

S261

Remote seals with capillary tube

2600T Series Pressure Transmitters

Engineered solutions for all applications



Wide range of remote seal types

- Allows optimum design for each application without compromising performance

Large selection of options, materials and fill fluids

- Meets nearly all process requirements

Designed for use with the 2600T pressure transmitter

- Combines an economically feasible and technically sound solution that ensures total reliability from line pressure to full vacuum

Special designed remote seals for individual process solutions

- Added flexibility for the most demanding processes

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1 Remote Seals Overview

The S261 seals are used in combination with 261 transmitters for gauge or absolute pressure measurements.

The seal is connected to the relevant transmitter via a capillary system that links the transmitter sensor to a "remote" seal of any type.

The S26 Series Seal System is a protective device used to isolate 2600T series transmitters from the process fluid.

The seal system provides a flexible diaphragm between the process fluid and a liquid filled capillary tube connected to the body of the transmitter. The diaphragm isolates the process fluid while the filled capillary tube hydraulically transmits the process pressure to the transmitter sensor. The remote seal capillary is corrosion-resistant with robust construction in stainless steel with spiral armor protection, and an optional PVC jacket.

For certain applications, it is necessary to use a remote seal in order to suit specific process conditions, e.g.:

- The process fluid has solids in suspension or is highly viscous and can foul impulse lines.
- The process fluid can solidify in impulse lines or the transmitter.
- The transmitter must be located in a separate area from a hazardous process fluid.
- The process temperature exceeds the recommended limits for the transmitter.
- The transmitter must be located in a separate area from the process for easier maintenance.

The S26 series is available with process connections for ASME or DIN pipe flanges. Extended diaphragm remote seals, suitable for connection to 2-, 3- or 4-inch resp. DN 50, DN 80 or DN 100 flanged tank nozzles or flanged tees, permit the seal diaphragm to be located flush with the inside of a tank or pipe. FDA approved fillings and compliance with 3-A Sanitary Standards are also available.

Fill fluids with FDA approval are defined as food fills and are Generally Recognized As Safe (GRAS) by the US Food and Drug Administration (FDA).

1.1 Seal system selection criteria

The application of an S26 system in direct mount or remote seal configuration to 2600T transmitters affects performance of the original device.

These effects are shown in:

- Accuracy
- Temperature effect
- Dynamic response

Accuracy

Accuracy is only marginally affected when seal diaphragm stiffness is relevant low compared with sensor stiffness. High stiffness of diaphragm associated with low URL might produce increased errors of linearity, hysteresis and long-term stability and has effect to the behavior of changing process- and environment conditions.

Temperature effect

The S26 system has an effect on temperature performance of the complete transmitter. Errors primarily affect the zero position of units. They are caused by a temperature-dependent change in volume of the fill fluids in the seal system. The change in volume must be absorbed by the seal diaphragm. Depending on the stiffness of the diaphragm, additional pressure may form in the fill fluid, resulting in a zero error.

The level of error depends on the stiffness of the seal diaphragm and the thermal expansion coefficient of the fill fluid.

Dynamic response

Application of S26 seal to transmitters increases the original time response. The amount of the increase depends on the number of elements and condition of the instrument as follows:

- transmitter sensor range
- fill fluid viscosity of the S26 system applied
- ambient and process temperature
- capillary length

The delay introduced by the seal may be added to the time constant of the associated transmitter.

To obtain the best application solution:

- choose the sensor code with URL closest to the application SPAN.
- select largest diameter diaphragm seal related to URL.
- keep the capillary length as short as possible
- Use fluids with as low as possible viscosity and minimal thermal expansion
- In vacuum applications, mount the transmitter primary 30 cm / 12 inches or more below the lower seal connection.

1.2 Ordering information

The transmitter and each seal system are each identified by a product code number. The code numbers are listed on the type plate of the transmitter, and each character stands for a special product feature. Refer to ordering information for a detailed explanation of the product code numbers.

A typical example of the product code is as follows:

Transmitter product code: 261GRR21_L1 B2

Seal System Product Code: S261WHBEFSACS

If remote seal applications not described in this data sheet are required, custom applications are available. Please allow ABB to check the existing options in this case by providing the application as well as process and ambient temperature.

The following table shows the types of standard seals described in this data sheet.

ABB can also work with you to develop a special remote seal for applications requiring individual solutions.

Please contact your local ABB office or representative for additional information.

1.3 Fill fluid properties (Table A)

Fill fluids (applications)	Id	Density at 20 °C in kg/m ³	Thermal expansion (x10 ⁻⁴ /K)	Process temperature	Pressure in kPa abs					
					20 °C (68 °F)	100 °C (212 °F)	150 °C (302 °F)	200 °C (392 °F)	250 °C (482 °F)	375 °C (707 °F)
Silicone oil	IC	1055	8.1	-30 ... 250 °C (-22 ... 482 °F)	> 50	> 50	> 50	> 75	> 100	-
Carbon fluoride	L	1860	11.7	-30 ... 150 °C (-22 ... 302 °F)	> 100	> 100	> 100	-	-	-
High temperature oil	SH	1070	7.7	-10 ... 375 °C (14 ... 707 °F)	> 50	> 50	> 50	> 75	> 100	> 100
White oil (FDA)	WB	849	7.9	-6 ... 200 °C (21 ... 392 °F)	> 50	> 100	> 100	> 100	> 100	-
Silicone oil for vacuum application	IC-V	1055	8.1	-30 ... 200 °C (-22 ... 392 °F)	> 0.5	> 2.5	> 3.8	> 5	-	-
White oil (FDA) for vacuum application	WB-V	849	7.9	-6 ... 200 °C (21 ... 392 °F)	> 0.5	> 2.5	> 5	> 100	-	-



Important

Seals with diaphragm made of Tantalum should not be used with temperatures more than 220°C.

Seals dimensions on the following pages are in mm (inch).

2 S261W Model Wafer Remote Seal

The wafer remote seal is designed to be clamped between two ASME or DIN raised face flanges. The diaphragm side of the seal faces the process flange and a blind back-up flange is used on the other side of the seal.

Only gaskets manufactured from soft materials may be used with remote seals whose diaphragms and sealing surface is made of tantalum.

