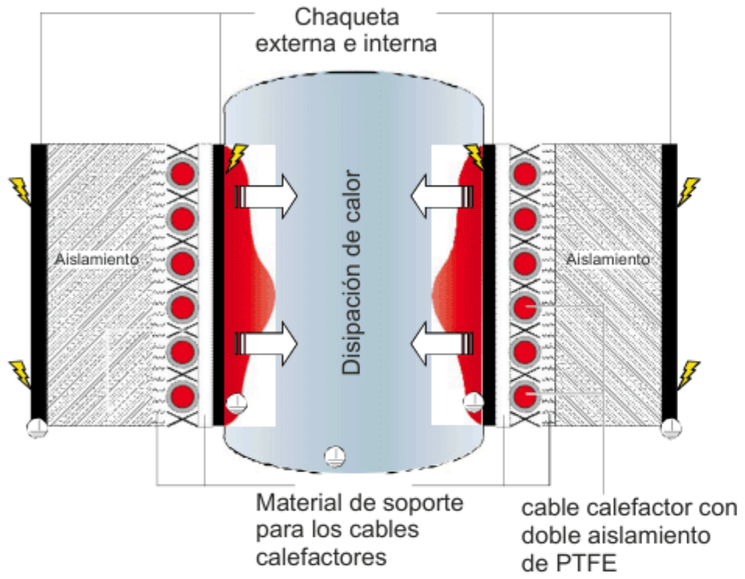
GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.2 – Flexible heater blankets for drums. ATEX certified - AFW-ATX



FLEXIBLE HEATER BLANKETS FOR DRUMS OF 200 L, ATEX CERTIFIED. AFW-ATX MODELS

The AFW-ATX type explosion protected heating jackets can be used in gas and dust areas Zone 1/2 (Gas) and Zone 21/22 (dust) and are therefore universally applicable for diverse sectors and industrial applications (explosion groups IIC hydrogen and for IIIC conductive dusts) with necessary process-related heating.

Very robust construction made of high quality, durable materials. Indoor and outdoor use possible. Protection classes: Gas IP64 / dust IP6X. Wide range of variants in terms of dimensions, contours and fixation options cover most heating applications.

High flexibility AND simple assembly. The heating jackets are delivered completely ready configured and can be connected and put into operation immediately without further acceptance procedures.

General characteristics

- ATEX certified. Gas EX II 2G Ex e mb IIC T3 Gb - Dust EX II 2D Ex e mb IIIC T120°C Db
- EC-type examination certificate: TPS 11 ATEX 29587 011 X
- Heating power depending on design (max. 30W/m heat conductor load)
- Max. admissible operating temperature 180°C
- Temperature class T6, T5, T4, max.T3 (depending on temperature setting controller / limiter)
- Max. temperature limit in gas atmospheres + 200 °C (180°C / 190°C)
- Max. temperature limit in dust atmospheres + 120 °C (100°C / 110°C)
- Ambient Operation ambient temperature: -40°C to +60°C
- Moisture-proof IP 65.
- Outer shell: electrostatic dissipative PTFE-coated glass fiber fabric
- Closure: straps with buckles
- Termination boxes for mains supply (via controller) and sensors mounted on outer face and ready for connection. Sensor 2 x Pt100 ATEX
- Connecting cable power and sensor separate 3,0 m long.
- By request, other power and dimensions ca be made according to your specifications.

Standard models

Code	Volts	Watts	Dimensions in mm		Temperature Class	Max. operating temperature
			Wide	Length		
AFW-ATX-200	230 Vac	1200	800	2100	T3	180 °C

GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.3 – Intermediate container heaters. IBC ATEX Certified - IBCW-ATX

IBC INTERMEDIATE 1000 L CONTAINER HEATERS, ATEX CERTIFIED. IBCW-ATX MODELS

Los calentadores para contenedores intermedios IBC de 1000 lts IBCW-ATX certificados ATEX son aptos para su uso en Zonas 21 y 22 de gas y polvo. Son por lo tanto de aplicación universal para diversos sectores y aplicaciones industriales (grupos de explosión IIC hidrógeno y para polvos conductores IIIC).

Construcción muy robusta hecha con materiales de alta calidad. Puede trabajar tanto en interior como en exterior.

Amplia gama de variantes en cuanto a dimensiones, formas y opciones de fijación que cubren la mayoría de aplicaciones de calefacción.

Alta flexibilidad e instalación sencilla. Listo para la conectar. Las mantas calefactoras se entregan listas para conectar y poner en marcha de inmediato.

General characteristics

- ATEX certified. Gas EX II 2G Ex e mb IIC T3 Gb - Dust EX II 2D Ex e mb IIIC T120°C Db
- EC-type examination certificate: TPS 11 ATEX 29587 011 X
- Heating power depending on design (max. 30W/m heat conductor load)
- Max. admissible operating temperature 180°C
- Temperature class T6, T5, T4, max.T3 (depending on temperature setting controller / limiter)
- Max. temperature limit in gas atmospheres + 200 °C (180°C / 190°C)
- Max. temperature limit in dust atmospheres + 120 °C (100°C / 110°C)
- Ambient Operation ambient temperature: -40°C to +60°C
- Moisture-proof IP 65.
- Outer shell: electrostatic dissipative PTFE-coated glass fiber fabric
- Closure: straps with buckles
- Termination boxes for mains supply (via controller) and sensors mounted on outer face and ready for connection. Sensor 2 x Pt100 ATEX
- Connecting cable power and sensor separate 3,0 m long.
- By request, other power and dimensions ca be made according to your specifications.

