

ELECTRIC MOTORS



ELECTRIC MOTORS

FLAMEPROOF ELECTRICAL MOTORS
SERIES 4KTC

1

FLAMEPROOF BRAKE MOTORS
SERIES BM 4KTC

2

NEMA EXPLOSION-PROOF MOTORS
SERIES 4KTU

3

SUBMERSIBLE MOTORS
SERIES 4KTS

4

MINING MOTORS
SERIES 4KTCR AND 4KTCP

5

FLAMEPROOF ELECTRICAL MOTORS, SERIES 4KTC

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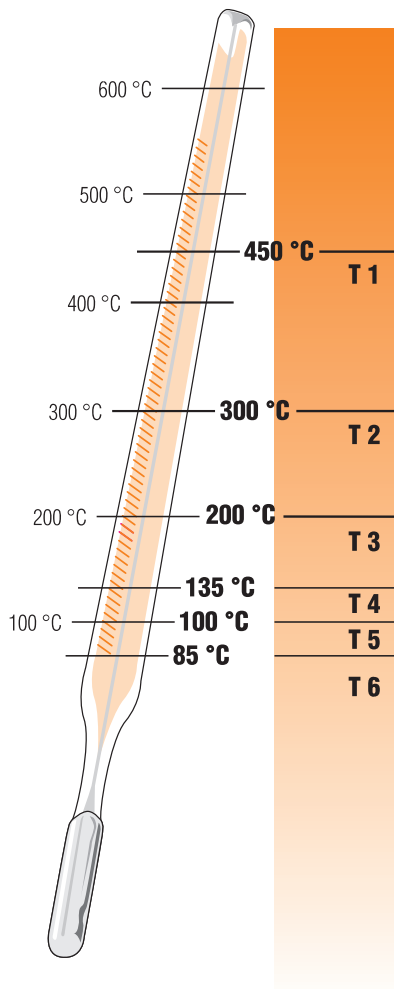
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IGNITION TEMPERATURE - TEMPERATURE CLASS

The ignition temperature is influenced by various factors such as size, shape, type and composition of a surface. In IEC 79-4, IEC, CENELEC and other standards the authorities have agreed on a "procedure for the determination of ignition temperature" with a limit approaching the lowest possible value. The gases and vapours are classified into temperature classes. In accordance with these temperature classes, electrical equipment is tested for its maximum surface temperature to ensure that the possibility of ignition due to the surface temperature is excluded in normal and abnormal operation. The standards specify to which extent these standard values may be exceeded and determine the necessary safety margins.

Temperature class



Temperature class	Ignition temperature range of mixture	Permissible surface temperature of electrical equipment	Permissible temperature rise
T1	> + 450 °C	+ 450 °C	+ 410 °C
T2	> + 300... ≤ + 450 °C	+ 300 °C	+ 260 °C
T3	> + 200... ≤ + 300 °C	+ 200 °C	+ 160 °C
T4	> + 135... ≤ + 200 °C	+ 135 °C	+ 95 °C
T5	> + 100... ≤ + 135 °C	+ 100 °C	+ 60 °C
T6	> + 85... ≤ + 100 °C	+ 85 °C	+ 45 °C

Examples of the categorisation of gases and vapours in temperature classes and explosion protection subgroups.

	T1	T2	T3	T4	T5	T6
I IA	Methane	Propane	Petrol	Acetaldehyde		
I IB		Ethylene	Diethyl-ether			
I IC	Hydrogen	Acetylene				Carbon disulphide

MAINTENANCE OF EXPLOSION PROTECTION

Maintenance of explosion protection during operation. Electric machines must be protected against overheating due to overloads. The type of protection depends on the type of operation as well as the electric machine and its use. Explosion-proof electric motors are usually certified for S1 type of operation, i. e. continuous operation. Other duties are allowed only if the temperature of the motor is controlled by reliable devices.

Duty type	Type of protection
S1*	<p>A Motor safety switch according to IEC 60034-1 (VDE 0165/9.83)</p> <p>B Motor safety switch and temperature sensors in windings as additional protection.</p> <p>C Only temperature sensors as major protection only allowed if motor is tested and certified and if all control devices (power supplies) used are certified.</p>
S2/S3*	<p>D Motor safety switch with switch-on time control and/or temperature sensors in windings as additional protection.</p> <p>E Temperature sensors in windings as major protection. Only allowed if motor is tested and certified and if all control devices (power supplies) used are certified.</p>
S4, S5, S6, S7, S8*	<p>F Temperature sensors in windings. Motor must be tested and only certified control devices may be used.</p> <p>G Thermal protection of motor by means of sensors in windings is allowed as the only (independent) protection if motor is tested at all power supply frequencies, maximum voltage and S1-S7 (S8) types of operation.</p> <p>H If motor protection and converter are tested and certified as a unit.</p>

* For explanation of duty cycles see chapter "duty cycles".



Explosion-protected electric motors are used in industrial plants with a potentially explosive atmosphere containing inflammable fumes (vapours) or gases (i. e. chemical industry, oil refineries...) as well as in mines where methane is present. These are the three-phase, asynchronous electric motors with short-circuit rotor, explosion protected according to the CENELEC EN 60079-0, EN 60079-1, EN 60079-7 (IEC 60079-0, IEC 60079-1) standards. The enclosures of electric motors are designed to be "flameproof" according to EN 60079-0 (IEC 60079-1). The terminal boxes could also be in "flameproof" design or also in "increased safety" design according to EN 60079-7 (IEC 60079-7).

The following regulations and standards have been considered in designing, manufacturing and testing of electric motors:

Standard	IEC international	EN-CENELEC Europe
Rotating electric machines - classification of insulation materials for electric machines	IEC 60034-1	EN 60034-1
Climatic protection (IP number)	IEC 60034-5	EN 60034-5
Protection against harmful contact and ingress of solids		
Cooling devices for electric machines	IEC 60034-6	EN 60034-6
Construction and mounting of electric rotating machines	IEC 60034-7	EN 60034-7
Marking of terminals and directions of rotating of electric machines	IEC 60034-8	EN 60034-8
Noise levels	IEC 60034-9	EN 60034-9
Starting performances of short-circuit motors at 50 Hz and voltages up to 660 V	IEC 60034-12	EN 60034-12
Limited vibration levels for electric machines	IEC 60034-14	EN 60034-14
Relation between terminal sizes and ratings of three-phase short-circuit surface-cooled electric motors	IEC 60072-1, DIN 42673/3	
Relation between terminal sizes and ratings for arrangements: IM B5, IM B10, IM B14	IEC 60072-2	

European Directives

Description	Directive
Directive for explosive atmospheres (ATEX)	94/9/EG, 1999/92/EL
Electromagnetic Compatibility (EMC)	2004/108/EG
Low Voltage Directive (LVD)	2006/95/EG
Machinery Directive	2006/42/EG
Packing and packaging waste	2005/20/EG

CONSTRUCTION

Explosion protection standards taken into consideration during manufacturing and testing

Standard	IEC international	EN-CENELEC Europe
Electric devices operating in explosive atmospheres Standard type	IEC 60079-0	IEC 60079-0
Electric devices operating in explosive atmospheres flameproof "d"	IEC 60079-1	IEC 60079-1
Electric devices operating in explosive atmospheres Increased safety "e"	IEC 60079-7	IEC 60079-7

Electric motors are of totally enclosed, fancooled (blow-over) type. Cooling is provided by fans blowing external air over the ribbed ou side surface (cooling system IC 411 according to IEC 60034-6 or EN 60 034-6). Electric motors up to 250 frame size are made of grey cast iron. Motors frame sizes of 280 and 315 are made of welded housing and the terminal boxes of grey cast iron.

Materials

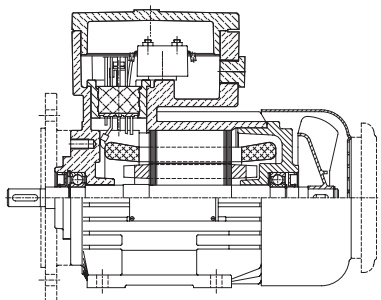
Frame size	Stator		Shield	Terminal box	Flange	Fan cover	Fan
	Stator frame	Feet	Material				
63	Cast iron	Cast iron-screw on feet	Cast iron	Cast iron	Cast iron	Steel sheet-extruded	Plastic
71							
80							
90							
100							
112							
132							
160							
180							
200							
225							
250	Steel sheet-welded	Steel sheet-welded				Steel sheet-welded	Aluminium
280							
315							

1



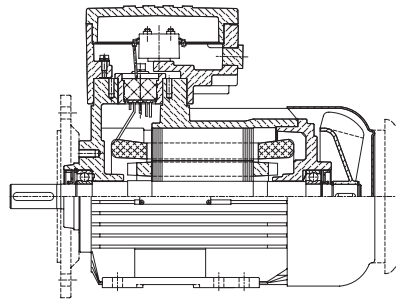
Dimensions Cast iron

Frame size:
63 mm to 71 mm



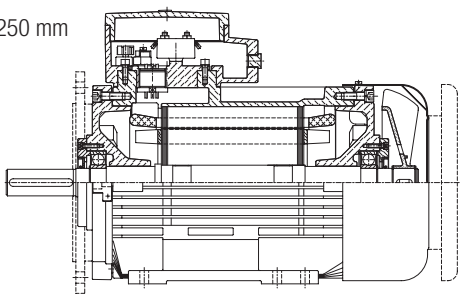
Dimensions Cast iron

Frame size:
80 mm to 132 mm



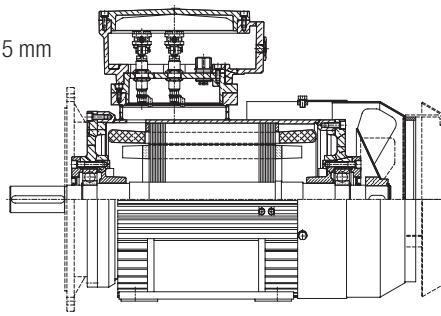
Dimensions Cast iron

Frame size:
160 mm to 250 mm

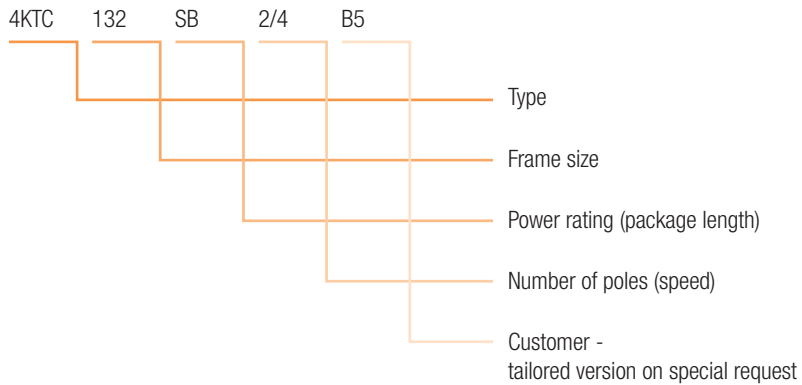


Dimensions Welded

Frame size:
280 mm to 315 mm



Type codes Example



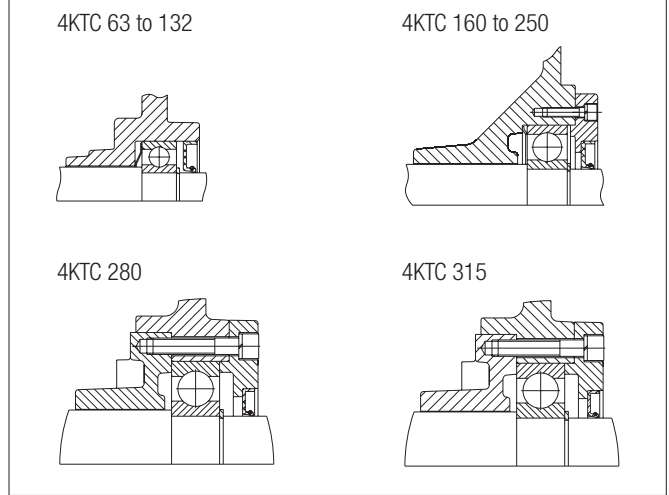
Bearing lubrication

The following table lists the bearings used in the different motors. The bearings last about 20.000 hours in 4, 6 and 8 pole motors if the loads do not exceed the values indicated in the tables on pages 12 and 13. Only the latest and most innovative bearings of known producers have been used in our motors. On customer request we equip the motors with other bearings (depends on the respective construction!). The rotors are standard constructions and fixed on the D-end (frame size 71 mm to 250 mm) and NDE-end (frame size 280 mm to 315 mm).

Frame size	Poles	DE bearing	NDE bearing	Bearing dishes
63	2 to 8	6201 2Z C3	6201 2Z C3	12 x 32 x 10
71	2 to 8	6203 2Z C3	6203 2Z C3	17 x 40 x 12
80	2 to 8	6204 2Z C3	6204 2Z C3	20 x 47 x 14
90	2 to 8	6205 2Z C3	6205 2Z C3	25 x 52 x 15
100	2 to 8	6206 2Z C3	6206 2Z C3	30 x 62 x 16
112	2 to 8	6206 2Z C3	6206 2Z C3	30 x 62 x 16
132	2 to 8	6208 2Z C3	6208 2Z C3	40 x 80 x 18
160	2 to 8	6309 2Z C3	6309 2Z C3	45 x 100 x 25
180	2 to 8	6310 2Z C3	6310 2Z C3	50 x 110 x 27
200	2 to 8	6312 2Z C3	6312 2Z C3	60 x 130 x 31
225	2 to 8	6313 2Z C3	6313 2Z C3	65 x 140 x 33
250	2 to 8	6314 2Z C3	6314 2Z C3	70 x 150 x 35
280	2 to 8	6316 2Z C3	6316 2Z C3	80 x 170 x 39
315	2 to 8	NU 317 C3 *6317 2Z C3	6317 2Z C3	85 x 180 x 41

* roller bearings from frame size 160
** isolated bearing from frame size 250

Bearing assemblies Non-drive end

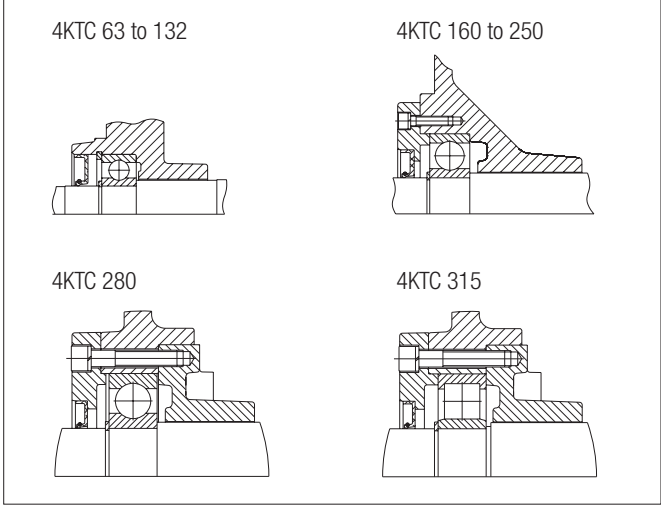


Motors are normally fitted with permanently greased bearings of Type 2Z. According to experience the filled in grease will be sufficient for several years.

Motors fitted with grease nipples

Motors from frame size 160 and above can be fitted with regreaseable bearings. For motors with lubrication system we recommend not to exceed lubrication interval of two years in any case. Lubricate the motor when operational. If the motor is fitted with a lubrication plate, use values given, or use values given in the table below. These values are according to L1 – principle. The effectiveness of motor lubrication should be checked by measuring the surface temperature of bearing endshield during normal operating conditions. If the measured temperature is +80 °C or above, the relubrication intervals must be shortened. Relubrication interval should be halvened for every 15 K increase in bearing temperature. If this is not possible then use the lubricants suitable for high operation temperature conditions.

Bearing assemblies Drive end



Ball Bearing: Lubrication intervals in duty hours

Frame size	Amount of Grease [g]	Speed of the motor [min ⁻¹]					
		3600	3000	1800	1500	1000	500
160	25	7000	9500	14000	17000	21000	24000
180	30	6000	8000	13500	16000	20000	23000
200	40	4000	6000	11000	13000	17000	21000
225	50	3000	5000	10000	12500	16500	20000
250	60	2500	4000	9000	11500	15000	18000
280	70	2000	3500	8000	10500	14000	17000
315	90	2000	3500	6500	8500	12500	16000

Roller Bearing: Lubrication intervals in duty hours

Frame size	Amount of Grease [g]	Speed of the motor [min ⁻¹]					
		3600	3000	1800	1500	1000	500
315	45	1000	1700	3000	4300	6000	8000

At an ambient temperature of $\leq 25\text{ }^{\circ}\text{C}$, twice the grease life can be expected, however, 33000 hours at a maximum. In case of frequency converters and in continuous operation at very low speeds, as well as at low temperature, the lubrication capabilities of standard greases may not be sufficient and special greases with additives are needed. If motors are equipped with sealed bearings (i. e. bearings greased for life) any deviation in the operating temperature from design temperature will result in a change in lifetime of bearings. The use of conductive greases for elimination of bearing currents is not recommended due to their poor lubrication characteristics and low conductivity. Regreasing or replacement of greas is only allowed with grease quality of the same kind (same saponification component or consistency).

Shaft ends

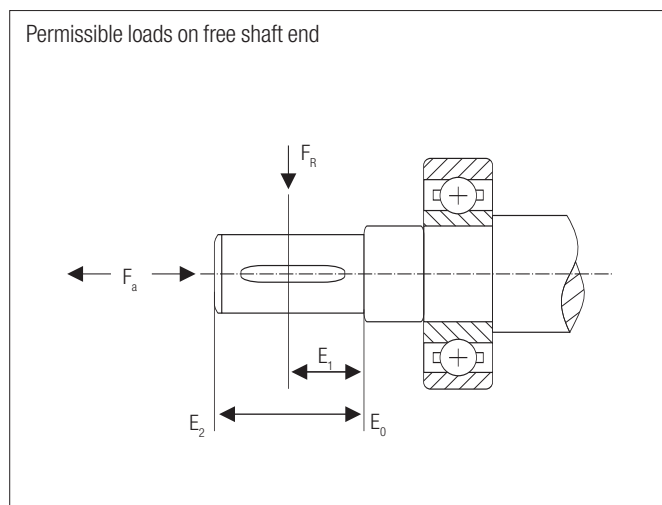
The standard electric motor is equipped with one free shaft extension. On request we also supply versions with free shaft extensions on both sides. The dimensions of the shaft ends correspond to the IEC 60072 (1971) standard, fifth edition. Tolerances for shaft end-diameters are in accordance with DIN 7154:

- up to diameter of 50 mm/ISO k6
- more than 50 mm/ISO m6

Free shaft extensions are equipped with keyways. Keyway and key correspond to DIN 6885. The shafts have a threaded central hole for the drawing in, drawing out and fixing connections.

Shaft diameter	14 mm	19 mm	24 mm	28 mm	38 mm
Internal thread	M5	M6	M8	M10	M12

Shaft diameter	from 42 to 48 mm	from 55 to 80 mm	from 90 to 100 mm
Internal thread	M16	M20	M24



Allowable radial force

Frame size	Number of poles	Radial force F_r [kN]		
		E_0	E_1	E_2
63	2	0.39	0.36	0.34
	4	0.39	0.36	0.34
	6	0.44	0.41	0.38
	8	0.49	0.45	0.42
71	2	0.48	0.43	0.39
	4	0.6	0.54	0.5
	6	0.69	0.62	0.56
	8	0.76	0.68	0.62
80	2	0.64	0.57	0.51
	4	0.81	0.72	0.65
	6	0.93	0.83	0.74
	8	1.02	0.91	0.82
90	2	0.72	0.64	0.57
	4	0.9	0.8	0.71
	6	1.04	0.92	0.82
	8	1.14	1.01	0.9
100	2	1.01	0.9	0.81
	4	1.28	1.15	1.04
	6	1.45	1.3	1.17
	8	1.61	1.43	1.3
112	2	0.99	0.87	0.79
	4	1.23	1.09	1.08
	6	1.42	1.25	1.12
	8	1.57	1.39	1.24
132	2	1.56	1.38	1.23
	4	1.96	1.78	1.55
	6	2.24	1.98	1.77
	8	2.45	2.16	1.96
160	2	2.99	2.63	2.35
	4	3.83	3.38	3.02
	6	4.33	3.81	3.4
	8	4.79	4.22	3.78
180	2	3.55	3.14	2.84
	4	4.43	3.82	3.53
	6	5.1	4.52	4.08
	8	5.63	5.0	4.52
200	2	4.33	4.24	3.6
	4	4.45	4.95	4.52
	6	6.28	5.71	5.23
	8	6.88	6.25	5.72
225	2	10.4	9.45	8.32
	4	13.1	11.65	10.49
	6	15.03	13.37	12.03
	8	16.6	14.78	13.3
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

Maximum loads for free shaft extension F_A [kN]

Mounting arrangements	IM B7	IM B8	IM B14	IM B34	IM V18 IM V19 IM V1 IM V3				IM V5 IM V6			
	IM B3	IM B35	IM B5	IMJ B6	Weight of rotor in load direction				Weight of rotor in opposite load direction			
Speed	3000	1500	1000	750	3000	1500	1000	750	3000	1500	1000	750
63	0.26	0.26	0.31	0.34	0.27	0.27	0.32	0.35	0.13	0.13	0.15	0.17
71	0.27	0.34	0.39	0.43	0.33	0.43	0.47	0.52	0.35	0.46	0.51	0.55
80	0.36	0.45	0.52	0.57	0.43	0.55	0.62	0.69	0.47	0.6	0.69	0.76
90	0.41	0.51	0.59	0.65	0.48	0.61	0.69	0.77	0.54	0.68	0.79	0.86
100	0.55	0.69	0.79	0.88	0.64	0.81	0.92	1.03	0.75	0.94	1.07	1.11
112	0.55	0.69	0.79	0.88	0.63	0.77	0.89	1.0	0.76	0.98	1.1	1.14
132	0.83	1.04	1.2	1.32	0.92	1.13	1.3	1.48	1.16	1.47	1.67	1.82
160	1.52	1.91	2.19	2.41	1.65	2.1	2.4	2.65	2.13	2.68	3.08	3.31
180	1.77	2.24	2.56	2.82	1.85	2.3	2.71	3.0	2.55	3.26	3.74	4.13
200	2.33	2.94	3.37	3.71	2.39	3.06	3.54	3.89	3.45	4.38	4.91	5.5
225	2.66	3.36	3.85	4.23	2.71	3.3	3.78	4.25	4.03	5.05	5.94	6.28
250	2.98	3.76	4.30	4.73	2.92	3.85	4.07	4.48	4.62	5.55	6.81	7.46
280	3.50	4.41	5.05	5.56	3.18	3.76	4.52	4.82	5.51	7.13	7.94	8.89
315	3.58	4.51	5.17	5.69	2.33	2.31	2.01	2.55	6.09	8.15	9.34	10.05

The load rating of bearings has been calculated for at least 20 000 operating hours at a frequency of 50 Hz. Only the axial loads have been considered. If the load is made up of axial and radial loads, the working life of the bearings is shorter.

Maximum noise level L dB allowed at 1 m distance from the machine surface, Values for fan-cooled (blow-over) machines; IP 44

Power ratings P (kW)	Rotation speed min ⁻¹					
	600 < n ≤ 960	960 < n ≤ 1320	1320 < n ≤ 1900	1900 < n ≤ 2360	2360 < n ≤ 3150	3150 < n ≤ 3750
$P \leq 1.1$	67	70	71	74	75	79
$1.1 < P \leq 2.2$	69	70	73	78	80	82
$2.1 < P \leq 5.5$	72	74	77	82	83	85
$5.5 < P \leq 11$	75	78	81	86	87	90
$11 < P \leq 22$	78	82	85	87	91	93
$22 < P \leq 37$	80	84	86	89	92	95
$37 < P \leq 55$	81	86	88	92	94	97
$55 < P \leq 110$	84	89	92	93	96	98
$110 < P \leq 220$	87	91	94	96	98	100

Vibrations

The noise level of electric motors is below the limits prescribed by the IEC 60034-9 recommendation for fan-cooled (blow-over) electric machines. The rotors of electric motors are dynamically balanced with installed fan and 1/2 key. Vibration amplitude corresponds to grade A according to IEC 60034-14 (ISO 2373-N grade).

Limit values for the vibration of electric machines (IEC 60034-14)

Vibration grade	Shaft height [mm]	$56 \leq H \leq 132$		$132 < H \leq 280$	$H > 280$
	Mounting	Velocity [mm/s]			
A	Free suspension	1.6		2.2	2.8
	Rigid mounting	1.3		1.8	2.3
B	Free suspension	0.7		1.1	1.8
	Rigid mounting	-		0.9	1.5

Grade "A" applies to machines with no special vibration requirements

Grade "B" applies to machines with special vibration requirements

Terminal box

The terminal box is fitted to the top of the motor with the cable entering from the fan end of the motor. It can be repositioned in steps of 90° to 180° to suit the application. The motors with direct starting are equipped with 3 connection terminals. 6 connection terminals are fitted to Star-Delta, two speed and dual voltage machines. The electric motors with sizes 71 to 132 inclusive and Ex e terminal boxes have 6 additional connection terminals for PTC sensors, heaters etc. The motors with Ex d terminal boxes are also equipped with 6 connection terminals. Exception is the 71 motor with only 4 connection terminals. Each terminal box has one connection terminal for the protective conductor. Ex d terminal boxes include a threaded entry to accept Ex d cable glands (see table below). Ex d thread reducers or adaptors can be included as an option for other thread sizes and thread forms.

Terminals for supply cable and cable entries

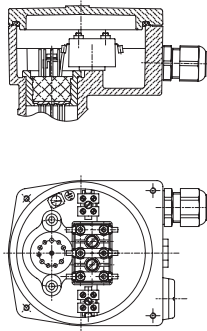
Frame size	Terminals for a max. cross section of supply cable (mm ²)	Cable entries for main connection		
		Ex e terminal box		Ex d terminal box
		Cable glands (with Ex e cable glands)	External diameter of supply cable	Cable entries (without cable glands)
63	2.5	1 x M20 x 1.5	6 to 13	1 x M20 x 1.5
71	2.5	1 x M20 x 1.5	6.5 to 12	1 x M20 x 1.5
80 90 100	4	1 x M25 x 1.5	10 to 17	1 x M25 x 1.5
112	4	1 x M32 x 1.5	13 to 18	1 x M32 x 1.5
132	4	2 x M32 x 1.5	13 to 18	2 x M32 x 1.5
160 180	16	2 x M40 x 1.5	17 to 28	2 x M40 x 1.5
200 225	16	2 x M50 x 1.5	23 to 38	2 x M50 x 1.5
250 280 315	95 to 300	2 x M63 x 1.5	31 to 48	2 x M63 x 1.5

Additional one cable entry (gland) M20 x 1.5 for PTC

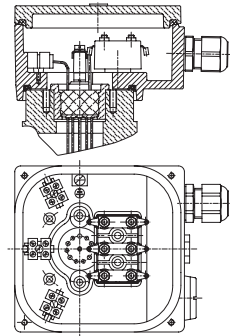
Increased safety terminal boxes include Ex e cable glands in accordance with EN 60079-0, and EN 60079-7. The empty entries are fitted with suitably certified stopping plugs. Additional entries can only be made in our factory under strict quality procedures. The Ex d terminal may receive additional threaded holes (NPT, ISO 7/1) by means of adapters. One threaded hole M20 x 1.5 is provided on the Ex d terminal boxes for the thermal protection and for heaters. Ex e terminal boxes have an additional cable gland M20 x 1.5 for cable diameters of 6 to 12 mm.

Ex e version 4 KTC

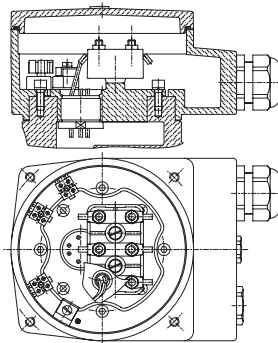
Frame size: 63 mm to 71 mm



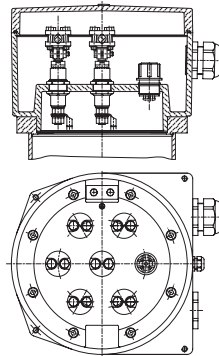
Frame size: 80 mm to 132 mm



Frame size: 160 mm to 225 mm

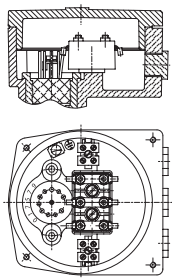


Frame size: 250 mm to 315 mm

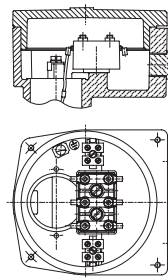


Ex d version 4 KTC

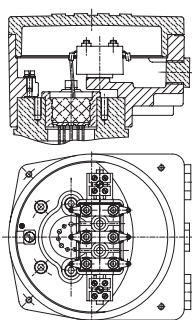
Frame size: 63 mm



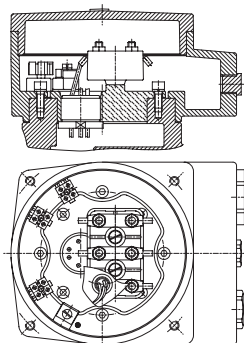
Frame size: 71 mm



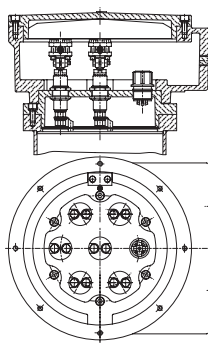
Frame size: 80 mm to 132 mm



Frame size: 160 mm to 225 mm



Frame size: 250 mm to 315 mm



1

IP protection

IP protection of electric motors corresponds to IP 55. Motors with a higher degree of IP protection are manufactured on special request.

Protection against environmental influences, IP protection

IP protection	Protection against harmful contact and ingress of solids (1st Numeral)
IP 44	Protection against direct contact with electrically live and rotating inner parts using tools, wire or similar objects with a diameter exceeding 1 mm. Protection against ingress of solids (diameter > 1 mm). Fan air outlets and water exhausts may have a second-degree level of protection.
IP 54/IP 55/IP 56	Complete protection against contact with electrically live and moving rotating inner parts. Protection against harmful ingress of dust. Ingress of dust is not fully pre-vented, but must not reach an extend causing harmful effects to machine operation.
IP 65*	Complete protection against contact with electrically live parts and rotating inner parts. Protection against ingress of dust (dust-proof machine).
IP protection	Protection against ingress of water (2nd Numeral)
IP 44/IP 54	Water particles spraying from any direction do not have any harmful effects on the machine (i. e. rain).
IP 55/IP 65*	A jet of water spraying from any direction does not have any harmful effects on the machine.
IP 56	During rough seas water must not penetrate into the interior of the motor to such an extend as to cause damage to the machine (deck-mounted motors).

* All vertically-mounted electric motors with free shaft extension on the top must be protected against particles falling into the fan cover. This protection is not necessary if the machine itself has such a protection. Electric motors mounted outdoors must be protected against exposure to direct sunlight.

Coating - Surface protection against environmental influences

	Anti-corrosion protection 2 (standard)	Anti-corrosion protection 3 (special)	Special surface protection
Surface	sanding and degreasing	sanding and degreasing	Products with surface protection for marine/offshore and tropical conditions are available on special request
Undercoating	Avtol	Avtol	
Intermediate Coating 1	-	Epoxy	
Intermediate Coating 2	-	Epoxy	
Finishing	Korvin	Epoxy	
Total thickness (mm)	80	140	
Colour*	blue RAL 5010	blue RAL 5010	
Protection against corrosion in environments with water	high humidity, steam, sea water	high humidity, steam, sea water	
Environments resistance	periodic spilling or spraying of anorganic acids and lyes	periodic spilling or spraying of anorganic acids and lyes	
Suitable for	normal industrial atmospheres, relatively high humidity and high concent. of salt and aggressive gases (SO ₂ , NO _x)	Chemically aggressive atmospheres, high concent. of salt and aggressive gases (SO ₂ , NO _x). Condensation of moisture and electrolytes on surface. Solvents and oil derivatives have negative effects.	

* Mining industry: yellow RAL 1003 for 500 V, grey RAL 9003 for 1000 V

The types of electric motors and their symbols are prescribed by the IEC 60034-7, EN 60034-7 standards. Motors are manufactured following the basic IM B3, IM B5 and IM B14 types. Table 4 shows the symbols and mounting arrangements for the standard models manufactured by our company. IM B3 type motors can also operate in IM B6, IM B7 and IM B8 mounting positions.

IEC code I	IM B3	IM B5	IM B34	IM B14	IM B35
IEC code II	IM 1001	IM 3001	IM 2101	IM 3601	IM 2001
IEC code I	IM V6	IM V3	IM V6/IM V19	IM V19	IM V36
IEC code II	IM 1031	IM 3031		IM 3631	IM 2031
IEC code I	IM V5	IM V1	IM V5/IM V18	IM V18	IM V15
IEC code II	IM 1011	IM 3011		IM 3611	IM 2011

Explosion protection

Markings

frame size 63	II 2G Ex db II(B)C T4-T6 Gb or
	II 2G Ex db e II(B)C T4-T6 Gb
	II 2D Ex tb III(B)C T135-85°C Db
frame sizes 71 to 225	II 2G Ex d II(B)C T4-T6 Gb or
	II 2G Ex d e II(B)C T4-T6 Gb
	II 2D Ex tb IIIC T135-85°C Db
frame size 250	II 2G Ex db II(B)C T4-T6 Gb or
	II 2G Ex db eb II(B)C T4-T6 Gb
	II 2D Ex tb IIIC T135-85°C Db
frame size 280 and 315	II 2G Ex db II(B)C T4-T6 Gb or
	II 2G Ex db e II(B)C T4-T6 Gb

Certifications

frame size 63	SIQ 15 ATEX 084 X / IECEx SIQ 15.0002 X
frame sizes 71 to 225	BVS 13 ATEX E 125 X / IECEx BVS 13.0121 X
frame size 250	BVS 16 ATEX E 129 X / IECEx BVS 16.0095 X
frame size 280 and 315	BVS 15 ATEX E 075 X / IECEx BVS 15.0066 X



Power, voltage and frequency

The power ratings given in the tables are valid for operation under uniform, continuous load (S-1 according to IEC 60034-1, EN 60034-1) at a rated voltage, a frequency of 50 Hz, temperatures of up to +40 °C and an altitude of less than 1 000 m above sea level. The data in the tables refer to 400 V, but motors have been designed for 380 V and 415 V. Voltage or frequency variations of +/- 5 % are allowed; within these limits the power ratings remain unchanged and the maximum winding temperature is not exceeded. Versions using 110 V to 1 000 V and frequencies of 50 or 60 Hz are available on special request. 50 Hz, 380 V, 400 V, 415 V electric motors may also be connected to 440 V to 480 V and a frequency of 60 Hz. Then the maximum load can be increased by 15 % and the number of revolutions by approximately 20 %.

If a 50 Hz, 380 V, 400 V, 415 V electric motor is connected to a 60 Hz line, its maximum load may not exceed the nominal power. The number of revolutions increases by 20 %, while the starting and maximum torque decreases by approx. 18 %.

Overload, efficiency and power factor

Electric motors heated to the operating temperature limit resist to a 2-minute overload of 1.5 I_n without being damaged. Variations between the 5/4 and 3/4 of the rated load have no essential influence on efficiency and power factor.

Efficiency η (%) of the rate load				Power factor $\cos \varphi$ of the rate load			
5/4	4/4	3/4	2/4	5/4	4/4	3/4	2/4
96	96	96	94.5	0.94	0.94	0.92	0.74
95	95	95	93.3	0.94	0.93	0.92	0.68
94	94	94	92	0.92	0.92	0.89	0.65
93	93	93	91	0.91	0.91	0.88	0.64
92	92	92	90	0.9	0.9	0.87	0.63
91	91	91	89	0.89	0.89	0.88	0.6
90	90	90	87	0.88	0.88	0.85	0.58
89	89	89	86	0.88	0.87	0.84	0.57
88	88	83	85.5	0.87	0.86	0.83	0.55
86	87	87	85	0.86	0.85	0.82	0.53
85	86	86	84.5	0.86	0.84	0.81	0.51
84	85	85	84	0.85	0.83	0.8	0.49
83	84	84	83	0.85	0.82	0.78	0.47
82	83	83	81	0.83	0.81	0.76	0.45
81	82	82	80.5	0.82	0.8	0.75	0.43
79	81	81	80	0.82	0.79	0.73	0.42
78	80	80	79	0.79	0.78	0.73	0.41
77	79	79	78	0.78	0.77	0.72	0.4
76	78	78	76	0.78	0.76	0.7	0.38
75	77	77	75	0.77	0.75	0.69	0.36
74	76	76	74	0.76	0.74	0.67	0.36
73	75	75	73	0.75	0.73	0.66	0.35
72	74	74	72	0.74	0.72	0.65	0.34
71	73	73	71	0.73	0.71	0.64	0.34
70	72	72	69	0.72	0.7	0.63	0.33
69	71	71	68	0.71	0.69	0.62	0.33
68	70	70	67	0.7	0.68	0.61	0.32
67	69	69	66	0.7	0.67	0.59	0.3
66	68	67.5	64	0.68	0.66	0.57	0.3
65	67	66.5	62	0.68	0.65	0.55	0.3
64	66	65	61	0.67	0.64	0.54	0.3

Materials of thermal class F are used for the production of stator windings. They are designed to withstand an overtemperature of 80 K at a maximum ambient temperature of +40 °C. Electric motors operating under heavy conditions, conditions requiring frequent start-ups or ambient temperatures above +40 °C employ special insulation (thermal class H) and are available on special request. Windings of electric motors rated up to 3 kW are connected via star, while those of high-rated motors employ delta connection. Two-speed motors with 2:1 speed ratio use Dahlander windings. Electric motors with a pole relation of 4/6 or 8/6 have two separate stator windings in star connection.

Installation instructions

for the mains connection and start-up of motors with Ex d terminal box. Connect the motors via suitable cable and line entries that correspond to the EN 60079 directives, paragraphs 12.1 and 12.2 and have a separate test certificate. Unused openings must be closed as prescribed by EN 60079, paragraph 12.5. Cable and line entries (heavy-gauge conduit threads) and sealing plugs that do not meet these requirements must not be used.

Wiring diagram

Ex d

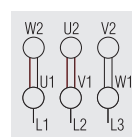
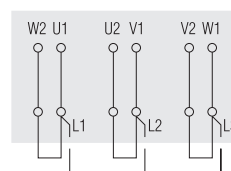
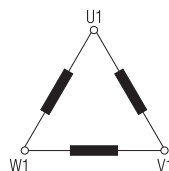
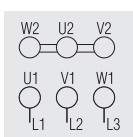
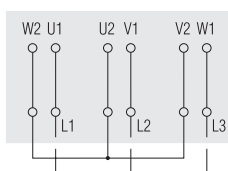
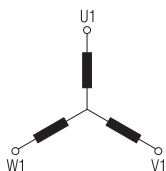
Ex e

Ex d and Ex e terminal box

Ex d

Ex e

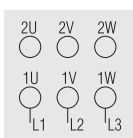
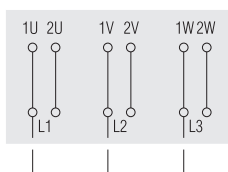
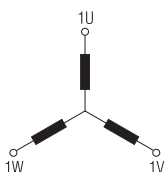
Single speed Start with Y-D switch, remove Y-D jumper



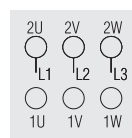
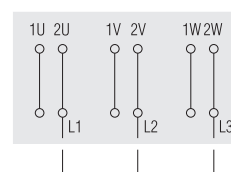
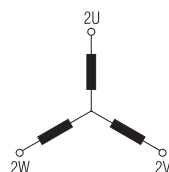
Y-D-jumper in Y-connection for direct coupling

Y-D-jumper in D-connection for direct coupling

Pole-changing

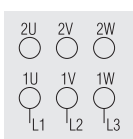
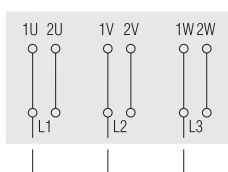
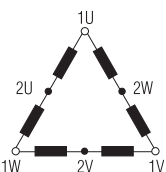


Low speed

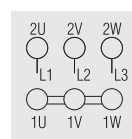
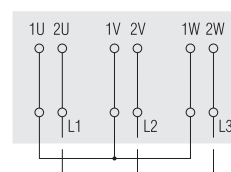
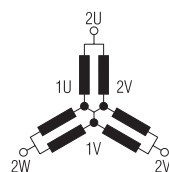


High speed

Pole-changing (Dahlander)

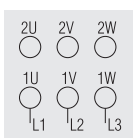
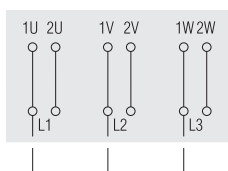
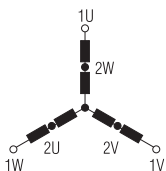


Low speed

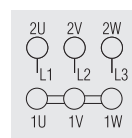
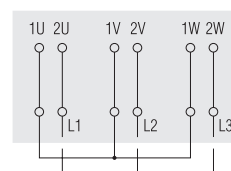
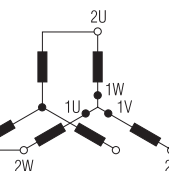


High speed

Pole-changing (Dahlander)



Low speed



High speed

Electric motors are tested in accordance with IEC 60034-2, EN 60034-2 regulations. All nominal and start-up value deviations are within the limits prescribed by IEC 60034-1, EN 60034-1. The explosion-proof enclosure is tested according to the IEC 60034-1, EN 60034-1 regulations. All enclosure parts are tested with a water pressure of 1 000 kPa.

Rated values under extreme working conditions

When electric motors are used at temperatures above +40 °C or at altitudes of more than 1 000 m, the permitted overtemperature for windings is lower; the rated power is reduced respectively. The relation between rated power and ambient temperature altitude is shown in the diagrams.

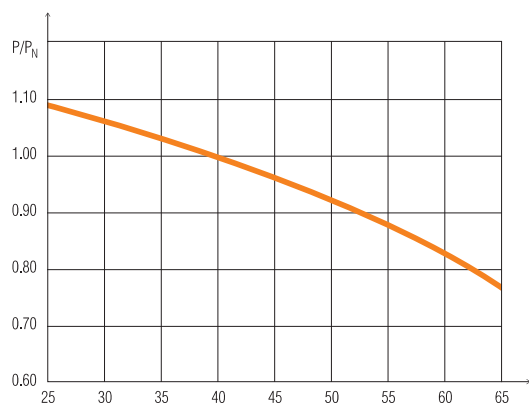
Tolerances of rated values

The rated values shown in the tables may vary according to IEC 60034-1, EN 60034-1.

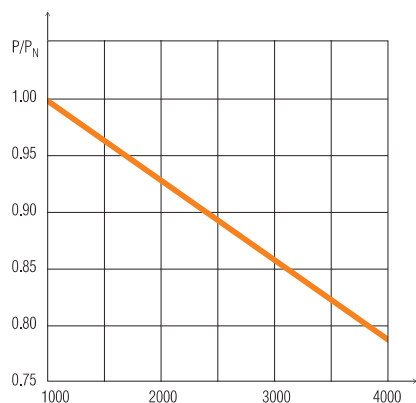
Performance

Rated power	$\leq 50 \text{ kW} - 0.15 (1-\eta)$ $> 50 \text{ kW} - 0.10 (1-\eta)$
Power factor	$-\frac{1 - \cos \varphi}{6}$
Slip at rated load and machine heated to operating temperature	+ 20 % of rated slip
Starting torque	- 15 % of rated value + 25 %
Maximum torque	- 10 % of rated value
Starting current	+ 20 % lower limit not prescribed

Power reduction as temperatures rise



Power reduction at less cooling



Start-up torque and current are the actual values the motor develops and the current values that cross the power supply cable when voltage is applied to the electric motor. The charts below show the values for both start-up torque and peak torque as well as the start-up current given as multiple of the nominal values.

Motor torque classification

For the right choice of the motor you not only have to know starting and maximum torque but also the torque curve and speed. To avoid the plotting of torque curves which are unique for each type of motor, the rotor torque class is defined as one of the electric motor's characteristics. This way the suitable motor can be chosen without the (exact) knowledge of the course of the torque curve.

