

ATEX APPROVED THERMOCOUPLES & RTD's

Section ATEX

Under the ATEX directive the equipment is divided into groups and categories :

Group I : Equipment for use in underground parts of mines , and to those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

Group II : Equipment intended for use in other places liable to be endangered by explosive atmospheres.

The groups are sub divided into a number of different categories. Group I is sub divided into category M1 and M2 :

Category M1 : Equipment of this category is required to remain functional with an explosive atmosphere present.

Category M2 : Equipment of this category is intended to be de-energized in the event of an explosive atmosphere.

Group II is sub divided into categories 1, 2, and 3 :

Category 1 : Equipment of this category is intended for use in an area where an explosive atmosphere is continuously present, present for long periods or frequently present and must ensure a very high level of protection.(Suitable for use in Zone 0(G), and 20(D))

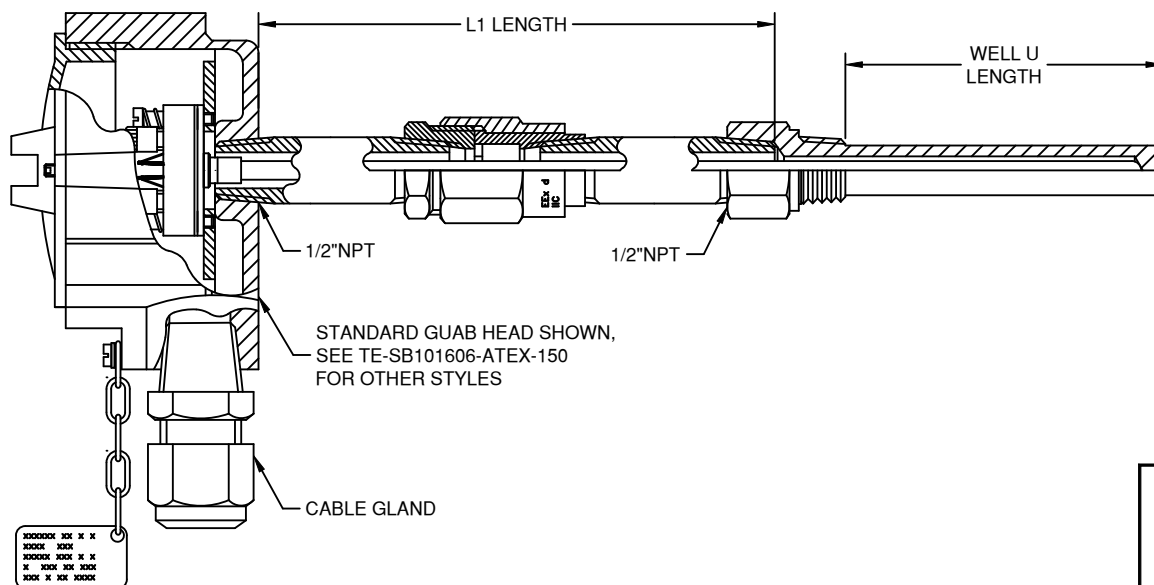
Category 2 : Equipment of this category is intended for use in an area where an explosive atmosphere is likely to occur and must ensure a very high level of protection.
(Suitable for use in Zone 1(G), and 21(D))

Category 3 : Equipment of this category is intended for use in an area where an explosive atmosphere is unlikely to occur and must ensure a normal level of protection.
(Suitable for use in Zone 2(G), and 22(D))

Thermo Electric carries two product lines with ATEX certification:

1. Flame proof protection EExd IIC T6 suitable for Group II, category 2 and 3 (Zone 1, 21, 2, and 22) applications. It is further suitable for gas groups IIA,B,and C, and also complies with temp classification T6.
2. Intrinsic safety protection Eexia IIC T6 suitable for Group II, category 1,2,and 3 (Zone 0,20,1, 21, 2, and 22 applications). It is further suitable for gas groups IIA,B,and C, and also complies with temperature classification T6.

ATEX APPROVED THERMOCOUPLES & RTD's



SPECIFICATIONS

CONNECTION HEAD

Material: Aluminum
Conduit Opening: 1/2"NPT

CABLE GLAND

Material: Nickel Plated Brass
Cable Range: Inner, 8.0mm to 11.68mm
Outer, 11.5mm to 16.0mm

NIPPLES

Material: Steel
Size: 1/2"NPT, Schedule 80

UNION

Material: Steel
Size: 1/2"NPT

THERMOCOUPLE ELEMENT

Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT

Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

Ordering Code

C A D F - 1 - 1 - - - - - Go To Pages TE-SB101606-ATEX-050
thru -120 to Complete with Thermowell

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
GUAB	SINGLE CONDUIT
GUAD	DUAL CONDUIT
GUAM	DUAL CONDUIT
GUAW	THREE CONDUIT
SB	SINGLE CONDUIT
SD	DUAL CONDUIT
GUJP	SINGLE CONDUIT

CODE	LI LENGTH (IN MM)
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CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples
not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50018 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is flame proof type "d" according to EN50014 and EN50018.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

Internal free volume from 150cm³ to 1200cm³ according to the type of head and from 0 to 40dm³ for the protection tube depending on diameter and length. Whenever the internal free volume of the thermowell is higher than 2dm³ a certified firewall wall or coupling fitting mounted between the thermowell and head is required.

This equipment is suitable for installation in the following areas:

- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

Example Ordering Code

CTADF-1-1-GUAB-100-ASL14JRU-14R2-12

IDENTIFICATION LABEL

"DO NOT OPEN WHILE ENERGIZED"
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

THERMO ELECTRIC CO., INC.
Totowa NJ USA

TYPE: No.: MODEL: DATE:

CE 0081 II 2 G/D
EEx d IIC T6 IP65 T=85°C
LCIE 05 ATEX 6105 X



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

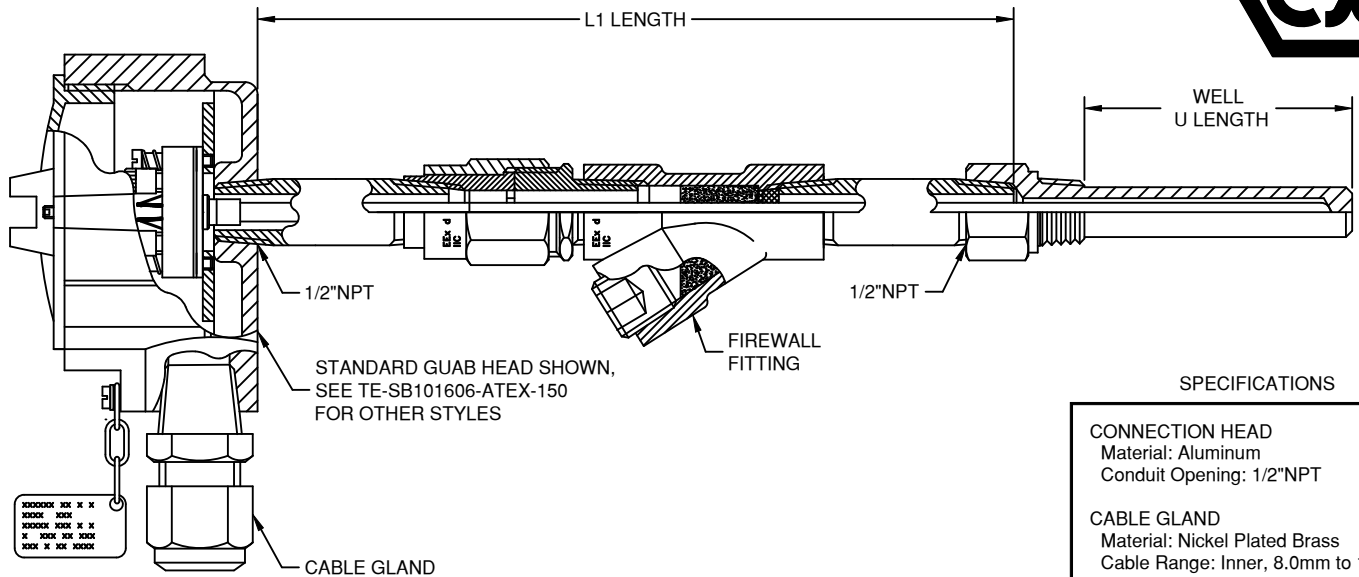
SECTION ATEX

TYPE CSADF & CTADF
MODEL 1, without FIREWALL
"d" FLAMEPROOF PROTECTION

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Doc. No.: TE-CO010109-ATEX-010

ATEX APPROVED THERMOCOUPLES & RTD's



SPECIFICATIONS

CONNECTION HEAD

Material: Aluminum
Conduit Opening: 1/2"NPT

CABLE GLAND

Material: Nickel Plated Brass
Cable Range: Inner, 8.0mm to 11.68mm
Outer, 11.5mm to 16.0mm

NIPPLES

Material: Steel
Size: 1/2"NPT, Schedule 80

UNION & FIREWALL FITTING

Material: Steel
Size: 1/2"NPT

THERMOCOUPLE ELEMENT

Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT

Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

Ordering Code

C A D F - 1 - 2 - - - - - Go To Pages TE-SB101606-ATEX-050 thru -120 to Complete with Thermowell

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
GUAB	SINGLE CONDUIT
GUAD	DUAL CONDUIT
GUAM	DUAL CONDUIT
GUAW	THREE CONDUIT
SB	SINGLE CONDUIT
SD	DUAL CONDUIT
GUJP	SINGLE CONDUIT

CODE	LI LENGTH (IN MM)

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples
not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50018 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is flame proof type "d" according to EN50014 and EN50018.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

Internal free volume from 150cm³ to 1200cm³ according to the type of head and from 0 to 40dm³ for the protection tube depending on diameter and length. Whenever the internal free volume of the thermowell is higher than 2dm³ a certified firewall wall or coupling fitting mounted between the thermowell and head is required.

This equipment is suitable for installation in the following areas:

- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

Example Ordering Code

CSADF-1-2-GUAB-127-DRTD14-121P2-6

IDENTIFICATION LABEL

"DO NOT OPEN WHILE ENERGIZED"
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

THERMO ELECTRIC CO., INC.
Totowa NJ USA

TYPE: No.: MODEL: DATE:
CE 0081 II 2 G/D
EEx d IIC T6 IP65 T=85°C
LCIE 05 ATEX 6105 X



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

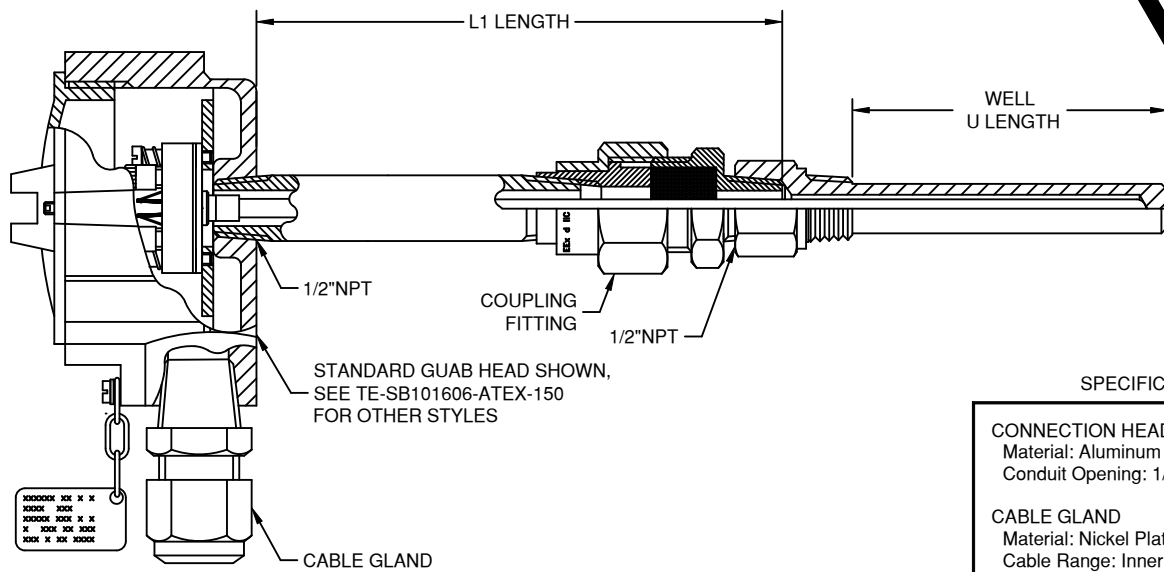
SECTION ATEX

TYPE CSADF & CTADF
MODEL 1, with FIREWALL
"d" FLAMEPROOF PROTECTION

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Doc. No.: TE-CO010109-ATEX-020

ATEX APPROVED THERMOCOUPLES & RTD's



SPECIFICATIONS

CONNECTION HEAD

Material: Aluminum
Conduit Opening: 1/2"NPT

CABLE GLAND

Material: Nickel Plated Brass
Cable Range: Inner, 8.0mm to 11.68mm
Outer, 11.5mm to 16.0mm

NIPPLES

Material: Steel
Size: 1/2"NPT, Schedule 80

UNION & FIREWALL FITTING

Material: Steel
Size: 1/2"NPT

THERMOCOUPLE ELEMENT

Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT

Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

Ordering Code

C A D F - 1 - 3 - - - - - Go To Pages TE-SB101606-ATEX-050
thru -120 to Complete with Thermowell

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
GUAB	SINGLE CONDUIT
GUAD	DUAL CONDUIT
GUAM	DUAL CONDUIT
GUAW	THREE CONDUIT
SB	SINGLE CONDUIT
SD	DUAL CONDUIT
GUJP	SINGLE CONDUIT

CODE	LI LENGTH (IN MM)
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CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples
not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50018 applicable standards. They are meant to be used in hazardous locations.

