

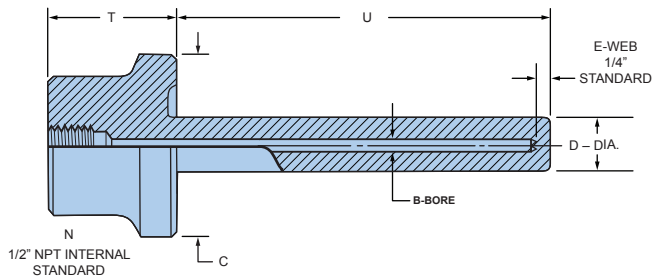
# CLAMP JOINT TYPE THERMOWELLS

Sandelius manufactures a complete line of clamp joint type thermowells. They can be supplied with matching hubs, rings and clamps or installed into existing Grayloc® hub type connectors using Grayloc rings and clamps. Clamp joint type thermowells are available in your choice of one or two piece constructions. In the one piece construction (Style H1), the entire thermowell including the hub is machined from a single piece of solid bar. The two piece construction (Style H2) is similar to standard flanged thermowells in that the mounting hub is welded to the thermowell stem.

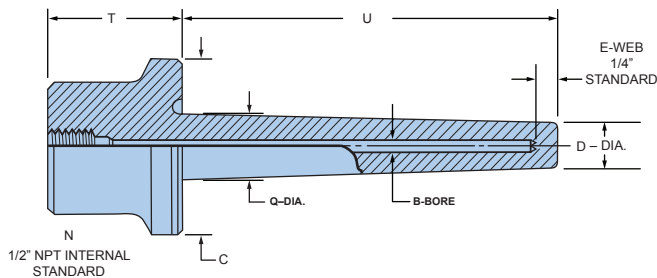
The most commonly used sizes are 1", 1 1/2" and 2", however they are available with any standard hub size. Shank and bore sizes other than those shown below are available on request.

