



BURNS[®]
ENGINEERING

Temperature Measurement Experts



Thermowells

For Industrial, Sanitary, and Specialty Applications



Temperature Measurement Experts®

Since 1960 Burns Engineering has been an industry leader in the design and manufacture of temperature sensors. Accuracy, reliability and consistency are hallmarks of the Burns brand. At Burns, we focus on the measurement. We understand the subtleties of temperature measurement from selection through installation and how they can impact your processes and ultimately your success. We worry about the details so you don't have to. When you select Burns you're getting more than a sensor, you're getting your own team of Temperature Measurement Experts.

Burns Thermowells

Burns offers thermowells, in multiple configurations, for Industrial and Sanitary applications. Thermowell designs include fast response, heavy duty, flanged, welded, and threaded, as well as protection tubes and thermal dampening wells.

If your application needs something a little different or the measurement is a challenge, the Engineering team at Burns will modify and adapt one of these designs to meet your specific needs.



Get a Web Quote:

Visit BurnsEngineering.com to configure your Thermowell today.

Here's how:

1. Register or sign-in
2. Select the Industrial or Sanitary page from the Products/Quote Tab depending on your application.
3. Then select Thermowell from the product list.
4. Locate the style of thermowell for your applications.
5. Click on 'configure my part'.
6. Select the parameters to support your application
7. Add to Quote Cart.
8. Submit Cart for Quote – We'll be in touch shortly.

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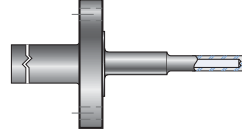
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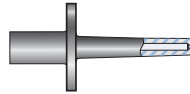
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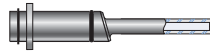
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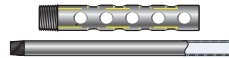
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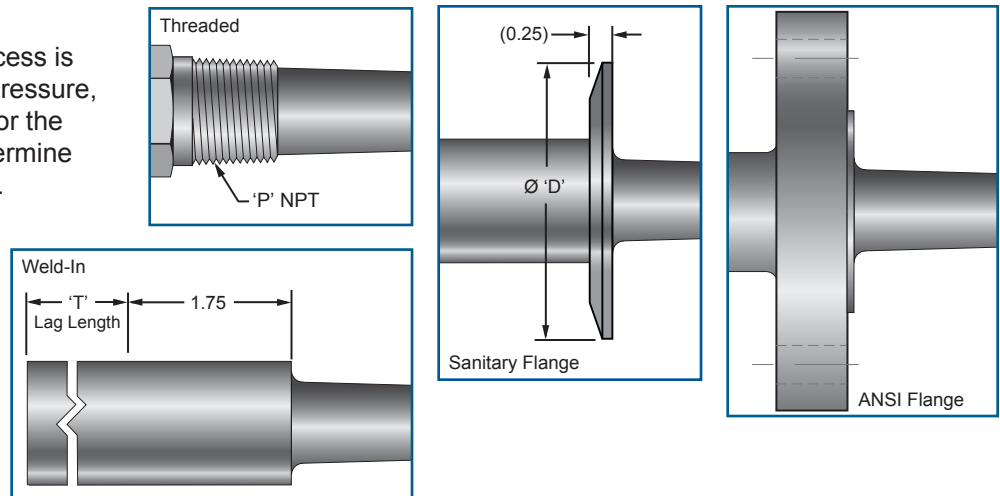
Thermowell Selection

Process Connections

The thermowell interface to the process is influenced by various criteria. The pressure, vibration environment, cleanability, or the need to remove the thermowell determine the appropriate process connection.

Process Connection styles include:

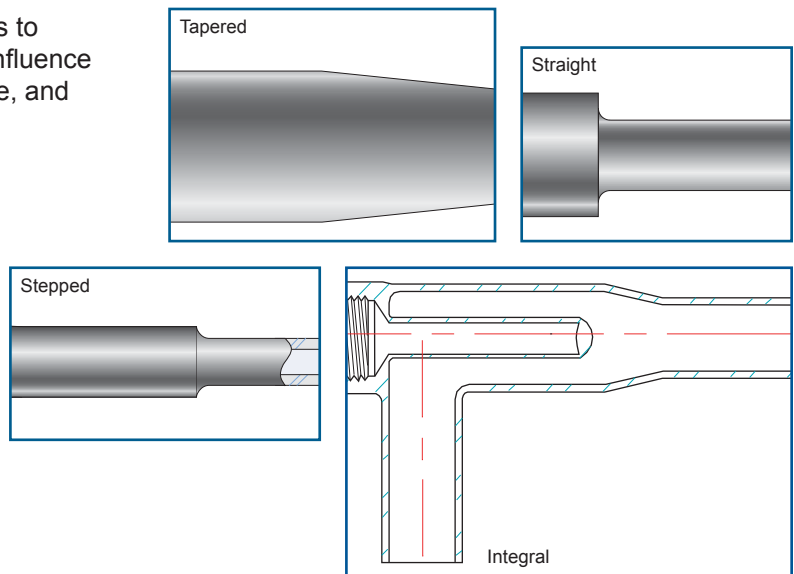
- Threaded
- Flanged (Per ANSI B16.5)
- Socket Welded
- Sanitary



Thermowell styles:

Thermowells are designed with various configurations to align with the needs of the process. Conditions that influence style/shape include response time, flow rate, pressure, and installation approach. Thermowell styles include:

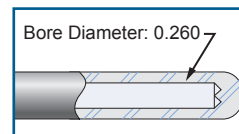
- Tapered
- Straight
- Stepped
- Integral with process piping



Bore Size:

The bore diameter and its relationship to the diameter of the sensor selected is an important consideration. Proper fit will improve the thermal contact for good response time as well as minimize movement due to vibration. The use of a thermally conductive substance, although not required, can improve thermal contact when response time is an important performance consideration.

- Standard Bore Diameter is 0.26"
- Other sizes are available, see ordering info.



Immersion Length:

The distance from the end of the well to the process connection, designated as 'U' is the immersion length. For best accuracy, this length should be long enough to permit the entire temperature sensitive part of the temperature sensor to be fully immersed in the process medium.

For best results the recommended immersion length is the sensor sensitive length plus 10 times (10X) the thermowell tip diameter. Shorter lengths may be acceptable with appropriate precautions. Contact Burns Application Engineering with questions.

Materials:

In general, the thermowell material chosen for the installation is governed mainly by the corrosive conditions of the process or thermowell strength needed to withstand the dynamic condition of the process.

- Recommended materials for various corrosive services are given in the Corrosive Materials Guide on page 45.
- Pressure-temperature ratings for various material options are provided on page 46.

The standard materials listed for each well series will cover most requirements. If your requirements call for something other than what is listed in this catalog our Application Engineers can assist you in finding the right thermowell material for your needs.

Vibration Effects:

The vibration effects generated by the fluid flowing by the well, forming a turbulent wake (called the Von Karman Trail) must be fully understood to ensure the thermowell design will have sufficient stiffness so that the wake frequency will never equal the natural frequency of the thermowell. **ASME PTC 19.3 TW - 2010** provides guidelines and calculations to ensure thermowell designs will withstand the operating and environmental conditions of your process. Burns Application Engineering can assist with this evaluation.

Thermowell Coating and Jackets:

Thermowell coatings or jackets are commonly used in applications where resistance to corrosion or erosion is critical. Burns offers a variety of materials including:

- PTFE
- Stellite®
- Tungsten Carbide
- Poly-Ond®
- Wallex®
- Tantalum

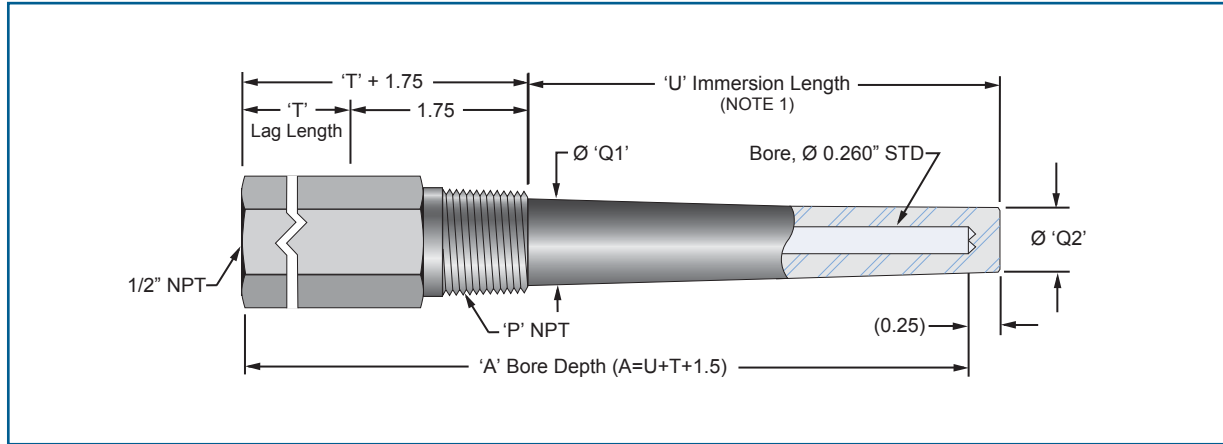
Each thermowell in this catalog will list the coating options available in the Ordering Information section. Contact Burns Application Engineering for additional information and material options.

Thermowell Surface Finish:

Thermowells are provided with a 32 Ra mechanical finish as standard. The specified finish applies to the wetted surfaces (the immersion length) of the thermowell. It does not include the surface finish of any fitting used in the thermowell assembly. Each thermowell in this catalog will list the surface finish options available in the Ordering Information section. For a wetted surface finish of 32 Ra mechanical, if not listed in the ordering table, leave code BLANK.



Threaded Tapered



All dimensions in inches.

15670 - Standard
20202 - Deep Tapped (NOTE 2)

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

T	Tapered
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Mounting Type

T	Threaded	'Q1'	'Q2'	'Hex'
2	1/2 inch NPT	0.680	0.625	1.125
3	3/4 inch NPT	0.875	0.625	1.125
4	1 inch NPT	1.063	0.625	1.375
5	1 1/4 inch NPT	1.438	0.750	1.750
6	1 1/2 inch NPT	1.625	0.750	2.000

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify 'T' Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = 'T' length of 6.0 inches	

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

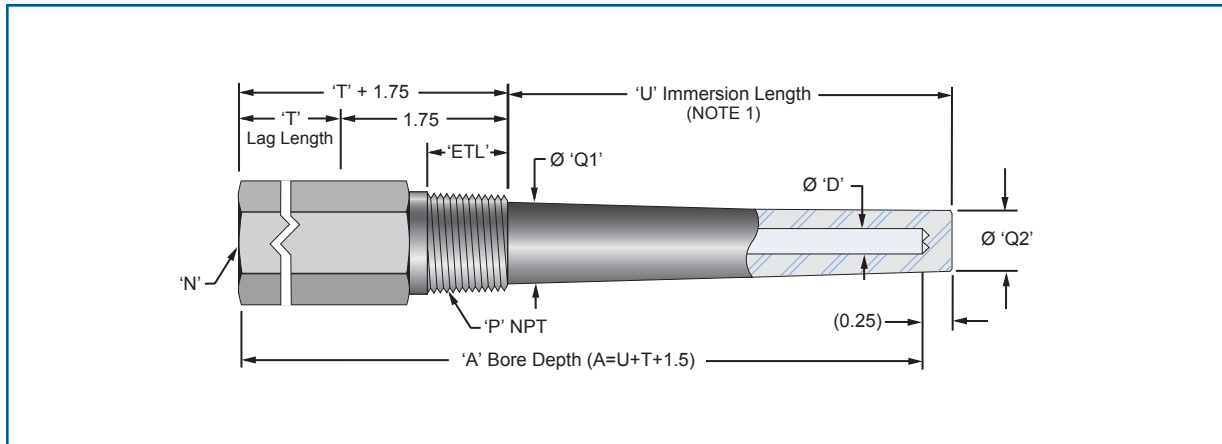
Q04	0.385 Bore Diameter (3/8")
Q06	0.275 Bore Diameter (7mm)

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Threaded Tapered Oversized 'Q'



All dimensions in inches.

18448 Oversized 'Q'

"N" Instrumentation Size / Tube Connection Size

- A 1/2" NPT
- B 3/4" NPT

'U' Immersion Length

- 025 2.5 inches
 - 045 4.5 inches
 - 075 7.5 inches
 - 105 10.5 inches
 - 135 13.5 inches
 - 165 16.5 inches
 - 225 22.5 inches
- Specify Inches

"P" Mounting Size

	"Q1"	"Q2"	"ETL"
-4A	1" NPT	1 7/64"	0.765 (0.682)
-4B	1" NPT	1 7/64"	0.800 (0.682)
-4C	1" NPT	1 7/64"	0.950 (0.682)
-4D	1" NPT	1 7/64"	1.050 (0.682)
-5A	1 1/4" NPT	1 3/8"	0.765 (0.706)
-5B	1 1/4" NPT	1 3/8"	0.800 (0.706)
-5C	1 1/4" NPT	1 3/8"	0.950 (0.706)
-5D	1 1/4" NPT	1 3/8"	1.050 (0.706)
-5E	1 1/4" NPT	1 3/8"	1.200 (0.706)
-5F	1 1/4" NPT	1 3/8"	1.250 (0.706)

Material

Other thermowell materials may be available, consult the factory for more information.

- 02 304 Stainless Steel
- 03 316 Stainless Steel
- 04 Carbon Steel
- 05 304L Stainless Steel
- 06 316L Stainless Steel

"D" Bore Diameter

- 260 0.260" diameter
- 375 0.375" diameter

'T' Lag Length

- T15 1.5 inches
 - T30 3.0 inches
- Specify "T" Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = "T" length of 6.0 inches

'F' Surface Finish (NOTE 1)

- F02 10 Ra maximum, mechanical finish
- F03 20 Ra maximum, mechanical finish with electropolish
- F04 10 Ra maximum, mechanical finish with electropolish
- F05 15 Ra maximum, mechanical finish with electropolish
- F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

- C01 PTFE
- C02 Poly-Ond®
- C04 Stellite® hard facing
- C05 Wallex® 50/55
- C06 Tungsten Carbide

'Z' Miscellaneous Options

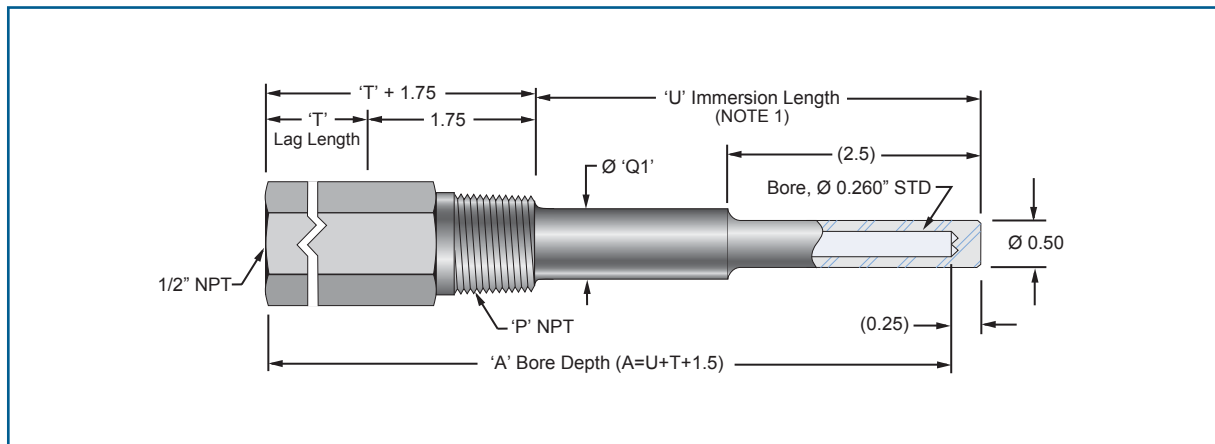
see page 44 for all available options

Basic order code, specify all

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Threaded Reduced Tip



All dimensions in inches.

15671 - Standard
20207 - Deep Tapped (NOTE 2)

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

R Reduced Tip

Mounting Type

T	Threaded	'Q'	'Hex'
2	1/2 inch NPT	0.625	1.125
3	3/4 inch NPT	0.750	1.125
4	1 inch NPT	0.875	1.375
5	1 1/4 inch NPT	0.875	1.750
6	1 1/2 inch NPT	0.875	2.000

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15 1.5 inches
T30 3.0 inches
Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02 10 Ra maximum, mechanical finish
F03 20 Ra maximum, mechanical finish with electropolish
F04 10 Ra maximum, mechanical finish with electropolish
F05 15 Ra maximum, mechanical finish with electropolish
F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01 PTFE
C02 Poly-Ond®
C04 Stellite® hard facing
C05 Wallex® 50/55
C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

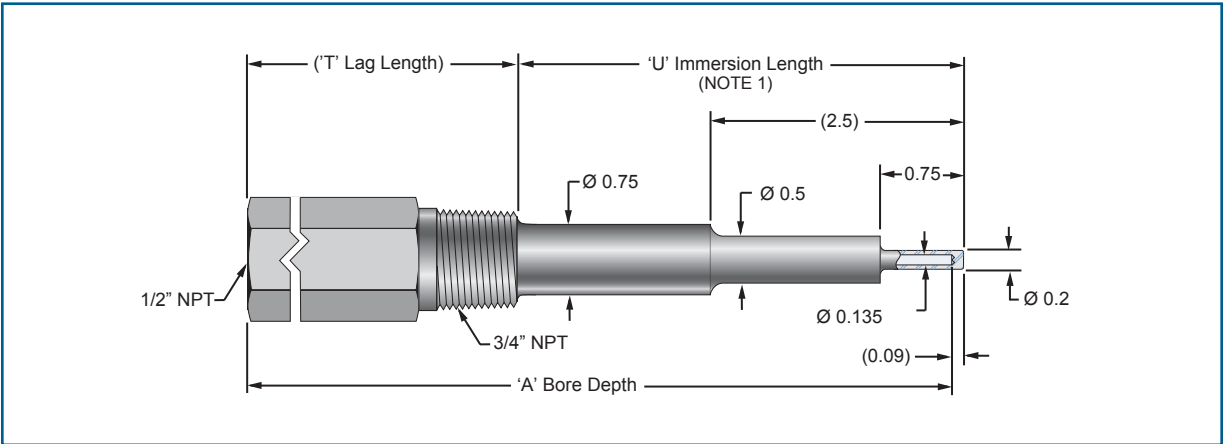
Basic order code, specify all

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Threaded Reduced Tip

Fast Response



All dimensions in inches.

