BARTEC VARNOST

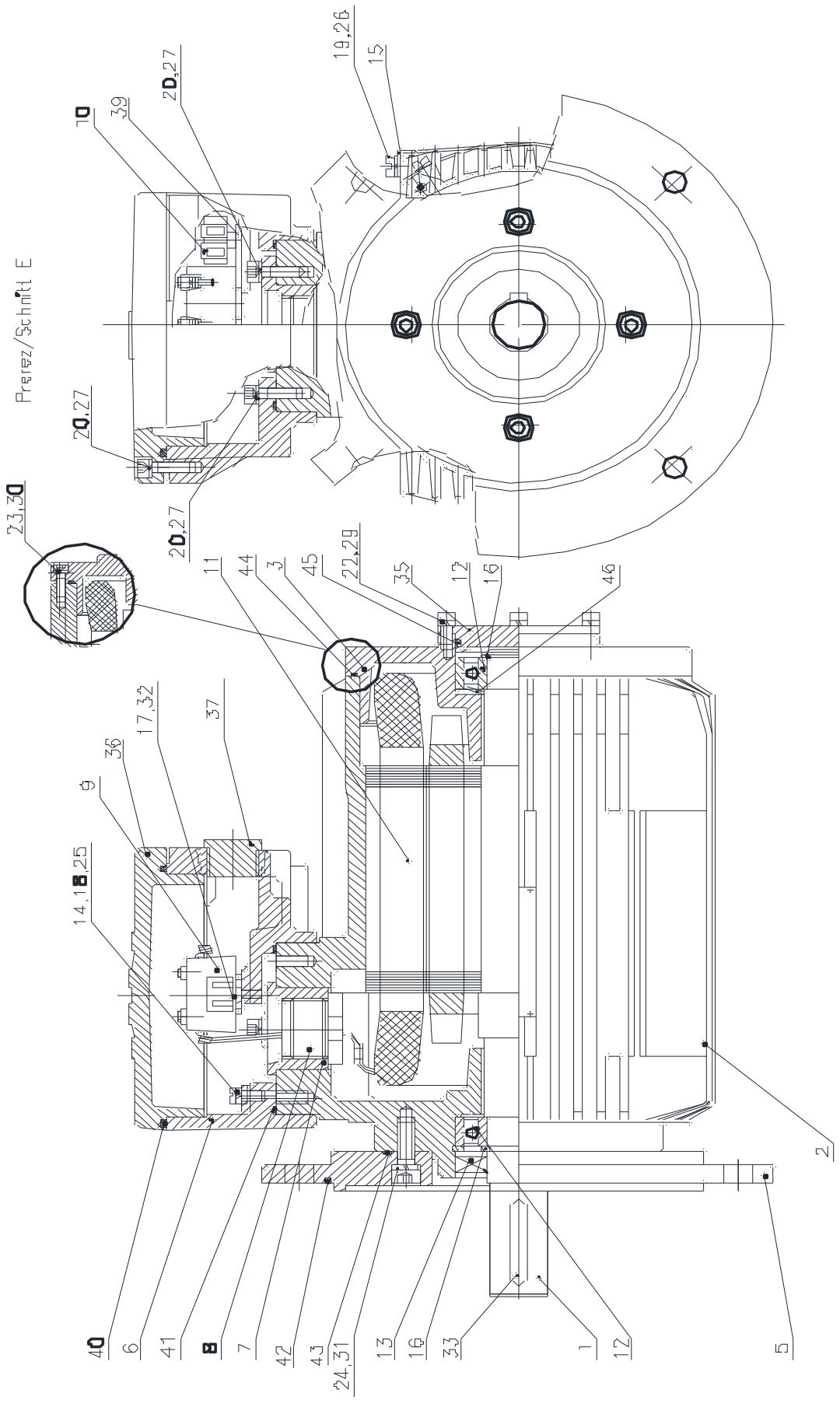
FLAMEPROOF ELECTRICAL MOTORS

II 2 G Ex db eb IIB T4 (T3) Gb

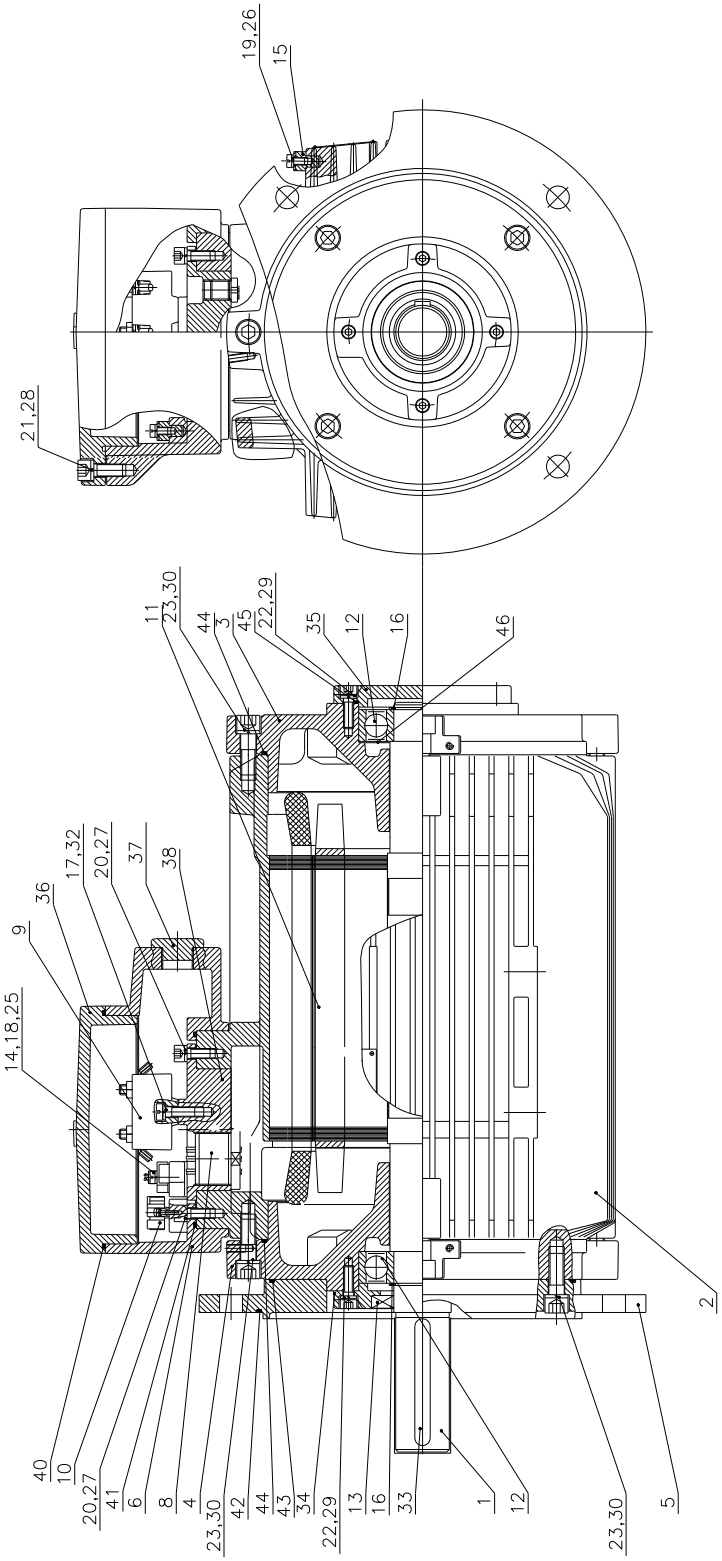
4KTS 90, 100, 132, 160, 180

(IP68)

1. MOTOR DRAWING FOR 4KTS 90, 100, 132



2. MOTOR DRAWING FOR 4KTS 160, 180



3. SPARE PARTS (list)

ITEM No. *POS. Nr.* *POZICIJA*	*PART No.* *ARTIKEL Nr.* *RAZPOZNAVNA ŠT.*	*DENOMINATION* *BEZEICHNUNG* *IME*	*QUANTITY* *ANZAHL* *KOLIČINA*
1.		**SHAFT ROTOR UNIT** **LAÜFER** **ROTOR**	**1**

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265306	L4	*				
265304	S4	*				
265484	LB4		*			
265793	S4			*		
265804	M4			*		
266026	M4				*	
	M4					*

2.		**HOUSING** **GEHAUSE** **OHIŠJE STATORJA**				**1**

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265238	*				
265467		*			
265729			*		
265964				*	
					*

3.		**END SHILD BS IP68** **LAGERSCHILD BS IP68** **STATORJEV ŠČIT BS IP68**				**1**

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265280	*				
265467		*			
265775			*		
266040				*	
					*

4.		**END SHILD AS IP68** **LAGERSCHILD AS IP68** **STATORJEV ŠČIT AS IP68**				**1**

	4KTS160	4KTS180
266013	*	
		*

5.	**FLANGE STANDARD IP68** **FLANSCH GENORMT IP68** **PRIROBNICA IP68**	**1**

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265354	F165-I	*				
265545	F215-I		*			
265862	F265-I			*		
266093	F300-I				*	*

6.	**TERMINAL BOX Exd IP68** **KLEMMENKASTEN Exd IP68** **PRIKLJUČNA OMARICA Exd IP68**	**1**

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265491	*	*	*		
266035				*	*

	LINE BUSHING HOUSING WITH THREAD **LEITUNGSDURCHFUHRUNGENHUELSE** **SKOZNIK**	**1**

	4KTS90, 100, 132
265082	

8.	**LINE BUSHING** **ADERLEITUNGSDURCHFUHRUNGEN** **SKOZNIK**	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
	1				
		1			
			1		
258151				1(2)	
					1(2)

9.	**TERMINAL BOARD** **KLEMMBRETT** **PRIKLJUČNI BLOK**	**1**

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265884	*	*	*		
