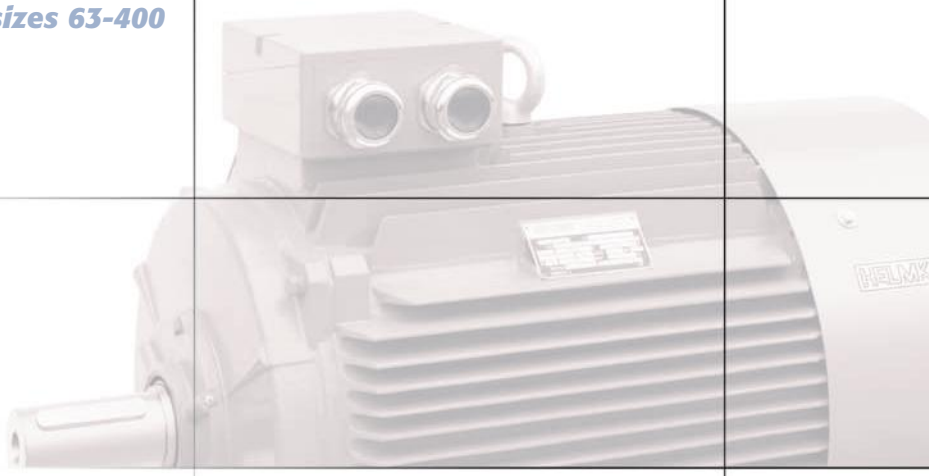
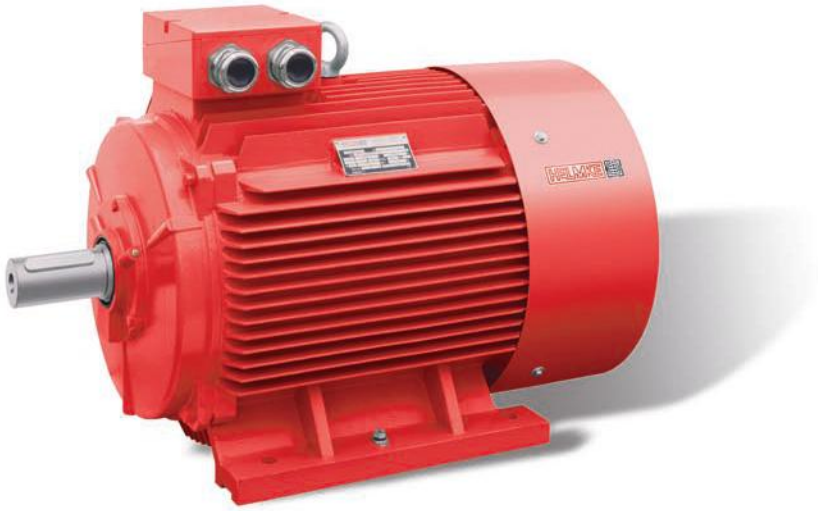
Three-phase low voltage squirrel cage motors

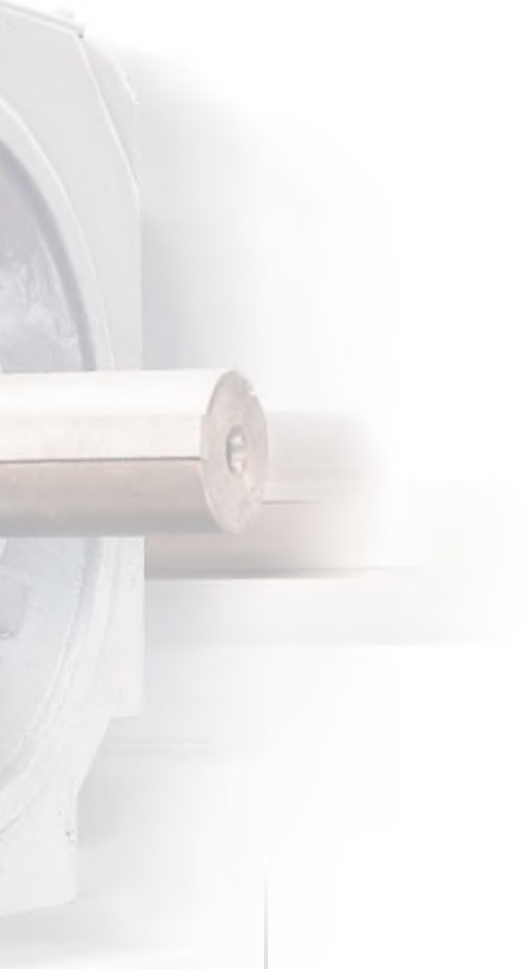
Type DOR ...-145
Frame sizes 63-400



Helmke Plus



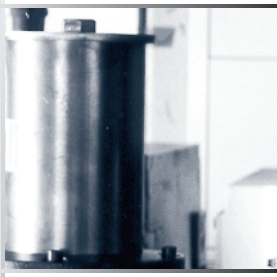
HELMKE



Three-phase low voltage squirrel cage motors

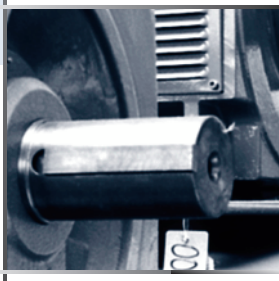
Series HELMKE PLUS

Description of product *page*

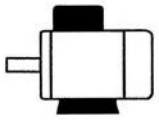
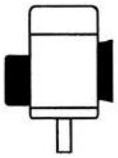
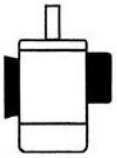
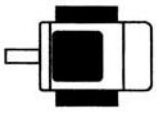
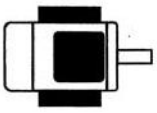
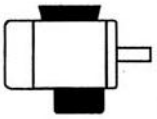


Motor data

Dimension sheets



Construction forms acc. to IEC

IM B3 IM 1001	IM V5 IM 1011	IM V6 IM 1031	IM B6 IM 1051	IM B7 IM 1061	IM B8 IM 1071
					
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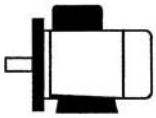	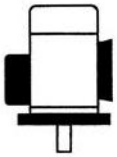	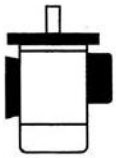	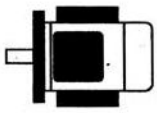	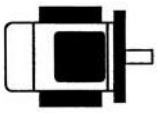	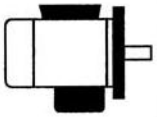
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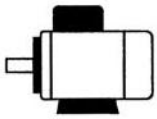	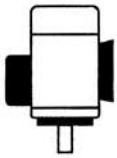	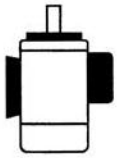	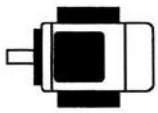	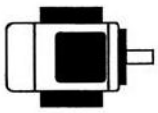	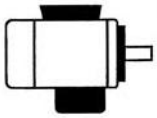
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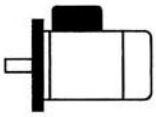
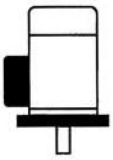
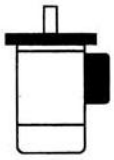
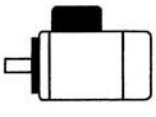
					
IM B14 IM 3601	IM V18 IM 3611	IM V19 IM 3631			
					

We reserve the right
as far as these changes do not signify an unacceptable demand towards the customer and do not imply an important value loss.

We are moving things!

HELMKE PLUS motors optimally fit with your drive concepts!

Advantages of our motors:

- First-class technology
- Simple, robust components with a long life time
- Certified quality
- Compliance with national and international standards - worldwide operation
- Standard motors permanently in stock
- Modifications specified by the customer carried out in our quick work shop

Deliveries within 24 hours to destinations in Germany.

Standards and regulations
The motors comply with the relevant standards and regulations.
HELMKE PLUS motors correspond to the High-Efficiency level EFF2 acc. to CEMEP Standard.

