

JEMEC
Driving machines for better



**JEM series three phase
asynchronous motor**

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Introduction

Efficiency of JEM series 3 phase asynchronous motor complies to IEC 60034-30 -1: 2014 (50Hz).

JEM series three phase asynchronous motor adopts cast iron house, low-loss silicon steel sheet and high purity copper wire, has advantages such as high efficiency , low vibration and noise, low temperature rise, high compatibility, high reliability, strong structure etc. This series motors are suitable to drive all kinds of general purpose machines such as compressors, ventilators, pumps, etc., with continuous duty (S1), constant or various speed. And widely used in petrol chemical, pulp&paper, cement, steel, mining and water treatment etc.

Features

- Frame material: Cast Iron
- Standard color: RAL 5001 (Blue green)
- Rated power output: 0.18kW~315kW.
- Rated frequency: 50Hz.
- Connection: Below 4kW : "Y" Connection:, 4kW or above: " Δ " Connection.
- Duty: S1 or customer Specified.
- Optimized compact style construction.
- Standard mounting construction according to IEC 60034-7: IM B3, IM B5, IM B35 , IM B14 , IM B34 and etc.
- All motors are designed to IP55 degree of protection (IEC 60034-5), and higher protection degree (IP68 the highest) is available by customers’ request
- Re-greasing devices for frame size 280 and above as standard, and for frame size 100 ~ 250 as option.
- Insulation system is designed for temperature class 155 (F). At rated output with line-fed operation, the motors can be used in temperature class 130 (B).
- Self ventilated motors with radial-flow fans (cooling method IC 411 according to IEC 60034-6) as standard, forced air cool with external separately driven fans as option.

Working environment

-20℃≤T≤20℃: 100%
20℃<T≤30℃: 95%
30℃<T≤40℃: 55%
Degrees of motor protection IP55 (IEC 60034-5).
Altitude shall not exceed 1000m above sea-level (IEC 60034-1).
Allowed air temperature between -20 °C and 40 °C (IEC 60034-1).
Permitted relative humidity:
-20℃≤T≤20℃: 100 %
20℃<T≤30℃: 95 %
30℃<T≤40℃: 55 %
For higher coolant temperatures and/or site altitudes higher than 1000 m above sea level, the specified motor output must bereduced by using the factor k_{HT}. The results in an admissible output
(P_{adm}) of the motor:P_{adm} = P_{rated} • k_H

Factor k _{HT} for different side altitudes and / or coolant temperature							
Ambient temperature	Site altitude above sea level						
	1000 m	1500 m	2000m	2500 m	3000 m	3500 m	4000 m
<30℃	1.07	1.04	1.00	0.96	0.92	0.88	0.82
30 ~ 40℃	1.00	0.97	0.94	0.90	0.86	0.82	0.77
45℃	0.96	0.93	0.9	0.86	0.82	0.79	0.74
50℃	0.92	0.89	0.86	0.83	0.79	0.75	0.71
55℃	0.87	0.84	0.82	0.78	0.75	0.71	0.67
60℃	0.82	0.79	0.77	0.74	0.70	0.67	0.63

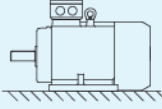
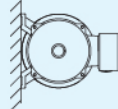
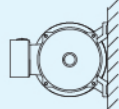
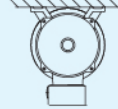
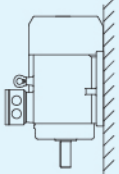
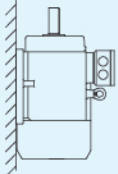
Reference standards

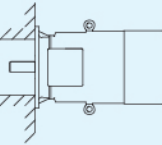
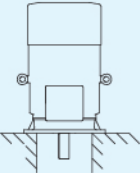
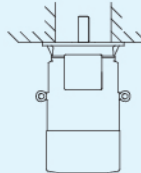
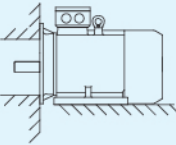
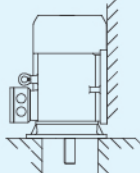
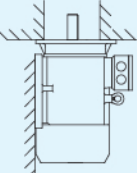
Title	IEC standard
Rotating electrical machines – Part 1: Rating and performance	IEC 60034-1
Rotating electrical machines – Part 2-1: Standard methods for determining	IEC 60034-2-1
Rotating electrical machines – Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification	IEC 60034-5
Rotating electrical machines – Part 6: Methods of cooling (IC Code)	IEC 60034-6
Rotating electrical machines – Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)	IEC 60034-7
Rotating electrical machines – Part 8: Terminal markings and direction of rotation	IEC 60034-8
Rotating electrical machines – Part 9: Noise limits	IEC 60034-9
Rotating electrical machines – Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher – Measurement, evaluation and limits of vibration severity	IEC 60034-14
Rotating electrical machines – Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080	IEC 60072-1
Electrical insulation – Thermal evaluation and designation	IEC 60085
Classification of environmental conditions Part 2-1: Environmental conditions appearing in nature – Temperature and humidity	IEC 60721-2-1
Standard voltages	IEC 60038
Rotating electrical machines – Part 12:Starting performance of single-speed three-phase cage inductiong motors	IEC 60034-12
Rotating electrical machines -Part 30-1: Efficiency classes of line operated AC motors (IE code)	IEC 60034-30-1

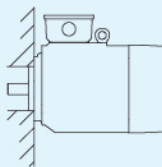
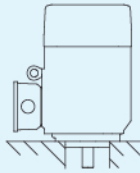
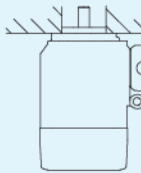
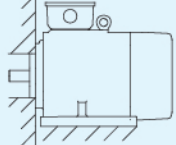
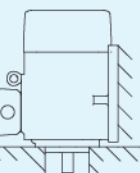
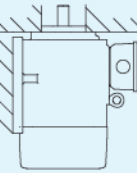
<div><div><div><div></div><div>JEMEC</div><div>Driving machines for better</div></div><div>3-Phase Asynchronous Motor</div></div></div>						
Type: JEM3-315S-6 ①		S/N: JMC20201222001 ②		③IE3		
④IM: B3	⑤Ins Cl. F	⑥IP55	⑦AMB:-20 ~ 40℃	⑧IC411	⑨920kg	
⑩V	⑪Hz	⑫kW	⑬A	⑭Eff.	⑮Cos?	⑯RPM
400Δ /690Y	50	75	136/79	94.6%	0.84	990
⑰Bearing DE: 6319/C3		Protection				
⑱Bearing NDE: 6319/C3		⑳Winding: 3*PTC 150℃				
⑲Re-greas interval: 6000h		㉑Bearing: 2*PT100				
㉒Quantity: 45g		㉓Heater: 100W/230V				
㉔IEC 60034-1			㉕Date: DEC, 2020			

