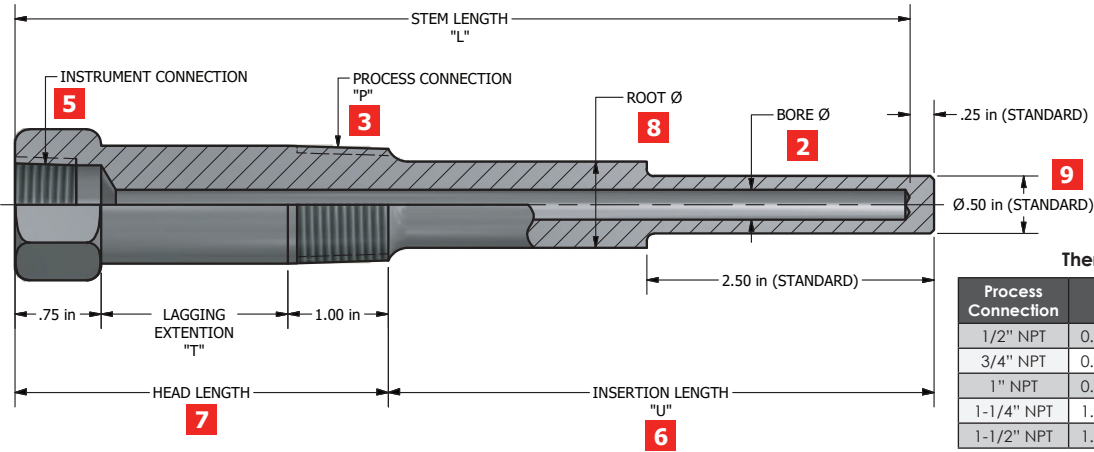


TW01

THREADED STEPPED THERMOWELL

As a pioneer and global leader in manufacturing thermowells, we ensure the highest quality and precision in every piece we manufacture. Whether they are custom-made for highly specialized measurements or they are standard configuration, each and every Thermowell is built to meet or exceed accepted standards.

Our threaded thermowells are designed and manufactured 100% in-house, and are made to accept standard and custom made thermometers, thermocouples, bulbs and RTD's.



Thermowell Dimensions		
Process Connection	Root Dia.	Tip Dia.
1/2" NPT	0.625" (15.9 mm)	0.500" (12.7 mm)
3/4" NPT	0.750" (19.1 mm)	0.500" (12.7 mm)
1" NPT	0.875" (22.2 mm)	0.500" (12.7 mm)
1-1/4" NPT	1.250" (31.8 mm)	0.500" (12.7 mm)
1-1/2" NPT	1.500" (38.1 mm)	0.500" (12.7 mm)

Please note: Various configurations may not be available, Mac-Weld will notify you if you have selected a incompatible part combination.

