

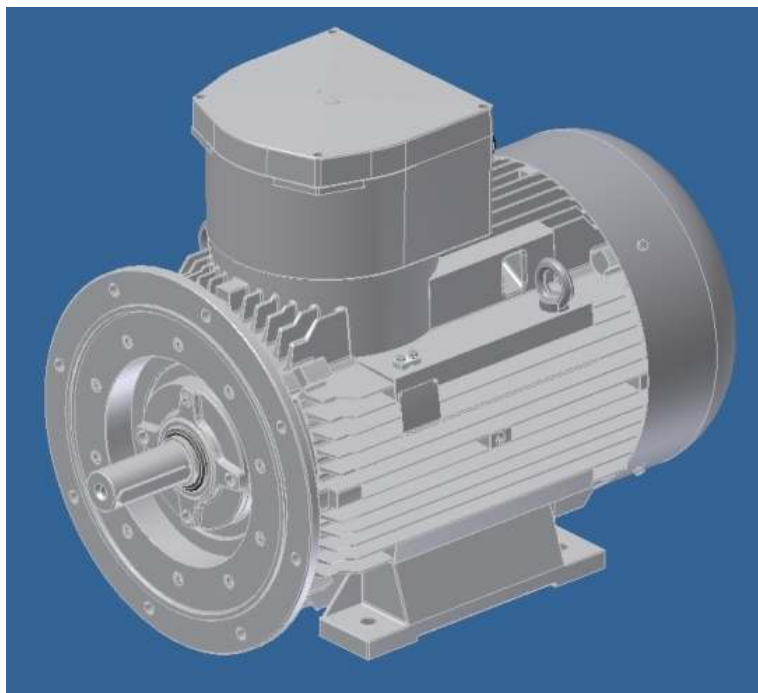


**ELEKTROMOTORJI V PROTIEKSPLOZIJSKI
ZAŠČITI**

**SQUIRREL-CAGE FLAMEPROOF
ELECTRICAL MOTORS**

-  **II 2G Ex db IIC(B) T* Gb**
-  **II 2G Ex db eb IIC(B) T* Gb**
-  **II 2D Ex tb IIC T*°C Db**

5KTC 250, 280

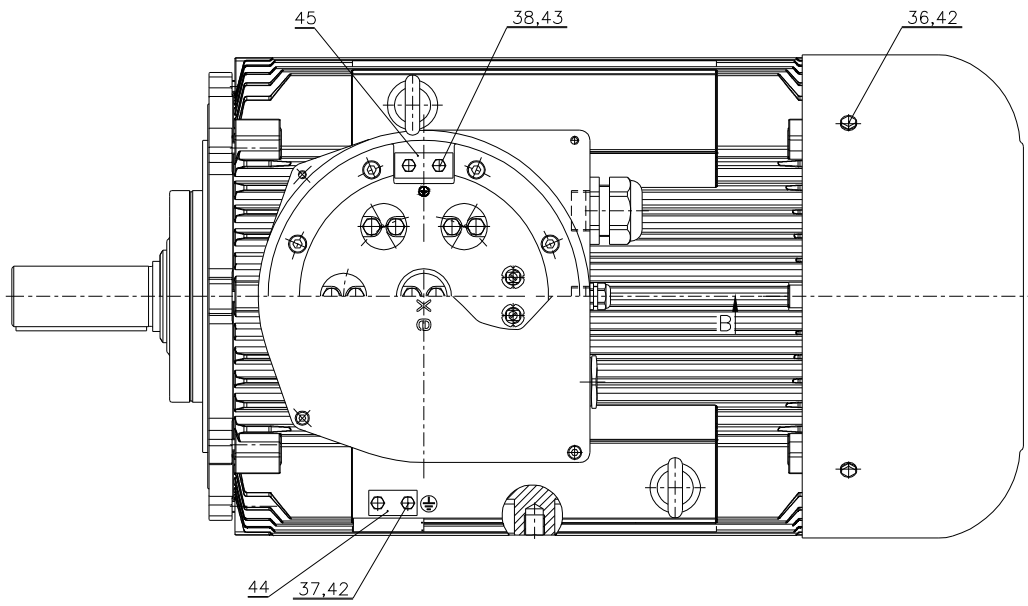
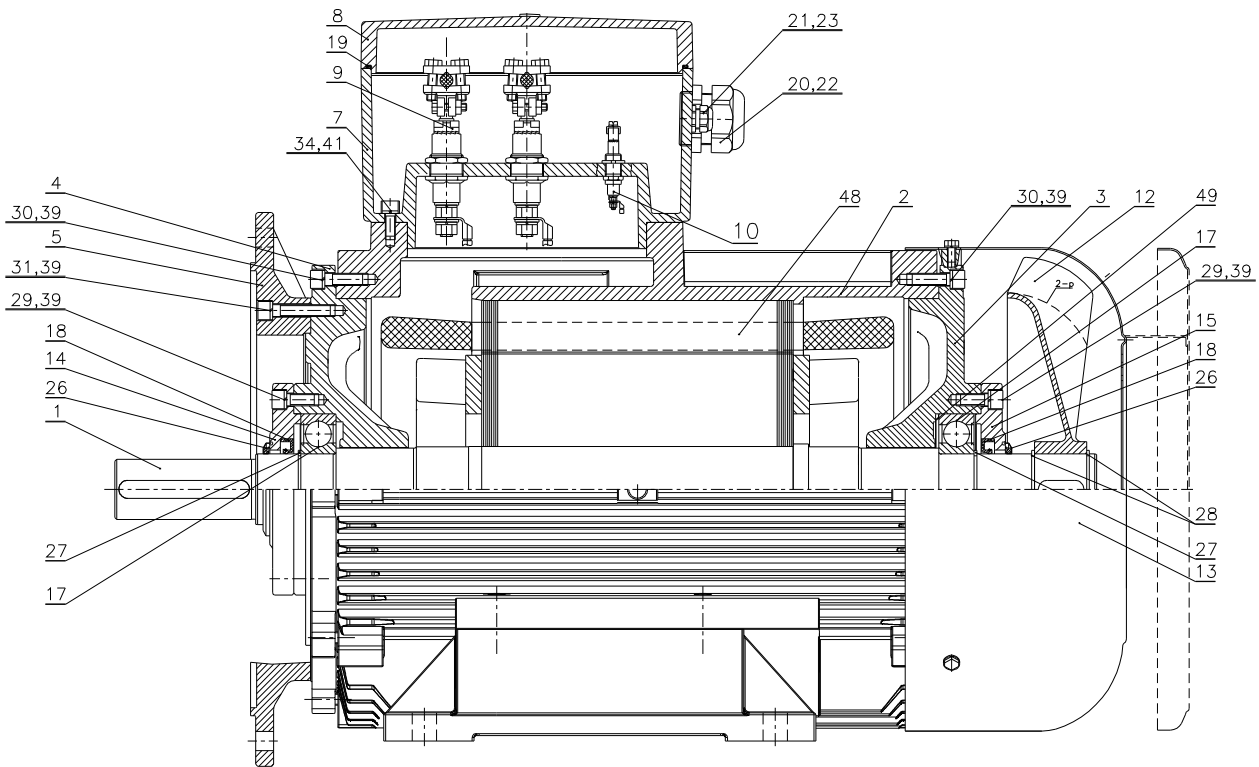


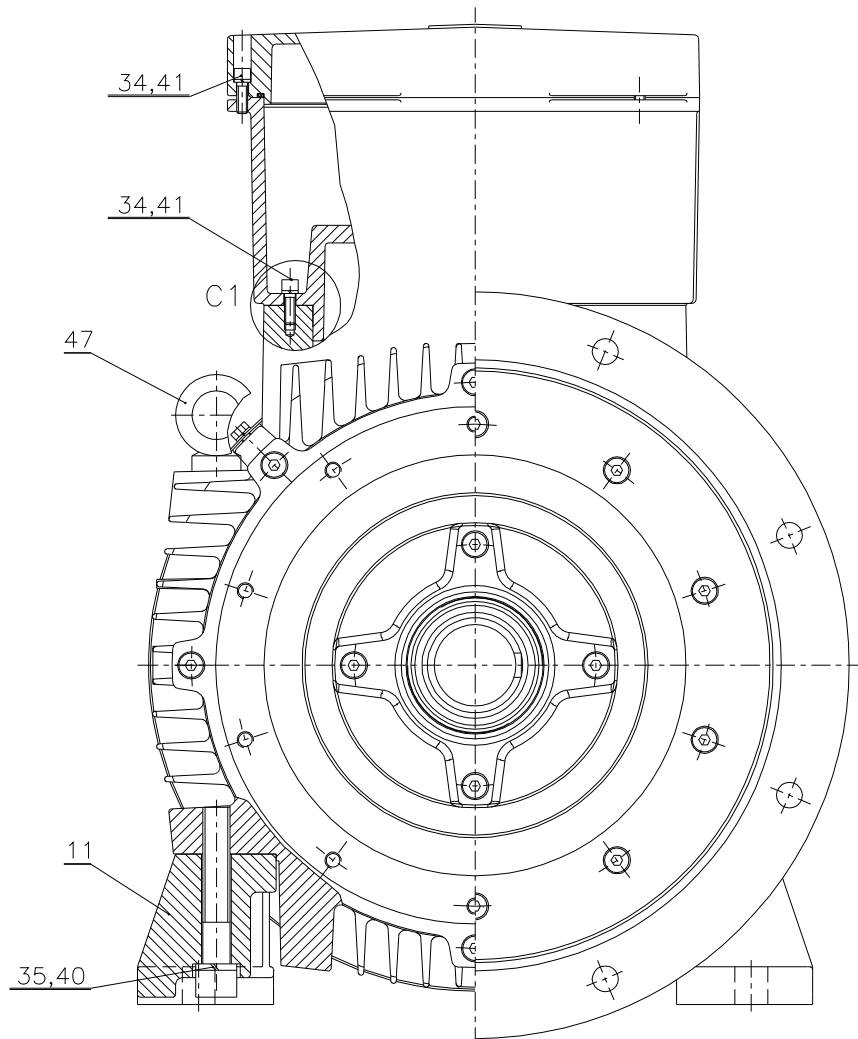
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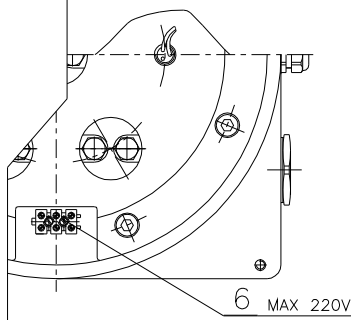
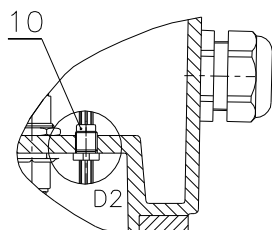
RISBE / DRAWINGS 5KTC