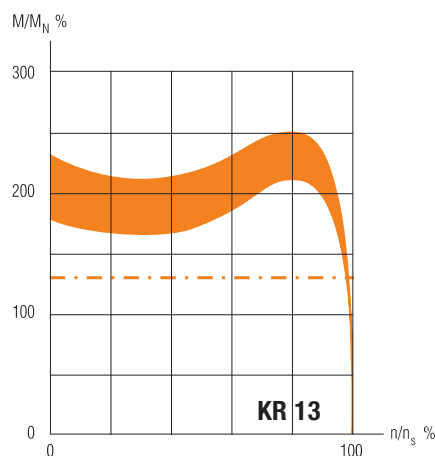
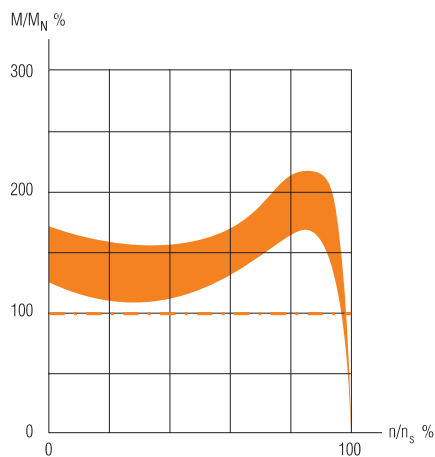
The motor torque class shows the maximum counter-torque for starting the motor. The starting torque class is specified according to the nominal voltage. In this catalog we distinguish three classes:

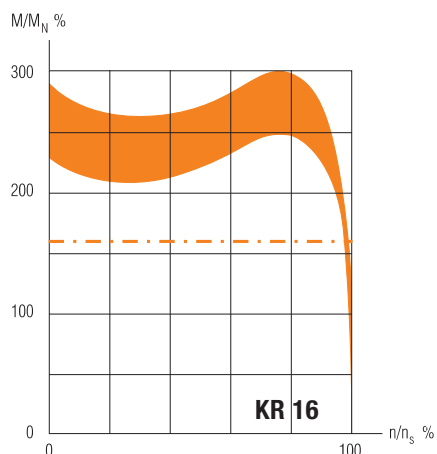
KR 10

KR 13

KR 16

The titles of the torque classes contain numbers which correspond to one tenth (1/10) of the maximum counter-torque value necessary to start up the motor. The following illustrations represent the torque curves of the classes KR 10, KR 13 and KR 16.

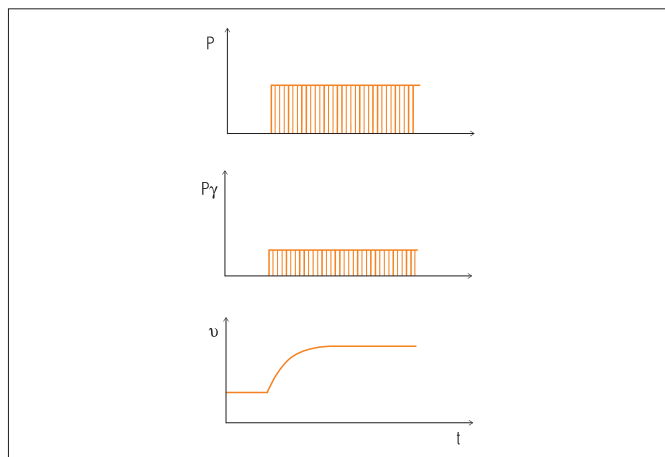




S1 Continuous duty

Operation under constant load, lasting long enough to allow the machine to reach thermal equilibrium.

Designation: **S1**

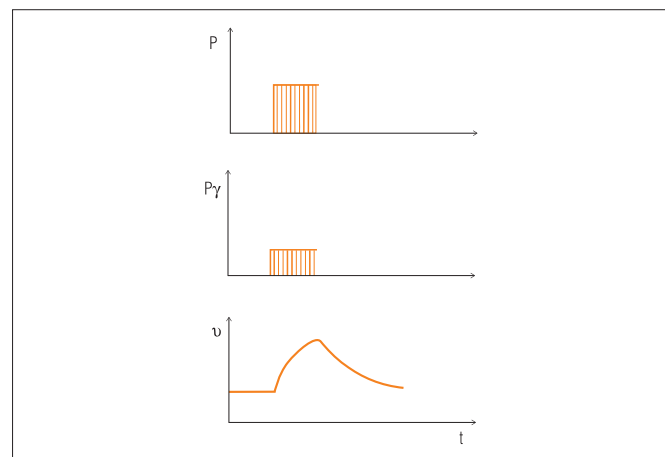


S2 Short-time duty

Operation under constant load, for a time **too short** to allow the machine to reach thermal equilibrium. Idle time of the machine is long enough to allow the machine to cool down to ambient temperature.

Standard duration of short-term operation: 10, 30, 60 and 90 minutes.

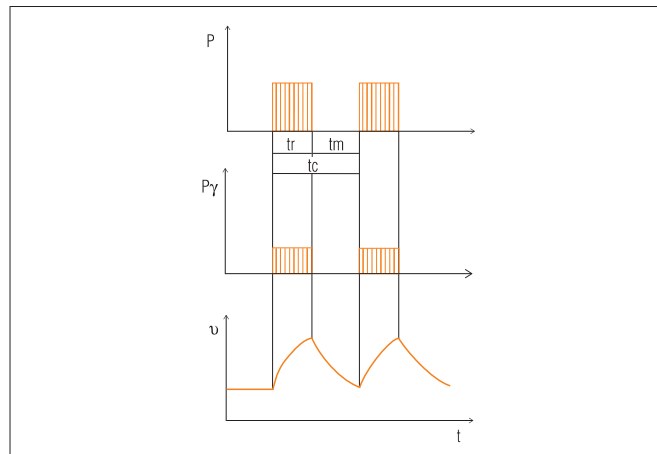
Designation: **S2** 30 minutes.



S3 Intermittent periodic duty

Operation under repeated, constant load in specified cycles. Neither operating nor resting period are long enough to allow the motor to reach thermal equilibrium. The starting losses are small and do not essentially influence the temperature rise. The nominal values of relative starting time are 15, 25, 40, 60 % at a daily 10-minute cycle.

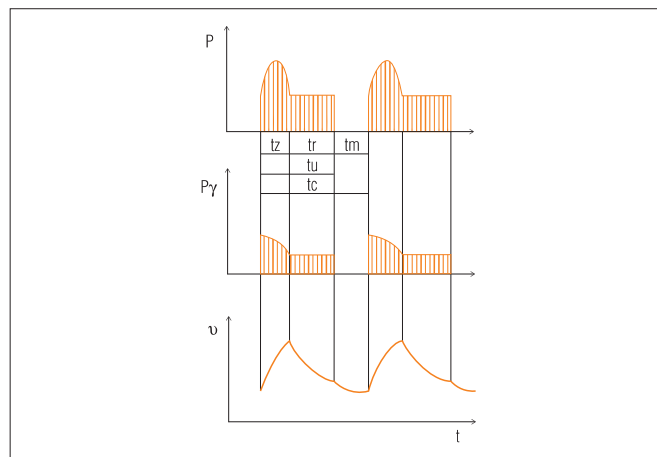
Designation: **S3** 25 %



S4 Intermittent periodic duty

Operation under repeated, constant load in specified cycles. The start of the motor influences the temperature rise. In order to define this type of operation, the number of cycles (starts per hour) and inertia constant must also be known.

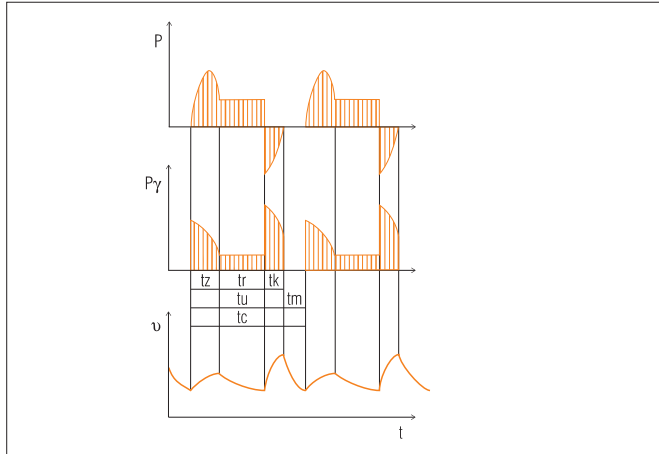
Designation: **S4** 40 %; 120 starts/h; F12



S5 Intermittent periodic duty

Same as S4 operation, except that the electric braking of the machine has an essential influence on the temperature rise.

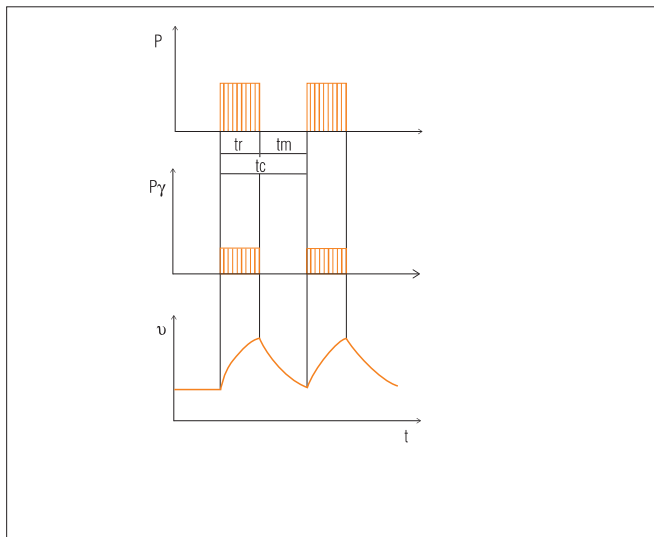
Designation: **S5** 160 %; 120 starts/h; FI2



S6 Continuous operation with cyclic load

Operation consisting of a continuous series of equal cycles. Each cycle is made up of a no-load and a constant load period. The cycle duration is not long enough to allow the machine to reach thermal equilibrium in one cycle. In order to define S6 operation, the relative starting time must be specified.

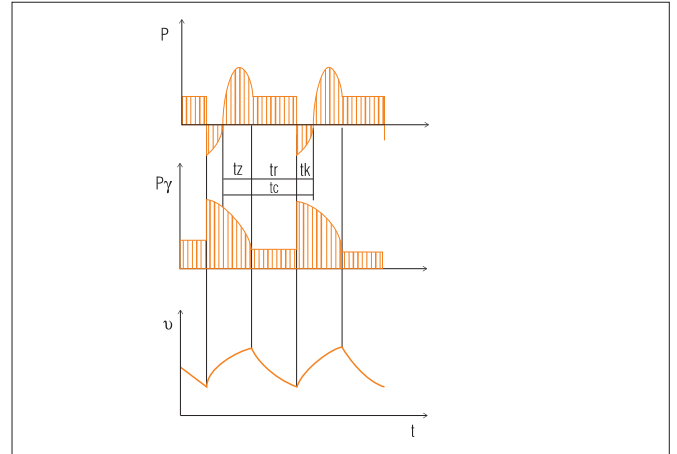
Designation: **S6** 15 %



S7 Intermittent periodic duty with starting and braking

Uninterrupted operation with a series of constant loading and braking periods. The most demanding type of operation for the motor. In order to define this type of operation, the number of cycles per hour and the inertia constant must be specified.

Designation: **S7** 500 starts/h; FI3



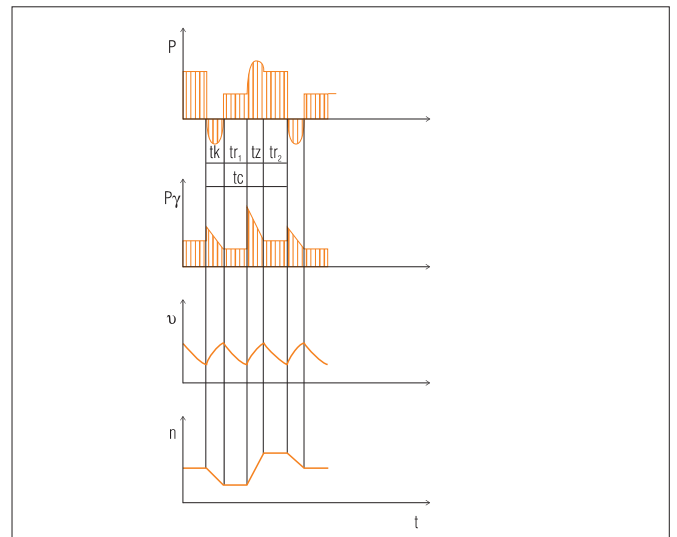
S8 Intermittent periodic duty with pole changing

This type of operation only exists with pole amplitude modulated motors. In this case the definition of operation must contain the following data for each pole:

- number of starts per hour
- inertia constant
- relative operating period

Designation: **S8** 30 starts/h; FI10; 740 min⁻¹; 40 %

S8 30 starts/h; FI10; 960 min⁻¹; 60 %



S9 Continuous operation with non-periodic load and speed variation (e. g. converter operation)



Three-phase motor with short-circuit rotor

Pole number 2

220 to 240 V/380 to 415 V 50 Hz
380 to 415 V/660 to 690 V 50 Hz

Protection class IP 55
Temperature class T1 to T4
Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (A/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 63 A-2	0.18	2750	0.52	64.4	0.77	0.63	3.0	3.9	2.9	16	0.00014	13
4KTC 63 B-2	0.25	2765	0.67	67.3	0.80	0.87	2.5	4.2	2.7	16	0.00019	14
4KTC 71 A-2	0.37	2820	0.98	67.2	0.81	1.25	3	5.4	3.2	16	0.00034	15
4KTC 71 B-2	0.55	2800	1.28	72.7	0.86	1.88	2.8	5.4	3.1	16	0.00042	16
4KTC 80 A-2	0.75	2810	1.61	77.5	0.87	2.55	2.6	4.9	2.8	16	0.00063	24
4KTC 80 B-2	1.1	2775	2.29	78.8	0.88	3.78	2.8	5.1	2.9	16	0.00079	26
4KTC 90 S-2	1.5	2855	3.07	81.6	0.86	5.0	2.8	6.1	3.1	16	0.00124	32
4KTC 90 L-2	2.2	2845	4.4	80.8	0.89	7.4	2.7	5.9	2.7	16	0.00155	34
4KTC 100 L-2	3.0	2875	6.4	79.5	0.85	10.0	3.0	5.7	3.3	16	0.00251	42.5
4KTC 112 M-2	4.0	2880	7.8	84.0	0.88	13.3	2.7	6.9	3.1	16	0.00451	58
4KTC 132 SA-2	5.5	2910	10.4	87.0	0.88	18.1	2.6	6.3	3.0	16	0.00967	77
4KTC 132 SB-2	7.5	2920	14.1	87.7	0.88	24.5	3.0	6.9	3.3	16	0.01225	84
4KTC 160 MA-2	11.0	2940	20.6	89.4	0.86	35.8	3.8	7.9	3.3	16	0.02943	148
4KTC 160 MB-2	15.0	2940	26.5	90.6	0.9	48.7	3.4	7.9	3.0	16	0.03912	166
4KTC 160 L-2	18.5	2945	32.2	91.6	0.91	60.0	3.1	7.4	3.1	16	0.0459	178
4KTC 180 M-2	22.0	2940	41.3	84.2	0.91	71.5	2.8	6.9	2.9	16	0.06151	205
4KTC 200 LA-2	30.0	2955	54.4	88.5	0.9	97.0	2.4	6.9	2.6	16	0.10442	240
4KTC 200 LB-2	37.0	2970	66.5	88.6	0.91	119.1	3.3	9.0	3.0	16	0.12739	250
4KTC 225 M-2	45.0	2970	82.0	89.6	0.88	145.0	2.5	7.6	3.4	16	0.22155	375
5KTC 250 M-2	55.0	2970	98.0	89.3	0.91	177.0	2.1	6.6	2.2	16	0.675	485
4KTC 280 S-2	75.0	2980	136.0	90.8	0.88	241.0	3.0	8.3	2.7	16	0.95	650
4KTC 280 M-2	90.0	2980	158.0	91.5	0.9	289.0	3.0	8.1	2.6	16	1.1	700
4KTC 315 S-2	110.0	2970	186.0	91.5	0.94	353.0	2.5	7.2	3.1	13	1.55	820
4KTC 315 MA-2	132.0	2985	223.0	92.1	0.93	425.0	2.8	7.5	2.8	13	1.8	930
4KTC 315 MB-2	160.0	2975	272.4	90.1	0.94	515	2.9	8.1	3.1	13	2.2	1240
4KTC 315 L-2	200.0	2980	345.0	93.0	0.90	640	2.3	6.9	2.6	13	2.8	1380

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Three-phase motor with short-circuit rotor

Pole number 4

220 to 240 V/380 to 415 V 50 Hz
380 to 415 V/660 to 690 V 50 Hz

Protection class IP 55
Temperature class T1 to T4
Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 63 A-4	0.12	1345	0.42	59.5	0.69	0.83	2.2	2.8	2.3	16	0.00021	13
4KTC 63 B-4	0.18	1370	0.61	64.8	0.65	1.25	2.5	3.2	2.5	16	0.00029	14
4KTC 71 A-4	0.25	1370	0.69	67.0	0.78	1.74	2.15	3.8	2.2	16	0.00051	15
4KTC 71 B-4	0.37	1385	0.95	72.5	0.78	2.55	2.15	4.0	2.3	16	0.00063	16
4KTC 80 A-4	0.55	1405	1.3	80.4	0.76	3.73	2.7	5.2	2.9	16	0.00098	24
4KTC 80 B-4	0.75	1380	1.65	80.8	0.82	5.19	2.1	4.6	2.4	16	0.00125	26
4KTC 90 S-4	1.1	1410	2.4	80.9	0.82	7.5	2.15	4.8	2.5	16	0.00204	32
4KTC 90 L-4	1.5	1415	3.35	80.6	0.8	10.1	2.5	5.2	2.8	16	0.0026	35
4KTC 100 LA-4	2.2	1410	4.7	81.5	0.82	14.9	2.0	4.6	2.5	16	0.00388	42.5
4KTC 100 LB-4	3.0	1415	6.5	79.6	0.83	20.2	2.1	5.0	2.6	16	0.00499	46
4KTC 112 M-4	4.0	1435	8.3	85.4	0.81	26.6	2.8	6.1	3.1	16	0.01014	60
4KTC 132 S-4	5.5	1435	10.8	86.0	0.85	36.6	2.2	5.1	2.4	16	0.02113	84
4KTC 132 M-4	7.5	1445	14.5	88.9	0.84	49.5	2.5	6.0	2.8	16	0.02793	93.5
4KTC 160 M-4	11.0	1460	22.0	87.1	0.83	71.8	2.9	6.9	3.1	16	0.05417	159
4KTC 160 L-4	15.0	1465	29.0	90.8	0.83	97.8	3.1	7.4	3.0	16	0.07116	178
4KTC 180 M-4	18.5	1465	35.0	89.9	0.86	120.6	3.1	6.9	2.5	16	0.1129	215
4KTC 180 L-4	22.0	1470	40.5	90.9	0.86	143.2	3.1	7.1	2.6	16	0.1339	236
4KTC 200 L-4	30.0	1470	53.4	89.6	0.91	195.1	2.7	6.8	2.8	16	0.21298	250
4KTC 225 S-4	37.0	1475	66.6	92.2	0.87	239.7	2.9	7.0	2.4	16	0.36225	310
4KTC 225 M-4	45.0	1475	80.5	92.5	0.87	291.0	3.3	7.3	2.7	16	0.42845	390
5KTC 250 M-4	55.0	1480	98.0	92.5	0.89	355.0	3.4	7.7	2.7	16	0.875	480
4KTC 280 S-4	75.0	1485	138.0	92.2	0.84	482.0	3.0	7.6	2.4	16	1.875	610
4KTC 280 M-4	90.0	1490	166.0	93.5	0.84	578.0	2.8	7.8	2.6	16	2.25	685
4KTC 315 S-4	110.0	1485	207.0	90.7	0.84	706.0	2.6	6.3	2.5	16	3.5	820
4KTC 315 MA-4	132.0	1485	235.0	92.2	0.88	851.0	3.0	6.9	2.5	16	3.875	930
4KTC 315 MB-4	160.0	1490	298.0	92.5	0.84	1027.0	1.9	5.8	2.1	16	5.0	1240
4KTC 315 L-4	200.0	1485	351.5	93.0	0.88	1285.0	1.5	6.8	1.6	16	6.1	1380



Three-phase motor with short-circuit rotor

Pole number 6

220 to 240 V/380 to 415 V 50 Hz
380 to 415 V/660 to 690 V 50 Hz

Protection class IP 55
Temperature class T1 to T4
Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 63 A-6	0.09	895	0.43	51.0	0.61	0.96	2.2	2.3	2.3	16	0.00031	13
4KTC 63 B-6	0.12	900	0.52	55.0	0.60	1.27	2.5	2.5	2.5	16	0.00042	14
4KTC 71 A-6	0.18	930	0.67	60.0	0.65	1.86	2.1	3.1	2.3	16	0.00081	15
4KTC 71 B-6	0.25	940	0.85	64.0	0.67	2.56	2.2	3.7	2.5	16	0.00101	16
4KTC 80 A-6	0.37	925	1.1	67.0	0.72	3.83	2.3	3.6	2.5	16	0.00191	25
4KTC 80 B-6	0.55	915	1.5	72.0	0.74	5.7	2.35	4.1	2.5	16	0.00239	26.5
4KTC 90 S-6	0.75	915	2.1	70.0	0.74	7.8	1.8	3.7	2.1	16	0.00323	32
4KTC 90 L-6	1.1	915	3.0	73.0	0.73	11.5	2.1	4.1	2.3	16	0.00419	35
4KTC 100 L-6	1.5	930	3.7	76.0	0.77	15.4	2.2	4.7	2.3	16	0.00657	46
4KTC 112 M-6	2.2	960	5.0	82.0	0.78	21.9	2.6	6.1	2.7	16	0.0158	60
4KTC 132 S-6	3.0	975	6.6	83.5	0.79	29.4	2.3	6.3	2.5	16	0.02722	84
4KTC 132 MA-6	4.0	960	8.8	83.0	0.8	39.9	2.4	6.3	2.9	16	0.03229	88
4KTC 132 MB-6	5.5	955	11.8	83.5	0.81	55.1	2.3	6.1	2.9	16	0.03838	95
4KTC 160 M-6	7.5	970	15.8	86.0	0.8	74.2	2.7	6.7	2.4	16	0.08121	161
4KTC 160 L-6	11.0	965	23.5	88.5	0.77	109.0	2.2	6.0	2.3	16	0.10916	182
4KTC 180 L-6	15.0	965	31.0	89.5	0.78	148.0	1.9	5.2	2.3	16	0.227	236
4KTC 200 LA-6	18.5	965	36.0	91.0	0.81	183.0	1.9	6.0	2.4	16	0.24369	240
4KTC 200 LB-6	22.0	965	43.0	91.5	0.81	218.6	1.9	6.0	2.4	16	0.27888	250
4KTC 225 M-6	30.0	975	56.0	92.5	0.83	293.0	1.8	5.8	2.5	16	0.66117	390
5KTC 250 M-6	37.0	985	69.0	93.5	0.83	359.0	2.8	6.0	2.6	16	1.125	480
4KTC 280 S-6	45.0	985	82.0	94.5	0.84	437.0	2.5	6.3	2.7	16	2.3	610
4KTC 280 M-6	55.0	985	101.0	94.5	0.84	534.0	2.4	6.0	2.8	16	2.625	685
4KTC 315 S-6	75.0	980	140.0	95.0	0.82	732.0	2.5	5.9	2.8	16	4.625	820
4KTC 315 MA-6	90.0	985	163.0	95.5	0.84	874.0	2.1	5.1	2.9	16	5.25	930
4KTC 315 MB-6	110.0	990	198.0	91.5	0.88	1060.0	2.5	6.5	2.4	16	6.0	1240
4KTC 315 L-6	132.0	990	238.0	90.5	0.88	1275.0	2.6	6.8	2.4	16	7.3	1380

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Three-phase motor with short-circuit rotor

Pole number 8

220 to 240 V/380 to 415 V 50 Hz
380 to 415 V/660 to 690 V 50 Hz

Protection class IP 55
Temperature class T1 to T4
Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 63 B-8	0.06	600	0.39	31.0	0.73	0.80	1.4	1.7	1.4	16	0.0002	14
4KTC 71 A-8	0.09	680	0.67	38.0	0.51	1.26	2.0	2.0	2.1	16	0.00081	15
4KTC 71 B-8	0.12	655	0.54	45.0	0.71	1.75	1.8	2.4	2.1	16	0.00101	16
4KTC 80 A-8	0.18	680	0.66	61.0	0.65	2.53	2.1	2.9	2.2	16	0.00191	25
4KTC 80 B-8	0.25	680	0.92	58.0	0.68	3.52	2.1	3.1	2.3	16	0.00239	26.5
4KTC 90 S-8	0.37	685	1.25	66.0	0.65	5.2	1.7	3.0	2.0	16	0.00323	32
4KTC 90 L-8	0.55	685	1.75	69.0	0.66	7.7	1.75	3.1	2.1	16	0.00419	35
4KTC 100 LA-8	0.75	690	2.3	69.0	0.69	10.4	1.8	3.5	2.1	16	0.00657	42.5
4KTC 100 LB-8	1.1	695	3.25	70.0	0.7	15.0	1.9	3.8	2.2	16	0.00857	46
4KTC 112 M-8	1.5	710	4.15	78.0	0.67	20.2	2.0	4.3	2.5	16	0.0158	60
4KTC 132 S-8	2.2	710	5.5	79.0	0.74	29.6	1.9	4.3	2.2	16	0.02606	79
4KTC 132 M-8	3.0	710	7.2	80.0	0.76	40.4	2.1	4.8	2.3	16	0.03446	85
4KTC 160 MA-8	4.0	720	10.0	82.6	0.71	53.1	1.8	4.8	2.3	16	0.0688	146
4KTC 160 MB-8	5.5	715	13.4	84.0	0.71	73.6	1.8	4.8	2.1	16	0.08939	160
4KTC 160 L-8	7.5	725	16.7	86.5	0.75	98.8	2.3	5.8	2.1	16	0.12027	182
4KTC 180 L-8	11.0	715	25.0	86.7	0.74	147.0	1.8	4.2	2.5	16	0.227	236
4KTC 200 L-8	15.0	720	29.0	91.0	0.82	196.0	2.1	4.5	2.5	16	0.37827	250
4KTC 225 S-8	18.5	710	37.0	91.0	0.79	249.0	2.1	4.6	2.6	16	0.57008	310
4KTC 225 M-8	22.0	715	45.0	91.5	0.77	294.0	2.1	4.6	2.6	16	0.67806	390
5KTC 250 M-8	30.0	730	59.0	92.8	0.79	398.0	1.7	5.4	2.4	16	1.175	480
4KTC 280 S-8	37.0	730	74.0	93.0	0.78	485.0	1.9	6.0	2.3	16	2.3	610
4KTC 280 M-8	45.0	735	90.0	93.5	0.78	586.0	1.9	6.4	2.7	16	2.625	685
4KTC 315 S-8	55.0	735	104.0	94.5	0.81	716.0	2.2	6.2	2.3	16	4.625	820
4KTC 315 MA-8	75.0	740	140.0	94.5	0.82	969.0	1.8	6.3	2.1	16	5.25	930
4KTC 315 MB-8	90.0	740	173.0	91.1	0.83	1160.0	2.5	6.7	2.5	16	6.0	1240
4KTC 315 L-8	110.0	740	213.0	90.0	0.83	1420.0	2.6	6.9	2.5	16	7.3	1380



Three-phase motor with short-circuit rotor

Pole number 2

440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 71 A-2	0.45	3300	1.16	74	0.88	1.3	2.4	3.7	2.7	16	0.00034	15
4KTC 71 B-2	0.66	3350	1.38	76	0.84	1.88	2.4	4.8	2.6	16	0.00042	16
4KTC 80 A-2	0.9	3380	1.55	86	0.88	2.55	2.4	5.6	2.5	16	0.00063	24
4KTC 80 B-2	1.3	3385	2.37	80.7	0.89	3.67	2.6	5.1	2.5	16	0.00079	26
4KTC 90 S-2	1.8	3435	3.45	76	0.85	5.0	2.1	5.7	2.4	16	0.00124	32
4KTC 90 L-2	2.6	3435	4.65	84	0.87	7.2	2.9	5.2	2.3	16	0.00155	34
4KTC 100 L-2	3.6	3390	6.5	85	0.86	10.2	2.0	6.2	2.4	16	0.00251	42.5
4KTC 112 M-2	4.8	3455	8.6	85	0.89	13.3	2.1	6.5	2.5	16	0.00451	58
4KTC 132 SA-2	6.6	3460	11.8	87	0.90	18.2	2.2	5.8	2.3	16	0.00969	77
4KTC 132 SB-2	9.0	3510	15.1	87	0.90	24.5	2.7	6.9	2.9	16	0.01225	84
4KTC 160 MA-2	13.0	3525	22.2	86	0.89	35.2	3.0	6.7	2.9	16	0.02943	148
4KTC 160 MB-2	18.0	3490	32.5	79	0.92	49.2	2.9	6.3	2.5	16	0.03912	166
4KTC 160 L-2	21.0	3520	32.5	93	0.92	57.0	2.7	6.8	2.8	16	0.0459	178
4KTC 180 M-2	24.0	3520	41.4	84	0.91	65.0	2.3	6.3	2.6	16	0.06151	205
4KTC 200 LA-2	34.0	3550	59.0	86	0.85	91.5	1.9	6.4	2.3	16	0.10442	240
4KTC 200 LB-2	42.0	3550	70.0	87	0.90	113.0	2.7	8.0	2.7	16	0.12739	250
4KTC 225 M-2	52.0	3520	88.0	86	0.90	141.0	2.0	6.5	2.7	16	0.22155	375
5KTC 250 M-2	64.0	3560	104.5	93	0.89	172.0	1.8	6.1	2.1	16	0.675	485
4KTC 280 S-2	82.0	3570	133.0	90	0.90	219.0	2.5	7.7	2.1	16	0.96	650
4KTC 280 M-2	100.0	3570	162.0	90	0.90	270.0	2.4	7.3	2.0	16	1.1	700
4KTC 315 S-2	120.0	3570	183.0	92	0.94	321.0	2.1	6.7	2.6	13	1.55	820
4KTC 315 MA-2	132.0	3580	219.0	89	0.89	357.0	1.5	5.6	1.6	13	1.8	930
4KTC 315 MB-2	160.0	3570	251.0	89	0.94	428.0	2.4	8.0	2.6	13	2.25	1240
4KTC 315 L-2	200.0	3575	320.0	91	0.90	535.0	2.1	7.4	2.3	13	2.8	1380

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Three-phase motor with short-circuit rotor

Pole number 4

440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (A/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 71 A-4	0.30	1640	0.80	60	0.78	1.75	1.8	3.0	1.9	16	0.00051	15
4KTC 71 B-4	0.45	1650	1.01	71	0.82	2.60	2.1	4.1	2.0	16	0.00063	16
4KTC 80 A-4	0.66	1640	1.52	75	0.83	3.84	1.9	4.1	2.0	16	0.00098	24
4KTC 80 B-4	0.90	1670	1.87	75	0.82	5.10	2.2	4.2	2.3	16	0.00125	26
4KTC 90 S-4	1.3	1675	2.47	82	0.85	7.40	1.9	5.2	2.1	16	0.00204	32
4KTC 90 L-4	1.8	1680	3.40	82	0.85	10.2	2.3	5.8	2.3	16	0.0026	35
4KTC 100 LA-4	2.6	1675	5.1	74	0.85	14.8	1.7	4.2	1.7	16	0.00388	42.5
4KTC 100 LB-4	3.6	1680	6.8	80	0.86	20.5	1.8	4.7	2.2	16	0.00499	46
4KTC 112 M-4	4.8	1730	8.6	87	0.85	26.5	2.3	6.1	2.8	16	0.01014	60
4KTC 132 S-4	6.6	1700	12.3	87	0.87	37.0	1.9	4.8	1.9	16	0.02113	84
4KTC 132 M-4	9.0	1730	15.6	88	0.86	49.6	2.3	4.6	2.3	16	0.02793	93.5
4KTC 160 M-4	13.0	1730	23.4	88	0.86	71.8	2.3	5.0	2.4	16	0.05417	159
4KTC 160 L-4	17.5	1755	29.3	88	0.86	94.2	2.3	6.3	2.5	16	0.07116	178
4KTC 180 M-4	21.0	1740	36.3	88	0.87	115.0	2.8	5.8	2.2	16	0.1129	215
4KTC 180 L-4	26.0	1770	42.7	91	0.85	140.0	2.7	6.5	2.2	16	0.1339	236
4KTC 200 L-4	34.0	1760	54.0	92	0.92	185.0	2.4	6.0	2.5	16	0.21298	250
4KTC 225 S-4	44.0	1770	71.8	91	0.88	237.0	2.1	5.8	1.9	16	0.36225	310
4KTC 225 M-4	52.0	1775	84.4	93	0.87	280.0	2.4	5.9	2.2	16	0.42845	390
5KTC 250 M-4	64.0	1770	104.0	90	0.9	345.0	3.0	7.6	2.2	16	0.875	480
4KTC 280 S-4	87.0	1780	144.0	91	0.86	467.0	2.3	5.5	1.8	16	1.875	610
4KTC 280 M-4	90.0	1790	148.0	93	0.85	481.0	2.5	8.6	2.3	16	2.25	685
4KTC 315 S-4	110.0	1790	186.0	89	0.87	588.0	2.4	6.7	2.1	16	3.9	820
4KTC 315 MA-4	132.0	1790	214.0	92	0.89	714.0	2.7	6.4	2.3	16	3.875	930
4KTC 315 MB-4	170.0	1795	288.0	92	0.85	905.0	1.5	5.5	1.6	16	5.0	1240
4KTC 315 L-4	200.0	1785	324.0	93	0.87	1071.0	1.6	6.8	1.8	16	6.1	1380



Three-phase motor with short-circuit rotor

Pole number 6

440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 71 A-6	0.18	1115	0.67	60	0.65	1.55	2.1	3.1	2.3	16	0.00081	15
4KTC 71 B-6	0.25	1100	0.76	62	0.7	2.18	2.4	2.9	2.5	16	0.00101	16
4KTC 80 A-6	0.37	1100	1.06	62	0.74	3.23	2.1	3.5	2.5	16	0.00191	25
4KTC 80 B-6	0.55	1100	1.36	71	0.74	4.8	2.4	4.2	2.4	16	0.00239	26.5
4KTC 90 S-6	0.75	1090	1.94	69	0.72	6.6	1.8	3.6	2.0	16	0.0323	32
4KTC 90 L-6	1.1	1105	2.73	76	0.71	9.5	1.8	3.9	2.1	16	0.00419	35
4KTC 100 L-6	1.5	1110	3.35	76	0.76	12.8	2.2	4.8	2.2	16	0.00657	46
4KTC 112 M-6	2.2	1180	4.5	84	0.71	18	2.6	6.3	2.7	16	0.0158	60
4KTC 132 S-6	3.0	1170	6.0	82	0.79	24	2.3	6.4	2.5	16	0.02722	84
4KTC 132 MA-6	4.0	1150	8.1	80	0.8	33	2.4	6.2	2.9	16	0.03229	88
4KTC 132 MB-6	5.5	1150	10.8	81	0.82	45	2.3	6.2	3.0	16	0.03838	95
4KTC 160 M-6	7.5	1170	14.4	84	0.81	61	2.8	6.7	2.4	16	0.08121	161
4KTC 160 L-6	11.0	1165	20.0	86	0.83	90	2.3	7.2	3.6	16	0.10916	182
4KTC 180 L-6	15.0	1175	27.6	89	0.8	121	2.5	7.6	3.7	16	0.227	236
4KTC 200 LA-6	18.5	1175	32.6	89	0.83	150	1.4	5.6	2.3	13	0.24369	240
4KTC 200 LB-6	22.0	1180	39.3	91	0.81	178	2.2	8.0	3.3	16	0.27888	250
4KTC 225 M-6	30.0	1180	53.5	91	0.81	244	2.4	6.5	1.9	16	0.66117	390
5KTC 250 M-6	37.0	1185	69.0	92	0.75	298	1.9	4.1	1.7	13	1.125	480
4KTC 280 S-6	52.0	1185	94.0	91	0.8	418	1.9	4.4	1.9	16	2.3	610
4KTC 280 M-6	66.0	1170	119.0	90	0.82	540	1.7	3.7	1.6	16	2.625	685
4KTC 315 S-6	75.0	1180	140.0	95	0.82	610	2.5	5.9	2.8	16	4.625	820
4KTC 315 MA-6	90.0	1180	163.0	95	0.84	728	2.1	5.1	2.9	16	5.25	930
4KTC 315 MB-6	110.0	1190	175.0	94	0.88	884	2.1	6.1	2.2	16	6.0	1240
4KTC 315 L-6	132.0	1190	210.0	94	0.88	1160	2.0	6.3	2.1	16	7.3	1380

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Three-phase motor with short-circuit rotor

Pole number 8

440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection II 2G Ex db IIC T4 Gb or II 2G Ex db e IIC T4 Gb
 II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Efficiency %	Power factor cos φ	Torque Nm	Starting torque (MA/MN)	Starting current (IA/IN)	Max. torque (MM/MN)	KR	Moment of inertia (kgm ²)	Weight kg
4KTC 71 A-8	0.09	820	0.42	45	0.62	1	2.2	2.5	2.1	16	0.00081	15
4KTC 71 B-8	0.12	780	0.49	45	0.71	1.47	1.8	2.4	2.0	16	0.00101	16
4KTC 80 A-8	0.18	825	0.62	58	0.63	2.1	2.1	2.9	2.1	16	0.00191	25
4KTC 80 B-8	0.25	825	0.84	58	0.67	2.9	2.0	3.1	2.3	16	0.00239	26.5
4KTC 90 S-8	0.37	820	1.17	64	0.62	4.3	1.6	2.9	1.9	16	0.00323	32
4KTC 90 L-8	0.55	825	1.6	72	0.61	6.4	1.7	3.2	2.0	16	0.00419	35
4KTC 100 LA-8	0.75	825	2.14	67	0.66	8.7	1.6	3.5	1.9	16	0.00657	42.5
4KTC 100 LB-8	1.1	845	3.1	71	0.62	12.4	2.0	4.0	2.3	16	0.00857	46
4KTC 112 M-8	1.5	855	3.8	77	0.67	16.8	2.0	4.3	2.5	16	0.0158	60
4KTC 132 S-8	2.2	845	5.0	75	0.76	24.6	1.8	4.3	2.2	16	0.02606	79
4KTC 132 M-8	3.0	850	6.6	79	0.73	33	2.2	4.9	2.3	16	0.03446	85
4KTC 160 MA-8	4.0	865	8.5	81	0.76	44	1.9	5.3	2.3	16	0.0688	146
4KTC 160 MB-8	5.5	865	10.9	84	0.78	60	1.9	5.0	2.1	16	0.08939	160
4KTC 160 L-8	7.5	875	15.3	85	0.76	82	2.3	6.2	2.1	16	0.12027	182
4KTC 180 L-8	11.0	870	20.7	88	0.8	121	2.0	5.8	2.5	16	0.227	236
4KTC 200 L-8	15.0	880	27.7	91	0.78	163	2.4	7.4	3.7	16	0.37827	250
4KTC 225 S-8	18.5	885	35.0	91	0.76	200	2.4	7.6	3.2	16	0.57008	310
4KTC 225 M-8	22.0	885	42.0	90	0.77	239	2.2	6.9	3.1	16	0.67806	390
5KTC 250 M-8	30.0	875	59.0	92	0.79	332	1.7	5.4	2.4	16	1.175	480
4KTC 280 S-8	37.0	875	74.0	93	0.78	404	1.9	6.0	2.3	16	2.3	610
4KTC 280 M-8	45.0	880	90.0	93	0.78	488	1.9	6.4	2.7	16	2.625	689
4KTC 315 S-8	55.0	880	104.0	94	0.81	597	2.2	6.2	2.3	16	4.625	820
4KTC 315 MA-8	75.0	890	140.0	94	0.82	969	1.8	6.3	2.1	16	5.25	930
4KTC 315 MB-8	90.0	885	153.0	93	0.83	973	1.9	6.4	2.0	16	6.0	1240
4KTC 315 L-8	110.0	885	189.0	93	0.82	1189	1.8	6.3	1.9	16	7.3	1380



Three-phase motor with short-circuit rotor

Pole number 4/2

D/YY 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-4/2	0.21 0.28	1380 2800	0.75 0.9	3.6 3.9	2.1 2.1	16
4KTC 71 B-4/2	0.3 0.43	1380 2800	1.05 1.25	3.8 4.0	2.1 2.0	17
4KTC 80 A-4/2	0.5 0.65	1370 2760	1.26 1.43	3.7 3.4	1.8 1.9	25
4KTC 80 B-4/2	0.7 0.85	1365 2810	1.75 1.85	4.1 5.5	2.0 2.4	28
4KTC 90 S-4/2	1.1 1.4	1415 2800	2.6 2.95	4.4 4.7	1.9 2.0	34
4KTC 90 L-4/2	1.5 1.9	1410 2850	3.3 3.9	4.9 5.3	2.1 2.3	36
4KTC 100 LA-4/2	1.8 2.4	1430 2860	4.16 5.25	4.8 5.0	2.0 1.9	45
4KTC 100 LB-4/2	2.6 3.2	1420 2870	5.65 6.6	5.85 6.6	2.1 2.3	49
4KTC 112 M-4/2	3.7 4.4	1460 2890	8.4 8.5	6.6 7.4	2.8 2.9	64
4KTC 132 S-4/2	5.0 6.0	1460 2900	11.5 11.9	6.2 6.4	2.7 2.8	89
4KTC 132 M-4/2	6.1 7.5	1450 2910	13.8 15.4	6.7 6.9	2.5 2.3	99
4KTC 160 M-4/2	9.0 10.5	1465 2930	19.5 22.0	6.5 7.5	2.3 2.2	169

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-4/2	12 15	1470 2940	27.5 31	7.2 7.5	2.8 2.7	189
4KTC 180 M-4/2	14 17	1470 2940	29 33	6.8 7.5	2.5 2.5	220
4KTC 180 L-4/2	17 20	1475 2950	35 39	6.9 7.5	2.5 2.5	240
4KTC 200 L-4/2	20 23	1475 2950	41 46	7.0 7.5	2.5 2.5	260
4KTC 225 S-4/2	24 28	1480 2955	46 59	7.0 7.5	2.5 2.5	320
4KTC 225 M-4/2	29 34	1485 2960	62 66	7.2 7.6	2.5 2.6	400
5KTC 250 M-4/2	36 45	1485 1960	77 87	7.1 7.5	2.4 2.5	490
4KTC 280 S-4/2	46 58	1480 2970	85 95	6.8 7.0	2.0 2.0	610
4KTC 280 M-4/2	65 80	1480 2970	128 142	6.6 6.8	1.8 1.8	685
4KTC 315 S-4/2	78 90	1485 2970	154 176	6.5 6.0	1.8 1.7	820
4KTC 315 MA-4/2	90 100	1485 2970	156 190	6.5 6.2	1.8 1.7	930
4KTC 315 MB-4/2	100 120	1485 2970	208 230	6.2 6.0	1.8 1.6	1240

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Three-phase motor with short-circuit rotor

Pole number 8/4

D/YY 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-8/4	0.048 0.22	620 1370	0.32	2.1 3.8	1.6 1.8	16
4KTC 71 B-8/4	0.07 0.32	620 1370	0.47 0.82	2.1 3.8	1.6 1.8	17
4KTC 80 A-8/4	0.2 0.3	690 1380	0.83 0.79	2.8 3.9	2.0 2.2	25
4KTC 80 B-8/4	0.27 0.4	690 1400	1.08 0.96	2.9 4.5	2.1 2.2	28
4KTC 90 S-8/4	0.42 0.8	705 1390	1.9 1.9	2.8 3.9	2.0 1.8	34
4KTC 90 L-8/4	0.5 1.0	710 1410	2.3 2.25	3.1 4.3	2.1 1.9	36
4KTC 100 LA-8/4	0.9 1.3	690 1380	3.05 3.0	3.2 4.2	2.1 2.1	45
4KTC 100 LB-8/4	1.0 1.6	720 1430	3.2 3.35	3.9 5.3	2.1 2.2	49
4KTC 112 M-8/4	1.5 2.5	710 1430	4.25 5.0	4.6 5.7	2.2 2.1	64
4KTC 132 S-8/4	2.3 3.6	720 1450	6.7 7.3	5.3 6.9	2.3 2.2	89
4KTC 132 M-8/4	3.0 5.0	720 1445	9.5 9.9	4.5 5.4	2.3 2.3	99
4KTC 160 MA-8/4	4.0 5.5	725 1460	10.5 10.8	5.2 7.0	1.8 1.8	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 160 MB-8/4	4.6 7.3	725 1460	12.8 14.6	4.6 7.0	1.8 1.9	165
4KTC 160 L-8/4	6.8 11	725 1460	21 23	4.8 7.0	1.8 2.0	197
4KTC 180 L-8/4	11 15	725 1460	29 30	4.6 7.0	1.7 2.0	240
4KTC 200 L-8/4	15 20	730 1465	33 44	5.3 6.8	1.5 1.8	260
4KTC 225 S-8/4	18 24	730 1465	42 50	5.3 6.8	1.6 1.8	320
4KTC 225 M-8/4	22 28	730 1465	50 55	5.0 7.0	1.5 2.0	400
5KTC 250 M-8/4	30 42	730 1465	67 80	4.5 6.5	1.5 2.0	490
4KTC 280 S-8/4	35 51	735 1470	80 96	4.6 6.5	1.6 1.6	610
4KTC 280 M-8/4	42 60	735 1470	88 105	5.0 6.3	1.5 1.5	685
4KTC 315 S-8/4	52 68	740 1475	109 130	5.0 6.4	1.6 1.5	820
4KTC 315 M-8/4	70 90	740 1475	147 173	5.8 6.5	1.7 1.5	930



