Translation

1 # EU-Type Examination Certificate Supplement 3

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **BVS 08 ATEX E 046 X**

4 Product: **Motor type FKT 27.1-*/*** Ex and FKT 27.2-*/*** Ex**

5 Manufacturer: **WILO SE**

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

7 This supplementary certificate extends EU-Type Examination Certificate No. BVS 08 ATEX E 046 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations 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 08.2055 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-1:2014	**Flameproof enclosure "d"**

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix 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:

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

DEKRA Testing and Certification GmbH
Bochum, 2021-02-03

Signed: Jörg-Timm Kilisch

Managing Director

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DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

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13 Appendix

14 EU-Type Examination Certificate

BVS 08 ATEX E 046 X
Supplement 3

15 Product description

15.1 Subject and type

Motor type FKT 27.1-a/bcd Exe and type FKT 27.2-a/bcd Exe
In the complete type designation the italicized letters will be replaced as follows:

a: number of poles (4,6,8)
b and c: stator length in cm (for FKT27.1and FKT 27.2: 22 or 28 and for FKT 27.2: 32 or 40)
d: mechanical design (K)
e: optional efficiency class of the motor (empty or E0.....E6)

15.2 Description

The motors are intended as drives for submersible pumps.
They are equipped with 3 PTC-thermistors (rated cut-off temperature 160 °C) in the upper winding head and with 1 PTC-thermistor (rated cut-off temperature 110 °C) in the stator pack.
The connection is made by flexible cords.
The motor is equipped with a float switch.
The explosion proof motor enclosure is surrounded by a cooling jacket. The space between cooling jacket and enclosure is filled with cooling water.
The cooling water is circulated by a pump which is located inside the cooling water jacket at the bottom side of the motor. The pump is driven by the motor shaft.
The lower front end of the cooling jacket is built as a heat exchanger where the cooling water is cooled by the water to be pumped.

Reason of the supplement:

- Modification of motor version FKT 27.2 with shorter rotor package length
- Updating to standard EN IEC 60079-0:2018

15.3 Parameters

15.3.1 Motor circuit

Rated voltage	200	up to	690	V
Rated frequency	50	/	60	Hz
Rated speed	1475	/	1748	min^{-1}
Duty type	S1 (emerged)			
Rated current at 400V/50Hz	71 A (FKT 27.1) / 97 A (FKT 27.2)			

Motor	f (Hz)	Max. Medium temperature (°C) *	Max. Power P1 (kW)	Poles
FKT 27.1-4/22. Ex	50	40	30	4
FKT 27.1-4/28. Ex	50	40	40	4
FKT 27.1-6/22. Ex	50	40	24.5	6
FKT 27.1-6/28. Ex	50	40	29	6
FKT 27.1-8/22. Ex	50	40	16.7	8
FKT 27.1-8/28. Ex	50	40	21.5	8
FKT 27.1-4/22. Ex	60	40	35	4

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Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

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Motor	f (Hz)	Max. Medium temperature (°C) *	Max. Power P1 (kW)	Poles
FKT 27.1-4/28. Ex	60	40	48	4
FKT 27.1-6/22. Ex	60	40	28.5	6
FKT 27.1-6/28. Ex	60	40	33	6
FKT 27.1-8/22. Ex	60	40	21	8
FKT 27.1-8/28. Ex	60	40	27	8
FKT 27.1-4/22. Ex	50	60	26	4
FKT 27.1-4/28. Ex	50	60	37.5	4
FKT 27.1-6/22. Ex	50	60	22	6
FKT 27.1-6/28. Ex	50	60	27	6
FKT 27.1-8/22. Ex	50	60	16.7	8
FKT 27.1-8/28. Ex	50	60	21.5	8
FKT 27.1-4/22. Ex	60	60	32	4
FKT 27.1-4/28. Ex	60	60	41.5	4
FKT 27.1-6/22. Ex	60	60	25.5	6
FKT 27.1-6/28. Ex	60	60	29	6
FKT 27.1-8/22. Ex	60	60	21	8
FKT 27.1-8/28. Ex	60	60	27	8
FKT 27.2-4/32. Ex	50	40	44	4
FKT 27.2-4/40. Ex	50	40	56	4
FKT 27.2-6/32. Ex	50	40	35.5	6
FKT 27.2-6/40. Ex	50	40	42	6
FKT 27.2-8/32. Ex	50	40	27.5	8
FKT 27.2-8/40. Ex	50	40	32	8
FKT 27.2-4/32. Ex	60	40	51	4
FKT 27.2-4/40. Ex	60	40	66	4
FKT 27.2-6/32. Ex	60	40	42	6
FKT 27.2-6/40. Ex	60	40	51	6
FKT 27.2-8/32. Ex	60	40	33	8
FKT 27.2-8/40. Ex	60	40	36	8
FKT 27.2-4/32. Ex	50	60	40	4
FKT 27.2-4/40. Ex	50	60	50	4
FKT 27.2-6/32. Ex	50	60	32.5	6
FKT 27.2-6/40. Ex	50	60	40.5	6
FKT 27.2-8/32. Ex	50	60	27.5	8
FKT 27.2-8/40. Ex	50	60	32	8
FKT 27.2-4/32. Ex	60	60	47	4
FKT 27.2-4/40. Ex	60	60	62	4
FKT 27.2-6/32. Ex	60	60	38	6
FKT 27.2-6/40. Ex	60	60	46	6

