuring range, 0 bar...	Pressure type	Product number
P3MBP BlueLine		
5,000 bar	absolute pressure	1-P3MBP/5,000 BAR
10,000 bar	absolute pressure	1-P3MBP/10,000 BAR
15,000 bar	absolute pressure	1-P3MBP/15,000 BAR
P3 Top Class BlueLine		
5,000 bar	absolute pressure	1-P3TCP/5,000 BAR
10,000 bar	absolute pressure	1-P3TCP/10,000 BAR
15,000 bar	absolute pressure	1-P3TCP/15,000 BAR

Pin assignment P3MBP BlueLine



Pin assignment P3 Top Class BlueLine



Accessories:

Included in scope of supply:

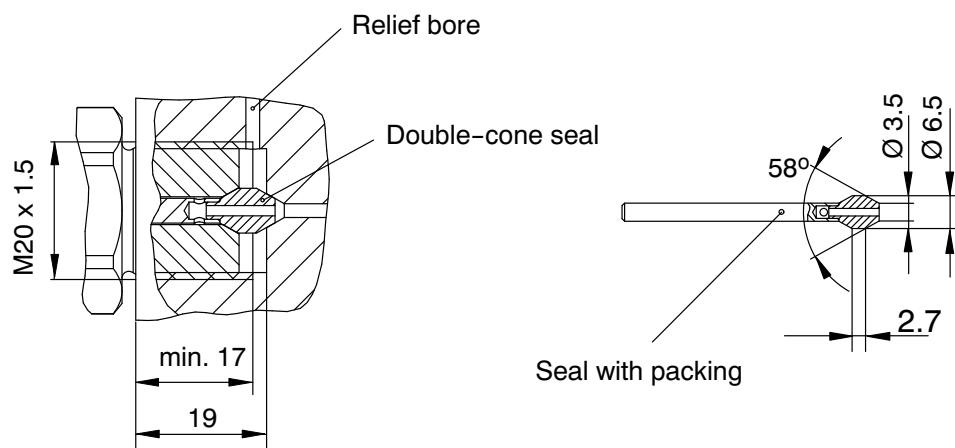
For 5,000 bar: 1 double-cone seal with filing elements, Order no.: 2-9289.5512, material 1.4305

For 10,000 bar and 15,000 bar: 1 double-cone seal, Order no.: 3-9219.0816, material 1.4542

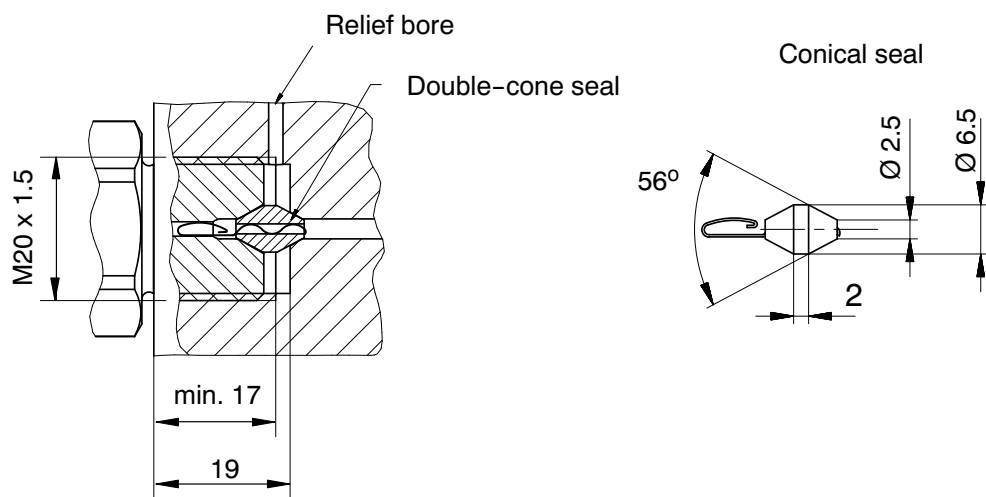
Seal accessories:

5,000 bar	2-9278.0372	bag, conical seal P3MB/5000 bar
10,000 bar	2-9278.0373	bag, conical seal P3MB/10000 bar
15,000 bar	2-9278.0375	bag, conical seal P3MB/15000 bar

Pressure transducer mounting



P3MBP 5000 bar



P3MBP 10000 bar and P3MBP 15000 bar

Modifications reserved.

All details describe our products in general form only. They are not to be understood as express warranty and do not constitute any liability whatsoever.

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measure and predict with confidence

