ELVARME

ATEX

AIR DUCT HEATERS

NEWTRONIC

ISE RANGE OF EX E CERTIFIED ELECTRIC DUCT AIR HEATERS

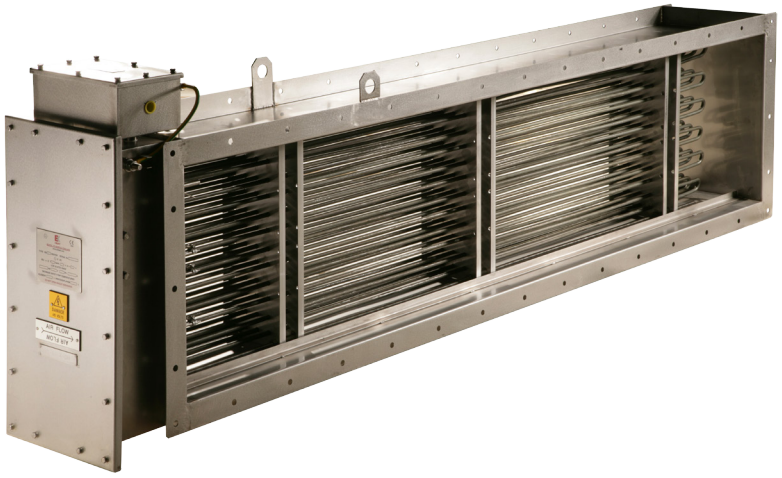
The ISE type electric heaters comprise a range of certified Ex e air duct heaters, custom built to meet client specifications, and suitable for use in ATEX / IECEx Zone 1 hazardous areas.

FEATURES

- Certified to ATEX or IECEx standards
- A range of Ex e Gas Group IIC, increased safety certified duct air heaters
- Temperature classifications T2 to T6
- Elements are certified Ex e for use in Zone 1 hazardous areas
- Elements are individually replaceable on site without the need for special tools
- Terminal box is certified weatherproof to IP66 and IP67
- Anti-condensation heater fitted if required
- Various types of over-temperature cut-outs available, e.g. thermostats, RTD's or thermocouples

TYPICAL APPLICATIONS

- Air handling units
- HVAC duct heating
- Furnace heating
- Space heating
- Drying ovens



Certification

ATEX / IECEx Ⓔx II 2 G
Ex e IIC T1 to T6 Gb IP67
CU TR (formerly GOST), CCOE, CNEx, Inmetro

Terminal Box

Lightweight construction, manufactured from either carbon steel (corrosion protected) or 316L stainless steel throughout

Elements

Manufactured from 80/20 NiCr resistance wire with high purity compacted magnesium oxide powder sheathed with corrosion/erosion resistant tube, eg:

Incoloy 800/825	Inconel 600/625	Titanium
316/316L stainless steel	321 stainless steel	

Special Features

Where a hazardous gas is present within the duct, the elements are supplied certified Ex e for use in an ATEX / IECEx Zone 1 Area.

Thermal Protection

Generally over temperature protective devices are installed as follows:

Where elements are NOT in a Hazardous Area:

- 1 thermal cut-out per heating stage, sensing element surface temperature
- 1 thermal cut-out, sensing air temperature

Where elements ARE in a Hazardous Area:

- 3 thermal cut-outs (1 per phase), per heating stage sensing element surface temperature
- 1 thermal cut-out sensing air temperature

Note: The air temperature sensor is not required if the terminal box is thermally spaced from the duct

Supports

Elements are supported in a baffle assembly to prevent flow-induced vibration

Element Fittings

Elements are sealed into the mounting flange by either brass or stainless steel bushings to facilitate individual replacement of elements

Voltage

Suitable for voltages up to 690V

Duct Construction

Manufactured from either stainless steel or pre-galvanised sheet steel to suit the specific working environment; the element-mounted flange is designed to enable removal of the heater bundle without disturbing the remaining ductwork

