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:

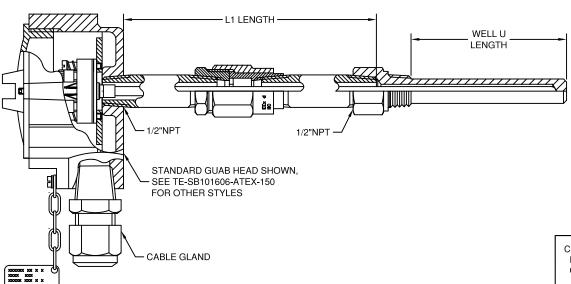
- Category 1: Equipment of this category is intended for use in an area where an explosive atmosphere is continuously present, present for long periods or frequently present and must ensure a very high level of protection. (Suitable for use in Zone 0(G), and 20(D)
- Category 2: Equipment of this category 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.







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

CABLE GLAND

Material: Nickel Plated Brass Cable Range: Inner, .315" to .46" Outer, .453" to .63"

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

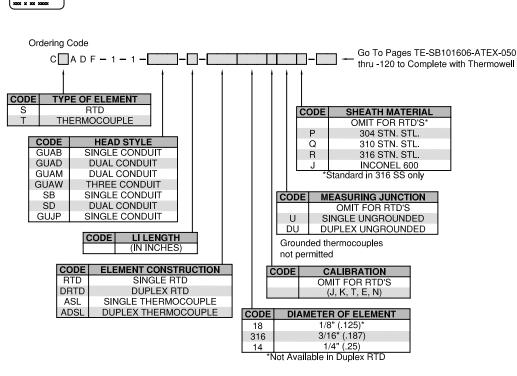
RTD ELEMENT

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



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-4-ASL14JRU-14R2-12

IDENTIFICATION LABEL

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

THERMO ELECTRIC CO., INC. Totowa NJ USA

O TYPE:

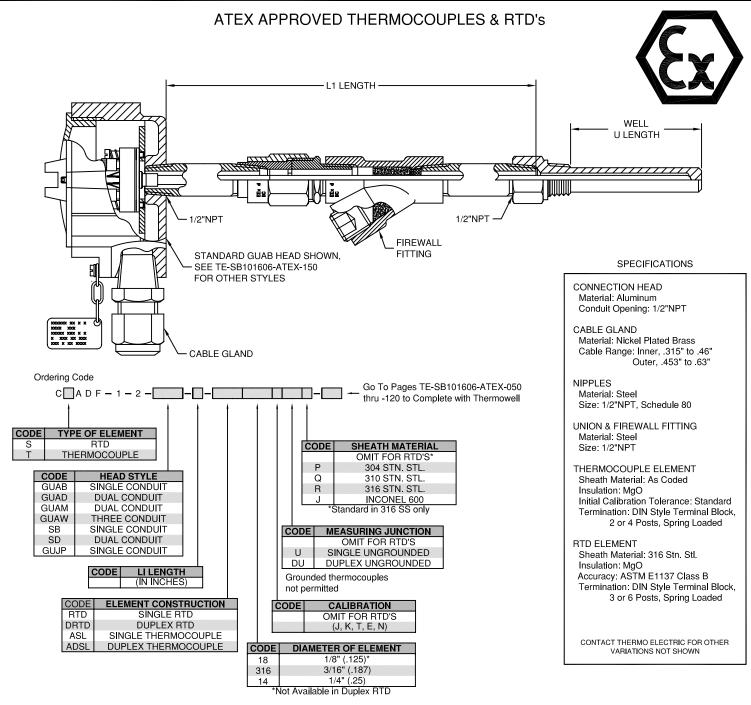
MODEL: DATE:



SECTION ATEX

TYPE CSADF & CTADF MODEL 1, without FIREWALL "d" FLAMEPROOF PROTECTION The information contained hereon shall be considered the sole property of Thermo Electric Company, Inc. The reciplent thereof agrees not to disclose or reproduce sald information to partles outside the recipients organization without the written permission of Thermo Electric.

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



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-5-DRTD14-121P2-6

IDENTIFICATION LABEL

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

THERMO ELECTRIC CO., INC. Totowa NJ USA

O TYPE:

MODEL: DATE:

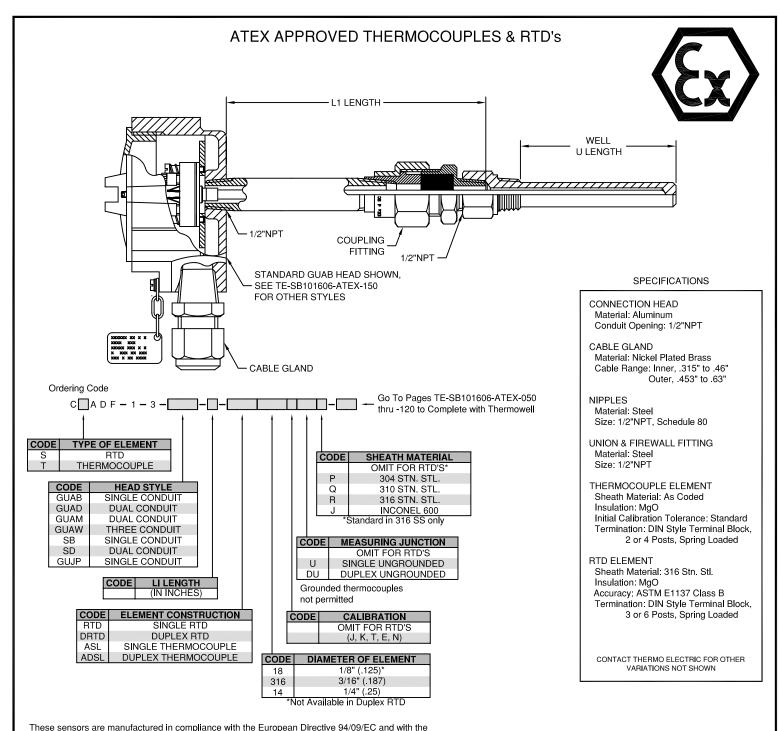
(€0081**(**) II 2 G/D EEx d IIC T6 IP65 T=85°C LCIE 05 ATEX 6105 X



