

# Thermo-WELL

Manufacturing range

MR TW-E 05.2009

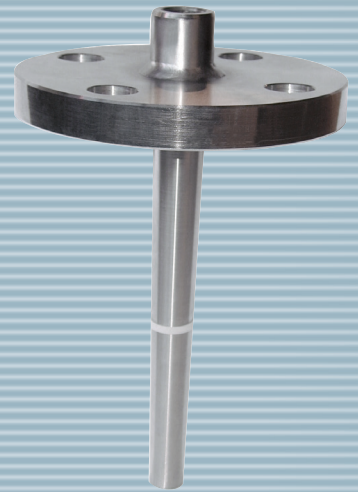
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Built-up TW (DIN 43772)



Rüeger TW for diesel engines



Bar stock TW (ANSI/ASME B16.5)

## A wide range of reliable Thermo-WELL executions

### Pockets

RÜEGER pockets or thermowells protect bimetallic, gas pressure thermometers, RTD's and thermocouples or probes associated with other measuring instruments (indicators, regulators, recorders) against steady or intermittent pressures and/or corrosive environments.

Use of pockets also allows the replacement of these instruments and sensors without interrupting the process. Pockets can be built into systems as "temporary measuring points" thus reducing the number of instruments installed. These pockets can be supplied in several materials, with different surface coatings, in a very wide range of types in accordance with all existing national and international standards or to customers' drawings.

### Related Instruments

All kind of mechanical and electrical thermometers and temperature sensors or probes.

### Material

- Brass
- Carbon steel (A105)
- Stainless steels AISI 304, 316, 316L, 316Ti & 321
- Refractory steels AISI 446 & 310
- High temperature alloys Inconel, Hastelloy, etc.

### Executions

- ANSI/ASME standard bar stock thermowells (max. length 2000 mm)
- DIN bar stock and built-up thermowells
- DIN weld-in pockets
- DIN hammered or stepped fast response time pockets
- Shell-type pockets

### Industries and plant

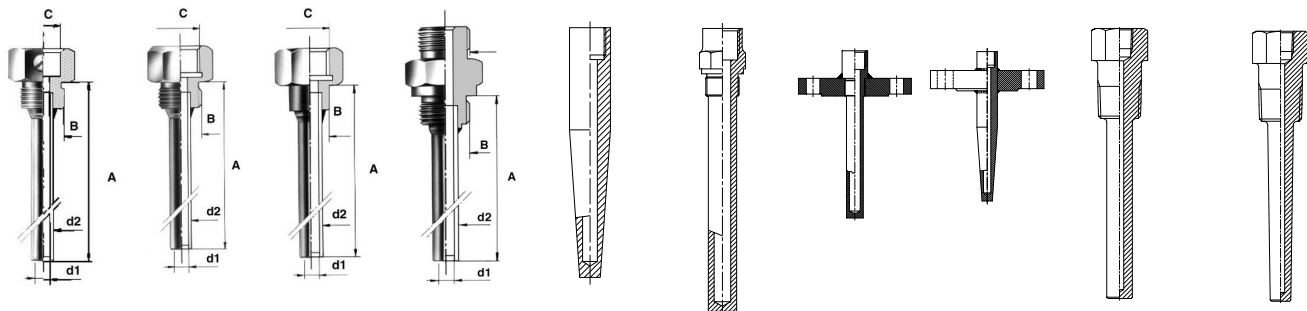
- Chemical and petro-chemical
- Machining (diesel engines)
- Food and beverage processing
- Electroplating and plastic injection
- HVAC
- Mechanical engineering and power generation



## RÜEGER's Thermowells for HVAC

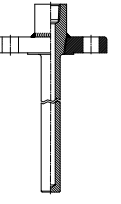
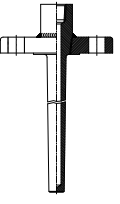
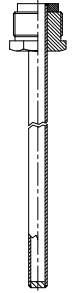
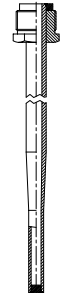
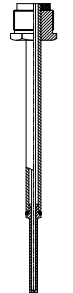
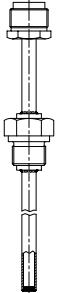
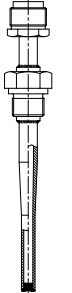
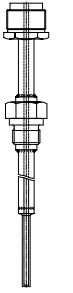
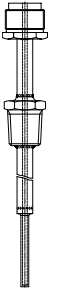
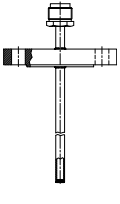
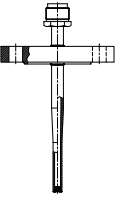
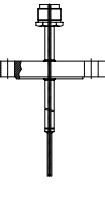
## Bar-stock type thermowells for Thermo-Se