Design versions

frame sizes	material of housing and terminal box	fixing of feet
63 - 132	Aluminium	screwed
63 - 400	Cast iron	cast

Cooling and ventilation
The motors are equipped with radial-flow plastic fans, which function independently of the direction of rotation (IC 411 to DIN, EN60034-6). For special application or operation with a frequency converter a separate ventilation (IC 416) can be supplied.

Vibration characteristics
The permissible vibration intensities of electric motors are specified in DIN EN 60034-14. The vibration intensity stage N (normal) is achieved or even improved by HELMKE PLUS motors in the basic version.

All rotors are dynamically balanced with the half key inserted.

Noise behaviour
Noise measurement is carried out at rated output, rated voltage and rated frequency.

Noise (direct on-line operation), cast iron design
A-weighted measuring-surface sound pressure level at rated output (tolerance: +3 dB(A))

rpm at 50 Hz	3000	1500	1000	750
frame	db (A)	db (A)	db (A)	db (A)
63	51	45	-	-
71	54	48	47	-
80	57	51	49	48
90	62	54	52	52
100	66	57	56	55
112	67	58	60	57
132S	70	64	64	60
132M	-	64	64	60
160M	75	67	67	63
160L	75	66	67	63
180M	78	67	-	-
180L	-	67	66	65
200	81	70	69	67
225S	-	72	-	67
225M	81	71	69	67
250M	81	72	70	68
280S	82	75	71	69
280M	82	75	71	68
315S/M	84	82	76	74
315L1	87	86	76	74
315L2	87	86	75	74
355M	90	89	81	80
355L	90	89	81	80

In order to reduce noise levels the 2-pole motors can be fitted with a special fan which is suitable for only one direction of rotation.

Paint finish
Normal finish adapted for group climates „moderate“.

Standard colour RAL 7030 (stone grey)
Special coating systems or colours are available on customers request.

Degree of protection to DIN EN 60 034-5
All motors conform to degree of protection IP55.
Higher degrees of protection are available on request.

Insulation and winding
All motors are manufactured with class F insulation and offer sufficient thermal reserves. High-grade enamelled wires and insulating sheet materials guarantee high mechanical strength and a long motor life.
The motors have tropicalized insulation.

Terminal boxes
Standard position of the terminal box is on top of the motors, lateral position is available upon request. It may be turned by 4 x 90°.

The cable entry sizes are as follows:

frames 63-80	1 x M20x1,5
frames 90-100	1 x M25x1,5
frames 112-132	2 x M25x1,5
frames 160-200	2 x M40x1,5
frame 225	2 x M50x1,5
frames 250-355	2 x M63x1,5
thermistors, all frame sizes	1 x M25

Rated voltage and frequency
In the basic version the motors are supplied with the following design parameters:
220 ... 250 V / 380 ... 420 V / 660 ... 710 V - 50 Hz
440 ... 480 V - 60 Hz
voltage tolerance +- 5 %
other voltages upon request.

For all motors:
The motors are intended to withstand 1.5 times the rated current for up to 2 minutes at rated voltage and frequency (DIN EN 60 034-1).

Operation with frequency converter:
All motors are suitable for frequency converter drive.
For this, we recommend to mount insulated bearings on drive end for motor sizes 280 and larger.
External ventilation may be mounted in our workshop, too.

Restarting with residual field and phase opposition
Restarting after mains failure against a 100% residual field is possible for all motors.

Motor torque
The rated torque in Nm delivered at the motor shaft is

$$M = 9550 * P/n$$

P = rated output in kW
n = speed in rpm

Ambient temperature
All HELMKE PLUS motors with the standard design can be used at ambient temperatures from -20° C to + 40° C. With higher temperatures up to 60° C an output reduction has to be considered.

Rated output
The rated output applies for continous operation, 50 Hz, at a coolant temperature of 40° C and an altitude of site up to 1000 m above sea level. If the actual operating conditions are deviating from these values, the maximum output should be adjusted according to the following tables:

coolant temperature °C	output %
< 30°	106
40°	100
45°	97
50°	93
55°	90
60°	87

Altitude of site in m	output %
< 1000	100
1500	97
2000	93
2500	90
3000	87
4000	79

Motor protection
The following motor protection versions are available as an option:
- motor protection with PTC thermistors in the stator winding
- bimetallic temperature sensor as NC contact or NO contact in the stator winding
- resistance thermometer for monitoring the winding or bearing temperature

on request

Explosion-proof motors (EEXnA.., EEXe.., EEXd..), Pole-changing motors and special operation types
on request

Selection of bearings (basic design)

frame size	drive end		non-drive end	
	2-pole	4-, 6-, 8-pole	2-pole	4-, 6-, 8-pole
63	6201-2RS		6201-2RS	
70	6202-2RS		6202-2RS	
80	6204-2RS		6204-2RS	
90	6205-2RS		6205-2RS	
100	6206-2RS		6206-2RS	
112	6306-2RS		6306-2RS	
132	6308-2RS		6308-2RS	
160	6309-2RS		6309-2RS	
180	6311 C3		6311 C3	
200	6312 C3		6312 C3	
225	6312 C3	6313 C3	6312 C3	
250	6313 C3	6314 C3	6313 C3	
280	6314 C3	6317 C3	6314 C3	
315	6317 C3	NU319	6317 C3	6319 C3
355	6319 C3	NU322	6319 C3	6322 C3
400	–	6326 C3	–	6326 C3

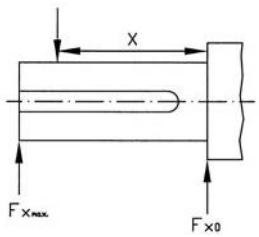
Standard design with ball bearing on drive end, optionally available with roller bearings

Use of cylindrical roller bearings
Using cylindrical roller bearings (heavy bearing arrangement), relatively high radial forces or masses can be accepted at the motor shaft, e.g. belt drives, pinions or heavy-duty couplings.

Regreasing:
The motors from frame size 180 are equipped with regreasing devices.
Grease types being used:
lithium-saponified grease SRI2 from Chevron or Unirex N3 from Esso, mixable with Shell Alvania G3 or comparable greases.
If there is any doubt on the mixability with other grease types, please contact the grease manufacturer or HELMKE.

Important to note:
The minimum radial force at the shaft end must be a quarter of the admissible radial force. Lower values can result in bearing damage within a few hours.

If the radial force acts between points X_0 and X_{max}, the admissible force F_R may be calculated with the following formula:



$$F_R = F_{x0} - \frac{X}{E} (F_{x0} - F_{Xmax})$$

E = length of shaft end

Maximum radial load for HELMKE PLUS motors at horizontal operation (in Newton)

frame size	N							
	2-pole		4-pole		6-pole		8-pole	
	F_{X0}	F_{Xmax}	F_{X0}	F_{Xmax}	F_{X0}	F_{Xmax}	F_{X0}	F_{Xmax}
71M1	331	181	417	180				
71M2	331	180	413	178				
80M1	566	342	713	340	816	340		
80M2	566	340	713	338	816	337		
90S	618	490	779	591	891	591		
90L	628	510	791	588	906	586		
100L	856	683			1234	851		
100L1			1078	851			1358	856
100L2			1078	843			1358	851
112M	1187	837	1496	815	1712	825	1884	828
132S			2286	1696	2617	1702	2880	1703
132S1	1814	1420					2994	1699
132S2	1814	1420						
132M			2377	1687				
132M1					2721	1679		
132M2					2721	1679		
160M			2937	1682	3362	1680		
160M1	2331	1710					3700	1699
160M2	2331	1702					3700	1682
160L	2365	1695	2980	1652			3755	1652
180M	3273	2620	4123	2905				
180L			4156	2852	4758	2844	5237	2852
200L			4667	3851			5881	3958
200L1	3704	3057			5343	3979		
200L2	3704	3057			5343	3934		
225S			5185	3862			6533	3912
225M	3661	3044	5219	3913	5975	3863	6576	3870
250M	4241	3449	5948	4838	6808	5000	7494	4967
280S	4700	3877	7531	6213	8621	7112	9488	7828
280M	4738	3959	7593	6343	8691	7261	9566	7992
315S	6014	5120	9085	7500	10400	8299	11447	8329
315M	6092	5204	9200	7757	10531	7992	11591	7748
315L1	6089	4937	9200	7567	10531	7469	11591	7152
315L2	6089	4428	9200	6657	10531	6711	11591	6064
355M	7360	6534	11992	10406				
355M1					13728	10665	15109	10143
355M2					13728	9200	15109	8574
355L			11992	8739	13728	6259		

