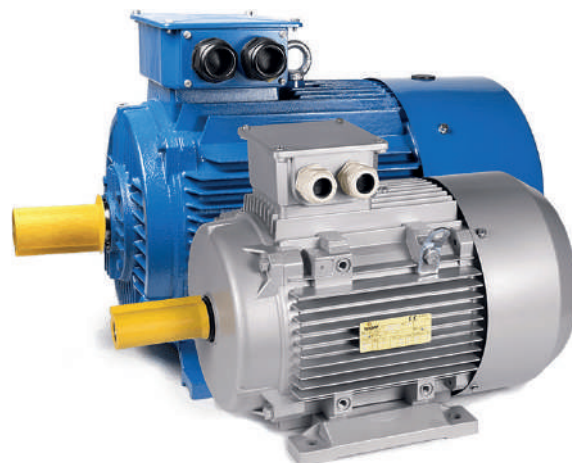


DOUBLE SPEED
THREE-PHASE MOTORS
JMD-GMD

7 DOUBLE SPEED THREE-PHASE MOTORS

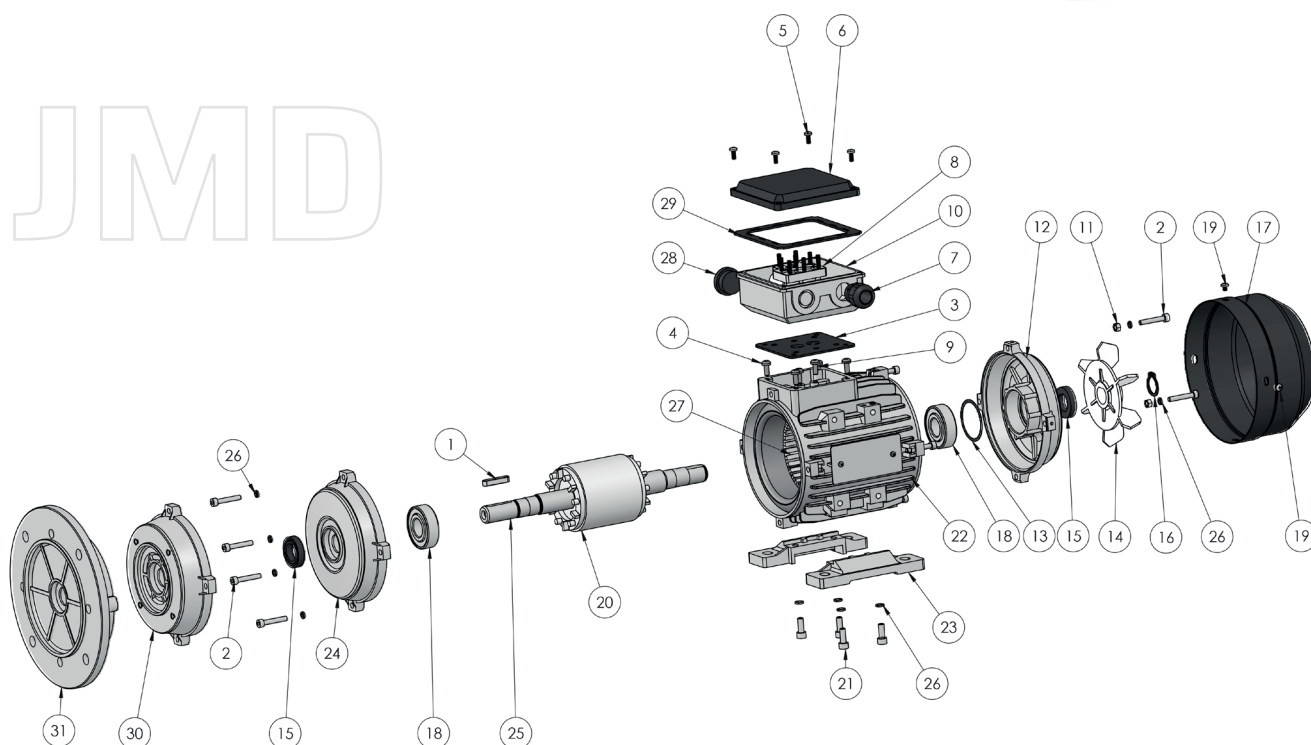
7.1 COMPONENTS



JMD SERIES

The JMD/GMD double speed three-phase motors are designed for a single voltage and for direct starting from the grid.

