

INTRODUCTION



STANDARDS AND SPECIFICATIONS

Our motors comply with the relevant European and International norms and regulations, in particular with the following:

STANDARD TITLE	REFERENCE	
	EN Europe	IEC International
Electric rotating machines. Part 1: Rating and Performance characteristics.	EN 60034-1	IEC 60034-1
Electric rotating machines. Part 2-1: Methods for Determining Losses and Efficiency of Rotating Electrical Machinery from Tests.	EN 60034-2-1	IEC 60034-2-1
Electric rotating machines. Part 5: Classification of protection grades offered by protection enclosures.	EN 60034-5	IEC 60034-5
Electric rotating machines. Part 6: Cooling methods (IC code).	EN 60034-6	IEC 60034-6
Electric rotating machines. Part 7: Classification of construction types and Mounting Arrangements (IM code).	EN 60034-7	IEC 60034-7
Electric rotating machines. Part 8: Terminal markings and direction of rotation.	EN 60034-8	IEC 60034-8
Electric rotating machines. Part 9: Noise limits.	EN 60034-9	IEC 60034-9
Electric rotating machines. Part 11: Thermal protection.	-	IEC 60034-11
Electric rotating machines. Part 12: Starting performance of single-speed three-phase cage induction motors running at power supply tensions no greater than 660 V, 50 Hz.	EN 60034-12	IEC 60034-12
Electric rotating machines. Part 14: Mechanical vibration of certain machines with shaft heights 56 mm or higher - Measurement, evaluation and limits of vibration severity.	EN 60034-14	IEC 60034-14
Electric rotating machines. Part 30: Efficiency classes for three-phase induction cage motors of single speed (IE code).	-	IEC 60034-30
Thermal evaluation and designation for the electric isolation.	-	IEC 60085
Standard voltages IEC for electricity supply systems.	-	IEC 60038
Three-phase induction motors of general application with normalized powers and dimensions. Frame size designation from 56 to 315.	EN 50347	IEC 60072

INTRODUCTION



MECHANICAL TOLERANCE VALUES

Symbol	Short description	Tolerance
A	Between drilling centers on feet in an axial direction	± 1 mm
AB, AC	Maximum motor width (without terminal box)	+ 2 %
B	Between drilling centers on feet in a transversal direction	± 1 mm
C	From the center of the first foot hole to shaft flange	± 3 mm
D	Outer shaft diameter	k6 up to 48 mm m6 from 55 mm
E	Shaft diameter < than 55 mm Shaft diameter > than 60 mm	- 0.3 mm + 0.5 mm
F	Cotter width	h9
GA	Inferior shaft plan to superior cotter plan	+ 0.2 mm
H	Height from shaft center to feet base	- 0.5 \leq 250 mm - 1 \geq 280 mm
HD	Total height (from lowest point to highest point)	+ 2 %
K, S	Diameter of fixation holes, feet or flange	+ 3 %
L	Total motor length	+ 1 %
M	Between centers of flange fixation drilling holes	± 0.8 mm
N	Diameter of flange rim	j6 up to 230 mm h6 from 250 mm
P	Outer flange diameter	± 1 mm
	Highlight shaft to flange plan, with blocked bearing	± 0.5 mm
	Highlight shaft to flange plan	± 3 mm
m	Motor weight	From - 5 a + 10 %

ELECTRICAL TOLERANCE VALUES

Electrical parameters. In compliance with EN 60034-1 standard:

Efficiency (η) (Indirect measurement)	- 0.15 (1- η) for Nominal Power $P_N \leq 150$ kW - 0.1 (1- η) for $P_N > 150$ kW
Power factor (Cos φ)	$\frac{1-\cos\varphi}{6}$ minimum 0.02 maximum 0.07
Slippage (rpm) (At nominal temperature and load)	$\pm 20\%$ for $P_N \geq 1$ kW $\pm 30\%$ for $P_N < 1$ kW
Intensity at start (I_A)	+ 20% (without lower limit)
Torque at start (M_A)	-15% and +25%
Nominal torque (M_k) (maximum)	-10% (for this M_k value / M_n value must be of at least 1.6)
Minimum torque (M_s)	-15%
Moment of inertia (J)	$\pm 10\%$
Sound level (sound pressure)	+3 dB (A)