Exd e

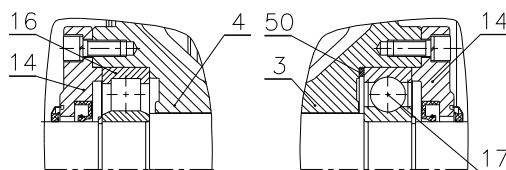




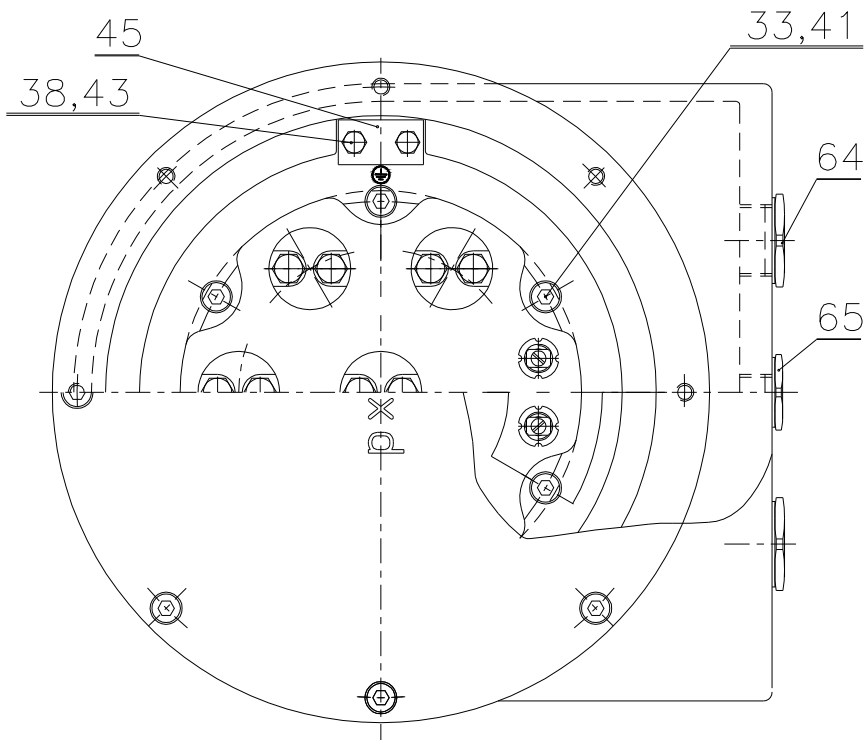
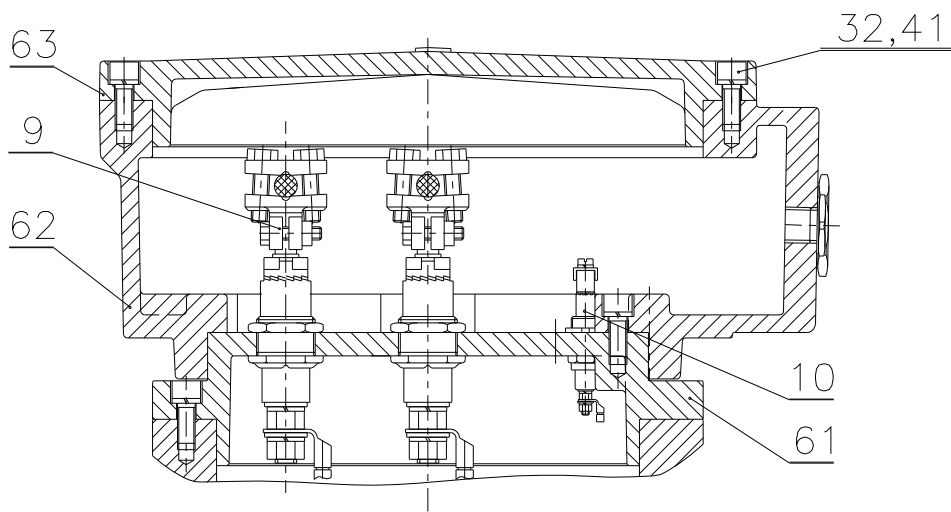
RAZLIČICA/VARIANT
 PTC - Skoznik in mini sponko
 PTC - Line bushing and mini terminals



RAZLIČICA Z VALJČNIM LEŽAJEM
 VARIANT WITH CYLINDRICAL ROLLER BEARINGS



Exd



SEZNAM REZERVNIH DELOV / SPARE PARTS

ITEM No. POS. Nr. POZICIJA	PART No. ARTIKEL Nr. RAZPOZNAVNA ŠT.	DENOMINATION BEZEICHNUNG IME	QUANTITY ANZAHL KOLIČINA
----------------------------------	--	------------------------------------	--------------------------------

1.	SHAFT ROTOR UNIT	1
	LAÜFER	
	ROTOR	

		5KTC 250	5KTC 280	5KTC 315
302222	M2	*		
302222	M4	*		
302223	M6	*		
	M8	*		
	S2		*	
	S4		*	
	S6		*	
	S8		*	
	S2			*
	S4			*
	S6			*
	S8			*
	MA2			*
	MB2			*
	MA4			*
	MB4			*
	M6			*
	M8			*
	MC2			*
	MC4			*
	MC6			*
	MC8			*

2.	STATOR HOUSING	1
	GEHAUSE	
	STATORSKO OHIŠJE	

		5KTC 250	5KTC 280	5KTC 315
301791		*		
			*	
				*

3.	NO-DRIVE END SCHIELD	1
	LAGERSCHILDL BS	
	STATORJEV ŠČIT BS	

		5KTC 250	5KTC 280	5KTC 315
301817		*		
			*	
				*

4.	DRIVE END SCHIELD			1
	LAGERSCHILD AS			
	STATORJEV ŠČIT AS			

		5KTC 250	5KTC 280	5KTC 315
305817	B3	*		
301815	B5		*	
	B3			*
	B5			
	B3			
	B5			

5.	FLANGE STANDARD			1
	FLANSCH GENORMT			
	PRIROBNICA			

		5KTC 250	5KTC 280	5KTC 315
301790	F500-I	*	*	
	F600-I			*

6.	MINI TERMINAL Exe CTP			1(3)
	MINIKLEMME Exe PTC			
	MINI PRIKLJUČNI BLOK Exe CTP			

		5KTC 250-315		
107773		*		

7.	TERMINAL BOX			1
	KLEMMENKASTEN			
	PRIKLJUČNA OMARICA			

		5KTC 250	5KTC 280	5KTC 315
284726		*		
			*	
				*

8.	COVER FOR TERMINAL BOX Exe			1
	KLEMMENKASTENDECKEL Exe			
	POKROV PRIKLJUČNE OMARICE Exe			

		5KTC 250-280	5KTC 315
263011		*	
			*

9.	BUSHING TOS			3(6)
	LEITUNGSDURCHFÜHRUNGEN			
	PREVODNI IZOLATOR TOS			

		5KTC 250	5KTC 280	5KTC 315
256375	TOS 10	*	*	*
	TOS 12	*	*	*
	TOS 16	*	*	*

10.	BUSHING PTC			2
	LEITUNGSDURCHFÜHRUNGEN PTC			
	PREVODNI IZOLATOR PTC			

		5KTC 250 - 315		
256275	TOS 4			

10.	LINE BUSHING PTC		1
	ADERKEITUNGSDURCHFÜHRUNG PTC		
	ŽIČNI SKOZNIK PTC		

		5KTC 250 - 315
258130	M16x1.5	*
278783	M24x1.5	*

11.	FOOT		
	FUSS		
	NOGA		

	5KTC 250	5KTC 280		5KTC 315		
		S	M	S	M	L
301814	2					
		1				
			1			
				1		
					1	
						1

12.	FAN 2p		1
	LUFTER 2p		
	VENTILATOR 2p		

	5KTC 250	5KTC 280	5KTC 315
303687	*		
		*	
			*

12.	FAN 4,6,8p		1
	LUFTER 4,6,8p		
	VENTILATOR 4,6,8p		

	5KTC 250	5KTC 280	5KTC 315
302011	*		
		*	
			*

13.	FAN COVER		1
	LUFTERHAUBE		
	VENTILATORJEV ŠČIT		

	5KTC 250	5KTC 280	5KTC 315
301863	*		
		*	
			*

13.	FAN COVER IMV1		1
	LUFTERHAUBE IMV1		
	VENTILATORJEV ŠČIT IMV1		

	5KTC 250	5KTC 280	5KTC 315
337027	*		
		*	
			*

14.	BEARING COVER AS		
	LAGERDECKEL AS		
	LEŽAJNI ŠČIT AS		

	5KTC 250	5KTC 280	5KTC 315
301812	1		
		1	
			2(1)

15.	BEARING COVER BS		1
	LAGERDECKEL BS		
	LEŽAJNI ŠČIT BS		

	5KTC 250	5KTC 280	5KTC 315
301813	1		
		1	
			1

16.	CYLINDRICAL ROLLER BEARING DE		1
	ZYLINDERROLLENLAGER AS		
	VALJČNI LEŽAJ DE		

		5KTC 250	5KTC 280	5KTC 315
268814	NU 314 EC3	*		
	NU 316 EC3		*	
	NU 317 EC3			*

17.	BALL BEARING		
	LAGER 6314 2Z C3		
	KROGLIČNI LEŽAJ 6314 2Z C3		

		5KTC 250	5KTC 280	5KTC 315
268764	6314 2Z C3	2(1)		
	6316 2Z C3		2(1)	
	6317 2Z C3			1(2)

18.	SHAFT SEAL		2
	DICHRING		
	OLJNO TESNILO		

		5KTC 250	5KTC 280	5KTC 315
268837	A70x100x13-NB	*		
	A80x105x13-NB		*	
	A85x105x13-NB			*

19.	O - ring		1
	O - dichtung		
	O - tesnilo		

		5KTC 250 - 280	5KTC 315
268851	4x310x318 NBR70	*	
	4x430x442 NBR70		*

20.	CABLE GLAND Exe		
	KABELVERSCHRAUBUNG Exe		
	UVODNICA Exe		

		5KTC 250	5KTC 280	5KTC 315
243228	M63x1,5	1(2)	1(2)	1(2)
322152	M50x1,5	1(2)	1(2)	1(2)

21.	CABLE GLAND Exe PTC			1(2)
	KABELVERSCHRAUBUNG Exe PTC			
	UVODNICA Exe PTC			

		5KTC 250	5KTC 280	5KTC 315
122396	M20x1,5	*	*	*

22.	PLUG Exe			1(2)
	VERSCHLUSSSTOPFEN Exe			
	SLEPI ČEP Exe			

		5KTC 250	5KTC 280	5KTC 315
268515	M63x1,5	1(2)	1(2)	1(2)
277881	M50x1,5	1(2)	1(2)	1(2)

23.	PLUG Exe PTC			1
	VERSCHLUSSSTOPFEN Exe PTC			
	SLEPI ČEP Exe PTC			

		5KTC 250	5KTC 280	5KTC 315
277883	M20x1,5	*	*	*

26.	GAMMA RING			2
	GAMMARING			
	GAMMA TESNILO			

		5KTC 250	5KTC 280	5KTC 315
302026	70	*		
	80		*	
	85			*

27.	EXTERNAL CIRCLIPS DIN 471			2
	SPRENGRING DIN 471			
	VSKOČNIK 70 DIN 471			

		5KTC 250	5KTC 280	5KTC 315
268967	70	*		
	80		*	
	85			*

28.	EXTERNAL CIRCLIPS DIN 471			2
	SPRENGRING DIN 471			
	VSKOČNIK 70 DIN 471			

		5KTC 250	5KTC 280	5KTC 315
268967	70	*		
	80		*	*

	SOCKET HEAD CAP SCREW 8.8			
	INNERSECHKANTSCHRAUBEN 8.8			
	VIJAK S ŠESTROBO LUKNJO 8.8			

			5KTC 250	5KTC 280	5KTC 315
29.	271844	M12x30	8	8	8
30.	271848	M12x40	16	20	24
31.	271851	M12x60	10	10	/
		M12x70	/	/	12

32.	271831	M10x25	8	8	/
	271844	M12x30	/	/	8
33.	271831	M10x25	6	6	/
		M12x25	/	/	8
34.	271831	M10x25	8	8	/
	271844	M12x30	/	/	6
35.	301823	M20x120	4	/	/
		M20x140	/	4	/
		M24x150	/	/	4

