COEL®

2000 General Catalogue

Move And Stop

25th anniversary edition

Introduction

We have been generating and halting movement for twenty-five years

*For 25 years now, **COEL** has been synonymous with quality and reliability in the field of design and manufacturing of asynchronous self-braking electric motors, with externally ventilated closed structure.*
*Today as always for the past, every component of the motor and brake is entirely manufactured by **COEL** with the clear objective of making each motor the optimal result of the sum of painstakingly combined components; this means that the **COEL** self-braking motor is exactly that, guaranteeing an efficient working in all those cases in which even extreme stress of the brake mustn't influence reliability.*
*In twenty-five years, continuous development and the resulting improvements brought to products and to the working processes for the different components, have permitted us to reach high quality levels and have made the **COEL** motor a clear example of technology rationally applied to serviceability.*
*Who today makes **COEL** his choice, decides to work in safety with an always attentive partner, capable of offering valid service and constant co-operation; our Web site (www.coelmotori.it), furthermore, supplies all those pieces of information, of particular interest, for start-up and maintenance of our motors, so that our customers can rely on an immediate technical support, accessible at any time.*
*The wide range of **COEL** self-braking motors guarantees flexible usage in the most diverse applications. From lifting equipment to shifting equipment, in the textile area, in the carpentry field, for packaging machines, on automatic devices, in the pottery sector, the **COEL** motor is synonymous with safety and reliability.*
In order to satisfy all customer needs and make their motors suitable for every specific application, Coel Motori studies and manufactures also customized executions.

General information

STANDARD MOTOR FEATURES

- IP 54 protection level (higher upon request).
- F thermal class insulating materials (higher upon request).
- All the motors in the F-FL series come equipped with brake release levers, to allow for the manual rotation of the shaft, and thickness gauge to regulate the magnetic gap of the brake group (available on the FK-FKL series on request).
- All motors can be equipped upon request with double terminal box for separate power supply to the brake, dual-metal thermal protections, ptc, condense preventing resistors.
- Upon request we can equip motors with "P" rotor to increase start-up torque.
- Upon request we can supply motors with powers and polarities not mentioned in our catalogue.
- All COEL motors are suitable to be controlled by inverters.

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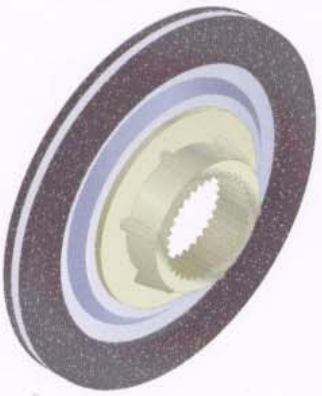
General technical features

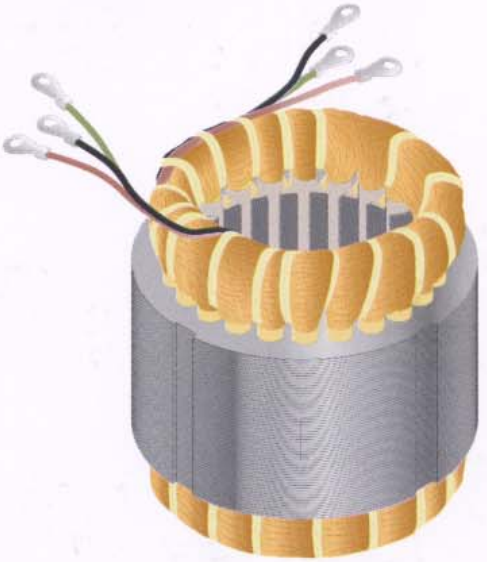


Frictional materials we use do not contain noxious elements and substances

Brake disks are built with linings whose mixes have been studied to guarantee high braking torque and, at the same time, long brake life.

The plates used are exclusively magnetic

Our objective is to guarantee that customer will always have maximum yield from our motors; for this reason we use exclusively high quality magnetic plates which contribute to ensure efficiency and moderate energy consumption.



Bearings

Bearings are the component which must withstand grater part of mechanical stresses; COEL, consequently, in building its motors makes use exclusively of first rate bearings, which offer exceptional performances in terms of noiselessness and duration.

Motor shafts

Especially on self-braking motors, the shaft is subject to continuous spinning and braking which make influence of radial load and torsion taxing. For this reason, great resistance is a must for the motor shaft; foregoing this feature means risking motor safety and, consequently, that of the transmission gears to which it is connected as well as that of the machines on which it is installed.
In order to avoid such inconveniences, COEL uses motor shafts made of 38NCD4 type steel (see UNI 4365).

Electromagnets

All the electromagnets are encapsulated with thermal class H epoxy resin and have protection level IP66. Our experience showed that protecting the electromagnets with resin was the best solution in order to obtain a long electromagnet life and a higher level of noiselessness of the braking group when the same is in operation.

Performance data

Rating: refers to the mechanical power measured at the shaft expressed in Watts or in horsepower (HP).
Voltage rating: refers to the tension applied to the motor terminals and is indicated on the motor rating plate.
Phase angle φ: in the three-phase electric power supply system it corresponds to the angle between voltage vector and current vector; it is indicated by means of the Greek character "fi" and its cosine is the value that identifies the power factor.
Yield: it is given by the ratio between actual power absorbed by the motor and that yielded, and is expressed in percentage; all COEL motors are built with low loss magnetic plates.

Synchronism speed: it is obtained by the formula

$$n° = \frac{f120}{p} \text{ rpm}$$

f = power supply frequency
p = number of poles

Starting torque: the minimum torque that the motor can provide with a blocked rotor, with voltage rating feed and rated frequency.
Maximum torque: refers to the maximum torque the motor can develop while it operates with voltage rating feed and rated frequency.
Torque rating: refers to the torque that corresponds to the rating and the turn rating. The value of the torque rating is obtained by the formula:

$$Cn = 974 \frac{Pn}{n} \text{ (kgm)}$$

Pn = the rating expressed in KW
n = the speed of rotation expressed in revs per minute.

Tolerances

[see table of "Overall dimensions" of F-FL, FK-FKL series]

Shaft ends: the D form, for all constructive forms, is subject to the following tolerances:

mm	9-28	30-48	49-55
tolerances	j6	k6	m6

Flange: the 'N' dimension, both for the B5 and B14 forms and their derivatives, is subject to a j6 tolerance up to and including a diameter of 230mm; h6 tolerance for larger diameters.
To understand the meaning of the j6, k6, m6 symbols, see norm UNI 4679. For the sizes of the side keys corresponding to the diameter of each shaft end, see norm UNEL Pr 1720.

F-FL-FK-FKL series motor bearings

Series F- FL

Type	Front	Back
71	6203ZZ	6004ZZ
80	6204ZZ	6204ZZ
90	6205ZZ	6205ZZ
100	6206ZZ	6205ZZ
112	6207ZZ	6207ZZ
132	6308ZZ	6208ZZ
160	6309ZZ	6309ZZ

Series FK- FKL

Type	Front	Back
56	6201ZZ	6201ZZ
63	6202ZZ	6202ZZ
71	6202ZZ	6203ZZ
80	6204ZZ	6204ZZ
90	6205ZZ	6205ZZ
100	6206ZZ	6206ZZ
112	6207ZZ	6207ZZ

Type of service

Continuous duty (S1): the motor operates at a constant charge for the length of time sufficient to reach a thermal balance.

Limited duration duty (S2): the motor operates at a constant charge for a limited length of time insufficient to reach a thermal balance. There then follows a period of rest sufficient enough to allow the motor to return to room temperature.

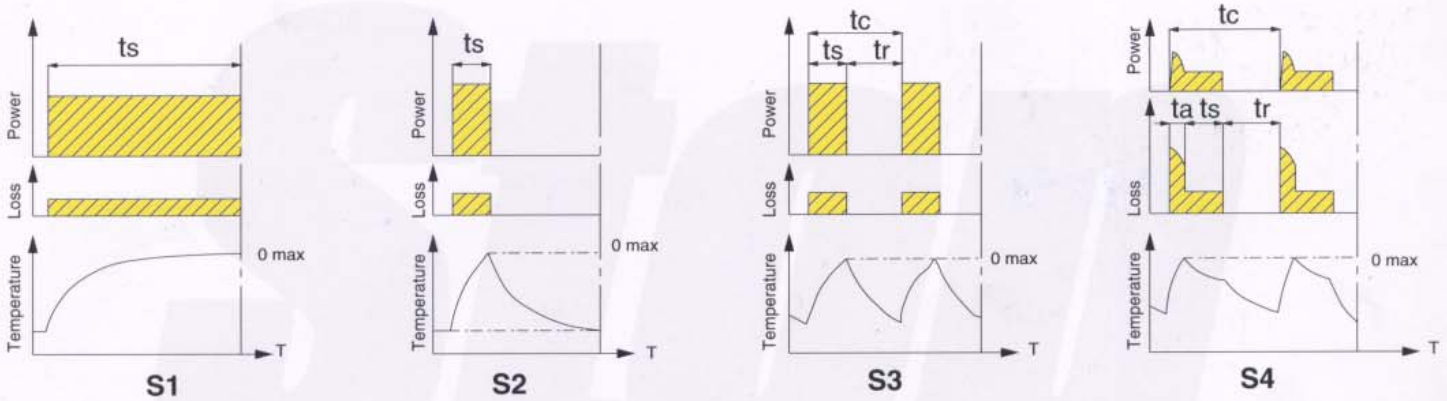
Periodic alternating duty (S3): the motor operates according to a cycle which includes a period of time at a constant charge (ts) and the rest time (tr). The synthetic indication of duty is provided by the percentage intermittence ratio compared to the length of reference time which is normally 60 minutes (eg. 15% - 60 min).

$$\text{intermittence ratio} = \frac{ta}{ts + tr}\ 100\ (\%)$$

Periodic alternating duty with start-ups that affect the heating of the motor (S4): the motor operates according to a cycle that includes a notable start-up time (ta), operating time at a constant charge (ts) and a rest time (tr).

$$\text{intermittence ratio} = \frac{ta + ts}{ta + ts + tr}\ 100\ (\%)$$

In this case, the synthetic condition of the duty must be accompanied by the number of inserts per hour.



tc Cycle duration
ts Operating time at a constant power
0max Maximum temperature reached
ta Start-up and acceleration time
tr Rest time

Motor operating at 60 Hz

(Electromagnets should be required for 60Hz)

A motor coiled up for a certain tension at 50 Hz can be used also at 60 Hz. without modifications.
In this case, the data of the motor change as indicated in the following table:

Motorcoiled up for 50 Hz and	Connected at 60 Hz and	Data at 60 Hz as % of values at 50 Hz						
		power	r/min	I_N	I_S/I_N	T_N	T_S/T_N	T_{max}/T_N [1]
220 V	220 V	100	120	98	83	83	70	85
	255V	115	120	100	100	96	95	98
380 V	380 V	100	120	98	83	83	70	85
	415 V	110	120	98	95	91	85	93
	440 V	115	120	100	100	96	95	98
	460 V	120	120	100	105	100	100	103
400 V	380 V	100	120	100	80	83	66	80
	400 V	100	120	98	83	83	70	85
	415 V	105	120	100	88	86	78	88
	440 V	110	120	100	95	91	85	93
	460 V	115	120	100	100	96	95	98
	480 V	120	120	100	105	100	100	100
415 V	415 V	100	120	98	83	83	70	85
	460 V	110	120	98	95	91	85	94
	480 V	115	120	100	100	96	95	98
500 V	500 V	100	120	98	83	83	70	85
	550 V	110	120	98	95	91	85	94
	575 V	115	120	100	100	96	95	98
	600 V	120	120	100	105	100	100	103

Performance, power factor and the over-the-limit temperature will more or less be similar to the ones for 50 Hz.

1) I_N = rated current
I_S/I_N = start-up current/rated current
T_N = torque rating
T_S/T_N = maximum torque/torque rating
T_{max}/T_N = start-up torque/torque rating

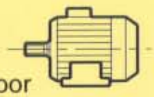
Asynchronous motors - Structure

Fixing manners and positions (according to IEC 34-7 Norms)

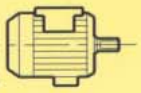
Motors with fixing pins

* All axis heights

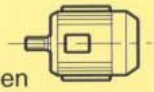
IM 1001 (IM B3)
- Horizontal shaft
- Pins resting on the floor



IM 1071 (IM B8)
- Horizontal shaft
- Pins positioned upwards

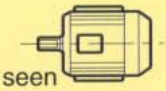


IM 1051 (IM B6)
- Horizontal shaft
- Pins resting against the wall on the left seen from the shaft end

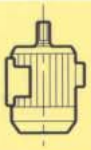


IM 1011 (IM V5)
- Shaft vertical downwards
- Pins resting against the wall

IM 1061 (IM B7)
- Horizontal shaft
- Pins resting against the wall on the right seen from the shaft end

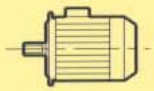


IM 1031 (IM V6)
- Shaft vertical upwards
- Pins resting against the wall

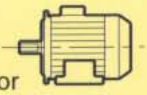


Flanged motors with through fastening holes

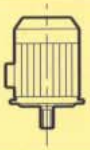
IM 3001 (IM B5)
- Horizontal shaft



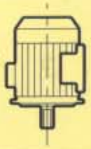
IM 2001 (IM B35)
- Horizontal shaft
- Pins resting on the floor



IM 3011 (IM V1)
- Shaft vertical downwards

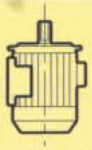


IM 2011 (IM V15)
- Shaft vertical downwards
- Pins resting against the wall



IM 3031 (IM V3)
- Shaft vertical upwards

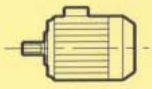
IM 2031 (IM V36)
- Shaft vertical upwards
- Pins resting against the wall



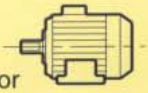
Flanged motors with threaded fastening holes

* Axis height ≤ 160 mm

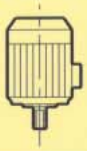
IM 3601 (IM B14)
- Horizontal shaft



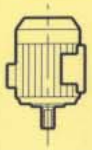
IM 2101 (IM B34)
- Horizontal shaft
- Pins resting on the floor



IM 3611 (IM V18)
- Shaft vertical downwards



IM 2111 (IM V58)
- Shaft vertical downwards
- Pins resting against the wall

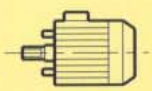


IM 3631 (IM V19)
- Shaft vertical upwards

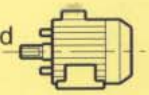
IM 2131 (IM V69)
- Shaft vertical upwards
- Pins resting against the wall

Motors without front flange

IM 9101 (IM B9)
- With threaded fastening rods
- Horizontal shaft



IM 1201 (IM B15)
- With fastening pins and threaded rods
- Horizontal shaft



Asynchronous motors - Ambiance

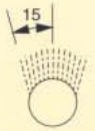
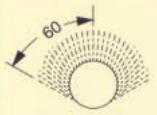
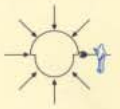
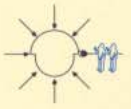
Definition of protection levels (IP)

Protection levels for electric components sheatings

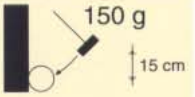
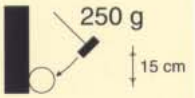
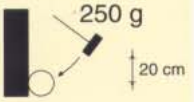
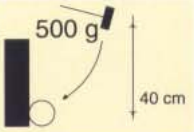
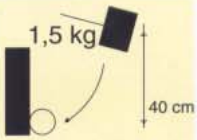
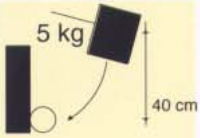
1st digit : Protection from solid bodies

IP	Tests	Definition
0		No protection
1	ø 50 mm. 	Protected from solid bodies thicker than 50 mm (ex: unintentional contact with hands)
2	ø 12 mm. 	Protected from solid bodies thicker than 12 mm (ex.: finger)
3	ø 2.5 mm. 	Protected from solid bodies thicker than 2,5 mm (ex.: tools, cables)
4	ø 1 mm. 	Protected from solid bodies thicker than 1 mm (ex.: small tools, thin wires)
5		Protected from dust (ex.: no noxious deposits)

2nd digit : Protection from fluids

IP	Tests	Definition
0		No protection
1		Protected from vertically falling drops (condense)
2		Protected from drops falling up to 15° from the vertical
3		Protected from rain drops falling up to 60° from the vertical
4		Protected from water projections from any direction
5		Protected from water sprayed from any direction with a nozzle
6		Protected from water projections similar to sea waves

