

# Thermowells according to DIN 43772

Form 5 (Fabricated), Form 6 and 7 (Solid Drilled)  
with Male Thread Process Connection

for Thermometer Stem Types A4 (Turnable Male Thread Connection-) and A4.1 (Rigid Male Thread Connection)

SF5  
SF6  
SF7

Models

## Application

Thermowells are applied to protect thermometer stems against difficult chemical and / or mechanical process conditions. Furthermore it is far easier to dismount a thermometer e.g. for repair or other reasons when a thermowell stays at the measuring point.

Thermowells form 5 (model SF5) and 6 (model SF6) acc. to DIN 43772 replace the thermowells form BD and BE acc. to DIN 16179 that have been part of our stem types A11 and A13 (compare former data sheet 8300).

The solid drilled versions SF6 and 7 are suitable for difficult process conditions (pressure, temperature, flow rate, vibration), model SF5 for low to medium load.

## Standard Configuration

### Process Connection

Model SF5, SF6: G 1/2 B (1/2" BSP-M) or G 3/4 B (3/4" BSP-M)

Model SF7: 1/2" NPT or 3/4" NPT

### Material

Model SF5: 316 stainless steel (1.4571) or brass<sup>1)</sup>

Model SF6, SF7: 316 stainless steel (1.4571),  
alloy steel 1.7335<sup>2)</sup>, or carbon steel 1.0503<sup>3)</sup>

### Instrument Connection (Female)

SF7: G 1/2 (1/2" BSP-F), SF5, SF6: G 1/2 or G 3/4 (1/2 or 3/4" BSP-F)

### Inside Diameter (d1)

SF5: Ø 7 mm / .27" (Outside-Ø 12 mm [.47"] – G 1/2 female x G 1/2 B,  
G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 9 mm / .35" (Outside-Ø 14 mm [.55"] – G 1/2 female x G 1/2 B,  
G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 11 mm / .43" (Outside-Ø 14 mm [.55"] – G 1/2 female x G 1/2 B,  
G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 13 mm / .51" (Outside-Ø 16 mm [.63"] – G 3/4 female x G 3/4 B)

SF6: Ø 7 mm / .27" (Outside-Ø 17 mm [.67"] – G 1/2 female x G 1/2 B,  
G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 9 mm / .35" (Outside-Ø 17 mm [.67"] – G 1/2 female x G 1/2 B,  
G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 11 mm / .43" (Outside-Ø 17 mm [.67"] – G 1/2 female x G 1/2 B,  
Outside-Ø 19 mm [.75"] – G 1/2 female x G 3/4 B,  
G 3/4 female x G 3/4 B)

Ø 13 mm / .51" (Outside-Ø 20 mm [.79"] – G 3/4 female x G 3/4 B)

SF7: Ø 7 mm / .27" (Outside-Ø 17 mm [.67"] – G 1/2 female x 1/2" NPT  
G 1/2 female x 3/4" NPT)

Ø 9 mm / .35" (Outside-Ø 17 mm [.67"] – G 1/2 female x 1/2" NPT  
G 1/2 female x 3/4" NPT)

Ø 11 mm / .43" (Outside-Ø 17 mm [.67"] – G 1/2 female x 1/2" NPT,  
Outside-Ø 19 mm [.75"] – G 1/2 female x 3/4" NPT)

Ø 13 mm<sup>4)</sup> / .51" (Outside-Ø 20 mm [.79"] – G 1/2 female x 3/4" NPT)

### Thermowell Length L

110, 170, 260, or 410 mm

4.33", 6.69", 10.24", or 16.14" (compare overleaf)

### Insertion Length U1

82, 142, 232, or 382 mm (compare overleaf)

3.23", 5.59", 9.13", or 15.04"

Form 5,  
model SF 5



(Fabricated, i.e. screw fitting  
welded to the thermowell resp.  
soldered when material = brass)

Form 6,  
model SF6



(Solid drilled, i.e. completely  
manufactured from one piece)

Form 7,  
model SF 7



## Temperature Limitations

Process temperature max. +600 °C (1,112 °F) for 316 stainl. steel (1.4571), with further limitations depending on thermowell version (dimensions, material) and operation conditions (pressure, temperature, flow rate, medium); load diagram see DIN 43772

