



# Motor Catalogue 2013 Issue 1

 01299 252990  01299 253597



[www.tecmotors.co.uk](http://www.tecmotors.co.uk)

# TEC ELECTRIC MOTORS

01299 252990 01299 253597



TEC Electric Motors is a newly formed company with a wealth of experience. The TEC management team are well known and respected in the power transmission industry and have a proven track record.

TEC's current average yearly sales increase of 35% over a 7 year period has resulted in the company becoming the UK's largest independent motor stockist. TEC has recently purchased an additional warehouse, increasing our work area to over 35,000 sq ft, with plans to more than double this over the next 2 years. This coupled with over £4 million worth of stock, makes TEC Electric Motors the number 1 choice for all of your motor requirements.



NEW PRODUCTS



IN HOUSE MACHINING

June 2011 saw the opening of our specials division. In recent years it has become apparent that many companies are able to provide "off the shelf" standard products. TEC has recognised the need for a motor company that is able to provide specialist and custom product solutions on quick delivery times.

The new facility has the full machining capabilities to take standard stock motors and modify for encoders, retro fit brake units, customer specific shafts, turning, milling welding, shaft pressing - basically anything that can be done at the factory will be available "in-house" and at a highly competitive price.

TEC's strategy is to eliminate the need to wait for factory deliveries which can vary on country of origin from 6 to 20 weeks. Many customers are looking for single or low volume special products on a reduced lead time. TEC can provide delivery time from point-of-order to shipping within 2 weeks ..... unbeatable in the UK!!

TEC Electric Motors entered into a joint venture partnership with Shanghai Top Motor Co in April 2012. TECHTOP are the largest manufacturer of aluminium electric motors in China, accounting for some 66% of China's motor exports in 2011, and having many high profile customers.

TEC will now form part of a global organisation with TECHTOP's partners in America, Australia, France, Germany, Spain, Greece, Holland and Italy to name but a few. Creating access to an additional stock holding of over £35 million.

If you are looking for an electric motor supplier with a dedicated team, integrity and reliability, we are sure you will not be disappointed.



JOINT VENTURE



## Company Profile

### Company Information:

TEC Electric Motors were formed following a management buyout of the former TEE Distribution Company.

**Year formed:** 2005

**Number of staff:** 28

**HQ location:** Worcestershire

**Turnover:** £14 million

**Markets:** HVAC, Conveyor, Pump, Hydraulic, Offshore, Distribution.

### Products:

- 2/4/6/8/10/12 Pole
- 56-355 frame
- Multi mount 56-200 Aluminium
- Multi mount 80-280 Cast Iron
- Fixed feet 315-355 Cast Iron
- IE1, IE2, IE3 Efficiency rated motors
- IE3 motors ECA approved
- Increased output IE1 and IE2
- 1ph motors 56-112 frame
- 1ph motors 230v/110v
- 60hz 1ph motors also available
- ATEX EExde Zone 1 71-355 frame
- ATEX Zone 2/22 56-355 frame
- ATEX Zone 21 & ATEX 1ph
- Brake motors, retro brake fitting
- Two speed Dual & Tap wound
- Special voltage, special shaft
- Vector encoder motors
- Forced ventilated motors
- In-line gearboxes
- Right angle worm boxes
- Mechanical speed variators
- Inverters - IP65, IP31 & IP20
- Double reduction units
- Helical in-lines

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# THE COMPANY

TEC Electric Motors is a newly formed company with a wealth of experience.

TEC are the UK's biggest independent motor distributor with over £5 million pounds of UK stock in the main Worcestershire warehouse and 3 other strategically located warehouses throughout the UK.

TEC will now form part of a global organisation with TECHTOP's partners creating access to an additional European stock holding of over £35 million pounds.



Main Warehouse



TEC Wales Warehouse



Head office and specials division



TEC Northern Warehouse



## Standards and Standardisations

**Motors in the TECA, ECOL TA & ECOL TC design comply with the following Standards:**

RATINGS AND PERFORMANCES  
IEC 60034-1 CEI EN 60034- 1

METHODS FOR DETERMINING LOSSES AND EFFICIENCY IEC 60034-2 CEI EN 60034-2

ROTATING ELECTRICAL MACHINES, PART 30, EFFICIENCY CLASSES OF SINGLE SPEED, THREE-PHASE INDUCTION MOTORS (IE CODE)  
IEC 60034-30 edition 1

CLASSIFICATION OF DEGREES OF PROTECTION (IP CODE) IEC 60034-5 CEI EN 60034-5

METHODS OF COOLING (IC CODE)  
IEC 60034 - 6 CEI EN 60034-6

CLASSIFICATION OF TYPE OF CONSTRUCTION MOUNTING ARRANGEMENTS (IM CODE)  
IEC 60034-7 CEI EN 60034-7

TERMINAL MARKINGS AND DIRECTION OF ROTATION  
IEC 60034-8 CEI 2-8

NOISE LIMITS  
IEC 60034-9 CEI EN 60034- 9

BUILT-IN THERMAL PROTECTION  
IEC 60034-11

STARTING PERFORMANCE OF ROTATING ELECTRICAL MACHINES  
IEC 60034- 12 CEI EN 60034 - 12

MECHANICAL VIBRATIONS  
IEC 60034-14 CEI EN 60034-14

DIMENSIONS AND OUTPUTS FOR ELECTRICAL MACHINES  
CEI EN50347 IEC 60072-1 IEC 60072-2

The coupling dimensions are in compliance with the following standardisations:  
UNEL 13113-71 for the B3 mounting and for other frame types  
UNEL 13117-71 for the B5 mounting and for other frame types

The UNEL standardisations are in accordance with the IEC international standards publication 72 and relative Amendment Nr. 1.



# General Features

## High efficiency motors

All TEC motors are manufactured in line with the new european standard for high efficiency. (TECA and ECOL design)

The motors are totally enclosed, fan cooled, with squirrel cage rotor.

IEC 60034-30 standard defines three IE (International Efficiency) efficiency classes of single speed three-phase cage induction motors; 50Hz and 60Hz; 2,4,6 pole; rated voltage up to 1000V, duty type S1-S8 with a rated cyclic duration factor of 80% or higher operating direct on line.

- IE1 standard efficiency, S2 rated/Ex motors/45°C ambient rated motors
- IE2 high efficiency from 0,75 to 375 Kw, obligatory in Europe from 16.07.2012
- IE3 premium efficiency from 7.5 to 375 Kw, obligatory in Europe from 01.01.2015 and from 0,75 to 375 Kw obligatory in Europe from 01.01.2017

Rated Power Output (kW)	Efficiency at full load		
	2 Pole	4 Pole	6 Pole
0.75	>=80.7	>=82.5	>=78.9
1.1	>=82.7	>=84.1	>=81.0
1.5	>=84.2	>=85.3	>=82.5
2.2	>=85.9	>=86.7	>=84.3
3	>=87.1	>=87.7	>=85.6
4	>=88.1	>=88.6	>=86.8
5.5	>=89.2	>=89.6	>=88.0
7.5	>=90.1	>=90.4	>=89.1
11	>=91.2	>=91.4	>=90.3
15	>=91.9	>=92.1	>=91.2
18.5	>=92.4	>=92.6	>=91.7
22	>=92.7	>=93.0	>=92.2
30	>=93.3	>=93.6	>=92.9
37	>=93.7	>=93.9	>=93.3
45	>=94.0	>=94.2	>=93.7
55	>=94.3	>=94.6	>=94.1
75	>=94.7	>=95.0	>=94.6
90	>=95.0	>=95.2	>=94.9
110	>=95.2	>=95.4	>=95.1
132	>=95.4	>=95.6	>=95.4
160	>=95.6	>=95.8	>=95.6
200	>=95.8	>=96.0	>=95.8
250	>=95.8	>=96.0	>=95.8
280	>=95.8	>=96.0	>=95.8
315	>=95.8	>=96.0	>=95.8
355	>=95.8	>=96.0	>=95.8
375	>=95.8	>=96.0	>=95.8
400	>=95.8	>=96.0	>=95.8

# Mounting Positions

Mounting Position	Motor Frame															
	56	63	71	80	90	100	112	132	160	180	200	225	250	280	315	355
B3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B35	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B7	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
B14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V1/V5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V3/V6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V5/V18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V6	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V6/V19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V18	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
V19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

## Foot Mount



B3 (IM1001)



V5 (IM1011)



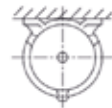
V6 (IM1031)



B6 (IM1051)

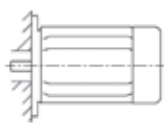


B7 (IM1061)



B8 (IM1071)

## Large Flange



B5 (IM3001)

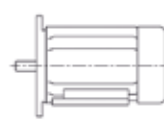


V1 (IM3011)



V3 (IM3031)

## Large Flange and feet



B3/B5 (IM2001)



V1/V5 (IM2011)

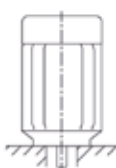


V3/V6 (IM2031)

## B14 Face



B14 (IM3601)

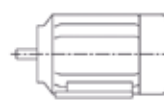


V18 (IM3611)



V19 (IM3631)

## B14 face and feet



B3/B14 (IM2101)



V5/V18 (IM2111)



V6/V9 (IM2131)

# Protection

TEC motors are manufactured in compliance with IEC 60034-5 standards.

**IP55 (standard)** totally enclosed motors, fan cooled, protected against penetration from dust and water ingress coming from any direction.

**IP56/IP65 (upon request)** totally enclosed motors, fan cooled, protected against dust penetration and weatherproof, for use on deck.

Normally IP56/IP65 motors are supplied with external fan (IC 411 - IC 416 or IC 418). Upon request they can be supplied without fan (IC 410). In this case the features, outputs and technical data will be supplied upon request.

The cooling fan is protected by a fan cowl with IP20 protection degree, in line with safety standards. Motors for vertical mounting V 1, V5, V1N5 can be supplied with rain canopy. The terminal box, in aluminium or cast iron, has IP55 or IP56 protection degree

# General Construction Features

The motors have been designed and manufactured in compliance with international standards

TECA and ECOL TA aluminium designs are available in frame sizes 56-200. The fan cowl is made from steel sheet. Flanges and end-shields are aluminium.

ECOL TC and TECC cast iron designs are available in frame sizes 132 - 355. The fan cowl is made from steel sheet. Flanges and end-shields are cast iron.

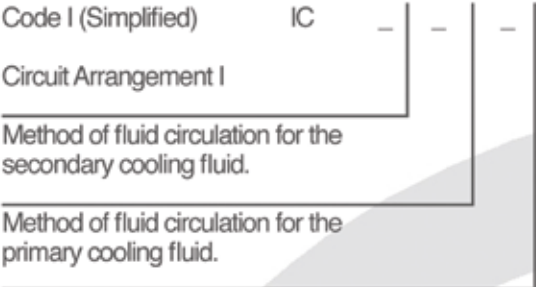
Terminal boxes as standard are on the top of the motor, they can be rotated in steps of 90°. The end user can modify the terminal box to be on the left or the right side in frame sizes 56 to frame size 280.

Fans are in nylon, upon request can be supplied with fans in aluminium or steel. Feet are detachable on all series, from frame sizes 56 to frame size 280.



# Cooling

The designation of cooling method is given by the IC (International Cooling) code, according to IEC 60034-6



Motors in standard production from 56 to 355 are supplied with IC 411 cooling systems, incorporating a bi-directional fan. All frame sizes can be supplied with cooling system IC 416 on request. In this case an additional fan is fitted inside the fan cover, suitably reinforced, in order to make the ventilation independent of the motors rotational speed.

IC CODE	FIGURE	DESCRIPTION	NOTE
IC 411		Self ventilating motor. Enclosed machine. Externally finned. External shaft-mounted fan.	Standard
IC 416		Motor with assisted ventilation. Enclosed machine. Externally finned. Independent external fan mounted inside the fan cover.	Upon request
IC 418		Motor with external ventilation. Enclosed machine. Externally finned ventilation provided by air flowing from the driven system.	Upon request
IC 410		Motor with natural ventilation. Enclosed machine.	Upon request

## Bearings

TECA and ECOL TA designs from frame size 56 to frame size 200 have sealed for life pre-lubricated ball bearings, DE and NDE side, C3 clearance. ECOL TC designs in frame sizes up to 132 have sealed for life pre-lubricated ball bearings, DE and NDE side, C3. ECOL TC designs from frame size 160 to frame size 280 (including 315 2 pole) have open ball bearings, DE and NDE, C3. ECOL TC designs from frame size 315 (4, 6, 8 pole) to frame size 355, have roller bearings DE side and ball bearings NDE side. All non sealed bearings need to be periodically re-lubricated according to the data given in the motors operation and maintenance manual. All motors are fitted with thrust washers in order to minimise vibration. Locked bearing options are available upon request. The lifetime of bearings (in accordance with supplier data) is in excess of 40,000 hours, for motors with direct coupling.

In table are mentioned all specifications concerning bearings installed in motors frame size 56-355.

MOTOR TYPE	POLES	MOUNTING B3		MOUNTING B5/B14	
		Bearing coupling side DE	Bearing opposite coupling side NDE	Bearing coupling side DE	Bearing opposite coupling side NDE
TA/MS 56	2-4-6-8	6201-2RS-C3	6201-2RS-C3	6201-2RS-C3	6201-2RS-C3
TA/MS 63	2-4-6-8	6201-2RS-C3	6201-2RS-C3	6201-2RS-C3	6201-2RS-C3
TA/MS 71	2-4-6-8	6202-2RS-C3	6202-2RS-C3	6202-2RS-C3	6202-2RS-C3
TA/MS 80	2-4-6-8	6204-2RS-C3	6204-2RS-C3	6204-2RS-C3	6204-2RS-C3
TA/MS 90	2-4-6-8	6205-2RS-C3	6205-2RS-C3	6205-2RS-C3	6205-2RS-C3
TA/MS 100	2-4-6-8	6206-2RS-C3	6206-2RS-C3	6206-2RS-C3	6206-2RS-C3
TA/MS 112	2-4-6-8	6306-2RS-C3	6206-2RS-C3	6306-2RS-C3	6206-2RS-C3
TA/MS 132	2-4-6-8	6308-2RS-C3	6208-2RS-C3	6308-2RS-C3	6208-2RS-C3
TA/MS 160	2-4-6-8	6309-2RS-C3	6209-2RS-C3	6309-2RS-C3	6209-2RS-C3
TA/MS 180	2-4-6-8	6311-2RS-C3	6211-2RS-C3	6311-2RS-C3	6211-2RS-C3
TA/MS 200	2-4-6-8	6312-2RS-C3	6212-2RS-C3	6312-2RS-C3	6212-2RS-C3
TC 132	2-4-6-8	6308ZZ-C3	6308ZZ-C3	6308ZZ-C3	6308ZZ-C3
TC 160	2-4-6-8	6309-C3	6309-C3	6309-C3	6309-C3
TC 180	2-4-6-8	6311-C3	6311-C3	6311-C3	6311-C3
TC 200	2-4-6-8	6312-C3	6312-C3	6312-C3	6312-C3
TC 225	2-4-6-8	6313-C3	6313-C3	6313-C3	6313-C3
TC 250	2-4-6-8	6314-C3	6314-C3	6314-C3	6314-C3
TC 280	2-4-6-8	6316-C3	6316-C3	6316-C3	6316-C3
TC 315	2	6317-C3	6317-C3	6317-C3	6317-C3
TC 315	4-6-8	NU319	6319-C3	NU319	6319-C3
TC 355	2	6319-C3	6319-C3	6319-C3	6319-C3
TC 355	4-6-8	NU322	6322-C3	NU322	6322-C3

Upon request motors can be modified with roller bearings at the DE, where non-standard, insulated bearings at the NDE and angular contact bearings at the DE.

### PLEASE NOTE:

TEC motors in frames 280-355 frame in 4,6 and 8 pole are fitted with an NU roller bearing as standard at the drive end.

TEC recommend that a "7 series" angular contact bearing is fitted onto any motor 250 frame and above for vertically mounted shaft down applications.

## Terminal Box

The terminal block is normally equipped with 6 terminal and is made of non hygroscopic and mildew resistance material. Terminal box for the TECA and ECOL TA design is made of aluminum and cast iron or tin for the ECOL TC design.

All terminal boxes are IP55 as standard.

Terminal boxes in the TECA and ECOL TA designs from size 56 to size 90 are fitted with a cable-gland and a plug. Size 100 to size 200 are fitted two cable-glans.

Terminal boxes in the ECOL TC design are fitted with two cable-glans. ECOL TC motors in frame 160 and above are fitted with an addition M16 auxiliary gland. The below table shows which gland sizes are fitted in which frame size:

FRAME	CABLE-GLAND
TA/TECA 56	1-M20x1,5
TA/TECA 63	1-M20x1,5
TA/TECA 71	1-M20x1,5
TA/TECA 80	1-M20x1,5
TA/TECA 90	1-M25x1,5
TA/TECA 100	1-M25x1,5
TA/TECA 112	2-M25x1,5
TA/TECA 132	2-M32x1,5
TA/TECA 160	2-M32x1,5
TA/TECA 180	2-M40x1,5
TA/TECA 200	2-M40x1,5
TC 132	2-M25x1,5
TC 160	2-M32x1,5+1M16x1,5
TC 180	2-M32x1,5+1M16x1,5
TC 200	2-M40x1,5+1M16x1,5
TC 225	2-M50x1,5+1M16x1,5
TC 250	2-M50x1,5+1M16x1,5
TC 280	2-M63x1,5+1M16x1,5
TC 315	2-M63x1,5+1M16x1,5
TC 355	2-M63x1,5+1M16x1,5

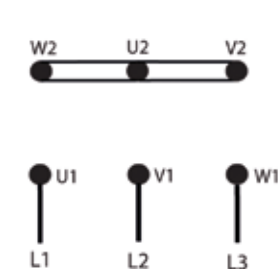
## Connection

Motors 4.0kw and above are usually delta connected ( $\Delta$ )(400v) to allow star-delta starting ( $Y/\Delta$ ). Motors 3.0kw and below are usually star connected ( $Y$ )(400v) which gives the option of a 230/3/50 supply ( $\Delta$ ) for 1ph-3ph frequency drive connection.

Upon request and for particular applications, based on the powers and supply voltages, motors can be star connected ( $Y$ ). Wiring diagrams are shown in the operation and maintenance manual and attached to each motor.

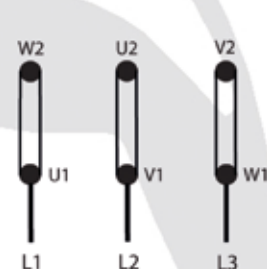
### MS Three Phase Motors

Star Connection



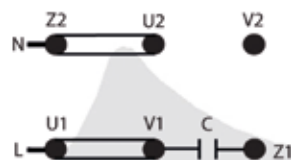
Connect links as shown below

Delta Connection

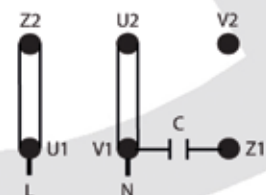


### MY Single Phase - Perm Cap

Clockwise Rotation

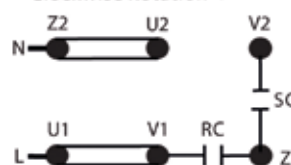


Anti Clockwise Rotation

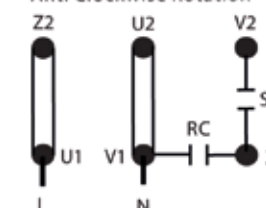



### ML Single Phase - Cap Start / Cap Run

Clockwise Rotation



Anti Clockwise Rotation





3~ Mot | TYPE: 0.5543TECAB34 MS 801-4

S1-100% | IEC60034 | IP 55 | IM B34

SN No. 1204-06803851 | Ins.Cl. F | NW: 8.8 KGS

V	Hz	min <sup>-1</sup>	kW	A	cos φ	Eff.
230 VΔ	50	1370	0.55	2.74	0.75	67 %
400 V Y	50	1370	0.55	1.58	0.75	67 %
276 VΔ	60	1640	0.66	2.74	0.75	DE 6204 ZZ
480 V Y	60	1640	0.66	1.58	0.75	NDE 6204 ZZ

Distributed by **TEC Electric Motors**



## Insulation & Windings

All TEC motors are manufactured as standard with Class F insulation.

Soft copper electrolytic wire is insulated using a special enamel (double enamel). The type of enamel is classified as H insulation class. All insulating materials used to produce motors are in F or H insulation class.

The winding manufacturing process is as follows: initially the winding is impregnated by soaking it in oven-curing F class resins, it is tropicalized following a process including a spraying of anti-saline enamel and, finally, it is coated using a spray with heatproof, humidity-proof, chemical agent and sea-ambient corrosive action resistant characteristics.

The impregnation cycle is carried out under vacuum conditions (Vacuum impregnation process) VPI.

## Ratings & Technical Data

Power and data reported in the Technical Data Tables are based on continuous duty (S 1) at an ambient temperature of 40 C, max. altitude 1000 a.s.l., with supply at 400 V - 50Hz.

In such conditions, the temperature rise reached by the motors is lower than the one provided for by the H insulation class.

