

Badotherm thermowell model TW2x1 is a bar stock, solid machined type thermowell with a threaded process connection. The construction is available with straight, stepped, or tapered stem. The standard material is AISI 316(L) and optionally various exotic materials are available. Thermowells are designed to protect the temperature bulb from corrosive effect, extreme pressure, or other process conditions. It also allows replacing the temperature instrument without disturbing the process.



STANDARD EXECUTION

TYPE	THERMOWELL	BORE SIZE	LENGTH	PROCESS CONNECTION
bar stock	AISI 316(L)	6.5 mm	customer specific	threaded

PROCESS CONNECTIONS

size (F)	thread		gasket surface
1/2"	BSP	male	ISO 1179-4
1/2"	NPT	male	
3/4"	BSP	male	ISO 1179-4
3/4"	NPT	male	
1"	BSP	male	ISO 1179-4
1"	NPT	male	
M20x1.5	METRIC	male	ISO 9974-3
M27x2.0	METRIC	male	ISO 9974-3
M32x2.0	METRIC	male	ISO 9974-3

INSTRUMENT CONNECTIONS, CONSTRUCTION, AND BORE SIZE

size (F1)	thread		construction	bore size (d)	
1/2"	NPT	female	straight (TW211)	6.2	10.0
1/2"	BSP	female	stepped (TW221)	6.5	10.5
M20x1.5	METRIC	female	tapered (TW231)	7.0	11.0
				8.0	12.0
				8.5	12.5
				9.0	

All dimensions in mm

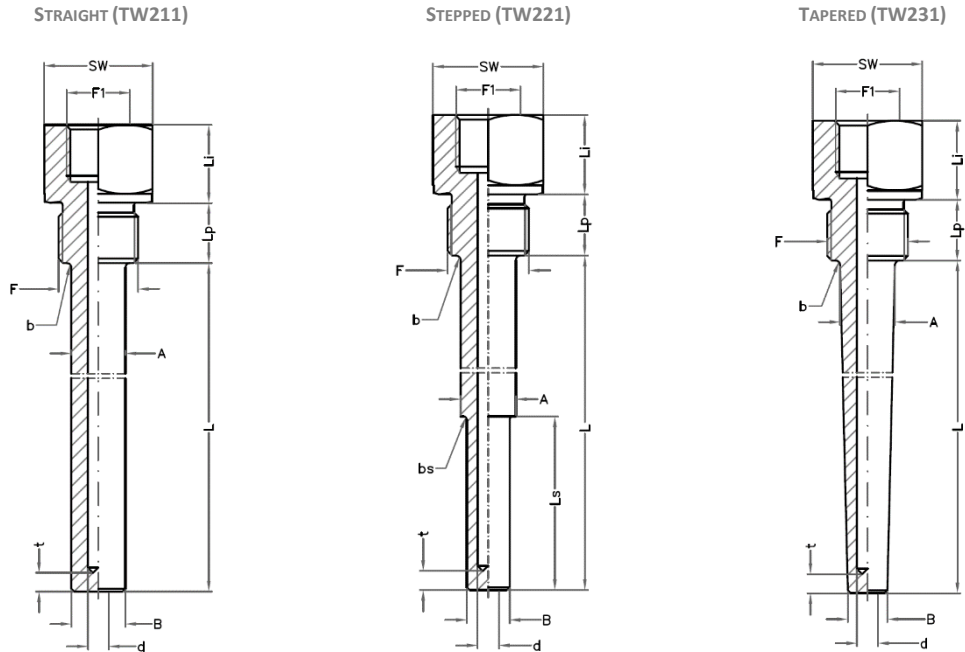
WETTED PART MATERIALS AND THREADS

stem material	threads	norms
AISI 316(L)	NPT	ANSI B1.20.1
AISI 321	BSP	ISO 228
Inconel 625	METRIC	ISO 965
Inconel 825		
Duplex 2205		
Super Duplex 2507		
Monel 400		
Hastelloy C-276		
Titanium Gr. 2		