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Aluminium casing

2-pole, 3000 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor $\cos\varphi$	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR63M1	**-2A-145**	0,18	2720	0,5	65,0	0,80	5,5	2,2	2,2	4,3
DOR63M2	**-2A-145**	0,25	2720	0,7	68,0	0,81	5,5	2,2	2,2	4,9
DOR71M1	**-2A-145**	0,37	2740	1,0	70,0	0,81	6,1	2,2	2,2	5,8
DOR71M2	**-2A-145**	0,55	2740	1,4	73,0	0,82	6,1	2,3	2,3	7
DOR80M1	**-2A-145**	0,75	2900	1,8	76,0	0,83	7,0	2,2	2,3	10
DOR80M2	**-2A-145**	1,1	2900	2,5	78,0	0,84	7,9	2,2	2,3	11
DOR90S	**-2A-145**	1,5	2840	3,3	79,0	0,84	7,9	2,2	2,3	14
DOR90L	**-2A-145**	2,2	2840	4,6	81,4	0,85	7,9	2,2	2,3	16
DOR100L	**-2A-145**	3	2870	6,0	83,1	0,87	7,9	2,2	2,3	21
DOR112M	**-2A-145**	4	2880	7,8	84,3	0,88	7,9	2,2	2,3	29
DOR132S1	**-2A-145**	5,5	2900	10,5	85,8	0,88	7,9	2,2	2,3	40
DOR132S2	**-2A-145**	7,5	2900	14,1	87,3	0,88	7,9	2,2	2,3	45

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Aluminium casing

4-pole, 1500 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor $\cos\varphi$	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR63M1	**-4A-145**	0,12	1310	0,4	57,0	0,72	4,4	2,2	2,1	4,4
DOR63M2	**-4A-145**	0,18	1310	0,6	60,0	0,73	4,4	2,2	2,1	4,9
DOR71M1	**-4A-145**	0,25	1330	0,8	65,0	0,74	5,2	2,2	2,1	6,0
DOR71M2	**-4A-145**	0,37	1330	1,1	67,0	0,75	5,2	2,2	2,1	6,5
DOR80M1	**-4A-145**	0,55	1440	1,4	75,0	0,75	5,7	2,3	2,4	10
DOR80M2	**-4A-145**	0,75	1440	1,9	74,6	0,77	6,5	2,3	2,3	11
DOR90S	**-4A-145**	1,1	1400	2,7	76,2	0,77	6,5	2,3	2,3	15
DOR90L	**-4A-145**	1,5	1400	3,5	78,5	0,79	6,5	2,3	2,3	17
DOR100L1	**-4A-145**	2,2	1430	4,8	81,5	0,81	6,5	2,3	2,3	21
DOR100L2	**-4A-145**	3	1430	6,4	82,6	0,82	7,5	2,3	2,3	24
DOR112M	**-4A-145**	4	1435	8,4	84,4	0,82	7,5	2,3	2,3	30
DOR132S	**-4A-145**	5,5	1440	11,2	86,7	0,83	7,5	2,3	2,3	47
DOR132M	**-4A-145**	7,5	1440	14,8	88,0	0,84	7,5	2,3	2,3	55

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Aluminium casing

6-pole, 1000 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor cosφ	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR71M1	**-6A-145**	0,18	850	0,7	56,0	0,66	4,0	1,9	2,0	6,7
DOR71M2	**-6A-145**	0,25	850	1,0	59,0	0,68	4,0	1,9	2,0	7,3
DOR80M1	**-6A-145**	0,37	890	1,3	62,0	0,70	4,7	1,9	2,0	9,1
DOR80M2	**-6A-145**	0,55	890	1,8	65,0	0,72	4,7	1,9	2,1	10
DOR90S	**-6A-145**	0,75	910	2,1	72,7	0,72	5,9	2,0	2,1	15
DOR90L	**-6A-145**	1,1	910	2,9	75,4	0,73	5,9	2,0	2,1	17
DOR100L	**-6A-145**	1,5	940	3,7	77,5	0,75	5,9	2,0	2,1	21
DOR112M	**-6A-145**	2,2	940	5,2	79,9	0,76	6,9	2,0	2,1	28
DOR132S	**-6A-145**	3	960	7,0	81,6	0,76	6,9	2,1	2,1	44
DOR132M1	**-6A-145**	4	960	9,1	83,3	0,76	6,9	2,1	2,1	50
DOR132M2	**-6A-145**	5,5	960	12,1	85,0	0,77	6,9	2,1	2,1	59

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Aluminium casing

8-pole, 750 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor cosφ	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR80M1	**-8A-145**	0,18	630	0,9	51,0	0,61	3,3	1,9	1,8	9,7
DOR80M2	**-8A-145**	0,25	640	1,2	54,0	0,61	3,3	2,0	1,8	11
DOR90S	**-8A-145**	0,37	660	1,5	62,0	0,61	4,0	2,0	1,8	15
DOR90L	**-8A-145**	0,55	660	2,2	63,0	0,61	4,0	2,0	1,8	17
DOR100L1	**-8A-145**	0,75	690	2,2	71,0	0,67	4,0	2,0	1,8	17
DOR100L2	**-8A-145**	1,1	690	2,4	73,0	0,69	5,0	2,0	1,8	19
DOR112M	**-8A-145**	1,5	680	4,5	75,0	0,69	5,0	2,0	1,8	24
DOR132S	**-8A-145**	2,2	710	5,8	77,8	0,71	6,9	2,0	1,8	44
DOR132M	**-8A-145**	3	710	7,5	79,8	0,73	6,9	2,0	1,8	50

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Cast iron casing

2-pole, 3000 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor $\cos\varphi$	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR63M1	**-2-145**	0,18	2720	0,5	65,0	0,80	5,5	2,2	2,2	12
DOR63M2	**-2-145**	0,25	2720	0,7	68,0	0,81	5,5	2,2	2,2	13
DOR71M1	**-2-145**	0,37	2740	1,0	70,0	0,81	6,1	2,2	2,2	14
DOR71M2	**-2-145**	0,55	2740	1,4	73,0	0,82	6,1	2,2	2,3	15
DOR80M1	**-2-145**	0,75	2900	1,8	76,0	0,83	7,0	2,2	2,3	17
DOR80M2	**-2-145**	1,1	2900	2,5	78,0	0,84	7,9	2,2	2,3	18
DOR90S	**-2-145**	1,5	2840	3,3	79,0	0,84	7,9	2,2	2,3	22
DOR90L	**-2-145**	2,2	2840	4,6	81,4	0,85	7,9	2,2	2,3	25
DOR100L	**-2-145**	3	2870	6,0	83,1	0,87	7,9	2,2	2,3	23
DOR112M	**-2-145**	4	2880	7,8	84,3	0,88	7,9	2,2	2,3	45
DOR132S1	**-2-145**	5,5	2900	10,5	85,8	0,88	7,9	2,2	2,3	59
DOR132S2	**-2-145**	7,5	2900	14,1	87,3	0,88	7,9	2,2	2,3	64
DOR160M1	**-2-145**	11	2940	20,2	88,6	0,89	7,9	2,2	2,3	109
DOR160M2	**-2-145**	15	2940	27,2	90,0	0,89	7,9	2,2	2,3	121
DOR160L	**-2-145**	18,5	2940	33	90,5	0,90	7,9	2,2	2,3	136
DOR180M	**-2-145**	22	2940	39	91,0	0,90	7,9	2,0	2,3	180
DOR200L1	**-2-145**	30	2950	52,3	92,0	0,90	7,9	2,0	2,3	246
DOR200L2	**-2-145**	37	2950	64,5	92,5	0,90	7,9	2,0	2,3	256
DOR225M	**-2-145**	45	2960	78	93,0	0,90	7,9	2,0	2,3	328
DOR250M	**-2-145**	55	2970	93,3	93,5	0,91	7,9	2,0	2,3	433
DOR280S	**-2-145**	75	2960	136	94,0	0,92	7,9	2,0	2,3	572
DOR280M	**-2-145**	90	2960	150	94,4	0,92	7,9	2,0	2,3	632
DOR315S	**-2-145**	110	2975	185	94,5	0,91	7,7	1,8	2,2	950
DOR315M	**-2-145**	132	2975	221	95,0	0,91	7,7	1,8	2,2	1080
DOR315L1	**-2-145**	160	2975	264	95,1	0,92	7,7	1,8	2,2	1210
DOR315L2	**-2-145***	200	2975	330	95,2	0,92	7,7	1,8	2,2	1240
DOR355M	**-2-145***	250	2980	413	95,2	0,92	7,7	1,6	2,2	1970
DOR355L	**-2-145***	315	2980	520	95,2	0,92	7,7	1,6	2,2	2000