The operating characteristics are guaranteed with the tolerances defined by the CEI EN 60034-1 Standards and the IEC 60034-1 Recommendations, reported in the table:

CHARACTERISTICS	TOLERANCES
Efficiency	Motor power < 50 kW -15% di (1 - $\eta$ ) Motor power > 50 kW -10% di (1 - $\eta$ )
Power factor	+1/6 (1 - $\cos\phi$ ) Min 0.02 Max 0.07
Locked rotor current	+20% of guaranteed value
Locked rotor torque	-15% + 25% of guaranteed value
Pull out torque	-10% of guaranteed value
Slip	$\pm$ 20% of guaranteed value

## Voltage & Frequency Variations

Motors will work as expected if the supply voltage variations are limited as stated in the Classification Society Standards.

In particular, motors can run with voltage variations of 10% and frequency variations of 5% with a maximum combined variation of 10% and within the temperature rise as stated by the provisions of the Classification Society Standards.

## Operation At 60HZ Frequency

The motors will run with a frequency of 60Hz with differences in performance and electrical power applying the multiplier coefficient as detailed below. Motors made at 50Hz but supplied with 60Hz may have varying output efficiencies compared to the 50Hz values

PLATE VOLTAGE 50 HZ	PLATE VOLTAGE 60 HZ	NOMINAL POWER	NOMINAL CURRENT	NOMINAL TORQUE	RPM	STARTING CURRENT	STARTING TORQUE	MAX TORQUE
230 +/- 10%	220 +/- 5%	1.00	1.00	0.83	1.20	0.83	0.83	0.83
230 +/- 10%	230 +/- 10%	1.00	0.95	0.83	1.20	0.83	0.83	0.83
230 +/- 10%	254 +/- 5%	1.15	1.02	0.96	1.20	0.93	0.93	0.93
230 +/- 10%	277 +/- 5%	1.20	1.00	1.00	1.20	1.00	1.00	1.00
400 +/- 10%	380 +/- 5%	1.00	1.00	0.83	1.20	0.83	0.83	0.83
400 +/- 10%	400 +/- 10%	1.00	0.95	0.83	1.20	0.83	0.83	0.83
400 +/- 10%	440 +/- 5%	1.15	1.02	0.96	1.20	0.93	0.93	0.93
400 +/- 10%	460 +/- 10%	1.15	1.00	0.96	1.20	0.96	0.96	0.96
400 +/- 10%	480 +/- 5%	1.20	1.00	1.00	1.20	1.00	1.00	1.00

## De-rating

The technical data tables refer to an ambient temperature of 40°C and an altitude up to 1000 a.s.l. In different environmental conditions output ratings vary, and are calculated by applying the factors as mentioned in the table below, maintaining the temperature rise provided for by the F insulation class.

ALTITUDE M A.S.L.	AMBIENT TEMPERATURE (°C)					
	30	30-40	45	50	55	60
<= 1000	1.06	1.00	0.97	0.94	0.90	0.87
1500	1.04	0.97	0.94	0.91	0.87	0.84
2000	1.00	0.95	0.92	0.88	0.84	0.81
3000	0.96	0.89	0.86	0.82	0.78	0.74
4000	0.91	0.84	0.80	0.76	0.72	0.67

## Duties

All technical data reported in the tables are referred to continuous duty (S1). Upon request, motors for limited Duty S2 (30 or 60 minutes) can be supplied.



## Overloads

Continuous duty motors can withstand the following overloads

OVERLOAD %	DURATION MINUTES	TIME INTERVAL MINUTES
10	10	15
20	6	15
30	4	15
40	3	15
50	2	15

In these operating overloads conditions, over temperatures are then limited to insulation class F.

## Starting

Motors are suitable for the following types of starting:

- Direct
- Star - delta (400/690v only)
- By autotransformer
- Soft-start (\*)
- by inverter (\*\*)

(\*)After starting is completed, the soft-start should be by-passed, precautions must also be taken when the motor is powered by an inverter

(\*\*) see recommendation in paragraph n.23 "Inverter Supply"

## Vibration

Motors are dynamically balanced with a half key applied to the shaft extension in accordance with standard IEC 60034-14 to vibration severity grade reduced (R) in standard execution.

The following table indicates the maximum vibration grades with respect to the different shaft heights.

VIBRATION DEGREE	RATED SPEED	FRAME SIZE 56-355 Vmm/sec
N (normal)	600-1800	1.8
R (reduced)	600-1800	0.71
	1800-3600	1.12
S (special)	600-1800	0.45
	1800-3600	0.71

# Noise

The technical features detailed in the table below contain the values of A-sound pressure level (LpA) and A sound power level (LwA), measured at a one meter distance.  
Sound levels are measured in no-load conditions and have tolerances of +/- 3 dB(A).

FRAME SIZE	A-sound pressure level (LpA) · A-sound power level (LwA) dB(A)							
	2POLES		4POLES		6POLES		8POLES	
	LpA	LwA	LpA	LwA	LpA	LwA	LpA	LwA
56	69	78	63	72	58	67	54	63
63	75	84	67	76	61	70	58	67
71	75	84	67	76	61	70	58	67
80	75	84	70	79	63	72	61	70
90	75	85	70	80	66	76	66	76
100	77	87	70	80	66	76	66	76
112	78	88	73	83	66	76	66	76
132	69	78	63	72	58	67	54	63
160	75	84	67	76	61	70	58	67
180	75	84	67	76	61	70	58	67
200	75	84	70	79	63	72	61	70
225	75	85	70	80	66	76	66	76
250	77	87	70	80	66	76	66	76
280	78	88	73	83	66	76	66	76
315	80	90	77	87	73	83	69	79
355	86	97	84	96	82	94	79	91

The values of the noise (LpA) and of the sound power (LwA) in the table are related to the operation at 50Hz, when the frequency changes these values change how indicated in the following table:

SUPPLY FREQUENCY HZ	% NOISE LEVEL COMPARED TO THE 50HZ VALUE
10	60%
20	60%
30	70%
40	100%
50	100%
60	100%
80	120%

## Thermal Protection

All 3ph TEC motors from frame size 56 to frame size 355 are fitted with positive temperature coefficient thermistors (PTC), these thermal devices, at the designed temperature, quickly change their standard resistance value. These PTC's, upon request, can be installed in 1ph motors.

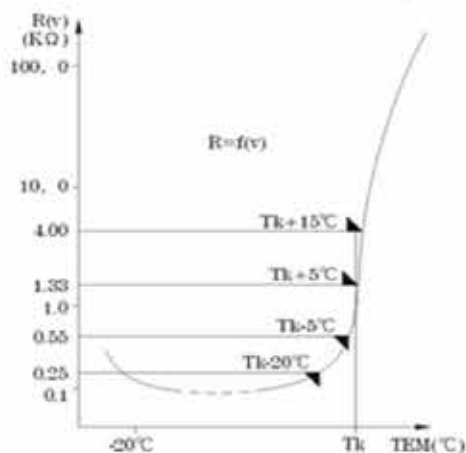
Resistance of PTC, for nominal operating temperature (TK), will be satisfy the following value:

- < 250 Ohm from temperature from -20°C to TK-20°C
- < 550 Ohm at a temperature of TK-5°C
- > 1330 Ohm at a temperature of TK+5°C
- > 4000 Ohm at a temperature of TK +15°C

In line with the standards, PTC's are designed for resistance value from 1650 Ohm to 4000 Ohm, in our case, installed n. 3 PTC in series, disengaged takes in the temperature range from TK-5°C to TK+5°C. Values of TK related with the class of insulation are the following:

CLASS OF INSULATION	OPERATING TEMPERATURE LIMIT OF THE INSULATION °C	TK °C
A	105	95-100
E	120	110-115
B	130	120-125
F	155	145-150
H	180	170-175

The nominal operating temperature of the thermistors PTC, mounted on TEC motors is 130' C in the TECA and ECOL TA designs. ECOL TC design motors have 150°C PTC's fitted. The maximum supply voltage of the PTC thermistors is 2,5V. Below the characteristic resistance/ temperature of the PTC thermistors:



Upon request, the following thermal protections can be installed on the motors:

### Bimetallic devices

Motor protectors with contact normally closed. The contact opens when the winding temperature reaches limits dangerous to the insulation system of the motor.

### Platinum resistance thermometers PT100

Variable linear resistance with the winding temperature. This device is especially suitable for continuous winding temperature monitoring.

The protection is normally made by 3 sensitive elements, one for every phase, series connected and with two terminals in a specially provided terminal board located in the main terminal box or in a specially provided auxiliary terminal box.

# Anti-Condensation Heaters

Motors subject to atmospheric condensation, either through standing idle in damp environments or because of wide ambient temperature variations, may be fitted with anti-condensation heaters.

They are of tape form and are normally mounted on the stator winding head.

Anti-condensation heaters are normally switched on automatically when the supply to the motor is interrupted, heating the motor to avoid water condensation.

Normal supply voltage is 110/115V or 220/240V.

Anti-condensation heater terminals are led to a specifically provided terminal board located in the main terminal box. Upon request they can be led to a terminal board located in an auxiliary terminal box.

The power values normally used are shown in the table:

FRAME SIZE	POWER (W)
132-160	26
180-200	26
225 - 250	50
280 - 315	100
355	200

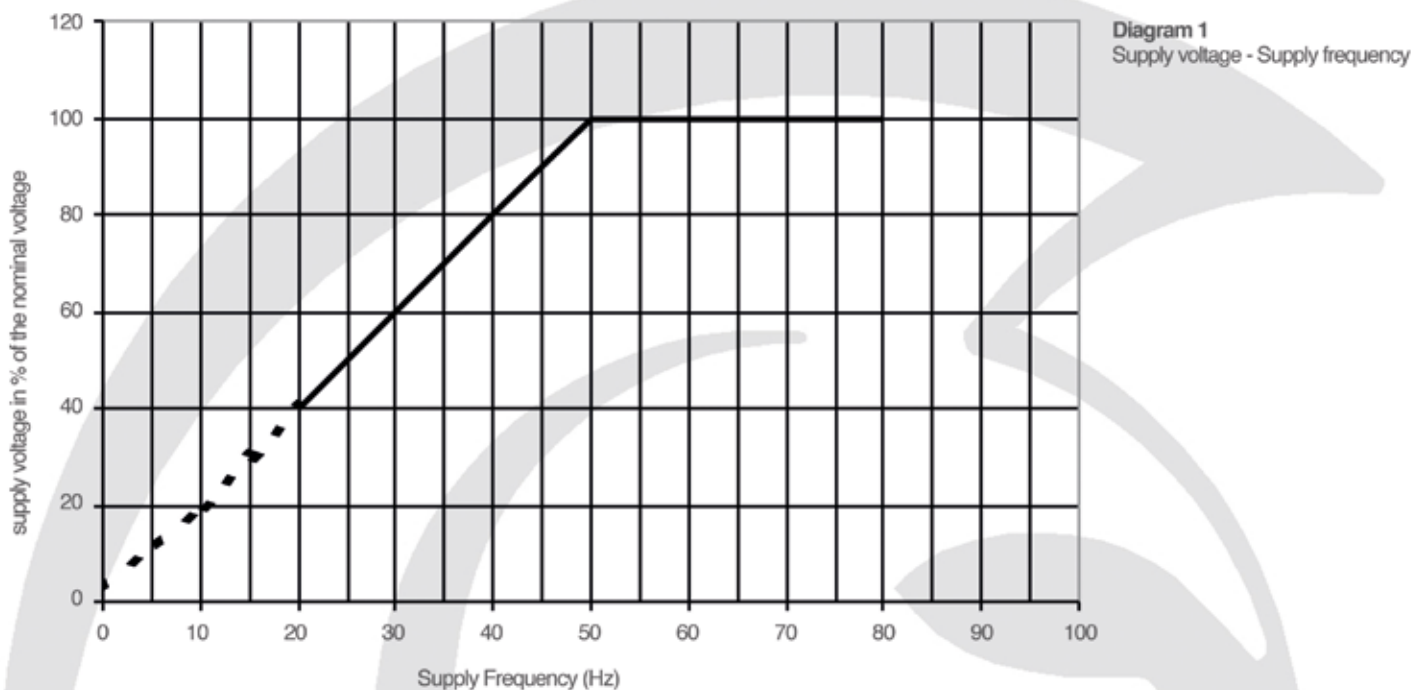
## Drain Holes

TEC Motors in 56-355 frame are equipped with drain holes at DE and NDE for the discharge of condensation, closed with a plug to guarantee the IP integrity (ingress protection) stated on the plate.

As a function of the operating conditions such plugs can be removed to allow the discharge of condensation that may form inside the motor. The holes are fitted ready for B3 mounting position as standard but can be fitted elsewhere on request.

## Inverter Supply

All TEC 3ph motors are designed to be used in conjunction with an inverter. These motors can be driven up to the rated frequency (50Hz) with supply voltage proportional to the frequency. (See diag 1), at higher frequencies they can be supplied at constant voltage up to the level of 80Hz.



Using as per the supply shown in diag 1, the flux created by the stator windings will be constant from 0 frequency to 50 Hz frequency, at frequencies higher than 50 Hz, the flux will be lower than the maximum value.

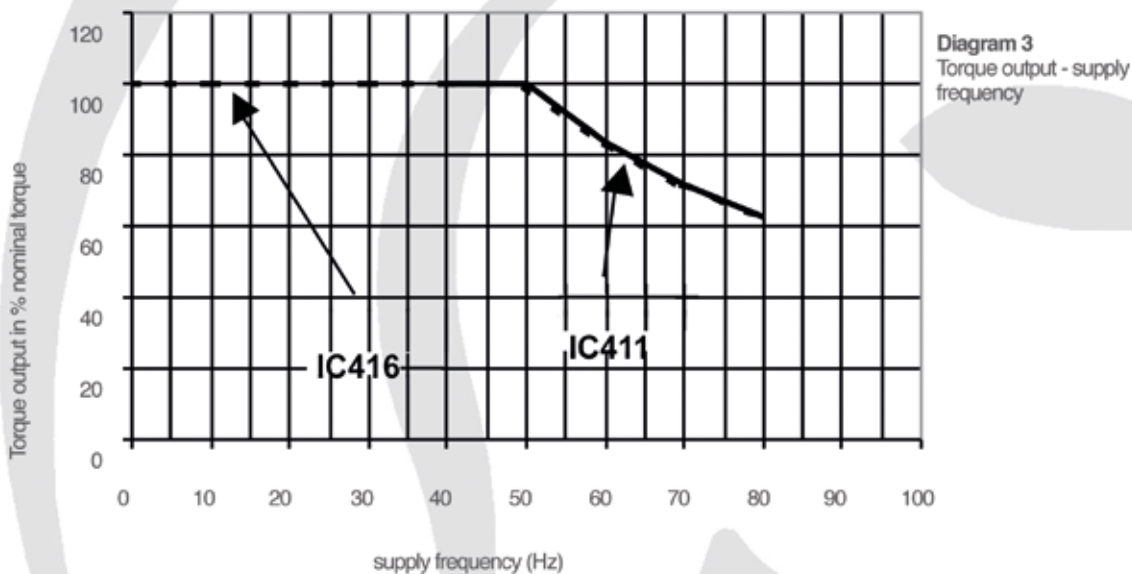
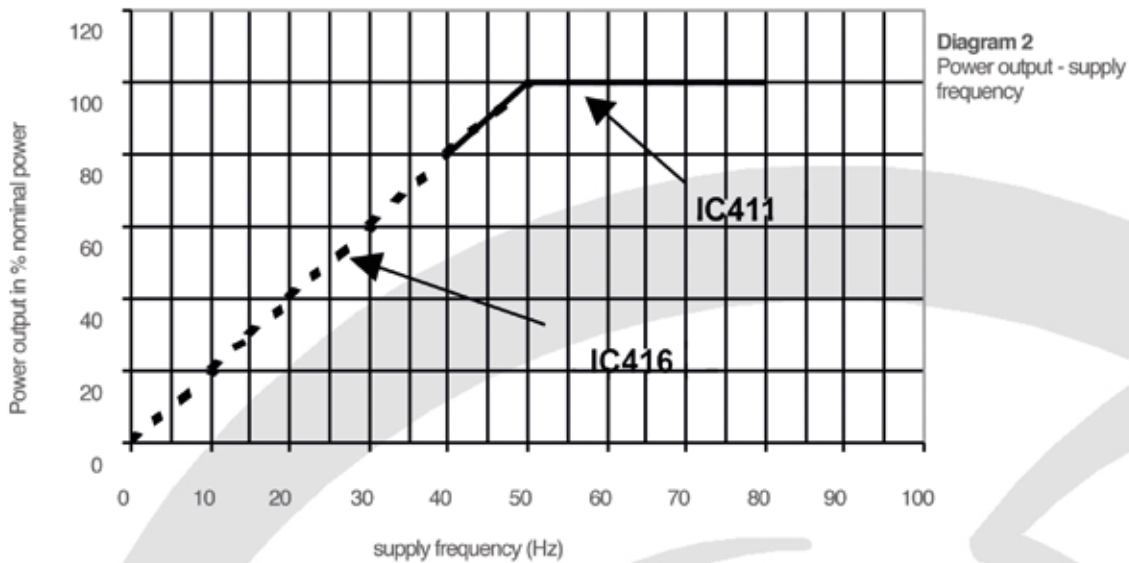
Note: At low frequencies (0 ~ 10Hz. ) due to voltage drop, in order to keep the flux constant, the supply voltage should be slightly increased. This voltage increase depends both on the motor type and on the inverter type.

Consequently the motors in standard production (self ventilating code IC411) are able to run at constant torque between 40 and 50 Hz and at constant power in the section included between 50 and 80 Hz (see diagram 2 and 3).

Upon request, the EG line motors can be equipped with an auxiliary fan (code IC 416), in this case they can supply a constant torque between 0 and 50 Hz and a constant power in the section included between 50 and 80 Hz.



# Inverter Supply Continued



The asynchronous three-phase motors to be used for inverter supply are designed and manufactured based on design and manufacturing choices that allow an optimum and reliable operation.

It has to be considered that generally the inverter supplies the asynchronous motor with a non sinusoidal current having a certain harmonic contents. This is due in particular: to the type of inverter, to the value of the switch frequency, to the length of the supply cables. Moreover steep voltage fronts to the motor terminals ( $dv/dt$ ) originated by the short commutation times of the IGBT, generate considerable stresses on the insulating materials.

Consequently the motor insulation must be carefully fitted and selected in order for it to be able to withstand such high stresses. All TEC motors are fitted with phase to phase barrier insulation suitable for inverter use.

## Maximum Speed

Motors supplied by inverter can run at a frequency higher than the rated level supplying the rated power up to the maximum frequency mentioned in table.

In these conditions the motor maximum torque remains 1.6 times higher than the rated torque.

FRAME SIZE	MAX SUPPLY FREQUENCY (Hz)			
	2 POLES	4 POLES	6 POLES	8 POLES
56 - 90	75	75	60	60
100 - 112	70	70	60	60
132 - 160	65	65	60	60

It is also possible to supply motors at an higher frequency, in this case the deliverable motor powers will be progressively reduced. In such cases the motor maximum speeds, also at no load operation or loaded by the machine, must never exceed the limit mentioned in the following table:

FRAME SIZE	MAX PERMISSIBLE SPEED			
	2 POLES	4 POLES	6 POLES	8 POLES
132	5000	5000	4500	4500
160	5000	5000	4500	4500
180	5000	5000	4500	4500
200	5000	5000	4500	4500
225	4500	4500	4000	4000
250	4000	4000	3800	3800
280	4000	3000	3000	3000
315	3600	2600	2600	2600
355	3600	2600	2600	2600

# Auxiliary Fans

All frame sizes can be supplied with cooling system IC 416 (forced ventilation) on request. In this case a suitable fan is fitted inside the fan cover and suitably reinforced. TEC always recommend forced ventilation on motors used below 25hz or above 75hz.

Consequently the ventilation is independent of the rotation speed of the motor itself.

This solution is particularly suitable for inverter supplied motors.

FRAME SIZE	THREE PHASE SUPPLY VOLTAGE 230/400V	SUPPLY FREQUENCY 50HZ	INPUT POWER W	SINGLE PHASE SUPPLY VOLTAGE 230V	SUPPLY FREQUENCY HZ	INPUT POWER W
63	230/400	50	20	230	50	17
71	230/400	50	25	230	50	33
80	230/400	50	29	230	50	35
90	230/400	50	32	230	50	45
100	230/400	50	58	230	50	30
112	230/400	50	69	230	50	35
132	230/400	50	52	230	50	32
160	230/400	50	70	230	50	50
180	230/400	50	85	230	50	47
200	230/400	50	105	230	50	49
225	230/400	50	105	230	50	70
250	230/400	50	115	230	50	126
280	230/400	50	180	230	50	149
315	230/400	50	480	230	50	-
355	230/400	50	400	230	50	-

The following table shows the increase that is applicable to dimension L (overall length) when independent ventilation is mounted. When an encoder is mounted with independent ventilation, dimension L does not change and remains the same as the motor with independent ventilation.