## Max. Allowed Working Pressure (at Static Pressure)

SF5: Brass max. 25 bar, 316 stainl. steel (1.4571) max. 40 bar,  
SF6, SF7: 316 stainl. steel (1.4571) max. 150 bar,  
with further limitations depending on thermowell version (dimensions, material) and operation conditions (pressure, temperature, flow rate, medium); load diagram see DIN 43772

## Special Options

- Instrument connection M 20x1.5 (instead of G1/2) or M27x2 (instead of G3/4) for SF5 and SF6; others upon request
- Other thermowell diameter or length upon request
- Fabricated thermowell (as SF5) with NPT process connection
- Other materials upon request
- Inspection certificate for the material / stamp confirmation certificate upon request
- Models BD or BE acc. DIN 16179, data sheet 8300, upon request

## How to Order:

Please note the data sheet of the thermometer for the information about how to order the thermometer and stem. Additionally requested ordering information for the thermowell (separate item):

- Model: SF5, SF6 or SF7
- Inside-Ø d1: 7, 9, 11, or 13 mm (.27", .35", .43", or .51")
- Instrument connection: Female thread G 1/2 (1/2" BSP) for SF5, SF6 at option G 3/4 (3/4" BSP) (others see above)
- Process connection: G 1/2 B or G 3/4 B (SF5, SF6)  
1/2" NPT or 3/4" NPT (SF 7)
- Length: Length L and insertion length U1
- Material: SF5: 1.4571 or brass  
SF6, SF7: 1.4571, 1.7335<sup>2)</sup>, or 1.0503<sup>3)</sup>

## Examples for Ordering Information:

- SF5, d1=9, G 1/2 x G 3/4 B, L=260, U1=232, 1.4571
- SF6, d1=13, 3/4" BSP-F x 3/4" BSP-M, L=170, U1=142, 1.7335
- SF7, d1=9, G 1/2 female x 3/4" NPT, L= 260, U1=232, 1.4571

<sup>1)</sup> 2.0401, CuZn36 Pb3

<sup>3)</sup> carbon steel (non alloy quality steel) C45

<sup>2)</sup> alloy special steel 13 CrMo 44

<sup>4)</sup> in addition to DIN 43772



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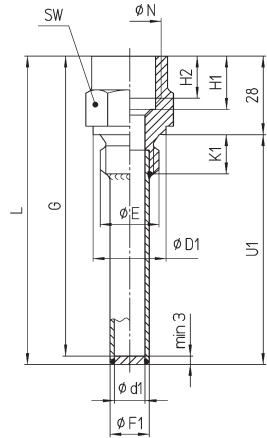
Am Gewerbepark 9 • D-08340 Beierfeld  
Phone: (0 37 74) 58 - 0 • Fax: (0 37 74) 58 - 545  
manotherm.com • mail@manotherm.com

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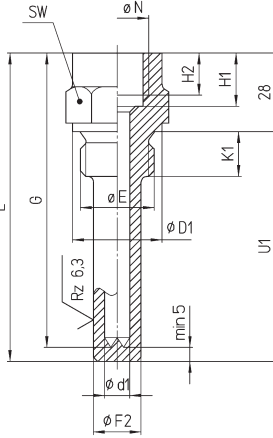
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# Versions, Dimensions and Weight

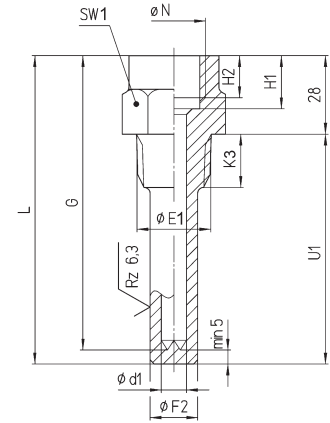
**Thermowell form 5,  
model SF 5,  
fabricated**



