

Взрывозащищенные низковольтные электродвигатели, с воздушным охлаждением, вентиляторные, с принудительной вентиляцией YE5, IE3, IE4 400 В, IE4, IE3 415 В, YVF2, YVF3

Технические характеристики

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Россия +7(495)268-04-70

Казахстан +7(727)345-47-04

Беларусь +(375)257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: uoa@nt-rt.ru || сайт: <http://luanmotor.nt-rt.ru/>

IE5 Series Aircooled Motor

High efficiency AC motor is always the demand of end users. IE5 series aircooled motor is grade 1 efficiency three phase asynchronous motors. An efficient electric motor means less loss and can more effectively convert electrical energy into mechanical energy, thereby saving electrical energy. Generally speaking, the efficiency of asynchronous motors is between 75% and 92%, and the energy efficiency of IE5 motors can reach up to 97%.



Brief Introduction

IE5 series aircooled motor is an electric motor that converts three-phase AC electrical energy into mechanical energy.

With the continuous advancement of technology and the rapid development of industry, three-phase AC motors will be further improved in terms of performance, efficiency, intelligence, and other aspects. In the future, three-phase AC motors will pay more attention to the development of energy conservation, environmental protection, high efficiency, stability, and intelligent control. Meanwhile, with the application of new materials, processes, and technologies, the manufacturing and usage costs of aircooled motors will be further reduced, promoting their application and development in more fields.

According to the national standard GB 18613-2020 "Minimum Allowable Values and Energy Efficiency Grades for Electric Motors", the energy efficiency grades of electric motors are usually divided into four types, high efficiency, medium efficiency, low efficiency, and high energy consuming motors.

- High efficiency motor

with an efficiency value of $\geq 92\%$, it has the advantages of high efficiency and energy saving, and is suitable for equipment with high requirements for efficiency and energy saving;

- Medium efficiency motor

with an efficiency value between 88% and 92%, suitable for general industries and equipment;

Low efficiency motor

The efficiency value is between 84% and 88%, suitable for equipment and occasions with low performance requirements;

- High energy consuming motors

If the efficiency value is less than 84%, they belong to high energy consuming products and should be restricted in production and use.

The IEC 60034-30-1 standard divides motor energy efficiency levels into four levels: IE1, IE2, IE3, and IE4, with IE4 being the highest level and having the highest energy efficiency.

Enterprises should choose the appropriate motor energy efficiency level based on actual needs and economic benefits when selecting motors. Generally speaking, for equipment that requires high efficiency and energy conservation, high-efficiency motors should be selected; For general industries and equipment, medium efficiency motors can be chosen; For devices and situations that do not require high performance, low efficiency motors can be chosen.

Technical Specs

Series	YE5
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Frame size	H80~H355
Output range(KW)	0.55 to 355
Frequency(Hz)	50/60
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55
Cooling	IC411/TEFC
Working duty	S1,S3
Mounting	Foot-IMB3/IM1001; flange-IMB5/IM3001; face-IMB14/IM3601; vertical-IMV1/IM3011; flange-foot : IMB35/IM2001;

Ordering notice

1. Load connection

The aircooled motor and the driven load should be driven co-axially through a coupling. If the transmission method is belt, chain, gear, etc., please specify it earlier at least before placing order.

2. Starting method

The variable frequency motor should be started with VFD. If not available, please specify it earlier at least before placing order.

3. Bearing brand

Without requirement, our offers are for Chinese-brand motors. If buyers need foreign bearings, please specify it earlier.

4. Altitude

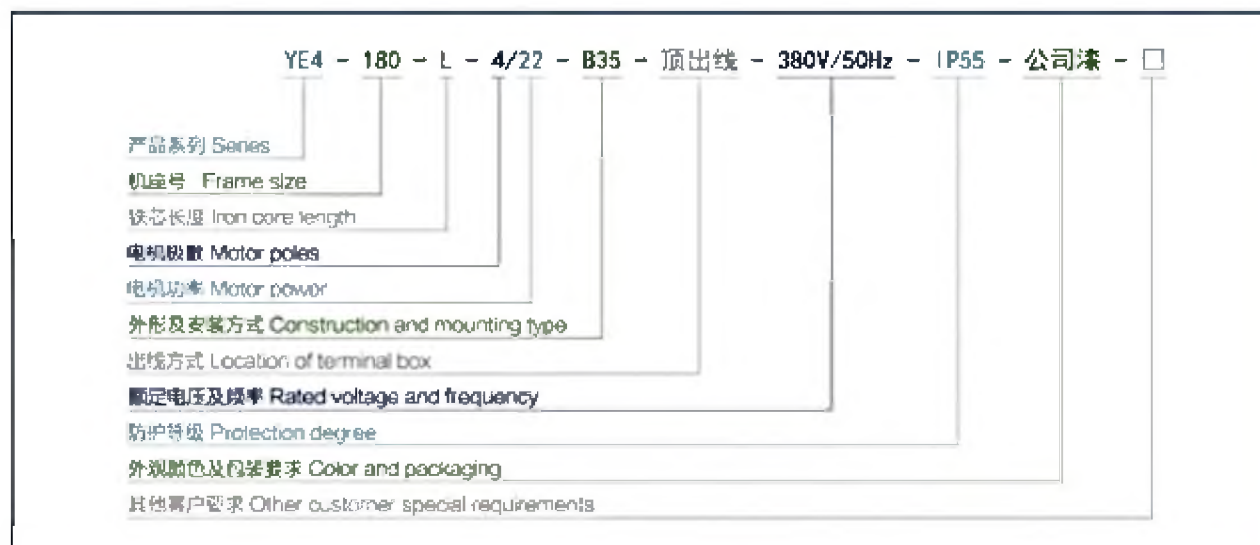
For motor values, they are designed under 1000m as altitude. For plateau regions, mountain areas, if altitude is over 1000m, please specify it earlier at least before placing order.