14789 Fast Response

'A' Well Bore Depth

-4	4.0 inches
-6	6.0 inches
-9	9.0 inches
-15	15.0 inches
-24	24.0 inches
Specify Inches	

'U' Immersion Length

-2.5	2.5 inches
-4.5	4.5 inches
-7.5	7.5 inches
-13.5	13.5 inches
-22.5	22.5 inches

Material

Other thermowell materials may be available, consult the factory for more information.

-304	304 Stainless Steel
-316	316 Stainless Steel
-CS	Carbon Steel
-304L	304L Stainless Steel
-316L	316L Stainless Steel
-HasC276	Hastelloy® C276
-CM	Chrome-Moly, F11
-Alum6061	Aluminum 6061 T6
-Monel	Monel™ 400
-In600	Inconel® 600
-Brass	Brass
-Titanium	Titanium

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

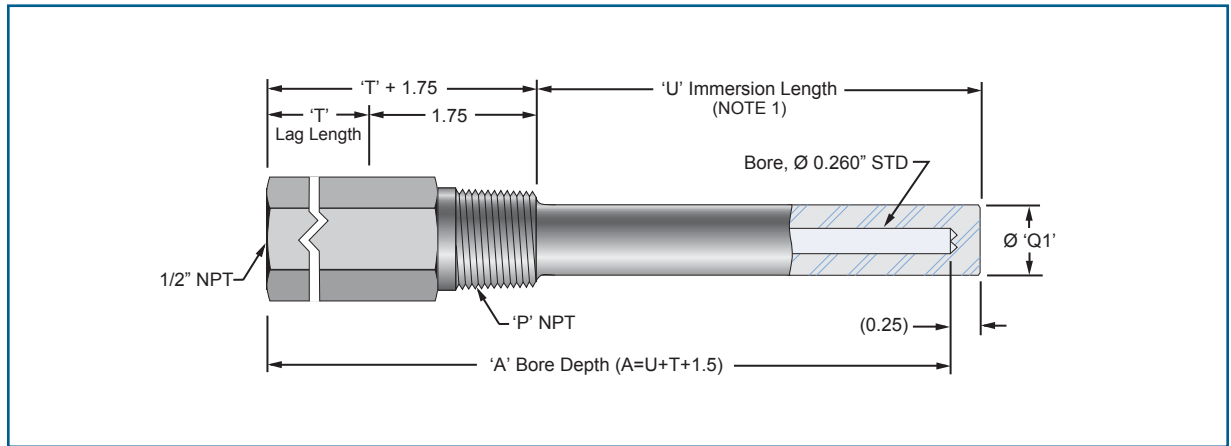
see page 44 for all available options

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Threaded Straight



All dimensions in inches.

15669- Standard
21359 - Deep Tapped (NOTE 2)

'U' Immersion Length	
025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

S	Straight
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Mounting Type

T	Threaded	'Q1'	'Hex'
2	1/2 inch NPT	0.625	1.125
3	3/4 inch NPT	0.750	1.125
4	1 inch NPT	0.875	1.375
5	1 1/4 inch NPT	0.875	1.750
6	1 1/2 inch NPT	0.875	2.000

Material
Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15 1.5 inches
T30 3.0 inches
Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02 10 Ra maximum, mechanical finish
F03 20 Ra maximum, mechanical finish with electropolish
F04 10 Ra maximum, mechanical finish with electropolish
F05 15 Ra maximum, mechanical finish with electropolish
F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01 PTFE
C02 Poly-Ond®
C04 Stellite® hard facing
C05 Wallex® 50/55
C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

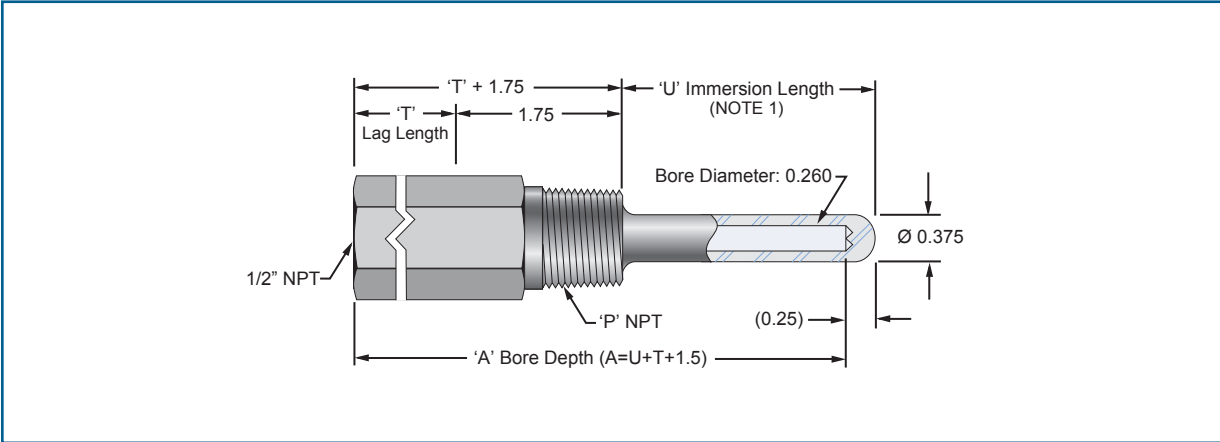
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Threaded Straight

Small Diameter



18595 Small Diameter

'U' Immersion Length

-025	2.5 inches
-030	3.0 inches
-035	3.5 inches
-040	4.0 inches
-045	4.5 inches
Specify Inches	

Mounting Type 'P'

		'Hex'
-2	1/2 inch NPT	1.125
-3	3/4 inch NPT	1.125
-4	1 inch NPT	1.375
-5	1 1/4 inch NPT	1.750
-6	1 1/2 inch NPT	2.000

Material

Other thermowell materials may be available, consult the factory for more information.

-02	304 Stainless Steel
-03	316 Stainless Steel
-04	Carbon Steel
-05	304L Stainless Steel
-06	316L Stainless Steel
-07	Hastelloy® C276
-08	Chrome-Moly, F11
-09	Aluminum 6061 T6
-10	Monel™ 400
-11	PTFE
-12	Inconel® 600
-13	Brass
-14	Titanium

Surface Finish (NOTE 1)

-SFF1	20 Ra mechanical finish, max.
-SFF2	25 Ra mechanical finish, max.
-SFF3	30 Ra mechanical finish, max.
-SFF4	15 Ra mechanical finish, max. with electropolish
-SFF5	20 Ra mechanical finish, max. with electropolish
-SFF6	25 Ra mechanical finish, max. with electropolish

Basic order code (specify all)

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'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify "T" Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = "T" length of 6.0 inches	

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Optional ordering codes (specify only when required)

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NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Notes

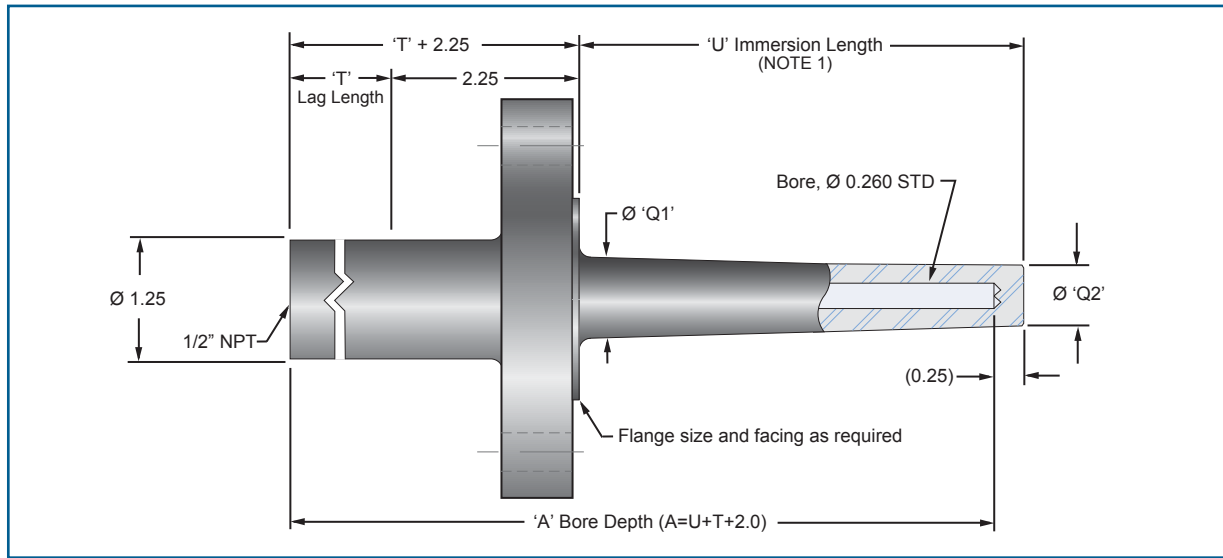


Threaded Thermowells:
Stepped and Tapered



Flanged Thermowells:
Tapered and Straight with Tantalum Sleeve

Flanged Tapered



All dimensions in inches.

15672 - Standard
20259 - Deep Tapped (NOTE 3)

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches

Specify Inches

Sheath Configuration

T Tapered

Mounting Type

F Flanged

Flange Size (NOTE 2)

	'Q1'	'Q2'
2	1/2 inch	5/8
3	3/4 inch	3/4
4	1 inch	7/8
6	1 1/2 inch	1 1/16
8	2 inch	1 1/16
10	2 1/2 inch	1 1/16

Flange Rating (NOTE 2)

A	150 lb rating
B	300 lb rating
C	400 lb rating
D	600 lb rating
E	900 lb rating
F	1500 lb rating
G	2500 lb rating

Material
Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation
see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'R' Flange Facing
see page 44 for all available options

'Z' Miscellaneous Options
see page 44 for all available options

Diameter Options, Bore

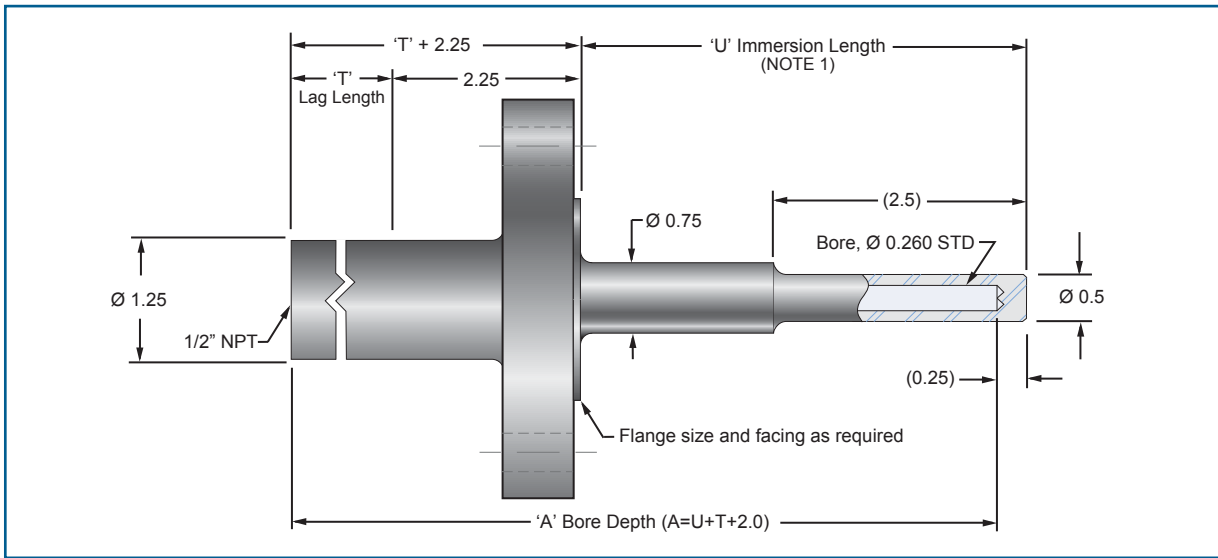
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

Q04	0.385 Bore Diameter (3/8")
Q06	0.275 Bore Diameter (7mm)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Other flange sizes and ratings available, consult factory.
NOTE 3: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Flanged Reduced Tip



15659- Standard
20926- Deep Tapped (NOTE 3)

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches
Specify Inches	

Sheath Configuration

R Reduced Tip

Mounting Type

F Flanged

Flange Size (NOTE 2)

2	1/2 inch
3	3/4 inch
4	1 inch
6	1 1/2 inch
8	2 inch
10	2 1/2 inch

Flange Rating (NOTE 2)

A	150 lb rating
B	300 lb rating
C	400 lb rating
D	600 lb rating
E	900 lb rating
F	1500 lb rating
G	2500 lb rating

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments

Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)

Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'R' Flange Facing

see page 44 for all available options

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

Q04	0.385 Bore Diameter (3/8")
Q06	0.275 Bore Diameter (7mm)

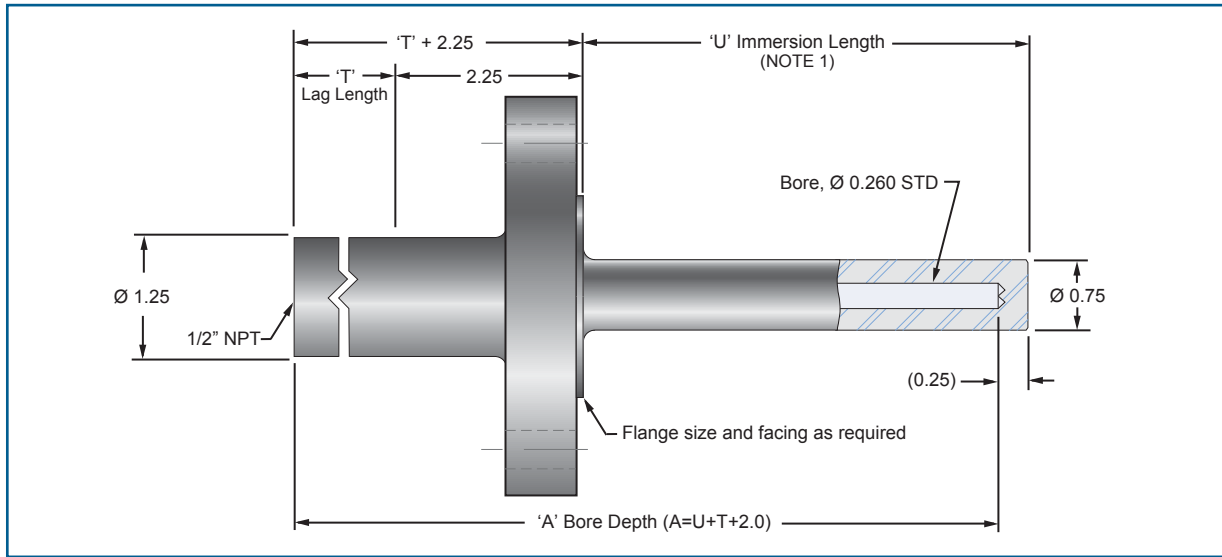
Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

NOTE 2: Other flange sizes and ratings available, consult factory.

NOTE 3: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Flanged Straight



All dimensions in inches.

15673 - Standard
20331 - Deep Tapped (NOTE 3)

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches

Specify Inches

Sheath Configuration

S Straight

Mounting Type

F Flanged

Flange Size (NOTE 2)

2	1/2 inch
3	3/4 inch
4	1 inch
6	1 1/2 inch
8	2 inch
10	2 1/2 inch

Flange Rating (NOTE 2)

A	150 lb rating
B	300 lb rating
C	400 lb rating
D	600 lb rating
E	900 lb rating
F	1500 lb rating
G	2500 lb rating

Material,
Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation
see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'R' Flange Facing
see page 44 for all available options

'Z' Miscellaneous Options
see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

Q04	0.385 Bore Diameter (3/8")
Q06	0.275 Bore Diameter (7mm)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Other flange sizes and ratings available, consult factory.
NOTE 3: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Notes

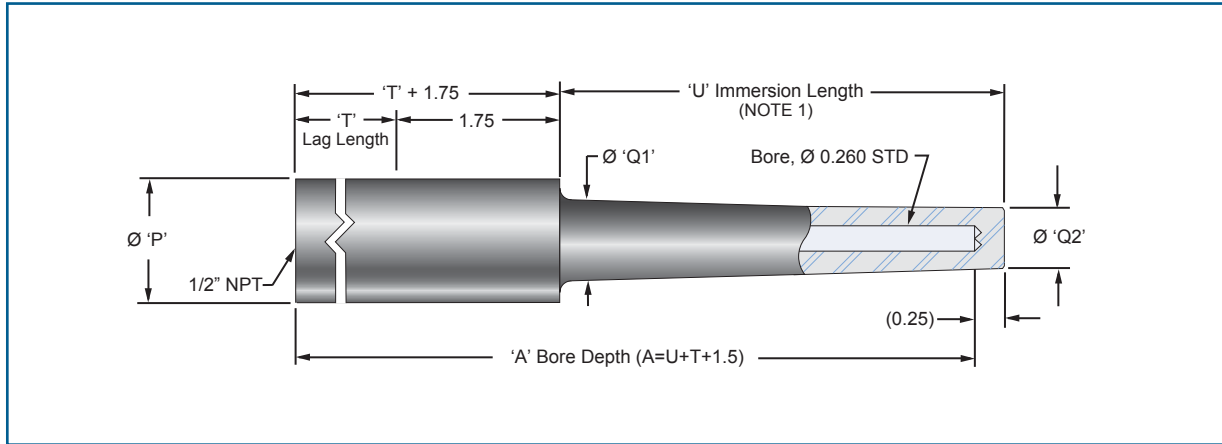


Custom Flanged Thermowell with Perforations



Heavy Duty Weld-In Projectile Style Thermowell

Socket Weld Tapered



All dimensions in inches.