SECTION ATEX

TYPE CSADF & CTADF MODEL 1, with FIREWALL "d" FLAMEPROOF PROTECTION The information contained hereon shall be considered the sole property of Thermo Electric Company, Inc. The recipient thereof agrees not to disclose or reproduce sald Information to partles outside the recipients organization without the written permission of Thermo Electric.

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



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.

Example Ordering Code CSADF-1-3-GUAB-4-RTD316-47R2-16-1.5-150RF

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

SECTION ATEX

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

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

IDENTIFICATION LABEL "DO NOT OPEN WHILE ENERGIZED"

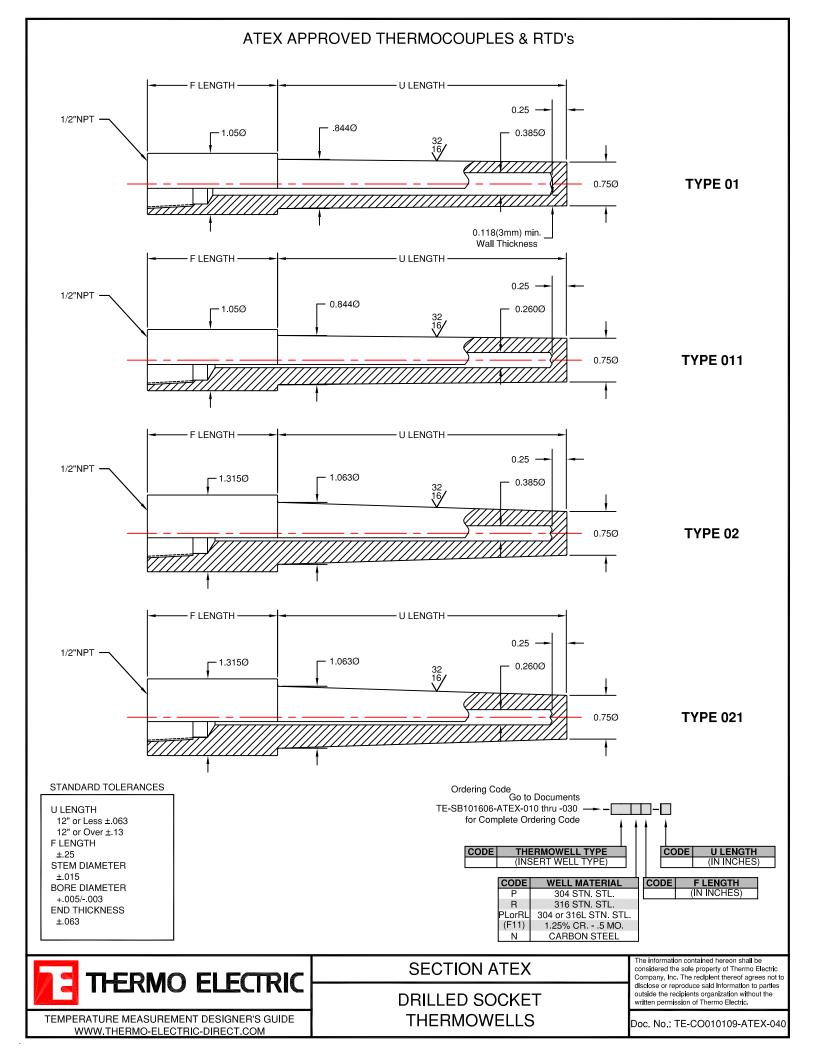
"DO NOT OPEN IN EXPLOSIVE ATMOSPHERE"