1	Type	14	Efficiency
2	Series number	15	Power factor
3	Efficiency class	16	Rated speed
4	Type of construction	17	Bearing at drive end
5	Insulation class	18	Bearing at non-drive end
6	Degree of protection	19	Re-grease time interval
7	Ambient temperature	20	Re-grease quantity
8	Weight	21	Thermistors in winding
9	Cooling method	22	Thermistors for bearing
10	Rated voltage	23	Anti-condensation heater
11	Frequency	24	Standard
12	Rated power	25	Manufacturing time
13	Rated current		

Construction and mounting type

结构型式	机座带底脚，端盖无法兰					
Construction type	With feet and without flange on the end-shield (DE)					
安装型式	I M B3	I M B6	I M B7	I M B8	I M V5	I M V6
Mounting type	FS 80 ~ 355	FS 80 ~ 315	FS 80 ~ 315	FS 80 ~ 315	FS 80 ~ 315	FS 80 ~ 315
示意图						
Diagram						

结构型式	机座不带底脚，端盖有法兰			机座带底脚，端盖有法兰		
Construction type	Without feet and with flange on the end-shield (DE)			With feet and with flange on the end-shield (DE)		
安装型式	I M B5	IM V1	I M V3	I M B35	I M V15	I M V35
Mounting type	FS 80 ~ 315	FS 80 ~ 355	FS 80 ~ 315	FS 80 ~ 355	FS 80 ~ 315	FS 80 ~ 315
示意图						
Diagram						

结构型式	机座不带底脚，端盖有标准小法兰			机座带底脚，端盖有标准小法兰		
Construction type	Without feet and with C-flange on the end-shield (DE)			With feet and with C-flange on the end-shield (DE)		
安装型式	I M B14	I M V18	I M V19	I M B34	I M V17	I M V37
Mounting type	FS 80 ~ 160	FS 80 ~ 160	FS 80 ~ 160	FS 80 ~ 160	FS 80 ~ 160	FS 80 ~ 160
示意图						
Diagram						

Degree of protection

All motors are designed to IP55 degree of protection (IEC 60034-5) , and higher protection degree (IP68 the highest) is available by customers’ request

The IP code consists of IP code letters and two obligatory digits, meaning:			
The first digit (protection from introduction of solid foreign matter)		The second digit (protection against penetration of water and its harmful effects)	
IP	Definition	IP	Definition
0	No protection	0	No protection
1	Diameter>=50mm	1	Dropping vertically
2	Diameter>=12.5mm	2	Dropping (up to 15°)
3	Diameter>=2.5mm	3	Sprayed
4	Diameter>=1.0mm	4	Splashed
5	Limited protection against dust	5	In stream
6	Dust tight	6	In strong steam
		7	Under short-time immersion
		8	Under permanent immersion

Noise

The noise of JEM series motor conform to IEC60039-9 “Noise Limits ”. It is specified measuring-surface sound power level L_{Wfa} in dB (A). This is the spatial mean value of the sound power levels measured on the measuring surface. The measuring surface is a cube 1 m away from the motor surface.

Please refer to the Technical data table for the actual noise value.

Vibration

The rotors of JEM series motors are all dynamically balanced to severity grade A using a half key.

The effective vibration values for unloaded motors not exceed grad A in table below. If there’s special vibration requirements, the rotors are balanced to severity grade B.

Grade	frame size	80≤H≤132		H>132	
	Vibration value	Seff	Veff	Seff	Veff
		(μm)	(mm/s)	(μm)	(mm/s)
A	Free suspension	45	2.8	45	2.8
	Rigid mounting	-	-	37	2.3
B	Free suspension	18	1.1	29	1.8
	Rigid mounting	-	-	24	1.5

Note:
Seff = effective vibration displacement Veff = effective vibration velocity

Bearing system

JEM1 series motors are supplied with the ball bearing as standard. These bearings are either of the sealed or re-greaseable type.:

For FS80 ~ 160, the floating bearings are assembled;
for FS180 ~ 355, floating bearing at DE, and fixed bearing at NDE assembled;

As standard, Frame size 80 ~ 132 motors are not with regreasing device, but 160 and above motors with regreasable bearing and regreasing device. If necessary, 100 ~ 250 motor can be configured with regreasable bearing and regreasing device.

Bearing size (IE1~IE3)

	Driving end		Non-driving end	
Frame size	2 Pole	4+ Pole	2 Pole	4+ Pole
80	6204ZZ/C3	6204ZZ/C3	6204ZZ/C3	6204ZZ/C3
90	6205ZZ/C3	6205ZZ/C3	6205ZZ/C3	6205ZZ/C3
100	6206ZZ/C3	6206ZZ/C3	6206ZZ/C3	6206ZZ/C3
112	6306ZZ/C3	6306ZZ/C3	6306ZZ/C3	6306ZZ/C3
132	6308ZZ/C3	6308ZZ/C3	6308ZZ/C3	6308ZZ/C3
160	6309/C3	6309/C3	6309/C3	6309/C3
180	6311/C3	6311/C3	6311/C3	6311/C3
200	6312/C3	6312/C3	6312/C3	6312/C3
225	6313/C3	6313/C3	6313/C3	6313/C3
250	6314/C3	6314/C3	6314/C3	6313/C3
280	6314/C3	6317/C3	6314/C3	6314/C3
315	6317/C3	6317/C3	6317/C3	6317/C3
355	6319/C3	6322/C3	6319/C3	6322/C3

Bearing size(IE4)

Frame size	Driving end		Non-driving end	
	2 Pole	4* Pole	2 Pole	4* Pole
80	6204ZZ/C3	6204ZZ/C3	6204ZZ/C3	6204ZZ/C3
90	6205ZZ/C3	6205ZZ/C3	6205ZZ/C3	6205ZZ/C3
100	6206ZZ/C3	6206ZZ/C3	6206ZZ/C3	6206ZZ/C3
112	6306ZZ/C3	6306ZZ/C3	6306ZZ/C3	6306ZZ/C3
132	6308ZZ/C3	6308ZZ/C3	6308ZZ/C3	6308ZZ/C3
160	6309/C3	6309/C3	6309/C3	6309/C3
180	6311/C3	6311/C3	6311/C3	6311/C3
200	6312/C3	6312/C3	6312/C3	6312/C3
225	6313/C3	6314/C3	6313/C3	6313/C3
250	6314/C3	6314/C3	6314/C3	6314/C3
280	6314/C3	6317/C3	6314/C3	6317/C3
315	6317/C3	6317/C3	6317/C3	6317/C3
355	6319/C3	6322/C3	6319/C3	6322/C3

Note:

ZZ——Double shielded bearing

The table above shows standard bearing sizes , alternative bearings are available if required.