1	2	3	4	5	6	7	8	9	10
Thermowell Stem Style		Process Connection		Material		Material (Continued)		Instrument Connection	
Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
TW01	Stepped Stem	AA	1/2" NPT	L2	316/316L	R2	Alloy K500	AA	1/2" NPT
TW02	Straight Stem	AB	3/4" NPT	H2	304/304L	U5	Alloy X	AB	3/4" NPT
TW03	Tapered Stem	AC	1" NPT	H3	304H	C1	Aluminum 6061	AC	1" NPT
		AD	1-1/4" NPT	K2	310/310H	A1	Brass	AD	1-1/4" NPT
		AE	1-1/2" NPT	L3	316H	E4	Carbon Steel 1018	AE	1-1/2" NPT
		AF	1/2" NPSM	J1	317	E3	Carbon Steel 12L14	AF	1/2" NPSM
		AZ	1/2" ANPT	J3	317L	E1	Carbon Steel ASTM A105	AS	1/2" NPT TO CSA
		AR	1/4" NPT	M2	321/H	G1	Chrome-M-Moly F22	AZ	1/2" ANPT
		AT	1/8" NPT	M3	RA330	F1	Chrome-Moly-F11	AR	1/4" NPT
		AG	1/2" BSPP	N2	347/H	F6	Chrome-Moly-F5	AT	1/8" NPT
		AH	3/4" BSPP	N3	410	F7	Chrome-Moly-F9	AG	1/2" BSPP
		AI	1/2" BSPT	N4	446	F8	Chrome-Moly-F91	AH	3/4" BSPP
		AJ	3/4" BSPT	N5	HR160	Y2	CPVC	AI	1/2" BSPT
		AK	M14 x 1.5	S3	904L	F2	Duplex F51/2205	AJ	3/4" BSPT
		AL	M18 x 1.5	S4	AL-6XN	E2	LF2	AK	M14 x 1.5
		AM	M20 x 1.5	S2	Alloy 20	B1	Naval Brass	AL	M18 x 1.5
		AN	M24 x 1.5	S1	Alloy 200	Y1	PVC	AM	M20 x 1.5
		AO	M27 x 2.0	R1	Alloy 400	F4	Stainless F44/254 SMO	AN	M24 x 1.5
		AP	1/4" - 20 UNF	P1	Alloy 600	F3	Super Duplex F53/2507	AO	M27 x 2.0
		AQ	3/8" - 24 UNF	P3	Alloy 601	F5	Super Duplex F55	AP	1/4" - 20 UNF
		AU	1/2" - 20 UNF	P2	Alloy 625	W1	Teflon	AQ	3/8" - 24 UNF
		AV	5/8" - 18 UNF	Q3	Alloy 800/H/HT	T1	Ti Gr2	AU	1/2" - 20 UNF
		AW	3/4" - 16 UNF	Q1	Alloy 825	T2	Ti Gr5	AV	5/8" - 18 UNF
		AX	7/8" - 14 UNF	U2	Alloy B2	T3	Ti Gr7	AW	3/4" - 16 UNF
		AY	1" - 14 UNF	U3	Alloy B3	Z1	Zirc 702	AX	7/8" - 14 UNF
				U4	Alloy C-22			AY	1" - 14 UNF
				U1	Alloy C-276			AZ	3/8" NPT

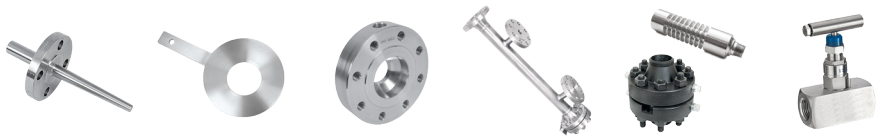
Custom sizes, connections and materials may not be listed, contact Mac-Weld today to find out more.



OPTIONS

- Brass Plug & Chain
 - Stainless Plug & Chain
 - Teflon Coating
 - Stellite Overlay
 - Kynar Coating
 - Dye Penetrant Test
 - Dye Penetrant Cap
 - Dye Penetrant Root (Optional)
 - Internal Hydrostatic Testing
 - External Hydrostatic Testing
- Material Test Report (MTR)
 - Nace MR0175
 - PMI
 - Tantalum Sheath (Flanged Only)
 - Velocity Calculation per PTC 19.3 TW-2010
 - X-Ray
 - O2 Cleaning
 - Post Weld Heat Treatment
 - UT bore concentricity
- UT phased array
 - CofC (Certificate of compliance)
 - COO (certificate of origin)
 - Traceability Index
 - ITP (Inspection Test Plan)
 - Stamping
 - SS tags
 - Visual dimensional report
 - Electro polish
 - Pickle and Passivation

North America's Leading Instrumentation Hardware Manufacturer



- Notes:
- 316/304 thermowells with 1/2", 3/4", and 1" NPT process connections are manufactured from round bar with milled wrench hex. Exotic material thermowells 3/4" NPT and under include a wrench hex, exotics 1" NPT are finished with 2 wrench flats. All thermowells with 1-1/4" and 1-1/2" NPT process connections are manufactured from round bar with 2 wrench flats.
 - Tapered length of 16 inches is standard
 - Thermowells with 1/2" NPT process connections have a hex length of 1" and external threaded area length of 3/4"