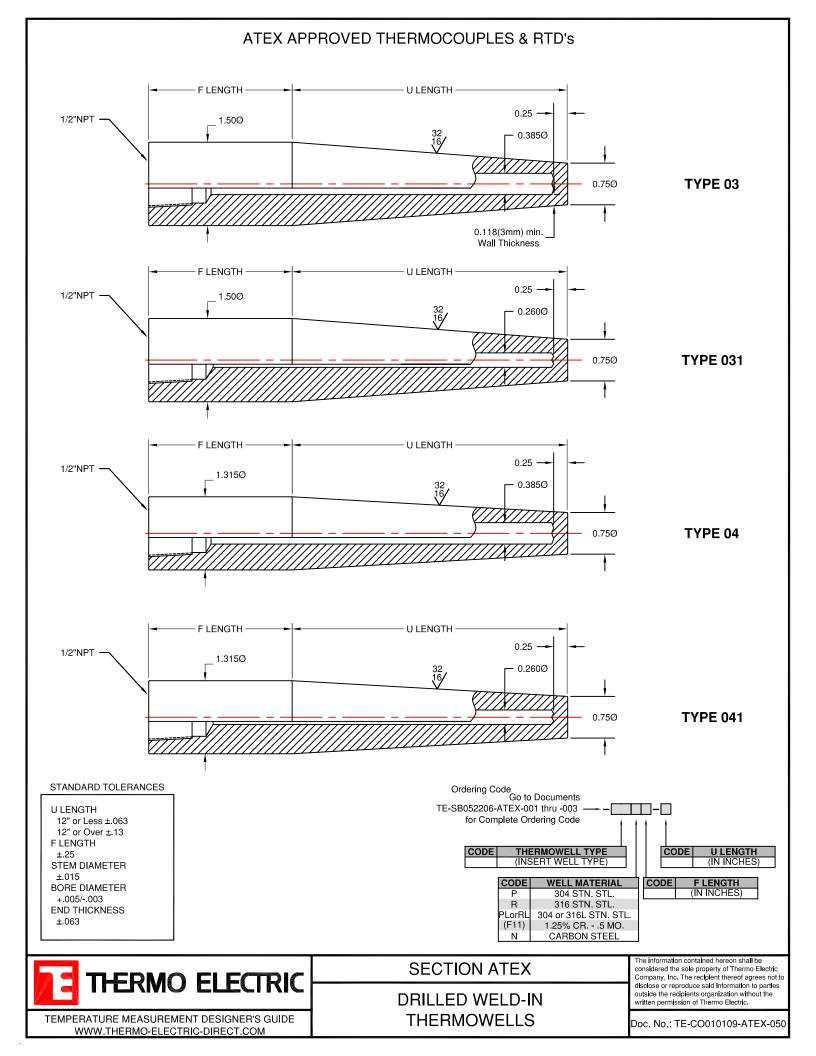
THERMO ELECTRIC CO., INC.
Totowa NJ USA

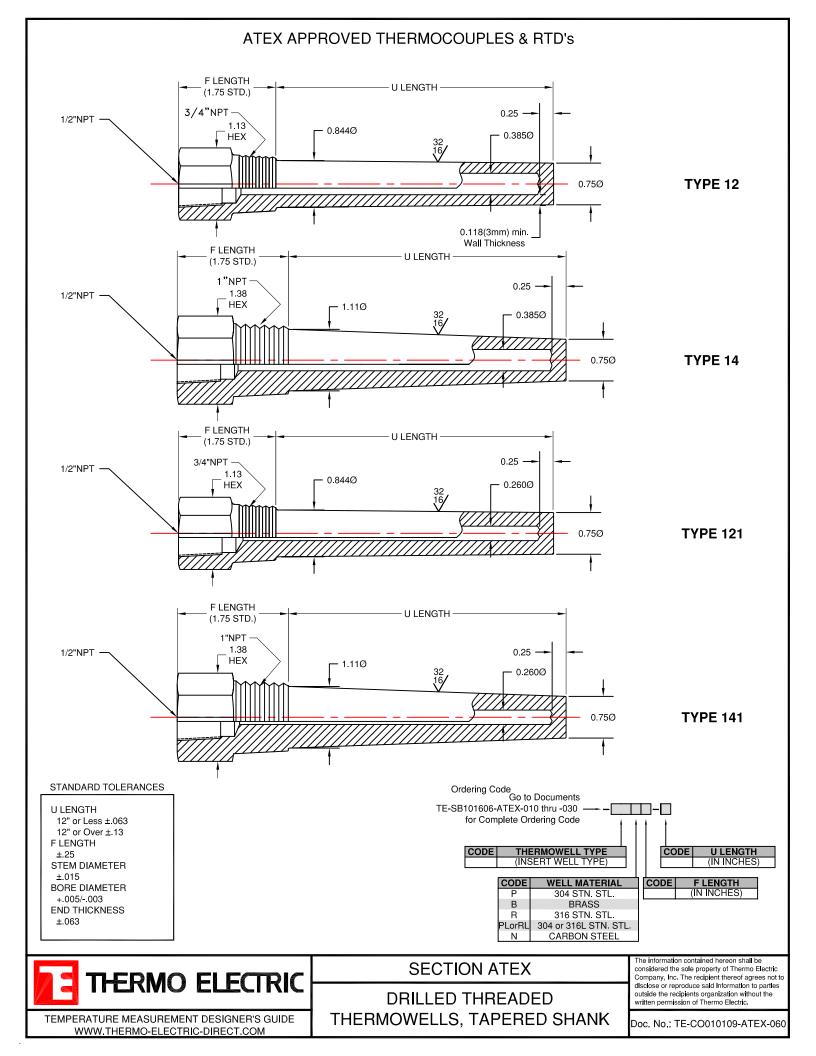