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This type of protection is flame proof type "d" according to EN50014 and EN50018.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

Internal free volume from 150cm³ to 1200cm³ according to the type of head and from 0 to 40dm³ for the protection tube depending on diameter and length. Whenever the internal free volume of the thermowell is higher than 2dm³ a certified firewall wall or coupling fitting mounted between the thermowell and head is required.

This equipment is suitable for installation in the following areas:

- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

Example Ordering Code

CSADF-1-3-GUAB-100-RTD316-47R2-16-1.5-150RF

IDENTIFICATION LABEL

"DO NOT OPEN WHILE ENERGIZED"
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

THERMO ELECTRIC CO., INC.
Totowa NJ USA

TYPE: No.: MODEL: DATE:
CE 0081 II 2 G/D
EEx d IIC T6 IP65 T=85°C
LCIE 05 ATEX 6105 X



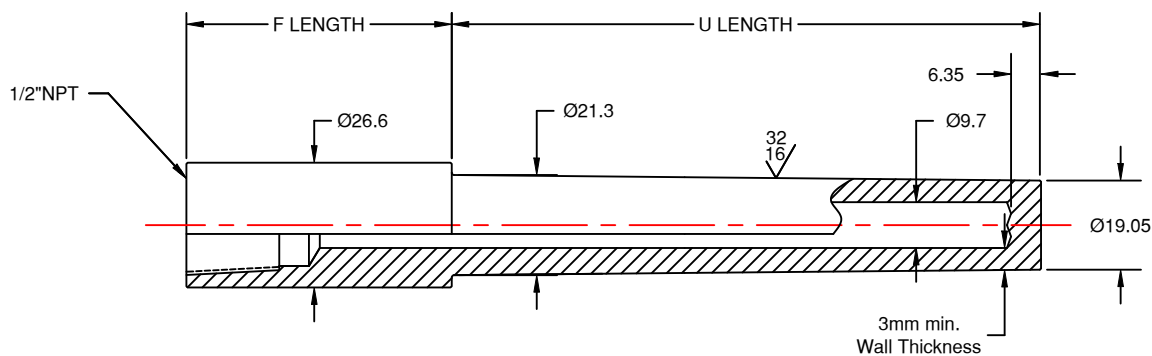
TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX
TYPE CSADF & CTADF
MODEL 1, with COUPLING FITTING
"d" FLAMEPROOF PROTECTION

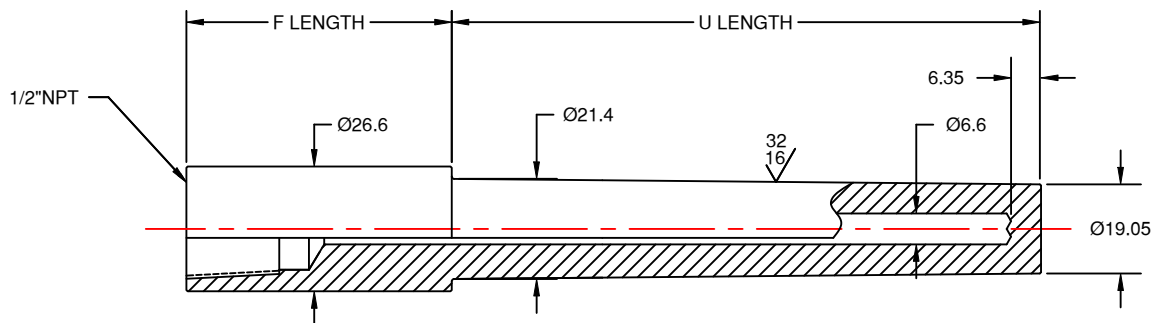
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Doc. No.: TE-CO010109-ATEX-030

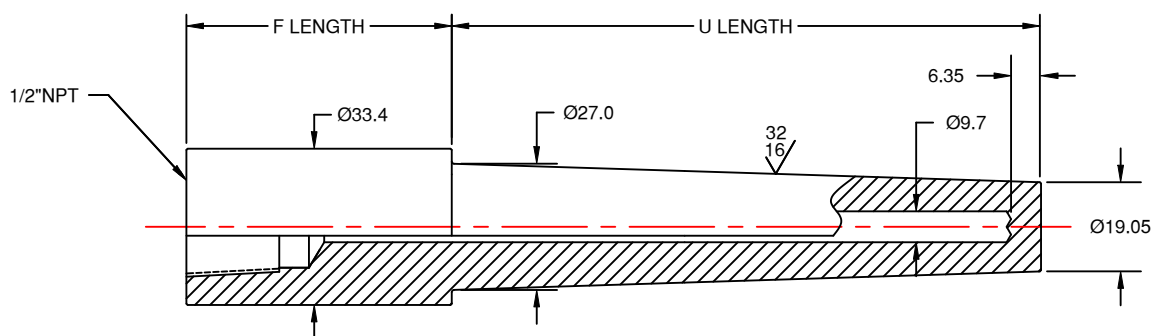
ATEX APPROVED THERMOCOUPLES & RTD's



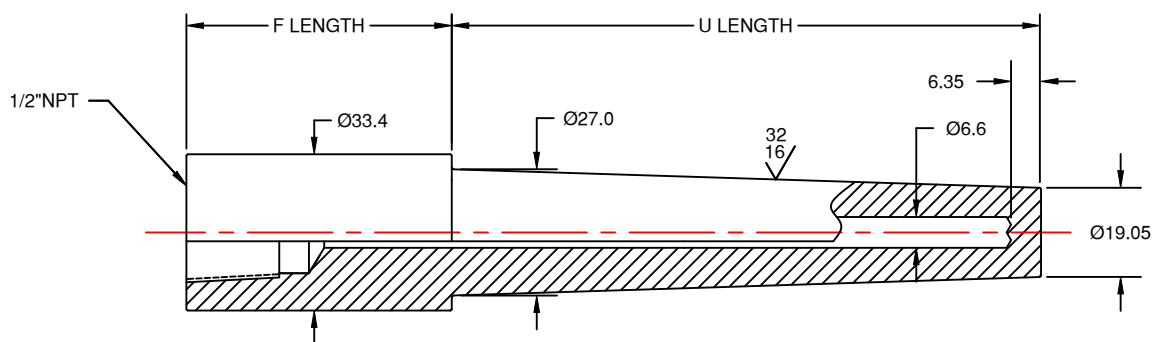
TYPE 01



TYPE 011



TYPE 02



TYPE 021

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+.127/- .076$
END THICKNESS
 ± 1.6

Ordering Code
Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

CODE	THERMOWELL TYPE (INSERT WELL TYPE)

CODE	U LENGTH (IN MM)

CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL	304 or 316L STN. STL.
(F11)	1.25% CR. - .5 MO.
N	CARBON STEEL

CODE	F LENGTH (IN MM)



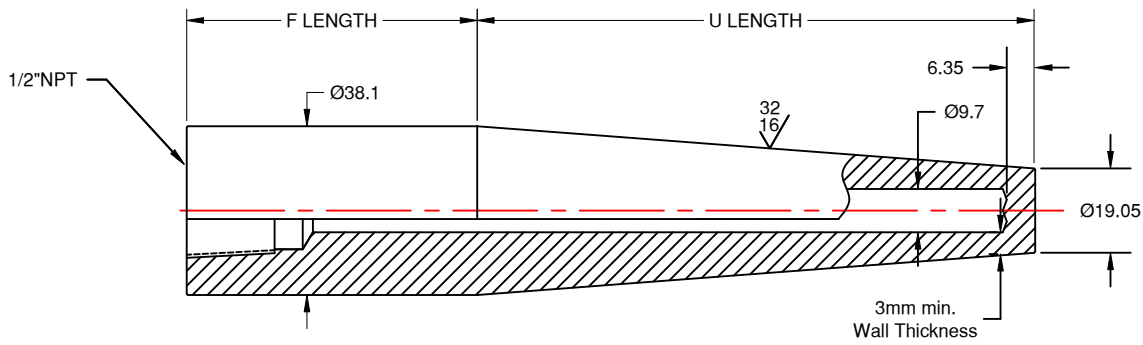
TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX DRILLED SOCKET THERMOWELLS

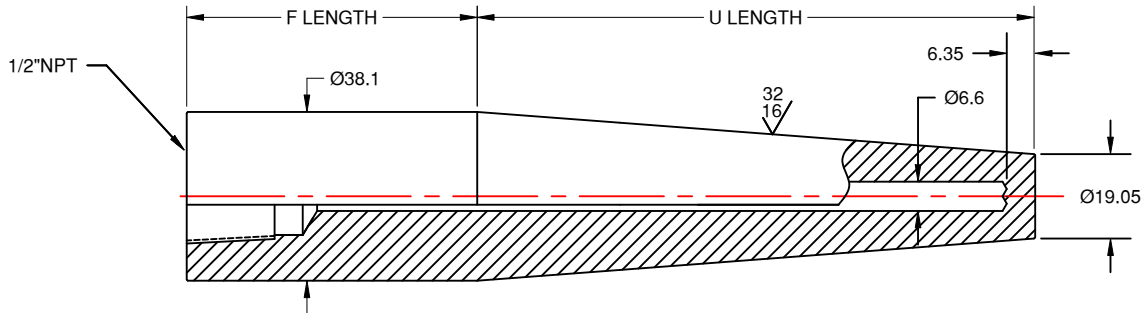
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Doc. No.: TE-CO010109-ATEX-040

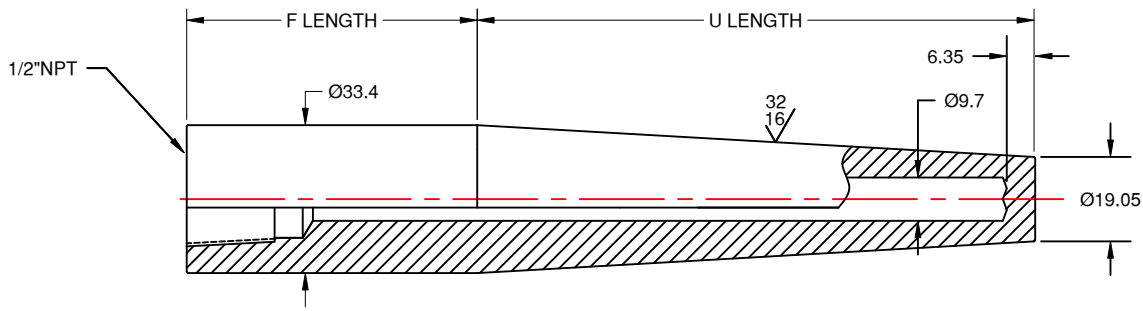
ATEX APPROVED THERMOCOUPLES & RTD's



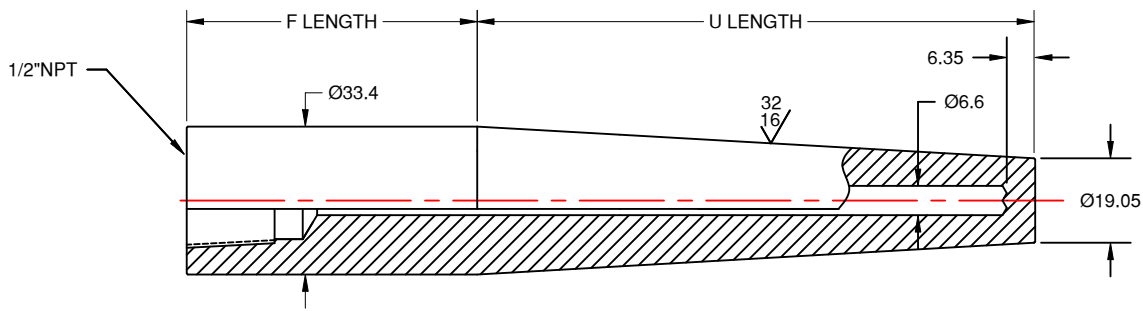
TYPE 03



TYPE 031



TYPE 04



TYPE 041

STANDARD TOLERANCES

U LENGTH
 304.8mm or Less ± 1.6
 304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