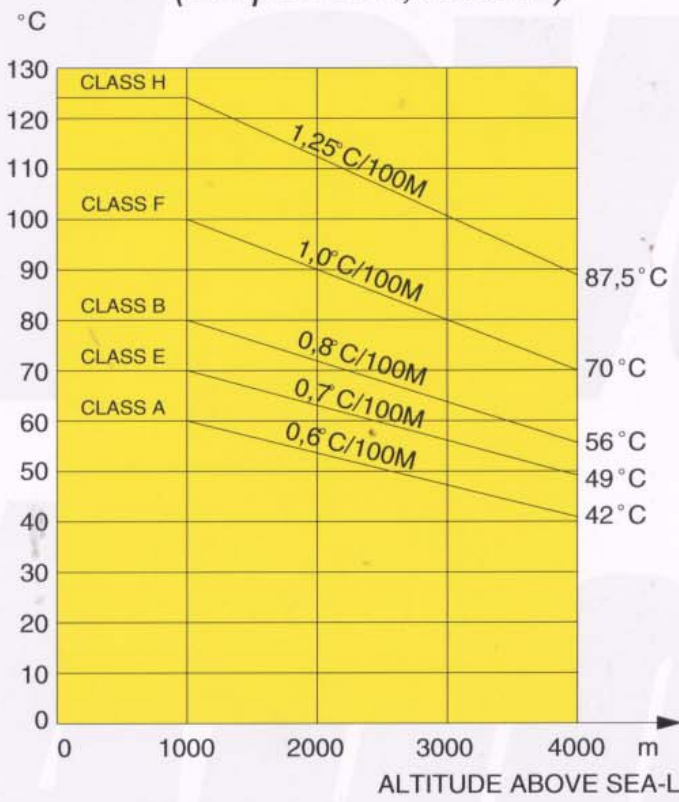
3rd digit : Mechanical protection

IP	Tests	Definition
0		No protection
1		Collision energy: 0.225 J
2		Collision energy: 0.375 J
3		Collision energy: 0.500 J
5		Collision energy: 2 J
7		Collision energy: 6 J
9		Collision energy: 20 J

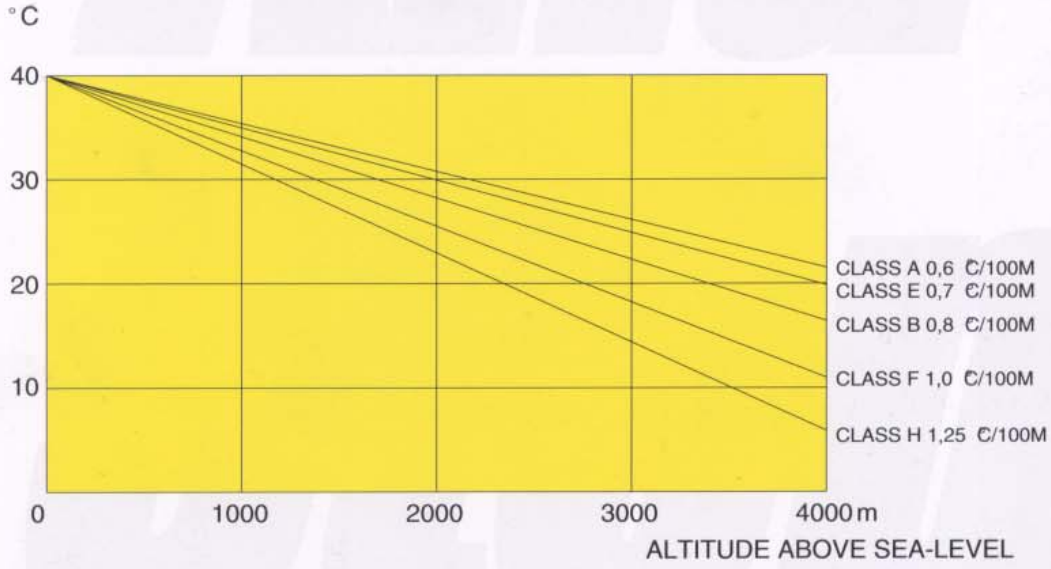
Standard configuration for motors in the F-FL series is IP 54

Asynchronous motors - Ambiance

Operation on the basis of environment conditions (temperature, altitude)



Limits in excess temperatures depending on the altitude at installation for trials carried out at altitudes of less than 1000m, for machinery meant for installation at up to 4000m (coolant temperature 40°C).



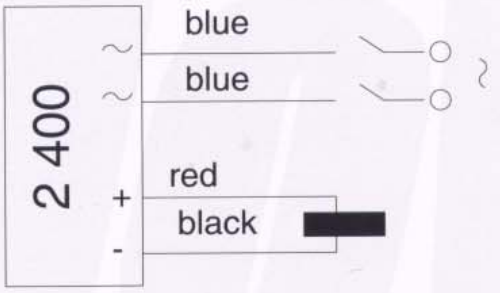
Changes in temperature of cooling air depending on altitude necessary for maintaining the excess temperature, valid up to 100m, also for altitudes between 1000 and 4000m.

In cases to be determined, in order to protect the motor from dangerous excess temperatures, it is advisable to use dual-metal, or ptc. thermal protections.

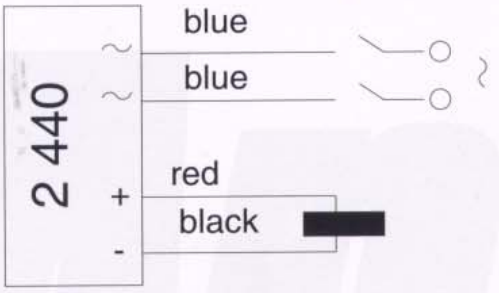
F-FK MOTORS ARE STANDARD IN "F" CLASS

Feeders for D.C. electromagnet

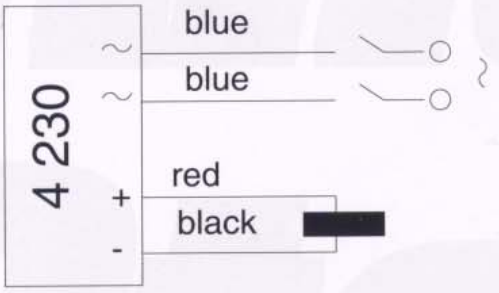
All motors with D.C. electromagnet are supplied with feeder placed in the terminal block box; depending on the electromagnet's type, the rectifier (feeder) varies as specified below.



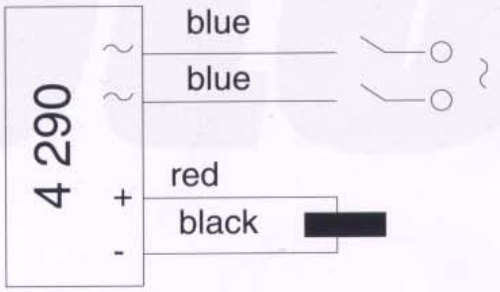
Half-wave rectifier with four terminals for motors with brake power supply on the same terminal block as that of the motor



Half-wave rectifier with four terminals (upon request available with five terminals) for motors with power supply separate from that of the motor



Whole wave rectifier with four terminals for motors with brake power supply on the same terminal block as that of the motor



Whole wave rectifier with four terminals (upon request available with five terminals) for motors with power supply separate from that of the motor

Installation and maintenance

Correct installation of the motor and of the mechanical components coupled with it is the indispensable condition for correct motor operation and long life.
The motor should be handled with care, avoiding all hard blows, particularly to the shaft
Before coupling the motor with other mechanical components be sure that all parts interested by the coupling itself have been accurately cleaned and eventually treated with the relevant products.
The motor should be installed in a position that permits correct ventilation of the same: the air flow should therefore not be hindered; check that flatness and axiality between joints is perfect and always connect the earth wire.
Verify that the electrical system and the section of the cables necessary to supply power to the motor are suitable to starting up of the same as indicated by the plate ratings.

COEL motors are studied to reduce maintenance as much as possible; we suggest, anyway, periodical cleaning of the motor (of its shell as well), particularly in those cases where the motor operates in expecially dusty and dirty environments.

We suggest, for a correct operation of the braking group and consequent long motor life, that the magnetic gap between mobile anchor and electromagnet be periodically adjusted: it should never overstep the value of 0,5 mm (we suggest a check every 6 months and, at any rate, not over 500.000 brakings – see specific instructions in the present catalogue).

At any rate, installation, inspection and maintenance of the electric motors should be undertaken only by specialized technical staff (for the definition of technical staff see IEC 364, CEI 64-8, EN 60204-1) only once all electrically powered machine parts have been disconnected.
Failing to undertake the necessary safety, inspection and maintenance measures could cause damages to persons and things; it is part of the duties of the specialized personnel to inform the maintenance and plant supervisor(s) of eventual anomalies, such as excessive vibrations, high level noises, absorption higher than rating, motor temperature levels higher than usual.
All COEL motors are supplied with the relevant use and maintenance instruction manual; for any additional technical information contact COEL MOTORI S.r.l.

Warranty

COEL MOTORI S.r.l., thanks to the rigorous controls to which materials and construction phases are subject, is able to maintain within a statistically very low value the percentage of motors returned under warranty.

Should any imperfection or defect turn up, either electrical or mechanical, which we recognize are not due to customer's lack of skill in installing or using the motor itself, COEL MOTORI S.r.l. pledges itself to restore its products, free of charges, with the shortest possible delay; all repairs and pieces of work covered by warranty must be effected in our factory.

Warranty period amounts to 12 months beginning on delivery date and in no instance, even if the motor has not been used, can warranty terms be protracted (subsection 1512 civil code).

Asynchronous motors

Reference norms

Reference	Date	Contents
IEC 34-1	1994	Rotary electrical machines: ascribed and operating features.
IEC 34-5	1981	Rotary electrical machines: classification of protection levels as provided by coating protection indexes for electrical machines.
IEC 34-6	1991	Rotary electrical machines (except traction): cooling methods.
IEC 34-7	1992	Rotary electrical machines (except traction): symbols for constructive forms and assembly devices.
IEC 34-8	1972	Rotary electrical machines: identification of farthest point and rotation direction.
IEC 34-9	1997	Rotary electrical machines: noise levels.
IEC 34-12	1999	Starting features of casing-structured three-phase asynchronous motors, single speed, 50 Hz and tension lower than or equal to 660 V
IEC 34-14	1996	Rotary electrical machines: mechanical vibrations in some machines with axis height higher than or equal to 56 mm. Measurement, evaluation and limits of vibration intensity.
IEC 38-1	1994	IEC standard tensions.
IEC 72-1	1991	Dimensions and power ranges of rotary electrical machines: designation of frameworks between 56 and 400 and of flanges between 55 and 1080.
IEC 34-2	1996	Determination methods using loss and performance tests
IEC 892	1987	Consequences of an unbalanced tension systems on features of casing-structured three-phase asynchronous motors.
IEC 1000 2-1 and 2	1990	Electromagnetic compatibility (CEM): environment.
Guide 106 IEC	1989	Guide to specification of environmental conditions for fixing of the materials functioning features.
IEC 721-2-1	1982	Classification nature's environmental conditions. Temperature and humidity.
IEC85	1984	Thermal evaluation and classification of electrical insulation

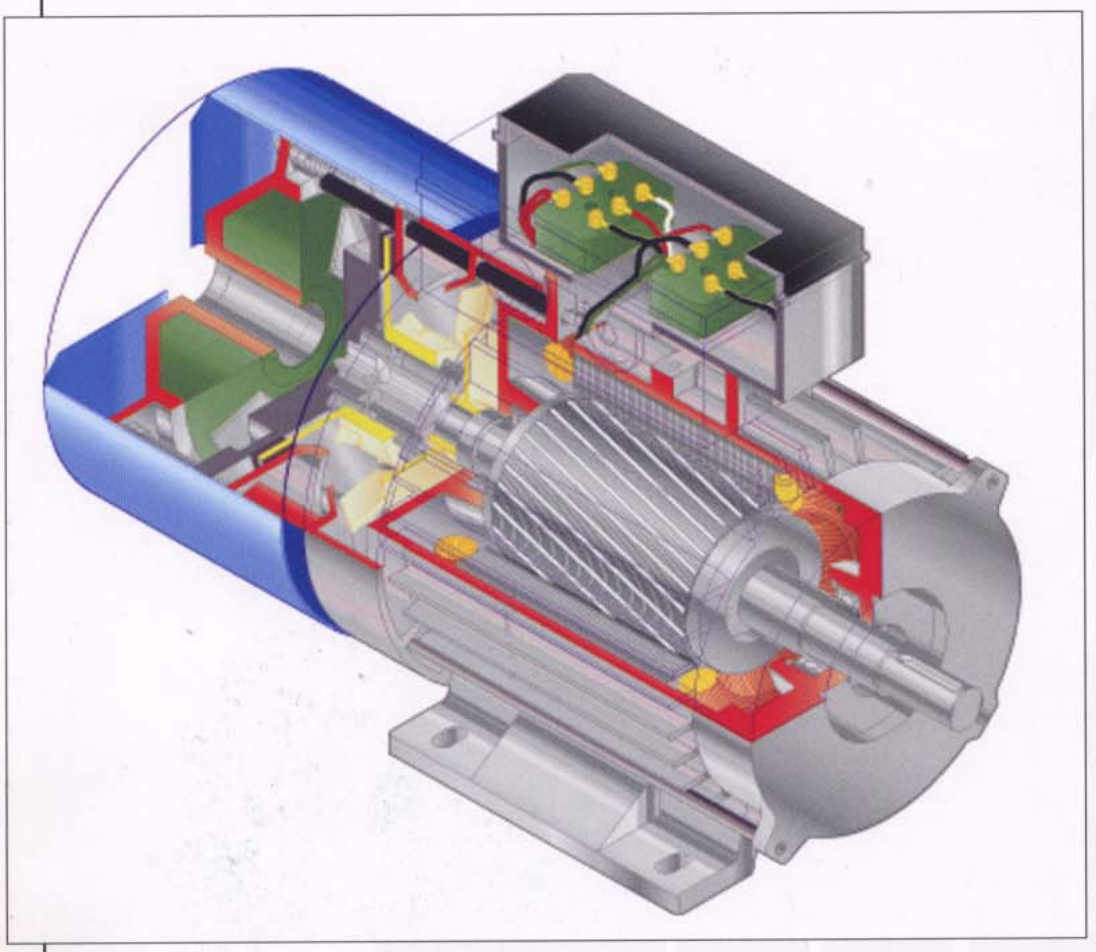
Asynchronous motors

Correspondence of IEC norms with other norms

IEC Norms		OTHER REFERENCE NORMS					
IEC	**TITLE (memorandum)**	**CENELEC**	**CEI/UNEL**	**BS**	**NFC**	**DIN/VDE**	**DEC**
34-1	Ascribed and operating features	*EN60034-1*	*CEI2-3*	*BS499-101*	*NFC51-111*	*VDE0530-1*	*UNE 201131-95*
34-2	Determination of losses and performance	*HD532*	*CEI2-6*	*BS4999-34*	*NFC51-112*	*VDE0530-2*	*UNE 20116-74*
34-5	Classification of protection levels	*EN60034-5*	*CEI2-16*	*BS4999-20*	*NFC51-115*	*VDE0530-5*	*IR-89 20111-5*
34-6	Cooling methods	*EN60034-6*	*CEI2-7*	*BS4999-21*		*DIN IEC 34-6*	*UNE 20125-741*
34-7	Constructive forms and assembly arrangement	*EN60034-7*	*CEI2-14*	*BS4999-22*	*NFC51-117*	*DIN IEC 34-7*	*UNE 20112-1-74 20112-2-74*
34-8	Identification of farthest point and rotation direction	*HD53.8 S4*	*CEI2-8*	*BS34999-3*	*NFC51-118*	*VDE0530-8*	*UNE 20113-8-96*
34-9	Noise levels	*EN60034-9*	*CEI2-24*	*BS4999-51*	*NFC51-119*	*VDE0530-9*	*UNE 20121-75*
34-12	Starting features of single speed motors fed by ≤ 660V. tension	*EN60034-12*	*CEI2-15*	*BS4999-112*		*VDE0530-12*	*UNE 20162-83*
34-14	Mechanical vibrations in machines with axis height > 56mm	*HD53.14 S1*	*CEI2-23*	*BS4999-50*	*NFC51-111*	*DIN ISO 2373*	*UNE 20180-86*
72-1	Dimensions and power ranges in machines between 56 and 400 and flanges between 55 and 1080	*HD231*	*UNEL 13113 UNEL 13117 UNEL 13118*	*BS4999-10*	*NFC51-110 NFC51-120*	*DIN42673 DIN42677*	*UNE 20106-2-74 20106-240-80 20106-2-74 20106-2-IC-80*

All COEL Motors are CE labelled as they conform to EC directives 73/23 low tension, EC 89/336 and subsequent amendment EC 92/31 and EC 93/68.

Three-phase self-braking asynchronous motors F - FL series



Externally ventilated closed structure F and FL series

COEL self-braking motors are closed, externally ventilated, built in accordance with IEC 72 (UNEL) dimensional norms.
The materials used for their construction, and the simplicity of all components inside the braking group, guarantee long motor life and limited maintenance.
The braking group, fruit of a long experience, is designed and built completely by COEL thus avoiding all makeshift solutions, and making the COEL self-braking motor a harmonious whole, resulting from homogeneous components.

Main characteristics of self-braking motors in the "F" series are the high braking torque and the extreme swiftness of intervention of the braking group.
Use of motors in the "F" series is suggested in case of intensive service and when motors are to be frequently started and braked.

Features

- Disk brake without axial sliding of the shaft.
- Adjustment of braking torque within very ample values.
- Brake operation within very low noise and amperage levels.
- F-FL motors are fitted with the three-phase electromagnet as standard. The electromagnet mono- phase D.C. can be fitted on request. The latter stands out for its speed of intervention and the extremely low noise emitted thanks to the exclusive COEL system with which it is made.
- F-FL motors are provided, as standard, with manual release of the brake, 0.3mm thickness gauge for the adjustment of the magnetic gap of the brake group and hexagon-shaped nut on the shaft's rear end for manual rotation of the same.
- Upon request we can supply motors with separate brake power supply.