Regreasing interval and grease quantity (Horizontal installation)

Frame size	2p		4p		6p		8p	
	Interval (h)	Quantity (g)	Interval (h)	Quantity (g)	Interval (h)	Quantity (g)	Interval (h)	Quantity (g)
160	2000	20	3000	20	3000	20	3000	20
180	2000	20	3000	20	3000	20	3000	20
200	2000	25	3000	25	3000	25	3000	25
225	2000	25	3000	25	3000	25	3000	25
250	2000	30	3000	30	3000	30	3000	30
280	3000	30	4000	40	4000	40	4000	40
315	3000	40	4000	45	6000	45	6000	45
355	3000	45	4000	60	6000	60	6000	60

Note:

If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

Bearing lifetime (nominal lifetime)

Generally, the bearing lifetime is defined by the bearing size, the bearing load, the operating condition, the speed and the grease lifetime. The nominal bearing lifetime of JEM1 series motor is defined according standardized calculation procedures (ISO 281) and is reached or even exceeded for 90% of the bearings when the motors are operated in compliance with the data provide in the catalog.

The bearing lifetime of motors with horizontal type of construction is at least 40,000 hours if there is no additional axial loading at the coupling output and at least 20,000 hours with the maximum admissible loads. This assumes that the motor is operated at 50Hz.

When the motor runs outside of normal conditions, the bearing life will be reduced, such as the following conditions.

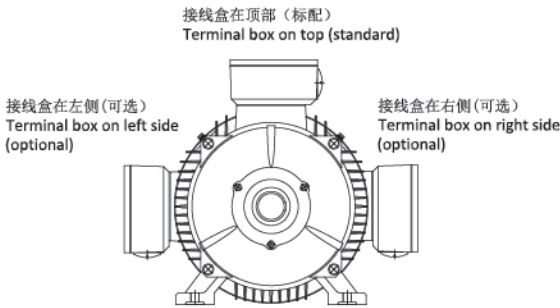
■ When motor runs beyond the rated speed, the increase of motor vibration will result in the extra radial and axial force on bearing.

This will reduce the life of bearing;

■ When the motor vibration increase due to the environment or other equipment, the bearing also will endure more radial and axial force. This also will reduce the life of bearing;

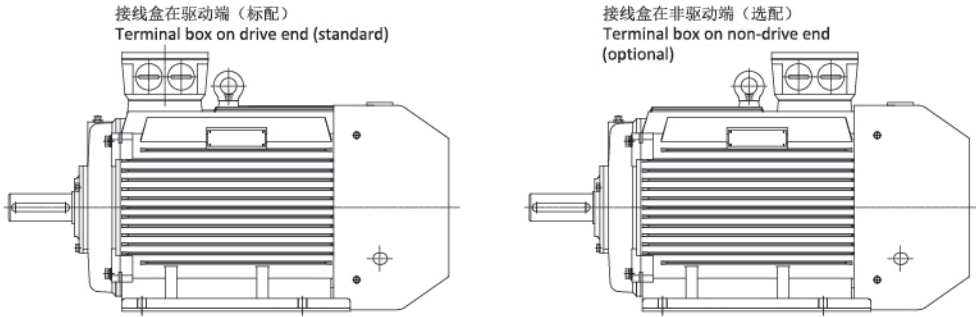
■ If the coolant temperature is increased by 10 °C, the grease lifetime and regreasing interval is halved.

Location of the terminal box



The terminal box position of JEM1 series motor is on the top of house, drive end (standard position). It can also be located on right or left side of the motor house.

If there is interfere between the terminal box and other components, the terminal box can be moved from the drive end (DE) to non-drive end (NDE)



The terminal box can be rotated by 90°, so it is easy to adjust the cable entry to left, right, drive end or non-drive end.

Cooling and ventilation

The JEM1 standard motors are fitted with a radial flow fan, the fan is bi-directional rotation, the cooling method is IC411 in accordance with IEC60034-6.

Backward curved fan is optional to reduce the ventilation noise. In this case the motor could rotate in only one direction.

For some special application, separately driven fan should be considered to be configured.

■ The use of a separately driven fan is recommended to increase motor utilization at low speed;

■ When motor speed significantly higher than the synchronous speed, the separately fan is also recommended to be used. It can help reduce the motor noise.

For some application like fan, the motor without fan is optional. In this case the motor must be cooled by the air overflowed its surface, the cooling method is IC418.

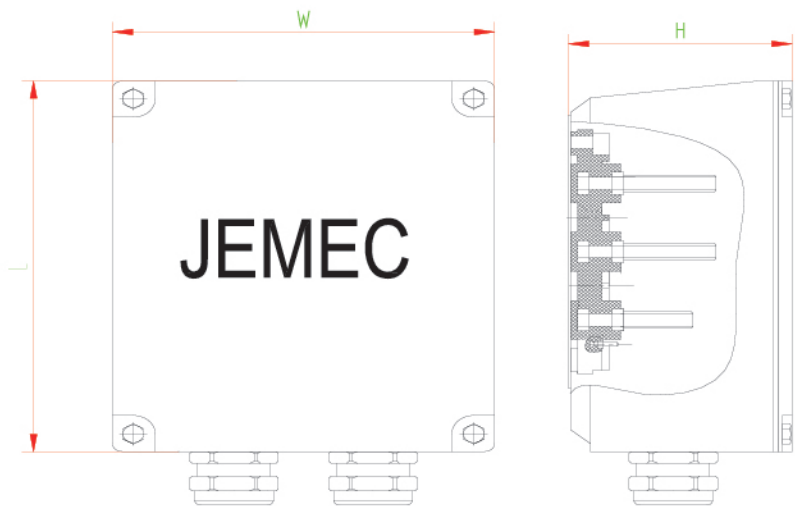
■ Lift ring (Horizontal mounting) –IE1 ~ IE3

Frame size	Lift ring	Quantity	Mounting location
80	-	-	-
90~112	M8	1	Top
132	M10	1	Top
160~180	M12	1	Top
200	M16	1	Top
225	M20	1	Top
250	M24	1	Top
280~315	M30	1	Top
355	M36	1	Top

■ Lift ring (Horizontal mounting) –IE4

Frame size	Lift ring	Quantity	Mounting location
80	-	-	-
90~112	M8	1	Top
132	M10	1	Top
160~180	M12	1	Top
200	M16	1	Top
225	M20	1	Top
250	M24	1	Top
280~315	M30	1	Top
355	M36	1	Top

