



Cast off...
Set course with us



Made in Germany

Due to the extreme exigencies at sea, the shipbuilding industry places high demands on technology and material. Instruments for pressure and temperature measurement have to resist various loads such as vibrations, cold, heat or aggressive sea water.

Owing to the long tradition and experience of the ARMANO Messtechnik GmbH, we, as manufacturer of ship measuring technology, guarantee highest reliability and a long service life of our instruments.

Our pressure measuring instruments and thermometers can be applied extensively, regardless of the construction type of the ship. From small yachts, tugs and bulk carriers to cruise ships, our pressure and temperature measuring technology is acknowledged by customers from all over the world, and is accordingly type-examined by classification societies.

In the offshore oil and gas production, our instruments are also able to resist the extreme conditions above and under water.

In this brochure, you will find a selection of temperature and pressure measuring instruments for the special application in shipbuilding and offshore industries.

Your instrument is not listed here? Jointly, we will find a suitable solution for your application.

Do not hesitate to contact us!

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Industry Expertise

Applications and Application Fields of our Products at a Glance



Shipbuilding Industry



Energy



Chemistry and Petrochemistry



Water and Waste Water



Oil and Gas



Food Industry



Pharmaceutical Industry



Refrigeration Engineering



Rail Cars



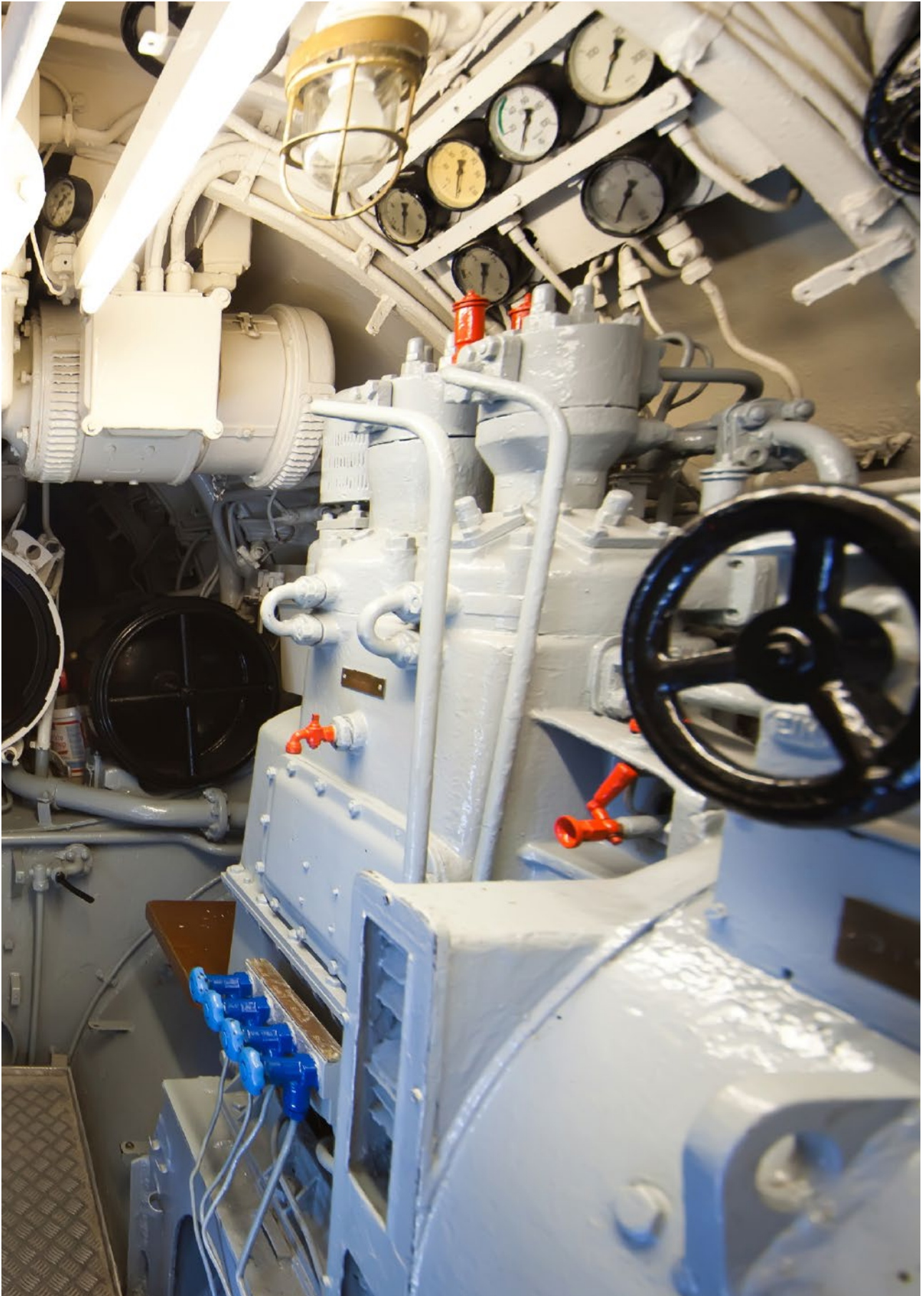
Fire Extinguishing/Fire Protection



Engineering

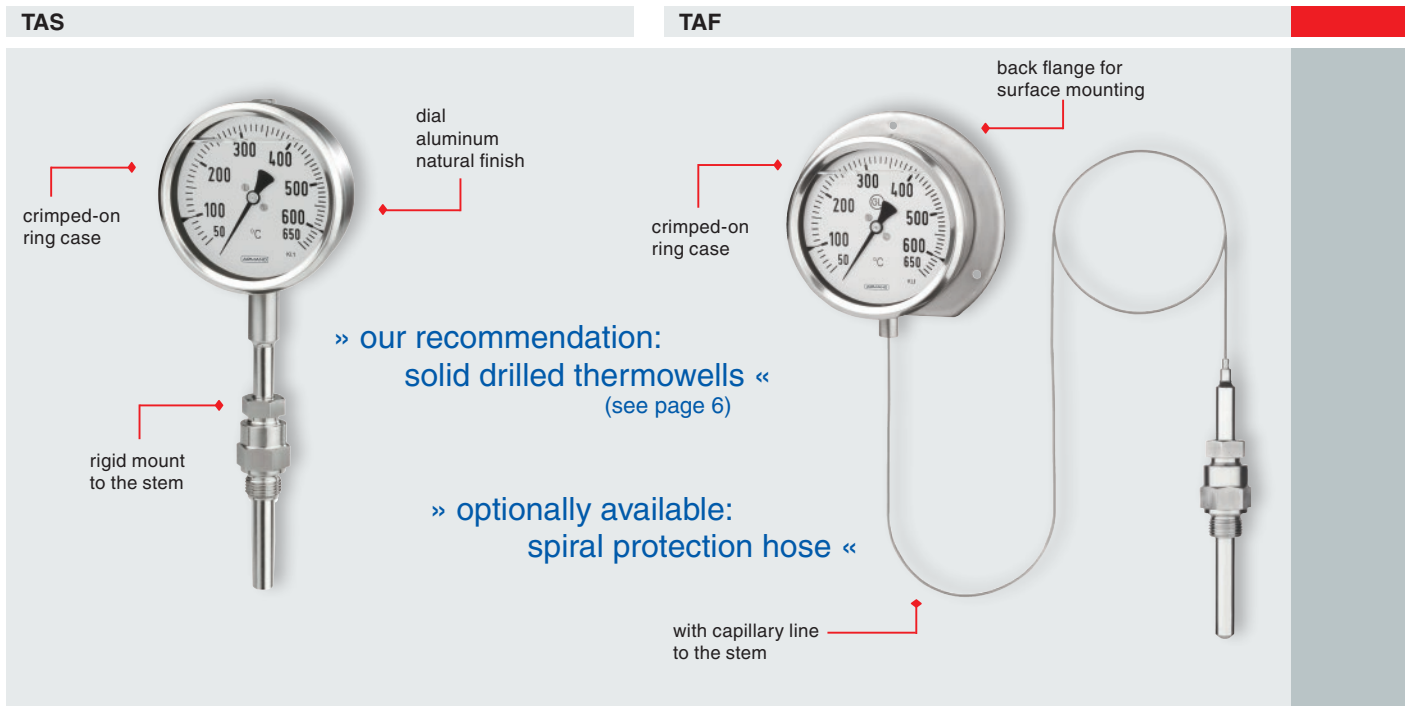


Semiconductor Industry



Diesel Exhaust Thermometers

Diesel exhaust thermometers are primarily used for the measurement of exhaust and cooling water temperatures at diesel engines. They are specially designed for these high mechanical and technical loads, among others due to the “stem in jacket version” and the standard case filling with highly viscous silicone oil. To increase their durability, diesel exhaust thermometers should always be applied in combination with solid drilled thermowells.