2.1 Mounting examples

Mounting examples and types of sealing surfaces for DN50 / DN80 or ASME 2 inch / 3 inch remote seals

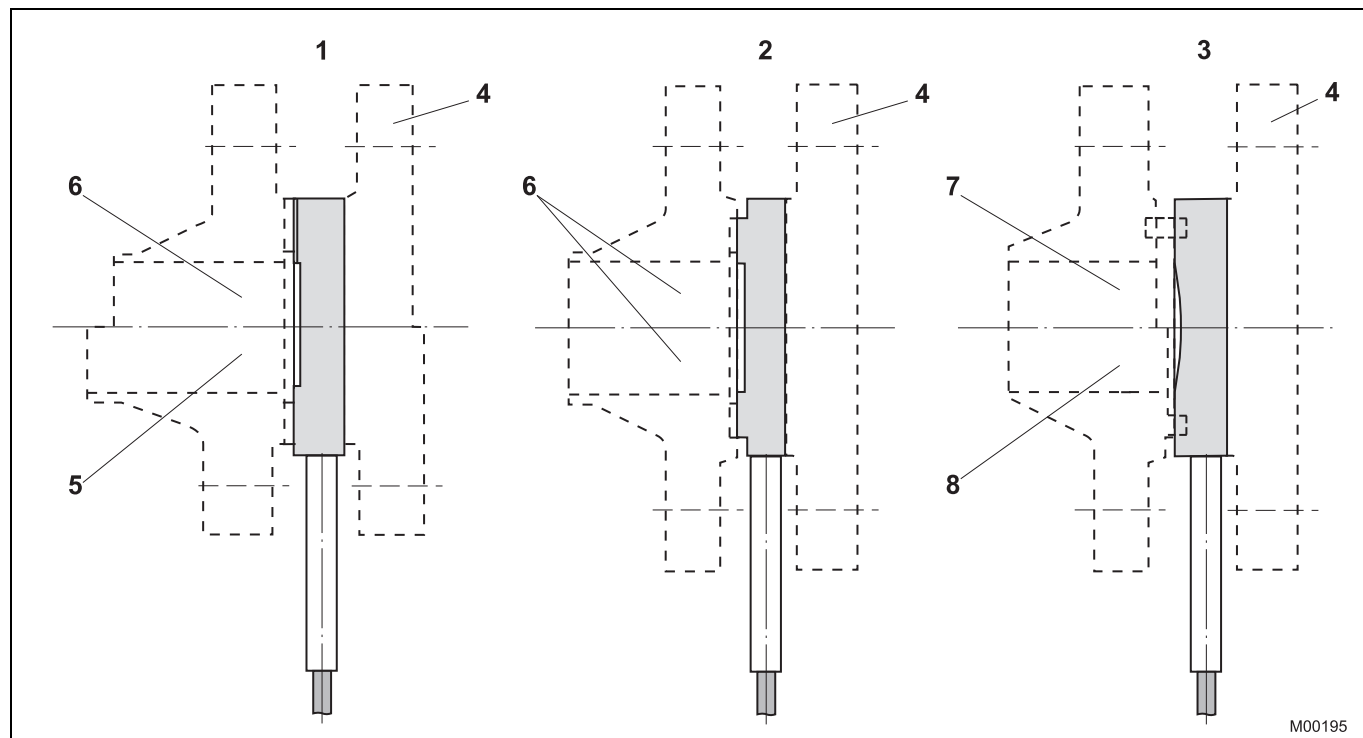


Fig. 1

- | | |
|---|-------------------------------|
| 1 Form B2 acc. to EN 1092 (DIN 2526-E)
Form RF (ASME B 16.5) | 4 Blind flange |
| 2 Form E acc. to EN 1092 (DIN 2513 - V13) | 5 ASME application |
| 3 Form D acc. to EN 1092 (DIN 2512 - N) | 6 DIN application |
| | 7 DIN application with groove |
| | 8 DIN application with tongue |

2.2 Seal dimensions

2.2.1 Wafer remote seals

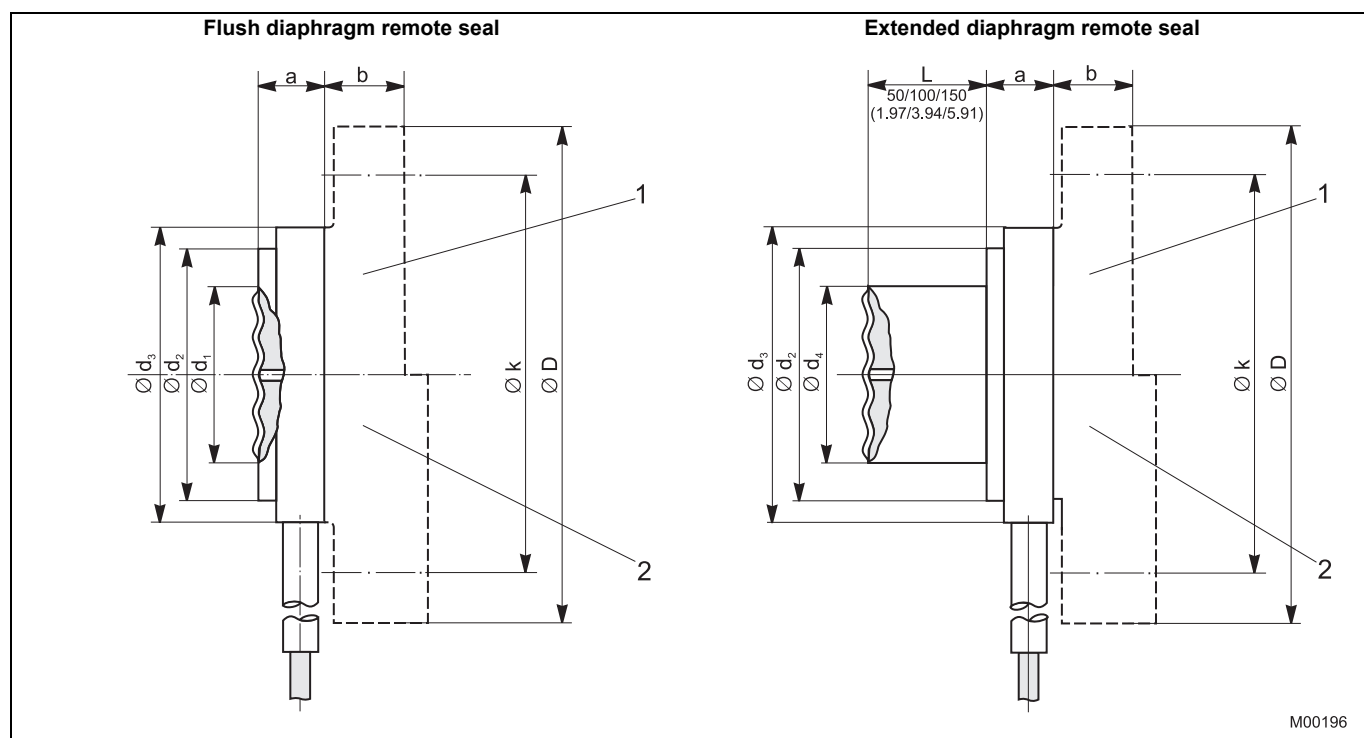


Fig. 2

1 Blind flange, DIN application

2 Blind flange, ASME application

2.2.2 Wafer seal dimensions

Dimensions in mm (inch)