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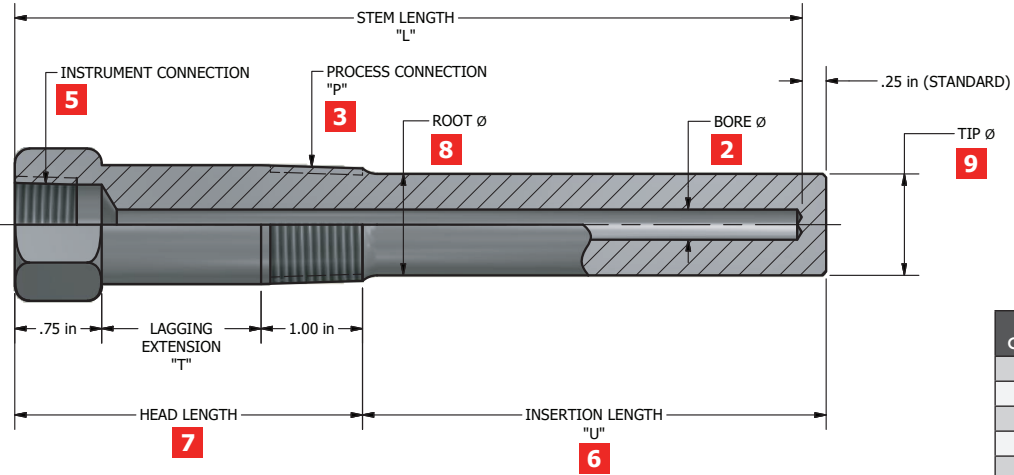


TW02

THREADED STRAIGHT THERMOWELL

As a pioneer and global leader in manufacturing Thermowells, we ensure the highest quality and precision in every piece we manufacture. Whether they are custom-made for highly specialized measurements or they are standard configuration, each and every thermowell is built to meet or exceed accepted standards.

Our threaded thermowells are designed and manufactured 100% in-house, and are made to accept standard and custom made thermometers, thermocouples, bulbs and RTD's.



Thermowell Dimensions	
Process Connection	Root Dia.
1/2" NPT	0.625" (15.9 mm)
3/4" NPT	0.750" (19.1 mm)
1" NPT	0.750" (19.1 mm)
1-1/4" NPT	1.250" (31.8 mm)
1-1/2" NPT	1.500" (38.1 mm)

Please note: Various configurations may not be available, Mac-Weld will notify you if you have selected a incompatible part combination.

1	2	3	4	5	6	7	8	9	10
Thermowell Stem Style		Process Connection		Material		Material (Continued)		Instrument Connection	
Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
TW01	Stepped Stem	AA	1/2" NPT	L2	316/316L	R2	Alloy K500	AA	1/2" NPT
TW02	Straight Stem	AB	3/4" NPT	H2	304/304L	U5	Alloy X	AB	3/4" NPT
TW03	Tapered Stem	AC	1" NPT	H3	304H	C1	Aluminum 6061	AC	1" NPT
		AD	1-1/4" NPT	K2	310/310H	A1	Brass	AD	1-1/4" NPT
		AE	1-1/2" NPT	L3	316H	E4	Carbon Steel 1018	AE	1-1/2" NPT
		AF	1/2" NPSM	J1	317	E3	Carbon Steel 12L14	AF	1/2" NPSM
		AZ	1/2" ANPT	J3	317L	E1	Carbon Steel ASTM A105	AS	1/2" NPT TO CSA
		AR	1/4" NPT	M2	321/H	G1	Chrome-M-Moly F22	AZ	1/2" ANPT
		AT	1/8" NPT	M3	RA330	F1	Chrome-Moly-F11	AR	1/4" NPT
		AG	1/2" BSPP	N2	347/H	F6	Chrome-Moly-F5	AT	1/8" NPT
		AH	3/4" BSPP	N3	410	F7	Chrome-Moly-F9	AG	1/2" BSPP
		AI	1/2" BSPT	N4	446	F8	Chrome-Moly-F91	AH	3/4" BSPP
		AJ	3/4" BSPT	N5	HR160	Y2	CPVC	AI	1/2" BSPT
		AK	M14 x 1.5	S3	904L	F2	Duplex F51/2205	AJ	3/4" BSPT
		AL	M18 x 1.5	S4	AL-6XN	E2	LF2	AK	M14 x 1.5
		AM	M20 x 1.5	S2	Alloy 20	B1	Naval Brass	AL	M18 x 1.5
		AN	M24 x 1.5	S1	Alloy 200	Y1	PVC	AM	M20 x 1.5
		AO	M27 x 2.0	R1	Alloy 400	F4	Stainless F44/254 SMO	AN	M24 x 1.5
		AP	1/4" - 20 UNF	P1	Alloy 600	F3	Super Duplex F53/2507	AO	M27 x 2.0
		AQ	3/8" - 24 UNF	P3	Alloy 601	F5	Super Duplex F55	AP	1/4" - 20 UNF
		AU	1/2" - 20 UNF	P2	Alloy 625	W1	Teflon	AQ	3/8" - 24 UNF
		AV	5/8" - 18 UNF	Q3	Alloy 800/H/HT	T1	Ti6 Gr2	AU	1/2" - 20 UNF
		AW	3/4" - 16 UNF	Q1	Alloy 825	T2	Ti6 Gr5	AV	5/8" - 18 UNF
		AX	7/8" - 14 UNF	U2	Alloy B2	T3	Ti6 Gr7	AW	3/4" - 16 UNF
		AY	1" - 14 UNF	U3	Alloy B3	Z1	Zirc 702	AX	7/8" - 14 UNF
				U4	Alloy C-22			AY	1" - 14 UNF
				U1	Alloy C-276			AZ	3/8" NPT