* insulation class F/F

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Cast iron casing

4-pole, 1500 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor cosφ	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR63M1	**-4-145**	0,12	1310	0,4	57,0	0,72	4,4	2,1	2,2	13
DOR63M2	**-4-145**	0,18	1310	0,6	60,0	0,73	4,4	2,1	2,2	14
DOR71M1	**-4-145**	0,25	1330	0,8	65,0	0,74	5,2	2,1	2,2	15
DOR71M2	**-4-145**	0,37	1330	1,1	67,0	0,75	5,2	2,1	2,2	16
DOR80M1	**-4-145**	0,55	1440	1,4	75,0	0,75	5,7	2,4	2,3	18
DOR80M2	**-4-145**	0,75	1440	1,9	74,6	0,77	6,5	2,3	2,3	19
DOR90S	**-4-145**	1,1	1400	2,7	76,2	0,77	6,5	2,3	2,3	23
DOR90L	**-4-145**	1,5	1400	3,5	78,5	0,79	6,5	2,3	2,3	27
DOR100L1	**-4-145**	2,2	1430	4,8	81,5	0,81	6,5	2,3	2,3	37
DOR100L2	**-4-145**	3	1430	6,4	82,6	0,82	7,5	2,3	2,3	40
DOR112M	**-4-145**	4	1435	8,4	84,4	0,82	7,5	2,3	2,3	43
DOR132S	**-4-145**	5,5	1440	11,2	86,7	0,83	7,5	2,3	2,3	65
DOR132M	**-4-145**	7,5	1440	14,8	88,0	0,84	7,5	2,3	2,3	78
DOR160M	**-4-145**	11	1470	21,4	88,6	0,84	7,9	2,2	2,3	118
DOR160L	**-4-145**	15	1470	28,5	90,1	0,85	7,9	2,2	2,3	138
DOR180M	**-4-145**	18,5	1470	34,5	90,4	0,86	7,9	2,2	2,3	177
DOR180L	**-4-145**	22	1470	40,8	90,7	0,86	7,9	2,2	2,3	203
DOR200L	**-4-145**	30	1470	55,1	91,6	0,86	7,9	2,2	2,3	243
DOR225S	**-4-145**	37	1475	65,9	92,6	0,88	7,9	2,2	2,3	305
DOR225M	**-4-145**	45	1475	78,4	93,0	0,89	7,9	2,2	2,3	328
DOR250M	**-4-145**	55	1480	95,4	93,5	0,89	7,9	2,2	2,3	452
DOR280S	**-4-145**	75	1475	129	94,1	0,89	7,9	2,2	2,3	592
DOR280M	**-4-145**	90	1475	155	94,3	0,89	7,9	2,2	2,3	672
DOR315S	**-4-145**	110	1480	189	94,6	0,89	7,6	2,1	2,2	980
DOR315M	**-4-145**	132	1480	226	94,9	0,89	7,6	2,1	2,2	1040
DOR315L1	**-4-145**	160	1480	273	95,3	0,89	7,6	2,1	2,2	1180
DOR315L2	**-4-145***	200	1480	340	95,3	0,89	7,6	2,1	2,2	1260
DOR355M	**-4-145***	250	1485	430	95,3	0,88	7,6	2,1	2,2	1810
DOR355L	**-4-145***	315	1485	535	95,3	0,89	7,6	2,1	2,2	1910
DOR400M1	**-4-145***	400	1490	686	95,5	0,88	6,9	1,4	3,0	3000
DOR400M2	**-4-145***	450	1490	773	95,5	0,89	6,9	1,4	3,0	3100
DOR400L1	**-4-145***	500	1490	848	95,6	0,89	7,0	1,3	3,0	3200
DOR400L2	**-4-145***	560	1490	946	96,0	0,89	6,5	1,4	3,0	3400
DOR400L3	**-4-145***	630	1490	1108	96,0	0,89	7,1	1,5	3,1	3500

* insulation class F/F

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Cast iron casing

6-pole, 1000 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor cosφ	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR71M1	**-6-145**	0,18	850	0,7	56,0	0,66	4,0	1,9	2,0	9,5
DOR71M2	**-6-145**	0,25	850	1,0	59,0	0,68	4,0	1,9	2,0	11
DOR80M1	**-6-145**	0,37	890	1,3	62,0	0,70	4,7	1,9	2,0	17
DOR80M2	**-6-145**	0,55	890	1,8	65,0	0,72	4,7	1,9	2,1	19
DOR90S	**-6-145**	0,75	910	2,1	72,7	0,72	5,9	2,0	2,1	23
DOR90L	**-6-145**	1,1	910	2,9	75,4	0,73	5,9	2,0	2,1	25
DOR100L	**-6-145**	1,5	940	3,7	77,5	0,75	5,9	2,0	2,1	33
DOR112M	**-6-145**	2,2	940	5,2	79,9	0,76	6,9	2,0	2,1	45
DOR132S	**-6-145**	3	960	7,0	81,6	0,76	6,9	2,1	2,1	63
DOR132M1	**-6-145**	4	960	9,1	83,3	0,76	6,9	2,1	2,1	73
DOR132M2	**-6-145**	5,5	960	12,1	85,0	0,77	6,9	2,1	2,1	84
DOR160M	**-6-145**	7,5	970	16,2	86,5	0,77	6,9	2,0	2,1	119
DOR160L	**-6-145**	11	970	23,2	87,9	0,78	6,9	2,0	2,1	147
DOR180L	**-6-145**	15	970	30,0	89,0	0,81	7,5	2,0	2,1	195
DOR200L1	**-6-145**	18,5	970	36,8	89,7	0,81	7,5	2,1	2,1	235
DOR200L2	**-6-145**	22	970	42,5	90,3	0,83	7,5	2,1	2,1	256
DOR225M	**-6-145**	30	980	56,3	91,5	0,84	7,5	2,0	2,1	306
DOR250M	**-6-145**	37	980	67,3	92,3	0,86	7,5	2,1	2,1	416
DOR280S	**-6-145**	45	980	81,6	92,6	0,86	7,5	2,1	2,0	546
DOR280M	**-6-145**	55	980	99,1	93,0	0,86	7,5	2,1	2,0	614
DOR315S	**-6-145**	75	985	132	93,8	0,88	7,5	2,0	2,0	970
DOR315M	**-6-145**	90	985	157	94,2	0,88	7,5	2,0	2,0	1180
DOR315L1	**-6-145**	110	985	191	94,4	0,88	7,3	2,0	2,0	1240
DOR315L2	**-6-145**	132	985	231	94,7	0,87	7,3	2,0	2,0	1300
DOR355M1	**-6-145**	160	990	277	94,9	0,88	7,3	1,9	2,0	1740
DOR355M2	**-6-145**	200	990	346	94,9	0,88	7,3	1,9	2,0	1945
DOR355L	**-6-145**	250	990	432	94,9	0,88	7,3	1,9	2,0	2070
DOR400M1	**-6-145**	315	990	546	95,8	0,87	6,1	1,4	2,9	3100
DOR400M2	**-6-145**	355	990	615	95,8	0,87	6,5	1,4	2,9	3200
DOR400L	**-6-145**	400	990	683	96,0	0,88	7,5	1,5	3,5	3400