265891				*	*

10.	**MINI TERMINAL PTC** **MINIKLEMME PTC** **MINI PRIKLJUČNI BLOK PTC**	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
107773	2	2	2	3	3

11.	STATOR WINDING	1
	STATORPAKET MIT WICKLUNG	
	NAVIT STATORSKI PAKET	

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265401	L4	*				
265400	S4	*				
265589	LB4		*			
265933	S4			*		
265934	M4			*		
266152	M4				*	
						*

12.	BEARING **** 2Z C3	2
	LAGER **** 2Z C3	
	LEŽAJ **** 2Z C3	

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
268783	6205****	*				
268787	6206****		*			
268790	6208****			*		
268795	6309****				*	
	6310****					*

13.	OIL SEAL DIN 3760 NBR	2
	DICHTRING DIN 3760 NBR	
	OLJNO TESNILO DIN 3760 NBR	

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
268897	A25x52x7	*				
268901	A30x62x7		*			
268906	A40x80x10			*		
268907	A45x80x10				*	
	A50x72x10					*

14.	EARTH PLATE	1
	ERDUNGSPLATTE	
	OZEMLJILNA PLOŠČICA	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
258971	*	*	*		
272829				*	*

15.	LACH WASHER	1
	SICHERUNGSSHEIBE	
	PRITRDILNA PLOŠČICA	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
257969	*	*	*		
268218				*	*

16.	**EXTERNAL CIRCLIP DIN 471** **SPRENGRING DIN 471** **VSKOČNIK DIN 471**	**2**

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
268950	25	*				
268952	30		*			
268955	40			*		
268957	45				*	
	50					*

	HEXAGO SOCKET HEAD BOLT **INNERSECHKANTSCHRAUBEN** **VIJAK S ŠESTROBO LUKNJO**	

			4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
17.	R006975	M5x18	2	2	2	/	/
	271904	M8x25	/	/	/	2	2
18.	R002490	M6x15	1	1	1	/	/
	271904	M8x25	/	/	/	1	1
19.	271898	M6x12	1	1	1	/	/
	271998	M8x16	/	/	/	1	1
20.	271901	M8x20	/	/	/	8	8
	271888	M6x20	10	10	10	/	/
21.	271832	M10x25	/	/	/	4	4
22.	271832	M5x12	4	4	4	/	/
	271901	M8x25	/	/	/	8	8
	271901	M8x20	/	/	/	/	8
23.	271846	M12x35	/	/	/	12	12
24.	271832	M10x25	/	4	4	/	/
	271901	M8x20	4	/	/	/	/