GENERAL INFORMATION



MAIN FEATURES

Our asynchronous three-phase and mono-phase motors have the following features, designed in accordance with IEC 60034, IEC 60038, IEC 60072; frame sizes 56 - 355; power 0,06 - 315 kW, valid for continuous operation (S1) at nominal voltage and frequency values; as well as for a maximum room temperature of 40°C, and at a maximum altitude of 1000 m. For single speed 2, 4, 6 and 8 pole motors at 230/400 V or 400/690 V, 50 Hz and 230 V 50 Hz. Class F isolating, and class B heating temperature. IP 55 protection, which prevents penetration of powders and water jets from all directions.

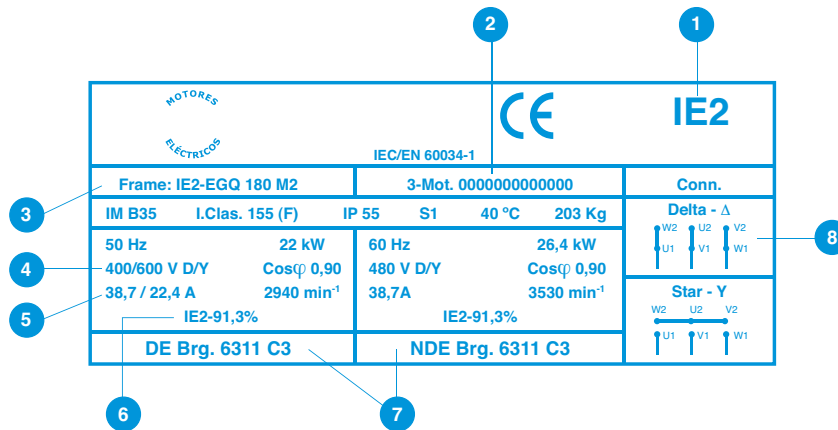
Part	Material	MS / MY Series	EG Series
Frame	Aluminum (MS MY series) Cast Iron (EG series)	Pressure cast aluminum Removable feet Eyebolt frame \geq 100 Ground connection	Cast iron Eyebolt Ground connection
Shields and Flanges	Aluminum (MS MY series) Cast iron (EG series)	Pressure cast aluminum Steel insertion on bearing housing	Cast iron Greaser
Stator	Cold laminated magnetic sheets Electrolytic copper	Made with vacuum double impregnation and pressurized with synthetic resins (VIP)	Produced with vacuum double impregnation and pressurized with synthetic resins (VIP) PTC thermistors
Terminal box	Aluminum (MS MY series) Cast iron (EG series)	90 ° adjustable in the 4 positions Equipped with glands Internal ground connection	90 ° adjustable in the 4 positions Equipped with glands Internal ground connection
Rotor	Cold laminated magnetic sheet Aluminum	Dynamic balancing with half key Hot mounting on the shaft	Dynamic balancing with half key Hot mounting on the shaft with driving key
Shaft	Steel	Front threaded hole Rounded key	Front threaded hole Rounded key
Bearings		Ball bearings with twin sealing, live lubricated Pre-loaded on shaft side	Ball bearings with twin sealing, live lubricated Pre-loaded on shaft side
Retainers	Synthetic rubber	Retainers on each sides for all sizes	Retainers on each sides for all sizes
Fan	Thermoplastic or aluminum (option)	Radial bidirectional blades	Radial bidirectional blades
Fan cover	Steel sheet	V1 position (vertical B5 shaft to down) with drain cover (option)	V1 position (vertical B5 shaft to down) with drain cover (option)
Painting	Epoxy paint	Blue color, RAL 5010 (MS series) Black color, RAL 9005 (MY series)	Blue color, RAL 5010

GENERAL INFORMATION



SPECIFICATION PLATE

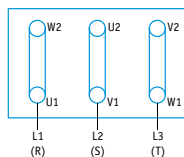
Each motor is identified by a specification plate which shows all data required by the IEC 60034-30:2008 standard. The nameplate is made of aluminum or steel depending on the series, and is located on lateral side or on the frame's motor top.



