Rototherm™

Flanged Thermowells

Rototherm's Flanged thermowells are designed to protect temperature sensors from high pressure, velocity and corrosive media. They are manufactured to meet the standards of ASME, BS-EN and other authorities. They can be fabricated from tube, drilled from barstock or machined from forgings.

Summary

Thermowells are precision components manufactured to the highest standard from bar or forgings, to serve as protective devices for primary sensing elements of all types. Conditions of pressure, temperature and corrosion resistance govern the size, shape and selection of materials to ensure optimum dependability system responce and accuracy.

Main Applications

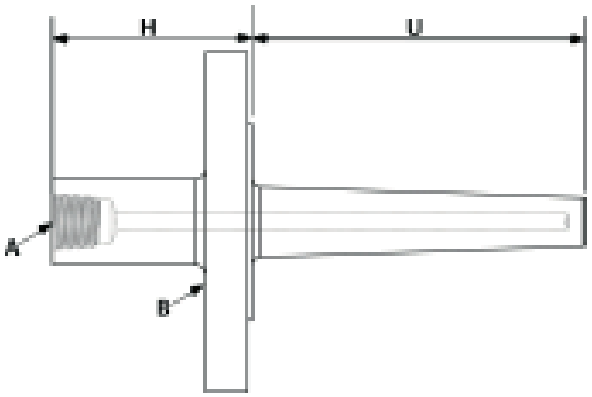
- Food Industry , dairies and breweries
- Ovens, dryers and tanks
- On/offshore Environments & Refining
- Chemical, Petrochemical & Pharmaceutical
- Heating & Cooling system & pipework

rototechnology.com
sales@rototechnology.com
(USA) +1 832 930 8600
(UK) +44 1656 740551

British Rototherm Group
Kenfig Industrial Estate,
Margam, Port Talbot
SA13 2PW United Kingdom

Technical Drawing

Figure 8: Flanged Thermowell Components



A. Instrument connection

B. Process connection

H. Head length

U. Immersion length

Note
Wetted surface includes flange face and immersion length (U).

Ordering Example

Model	Units	Immersion Length (U)	Mounting Style	Process Connection	Stem Style	Thermowell Material	Head Length (H)	Instrument Connection Threads	Options
RTWS	E	0150	F	AC	1	SC	050	A	WR5 Q76...
1234	5	6789	10	11 12	13	14 15	16 17 18	19	XXXXX

rototechnology.com
sales@rototechnology.com
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Standard Offering

Model	Units	Immersion Length (U)	Mounting Style	Process Connection	Stem Style	Thermowell Material	Head Length (H)	Instrument Connection Threads	Options
RTWS	X	XXXX	X	X X	X	X X	X X X	X	XX,XXX,XX
1 2 3 4	5	6 7 8 9	10	11 12	13	14 15	16 17 18	19	

5 – Units

English(E)	
Metric (M)	

6 7 8 9 – Immersion Length (U)

XXXX	0.5in to 42in (E) Example: 0.5in=0005, 42in=0420
XXXX	25 to 1165 mm (M) Example: 25 mm = 0025, 1165 mm = 1165

10 – Mounting Style

F	Full penetration weld
P	Partial penetration weld
G	Forged, no welds

11 12 – Process Connection

AA	1-in.Class 150
AB	½-in.Class 150
AC	2-in.Class 150
AH	1-in.Class 300
AJ	1 ½- in. Class
AK	2 - in.Class 300

13 – Stem Style

1	Straight Stem
2	Tapered Stem
3	Stepped Stem

14 15 – Thermowell Material

SC	316/316LSST
SF	304/304L SST
CS	Carbon Steel

16 17 18 – Head Length (H)

XXX	2.25 in to 11.25 (E) Example : 2.25 in=022, 10in=100
XXX	40 to 225mm (M) Example : 40 mm =040, 225mm = 225

