

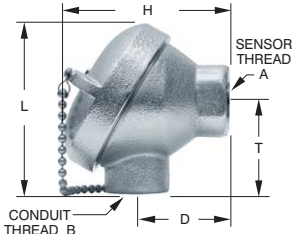

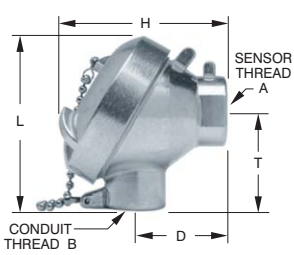
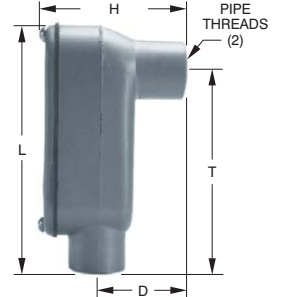
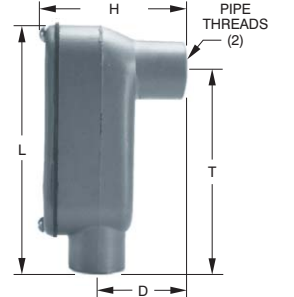
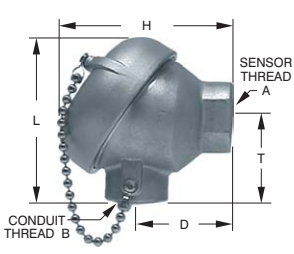
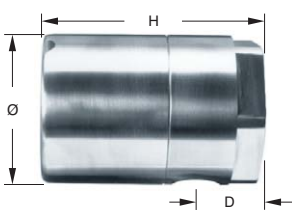


## Section 4: Accessories

- A wide selection of fittings and accessories adapt sensors to any installation
- Adjustable fittings combine with cut-to-length probes for off-the-shelf versatility
- Choose from a variety of materials for severe environments

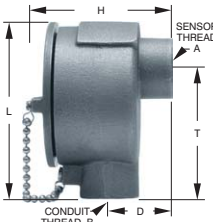
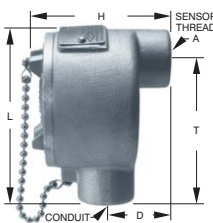
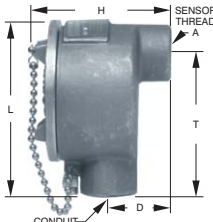
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## Connection Heads

Dimensions in inches (mm)	Body/gasket material	IP/NEMA Rating	Max. Temp.	Pipe thread codes	Temptran™ models	Approx. weight	Model
CH103 3.5 (89) H 3.5 (89) L 1.9 (48) D 1.9 (48) T 	Nickel-plated cast iron with SS chain/silicone gasket	IP55 Type 3 and 4	316°C (600°F)	P1, P2, P3, P4	All models except isolated	2.0 lbs. (0.9 kg.)	CH103
CH366 3.0 (76) H 3.7 (94) L 1.37 (35) D 1.9 (48) T 	White polypropylene (FDA approved)/neoprene gasket	IP55 Type 3 and 4	110°C (230°F)	P3 only	All models except isolated	0.2 lbs. (0.1 kg.)	CH366
CH359 3.5 (89) H 3.5 (89) L 2.0 (51) D 1.75 (44) T 	Aluminum/silicone gasket	IP55 Type 3 and 4	316°C (600°F)	P1, P2, P3, P4	All models except isolated	0.8 lbs. (0.4 kg.)	CH359
CH301 2.33 (59.2) H 4.25 (108) L 1.25 (31.8) D 3.60 (91.4) T 	Aluminum/neoprene gasket	IP55 Type 3 and 4	115°C (240°F)	CH301: P3 only	Miniature TT110 and TT111 models	0.5 lbs. (0.2 kg.)	CH301
CH302 2.60 (66.0) H 5.20 (132) L 1.50 (38.1) D 4.25 (108) T 				CH302: P2 only			CH302
CH360 3.5 (89) H 3.5 (89) L 2.0 (51) D 1.75 (44) T 	316 SS with silicone gasket	IP56 Type 3, 4 and 4X	316°C (600°F)	P1, P2, P3, P4	All models except isolated	1.8 lbs. (0.8 kg.)	CH360
CH335/CH339 2.5 (64) Ø 3.5 (89) H 0.95 (20) D 	300 series SS with Buna N O-ring	IP56 Type 3, 4 and 4X	121°C (250°F)	P3 only	All models except isolated	2.6 lbs. (1.2 kg.)	CH335
	300 series SS with Buna N O-ring and chain	IP56 Type 3, 4 and 4X	121°C (250°F)	P3 only	All models except isolated	2.6 lbs. (1.2 kg.)	CH339

# Accessories

## Explosionproof and flameproof

Dimensions in inches (mm)	Body/gasket material	Hazardous location rating	IP/NEMA Rating	Max. Temp.	Approx. weight	Model	
<b>Explosionproof/flameproof heads FM/CSA approved</b>							
CH104 4.60 (116.8) L 3.50 (88.9) H 1.63 (41.4) D 3.35 (85.1) T CH106 4.20 (106.7) L 3.50 (88.9) H 1.35 (34.3) D 3.22 (81.8) T		Copper-free aluminum/Buna-N O-ring	Division 1; Class I, Groups B, C, D; Class II, Groups E, F, G; Class I, Zone 1, AEx d IIC; Class I, Zone 1, Ex d IIC;	IP65 Type 3 and 4	121°C* (250°F)	1.5 lbs. (0.7 kg.)	CH104
		Stainless steel/Buna-N O-ring	T6 (Ta = 40°C), T2 (Ta = 260°C)	IP66 Type 4X	121°C* (250°F)	2.4 lbs. (1.1 kg.)	CH106
<b>Explosionproof heads FM/CSA approved</b>							
4.60 (116.8) L 3.60 (91.4) H 1.63 (41.4) D 3.70 (96.0) T		Copper-free aluminum	Division 1; Class I, Groups A, B, C, D; Class II, Groups E, F, G;	IP54, Type 3	260°C (500°F)	1.4 lbs. (0.6 kg.)	CH405
		Copper-free aluminum/Buna-N O-ring	Class III (FM approved only)	IP65 Type 3 and 4	121°C (250°F)		CH407
		Copper-free aluminum, gray epoxy coat, no chain/ Buna-N O-ring	Division 1; Class I, Groups B, C, D; Class II, Groups E, F, G	IP66 Type 4X		CH342	
		Copper-free aluminum, gray epoxy coat, with chain/Buna-N O-ring				CH343	
		<b>Note: The following models have lower cost but no FM/CSA approval or label.</b>					
		Aluminum/Buna-N O-ring	Division 1; Class I, Groups B, C, D; Class II, Groups E, F, G; Class III	IP65 Type 3 and 4	121°C (250°F)	1.4 lbs. (0.6 kg.)	CH330
		Aluminum with FDA approved white epoxy coat, no chain/Buna-N O-ring		IP66 Type 4X		CH328	
<b>Flameproof heads CENELEC/ATEX approved <math>\text{Ex}</math> II 2G EEx d IIC</b>							
4.49 (114) L 3.60 (91.4) H 1.63 (41.4) D 3.78 (96.0) T		Copper-free aluminum/ Buna-N O-ring	Zone 1, Group IIC	IP65	40°C (104°F)	1.4 lbs. (0.6 kg.)	CH357
		Copper-free aluminum, epoxy coated/Buna-N O-ring	Zone 1, Group IIC	IP66			CH358

