

# Threaded thermowell (solid-machined)

## Design per DIN 43772 form 6, 7, 9

### Model TW50

WIKA data sheet TW 95.50

#### Applications

- Chemical industry, process technology, equipment manufacturing
- For high process loads

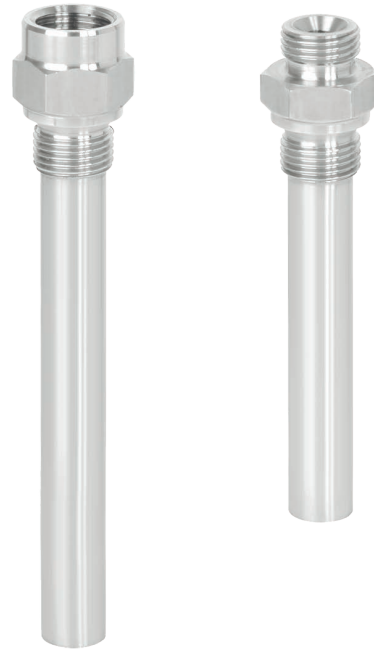
#### Special features

- Designs per DIN 43772
- Design TW50-H: Form 6
- Design TW50-I: Form 7
- Design TW50-J: Form 9

#### Description

Each thermowell is an important component of any temperature measuring location. It is used to separate the process from the surrounding area, thus protecting the environment and operating personnel and keeps aggressive media, high pressures and flow rates from the temperature probe itself and thereby enables the thermometer to be exchanged during operation.

Based on the almost limitless application possibilities, there are a large number of variants, such as thermowell designs or materials. The type of process connection and the basic method of manufacture are important design differentiation criteria. A basic differentiation can be made between threaded and weld-in thermowells, and those with flange connections.



**Fig. left: Design TW50-H**  
**Fig. right: Design TW50-J**

Furthermore, one can differentiate between fabricated and solid-machined thermowells. Fabricated thermowells are constructed from a tube, that is closed at the tip by a welded solid tip. Solid-machined thermowells are manufactured from solid bar stock.

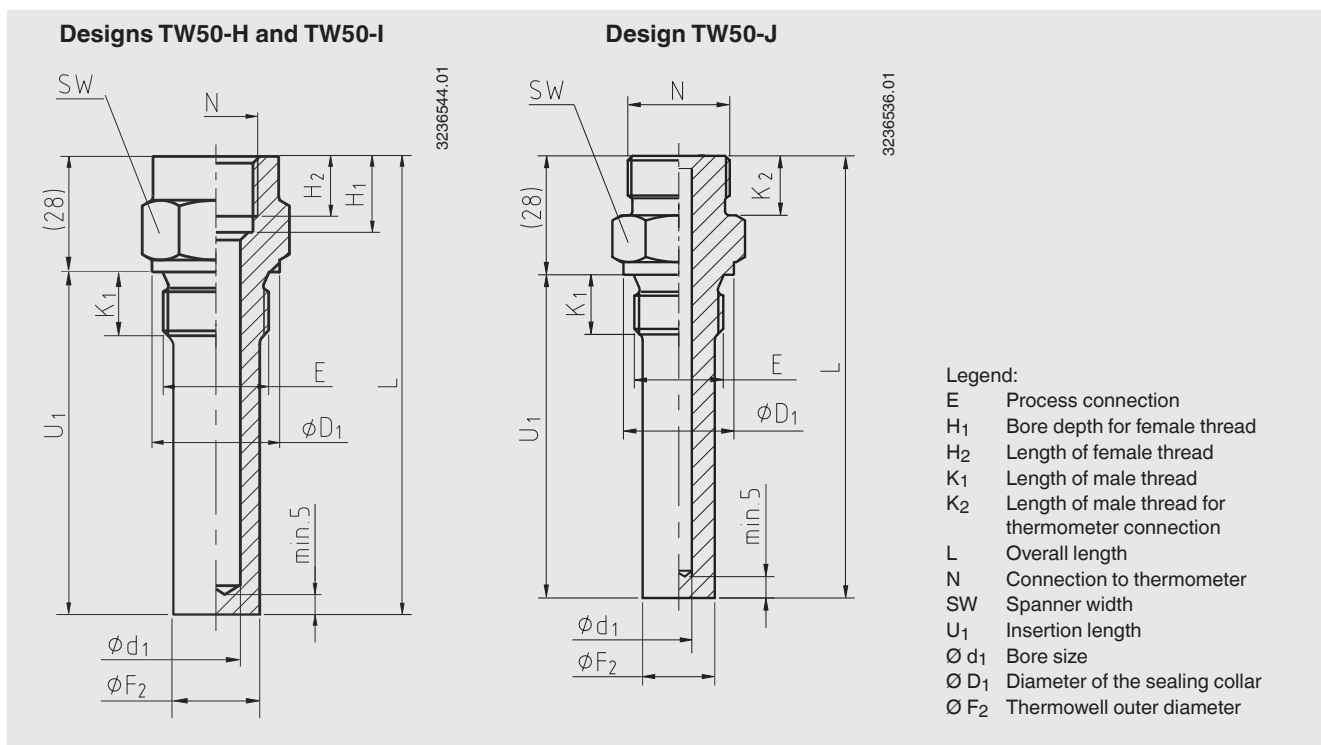
The TW50 series of solid-machined screw-in thermowells are suitable for use with numerous electrical and mechanical thermometers from WIKA.

