



(1) **EU-TYPE EXAMINATION CERTIFICATE**  
(Translation)

(2) Equipment or Protective Systems Intended for Use in  
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

**PTB 99 ATEX 1156 X**

**Issue: 3**

(4) Product: Three-phase motor type T12-./... resp. TE 12-./...

(5) Manufacturer: WILO SE

(6) Address: Nortkirchenstr. 100, 44263 Dortmund, Germany

(7) This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the 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 the confidential Test Report PTB Ex 20-10024.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN IEC 60079-0:2018, EN 60079-1:2014+AC:2018**

(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 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 2 G Ex db IIB T4/T3 Gb**

Konformitätsbewertungsstelle, Sektor Explosionsschutz  
On behalf of PTB:

Braunschweig, March 4, 2020

  
Dr.-Ing. D. Markus  
Direktor und Professor



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(13)

## SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 99 ATEX 1156 X, Issue: 3**

(15) Description of Product

The equipment is a rotating electrical machine for driving submersible pumps. The machine enclosure is a cast construction. The shaft rotates in rolling bearings. Together with the end shield on the drive end it forms a flameproof shaft joint.

For operation in 'G' atmospheres (areas with potentially explosive gas, vapour, mist, air mixtures), the machine is designed to Flameproof Enclosure "d" type of protection.

### Parameters and data

Rated power (input):	max. 2.9	KW
Rated voltage:	max. 690	V
Rated current:	≈10	A
Frequency:	50/ 60	Hz
Operating modes:	S1 submerged, S1 emerged, emerging during operation	
Ambient temperature and temperature of the means of conveyance:	max. 40/ 60 °C	
Number of poles:	2, 4	
Max. immersion depth:	20	m

The nominal values for other voltages are calculated mathematically. The motors may also be operated with lower power ratings than the above mentioned.

**Further rated voltages, amperages, electrical performances or frequency values, duty types, liquid temperatures and temperature classes for the different motor series are defined by the manufacturer for the different electro-thermal design versions.**

Depending on the operating mode the three-phase motor shall be provided with a motor-protection switch and a temperature limiter or temperature sensors embedded in the winding and a suitable electronic circuit-breaker to ensure compliance with the temperature class. Devices which ensure explosion protection in accordance with Directive 2014/34/EU shall be subjected to functional testing.

### Modifications with regard to issue 01

- The standards shall be updated.
- In future the motors can be manufactured in another packet length 13. The new packet length does not result in additional max. free inner volume and dissipation loss. Therefore the temperature increase is not higher than before.
- Temperature class T3 is determined for the inverter operation.

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### Nomenclature

Example: T 12-2/11G-E3 resp. TE 12-2/11G-E3

T 12	Type of motor: T 12, TE 12
2	Number of poles: 2, 4
11	Packet length: 6, 11
G	Mechanical design: G
Ex	Optional Ex version
-E3	Optional marking of the efficiency class: E0 ... E6

(16) Test Report PTB Ex 20-10024

(17) Specific conditions of use

Repairs on flameproof joints may only be performed in accordance with the manufacturer's design specifications. Repair on the basis of the values in tables 1 and 2 of EN 60079-1 is not permitted.

### Notes for manufacturing

Components attached or installed (terminal compartments, bushings, cable glands, connectors) shall be of a technical standard that complies with the specifications on the cover sheet. They shall be suited for the operating conditions and have a separate examination certificate. The special conditions specified for the components shall be complied with, and the components shall be included in the type test, if necessary. This equally applies to the components mentioned in the technical description.

### **Connection conditions**

1. The three-phase motor for submersible pumps of the type T12-./ ... resp. TE12-./... shall be connected with suitable cable glands or conduit systems that meet the requirements set forth in EN 60079-1:2014, sections 13.1 and 13.2, and for which a separate test certificate has been issued. Standard EN 60079-1:2014 section 13.2 shall be observed if conduits shall be implemented into the flameproof terminal enclosure. If the three-phase motor for submersible pumps of the type T12-./ ... resp. TE12-./ ... is connected to conduit systems, the required sealing device shall be provided immediately at the enclosure.
2. Cable glands (Pg type glands) and blanking plugs of a simple design must not be used.
3. Openings that are not used shall be sealed in compliance with the specifications in EN 60079-1:2014, section 11.8.
4. If connection is made in the potentially explosive area, the connecting cable (unconnected cable end) of the three-phase motor for submersible pumps of the type T12-./ ... resp. TE12-./... must be connected in an enclosure that meets the requirements of an approved type of protection in accordance with EN 60079-0, section 1.
5. The connecting cable of the three-phase motor for submersible pumps of the type T12-./ ... resp. TE12-./... shall be fixed and routed so that it will be adequately protected against mechanical damage.