## TYPICAL STYLE H1 ONE PIECE THERMOWELLS

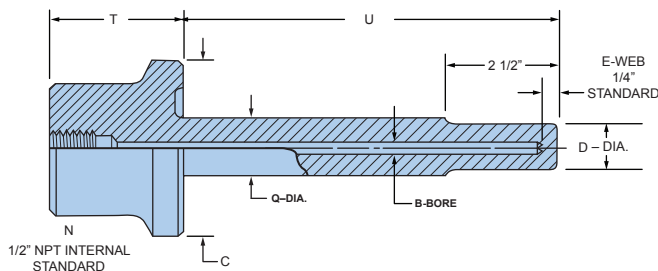
### STYLE H120 SERIES – STRAIGHT SHANK



### STYLE H130 SERIES – TAPERED SHANK

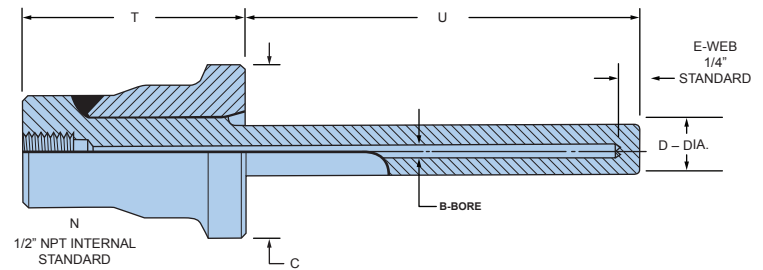


### STYLE H140 SERIES – STEPPED SHANK

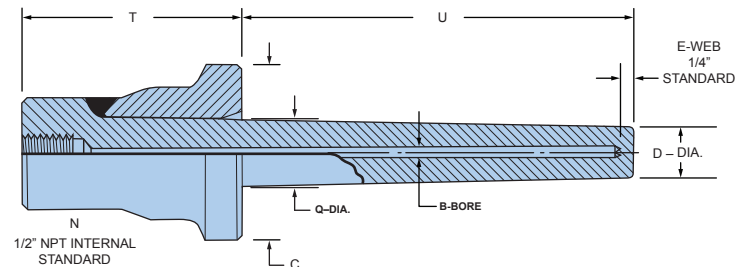


## TYPICAL STYLE H2 TWO PIECE WELDED THERMOWELLS

### STYLE H220 SERIES – STRAIGHT SHANK



### STYLE H230 SERIES – TAPERED SHANK



### STYLE H240 SERIES – STEPPED SHANK

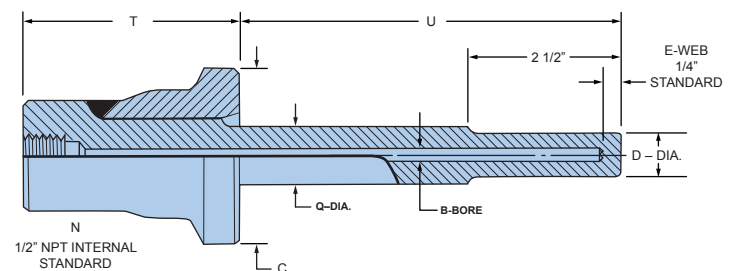


TABLE A

Designation	"D" Dia.
A	1/2"
B	5/8"
C	3/4"
D	49/64"
E	7/8"
F	1"

TABLE B: HUB SIZES

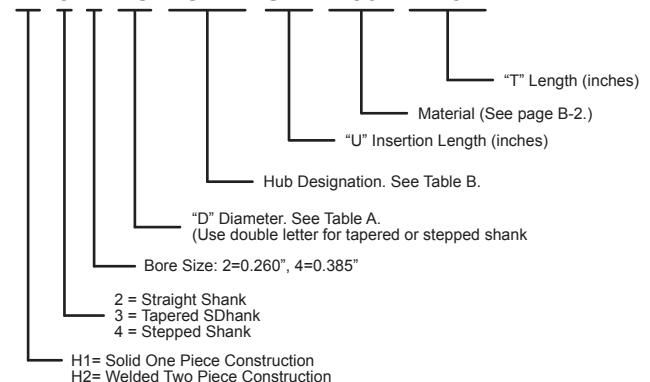
Pipe Size	Hub Designation	"C" Dim.	Seal Ring	Ring ID	Clamp Size
1"	1GR7	2	7	0.906	1
	1GR11	2	11	1.125	1
1 1/2"	1½GR11	3 1/8	11	1.125	1 1/2
	1½GR14	3 1/8	14	1.610	1 1/2
2"	2GR14	3 5/8	14	1.610	2
	2GR20	3 5/8	20	2.063	2

TABLE C – SEAL RINGS

Standard Seal Ring Material	Service Temperature Range
Carbon Steel – Teflon Coated	-50° to 350°F
Carbon Steel – MOS <sub>2</sub> Coated	-50° to 350°F
17-4 PH Stainless Steel – Teflon Coated	-452° to 450°F
17-4 PH Stainless Steel – MOS <sub>2</sub> Coated	-452° to 450°F

To Order Clamp Joint Type Thermowells Specify:

