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Schema di certificazione

CESI-ATEX

[1] **SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE**

[2] **Equipment or Protective System intended for use
in potentially explosive atmospheres
Directive 2014/34/EU**

[3] Supplementary EU-Type Examination Certificate number:
CESI 17 ATEX 026 X /01

[4] **Product:** submersible electric pumps and mixers series F180

[5] **Manufacturer:** FAGGIOLATI PUMPS S.p.A.

[6] **Address:** Via Papa Giovanni XXIII, 31
62100 Macerata - Italy

[7] This supplementary certificate extends EU-Type Examination Certificate CESI 17 ATEX 026 X, to apply to Product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

[8] CESI, notified body n. 0722 in accordance with Article 17 of the Directive 2014/34/EU of the Parliament and Council of 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 equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report n. EX-C1016201.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0: 2018 EN 60079-1: 2014
EN ISO 80079-36: 2016 EN ISO 80079-37: 2016

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the Product is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified Product in accordance to the Directive 2014/34/EU. 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:

II 2G Ex db h IIB T4 Gb

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

Date 2021/09/21 - Translation issued on 2021/09/21

Prepared
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Approved
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Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 026 X /01

[15]

Description of the variation to the Product

The products have not been subjected to any constructive variation. The following updates are introduced with this supplement:

- Harmonized standards guaranteeing compliance of the products with the safety and health requirements of the directive 2014/34/UE are updated:
 - **EN IEC 60079-0: 2018** (updated with respect to the previous issue)
 - **EN 60079-1: 2014** (already updated in the previous issue)
 - **EN ISO 80079-36: 2016** (updated with respect to the previous issue)
 - **EN ISO 80079-37: 2016** (updated with respect to the previous issue)
- According with the new harmonized standards, the marking on the plate is updated. The non-electrical protection "h", for the products covered by this certificate, includes the protection principles "c" (constructive safety) and "k" (safety by immersion in liquids):


II 2G Ex db h IIB T4 Gb

- The special conditions for safe use are updated, with minor changes.

Description of Product

The submersible electric pumps and mixers, series F180, are assemblies formed by an electric motor, with flameproof protection (Ex d), connected to a hydraulic impeller, protected against the risk of ignition using the non-electrical protection principles "c" and "k".

The submersible electric pumps, series F180, are used for pumping sewage water and are also suitable if there are solid and filamentary bodies in suspension. They are intended for emptying sewage collecting wells, septic tanks and non-screened water.

Submersible electric mixers are used to mix, homogenize and bring in suspension viscous materials, heavy sludge and liquid containing solid particles.

The details of the construction characteristics of the individual machines model are reported in the descriptive documents referred to in this certificate.

Series F180 products are already equipped with a cable gland integrated in the flameproof enclosure of the electric motor. The unused hole, present in the enclosures of motors size IEC71, is already closed by the manufacturer by using a screwed cap sealed with thread locking compound.

The motors, installed on the products series F180, are equipped with temperature sensor, placed into the stator winding, calibrated for intervention at 130°C. The intervention of the thermal protection must ensure the disconnection of the power supply in case of overheating, its reset shall not be automatic.

The submersible pumps and mixers are identified by a code made up of different fields, each of which identifies a construction feature.

- The **electric pumps** are identified by a code composed as follows:

e.g.: **G410R6V1-M64AA6**

Field	Identification of the field in the code
G	Type of material: B=Bronze, D=Duplex, E=Super Duplex, G=Cast iron, H=Hastelloy, J=Alloy, S= Spheroidal cast iron, T=AISI 316Ti, X=AISI 316, Y=AISI 316L
4	Poles no.: 2, 4, 6, 8, 10
10	Motor size: 71=IEC 71, 09=IEC 90, 10=IEC 100, 11=IEC 112, 13=IEC 132, 16=IEC 160, 18=IEC 180