Due to their design to DIN 43772, these thermowells for high process loads are suitable for use in the chemical industry, process technology and equipment manufacturing.

# Specifications

Threaded thermowell (solid-machined), model TW50	
<b>Designs per DIN 43772</b>	<ul style="list-style-type: none"> <li>■ Model TW50-H: Form 6</li> <li>■ Model TW50-I: Form 7</li> <li>■ Model TW50-J: Form 9</li> </ul>
<b>Thermowell materials</b>	Stainless steel 1.4571
<b>Process connection</b>	
Designs TW50-H, TW50-J	<ul style="list-style-type: none"> <li>■ G ½ B male thread</li> <li>■ G ¾ B male thread</li> </ul>
Design TW50-I	<ul style="list-style-type: none"> <li>■ ½ NPT male thread</li> <li>■ ¾ NPT male thread</li> <li>■ 1 NPT male thread</li> </ul>
<b>Connection to thermometer</b>	
Design TW50-H	<ul style="list-style-type: none"> <li>■ G ½ female thread</li> <li>■ G ¾ female thread</li> </ul>
Design TW50-I	G ½ female thread
Design TW50-J	<ul style="list-style-type: none"> <li>■ G ½ B male thread</li> <li>■ G ¾ B male thread</li> </ul>
<b>Bore size</b>	<ul style="list-style-type: none"> <li>■ Ø 7 mm [0.28 in]</li> <li>■ Ø 9 mm [0.35 in]</li> <li>■ Ø 11 mm [0.43 in]</li> </ul>
<b>Insertion length U</b>	
Designs TW50-H, TW50-I	<ul style="list-style-type: none"> <li>■ 82 mm [3.23 in]</li> <li>■ 142 mm [5.59 in]</li> <li>■ 182 mm [7.17 in]</li> <li>■ 232 mm [9.13 in]</li> <li>■ 382 mm [15.04 in]</li> </ul>
Design TW50-J	<ul style="list-style-type: none"> <li>■ 73 mm [2.87 in]</li> <li>■ 110 mm [4.33 in]</li> <li>■ 170 mm [6.69 in]</li> <li>■ 260 mm [10.24 in]</li> <li>■ 410 mm [16.14 in]</li> </ul>
<b>Overall length L</b>	Insertion length U <sub>1</sub> + 28 mm [1.1 in]
<b>Max. process temperature, process pressure</b>	Depending on <ul style="list-style-type: none"> <li>■ Load diagram DIN 43772</li> <li>■ Thermowell design               <ul style="list-style-type: none"> <li>- Dimensions</li> <li>- Material</li> </ul> </li> <li>■ Process conditions               <ul style="list-style-type: none"> <li>- Flow rate</li> <li>- Medium density</li> </ul> </li> </ul>
<b>Wake frequency calculation</b>	For critical applications, is recommended in accordance with Dittrich/Klotter or ASME PTC 19.3 TW-2016 as a WIKA engineering service  For further information, see Technical information IN 00.15 "Wake frequency calculation".