5. AMB temperature

For motor feature and performance, they are designed around -15 °C ~ +40°C as temperature. For tropical regions, plateau regions, near the Arctic regions, their AMB temperature could be over 45 °C or lower than 20 °C, please specify it earlier at least before placing order.

Dimensions and Parts' codes

规格型号 Model



IM Ref#	Shaft	Feet	Mount
IM 1001 / IM B3	Horizontal	on Floor	Foot
IM 1071 / IM B8	Horizontal	on ceiling	Foot
IM 1051 / IM B6	Horizontal	Wall mounted (feet lhs when viewed from drive end)	Foot
IM 1011 / IM V5	Vertical	on wall	Foot
IM 1061 / IM B7	Horizontal	Wall mounted (feet rhs when viewed from drive end)	Foot
IM 1031 / IM V6	Vertical	on wall	Foot
IM 3001 / IM B5	Horizontal		Flange
IM 2001 / IM B35	Horizontal	on Floor	Flange
IM 3011 / IM V1	Vertical (facing down)		Flange
IM 2011 / IM V15	Vertical (facing down)	on wall	Flange
IM 3031 / IM V3	Vertical (facing up)		Flange
IM 2031 / IM V36	Vertical (facing up)	on wall	Flange
IM 3601 / IM B14	Horizontal		Face
IM 2101 / IM B34	Horizontal	on wall	Face
IM 3611 / IM V18	Vertical (facing down)		Face
IM 2111 / IM V58	Vertical (facing down)	on wall	Face
IM 3631 / IM V19	Vertical (facing up)		Face
IM 2131 / IM V69	Vertical (facing up)	on wall	Face
IM 9101 / IM B9	Horizontal	threaded tie rods	No drive end shield
IM 1201 / IM B15	Horizontal	feet and threaded tie rods	No drive end shield

规格型号 Type	IEC	GB	效率 (%) Eff.	耗电量 (kWh) Power consumption	年节电量 (kWh) Energy saving
Y2-160L-4	IE1		89.4	100671	0
YE2-160L-4	IE2	3级能效	90.6	99338	1333
YE3-160L-4	IE3	2级能效	92.1	97720	2951
YE4-160L-4	IE4	1级能效	93.9	95847	4874

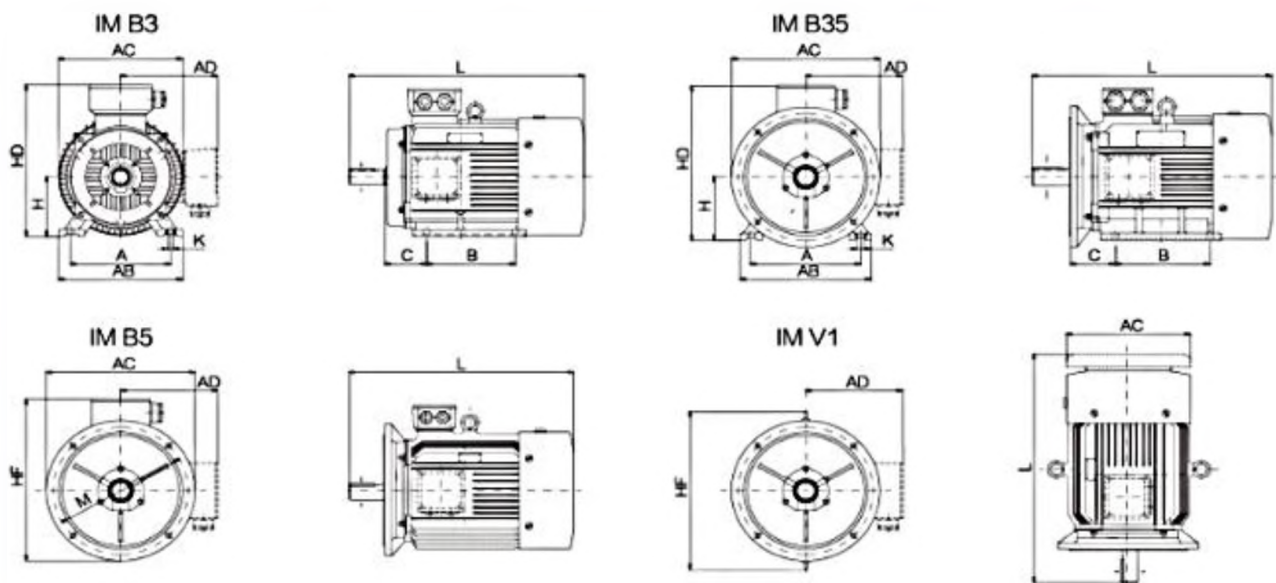
◆ IEC 标准定义的 50Hz 效率限定值 Minimum efficiency values under 50Hz defined in IEC/EN 60034-30-1