Ordering Code
 Go to Documents
 TE-SB052206-ATEX-001 thru -003
 for Complete Ordering Code

CODE	THERMOWELL TYPE (INSERT WELL TYPE)

CODE	U LENGTH (IN MM)

CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL (F11)	304 or 316L STN. STL. 1.25% CR. - .5 MO.
N	CARBON STEEL

CODE	F LENGTH (IN MM)



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
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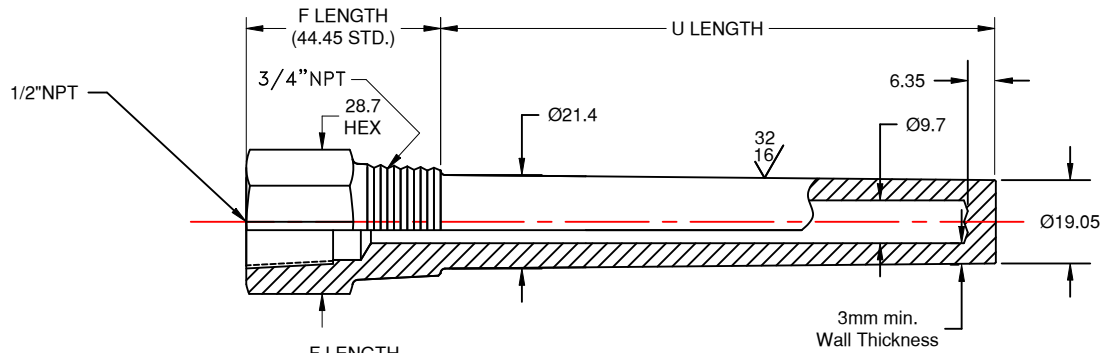
SECTION ATEX

DRILLED WELD-IN THERMOWELLS

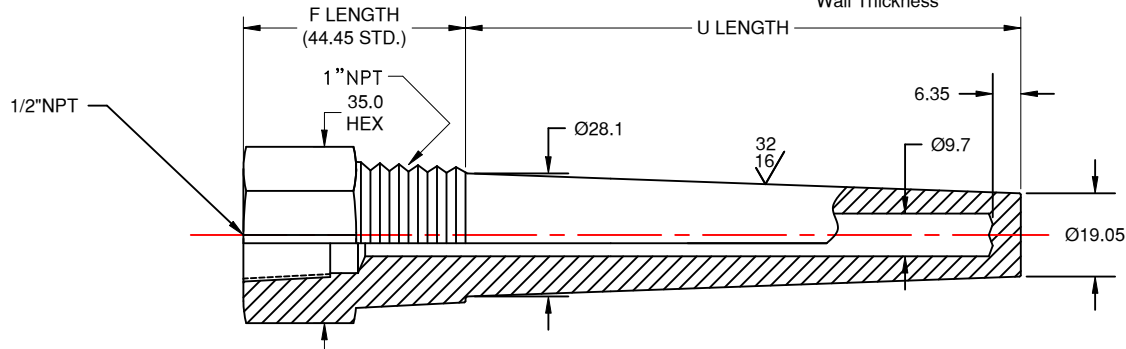
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Doc. No.: TE-CO010109-ATEX-050

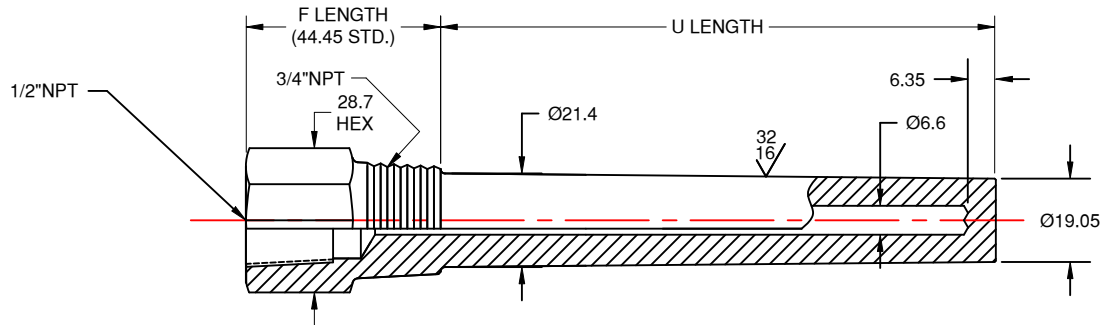
ATEX APPROVED THERMOCOUPLES & RTD's



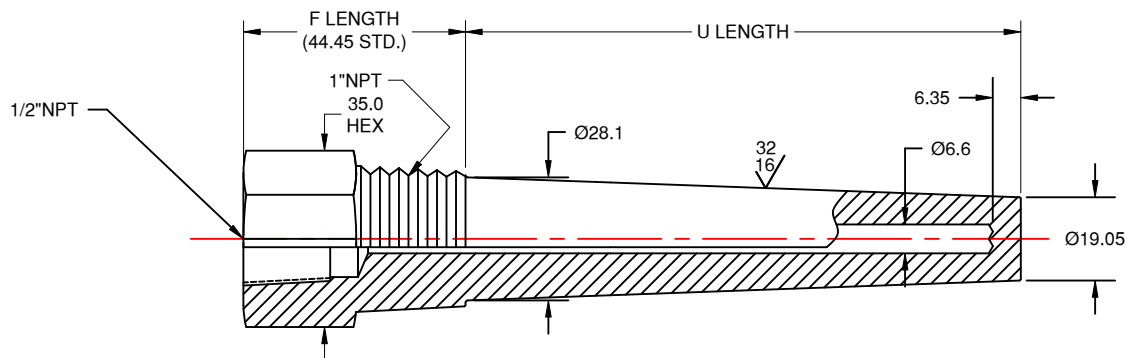
TYPE 12



TYPE 14



TYPE 121



TYPE 141

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

Ordering Code
Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

CODE	THERMOWELL TYPE (INSERT WELL TYPE)

CODE	U LENGTH (IN MM)

CODE	WELL MATERIAL
P	304 STN. STL.
B	BRASS
R	316 STN. STL.
PLorRL	304 or 316L STN. STL.
N	CARBON STEEL

CODE	F LENGTH (IN MM)



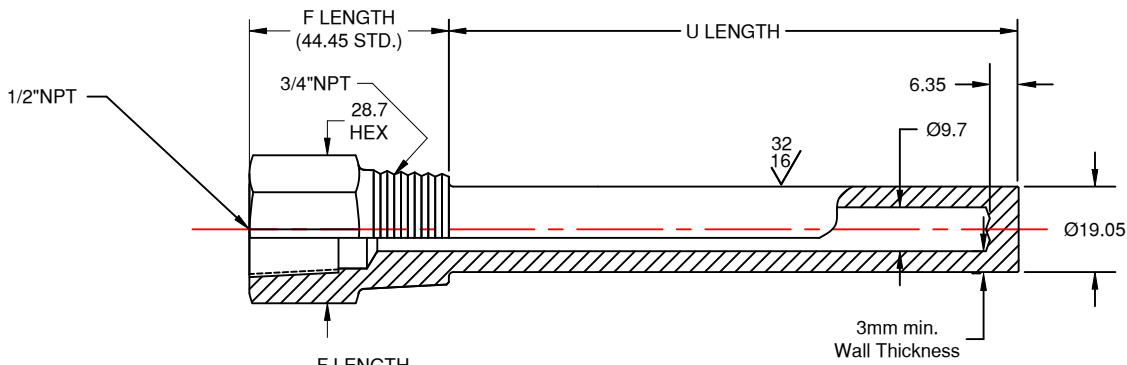
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SECTION ATEX DRILLED THREADED THERMOWELLS, TAPERED SHANK

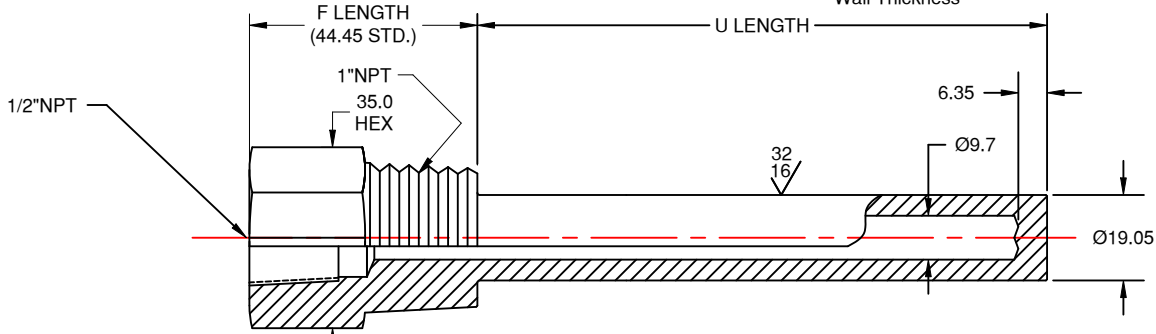
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Doc. No.: TE-CO010109-ATEX-060

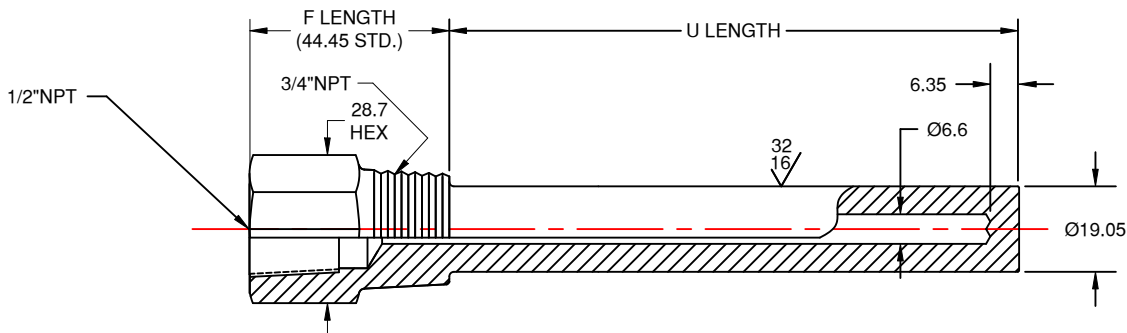
ATEX APPROVED THERMOCOUPLES & RTD's



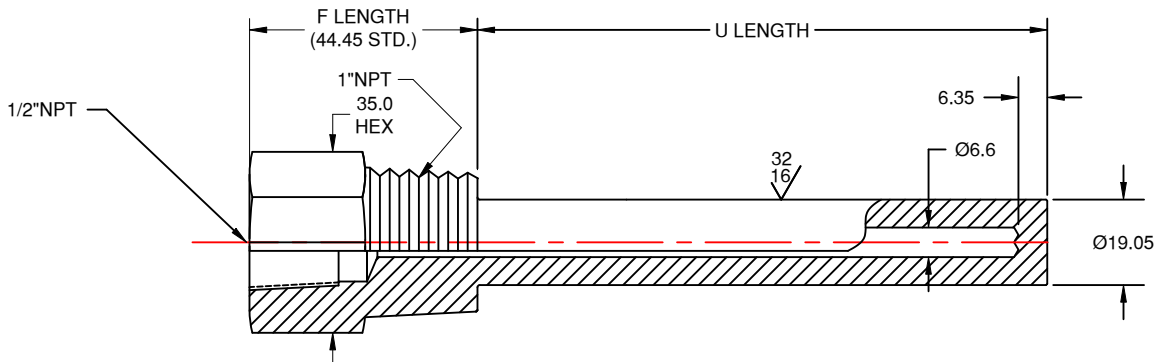
TYPE 16



TYPE 18



TYPE 161



TYPE 181

STANDARD TOLERANCES

U LENGTH
 304.8mm or Less ± 1.6
 304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

Ordering Code
 Go to Documents
 TE-SB101606-ATEX-010 thru -030
 for Complete Ordering Code

CODE	THERMOWELL TYPE (INSERT WELL TYPE)
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CODE	U LENGTH (IN MM)
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CODE	WELL MATERIAL
P	304 STN. STL.
B	BRASS
R	316 STN. STL.
PLorRL	304 or 316L STN. STL.
N	CARBON STEEL