FRAME SIZE	TECA SERIES mm	TA SERIES mm	TC SERIES mm
63	92	92	-
71	92	105	-
80	98	110	-
90	97	110	-
100	103	120	-
112	93	125	-
132	109	120	120
160	-	145	130
180	-	-	130
200	-	-	140
225	-	-	160
250	-	-	167
280	-	-	175
315	-	-	205
355	-	-	205



## Permissible Bearing Load

The theoretical basic fatigue life for bearings is calculated according to the provisions of the ISO R 281-1 Standard. Life is calculated assuming that motors are running under normal ambient conditions, without abnormal vibrations, without axial or radial loads beyond the ones detailed in the following tables and with operating temperatures of the bearings ranging between - 30 and +85 C°.

Life calculated this way is called basic life ( $L_{10}$ ) expressed in hours of operation.

50% of bearings reach a life equal to five times the basic life resulting from the calculation.

The values in table 13 are the maximum permitted axial and radial loads for a basic life ( $L_{10}$ ), and are calculated according to the provisions of the ISO Standards, equal to 20000 and 40000 hours of operation.

Values of the radial loads are given both for loads applied to the shaft extension ( $X_{max}$ ) and in correspondence of the face on the shaft housing ( $X_0$ ).

Radial loads that can be applied linearly, change with the change of the application point, therefore for loads placed at a distance from the shaft face ( $X_0$ ), the maximum load that can be applied is given as the following expression:

$$Fra_x = \frac{C_{x0} - C_{xmax}}{X_{max}} \times X + C_{xmax}$$

Where:

$Fra_x$  = permitted radial load at point X

$C_{x0}$  = permitted radial load at point  $X_0$

$C_{xmax}$  = permitted radial load at point  $X_{max}$

$X_{max}$  = shaft extension

X = distance from the application point of the radial load to the shaft face

To verify that belt tension does not exceed the maximum value allowed the following formula can be used:

$$F = \frac{19100 \times P \times K}{n \times D}$$

F = radial force in Nm

P = power transmitted in KW

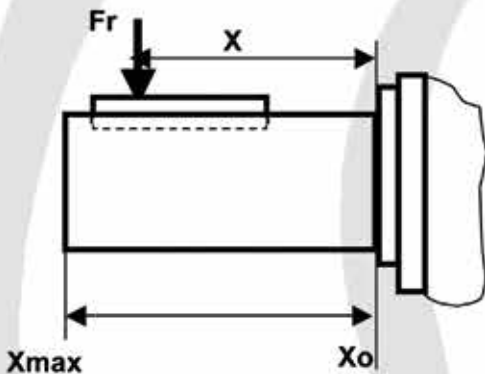
n = numbers of revs. per minute

D = pulley diameter in meters

K = constant

Constant values K:

2	for flat pulley with tension roller
2,25	for sheaves with V belt
2,5-3	for flat belts without tension roller, or for heavy duty with any type of pulley





# TECA “MS” DESIGN



## ELECTRICAL AND DIMENSIONAL DATA

The TECA series aluminium housed motor is a 3 phase multi-mount motor available from 56-200 frame (IEC). TECA motors are manufactured to IEC standards using the latest automated production technology.

TECA motors are easily maintained, lightweight with high performance and low noise levels. The multi-mount design gives end users greater flexibility where the terminal box position is important.



# TECA Series - Three-Phase Asynchronous Single Speed Motors

## IE1

Electrical data (50Hz) 2 pole

Frame size	Power (KW)	Current (A)			Current (A)			Current (A)			rpm. (r/min)	Eff. (%)	Power factor (Cosφ)	Cs/ Cn	Cmax/ Cn	Cn (Nm)	Is/In	dB(A)	Weight (Kg)
		220V	380V	660V	230V	400V	690V	240V	415V	720V									
MS 561-2	0.09	0.66	0.38	0.22	0.62	0.36	0.21	0.60	0.35	0.20	2710	53	0.72	2.2	2.3	0.502	4	58	2.00
MS 562-2	0.12	0.73	0.42	0.24	0.69	0.40	0.23	0.67	0.39	0.22	2700	51	0.72	2.2	2.3	0.534	4	58	3.00
MS 563-2	0.18	1.00	0.58	0.33	0.95	0.55	0.32	0.92	0.53	0.31	2710	63	0.75	2.2	2.4	0.642	6	61	4.00
MS 631-2	0.18	1.00	0.58	0.33	0.95	0.55	0.32	0.92	0.53	0.31	2710	63	0.75	2.2	2.4	0.641	6	61	4.00
MS 632-2	0.25	1.29	0.75	0.43	1.23	0.71	0.41	1.19	0.69	0.40	2710	65	0.78	2.2	2.4	0.884	6	61	4.20
MS 633-2	0.37	1.92	1.11	0.64	1.82	1.05	0.61	1.75	1.02	0.59	2710	65	0.78	2.2	2.4	1.261	6	62	4.70
MS 711-2	0.37	1.78	1.02	0.59	1.67	0.97	0.56	1.61	0.93	0.54	2730	70	0.79	2.2	2.4	1.262	6	64	5.20
MS 712-2	0.55	2.57	1.49	0.86	2.45	1.42	0.82	2.36	1.36	0.79	2760	71	0.79	2.2	2.4	1.869	6	64	6.00
MS 713-2	0.75	3.33	1.93	1.11	3.18	1.83	1.06	3.06	1.77	1.02	2730	72	0.82	2.2	2.4	2.54	6	65	7.00
MS 801-2	0.75	3.21	1.86	1.07	3.06	1.77	1.02	2.94	1.70	0.98	2770	73	0.84	2.2	2.4	2.54	6	67	8.70
MS 802-2	1.1	4.56	2.64	1.52	4.35	2.51	1.45	4.16	2.42	1.39	2770	76.2	0.83	2.2	2.4	3.72	6	67	10.00
MS 803-2	1.5	6.04	3.50	2.01	5.87	3.32	1.92	5.54	3.20	1.85	2800	78.5	0.83	2.2	2.4	5.04	6	70	11.20
MS 90S-2	1.5	5.97	3.46	1.99	5.76	3.28	1.90	5.47	3.16	1.82	2840	78.5	0.84	2.2	2.4	5.04	6	72	12.00
MS 90L1-2	2.2	8.39	4.85	2.90	8.0	4.61	2.66	7.69	4.45	2.56	2840	81	0.85	2.2	2.4	7.4	6	72	14.50
MS 90L2-2	3	11.1	6.42	3.69	10.6	6.10	3.52	10.2	5.88	3.39	2840	82.6	0.86	2.2	2.4	10.1	6	74	15.00
MS 100L1-2	3	11.0	6.34	3.65	10.4	6.03	3.48	10.0	5.81	3.35	2840	82.6	0.87	2.2	2.3	10.1	7	76	20.00
MS 100L2-2	4	14.3	8.30	4.78	13.7	7.88	4.55	13.1	7.60	4.38	2850	84.2	0.87	2.2	2.3	13.4	7.5	77	24.00
MS 112M-2	4	14.3	8.30	4.78	13.7	7.88	4.55	13.1	7.60	4.38	2880	84.2	0.87	2.2	2.3	13.4	7.5	77	26.00
MS 112L-2	5.5	19.1	11.1	6.38	18.2	10.5	6.08	17.5	10.1	5.85	2880	85.7	0.88	2.2	2.3	18.2	7.5	78	29.30
MS 132S1-2	5.5	19.1	11.1	6.38	18.2	10.5	6.08	17.5	10.1	5.85	2900	85.7	0.88	2	2.2	18.1	7.5	80	38.40
MS 132S2-2	7.5	25.7	14.9	8.57	24.5	14.1	8.16	23.6	13.6	7.86	2920	87	0.88	2	2.2	24.7	7.5	80	41.30
MS 132M1-2	9.2	30.8	17.8	10.3	29.9	17.3	9.96	28.3	16.3	9.42	2930	88	0.89	2	2.2	29.5	7.5	81	48.20
MS 132M2-2	11	36.3	21.0	12.1	34.6	20.0	11.5	33.3	19.2	11.1	2930	88.4	0.9	2	2.2	36.0	7.5	83	52.50
MS 160M1-2	11	36.3	21.0	12.1	34.6	20.0	11.5	33.3	19.2	11.1	2940	88.4	0.9	2	2.2	36.1	7.5	86	76.00
MS 160M2-2	15	48.4	28.0	16.1	46.1	26.6	15.4	44.4	25.7	14.8	2940	89.4	0.91	2	2.2	48.9	7.5	86	77.50
MS 160L-2	18.5	59.3	34.3	19.8	56.5	32.6	18.8	54.3	31.4	18.1	2940	90	0.91	2	2.2	60.1	7.5	86	92.00
MS 180M-2	22	71.3	41.3	23.8	68.2	39.2	22.6	65.3	37.8	21.8	2950	90	0.9	2	2.2	71.2	7.5	91	121.0
MS 200L1-2	30	96.0	55.6	32.1	91.8	52.8	30.5	88.0	50.9	29.4	2950	91.2	0.9	2	2.2	97.0	7.5	94	144.0
MS 200L2-2	37	117	67.9	36.2	112	64.5	37.2	108	62.2	35.9	2940	92	0.9	2	2.2	119	7.5	94	151.0

# TECA Series - Three-Phase Asynchronous Single Speed Motors

## IE1

Electrical data (50Hz) 4 pole

Frame size	Power (KW)	Current (A)			Current (A)			Current (A)			rpm. (n/min)	Eff. (%)	Power factor (Cosφ)	Cs/ Cn	Cmax/ Cn	Cn (Nm)	Is/In	dB(A)	Weight (Kg)
		220V	380V	660V	230V	400V	690V	240V	415V	720V									
MS 561-4	0.06	0.64	0.37	0.21	0.61	0.35	0.20	0.58	0.34	0.19	1360	50	0.56	2.3	2.4	0,478	4	50	2.90
MS 562-4	0.09	0.82	0.47	0.27	0.78	0.45	0.26	0.75	0.43	0.25	1360	52	0.59	2.3	2.4		4	50	3.20
MS 631-4	0.12	1.00	0.58	0.33	0.95	0.55	0.32	0.92	0.53	0.31	1360	52	0.64	2.2	2.4	0,93	4	52	3.70
MS 632-4	0.18	1.28	0.74	0.43	1.21	0.70	0.40	1.17	0.67	0.39	1310	57	0.65	2.2	2.4	1,28	4	52	4.20
MS 633-4	0.25	1.66	0.96	0.55	1.58	0.91	0.53	1.52	0.86	0.51	1340	60	0.66	2.2	2.2	1,77	4	54	5.00
MS 711-4	0.25	1.52	0.88	0.51	1.45	0.84	0.48	1.39	0.81	0.46	1350	60	0.72	2.2	2.4	1,78	6	55	5.00
MS 712-4	0.37	2.02	1.17	0.67	1.92	1.11	0.64	1.85	1.07	0.62	1370	65	0.74	2.2	2.4	2,62	6	55	5.80
MS 713-4	0.55	2.92	1.69	0.97	2.78	1.60	0.93	2.67	1.55	0.89	1360	66	0.75	2.2	2.4	3,86	6	57	6.50
MS 801-4	0.55	2.87	1.66	0.96	2.74	1.58	0.91	2.63	1.52	0.86	1370	67	0.75	2.2	2.4	3,87	6	58	8.10
MS 802-4	0.75	3.50	2.03	1.17	3.34	2,33.00	1.11	3.21	1.86	1.07	1380	72	0.78	2.2	2.4	5,27	6	58	9.10
MS 803-4	1.1	4.86	2.81	1.62	4.63	2,67	1.54	4.45	2.57	1.48	1390	76.2	0.78	2.2	2.4	7,61	6	60	11.00
MS 90S-4	1.1	4.80	2.78	1.60	4.57	2,64	1.52	4.40	2.54	1.47	1400	76.2	0.79	2.2	2.4	7,60	6	61	11.70
MS 90L1-4	1.5	6.27	3.63	2.09	5.97	3,45	1.99	5.75	3.32	1.92	1400	78.5	0.8	2.2	2.4	10,38	6	61	14.40
MS 90L2-4	2.2	8.91	5.16	2.97	8.45	4,90	2.83	8.17	4.72	2.72	1400	81	0.8	2.2	2.4	14,90	7	63	17.60
MS 100L1-4	2.2	8.80	5.09	2.93	8.38	4,84	2.79	8.07	4.66	2.69	1420	81	0.81	2.2	2.3	14,90	7	64	19.20
MS 100L2-4	3	11.8	6.81	3.92	11.2	6,47	3.74	10.8	6.24	3.60	1420	82.6	0.81	2.2	2.3	20,32	7	64	22.50
MS 100L3-4	4	15.2	8.80	5.07	14.2	8,36	4.83	13.9	8.06	4.65	1430	84.2	0.82	2.2	2.3	28,93	7	65	27.30
MS 112M-4	4	15.0	8.70	5.01	14.3	8,26	4.77	13.8	7.96	4.59	1430	84.2	0.83	2.2	2.2	26,90	7	65	29.00
MS 112L-4	5.5	20.3	11.7	6.76	19.3	11,2	6.44	18.6	10.8	6.20	1440	85.7	0.83	2.2	2.2	36,74	7	68	35.70
MS 132S-4	5.5	20.1	11.6	6.68	19.1	11,0	6.37	18.4	10.6	6.13	1450	85.7	0.84	2.2	2.2	36,72	7	71	39.00
MS 132M-4	7.5	26.6	15.4	8.87	25.4	14,6	8.45	24.4	14.1	8.13	1450	87	0.85	2.2	2.2	50,12	7	71	48.60
MS 132L1-4	9.2	32.5	18.8	10.8	30.9	17,9	10.3	29.8	17.2	9.9	1460	87.5	0.85	2.2	2.2	60,13	7.5	74	56.50
MS 132L2-4	11	38.0	22.0	12.7	36.2	20,9	12.1	34.8	20.1	11.6	1460	88.4	0.86	2.2	2.2	71,74	7.5	74	64.00
MS 160M-4	11	37.5	21.7	12.5	35.8	20,6	11.9	34.4	19.9	11.5	1460	88.4	0.87	2.2	2.2	71,78	7	75	73.00
MS 160L1-4	15	51.2	29.6	17.1	48.6	28,2	16.3	46.9	27.1	15.6	1460	88.4	0.87	2.2	2.2	97,83	7.5	75	88.50
MS 160L2-4	18.5	63.1	36.5	21.0	60.1	34,7	20.0	57.9	33.5	19.3	1460	90.5	0.85	2.2	2.2	120	7.5	78	97.50
MS 180M-4	18.5	62.4	36.1	20.8	59.7	34,3	19.8	57.2	33.1	19.1	1460	90.5	0.88	2.2	2.2	143	7.5	80	118.0
MS 180L-4	22	73.6	42.7	24.7	70.6	40,6	23.4	67.7	39.1	22.6	1460	91	0.86	2.2	2.2	143	7.5	80	128.0
MS 200L-4	30	99.5	57.6	33.2	95.1	54,7	31.6	91.2	52.7	30.4	1470	92	0.86	2.2	2.2	165	7.5	83	158.0

# TECA Series - Three-Phase Asynchronous Single Speed Motors

## IE1

Electrical data (50Hz) 6 poles

Frame size	Power (KW)	Current (A)			Current (A)			Current (A)			rpm. (r/min)	Eff. (%)	Power factor (Cosφ)	Cs/ Cn	Cmax/ Cn	Cn (Nm)	Is/In	dB(A)	Weight (Kg)
		220V	380V	660V	230V	400V	690V	240V	415V	720V									
MS 631-6	0.09	0.92	0.53	0.31	0.88	0.51	0.29	0.85	0.49	0.28	840	42	0.61	2	2	0.98	3.5	50	4.20
MS 632-6	0.12	1.13	0.65	0.38	1.06	0.62	0.36	1.00	0.60	0.34	850	45	0.62	2	2	1.18	3.5	50	4.50
MS 711-6	0.18	1.28	0.74	0.43	1.22	0.70	0.41	1.17	0.68	0.39	880	56	0.66	1.6	1.7	1.93	4	52	5.00
MS 712-6	0.25	1.59	0.92	0.53	1.51	0.87	0.50	1.46	0.84	0.49	900	59	0.7	2.1	2.2	2.36	4	52	6.00
MS 713-6	0.37	2.31	1.34	0.77	2.2	1.27	0.73	2.11	1.22	0.70	890	61	0.69	2	2.1	3.93	4	54	6.80
MS 801-6	0.37	2.24	1.30	0.75	2.13	1.23	0.71	2.05	1.19	0.68	900	62	0.7	1.9	1.9	3.90	4	56	8.10
MS 802-6	0.55	2.99	1.73	1.00	2.85	1.65	0.95	2.74	1.59	0.91	900	67	0.72	2	2.3	5.84	4	56	9.60
MS 803-6	0.75	4.02	2.33	1.34	3.83	2.21	1.28	3.69	2.13	1.23	900	68	0.72	2	2.3	7.88	4	58	10.00
MS 90S-6	0.75	3.95	2.29	1.32	3.77	2.18	1.25	3.63	2.10	1.21	920	69	0.72	2.2	2.2	7.83	5.5	59	11.30
MS 90L1-6	1.1	5.49	3.18	1.83	5.23	3.02	1.74	5.03	2.91	1.68	925	72	0.73	2.2	2.2	11.54	5.5	59	14.40
MS 90L2-6	1.5	7.09	4.11	2.36	6.76	3.90	2.25	6.50	3.76	2.17	925	74	0.75	2.2	2.2	15.64	5.5	60	15.50
MS 100L1-6	1.5	7.00	4.05	2.33	6.67	3.85	2.22	6.42	3.71	2.14	945	74	0.76	2.2	2.2	15.62	6	61	16.80
MS 100L2-6	2.2	9.87	5.71	3.29	9.40	5.43	3.13	9.04	5.23	3.01	950	77	0.76	2.2	2.2	22.31	6	63	19.60
MS 112M-6	2.2	9.7	5.64	3.25	9.28	5.36	3.09	8.93	5.16	2.98	955	78	0.76	2.2	2.2	22.34	6	64	25.00
MS 112L-6	3	12.9	7.49	4.31	12.3	7.12	4.11	11.9	6.86	3.95	950	79	0.77	2.2	2.2	30.21	6	64	30.00
MS 132S-6	3	13.1	7.59	4.37	12.5	7.21	4.16	12.0	6.95	4.01	960	79	0.76	2	2	30.18	6.5	64	35.00
MS 132M1-6	4	17.2	9.93	5.72	16.4	9.44	5.45	15.7	9.10	5.24	960	80.5	0.76	2	2	40.21	6.5	68	47.60
MS 132M2-6	5.5	22.6	13.1	7.53	21.5	12.4	7.17	20.7	12.0	6.9	960	83	0.77	2	2	55.32	6.5	68	50.70
MS 132L-6	7.5	30.1	17.4	10.0	28.7	16.5	9.55	27.6	15.9	9.2	960	85	0.77	2	2	74.60	6.5	68	47.60
MS 160M-6	7.5	28.6	16.6	9.5	27.3	15.7	9.08	26.2	15.2	8.7	960	86	0.8	2	2.2	74.58	6.5	68	70.0
MS 160L-6	11	41.8	24.2	13.9	39.8	23.0	13.3	38.3	22.1	12.8	960	87.5	0.79	2	2.2	109.43	6.5	73	87.0
MS 180L-6	15	54.6	31.6	18.2	52.2	30.0	17.3	50.1	28.9	16.7	970	89	0.81	2	2.2	147.73	6.5	79	122.0
MS 200L1-6	18.5	66.6	38.6	22.2	63.7	36.6	21.1	61.0	35.3	20.3	975	90	0.81	2	2.2	181.23	6.5	82	136.0
MS 200L2-6	22	77.3	44.7	25.8	73.9	42.5	24.5	70.8	41.0	23.6	975	90	0.83	2	2.2	215.21	6.5	82	152.0



