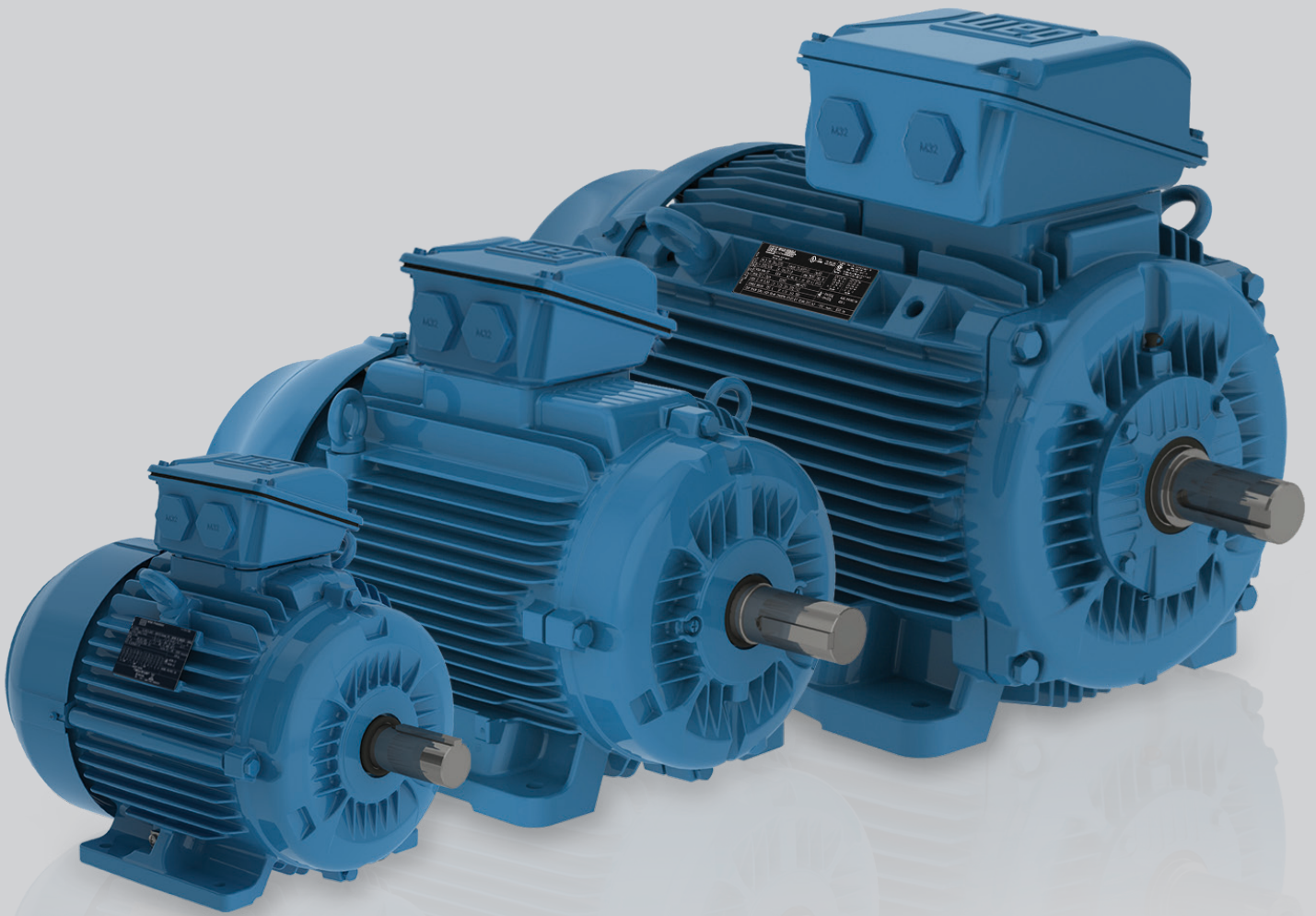


# W22 GOST

Three-Phase Electric Motor  
Technical Catalogue



Motors | Automation | Energy | Transmission & Distribution | Coatings

# W22

In order to serve the markets that require the power-to-frame ratio according to the GOST R 51689-2000 (GOST 28330-89) standard, WEG offers the W22 GOST line, using modern and proven technologies, WEG gives new life to this concept.

High efficiency coupled with low cost of ownership throughout the motor's lifetime have been the basis for the W22 development. A design created to anticipate concepts in performance and energy savings.

The increasing demand for electrical energy to sustain global development requires consistent heavy investments in power supply generation. However, in addition to complex medium and long term planning, these investments rely on natural resources, which are becoming depleted due to constant pressures upon the environment.

The best strategy, therefore, to maintain energy supply in the short term is to avoid wastage and increase energy efficiency.

Electric motors play a major role in this strategy, since around 40% of global energy demand is estimated to be related to electric motor Applications. Consequently, any initiatives to increase energy efficiency, by using high efficiency electric motors and frequency inverters, are to be welcomed, as they can make a real contribution to reductions in global energy demand.

At the same time as efficiency initiatives make an impact in traditional market sectors, the application of new technologies in emerging sectors is resulting in profound changes in the way that electric motors are applied and controlled.

By integrating these changes together with the demands for increased energy efficiency, WEG has taken up the challenge and produced a new design of high efficiency motor, one that exceeds the performance of the previous WEG's W21 motor line, which is recognised worldwide for its quality, reliability and efficiency.

Using the latest generation of computerised tools, such as structural analysis software (finite element analysis) and computer fluid dynamics, as well as electrical design optimization software, an innovative - next generation - product has been developed: the W22 motor.

Several key objectives have been achieved in the design of the W22 motor:

- Reduction of noise and vibration levels;
- Increased energy efficiency and reduced thermal footprint;
- Easy maintenance;
- Flexible and modular design.



### Lower Total Operational Costs

A product which can operate throughout its lifetime consuming the minimum amount of energy whilst delivering high levels of productivity under continuous operation, without unplanned stops and with optimum performance, thus generating the maximum value to the user - this is the philosophy of the W22 design.



### Energy Efficiency Level

W22 GOST motors are supplied with IE1 Efficiency Level assuring even greater energy savings and reduced return on investment.



### Versatility

The W22 concept permits the terminal box to be assembled on the top or either side of the motor. For frame sizes 225S/M to 355M/L, a top mounted terminal box can, with the use of an adaptor, be relocated to the left or right side without disassembly of the complete motor, thus reducing modification times and reducing inventories.



### Built to Last

W22 GOST motors are constructed using high quality FC-200 (EN GJL 200) cast iron in WEG's own foundries, assuring maximum durability and high performance in arduous environments. Fan covers were designed to provide greater resistance to impacts, whilst the endshields were developed to maximise bearing heat dissipation.







# Product Overview

## Standard Features

- Three-phase motors
- Efficiency level: IE1\*
- Cooling method: TEFC (Totally enclosed fan cooled) - IC411 according to DIN EN 60034-6
- Rated output: 0.37 to 355 kW
- Number of poles: 2, 4, 6 and 8
- Frame sizes: 71 up to 355M/L
- Frequency: 50 Hz
- Voltage: 220/380 V (up to frame size 180M)  
380/660 V (200M and above)
- Design N
- Color: RAL 5009
- Service factor: 1.00
- Ambient temperature: -45 up to +40 °C, at 1000 m.a.s.l.
- Class "F" insulation
- Degree of protection: IP55
- Mounting: B3T
- Vibration level: Grade A
- Continuous duty: S1
- Thermistors (1 per phase) for frames 160M and above
- Squirrel cage rotor / Aluminium die cast
- Shaft seal: V'Ring seal
- Stainless steel nameplate with EAC marking
- Fan cover: Steel for frames 71 to 132M/L  
Cast iron for frames 160 to 355M/L
- Grease nipple for frames 225S/M to 355M/L
- Metric threaded cable entries
- WISE® (WEG Insulation System Evolution)\*\*
- Insulated non-drive endshield for frames 315S/M to 355M/L
- Terminal block: BMC (6 terminals)
- Terminal box material: cast iron
- Threaded plastic plug on the terminal box cables outlet

### Notes:

\*Efficiency values are given according to GOST IEC 60034-30-1-2016.

## Optional Available

- Voltage: 380/660 V (112M to 180M)
- Other mounting forms: Flange FF, FT (C-DIN)
- Class "H" insulation
- Vibration level: Grade B
- Space heaters
- Thermal protection: RTD (Pt-100) in windings and bearings
- Cable glands

## Certification




- Excellent cost versus benefit ratio
- Easier maintenance
- Improved efficiency levels
- Optimisation of environmental resources
- Updated electrical features
- Low noise levels
- Reduced vibration

# Components Design

## Cooling System

### Fan Cover

- Aerodynamic concept
- Easier assembly
- Better air flow distribution over frame
- Increased mechanical strength
- Provisions for encoder and canopy

### Fan

- Reduction of fan blades
- Reinforced fan hub structure
- Noise level reduction
- Increased air flow

## Frame

- Terminal box positioned at DE to improve heat dissipation (frames 225S/M to 355M/L)
- Reduced winding and bearing temperatures

### Vibration Monitoring

- Flat areas at both ends for placement of accelerometers

### Eyebolts

- Safer and easier handling
- High mechanical resistance

### Solid Feet

- Higher resistance to impacts
- Suitable for applications with high vibration
- Easier installation and alignment