TAS	
Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	with
Nominal case size	63, 80, 100 mm (2½, 3, 4")
Temperature sensor (stem)	stainless steel 316Ti (1.4571)
Stem models ¹⁾	A5.5, A1.5 or A3.5
Stem Ø	10, 12 or 13 mm
Stem length	150, 200, 250, 300 or 400 mm L _{min} = 150 mm (others upon request)
Capillary line length	–
Temperature ranges	0 – 120 °C 50 – 650 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8291
Certificates	

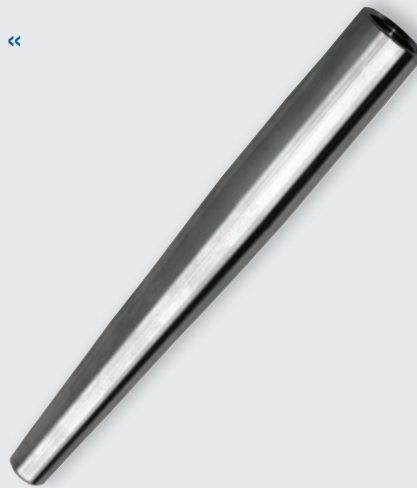
TAF	
Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	with
Nominal case size	63, 80, 100 mm (2½, 3, 4")
Temperature sensor (stem)	stainless steel 316Ti (1.4571)
Stem models ¹⁾	A5.5, A1.5 or A3.5
Stem Ø	10, 12 or 13 mm
Stem length	150, 200, 250, 300 or 400 mm L _{min} = 150 mm (others upon request)
Capillary line length	L _{FL} = 1 m to 15 m
Temperature ranges	0 – 120 °C 50 – 650 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8292
Certificates	

¹⁾ description of stem models, see page 7

Thermowells – Construction Type: Solid Drilled

Thermowells allow easy dismounting of thermometers for maintenance or repair purposes. Amongst others, solid drilled thermowells are used to protect thermometer stems against process-related chemical and/or mechanical loads (flows, pressures, temperatures and vibrations). We strongly recommend to combine diesel exhaust thermometers only with solid drilled thermowells, due to the high vibrations. Solid drilled thermowells are also fitted for many operating ranges of standard gas-actuated and bimetal thermometers.

» for heavy process-related loads «



for temperature stems with male thread turnable or rigid our models A4, B4, A4.1, B4.1 and A5, A5.5, B5	for temperature stems with male thread turnable or rigid our models A4, B4, A4.1, B4.1 and A5, A5.5	for temperature stems with union nut our models A3, A3.5 and B3	for plain temperature stems our models A1, A1.5 and B1	for temperature stems with male thread turnable or rigid our models A4, B4, A4.1, B4.1, A5, A5.5 and B5
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	SF4	SF6/SF7	SF9	SK2	SF4F
Process connection	for welding	for screwing in	for screwing in	for screwing in	for flange-mounting
Connection to thermometer stem N ¹⁾	M 18x1.5 G ½ or G ¾	G ½ or G ¾	G ½ B or G ¾ B	clamping ring fitting	M 18x1.5 G ½ or G ¾
Internal diameter d1	7, 9, 11, 13 mm	7, 9, 11, 13, 14 mm	7, 9, 11, 13 mm	7, 9, 11, 13, 14 mm	7, 9, 11, 13 mm
Total length L ¹⁾ (standardised length)	110, 140, 170, 200, 260, 410 mm	110, 170, 260, 410 mm	101, 138, 198, 288, 438 mm	110, 170, 260 mm	200, 260, 410 mm
Material	stainless steel 1.4571, 1.7335 (13 CrMo 4-5)	stainless steel 1.4571, 1.7335 (13 CrMo 4-5)	stainless steel 1.4571, 1.7335 (13 CrMo 4-5)	stainless steel 1.4571	stainless steel 1.4571
Data sheet	8.8110	8.8121	8.8131	8.8141	8.8112

¹⁾ others upon request

Thermowell Calculation – for Solid Drilled Thermowells

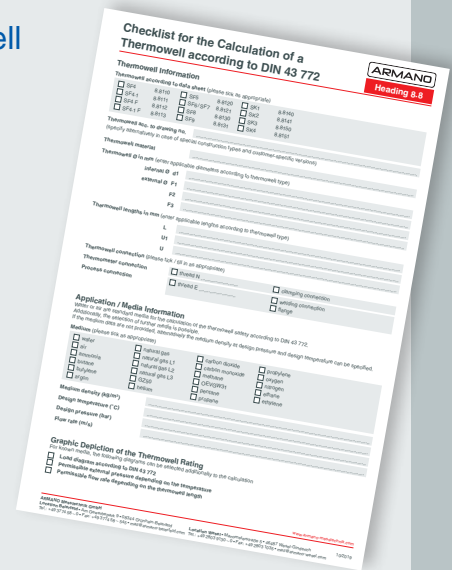
Our thermowells are manufactured according to the national standard. Upon request, we also manufacture thermowells according to customer specifications. We offer thermowell calculations regarding their load for your specific case of application.

» with safety certificate for the calculated thermowell type for your specific case of application «

A completely filled in check list for the thermowell calculation¹⁾ with all necessary application data is required.

The certificate includes:

- ◆ Thermowell data
- ◆ Application and calculation data
- ◆ Calculation according to DIN 43 772/ASME PTC 19.3
- ◆ Load diagram according to DIN 43 772
- ◆ Diagram concerning the permissible external pressure depending on the temperature
- ◆ Flow rate depending on the thermowell length



Standard Temperature Sensors (Stems)

A.. = stem for gas-actuated thermometers B.. = stem for bimetal thermometers

L, L1 = stem length La = active stem length

Stem type	A1, A1.5, B1	A3, A3.5, B3	A4, B4
Process connection	without screw fitting, plain stem	union nut	male thread, turnable thermowell required
Stem type	A4.1, B4.1	A5, A5.5, B5	A6, B6
Process connection	male thread, rigid	male thread, compression fitting adjustable at the plain stem	male thread, turnable/double male adapter

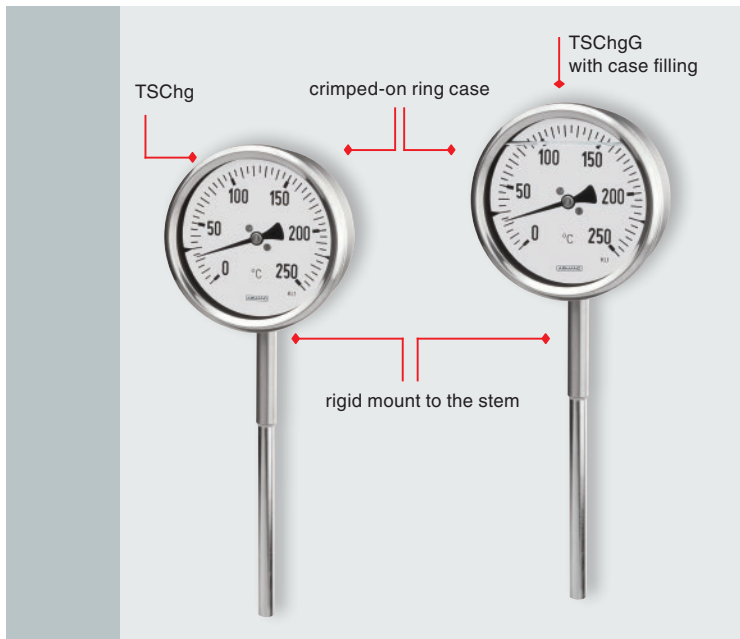
¹⁾ The check list is available for download on our website.

Gas-actuated Thermometers

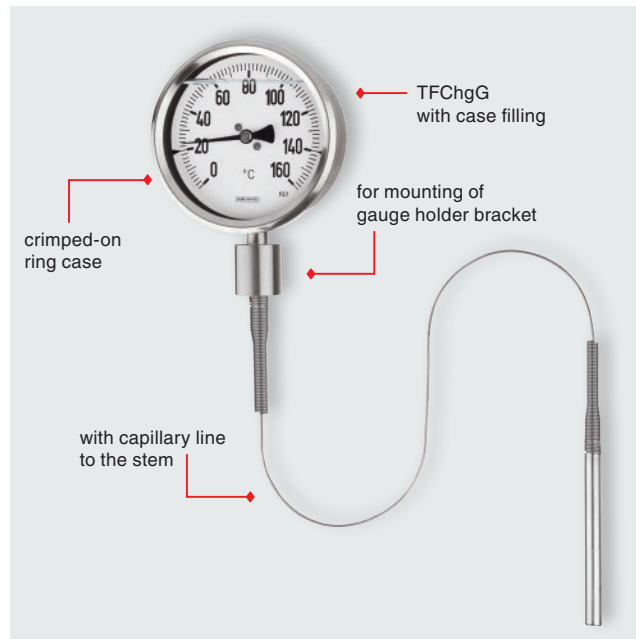
Gas-actuated thermometers according to DIN EN 13 190 use the temperature-dependent pressure of a spatially enclosed quantity of gas as measure for the temperature.