# TECA Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) - 8 poles

Frame size	Power (KW)	Current (A)			Current (A)			Current (A)			rpm. (r/min)	Eff. (%)	Power factor (Cosφ)	C <sub>s</sub> /C <sub>n</sub>	C <sub>max</sub> /C <sub>n</sub>	C <sub>n</sub> (Nm)	I <sub>s</sub> /I <sub>n</sub>	dB(A)	Weight (Kg)
		220V	380V	660V	230V	400V	690V	240V	415V	720V									
MS 711-8	0.09	0.88	0.51	0.29	0.84	0.48	0.28	0.81	0.47	0.27	680	48	0.56	1.5	1.7	1.05	3	50	5.60
MS 712-8	0.12	1.05	0.61	0.35	1.00	0.58	0.33	0.96	0.55	0.32	690	51	0.59	1.6	1.7	1.63	2.7	50	6.00
MS 801-8	0.18	1.52	0.88	0.51	1.45	0.84	0.48	1.39	0.80	0.46	680	51	0.61	1.5	1.7	2.60	2.8	52	9.40
MS 802-8	0.25	1.92	1.11	0.64	1.83	1.06	0.61	1.76	1.02	0.59	680	56	0.61	1.8	2	3.60	2.7	52	10.10
MS 90S-8	0.37	2.45	1.42	0.82	2.33	1.35	0.78	2.24	1.30	0.75	680	63	0.63	1.8	1.8	5.22	2.8	56	12.50
MS 90L-8	0.55	3.36	1.95	1.12	3.21	1.85	1.07	3.08	1.78	1.03	680	66	0.65	1.6	1.8	7.63	3	56	15.30
MS 100L1-8	0.75	4.45	2.58	1.48	4.24	2.45	1.41	4.08	2.36	1.36	710	66	0.67	1.7	2.1	10.42	3.5	59	17.20
MS 100L2-8	1.1	5.81	3.36	1.94	5.54	3.20	1.85	5.33	3.08	1.78	710	72	0.69	1.7	2.1	15.18	3.5	59	19.50
MS 112M-8	1.5	7.82	4.53	2.61	7.45	4.30	2.48	7.17	4.15	2.38	710	74	0.68	1.8	2.1	20.63	4.2	61	25.50
MS 132S-8	2.2	10.8	6.28	3.61	10.3	5.98	3.44	9.94	5.75	3.31	720	75	0.71	2	2	29.82	5.5	64	34.20
MS 132M-8	3	14.0	8.11	4.67	13.3	7.70	4.45	12.8	7.43	4.28	720	77	0.73	2	2	42.35	5.5	64	40.00
MS 160M1-8	4	18.0	10.4	5.89	17.1	9.89	5.71	16.5	9.53	5.49	730	80	0.73	1.9	2.1	53.81	6	68	59.00
MS 160M2-8	5.5	23.4	13.5	7.79	22.3	12.9	7.42	21.4	12.4	7.14	720	83.5	0.74	2	2.2	73.27	6	68	69.00
MS 160L-8	7.5	30.9	17.9	10.3	29.4	17.0	9.8	28.3	16.4	9.43	720	85	0.75	1.9	2.2	100.65	6	68	87.00
MS 180L-8	11	45.2	26.2	15.1	43.6	25.1	14.5	41.5	24.0	13.8	715	87.4	0.73	1.9	2.2	144.2	6	78	125.0
MS 200L-8	15	58.9	34.1	19.6	56.3	32.4	18.7	54.0	31.2	18.0	725	88.0	0.76	1.9	2.2	194.65	6	80	151.0

# TECA Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) 2poles **IE2**

Frame size	Power (KW)	Eff. (%)	Current In(A) 400V	Power factor (Cosφ)	rpm (rpm/min)	Cn (Nm)	Cs/Cn	Is/In
MS2 801-2	0.75	77.4	1.75	0.80	2840	2.49	2.9	5.8
MS2 802-2	1.1	80	2.42	0.82	2850	3.53	3.5	6.8
MS2 90S-2	1.5	81.4	3.20	0.83	2860	5.09	3.5	6.9
MS2 90L-2	2.2	83.2	4.54	0.84	2860	7.32	4.1	7.9
MS2 100L-2	3	84.6	5.88	0.87	2880	9.96	3.4	7.8
MS2 112M-2	4	86	7.54	0.89	2890	13.16	2.7	7.5
MS2 132S1-2	5.5	87.2	10.2	0.89	2900	18.25	2.4	7.7
MS2 132S2-2	7.5	88.1	13.8	0.89	2910	24.47	2.6	8.4
MS2 160M1-2	11	89.4	19.9	0.89	2930	20.23	2.4	7.6
MS2 160M2-2	15	90.3	26.9	0.89	2930	27.68	2.6	8
MS2 160L-2	18.5	90.9	32.6	0.90	2940	33.42	3	9
MS2 180M-2	22	91.3	38.6	0.90	2950	39.11	2.6	8.5
MS2 200L1-2	30	92	52.3	0.90	2950	51.93	2.4	8
MS2 200L2-2	37	92.5	64.1	0.90	2950	63.48	2.5	8.5

## Electrical data (50Hz) 4 poles **IE2**

Frame size	Power (KW)	Eff. (%)	Current In(A) 400V	Power factor (Cosφ)	rpm (rpm/min)	Cn (Nm)	Cs/Cn	Is/In
MS2 802-4	0.75	79.6	1.79	0.76	1410	5.27	2.8	5.3
MS2 90S-4	1.1	81.4	2.50	0.78	1420	7.61	3.8	6.7
MS2 90L-4	1.5	82.8	3.31	0.79	1420	10.39	4	7.2
MS2 100L1-4	2.2	84.3	4.83	0.78	1440	14.76	3.6	7.4
MS2 100L2-4	3	85.5	6.33	0.80	1440	20.13	3.8	7.8
MS2 112M-4	4	86.6	8.23	0.81	1440	26.89	3.1	7.1
MS2 132S-4	5.5	87.9	10.9	0.83	1450	36.25	2.6	7.4
MS2 132M-4	7.5	88.7	14.5	0.84	1450	49.21	2.8	7.7
MS2 160M-4	11	89.8	21.6	0.82	1450	71.86	2.7	7.7
MS2 160L-4	15	90.6	28.4	0.84	1450	97.90	2.4	7.3
MS2 180M-4	18.5	91.4	34.4	0.85	1460	121.32	2.2	7.4
MS2 180L-4	22	91.7	40.3	0.86	1460	143.26	2.3	7.5
MS2 200L-4	30	92.3	55.2	0.86	1470	195.54	2.8	7.6



# TECA Series - Three-Phase Asynchronous Single Speed Motors

## IE2

Electrical data (50Hz) 6 poles

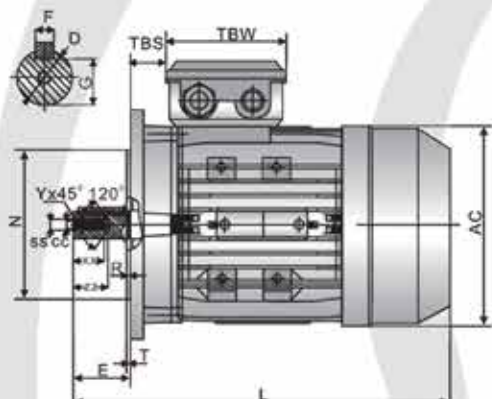
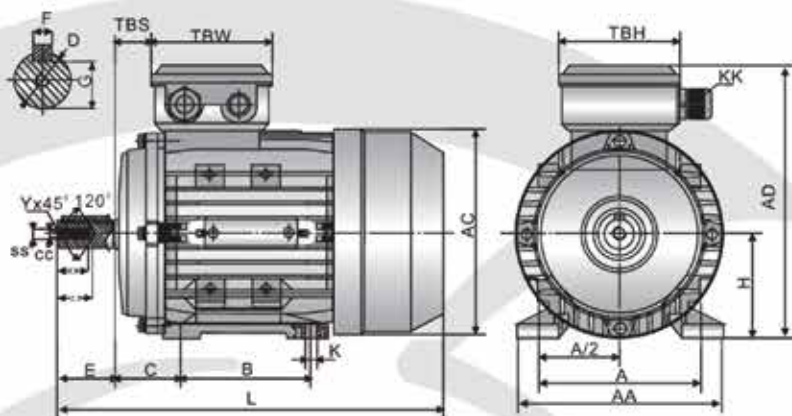
Frame size	Power (KW)	Eff. (%)	Current In(A) 400V	Power factor (Coeф)	rpm (rpm/min)	Cn (Nm)	Cs/Cn	Is/In
MS2 90S-6	0.75	78.0	2.01	0.71	925	7.75	3.1	4.7
MS2 90L-6	1.1	78.1	2.82	0.72	930	11.43	3.2	5
MS2 100L-6	1.5	80.0	3.71	0.73	940	15.09	3.1	5.9
MS2 112M-6	2.2	81.8	5.17	0.75	945	22.13	2.6	5.5
MS2 132S-6	3	83.3	6.84	0.76	960	30.32	2.2	5.7
MS2 132M1-6	4	84.6	8.86	0.77	960	41.25	2.4	6.2
MS2 132M2-6	5.5	86	12.0	0.77	960	54.86	2.6	6.7
MS2 160M-6	7.5	87.5	16.1	0.77	970	74.69	2	5.6
MS2 160L-6	11	89.0	22.9	0.78	970	108.92	2	5.8
MS2 180L-6	15	90.1	28.9	0.83	975	147.77	1.9	7.5
MS2 200L1-6	18.5	90.4	35.6	0.83	975	180.32	2.2	6.3
MS2 200L2-6	22	90.9	41.6	0.84	975	214.53	2.3	06.02

# TECA Series - Overall & Installation Dimensions

All dimensions in mm

TECA MS B3

[Table 1](#)

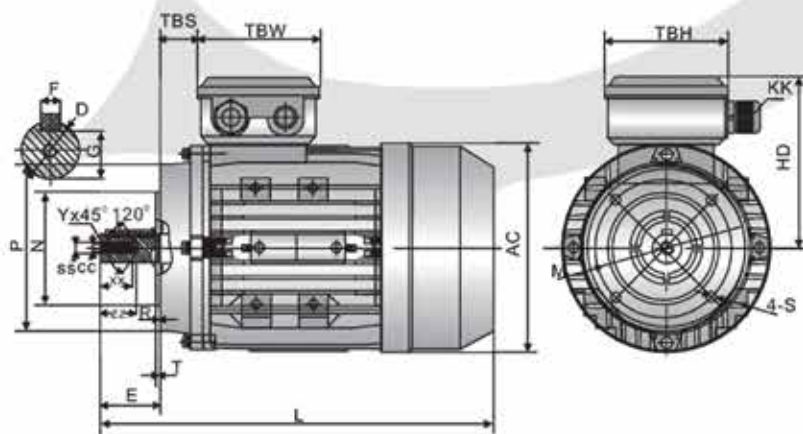


TECA MS B5

[Table 2](#)

TECA MS B14

[Table 2](#)



# TECA Series - Overall & Installation Dimensions

## Table 1

Frame Size	B3					Shaft							General							
	H	A	B	C	K	D	E	F	G	SS	XX	ZZ	AA	AD	HD	AC	L	TBS	TBW	TBH
56	56	90	71	36	5.8 x 8.8	Ø9	20	3	7.2	M3	9	12	110	156	100	Ø117	196	14	14	88
63	63	100	80	40	7 x 10	Ø11	23	4	8.5	M4	10	14	120	171	108	Ø130	220	14	14	94
71	71	112	90	45	7 x 10	Ø14	30	5	11	M5	12	17	132	186	115	Ø147	241	20	20	94
80	80	125	100	50	10 x 13	Ø19	40	6	15.5	M6	16	21	160	213	133	Ø163	290	27	27	105
90S	90	140	100	56	10 x 13	Ø24	50	8	20	M8	19	25	175	229	139	Ø183	312	30	30	105
90L1/L2	90	140	125	56	10 x 13	Ø24	50	8	20	M8	19	25	175	229	139	Ø183	337/367	30	30	105
100	100	160	140	63	12 x 15	Ø28	60	8	24	M10	22	30	198	252	152	Ø205	369	26	26	105
112	112	190	140	70	12 x 15	Ø28	60	8	24	M10	22	30	220	279	167	Ø229	395	32	32	112
132S	132	216	140	89	12 x 15	Ø38	80	10	33	M12	28	37	252	318	186	Ø265	437	38	38	112
132M/L	132	216	178	89	12 x 15	Ø38	80	10	33	M12	28	37	252	318	186	Ø265	475/501	38	38	112
160M/L	160	254	210/254	108	15 x 19	Ø42	110	12	27	M16	36	45	290	384	224	Ø325	640	64	64	143
180M/L	180	279	241/279	121	15 x 19	Ø48	110	14	42.5	M18	36	45	340	440	260	Ø368	730	73	73	190
200L	200	318	305	133	19 x 29	Ø55	110	16	49	M20	42	53	390	460	260	Ø368	745	85	85	190

## Table 2

Frame Size	B5						B5R						B14						B14B					
	M	N	P	T	S	R	M	N	P	T	S	R	N	M	P	T	S	R	N	M	P	T	S	R
56	Ø100	Ø80	Ø120	3.0	Ø7	0							Ø50	Ø65	Ø80	2.5	M5	0						
63	Ø115	Ø95	Ø140	3.0	Ø10	0							Ø60	Ø75	Ø90	2.5	M5	0	Ø80	Ø100	Ø120	3.0	M6	0
71	Ø130	Ø110	Ø160	3.5	Ø10	0	Ø115	Ø95	Ø140	3.5	Ø10	0	Ø70	Ø85	Ø105	2.5	M6	0	Ø95	Ø115	Ø140	3.0	M8	0
80	Ø165	Ø130	Ø200	3.5	Ø12	0	Ø130	Ø110	Ø160	3.5	Ø10	0	Ø80	Ø110	Ø120	3.0	M6	0	Ø110	Ø130	Ø160	3.5	M8	0
90S	Ø165	Ø130	Ø200	3.5	Ø12	0	Ø130	Ø110	Ø160	3.5	Ø10	0	Ø95	Ø115	Ø140	3.0	M8	0	Ø110	Ø130	Ø160	3.5	M8	0
90L1/L2	Ø165	Ø130	Ø200	3.5	Ø12	0	Ø130	Ø110	Ø160	3.5	Ø10	0	Ø95	Ø115	Ø140	3.0	M8	0	Ø110	Ø130	Ø160	3.5	M8	0
100	Ø215	Ø180	Ø250	4.0	Ø15	0	Ø165	Ø130	Ø200	4.0	Ø12	0	Ø110	Ø130	Ø160	3.5	M8	0	Ø130	Ø165	Ø200	3.5	M10	0
112	Ø215	Ø180	Ø250	4.0	Ø15	0	Ø165	Ø130	Ø200	4.0	Ø12	0	Ø110	Ø130	Ø160	3.5	M8	0	Ø130	Ø165	Ø200	3.5	M10	0
132S	Ø265	Ø230	Ø300	4.0	Ø15	0	Ø215	Ø180	Ø250	4.0	Ø15	0	Ø130	Ø165	Ø200	4.0	M10	0	Ø180	Ø215	Ø250	4.0	M12	0
132M/L	Ø265	Ø230	Ø300	4.0	Ø15	0	Ø215	Ø180	Ø250	4.0	Ø15	0	Ø130	Ø165	Ø200	4.0	M10	0	Ø180	Ø215	Ø250	4.0	M12	0
160M/L	Ø300	Ø250	Ø350	5.0	Ø19	0							Ø180	Ø215	Ø250	4.0	M10	0						
180M/L	Ø300	Ø250	Ø350	5.0	Ø19	0																		
200L	Ø300	Ø300	Ø400	5.0	Ø19	0																		

# TECA-BM “MSBCCL” DESIGN



The TECA brake motor combines the asynchronous three phase motor with an electromagnetic D.C brake.

Features include reliability, safe operation and quick braking times.  
(Disconnection = 5-80 milli seconds).

- Suitable for a variety of applications including
- Braking of loads or torques on the drive shaft.
  - Braking of rotating loads to reduce stopping times.
  - Braking operations to assist set-up precision.
  - Braking of machine parts, in accordance with safety standards.

Frame	H	A	B	C	D	E	F	G	K	AA	AC	L	KK	TBS	TBW	TBH	SS	XX	ZZ	CC	Y
55	56	90	71	36	φ9	20	3	7.2	5.8×8.8	110	φ117	232	1-M16×1.5	14	88	88	M3	9	12	2.5	0.5
63	63	100	80	40	φ11	23	4	8.5	7×10	120	φ130	255	1-M16×1.5	14	94	94	M4	10	14	3.3	0.8
71**	71	112	90	45	φ14	30	5	11	7×10	132	φ147	282(296)	1-M20×1.5	20	94	94	M5	12	17	4.2	0.8
80	80	125	100	50	φ19	40	6	15.5	10×13	160	φ163	339	1-M20×1.5	27	105	105	M6	18	21	5	1
90 S	90	140	100	56	φ24	50	8	20	10×13	175	φ183	361	1-M20×1.5	30	105	105	M8	19	25	6.8	1
90L1/L2	90	140	125	56	φ24	50	8	20	10×13	175	φ183	386/416	1-M20×1.5	30	105	105	M8	19	25	6.8	1
100**	100	160	140	63	φ28	60	8	24	12×15	198	φ205	425(443)	2-M20×1.5	26	105	105	M10	22	30	8.5	1.5
112	112	190	140	70	φ28	60	8	24	12×15	220	φ229	463	2-M25×1.5	32	112	112	M10	22	30	8.5	1.5
132S	132	216	140	89	φ38	80	10	33	12×15	252	φ265	497	2-M25×1.5	38	112	112	M12	28	37	10.2	1.5
132ML	132	216	178	89	φ38	80	10	33	12×15	252	φ265	536/561	2-M25×1.5	38	112	112	M12	28	37	10.2	1.5
160ML	160	254	210/254	108	φ42	110	12	37	15×19	290	φ325	897	2-M32×1.5	64	143	143	M13	36	45	14.2	2
180ML	180	279	241/279	121	φ48	110	14	42.5	15×25	340	φ368		2-M32×1.5	73	190	190	M14	36	45	14.2	2
200L	200	318	305	133	φ55	110	16	49	19×29	390	φ388		2-M40×1.5	85	190	190	M15	42	53	17.5	2



## 2 Pole TECA-BM Technical Data 50HZ

Model	Power (KW)	Speed (r/min)	Eff. (%)	Power Factor (CosΦ)	Current (A)			T <sub>e</sub> /T <sub>e</sub> (Times)	T <sub>max</sub> /T <sub>e</sub> (Times)	T <sub>tot</sub> /T <sub>e</sub> (Times)	I <sub>a</sub> /I <sub>e</sub> (Times)	Noise dB(A)
					230V	400V	690V					
MSBCCL631-2	0.18	2710	63	0.75	0.95	0.55	0.32	2.2	2.4	1.6	6	61
MSBCCL632-2	0.25	2710	65	0.76	1.23	0.71	0.41	2.2	2.4	1.6	6	61
MSBCCL633-2	0.37	2710	65	0.78	1.82	1.05	0.61	2.2	2.4	1.6	6	62
MSBCCL711-2	0.37	2730	70	0.79	1.67	0.97	0.56	2.2	2.4	1.6	6	64
MSBCCL712-2	0.55	2760	71	0.79	2.45	1.42	0.82	2.2	2.4	1.6	6	64
MSBCCL713-2	0.75	2730	72	0.82	3.18	1.83	1.06	2.2	2.4	1.5	6	65
MSBCCL801-2	0.75	2770	73	0.84	3.06	1.77	1.02	2.2	2.4	1.5	6	67
MSBCCL802-2	1.1	2770	76.2	0.83	4.35	2.51	1.45	2.2	2.4	1.5	6	67
MSBCCL803-2	1.5	2800	78.5	0.83	5.87	3.32	1.92	2.2	2.4	1.5	6	70
MSBCCL90S-2	1.5	2840	78.5	0.84	5.76	3.28	1.90	2.2	2.4	1.5	6	72
MSBCCL90L1-2	2.2	2840	81	0.85	8.0	4.61	2.66	2.2	2.4	1.4	6	72
MSBCCL90L2-2	3	2840	82.6	0.86	10.56	6.10	3.52	2.2	2.4	1.4	6	74
MSBCCL100L1-2	3	2840	82.6	0.87	10.44	6.03	3.48	2.2	2.3	1.4	7	76
MSBCCL100L2-2	4	2650	84.2	0.87	13.65	7.88	4.55	2.2	2.3	1.4	7.5	77
MSBCCL112M-2	4	2880	84.2	0.87	13.65	7.88	4.55	2.2	2.3	1.4	7.5	77
MSBCCL112L-2	5.5	2880	85.7	0.88	18.23	10.53	6.08	2.2	2.3	1.2	7.5	78
MSBCCL132S1-2	5.5	2900	85.7	0.88	18.23	10.53	6.08	2	2.2	1.2	7.5	80
MSBCCL132S2-2	7.5	2920	87	0.88	24.49	14.14	8.16	2	2.2	1.2	7.5	80
MSBCCL132M1-2	9.2	2930	88	0.89	29.87	17.25	9.96	2	2.2	1.2	7.5	81
MSBCCL132M2-2	11	2930	88.4	0.9	34.57	19.96	11.52	2	2.2	1.2	7.5	83
MSBCCL160M1-2	11	2940	88.4	0.9	34.57	19.96	11.52	2	2.2	1.2	7.5	86
MSBCCL160M2-2	15	2940	89.4	0.91	46.09	26.81	15.36	2	2.2	1.2	7.5	86
MSBCCL160L-2	18.5	2940	90	0.91	56.47	32.6	18.82	2	2.2	1.1	7.5	86

Table 2

Type	Brake Type K	Brake Torque Nm	Brake Rated Power W	J Brake Pd <sup>2</sup> Kgm <sup>2</sup>	No. of Starts/hr. Under No Load	Delayed Cut-in Time ★ Msec.	Quick Cut-in Time Msec	Cut Out Time Msec	Noise dB(A)
MSBCCL63	K 1	5	15	0.00005	3000	45	20	10	62
MSBCCL 71	K 2	12	20	0.00014	3000	50	30	15	64
MSBCCL 80	K 3	16	25	0.00021	1300	55	30	15	67
MSBCCL 90S	K 4	20	30	0.00039	1100	65	40	15	72
●MSBCCL 90S	K 4 D	40	30	0.00078	1100	65	40	15	72
MSBCCL 90 L	K 4	20	30	0.00039	1100	65	40	15	72
●MSBCCL 90 L	K 4 D	40	30	0.00078	1100	65	40	15	72
MSBCCL 100 L	K 5	40	45	0.00104	900	75	45	20	76
●MSBCCL 100 L	K 6	60	50	0.00135	900	180	85	25	76
MSBCCL 112 MT	K 5	40	45	0.00104	880	75	45	20	77
MSBCCL 112 M	K 6	60	50	0.00135	880	180	85	25	78
MSBCCL 132 S	K 7	90	55	0.00219	480	200	95	50	80
●MSBCCL 132 S	K 7 D	180	55	0.00438	480	200	95	50	80
MSBCCL 132 M	K 7	90	55	0.00219	450	200	95	50	80
●MSBCCL 132 M	K 7 D	180	55	0.00438	480	200	95	50	80
MSBCCL 160 MT	K 7 D	180	55	0.00438	350	200	95	50	86
MSBCCL 160 L	K 8	200	60	0.00408	350	210	100	60	86
●MSBCCL 160 L	K 8 D	400	60	0.00816	350	210	100	60	86

