

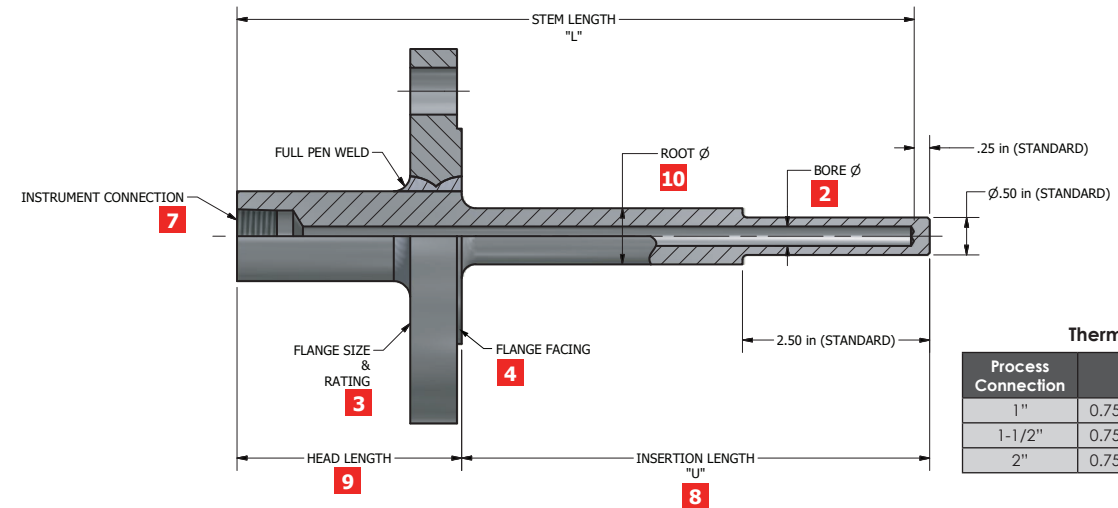
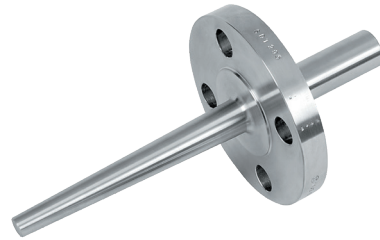
TW31 FLANGED STEPPED THERMOWELL



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

Our flanged thermowells are also available in a large variety of flange sizes, and configurations that include, but are not limited to, raised face, flat face, and ring type joint.



Process Connection	Root Dia.	Tip Dia.
1"	0.750" (19.1 mm)	0.500" (12.7 mm)
1-1/2"	0.750" (19.1 mm)	0.500" (12.7 mm)
2"	0.750" (19.1 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	Thermowell Stem Style	
Code	Description	
TW31	Stepped Stem	
TW32	Straight Stem	
TW33	Tapered Stem	

2	Bore Size	
Code	Description	
A	0.26	
B	0.385	
C	0.515	
D	0.203	
E	0.375	
F	0.39	
G	0.343	
K	0.703	
L	0.188	
M	0.406	
N	0.28	
O	0.302	
P	0.315	
R	0.276	
U	0.394	
V	0.354	
X	0.437	

3	Flange Size & Rating	
Code	Description	
CK	1" 150#	
CL	1" 300#	
CM	1" 600#	
CN	1" 900#-1500#	
CO	1" 2500#	
CU	1-1/2" 150#	
CV	1-1/2" 300#	
CW	1-1/2" 600#	
CX	1-1/2" 900#-1500#	
CY	1-1/2" 2500#	
CZ	2" 150#	
DA	2" 300#	
DB	2" 600#	
DC	2" 900#-1500#	
DD	2" 2500#	
DD	2" 2500#	
DJ	3" 150#	
DK	3" 300#	
DL	3" 600#	
DM	3" 900#	
DN	3" 1500#	
DO	3" 2500#	
DP	4" 150#	
DQ	4" 300#	
DR	4" 600#	
DS	4" 900#	
DT	4" 1500#	
DU	4" 2500#	
DV	5" 150#	
DW	5" 300#	
DX	5" 600#	
DY	5" 900#	
EB	6" 150#	
EC	6" 300#	
ED	6" 600#	
EE	6" 900#	
EH	8" 150#	
EI	8" 300#	
EN	10" 150#	
EQ	10" 900#	
ET	12" 150#	
EV	12" 600#	

4	Flange Facing	
Code	Description	
A	FF (flat face)	
B	RF (raised face)	
C	RTJ (ring type joint)	
D	RTF (RTJ no groove)	
E	HH (High Hub)	
F	DBRF (Double Raised Face)	