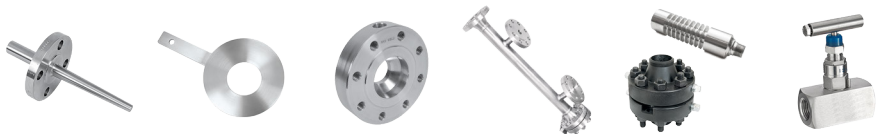
Custom sizes, connections and materials may not be listed, contact Mac-Weld today to find out more.



OPTIONS

- Brass Plug & Chain
 - Stainless Plug & Chain
 - Teflon Coating
 - Stellite Overlay
 - Kynar Coating
 - Dye Penetrant Test
 - Dye Penetrant Cap
 - Dye Penetrant Root (Optional)
 - Internal Hydrostatic Testing
 - External Hydrostatic Testing
- Material Test Report (MTR)
 - Nace MR0175
 - PMI
 - Tantalum Sheath (Flanged Only)
 - Velocity Calculation per PTC 19.3 TW-2010
 - X-Ray
 - O2 Cleaning
 - Post Weld Heat Treatment
 - UT bore concentricity
- UT phased array
 - CofC (Certificate of compliance)
 - COO (certificate of origin)
 - Traceability Index
 - ITP (Inspection Test Plan)
 - Stamping
 - SS tags
 - Visual dimensional report
 - Electro polish
 - Pickle and Passivation

North America's Leading Instrumentation Hardware Manufacturer



- Notes:
- 316/304 thermowells with 1/2", 3/4", and 1" NPT process connections are manufactured from round bar with milled wrench hex. Exotic material thermowells 3/4" NPT and under include a wrench hex, exotics 1" NPT are finished with 2 wrench flats. All thermowells with 1-1/4" and 1-1/2" NPT process connections are manufactured from round bar with 2 wrench flats.
 - Tapered length of 16 inches is standard
 - Thermowells with 1/2" NPT process connections have a hex length of 1" and external threaded area length of 3/4"