■ Main terminal box



Frame size	Overall dimensions(W*L*H)	Size of outlets and number	Wiring terminal dimensions	Grounding screw dimensions
80	92×92×58	1-M25×1.5	M4	M4
90~100	100×100×65	1-M25×1.5	M4	M4
112~132	108×116×73	2-M32×1.5	M5	M5
160~180	160×170×87	2-M40×1.5	M6	M6
200~225	188×208×87	2-M50×1.5	M8	M8
250~280	216×246×108	2-M63×1.5	M10	M8
315	280×320×170	2-M63×1.5	M12	M12
355	330×380×193	2-M63×1.5	M16	M12

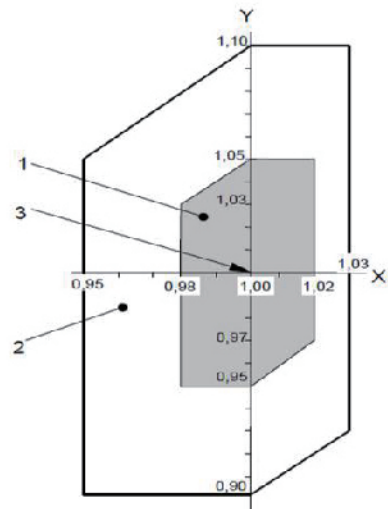
Electrical design

■ Rated output

The rated output power of JEM series motors means that the motor runs under continuous duty S1 operation when operated at ambient temperature from -20 °C to 40 °C and at altitudes of up to 1000 m over sea.

■ Voltage and frequency

According to IEC 60034-1, the voltage and frequency fluctuations are differentiated between Category A (combination of voltage deviation $\pm 5\%$ and frequency deviation $\pm 2\%$) and Category B (combination of voltage deviation $\pm 10\%$ and frequency deviation $+3\%$ / -5%). JEM1 series motors can supply their rated torque in both Category A and B. In Category A, the temperature rise is approximately 10 K higher than during normal operation.



- X axis: Frequency p.u.
Y axis: Voltage p.u.
1: Zone A
2: Zone B (outside Zone A)
3: Rating point

Tolerance for electrical data

No.	Quantity	Tolerance
1	Efficiency η $P_{rated} \leq 150kW$ $P_{rated} > 150kW$	-15% of (1- η) -10% of (1- η)
2	Power factor	-1/6 (1-cos ϕ) Minimum absolute value: 0.02 Maximum absolute value: 0.07
3	Slip (at full load and working temperature) $P_{rated} < 1kW$ $P_{rated} \geq 1kW$	Slip $\pm 30\%$ Slip $\pm 20\%$
4	Locked rotor current	+20%
5	Locked rotor torque	-15% ~ +25%
6	Breakdown torque	-10%
7	Moment of inertia	$\pm 10\%$
8	Current of no load	+30%
9	Rated current	+10%

Overload times

According to IEC60034-1, JEM series motors are designed to withstand overload capacity of 1.5 times rated current for 2 minutes at rated voltage and frequency.

Insulation system

JEM series motors are designed for insulation class F (155 °C) with temperature rise class B (80K). If the motor works at high ambient temperature, or there's factors affect the motor cooling, insulation class H is optional to increase the motor's reliability.

Motor protection

◆ winding protection

When motor encounter failures such as overload, over/under voltage, shortage, phase loss etc, the motor's winding temperature may exceed its insulation maximum withstand temperature, cause the motor damage. To use of thermal protectors and thermal detectors incorporated into the stator winding in order to protect them against serious damage due to thermal overloads.

◆ PTC thermistors protection

A PTC thermistors is a typical thermally sensitive semi-conductor resistors, when the temperature exceeds the certain temperature (Curie temperature), the resistance increase significantly with temperature. When a limit temperature is reached (nominal tripping temperature), the resistance of PTC thermistors will have a step change. This is evaluated by a tripping unit and can be used to open auxiliary circuits.

Motor winding is protected with PTC thermistors with 3 embedded temperature sensors for tripping, the tripping temperature is optional. For JEM series motor with class F insulation, the tripping temperature is 150 °C

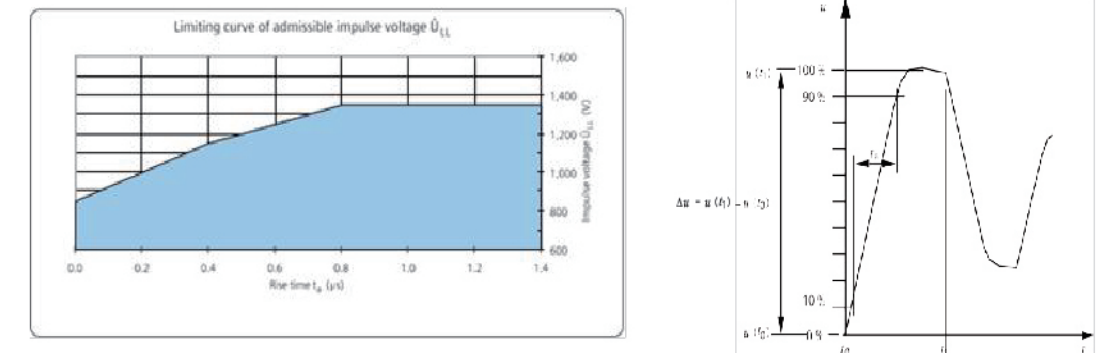
Motor winding is protected with two sets of three temperature sensors, one set is for warning, another set for tripping. For JEM1 series motor with class F insulation, the warning temperature is 140 °C, and tripping temperature is 150 °C.

◆ PT100 resistance thermometers protection

PT100 platinum thermometers are a high precision, high sensitivity, better linear temperature resistance, more stable performance, and high reliability sensor. For JEM series motors whose frame size above 280, PT100s are optional. Normally each phase winding equips 2 PT100s, 6 PT100s for 3 phase windings of which 3 for operation, 3 for spare.

◆ Bearing protection

Overheating is a major indicator of an underlying problem affecting a bearing, so it is an important measure to keep the motor running safe by monitoring the bearings' temperature. The temperature is monitored through PT100 resistance thermometers screwed into the bearing plates of motor driven end(DE) and non-drive-end(NDE). The wires are routed through the main connection box. It is optional for JEM series frame size 280 and above motors.



◆ Anti-condensation heater

Motors whose windings are at risk of condensation due to the climatic conditions, e.g. inactive motors in humid atmospheres or motors that are subjected to widely fluctuating temperatures can be equipped with anti-condensation heaters.

Anti-condensation heaters must be switched off during operation. When motor shut down, the heaters must be switched on.

Anti-condensation heater is optional for all JEM series electric motors.

◆ Inverter fed operation

Standard JEM series motor supports limited VSD application .