HI-3-2-FC-1GR11-U12-M304-T1-3/4



\*Grayloc is a registered trademark of Gray Tool Company

# SANDELIUS THERMOWELLS

## MATERIAL DESIGNATIONS FOR SANDELIUS THERMOWELLS

ORDER CODE	MATERIAL	ORDER CODE	MATERIAL	ORDER CODE	MATERIAL
M304	304 Stainless Steel	MF5	Alloy Steel A182-F5	M601	Inconel 601
M304L	304L Stainless Steel	MF9	Alloy Steel A182-F9	M602	Inconel 602
M304H	304H Stainless Steel	MF11	Alloy Steel A182-F11	M617	Inconel 617
M309	309 Stainless Steel	MF22	Alloy Steel A182-F22	M625	Inconel 625
M310	310 Stainless Steel	M6061	Aluminum 6061-T6	M686	Inconel 686
M316	316 Stainless Steel	M360	Brass 360	M718	Inconel 718
M316L	316L Stainless Steel	M1018	Carbon Steel C-1018	M750	Inconel X-750
M316H	316H Stainless Steel	MA105	Carbon Steel A105	MPVDF	Kynar
M317	317 Stainless Steel	M276	Hastelloy C-276	M400	Monel 400
M317L	317L Stainless Steel	M277	Hastelloy X	M405	Monel 405
M317H	317H Stainless Steel	M278	Hastelloy B-3	M500	Monel K-500
M321	321 Stainless Steel	M279	Hastelloy B-2	M200	Nickel 200
M347	347 Stainless Steel	M160	Haynes HR 160	MTFEM	Teflon, PTFE Mechanical Grade
M347H	347H Stainless Steel	M800	Incoloy 800	MTFEV	Teflon, PTFE Virgin Grade
M410	410 Stainless Steel	M800H	Incoloy 800H	M152	Titanium Grade 2
M446	446 Stainless Steel	M800HT	Incoloy 800HT	M155	Titanium Grade 5
M2205	2205 Duplex Stainless Steel	M825	Incoloy 825	MZ702	Zirconium R60702
MA20	Alloy 20 Stainless Steel	M600	Inconel 600	MY99	Other Material, Specify

## OPTIONAL FEATURES

The following are some of the optional features available on Sandelius thermowells. To order a thermowell with any of the listed options simply add the suffix (or suffixes by dashes) at the end of the thermowell part number. If an optional requirement must be in compliance with a precise specification or procedure, please reference this on your order. Consult factory for special requirements not listed below.

SUFFIX	OPTIONAL FEATURE
BC	Brass plug with stainless steel chain
SC	Stainless steel plug and chain
TAOS	Tantalum over sheath (Available on 420 series flanged type and 520 series Van Stone type)
	<b>Pressure Testing Options</b>
PT(xxxx) PT(xxxx) X(x)	Internal Hydrostatic Pressure Test at stated pressure (psi). Example PT1000 = Internal Pressure Test at 1,000 psi. If there is a specific time requirement, add an "X" then add the time required in minutes. Example: PT2000 X 15 = Internal Pressure Test at 2000 psi for 15 minutes
EP(xxxx) EP(xxxx) X(x)	External Hydrostatic Pressure Test at stated pressure (psi). Example EP1000 = External Pressure Test at 1,500 psi. If there is a specific time requirement, add an "X" then add the time required in minutes. Example: EP2500 X 15 = External Pressure Test at 2500 psi for 15 minutes
	<b>Weld Checking &amp; Performance Options</b>
DB	Dye Penetrant Check – both root and final pass of flange weld
DC	Dye Penetrant Check – final cover pass of flange weld
DR	Dye Penetrant Check – root pass of flange weld
RX	Radiographic examination (X-Ray) of flange weld
PW	Post weld heat treatment
QW	Qualified welder
WP	Weld procedure specification
UT	Ultrasonic Shear Wave Test
	<b>Material Testing Options</b>
MT	Material Test Reports
NA	NACE MR-01-75. <i>Thermowell must be made of a NACE recognized material.</i>
YNA	NACE MR-01-03. <i>Thermowell must be made of a NACE recognized material.</i>
PM	Positive material identification
	<b>Cleaning Options</b>
CO	Clean for Oxygen service
CC	Clean for Chlorine service
	<b>Special Certifications</b>
CR	Canadian Registration Number (Canadian province must be specified on order).
	<b>Special Coatings, Stellite or Alloy Welded Tips</b>
Consult Factory	Many types of coatings can be applied to thermowells to add corrosion and/or wear resistance (See page B-12 of this catalog). Thermowells can also be fitted with special welded-on alloy tips made of Stellite or other materials. The number of possible variations is virtually limitless. If you have a special design you need manufactured or would like to investigate possible new, special designs that may improve service life in your application, please call us. We will be glad to work with you.