16295 - Standard
20369- Deep Tapped (NOTE 2)

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches

Specify Inches

Sheath Configuration

T	Tapered
---	---------

Mounting Type

W	Socket Weld	'P'	'Q1'	'Q2'
3	3/4 inch pipe size	1.050	0.875	0.625
4	1 inch pipe size	1.315	0.875	0.625
5	1 1/4 inch pipe size	1.625	1.000	0.750
6	1 1/2 inch pipe size	1.900	1.250	0.750

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

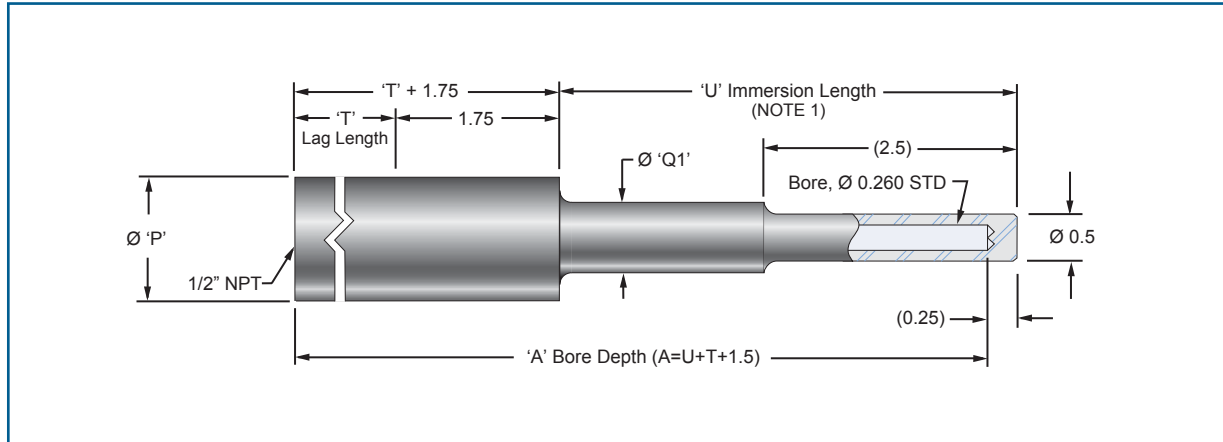
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Socket Weld Reduced Tip



All dimensions in inches.

15658 - Standard
20874- Deep Tapped (NOTE 2)

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

R Reduced Tip

Mounting Type

W	Socket Weld	'P'	'Q'
3	3/4 inch pipe size	1.050	0.750
4	1 inch pipe size	1.315	0.875
5	1 1/4 inch pipe size	1.625	1.000
6	1 1/2 inch pipe size	1.900	1.250

Material
Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15 1.5 inches
T30 3.0 inches
Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02 10 Ra maximum, mechanical finish
F03 20 Ra maximum, mechanical finish with electropolish
F04 10 Ra maximum, mechanical finish with electropolish
F05 15 Ra maximum, mechanical finish with electropolish
F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01 PTFE
C02 Poly-Ond®
C04 Stellite® hard facing
C05 Wallex® 50/55
C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

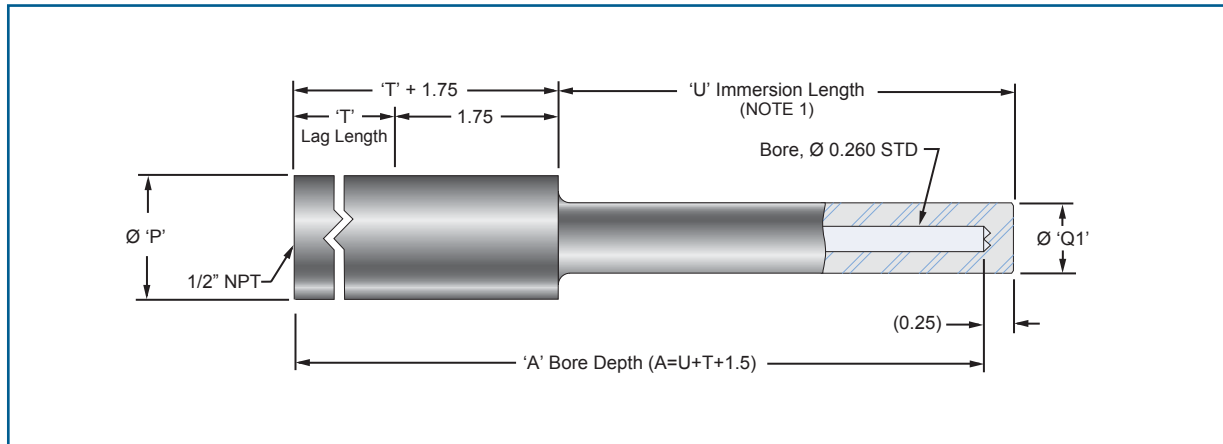
Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Socket Weld Straight



All dimensions in inches.

15667- Standard
21809- Deep Tapped (NOTE 2)

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

S Straight

Mounting Type

W	Socket Weld	'P'	'Q'
3	3/4 inch pipe size	1.050	0.750
4	1 inch pipe size	1.315	0.875
5	1 1/4 inch pipe size	1.625	1.000
6	1 1/2 inch pipe size	1.900	1.250

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel 400
11	Teflon™
12	Inconel™ 600
13	Brass
14	Titanium

'T' Lag Length

T15 1.5 inches
T30 3.0 inches

Specify 'T' Lag Length in 0.1 inch increments

Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

Q04	0.385 Bore Diameter (3/8")
Q06	0.275 Bore Diameter (7mm)

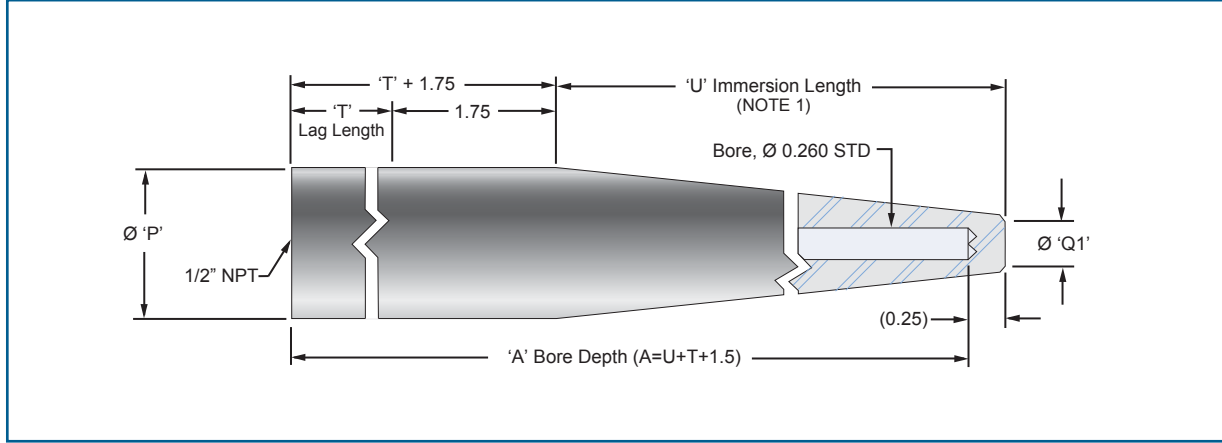
Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.
NOTE 2: Deep Tapped instrument connection threads required for Explosion Proof rated assemblies.

Weld-In Heavy Duty

Flat tip



All dimensions in inches.

15615- Flat Tip

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches
260	26.0 inches

Specify Inches

Sheath Configuration

H	Heavy Duty
---	------------

Mounting Type

W	Weld-In	'P'	'Q1'
3	3/4 inch pipe size	1.050	0.750
4	1 inch pipe size	1.315	0.750
5	1 3/8 tubing size	1.375	0.750
6	1 1/2 tubing size	1.500	0.750
7	1 5/8 tubing size	1.625	0.850

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify "T" Lag Length in 0.1 inch increments
 Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
 Example: T60 = "T" length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

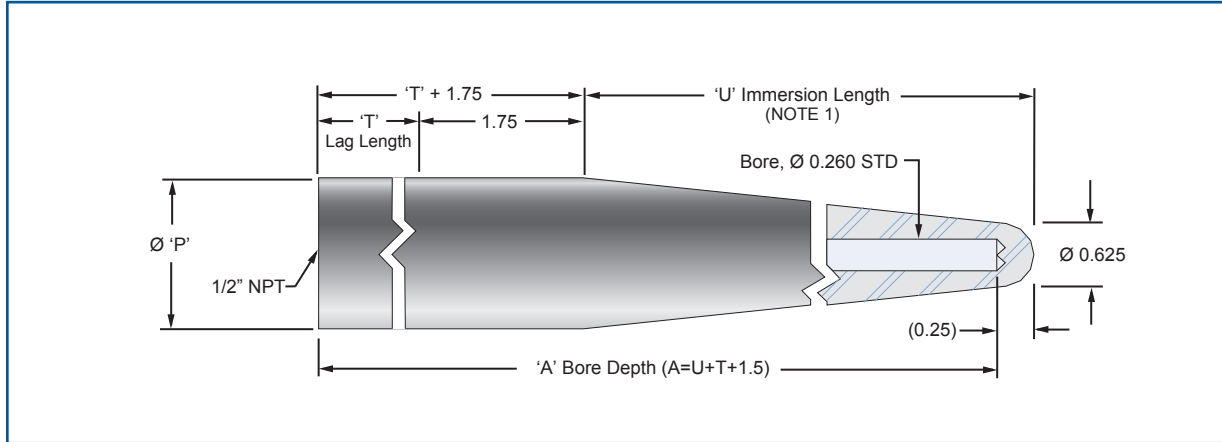
Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Weld-In Heavy Duty

Round Tip



All dimensions in inches.

15674- Round Tip

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
265	26.5 inches
Specify Inches	

Sheath Configuration

H	Heavy Duty
---	------------

Mounting Type

W	Weld-In	'P'
3	3/4 inch pipe size	1.050
4	1 inch pipe size	1.315
5	1 1/4 inch pipe size	1.625
6	1 1/2 inch pipe size	1.900

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify "T" Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = "T" length of 6.0 inches	

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

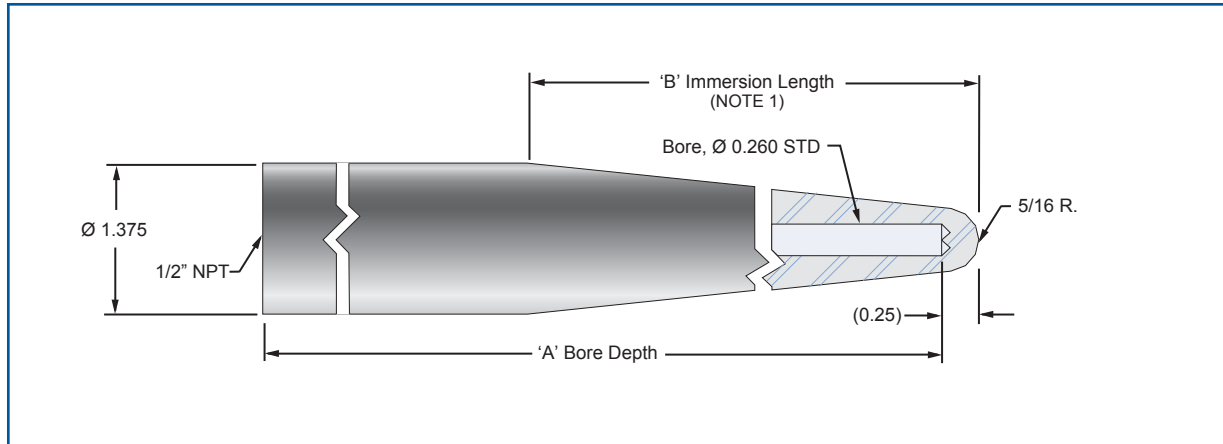
'Z' Miscellaneous Options

see page 44 for all available options

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Weld-In Heavy Duty Limited



All dimensions in inches.

12148 Limited

Thermowell Size	'B' Immersion Length
-1 10.125 Bore Depth 'A'	3.25
-2 11.875 Bore Depth 'A'	5.00
-3 13.125 Bore Depth 'A'	3.75

Material

Other thermowell materials may be available, consult the factory for more information.

- 02 304 Stainless Steel
- 03 316 Stainless Steel
- 04 Carbon Steel
- 05 304L Stainless Steel
- 06 316L Stainless Steel
- 07 Hastelloy® C276
- 08 Chrome-Moly, F11
- 09 Aluminum 6061 T6
- 10 Monel™ 400
- 11 PTFE
- 12 Inconel® 600
- 13 Brass
- 14 Titanium

'F' Surface Finish (NOTE 1)

- F02 10 Ra maximum, mechanical finish
- F03 20 Ra maximum, mechanical finish with electropolish
- F04 10 Ra maximum, mechanical finish with electropolish
- F05 15 Ra maximum, mechanical finish with electropolish
- F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

- C01 PTFE
- C02 Poly-Ond®
- C04 Stellite® hard facing
- C05 Wallex® 50/55
- C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Notes

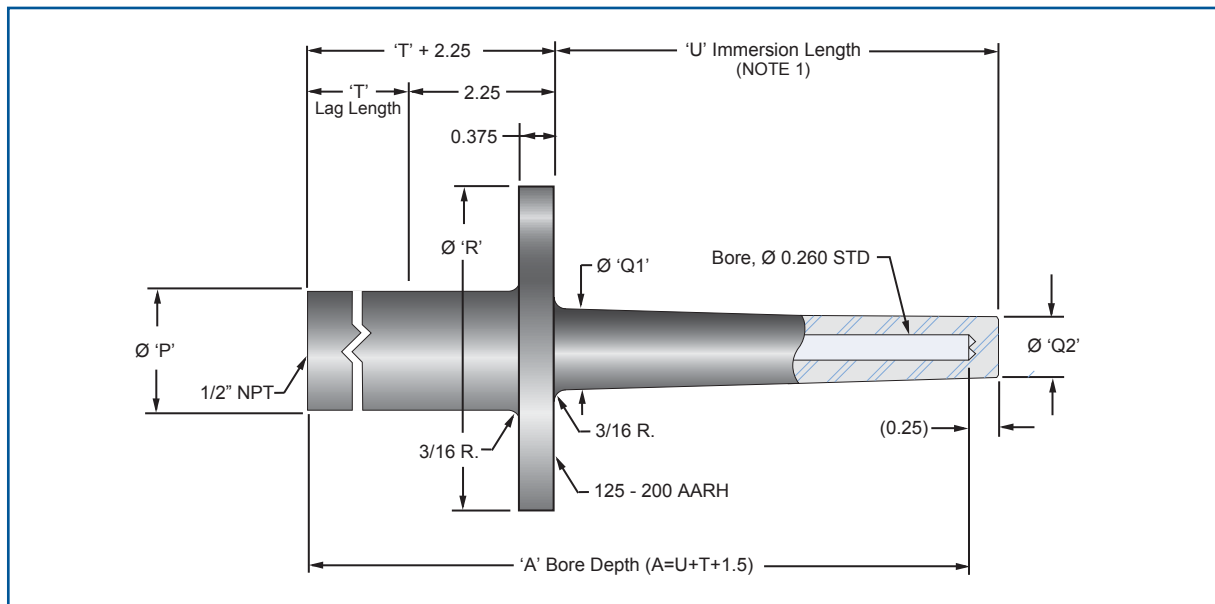


Custom Fast Response Thermowell



Perforated Guard Tube Assembly

Van Stone Tapered



All dimensions in inches.