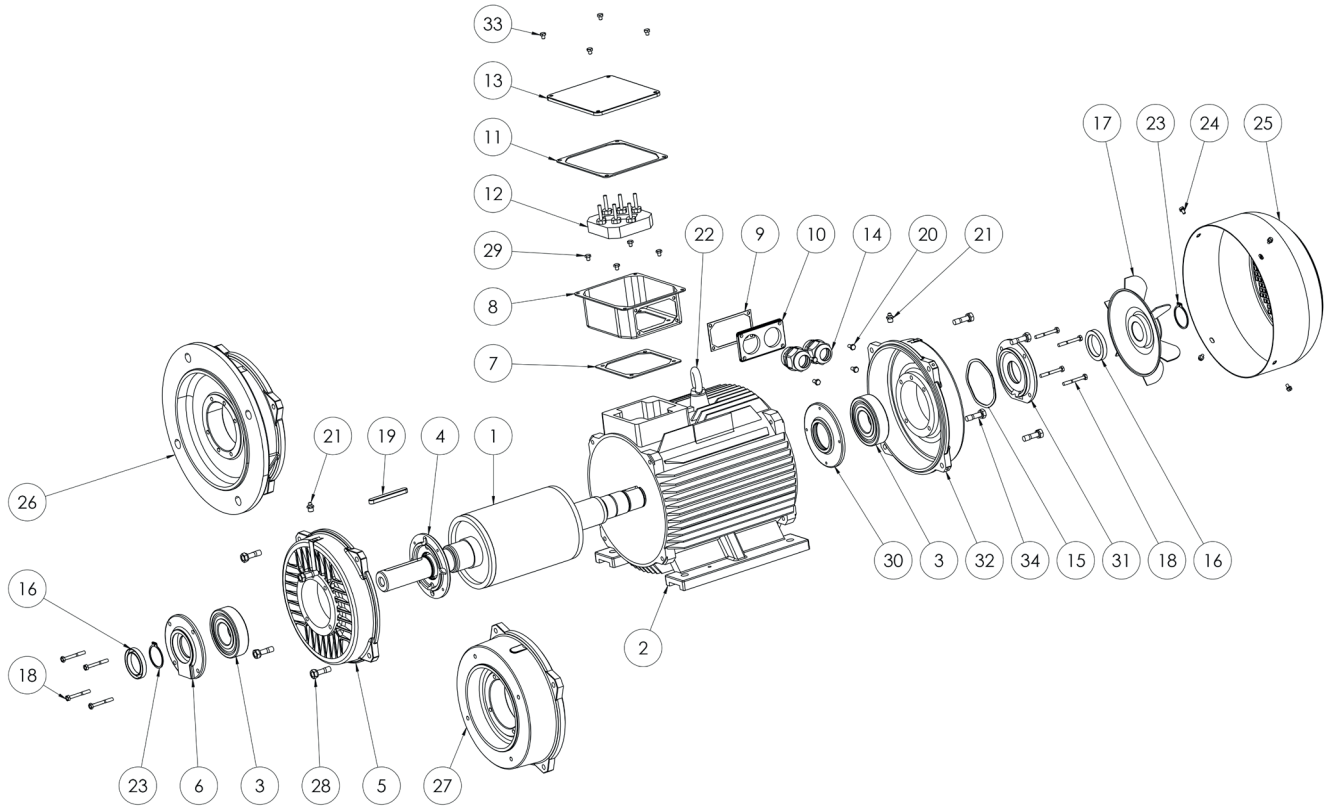
JMD



- | | |
|---------------------------------------|-------------------------------------|
| 1) Key | 17) Fan cover |
| 2) Tie-rod | 18) Bearings |
| 3) Terminal box gasket | 19) Fan cover locking screw |
| 4) Terminal box locking screw | 20) Rotor |
| 5) Terminal board cover locking screw | 21) Feet fastening screw for IMB3 |
| 6) Terminal board cover | 22) Housing |
| 7) Cable gland | 23) Foot for IMB3 |
| 8) Terminal board | 24) Shield on control side for IMB3 |
| 9) Terminal board locking screw | 25) Shaft |
| 10) Terminal box | 26) Washer |
| 11) Nut | 27) Stator |
| 12) Shield B3 side opposite control | 28) Plug |
| 13) Preload spring | 29) Terminal box cover gasket |
| 14) Fan | 30) Flange IMB14 |
| 15) Sealing ring | 31) Flange IMB5 |
| 16) Safety flexible ring | |

GMD SERIES

GMD



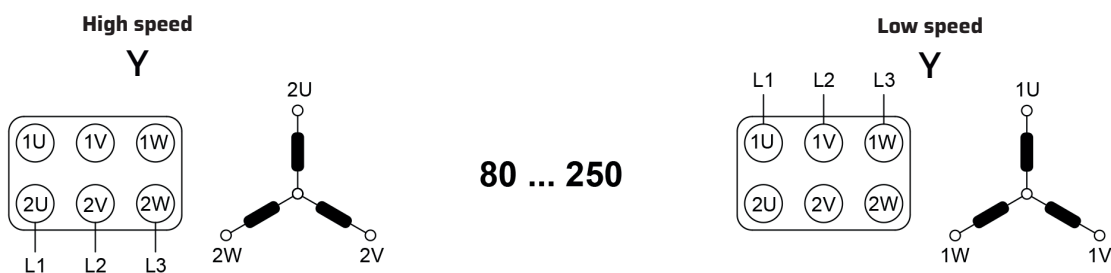
- | | |
|---|---|
| 1) Shaft with rotor | 19) Key |
| 2) Housing | 20) Terminal box tab screw |
| 3) Bearing | 21) Greaser |
| 4) Control side bearing locking internal flange | 22) Lifting eyebolts |
| 5) Shield on control side | 23) Safety flexible ring |
| 6) Control side bearing locking external flange | 24) Locking screw |
| 7) Terminal box gasket | 25) Fan cover |
| 8) Terminal box | 26) Flange IMB5 |
| 9) Terminal box tab gasket | 27) Flange IMB14 (size Gm 160 only) |
| 10) Terminal box tab | 28) Shield locking screw IMB3 on control side |
| 11) Terminal box cover gasket | 29) Terminal box locking screw |
| 12) Terminal board | 30) Side opposite control bearing locking internal flange |
| 13) Terminal box cover | 31) Side opposite control bearing locking external flange |
| 14) Cable gland | 32) Shield on side opposite control IMB3 |
| 15) Preload spring | 33) Terminal box cover locking screw |
| 16) Sealing ring | 34) Shield locking screw IMB3 on side opposite control |
| 17) Fan | |
| 18) Bearing locking external flange fastening screw | |

• 7.2 ELECTRICAL CONNECTIONS

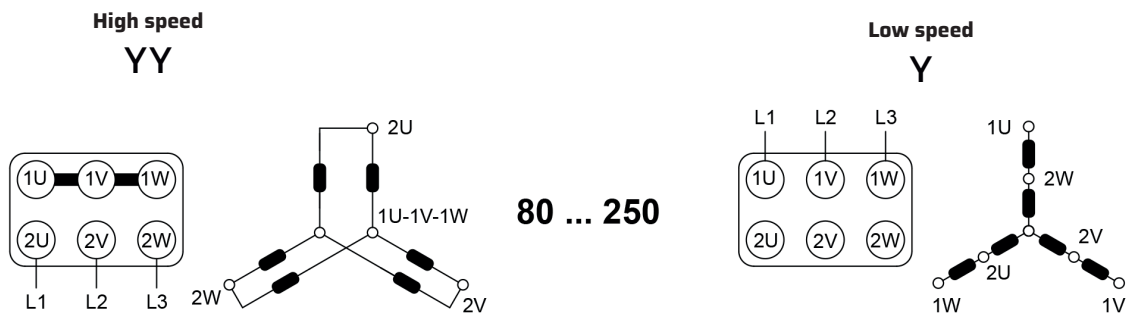
When the ratio between the two speeds is 1 to 2, the standard motors of the JMD and GMD series are designed with a single winding.