Three-phase low voltage squirrel cage motors
Rated voltage range 380 - 420 V, 50 Hz

Cast iron casing

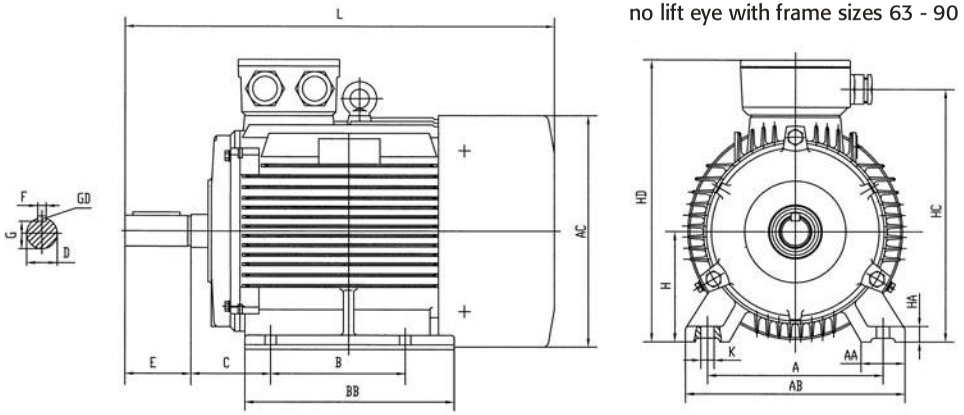
8-pole, 750 rpm, data at 400 V

Type		output [kW]	speed [rpm]	current [A]	efficiency η [%]	power factor cosφ	I_S/I_N	T_S/T_N	T_{max}/T_N	weight [kg]
DOR80M1	**-8-145**	0,18	630	0,9	51,0	0,61	3,3	1,8	1,9	17
DOR80M2	**-8-145**	0,25	640	1,2	54,0	0,61	3,3	1,8	1,9	19
DOR90S	**-8-145**	0,37	660	1,5	62,0	0,61	4,0	1,8	2,0	23
DOR90L	**-8-145**	0,55	660	2,2	63,0	0,61	4,0	1,8	2,0	25
DOR132S	**-8-145**	2,2	710	5,8	77,8	0,71	6,9	1,8	2,0	63
DOR132M	**-8-145**	3	710	7,5	79,8	0,73	6,9	1,8	2,0	79
DOR160M1	**-8-145**	4	720	9,7	81,7	0,73	6,9	1,9	2,0	118
DOR160M2	**-8-145**	5,5	720	12,9	83,4	0,74	6,9	2,0	2,0	119
DOR160L	**-8-145**	7,5	720	16,9	85,5	0,75	6,9	2,0	2,0	145
DOR180L	**-8-145**	11	730	24,0	87,0	0,76	6,8	2,0	2,0	184
DOR200L	**-8-145**	15	730	32,3	88,4	0,76	6,8	2,0	2,0	236
DOR225S	**-8-145**	18,5	730	39,4	89,4	0,76	6,8	1,9	2,0	302
DOR225M	**-8-145**	22	730	44,8	90,0	0,79	6,8	1,9	2,0	292
DOR250M	**-8-145**	30	730	60,0	91,1	0,79	6,8	1,9	2,0	396
DOR280S	**-8-145**	37	730	72,8	91,7	0,80	6,8	1,9	2,0	520
DOR280M	**-8-145**	45	730	88,0	92,2	0,80	6,8	1,9	2,0	592
DOR315S	**-8-145**	55	735	105	93,0	0,82	6,8	1,8	2,0	1125
DOR315M	**-8-145**	75	735	141	93,8	0,82	6,8	1,8	2,0	1250
DOR315L1	**-8-145**	90	735	163	94,0	0,83	6,8	1,8	2,0	1310
DOR315L2	**-8-145**	110	735	198	94,3	0,85	6,6	1,8	2,0	1350
DOR355M1	**-8-145**	132	740	234	94,7	0,86	6,6	1,8	2,0	1750
DOR355M2	**-8-145**	160	740	280	95,0	0,87	6,6	1,8	2,0	1880
DOR355L	**-8-145**	200	740	350	95,0	0,87	6,6	1,8	2,0	2060
DOR400M1	**-8-145**	250	745	369	95,0	0,81	6,6	1,2	3,4	3100
DOR400M2	**-8-145**	280	745	525	95,0	0,81	6,7	1,2	3,4	3200
DOR400L1	**-8-145**	315	745	563	95,0	0,85	6,5	1,1	3,1	3300
DOR400L2	**-8-145**	355	745	658	95,0	0,82	7,0	1,3	3,1	3400
DOR400L3	**-8-145**	400	745	750	95,0	0,82	7,2	1,3	3,2	3550

Three-phase low voltage squirrel cage motors

construction form B3

Aluminium casing

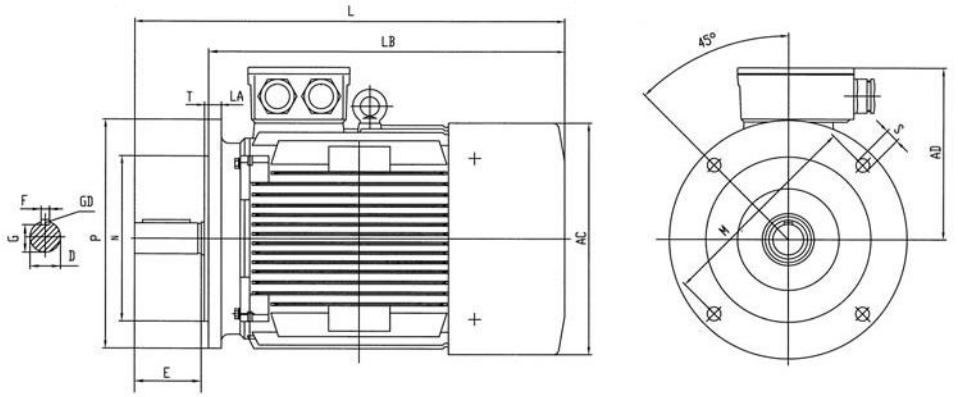


no lift eye with frame sizes 63 - 90

frame size	A	AA	AB	AC	B	BB	C	D	E	F	G	GD	H	HA	HC	HD	K	L
63M	100	33,5	120	122	80	103	40	11j6	23	4	8,5	4	63	7	125	180	7	216,5
71M	112	36	132	135	90	106	45	14j6	30	5	11	5	71	9	140	195	7	241,5
80M	125	41	150	149	100	130	50	19j6	40	6	15,5	6	80	10	155	216	10	280
90S	140	47	164	168	100	165	56	24j6	50	8	20	7	90	12	175	236	10	325
90L	140	47	164	168	125	165	56	24j6	50	8	20	7	90	12	175	236	10	337
100L	160	51	192	188	140	176	63	28j6	60	8	24	7	100	10	196	257	12	384
112M	190	59	220	214	140	180	70	28j6	60	8	24	7	112	12	220	308	12	396
132S	216	60	246	254	140	224	89	38k6	80	10	33	8	132	16	259	347	12	461
132M	216	60	246	254	178	224	89	38k6	80	10	33	8	132	16	259	347	12	499