	HEXAGON CAP SCREW	
	SCHRAUBEN	
	VIJAK S ŠESTROBO GLAVO	

			5KTC 250	5KTC 280	5KTC 315
36.	271813	M8x15	4	4	6
37.	282388	M8x25	2	2	2
38.	282388	M8x25	2	2	2

	SPRING WASHER	
	GLATTET FEDERING	
	VZMETNA PODLOŽKA	

			5KTC 250	5KTC 280	5KTC 315
39.	270712	12	32	36	66
40.	271715	20	4	4	/
		24	/	/	4
41.	271711	10	22	22	/
	271722	8	/	/	6
42.	271723	8	6	6	2
43.	271723	8	2	2	2

44.	EARTH PLATE		1
	ERDUNGSPLATTE		
	OZEMLJILNA PLOŠČICA		

		5KTC 250	5KTC 280	5KTC 315
261670		*	*	*

45.	EARTH PLATE		1
	ERDUNGSPLATTE		
	OZEMLJILNA PLOŠČICA		

		5KTC 250	5KTC 280	5KTC 315
262981		*	*	*

47.	EYEBOLT		2
	RINGSCHRAUBE		
	OBROČNI VIJAK		

		5KTC 250	5KTC 280	5KTC 315
271935	M20	*	*	
	M24			*

48.	STATOR WITH WINDING	1
	STATORPAKET MIT WICKLUNG	
	NAVIT STATORSKI PAKET	

		5KTC 250	5KTC 280	5KTC 315
303434	M2	*		
	M4	*		
	M6	*		
	M8	*		
	S2		*	
	S4		*	
	S6		*	
	S8		*	
	S2			*
	S4			*
	S6			*
	S8			*
	MA2			*
	MB2			*
	MA4			*
	MB4			*
	M6			*
	M8			*
	MC2			*
	MC4			*
	MC6			*
	MC8			*

49.	PRE-LOAD SPRING	1
	VORSPANNFEDERN	
	LEŽAJNA PODLOŽKA	

		5KTC 250	5KTC 280	5KTC 315
302014	150	*		
	170		*	
	180			*

50.	BEARING RING	1
	LAGERRING	
	RAVNA PODLOŽKA	

		5KTC 250	5KTC 280	5KTC 315
302092	t=3,5	*		

61.	TERMINAL PLATE Exd	1
	ANSCHUSSPLATTE Exd	
	VMESNA PLOŠČA Exd	

	5KTC 250 - 280	5KTC 315
282818	*	
		*

62.	TERMINAL BOX Exd	1
	KLEMMENKASTEN Exd	
	PRIKLJUČNA OMARICA Exd	

	5KTC 250 - 280	5KTC 315
277721	*	
		*

63.	TERMINAL BOX COVER Exd		1
	KLEMMENKASTEN DECKEL Exd		
	POKROV PRIKLJUČNE OMARICE Exd		

	5KTC 250 - 280	5KTC 315
263316	*	
		*

64.	PLUG Exd		1(2)
	VERSCHLUSSTOPFEN Exd		
	SLEPI ČEP Exd		

		5KTC 250	5KTC 280	5KTC 315
273968	M63x1,5	1(2)	1(2)	1(2)
273967	M50x1,5	1(2)	1(2)	1(2)

65.	PLUG Exd PTC		1
	VERSCHLUSSTOPFEN Exd PTC		
	SLEPI ČEP Exd PTC		

		5KTC 250	5KTC 280	5KTC 315
273970	M20x1,5	*	*	*

Pri naročilu nadomestnega dela, prosimo navedite:

Pozicija, tip motorja, serijska številka.

000000 Rotor
5KTC 250 M4

PRIMER

When ordering spare parts, please state:

Item No., motor type, serial No.

000000 Rotor
5KTC 250 M4

EXAMPLE

OPOMBA: SESTAVNI DELI, NAPISANI Z POUČARJENIMI ČRKAMI SO POSEBEJ KONTROLIRANI (GLEJ EN 60079-0, EN 60079-1).

ATTENTION: THE SPARE PARTS WRITTEN IN BOLD LETTERS ARE SUBJECT TO DIMENSIONAL ACCURACY INSPECTION (SEE EN 60079-0, EN 60079-1).

NAVODILA ZA MONTAŽO IN PRIKLJUČITEV ELEKTROMOTORJEV

Navodila za montažo in priključitev ne zajemajo vseh posebnosti, ki se lahko pojavijo pri priključitvi in uporabi elektromotorja. Zahteva se, da elektromotor priključi in vzdržuje kvalificirana oseba (IEC 364).

TRANSPORT IN SKLADIŠČENJE

ELEKTROMOTORJE MORAMO TRANSPORTIRATI V POLOŽAJU, KOT SO PREDVIDENI ZA OBRATOVANJE!
ELEKTROMOTORJE, KI JIH NE UPORABIMO TAKOJ, MORAMO SKLADIŠČITI V SUHEM PROSTORU.

OZNAKA PROTIEKSPLOZIJSKE ZAŠČITE

Oznaka protiekspluzijske zaščite s katero je lahko označen motor:

 II 2G Ex d IIC T4 – T6 Gb

ali

 II 2G Ex de IIC T4 – T6 Gb

ali

 II 2 D Ex tb IIIC T135°C Db

: Znak za protiekspluzijsko zaščito

II:	skupina opreme II, kamor spadajo naprave za vse potencialne eksplozivne atmosfere, razen rudnikov
2:	kategorija opreme 2, ki zajema opremo, ki se lahko uporablja v conah 1 in 2
G:	oprema za eksplozivne atmosfere, kjer so prisotni plini, hlapi ali eksplozivna zmes
Ex:	oznaka za protiekspluzijsko zaščito
d:	vrsta protiekspluzijske zaščite, neprodorni okrov
e:	vrsta protiekspluzijske zaščite, povečana varnost
IIC:	skupina plinov C
T4 T6:	temperaturni razred
tb:	zaščita pred vžigom prahu in odpornost proti vdoru prahu
T135°C:	maksimalna temperatura na površini opreme
Gb, Db	ekspluzijski nivo opreme EPL

ŠTEVILKA CERTIFIKATA

BVS 16 ATEX E 129 X / IECEx BVS 16.0095X – 5KTC250

BVS 18 ATEX E 070 X / IECEx BVS 18.0061X – 5KTC280

X – mere Ex rež niso v skladu s podatki v tabeli 2. v standardu EN 60079-1: 2007.

UPORABA

Trifazni asinhronski elektromotorji v protieksplzijski izvedbi tipa 5KTC so namenjeni za obratovanje v industrijskih objektih, v katerih je obstaja nevarnost eksplozije gorljivih plinov, par ali vnetljivih tekočin.

Protieksplzijsko zaščito elektromotorjev sestavljajo:

- »nepredirni okrov« za ohišje elektromotorja in »povečana varnost« za priključno omarico, ki sta v skladu z zahtevami standardov EN 60079-0: 2009, EN 60079-1: 2007 in EN 60079-7: 2007. Na pokrovu priključne oznake je oznaka Ex.
- »nepredirni okrov« za ohišje elektromotorja in za priključno omarico, ki sta v skladu z zahtevami standardov EN 60079-0: 2009 in EN 60079-1: 2007. Na pokrovu priključne oznake je oznaka Ex.

Ohišja elektromotorjev so izdelana po zahtevah za skupino plinov IIC.

Standardna izvedba elektromotorjev je za temperaturni razred T4.

Točna oznaka protieksplzijske zaščite je na napisni tablici.

NAMESTITEV (MONTAŽA) ELEKTROMOTORJA

MONTAŽO ELEKTROMOTORJA NAJ IZVEDE STROKOVNJAK, DA SE IZOGNEMO MOREBITNIM OKVARAM MED OBRATOVANJEM ZARADI NEPRAVILNE MONTAŽE.

Pri namestitvi elektromotorja moramo:

- upoštevati zahteve instalacijskih predpisov
- preveriti, če protieksplzijska zaščita elektromotorja ustreza okolju (cona, skupina plinov, temperaturni razred)
- preveriti kako okolje vpliva na delovanje elektromotorja (agresivno okolje, temperatura, prah itd.)
- upoštevati lokalne in tovarniške posebnosti ter zahteve
- zagotoviti uporabo pravega orodja in priprav
- upoštevati zahteve za varno obratovanje
- zagotoviti uporabo osebnih zaščitnih sredstev

Elektromotorji so izdelani tako, da brez dodatne zaščite lahko obratujejo v zmerno vlažni in prašni atmosferi s temperaturo od -50°C do $+60^{\circ}\text{C}$. V primeru, da je temperatura okolice nižja od -20°C , mora imeti motor vgrajene grelce (glej točko 5).

Pri montaži (postavitvi) elektromotorja na prostem priporočamo, da ga zaščitimo pred neposrednimi sončnimi žarki. Na elektromotorju, ki obratuje v navpičnem položaju, moramo nad odprtinami ščita ventilatorja namestiti pokrov, za zaščito elektromotorja pred vdorom vode vzdolž osi.

Izolacija elektromotorjev je iz materialov, ki ne vpijajo vlage in je kvalitetno impregnirana, zato pravilno skladiščenih, novih elektromotorjev pred priključevanjem na omrežje, ni potrebno posebej preizkušati.

Pri montaži elementov, npr. sklopke, jermenice) na gred elektromotorja, je potrebno posebej paziti na ležaje. Aksialnih sil zaradi morebitnih udarcev ob montaži, ne smejo prevzeti ležaji.

PRIKLJUČEK NA OMREŽJE

POMEMBNO!

NAPRAVE V PROTIEKSPLOZIJSKI IZVEDBI SME MONTIRATI IN PRIKLJUČITI NA OMREŽJE LE STROKOVNO USPOSOBLJENA OSEBA, KI IMA DODATNO ZNANJE S PODROČJA PRITIEKSPLOZIJSKE ZAŠČITE.

Pred priključitvijo elektromotorja na omrežje je potrebno preveriti:

- ali podatki na napisni tablici ustrezajo napetosti in frekvenci omrežja
- ali protieksplzijska zaščita motorja ustreza za okolje v katerem bo motor obratoval (skupina plinov in temperaturni razred).
- ali je instalacija (ceвна ali kablenska) korektno izvedena

Elektromotorji se vrtijo desno, če fazne vodnike L1, L2, L3, priključimo na priključke U, V, W, (1U, 1V, 1W, oziroma U1, V1, W1). Spremembo smeri vrtenja dosežemo z zamenjavo priključnih mest dveh dovodnih faznih vodnikov.

Naslednji element se nahajajo na številkah:

10 – 11 ali 12 – 13:	PTC termistor
14 – 15:	NC termostat – odpirajoč (normalno zaprt kontakt)
16 – 17:	NO termostat – zapirajoč (normalno odprt kontakt)

Navitja elektromotorjev imajo vgrajene temperaturne senzorje (PTC termistor DIN 44081). Odklopna naprava s katero so povezani, mora biti odobrena in nositi ustrezno oznako pooblaščenice Ex institucije. Odklopna naprava ni eksplozijsko varna in mora biti instalirana zunaj eksplozijsko varnega območja (ali vgrajena v atestiranem eksplozijsko varnem ohišju). Oznaka ustreznosti služi le za potrditev skladnosti električnih veličin v povezavi s temperaturnimi senzorji in dovoljuje uporabo odobrene odklopne naprave v povezavi s PTC senzorji, ki ustrezajo zahtevam DIN 44081 za termično zaščito eksplozijsko varnih elektro naprav.