For different speeds, two separate windings are present.

THREE-PHASE MOTOR CONNECTION WITH DUAL POLARITY (4-6 POLES)



THREE-PHASE MOTOR CONNECTION WITH DUAL POLARITY SINGLE WINDING (4-8 POLES)





DOUBLE SPEED THREE-PHASE MOTORS JMD-GMD

Size JMD

80 ~ 160

Size GMD

180 ~ 250

Power JMD

0,3 ~ 13 kW

Power GMD

7,5 ~ 52 kW

Polarity JMD

4-6, 4-8 poles

Polarity GMD

4-6, 4-8 poles

Sectors of use



• 7.3 ELECTRICAL DATA JMD/GMD DOUBLE WINDING 4-6 POLES

JMD/GMD 4/6 POLES SERIES

Tab. 7.3.1

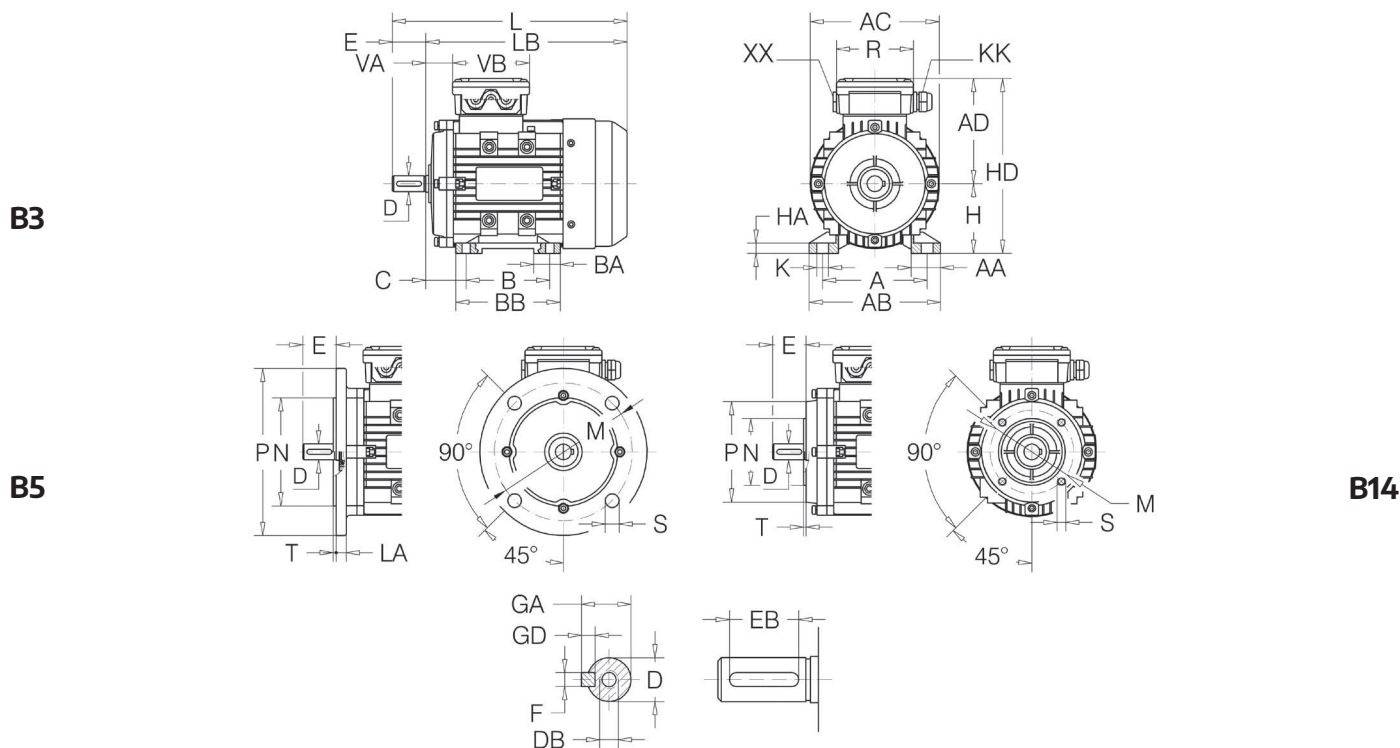
4/6 Poles	JMD/GMD Motor	Poles	P_N	n_N	T_N	$I_{N(400V)}$	$\cos\varphi$	η	$\frac{I_s}{I_N}$	$\frac{T_s}{T_N}$	$\frac{T_{max}}{T_N}$	J Kg m ²	Weight Kg
			kW	min ⁻¹	Nm	A	100%	100%					
JMD Y/Y 400V - 50 Hz	80 a	4	0,30	1440	1,99	1,60	0,54	50,0	2,7	2,3	2,4	0,00143	9,5
		6	0,10	970	0,98	0,85	0,38	45,0	2,9	2,3	2,3		
	80 b	4	0,65	1415	4,39	1,78	0,76	69,0	3,5	1,6	2,3	0,00193	10
		6	0,25	940	2,54	0,9	0,73	55,0	3,0	1,7	2,1		
	90 S	4	0,90	1425	6,03	2,35	0,77	72,0	4,3	1,7	2,4	0,00250	14
		6	0,32	950	3,22	1,15	0,68	59,0	3,3	1,5	2,5		
	90 La	4	1,1	1435	7,32	3,2	0,68	73,0	4,5	2,3	2,9	0,00400	15,5
		6	0,4	972	3,93	1,83	0,54	58,0	3,4	2,5	3,2		
	90 Lb	4	1,4	1410	9,48	3,5	0,79	73,0	4,1	1,8	2,3	0,00470	16
		6	0,45	960	4,48	1,72	0,63	60,0	3,3	2,1	2,5		
	100 La	4	1,7	1440	11,3	4,6	0,74	72,0	5,5	1,9	2,2	0,00540	23
		6	0,6	950	6,03	2,25	0,64	60,0	3,8	2,0	2,3		
	100 Lb	4	2,2	1430	14,7	5,0	0,82	77,0	5,3	1,7	2,1	0,00670	25
		6	0,75	940	7,62	2,54	0,70	61,0	3,5	1,8	2,2		
	112 Ma	4	3	1450	19,8	6,9	0,82	77,0	5,7	1,9	2,2	0,0115	32
