

## Rosemount 91 Series Thermowells



The Rosemount 91 Series Thermowells have designs that provide flexible and reliable temperature measurements in process environments.

Features include:

- Threaded, Flanged, and Weld-in Styles
- Wake Frequency Calculations (Option Code R21)
- NACE Approval (Option Code R05)
- Internal Pressure Test (Option Code R22)
- External Pressure Test (Option Code R01)

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

Model	Description	
0091	Thermowell	
<b>Thermowell material</b>		
A	316 SST	★
B	304 SST	★
C	Carbon Steel	★
D	316L SST	★
E	304L SST	★
F	Alloy 20	
G	Alloy 400	
H	Alloy 600	
J	Alloy C-276	
L	Alloy B	
M	304 SST with PTFE Coating	
P	Chrome Molybdenum Grade F22	
R	Nickel 200	
T	Titanium	
U <sup>(1)</sup>	316 SST with Tantalum Sheath	
V	310 SST	
W	321 SST	
X	Special Material	
Y	316Ti SST	
Z	Chrome Molybdenum Grade F11	

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

Immersion length (U) <sup>(2)</sup>		
005 <sup>(3)(4)</sup>	0.5 in.	★
007 <sup>(3)(4)</sup>	0.75 in.	★
010 <sup>(3)(4)</sup>	1.0 in.	★
015 <sup>(3)</sup>	1.5 in.	★
020 <sup>(3)</sup>	2.0 in.	★
025 <sup>(3)</sup>	2.5 in.	★
030	3.0 in.	★
035	3.5 in.	★
040	4.0 in.	★
045	4.5 in.	★
050	5.0 in.	★
055	5.5 in.	★
060	6.0 in.	★
065	6.5 in.	★
070	7.0 in.	★
075	7.5 in.	★
080	8.0 in.	★
085	8.5 in.	★
090	9.0 in.	★
095	9.5 in.	★
100	10.0 in.	★
105	10.5 in.	★
110	11.0 in.	★
115	11.5 in.	★
120	12.0 in.	★
125	12.5 in.	★
130	13.0 in.	★
135	13.5 in.	★
140	14.0 in.	★
145	14.5 in.	★
150	15.0 in.	★
155	15.5 in.	★
160	16.0 in.	★
165	16.5 in.	★
170	17.0 in.	★
175	17.5 in.	★

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time.

The Expanded offering is subject to additional delivery lead time.

180	18.0 in.	★
185	18.5 in.	★
190	19.0 in.	★
195	19.5 in.	★
200	20.0 in.	★
205	20.5 in.	★
210	21.0 in.	★
215	21.5 in.	★
220	22.0 in.	★
225	22.5 in.	★
230	23.0 in.	★
240	24.0 in.	★
250	25.0 in.	★
260	26.0 in.	★
270	27.0 in.	★
280	28.0 in.	★
290	29.0 in.	★
300	30.0 in.	★
310	31.0 in.	★
320	32.0 in.	★
330	33.0 in.	★
340	34.0 in.	★
350	35.0 in.	★
360	36.0 in.	★
370	37.0 in.	★
380	38.0 in.	★
390	39.0 in.	★
400	40.0 in.	★
410	41.0 in.	★
420	42.0 in.	★
430	43.0 in.	★
440	44.0 in.	★
450	45.0 in.	★
460	46.0 in.	★
470	47.0 in.	★
480	48.0 in.	★

