Translation

1 # EU-Type Examination Certificate

2 **Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014**

3 EU-Type Examination Certificate Number: **BVS 16 ATEX E 101 X** Issue: **01**

4 Equipment: **Motor type T/TE 17- * /***Ex** and type * 17.*-/***X*-***

5 Manufacturer: **WILO SE**

6 Address: **Wilopark 1, 44263 Dortmund, Germany**

7 This product and any acceptable variations thereto are specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, 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 the confidential Report No. BVS PP 16.2163 EU.
This issue of the EU-Type Examination Certificate replaces the previous issue of the EC-Type Examination Certificate BVS 16 ATEX E 101 X including supplement 1.

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

EN IEC 60079-0:2018	**General requirements**
EN 60079-1:2014/AC:2018	**Flameproof enclosure “d”**

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the “Specific Conditions of Use” listed under item 17 of this certificate.

11 This EU-Type Examination Certificate relates only to the technical design 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 IIB T4/T3 Gb

DEKRA Testing and Certification GmbH
Bochum, 2023-04-11

Signed: Dr. Rolf Krökel

Managing Director

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13 **Appendix**

14 **EU-Type Examination Certificate**

BVS 16 ATEX E 101 X issue 01

15 **Product description**

15.1 **Subject and type**

Motor type TE17[1)]-*[2)]/**[3)]*[4)]Ex**

[1)] Motor type	T 17, T 17.2, TE 17
[2)] Number of poles	2, 4, 6, 8
[3)] Package size	8, 12, 15, 16, 22, 23, 24, 25
[4)] Specific model	R, H, K, V R…motor design for mixer H…double shaft sealing K…mechanical shaft seal V…motor design for mixer with reduced power
[5)] Efficiency class	E0 … E6

Motor type *[1)] 17.1-**[2)]/*[3)]*[4)]*[5)]*[6)]X*[7)]-*

[1)] Motor series	P = cast iron housing
[2)] Package size	8, 12, 15, 16, 22, 23, 24, 25
[3)] Motor design	E = dry motor R = power reduced dry motor S = motor with separate, active cooling system F = moor with current cooling jacket
[4)] Material design	A = Standard B = corrosion protection 1 C = corrosion protection 2 D = abrasion protection 1 E = abrasion protection 2 X = customer design
[5)] Seal design	D = 2 mechanical seals B = block sealing
[6)] Efficiency of motor	IE0 … IE6
[7)] Approval	f.e.. X = ATEX
[8)] Number of poles	2, 4, 6, 8
[9)] Design of main connection	M = 1~ T = 3~

15.2 **Description**

The motor is intended as a drive for a submersible pump and designed in type of protection Flameproof Enclosure “d”.
The motor is equipped with PTC-thermistors (DIN 44081) or equipped with bimetal thermostats (rated cut-off temperature 140 °C or 130 °C) in the upper winding head. The bearing can be designed via ball bearing or angular contact ball bearing.
These temperature devices must be connected to a functional tested safety device.

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Reason for this issue

The motors can be operated at a higher frequency (max. 20 Hz above rated frequency).

15.3 **Parameters**

15.3.1 Motor circuit: Motor Type TE 17, T 17, T 17.2, P 17.1

15.3.1.1 Number of poles 2 / package length 8

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	2850	/	3450	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	4.35	5.00	3.6	4.1	kW

15.3.1.2 Number of poles 2 / package length 15

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	2890	/	3480	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	7.9	9.0	6.6	7.5	kW

15.3.1.3 Number of poles 2 / package length 22

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	2915	/	3480	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	12.3	14	10.1	11.7	kW

15.3.1.4 Number of poles 4 / package length 8

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	1410	/	1690	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	4.5	5.4	3.7	4.5	kW

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15.3.1.5 Number of poles 4 / package length 12

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	1405	/	1680	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	5.8	7.1	4.8	5.8	kW

15.3.1.6 Number of poles 4 / package length 16

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	1400	/	1680	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range 1)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	8.2	9.4	6.7	7.9	kW

15.3.1.7 Number of poles 4 / package length 24

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	1420	/	1700	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	12.2	14.1	10.1	11.8	kW

15.3.1.8 Number of poles 6 / package length 8

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	915	/	1080	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
rated frequency	50	60	50	60	Hz
power input	2.5	2.9	2.1	2.45	kW

15.3.1.9 Number of poles 6 / package length 12

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	920	/	1120	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	3.45	4.15	2.9	3.45	kW

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15.3.1.10 Number of poles 6 / package length16

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	930	/	1100	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	5.2	6.3	4.3	5.3	kW

15.3.1.11 Number of poles 6 / package length 24

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	927	/	1110	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	7.7	9.3	6.4	7.8	kW

15.3.1.12 Number of poles 8 / package length 8

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	700	/	840	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	1.67	2.0	1.4	1.7	kW