## Dimensions in mm [in]



### Design TW50-J

Dimensions in mm [in]								Weight in kg [lbs]	
E	N	Ø d <sub>1</sub>	Ø D <sub>1</sub>	Ø F <sub>2</sub>	K <sub>1</sub>	K <sub>2</sub>	SW	U <sub>1</sub> = 73 mm [2.87 in]	U <sub>1</sub> = 410 mm [16.14]
<b>G ½ B</b>	G ½ B	7 [0.28]	26 [1.02]	17 [0.67]	14 [0.55]	12 [0.47]	27 [1.06]	0.22 [0.49]	0.72 [1.59]
	G ½ B	9 [0.35]	26 [1.02]	17 [0.67]	14 [0.55]	12 [0.47]	27 [1.06]	0.20 [0.44]	0.64 [1.41]
	G ½ B	11 [0.43]	26 [1.02]	17 [0.67]	14 [0.55]	12 [0.47]	27 [1.06]	0.18 [0.40]	0.53 [1.17]
<b>G ¾ B</b>	G ¾ B	7 [0.28]	32 [1.26]	17 [0.67]	16 [0.63]	14 [0.55]	32 [1.26]	0.31 [0.68]	0.79 [1.74]
	G ¾ B	9 [0.35]	32 [1.26]	17 [0.67]	16 [0.63]	14 [0.55]	32 [1.26]	0.29 [0.64]	0.71 [1.57]
	G ¾ B	11 [0.43]	32 [1.26]	19 [0.75]	16 [0.63]	14 [0.55]	32 [1.26]	0.29 [0.64]	0.78 [1.72]