O TYPE: MODEL: DATE

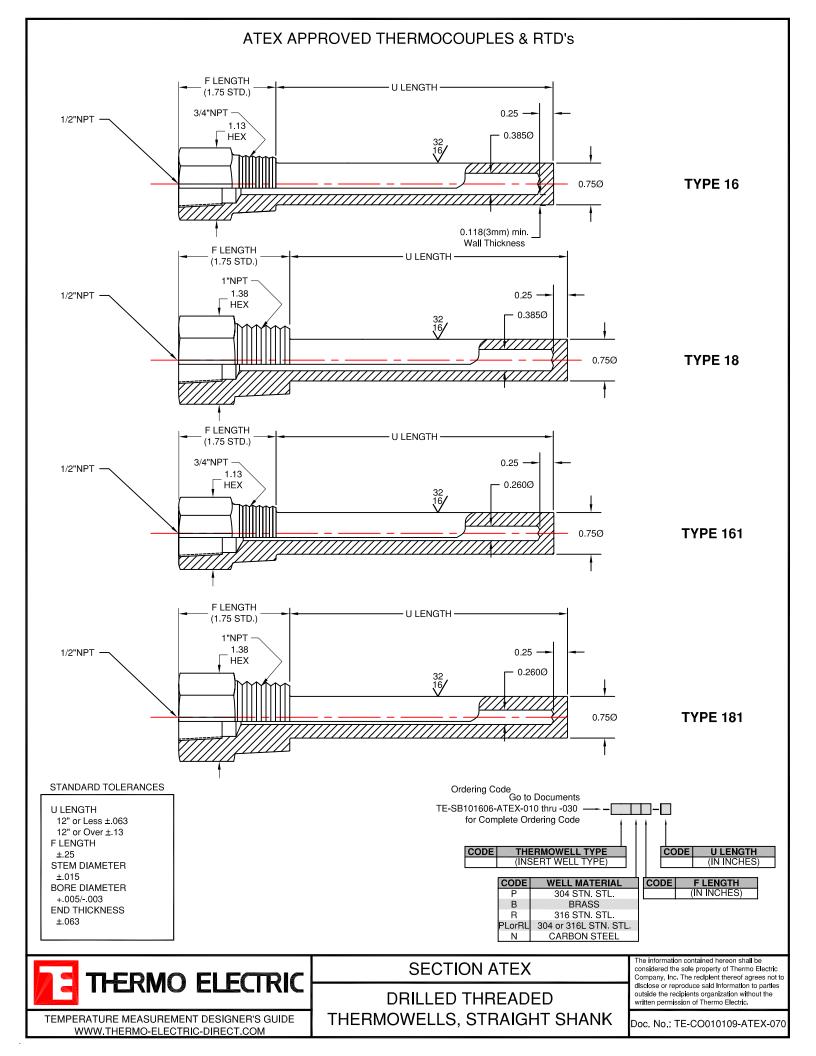
(€0081&∏II 2 G/D EEx d IIC T6 IP65 T=85°C LCIE 05 ATEX 6105 X