\*Maximum temperature increases to 500°F (260°C) if O-ring is removed. Environmental rating drops to Type 3, IP54.

▲ All Temptran™ models may be used with all models on this page.

## How to order connection heads

CH104	<b>Model number:</b>		
P2	<b>Pipe thread code:</b>	<b>Thread A</b>	<b>Thread B</b>
	P1 =	3/4 - 14	1/2 - 14
	P2 =	3/4 - 14	3/4 - 14
	P3 =	1/2 - 14	1/2 - 14
	P4 =	1/2 - 14	3/4 - 14
T	<b>Connection type:</b>		
	T = Terminal board for wires AWG 14 or smaller		
	W = Wire nuts for wires AWG 14 to 22		
4	<b>Number of terminal posts or wire nuts:</b>		
	0, 4 or 6		
	T0: transmitter mounting hardware		
	W0: empty enclosure		
	T4: N/A on CH103, CH331, CH335, CH339, CH359, CH360		
CH104P2T4 ← Sample P/N			

## How to order replacement terminal boards

Model	4-position board	6-position board	Model	4-position board	6-position board
CH103		AC100427	CH357	AC1048	AC1039
CH104	AC1048	AC1039	CH358	AC1048	AC1039
CH106	AC1048	AC1039	CH359		AC100427
CH301	AC101377T4	AC101377T6	CH360		AC100427
CH302	AC101377T4	AC101377T6	CH405	AC1048	AC1039
CH328	AC1048	AC1039	CH407	AC1048	AC1039
CH330	AC1048	AC1039			
CH331		AC100427			
CH335		AC100427			
CH339		AC100427			
CH342	AC1048	AC1039			
CH343	AC1048	AC1039			







### 8 position terminal boards


These are available on some models. Contact Minco for details.

## Spring-Loaded Holders

Spring-loaded holders provide a quick and simple installation of probe sensors – pull out and twist the knob, insert the probe until it bottoms out, and release the knob. Spring pressure holds the probe tip in contact with the measuring surface for faster response and more reliable measurements. Many models feature a rubber O-ring that doesn't crimp the probe but prevents oil leakage to 50 psi (3.4 bar) at up to 260°C. High temperature models are usable to 450°C. Nylon versions provide electrical insulation.

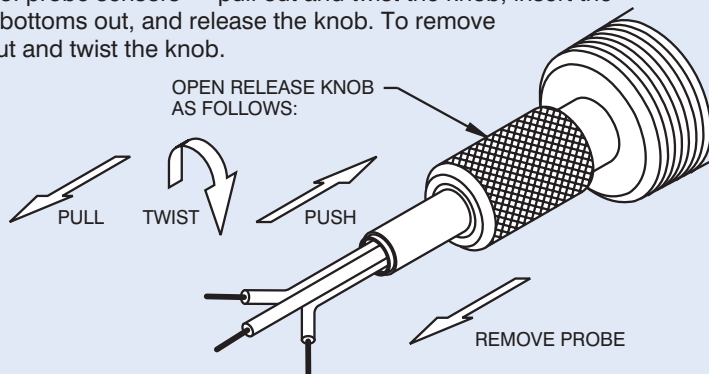
Accessories

Fluoroelastomer O-ring seal: 50 psi pressure rated fluid seal									
	Body material	Temperature range	Thread "CH"	Process thread	Hex size	Adder "A" (Total length)	Probe Ø	Model	
	300 series stainless steel	-40 to 260°C (-40 to 500°F)	¾ - 14 NPT	½ - 14 NPT	1 ⅛" (29 mm)	3.6" (91 mm)	0.188"	FG114-1	
							0.215"	FG110-1	
							0.250"	FG113-1	
	316 stainless steel	-40 to 260°C (-40 to 500°F)	¾ - 14 NPT	½ - 14 NPT	1 ⅛" (29 mm)	3.6 (91 mm)	0.188"	FG914	
							0.215"	FG912	
							0.250"	FG911	
	Nylon	-40 to 120°C (-40 to 248°F)	¾ - 14 NPT	½ - 14 NPT	1" (25 mm) wrench flats	3.6" (91 mm)	0.188"	FG314	
							0.215"	FG310	
							0.250"	FG313	
	300 series stainless steel	-40 to 260°C (-40 to 500°F)	½ - 14 NPT	½ - 14 NPT	⅞" (22 mm)	2.6" (66 mm)	0.125"	FG216	
							0.188"	FG214	
							0.215"	FG210	
							0.250"	FG213	
							6.0 mm	FG215	
	300 series stainless steel	-40 to 260°C (-40 to 500°F)	None	⅝ - 27 NPT	⅝" (16 mm)	3.6" (91 mm)	2.8" (71 mm)	0.125"	FG116
							0.188"	FG112	
							0.215"	FG111	
	300 series stainless steel	-40 to 260°C (-40 to 500°F)	None	¼ - 18 NPT	⅝" (16 mm)	1.9" (48 mm)	0.250"	FG117	
							0.188"	FG101072	
							0.215"	FG101078	
							0.250"	FG101080	

High temperature: No pressure rating or fluid seal								
	Body material	Temperature range	Thread "CH"	Process thread	Hex size	Adder "A" (Total length)	Probe Ø	Model
 (Set screw installation)	300 series stainless steel	-40 to 450°C (-40 to 842°F)	½ - 14 NPT	½ - 14 NPT	⅞" (22 mm)	2.3" (58 mm)	0.188"	FG801
							0.215"	FG802
							0.250"	FG810

### Exclusive Minco user-friendly design!

Minco offers spring-loaded holders to provide a quick and simple installation and removal of probe sensors — pull out and twist the knob, insert the probe until it bottoms out, and release the knob. To remove probe, pull out and twist the knob.