FL Series

Self-braking motors with progressive starting and braking

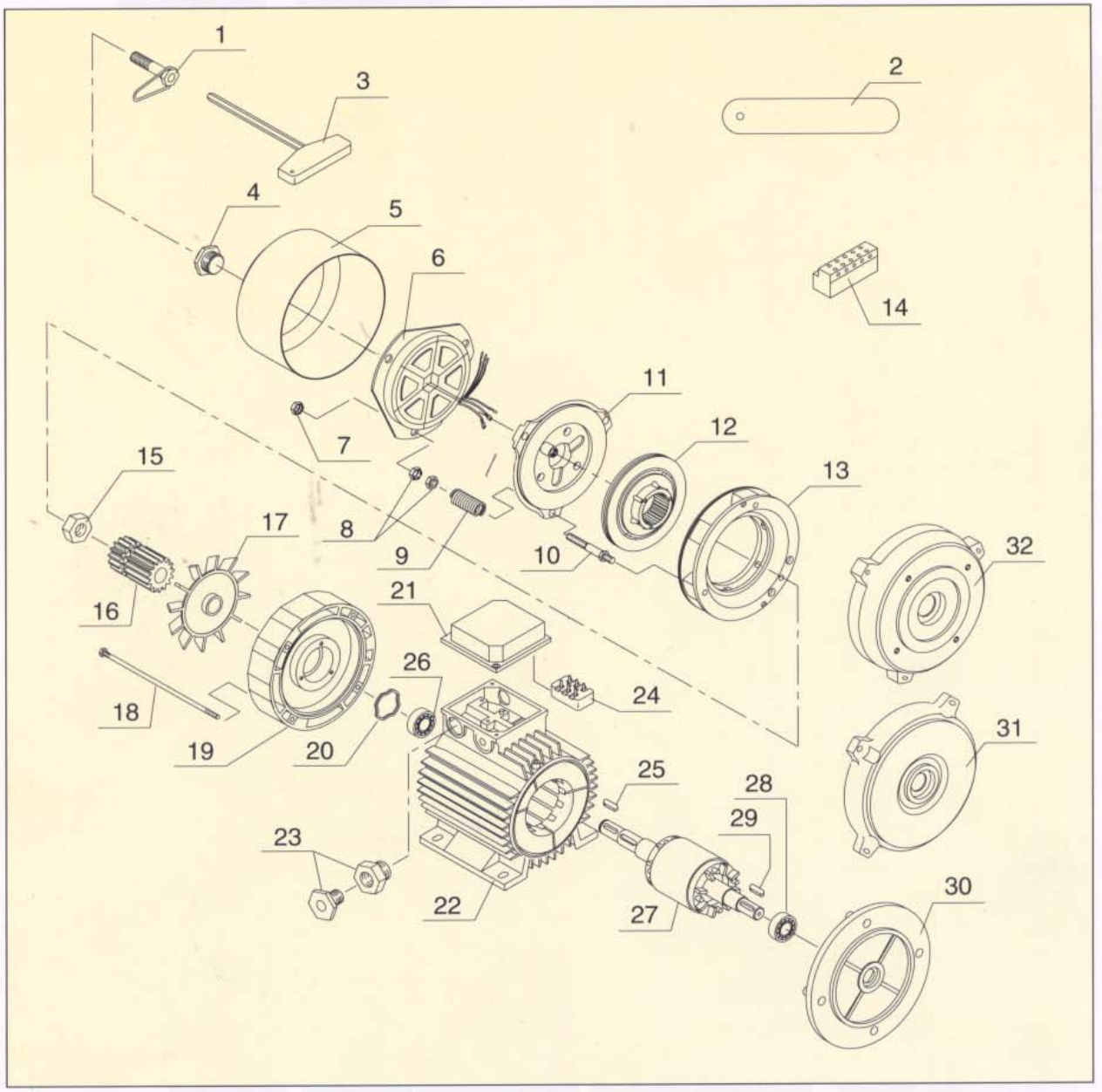
FL progressive starting and braking motors have been particularly improved over the last few years.
Thanks to experiences made with the manufacture of some custom-made motors, we were able to determine a new constructive standard.
Our goal was to further increase motor reliability by eliminating the heavy brake disk which served as flywheel.
When the motor braked, in fact, the mass of the disk exerted excessive stress on mechanical components thus penalizing motor noiselessness and life of the constructive components.
Furthermore, the limit of the old FL-motor was that, in braking, only one side of the flywheel brake disk was used; thus it was not possible to benefit from the high braking torque values characteristic of the F series motor.
The new FL motor definitely sets a new design and executive method.
What the FL series now guarantees is, summing up, a progressive start of the motor, a gradual braking and a static braking torque without compromises.
Such a result has been obtained thanks to particular electric solutions and a reduced additional mass inside the motor which slow start down and contribute to maintain the values of start-up current low.

We suggest use of FL motors for those applications where start-up and braking should occur without jerks but which also require a high braking torque.

FL motors have the same dimensions as those in the F series; their common features are:
- All components of the braking group
- Manual release
- Separate brake control (upon request)
- Possibility of manually rotating the shaft at the brake end.

Description of spare parts for F - FL series

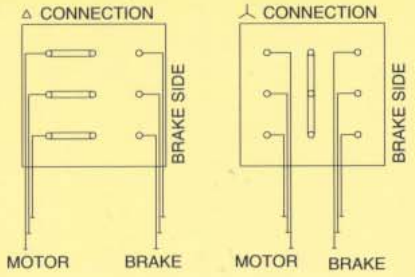
In case of order, always indicate reference number and motor type



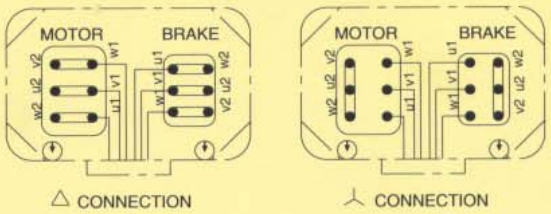
1	Manual release screw	18	Drawrod with nuts
2	0,3 mm thickness gauge	19	Brake side shield
3	Key for manual rotation	20	Compensation ring
4	Cap locking screw	21	Single or double terminal board box
5	Brake protection cap	22	Motor framework
6	Three-phase electromagnet (or D.C. monophase)	23	Pipe union
7	Magnet locking nut	24	Terminal board
8	Adjustment nuts	25	Brake side key
9	Brake spring	26	Brake side bearing
10	Guide stud bolt	27	Rotor shaft group
11	Mobile anchor	28	Control side bearing
12	Brake disk	29	Control side key
13	Conveyor with friction track	30	B5 flange shield
14	Rectifier (half or complete wave)	31	Front shield
15	Seeger ring or gear locking ring	32	B14 flange shield
16	Toothed hub		
17	Fan		

Connections

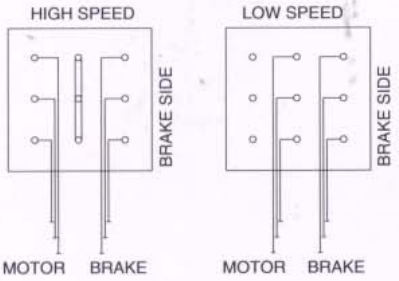
SEPARATE POWER SUPPLY
three-phase motor and brake



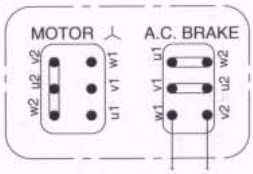
SEPARATE POWER SUPPLY
three-phase motor and brake



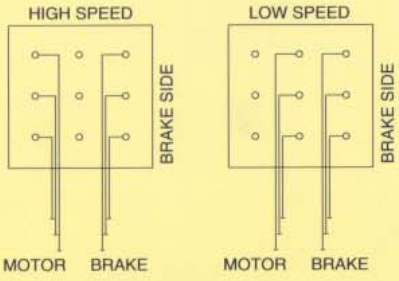
TWO SPEEDS
SINGLE WINDING



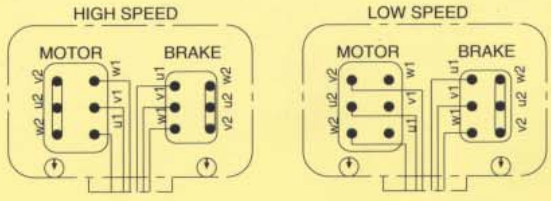
SEPARATE POWER SUPPLY A.C. BRAKE



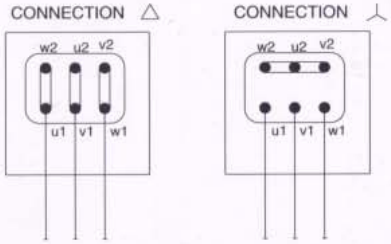
TWO SPEEDS
DUAL WINDING



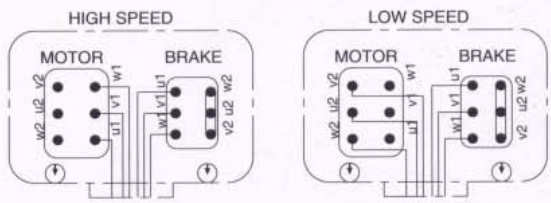
TWO SPEEDS
SINGLE WINDING



SINGLE SPEED

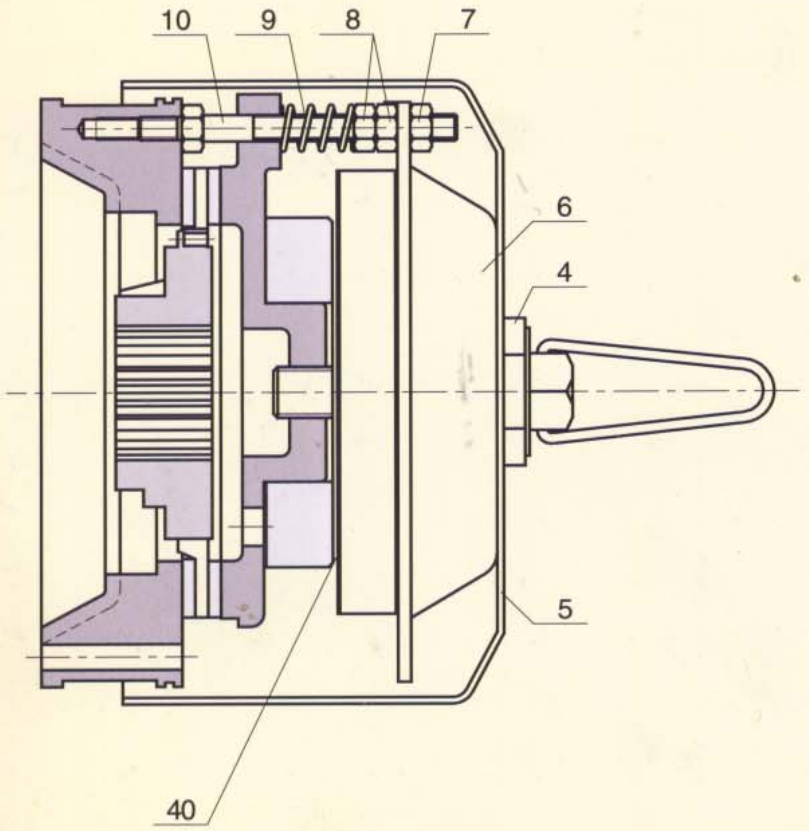


TWO SPEEDS
DUAL WINDING



NOTE The three-phase brake can be connected both at △ and at ⅄ .
Always connect the earth wire.

F braking group



Magnetic gap adjustment

Magnetic gap 40 (i.e. the distance between the two magnetic cores of the electromagnet and of the mobile anchor) must be 3/10th of a millimeter.
Magnetic gap should be periodically checked since, as the brake disk gaskets wear out, it tends to increase.
It order to re-adjust magnetic gap to the required value turn the couples of nuts (7-8) fixing the electromagnet, to advance the latter toward the mobile anchor. Once magnetic gap has been adjusted check that nuts have been correctly tightened.

Braking torque adjustment

Braking torque is proportional to compression of springs 9; such compression can be varied by acting on nuts 8 (loosen to decrease, tighten to increase).
Compression of the three springs must be uniform.

Replacing the electromagnet

Loosen screw 4, remove cap 5, detach the 6 terminals of the magnet, loosen the three nuts 7 and slip electromagnet 6 off stud bolts 10.
Slip the new electromagnet on to the stud bolts, making sure that when reinserting the terminals that colours do not match.
Tighten nuts 7-8 and check that the new electromagnet operates regularly.

Replacing the brake disk

Loosen nut 4, remove cap 6 and loosen the three nuts 7 without detaching the terminals. Remove nuts 8 and spring 9. Mount the new brake disk.

Three-phase 2 poles - 3000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
F71A2	0,37	2800	0,78	1,20	2,1	4,0	0,00050	15	6000	110	160	9,5
F71B2	0,55	2800	0,81	1,50	2,2	4,1	0,00055	15	5000	110	160	10,5
F71C2	0,75	2830	0,76	2,00	2,3	4,3	0,00061	15	4000	110	160	11,5
F80A2	0,75	2820	0,84	1,90	3,0	4,8	0,00118	20	6000	180	250	14,4
F80B2	1,10	2820	0,84	2,70	3,0	4,9	0,00129	20	5300	180	250	15,5
F90SA2	1,50	2820	0,86	3,30	2,5	6,8	0,00189	40	4000	250	300	20
F90SB2	1,84	2840	0,86	4,10	2,5	6,8	0,00200	40	3500	250	350	21,5
F90LA2	2,20	2840	0,87	4,90	2,5	6,8	0,00232	40	3000	250	300	23
F100LA2	3,00	2850	0,85	6,60	2,9	8,0	0,00398	48	1200	250	300	36,3
F112MB2	4,00	2880	0,87	8,20	2,4	7,4	0,00720	80	900	500	550	47,5
F132SA2	5,50	2880	0,89	11,00	2,3	7,5	0,01704	150	500	750	750	78,5
F132SB2	7,50	2880	0,90	14,70	2,3	7,5	0,02062	150	500	750	750	84,5
F132MA2	9,20	2870	0,91	19	2,3	7,5	0,02400	150	500	750	750	87
F132MB2	11,00	2870	0,91	21	2,3	7,5	0,02750	150	500	750	750	94
F160MA2	11,00	2890	0,92	23	3,0	9,0	0,04860	175	300	800	800	148
F160MB2	15,00	2900	0,93	30	3,0	8,0	0,05900	175	300	800	800	150
F160LA2	18,50	2900	0,93	37	3,0	8,0	0,06950	175	290	800	800	167

MULTIPLE VOLTAGE MOTORS

Suitable for V 220/380/50
240/415/50
255/440/60
277/480/60

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 4 poles - 1500 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
F71A4	0,25	1390	0,70	0,9	2,20	3,7	0,00071	15	19500	110	160	9,5
F71B4	0,37	1390	0,70	1,2	2,20	3,7	0,00082	15	18000	110	160	10,5
F71C4	0,55	1380	0,72	1,7	2,30	3,9	0,00098	15	15000	110	160	11,5
F80A4	0,55	1410	0,69	1,9	2,30	4,3	0,00146	20	10000	180	250	14
F80B4	0,75	1410	0,68	2,3	2,30	4,3	0,00173	20	10000	180	250	15,5
F80C4	0,90	1400	0,69	2,7	2,50	4,3	0,00185	20	9000	180	250	16,5
F90SA4	1,10	1415	0,77	2,9	2,40	4,3	0,00284	40	10000	250	300	20
F90LA4	1,50	1415	0,78	3,7	2,40	4,3	0,00305	40	10000	250	300	23
F90LB4	1,85	1415	0,78	4,6	2,30	4,3	0,00388	40	9000	250	300	24
F90LC4	2,20	1420	0,78	5,4	2,30	4,3	0,00430	40	8000	250	300	26
F100LA4	2,20	1425	0,78	5,6	2,50	4,8	0,00572	48	7500	250	300	36,3
F100LB4	3,00	1430	0,79	7,5	2,50	4,8	0,00612	48	7000	250	300	39,7
F100LC4	3,30	1420	0,79	8,8	2,60	4,7	0,00750	48	7000	250	300	41
F112MB4	4,00	1430	0,85	9,2	2,50	5,5	0,01180	80	3300	500	550	48
F132SB4	5,50	1425	0,82	11,7	2,30	5,8	0,03120	150	1200	750	750	84,5
F132MA4	7,50	1430	0,82	15,5	2,30	5,8	0,04000	150	1000	750	750	94,5
F132MB4	9,00	1430	0,84	18	2,30	5,8	0,04620	150	900	800	800	100
F160MB4	11,00	1460	0,84	23	2,20	5,9	0,06260	175	600	800	800	148
F160LA4	15,00	1460	0,85	30	2,30	5,9	0,08960	175	600	800	800	170
F160LB4	18,50	1450	0,85	37	2,20	5,8	0,09480	175	600	800	800	183