Size	Sealing surface	a	Ø d ₁	Ø d ₂	Ø d ₃	Ø d ₄	Weight in kg (approx.)	
							Flush diaphragm	With extended diaphragm
DN 50	EN 1092_B2 (DIN 2526-E)	18 (0.71)	57 (2.24)	-	102 (4.02)	48.3 (1.9)	1.5	2
DN 50	EN 1092_E (DIN 2513-V13)	18 (0.71)	57 (2.24)	87 (3.42)	102 (4.02)	48.3 (1.9)	1.5	2
DN 50	EN 1092_D (DIN 2512-N)	18 (0.71)	57 (2.24)	-	102 (4.02)	48.3 (1.9)	1.5	2
2 in	Form RF (ASME B 16.5 / CL 150 ... 2500)	18 (0.71)	57 (2.24)	-	102 (4.02)	48.3 (1.9)	1.5	2
DN 80	EN 1092_B2 (DIN 2526-E)	18 (0.71)	78 (3.07)	-	138 (5.43)	73 (2.87)	2.5	3.0
DN 80	EN 1092_E (DIN 2513-V13)	18 (0.71)	78 (3.07)	120 (4.72)	138 (5.43)	73 (2.87)	2.5	3.0
DN 80	EN 1092_D (DIN 2512-N)	18 (0.71)	78 (3.07)	-	138 (5.43)	73 (2.87)	2.5	3.0
3 in	Form RF (ASME B 16.5 / CL 150)	18 (0.71)	78 (3.07)	-	127 (5)	73 (2.87)	2	2.5
3 in	Form RF (ASME B 16.5 / CL 300 ... 2500)	18 (0.71)	78 (3.07)	-	138 (5.43)	73 (2.87)	3	3.5

2.2.3 Wafer connection dimensions, dimensions in mm (inch)

Information on flange design (not supplied)

Flange type		Ø k	Ø D	Screws required		b
				Number	Ø bore hole	
DN 50	PN 16 / 40	125 (4.92)	165 (6.5)	4	18 (0.71)	18/20 (0.71/0.79)
DN 50	PN 63	135 (5.31)	180 (7.09)	4	22 (0.87)	26 (1.02)
DN 50	PN 100	145 (5.71)	195 (7.68)	4	26 (1.02)	28 (1.1)
2 in	150 psi	120.6 (4.75)	152.4 (6)	4	19.1 (0.75)	19 (0.75)
2 in	300 psi	127 (5)	165.1 (6.5)	8	19.1 (0.75)	22.2 (0.87)
2 in	600 psi	127 (5)	165.1 (6.5)	8	19.1 (0.75)	25.4 (1)
2 in	1500 psi	165.1 (6.5)	215.9 (8.5)	8	25.4 (1.00)	38.1 (1.5)
DN 80	PN 16 / 40	160 (6.3)	200 (7.87)	8	18 (0.71)	20/24 (0.79/0.94)
DN 80	PN 63	170 (6.69)	215 (8.46)	8	22 (0.87)	28 (1.1)
DN 80	PN 100	180 (7.09)	230 (9.06)	8	26 (1.02)	32 (1.26)
3 in	150 psi	152.4 (6)	190.5 (7.5)	4	19.1 (0.75)	23.8 (0.94)
3 in	300 psi	168.3 (6.63)	209.5 (8.25)	8	22.4 (0.88)	28.6 (1.13)
3 in	600 psi	168.3 (6.63)	209.5 (8.25)	8	22.4 (0.88)	31.8 (1.25)
3 in	1500 psi	203.3 (8)	266.7 (10.5)	8	31.8 (1.25)	47.6 (1.87)



Important

Gasket and fixing accessories not supplied.
Mounting with capillary tube.

2.3 Technical data

Maximum Working Pressure

Flush diaphragm wafer remote seals

- Acc. to DIN from PN 10 bar to PN 400 bar
- Acc. to ASME from 150 psi to 1500 psi

Extended diaphragm remote seal

- Acc. to DIN from PN 10 bar to PN 100 bar
- Acc. to ASME from 150 psi to 600 psi but not higher than the load capacity of the flange (not supplied)

Vacuum Service

Same as fill fluid limits. Refer to table A.

Process Temperature Limits

Same as fill fluid limits. Refer to table A.

- 220 °C (428 °F) for tantalum diaphragm.
- 150 °C (302 °F) for use with FEP anti-stick coating.

2.4 Temperature effect

The following table shows the temperature effect for a 20 K (36 °F) change, detailed separately for:

- the remote seal
- the capillary tube per meter
- the transmitter (in addition to the transmitter data sheet) when filling IC silicone oil and stainless steel diaphragm materials.

When using a different filling than silicone oil, the errors can be multiplied by the quotient of thermal expansion coefficient of actual filling divided by the thermal expansion coefficient of silicone oil (filling X / silicone oil). (See table "Fill fluid properties".)

S261W Wafer remote seal connected to 261GR/AR

Additional effect for each 20 K (36 °F) temperature change

	Size	System (sensor) error			Capillary error per meter			Seal error		
		kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O
Flush diaphragm	2 in / DN 50	0.03	0.3	0.12	0.03	0.3	0.12	0.07	0.7	0.28
Flush diaphragm	3 in / DN 80	0.02	0.2	0.08	0.02	0.2	0.08	0.04	0.4	0.16
Extended diaphragm	2 in / DN 50	0.04	0.4	0.16	0.035	0.35	0.14	0.16	1.6	0.64
Extended diaphragm	3 in / DN 80	0.01	0.1	0.04	0.008	0.08	0.032	0.02	0.2	0.08