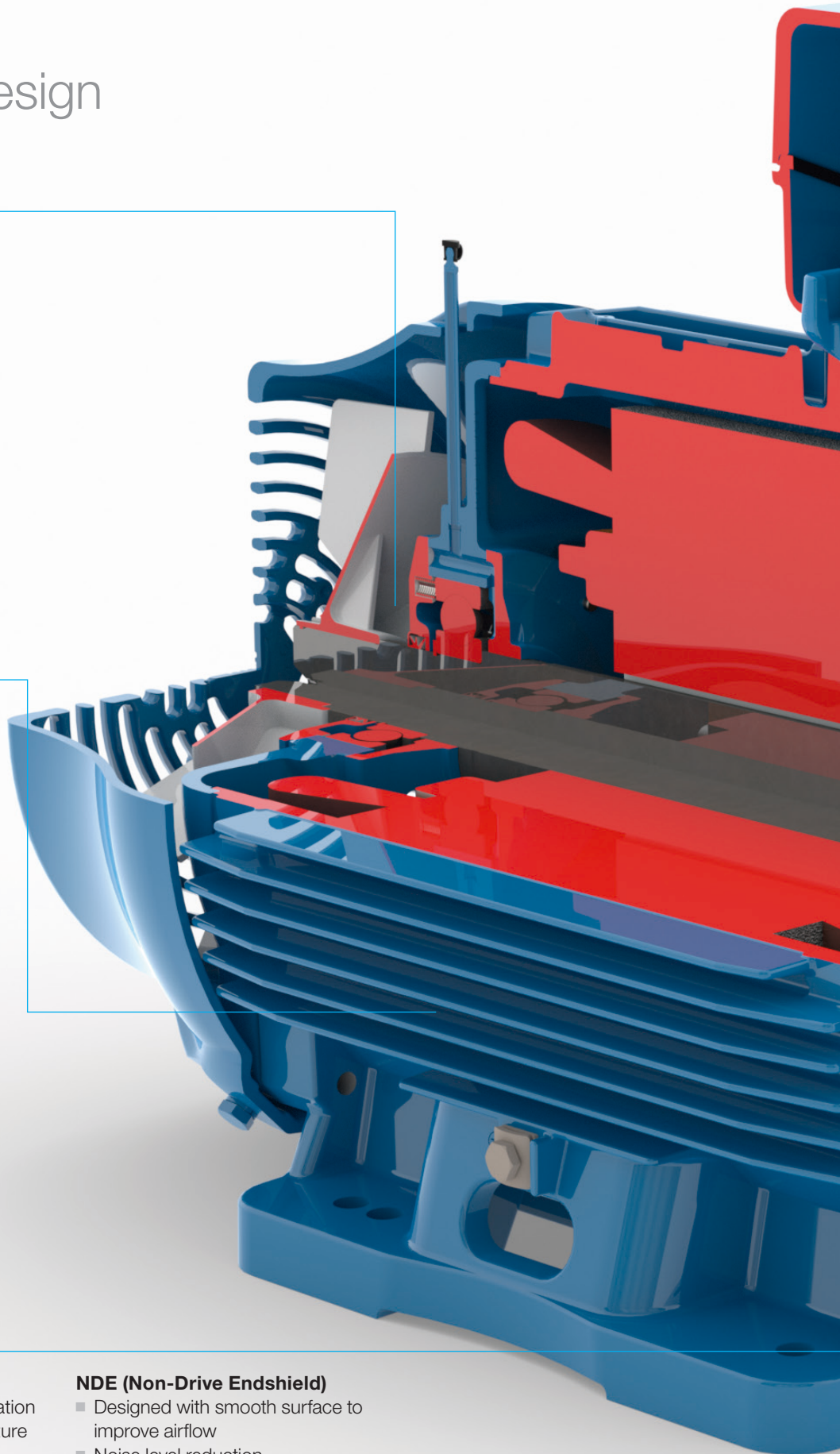
## Endshields Subsystem

### DE (Drive Endshield)

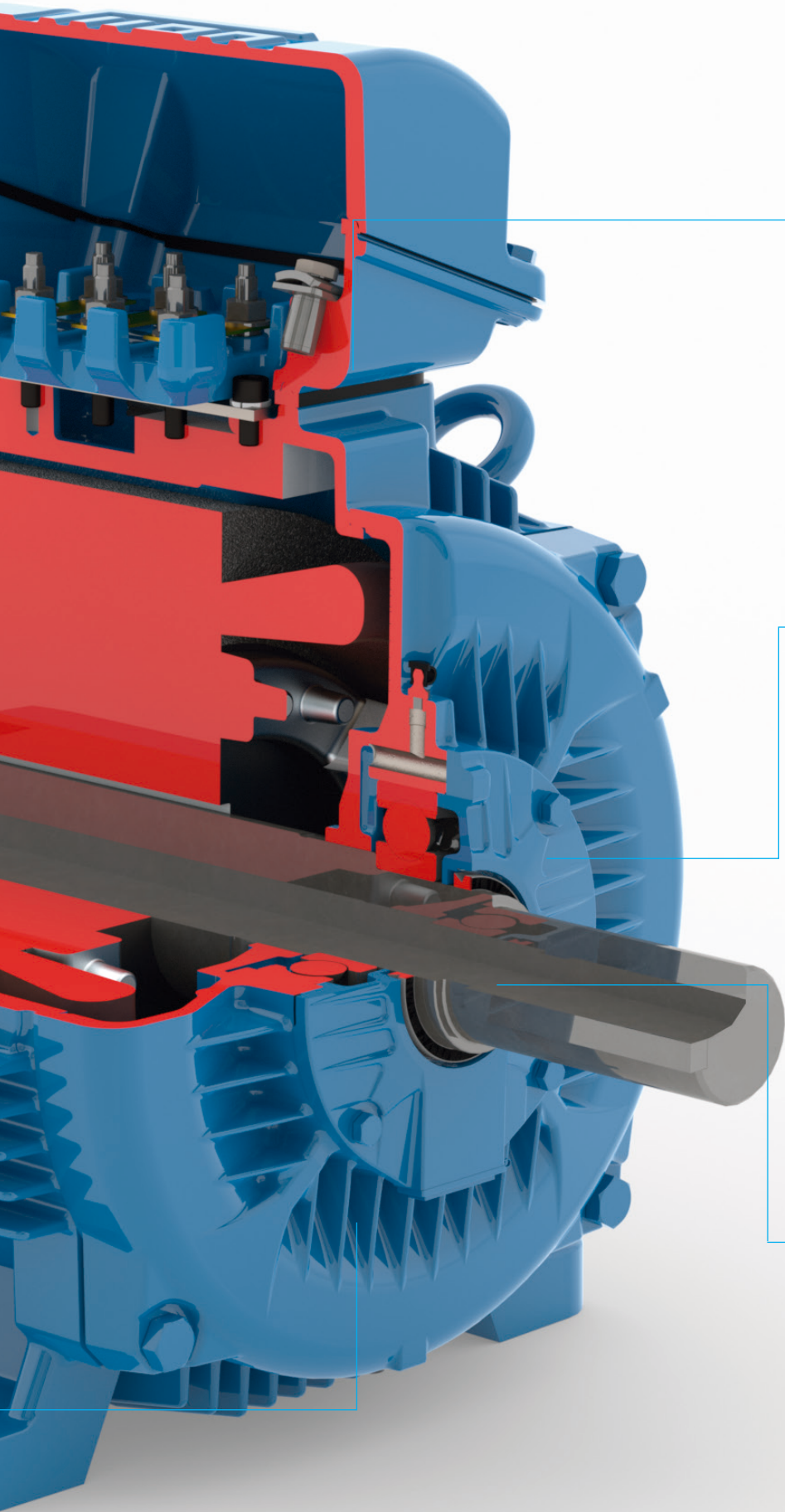
- Cooling fins for improved heat dissipation
- Reduced bearing operating temperature
- Reinforced endshield structure
- Bolt protection

### NDE (Non-Drive Endshield)

- Designed with smooth surface to improve airflow
- Noise level reduction
- Structure stiffening to avoid machining deformation







### Terminal Box

- Diagonally split for easier cable installation
- More space available for accessory connections
- Flexible mounting (B3T, B3R, B3L) for frames 225S/M to 355M/L
- Rotation 4 x 90°
- Bulk Moulding Compound terminal block (BMC)

### Bearing Caps

#### External

- Finned surface for improved bearing heat dissipation

#### Internal

- Redesigned grease path
- Improvement in lubrication quality
- Reduced grease operating temperatures