## Designs TW50-H, TW50-I

Model	Dimensions in mm [in]									Weight in kg [lbs]	
	E	N	Ø d <sub>1</sub>	Ø D <sub>1</sub>	Ø F <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	K <sub>1</sub>	SW	U <sub>1</sub> = 82 mm [3.23 in]	U <sub>1</sub> = 382 mm [15.04 in]
TW50-H	G ½ B	G ½ B	7 [0.28]	26 [1.02]	17 [0.67]	19 [0.75]	15 [0.59]	14 [0.55]	27 [1.06]	0.22 [0.49]	0.67 [1.48]
	G ½ B	G ½ B	9 [0.35]	26 [1.02]	17 [0.67]	19 [0.75]	15 [0.59]	14 [0.55]	27 [1.06]	0.21 [0.46]	0.59 [1.3]
	G ½ B	G ½ B	11 [0.43]	26 [1.02]	17 [0.67]	19 [0.75]	15 [0.59]	14 [0.55]	27 [1.06]	0.19 [0.42]	0.50 [1.1]
	G ¾ B	G ½ B	7 [0.28]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	16 [0.63]	32 [1.26]	0.28 [0.62]	0.72 [1.59]
	G ¾ B	G ½ B	9 [0.35]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	16 [0.63]	32 [1.26]	0.27 [0.6]	0.65 [1.43]
	G ¾ B	G ½ B	11 [0.43]	32 [1.26]	19 [0.75]	19 [0.75]	15 [0.59]	16 [0.63]	32 [1.26]	0.25 [0.55]	0.63 [1.39]
	G ¾ B	G ¾ B	7 [0.28]	32 [1.26]	17 [0.67]	22 [0.87]	17 [0.67]	16 [0.63]	32 [1.26]	0.31 [0.68]	0.82 [1.81]
	G ¾ B	G ¾ B	9 [0.35]	32 [1.26]	17 [0.67]	22 [0.87]	17 [0.67]	16 [0.63]	32 [1.26]	0.30 [0.66]	0.75 [1.65]
	G ¾ B	G ¾ B	11 [0.43]	32 [1.26]	19 [0.75]	22 [0.87]	17 [0.67]	16 [0.63]	32 [1.26]	0.29 [0.64]	0.74 [1.63]
TW50-I	½ NPT-14	G ½ B	7 [0.28]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 20 [0.79]	27 [1.06]	0.22 [0.49]	0.67 [1.48]
	½ NPT-14	G ½ B	9 [0.35]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 20 [0.79]	27 [1.06]	0.21 [0.46]	0.59 [1.3]
	½ NPT-14	G ½ B	11 [0.43]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 20 [0.79]	27 [1.06]	0.19 [0.42]	0.50 [1.1]
	¾ NPT-14	G ½ B	7 [0.28]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 21 [0.83]	27 [1.06]	0.24 [0.53]	0.69 [1.52]
	¾ NPT-14	G ½ B	9 [0.35]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 21 [0.83]	27 [1.06]	0.23 [0.51]	0.61 [1.34]
	¾ NPT-14	G ½ B	11 [0.43]	32 [1.26]	19 [0.75]	19 [0.75]	15 [0.59]	≈ 21 [0.83]	27 [1.06]	0.21 [0.46]	0.52 [1.15]
	1 NPT-11.5	G ½ B	7 [0.28]	32 [1.26]	17 [0.67]	19 [0.75]	15 [0.59]	≈ 25 [0.98]	36 [1.42]	0.32 [0.71]	0.85 [1.87]
	1 NPT-11.5	G ½ B	9 [0.35]	32 [1.26]	20 [0.79]	19 [0.75]	15 [0.59]	≈ 25 [0.98]	36 [1.42]	0.30 [0.66]	0.75 [1.65]
	1 NPT-11.5	G ½ B	11 [0.43]	32 [1.26]	22 [0.87]	19 [0.75]	15 [0.59]	≈ 25 [0.98]	36 [1.42]	0.29 [0.64]	0.74 [1.63]

### Suitable stem lengths

#### ■ Dial thermometer

Thermowell model	Connection design	Stem length l <sub>1</sub>
TW50-H	S, 4, 5	l <sub>1</sub> = L - 10 mm [0.4 in] or l <sub>1</sub> = U <sub>1</sub> + 18 mm [0.7 in]
TW50-H	2	l <sub>1</sub> = L - 30 mm [1.2 in] or l <sub>1</sub> = U <sub>1</sub> - 2 mm [0.1 in]
TW50-J	3	l <sub>1</sub> = L - 12 mm [0.5 in] or l <sub>1</sub> = U <sub>1</sub> + 16 mm [0.6 in]