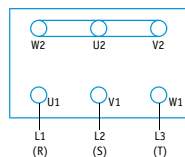
- 1 Efficiency class logo (IE1 or IE2)
- 2 Serial number
- 3 Type (IE2-EGQ 180M 2): efficiency class (IE2), serial (EGQ), frame size (180M) and poles (2)
- 4 Nominal voltage at 50 Hz
- 5 Nominal intensity at 50 Hz
- 6 Class of efficiency IE and nominal efficiency with 100% loading at 50 Hz
- 7 Type of bearings
- 8 Connection diagram (for motors with frame size ≥ 160)

CONNECTION DIAGRAM

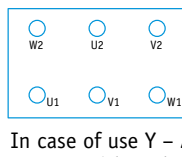
Three-phase motor 1 speed



Low voltage (Δ)



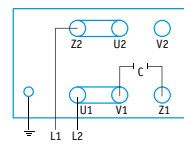
High voltage (Y)



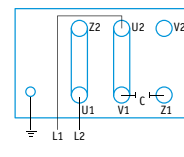
In case of use Y - Δ commutator without bridges, to connect according to supplier's diagram.

Starter (Y - Δ)

Single-phase motor



Clockwise



Anti clockwise

MECHANICAL FEATURES



TYPES OF CONSTRUCTION

motors in sizes 56 to 355 can be supplied in the construction types shown on the following table. Basic types of construction are designated in accordance with EN 60034-7. Motors in construction types IM B3, IM B5 or IM B14 can also be used in other mounting arrangements.

IM B3 in IM V5, IM V6, IM B6, IM B7, IM B8.

IM B35 in IM V15, IM V36, IM 2051, IM 2061, IM 2071.

IM B34 in IM 2111, IM 2131, IM 2151, IM 2161, IM 2171.

IM B5 in IM V1 and IM V3. (Through-hole THT flange).

IM B14 in IM V18 and IM V19. (Flange with threaded holes).

For sizes 160 to 355 in any type of construction, please refer to the manufacturer, in particular forms IM V5, IM V6, IM B6, IM B7 and IM B8.

Forms IM B5 and IM V3 cannot be adapted to sizes 315 and 355. For size 280 please refer to the manufacturer.

Basic construction types		Other construction types			
IM B3 IM 1001	IM V5 IM 1011	IM V6 IM 1031	IM B6 IM 1051	IM B7 IM 1061	IM B8 IM 1071
IM B35 IM 2001	IM V15 IM 2011	IM V36 IM 2031	IM 2051	IM 2061	IM 2071
IM B34 IM 2101	IM 2111	IM 2131	IM 2151	IM 2161	IM 2171
IM B5 IM 3001	IM V1 IM 3011	IM V3 IM 3031			
IM B14 IM 3601	IM V18 IM 3611	IM V19 IM 3631			

MECHANICAL FEATURES



Serial motors MS /MY

BEARINGS

MS/MY motor series are produced as standard with rigid ball bearings with double rubber sealing on each side, they are lubricated for life, so are free maintained.

Motor		Bearing	
Frame Size	Poles	D-end	N-end
56	2-4-6-8	6201 2RS C3	6201 2RS C3
63	2-4-6-8	6201 2RS C3	6201 2RS C3
71	2-4-6-8	6202 2RS C3	6202 2RS C3
80	2-4-6-8	6204 2RS C3	6204 2RS C3
90	2-4-6-8	6205 2RS C3	6205 2RS C3 (6204 2RS C3*)
100	2-4-6-8	6206 2RS C3	6206 2RS C3
112	2-4-6-8	6306 2RS C3	6306 2RS C3
132	2-4-6-8	6308 2RS C3	6308 2RS C3
160	2-4-6-8	6309 2RS C3	6309 2RS C3

* This shows bearing reference for three-phase motors series IE1-MSL.

RETAINERS

MS/MY series use radial shaft double-lib spring-loaded retainers in order to improve motor enclosure efficiency.