The measuring system consists of vessel (active part of the stem), capillary line and measuring element. It is filled with an inert gas, usually nitrogen. The indication is realised via movement and pointer.

TSchg/TSChgG



TFChg/TFChgG



TSChg/TSChgG

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/ with
Nominal case size	63, 80, 100, 160 mm (2½, 3, 4, 6")
Temperature sensor (stem)	stainless steel 1.4571
Stem models ¹⁾	A1, A3, A4, A4.1, A5 or A6
Stem Ø	8, 10 or 12 mm
Stem length	L _{min} or L1 _{min} up to max. 2.50 m
Capillary line length	-
Temperature ranges	-100 °C to +600 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8202
Certificates	

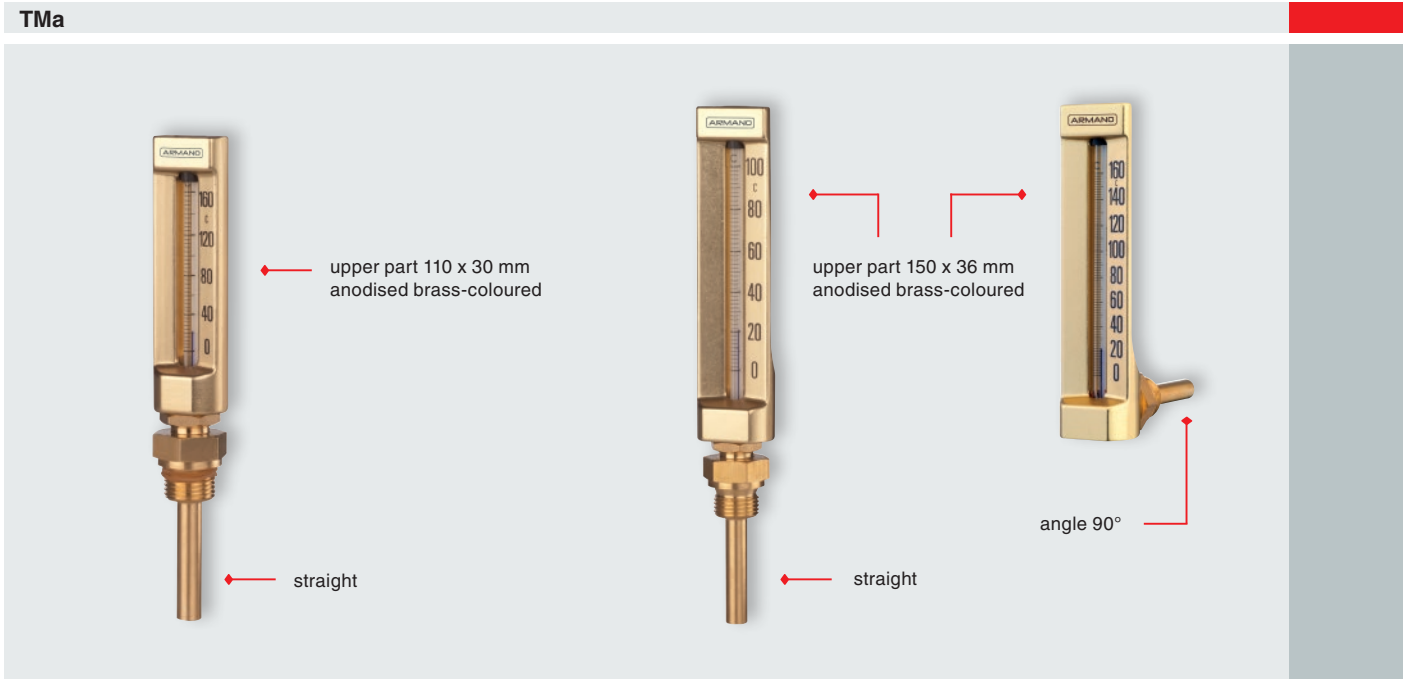
TFChg/TFChgG

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/ with
Nominal case size	63, 80, 100, 160 mm (2½, 3, 4, 6")
Temperature sensor (stem)	stainless steel 1.4571
Stem models ¹⁾	A1, A3, A4, A5 or A6
Stem Ø	8, 10 or 12 mm
Stem length	L _{min} or L1 _{min} up to max. 2.50 m
Capillary line length	L _{FL} 1 m to 15 m
Temperature ranges	-100 °C to +600 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8222
Certificates	

¹⁾ description of stem models, see page 7

Machine-glass Thermometers

Machine-glass thermometers according to DIN EN 16 195 are based on the temperature-dependent expansion of a fluid. The measuring system is located in the robust metal case and consists of a liquid-filled vessel with connected glass capillary. The liquid level in the scaled glass capillary indicates the temperature.



TMa 110 x 30 mm		
Immersion tube type	upper part 110 x 30 mm anodised brass-coloured	
Thermometer version	straight, angle 90° or 135°	
Temperature ranges	-30 / +50 °C 0 – 60 °C 0 – 100 °C	0 – 120 °C 0 – 160 °C 0 – 200 °C
Immersion tube lengths l ₁	63, 100, 160, 250, 400 mm	
Screw threads	G½B, M20x1.5	
Immersion tube materials	brass, steel, stainless steel, SoMs59, CuNi30FE	
T-sheet	T08-000-020	

TMa 150 x 36 mm		
Immersion tube type	upper part 150 x 36 mm anodised brass-coloured	
Thermometer version	straight, angle 90° or 135°	
Temperature ranges	-30 / +50 °C 0 – 60 °C 0 – 100 °C 0 – 120 °C	0 – 160 °C 0 – 200 °C 0 – 250 °C
Immersion tube lengths l ₁	63, 100, 160, 250, 400 mm	
Screw threads	G¾B, G½B, M 16x1.5, M20x1.5	
Immersion tube materials	brass, steel, stainless steel, SoMs59, CuNi30FE	
T-sheet	T08-000-026	

Thermowells – Construction Type: Fabricated

Thermowells allow easy dismounting of thermometers for maintenance or repair purposes.

Amongst others, fabricated thermowells are used to protect thermometer stems against process-related chemical and/or mechanical loads.