	HEXAGO SOCKET HEAD BOLT **INNERSECHKANTSCHRAUBEN** **VIJAK S ŠESTROBO LUKNJO**	

			4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
25.	271695	6	1	1	1	1	1
	271697	8	/	/	/	2	2
26.	271695	6	1	1	1	/	/
	271697	8	/	/	/	1	1
27.	271697	8	/	/	/	8	8
	271695	6	10	10	10	/	/
28.	271688	10	/	/	/	4	4
29.	271694	5	4	4	4	/	/
	271697	8	/	/	/	8	/
30.	271690	12	/	/	/	12	12
31.	271688	10	/	4	4	/	/
	271697	8	4	/	/	/	/
32.	271697	5	2	2	2	/	/
	271697	8	/	/	/	2	2

35.	**BEARING COVER BS**	**1**
	LAGERDECKEL BS	
	LEŽAJNI ŠČIT BS	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265279	*				
265490		*			
265798			*		
266013				*	
					*

36.	**COVER FOR TERMINAL Exd IP68**	**1**
	KLEMMENKASTENDECKEL Exd IP68	
	POKROV PRIKLJUČNE OMARICE Exd IP68	

	4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
265492	*	*	*		
266036				*	*

37.	**STOPPING PLUG Exd**	**1**
	VERSCHLUSSSTOPFEN Exd	
	SLEPI ČEP Exd	

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
273971	M25x1.5	*	*	*	*	*

38.	**TERMINAL PLATE**	**1**
	ANSCHLUSSPLATTE	
	PRIKLJUČNA PLOŠČA	

	4KTS160	4KTS180
265989	*	
		*

39.	**MOUNTING BRACKET 4KTS**	**1**
	TAGSCHIENE 4KTS	
	NOSILEC SPONK 4KTS	

	4KTC90	4KTC100	4KTC132
282983	*	*	*

39.	**MOUNTING BRACKET 4KTS**	**1**
	TAGSCHIENE 4KTS	
	NOSILEC SPONK 4KTS	

	4KTC90	4KTC100	4KTC132
282983	*	*	*

	O-RING SEAL	**1**
	O-DICHTUNG	
	O-TESNILO	

			4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
40.	268859	ø3xø130xø136	*	*	*		
	273471	ø3xø182xø188				*	*
41.	268864	ø3xø85xø91	*				
	273470	ø3xø149xø155				*	*
42.	268859	ø3xø130xø136	*				
	273471	ø3xø182xø188		*			
	271472	ø3xø233xø239			*		
	273474	ø3xø250xø256				*	*
43.	368845	ø3xø96xø102	*				
	273469	ø3xø126xø132		*			
	268860	ø4xø155xø163			*		
	271472	ø3xø233xø239				*	*
44.	268847	ø3xø140xø146	*				
	268860	ø4xø155xø163		*			*
	268861	ø3xø210xø216			*		
	273471	ø3xø240xø246				* (2)	
		ø3xø233xø239					*(2)
45.	268856	ø3xø46xø52	*				
	273475	ø3xø56xø62		*			
	268863	ø3xø74xø80			*		
	273468	ø2xø100xø104				*	
		ø3xø110xø116					*

46.	**PRE LOAD SPRING**	**1**
	VORSPANNFEDERN	
	LEŽAJNA PODLOŽKA	

		4KTS90	4KTS100	4KTS132	4KTS160	4KTS180
272909	52	*				
268720	62		*			
268721	80			*		
270605	100				*	
	110					*

4. INSTALATION GUDELINES FOR SQUIRREL-CAGE MOTORS

These instructions for the installation and maintenance do not contain all particulars, which might arise during the installation

and application of the motor. We therefore recommend on its being mounted and maintained by qualified persons (IEC 364).

1. TRANSPORT AND STORAGE

Electric motors must be transported in exactly the same position that they will be mounted in. If not used immediately they should be stored in a dry environment.

To avoid static indentation the storage area should be vibration free. Where exposure to some vibration is unavoidable, the shaft should be locked. Shafts should be rotated by hand, one quarter of a revolution, at weekly intervals.

Factory fitted bearings use lithium based grease with a recommended shelf life of two years.

2. EXPLOSION PROTECTION CODES

Possible marking

 II 2G Ex db eb IIB T4 (T3)

 : Ex marking

II:	Equipment group II; equipment can be used in potentially explosive areas except for mining
2:	Category group; for use in Zone 1 or Zone 2
G:	equipment for use in explosive atmosphere, caused by flamable gas
db:	explosion protection type - flameproof enclosure
eb:	explosion protection type – increased safety
IIB:	gas group IIB
T4 (T3):	temperature class
IP 68:	degree of protection

2.1 CERTIFICATE NUMBER

SIQ 14 ATEX 039 X

IECEx SIQ 14. 0002X

X – stands for nonconformity of flameproof gaps and joints according to tabels 1 and 2 of EN IEC 60079-1: 2014/AC:2018

3. APPLICATION AND EXPLOSION PROTECTION

The explosion-proof asynchronous three-phase squirrel-cage motors of the type 4KTS are designed for their application in industrial environments with highly explosive atmospheres caused by flammable gases, steam, liquids or dust.

Explosion-proof motor version is:

“Explosion-proof enclosure” for the motor housing and “Increased safety” for the terminal box according to EN IEC 60079-0: 2018, EN IEC 60079-1: 2014/AC:2018, EN IEC 60079-7: 2015/A1:2018. The lid of the terminal box carries the Exe imprint.

Electric motor housings suitable for gas group IIB. The standard motor is suitable for T4 (T3) temperature class. The exact indication of the explosion protection can be found on the motor nameplate.

4. INSTALLATION OF THE ELECTRIC MOTOR

Qualified persons **must** mount the motor, in order to avoid possible damage during operation.

The following rules must be observed during installation:

- strictly adhere to the installation instructions,

- check whether the explosion protection corresponds to the environment (sector, gas

  group, temperature group),

- check the effects of the environment on the operation of the electric motor (aggressive

  environment, temperature or dust),

- make sure that the correct tools and devises are used,

- observe the motor safety instructions,

- make sure that the means for personal safety are used.