Motor		Retainers	
Size	Poles	Front	Rear
56	2-4-6-8	12x22x5	12x22x5
63	2-4-6-8	12x24x5	12x24x5
71	2-4-6-8	15x25x7	15x25x7
80	2-4-6-8	20x34x7	20x34x7
90	2-4-6-8	25x37x7	25x37x7 (20x34x7*)
100	2-4-6-8	30x44x7	30x44x7
112	2-4-6-8	30x44x7	30x44x7
132	2-4-6-8	40x58x7	40x58x7
160	2-4-6-8	45x65x8	45x65x8

* This shows bearing reference for three-phase motors series IE1-MSL.

Note: The dimensions of bearings and retainers are not restricted to the series, for more information please ask.

ELECTRICAL DATA

Asynchronous single-phase motors with permanent condenser.
External cooling IC 411, continuous service S1.
F isolating class, IP 55 protection, 50 Hz.

Synchronous speed 3000 rpm - 2 poles

Aluminum motors **MY** series

TYPE	Power		n	I (Amp)	η	Cos φ	M_A/M_N	M_S/M_N	I_A	Permanent	Noise	m
	kW	CV	rpm	230 V	%				(A)	condensator	level	Kg
										(μ f/V)	dB(A)	
MY 56 1-2	0.09	0.12	2760	0.81	54	0.90	0.70	1.6	3	4 μ f/450V	67	2.9
MY 56 2-2	0.12	0.17	2770	0.98	58	0.92	0.70	1.6	4	6 μ f/450V	67	3.2
MY 63 1-2	0.18	0.25	2780	1.42	60	0.92	0.70	1.7	5	10 μ f/450V	70	4.0
MY 63 2-2	0.25	0.33	2780	1.94	61	0.92	0.68	1.7	7	12 μ f/450V	70	4.5
MY 71 1-2	0.37	0.5	2800	2.75	63	0.93	0.63	1.7	12	20 μ f/450V	75	5.1
MY 71 2-2	0.55	0.75	2810	3.50	72	0.95	0.63	1.7	15	25 μ f/450V	75	7.2
MY 80 1-2	0.75	1	2810	4.77	72	0.95	0.45	1.7	20	25 μ f/450V	75	9.6
MY 80 2-2	1.1	1.5	2810	6.80	74	0.95	0.43	1.7	28	35 μ f/450V	78	11.0
MY 90 S-2	1.5	2	2820	9.15	75	0.95	0.35	1.8	40	45 μ f/450V	80	14.0
MY 90 L-2	2.2	3	2820	13.08	77	0.95	0.35	1.8	60	60 μ f/450V	80	16.5
MY 100 L-2	3	4	2840	17.83	77	0.95	0.35	1.8	75	80 μ f/450V	83	25.0

Synchronous speed 1500 rpm - 4 poles

Aluminum motors **MY** series

TYPE	Power		n	I (Amp)	η	Cos φ	M_A/M_N	M_S/M_N	I_A	Permanent	Noise	m
	kW	CV	rpm	230 V	%				(A)	condensator	level	Kg
										(μ f/V)	dB(A)	
MY 56 1-4	0.06	0.09	1360	0.59	48	0.92	0.75	1.6	2.5	4 μ f/450V	63	3.5
MY 56 2-4	0.09	0.12	1370	0.83	51	0.92	0.75	1.6	3	6 μ f/450V	63	3.8
MY 63 1-4	0.12	0.17	1380	1.09	52	0.92	0.65	1.6	3.5	10 μ f/450V	65	4.0
MY 63 2-4	0.18	0.25	1380	1.55	55	0.92	0.65	1.5	5.5	12 μ f/450V	65	4.6
MY 71 1-4	0.25	0.33	1380	2.15	55	0.92	0.60	1.5	8	20 μ f/450V	65	5.7
MY 71 2-4	0.37	0.5	1380	2.91	60	0.92	0.55	1.5	10	20 μ f/450V	68	6.7
MY 80 1-4	0.55	0.75	1400	3.93	64	0.95	0.45	1.7	15	20 μ f/450V	70	9.5
MY 80 2-4	0.75	1	1410	5.05	68	0.95	0.45	1.7	20	25 μ f/450V	70	10.5
MY 90 S-4	1.1	1.5	1410	6.90	73	0.95	0.45	1.8	30	40 μ f/450V	73	14.5
MY 90 L-4	1.5	2	1420	9.38	74	0.94	0.45	1.8	40	45 μ f/450V	75	16.2
MY 100 L1-4	2.2	3	1430	13.75	74	0.94	0.30	1.8	60	80 μ f/450V	78	24.0
MY 100 L2-4	3	4	1440	17.83	77	0.95	0.45	1.7	76	100 μ f/450V	80	32.0