Three-phase motor with short-circuit rotor

Pole number 6/4

Y/Y 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-6/4	0.15 0.2	920 1440	0.75 0.85	2.6 3.3	1.5 1.5	16
4KTC 71 B-6/4	0.21 0.3	920 1420	1.2 1.35	2.6 3.4	2.0 1.9	17
4KTC 80 A-6/4	0.22 0.32	930 1455	0.7 1.05	3.3 4.2	1.9 2.1	25
4KTC 80 B-6/4	0.26 0.4	940 1425	0.94 1.28	3.5 3.6	2.2 1.9	28
4KTC 90 S-6/4	0.45 0.66	945 1450	1.5 1.75	3.6 5.3	2.1 2.2	34
4KTC 90 L-6/4	0.6 0.9	960 1425	1.8 2.1	3.6 4.4	2.1 1.9	36
4KTC 100 LA-6/4	0.9 1.3	960 1420	2.4 3.0	4.0 4.5	1.8 1.9	45
4KTC 100 LB-6/4	1.1 1.7	960 1450	2.8 3.7	4.3 4.7	1.8 2.1	49
4KTC 112 M-6/4	1.5 2.4	970 1450	3.55 5.05	5.3 5.4	2.2 1.9	64
4KTC 132 S-6/4	2.2 3.0	965 1465	5.05 6.0	5.7 6.1	1.9 2.1	89
4KTC 132 M-6/4	3.0 4.5	975 1460	6.7 8.9	6.5 6.3	2.2 1.9	99
4KTC 160 M-6/4	3.8 5.7	965 1465	9.0 13.0	6.0 6.5	2.0 1.8	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-6/4	5.5 8	980 1480	13.3 16.8	7.0 7.0	2.1 2.0	197
4KTC 180 M-6/4	7.5 11	980 1470	16.6 22	6.3 6.5	2.0 1.6	220
4KTC 180 L-6/4	9 13	980 1470	20 26	6.5 7.0	2.0 1.5	240
4KTC 200 L-6/4	13 19	980 1470	31 39	6.8 7.2	2.1 2.2	260
4KTC 225 S-6/4	19 23	980 1470	40 48	6.0 6.3	2.0 2.2	320
4KTC 225 M-6/4	23 27	980 1470	48 56	6.0 6.5	2.1 2.0	400
5KTC 250 M-6/4	27 32	980 1470	53 65	6.0 6.5	2.1 2.2	490
4KTC 280 S-6/4	32 45	985 1475	63 89	6.5 7.0	2.3 2.7	610
4KTC 280 M-6/4	37 55	985 1475	72 108	6.5 7.0	2.3 2.7	685
4KTC 315 S-6/4	45 67	985 1485	88 130	6.8 7.2	2.1 2.3	820
4KTC 315 M-6/4	55 80	985 1485	108 155	6.8 7.2	2.1 2.3	930

1



Three-phase motor with short-circuit rotor

Pole number 8/6

Y/Y 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 90 S-8/6	0.35	695	1.35	2.7	1.7	34
	0.45	960	1.5	3.3	1.8	
4KTC 90 L-8/6	0.45	695	1.68	2.7	1.8	36
	0.6	960	2.07	3.5	2.0	
4KTC 100 LA-8/6	0.6	715	2.05	2.9	1.6	45
	0.8	970	2.15	4.1	1.8	
4KTC 100 LB-8/6	0.75	710	2.4	3.1	1.6	49
	0.9	970	2.5	4.7	2.0	
4KTC 112 M-8/6	0.9	720	2.8	4.2	2.2	64
	1.2	970	3.0	5.1	2.4	
4KTC 132 S-8/6	1.5	725	5.05	4.8	2.5	89
	2.0	975	5.5	6.2	2.4	
4KTC 132 M-8/6	2.2	725	6.8	3.9	2.1	99
	3.0	975	8.1	5.3	2.2	
4KTC 160 M-8/6	3.5	725	8.8	5.5	2.3	155
	5.0	975	12.0	6.4	2.1	
4KTC 160 L-8/6	5.0	725	12.0	5.5	2.4	197
	7.0	975	16.0	6.5	2.2	

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 180 L-8/6	7.0	725	18	5.5	2.0	240
	9.5	980	24	6.2	1.8	
4KTC 200 L-8/6	10	725	23	5.5	2.3	260
	13	980	27	6.8	2.1	
4KTC 225 S-8/6	13	725	29	5.3	1.7	320
	16	975	36	6.2	1.4	
4KTC 225 M-8/6	17	725	42	5.4	1.7	400
	22	975	54	6.5	1.4	
5KTC 250 M-8/6	22	730	51	5.8	1.9	490
	30	985	65	6.5	1.6	
4KTC 280 S-8/6	27	735	63	5.8	1.8	610
	35	985	80	6.5	1.5	
4KTC 280 M-8/6	33	735	74	6.0	1.8	685
	41	985	90	6.7	1.5	
4KTC 315 S-8/6	40	735	90	6.0	1.8	820
	50	985	102	7.0	1.4	
4KTC 315 M-8/6	48	735	103	6.0	1.8	930
	62	985	125	7.0	1.4	



Three-phase motor with short-circuit rotor

Pole number 4/2

D/YY 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-4/2	0.23 0.3	1660 3360	0.75 0.9	3.4 3.7	1.8 1.8	16
4KTC 71 B-4/2	0.33 0.45	1600 3360	1.05 1.25	3.6 3.8	1.8 1.7	17
4KTC 80 A-4/2	0.55 0.7	1640 3310	1.26 1.43	3.5 3.2	1.5 1.6	25
4KTC 80 B-4/2	0.75 0.9	1640 3380	1.75 1.85	3.9 5.2	1.6 1.9	28
4KTC 90 S-4/2	1.2 1.5	1700 3360	2.6 3.0	4.2 4.4	1.4 1.5	34
4KTC 90 L-4/2	1.6 2	1690 3420	3.3 3.9	4.6 5	1.6 1.8	36
4KTC 100 LA-4/2	2.0 2.6	1710 3410	4.1 5.2	4.5 3.9	1.5 1.5	45
4KTC 100 LB-4/2	2.8 3.5	1700 3440	5.65 6.6	4.8 5.5	1.6 1.7	49
4KTC 112 M-4/2	4.0 4.8	1750 3470	8.4 8.5	6.3 7.0	2.0 2.0	64
4KTC 132 S-4/2	5.5 6.5	1750 3480	11.5 11.9	5.9 6.0	2.3 2.4	89
4KTC 132 M-4/2	6.5 8.0	1750 3490	13.5 14.5	5.5 6.0	1.9 1.9	99
4KTC 160 M-4/2	10.0 11.0	1760 3520	19.5 22.0	6.2 7.1	2.0 2.2	1.9

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-4/2	13 16	1760 3540	27.5 32.0	8.5 7.6	3.0 2.6	189
4KTC 180 M-4/2	15 18	1760 3530	29.0 33.0	6.5 7.1	2.1 2.1	220
4KTC 180 L-4/2	18 22	1770 3540	35.0 39.0	6.5 7.1	2.1 2.1	240
4KTC 200 L-4/2	22 25	1780 3550	37.0 43.0	8.0 8.0	2.6 2.1	260
4KTC 225 S-4/2	26 30	1780 3550	46.0 59.0	6.6 7.1	2.1 2.1	320
4KTC 225 M-4/2	31 37	1780 3550	62.0 66.0	6.8 7.2	2.1 2.2	400
5KTC 250 M-4/2	40 50	1780 3550	77.0 87.0	6.7 7.1	2.0 2.1	490
4KTC 280 S-4/2	50 63	1780 3560	85.0 95.0	6.5 6.6	1.7 1.7	610
4KTC 280 M-4/2	71 88	1780 3560	128.0 142.0	6.3 6.5	1.5 1.5	685
4KTC 315 S-4/2	85 98	1780 3560	154.0 176.0	6.2 5.7	1.5 1.5	820
4KTC 315 MA-4/2	98 110	1780 3560	156.0 190.0	6.2 5.9	1.5 1.5	930
4KTC 315 MB-4/2	110 130	1780 3560	208.0 230.0	5.9 5.7	1.5 1.4	1240

1



Three-phase motor with short-circuit rotor

Pole number 8/4

D/YY 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection II 2G Ex db IIC T4 Gb or II 2G Ex db e IIC T4 Gb
 II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-8/4	0.05 0.24	740 1640	0.32 0.57	2.0 3.6	1.4 1.5	16
4KTC 71 B-8/4	0.08 0.35	740 1640	0.47 0.82	2.0 3.6	1.4 1.5	17
4KTC 80 A-8/4	0.22 0.33	830 1660	0.83 0.79	2.7 3.7	1.5 1.7	25
4KTC 80 B-8/4	0.30 0.44	830 1680	1.08 0.96	2.7 4.3	1.7 1.7	28
4KTC 90 S-8/4	0.46 0.85	850 1670	1.9 1.9	2.7 3.7	1.6 1.3	34
4KTC 90 L-8/4	0.55 1.10	850 1690	2.3 2.25	2.9 4.1	1.7 1.3	36
4KTC 100 LA-8/4	1.0 1.4	840 1690	3.0 3.0	3.1 4.7	1.5 1.5	45
4KTC 100 LB-8/4	1.1 1.7	860 1720	3.2 3.35	3.7 5.0	1.7 1.5	49
4KTC 112 M-8/4	1.6 2.7	860 1730	4.55 5.0	4.5 5.7	1.7 1.6	64
4KTC 132 S-8/4	2.5 4.0	870 1740	7.1 7.3	4.5 6.3	1.8 1.8	89
4KTC 132 M-8/4	3.3 5.5	880 1750	9.3 8.9	4.9 7.3	2.3 2.0	99
4KTC 160 MA-8/4	4.4 6.0	870 1740	10.0 11.0	5.0 6.7	1.6 1.7	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 160 MB-8/4	5.0 8.0	870 1740	11.7 14.3	5.5 6.6	1.8 1.7	165
4KTC 160 L-8/4	7.5 12.0	870 1750	16.5 20.2	5.7 6.8	1.8 1.5	220
4KTC 180 L-8/4	12.0 16.0	870 1750	29.0 30.0	4.4 6.6	1.5 1.7	240
4KTC 200 L-8/4	16.0 22.0	890 1780	33.8 42.4	7.3 8.9	2.1 2.2	260
4KTC 225 S-8/4	20.0 26.0	880 1760	42.0 50.0	5.0 6.5	1.4 1.5	320
4KTC 225 M-8/4	24.0 30.0	880 1760	50.0 55.0	4.7 6.6	1.3 1.7	400
5KTC 250 M-8/4	33.0 46.0	880 1760	67.0 80.0	4.3 6.2	1.3 1.7	490
4KTC 280 S-8/4	38.0 56.0	880 1760	80.0 96.0	4.4 6.2	1.4 1.4	610
4KTC 280 M-8/4	46.0 66.0	880 1760	88.0 105.0	4.7 6.0	1.3 1.3	685
4KTC 315 S-8/4	57.0 75.0	890 1770	109.0 130.0	4.7 6.1	1.4 1.3	820
4KTC 315 M-8/4	77.0 100.0	890 1770	147.0 173.0	5.5 6.2	1.5 1.3	930



Three-phase motor with short-circuit rotor

Pole number 6/4

Y/Y 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-6/4	0.16 0.22	1100 1730	0.75 0.85	2.5 3.1	1.4 1.3	16
4KTC 71 B-6/4	0.23 0.33	1100 1700	1.05 1.05	3.6 3.0	1.6 1.4	17
4KTC 80 A-6/4	0.24 0.35	1120 1750	0.7 1.07	3.1 4.0	1.5 1.6	25
4KTC 80 B-6/4	0.28 0.44	1140 1730	0.95 1.2	3.8 3.9	2.1 1.5	28
4KTC 90 S-6/4	0.5 0.7	1130 1740	1.5 1.75	3.4 5.0	1.8 1.9	34
4KTC 90 L-6/4	0.65 1.0	1150 1700	1.8 2.1	3.4 4.2	1.5 1.4	36
4KTC 100 LA-6/4	1.0 1.4	1150 1700	2.4 3.0	3.8 4.3	1.3 1.4	45
4KTC 100 LB-6/4	1.2 1.8	1150 1730	2.8 3.75	4.1 4.6	1.3 1.5	49
4KTC 112 M-6/4	1.6 2.6	1160 1740	3.55 5.05	5.0 5.2	1.6 1.5	64
4KTC 132 S-6/4	2.4 3.3	1160 1760	5.05 6.0	5.4 5.8	1.5 1.7	89
4KTC 132 M-6/4	3.3 5.0	1170 1750	6.7 8.9	6.2 6.0	1.7 1.5	99
4KTC 160 M-6/4	4.0 6.2	1180 1760	8.75 11.8	6.3 7.6	1.7 1.7	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-6/4	6.0 8.8	1180 1770	12.3 15.5	6.7 8.5	1.7 2.0	197
4KTC 180 M-6/4	8.2 12.0	1180 1760	16.6 22.0	6.0 6.2	1.7 1.4	220
4KTC 180 L-6/4	10.0 14.0	1180 1760	20.0 26.0	6.2 6.6	1.7 1.3	240
4KTC 200 L-6/4	14.0 20.0	1180 1760	31.0 39.0	6.5 6.8	1.8 1.9	260
4KTC 225 S-6/4	20.0 25.0	1180 1760	40.0 48.0	5.7 6.0	1.7 1.9	320
4KTC 225 M-6/4	25.0 29.0	1180 1760	48.0 56.0	5.7 6.2	1.8 1.7	400
5KTC 250 M-6/4	29.0 35.0	1180 1760	53.0 65.0	5.7 6.2	1.8 1.9	490
4KTC 280 S-6/4	35.0 50.0	1180 1770	63.0 89.0	6.2 6.6	2.0 2.3	610
4KTC 280 M-6/4	40.0 60.0	1180 1770	72.0 108.0	6.2 6.6	2.0 2.3	685
4KTC 315 S-6/4	50.0 73.0	1180 1780	88.0 130.0	6.5 6.8	1.8 2.0	820
4KTC 315 M-6/4	60.0 88.0	1180 1780	108.0 155.0	6.5 6.8	1.8 2.0	930

1



Three-phase motor with short-circuit rotor

Pole number 8/6

Y/Y 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection II 2G Ex db IIC T4 Gb or II 2G Ex db e IIC T4 Gb
 II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 90 S-8/6	0.38	830	1.35	2.6	1.5	34
	0.50	1150	1.5	3.1	1.5	
4KTC 90 L-8/6	0.50	830	1.68	2.6	1.3	36
	0.65	1150	2.07	3.3	1.5	
4KTC 100 LA-8/6	0.65	860	2.05	2.8	1.4	45
	0.85	1160	2.15	3.9	1.5	
4KTC 100 LB-8/6	0.8	850	2.4	2.9	1.4	49
	1.0	1160	2.5	3.9	1.5	
4KTC 112 M-8/6	1.0	860	2.8	4.0	1.6	64
	1.3	1160	3.0	4.8	1.9	
4KTC 132 S-8/6	1.6	870	5.05	4.6	2.1	89
	2.2	1170	5.5	5.9	2.0	
4KTC 132 M-8/6	2.4	870	6.8	3.7	1.8	99
	3.3	1170	8.1	5.0	1.9	
4KTC 160 M-8/6	3.8	870	8.8	5.2	2.0	155
	5.5	1170	12.0	6.1	1.8	
4KTC 160 L-8/6	5.5	870	12.0	5.2	2.0	197
	7.5	1170	16.0	6.1	1.9	

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 180 L-8/6	7.5	870	18.0	5.2	1.7	240
	10.5	1180	24.0	5.9	1.5	
4KTC 200 L-8/6	11.0	870	23.0	5.2	2.0	260
	14.0	1180	27.0	6.5	1.8	
4KTC 225 S-8/6	14.0	870	29.0	5.0	1.5	320
	17.0	1170	36.0	5.9	1.2	
4KTC 225 M-8/6	18.0	870	42.0	5.1	1.5	400
	24.0	1170	54.0	6.2	1.2	
5KTC 250 M-8/6	24.0	880	51.0	5.5	1.6	490
	33.0	1180	65.0	6.2	1.4	
4KTC 280 S-8/6	30.0	880	63.0	5.5	1.5	610
	38.0	1180	80.0	6.2	1.3	
4KTC 280 M-8/6	36.0	880	74.0	5.7	1.5	685
	45.0	1180	90.0	6.4	1.3	
4KTC 315 S-8/6	44.0	880	90.0	5.7	1.5	820
	55.0	1180	102.0	6.6	1.2	
4KTC 315 M-8/6	53.0	880	103.0	5.7	1.5	930
	68.0	1180	125.0	6.6	1.2	



Three-phase motor with short-circuit rotor

Pole number 4/2

Y/YY 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-4/2	0.09 0.37	1320 2740	0.35 1.1	2.8 3.6	1.7 1.5	16
4KTC 71 B-4/2	0.14 0.5	1330 2800	0.5 1.3	2.7 4.3	1.9 2.9	16
4KTC 80 A-4/2	0.17 0.75	1400 2810	0.58 1.85	3.6 4.7	2.2 2.1	25
4KTC 80 B-4/2	0.2 0.95	1385 2780	0.64 2.5	3.8 4.2	1.8 1.9	28
4KTC 90 S-4/2	0.37 1.4	1430 2810	0.8 3.1	5.6 5.3	2.4 2.0	34
4KTC 90 L-4/2	0.5 2.0	1445 2880	1.2 4.6	5.8 6.4	2.4 2.2	36
4KTC 100 LA-4/2	0.6 2.6	1430 2880	1.6 5.7	5.3 6.5	2.2 1.7	45
4KTC 100 LB-4/2	0.85 3.2	1410 2870	2.0 6.8	4.7 5.7	1.8 2.0	49
4KTC 112 M-4/2	1.1 4.4	1450 2880	2.5 8.5	6.2 6.6	2.1 2.0	64
4KTC 132 S-4/2	1.7 6.0	1455 2890	3.8 12.4	5.9 6.3	2.0 2.3	89
4KTC 132 M-4/2	2.0 8.0	1450 2920	4.2 18.0	7.0 7.3	1.9 2.1	99
4KTC 160 M-4/2	2.9 11.0	1450 2920	6.2 24.5	7.0 7.1	1.9 2.1	169

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-4/2	3.8 15.5	1450 2920	7.4 31	7.9 8.1	2.2 2.2	189
4KTC 180 M-4/2	5 18	1460 2930	12 34	7 7.2	2 2	220
4KTC 180 L-4/2	6 24	1450 2925	14.5 44	7.2 7.3	2.1 2.1	240
4KTC 200 L-4/2	8 30	1460 2940	18.5 57	7.2 7.3	1.9 2	260
4KTC 225 S-4/2	9,2 37	1460 2960	21 68	7 7.3	2 2.1	320
4KTC 225 M-4/2	11,5 44	1450 2970	23 81	7 7.2	2 2	400
5KTC 250 M-4/2	15 55	1470 2950	29 97	5 6.3	2 2.2	490
4KTC 280 S-4/2	20 75	1475 2965	36 125	5.5 7	1.8 2	610
4KTC 280 M-4/2	24 90	1480 2970	44 149	5.6 7.4	1.9 2.2	685
4KTC 315 S-4/2	27 110	1485 2980	48 179	5 6.2	1.3 1.2	820
4KTC 315 MA-4/2	33 132	1485 2980	59 215	5 6.2	1.3 1.2	930
4KTC 315 MB-4/2	37 145	1485 2980	70 237	5.2 6.8	1.2 1.2	1240

1



Three-phase motor with short-circuit rotor

Pole number 8/4

Y/YY 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-8/4	0.05 0.2	700 1420	0.39 0.82	1.7 3.5	1.4 1.8	16
4KTC 71 B-8/4	0.07 0.3	680 1390	0.44 0.95	1.8 3.6	1.6 1.8	17
4KTC 80 A-8/4	0.1 0.45	690 1425	0.53 1.45	2.4 4.7	1.7 2.4	25
4KTC 80 B-8/4	0.13 0.6	690 1435	0.69 1.9	2.35 4.7	1.9 2.7	28
4KTC 90 S-8/4	0.18 0.8	700 1415	0.76 1.9	2.8 5.0	1.8 2.0	34
4KTC 90 L-8/4	0.3 1.2	700 1435	1.24 2.9	3.0 5.6	2.0 2.3	36
4KTC 100 LA-8/4	0.33 1.6	710 1435	1.45 3.7	3.1 5.1	1.3 1.5	45
4KTC 100 LB-8/4	0.55 2.2	695 1430	2.0 4.9	2.8 5.0	1.6 1.8	49
4KTC 112 M-8/4	0.75 3.0	705 1440	2.44 6.1	3.2 6.5	1.7 2.0	64
4KTC 132 S-8/4	1.1 4.4	710 1450	3.5 9.0	2.8 5.3	1.5 2.0	89
4KTC 132 M-8/4	1.3 5.1	720 1460	4.0 10.2	3.5 6.9	3.1 2.6	99
4KTC 160 MA-8/4	1.8 7.5	725 1465	4.6 14.8	5.3 7.6	1.8 2.0	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 160 MB-8/4	3.0 10.0	725 1470	10.0 22.0	3.3 6.6	1.9 2.7	165
4KTC 180 M-8/4	4.0 16.0	735 1465	13.0 30.0	4.5 6.1	1.9 2.4	220
4KTC 180 L-8/4	4.5 19.0	730 1470	14.5 38.5	4.0 6.6	2.1 2.4	240
4KTC 200 L-8/4	6.2 25.0	720 1470	14.5 46.0	4.4 6.8	2.2 2.3	260
4KTC 225 S-8/4	7.5 30.0	725 1470	19.0 60.0	4.6 6.7	2.3 2.4	320
4KTC 225 M-8/4	9.0 37.0	730 1475	22.0 67.0	4.8 7.0	2.4 2.8	400
5KTC 250 M-8/4	12.0 48.0	730 1475	24.5 82.0	5.0 5.8	2.2 2.4	490
4KTC 280 S-8/4	16.0 65.0	740 1485	42.0 127.0	4.3 7.5	1.8 2.1	610
4KTC 280 M-8/4	20.0 80.0	740 1485	48.0 140.0	4.3 7.5	1.8 2.2	685
4KTC 315 S-8/4	24.0 98.0	735 1485	45.0 165.0	4.6 7.0	1.4 1.8	820
4KTC 315 M-8/4	30.0 120.0	740 1485	52.0 196.0	4.6 7.0	1.4 1.8	930



Three-phase motor with short-circuit rotor

Pole number 6/4

Y/Y 380 to 415 V 50 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/ MN)	Weight kg
4KTC 71 B-6/4	0.1 0.3	960 1450	0.83 1.0	2.8 4.0	1.9 2.1	16
4KTC 80 A-6/4	0.13 0.44	930 1430	0.49 1.4	3.8 4.2	1.2 1.6	25
4KTC 80 B-6/4	0.18 0.59	950 1430	0.67 1.6	3.6 4.0	1.9 1.7	28
4KTC 90 S-6/4	0.29 0.8	950 1430	1.05 2.2	3.4 4.3	1.5 1.5	34
4KTC 90 L-6/4	0.37 1.1	960 1430	1.38 2.65	3.7 5.2	2.4 2.0	36
4KTC 100 LA-6/4	0.5 1.5	960 1440	1.65 3.6	3.6 4.8	1.6 1.6	45
4KTC 100 LB-6/4	0.75 2.2	970 1460	3.1 6.8	4.0 5.4	1.6 1.8	49
4KTC 112 M-6/4	0.9 3.0	940 1445	2.43 6.4	4.1 4.8	1.7 1.6	64
4KTC 132 S-6/4	1.2 4.0	980 1460	4.6 9.5	5.1 6.5	1.7 2.0	89
4KTC 132 M-6/4	1.7 5.5	960 1460	6.1 13	5.5 6.8	2.0 1.9	99
4KTC 160 M-6/4	2.5 7.5	980 1465	7.4 16.5	6.0 7.4	2.2 2.1	155
4KTC 160 L-6/4	3.3 11.0	985 1475	8.8 23.1	6.0 7.3	2.7 2.6	197

Selection chart

Type	Power kW	Speed min ⁻¹	In 400 V A	Starting current (I _A /I _N)	Max. torque (MM/ MN)	Weight kg
4KTC 180 M-6/4	5.2 15.0	960 1450	12.0 31.5	6.0 6.9	1.6 1.8	220
4KTC 180 L-6/4	6.2 18.5	965 1450	14.5 36.0	6.2 7.0	1.6 1.8	240
4KTC 200 L-6/4	8.8 25.0	970 1465	18.5 48.5	6.2 6.4	2.1 2.1	260
4KTC 225 S-6/4	11.0 30.0	985 1480	23.7 57.0	6.25 6.2	2.1 2.1	320
4KTC 225 M-6/4	14.0 38.0	980 1470	30.0 71.0	6.0 6.1	2.0 2.1	400
5KTC 250 M-6/4	18.0 52.0	985 1480	34.0 87.0	6.5 7.5	2.3 2.4	490
4KTC 280 S-6/4	25.0 70.0	985 1480	45.0 126.0	6.5 7.0	1.9 1.7	610
4KTC 280 M-6/4	30.0 80.0	985 1485	55.0 141.0	6.5 7.0	2.0 1.8	685
4KTC 315 S-6/4	40.0 105.0	985 1480	63.0 170.0	6.0 6.0	2.4 2.0	820
4KTC 315 M-6/4	50.0 120.0	985 1480	70.0 200.	6.0 7.0	2.3 2.2	930

1



Three-phase motor with short-circuit rotor

Pole number 4/2

Y/YY 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-4/2	0.1 0.4	1585 3290	0.35 1.1	2.7 3.4	1.6 1.4	16
4KTC 71 B-4/2	0.15 0.55	1600 3360	0.5 1.3	2.6 4.1	1.8 2.7	16
4KTC 80 A-4/2	0.18 0.9	1690 3355	0.51 1.94	4.0 3.8	2.7 2.2	25
4KTC 80 B-4/2	0.27 1.1	1660 3340	0.64 2.5	3.6 4.0	1.7 1.8	28
4KTC 90 S-4/2	0.4 1.5	1720 3370	0.8 3.1	5.3 5.0	2.2 1.9	34
4KTC 90 L-4/2	0.55 2.2	1730 3460	1.2 4.6	5.5 6.1	2.2 2.0	36
4KTC 100 LA-4/2	0.65 2.9	1720 3460	1.6 5.7	5.0 6.2	2.0 1.6	45
4KTC 100 LB-4/2	0.95 3.5	1690 3440	2.0 6.8	4.5 5.4	1.7 1.9	49
4KTC 112 M-4/2	1.2 4.8	1740 3460	2.5 8.5	5.9 6.3	2.0 1.9	64
4KTC 132 S-4/2	1.9 6.6	1750 3470	3.8 12.4	5.6 6.0	1.9 2.1	89
4KTC 132 M-4/2	2.2 8.8	1740 3500	4.2 18.0	6.6 7.0	1.8 2.0	99
4KTC 160 M-4/2	3.2 12.6	1740 3500	6.2 24.5	6.6 6.7	1.8 2.0	169

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 160 L-4/2	4.2 17.0	1740 3500	7.4 31.0	7.5 7.7	2.0 2.0	189
4KTC 180 M-4/2	5.5 20.0	1750 3520	12.0 34.0	6.6 6.8	1.9 1.9	220
4KTC 180 L-4/2	6.6 26.0	1740 3510	14.5 44.0	6.8 6.9	2.0 2.0	240
4KTC 200 L-4/2	8.8 33.0	1750 3530	18.5 57.0	6.8 6.9	1.8 1.9	260
4KTC 225 S-4/2	10.0 41.0	1750 3550	21.0 68.0	6.6 6.9	1.9 2.0	320
4KTC 225 M-4/2	12.5 48.0	1740 3560	23.0 81.0	6.6 6.8	1.9 1.9	400
5KTC 250 M-4/2	16.5 60.0	1760 3540	29.0 97.0	4.8 6.0	1.9 2.0	490
4KTC 280 S-4/2	22.0 82.0	1770 3560	36.0 125.0	5.2 6.6	1.7 1.9	610
4KTC 280 M-4/2	26.0 100.0	1780 3560	44.0 149.0	5.3 7.0	1.8 2.0	685
4KTC 315 S-4/2	30.0 120.0	1780 3580	48.0 179.0	4.7 5.9	1.2 1.1	820
4KTC 315 MA-4/2	36.0 145.0	1780 3580	59.0 215.0	4.7 5.9	1.2 1.1	930
4KTC 315 MB-4/2	40.0 160.0	1780 3580	70.0 237.0	5.0 6.5	1.1 1.1	1240



Three-phase motor with short-circuit rotor

Pole number 8/4

Y/YY 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 71 A-8/4	0.06 0.22	840 1700	0.39 0.82	1.6 3.3	1.3 1.7	16
4KTC 71 B-8/4	0.08 0.33	820 1670	0.44 0.95	1.7 3.4	1.5 1.7	17
4KTC 80 A-8/4	0.11 0.5	830 1710	0.53 1.45	2.3 4.5	1.6 2.2	25
4KTC 80 B-8/4	0.14 0.65	830 1720	0.69 1.9	2.2 4.5	1.8 2.5	28
4KTC 90 S-8/4	0.2 0.9	840 1700	0.76 1.9	4.8 2.7	1.7 1.9	34
4KTC 90 L-8/4	0.33 1.32	834 1715	1.16 2.9	3.4 5.15	2.1 2.7	36
4KTC 100 LA-8/4	0.45 2.0	840 1705	1.4 3.95	2.9 4.7	1.2 1.4	45
4KTC 100 LB-8/4	0.6 2.4	845 1730	2.15 5.1	3.0 5.5	2.1 2.7	49
4KTC 112 M-8/4	0.8 3.3	850 1730	2.44 6.1	3.0 6.2	1.6 1.9	64
4KTC 132 S-8/4	1.2 4.8	850 1740	3.5 9.0	2.7 5.0	1.4 1.9	89
4KTC 132 M-8/4	1.15 5.75	865 1745	3.45 10.4	3.7 6.5	2.9 2.4	99
4KTC 160 MA-8/4	1.6 8.0	875 1755	4.0 14.2	5.6 7.3	1.7 1.9	155

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (I _A /I _N)	Max. torque (MM/MN)	Weight kg
4KTC 160 MB-8/4	3.3 11.0	870 1760	10.0 22.0	3.1 6.3	1.8 2.5	165
4KTC 180 M-8/4	4.4 17.6	875 1765	11.2 31.0	3.8 6.5	1.7 2.3	220
4KTC 180 L-8/4	4.5 18.0	880 1775	12.8 33.0	4.0 7.6	2.0 2.2	240
4KTC 200 L-8/4	6.0 30.0	885 1775	14.3 51.0	6.4 8.7	2.0 2.1	260
4KTC 225 S-8/4	9.0 35.0	870 1760	19.0 60.0	4.4 6.4	2.1 2.2	320
4KTC 225 M-8/4	10.0 41.0	880 1770	22.0 67.0	4.6 6.7	2.2 2.6	400
5KTC 250 M-8/4	11.0 50.0	880 1770	24.5 82.0	4.8 5.5	2.0 2.2	490
4KTC 280 S-8/4	19.0 75.0	890 1780	42.0 127.0	4.1 7.1	1.7 2.0	610
4KTC 280 M-8/4	22.0 88.0	890 1780	48.0 140.0	4.1 7.1	1.7 2.0	685
4KTC 315 S-8/4	24.0 105.0	880 1780	45.0 165.0	4.4 6.7	1.3 1.7	820
4KTC 315 M-8/4	29.0 126.0	890 1780	52.0 196.0	4.4 6.7	1.3 1.7	930

1



Three-phase motor with short-circuit rotor

Pole number 6/4

Y/Y 440 to 480 V 60 Hz

Protection class IP 55
 Temperature class T1 to T4
 Thermal class F

Explosion protection Ex II 2G Ex db IIC T4 Gb or Ex II 2G Ex db e IIC T4 Gb
 Ex II 2D Ex tb IIIC T135°C Db

Type	4KT(B)C(D)											5KT(B)C(D)	4KT(B)C	
	63	71	80	90	100	112	132	160	180	200	225	250	280	315
SIQ 15 ATEX 084 X	●													
BVS 13 ATEX E 125 X		●	●	●	●	●	●	●	●	●	●			
BVS 16 ATEX E 129 X												●		
BVS 15 ATEX E 075 X													●	●

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 71 B-6/4	0.11 0.33	1150 1740	0.83 1.0	2.7 1.0	1.8 2.0	16
4KTC 80 A-6/4	0.14 0.48	1120 1720	0.49 1.4	3.6 4.0	1.1 1.5	25
4KTC 80 B-6/4	0.2 0.65	1140 1720	0.67 1.6	3.4 3.8	1.8 1.6	28
4KTC 90 S-6/4	0.32 0.88	1140 1720	1.05 2.2	3.2 4.1	1.4 1.4	34
4KTC 90 L-6/4	0.4 1.2	1150 1720	1.38 2.65	3.5 4.9	2.2 1.9	36
4KTC 100 LA-6/4	0.55 1.65	1150 1730	1.65 3.6	3.4 4.6	1.5 1.5	45
4KTC 100 LB-6/4	0.82 2.4	1160 1750	3.1 6.8	3.8 5.1	1.5 1.7	49
4KTC 112 M-6/4	1.0 3.3	1130 1730	2.43 6.4	3.9 4.6	1.6 1.5	64
4KTC 132 S-6/4	1.3 4.4	1180 1750	4.6 9.5	4.8 6.2	1.6 1.9	89
4KTC 132 M-6/4	1.9 6.0	1150 1750	6.1 13	5.2 6.5	1.9 1.8	99
4KTC 160 M-6/4	2.7 8.2	1180 1760	7.4 16.5	5.7 7.0	2.0 2.0	155
4KTC 160 L-6/4	3.6 12.0	1180 1770	8.8 23.1	5.7 6.9	2.5 2.4	197

Selection chart

Type	Power kW	Speed min ⁻¹	In 440 V A	Starting current (IA/IN)	Max. torque (MM/MN)	Weight kg
4KTC 180 M-6/4	5.7 16.5	1150 1740	12.0 31.5	5.7 6.6	1.5 1.7	220
4KTC 180 L-6/4	6.8 20.0	1160 1740	14.5 36.0	5.9 6.6	1.5 1.7	240
4KTC 200 L-6/4	10.0 28.0	1160 1760	18.5 48.5	5.9 6.1	2.0 2.0	260
4KTC 225 S-6/4	12.0 33.0	1180 1780	23.7 57.0	5.9 6.2	2.0 2.0	320
4KTC 225 M-6/4	15.0 42.0	1180 1760	30.0 71.0	5.7 5.8	1.9 2.0	400
5KTC 250 M-6/4	19.0 53.0	1180 1780	34.0 87.0	6.2 7.1	2.1 2.2	490
4KTC 280 S-6/4	27.0 77.0	1180 1780	45.0 126.0	6.2 6.7	1.8 1.6	610
4KTC 280 M-6/4	33.0 90.0	1180 1780	55.0 141.0	6.2 6.7	1.9 1.7	685
4KTC 315 S-6/4	35.0 105.0	1180 1780	63.0 170.0	5.7 5.7	2.2 1.9	820
4KTC 315 M-6/4	41.0 126.0	1180 1780	70.0 200.0	5.7 6.7	2.1 2.0	930

General description

The asynchronous motor with its short-circuit rotor and robust construction offers an excellent price-performance ratio. AC motors are designed for constant speed operation. It is not possible to change speed when they are running on fixed frequency supplies. There are drives which require the additional flexibility of smooth speed variations and this is best achieved with the use of an inverter.

Frequency inverters provide an excellent speed and the speed can be varied continuously over the entire frequency range. To avoid overheating, three PTC elements are built into the head of the winding. As the speed rises (higher frequency), the motor becomes louder. Voltage type frequency inverters cause a noise increase of about 7 to 15 dB, current type ones of about 3 dB.

We strongly recommend that you indicate frequency range and working characteristics of the motor ($T = f(n)$ or $P = f(n)$) when placing your order.

Power and torque characteristics of motors driven by frequency inverters

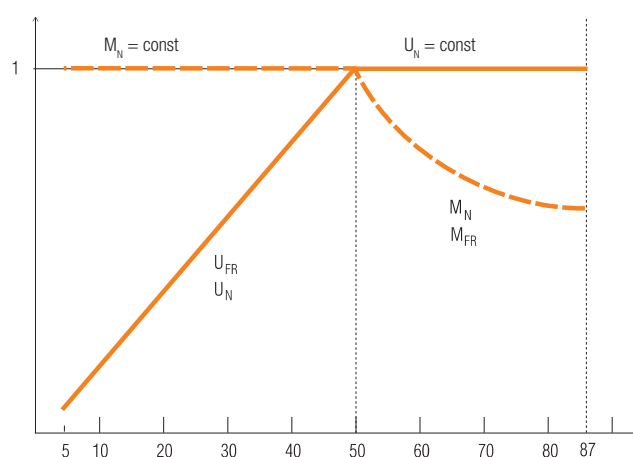
We distinguish two ranges:

• **0 to 50 Hz range**

Here the motor develops its normal torque on the shaft at 5 to 10 Hz of the output frequency (10 to 20 % of the nominal speed). The motor maintains the nominal torque at the shaft until the frequency reaches 50 Hz (100 % of the nominal speed). Voltage keeps rising while the magnetic flux is kept constant. The power increase in this range is linear to the revolutions ($P = k \times M \times n$).

• **50 to 87 Hz range**

Here the torque falls parallel to the speed. The voltage of the motor is maintained on a constant level while the magnetic flux is weaker. The current level is maintained and independent of the speed.