### Sealing System

- Increased dust and moisture protection
- V-Ring sealing



# Electrical Data

## W22 GOST - IE1 Efficiency

Output		Frame	Full Load Torque (Nm)	Locked Rotor Current I <sub>L</sub> /I <sub>n</sub>	Locked Rotor Torque T <sub>L</sub> /T <sub>n</sub>	Break-down Torque T <sub>b</sub> /T <sub>n</sub>	Inertia J (kgm <sup>2</sup> )	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	% of full load						Voltage (V)	Full load current I <sub>n</sub> (A)	
kW	HP							Efficiency					Power Factor			Hot	Cold				
								50	75				100	50	75			100			
II pole - 3000 rpm - 50 Hz																					
0,37	0,50	63	1,24	4,4	2,2	2,6	0,00033	12	26	11	56	2845	58,80	63,90	63,90	0,51	0,65	0,76	220	2,002	
0,55	0,75	63	1,87	4,6	1,9	2,4	0,00044	10	22	13	56	2810	69,00	69,00	69,00	0,63	0,77	0,86	220	2,435	
0,75	1	71	2,53	5,3	3,7	3,6	0,00051	10	22	14	56	2830	69,80	72,10	72,10	0,51	0,66	0,76	220	3,596	
1,1	1,5	L71	3,77	5,5	3,8	3,3	0,00062	11	24	16	56	2790	74,50	75,00	75,00	0,57	0,71	0,82	220	4,699	
1,5	2	L80	5,06	6,4	4,7	3,9	0,00103	14	31	21	59	2830	77,20	77,20	77,20	0,54	0,68	0,78	220	6,545	
2,2	3	L80	7,45	7,0	4,5	3,7	0,00141	12	26	26	59	2820	79,00	79,70	79,70	0,62	0,75	0,82	220	8,845	
3	4	90L	10,00	6,5	3,9	3,7	0,00268	7	15	31	64	2865	79,20	81,50	81,50	0,48	0,62	0,72	220	13,40	
4	5,5	100S	13,15	8,5	3,6	3,9	0,00641	9	20	43	67	2905	80,90	83,10	83,10	0,63	0,77	0,85	220	14,90	
5,5	7,5	L100L	18,24	8,0	3,0	3,2	0,00802	6	13	49	67	2880	84,70	84,70	84,70	0,75	0,85	0,89	220	19,20	
7,5	10	L112M	24,87	7,7	3,2	3,4	0,01013	10	22	62	64	2880	85,50	86,00	86,00	0,69	0,79	0,85	220	27,00	
11	15	L132M	35,67	8,8	3,5	4,0	0,03418	6	13	109	68	2945	85,60	87,60	87,60	0,67	0,79	0,85	220	38,80	
15	20	160S	48,56	8,9	3,4	4,3	0,05158	7	15	145	67	2950	87,30	88,70	88,70	0,56	0,70	0,78	220	57,00	
18,5	25	160M	59,99	8,3	3,3	3,9	0,06263	7	15	162	67	2945	89,30	89,30	89,30	0,68	0,80	0,85	220	64,00	
22	30	180S	71,22	7,9	3,3	3,5	0,09055	12	26	204	67	2950	89,90	89,90	89,90	0,63	0,75	0,82	220	78,40	
30	40	180M	97,12	8,4	3,1	3,1	0,11922	11	24	237	67	2950	90,70	90,70	90,70	0,71	0,81	0,85	220	102,0	
37	50	200M	119,38	7,4	3,0	3,1	0,17879	14	31	297	72	2960	91,10	91,20	91,20	0,66	0,77	0,82	380	75,30	
45	60	200L	144,94	8,5	3,4	3,5	0,22039	10	22	336	72	2965	91,40	91,70	91,70	0,62	0,74	0,80	380	93,30	
55	75	225S/M	177,15	8,4	2,7	3,5	0,27310	10	22	442	75	2965	92,10	92,10	92,10	0,69	0,79	0,84	380	108,0	
75	100	250S/M	241,98	8,9	3,1	3,5	0,42452	11	24	557	75	2960	92,70	92,70	92,70	0,73	0,82	0,86	380	143,0	
90	125	250S/M	290,37	8,9	3,1	3,3	0,54338	11	24	640	75	2960	93,00	93,00	93,00	0,79	0,86	0,88	380	167,0	
110	150	280S/M	352,87	8,3	2,2	3,4	0,97763	17	37	796	77	2977	93,30	93,30	93,30	0,67	0,77	0,82	380	219,0	
132	175	280S/M	423,59	8,4	2,2	3,3	1,15538	17	37	874	77	2976	93,50	93,50	93,50	0,73	0,82	0,85	380	253,0	
160	220	315S/M	513,27	7,3	2,1	3,0	1,86112	26	57	1148	77	2977	93,80	93,80	93,80	0,74	0,82	0,86	380	302,0	
200	270	315S/M	640,51	8,7	2,8	3,6	2,65908	20	44	1379	77	2982	94,00	94,00	94,00	0,79	0,86	0,88	380	368,0	
250	340	355	800,64	8,9	3,0	3,5	3,41882	19	42	1614	77	2982	94,00	94,00	94,00	0,83	0,88	0,90	380	450,0	
315	430	355M/L	1006,78	9,0	2,9	4,1	4,71848	19	42	2150	80	2988	94,00	94,00	94,00	0,68	0,79	0,84	380	607,0	
355	480	355M/L	1135,00	8,8	2,6	3,5	5,25467	20	44	2255	80	2987	94,00	94,00	94,00	0,79	0,86	0,88	380	653,0	
IV pole - 1500 rpm - 50 Hz																					
0,37	0,50	63	2,55	3,8	2,1	2,1	0,00071	19	42	13	43	1385	58,20	66,00	66,00	0,50	0,60	0,73	220	2,018	
0,55	0,75	71	3,82	4,2	3,4	2,8	0,00088	28	62	15	43	1375	67,50	70,00	70,00	0,44	0,57	0,67	220	3,081	
0,75	1	L71	5,29	4,7	3,2	2,9	0,00110	29	64	18	43	1355	72,10	72,10	72,10	0,50	0,60	0,70	220	3,904	
1,1	1,5	80	7,50	5,5	2,7	2,7	0,00321	8	18	21	44	1400	73,40	75,00	75,00	0,57	0,70	0,80	220	4,817	
1,5	2	L80	10,34	5,5	2,9	2,6	0,00389	6	13	24	44	1385	75,50	77,20	77,20	0,59	0,73	0,82	220	6,226	
2,2	3	90L	14,69	6,6	2,7	2,7	0,00655	6	13	32	49	1430	79,00	79,70	79,70	0,57	0,71	0,80	220	9,066	
3	4	L100S	19,90	6,9	3,0	3,1	0,01191	7	15	48	53	1440	80,70	81,50	81,50	0,53	0,68	0,77	220	12,60	
4	5,5	L100L	26,90	7,0	3,9	3,3	0,01191	10	22	51	53	1420	83,10	83,10	83,10	0,54	0,68	0,77	220	16,40	
5,5	7,5	112M	36,48	6,7	2,7	2,8	0,01798	9	20	63	56	1440	84,00	84,70	84,70	0,55	0,69	0,77	220	22,20	
7,5	10	132S	49,08	7,0	2,0	2,9	0,05631	6	13	95	60	1460	82,00	86,00	86,00	0,63	0,76	0,83	220	27,60	
11	15	132M/L	72,45	7,3	2,1	2,7	0,07884	8	18	121	60	1450	87,60	87,60	87,60	0,75	0,84	0,88	220	37,50	
15	20	160S	97,45	7,7	3,1	3,5	0,12577	7	15	166	61	1470	88,00	88,70	88,70	0,59	0,73	0,80	220	55,50	
18,5	25	160M	119,78	8,1	3,4	3,8	0,16034	7	15	193	61	1475	88,70	89,30	89,30	0,58	0,71	0,79	220	68,90	
22	30	180S	143,41	7,1	2,9	3,0	0,16605	12	26	217	61	1465	89,90	89,90	89,90	0,65	0,77	0,82	220	78,40	
30	40	180M	195,67	7,7	3,2	3,2	0,21754	8	18	250	61	1465	90,30	90,70	90,70	0,61	0,73	0,80	220	109,0	
37	50	200M	239,56	7,5	2,9	3,0	0,37355	13	29	349	65	1475	91,20	91,20	91,20	0,67	0,78	0,83	380	74,40	
45	60	200L	290,37	8,4	3,6	3,6	0,40023	7	15	366	65	1480	91,30	91,70	91,70	0,53	0,67	0,75	380	99,50	
55	75	225S/M	356,10	6,8	2,4	2,6	0,69030	17	37	517	68	1475	91,50	92,10	92,10	0,77	0,84	0,87	380	104,0	
75	100	250S/M	485,59	6,7	2,3	2,4	1,14295	13	29	663	68	1475	92,70	92,70	92,70	0,78	0,85	0,87	380	141,0	
90	125	250S/M	580,74	7,9	3,0	3,1	1,21019	9	20	686	68	1480	93,00	93,00	93,00	0,72	0,81	0,85	380	173,0	
110	150	280S/M	707,88	7,8	2,7	3,2	1,78760	11	24	810	71	1484	93,30	93,30	93,30	0,65	0,75	0,81	380	221,0	
132	175	280S/M	848,89	8,3	2,8	3,1	2,33166	13	29	943	71	1485	93,50	93,50	93,50	0,69	0,79	0,83	380	259,0	
160	220	315S/M	1025,50	7,3	2,6	2,8	3,01161	21	46	1192	71	1490	93,80	93,80	93,80	0,69	0,79	0,83	380	313,0	
200	270	315S/M	1281,88	7,8	2,8	3,0	3,77496	18	40	1357	71	1490	94,00	94,00	94,00	0,67	0,77	0,82	380	395,0	
250	340	355S	1604,26	6,0	2,0	2,3	7,15949	20	44	1960	76	1489	94,00	94,00	94,00	0,68	0,79	0,83	380	487,0	
315	430	355M/L	2018,96	6,5	2,3	2,6	8,02152	17	37	2103	76	1490	94,00	94,00	94,00	0,69	0,79	0,82	380	622,0	
355	480	355M/L	2276,53	6,5	2,3	2,4	10,69536	24	53	2550	76	1490	94,00	94,00	94,00	0,65	0,76	0,82	380	701,0	

Notes:

(1) Efficiency values are given according to GOST IEC 60034-30-1-2016.