		6	0,9	965	8,91	2,75	0,71	67,0	4,4	1,8	2,1		
	132 Sa	4	4,2	1460	27,5	9,0	0,83	81,0	6,3	2,1	2,4	0,0214	45
		6	1,4	970	13,8	3,7	0,76	72,0	5,0	1,7	2,1		
	132 Ma	4	5,9	1465	38,5	11,3	0,88	86,0	8,1	2,2	2,5	0,0395	55
		6	2,6	965	25,7	6,74	0,72	77,0	6,2	1,6	2,3		
132 Mb	4	6,5	1460	42,5	12,2	0,88	87,0	7,8	2,1	2,5	0,0496	59	
	6	2,2	965	21,8	5,7	0,72	77,0	5,9	1,5	2,2			
160 Ma	4	7,5	1470	48,7	14,9	0,85	86,0	8,0	2,0	2,4	0,0712	80	
	6	2,7	975	26,4	6,9	0,72	78,0	6,0	1,7	2,1			
160 Mb	4	9,5	1470	61,7	19	0,84	86,0	7,8	1,8	2,3	0,0747	85	
	6	3,1	970	30,5	7,9	0,71	80,0	5,7	1,6	2,2			
160 La	4	11	1470	71,5	22	0,83	87,0	7,9	1,9	2,4	0,0918	92	
	6	3,6	975	35,3	8,7	0,74	81,0	6,1	1,8	2,3			
160 Lb	4	12	1465	78,2	24,1	0,83	87,0	7,7	1,8	2,3	0,1080	98	
	6	4	970	39,4	9,8	0,72	82,0	5,8	1,7	2,2			
GMD Y/Y 400V - 50 Hz	180 M	4	16	1475	104	30,0	0,88	87,0	7,8	1,9	2,4	0,1390	180
		6	5,5	975	53,9	12,3	0,78	83,0	6,2	1,8	2,3		
	180 L	4	20	1470	130	39,5	0,85	86,0	7,5	1,8	2,3	0,1580	185
		6	6,5	980	63,3	14,5	0,79	82,0	5,9	1,8	2,2		
	200 La	4	23	1480	148	45,5	0,84	87,0	7,5	1,9	2,4	0,2420	240
		6	7,2	980	70,2	16,5	0,76	83,0	6,3	1,7	2,3		
	200 Lb	4	26	1475	168	50,3	0,85	88,0	7,2	1,7	2,3	0,2830	250
		6	9,5	975	93,0	20,6	0,79	84,0	6,0	1,7	2,2		
	225 S	4	34	1480	219	62,9	0,87	89,0	7,4	1,9	2,4	0,4060	275
		6	11	980	107	23,4	0,81	84,0	6,3	1,8	2,3		
	225 M	4	39	1480	252	71,5	0,88	89,0	7,3	2,0	2,4	0,4690	310
		6	13	980	127	27,3	0,81	85,0	6,2	1,8	2,3		
	250 M	4	47	1480	303	84,2	0,90	90,0	7,5	1,9	2,4	0,6600	395
		6	16	980	156	32,3	0,84	85,0	6,7	1,9	2,3		