U_N = net voltage

U_{FR} = voltage of frequency inverter

M_N = motor torque on net

M_{FR} = motor torque on frequency inverter

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Pole number 2

Three-phase motor with short-circuit rotor

Explosion protection: II 2G Ex d IIC T4 or II 2G Ex de IIC T4

Selection chart

Operating	net	frequency inverter						
Cooling	own	own	own	own	own	own	forced cooling	own
Torque		T - n ²	constant	constant	constant	constant	constant	constant
Frequency	50 Hz	5 to 50 Hz	20 to 50 Hz	10 to 50 Hz	5 to 50 Hz	50 to 87 Hz	5 to 87 Hz	50 to 87 Hz*
Ratio		1 : 10	1 : 2.5	1 : 5	1 : 10	1 : 1.74	1 : 17.4	1 : 1.74
RPM		300 - 3000 min ⁻¹	1200 - 3000 min ⁻¹	600 - 3000 min ⁻¹	300 - 3000 min ⁻¹	3000 - 5220 min ⁻¹	300 - 5220 min ⁻¹	3000 - 5220 min ⁻¹
V/f		U/f = const	U/f = const	U/f = const	U/f = const	U = const	U = const	U/f = const**

* range 60 to 87 Hz, motors with steel fan ** U = 230/400 V

Type		Power kW	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm
4KTC 71	A-2	0.37	0.35	1.12	0.32	1.07	0.3	0.97	0.22	0.74	0.35	0.65	0.35	0.65	0.6	1.12
	B-2	0.55	0.53	1.7	0.47	1.62	0.45	1.47	0.33	1.1	0.53	0.98	0.53	0.98	0.9	1.7
4KTC 80	A-2	0.75	0.72	2.3	0.65	2.2	0.6	2.0	0.5	1.7	0.7	1.33	0.7	1.33	1.2	2.3
	B-2	1.1	1.0	3.4	0.95	3.25	0.9	3.0	0.75	2.5	1.1	2.0	1.1	2.0	1.8	3.4
4KTC 90	S-2	1.5	1.4	4.5	1.3	4.3	1.2	4.0	1.0	3.3	1.4	2.6	1.4	2.6	2.5	4.5
	L-2	2.2	2.1	6.7	1.9	6.4	1.7	5.7	1.4	4.7	2.1	3.8	2.1	3.8	3.7	6.7
4KTC 100	L-2	3.0	2.8	9.0	2.6	8.6	2.2	7.2	1.8	5.9	2.8	5.2	2.8	5.2	4.9	9.0
4KTC 112	M-2	4.0	3.8	12.0	3.4	11.4	3.2	10.4	2.5	8.2	3.8	6.9	3.8	6.9	6.5	12.0
4KTC 132	SA-2	5.5	5.1	16.3	4.7	15.6	4.5	14.1	3.7	12.0	5.1	9.4	5.1	9.4	8.9	16.3
	SB-2	7.5	6.9	22.0	6.5	21.1	6.0	19.1	5.0	16.0	7.0	12.7	7.0	12.7	12.0	22.0
4KTC 160	MA-2	11.0	10.0	32.2	9.5	30.8	8.8	27.9	7.5	24.0	10.2	18.6	10.2	18.6	17.6	32.2
	MB-2	15.0	13.5	43.8	12.9	41.9	12.0	38.0	10.0	32.0	13.8	25.3	13.8	25.3	24.0	43.8
	L-2	18.5	16.6	54.0	15.9	51.6	15.0	46.8	12.0	41.0	17.0	31.2	17.0	31.2	29.5	54.0
4KTC 180	M-2	22.0	20.0	64.4	18.9	61.5	18.0	55.8	15.0	49.0	20.3	37.2	20.3	37.2	35.0	64.4
4KTC 200	LA-2	30.0	27.0	87.0	25.8	83.4	24.0	75.7	21.0	68.0	27.6	50.4	27.6	50.4	47.0	87.0
	LB-2	37.0	33.0	107.0	31.8	102.4	28.0	90.0	26.0	84.0	34.0	62.0	34.0	62.0	58.0	107.0
4KTC 225	M-2	45.0	40.0	130.0	37.0	119.0	34.0	110.0	32.0	101.0	-	-	-	-	-	-
5KTC 250	M-2	55.0	50.0	159.0	45.0	145.0	43.0	138.0	39.0	124.0	-	-	-	-	-	-
4KTC 280	S-2	75.0	67.0	217.0	60.0	193.0	58.0	186.0	53.0	169.0	-	-	-	-	-	-
	M-2	90.0	81.0	260.0	73.0	234.0	70.0	225.0	63.0	202.0	-	-	-	-	-	-
4KTC 315	S-2	110.0	100.0	318.0	90.0	288.0	88.0	282.0	78.0	247.0	-	-	-	-	-	-
	MA-2	132.0	119.0	382.0	110.0	353.0	105.0	331.0	93.0	297.0	-	-	-	-	-	-
	MA-2	160.0	144.0	458.0	135.0	433.0	125.0	398.0	112.0	358.0	-	-	-	-	-	-
	L-2	200.0	180.0	575.0	165.0	528.0	156.0	498.0	140.0	447.0	-	-	-	-	-	-



Pole number 4

Explosion protection: II 2G Ex d IIC T4 or II 2G Ex de IIC T4

Selection chart

Operating	net	frequency inverter						
Cooling	own	own	own	own	own	own	forced cooling	own
Torque		T - n ²	constant	constant	constant	constant	constant	constant
Frequency	50 Hz	5 to 50 Hz	20 to 50 Hz	10 to 50 Hz	5 to 50 Hz	50 to 87 Hz	5 to 87 Hz	50 to 87 Hz*
Ratio		1 : 10	1 : 2.5	1 : 5	1 : 10	1 : 1.74	1 : 17.4	1 : 1.74
RPM		150 - 1500 min ⁻¹	600 - 1500 min ⁻¹	300 - 1500 min ⁻¹	150 - 1500 min ⁻¹	1500 - 2610 min ⁻¹	150 - 2610 min ⁻¹	1500 - 2610 min ⁻¹
V/f		U/f = const	U/f = const	U/f = const	U/f = const	U = const	U = const	U/f = const**

* range 60 to 87 Hz, motors with steel fan ** U = 230/400 V

Type		Power kW	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm
KTC 71	A-4	0.25	0.25	1.57	0.23	1.5	0.21	1.35	0.19	1.2	0.25	0.9	0.25	0.9	0.43	1.57
	B-4	0.37	0.36	2.3	0.34	2.2	0.31	2.0	0.28	1.8	0.35	1.3	0.35	1.3	0.63	2.3
4KTC 80	A-4	0.55	0.53	3.38	0.5	3.2	0.45	2.9	0.4	2.6	0.55	2.0	0.55	2.0	0.92	3.38
	B-4	0.75	0.72	4.6	0.69	4.4	0.62	4.0	0.56	3.6	0.71	2.6	0.71	2.6	1.2	4.6
4KTC 90	S-4	1.1	1.05	6.7	1.0	6.4	0.9	5.8	0.8	5.2	1.05	3.9	1.05	3.9	1.8	6.7
	L-4	1.5	1.4	9.1	1.4	8.7	1.2	7.9	1.1	7.1	1.4	5.2	1.4	5.2	2.5	9.1
4KTC 100	LA-4	2.2	2.1	13.4	2.0	12.8	1.8	11.6	1.6	10.4	2.1	7.7	2.1	7.7	3.6	13.4
	LB-4	3.0	2.8	18.2	2.7	17.4	2.5	15.7	2.2	14.1	2.9	10.5	2.9	10.5	5.0	18.2
4KTC 112	M-4	4.0	3.8	24.0	3.6	22.9	3.2	20.7	2.9	18.6	3.8	13.8	3.8	13.8	6.5	24.0
4KTC 132	S-4	5.5	5.2	33.0	5.0	31.5	4.5	28.5	4.0	25.6	5.2	19.0	5.2	19.0	9.0	33.0
	M-4	7.5	7.0	44.5	6.7	42.6	6.0	38.6	5.4	34.6	7.0	25.7	7.0	25.7	12.0	44.5
4KTC 160	M-4	11.0	10.0	64.5	9.7	61.7	8.8	56.0	7.8	50.0	10.2	37.3	10.2	37.3	17.0	64.5
	L-4	15.0	14.0	88.0	13.2	84.0	12.0	76.3	10.7	68.0	13.9	50.8	13.9	50.8	24.0	88.0
4KTC 180	M-4	18.5	17.0	108.5	16.3	104.0	14.8	94.0	13.2	84.0	17.1	62.7	17.1	62.7	30.0	108.5
	L-4	22.0	20.0	129.0	19.3	123.0	17.6	112.0	15.7	100.0	20.4	74.5	20.4	74.5	35.0	129.0
4KTC 200	L-4	30.0	28.0	176.0	26.4	168.0	23.9	152.0	21.0	136.0	27.7	101.5	27.7	101.5	48.0	176.0
4KTC 225	S-4	37.0	34.0	216.0	32.3	206.0	29.4	187.0	26.0	168.0	34.2	125.0	34.2	125.0	-	-
	M-4	45.0	41.0	262.0	39.3	250.0	35.6	227.0	32.0	204.0	41.0	151.0	41.0	151.0	-	-
5KTC 250	M-4	55.0	50.0	320.0	48.0	305.0	43.5	277.0	39.0	248.0	50.0	185.0	50.0	185.0	-	-
4KTC 280	S-4	75.0	68.0	434.0	65.0	415.0	59.0	376.0	53.0	337.0	68.0	250.0	68.0	250.0	-	-
	M-4	90.0	82.0	520.0	78.0	497.0	70.0	450.0	64.0	405.0	82.0	300.0	82.0	300.0	-	-
4KTC 315	S-4	110.0	100.0	635.0	95.0	607.0	86.0	550.0	77.0	494.0	100.0	367.0	100.0	367.0	-	-
	MA-4	132.0	120.0	766.0	115.0	732.0	104.0	664.0	94.0	596.0	121.0	442.0	121.0	442.0	-	-
	MB-4	160.0	145.0	924.0	138.0	883.0	126.0	801.0	113.0	719.0	146.0	534.0	146.0	534.0	-	-
	L-4	200.0	180.0	1154.0	173.0	1102.0	157.0	1000.0	140.0	897.0	182.0	666.0	182.0	666.0	-	-

1



Three-phase motor with short-circuit rotor

Pole number 6

Explosion protection: II 2G Ex d IIC T4 or II 2G Ex de IIC T4

Selection chart

Operating	net	frequency inverter						
Cooling	own	own	own	own	own	own	forced cooling	own
Torque		T - n ²	constant	constant	constant	constant	constant	constant
Frequency	50 Hz	5 to 50 Hz	20 to 50 Hz	10 to 50 Hz	5 to 50 Hz	50 to 87 Hz	5 to 87 Hz	50 to 87 Hz*
Ratio		1 : 10	1 : 2.5	1 : 5	1 : 10	1 : 1.74	1 : 17.4	1 : 1.74
RPM		100 - 1000 min ⁻¹	400 - 1000 min ⁻¹	200 - 1000 min ⁻¹	100 - 1000 min ⁻¹	1000 - 1740 min ⁻¹	100 - 1740 min ⁻¹	1000 - 1740 min ⁻¹
V/f		U/f = const	U/f = const	U/f = const	U/f = const	U = const	U = const	U/f = const**

* range 60 to 87 Hz, motors with steel fan ** U = 230/400 V

Type		Power kW	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm
4KTC	71 B-6	0.25	0.24	2.3	0.23	2.2	0.21	2.0	0.19	1.8	0.24	1.3	0.24	1.3	0.42	2.3
4KTC	80 A-6 B-6	0.37	0.36	3.4	0.35	3.3	0.31	3.0	0.28	2.7	0.36	2.0	0.36	2.0	0.62	3.4
		0.55	0.53	5.1	0.51	4.9	0.46	4.4	0.42	4.0	0.55	3.0	0.55	3.0	0.93	5.1
4KTC	90 S-6 L-6	0.75	0.73	7.0	0.7	6.7	0.64	6.1	0.57	5.5	0.73	4.0	0.73	4.0	1.27	7.0
		1.1	1.08	10.3	1.04	9.9	0.94	9.0	0.84	8.0	1.1	6.0	1.1	6.0	1.9	10.3
4KTC	100 L-6	1.5	1.45	13.9	1.38	13.2	1.25	12.0	1.1	10.8	1.45	8.0	1.45	8.0	2.5	13.9
4KTC	112 M-6	2.2	2.05	19.7	2.0	18.8	1.8	17.0	1.6	15.3	2.1	11.4	2.1	11.4	3.6	19.7
4KTC	132 S-6 MA-6 MB-6	3.0	2.8	26.5	2.6	25.3	2.4	23.0	2.1	20.6	2.8	15.3	2.8	15.3	4.8	26.5
		4.0	3.8	36.0	3.6	34.3	3.2	31.0	2.9	28.0	3.8	20.7	3.8	20.7	6.5	36.0
		5.5	5.2	50.0	4.9	47.0	4.5	43.0	4.0	38.0	5.3	29.0	5.3	29.0	9.1	50.0
4KTC	160 M-6 L-6	7.5	7.0	67.0	6.7	64.0	6.0	58.0	5.4	52.0	6.9	38.0	6.9	38.0	12.2	67.0
		11.0	10.3	98.0	9.8	94.0	8.9	85.0	8.0	76.0	10.4	57.0	10.4	57.0	17.8	98.0
4KTC	180 L-6	15.0	14.0	133.0	13.0	127.0	12.0	115.0	10.9	104.0	14.0	77.0	14.0	77.0	24.2	133.0
4KTC	200 LA-6 LB-6	18.5	17.3	165.0	16.0	157.0	15.0	143.0	13.4	128.0	17.3	95.0	17.3	95.0	30.0	165.0
		22.0	20.6	197.0	19.0	188.0	17.8	170.0	16.0	153.0	20.8	114.0	20.8	114.0	36.0	197.0
4KTC	225 M-6	30.0	27.5	264.0	26.0	252.0	24.0	228.0	21.5	205.0	27.7	152.0	27.7	152.0	-	-
5KTC	250 M-6	37.0	34.0	323.0	32.0	308.0	29.0	280.0	26.0	251.0	34.0	187.0	34.0	187.0	-	-
4KTC	280 S-6 M-6	45.0	41.0	393.0	39.0	376.0	35.0	340.0	32.0	306.0	41.0	227.0	41.0	227.0	-	-
		55.0	50.0	481.0	48.0	459.0	43.0	416.0	39.0	374.0	50.0	278.0	50.0	278.0	-	-
4KTC	315 S-6 MA-6 MB-6 L-6	75.0	69.0	659.0	65.0	629.0	58.0	571.0	54.0	512.0	69.0	381.0	69.0	381.0	-	-
		90.0	82.0	787.0	78.0	752.0	71.0	681.0	64.0	612.0	83.0	454.0	83.0	454.0	-	-
		110.0	100.0	960.0	96.0	917.0	87.0	831.0	78.0	746.0	101.0	554.0	101.0	554.0	-	-
		132.0	120.0	1150.0	115.0	1100.0	104.0	997.0	94.0	895.0	121.0	665.0	121.0	665.0	-	-



Three-phase motor with short-circuit rotor

Pole number 8

Explosion protection: II 2G Ex d IIC T4 or II 2G Ex de IIC T4

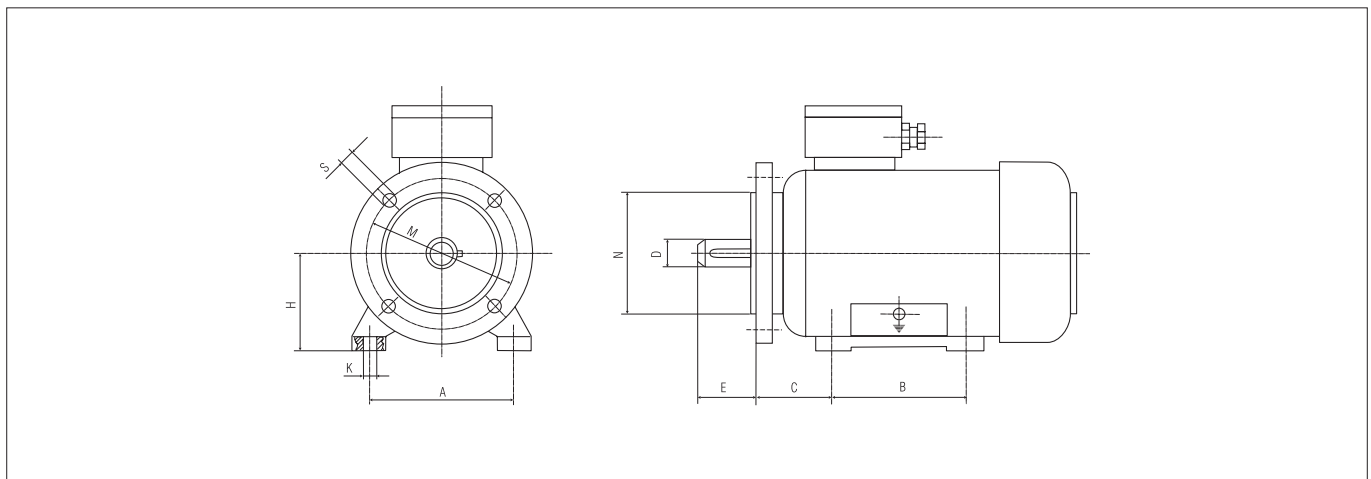
Selection chart

Operating	net	frequency inverter						
Cooling	own	own	own	own	own	own	forced cooling	own
Torque		T · n ²	constant	constant	constant	constant	constant	constant
Frequency	50 Hz	5 to 50 Hz	20 to 50 Hz	10 to 50 Hz	5 to 50 Hz	50 to 87 Hz	5 to 87 Hz	50 to 87 Hz*
Ratio		1 : 10	1 : 2.5	1 : 5	1 : 10	-	-	1 : 1.74
RPM		75 - 750 min ⁻¹	300 - 750 min ⁻¹	150 - 750 min ⁻¹	75 - 750 min ⁻¹	750 - 1305 min ⁻¹	75 - 1305 min ⁻¹	750 - 1305 min ⁻¹
V/f		U/f = const	U/f = const	U/f = const	U/f = const	U = const	U = const	U/f = const**

* range 60 to 87 Hz, motors with steel fan ** U = 230/400 V

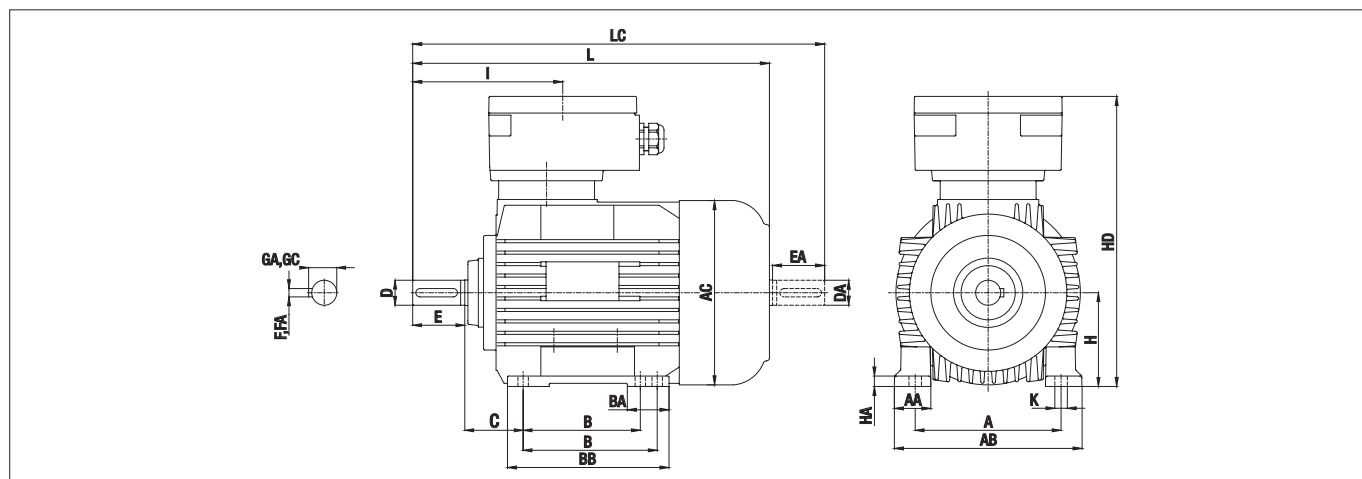
Type		Power kW	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 50 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm	Power 87 Hz	Torque Nm
4KTC	71 B-8	0.12	0.12	1.57	0.11	1.5	0.11	1.4	0.09	1.2	0.12	0.9	0.12	0.9	0.21	1.57
4KTC	80 A-8	0.18	0.18	2.3	0.17	2.2	0.16	2.0	0.14	1.8	0.18	1.3	0.18	1.3	0.31	2.3
	B-8	0.25	0.25	3.2	0.23	3.0	0.21	2.7	0.2	2.5	0.25	1.8	0.25	1.8	0.44	3.2
4KTC	90 S-8	0.37	0.37	4.7	0.35	4.5	0.31	4.0	0.28	3.6	0.37	2.7	0.37	2.7	0.64	4.7
	L-8	0.55	0.54	6.9	0.52	6.6	0.47	6.0	0.42	5.4	0.55	4.0	0.55	4.0	0.94	6.9
4KTC	100 LA-8	0.75	0.74	9.4	0.7	8.9	0.64	8.1	0.57	7.3	0.75	5.4	0.75	5.4	1.3	9.4
	LB-8	1.1	1.05	13.5	1.0	12.9	0.92	11.7	0.82	10.5	1.1	7.8	1.1	7.8	1.8	13.5
4KTC	112 M-8	1.5	1.4	18.2	1.35	17.4	1.24	15.8	1.1	14.1	1.4	10.5	1.4	10.5	2.5	18.2
4KTC	132 S-8	2.2	2.1	26.6	2.0	25.5	1.8	23.1	1.6	20.7	2.1	15.4	2.1	15.4	3.6	26.6
	M-8	3.0	2.8	36.4	27.0	35.0	2.5	31.5	2.2	28.3	2.9	21.0	2.9	21.0	5.0	36.4
4KTC	160 MA-8	4.0	3.8	48.0	3.6	46.0	3.2	41.4	2.9	37.2	3.8	27.6	3.8	27.6	6.5	48.0
	MB-8	5.5	5.2	66.0	4.9	63.0	4.5	57.4	4.0	51.5	5.2	38.3	5.2	38.3	9.0	66.0
	L-8	7.5	7.0	89.0	6.7	85.0	6.0	77.0	5.4	69.2	7.0	51.4	7.0	51.4	12.0	89.0
4KTC	180 L-8	11.0	10.4	132.0	9.9	126.0	9.0	115.0	8.0	103.0	10.4	76.0	10.4	76.0	18.0	132.0
4KTC	200 L-8	15.0	13.8	176.0	13.2	168.0	12.0	153.0	10.8	137.0	14.0	102.0	14.0	102.0	24.0	176.0
4KTC	225 S-8	18.5	17.6	224.0	16.8	214.0	15.0	194.0	14.0	174.0	17.6	129.0	17.6	129.0	-	-
	M-8	22.0	21.0	265.0	20.0	253.0	18.0	229.0	16.0	206.0	21.0	153.0	21.0	153.0	-	-
5KTC	250 M-8	30.0	28.0	358.0	27.0	342.0	24.0	310.0	22.0	279.0	28.0	207.0	28.0	207.0	-	-
4KTC	280 S-8	37.0	34.0	436.0	33.0	417.0	30.0	378.0	27.0	339.0	34.0	252.0	34.0	252.0	-	-
	M-8	45.0	41.0	527.0	40.0	504.0	36.0	457.0	32.0	410.0	42.0	305.0	42.0	305.0	-	-
4KTC	315 S-8	55.0	50.0	644.0	48.0	616.0	44.0	558.0	39.0	501.0	51.0	372.0	51.0	372.0	-	-
	MA-8	75.0	68.0	872.0	65.0	833.0	59.0	756.0	53.0	678.0	69.0	504.0	69.0	504.0	-	-
	MB-8	90.0	81.0	1030.0	77.0	985.0	70.0	893.0	63.0	801.0	81.0	595.0	81.0	595.0	-	-
	L-8	110.0	99.0	1260.0	95.0	1204.0	86.0	1092.0	77.0	980.0	99.0	728.0	99.0	728.0	-	-

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The mounting dimensions allow the following tolerances:

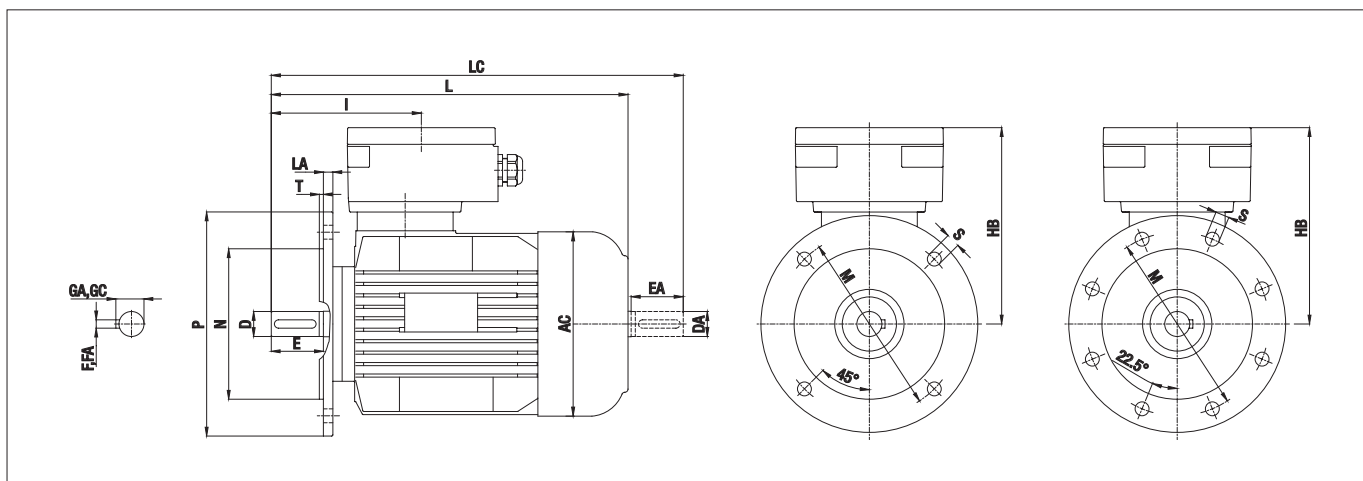
Dimensions		Tolerance
A, B	≤ 250 mm	± 0.75 mm
	> 250 mm ... 500 mm	± 1.00 mm
	> 500 mm ... 750 mm	± 1.50 mm
H	> 50 mm ... 250 mm	- 0.50 mm
	> 250 mm ... 630 mm	- 1.00 mm
C	≤ 85 mm	± 1.00 mm
	> 85 mm ... 130 mm	± 2.00 mm
	> 130 mm ... 240 mm	± 3.00 mm
	> 240 mm ... 500 mm	± 4.00 mm
M	≤ 200 mm	± 0.25 mm
	> 200 mm ... 500 mm	± 0.50 mm
	> 500 mm	± 1.00 mm
K and S	+ 3 % diameter	
E	≤ 30 mm	- 0.20 mm
	> 30 mm ... 110 mm	- 0.30 mm
D	≤ ∅ 50 mm	k 6
	≥ ∅ 50 mm	m 6
N	≤ 230 mm	j 6
	≥ 250 mm	h 6



Dimensions

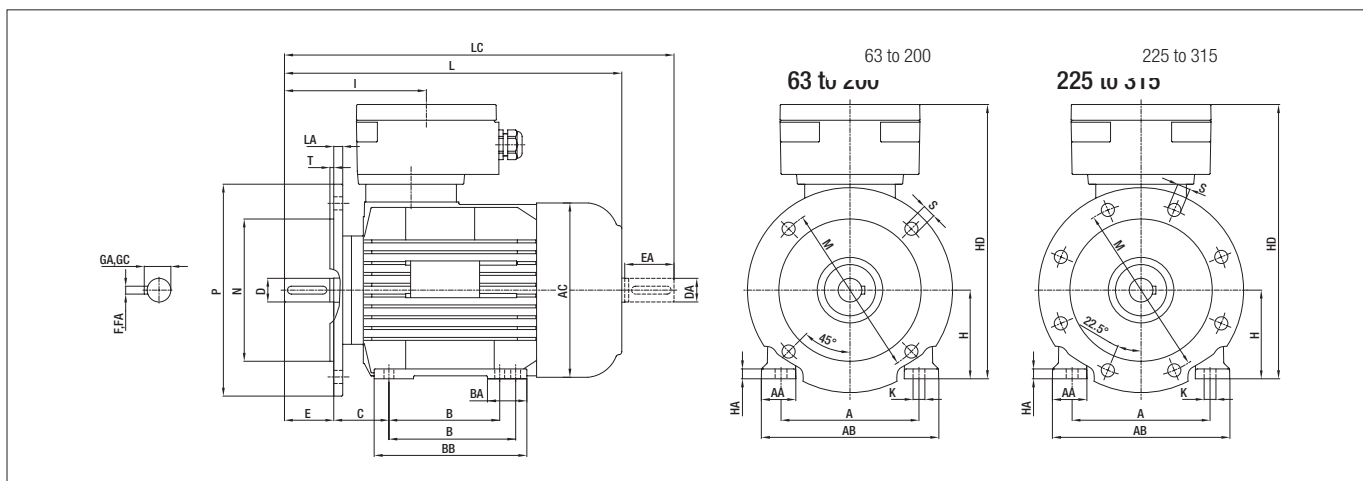
Frame size	A	AA	AB	AC	B	BA	BB	C	D DA	E EA	F FA	GC GA	H	HA	HD Ex de	HD Ex d	I	K	L	LC
4KTC 63 A, B	100	22	120	124	80	30	106	40	11	23	4	12.5	63	8	210	210	105	7	238	266
4KTC 71 A, B	112	30	140	139	90	30	114	45	14	30	5	16.0	71	10	218	218	113	9	272	307
4KTC 80 A, B	125	32	160	157	100	35	130	50	19	40	6	21.5	80	10	249	249	132	10	319	362
4KTC 90 S L	140	35	180	177	100 125	60	155	56	24	50	8	27.0	90	10	271	271	144	10	363	415
4KTC 100 L	160	45	205	195	140	45	175	63	28	60	8	31.0	100	17	288	288	158	12	418	481
4KTC 112 M	190	50	235	219	140	50	180	70	28	60	8	31.0	112	15	311	311	158	12	442	504
4KTC 132 S M	216	55	266	258	140 178	75	218	89	38	80	10	41.0	132	18	350	350	181	12	536	619
4KTC 160 M L	254	60	312	310	210 254	104	300	108	42	110	12	45.0	160	21	436	436	254	14	669	785
4KTC 180 M L	279	70	350	345	241 279	118	333	121	48	110	14	51.0	180	22	496	496	297	14	707	830
4KTC 200 L	318	80	398	385	305	95	365	133	55	110	16	59.0	200	21	546	546	308	18	790	910
4KTC 225 S M-2 M	356	80	438	434	286 311 311	113	374	149	60 55 60	140 110 140	18 16 18	64.0 59.0 64.0	225	23	589	589	340 310 340	18	884 854 884	1035 975 1035
5KTC 250 M-2 M	406	100	496	480	349	90	433	168	60 65	140	18	64.0 69.0	250	28	718	723	410	24	1007	1160
4KTC 280 S-2 S M-2 M	457	110	557	537	368 368 419 419	100	454 454 505 505	190	65 75 65 75	140	18 20 18 20	69.0 79.5 69.0 79.5	280	23	769	774	410	24	1036 1036 1096 1096	1191 1191 1251 1251
4KTC 315 S-2 S MA-2 MA MB-2 MB L-2 L	508	120	628	617	406 406 457 457 457 508 508	115	526 526 577 577 577 628 628	216	65 80 65 80 65 80 80	140 170 140 170 140 170 170	18 22 18 22 18 22 22	69.0 85.0 69.0 85.0 69.0 85.0 85.0	315	25	859	864	454 484 454 484 454 484 484	28	1050 1080 1220 1250 1220 1250 1300 1330	1210 1270 1380 1440 1380 1440 1460 1520

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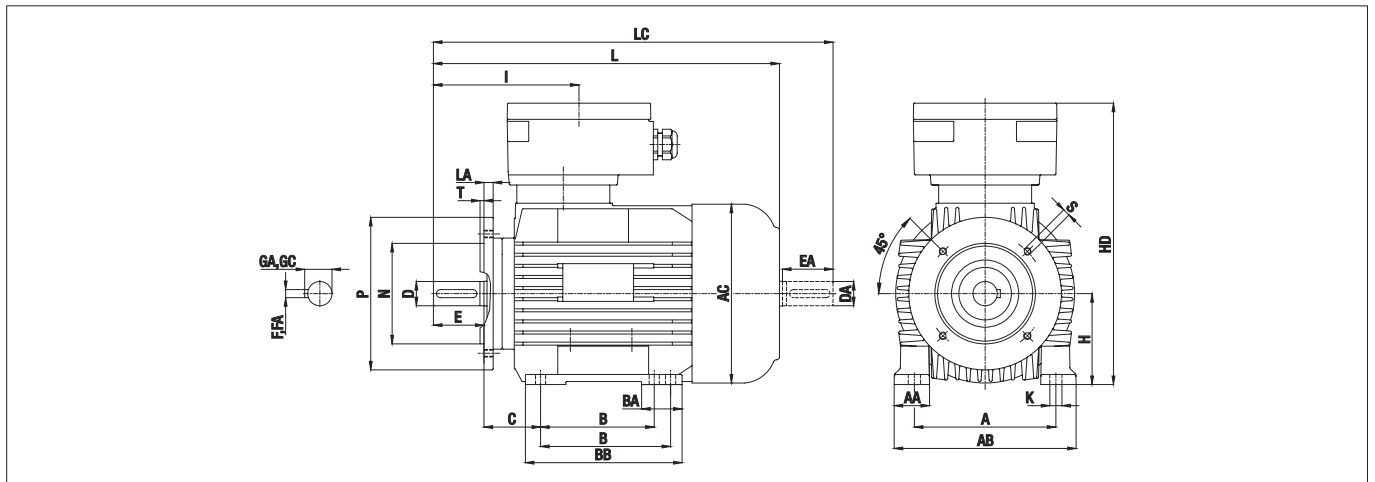
Dimensions

Frame size	Flange	AC	D DA	E EA	F FA	GC GA	HB Ex de	HB Ex d	I	L	LA	LC	M	N	P	S	No. of fixing holes	T	
4KTC 63	A, B	F 115-I	124	11	23	4	12.5	147	147	105	238	8	266	115	95	140	9	4	3.0
4KTC 71	A, B	F 130-I	139	14	30	5	16.0	147	147	113	272	10	307	130	110	160	9	4	3.5
4KTC 80	A, B	F 165-I	157	19	40	6	21.5	169	169	132	319	10	362	165	130	200	12	4	3.5
4KTC 90	S, L	F 165-I	177	24	50	8	27.0	181	181	144	363	10	415	165	130	200	12	4	3.5
4KTC 100	L	F 215-I	195	28	60	8	31.0	188	188	158	418	11	481	215	180	250	14	4	4.0
4KTC 112	M	F 215-I	219	28	60	8	31.0	199	199	158	442	11	504	215	180	250	14	4	4.0
4KTC 132	S, M	F 265-I	258	38	80	10	41.0	218	218	181	536	12	619	265	230	300	14	4	4.0
4KTC 160	M, L	F 300-I	310	42	110	12	45.0	276	276	254	669	15	785	300	250	350	18	4	5.0
4KTC 180	M, L	F 300-I	345	48	110	14	51.0	316	316	297	707	15	830	300	250	350	18	4	5.0
4KTC 200	L	F 350-I	385	55	110	16	59.0	346	346	308	790	18	910	350	300	400	18	4	5.0
4KTC 225	S	F 400-I	60	140	18	64.0	364	364	340	884	18	1035	400	350	450	18	8	5.0	
	M-2		55	110	16	59.0			310	854		975							
	M		60	140	18	64.0			340	884		1035							
5KTC 250	M-2 M	F 500-I	480	60 65	140	18	64.0 69.0	468	473	410	1007	18	1160	500	450	550	19	8	5.0
4KTC 280	S-2	F 500-I	65	140	18	69.0	489	494	410	1036	18	1191	500	450	550	19	8	5.0	
	S		75			79.5				1036		1191							
	M-2		65			69.0				1096		1251							
	M		75			79.5				1096		1251							
4KTC 315	S-2	F 600-I	617	65	140	18	69.0	544	549	454	1050	22	1210	600	550	660	24	8	6.0
	S			80	170	22	85.5			484	1080		1270						
	MA-2			65	140	18	69.0			454	1220		1380						
	MA			80	170	22	85.5			484	1250		1440						
	MB-2			65	140	18	69.0			454	1220		1380						
	MB			80	170	22	85.5			484	1250		1440						
	L-2			65	140	18	69.0			454	1300		1460						
	L			80	170	22	85.5			484	1330		1520						



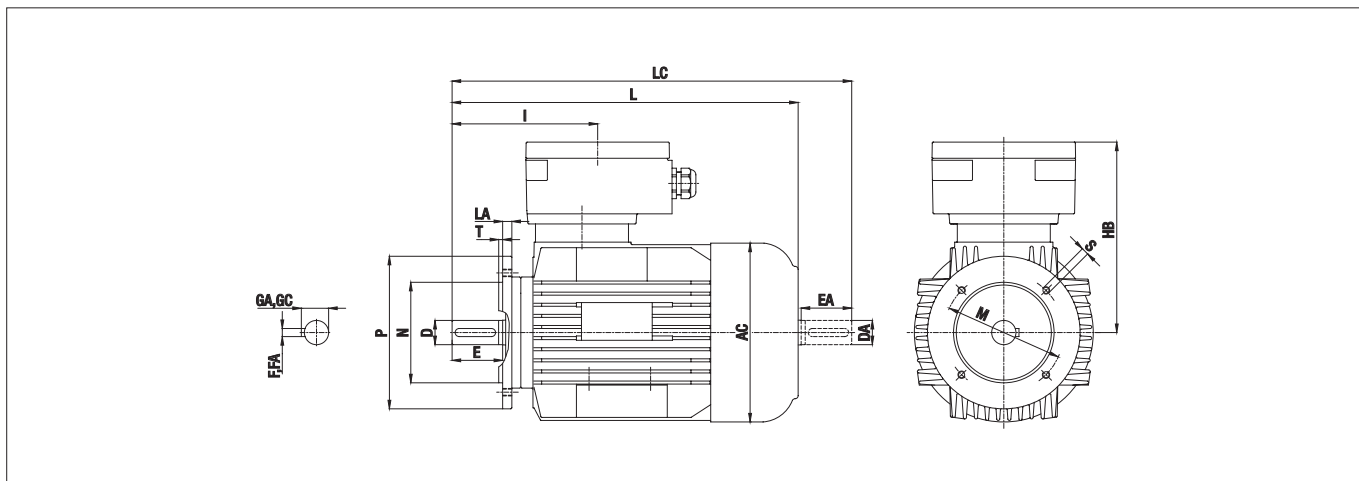
Dimensions

Frame size	Flange	A	AA	AB	AC	B	BA	BB	C	D	E	F	GC	H	HA	HD	HD Ex de	HD Ex d	I	K	L	LA	LC	M	N	P	S	No. of fixing holes
4KTC 63	A, B	F 115-I	100	22	120	124	80	30	106	40	11	23	4	12.5	63	8	210	210	105	7	238	8	266	115	95	140	9	4
4KTC 71	A, B	F 130-I	112	30	140	139	90	30	114	45	14	30	5	16.0	71	10	218	218	113	9	272	10	307	130	110	160	9	4
4KTC 80	A, B	F 165-I	125	32	160	157	100	35	130	50	19	40	6	21.5	80	10	249	249	132	10	319	10	362	165	130	200	12	4
4KTC 90	S L	F 165-I	140	35	180	177	100 125	60	155	56	24	50	8	27.0	90	10	271	271	144	10	363	10	415	165	130	200	12	4
4KTC 100	L	F 215-I	160	45	205	195	140	45	175	63	28	60	8	31.0	100	17	288	288	158	12	418	11	481	215	180	250	14	4
4KTC 112	M	F 215-I	190	50	235	219	140	50	180	70	28	60	8	31.0	112	15	311	311	158	12	442	11	504	215	180	250	14	4
4KTC 132	S M	F 265-I	216	55	266	258	140 178	75	218	89	38	80	10	41.0	132	18	350	350	181	12	536	12	619	265	230	300	14	4
4KTC 160	M L	F 300-I	254	60	312	310	210 254	104	300	108	42	110	12	45.0	160	21	436	436	254	14	669	15	785	300	250	350	18	4
4KTC 180	M-2 L	F 300-I	279	70	350	345	241 279	118	333	121	48	110	14	51.0	180	22	496	496	297	14	707	15	830	300	250	350	18	4
4KTC 200	L	F 350-I	318	80	398	385	305	95	365	133	55	110	16	59.0	200	21	546	546	308	18	790	18	910	350	300	400	18	4
4KTC 225	S M-2 M	F 400-I	356	80	438	433	286 311 311	113	374	149	55 60	140 140	18 18	64.0 64.0	225	23	589	589	340 340	18	854 884	18	975 1035	400	350	450	18	8
5KTC 250	M-2 M	F 500-I	406	100	496	480	349	90	433	168	60 65	140	18	64.0 69.0	250	28	718	723	410	24	1007	18	1160	500	450	550	19	8
4KTC 280	S-2 S M-2 M	F 500-I	457	110	557	537	368 368 419 419	100	454 454 505 505	190	65 75 65 75	140	18 20 18 20	69.0 79.5 69.0 79.5	280	23	769	774	410	24	1036 1036 1096 1096	18	1191 1191 1251 1251	500	450	550	19	8
4KTC 315	S-2 S MA-2 MA MB-2 MB L-2 L	F 600-I	508	120	628	617	406 406 457 457 457 508 508	115	526 526 577 577 577 628 628	216	65 80 65 80 65 80 80	140 170 140 170 140 170 170	18 22 18 22 18 22 22	69.0 85.5 69.0 85.5 69.0 85.5 85.5	315	25	859	864	454 484 454 484 454 484 484	28	1050 1080 1220 1250 1220 1250 1300	22	1210 1270 1380 1440 1380 1460 1520	600	550	660	24	8



Dimensions

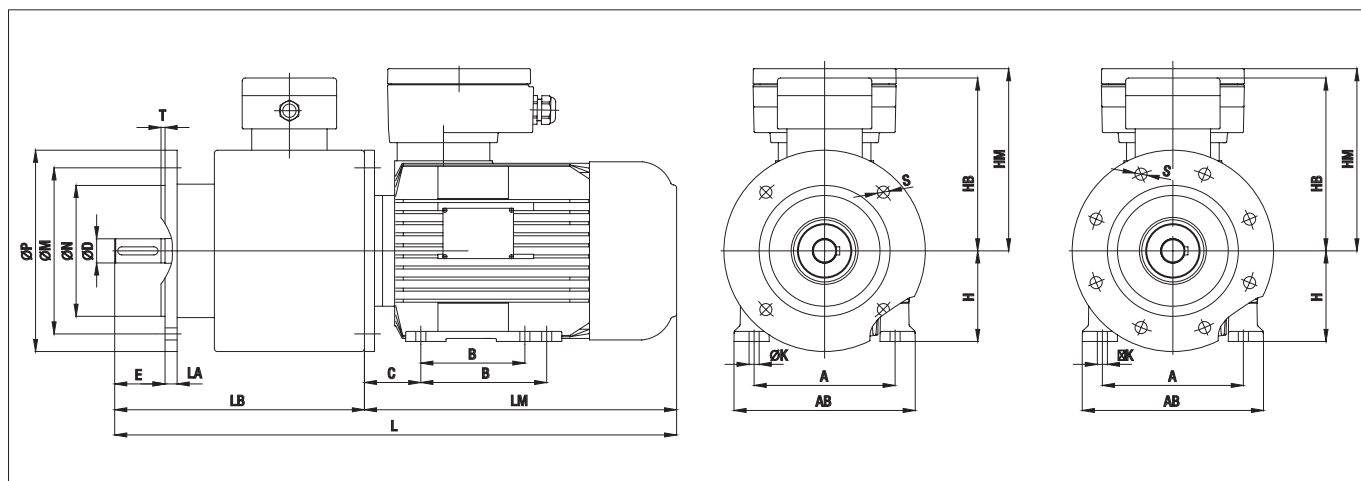
Frame size	Flange	A	AA	AB	AC	B	BA	BB	C	D	DA	E	EA	F	FA	GC	GA	H	HA	HD	I	K	L	LC	M	N	P	S	No. of fixing holes	T
4KTC 63 A, B	F 75-II F 100-II	100	22	120	124	80	30	106	40	11	23	4	12.5	63	8	210	105	7	238		75	60	90	M5 M6	4	2.5 3.0				
4KTC 71 A, B	F 85-II F 115-II	112	30	140	139	90	30	114	45	14	30	5	16.0	71	10	218	113	9	272	307	85	70	105	M6 M8	4	2.5 3.0				
4KTC 80 A, B	F 100-II F 130-II	125	32	160	157	100	35	130	50	19	40	6	21.5	80	10	249	132	10	319	362	100	80	120	M6 M8	4	3.0 3.5				
4KTC 90 S, L	F 115-II F 130-II	140	35	180	177	100 125	60	155	56	24	50	8	27.0	90	10	271	144	10	363	415	115	95	140	M8 M8	4	3.0 3.5				
4KTC 100 L	F 130-II F 165-II	160	45	205	195	140	45	175	63	28	60	8	31.0	100	17	288	158	12	418	481	130	110	160	M8 M10	4	3.5 3.5				
4KTC 112 M	F 130-II F 165-II	190	50	235	219	140	50	180	70	28	60	8	31.0	112	15	311	158	12	442	504	130	110	160	M8 M10	4	3.5 3.5				



Dimensions

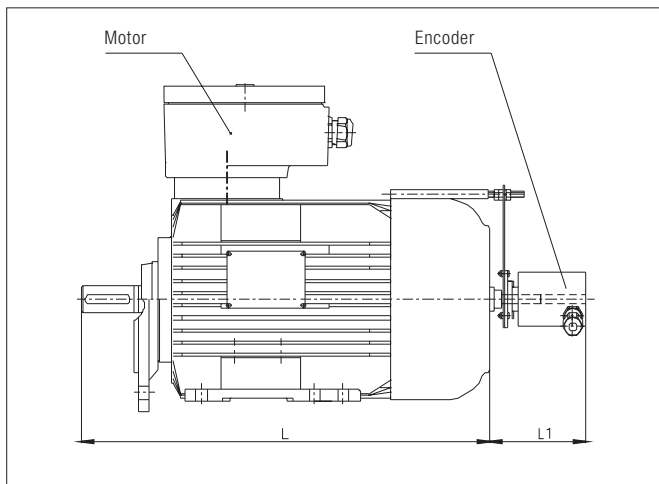
Frame size	Flange	AC	D DA	E EA	F FA	GC GA	HB	I	L	LC	M	N	P	S	No. of fixing holes	T
4KTC 63 A, B	F 75-II F 100-II	124	11	23	4	12.5	147	105	238	266	75 100	60 80	90 120	M5 M6	4	2.5 3.0
4KTC 71 A, B	F 85-II F 115-II	139	14	30	5	16.0	147	113	272	307	85 115	70 95	105 140	M6 M8	4	2.5 3.0
4KTC 80 A, B	F 100-II F 130-II	157	19	40	6	21.5	169	132	319	362	100 130	80 110	120 160	M6 M8	4	3.0 3.5
4KTC 90 S, L	F115-II F 130-II	177	24	50	8	27.0	181	144	363	415	115 130	95 110	140 160	M8 M8	4	3.0 3.5
4KTC 100 L	F 130-II F 165-II	195	28	60	8	31.0	188	158	418	481	130 165	110 130	160 200	M8 M10	4	3.5 3.5
4KTC 112 M	F 130-II F 165-II	219	28	60	8	31.0	199	158	442	504	130 165	110 130	160 200	M8 M10	4	3.5 3.5

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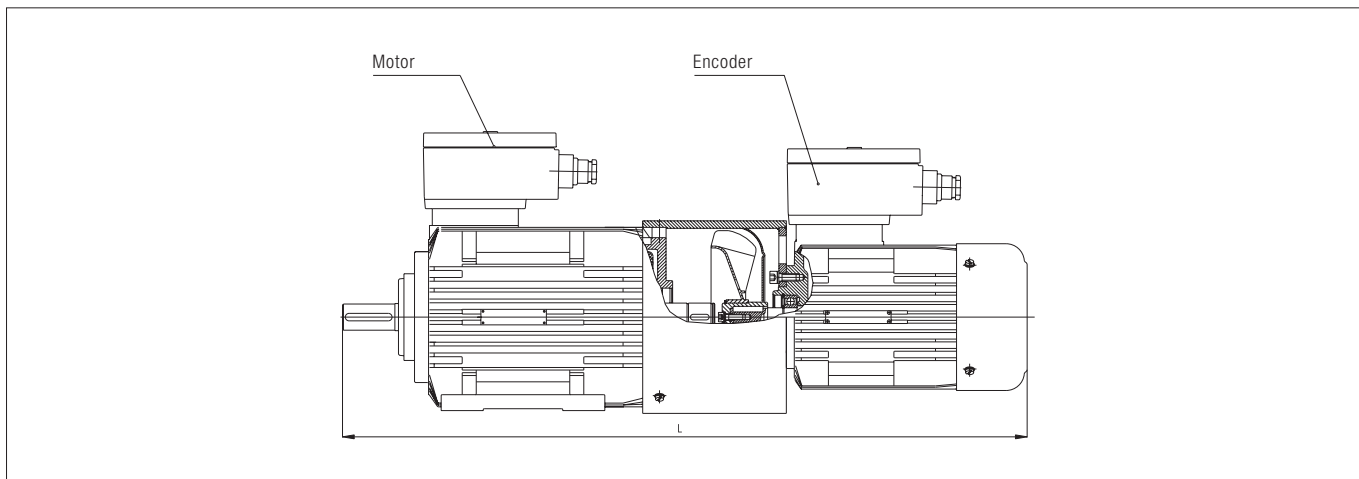
Dimensions

Frame size	Brake frame size	A	AB	B	C	D	E	H	HB	HM	Ø K	LA	LB	LM	L	Ø M	Ø N	Ø P	S	No. of fixing holes	
4KTC 63	A, B	63	100	120	80	40	11	23	63	185	147	7	10	168	215	383	115	95	140	9	4
4KTC 71	A, B	71	112	140	90	45	14	30	71	185	147	9	10	175	242	417	130	110	160	9	4
4KTC 80	A, B	80	125	160	100	50	19	40	80	215	169	10	12	238	279	517	165	130	200	11	4
4KTC 90	S L	90	140	180	100 125	56	24	50	90	215	181	10	12	248	313	651	165	130	200	11	4
4KTC 100	L	100/112	160	205	140	63	28	60	100	240	188	12	14	276	358	634	215	180	250	14	4
4KTC 112	M	100/112	190	235	140	70	28	60	112	240	199	12	14	276	382	658	215	180	250	14	4
4KTC 132	S M	132	216	266	140 178	89	38	80	132	265	218	12	18	322	456	778	265	230	300	14	4
4KTC 160	M L	160	254	312	210 254	108	42	110	160	265	276	14	18	352	559	911	300	250	350	16	4
4KTC 180	M L	180	279	350	241 279	121	48	110	180	282	316	14	21	410	597	1007	300	250	350	18	4
4KTC 200	L	200	318	398	305	133	55	110	200	282	346	18	21	410	680	1090	350	300	400	18	4
4KTC 225	S M2 M	225	356	436	286 311 311	149	55 60	110 140	225	282	364	18	21	440	744	1184	300	400	450	18	8
5KTC 250	M2	250	406	496	349	168	60 65	140	250	328	473	24	26	450	867	1317	500	450	550	18	8
4KTC 280	S2 S M2 M	280	457	557	368 368 419 419	190	65 75 65 75	140	280	328	494	24	26	450	896 896 956 956	1346 1346 1406 1406	500	450	550	18	8



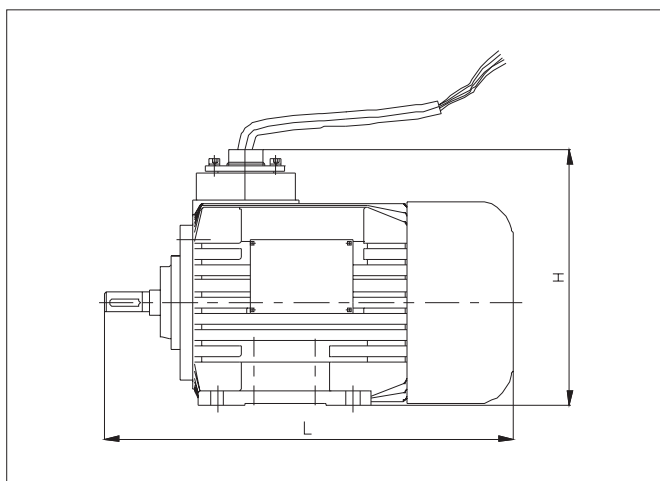
Dimensions

Motor 1	L (mm)	Encoder (L1) Kuebler
4KTC 71 A, B	272	125
4KTC 80 A, B	319	125
4KTC 90 L	363	125
4KTC 100 L	418	125
4KTC 112 M	442	125
4KTC 132 S, M	536	125
4KTC 160 M, L	669	130
4KTC 180 M, L	707	130
4KTC 200 L	790	130
4KTC 225 M2	854	130
4KTC 225 S, M4, M6, M8	884	130
5KTC 250 M	1007	130
4KTC 280 S	1036	130
4KTC 280 M	1096	130
4KTC 315 S2	1050	130
4KTC 315 S4, S6, S8	1080	130
4KTC 315 M2	1220	130
4KTC 315 M4, M6, M8	1250	130
4KTC 315 L2	1300	130
4KTC 315 L4, L6, L8	1330	130



Dimensions

Motor 1	Motor 2	L (mm)
4KTC 71	4KTC 71 A2	538
4KTC 80		614
4KTC 90		639
4KTC 100		697
4KTC 112		728
4KTC 132		823
4KTC 160		958
4KTC 180	4KTC 80 A4	1037
4KTC 200		1145
4KTC 225 M2		1201
4KTC 225 M, S4, S6, S8		1231
5KTC 250	4KTC 90 L4	1395
4KTC 280 S		1422
4KTC 280 M		1482
4KTC 315 S2		1430
4KTC 315 S4, S6, S8		1460
4KTC 315 M2		1600
4KTC 315 M4, M6, M8		1630
4KTC 315 L2		1680
4KTC 315 L4, L6, L8	1710	



Dimensions

Motor	L	H
4KTC 71 A, B	272	191
4KTC 80 A, B	319	207
4KTC 90 S, L	363	226
4KTC 100 L	418	243
4KTC 112 M	442	267
4KTC 132 S, M	536	307
4KTC 160 M, L	669	371
4KTC 180 M, L	707	426
4KTC 200 L	790	488
4KTC 225 S, M-2	854	533
4KTC 225 S, M-4, 6, 8	884	523

Frame sizes	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Special voltage up to 690 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special frequency	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Frequency inverter drive	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special power	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Special shaft end	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Free shaft end on NDS-end of motor	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special flange	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Flange made in R acc. to DIN 42955	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Additional greasing								●	●	●	●	●	●	●
Fixed bearing on AS													●	●
2RS bearings	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oil seal	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection class IP 56	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection class IP 65	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Protection class IP 66	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Protection cover	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Vibrations within R or S limits	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPM placing								op	op	op	op	op	op	op
Special data plate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Terminal box with Ex d cable glands	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Tropical version	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Thermal protection of winding	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Thermal protection of bearings								●	●	●	●	●	●	●
Heating of winding against condensation	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heating of winding at temperature lower -20 °C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Insulation class H	●	●	●	●	●	●	●	●	●	●	●	●	●	●
VIK execution	●	●	●	●	●	●	●	●	●	●	●	●		
Marine execution (LRS)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special colour	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● on request
op = option

Ordering data

- Rating in kW
- Voltage and frequency
- Start connection (on-line or star-delta)
- RPM
- Type of motor arrangement
- Type of explosion protection (Gas group and T-classification)
- Mechanical requirements
- Special requirements (i. e. H-class thermal insulation, two-shaft, radial bearing seals).