» for light process-related loads «

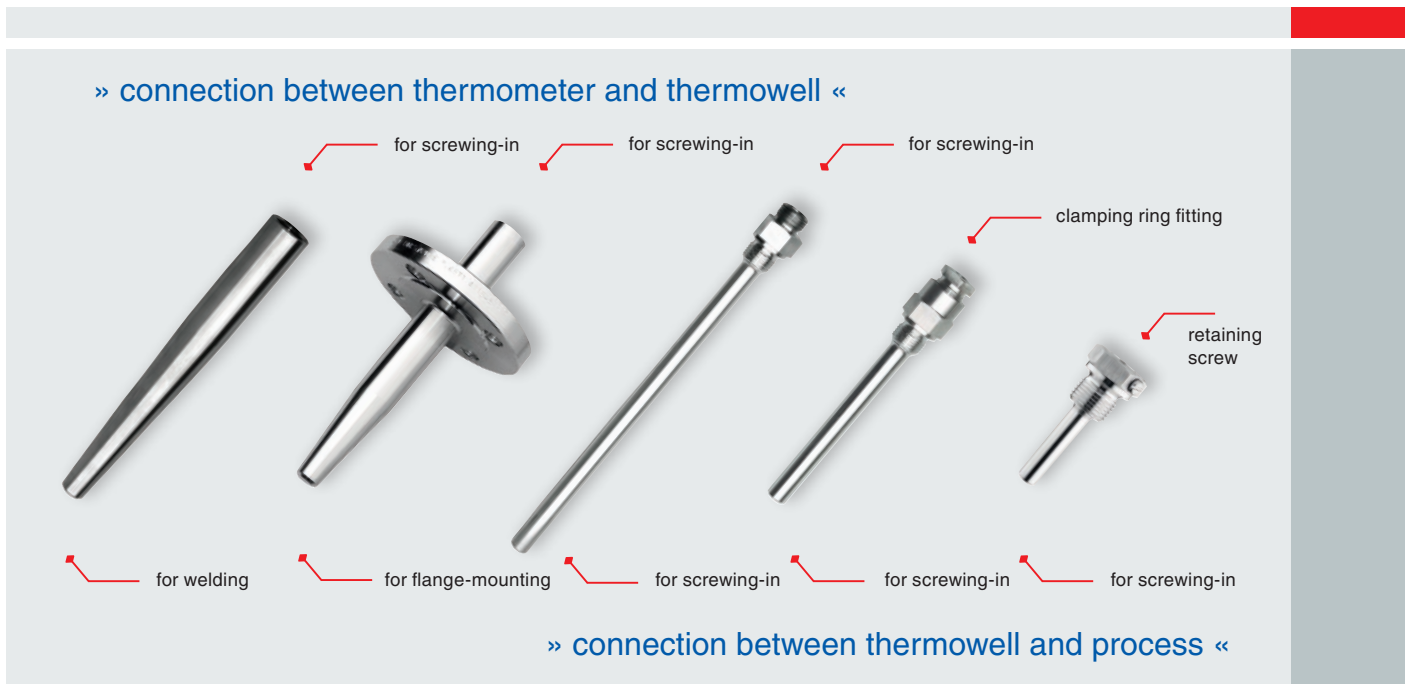


for temperature stems with male thread turnable or rigid our models A4, B4, A4.1 and B4.1	for temperature stems with union nut our models A3 and B3	for plain temperature stems our models A1 and B1	for plain bimetal stems our model B1
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	SF5	SF8	SK1	SK3.B
Process connection	for screwing in	for screwing in	for screwing in	for screwing in
Connection to thermometer stem N ¹⁾	G ½ or G ¾	G ½B or G ¾B	clamping ring fitting	lateral retaining screw
Internal diameter d1	7, 9, 11, 13 mm	7, 9, 11, 13 mm	7, 9, 11, 13 mm	7, 9 mm
Total length L ¹⁾ (standardised length)	110, 170, 260, 410 mm	101, 138, 198, 288, 438 mm	110, 170, 260, 410 mm	72, 92, 112, 132 mm
Material	stainless steel 1.4571 or brass	stainless steel 1.4571	stainless steel 1.4571	stainless steel 1.4571
Data sheet	8.8120	8.8130	8.8140	8.8150

¹⁾ others upon request

Mounting Options for Thermowells



Process Connection Between Thermowell and Process

Screw Connection	Weld Connection	Flange Connection
detachable connection	robust, non-detachable connection	robust, detachable connection
<p>thermowell thermometer stem</p>	<p>thermowell thermometer stem welding point</p>	<p>thermowell welded with flange thermometer stem</p>

Ambient Temperature Thermometers

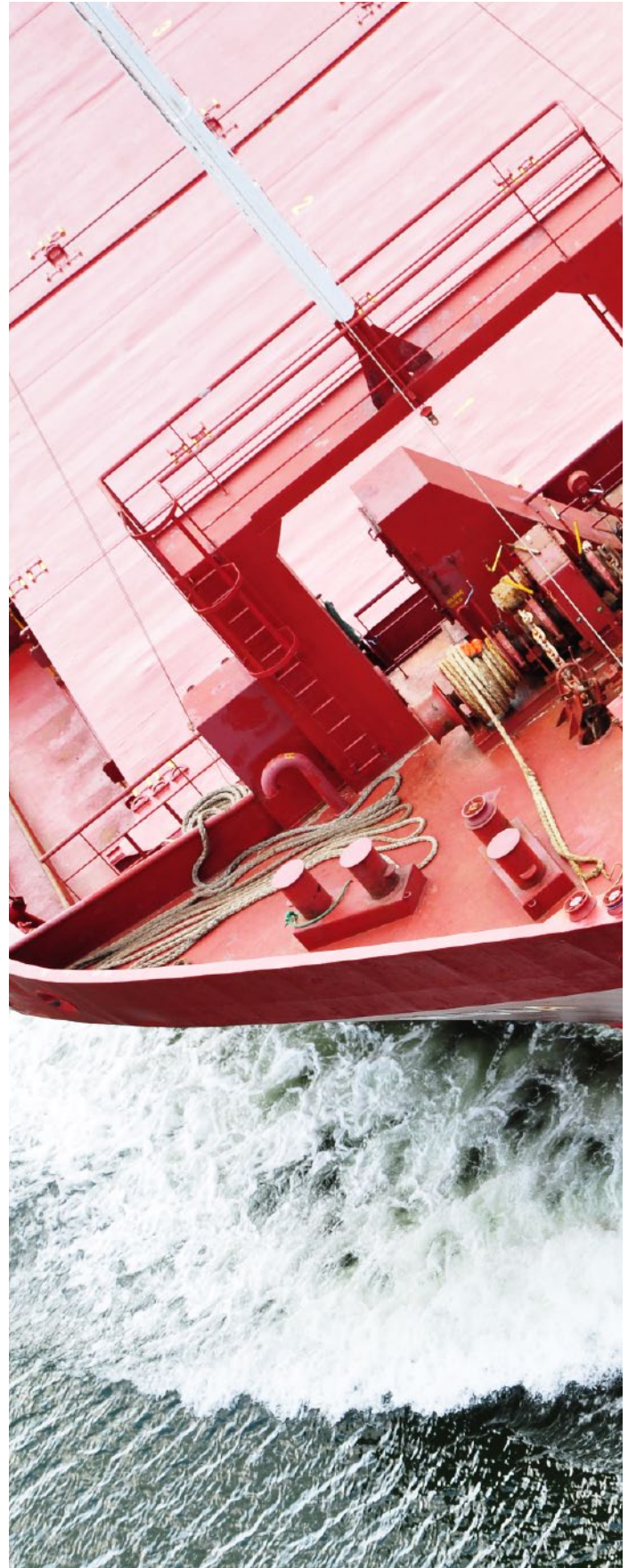
Ambient temperature thermometers are gas-actuated thermometers according to DIN EN 13 190 and use the temperature-dependent pressure of a spatially enclosed quantity of gas as measure for the temperature. Our ambient thermometers are suitable for both indoor and outdoor application.

TRCh



bayonet ring case

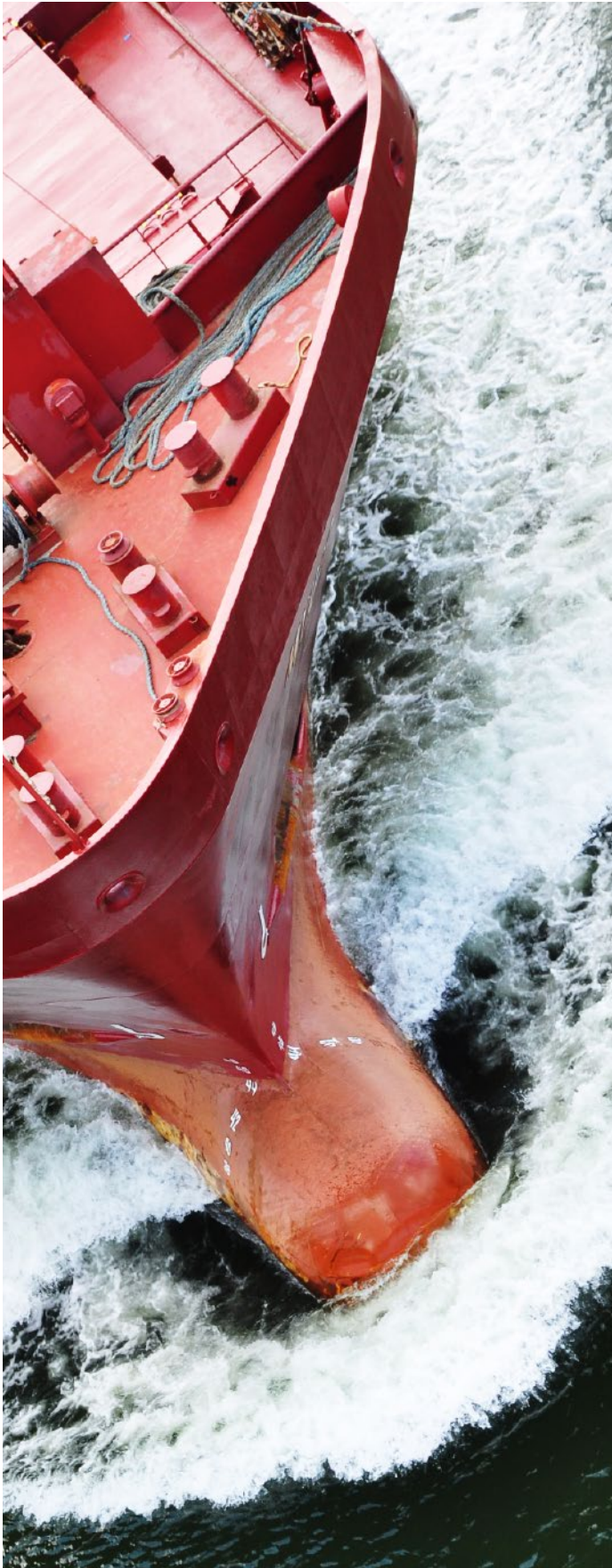


back flange for surface mounting



TRCh

Case	stainless steel
Ring	bayonet ring stainless steel
Case filling	without
Nominal case size	100, 160 mm (4, 6")
Stem position	rear ambient temperature sensor
Mounting device	back flange for surface mounting (Rh)
Temperature ranges	-40 / +40 °C -30 / +50 °C -20 / +60 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8293
Certificates	 