MULTIPLE VOLTAGE MOTORS

Suitable for V 220/380/50
240/415/50
255/440/60
277/480/60

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 6 poles - 1000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
F71A6	0,18	900	0,69	0,8	1,9	2,5	0,00091	15	22000	110	160	10,5
F71B6	0,25	910	0,69	1,0	2,0	2,5	0,00123	15	22000	110	160	11
F71C6	0,30	900	0,63	1,2	1,9	2,6	0,00141	15	19000	110	160	11,5
F80A6	0,37	915	0,63	1,3	2,2	3,5	0,00223	20	18000	180	250	14,5
F80B6	0,55	915	0,68	1,8	2,0	3,5	0,00280	20	18000	180	250	16
F90SA6	0,75	930	0,68	2,6	2,4	3,9	0,00356	40	18000	250	300	20
F90LA6	1,10	930	0,68	3,6	2,5	3,9	0,00472	40	14000	250	300	23
F100LA6	1,50	940	0,71	4,2	2,0	4,3	0,00874	48	9000	250	300	36,5
F100LB6	1,85	940	0,70	5,0	2,0	4,3	0,00996	48	8500	250	300	39,8
F112MB6	2,20	940	0,75	5,8	2,0	5,0	0,01680	80	4500	500	550	48
F132SB6	3,00	950	0,76	7,3	2,7	5,6	0,03100	150	3000	750	750	84,5
F132MA6	4,00	950	0,76	9,8	2,7	5,6	0,04250	150	3000	750	750	94,5
F132MB6	5,50	950	0,76	12,6	2,7	5,6	0,05150	150	2800	750	750	100
F160MB6	7,50	950	0,79	18	2,1	5,6	0,09700	175	900	800	800	148
F160LA6	9,50	950	0,80	22	2,0	5,5	0,12300	175	900	800	800	170
F160LB6	11,00	960	0,80	26	2,0	5,5	0,14330	175	900	800	800	175

MULTIPLE VOLTAGE MOTORS

Suitable for V 220/380/50
240/415/50
255/440/60
277/480/60

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 8 poles - 750 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
F71B8	0,15	670	0,55	0,9	1,6	2,8	0,00091	15	22000	110	160	10,5
F80A8	0,18	670	0,62	1,1	1,8	3,2	0,00223	20	20000	180	250	15
F80B8	0,25	670	0,64	1,3	1,7	3,0	0,00280	20	19000	180	250	15,5
F90SA8	0,37	690	0,56	1,9	1,8	3,5	0,00356	40	20000	250	300	20
F90LA8	0,55	700	0,58	2,4	1,8	3,5	0,00472	40	18000	250	300	22
F100LA8	0,75	700	0,62	2,9	1,8	4,0	0,00874	48	12000	250	300	36,3
F100LB8	1,10	700	0,64	3,6	1,8	4,0	0,00996	48	10000	250	300	39,5
F112MB8	1,50	710	0,68	4,6	1,7	4,0	0,01680	80	5000	500	550	47,5
F132SB8	2,20	715	0,68	6,5	1,7	4,5	0,03100	150	3200	750	750	81
F132MA8	3,00	720	0,69	8,5	1,8	4,8	0,04250	150	3000	750	750	93,5
F160MA8	4,00	720	0,70	11	1,7	4,4	0,09500	175	1200	800	800	135
F160MB8	5,50	710	0,70	15,5	1,7	4,3	0,12300	175	1100	800	800	150
F160LA8	7,50	715	0,71	20	1,7	4,5	0,11800	175	1000	800	800	170

MULTIPLE VOLTAGE MOTORS

Suitable for V 220/380/50
240/415/50
255/440/60
277/480/60

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 2-4 poles - 3000/1500 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FD71A2/4	0,26 0,18	2800 1380	0,73 0,68	0,9 0,8	2,5 2,4	4,6 3,9	0,00071	15	7000 12000	110	160	10,3
FD71B2/4	0,37 0,26	2800 1390	0,75 0,68	1 0,95	2,4 2,3	4,7 3,8	0,00082	15	6000 10000	110	160	11
FD71C2/4	0,45 0,30	2800 1390	0,76 0,70	1,4 1,1	2,6 2,3	4,7 3,9	0,00098	15	5500 9000	110	160	11,5
FD80A2/4	0,65 0,45	2800 1410	0,77 0,72	1,9 1,5	2,3 2,2	5,0 4,8	0,00146	20	3000 10000	180	250	15
FD80B2/4	0,9 0,6	2800 1415	0,78 0,73	2,4 1,9	2,4 2,3	5,1 5,0	0,00173	20	2500 8000	180	250	15,5
FD90SB2/4	1,3 0,9	2800 1420	0,79 0,73	3,6 2,5	2,7 2,6	4,7 4,5	0,00290	40	2000 7500	250	300	20
FD90LA2/4	1,8 1,2	2800 1400	0,81 0,71	4,7 3,4	2,7 2,9	4,9 4,8	0,00305	40	2000 7000	250	300	22
FD90LB2/4	2,2 1,5	2890 1400	0,80 0,74	5,8 4,1	2,7 3,0	4,9 4,6	0,00388	40	1800 7000	250	300	24
FD100LA2/4	2,5 1,9	2890 1430	0,82 0,78	6,5 4,5	2,6 2,4	5,2 5,0	0,00572	48	1000 5500	250	300	36,3
FD100LB2/4	3,3 2,4	2890 1430	0,82 0,77	7,2 4,6	2,8 2,5	6,1 5,3	0,00612	48	1000 5000	250	300	39,7
FD112MB2/4	4,5 3,3	2890 1430	0,83 0,79	9,3 7,2	2,4 2,3	6,4 5,4	0,01180	80	500 2000	500	550	48
FD132SB2/4	5,1 4,5	2890 1440	0,88 0,81	10,2 9,8	2,2 2,1	6,6 5,6	0,03120	150	450 1500	750	750	84,5
FD132MA2/4	6,0 5,0	2890 1440	0,88 0,82	12,5 11,5	2,3 2,2	6,6 5,7	0,04000	150	400 1000	750	750	94,5
FD160MA2/4	9,50 8,0	2890 1440	0,83 0,80	20,5 12,6	2,3 2,2	6,5 5,5	0,05900	175	200 400	800	800	142
FD160MB2/4	11 9,0	2870 1430	0,84 0,80	23 19	2,4 2,3	6,5 5,3	0,06260	175	200 350	800	800	150
FD160LA2/4	13 11	2880 1450	0,86 0,80	28 22	2,5 2,2	6,8 4,5	0,08960	175	150 300	800	800	170

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 2-6 poles - 3000/1000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FDA71B2/6	0,25 0,08	2800 900	0,75 0,65	0,95 0,75	2,4 2	4,5 2,4	0,00082	15	3800 12000	110	160	10,5
FDA71C2/6	0,35 0,10	2800 910	0,73 0,66	1,3 1,0	2,3 2,1	5,0 3,4	0,00098	15	3600 11000	110	160	11,2
FDA80A2/6	0,37 0,12	2800 910	0,66 0,58	1,5 1,0	2,5 2,1	4,9 3,3	0,00146	20	2000 10000	180	250	14
FDA80B2/6	0,55 0,18	2800 910	0,69 0,63	1,9 1,2	2,3 2,1	5,2 3,3	0,00173	20	2000 10000	180	250	15,5
FDA90SA2/6	0,90 0,30	2820 920	0,80 0,64	2,3 1,3	2,6 2,2	6,5 2,5	0,00284	40	1900 9000	250	300	20
FDA90LA2/6	1,20 0,40	2810 920	0,81 0,66	3,0 1,7	2,3 2,0	6,3 3,5	0,00305	40	1800 8000	250	300	22
FDA100LB2/6	2,20 0,80	2880 925	0,80 0,64	4,9 2,60	2,7 2,2	6,7 3,5	0,00612	48	900 6000	250	300	39
FDA112MB2/6	3,00 1,00	2900 930	0,85 0,62	6,60 3,50	2,9 2,3	7,1 4,0	0,01180	80	500 4000	500	550	48
FDA132SB2/6	4,00 1,50	2880 940	0,84 0,80	9,3 4,2	2,6 2,1	8,6 5,1	0,03120	150	350 1600	750	750	85
FDA132MB2/6	6,45 2,20	2880 940	0,82 0,60	12,4 6,9	2,7 2,1	8,3 5,5	0,04620	150	350 1600	750	750	102
FDA160LA2/6	11,00 3,40	2860 960	0,84 0,58	27,0 14,5	2,7 2,2	7,1 4,2	0,08960	175	250 900	800	800	170

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 2-8 poles - 3000/750 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FDA71B2/8	0,25 0,06	2800 690	0,71 0,60	0,95 0,6	2,4 1,9	4,5 2,3	0,00082	15	3600 15000	110	160	10,5
FDA71C2/8	0,35 0,07	2800 690	0,71 0,60	1,3 0,7	2,3 1,9	5,0 2,2	0,00098	15	3600 15000	110	160	11,5
FDA80A2/8	0,37 0,09	2800 690	0,66 0,53	1,5 0,75	2,5 1,9	4,4 2,3	0,00146	20	2000 12000	180	250	14
FDA80B2/8	0,55 0,12	2800 690	0,69 0,53	1,9 0,9	2,3 2	5,2 5,4	0,00173	20	2000 12000	180	250	15,5
FDA90SB2/8	0,75 0,18	2820 700	0,70 0,54	2,1 1,15	2,6 1,9	5,5 2,3	0,00295	40	1900 10000	250	300	20
FDA90LA2/8	1,10 0,30	2820 700	0,75 0,55	2,9 1,6	2,5 1,9	5,6 2,4	0,00305	40	1800 10000	250	300	22
FDA90LB2/8	1,30 0,30	2820 700	0,78 0,58	3,4 1,8	2,4 2	5,8 2,3	0,00388	40	1800 9000	250	300	24
FDA100LA2/8	1,50 0,37	2820 700	0,78 0,56	4,0 2,2	2,6 1,8	5,6 2,8	0,00572	48	1000 7000	250	300	36,3
FDA100LB2/8	2,20 0,50	2840 700	0,87 0,58	4,9 2,8	2,5 1,8	5,1 2,9	0,00612	48	900 3000	250	300	39,7
FDA112MA2/8	2,50 0,60	2840 705	0,74 0,57	5,8 3,2	2,4 1,9	5,5 3,0	0,00950	80	500 2500	500	550	47
FDA112MB2/8	3,00 0,80	2850 705	0,74 0,59	6,7 3,6	2,5 2	6,0 3,0	0,01180	80	500 2500	500	550	48
FDA132SB2/8	4,00 1,10	2860 700	0,74 0,60	10,0 4,0	2,6 1,9	6,5 2,9	0,03120	150	300 1500	750	750	84,5
FDA132MA2/8	5,50 1,50	2870 700	0,75 0,61	12,8 5,6	2,5 2,1	6,6 3,0	0,04000	150	300 1300	750	750	94,5
FDA132MB2/8	6,20 1,80	2860 690	0,82 0,67	13,7 6,8	2,5 2,1	6,6 3,0	0,04620	150	300 1300	750	750	100
FDA160LA2/8	11,00 3,00	2900 720	0,90 0,63	23,0 11,2	2,4 2,2	6,8 3,4	0,08960	175	300 1300	800	800	170

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 4-6 poles - 1500/1000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FDA71A4/6	0,13 0,08	1360 890	0,70 0,64	0,7 0,4	2,3 2,0	4,5 3	0,00091	15	7000 10000	110	160	10,5
FDA71B4/6	0,18 0,11	1370 900	0,72 0,67	0,9 0,5	2,3 2,2	4,5 2,9	0,00123	15	7000 10000	110	160	11,5
FDA80A4/6	0,26 0,18	1390 930	0,75 0,68	10 0,9	2,4 2,0	4,8 3	0,00223	20	7000 10000	180	250	14
FDA80B4/6	0,37 0,26	1400 930	0,76 0,69	1,2 1	2,5 2,0	4,8 3	0,00280	20	6000 8000	180	250	15,5
FDA90SA4/6	0,55 0,37	1410 945	0,77 0,70	1,8 1,6	2,4 2,1	5,5 3,6	0,00356	40	6000 8000	250	300	20
FDA90LA4/6	0,75 0,55	1410 945	0,79 0,60	2,4 2	2,3 2,2	5,6 3,3	0,00472	40	9500 8000	250	300	22
FDA100LB4/6	1,50 1,10	1420 945	0,79 0,70	2,9 1,8	2,6 2,3	6,1 3,9	0,00996	48	4000 6000	250	300	39,7
FDA112MB4/6	2,00 1,30	1430 950	0,80 0,71	3,7 3,6	2,4 2,0	6,6 4	0,01680	80	2000 3000	500	550	48,0
FDA132SB4/6	2,20 1,50	1430 930	0,80 0,71	5,6 4,5	2,3 1,9	7,2 5	0,03100	150	600 1000	750	750	84,5
FDA132MA4/6	3,00 2,20	1430 930	0,80 0,72	7,5 4,7	2,4 2,2	7,9 5	0,04250	150	800 1200	750	750	94,5
FDA132MB4/6	3,70 2,60	1440 930	0,81 0,72	8,7 5,6	2,3 2,2	7,7 5,5	0,04950	150	700 1000	750	750	100
FDA160MB4/6	5,50 3,70	1450 930	0,85 0,75	7,3 5,2	2,2 2,0	7,9 6	0,09700	175	500 700	800	800	148
FDA160LB4/6	7,50 5,50	1450 930	0,84 0,76	7,9 5,3	2,3 2,0	7,9 6	0,14330	175	400 700	800	800	180

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 4-8 poles - 1500/750 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FD71A4/8	0,13 0,07	1360 680	0,83 0,62	0,8 0,5	2,0 1,8	3,7 2,5	0,00091	15	12000 20000	110	160	10
FD71B4/8	0,18 0,09	1360 680	0,82 0,63	0,9 0,6	2,2 1,9	3,8 2,6	0,00123	15	10000 20000	110	160	10,5
FD71C4/8	0,22 0,12	1360 670	0,80 0,60	1,1 0,7	2,1 1,9	3,9 2,7	0,00141	15	9000 20000	110	160	12
FD80A4/8	0,26 0,18	1410 690	0,83 0,60	1,3 1,0	2,2 1,9	4,5 3	0,00223	20	7000 14000	180	250	14,5
FD80B4/8	0,37 0,26	1415 695	0,84 0,60	1,5 1,3	2,3 1,9	5,0 3,5	0,00280	20	7000 14000	180	250	15,5
FD90SA4/8	0,75 0,37	1425 700	0,85 0,60	2,3 1,9	1,9 1,9	4,9 3,2	0,00356	40	6500 12000	250	300	20
FD90LB4/8	1,10 0,60	1430 700	0,85 0,60	2,9 2,5	2,1 1,9	5,0 3,0	0,00510	40	6000 10000	250	300	24
FD100LB4/8	1,60 0,90	1440 700	0,85 0,61	3,7 3,4	2,2 2,0	5,1 5,5	0,00996	48	4000 8000	250	300	39,7
FD112MB4/8	2,20 1,20	1440 710	0,85 0,61	4,6 4,4	2,2 1,9	6,7 6	0,01680	80	2000 4000	500	550	48
FD132SB4/8	3,00 2,00	1440 715	0,85 0,62	7,5 6,1	2,1 2,0	6,5 5,5	0,03100	150	700 2000	750	750	84,5
FD132MA4/8	4,00 2,60	1445 720	0,85 0,63	9,2 9	2,1 1,9	6,6 5,5	0,04250	150	500 1500	750	750	98
FD160MA4/8	5,50 3,70	1430 720	0,86 0,64	10,5 10,3	2,3 2,1	6,1 5,3	0,09500	175	600 1200	800	800	139
FD160MB4/8	6,60 4,50	1430 720	0,88 0,65	15,7 14,0	2,3 2,0	5,9 5,3	0,09700	175	600 1200	800	800	148
FD160LA4/8	9,60 6,00	1430 720	0,86 0,66	21 19	2,2 2,1	6,6 5,5	0,12300	175	550 1100	800	800	170

NOTE: *The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).*

Three-phase 4-12 poles - 1500/500 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.400 BRAKE A.C. (m A)	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FDA80A4/12	0,25 0,07	1400 410	0,78 0,63	0,90 0,70	1,9 1,8	4,0 1,7	0,00223	20	6000 16000	180	250	14,5
FDA80B4/12	0,37 0,11	1410 410	0,79 0,64	1,2 0,8	1,9 1,7	4,2 1,6	0,00280	20	6000 16000	180	250	15,5
FDA90LA4/12	0,55 0,18	1400 460	0,76 0,65	1,8 1,3	2,1 1,9	4,4 1,5	0,00472	40	5000 15000	250	300	24
FDA100LA4/12	0,90 0,30	1410 460	0,79 0,65	2,4 2,2	2,2 1,8	4,5 1,9	0,00874	48	4000 14000	250	300	34
FDA100LB4/12	1,10 0,37	1410 460	0,79 0,66	2,8 2,7	2,4 1,8	4,9 1,7	0,00996	48	4000 14000	250	300	39,7
FDA112MB4/12	1,50 0,45	1430 460	0,79 0,66	3,7 2,8	2,5 1,9	5,5 1,9	0,01680	80	2000 10000	500	550	47,5
FDA132SA4/12	2,20 0,75	1430 463	0,79 0,68	5,6 4,2	2,2 1,8	6,6 1,9	0,03100	150	900 3000	750	750	82
FDA132MA4/12	3,00 1,00	1430 465	0,79 0,68	7,5 5,5	2,3 1,8	6,6 2,8	0,04250	150	900 3000	750	750	94,5
FDA132MB4/12	3,30 1,10	1430 470	0,79 0,69	8,3 6,3	2,2 1,7	6,5 2,8	0,05150	150	900 3000	750	750	103,5
FDA160MB4/12	4,80 1,60	1400 470	0,80 0,44	10,5 11,00	2,4 1,5	6,8 2,8	0,09700	175	600 1800	820	800	145
FDA160LA4/12	7,30 2,40	1400 470	0,82 0,42	16,2 16,7	2,6 2,3	7,00 3,00	0,12300	175	600 1800	820	800	170
FDA160LB4/12	9,00 3,00	1400 470	0,84 0,42	23,8 19,3	48 2,4	7,00 3,00	0,14330	175	600 1800	820	800	180

NOTE:

- The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).

- All 4-12 poles motors are to be used in S3 service conditions.