The electric motors are manufactured in such a way as to function submersed up to 20m, or in air under temperatures between –20°C and +40°C without requiring additional protection.

If mounted outdoors the motors must be protected from direct sunlight. The insulation of electric motors consists of water-resistant materials and high quality coatings. If stored correctly, it is therefore not necessary to carry out special tests prior to connecting the motor to the power supply.

When fitting items onto the motor shaft, please pay particular attention to the bearings. The axial forces caused by possible impacts during installation must not have any effect on the bearings.

5. CONNECTION TO THE POWER SUPPLY

IMPORTANT!

The explosion-proof versions must only be fitted and connected by qualified persons. The installer must have additional knowledge about explosion protection.

The following items must be checked before the motor can be connected to the mains power supply:
- that the data on the nameplate corresponds to the voltage and frequency of the power supply.
- that the explosion protection indicated corresponds to the environment the motor will be operated in (gas group, temperature class).
- the IP68 sealing of the motor **must** be maintained when fitting the gland and cabling.

The electric motors rotate clockwise when the supply L1, L2 and L3 are connected to the terminals U, V, W (1U, 1V, 1W or U1, V1, W1). Changing two of the phases will reverse the direction.

The following elements are connected to terminals:

10-11 or 12-13 PTC thermistors.
14-15 Thermostats normally closed.
16-17 Thermostats normally open.

The motors are fitted with temperature detectors, PTC thermistors SIST EN 60034-11:2005. These temperature detectors are to be connected to a tripping device, which is in accordance with EN 60947-8:2003/A2:2012.
The tripping unit must be installed outside of the hazardous area.

Particular care should be taken over the connection or the cable cores to the terminal board. The insulation of the cable cores should be close to the terminal, all wires of the flexible cores must be clamped to the terminal.
Prior to the mains connection, check the terminal box for the following items:
- there must be no dust, pieces of wire or other foreign matters inside the terminal box.
- the electrical connections must be carried out by qualified persons and the screws must be tightened correctly.
- that the mutual air distance is at least 10mm for voltages of 400 V or 690 V.
- that unused wires are separated and fixed accordingly.
- all joint areas are formly greased with grease type FOR PD-2 (Setral MI PD LL/2A) ali Renolit RHF-1 Fuchs
- that the cable is sealed correctly to maintain the IP68 rating.

6. PROTECTION OF THE ELECTRIC MOTORS AND OPERATION

Following the installation, all rotating parts must be protected against contact. Only qualified personnel may handle the machines!

In S1 to S9 of operation, the motors must be equipped with 3 PTC's in each winding (EN 60034-11). The nominal shutdown temperature of these PTC's is 120°C. A corresponding shutdown device with a PTB mark of conformity, completes the protective system for the maintenance of the temperature class.

The housing of the motor must be connected to the protective conductor, and earthed. The terminal box contains the screw for the connection of the conductor, the earthing screw sits on the stator housing.

7. MAINTENANCE

WARNING
Isolate the power supply before commencing any routine cleaning or maintenance work.

Electric motors have a robust structure and need no particular maintenance. The motor must be cleaned at regular intervals, especially the ribs of the motor frame.

Electric motors feature closed pre-lubricated bearings with a life of 40,000 service hours under normal operating conditions. Regular inspection and control measurements carried out by qualified persons can reduce possible damage and reduce down time. Any deviation from normal values (such as higher current, increased temperature, vibration, unusual noise or smell) must be understood as a signal that a problem may exist. To prevent consequential damage please inform the responsible person immediately.

8. REPAIRS

ELECTRIC MOTORS FOR EXPLOSIVE AREAS MAY BE REPAIRED EXCLUSIVELY BY THE MANUFACTURER OR OUR AUTHORIZED REPRESENTATIVE.

THOSE WHO DISASSEMBLE AND REPAIR THE EX MACHINES MUST BE HIGHLY QUALIFIED AND DISPOSE OF ADDITIONAL KNOWLEDGE CONCERNING EXPLOSION PROTECTION.

IMPORTANT:

Repaire of flameproof gaps and joints according to tables 1 and 2 of EN IEC 60079-1: 2014/AC: 2018 is not allowed! Please conntact producer!

Special attention should be paid that no damaged has occured during disassembly on flameproof gaps and joints.

Before assembly of electromotor all flameproof gaps and joints needs to be cleaned and greased with grease type FOR PD-2 (Setral MI PD LL/2A) or Renolit RHF-1 Fuchs.

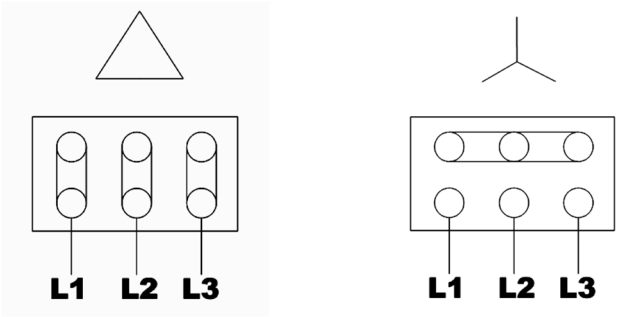
If it becomes clear during repairs that the »explosion-proof enclosure« no longer corresponds to the requirements on the explosion protection and specified in the certification, all markings for explosion protection must be removed from this motor.

When ordering spares it is important to state the motor serial number to ensure that the correct parts are supplied.

9. BEARING TYPE

Motor type	Drive End	Non Drive End	Bearing Dims
4KTS 90	6205 2Z C3	6205 2Z C3	25x52x15
4KTS 100	6206 2Z C3	6206 2Z C3	30x62x16
4KTS132	6208 2Z C3	6208 2Z C3	40x80x18
4KTS 160	6209 2Z C3	6209 2Z C3	45x100x25
4KTS 180	6310 2Z C3	6310 2Z C3	50x110x27

Connection Diagram.



