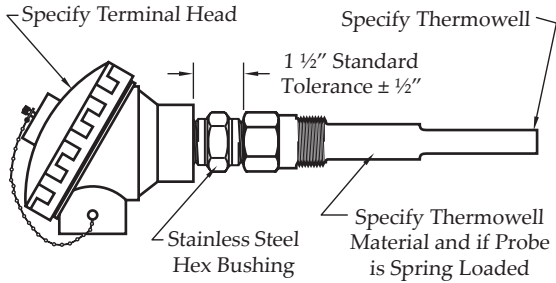


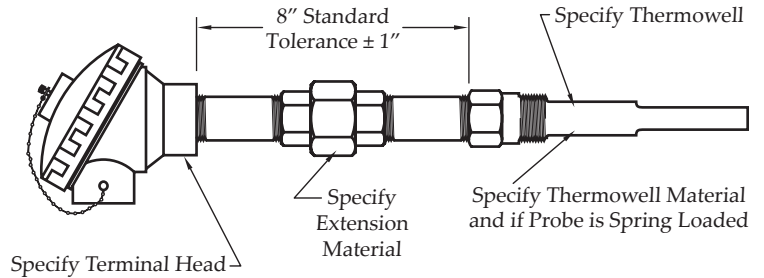
Industrial Process Thermocouples

THERMOCOUPLE WITH THREADED THERMOWELL

The TDW1 and TDW2 Style Thermocouple assemblies feature a thermocouple element protected by a drilled bar stock thermowell. Various well materials and terminal heads are available as options. See next page for well selections.



STYLE TDW1 - Nipple, Thermowell Assembly



STYLE TDW2 - Nipple, Union, Nipple, Thermowell Assembly

Table 1: Thermocouple Type

Thermocouple Type Codes				Limits of Error
E	J	K	T	Standard Limits
2	3	4	8	Special Limits

Table 2: Element Type

Code	Metal Type
O	MI Cable, 18 Gauge, Single, Specify Junction GND/UNG
P	MI Cable, 18 Gauge, Dual, Specify Junction GND/UNG

Table 3: Well Material

Code	Metal Type
4	304 Stainless Steel
6	316 Stainless Steel
B	Brass
R	Carbon Steel

Table 4: Extension Material (TDW2 Only)

Code	Nipple Material
K	Black Pipe, Schedule 40
Y	Galvanized Steel
4	304 Stainless Steel
6	316 Stainless Steel

Table 5: Spring Loaded Option

Code	Probe Tip Style
1	Fixed Fitting
2	Spring Loaded Fitting

Table 6: Screw Cover Terminal Heads

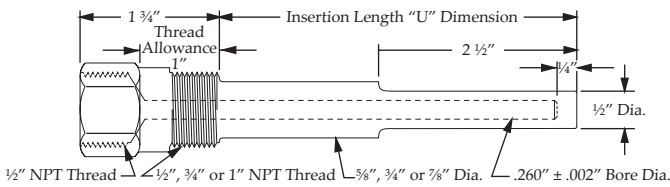
Code	Screw Cover Head Materials
A	1/2" NPT Conduit, Aluminum Head
B	3/4" NPT Conduit, Aluminum Head
C	1/2" NPT Conduit, Cast Iron Head
D	3/4" NPT Conduit, Cast Iron Head
M	1/4" NPT Conduit Connection, Miniature Plastic Head
P	1/2" NPT Conduit, Grey Delrin Head
W	1/2" NPT Conduit, White Polypropylene Head
Z	1/2" NPT Conduit, Explosion Proof Aluminum Head
Y	3/4" NPT Conduit, Explosion Proof Aluminum Head

Part Number Sequence

TDW2-KP-1207H6-Y1A

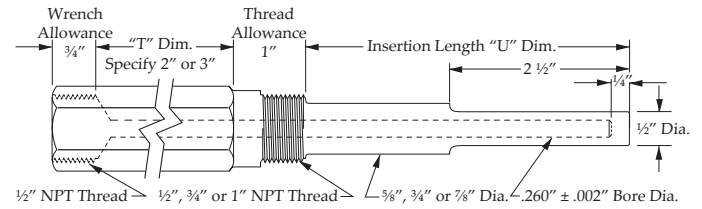
TDW2	-	K	P	-	1207H	6	-	Y	1	A
TDW2		Table 1	Table 2		See next page	Table 3		Table 4	Table 5	Table 6
Sensor Type & Style No.		Thermocouple Type	Element Type		Thermowell Number	Well Material		Extension Material	Spring Loaded Option	Terminal Heads