- We suggest the use of dual metal or ptc protections for 4-12 and 4-16 poles motors.

Three-phase 4-12 poles - 1500/500 Min.-1 for hoisting functions

TYPE	KW	I n V.400
FDA112 4/12	2,50 0,80	7,2 4,0
FDA132LSA4/12	2,80 0,90	7,5 6,0
FDA132MA4/12	4,00 1,30	10,8 6,8
FDA132MB4/12	5,50 1,80	13,5 8,0
FDA160MB4/12	6,80 2,20	18,0 13,0
FDA160LA4/12	9,00 3,00	26,0 19,0
FDA160LB4/12	10,5 3,50	29,0 24,0

NOTE:

- The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).

- All 4-12 poles motors are to be used in S3 service conditions.

- We suggest the use of dual metal or ptc protections for 4-12 and 4-16 poles motors.

- We suggest mounting rotor "P" on motors for hoisting functions.

Three-phase 4-16 poles - 1500/375 Min.-1 for hoisting functions

TYPE	KW	I n V.400
FDA112MB4/16	1,6 0,4	5,6 3,8
FDA132SA4/16	2,80 0,70	7,5 5,8
FDA132MA4/16	4,00 1,00	10,8 7,2
FDA132MB4/16	5,5 1,3	13,5 8,8
FDA160MB4/16	6,80 1,70	18,0 13,0
FDA160LA4/16	9,00 2,20	26,0 17,2
FDA160LB4/16	10,5 2,60	29,0 20,8

NOTE:

- The values for the braking torque are reduced by around 10% if the electromagnet mounted is a mono-phase type in direct current (DC).

- All 4-12 poles motors are to be used in S3 service conditions.

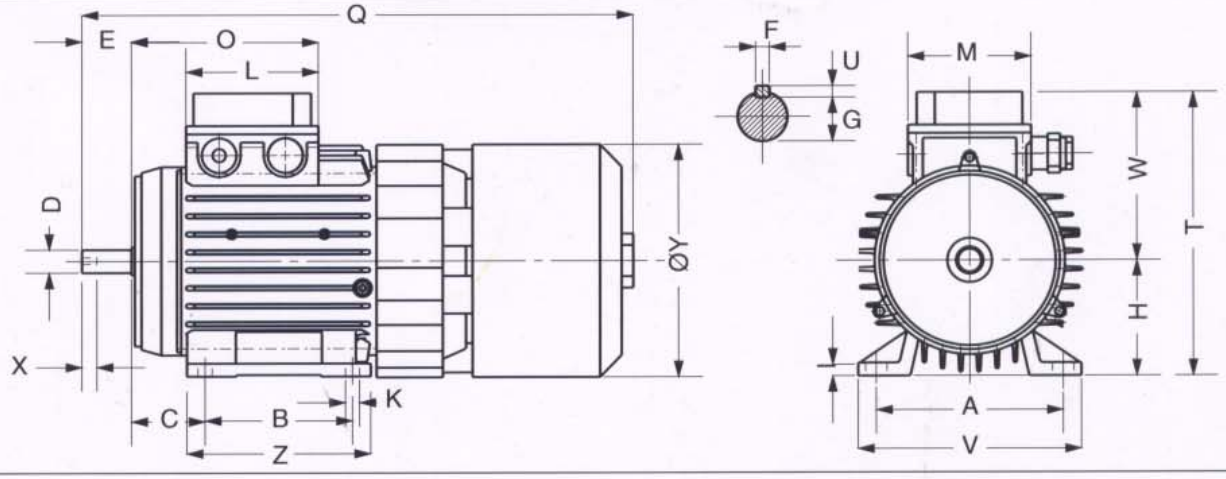
- We suggest the use of dual metal or ptc protections for 4-12 and 4-16 poles motors.

- We suggest mounting rotor "P" on motors for hoisting functions.

Overall dimensions

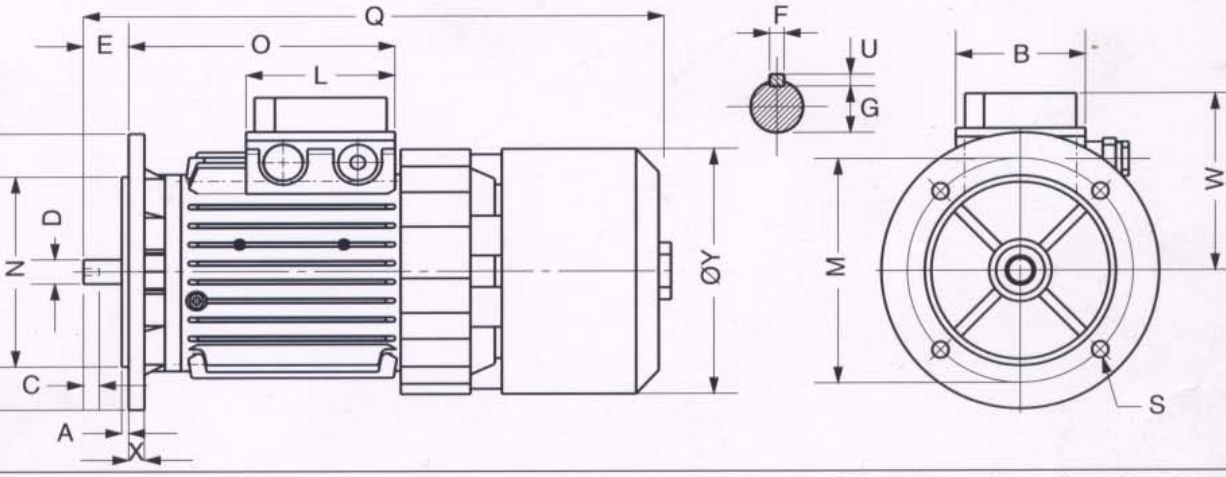
The double box is available upon request for all motor series

B 3 CONSTRUCTIVE FORM



TYPE	A	B	C	D	E	F	G	H	K	I	L	M	Q	T	O	W	Y	U	X	V	Z
F 71	112	90	45	14	30	5	11	71	7	7	81	75	330	173	148	102	141	5	M5	134	108
F 80	125	100	50	19	40	6	15,5	80	7	8	81	75	370	194	162	114	157	6	M6	156	126
F 90 S	140	100	56	24	50	8	20	90	9	10	98	99	415	218	171	128	179	7	M8	176	128
F 90 L	140	125	56	24	50	8	20	90	9	10	98	99	440	218	196	128	179	7	M8	176	151
F 100	160	140	63	28	60	8	24	100	9	10	98	99	480	241	218	141	180	7	M8	196	166
F 112	190	140	70	28	60	8	24	112	12	15	98	99	535	264	226	152	222	7	M8	230	166
F 132 S	216	140	89	38	80	10	33,5	132	12	18	120	110	605	329	260	197	263	8	M10	262	166
F 132 M	216	178	89	38	80	10	33,5	132	12	18	120	110	645	329	300	197	263	8	M10	262	205
F 160 M	254	210	108	42	110	12	37,5	160	14	18	140	140	755	410	330	250	316	8	M12	306	240
F 160 L	254	254	108	42	110	12	37,5	160	14	18	140	140	795	410	350	250	316	8	M12	306	284

B 5 CONSTRUCTIVE FORM



TYPE	N	B	C	D	E	F	G	H	P	I	L	M	O	Q	S	U	A	X	W	Y
F 71	110	75	M5	14	30	5	11	-	160	-	81	130	148	330	9,5	5	3,5	10	102	141
F 80	130	75	M6	19	40	6	15,5	-	200	-	81	165	162	370	11,5	6	3,5	12	114	157
F 90 S	130	99	M8	24	50	8	20	-	200	-	98	165	171	415	11,5	7	3,5	12	128	179
F 90 L	130	99	M8	24	50	8	20	-	200	-	98	165	196	440	11,5	7	3,5	12	128	179
F 100	180	99	M8	28	60	8	24	-	250	-	98	215	218	480	14	7	3,5	14	141	180
F 112	180	99	M8	28	60	8	24	-	250	-	98	215	226	535	14	7	3,5	14	151	222
F 132 S	230	110	M10	38	80	10	33,5	-	300	-	120	265	260	605	14	8	3,5	14	197	263
F 132 M	230	110	M10	38	80	10	33,5	-	300	-	120	265	300	645	14	8	3,5	14	197	263
F 160 M	250	140	M12	42	110	12	37,5	-	350	-	140	300	330	755	18	8	3,5	16	250	316
F 160 L	250	140	M12	42	110	12	37,5	-	350	-	140	300	330	795	18	8	4	16	250	316

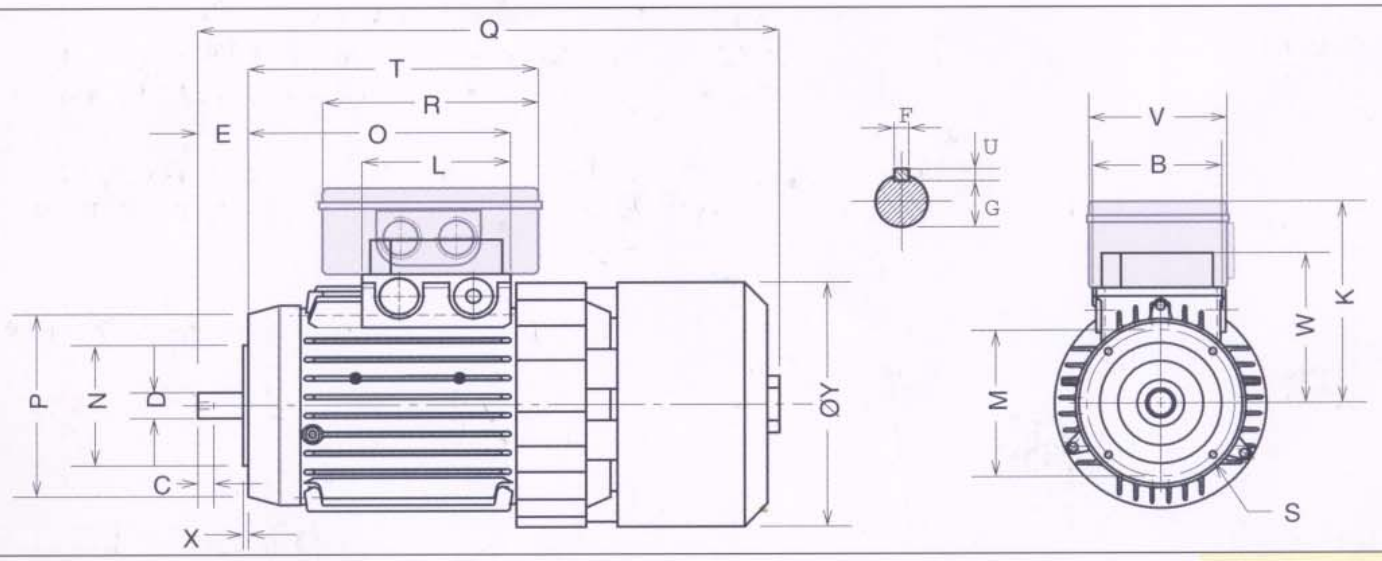
N.B.: Cable press gland from 71 to 112: PG 16; from 132 to 160: PG 21

For tollerance values see table on page 2

Overall dimensions for the double boxes are indicated in the dimensions table for B14 constructive form

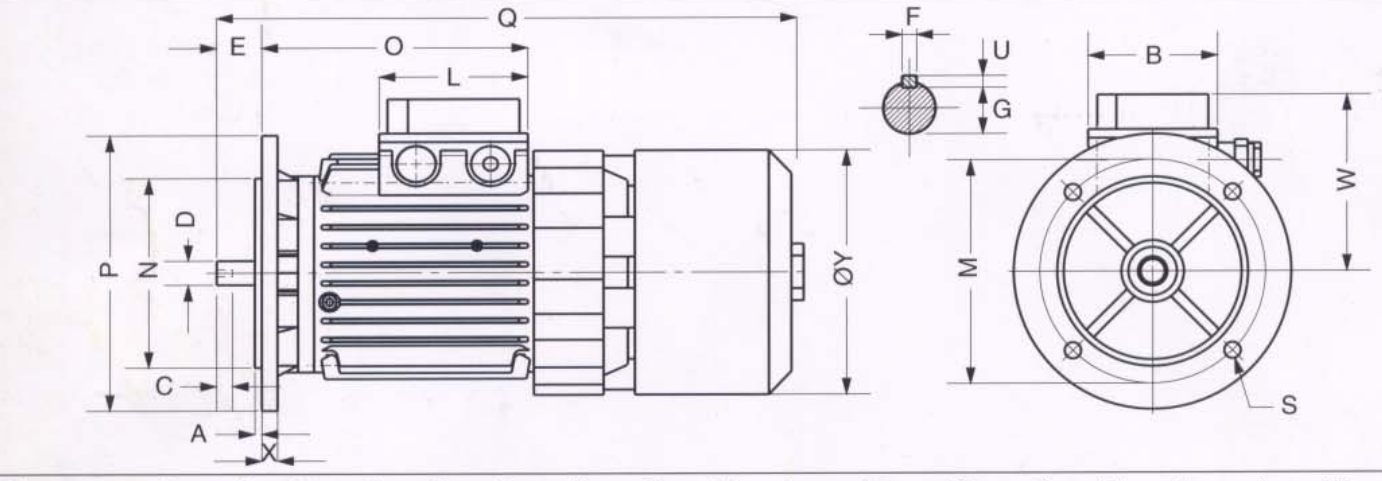
Overall dimensions

B 14 CONSTRUCTIVE FORM



TYPE	N	B	C	D	E	F	G	H	P	I	L	M	O	Q	S	U	X	Z	W	Y	T	R	V	K
F 71	70	75	M5	14	30	5	11	-	105	-	81	85	148	330	M6	5	3,5	-	102	141	300	128	83	107
F 80	80	75	M6	19	40	6	15,5	-	120	-	81	100	162	370	M6	6	3,5	-	114	157	325	128	83	116
F 90 S	95	99	M8	24	50	8	20	-	140	-	98	115	171	415	M8	7	3,5	-	128	179	340	160	107	131
F 90 L	95	99	M8	24	50	8	20	-	140	-	98	115	196	440	M8	7	3,5	-	128	179	375	160	107	131
F 100	110	99	M8	28	60	8	24	-	160	-	98	130	218	480	M8	7	3,5	-	141	180	420	160	107	141
F 112	110	99	M8	28	60	8	24	-	160	-	98	130	226	535	M8	7	3,5	-	151	222	475	160	107	151
F 132 S	130	110	M10	38	80	10	33,5	-	200	-	120	165	260	605	M10	8	3,5	-	197	263	—	—	—	—
F 132 M	130	110	M10	38	80	10	33,5	-	200	-	120	165	300	645	M10	8	3,5	-	197	263	—	—	—	—

REDUCED B 5 CONSTRUCTIVE FORM



TYPE	P	B	C	D	E	F	G	S	N	X	L	M	O	Q	T	U	A	W	Y
F 71	140	75	M5	11	23	4	8,5	9,5	95	10	81	115	163	325	-	4	2,5	102	141
F 80	160	75	M6	14	30	5	11	9,5	110	10	81	130	187	360	-	5	3,5	114	157
F 90 S	200	99	M8	19	40	6	15,5	11,5	130	12	98	165	171	405	-	6	3,5	128	179
F 90 L	200	99	M8	19	40	6	15,5	11,5	130	12	98	165	196	410	-	6	3,5	128	179
F 100	200	99	M8	24	50	8	20	11,5	130	14	98	165	248	510	-	7	3,5	141	180
F 112	200	99	M8	24	50	8	20	11,5	130	14	98	165	261	570	-	7	3,5	151	222
F 132 S	250	110	M10	28	60	8	24	14	180	15	120	215	325	670	-	7	3,5	197	263
F 132 M	250	110	M10	28	60	8	24	14	180	15	120	215	370	715	-	7	3,5	197	263
F 160 M	300	140	M12	38	80	10	33,5	18	230	18	140	265	345	850	-	8	3,5	250	316
F 160 L	300	140	M12	38	80	10	33,5	18	230	18	140	265	345	890	-	8	4	250	316

N.B.: Cable press gland from 71 to 112: PG 16; from 132 to 160: PG 21

For tollerance values see table on page 2

The double box is available upon request for all motor series

Servo-ventilating self-braking motors

Servo-ventilation, a feature for which we are particularly specialized, is available on the whole "F-FL" series. Auxiliary ventilation is of the "on line" variety; this solution, exclusive to COEL, guarantees an efficient cooling of the motor even in the most extreme conditions thanks to the large volume of air supplied by the auxiliary fans; these are of extremely high quality, with a rotor mounted on bearings, thus ensuring efficiency and long-life without the need for any kind of maintenance.
Servo-ventilation is especially advisable for motors set off by inverters, but not only. In motors for particularly difficult applications auxiliary ventilation guarantees higher motor efficiency and contributes to maintain thermal balance steadier.