Output kW	IE2 high efficiency				IE3 premium efficiency				IE4 super premium efficiency			
	2 pole	4 pole	6 pole	8 pole	2 pole	4 pole	6 pole	8 pole	2 pole	4 pole	6 pole	8 pole
0.12	53.6	59.1	50.6	39.8	60.8	64.8	57.7	50.7	66.5	69.8	64.9	62.3
0.18	60.4	64.7	56.6	45.9	65.9	69.9	63.9	58.7	70.8	74.7	70.1	67.2
0.25	64.8	68.5	61.6	50.6	69.7	73.5	68.6	64.1	74.3	77.9	74.1	70.8
0.37	69.5	72.7	67.6	56.1	73.8	77.3	73.5	69.3	78.1	81.1	78.0	74.3
0.55	74.1	77.1	73.1	61.7	77.8	80.8	77.2	73.0	81.5	83.9	80.9	77.0
0.75	77.4	79.6	75.9	66.2	80.7	82.5	78.9	75.0	83.5	85.7	82.7	78.4
1.1	79.6	81.4	78.1	70.8	82.7	84.1	81.0	77.7	85.2	87.2	84.5	80.8
1.5	81.3	82.8	79.8	74.1	84.2	85.3	82.5	79.7	86.5	88.2	85.9	82.6
2.2	83.2	84.3	81.8	77.6	85.9	86.7	84.3	81.9	88.0	89.5	87.4	84.5
3	84.6	85.5	83.3	80.0	87.1	87.7	85.6	83.5	89.1	90.4	88.6	85.9
4	85.8	86.6	84.6	81.9	88.1	88.6	86.8	84.8	90.0	91.1	89.5	87.1
5.5	87.0	87.7	86.0	83.8	89.2	89.6	88.0	86.2	90.9	91.9	90.5	88.3
7.5	88.1	88.7	87.2	85.3	90.1	90.4	89.1	87.3	91.7	92.6	91.3	89.3
11	89.4	89.8	88.7	86.9	91.2	91.4	90.3	88.6	92.6	93.3	92.3	90.4
15	90.3	90.6	89.7	88.0	91.9	92.1	91.2	89.6	93.3	93.9	92.9	91.2
18.5	90.9	91.2	90.4	88.6	92.4	92.6	91.7	90.1	93.7	94.2	93.4	91.7
22	91.3	91.6	90.9	89.1	92.7	93.0	92.2	90.6	94.0	94.5	93.7	92.1
30	92.0	92.3	91.7	89.8	93.3	93.6	92.9	91.3	94.5	94.9	94.2	92.7

Output	IE2 high efficiency				IE3 premium efficiency				IE4 super premium efficiency			
37	92.5	92.7	92.2	90.3	93.7	93.9	93.3	91.8	94.8	95.2	94.5	93.1
45	92.9	93.1	92.7	90.7	94.0	94.2	93.7	92.2	95.0	95.4	94.8	93.4
55	93.2	93.5	93.1	91.0	94.3	94.6	94.1	92.5	95.3	95.7	95.1	93.7
75	93.8	94.0	93.7	91.6	94.7	95.0	94.6	93.1	95.6	96.0	95.4	94.2
90	94.1	94.2	94.0	91.9	95.0	95.2	94.9	93.4	95.8	96.1	95.6	94.4
110	94.3	94.5	94.3	92.3	95.2	95.4	95.1	93.7	96.0	96.3	95.8	94.7
132	94.6	94.7	94.6	92.6	95.4	95.6	95.4	94.0	96.2	96.4	96.0	94.9
160	94.8	94.9	94.8	93.0	95.6	95.8	95.6	94.3	96.3	96.6	96.2	95.1
200	95.0	95.1	95.0	93.5	95.8	96.0	95.8	94.6	96.5	96.7	96.3	95.4
250	95.0	95.1	95.0	93.5	95.8	96.0	95.8	94.6	96.5	96.7	96.5	95.4
315-1000	95.0	95.1	95.0	93.5	95.8	96.0	95.8	94.6	96.5	96.7	96.6	95.4