**IN STOCK**

All fittings shown



## Fluid Immersion Fittings

Install probes directly into fluid streams and pressure vessels. Simply position the fitting on the probe and tighten the sealing nut.

Fluid seal fittings are best for moderate temperatures and pressures. Pressure fittings, constructed of stainless steel, can withstand corrosive media and greater extremes of pressure and temperature.



Be sure to check the pressure ratings of probes intended for direct immersion.

### Fluid seal fittings to 260°C (500°F)

	Body material	Thread "CH"	Process thread	Adder "A" (Total length)	Probe Ø	Model
	Brass	None	1/8" -27 NPT	1.2" min. (31 mm)	0.188"	FG143
		None	1/4" -18 NPT			FG140
		None	1/8" -27 NPT		0.215"	FG126
		None	1/4" -18 NPT			FG120
		None	1/8" -27 NPT			FG151
		None	1/4" -18 NPT			FG130
	Stainless steel	1/2" -14 NPT	1/2" -14 NPT	2.4" (61 mm)	0.188"	FG142
					0.215"	FG122
					0.250"	FG132

▲ Fluid seal fittings are rated to 200 psi (17 bar) when using the repositionable silicone rubber O-ring. They are rated to 500 psi (34 bar) when using the non-repositionable compression ring. These fittings come with both the O-ring and the compression ring.

### Pressure fittings to 871°C (1600°F)

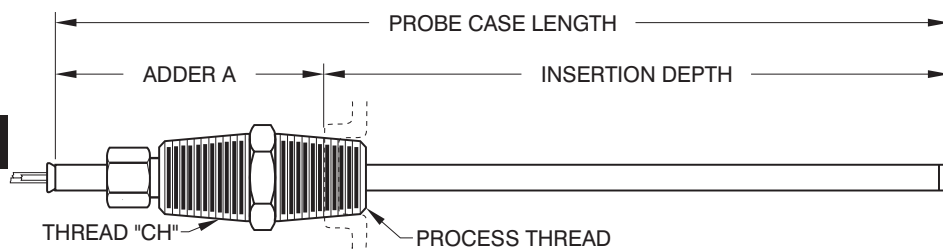
	Body material	Thread "CH"	Process thread	Adder "A" (Total length)	Probe Ø	Model
	316 stainless steel	None	1/8" -27 NPT	1.5" (39 mm)	0.188"	FG141T3P2
		None	1/4" -18 NPT			FG141T3P4
		None	1/2" -14 NPT			FG141T3P8
		None	1/8" -27 NPT		0.250"	FG141T4P2
		None	1/4" -18 NPT			FG141T4P4
		None	1/2" -14 NPT			FG141T4P8
		1/2" -14 NPT	1/2" -14 NPT	2.4" (61 mm)	0.250"	FG145T4

▲ Pressure fittings are rated to 1500 psi (103 bar) at 25°C/77°F, reducing to 500 psi (34 bar) at 630°C/1166°F. The probe cannot be repositioned after installation.

To determine the ideal probe length add the insertion depth to the adder A for the fitting you will use.

**IN STOCK**

All fittings shown





## Economy Thermowells

Thermowells protect probes from pressure, flow, and corrosion. The models on this page have integral fittings for probe and connection head mounting.

Immerse the thermowell at least 2.5" (65 mm) for accurate readings. The well should extend beyond the center of the fluid stream without touching the opposite wall. Installation in an elbow or tee may be necessary for sufficient immersion in small pipes.

For fastest time response, Minco can furnish thermowells with heat sink compound in the tip. This eliminates the air gap between the probe and inside wall of the well and can reduce time constant by as much as 50%. Order AC101750.

### Economy thermowells

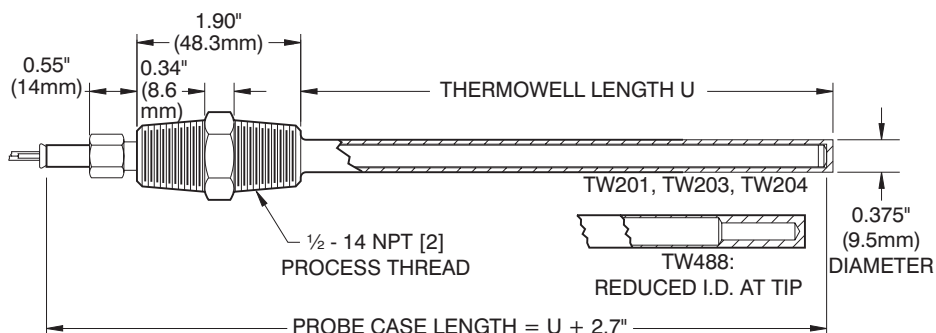
Use with tip-sensitive probes from section 3	Body material	Temp limit	Pressure rating	Thread "CH"	Process thread	Hex size	Standard U dimension	Probe Ø	Model
	300 series stainless steel	260°C (500°F)	1000 psi (69.9) bar	½ -14 NPT	½ -14 NPT	7/8" (22 mm)	0.1" increments to 48"	0.188"	TW204
	Nickel-plated brass sealing nut w/ brass compression ring							0.215"	TW201
								0.250"	TW203

### HVAC thermowells

Use with HVAC probes on page 9-7	Body material	Temp limit	Pressure rating	Thread "CH"	Process thread	Hex size	Standard U dimension	Model
	316 stainless steel Nickel-plated brass sealing nut w/silicone rubber O-ring	260°C (500°F)	1880 psi (129.7) bar	½ -14 NPT	½ -14 NPT	7/8" (22 mm)	3.0, 6.0, 12.0, and 18.0". Other lengths are available.	TW488

### How to order

TW203	<b>Model number</b>
U	
60	<b>Thermowell length U:</b> Specify in 0.1" increments (Ex: 60 = 6.0 inches)
TW203U60 ← Sample P/N	



**IN STOCK**

TW488: 3.0, 6.0"



REDUCED TIP



TAPERED

## Heavy Duty Thermowells

Protect probes from pressure, flow, and corrosive fluids. Thermowells on this page are machined from solid bar stock. Specify reduced tip style for fast response, tapered style for maximum rigidity in high flow conditions.