17725 - Standard

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches
Specify Inches	

Mounting Type

V Van Stone Flange

Sheath Configuration

T Tapered

Flange Size	'Q1'	'Q2'	'P'	'R'	
4	1 inch	7/8	5/8	1.315	2.000
6	1 1/2 inch	1 1/16	5/8	1.900	2.875
8	2 inches	1 1/16	5/8	2.375	3.625

Flange Rating

A	150 lb rating
B	300 lb rating
C	400 lb rating
D	600 lb rating

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify 'T' Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = 'T' length of 6.0 inches	

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

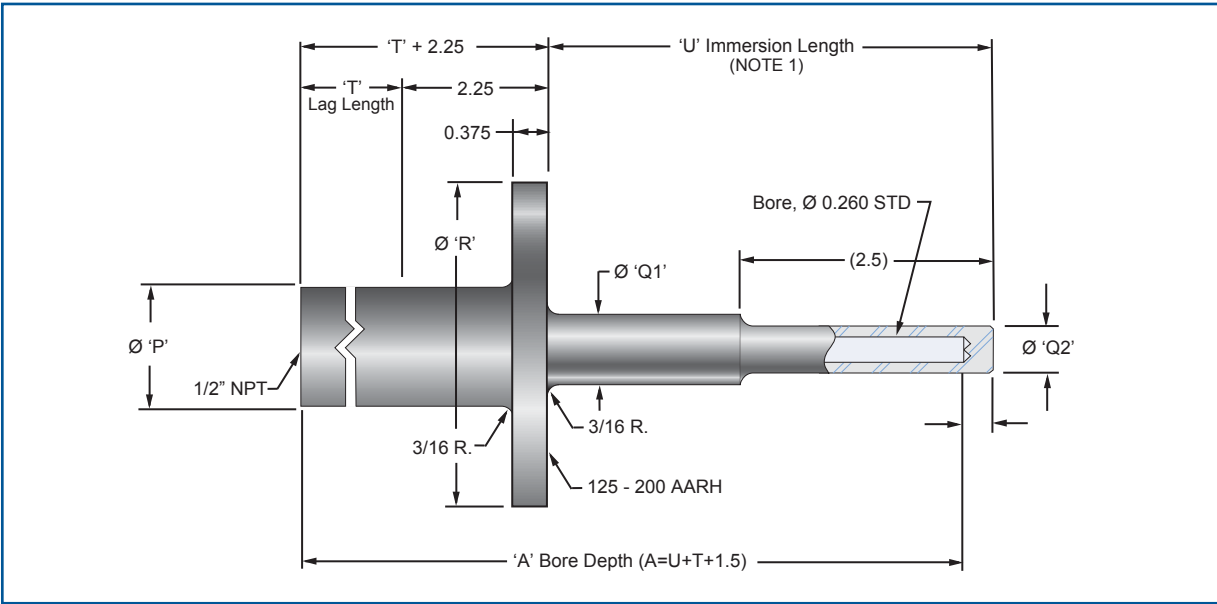
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
 Van Stone Thermowells will have a 'Q2' diameter of 49/64 when the bore diameter is 3/8 inches

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Van Stone Reduced Tip



All dimensions in inches.

21811- Standard

'U' Immersion Length

040	4.0 inches
070	7.0 inches
100	10.0 inches
130	13.0 inches
160	16.0 inches
220	22.0 inches
Specify Inches	

Mounting Type

V	Van Stone Flange
---	------------------

Sheath Configuration

R	Reduced Tip
---	-------------

Flange Size	'Q1'	'Q2'	'P'	'R'
4	1 inch	3/4	1/2	1.315 2.000
6	1 1/2 inch	7/8	1/2	1.900 2.875
8	2 inches	7/8	1/2	2.375 3.625

Flange Rating

A	150 lb rating
B	300 lb rating
C	400 lb rating
D	600 lb rating

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify 'T' Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = 'T' length of 6.0 inches	

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

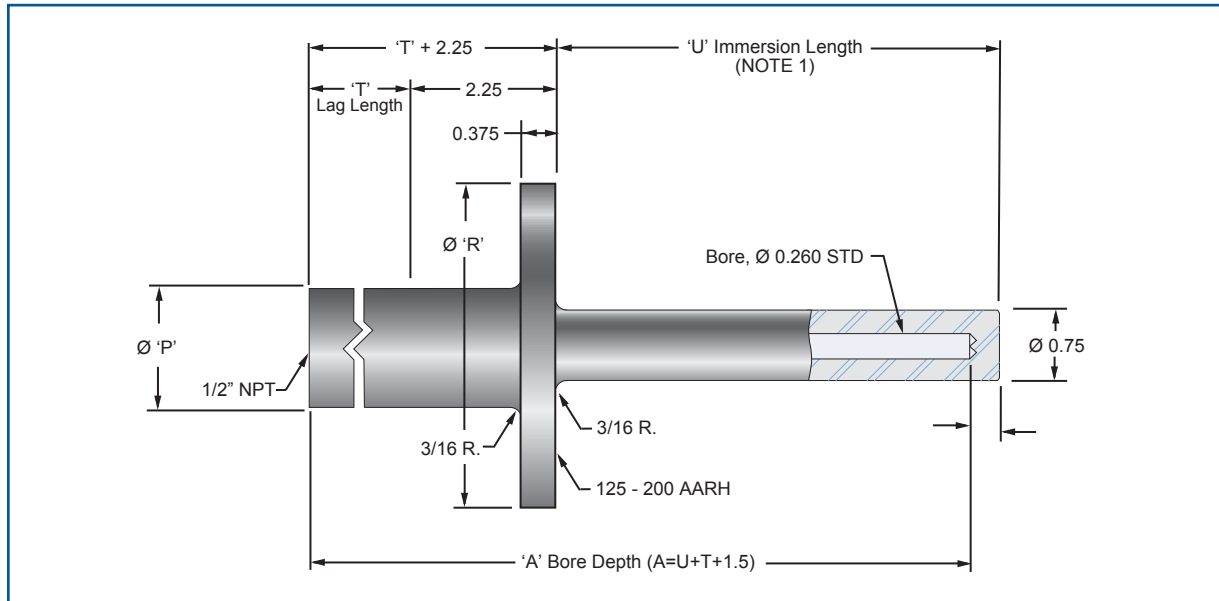
The standard bore diameter on Burns thermowells is 0.260 inches. See Van Stone straight thermowells if the 3/8" bore diameter is required.

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Van Stone Straight



All dimensions in inches.

21813 - Standard

'U' Immersion Length

- 040 4.0 inches
 - 070 7.0 inches
 - 100 10.0 inches
 - 130 13.0 inches
 - 160 16.0 inches
 - 220 22.0 inches
- Specify Inches

Mounting Type

- V Van Stone Flange

Sheath Configuration

- S Straight

Flange Size

		'Q1'	'P'	'R'
4	1 inch	3/4	1.315	2.000
6	1 1/2 inch	3/4	1.900	2.875
8	2 inches	3/4	2.375	3.625

Flange Rating

- A 150 lb rating
- B 300 lb rating
- C 400 lb rating
- D 600 lb rating

Material

Other thermowell materials may be available, consult the factory for more information.

- 02 304 Stainless Steel
- 03 316 Stainless Steel
- 04 Carbon Steel
- 05 304L Stainless Steel
- 06 316L Stainless Steel
- 07 Hastelloy® C276
- 08 Chrome-Moly, F11
- 09 Aluminum 6061 T6
- 10 Monel™ 400
- 11 PTFE
- 12 Inconel® 600
- 13 Brass
- 14 Titanium

'T' Lag Length

- T15 1.5 inches
- T30 3.0 inches

Specify 'T' Lag Length in 0.1 inch increments

Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)

Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

- F02 10 Ra maximum, mechanical finish
- F03 20 Ra maximum, mechanical finish with electropolish
- F04 10 Ra maximum, mechanical finish with electropolish
- F05 15 Ra maximum, mechanical finish with electropolish
- F06 20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

- C01 PTFE
- C02 Poly-Ond®
- C04 Stellite® hard facing
- C05 Wallex® 50/55
- C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore Dia.

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

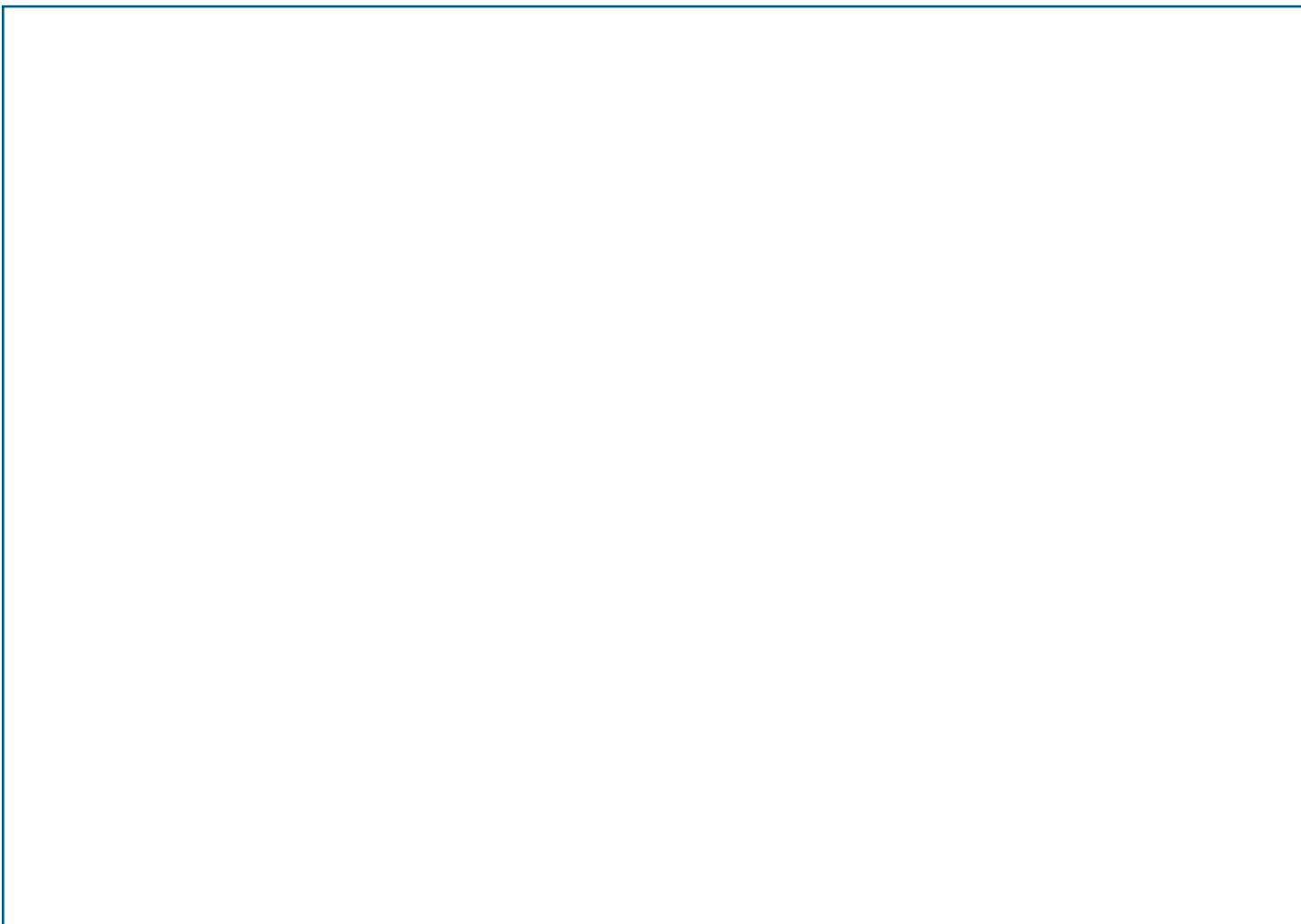
- Q04 0.385 Bore Diameter (3/8")
Van Stone Thermowells will have a 'Q2' diameter of 7/8 when the bore diameter is 3/8 inches

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Notes

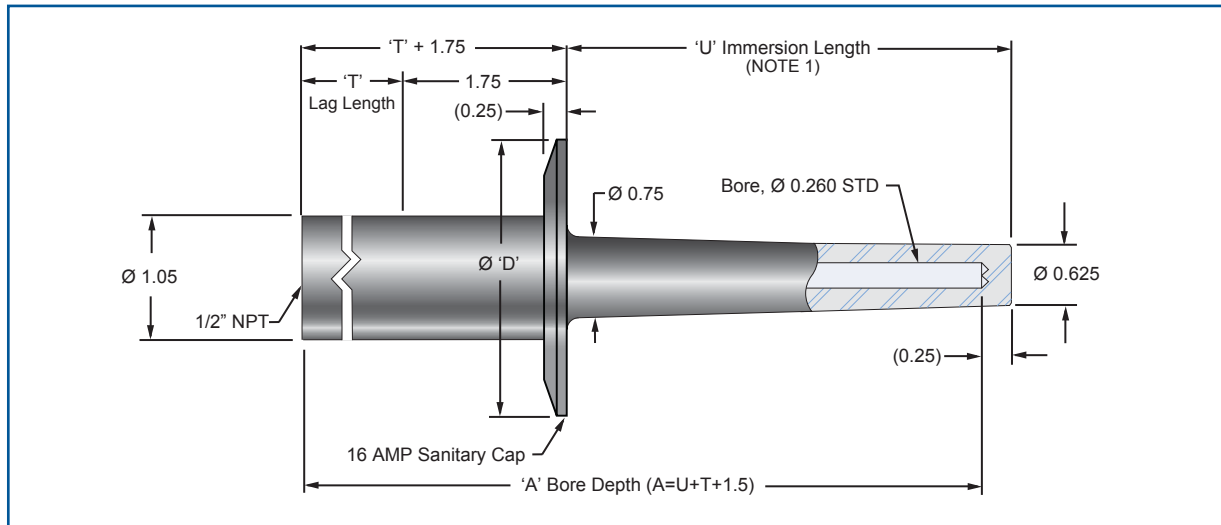


Large SWE with Sanitary Flange
Process Connections



Sanitary Thermowell:
Tapered and Stepped

Sanitary Tapered



All dimensions in inches.

20147- Standard

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches

Specify Inches

Sheath Configuration

T	Tapered
---	---------

Mounting Type

S	Sanitary, 16 AMP Tri-Clamp Style Cap	(used with tube sizes)	'D'
15	1 1/2 inch	1 & 1 1/2"	1.984
20	2 inch	2"	2.516
25	2 1/2 inch	2 1/2"	3.047
30	3 inch	3"	3.579

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

Basic order code (specify all)

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

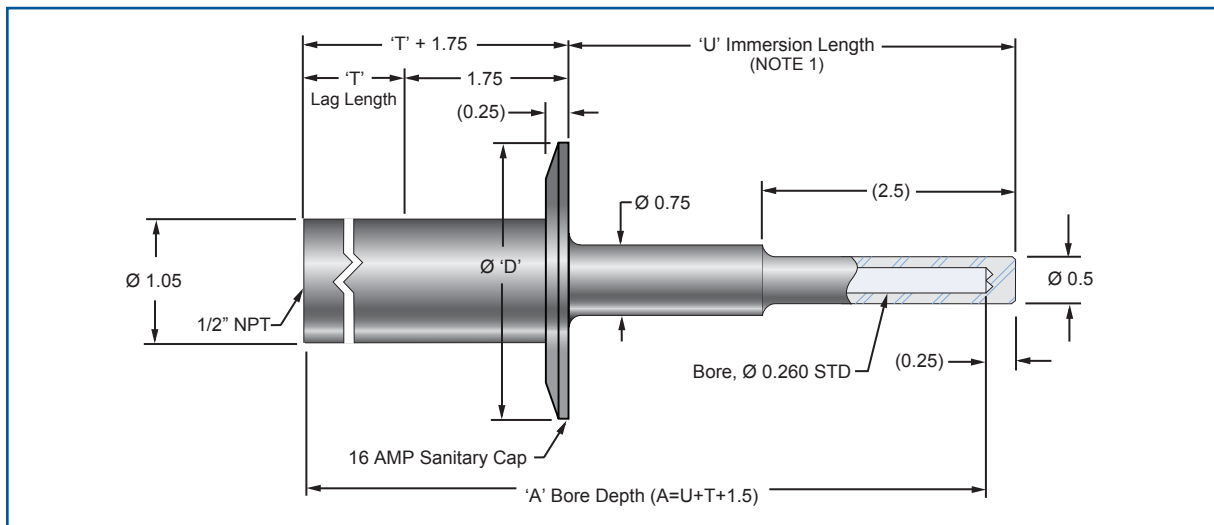
Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Sanitary Reduced Tip



All dimensions in inches.

20192- Standard

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches
Specify Inches	

Sheath Configuration

R	Reduced Tip
---	-------------

Mounting Type

S	Sanitary, 16 AMP Tri-Clamp Style Cap	(used with tube sizes)	'D'
15	1 1/2 inch	1 & 1 1/2"	1.984
20	2 inch	2"	2.516
25	2 1/2 inch	2 1/2"	3.047
30	3 inch	3"	3.579

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches
Specify 'T' Lag Length in 0.1 inch increments	
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)	
Example: T60 = 'T' length of 6.0 inches	

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

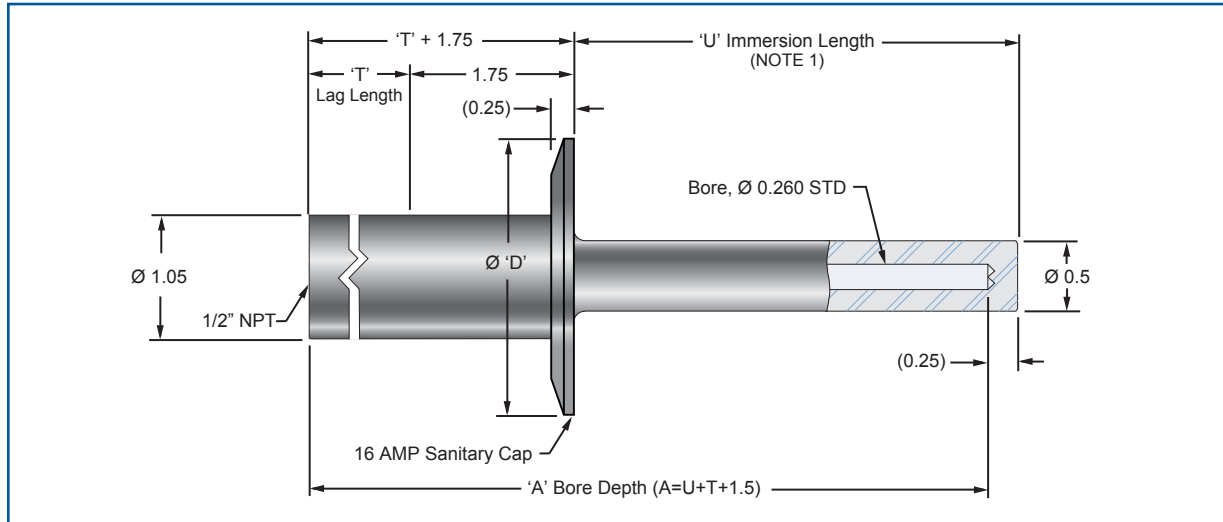
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
 Q04 0.385 Bore Diameter (3/8")
 Q06 0.275 Bore Diameter (7mm)

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Sanitary Straight



All dimensions in inches.