PERFORMANCE DATA

Model	Voltage (V) *	Phase **	T Class	Nominal Output (kW)	Air Flow (m³/hr)		Air Temp. Delta (°C/°F) ***		Max Current (A) ****
					50Hz	60Hz	50Hz	60Hz	
MFH-5.5-220	220	1	T3	5.5	1050	1260	16.2 / 29.2	13.5 / 24.3	25.6
MFH-6-230	230	1	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	26.7
MFH-5.5-240	240	1	T3	5.5	1050	1260	16.2 / 29.2	13.5 / 24.3	23.5
MFH-6-254	254	1	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	24.2
MFH-6-277	277	1	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	22.3
MFH-5.5-380	380	3	T3	5.5	1050	1260	16.2 / 29.2	13.5 / 24.3	9.0
MFH-6-400	400	3	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	9.3
MFH-5.5-415	415	3	T3	5.5	1050	1260	16.2 / 29.2	13.5 / 24.3	8.3
MFH-6-440	440	3	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	8.5
MFH-6-480	480	3	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	7.8
MFH-6-600	600	3	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	6.4
MFH-6-690	690	3	T3	6	1050	1260	17.7 / 31.8	14.7 / 26.5	5.6
MFH-2.5-110	110	1	T4	2.5	1050	1260	7.4 / 13.3	6.1 / 11.1	23.3
MFH-3-120	120	1	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	25.6
MFH-2.75-220	220	1	T4	2.75	1050	1260	8.1 / 14.6	6.8 / 12.2	13.1
MFH-3-230	230	1	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	13.6
MFH-2.75-240	240	1	T4	2.75	1050	1260	8.1 / 14.6	6.8 / 12.2	12.1
MFH-3-254	254	1	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	12.4
MFH-3-277	277	1	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	11.4
MFH-2.75-380	380	3	T4	2.75	1050	1260	8.1 / 14.6	6.8 / 12.2	4.8
MFH-3-400	400	3	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	4.9
MFH-2.75-415	415	3	T4	2.75	1050	1260	8.1 / 14.6	6.8 / 12.2	4.4
MFH-3-440	440	3	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	4.6
MFH-3-480	480	3	T4	3	1050	1260	8.8 / 15.9	7.4 / 13.3	4.3
MFH-3.7-600	600	3	T4	3.7	1050	1260	10.9 / 19.6	9.1 / 16.4	4.2
MFH-3.7-690	690	3	T4	3.7	1050	1260	10.9 / 19.6	9.1 / 16.4	3.7

* Voltage tolerance +0/-10%.

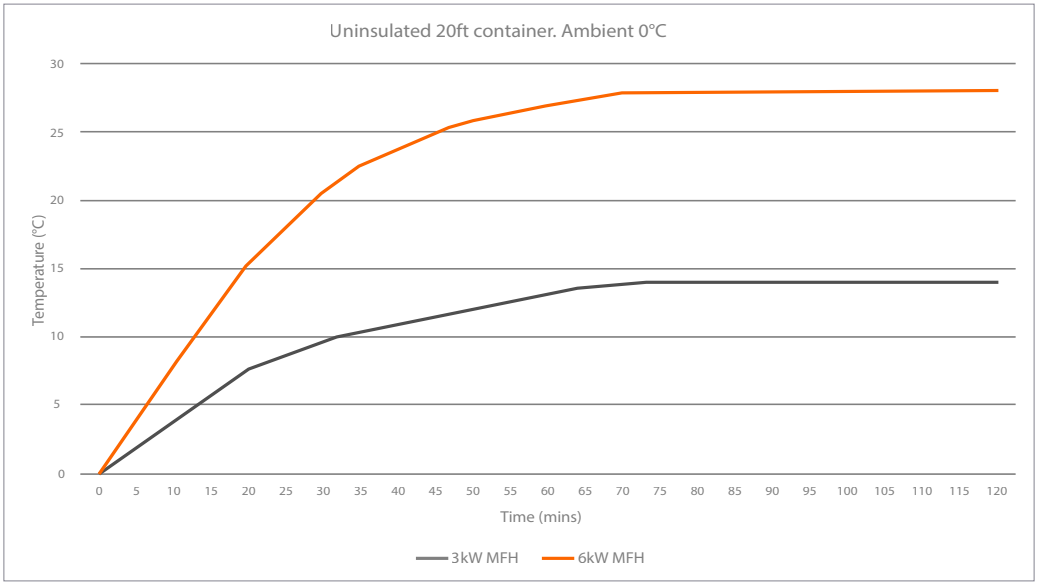
** Minimum SWA multicore cables required: 3Ph 380V–690V heaters require 4mm², 1Ph 220V-277V T4 heaters require 4mm², 110V-120V T4 & 220V-277V T3 heaters require 6mm², 110V-120V T3 heaters require 10mm².