5	Stem Material	
Code	Description	
L2	316/316L	
H2	304/304L	
H3	304H	
K1	310	
K2	310H	
K3	310S	
L3	316H	
J1	317	
J3	317L	
M1	321	
M2	321H	
M3	RA330	
N1	347	
N2	347H	
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	
Q2	Alloy 800	
Q3	Alloy 800H	
Q4	Alloy 800HT	
Q1	Alloy 825	

5	Stem Material (Continued)	
Code	Description	
U3	Alloy B3	
U4	Alloy C-22	
U1	Alloy C-276	
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	Tit Gr2	
T2	Tit Gr5	
T3	Tit Gr7	
Z1	Zirc 702	

6	Flange Material	
Code	Description	
*See stem material list [5] for available flange material choices.		

7	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	
BN	1/4" NPSM	
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	
BO	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)	

8	Insertion Length	
Code	Description	
xxxx	Imperial: 6.500" = 06500	
	Metric: 165.1 mm = 01651	
*U length =>100,000" or 10,000.0mm see sales person for custom part number		

9	Head Length	
Code	Description	
xxxx	Imperial: 2.25" = 02250	
	Metric: 57.2 mm = 00572	

10	Root Diameter	
Code	Description	
xxxx	Imperial: 0.875" = 0875	
	Metric: 22.2 mm = 0222	

11	Tip Diameter	
Code	Description	
xxxx	Imperial: 0.875" = 0875	
	Metric: 22.2 mm = 0222	

12	Measurement	
Code	Description	
I	Imperial	
M	Metric	

OPTIONS

- Brass Plug & Chain
- Stainless Plug & Chain
- Teflon Coating
- Stellite Overlay
- Dye Penetrant Testing
- Internal Hydrostatic Testing
- External Hydrostatic Testing
- Material Test Report (MTR)
- PMI
- Velocity Calculation per PTC 19.3 TW-2010
- X-Ray
- O2 Cleaning
- Stamping and more....

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

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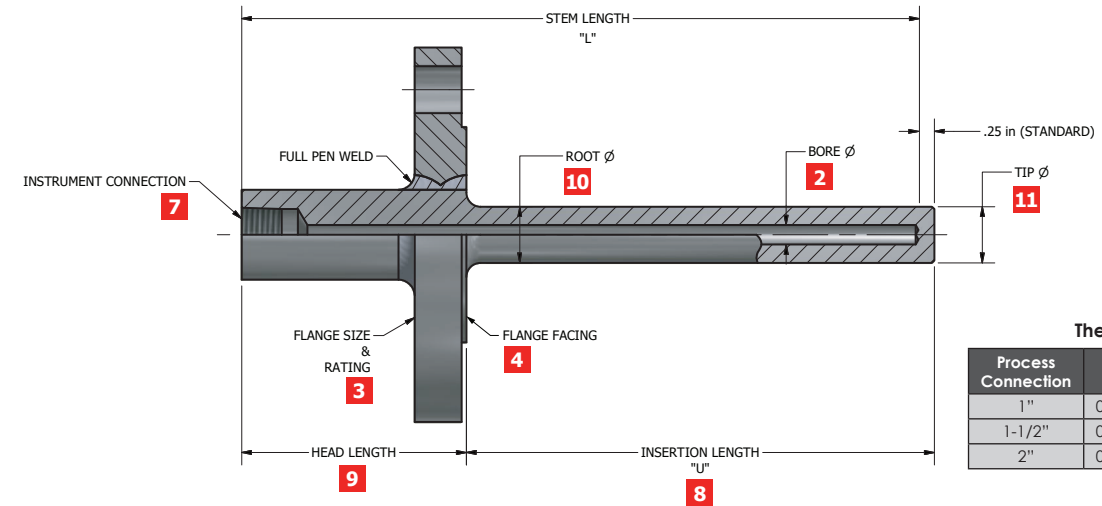
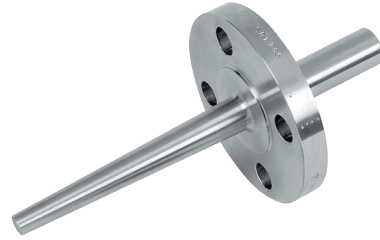
TW32 FLANGED STRAIGHT THERMOWELL



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Our flanged thermowells are also available in a large variety of flange sizes, and configurations that include, but are not limited to, raised face, flat face, and ring type joint.