Temperature Class	Ignition temperature	Permissible surface temperature	Permissible temperature rise
T4	**+135°C...+200°C**	**+135°C**	**+95°C**

11. SCREW TIGHTENING TORQUE

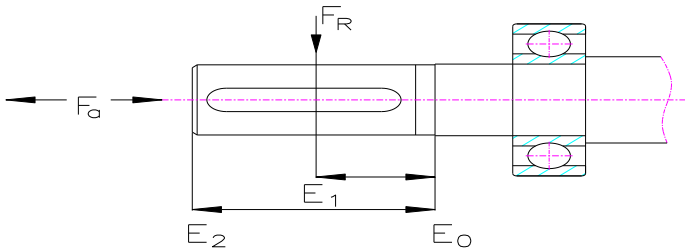
Table 1: Tightening torque: Ex enclosure. Tightening torques for screws of the strength class 8.8 and A4-80.

Thread	Tightening torque (Nm)	Thread	Tightening torque (Nm)
M4	2.3	M12	66
M5	4.6	M14	105
M6	7.9	M16	160
M8	19	M20	330
M10	38	M24	560

Table 2.: Tightening torque: for electrical connections

Thread	Tightening torque (Nm)
M4	1.2
M5	2
M6	3
M8	6

12. PERMISSIBLE LOADS ON FREE SHAFT END



Picture 1: Permissible loads on free shaft end

Table 3.: Allowable radial force

Frame size	Number of poles	Radial force F_R [kN]		
		E_0	E_1	E_2
90	4	0,9	0,8	0,74
100	4	1,28	1,15	1,04
132	4	1,96	1,78	1,55
160	4	3,83	3,38	3,02
180	4	4,43	3,82	3,53

13. CONFORMITY

Falmeproof motors designed for use in explosive atmospheres conforms to following Europen or IEC standards:

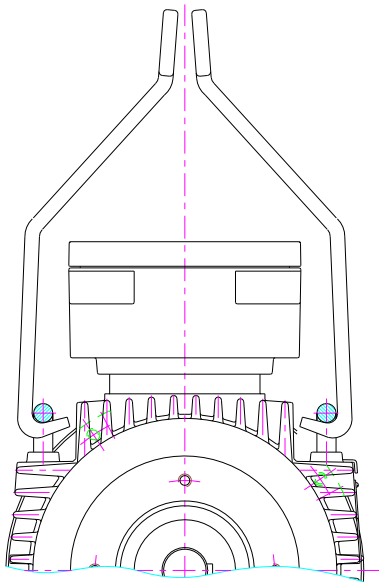
Table 4.: List of applied standards

STANDARD	**Description**
EN IEC 60079-0:2018	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
EN IEC 60079-1:2014/AC:2018	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures 'd'
EN 60079-7:2015/A1:2018	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety "e"
EN 60034-1:2005	Rotating electrical machines - Part 1: Rating and performance (IEC 60034-1:2004)
EN 60034-5:2002/A1:2007	Rotating electrical machines - Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification (IEC 60034-5:2000/A1:2006)
EN 60034-7:1999/A1:2002	Rotating electrical machines - Part 7: Classification of types of constructions and mounting arrangements (IM-Code) - Amendment A1 (IEC 60034-7:1992/A1:2000)
EN 60204-1:2006	Safety of machinery – Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:2005, modified)

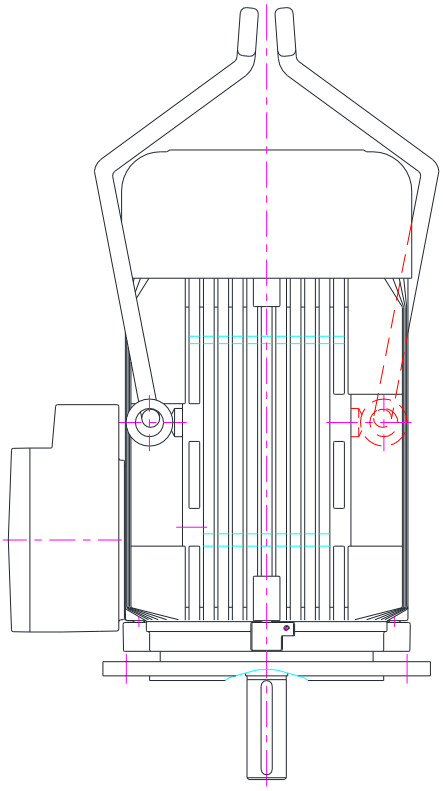
Table 5.: List of used directives and regulations

DIRECTIVE	**Descritpion**
94/9/EEC	ATEX Directive 94/9/EC
93/68/EEC	Gas appliances directive – GA
73/23/EEC	Low voltage diective
98/37/EEC	Directive on safety of equipment
89/336/EEC	Direktive on electromagnetic compatibility