Total lengths of servo-ventilating motors of the "on line" type (see the Q dimension in the "F-FL series overall dimensions" tables) vary substantially as shown here below:

TYPE	Q DIMENSION	TYPE	Q DIMENSION
71	350	112	585
80	415	132S	660
90S	455	132L	705
90L	480	160S	825
100	525	160L	870

Characteristics of auxiliary fans

TYPE	V	Hz	m^3/h AIR VOLUME YIELD	min^{-1}	W	A
71	230	50 60	160 180	2650 3000	20 18	0,12 0,11
80	230	50 60	360 400	2800 3300	26 26	0,13 0,12
90	230	50 60	360 400	2800 3300	26 26	0,13 0,12
100	230	50 60	360 400	2800 3300	26 26	0,13 0,12
112	230	50 60	810 920	2740 3120	50 61	0,24 0,27
132	230	50 60	910 1050	2600 2900	63 70	0,30 0,32
160	230	50 60	1815 1865	2500 2600	120 160	0,53 0,70

Self-braking asynchronous three-phase motors

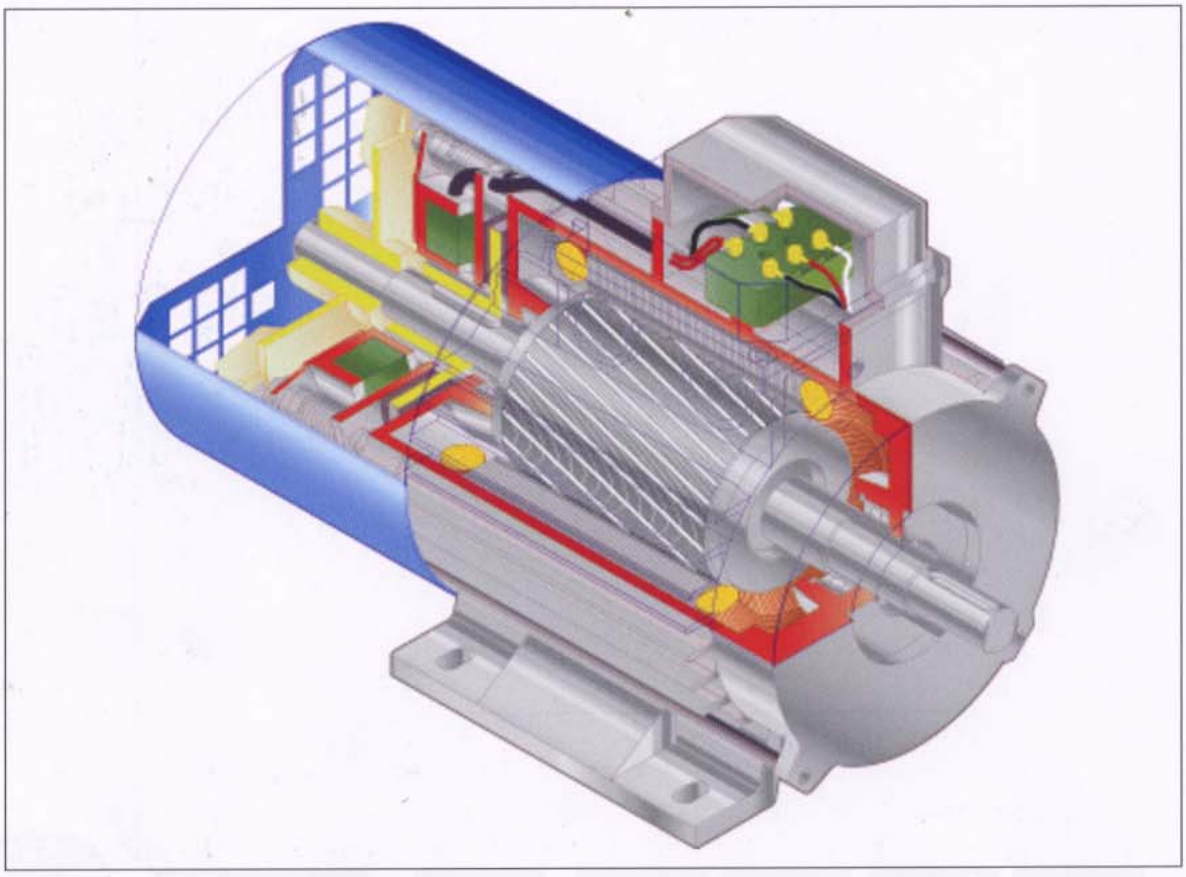
Externally ventilated closed structure
FK and FKL with flywheel

COEL self-braking motors are closed, externally ventilated, built in accordance with IEC 72 (UNEL) dimensional norms.

The materials used for their construction, and the simplicity of all components inside the braking group, guarantee long motor life and limited maintenance.

The braking group, fruit of a long experience, is designed and built completely by **COEL** thus avoiding all makeshift solutions, and making the **COEL** self-braking motor a harmonious whole, resulting from homogeneous components.

Use of the FK series motors is suggested for those applications which do not require high braking torque values, but for which reliability of a safe braking group is anyhow necessary.



Characteristics

- Disc brake without axial movement of the shaft

- The FK and FKL type motors, as opposed to similar models from other manufacturers, provide the possibility of adjusting the braking torque within very wide range of values

- Operation of the brake within very low values of noise and amperage

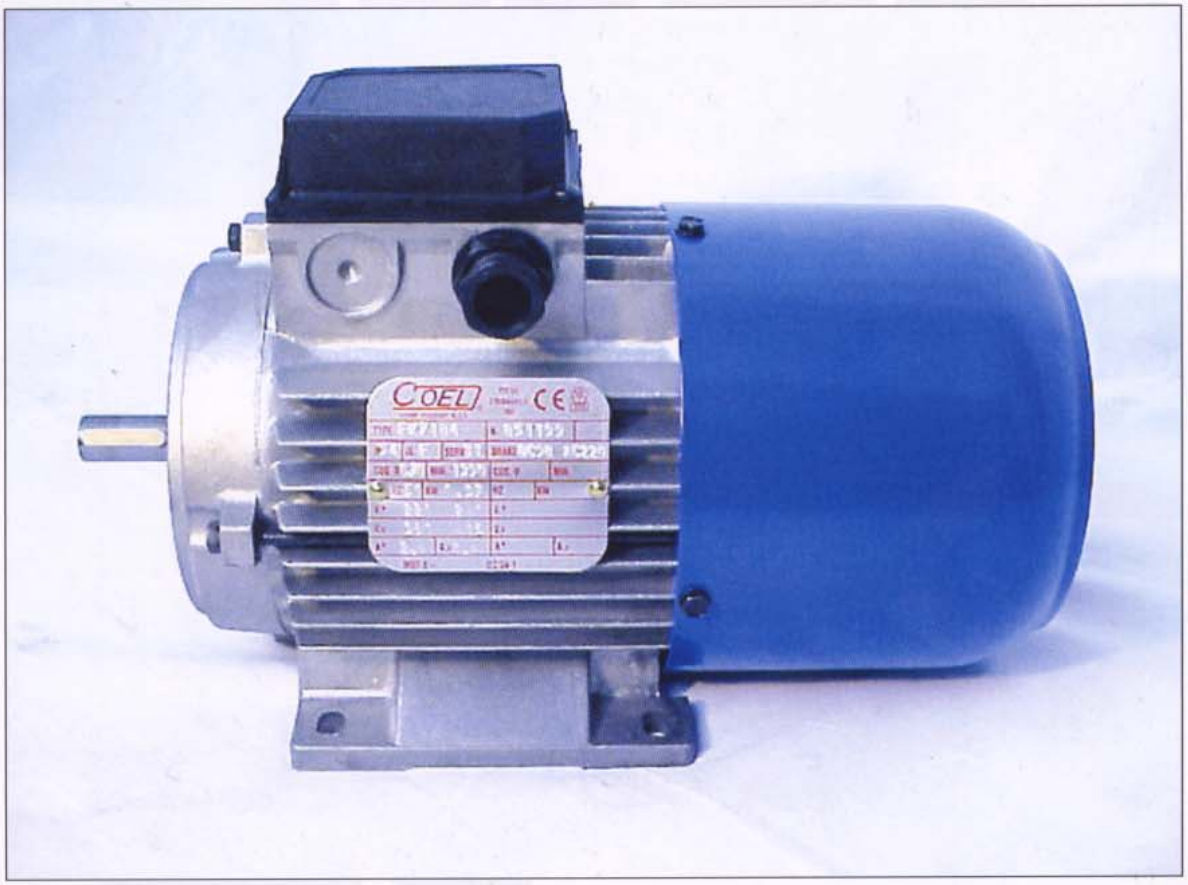
- Smaller size compared to the F series

- The FK - FKL series are fitted with DC electromagnets only

- A side release lever can be provided on request to permit rotation of the shaft rotor from the brake side.

Serie FKL

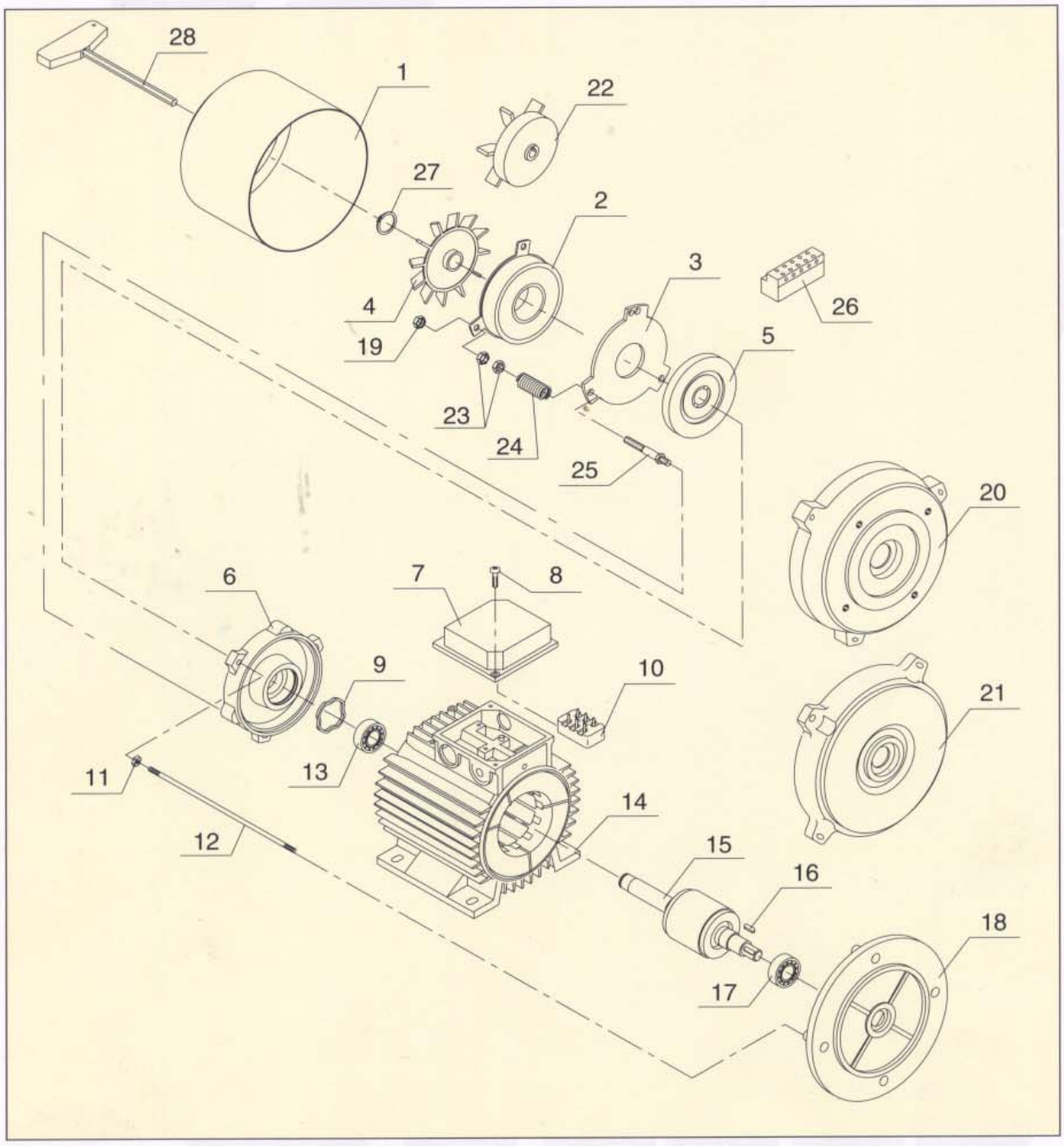
Self-braking motors with progressive start-up and braking with D.C. brake



Besides the FK series motor, which in itself ensures a smooth start-up and braking, for those applications that require a particularly gradual start-up and braking is available the FKL series motor.
The latter is realized by regulating the maximum torque in relationship to the start-up torque and applying an additional mass, precisely calculated, to the rear end of the motor shaft that slows down start-up times, allowing, in any case to achieve maximum torque values and a gradual slowing down as the motor brakes.
The FKL motor is particularly suitable for crane traverses, bottling machines and all those applications where lack of noise, gradual start-up and braking become indispensable requirements.
The FKL motor uses a DC brake as standard and has reduced dimensions.

Description of spare parts

When ordering please indicate reference number(s) and motor type

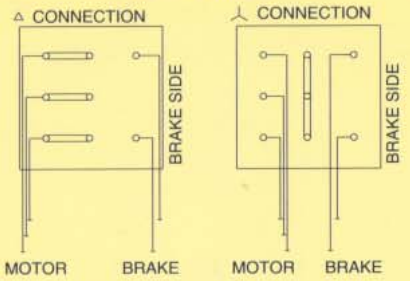


1	Brake protection cap	15	Rotor shaft group
2	Electromagnet	16	Control side key
3	Mobile anchor	17	Front bearing
4	Cooling fan	18	Scudo a flangia B5
5	Brake disk	19	Dado bloccamagnete
6	Shield with friction track	20	B14 flange shield
7	Base cover	21	Front shield
8	Screws for base cover	22	Heavy fan
9	Compensation ring	23	Adjustment nuts
10	Terminal board	24	Brake spring
11	Drawrod locking nut	25	Guide stud bolt
12	Drawrod	26	Rectifier (half or complete wave)
13	Rear bearing	27	Seeger ring or nut
14	Motor framework	28	Key for manual rotation
		29	Brake side key or toothed hub

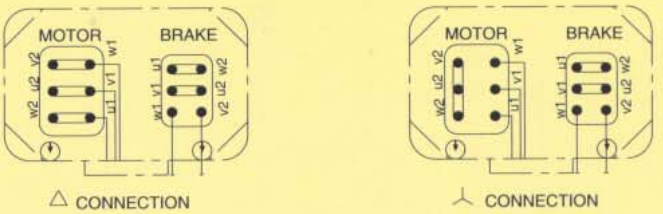
Connections

D.C. ELECTROMAGNET

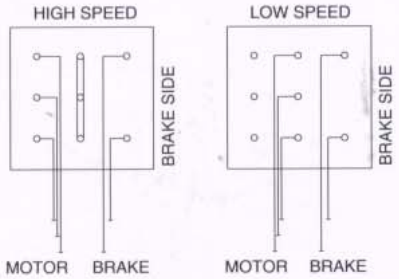
SEPARATE POWER SUPPLY
motor and brake



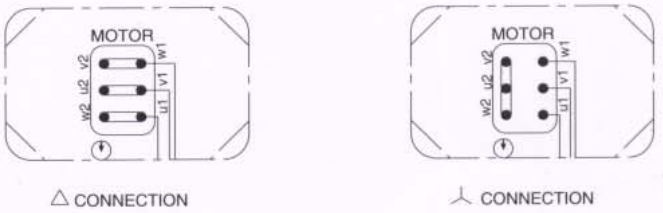
SEPARATE POWER SUPPLY
motor and brake



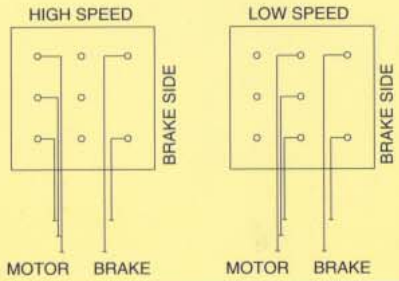
SINGLE WINDING



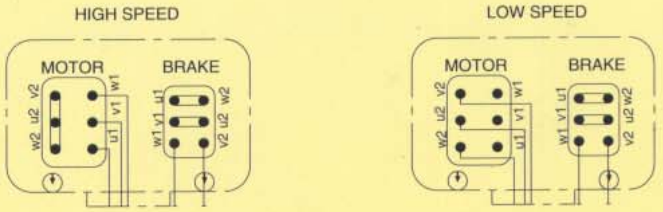
SINGLE SPEED POWER SUPPLY
for motor and brake



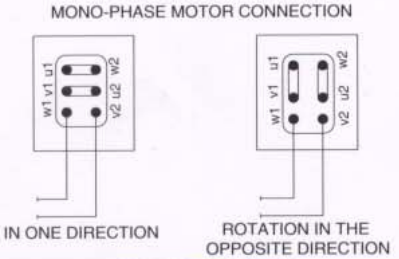
DUAL WINDING



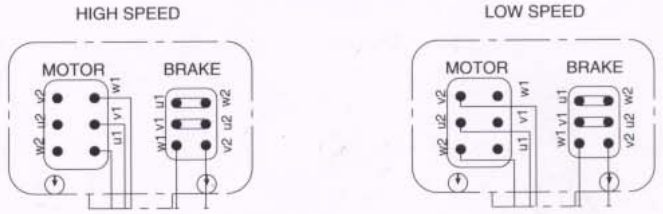
SINGLE WINDING



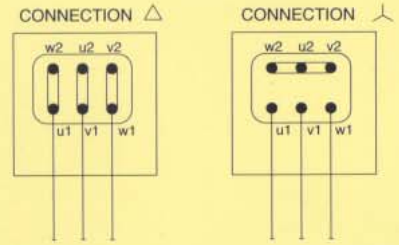
MONO-PHASE MOTOR CONNECTION



DUAL WINDING

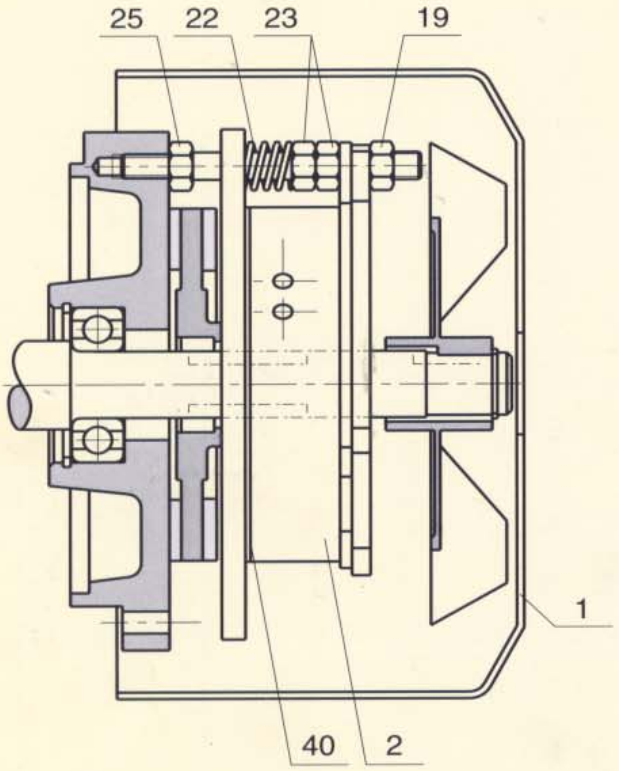


SINGLE SPEED



NOTE Always connect the earth wire.