Remote seals with capillary tube

2.5 Ordering information

Wafer Remote Seal		Variant digit No.	1 - 6	7	8	9	10	11	Code			
S261W		Catalog No.	S261W-									
Transmitter side of connection												
High side			H									
Size												
2 in ASME (150...1500 psi)				B								
3 in ASME (150 psi)				N								
3 in ASME (300...1500 psi)				C								
DIN DN 50				E								
DIN DN 80				F								
Seat finish		DN 50 / 2 in										
Form RF- raised face (ASME B 16.5)			1)			E						
EN 1092 - B2 (DIN 2526 - Form E)		(up to PN 400)	2)			S						
EN 1092 - E (DIN 2513 - V13)		(up to PN 100)	2)			M						
EN 1092 - D (DIN 2512 - N)		(up to PN 160)	2)			N						
Seat finish		DN 80 / 3 in										
Form RF- raised face (ASME B 16.5)			1)			E						
EN 1092 - B2 (DIN 2526 - Form E)		(up to PN 400)	2)			S						
EN 1092 - E (DIN 2513 - V13)		(up to PN 100)	2)			M						
EN 1092 - D (DIN 2512 - N)		(up to PN 160)	2)			N						
Extension length and material		DN 50 / 2 in										
Flush (see diaphragm material)						F						
50 mm (2 in) AISI 316L ss		(for use up to PN 100 / Class 600)				1						
50 mm (2 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				2						
100 mm (4 in) AISI 316L ss		(for use up to PN 100 / Class 600)				3						
100 mm (4 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				4						
150 mm (6 in) AISI 316L ss		(for use up to PN 100 / Class 600)				5						
150 mm (6 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				6						
Extension length and material		DN 80 / 3 in										
Flush (see diaphragm material)						F						
50 mm (2 in) AISI 316L ss		(for use up to PN 100 / Class 600)				1						
50 mm (2 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				2						
100 mm (4 in) AISI 316L ss		(for use up to PN 100 / Class 600)				3						
100 mm (4 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				4						
150 mm (6 in) AISI 316L ss		(for use up to PN 100 / Class 600)				5						
150 mm (6 in) Hastelloy C276™		(for use up to PN 100 / Class 600)				6						
Diaphragm material		DN 50 / 2 in										
AISI 316L ss		NACE	3)			S						
Hastelloy C276™		NACE	4)			H						
Tantalum		NACE	5) 6)			T						
AISI 316L ss with FEP anti-stick coating		NACE	5) 6)			1						
Hastelloy C276™ with FEP anti-stick coating		NACE	5) 6)			2						
Diaphragm material		DN 80 / 3 in										
AISI 316L ss		NACE	3)			S						
Hastelloy C276™		NACE	4)			H						
Tantalum		NACE	5) 6)			T						
AISI 316L ss with FEP anti-stick coating		NACE	5) 6)			1						
Hastelloy C276™ with FEP anti-stick coating		NACE	5) 6)			2						

1) not available with DIN size code E, F

2) not available with ASME size code B, N, C

3) not available with extension length and material code 2, 4, 6

4) not available with extension length and material code 1, 3, 5

5) not available with extension length and material code 1, 2, 3, 4, 5, 6

6) not available with seat finish code N

Continued on next page

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2.6 Ordering information (continued)

Wafer Remote Seal		Variant digit No.	1 - 6	10	11	12	13	14	Code			
S261W		Catalog No.	S261W-									
Capillary protection												
AISI 316 ss armour							A					
AISI 316 ss armour with PVC protective cover							B					
Capillary length m (feet)												
1 (3)							A					
2 (7)							C					
4 (13)							G					
6 (20)							L					
8 (27)							Q					
11 (37)							W					
16 (53)							V					
Special length between 1m and 16m												
basic price of the next longer standard length plus an extra fee							Z					
Fill fluid												
Silicone oil							S					
Silicone oil for high temperature							H					
White oil (FDA certified)						7)	W					
Carbon fluoride						8)	N					
Silicone oil for vacuum applications							L					
White oil (FDA certified) for vacuum applications						7)	Y					

7) suitable for food applications

8) suitable for oxygen applications

3 S261F Model Flanged Flush and Extended Diaphragm Remote Seal

The flush and extended diaphragm remote seal is designed to connect to ASME or DIN flanged pipe fitting.

3.1 Seal dimensions

3.1.1 Flush diaphragm remote seals

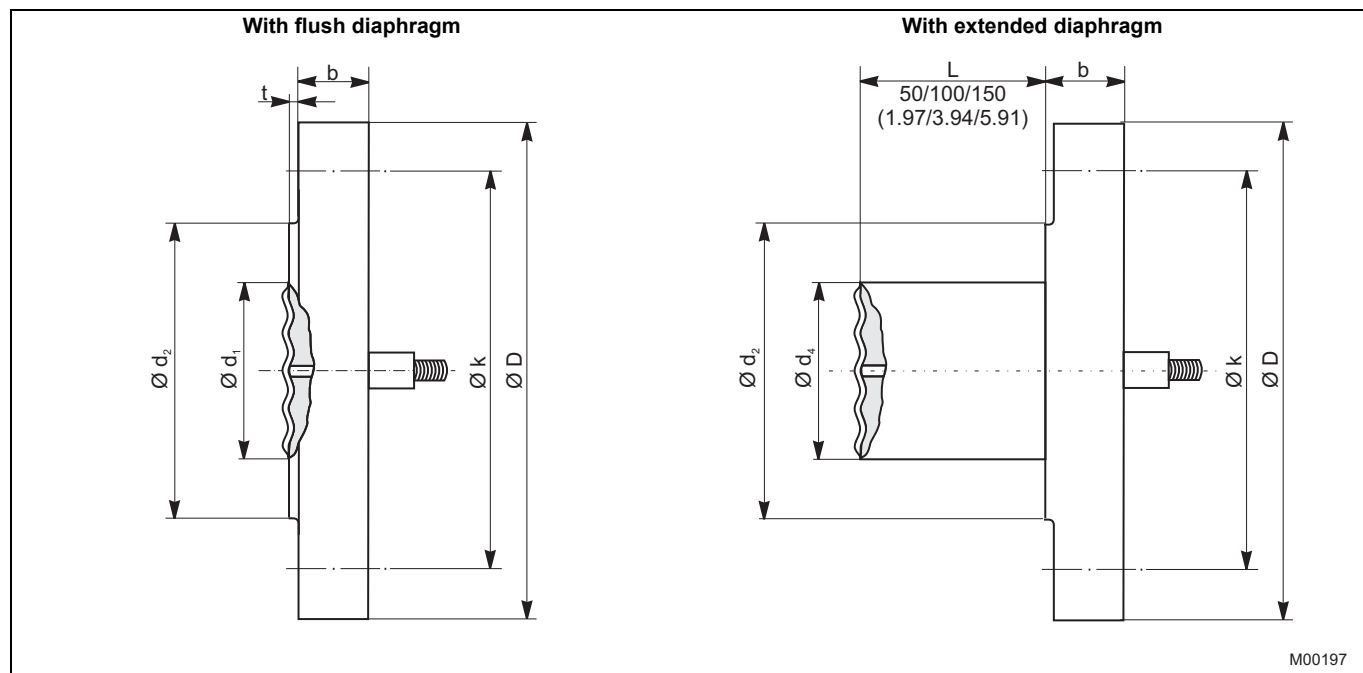


Fig. 3

3.1.2 Form V13 sealing surface

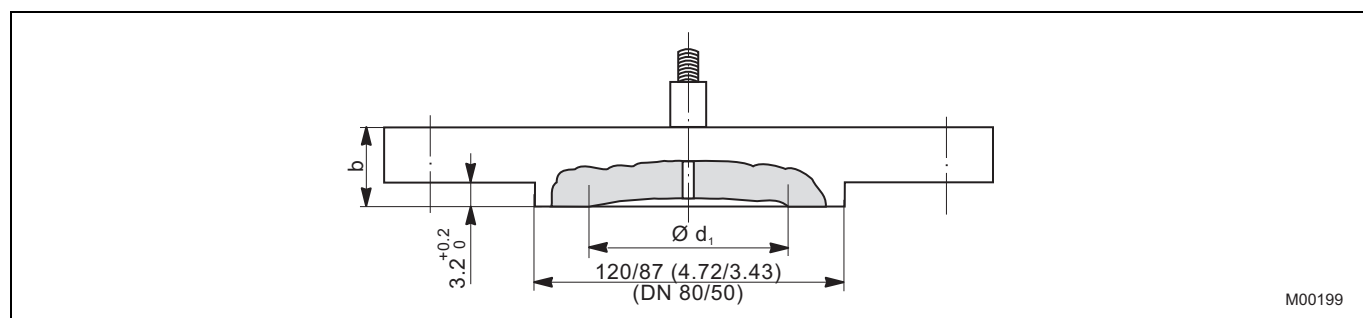


Fig. 4

3.1.3 Sealing surface

Form RF (ASME B 16.5), EN 1092-B2 (DIN 2526-E), EN 1092-D (DIN 2512-N)