Grelci so priključeni na sponke 30 – 31 (230V) ali 32 – 33 (110V).

Motorji z vgrajenimi grelci so označeni z dodatno tablico z imenskimi podatki grelnega sistema ali pa so ti podatki vključeni na tablici s podatki motorja.

Krmiljenje mora zagotoviti, da napetost ni istočasno priključena na grelce in priključne sponke elektromotorja.

Priključek kablskih žil na skoznike mora biti izveden posebej pazljivo. Izolacije kableske žile naj bo čim bližje priključnemu mestu, vse žice finožičnatih žil pa morajo biti vpete na priključnem mestu.

Pri izvedbi protieksplozijske zaščite omarice Ex d (nepredirni okrov), je potrebno obvezno upoštevati instalacijske predpise in zagotoviti korektno protieksplozijsko zaščito na uvodu kabla (Ex d uvodnica).

Pred priključitvijo na omrežje v priključni omarici kontroliramo:

- da v notranjosti priključne omarice ni prahu, žičnih ostankov in podobno,
- da izvede priključitev strokovno usposobljena oseba, ki zagotavlja, da bodo električni spoji kvalitetni in vijaki primerno pritrjeni,
- da je medsebojna zračna razdalja pri napetosti 400V ali 690 V znaša minimalno 10 mm,
- da so neuporabne žice ločene in primerno pritrjene,
- da so stične ploskve očiščene in rahlo namazane z brez kislinasto mastjo tip FOR PD-2 (Sestral MI PD LL/2A) ali Renolit RHF-1 Fuchs,
- da je kabel na uvodnici pravilno zatesnjen,
- neuporabljene odprtine morajo biti zaprte in zatesnjene v skladu z zahtevami protieksplozijske zaščite,
- slepi čepi, ki so deli nepredirnega okrova, morajo biti konstruirani tako, da jih je mogoče odstraniti le s pomočjo ustreznega orodja (v skladu z zahtevami standarda EN 60079-0: 2006, točka 16.4).

ZAŠČITA ELEKTROMOTORJEV IN OBRATOVANJE

Pri postavitvi elektromotorja je vse vrteče dele potrebno zavarovati pred dotikom.

S stroji smejo opravljati samo kvalificirane osebe.

Pri trajnem obratovanju (oznaka S1), je motorsko zaščitno stikalo zadostna zaščita z ozirom na temperaturni razred, če ima vgrajeno ustrezno bimetalno zaščito, ki omogoča nastavitve imenskega toka.

Pri obratovanju S2 (kratkotrajno obratovanje s trajno obremenitvijo) ali S3 (prekinjeno obratovanje) ter pri (frekvenčno reguliranem pogonu), obratovanje s frekvenčnim pretvornikom, morajo imeti trifazni kratkostični elektromotorji v vsakem navitju temperaturne senzorje, po enega v vsaki fazi (DIN 44 080, DIN 44 081, DIN 44 082).

Izklopna temperatura senzorjev je običajno 145°C. Odgovarjajoča odklopna naprava z oznako ustreznosti tvori skupaj s temperaturnimi senzorji ustrezen sistem zaščite z ozirom na zahtevani temperaturni razred.

Elektromotorji z dvema hitrostma vrtenja (dvoje ločenih navitij ali eno navitje v Dahlander stiku), morajo biti zaščiteni za vsako hitrost posebej.

Ohišje elektromotorja mora biti povezano z zaščitnim vodnikom in ozemljeno. V priključni omarici je vijak za priključitev zaščitnega vodnika, na ohišju statorja pa je vijak za ozemljitev.

Če je elektromotor napajan preko frekvenčnega pretvornika, je potrebno preveriti, da nastavitev na pretvorniku ustreza deklariranemu območju na dodatni napisni tablici. Elektromotor mora biti varovan dvojno, to je z motorskim zaščitnim stikalom, ter s temperaturno zaščito. Izklopna naprava, vezana na temperaturno zaščito, mora biti v območju: $2k\Omega < R_o < 4k\Omega$, pri čemer je R_o – upornost izklopa. Motorsko zaščitno stikalo mora biti certificirano.

VZDRŽEVANJE

Elektromotorji so robustne konstrukcije in nezahtevni za vzdrževanje.

V rednih časovnih obdobjih (odvisno od okolja), je potrebno elektromotor očistiti, še posebej vhodne odprtine na ventilatorskem ščitu: tako zagotovimo zadosten pretok zraka za hlajenje.

Elektromotorji so opremljeni z zaprtimi trajno mazanimi ležaji. Življenjska doba ležajev je 20000 ur obratovanja dvopolnih elektromotorjev ($n_s=3000 \text{ min}^{-1}$) pri normalnih pogojih obratovanja ali 40000 ur obratovanja štiri in več polnih motorjev.

Redni kontrolni pregledi in kontrolne meritve, ki jih opravijo za ta dela usposobljene osebe, so ukrepi, s katerimi zmanjšamo možnost okvar in prekinitev obratovanja.

Vsako odstopanje od imenskih vrednosti (večji tok obratovanja, povečana temperatura, vibracije, neobičajni hrup ali vonj, reagiranje zaščitno – kontrolnih naprav itd.) so znak, da s pogonom nekaj ni v redu! Da bi se izognili večji okvari, ki bi lahko neposredno ali posredno povzročila večjo škodo na materialnih dobrinah ali poškodbe ljudi, je potrebno o teh pojavih takoj obvestiti odgovorno osebo.

POPRAVILO

ELEKTROMOTORJE V PROTIEKSPLOZIJSKI IZVEDBI SME POPRAVLJATI SAMO PROIZVAJALEC ALI POOBlašČENA DELAVNICA. OSEBE, KI RAZSTAVLJAJO ALI POPRAVLJAJO Ex APARATE, MORAJO BITI STROKOVNO USPOSOBLJENE IN IMETI DODATNO ZNANJE S PODROČJA PROTIEKSPLOZIJSKE ZAŠČITE.

POMEMBNO:

Popravilo Ex rež po podatkih v tabeli 2. standarda EN 60079-1: 2007 ni dovoljeno!

Prosimo, da se v primeru popravila Ex rež posvetujete s proizvajalcem!

Pri razstavljanju elektromotorja je potrebno paziti, da ne poškodujemo površin, ki tvorijo Ex reže!

Pred sestavljanjem elektromotorja je potrebno vse Ex površine očistiti in premazati z brezislinsko mastjo, tip FOR PD-2 (Sestral MI PD LL/2A) ali Renolit RHF-1 Fuchs.

Po popravilu elektromotorja morajo tehnične zahteve elektromotorja ostati v skladu s certifikatom.

Če se pri popravilu ugotovi, da »nepredirni okrov« ne ustreza več zahtevam protieksplzijske zaščite in zahtevam v certifikatu, se morajo z elektromotorja odstraniti oznake protieksplzijske zaščite.

MOMENT PRIVITJA VIJAKOV

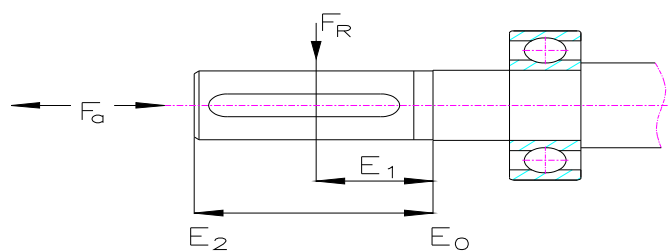
Tabela 1.: Moment privitja vijakov Ex ohišja. Material vijakov 8.8 ali A4-70.

Navoj	Moment privitja vijakov (Nm)	Navoj	Moment privitja vijakov (Nm)
M4	2.3	M12	66
M5	4.6	M14	105
M6	7.9	M16	160
M8	19	M20	330
M10	38	M24	560

Tabela 2.: Moment privitja vijakov - električni priključki.

Navoj	Moment privitja vijakov (Nm)	Navoj	Moment privitja vijakov (Nm)
M4	1.2	M10	10
M5	2	M12	15.5
M6	3	M16	30
M8	6	M20	52

DOPUSTNE OBREMITVE NA KONCIH GREDI



Slika 1: Dopustne obremenitve na koncih gredi

Tabela 3: Dovoljena radialna sila

Osna višina	Število polov	Radialna sila F_R [kN]		
		E0	E1	E2
250	2	11,64	10,41	9,4
	4	14,77	13,22	11,96
	6	16,97	15,2	13,75
	8	18,73	16,78	15,19
280	2	14,52	13,03	11,8
	4	18,18	16,31	14,76
	6	20,93	18,78	17,02
	8	22,93	20,56	18,62
315	2	16,55	14,92	13,57
	4	20,62	18,57	16,86
	6	19,73	17,58	15,82
	8	21,93	19,56	17,62

RECIKLAŽA

Bartec Varnost je zavezana k spoštovanju okoljske politike. V Bartec Varnost neprenehoma skrbimo, da so izdelki okolju prijazni in pri načrtovanju upoštevamo njihovo življenjsko dobo in način predelave po njenem izteku. Izdelki, izdelovalni procesi ter tudi logistika so načrtovani tako, da upoštevajo okoljske vidike. Bartec Varnost ima vzpostavljen sistem varovanja okolja, certificiran po standardu ISO 14001, ki je učinkovito orodje pri varovanju okolja.

Po izteku življenjske dobe je potrebno izdelek odstraniti in reciklirati v skladu z zahtevami za varstvo okolja.

Dolžnost kupca je, da zagotovi, da je izdelek recikliran v skladu z lokalno zakonodajo o varstvu okolja.

INSTALLATION GUIDELINES FOR THE 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 cage motor. We therefore insist on its being mounted and maintained by qualified persons (IEC 364).

TRANSPORT AND STORAGE

THE MOTORS ARE TO BE STORED IN A CLOSED AND DRY AREA. Should they be stored outdoors, it is important to protect them against bad weather conditions. During transport make sure that the usual precautions for this kind of material are respected. 5KTC motors are to be handled with lifting-claw.

EXPLOSION PROTECTION CODES


Possible markings


 II 2G Ex d IIC T4 – T6 Gb

or

 II 2G Ex de IIC T4 – T6 Gb

or

 II 2D Ex tb IIC T135°C Db

 : Ex marking

II:	Device group II; equipment can be used in potentially explosive areas except for mining
2:	Category; for use in Zone 1 or Zone 2
G:	equipment for use in explosive atmosphere, caused by flammable gas
d:	explosion protection type - flameproof enclosure
e:	explosion protection type – increased safety
IIC:	gas group IIC
T4, T6:	temperature class
T135°C:	maximum surface temperature of motors
Gb, Db	explosion protection level EPL

CERTIFICATE NUMBER

BVS 16 ATEX E 129 X / IECEx BVS 16.0095X – 5KTC250

BVS 18 ATEX E 070 X / IECEx BVS 18. 0061X – 5KTC280

X – stands for nonconformity of flameproof gaps and joints according to table 2. of EN 60079-1: 2007.

APPLICATION AND EXPLOSION PROTECTION

The explosion-proof asynchronous three-phase squirrel-cage motors of the type 5KTC are designed for their application in industrial buildings with highly explosive atmospheres caused by flammable gases, steam or liquids.

Explosion-proof motor versions are:

"Explosion-proof enclosure" for the motor housing and "Increased safety" for the terminal box according to EN 60079-0: 2009, EN 60079-1: 2007 and 60079-7: 2007. The cover of the terminal box carries the Ex imprint.