20194- Standard

'U' Immersion Length

025	2.5 inches
045	4.5 inches
075	7.5 inches
105	10.5 inches
135	13.5 inches
165	16.5 inches
225	22.5 inches

Specify Inches

Sheath Configuration

S	Straight
---	----------

Mounting Type

S	Sanitary, 16 AMP Tri-Clamp Style Cap	(used with tube sizes)	'D'
15	1 1/2 inch	1 & 1 1/2"	1.984
20	2 inch	2"	2.516
25	2 1/2 inch	2 1/2"	3.047
30	3 inch	3"	3.579

Material

Other thermowell materials may be available, consult the factory for more information.

02	304 Stainless Steel
03	316 Stainless Steel
04	Carbon Steel
05	304L Stainless Steel
06	316L Stainless Steel
07	Hastelloy® C276
08	Chrome-Moly, F11
09	Aluminum 6061 T6
10	Monel™ 400
11	PTFE
12	Inconel® 600
13	Brass
14	Titanium

'T' Lag Length

T15	1.5 inches
T30	3.0 inches

Specify 'T' Lag Length in 0.1 inch increments
Minimum Length is 0.5 inch (T05), Maximum Length is 9.9 inches (T99)
Example: T60 = 'T' length of 6.0 inches

'F' Surface Finish (NOTE 1)

F02	10 Ra maximum, mechanical finish
F03	20 Ra maximum, mechanical finish with electropolish
F04	10 Ra maximum, mechanical finish with electropolish
F05	15 Ra maximum, mechanical finish with electropolish
F06	20 Ra maximum, mechanical finish

'E' Testing and Documentation

see page 43 for all available options

'C' Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

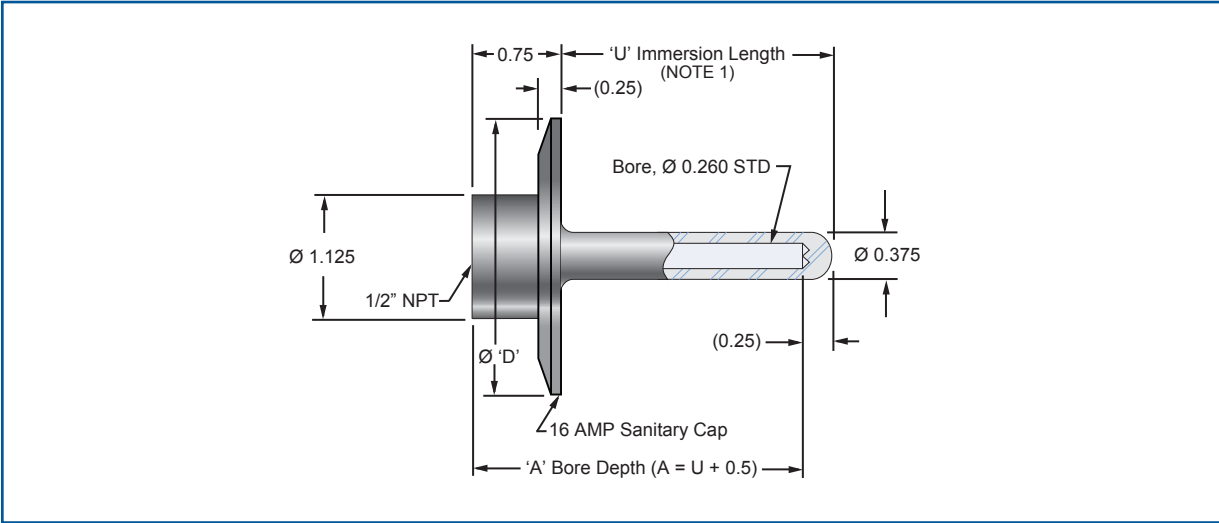
The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q04 0.385 Bore Diameter (3/8")
Q06 0.275 Bore Diameter (7mm)

Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only. 32 Ra Mechanical is Standard. For 32 Ra Mechanical finish, leave code BLANK.

Sanitary Straight Small Diameter



All dimensions in inches.

18604 Small Diameter

Sanitary, 16 AMP Tri-Clamp Style Cap		(used with tube sizes)	'D'
-1.5	1 1/2 inch	1 & 1 1/2"	1.984
-2.0	2 inch	2"	2.516
-2.5	2 1/2 inch	2 1/2"	3.047
-3.0	3 inch	3"	3.579

'U' Immersion Length

-025	2.5 inches
-030	3.0 inches
-035	3.5 inches
-040	4.0 inches
-045	4.5 inches
Specify Inches	

Material
Other thermowell materials may be available, consult the factory for more information.

-02	304 Stainless Steel
-03	316 Stainless Steel
-04	Carbon Steel
-05	304L Stainless Steel
-06	316L Stainless Steel
-07	Hastelloy® C276
-08	Chrome-Moly, F11
-09	Aluminum 6061 T6
-10	Monel™ 400
-11	PTFE
-12	Inconel® 600
-13	Brass
-14	Titanium

Surface Finish (NOTE 1)

-SFF1	20 Ra mechanical finish, max.
-SFF2	25 Ra mechanical finish, max.
-SFF3	30 Ra mechanical finish, max.
-SFF4	15 Ra mechanical finish, max. with electropolish
-SFF5	20 Ra mechanical finish, max. with electropolish
-SFF6	25 Ra mechanical finish, max. with electropolish

Basic order code (specify all)

'E' Testing and Documentation
see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options
see page 44 for all available options

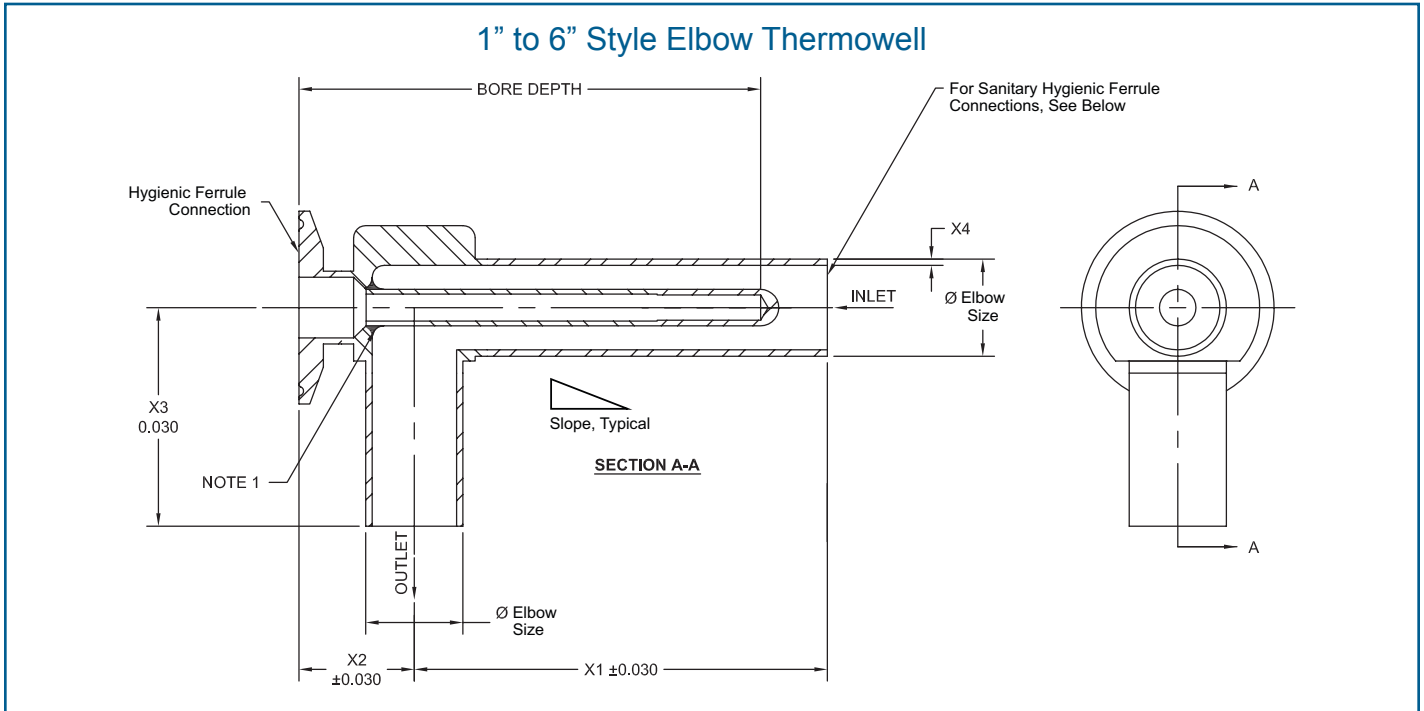
Optional order codes (specify only when required)

NOTE 1: Surface Finish selection applies to the immersed portion only.

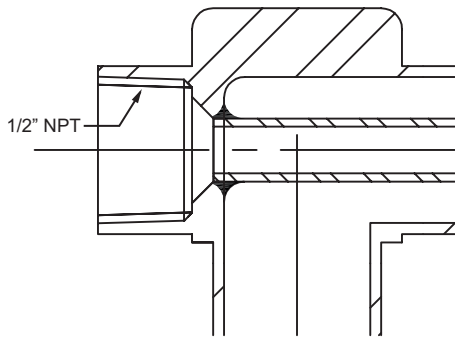
Sanitary Well Elbow (SWE)

1" to 6" Line Size (Straight Body) Well Specifications

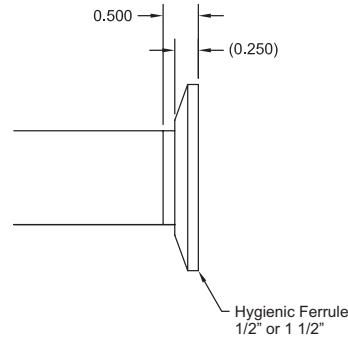
The SWE Straight Body design offers a range of sizes from 1 to 6 inches to support a wide range of processes. This design can be configured with hygienic ferrule or weld-end process connections and either a threaded or a hygienic ferrule sensor connection. The larger sizes are ideal for higher viscosity materials and ensure proper immersion for the most accurate temperature measurement. All SWE products include certification of wetted surface materials and surface finish.



Optional Threaded Sensor Connection



Optional Hygienic Ferrule Process Connection



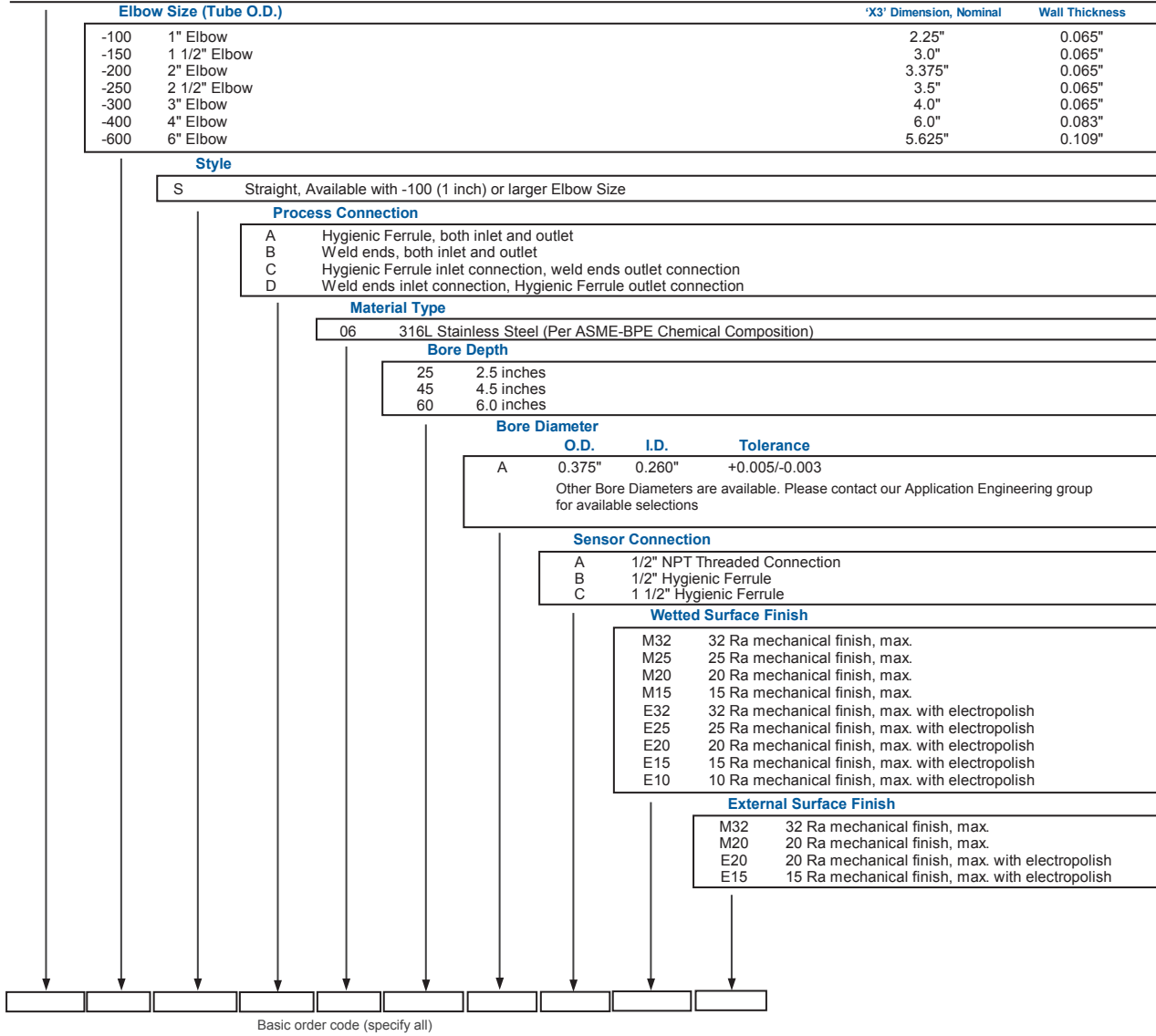
The Straight Body design SWE can be installed in any orientation providing the line slope is sufficient to ensure gravity drainability.

NOTE 1: This specific weld area will not fully comply with ASME-BPE due to accessibility limitations.

Sanitary Elbow (SWE)

1" to 6" Line Size, Ordering Information

SWE Sanitary Elbow Thermowells



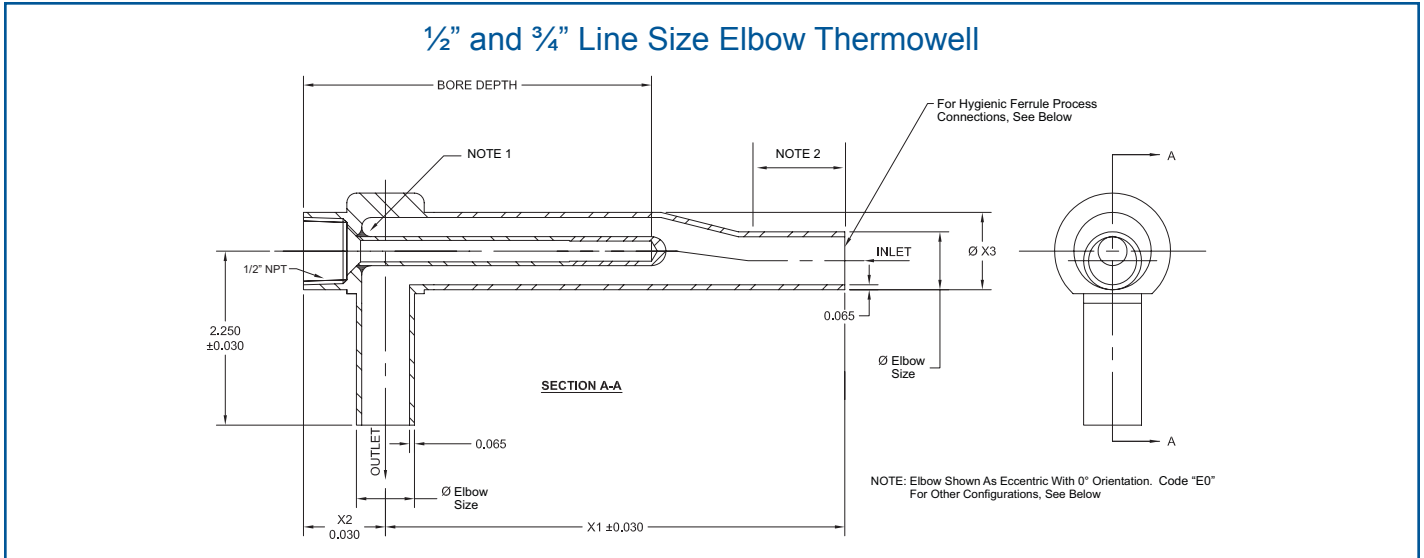
For All Process Connections, (A, B, C, D)

	'X1' Dimension, ±0.063	'X2' Dimension, Nominal
1" Elbow	bore depth - 0.25"	1.185"
1 1/2" Elbow	bore depth + 0.5"	1.435"
2" Elbow	bore depth + 0.875"	1.685"
2 1/2" Elbow	bore depth + 1.0"	1.935"
3" Elbow	bore depth + 1.5"	2.185"
4" Elbow	bore depth + 3.5"	2.75"
6" Elbow	5.625"	5.75"