THERMOWELL STYLES



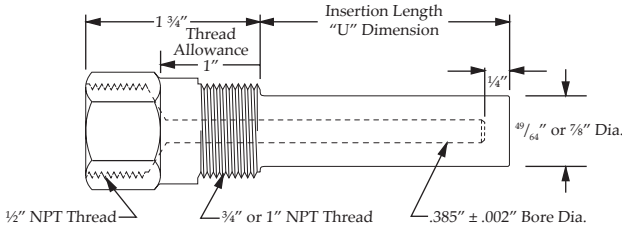
Standard Well - Stepped Shank

"U" Dim.	1/2" NPT	3/4" NPT	1" NPT
2 1/2"	1202H	1302H	1402H
4 1/2"	1204H	1304H	1404H
6"	12060	13060	14060
7 1/2"	1207H	1307H	1407H
10 1/2"	1210H	1310H	1410H
12"	12120	13120	14120
16 1/2"	1216H	1316H	1416H
22 1/2"	1222H	1322H	1422H



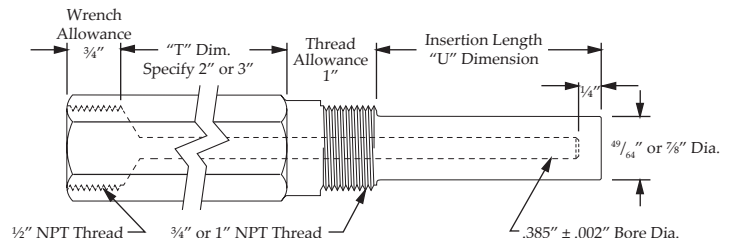
Lagging Extension Well - Stepped Shank

"U" Dim.	1/2" NPT	3/4" NPT	1" NPT
2 1/2"	2202H	2302H	2402H
4 1/2"	2204H	2304H	2404H
6"	22060	23060	24060
7 1/2"	2207H	2307H	2407H
10 1/2"	2210H	2310H	2410H
12"	22120	23120	24120
16 1/2"	2216H	2316H	2416H
22 1/2"	2222H	2322H	2422H



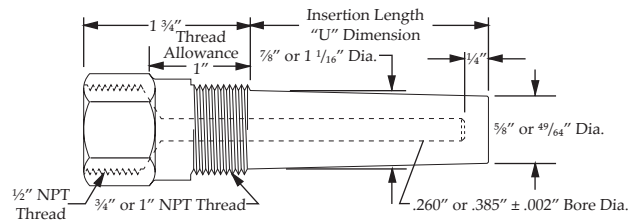
Standard Well - Straight Shank

"U" Dim.	3/4" NPT	1" NPT
2 1/2"	3302H	3402H
4 1/2"	3304H	3404H
6"	33060	34060
7 1/2"	3307H	3407H
10 1/2"	3310H	3410H
12"	33120	34120
16 1/2"	3316H	3416H
22 1/2"	3322H	3422H



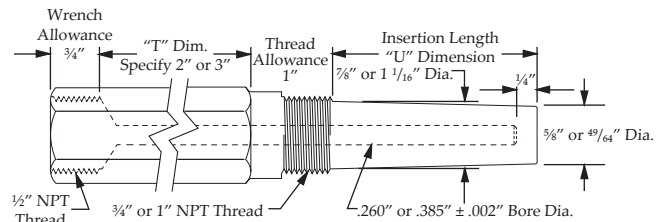
Lagging Extension Well - Straight Shank

"U" Dim.	3/4" NPT	1" NPT
2 1/2"	4302H	4402H
4 1/2"	4304H	4404H
6"	43060	44060
7 1/2"	4307H	4407H
10 1/2"	4310H	4410H
12"	43120	44120
16 1/2"	4316H	4416H
22 1/2"	4322H	4422H