"Explosion-proof enclosure" for the motor housing and the terminal box according to EN 60079-0: 2009 and EN 60079-1: 2007. The cover of the terminal box carries Ex imprint.

The standard electric motor is suitable for the T4 temperature class.

The exact indication of the explosion protection can be found on nameplate of the motor.

INSTALLATION (MOUNTING) OF THE ELECTRIC MOTOR

THE ELECTRIC MOTOR MUST BE MOUNTED BY QUALIFIED PERSONS IN ORDER TO AVOID POSSIBLE DAMAGES DURING OPERATION CAUSED BY AN INCORRECT INSTALLATION.

The following rules must be observed during installation:

- strictly adhere to the installation instructions,
- check whether the explosion protection corresponds to the environment or not
(sector, gas group , temperature group),
- check the effects of the environment on the operation of the electric motor (aggressive environment, temperature, dust ...),
- consider particulars and requirements of room/plant,
- make sure that the correct tools and devices 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 in a mildly humid and dusty atmosphere under temperatures between -50°C to 60°C without requiring additional protection. If ambient temperature is below -20°C then motors must be equipped with space heaters (Ex d motors only).

If mounted (installed) outdoors, the motors must be protected from direct sunlight. If the motor is mounted and operated in vertical position, the fan openings must be protected against the ingress of water or any other foreign objects by fixing the cover above them.

Insulation of the electric motors consists of water-resistant materials and high-quality coating. If stored correctly, it is therefore not necessary to carry out special tests before connecting the motor to the power supply.

When mounting the elements (such as clutch, pulley) on to 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.

CONNECTION TO THE POWER SUPPLY

IMPORTANT!

THE EXPLOSION-PROOF VERSIONS MAY BE MOUNTED AND CONNECTED TO THE POWER SUPPLY BY QUALIFIED PERSONS ONLY; THE INSTALLER MUST HAVE ADDITIONAL KNOWLEDGE ABOUT EXPLOSION PROTECTION.

The following items must be checked before the electric motor can be connected to the mains power supply:

- that the data on the label correspond to voltage and frequency of the power supply,
- that the explosion protection indicated corresponds to the environment the electric motor will be operated in (gas group, temperature class),
- that the installation (pipes or cables) is carried out correctly.

The electric motors rotate clockwise when the phase conductors L1, L2 and L3 are connected to the terminals U,V,W (1U,1V,1W or U1,V1,W1). Rotation may be changed by switching the terminals on two phases of conductors.

The following elements are connected to the terminals:

- 10 – 11 PTC 145°C built in
- 14 – 15 Thermostats NC (normally closed contact)
- 16 – 17 Thermostats NO (normally open contact)

The motors are equipped with 3 temperature detectors (PTC thermistor DIN 44081 -). These temperature detectors are to be connected to a tripping unit with one of Ex Notified Bodies mark of conformity. The tripping unit is not protected against explosions and must therefore be installed outside of the hazardous area. The mark of conformity serves merely to confirm the adherence to the electrical data at the interface between the temperature detector circuit and the tripping device and to allow the application of both the tripping device with mark of conformity and the PTC contacts according to DIN 44081 for the thermal control of explosion-proof electric machines.

The space heaters are mounted to the terminals 30 – 31 (230V) or 32-33 (110V). Motors with space heaters are marked with an additional label indicating the nominal data of the heating system.

The electric control unit must make sure that the nominal motor voltage and the heater voltage are not present simultaneously.

Take particular care over the connection of 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.

The tightening torque of the connections on the terminal board must not exceed 7,5 Nm.

Pay close attention to the installation instructions when carrying out the explosion protection of the Ex d terminal box («explosion-proof enclosure») and check for the correct explosion protection cable entry (Ex d entry).

Prior to the mains connection, check the terminal box for the following items:

- there must not be any dust, pieces of wire or other foreign matters inside of the terminal box,
- the electrical connections must be carried out by qualified persons and the screws must be tightened correspondingly,
- that the mutual air distance is at least 10 mm for voltages of 400 V or 690 V
- that the unused wires are separated and fixed accordingly,

- all joint areas are firmly greased with grease type FOR PD-2 (Sestral MI PD LL/2A) ali Renolit RHF-1 Fuchs
- that the cable is sealed correctly at the cable entry.
- the unused openings must be sealed so as to guarantee that the flame-proof properties are maintained. The means foreseen to achieve this goal must be such so as to ensure that the sealing-plug can only be removed with the help of a special tool (according to EN 60079-0: 2006, point, 16.4).

PROTECTION OF THE ELECTRIC MOTORS AND OPERATION

Succeeding the installation of the electric motors, all rotating parts must be safely protected against contacts.

Only qualified personnel may handle the machines!

In the S1-mode of operation, the motor circuit-breaker is a sufficient device for the maintenance of the temperature class. To do so, it must be regulated to the rated current of the three-phase cage motor.

In both the S2- and S3- modes of operation and the converter operation, the three-phase cage motors must be equipped with 3 PTCs in each winding (DIN 44080, DIN 44081, DIN 44082). The nominal shutdown temperature of these PTCs are 145 °C. A corresponding shutdown device with the notify body mark of conformity completes the protective system for the maintenance of the temperature class.

Electric motors with two velocities (two separate windings or one winding in Dahlander coupling) must have a separate protection for each speed.

The housing of the electric 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.

If the electric motor is supplied via the frequency converter, please make sure that the settings on the converter correspond to the data indicated on the supplementary label. The electric motor must be double-protected, i.e. with the motor circuit-breaker and the temperature protection. The shutdown device connected to the temperature protection must be in the range of $2k\Omega < R_o < 4k\Omega$ with R_o representing the shutdown resistance. The shutdown device must be certified.

MAINTENANCE

Electric motors have a robust structure and need no particular maintenance.

The motor must be cleaned in regular intervals (depending on the environment), especially the entry openings on the fan as to guarantee a sufficient air flow for the cooling system.

Electric motors feature closed and prelubricated bearings. The life span of the bearings is 20000 service hours for 2 pol electric motors ($n_s=3000 \text{ min}^{-1}$) under normal operating conditions or 40000 service hours for 4,6,8 and multiple-pol motors.

Regular inspections and control measurements carried out by qualified personel are preffered to reduce possible damages and standstills.

Each deviation from the nominal values (such as higher load current, increased temperatures, vibrations, unusual noise or smell, reactions of protective devices) is to be understood as signal of possible damage! To prevent consequential damages on machines or people, please inform the person responsible immediately on the appearance of such deviations.

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:

**Repairs according to flameproof gaps and joints according to table 2 of EN 60079-1: 2007 is not allowed!
Please contact producer!**

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

Before assembly of electromotor all flameproof gaps and joints need to be cleaned and greased with grease type FOR PD-2 (Sestral 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.

SCREW TIGHTENING TORQUE

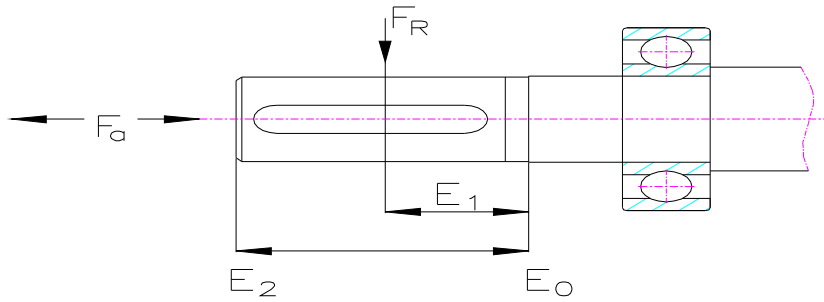
Table 4: Tightening torque: Ex enclosure. Tightening torques for screws of the strength class 8.8 and A4-70.

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 5.: Tightening torque: for electrical connections

Thread	Tightening torque (Nm)	Thread	Tightening torque (Nm)
M4	1.2	M10	10
M5	2	M12	15.5
M6	3	M16	30
M8	6	M20	52

PERMISSIBLE LOADS ON FREE SHAFT END



Picture 1: Permissible loads on free shaft end

Table 6.: Allowable radial force

Frame size	Number of poles	Radial force F_R [kN]		
		E0	E1	E2
250	2	11,64	10,41	9,4
	4	14,77	13,22	11,96
	6	16,97	15,2	13,75
	8	18,73	16,78	15,19
280	2	14,52	13,03	11,8
	4	18,18	16,31	14,76
	6	20,93	18,78	17,02
	8	22,93	20,56	18,62
315	2	16,55	14,92	13,57
	4	20,62	18,57	16,86
	6	19,73	17,58	15,82
	8	21,93	19,56	17,62

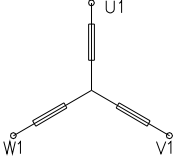
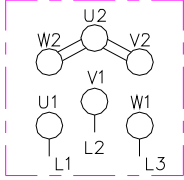
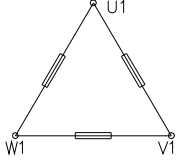
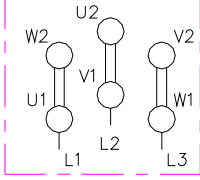
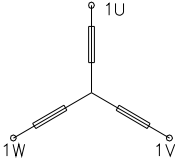
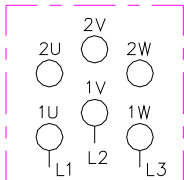
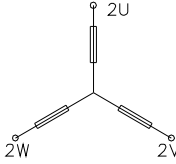
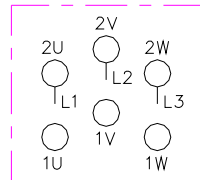
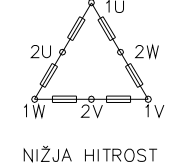
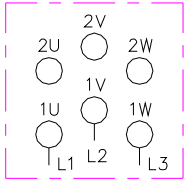
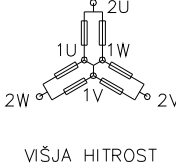
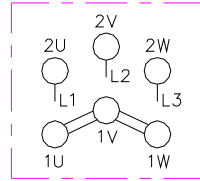
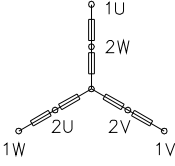
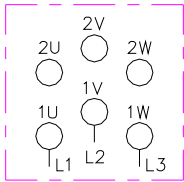
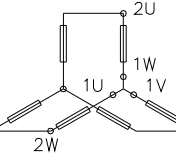
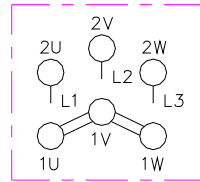
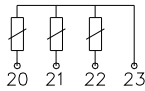
RECYCLING

Bartec Varnost d.o.o. is committed to its environmental policy. Bartec Varnost d.o.o. continuously strives to make its products more environmentally sound by applying results obtained in recyclability and life cycle analyses. Products, manufacturing processes and even logistics have been designed to take environmental aspects into account. Bartec Varnost d.o.o. environmental management system, certified to ISO 14001, is the tool for carrying out the environmental policy.

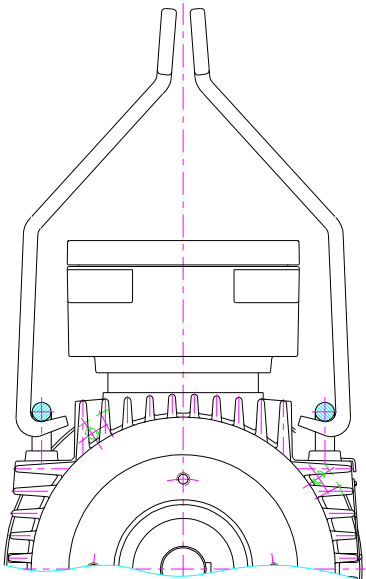
Once the period of use has expired, the machine must be removed and disposed of in an environmentally friendly manner.