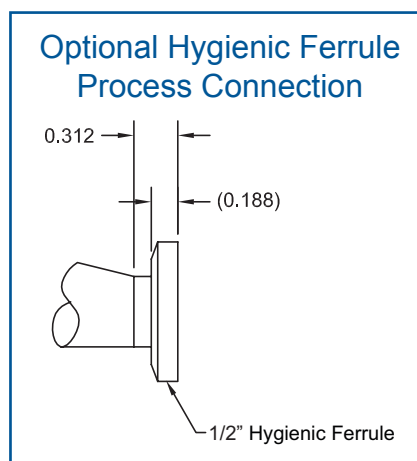
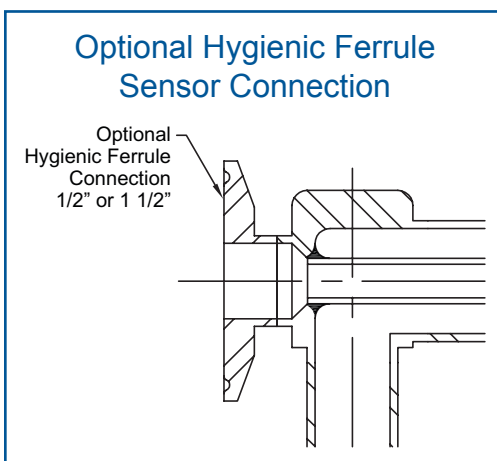
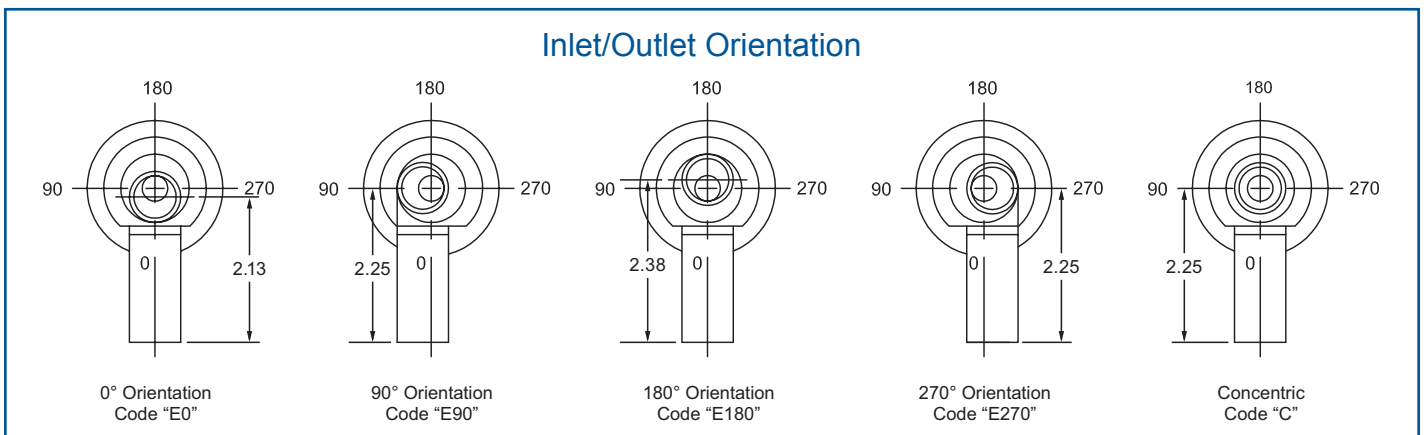
Sanitary Well Elbow (SWE)

1/2" and 3/4" Line Size (Reduced Body) Well Specification

This SWE Reduced Body design offers a process tube size reduced from a larger body to support installation in 1/2" and 3/4" line sizes. The reduced style of the body provides excellent immersion and ensures component drainability and minimal pressure drop. This design can be configured as concentric or eccentric for ease of installation. (NOTE 3) All SWE products include certification of wetted surface materials and surface finish.



All dimensions in inches.



NOTE 1: This specific weld area will not fully comply with ASME-BPE due to accessibility limitations.

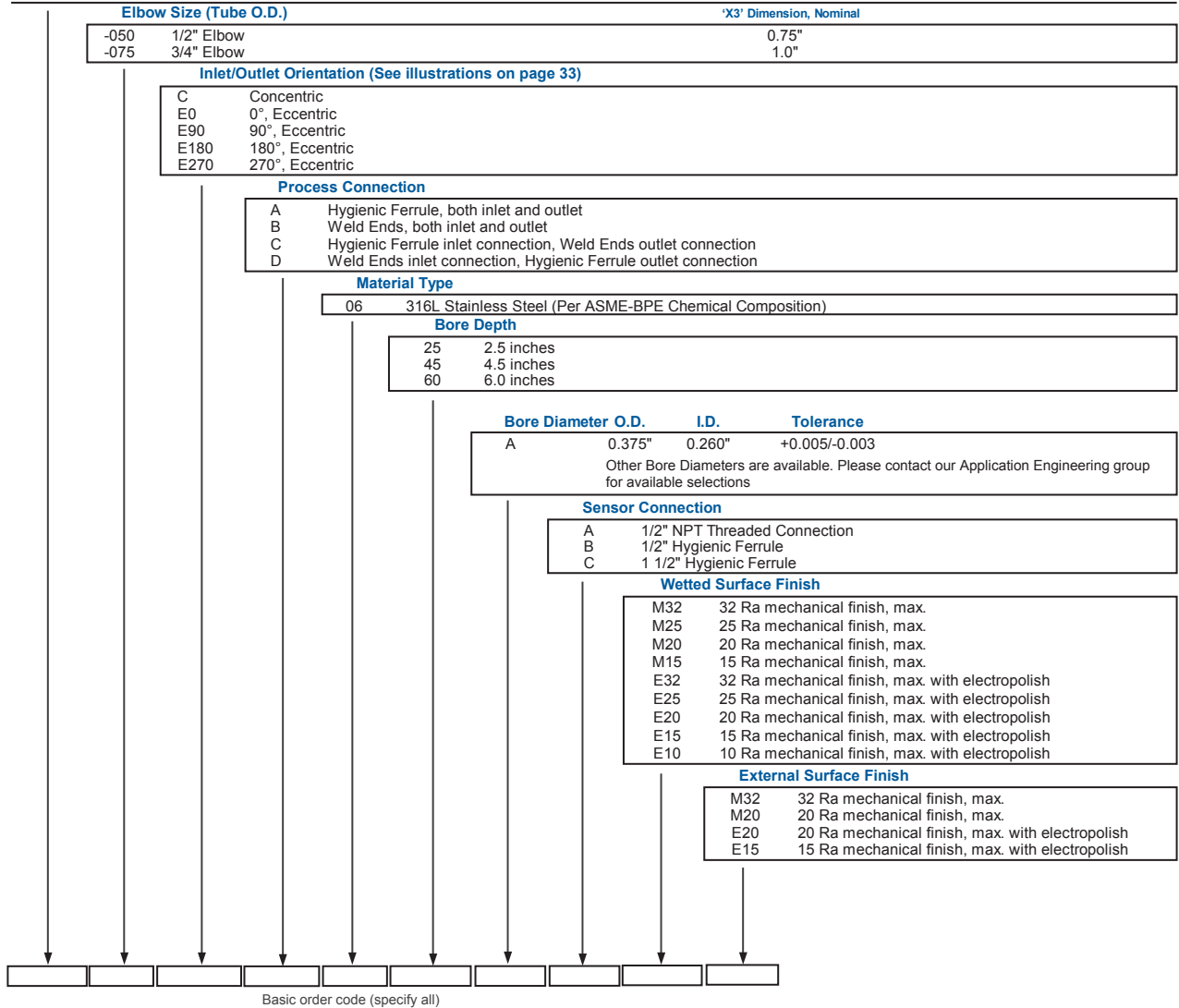
NOTE 2: This length is 1.25" minimum for all Weld End process connections and nominally 0.312" for Hygienic Ferrule process connections.

NOTE 3: For typical installation orientation for each configuration see the SWE Installation Manual at: www.BurnsEngineering.com/SWE-Installation.pdf

Sanitary Elbow (SWE)

1/2" and 3/4" Line Size, Ordering Information

SWE Sanitary Elbow Thermowells



Weld End Inlet Process Connection, (B & D)

	'X1' Dimension, ±0.063	'X2' Dimension, Nominal
1/2" Elbow	bore depth + 1.438"	0.935"
3/4" Elbow	bore depth + 1.438"	1.063"

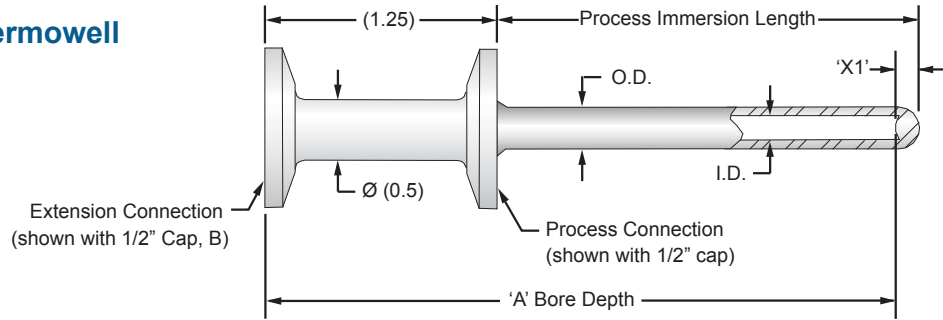
Hygienic Ferrule Inlet Process Connection, (A & C)

	'X1' Dimension, ±0.063	'X2' Dimension, Nominal
1/2" Elbow	bore depth + 0.47"	0.935"
3/4" Elbow	bore depth + 0.35"	1.063"

SWT Standard Sanitary Thermowell

Specifications

SWT- Standard Sanitary Thermowell

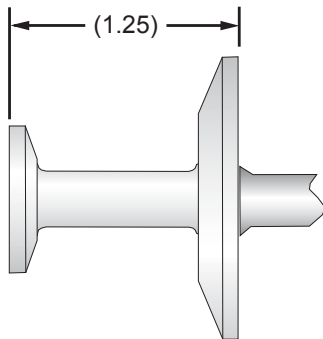


'A' Bore Depth = Extension Length + Process Immersion - X1
'A' Bore Depth = 'C' Compressed Sheath Length

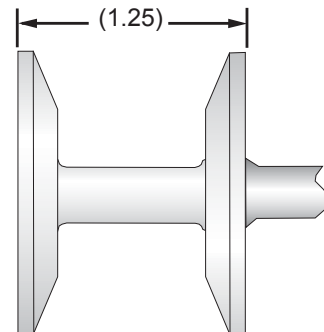
All dimensions in inches.

SWT (Standard Sanitary Thermowells) are used in applications that require sensor removal during process operation. The SWT is designed to be used with the S60 and S65 sanitary spring loaded sensors to create a complete sanitary assembly. Simply match the thermowell bore depth 'A' to the sensor compressed sheath length 'C'. The SWT can also be used with our Series 100, 200 and 300 spring loaded sensors by selecting the 1/2 inch NPT threaded extension connection, code 'A'.

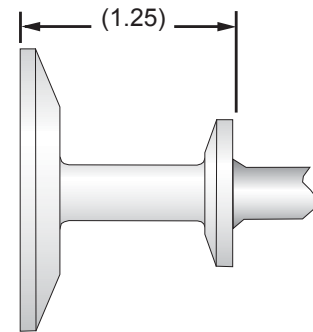
Extension and Process Connection Types



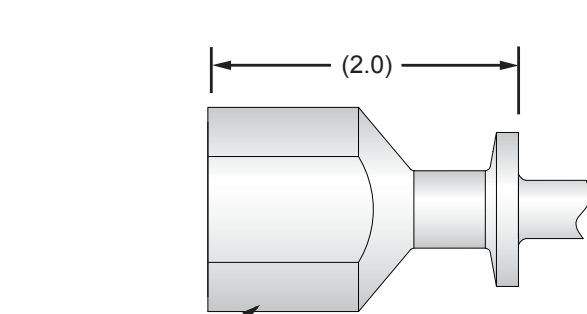
Extension Connection: 1/2", Code B
Process Connection*: 1 1/2", Code T15



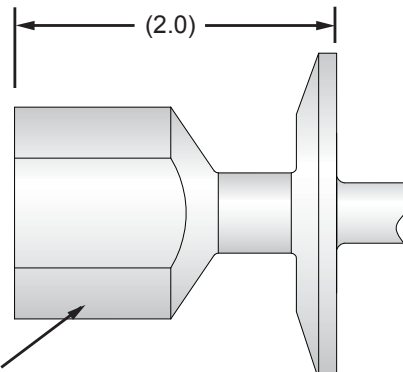
Extension Connection: 1 1/2", Code C
Process Connection*: 1 1/2", Code T15



Extension Connection: 1 1/2", Code C
Process Connection*: 1/2", Code T05



Ø 1.315" with 1.125" Wrench Flats
Extension Connection: 1/2", NPT, Code A
Process Connection*: 1/2", Code T05



Extension Connection: 1/2", NPT, Code A
Process Connection*: 1 1/2", Code T15

* The Process Connection is also available in 2", 2 1/2", 3" and 4" sizes

All dimensions in inches.

SWT Standard Sanitary Thermowell

Ordering Information

SWT Sanitary Thermowell, Standard

Process Connection

(Used with tube sizes)

-T05	1/2" Hygienic Ferrule	1/2", 3/4"
-T15	1 1/2" Hygienic Ferrule	1", 1 1/2"
-T20	2" Hygienic Ferrule	2"
-T25	2" Hygienic Ferrule	2"
-T30	3" Hygienic Ferrule	3"
-T40	4" Hygienic Ferrule	4"

Material Type

03	316 Stainless Steel
06	316L Stainless Steel

Process Immersion Length

0250	2.5 inches
0300	3.0 inches
0400	4.0 inches
0450	4.5 inches
0600	6.0 inches

Specify Process Immersion Length in Inches (12" = 1200)

Bore Diameter

	O.D.	I.D.	Tolerance	Dimension 'X1'
A	0.375"	0.260"	+0.005/-0.003"	0.25"
B	0.375"	0.305"	±0.010"	0.25"
C	0.250"	0.194"	+0.004/-0.000"	0.25"
D	0.188"	0.144"	±0.005"	0.12"
E	0.455"	0.385"	+0.005/-0.003"	0.25"
F	0.188"	0.135"	±0.005"	0.12"

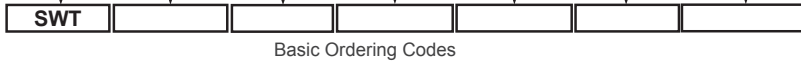
Extension Connection

Extension Length

A	1/2" NPT Threaded Connection	2.0"
B	1/2" Hygienic Ferrule	1.25"
C	1 1/2" Hygienic Ferrule	1.25"

Wetted Surface Finish

M32	32 Ra mechanical finish, max.
M25	25 Ra mechanical finish, max.
M20	20 Ra mechanical finish, max.
M15	15 Ra mechanical finish, max.
E32	32 Ra mechanical finish, max. with electropolish
E25	25 Ra mechanical finish, max. with electropolish
E20	20 Ra mechanical finish, max. with electropolish
E15	15 Ra mechanical finish, max. with electropolish
E10	10 Ra mechanical finish, max. with electropolish



Basic Ordering Codes

1/2" NPT Threaded Extension Connection, (A)

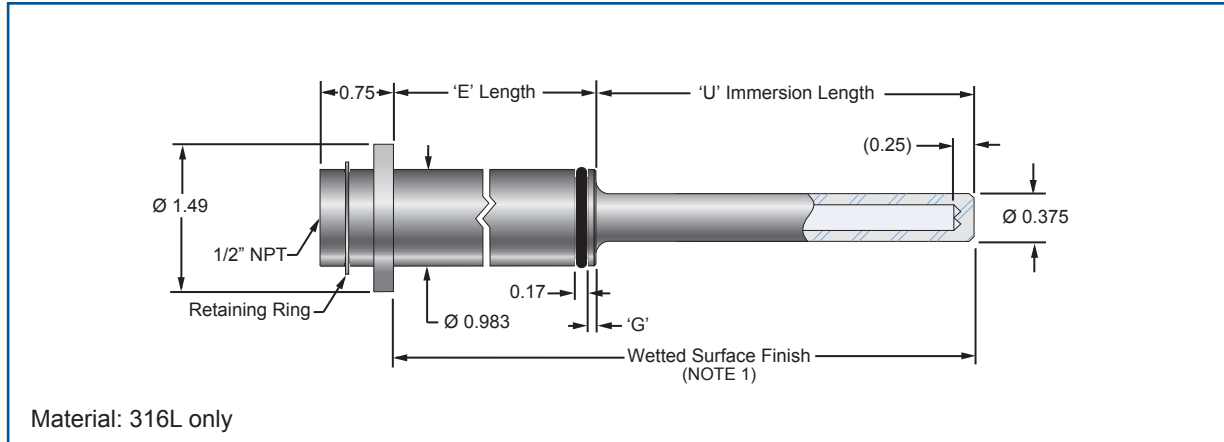
Process Immersion Length	'X1' Dimension, Nominal		Bore Depth, Nominal	
	1.25"	0.25"	3.00"	
1.25"		0.12"	3.13"	
2.50"		0.25"	4.25"	
2.50"		0.12"	4.38"	
3.00"		0.25"	4.75"	
3.00"		0.12"	4.88"	
5.00"		0.25"	6.75"	
5.00"		0.12"	6.88"	
Specify		0.25"	Immersion Length + 1.75	
Specify		0.12"	Immersion Length + 1.88	

Hygienic Ferrule Extension Connection, (B & C)

Process Immersion Length	'X1' Dimension, Nominal		Bore Depth, Nominal	
	1.25"	0.25"	2.25"	
1.25"		0.12"	2.38"	
2.50"		0.25"	3.50"	
2.50"		0.12"	3.63"	
3.00"		0.25"	4.00"	
3.00"		0.12"	4.13"	
5.00"		0.25"	6.00"	
5.00"		0.12"	6.13"	
Specify		0.25"	Immersion Length + 1.00	
Specify		0.12"	Immersion Length + 1.13	

Note: The SWT includes certification of wetted surface materials, finish and electropolish when applicable.