Synchronous speed 1000 rpm - 6 poles

Aluminum motors **MY** series

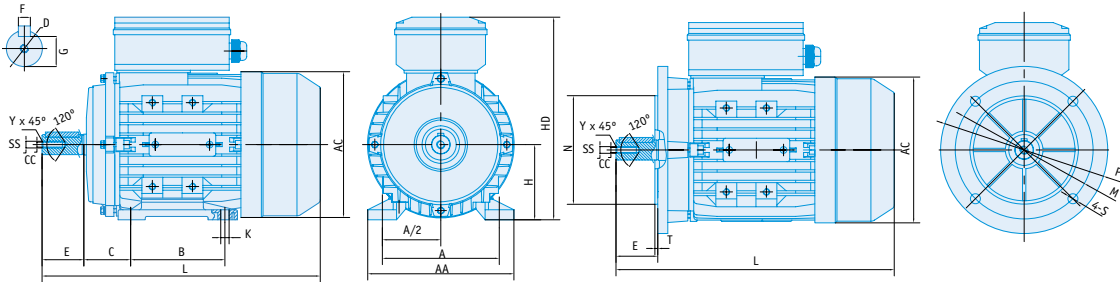
TYPE	Power		n	I (Amp)	η	Cos φ	M_A/M_N	M_S/M_N	I_A	Permanent	Noise	m
	kW	CV	rpm	230 V	%				(A)	condensator	level	Kg
										(μ f/V)	dB(A)	
MY 63 1-6	0.09	0.12	900	0.92	46	0.92	0.55	1.45	2	8 μ f/450V	63	5.1
MY 63 2-6	0.12	0.16	900	1.05	54	0.92	0.55	1.45	3	11 μ f/450V	63	6.0
MY 71 1-6	0.18	0.25	900	1.55	55	0.92	0.60	1.5	4	16 μ f/450V	68	6.3
MY 71 2-6	0.25	0.33	900	2.07	57	0.92	0.60	1.5	5	20 μ f/450V	68	7.6
MY 80 1-6	0.37	0.55	900	2.69	65	0.92	0.35	1.6	8	25 μ f/450V	68	9.0
MY 80 2-6	0.55	0.75	900	3.84	67	0.93	0.35	1.6	14	30 μ f/450V	70	11.6
MY 90 S-6	0.75	1	900	4.97	69	0.95	0.35	1.6	16	40 μ f/450V	70	13.5
MY 90 L-6	1.1	1.5	900	7.19	70	0.95	0.35	1.6	25	50 μ f/450V	70	16.2

* The electrical data are not restricted to the series, for more detailed information please ask. Data MY series.