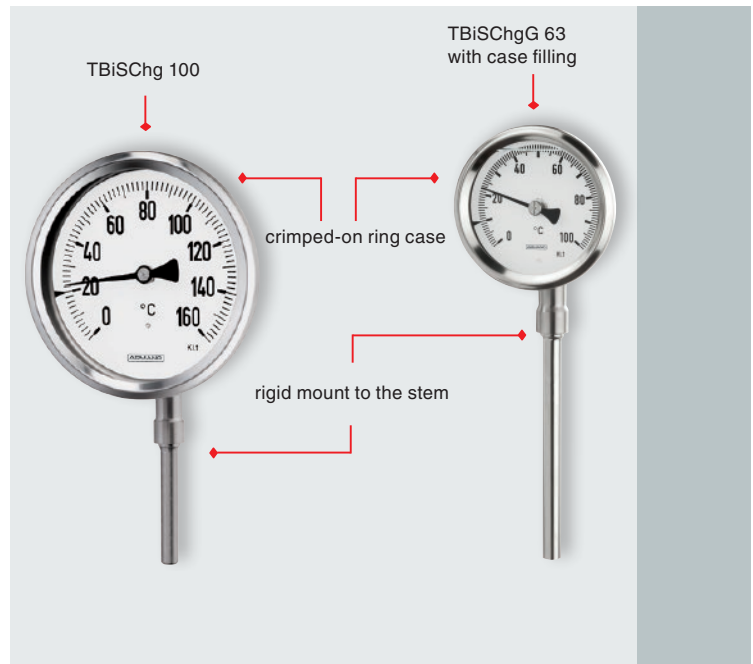


Bimetal Thermometers



Bimetal thermometers according to DIN EN 13 190 are pointer thermometers, which are actuated by spiral or helical bimetallic strips.

The temperature-dependent rotational movement of the bi-metal is directly transferred to the pointer via the pointer shaft.

TBiSChg/TBiSChgG



TBiSChg/TBiSChgG

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/with
Nominal case size	63, 80, 100, 125, 160 mm (2½, 3, 4, 5, 6")
Temperature sensor (stem)	stainless steel 1.4571
Stem models ¹⁾	B1, B3, B4, B4.1, B5 or B6
Stem Ø	6 or 8 mm
Stem length	L _{min} or L1 _{min} up to max. 800 mm
Temperature ranges	-50 °C to +600 °C
Accuracy (DIN EN 13 190)	class 1
Data sheet	8102
Certificates	 

¹⁾ description of stem models, see page 7

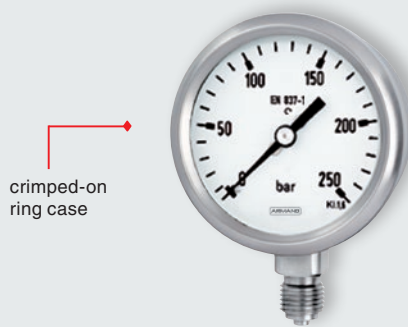
Bourdon Tube Pressure Gauges

Bourdon tube pressure gauges are suitable for the measurement of positive and negative overpressures between 0 – 0.6 and 0 – 6000 bar for liquid or gaseous media.

The information given in DIN EN 837-2 have to be considered for the selection of the suitable measuring instrument. In particular, it has to be ensured that the medium does not corrode any of the wetted parts.

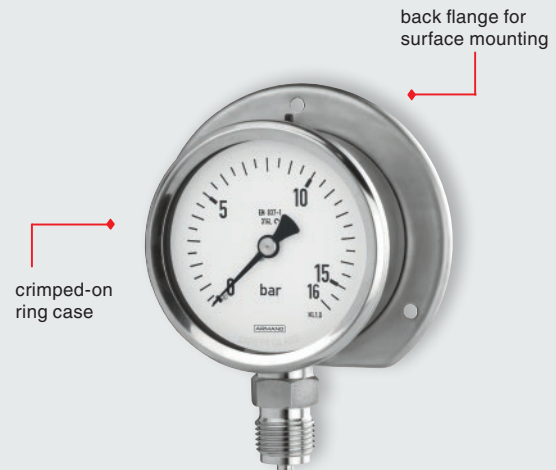
RChg/RChgG 63

» available also as welded model «
(see arctic version page 17)







» with or without back flange for surface mounting «

RChg/RChgG 80







» metric threads and NPT available without extra charges «

RChg/RChgG 63

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/with
Accuracy	class 1.6
Nominal case size	63 mm (2½")
Wetted parts	- 1 brass - 3 stainless steel 316L - 6 Monel
Pressure ranges	0 – 0.6 bar to 0 – 1000 bar
Process connection	G ¼ B
Data sheet	1212
Certificates	   

RChg/RChgG 80

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/with
Accuracy	class 1.0
Nominal case size	80 mm (3")
Wetted parts	- 1 brass - 3 stainless steel 316L
Pressure ranges	0 – 0.6 bar to 0 – 1000 bar
Process connection	G ½ B
Data sheet	1203
Certificates	   

RChg/RChgG 100, 125, 160

RSCh/RSChG 100, 160

» available also as welded model «

(see arctic version page 17)

back flange for surface mounting

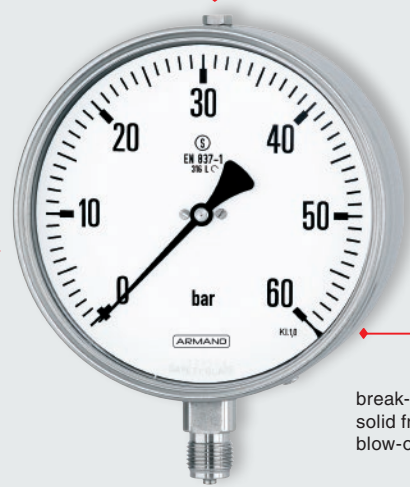
crimped-on ring case



» with or without back flange for surface mounting «

safety version





bayonet ring case







break-proof solid front, blow-out back

» metric threads and NPT available without extra charges «

RChg/RChgG 100, 125, 160

Case	stainless steel
Ring	crimped-on ring stainless steel
Case filling	without/with
Accuracy	class 1.0
Nominal case size	100, 125, 160 mm (4, 5, 6")
Wetted parts	- 1 brass - 3 stainless steel 316L - 6 Monel
Pressure ranges	0 – 0.6 bar to 0 – 1600 bar
Process connection	G ½ B
Data sheet	1202
Certificates	   

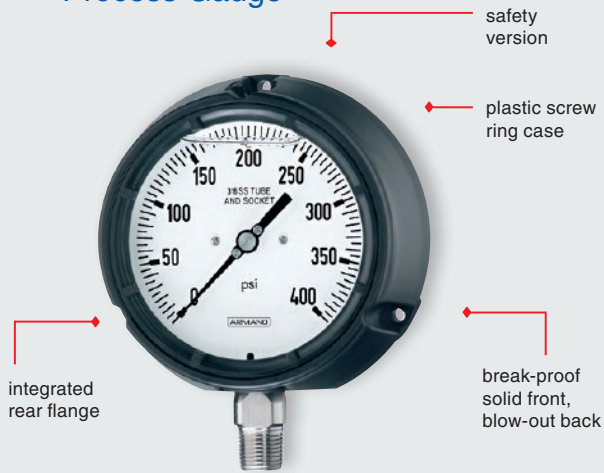
RSCh/RSChG 100, 160

Case	stainless steel
Ring	bayonet ring stainless steel
Case filling	without/with
Accuracy	class 1.0
Nominal case size	100, 160 mm (4, 6")
Wetted parts	- 1 brass - 3 stainless steel 316L - 6 Monel
Pressure ranges	0 – 0.6 bar to 0 – 1600 bar
Process connection	G ½ B
Data sheet	1600
Certificates	   

Special Pressure Gauges

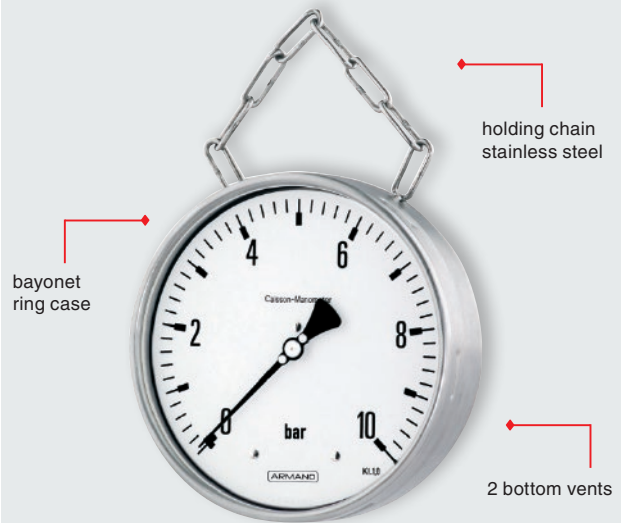
RPG/RPGG 4 1/2"

» US Standard Process Gauge «





RCaiCh 160



» Caisson Gauge «



RPG/RPGG 4 1/2"