Immerse the thermowell at least 2.5" (65 mm) for accurate readings. The well should extend beyond the center of the fluid stream without touching the opposite wall. Installation in an elbow or tee may be necessary for sufficient immersion in small pipes.

Spring-loaded probe installation is recommended, using either spring-loaded holders or bayonet mount probes. 0.250" diameter probes provide the best fit.

For fastest time response, Minco can furnish thermowells with heat sink compound in the tip. This eliminates the air gap between the probe and inside wall of the well and can reduce time constant by as much as 50%. Order AC101750.

Contact Minco for other well styles and materials.

### Reduced tip thermowells

#### Temperature limit:

Stainless steel: 900°C (1650°F).

Monel: 538°C (1000°F).

**Standard U dimensions:** 2.5, 4.5, 6.0, 7.5, 8.0, 10.5, 13.5, 16.5, and 22.5". Other dimensions available.

Material	Process thread (NPT)		
	½ - 14	¾ - 14	1 - 11½
304 SS	TW239	TW228	TW238
316 SS	TW222	TW248	TW234
Monel	TW1204	TW447	TW1231
<b>Dia. Q</b>	0.625" (16 mm)	0.750" (19 mm)	0.875" (22 mm)
<b>Hex</b>	1 ⅛" (29 mm)		1 ⅜" (35 mm)

### Tapered thermowells

#### Temperature limit:

Stainless steel: 900°C (1650°F).

**Standard U dimensions:** 2.5, 4.5, 6.0, 7.5, 8.0, 10.5, 13.5, 16.5, and 22.5". Other dimensions available.

Material	Process thread (NPT)	
	¾ - 14	1 - 11½
304 SS	TW477	TW252
316 SS	TW1218	TW1237
<b>Dia. Q</b>	0.875" (22 mm)	1.06" (27 mm)
<b>Hex</b>	1 ⅛" (29 mm)	1 ⅜" (35 mm)

### Pressure rating

Material	Temperature		
	21°C 70°F	538°C 1000°F	650°C 1200°F
304 SS	7000 psi 483 bar	4500 psi 310 bar	1650 psi 114 bar
316 SS	7000 psi 483 bar	5100 psi 352 bar	2500 psi 172 bar
Monel	6500 psi 448 bar	1500 psi 103 bar	

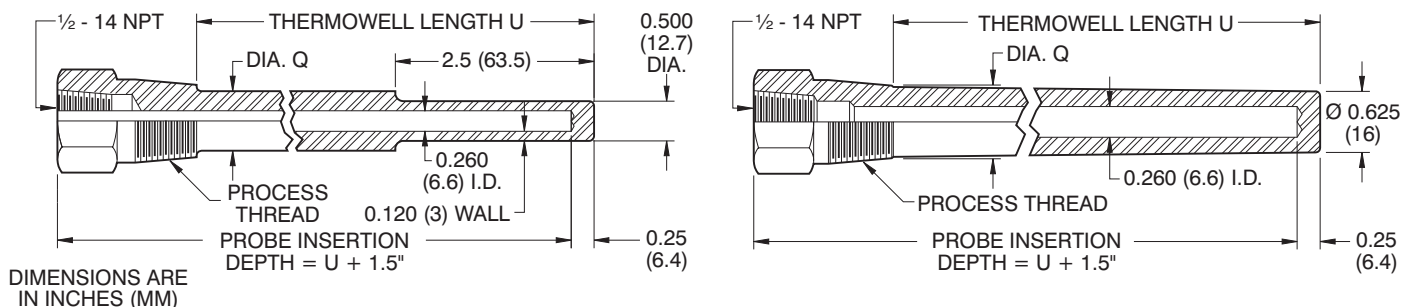
### How to order

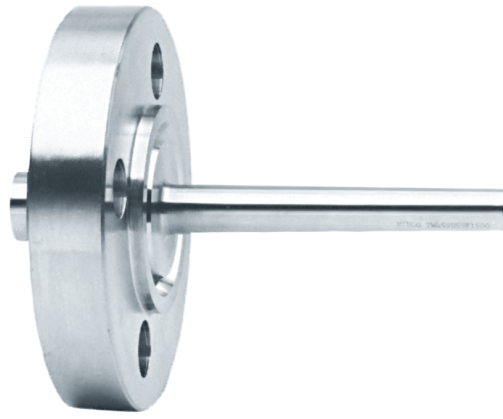
TW222	<b>Model number from table</b>
U	
45	<b>Thermowell length U:</b> Specify in 0.1" increments (Ex: 45 = 4.5 inches)
TW222U45 ← Sample P/N	

**IN STOCK**

TW222: 2.5, 4.5, 6.0, 7.5, 8.0, 10.5"

TW248: 2.5, 4.5, 6.0, 7.5, 8.0, 10.5"





## Flanged Thermowells

Flanged thermowells are available in three standard flange sizes: 1.0", 1.5", and 2.0" per ANSI B16.5. Specify U dimension and pressure rating.

Immerse the thermowell at least 2.5" (65 mm) for accurate readings. The well should extend beyond the center of the fluid stream without touching the opposite wall. Installation in an elbow or tee may be necessary for sufficient immersion in small pipes.