型号 Type	功率 Power	额定电流 Current	额定转速 Speed	效率 EFF.	功率因数 P.F.	额定转矩 RT	堵转转矩 倍数	最大转矩 倍数	堵转电流 倍数
	kW	A	rpm	%		N·m	Tst/TN	Tmax/TN	Ist/IN
YE3-200L1-2	30	54.9	2965	93.3	0.89	95.5	2.0	2.3	7.6
YE3-200L2-2	37	67.4	2965	93.7	0.89	118	2.0	2.3	7.6
YE3-225M-2	45	80.8	2965	94.0	0.90	143	2.0	2.3	7.7
YE3-250M-2	55	98.5	2970	94.3	0.90	175	2.0	2.3	7.7
YE3-280S-2	75	134	2975	94.7	0.90	239	1.8	2.3	7.1
YE3-280M-2	90	160	2975	95.0	0.90	287	1.8	2.3	7.1
YE3-315S-2	110	195	2980	95.2	0.90	350	1.8	2.3	7.1
YE3-315M-2	132	234	2980	95.4	0.90	420	1.8	2.3	7.1
YE3-315L1-2	160	279	2980	95.6	0.91	509	1.8	2.3	7.2
YE3-315L2-2	200	349	2980	95.8	0.91	637	1.8	2.2	7.2
YE3-355M-2	250	436	2985	95.8	0.91	796	1.6	2.2	7.2
YE3-355L-2	315	549	2985	95.8	0.91	1003	1.6	2.2	7.2
YE3-3551-2	355	619	2985	95.8	0.91	1130	1.6	2.2	7.2
YE3-3552-2	375	654	2985	95.8	0.91	1194	1.6	2.2	7.2
4极 - 同步转速 1500rpm-50Hz									
YE3-80M2-4	0.75	1.8	1435	82.5	0.75	4.8	2.3	2.3	6.6
YE3-90S-4	1.1	2.6	1435	84.1	0.76	7.0	2.3	2.3	6.8
YE3-90L-4	1.5	3.5	1435	85.3	0.77	9.6	2.3	2.3	7.0
YE3-100L1-4	2.2	4.8	1450	86.7	0.81	14.0	2.3	2.3	7.6
YE3-100L2-4	3	6.3	1450	87.7	0.82	19.1	2.3	2.3	7.6
YE3-112M-4	4	8.4	1455	88.6	0.82	25.5	2.2	2.3	7.8
YE3-132S-4	5.5	11.2	1465	89.6	0.83	35.0	2.0	2.3	7.9
YE3-132M-4	7.5	15.0	1465	90.4	0.84	47.8	2.0	2.3	7.5
YE3-160M-4	11	21.5	1470	91.4	0.85	70.0	2.2	2.3	7.7
YE3-160L-4	15	28.8	1470	92.1	0.86	95.5	2.2	2.3	7.8
YE3-180M-4	18.5	35.3	1475	92.6	0.86	118	2.0	2.3	7.8
YE3-180L-4	22	41.8	1475	93.0	0.86	140	2.0	2.3	7.8
YE3-200L-4	30	56.6	1475	93.6	0.86	191	2.0	2.3	7.3
YE3-225S-4	37	69.6	1480	93.9	0.86	236	2.0	2.3	7.4
YE3-225M-4	45	84.4	1480	94.2	0.86	287	2.0	2.3	7.4
YE3-250M-4	55	103	1485	94.6	0.86	350	2.2	2.3	7.4

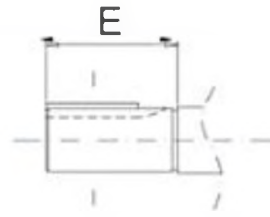
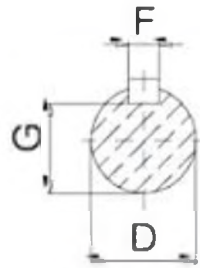
◆ 外形及安装尺寸 External and mounting dimensions



mm

机座 Frame	外形安装尺寸 External and mounting dimensions										L			
	A	B	C	H	K	AB	AC	AD	HD	HF	2p		≥ 4p	
											其他	V1	其他	V1
80M	125	100	50	80	10	165	175	145	220		305		305	
90S	140	100	56	90	10	180	195	165	260	—	360		360	
90L	140	125	56	90	10	180	195	165	260		390		390	
100L	160	140	63	100	12	205	215	180	275	245	435		435	
112M	190	140	70	112	12	230	240	190	300	265	470	—	470	—
132S	216	140	89	132	12	270	275	210	345	315	510		510	
132M	216	178	89	132	12	270	275	210	345	315	560		560	
160M	254	210	108	160	14.5	320	330	255	420	385	670		670	
160L	254	254	108	160	14.5	320	330	255	420	385	700		700	
180M	279	241	121	180	14.5	355	380	280	455	430	740	800	740	800
180L	279	279	121	180	14.5	355	380	280	455	430	790	850	790	850
200L	318	305	133	200	18.5	395	420	305	505	480	790	940	790	940