Standard models

Code	Volts	Watts	Dimensions in mm		Temperature Class	Max. operating temperature
			Wide	Length		
IBCW-ATX-1000	230 Vac	2400	1000	4400	T3	180 °C
TIBCW-ATX	ATEX Insulating jacket for IBC container 1000 Lts					90 °C

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GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.4 – ATEX certified heating blankets for gas cylinders - HCW

ATEX CERTIFIED HEATING BLANKETS FOR GAS CYLINDERS, GCW-ATX MODELS

For use in hazardous areas of Zone 1/2 and 21/22

- They improve control of the process and reduce losses of condensate gas
  - They create convection current
  - They increase pressure inside the cylinder
- They fit most gas cylinders
- Complete coverage of the surface
- The insulation reduces heat losses
- Models for potentially explosive atmospheres

General characteristics

- Max. admissible operating temperature 180 ° C
- Sensor 2 x Pt100 ATEX; cables long 3000mm
- Connecting cable power and sensor separate 3,0 m long.
- Temperature class T3
- Heater support a double glass fiber fabric
- Heater cable: PTFE-insulated with PE braiding and outer jacket
- Insulation material / thickness: glass needle mat / 20 mm approx.
- Outer shell: electrostatic dissipative PTFE-coated glass fiber fabric.
- Closure: straps with buckles
- Class I electric equipment
- Moisture-proof IP 64.
- Ambient Operation ambient temperature: -40°C to +60°C
- EC-type examination certificate: TPS 11 ATEX 29 587 011 X
- ATEX Identification:
  Gas Ex II 2G Ex e mb IIC T3 Gb
  Dust Ex II 2G Ex e mb IIIC T120 ° C Db
- By request, other power and dimensions ca be made according to your specifications

Standard models

Code	Dimensions in mm		Gas bottle capacity	Volts	Wats
	Øint	Height			
GCW-ATX-10	Ø140	800	10 Lts	~ 230 V	380
GCW-ATX-50	Ø230	1400	50 Lts	~ 230 V	850

NOTE: The heating sleeve must be temperature controlled and limited to the permitted temperature class

GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.2 – Flexible heater blankets for drums. ATEX certified - AFW-ATX

ATEX-Temperature controller / limiter / energy controller for use with explosion proof heating equipment, installation in hazardous area is permitted, ATEX approved. For use in hazardous areas of Zone 1/2 and 21/22

General characteristics

- Sensor 2 x Pt100 ATEX.
- Temperature range: 0...450 °C.
- Class I electric equipment
- Moisture-proof IP 64.
- Ambient temperature range: -20 ° C a + 40 ° C

- EC-type examination certificate:
  TÜV 10 ATEX 556065
- ATEX identification:
  Gas Ex II 2G Ex e ib [ib Gb] mb IIC T4 Gb
  Dust Ex II 2D Ex tb IIIC IP6X T90 ° C Db

Standard models

Code	Temperature range	Dimensions in mm	Switching current	Volts	Wight in Kg
CLT-ATX	0 / 450 °C	260 x 160 x 135	25 A	~ 230 V	6,0

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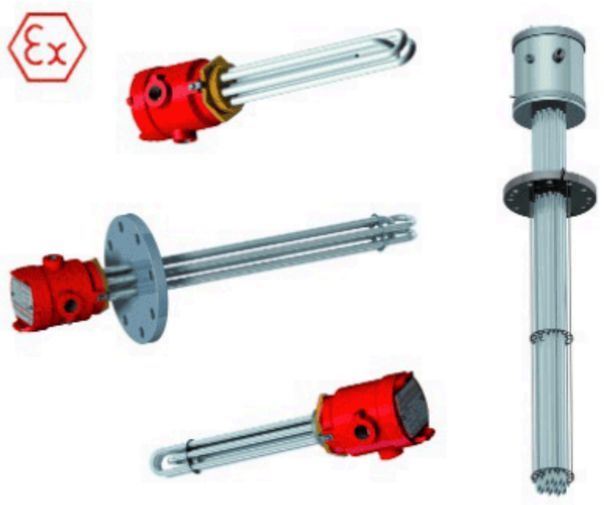
GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.6 – Immersion heaters with screw cap coupler - REX-TR



IMMERSION HEATERS WITH SCREW CAP AND TUBULAR HEATING ELEMENTS, REX-TR RANGE

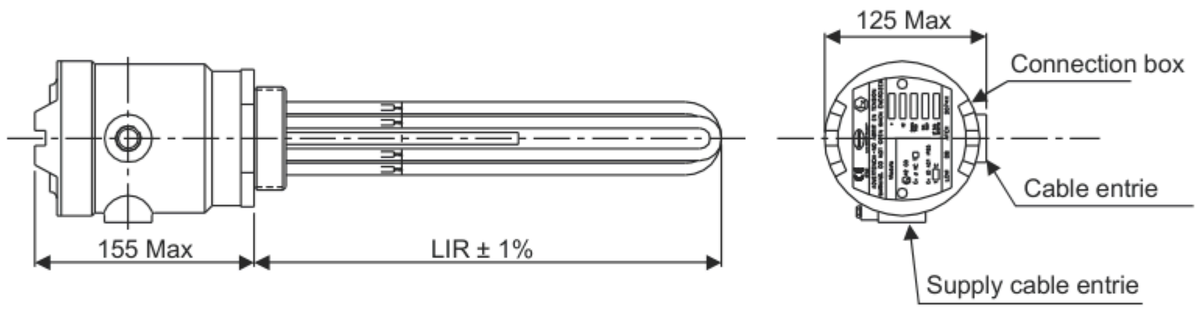
The REX-TR range of tubular immersion heaters is apt for installation in process tanks, safety baths, motor oil collectors, pressure receivers, and similar equipment, located in hazardous areas classed as Zone 1 and Zone 2 where the flammable atmosphere is Group IIA, IIB, or IIC. Apt for heating of liquid or gas that is not corrosive to the heater materials.

Common applications

- Water or oil preheating
- Cleaning and flushing tanks
- Process equipment
- Heat-transfer systems
- Boilers
- Anti-icing protection

General characteristics

- Certificate ATEX Ex II 2 G/D EEx'd' IIC T3 to T6, in accordance with EN 50014 and EN 50018
- Aluminium terminal box with damp protection IP65
- Integrated temperature sensor
- Valid for ambient temperature down to -40 °C
- Heater coupling using 2" - 2"¼ - 2"½ screw cap
- Designed exclusively for horizontal fitting. Vertical fitting available on request.
- Terminal box: Aluminium box with a maximum of 2 inputs for cables, internal and external earth connection, and screw cap. ATEX II 2 G/D EEx'd' IIC T4 to T6 with optional T3 to T6 if the terminal box is separated from the coupling cap. Damp protection grade IP65.
- Heating components: Maximum of three tubular elements, fabricated with NiCr 80/20 alloy resistive wire, compacted magnesium oxide, and tubular sleeve made of copper, steel, Monel, Inconel, Incoloy 800/825, stainless steel, or titanium, welded to the cap by brazing or TIG welding depending on the application.
- Controls: REX-TR heaters incorporate overtemperature protection by default. Other temperature devices such as thermostats, thermoresistors, or thermocouples may be incorporated as options.
- Coupling: Within the design limits, it is possible to specify the thread and material of the coupler cap.



Standard REX-TR models with 2"1/2 stainless-steel AISI 316L screw cap

Standardized models especially designed for use in Biofuel equipment.