Process Connection	Root/Tip Dia. .260	Root/Tip Dia. .385
1"	0.750" (19.1 mm)	0.875" (22.2 mm)
1-1/2"	0.750" (19.1 mm)	0.875" (22.2 mm)
2"	0.750" (19.1 mm)	0.875" (22.2 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
TW31	Stepped Stem
TW32	Straight Stem
TW33	Tapered Stem

2	Bore Size
Code	Description
A	0.26
B	0.385
C	0.515
D	0.203
E	0.375
F	0.39
G	0.343
K	0.703
L	0.188
M	0.406
N	0.28
O	0.302
P	0.315
R	0.276
U	0.394
V	0.354
X	0.437

3	Flange Size & Rating
Code	Description
CK	1" 150#
CL	1" 300#
CM	1" 600#
CN	1" 900#-1500#
CO	1" 2500#
CU	1-1/2" 150#
CV	1-1/2" 300#
CW	1-1/2" 600#
CX	1-1/2" 900#-1500#
CY	1-1/2" 2500#
CZ	2" 150#
DA	2" 300#
DB	2" 600#
DC	2" 900#-1500#
DD	2" 2500#
DD	2" 2500#
DJ	3" 150#
DK	3" 300#
DL	3" 600#
DM	3" 900#
DN	3" 1500#
DO	3" 2500#
DP	4" 150#
DQ	4" 300#
DR	4" 600#
DS	4" 900#
DT	4" 1500#
DU	4" 2500#
DV	5" 150#
DW	5" 300#
DX	5" 600#
DY	5" 900#
EB	6" 150#
EC	6" 300#
ED	6" 600#
EE	6" 900#
EH	8" 150#
EI	8" 300#
EN	10" 150#
EQ	10" 900#
ET	12" 150#
EV	12" 600#

4	Flange Facing
Code	Description
A	FF (flat face)
B	RF (raised face)
C	RTJ (ring type joint)
D	RTF (RTJ no groove)
E	HH (High Hub)
F	DBRF (Double Raised Face)

5	Stem Material
Code	Description
L2	316/316L
H2	304/304L
H3	304H
K1	310
K2	310H
K3	310S
L3	316H
J1	317
J3	317L
M1	321
M2	321/H
M3	RA330
N1	347
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
Q2	Alloy 800
Q3	Alloy 800H
Q4	Alloy 800HT
Q1	Alloy 825

5	Stem Material (Continued)
Code	Description
U3	Alloy B3
U4	Alloy C-22
U1	Alloy C-276
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	Tit Gr2
T2	Tit Gr5
T3	Tit Gr7
Z1	Zirc 702

6	Flange Material
Code	Description
*See stem material list [5] for available flange material choices.	

7	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
BN	1/4" NPSM
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
BO	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)

8	Insertion Length
Code	Description
xxxx	Imperial: 6.500" = 06500 Metric: 165.1 mm = 01651
*U length =>100,000" or 10,000.0mm see sales person for custom part number	

9	Head Length
Code	Description
xxxx	Imperial: 2.25" = 02250 Metric: 57.2 mm = 00572

10	Root Diameter
Code	Description
xxxx	Imperial: 0.875" = 0875 Metric: 22.2 mm = 0222

11	Tip Diameter
Code	Description
xxxx	Imperial: 0.875" = 0875 Metric: 22.2 mm = 0222

12	Measurement
Code	Description
I	Imperial
M	Metric

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
- Dye Penetrant Testing
- Internal Hydrostatic Testing
- External Hydrostatic Testing
- Material Test Report (MTR)
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- Stamping and more.....

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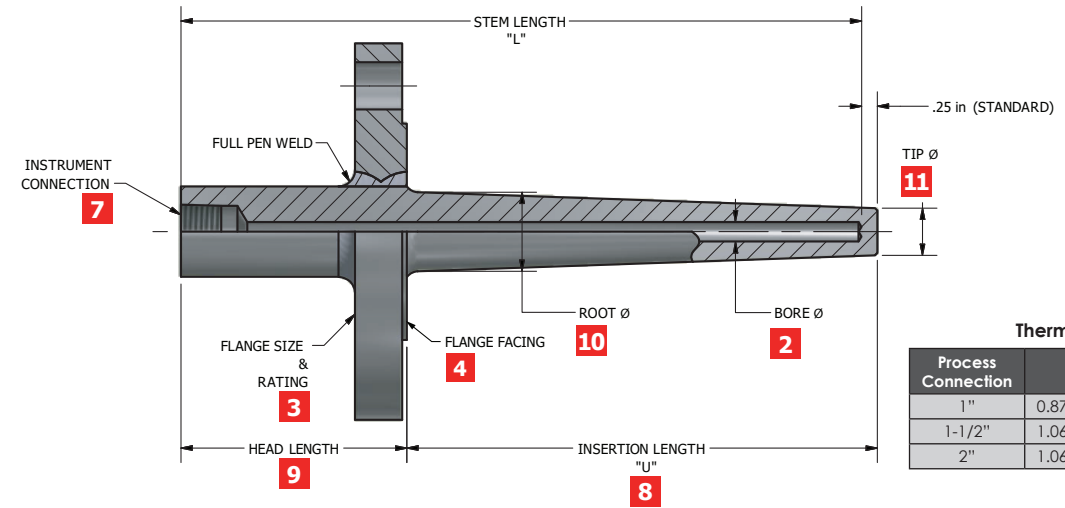
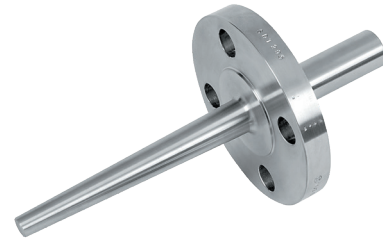
TW33 FLANGED TAPERED THERMOWELL