• 7.4 ELECTRICAL DATA JMD/GMD ONE WINDING 4-8 POLES

JMD/GMD 4/8 POLES SERIES
Tab. 7.4.1

4/8 Poles	JMD/GMD Motor	Poles	P_N	n_N	T_N	$I_{N(400V)}$	$\cos\phi$	η	$\frac{I_s}{I_N}$	$\frac{T_s}{T_N}$	$\frac{T_{max}}{T_N}$	J Kg m ²	Weight Kg
			kW	min ⁻¹	Nm	A	100%	100%					
JMD Y/Y 400V - 50 Hz	80 b	4	0,7	1390	4,81	1,95	0,77	67,0	4,2	1,6	2,0	0,00193	10
		8	0,16	680	2,25	0,68	0,61	56,0	2,9	1,6	1,9		
	90 S	4	1,0	1400	6,82	2,57	0,78	72,0	4,3	1,8	2,3	0,00250	13
		8	0,23	680	3,23	0,93	0,62	58,0	2,7	1,7	2,1		
	90 La	4	1,3	1410	8,80	3,15	0,82	73,0	4,4	1,9	2,4	0,00400	16
		8	0,33	680	4,63	1,20	0,66	60,0	2,6	1,7	2,1		
	100 La	4	2,2	1420	14,8	4,90	0,82	75,0	5,1	2,1	2,4	0,00540	19
		8	0,48	695	6,60	1,85	0,58	64,0	3,6	1,9	2,2		
	100 Lb	4	2,6	1410	17,6	5,90	0,83	77,0	4,9	2,0	2,6	0,00670	22
		8	0,65	690	9,00	2,50	0,57	66,0	3,4	1,8	2,1		
	112 Ma	4	3,6	1450	23,7	7,65	0,81	84,0	6,5	2,5	2,9	0,0115	31
		8	0,9	715	12,0	3,10	0,60	70,0	3,6	2,2	2,6		
132 Sa	4	4,5	1445	29,7	9,30	0,83	84,0	7,5	2,2	2,6	0,0214	43	
	8	1,1	715	14,7	3,55	0,61	74,0	4,5	1,9	2,3			
132Ma	4	6,3	1450	41,5	12,3	0,86	86,0	7,9	2,3	2,7	0,0496	57	
	8	1,5	720	19,9	4,50	0,63	76,0	4,7	1,8	2,4			
160 a	4	9	1445	59,5	18,3	0,84	85,0	6,6	2,2	2,6	0,0747	85	
	8	2,2	710	29,6	6,30	0,64	79,0	3,4	1,7	2,1			
160 La	4	13	1440	86,2	24,4	0,87	88,0	6,5	2,3	2,8	0,1080	94	
	8	3,2	715	42,7	8,60	0,66	81,0	3,3	1,6	2,0			
GMD Y/Y 400 V - 50 Hz	180 M	4	16	1460	105	30,3	0,87	88,0	6,8	2,4	2,7	0,1390	164
		8	4	715	53,4	10,5	0,67	82,0	4,1	1,8	2,0		
	180 L	4	22	1460	144	42,4	0,86	88,0	6,9	2,3	2,6	0,1580	182
		8	5,5	720	72,9	14,0	0,68	83,0	4,4	1,7	1,9		
	200 La	4	29	1465	189	56,8	0,83	89,0	7,2	2,5	2,8	0,2830	245
		8	7,5	720	99,5	19,6	0,66	84,0	4,3	1,9	2,0		
	225 M	4	40	1475	259	74,6	0,86	90,0	7,4	2,5	2,7	0,4690	290
		8	9,5	730	124	25,0	0,64	86,0	4,5	1,9	2,0		
	250 M	4	52	1480	336	97,0	0,86	90,0	7,6	2,3	2,8	0,6600	390
		8	13	730	170	33,0	0,65	87,0	4,7	2,0	2,0		

• 7.5 JMD 80-160 DIMENSIONAL DATA



JMD A SERIES

Tab. 7.5.1

JMD Motor	Main Overall Dimension							Feet								Flange							
	AC	AD	H	HD	LB	L	A	B	C	AB	BB	AA	BA	HA	K	IM	M	NJ6	P	LA	T	S	
80	4-6-8	158	129	80	209	244	284	125	100	50	157	125	35	31	8	10	B5	165	130	200	12	3,5	N°4 12
																	B14	100	80	120	--	3	N°4 M6
90	S 4-6-8	175	142	90	232	270	320	140	100	56	173	125	37	31	10	10	B5	165	130	200	12	3,5	N°4 12
	L					295	345		125			150					B14	115	95	140	--	3	N°4 M8
100	L 4-6-8	198	156	100	256	338	398	160	140	63	196	172	40	39	11	12	B5	215	180	250	13	4	N°4 15
																	B14	130	110	160	--	3,5	N°4 M8
112	M 4-6-8	219	168	112	280	341	401	190	140	70	227	180	41	43	12	12	B5	215	180	250	14	4	N°4 15
																	B14	130	110	160	--	3,5	N°4 M8
132	S 4-6-8	258	190	132	322	395	475	216	140	89	262	186	51	46	15	12	B5	265	230	300	14	4	N°4 15
	M					433	513		178			224					B14	165	130	200	--	3,5	N°4 M10
160	M 4-6-8	316	242	160	402	500	610	254	210	108	304	260	55	50	18	15	B5	300	250	350	15	5	N°4 19
	L					545	655		254			304					B14	215	180	250	--	4	N°4 M12

JMD B SERIES

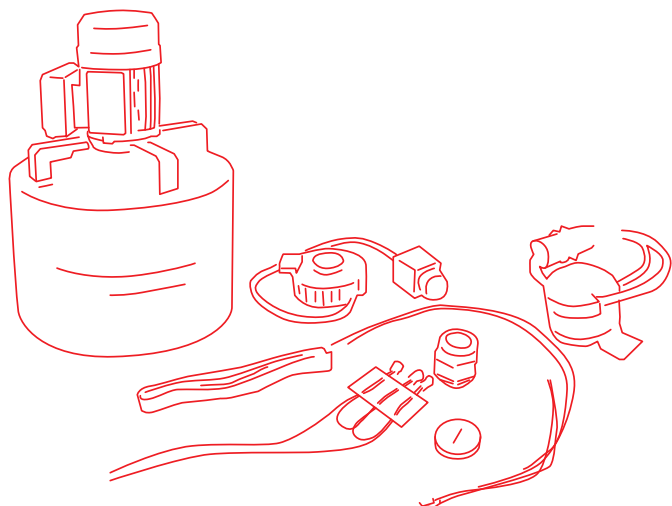
Tab. 7.5.2

JMD Motor		Shaft - End							Shaft - Seals					Terminal - Box						
		D	DB	E	GA	Key			Flange-End		Drive End DE Non drive end NDE			Term.	Cable gland					
						F	GD	EB	Øi	Øe	H	Øi	Øe		H	N°-Ø	N°-KK	N°-XX	VA	VB
80	4-6-8	19	M6	40	21,5	6	6	30	20	35	7	20	35	7	6-M4	1-M20x1,5	1-tappo	31	87	87
90	4-6-8	24	M8	50	27	8	7	40	25	40	7	25	40	7	6-M4	1-M25x1,5	1-tappo	31	106	106
100	4-6-8	28	M10	60	31	8	7	50	30	47	7	30	47	7	6-M4	1-M25x1,5	1-tappo	31	106	106
112	4-6-8	28	M10	60	31	8	7	50	30	47	7	30	47	7	6-M5	2-M25x1,5	--	35	114	122
132	4-6-8	38	M12	80	41	10	8	65	40	62	7	40	62	7	6-M5	2-M32x1,5	--	43	114	122
160	4-6-8	42	M16	110	45	12	8	90	45	62	12	45	62	12	6-M6	2-M40x1,5	1-M16x1,5	78	156	167

EXECUTIONS

NON-STANDARD

■ 10 SPECIAL EXECUTIONS



1) WINDING

Non-standard voltages and/or frequencies

Seipee electric motors with three-phase power supply are designed for use on the European mains

230/400V \pm 10% 50Hz.