FLAMEPROOF BRAKE MOTORS, SERIES BM 4KTC

CONTENTS

FLAMEPROOF BRAKE MOTORS, SERIES BM 4KTC

General performance	62 - 63
BM 4KTC 2 pole and 4 pole motors 50 Hz	
Dimensions form IM B3	63
Dimensions form IM B5 V1 and IM B3/B5	64
Dimensions form IM B3/B14 and IM B14	65
Quality	66



Our flameproof motors type 4KTC can be supplied with flameproof spring loaded brakes. Brakes type 4BM are always attached on NDE side of motor. Cooling fan is installed on back side of brake which provide high efficiency cooling of brake as well as motor. The electrical connection is made in a separate terminal box on a brake. Technical specification for motors series 4KTC is available in our general catalogues of flameproof motors.

Features

- Frame size 71-132
- First quality class components
- Robust design for heavy working conditions
- Large terminal box Ex d or Ex de
- Duty type S1-S9
- Frequency drive from 48 up to 6000 rpm
- 50 Hz and 60 Hz
- PTC or Pt100 or PTO thermal protection
- Highest explosion protection for gas and dust
- For Zone 1, 2 and Zone 21, 22
- Up to IP 66
- Ambient temperature from -50 °C up to +85 °C
- ATEX and IECEx certificates

Explosion protection

Marking ATEX	⊕ II 2G Ex d IIC T4 to T6 Gb
	⊕ II 2G Ex de IIC T4 to T6 Gb
	⊕ II 2D Ex tb IIIC T85 °C to T135 °C Db
Certification	BVS 12 ATEX E 044 X, IECEx BVS 14.0033X

Technical data

Protection class	up to IP 66
Frequency	50 Hz or 60 Hz
Ambient temperature	-50 °C to +85 °C
Insulation class	F standard, H on request
Duty type	S1 to S9
Material	grey cast iron
Standard colour	RAL 5010, other colours on request

General performance 2 pole motors 50 Hz

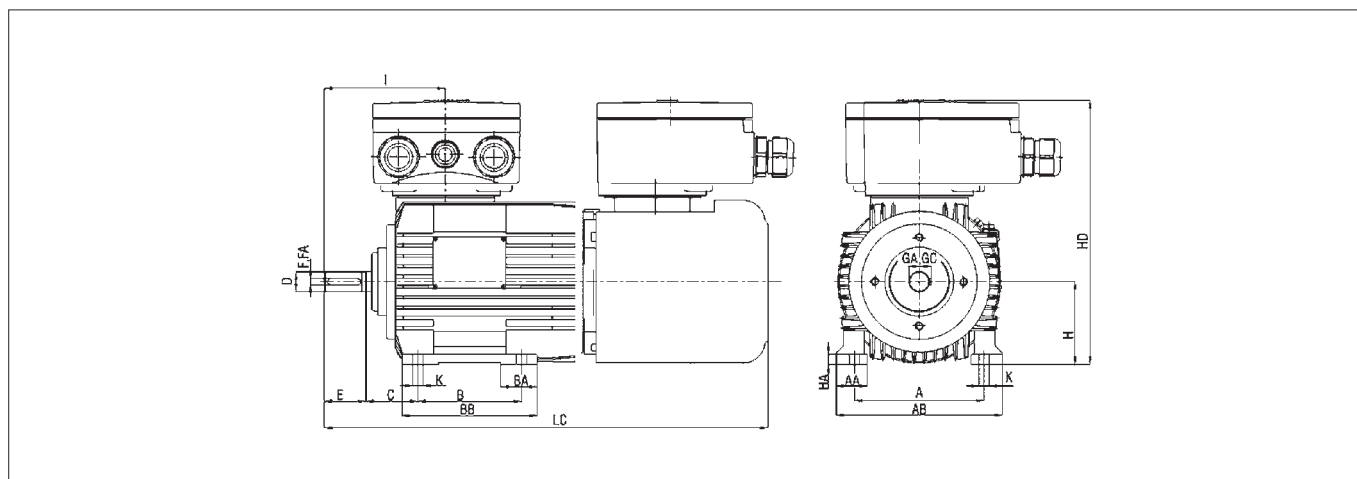
Motor with brake type	Nm min./max.	Voltage AC	W AC (1 ph)	Max. RPM		Starts/h max.	Braking time ms	Weight kg		
				S1	S9			B3	B5	B14
BM 4KTC 71 A-2/08	5/6.5	230	22	2800	5600	2900	90	27	29	28
BM 4KTC 71 B-2/08				2800	5600	2450				
BM 4KTC 80 A-2/10	10/13	230	28	2780	5560	1900	145	37	39	38
BM 4KTC 80 B-2/10				2800	5600	1600				
BM 4KTC 90 S-2/13	20/26	230	34	2840	5680	1200	280	49	51	50
BM 4KTC 90 L-2/13				2820	5640	1050				
BM 4KTC 100 L-2/15	40/52	230	42	2820	5640	630	225	63	67	66
BM 4KTC 112 M-2/17	60/78	230	50	2840	5680	270	290	81	87	86
BM 4KTC 132SA-2/20	100/130	230	76	2860	5720	250	420	126	132	131
BM 4KTC 132SB-2/20				2860	5720	250				

General performance 4 pole motors 50 Hz

Motor with brake type	Nm min./max.	Voltage AC	W AC (1 ph)	Max. RPM		Starts/h max.	Braking time ms	Weight kg		
				S1	S9			B3	B5	B14
BM 4KTC 71 A-4/08	5/6.5	230	22	1400	2800	7200	90	27	29	28
BM 4KTC 71 B-4/08				1380	2760	5500				
BM 4KTC 80 A-4/10	10/13	230	28	1400	2800	3700	145	37	39	38
BM 4KTC 80 B-4/10				1400	2800	4200				
BM 4KTC 90 S-4/13	20/26	230	34	1400	2800	2300	280	49	51	50
BM 4KTC 90 L-4/13				1410	2820	2700				
BM 4KTC 100 LA-4/15	40/52	230	42	1420	2840	1200	225	63	67	66
BM 4KTC 100 LB-4/15				1420	2840	1600				
BM 4KTC 112 M-4/17	60/78	230	50	1430	2860	1100	290	81	87	86
BM 4KTC 132 S-4/20	100/130	230	76	1440	2880	900	420	126	132	131
BM 4KTC 132 M-4/20				1440	2880	400				

Technical data for electric motors 4KTC 71-132 is on general catalogue of flameproof motors. Other pole numbers on request.

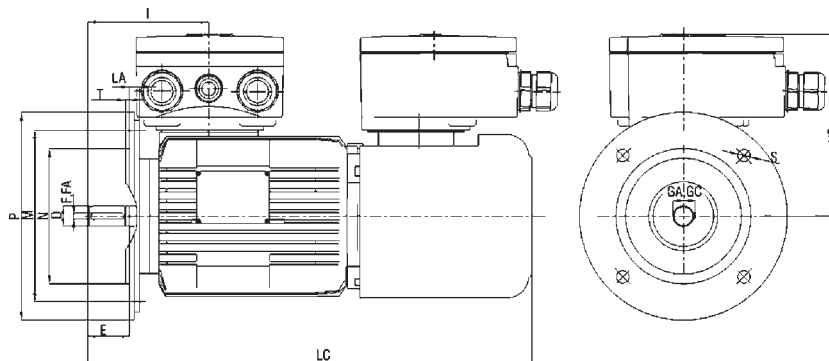
Flameproof brake motors 4KTC - Dimensions form IM B3



Dimensions (mm)

Frame size	Brake size	A	AA	AB	HD	B	BA	BB	C	D	E	F, FA	GC, GA	H	HA	I	K	LC
BM 4KTC 71 A, B	8	112	30	140	218	90	30	114	45	14	30	5	16	71	10	113	9	366
BM 4KTC 80 A, B	10	125	32	160	249	100	35	130	50	19	40	6	21,5	80	10	132	10	428
BM 4KTC 90 S, L	13	140	35	80	271	125	60	155	56	24	50	8	27	90	10	144	10	472
BM 4KTC 100 L	15	160	45	205	288	140	45	175	63	28	60	8	31	100	17	158	12	543
BM 4KTC 112 M	17	190	50	235	311	140	50	180	70	28	60	8	31	112	15	158	12	563
BM 4KTC 132	S	216	55	266	350	140	75	218	89	38	80	10	41	132	18	181	12	666
	M					178												

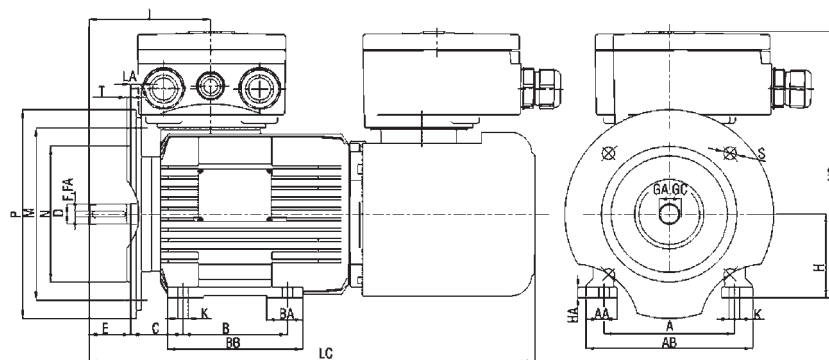
Dimensions IM B5 V1



Dimensions (mm)

Frame size	Brake size	Flange	HB	D	E	F, FA	GC, GA	I	LA	LC	M	N	P	S	No. of holes S	T
BM 4KTC 71 A, B	8	F 130-I	147	14	30	5	16	113	10	366	130	110	160	9	4	3.5
BM 4KTC 80 A, B	10	F 165-I	169	19	40	6	21.5	132	10	428	165	130	200	12		3.5
BM 4KTC 90 S, L	13	F 165-I	181	24	50	8	27	144	10	472	165	130	200	12		3.5
BM 4KTC 100 L	15	F 215-I	188	28	60	8	31	158	11	543	215	180	250	14		4
BM 4KTC 112 M	17	F 215-I	199	28	60	8	31	158	11	563	215	180	250	14		4
BM 4KTC 132 S, M	20	F 265-I	218	38	80	10	41	181	15	666	265	230	300	14	4	

Dimensions IM B3/B5

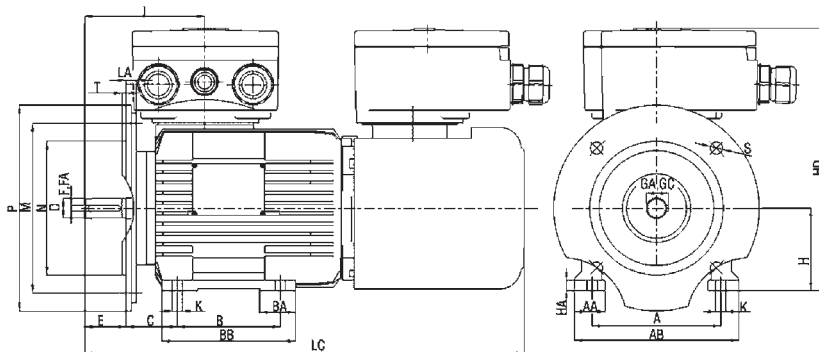


Dimensions (mm)

Frame size	Brake size	Flange	A	AA	AB	HD	B	BA	BB	C	D	E	F, FA	GC, GA	H	HA	I	K	LC	M	N	P	S	No. of holes S
BM 4KTC 71 A, B	8	F 130-I	112	30	140	218	90	30	114	45	14	30	5	16	71	10	113	9	366	130	110	160	9	4
BM 4KTC 80 A, B	10	F 165-I	125	32	160	249	100	35	130	50	19	40	6	21.5	80	10	132	10	428	165	130	200	12	
BM 4KTC 90 S, L	13	F 165-I	140	35	80	271	125	60	155	56	24	50	8	27	90	10	144	10	472	165	130	200	12	
BM 4KTC 100 L	15	F 215-I	160	45	205	288	140	45	175	63	28	60	8	31	100	17	158	12	543	215	180	250	14	
BM 4KTC 112 M	17	F 215-I	190	50	235	311	140	50	180	70	28	60	8	31	112	15	158	12	563	215	180	250	14	
BM 4KTC 132 S	20	F 265-I	216	55	266	350	140	75	218	89	38	80	10	41	132	18	181	12	666	265	230	300	14	
M																								



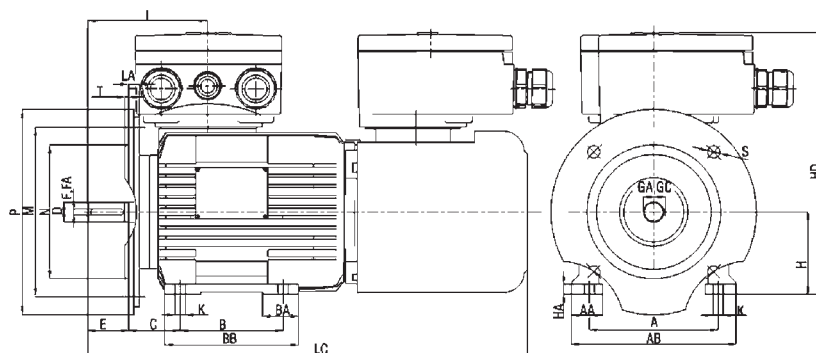
Dimensions IM B3/B14



Dimensions (mm)

Frame size	Brake size	Flange	A	AA	AB	HD	B	BA	BB	C	D	E	F, FA	GC, GA	H	I	LC	M	N	P	S	No. of holes S	T
BM 4KTC 71 A, B	8	F 85-II	112	30	140	218	90	30	114	45	14	30	5	16	71	113	366	85	70	105	M6	4	2.5
		F 115-II																	115	95	140		M8
BM 4KTC A, B	10	F 100-II	125	32	160	249	100	35	130	50	19	40	6	21.5	80	132	428	100	80	120	M6		2.5
		F 130-II																	130	110	160		M8
BM 4KTC 90 I, S	13	F 115-II	140	35	180	271	100	60	155	56	24	50	8	27	90	144	472	115	95	140	M8	3	
		F 130-II				125																	
BM 4KTC 100 L	15	F 130-II	160	45	205	288	140	45	175	63	28	60	8	31	100	158	543	130	110	160	M8	3.5	
		F 165-II																	165	130	200	M10	3.5
BM 4KTC 112 M	17	F 130-II	190	50	235	311	140	50	180	70	28	60	8	31	112	158	563	130	110	160	M8	3.5	
		F 165-II																	165	130	200	M10	3.5

Dimensions IM B14



Dimensions (mm)

Frame size	Brake size	Flange	D	E	F, FA	GC, GA	HB	I	LC	M	N	P	S	No. of holes S	T
BM 4KTC 71 A, B	8	F 85-II	14	30	5	16	147	113	366	85	70	105	M6	4	2.5
		F 115-II								115	95	140	M8		3
BM 4KTC A, B	10	F 100-II	19	40	6	21.5	169	132	428	100	80	120	M6		2.5
		F 130-II								130	110	160	M8		3
BM 4KTC 90 L, S	13	F 115-II	24	50	8	27	181	144	472	115	95	140	M8	3	
		F 130-II								130	110	160	M8	3.5	
BM 4KTC 100 L	15	F 130-II	28	60	8	31	188	158	543	130	110	160	M8	3.5	
		F 165-II								165	130	200	M10	3.5	
BM 4KTC 112 M	17	F 130-II	28	60	8	31	199	158	563	130	110	160	M8	3.5	
		F 165-II								165	130	200	M10	3.5	



The quality of our products and services is our primary concern. The reliability and high technical level of our systems and components have been confirmed by the internationally accredited test institutes which have awarded us numerous certificates.

With the help of the ISO 9001:2000 certificate the system of quality BARTEC VARNOST is recognizable throughout the world and assures quality from the development to the delivery of a product to the customer.



- SIQ 11 ATEX Q 220-2
- ISO 9001
- ISO 14001
- OHSAS 18001



NEMA EXPLOSION-PROOF MOTORS, SERIES 4KTU

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BARTEC VARNOST motor's type 4KTU are approved by CSA for use in division-based hazardous areas. Explosion-proof motors are labeled with the following:



CSA Listing mark for use in Canada and the United States. The product is certified to the applicable American and Canadian standards. Certificate: 70013549

Hazardous area classifications

The division defines how often the potentially explosive materials are present during normal operating conditions

Division 1: ignitable concentrations are present all or most of the time

Division 2: ignitable concentrations are not likely to be present during normal operation

Hazard class	Groups per NEC 500	Substance
Class I Flammable gases/ vapors liquids	Group C	Ethylene
	Group D	Propane
Class II Combustible dust	Group E	Metal dust
	Group F	Coal dust
	Group G	Grain dust
Class III Ignitable fibers and flyings	Not divided into groups +165 °C max. temperature limit for all Class III equipment not subject to overloading +120 °C max. temperature limit for all equipment subject to overloading	

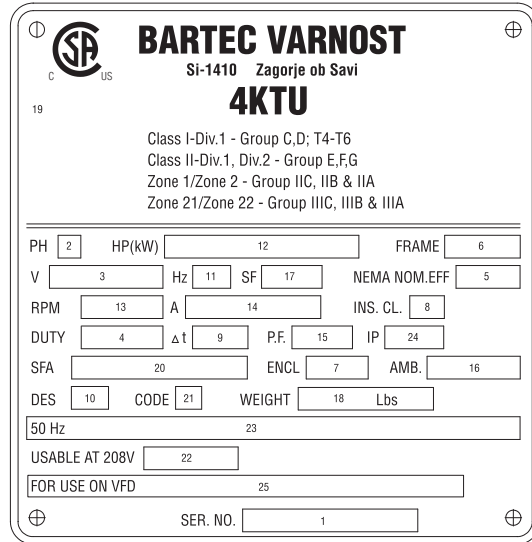
Surface temperature

The T-Code identifies the maximum absolute motor surface temperature that will developed under any conditions of operation. Surface temperature of BARTEC VARNOST motors will not exceed the following UL and CSA maximums under fault conditions.

T-Code	Maximum motor surface temperature		T-Code	Maximum motor surface temperature	
	°C	°F		°C	°F
T1	+450	+842	T3A	+180	+356
T2	+300	+572	T3B	+165	+329
T2A	+280	+536	T3C	+160	+320
T2B	+260	+500	T4	+135	+275
T2C	+230	+446	T4A	+120	+248
T2D	+215	+419	T5	+100	+212
T3	+200	+392	T6	+85	+185

Marking and name plate

The name plate supplies information determining the motor's construction and performance characteristics



- 1 Serial no.
- 2 Three phase
- 3 Rated operating voltage
- 4 Service duty
- 5 Efficiency
- 6 Frame size
- 7 Enclosure
- 8 Insulation class
- 9 Temperature rise
- 10 Design
- 11 Frequency
- 12 Rated power
- 13 Speed
- 14 Operating current
- 15 Power factor
- 16 Ambient temperature
- 17 Service factor
- 18 Motor weight
- 19 Certification labels
- 20 Service factor current
- 21 NEMA code letters for locked-rotor kVA
- 22 Current at 208 V
- 23 Derating
- 24 Degree of protection
- 25 VFD Supply

INTRODUCTION

Flame proof AC electric motors are used in hazardous locations or potentially hazardous environments where concentrations of combustible gases, vapors and or dust are present or present some of the time. Motors type 4KTU can be manufactured to NEMA frame size 143 to 365 as well as IEC frame size 71 to 255.

4KTU motors are three-phase, asynchronous electric motors with short circuit rotors explosion-protected according to the:

- “Flame-proof enclosure” for the motor housing and “Increased safety” for terminal box according to UL 60079-1/CSA C22.2 60079-1, UL 60079-7/CSA C22.2 60079-7 and CSA C22.2 No. 30 (Class I, Zone I)
- “Flame-proof enclosure” for the motor housing and “Flame-proof enclosure” for terminal box according to UL 60079-1/CSA C22.2 60079-1 and CSA C22.2 No. 30 (Class I, Zone I)
- Dust Ignition Proof “DIP” (Class II, Division 1) according to CSA C22.2 No. 25
- Dust protected “NI” (Class II, Division 2) according to CSA C22.2 No. 25
- Protection by Enclosure “Ex tb” (Class II, Zone 21) according to UL 60079-31/CSA C22.2 No. 60079-31

The standard electric motor is suitable for T4 to T6 temperature classes or the maximum +257 °F to +185 °F/+125 °C to +85 °C surface temperatures of equipment.

Type 4KTU motors are available in a high efficiency class.

CONSTRUCTION

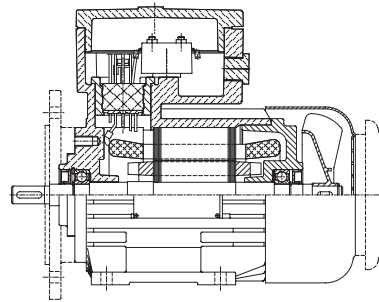
The type 4KTU motors are totally enclosed and fan-cooled (TEFC), as per NEMA MG-1 Part 6. Non-ventilated versions (TENV), air over (TEAO) and with forced ventilation (TEFV) are available.

Materials

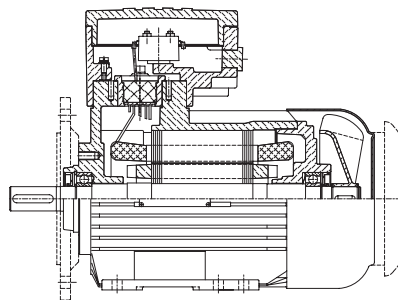
Frame size	Stator		Shield	Terminal box	Flange	Fan cover	Fan
	Frame	Feet	Material				
143T	Cast iron	Cast iron screw on feet	Cast iron	Cast iron	Cast iron screw on	Steel sheet extruded	Ultramid Polyamid
145T							
182T							
184T							
213T							
215T							
254T							Ultramid, Polyamid or Aluminium
256T							
284TS							
286TS							
324TS							
326TS							
364/5TS	Alu						

Basic design

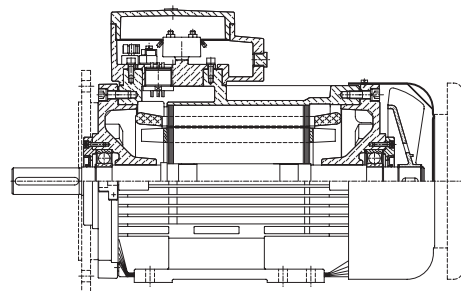
Frame size IEC 71



Frame size IEC 80-132; NEMA 143/5 – 213/5



Frame size IEC 160-225; NEMA 254/6 – 364/5



The following table lists the bearings used in different motors. Only the latest and most innovative bearings of well-renowned producers are used in our motors. Upon customer request, we equipped the motors with other bearings (depending on the respective construction).

On both sides drive and non-drive, a Pt100 probe can be installed that monitors the temperature of the bearings.

Lubricants and seals used in bearings are suitable to operate at the maximum temperatures of the bearings.

Frame size	Poles	DE bearing	NDE bearing	Bearing dishes
143T	2, 4, 6, 8	6205	6205	25 x 52 x 15
145T	2, 4, 6, 8			
182T	2, 4, 6, 8	6206	6206	30 x 62 x 16
184T	2, 4, 6, 8			
213T	2, 4, 6, 8	6208	6208	40 x 80 x 18
215T	2, 4, 6, 8			
254T	2, 4, 6, 8	6309	6309	45 x 100 x 25
256T	2, 4, 6, 8			
284TS	2, 4, 6, 8	6310	6310	50 x 110 x 27
286TS	2, 4, 6, 8			
324TS	2, 4, 6, 8	6312	6312	60 x 130 x 31
326TS	2, 4, 6, 8			
364/5TS	2, 4, 6, 8	6313	6313	65 x 140 x 33

Bearing assemblies

	Frame size 143 – 213/5 IEC 90-132	Frame size 254/6 – 364/5 IEC 160-225
Drive end		
Non-drive end		

Bearing lubrication

Motors are normally fitted with permanently greased bearings type 2Z. This bearings are greased for life.

Motors fitted with grease nipples

Motors from frame size 254T and above can be fitted with re-greasable bearings. Lubricate the motor during its operation. If the motor is fitted with a lubrication plate, use the value given, or use the values listed in the according table.

The effectiveness of motor lubrication should be checked by measuring the surface temperature of the bearing end shield during normal operating conditions. If the measured temperature is +176 °F/+80 °C or above, the intervals between re-lubrications must be shortened. The re-lubrication interval should be halved for every 15 K increase in bearing temperature. If this is not possible then use lubricants that are suitable for high operating temperature conditions.

Ball bearings: lubrication intervals in duty hours

Frame size	Amount of grease [Lb]	Speed of the motor [rpm]					
		3600	3000	1800	1500	1000	500
254T	0.06	7000	9500	14000	17000	21000	24000
256T							
284T	0.07	6000	8000	13500	16000	20000	23000
286T							
324T	0.09	4000	6000	11000	13000	17000	21000
326T							
364/5T	0.12	3000	5000	10000	12500	16500	20000

At the ambient temperature of ≤ +77 °F/+25 °C, the grease lifespan can be expected to double, however, 33000 hours is the maximum.

In case of frequency inverters and in continuous operation at very low speed, as well as at low temperature, the lubrication capabilities of standard greases may not be sufficient and special greases with additives are needed.

If motors are equipped with sealed bearings (i.e. bearings greased for life), any deviation in the operating temperature from the design temperature will result in change in the lifespan of the bearings.

The use of conductive greases to eliminate bearing currents is not recommended due to their poor lubrication characteristics and low conductivity.

Re-greasing or replacing the grease is only allowed using a grease of equal quality (same saponification component or consistency).



Shaft ends

The standard electric motor is equipped with one free shaft extension. On request we can also supply versions with free shaft extensions on both sides.

Type 4KTU motors can be supplied with stainless steel shafts (AISI 316 and AISI 420) for highly corrosive environments.

The dimensions of shaft ends correspond to the NEMA MG-1 standard. Tolerances for shaft end-diameters are in accordance with NEMA MG-1, Part 4, Point 9.

- up to a diameter of 1.5000 in (+0.000/-0.005 in)
- more than 1.5000 in (+0.000/-0.001 in)

Free shaft extensions are equipped with keyways. Keyways and keys correspond to NEMA MG-1, Part 4

The shafts have a threaded central hole for the drawing in, drawing out and fixing connections.

Shaft diameter

0.875 in	1.125 in	1.375 in	1.625 in	1.875 in	2.125 in
A4					A4/UNC 3/4"-10

Allowable radial force

Permissible loads are in according with NEMA MG-1 (table 14-1A)

Frame size	Number of poles	Maximum radial force in pounds Center of N-W
143T	2	106
	4	154
	6	179
	8	192
145T	2	109
	4	154
	6	176
	8	196
182T	2	180
	4	227
	6	260
	8	287
184T	2	180
	4	227
	6	260
	8	289
213T	2	230
	4	300
	6	350
	8	380
215T	2	230
	4	300
	6	350
	8	380
254T	2	470
	4	593
	6	703
	8	774
256T	2	470
	4	589
	6	705
	8	776
284TS	2	570
	4	735
	6	838
	8	929
286TS	2	570
	4	735
	6	838
	8	929
324TS	2	660
	4	860
	6	990
	8	1100
326TS	2	660
	4	850
	6	980
	8	1090
364/5TS	2	820
	4	1080
	6	1240
	8	1390

Maximum permissible axial loads in pounds

Frame size	Number of poles	Horizontal	Vertical	
			Weight of rotor in load direction	
143/5T	2	70	70	80
	4	100	90	110
	6	130	120	140
	8	150	140	160
182/4T	2	130	120	150
	4	180	160	210
	6	230	210	270
	8	280	260	310
213/5T	2	230	210	270
	4	310	280	360
	6	380	360	430
	8	440	400	520
254/6T	2	460	420	530
	4	540	480	640
	6	650	600	750
	8	720	650	830
284/6T	2	610	540	710
	4	730	650	850
	6	850	760	1010
	8	990	910	1120
324/6T	2	650	540	820
	4	800	690	990
	6	960	830	1170
	8	1090	970	1300
364/5T	2	790	620	1050
	4	1000	810	1280
	6	1190	980	1530
	8	1370	1170	1690

The load rating of bearings has been calculated for at least 20000 operating hours at a frequency of 60 Hz. Only the axial loads have been taken into account. If the load is made of axial and radial loads, the working lifespan of bearings is shorter.

The terminal box of type 4KTU motors are made of cast iron which is the same material used to produce the frame.

The standard terminal box is made in assembly F-1, but it can be produced also in F-2 and F-3.



F-1



F-2



F-3

The terminal box can be repositioned in steps of 90° to 180° to suit the application.

Electric motors are designed with the terminal box in equipment protection:

- Increased safety "Ex e", according to UL 60079-7 and CSA C22.2 No. 60079-7. (for IEC frames only)
- Flame-proof enclosures "Ex d", according to UL 60079-0, CSA C22.2 No. 60079-0, UL 60079-1 and CSA C22.2 No. 60079-1.

There is a direct cable entry available for all motors.

Ex d terminal box

Terminal boxes can have either metric or NPT threaded entries:

Terminal box entries

IEC frame	NEMA frame	Metric	NPT
63	-	2 x M25 + 1 x M20	3/4"
71	-		
80	-		
90	143/5		
100	-	2 x M25 + 1 x M20	1"
112	182/4		
132	213/5		
160	254/6		
180	284/6	2 x M50 + 2 x M20	2"
200	324/6		
225	364/5		

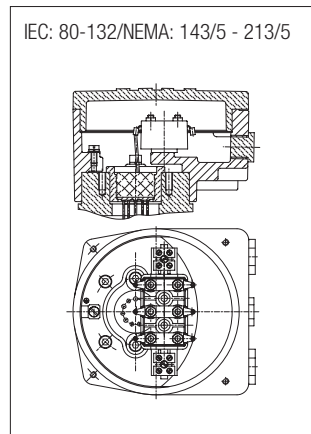
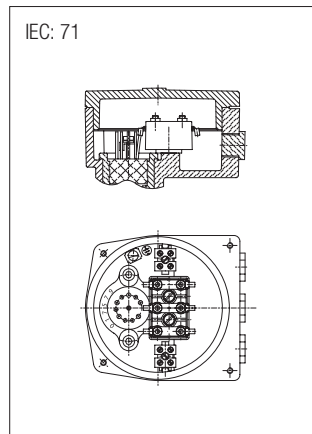
Motors can also be connected with rigid metal conduit, of which the size and lengths are in accordance with this table:

Rigid conduit sizes and lengths

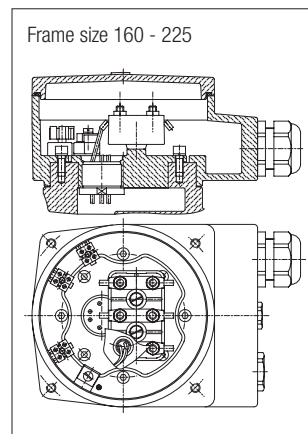
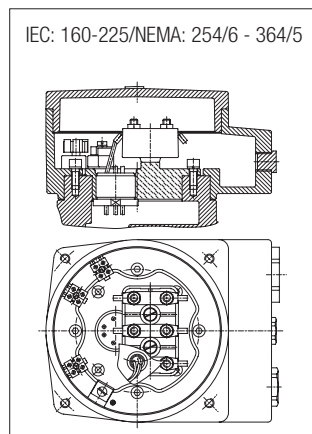
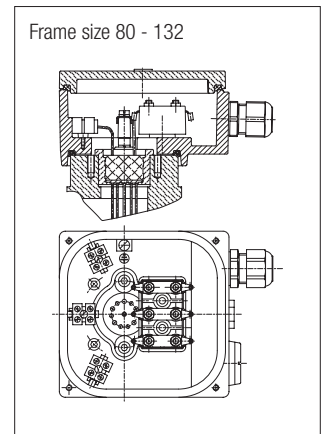
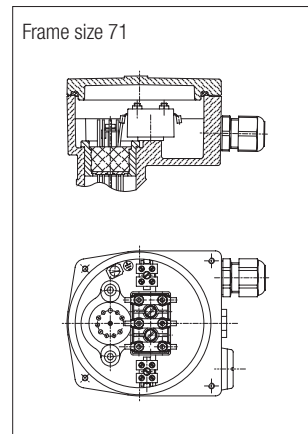
IEC frame	NEMA frame	Thread size		Length
		Metric	NPT	
63	-	2 x M25 + 1 x M20	3/4"	2ft
71	-			
80	-			
90	143/5			
100	-	3 x M32	1"	2ft
112	182/4			
132	213/5			
160	254/6			
180	284/6	2 x M50 + 2 x M20	2"	18"
200	324/6			
225	364/5			

The Ex d terminal box has a threaded entry to accept Ex d cable glands or rigid metal conduit. In a terminal box, there can be 6 or 12 main connection terminals and 6 additional terminals for PTC sensors, heaters, etc. Each terminal box has one earth connection terminal.

Ex d terminal box



Ex e terminal box (IEC frames only)



In the terminal box with increased safety and cable glands according to UL 60079-0, CSA C22.2 No. 60079-0, UL 60079-7 and CSA C22.2 No. 60079-7 are used. Cable glands are fitted for this purpose and are separately certified.



IP protection

Type 4KTU motors are supplied with a rating of the degree of protection in conformance with NEMA MG-1 Part 5.

The standard degree of protection for type 4KTU motors is IP 55 for Class I and IP 64 for Class II.

Protection against environmental influences IP protection

Protection class	Protection against harmful contact and ingress of solids (1st Numeral)
IP 44	Protection against direct contact with electrically live and rotating inner parts using tools, wire or similar objects with a diameter exceeding 1 mm. Protection against ingress of solids (diameter > 1 mm). Fan air outlets and water exhausts may have a second-degree level of protection.
IP 54/ IP 55/ IP 56	Complete protection against contact with electrically live and moving rotating inner parts. Protection against harmful ingress of dust. Ingress of dust is not fully pre-vented, but must not reach an extend causing harmful effects to machine operation.
IP 65*	Complete protection against contact with electrically live parts and rotating inner parts. Protection against ingress of dust (dust-proof machine).

Protection class	Protection against ingress of water (2nd Numeral)
IP 44/ IP 54	Water particles spraying from any direction do not have any harmful effects on the machine (i. e. rain).
IP 55/ IP 65*	A jet of water spraying from any direction does not have any harmful effects on the machine.
IP 56	During rough seas water must not penetrate into the interior of the motor to such an extend as to cause damage to the machine (deck-mounted motors).

* All vertically-mounted electric motors with free shaft extension on the top must be protected against particles falling into the fan cover. This protection is not necessary if the machine itself has such a protection. Electric motors mounted outdoors must be protected against exposure to direct sunlight.

Paintwork

Surface protection against environmental influences

	Anti-corrosion protection 2 (standard)	Anti-corrosion protection 3 (special)	Special surface protection
Surface	sanding and degreasing	sanding and degreasing	Products with surface protection for marine/offshore and tropical conditions are available on special request
Undercoating	Epoxi-ester	Epoxi-ester	
Intermediate Coating 1	-	Epoxi	
Intermediate Coating 2	-	Epoxi	
Finishing	Vinyl-Acryl	Epoxi	
Total thickness	140 µm	180 µm	
Colour	blue, RAL 5024	blue, RAL 5024	
Protection against corrosion in enviroments with water	high humidity, steam, sea water	high humidity, steam, sea water	
Enviroments resistance	periodic spilling or spraying of anorganic acids and lyes	periodic spilling or spraying of anorganic acids and lyes	
Temperature resistance	-40 °C to +130 °C/-40 °F to +266 °F	-40 °C to +130 °C/-40 °F to +266 °F	
Suitable for	normal industrial atmospheres, relatively high humidity and high concent of salt and aggressive gases (SO ₂ , NO _x)	Chemically aggressive atmospheres, high concent. of salt and aggres. gases (SO ₂ , NO _x). Condensation of moisture and electrolytes on surface. Solvents and oil derivates have negative effects.	



4KTU motors can supplied with NEMA or IEC mounting forms.

NEMA mounting form

Motors are supplied, as standard, in the F-1 configuration with the terminal box on the left-hand side of the motor frame.

The mounting configuration for type 4KTU motors complies with NEMA MG-1 Part 4. Standard mounting forms and their variations:

Floor mountings

ASSEMBLY F-1	ASSEMBLY F-2	ASSEMBLY F-3	
ASSEMBLY W-1	ASSEMBLY W-2	ASSEMBLY W-3	ASSEMBLY W-4
ASSEMBLY W-5	ASSEMBLY W-6	ASSEMBLY W-7	ASSEMBLY W-8
ASSEMBLY W-9	ASSEMBLY W-10	ASSEMBLY W-11	ASSEMBLY W-12

Ceiling mountings

ASSEMBLY C-1	ASSEMBLY C-2	ASSEMBLY C-3	



IEC mounting form

Motors are supplied, as standard, with the terminal box on the left-hand side of the motor frame. The mounting form complies with IEC 60 034-7 Standard mounting forms and their variations:

IEC code I	IM B3	IM B5	IM B34	IM B14	IM B35
IEC code II	IM 1001	IM 3001	IM 2101	IM 3601	IM 2001
IEC code I	IM V6	IM V3	IM V6/IM V19	IM V19	IM V36
IEC code II	IM 1031	IM 3031		IM 3631	IM 2031
IEC code I	IM V5	IM V1	IM V5/IM V18	IM V18	IM V15
IEC code II	IM 1011	IM 3011		IM 3611	IM 2011

Power voltage and service factor

The power ratings given in the tables are valid for operating under continuous load (S 1) at a rated voltage, a frequency of 60 Hz. temperature of up to +104 °F/+40 °C and an altitude of less than 1000 m above sea level. The data in the tables refer to 230/460 V.

NEMA MG-1 Part 12 states that the motor operates successfully under running conditions at a load with a variation in the voltage or frequency of up to the following:

- ±10 % of the rated voltage with rated frequency
- ±5 % of the rated frequency with rated voltage
- a combined variation in voltage and frequency of 10 % (sum of absolute values) of the rated values, provided the frequency variation does not exceed ±5 % of the rated frequency

The Motor Service Factor (SF) is the percentage of overloading that the motor can handle for short periods when operating normally within the correct voltage tolerances.

4KTU motors has a SF of 1.0 and 1.1.