OPTIONS

- inside or outside pressure test
- stainless steel plug & chain
- tantaline treatment
- thermowells > 610 mm
- wake frequency calculation per ASME PTC 19.3 TW-2010

DRAWING AND DIMENSIONS STANDARD EXECUTION



B1.20.1

F	F1	A	B	min / max	b	bs ¹	d	L	Li	Lp	Ls ¹	SW	t
1/2"NPT	1/2"NPT	17.8	12.6	12.6 / 17.8	1	1	6.5	various	26	20	various	22	8
3/4"NPT	1/2"NPT	23.1	12.6	12.6 / 23.1	3	3	6.5	various	26	20	various	27	8
1"NPT	1/2"NPT	29.0	12.6	12.6 / 29.0	3	3	6.5	various	26	25	various	36	8

All dimensions in mm

Dimensions based on standard execution d=6.5

For restrictions see table dimensional limits

¹ only applicable for stepped executions

ISO 228 – WITH ISO 1179-4 GASKET SURFACE

F	F1	A	B	min / max	b	bs ¹	d	L	Li	Lp	Ls ¹	SW	t
1/2"BSP	1/2"BSP	17.8	12.6	12.6 / 17.8	1	1	6.5	various	26	25	various	22	8
3/4"BSP	1/2"BSP	23.1	12.6	12.6 / 23.1	3	3	6.5	various	26	25	various	27	8
1"BSP	1/2"BSP	29.0	12.6	12.6 / 29.0	3	3	6.5	various	26	25	various	36	8

All dimensions in mm

Dimensions based on standard execution d=6.5

For restrictions see table dimensional limits

¹ only applicable for stepped executions

ISO 1179-4 – WITH ISO 9974-3 GASKET SURFACE

F	F1	A	B	min / max	b	bs ¹	d	L	Li	Lp	Ls ¹	SW	t
M20x1.5	M20x1.5	17.8	12.6	12.6 / 17.8	1	1	6.5	various	26	25	various	22	8
M27x2.0	M20x1.5	23.1	12.6	12.6 / 23.1	3	3	6.5	various	26	25	various	27	8
M32x2.0	M20x1.5	29.0	12.6	12.6 / 29.0	3	3	6.5	various	26	25	various	36	8

All dimensions in mm

Dimensions based on standard execution d=6.5

For restrictions see table dimensional limits

¹ only applicable for stepped executions

DIMENSIONAL LIMITS FOR STRAIGHT, TAPERED, AND STEPPED THERMOWELLS

STRAIGHT AND TAPERED

description	symbol	minimum	maximum
unsupported length	L	63.5	610
bore diameter	d	6.1	21
tip diameter	B	12.6	46.5
taper ratio	B/A	0.6	1
bore ratio	d/B	0.2	0.7
aspect ratio	L/B	2	
minimum wall thickness	(B-d)/2	3	

STEPPED

description	symbol	minimum	maximum
unsupported length	L	127	610
bore diameter	D	6.1	6.7
tip diameter	B	12.7 and 22.2	
step diameter ¹	B/A	0.5	0.8
step diameter ²	B/A	0.6	0.9
length ratio	Ls/L	0	0.6
minimum wall thickness	(B-d)/2	3	

All dimensions in mm

For tapered executions $L > 240$ mm; there will be a tapered section (max length of 240 mm) and a straight section ($L - 240$ mm)

¹ Step diameter ratio, for B=12.7

² Step diameter ratio, for B=22.23



Holland – United Kingdom – Romania – India – Thailand – Dubai

To our knowledge, the information contained herein is accurate as of the date of this document. However neither Badotherm, nor its affiliates makes any warranty, express or limited, or accepts any liability in connection with this information or its use. This information is for technical skilled persons at their own discretion and risk and does not relate to the use of this product in combination with any other product. The user alone finally determines suitability of any information or material in contemplated use, the manner of use and whether any patents are infringed. This information gives typical properties only.

Badotherm reserves the right to make changes to the specifications and materials without prior notice. The latest version of the datasheet can be found on www.badotherm.com.

© 2001 Badotherm, all rights reserved. Trademarks and/or other products referenced herein are either trademarks or registered trademarks of Badotherm.