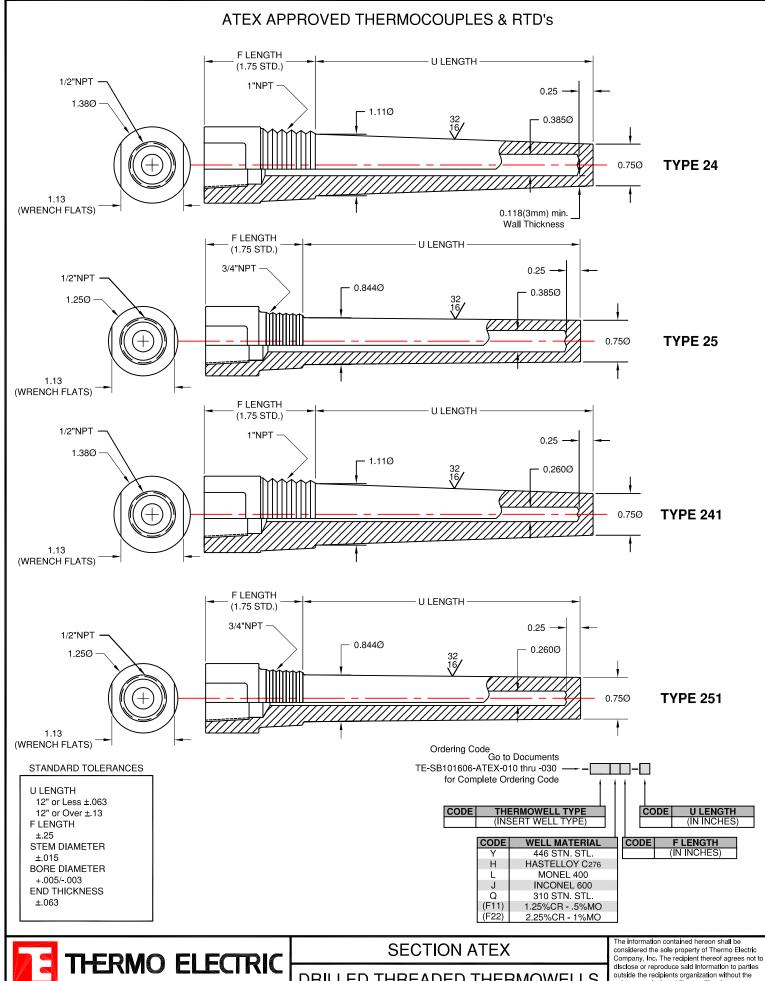




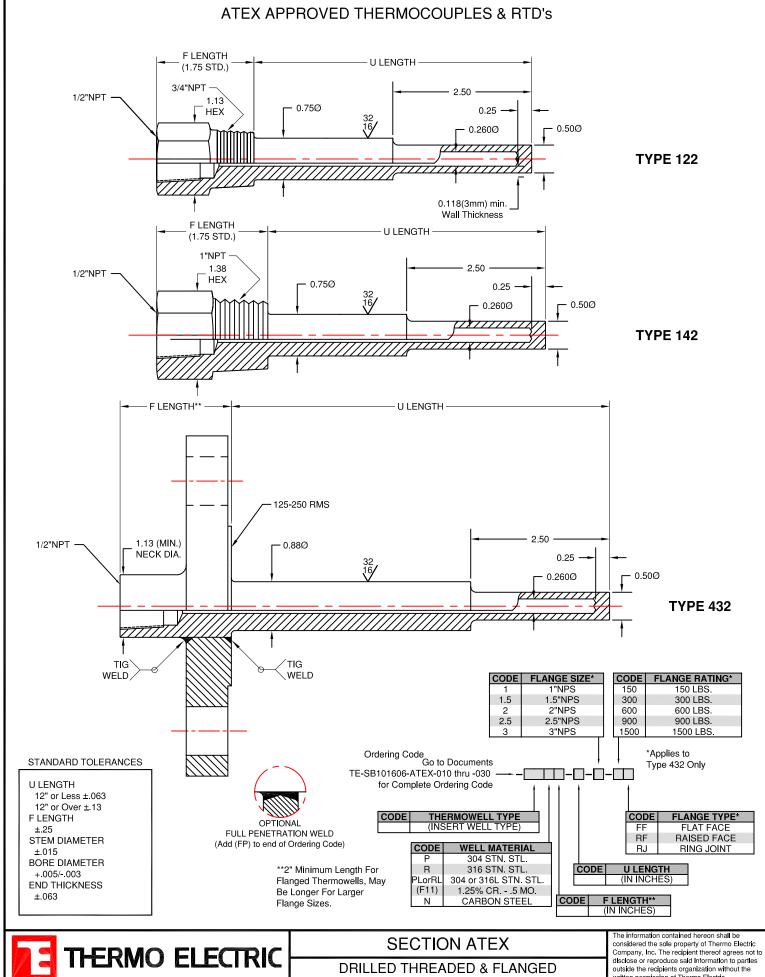








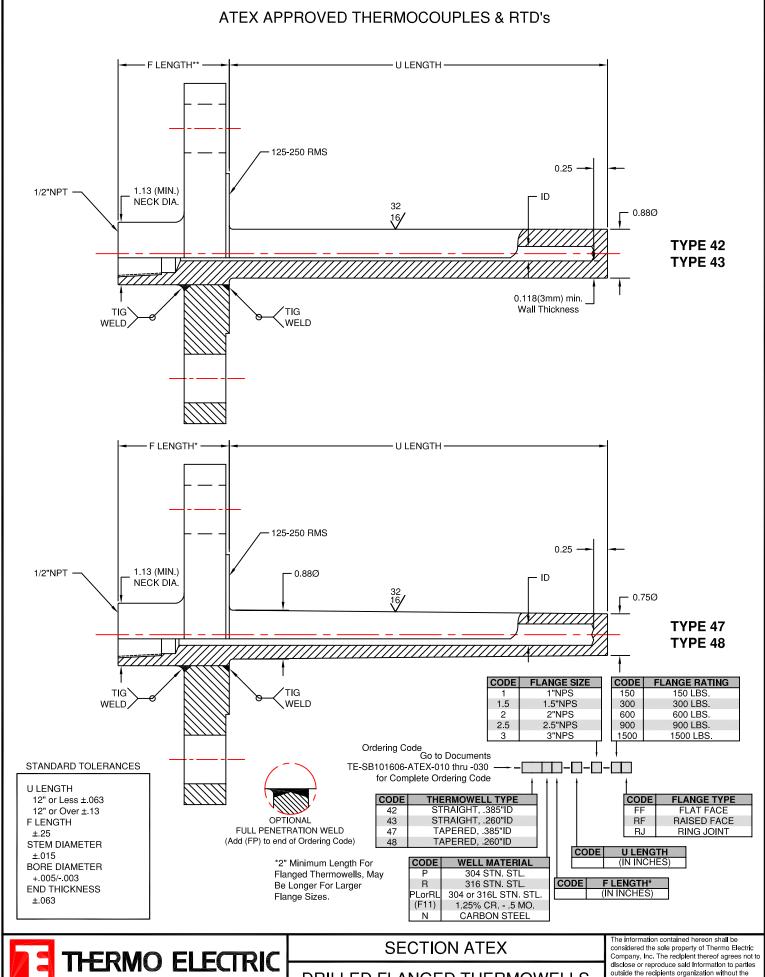
DRILLED THREADED THERMOWELLS TAPERED SHANK, ALLOY MATERIALS written permission of Thermo Electric.



TEMPERATURE MEASUREMENT DESIGNER'S GUIDE

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THERMOWELLS STEPPED DOWN SHANK written permission of Thermo Electric.



DRILLED FLANGED THERMOWELLS **TAPERED & STRAIGHT SHANK**

written permission of Thermo Electric.