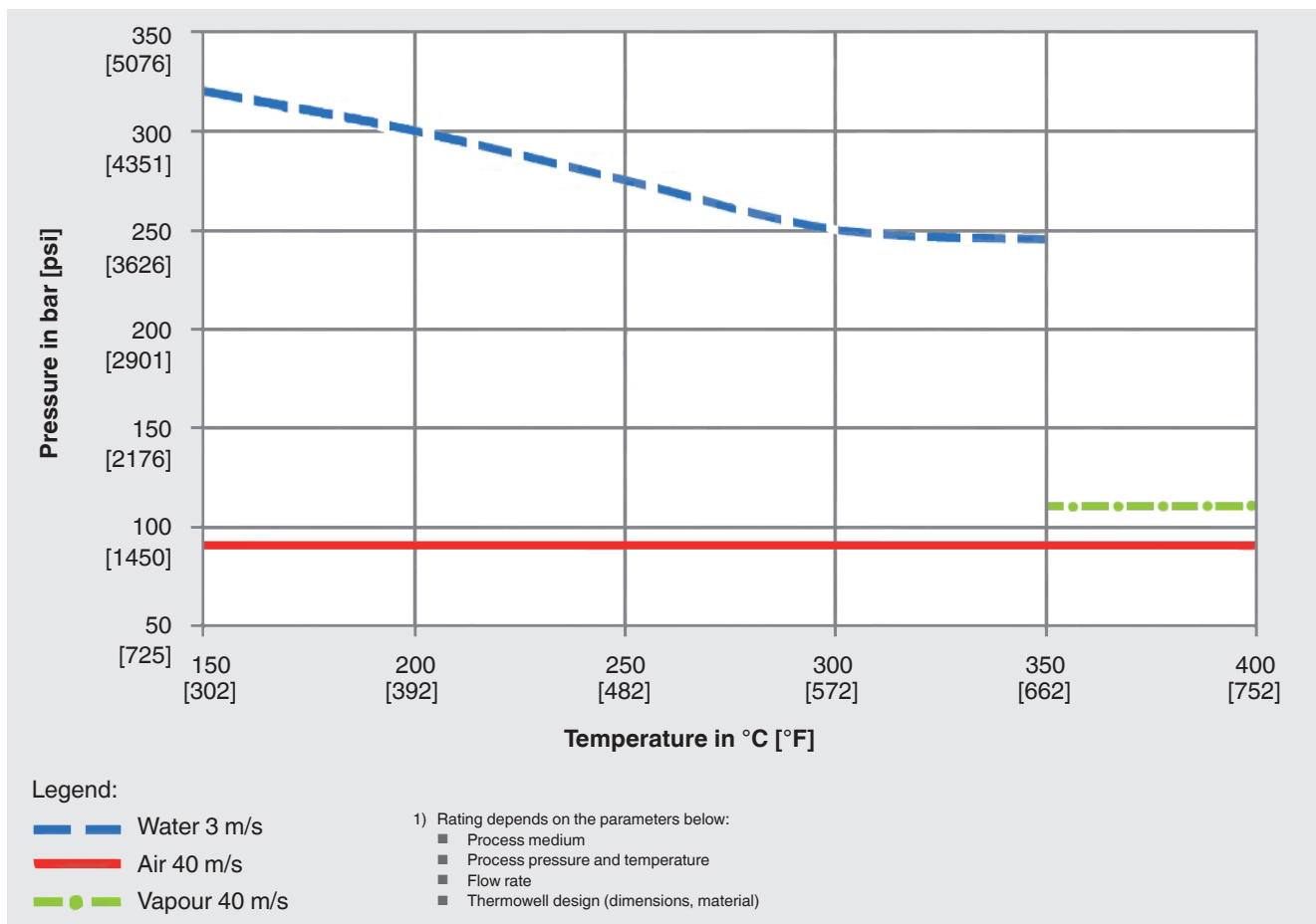
#### ■ Machine glass thermometer

Thermowell model	Connection design	Process connection of the thermometer	Stem length l <sub>1</sub>
TW50-H	E	all	l <sub>1</sub> = L - 10 mm [0.4 in] or l <sub>1</sub> = U <sub>1</sub> + 18 mm [0.7 in]
TW50-H	3	G ½	l <sub>1</sub> = L - 12 mm [0.5 in] or l <sub>1</sub> = U <sub>1</sub> + 16 mm [0.6 in]
TW50-J	3	G ¾	l <sub>1</sub> = L - 8 mm [0.3 in] or l <sub>1</sub> = U <sub>1</sub> + 20 mm [0.8 in]

## Pressure-temperature diagram <sup>1)</sup>

Thermowell model TW50 made of stainless steel 1.4571

U<sub>1</sub> = 232 mm [9.13 in] mit Ø F<sub>2</sub> = 17 mm [0.67 in] and Ø d<sub>1</sub> = 7 mm [0.28 in]



## Certificates (option)

- 2.2 test report
- 3.1 inspection certificate

## Ordering information

Model / Thermowell form / Thermowell material / Process connection / Connection to thermometer / Insertion length U<sub>1</sub> / Drilling Ø d<sub>1</sub> / Assembly with thermometer / Certificates / Options

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