construction form B5

no lift eye with frame sizes 63 - 90



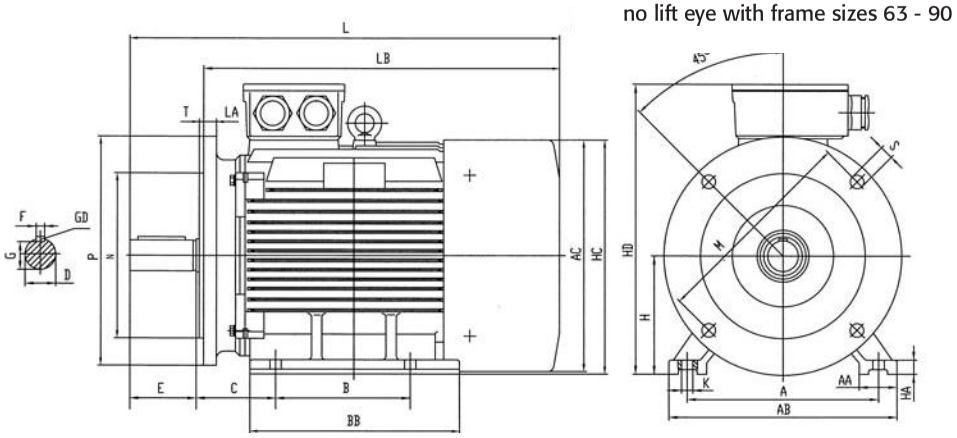
frame size	AC	AD	D	E	F	G	GD	L	LA	LB	M	N	P	S	T
63M	122	118	11j6	23	4	8,5	4	216,5	9	193	115	95j6	140	4 / Ø12	2,5
71M	135	125	14j6	30	5	11	5	241,5	10	211,5	130	110j6	160	4 / Ø12	3,5
80M	149	136	19j6	40	6	15,5	6	280,0	12	240	165	130j6	200	4 / Ø12	3,5
90S	168	146	24j6	50	8	20	7	324,5	12	265	165	130j6	200	4 / Ø12	3,5
90L	168	146	24j6	50	8	20	7	337,0	12	290	165	130j6	200	4 / Ø12	3,5
100L	188	157	28j6	60	8	24	7	384,0	13	325	215	180j6	250	4 / Ø15	4
112M	214	196	28j6	60	8	24	7	396,0	14	340	215	180j6	250	4 / Ø15	4
132S	254	215	38k6	80	10	33	8	461,0	15	395	265	230j6	300	4 / Ø15	4
132M	254	215	38k6	80	10	33	8	499,0	15	435	265	230j6	300	4 / Ø15	4

Three-phase low voltage squirrel cage motors

construction form B35

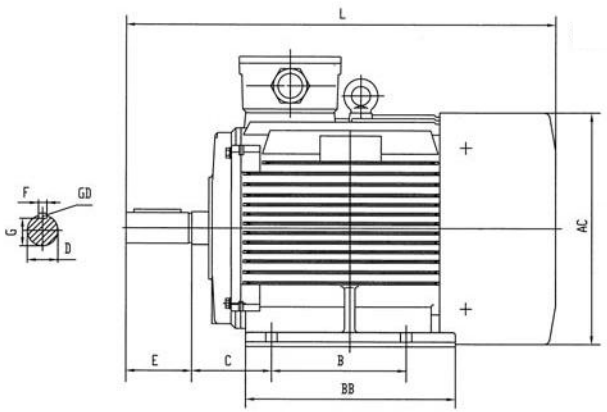
Aluminium casing

no lift eye with frame sizes 63 - 90

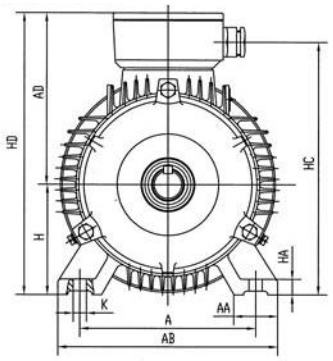


frame size	A	AA	AB	AC	B	BB	C	D	E	F	G	GD	H	HA	HC	HD	K	L	LA	LB	M	N	P	S	T
63M	100	33,5	120	122	80	103	40	11j6	23	4	8,5	4	63	7	125	180	7	216,5	9	193	115	95j6	140	4 / Ø12	2,5
71M	112	36	132	135	90	106	45	14j6	30	5	11	5	71	9	140	195	7	241,5	10	211,5	130	110j6	160	4 / Ø12	3,5
80M	125	41	150	149	100	130	50	19j6	40	6	15,5	6	80	10	155	216	10	280	12	240	165	130j6	200	4 / Ø12	3,5
90S	140	47	164	168	100	165	56	24j6	50	8	20	7	90	12	175	236	10	324,5	12	287	165	130j6	200	4 / Ø12	3,5
90L	140	47	164	168	125	165	56	24j6	50	8	20	7	90	12	175	236	10	337	12	287	165	130j6	200	4 / Ø12	3,5
100L	-	51	192	188	140	176	63	28j6	60	8	24	7	100	10	196	257	12	384	13	324	215	180j6	250	4 / Ø15	4
112M	190	59	220	214	140	176	70	28j6	60	8	24	7	112	12	220	308	12	396	14	336	215	180j6	250	4 / Ø15	4
132S	216	60	246	254	140	180	89	38k6	80	10	33	8	132	16	259	347	12	461	15	419	265	230j6	300	4 / Ø15	4
132M	216	60	246	254	178	224	89	38k6	80	10	33	8	132	16	259	347	12	499	15	419	265	230j6	300	4 / Ø15	4

construction form B3, frame sizes 63 to 132



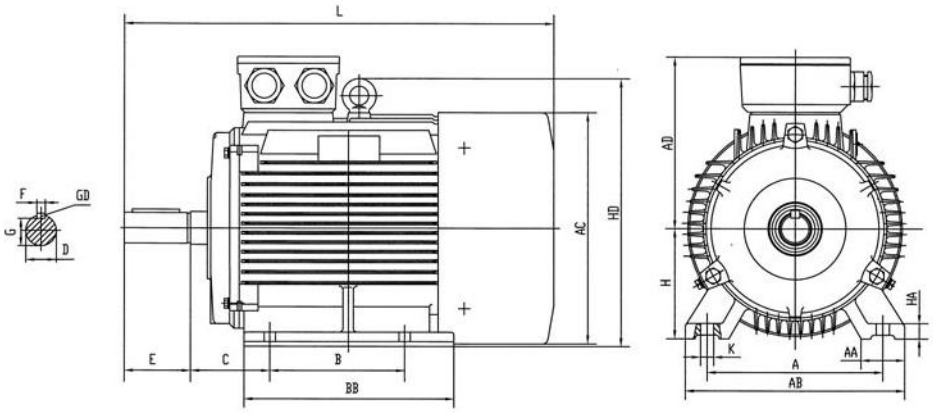
no lift eye with frame sizes 63 - 90



frame size	A	AA	AB	AC	AD	B	BB	C	D		E		F		G		GD		H	HA	HC	HD	K	L	
									2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p						2p	4,6,8p
63	100	30	130	120	117	80	110	40	11j6		23		4		8,5		4		63	8	123	180	7	230	
71	112	32	144	136	124	90	110	45	14j6		30		5		11		5		71	8	139	195	7	255	
80M	125	34	160	156	140	100	140	50	19j6		40		6		15,5		6		80	10	170	220	10	295	
90S	140	36	180	176	160	100	140	56	24j6		50		8		20		7		90	12	177	250	10	315	
90L	140	36	180	176	160	125	165	56	24j6		50		8		20		7		90	12	177	270	10	340	
100L	160	40	200	196	170	140	176	63	28j6		60		8		24		7		100	14	-	300	12	385	
112M	190	52	230	230	188	140	185	70	28j6		60		8		24		7		112	15	-	345	12	400	
132S	216	55	270	260	213	140	186	89	38k6		80		10		33		8		132	18	-	345	12	470	
132M	216	55	270	260	313	178	230	89	38k6		80		10		33		8		132	18	-	345	12	510	