◆ Voltage withstand levels

The insulation system of converter fed motor is subject to higher dielectric stresses than in the case of sinusoidal power supply. The dielectric stress of the winding insulation is determined by the peak voltage, short rise time and high repetition rate of the impulses produced by the converter, the characteristics and the length of the connection leads between converter and motor, the design of the winding and other systems parameters.

The standard insulation of the JEM series motors is designed to withstand voltage peak and rise time which is shown in the diagram

JEM series motor has optional reinforced insulation system for inverter-fed operation that the voltage peak and rise time exceeds the above chart.

The values refer to standard IEC 60034-17 and GB/T 20161.

◆ Bearing current

When the motors are fed by inverter, harmful shaft current will be generated. The current will destroy the bearing in a relevant short time. So, for motor frame size 250 and above, measures must be taken to prevent the bearing current. JEM series motors have the following options to prevent bearing current.

- Insulation bearings
- Insulation end-shield
- High temperate coating ceramics shaft

■ Technical data table

■ 2P(50Hz,IE1)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque	Breakdown torque /rated torque	Locked current /rated current	Moment of Inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM1-80M1-2	0.75	1	2845	1.7	1.62	1.56	80.7	0.83	2.52	2.2	2.3	6.1	0.0008	55	67	12
JEM1-80M2-2	1.1	1.5	2840	2.41	2.29	2.2	82.7	0.84	3.7	2.2	2.3	7.0	0.0011	55	67	13
JEM1-90S-2	1.5	2	2840	3.22	3.06	2.95	84.2	0.84	5.04	2.2	2.3	7.0	0.0012	60	72	19
JEM1-90L-2	2.2	3	2840	4.52	4.3	4.14	85.9	0.86	7.4	2.2	2.3	7.0	0.0015	60	72	21
JEM1-100L-2	3	4	2840	6.02	5.71	5.51	87.1	0.87	10.1	2.2	2.3	7.5	0.0048	64	76	32
JEM1-112M-2	4	5.5	2890	7.84	7.45	7.18	88.1	0.88	13.2	2.2	2.3	7.5	0.0059	65	77	37
JEM1-132S1-2	5.5	7.5	2910	10.6	10.1	9.75	89.2	0.88	18	2.2	2.3	7.5	0.01	68	80	51
JEM1-132S2-2	7.5	10	2910	14.4	13.7	13.2	90.1	0.88	24.6	2.2	2.3	7.5	0.016	68	80	59
JEM1-160M1-2	11	15	2935	20.6	19.6	18.9	91.2	0.89	35.8	2.2	2.3	7.5	0.04	74	86	103
JEM1-160M2-2	15	20	2935	27.9	26.5	25.5	91.9	0.89	48.8	2.2	2.3	7.5	0.047	74	86	108
JEM1-160L-2	18.5	25	2935	33.8	32.1	30.9	92.4	0.90	60.2	2.2	2.3	7.5	0.06	74	86	126
JEM1-180M-2	22	30	2940	40.1	38.1	36.7	92.7	0.90	71.5	2.0	2.3	7.5	0.085	76	89	158
JEM1-200L1-2	30	40	2945	54.3	51.6	49.7	93.3	0.90	97.3	2.0	2.3	7.5	0.16	79	92	230
JEM1-200L2-2	37	50	2945	66.7	63.3	61	93.7	0.90	120	2.0	2.3	7.5	0.19	79	92	231
JEM1-225M-2	45	60	2965	80.8	76.8	74	94.0	0.90	145	2.0	2.3	7.5	0.32	79	92	313
JEM1-250M-2	55	75	2965	98.5	93.5	90.2	94.3	0.90	177	2.0	2.3	7.5	0.4	79	93	360
JEM1-280S-2	75	100	2965	134	127	122	94.7	0.90	242	2.0	2.3	7.5	0.76	80	94	485
JEM1-280M-2	90	125	2965	158	150	145	95.0	0.91	290	2.0	2.3	7.5	0.94	80	94	603
JEM1-315S-2	110	150	2975	193	183	177	95.2	0.91	353	1.8	2.2	7.1	1.2	82	96	896
JEM1-315M-2	132	175	2975	231	219	212	95.4	0.91	424	1.8	2.2	7.1	1.3	82	96	960
JEM1-315L1-2	160	215	2975	279	265	256	95.6	0.91	514	1.8	2.2	7.1	1.8	85	99	1111
JEM1-315L2-2	185	250	2975	323	307	296	95.7	0.91	594	1.8	2.2	7.1	2.0	85	99	1185
JEM1-315L3-2	200	270	2975	349	331	319	95.8	0.91	642	1.8	2.2	7.1	2.2	85	99	1205
JEM1-355M1-2	220	300	2980	383	364	351	95.8	0.91	705	1.6	2.2	7.1	3.7	88	103	1690
JEM1-355M2-2	250	335	2980	436	414	399	95.8	0.91	801	1.6	2.2	7.1	4.4	88	103	1695
JEM1-355L1-2	280	375	2980	488	464	447	95.8	0.91	897	1.6	2.2	7.1	5.2	88	103	1995
JEM1-355L2-2	315	420	2980	543	516	497	95.8	0.92	1009	1.6	2.2	7.1	5.2	88	103	2015