This means that the same motor can also be connected to the following electrical mains:

- ▶ 220/380V \pm 5%
- ▶ 230/400V \pm 10%
- ▶ 240/415V \pm 5%

Special windings can be created on request with different voltages and/or frequencies.

Tropicalization

Tropicalization of winding consists in cold painting a product of remarkable hygroscopic qualities that ensures a certain refractory capacity against penetration of condensation in materials that must maintain optimal insulation.

It is indicated in situations where the motor is installed in environments where moisture content is particularly high.

Additional wrapping impregnation

It consists of a second impregnation cycle, recommended for:

- ▶ humid and corrosive environments (mildew);
- ▶ environments with strong mechanical and electromagnetic stress induced by inverters;
- ▶ in the presence of strong electrical agents (voltage peaks);
- ▶ in the presence of strong mechanical agents (induced mechanical or electromagnetic vibrations);

2) TERMINAL BOX

Side terminal box

As standard, the terminal box is in position T, i.e. on the top control side.

For motors with feet IM B3 and deriving structural formats, it is possible to place the terminal box R (right) or L (left), on request.

In self-braking motors, any release lever follows the position of the terminal box.

NDE terminal box

On request, the terminal box can be positioned on the NDE side (fan side) instead of the DE side (control side) as is standard.

Cables input

As standard, the cable glands are positioned on the right side of the terminal box. The position of the cables input can be rotated by 90° or 180° on request.

Cable gland type

The standard cable glands are made of polyamide, and the relative dimensions for each motor size are outlined in the tables of the dimensional data of the various series of motors.

On request, cable glands and metal plugs can be supplied, especially suitable for applications with temperatures outside the range -15/+40 C.

Cylindrical connector for quick motor cabling

Auxiliary capacitor (JMM series)

Auxiliary capacitor with built-in electronic circuit breaker for high starting point (MS/MN=approximately 1.1÷1.4).

It automatically enters at the start of the motor only for a time of 1.5 s (not suitable for applications with starting times > 1.5 s).

Warning: The time between starting and the next start must be > 6 s, to avoid causing damage to the circuit breaker.

3) MOTOR PROTECTION

Bimetal thermal probes (PTO)

Three probes connected in series with normally closed contact inserted in the motor winding. The contact is opened when the winding temperature reaches and exceeds the intervention value (150 C for motor in class F). VN,max. 250 [V], IN,max. 1.6 [A]

The terminals are placed inside the motor terminal box.

Standard on motors with axle height 160 to 450.

Thermistor thermal probes (PTC)

Three thermistors connected in series inserted in the winding conforming to DIN 44081/44082, to be connected to specific release equipment (the purchase of this equipment is charged to the buyer of the motor).

There is a sudden change in resistance (which causes the release) when the temperature of the winding reaches and exceeds the intervention value (150 C for motor in class F). The terminals are placed inside the motor terminal box.

Standard on all motors with power over 0.75kw.

Temperature sensor PT 100 (resistance thermometer)

It is a temperature sensor that takes advantage of the variation in the resistivity of certain materials as temperature changes, in accordance with DIN-IEC 751.

Three PT 100 are inserted inside the winding, one for each phase. Terminals placed inside the motor terminal box must be connected to appropriate equipment (purchase of this equipment is charged to the buyer of the motor).

Temperature probe KTY84-130

Temperature sensor in silicon depending on the change in resistance with positive temperature coefficient.

Anti-condensation heater

It is recommended for motors operating in environments:

- ▶ with high humidity;
- ▶ with strong thermal excursions;

- ▶ with low temperature (possible ice formation);

It is a resistor fixed on coil heads that allows heating the winding of the stopped electric motor and then eliminates condensate inside the housing.

Structure: Glass fibre tape, in which a multi-wire resistor is inserted in nickel-chrome, covered with polyester adhesive tape reinforced with glass fibre filaments and an additional external glass fibre sleeve

Single-phase power supply 230V ac ±10% 50 / 60 Hz, absorbed power:

- 25 W for size 63 ... 90;
- 26 W for size 100 ... 112;
- 40 W for size 132 ... 160;
- 26 W for size 180 ... 200;
- 42 W for size 225 ... 250;
- 65 W for size 280;
- 99 W for size 315 ... 450;

The heater must not be powered during while the motor is running.

Terminals located inside the motor terminal box.

The anti-condensate heater is compulsory combined with the condensation drainage holes execution.

As standard on the GM 160...450 motors, on the side opposite the terminal box.

On placing the order, always specify the working position of the motor.

If, on installation, the plugs on the holes of the condensate exhaust located on the lower side of the electric motor have not been removed, they must be opened approximately every 5 months to allow leakage of the condensate created.

4) COLOURS AND PAINTING

Seipee motors are powder painted or painted with combined nitro paint to resist normal industrial environments and allow further finishing with monocomponent synthetic paint.

- ▶ JMM 56...100: RAL 9006 (White aluminium);
- ▶ JM 56...160: RAL 9006 (White aluminium);
- ▶ GM 160...450: RAL 5010 (blue);
- ▶ JMD 80...160: RAL 9006 (White aluminium);
- ▶ GMD 180...250: RAL 5010 (blue);
- ▶ JMK 63...160 RAL 9006 (White aluminium); Copriventola RAL 9005 (Black)
- ▶ GMK 180...280 RAL 5010 (blue);

The choice of painting treatment is a critical phase as it depends on the durability of the electric motor according to the environment in which it is to be placed.