19 – Instrument Connection Threads

A	½ - 14 NPT
B	½ - 14 NPSM
D	M18 x 1.5p
E	M20 x 1.5p
F	M24 x 1.5p

XX,XXX,XX – Options

Q5	External Pressure Test
Q35	NACE certification
R21	Wake frequency calculation
Q8	Material Certification
Q73	Dye penetration test

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Ordering information

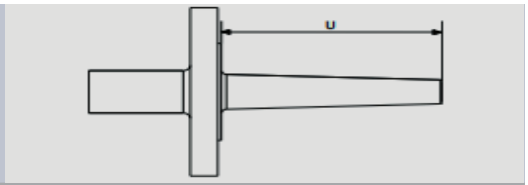
Model

Places 1-4	Description	Details
RTWS	Barstock temperature thermowell	Made with a standard bore diameter of 0.26-in. (6.6 mm) and tip wall thickness of 0.25-in. (6.4 mm) Default ASME flange facing is raised face with spiral serrations. Default EN 1092-1 flange facing is raised face Type B1.

Dimension units

Place 5	Description	Details
E	English units (in.)	Specifies whether length units will be in inches (in.) or millimeters (mm.)
M	Metric units (mm.)	

Immersion length (U)

Places 6-9	Description	
XXXX	xxx.x-in., 1.00 to 100-in. in ¼-in. increments (when ordered with dimensions units code E) Examples of a 6.25-in. length where the second decimal is dropped off: 0062	
XXXX	xxxx mm, 25 to 2500 mm in 5 mm increments (when ordered with dimension units code M) Example of a 50 mm length: 0050	

Mounting Style

Place 10	Description	Details
P	Flange, partial penetration weld	Weld refer to welding of the flange to thermowell stem
F	Flange, full penetration weld	
G	Flange, forged	Single piece forging, no welds

Process Connection

Places 11-12	Partial Weld (P)	Full Penetration Weld (F)	Forged, no welds (G)
AA	1-in. Class 150	1-in. Class 150	1-in. Class 150
AB	1½-in. Class 150	1½-in. Class 150	1½-in. Class 150
AC	2-in. Class 150	2-in. Class 150	2-in. Class 150
AD	3-in. Class 150	3-in. Class 150	3-in. Class 150
AG	¾ in. Class 300	¾ in. Class 300	¾ in. Class 300
AH	1-in. Class 300	1-in. Class 300	1-in. Class 300
AJ	1½-in. Class 300	1½-in. Class 300	1½-in. Class 300
AK	2-in. Class 300	2-in. Class 300	2-in. Class 300
AL	1-in. Class 400/600	1-in. Class 400/600	1-in. Class 400/600
AM	1½-in. Class 400/600	1½-in. Class 400/600	1½-in. Class 400/600
AN	2-in. Class 400/600	2-in. Class 400/600	2-in. Class 400/600
AP	N/A	1-in. Class 900/1500	1-in. Class 900/1500

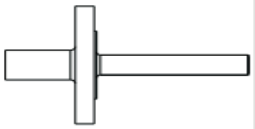
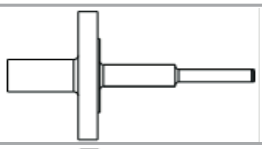
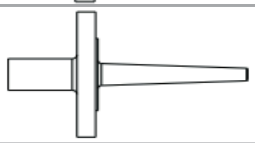
Ordering information