It is the customer's responsibility to ensure that local regulations are followed.

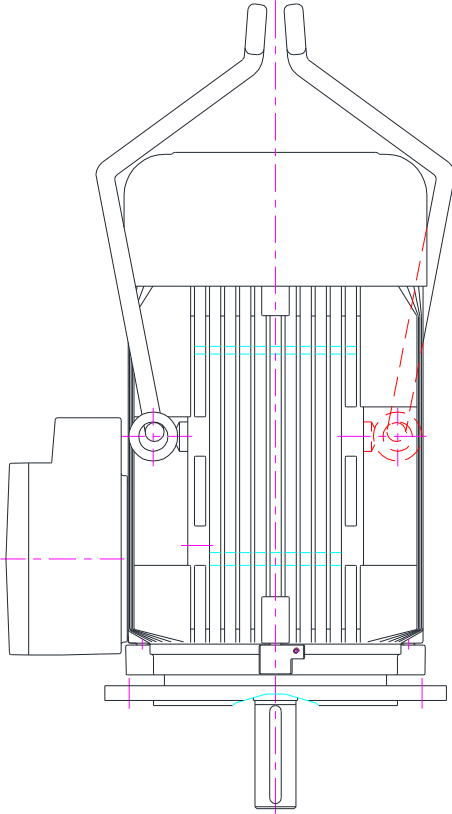
VEZNA SHEMA / CONNECTION DIAGRAM

PRIKLJUČKI / CONNECTION DIAGRAM		Omarica / Terminal Box:	Exe Exd
5KTC 250 - 315			
			
Y-D vez za stik – Y direktni zagon, ista vez – obrni Y-D band – Y connection for direct start, the same contact and turn it Za zagon s stikalom Y-D odstrani Y-D vez / Start with Y-D switch – remove Y-D band		Y-D vez za stik – D direktni zagon, ista vez – obrni Y-D band – D connection for direct start, the same contact and turn it ENOHITROSTNI / ONE SPEED	
			
NIŽJA HITROST / LOW SPEED POLNO-PREKLOPNI / POLE-CHANGING WINDING		VIŠJA HITROST / HIGH SPEED	
			
NIŽJA HITROST / LOW SPEED DAHLANDER VEZAVA / POLE-CHANGING WINDING (DAHLANDER)		VIŠJA HITROST / HIGH SPEED	
			
NIŽJA HITROST / LOW SPEED DAHLANDER VEZAVA / POLE-CHANGING WINDING (DAHLANDER)		VIŠJA HITROST / HIGH SPEED	
10 – 11 12 – 13	TEMP. TIPALO / TERMISTORS NAJVIŠJA DELOVNA NAPETOST 25V /MAXIMUM OPERATING VOLTAGE 25V	OPOZORILNO TIPALO /EARLY WARNING IZKLOPNO TIPALO /THERMISTORS – OVER LOAD	ODKLOPNA NAPRAVA Z CERTIFICIRANO ODKLOPNO NAPRAVO V Ex IZVEDBI. SHOUT – DOWN – DEVICE WITH ONE OF Ex NOTIFIED BODIES MARK OF CONFORMITY.
14 – 15 16 – 17	TEMP. STIKALO 250V / THERMOSTATS 250V	NC ODPIRAJPČ /CONTACT NORMALLY CLOSED NO ZAPIRAJOČ /CONTACT NORMALLY OPEN	
20 21 22 23	TIPALO PT 100 / THERMOSTATS PT 100		
30 – 31 32 – 33	GRELCI / HEATERS	DELOVNA NAPETOST 220V–240V /OPERATING VOLTAGE 220V – 240V DELOVNA NAPETOST 110V /OPERATING VOLTAGE 110V	

PRENAŠANJE ELEKTROMOTORJEV / LIFTING POINTS FOR MOTOR LIFT



IM V1



CERTIFIKAT / CERTIFICATE



1 **EU-Baumusterprüfbescheinigung**

2 **Geräte zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen**
Richtlinie 2014/34/EU

3 Nr. der EU-Baumusterprüfbescheinigung: **BVS 16 ATEX E 129 X**

4 Produkt: **Druckfeste elektrische Motoren Typ 5 KT** 250 */***

5 Hersteller: **BARTEC VARNOST, d.o.o.**

6 Anschrift: **Cesta 9. avgusta 59, 1410 Zagorje ob Savi, Slovenia**

7 Die Bauart dieses Produktes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

8 Die Zertifizierungsstelle der DEKRA EXAM GmbH, benannte Stelle Nr. 0158 gemäß Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, bescheinigt, dass das Produkt die wesentlichen Gesundheits- und Sicherheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie erfüllt.
Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfprotokoll BVS PP 18.2053 EU niedergelegt.

9 Die wesentlichen Gesundheits- und Sicherheitsanforderungen werden erfüllt durch Übereinstimmung mit den Normen:

EN 60079-0:2012 + A11:2013 Allgemeine Anforderungen
EN 60079-1:2014 Druckfeste Kapselung „d“
EN 60079-7:2015 Erhöhte Sicherheit „e“
EN 60079-31:2014 Schutz durch Gehäuse „t“

10 Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird in der Anlage zu dieser Bescheinigung auf besondere Bedingungen für die sichere Anwendung des Produktes hingewiesen.

11 Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf den Entwurf und Bau der beschriebenen Produkte.
Für den Herstellungsprozess und die Abgabe der Produkte sind weitere Anforderungen der Richtlinie zu erfüllen, die nicht durch diese Bescheinigung abgedeckt sind.

12 Die Kennzeichnung des Produktes muss die folgenden Angaben enthalten:

	II 2G Ex db IIC T* Gb	oder	Ex db eb IIC T* Gb	oder
	II 2G Ex db IIB T* Gb	oder	Ex db eb IIB T* Gb	oder
	II 2D Ex tb IIIC T* °C Db	oder		
	I M2 Ex db I Mb	oder	Ex db eb I Mb	

*) siehe Kenngrößen

DEKRA EXAM GmbH
Bochum, den 17.04.2018



Zertifizierer



Fachzertifizierer



Seite 1 von 4 zu BVS 16 ATEX E 129 X
Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden.

DEKRA EXAM GmbH, Dinnendahlstraße 9, 44809 Bochum, Deutschland
Telefon +49.234.3696-105, Telefax +49.234.3696-110, zs-exam@dekra.com

13 **Anlage zur**
 14 **EU-Baumusterprüfbescheinigung**
BVS 16 ATEX E 129 X

15 **Beschreibung des Produktes**

15.1 **Gegenstand und Typ**

Druckfeste elektrische Motoren Typ 5 KT** 250 */*

<u>Stern</u>	<u>Bedeutung</u>
1	Explosionsgruppe: C IIC / IIIC B IIB
2	Einsatzbereich R: Motor für den Einsatz im Bergbaubetrieb (Gruppe I) D: Motor für den Einsatz in Staumatmosphäre (Gruppe III)
3 – 4	Beim Einsatz in Gruppe II wird hier kein Buchstabe eingesetzt. Ohne Einfluss auf den Explosionsschutz (Anzahl der Pole)

15.2 **Beschreibung**

Die Gehäuse der druckfesten elektrischen Motoren bestehen aus Grauguss mit Anbaumöglichkeiten für Anschlusskästen.
 Der Rotor wird über Wälzlager oder Zylinderrollenlager fixiert.
 Der elektrische Anschluss des Motors erfolgt über einen Anschlussraum in der Zündschutzart Druckfeste Kapselung „d“ oder Erhöhte Sicherheit „e“ oder über eine direkte Leitungseinführung.
 Die Übertragung der elektrischen Energie in den Motorraum wird über gesondert bescheinigte Kabel- und Leitungseinführungen oder Aderleitungsdurchführungen realisiert.
 Die Kühlung erfolgt mittels Außenlüfter aus Stahl (Gruppe I und Gruppe II) oder Aluminium (Gruppe II und Gruppe III). Der Antrieb des Außenlüfters erfolgt über die Welle der elektrischen Maschine.
 Optional kann eine Stillstandsheizung innerhalb des Statorgehäuses montiert werden.
 Für eine direkte Temperaturüberwachung der Windungen werden diese mit Temperatursensoren (Kaltleiter gemäß DIN 44081 beziehungsweise DIN 44082) bestückt werden. Die Sensoren sind in Reihe geschaltet. Zusätzliche Pt0 oder Pt100 können in den Wicklungen installiert werden.
 Optional kann durch separat bescheinigte Widerstandsthermometer (Pt100) die Temperatur an den Wälzlagern erfasst werden.
 Die Sensoren beziehungsweise die Thermometer müssen mit einer Auslöseeinheit, welche für diesen Zweck geeignet und bescheinigt ist, betrieben werden.
 Der max. zulässige Umgebungstemperaturbereich beträgt -50 °C bis +60 °C. Dieser Bereich kann durch die Auswahl der Anschlusskästen, Komponenten oder durch die elektrische Auslegung eingeschränkt werden.
 Wenn der Motor am Umrichter betrieben wird, ist der Umrichter als Zwischenkreisspannungsumrichter mit Pulsweitenmodulation ausgelegt.

15.3 **Kenngößen**

15.3.1 Elektrische Kenngößen

15.3.1.1 Stromkreise der Druckfesten elektrischen Motoren

Bemessungsspannung ¹			
5KT** 250 */* (ohne 5KTCR 250 */*)	bis zu	690	V AC
5KTCR 250 */*	bis zu	1100	V AC
Bemessungsdrehzahl	500	bis zu	3600 min ⁻¹
Bemessungsdrehzahl (mit Umrichter)	150	bis zu	5800 min ⁻¹
Frequenz (Netz)			50 / 60 Hz
Frequenz (Umrichter)	5	bis zu	87 Hz
Betriebsart	S1	bis	S9

Bemessungsleistung			
Baugröße			
250	bis zu	66	kW

¹ Im Fall von Umrichterspeisung: Spannung der Grundschwingung an den Motorklemmen gemessen. Diese Spannung darf den angegebenen Wert auch unter Berücksichtigung der minimalen Umrichtereingangsspannung und des Spannungsfalls an Filter und Motoranschlussleitung um nicht mehr als 10 % unterschreiten.

15.3.1.2 Elektrische Kenngößen (Spannungszwischenkreisumrichter)

Maximal zulässige Eingangsspannung	Bemessungsspannung des Motors	V
Minimale Taktfrequenz		1,2 kHz
Stromgrenze		1,5 × I _N
Maximale Überlastzeit ²		60 s
Ausgangsfrequenz	bis zu	87 Hz

² Die maximale Überlastzeit und die zulässige Zeit für den Betrieb unter Minimalfrequenz beziehen sich auf ein Zeitintervall von 10 min.

15.3.1.3 Überwachungsstromkreise

- Temperatursensoren (Kaltleiter) Gemäß Festlegungen im Zertifikat der zugehörigen Auslöseeinheit und der elektrischen Auslegung.
- Widerstandsthermometerstromkreise (Pt100) Gemäß Festlegungen im Zertifikat der zugehörigen Auslöseeinheit und der elektrischen Auslegung.