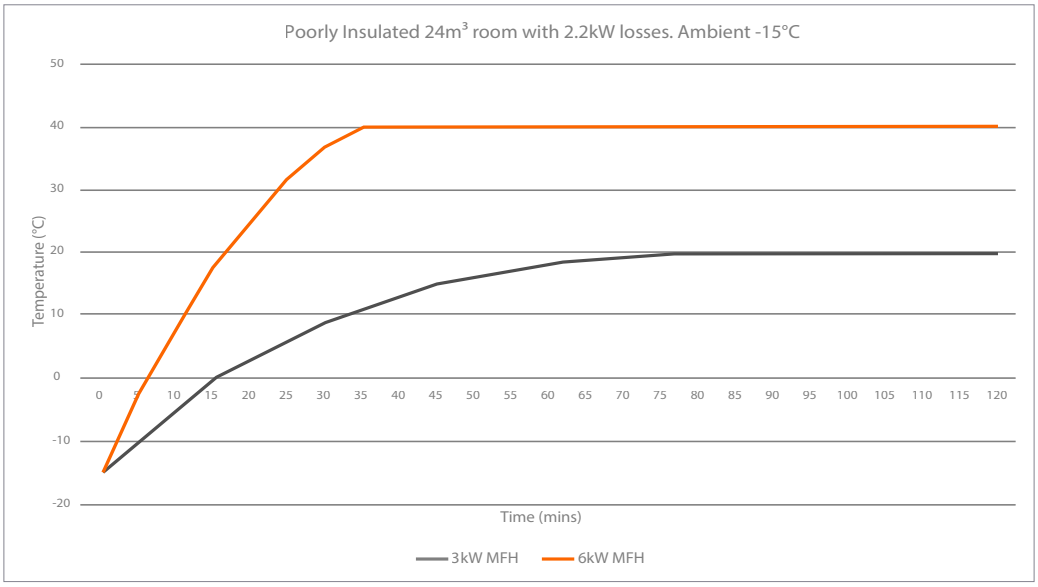
*** ΔT (Delta T) refers to the air temperature difference at the inlet and outlet. For example, if the ambient is +6°C and the ΔT (temperature rise) is 15°C, then the outlet will be +21°C.

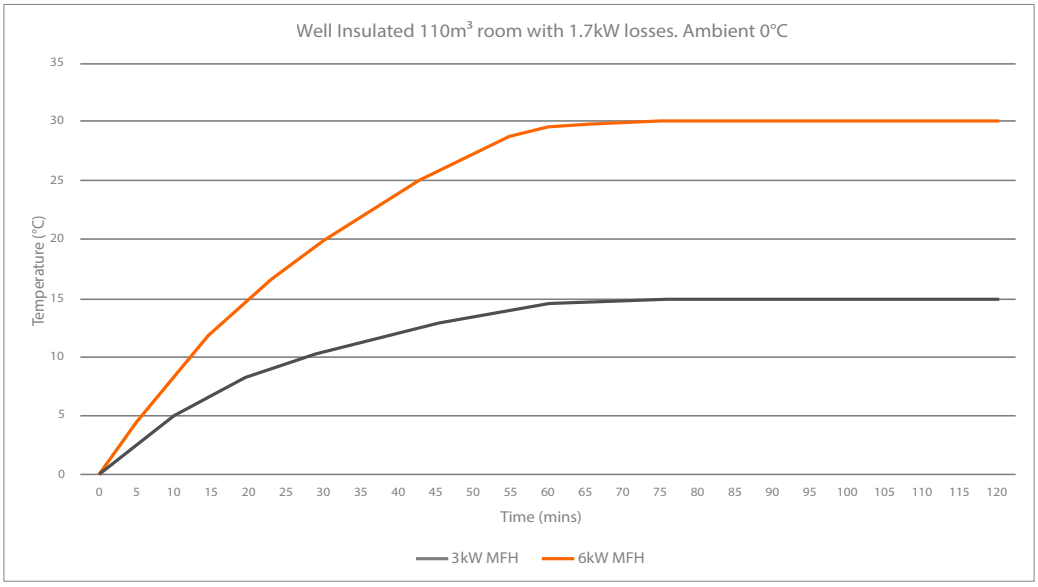
**** The maximum current includes the maximum motor inrush.

All values based on 25m cable lengths and an acceptable voltage drop of 4% at +40°C ambient.

HEATING PERFORMANCES FOR DIFFERENT ROOM SIZES







APPROVALS

In 2016, two new standards were issued to replace the now withdrawn EN 13463 range of standards that are to protect non-electrical equipment for use in potentially explosive atmospheres. Adding to the IEC 80079 range of standards, EN 80079-36 and EN 80079-37 were published.