◆ 轴伸尺寸 Shaft dimensions

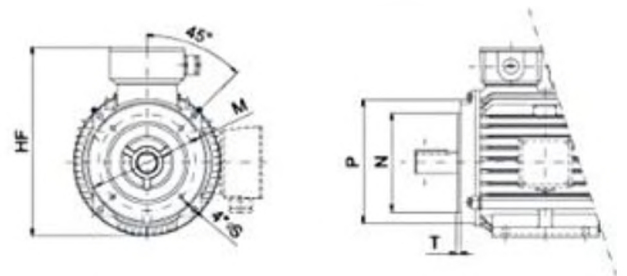
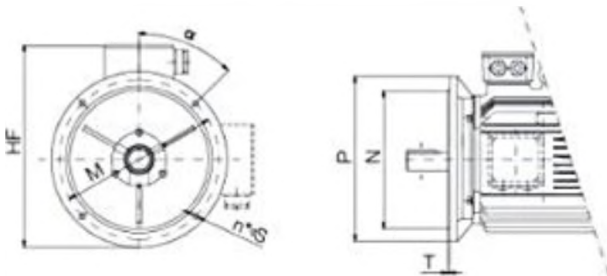


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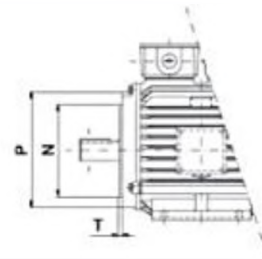
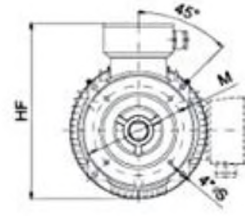
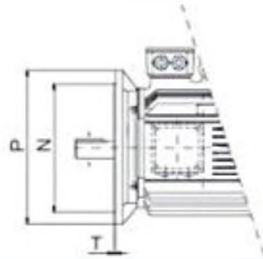
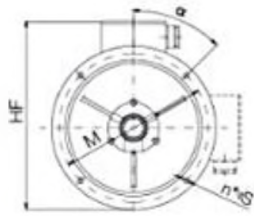
机座 Frame	级数 Poles	轴伸尺寸 Shaft dimensions			
		D	E	F	G
80	≥ 2	19	40	6	15.5
90	≥ 2	24	50	8	20
100	≥ 2	28	60	8	24
112	≥ 2	28	60	8	24
132	≥ 2	38	80	10	33
160	≥ 2	42	110	12	37
180	≥ 2	48	110	14	42.5
200	≥ 2	55	110	16	49
225	2	55	110	16	49
225	≥ 4	60	140	18	53

机座 Frame	级数 Poles	轴伸尺寸 Shaft dimensions			
		D	E	F	G
250	2	60	140	18	53
	≥ 4	65	140	18	58
280	2	65	140	18	58
	≥ 4	75	140	20	67.5
315	2	65	140	18	58
	≥ 4	80	170	22	71
355M, L	2	75	140	20	67.5
	≥ 4	95	170	25	86
355	2	80	170	22	71
	≥ 4	110	210	28	100

◆ 法兰尺寸 Flange dimensions



mm



mm

机座 Frame	凸缘号 Flange	B35、B5 法兰					
		M	N	P	T	α	$n^{\circ}\Phi S$
80、90	FF165	165	130	200	3.5	45	4*12
100、112	FF215	215	180	250	4	45	4*14.5
132	FF265	265	230	300	4	45	4*14.5
160、180	FF300	300	250	350	5	45	4*18.5
200	FF350	350	300	400	5	45	4*18.5
225	FF400	400	350	450	5	22.5	8*18.5
250、280	FF500	500	450	550	5	22.5	8*18.5
315	FF600	600	550	660	6	22.5	8*24
355M、L	FF740	740	680	800	6	22.5	8*24
355	FF840	840	780	900	6	22.5	8*24

机座 Frame	凸缘号 Flange	B34、B14 法兰				
		M	N	P	S	T
80	FT100	100	80	120	M6	3
90	FT115	115	95	140	M8	3
100、112	FT130	130	110	160	M8	3.5

IE3 Series TEFC Fan Motor

Compared with grinder or shredder, fan and pump belongs to light load when choose suitable motors for driving. IE3 series TEFC fan motor is highly efficient, energy-saving, and operate stably, and are widely used in industries such as textiles, paper-making, sugar manufacturing, and rubber. In addition, three-phase asynchronous motors are widely used in household appliances, air conditioners, fans, pumps, compressors, and industrial production due to their simple structure, reliable use, and ability to provide continuous power output.



Brief Introduction

Three phase asynchronous motor, also known as three-phase induction motor. IE3 series TEFC fan motor that requires three-phase power supply. Three phase asynchronous motors, due to their simple structure, low cost, durability, easy manufacturing, use, and maintenance, as well as high efficiency and load characteristics close to constant speed, can meet the driving requirements of the vast majority of industrial and agricultural production machinery. Therefore, it is the most produced and widely used type of electric motor among all types of motors.

What are the aspects that need to be considered when selecting a fan load for an electric motor?

The requirements of IE3 series TEFC fan motor mainly include power matching, speed matching, voltage and frequency matching, starting method, cooling method, environmental conditions, etc.