■ 4P(50Hz,IE1)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque t	Breakdown torque /rated torque	Locked current /rated current	Moment of inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM1-80M1-4	0.55	0.75	1390	1.38	1.31	1.26	80.8	0.75	3.8	2.4	2.3	5.2	0.0014	46	58	14
JEM1-80M2-4	0.75	1	1380	1.82	1.73	1.66	82.5	0.76	5.19	2.3	2.3	6.0	0.0019	46	58	17
JEM1-90S-4	1.1	1.5	1390	2.58	2.45	2.36	84.1	0.77	7.56	2.3	2.3	6.0	0.0027	49	61	19
JEM1-90L-4	1.5	2	1390	3.38	3.21	3.1	85.3	0.79	10.3	2.3	2.3	6.0	0.0032	49	61	21
JEM1-100L1-4	2.2	3	1410	4.76	4.52	4.36	86.7	0.81	14.9	2.3	2.3	7.0	0.009	52	64	32
JEM1-100L2-4	3	4	1410	6.34	6.02	5.8	87.7	0.82	20.3	2.3	2.3	7.0	0.012	52	64	34
JEM1-112M-4	4	5.5	1440	8.37	7.95	7.66	88.6	0.82	26.5	2.3	2.3	7.0	0.018	53	65	42
JEM1-132S-4	5.5	7.5	1445	11.2	10.7	10.3	89.6	0.83	36	2.3	2.3	7.0	0.027	59	71	55
JEM1-132M-4	7.5	10	1445	15	14.3	13.7	90.4	0.84	49.6	2.2	2.3	7.0	0.029	59	71	69
JEM1-160M-4	11	15	1460	21.8	20.7	19.9	91.4	0.84	72	2.2	2.3	7.0	0.07	63	75	115
JEM1-160L-4	15	20	1460	29.1	27.7	26.7	92.1	0.85	98.1	2.2	2.3	7.5	0.09	63	75	127
JEM1-180M-4	18.5	25	1470	35.3	33.5	32.3	92.6	0.86	120	2.2	2.3	7.5	0.15	63	76	163
JEM1-180L-4	22	30	1470	41.8	39.7	38.3	93.0	0.86	143	2.2	2.3	7.5	0.14	63	76	176
JEM1-200L-4	30	40	1470	56.6	53.8	51.8	93.6	0.86	195	2.2	2.3	7.2	0.38	66	79	245
JEM1-225S-4	37	50	1475	67.9	64.5	62.1	95.2	0.87	240	2.2	2.3	7.2	0.39	68	81	276
JEM1-225M-4	45	60	1475	1485	78.3	75.4	95.4	0.87	291	2.2	2.3	7.2	0.48	68	81	311
JEM1-250M-4	55	75	1475	100.4	95.3	91.9	95.7	0.87	356	2.2	2.3	7.2	0.77	69	83	410
JEM1-280S-4	75	100	1485	136	130	125	96.0	0.87	482	2.2	2.3	7.2	1.3	72	86	506
JEM1-280M-4	90	125	1485	162	154	148	96.1	0.88	579	2.2	2.3	7.2	1.6	72	86	650
JEM1-315S-4	110	150	1485	197	187	181	96.3	0.88	707	2.1	2.2	6.9	2	79	93	928
JEM1-315M-4	132	175	1485	234	222	214	96.4	0.89	849	2.1	2.2	6.9	2.9	79	93	1008
JEM1-315L1-4	160	215	1485	283	269	259	96.6	0.89	1029	2.1	2.2	6.9	3.5	83	97	1017
JEM1-315L2-4	185	250	1485	323	307	296	96.7	0.90	1190	2.1	2.2	6.9	4.5	83	97	1055
JEM1-315L3-4	200	270	1485	349	332	320	96.7	0.90	1286	2.1	2.2	6.9	4.7	83	97	1055
JEM1-355M1-4	220	300	1490	384	365	352	96.7	0.90	1410	2.1	2.2	6.9	7.6	86	101	1515
JEM1-355M2-4	250	335	1490	436	415	400	96.7	0.90	1602	2.1	2.2	6.9	8.3	86	101	1530
JEM1-355L1-4	280	375	1490	489	464	448	96.7	0.90	1795	2.1	2.2	6.9	8.6	86	101	1790
JEM1-355L2-4	315	420	1490	550	522	504	96.7	0.90	2019	2.1	2.2	6.9	9.3	86	101	1810

■ 6P(50Hz,IE1)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque	Breakdown torque /rated torque	Locked current /rated current	Moment of Inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM1-80M1-6	0.37	0.5	885	1.09	1.04	1	73.5	0.7	3.99	1.9	2.0	4.7	0.0019	42	54	13
JEM1-80M2-6	0.55	0.75	885	1.5	1.43	1.38	77.2	0.72	5.94	1.9	2.1	4.7	0.0029	42	54	15
JEM1-90S-6	0.75	1	915	2.01	1.91	1.84	78.9	0.72	7.83	2.0	2.1	5.5	0.0048	45	57	20
JEM1-90L-6	1.1	1.5	915	2.83	2.69	2.59	81.0	0.73	11.5	2.0	2.1	5.5	0.0067	45	57	23
JEM1-100L-6	1.5	2	910	3.68	3.5	3.37	82.5	0.75	15.7	2.0	2.1	5.5	0.0114	49	61	33
JEM1-112M-6	2.2	3	940	5.22	4.96	4.78	84.3	0.76	22.4	2.0	2.1	6.5	0.0181	53	65	39
JEM1-132S-6	3	4	960	7.01	6.66	6.42	85.6	0.76	29.8	2.1	2.1	6.5	0.0238	57	69	50
JEM1-132M1-6	4	5.5	960	9.21	8.75	8.44	86.8	0.76	39.8	2.1	2.1	6.5	0.0285	57	69	59
JEM1-132M2-6	5.5	7.5	960	12.3	11.7	11.3	88.0	0.77	54.7	2.1	2.1	6.5	0.039	57	69	68
JEM1-160M-6	7.5	10	970	16.6	15.8	15.2	89.1	0.77	73.8	2.0	2.1	6.5	0.09	60	73	103
JEM1-160L-6	11	15	970	23.7	22.5	21.7	90.3	0.78	108	2.0	2.1	6.5	0.16	60	73	132
JEM1-180L-6	15	20	970	30.9	29.3	28.2	91.2	0.81	148	2.0	2.1	7.0	0.24	60	73	184
JEM1-200L1-6	18.5	25	975	37.8	35.9	34.7	91.7	0.81	181	2.1	2.1	7.0	0.36	63	76	211
JEM1-200L2-6	22	30	975	43.7	41.5	40	92.2	0.83	215	2.1	2.1	7.0	0.38	63	76	229
JEM1-225M-6	30	40	980	58.4	55.5	53.5	92.9	0.84	292	2.0	2.1	7.0	0.86	63	76	316
JEM1-250M-6	37	50	980	70.1	66.6	64.2	93.3	0.86	361	2.1	2.1	7.0	1	64	78	409
JEM1-280S-6	45	60	980	84.8	80.6	77.7	93.7	0.86	439	2.1	2.0	7.0	2	66	80	434
JEM1-280M-6	55	75	980	103	98.1	94.6	94.1	0.86	536	2.1	2.0	7.0	2.8	66	80	540
JEM1-315S-6	75	100	990	140	133	128	94.6	0.86	723	2.0	2.0	7.0	3.2	71	85	896
JEM1-315M-6	90	125	990	168	159	153	94.9	0.86	868	2.0	2.0	7.0	3.8	71	85	996
JEM1-315L1-6	110	150	990	204	194	187	95.1	0.86	1061	2.0	2.0	6.7	4.8	71	85	1160
JEM1-315L2-6	132	175	990	239	227	219	95.4	0.88	1273	2.0	2.0	6.7	5.7	71	85	1200
JEM1-355M1-6	160	215	990	289	275	265	95.6	0.88	1543	1.9	2.0	6.7	8.6	77	92	1450
JEM1-355M2-6	185	250	990	334	317	306	95.7	0.88	1785	1.9	2.0	6.7	9.5	77	92	1607
JEM1-355M3-6	200	270	990	360	342	330	95.8	0.88	1929	1.9	2.0	6.7	11	77	92	1915
JEM1-355L1-6	220	300	990	396	377	363	95.8	0.88	2122	1.9	2.0	6.7	11	77	92	1966
JEM1-355L2-6	250	335	990	451	428	413	95.8	0.88	2412	1.9	2.0	6.7	12	77	92	1981