15.3.1.13 Number of poles 8 / package length 12

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	700	/	830	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
rated frequency	50	60	50	60	Hz
power input	2.75	3.3	2.3	2.8	kW

15.3.1.14 Number of poles 8 / package length 16

Rated voltage	200	up to	690	V
Rated frequency[1)]	50	/	60	Hz
Rated rotational speed	710	/	830	min^{-1}
Duty type	S1 submerged / emerged intermediate operation			

Upper limits of ambient temperature range *)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	3.95	4.75	3.3	4.0	kW

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15.3.1.15 Number of poles 8 / package length 24

Rated voltage	200	up to	690	V	
Rated frequency[1)]	50	/	60	Hz	
Rated rotational speed	705	/	830	min^{-1}	
Duty type	S1 submerged / emerged intermediate operation				

Upper limits of ambient temperature range*)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	7.7	9.0	6.1	7.3	kW

15.3.1.16 Number of poles 2 / package length 23

Rated voltage	200	up to	690	V	
Rated frequency[1)]	50	/	60	Hz	
Rated rotational speed	2938/	3505		min^{-1}	
Duty type	S1 submerged / emerged intermediate operation				

Upper limits of ambient temperature range*)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	11.4	11.4	9.35	9.35	kW

15.3.1.17 Number of poles 4 / package length 25

Rated voltage	200	up to	690	V	
Rated frequency[1)]	50	/	60	Hz	
Rated rotational speed	1466	/	1745	min^{-1}	
Duty type	S1 submerged / emerged intermediate operation				

Upper limits of ambient temperature range*)	40	40	60	60	°C
Rated frequency	50	60	50	60	Hz
Power input	7.5	7.5	6.2	6.25	kW

* The maximum permissible temperature of the water to be pumped complies with the respective maximum ambient temperature.

For the supply with a frequency converter the max. values given on the marking plate must not be exceeded. It is recommended to have a safety factor of 5-7 % from nominal load to reduce the temperature rise by converter feeding.

1) The motors can be operated at a higher frequency (max. 20 Hz above rated frequency) if the inverter is parameterized so that the rated data (rated voltage, rated current and input power) were not exceeded.

Electrical parameters (Converter)		
Maximum permitted input voltage	Rated voltage of the motor	V
Minimum switching frequency	4	kHz
Current limiting value	1.5 x I_N	
Maximum overload time / permitted time for operation below the minimum output frequency[2)]	60	s
Output frequency	Rated frequency of the motor or lower	Hz
If the motor runs with a converter, the converter is designed as intermediate circuit voltage converter with pulse width modulation		

2) The maximum overload time and the permitted time for operation below the minimum output frequency are in relation with a period of 10 minutes.

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15.3.2 Thermistor circuit (PTC DIN 44081)

According certificate of functional tested safety device

15.3.3 Bimetal-thermostat circuits:

Current	2.5 A
Voltage	250 V

15.3.4 Max. permissible submersion depth: 20 m
15.3.5 Ambient temperature range -20 °C up to +40 °C / 60 °C
15.3.6 Maximum temperature of the water to be pumped: +40 °C / 60 °C

16 Report Number

BVS PP 16.2163 EU, as of 2023-04-11

17 Specific Conditions of Use

17.1 In case of supply by a frequency converter the temperature shall be controlled directly by temperature sensors in the stator winding or in the coil end in connection with a functionally tested control unit. Alternatively, equipped with temperature sensors (bimetal thermostats (break contact, response temperature 140 °C or 130 °C) in the stator winding.
The temperature sensors 130 °C are used for submerged operation, during operation the motor can be switched on and off by these temperature sensors.

17.2 The fasteners screws of the flameproof enclosure parts have to appear a yield stress ≥ 450 N/mm².

17.3 In case of the parts forming the joint shall be replaced or repaired, the dimensions information of the flameproof joints must be obtained from the manufacturer, because the gap length of the flameproof joint of this apparatus are in parts longer and the gap width are in parts smaller than required by Table 2 of EN 60079-1:2014/AC:2018.

17.4 The motor is used for the Gas Group IIB, the painting of the enclosure must not be thicker than 2 mm according table 9 (EN IEC 60079-0:2018).

17.5 The motor may only be allowed to operate with the frequency converter using pulse width modulation to keep the parameters according clause 15.3.1.

17.6 Before setting-up operation it has to be ensured that no inadmissible overvoltage caused by converter supply may occur at the terminals of the motor does not exceed 3000 V.
The insulating system of the motor may require an additional limitation of a periodic overvoltage.

17.7 If the motors are operated at a higher frequency (max. 20 Hz above rated frequency), the inverter must be parameterized so that the rated data (rated voltage, rated current and input power) were not exceeded.

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18 **Essential Health and Safety Requirements**

Met by compliance with the requirements mentioned in item 9.

19 **Remarks and additional information**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2023-04-11
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Managing Director

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