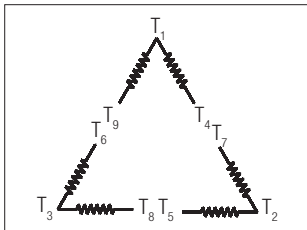
Rated values under extreme working conditions

When electric motors are used at temperatures above +104 °F/+40 °C or at altitudes of more than 1000 m above sea level, the permitted overtemperature for windings is lower and the rated power is reduced respectively. The relation between rated power, ambient temperature, and altitude is shown in this table:

T (°F/°C)	Altitude (m)							
	1000	1500	2000	2500	3000	3500	4000	4500
10/50							0.97	0.92
15/59						0.96	0.94	0.90
20/68					1.00	0.95	0.91	0.87
25/77				1.00	0.95	0.93	0.80	0.85
30/86			1.00	0.96	0.92	0.90	0.86	0.82
35/95		1.00	0.95	0.93	0.90	0.88	0.84	0.80
40/104	1.00	0.97	0.94	0.90	0.86	0.82	0.80	0.76
45/113	0.95	0.92	0.90	0.88	0.85	0.81	0.76	0.74
50/122	0.92	0.92	0.87	0.85	0.82	0.80	0.77	0.72
55/131	0.88	0.85	0.83	0.81	0.78	0.76	0.73	0.70
60/140	0.83	0.82	0.80	0.77	0.75	0.73	0.70	0.67

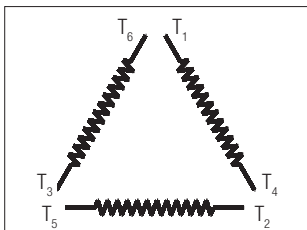
Materials of thermal class F are used for the production of stator windings. They are designed to withstand an overtemperature of 80 K at maximum ambient temperature of +104 °F/+40 °C. Electric motors operating under heavy conditions, conditions requiring frequent start-ups or ambient temperatures above +104 °F/+40 °C employ special insulation thermal class H and are available on special request.

Two speed motors with 2 : 1 speed ratio use Dahlander windings. Electric motors with pole relation of 4/8 or 8/6 have two separate stator windings in star connection.



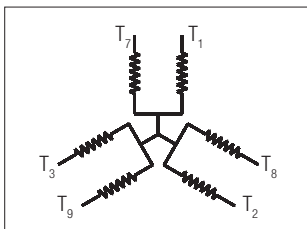
3 phase - 9 lead - delta

Lines	L ₁	L ₂	L ₃	Connected together	Conn.
Low voltage	T ₁ T ₆ T ₇	T ₂ T ₄ T ₈	T ₃ T ₅ T ₉		△△
High voltage	T ₁	T ₂	T ₃	T ₄ T ₇ - T ₅ T ₈ - T ₆ T ₉	△



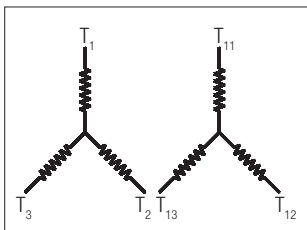
6 lead WYE delta star

Lines	L ₁	L ₂	L ₃	Connected together	Conn.
start	T ₁	T ₂	T ₃	T ₄ T ₅ T ₆	Y
run	T ₁ T ₆	T ₂ T ₄	T ₃ T ₅		△



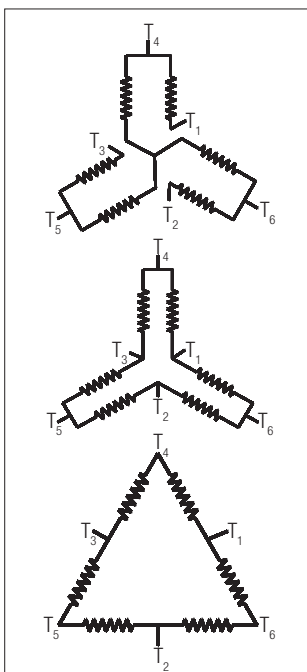
Part winding start 3 Phase - 6 lead - WYE

Lines	L ₁	L ₂	L ₃	Connected
start	T ₁	T ₂	T ₃	T ₇ T ₈ T ₉ open
run	T ₁ T ₇	T ₂ T ₈	T ₃ T ₉	



Double winding

Lines	L ₁	L ₂	L ₃	Connected	Conn.
Low speed	T ₁	T ₂	T ₃	T ₁₁ T ₁₂ T ₁₃ open	Y
High speed	T ₁₁	T ₁₂	T ₁₃	T ₁ T ₂ T ₃ open	Y



Single winding

Lines	L ₁	L ₂	L ₃	Connected	Conn.
Low speed	T ₁	T ₂	T ₃	T ₄ T ₅ T ₆ open	Y
High speed	T ₆	T ₄	T ₅	T ₁ T ₂ T ₃ together	YY

Variable torque

Lines	L ₁	L ₂	L ₃	Connected	Conn.
Low speed	T ₁	T ₂	T ₃	T ₄ T ₅ T ₆ open	△
High speed	T ₆	T ₄	T ₅	T ₁ T ₂ T ₃ together	YY

Constant torque

Lines	L ₁	L ₂	L ₃	Connected	Conn.
Low speed	T ₁	T ₂	T ₃	T ₄ T ₅ T ₆ open	YY
High speed	T ₆	T ₄	T ₅	T ₁ T ₂ T ₃ together	△

Constant power

Lines	L ₁	L ₂	L ₃	Connected	Conn.
Low speed	T ₁	T ₂	T ₃	T ₄ T ₅ T ₆ open	YY
High speed	T ₆	T ₄	T ₅	T ₁ T ₂ T ₃ together	△

Motor protection

Continuous duty motors must be protected from overload based on operating temperature or based on operating current. For overload protection based on operating temperature 4KTU motors can have built into the winding following sensors:

PTC thermistor

We use three PTC in serial connection, one per each phase. The nominal shutdown temperature is +248 °F/+120 °C.

PTO thermostat

There are three PTO, one per phase in serial connection with NC or NO contacts.

The nominal shutdown temperature is +248 °F/+120 °C.

There are also other types of thermal protection available: Pt100; KTY83/84

Space heaters

Space heaters must be applied when motors are intended to be used below -4 °F/-20 °C or for anti-condensation purposes.

Space heaters

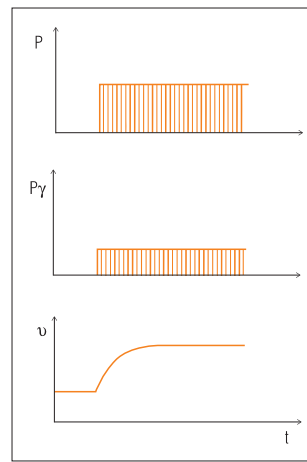
Frame size (NEMA)	Frame size (IEC)	Power	Voltage
-	71	12.5 W	110 V or 230 V
-	80	25 W	
143, 145	90	25 W	
-	100	25 W	
182, 184	112	50 W	
213, 215	132	50 W	
254, 256	160	75 W	
284, 286	180	150 W	
324, 326	200	200 W	
364, 365	225	200 W	

Duty cycles

S1 Continuous duty

Operation under constant load, lasting long enough to allow the machine to reach thermal equilibrium.

Designation: **S1**

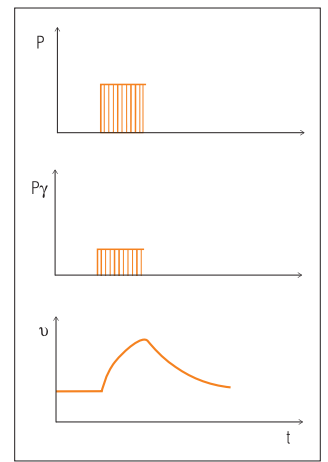


S2 Short-time duty

Operation under constant load, for a time too short to allow the machine to reach thermal equilibrium. Idle time of the machine is long enough to allow the machine to cool down to ambient temperature.

Standard duration of short-term operation: 10, 30, 60 and 90 min.

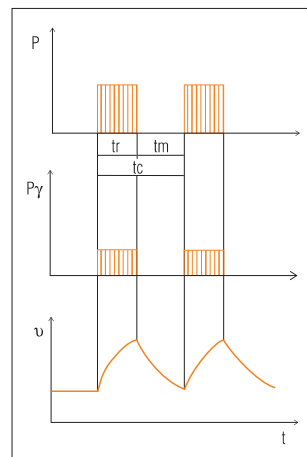
Designation: **S2** 30 minutes.



S3 Intermittent periodic duty

Operation under repeated, constant load in specified cycles. Neither operating nor resting period are long enough to allow the motor to reach thermal equilibrium. The starting losses are small and do not essentially influence the temperature rise. The nominal values of relative starting time are 15, 25, 40, 60 % at a daily 10-minute cycle.

Designation: **S3** 25 %

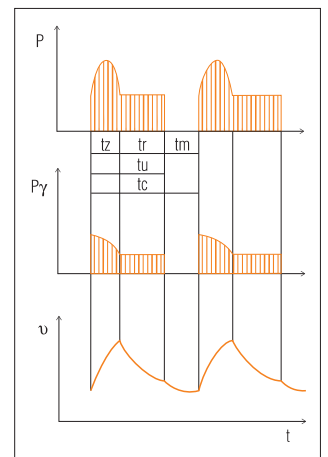


S4 Intermittent periodic duty

Operation under repeated, constant load in specified cycles. The start of the motor influences the temperature rise.

In order to define this type of operation, the number of cycles (starts per hour) and inertia constant must also be known.

Designation: **S4** 40 %; 120 starts/h; FI2



S5 Intermittent periodic duty

Same as S4 operation, except that the electric braking of the machine has an essential influence on the temperature rise.

Designation:

S5 160 %; 120 starts/h; FI2

S6 Continuous operation with cyclic load

Operation consisting of a continuous series of equal cycles. Each cycle is made up of a no-load and a constant load period. The cycle duration is not long enough to allow the machine to reach thermal equilibrium in one cycle. In order to define S6 operation, the relative starting time must be specified.

Designation: **S6** 15 %

S7 Intermittent periodic duty with starting and braking

Uninterrupted operation with a series of constant loading and braking periods. The most demanding type of operation for the motor. In order to define this type of operation, the number of cycles per hour and the inertia constant must be specified.

Designation: **S7** 500 starts/h; FI3

S8 Intermittent periodic duty with pole changing

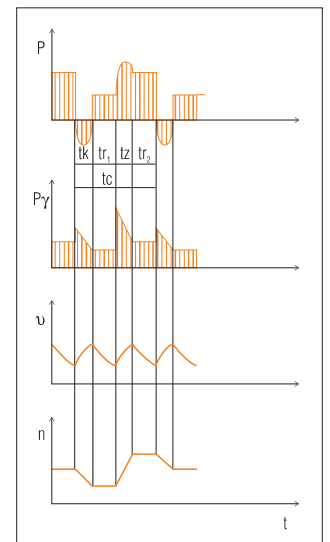
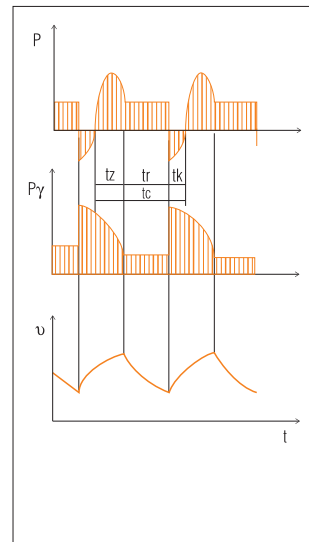
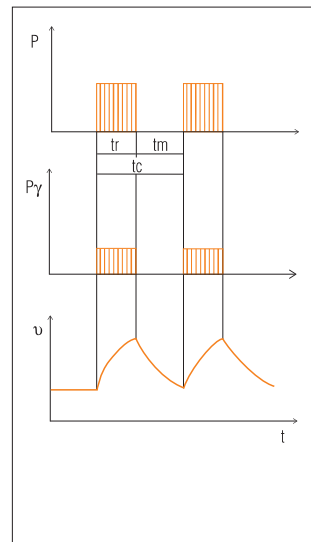
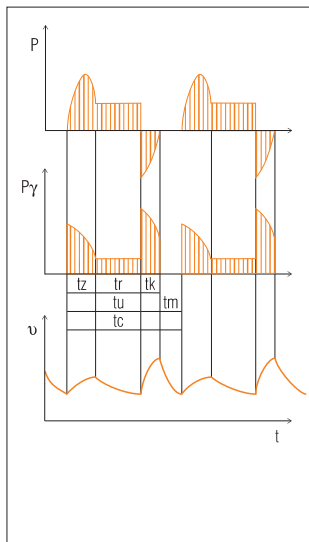
This type of operation only exists with pole amplitude modulated motors. In this case the definition of operation must contain the following data for each pole:

- number of starts per hour
- inertia constant
- relative operating period

Designation:

S8 30 starts/h; FI10; 740 min⁻¹; 40 %

S8 30 starts/h; FI10; 960 min⁻¹; 60 %



S9 Continuous operation with non-periodic load and speed variation (e. g. converter operation)



Direct cable entries

Motors type 4KTU can be produced without a terminal box. This application is very suitable for machines with limited space for example those using axial fans. For this application we use special flameproof cable entries. The type of cables, cross section and length can be adapted as per request.

There is a place for grounding the cable entry from inside the terminal plate.

The dimension of the motors with direct cable entries please see the relevant table at the end of the brochure.



Motors with brakes

Type 4KTU motors can be equipped with brakes, which are separately certified for suitable explosion protection. The brake can be mounted on the drive end or non-drive end of the motor. The electrical connection of brakes is made in a separate terminal box on the brake.

The electrical, as well as mechanical, characteristics of the brakes is not part of this catalogue and can be found in the brake catalogue.

The dimension of the motors with direct cable entries please see the relevant table at the end of the brochure.



Motors with encoders

Type 4KTU motors can be supplied with encoders for speed control or for positioning. Encoders can be fitted onto motors with either forced ventilation or with shaft mounted cooling fans (TEFC).

Encoders are separately certified for suitable explosion protection. We usually use encoders from the brands Kuebler or Liende&Liende. Other encoder brands can also be used.

The dimensions of motors with encoders please see the relevant table at the end of the brochure.



Forced cooling

Type 4KTU can be run with a frequency inverter. When you want to run the motor below 30 Hz, cooling is not enough. In those cases, a forced ventilation kit can be supplied for type 4KTU motors, which consist of one additional independent motor that drives the fan of the main motor.

The dimension of the motors with direct cable entries please see the relevant table at the end of the brochure.

Electrical data for variable speed motors

General description

The asynchronous motor with its short-circuit and robust construction offers an excellent price-performance ratio. AC motors are designed for constant speed operation. It is not possible to change speed when they are running on fixed frequency supplies. There are drives which require the additional flexibility of smooth speed variations and this is best achieved with the use of an inverter.

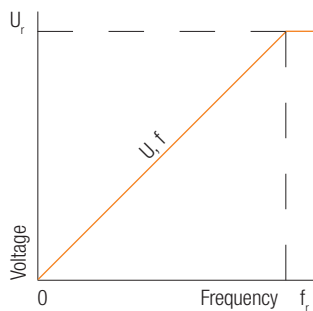
Frequency inverters provide an excellent speed and the speed can be varied continuously over the entire frequency range. To avoid overheating, three PTC elements are built into the head of the winding. As the speed rises (higher frequency), the motor becomes louder. Voltage type frequency inverters cause a noise increase of about 7 to 15 dB, current ones of about 3 dB.

We strongly recommend that you indicate frequency range and working characteristics of the motor ($T = f(n)$ or $P = f(n)$) when placing your order.

Power and torque characteristics of motors driven by frequency inverters

The ratio U/f is constant in range from 0 Hz to motor rated frequency. From rated frequency upwards the voltage is kept constant at its rated value, while the motor (on the stator windings) frequency keeps growing.

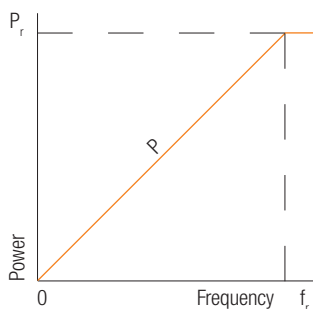
Range above the rated frequency is known as field weakening, where flux decreases as a result of frequency increase, causing the motor torque to decrease gradually.



Where

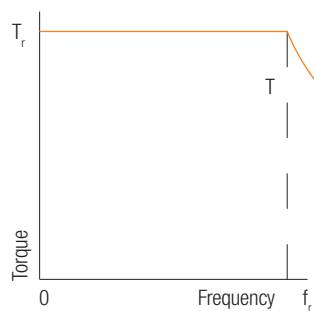
- U_r : rated stator voltage
- f_r : rated stator frequency
- U : stator voltage
- f : stator frequency

The output is proportional to torque time speed, it grows linearly up to the rated frequency and from that point upwards it is kept constant.



Where

- P_r : rated power
- P : power available on the shaft



Where

- T_r : rated torque
- T : torque available on the shaft

Variable speed drive application

Type 4KTU motors are designed and certified for variable speed applications in the following ranges:

- Frequency range: from 5 Hz to 87 Hz
- Speed range: 75 min⁻¹ to 5220 min⁻¹

There are also pole-switching motors available with standard ratios of 4/2, 8/4, 6/4, 8/6. Other ratios are possible upon request.

To avoid overheating, three PTC thermistors are built into the head of the winding. When you want to run the motor below 30 Hz, cooling is not enough, and forced cooling must be used.

Power and torque characteristics of motors driven by frequency inverters

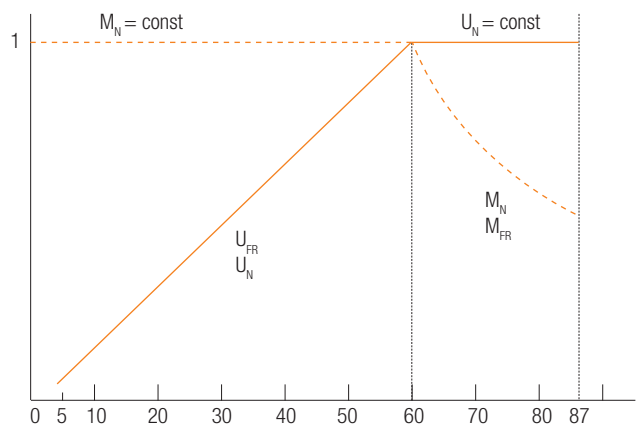
We distinguish two ranges:

5 Hz to 60 Hz

Here, the motor develops normal torque on the shaft at 5 Hz to 10 Hz of its output frequency (10 to 20 % of nominal speed). The motor maintains normal torque at the shaft until the frequency reaches 60 Hz (100 % of the nominal speed). Voltage keeps rising while the magnetic flux is kept constant. The power increase in this range is linear to the revolution ($P = k \times M \times n$)

60 Hz to 87 Hz

Here the torque is parallel to the speed. The voltage of the motor is maintained on a constant level while the magnetic flux is weaker. The current level is maintained and independent of the speed.



- U_N : net voltage
- U_{FR} : voltage of frequency inverter
- M_N : motor torque on net
- M_{FR} : motor torque on frequency inverter



Electrical data Type 4KTU

Voltage	230 to 460 V (usable on 208 V); 575 V to 690 V
Frequency	60/50 Hz
Insulation class	F
NEMA design	B
Service factor	1.10
Duty	S1 to S9
3 x PTC in winding	
Totally enclosed fan cooled (TEFC)	
CSA-US certificate	70013549
Class I, Division I, Group C and D, Temperature class T4 to T6	
Class II, Division I, Group E, F and G, Temperature class T4 to T6	
Protection class	IP 55 up to IP 65
Ambient temperature	-4 °F/-20 °C to +104 °F/+40 °C

Pole number 2

HP	kW	Speed rpm	Frame size	I_N 230 V	I_N 460 V	Locked rotor current I_k/I_N	Torque full load		Efficiency full load %	Power factor $\cos \varphi$	Weight lb
				A	A		Nm	lb-ft			
1	0.75	3490	143T	2.8	1.4	6.6	2.05	1.51	75.5	0.89	53
1.5	1.1	3490	143T	3.9	1.95	6.6	3.01	2.22	82.5	0.86	57
2	1.5	3465	145T	5.2	2.6	6.7	4.11	3.03	84	0.86	71
3	2.2	3505	182T	7.5	3.75	7.8	6	4.43	85.5	0.86	75
5	3.7	3495	184T	12	6	7.4	10.1	7.45	87.5	0.88	128
7.5	5.5	3515	213T	18	9	7.6	14.95	11.03	88.5	0.87	170
10	7.5	3520	215T	24.2	12.1	8.25	20.3	14.97	89.5	0.87	185
15	11	3520	254T	34.8	17.4	9.1	29.6	21.83	90.2	0.88	326
20	15	3520	256T	45.4	22.7	9.1	40.3	29.73	90.2	0.92	392
25	18.5	3550	284TS	58	29	9.5	49.9	36.81	91	0.88	451
30	22	3550	286TS	68.2	34.1	8.1	59.3	43.74	91	0.89	451
40	30	3560	324TS	91.2	45.6	8.6	80.7	59.52	91.7	0.9	429
50	37	3565	326TS	111.6	55.8	9.7	99.2	73.17	92.4	0.9	551
60	45	3550	364/5T	137.6	68.8	8	120.6	88.95	93	0.88	826



Pole number 4

HP	kW	Speed rpm	Frame size	I _N 230 V A	I _N 460 V A	Locked rotor current I _K /I _N	Torque full load		Efficiency full load %	Power factor cos φ	Weight lb
							Nm	lb-ft			
1	0.75	1745	143T	3.3	1.65	6.9	4.11	3.03	82.5	0.69	75
1.5	1.1	1750	143T	4.8	2.4	7.7	6.01	4.43	84	0.68	77
2	1.5	1735	145T	5.8	2.9	6.5	8.25	6.09	84	0.77	77
3	2.2	1740	182T	7.6	3.8	7.1	12	8.85	87.5	0.83	132
5	3.7	1750	184T	13.2	6.6	7.7	20.2	14.90	87.5	0.8	132
7.5	5.5	1745	213T	18.6	9.3	6.1	30.1	22.20	89.5	0.83	185
10	7.5	1750	215T	25	12.5	6.9	40.9	30.2	89.5	0.84	206
15	11	1760	254T	36.8	18.4	7.6	59.7	44.03	91	0.82	350
20	15	1755	256T	49.4	24.7	7.6	81.6	60.19	91	0.84	392
25	18.5	1770	284TS	59.8	29.9	7.2	99.7	73.54	92.4	0.84	474
30	22	1770	286TS	71	35.5	7.6	118.5	87.41	92.4	0.84	520
40	30	1770	324TS	92	46	8.3	161.7	119.27	93	0.88	551
50	37	1775	326TS	112.2	56.1	6.8	200.3	147.74	93	0.89	551
60	45	1775	364/5T	139.6	69.8	7.6	238.24	175.7	93.6	0.86	859

Pole number 6

HP	kW	Speed rpm	Frame size	I _N 230 V A	I _N 460 V A	Locked rotor current I _K /I _N	Torque full load		Efficiency full load %	Power factor cos φ	Weight lb
							Nm	lb-ft			
1	0.75	1165	143/5T	4.3	2.15	6.3	6.14	4.53	80	0.55	70.5
1.5	1.1	1170	182/4T	4.4	2.2	7	9.1	6.71	85.5	0.73	132
2	1.5	1175	182/4T	6.8	3.4	8.2	12.2	9.00	86.5	0.64	132
3	2.2	1170	213/5T	9.4	4.7	7.8	17.9	13.20	87.5	0.67	185
5	3.7	1165	213/5T	14	7	6.2	30.3	22.35	87.5	0.76	194
7.5	5.5	1170	254/6T	19.5	9.75	8	44.8	33.04	89.5	0.79	354
10	7.5	1175	254/6T	27	13.5	8.7	60.8	44.85	89.5	0.78	401
15	11	1180	284/6T	39	19.5	8.5	88.9	65.57	90.2	0.78	520
20	15	1175	284/6T	50.2	25.1	6.6	122	89.99	91	0.82	520
25	18.5	1185	324/6T	67.4	33.7	7.4	148.8	109.75	91.7	0.75	529
30	22	1185	324/6T	77.2	38.6	8.5	177.9	131.22	91.7	0.78	551
40	30	1185	364/5T	100	50	7.6	214.5	158.22	93	0.81	859
50	37	1185	364/5T	120.2	60.1	6.3	298.8	220.39	93	0.83	859



Electrical data Type 4KTU

Voltage	230 to 460 V (usable on 208 V); 575 V to 690 V
Frequency	60/50 Hz
Insulation class	F
NEMA design	B
Service factor	1.10
Duty	S1 to S9
3 x PTC in winding	
Totally enclosed fan cooled (TEFC)	
CSA-US certificate	70013549
Class I, Division I, Group C and D, Temperature class T4 to T6	
Class II, Division I, Group F and G, Temperature class T4 to T6	
Protection class	IP 55 up to IP 65
Ambient temperature	-4 °F/-20 °C to +104 °F/+40 °C

Pole number 2

HP	kW	Speed rpm	Frame size	I_N 230 V	I_N 460 V	Locked rotor current I_k/I_N	Torque full load		Efficiency full load %	Power factor $\cos \varphi$	Weight lb
				A	A		Nm	lb-ft			
1	0.75	3480	143T	2.52	1.26	6.7	2.05	1.51	78.5	0.87	53
1.5	1.1	3475	143T	3.72	1.86	6.5	3.01	2.22	84	0.86	57
2	1.5	3465	145T	5.18	2.59	6.6	4.11	3.03	85.5	0.84	71
3	2.2	3315	182T	7.06	3.53	7.8	6	4.43	86.5	0.88	75
5	3.7	3500	184T	11.86	5.93	7.5	10.1	7.45	88.5	0.88	128
7.5	5.5	3530	213T	17.74	8.87	6.8	14.95	11.03	89.5	0.86	170
10	7.5	3535	215T	24	12	7.2	20.3	14.97	90.2	0.87	185
15	11	3545	254T	34.04	17.02	7.6	29.6	21.83	91.0	0.89	326
20	15	3540	256T	45.2	22.6	8	40.3	29.73	91.0	0.9	392
25	18.5	3550	284T/TS	58	29	9.5	49.9	36.81	91.7	0.87	451
30	22	3550	286T/TS	68.2	34.1	8.1	59.3	43.74	91.7	0.88	451
40	30	3560	324T/TS	91.2	45.6	8.6	80.7	59.52	92.4	0.89	429
50	37	3565	326T/TS	111.6	55.8	9.7	99.2	73.17	93	0.89	551
60	45	3550	364/5T/TS	137.6	68.8	8	120.6	88.95	93.6	0.88	826

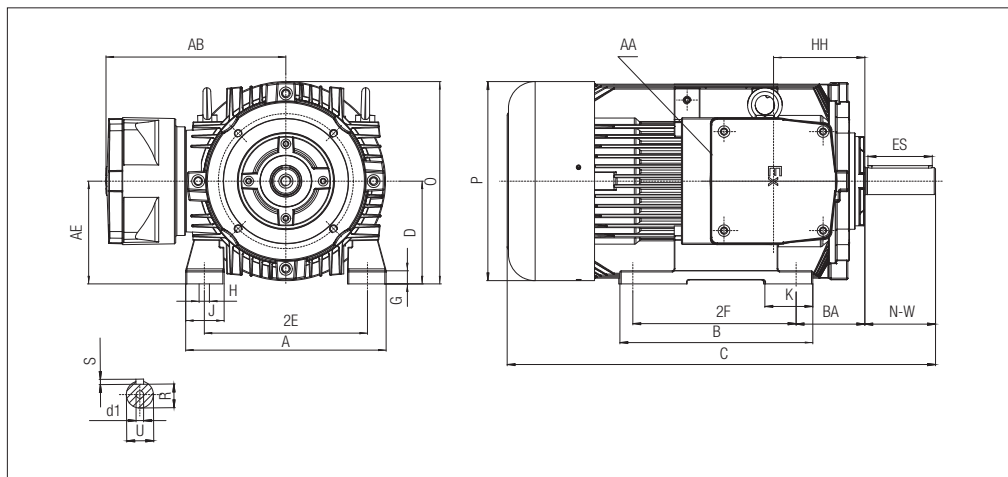


Pole number 4

HP	kW	Speed rpm	Frame size	I _N 230 V A	I _N 460 V A	Locked rotor current I _k /I _N	Torque full load		Efficiency full load %	Power factor cos φ	Weight lb
							Nm	lb-ft			
1	0.75	1730	143T	2.96	1.48	7	4.11	3.03	85.5	0.74	75
1.5	1.1	1750	143T	4.86	2.43	8.1	6.01	4.43	86.5	0.66	77
2	1.5	1735	145T	5.82	2.9	6.7	8.25	6.09	86.5	0.74	77
3	2.2	1755	182T	7.84	3.92	8.5	12	8.85	89.5	0.79	132
5	3.7	1755	184T	13.46	6.73	7.9	20.2	14.90	89.5	0.77	132
7.5	5.5	1755	213T	19	9.5	7	30.1	22.20	91.7	0.79	185
10	7.5	1755	215T	25.2	12.6	7.3	40.9	30.2	91.7	0.81	206
15	11	1770	254T	37.4	18.7	7.6	59.7	44.03	92.4	0.8	350
20	15	1775	256T	50.6	25.3	7.7	81.6	60.19	93	0.79	392
25	18.5	1775	284T/TS	59.8	29.9	7.5	99.7	73.54	93.6	0.83	474
30	22	1770	286T/TS	71.6	35.8	7.3	118.5	87.41	93.6	0.82	520
40	30	1765	324T/TS	91.2	45.6	6.9	161.7	119.27	94.1	0.88	551
50	37	1775	326T/TS	112.2	56.1	6.9	200.3	147.74	94.5	0.88	551
60	45	1775	364/5T/TS	140	70	7.7	238.24	175.7	95	0.85	859

Pole number 6

HP	kW	Speed rpm	Frame size	I _N 230 V A	I _N 460 V A	Locked rotor current I _k /I _N	Torque full load		Efficiency full load %	Power factor cos φ	Weight lb
							Nm	lb-ft			
1	0.75	1165	143/5T	4.3	2.15	6.3	6.14	4.53	82.5	0.53	70.5
1.5	1.1	1170	182/4T	4.4	2.2	7	9.1	6.71	87.5	0.72	132
2	1.5	1175	182/4T	6.8	3.4	8.2	12.2	9.00	88.5	0.63	132
3	2.2	1170	213/5T	9.4	4.7	7.8	17.9	13.20	89.5	0.66	185
5	3.7	1165	213/5T	14	7	6.2	30.3	22.35	89.5	0.74	194
7.5	5.5	1170	254/6T	19.5	9.75	8	44.8	33.04	91	0.78	354
10	7.5	1175	254/6T	27	13.5	8.7	60.8	44.85	91	0.77	401
15	11	1180	284/6T/TS	39	19.5	8.5	88.9	65.57	91.7	0.77	520
20	15	1175	284/6T/TS	50.2	25.1	6.6	122	89.99	91.7	0.82	520
25	18.5	1185	324/6T/TS	67.4	33.7	7.4	148.8	109.75	93	0.74	529
30	22	1185	324/6T/TS	77.2	38.6	8.5	177.9	131.22	93	0.77	551
40	30	1185	364/5T/TS	100	50	7.6	214.5	158.22	94.1	0.8	859
50	37	1185	364/5T/TS	120.2	60.1	6.3	298.8	220.39	94.1	0.82	859

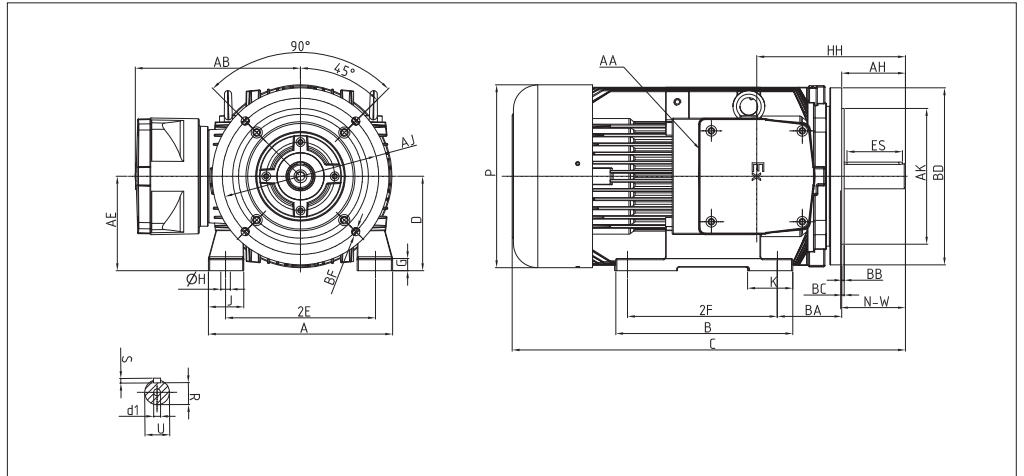


Dimensions

NEMA Frames	Mounting											Keyway			Shaft extension		Terminal box				
	2E	2F	H	BA	A	B	C*	D	G	J	K	P	S	R	ES	N-W	U	AB	HH	AE	AA (max.)
143T	5.500	4.000	0.344	2.250	6.457	5.157	14.580	3.500	0.393	1.380	2.360	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	3.500	NPT 3/4"
145T		5.000				6.142															
182T	7.500	4.500	0.406	2.750	8.661	5.954	17.790	4.500	0.590	1.970	1.970	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	4.500	NPT 1"
184T		5.500				9.969															
213T	8.500	5.500	0.406	3.500	9.764	7.362	21.330	5.250	0.708	2.165	2.950	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	5.250	NPT 1"
215T		7.000				8.858															
254T	10.000	8.252	0.406	4.250	12.126	10.000	26.000	6.250	0.827	2.365	4.095	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	6.250	NPT 2"
256T		10.000				11.732															
284TS	11.000	9.500	0.531	4.750	13.780	11.575	26.755	7.000	0.866	2.755	4.645	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	7.000	NPT 2"
284T						28.130															
286TS						26.755															
286T						28.130															
324TS	12.500	10.500	0.657	5.250	15.157	13.071	30.525	8.000	0.866	3.740	15.160	0.500	1.594	3.937	5.250	2.125	1.875	13.625	10.625	8.000	NPT 2"
324T						32.025															
326TS						30.525															
326T						32.025															
364/5TS	14.000	11.260/ 12.244	0.660	5.875	17.165	16.220	33.040	9.000	0.905	4.450	17.090	0.625	2.019	4.330	5.874	2.375	14.330	11.260	9.000	NPT 2"	
364/5T							35.165														

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size

d1 - Look on the page with chapter "Shaft ends"

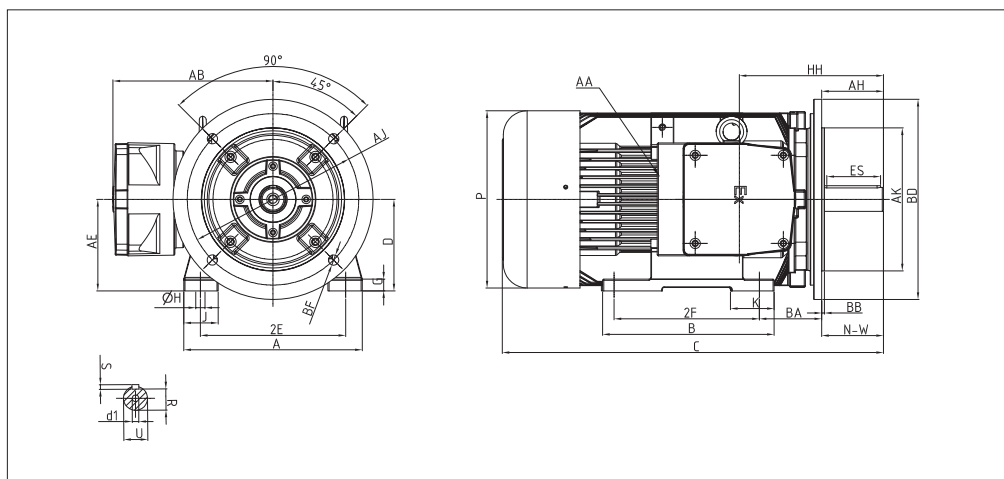
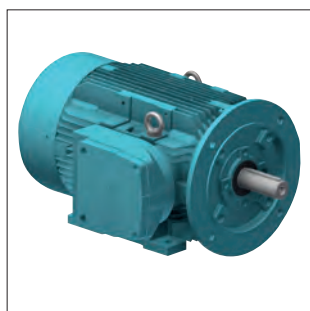


Dimensions

NEMA Frames	Mounting											Keyway			Shaft extension		Terminal box			
	2E	2F	H	A	B	C***	D	G	J	K	P	S	R	ES	N-W	U	AB	HH	AE	AA (max.)
143T	5.500	4.000	0.344	6.457	5.157	14.580	3.500	0.393	1.380	2.360	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	3.500	NPT 3/4"
145T		5.000			6.142															
182T	7.500	4.500	0.406	8.661	5.954	17.790	4.500	0.590	1.970	1.970	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	4.500	NPT 1"
184T		5.500			9.969															
213T	8.500	5.500	0.406	9.764	7.362	21.330	5.250	0.708	2.165	2.950	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	5.250	NPT 1"
215T		7.000			8.858															
254T	10.000	8.252	0.531	12.126	10.000	26.000	6.250	0.827	2.365	4.095	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	6.250	NPT 2"
256T		10.000			11.732															
284TS	11.000	9.500	0.531	13.780	11.575	26.755	7.000	0.866	2.755	4.645	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	7.000	NPT 2"
284T					28.130	28.130														
286TS	11.000	11.000	0.531	13.780	26.755	26.755	7.000	0.827	2.755	4.645	13.585	0.375	1.406	2.480	3.250	1.625	12.440	10.330	7.000	NPT 2"
286T					28.130	28.130														
324TS	12.500	10.500	0.657	15.157	13.071	30.525	8.000	0.866	3.740	15.160	17.090	0.500	1.594	3.149	4.622	1.875	13.625	10.625	8.000	NPT 2"
324T					32.025	32.025														
326TS	12.500	12.000	0.657	15.157	14.567	30.525	8.000	0.827	3.150	15.160	17.090	0.500	1.594	2.756	3.750	1.875	13.625	10.625	8.000	NPT 2"
326T					32.025	32.025														
364/5TS	14.000	11.260/	0.660	17.165	16.220	33.040	9.000	0.905	4.450	17.090	17.090	0.625	2.019	4.330	5.874	2.375	14.330	11.260	9.000	NPT 2"
364/5T		12.244			35.165	13.385														

NEMA Frames	"C" Flange								
	BA	AJ	AK	BD	No.	BF	BB	BC	AH
143T	2.250*	5.875	4.500	6.500	4	UNC 3/8" x 16	0.156	0.125	2.125
145T	2.750**								2.625
182T	2.750*	7.250	8.500	8.875	4	UNC 1/2" x 13	0.250	0.250	3.125
184T	3.500**								3.750
213T	3500*	7.250	8.500	8.875	4	UNC 1/2" x 13	0.250	0.250	3.500
215T	4.250**								3.000
254T	4.250*	7.250	8.500	8.875	4	UNC 1/2" x 13	0.250	0.250	4.375
256T	4.750**								3.000
284TS	4.750	9.000	10.500	11.031	4	UNC 1/2" x 13	0.250	0.250	4.375
284T									3.500
286TS	4.750	9.000	10.500	11.031	4	UNC 1/2" x 13	0.250	0.250	5.000
286T									3.500
324TS	5.250	11.000	12.500	13.583	4	UNC 5/8" x 11	0.250	0.250	5.000
324T									3.500
326TS	5.250	11.000	12.500	13.583	4	UNC 5/8" x 11	0.250	0.250	5.000
326T									3.500
364/5TS	5.875	11.000	12.500	13.583	4	UNC 5/8" x 11	0.250	0.250	5.000
364/5T									5.625

* NEMA Standard
 ** BA Dimension for motors with "C" Flange
 *** 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size
 d1 - Look on the page with chapter "Shaft ends"

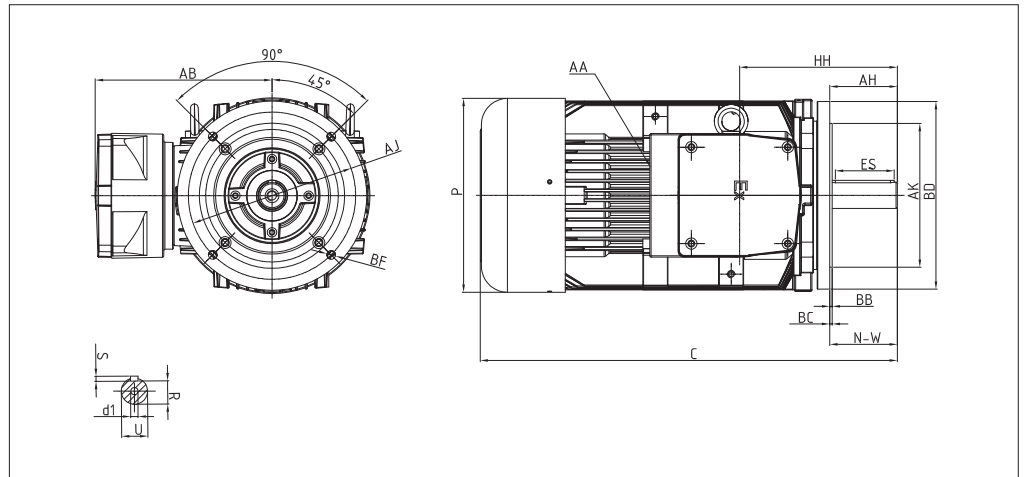


Dimensions

NEMA Frames	Mounting											Keyway			Shaft extension		Terminal box			
	2E	2F	H	A	B	C*	D	G	J	K	P	S	R	ES	N-W	U	AB	HH	AE	AA (max.)
143T	5.500	4.000	0.344	6.457	5.157	14.580	3.500	0.393	1.380	2.360	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	3.500	NPT 3/4"
145T		5.000			6.142															
182T	7.500	4.500	0.406	8.661	5.954	17.790	4.500	0.590	1.970	1.970	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	4.500	NPT 1"
184T		5.500			9.969															
213T	8.500	5.500	0.406	9.764	7.362	21.330	5.250	0.708	2.165	2.950	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	5.250	NPT 1"
215T		7.000			8.858															
254T	10.000	8.252	0.531	12.126	10.000	26.000	6.250	0.827	2.365	4.095	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	6.250	NPT 2"
256T		10.000			11.732									2.480						
284TS	11.000	9.500	0.531	13.780	11.575	7.000	0.866	2.755	4.645	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	7.000	NPT 2"	
284T					28.130															0.827
286TS	11.000	11.000	0.531	13.780	26.755	7.000	0.866	2.755	4.645	13.585	0.375	1.406	2.480	3.250	1.625	12.440	10.330	7.000	NPT 2"	
286T					28.130															0.827
324TS	12.500	10.500	0.657	15.157	30.525	8.000	0.866	3.150	3.740	15.160	0.500	1.594	3.149	4.622	1.875	13.625	10.625	8.000	NPT 2"	
324T					32.025															0.827
326TS	12.500	12.000	0.657	15.157	30.525	8.000	0.827	3.150	3.740	15.160	0.500	1.594	2.756	3.750	1.875	13.625	10.625	8.000	NPT 2"	
326T					32.025															0.827
364/5TS	14.000	11.260/	0.660	17.165	33.040	9.000	0.905	4.450	17.090	17.090	0.625	2.019	4.330	5.874	2.375	14.330	11.260	9.000	NPT 2"	
364/5T		12.244			35.165															13.385

NEMA Frames	"D" Flange						
	BA	AJ	AK	BD	No.	BF	BB
143T	2.250					0.562	
145T							
182T	2.750	10.000	9.000	11.000			
184T							
213T	3.500						
215T							
254T	4.250						
256T							
284TS	4.750	12.500	11.000	14.000	4	0.828	0.203
284T							
286TS	4.750						
286T							
324TS	5.250						
324T							
326TS	5.250	16.000	14.000	18.000			
326T							
364/5TS	5.875						
364/5T							

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size
d1 - Look on the page with chapter "Shaft ends"

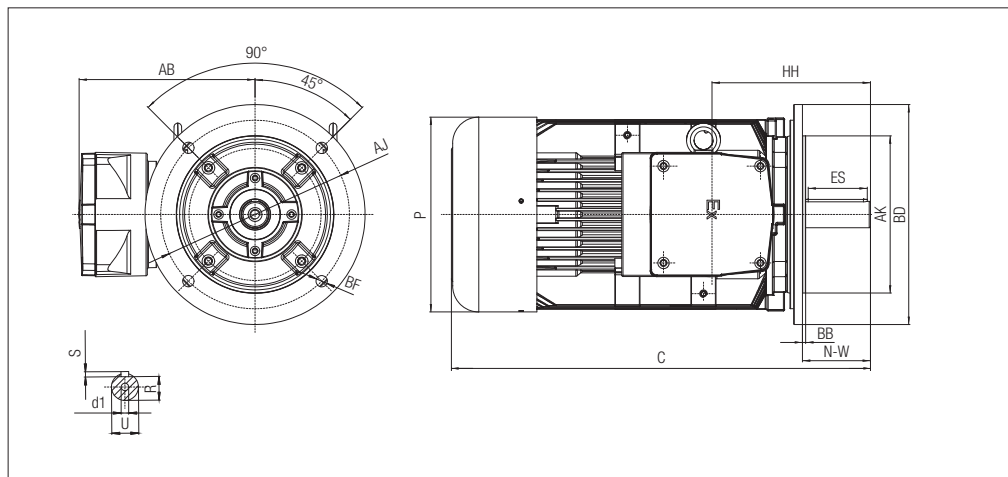


Dimensions

NEMA Frames	Keyway		Shaft extension		Terminal box					
	C*	P	S	R	ES	N-W	U	AB	HH	AA (max.)
143T	14.580	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	NPT 3/4"
145T										
182T	17.790	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	NPT 1"
184T										
213T	21.330	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	NPT 2"
215T										
254T	26.000	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	NPT 2"
256T					2.480	3.250			10.330	
284TS	26.755	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	
284T	28.130								11.700	
286TS	26.755	15.160	0.375	1.406	2.480	3.250	1.625	13.625	10.330	
286T	28.130								11.700	
324TS	30.525	15.160	0.500	1.594	3.149	4.622	1.875	13.625	10.625	
324T	32.025								12.125	
326TS	30.525	17.090	0.500	1.844	3.937	5.250	2.125	14.330	10.625	
326T	32.025								12.125	
364/5TS	33.040	17.090	0.625	1.591	1.968	3.748	1.875	14.330	11.260	
364/5T	35.165								13.385	