DAE	DIE	DIA	DEE	TW10 120	TW10 210	TW10 412	TW10 522	TW50 310	TW50 320
				DIN				ANSI / AS	



Form		DIN 43772 Form/Other standard				4	6	6F	4F	ISA 121	ISA 115/117/125/127
Instrument connection type	Without thread	*									
	Threaded		*	*	*	*	*	*	*	*	*
	Flange										
Process connection	Without thread			*		*					
	Threaded	*	*		*		*		*	*	
	Flange						*	*			
Type of extention						Tube				Nipple or	
Maximum length (mm)		2000	2000	2000	2000	1500	1500	1500	1500	1500	1500
Minimum diameter (mm)		8	8	10	10	18/9	17	17	18/9	17	18/9
Maximum diameter (mm)		13	17	13	13	32/17	50	50	32/17		32/17
Bore minimum (mm)		5	5	6.5	6.5	3.5	7	7	3.5	7	3.5
Bore maximum (mm)		14	14	10	10	14 <sup>*3</sup>	9 <sup>*2</sup>	9 <sup>*2</sup>	9 <sup>*2</sup>	9 <sup>*2</sup>	9 <sup>*2</sup>
Material		AISI 316 Brass	AISI 316 Brass	AISI 316 Brass	AISI 316 Brass	AISI 304 AISI 316/ AISI 316L other on request					
Options	Full penetration welding						*		*		
	NACE					*	*	*	*	*	*
	Internal/external hydraulic pressure test					*	*	*	*	*	*
	Dye penetrant test					*	*	*	*	*	*
	Radiographic examination							*	*		
	Karman stress calculation	*	*	*	*	*	*	*	*	*	*
	Material certificate	*	*	*	*	*	*	*	*	*	*
	Application with	S50 HVAC Thermometers				S10 sensors				S50 sensors	
Included in Rüeger sensor type					S30	S31	S31	S30		S60/ S61	

\*1>6000 mm tube has to be welded together; \*2 bigger diameter possible when s-type fin & stepped bore applied; \*3 for gas-pressure thermometers or sensors, when stepped bore or s-type fin is used

Sensor		Built-up thermowells for Thermo-Sensor									
TW50 412	TW50 422	TW10 160	TW10 170	TW10 180	TW10 260 TW10 360	TW10 270	TW10 280	TW10 380	TW10 562	TW10 572	TW10 582
GME / ISA		DIN									
											
ISA 131	ISA 133	2	3	Stepped for S22	2G	3G	Stepped for S22	Stepped for S22	2F	3F	Stepped flange for S22
*	*	*	*	*	*	*	*	*	*	*	*
		*	*	*							
					*	*	*	*			
*	*								*	*	*
Integrated		Integrated									
1500	1500	6000 <sup>*1</sup>	1100	530	6000 <sup>*1</sup>	1100	530	530	6000 <sup>*1</sup>	1100	530
19	15	9	12/9	9/5	9	12/9	9/5	9/5	9	12/9	9/5
50	50	14	14	14	14	14	14	14	14	14	14
6.6	6.6	7	6.1	3.2	7	6.1	3.2	3.2	7	6.1	3.2
9 <sup>*2</sup>	9 <sup>*2</sup>	9	8.1	4	9	8.1	4	4	9	8.1	4
		AISI 304 AISI 316L AISI 316Ti	AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI316Ti	AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI 316Ti	AISI 316L AISI 316Ti	AISI 304 AISI 316L AISI 316Ti
*	*								*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
*	*	*	*	*	*	*	*	*	*	*	*
		for S10 sensors									
S62	S62	S20	S21	S22	S20	S21	S22	S22	S20	S21	S22

## General information

**1. Ordering a thermowell** ([www.instrugate.com](http://www.instrugate.com) will configure your thermowell automatically)

For the execution of a thermowell the following information are necessary:

- Process connection such as size of thread or flange or w/o (weld-in)
- Instrument connection
- Type of execution (bar stock, built-up or Rüeger std.)
- Material (see also material selection-guide)
- Total length
- Insertion length
- Stem diameter (for conical well root and tip diameter)
- Bore diameter
- Tip thickness

If a Karman Stress Calculation (KSC) according to ASME/ANSI PTC19.3 is required the following additional information are requested:

- Max. operating temperature
- Max. operating pressure
- Density or MW of medium (when mixed flow of each medium)
- Mass flow
- Line size

The ASME/ANSI PTC19.3 limits the frequency ratio (wake frequency/natural frequency) at 0.8. If with the given insertion length this ratio is higher than 0.8 an anti-vibration collar reducing the free vibrating length of the well may be installed. In this case the nozzle diameter and the nozzle length are required.