● Motors with increased braking torque upon request

★ On request, delayed brake cut in time for lifting equipment. We recommend a double disk brake D for lifting equipment

Brake motors have a supply voltage tolerance of +/- 6%



# 4 Pole TECA-BM Technical Data 50HZ

Model	Power (KW)	Speed (r/min)	Eff. (%)	Power Factor (CosΦ)	Current (A)			T <sub>e</sub> /T <sub>n</sub> (Times)	T <sub>max</sub> /T <sub>n</sub> (Times)	T <sub>min</sub> /T <sub>n</sub> (Times)	I <sub>fl</sub> /I <sub>n</sub> (Times)	Noise dB(A)
					230V	400V	690V					
MSBCCL631-4	0.12	1350	57	0.64	0.82	0.47	0.27	2.2	2.4	1.7	6	52
MSBCCL632-4	0.18	1350	59	0.65	1.17	0.68	0.39	2.2	2.4	1.7	6	52
MSBCCL633-4	0.25	1350	60	0.66	1.58	0.91	0.53	2.2	2.4	1.7	6	54
MSBCCL711-4	0.25	1350	60	0.72	1.45	0.84	0.48	2.2	2.4	1.7	6	55
MSBCCL712-4	0.37	1370	65	0.74	1.92	1.11	0.64	2.2	2.4	1.7	6	55
MSBCCL713-4	0.55	1380	66	0.75	2.78	1.60	0.93	2.2	2.4	1.7	6	57
MSBCCL801-4	0.55	1370	67	0.75	2.74	1.58	0.91	2.2	2.4	1.7	6	58
MSBCCL802-4	0.75	1390	72	0.78	3.34	1.93	1.11	2.2	2.4	1.6	6	58
MSBCCL803-4	1.1	1390	76.2	0.78	4.63	2.67	1.54	2.2	2.4	1.6	6	60
MSBCCL90S-4	1.1	1400	76.2	0.79	4.57	2.64	1.52	2.2	2.4	1.6	6	61
MSBCCL90L-4	1.5	1400	78.5	0.8	5.97	3.45	1.99	2.2	2.4	1.6	6	61
MSBCCL90L2-4	2.2	1400	81	0.8	8.45	4.90	2.83	2.2	2.4	1.5	7	63
MSBCCL100L1-4	2.2	1420	81	0.81	8.38	4.84	2.79	2.2	2.3	1.5	7	64
MSBCCL100L2-4	3	1420	82.6	0.81	11.21	6.47	3.74	2.2	2.3	1.5	7	64
MSBCCL100L3-4	4	1430	84.2	0.82	14.18	8.36	4.83	2.2	2.3	1.5	7	65
MSBCCL112M-4	4	1430	84.2	0.83	14.31	8.26	4.77	2.2	2.2	1.5	7	65
MSBCCL112L-4	5.5	1440	85.7	0.83	19.33	11.16	6.44	2.2	2.2	1.4	7	68
MSBCCL132S-4	5.5	1450	85.7	0.84	19.1	11.03	6.37	2.2	2.2	1.4	7	71
MSBCCL132M-4	7.5	1450	87	0.85	25.35	14.64	8.45	2.2	2.2	1.4	7	71
MSBCCL132L1-4	9.2	1480	87.5	0.85	30.92	17.85	10.31	2.2	2.2	1.4	7.5	74
MSBCCL132L2-4	10	1460	88	0.85	33.42	19.3	11.14	2.2	2.2	1.4	7.5	74
MSBCCL132L2-4	11	1480	88.4	0.86	36.17	20.88	12.06	2.2	2.2	1.4	7.5	74
MSBCCL160M-4	11	1460	88.4	0.87	35.76	20.64	11.92	2.2	2.2	1.4	7	75
MSBCCL160L-4	15	1460	88.4	0.87	48.76	28.15	16.25	2.2	2.2	1.4	7.5	75

Type	Brake Type K	Brake Torque Nm	Brake Rated Power W	J Brake Pd <sup>2</sup> Kgm <sup>2</sup>	No. of Starts/hr. Under No Load	Delayed Cut-in Time ★ Msec.	Quick Cut-in Time Msec.	Cut Out Time Msec.	Noise dB(A)
MSBCCL63	K 1	5	15	0.00005	3000	45	20	10	52
MSBCCL 71	K 2	12	20	0.00014	3000	50	30	15	55
MSBCCL 80	K 3	16	25	0.00021	1300	55	30	15	58
MSBCCL 90S	K 4	20	30	0.00039	1100	65	40	15	61
●MSBCCL 90S	K 4 D	40	30	0.00078	1100	65	40	15	61
MSBCCL 90 L	K 4	20	30	0.00039	1100	65	40	15	63
●MSBCCL 90 L	K 4 D	40	30	0.00078	1100	65	40	15	63
MSBCCL 100 L	K 5	40	45	0.00104	900	75	45	20	64
●MSBCCL 100 L	K 6	60	50	0.00135	900	180	85	25	65
MSBCCL 112 MT	K 5	40	45	0.00104	880	75	45	20	65
MSBCCL 112 M	K 6	60	50	0.00135	880	180	85	25	65
MSBCCL 132 S	K 7	90	55	0.00219	480	200	95	50	71
●MSBCCL 132 S	K 7 D	180	55	0.00438	480	200	95	50	71
MSBCCL 132 M	K 7	90	55	0.00219	450	200	95	50	71
●MSBCCL 132 M	K 7 D	180	55	0.00438	480	200	95	50	71
MSBCCL 160 MT	K 7 D	180	55	0.00438	350	200	95	50	75
MSBCCL 160 L	K 8	200	60	0.00408	350	210	100	60	75
●MSBCCL 160 L	K 8 D	400	60	0.00816	350	210	100	60	75

● Motors with increased braking torque upon request

★ On request, delayed brake cut in time for lifting equipment. We recommend a double disk brake D for lifting equipment

Brake motors have a supply voltage tolerance of +/- 6%

# 6 Pole TECA-BM Technical Data 50HZ

Model	Power (KW)	Speed (r/min)	Eff. (%)	Power Factor (CosΦ)	Current (A)			T <sub>st</sub> /T <sub>e</sub> (Times)	T <sub>max</sub> /T <sub>e</sub> (Times)	T <sub>max</sub> /T <sub>s</sub> (Times)	I <sub>st</sub> /I <sub>e</sub> (Times)	Noise dB(A)
					230V	400V	690V					
MSBCCL631-6	0.09	840	42	0.61	0.88	0.51	0.29	2	2	1.5	3.5	50
MSBCCL632-6	0.12	850	45	0.62	1.08	0.62	0.36	2	2	1.5	3.5	50
MSBCCL711-6	0.18	880	56	0.66	1.22	0.70	0.41	1.6	1.7	1.5	4	52
MSBCCL712-6	0.25	900	59	0.7	1.51	0.87	0.50	2.1	2.2	1.5	4	52
MSBCCL713-6	0.37	890	61	0.69	2.2	1.27	0.73	2	2.1	1.5	4	54
MSBCCL801-6	0.37	900	62	0.7	2.13	1.23	0.71	1.9	1.9	1.5	4	56
MSBCCL802-6	0.55	900	67	0.72	2.85	1.65	0.95	2	2.3	1.5	4	56
MSBCCL803-6	0.75	900	68	0.72	3.83	2.21	1.28	2	2.3	1.5	4	58
MSBCCL90S-6	0.75	920	69	0.72	3.77	2.18	1.26	2.2	2.2	1.5	5.5	59
MSBCCL90L-6	1.1	925	72	0.73	5.23	3.02	1.74	2.2	2.2	1.3	5.5	59
MSBCCL100L-6	1.5	945	74	0.76	6.67	3.85	2.22	2.2	2.2	1.3	6	61
MSBCCL112M-6	2.2	955	78	0.76	9.28	5.36	3.09	2.2	2.2	1.3	6	64
MSBCCL132S-6	3	960	79	0.76	12.49	7.21	4.16	2	2	1.3	6.5	64
MSBCCL132M1-6	4	960	80.5	0.76	16.35	9.44	5.45	2	2	1.3	6.5	68
MSBCCL132M2-6	5.5	960	83	0.77	21.51	12.42	7.17	2	2	1.3	6.5	68
MSBCCL132L-6	7.5	960	85	0.77	28.65	16.54	9.55	2	2	1.3	6.5	68
MSBCCL160M-6	7.5	960	86	0.8	27.25	15.73	9.08	2	2.2	1.3	6.5	68
MSBCCL160L-6	11	960	87.5	0.79	39.78	22.97	13.26	2	2.2	1.2	6.5	73

Type	Brake Type K	Brake Torque Nm	Brake Rated Power W	J Brake Pd <sup>2</sup> Kg m <sup>2</sup>	No. of Starts/hr. Under No Load	Delayed Cut-in Time ★ Msec.	Quick Cut-in Time Msec.	Cut Out Time Msec.	Noise dB(A)
MSBCCL63	K 1	5	15	0.00005	3000	45	20	10	50
MSBCCL 71	K 2	12	20	0.00014	3000	50	30	15	52
MSBCCL 80	K 3	16	25	0.00021	1300	55	30	15	56
MSBCCL 90S	K 4	20	30	0.00039	1100	65	40	15	59
●MSBCCL 90S	K 4 D	40	30	0.00078	1100	65	40	15	59
MSBCCL 90 L	K 4	20	30	0.00039	1100	65	40	15	59
●MSBCCL 90 L	K 4 D	40	30	0.00078	1100	65	40	15	59
MSBCCL 100 L	K 5	40	45	0.00104	900	75	45	20	61
●MSBCCL 100 L	K 6	60	50	0.00135	900	180	65	25	61
MSBCCL 112 MT	K 5	40	45	0.00104	880	75	45	20	64
MSBCCL 112 M	K 6	60	50	0.00135	880	180	65	25	64
MSBCCL 132 S	K 7	90	55	0.00219	480	200	95	50	64
●MSBCCL 132 S	K 7 D	180	55	0.00438	480	200	95	50	64
MSBCCL 132 M	K 7	90	55	0.00219	450	200	95	50	68
●MSBCCL 132 M	K 7 D	180	55	0.00438	480	200	95	50	68
MSBCCL 160 MT	K 7 D	180	55	0.00438	350	200	95	50	68
MSBCCL 160 L	K 8	200	60	0.00408	350	210	100	60	73
●MSBCCL 160 L	K 8 D	400	60	0.00816	350	210	100	60	73

● Motors with increased braking torque upon request

★ On request, delayed brake cut in time for lifting equipment. We recommend a double disk brake D for lifting equipment

Brake motors have a supply voltage tolerance of +/- 6%

# 8 Pole TECA-BM Technical Data 50HZ

Model	Power (KW)	Speed (r/min)	Eff. (%)	Power Factor (CosΦ)	Current (A)			T <sub>e</sub> /T <sub>n</sub> (Times)	T <sub>max</sub> /T <sub>n</sub> (Times)	T <sub>st</sub> /T <sub>n</sub> (Times)	I <sub>st</sub> /I <sub>n</sub> (Times)	Noise dB(A)
					230V	400V	690V					
MSBCCL711-8	0.09	880	48	0.56	0.84	0.48	0.28	1.5	1.7	1.3	3	50
MSBCCL712-8	0.12	890	51	0.59	1.00	0.58	0.33	1.6	1.7	1.3	2.7	50
MSBCCL801-8	0.18	880	51	0.61	1.45	0.84	0.48	1.5	1.7	1.3	2.8	52
MSBCCL802-8	0.25	880	56	0.61	1.83	1.06	0.61	1.6	2	1.3	2.7	52
MSBCCL90S-8	0.37	880	63	0.63	2.33	1.35	0.78	1.6	1.8	1.3	2.8	56
MSBCCL90L-8	0.55	880	66	0.65	3.21	1.85	1.07	1.6	1.8	1.3	3	56
MSBCCL100L1-8	0.75	710	66	0.67	4.24	2.45	1.41	1.7	2.1	1.3	3.5	59
MSBCCL100L2-8	1.1	710	72	0.69	5.54	3.20	1.85	1.7	2.1	1.2	3.5	59
MSBCCL112M-8	1.5	710	74	0.68	7.45	4.30	2.48	1.8	2.1	1.2	4.2	61
MSBCCL132S-8	2.2	720	75	0.71	10.33	5.96	3.44	2	2	1.2	5.5	64
MSBCCL132M-8	3	720	77	0.73	13.34	7.70	4.45	2	2	1.2	5.5	64
MSBCCL160M1-8	4	730	80	0.73	17.12	9.89	5.71	1.9	2.1	1.2	6	68
MSBCCL160M2-8	5.5	720	83.5	0.74	22.25	12.85	7.42	2	2.2	1.2	6	68
MSBCCL160L-8	7.5	720	85	0.75	29.41	17.0	9.8	1.9	2.2	1.2	6	68

Type	Brake Type K	Brake Torque Nm	Brake Rated Power W	J Brake Pd <sup>2</sup> Kgm <sup>2</sup>	No. of Starts/hr. Under No Load	Delayed Cut-in Time ★ Msec.	Quick Cut-in Time Msec.	Cut Out Time Msec.	Noise dB(A)
63 MSBCCL	K 1	5	15	0.00005	3000	45	20	10	50
71 MSBCCL	K 2	12	20	0.00014	3000	50	30	15	50
80 MSBCCL	K 3	16	25	0.00021	1300	55	30	15	52
90 S MSBCCL	K 4	20	30	0.00039	1100	65	40	15	56
● 90 S MSBCCL	K 4 D	40	30	0.00078	1100	65	40	15	56
90 L MSBCCL	K 4	20	30	0.00039	1100	65	40	15	56
● 90 L MSBCCL	K 4 D	40	30	0.00078	1100	65	40	15	56
100 L MSBCCL	K 5	40	45	0.00104	900	75	45	20	59
● 100 L MSBCCL	K 6	60	50	0.00135	900	180	85	25	59
112 MT MSBCCL	K 5	40	45	0.00104	880	75	45	20	61
112 M MSBCCL	K 6	60	50	0.00135	880	180	85	25	61
132 S MSBCCL	K 7	90	55	0.00219	480	200	95	50	64
● 132 S MSBCCL	K 7 D	180	55	0.00438	480	200	95	50	64
132 M MSBCCL	K 7	90	55	0.00219	450	200	95	50	64
● 132 M MSBCCL	K 7 D	180	55	0.00438	480	200	95	50	64
160 MT MSBCCL	K 7 D	180	55	0.00438	350	200	95	50	68
160 L MSBCCL	K 8	200	60	0.00408	350	210	100	60	68
● 160 L MSBCCL	K 8 D	400	60	0.00816	350	210	100	60	68

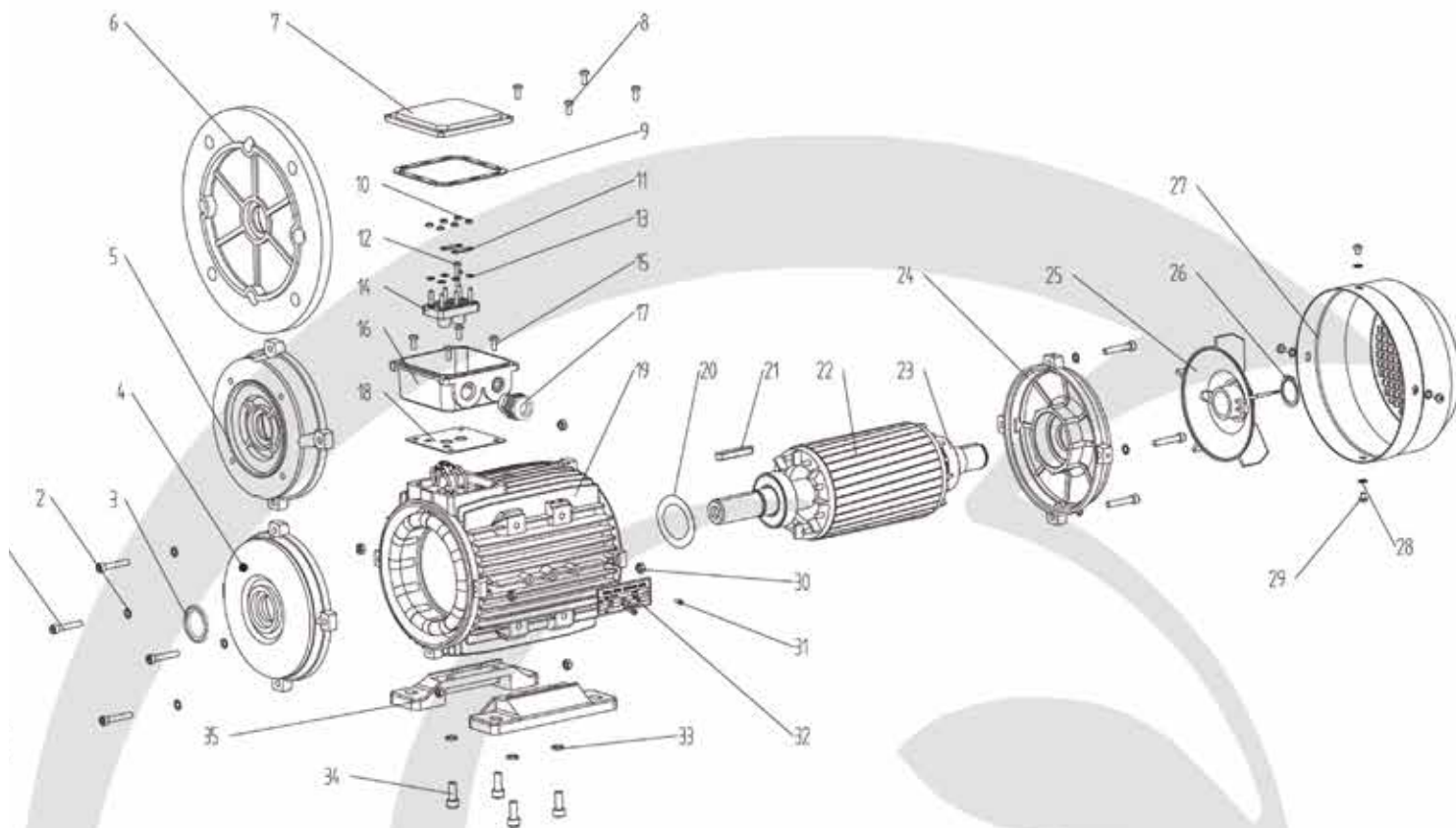
● Motors with increased braking torque upon request

★ On request, delayed brake cut in time for lifting equipment. We recommend a double disk brake D for lifting equipment

Brake motors have a supply voltage tolerance of +/- 6%



# Exploded Drawing



- |                               |                                |                             |
|-------------------------------|--------------------------------|-----------------------------|
| 1. Bolt                       | 13. Terminal washer            | 25. Cooling fan             |
| 2. Washer                     | 14. Terminal block             | 26. Fan circlip             |
| 3. Oil seal                   | 15. Terminal box fixing screws | 27. Fan cowl                |
| 4. DE endsheid                | 16. Terminal box base          | 28. Fan cover fixing washer |
| 5. B14 flange                 | 17. Cable gland                | 29. Fan cover fixing screws |
| 6. B5 flange                  | 18. Terminal box bottom gasket | 30. Endshield fixing nut    |
| 7. Terminal box cover         | 19. Stator housing             | 31. Rivet                   |
| 8. Terminal box fixing screws | 20. Spring washer              | 32. Nameplate               |
| 9. Terminal box upper gasket  | 21. Key                        | 33. Foot fixing washer      |
| 10. Terminal box fixing nut   | 22. Rotor                      | 34. Foot fixing screws      |
| 11. Terminal links            | 23. Bearing                    | 35. Foot                    |
| 12. Terminal pin              | 24. NDE endshield              |                             |



# TCC “ML” DESIGN



## ELECTRICAL AND DIMENSIONAL DATA

TCC aluminium multi-mount single phase dual capacitor asynchronous motors are manufactured to the latest design. All motors conform to IEC standard and offer a comprehensive range up to 3.7KW. They are suitable for applications where starting torque requirements are 1.8-2.5 times full load torque.

Please note it is recommended that single phase motors are not stop/started more than 15 times in a 1 hour period in order to allow safe discharge of capacitors.