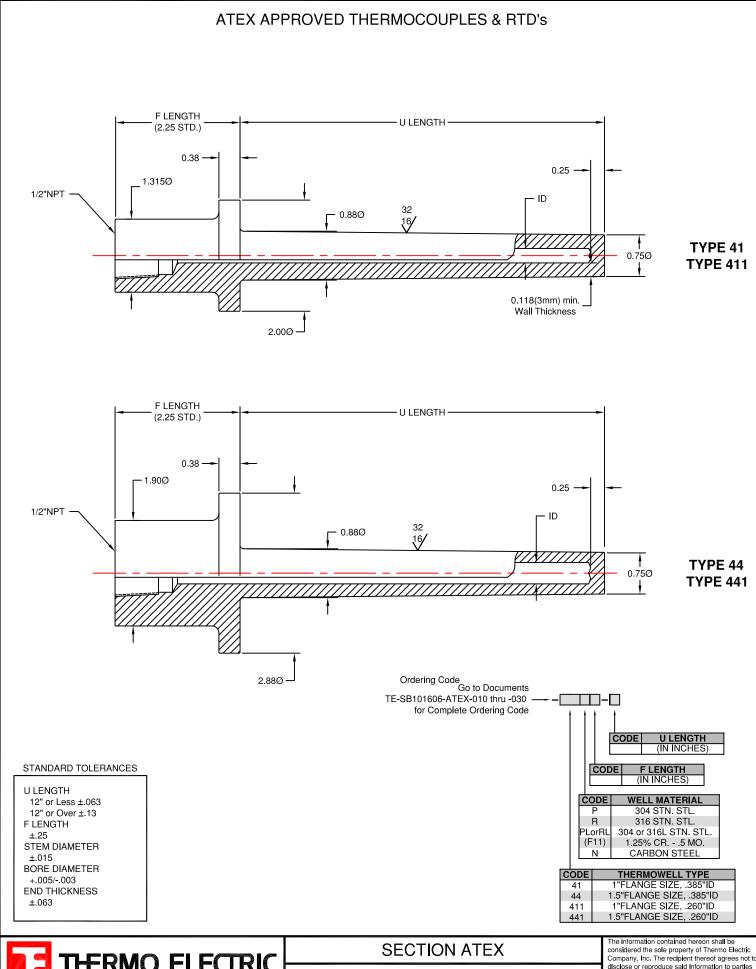
Doc. No.: TE-CO010109-ATEX-100

ATEX APPROVED THERMOCOUPLES & RTD's F LENGTH - U LENGTH -(2.25 STD.) 0.38 — 0.25 -1.315Ø 1/2"NPT -- ID 32 - 0.88Ø 16/ **TYPE 45 TYPE 451** 0.118(3mm) min. Wall Thickness 2 000 F LENGTH - U LENGTH -(2.25 STD.) 0.38 -1.90Ø 0.25 1/2"NPT -32 - 0.88Ø 16/ **TYPE 46 TYPE 461** Ordering Code Go to Documents 2.88Ø TE-SB101606-ATEX-010 thru -030 for Complete Ordering Code STANDARD TOLERANCES CODE F LENGTH (IN INCHES) U LENGTH CODE **WELL MATERIAL** 12" or Less ±.063 304 STN. STL. 12" or Over ±.13 316 STN. STL. F LENGTH PLorRL 304 or 316L STN. STL. ±.25 (F11) 1.25% CR. - .5 MO. STEM DIAMETER **CARBON STEEL** ±.015 BORE DIAMETER THERMOWELL TYPE CODE +.005/-.003 45 1"FLANGE SIZE, .385"ID **END THICKNESS** 46 1.5"FLANGE SIZE, .385"ID ±.063 451 1"FLANGE SIZE, .260"ID 1.5"FLANGE SIZE, 260"ID The information contained hereon shall be considered the sole property of Thermo Electric **SECTION ATEX**

THERMO ELECTRIC

DRILLED VAN STONE THERMOWELLS STRAIGHT SHANK

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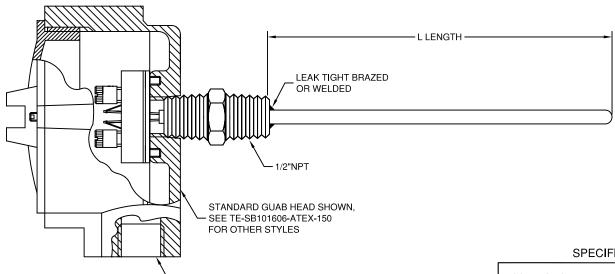


THERMO ELECTRIC

DRILLED VAN STONE THERMOWELLS **TAPERED SHANK**

Company, Inc. The recipient thereof agrees not to disclose or reproduce said information to parties outside the recipients organization without the written permission of Thermo Electric.







TYPE OF ELEMENT CODE 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

C A D F - 2 - 1 -

CODE	ELEMENT CONSTRUCTION
RTD	SINGLE RTD
DRTD	DUPLEX RTD
Α	SINGLE THERMOCOUPLE
ΔD	DUPLEY THERMOCOUPLE

CODE	DIAMETER OF ELEMENT
18	1/8" (.125)*
316	3/16" (.187)
14	1/4" (.25)

*Not Available in Duplex RTD

L LENGTH CODE SHEATH MATERIAL 304 STN. STL.

l Q	310 SIN. SIL.
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)

SPECIFICATIONS

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

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: MaO

Accuracy: ASTM E1137 Class B Termination: DIN Style Terminal Block, 3 or 6 Posts, Spring Loaded

CONTACT THERMO ELECTRIC FOR OTHER VARIATIONS NOT SHOWN

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.

1/2"NPT

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-ASL14JUR-18

IDENTIFICATION LABEL

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

> THERMO ELECTRIC CO., INC.
> Totowa NJ USA MODEL:

O TYPE:

DATE

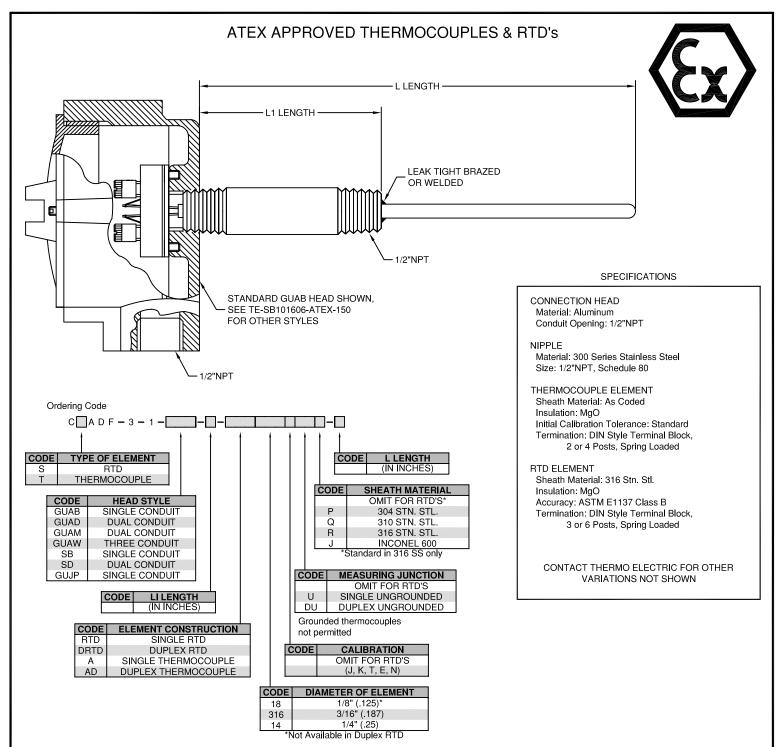
(€0081**(** II 2 G/D EEx d IIC T6 IP65 T=85°C LCIE 05 ATEX 6105 X



SECTION ATEX

TYPE CSADF & CTADF MODEL 2 "d" FLAMEPROOF PROTECTION The information contained hereon shall be considered the sole property of Thermo Electric Company, Inc. The recipient thereof agrees not to disclose or reproduce said information to parties outside the recipients organization without the written permission of Thermo Electric.