According to standard UNI EN ISO 12944-1 the durability of the paint can be classified according to 3 classes:

Low (L) from 2 to 5 years.

Medium (M) from 5 to 10 years.

High (H) over 15 years.

Durability is indicated next to the corrosion category of the installation environment to allow the definition of the protec-

tion cycle able to operate in that environment and to ensure the required durability. The painting cycles that are carried out are fully compliant with the regulations.

ISO 12944 Classification:

C1 - C2 = Rural zones, low pollution. Heated buildings/neutral atmosphere.

C3 = Urban and industrial atmosphere. Moderate levels of sulphur dioxide. Production areas with high humidity.

C4 = Industrial and coastal. Chemical processing plants.

C5L = Industrial areas with high humidity and aggressive atmospheres.

C5M = Sea areas, offshore, estuaries, coastal areas with high salinity.

- ▶ Without paint: motor supplied with base primer only
- ▶ Painting in other hues: RAL to indicate on purchase order
- ▶ Special paint C3
- ▶ Special paint resistant to heavier environments C4 or C5.

5) EXECUTIONS ON BEARINGS

PT 100 on bearing

PT100 sensor inserted on the bearing support (control side, side opposite control). The terminals are placed inside a shunt box fastened to the motor housing. .

Electrically insulated bearing

The rolling bearings of electric motors are potentially subject to current passages that quickly damage the surfaces of runners and rolling bodies and degrade their grease.

The risk of damage increases in the increasingly popular electric motors equipped with frequency converters, especially in applications with sudden variations in frequency.

In bearings on such motors, there is an additional risk due to the presence of high frequency currents caused by the parasitic capacities existing within the motor. The electrically insulated bearing has the outer surface of the external ring coated with a layer of aluminium oxide 100 m thick, able to withstand voltages of 1,000 V d.c., practically eliminating issues caused by current passage.

It is usually installed on the NDE bearing.

For use in motors equipped with frequency converters: recommended starting from size 250.

- **Bearing 2RS**
- **Locked bearing as standard on GM motors, on request on JM series**
- **Oblique contact bearing**
For applications with important axial loads acting in one direction only (size 315 and higher)
- **Cylindrical roller bearing**
For applications with strong, constant radial loads (size 160 to 280).
- **Automatic single point greaser for bearings**
Automatic lubricators can be installed to ensure the correct amount of lubricant is delivered within a certain time using an inert gas cell.

This lubrication procedure allows more accurate control of the amount of lubricant supplied, compared to traditional manual re-lubrication techniques. It has a nominal delivery period that can vary between 1 month and 12 months and can also be temporarily deactivated if necessary.

Suitable for direct mounting in confined spaces and is particularly suitable for points requiring frequent lubrication, machine shutdown and safety implications. (only possible for motors with re-lubricating bearings, GM series size 160 and higher)

6) MECHANICAL EXECUTIONS AND DEGREES OF PROTECTION

- ▶ **Double output shaft** (on which radial loads are not permitted)
- ▶ **Shaft ends to drawing**
- ▶ **Standard shaft in stainless steel**
- ▶ **External screws in stainless steel**
- ▶ **Entire key balancing**
- ▶ **Balancing without key**
- ▶ **Flange tolerance in precise class**
- ▶ **Fan cover for textile environment**

Fan cover equipped with a special protective roof instead of the normal grate to avoid clogging with waste and dust from filaments in the textile environment.

The longitudinal dimensions of the motor increase by 30÷70mm according to size.

IP56 protection JM and GM series

Recommended for motors operating in very humid environments and/ or in the presence water sprays. The protection rating on the rating plate becomes IP56.

You should contact the technical office for vertical axis positioned motors.

IP65 protection JM and GM series

Recommended for motors working in dusty environments. The protection rating on the rating plate becomes IP65.

You should contact the technical office for vertical axis positioned motors.

Condensate drain holes

As standard on the GM 160...450 motors, on the side opposite the terminal box.

On placing the order, always specify the working position of the motor.

If, on installation, the plugs on the holes of the condensate exhaust located on the lower side of the electric motor have not been removed, they must be opened approximately every 5 months to allow leakage of the condensate created.

Rain cover

Execution required for outdoor applications or in the presence of water splashes, with vertical shaft pointing downwards, type of construction (IM V5, IM V1, IM V18, IM V15, IM V17).

The LB dimension increases by:

- 35 mm size 56 ... 112;
- 45 mm size 132 ... 160;
- 65 mm size 180 ... 225;
- 85 mm size 250 ... 355;
- 120 mm size 355X ... 450

Execution for low temperatures

Standard motors can operate at room temperature up to -15°C with peaks up to -20°C.

For room temperature up to -30°C and above, special bearings and an anti-condensate heater are required. On request, we recommend the light alloy fan and the metal cable glands/plugs and in case of condensate formation the relative condensate drainage holes (in this case indicate the mounting position).

Execution for high temperatures

Standard three-phase motors can operate at room temperature up to 55°C with peaks up to 60°C, as long as the required power is lower than the plate power (as per General characteristics/Power yield based on ambient temperature Tab.....).

For an ambient temperature 60 ÷ 90°C, special bearings and sealing rings are necessary in fluorine rubber (viton). Wrapping in insulation class H, light alloy fan and metal cable glands/plugs are also recommended.

7) VENTILATION

IC418

Motor without fan and fan cover. Used in applications where cooling is ensured by the external environment.

IC416

Axial servo-fan IP54 indicated for:

- ▶ frequent start-ups and/or heavy start-up cycles
- ▶ with use of frequency or voltage variator

since, in the event of prolonged operation at low speed, the ventilation loses its effectiveness, it is therefore advisable to install a forced ventilation system with constant flow.

Vice versa, in the event of prolonged operation at high speeds, the noise emitted by the ventilation system can be annoying, and it is therefore recommended to opt for a forced ventilation system.