Standard Well - Tapered Shank

"U" Dim.	3/4" NPT		1" NPT	
	.260" Bore	.385" Bore	.260" Bore	.385" Bore
2 1/2"	5302H	6302H	5402H	6402H
4 1/2"	5304H	6304H	5404H	6404H
6"	53060	63060	54060	64060
7 1/2"	5307H	6307H	5407H	6407H
10 1/2"	5310H	6310H	5410H	6410H
12"	53120	63120	54120	64120
16 1/2"	5316H	6316H	5416H	6416H
22 1/2"	5322H	6322H	5422H	6422H



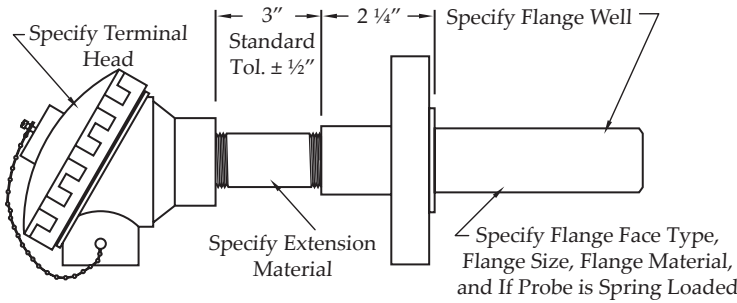
Lagging Extension Well - Tapered Shank

"U" Dim.	3/4" NPT		1" NPT	
	.260" Bore	.385" Bore	.260" Bore	.385" Bore
2 1/2"	7302H	8302H	7402H	8402H
4 1/2"	7304H	8304H	7404H	8404H
6"	73060	83060	74060	84060
7 1/2"	7307H	8307H	7407H	8407H
10 1/2"	7310H	8310H	7410H	8410H
12"	73120	83120	74120	84120
16 1/2"	7316H	8316H	7416H	8416H
22 1/2"	7322H	8322H	7422H	8422H

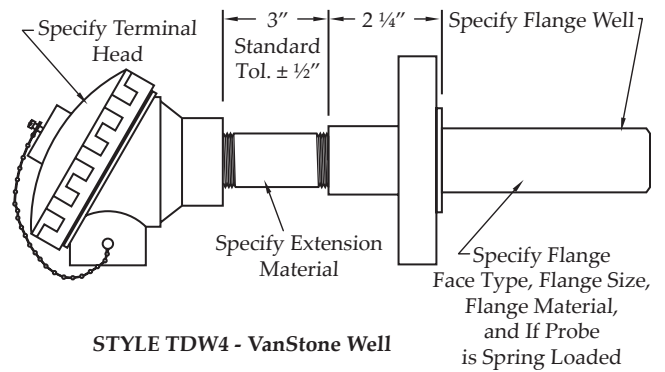
Industrial Process Thermocouples

THERMOCOUPLE WITH FLANGED THERMOWELL

The TDW3 and TDW4 Style Thermowell assemblies feature a thermocouple element protected by a flanged thermowell. Various well materials, flange materials, and sizes are available. See next page for well selection.



STYLE TDW3 - Fixed Flange Well



STYLE TDW4 - VanStone Well

Table 1: Thermocouple Type

Thermocouple Type Codes				Limits of Error
E	J	K	T	Standard Limits
2	3	4	8	Special Limits

Table 2: Element Type

Code	Metal Type
O	MI Cable, 18 Gauge, Single, Specify Junction GND/UNG
P	MI Cable, 18 Gauge, Dual, Specify Junction GND/UNG

Table 3: Flange Face Type

Code	Face Type
1	Raised Face
2	Flat Face

Table 4: Flange Size

Code	Flange Size (TDW3 Only)
D	1 1/2" Flange
E	2" Flange
F	2 1/2" Flange
G	3" Flange
H	4" Flange

Table 5: Well Material

Code	Metal Type
4	304 Stainless Steel
6	316 Stainless Steel
B	Brass
R	Carbon Steel

Table 6: Extension Material

Code	Nipple Material
K	Black Pipe, Schedule 40
Y	Galvanized Steel
4	304 Stainless Steel
6	316 Stainless Steel