- Power

The power of the electric motor needs to match the power demand of the centrifugal fan. It is usually recommended to choose an electric motor power between 1.1 and 1.2 times the rated power of the fan to ensure that the motor can operate normally under various working conditions.

- Speed

The speed of the fan directly affects its performance, so the rated speed of the motor should match the speed requirements of the centrifugal fan. If the design of the fan requires a specific speed, the selection of the electric motor should ensure that its rated speed can meet this requirement. If necessary, a frequency converter can be used to adjust the motor speed for more precise control.

- Voltage & frequency

Select an electric motor that matches the voltage and frequency of the on-site power supply. Common industrial motor voltages include 380V (50Hz) or 480V (60Hz). If centrifugal fans are used overseas or in special power grid environments, attention should be paid to the differences in power supply parameters and appropriate motor specifications should be selected.

- Starting

Consider the starting method of the fan, especially in high-power applications. Common startup methods include direct startup, star delta startup, and soft starter. Choose the appropriate starting method according to the system's needs to avoid impact on the power grid and protect the electric motor and fan equipment.

- Cooling

The cooling method of YE3 series TEFC fan motor should be adapted to the working environment. Common cooling methods include self cooling, forced draft cooling, and water cooling. If the centrifugal fan is installed in a high temperature and high humidity environment, an electric motor with an appropriate cooling system should be selected to ensure its normal operation.

- Environment

Select the appropriate protection level (IP level) and insulation level motor according to the working environment of the fan. If the centrifugal fan operates in corrosive, humid, or dusty environments, the selection of the electric motor should ensure that its protection level can effectively cope with these environmental conditions.



电动机的温升限额 Temperature limit

绝缘等级 Insulation class	最高使用温度 Highest temperature	最大温升 Limit of temperature rise
B	130°C	80K
F	155°C	105K
H	180°C	125K

With the continuous advancement of technology and the rapid development of industry, three-phase AC motors will be further improved in terms of performance, efficiency, intelligence, and other aspects. In the future, three-phase AC motors will pay more attention to the development of energy conservation, environmental protection, high efficiency, stability, and intelligent control, which will have a crucial impact on the production cost and economic benefits of enterprises.

Technical data

Application	pump,fan,compressor,mixer,machine tool,crusher,etc.
Series	YE3
HS code	8501520090 (750W < P ≤ 75kW);8501530090 (P > 75kW)
Frame size	H80~H355
Standard	IEC60034

Output range(KW)	0.55 to 375
Frequency(Hz)	50/60
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP56/IP65
Cooling	IC411/TEFC
Working duty	S1,S3
Mounting	foot-IMB3/IM1001;flange-IMB5/IM3001;face-IMB14/IM3601; vertical-IMV1/IM3011;flange-foot:IMB35/IM2001

IE4 Series 400V Motor

Low voltage AC asynchronous motor is currently one of the most widely used motors, widely used in various fields such as industrial production, civil use, transportation, medical and health. IE4 series 400V motor adopts the principle of asynchronous motors and is designed to cover different efficiency levels. It has the characteristics of small size, light weight, simple structure, and easy installation and maintenance. Therefore, it is widely welcomed by various customers during use.



Brief Introduction

With the continuous advancement of technology and the increasing popularity of green energy, the application range of low-voltage AC asynchronous motors will become more extensive. In the future, with people's increasing emphasis on environmental protection, the popularity of electric vehicles will gradually increase, and IE4 series 400V motor will also play a more important role.

The energy efficiency levels of motors are usually divided into four categories: high efficiency(IE4), medium efficiency(IE3), low efficiency(IE2), and high energy consuming motors(IE1). The division between them is mainly based on the national standard GB 18613-2020 "Energy Efficiency Limits and Energy Efficiency Grades for Electric Motors", which specifies the ratio between the input power and output power of the motor, i.e. efficiency η , as well as the efficiency value corresponding to the energy efficiency grade of the motor.

规格型号 Type	IEC	GB	效率(%) Eff.	耗电量 (kWh) Power consumption	年节电量 (kWh) Energy saving
Y2-160L-4	IE1		89.4	100671	0
YE2-160L-4	IE2	3级能效	90.6	99338	1333
YE3-160L-4	IE3	2级能效	92.1	97720	2951
YE4-160L-4	IE4	1级能效	93.9	95847	4824

What is the significance of the classification of motor energy efficiency levels?

Firstly, the classification of motor energy efficiency levels has a significant impact on the production costs and economic benefits of enterprises. IE4 series 400V motor can reduce energy consumption and production costs of enterprises, and improve their economic efficiency.

At the same time, the national government has corresponding restrictions on the production and sales of high energy consuming motors to promote energy conservation and emission reduction of motors.

In addition, the classification of motor energy efficiency levels is also an important manifestation of national energy conservation and emission reduction policies. The Chinese government has always been committed to promoting energy conservation and emission reduction. As an important equipment in

industrial production, the energy efficiency level of motors directly affects the energy conservation and emission reduction effect of the entire industrial sector.