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

Thermowell mounting style		Stem style	Tip diameter A (in.)	Root diameter B (in.)	
T20	Thread, 1/2–14 ANPT	Stepped	0.50	0.63	★
T22	Thread, 3/4–14 ANPT	Stepped	0.50	0.75	★
T24	Thread, 1–11.5 ANPT	Stepped	0.50	0.88	★
T26	Thread, 3/4–14 ANPT	Tapered	0.63	0.88	★
T28	Thread, 1–11.5 ANPT	Tapered	0.63	1.06	★
T30	Thread, 1 1/2–11.5 ANPT	Tapered	0.75	1.50	★
T32	Thread, 1/2–14 ANPT	Straight	0.50	0.50	★
T34	Thread, 3/4–14 ANPT	Straight	0.75	0.75	★
T36	Thread, 1–11.5 ANPT	Straight	0.75	0.75	★
T38	Thread, 3/4–14 ANPT	Straight	0.50	0.50	★
T44	Thread, 1/2–14 ANPT	Tapered	0.50	0.63	★
W38	Weld, 3/4-in. Pipe	Stepped	0.50	0.75	★
W40	Weld, 1-in. Pipe	Stepped	0.50	0.88	★
W42	Weld, 3/4-in. Pipe	Tapered	0.63	0.82	★
W44	Weld, 1-in. Pipe	Tapered	0.75	1.00	★
W46	Weld, 1 1/4-in. Pipe	Tapered	0.75	1.25	★
W48	Weld, 3/4-in. Pipe	Straight	0.75	0.75	★
W50	Weld, 1-in. Pipe	Straight	0.75	0.75	★
F10	Flange, F = 2-in., Class 150	Straight	0.75	0.75	★
F12	Flange, F = 3-in., Class 150	Straight	0.75	0.75	★
F52 <sup>(5)</sup>	Flange, F = 1-in., Class 150	Stepped	0.50	0.75	★
F54	Flange, F = 1 1/2-in., Class 150	Stepped	0.50	0.75	★
F56	Flange, F = 2-in., Class 150	Stepped	0.50	0.75	★
F58 <sup>(6)</sup>	Flange, F = 1-in., Class 150	Tapered	0.75	1.00	★
F60	Flange, F = 1 1/2-in., Class 150	Tapered	0.75	1.00	★
F62	Flange, F = 2-in., Class 150	Tapered	0.75	1.25	★
F64 <sup>(5)</sup>	Flange, F = 1-in., Class 150	Straight	0.75	0.75	★
F66	Flange, F = 1 1/2-in., Class 150	Straight	0.75	0.75	★
F70 <sup>(5)</sup>	Flange, F = 1-in., Class 300	Stepped	0.50	0.75	★
F72	Flange, F = 1 1/2-in., Class 300	Stepped	0.50	0.75	★
F74	Flange, F = 2-in., Class 300	Stepped	0.50	0.75	★
F76 <sup>(6)</sup>	Flange, F = 1-in., Class 300	Tapered	0.75	1.00	★
F78	Flange, F = 1 1/2-in., Class 300	Tapered	0.75	1.00	★
F80	Flange, F = 2-in., Class 300	Tapered	0.75	1.25	★
F82 <sup>(5)</sup>	Flange, F = 1-in., Class 300	Straight	0.75	0.75	★

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

F84	Flange, F = 1½-in., Class 300	Straight	0.75	0.75	★
F86	Flange, F = 2-in., Class 300	Straight	0.75	0.75	★
F88 <sup>(6)</sup>	Flange, F = 1-in., Class 600	Stepped	0.50	0.75	★
F90 <sup>(7)</sup>	Flange, F = 1½-in., Class 600	Stepped	0.50	0.75	★
F92 <sup>(7)</sup>	Flange, F = 2-in., Class 600	Stepped	0.50	0.75	★
F94 <sup>(5)(7)</sup>	Flange, F = 1-in., Class 600	Tapered	0.75	1.00	★
F96 <sup>(7)</sup>	Flange, F = 1½-in., Class 600	Tapered	0.75	1.00	★
F98 <sup>(7)</sup>	Flange, F = 2-in., Class 600	Tapered	0.75	1.25	★
F02 <sup>(5)(7)</sup>	Flange, F = 1-in., Class 600	Straight	0.75	0.75	★
F04 <sup>(7)</sup>	Flange, F = 1½-in., Class 600	Straight	0.75	0.75	★
F06 <sup>(7)</sup>	Flange, F = 2-in., Class 600	Straight	0.75	0.75	★
F16 <sup>(7)</sup>	Flange, F = 1½-in., Class 900	Tapered	0.75	1.00	★
F34 <sup>(7)</sup>	Flange, F = 1½-in., Class 1500	Tapered	0.75	1.00	★
F24 <sup>(7)</sup>	Flange, F = 2-in., Class 1500	Tapered	0.75	1.25	★
F08 <sup>(8)</sup>	Flange, F = 1½-in., Class 2500	Tapered	0.75	1.00	★
Q02 <sup>(9)</sup>	Sanitary, 1-in., Tri-Clamp	Stepped	0.50	0.75	★
Q04 <sup>(9)</sup>	Sanitary, 1½-in., Tri-Clamp	Stepped	0.50	0.75	★
Q06 <sup>(9)</sup>	Sanitary, 2-in., Tri-Clamp	Stepped	0.50	0.75	★
Q08 <sup>(9)</sup>	Sanitary, 3-in., Tri-Clamp	Stepped	0.50	0.75	★
Q20 <sup>(9)</sup>	Sanitary, ¾-in., Tri-Clamp	Straight	0.44	0.44	★
Q22 <sup>(9)</sup>	Sanitary, 1-in., Tri-Clamp	Straight	0.50	0.50	★
Q24 <sup>(9)</sup>	Sanitary, 1½-in., Tri-Clamp	Straight	0.50	0.50	★
Q26 <sup>(9)</sup>	Sanitary, 2-in., Tri-Clamp	Straight	0.50	0.50	★
Q28 <sup>(9)</sup>	Sanitary, 3-in., Tri-Clamp	Straight	0.50	0.50	★
<b>Thermowell lagging length (T)</b>					
T000	0.0 in.				★
T005	0.5 in.				★
T010	1.0 in.				★
T015	1.5 in.				★
T020	2.0 in.				★
T025	2.5 in.				★
T030	3.0 in.				★
T035	3.5 in.				★
T040	4.0 in.				★
T045	4.5 in.				★
T050	5.0 in.				★
T055	5.5 in.				★