Code	LIR in mm	Volts	Watts	W/cm²	Tube material	Thermostats temperatura range	
						control	safety
REX-TR-15-DS	381	3~230 Δ 3~400 Y	3000	4,7	AISI 321 Ø10	0 / +90 °C	+20 / +120 °C
REX-TR-27-DSZ	686	3~230 Δ 3~400 Y	6000	2,8	AISI 321 Ø10	0 / +90 °C	+20 / +120 °C
REX-TR-27-DSZ	686	3~230 Δ 3~400 Y	12000	5,3	AISI 321 Ø10	0 / +90 °C	+20 / +120 °C

Standard REX-TR models with 2" brass screw cap.

Code	LIR in mm	Volts	Watts	W/cm²	Tube material	Thermostats temperatura range	
						control	safety
REX-TR-111	280	~230	1000	8,4	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-211	280	~230	2000	5,7	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-311	280	3~230 Δ 3~400 Y	3000	8,4	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-330	762	3~230 Δ 3~400 Y	3000	2,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-616	406	3~230 Δ 3~400 Y	6000	11,2	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-630	762	3~230 Δ 3~400 Y	6000	5,6	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-916	406	3~230 Δ 3~400 Y	9000	16,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-923	584	3~230 Δ 3~400 Y	9000	11,2	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-926	660	3~230 Δ 3~400 Y	9000	9,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-1223	584	3~230 Δ 3~400 Y	12000	14,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-1233	838	3~230 Δ 3~400 Y	12000	10,1	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C

Standard REX-TR models with 2" stainless-steel screw cap.

Code	LIR in mm	Volts	Watts	W/cm²	Tube material	Thermostats temperatura range	
						control	safety
REX-TR-111S	280	~230	1000	8,4	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-211S	280	~230	2000	5,7	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-311S	280	3~230 Δ 3~400 Y	3000	8,4	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-330S	762	3~230 Δ 3~400 Y	3000	2,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-616S	406	3~230 Δ 3~400 Y	6000	11,2	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-630S	762	3~230 Δ 3~400 Y	6000	5,6	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-916S	406	3~230 Δ 3~400 Y	9000	16,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-923S	584	3~230 Δ 3~400 Y	9000	11,2	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-926S	660	3~230 Δ 3~400 Y	9000	9,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-1223S	584	3~230 Δ 3~400 Y	12000	14,8	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C
REX-TR-1233S	838	3~230 Δ 3~400 Y	12000	10,1	Incoloy-825 Ø8	0 / +90 °C	+20 / +120 °C

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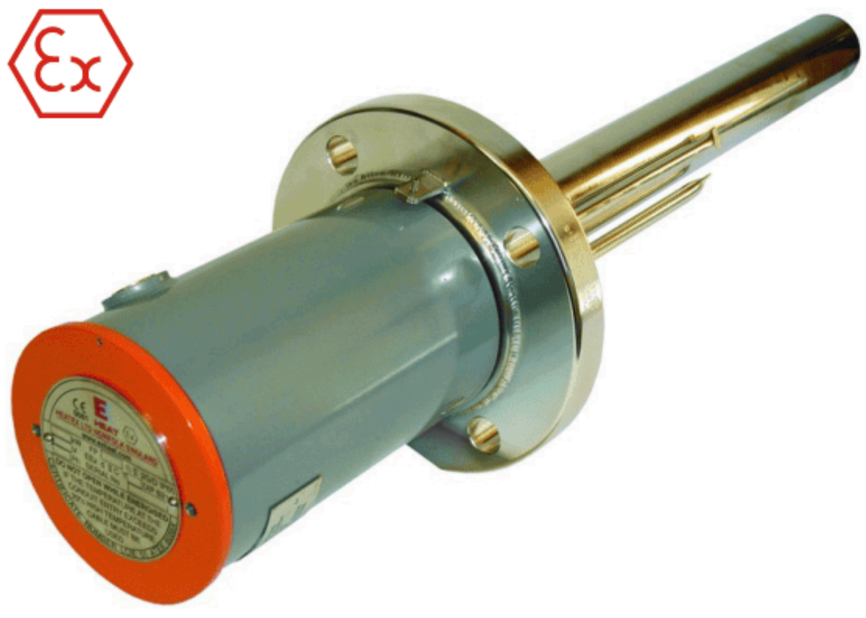
GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.7 – Immersion heaters with screw cap coupler - RFA-C / FP-C



IMMERSION HEATERS WITH SCREW CAP, CASING, AND CERAMIC BODY INTERIOR, RFA-C RANGE

The ' RFA-C ' range of immersion heaters with casing and replaceable ceramic interior provides a good solution for areas classified for oil heating or other similar processes in which a low load density is required. The heating element can be removed for inspection or replaced without the need to empty the tank. The EEx'd' terminal box protects the electrical connections from the explosive atmosphere.

Common applications

- Water or oil preheating
- Cleaning and flushing tanks
- Process equipment
- Heat-transfer systems
- Boilers
- Anti-icing protection

General characteristics, range FP-C

• Mild steel or 316 stainless steel terminal enclosure with weatherproof protection to IP66 or Enclosure Type/ NEMA 4 or 4X

• Choice of built in process temperature sensors

• Suitable for ambient temperatures from -60°C to +60°C (subject to cert parameters)

• Mounting of the heater can be by a threaded NPT or BSP boss or an industry standard flange

• Designed for horizontal installation (vertical mounting version available on request)

• Removable core, comprising high quality 80/20 nickel chrome resistance wire, contained within ceramic formers housed in plain or extended surface tubes

• Sheath: Standard models in steel or AISI 316L stainless steel. On request, it can be manufactured in Monel, Incoloy, Inconel or Titanium with adequate welding depending on the application.