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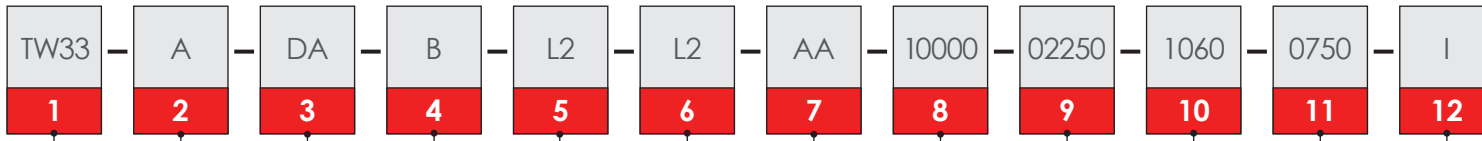
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Process Connection	Root Dia.	Tip Dia.
1"	0.875" (22.2 mm)	0.750" (19.1 mm)
1-1/2"	1.060" (26.9 mm)	0.750" (19.1 mm)
2"	1.060" (26.9 mm)	0.750" (19.1 mm)

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



Code	Description
TW31	Stepped Stem
TW32	Straight Stem
TW33	Tapered Stem

Code	Description
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B	0.385
C	0.515
D	0.203
E	0.375
F	0.39
G	0.343
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L	0.188
M	0.406
N	0.28
O	0.302
P	0.315
R	0.276
U	0.394
V	0.354
X	0.437

Code	Description
CK	1" 150#
CL	1" 300#
CM	1" 600#
CN	1" 900#-1500#
CO	1" 2500#
CU	1-1/2" 150#
CV	1-1/2" 300#
CW	1-1/2" 600#
CX	1-1/2" 900#-1500#
CY	1-1/2" 2500#
CZ	2" 150#
DA	2" 300#
DB	2" 600#
DC	2" 900#-1500#
DD	2" 2500#
DD	2" 2500#
DJ	3" 150#
DK	3" 300#
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DM	3" 900#
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DP	4" 150#
DQ	4" 300#
DR	4" 600#
DS	4" 900#
DT	4" 1500#
DU	4" 2500#
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DW	5" 300#
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EI	8" 300#
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EV	12" 600#

Code	Description
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B	RF (raised face)
C	RTJ (ring type joint)
D	RTF (RTJ no groove)
E	HH (High Hub)
F	DBRF (Double Raised Face)

Code	Description
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H3	304H
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K2	310H
K3	310S
L3	316H
J1	317
J3	317L
M1	321
M2	321H
M3	RA330
N1	347
N2	347H
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
Q2	Alloy 800
Q3	Alloy 800H
Q4	Alloy 800HT
Q1	Alloy 825

Code	Description
U3	Alloy B3
U4	Alloy C-22
U1	Alloy C-276
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
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Y2	CPVC
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Z1	Zirc 702

Code	Description
*See stem material list [5] for available flange material choices.	

Code	Description
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AB	3/4" NPT
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AD	1-1/4" NPT
AE	1-1/2" NPT
BN	1/4" NPSM
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
BO	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)
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BH	1/2" Pipe (0.840" Dia)

Code	Description
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*U length =>100,000" or 10,000.0mm see sales person for custom part number	
Code	Description
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Code	Description
xxxx	Imperial: 0.875" = 0875 Metric: 22.2 mm = 0222
Code	Description
I	Imperial
M	Metric

OPTIONS

- Brass Plug & Chain
- Stainless Plug & Chain
- Teflon Coating
- Stellite Overlay
- Dye Penetrant Testing
- Internal Hydrostatic Testing
- External Hydrostatic Testing
- Material Test Report (MTR)
- PMI
- Velocity Calculation per PTC 19.3 TW-2010
- X-Ray
- O2 Cleaning
- Stamping and more....

Notes:
1. Taper last 16 inches of stem is standard.

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