Process Connection

Places 11-12	Partial weld (P)	Full penetration weld (F)	Forged, no welds (G)
AQ	N/A	1½-in. Class 900/1500	1½-in. Class 900/1500
AR	N/A	2-in. Class 900/1500	2-in. Class 900/1500
AS	N/A	1-in. Class 2500	1-in. Class 2500
AT	N/A	1½-in. Class 2500	1½-in. Class 2500
AU	N/A	2-in. Class 2500	2-in. Class 2500
AV	3-in. Class 300	3-in. Class 300	3-in. Class 300
AW	3-in. Class 400/600	3-in. Class 400/600	3-in. Class 400/600
AX	N/A	3-in. Class 900	3-in. Class 900
AY	N/A	3-in. Class 1500	3-in. Class 1500
AZ	N/A	3-in. Class 2500	3-in. Class 2500
FA	DN 20/PN 2.5/6	DN 20/PN 2.5/6	DN 20/PN 2.5/6
FE	DN 20/PN 10/16/25/40	DN 20/PN 10/16/25/40	DN 20/PN 10/16/25/40
FG	DN 20/PN 63/100	DN 20/ PN 63/ 100	DN 20/ PN 63/ 100
GA	DN 25/PN 2.5/6	DN 25/PN/2.5/6	DN 25/PN/2.5/6
GE	DN 25/PN 10/16/25/40	DN 25/PN 10/16/25/40	DN 25/PN 10/16/25/40
GG	DN 25/PN 63/100	DN 25/PN 63/100	DN 25/PN 63/100
JA	DN 40/PN 2.5/6	DN 40/PN 2.5/6	DN 40/PN 2.5/6
JE	DN 40/PN 10/16/25/40	DN 40/PN 10/16/25/40	DN 40/PN 10/16/25/40
JG	DN40/PN 63/100	DN40/PN 63/100	DN40/PN 63/100
KA	DN 50/PN 2.5/6	DN 50/PN 2.5/6	DN 50/PN 2.5/6
KC	DN 50/PN 10/16	DN 50/PN 10/16	DN 50/PN 10/16
KE	DN 50/PN 25/40	DN 50/PN 25/40	DN 50/PN 25/40
KF	DN 50/PN 63	DN 50/PN 63	DN 50/PN 63
KG	DN 50/PN 100	DN 50/PN 100	DN 50/PN 100
LA	DN 65/PN 2.5/6	DN 65/PN 2.5/6	DN 65/PN 2.5/6
LC	DN 65/PN 10/16	DN 65/PN 10/16	DN 65/PN 10/16
LE	DN 65/PN 24/40	DN 65/PN 24/40	DN 65/PN 24/40
LF	DN 65/PN 63	DN 65/PN 63	DN 65/PN 63
LG	DN 65/PN 100	DN 65/PN 100	DN 65/PN 100
MA	DN 80/PN 2.5/6	DN 80/PN 2.5/6	DN 80/PN 2.5/6
MC	DN 80/PN 10/16	DN 80/PN 10/16	DN 80/PN 10/16
ME	DN 80/PN 25/40	DN 80/PN 25/40	DN 80/PN 25/40
MF	DN 80/PN 63	DN 80/PN 63	DN 80/PN 63
MG	DN 80/PN 100	DN 80/PN 100	DN 80/PN 100
NA	DN 100/PN 2.5/6	DN 100/PN 2.5/6	DN 100/PN 2.5/6
NC	DN 100/PN 10/16	DN 100/PN 10/16	DN 100/PN 10/16
NE	DN 100/PN 25/40	DN 100/PN 25/40	DN 100/PN 25/40
NF	DN 100/PN 63	DN 100/PN 63	DN 100/PN 63
NG	DN 100/PN 100	DN 100/PN 100	DN 100/PN 100

Ordering information

Stem Style

Place 13	Description	Details	Image
1	Straight	Minimum immersion length 1-in. (25 mm)	
2	Tapered	Minimum immersion length 1-in. (25 mm)	
3	Stepped	Minimum immersion length 3-in. (75 mm)	

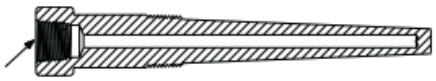
Thermowell Material

Places 14-15	Description	Details
SC	316/316L dual rated	
SD	316/316L dual rated (NORSOK)	Must order the Q8 Material Certificate to get NORSOK documentation
SF	304/304L dual rated	
SG	316Ti SST	
SH	316/316L SST with tantalum sheath	Only available as a straight stem profile with a 0.75 diameter thus requires option A075 for English units
SJ	316/316L SST with PFA coating	
SK	304/304L SST with PTFE coating	
SL	310 SST	
SM	321 SST	
SN	321H SST	