W22 GOST - IE1 Efficiency

Output		Frame	Full Load Torque (Nm)	Locked Rotor Current I <sub>L</sub> /I <sub>n</sub>	Locked Rotor Torque T <sub>L</sub> /T <sub>n</sub>	Break-down Torque T <sub>b</sub> /T <sub>n</sub>	Inertia J (kgm <sup>2</sup> )	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	% of full load						Voltage (V)	Full load current I <sub>n</sub> (A)
kW	HP							Efficiency					Power Factor							
								Hot	Cold				50	75	100	50	75	100		
VI pole - 1000 rpm - 50 Hz																				
0,37	0,50	71	3,80	3,4	2,2	2,3	0,00253	24	53	18	43	930	59,00	59,70	59,70	0,49	0,62	0,72	220	2,262
0,55	0,75	71	5,71	3,7	2,3	2,1	0,00304	18	40	20	43	920	64,50	65,80	65,80	0,51	0,65	0,75	220	2,928
0,75	1	L80	7,79	4,5	2,8	2,5	0,00372	13	29	23	43	920	65,20	70,00	70,00	0,50	0,62	0,72	220	3,910
1,1	1,5	80	11,24	4,5	2,5	2,1	0,00658	17	37	31	45	935	72,90	72,90	72,90	0,54	0,68	0,76	220	5,216
1,5	2	L90L	15,40	4,7	2,7	2,3	0,00768	9	20	35	45	930	74,00	75,20	75,20	0,46	0,62	0,70	220	7,487
2,2	3	L100L	22,00	5,2	2,6	2,7	0,01755	9	20	49	44	955	71,60	77,70	77,70	0,43	0,56	0,66	220	11,30
3	4	112M	30,16	5,5	2,6	2,6	0,02568	12	26	60	49	950	79,00	79,70	79,70	0,51	0,64	0,72	220	13,70
4	6	L112M	39,59	6,5	3,9	3,8	0,02934	14	31	66	49	965	77,50	81,40	81,40	0,45	0,55	0,66	220	19,60
5,5	7,5	132S	55,03	6,0	2,3	2,3	0,05298	20	44	95	53	955	83,10	83,10	83,10	0,57	0,68	0,75	220	23,20
7,5	10	132M/L	74,26	7,0	2,8	2,8	0,07569	17	37	120	53	965	84,60	84,70	84,70	0,51	0,63	0,71	220	32,80
11	15	160S	107,74	6,3	3,0	3,2	0,15800	11	24	165	57	975	85,40	86,40	86,40	0,52	0,66	0,74	220	45,20
15	20	L160M	147,00	7,0	3,3	3,4	0,21945	9	20	205	57	975	85,00	87,70	87,70	0,56	0,68	0,76	220	59,13
18,5	25	180M	180,28	8,4	3,2	3,7	0,29581	6	13	236	56	980	87,90	88,60	88,60	0,56	0,70	0,78	220	70,30
22	30	200M	213,30	6,6	2,9	3,3	0,36857	10	22	295	60	985	85,60	88,20	89,20	0,45	0,59	0,68	380	55,20
30	40	200L	292,35	6,3	2,5	2,7	0,49053	11	24	352	60	980	90,00	90,20	90,20	0,59	0,71	0,78	380	64,90
37	50	225S/M	360,56	6,9	2,6	2,8	0,71920	13	29	442	63	980	90,00	90,80	90,80	0,66	0,77	0,82	380	75,60
45	60	250S/M	436,29	7,1	2,8	2,9	1,01208	12	26	520	64	985	91,40	91,40	91,40	0,60	0,73	0,79	380	94,80
55	75	250S/M	533,25	7,2	2,9	3,1	1,23498	11	24	585	64	985	90,00	91,90	91,90	0,58	0,71	0,78	380	117,0
75	100	280S/M	726,42	6,4	2,2	2,5	2,79495	18	40	836	65	986	92,00	92,60	92,60	0,65	0,75	0,80	380	154,0
90	125	280S/M	869,94	7,5	2,7	2,9	3,03247	12	26	876	65	988	92,90	92,90	92,90	0,61	0,73	0,78	380	189,0
110	150	315S/M	1060,04	6,7	2,3	2,7	4,70146	19	42	1152	67	991	93,30	93,30	93,30	0,58	0,71	0,77	380	233,0
132	175	315S/M	1270,77	7,3	2,6	3,0	5,78642	17	37	1294	67	992	93,50	93,50	93,50	0,56	0,69	0,75	380	286,0
160	220	355S	1540,32	5,3	1,9	2,2	6,94674	33	73	1648	73	992	93,80	93,80	93,80	0,65	0,75	0,79	380	328,0
200	270	355M/L	1925,40	5,2	1,8	2,2	7,40985	31	68	1713	73	992	93,80	94,00	94,00	0,61	0,72	0,77	380	420,0
250	340	355M/L	2399,50	7,2	2,9	3,3	12,01793	22	48	2307	73	995	93,00	94,00	94,00	0,48	0,61	0,69	380	586,0
315	430	355M/L	3032,51	5,5	2,0	2,2	13,86684	26	57	2545	73	992	94,00	94,00	94,00	0,66	0,76	0,80	380	637,0
VIII pole - 750 rpm - 50 Hz																				
0,37	0,50	80B8	5,16	3,0	2,4	1,8	0,00338	24	53	22	42	685	46,70	49,70	49,70	0,43	0,54	0,66	220	2,964
0,55	0,75	90L	7,50	3,5	2,1	2,0	0,00576	40	88	29	44	700	55,50	56,10	56,10	0,44	0,56	0,66	220	3,903
0,75	1	L90L	10,38	3,6	1,9	1,7	0,00768	28	62	35	44	690	60,60	61,20	61,20	0,50	0,61	0,72	220	4,472
1,1	1,5	90LB8	14,90	3,6	1,5	1,7	0,01431	17	37	43	50	705	63,50	66,50	66,50	0,46	0,59	0,67	220	6,487
1,5	2	100L	20,61	3,9	1,9	1,8	0,01431	27	59	45	50	695	70,00	70,00	70,20	0,45	0,58	0,66	220	8,506
2,2	3	112M	30,45	4,3	2,5	2,3	0,02384	23	51	59	46	690	74,00	74,20	74,20	0,49	0,63	0,71	220	11,00
3	4	112MB8	40,35	6,1	2,4	2,7	0,07890	23	51	100	48	710	76,50	77,00	77,00	0,51	0,64	0,72	220	14,20
4	5,5	132S	53,06	7,1	3,6	4,0	0,09863	14	31	115	48	720	75,50	79,20	79,20	0,39	0,52	0,62	220	21,40
5,5	7,5	132M	72,45	4,3	2,0	2,1	0,11411	17	37	108	51	725	80,50	81,40	81,40	0,52	0,65	0,73	220	24,30
7,5	10	160S	98,79	5,0	2,2	2,2	0,14922	19	42	159	51	725	82,50	83,10	83,10	0,51	0,62	0,70	220	33,90
11	15	L160M	144,90	5,3	2,6	2,6	0,21945	13	29	210	51	725	82,00	85,00	85,00	0,49	0,60	0,68	220	50,00
15	20	180M	197,59	6,6	2,5	2,7	0,32586	9	20	249	52	725	85,50	86,20	86,20	0,60	0,71	0,78	220	58,60
18,5	25	200M	242,02	4,3	1,8	2,0	0,43958	22	48	327	56	730	86,00	86,90	86,90	0,60	0,70	0,76	380	42,60
22	30	200L	287,81	5,0	2,1	2,2	0,49233	14	31	352	56	730	86,00	86,90	87,40	0,52	0,63	0,70	380	54,70
30	40	225S/M	389,80	7,6	2,6	2,1	0,72143	11	24	439	56	735	87,50	88,30	88,30	0,55	0,67	0,74	380	69,80
37	50	250S/M	487,38	6,5	1,8	2,3	1,28810	14	31	588	56	725	88,00	88,80	88,80	0,69	0,79	0,83	380	76,40
45	60	250S/M	588,70	7,8	2,5	3,1	1,38011	9	20	612	56	730	88,50	89,20	89,20	0,59	0,71	0,80	380	95,90
55	75	280S/M	712,69	5,0	1,5	1,9	2,70794	25	55	814	59	737	89,00	89,70	89,70	0,64	0,74	0,79	380	118,0
75	100	280S/M	970,53	5,3	1,7	1,9	3,61059	21	46	967	59	738	89,00	90,30	90,30	0,64	0,74	0,79	380	160,0
90	125	315S/M	1163,06	5,4	1,6	1,9	5,67455	29	64	1264	62	739	90,00	90,70	90,70	0,69	0,77	0,80	380	189,0
110	150	315S/M	1421,52	5,5	1,7	1,9	6,92763	30	66	1429	62	739	90,50	91,10	91,10	0,67	0,76	0,81	380	227,0
132	175	355S	1696,64	5,7	1,5	2,3	8,26963	24	53	1564	70	743	91,50	91,50	91,50	0,59	0,70	0,76	380	289,0
160	220	355M/L	2053,76	6,3	1,9	2,6	10,10733	18	40	1745	70	744	91,00	91,90	91,90	0,51	0,64	0,71	380	373,0
200	270	355M/L	2570,66	6,3	1,7	2,5	13,78272	20	44	2100	70	743	92,50	92,50	92,50	0,62	0,73	0,78	380	422,0
250	340	355M/L	3213,32	6,5	1,8	2,5	18,07068	23	51	2527	70	743	92,50	92,50	92,50	0,63	0,74	0,79	380	520,0

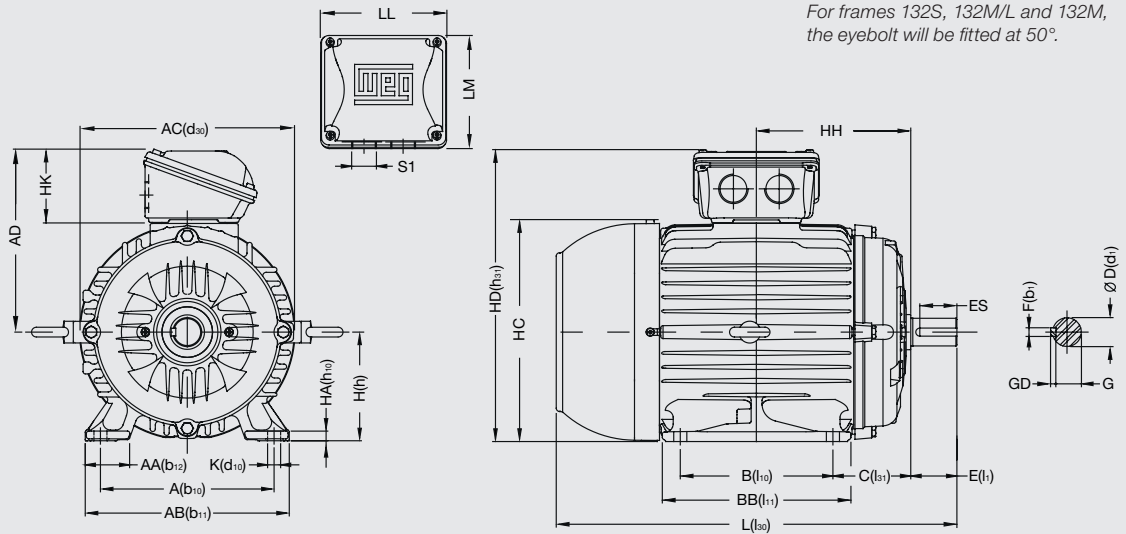
Notes:

(1) Efficiency values are given according to GOST IEC 60034-30-1-2016.