**Thermowell form 6,  
model SF6,  
solid drilled**



**Thermowell form 7,  
model SF7,  
solid drilled**



## Thermowell Diameter ( mm / inches ) and Connections

Inside Ø d1	SF5	SF6	SF7	Instrument connection (stem) N	Process connection								
	Outside Ø F1	Outside Ø F2	Outside Ø F2		E	E1	K1	K3	H1	H2	SW	SW1	
7 / .27	12 / .47	17 / .67	—	G ½ ½" BSP-F	G ½ B ½" BSP-M	½" NPT-M	14 / .55	~20 / .79	—	—	—	—	27 / 1.06
9 / .35	14 / .55												
11 / .43	14 / .55				—	—	—	—	—	—	—	—	
7 / .27	12 / .47	—	—	G ¾ ¾" BSP-F	G ¾ B ¾" BSP-M	—	16 / .63	—	22 / .87	17 / .67	32 / 1.26	—	
9 / .35	14 / .55	17 / .67	—										
11 / .43	14 / .55	19 / .75	—										
13* / .51	—	—	20 / .79										

\*in addition to DIN 43772

## Thermowell Length (mm/inches) SF5, SF6 and SF 7

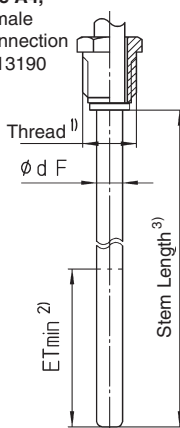
## Stem Length of Suitable Stem Types A4 and A4.1 (Compare data sheets 8210, 8220, 8230, 8240.)

L ± 1	Insertion length thermowell U1 <sup>+2</sup> <sub>0</sub>	G <sup>+1</sup> <sub>0</sub>	for SF5			for SF6 and SF7		
			A4 (Stem length = G - H1)	A4.1 (Stem length = G)	A4 (Stem length = G - H1 - 3 mm = G - H1 - .12")	A4.1 (Stem length = G - 3 mm / .12")		
			G ½ B	G ¾ B	G ½ B, G ¾ B	G ½ B	G ¾ B*	G ½ B, G ¾ B*
110 / 4.33	82 / 3.23	105 / 4.13	86 / 3.38	83 / 3.27	105 / 4.13	83 / 3.27	80 / 3.15	102 / 4.01
170 / 6.69	142 / 5.59	165 / 6.50	146 / 5.75	143 / 5.63	165 / 6.50	143 / 5.63	140 / 5.51	162 / 6.38
260 / 10.24	232 / 9.13	255 / 10.04	236 / 9.29	233 / 9.17	255 / 10.04	233 / 9.17	230 / 9.05	252 / 9.92
410 / 16.14	382 / 15.04	405 / 15.94	386 / 15.20	383 / 15.08	405 / 15.94	383 / 15.08	380 / 14.96	402 / 15.83

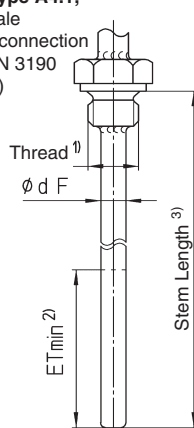
\*not for model SF7

**Suitable thermometer stems** ("temperature detecting element") compare data sheets 8210, 8220, 8230, 8240:

**Stem type A4,**  
turnable male  
thread connection  
(DIN EN 13190  
form 4)



**Stem type A4.1,**  
rigid male  
thread connection  
(DIN EN 3190  
form 6)



- 1) Male thread suitable for female thermowell instrument connection N
- 2) ETmin, the minimum immersion length of the stem (= L2 acc. DIN EN 13190) has to be considered when choosing thermowell and stem, compare table (right) resp. data sheet of the thermometers and stems.
- 3) corresponding to L1 acc. to DIN EN 13190

## Minimum Immersion Length ETmin\* (mm/inches):

Ø dF A4, A4.1	Rigid stem or capillary line ≤ 5 m		Capillary line > 5 up to max. 15 m**	
	≤ 500 °C ≤ 932 °F	> 500 °C > 932 °F	≤ 500 °C ≤ 932 °F	> 500 °C > 932 °F
6 .24"	120 4.72	285 11.22	190 7.48	570 22.44
8 .31"	75 2.95	165 6.50	115 4.53	320 12.60
10 .39"	45 1.77	105 4.13	80 3.15	200 7.87
12 .47"	35 1.38	75 2.95	53 2.09	150 5.90

\* corresponding to L2 acc. to DIN EN 13190  
\*\* not for all temperature ranges!

The information in this leaflet is given in good faith, but we reserve the right to make changes without notice.