FK braking group



Technical features

- D.C. brake powered by a rectifier.

Magnetic gap adjustment

Magnetic gap 40 (i.e. the distance between the two magnetic cores of the electromagnet and of the mobile anchor) must be 3/10th of a millimeter.
Magnetic gap should be periodically checked since, as the brake disk gaskets wear out, it tends to increase.
It order to re-adjust magnetic gap to the required value turn the couples of nuts (19-23) fixing the electromagnet, to advance the latter toward the mobile anchor. Once magnetic gap has been adjusted check that nuts have been correctly tightened.

Braking torque adjustment

Braking torque is proportional to compression of springs 22; such compression can be varied by acting on nuts 23 (loosen to decrease, tighten to increase).
Compression of the three springs must be uniform.

N.B.: See pages on rectifiers and connections in the present catalogue for relevant connections.

Three-phase 2 poles - 3000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FK56B2	0,12	2800	0,68	0,54	1,7	2,9	0,00030	7	9500	225	4,2
FK63A2	0,18	2830	0,72	0,70	2,3	3,5	0,00042	7	8000	225	4,8
FK63B2	0,25	2810	0,73	0,90	2,3	3,9	0,00057	7	7500	225	4,8
FK63C2	0,37	2780	0,72	1,10	2,4	4,0	0,00061	7	6000	225	5
FK71A2	0,37	2800	0,78	1,25	2,1	4,0	0,00071	7	6000	225	10,7
FK71B2	0,55	2800	0,81	1,75	2,2	4,1	0,00082	7	5000	225	11,8
FK71C2	0,75	2800	0,76	2,10	2,3	4,3	0,00098	7	4000	225	12
FK80A2	0,75	2820	0,82	1,90	2,5	4,8	0,00146	7	6000	225	14,4
FK80B2	1,10	2820	0,84	2,70	2,5	4,9	0,00173	7	5300	225	15,5
FK90SA2	1,50	2820	0,86	3,30	2,5	4,9	0,00284	14	4000	400	24,3
FK90SB2	1,84	2840	0,86	4,10	2,5	4,9	0,00295	14	3500	400	26,3
FK90LA2	2,20	2840	0,87	4,90	2,5	5,0	0,00305	14	3000	400	28,3
FK100LA2	3,00	2850	0,87	6,60	2,5	4,8	0,00572	22	1200	400	36,3
FK112MB2	4,00	2880	0,87	8,20	2,4	7,4	0,00720	22	800	400	42,5

D.C. ELECTROMAGNET

Three-phase 4 poles - 1500 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FK56B4	0,08	1320	0,58	0,38	1,80	2,6	0,00030	7	12500	225	4,3
FK63A4	0,12	1350	0,70	0,55	1,95	2,8	0,00042	7	12000	225	5,5
FK63B4	0,18	1340	0,71	0,74	1,80	2,3	0,00057	7	12000	225	5,5
FK63C4	0,23	1330	0,69	1,00	2,20	2,4	0,00061	7	10000	225	5,9
FK71A4	0,25	1390	0,70	0,9	2,20	3,7	0,00071	7	19500	225	9,5
FK71B4	0,37	1390	0,70	1,2	2,20	3,7	0,00082	7	18000	225	10,5
FK71C4	0,55	1380	0,72	1,7	2,30	4,0	0,00098	7	15000	225	11
FK80A4	0,55	1410	0,75	1,9	2,30	4,3	0,00146	7	10000	225	12,5
FK80B4	0,75	1410	0,76	2,3	2,30	4,3	0,00173	7	10000	225	13,5
FK80C4	0,90	1400	0,74	2,7	2,50	4,3	0,00185	7	9000	225	16,5
FK90SA4	1,10	1415	0,77	2,9	2,40	4,3	0,00284	14	10000	400	20
FK90LA4	1,50	1415	0,78	3,7	2,40	4,3	0,00305	14	10000	400	22
FK90LB4	1,85	1415	0,78	4,6	2,30	4,3	0,00388	14	9000	400	24
FK90LC4	2,20	1420	0,80	5,6	2,40	4,3	0,00430	14	8000	400	26
FK100LA4	2,20	1425	0,78	5,6	2,50	4,8	0,00572	22	7500	400	36,3
FK100LB4	3,00	1430	0,79	7,5	2,50	4,8	0,00612	22	7000	400	39,7
FK100LC4	3,30	1420	0,79	8,5	2,60	4,7	0,00750	22	6800	400	41
FK112MB4	4,00	1430	0,85	9,2	2,50	5,5	0,01180	22	3300	400	45

D.C. ELECTROMAGNET

Three-phase 6 poles - 1000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FK63C6	0,11	900	0,60	0,65	2,0	2,7	0,00072	7	20000	225	5,5
FK71A6	0,18	900	0,61	0,8	1,9	2,5	0,00091	7	22000	225	10
FK71B6	0,25	910	0,61	1,0	2,0	2,5	0,00123	7	22000	225	10,5
FK71C6	0,30	900	0,63	1,2	1,9	2,6	0,00141	7	19000	225	11
FK80A6	0,37	915	0,63	1,3	2,2	3,5	0,00223	7	18000	225	14,5
FK80B6	0,55	915	0,68	1,7	2,0	3,5	0,00280	7	18000	225	15,5
FK90SA6	0,75	930	0,68	2,6	2,4	3,9	0,00356	14	18000	400	20
FK90LA6	1,10	930	0,68	3,6	2,5	3,9	0,00472	14	14000	400	22
FK100LA6	1,50	940	0,71	4,2	2,0	4,3	0,00874	22	9000	400	36,5
FK100LB6	1,84	940	0,72	5,0	2,0	4,3	0,00996	22	8500	400	39,8
FK112MB6	2,20	940	0,75	5,8	2,0	5,0	0,01680	22	4500	400	48

D.C. ELECTROMAGNET

Three-phase 8 poles - 750 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FK63C8	0,07	650	0,53	0,65	2,3	1,7	0,00072	7	20000	225	5,1
FK71B8	0,15	670	0,64	0,9	1,6	2,8	0,00123	7	22000	225	10,5
FK80A8	0,18	670	0,62	1,1	1,8	3,2	0,00203	7	20000	225	15
FK80B8	0,25	670	0,64	1,3	1,7	3,0	0,00280	7	19000	225	15,5
FK90SA8	0,37	690	0,65	1,9	1,8	3,5	0,00356	14	20000	400	20
FK90LA8	0,55	700	0,65	2,4	1,8	3,5	0,00472	14	18000	400	22
FK100LA8	0,75	700	0,66	2,9	1,8	4,0	0,00864	22	12000	400	36,3
FK100LB8	1,10	700	0,67	3,6	1,8	4,0	0,00916	22	10000	400	39,5
FK112MB8	1,50	710	0,68	4,6	1,7	4,0	0,01680	22	5000	400	44

D.C. ELECTROMAGNET

Mono-phase 2 poles-3000 Min.-1 Mono-phase 4 poles-1500 Min.-1

TYPE	KW	REVS FOR 1°	BRAKING TORQUE Nm	WEIGHT KGS.	TYPE	KW	REVS FOR 1°	BRAKING TORQUE Nm	WEIGHT KGS.
MK56B2	0,10	2730	5	4,30	MK56B4	0,06	1330	5	4,30
MK63B2	0,18	2730	5	5,5	MK63B4	0,13	1330	5	5,5
MK63C2	0,20	2700	5	5,5	MK63C4	0,15	1320	5	5,5

Motors V.230/50 capacitor always connected

Three-phase 2-4 poles - 3000/1500 Min.-1

D.C. ELECTROMAGNET

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKD63B2/4	0,23 0,15	2800 1330	0,75 0,65	0,75 0,70	2,9 3,0	4,1 3,2	0,00057	7	5000 6500	225	5,5
FKD63C2/4	0,26 0,17	2800 1330	0,72 0,56	0,95 0,85	3,0 3,0	4,6 3,3	0,00061	7	4500 6000	225	5,1
FKD71A2/4	0,26 0,18	2800 1380	0,73 0,70	0,9 0,8	2,5 2,4	4,6 3,9	0,00071	7	7000 12000	225	10
FKD71B2/4	0,37 0,26	2800 1390	0,75 0,71	1 0,95	2,4 2,3	4,7 3,8	0,00082	7	6000 10000	225	10,5
FKD71C2/4	0,45 0,30	2800 1390	0,76 0,70	1,4 1,1	2,6 2,3	4,7 3,9	0,00098	7	5500 9000	225	11
FKD80A2/4	0,65 0,45	2800 1410	0,77 0,72	1,9 1,5	2,3 2,2	5,0 4,8	0,00146	7	3000 10000	225	14
FKD80B2/4	0,90 0,60	2800 1415	0,78 0,73	2,4 1,9	2,4 2,3	5,1 5,0	0,00173	7	2500 8000	225	15,5
FKD90SB2/4	1,30 0,90	2800 1420	0,79 0,73	3,6 2,5	2,7 2,6	4,7 4,5	0,00295	14	2000 7500	400	20
FKD90LA2/4	1,80 1,20	2800 1400	0,81 0,71	4,7 3,4	2,7 2,9	4,9 4,8	0,00305	14	2000 7000	400	22
FKD90LB2/4	2,20 1,50	2890 1400	0,80 0,74	5,8 4,1	2,7 3,0	4,9 4,6	0,00388	14	1800 7000	400	24
FKD100LA2/4	2,50 1,90	2890 1430	0,81 0,75	6,5 4,5	2,6 2,4	5,2 5,0	0,00572	22	1000 5500	400	36,3
FKD100LB2/4	3,30 2,40	2890 1430	0,82 0,77	7,2 4,6	2,8 2,5	6,1 5,3	0,00612	22	1000 5000	400	39,7
FKD112MB2/4	4,50 2,30	2890 1430	0,83 0,79	9,3 7,2	2,4 2,3	6,4 5,4	0,01180	22	500 2000	400	42

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKDA71B2/6	0,25 0,08	2800 900	0,75 0,65	0,95 0,75	2,4 2,0	4,5 2,4	0,00082	7	3800 12000	225	11
FKDA71C2/6	0,35 0,10	2800 910	0,73 0,66	1,3 1,0	2,3 2,1	5,0 3,4	0,00098	7	3600 11000	225	11,2
FKDA80A2/6	0,37 0,12	2800 910	0,66 0,58	1,5 1,0	2,5 2,1	4,9 3,3	0,00146	7	2000 10000	225	14
FKDA80B2/6	0,55 0,18	2800 910	0,69 0,63	1,9 1,2	2,3 2,1	5,2 3,3	0,00173	7	2000 10000	225	15,5
FKDA90SA2/6	0,90 0,30	2820 920	0,80 0,64	2,3 1,3	2,6 2,2	6,5 2,5	0,00284	14	1900 9000	400	20
FKDA90LA2/6	1,20 0,40	2810 920	0,81 0,66	3,0 1,7	2,3 2,0	6,3 3,5	0,00305	14	1800 8000	400	22
FKDA100LB2/6	2,20 0,80	2880 925	0,73 0,64	4,9 2,60	2,7 2,2	6,7 3,5	0,00612	22	900 6000	400	39
FDA112MB2/6	3,00 1,00	2900 930	0,85 0,62	6,60 3,50	2,9 2,3	7,1 4,0	0,01180	22	500 4000	400	42

Three-phase 2-8 poles - 3000/750 Min.-1

D.C. ELECTROMAGNET

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKD63C2/8	0,18 0,04	2690 625	0,80 0,60	0,8 0,5	2,3 1,7	5,0 2,2	0,00061	7	5000 12000	225	5,1
FKD71B2/8	0,25 0,06	2800 690	0,75 0,61	0,95 0,6	2,4 1,9	4,5 2,3	0,00082	7	3600 15000	225	11
FKD71C2/8	0,35 0,07	2800 690	0,73 0,62	1,3 0,7	2,3 1,9	5 2,2	0,00098	7	3600 15000	225	11,5
FKDA80A2/8	0,37 0,09	2800 690	0,66 0,53	1,5 0,75	2,5 1,9	4,4 2,3	0,00146	7	2000 12000	225	14
FKDA80B2/8	0,55 0,12	2800 690	0,69 0,53	1,9 0,9	2,3 2	5,2 5,4	0,00173	7	2000 12000	225	15,5
FKDA90SB2/8	0,75 0,18	2820 700	0,70 0,54	2,1 1,15	2,6 1,9	5,5 2,3	0,00295	14	1900 10000	400	20
FKDA90LA2/8	1,10 0,30	2820 700	0,71 0,55	2,9 1,6	2,5 1,9	5,6 2,4	0,00305	14	1800 10000	400	22
FKDA90LB2/8	1,30 0,30	2820 700	0,71 0,55	3,4 1,8	2,4 2	5,8 2,3	0,00388	14	1800 9000	400	24
FKDA100LA2/8	1,50 0,37	2820 700	0,73 0,56	4,0 2,2	2,6 1,8	5,6 2,8	0,00572	22	1000 7000	400	36,3
FKDA100LB2/8	2,20 0,50	2840 700	0,73 0,56	4,9 2,8	2,5 1,8	5,1 2,9	0,00612	22	900 3000	400	39,7
FKDA112MA2/8	2,50 0,60	2840 705	0,74 0,57	5,8 3,2	2,4 1,9	5,5 3,0	0,00950	22	500 2500	400	42
FKDA112MB2/8	3,00 0,80	2850 705	0,74 0,57	6,7 3,6	2,5 2	6,0 3,0	0,01180	22	500 2500	400	42

Three-phase 4-6 poles - 1400/1000 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKDA71A4/6	0,13 0,08	1360 890	0,70 0,64	0,7 0,4	2,3 2,0	4,5 3,0	0,00091	7	7000 10000	225	10
FKDA71B4/6	0,18 0,11	1370 900	0,72 0,67	0,9 0,5	2,3 2,2	4,5 2,9	0,00123	7	7000 10000	225	10,5
FKDA80A4/6	0,26 0,18	1390 930	0,75 0,68	10 0,9	2,4 2,0	4,8 3,0	0,00223	7	7000 10000	225	14
FKDA80B4/6	0,37 0,26	1400 930	0,76 0,69	1,2 1	2,5 2,0	4,8 3,0	0,00280	7	6000 8000	225	15,5
FKDA90SA4/6	0,55 0,37	1410 945	0,77 0,70	1,8 1,6	2,4 2,1	5,5 3,6	0,00356	14	6000 8000	400	20
FKDA90LA4/6	0,75 0,55	1410 945	0,79 0,70	2,4 2	2,3 2,2	5,6 3,3	0,00472	14	9500 8000	400	22
FKDA100LB4/6	1,50 1,10	1420 945	0,79 0,70	2,9 1,8	2,6 2,3	6,1 3,9	0,00996	22	4000 6000	400	39,7
FKDA112MB4/6	2,00 1,30	1430 950	0,80 0,71	3,7 3,6	2,4 2,0	6,6 4	0,01680	22	2000 3000	400	42

Three-phase 4-8 poles - 1500/750 Min.-1

D.C. ELECTROMAGNET

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKD71A4/8	0,13 0,07	1360 680	0,83 0,62	0,8 0,5	2,0 1,8	3,7 2,5	0,00091	7	12000 20000	225	10
FKD71B4/8	0,18 0,09	1360 680	0,82 0,63	0,9 0,6	2,2 1,9	3,8 2,6	0,00123	7	10000 20000	225	10,5
FKD71C4/8	0,22 0,12	1360 670	0,80 0,60	1,1 0,7	2,1 1,9	3,9 2,7	0,00141	7	9000 20000	225	11
FKD80A4/8	0,26 0,18	1410 690	0,83 0,60	1,3 1	2,2 1,9	4,5 3	0,00203	7	7000 14000	225	14,5
FKD80B4/8	0,37 0,26	1415 695	0,84 0,60	1,5 1,3	2,3 1,9	5,0 3,5	0,00280	7	7000 14000	225	15,5
FKD90SA4/8	0,75 0,37	1425 700	0,85 0,60	2,3 1,9	1,9 1,9	4,9 3,2	0,00356	14	6500 12000	400	20
FKD90LB4/8	1,10 0,60	1430 700	0,85 0,60	2,9 2,5	2,1 1,9	5,0 3,0	0,00505	14	6000 10000	400	24
FKD100LB4/8	1,60 0,90	1440 700	0,85 0,61	3,7 3,4	2,2 2,0	5,1 5,5	0,00996	22	4000 8000	400	39,7
FKD112MB4/8	2,20 1,20	1440 700	0,85 0,61	4,6 4,4	2,2 1,9	6,7 6,0	0,01680	22	2000 4000	400	42