• Controls: Heater over-temperature protection is fitted as standard (optional process temperature sensing devices can be incorporated in the form of thermostats, RTD's or thermocouples)

• Voltage: Any electrical supply up to 690V (600V CSA)

• Certificacions:

ATEX/IECEx Ex II 2 G/D Ex d IIC T1 to T6 Gb Zone 1 and 2

ATEX/IECEx Ex tb IIIC T450°C a T85°C Db Zone 21 and 22 (IP66)

CSA (CEC/NEC) Class I, Div 1, Groups A, B, C, D; T1 to T6, Housing type NEMA 4 or 4X

CSA (CEC) Ex d IIC; T1 to T6 Gb, IP66 (CAN)

CSA (NEC) Class I, Zone 1, AEx d IIC; T1 to T6 Gb, IP66 (USA)

CU TR (EAC), CNEx, CCOE (CCEs), Inmetro & KGS

General characteristics, range RFA-C

• Lightweight cast aluminium alloy terminal enclosure with weatherproof protection to IP66 and IP67

• Choice of built in process temperature sensors

• Suitable for ambient temperatures from -40°C to +40°C

• Mounting of the heater can be by threaded boss or an industry standard flange

• Designed for horizontal installation only, vertical mounting version available on request

• Removable core, comprising high quality 80/20 nickel chrome resistance wire, contained within ceramic formers

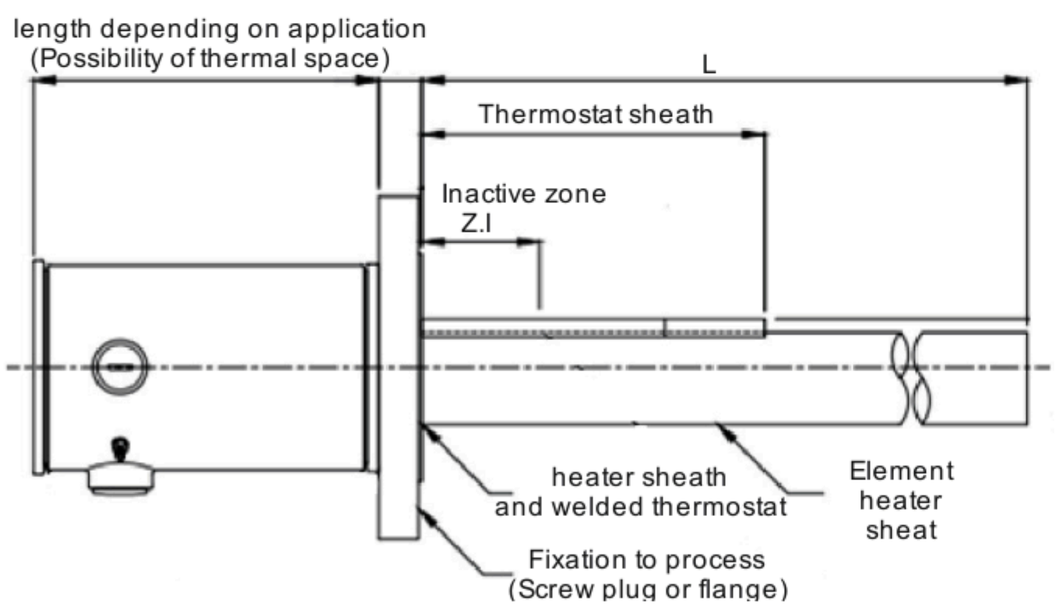
• Sheath: A choice of carbon steel, or 316L stainless steel secured by either brazing or welding depending upon the process application

• Controls: Heater over-temperature protection is fitted as standard.

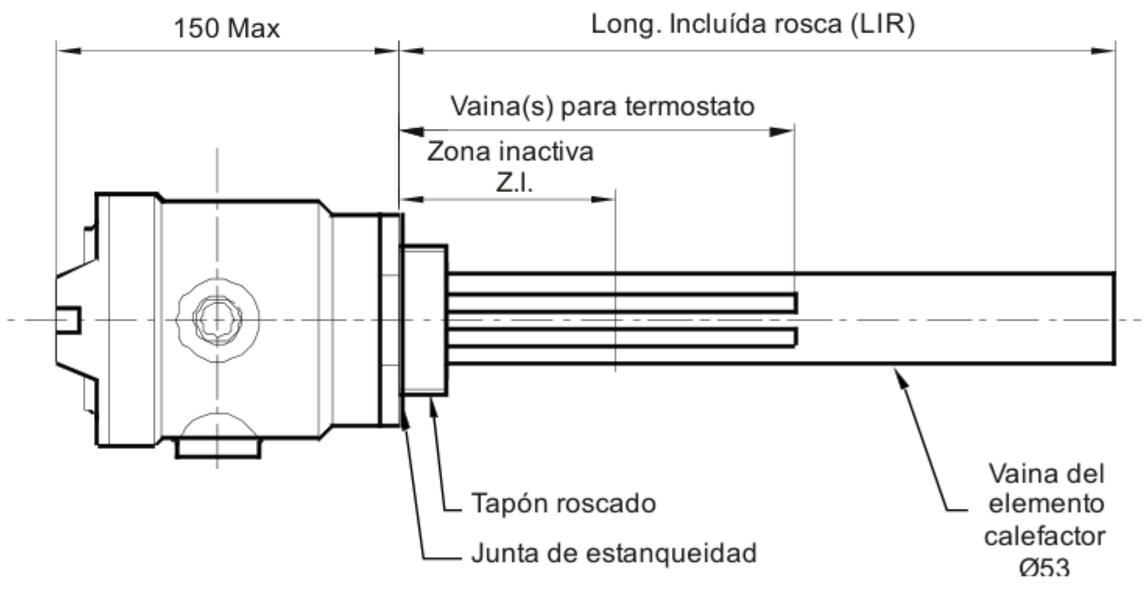
• Rating: Maximum loading 8kW

• Voltage: Any electrical supply up to 690V

Models FP-C



Models RFA-C



Code	Flange	Sheath's material	LLLP in mm	Volts	Wats	W/cm²	Weight in Kg
FP4-CS1-0.5-22-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	550	3~230 Δ 3~400 Y	500	0,6	13
FP4-CS1-1-22-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	550	3~230 Δ 3~400 Y	1000	1,3	13
FP4-CS1-2-29-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	750	3~230 Δ 3~400 Y	2000	2	14
FP4-CS1-3-41-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	1050	3~230 Δ 3~400 Y	3000	2	15
FP4-CS1-4-53-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	1350	3~230 Δ 3~400 Y	4000	2	17
FP4-CS1-5-67-FS3-400	ANSI 3" NB 150Lbs RF AISI 316L	Carbon Steel	1700	3~230 Δ 3~400 Y	5000	2	19

GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.8 – Flange heaters - REX-F

Flange immersion heaters for ATEX/IECEx hazardous areas or in non-ATEX version

Electricfor flange immersion heaters are designed and manufactured according to customer specifications. They are highly performant for heating or maintaining the temperature of gas or liquids.

Reliability and robustness are key drivers for our engineers. After customer specification analysis, our engineers will drive you to the best solution for your process

ATEX / IECEx

Electricfor flange immersions heaters are available in ATEX/IECEx version for class temperature T1 (450°C) to T6 (85°C).