Case	robust plastic
Ring	screw ring PBTP (thermoplastic)
Case filling	without/with
Accuracy	Grade 2A(± 0.5 %) gem. ASME B40.1
Nominal case size	4 1/2"
Wetted parts	- 3 stainless steel 316L - 6 Monel
Pressure ranges	0 – 0.6 bar to 0 – 1600 bar
Process connection	1/2" NPT
Data sheet	1401
Certificates	 

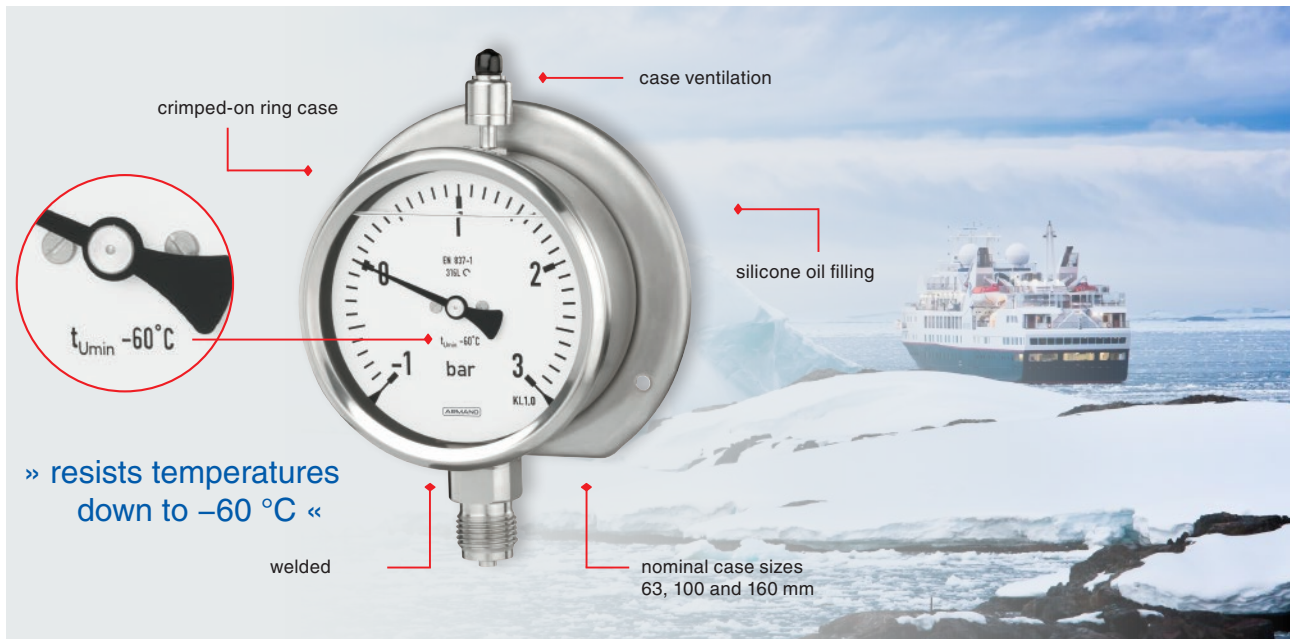
RCaiCh 160

Case	stainless steel
Ring	bayonet ring stainless steel
Case filling	without
Accuracy	class 1.0
Nominal case size	160 mm (6")
Wetted parts	- 1 brass
Pressure ranges	0 – 0.6 bar to 0 – 16 bar
Process connection	-
Data sheet	1800
Certificates	 

The Arctic Version

Welded for Extreme Operating Conditions

RChgG 100 – 3v



NEWS

Safety Pressure Gauge RSChgG 160 – 3v

Especially for Arctic countries, where outside temperatures can drop to $-60^{\circ}C$ ($-76^{\circ}F$), we have now also developed a safety pressure gauge that is able to brave such temperatures...

Our RSChgG 160 – 3v does not only withstand extreme temperatures down to $-60^{\circ}C$, but also sandstorms, salt water or sea air.

As the demands on the extraction and transport of crude oil and natural gas over great distances, and on the appropriate treatment continue to grow steadily, our pressure gauges also have to meet ever-higher application standards.



Visit our website and find out more about our newest instruments!

Application: Offshore Pressure Measurement

The oil catastrophe in the Gulf of Mexico caused major damage in the waters, the flora and fauna. In order to avoid such natural disasters in the future, work is being done on the improvement of oil collection systems in case of a potential subsea oil spill. In consequence, pressure gauges also have to meet highest demands.



Difficult geohydraulic conditions are prevailing when drilling and producing oil and gas. The rock layers are under a high pressure caused by fluids in rock pores. Due to oil, gas and water critical conditions can develop, especially during deepwater drillings.

Blow-out-Preventers (BOPs) are installed directly above the well to make the drilling safer. BOP are a series of shut-off valves. These are controlled and activated by pressure gauges. In case of an oil or gas blow-out, the BOP is designed to seal the well and thus prevent the oil from spilling into the ocean.

BOPs are very large and difficult to install. At great depths, the difficulties increase, also with regard to the functionality of the instruments.

In addition to BOPs, there are also other fields of application in the oil and gas production where pressure gauges are used under water:

- ◆ Production trees – serve as well closure after a successful drilling for crude oil or natural gas
- ◆ Remotely Operated Vehicle (ROV)
- ◆ Subsea pumping facilities

Subsea Gauge as Control Instrument to a Depth of 3,000 m (10,000 ft)

for manufacturers and operators of remote-controlled, camera-monitored and hydraulic tools or devices for the operation of subsea pipelines or drilling equipment in the offshore area

RChG 100 – 3 rFr

case configuration:
lower back connection (r)

front flange
for panel mounting (Fr)



» applicable to a water depth
of 3,000 m «

window acrylic glass

dial aluminum black,
scale and pointer white

» options:

other case configurations
other process connections «

» available also with
nominal case size 63 «

As the drilling takes place in ever greater depths, the functionality of the instruments has to stand the test.

Our pressure gauge, especially designed for subsea application, withstands these difficult conditions to a water depth of 3,000 m (10,000 ft). But also salt water must not corrode the instruments, which is why we use appropriate materials to ensure the continuous operation of the instruments in this environment.

Under such harsh process conditions our instrument operates accurately and reliably.

The displayed values are transmitted by cameras and have to be easily readable. Due to our special pointer and scale design, the values can be read precisely, even in great water depths.