Measurements in mm/inches

Size	Pressure rating	Ø D	Ø k	Extension Ø d ₄	Ø d ₁	Ø d ₂
DN 50	PN 16 / 40	165 (6.50)	125 (4.92)	48,3 (1.9)	57 (2.24)	102 (4.02)
DN 50	PN 63	180 (7.09)	135 (5.31)	48,3 (1.9)	57 (2.24)	102 (4.02)
DN 50	PN 100	195 (7.68)	145 (5.71)	48,3 (1.9)	57 (2.24)	102 (4.02)
DN 80	PN 16 / 40	200 (7.87)	160 (6.30)	73 (2.87)	75 (2.95)	138 (5.43)
DN 80	PN 63	215 (8.46)	170 (6.69)	73 (2.87)	75 (2.95)	138 (5.43)
DN 80	PN 100	230 (9.06)	180 (7.09)	73 (2.87)	75 (2.95)	138 (5.43)
DN 100	PN 16	220 (8.66)	210 (8.27)	94 (3.70)	89 (3.50) ¹⁾	188 (7.40)
2 in	Class 150	152.4 (6.00)	120.6 (4.75)	48,3 (1.9)	57 (2.24)	92.1 (3.63)
2 in	Class 300	165.1 (6.50)	127 (5.00)	48,3 (1.9)	57 (2.24)	92.1 (3.63)
2 in	Class 600	165.1 (6.50)	127 (5.00)	48,3 (1.9)	57 (2.24)	92.1 (3.63)
3 in	Class 150	190.5 (7.50)	152.4 (6.00)	73 (2.87)	75 (2.95)	127 (5.00)
3 in	Class 300	209.5 (8.25)	168.3 (6.63)	73 (2.87)	75 (2.95)	127 (5.00)
3 in	Class 600	209.5 (8.25)	168.3 (6.63)	73 (2.87)	75 (2.95)	127 (5.00)
4 in	Class 150	230 (9.06)	190.5 (7.50)	94 (3.70)	89 (3.50)	158 (6.22)

Size	Pressure rating	t	b	Screws required		Weight in kg	
				Number	Ø bore hole	Flush diaphragm	With extended diaphragm
DN 50	PN 16 / 40	2 (0.08)	20 (0.79)	4	18 (0.71)	3,3	4
DN 50	PN 63	2 (0.08)	26 (1.02)	4	22 (0.87)	4,5	5,2
DN 50	PN 100	2 (0.08)	28 (1.10)	4	26 (1.02)	5,8	6,5
DN 80	PN 16 / 40	2 (0.08)	24 (0.94)	8	18 (0.71)	5,8	7,5
DN 80	PN 63	2 (0.08)	28 (1.10)	8	22 (0.87)	6,9	8,6
DN 80	PN 100	2 (0.08)	32 (1.26)	8	26 (1.02)	9,4	11,1
DN 100	PN 16	2 (0.08)	22 (0.87)	8	18 (0.71)	5,9	6,8
2 in	Class 150	1.6 (0.06)	19,1 (0.75)	4	19.1 (0.75)	2,3	4
2 in	Class 300	1.6 (0.06)	22,4 (0.88)	8	19.1 (0.75)	3,7	5,4
2 in	Class 600	6.35 (0.25)	25,4 (1.0)	8	19.1 (0.75)	4,5	6,2
3 in	Class 150	1.6 (0.06)	22,2 (0.87)	4	19.1 (0.75)	5,3	7
3 in	Class 300	1.6 (0.06)	28,4 (1.12)	8	22.4 (0.88)	7,3	9
3 in	Class 600	6.35 (0.25)	31,8 (1.25)	8	22.4 (0.88)	9,1	10,8
4 in	Class 150	1.6 (0.06)	24 (0.94)	8	19.1 (0.75)	7,7	8,6

¹⁾ not available for form V13 sealing surface

3.2 Technical data

Maximum Working Pressure

DIN PN 16/PN 40: 4 MPa, 40 bar, 580 psi

DIN PN 63: 6,3 MPa, 63 bar, 913 psi

DIN PN 100: 10 MPa, 100 bar, 1450 psi

Standard temperature 50 °C (122 °F); as temperature increases the permissible pressure load capacity decreases acc. to EN 1092-1

ASME CL 150: 1,59 MPa, 15,9 bar, 230 psi

ASME CL 300: 4,14 MPa, 41,4 bar, 600 psi

ASME CL 600: 8,27 MPa, 82,7 bar, 1200 psi

Standard temperature 38 °C (100 °F); as temperature increases the permissible pressure load capacity decreases acc. to ASME B16.5

Vacuum Service

Same as fill fluid limits. Refer to table A.

Process Temperature Limits

Same as fill fluid limits. Refer to table A.

- 220 °C (428 °F) for tantalum diaphragm.
- 150 °C (302 °F) for use with FEP anti-stick coating.

S261F flanged remote seal, connected to 261GR/AR

Additional effect for each 20 K (36 °F) temperature change

3.3 Temperature effect

The following table shows the temperature effect for a 20 K (36 °F) change, detailed separately for:

- the remote seal
- the capillary tube per meter
- the transmitter (in addition to the transmitter data sheet) when filling IC silicone oil and stainless steel diaphragm materials.

When using a different filling than silicone oil, the errors can be multiplied by the quotient of thermal expansion coefficient of actual filling divided by the thermal expansion coefficient of silicone oil (filling X / silicone oil). (See table "Fill fluid properties".)