Table 7: Spring Loaded Option

Code	Probe Tip Style
1	Fixed Fitting
2	Spring Loaded Fitting

Table 8: Screw Cover Terminal Heads

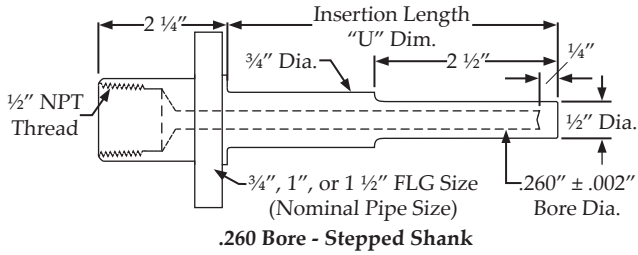
Code	Screw Cover Head Materials
A	1/2" NPT Conduit, Aluminum Head
B	3/4" NPT Conduit, Aluminum Head
C	1/2" NPT Conduit, Cast Iron Head
D	3/4" NPT Conduit, Cast Iron Head
Z	1/2" NPT Conduit, Explosion Proof Aluminum Head
Y	3/4" NPT Conduit, Explosion Proof Aluminum Head

Part Number Sequence TDW3-JP-F410701E4K1A

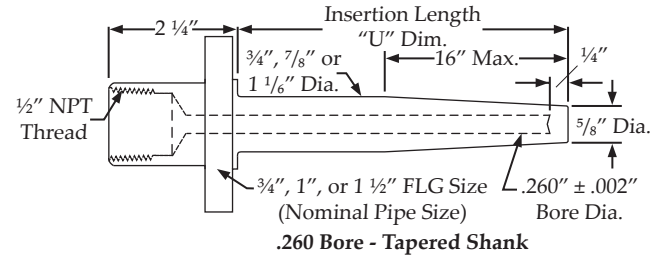
TDW3	-	J	P	-	F41070	1	E	4	K	1	A
TDW3		Table 1	Table 2	See next page	Table 3	Table 4	Table 5	Table 6	Table 7	Table 8	

Sensor Type Thermocouple Element Thermowell Flange Flange Well Extension Spring Loaded Terminal & Style No. Type Type Number Face Type Size Material Material Option Heads

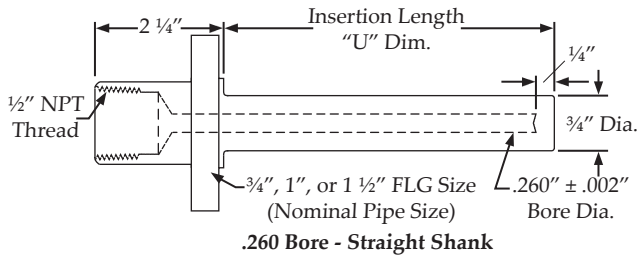
FLANGED THERMOWELL STYLES



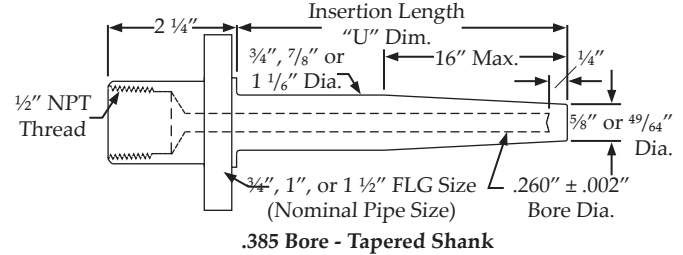
"U" Dim.	3/4" FLG Size	1" FLG Size	1 1/2" FLG Size
4"	F11040	F12040	F13040
7"	F11070	F12070	F13070
10"	F11100	F12100	F13100
13"	F11130	F12130	F13130
16"	F11160	F12160	F13160
22"	F11220	F12220	F13220



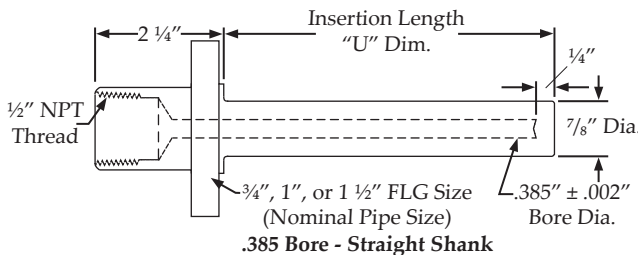
"U" Dim.	3/4" FLG Size	1" FLG Size	1 1/2" FLG Size
4"	F51040	F52040	F53040
7"	F51070	F52070	F53070
10"	F51100	F52100	F53100
13"	F51130	F52130	F53130
16"	F51160	F52160	F53160
22"	F51220	F52220	F53220