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DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

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Motor	f (Hz)	Max. Medium temperature (°C) *	Max. Power P1 (kW)	Poles
FKT 27.2-8/32. Ex	60	60	33	8
FKT 27.2-8/40. Ex	60	60	36	8
FKT 27.2-4/22. Ex	50	40	30	4
FKT 27.2-4/28. Ex	50	40	40	4
FKT 27.2-6/22. Ex	50	40	24.5	6
FKT 27.2-6/28. Ex	50	40	29	6
FKT 27.2-8/22. Ex	50	40	16.7	8
FKT 27.2-8/28. Ex	50	40	21.5	8
FKT 27.2-4/22. Ex	60	40	35	4
FKT 27.2-4/28. Ex	60	40	48	4
FKT 27.2-6/22. Ex	60	40	28.5	6
FKT 27.2-6/28. Ex	60	40	33	6
FKT 27.2-8/22. Ex	60	40	21	8
FKT 27.2-8/28. Ex	60	40	27	8
FKT 27.2-4/22. Ex	50	60	26	4
FKT 27.2-4/28. Ex	50	60	37.5	4
FKT 27.2-6/22. Ex	50	60	22	6
FKT 27.2-6/28. Ex	50	60	27	6
FKT 27.2-8/22. Ex	50	60	16.7	8
FKT 27.2-8/28. Ex	50	60	21.5	8
FKT 27.2-4/22. Ex	60	60	32	4
FKT 27.2-4/28. Ex	60	60	41.5	4
FKT 27.2-6/22. Ex	60	60	25.5	6
FKT 27.2-6/28. Ex	60	60	29	6
FKT 27.2-8/22. Ex	60	60	21	8
FKT 27.2-8/28. Ex	60	60	27	8

* The maximum operation temperature is the limit for the ambient temperature as well as the limit for the temperature of the water to be pumped.

Alternatively, the motor can be run with a converter. The parameters must not exceed according the values of the marking plate.

Electrical parameters (converter)		
Maximum permitted input voltage	Rated voltage of the electrical machine	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 electrical machine	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.

15.3.2 Thermistor circuit: (PTC thermistor DIN 44081)

According functionally tested control unit

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Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

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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 +40/60 °C

15.3.6 Maximum temperature of the water to be pumped: +40/60 °C

16 Report Number

BVS PP 08.2055 EU, as of 2021-02-03

17 Special Conditions for Use

17.1 The motor has to be protected additional to the motor protection switch with temperature sensor which is mounted in the stator winding and in combination with a functionally tested control unit for this purpose.

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 (bi-metal switch, 140 °C).

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 information on the dimensions 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.

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 8 (EN IEC 60079-0:2018).

17.5 If the motor is operated by a frequency converter using pulse width modulation (PWM) the parameters shall comply with those listed in the clause "Electrical Parameters".

17.6 If the motor is operated by a frequency converter it has to be ensured that no inadmissible overvoltage caused by converter supply with a peak value of 3000 V may occur at the terminals of the motor.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 Drawings and Documents

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, 2021-02-03
BVS-Pz A20201012

Managing Director

DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

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