Three-phase 4-12 poles - 1500/500 Min.-1

TYPE	KW	Min.-1	COS φ	I n V.400	Ma/Mn	I.A/I.N	J Kgm²	BRAKING TORQUE MF MAX Nm.	START-UP C/h	AMP.V.230 BRAKE D.C. (m A)	WEIGHT KGS.
FKDA80A4/12	0,25 0,05	1400 410	0,78 0,63	0,90 0,70	1,9 1,8	4,0 1,7	0,00203	7	6000 16000	225	14,5
FKDA80B4/12	0,37 0,07	1410 410	0,79 0,64	1,2 0,8	1,9 1,7	4,2 1,6	0,00280	7	6000 16000	225	15,5
FKDA90LA4/12	0,55 0,18	1400 460	0,76 0,65	1,8 1,3	2,1 1,9	4,4 1,5	0,00472	14	5000 15000	400	24
FKDA100LA4/12	0,90 0,30	1410 460	0,79 0,65	2,4 2,2	2,2 1,8	4,5 1,9	0,00864	22	4000 14000	400	36,3
FKDA100LB4/12	1,10 0,37	1410 460	0,79 0,66	2,8 2,7	2,4 1,8	4,9 1,7	0,00916	22	4000 14000	400	39,7
FKDA112MB4/12	1,50 0,45	1430 460	0,79 0,66	3,7 2,8	2,5 1,9	5,5 1,9	0,01680	22	2000 10000	400	42

NOTE:

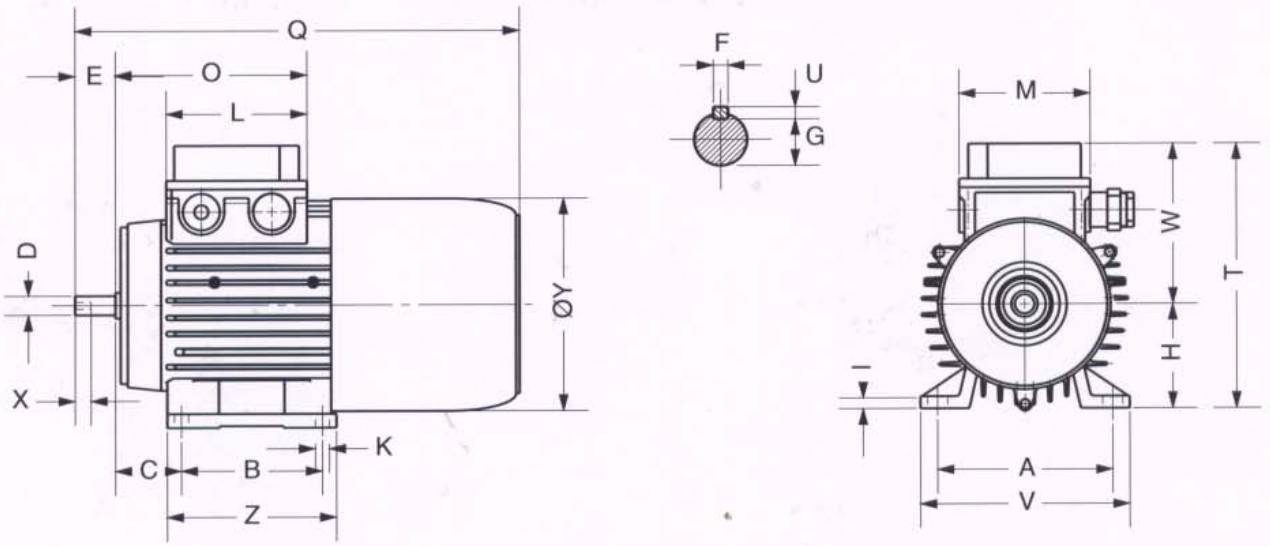
- All 4-12 poles motors are to be used in S3 service conditions.

- We suggest the use of dual metal or ptc protections for 4-12 poles motors.

Overall dimensions

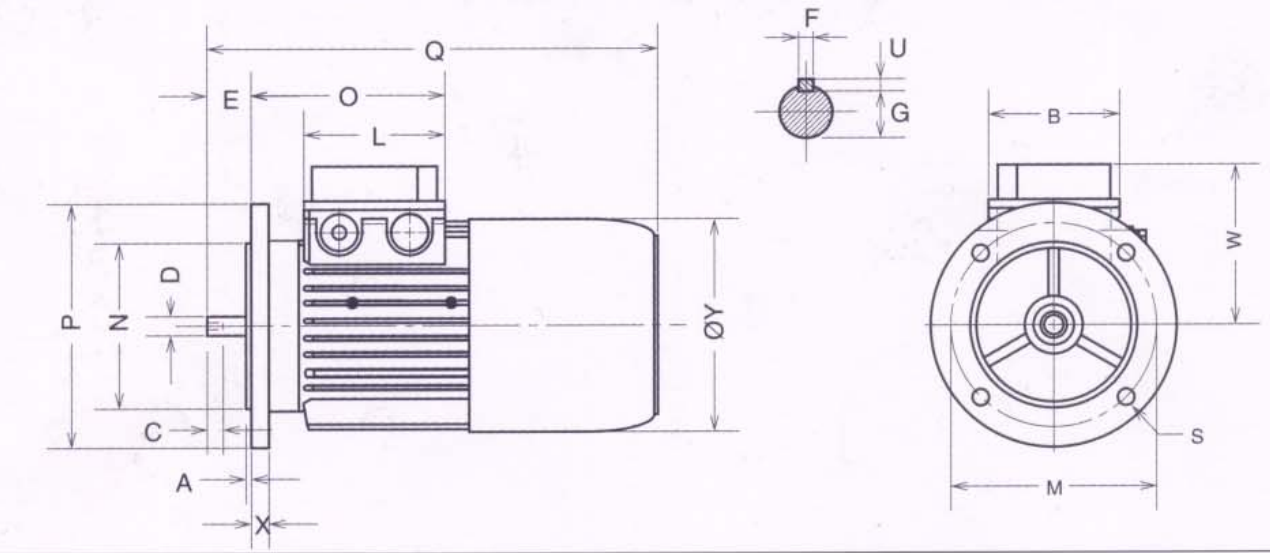
The double box is available upon request for all motor series

B 3 CONSTRUCTIVE FORM



TYPE	A	B	C	D	E	F	G	H	K	I	O	L	M	Q	T	U	V	Z	W	Y	Z
FK 56	90	71	36	9	20	3	7,2	56	6	7	100	75	75	230	132	3	114	95	96	111	M4
FK 63	100	80	32	11	23	4	8,5	63	7	7	110	81	75	248	156	4	120	97	93	125	M4
FK 71	112	90	45	14	30	5	11	71	7	7	112	81	75	270	173	5	134	108	102	140	M5
FK 80	125	100	50	19	40	6	15,5	80	7	8	117	98,5	75	300	194	6	156	126	114	157	M6
FK 90 S	140	100	56	24	50	8	20	90	9	10	141	98,5	98,5	360	218	7	176	128	128	179	M8
FK 90 L	140	125	56	24	50	8	20	90	9	10	141	98,5	98,5	385	218	7	176	151	128	179	M8
FK 100	160	140	63	28	60	8	24	100	9	10	150	98,5	98,5	430	241	7	196	166	141	194	M8
FK 112	190	140	70	28	60	8	24	112	12	15	150	98,5	98,5	470	264	7	230	166	152	222	M8

B 5 CONSTRUCTIVE FORM



TYPE	N	B	C	D	E	F	G	P	O	A	L	M	X	Q	S	U	W	Y
FK 56	80	75	M4	9	20	3	7,2	120	100	2,5	75	100	9	230	7,5	3	96	111
FK 63	95	75	M4	11	23	4	8,5	140	110	2,5	81	115	9	248	9,5	4	93	125
FK 71	110	75	M5	14	30	5	11	160	112	3,5	81	130	10	270	9,5	5	102	140
FK 80	130	75	M6	19	40	6	15,5	200	117	3,5	81	165	12	300	11,5	6	114	157
FK 90 S	130	98,5	M8	24	50	8	20	200	141	3,5	98,5	165	12	360	11,5	7	128	179
FK 90 L	130	98,5	M8	24	50	8	20	200	141	3,5	98,5	165	12	385	11,5	7	128	179
FK 100	180	98,5	M8	28	60	8	24	250	150	3,5	98,5	165	14	430	14	7	141	194
FK 112	180	98,5	M8	28	60	8	24	250	150	3,5	98,5	165	14	470	14	7	141	222

N.B.: Cable press gland from 56 to 63: PG 11; dal 71 al 112: PG 16

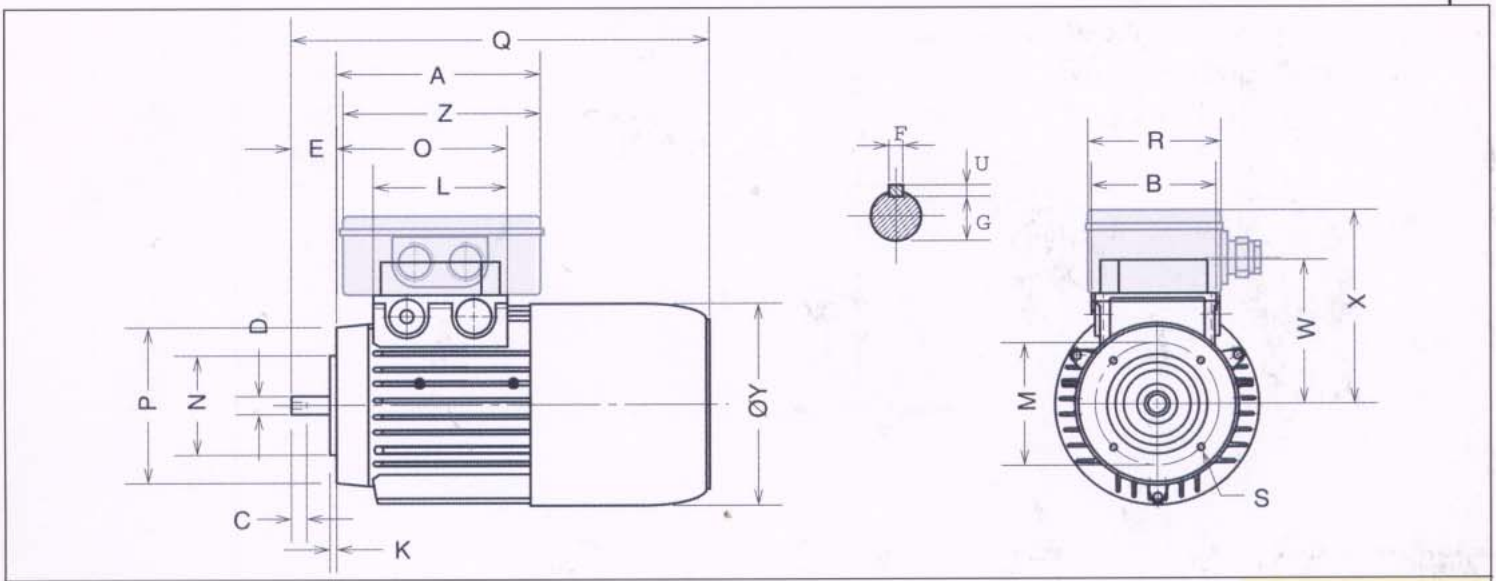
For tollerance values see table on page 2

Overall dimensions for the double boxes are indicated in the dimensions table for B14 constructive form

Overall dimensions

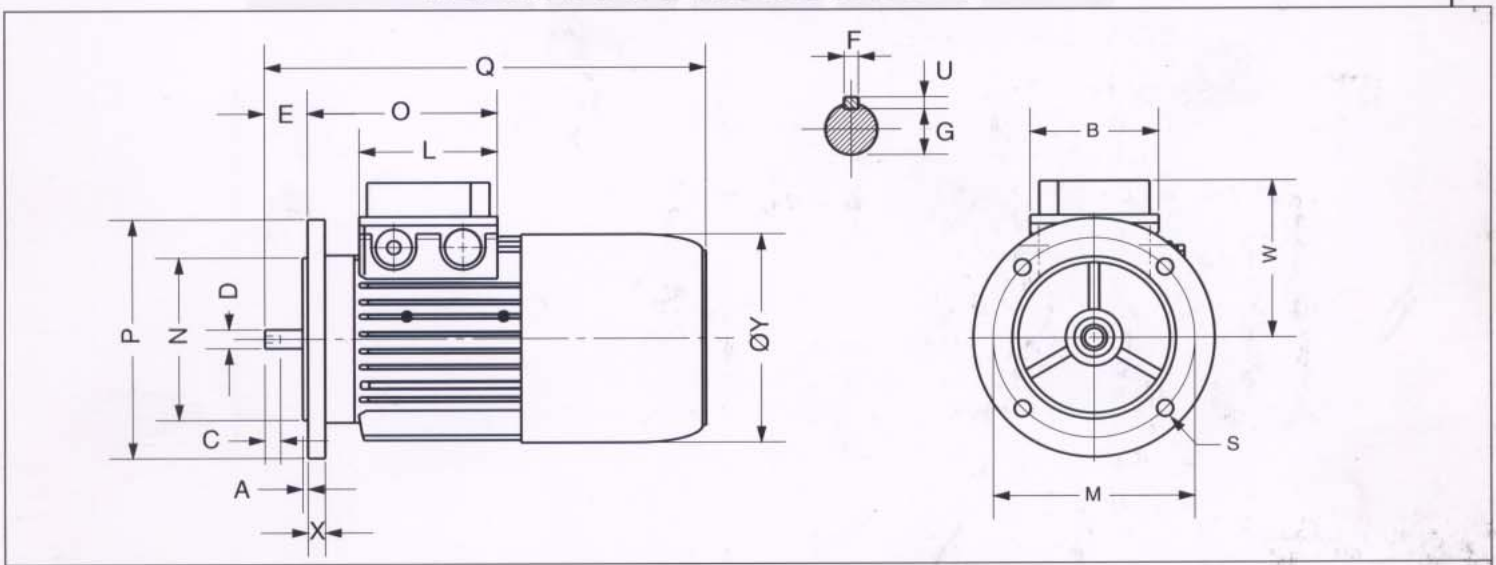
The double box is available upon request for all motor series

B 14 CONSTRUCTIVE FORM



TYPE	N	O	C	D	E	F	G	B	K	L	M	P	Q	S	U	W	Y	A	Z	R	X
FK 56	50	100	M4	9	20	3	7,2	75	2,5	75	65	80	230	M5	3	96	111	—	—	—	—
FK 63	60	110	M4	11	23	4	8,5	75	2,5	81	75	90	248	M5	4	93	125	—	—	—	—
FK 71	70	112	M5	14	30	5	11	75	2,5	81	85	105	270	M6	5	102	140	300	128	83	107
FK 80	80	117	M6	19	40	6	15,5	75	3	81	100	120	300	M6	6	114	157	325	128	83	116
FK 90 S	95	141	M8	24	50	8	20	98,5	3	98,5	115	140	360	M8	7	128	179	340	160	107	131
FK 90 L	95	141	M8	24	50	8	20	98,5	3	98,5	115	140	385	M8	7	128	179	375	160	107	131
FK 100	110	150	M8	28	60	8	24	98,5	3,5	98,5	130	160	430	M8	7	141	194	420	160	107	141
FK 112	110	150	M8	28	60	8	24	98,5	3,5	98,5	130	160	470	M8	7	151	222	475	160	107	141

REDUCED B 5 CONSTRUCTIVE FORM



TYPE	A	B	C	D	E	F	G	N	P	L	M	O	Q	X	U	S	W	Y
FK 63	2,5	75	M4	9	20	3	7,2	80	120	81	100	110	258	9	3	7,5	93	125
FK 71	2,5	75	M4	11	23	4	8,5	95	140	81	115	112	286	9	4	9,5	102	140
FK 80	3	75	M5	14	30	5	11	110	160	81	130	117	325	10	5	9,5	114	157
FK 90 S	3	98,5	M6	19	40	6	15,5	130	200	98,5	165	141	360	12	6	11,5	128	179
FK 90 L	3	98,5	M6	19	40	6	15,5	130	200	98,5	165	141	385	12	6	11,5	128	179
FK 100	3,5	98,5	M8	24	50	8	20	130	200	98,5	165	150	465	12	7	11,5	141	194
FK 112	3,5	98,5	M8	24	50	8	20	130	200	98,5	165	150	480	12	7	11,5	151	222

N.B.: Cable press gland from 56 to 63: PG 11; dal 71 al 112: PG 16

FOR TOLLERANCE VALUES SEE TABLE ON PAGE 2

COEL®

Agent or distributor

Siti-Rus
Converted by SerpantiN

UNI EN ISO 9002

Certified Quality System UNI - EN ISO 9002

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