# TCC Electrical Data

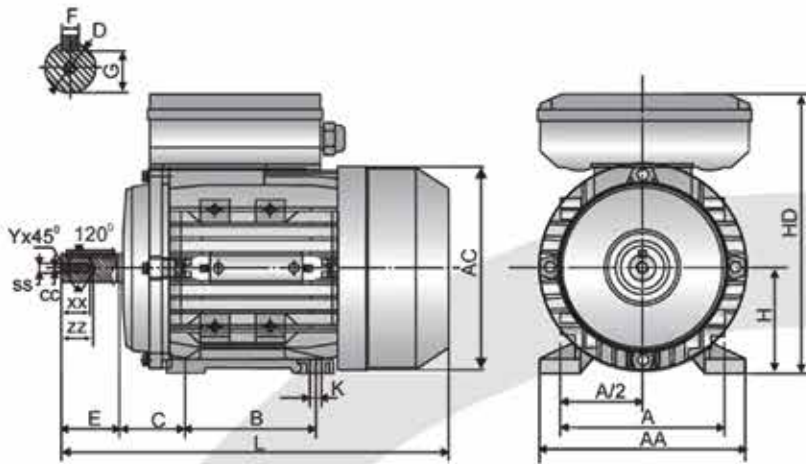
## 230V ELECTRICAL DATA

Model	Power (KW)	Current (A) 230V	Speed (r/min)	Eff. (%)	Power Factor (Cosφ)	Rate Torque (N.M)	T <sub>st</sub> /T <sub>e</sub> (Times)	T <sub>max</sub> /T <sub>e</sub> (Times)	Starting Current (A)	Run Capacitor (μF/V)	Start Capacitor (μF/V)	Noise dB (A)	W.T (Kg)
TCC 631-2	0.18	1.38	2710	63	0.9	0.63	2.5	1.6	8	10μF/450V	30μF/250V	70	3.9
TCC 632-2	0.25	1.89	2710	64	0.9	0.88	2.5	1.6	10	12μF/450V	40μF/250V	73	4.4
TCC 711-2	0.37	2.66	2780	65	0.93	1.27	2.5	1.8	15	12μF/450V	75μF/250V	75	6.1
TCC 712-2	0.55	3.78	2790	68	0.93	1.88	2.5	1.8	20	16μF/450V	100μF/250V	78	7
TCC 801-2	0.75	4.87	2800	72	0.93	2.56	2.5	1.8	30	20μF/450V	100μF/250V	76	9
TCC 802-2	1.1	7.04	2810	73	0.93	3.74	2.5	1.8	40	30μF/450V	150μF/250V	79	10.3
TCC 90S-2	1.5	9.48	2810	74	0.93	5.10	2.5	1.8	55	40μF/450V	200μF/300V	84	16.3
TCC 90L-2	2.2	13.57	2810	75	0.94	7.48	2.5	1.8	75	50μF/450V	250μF/300V	84	16.7
TCC 100L-2	3.0	17.83	2830	77	0.95	10.13	2.5	1.7	110	60μF/450V	400μF/300V	88	25
TCC 112M1-2	3.7	21.48	2850	78	0.96	12.40	2.5	1.7	140	60μF/450V	600μF/300V	90	33
TCC 112M2-2	4.0	22.18	2850	80	0.98	13.41	2.5	1.7	150	60μF/450V	600μF/300V	90	34.2
TCC 631-4	0.12	1.05	1350	55	0.9	0.85	2.5	1.6	6	10μF/450V	30μF/250V	64	4.1
TCC 632-4	0.18	1.55	1350	56	0.9	1.27	2.5	1.6	8.5	12μF/450V	40μF/250V	64	4.5
TCC 711-4	0.25	2.01	1380	60	0.9	1.73	2.5	1.7	10	12μF/450V	50μF/250V	66	5.9
TCC 712-4	0.37	2.84	1380	63	0.9	2.58	2.5	1.7	15	16μF/450V	75μF/250V	68	6.9
TCC 801-4	0.55	4.03	1400	66	0.9	3.75	2.5	1.8	20	20μF/450V	100μF/250V	71	9.6
TCC 802-4	0.75	5.25	1410	69	0.9	5.08	2.5	1.8	30	25μF/450V	100μF/250V	71	10.9
TCC 90S-4	1.1	7.24	1410	71	0.93	7.45	2.5	1.8	40	35μF/450V	150μF/250V	74	13.8
TCC 90L-4	1.5	9.61	1400	73	0.93	10.24	2.5	1.8	55	40μF/450V	200μF/300V	79	16.7
TCC 100L1-4	2.2	13.90	1430	74	0.93	14.70	2.5	1.8	75	50μF/450V	300μF/300V	79	22.8
TCC 100L2-4	3	18.70	1440	75	0.93	19.91	2.5	1.8	110	60μF/450V	500μF/300V	83	28.7
TCC 112M1-4	3.7	21.99	1440	77	0.95	24.55	2.5	1.7	140	60μF/450V	600μF/300V	86	31
TCC 112M2-4	4.0	22.41	1440	80	0.97	26.54	2.5	1.7	150	60μF/450V	600μF/300V	86	32.8

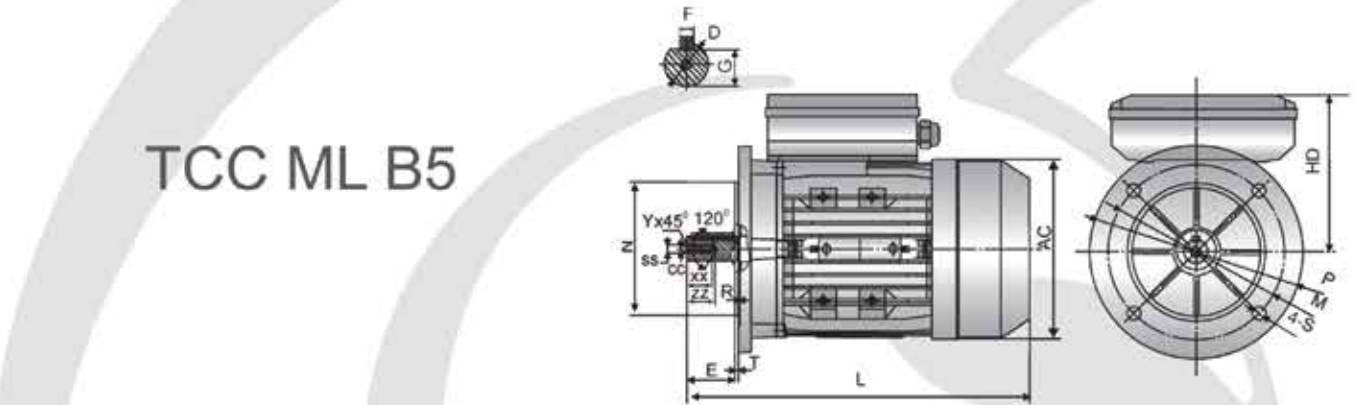
## 110V ELECTRICAL DATA

Model	Power (KW)	Current (A) 110V	Speed (r/min)	Eff. (%)	Power Factor (Cosφ)	Rate Torque (N.M)	T <sub>st</sub> /T <sub>e</sub> (Times)	T <sub>max</sub> /T <sub>e</sub> (Times)	Starting Current (A)	Run Capacitor (μF/V)	Start Capacitor (μF/V)	Noise dB (A)	W.T (Kg)
TCC 631-2	0.18	2.89	2710	63	0.9	0.63	1.8	1.6	16	30μF/250V	100μF/125V	70	4.2
TCC 632-2	0.25	3.95	2710	64	0.9	0.88	1.8	1.6	20	40μF/250V	100μF/125V	73	4.7
TCC 711-2	0.37	5.4	2780	67	0.93	1.27	2.0	1.8	30	40μF/250V	200μF/125V	75	5.3
TCC 712-2	0.55	7.68	2790	70	0.93	1.88	2.0	1.8	40	60μF/250V	300μF/125V	78	7.4
TCC 801-2	0.75	9.97	2800	72	0.95	2.56	2.5	1.8	60	80μF/250V	400μF/125V	78	9.5
TCC 802-2	1.1	14.04	2810	75	0.95	3.74	2.5	1.8	80	100μF/250V	600μF/125V	79	11.2
TCC 90S-2	1.5	18.89	2810	76	0.95	5.10	2.5	1.8	110	140μF/250V	800μF/125V	84	14
TCC 90L-2	2.2	27.34	2810	77	0.95	7.48	2.5	1.8	150	160μF/250V	1000μF/125V	84	17
TCC 100L-2	3	36.34	2830	79	0.95	10.13	2.5	1.7	220	180μF/250V	1400μF/125V	88	25
TCC 631-4	0.12	2.2	1350	55	0.9	0.86	2.5	1.6	12	30μF/250V	100μF/125V	64	4.1
TCC 632-4	0.18	3.25	1350	56	0.9	1.27	1.8	1.6	17	40μF/250V	100μF/125V	64	4.4
TCC 711-4	0.25	4.21	1380	60	0.9	1.73	1.8	1.7	20	40μF/250V	150μF/125V	66	5.9
TCC 712-4	0.37	5.93	1380	63	0.9	2.56	2.0	1.7	30	40μF/250V	200μF/125V	68	6.9
TCC 801-4	0.55	8.42	1400	66	0.9	3.75	2.0	1.8	40	70μF/250V	300μF/125V	71	9.6
TCC 802-4	0.75	10.96	1410	69	0.9	5.08	2.5	1.8	60	90μF/250V	400μF/125V	71	10.8
TCC 90S-4	1.1	14.73	1410	73	0.93	7.45	2.5	1.8	80	120μF/250V	600μF/125V	74	13.5
TCC 90L-4	1.5	19.81	1400	74	0.93	10.24	2.5	1.8	110	140μF/250V	800μF/125V	79	16.5
TCC 100L-4	2.2	28.3	1430	76	0.93	14.70	2.5	1.8	150	170μF/250V	1300μF/125V	79	24
TCC 100L2-4	3	38.09	1440	77	0.93	19.91	2.5	1.8	220	200μF/250V	1800μF/125V	83	30

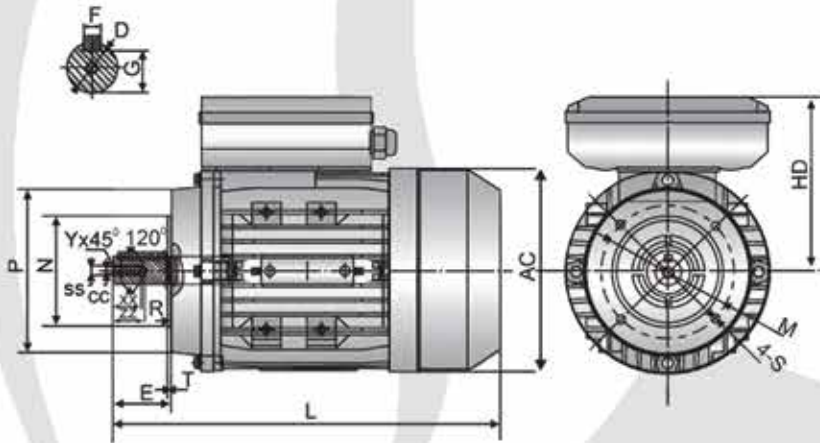
# TCC Series Dimensional Data



TCC ML B3



TCC ML B5



TCC ML B14

Frame Size	Mounting Dimensions															Overall Dimensions					Shaft End Screw Dimensions								
	A	B	C	D	E	F	G	H	K	IM B14					IM B5					AA	AC	AD	HD	L	SS	XX	ZZ		
										M	N	P	R	S	T	M	N	P	R									S	T
63	100	80	40	11	23	4	8.5	63	7X10	75	60	90	0	M5	2.5	115	95	140	0	φ 10	3.0	120	130	179	116	212	M4	10	15
71	112	90	45	14	30	5	11	71	7X10	85	70	105	0	M6	2.5	130	110	160	0	φ 10	3.5	132	145	194	123	255	M5	12	18
80	125	100	50	19	40	6	15.5	80	10X13	100	80	120	0	M6	3.0	165	130	200	0	φ 12	3.5	157	165	223	143	290	M6	18	22
90S	140	100	56	24	50	8	20	90	10X13	115	95	140	0	M8	3.0	165	130	200	0	φ 12	3.5	172	185	240	150	335	M8	20	25
90L	140	125	56	24	50	8	20	90	10X13	115	95	140	0	M8	3.0	165	130	200	0	φ 12	3.5	172	185	240	150	365	M8	20	25
100L	160	140	63	28	60	8	24	100	12X15	130	110	160	0	M8	3.5	215	180	250	0	φ 15	4.0	196	205	260	160	398/416	M10	22	28
112M	190	140	70	28	60	8	24	112	12X15	130	110	160	0	M8	3.5	215	180	250	0	φ 15	4.0	222	230	295	183	416	M10	22	28



# TPC “MY” DESIGN



## ELECTRICAL AND DIMENSIONAL DATA

TPC aluminium multi-mount single phase permanent capacitor asynchronous motors adapt the same frame configurations as the TCC range with a smaller terminal box arrangement and a high resistance rotor. The TPC range is suitable for most fan and square law torque applications where starting torque requirements are 0.5-0.9 times full load torque.

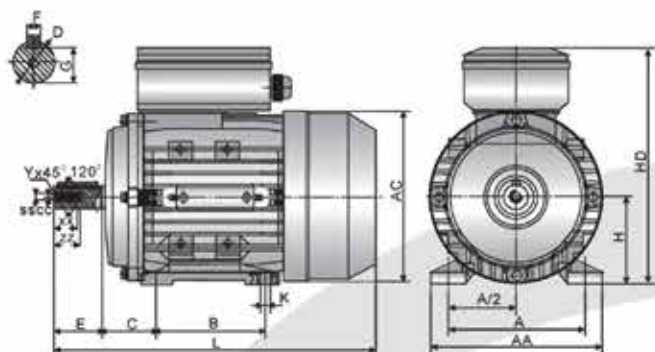
Please note it is recommended that single phase motors are not stop/started more than 15 times in a 1 hour period in order to allow safe discharge of capacitors.



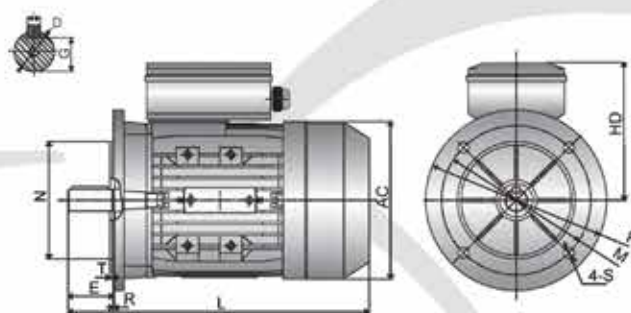
# TPC Series Electrical Data

Model	Power (KW)	Current (A)	Speed (r/min)	Eff (%)	Power Factor (CosΦ)	T <sub>st</sub> /T <sub>n</sub> (Times)	T <sub>max</sub> /T <sub>n</sub> (Times)	Starting Current (A)	Run Capacitor (μF/V)	Noise dB(A)	W.T (Kg)
TPC 5612	0.09	0.80	2740	54	0.91	0.69	1.8	2.5	4μF/450V	67	2.8
TPC 5622	0.12	0.90	2760	60	0.93	0.69	1.8	3.5	6μF/450V	67	3.05
TPC 5632	0.18	1.40	2760	62	0.93	0.55	1.8	4.5	8μF/450V	70	3.5
TPC 6312	0.18	1.40	2760	62	0.93	0.55	1.8	4.5	8μF/450V	70	4.1
TPC 6322	0.25	1.70	2780	66	0.93	0.55	1.8	6	10μF/450V	70	4.5
TPC 6332	0.37	2.50	2780	67	0.93	0.45	1.65	8	12μF/450V	75	5.25
TPC 711-2	0.37	2.60	2640	66	0.94	0.72	1.65	8	14μF/450V	75	6.1
TPC 712-2	0.55	3.60	2760	71	0.95	0.7	1.8	14	20μF/450V	75	7.7
TPC 801-2	0.75	4.50	2735	73	0.98	0.68	1.75	16	25μF/450V	75	10.3
TPC 802-2	1.10	6.60	2720	74	0.98	0.65	1.8	23	35μF/450V	78	11.8
TPC 803-2	1.50	9.20	2730	74	0.98	0.65	1.8	31	50μF/450V	78	13.6
TPC 90S-2	1.50	8.50	2755	76	0.98	0.65	1.8	31	50μF/450V	80	14.6
TPC 90L-2	2.20	12.30	2765	77	0.98	0.65	1.8	51	70μF/450V	80	17.8
TPC 100L-2	3.00	16.90	2785	77	0.99	0.55	1.75	64	90μF/450V	83	23.7
TPC 5614	0.06	0.60	1360	50	0.94	0.75	1.75	2	4μF/450V	63	3.3
TPC 5624	0.09	0.80	1360	52	0.94	0.6	1.75	3	6μF/451V	63	3.6
TPC 5634	0.12	1.30	1370	52	0.92	0.6	1.75	3	8μF/452V	65	4.1
TPC 6314	0.12	1.30	1370	52	0.92	0.6	1.75	3	8μF/453V	65	4.45
TPC 6324	0.18	1.50	1370	54	0.94	0.6	1.6	4	10μF/450V	65	5.05
TPC 6334	0.25	2.00	1370	58	0.95	0.6	1.6	5	12μF/450V	65	5.4
TPC 711-4	0.25	2.00	1320	56	0.94	0.75	1.6	5	14μF/450V	65	6.2
TPC 712-4	0.37	2.90	1325	58	0.94	0.7	1.55	7	20μF/450V	68	7.3
TPC 801-4	0.55	3.90	1340	64	0.94	0.7	1.7	11	25μF/450V	73	10.1
TPC 802-4	0.75	5.30	1340	64	0.94	0.7	1.75	15	35μF/450V	73	11.4
TPC 90S-4	1.10	7.00	1355	72	0.95	0.68	1.8	22	50μF/450V	75	14.4
TPC 90L-4	1.50	9.30	1360	74	0.95	0.68	1.8	32	50μF/450V	78	17.5
TPC 100L1-4	2.20	12.60	1390	78	0.97	0.48	1.75	49	70μF/450V	80	24.5
TPC 100L2-4	3.00	16.50	1380	79	0.99	0.45	1.6	61	90μF/450V	80	32
TPC 6316	0.09	0.92	900	46	0.92	0.8	1.45	2	8μF/464V	63	5.1
TPC 6326	0.12	1.05	900	54	0.92	0.75	1.45	3	11μF/465V	63	6
TPC 7116	0.18	1.55	900	55	0.92	0.7	1.5	4	16μF/466V	68	6.3
TPC 7126	0.25	2.07	900	57	0.92	0.68	1.5	5	20μF/467V	68	7.6
TPC 8016	0.37	2.82	900	62	0.92	0.68	1.6	8	25μF/468V	68	9
TPC 8026	0.55	4.08	900	63	0.93	0.68	1.6	14	30μF/469V	70	11.6
TPC 9096	0.75	5.20	900	66	0.95	0.65	1.6	16	40μF/470V	70	13.5
TPC 90L6	1.10	7.51	900	67	0.95	0.62	1.6	25	50μF/471V	70	16.2

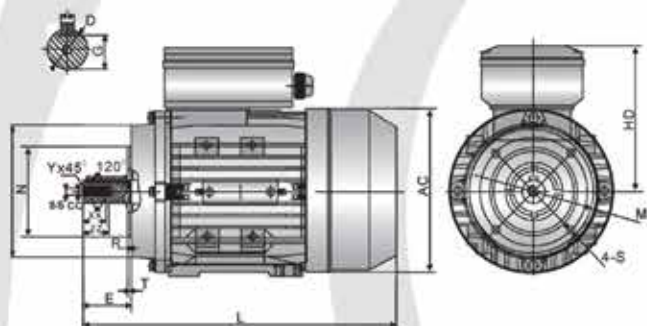
# TPC Series Dimensional Data



TPC MY B3



TPC MY B5



TPC MY B14

Frame Size	Mounting Dimensions																			Overall Dimensions					Shaft End Screw Dimensions				
	A	B	C	D	E	F	G	H	K	IM B14					IM B5					AA	AC	AD	HD	L	SS	XX	ZZ		
										M	N	P	T	R	S	M	N	P	T									R	S
56	90	71	36	φ9	20	3	7.2	56	5.8x8.8	φ65	φ50	φ80	2.5	0	M5	φ100	φ80	φ120	3.0	0	φ7	110	φ117	144	88	196	M3	9	12
63	100	80	40	φ11	23	4	8.5	63	7x10	φ75	φ60	φ90	2.5	0	M5	φ115	φ95	φ140	3.0	0	φ10	120	φ130	181	118	220	M4	10	14
71*	112	90	45	φ14	30	5	11	71	7x10	φ85	φ70	φ105	2.5	0	M6	φ130	φ110	φ160	3.5	0	φ10	132	φ147	196	125	241/255	M5	12	17
80	125	100	50	φ19	40	6	15.5	80	10x13	φ100	φ80	φ120	3.0	0	M6	φ165	φ130	φ200	3.5	0	φ12	160	φ163	226	146	290	M6	16	21
90S	140	100	56	φ24	50	8	20	90	10x13	φ115	φ95	φ140	3.0	0	M8	φ165	φ130	φ200	3.5	0	φ12	175	φ183	243	153	312	M8	19	25
90L	140	125	56	φ24	50	8	20	90	10x13	φ115	φ95	φ140	3.0	0	M8	φ165	φ130	φ200	3.5	0	φ12	175	φ183	243	153	337/367	M8	19	25
100L**	160	140	63	φ28	60	8	24	100	12x15	φ130	φ110	φ160	3.5	0	M8	φ215	φ180	φ250	4.0	0	φ15	198	φ205	265	165	369/387	M10	22	30

\*\* This frame size has two housing sizes, the rated output is for the normal "L" size and increased output is for the large "L" size (refer to the figures in the brackets "()").