NEMA Frames	"C" Flange				No.	BF	BB	BC	AH					
	AJ	AK	BD	No.										
143T	5.875	4.500	6.500	4	UNC 3/8" x 16	0.156	0.125	0.125	2.125					
145T									2.625					
182T	7.250	8.500	8.875						UNC 1/2" x 13	0.250	0.250	0.250	3.125	
184T													3.750	
213T	9.000	10.500	11.031						UNC 5/8" x 11	0.250	0.250	0.250	3.000	
215T													4.375	
254T	11.000	12.500	13.583						8	UNC 5/8" x 11	0.250	0.250	0.250	3.000
256T														4.375
284TS	11.000	12.500	15.551						8	UNC 5/8" x 11	0.250	0.250	0.250	3.500
284T														5.000
286TS	11.000	12.500	15.551	8	UNC 5/8" x 11	0.250	0.250	0.250	3.500					
286T									5.000					
324TS	11.000	12.500	15.551	8	UNC 5/8" x 11	0.250	0.250	0.250	3.500					
324T									5.000					
326TS	11.000	12.500	15.551	8	UNC 5/8" x 11	0.250	0.250	0.250	3.500					
326T									5.000					
364/5TS	11.000	12.500	15.551	8	UNC 5/8" x 11	0.250	0.250	0.250	3.500					
364/5T									5.625					

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size
d1 - Look on the page with chapter "Shaft ends"

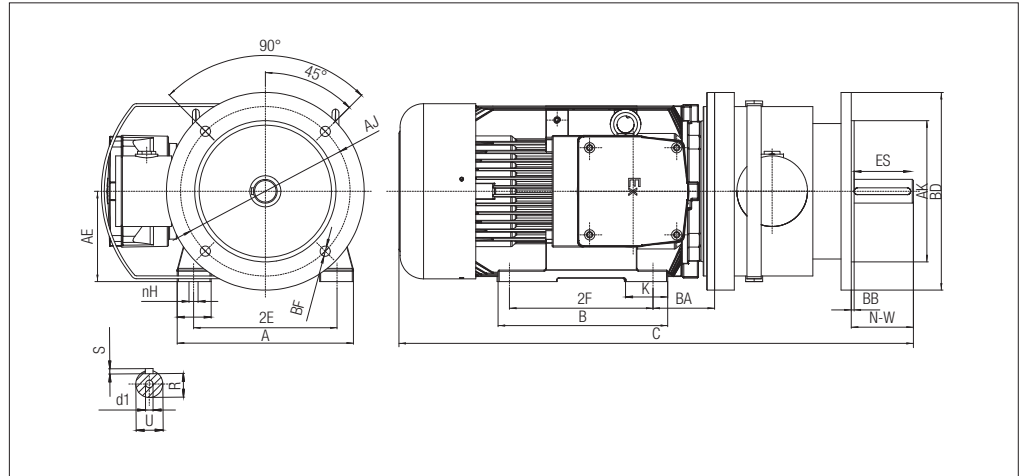
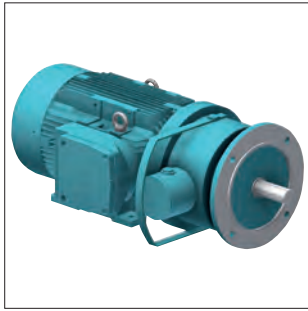


Dimensions

NEMA Frames			Keyway			Shaft extension		Terminal box		
	C*	P	S	R	ES	N-W	U	AB	HH	AA (max.)
143T	14.580	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	NPT 3/4"
145T										
182T	17.790	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	NPT 1"
184T										
213T	21.330	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	NPT 1"
215T										
254T	26.000	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	NPT 2"
256T										
284TS	26.755	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	NPT 2"
284T										
286TS	26.755	13.585	0.375	1.406	2.480	3.250	1.625	12.440	10.330	NPT 2"
286T										
324TS	30.525	15.160	0.500	1.594	2.756	3.750	1.875	13.625	10.625	NPT 2"
324T										
326TS	30.525	15.160	0.500	1.844	3.937	5.250	2.125	13.625	12.125	NPT 2"
326T										
364/5TS	33.040	17.090	0.625	2.019	4.330	5.874	2.375	14.330	11.260	NPT 2"
364/5T										
364/5T	35.165	17.090	0.625	2.019	4.330	5.874	2.375	14.330	13.385	NPT 2"

NEMA Frames	"D" Flange					
	AJ	AK	BD	No.	BF	BB
143T	10.000	9.000	11.000	4	0.828	0.203
145T						
182T						
184T						
213T						
215T						
254T	12.500	11.000	14.000	4	0.828	0.203
256T						
284TS						
284T						
286TS						
286T						
324TS	16.000	14.000	18.000	4	0.828	0.203
324T						
326TS						
326T						
364/5TS						
364/5T	17.716					

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size
 d1 - Look on the page with chapter "Shaft ends"



Dimensions

NEMA Frames	Mounting											Keyway		Shaft extension		Terminal box				
	2E	2F	H	A	B	C*	D	G	J	K	P	S	R	ES	N-W	U	AB	HH	AE	AA (max.)
143T	5.500	4.000	0.344	6.457	5.157	14.580	3.500	0.393	1.380	2.360	6.970	0.187	0.765	1.575	2.250	0.875	7.125	5.670	3.500	NPT 3/4"
145T		5.000			6.142															
182T	7.500	4.500	0.406	8.661	5.954	17.790	4.500	0.590	1.970	1.970	8.625	0.250	0.984	1.969	2.750	1.125	7.835	6.220	4.500	NPT 1"
184T		5.500			9.969															
213T	8.500	5.500	0.406	9.764	7.362	21.330	5.250	0.708	2.165	2.950	10.160	0.313	1.203	2.480	3.375	1.375	8.585	7.125	5.250	NPT 1"
215T		7.000			8.858															
254T	10.000	8.252	0.531	12.126	10.000	26.000	6.250	0.827	2.365	4.095	12.205	0.375	0.375	2.756	4.000	1.625	10.870	10	6.250	NPT 2"
256T		10.000			11.732															
284TS	11.000	9.500	0.531	13.780	26.755	7.000	0.866	2.755	4.645	13.585	13.585	0.500	1.594	3.149	4.622	1.875	12.440	10.330	7.000	NPT 2"
284T					28.130															
286TS	11.000	11.000	0.531	13.780	26.755	7.000	0.827	2.755	4.645	13.585	13.585	0.375	1.406	2.480	3.250	1.625	12.440	10.330	7.000	NPT 2"
286T					28.130															
324TS	12.500	10.500	0.657	15.157	13.071	8.000	0.866	3.150	3.740	15.160	15.160	0.500	1.594	3.149	4.622	1.875	13.625	10.625	8.000	NPT 2"
324T					30.525															
326TS	12.500	12.000	0.657	15.157	32.025	8.000	0.827	3.150	3.740	15.160	15.160	0.500	1.844	3.937	5.250	2.125	13.625	12.125	8.000	NPT 2"
326T					30.525															
364/5TS	14.000	11.260/	0.660	17.165	33.040	9.000	0.905	4.450	17.090	17.090	17.090	0.625	2.019	4.330	5.874	2.375	14.330	11.260	9.000	NPT 2"
364/5T		12.244			35.165															

3

NEMA Frames	"C" Flange						
	BA	AJ	AK	BD	No.	TAP size	BB
143T	2.250	10.000	9.000	6.500	4	UNC 3/8" x 16	0.156
145T							
182T	2.750	10.000	9.000	8.875	4	UNC 1/2" x 13	0.250
184T							
213T	3.500	10.000	9.000	8.875	4	UNC 1/2" x 13	0.250
215T							
254T	4.250	12.500	11.000	11.031	4	UNC 1/2" x 13	0.250
256T							
284TS	4.750	12.500	11.000	11.031	4	UNC 1/2" x 13	0.250
284T							
286TS	4.750	12.500	11.000	11.031	4	UNC 1/2" x 13	0.250
286T							
324TS	5.250	16.000	14.000	13.583	4	UNC 5/8" x 11	0.250
324T							
326TS	5.250	16.000	14.000	13.583	4	UNC 5/8" x 11	0.250
326T							
364/5TS	5.875	16.000	14.000	15.551	4	UNC 5/8" x 11	0.250
364/5T							

NEMA Frames	"D" Flange					
	AJ	AK	BD	No.	BF	BB
143T	10.000	9.000	11.000	4	0.562	0.203
145T						
182T	10.000	9.000	11.000	4	0.562	0.203
184T						
213T	10.000	9.000	11.000	4	0.562	0.203
215T						
254T	12.500	11.000	14.000	4	0.828	0.203
256T						
284TS	12.500	11.000	14.000	4	0.828	0.203
284T						
286TS	12.500	11.000	14.000	4	0.828	0.203
286T						
324TS	16.000	14.000	18.000	4	0.828	0.203
324T						
326TS	16.000	14.000	18.000	4	0.828	0.203
326T						
364/5TS	16.000	14.000	17.716	4	0.828	0.203
364/5T						

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size

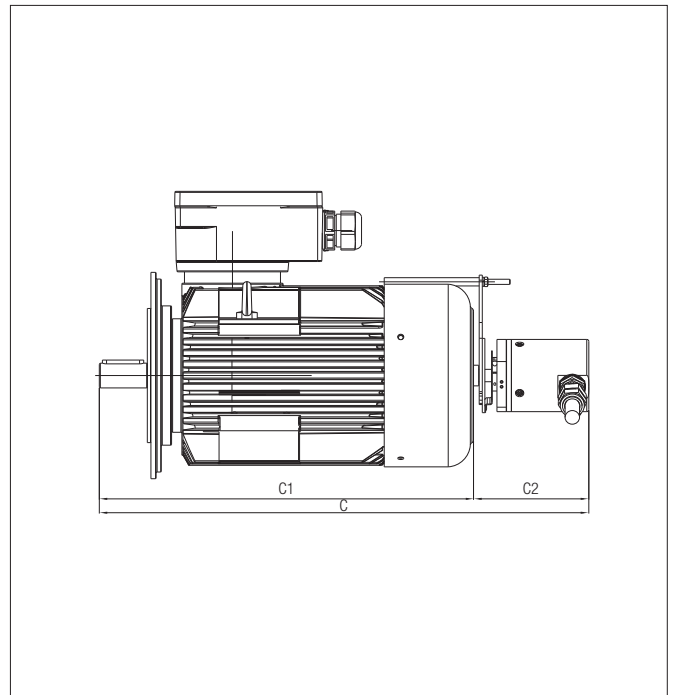
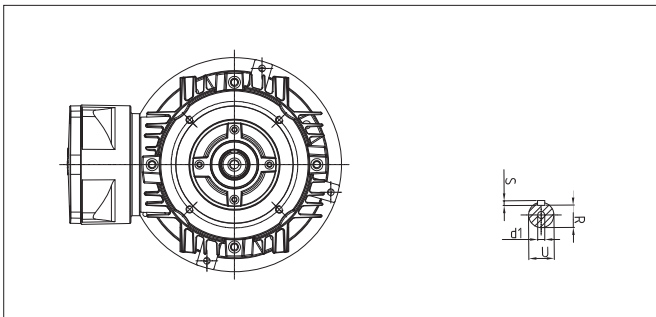
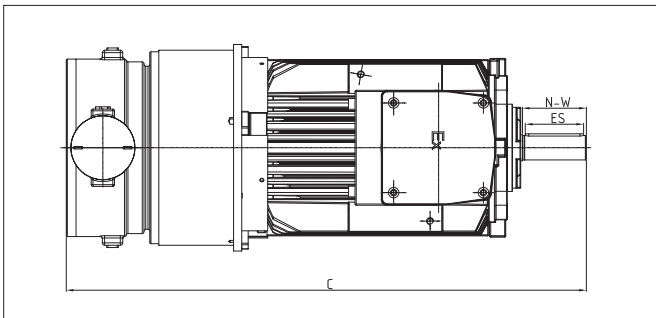
d1 - Look on the page with chapter "Shaft ends"



Motor with brake on **NDE side**



Motor **with encoder**



Dimensions

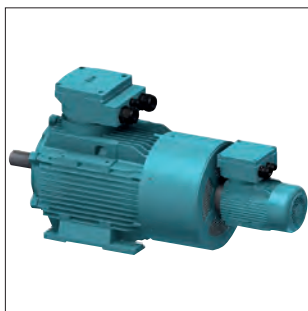
NEMA Frames	Keyway				Shaft extension	
	C*	S	R	ES	N-W	U
143T	20.480	0.187	0.765	1.575	2.250	0.875
145T						
182T	25.230	0.250	0.984	1.969	2.750	1.125
184T						
213T	28.655	0.313	1.203	2.480	3.375	1.375
215T						
254T	33.245	0.375	0.375	2.756	4.000	1.625
256T						
284TS	36.790	0.500	1.594	2.480	3.250	1.875
284T				3.149		
286TS	36.790	0.375	1.406	2.480	3.250	1.625
286T						
324TS	42.120	0.500	1.594	2.756	3.750	1.875
324T				3.937		
326TS				2.756		
326T				3.937		
364/5TS				1.591		
364/5T				1.968		
364/5T	46.760	0.625	2.019	4.330	5.874	2.375

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size
d1 - Look on the page with chapter "Shaft ends"

Dimensions

NEMA Frames	with encoder		
	C*	C1	C2
143T	19.580	14.580	
145T			
182T	22.790	17.790	
184T			
213T	26.330	21.330	
215T			
254T	31.000	26.000	
256T			
284TS	31.755	26.755	5
284T			
286TS	31.755	26.755	
286T			
324TS	35.525	30.525	
324T			
326TS	35.525	30.525	
326T			
364/5TS	38.040	33.040	
364/5T			
364/5T	40.165	35.165	

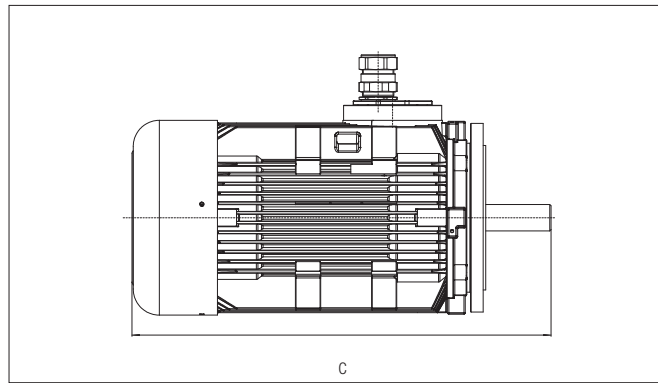
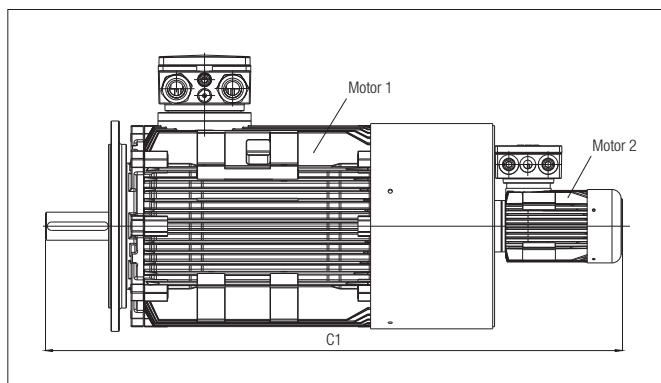
* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size



Motor **Forced cooling**



Motor with **direct cable entries**



Dimensions

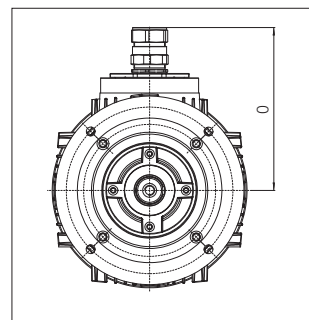
NEMA Frames	IEC Frames	C*
143T	4KTU 71 A-2	25.000
145T		
182T		29.000
184T		
213T		32.000
215T		
254T		37.500
256T		
284TS	4KTU 80 A-4 4KTU 143 T	40.500
284T		
286TS		
286T		45.000
324TS		
324T		
326TS		
326T	48.000	
364/5TS		
364/5T		

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size

Dimensions

NEMA Frames	0	C*
143T	12.000	14.580
145T		
182T	15.000	17.790
184T		
213T	17.000	21.330
215T		
254T	22.000	26.000
256T		
284TS	22.000	26.755
284T		28.130
286TS		26.755
286T		28.130
324TS	25.000	30.525
324T		32.025
326TS		30.525
326T		32.025
364/5TS	26.000	33.040
364/5T		35.165

* 2.5 longer for PREMIUM EFFICIENCY motors from 254 frame size





Frame Sizes	143T	145T	182T	184T	213T	215T	245T	256T	284TS	286TS	324TS	326TS	364/5T
Voltage up to 690 V	●	●	●	●	●	●	●	●	●	●	●	●	●
Special frequency	●	●	●	●	●	●	●	●	●	●	●	●	●
Variable speed drive	●	●	●	●	●	●	●	●	●	●	●	●	●
Special power	●	●	●	●	●	●	●	●	●	●	●	●	●
Special shaft end	●	●	●	●	●	●	●	●	●	●	●	●	●
Free shaft end on NDE side	●	●	●	●	●	●	●	●	●	●	●	●	●
Special flange	●	●	●	●	●	●	●	●	●	●	●	●	●
Additional greasing	NA	NA	NA	NA	NA	NA	●	●	●	●	●	●	●
Fixed bearing on AS	NA	NA	NA	NA	NA	NA	●	●	●	●	●	●	●
2RS bearings	●	●	●	●	●	●	●	●	●	●	●	●	●
Labyrinth seal	NA	NA	NA	NA	NA	NA	NA	NA	●	●	●	●	●
NU bearing	NA	NA	NA	NA	NA	NA	●	●	●	●	●	●	●
Oil seal	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Protection class IP 56	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection class IP 65	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection class IP 66	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection rain cover	●	●	●	●	●	●	●	●	●	●	●	●	●
Vibrations within R or S limits	●	●	●	●	●	●	●	●	●	●	●	●	●
SPM placing	NA	NA	NA	NA	NA	NA	●	●	●	●	●	●	●
Bearing protection Pt100	NA	NA	NA	NA	●	●	●	●	●	●	●	●	●
Space heater AC 230/110 V	●	●	●	●	●	●	●	●	●	●	●	●	●
H class insulation	●	●	●	●	●	●	●	●	●	●	●	●	●
Tropical protection	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-standard color	●	●	●	●	●	●	●	●	●	●	●	●	●
Forced cooling	●	●	●	●	●	●	●	●	●	●	●	●	●
Encoder	●	●	●	●	●	●	●	●	●	●	●	●	●
Direct cable entries	●	●	●	●	●	●	●	●	●	●	●	●	●
Temperature code T5	●	●	●	●	●	●	●	●	●	●	●	●	●
Temperature code T6	●	●	●	●	●	●	●	●	●	●	●	●	●
Aluminium fan	NA	NA	NA	NA	●	●	●	●	●	●	●	●	●
Stainless steel bolts	●	●	●	●	●	●	●	●	●	●	●	●	●
Non-ventilated TENV	●	●	●	●	●	●	●	●	●	●	●	●	●
Marine execution	●	●	●	●	●	●	●	●	●	●	●	●	●

● on request
 NA = not available

SUBMERSIBLE MOTORS, SERIES 4 KTS



- Maximal depth 12 m
- TENV – Totally enclosed, non ventilated
- Thermal overload protection with PTC or PTO
- Insulation class F
- Modular construction



Submersible flameproof motors IP 68

Our experience in hazardous areas and our flexibility permit us to answer the most special requirements for different applications of flameproof motors. Industrial areas where motors should sometimes run under water and sometimes in hazardous areas, for example in sewage systems for drive pumps, grinders, valves, etc.

Explosion protection

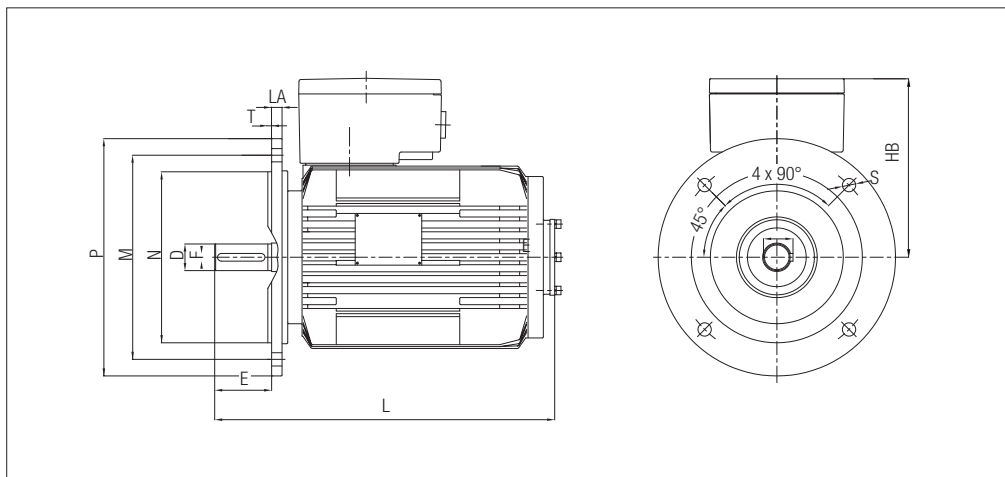
ATEX	⊕ II 2G Ex db e IIB T4/T3 Gb
Certification	SIQ 14 ATEX 039 X
IECEX	Ex db e IIB T4/T3
Certification	IECEX SIQ 14.0002 X

Other approvals and certificates, see www.bartec.de

Additional options

Maximal depth	12 m
TENV – Totally Enclosed	Non Ventilated
ATEX certificate	marking II 2G Ex db e IIB T4 Gb
IECEX certificate	marking Ex db e IIB T4 Gb
Certified for inverter duty application	25 Hz to 60 Hz
Duty cycle	S1 to S9
Thermal overload protection	with PTC or PTO
Insulation class	F
Standard arrangements by the IEC 60 034-7, EN 60 034-7	IM B3/B5
Maximal ambient temperature	40 °C
Special voltages	up to 690 V
Modular construction	Cast iron Stainless steel name plate Three phase Squirrel cage rotor

Leakage detection as option, Special mechanical arrangements, Special paint



Dimensions

Frame size	Flange	D	E	F	G	HB	L	LA	M	N	P	S	No. of fixing holes	T	
4KTS 90	S, L	F 165-I	24	50	8	27	181	323	10	165	130	200	12	4	3.5
4KTS 100	L	F 215-I	28	60	8	31	188	358	11	215	180	250	14	4	4
4KTS 132	S, M	F 265-I	38	80	10	41	218	469	12	265	230	300	14	4	4
4KTS 160	M, L	F 300-I	42	110	12	45	276	604	15	300	250	350	18	4	5
4KTS 180	M, L	F 300-I	48	110	14	51	316	627	15	300	250	350	18	4	5



MINING MOTORS, SERIES 4KTCR AND 4KTCP

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FLAMEPROOF MOTORS

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Explosion protection

Marking	I M2 Ex de I Mb
	I M2 Ex d I Mb
	PB Ex d I Mb

Technical data

Frame sizes	71-80-90-100-112-132-160-180-200-225-250-280-315
Power	0.18 kW to 200 kW
Voltage	380 V to 1140 V
Operating duty	S1 to S10, ready for operating with frequency inverters
Frequency	50 Hz and 60 Hz
Single speed	2, 4, 6, 8 pole
Pole changing	4/2, 8/4, 6/4, 8/6, other versions on request

Insulation class	F and H
Protection class	IP 55, possible up to IP 65
Ambient temperature	-20 °C to +40 °C
Thermal protection in winding	3 x PTC, possible also PTO or Pt100
Thermal protection in bearings	PTC, PTO or Pt100
Anticondensation protection	Heaters in winding AC 220 V
Additional regreasing	grease nipples
Cooling	air, TEFC
Material of enclosure	Cast iron
Cable glands	1 x for power supply, 1 x for protection, Ex e or Ex d

Certifications

Type	ATEX			IECEx			CU TR certificate Russia, Belarussia, Kazakhstan RU-C-SI-Г508.B.00309
	BVS 16 ATEX E 129 X	BVS 15 ATEX E 037 X	FTZU 14 ATEX 0060X	IECEx BVS 16.0095X	IECEx BVS 15.0031X	IECEx FTZU 15.0006X	
4KTCR 71		●			●		●
4KTCR 80		●			●		●
4KTCR 90		●			●		●
4KTCR 100		●			●		●
4KTCR 112		●			●		●
4KTCR 132		●			●		●
4KTCR 160		●			●		●
4KTCR 180		●			●		●
4KTCR 200		●			●		●
4KTCR 225		●			●		●
5KTCR 250	●			●			●
5KTCR 280			●			●	●
5KTCR 315							●

Technical data for 2 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
4 KTCR 71 A-2	0.37	2800	1.06	0.83	0.38	0.37	4.2	2.8	59.5	0.86
4 KTCR 71 B-2	0.55	2805	1.32	1.05	0.48	0.46	5.5	3.1	70.0	0.86
4 KTCR 80 A-2	0.75	2790	1.70	1.35	0.61	0.59	5.4	2.6	72.0	0.89
4 KTCR 80 B-2	1.1	2790	2.35	1.90	0.86	0.82	6.1	2.9	77.0	0.87
4 KTCR 90 S-2	1.5	2830	3.25	2.59	1.18	1.14	6.3	2.8	77.0	0.87
4 KTCR 90 L-2	2.2	2845	4.40	3.52	1.60	1.54	6.9	2.65	82.0	0.88
4 KTCR 100 L-2	3	2865	6.00	4.77	2.17	2.10	7.1	2.9	83.5	0.87
4 KTCR 112 M-2	4	2890	7.80	6.21	2.82	2.74	7.6	2.95	84.5	0.88
4 KTCR 132 SA-2	5.5	2910	10.8	8.50	3.90	3.79	6.6	2.8	84.5	0.88
4 KTCR 132 SB-2	7.5	2925	14.5	11.4	5.20	5.09	7.9	3.1	85.5	0.89
4 KTCR 160 MA-2	11	2840	22.3	17.9	8.10	7.82	6.9	3.0	80.6	0.88
4 KTCR 160 MB-2	15	2940	28.5	22.7	10.3	10.0	7.7	3.2	83.0	0.92
4 KTCR 160 L-2	18	2945	32.4	26.1	11.8	11.4	8.0	3.0	90.1	0.91
4 KTCR 180 M-2	22	2930	39.0	31.0	14.1	13.7	7.2	2.9	92.0	0.89
4 KTCR 200 LA-2	30	2930	53.0	42.3	19.2	18.6	7.3	2.8	93.0	0.88
4 KTCR 200 LB-2	37	2930	64.0	51.3	23.3	22.5	7.3	2.9	93.5	0.89
4 KTCR 225 M-2	45	2945	79.0	63.2	28.7	27.7	7.2	2.6	93.5	0.88
5 KTCR 250 M-2	55	2970	95.0	75.6	34.4	33.3	7.5	3.2	94.4	0.89
5 KTCR 280 S-2	75	2980	131.0	104.0	47.3	46.0	8.0	3.0	94.5	0.88
5 KTCR 280 M-2	90	2980	152.0	122.0	55.3	53.3	8.0	2.9	95.0	0.90
5 KTCR 315 S-2	110	2970	194.0	155.0	70.3	68.0	6.0	2.4	95.5	0.86
5 KTCR 315 MA-2	132	2970	228.0	181.0	82.4	80.0	6.5	2.8	95.5	0.88
5 KTCR 315 MB-2	160	2975	270.0	215.0	97.5	94.7	6.9	2.4	95.7	0.90
5 KTCR 315 MC-2	200	2980	335.0	270.0	121.7	117.5	6.9	2.3	95.8	0.90

Technical data for 4 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
4 KTCR 71 A-4	0.25	1355	0.75	0.61	0.30	0.26	3.8	2.5	59.5	0.80
4 KTCR 71 B-4	0.37	1350	1.05	0.84	0.42	0.37	3.8	2.9	63.0	0.81
4 KTCR 80 A-4	0.55	1410	1.38	1.09	0.55	0.48	4.6	2.7	72.0	0.81
4 KTCR 80 B-4	0.75	1400	1.80	1.43	0.71	0.63	5.0	2.6	76.0	0.80
4 KTCR 90 S-4	1.1	1410	2.40	1.92	0.96	0.84	5.4	2.4	79.0	0.84
4 KTCR 90 L-4	1.5	1405	3.25	2.61	1.31	1.14	5.8	2.6	79.0	0.84
4 KTCR 100 LA-4	2.2	1405	4.80	3.83	1.92	1.68	5.1	2.2	79.0	0.84
4 KTCR 100 LB-4	3	1400	6.40	5.10	2.55	2.24	5.3	2.3	81.0	0.84
4 KTCR 112 M-4	4	1430	8.20	6.48	3.24	2.88	6.6	2.8	85.0	0.84
4 KTCR 132 S-4	5.5	1435	10.9	8.75	4.37	3.82	5.5	2.7	84.5	0.86
4 KTCR 132 M-4	7.5	1445	14.8	11.7	5.86	5.19	6.5	2.9	87.0	0.85
4 KTCR 160 M-4	11	1470	22.0	17.6	8.81	7.72	6.7	2.8	87.0	0.83
4 KTCR 160 L-4	15	1460	29.0	23.3	11.7	10.2	6.3	2.7	87.5	0.85
4 KTCR 180 M-4	18.5	1460	35.0	27.7	13.8	12.3	6.5	2.3	92.0	0.84
4 KTCR 180 L-4	22	1455	40.0	31.9	16.0	14.0	6.4	2.3	92.5	0.86
4 KTCR 200 L-4	30	1460	56.0	44.9	22.5	19.6	6.2	3.0	93.0	0.83
4 KTCR 225 S-4	37	1465	68.0	54.8	27.4	23.8	6.3	2.8	93.5	0.84
4 KTCR 225 M-4	45	1470	83.0	66.2	33.1	29.1	6.2	2.8	94.0	0.83
5 KTCR 250 M-4	55	1475	98.0	78.2	39.1	34.4	6.1	2.5	94.5	0.86
5 KTCR 280 S-4	75	1475	135.0	106.1	53.1	47.4	6.1	2.8	95.0	0.86
5 KTCR 280 M-4	90	1475	158.0	125.9	62.9	55.4	6.5	2.9	95.0	0.87
5 KTCR 315 S-4	110	1485	193.0	153.1	76.5	67.7	6.0	2.4	95.5	0.87
5 KTCR 315 MA-4	132	1485	232.0	183.1	91.6	81.4	6.5	2.6	95.8	0.87
5 KTCR 315 MB-4	160	1480	282.0	224.0	112.0	98.9	7.0	2.6	96.0	0.86
5 KTCR 315 MC-4	200	1485	345.0	275.0	126.0	121.0	6.9	2.6	95.8	0.87

Technical data for 6 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
4 KTCR 71 A-6	0.18	930	0.67	0.54	0.24	0.24	3.1	2.3	60.0	0.65
4 KTCR 71 B-6	0.25	940	0.85	0.68	0.31	0.30	3.7	2.5	64.0	0.67
4 KTCR 80 A-6	0.37	925	1.1	0.88	0.40	0.39	3.6	2.5	67.0	0.72
4 KTCR 80 B-6	0.55	915	1.5	1.20	0.55	0.53	4.1	2.5	72.0	0.74
4 KTCR 90 S-6	0.75	915	2.1	1.68	0.76	0.74	3.7	2.1	70.0	0.74
4 KTCR 90 L-6	1.1	915	3.0	2.40	1.09	1.05	4.1	2.3	73.0	0.73
4 KTCR 100 L-6	1.5	930	3.7	2.96	1.35	1.30	4.7	2.3	76.0	0.77
4 KTCR 112 M-6	2.2	960	5.0	4.00	1.82	1.75	6.1	2.7	82.0	0.78
4 KTCR 132 S-6	3	975	6.6	5.28	2.40	2.32	6.3	2.5	83.5	0.79
4 KTCR 132 MA-6	4	960	8.8	7.04	3.20	3.09	6.3	2.9	83.0	0.80
4 KTCR 132 MB-6	5.5	955	11.8	9.44	4.29	4.14	6.1	2.9	83.5	0.81
4 KTCR 160 M-6	7.5	970	15.8	12.6	5.75	5.54	6.7	2.4	86.0	0.80
4 KTCR 160 L-6	11	965	23.5	18.8	8.55	8.25	6.0	2.3	88.5	0.77
4 KTCR 180 L-6	15	965	31.0	24.8	11.3	10.9	5.2	2.3	89.5	0.78
4 KTCR 200 LA-6	18.5	965	36.0	28.8	13.1	12.6	6.0	2.4	91.0	0.81
4 KTCR 200 LB-6	22	965	43.0	34.4	15.6	15.1	6.0	2.4	91.5	0.81
4 KTCR 225 M-6	30	975	56.0	44.8	20.4	19.6	5.8	2.5	92.5	0.83
5 KTCR 250 M-6	37	985	69.0	55.2	25.1	24.2	6.0	2.6	93.5	0.83
5 KTCR 280 S-6	45	985	82.0	65.6	29.8	28.8	6.3	2.7	94.5	0.84
5 KTCR 280 M-6	55	985	101.0	80.8	36.7	35.4	6.0	2.8	94.5	0.84
5 KTCR 315 S-6	75	980	140.0	112.0	50.9	49.1	5.9	2.8	95.0	0.82
5 KTCR 315 MA-6	90	985	163.0	130.4	59.3	57.2	5.1	2.9	95.5	0.84
5 KTCR 315 MB-6	110	990	198.0	158.4	72.0	69.5	6.5	2.4	91.5	0.88
5 KTCR 315 L-6	132	990	238.0	190.4	86.5	83.5	6.8	2.4	90.5	0.88

Technical data for 8 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficency %	Power factor cos φ
4 KTCR 71 A-8	0.09	680	0.74	0.59	0.27	0.26	2.0	2.1	38.0	0.51
4 KTCR 71 B-8	0.12	655	0.59	0.48	0.22	0.21	2.4	2.1	45.0	0.71
4 KTCR 80 A-8	0.18	680	0.73	0.58	0.26	0.25	2.9	2.2	61.0	0.65
4 KTCR 80 B-8	0.25	680	1.01	0.81	0.37	0.36	3.1	2.3	58.0	0.68
4 KTCR 90 S-8	0.37	685	1.38	1.10	0.50	0.48	3.0	2.0	66.0	0.65
4 KTCR 90 L-8	0.55	685	1.93	1.54	0.70	0.68	3.1	2.1	69.0	0.66
4 KTCR 100 LA-8	0.75	690	2.53	2.02	0.92	0.89	3.5	2.1	69.0	0.69
4 KTCR 100 LB-8	1.1	695	3.58	2.86	1.30	1.25	3.8	2.2	70.0	0.70
4 KTCR 112 M-8	1.5	710	4.57	3.65	1.66	1.60	4.3	2.5	78.0	0.67
4 KTCR 132 S-8	2.2	710	6.05	4.84	2.20	2.12	4.3	2.2	79.0	0.74
4 KTCR 132 M-8	3.0	710	7.92	6.34	2.88	2.78	4.8	2.3	80.0	0.76
4 KTCR 160 MA-8	4.0	720	11.0	8.80	4.00	3.86	4.8	2.3	82.6	0.71
4 KTCR 160 MB-8	5.5	715	14.7	11.8	5.36	5.17	4.8	2.1	84.0	0.71
4 KTCR 160 L-8	7.5	725	18.4	14.7	6.68	6.45	5.8	2.1	86.5	0.75
4 KTCR 180 L-8	11.0	715	27.5	22.0	10.0	9.65	4.2	2.5	86.7	0.74
4 KTCR 200 L-8	15.0	720	31.9	25.5	11.6	11.2	4.5	2.5	91.0	0.82
4 KTCR 225 S-8	18.5	710	40.7	32.6	14.8	14.3	4.6	2.6	91.0	0.79
4 KTCR 225 M-8	22.0	715	49.5	39.6	18.0	17.4	4.6	2.6	91.5	0.77
5 KTCR 250 M-8	30.0	730	64.9	51.9	23.6	22.8	5.4	2.4	92.8	0.79
5 KTCR 280 S-8	37.0	730	81.4	65.1	29.6	28.6	6.0	2.3	93.0	0.78
5 KTCR 280 M-8	45.0	735	99.0	79.2	36.0	34.7	6.4	2.7	93.5	0.78
5 KTCR 315 S-8	55.0	735	114.4	91.5	41.6	40.1	6.2	2.3	94.5	0.81
5 KTCR 315 MA-8	75.0	740	154.0	123.2	56.0	54.0	6.3	2.1	94.5	0.82
5 KTCR 315 MB-8	90.0	740	190.3	152.2	69.2	66.8	6.7	2.5	91.1	0.83
5 KTCR 315 L-8	110.0	740	234.3	187.4	85.2	82.2	6.9	2.5	90.0	0.83



Explosion protection

Marking	I M2 Ex de I Mb, I M2 Ex dbe I Mb
	I M2 Ex d I Mb, I M2 Ex db I Mb
	PB Ex d I Mb

Technical data

Frame sizes	180-200-225-250-280-315-355
Power	22 kW to 400 kW
Voltage	380 V to 1140 V
Operating duty	S1 to S10, ready for operating with frequency inverters
Frequency	50 Hz and 60 Hz
Single speed	2, 4, 6, 8 pole
Pole changing	4/2, 8/4, 6/4, 8/6, other versions on request
Insulation class	F and H

Protection class	IP 55, possible up to IP 65
Ambient temperature	-20 °C to +40 °C
Thermal protection in winding	3 x PTC, possible also PTO or Pt100
Thermal protection in bearings	PTC, PTO or Pt100
Anticondensation protection	Heaters in winding AC 220 V
Additional regreasing	grease nipples
Cooling	air, TEFC
Material of enclosure	welded steel plates
Cable glands	1 x for power supply, 1 x for protection, Ex e or Ex d

Certifications

Type	ATEX		IECEx		CU TR certificate Russia, Belarussia, Kazakhstan RU-C-SI-ГБ08.B.00309
	BVS 15 ATEX E 075 X	FTZU 13 ATEX 0111X	IECEx BVS 15.0066X	IECEx FTZU 14.0006X	
3KTCR 180	●		●		●
3KTCR 200	●		●		●
3KTCR 225	●		●		●
4KTCR 250	●		●		●
4KTCR 280	●		●		●
4KTCR 315	●		●		●
5KTCR 355		●		●	●

Technical data for 2 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
3 KTCR 180 M-2	22	2930	39.0	31.0	14.1	13.7	7.2	2.9	92.0	0.89
3 KTCR 200 LA-2	30	2930	53.0	42.3	19.2	18.6	7.3	2.8	93.0	0.88
3 KTCR 200 LB-2	37	2930	64.0	51.3	23.3	22.5	7.3	2.9	93.5	0.89
3 KTCR 225 M-2	45	2945	79.0	63.2	28.7	27.7	7.2	2.6	93.5	0.88
4 KTCR 250 M-2	55	2970	95.0	75.6	34.4	33.3	7.5	3.2	94.4	0.89
4 KTCR 280 S-2	75	2980	131.0	104.0	47.3	46.0	8.0	3.0	94.5	0.88
4 KTCR 280 M-2	90	2980	152.0	122.0	55.3	53.3	8.0	2.9	95.0	0.90
4 KTCR 315 S-2	110	2970	194.0	155.0	70.3	68.0	6.0	2.4	95.5	0.86
4 KTCR 315 MA-2	132	2970	228.0	181.0	82.4	80.0	6.5	2.8	95.5	0.88
4 KTCR 315 MB-2	160	2975	270.0	215.0	97.5	94.7	6.9	2.4	95.7	0.90
4 KTCR 315 MC-2	200	2980	335.0	270.0	121.7	117.5	6.9	2.3	95.8	0.90
5 KTCR 355 SA-2	200	2980	330.0	264.0	120.0	115.8	7.2	2.5	95.6	0.92
5 KTCR 355 SB-2	250	2985	414	331.2	150.5	145.3	7.4	2.5	95.2	0.92
5 KTCR 355 LA-2	280	2985	463.7	371	168.6	162.7	7.3	2.4	95.4	0.91
5 KTCR 355 LB-2	315	2985	517	413.6	188	181.4	7.4	2.5	95.5	0.92

Technical data for 4 pole motors

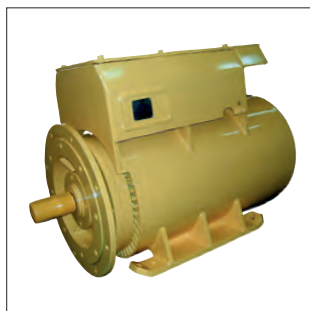
Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
3 KTCR 180 M-4	18.5	1460	35.0	27.7	13.8	12.3	6.5	2.3	92.0	0.84
3 KTCR 180 L-4	22	1455	40.0	31.9	16.0	14.0	6.4	2.3	92.5	0.86
3 KTCR 200 L-4	30	1460	56.0	44.9	22.5	19.6	6.2	3.0	93.0	0.83
3 KTCR 225 S-4	37	1465	68.0	54.8	27.4	23.8	6.3	2.8	93.5	0.84
3 KTCR 225 M-4	45	1470	83.0	66.2	33.1	29.1	6.2	2.8	94.0	0.83
4 KTCR 250 M-4	55	1475	98.0	78.2	39.1	34.4	6.1	2.5	94.5	0.86
4 KTCR 280 S-4	75	1475	135.0	106.1	53.1	47.4	6.1	2.8	95.0	0.86
4 KTCR 280 M-4	90	1475	158.0	125.9	62.9	55.4	6.5	2.9	95.0	0.87
4 KTCR 315 S-4	110	1485	193.0	153.1	76.5	67.7	6.0	2.4	95.5	0.87
4 KTCR 315 MA-4	132	1485	232.0	183.1	91.6	81.4	6.5	2.6	95.8	0.87
4 KTCR 315 MB-4	160	1480	282.0	224.0	112.0	98.9	7.0	2.6	96.0	0.86
4 KTCR 315 MC-4	200	1485	345.0	275.0	126.0	121.0	6.9	2.6	95.8	0.87
4 KTCR 315 MD-4	250	1487	433	347	158	152	7.2	3.0	95.2	0.88
5 KTCR 355 SA-4	200	1485	353	282.4	128.4	123.9	7.3	2.3	95.2	0.86
5 KTCR 355 SB-4	250	1490	459	367.2	166.7	161.1	7.2	2.4	94.6	0.83
5 KTCR 355 S(L)-4	315	1490	555	444	202	195	7.2	2.4	94.6	0.87
5 KTCR 355 M-4	400	1490	660	528	240	232	7.5	2.5	95.8	0.91

Technical data for 6 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
3 KTCR 180 L-6	15	965	31.0	24.8	11.3	10.9	5.2	2.3	89.5	0.78
3 KTCR 200 LA-6	18.5	965	36.0	28.8	13.1	12.6	6.0	2.4	91.0	0.81
3 KTCR 200 LB-6	22	965	43.0	34.4	15.6	15.1	6.0	2.4	91.5	0.81
3 KTCR 225 M-6	30	975	56.0	44.8	20.4	19.6	5.8	2.5	92.5	0.83
4 KTCR 250 M-6	37	985	69.0	55.2	25.1	24.2	6.0	2.6	93.5	0.83
4 KTCR 280 S-6	45	985	82.0	65.6	29.8	28.8	6.3	2.7	94.5	0.84
4 KTCR 280 M-6	55	985	101.0	80.8	36.7	35.4	6.0	2.8	94.5	0.84
4 KTCR 315 S-6	75	980	140.0	112.0	50.9	49.1	5.9	2.8	95.0	0.82
4 KTCR 315 MA-6	90	985	163.0	130.4	59.3	57.2	5.1	2.9	95.5	0.84
4 KTCR 315 MB-6	110	990	198.0	158.4	72.0	69.5	6.5	2.4	91.5	0.88
4 KTCR 315 L-6	132	990	238.0	190.4	86.5	83.5	6.8	2.4	90.5	0.88
5 KTCR 355 SA-6	160	990	293	235	107	103	7.0	2.1	93.9	0.84
5 KTCR 355 SB-6	200	990	348	278	127	122	7.0	2.1	93.7	0.88
5 KTCR 355 LA-6	250	on request								