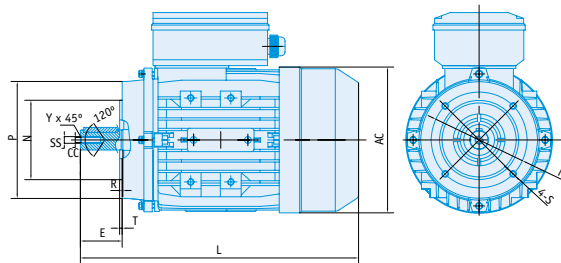
DIMENSIONS

Aluminum motors **MY** series

Construction Types B3 - B5 - B5R - B14 - B14G



IM B3 / IM 1001										Shaft Tolerances k6					IM B5 / IM 3001 4 Holes at 45°				
Frame	A	AA	AC	B	C	H	HD	K	L	D	SS	E	F	G	M	N	P	S	T
56	90	110	117	71	36	56	144	5.8x8.8	196	9	M3	20	3	7.2	100	80	120	7	3.0
63	100	120	130	80	40	63	181	7x10	220	11	M4	23	4	8.5	115	95	140	10	3.0
71	112	132	147	90	45	71	196	7x10	255	14	M5	30	5	11	130	110	160	10	3.5
80	125	160	163	100	50	80	226	10x13	290	19	M6	40	6	15.5	165	130	200	12	3.5
90S	140	175	183	100	56	90	243	10x13	312	24	M8	50	8	20	165	130	200	12	3.5
90L	140	175	183	125	56	90	243	10x13	367	24	M8	50	8	20	165	130	200	12	3.5
100	160	198	205	140	63	100	265	12x15	387	28	M10	60	8	24	215	180	250	15	4.0



IM B5R 4 Holes at 45°					
Frame	M	N	P	S	T
56	NOT AVAILABLE				
63	NOT AVAILABLE				
71	115	95	140	10	3.0
80	130	110	160	12	3.5
90	130	110	160	12	3.5
100	165	130	200	15	3.5

IM B14 / IM 3601 4 Holes at 45°					
Frame	M	N	P	S	T
56	65	50	80	M5	2.5
63	75	60	90	M5	2.5
71	85	70	105	M6	2.5
80	100	80	120	M6	3.0
90	115	95	140	M8	3.0
100	130	110	160	M8	3.5

IM B14G / IM 3601 G 4 Holes at 45°					
Frame	M	N	P	S	T
56	NOT AVAILABLE				
63	100	80	120	M6	2.5
71	115	95	140	M8	3.0
80	130	110	160	M8	3.5
90	130	110	160	M8	3.5
100	165	130	200	M10	3.5

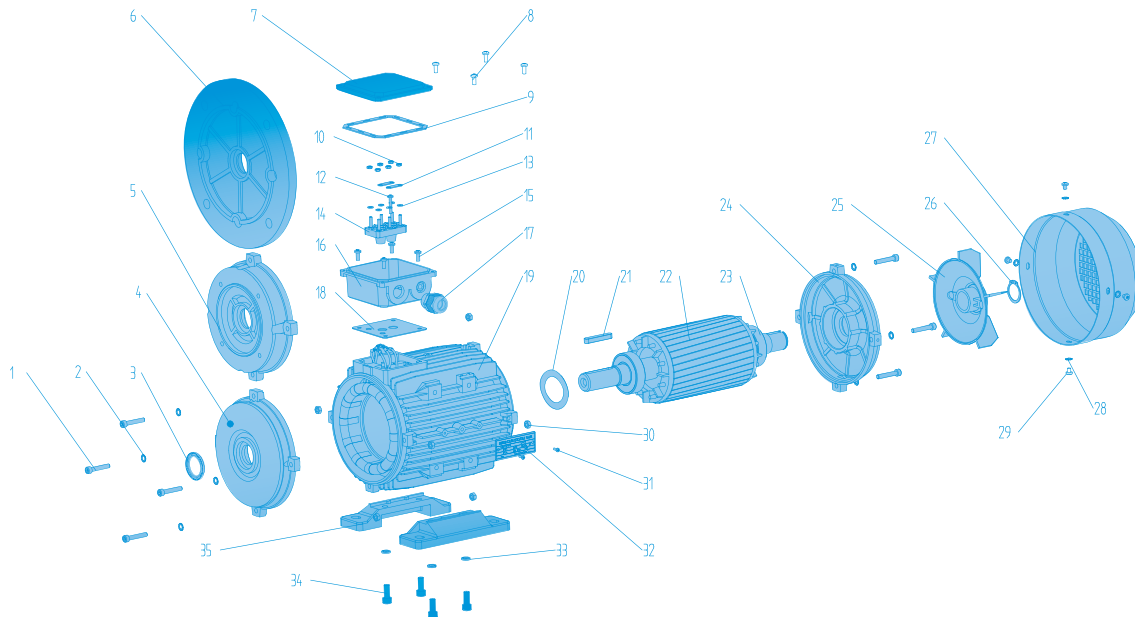
* The dimensions are not restricted to the series, for more info please ask. Dimensions MY series.