CODE	F LENGTH (IN MM)
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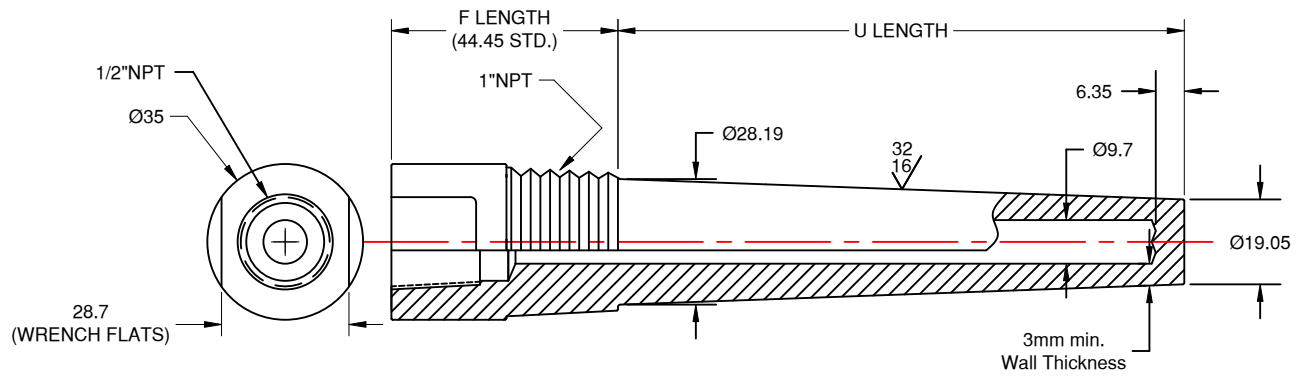
TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX DRILLED THREADED THERMOWELLS, STRAIGHT SHANK

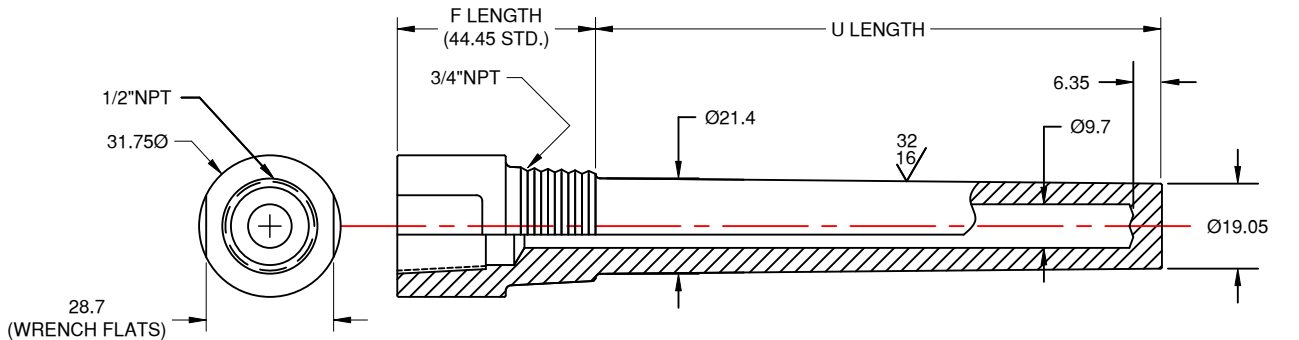
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Doc. No.: TE-CO010109-ATEX-070

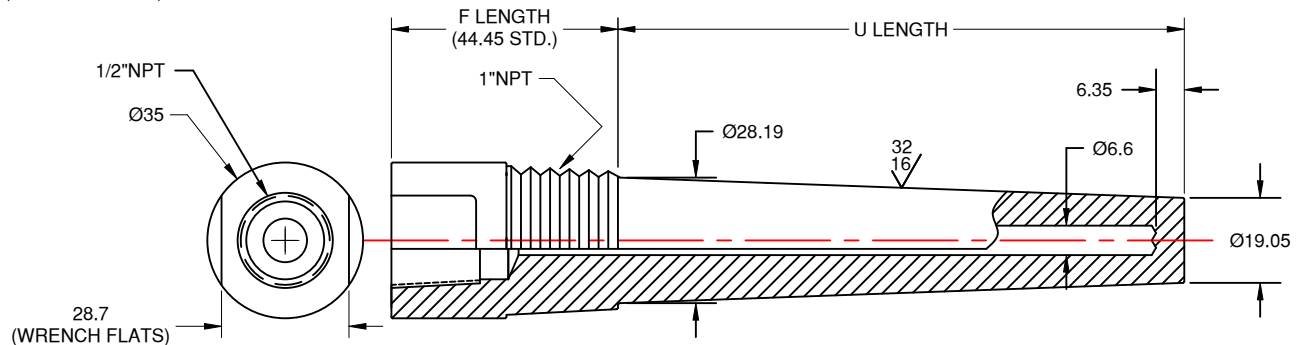
ATEX APPROVED THERMOCOUPLES & RTD's



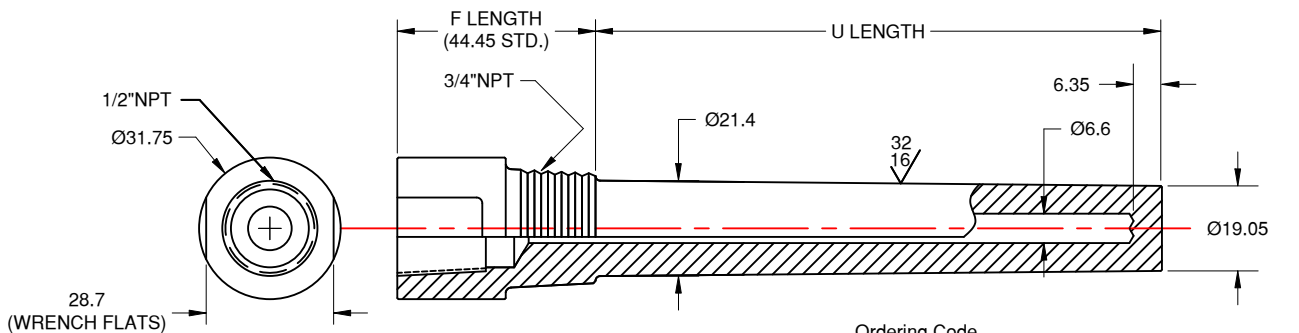
TYPE 24



TYPE 25



TYPE 241



TYPE 251

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

Ordering Code
Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

CODE	THERMOWELL TYPE (INSERT WELL TYPE)	CODE	U LENGTH (IN MM)
CODE	WELL MATERIAL	CODE	F LENGTH (IN MM)
Y	446 STN. STL.		
H	HASTELLOY C276		
L	MONEL 400		
J	INCONEL 600		
Q	310 STN. STL.		
(F11)	1.25%CR - .5%MO		
(F22)	2.25%CR - 1%MO		



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

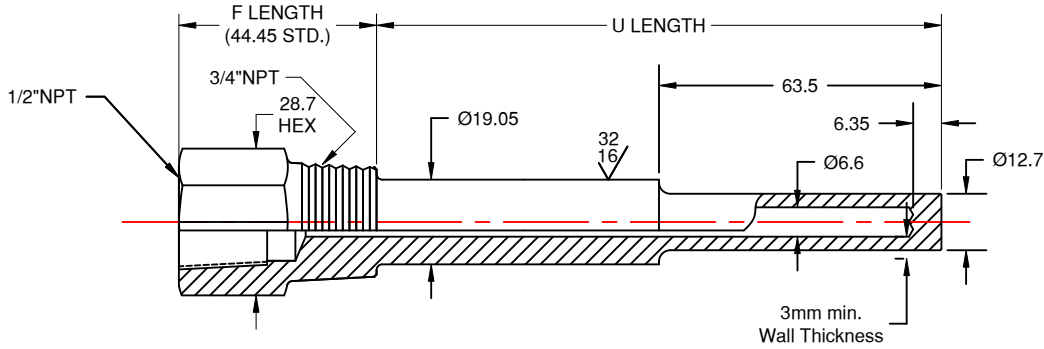
SECTION ATEX

DRILLED THREADED THERMOWELLS TAPERED SHANK, ALLOY MATERIALS

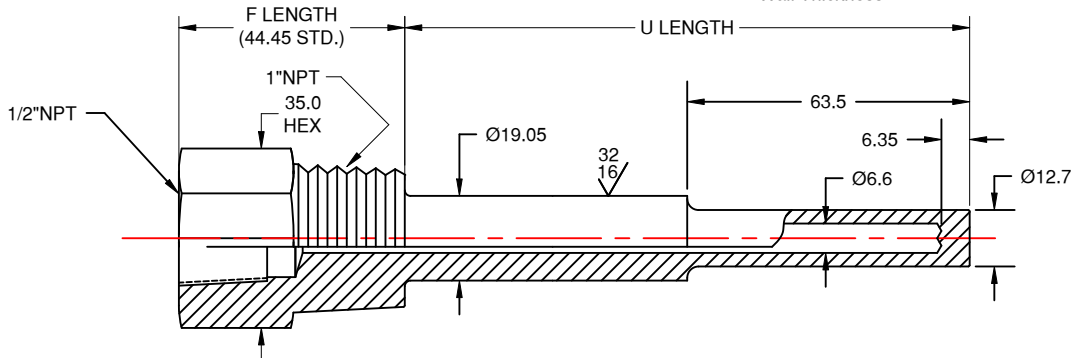
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Doc. No.: TE-CO010109-ATEX-080

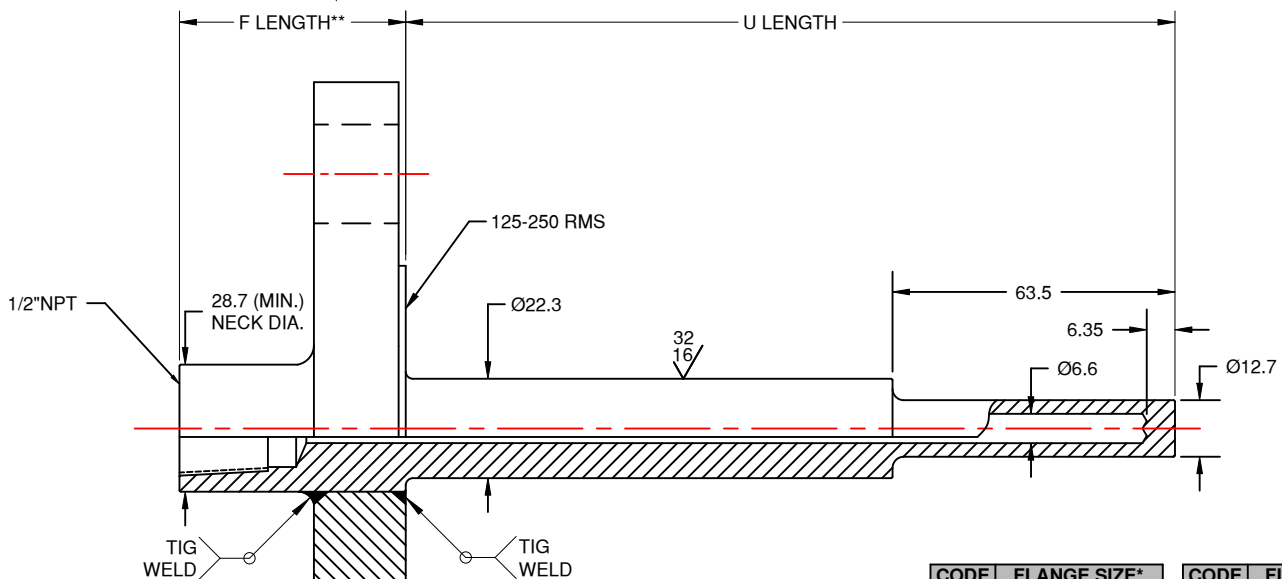
ATEX APPROVED THERMOCOUPLES & RTD's



TYPE 122



TYPE 142



TYPE 432

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+.127/- .076$
END THICKNESS
 ± 1.6



**50.8mm Minimum Length For Flanged Thermowells, May Be Longer For Larger Flange Sizes.

Ordering Code Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

CODE	FLANGE SIZE*
1	1"NPS
1.5	1.5"NPS
2	2"NPS
2.5	2.5"NPS
3	3"NPS

CODE	FLANGE RATING*
150	150 LBS.
300	300 LBS.
600	600 LBS.
900	900 LBS.
1500	1500 LBS.