Head length (H)

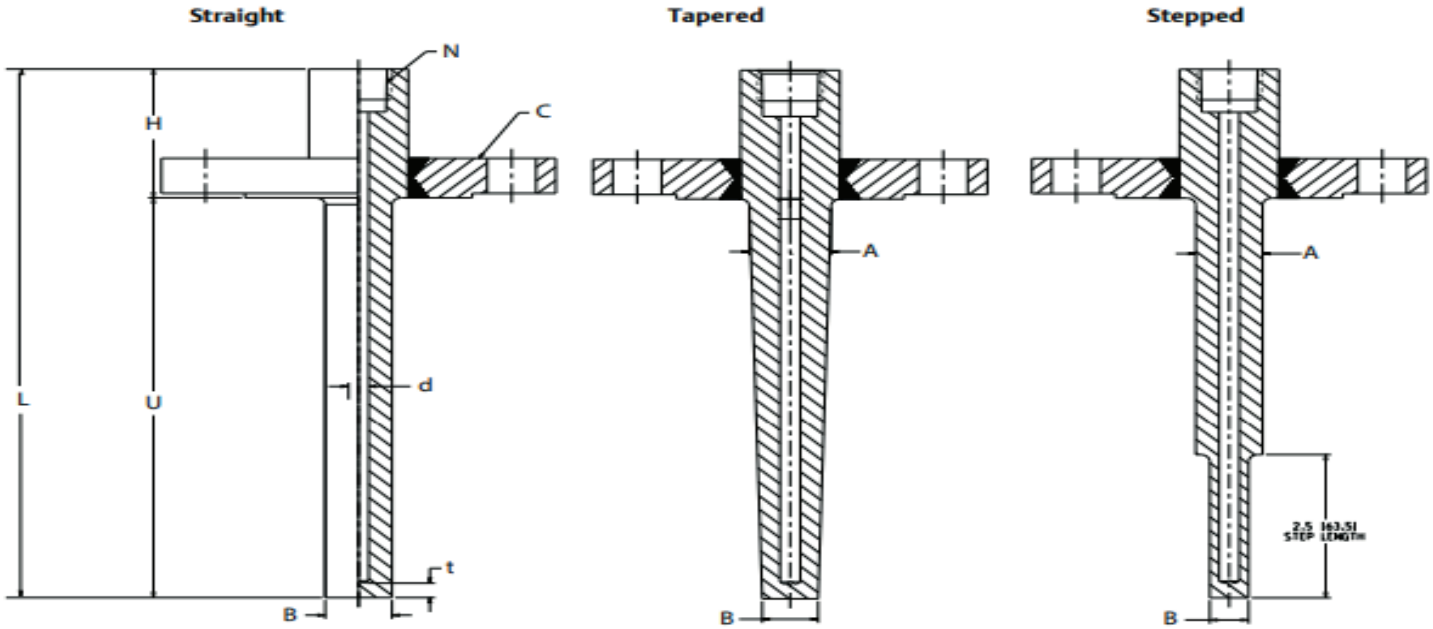
Places 16-18	Description
XXX	xx.x-in., 2.25 to 11.25-in. in ¼-in. increments (when ordered with dimension units code E) Examples of a 6.25-in. length where the second decimal is dropped off: 0062 (default head length = 1.75-in.)
XXX	xxx mm, 45 to 225 mm in 5 mm increments (when ordered with dimension units code M) Example of a 50 mm length: 0050 (default head length = 45 mm)

Instrument Connection

Place 19	Description	Details	Image
A	½-14 NPT	Female threads	
B	½-14 NPSM		
C	¾-14NPT		
D	M18 x 1.5p		
E	M20 x 1.5p		
F	M24 x 1.5p		
G	G ½ -in. (BSPF)		
H	G ¾-in. (BSPF)		
J	M27 x 2p		
K	M14 x 1.5p		