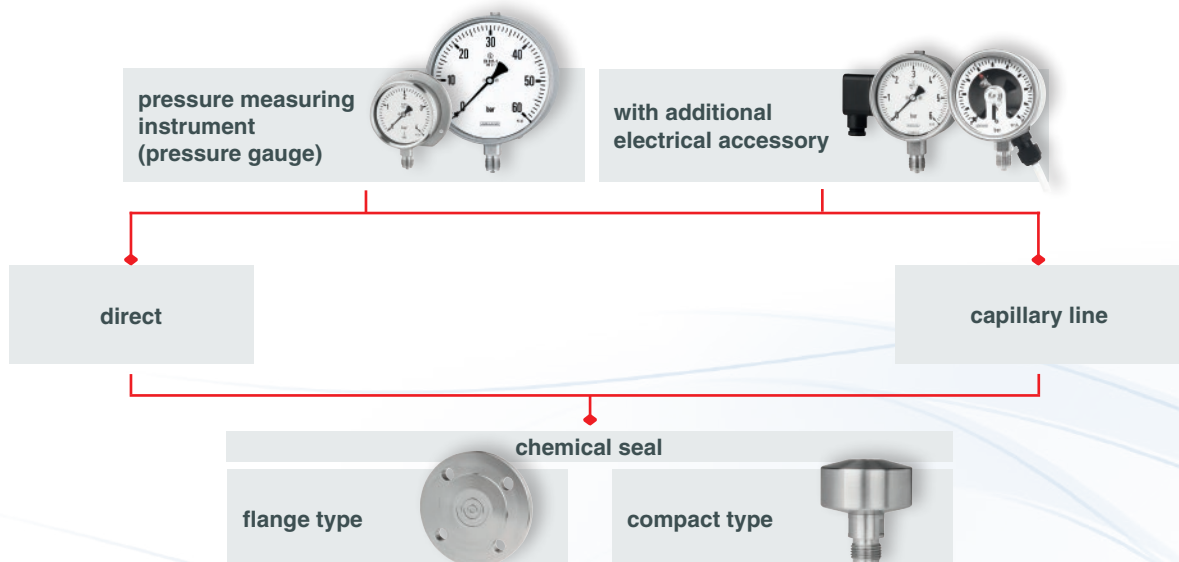
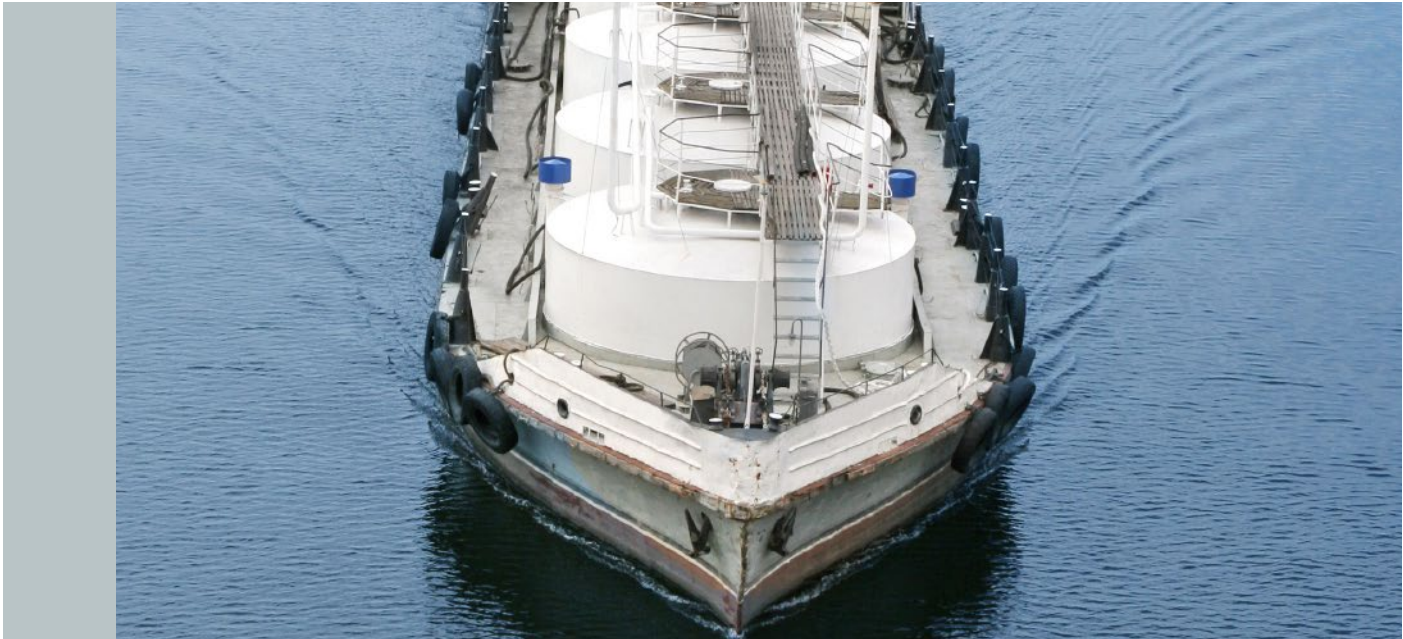
RChG 100 – 3

Case	stainless steel
Ring	bayonet ring stainless steel
Case filling	with
Accuracy	class 1.0
Nominal case size	100 mm (4")
Wetted parts	stainless steel
Pressure ranges	0 – 160 bar to 0 – 4000 bar
Process connection	¼" NPT
Certificates	



Mounting Options for Pressure Measuring Instruments

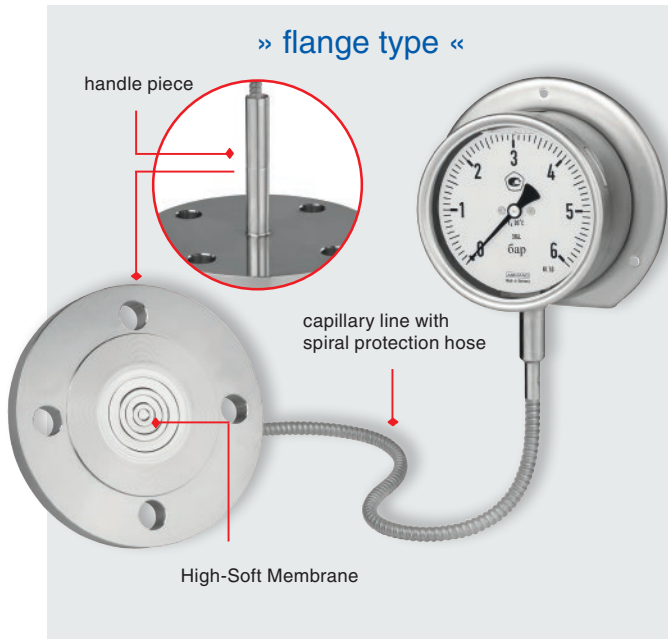
Pressure measuring instruments can be equipped with additional electrical accessories. These accessories are mounted into the measuring instruments. Chemical seals are added when pressure measuring instruments (with or without additional electrical accessories) are to be separated from the medium. They can be mounted directly or with a capillary line to the measuring instruments.



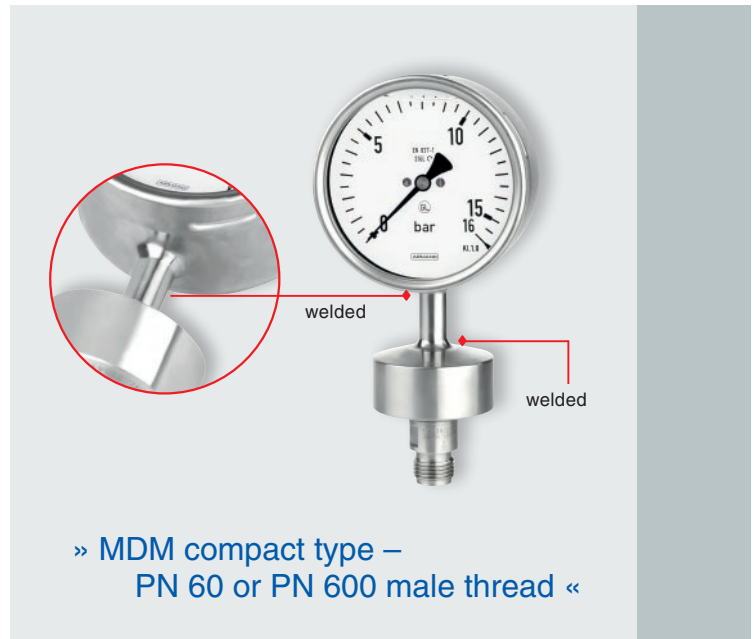
Additional Accessory: Chemical Seals

Chemical seals extend the fields of application of measuring instruments for pressure, vacuum, compound ranges, absolute and differential pressure, i.e. Bourdon tube pressure gauges and transmitters. Here, pressure ranges up to 1000 bar and higher can be realised. Basically, chemical seals consist of a body with process connection and a diaphragm as separating element, which prevents the medium from entering the measuring unit.

RCh 100 – 3vDW with MDM 7510v/7520v



RChG 100 – 3vDW with MDM 7910v/7980v



MDM 7510v/7520v

Process connection	MDM 7510: flange according to DIN EN MDM 7520: flange according to ASME
Instrument connection	vd8: orifice d8
Wetted parts ¹⁾	stainless steel
Pressure ranges	0 – 0.6 bar to 0 – 400 bar
Data sheet	7500
Certificates	

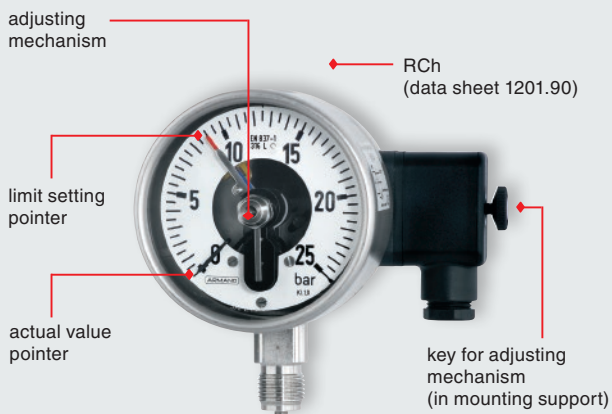
MDM 7910v/MDM 7980v

Process connection	G ½B, M20x1.5, ½" NPT
Instrument connection	vd8: orifice d8
Wetted parts ¹⁾	stainless steel
Pressure ranges	7910v: 0 – 1 bar to 0 – 60 bar 7980v: 0 – 100 bar to 0 – 600 bar
Data sheet	7935
Certificates	

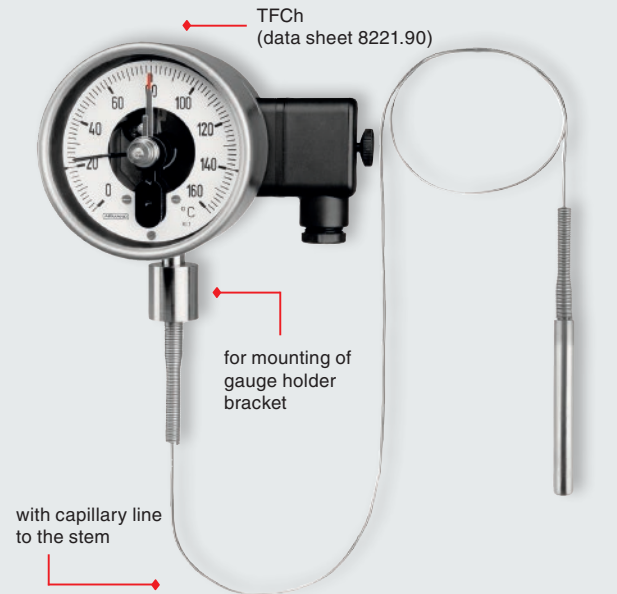
¹⁾ others upon request

Complementary Electrical Accessories For Pressure and Temperature

RCh with Limit Switch Contact Assembly



TFCh with Limit Switch Contact Assembly



Additional electrical accessories can be integrated in both pressure and temperature measuring instruments. Limit switch contact assemblies close or open electric or pneumatic circuits. With the adjustable pointer and the key, the limit setting pointers can be adjusted to the required value on the entire range of the scale. When exceeding or falling below the adjusted reference value, the actual value pointer triggers the switch.