### TW1219, TW1220 thermowells

**Material:** 316 stainless steel.

**Thread:** 1/2" - 14 NPT internal thread.

**Temperature limit:** 607°C (1125°F).

**Pressure limit:** Specify flange pressure rating.

Standard ratings: 150, 300, 400, 600, 900,

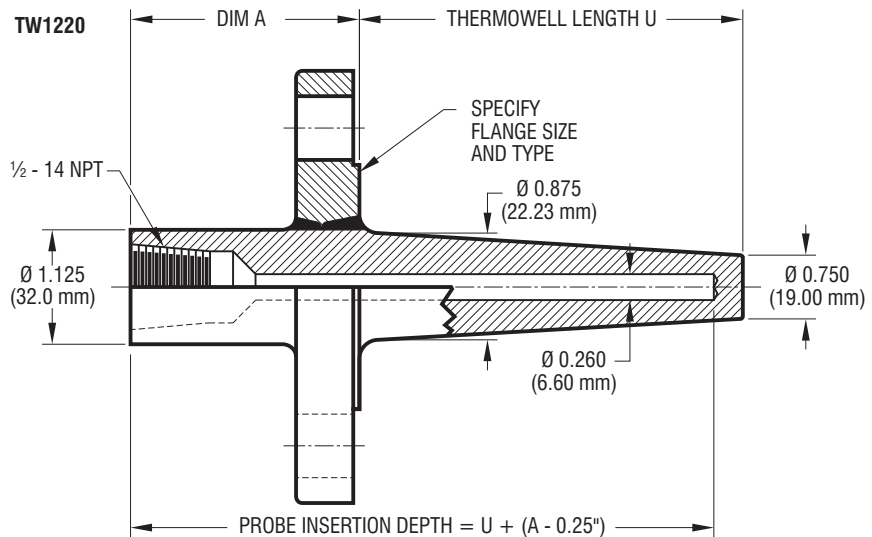
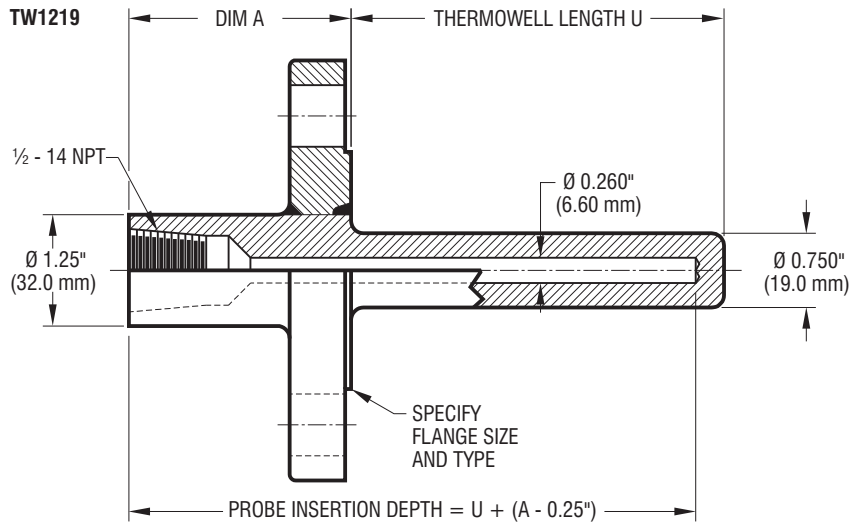
1500, 2500 psi (1 bar = 14.5 psi).

**Standard U dimensions:** 2.5, 4.5, 6.0, 7.5, 8.0, 10.5, 13.5, 16.5, and 22.5". Other dimensions available.

Pressure rating	Dimension A
150-600	2.25"
900-2500	3.25"

### How to order

TW1219	<b>Model number:</b> TW1219 = Straight TW1220 = Tapered
U	
105	<b>Thermowell length U:</b> Specify in 0.1" increments (Ex: 105 = 10.5 inches)
S	
10	<b>Flange size:</b> 10 = 1.0" 15 = 1.5" 20 = 2.0"
F	
300	<b>Pressure rating in pounds per square inch</b>
RF	<b>Flange type:</b> RF = Raised face RTJ = Ring type joint
TW1219U105S10F300RF ← Sample P/N	







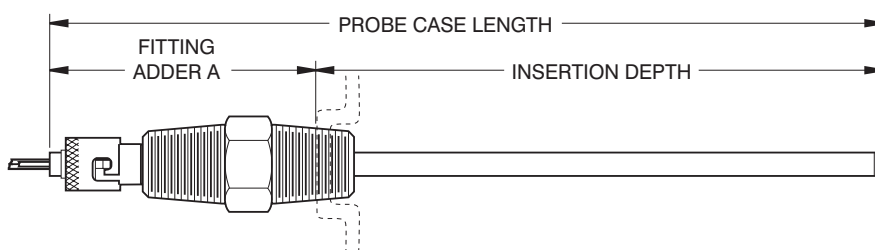
## Bayonet Fittings, Extensions

Bayonet fittings are for spring-loaded installation of probes equipped with springs and lockcaps. Insert the probe, hook the lockcap over the pin on the fitting, and release.

Extensions in assemblies serve to isolate connection heads from process connections in order to clear pipe insulation or limit heat conduction into the head. Choose from galvanized or stainless steel nipples, couplings, and unions.

Bayonet adapter style	Body material	Thread "CH"	Process thread	Hex size	Adder "A"	Probe Ø	Model
	303 stainless steel	None	1/8" - 27 NPT	None	1.2" min. (31 mm)	0.188" (4.8 mm)	FG180
	316 stainless steel	1/2" - 14 NPT	1/2" - 14 NPT	7/8" (22 mm)	2.4" (61 mm)	0.188" (4.8 mm)	FG144T3




▲ Temperature limit: 871°C (1600°F)



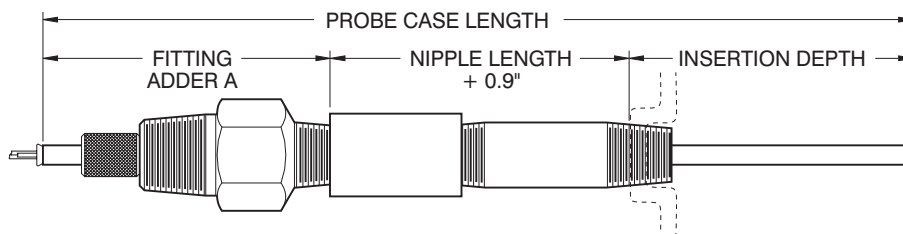
### Extension nipples, couplings, unions

Nipples are short lengths of pipe to extend connection heads away from processes. Couplings and unions have two 1/2" - 14 NPT female threads to join nipples to other fittings. Unions allow installation without rotating the connection head.