*Applies to Type 432 Only

CODE	THERMOWELL TYPE (INSERT WELL TYPE)
------	---------------------------------------

CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL (F11)	304 or 316L STN. STL.
N	1.25% CR. - .5 MO. CARBON STEEL

CODE	FLANGE TYPE*
FF	FLAT FACE
RF	RAISED FACE
RJ	RING JOINT

CODE	U LENGTH (IN MM)
------	---------------------

CODE	F LENGTH** (IN MM)
------	-----------------------



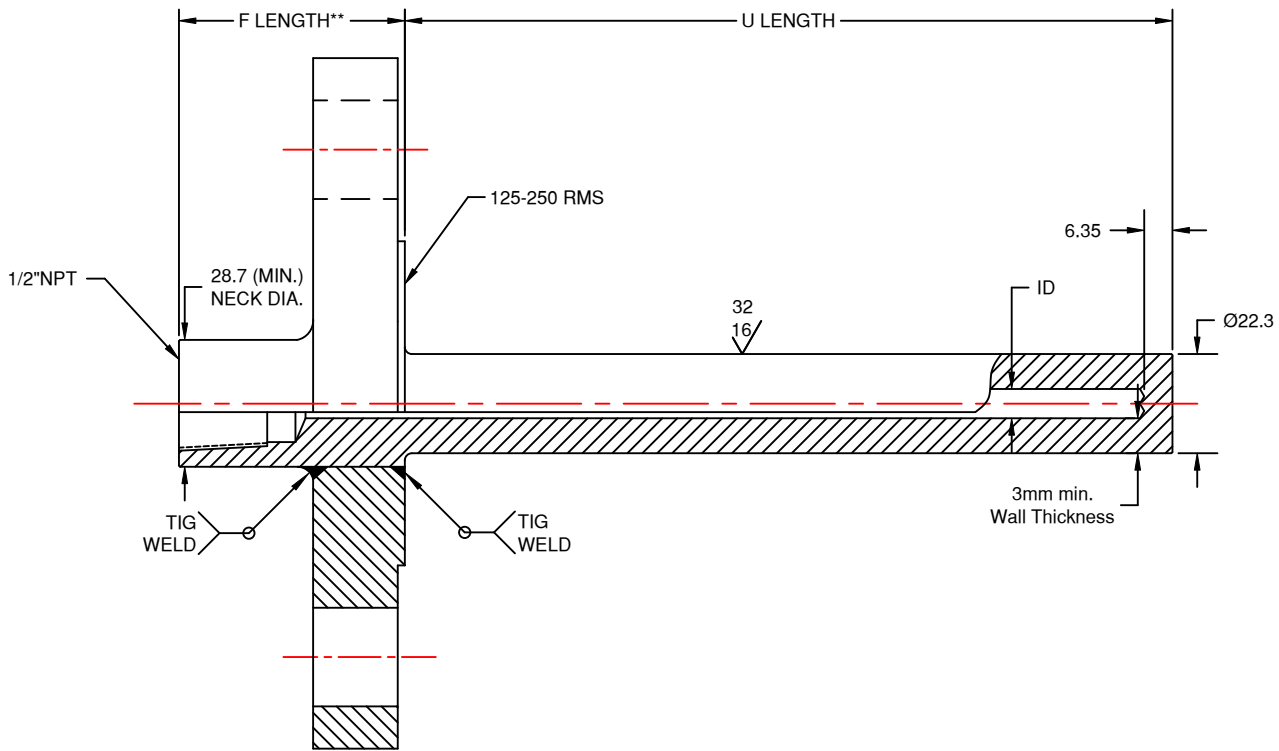
TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX DRILLED THREADED & FLANGED THERMOWELLS STEPPED DOWN SHANK

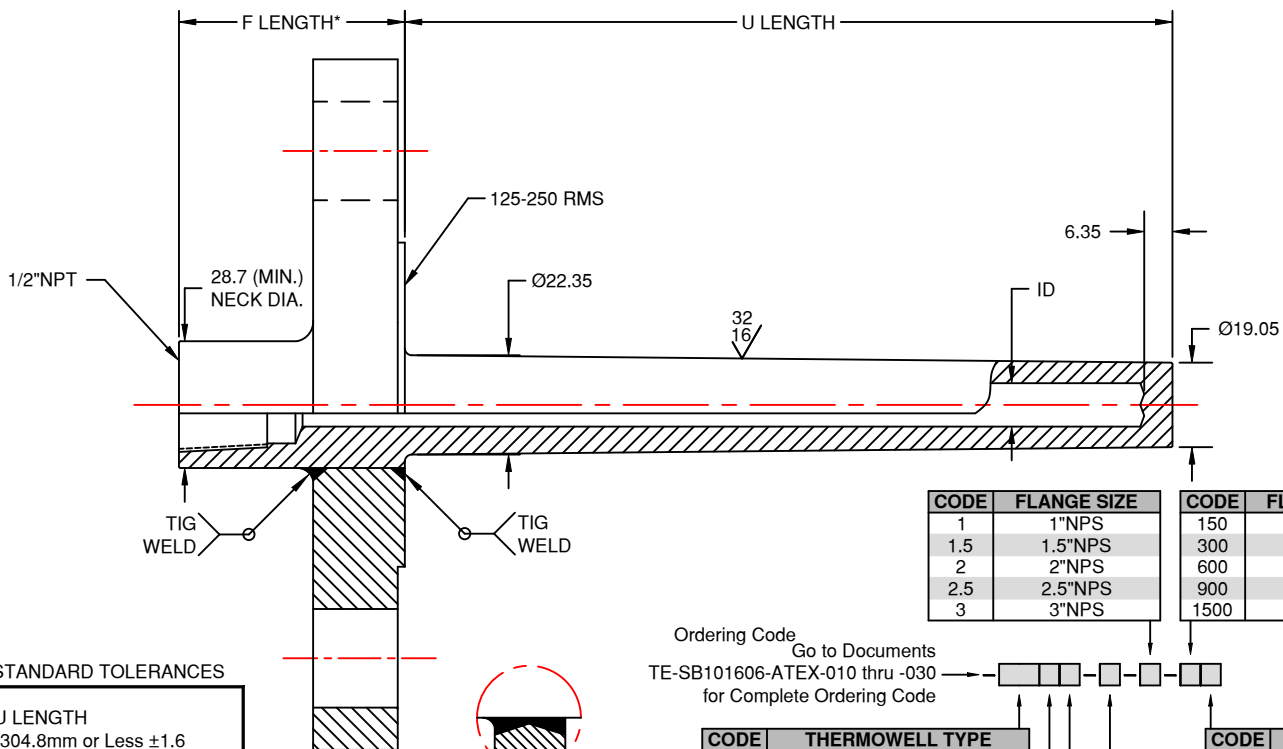
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Doc. No.: TE-CO010109-ATEX-090

ATEX APPROVED THERMOCOUPLES & RTD's



**TYPE 42
TYPE 43**



**TYPE 47
TYPE 48**

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+.127/-0.076$
END THICKNESS
 ± 1.6



OPTIONAL
FULL PENETRATION WELD
(Add (FP) to end of Ordering Code)

*50.8 Minimum Length For
Flanged Thermowells, May
Be Longer For Larger
Flange Sizes.

CODE	FLANGE SIZE	CODE	FLANGE RATING
1	1"NPS	150	150 LBS.
1.5	1.5"NPS	300	300 LBS.
2	2"NPS	600	600 LBS.
2.5	2.5"NPS	900	900 LBS.
3	3"NPS	1500	1500 LBS.

Ordering Code
Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

CODE	THERMOWELL TYPE
42	STRAIGHT, 9.77mmID
43	STRAIGHT, 6.6mmID
47	TAPERED, 9.77mmID
48	TAPERED, 6.6mmID

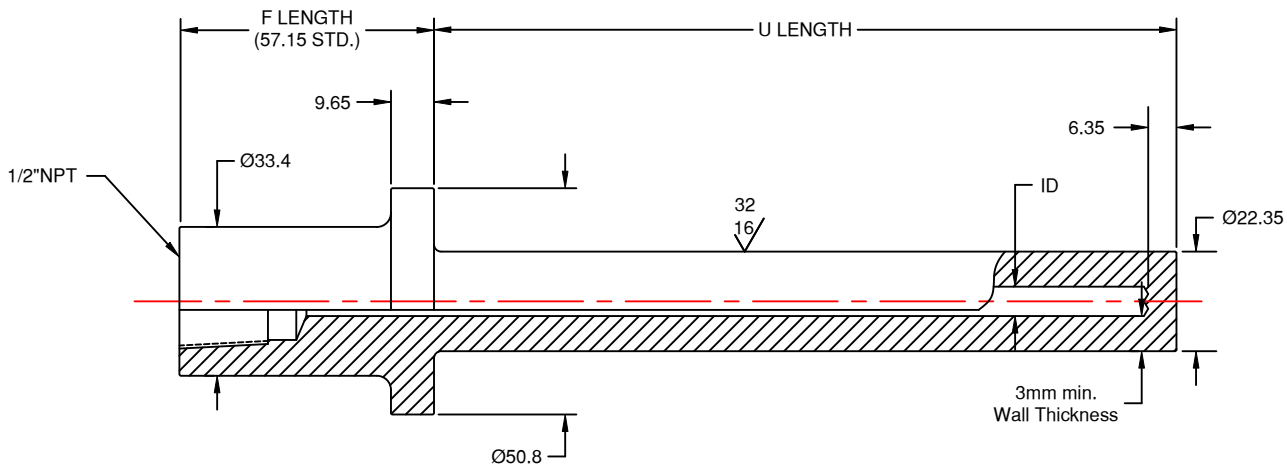
CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL	304 or 316L STN. STL.
(F11)	1.25% CR. - .5 MO.
N	CARBON STEEL

CODE	FLANGE TYPE
FF	FLAT FACE
RF	RAISED FACE
RJ	RING JOINT

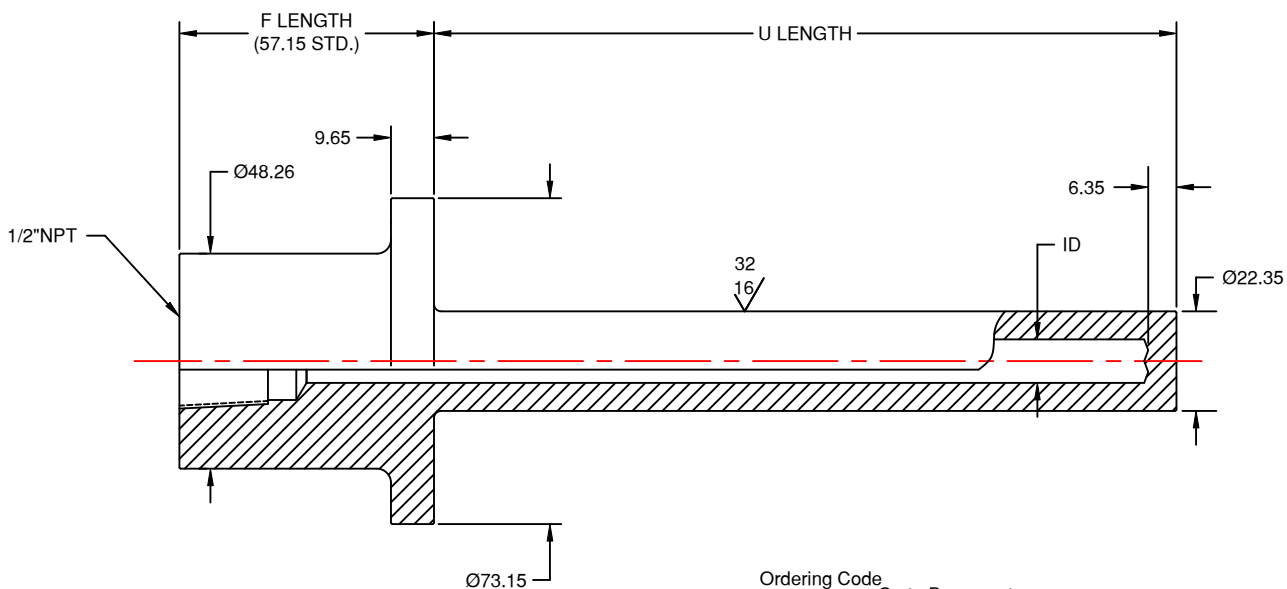
CODE	U LENGTH (IN MM)
------	---------------------

CODE	F LENGTH* (IN MM)
------	----------------------

ATEX APPROVED THERMOCOUPLES & RTD's



**TYPE 45
TYPE 451**



**TYPE 46
TYPE 461**

STANDARD TOLERANCES

U LENGTH
 304.8mm or Less ± 1.6
 304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

Ordering Code
 Go to Documents
 TE-SB101606-ATEX-010 thru -030
 for Complete Ordering Code

CODE	U LENGTH (IN MM)
CODE	F LENGTH (IN MM)
CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL (F11)	304 or 316L STN. STL. 1.25% CR. - .5 MO.
N	CARBON STEEL
CODE	THERMOWELL TYPE
45	1" FLANGE SIZE, 9.77mmID
46	1.5" FLANGE SIZE, 9.77mmID
451	1" FLANGE SIZE, 6.6mmID
461	1.5" FLANGE SIZE, 6.6mmID