15.3.2 Thermische Kenngößen

Zulässiger Umgebungstemperaturbereich			
Gruppe II Ex db	Gruppe II Ex db eb	Gruppe III Ex tb	Gruppe I Ex db / Ex db eb
-50 °C ≤ T _a ≤ +60 °C	-20 °C ≤ T _a ≤ +60 °C	-25 °C ≤ T _a ≤ +60 °C	-25 °C ≤ T _a ≤ +60 °C

Die elektrischen Kenngößen, die Temperaturklasse, die Oberflächentemperatur und der Umgebungstemperaturbereich der entsprechenden Version werden im Rahmen der Stückprüfung beim Hersteller ermittelt.



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BVS 16.0095X issue No.:0 Certificate history:

Status: **Current**

Date of Issue: **2018-05-07** Page 1 of 3

Applicant: **BARTEC VARNOST, d.o.o.**
Cesta 9. avgusta 59
1410 Zagorje ob Savi
Slovenia

Equipment: **Flameproof electric motors type 5 KT** 250 */***
Optional accessory:

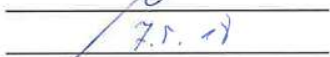
Type of Protection: **Equipment protection by flameproof enclosures "d", Equipment dust ignition protection by enclosure "t", Equipment protection by increased safety "e"**

Marking: Ex db IIC T* Gb or
Ex db eb IIC T* Gb or
Ex db IIB T* Gb or
Ex db eb IIB T* Gb or
Ex tb IIC T* °C Db or
Ex db I Mb or
Ex db eb I Mb
*) see Parameters

Approved for issue on behalf of the IECEx Certification Body: Jörg Koch

Position: Head of Certification Body

Signature: (for printed version) 

Date: 

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany





IECEX Certificate of Conformity

Certificate No.: IECEx BVS 16.0095X

Date of Issue: 2018-05-07

Issue No.: 0

Page 2 of 3

Manufacturer: **BARTEC VARNOST, d.o.o.**
Cesta 9. avgusta 59
1410 Zagorje ob Savi
Slovenia

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition: 7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition: 2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition: 5.0	Explosive atmospheres – Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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:

DE/BVS/ExTR18.0026/00

Quality Assessment Report:

SI/SIQ/QAR11.0003/04



IECEx Certificate of Conformity

Certificate No.: IECEx BVS 16.0095X

Date of Issue: 2018-05-07

Issue No.: 0

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Subject and Type

See Annex

Description

The enclosures of the flameproof electric motors are made of cast iron and have a mounting place for terminal boxes.

The shaft will be fixed with ball bearings or cylindrical roller bearings.

A terminal compartment in type of protection Flameproof enclosure "d" or Increased safety "e" or a direct cable entry is used for electrical connection of the motor. For electric power input into the motor compartment, separately certified cable glands or conductor bushings are used.

The cooling of the motor is realised by an external fan that is made of steel (Group I and Group II) or aluminium (Group II and Group III). The fan is driven by the electrical machine itself.

Optionally a space heater can be mounted inside the stator housing.

For direct temperature monitoring the winding of the motor is equipped with temperature sensors (thermistors according DIN 44081 respectively DIN 44082). The sensors are connected in series. Additional Pt0 or Pt100 can be installed in winding.

Optionally the temperature at the bearings could be monitored separately certified resistance thermometers (Pt100).

The sensors or the thermometers shall be connected to a trigger unit which is certified for this purpose.

The maximum permissible ambient temperatures are -50 °C to +60 °C. This temperature range may be limited as a result of the selected terminal boxes and components, or the electrical design.

If the motor is converter-fed the converter must be of type voltage-source converter with pulse width modulation.

Listing of all components used referring to older standards
See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

The lengths of the flameproof joints are in parts longer and the gaps of the flameproof joints are in parts smaller than the values of table 2 and 3 of IEC 60079-1:2014. For information of the dimensions of the flameproof joints contact the manufacturer.

Fasteners with a minimum yield stress of 640 N/mm² must be used for the closing of the flameproof enclosure. Motors which have to be equipped with a direct temperature control must be monitored by a separate certified trigger unit.

Before setting-up operation it has to be ensured that no inadmissible over voltage caused by converter supply may occur at the terminals of the motor.

Clearances and creepage distances inside the terminal box do not permit an overvoltage cause by the converter which increase:

- 3.1 x UN for rated voltages ≤ 600 V
- 2.04 x UN for rated voltages > 600 V and ≤ 1100 V

The insulating system of the motor may require an additional limitation of a periodic over voltage.

Annex: BVS 16 0095X Bartec Varnost Annex.pdf



Translation

EU-Type Examination Certificate

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

EU-Type Examination Certificate Number: **BVS 18 ATEX E 070 X**

Product: **Flameproof electric motor type 5 KT** 280 */***

Manufacturer: **BARTEC VARNOST, d.o.o.**

Address: **Cesta 9. avgusta 59, 1410 Zagorje ob Savi, Slovenia**

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

DEKRA EXAM 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 18.2140 EU.

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

EN 60079-0:2012 + A11:2013	General requirements
EN 60079-1:2014	Flameproof enclosure "d"
EN 60079-7:2015	Increased Safety "e"
EN 60079-31:2014	Protection by Enclosure "t"

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.

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.

The marking of the product shall include the following:

	II 2G Ex db IIC T* Gb	or	II 2G Ex db eb IIC T* Gb	or
	II 2G Ex db IIB T* Gb	or	II 2G Ex db eb IIB T* Gb	or
	II 2D Ex tb IIIC T* C Db	or		
	I M2 Ex db Mb	or	I M2 Ex db eb Mb	
	*) see Parameters			

DEKRA EXAM GmbH
Bochum, 2018-08-27

Signed: Jörg Koch

Certifier

Signed: Dr Michael Wittler

Approver



Page 1 of 4 of BVS 18 ATEX E 070 X
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DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany,
telephone +49 234 3896-105, fax +49 234 3896-110, za-exam@dekra.com



13 **Appendix**
 14 **EU-Type Examination Certificate**

BVS 18 ATEX E 070 X

15 **Product description**

15.1 **Subject and type**

Flameproof electric motor type 5 KT^{*1) 2)} 280 ^{*3)/*4)}

Asterisk	Description
1	Explosion Group: C IIC / IIIC B IIB
2	Application area R: Engine for use in mining operations (Group I) D: Engine for use in dust-atmosphere (Group III) When used in Group II, no letter is used here.
3 - 4	Without influence on explosion protection (Number of poles)

15.2 **Description**

The enclosures of the flameproof electric motors are made of cast iron and have a mounting place for terminal boxes.

The shaft will be fixed with ball bearings or cylindrical roller bearings.

A terminal compartment in type of protection Flameproof Enclosure "d" or Increased Safety "e" or a direct cable entry is used for electrical connection of the motor. For electric power input into the motor compartment, separately certified cable glands or bushings are used.

The cooling of the motor is realised by an external fan that is made of steel (Group I and Group II) or aluminium (Group II and Group III). The fan is driven by the electrical machine itself.

The fan is fixed on the shaft using a key and a circlip.

Optionally a space heater can be mounted inside the stator housing.

For direct temperature monitoring the winding of the motor is equipped with temperature sensors (thermistors according DIN 44081 respectively DIN 44082). The sensors are connected in series. Additional Pt10 or Pt100 can be installed in winding.

Optionally the temperature at the bearings could be monitored separately certified resistance thermometers (Pt100).

The sensors or the thermometers will be connected to a trigger unit which is certified for this purpose.

The maximum permissible ambient temperatures are -50 °C to +60 °C. This temperature range may be limited as a result of the selected terminal boxes and components, or the electrical design.

If the motor is converter-fed the converter must be of type voltage-source converter with pulse width modulation.



Page 2 of 4 of BVS 18 ATEX E 070 X
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 telephone +49 234 3696-105, fax +49 234 3696-110, zs-exam@dekra.com

Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Bushing 07-91.../...	EPS 13 ATEX 1619 U	EN 60079-0:2012 +A11:2013 EN 60079-1:2007
Bushing 07-93.../...	EPS 14 ATEX 1644 U	EN 60079-0:2012 +A11:2013 EN 60079-1:2007 EN 60079-7:2007
Bushing TOS* ***A690V TOS* ***A1000V TOS* ***A1600V	PTB 04 ATEX 1099 U	EN 60079-0:2012 +A11:2013 EN 60079-1:2007
Mini terminal 07-9702-0220/1	PTB 99 ATEX 3117 U	EN 60079-0:2004 EN 60079-1:2007

15.3 Parameters

15.3.1 Electrical parameters

15.3.1.1 Circuits of the flameproof electric motors

Rated voltage ¹	5KT** 280 **	up to	1100	V AC
Rated rotational speed	500	up to	3600	min ⁻¹
Rated rotational speed (with converter)	150	up to	5800	min ⁻¹
Frequency (mains)			50 / 60	Hz
Frequency (converter)	5	up to	87	Hz
Duty type	S1	to	S9	

Rated power				
Frame size				
280		up to	110	kW

¹ In case of converter-fed: Voltage of the fundamental wave measured at the motor terminals. This voltage must not be decreased by 10 %, taken into account the minimum converter input voltage and the voltage drop caused by the supply line and an optional sinus filter.

15.3.1.2 Electrical parameters (voltage-source converter)

Maximum permitted input voltage	Rated voltage of the motor	V
Minimum switching frequency	1.2	kHz
Current limiting value	1.5 × I _N	
Maximum overload time / Time for operation below minimum frequency ²	60	s
Output frequency	up to 87	Hz

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.

15.3.1.3 Monitoring circuit

Temperature sensors (ptc thermistors)	According to the specifications given in the certificate of the trigger unit and the electrical design.
Circuits of the resistance thermometer (Pt100)	According to the specifications given in the certificate of the trigger unit and the electrical design.



15.3.2 Thermal ratings

Permitted ambient temperature range			
Group II Ex db	Group II Ex db eb	Group III Ex tb	Group I Ex db / Ex db eb
-50 °C ≤ T _a ≤ +60 °C	-20 °C ≤ T _a ≤ +60 °C	-25 °C ≤ T _a ≤ +60 °C	-25 °C ≤ T _a ≤ +60 °C

The temperature class and the surface temperature are determined by a routine test of the manufacturer considering the ambient temperature range and the electrical variant.

16 Report Number

BVS PP 18.2140 EU, as of 2018-08-27

17 Special Conditions for Use

17.1 The lengths of the flameproof joints are in parts longer and the gaps of the flameproof joints are in parts smaller than the values of table 2 and 3 of EN 60079-1:2014. For information of the dimensions of the flameproof joints contact the manufacturer.

17.2 Fasteners with a minimum yield stress of 640 N/mm² must be used for the closing of the flameproof enclosure.

17.3 Motors which have to be equipped with a direct temperature control must be monitored by a separate certified trigger unit.

17.4 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. Clearances and creepage distances inside the terminal box do not permit an overvoltage cause by the converter which increase:

- 3.1 x U_N for rated voltages ≤ 600 V
- 2.04 x U_N for rated voltages > 600 V and ≤ 1100 V

The insulating system of the motor may require an additional limitation of a periodic overvoltage.

17.5 In case the motor is equipped with cable glands for interconnection with the terminal compartment they have to be integrated into the periodical inspections and maintenance routines in accordance with EN 60079-17:2013.