**Note: FG709 does not provide a fluid seal.**

Style	Length	Galvanized steel to 260°C (500°F)	Stainless steel to 871°C (1600°F)
 Nipple	1.38" (35 mm)	FG563	FG537
	2.0" (51 mm)	FG556L20	FG579L20
	3.0" (76 mm)	FG556L30	FG579L30
	6.0" (152 mm)	FG556L60	FG579L60
 Coupling	1.7" (43 mm)	FG602	FG854
 Union	1.56" (40 mm)	FG709 1 3/8" (35 mm) hex	FG714 1 1/2" (38 mm) hex

▲ All threads are 1/2" - 14 NPT [2].



**IN STOCK**

All models except FG579L60  
Other accessories listed at  
[www.minco.com/support](http://www.minco.com/support)

## Metric Accessories

Metric fittings and thermowells help you design your equipment to meet global standards. Use these fittings to install Minco sensors in process lines, rotating machinery, and all types of industrial equipment destined for Europe and other continents.

Special threads and accessories are available. Also see the Eurostyle assemblies on page 2-18.

**Spring-loaded holders** provide fast installation and simple adjustment or removal of probes. Minco's unique designs work with straight probes and provide sealing for the typical oil pressures found in rotating machines.

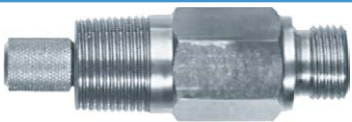



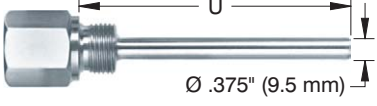
**Fluid seal fittings** are a low cost solution where a connection head is not required.

**Bayonet adapters** work with Minco's spring-loaded bayonet fitted probes on pages 3-6 and 3-8.

**Adapter bushings** allow fitting 1/2 - 14 NPT fittings into metric threaded process connections.

**Thermowells** provide high pressure protection and allow probe replacement without opening the system.

Accessories

	Body material	Temp. limit	Pressure rating	Thread "CH"	Process thread	Hex size	Probe Ø	Model
 Fluid seal spring-loaded holder Probe length adder A: 3.6" (91 mm)	303 stainless steel	260°C (500°F)	3.4 bar (50 psi)	3/4 - 14 NPT	G 1/2	1 1/16" (27 mm)	0.188" (4.8 mm)	MFG812P477
							0.215" (5.5 mm)	MFG812P546
							0.250" (6.4 mm)	MFG812P635
 Fluid seal fitting Probe length adder A: 1.1" min. (28 mm)	Brass	260°C (500°F)	Silicone rubber O-ring: 17.2 bar (250 psi). Brass compression ring: 34.5 bar (500 psi).	None	R 1/4	9/16" (14 mm)	0.250" (6.4 mm)	MFG816
 Bayonet adapter Probe length adder A: 1.2" (31 mm)	303 stainless steel	871°C (1600°F)	No fluid seal	None	R 3/8	None	0.188" (4.8 mm)	MFG817
 Adapter bushing Probe length adder A: 1.2" (31 mm)	303 stainless steel	871°C (1600°F)	No fluid seal	1/2 - 14 NPT (Female)	G 1/2	1 1/16" (27 mm)	All	MFG811
 Thermowell Probe length = U + 30 mm + fitting adder A (U = 13 mm min./1200 mm max.)	303 stainless steel	871°C (1600°F)	190 bar (2755 psi) at 25°C, reducing to 34 bar (493 psi) at 600°C.	1/2 - 14 NPT (Female)	G 1/2	1 1/16" (27 mm)	0.250" (6.4 mm)	MTW1208

- ▲ 303 stainless steel per DIN 1.4300, AISI 303.
- G thread is defined by ISO 288/1 parallel.
- R thread is defined by ISO 7/1 tapered.

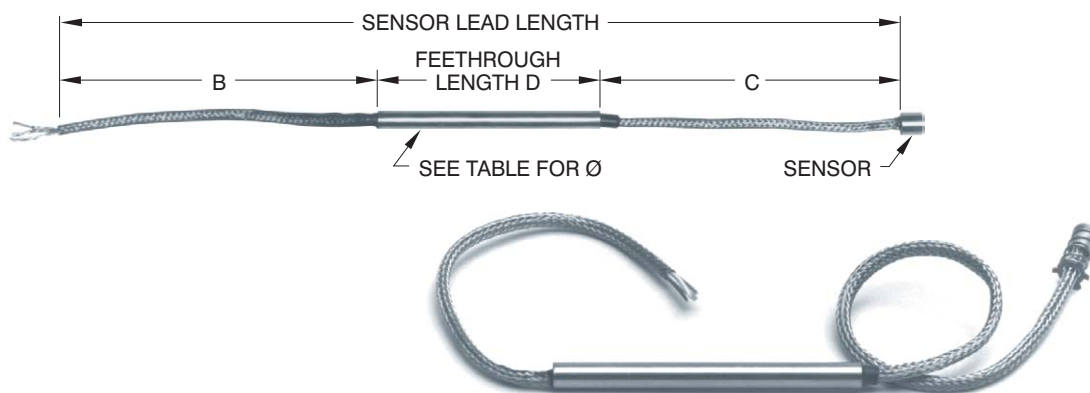
**IN STOCK**

All metric fittings

### How to order Thermowells

MTW1208	<b>Model number</b>
U	
100	<b>Thermowell length U:</b> Specify in millimeters Minimum: 13 mm Maximum: 1200 mm
MTW1208U100 ← Sample P/N	

# Accessories



## Feedthroughs

Feedthroughs provide an oil tight seal where a cable exits a machine housing. The stainless steel tube is epoxy filled and each wire is sealed to the individual conductor. This prevents wicking of oil inside the wires as well as leakage around the wire insulation. The pressure rating to 25 psi (1.7 bar) is suitable for most oil and coolant pump systems.

They can be ordered as an accessory to any sensor in this catalog. When ordering feedthroughs with case style B bearing sensors, the spring and retaining ring are automatically included. Fluid seal fittings allow easy installation of feedthroughs into standard NPT threaded machine housings. Use fluid seal fittings on page 4-4 or FG1015 and FG3015 on page 4-12 for transitions through housings.