Sanitary Ingold® For Straight Ports



All dimensions in inches.

18916-S Straight

'E' Fitting Length

-30	30 mm (1.18 inch)
-40	40 mm (1.57 inch)
-48	48 mm (1.89 inch)
-50	50 mm (1.97 inch)
-52	52 mm (2.047 inch)
-55	55 mm (2.17 inch)
-60	60 mm (2.36 inch)

Specify 'E' length in millimeters

'U' Immersion Length

-035	3.5 inches
-060	6.0 inches

Specify 'U' length in inches

'G' O-Ring Location

-079	0.079 inches
-188	0.188 inches

Specify 'G' length in decimal inches

O-Ring Material (NOTE 2)

-1	EPDM
-2	Viton®
-3	Silicone
-4	Buna-N
-N	Do Not Include O-Ring, none

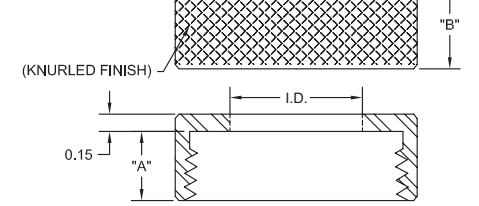
Cap Nut

-1	Stainless Steel with Knurled Finish, ID 1.0, Standard
-2	Stainless Steel with Knurled Finish, ID 1.0, Short
-4	Nickel Plated Brass, ID 1.36, Short
-N	Do Not Include Cap Nut, none

Wetted Surface Finish (NOTE 1)

-M15	15 Ra maximum, mechanical
-M20	20 Ra maximum, mechanical
-M32	32 Ra maximum, mechanical
-E10	10 Ra maximum, mechanical with electropolish
-E15	15 Ra maximum, mechanical with electropolish
-E20	20 Ra maximum, mechanical with electropolish

Cap Nut



'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

C01	PTFE
C02	Poly-Ond®
C04	Stellite® hard facing
C05	Wallex® 50/55
C06	Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.
Q06 0.275 Bore Diameter (7mm)

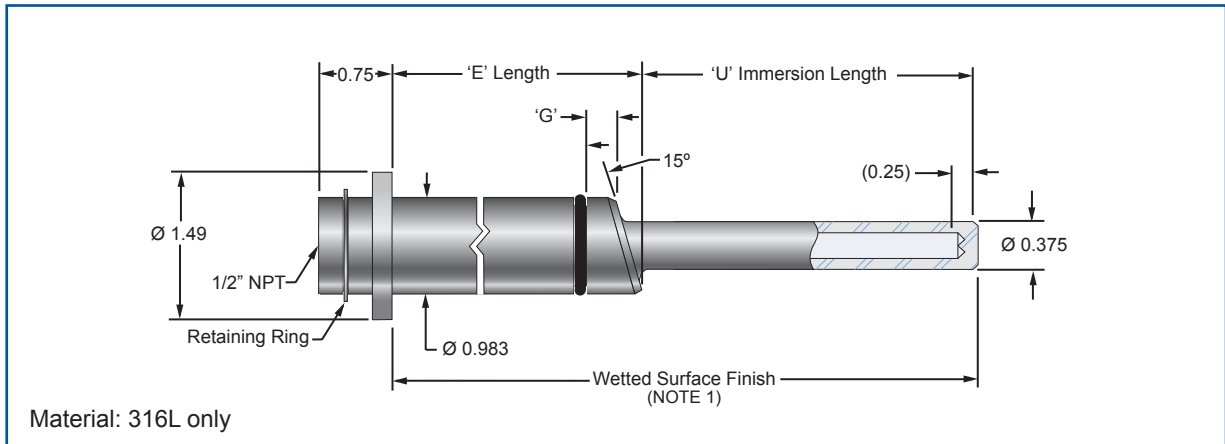
Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish applies to wetted surface only.
NOTE 2: O-ring material conformance certificate included.

Sanitary Ingold®

For 15° Angled Ports



All dimensions in inches.

18916-A Angle

'E' Fitting Length

- 30 30 mm (1.18 inch)
- 40 40 mm (1.57 inch)
- 48 48 mm (1.89 inch)
- 50 50 mm (1.97 inch)
- 52 52 mm (2.047 inch)
- 55 55 mm (2.17 inch)
- 60 60 mm (2.36 inch)

Specify 'E' length in millimeters

'U' Immersion Length

- 035 3.5 inches
- 060 6.0 inches

Specify 'U' length in inches

'G' O-Ring Location

- 079 0.079 inches
- 188 0.188 inches

Specify 'G' length in decimal inches

O-Ring Material (NOTE 2)

- 1 EPDM
- 2 Viton®
- 3 Silicone
- 4 Buna-N
- N Do Not Include O-Ring, none

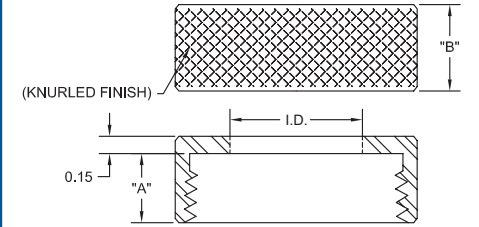
Cap Nut

- 1 Stainless Steel with Knurled Finish, ID 1.0, Standard, 'B'=0.86"
- 2 Stainless Steel with Knurled Finish, ID 1.0, Short, 'B'=0.70"
- 4 Nickel Plated Brass, ID 1.36, Short, 'B'=0.70"
- N Do Not Include Cap Nut, none

Wetted Surface Finish (NOTE 1)

- M15 15 Ra maximum, mechanical
- M20 20 Ra maximum, mechanical
- M32 32 Ra maximum, mechanical
- E10 10 Ra maximum, mechanical with electropolish
- E15 15 Ra maximum, mechanical with electropolish
- E20 20 Ra maximum, mechanical with electropolish

Cap Nut



'E' Testing and Documentation

see page 43 for all available options

'C' Thermowell Coatings

- C01 PTFE
- C02 Poly-Ond®
- C04 Stellite® hard facing
- C05 Wallex® 50/55
- C06 Tungsten Carbide

'Z' Miscellaneous Options

see page 44 for all available options

Diameter Options, Bore

The standard bore diameter on Burns thermowells is 0.260 inches. If a different bore diameter is required specify per code.

- Q06 0.275 Bore Diameter (7mm)

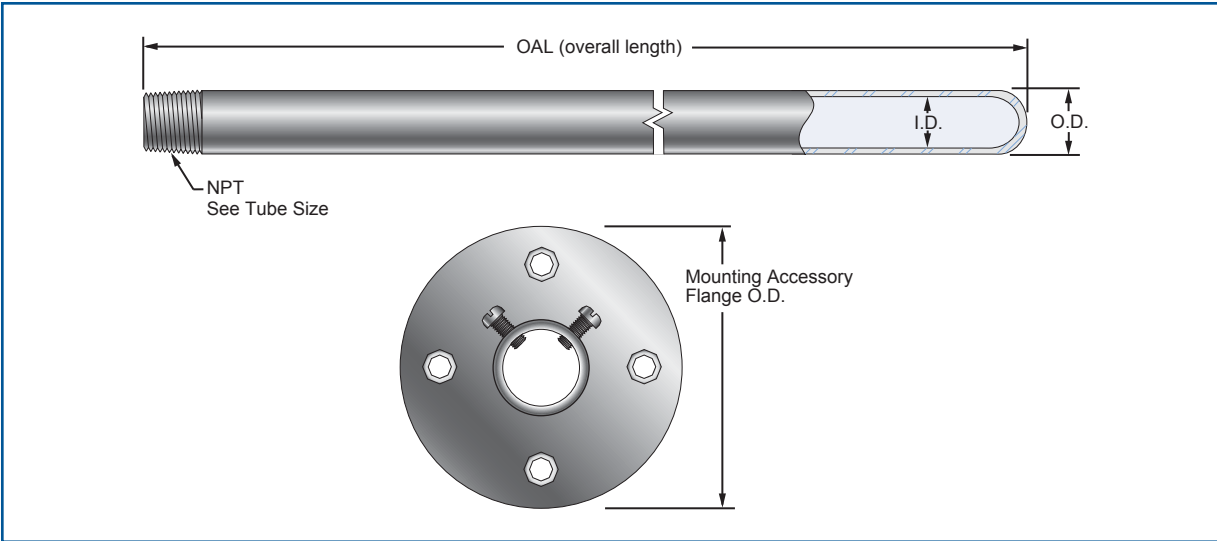
Basic order code (specify all)

Optional order codes (specify only when required)

NOTE 1: Surface Finish applies to wetted surface only.
NOTE 2: O-ring material conformance certificate included.

Protection Tube

with Optional Adjustable Flange



20511 Adjustable

Material

Other thermowell materials may be available, consult the factory for more information.

-02	304 Stainless Steel
-03	316 Stainless Steel
-04	Carbon Steel
-12	Inconel® 600

Tube Size		O.D.	I.D.
-1	1/4" NPT	0.364	0.540
-2	1/2" NPT	0.622	0.840
-3	3/4" NPT	0.824	1.050
-4	1" NPT	1.049	1.315

OAL (overall length)

-060	6.0 inches
-120	12.0 inches
-240	24.0 inches
-360	36.0 inches

Specify OAL in Inches

Mounting Accessories

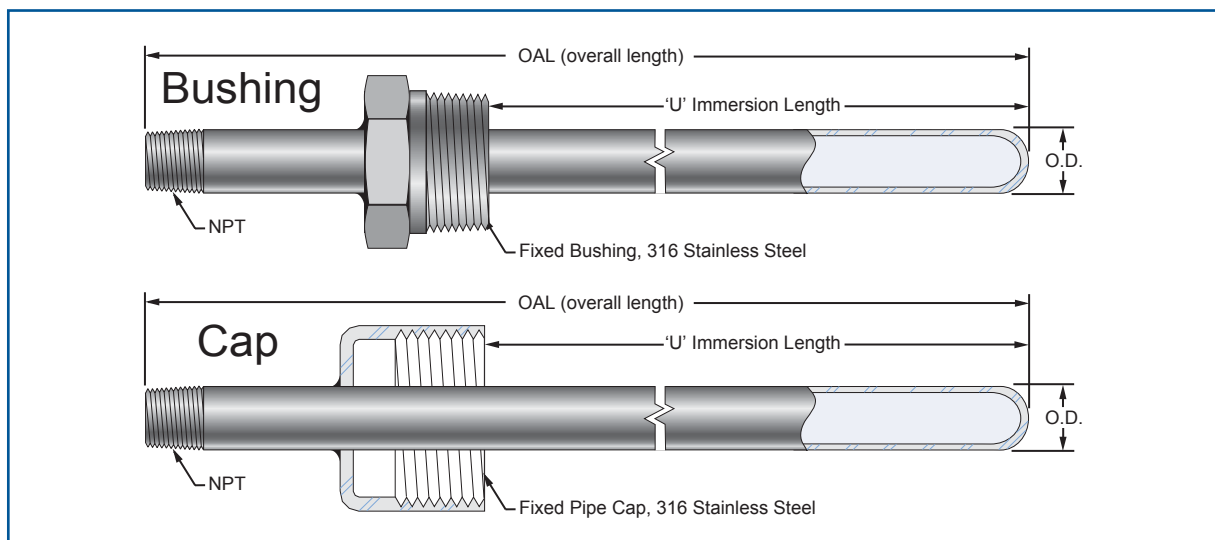
-0	Standard Protection Tube
-K	Adjustable Cast Iron Flange, 2 3/8" O.D., used with 1/4" NPT (-1) tube size only
-L	Adjustable Cast Iron Flange, 3" O.D., used with 1/2" NPT (-2) tube size only
-M	Adjustable Cast Iron Flange, 3 1/4" O.D., used with 3/4" NPT (-3) tube size only
-N	Adjustable Cast Iron Flange, 3 3/4" O.D., used with 1" NPT (-4) tube size only



Basic order code (specify all)

Protection Tube

Fixed Connections



20511 Protection Tube, Fixed Connection

Material

Other thermowell materials may be available, consult the factory for more information.

-02	304 Stainless Steel
-03	316 Stainless Steel
-04	Carbon Steel
-12	Inconel® 600

Tube Size	O.D.	I.D.
-1 1/4" NPT	0.364	0.540
-2 1/2" NPT	0.622	0.840
-3 3/4" NPT	0.824	1.050
-4 1" NPT	1.049	1.315

OAL (overall length)

-060	6.0 inches
-240	24.0 inches
Specify O.A.L. in Inches	

Mounting Accessories

-A	1/2" NPT, Fixed Bushing, available with 1/4" NPT (-1) tube size only
-B	3/4" NPT, Fixed Bushing, available with 1/4" NPT & 1/2" NPT (-1 & -2) tube sizes only
-C	1" NPT, Fixed Bushing, available with 1/4" NPT, 1/2" NPT & 3/4" NPT (-1, -2 & -3) tube sizes only
-D	1 1/4" NPT, Fixed Bushing, available with ALL tube sizes
-E	1 1/2" NPT, Fixed Bushing, available with ALL tube sizes
-F	1" NPT, Fixed Cap, available with 1/4" NPT (-1) tube size only
-G	2" NPT, Fixed Cap, available with 1/4" NPT & 1/2" NPT (-1 & -2) tube sizes only
-H	3" NPT, Fixed Cap, available with 1/4" NPT, 1/2" NPT & 3/4" NPT (-1, -2 & -3) tube sizes only
-J	4 1/4" NPT, Fixed Cap, available with ALL tube sizes

'U' Immersion Length

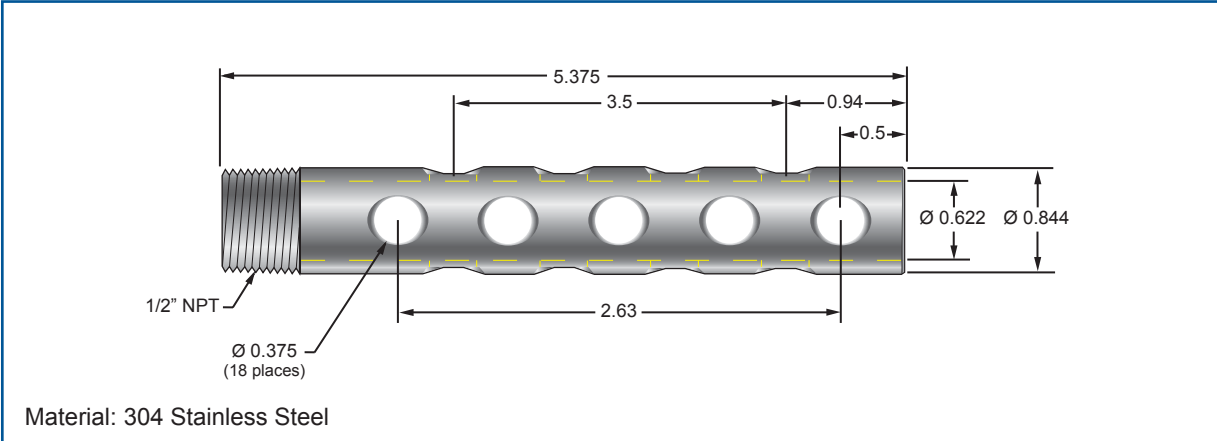
-040	4.0 inches
-200	20.0 inches
Specify 'U' length in Inches	



Basic order code (specify all)

Guard Tube

Perforated



All dimensions in inches.

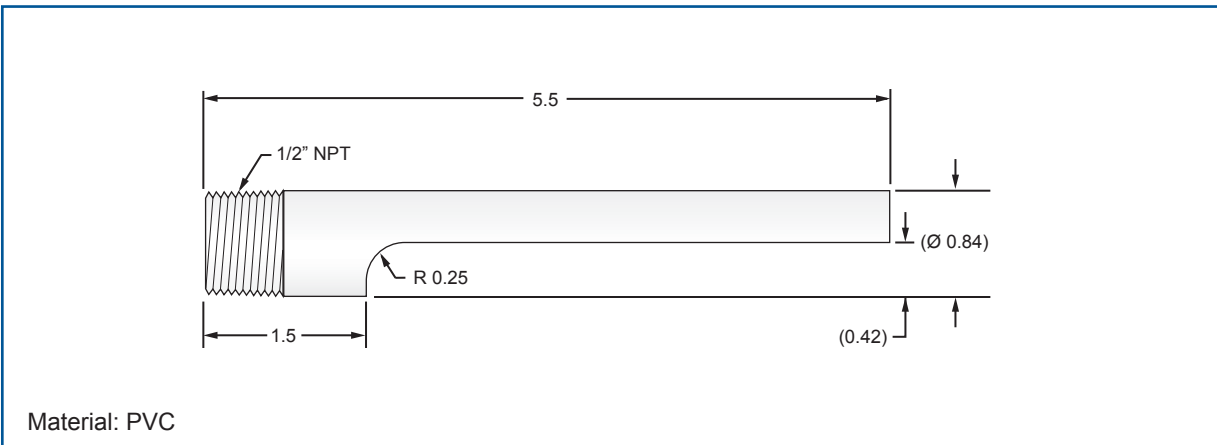
10444 Guard Tube, Perforated (NOTE 1)



Basic order code (specify all)

Guard Tube

Shield



All dimensions in inches.