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

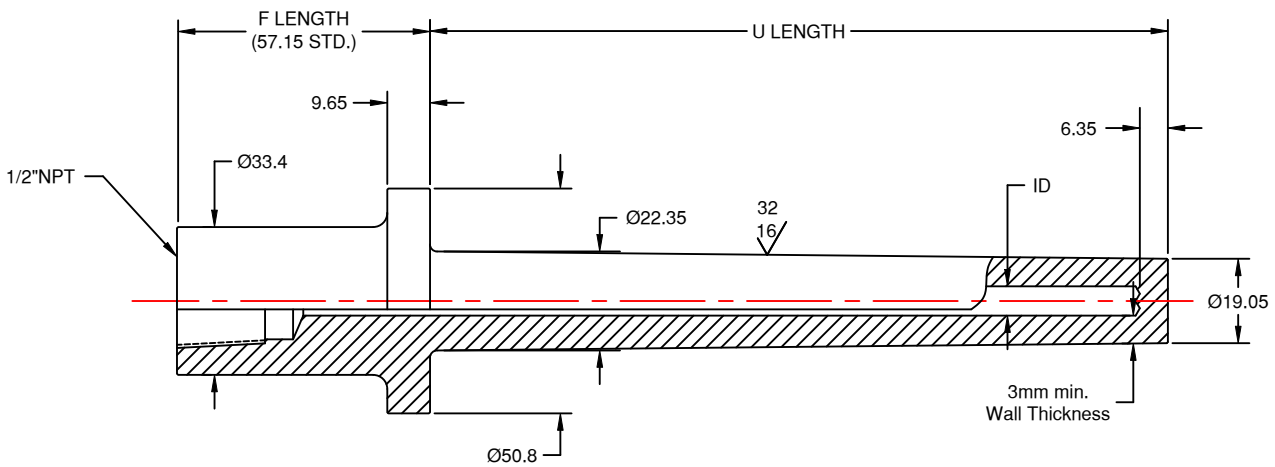
SECTION ATEX

DRILLED VAN STONE THERMOWELLS STRAIGHT SHANK

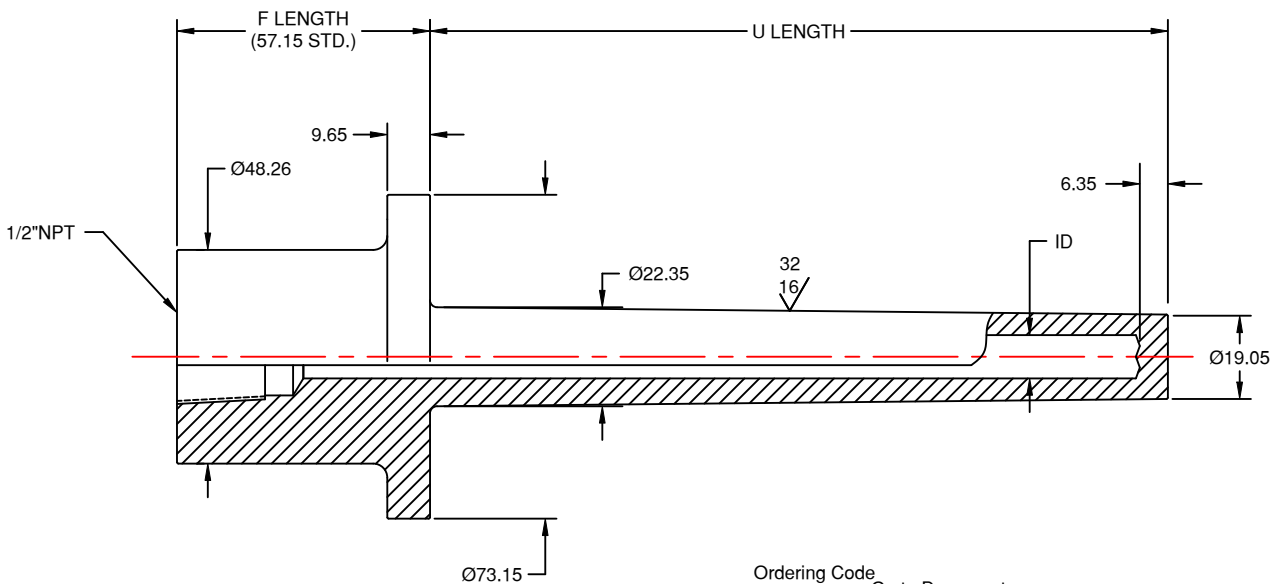
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Doc. No.: TE-CO010109-ATEX-110

ATEX APPROVED THERMOCOUPLES & RTD's



**TYPE 41
TYPE 411**



**TYPE 44
TYPE 441**

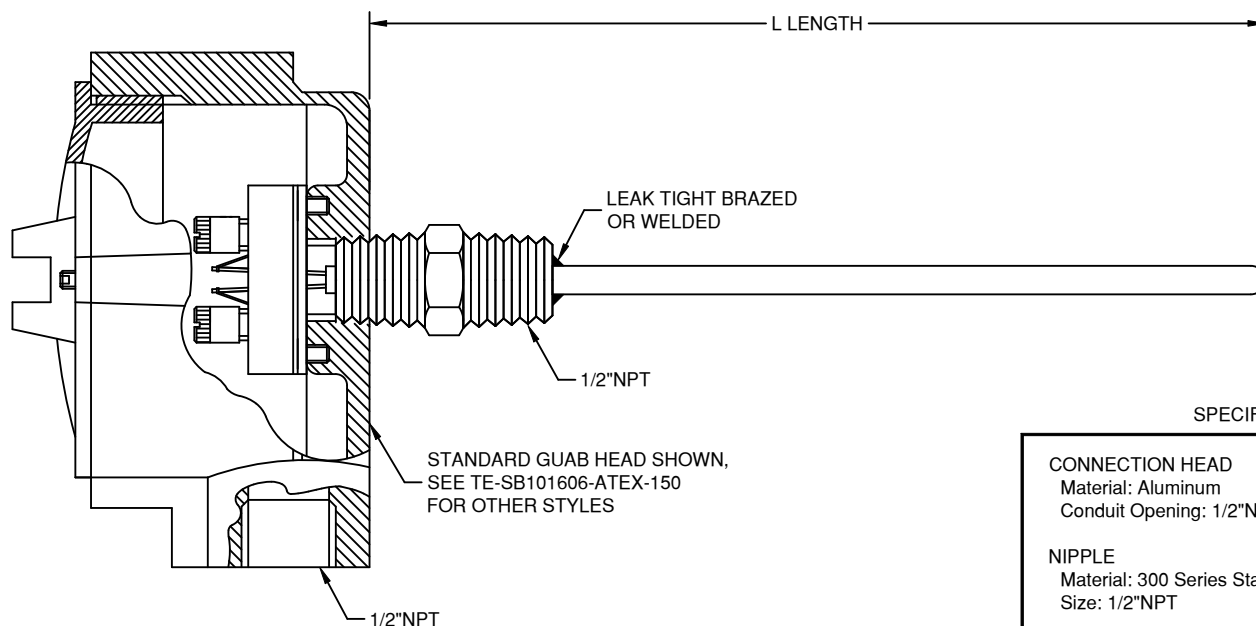
Ordering Code
Go to Documents
TE-SB101606-ATEX-010 thru -030
for Complete Ordering Code

STANDARD TOLERANCES

U LENGTH
304.8mm or Less ± 1.6
304.8mm or Over ± 3.3
F LENGTH
 ± 6.35
STEM DIAMETER
 $\pm .381$
BORE DIAMETER
 $+ .127 / - .076$
END THICKNESS
 ± 1.6

CODE	U LENGTH (IN MM)
CODE	F LENGTH (IN MM)
CODE	WELL MATERIAL
P	304 STN. STL.
R	316 STN. STL.
PLorRL	304 or 316L STN. STL.
(F11)	1.25% CR. - .5 MO.
N	CARBON STEEL
CODE	THERMOWELL TYPE
41	1" FLANGE SIZE, 9.77mmID
44	1.5" FLANGE SIZE, 9.77mmID
411	1" FLANGE SIZE, 6.6mmID
441	1.5" FLANGE SIZE, 6.6mmID

ATEX APPROVED THERMOCOUPLES & RTD's



SPECIFICATIONS

CONNECTION HEAD
Material: Aluminum
Conduit Opening: 1/2"NPT

NIPPLE
Material: 300 Series Stainless Steel
Size: 1/2"NPT

THERMOCOUPLE ELEMENT
Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT
Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

Ordering Code

C A D F - 2 - 1 - - - - -

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	L LENGTH (IN MM)

CODE	HEAD STYLE
GUAB	SINGLE CONDUIT
GUAD	DUAL CONDUIT
GUAM	DUAL CONDUIT
GUAW	THREE CONDUIT
SB	SINGLE CONDUIT
SD	DUAL CONDUIT
GUJP	SINGLE CONDUIT

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples
not permitted

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
A	SINGLE THERMOCOUPLE
AD	DUPLEX THERMOCOUPLE

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

CODE	CALIBRATION
	OMIT FOR RTD'S
	(J, K, T, E, N)

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50018 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is flame proof type "d" according to EN50014 and EN50018.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

Internal free volume from 150cm³ to 1200cm³ according to the type of head.

This equipment is suitable for installation in the following areas:

- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

Example Ordering Code
CTADF-2-1-GUAB-100-ASL14JUR-18

IDENTIFICATION LABEL

"DO NOT OPEN WHILE ENERGIZED"
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

THERMO ELECTRIC CO., INC.
Totowa NJ USA

TYPE: MODEL:
No.: DATE:
CE 0081 II 2 G/D
EEx d IIC T6 IP65 T=85°C
LCIE 05 ATEX 6105 X



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX

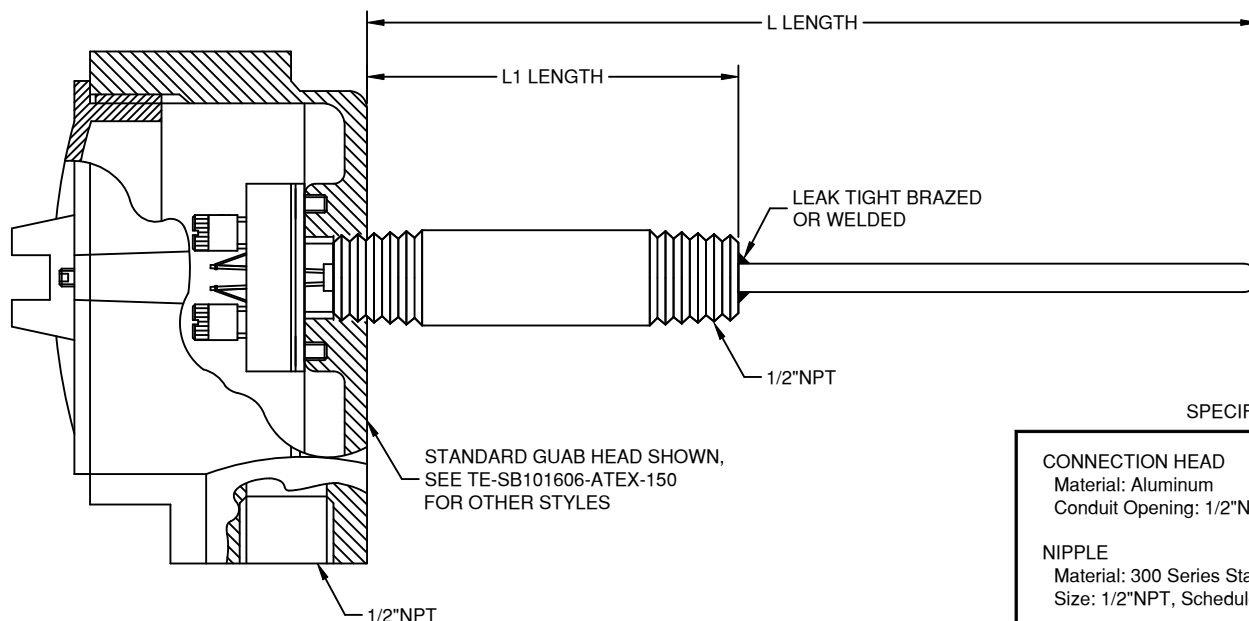
TYPE CSADF & CTADF
MODEL 2

"d" FLAMEPROOF PROTECTION

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Doc. No.: TE-CO010109-ATEX-130

ATEX APPROVED THERMOCOUPLES & RTD's



SPECIFICATIONS

CONNECTION HEAD

Material: Aluminum
Conduit Opening: 1/2"NPT

NIPPLE

Material: 300 Series Stainless Steel
Size: 1/2"NPT, Schedule 80

THERMOCOUPLE ELEMENT

Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT

Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

Ordering Code

C □ A D F - 3 - 1 - □ - □ - □ - □ - □ - □ - □

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
GUAB	SINGLE CONDUIT
GUAD	DUAL CONDUIT
GUAM	DUAL CONDUIT
GUAW	THREE CONDUIT
SB	SINGLE CONDUIT
SD	DUAL CONDUIT
GUJP	SINGLE CONDUIT

CODE	LI LENGTH (IN MM)

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
A	SINGLE THERMOCOUPLE
AD	DUPLEX THERMOCOUPLE

CODE	L LENGTH (IN MM)

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples
not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50018 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is flame proof type "d" according to EN50014 and EN50018.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

Internal free volume from 150cm³ to 1200cm³ according to the type of head.