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



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-4-ADSL14KDUJ-36

IDENTIFICATION LABEL

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

THERMO ELECTRIC CO., INC.
Totowa NJ USA
PE: MODEL:

O TYPE:



SECTION ATEX

TYPE CSADF & CTADF

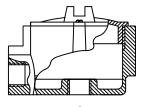
MODEL 3
"d" FLAMEPROOF PROTECTION

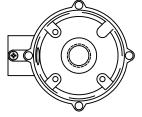
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Doc. No.: TE-CO010109-ATEX-140

TYPE GUAB



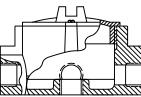


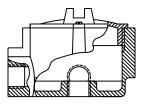


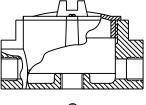
TYPE GUAD

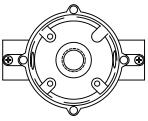


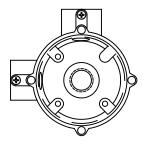




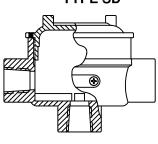


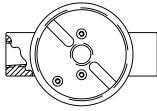




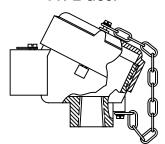


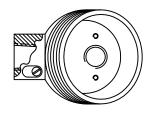
TYPE SD



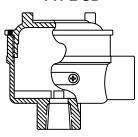


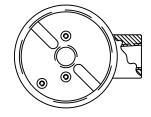
TYPE GUJP





TYPE SB



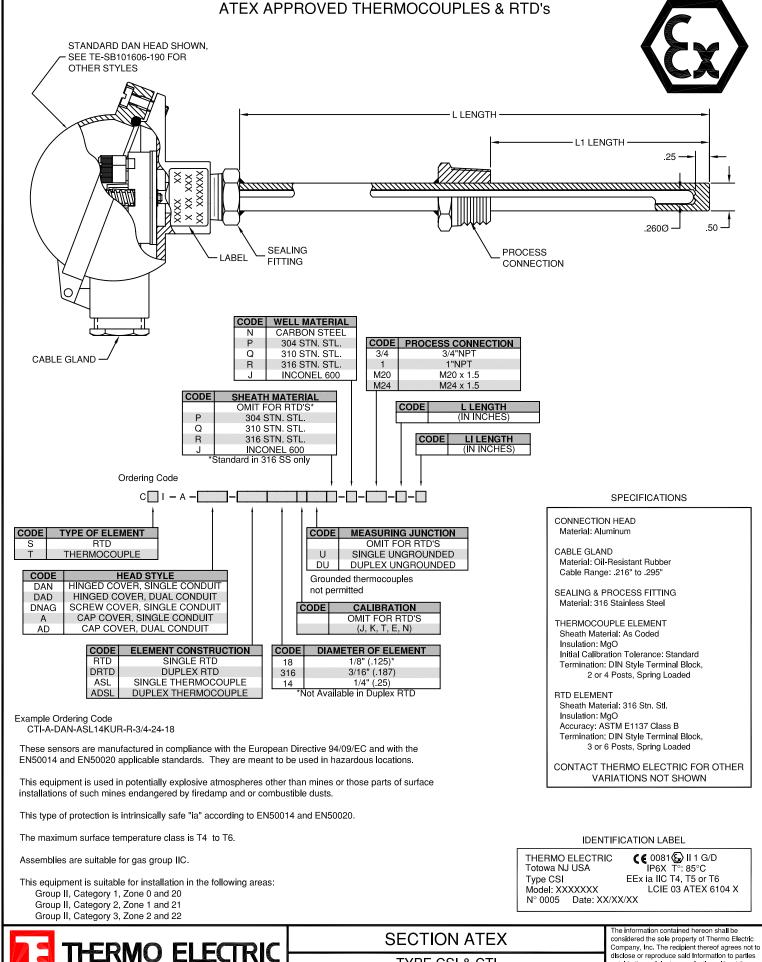


THERMO ELECTRIC

SECTION ATEX

HEAD STYLES FOR TYPE CSADF & CTADF ASSEMBLIES

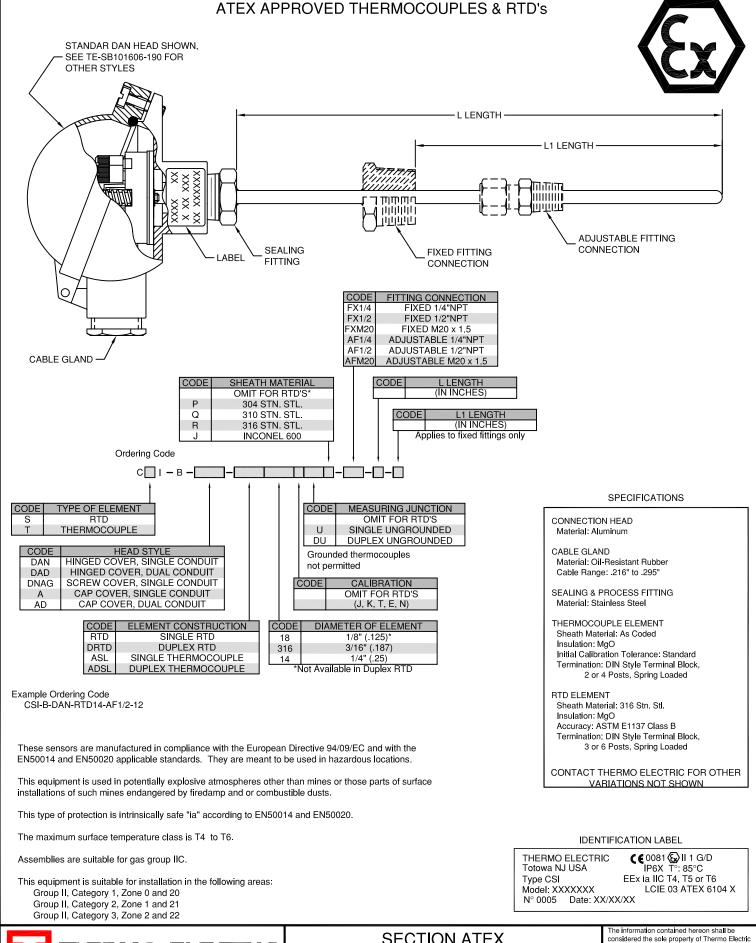
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TEMPERATURE MEASUREMENT DESIGNER'S GUIDE

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TYPE CSI & CTI ASSEMBLY A "i" INTRINSIC SAFETY PROTECTION outside the recipients organization without the written permission of Thermo Electric.



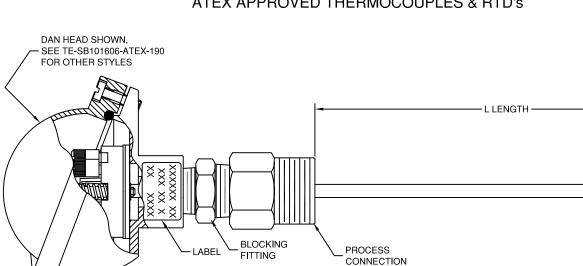
ermo electric

TEMPERATURE MEASUREMENT DESIGNER'S GUIDE

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SECTION ATEX

TYPE CSI & CTI ASSEMBLY B "i" INTRINSIC SAFETY PROTECTION Company, Inc. The recipient thereof agrees not to disclose or reproduce said information to parties outside the recipients organization without the written permission of Thermo Electric.