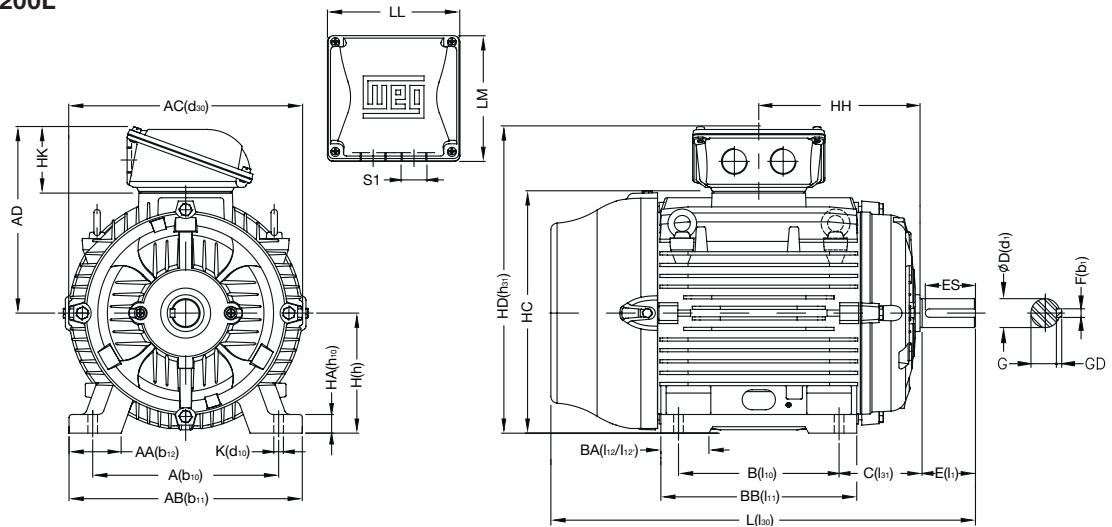
# Mechanical Data

## Foot Mounted Motors, Terminal Box Top

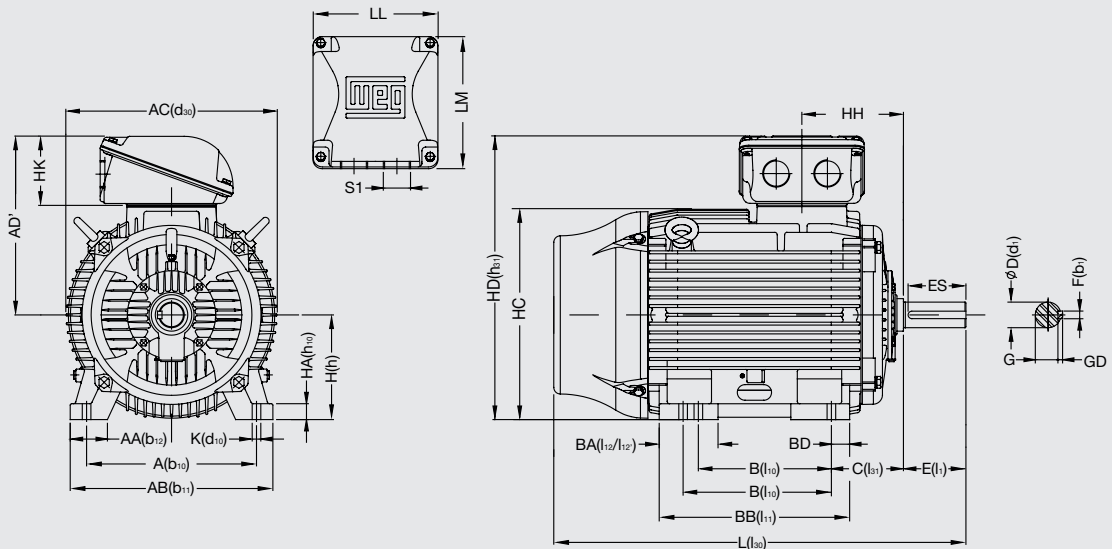
### Frames 71 to L132M/L



### Frames 160M to 200L



### Frames 225 to 355M/L



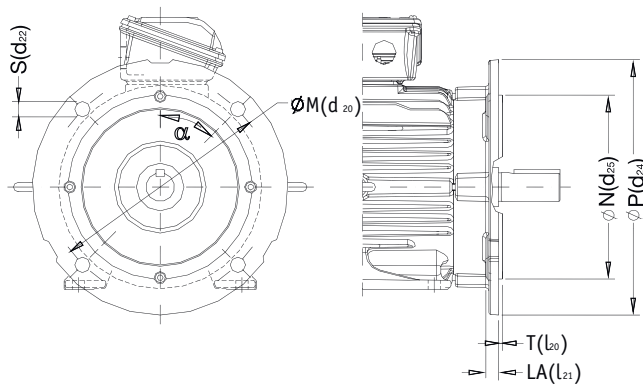


Frame	A (h <sub>10</sub> )	AA (h <sub>12</sub> )	AB (h <sub>11</sub> )	AC (d <sub>30</sub> )	AD	AD'	B (l <sub>10</sub> )	BA (l <sub>12</sub> /l <sub>12'</sub> )	BB (l <sub>11</sub> )	BD	C (l <sub>31</sub> )	DE Shaft end					H (h)	HA (h <sub>10</sub> )	HC	HD (h <sub>31</sub> )	HH	HK	LL	LM	K (d <sub>10</sub> )	L (l <sub>10</sub> )	S1	Bearing					
												D (d <sub>1</sub> )	E (l <sub>1</sub> )	ES	F (h <sub>1</sub> )	G												GD	DE	NDE			
71	112	28,5	132	141	131		90	113,5			45	19j6	40	28	6	15,5		71	7	145	163,8	90						7	260	2xM20x1,5	6204 Z-C3	6202 Z-C3	
L71																													303				
80																													287				
L80	125	30,5	149	159	140		100	125,5			50	22j6			6	18,5		80	8	163	174,3	100						10	312	6205 Z-C3	6203 Z-C3		
90L																													329				
L90L	140	37	164	179	149		125	156			56	24j6	50	36			20	90	9	182	182,4	118,5	59	108	98			359	6205 Z-C3	6204 Z-C3			
100S																													376	2xM25x1,5			
L100S																													414				
100L																													376		6206 Z-C3	6205 Z-C3	
L100L																													414				
112M	190	40,5	220	226	192		140	177			70	32j6						112		226	280	140						449	6307 Z-C3	6206 Z-C3			
L112M																															452		
132S																															477		
L132S																													489	2xM32x1,5	6308 Z-C3	6207 Z-C3	
132M	216	45,5	248	272	220		178	225			89	38k6	80	63	10	33		132	16	274	319	178	80	140	133			514					
L132M																													515				
132M/L							178/203	250																					540				
L132M/L																																	
160S*																																	
160S							178																										
160M*	254	44	292	329	266		210	254			108	42k6					12	37											598	6309 Z-C3	6209 Z-C3		
160M												48k6					14	42,5	9														
L160M												42k6					12	37	8	160	17	331	380	213									
180S*																																	
180S							203																										
180M*	279	57	329	360	281		241	294			121	48k6	110	80			14	42,5	9					101	198,5	190	15	628	2xM40x1,5	6311 Z-C3			
180M																																	
200M*																																	
200M							267	332																									
200L*	318	82	385	402	319		305	370			133	60m6	140	125	18	53	11	200	30	407	464	285,5	119,5	230	220								
200L												55m6	110	100	16	49	10																
225S/M*	356	80	436	455		384	286/311	124	412	41	149																						
225S/M																																	
250S/M*	406		506	486		398	311/349	146	467	59	168	65m6					18	58	11	250	43	493	583	214									
250S/M																																	
280S/M*	457	100	557	599		472	368/419	151	517	49	190	75m6	140	125	20	67,5	12	280	42	580	700	266	152	314	312								
280S/M												80m6	170	160	22	71	14																
315S/M*	508	120	630	657		530	406/457	184	626	70	216	70m6	140	125	20	67,5	12	315	48	644	768	264	176	379	382								
315S/M												90m6	170	160	25	81	14																
355M/L*	610	140	750	736		620	560/630	230	760	65	254	85m6	210	200	28	90	16	355	50	723	898	339	220	404	436								
355M/L												100m6	210	200	28	90	16																

Notes:  
 (\*) Dimension applicable to 2 pole motors.  
 (\*\*) All dimensions are in mm.

Flange Mounted Motors

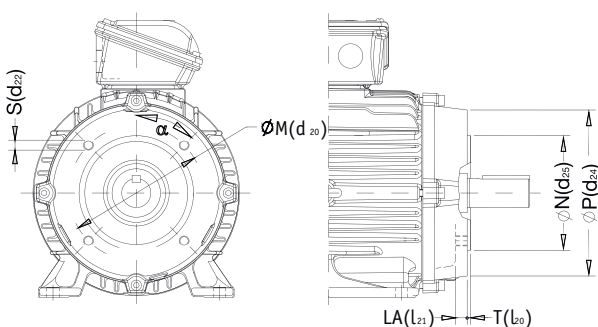
“FF” Flange



Frame	Flange	LA (l <sub>21</sub> )	M (d <sub>20</sub> )	N (d <sub>25</sub> )	P (d <sub>24</sub> )	S (d <sub>22</sub> )	T (l <sub>20</sub> )	α (α°)	N° of holes (n)			
71	FF-165	9	165	130	200	11	3,5	45°	4			
80												
90	FF-215	10	215	180	250	14	4					
100			12,5									
112	FF-265	11	265	230	300							
132	FF-300	15	300	250	350	19	5					
160			18									
180	FF-350	17,5	350	300	400							
200	FF-400	17	400	350	450							
225	FF-500	18	500	450	660					24	6	
250			20									
280	FF-600	16	600	550								
315			22									
355	FF-740		740	680				800				

\*Only for motors fitted with air deflector in drive end side.  
 \*\* Dimensions are in mm.