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Field	Identification of the field in the code
R	Power supply (rated voltage / start up): A=500/865V 60Hz 3ph, C=500V 50Hz 3ph, D=400V 60Hz 3ph, E=460/796V 60Hz 3ph, F=575/995V 60Hz 3ph, H=440/762V 60Hz 3ph, K=110V 60Hz 3ph, L=230V 60Hz 3ph, M=230V 50Hz 1ph, N=230V 60Hz 1ph, O=480/830V 60Hz 3ph, P=415/718V 50Hz 3ph, Q=500/865V 50Hz 3ph, R=400/690V 50Hz 3ph, S=230/400V 50Hz 3ph, T=400V 50Hz 3ph, U=230/400V 60Hz 3ph, V=600V 60Hz 3ph, W=400/690V 60Hz 3ph, Y=208/360V 60Hz 3ph
6	No. of impeller blades
V	Type of the hydraulics: C=Canals, D=Drainage, H=Multi-canal "High performance", J=Kut-all M=single-canal, S=Sand Vortex, T=Shredder, V=Vortex,
1	Size of the impeller
-	Fields separator
M	Delivery size [mm]: D=1"1/4, F=1"1/2, G=2", H=32, J=40, K=50, L=65, M=80, P=100, R=125, S=150, T=200, V=250, W=300
64	Free passage [mm]
A	Variants related to the nature of the pumped liquid or special voltage: A=Cast iron G250 o GS400, H= Bronze impeller and inox shaft, J=sealing and O-Ring Viton, K= impeller and inox shaft, L=J+K, M=anti-corrosion treatment, S=over-sized motor, X, Y, Z=Combinations of the above variants and / or optional accessories or special voltage
A	Installation accessories: A=Cable HO7RNF, J=Cable NSSHoJ, M=cooling blanket, E=Motor suitable for inverter (*)
6	Motor protection: 6=cast iron and bronze Ex protection, 8=inox Ex protection

(*) Variant used only for motors of size 160 and 180 (the other electric motors are already suitable for both mains power supply and inverters).

➤ The mixers are identified by a code composed as follows:

e.g.: **GM19A409T1-4T6KA6**

Field	Identification of the field in the code
G	Type of material: B=Bronze, D=Duplex, E=Super Duplex, G=cast iron, H=Hastelloy, J=Alloy, S=Spheroidal cast iron, T=AISI 316Ti, X=AISI 316, Y=AISI 316L
M19	Maximum diameter of the propeller [cm]
A	Blades no.: A=2 blades, B=3 blades
4	Poles no.: 4, 6, 8
09	Motor size: 09=IEC 90, 10=IEC 100
T	Power supply (rated voltage / start up): A=500/865V 60Hz 3ph, C=500V 50Hz 3ph, D=400V 60Hz 3ph, E=460/796V 60Hz 3ph, F=575/995V 60Hz 3ph, H=440/762V 60Hz 3ph, K=110V 60Hz 3ph, L=230V 60Hz 3ph, O=480/830V 60Hz 3ph, P=415/718V 50Hz 3ph, Q=500/865V 50Hz 3ph, R=400/690V 50Hz 3ph, S=230/400V 50Hz 3ph, T=400V 50Hz 3ph, U=230/400V 60Hz 3ph, V=600V 60Hz 3ph, W=400/690V 60Hz 3ph, Y=208/360V 60Hz 3ph

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Field	Identification of the field in the code
1	Propeller tilt
-	Fields separator
4	Accessory materials: O=Galvanized steel, 1=Duplex 4A, 4=Inox AISI304, 6=Inox AISI316L.
T	Type of application: C=Ready for guide pole and conveyer, F=With flanged conveyor for mixer pump (category 9), N=With conveyor for mixer pump (category 9), T=Ready for guide pole, V=Prepared for vertical orientation, W=Prepared for vertical orientation with conveyor.
6	Diameter of guide pole (series 6) guide pipe (series 9): 1=Pole 100x100, 2=Pole 2", 5=Pole 50x50, 6=Pole 60x60, 8=Pole 80x80,
64	Free passage [mm]
K	Variants related to the type of the liquid or special voltage: A=Standard, H= Bronze impeller and inox shaft, J=sealing and O-Ring Viton, K=Inox impeller and shaft, L=J+K, M=Anti-corrosion treatment, S=Oversized motor, X, Y, Z=Combinazioni delle varianti sopra indicate e/o accessori opzionali o tensione speciale
A	Installation accessory: A=Cable H07RNF, J=Cable NSSHoJ
6	Motor protection: 6=cast iron and bronze Ex protection, 8=inox Ex protection

Electrical characteristics

- Maximum rated power (**): 50,1 kW (electric pumps)
4,9 kW (mixers)
- Service: S1
- Insulation class: H (t. B)
- Ambient temperature: -20°C ÷ +45°C

(**) The rated power of the various types of motor according to the size, the type of power supply and all the other electrical rated characteristics foreseen by the standards of series EN 60034 are defined in the descriptive documents attached to this certificate, with the following limits.