Applications

- Maintaining the temperature and heating of large volumes of liquids or gas
- Heating of circulating or static fluids
- Mounted in tanks, cisterns, boilers or circulation heaters, etc.
- Designed for pressure up to 300 bars
- Power up to 5 MW
- Process temperature up to +450 °C

Industry sectors

- Petrochemicals
- Chemical industry
- Food industry
- Plastics
- Aeronautics
- Etc.

Advantages

- Large range of materials and options according to customer process and conditions of use
- Equipment available for use in hazardous areas or safe environment
- The end-to-end control of the design and production chain allows us to deliver a product which suits your process perfectly.

Temperature control

Temperature sensors (thermostat, limiter, thermocouple or PT100) in the medium (process control) or on the heating element (safety control), on the flange or in the connecting box.

Design of your flange immersion heater

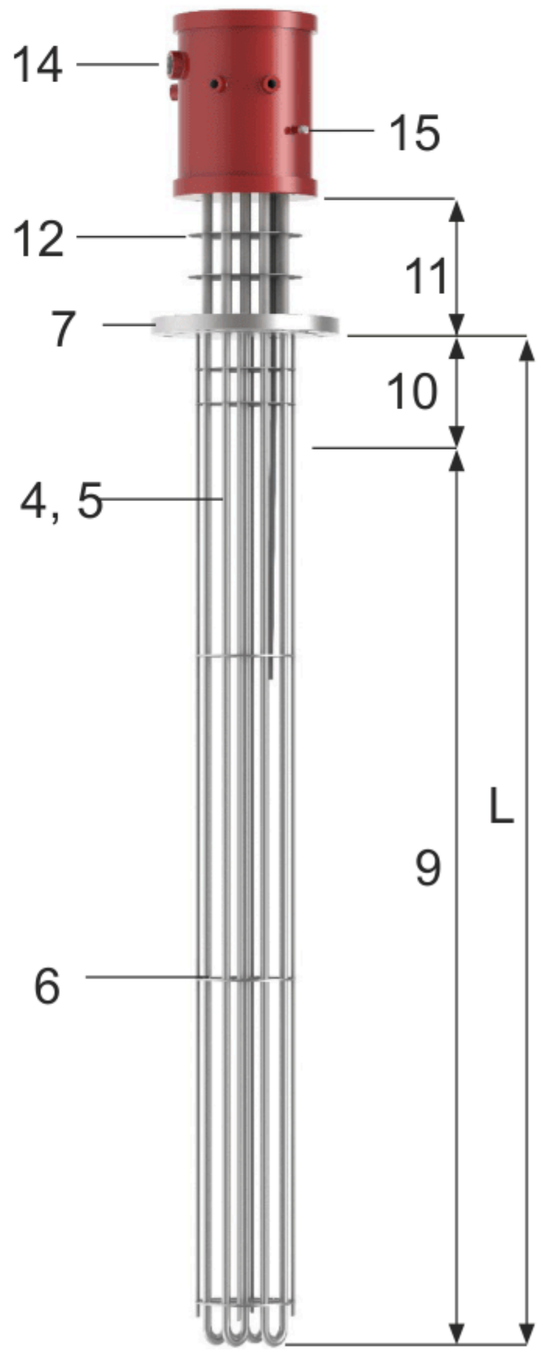
Input data

A - Application
B - Type of fluid
C - Pressure
D - Inlet and outlet temperature
E - Flow rate (mass or volume)
F - Ambiant area
G - Voltage (V)
H - ATEX/IECEx or not, temperature class
I - Max. immersed length
J - Directives, standards, construction codes
L - Maximum immersed length

Electricfor thermal design and offer

Design procedure to optimize your product

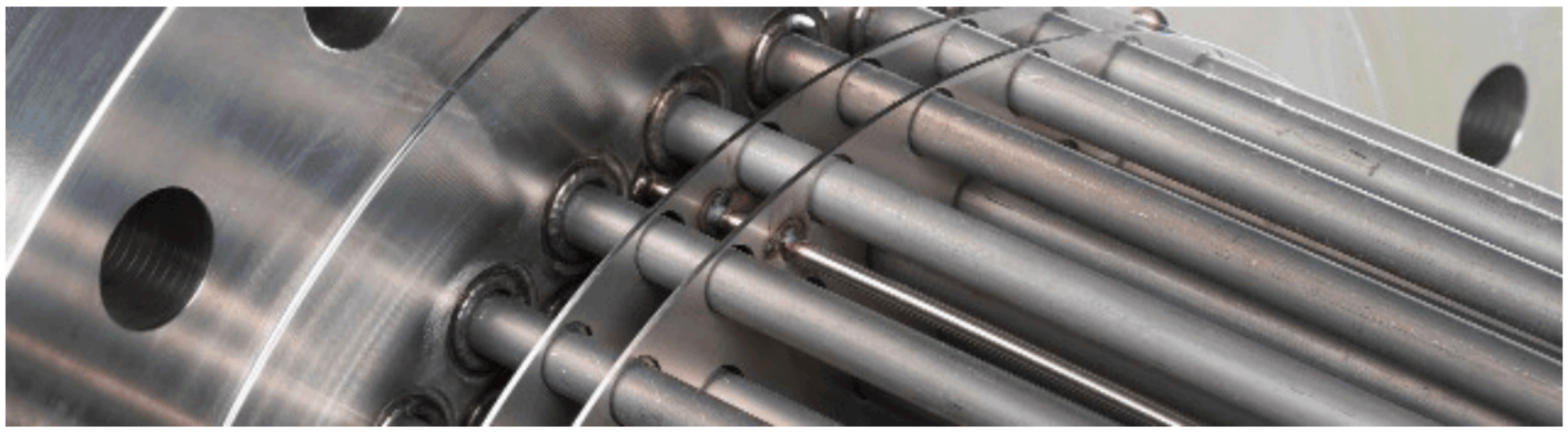
1 Power
2 Choice of technology and product type
3 Watt density (W/cm²)
4 Number of heating elements
5 Material / Tube diameter
6 Type and number of baffles / bundle spider
7 Type of flange
8 Type of assembly (welding or brazing)
9 Heating length (HL)
10 Cold length (CL)
11 Stand-off length (SOL)
12 Cooling discs and heat shields
13 Temperature control and safety, type of sensor
14 Connecting box / Cable gland
15 Other components
16 Quotation: price and delivery time



GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.8 – Flange heaters - REX-F