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 EXAM GmbH
Bochum, dated 2018-08-27
BVS-Wlo/Mu A20180286

Certifier

Approver



Page 4 of 4 of BVS 18 ATEX E 070 X
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telephone +49 234 3696-105, fax +49 234 3696-110, zs-exam@dekra.com



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx BVS 18.0061X Issue No: 0 Certificate history:
Issue No. 0 (2018-09-11)

Status: **Current** Page 1 of 4

Date of Issue: **2018-09-11**

Applicant: **BARTEC VARNOST, d.o.o.**
Cesta 9. avgusta 59
1410 Zagorje ob Savi
Slovenia

Equipment: **Flameproof electric motor type 5 KT** 280 * / ***
Optional accessory:

Type of Protection: **Equipment protection by flameproof enclosures "d", Equipment dust ignition protection by enclosure "T", Equipment protection by increased safety "e"**

Marking:
Ex db IIC T* Gb or
Ex db eb IIC T* Gb or
Ex db IIB T* Gb or
Ex db eb IIB T* Gb or
Ex tb IIC T**C Db or
Ex db I Mb or
Ex db eb I Mb
*) See Parameters

Approved for issue on behalf of the IECEx
Certification Body:

Jörg Koch

Position:

Head of Certification Body

Signature:
(for printed version)

Date:



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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

 **DEKRA**
On the safe side.



IECEX Certificate of Conformity

Certificate No: IECEX BVS 18.0061X Issue No: 0

Date of Issue: 2018-09-11 Page 2 of 4

Manufacturer: **BARTEC VARNOST, d.o.o.**
Cesta 9. avgusta 5B
1410 Zagorje ob Savi
Slovenia

Additional Manufacturing location(s):

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 apparatus 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 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2015 Edition:5.0	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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:

[DE/BVS/ExTR18.0066/00](#)

Quality Assessment Report:

[SI/SIQ/QAR11.0003/04](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

Subject and Type

Flameproof electric motor type 5 KT⁺¹ / 2⁻² 280 / 3⁻³ / 4⁻⁴

Asterisk Description

- 1) Explosion Group:
C IIC / IIIC
B IIB
- 2) Application area
R: Engine for use in mining operations (Group I)
D: Engine for use in dust-atmosphere (Group III)

When used in Group III, no letter is used here.
- 3-4) Without influence on explosion protection (Number of poles)

Description

The enclosures of the flameproof electric motors are made of cast iron and have a mounting place for terminal boxes. The shaft will be fixed with ball bearings or cylindrical roller bearings. A terminal compartment in type of protection Flameproof Enclosure "d" or increased Safety "e" or a direct cable entry is used for electrical connection of the motor. For electric power input into the motor compartment, separately certified cable glands or bushings are used. The cooling of the motor is realised by an external fan that is made of steel (Group I and Group II) or aluminium (Group II and Group III). The fan is driven by the electrical machine itself. The fan is fixed on the shaft using a key and a circlip. Optionally a space heater can be mounted inside the stator housing. For direct temperature monitoring the winding of the motor is equipped with temperature sensors. The sensors are connected in series. Additional Pt0 or Pt100 can be installed in winding. Optionally the temperature at the bearings could be monitored separately certified resistance thermometers (Pt100). The sensors or the thermometers will be connected to a trigger unit which is certified for this purpose. The maximum permissible ambient temperatures are -50 °C to +60 °C. This temperature range may be limited as a result of the selected terminal boxes and components, or the electrical design. If the motor is converter-fed the converter must be of type voltage-source converter with pulse width modulation.

Listing of all components used referring to older standards
See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

The lengths of the flameproof joints are in parts longer and the gaps of the flameproof joints are in parts smaller than the values of table 2 and 3 of IEC 60079-1:2014. For information of the dimensions of the flameproof joints contact the manufacturer. Fasteners with a minimum yield stress of 640 N/mm² must be used for the closing of the flameproof enclosure. Motors which have to be equipped with a direct temperature control must be monitored by a separate certified trigger unit. 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. Clearances and creepage distances inside the terminal box do not permit an overvoltage cause by the converter which increase:
- $3.1 \times U_N$ for rated voltages ≤ 600 V
- $2.04 \times U_N$ for rated voltages > 600 V and ≤ 1100 V
The insulating system of the motor may require an additional limitation of a periodic overvoltage. In case the motor is equipped with cable glands for interconnection with the terminal compartment they have to be integrated into the periodical inspections and maintenance routines in accordance with IEC 60079-17:2013.



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Annex:

[BVS_18_0061X_BarlecVarmost_Annex.pdf](#)



IECEX Certificate of Conformity



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Annex
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Listing of all components used referring to older standards

Subject and type	Certificate	Standards
Bushing 07-93.../..	IECEX EPS 14.0020U	IEC 60079-0:2011 IEC 60079-1:2007 IEC 60079-7:2006
Bushing TOS***A690V TOS***A1000V TOS***A1600V	IECEX PTB 13.0045U	IEC 60079-0:2011 IEC 60079-1:2007
Mini terminal 07-9702-0220/1	IECEX PTB 07.0007U	IEC 60079-0:2007 IEC 60079-1:2006

Parameters

Electrical parameters

Circuits of the flameproof electric motors

Rated voltage ¹ 5KT** 280 **		up to	1100	V AC
Rated rotational speed	500	up to	3600	min ⁻¹
Rated rotational speed (with converter)	150	up to	5800	min ⁻¹
Frequency (mains)			50 / 60	Hz
Frequency (converter)	5	up to	87	Hz
Duty type	S1	to	S9	

Rated power				
Frame size				
280		up to	110	kW

¹ In case of converter-fed: Voltage of the fundamental wave measured at the motor terminals. This voltage must not be decreased by 10 %, taken into account the minimum converter input voltage and the voltage drop caused by the supply line and an optional sinus filter.

Electrical parameters (voltage-source converter)

Maximum permitted input voltage	Rated voltage of the motor	V
Minimum switching frequency	1.2	kHz
Current limiting value	1.5 × I _N	
Maximum overload time / Time for operation below minimum frequency ²	60	s
Output frequency	up to 87	Hz

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.

Monitoring circuit

Temperature sensors (ptc thermistors)	According to the specifications given in the certificate of the trigger unit and the electrical design.
Circuits of the resistance thermometer (Pt100)	According to the specifications given in the certificate of the trigger unit and the electrical design.



IECEx Certificate of Conformity



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Annex
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Thermal ratings

Permitted ambient temperature range			
Group II Ex db	Group II Ex db eb	Group III Ex tb	Group I Ex db / Ex db eb
$-50\text{ °C} \leq T_a \leq +60\text{ °C}$	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$	$-25\text{ °C} \leq T_a \leq +60\text{ °C}$	$-25\text{ °C} \leq T_a \leq +60\text{ °C}$

The temperature class and the surface temperature are determined by a routine test of the manufacturer considering the ambient temperature range and the electrical variant.

**EU Declaration of Conformity**

The Manufacturer:

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

Hereby declares under his sole responsibility that the products:

Group & category, temperature class, protection	Motor type, IEC frame-size	Certification number	Year of CE marking
II 2G Ex db IIC T* Gb or II 2G Ex db eb IIC T* Gb or II 2G Ex db IIB T* Gb or II 2G Ex db eb IIB T* Gb or II 2D Ex tb IIIC T* °C Db or I M2 Ex db I Mb or I M2 Ex db eb I Mb	Flameproof induction motor 5 KT** 250 **	BVS 16 ATEX E 129 X	2018

Notified Body (ExNB): 0158, DEKRAEXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany

Are in conformity with provisions of the following Council Directives:

Directive 2014/34/EU**Directive 2009/125/EC (ErP of 20th November 2009)**The motors that are marked as IE2, IE3 are in conformity with the requirements set in the Commission Regulation (EU) No 4/2014 of 5 January 2014 amending Regulation (EC) No. 640/2009 – **in this Regulation the flameproof motors are excluded from ECO-Design Directive.****Directive 2011/65/EU****Directive 2014/35/EU** – Electrical equipment for use in an explosive atmosphere is **excluded** from the scope of this directive (Annex II of said Directive)**Directive 2014/30/EU** - Induction motors belongs to inherently benign equipment in terms of electromagnetic compatibility as they include no active electronic parts and are **excluded** from the scope of the EMC Directive (Article 2-point d of said Directive).

In respect of product categories the motors are in conformity with provisions of the following harmonized standards:

EN 60079-0:2017, EN 60079-1:2014, EN 60079-7:2015, EN 60079-31:2014 and relevant parts of the EN 60034-series of standards.

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 commissioning party when the motor is fitted to the machinery.

Note: When installing motors for converter supply applications additional requirements must be respected regarding the motor as well as the installation.

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.


Clearances and creepage distances inside the terminal box do not permit an overvoltage cause by the converter which increase:

-3,1 x Un for rated voltages ≤ 600V and 2,04 x Un for rated voltages > 600V and ≤ 1100V.

Motors which have to be equipped with a direct temperature control must be monitored by a separately certified trigger unit.

The sign «X» placed after the certificate number indicates that the repair of the flameproof joints with the values in tables 1 and 2 of EN 60079-1 is not accepted and that the equipment is subject to special conditions for safe use which are prescribed in the manual.

Signed by


Janez Gajski
Technical Manager

Title

Date

1.10.2019

BARTEC Varnost d.o.o.
Cesta 9. avgusta 59
SI 1410 Zagorje ob saviTel.: +386 59 221 411
Fax: +386 59 221 400
Internet: www.bartec-varnost.si

VS-02 02 167C



EU-Konformitätserklärung EU Declaration of conformity

Hersteller:
Manufacturer
Adresse:
Address:

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

Produktbezeichnung: Druckfeste elektrische Motoren
Flameproof electric motors

Kennzeichnung / Marking	Motor typ Motor type	EG-Baumusterprüfbescheinigung EC-Type Examination Certificate	Year of CE-marking
II 2G Ex db IIC T* Gb or II 2G Ex db eb IIC T* Gb or II 2G Ex db IIB T* Gb or II 2G Ex db eb IIB T* Gb or II 2D Ex tb IIIC T* C Db	5KT** 280 */*	BVS 18 ATEX E 070 X	2018
I M2 Ex db Mb or I M2 Ex db eb Mb			

Notified Bodie (ExNB): 0158, DEKRA EXAM GmbH, Dinnendahlstrasse 9, 44809 Bochum, Germany

Das bezeichnete Produkt stimmt mit den Vorschriften folgender Europäischer Richtlinien überein/
The products are in conformity with provisions of the following Council Directives:

Directive 2014/34/EU und/ and 2011/65/EU

In Bezug auf Produktkategorien sind die Motoren in Übereinstimmung mit den Bestimmungen der folgenden harmonisierten Normen/

In respect of product categories the motors are in conformity with provisions of the following harmonized standards:

EN 60079-0:2012+A11:2013 EN 60079-1:2014 EN 60079-7:2015 EN 60079-31:2014

Das bezeichnete Produkt ist zum Einbau in eine andere Maschine bestimmt. Die Inbetriebnahme ist solange untersagt, bis die Konformität des Endproduktes mit der Richtlinie 2006/42/EG festgestellt ist.

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 commissioning party when the motor is fitted to the machinery.

Note: Bei der Installation von Motoren für Umrichterbetrieb, zusätzliche Anforderungen müssen in Bezug auf den Motor sowie die Installation eingehalten werden.

When installing motors for converter supply applications additional requirements must be respected regarding the motor as well as the installation.

Die Reparatur der zünddurchschlagsicheren Spalte mit den Werten in den Tabellen 1 und 2 der EN 60079-1 ist nicht erlaubt. Informationen zu den Abmessungen sind beim Hersteller zu erfragen.

The repair of the flameproof joints with the values in tables 1 and 2 of EN 60079-1 is not allowed. For information of the dimensions of the flameproof joints contact the manufacturer.

Zagorje, 1.3.2019

Janez Gajski
Technical Manager

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VS-02.02.175

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