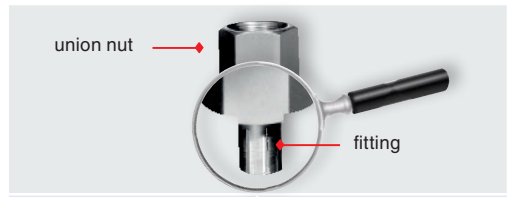
Accessory For Pressure Measuring Instruments



for shutting-off pressure gauges

for shutting-off pressure gauges with test connection M20x1.5

	Pressure Gauge Valve acc. to DIN 16 270	Pressure Gauge Valve acc. to DIN 16 271
Body	brass, steel, stainless steel	brass, steel, stainless steel
Max. medium temperature	120 °C	120 °C
PN	brass: 250 bar, steel, stainless steel: 400 bar	brass: 250 bar, steel, stainless steel: 400 bar



union nut

fitting

for union nut

	Union Nut	Fitting
Material	brass, steel, stainless steel	brass, steel, stainless steel
PN	brass: 250 bar, steel, stainless steel: 400 bar	brass: 250 bar, steel, stainless steel: 400 bar

Other accessories upon request.

Especially for Ship Sellers

Retrofitting Parts for Flexible Warehousing



press-on back flange for surface mounting, can be retrofitted to prepared instruments

red or green mark, adjustable externally, can be retrofitted

	Press-on Back Flange for Surface Mounting ¹⁾	Plastic Clips
Case	for crimped-on ring cases and bayonet ring cases	for crimped-on ring cases and bayonet ring cases
NCS crimped-on ring	100 (4")	63, 80, 100, 125, 160 (2½, 3, 4, 5, 6")
NCS bayonet ring	100 (4")	100, 160 (4, 6")

¹⁾ press-on device available separately

Restoration of Old Instruments and Manufacturing of New Instruments in Historical Design



The restoration of your old pressure gauges and thermometers lets them shine bright and new.

Is the instrument worth restoring?
We are glad to help with your decision.

Possible restoration procedure:

- ◆ Dismounting of the individual components
- ◆ Reworking of damage
- ◆ Cleaning and polishing
- ◆ Readjustment – if possible and requested
- ◆ Reworking or printing of new individual scales
- ◆ Mounting of the individual components
- ◆ Check of the functionality

Besides restoring old instruments, we also manufacture new instruments in historical design.

To preserve the charm of a yacht or steam boat, the instruments should have the suitable design.

Options:

- ◆ Case made of brass
- ◆ Special pointer versions
- ◆ Special dials

Do not hesitate to contact our experienced sales team.
There are almost no limits to what we can do!

Certificates and Approvals

Standards

A high quality standard is a matter of course for us! Not only our company is certified according to the highest quality standards, our products are manufactured according to varied regulations and approved for the most part as well. The ARMANO Messtechnik GmbH is certified according to DIN EN ISO 9001.



Certificates

We Issue the Following Certificates Upon Request:

Inspection certificate 3.1 for the wetted material according to EN 10 204

- ◆ Solid drilled thermowells
- ◆ Pressure gauges
- ◆ Chemical seals

Inspection certificate 3.1 for the accuracy according to EN 10 204

- ◆ Pressure gauges
- ◆ Thermometers

Inspection certificate 3.1 for the pressure test according to EN 10 204

- ◆ Solid drilled thermowells



Any Questions?

We are pleased to offer our help and answer any of your questions and provide background information on our pressure gauges and thermometers. We can only optimise the measuring instrument for your specific case of application when receiving exact, complete information on the process or a precise specification of the required measuring system. Please do not hesitate to contact our staff, who will support you in filling out our check lists, which are also available upon request.

» we have prepared check lists for you
to help you with the specification of your instruments «

» PDF versions for printing at
www.armano-messtechnik.com «



Checklist Thermometers

Inquiry / Project / Order No.	Name / Address / Phone / E-Mail
Application (short description)	
Temperature range	from to °C <input type="checkbox"/> °F
dial scale:	
special scale, logo, dial inscription, etc.:	
Ambient temperature	at temperature measuring device °C steady, or min.
Ambient temperature	at the capillary line °C steady, or min.
Outdoor use	<input type="checkbox"/> yes <input type="checkbox"/> no
Measuring system	<input type="checkbox"/> bimetal TBI <input type="checkbox"/> gas-actuated T

Checklist Pressure Gauges

ARMANO
Heading 1 - 4, 6

Inquiry / Project / Order No.	Name / Address / Phone / E-Mail
Application (short description)	
Medium	<input type="checkbox"/> liquid <input type="checkbox"/> gaseous
Operating pressure	static bar / dynamic from to bar / frequency
Outdoor use	<input type="checkbox"/> yes <input type="checkbox"/> no
Ambient temperature	from °C to °C
Medium temperature	from °C to °C
Pulsation	<input type="checkbox"/> yes <input type="checkbox"/> no
Vibration	<input type="checkbox"/> yes <input type="checkbox"/> no
Measuring system	<input type="checkbox"/> Bourdon tube <input type="checkbox"/> horizontal diaphragm <input type="checkbox"/> vertical diaphragm <input type="checkbox"/> diaphragm
Accuracy class	<input type="checkbox"/> 0.25 <input type="checkbox"/> 0.6 <input type="checkbox"/> 1.0 <input type="checkbox"/> 1.6 <input type="checkbox"/> 2.5 others:
Case material	<input type="checkbox"/> stainless steel <input type="checkbox"/> plastic others:
Case model	<input type="checkbox"/> bezel ring (IP 60, IP 65) <input type="checkbox"/> bayonet ring <input type="checkbox"/> crimped-on ring <input type="checkbox"/> screw
	<input type="checkbox"/> safety <input type="checkbox"/> snap-in window <input type="checkbox"/> square case <input type="checkbox"/> process
	<input type="checkbox"/> instrument glass <input type="checkbox"/> laminated safety glass <input type="checkbox"/> polycarbonate
	<input type="checkbox"/> acrylic glass others:
Window	
Blow-out	<input type="checkbox"/> yes <input type="checkbox"/> no

Checklist

SF₆ Gas Density Monitors (NCS 100 / 4")

ARMANO
Heading 1

Construction Type (see drawings in data sheet 1902)	
Position of connection	<input type="checkbox"/> bottom <input type="checkbox"/> back <input type="checkbox"/> lateral right <input type="checkbox"/> lateral left
Position plug connector	<input type="checkbox"/> right <input type="checkbox"/> back
Back flange	<input type="checkbox"/> yes <input type="checkbox"/> no
Front flange	<input type="checkbox"/> yes <input type="checkbox"/> no
Connection thread	<input type="checkbox"/> G $\frac{1}{2}$ B <input type="checkbox"/> G $\frac{1}{4}$ B <input type="checkbox"/> M20x1.5 <input type="checkbox"/> or
Configuration / Case Filling	
	<input type="checkbox"/> unfilled <input type="checkbox"/> filled with silicone oil <input type="checkbox"/> filled with nitrogen
Pressure Range	<input type="checkbox"/> -0.1 / +0.9 MPa <input type="checkbox"/> other unit <input type="checkbox"/> other pressure range (min. 0.25 MPa)
Temperature Compensation Range	
	<input type="checkbox"/> -20 / +60 °C (-4 / +140 °F) <input type="checkbox"/> -40 / +40 °C (-40 / +104 °F) <input type="checkbox"/> or
Application for	

Precision is our Passion - Reliability our Principle



ARMANO

ARMANO Messtechnik GmbH

Location Beierfeld

Am Gewerbepark 9
08344 Grünhain-Beierfeld
Germany

Tel.: +49 3774 58 – 0

Fax: +49 3774 58 – 545

mail@armano-beierfeld.com

Location Wesel

Manometerstraße 5
46487 Wesel-Ginderich
Germany

Tel.: +49 2803 9130 – 0

Fax: +49 2803 1035

mail@armano-wesel.com



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