



## **SE** MONTERINGS- OCH SKÖTSELANVISNING

ATEX godkänd värmefläkt vatten, för explosiv gasatmosfär Läs denna anvisning innan produkten monteras och tas i drift. Spara denna anvisning för framtida bruk.....2

#### INSTALLATION AND MAINTENANCE INSTRUCTIONS GB)

ATEX approved water fan heater for explosive gas atmospheres MIMPORTANT: Read these instructions before installing and using the product. 

## (DE) INSTALLATIONS- UND WARTUNGSANLEITUNG

ATEX-zugelassener Wasserheizlüfter für explosionsgefährdete Bereiche AWICHTIG: Diese Anleitung vor Installation und Verwendung des Produkts lesen. Diese Anleitung für zukünftige Referenzzwecke aufbewahen......12

#### ИНСТРУКЦИЯ ПО МОНТАЖУ И ТЕХОБСЛУЖИВАНИЮ (RU)

Одобренные отопительные вентиляторные агрегаты с теплоносителем водой АТЕХ для взрывоопасных газовых сред.

**АВАЖНО!** Перед монтажом и использованием изделия прочтите данную инструкцию. Сохраните инструкцию для пользования ею в будущем!......17



### IMPORTANT: Read also through the separate instructions for the fan motor, motor protection and junction box before installing and using this products.

SWX EX are hot water fan heaters for hazardous areas.

SWX EX has been developed specifically for heating the air in environments with occasional danger of explosion (Zone 1 and Zone 2). The fan heater is available in two sizes: SWX EX12 and SWX EX22. Uses hot water as the energy medium.

- Approved for use in areas where the danger of explosion is due to gases or fumes (equipment category 2G).
- Temperature class T4 (max. 135 °C).
- Max. ambient temperature 40 °C.
- Protection class fan motor, IP44
- Stainless sheet metal casing, EN 1.4016.
- Water coil featuring copper pipes and aluminium fins.
- Quick release inspection and cleaning hatch.
- Supplied with an Ex classified fan motor and junction box.
- Components for room temperature regulation are not included.
- See appendix A for technical data on the fan heaters.
- Motor protector type U-EK230E is included and must be connected to the fan motor PTC thermistors, see page 5 and appendix C.
- Accessories:
   Plastic motor protector casing, protection class IP54

### **Approvals**

Frico's SWX EX fan heater meets the requirements of ATEX directive 2014/34/EU. Tests and certifications of SWX EX have been performed by DNV Nemko Presafe AS (notified body number: 2460) according to certificate Presafe 15ATEX 7676X. CE-marked.



### General

- 1. All work is to be done by qualified and authorised personnel.
- 2. Handle the equipment carefully.
- 3. The heater is to be stored in dry conditions prior to installation and must not be exposed to extreme heat or cold.
- 4. The ambient temperature for the heater when in use is -20 °C min....+40 °C max.
- 5. Caution! Maximum temperature for inlet water is +125°C.
- 6. Before installing the unit, a visual check for transportation damage must be made.
- 7. The heater must be mounted securely to the wall.
- 8. Caution! During operation the surface of the unit can be hot!
- 9. Keep the areas around the air inlet and air outlet free from possible obstruction.
- 10. If any changes are made to the product without the consent of Frico, all the certificates of approval becomes invalid.

### Fitting of the wall bracket

- 1. Remove the eight screws indicated by the arrows in photo 1.
- 2. Install the brackets with the cable attachment holes toward the fan motor connection cable, as shown in photo 2. Use Loctite 2400 or similar to lock the screws.





 $Photo \ 2$ 

3. The fan heater may be mounted with the pipes facing left or right, as seen from the front, as shown in photo 3 and 4. In rooms with high ceilings, the fan heater should be installed in a low position, but not so low that it intrudes on the working space. For a fan heater wall bracket hole drilling template with the min. distances from the wall or ceiling, see appendix B.