Design of a heating group with flange



Tube materials

- Stainless Steel
  - AISI 321 (DIN 1.4541)
  - AISI 316L (DIN 1.4404)
  - AISI 309 (DIN 1.4828)
  - AISI 304 (DIN 1.4301)
- Others
  - Incoloy 800
  - Incoloy 825
  - Inconel 600
  - Super austenitic 254SMO
  - Titanium
- Specific coating
  - PTFE
  - Halar

Tube diameter

- Ø6.4 / Ø8 / Ø8.5 / Ø10 / Ø12.5 / Ø13.5 / Ø16mm

Flange

- All diameters (including very large sizes)
- EN 1092-1 (European standard, PN)
- EN 1759-1 (European standard,Class)
- ASME B16-5 (American standard)
- Others standards on request
- Material choice according to application and standards (carbon steel, stainless steel or others)

Mounting

- Vertical or horizontal position

Electrical

- Voltage: VAC or VCC
- Cabling according to main voltage VAC/VCC 1PH + N or 3PH
- Power: a few Watt to several Megawatts

Connecting box (non-ATEX)

- IP54 / IP65 / IP66 / IP67
- Material: painted steel, stainless steel, aluminium
- Polyamide or nickel-plated brass cable gland

ATEX/IECEx connecting box

- Explosion-proof connecting box, aluminium, stainless steel or painted steel, Ex d IIC
- Stainless steel increased security enclosure, Ex e IIC
- Nickel-plated brass cable gland (stainless steel as option)

ATEX/IECEx versions

In addition to heater design, the use of specifically developed connection boxes allows to install the products in hazardous areas.
The increased safety protection mode “e” (EN 60079-7) or the explosion-proof protection mode “d” (EN 60079-1), together with temperature control acc. to EN 60079-0, make it possible to operate the equipments in hazardous area (zone 1 and zone 2) for gases of the A-B-C groups.

ATEX housings, types of protection “d” and “e”

Type of protection “d” explosion-proof housing

Basic principle: If ignition is produced inside the envelope, the latter will resist the pressure, that is, the explosion will not propagate to the exterior.
With this method, the housing (casing):

- Must contain the explosion within the enclosure
- Make sure that the ignition cannot reach the hazardous area
- Always keep an external temperature lower than the auto-ignition temperature of any surrounding

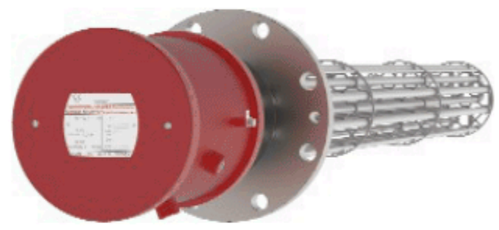
The following factors are selected depending on the internal free volume of the enclosure and the present in the area

- Type of seal (cylindrical, flat, threaded)
- Seal length
- Gap length

The power and temperature control circuits can be accommodated in separate housings.

Ex d

gas

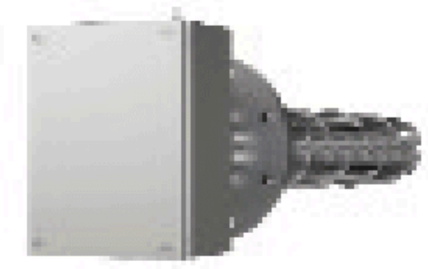


Type of protection “e” increased safety

Basic principle: Applicable only to material or its components that in normal circumstances do not generate sparks or electric arcs, cannot reach dangerous temperatures, and whose supply voltage does not exceed 1 kV.
Method: To prevent the occurrence of any accidental ignition source (electric arcs, heating)..
This mode of protection is achieved by:

- Selecting high-quality insulating material
- Defining the right creepage distances
- Ensuring the quality of electrical connection
- For all classes of gases and vapours
- Suitable for connection housings

Ex e



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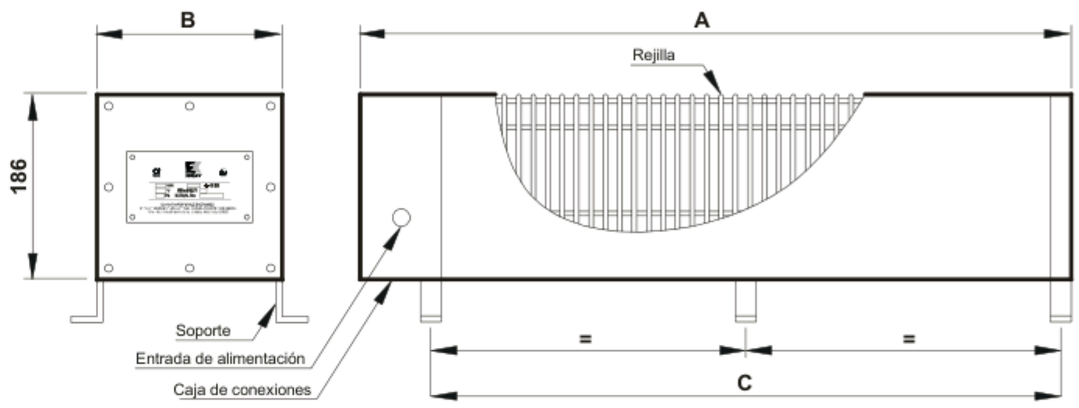
GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.9 – Convectors - FAW

HOT-AIR CONVECTORS, FAW RANGE

The 'FAW' range of hot-air convectors was designed to heat small working areas, storage areas, or similar applications, located in hazardous areas classed as Zone 1 or Zone 2, where the flammable atmosphere is Gas Group IIA, IIB, or IIC.