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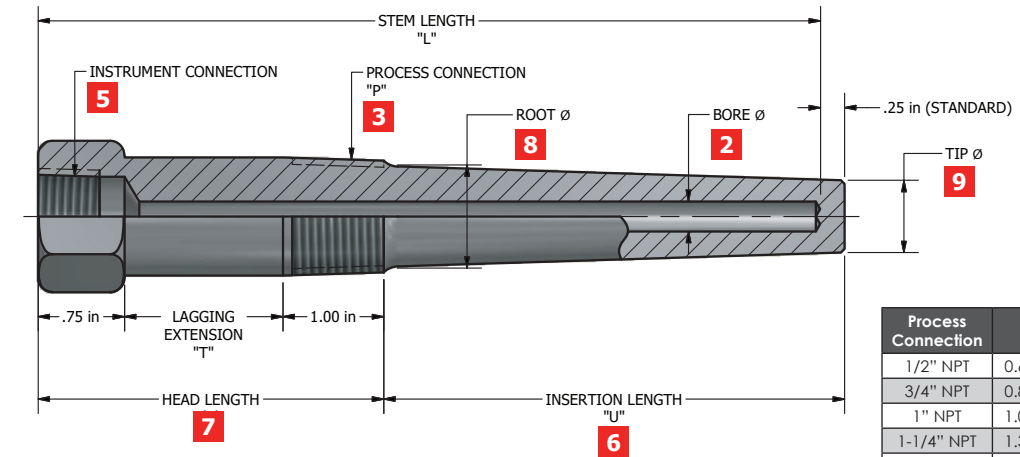
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 - Orifice Plates
 - Bleed & Flush Rings
- Level Chambers
 - Valves
 - Specialty Products



TW03 | THREADED TAPERED THERMOWELL

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Our threaded thermowells are designed and manufactured 100% in-house, and are made to accept standard and custom made thermometers, thermocouples, bulbs and RTD's.



Process Connection	Root Diameter	TIP Diameter (For 0.240 Bore)	TIP Diameter (For 0.385 Bore)
1/2" NPT	0.680" (17.3 mm)	0.625" (15.9 mm)	0.625" (15.9 mm)
3/4" NPT	0.875" (22.2 mm)	0.625" (15.9 mm)	0.750" (19.1 mm)
1" NPT	1.063" (27.0 mm)	0.625" (15.9 mm)	0.750" (19.1 mm)
1-1/4" NPT	1.375" (34.9 mm)	0.875" (22.2 mm)	0.875" (22.2 mm)
1-1/2" NPT	1.625" (41.3 mm)	1.00" (25.4 mm)	1.00" (25.4 mm)

Please note: Various configurations may not be available. Mac-Weld will notify you if you have selected a incompatible part combination.

1 Thermowell Stem Style

Code	Description
TW01	Stepped Stem
TW02	Straight Stem
TW03	Tapered Stem

2 Bore Size

Code	Description
A	0.260
B	0.385
C	0.515
D	0.203
E	0.375
F	0.390
G	0.343
M	0.406
N	0.280
O	0.302
P	0.315
R	0.276
U	0.394
V	0.354
X	0.437
K	0.703

3 Process Connection

Code	Description
AA	1/2" NPT
AB	3/4" NPT
AC	1" NPT
AD	1-1/4" NPT
AE	1-1/2" NPT
AF	1/2" NPSM
AZ	1/2" ANPT
AR	1/4" NPT
AT	1/8" NPT
AG	1/2" BSPP
AH	3/4" BSPP
AI	1/2" BSPT
AJ	3/4" BSPT
AK	M14 x 1.5
AL	M18 x 1.5
AM	M20 x 1.5
AN	M24 x 1.5
AO	M27 x 2.0
AP	1/4" - 20 UNF
AQ	3/8" - 24 UNF
AU	1/2" - 20 UNF
AV	5/8" - 18 UNF
AW	3/4" - 16 UNF
AX	7/8" - 14 UNF
AY	1" - 14 UNF

4 Material

Code	Description
L2	316/316L
H2	304/304L
H3	304H
K2	310/310H
L3	316H
J1	317
J3	317L
M2	321/H
M3	RA330
N2	347/H
N3	410
N4	446
N5	HR160
S3	904L
S4	AL-6XN
S2	Alloy 20
S1	Alloy 200
R1	Alloy 400
P1	Alloy 600
P3	Alloy 601
P2	Alloy 625
Q3	Alloy 800/H/HT
Q1	Alloy 825
U2	Alloy B2
U3	Alloy B3
U4	Alloy C-22
U1	Alloy C-276

Custom sizes, connections and materials may not be listed, contact

Custom sizes, connections and materials may not be listed, contact Mac-Weld today to find out more.