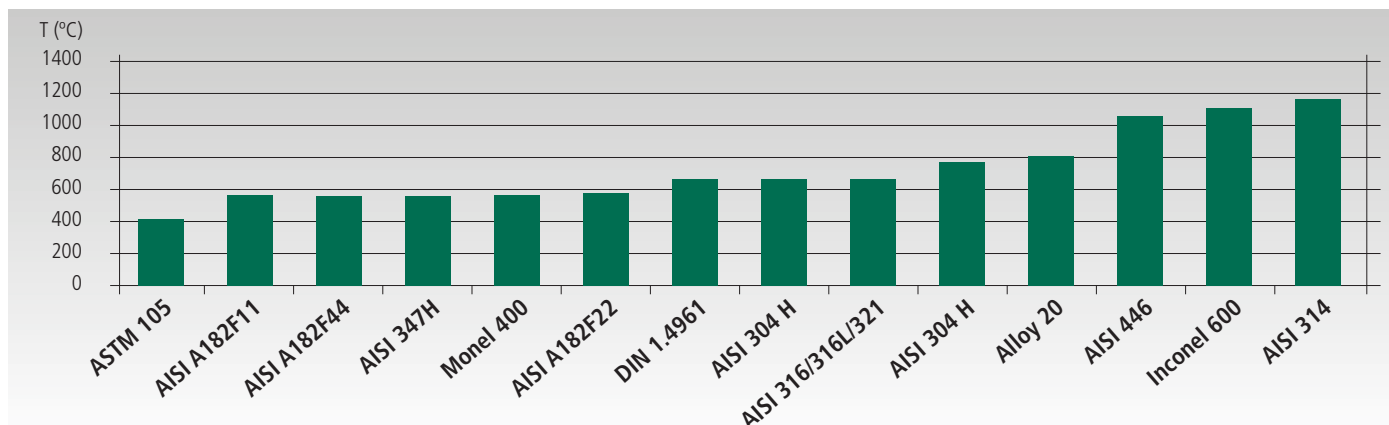
The following certificates and inspections may be executed (optional with mark-up):

- Hydraulic static pressure test (if not specifically indicated only the internal pressure test will be executed)
- Dye penetrant check
- Radiographic examination
- Material certificate 3.1 B acc. EN 10204
- NACE MR0175 certificate

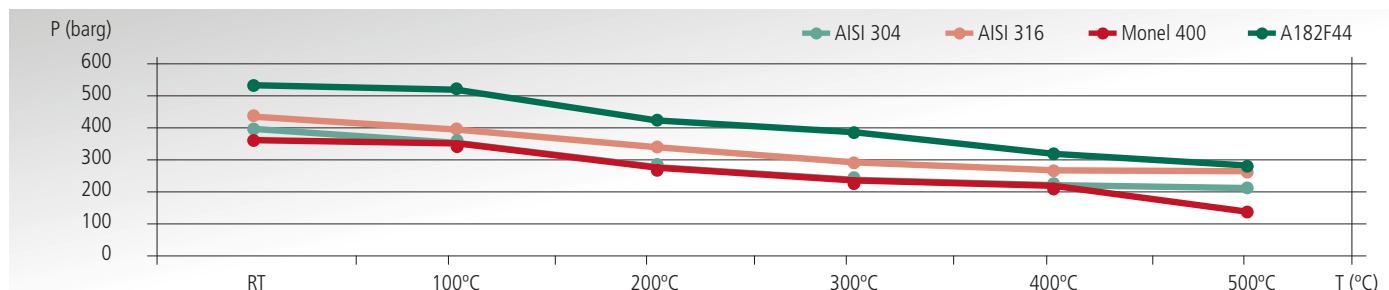
## 2. Material selection guide

The following information have only informative character. In each particular case they have to be checked taking into account the operating conditions of the thermowell.

### 2.1 Maximum permissible operating temperatures



### 2.2 Maximum operating pressure in barg



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