Mains power supply:

- Maximum rated voltage: 995 V
- Rated frequency: 50/60 Hz
- Maximum rated speed: 3600 r.p.m. (electric pumps)
1800 r.p.m. (mixers)

Supply through inverter (quadratic torque load):

- Maximum rated voltage: 690 V
- Maximum peak voltage: 973 V
- Frequency range: 35÷60 Hz
- Maximum rated speed: 3600 r.p.m. (electric pumps)
1800 r.p.m. (mixers)

Warning labels

“ATTENTION: SEE INSTRUCTIONS”

“DO NOT ACT ON THE CABLE TO MOVE THE ELECTRIC PUMP / MIXER”

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[16] **Report n. EX-C1016201**

Routine tests

The manufacturer is exempted from routine overpressure tests on the enclosures of flameproof motors, as they have overcome the type test carried out at a pressure equal to four times the reference pressure:

- *Motors series M3 e M6 (certificate CESI 03 ATEX 226 X)*
IEC71, IEC90, IEC100: 2350 kPa
- *Motors series M18 (certificate CESI 06 ATEX 068 X)*
IEC112: 3300 kPa
IEC132: 4200 kPa
- *Motors series M50 (certificate CESI 13 ATEX 035 X)*
IEC160: 4450 kPa
IEC180: 3700 kPa

[17] **Special conditions for safe use (X)**

- The products, series F180, can only operate when completely submerged in liquid. The user must ensure that, in any operating condition, the machine remains completely submerged by using adequate level control systems, capable of ensuring complete immersion even in case of a foreseeable fault or anomaly.
- No re-machining on the joint surfaces of the motor housing is allowed. In the case of dents or scratches on the surfaces of a joint, the motor cannot be used and must be sent to the manufacturer for due verification or machining.
- The products are supplied with cables already connected to the motor; they must be protected against the risk of damage due to mechanical stress. In this case, evaluate the possible use of the version with PVC protective sheath. In case of cables with PVC sheath, the risk of electrostatic charges must also be considered.
- The electrical connection of the free ends of the cables must be made in safe area or by applying one of the protection methods foreseen by the EN 60079-0 standard, in compliance with the current rules and in accordance with the EN 60079-14 standard.
- In case of disassembly of the motor, the subsequent assembly of the housing must be carried out using screws in accordance with the ISO 4762 standard and having the following characteristics.
 - *For cast iron castings*
"Use screws class A2-70 UNI EN ISO 3506-1"
 - *For inox and bronze castings*
"Use screws class A4-70 UNI EN ISO 3506-1"
 - *For inox Duplex e Super Duplex castings*
"Use screws SAF 2205 F51 with minimum yield stress 450 MPa and minimum tensile stress 655 MPa"

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[14] **SUPPLEMENTARY EU-TYPE EXAMINATION CERTIFICATE n. CESI 17 ATEX 026 X /01**

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

Compliance with the essential health and safety requirements is not affected by this variation.

EHSR are ensured by compliance with safety conditions and compliance with the following standards:

- EN IEC 60079-0: 2018** Explosive atmospheres - Part 0: Equipment - General requirements
- EN 60079-1: 2014** Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures "d"
- EN ISO 80079-36:2016** Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres – Basic method and requirements
- EN ISO 80079-37: 2016 (*)** Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"

(*) The type of protection for constructional safety "c" and immersion in liquid "k" is applied.

[19] **Descriptive documents (prot. EX-C1016202)**

- * Technical note n. F180 Rev. 7 (18 pages) dated 2021/07/13
- * Safety instructions n. LIBEXF180 Rev. 5 (24 pages) dated 2021/07
- * Safety instructions n. MIXEXF180 Rev. 2 (22 pages) dated 2021/07
- Drawing n. EXDISEGNOF180 Rev. 1 dated 2017/07/27
- Drawing n. Series motors M3 Rev. 7 dated 2017/07/27
- Drawing n. Series motors M6 Rev. 9 dated 2017/07/27
- Drawing n. Series motors M18 Rev. 6 dated 2017/07/27
- Drawing n. Series motors M50 Rev. 8 (4 pages) dated 2017/07/27
- Drawing n. EXDISDESCF180 Rev. 2 (18 pages) dated 2017/08/30
- Drawing n. 16476 Rev. 2 dated 2017/09/13
- Drawing n. 13431 Rev. 1 dated 2012/03/22
- Drawing n. 07487 Rev. 2 dated 2017/07/17
- Drawing n. 54.10254 Rev. 3 dated 2017/07/17
- Drawing n. 5406331 Rev. 3 dated 2012/05/24
- Drawing n. 5406345 Rev. 1 (3 pages) dated 2007/11/08
- * Drawing n. 54.06951 pumps plate Rev. 4 dated 2021/07/23
- * Drawing n. 54.06952 mixer plate Rev. 3 dated 2021/07/23

*Note: an * is placed before the title of documents which are new or revised, annexed to this supplement*
 One copy of all documents mentioned above is kept in CESI files.

Certificate history

Issue No.	Issue Date	Summary description of variations
01	Current	Standards updating
00	2017/10/11	First Issue of the Certificate