OPTIONS

- Brass Plug & Chain
- Stainless Plug & Chain
- Teflon Coating
- Stellite Overlay
- Kynar Coating
- Dye Penetrant Test
- Dye Penetrant Cap
- Dye Penetrant Root (Optional)
- Internal Hydrostatic Testing
- External Hydrostatic Testing
- Material Test Report (MTR)
- Nace MR0175
- PMI
- Tantalum Sheath (Flanged Only)
- Velocity Calculation per PTC 19.3 TW-2010
- X-Ray
- O2 Cleaning
- Post Weld Heat Treatment
- UT bore concentricity
- UT phased array
- CoC (Certificate of compliance)
- COO (certificate of origin)
- Traceability Index
- ITP (Inspection Test Plan)
- Stamping
- SS tags
- Visual dimensional report
- Electro polish
- Pickle and Passivation

4	Material <i>(Continued)</i>	
	Code	Description
	R2	Alloy K500
	U5	Alloy X
	C1	Aluminum 6061
	A1	Brass
	E4	Carbon Steel 1018
	E3	Carbon Steel 12L14
	E1	Carbon Steel ASTM A105
	G1	Chrome-M-Moly F22
	F1	Chrome-Moly-F11
	F6	Chrome-Moly-F5
	F7	Chrome-Moly-F9
	F8	Chrome-Moly-F91
	Y2	CPVC
	F2	Duplex F51/2205
	E2	LF2
	B1	Naval Brass
	Y1	PVC
	F4	Stainless F44/254 SMO
	F3	Super Duplex F53/2507
	F5	Super Duplex F55
	W1	Teflon
	T1	Ti1 Gr2
	T2	Ti1 Gr5
	T3	Ti1 Gr7
	Z1	Zinc 702

5	Instrument Connection	
	Code	Description
	AA	1/2" NPT
	AB	3/4" NPT
	AC	1" NPT
	AD	1-1/4" NPT
	AE	1-1/2" NPT
	AF	1/2" NPSM
	AS	1/2" NPT to CSA
	AZ	1/2" ANPT
	AR	1/4" NPT
	AT	1/8" NPT
	AG	1/2" BSPP
	AH	3/4" BSPP
	AI	1/2" BSPT
	AJ	3/4" BSPT
	AK	M14 x 1.5
	AL	M18 x 1.5
	AM	M20 x 1.5
	AN	M24 x 1.5
	AO	M27 x 2.0
	AP	1/4" - 20 UNF
	AQ	3/8" - 24 UNF
	AU	1/2" - 20 UNF
	AV	5/8" - 18 UNF
	AW	3/4" - 16 UNF
	AX	7/8" - 14 UNF
	AY	1" - 14 UNF
	AZ	3/8" NPT
	BA	3/4" Pipe (1.05" Dia.)
	BB	1" Pipe (1.315" Dia.)
	BC	1-1/4" OD
	BD	1-1/2" OD
	BE	1-3/4" OD
	BF	1-1/4" Pipe (1.660" Dia.)
	BG	1-1/2" Pipe (1.900" Dia.)
	BH	1/2" Pipe (0.840" Dia.)

6	Insert Length	
	Code	Description
	xxxxx	Imperial: 6.500" = 06500 Metric: 165.1 mm = 01651
	*U length => 100.000" or 10,000.0mm see sales person for custom part number	
7	Head Length	
	Code	Description
	xxxxx	Imperial: 1.75" = 01750 Metric: 44.5 mm = 00445
8	Root Diameter	
	Code	Description
	xxxxx	Imperial: 0.875" = 0875 Metric: 22.2 mm = 0222
9	Tip Diameter	
	Code	Description
	xxxxx	Imperial: 0.875" = 0875 Metric: 22.2 mm = 0222
10	Measurement	
	Code	Description
	I	Imperial
	M	Metric

Notes:

1. 316/304 thermowells with 1/2", 3/4", and 1" NPT process connections are manufactured from round bar with milled wrench hex.
Exotic material thermowells 3/4" NPT and under include a wrench hex, exotics 1" NPT are finished with 2 wrench flats.
All thermowells with 1-1/4" and 1-1/2" NPT process connections are manufactured from round bar with 2 wrench flats.
2. Tapered length of 16 inches is standard
3. Thermowells with 1/2" NPT process connections have a hex length of 1" and external threaded area length of 3/4"

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Revised (02/28/2025)