■ 8P(50Hz,IE1)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque	Breakdown torque /rated torque	Locked current /rated current	Moment of inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM1-80M1-8	0.18	0.25	645	0.76	0.73	0.7	58.7	0.61	2.67	1.8	1.9	3.3	0.0019	40	52	13
JEM1-80M2-8	0.25	0.34	645	0.97	0.92	0.89	64.1	0.61	3.7	1.8	1.9	3.3	0.0022	40	52	15
JEM1-90S-8	0.37	0.5	670	1.33	1.26	1.22	69.3	0.61	5.27	1.8	1.9	4.0	0.0044	44	56	20
JEM1-90L-8	0.55	0.75	670	1.88	1.78	1.72	73.0	0.61	7.84	1.8	2.0	4.0	0.0055	44	56	22
JEM1-100L1-8	0.75	1	680	2.27	2.15	2.08	75.0	0.67	10.5	1.8	2.0	4.0	0.0095	47	59	30
JEM1-100L2-8	1.1	1.5	680	3.12	2.96	2.85	77.7	0.69	15.4	1.8	2.0	5.0	0.0114	47	59	34
JEM1-112M-8	1.5	2	700	4.14	3.94	3.79	79.7	0.69	20.5	1.8	2.0	5.0	0.0181	49	61	37
JEM1-132S-8	2.2	3	710	5.75	5.46	5.26	81.9	0.71	29.6	1.8	2.0	6.0	0.0247	52	64	54
JEM1-132M-8	3	4	710	7.48	7.1	6.85	83.5	0.73	40.4	1.8	2.0	6.0	0.0266	52	64	67
JEM1-160M1-8	4	5.5	720	9.82	9.33	8.99	84.8	0.73	53.1	1.9	2.0	6.0	0.077	55	68	97
JEM1-160M2-8	5.5	7.5	720	13.1	12.4	12	86.2	0.74	73	2.0	2.0	6.0	0.089	55	68	104
JEM1-160L-8	7.5	10	720	17.4	16.5	15.9	87.3	0.75	99.5	2.0	2.0	6.0	0.114	55	68	120
JEM1-180L-8	11	15	730	24.8	23.6	22.7	88.6	0.76	144	2.0	2.0	6.6	0.228	57	70	180
JEM1-200L-8	15	20	730	33.5	31.8	30.6	89.6	0.76	196	2.0	2.0	6.6	0.38	60	73	235
JEM1-225S-8	18.5	25	730	41.0	39	37.6	90.1	0.76	242	1.9	2.0	6.6	0.475	60	73	261
JEM1-225M-8	22	30	730	47.3	44.9	43.3	90.6	0.78	288	1.9	2.0	6.6	0.789	60	73	302
JEM1-250M-8	30	40	730	63.2	60	57.9	91.3	0.79	392	1.9	2.0	6.6	1.2	62	75	413
JEM1-280S-8	37	50	735	77.5	73.6	71	91.8	0.79	481	1.9	2.0	6.6	2.5	62	76	462
JEM1-280M-8	45	60	735	93.9	89.2	85.9	92.2	0.79	585	1.9	2.0	6.6	2.8	62	76	585
JEM1-315S-8	55	75	735	112	106	102	92.5	0.81	715	1.8	2.0	6.6	3.2	68	82	863
JEM1-315M-8	75	100	735	151	144	138	93.1	0.81	974	1.8	2.0	6.6	4	68	82	1010
JEM1-315L1-8	90	125	735	179	170	163	93.4	0.82	1169	1.8	2.0	6.6	4.9	68	82	1110
JEM1-315L2-8	110	150	735	218	207	199	93.7	0.82	1429	1.8	2.0	6.4	5.5	68	82	1210
JEM1-355M1-8	132	175	740	260	247	238	94.0	0.82	1704	1.8	2.0	6.4	9.3	74	90	1480
JEM1-355M2-8	160	215	740	314	299	288	94.3	0.82	2065	1.8	2.0	6.4	11	74	90	1528
JEM1-355L1-8	185	250	740	363	345	332	94.5	0.82	2388	1.8	2.0	6.4	12	74	90	1925
JEM1-355L2-8	200	270	740	387	368	354	94.6	0.83	2581	1.8	2.0	6.4	12	74	90	1945

■ 2P(50Hz,IE2)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque	Breakdown torque /rated torque	Locked current /rated current	Moment of inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM2-80M1-2	0.75	1	3415	1.88	1.78	1.72	74.0	0.82	2.10	2.2	2.3	6.1	0.0008	61	73	13
JEM2-80M2-2	1.1	1.5	3400	2.57	2.44	2.35	78.5	0.83	3.09	2.2	2.3	7.0	0.0011	61	73	14
JEM2-90S-2	1.5	2	3400	3.39	3.22	3.10	81.0	0.83	4.21	2.2	2.3	7.0	0.0012	66	78	19
JEM2-90L-2	2.2	3	3400	4.83	4.58	4.42	81.5	0.85	6.18	2.2	2.3	7.0	0.0015	66	78	23
JEM2-100L-2	3	4	3400	6.38	6.06	5.84	83.1	0.86	8.43	2.2	2.3	7.5	0.0048	70	82	32
JEM2-112M-2	4	5.5	3470	8.24	7.83	7.54	84.8	0.87	11.0	2.2	2.3	7.5	0.0059	71	83	38
JEM2-132S1-2	5.5	7.5	3490	11.2	10.6	10.2	86.0	0.87	15.1	2.2	2.3	7.5	0.010	74	86	53
JEM2-132S2-2	7.5	10	3490	15.0	14.2	13.7	87.5	0.87	20.5	2.2	2.3	7.5	0.016	74	86	57
JEM2-160M1-2	11	15	3520	21.7	20.6	19.9	87.5	0.88	29.8	2.2	2.3	7.5	0.040	80	92	99
JEM2-160M2-2	15	20	3520	29.3	27.8	26.8	88.5	0.88	40.7	2.2	2.3	7.5	0.047	80	92	109
JEM2-160L-2	18.5	25	3520	35.3	33.5	32.3	89.5	0.89	50.2	2.2	2.3	7.5	0.060	80	92	125
JEM2-180M-2	22	30	3530	42.0	39.9	38.4	89.5	0.89	59.5	2.0	2.3	7.5	0.085	82	95	157
JEM2-200L1-2	30	40	3535	56.8	53.9	52.0	90.2	0.89	81.0	2.0	2.3	7.5	0.16	85	98	210
JEM2-200L2-2	37	50	3535	69.0	65.6	63.2	91.5	0.89	100.0	2.0	2.3	7.5	0.19	85	98	230
JEM2-225M-2	45	60	3560	83.8	79.6	76.7	91.7	0.89	121	2.0	2.3	7.5	0.32	85	98	297
JEM2-250M-2	55	75	3560	102	96.5	93.0	92.4	0.89	148	2.0	2.3	7.5	0.40	85	99	380
JEM2-280S-2	75	100	3560	138	131	126	93.0	0.89	201	2.0	2.3	7.5	0.76	86	100	510
JEM2-280M-2	90	125	3560	163	155	150	93.0	0.90	241	2.0	2.3	7.5	0.94	86	100	540
JEM2-315S-2	110	150	3570	200	190	183	93.0	0.90	294	1.8	2.2	7.1	1.2	88	102	920
JEM2-315M-2	132	175	3570	238	226	218	93.6	0.90	353	1.8	2.2	7.1	1.3	88	102	970
JEM2-315L1-2	160	215	3570	287	273	263	94.1	0.90	428	1.8	2.2	7.1	1.8	91	105	1080
JEM2-315L2-2	185	250	3570	332	315	304	94.1	0.90	495	1.8	2.2	7.1	2.0	91	105	1170
JEM2-315L3-2	200	270	3570	359	341	329	94.1	0.90	535	1.8	2.2	7.1	2.2	91	105	1170
JEM2-355M1-2	220	300	3575	395	375	361	94.1	0.90	589	1.6	2.2	7.1	3.7	94	109	1620
JEM2-355M2-2	250	335	3575	449	426	411	94.1	0.90	669	1.6	2.2	7.1	4.4	94	109	1630
JEM2-355L1-2	280	375	3575	502	477	460	94.1	0.90	749	1.6	2.2	7.1	5.2	94	109	1720
JEM2-355L2-2	315	420	3575	559	531	512	94.1	0.91	843	1.6	2.2	7.1	5.2	94	109	1760