2 G D Ex h

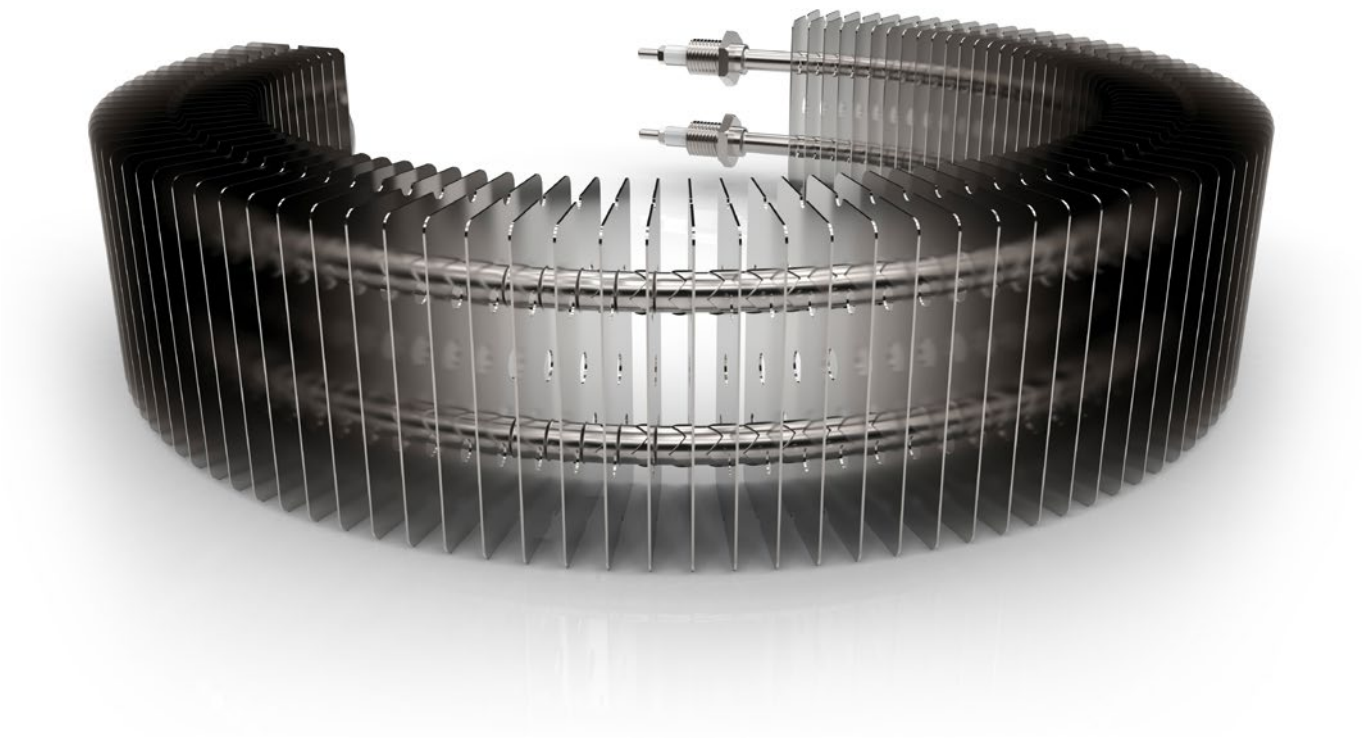
Products protected by constructional safety, control of an ignition source and liquid immersion have their ATEX markings suffixed by the letters ‘c’, ‘b’ and ‘k’ respectively. The new standards have compressed these three concepts into a single protection and allow the new Ex h marking to be used.

By including a fan in the design, the ATEX requirements in EN 14986 were triggered, which calls on the requirement for constructional safety markings. The Bulldog® is one of the first products to be marked with the new Ex h markings and has undergone additional testing over and above the standard electrical and mechanical requirements of the EN IEC 60079 range of standards in order to confirm compliance.

HEATING ELEMENTS

The tubular elements are constructed using a premium nickel chrome resistance wire, compacted in a high purity magnesium oxide powder and sheathed in environment resistant stainless steel. Each fin is fully soldered into place to improve the thermal transfer away from the element sheath, allowing for more powerful elements to be run in the same conditions whilst maintaining the temperature class.

EXHEAT Industrial's formation of its patented curved element allows for a very compact assembly, unlike normal hazardous area fan heaters that generally have a rectangular array.



CASING

The Bulldog's® casing has been designed to not only be tough and durable, but also assist with the movement of air through the heater, ensuring that optimum thermal transfer can be achieved.

The two part moulding is made from aliphatic polyamide (PA66) and is reinforced with both glass and steel fibres, which improve the strength of the base material whilst being electrically conductive to eradicate the chance of static build-up.

An additional benefit for the casing is that it has EMI shielding. This means that the electrical components inside have an increased protection from electromagnetic frequencies operating in close proximity.