Photo 4

4. The fan heaters are delivered with the air deflector fitted for mounting as in photo 3. If the fan heater is mounted with the pipes facing right, the air deflector must be turned for the air to be deflected downward. Remove the six screws (1/4" hex head) attaching the air deflector as shown in photo 5, lift out the air deflector and turn it 180°. Then reattach it.







### Water connections for the SWX EX



**ATTENTION!** Carefully inspect the whole system for leaks after connecting the water pipes. A leak may cause damage that is expensive to repair.

- 1. The fan heater **must not** be connected to **hot mains water** or **steam**. The highest temperature and pressure allowed is indicated on the identification plate, next to the connection pipes.
  - Caution! Maximum temperature for inlet water is +125°C.
- 2. The capacity, water temperature, flow and pressure drop are shown in the tables for each heater size, see appendix A.
- 3. The fan heater must be connected so that the coil may be drained during a shut-down, in the event of freezing temperatures.
- 4. An air purge valve must be installed at the heater outlet pipe or centrally in the system.
- 5. The piping connected to the heater must be suspended in such a way that it does not put any strain on the inlet or outlet pipes.
- 6. Connect the water supply pipe to the lower pipe on the heater and connect the outlet pipe to the upper pipe, as shown by the arrows in photo 6. The connection diameter is 22 mm on SWX EX12 and 28 mm on SWX EX22. Clamp-ring couplings

are recommended.

If using soldered connections, the pipe must be cooled near the soldering point (using wet rags, freezer bags or compressed air) so that the casing grommet (arrow A, photo 7) is not heated above 150 °C. In order to reduce





the amount of heat needed, remove the support sleeve before soldering. Photo 6 Photo 7

7. Support sleeves must be used together with clamp-ring couplings since the copper pipes are soft annealed. Make sure that the support sleeve is correctly inserted, as indicated by the arrow B in photo 7.

Install the clamp-ring coupling and tighten in accordance with the manufacturer's instructions.

When tightening connections on pipes and valves, these must be held in such way that the tightening torque is not transfer-

red to the fan heater inlet and outlet pipes.

### Electrical connection of the fan motor

- 1. All installation work must be performed by a qualified electrician.
- 2. The fan heater is constructed for 400 VAC, 3 phase.
- 3. Electrical connection to the mains requires fixed wiring. A multi-pole breaker with a minimum 3 mm contact gap must be installed in the fixed installation, using Ex approved components in the risk area.
- 4. There is connection (see photo 8) for external equipotential bonding at the back of the heater chassis, indicated by a ground symbol. Minimum conductor size shall be 4 mm<sup>2</sup> and torque of M6 screw is 6Nm. Spring washer between



ring terminal and screw. Photo 8





- Install the enclosed cable ties on the inside of the bracket where the fan motor cable will be attached, see photo 9
   Photo 9
   Photo 10
- 6. Install the cable glands and the stopping plugs in the enclosed Ex junction box to match the wiring, see photo 10





for an example. Also read through the separate installation instructions for the Ex junction box.

- 7. Mount the junction box next to the bracket where the fan motor connection cable will be attached, see photo 11. Photo 12
- 8. Attach the fan motor connection cable as shown in photo 12. The fan motor wiring diagram can be found in appendix C. The fan motor is fitted with PTC thermistors to protect against overheating, and must therefore be connected to motor

protector U-EK230E (Ziehl Abegg) and a contactor (see appendix C), placed in non hazardous areas.

9. Make sure that the fan motor rotates clockwise, as seen through the protective grille.

### **Cleaning/maintenance**

1. Disconnect the power to the fan motor and follow any applicable regulations concerning work in explosive gas environments.





2. The fan heater has a quick release inspection/cleaning plate and a lock nut and lock washer (arrow) for equipotential bonding, see photo 13. Photo 13

Photo 14

3. Disengage the quick release locks by turning them a quarter turn counter-clockwise, see photo 14.

### Cleaning and maintenance of the fan motor

Must be carried out according to the separate instructions for the fan motor.