Three-phase low voltage squirrel cage motors **Cast iron casing**

construction form B3, frame sizes 160 to 400

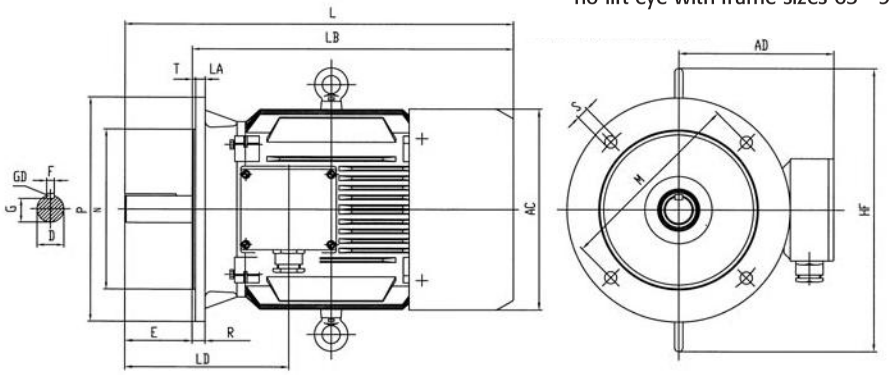


frame size	A	AA	AB	AC	AD	B	BB	C	D*		E*		F*		G*		GD*		H	HA	HD	K	L	
									2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p					2p	4,6,8p
160M	254	65	320	320	255	210	274	108	42k6		110		12		37		8		160	20	420	15	615	
160L	254	65	320	320	255	254	318	108	42k6		110		12		37		8		160	20	420	15	670	
180M	279	70	355	358	280	241	310	121	48k6		110		14		42,5		9		180	22	455	15	700	
180L	279	70	355	358	280	279	350	121	48k6		110		14		42,5		9		180	22	455	15	740	
200L	318	70	395	400	305	305	370	133	55m6		110		16		49		10		200	25	505	19	770	
225S	356	70	435	470	335	286	375	149	55m6	60m6	-	140	-	18	-	53	-	11	225	25	555	19	-	815
225M	356	70	435	470	335	311	400	149	55m6	60m6	110	140	16	18	49	53	10	11	225	25	555	19	820	845
250M	406	80	490	510	370	349	450	168	60m6	65m6	140		18	18	53	58	11	11	250	30	615	24	910	910
280S	457	85	550	580	400	368	490	190	65m6	75m6	140		18	20	58	67,5	11	12	280	40	680	24	985	985
280M	457	85	550	580	400	419	540	190	65m6	75m6	140		18	20	58	67,5	11	12	280	40	680	24	1035	1035
315S	508	120	635	620	530	406	570	216	65m6	80m6	140	170	18	22	58	71	11	14	315	48	745	28	1185	1215
315M	508	120	635	620	530	457	680	216	65m6	80m6	140	170	18	22	58	71	11	14	315	48	745	28	1295	1325
315L	508	120	635	620	530	508	680	216	65m6	80m6	140	170	18	22	58	71	11	14	315	48	745	28	1295	1325
355M	610	116	730	710	655	560	760	254	75m6	95m6	140	170	20	25	67,5	86	12	14	355	57	845	28	1500	1530
355L	610	116	730	710	655	630	760	254	75m6	95m6	140	170	20	25	67,5	86	12	14	355	57	845	28	1500	1530
400M	686	120	806	856	690	630	1090	280	-	110m6	-	210	-	28	-	100	-	16	400	45	1010	35	-	1920
400L	686	120	806	856	690	710	1090	280	-	110m6	-	210	-	28	-	100	-	16	400	45	1010	35	-	1920

* alternatively for frame size 355: shaft 100 x 210 mm, then dim. L + 30 mm

construction form B5, frame sizes 63 to 132

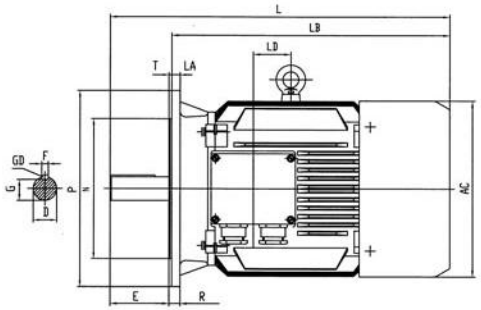
no lift eye with frame sizes 63 - 90

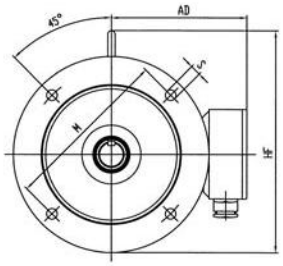


frame size	AC	AD	D/DA		E		F		G		GD		HF	L		LA	LB	LD	M	N	P	R	S	T
			2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p		2p	4,6,8p									
63	120	117	11j6	-	23	4	8,5	4	-	230	10	193		115	95j6	140			3					
71	136	124	14j6	-	30	5	11	5	-	255	10	212		130	110j6	160			3,5					
80M	156	140	19j6	-	40	6	15,5	6	-	295	13	255		165	130j6	200			3,5	4 / Ø12				
90S	176	160	24j6	-	50	8	20	7	-	320	13	265		165	130j6	200			3,5	4 / Ø12				
90L	176	160	24j6	-	50	8	20	7	-	345	13	290	-	165	130j6	200	0		3,5	4 / Ø12				
100L	196	170	28j6	-	60	8	24	7	290	385	15	325		215	180j6	250			4	4 / Ø15				
112M	230	188	28j6	-	60	8	24	7	320	400	15	340		215	180j6	250			4	4 / Ø15				
132S	260	213	38k6	-	80	10	33	8	356	470	16	395		265	230j6	300			4	4 / Ø15				
132M	260	213	38k6		80	10	33	8	356	510	16	435		265	230j6	300			4	4 / Ø15				

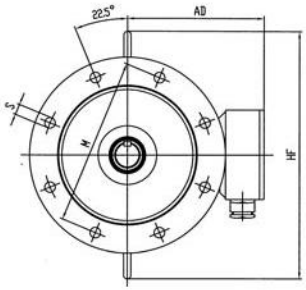
Three-phase low voltage squirrel cage motors **Cast iron casing**

construction form B5, frame sizes 160 to 280





frame sizes 160 – 200



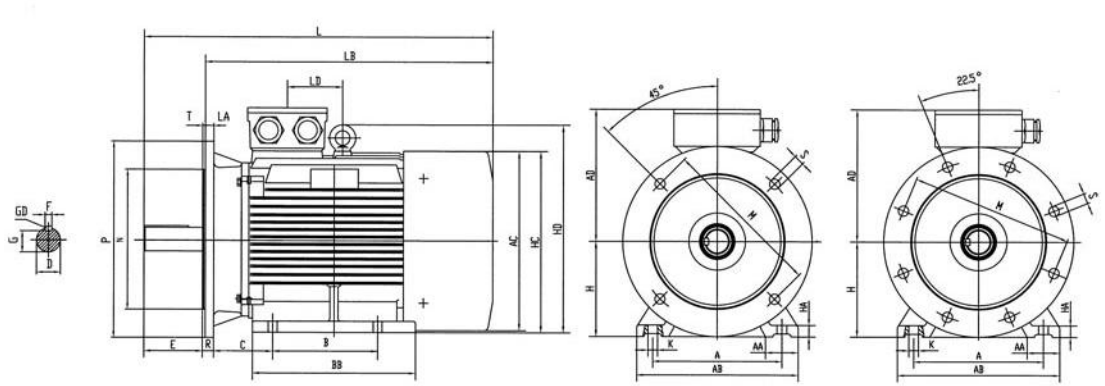
frame sizes 225 – 280

frame size	AC	AD	D		E		F		G		GD		HF	L		LA	LB	LD	M	N	P	R	S	T
			2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p		2p	4,6,8p									
160M	314	260	42k6		110		12		37		8		385	615		18	490	66	300	250j6	350		4 / Ø19	5
160L	314	260	42k6		110		12		37		8		385	670		18	535	88	300	250j6	350		4 / Ø19	5
180M	352	275	48k6		110		14		42,5		9		430	700		20	560	86	300	250j6	350		4 / Ø19	5
180L	352	275	48k6		110		14		42,5		9		430	740		20	600	105	300	250j6	350		4 / Ø19	5
200L	395	305	55m6		110		16		49		10		480	770		22	665	102	350	300j6	400		4 / Ø19	5
225S	470	335	-	60m6	-	140	-	18	-	53	-	11	535	-	815	22	680	103	400	350j6	450	0	8 / Ø19	5
225M	470	335	55m6	60m6	110	140	16	18	49	53	10	11	535	820	845	22	705	116	400	350j6	450		8 / Ø19	5
250M	480	370	60m6	65m6	140		18	18	53	58	11	11	650	910	910	24	790	131	500	450j6	550		8 / Ø19	5
280S	547	400	65m6	75m6	140		18	20	58	67,5	11	12	720	985	985	24	860	168	500	450j6	550		8 / Ø19	5
280M	547	400	65m6	75m6	140		18	20	58	67,5	11	12	720	1035	1035	24	910	183	500	450j6	550		8 / Ø19	5