# ECOL “TC” DESIGN



## ELECTRICAL AND DIMENSIONAL DATA

ECOL “TC” Motors are the latest high efficient cast iron design asynchronous design from the TECHTOP factory. The ECOL TC motors are a highly versatile design and adaptable to suit many applications. The ECOL “TC” motor is multi-mount up to and including 280 frame.

These high efficient motors are available in IE2 or IE3 and are also fully approved by the enhanced capital allowance scheme.



# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) 2poles IE1

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T1C 132S1-2	5.5	2895	11.16	84.7	0.84	18.14	6	2.3	2	2.6
T1C 132S2-2	7.5	2900	14.81	86	0.85	24.70	6.4	2.3	2	2.7
T1C 160M1-2	11	2910	20.83	87.6	0.87	36.10	6.3	2.3	2	2.7
T1C 160M2-2	15	2908	28.06	88.7	0.87	49.26	6.8	2.3	2	2.7
T1C 160L-2	18.5	2912	33.60	89.3	0.89	60.67	7	2.3	2	2.7
T1C 180M-2	22	2920	39.69	89.9	0.89	71.95	7.2	2.3	2	2.6
T1C 200L1-2	30	2915	53.64	90.7	0.89	98.28	7	2.3	2	2.6
T1C 200L2-2	37	2920	65.80	91.2	0.89	121.00	7.2	2.3	2	2.7
T1C 225M-2	45	2920	78.70	91.7	0.90	147.16	7	2.3	2	2.7
T1C 250M-2	55	2930	97.85	92.2	0.88	179.25	7.8	2.2	1.9	2.5
T1C 280S-2	75	2930	131.22	92.7	0.89	244.44	7.8	2.1	1.9	2.5
T1C 280M-2	90	2930	155.21	93	0.90	293.32	7.7	2.1	1.9	2.5
T1C 315S-2	110	2940	189.09	93.3	0.90	357.29	7.7	2	1.8	2.3
T1C 315M-2	132	2940	223.93	93.5	0.91	428.74	7.6	2	1.8	2.3
T1C 315L1-2	160	2945	273.57	93.8	0.90	518.81	7.8	2	1.8	2.3
T1C 315L2-2	200	2945	345.07	94	0.89	648.51	7.9	2	1.8	2.3
T1C 355M-2	250	2945	426.54	94	0.90	810.64	7.8	2	1.8	2.3
T1C 355L-2	315	2945	543.48	94	0.89	1021.40	7.8	2	1.8	2.3

## Electrical data (50Hz) 4 poles IE1

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T1C 132S-4	5.5	1420	11.29	84.7	0.83	36.99	6.5	2.3	2	2.6
T1C 132M-4	7.5	1420	14.81	86	0.85	50.44	6.4	2.3	2	2.7
T1C 160M-4	11	1430	21.32	87.6	0.85	73.46	6.8	2.3	2	2.7
T1C 160L-4	15	1435	27.74	88.7	0.88	99.82	6.7	2.3	2	2.7
T1C 180M-4	18.5	1435	33.98	89.3	0.88	123.11	7.2	2.3	2	2.7
T1C 180L-4	22	1450	40.60	89.9	0.87	144.89	7.3	2.3	2	2.6
T1C 200L-4	30	1450	53.64	90.7	0.89	197.57	7.6	2.3	2	2.6
T1C 225S-4	37	1460	65.80	91.2	0.89	242.00	7.5	2.3	2	2.7
T1C 225M-4	45	1470	80.49	91.7	0.88	292.33	7.3	2.3	2	2.7
T1C 250M-4	55	1470	96.85	92.1	0.89	357.29	7.4	2.2	1.9	2.5
T1C 280S-4	75	1470	132.71	92.7	0.88	487.21	7.5	2.1	1.9	2.5
T1C 280M-4	90	1470	155.21	93	0.90	584.65	7.7	2.1	1.9	2.5
T1C 315S-4	110	1475	189.09	93.3	0.90	712.15	7.8	2	1.8	2.3
T1C 315M-4	132	1475	223.93	93.5	0.91	854.58	7.8	2	1.8	2.3
T1C 315L1-4	160	1475	270.56	93.8	0.91	1035.86	7.9	2	1.8	2.3
T1C 315L2-4	200	1475	341.23	94	0.90	1294.82	7.7	2	1.8	2.3
T1C 355M-4	250	1475	431.33	94	0.89	1618.52	7.9	2	1.8	2.3



# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) 6 poles **IE1**

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Ia/In	Cs/Cn	Cmin./Cn	Cmax/Cn
T1C 132S-6	3	935	7.44	79.7	0.73	30.64	6.3	2.3	1.9	2.6
T1C 132M1-6	4	940	9.59	81.4	0.74	40.64	6.2	2.4	1.9	2.6
T1C 132M2-6	5.5	940	12.57	83.1	0.76	55.87	6.8	2.3	2	2.6
T1C 160M-6	7.5	950	16.82	84.7	0.76	75.39	7	2.3	2	2.7
T1C 160L-6	11	955	23.56	86.4	0.78	109.99	7.3	2.3	2	2.7
T1C 180L-6	15	955	31.25	87.7	0.79	149.99	7.2	2.3	2	2.7
T1C 200L1-6	18.5	960	36.31	88.6	0.83	184.02	6.9	2.3	2	2.7
T1C 200L2-6	22	960	42.89	89.2	0.83	218.84	7.3	2.3	2	2.6
T1C 225M-6	30	970	57.84	90.2	0.83	295.34	7.4	2.3	2	2.6
T1C 250M-6	37	970	69.20	90.8	0.85	364.25	7.5	2.3	2	2.7
T1C 280S-6	45	975	82.63	91.4	0.86	440.74	7.7	2.3	2	2.7
T1C 280M1-6	55	975	99.29	91.9	0.87	538.68	7.7	2.2	1.9	2.5
T1C 315S-6	75	975	131.36	92.6	0.89	734.56	7.9	2.1	1.9	2.5
T1C 315M-6	90	975	155.37	92.9	0.90	881.47	8	2	1.8	2.3
T1C 315L1-6	110	975	189.09	93.3	0.90	1077.36	7.7	2	1.8	2.3
T1C 315L2-6	132	975	228.96	93.5	0.89	1292.83	.8	2	1.8	2.3
T1C 355M1-6	160	975	270.56	93.8	0.91	1567.06	7.6	2	1.8	2.3
T1C 355M2-6	200	975	341.23	94	0.90	1958.83	7.8	2	1.8	2.3
T1C 355L-6	250	975	431.33	94	0.89	2448.54	7.8	2	1.8	2.3

## Electrical data (50Hz) - 8 poles **IE1**

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Ia/In	Cs/Cn	Cmin./Cn	Cmax/Cn
T1C 132S-8	2.2	705	5.7	78	0.71	29.8	4.6	1.9	1.6	2.2
T1C 132M-8	3	710	7.6	79	0.72	40.4	5	1.9	1.6	2.2
T1C 160M1-8	4	710	9.9	80	0.73	53.8	5	1.9	1.6	2.2
T1C 160M2-8	5.5	715	13	82	0.74	73.7	5.2	2	1.8	2.3
T1C 160L-8	7.5	725	17	84	0.75	100	5.3	2	1.8	2.3
T1C 180L-8	11	730	24	86	0.76	144	5.2	2.1	1.8	2.4
T1C 200L1-8	15	730	33	87	0.76	196	5.3	2.3	1.9	2.5
T1C 225S-8	18.5	730	38	88	0.79	242	5.3	2.3	1.9	2.5
T1C 225M-8	22	735	45	89	0.79	288	5.3	2.3	1.9	2.5
T1C 250M-8	30	735	60	90	0.80	390	5.3	2.4	2	2.6
T1C 280S-8	37	735	74	91	0.81	481	5	2.1	1.8	2.3
T1C 280M-8	45	735	89	92	0.80	585	5	2.1	1.8	2.3
T1C 315S-8	55	740	108	93	0.81	710	5.1	2.1	1.8	2.3
T1C 315M1-8	75	740	146	93	0.81	968	5.2	1.8	1.6	2.3
T1C 315L1-8	90	740	174	93.5	0.81	1162	5	1.8	1.6	2.2
T1C 315L2-8	110	740	212	93.7	0.81	1420	5.1	1.8	1.4	2.4
T1C 355M1-8	132	740	254	94.2	0.81	1704	5.1	1.6	1.4	2.2
T1C 355M2-8	160	740	303	95	0.82	1987	5.2	1.6	1.4	2.3
T1C 355L2-8	200	740	378	95.3	0.82	2134	5.2	1.6	1.4	2.4

# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) 2poles IE2

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T2C132S1-2	5.5	2905	10.25	87	0.89	18.08	7.8	2.4	2	2.9
T2C 132S2-2	7.5	2910	13.96	88.1	0.88	24.61	7.9	2.7	2	2.8
T2C 160M1-2	11	2920	19.73	89.4	0.90	35.97	7.9	2.2	2.1	3
T2C 160M2-2	15	2918	26.35	90.3	0.91	49.09	7.9	2.3	2.1	3
T2C 160L-2	18.5	2922	31.93	90.9	0.92	60.46	8	2.4	2.1	2.9
T2C 180M-2	22	2930	39.08	91.3	0.89	71.70	7.5	2.3	2	2.8
T2C 200L1-2	30	2925	53.49	92	0.88	97.94	6.7	2.4	2	2.7
T2C 200L2-2	37	2930	64.15	92.5	0.90	120.59	6.3	2.3	2	2.7
T2C 225M-2	45	2930	79.45	92.9	0.88	146.66	6.9	2.3	2	2.8
T2C 250 M-2	55	2940	96.80	93.2	0.88	178.64	8	2.3	1.9	2.7
T2C 280S-2	75	2940	125.45	93.8	0.92	243.60	8	2.2	1.9	2.7
T2C 280M-2	90	2940	150.06	94.1	0.92	292.33	7.7	2.2	1.9	2.6
T2C 315S-2	110	2940	187.08	94.3	0.90	357.29	7.7	2	1.8	2.3
T2C 315M-2	132	2940	221.33	94.6	0.91	428.74	7.6	2	1.8	2.3
T2C 315L1-2	160	2945	270.68	94.8	0.90	518.81	7.8	2	1.8	2.3
T2C 315L2-2	200	2945	341.44	95	0.89	648.51	7.9	2	1.8	2.3
T2C 355M-2	250	2945	422.05	95	0.90	810.64	7.8	2	1.8	2.3
T2C 355L-2	315	2945	537.76	95	0.89	1021.40	7.8	2	1.8	2.3

## Electrical data (50Hz) 4 poles IE2

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T2C 132S-4	5.5	1430	11.04	87.7	0.82	36.73	7.1	2.3	2	2.8
T2C 132M-4	7.5	1430	14.70	88.7	0.83	50.08	7.8	2.3	2	2.7
T2C 160M-4	11	1440	19.43	89.8	0.91	72.95	7.9	2.5	2.1	2.8
T2C 160L-4	15	1445	25.92	90.8	0.92	99.13	7.8	2.4	2.1	2.9
T2C 180M-4	18.5	1445	33.66	91.2	0.87	122.26	7.8	2.4	2.1	3
T2C 180L-4	22	1460	38.95	91.6	0.89	143.89	7.5	2.3	2	3
T2C 200L-4	30	1460	53.31	92.3	0.88	196.22	7.9	2.4	2	2.7
T2C 225S-4	37	1470	72.02	92.7	0.80	240.36	6.7	2.4	2	2.7
T2C 225M-4	45	1480	87.21	93.1	0.80	290.35	7	2.3	2	2.8
T2C 250M-4	55	1480	96.49	93.5	0.88	354.87	7.4	2.4	1.9	2.7
T2C 280S-4	75	1480	126.56	94	0.91	483.92	7.5	2.2	1.9	2.6
T2C 280M-4	90	1480	149.90	94.2	0.92	580.70	7.7	2.2	1.9	2.6
T2C 315S-4	110	1480	186.69	94.5	0.90	709.75	7.8	2	1.8	2.3
T2C 315M-4	132	1480	221.09	94.7	0.91	851.69	7.8	2	1.8	2.3
T2C 315L1-4	160	1480	267.43	94.9	0.91	1032.36	7.9	2	1.8	2.3
T2C 315L2-4	200	1480	337.29	95.1	0.90	1290.45	7.7	2	1.8	2.3
T2C 355M-4	250	1480	426.35	95.1	0.89	1613.06	7.9	2	1.8	2.3
T2C 355L-4	315	1480	531.23	95.1	0.90	2032.45	7.8	2	1.8	2.3

# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

Electrical data (50Hz) 6 poles **IE2**

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Ca/Cn	Cmin/Cn	Cmax/Cn
T2C 132S-6	3	940	6.26	83.3	0.83	30.48	6.4	2.4	2.2	2.8
T2C 132M1-6	4	945	8.12	84.6	0.84	40.42	6.2	2.5	2	2.8
T2C 132M2-6	5.5	945	11.26	86	0.82	55.58	6.7	2.3	1.9	2.8
T2C 160M-6	7.5	955	14.78	87.2	0.84	74.99	7	2.4	1.9	2.7
T2C 160L-6	11	960	21.06	88.7	0.85	109.42	7.3	2.5	2	2.8
T2C 180L-6	15	960	29.08	89.7	0.83	149.21	7.8	2.3	2.1	2.9
T2C200L1-6	18.5	965	34.75	90.4	0.85	183.07	7.8	2.4	2.1	3.2
T2C 200L2-6	22	965	40.62	90.9	0.86	217.70	7.9	2.3	1.9	3.1
T2C 225M-6	30	975	55.56	91.7	0.85	293.82	7.9	2.2	1.9	2.7
T2C 250M-6	37	975	69.79	92.2	0.83	362.38	7.5	2.3	2.1	2.7
T2C 280S-6	45	980	81.48	92.7	0.86	438.49	7.2	2.3	2	2.8
T2C280M1-6	55	980	99.15	93.1	0.86	535.93	7.7	2.2	1.9	2.7
T2C315S-6	75	980	129.81	93.7	0.89	730.81	7.9	2.1	1.9	2.5
T2C315M-6	90	980	153.56	94	0.90	876.98	7.9	2	1.8	2.3
T2C315L1-6	110	980	187.08	94.3	0.90	1071.86	7.7	2	1.8	2.3
T2C315L2-6	132	980	226.30	94.6	0.89	1286.23	7.8	2	1.8	2.3
T2C355M1-6	160	980	267.71	94.8	0.91	1559.07	7.8	2	1.8	2.3
T2C 355M2-6	200	980	337.64	95	0.90	1948.84	7.8	2	1.8	2.3
T2C 355L-6	250	980	426.79	95	0.89	2436.05	7.8	2	1.8	2.3



# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

## Electrical data (50Hz) 2poles IE3

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	is/In	Cs/Cn	Cmin./Cn	Cmax/Cn
T3C 132S1-2	5.5	2905	10.00	89.2	0.89	18.08	7.8	2.4	2	2.9
T3C 132S2-2	7.5	2910	13.65	90.1	0.88	24.61	7.9	2.7	2	2.8
T3C 160M1-2	11	2920	19.34	91.2	0.90	35.97	7.9	2.2	2.1	3
T3C160M2-2	15	2918	25.89	91.9	0.91	49.09	7.9	2.3	2.1	3
T3C 160L-2	18.5	2922	31.41	92.4	0.92	60.46	8	2.4	2.1	2.9
T3C 180M-2	22	2930	38.49	92.7	0.89	71.70	7.5	2.3	2	2.8
T3C 200L1-2	30	2925	52.74	93.3	0.88	97.94	6.7	2.4	2	2.7
T3C 200L2-2	37	2930	63.33	93.7	0.90	120.59	6.3	2.3	2	2.7
T3C 225M-2	45	2930	78.52	94	0.88	146.66	6.9	2.3	2	2.8
T3C 250M-2	55	2940	95.67	94.3	0.88	178.64	8	2.3	1.9	2.7
T3C 280S-2	75	2940	124.26	94.7	0.92	243.60	8	2.2	1.9	2.7
T3C 280M-2	90	2940	148.64	95	0.92	292.33	7.7	2.2	1.9	2.6
T3C 315S-2	110	2940	185.31	95.2	0.90	357.29	7.7	2	1.8	2.3
T3C 315M-2	132	2940	219.47	95.4	0.91	428.74	7.6	2	1.8	2.3
T3C 315L1-2	160	2945	267.86	95.8	0.90	518.81	7.8	2	1.8	2.3
T3C 315L2-2	200	2945	338.58	95.8	0.89	648.51	7.9	2	1.8	2.3
T3C 355M-2	250	2945	418.53	95.8	0.90	810.64	7.8	2	1.8	2.3
T3C 355L-2	315	2945	533.27	95.8	0.89	1021.40	7.8	2	1.8	2.3

## Electrical data (50Hz) 4 poles IE3

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	is/In	Cs/Cn	Cmin./Cn	Cmax/Cn
T3C 132S-4	5.5	1430	10.81	89.6	0.82	36.73	7.1	2.3	2	2.8
T3C 132M-4	7.5	1430	14.43	90.4	0.83	50.08	7.8	2.3	2	2.7
T3C160M-4	11	1440	19.09	91.4	0.91	72.95	7.9	2.5	2.1	2.8
T3C 160L-4	15	1445	25.55	92.1	0.92	99.13	7.8	2.4	2.1	2.9
T3C 180M-4	18.5	1445	33.15	92.6	0.87	122.26	7.8	2.4	2.1	3
T3C 180L-4	22	1460	38.37	93	0.89	143.89	7.5	2.3	2	3
T3C 200L-4	30	1460	52.57	93.6	0.88	196.22	7.9	2.4	2	2.7
T3C 225S-4	37	1470	71.09	93.9	0.80	240.36	6.7	2.4	2	2.7
T3C 225M-4	45	1480	86.19	94.2	0.80	290.35	7	2.3	2	2.8
T3C 250M-4	55	1480	95.36	94.6	0.88	354.87	7.4	2.4	1.9	2.7
T3C 280S-4	75	1480	125.22	95	0.91	483.92	7.5	2.2	1.9	2.6
T3C 280M-4	90	1480	148.32	95.2	0.92	580.70	7.7	2.2	1.9	2.6
T3C 315S-4	110	1480	184.92	95.4	0.90	709.75	7.8	2	1.8	2.3
T3C 315M-4	132	1480	219.01	95.6	0.91	851.69	7.8	2	1.8	2.3
T3C 315L1-4	160	1480	264.91	95.8	0.91	1032.36	7.9	2	1.8	2.3
T3C 315L2-4	200	1480	334.12	96	0.90	1290.45	7.7	2	1.8	2.3
T3C 355M-4	250	1480	422.35	96	0.89	1613.06	7.9	2	1.8	2.3
T3C 355L-4	315	1480	526.25	96	0.90	2032.45	7.8	2	1.8	2.3



# ECOL TC Series - Three-Phase Asynchronous Single Speed Motors

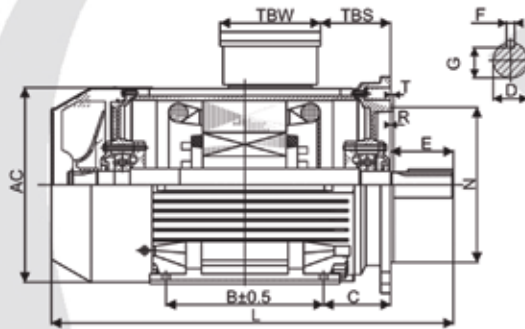
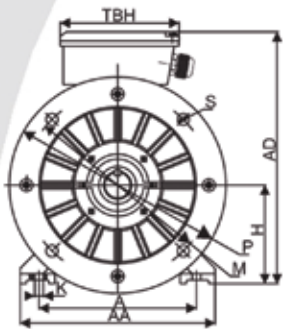
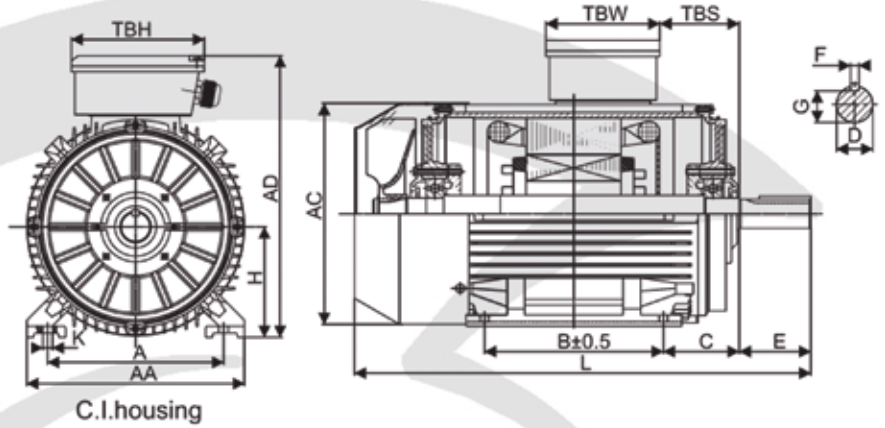
Electrical data (50Hz) 6 poles **IE3**