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

T060	6.0 in.	★
T065	6.5 in.	★
T070	7.0 in.	★
T075	7.5 in.	★
T080	8.0 in.	★
T085	8.5 in.	★
T090	9.0 in.	★
T095	9.5 in.	★
<b>Instrument connection thread</b>		
P	1/2–14 NPSM	★
D	1/2–14 ANPT	★

### Options (include with selected model number)

<b>External pressure test</b>		
R01 <sup>(10)</sup>	External Pressure Test	★
<b>Material certification</b>		
Q8	Material Certification	★
<b>Dye penetration test</b>		
R03	Dye Penetration Test	★
<b>Thermowell special cleaning</b>		
R04	Thermowell Special Cleaning	★
<b>NACE approval</b>		
R05	NACE Approval	★
<b>SST plug &amp; chain</b>		
R06	SST Plug and Chain	★
<b>Full penetration weld</b>		
R07 <sup>(11)</sup>	Full Penetration Weld	★
<b>Thermowell concentric serrations</b>		
R09 <sup>(11)(12)</sup>	Concentric Serration of Thermowell Flange Face	★
<b>Flat faced flange</b>		
R10 <sup>(11)(12)</sup>	Flat Face Flange	★
<b>Vent hole</b>		
R11	Vent Hole	★

**Table 18. Series 91 Thermowells**

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery lead time. The Expanded offering is subject to additional delivery lead time.

Special surface finish		
R14	Thermowell Special Surface Finish (12 R <sub>a</sub> Max) (Maximum (U) Length = 22.5 in.)	★
Ring joint flange		
R16 <sup>(1)(12)</sup>	Ring Joint Flange (Not Available with 0-in. (T) Length)	★
Electropolish		
R20 <sup>(13)</sup>	Electropolish	★
Wake frequency		
R21	Wake Frequency Calculation	★
Internal pressure test		
R22	Internal Pressure Test	★
Brass plug & chain		
R23	Brass Plug & Chain	★
Canadian Registration No.		
R24	CRN Marking for British Columbia	
R25	CRN Marking for Alberta	
R26	CRN Marking for Saskatchewan	
R27	CRN Marking for Manitoba	
R28	CRN Marking for Ontario	
R29	CRN Marking for Quebec	
R30	CRN Marking for New Brunswick	
R31	CRN Marking for Nova Scotia	
R32	CRN Marking for Prince Edward Island	
R33	CRN Marking for Yukon Territory	
R34	CRN Marking for Northwest Territory	
R35	CRN Marking for Nunavut	
R36	CRN Marking for Newfoundland and Labrador	
Twell from hex stock		
R37	Thermowell From Hex stock	

(1) Available only in straight stem flanged thermowells.

(2) Thermowells with an overall lengths ("U" + "T" + 1.75-in.) of 36-in. or less are machined from solid bar stock. Thermowells with an overall length larger than 42-in. will be constructed using a welded 3-piece design and are available only with a stepped stem style. For lengths between 36-in. and 42-in. consult factory for construction method.

(3) Available only in straight or Tapered stem only.

(4) Only available with Thermowell Mounting Style Q20.

- (5) F52, F64, F70, F82, F88 and F02 are not compatible with 1" Sch. XXS pipe.
- (6) F58, F76 and F94 may not be compatible with 1" Sch. pipe and are not compatible with 1" Sch. 80, 160 or XXS pipe.
- (7) These options cannot be used with 0-in. (T) length.
- (8) F08 cannot be used with 0- or  $\frac{1}{2}$ -in. (T) length.
- (9) Limited to 24" immersion length and 316 or 304 SST materials only.
- (10) Maximum (U) length = 42.0-in.
- (11) Available on flanged thermowells only.
- (12) Only one flange face option allowed.
- (13) Not available on flanged thermowells and L lengths longer than 24".

**Table 19. Sensor Series and Dimensions**

Series	Housing diameter	# of lead wires	Lead wire length
68	0.350 (8)	4	6.0 (152.4)
78 single	0.350 (8)	4	6.0 (152.4)
78 dual	0.350 (8)	6	6.0 (152.4)
183 single	0.375 (9.53)	2	6.0 (152.4)
183 dual	0.375 (9.53)	4	12.0 (304.8)