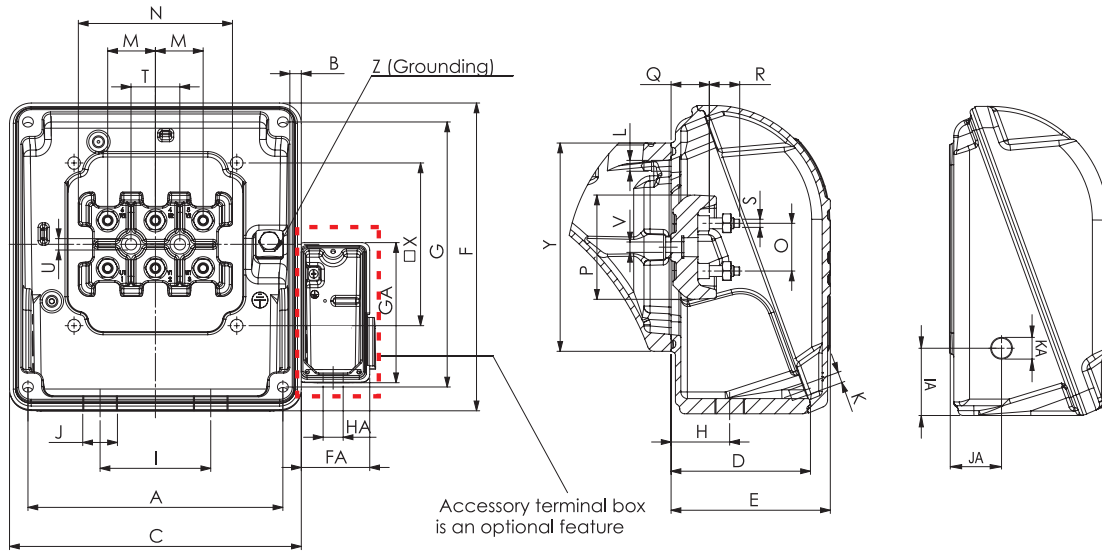
“FT” Flange (C-DIN)



Frame	Flange		LA (l <sub>21</sub> )	M (d <sub>20</sub> )	N (d <sub>25</sub> )	P (d <sub>24</sub> )	S (d <sub>22</sub> )	T (l <sub>20</sub> )	α (α°)	N° of holes (n)
	C-DIN	GOST								
71	C-105	FT-85	8	85	70	105	M6	2,5	45°	4
	C-140	FT-115	12	115	95	140	M8	3		
80	C-120	FT-100	10,5	100	80	120	M6	3,5		
	C-160	FT-130	15	130	110	160	M8			
90	C-140	FT-115	11,5	115	95	140		3		
	C-160	FT-130	10,5	130	110	160	3,5			
100	C-160	FT-130	12	130	110	160		M8		
	C-200	FT-165	15	165	130	200				
112	C-160	FT-130	13,5	130	110	160		M8		
	C-200	FT-165	13	165	130	200				
132	C-160	FT-130	19	130	110	160		M8		
	C-180	FT-150		150	120	180			M12	5

\* Dimensions are in mm.

# Terminal Box Drawings



Frame	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
71	90	3,5	108	51,5	59	98	85	27	42	2xM20x1,5	M5x0,8	M5x0,8	16	75	16	35	13,5	12	M4x0,7	20	5,8
80										2xM25x1,5											
90										2xM32x1,5											
100	117	2,5	140	71	80	133	117	36,5	54	2xM32x1,5	M6x1,0	M6x1,0	23	23	52	17	16	M5x0,8	23	6,5	
112										2xM40x1,5											
132	175	4	198,5	90	101	190	175	46	84	2xM40x1,5	M8x1,25	M8x1,25	28	90	28	60	21,5	20,5	M6x1	28	6,6
160										2xM50x1,5											
180										2xM50x1,5											
200	204	4,5	230	107	119,5	220	204	59	94	2xM50x1,5	M10x1,5	M10x1,5	35	112	35	74	24	24	M8x1,25	35	9,5
225S/M	235	12,5	269	133	153	285	260	71	110	2xM63x1,5											
250S/M	275	13,5	314	152	312	275	126	126	2xM63x1,5												
280S/M	275	13,5	314	152	312	275	126	126	2xM63x1,5												
315S/M	340	14,5	379	162	176	382	345	78	160	2xM63x1,5	M12x1,75	M12x1,75	45	153	45	108	34	40	M12x1,75	45	10,5
355M/L	365		404	202	220	436	390	97	200	2xM80x2											

Frame	V	X	Y	Z	FA	GA	HA	IA	JA	KA	Max number of connectors		
											Main	Accessories	Space heater
71	M5x0,8	56	78	0,5-6 mm <sup>2</sup>	68	101,4	M20x1,5	23	17,5	M20x1,5	4	16	4
80			81					25	22,5				
90			77										
100	70	107	2-10 mm <sup>2</sup>	68	101,4	M20x1,5	35	20	M20x1,5	6	16	4	
112													103
160	M6x1,0	110	140	5,2-25 mm <sup>2</sup>	68	101,4	M20x1,5	47	40	M20x1,5	15	26	4
180			155										
200	M8x1,25	120	192	25-50 mm <sup>2</sup>	68	101,4	M20x1,5	62	48	M20x1,5	15	26	4
225S/M			197										
250S/M	M10x1,5	150	204	35-70 mm <sup>2</sup>	68	101,4	M20x1,5	77	56	M20x1,5	15	26	4
280S/M			260										
315S/M	260	300	85-120 mm <sup>2</sup>	68	101,4	M20x1,5	97	79	M20x1,5	15	26	4	
355M/L			260										

Notes:  
 (\*) Dimension is applicable to top, right or left terminal box mounting  
 (\*\*) Space heater terminal box is a special feature for frame sizes 71 to 112.  
 (\*\*\*) Dimensions are in mm.

## Packaging

### Frames 71 to 132

W22 motors in frames 71 to 132 are packaged in cardboard boxes, following the dimensions, weights and volumes of the tables 1 and 2.



Frame	External height (m)	External width (m)	External length (m)	Weight (kg)	Volume (m <sup>3</sup> )
71 / L71	0,265	0,255	0,36	1,347	0,025
80 / L80					
90L / L90L	0,315	0,27	0,432	1,217	0,037
100S / L100S	0,325	0,27	0,455	1,804	0,04
100L	0,335	0,275	0,552	2,254	0,052
L100L	0,325	0,27	0,455	1,804	0,04
112M / L112M	0,415	0,335	0,595	3,43	0,08
132S / L132S	0,42	0,33	0,60	1,7	0,08
132M / L132M					
132M/L / L132M/L					

Table 1 - Cardboard box dimensions, weights and volumes for top mounting.

Frame	External height (m)	External width (m)	External length (m)	Weight (kg)	Volume (m <sup>3</sup> )
71 / L71	0,215	0,285	0,355	0,71	0,021
80					
L80					
90L	0,23	0,315	0,398	0,8	0,029
L90L					
100S	0,26	0,35	0,455	1,685	0,042
L100S	0,255	0,34	0,540	2,021	0,047
100L	0,26	0,35	0,455	1,685	0,042
L100L	0,255	0,34	0,54	2,021	0,047
112M / L112M	0,315	0,375	0,52	2,379	0,06
132S / L132S	0,35	0,48	0,60	2,1	0,10
132M / L132M					
132M/L / L132M/L					

Note: Values to be added to the net motor weight.

Table 2 - Cardboard box dimensions, weights and volumes for side mounting.

### Frames 160 to 355M/L

For frames 160 to 355M/L, the motors are packaged in wooden crates. Dimensions, weights and volumes are in tables 3 and 4.



Frame	External height (m)	External width (m)	External length (m)	Weight (kg)	Volume (m <sup>3</sup> )
160	0,50	0,41	0,74	9,32	0,15
180	0,54	0,44	0,82	13,17	0,19
200	0,61	0,51	0,88	16,74	0,27
225S/M	0,90	0,85	1,15	49,3	0,88
250S/M			1,25	51,6	0,96
280S/M	1,13	1,05	1,40	77,5	1,34
315S/M			1,55	81,2	1,49
355M/L			1,73	127	2,40

Table 3 - Wooden crates dimensions, weights and volumes for top mounting.

Frame	External height (m)	External width (m)	External length (m)	Weight (kg)	Volume (m <sup>3</sup> )
160	0,40	0,50	0,74	10,03	0,15
180	0,45	0,57	0,82	14,51	0,21
200	0,49	0,63	0,88	15,75	0,27
225S/M	0,78	0,85	1,15	49,7	0,88
250S/M	0,90	0,85	1,25	56,6	0,96
280S/M	1,0	0,95	1,40	72,1	1,33
315S/M	1,13	1,10	1,50	84,3	1,86
355M/L	1,20	1,19	1,72	146	2,46

Note: Values to be added to the net motor weight.

Table 4 - Wooden crates dimensions, weights and volumes for side mounting.