Technical data for 8 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
4 KTCR 160 L-8	7.5	725	18.4	14.7	6.68	6.45	5.8	2.1	86.5	0.75
3 KTCR 180 L-8	11.0	715	27.5	22.0	10.0	9.65	4.2	2.5	86.7	0.74
3 KTCR 200 L-8	15.0	720	31.9	25.5	11.6	11.2	4.5	2.5	91.0	0.82
3 KTCR 225 S-8	18.5	710	40.7	32.6	14.8	14.3	4.6	2.6	91.0	0.79
3 KTCR 225 M-8	22.0	715	49.5	39.6	18.0	17.4	4.6	2.6	91.5	0.77
4 KTCR 250 M-8	30.0	730	64.9	51.9	23.6	22.8	5.4	2.4	92.8	0.79
4 KTCR 280 S-8	37.0	730	81.4	65.1	29.6	28.6	6.0	2.3	93.0	0.78
4 KTCR 280 M-8	45.0	735	99.0	79.2	36.0	34.7	6.4	2.7	93.5	0.78
4 KTCR 315 S-8	55.0	735	114.4	91.5	41.6	40.1	6.2	2.3	94.5	0.81
4 KTCR 315 MA-8	75.0	740	154.0	123.2	56.0	54.0	6.3	2.1	94.5	0.82
4 KTCR 315 MB-8	90.0	740	190.3	152.2	69.2	66.8	6.7	2.5	91.1	0.83
4 KTCR 315 L-8	110.0	740	234.3	187.4	85.2	82.2	6.9	2.5	90.0	0.83
5 KTCR 355 SA-8	132	740	256	205	93.1	89.8	6.9	2.2	93.2	0.80
5 KTCR 355 SB-8	160	740	323	258	118	113	6.9	2.2	93.8	0.76
5 KTCR 355 LA-8	200	on request								
5 KTCR 355 LB-8	250									



Explosion protection

Marking	I M2 Ex de I Mb, I M2 Ex dbe I Mb
	I M2 Ex d I Mb, I M2 Ex db I Mb
	PB Ex d I Mb

Technical data

Frame sizes	180-200-225-250-280-315-355
Power	22 kW to 400 kW
Voltage	380 V to 1140 V
Operating duty	S1 to S10, ready for operating with frequency inverters
Frequency	50 Hz and 60 Hz
Single speed	2, 4, 6, 8 pole
Pole changing	4/2, 8/4, 6/4, 8/6, other versions on request
Insulation class	F and H

Insulation class	F and H
Protection class	IP 55, possible up to IP 65
Ambient temperature	-20 °C to +40 °C
Thermal protection in winding	3 x PTC, possible also PTO or Pt100
Thermal protection in bearings	PTC, PTO or Pt100
Anticondensation protection	Heaters in winding AC 220 V
Additional regreasing	grease nipples
Cooling	air, TEFC
Material of enclosure	welded steel plates
Cable glands	1 x for power supply, 1 x for protection, Ex e or Ex d

Certifications

Type	ATEX		IECEX		CU TR certificate Russia, Belarussia, Kazakhstan RU-C-SI-ГБ08.B.00309
	BVS 15 ATEX E 075 X	FTZU 13 ATEX 0111X	IECEX BVS 15.0066X	IECEX FTZU 14.0006X	
3KTCR 180	●		●		●
3KTCR 200	●		●		●
3KTCR 225	●		●		●
4KTCR 250	●		●		●
4KTCR 280	●		●		●
4KTCR 315	●		●		●
5KTCR 355		●		●	●

Technical data for 4 pole motors

Type	Power kW	Speed Min ⁻¹	In 400 V A	In 500 V A	In 1100 V A	In 1140 V A	Ia/In Starting current	Mm/Mn Starting torque	Efficiency %	Power factor cos φ
3 KTCP 180 L-4	22	1455	44	34.5	15.3	15.3	5.0	2.2	89	0.84
3 KTCP 200 L-4	30	1460	54	45	20.2	19.0	4.7	2.3	90	0.85
3 KTCP 225 M-4	45	1465	81	65	29.2	28.5	4.8	2.5	91	0.86
3 KTCP 225 S-4	37	1470	68	54	24.3	23.7	4.8	2.5	92	0.86
4 KTCP 250 M-4	55	1475	103	82	38.2	36.0	4.8	2.5	92.5	0.86
4 KTCP 280 S-4	75	1475	134	108	48.6	47.0	4.9	2.4	93	0.87
4 KTCP 280 M-4	90	1475	162	129	58.5	56.7	4.8	2.4	92.5	0.88
4 KTCP 315 S-4	110	1485	201	161	72	70.7	5.0	2.4	93	0.88
4 KTCP 315 MA-4	132	1485	240	184	82.8	84.3	5.0	2.4	93	0.88
4 KTCP 315 MB-4	160	1480	280	224	100.8	98.3	5.5	2.4	93.5	0.89
4 KTCP 315 MC-4	200	1485	328	275	126.0	115.0	6.9	2.6	95.8	0.87
4 KTCP 315 MD-4	250	1487	433	347	158	152	7.2	3.0	95.2	0.88
5 KTCP 355 SA-4	200	1485	353	282.4	128.4	123.9	7.3	2.3	95.2	0.86
5 KTCP 355 SB-4	250	1490	459	367.2	166.7	161.1	7.2	2.4	94.6	0.83
5 KTCP 355 S(L)-4	315	1490	555	444	202	195	7.2	2.4	94.6	0.87
5 KTCP 355 M-4	400	1490	660	528	240	232	7.5	2.5	95.8	0.91

Data for 2, 6 and 8 pole motors on request



Explosion protection

Marking	I M2 Ex de I Mb
	I M2 Ex d I Mb

Technical data

Frame sizes	71-80-90-100-112-132-160-180-200-225-250-280
Power	0.18 kW to 90 kW
Voltage	Motors 380 V to 1140 V Brake AC 230 V or 400 V
Brake torque	8 to 2000 Nm
Operating duty	S1 to S10, ready for operating with frequency inverters
Frequency	50 Hz and 60 Hz
Single speed	2, 4, 6, 8 pole
Pole changing	4/2, 8/4, 6/4, 8/6, other on request

Insulation class	F and H
Protection class	IP 55, possible up to IP 65
Ambient temperature	-20 °C to +40 °C
Thermal protection in winding	3 x PTC, possible also PTO or Pt100
Thermal protection in bearings	PTC, PTO or Pt100
Anticondensation protection	Heaters in winding AC 220 V
Additional regreasing	grease nipples
Cooling	air, TEFC
Material of enclosure	Cast iron
Cable glands	1 x for power supply, 1 x for protection, Ex e or Ex d

Certifications

Type	Motor				Brake
	ATEX		IECEX		ATEX
	BVS 15 ATEX E 037 X	FTZU 14 ATEX 0060X	IECEX BVS 15.0031X	IECEX FTZU 15.0006X	INERSIS 06 ATEX 0047X/03
4KTCR 71	●		●		●
4KTCR 80	●		●		●
4KTCR 90	●		●		●
4KTCR 100	●		●		●
4KTCR 112	●		●		●
4KTCR 132	●		●		●
4KTCR 160	●		●		●
4KTCR 180	●		●		●
4KTCR 200	●		●		●
4KTCR 225	●		●		●
5KTCR 250					●
5KTCR 280		●		●	●



When the motor is driven with frequency inverter additional motor for forced cooling is necessary. Technical data for main motors as well as for forced cooling motors see above. The motor can be equipped also with flame proof encoders.

Explosion protection

Marking	Ex I M2 Ex de I Mb, I M2 Ex dbe I Mb Ex I M2 Ex d I Mb, I M2 Ex db I Mb PB Ex d I Mb
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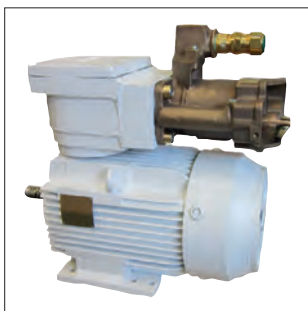
Technical data

Frame sizes	71-80-90-100-112-132-160-180-200-225-250-280-315-355
Power	0.18 kW to 400 kW
Voltage	380 V to 1140 V

Main motor

Motor for forced cooling

4KTCR 71	4KTCR 71 A2	0.37 kW
4KTCR 80	4KTCR 71 A2	0.37 kW
4KTCR 90	4KTCR 71 A2	0.37 kW
4KTCR 100	4KTCR 71 A2	0.37 kW
4KTCR 112	4KTCR 71 A2	0.37 kW
4KTCR 132	4KTCR 71 A2	0.37 kW
4KTCR 160	4KTCR 71 A2	0.37 kW
4KTCR 180, 3KTCR 180, 3KTCP 180	4KTCR 80 A4	0.55 kW
4KTCR 200, 3KTCR 200, 3KTCP 200	4KTCR 80 A4	0.55 kW
4KTCR 225, 3KTCR 225, 3KTCP 225	4KTCR 80 A4	0.55 kW
5KTCR 250, 4KTCR 250, 4KTCP 250	4KTCR 90 L4	1.5 kW
5KTCR 280, 4KTCR 280, 4KTCP 280	4KTCR 90 L4	1.5 kW
5KTCR 315, 4KTCR 315, 4KTCP 315	4KTCR 90 L4	1.5 kW
5KTCR 355, 5KTCP 355	4KTCR 100 LB4	3 kW



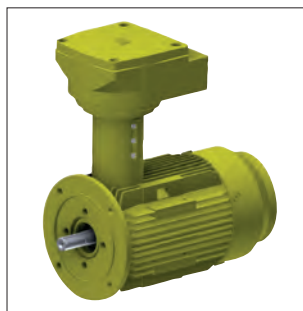
For fast connection our electric motors can be equipped with flame proof restrained socket.

Explosion protection

Marking	I M2 Ex de I Mb
	I M2 Ex d I Mb
	PB Ex d I Mb

Technical data

Frame sizes	80-90-100-112-132-160-180-200-225-250-280-315-355
Power	0.55 kW to 400 kW
Voltage	380 V to 1140 V
Flameproof restrained socket	250 A or 350 A; 1300 V



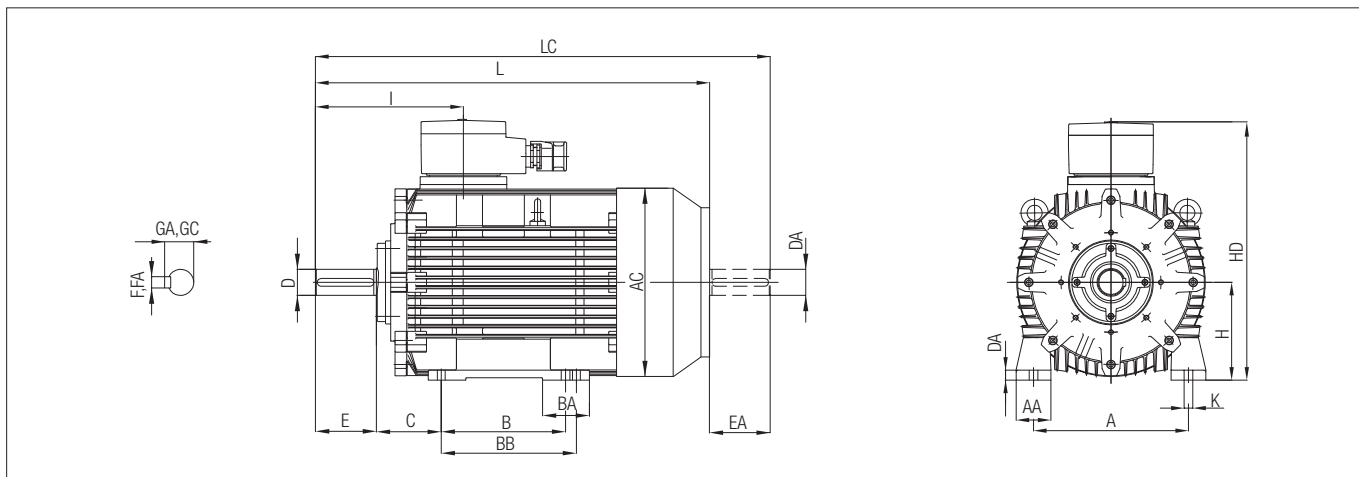
Motor for axial fans can have shaft on DE and NDE side. Installation into the fan can be with one or with two flanges as well as on the foot.

Explosion protection

Marking	I M2 Ex de I Mb
	I M2 Ex d I Mb
	PB Ex d I Mb

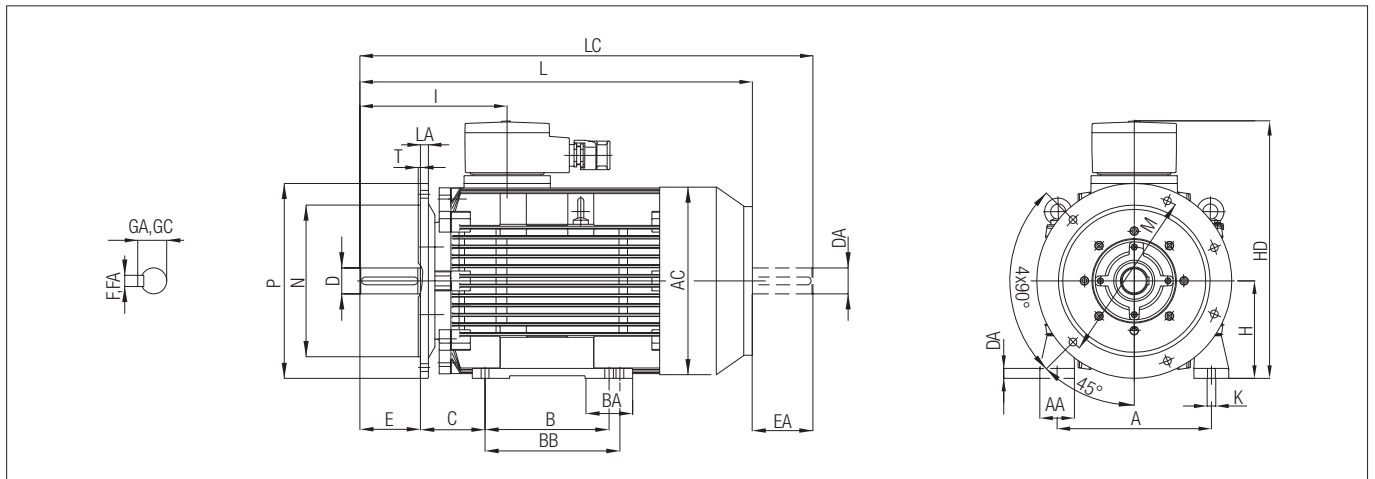
Technical data

Frame sizes	80-90-100-112-132-160-180-200-225-250-280-315-355
Power	0.55 kW to 400 kW
Voltage	380 V to 1140 V
With extention of connection box	Lenght of extention tube by demand



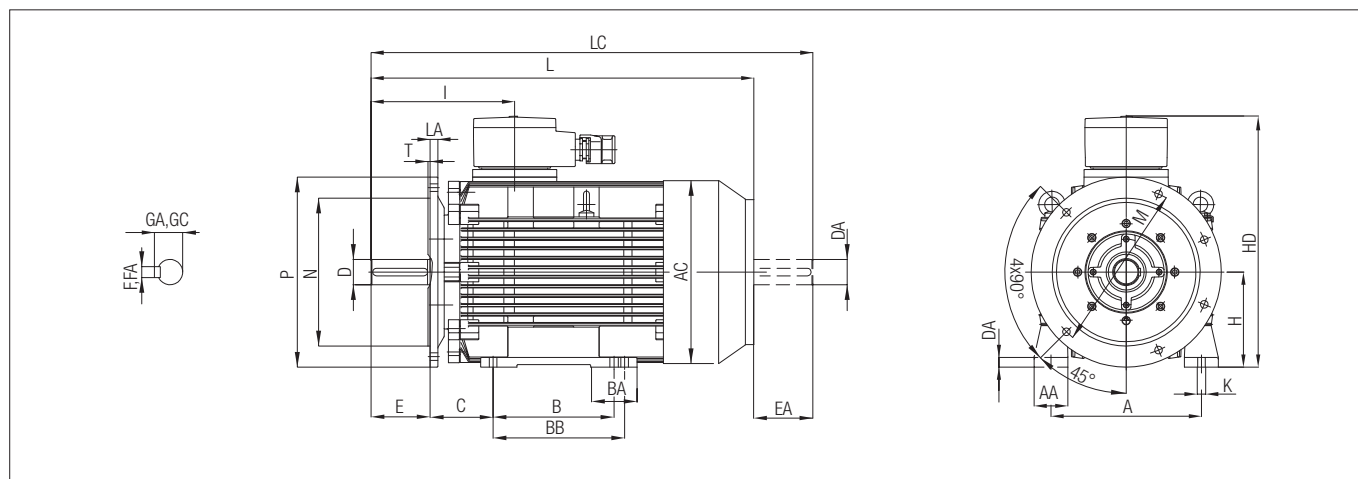
Dimensions (mm)

Frame size			A	AA	AC	B	BA	BB	C	D	E	F	GC	H	HA	HD	I	K	L	LA	LC
4KTCR	71	A, B	112	30	142	90	30	114	45	14	30	5	16	71	10	218	114	9	289	10	325
4KTCR	80	A, B	125	32	160	100	35	130	50	19	40	6	21.5	80	10	249	131	10	341	10	386
4KTCR	90	S, L	140	35	180	125	60	155	56	24	50	8	27	90	10	271	140	10	382	10	437
4KTCR	100	L	160	45	198	140	45	175	63	28	60	8	31	100	17	288	158	12	447	11	512
4KTCR	112	M	190	50	222	140	45	180	70	28	60	8	31	112	15	311	159	12	470	11	536
4KTCR	132	S M	216	55	261	178 210	75	218	89	38	80	10	41	132	18	350	181	12	562	16	647
4KTCR	160	L	254	60	313	254	90	300	108	42	110	12	45	160	21	436	255	14	694	19	812
4KTCR	180	M L	279	70	352	241 279	118	333	121	48	110	14	51	180	21	492	297	14	727	15	881
4KTCR	200	L	318	80	392	305	95	365	133	55	110	16	59	200	21	543	308	18	808	18	937
4KTCR	225	S M-2 M	356	80	438	286 311 311	110	371	149	60 55 60	140 110 140	18 16 18	64 59 64	225	21	593	340 310 340	18	906 876 906	18	973 973 1033
5KTCR	250	M-2 M	406	100	491	349	90	429	158	60 65	140	18	64 69	250	23	687	380	24	997	18	1152
5KTCR	280	S-2 S M-2 M	457	110	537	368 368 419 419	100	454 454 505 505	190	65 75 65 75	140	18 20 18 20	69 79.5 69 79.5	280	23	744	382	24	1036 1036 1096 1096	18	1191 1191 1224 1224
5KTCR	315	S-2 S M-2 M MC-2 MC	508	110	617	406 406 457 457 457	115	526 526 577 577 577	216	65 80 65 80 65 80	140 170 140 170 140 170	18 22 18 22 18 22	69 85 69 85 69 85	315	25	859	454 484 454 484 454 484	28	1050 1080 1220 1250 1300 1330	18	1210 1270 1380 1440 1460 1520



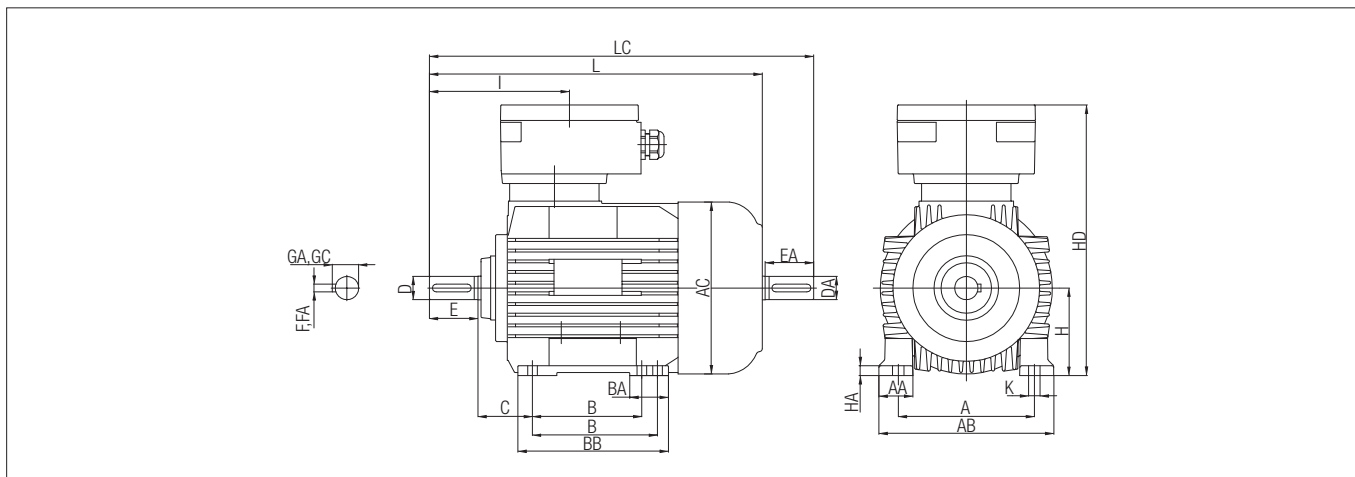
Dimensions (mm)

Frame size	Flange	AC	D DA	E EA	F FA	GC GA	H	HB	I	K	L	LA	LC	M	N	P	S	No. of fixing holes	
4KTCR 71	A, B	F 130-I	142	14	30	5	16	71	147	114	9	289	10	325	130	110	160	9	4
4KTCR 80	A, B	F 165-I	160	19	40	6	21.5	80	169	131	10	341	10	386	165	130	200	12	4
4KTCR 90	S, L	F 165-I	180	24	50	8	27	90	181	140	10	382	10	437	165	130	200	12	4
4KTCR 100	L	F 215-I	198	28	60	8	31	100	188	158	12	447	11	512	215	180	250	14	4
4KTCR 112	M	F 215-I	222	28	60	8	31	112	199	159	12	470	11	536	215	180	250	14	4
4KTCR 132	S, M	F 265-I	261	38	80	10	41	132	218	181	12	562	16	647	265	230	300	14	4
4KTCR 160	M, L	F 300-I	313	42	110	12	45	160	276	255	14	694	19	812	300	250	350	18	4
4KTCR 180	M	F 300-I	352	48	110	14	51	180	312	297	14	727	15	841	300	250	350	18	4
	L	F 300-I																	
4KTCR 200	L	F 350-I	392	55	110	16	59	200	343	308	18	808	18	937	350	300	400	18	4
4KTCR 225	S	F 400-I	438	60	140	18	64	225	368	340	18	906	18	973	400	350	450	18	8
	M-2	F 400-I		55	110	16	59			310		876		973					
	M	F 400-I		60	140	18	64			340		906		1033					
5KTCR 250	M-2	F 500-I	491	60	140	18	64	250	437	380	24	997	18	1152	500	450	550	19	8
	M	F 500-I		65	140	18	69												
5KTCR 280	S-2	F 500-I	537	65	140	18	69	280	464	382	24	1036	18	1191	500	450	550	19	8
	S	F 500-I		75		20	79.5					1036		1191					
	M-2	F 500-I		65		18	69					1096		1224					
	M	F 500-I		75		20	79.5					1096		1224					
5KTCR 315	S-2	F 600-I	617	65	140	18	69	315	544	454	28	1050	18	1210	600	550	660	24	8
	S	F 600-I		80	170	22	85			484		1080		1270					
	M-2	F 600-I		65	140	18	69			454		1220		1380					
	M	F 600-I		80	170	22	85			484		1250		1440					
	MC-2	F 600-I		65	140	18	69			454		1300		1460					
	MC	F 600-I		80	170	22	85			484		1330		1520					



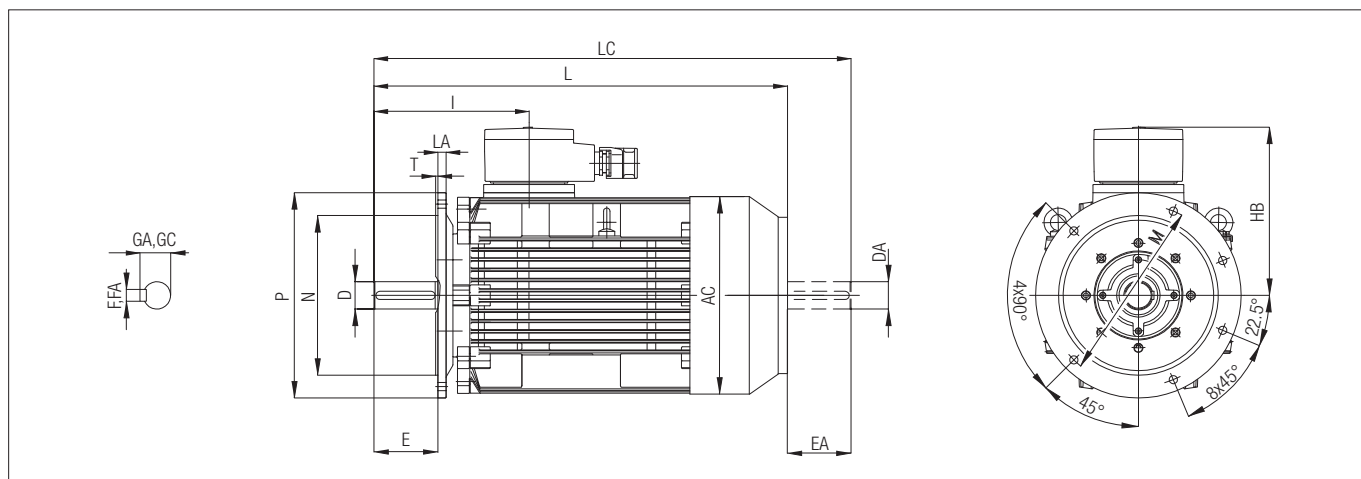
Dimensions (mm)

Frame size	Flange	A	AA	AB	AC	B	BA	BB	C	D	E	F	GC	H	HA	HD	I	K	L	LA	LC	M	N	P	S	No. of fixing holes		
4KTCR 71	A, B	F 130-I	112	30	140	142	90	30	114	45	14	30	5	16	71	10	218	114	9	289	10	325	130	110	160	9	4	
4KTCR 80	A, B	F 165-I	125	32	160	160	100	35	130	50	19	40	6	21.5	80	10	249	131	10	341	10	386	165	130	200	12	4	
4KTCR 90	S, L	F 165-I	140	35	180	180	125	60	155	56	24	50	8	27	90	10	271	140	10	382	10	437	165	130	200	12	4	
4KTCR 100	L	F 215-I	160	45	205	198	140	45	175	63	28	60	8	31	100	17	288	158	12	447	11	512	215	180	250	14	4	
4KTCR 112	M	F 215-I	190	50	235	222	140	45	180	70	28	60	8	31	112	15	311	159	12	470	11	536	215	180	250	14	4	
4KTCR 132	S, M	F 265-I	216	55	266	261	178	75	218	89	38	80	10	41	132	18	350	181	12	562	16	647	265	230	300	14	4	
4KTCR 160	M, L	F 300-I	254	60	312	313	254	90	300	108	42	110	12	45	160	21	436	255	14	694	19	812	300	250	350	18	4	
4KTCR 180	M	F 300-I				241		333											727		841							
	L	F 300-I	279	70	348	352	279	118		121	48	110	14	51	180	21	492	297	14		15	881	300	250	350	18	4	
4KTCR 200	L	F 350-I	318	80	398	392	305	95	365	133	55	110	16	59	200	21	543	308	18	808	18	937	350	300	400	18	4	
4KTCR 225	S	F 400-I				286		376		60	140	18	64				340			906		976						
	M-2	F 400-I	356	80	436	438	311	110	371	149	55	110	16	59	225	21	593	310	18	876	18	973	400	350	450	18	8	
	M	F 400-I				311		371		60	140	18	64				340			906		1033						
5KTCR 250	M-2	F 500-I								60			64															
	M	F 500-I	406	100	506	491	349	90	429	158	65	140	18	69	250	23	687	380	24	997	18	1152	500	450	550	19	8	
5KTCR 280	S-2	F 500-I				368		454		65		18	69							1036		1191						
	S	F 500-I				368		454		75		20	79.5							1036		1191						
	M-2	F 500-I	457	110	557	537	419	100	505	190	65	140	18	69	280	23	744	382	24	1096	18	1224	500	450	550	19	8	
	M	F 500-I				419		505		75		20	79.5							1096		1224						
5KTCR 315	S-2	F 600-I				406		526		65	140	18	69							1050		1210						
	S	F 600-I				406		526		80	170	22	85							1080		1270						
	M-2	F 600-I	508	110	628	617	457	115	577	216	65	140	18	69	315	25	859	454	28	1220	18	1380	600	550	660	24	8	
	M	F 600-I				457		577		80	170	22	85							1250		1440						
	MC-2	F 600-I				457		577		65	140	18	69							1300		1460						
	MC	F 600-I				457		577		80	170	22	85							1330		1520						



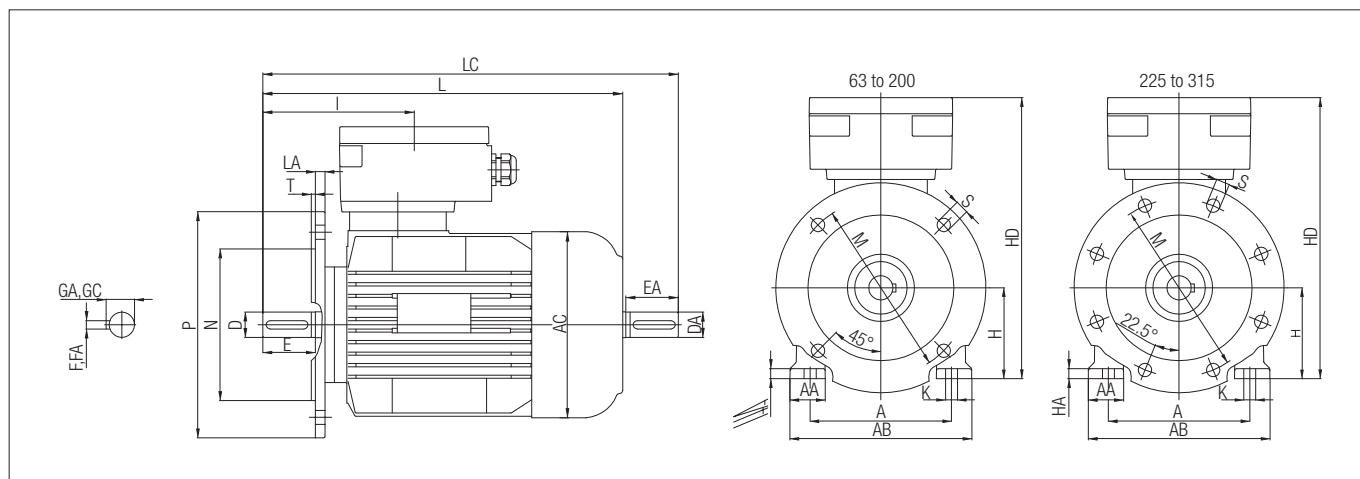
Dimensions (mm)

Frame size	A	AA	AC	B	BA	BB	C	D DA	E EA	F FA	GC GA	H	HA	HD	I	K	L	LA	LC
3KTCR 180 M	279	70	352	241	80	295	121	48	110	14	51	180	21	492	299	14	721	15	841
	279			279		333											761		881
3KTCR 200 L	318	80	392	305	90	395	133	55	110	16	59	200	21	543	310	18	817	18	937
3KTCR 225 S	356	80	438	286	90	346	149	60	140	18	64	225	21	593	341	18	823	18	973
	356			311		371		55	110	16	59				311		853		973
	356			311		371		60	140	18	64				341		883		1033
4KTCR 250 M-2	406	100	491	349	90	429	158	60	140	18	64	250	23	687	380	24	997	18	1152
	406			349		429		65			69				380		997		1152
4KTCR 280 S-2	457	110	537	368	100	454	190	65	140	18	69	280	23	744	382	24	1036	18	1191
	457			368		454		75	140	20	79.5				382		1036		1191
	457			419		505		65		18	69				382		1096		1224
	457			419		505		75		20	79.5				382		1096		1224
4KTCR 315 S-2	508			406		526		65	140	18	69			859	454		1050		1210
	508			406		526		80	170	22	85			859	484		1080		1270
	508			457		577		65	140	18	69			859	454		1220		1380
	508	110	617	457	115	577	216	80	170	22	85	315	25	859	484	28	1250	18	1440
	508			457		577		65	140	18	69			859	454		1300		1460
	508			457		577		80	170	22	85			859	484		1330		1520
	503			457		577		80	170	22	85			864	484		1430		--
5KTCR 355 SA-2	610	130	698	500		734		75	140	20	79.5				511		1587		1737
	610			500		734		100	210	28	106				581		1657		1877
	610			560		734		75	140	20	79.5				511		1587		1737
	610			560		734		100	210	28	106				581		1657		1877
	610	130	698	630	210	804	244	75	140	20	79.5	355	35	981	511	28	1587	25	1737
	610			630		804		100	210	28	106				581		1657		1877
	610			630		804		75	140	20	79.5				511		1587		1737
	610			630		804		100	210	28	106				581		1657		1877
	610			630		804		100	210	28	106				581		1657		1877



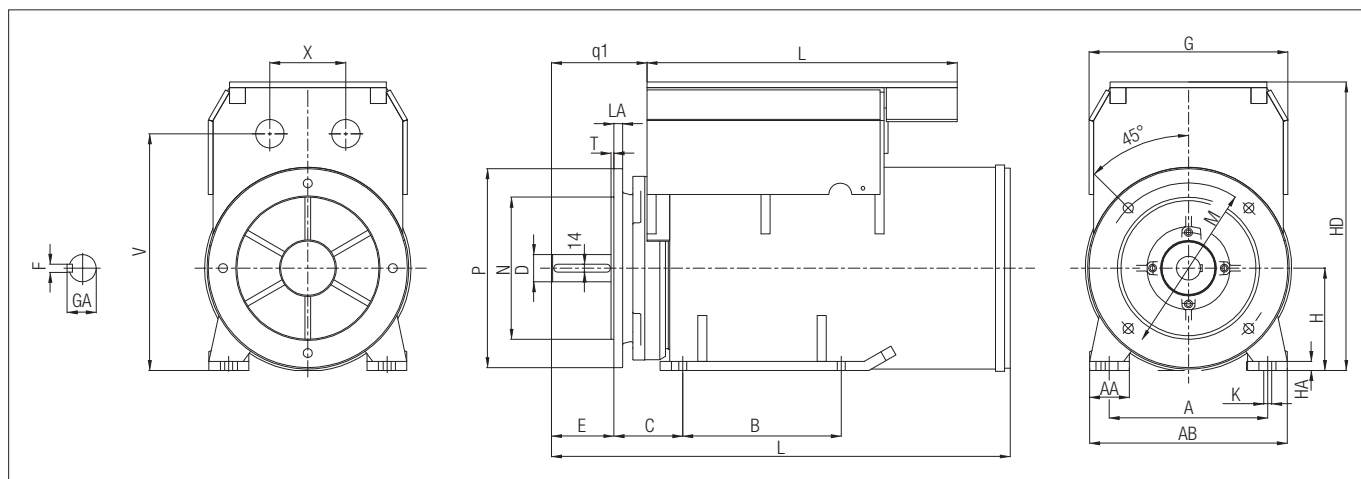
Dimensions (mm)

Frame size	Flange	AC	D DA	E EA	F FA	GC GA	H	HB	I	K	L	LA	LC	M	N	P	S	No. of fixing holes		
3KTCR 180	M	F 300-I	352	48	110	14	51	180	312	299	14	721	15	841	300	250	350	18	4	
	L	F 300-I																		881
3KTCR 200	L	F 350-I	392	55	110	16	59	200	343	310	18	817	18	937	350	300	400	18	4	
3KTCR 225	S	F 400-I	438	55	110	16	59	225	368	311	18	853	18	973	400	350	450	18	8	
	M-2	F 400-I																		1033
	M	F 400-I																		883
4KTCR 250	M-2	F 500-I	491	60	140	18	64	250	437	380	24	997	18	1152	500	450	550	19	8	
	M	F 500-I																		69
4KTCR 280	S-2	F 500-I	537	75	140	20	79.5	280	464	382	24	1036	18	1191	500	450	550	19	8	
	S	F 500-I																		1096
	M-2	F 500-I																		1096
	M	F 500-I																		1224
4KTCR 315	S-2	F 600-I	617	65	140	18	69	315	544	454	28	1050	18	1210	600	550	660	24	8	
	S	F 600-I																		1270
	M-2	F 600-I																		1380
	M	F 600-I																		1440
	MC-2	F 600-I																		1460
	MC	F 600-I																		1520
	MD	F 600-I																		1430
5KTCR 355	SA-2	F 740-I	698	75	140	20	79.5	355	626	511	28	1587	25	1737	740	680	800	24	8	
	SA	F 740-I																		1877
	SB-2	F 740-I																		1737
	SB	F 740-I																		1877
	LA-2	F 740-I																		1737
	LA	F 740-I																		1877
	LB-2	F 740-I																		1737
	LB	F 740-I																		1877
	M	F 740-I																		1877



Dimensions (mm)

Frame size	Flange	A	AA	AB	AC	B	BA	BB	C	D	E	F	GC	H	HA	HD	I	K	L	LA	LC	M	N	P	S	No. of fixing holes
3KTCR 180	M F 300-I	279	70	348	352	241	80	295	121	48	110	14	51	180	21	492	299	14	721	15	841	300	250	350	18	4
	L F 300-I					279		333											761		881					
3KTCR 200	L F 350-I	318	80	398	392	305	90	395	133	55	110	16	59	200	21	543	310	18	817	18	937	350	300	400	18	4
3KTCR 225	S F 400-I	356	80	436	438	286	90	346	149	60	140	18	64	225	21	593	311	18	823	18	973	400	350	450	18	8
	M-2 F 400-I					311		371											853		1033					
	M F 400-I					311		371											883		1033					
4KTCR 250	M-2 F 500-I	406	100	506	491	349	90	429	158	60	140	18	64	250	23	687	380	24	997	18	1152	500	450	550	19	8
	M F 500-I					65		69		69																
4KTCR 280	S-2 F 500-I	457	110	557	537	368	100	454	190	65	140	18	69	80	23	744	382	24	1036	18	1191	500	450	550	19	8
	S F 500-I					368		454		1036																
	M-2 F 500-I					419		505		1096																
	M F 500-I					419		505		1096																
4KTCR 315	S-2 F 600-I	508	110	628	617	406	115	526	216	65	170	22	69	315	25	859	454	28	1050	18	1210	600	550	660	24	8
	S F 600-I					406		526		85																
	M-2 F 600-I					457		577		69																
	M F 600-I					457		577		69																
	MC-2 F 600-I					457		577		65																
	MC F 600-I					457		577		80																
	MD F 600-I					457		577		80																
5KTCR 355	SA-2 F 740-I	610	130	740	698	500	130	734	244	75	140	20	79.5	355	35	981	511	28	1587	25	1737	740	680	800	24	8
	SA F 740-I					500		734		106																
	SB-2 F 740-I					560		734		79.5																
	SB F 740-I					560		734		106																
	LA-2 F 740-I					630		804		75																
	LA F 740-I					630		804		106																
	LB-2 F 740-I					630		804		75																
	LB F 740-I					630		804		106																
	M F 740-I					630		804		106																



Dimensions (mm)

Frame size	A	AA	AB	B	C	2 pole				4, 6, 8 pole				H	HA
						D	E	F	GA	DA	E	F	GA		
3KTCP 180 M	279	70	348	241	121	48	110	14	51.5	48	110	14	51.5	180	16
3KTCP 180 L	279	70	348	279	121	48	110	14	51.5	48	110	14	51.5	180	16
3KTCP 200 L	318	80	398	305	133	55	110	16	58.8	55	110	16	58.8	200	16
3KTCP 225 S	356	80	436	285	149	60	140	18	64.2	60	140	18	64.2	225	16
3KTCP 225 S	356	80	436	311	149	55	110	16	58.8	60	140	18	64.2	225	16
4KTCP 250 M	406	100	506	349	168	60	140	18	64.2	65	140	18	64.2	250	20
4KTCP 280 S	457	110	568	368	190	65	140	18	69.2	75	140	20	79.6	280	20
4KTCP 280 M	457	110	568	419	190	65	140	18	69.2	75	140	20	79.6	280	20
4KTCP 315 S	508	120	628	406	216	65	140	18	69.2	80	170	22	85.5	315	25
4KTCP 315 M	508	120	628	457	216	65	140	18	69.2	80	170	22	85.5	315	25
4KTCP 315 MC	508	120	628	457	216	65	140	18	69.2	80	170	22	85.5	315	25
4KTCP 315 MD	508	120	628	457	216	65	140	18	69.2	80	170	22	85.5	315	25
5KTCP 355 S	on request														
5KTCP 355 M															
5KTCP 355 L															



Dimensions (mm)

Frame size	HD	K	L	q	L	q	LA	M	N	P	S	T	G	O	V	X
			2 pole		4, 6, 8 pole											
3KTCP 180 M	510	14	740	168	740	168	15	300	250	350	18	5	350	494	422	82
3KTCP 180 L	510	14	780	168	780	168	15	30	250	350	18	5	350	534	422	82
3KTCP 200 L	563	18	840	177	840	177	18	350	300	400	18	5	385	585	473	98
3KTCP 225 S	613	18	842	208	842	208	18	350	300	400	18	5	386	556	523	98
3KTCP 225 S	613	18	872	178	902	208	18	350	450	400	18	5	386	616	523	98
4KTCP 250 M	701	24	987	219	987	219	18	500	450	550	19	5	446	660	589	144
4KTCP 280 S	770	24	1012	223	1012	223	18	500	450	550	19	5	456	690	655	144
4KTCP 280 M	770	24	1072	223	1072	223	18	500	450	550	19	5	456	750	659	144
4KTCP 315 S	857	24	1051	261	1081	291	22	600	550	660	24	6	532	795	760	170
4KTCP 315 M	857	24	1176	261	1206	291	22	600	550	660	24	6	532	855	760	170
4KTCP 315 MC	857	24	1390	261	1390	291	22	600	550	660	24	6	532	855	760	170
4KTCP 315 MD	857	24	1600	261	1600	291	22	600	550	660	24	6	532	855	760	170
5KTCP 355 S	on request															
5KTCP 355 M																
5KTCP 355 L																

Note: All datas and dimensions in this catalogue are informative and will be specified during quotation.

Frame size	71	80	90	100	112	132	160	180	200	225	250	280	315	355
Special voltage up to 1140 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special frequency	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Frequency inverter drive	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special power	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Special shaft end	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Free shaft end on NDS-end of motor	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special flange	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Flange made in R acc. to DIN 42955	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Additional greasing								●	●	●	●	●	●	●
Fixed bearing on AS								●	●	●	●	●	●	●
2RS bearings	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Labyrinth seal								●	●	●	●	●	●	●
Oil seal								●	●	●	●	●	●	●
Protection IP 56	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection IP 65	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Protection IP 66	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Protection cover	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Vibrations within R or S limits	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SPM placing							op	op	op	op	op	op	op	op
Special data plate	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Terminal box with Ex d cable glands	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Terminal box with socket	op	op	op	op	op	op	op	op	op	op	op	op	op	op
Thermal protection of winding	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heating of winding against condensation	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heating of winding at temp. lower -20 °C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Insulation class H	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Special colour	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● = on request
op = option

Ordering data

- rating in kW
- voltage and frequency
- r.p.m.
- type of motor arrangement (form IM ..)
- mechanical requirements
- special requirements (i.e. H-class thermal insulation, two-shaft, radial bearing seals...).

Reservation

Technical data subject to change without notice. No claims for damages arising from alterations, errors or misprints shall be allowed. Attention is drawn to the applicable standards and regulations on safety components and systems together with the relevant operating and installation instructions.

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