Thermowell Drawing

Figure 11: Flange Mounted Thermowell Drawings



A. Root diameter
B. Tip diameter
C. ASME B16.5 flange
L. Total length (U + H)
H. Head length
N. Instrument connection
U. Immersion length
d. Bore diameter
t. Tip thickness

Dimensions are in millimeter (MM)

Code	Process connection			Root diameter stepped stem	Root diameter tapered stem	Tip diameter tapered stem	Tip diameter straight stem	Thread specification
	Code P, flanged, partial penetration weld	Code F, flanged, full penetration weld	Code G, flanged, forged/no welds					
AA	1-in. Class 150	1-in. Class 150	1-in. Class 150	19	22.5	16	19	ASME B16.5
AB	1½-in. Class 150	1½-in. Class 150	1½-in. Class 150	21.5	26.5	18	21.5	
AC	2-in. Class 150	2-in. Class 150	2-in. Class 150	21.5	26.5	18	21.5	
AD	3-in. Class 150	3-in. Class 150	3-in. Class 150	21.5	26.5	18	21.5	
AG	¾-in. Class 300	¾-in. Class 300	¾-in. Class 300	17	17	12.5	17	

Thermowell Drawing

Dimensions are in millimeter (MM)

Code	Process connection			Root diameter stepped stem	Root diameter tapered stem	Tip diameter tapered stem	Tip diameter straight stem	Thread specification
	Code P, flanged, partial penetration weld	Code F, flanged, full penetration weld	Code G, flanged, forged/no welds					
AH	1-in. Class 300	1-in. Class 300	1-in. Class 300	19	22.5	16	19	ASME B16.5
AJ	1½-in. Class 300	1½-in. Class 300	1½-in. Class 300	21.5	26.5	18	21.5	
AK	2-in. Class 300	2-in. Class 300	2-in. Class 300	21.5	26.5	18	21.5	
AL	1-in. Class 400/600	1-in. Class 400/600	1-in. Class 400/600	19	22.5	16	19	
AM	1½-in. Class 400/600	1½-in. Class 400/600	1½-in. Class 400/600	21.5	26.5	18	21.5	
AN	2-in. Class 400/600	2-in. Class 400/600	2-in. Class 400/600	21.5	26.5	18	21.5	
AP	N/A	1-in. Class 900/1500	1-in. Class 900/1500	19	22.5	16	19	
AQ	N/A	1½-in. Class 900/1500	1½-in. Class 900/1500	21.5	26.5	18	21.5	
AR	N/A	2-in. Class 900/1500	2-in. Class 900/1500	21.5	26.5	18	21.5	
AT	N/A	1½-in. Class 2500	1½-in. Class 2500	21.5	26.5	18	21.5	
AU	N/A	2-in. Class 2500	2-in. Class 2500	21.5	26.5	18	21.5	
AV	3-in. Class 300	3-in. Class 300	3-in. Class 300	21.5	26.5	18	21.5	
AX	N/A	3-in. Class 900	N/A	21.5	26.5	18	21.5	
AY	N/A	3-in. Class 1500	N/A	21.5	26.5	18	21.5	
AZ	N/A	3-in. Class 2500	N/A	21.5	26.5	18	21.5	
FA	DN 20/PN 2.5/6	DN 20/PN 2.5/6	DN 20/PN 2.5/6	17	17	12.7	17	EN 1092-1
FE	DN 20/PN 10/16/25/40	DN 20/PN 10/16/25/40	DN 20/PN 10/16/25/40	17	17	12.7	17	
FG	DN 20/PN 63/100	DN 20/PN 63/100	DN 20/PN 63/100	17	17	12.7	17	
GA	DN 25/PN 2.5/6	DN 25/PN 2.5/6	DN 25/PN 2.5/6	19	19	12.7	19	
GE	DN 25/PN 10/16/25/40	DN 25/PN 10/16/25/40	DN 25/PN 10/16/25/40	19	19	12.7	19	
GG	DN 25/PN 63/100	DN 25/PN 63/100	DN 25/PN 63/100	19	19	12.7	21.5	
JA	DN 40/PN 2.5/6	DN 40/PN 2.5/6	DN 40/PN 2.5/6	21.5	26.5	18	21.5	
JE	DN 40/PN 10/16/25/40	DN 40/PN 10/16/25/40	DN 40/PN 10/16/25/40	21.5	26.5	18	21.5	
JG	DN 40/PN 63/100	DN 40/PN 63/100	DN 40/PN 63/100	21.5	26.5	18	21.5	