This equipment is suitable for installation in the following areas:

- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

Example Ordering Code
CTADF-3-1-GUAB-100-ADSL14KDUJ-36

IDENTIFICATION LABEL

"DO NOT OPEN WHILE ENERGIZED"
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

THERMO ELECTRIC CO., INC.
Totowa NJ USA

TYPE: No. 0081 MODEL: II 2 G/D
EEx d IIC T6 IP65 T=85°C
LCIE 05 ATEX 6105 X



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
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SECTION ATEX

TYPE CSADF & CTADF
MODEL 3

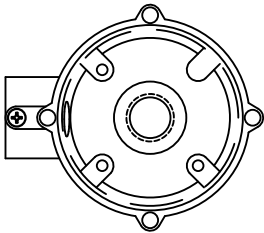
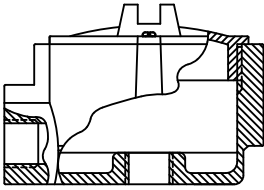
"d" FLAMEPROOF PROTECTION

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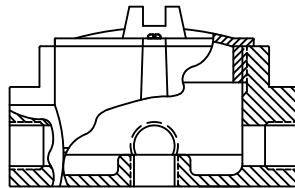
Doc. No.: TE-CO010109-ATEX-140



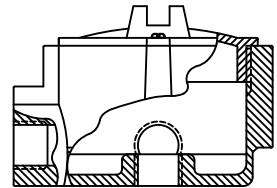
TYPE GUAB



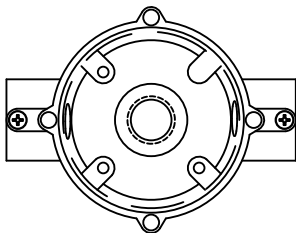
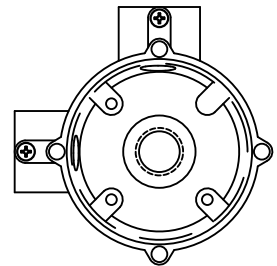
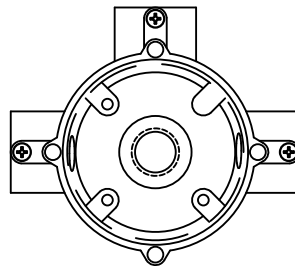
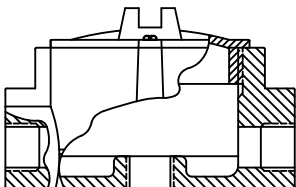
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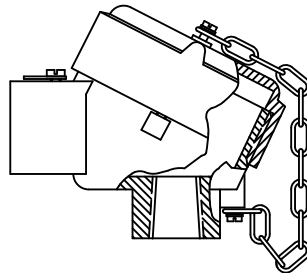
TYPE GUAM



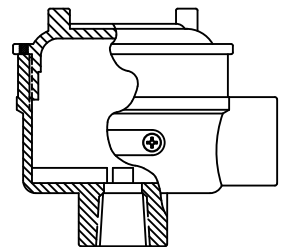
TYPE GUAD



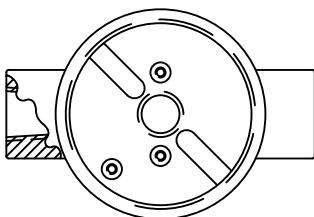
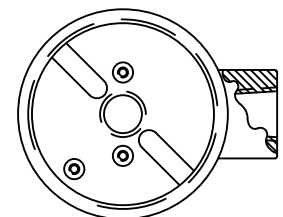
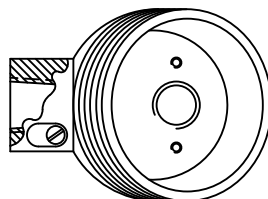
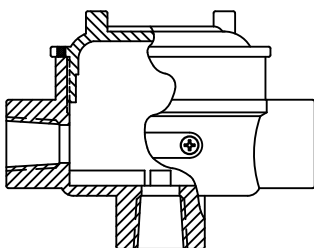
TYPE GUJP



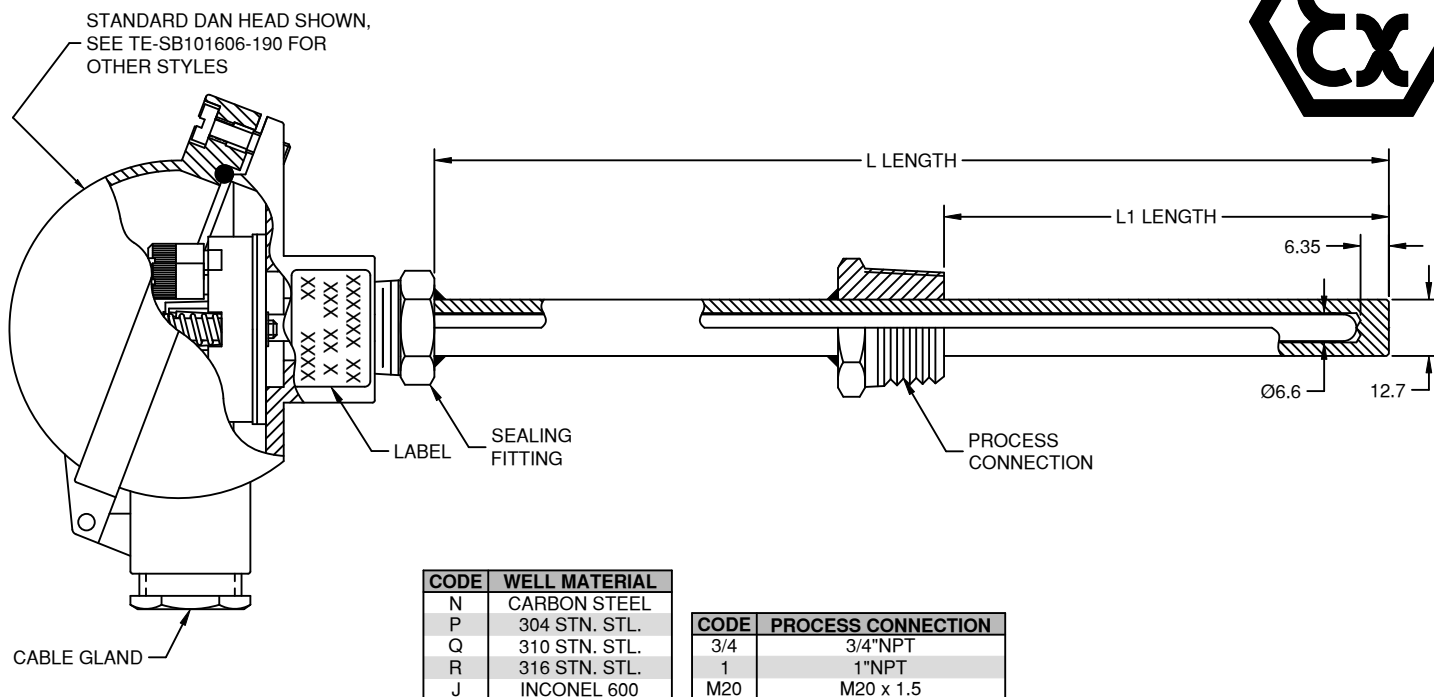
TYPE SB



TYPE SD



ATEX APPROVED THERMOCOUPLES & RTD's



CODE	WELL MATERIAL
N	CARBON STEEL
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

CODE	PROCESS CONNECTION
3/4	3/4"NPT
1	1"NPT
M20	M20 x 1.5
M24	M24 x 1.5

CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

*Standard in 316 SS only

CODE	L LENGTH
	(IN MM)

CODE	LI LENGTH
	(IN MM)

Ordering Code

C I - A - - - - -

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
DAN	HINGED COVER, SINGLE CONDUIT
DAD	HINGED COVER, DUAL CONDUIT
DNAG	SCREW COVER, SINGLE CONDUIT
A	CAP COVER, SINGLE CONDUIT
AD	CAP COVER, DUAL CONDUIT

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

SPECIFICATIONS

CONNECTION HEAD
Material: Aluminum

CABLE GLAND
Material: Oil-Resistant Rubber
Cable Range: 5.48mm to 7.49mm

SEALING & PROCESS FITTING
Material: 316 Stainless Steel

THERMOCOUPLE ELEMENT
Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block, 2 or 4 Posts, Spring Loaded

RTD ELEMENT
Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block, 3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER VARIATIONS NOT SHOWN

Example Ordering Code

CTI-A-DAN-ASL14KUR-R-3/4-24-18

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50020 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is intrinsically safe "ia" according to EN50014 and EN50020.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

This equipment is suitable for installation in the following areas:

- Group II, Category 1, Zone 0 and 20
- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

IDENTIFICATION LABEL

THERMO ELECTRIC 0081 II 1 G/D
Totowa NJ USA IP6X T°: 85°C
Type CSI EEx ia IIC T4, T5 or T6
Model: XXXXXXXX LCIE 03 ATEX 6104 X
N° 0005 Date: XX/XX/XX



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX

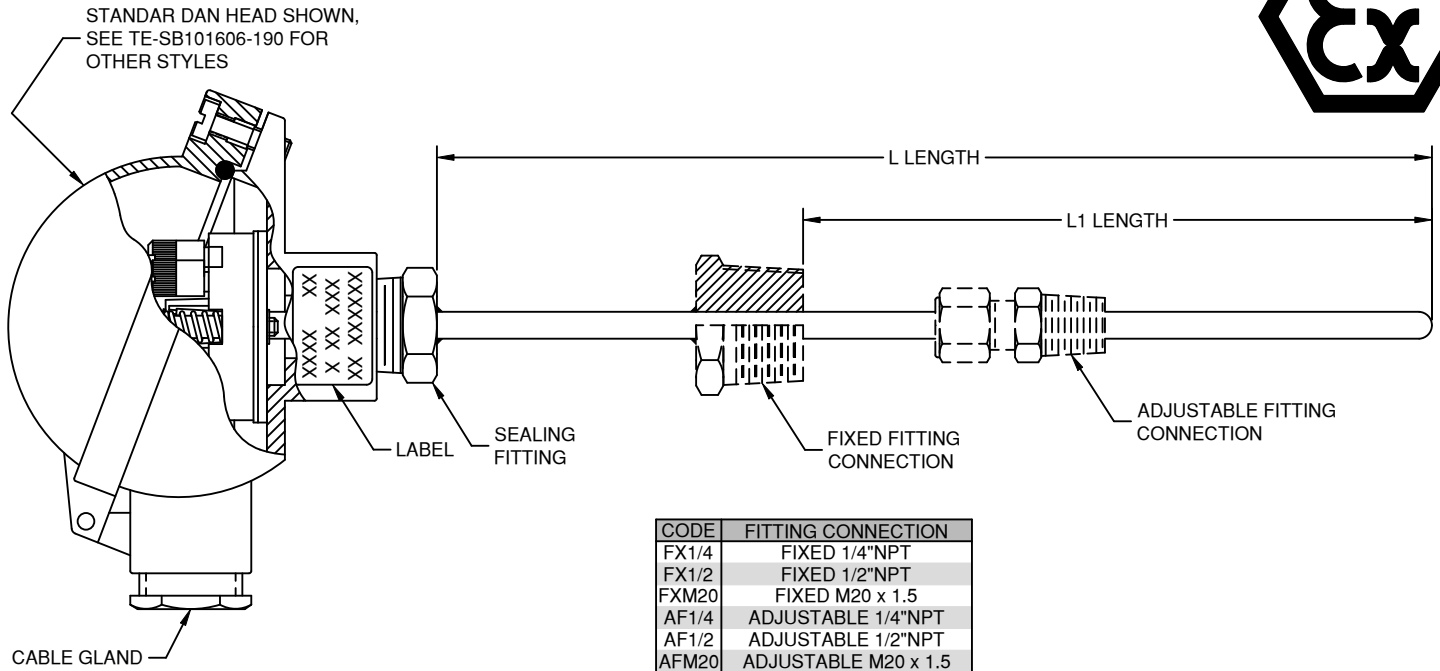
TYPE CSI & CTI
ASSEMBLY A

"I" INTRINSIC SAFETY PROTECTION

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Doc. No.: TE-CO010109-ATEX-160