	Size	System (sensor) error			Capillary error per meter			Seal error		
		kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O
Flush diaphragm	2 in / DN 50	0.02	0.2	0.08	0.015	0.15	0.06	0.06	0.6	0.24
Flush diaphragm	3 in / DN 80	0.01	0.1	0.04	0.008	0.08	0.032	0.02	0.2	0.08
Flush diaphragm	4 in / DN 100	0.01	0.1	0.04	0.008	0.08	0.032	0.03	0.3	0.12
Extended diaphragm	2 in / DN 50	0.04	0.4	0.16	0.035	0.35	0.14	0.16	1.6	0.64
Extended diaphragm	3 in / DN 80	0.01	0.1	0.04	0.008	0.08	0.032	0.02	0.2	0.08
Extended diaphragm	4 in / DN 100	0.01	0.1	0.04	0.008	0.08	0.032	0.03	0.3	0.12

Remote seals with capillary tube

3.4 Ordering information

Flanged Remote Seal S261F		Variant digit No.	1 - 6	7	8	9	10	Code			
flush and extended		Catalog No.	S261F-								
Transmitter side of connection											
High side				H							
Size											
2 in	ASME CL 150			A							
2 in	ASME CL 300			D							
2 in	ASME CL 600			G							
3 in	ASME CL 150			B							
3 in	ASME CL 300			E							
3 in	ASME CL 600			H							
4 in	ASME CL 150			C							
DN 50	DIN PN 16/40			M							
DN 50	DIN PN 63			P							
DN 50	DIN PN 100			R							
DN 80	DIN PN 16/40			L							
DN 80	DIN PN 63			Q							
DN 80	DIN PN 100			S							
DN 100	DIN PN 16			T							
Mounting flange / Seat form (seal)											
AISI 316 ss	Form RF- raised face (ASME B 16.5)			1)		E					
AISI 316 ss	EN 1092 - B2 (DIN 2526 - Form E)			2)		S					
AISI 316 ss	EN 1092 - B1 (DIN 2526 - Form D)			3)		4					
AISI 316 ss	EN 1092 - E (DIN 2513 - V13)			2)		M					
AISI 316 ss	EN 1092 - D (DIN 2512 - N)			2)		N					
Extension length and material DN 50 / 2 in											
Flush (see diaphragm material)						F					
50 mm (2 in)	AISI 316L ss					1					
50 mm (2 in)	Hastelloy C276™					2					
100 mm (4 in)	AISI 316L ss					3					
100 mm (4 in)	Hastelloy C276™					4					
150 mm (6 in)	AISI 316L ss					5					
150 mm (6 in)	Hastelloy C276™					6					
Extension length and material DN 80 / 3 in											
Flush (see diaphragm material)						F					
50 mm (2 in)	AISI 316L ss					1					
50 mm (2 in)	Hastelloy C276™					2					
100 mm (4 in)	AISI 316L ss					3					
100 mm (4 in)	Hastelloy C276™					4					
150 mm (6 in)	AISI 316L ss					5					
150 mm (6 in)	Hastelloy C276™					6					
Extension length and material DN 100 / 4 in											
Flush (see diaphragm material)						F					
50 mm (2 in)	AISI 316L ss					1					
100 mm (4 in)	AISI 316L ss					3					
150 mm (6 in)	AISI 316L ss					5					

Continued on next page

1) not available with size code L, M, P, Q, R, S, T

2) not available with size code A, B, C, D, E, G, H, T

3) only available with size code T

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3.5 Ordering information (continued)

Flanged Remote Seal		Variant digit No.	1 - 6	11	12	13	14	Code			
S261F		Catalog No.	S261F-								
flush and extended											
Diaphragm material seat		Form RF / EN 1092 - B2/B1									
AISI 316L ss	NACE	5)		S							
Hastelloy C276™	NACE	6)		H							
Tantalum	NACE	7) 8)		T							
AISI 316L ss with FEP anti-stick coating	NACE	7) 8)		1							
Hastelloy C276™ with FEP anti-stick coating	NACE	7) 8)		2							
Diaphragm material seat		EN 1092 - E									
AISI 316L ss	NACE	5)		S							
Hastelloy C276™	NACE	6)		H							
Tantalum	NACE	7) 8)		T							
AISI 316L ss with FEP anti-stick coating	NACE	7) 8)		1							
Hastelloy C276™ with FEP anti-stick coating	NACE	7) 8)		2							
Diaphragm material seat		EN 1092 - D									
AISI 316L ss	NACE	5)		S							
Hastelloy C276™	NACE	6)		H							
Capillary protection											
AISI 316 ss armour				A							
AISI 316 ss armour with PVC protective cover		price per m		B							
Capillary length m (feet)											
1 (3)											
2 (7)											
4 (13)											
6 (20)											
8 (27)											
11 (37)											
16 (53)											
Special length between 1 m and 16 m											
basic price of the next longer standard length plus an extra fee											
Fill fluid											
Silicone oil											
Silicone oil for high temperature											
White oil (FDA certified)											
Carbon fluoride											
Silicone oil for vacuum applications											
White oil (FDA certified) for vacuum applications											

5) not available with extension length and material code 2, 4, 6

6) not available with extension length and material code 1, 3, 5

7) not available with extension length and material code 1, 2, 3, 4, 5, 6

8) not available with mounting flange / seat form code N

9) suitable for food applications

10) suitable for oxygen applications

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4 S261M model off-line flanged connection remote seal

The off-line flanged connection remote seals are designed to connect directly to ASME or DIN flanged tank nozzle.