15235 Guard Tube, Shield (NOTE 1)

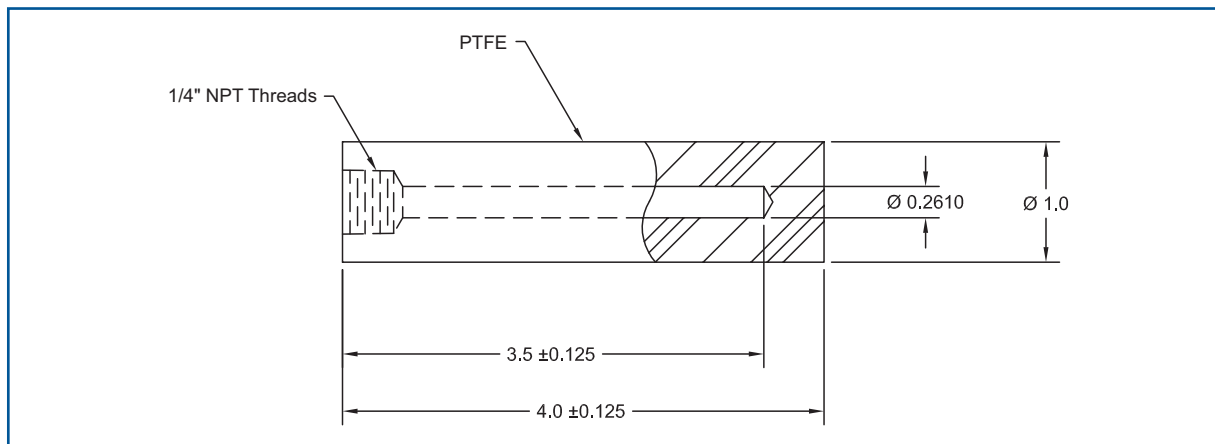


Basic order code (specify all)

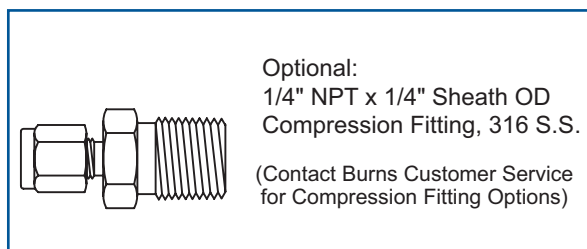
NOTE 1: For other Guard Tube configurations and sizes, contact Burns Customer Service.

Dampening Thermowell

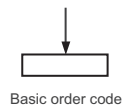
PTFE



All dimensions in inches.



21577 Dampening Well (NOTE 1)



NOTE 1: For other Dampening Thermowell configurations, contact Burns Customer Service.

Common Options

Testing and Documentation

Hardware is only part of what you purchase from Burns. Our extensive testing and documentation offering ensures a trouble free service life and satisfies even the most demanding quality systems. Contact our factory for customized documentation options.

- 'W' Ordering Codes:
- E01 (Hydrostatic internal pressure testing per ASTM specifications)
 - E02 (Dye penetrant testing per ASTM specifications)
 - E03 (X-ray examination per ASTM specifications)
 - E04 (Material certification)
 - E05 (Wake frequency and strength calculations, include info. page, NOTE 1)
 - E06 (Surface finish certification)
 - E07 (Canadian registration number (CRN) provided)
 - E08 (Material conformance certificate)
 - E10 (No polishing compound used certificate, per Burns spec. #103)
 - E11 (Exxon International Practice Certification)
 - E12 (NACE approval certification)
 - E14 (Electropolish and surface finish certification)
 - E15 (Hydrostatic external pressure testing per ASTM specifications)
 - E16 (Positive Material Identification (PMI))
 - E17 (Inspection Certificate (ISO 10474, EN 10204, DIN 50049))
 - E18 (Passivation of thermowell certification)
 - E19 (Weld map and log)

NOTE 1: Strength calculation information page is available on the Burns website under "Technical Info".



Common Options

Flange Options:

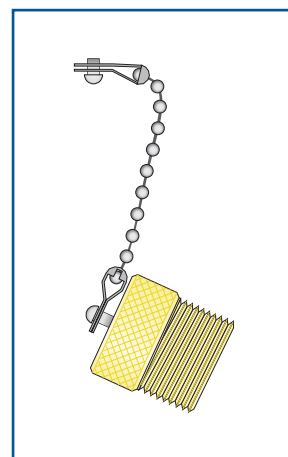
Burns Flanged Thermowells come with a raised face spiral groove standard. Use codes below to specify a different flange facing.

- 'W' Ordering Codes: R02 (Raised face, concentric groove)
 R03 (Flat face, spiral groove)
 R04 (Flat face, concentric groove)
 R05 (Ring joint)
 R06 (Van Stone)
 R07 (RTF flange, no groove)

Plug and Chain

A plug may be desirable for installations that require the sensor to be removed for an extended period of time. The plug will prevent foreign material from entering the well when not in use. Burns Engineering offers both a brass and a stainless steel plug. The plug with chain is available with all thermowell assemblies in this catalog.

- 'W' Ordering Codes: Z01 (brass plug with chain)
 Z02 (stainless steel plug with chain)



Marking and Tagging

All wells include a Polyester tag as standard. The Polyester tag includes the Burns Engineering order and line number along with the model number of the item purchased. Additional marking may be required for greater visibility or to meet quality standards. To have your tag number added to the assembly simply add one of the options below. Tag numbers must be provided with the order. Contact our factory for customized tag requirements not listed below.

- 'W' Ordering Codes: Z04 (thermowell electro etched with tag number)
 Z05 (stainless steel tag with tag number)

Specialty Options

- 'W' Ordering Codes: Z03 (cleaned for oxygen service) (SOP S311)
 Z06 (open ended thermowell)
 Z07 (weep hole)

Material Selection

Corrosive Guide

CORRODENT	TEMP. °F	CONC. %	RECOMMENDED MATERIAL	CORRODENT	TEMP. °F	CONC. %	RECOMMENDED MATERIAL	CORRODENT	TEMP. °F	CONC. %	RECOMMENDED MATERIAL
Acetic Acid	212	ALL	Monel	Copper Plating Solution (Cyanide)	180		304 SS	Oxygen	75	ALL	Steel
Acetic Anhydride	300		Nickel	Copper Plating Solution (Acid)	75		304 SS	Oleic Acid	SEE FATTY ACIDS		
Acetone	212	ALL	304 SS	Corn Oil	200		304 SS	Oxalic Acid	212	ALL	Monel
Acetylone	400		304 SS	Creosote	200	ALL	304 SS	Photographic Bleaching	100	ALL	304 SS
Alcohols	212	ALL	304 SS	Crude Oil	300		Monel	Polmitic Acid	SEE FATTY ACIDS		
Alum. (Potassium or Sodium)	300	ALL	Hast. C	Ethyl Acetate	SEE LACQUER THINNER			Phosphoric Acid	212	ALL	316 SS
Aluminum Chloride	212	ALL	Hast. B	Ethyl Chloride, Dry	500		Steel	Phenol	212	ALL	317 SS
Aluminum Sulfate	212	ALL	316 SS	Ethanol	SEE ALCOHOLS			Potassium Compounds	SEE SODIUM COMPOUNDS		
Ammonia, Dry	212	ALL	304,316	Ethylene Glycol (Uninhibited)	212	ALL	304 SS	Propane	300		Steel
Ammonium Hydroxide (Ammonia, Aqua)	212	ALL	304,316	Ethylene Oxide	75		Steel	Rosin	700	100%	316 SS
Ammonium Chloride	300	50.00%	Monel	Fatty Acids	500	ALL	316 SS	Sea Water	75		Monel
Ammonium Nitrate	300	ALL	304 SS	Ferric Chloride	75	ALL	Hast. C	Soop & Detergents	212	ALL	304 SS
Ammonium Sulfate	212	ALL	316 SS	Ferric Sulfate	300	ALL	304 SS	Sodium Bicarbonate	212	20%	316 SS
Amyl Acetate	300	ALL	304 SS	Formaldehyde	212	40%	316 SS	Sodium Bisulphite	212	20%	304 SS
Aniline	75		Monel	Formic Acid	300	ALL	316 SS	Sodium Bisulphate	212	20%	304 SS
Asphalt	250		304 SS	Freon	300		Steel	Sodium Carbinat	212	40%	316 SS
Atmosphere, (Industrial and Marine)			304 SS	Fluorine, Anhydrous	100		304 SS	Sodium Chloride	300	30%	Monel
Barium Compounds	SEE CALCIUM			Furfural	450		316 SS	Sodium Chromate	212	ALL	316 SS
Beer	70		304 SS	Gasoline	300		Steel	Salt or Brine	SEE SODIUM CHLORIDE		
Benzene (Benzol)	212		Steel	Glucose	300		304 SS	Sodium Cyanide	212	ALL	304 SS
Benzoic Acid	212	ALL	316 SS	Glue ph 6-8	300	ALL	304 SS	Sodium Hydroxide	212	30%	316 SS
Bleaching Powder	70	15.00%	Monel	Glycerine	212	ALL	Brass	Sodium Hypochlorite	75	10%	Hast. C
Borax	212	ALL	Brass	Hydrobromic Acid	212	ALL	Hast. C	Sodium Nitrate	212	40%	304 SS
Bordeaux Mixture	200		304 SS	Hydrochloric Acid (37-38%)	225	ALL	Hast. B	Sodium Nitrite	75	20%	316 SS
Baric Acid	400	ALL	316 SS	Hydrogen Chloride, Dry	500		304 SS	Sodium Phosphate	212	10%	Steel
Bromine	125	DRY	Monel	Hydrocyanic Acid	212	ALL	304 SS	Sodium Silicate	212	10%	Steel
Butane	400	ALL	Steel	Hydrofluoric Acid	212	60%	Monel	Sodium Sulfate	212	30%	316 SS
Butyl Alcohol	SEE ALCOHOLS			Hydrogen Fluoride, Dry	175		Steel	Sodium Sulfide	212	10%	316 SS
Butyric Acid	212		Hast. C	Hydrofluogillic Acid	225	40%	Monel	Sodium Sulfite	212	30%	304 SS
Calcium Bisulphite	75	ALL	Hast. C	Hydrogen Peroxide	125	10 - 100%	304 SS	Sodium Thiosulfate	212	ALL	304 SS
Calcium Chloride	212	ALL	Hast. C	Kerosene	300	ALL	Steel	Steam			304 SS
Calcium Hydraxide	300	20%	Hast. C	Lacquers & Thinners	300	ALL	304 SS	Stearic Acid	SEE FATTY ACIDS		
Calcium Hypochlorite	SEE BLEACHING POWDER			Lactic Acid	300	ALL	316 SS	Sugar Solutions	SEE GLUCOSE		
Carbolic Acid	SEE PHENOL			Lime	212	ALL	316 SS	Sulfur	500		304 SS
Carbon Dioxide, Dry	800	ALL	Brass	Linseed Oil	75	75	Steel	Sulfur Chloride	75	DRY	316 SS
Carbonated Water	212	ALL	304 SS	Magnesium Chloride	212	50%	Nickel	Sulfur Dioxide	500	DRY	316 SS
Carbonated Beverages	212		304 SS	Magnesium Hydroxide (or Oxide)	75	ALL	304 SS	Sulfur Trioxide	500	DRY	316 SS
Carbon Disulfide	200		304 SS	Magnesium Sulfate	212	40%	304 SS	Sulfuric Acid	212	10%	316 SS
Carbon Tetrachloride	125	ALL	Monel	Mercuric Chloride	75	10%	Hast. C	Sulfuric Acid	212	10-90%	Hast. B
Chlorine, Dry	100		Monel	Mercury	700	100%	Steel	Sulfuric Acid, Fuming	175		Hast. C
Chlorine, Moist	100	ALL	Monel	Methylene Chloride	212	ALL	304 SS	Sulfurous Acid	75	20%	316 SS
Chloroacetic Acid	212	ALL	Monel	Methyl Chloride, Dry	75		Steel	Titanium Tetrachloride	75	ALL	316 SS
Chloroform, Dry	212		Monel	Milk, fresh or sour	180		304 SS	Tannic Acid	75	40%	Hast. B
Chromic Acid	300	ALL	Hast. C	Molasses	SEE GLUCOSE			Toluene	75		Steel
Cider	300	ALL	304 SS	Natural Gas	70		304 SS	Trichloroacetic Acid	75	ALL	Hast. B
Citric Acid	212	ALL	Hast. C	Nitric Acid	75	ALL	304 SS	Trichlorethylene	300	DRY	Monel
Copper (10) Chloride	212	ALL	Hast. C	Nitric Acid	300	ALL	316 SS	Turpentine	75		316 SS
Copper (10) Nitrate	300	ALL	316 SS					Varnish	150		Steel
Copper (10) Sulfate	300	ALL	316 SS					Zinc Chloride	212	ALL	Hast. B
								Zinc Sulfate	212	ALL	316 SS

Material Selection

Material Properties

Name	Alloy Name	UNS Number	Burns Order Code	Nominal Composition	Recommended Maximum Operating Temp. Limit	KPSI (°F) *						
						-20 to 100	200	400	600	800	1000	1200
304 Stainless Steel	SS 304	S30400	02	18Cr - 8Ni Nickel based alloy with good corrosion resistance	1500°F 815°C	20	16.7	13.8	12.3	11.2	10.4	6.1
304L Stainless Steel	SS 304L	S30403	05	18Cr - 8Ni Low carbon grade of 304	800°F 425°C	16.7	14.3	11.7	10.4	9.7		
310 Stainless Steel	SS 310	S31000	27	25Cr - 20Ni Slightly better than 304 in high temp. applications	1500°F 815°C	20	20	19.9	18.5	17.4	9.9	2.5
316 Stainless Steel	SS 316	S31600	03	16Cr - 12Ni - 2Mo Highest corrosion resistance of the austenitic S.S.	1500°F 815°C	20	17.3	14.3	12.6	11.8	11.3	7.4
316L Stainless Steel	SS 316L	S31603	06	16Cr - 12Ni - 2Mo Low carbon grade of 316	850°F 454°C	16.7	14.2	11.7	10.4	9.6		
Aluminum 6061-T6	Al 6061	A96061	09	98Al - 1Mg - Si Good corrosion resistance	500°F 260°C	7.4	7.4	5.8				
Brass	-	-	13	Cu Commercial brass, unspecified	600°F 315°C							
Bronze (90% Copper, 10% Tin)	Alloy 220	C70600	23	90Cu - 10Ni Acid resistant	600°F 315°C	9.7	9.5	8.7	6			
Carbon Steel A105	CS A105	K03504	34	Fe used in water and steam-pressure containing systems	986°F 530°C	17.1	17.1	17.1	17.1	10.8	2.5	
Carbon Steel 1016 Alloy	CS 1016	G10160	04	Fe	986°F 530°C							
Chrome-Molly Grade F22	CM F22	K21590	08A	2Cr - 1Mo	500°F 260°C	17.1	17.1	16.6	16.6			
Chrome-Molly Grade F91	CM F91	K91560	08B	9Cr - 1Mo	500°F 260°C							
Duplex	Alloy 2205	S32205	21	22Cr - 5Ni - 3Mo - N	600°F 315°C	21.9	21.9	20.3	19.6			
Hastelloy® B	Alloy B-2	N10665	15	65Ni - 28Mo - 2Fe	800°F 425°C	26.7	26.7	24.6	23.1	21.9		
Hastelloy® C22	Alloy C-22	N06022	19	55Ni - 21Cr - 13Mo	1200°F 648°C	24.3	22.7	19.4	17.4	16.2	15.6	8.2
Hastelloy® C276	Alloy C-276	N10276	07	65Ni - 29Mo - 2Fe - 2Cr	800°F 425°C	26.7	26.7	24.5	22.4	21.1		
Inconel® 600	Alloy 600	N06600	12	72Ni - 15Cr - 8Fe Resistance to chloride-ion stress-corrosion cracking	1200°F 648°C	23.3	22.1	21.3	21.2	20.5	14.5	5.5
Inconel® 601	Alloy 601	N06601	31	62Ni - 24Cr - 13Fe Outstanding resistance to oxidation and other forms of high-temperature corrosion	2100°F 1148°C							
Inconel® 625	Alloy 625	N06625	24	60Ni - 22Cr - 9Mo - 3Cb Especially resistant to pitting and crevice corrosion	1600°F 870°C	26.7	24.9	22.6	21.1	20.1	19.5	19.3
Incoloy® 825	Alloy 825	N08825	35	42Ni - 21Cr - 3Mo - 2Cu	950°F 510°C	23.3	21.4	19.4	17.8	17	16.5	
MONEL®	Alloy 400	N04400	22	67Ni - 30Cu	900°F 482°C	20	19.4	17.9	17.3	14.5		
Nickel	Nickel 200	N02200	25	99Ni	600°F 315°C	10	10	10	10			
Super Duplex	SAF 2507®	S32750	17	25Cr - 7Ni - 4Mo - N	600°F 315°C	28.2	28	25.6	25			
Tantalum	Tantalum	R05200	29	Ta excellent corrosion resistance to most chemicals except hydrofluoric acid	1600°F 870°C							
Teflon	PTFE	n/a	11	Chemicals known to affect this material are highly reactive fluorinating agents and molten alkali	480°F 250°C							
Titanium Grade 2	Grade 2	R50400	14A	Ti	600°F 315°C	14.3	12.4	8.8	6.5			
Titanium Grade 7	Grade 7	R52400	14B	Ti - Pd	600°F 315°C	14.3	12.4	8.8	6.5			

* Values from ASTM Boiler and Pressure Vessel Code Section VIII - Maximum Allowable Stress Values, 1998

Custom solutions designed for your specific needs.

Burns Engineering has a long history of designing and building temperature products to meet the measurement needs of unique and varied applications. The products in this catalog were specifically developed to meet field requirements and allow for configured-to-order flexibility. Not sure what product is right for your application? Our application engineering group is here to help you select, configure, and/or custom design the right product for your specific needs.

Burns Engineering is a leading supplier of temperature measurement solutions for all your process and metrology applications.

Your processes require temperature measurement solutions that you can depend on. We understand that measurement accuracy, reliability and consistency are important to your success.

Temperature measurement is our business.

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Temperature Measurement Expert.®

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Thermowells



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RTD vs. Thermocouple

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RTD Accuracy

RTD Selection & Application

Optimizing Measurements



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