Therefore, the classification of motor energy efficiency levels is of great significance for promoting energy conservation and emission reduction in China.

Enterprises should choose the appropriate motor energy efficiency level based on actual needs and economic benefits when selecting motors. At the same time, enterprises should strengthen the maintenance and management of motors to ensure their operational efficiency and energy efficiency level. This includes regularly checking the operating status of the 400V motor, replacing worn parts, and conducting timely maintenance and upkeep. These measures help extend the service life of the motor and reduce the operating costs of the enterprise.

Technical data

Frame size	H80~H355
Series	YE4
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Output range(KW)	0.55 to 375
Frequency(Hz)	50/60
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP56/IP65
Cooling	IC411/TEFC
Working duty	S1,S3
Mounting	foot-IMB3/IM1001; flange-IMB5/IM3001; face-IMB14/IM3601; vertical-IMV1/IM3011; flange-foot:IMB35/IM2001
Standard	IEC60034
Application	pump, fan, compressor, mixer, machine tool, crusher, etc.

IE4 Series Water Pump AC Motor

Pump and compressor are always the industries using a lot of AC electric motors. IE4 series water pump AC motor is using the grade 1 efficiency AC motor for driving. Three phase AC motor is one of the most common power sources in industrial equipment, such as machine tools, rolling mills, fans, water pumps, etc. They drive various mechanical devices to complete production tasks and improve production efficiency.



Brief Introduction

Low voltage AC asynchronous motor is currently one of the most widely used motors, widely used in industrial production, civil use, transportation, medical and health fields. IE4 series water pump AC motor adopts the principle of asynchronous motor and has the characteristics of small size, light weight, simple structure, and easy installation and maintenance, so it is widely welcomed in use.



The impact of electric motor energy efficiency on water pumps is crucial. Although the energy efficiency levels of water pumps and motors are different, they jointly affect the energy utilization efficiency of the water pump system. In practical applications, water pumps and electric motors are usually used together, so optimizing and matching their energy efficiency levels is crucial for improving the energy utilization efficiency of the entire water pump system.



So, what is the specific manifestation of inefficient electric motors in terms of power consumption?

Eff.	kW/V	RPM	Eff. data	Power consumption/ 365 days (kWh)
IE2	55/380	1500	93.5	515294
IE3	55/380	1500	94.6	509302
IE4	55/380	1500	95.7	503448
IE5	55/380	1500	96.5	499274

So now, based on the above data, if the old motor is an IE2- 55KW motor and is replaced with an IE4 series water pump AC motor, the enterprise can save 11846kWh of electricity annually. According to the average electricity price in China's industry, the annual cost savings can reach \$1770.

Technical data

Series	YE4
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Frame size	H80~H355
Output range(KW)	0.55 to 355
Frequency(Hz)	50/60
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP54
Cooling	IC411/TEFC
Working duty	S1,S3
Mounting	Foot-IMB3/IM1001; flange-IMB5/IM3001; face-IMB14/IM3601; vertical-IMV1/IM3011; flange-foot : IMB35/IM2001;

IE3 Series IC411 Motor

IE3 series IC411 motor is one typical series for three-phase low voltage AC motor. These AC motors are widely used in various fields due to their high efficiency and stable performance. With the continuous advancement of technology and the rapid development of industry, three-phase AC motors will be further improved in terms of performance, efficiency, intelligence, and other aspects.



Brief Introduction

A three-phase asynchronous motor is a type of induction motor that is powered by a 380V three-phase AC current (with a phase difference of 120 degrees). Due to the fact that the rotor and stator of a three-phase asynchronous motor rotate in the same direction but at different speeds, there is a slip rate, hence it is called a three-phase asynchronous motor.



What are the advantages of IE3 series IC411 motor ?

- Efficient and energy-saving

Three phase AC motors have high efficiency and power factor, which can effectively reduce energy loss and improve energy utilization efficiency.

- Stable operation

Three phase AC motors have good operational stability, can adapt to various load changes, and maintain constant speed and torque output.

- Simple structure

The structure of three-phase AC motors is relatively simple, easy to manufacture and maintain, reducing production and usage costs.

- Wide speed regulation range

Through devices such as frequency converters, three-phase AC motors can achieve a wide range of speed regulation to meet the needs of different loads and working conditions.



According to statistics, more than 80% of the total use of electric motors in China is three-phase asynchronous motors. IE3 series IC411 motor, due to their simple structure, low cost, durability, and easy maintenance, as well as their high efficiency and load characteristics close to constant speed, can meet the driving requirements of the vast majority of industrial and agricultural production machinery. Therefore, it is the most produced and widely used type of electric motor among all types of motors.