5. LIFTING POINTS FOR MOTOR LIFT



IM V1

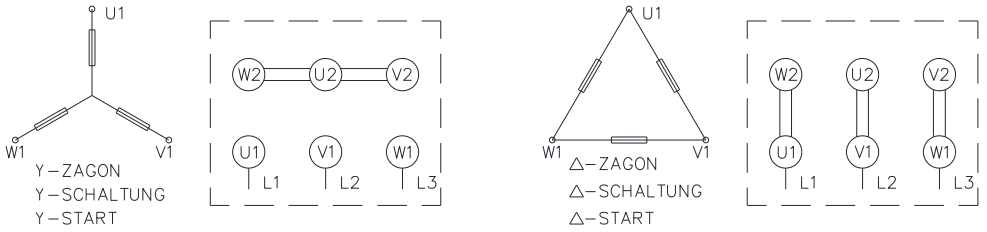


6. CONNECTION DIAGRAM

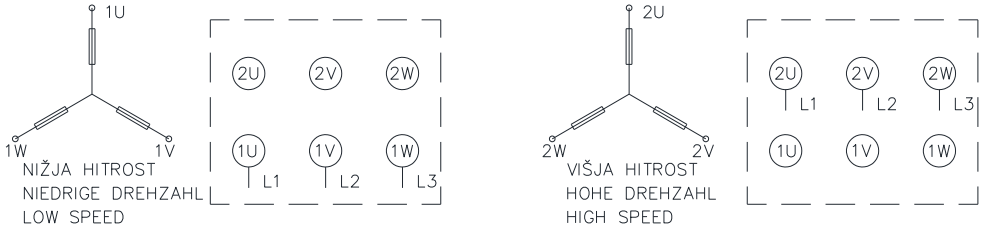
VEZNA SHEMA / ANSCHLUSSSCHALTBILD / CONNECTION DIAGRAM

PRIKLJUČNA OMARICA / TERMINAL BOX

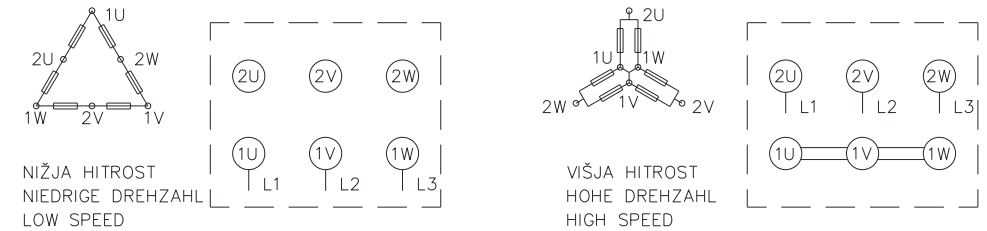
Ex de 4KTS



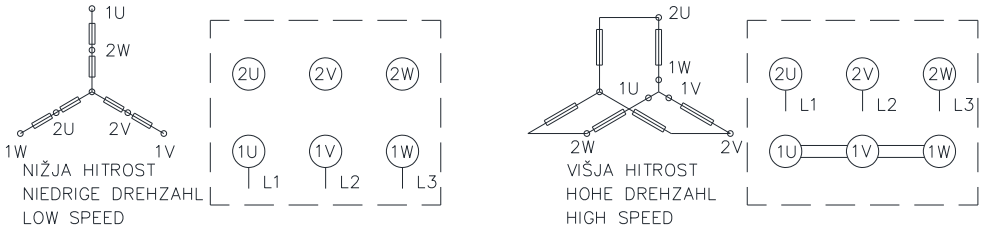
ENOHITROSTNI/ EINTOURING/ ONE SPEED



POLNOPREKLOPNI/ PULMSCHALTBAR/ POLE–CHANGING WINDING



DAHLANDER–VEZAVA/ DAHLANDER–SCHALTUNG/POLE–CHANGING WINDING (DAHLANDER)



DAHLANDER–VEZAVA/ DAHLANDER–SCHALTUNG/POLE–CHANGING WINDING (DAHLANDER)

10 – 11	TEMPERATURNO TIPALO KALTLEITER ABSCHALTUNG TERMISTORS	OPOZORILNO TIPALO KALTLEITER VORWARNUNG EARLY WARNING	ODKLOPNA NAPRAVA S PTB – ŠTEVILKO AUSLOSEGERAT MIT PTB – NUMMER SHOUT – DOWN – DEVICE WITH PTB – NUMBER
12 – 13	NAJVIŠJA DELOVNA NAPETOST MAXIMALE BETRIEBSSPANNUNG MAKSIMUM OPERATING VOLTAGE 25V	IZKLOPNO TIPALO KALTLEITER ABSCHALTUNG THERMISTORS – OVER LOAD	
14 – 15	TEMPERATURNO STIKALO THERMOSTATE THERMOSTATS	NC ODPIRAJOČ OFFNER CONTACT NORMALLY CLOSED	
16 – 17	TEMPERATURNO STIKALO THERMOSTATE THERMOSTATS 250V	NO ZAPIRAJOČ SCHLIESSER CONTACT NORMALLY OPEN	
20 20 – 24 21 22 23	TIPALO PT 100 WIDERSTANDSTEMPERATURFUHLER PT 100 THERMOSTATS PT 100	20 23 21 23 22 23 | 20 21 22 23 | 20 24 | 20 23 23	
30 – 31	GRELCI – PRIKLJUČNA NAPETOST STILLSTANDSHEIZUNG – BETREIBSSPANNUNG HEATERS – RATED VOLTAGE	220V – 240V	
32 – 33		110V	

7. CERTIFICATES

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

(2) Product Intended for use in Potentially Explosive Atmospheres – **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

SIQ 14 ATEX 039 X **Issue: 3**

(4) Product: Electric motor, types 4 KTS 90 S4, 4 KTS 90 L4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4 and 4 KTS 180 L4

(5) Manufacturer: Bartec Varnost, d.o.o.

(6) Address: Cesta 9. avgusta 59, 1410 Zagorje ob Savi, Slovenia

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

(8) SIQ Ljubljana, Notified body number 1304 in accordance with Article 17 and Article 21 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 test report TEx092/20.

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

EN IEC 60079-0 : 2018 **EN IEC 60079-1 : 2014 / AC : 2018**

EN IEC 60079-7 : 2015 / A1 : 2018

Where additional criteria beyond those given here have been used, they are listed at item (18) in the schedule to this certificate.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to 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 with 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 eb IIB T4 Gb (4 KTS 90 S4, 4 KTS 90 L4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4)

II 2 G Ex db eb IIB T3 Gb (4 KTS 180 L4)

Certification body

Bojan Pečavar

Ljubljana, 20 April 2020

(13) **SCHEDULE**

(14) **EU-Type Examination Certificate Number SIQ 14 ATEX 039 X, Issue: 3**

(15) Description of Product

The three phase four poles electric motors types 4 KTS 90 S4, 4 KTS 90 L4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4 and 4 KTS 180 L4 are designed in the type of protection flameproof enclosure with terminal box in the type of protection increased safety. They are enclosed and without fan. Their enclosure is made of cast-iron. Between flameproof enclosure and terminal box line bushings are installed. The squirrel-cage rotor is made of aluminium. The shaft is made of steel. Stator windings are equipped with three temperature sensors (PTC) connected in series. Optionally stator windings can be equipped with three bimetal switches (PTO). External surface of the electric motor is painted. In the wall of the terminal box holes for external connections are provided.