■ 4P(50Hz,IE2)

Type	Rated Output		Rated Speed	Rated Current (A)			Efficiency	Power factor	Rated torque	Locked current /rated torque t	Breakdown torque /rated torque	Locked current /rated current	Moment of inertia (J)	Noise		Weight
	kW	HP	r/min	380V	400V	415V	%	Cos Φ	Nm	T _{st} /T _N	T _{max} /T _N	I _{st} /I _N	Kgm ²	L _p dB(A)	L _w dB(A)	kg
JEM2-80M1-4	0.55	0.75	1420	1.45	1.37	1.32	77.1	0.75	3.7	2.4	2.3	6.4	0.0015	44	56	16
JEM2-80M2-4	0.75	1	1420	1.88	1.79	1.72	79.6	0.76	5.04	2.3	2.3	6.4	0.002	44	56	18
JEM2-90S-4	1.1	1.5	1430	2.67	2.53	2.44	81.4	0.77	7.35	2.3	2.3	6.6	0.0028	47	59	21
JEM2-90L-4	1.5	2	1430	3.53	3.35	3.23	82.8	0.78	10	2.3	2.3	6.7	0.0034	47	59	23
JEM2-100L1-4	2.2	3	1440	4.96	4.71	4.54	84.3	0.80	14.6	2.3	2.3	7.3	0.0099	52	64	35
JEM2-100L2-4	3	4	1440	6.58	6.25	6.03	85.5	0.81	19.9	2.3	2.3	7.5	0.013	52	64	39
JEM2-112M-4	4	5.5	1445	8.66	8.23	7.93	86.6	0.81	26.4	2.3	2.3	7.5	0.019	53	65	45
JEM2-132S-4	5.5	7.5	1455	11.6	11	10.6	87.7	0.82	36	2.0	2.3	7.5	0.028	59	71	62
JEM2-132M-4	7.5	10	1455	15.5	14.7	14.2	88.7	0.83	49.2	2.0	2.3	7.3	0.031	59	71	73
JEM2-160M-4	11	15	1460	22.4	21.3	20.5	89.8	0.83	72	2.0	2.3	7.4	0.078	60	73	119
JEM2-160L-4	15	20	1460	29.9	28.4	27.4	90.6	0.84	98.1	2.0	2.3	7.5	0.099	60	73	130
JEM2-180M-4	18.5	25	1470	36.3	34.4	33.2	91.2	0.85	120	2.0	2.3	7.6	0.163	63	76	167
JEM2-180L-4	22	30	1470	42.9	40.8	39.3	91.6	0.85	143	2.1	2.3	7.7	0.15	63	76	185
JEM2-200L-4	30	40	1470	58.1	55.2	53.2	92.3	0.85	195	2.1	2.3	7.1	0.4	63	76	255
JEM2-225S-4	37	50	1480	70.5	67	64.6	92.7	0.86	239	2.1	2.3	7.3	0.41	65	78	288
JEM2-225M-4	45	60	1480	85.4	81.1	78.2	93.1	0.86	290	2.2	2.3	7.3	0.5	65	78	319
JEM2-250M-4	55	75	1480	104	98.7	95.2	93.5	0.86	355	2.2	2.3	7.3	0.81	65	79	421
JEM2-280S-4	75	100	1480	139	132	128	94.0	0.87	484	2.2	2.3	6.8	1.4	66	80	541
JEM2-280M-4	90	125	1480	165	157	151	94.2	0.88	581	2.2	2.3	6.9	1.7	66	80	657
JEM2-315S-4	110	150	1485	199	189	182	94.5	0.89	707	2.1	2.2	6.9	2.1	74	88	955
JEM2-315M-4	132	175	1485	238	226	218	94.7	0.89	849	2.1	2.2	6.9	3.1	74	88	1012
JEM2-315L1-4	160	215	1485	285	270	261	94.9	0.90	1029	2.1	2.2	6.9	3.7	74	88	1055
JEM2-315L2-4	185	250	1485	329	312	301	95.0	0.90	1190	2.1	2.2	6.9	4.7	74	88	1092
JEM2-315L3-4	200	270	1485	355	337	325	95.1	0.90	1286	2.1	2.2	6.9	4.9	74	88	1116
JEM2-355M1-4	220	300	1490	391	371	358	95.1	0.90	1410	2.0	2.2	6.9	8	80	95	1522
JEM2-355M2-4	250	335	1490	444	422	406	95.1	0.90	1602	2.0	2.2	6.9	8.7	80	95	1542
JEM2-355L1-4	280	375	1490	497	472	455	95.1	0.90	1795	2.0	2.2	6.9	9	80	95	1800
JEM2-355L2-4	315	420	1490	559	531	512	95.1	0.90	2019	2.0	2.2	6.9	10	80	95	1820