Common applications

- Aircraft hangers
- Chemical plants
- Oil platforms
- Petrol service stations
- Gas facilities

Características generales

- Available for temperature classification T2, T3, and T4.
- Ambient temperature range from -20 °C to +60 °C.
- Treated-steel or stainless-steel chassis.
- Terminal box: Aluminium box with Ø20 mm input for cables. Additional cable inputs will be implemented on request.
- Heating components: Tubular elements with fins that can be replaced individually, fabricated with NiCr 80/20 alloy resistive wire, compacted magnesium oxide, and tubular stainless-steel sleeve.
- Controls: If necessary, FAW hot-air convectors can be controlled by remote temperature thermostats for use in classified zones.
- Assembly: Valid for floors and walls (wall brackets not included. These must be ordered separately)
- Power supply: standard voltages ~240 V single-phase or 3~415 V three-phase.
- CertificaTIONS

  ATEX/IECEx Ex II 2 G Ex e IIC T2 a T4 Gb ZonE 1 AND 2 (IP67)

  CSA Class I, Division 2. Groups A, B, C, D. T Class T4, T3 or T2

  CU TR (EAC) 1EX e II T4...T2 Gb

  KGS

Standard FAW models

Compact range. Stainless-steel chassis

Thermal Class T3 → maximum ambient temperature: 40 °C

Code	Thermal Class	Volts	Wats	Nº rods	Dimensions in mm			Weight in kg
					A	B	C	
FAW-C-250-T3	T3	~240	250	2	350	160	282	5
FAW-C-500-T3	T3	~240	500	4	350	160	282	6
FAW-C-750-T3	T3	~240	750	4	615	160	545	6
FAW-C-1000-T3	T3	~240	1000	4	615	160	545	9

Steel Chassis

Thermal Class T4 → maximum ambient temperature: 40 °C

Code	Volts	Wats	Nº rods	Dimensions in mm		
				A	B	C
FAW-500-T4	~240	500	2	1886	160	1785
FAW-750-T4	3~240 Δ 3~415 Y	750	3	1886	160	1785
FAW-1000-T4	~240	1000	4	1886	272	1785
FAW-1500-T4	3~240 Δ 3~415 Y	1500	6	1886	272	1785

Steel Chassis

Thermal Class T2 → maximum ambient temperature: 60 °C

Thermal Class T3 → maximum ambient temperature: 40 °C

Code	Volts	Wats	Nº rods	Dimensions in mm		
				A	B	C
FAW-250-Tx	~240	250	1	971	160	860
FAW-500-Tx	~240	500	2	971	160	860
FAW-750-Tx	3~240 Δ 3~415 Y	750	3	971	160	860
FAW-1000-Tx	3~240 Δ 3~415 Y	1000	3	1221	160	1120
FAW-1500-Tx	3~240 Δ 3~415 Y	1500	3	1741	160	1640
FAW-2000-Tx	~240	2000	4	1741	272	1640
FAW-2500-Tx	~240	2500	5	1741	272	1640
FAW-3000-Tx	3~240 Δ 3~415 Y	3000	6	1741	272	1640

Stainless Steel AISI 304 chassis

Thermal Class T4 → maximum ambient temperature: 40 °C

Code	Volts	Wats	Nº rods	Dimensions in mm		
				A	B	C
FAW-250-S-T4	~240	250	1	1886	160	1785
FAW-500-S-T4	~240	500	2	1886	160	1785
FAW-750-S-T4	3~240 Δ 3~415 Y	750	3	1886	160	1785
FAW-1000-S-T4	~240	1000	4	1886	272	1785
FAW-1500-S-T4	3~240 Δ 3~415 Y	1500	6	1886	272	1785

Stainless Steel AISI 304 chassis

Thermal Class T3 → maximum ambient temperature: 40 °C

Code	Volts	Wats	Nº rods	Dimensions in mm		
				A	B	C
FAW-750-S-Tx	3~240 Δ 3~415 Y	750	3	971	160	860
FAW-1000-S-Tx	3~240 Δ 3~415 Y	1000	3	1221	160	1120
FAW-1500-S-Tx	3~240 Δ 3~415 Y	1500	3	1741	160	1640
FAW-2000-S-Tx	~240	2000	4	1741	272	1640
FAW-3000-S-Tx	3~240 Δ 3~415 Y	3000	6	1741	272	1640

GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.10 – Air heaters - MFH

AIR HEATER, MFH RANGE

'The Bulldog' Portable Fan Heater is the world's first truly portable hazardous area fan assisted heater.

The Bulldog uses a patented design (GB1614657.3) that combines efficiency with simple functionality to provide a portable heating solution for use in hazardous environments where the atmosphere is classified as Zone 1/2 (IIB+H2) or Zone 21/22 (IIC).

Certified to the new EN 80079-36:2016 and EN 80079-37:2016 standards for constructional safety, The Bulldog comes ready to 'plug and play' with the option of fitting a plug, or hard wiring to an isolator unit

The casing is moulded from a steel reinforced polymer which makes The Bulldog tough and durable. Using adjustable feet, the heater can be angled to allow for flexibility in its positioning and, with its compact design, can be easily stored or transported. The Bulldog can be used with or without ducting to provide a warm stream of air that can be felt metres away, even in ambient temperatures as low as -40°C and up to +40°C. The heater can optionally be fitted with an additional safety device above and beyond the requirements of the certification.

General characteristics

- Designed for compactness and portability, with a base weight of only 28kg (excluding optional accessories).
- Durable steel reinforced polymer outer casing reduces overall weight, while providing additional EMI shielding
- Can be supplied on a long flying lead to get heat where you need it
- Integrated protection device allows for operation in temperatures as low as -40°C
- Built in thermal protection monitor the heating elements to ensure temperature class is maintained
- Available in T3 and T4 temperature classes .
- Dimensions: 475 x 470 x 530 mm (length x wide x height)
- Main Materials
  - **Casing:** PA66 30% glass and steel filled
  - **Impeller:** PA66 30% glass and steel filled blades and epoxy coated aluminium hub
  - **Elements:** Finned stainless steel tubular elements
  - **Ex d Enclosure:** Anodised extruded aluminium
  - **Ex e Enclosure:** Stainless steel
  - **Motor Housing:** Epoxy coated aluminium
- Mounting options include: Adjustable feet, Castors or Wall / Ceiling Bracket. Bracketry can be designed to suit the application.
- Various ducting options available upon request
- Certificacions:
  - **ATEX**

    Ex II 2 G D Ex h

    EX db eb IIB+H2 T3...T4 Gb

    Ex tb IIIC T200°C...T135°C Db IP65
  - **CU TR (EAC)**

    1Ex db e IIB+H2 T3...T4 Gb X

    Ex tb IIIC T200°C...T135°C Db X
  - **IECEx**

    Ex db eb IIB+H2 T3...T4 Gb

    Ex tb IIIC T200°C...T135°C Db IP65

Common applications

- Fabric maintenance
- Localised heating
- Offshore containers
- Oil drilling
- Oil refineries
- Paint curing
- Paint stores
- Production platforms
- Pulp and Paper Mills
- Spray booths