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6. The connection cables should be of a quality that they meet the thermal, chemical and mechanical requirements in the operation area. If the temperature at the input parts exceeds 70 °C, temperature-resistant connecting cables shall be used.
- 7 The three-phase motor for submersible pumps of the type T12-./ ... resp. TE12-./... shall be included in the local equipotential bonding system of the potentially explosive area.

These notes and instructions shall accompany each device in an adequate form.

Cooling is achieved by heat exchange at the surface of the enclosure wall by means of convection of the surrounding medium.

With submersible-pump motors, the required cooling effect for the motor enclosure may optionally be achieved by a constructive jacket cooling design. With the version with cooling jacket, the stator housing is either cooled with a part stream of the medium that is tapped from the pump pressure compartment, or with a separate, closed cooling cycle and a heat exchanger. Measures must be taken to ensure that the required cooling medium is available (to be monitored, if necessary). This applies in particular to the version with a closed cooling cycle.

The motors can optionally be operated with an anti-condensation heater, e.g. strip heaters in the winding overhang. Measures must be taken to ensure that the anti-condensation heater can only operate when the motor is at a standstill. The anti-condensation heater performance and its minimum ON period before motor start as a function of the ambient temperature shall be rated so that the entire motor enclosure will be safely heated to a surface temperature of at least -20 °C. The relevant specifications shall be included in the instructions for operation.

Operation with frequency converter is possible, provided the manufacturer's specifications are complied with.

Compliance with the governing regulations shall be verified for each electro-thermal design of the motors in the form of a type test. In this connection, the requirements stipulated in the code of practice

### **"Merkblatt für die elektrische Auslegung und Prüfung von Motoren in der Zündschutzart Druckfeste Kapselung im Rahmen der EG-Baumusterprüfbescheinigung"**

shall be observed. It is the manufacturer's responsibility to perform and log the type tests in compliance with the above code of practice, and to define the operating conditions and the temperature class for every type series.

The motors may be employed only for the duty type and at the ambient conditions for which they were type tested. This also applies to operation with frequency converter.

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**Temperature monitoring**

Standard EN 60079-14, clause 7, allows **duty type S1** motors to be provided with an overcurrent protection device with inverse time-delay operation (motor protection switch) as the only overload protection, **or** a combined protection consisting of temperature sensors embedded in the winding (e.g. PTC resistors) and a tripping unit.

For motor operation with **duty types other than S1 and operation with frequency converter**, a protection consisting of a combination of temperature sensors embedded in the winding (e.g. PTC resistors) and a tripping unit is the only permitted overload protection.

If temperature sensors, embedded in the winding are used, the temperature of all phases must be measured.

Monitoring devices shall meet the requirements in Directive 2014/34/EU. If non-approved monitoring devices are used, successful function testing shall be separately demonstrated and documented. The devices shall be included into the operating company's regular supervision programme. A note to this effect shall be included in the instructions for operation of the motor.

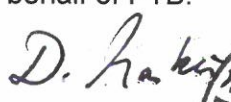
The motors may be connected to electrical low-voltage networks with voltage and frequency tolerances complying with the specifications in EN 60034-1. The "A" or "B" tolerance ranges, or tolerances deviating from these ranges, shall be considered with the temperature measurements that have to be performed by the manufacturer. Motor protection in compliance with the above mentioned specifications shall be provided.

(18) Essential health and safety requirements

Met by compliance with the aforementioned standards.

Konformitätsbewertungsstelle, Sektor Explosionsschutz  
On behalf of PTB:

Braunschweig, March 4, 2020

  
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