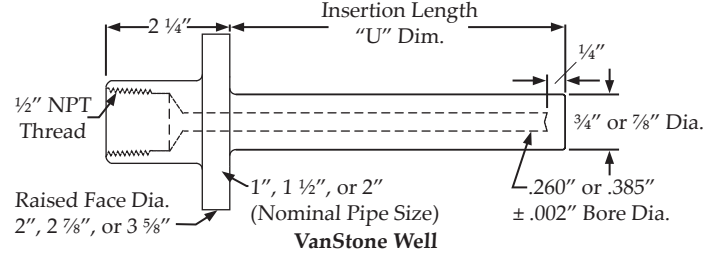
"U" Dim.	3/4" FLG Size	1" FLG Size	1 1/2" FLG Size
4"	F31040	F32040	F33040
7"	F31070	F32070	F33070
10"	F31100	F32100	F33100
13"	F31130	F32130	F33130
16"	F31160	F32160	F33160
22"	F31220	F32220	F33220



"U" Dim.	3/4" FLG Size	1" FLG Size	1 1/2" FLG Size
4"	F61040	F62040	F63040
7"	F61070	F62070	F63070
10"	F61100	F62100	F63100
13"	F61130	F62130	F63130
16"	F61160	F62160	F63160
22"	F61220	F62220	F63220



"U" Dim.	3/4" FLG Size	1" FLG Size	1 1/2" FLG Size
4"	F41040	F42040	F43040
7"	F41070	F42070	F43070
10"	F41100	F42100	F43100
13"	F41130	F42130	F43130
16"	F41160	F42160	F43160
22"	F41220	F42220	F43220



	"U" Dim.	1" NPS	1 1/2" NPS	2" NPS
.260 Bore	4"	F81040	F82040	F83040
	7"	F81070	F82070	F83070
	10"	F81100	F82100	F83100
	13"	F81130	F82130	F83130
	16"	F81160	F82160	F83160
	22"	F81220	F82220	F83220
.385 Bore	4"	F91040	F92040	F93040
	7"	F91070	F92070	F93070
	10"	F91100	F92100	F93100
	13"	F91130	F92130	F93130
	16"	F91160	F92160	F93160
	22"	F91220	F92220	F93220

Sensors

Industrial Process Thermocouples

JUNCTION TYPES



EXPOSED (E)
Joined and welded wires.
Specified where fast response is required.



GROUNDED (G)
Junction is seal welded integrally to the sheath.
Protects wire from corrosive conditions.



UNGROUND (U)
Junction is electrically insulated from seal welded sheath. Design helps prevent stray EMF's.



NECKDOWN (N)
Neckdown provides faster response.
Junction can be single or dual circuit and grounded or ungrounded.



PAD (P)
Pad is designed for welding directly to boiler or process tubes for sensing skin temperatures.

SHEATH DIAMETERS

Sheath Code	T	Y	W	A	B	V	C	D	E	F	H
Sheath Diameter	.020"	.032"	.040"	.062"	.125"	.156"	.188"	.250"	.313"	.375"	.500"
Wire Gauge	38	34	33	30	24	22	20	18	16	15	11
Max. Length	100'	150'	200'	400'	250'	200'	175'	100'	55'	40'	30'

PART NUMBER CODE DEFINITIONS

"L" Dimensions & "U" Dimensions				"A" Dimensions		Fractional Dimension Letter Code			
"L" and "U" dimensions are specified in whole inches and use a letter Code for the fraction. (Enter 0 when there is no fraction) Enter the three digit code per examples below:				"A" dimensions are specified in whole inches only. Enter the three digit code as follows:		1/16"	A	11/16"	L
						1/8"	B	3/4"	M
						3/16"	C	13/16"	N
						1/4"	D	7/8"	P
						5/16"	E	15/16"	R
						3/8"	F	1"	S
3"	030	10 5/8"	10K	9"	009	7/16"	G	0	No
4 1/2"	04H	12"	120	12"	012	1/2"	H	Fraction	
6 1/4"	06D	15 3/8"	15F	36"	036	9/16"	J		
7 7/8"	07P	17 3/4"	17M	144"	144	5/8"	K		
9 5/8"	09K	22 1/8"	22B						