### Specifications

**Material:** Stainless steel with epoxy potting.

**Temperature limit:** 149°C (300°F).

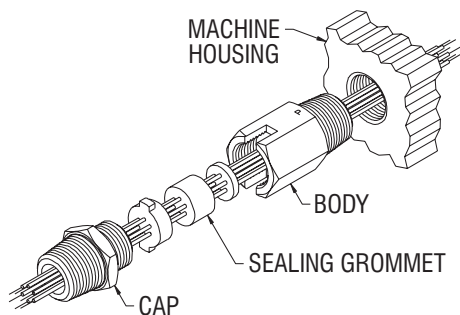
**Pressure limit:** 25 psi (1.7 bar).

Sheath Ø	Max. Cable Ø	Model
0.188" (4.8 mm)	0.12" (3.0 mm)	AC958
0.215" (5.5 mm)	0.14" (3.6 mm)	AC717
0.250" (6.4 mm)	0.17" (4.3 mm)	AC718
0.375" (9.5 mm)	0.26" (6.6 mm)	AC961

### How to order

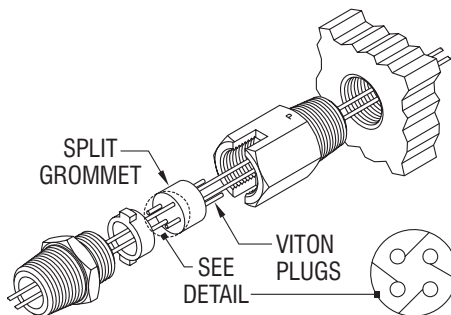
AC717	<b>Model number from table</b>
B6	<b>Lead length B or C in inches:</b> Specify one: B = Lead end C = Sensor end
D250	<b>Feedthrough length D in 0.01" increments:</b> Min. length: 1.6" (40.6 mm) (Ex: 250 = 2.50")
AC717B6D250 ← Sample P/N	

# Accessories



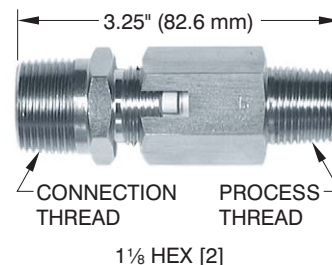
FG1015

Seal around 2, 3, or 4 probes or feedthroughs...



FG3015

or up to 6 wires.



Accessories

## Leadwire and cable seal

Stop oil seepage! The FG1015 and FG3015 seal RTD or thermocouple leadwires where they exit oil-filled bearing housings of rotating equipment.

Both versions include a grommet that provides the seal and allows adjustment of the wire or cable position. With the FG1015 the wire or cable ends must be threaded through the grommet holes. The FG3015 features a split grommet so it can be fitted over the wire or cable where access to the wire ends isn't practical.

Order the 6-hole version to seal around PTFE-insulated wires. Order the 2-, 3-, or 4-hole version to allow multiple feedthroughs or cables to exit to a single connection head.

**▲ Viton plugs are provided for unused holes on 6 hole and split grommets.**

### Specifications

**Material:** Stainless steel.

**Temperature:** -40 to 150°C (-40 to 320°F).

**Pressure:** 50 psi (3.4 bar) at 20°C.

Connection thread	Process thread	Pipe thread code
1/2 - 14 NPT	3/4 - 14 NPT	P1
3/4 - 14 NPT	3/4 - 14 NPT	P2
1/2 - 14 NPT	1/2 - 14 NPT	P3
3/4 - 14 NPT	1/2 - 14 NPT	P4

Number of holes	FG3015 split grommet	FG1015	Grommet hole Ø	Cable/tube Ø range
1		•	0.130" (3.30 mm)	0.100" to 0.130" (2.54 to 3.30 mm)
		•	0.160" (4.06 mm)	0.130" to 0.160" (3.30 to 4.06 mm)
		•	0.220" (5.59 mm)	0.190" to 0.220" (4.83 to 5.59 mm)
2		•	0.130" (3.30 mm)	0.100" to 0.130" (2.54 to 3.30 mm)
		•	0.160" (4.06 mm)	0.130" to 0.160" (3.30 to 4.06 mm)
		•	0.190" (4.83 mm)	0.160" to 0.190" (4.06 to 4.83 mm)
	•	•	0.220" (5.59 mm)	0.190" to 0.220" (4.83 to 5.59 mm)
3		•	0.257" (6.53 mm)	0.227" to 0.257" (5.77 to 6.53 mm)
		•	0.130" (3.30 mm)	0.100" to 0.130" (2.54 to 3.30 mm)
		•	0.160" (4.06 mm)	0.130" to 0.160" (3.30 to 4.06 mm)
4	•	•	0.220" (5.59 mm)	0.190" to 0.220" (4.83 to 5.59 mm)
	•	•	0.100" (2.54 mm)	0.080" to 0.100" (2.03 to 2.54 mm)
6	•	•	0.130" (3.30 mm)	0.100" to 0.130" (2.54 to 3.30 mm)
	•	•	0.160" (4.06 mm)	0.130" to 0.160" (3.30 to 4.06 mm)
	•	•	0.050" (1.27 mm)	0.035" to 0.050" (0.76 to 1.27 mm)