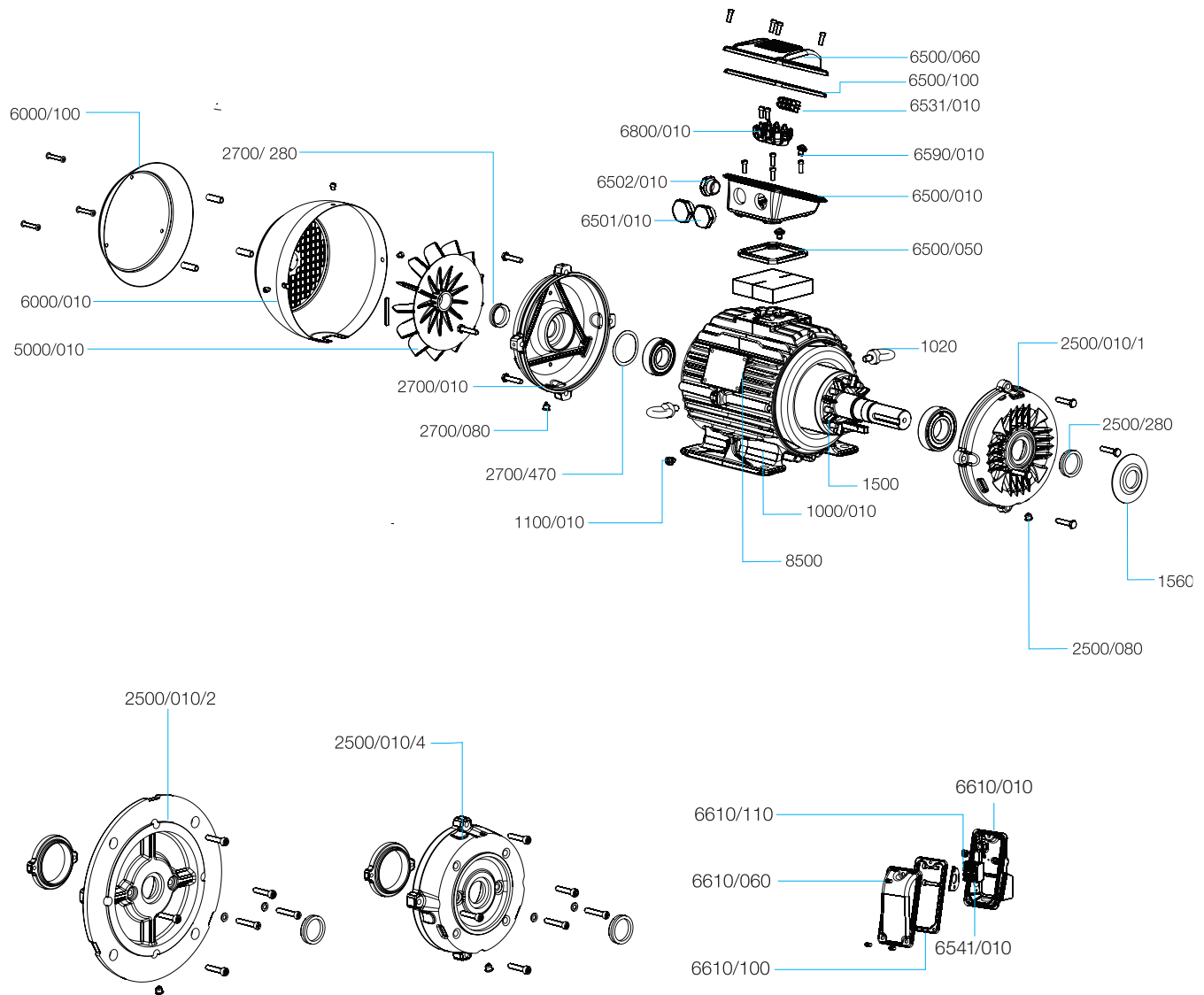
# Spare Parts

## General Information

The following information is required when purchasing of spare parts:

- Serial number and manufacturing date, both stamped in the nameplate
- Spare part description
- Codes shown are for reference only. Final codes of spare parts will depend on colour

## Spare Parts Available 71-112

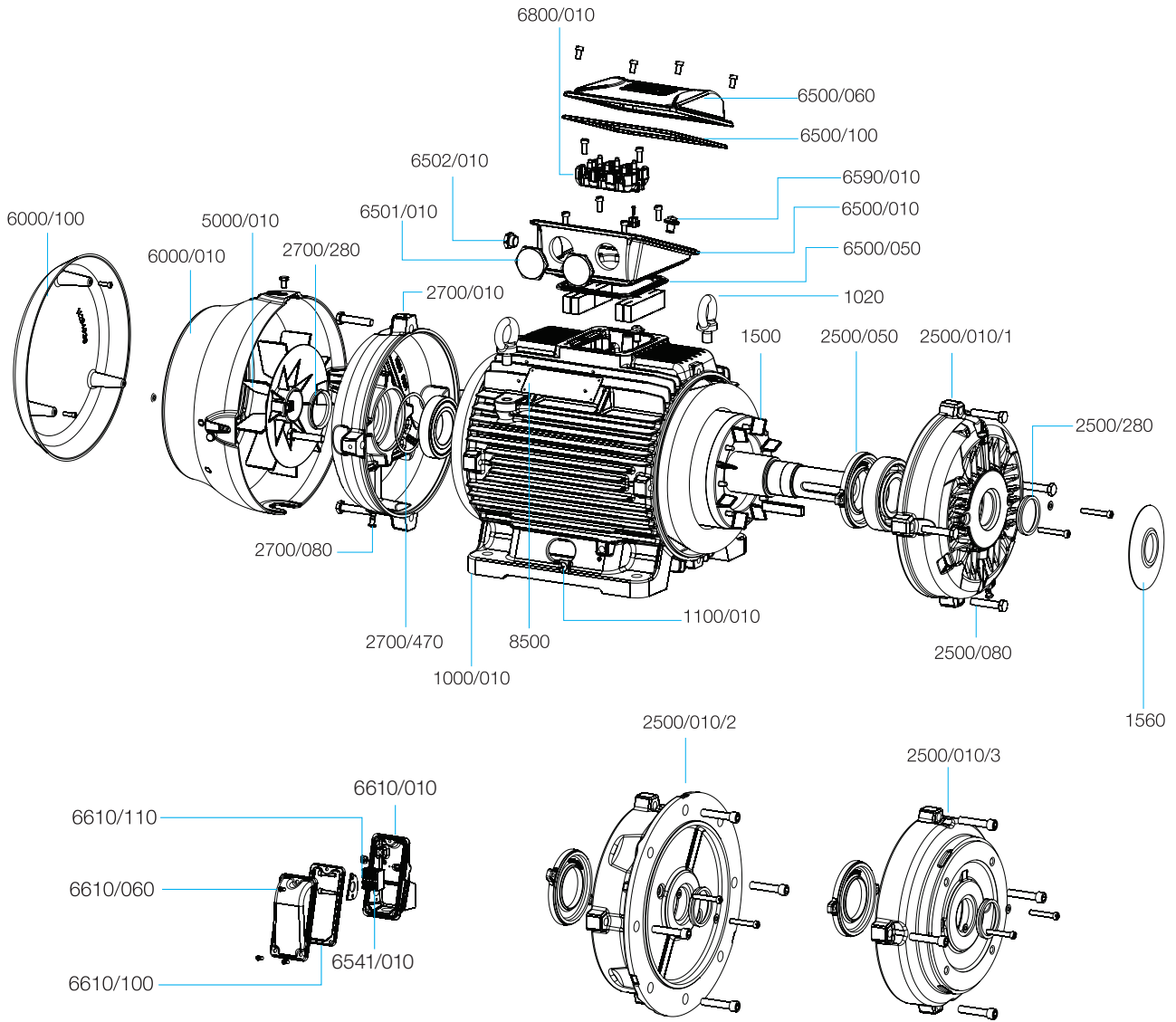


Component		Spare part	
Item	Description	Item	Composition
1000/010	Frame with wound stator	1000	Frame with wound stator
1020	Lifting eyebolt	1020	Lifting eyebolt
1100/010	Earthing terminal	1100	Earthing terminal
1500	Rotor, complete with shaft and key	1500	Rotor, complete with shaft and key
1560	Slinger	1560	Slinger (recommended for vertical shaft up applications, non-flange mounted)
2500/010/1	Endshield, drive end	2500/1	Endshield, drain plug, shaft seal, bolts and washers
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2500/010/2	FF Flange	2500/2	FF Flange, drain plug, shaft seal, bolts and washers
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2500/010/4	FT (C-DIN) Flange	2500/4	FT (C-DIN) Flange, drain plug, shaft seal, bolts and washers
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2700/010	Endshield, non-drive end	2700	Endshield, drain plug, shaft seal, bolts and washers
2700/080	Drain plug, non-drive end		
2700/280	Shaft seal, non-drive end (1)		
2700/470	Wave washer for axial displacement		
5000/010	Cooling Fan	5000	Fan
6000/010	Fan cover	6000	Fan cover, bolts
		6050	Fan cover, drip cover and bolts
6000/100	Drip cover	6100	Drip cover, bolts
6500/010	Terminal box	6500	Terminal box complete with lid, gaskets (for lid and terminal box), plugs (for mains and accessories), earthing terminal, bolts and washers
6500/050	Terminal box gasket		
6500/060	Terminal box lid		
6500/100	Terminal box lid gasket		
6501/010	Terminal box plug for main leads		
6502/010	Terminal box plug for accessory leads		
6590/010	Terminal box earthing terminal		
6531/010	Accessory connector	6531	Accessory connector, mounting rail, bolts and washers
6541/010	Accessory connector	6541	Accessory connector, mounting rail, bolts and washers
6610/010	Space heater accessory terminal box	6610	Space heater accessory terminal box, complete with lid, gasket, plugs, earthing terminal, bolts and washers
6610/060	Space heater accessory terminal box lid		
6610/100	Space heater accessory terminal box lid gasket		
6610/110	Space heater accessory terminal box earthing terminal		
6800/010	Terminal block	6800	Terminal block, bolts and washers
8500	Main nameplate	8500	Main nameplate

Notes:

(1) As a spare part, the shaft sealing in the 71-112 range will be supplied as an integral part of the endshield kit.