ATEX APPROVED THERMOCOUPLES & RTD's



CODE	SHEATH MATERIAL
	OMIT FOR RTD'S*
P	304 STN. STL.
Q	310 STN. STL.
R	316 STN. STL.
J	INCONEL 600

CODE	L LENGTH (IN MM)
------	---------------------

CODE	L1 LENGTH (IN MM)
Applies to fixed fittings only	

Ordering Code

C I - B - - - - -

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
DAN	HINGED COVER, SINGLE CONDUIT
DAD	HINGED COVER, DUAL CONDUIT
DNAG	SCREW COVER, SINGLE CONDUIT
A	CAP COVER, SINGLE CONDUIT
AD	CAP COVER, DUAL CONDUIT

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

Example Ordering Code
CSI-B-DAN-RTD14-AF1/2-12

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50020 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is intrinsically safe "ia" according to EN50014 and EN50020.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

This equipment is suitable for installation in the following areas:

- Group II, Category 1, Zone 0 and 20
- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

SPECIFICATIONS

CONNECTION HEAD
Material: Aluminum

CABLE GLAND
Material: Oil-Resistant Rubber
Cable Range: 5.48mm to 7.49mm

SEALING & PROCESS FITTING
Material: Stainless Steel

THERMOCOUPLE ELEMENT
Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT
Sheath Material: 316 Stn. Stl.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

IDENTIFICATION LABEL

THERMO ELECTRIC
Totowa NJ USA
Type CSI
Model: XXXXXXXX
N° 0005 Date: XX/XX/XX

0081 II 1 G/D
IP6X T°: 85°C
EEx ia IIC T4, T5 or T6
LCIE 03 ATEX 6104 X



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE
WWW.THERMO-ELECTRIC.COM

SECTION ATEX

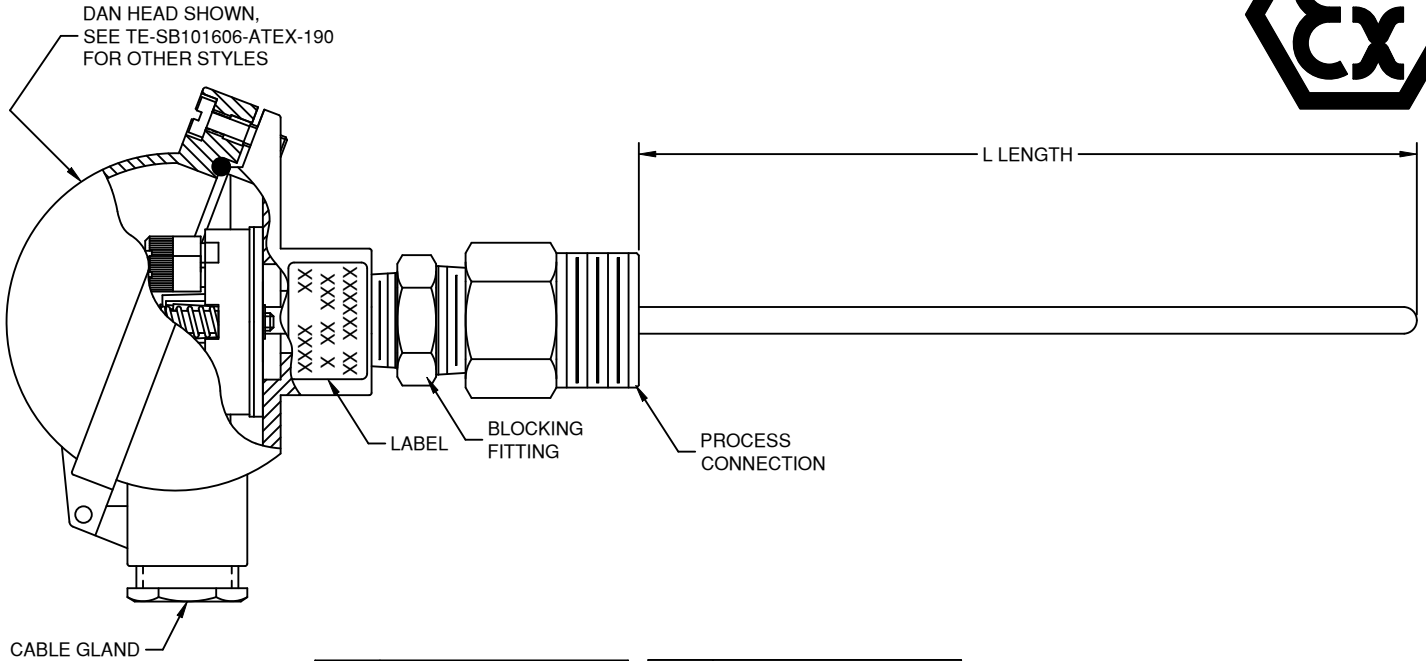
TYPE CSI & CTI
ASSEMBLY B

"i" INTRINSIC SAFETY PROTECTION

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Doc. No.: TE-CO010109-ATEX-170

ATEX APPROVED THERMOCOUPLES & RTD's



CODE	SHEATH MATERIAL	CODE	PROCESS CONNECTION
	OMIT FOR RTD'S*	1/4	1/4"NPTF (FEMALE)
P	304 STN. STL.	1/2	1/2"NPTF (FEMALE)
Q	310 STN. STL.		
R	316 STN. STL.		
J	INCONEL 600		

CODE	L LENGTH (IN MM)

Ordering Code

C I - C - - - - -

CODE	TYPE OF ELEMENT
S	RTD
T	THERMOCOUPLE

CODE	HEAD STYLE
DAN	HINGED COVER, SINGLE CONDUIT
DAD	HINGED COVER, DUAL CONDUIT
DNAG	SCREW COVER, SINGLE CONDUIT
A	CAP COVER, SINGLE CONDUIT
AD	CAP COVER, DUAL CONDUIT

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
ASL	SINGLE THERMOCOUPLE
ADSL	DUPLEX THERMOCOUPLE

CODE	MEASURING JUNCTION
	OMIT FOR RTD'S
U	SINGLE UNGROUNDED
DU	DUPLEX UNGROUNDED

Grounded thermocouples not permitted

CODE	CALIBRATION
	OMIT FOR RTD'S (J, K, T, E, N)

CODE	DIAMETER OF ELEMENT
18	3.17 (1/8")*
316	4.76 (3/16")
14	6.35 (1/4")

*Not Available in Duplex RTD

Example Ordering Code
CTI-C-DAN-ADSL316TDUP-1/2-24

3.17 (1/8")*
4.76 (3/16")
6.35 (1/4")

These sensors are manufactured in compliance with the European Directive 94/09/EC and with the EN50014 and EN50020 applicable standards. They are meant to be used in hazardous locations.

This equipment is used in potentially explosive atmospheres other than mines or those parts of surface installations of such mines endangered by firedamp and or combustible dusts.

This type of protection is intrinsically safe "ia" according to EN50014 and EN50020.

The maximum surface temperature class is T4 to T6.

Assemblies are suitable for gas group IIC.

This equipment is suitable for installation in the following areas:

- Group II, Category 1, Zone 0 and 20
- Group II, Category 2, Zone 1 and 21
- Group II, Category 3, Zone 2 and 22

SPECIFICATIONS

CONNECTION HEAD
Material: Aluminum

CABLE GLAND
Material: Oil-Resistant Rubber
Cable Range: 7.48mm to 7.49mm

SEALING & PROCESS FITTING
Material: Stainless Steel

THERMOCOUPLE ELEMENT
Sheath Material: As Coded
Insulation: MgO
Initial Calibration Tolerance: Standard
Termination: DIN Style Terminal Block,
2 or 4 Posts, Spring Loaded

RTD ELEMENT
Sheath Material: 316 Stn. Stil.
Insulation: MgO
Accuracy: ASTM E1137 Class B
Termination: DIN Style Terminal Block,
3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER
VARIATIONS NOT SHOWN

IDENTIFICATION LABEL

THERMO ELECTRIC CE 0081 II 1 G/D
Totowa NJ USA IP6X T°: 85°C
Type CSI EEx ia IIC T4, T5 or T6
Model: XXXXXXXX LCIE 03 ATEX 6104 X
N° 0005 Date: XX/XX/XX



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SECTION ATEX

TYPE CSI & CTI
ASSEMBLY C

"i" INTRINSIC SAFETY PROTECTION

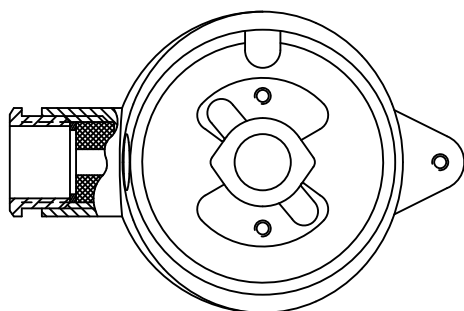
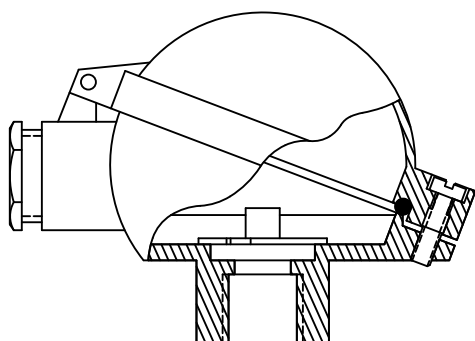
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Doc. No.: TE-CO010109-ATEX-180

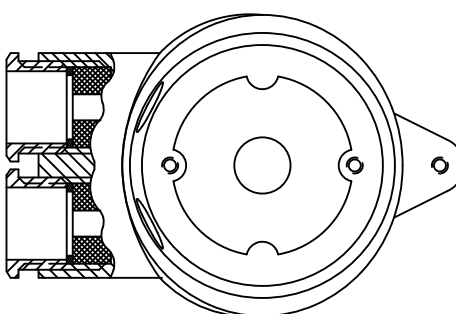
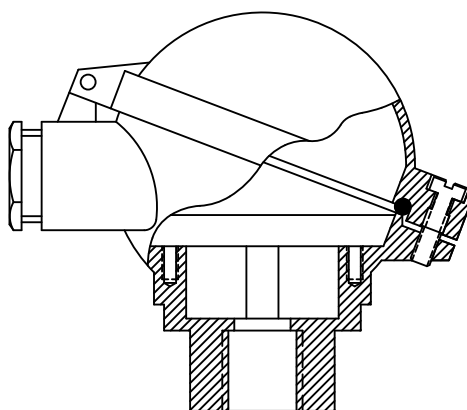
ATEX APPROVED THERMOCOUPLES & RTD's



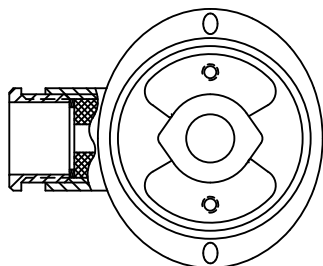
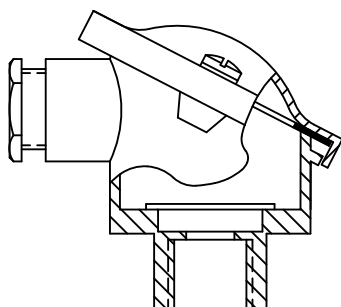
TYPE DAN



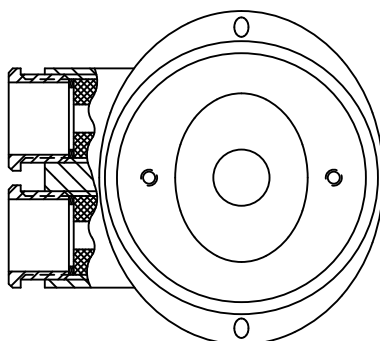
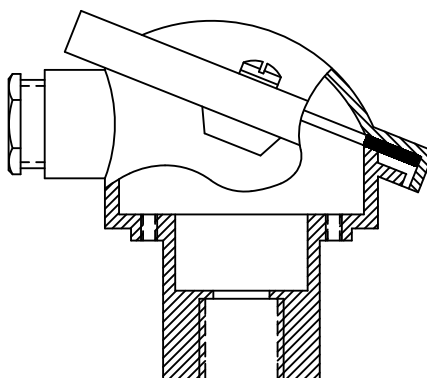
TYPE DAD



TYPE A



TYPE AD



TYPE DNAG