4.1 Seal dimensions

4.1.1 Remote seal with flush diaphragm DN 25/ DN 1 in

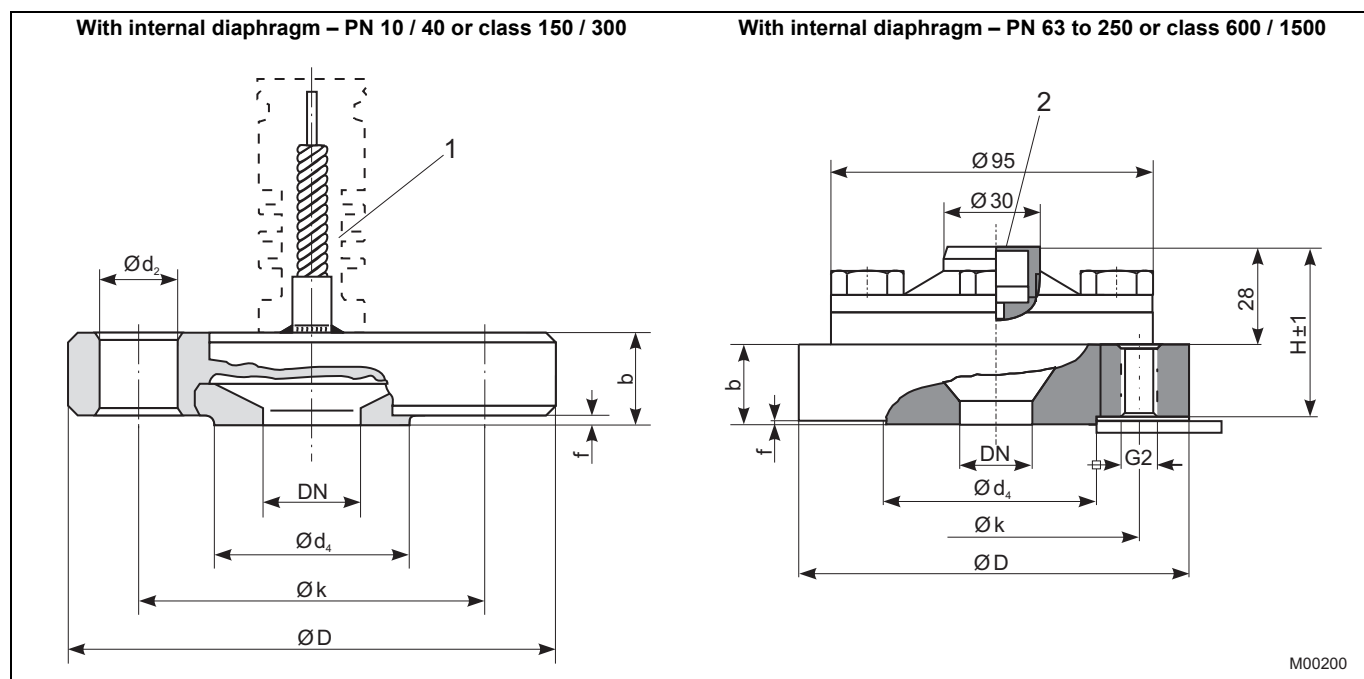


Fig. 5

1 Optional direct mounting

2 Flexible capillary tube possible

4.1.2 Process connection acc. to EN 1092-1 Form B1 / DIN 2501 Form D

Measurements in mm/inches

Size	Pressure	D	k	d ₄	d ₂	b	f	H	G2	Weight in kg
DN 25	PN 10/40	115 (4.53)	85 (3.35)	68 (2.68)	14 (0.55)	22 (0.87)	2 (0.08)	-	-	1,5
DN 25	PN 63/100	140 (5.51)	100 (3.94)	68 (2.68)	-	24 (0.94)	2 (0.08)	52 (2.05)	4 x M16	3,2
	PN 160	140 (5.51)	100 (3.94)	68 (2.68)	-	28 (1.10)	2 (0.08)	52 (2.05)	4 x M16	3,6
	PN 250	150 (5.91)	105 (4.13)	68 (2.68)	-	28 (1.10)	2 (0.08)	56 (2.20)	4 x M20	4,0

4.1.3 Process connection acc. to ASME B 16.5, RF

Measurements in mm/inches

Size	Pressure	D	k	d ₄	d ₂	b	f	H	G2 UNC	Weight in kg
1 in	Class 150	110 (4.33)	79,5 (3.13)	51 (2.00)	16 (0.63)	22 (0.87)	2 (0.08)	-	-	1,4
	Class 300	125 (4.92)	89 (3.50)	51 (2.00)	20 (0.79)	22 (0.87)	2 (0.08)	-	-	1,7
1 in	Class 600	125 (4.92)	89 (3.50)	51 (2.00)	-	25 (0.98)	7 (0.28)	53 (2.09)	4 x 5/8 in	2,3
	Class 1500	150 (5.91)	101,5 (4.00)	51 (2.00)	-	36 (1.42)	7 (0.28)	64 (2.52)	4 x 7/8 in	4,8

4.2 Technical data

Maximum Working Pressure

DIN PN 10/PN 40: 4 MPa, 40 bar, 580 psi
 DIN PN 63/PN 100: 10 MPa, 100 bar, 1450 psi
 DIN PN 160: 16 MPa, 160 bar, 2320 psi
 DIN PN 250: 25 MPa, 250 bar, 3625 psi

Standard temperature 50 °C (122 °F); as temperature increases the permissible pressure load capacity decreases acc. to EN 1092-1

ASME CL 150: 1,59 MPa, 15,9 bar, 230 psi
 ASME CL 300: 4,14 MPa, 41,4 bar, 600 psi
 ASME CL 600: 8,27 MPa, 82,7 bar, 1200 psi
 ASME CL 1500: 20.68 MPa, 206.8 bar, 3000 psi

Standard temperature 38 °C (100 °F); as temperature increases the permissible pressure load capacity decreases acc. to ASME B16.5

Vacuum Service

Same as fill fluid limits. Refer to table A.

Process Temperature Limits

Same as fill fluid limits. Refer to table A.

Same as fill fluid limits but not greater than 250 °C (482 °F)

S261M off-line remote seal, connected to 261GR/AR

Additional effect for each 20 K (36 °F) temperature change

4.3 Temperature effect

The following table shows the temperature effect for a 20 K (36 °F) change, detailed separately for:

- the remote seal
- the capillary tube per meter
- the transmitter (in addition to the transmitter data sheet) when filling IC silicone oil and stainless steel diaphragm materials.

Size	System (sensor) error			Capillary error per meter			Seal error		
	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O
1 in / DN 25	0.025	0.25	0.1	0.025	0.25	0.1	0.06	0.6	0.24

4.4 Ordering information

Off-Line remote seal		Variant digit No.	1 - 6	7	8	9	10	11	12	13	Code			
S261M		Catalog No.	S261M-											
off-line flanged														
Transmitter side of connection														
High side				H										
Size / Mounting flange rating														
1 in	ASME CL 150			A										
1 in	ASME CL 300			C										
1 in	ASME CL 600			E										
1 in	ASME CL 1500			K										
DN 25	DIN PN 10/40			H										
DN 25	DIN PN 63/100			L										
DN 25	DIN PN 160			T										
DN 25	DIN PN 250			V										
Mounting flange material / Seat form (seal)														
AISI 316 ss	Form RF- raised face (ASME B 16.5)	NACE	1)	E										
AISI 316 ss	EN 1092 - D (DIN 2512 - N)	NACE	2)	N										
AISI 316 ss	EN 1092 - B1 (DIN 2526 - Form D)	NACE	2)	4										
Diaphragm material (seal)														
AISI 316 L ss						S								
Capillary protection														
AISI 316 ss armour								A						
AISI 316 ss armour with PVC protective cover		price per m						B						
Capillary length m (feet)														
1 (3)								A						
2 (7)								C						
4 (13)								G						
6 (20)								L						
Special length between 1m and 6m														
basic price of the next longer standard length plus an extra fee								Z						
Fill fluid														
Silicone oil								S						
Silicone oil for vacuum applications								L						

