

Stems with Thermowells for Thermometers

Models **A8, A9, A10,
A11, A12, A13**

This data sheet contains all important features of thermowells according to DIN 16 179 and features of accessories such as flanges and nipples with welding neck.

Thermowells can be ordered as spare parts in configuration BD, BE, BS, CD, CE or CS, or as stem types A8, A9, A10, A11, A12, A13, i.e. stem with thermowells.

Thermowells are recommended as protection to the temperature sensor as well the operator or observer. The proper thermowell will reduce the possibility of damage to the temperature instrument which may be caused by pressure, corrosion, or the flow of abrasive or viscous media. In addition, a defective instrument may be removed and replaced without shutting down and possibly draining the process.

Stem types A8, A9, A10

Thermowells acc. to DIN 16 179 and stems with female thread

Stem A8

Configuration **CD**: male x male thread, 2-piece construction, male thread for stem type A3 (female union connection), male thread on the process connection side welded to the thermowell (alloy steel, stainless steel), respectively brazed (brass)

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
brass	160	320	25	400
alloy steel	300	572	40	600
316 stainless steel	400	752	40	600

Thermowell length L_S (wetted length inclusive thread) max. 2000 mm (**6.5'**)²⁾, min. see table inside

process connection G_2	for stem $\varnothing d_F$ mm / inches	
1/2" BSP male or M 20 x 1,5 male	8; 10	.31; .39
3/4" BSP male or M 27 x 2 male	12	47

Stem A9

Configuration **CS**: male thread x welding connection, 1-piece construction, male thread for stem type A3 (female union connection), thermowell made from solid bar

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
alloy steel	300	572	100	1500
316 stainless steel	400	752	150	2000

Thermowell length L_S (wetted length up to welding connection) max. 250 mm (**10"**)²⁾, min. see table inside

process connection- $\varnothing d_4$ mm / inches	for stem $\varnothing d_F$ mm / inches	
24	.94	8; 10 .31; .39
30	1.18	12 47

Stem A10

Configuration **CE**: male x male thread, 1-piece construction, male thread for stem type A3 (female union connection), thermowell made from solid bar

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
brass	160	320	64	900
alloy steel	300	572	100	1500
316 stainless steel	400	752	150	2000

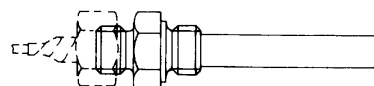
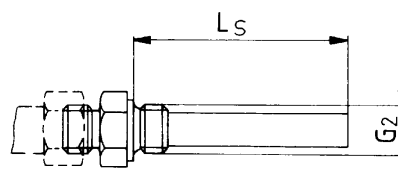
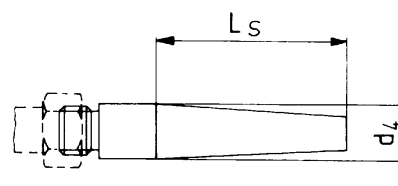
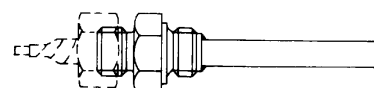
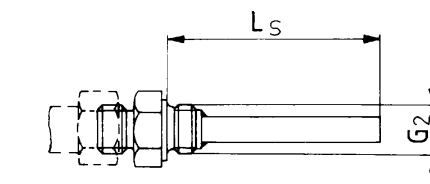
Thermowell length L_S (wetted length inclusive thread) max. 250 mm (**10"**)²⁾, min. see table inside

process connection G_2	for stem $\varnothing d_F$ mm / inches	
1/2" BSP male or M 20 x 1,5 male	8; 10	.31; .39
3/4" BSP male or M 27 x 2 male	12	47

1) The max. allowed temperature depends on further parameters, such as installation length and material of the thermowell, pressure, temperature and media flow speed.

2) Longer thermowells upon request.

3) Stem- $\varnothing d_F$, see data sheets 8210 and 8220.



stem - - -
thermowell —



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Stem Types A11, A12, A13

Thermowells acc. to DIN 16 179 and stems with male thread

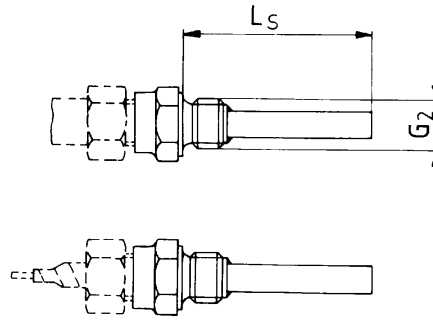
Stem A11

Configuration **BD**: female x male thread, 2-piece construction, female thread for stem type A4 (male union connection), thermowell welded to the process connection (alloy steel, stainless steel) or brazed (brass)

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
brass	160	320	25	400
alloy steel	300	572	40	600
316 stainless steel	400	752	40	600

Thermowell length L_S (wetted length inclusive thread) max. 2000 mm (**6.5'**) ²⁾, min. see table on the right side.