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Thermowell Drawing

Dimensions are in millimeter (MM)

Code	Process connection			Root diameter stepped stem	Root diameter tapered stem	Tip diameter tapered stem	Tip diameter straight stem	Thread specification
	Code P, flanged, partial penetration weld	Code F, flanged, full penetration weld	Code G, flanged, forged/no welds					
JH	DN 40/PN 160	DN 40/PN 160	DN 40/PN 160	19	22.5	16	19	EN 1092-1
JJ	DN 40/PN 250	DN 40/PN 250	DN 40/PN 250	21.5	26.5	18	21.5	
JK	DN 40/PN 320	DN 40/PN 320	DN 40/PN 320	21.5	26.5	18	21.5	
JL	DN 40/PN 400	DN 40/PN 400	DN 40/PN 400	19	22.5	16	19	
KA	DN 50/PN 2.5/6	DN 50/PN 2.5/6	DN 50/PN 2.5/6	21.5	26.5	18	21.5	
KC	DN 50/PN 10/16	DN 50/PN 10/16	DN 50/PN 10/16	21.5	26.5	18	21.5	
KE	DN 50/PN 25/40	DN 50/PN 25/40	DN 50/PN 25/40	19	22.5	16	19	
KF	DN 50/PN 63	DN 50/PN 63	DN 50/PN 63	21.5	26.5	18	21.5	
KG	DN 50/PN 100	DN 50/PN 100	DN 50/PN 100	21.5	26.5	18	21.5	
LA	DN 65/PN 2.5/6	DN 65/PN 2.5/6	DN 65/PN 2.5/6	21.5	26.5	18	21.5	
LC	DN 65/PN 10/16	DN 65/PN 10/16	DN 65/PN 10/16	21.5	26.5	18	21.5	
LE	DN 65/PN 24/40	DN 65/PN 24/40	DN 65/PN 24/40	21.5	26.5	18	21.5	
LF	DN 65/PN 63	DN 65/PN 63	DN 65/PN 63	21.5	26.5	18	21.5	
LG	DN 65/PN 100	DN 65/PN 100	DN 65/PN 100	21.5	26.5	18	21.5	
MA	DN 80/PN 2.5/6	DN 80/PN 2.5/6	DN 80/PN 2.5/6	21.5	26.5	18	21.5	
MC	DN 80/PN 10/16	DN 80/PN 10/16	DN 80/PN 10/16	21.5	26.5	18	21.5	
ME	DN 80/PN 25/40	DN 80/PN 25/40	DN 80/PN 25/40	21.5	26.5	18	21.5	
MF	DN 80/PN 63	DN 80/PN 63	DN 80/PN 63	21.5	26.5	18	21.5	
MG	DN 80/PN 100	DN 80/PN 100	DN 80/PN 100	21.5	26.5	18	21.5	
NA	DN 100/PN 2.5/6	DN 100/PN 2.5/6	DN 100/PN 2.5/6	21.5	26.5	18	21.5	
NC	DN 100/PN 10/16	DN 100/PN 10/16	DN 100/PN 10/16	21.5	26.5	18	21.5	
NE	DN 100/PN 25/40	DN 100/PN 25/40	DN 100/PN 25/40	21.5	26.5	18	21.5	
NF	DN 100/PN 63	DN 100/PN 63	DN 100/PN 63	21.5	26.5	18	21.5	
NG	DN 100/PN 100	DN 100/PN 100	DN 100/PN 100	21.5	26.5	18	21.5	

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