1) not available with size / mounting flange rating code H, L, T, V

2) not available with size / mounting flange rating code A, C, E, K

5 S261J Model Inline Remote Seal (without flanges)

5.1 Seal dimensions

5.1.1 Inline Remote Seal (without flanges)

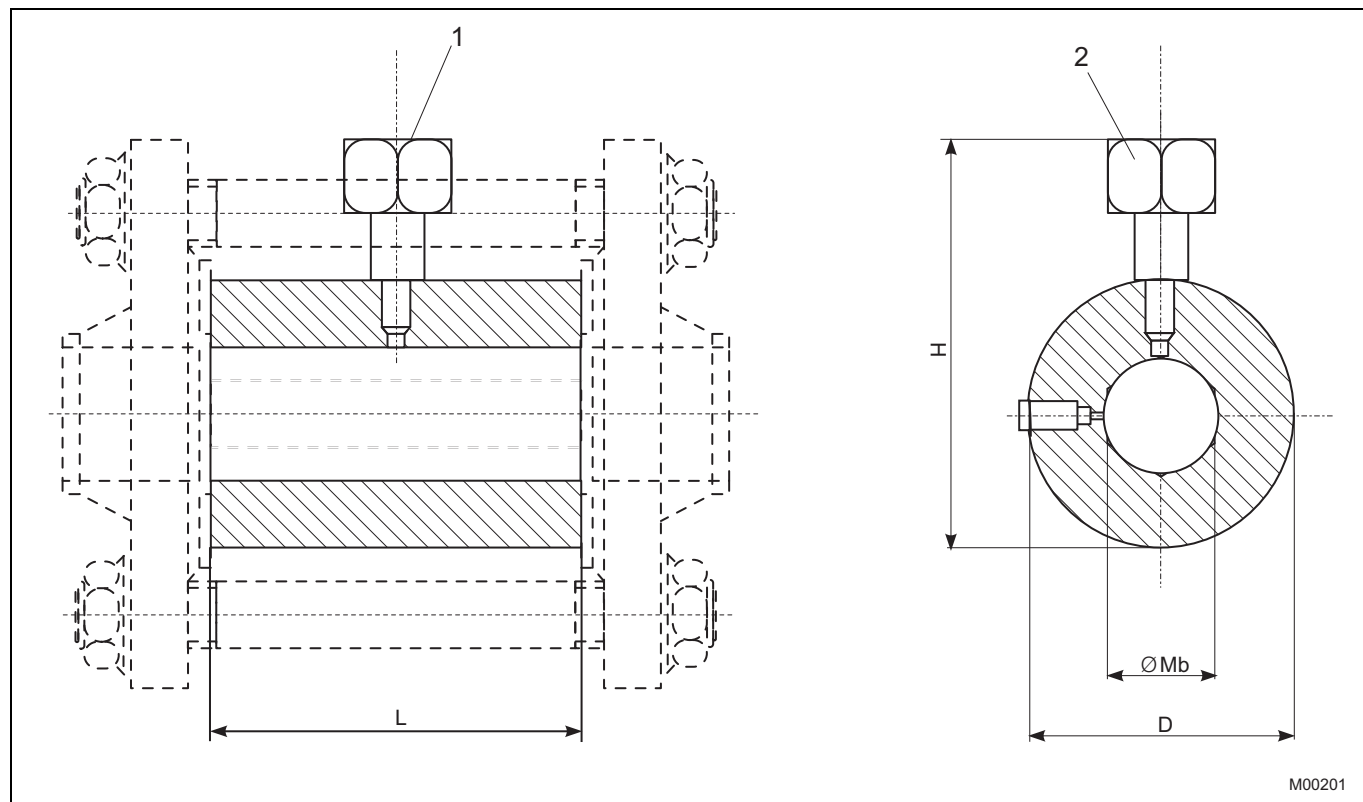


Fig. 6

1 Flexible capillary tube possible

2 Wrench size, SW 27

5.1.2 Process connection acc. to EN 1092-1 / ASME B 16.5

Measurements in mm/inches

Size	Pressure	D	L	Mb	Weight in kg
1 in / DN 25	PN 6 to PN 100 150 psi to 2500 psi	63 (2.48)	60 (2.36)	28,5 (1.12)	1,4
1 ½ in / DN 40	PN 6 to PN 100 300 psi to 2500 psi	85 (3.35)	60 (2.36)	43 (1.69)	2,2
2 in / DN 50	PN 6 to PN 100 150 psi to 2500 psi	95 (3.74)	60 (2.36)	54,5 (2.15)	2,5
3 in / DN 80	PN 6 to PN 100 150 psi to 2500 psi	130 (5.12)	60 (2.36)	82,5 (3.25)	4,0

5.2 Technical data

Maximum Working Pressure

DIN-compliant from PN 6 bar to PN 100 bar (higher pressure stages on request), ASME-compliant from 150 (300) psi to 2500 psi, but not higher than the rating of the mounting flange (not supplied).

Vacuum Service

Same as fill fluid limits. Refer to table A.

Process Temperature Limits

Same as fill fluid limits. Refer to table A.

5.3 Temperature effect

The following table shows the temperature effect for a 20 K (36 °F) change, detailed separately for:

- the remote seal
- the capillary tube per meter
- the transmitter (in addition to the transmitter data sheet) when filling IC silicone oil and stainless steel diaphragm materials.

When using a different filling than silicone oil, the errors can be multiplied by the quotient of thermal expansion coefficient of actual filling divided by the thermal expansion coefficient of silicone oil (filling X / silicone oil). (See table "Fill fluid properties".)

S261J inline remote seal (without flanges), connected to 261GR/AR

Additional effect for each 20 K (36 °F) temperature change

Size	System (sensor) error			Capillary error per meter			Seal error		
	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O	kPa	mbar	in H ₂ O
1 in / DN 25	1	10	4	0.8	8	3.2	2	20	8
1 ½ in / DN 40	0.6	6	2.4	0.6	6	2.4	1.2	12	4.8
2 in / DN 50	0.15	1.5	0.6	0.15	1.5	0.6	0.4	4	1.6
3 in / DN 80	0.25	2.5	1	0.25	2.5	1	0.6	6	2.4

5.4 Ordering information

In-line Remote Seal		Variant digit No.	1 - 6	7	8	9	10	11	12	Code			
S261J		Catalog No.	S261J-										
without flange													
Transmitter side of connection													
High side				H									
Size													
DN 25 / ASME 1in					A								
DN 40 / ASME 1-1/2in					B								
DN 50 / ASME 2in					C								
DN 80 / ASME 3in					D								
Diaphragm material													
AISI 316 L ss		NACE				R							
Capillary protection													
AISI 316 ss armour						A							
AISI 316 ss armour with PVC protective cover		price per m				B							
Capillary length m (feet)													
1 (3)								A					
2 (7)								C					
4 (13)								G					
6 (20)								L					
8 (27)								Q					
11 (37)								W					
16 (53)								V					
Special length between 1m and 16m													
basic price of the next longer standard length plus an extra fee								Z					
Fill fluid													
Silicone oil								S					
Silicone oil for high temperature								H					
White oil (FDA certified)								W					
Carbon fluoride								N					
Silicone oil for vacuum applications								L					
White oil (FDA certified) for vacuum applications								Y					

1) suitable for food applications

2) suitable for oxygen applications

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