### Spare Parts Available 132-200



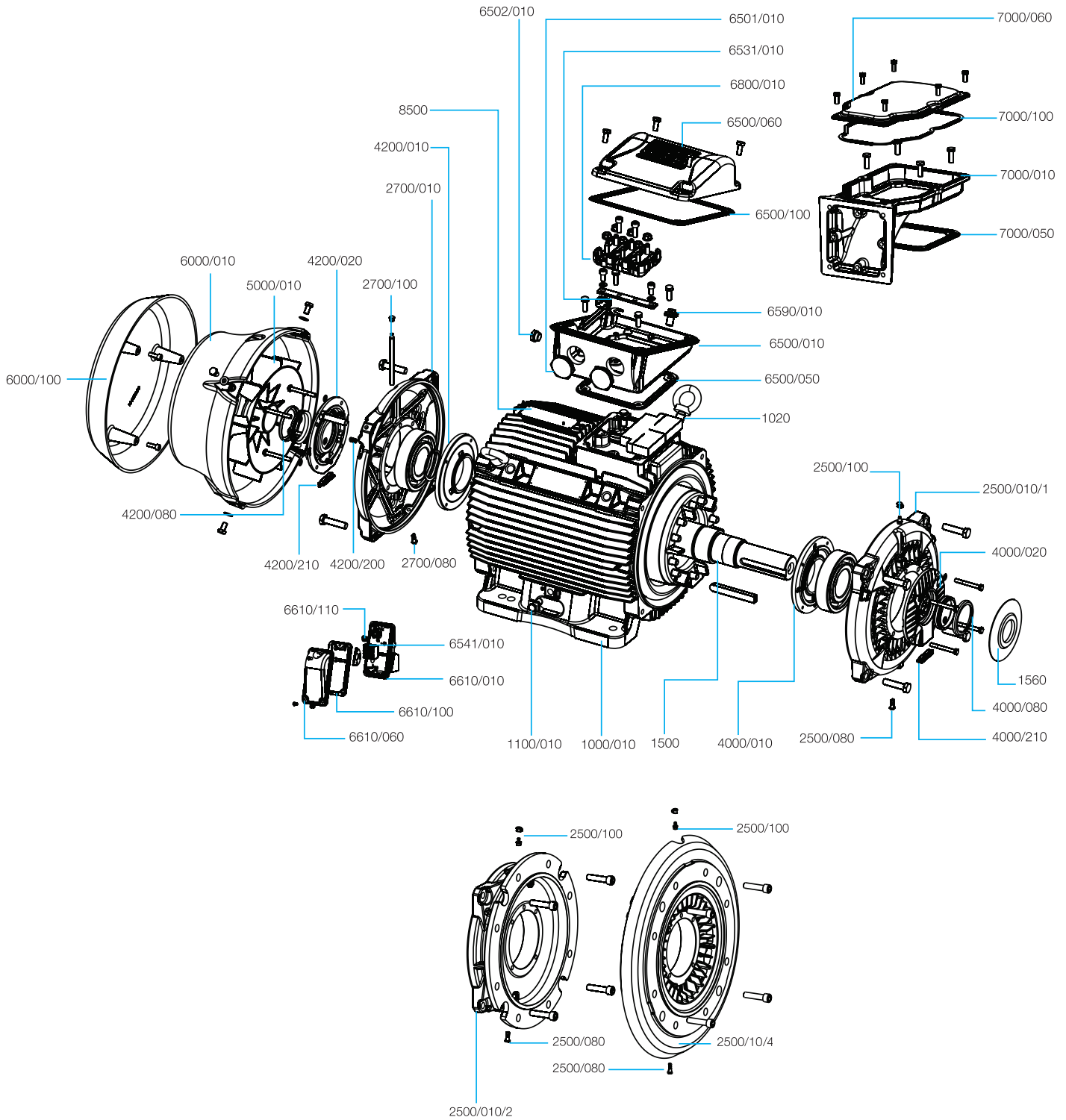


Motor component		Spare part	
Item	Description	Item	Composition
1000/010	Frame with wound stator	1000	Frame with wound stator
1020	Lifting eyebolt	1020	Lifting eyebolt
1100/010	Earthing terminal	1100	Earthing terminal
1500	Rotor, complete with shaft and key	1500	Rotor, complete with shaft and key
1560	Slinger	1560	Slinger (recommended for vertical shaft up applications, non-flange mounted)
2500/010/1	Endshield, drive end	2500/1	Endshield, bearing cap, drain plug, shaft seal, bolts and washers
2500/050	Bearing cap, internal, drive end		
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2500/010/2	FF Flange	2500/2	FF Flange, drain plug, shaft seal, bolts and washers
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2500/010/3	FT (C-DIN) Flange	2500/3	FT (C-DIN) Flange, drain plug, shaft seal, bolts and washers
2500/080	Drain plug, drive end		
2500/280	Shaft seal, drive end (1)		
2700/010	Endshield, non-drive end	2700	Endshield, drain plug, shaft seal, bolts and washers
2700/080	Drain plug, non-drive end		
2700/100	Grease nipple (with extensor pipe), non-drive end		
2700/280	Shaft seal, non-drive end (1)		
2700/470	Wave washer for axial displacement		
5000/010	Fan	5000	Fan
6000/010	Fan cover	6000	Fan cover, bolts
		6050	Fan cover, drip cover and bolts
6000/100	Drip cover	6100	Drip cover and bolts
6500/010	Terminal box	6500	Terminal box, complete with lid, gaskets (for lid and terminal box), plugs (for mains and accessories), earthing terminal, bolts and washers
6500/050	Terminal box gasket		
6500/060	Terminal box lid		
6500/100	Terminal box lid gasket		
6501/010	Terminal box plug for main leads		
6502/010	Terminal box plug for accessory leads		
6590/010	Terminal box earthing terminal		
6531/010	Accessory connector	6531	Accessory connector, mounting rail, bolts and washers
6541/010	Accessory connector	6541	Accessory connector, mounting rail, bolts and washers
6610/010	Space heater accessory terminal box	6610	Space heater accessory terminal box, complete with lid, gasket, plugs, earthing terminal, bolts and washers
6610/060	Space heater accessory terminal box lid		
6610/100	Space heater accessory terminal box lid gasket		
6610/110	Space heater accessory terminal box earthing terminal		
6800/010	Terminal block	6800	Terminal block, bolts and washers
8500	Main nameplate	8500	Main nameplate

Notes:

(1) As a spare part, the shaft seal in the 132-200 range will be supplied as an integral part of the endshield kit.

### Spare Parts Available 225 - 355



Motor component		Spare part	
Item	Description	Item	Composition
1000/010	Frame with wound stator	1000	Frame with wound stator
1020	Lifting eyebolt	1020	Lifting eyebolt
1100/010	Earthing terminal	1100	Earthing terminal
1500	Rotor, complete with shaft and key	1500	Rotor, complete with shaft and key
1560	Slinger	1560	Slinger
2500/010/1	Endshield, drive end	2500/1	Endshield, grease nipple, drain plug, bolts and washers
2500/080	Drain plug, drive end		
2500/100	Grease nipple, drive end		
2500/010/2	FF Flange	2500/2	FF Flange, grease nipple, drain plug, bolts and washers
2500/080	Drain plug, drive end		
2500/100	Grease nipple, drive end		
2700/010	Endshield, non-drive end	2700	Endshield, grease nipple with extensor pipe, drain plug, bolts and washers
2700/080	Drain plug, non-drive end		
2700/100	Grease nipple (with extensor pipe), non-drive end		
4000/010	Bearing cap, internal, drive end	4000	Bearing cap (external and internal), shaft seal, grease relief, bolts and washers
4000/020	Bearing cap, external, drive end		
4000/080	Shaft seal, drive end (1)		
4000/210	Grease relief		
4200/010	Bearing cap, internal, non-drive end	4200	Bearing cap (external and internal), shaft seal, grease relief with extensor pipe, pre-load springs, bolts and washers
4200/020	Bearing cap, external, non-drive end		
4200/080	Shaft seal, non-drive end (1)		
4200/200	Pre-load springs for axial displacement		
4200/210	Grease relief		
5000/010	Fan	5000	Fan
6000/010	Fan cover, cast iron	6000	Fan cover
		6050	Fan cover and canopy
6000/100	Canopy	6100	Canopy
6500/010	Terminal box	6500	Terminal box, complete with lid, gaskets (for lid and terminal box), plugs (for mains and accessories), earthing terminal, bolts and washers
6500/050	Terminal box gasket		
6500/060	Terminal box lid		
6500/100	Terminal box lid gasket		
6501/010	Terminal box plug for main leads		
6502/010	Terminal box plug for accessory leads		
6531/010	Accessory connector		
6541/010	Accessory connector	6541	Accessory connector, mounting rail, bolts and washers
6590/010	Terminal box earthing terminal	6800	Terminal block, mounting rail, bolts and washers
6800/010	Terminal block		
6610/010	Space heater accessory terminal box	6610	Space heater accessory terminal box, complete with lid, gasket, plugs, earthing terminal, bolts and washers
6610/060	Space heater accessory terminal box lid		
6610/100	Space heater accessory terminal box lid gasket		
6610/110	Space heater accessory terminal box earthing terminal		
7000/010	Terminal box adaptor base	7000	Terminal box adaptor for side mounted position, complete with lid, gaskets, bolts and washers
7000/050	Terminal box adaptor base gasket		
7000/060	Terminal box adaptor lid		
7000/100	Terminal box adaptor lid gasket		
8500	Main nameplate (2)	8500	Main nameplate

Notes:

- (1) As a spare part, the shaft sealing in the 225-355 range will be supplied as an integral part of the bearing cap kit.
- (2) Main nameplate position will vary with terminal box configuration (top and side mounting).



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The values shown are subject to change without prior notice.  
The information contained is reference values.