Technical Specs

Series	YE3
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Frame size	H80~H355
Output range(KW)	0.55 to 355
Frequency(Hz)	50/60
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP54
Cooling	IC411/TEFC
Working duty	S1, S3
Mounting	Foot-IMB3/IM1001; flange-IMB5/IM3001; face-IMB14/IM3601; vertical-IMV1/IM3011; flange-foot : IMB35/IM2001;

IE3 Series 415V Motor

Low voltage motor refers to an AC motor with a rated voltage below 1000V, usually used in low-power mechanical transmission systems. IE3 series 415V motor has the advantages of simple structure, small size, light weight, stable operation, and easy maintenance. Low voltage AC motors are widely used in various industrial and commercial fields to drive various equipment, including but not limited to compressors, water pumps, crushers, cutting machines, transportation machinery, etc. They are also used to drive equipment such as blowers, coal mills, rolling mills, and winches.



Brief Introduction

Low voltage AC motors, especially three-phase AC motors, operate based on the laws of electromagnetic induction and Kirchhoff circuit theory. They generate a rotating magnetic field through the current in the stator winding, which drives the rotor to rotate. The working voltage of this type of motor is usually below 1500V DC voltage and 1200V AC voltage, which belongs to the category of low-voltage electrical equipment. They are suitable for electrical devices with a ground voltage of 250V and below, and are widely used in low voltage levels.

According to the different rotor structures of low-voltage AC asynchronous motors, they can be divided into two types: squirrel cage, like IE3 series 415V motor, and deep groove. Among them, the rotor of the squirrel cage motor is made of copper rods with inter turn short circuits, resembling a squirrel cage, hence its name. The rotor of a deep slot electric motor is made of iron core sheets through special processing, which has the advantages of high efficiency, low speed, and high torque, and is particularly suitable for high-power, low-speed, and high torque applications.

IE3 series 415V motor follows Chinese standard, GB755-2008 Rotating electrical machines-Rating and performance, which equals to IEC60034-1:2004.

Technical data

Series	YE3
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Frame size	H80~H355
Output range(KW)	0.55 to 355
Frequency(Hz)	50/60

Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP54
Cooling	IC411/TEFC
Working duty	S1,S3
Mounting	Foot-IMB3/IM1001;flange-IMB5/IM3001;face-IMB14/IM3601;vertical-IMV1/IM3011; flange-foot : IMB35/IM2001;

IE3 Series Forced Ventilation Motor

IE3 series forced ventilation motor is the motors of cooling in IC416 for low voltage asynchronous motors. YVF2 and YVF3 are the main series with feature of forced ventilation motor. These motors are also we called variable frequency speed motors, which are installed or upgraded VFD optimized motor control systems, equipment energy consumption can be reduced by up to 70%. Therefore, more and more end users in China and abroad consider this series motors first for the long run.



Brief Introduction

Variable frequency motor - used in special occasions with frequency converters, it differs from YE3 TEFC motor in that it adds a strong cooling fan. And the power of this fan comes from a separate power source and cannot be connected from the main motor. The function of a strong cooling fan is to ensure the cooling of the motor at low speeds.

Variable frequency speed regulation technology is widely recognized both domestically and internationally as the most widely used, efficient, and ideal electrical transmission solution in the world, representing the development direction of electrical transmission due to its excellent speed regulation performance, significant energy-saving effect, and wide application in various economic fields. It plays a crucial role in improving product quality, saving energy, reducing consumption, and improving enterprise economic efficiency.

Here is one chart of low voltage AC motor to compare YE3 TEFC motor and IE3 series forced ventilation motor.

No.	Type	YE3 TEFC motor	
1	Squirrel cage motor	yes	
2	Model	YE2/YE3/YE4/YE5	
3	Frequency	50Hz/60Hz	
4	Cooling method	IC411	
5	Cooling feature	TEFC, self-fan cooling	
6	Protection class	IP54/IP55	
7	Insulation	F/H	
8	Terminal box	1	
9	Efficiency	IE3/IE4/IE5	
10	Dimension		

With the increasingly widespread application of frequency converters in the field of industrial control, the use of IE3 series forced ventilation motor is also becoming more and more widespread. It can be said that due to the superiority of variable frequency motors over ordinary motors in frequency control, we can easily see the presence of variable frequency motors wherever frequency converters are used.

Variable speed induction motor follows Chinese standard, GB755-2008 Rotating electrical machines-Rating and performance , which equals to IEC60034-1:2004.

Technical parameters

Series	YVF2,YVF3
HS code	8501520090 (750W < P ≤ 75kW); 8501530090 (P > 75kW)
Frame size	H80~H355
Output range(KW)	0.55 to 355
Frequency(Hz)	50/60,3 ~ 100Hz
Voltage(V)	220/380/400/415/440
Speed	3000rpm/1500rpm/1000rpm/750rpm/600rpm
Enclosure	IP55/IP54
Cooling	IC416/TEFV
Working duty	S1,S6,S9
Mounting	Foot-IMB3/IM1001; flange-IMB5/IM3001; face-IMB14/IM3601; vertical-IMV1/IM3011; flange-foot:IMB35/IM2001;

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Россия +7(495)268-04-70

Казахстан +7(727)345-47-04

Беларусь +(375)257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: uoa@nt-rt.ru || сайт: <http://luanmotor.nt-rt.ru/>