Frame size	Power(Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cosφ)	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin./Cn	Cmax/Cn
T3C 132S-6	3	940	6.09	85.6	0.83	30.48	6.3	2.4	2.2	2.8
T3C 132M1-6	4	945	7.92	86.8	0.84	40.42	6.2	2.5	2	2.8
T3C 132M2-6	5.5	945	11.00	88	0.82	55.58	6.8	2.3	1.9	2.8
T3C 160M-6	7.5	955	14.46	89.1	0.84	74.99	7	2.4	1.9	2.7
T3C 160L-6	11	960	20.69	90.3	0.85	109.42	7.3	2.5	2	2.8
T3C 180L-6	15	960	28.60	91.2	0.83	149.21	7.8	2.3	2.1	2.9
T3C 200L1-6	18.5	965	34.26	91.7	0.85	183.07	7.8	2.4	2.1	3.2
T3C 200L2-6	22	965	40.05	92.2	0.86	217.70	7.9	2.3	1.9	3.1
T3C 225M-6	30	975	54.84	92.9	0.85	293.82	7.9	2.2	1.9	2.7
T3C 250M-6	37	975	68.97	93.3	0.83	362.38	7.5	2.3	2.1	2.7
T3C 280S-6	45	980	80.61	93.7	0.86	438.49	7.2	2.3	2	2.8
T3C 280M1-6	55	980	98.10	94.1	0.86	535.93	7.7	2.2	1.9	2.7
T3C 315S-6	75	980	128.58	94.6	0.89	730.81	7.9	2.1	1.9	2.5
T3C 315M-6	90	980	152.10	94.9	0.90	876.98	8	2	1.8	2.3
T3C 315L1-6	110	980	185.51	95.1	0.90	1071.86	7.7	2	1.8	2.3
T3C 315L2-6	132	980	224.40	95.4	0.89	1286.23	8	2	1.8	2.3
T3C 355M1-6	160	980	265.47	95.6	0.91	1559.07	7.6	2	1.8	2.3
T3C 355M2-6	200	980	334.82	95.8	0.90	1948.84	7.8	2	1.8	2.3
T3C 355L-6	250	980	423.23	95.8	0.89	2436.05	7.8	2	1.8	2.3

# ECOL TC Series - Overall & Installation Dimensions

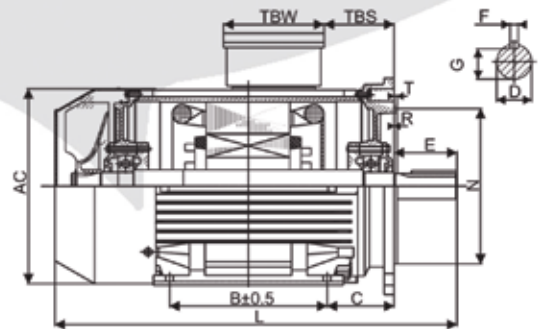
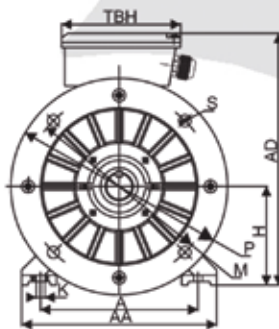
All dimensions in mm

ECOL TC B3  
Table 1



ECOL TC B35  
Table 2

ECOL TC B5  
Table 2



# ECOL TC Series - Overall installation dimension.

## Table 1

Frame size	B3				Shaft					General								
	H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH	
132SM	132	216	140/178	88	Ø38	80	10	33	Ø12	255	332	200	290	467/505	29	118	118	
160ML	160	254	210/254	108	Ø42	110	12	37	Ø15	314	402	242	313	605/650	91	162	167	
180ML	180	279	241/279	121	Ø48	110	14	42.5	Ø15	348	439	259	360	687/725	100/100	162	167	
200L	200	318	305	133	Ø55	110	18	49	Ø19	388	497	297	399	788	152	188	233	
225S	4,8	225	356	288	149	Ø60	140	18	53	Ø19	436	553	328	465	814	190	186	233
	2	225	356	311	149	Ø55	110	18	49	Ø19	436	553	328	465	809	202	186	233
225M	4,6,8	225	356	311	149	Ø60	140	18	53	Ø19	436	553	328	465	838	202	186	233
	2	250	406	349	168	Ø60	140	18	53	Ø24	484	616	388	506	918	233	218	260
250M	4,6,8	250	406	349	168	Ø65	140	18	58	Ø24	484	616	388	506	918	233	218	260
	2	280	457	388/419	190	Ø65	140	18	58	Ø24	557	668	388	559	984/1035	265	218	260
280S/M	4,6,8	280	457	388/419	190	Ø75	140	20	67.5	Ø24	557	668	388	559	984/1035	265	218	260
	2	315	508	406	216	Ø65	140	18	58	Ø28	630	845	530	680	1205	130	280	320
315S	4,6,8	315	508	406	216	Ø80	170	22	71	Ø28	630	845	530	680	1235	130	280	320
	2	315	508	457/508	218	Ø65	140	18	58	Ø28	630	845	530	680	1355	130	280	320
315ML	4,6,8	315	508	457/508	218	Ø80	170	22	71	Ø28	630	845	530	680	1385	130	280	320
	2	355	610	580/630	254	Ø75	140	20	67.5	Ø28	740	1010	655	820	1500	HO	330	380
355ML	4,6,8	355	610	560/630	254	Ø100	210	28	90	Ø28	740	1010	655	820	1570	140	330	380

## Table 2

Frame size	B5						B14					
	N	M	P	S	T	R	N	M	P	S	T	R
132SM	230	265	300	4-Ø15	4	0	130	165	196	M10	3.5	0
160ML	250	300	330	4-Ø19	5	0						
180ML	250	300	330	4-Ø19	5	0						
200L	300	350	400	4-Ø19	5	0						
225S	4,8	350	400	8-Ø19	5	0						
225M	2	350	400	8-Ø19	5	0						
	4,6,8	350	400	8-Ø19	5	0						
250M	2	450	500	8-Ø19	5	0						
	4,6,8	450	500	8-Ø19	5	0						
280S/M	2	450	500	8-Ø19	5	0						
	4,6,8	450	500	8-Ø19	5	0						
355ML	2	550	600	8-Ø24	6	0						

# ECOL “TA” DESIGN



## ELECTRICAL AND DIMENSIONAL DATA

ECOL “TA” Motors are the latest high efficient aluminium design asynchronous design from the TECHTOP factory. The ECOL TA motors are lightweight yet rugged and suitable for many applications including pumps, fans, compressors, mining, agricultural, maritime, hydraulic and many more.



# ECOL TA SERIES - Three-Phase asynchronous single speed motors

Electrical data (50hz) 2 pole **IE2**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T2A 801-2	0.75	2848	1.86	77.4	0.75	2.51	6	2.7	2.1	2.8
T2A 802-2	1.1	2846	2.52	79.6	0.79	3.69	6.7	2.7	2.1	2.9
T2A 90S-2	1.5	2852	3.17	81.3	0.84	5.02	6.1	2.3	2	2.7
T2A 90L-2	2.2	2845	4.54	83.2	0.84	7.38	7	2.6	2.1	2.7
T2A 100L-2	3	2851	5.75	84.6	0.89	10.05	7.6	2.5	2	2.8
T2A 112M-2	4	2910	7.56	85.8	0.89	13.13	7.8	2.5	2	2.7
T2A 132S1-2	5.5	2905	10.25	87	0.89	18.08	7.8	2.4	2	2.9
T2A 132S2-2	7.5	2910	13.96	88.1	0.88	24.61	7.9	2.7	2	2.8
T2A 160M1-2	11	2920	19.73	89.4	0.90	35.97	7.9	2.2	2.1	3
T2A 160M2-2	15	2918	26.35	90.3	0.91	49.09	7.9	2.3	2.1	3
T2A 160L-2	18.5	2922	31.93	90.9	0.92	60.46	8	2.4	2.1	2.9
T2A 180M-2	22	2930	39.08	91.3	0.89	71.70	7.5	2.3	2	2.8
T2A 200L1-2	30	2925	53.49	92	0.88	97.94	6.7	2.4	2	2.7
T2A 200L2-2	37	2930	64.15	92.5	0.90	120.59	6.3	2.3	2	2.7

Electrical data (50hz) 4 pole **IE2**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T2A 802-4	0.75	1420	1.79	79.6	0.76	5.04	5.4	2.3	2.1	2.9
T2A 90S-4	1.1	1425	2.50	81.4	0.78	7.37	5.9	2.3	2.1	2.7
T2A 90L-4	1.5	1420	3.31	82.8	0.79	10.09	6.4	2.4	2	2.7
T2A 100L1-4	2.2	1430	4.59	84.3	0.82	14.69	6.6	2.4	2.1	2.9
T2A 100L2-4	3	1430	6.33	85.5	0.80	20.03	6.9	2.4	2	2.8
T2A 112M-4	4	1435	8.44	86.6	0.79	26.62	7.9	2.5	2	3
T2A 132S-4	5.5	1430	11.04	87.7	0.82	36.73	7.1	2.3	2	2.8
T2A 132M-4	7.5	1430	14.70	88.7	0.83	50.08	7.8	2.3	2	2.7
T2A 160M-4	11	1440	19.43	89.8	0.91	72.95	7.9	2.5	2.1	2.8
T2A 160L-4	15	1445	25.92	90.8	0.92	99.13	7.8	2.4	2.1	2.9
T2A 180M-4	18.5	1445	33.66	91.2	0.87	122.26	7.8	2.4	2.1	3
T2A 180L-4	22	1460	38.95	91.6	0.89	143.89	7.5	2.3	2	3
T2A 200L-4	30	1460	55.31	92.3	0.88	196.22	7.9	2.4	2	2.7

# ECOL TA SERIES - Three-Phase asynchronous single speed motors

Electrical data (50hz) 6 pole **IE2**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T2A 90S-6	0.75	935	1.88	75.9	0.76	7.66	6.2	2.2	2	2.7
T2A 90L-6	1.1	935	2.54	78.1	0.80	11.23	6	2.3	2.1	2.6
T2A 100L-6	1.5	940	3.31	79.8	0.82	15.24	5.8	2.3	2.1	2.7
T2A 112M-6	2.2	940	4.85	81.8	0.80	22.35	6.4	2.3	2.1	2.9
T2A 132S-6	3	940	6.26	83.3	0.83	30.48	6.3	2.4	2.2	2.8
T2A 132M1-6	4	945	8.12	84.6	0.84	40.42	6.2	2.5	2	2.8
T2A 132M2-6	5.5	945	11.26	86	0.82	55.58	6.8	2.3	1.9	2.8
T2A 160M-6	7.5	955	14.78	87.2	0.84	74.99	7	2.4	1.9	2.7
T2A 160L-6	11	960	21.06	88.7	0.85	109.42	7.3	2.5	2	2.8
T2A 180L-6	15	960	29.08	89.7	0.83	149.21	7.8	2.3	2.1	2.9
T2A 200L1-6	18.5	965	34.75	90.4	0.85	183.07	7.8	2.4	2.1	3.2
T2A 200L2-6	22	965	40.62	90.9	0.86	217.70	7.9	2.3	1.9	3.1

# ECOL TA SERIES - Three-Phase asynchronous single speed motors

## Electrical data (50hz) 2 pole **IE3**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T3A 801-2	0.75	2848	1.79	80.7	0.75	2.51	6	2.7	2.1	2.8
T3A 802-2	1.1	2846	2.43	82.7	0.79	3.69	6.7	2.7	2.1	2.9
T3A 90S-2	1.5	2852	3.06	84.3	0.84	5.02	6.1	2.3	2	2.7
T3A 90L-2	2.2	2845	4.40	85.9	0.84	7.38	7	2.6	2.1	2.7
T3A 100L-2	3	2851	5.59	87.1	0.89	10.05	7.6	2.5	2	2.8
T3A112M-2	4	2910	7.36	88.1	0.89	13.13	7.8	2.5	2	2.7
T3A 132S1-2	5.5	2905	10.00	89.2	0.89	18.08	7.8	2.4	2	2.9
T3A 132S2-2	7.5	2910	13.65	90.1	0.88	24.61	7.9	2.7	2	2.8
T3A 160M1-2	11	2920	19.34	91.2	0.90	35.97	7.9	2.2	2.1	3
T3A 160M2-2	15	2918	25.89	91.9	0.91	49.09	7.9	2.3	2.1	3
T3A 160L-2	18.5	2922	31.41	92.4	0.92	60.46	8	2.4	2.1	2.9
T3A 180M-2	22	2930	38.49	92.7	0.89	71.70	7.5	2.3	2	2.8
T3A 200L1-2	30	2925	52.74	93.3	0.88	97.94	6.7	2.4	2	2.7
T3A 200L2-2	37	2930	63.33	93.7	0.90	120.59	6.3	2.3	2	2.7

## Electrical data (50hz) 4 pole **IE3**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T3A 802-4	0.75	1420	1.73	82.5	0.76	5.04	5.4	2.3	2.1	2.9
T3A 90S-4	1.1	1425	2.42	84.1	0.78	7.37	5.9	2.3	2.1	2.7
T3A 90L-4	1.5	1420	3.21	85.3	0.79	10.09	6.4	2.4	2	2.7
T3A 100L1-4	2.2	1430	4.47	86.7	0.82	14.69	6.6	2.4	2.1	2.9
T3A 100L2-4	3	1430	6.17	87.7	0.80	20.03	6.9	2.4	2	2.8
T3A 112M-4	4	1435	8.25	88.6	0.79	26.62	7.9	2.5	2	3
T3A 132S-4	5.5	1430	10.81	89.6	0.82	36.73	7.1	2.3	2	2.8
T3A 132M-4	7.5	1430	14.43	90.4	0.83	50.08	7.8	2.3	2	2.7
T3A 160M-4	11	1440	19.09	91.4	0.91	72.95	7.9	2.5	2.1	2.8
T3A 160L-4	15	1445	25.55	92.1	0.92	99.13	7.8	2.4	2.1	2.9
T3A 180M-4	18.5	1445	33.15	92.6	0.87	122.26	7.8	2.4	2.1	3
T3A 180L-4	22	1460	38.37	93	0.89	143.89	7.5	2.3	2	3
T3A 200L-4	30	1460	52.57	93.6	0.88	196.22	7.9	2.4	2	2.7

# ECOL TA SERIES - Three-Phase asynchronous single speed motors

Electrical data (50hz) 6 pole **IE3**

Frame Size	Power (Kw)	rpm (rpm/min)	Current In(A) 400V	Eff. (%)	Power factor (cos $\phi$ )	Torque Cn (Nm)	Is/In	Cs/Cn	Cmin/Cn	Cmax/Cn
T3A 90S-6	0.75	935	1.81	78.9	0.78	7.66	6.2	2.2	2	2
T3A 90L-6	1.1	935	2.45	81	0.80	11.23	6	2.3	2.1	2.1
T3A 100L-6	1.5	940	3.20	82.5	0.82	15.24	5.8	2.3	2.1	2.1
T3A 112M-6	2.2	940	4.71	84.3	0.80	22.35	6.4	2.3	2.1	2.1
T3A 132S-6	3	940	6.09	85.6	0.83	30.48	6.3	2.4	2.2	2.2
T3A 132M1-6	4	945	7.92	86.8	0.84	40.42	6.2	2.5	2	2
T3A 132M2-6	5.5	945	11.00	88	0.82	55.58	6.6	2.3	1.9	1.9
T3A 160M-6	7.5	955	14.46	89.1	0.84	74.99	7	2.4	1.9	1.9
T3A 160L-6	11	960	20.69	90.3	0.85	109.42	7.3	2.5	2	2
T3A 180L-6	15	960	28.60	91.2	0.83	149.21	7.8	2.3	2.1	2.1
T3A 200L1-6	18.5	965	34.26	91.7	0.85	183.07	7.8	2.4	2.1	2.1
T3A 200L2-6	22	965	40.05	92.2	0.86	217.70	7.9	2.3	1.9	1.9

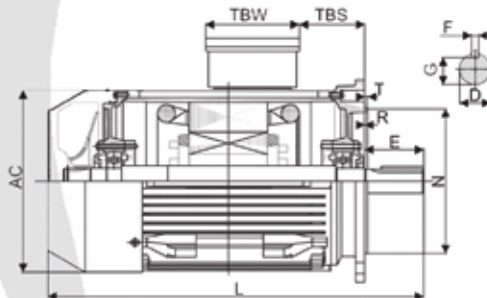
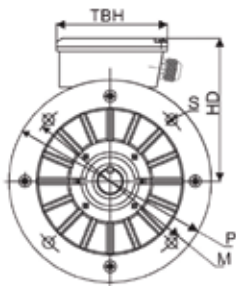
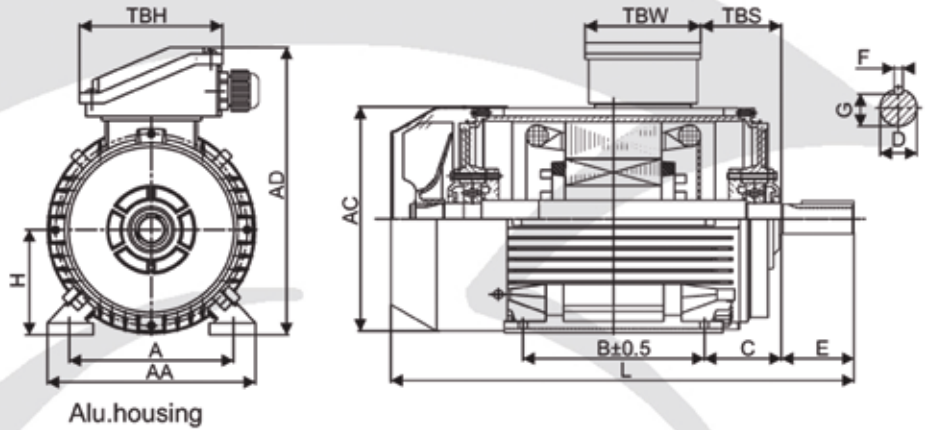


# ECOL TA SERIES - Overall & Installation dimension

All dimensions in mm

ECOL TA B3

Table 1

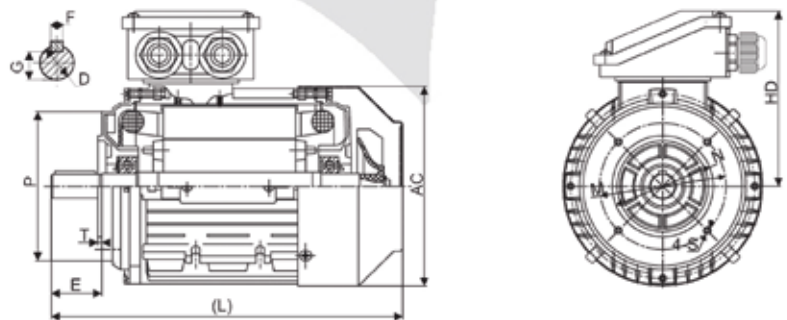


ECOL TA B5

Table 2

ECOL TA B14

Table 2



# ECOL TA SERIES - Overall & Installation dimension

## Table 1

Frame size	B3				Shaft					General							
	H	A	B	C	D	E	F	G	K	AA	AD	HD	AC	L	TBS	TBW	TBH
80	80	125	100	50	Ø19	40	6	15.5	Ø9	160	220	140	158	280	16	97	97
90S/L	90	140	100/125	56	Ø24	50	8	20	Ø10	175	240	150	176	325/350	16	97	97
100	100	160	140	63	Ø28	60	8	24	Ø12	200	265	165	199	388	20	118	118
112	112	190	140	70	Ø28	60	8	24	Ø12	230	291	179	220	405	29	118	118
132S/M	132	216	140/178	89	Ø38	80	10	33	Ø12	255	332	200	259	467/505	29	118	118
160M/L	160	254	210/254	108	Ø42	110	12	37	Ø15	314	402	242	313	605/650	91	162	187
180M/L	180	279	241/279	121	Ø48	110	14	42.5	Ø15	348	439	259	360	687/725	160/180	162	187
200L	200	318	305	133	Ø55	110	16	49	Ø19	388	497	297	399	768	192	186	233

## Table 2

Frame size	B5						B14					
	N	M	P	S	T	R	N	M	P	S	T	R
80	130	165	198	4-Ø12	3.5	0	80	100	118	M6	3	0
90S/L	130	165	198	4-Ø12	3.5	0	95	115	138	M8	3	0
100	180	215	250	4-Ø15	4	0	110	130	158	M8	3.5	0
112	180	215	250	4-Ø15	4	0	110	130	158	M8	3.5	0
132S/M	230	265	300	4-Ø15	4	0	130	165	198	M10	3.5	0
160M/L	250	300	350	4-Ø19	5	0						0
180M/L	250	300	350	4-Ø19	5	0						0
200L	300	350	400	4-Ø19	5	0						0

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