OVER-TEMPERATURE PROTECTION

The Bulldog is fitted with its own customised protection device which allows it to operate consistently at ambient temperatures as low as -40°C, where normal thermal protection circuits would struggle to run below 0°C.

The Bulldog has an RTD sensor installed; this device constantly monitors the hottest part of the heating element protecting the unit from exceeding T-Class temperatures
(through fault or misuse).

ENCLOSURES
The Bulldog comprises two enclosures that allows users to operate it safely:

• Flameproof Ex d Enclosure: Housing sparking electrical components, this enclosure is made from hard anodised aluminium for use in offshore environments. By utilising aluminium for various other, normally heavier components, EXHEAT Industrial has been able to drastically reduce the 'normal' weight that is associated with a fan assisted heater.

• Increased Safety Ex e Enclosure: Made from stainless steel, this enclosure allows for easy access to wiring, and is safe to use in the harshest of working environments - both onshore and offshore.

By directly mounting the enclosures to one another, EXHEAT Industrial ensures that there are no looping wire runs to be caught up in the impeller or heating elements. This provides you with a single neat cabling solution ensuring safe connections between the protection device, and the wiring of the elements and motor.

Each enclosure can be accessed separately, whether to manually reset the protection device in the Ex d enclosure, or to undertake the routine maintenance within the Ex e.

COMPONENTS
All components used within The Bulldog have been specially selected and constructed with equipment robustness and effective heating in mind.

Stainless steel bracketry and fixings allow the heater to endure harsh marine environments, while parts like the motor and impeller have been specially chosen to provide the right air flow throughout The Bulldog for maximised efficiency.

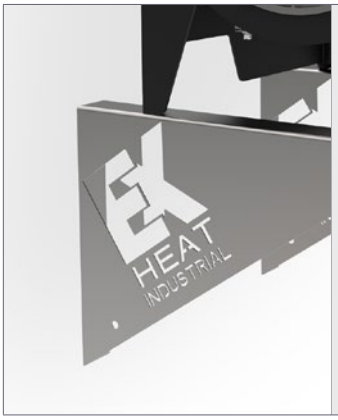
OPTIONAL ACCESSORIES

Ducting

Flexible ducting to direct warm air can be affixed to the heater using a stainless steel mounting bracket available in 7.6m lengths as standard. Suitable for use in ambient temperatures as low as -40°C.

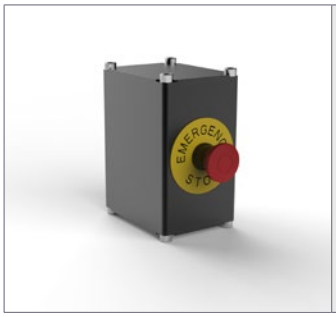
Local Isolator

Suitably rated isolators can be fitted, with up to 1 x M32 cable entry. Isolators may also be mounted remotely (requires additional cabling).



Wall Mounting Brackets

Mounting brackets for fixed wall positioning available in coated mild steel or 316L stainless steel options. Wall mounting will require a remote isolator in order to access and operate the heater.



Emergency Stop Button

An emergency stop button can be supplied loose to be installed in the incoming power supply. This cannot be used in place of an isolator.

Indicating Lamps

Indicating lamps can be fitted to The Bulldog to provide visual indication when the heater is live and energised.

Anti-Static Castors

The Bulldog can be supplied with 50mm or 100mm anti-static castors in place of fixed feet for easy manoeuvrability of the heater.

Cable

BS5467 - SWA multicore cables, rated for ambient conditions and voltage, can be supplied cut to length with cable glands. Your installer may advise that cables be fire rated to IEC 60331 and 60332 standards. Parts are supplied by our recognised distributors. Pricing may vary.

See page 4 for recommended multicore cable sizes.

Room / Air Sensing Thermostat

Fitted thermostats can be set to control heating elements, motor, or both.

Plug

Our recognised distributors can supply a range of hazardous area plugs. If required, both plug and socket can be supplied. Pricing may vary.

WARRANTY

Our standard warranty is 18 months from date of despatch or 12 months from putting into service, whichever is earlier. Premiums for extended warranty on the motor and heating element parts only are available on request based on a maximum of 36 months from installation.

PACKING

Recycled cardboard box design boarded all round for domestic shipments and air/sea worthy export packaging for export shipments.

ELVARME

VORES PRODUKTSORTIMENT INKLUDERER:

FAST IR-SYSTEMS

KANALVARMELEGEMER KUNDEDES.

RECTANGULAR

CIRCULAR

FLANGEVARMELEGEMER STANDARD

ATEX

ATEX

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AUTOMATIK

HVAC & BYGNINGS-AUTOMATIK

KØLEPROFILER

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