Three-phase low voltage squirrel cage motors

construction form B35, frame sizes 160 to 400

Cast iron casing



frame sizes 160 – 200

frame sizes 225 – 400

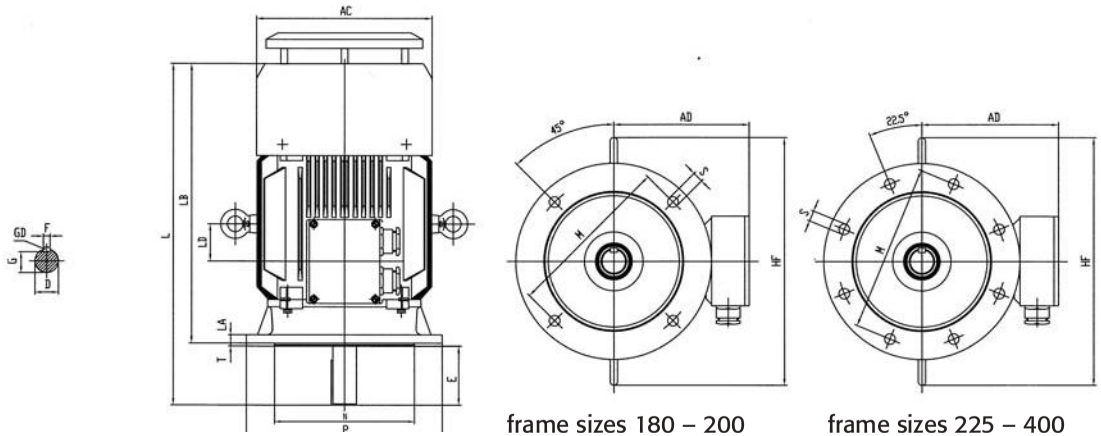
frame size	A	AA	AB	AC	AD	B	BB	C	D*		E*		F*		G*		GD*		H	HA	HC	HD	K	L		LA	LB	M	N	P	R	S	T	LD
									2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p						2p	4,6,8p									
160M	254	65	320	314	255	210	274	108	42k6		110		12		37		8		160	22	-	420	15	615		18	505	300	250j6	350	0	4 / Ø19	5	66
160L	254	65	320	314	255	254	318	108	42k6		110		12		37		8		160	22	-	420	15	670		18	560	300	250j6	350	0	4 / Ø19	5	88
180M	279	70	355	352	280	241	315	131	48k6		110		14		42,5		9		180	25	-	455	15	700		20	590	300	250j6	350	0	4 / Ø19	5	86
180L	279	70	355	352	280	279	355	121	48k6		110		14		42,5		9		180	25	-	455	15	740		20	630	300	250j6	350	0	4 / Ø19	5	105
200L	318	70	395	395	305	305	375	133	55m6		110		16		49		10		200	28	-	505	19	770		22	665	350	300j6	400	0	4 / Ø19	5	102
225S	356	75	435	470	335	286	375	149	55m6		-		-		-		-		225	31	-	560	19	-		22	680	400	350j6	450	0	8 / Ø19	5	103
225M	356	75	435	470	335	311	400	149	55m6		110		16		49		10		225	31	-	560	19	815		22	705	400	350j6	450	0	8 / Ø19	5	116
250M	406	80	490	480	370	349	450	168	60m6		140		18		53		11		250	33	-	570	24	910		24	770	500	450j6	550	0	8 / Ø19	5	131
280S	457	85	550	547	400	368	435	190	65m6		140		18		58		11		280	38	-	640	24	985		24	845	500	450j6	550	0	8 / Ø19	5	168
280M	457	85	550	547	400	419	536	190	65m6		140		18		58		11		280	38	-	640	24	1035		24	895	500	550j6	550	0	8 / Ø19	5	183
315S	508	120	635	620	530	406	570	216	65m6		140		18		58		11		315	48	-	745	28	1185		25	1045	600	550j6	660	0	8 / Ø24	6	205
315M	508	120	635	620	530	457	680	216	65m6		140		18		58		11		315	48	-	745	28	1295		25	1155	600	550j6	660	0	8 / Ø24	6	240
315L	508	120	635	620	530	508	680	216	65m6		140		18		58		11		315	48	-	745	28	1295		25	1155	600	550j6	660	0	8 / Ø24	6	240
355M	610	120	730	710	655	560	760	254	75m6		140		20		67,5		12		355	57	-	845	28	1500		30	1360	740	680j6	800	0	8 / Ø24	6	320
355L	610	120	730	710	655	630	760	254	75m6		140		20		67,5		12		355	57	-	845	28	1500		30	1360	740	680j6	800	0	8 / Ø24	6	320
400M	686	120	806	856	690	630	1090	280	-		-		-		-		-		400	45	-	1010	35	-		25	1710	940	880j6	1000	0	8 / Ø28	-	435
400L	686	120	806	856	690	710	1090	280	-		-		-		-		-		400	45	-	1010	35	-		25	1710	940	880j6	1000	0	8 / Ø28	-	-

* alternatively for frame size 355: shaft 100 x 210 mm, then dim. L + 30 mm

Three-phase low voltage squirrel cage motors

construction form V1, frame sizes 180 to 400

Cast iron casing



frame sizes 180 – 200 frame sizes 225 – 400

frame size	AC	AD	L		LA	LB	D*		E*		F*		G*		GD*		HF	M	N	P	S	T	LD
			2p	4,6,8p			2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p	2p	4,6,8p							
180M	352	280	752	752	20	642	48k6	48k6	110	110	14	14	42,5	42,5	9	9	500	300	250j6	350	4 / Ø19	5	86
180L	352	280	792	792	20	682	48k6	48k6	110	110	14	14	42,5	42,5	9	9	500	300	250j6	350	4 / Ø19	5	105
200L	395	305	831	831	22	721	55m6	55m6	110	110	16	16	49	49	10	10	550	350	300j6	400	4 / Ø19	5	102
225S	470	335	-	881	22	741	-	60m6	-	140	-	18	-	53	-	11	610	400	350j6	450	8 / Ø19	5	103
225M	470	335	876	906	22	766	55m6	60m6	110	140	16	18	49	53	10	11	610	400	350j6	450	8 / Ø19	5	116
250M	480	370	981	981	24	841	60m6	65m6	140	140	18	18	53	58	11	11	650	500	450j6	550	8 / Ø19	5	131
280S	547	400	1065	1065	24	925	65m6	75m6	140	140	18	20	58	67,5	11	12	720	500	450j6	550	8 / Ø19	5	168
280M	547	400	1115	1115	24	975	65m6	75m6	140	140	18	20	58	67,5	11	12	720	500	450j6	550	8 / Ø19	5	183
315S	620	530	1285	1315	25	1145	65m6	80m6	140	170	18	22	58	71	11	14	860	600	550j6	660	8 / Ø24	6	205
315M	620	530	1395	1425	25	1255	65m6	80m6	140	170	18	22	58	71	11	14	860	600	550j6	660	8 / Ø24	6	240
315L	620	530	1395	2425	25	1255	65m6	80m6	140	170	18	22	58	71	11	14	860	600	550j6	660	8 / Ø24	6	240
355M	710	655	1640	1670	25	1500	75m6	95m6	140	170	20	25	67,5	86	12	14	980	740	680j6	800	8 / Ø24	6	320
355L	710	655	1640	1670	25	1500	75m6	95m6	140	170	20	25	67,5	86	12	14	980	740	680j6	800	8 / Ø24	6	320
400M	856	690	-	1920	25	1710	-	110m6	-	210	-	28	-	100	-	16	1200	940	880j6	1000	8 / Ø28	8	435
400L	856	690	-	1920	25	1710	-	110m6	-	210	-	28	-	100	-	16	1200	940	880j6	1000	8 / Ø28	8	435

* alternatively for frame size 355: shaft 100 x 210 mm, then dim. L + 30 mm

Internet
http://www.helmke.de

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