### Cleaning of the water coil

For optimum performance, the fan heater must be cleaned regularly.



The interval between each cleaning depends on the environment the fan heater is used in.

Dust on the water battery's aluminium fins impedes the airflow and its heat exchanging performance. The coil must therefore be kept clean.

Important! Do not forget to reinstall the lock washer and lock nut for equipotential bonding in the plate, following the completed maintenance procedure.

## Appendix A

## **Technical data**

Туре		SWX EX12	SWX EX22
Power supply		3~230/400V	3~230/400V
Current consumption,	А	0.43 / 0.25	0.88 / 0.51
Air volume	m³/h	2250	4150
Sound level	dB	61	67
Throw length <sup>1)</sup>	m	8	10
Connecting pipe	mm	Ø22	Ø28
Max. working temp. water	°C	125	125
Max. working pressure (of water)	bar	16	16
Ambient temperature	°C	-20 °C - +40 °C	-20 °C - +40 °C
Weight	kg	25	42
Protection class, fan motor		IP44	IP44

<sup>1)</sup> Measured 5 metres in front of the SWX.

### Capacity SWX EX12-22

	Water temp. in/out 90 °C/70 °C			in/out 80 °C/60 °C			in/out 60 °C/40 °C							
	Air flow	Supply air	Output air	Power	Flow water	Pressure drop water	Output air	Power	Flow water	Pressure drop water	Output air	Power	Flow water	Pressure drop water
	m³/h	°C	°C	kW	l/s	kPa	°C	kW	l/s	kPa	°C	kW	l/s	kPa
SWX EX 12	2250	+5	43,4	30,5	0,38	12,0	37,8	26,0	0,37	9,0	26,3	16,9	0,21	4,2
SWX EX 12	2250	+15	48,6	25,6	0,37	8,6	42,8	21,2	0,20	6,2	31,1	12,3	0,15	2,3
SWX EX 22	4150	+5	42,5	54,9	0,68	18,7	37,1	47,0	0,58	14,2	26,1	30,9	0,38	6,8
SWX EX 22	4150	+15	47,8	46,2	0,57	13,6	42,3	38,5	0,47	9,8	31,0	22,6	0,27	3,8

### **Dimensions SWX EX**

Dimensions	A mm	B mm	C mm	D mm	Emm	Fmm	G mm	Hmm	ØI
SWX EX12	550	530	380	630	Ø22	250	330	410	10
SWX EX22	705	655	430	700	Ø28	270	420	505	10





Bilaga B / Appendix B / Anhang B / Приложение B



Туро	A min.	B min.	C min.	D	E
Туре	mm	mm	mm	mm	mm
SWX EX12	250	850	950	330	410
SWX EX22	275	850	965	420	505

57312**-**1



## Bilaga C / Appendix C / Anhang C / Приложение C



## **Declaration of Conformity**

We Frico AB Box 102 S-433 22 Partille, Sweden

under own responsibility hereby declare that the following product(s)

Type of equipment	Hot water fan heater for hazardous area		
Brand name/trade mark	Frico		

Type designation/models

SWX EX 12, SWX EX 22

are in conformity with provisions of following EU directives:

LVD Directive 2014/35/EU EMC Directive 2014/30/EU ATEX Directive 2014/34/EU MD Directive 2006/42/EU RoHS II Directive 2011/65/EU

The following harmonized standards are applied in applicable parts:

EN 13463-5:2011 EN 13463-1:2009 EN 14986:2007 EN 60079-7:2007 EN 60079-0:2012 EX- Non electrical equipment in potentially explosive atmospheres EX- Non electrical equipment in potentially explosive atmospheres EX- Design of fansin potentially explosive atmospheres EX- Increased safety "e" EX- General requirements

Country of origin: Sweden

Partille, 1 July 2017

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## **EU-Type Examination Certificate**

[2] EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 2014/34/EU

[3]	EU-Type Examination Certificate Number:	Presafe 15 ATEX 7676X	Issue 0
[4]	Product:	Fan Heater Assembly SWX Ex 12 and SWX	K Ex 22.
[5]	Manufacturer:	FRICO AB	
[6]	Address:	Industrivägen 41,	
		43361 Sävedalen	
		Sweden.	

- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV Nemko Presafe AS, notified body number 2460, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential reports listed in section 16.

- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: EN 60079-0:2012, EN 60079-7:2007, EN 14986:2007, EN 13463-1:2009 and EN 13463-5:2011.
- [10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.
- [11] This EU TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

Asle Usersted

Asle Kaastad For DNV Nemko Presafe AS Information on electronic signature www.presafe.com



II 2 G c Ex e IIB T4 Gb

Date of issue:

2017-01-27

This certificate may only be reproduced in its entirety and without any change, schedule included.



## **EU-Type Examination Certificate**

### [13]

### Schedule

[14] EU-TYPE EXAMINATION CERTIFICATE No.:

Presafe 15 ATEX 7676X

Issue 0

#### [15] Description of Product

SWX Ex is a hot water fan heaters for hazardous area. This fan heater is of two sizes SWX Ex 12 and SWX Ex 22. SWX Ex has been developed specifically for heating the air in environments with occasional danger of explosion with maximum inlet water temperature of 125°C and the ambient temperature of -20 °C to +40 °C. The fan Heater assembly includes the Ex e certified fan motors, which is supplied with Ex class fan motor Junction box. The fan motor is fitted with PTC thermistors to protect against overheating, and the installation also requires an external thermistor motor protection, thus connected to motor protector U-EK230E and a contactor placed in the safe area. The Fan heater chassis, wall bracket and air deflector is made of stainless steel EN 1.4016 or EN 1.4404 with thickness between 1 to 1,5mm. The IP class included for the Fan motor is IP 44. The water supply pipe is connected to the lower pipe on the heater and outlet pipe to the upper pipe of the fan heater with connection diameter is 22 mm on SWX Ex12 and 28 mm on SWX Ex22. The fan heater are mounted with pipes facing left to right, when the fan heaters is mounted with pipes facing right then the air deflector must be turned for the air to deflect downwards.

### Type designation

SWX Ex 12 & SWX Ex 22.

#### Electrical Data 3-230/400V 50 Hz 0,43/0,25A

**Degrees of protection (IP Code)** IP 44 Fan Motor.

**Ambient temperature:** -20°C to +40°C



## **EU-Type Examination Certificate**

Presafe 15 ATEX 7676X, Issue 0

#### [16] Report No.: D0002321.

#### [17] Specific Conditions of Use

- The fan heater must not be connected to hot mains water or steam. The highest temperature and pressure allowed is indicated on the identification plate, with the maximum inlet water temperature is restricted to 125°C
- 2) The fan motor is fitted with PTC thermistors to protect against overheating, and thus therefore be connected to certified motor protector U-EK230E and a contactor placed in the safe area.
- 3) Electrical connection to the mains requires fixed wiring. A multi-pole breaker with a minimum 3 mm length of break must be used for the permanent installation, using Ex approved components in the risk area.

#### [18] Essential Health and Safety Requirements

Essential Health and Safety Requirements (EHSRs) are covered by the standards listed at item 9

#### [19] Drawings and documents

Number	Title	Rev.	Date
59031	Frico SWX Ex 12/ SW Ex 22 (Type table location and warning lable location	1	2017-01-18
173123	Installation and maintenance instrcutions	1	-

Refer Confidential report D0002321 for the complete descriptive list of technical drawings.

#### [20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2017-01-27	D0002321

#### END OF CERTIFICATE

#### Main office

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