### How to order

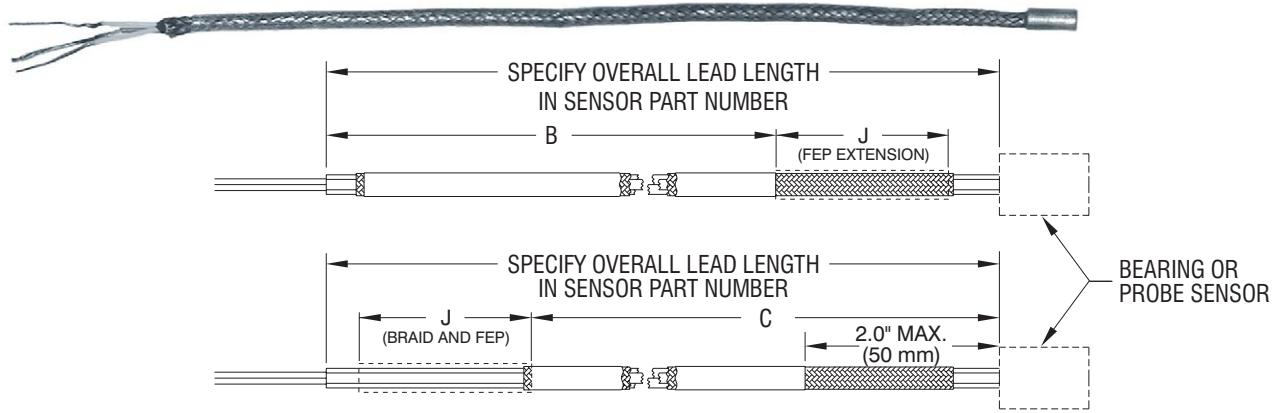
FG1015	<b>Model number:</b> FG1015: Cable seal FG3015: Cable seal with split grommet
P2	<b>Thread code (table at left)</b>
SS	<b>Fitting material:</b> SS = Stainless steel
2	<b>Number of holes (table at left)</b>
V	<b>Grommet material:</b> V = Viton
220	<b>Hole diameter in 0.001" increments (table above)</b> (Ex: 220 = 0.220")
FG1015P2SS2V220 ← Sample P/N	

### Replacement grommet/washer kits

For replacement grommet/washer kits order model AC1015 or AC3015 (split grommet). Specify the number of holes and hole diameter required from the table above.

**IN STOCK**

FG1015 (most versions), AC1015  
FG3015 (most versions), AC3015



## Elastomer Rubber Filled Cable

Model AC100324 is a sensor cable with elastomer fill between the wires, stainless steel braid, and outer jacket. This fill can extend along the entire length of the cable, or a specified portion. The outside of the cable can be sealed with an FG1015 or FG3015 fitting.

While the AC100324 provides a good seal, a minuscule amount of oil may escape inside the individual wires.

### Using the AC100324 with FG1015/FG3015 oil seal fittings

When selecting the FG1015 or FG3015 for use with silicone filled cable use the grommet hole size from the table below.

Lead size AWG	Number of leads	Grommet hole Ø
20	2	0.160
24	2	0.130
24	3 and 4	0.160
24	6	0.190
26-28	2,3,4, and 6	0.130
30	4 and 6	0.130

Number of sensing elements	Case style	Grommet hole ø	
		Leads/RTD	
		2	3
1	A	.130	.160
	B	.130	.160
	C	.130	.130
	D	.100	.100
2	A	.160	.190
	B	.160	.190
	C	.130	.130

### Specifications

**Temperature range:** -50° C to 125°C (-58°F to 257°F).

**Tolerance on lead length:** +1/-0" (+25/-0mm) for lead lengths 24" or less; +5/-0% for lead length greater than 24".

**B length:** Cable is filled starting at leadwire end of cable. Tubing ends at B length; stainless steel braid extends to case.

**C length:** Cable is filled starting 2" from case. If J length is specified, stainless steel braid extends to lead end.

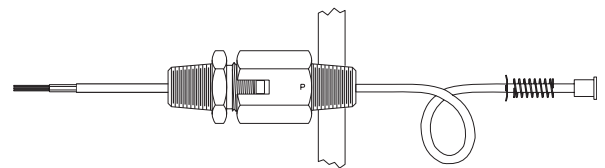
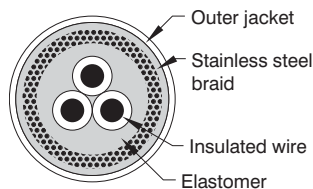
**J length:** Unfilled FEP extension length.

### How to order

AC100324	<b>Elastomer filled cable model number</b>
B24	<b>Elastomer filled length B or C in inches</b> (if not specified, entire length will be filled) B = Lead end C = Sensor end (Max fill length = 144")
<b>To order standard filled cable, stop here.</b>	
<b>To order an optional jacket extension add:</b>	
J	<b>Jacket extension</b>
AC100324B24J ← Sample P/N	

Note: the sensor model number dictates all specifications other than the elastomer filled length B or C and optional extension J. You must specify sensor model including SS braid covering over the leadwires when ordering. Some sensor models do not include the option for SS braid lead covering; contact Minco for assistance with these sensors.

Cross section of typical cable



## Extension Wire

Use the wire and cable on this page to connect sensor leadwires to remote instrumentation. Thermocouple wire meets standard limits of error per ANSI MC96.1-1982.

Unless Minco informs you otherwise, wire and cable will be supplied in continuous lengths. Ends are not stripped.



Accessories

### Copper wire for RTDs

Choose single conductor copper wire or cable.

#### How to order

WS122R	<b>Model number from table</b>
10	<b>Length in feet</b>
WS122R10 ← Sample P/N	

Description	Temperature limit	Color	Model number for AWG	
			22	26
Single conductor wire, stranded copper, PTFE insulation	260°C (500°F)	White	WS122W	WS126W
		Red	WS122R	WS126R
		Blue	WS122B	WS126B
		Yellow	WS122Y	WS126Y
Single conductor wire, stranded, mica/glass insulation	550°C (1022°F)	White	WS222W	
		Red tracer	WS222R	
3 conductor cable, PTFE insulation, stainless steel braid over all	260°C (500°F)	Red/White/White	WS322S	WS326S
6 conductor cable, PTFE insulation, stainless steel braid over all	260°C (500°F)	Red/White/White/Blue/Yellow/ Yellow		WS426S
3 conductor cable, PTFE insulation, copper shield and PTFE jacket over all	260°C (500°F)	Red/White/White	WS522T	

### Thermocouple cable

All cable is single pair, solid wire, color coded per ANSI MC96.1-1982.

#### How to order

WT120S	<b>Model number from table</b>
J	<b>Junction type:</b> E, J, K, or T
25	<b>Length in feet</b>
WT120SJ25 ← Sample P/N	

Description	Temperature limit	Model number for AWG	
		20	24
Single pair thermocouple cable, glass braid insulation	482°C (900°F)	WT120G	WT124G
Single pair thermocouple cable, PTFE insulation	260°C (500°F)	WT120T	WT124T
Single pair thermocouple cable, glass braid insulation with stainless steel braid over all	482°C (900°F)	WT120S	WT124S

**IN STOCK**

All wire shown, in moderate lengths