Technical data

All types:

Rated voltage	From 220 V a.c. up to 690 V a.c.
Frequency	50 Hz/60 Hz
Duty type	S1
Ingress protection (standard IEC 60529 : 2001)	IP68
Ambient temperature range	From -20°C to +40°C

Type	Temperature class	Rated power (50 Hz)	Rated speed (50 Hz)
4 KTS 90 S4	T4	0.64 kW	1420 rev/min
4 KTS 90 L4	T4	0.86 kW	1430 rev/min
4 KTS 100 LB4	T4	1.82 kW	1425 rev/min
4 KTS 132 S4	T4	2.66 kW	1448 rev/min
4 KTS 160 M4	T4	4.28 kW	1470 rev/min
4 KTS 180 M4	T4	7.5 kW	1465 rev/min
4 KTS 180 L4	T3	11 kW	1465 rev/min

(16) Test Report

TEx092/20 dated 20 April 2020.

(17) Specific Conditions of Use

- Repair 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 : 2014 is not permitted.
- Temperature sensors (PTC) and/or bimetal switches (PTO) shall be connected to a suitable certified disconnecting device.

(18) Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements has been assured by compliance with the requirements of the standards listed at item (9).

SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, +386 1 4778 221, ex@siq.si

According to Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (20 April 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-Type Examination Certificates and new issues of such certificates may continue to hold the original certificate number issued before 20 April 2016.

(19) Drawings and Documents

Description	Number	Issue	Date
Recertification-comment's letter, electromotor 4 KTS 90, 100, 132 and 160, Bartec Varnost, d.o.o.	022063	B	20. 6. 2013
* Design changes, document and data changes, Bartec Varnost, d.o.o.	019/2020	/	15. 4. 2020
* Technical description for flameproof electric motors, 4 KTS 90, 100, 132, 160, 180, Bartec Varnost, d.o.o.	028191	/	15. 4. 2020
* Installation guidelines for Ex de IP68 motors, Bartec Varnost, d.o.o.	022075	E	15. 4. 2020
Drawing, Marking plate 4 KTS, Bartec Varnost, d.o.o.	024088	/	20. 6. 2013
* Reference list, Electromotor 4 KTS 90, Bartec Varnost, d.o.o.	019655	D	15. 4. 2020
* Drawing, Drehstrommotor 4 KTS 90 Bartec Varnost, d.o.o.	019656	C	15. 4. 2020
Drawing, Spalttabelle 4 KTS 90, Bartec Varnost, d.o.o.	019659	A	5. 1. 2009
Drawing, Berechnung des "k" und "m" 4 KTS 90, Bartec Varnost, d.o.o.	019660	A	5. 1. 2009
* Reference list, Electromotor 4 KTS 100, Bartec Varnost, d.o.o.	019205	D	15. 4. 2020
* Drawing, Electromotor 4 KTS 100, Bartec Varnost, d.o.o.	019370	C	15. 4. 2020
Drawing, Spalttabelle 4 KTS 100, Bartec Varnost, d.o.o.	019371	A	5. 1. 2009
Drawing, Berechnung des "k" und "m" 4 KTS 100, Bartec Varnost, d.o.o.	019388	A	5. 1. 2009
* Reference list, Electromotor 4 KTS 132, Bartec Varnost, d.o.o.	019206	D	15. 4. 2020
* Drawing, Electromotor 4 KTS 132, Bartec Varnost, d.o.o.	019362	D	15. 4. 2020
Drawing, Spalttabelle 4 KTS 132, Bartec Varnost, d.o.o.	019363	A	5. 1. 2009
Drawing, Berechnung des "k" und "m" 4 KTS 132, Bartec Varnost, d.o.o.	019387	A	5. 1. 2009
* Reference list, Electromotor 4 KTS 160, Bartec Varnost, d.o.o.	019207	D	15. 4. 2020
* Drawing, Electromotor 4 KTS 160, Bartec Varnost, d.o.o.	019378	D	15. 4. 2020
Drawing, Spalttabelle 4 KTS 160, Bartec Varnost, d.o.o.	019386	A	5. 1. 2009
Drawing, Berechnung des "k" und "m" 4 KTS 160, Bartec Varnost, d.o.o.	019389	A	5. 1. 2009
* Reference list, El. motor 4 KTS 180, Bartec Varnost, d.o.o.	022008	A	15. 4. 2020

Description	Number	Issue	Date
* Drawing, Electromotor 4 KTS 180, Bartec Varnost, d.o.o.	022009	B	15. 4. 2020
Table of flanged, cylindrical and spigot joints (constructional dimensions), type 4 KTS 180, Bartec Varnost, d.o.o.	024978	/	18. 2. 2015
Table of flanged, cylindrical and spigot joints (measured dimensions), type 4 KTC 180, Bartec Varnost, d.o.o.	024860	/	24. 11. 2014
k-m Berechnung, 4 KTC 180, Bartec Varnost, d.o.o.	20377, 20378	/	/

*Note: An * is included before the title of documents that are new or revised.*

(20) Consolidated Certificates

This certificate is a consolidated certificate and reflects the latest status of the certification, including the following:

- Original EC-Type Examination Certificate No. SIQ 14 ATEX 039 X.
- 1. Supplement: Addition of new type 4 KTS 180 M4 and conformity assessment according to new edition of standard EN 60079-1 : 2014 for all types.
- Issue 2: Addition of new type 4 KTS 180 L4.
- Issue 3: Change of installed components and conformity assessment according to new editions of standards EN IEC 60079-0 : 2018, EN IEC 60079-1 : 2014 + AC : 2018 and EN IEC 60079-7 : 2015 + A1 : 2018.

SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, +386 1 4778 221, ex@siq.si

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx SIQ 14.0002X**	Page 1 of 5	Certificate history:
Status:	**Current**	Issue No: 3	Issue 2 (2016-05-30) Issue 1 (2016-01-14) Issue 0 (2014-04-25)
Date of Issue:	2020-04-20		

Applicant: **Bartec Varnost, d.o.o.**
Cesta 9. avgusta 59
SI-1410 Zagorje ob Savi
Slovenia

Equipment: **Electric motor, types 4 KTS 90 S4, 4 KTS 90 L4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4, and 4 KTS 180 L4**

Optional accessory:

Type of Protection: **Flameproof enclosure and increased safety**

Marking: Ex db eb IIB T4 Gb

(4 KTS 90 L4, 4 KTS 90 S4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4)

Ex db eb IIB T3 Gb

(4 KTS 180 L4)

Approved for issue on behalf of the IECEx Certification Body: **Bojan Pečavar**

Position: **Certification Manager**

Signature: (for printed version)

Date: 20. 4. 2020

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

Slovenian Institute of Quality and Metrology (SIQ)
Masera-Spasiceva ulica 10
SI-1000 Ljubljana
Slovenia

IECEx Certificate of Conformity

Certificate No.: **IECEx SIQ 14.0002X** Page 2 of 5

Date of issue: 2020-04-20 Issue No: 3

Manufacturer: **Bartec Varnost, d.o.o.**
Cesta 9. avgusta 59
SI-1410 Zagorje ob Savi
Slovenia

Additional manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Edition:7.0 — Explosive atmospheres - Part 0: Equipment - General requirements

IEC 60079-1:2014-06 Edition:7.0 — Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

IEC 60079-7:2017 Edition:5.1 — Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

SI/SIQ/ExTR14.0001/03

Quality Assessment Report:

SI/SIQ/QAR11.0003/05

IECEx Certificate of Conformity

Certificate No.: **IECEx SIQ 14.0002X** Page 3 of 5

Date of issue: 2020-04-20 Issue No: 3

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The three phase four poles electric motors types 4 KTS 90 S4, 4 KTS 90 L4, 4 KTS 100 LB4, 4 KTS 132 S4, 4 KTS 160 M4, 4 KTS 180 M4 and 4 KTS 180 L4 are designed in the type of protection flameproof enclosure with terminal box in the type of protection increased safety. They are enclosed and without fan. Their enclosure is made of cast-iron. Between flameproof enclosure and terminal box line bushings are installed. The squirrel-cage rotor is made of aluminium. The shaft is made of steel. Stator windings are equipped with three temperature sensors (PTC) connected in series. Optionally stator windings can be equipped with three bimetal switches (PTO). External surface of the electric motor is painted. In the wall of the terminal box holes for external connections are provided.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- Repair 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 IEC 60079-1 : 2014, Edition 7.0, is not permitted.
- Temperature sensors (PTC) and/or bimetal switches (PTO) shall be connected to a suitable certified disconnecting device.

IECEx Certificate of Conformity

Certificate No.: **IECEx SIQ 14.0002X** Page 4 of 5

Date of Issue: 2020-04-20 Issue No: 3

Equipment (continued):

Technical data

All types:

Rated voltage	From 220 V a.c. up to 690 V a.c.
Frequency	50 Hz/60 Hz
Duty type	From S1 to S9
Ingress protection (standard IEC 60529 : 2001)	IP68
Ambient temperature range	From -20°C to +40°C

Type	Temperature class	Rated power (50 Hz)	Rated speed (50 Hz)
4 KTS 90 S4	T4	0.64 kW	1420 rev/min
4 KTS 90 L4	T4	0.86 kW	1430 rev/min
4 KTS 100 LB4	T4	1.82 kW	1425 rev/min
4 KTS 132 S4	T4	2.66 kW	1448 rev/min
4 KTS 160 M4	T4	4.28 kW	1470 rev/min
4 KTS 180 M4	T4	7.5 kW	1465 rev/min
4 KTS 180 L4	T3	11 kW	1465 rev/min

IECEx Certificate of Conformity

Certificate No.: **IECEx SIQ 14.0002X** Page 5 of 5

Date of Issue: 2020-04-20 Issue No: 3

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Change of installed components and conformity assessment according to new editions of standards IEC 60079-0 : 2017 and IEC 60079-7 : 2017, including IEC 60079-1 : 2014 / COR 1 : 2018

8. DECLARATION OF CONFORMITY

CE 1304

BARTEC

EU Declaration of Conformity

The Manufacturer:

BARTEC VARNOST d.o.o.
Cesta 9. Avgusta 59
1410 Zagorje ob Savi
Slovenia

Hereby declares that the products:

Group& category, temperature class, protection	Motor type, IEC frame size	Certification number	Year of CE-marking
Ex II 2 G Ex db eb IIB T4 Gb Ex II 2G Ex db eb IIB T3 Gb	4KTS 90 L4, 4KTS 90 S4, 4KTS 100 LB4, 4KTS 132 S4, 4 KTS160 M4, 4KTS 180 M4 4KTS 180L4	SIQ 14 ATEX 039 X	2014

Notified Bodie (ExNB): 1304, SIQ Ljubljana, Tržaška cesta 2, SI-1000 Ljubljana

are in conformity with provisions of the following Council Directives:

Directive 2014/34/EU
In respect of product categories the motors are in conformity with provisions of the following harmonized standards:

EN 60079-0:2018 EN 60079-1:2014/AC:2018 EN 60079-7:2015/A1 2018

Directive 2009/125/EC
4KTS motors are excluded from the directive 2009/125/EU and requirements set in the Commission Regulation (EC) No. 640/2009 and the amending Regulation (EU) No. 4/2014

Directive 2011/65/EU
The motors are in conformity with the Directive 2011/65/EU and the amending Annex II to this Directive of the Delegated EU Directive 2015/863 on the re-striction of the use of certain hazardous substances in electrical and electronic equipment.

Notes:

The indicated product is intended for fitting into a machine. The conformity of the end product according to the Directive 2006/42/EC has to be established by the comissioning party when the motor is fitted to the machinery.

The sign »X« placed after the certificate number indicates that the repair 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 60079-1:2014 is not permitted

Temperature sensors (PTC) and/or bimetal switches (PTO) shall be connected to a suitable certified disconnecting device.

Signed by .....
Janez Gajski
Title QAM
Date 23.04.2020

BARTEC Varnost d.o.o.
Cesta 9. avgusta 59
SI 1410 Zagorje ob savi

Tel.: +386 59 221 411
Fax: +386 59 221 400
Internet: www.bartec-varnost.si

VS-02 02 125F

BARTEC VARNOST

C.9.avgusta 59
1410 Zagorje ob Savi
SLOVENIJA

Fax: +++ 386 59 221 400

E-mail : **info@bartec-varnost.si**

VS – 11 01 159/C