CABLE GLAND CODE SHEATH MATERIAL OMIT FOR RTD'S* 304 STN. STL. O 310 STN. STL 316 STN. STL. **INCONEL 600**

PROCESS CONNECTION
1/4"NPTF (FEMALE) 1/4 1/2"NPTF (FEMALE) 1/2 L LENGTH

CODE TYPE OF ELEMENT S RTD THERMOCOUPLE

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

Ordering Code

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

CODE MEASURING JUNCTION OMIT FOR RTD'S 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	1/8" (.125)*
316	3/16" (.187)
14	1/4" (.25)
*Not Available in Duplex RTD	

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

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: 216" to 295"

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: MaO

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

C € 0081 **②** II 1 G/D IP6X T°: 85°C EEx ia IIC T4, T5 or T6 LCIE 03 ATEX 6104 X

Model: XXXXXXX Date: XX/XX/XX

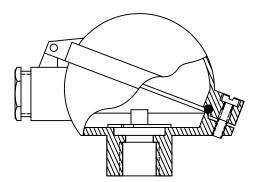
SECTION ATEX

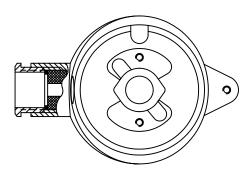
TYPE CSI & CTI ASSEMBLY C "i" INTRINSIC SAFETY PROTECTION The information contained hereon shall be considered the sole property of Thermo Electric Company, Inc. The recipient thereof agrees not to disclose or reproduce said information to parties outside the recipients organization without the written permission of Thermo Electric.

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

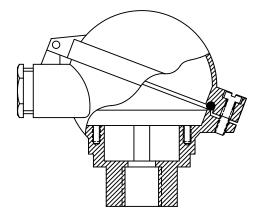


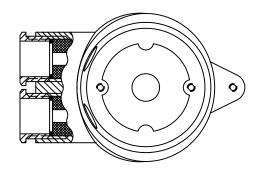
TYPE DAN



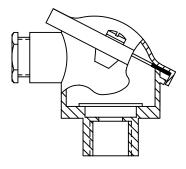


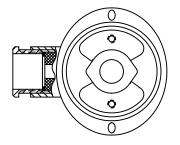
TYPE DAD



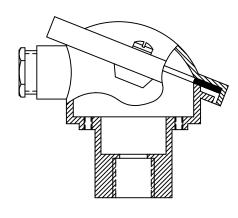


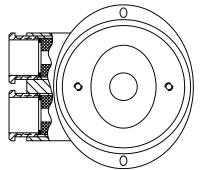
TYPE A



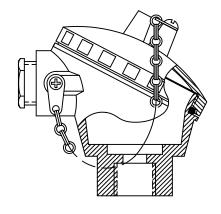


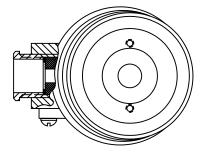
TYPE AD





TYPE DNAG





THERMO ELECTRIC

SECTION ATEX

HEAD STYLES for TYPE CSI & CTI ASSEMBLIES

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INTRODUCTION

THERMO ELECTRIC COMPANY INC.

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