process connection G_2	for stem $\varnothing d_F$ mm / inches	
1/2" BSP male or M 20 x 1,5 male	8; 10	.31; .39
3/4" BSP male or M 27 x 2 male	12	47



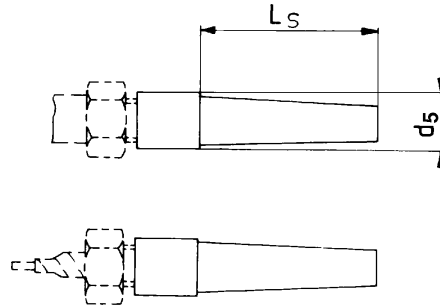
Stem A12

Configuration **BS**: female thread x welding connection, 1-piece construction, female thread for stem type A4, thermowell made from solid bar

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
alloy steel	300	572	100	1500
316 stainless steel	400	752	150	2000

Thermowell length L_S (wetted length up to welding connection) max. 250 mm (**10"**) ²⁾, min. see table on the right side.

process connection- $\varnothing d_5$ mm / inches	for stem $\varnothing d_F$ mm / inches	
24	.94	8; 10 .31; .39
30	1.18	12 47



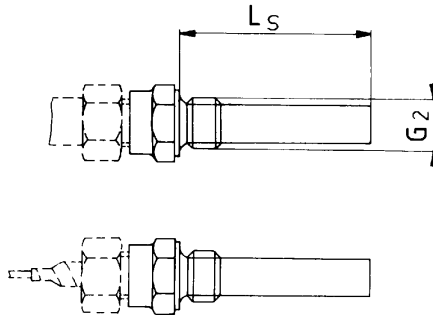
Stem A13

Configuration **BE**: female x male thread, 1-piece construction, female thread for stem type A4 (male union connection), thermowell made from solid bar

material	max. temp °C	°F ¹⁾	max. pressure bar	psi ¹⁾
brass	160	320	64	900
alloy steel	300	572	100	1500
316 stainless steel	400	752	150	1500

Thermowell length L_S (wetted length inclusive thread) max. 250 mm (**10"**) ²⁾, min. see table on the right side.

process connection G_2	for stem $\varnothing d_F$ mm / inches	
1/2" BSP male or M 20 x 1,5 male	8; 10	.31; .39
3/4" BSP male or M 27 x 2 male	12	47



HOW TO ORDER

Please specify when ordering:

- Ordering code for **stem type**: A8, A9, A10, A11, A12 or A13
- **stem diameter** (d_F)
- **Thermowell length** (L_S)
- **process connection** (G_2)
- **material of thermowell**
- eventually **stem material and thread size**

EXAMPLES:

- Stem with thermowell, stem A8, stem- \varnothing 10 mm, thermowell length 200 mm, thread connection 1/2" BSP, 316 stainless steel
- Thermowell as spare part, configuration CS, for stem- \varnothing 12 mm, thermowell length 100 mm, alloy steel

OPTIONAL SPECIAL CONFIGURATIONS

- Other thread sizes upon request
- Other thermowell diameters upon request
- Thermowell for stem- \varnothing 6mm (.24") upon request

stem type	minimum stem length L_S (mm / inches)								
	depending on temperature (T) and stem size- $\varnothing d_F$ ³⁾								
stem- $\varnothing d_F$ mm	A8, A11			A9, A12			A10, A13		
inches	\varnothing 12	\varnothing 10	\varnothing 8	\varnothing 12	\varnothing 10	\varnothing 8	\varnothing 12	\varnothing 10	\varnothing 8
	\varnothing .47	\varnothing .39	\varnothing .31	\varnothing .47	\varnothing .39	\varnothing .31	\varnothing .47	\varnothing .39	\varnothing .31
Temperature Range									
\leq 500°C	50	60	90	45	55	85	60	70	100
932°F	1.97	2.36	3.54	1.77	2.16	3.35	2.36	2.76	3.94
$>$ 500°C	90 ⁴⁾	125 ⁴⁾	180 ⁴⁾	85 ⁴⁾	115 ⁴⁾	175 ⁴⁾	100 ⁴⁾	130 ⁴⁾	190 ⁴⁾
932°F	3.54	4.92	7.09	3.35	4.53	6.89	3.94	5.12	7.48

¹⁾ The max. allowed temperature depends on further parameters, such as installation length and material of the thermowell, pressure, temperature and media flow speed.

²⁾ Longer thermowells upon request.

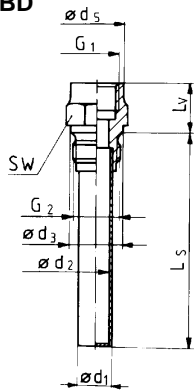
³⁾ Stem- $\varnothing d_F$, see data sheets 8210 and 8220.

⁴⁾ Valid for rigid stem and capillary length \leq 3 m. Capillary length $>$ 3 m upon request.