SPARE PARTS



Aluminum motors

SPARE PARTS
Aluminum motor **MS** series, frame size 56-160.



- | | |
|----------------------------|--------------------|
| 1 Front shield screw | 19 Frame |
| 2 Grower washer | 20 Wavy washer |
| 3 Retainer | 21 Key |
| 4 Front shield | 22 Rotor + shaft |
| 5 Flange B14 | 23 Bearing |
| 6 Flange B5 | 24 End shield |
| 7 Terminal box cover | 25 Fan |
| 8 Terminal box cover screw | 26 Circlip |
| 9 Terminal box cap joint | 27 Fan cover |
| 10 Terminal box nut | 28 Grower washer |
| 11 Bridges | 29 Fan cover screw |
| 12 Terminal box screw | 30 End shield nut |
| 13 Flat washer | 31 Rivet |
| 14 Terminal plate | 32 Nameplate |
| 15 Screw terminal plate | 33 Grower washer |
| 16 Terminal box plate | 34 Screw feet |
| 17 Cable gland | 35 Feet |
| 18 Terminal box base joint | |

* The spare parts are not restricted to the series, for more information please ask. Parts series MS.

WARRANTIES, RETURNS AND COMPLAINTS



WARRANTIES

- We guarantee the supplied motors against faulty materials or manufacture for a period of one year from the date of shipment, taking as the valid date that indicated on the deliver note. Except with specific agreement made at the time of the offer or the acceptance of the order.
- All repairs will be carried out in Our workshops. Costs relating to the disassembly, packing, transport, customs, taxes etc. incurred in the shipment of the product to Our workshop and its subsequent delivery are not covered by the warranty.
- We can agree with the purchaser to carry out repairs or replacement of the defective parts in the purchaser's workshops. We will not accept responsibility for repairs carried out by third parties.
- The warranty consists of the repair or replacement of defective parts, caused by defective materials or manufacturing faults. If applicable, we will replace the complete defective motor for a new one and assume the shipment costs of the return and re-shipping.
- The repair or replacement of a defective part does not change the initial of date warranty period of the supplied goods. However, the replaced or repaired parts will be guaranteed for one year from the date of repair or replacement.
- Excluded from the warranty application: damages caused by normal wear and tear, damage or defects caused by an incorrect installation, inadequate care or maintenance, incorrect storage or handling, modifications made without written authorization from Our side, and all general causes non-attributable to us.
- For reasons explained above, We are not responsible for defects in motors or goods supplied after a period exceeding one year from the delivery date.
- We will not be responsible, in any case, for indirect and/or consequential damage that might occur as a result of the goods supplied; loss of production, breakdowns or cost of stops, etc.
- The total contractual liability of Us for the goods supplied is limited to the value of the goods that have given rise to the claim. Such limitation shall not apply to liability for direct damage to people and property.
- It is exclusive responsibility and care of the buyer or end-user for the proper functioning, or care, or maintenance of the goods supplied.

REFUNDS. COMPLAINTS.

- We will not accept goods for refund without previous agreement with the Purchaser. We stipulate a 15 day period after the goods are received by the Purchaser, for notifying Us of the intention to return the goods, to provide the related justification, and agree with Us the refund procedure. In all cases the Purchaser's complaint to Us must be in writing and in a certifiable manner.
- The costs of returns or goods shipments to Our facilities, either for refund, replacement or repair, must always be met by the Purchaser.
- We will not accept the return of goods that have been used, mounted in other equipment or installations, or that have been disassembled by parties other than .
- We will not accept the return of goods, which have been designed or manufactured specially to order.



ELECTRIC MOTORS

Single Phase | Three Phase | Self-braking | Anti-explosion pump | Flameproof | Variable speed

MECHANICAL SEALS FOR ROTARY SHAFTS