Standard models

Code	Volts	Nominal Output (KW)	Air flow (m³/hr)		Air temp. Delta (°C)		Max current
			50Hz	60Hz	50Hz	60Hz	
MFH – Thermal class T3							
MFH-6-230	~230	6 KW	1050	1260	17,7 °C	14,7 °C	26,7 A
MFH-6-400	3~400 V	6 KW			17,7 °C	14,7 °C	9,3 A
MFH – Thermal class T4							
MFH-3-230	~230	3 KW	1050	1260	8,8 °C	7,4 °C	13,6 A
MFH-3-400	3~400 V	3 KW			8,8 °C	7,4 °C	4,9 A

- **NOTES:**

1 — Voltage tolerance : +0 / -10%

2 — Minimum SWA multicore cables required :

Thermal class T4 → minimum 4mm²

Thermal class T2 → minimum 6 mm²

3 — ΔT (Delta T) refers to the air temperature difference at the inlet and outlet. For example, if the ambient is +6°C and the ΔT (temperature rise) is 15°C, then the outlet will be +21°C

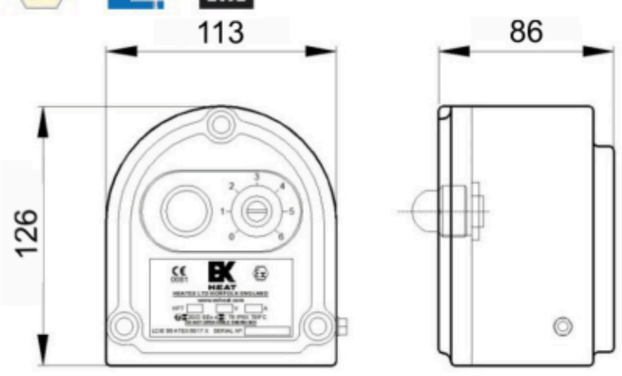
4 — The maximum current includes the maximum motor inrush

Accessories

Code	Description
S0980000000008	Ani-static castors (4 per set) 80 mm
S0960100000001	Wall mounting bracket in coated mild steel (grey 9007)
S0960200000058	Wall mounting brackets in AISI 316 stainless steel (2 per set) for FIXED design
S0980000000004	7,6 m flexible ani-static ducting (suitable for -40 ° C ambient temperatures)
S0960200000059	Duct adaptor in AISI 316 stainless steel
S0980000000003	Flexible anti-static duct Y splitter

GROUP 3 - Heating equipament for use in potentially explosive atmospheres

3.11 – ATEX certified thermostats - AFT / HFT



AFT Flameproof Air / Process Sensing Thermostats

Industrial's AFT thermostats are supplied in weatherproof or explosionproof enclosures to complement our heaters.

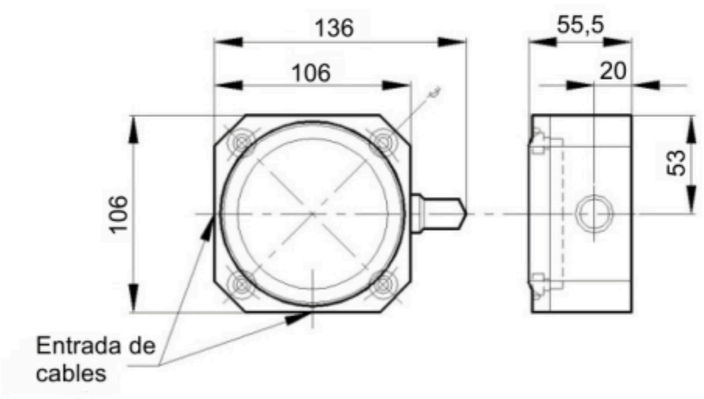
All thermostats are certified for use in hazardous areas where the atmosphere is classified as a Zone 1 or 2 (IIA, IIB, IIC) gas group. The AFT has an externally adjustable option, enabling quick and accurate variable control for air applications

General characteristics

- Wall mounted
- Suitable for ambient temperatures from -60°C to +60°C
- Lightweight cast aluminium enclosure certified weatherproof to IP6X
- Controls: Choice of control range: 0 to 25°C, 0 to 40°C or 0 to 60°C options
- Voltage 20A on 250VAC in a choice of switching configurations
- Certificacions:
  - **ATEX/IECEx** Ex II 2 G/D Ex d IIC T6 Gb (Gas)
    Ex t IIIC T85°C Db (Polvo) IP6X
  - **CU TR (EAC)** 1Ex db IIC T6 Gb Ex tb IIIC T85 °C Db

Standar models

Code	Certification	Range temperature
AFT25	ATEX / IEXCEx	0...25 °C
AFT40	ATEX / IEXCEx	0...40 °C
AFT60	ATEX / IEXCEx	0...60 °C
AFT40-CUTR	CU TR (EAC)	0...40 °C



HFT Flameproof Air Sensing Thermostats

Industrial's HFT thermostats are supplied in weatherproof or explosionproof enclosures to complement our heaters.

All thermostats are certified for use in hazardous areas where the atmosphere is classified as a Zone 1 or 2 (IIA, IIB, IIC) gas group. The HFT is designed for the temperature control of work or storage areas, in conjunction with a hazardous area air heater. .

General characteristics

- Wall mounted
- Suitable for ambient temperatures from -60°C to +60°C
- Cast 316 stainless steel with 2 x M20 cable entries, external and internal earths and internal neutral link
- Controls: Choice of control range: 0 to 25°C, 0 to 40°C or 0 to 60°C options
- Voltage 20A on 250VAC in a choice of switching configurations
- Certificacions:
  - **ATEX/IECEx Ex II 2 G** Ex d IIC T6 Zone 1 and 2
  - **CSA (CEC/NEC)** Class I, Division 2, Groups A, B, C, D; T6, Type 4X (USA/CAN)
  - **CSA (CEC)** Ex db IIC; T6 Gb; IP66 (CAN)
  - **CSA (NEC)** Class I, Zone 1, AEx db IIC; T6 Gb; IP66 (USA)
  - **CU TR (EAC)** 1Ex db IIC T6 Gb X

Standar models

Code	Certification	Range temperature
HFT25	ATEX / IEXCEx	0...25 °C
HFT40	ATEX / IEXCEx	0...40 °C
HFT60	ATEX / IEXCEx	0...60 °C
HFT25-CSA	CSA	0...25 °C
HFT40-CSA	CSA	0...40 °C
HFT60-CSA	CSA	0...60 °C
HFT25-CUTR	CU TR (EAC)	0...25 °C
HFT40-CUTR	CU TR (EAC)	0...40 °C
HFT60-CUTR	CU TR (EAC)	0...60 °C