The characteristics of the servo-fan and the variation ΔL of the measurement LB (see "motor dimensions") are outlined on page 30 tab. 3.14.

The auxiliary ventilation power terminals are located inside an auxiliary terminal box attached to the fan cover. Before making the electrical connection make sure the power supply corresponds to the electrical data shown on the plate.

Important:

check the rotation direction of the three-phase fan. Corresponds to that indicated by the arrow placed on the fan cover, otherwise reverse two of the three phases of power supply

On request, the servo-fan can be created in special versions: voltages, frequencies, working temperature according to client specifications as well as the single-phase, multi-voltage and IP 66 protection versions.

8) SPEED TRANSDUCERS

Standard incremental encoder with hollow shaft and elastic fastening connection cable equipped with military type male connector fastened to the motor.

The female connector is also supplied with relevant diagram for the connection

Characteristics:

- ▶ incremental optical type
- ▶ two-directional with zero channel (channels A, B, Z and respective denied channels)
- ▶ degree of protection IP 54
- ▶ max speed 6000 RPM (4000 RPM in continuous service S1)
- ▶ operating temperature -10 C +85 C
- ▶ resolution from 200 to 2048 pul. /rev; 1024 standard
- ▶ max load current 20 mA per channel
- ▶ supply voltage 5 ÷ 28 Vdc
- ▶ electronic configuration line driver / push-pull (in push-pull configuration do not connect A,B,Z denied channels)
- ▶ absorption with no load 100 mA.

Available executions:

- ▶ servo-ventilated motor with encoder
- ▶ self-ventilated motor with encoder

Measurement LB in two executions is subject to the same variation ΔL outlined in table (Characteristics of the auxiliary fan page 32 no. table 3.14).

On request, the following can be supplied:

- ▶ Incremental encoder with high degree of protection
- ▶ Absolute encoder
- ▶ Resolver

Only for the JMK and GMK Series:

▶ Brake protection in rubber

It is used to prevent dust and/or water or other foreign bodies from entering the braking surfaces. Furthermore, consistently limit the dust from brake wear dispersing in the environment. It is applied around the brake in the appropriate slots provided. This execution is necessary for IP55

▶ IP55 protection (not possible in execution with release lever).

TA and GA series brake: sealing ring on control side for IM B5 (V-ring for IM B3), dust-proof, water-proof rubber protection and V-ring on opposite side.

▶ TC or L7 brake with IP66 protection (not possible in execution with release lever).

▶ Brake pad with anti-sticking friction material (TA, GA, TC, GC series)

Eliminates danger of brake pad sticking. It is recommended for motors operating in environments:

- ▶ that are aggressive
- ▶ with high vapour concentrations
- ▶ near the sea (near saltwater)

Also recommended when the motor remains unused for long periods of time. (Attention: the nominal braking moment reduces by 10%)

▶ Manual release lever

It frees the motor from the unpowered brake and returns to its initial position after the manoeuvre (automatic return). Useful for manual rotations in case of power failure and/or during installation. The handle of the lever can be removed and is located in correspondence with the terminal box (standard

position). It is always advisable to remove the handle once the operations have been completed.

▶ **Manual rotation**

It allows you to turn the motor shaft from the opposite the control side. A hex male key is used by inserting it in the central hole of the fan cover.

- ▶ measurement 3 for size 63;
- ▶ measurement 4 for 71;
- ▶ measurement 5 for 80;
- ▶ measurement 6 for 90 ... 132;
- ▶ measurement 8 for 160;

NOT possible with executions with Rain protection roof, Encoder and axial servo-fan.


▶ **Braking moment calibrated different to standard value.**

▶ **Mechanical micrometer to signal wear or the brake Locked/Unlocked position**

▶ **Micro-switch to signal brake opening/closure.**


9) EXECUTIONS ACCORDING TO STANDARDS GUARDS


Execution according to standards

 **US** for the US and Canadian market, available on JM and GM series. Certificate No. E34813


The main variants are the insulation system of the winding class F certified UL, adaptation of air distances towards the ground and live parts.

Execution according to standards

 for the per Eurasian customs union (Russia, Belarus, Kazakhstan, Armenia and Kyrgyzstan) certified RU D-IT.AD53. B07480

 for the People's Republic of China

 for the UK

 for applications in a naval or marine environment




The JM and GM (≤600V) series motors are supplied for use in environments with potentially explosive atmospheres according to ATEX 94/9/EC directive group II category 3D for zone 22 / 3G zone 2.

As standard, PTC 130°C and certified cable glands are installed ATEX.

Marking plate:





On request, the execution is possible 

Legend:

II = Group of origin (use on surface);

3 = Protection category;

includes equipment designed to operate in accordance with the operating parameters established by the manufacturer and to ensure a normal level of protection; it may only be used in classified areas 2 or 22 non-conductive powders.

D = Powders per installation zone Dc (zona 22);

G = Gas per installation zone Gc (zona 2);

tc / ec = protection mode;

IIIC / IIC = equipment group of origin according to the nature of the explosive atmosphere;

T135°C = maximum surface temperature for atmospheres with presence of dust;

T3 / T4 = temperature class for atmospheres with presence of gas.

For inverter applications. it is always necessary to connect the supplied temperature probes to meet the thermal classes indicated in the marking.

The purchaser of the product will be responsible for taking appropriate technical and organisational measures and for assessing any possible risk of explosion to the health and safety of workers in potentially explosive areas (Directive 99/92/EC).

On receipt of the electric motor, make sure there is no damage or faults.

Before starting the motor, check the data on the plate, read the instruction manual carefully (supplied to the motor) and verify its suitability for the application requested

10) TECHNICAL DATA AND ADDITIONAL PLATES

- ▶ Double plate
- ▶ Sheet metal plate
- ▶ Additional instructions on the plate and the packaging label
- ▶ Test certificate
- ▶ Document with electrical data
- ▶ Document with dimensional drawing