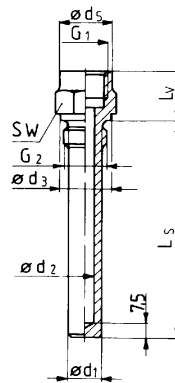
Thermowell Dimensions

Thermowell configuration B

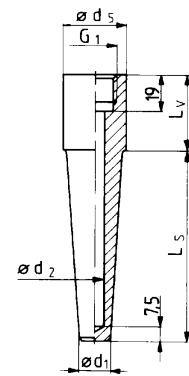
model BD



model BE



model BS

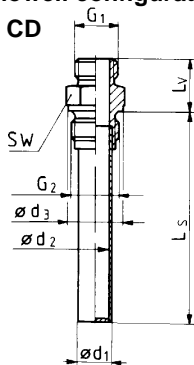


Dimensional Data (mm / inches)

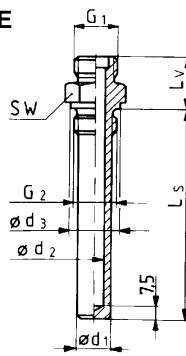
model	stem-Ø d _F	thermowell								stem length ²⁾	
		d ₁	d ₂	d ₃	d ₅	G ₁ ¹⁾	G ₂ ¹⁾	L _V	SW	A 4	A 5 ³⁾
BD	8 .31	10 .39	8,5 .33	26 1.02	27 1.06	M20x1,5 or ½" BSP	½" BSP-M or M20x1,5	25 .98	27 1.06	L = L _S +2 .08	—
	10 .39	13 .51	11 .43								L ₁ = L _S +21 .83
	12 .47	16 ⁴⁾ .63	13 .51	32 1.26	32 1.26						
BE	8 .31	17 .67	9 .35	26 1.02	27 1.06	M20x1,5 or ½" BSP	½" BSP-M or M20x1,5	25 .98	27 1.06	L = L _S -2 .08	—
	10 .39		11 .43								L ₁ = L _S +17 .67
	12 .47	22 .87	13 .51	32 1.26	32 1.26						
BS	8 .31	15 .59	9 .35	—	30 1.18	M20x1,5 or ½" BSP	—	39 1.54	—	L = L _S +12 .47	—
	10 .39	17 .67	11 .43								L ₁ = L _S +31 1.22
	12 .47	19 .75	13 .51								

Thermowell configuration C

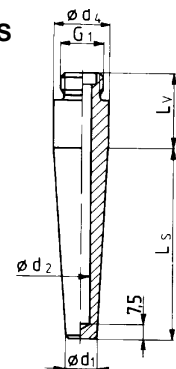
model CD



model CE



model CS



Dimensional Data (mm / inches)

model	stem-Ø d _F	thermowell								stem length ²⁾	
		d ₁	d ₂	d ₃	d ₄	G ₁ ¹⁾	G ₂ ¹⁾	L _V	SW	A3	
CD	8 .31	10 .39	8,5 .33	26 1.02	—	M20x1,5 or ½" BSP	½" BSP-M or M20x1,5	25 .98	27 1.06	L = L _S +21 .83	
	10 .39	13 .51	11 .43							L = L _S +23 .91	
	12 .47	16 ⁴⁾ .63	13 .51	32 1.26						¾" BSP-M or M27x2	27 1.06
CE	8 .31	17 .67	9 .35	26 1.02	—	M20x1,5 or ½" BSP	½" BSP-M or M20x1,5	25 .98	27 1.06	L = L _S +17 .67	
	10 .39		11 .43							L = L _S +21 .83	
	12 .47	22 .87	13 .51	32 1.26						¾" BSP-M or M27x2	29 1.14
CS	8 .31	15 .59	9 .35	—	24 .94	M20x1,5 or ½" BSP	—	39 1.54	—	L = L _S +31 1.22	
	10 .39	17 .67	11 .43							L = L _S +37 1.46	
	12 .47	19 .75	13 .51		30 1.18					45 1.77	

1) Other threads upon request.

3) Stem type A 5 only in combination with G₁ = ½" BSP-M.

2) Stem length see data sheets 8210 and 8220.

4) stainless steel, d₁ = 15 mm (.59)

Welding Nipples

for stem with male thread connection

Dimensional Data (mm / inches)

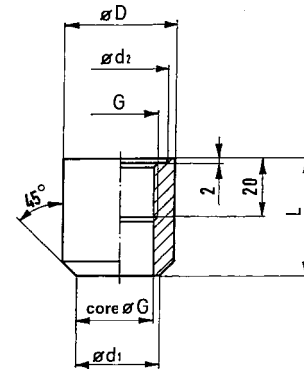
G	L	D	d1	d2
1/2" BSP female or M 20 x 1,5 female	35 1.38	30 1.18	22 0.87	27 1.06
3/4" BSP female or M 27 x 2 female	50 1.97	38 1.50	28 1.10	33 1.30

material: alloy steel

How to order:

e.g.: welding nipple alloy steel, 1/2" BSP

Other dimensions and thread sizes upon request.



Flanges

according to DIN and in special configuration upon request.