

TOYO ED MOTOR

ED MOTOR (Eco-Drive Motor) 是一个实现了超高效率及小型化，既经济 (Economical) 又环保 (Ecological) 的驱动系统。

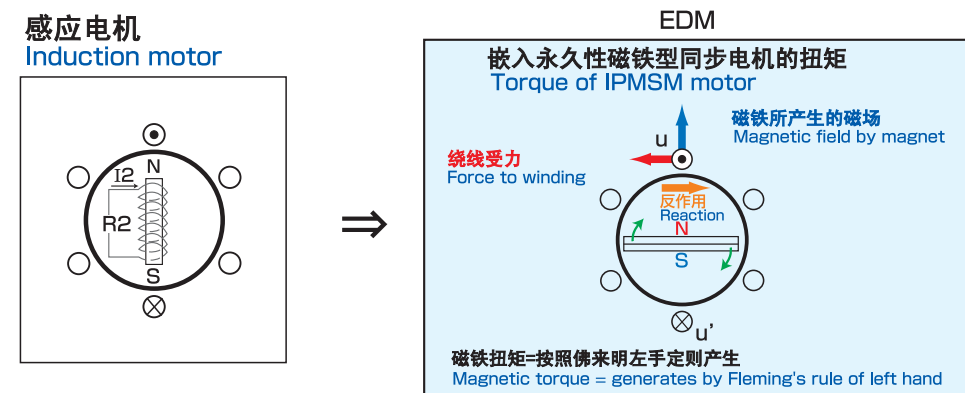
ED MOTOR (Eco-Drive Motor) is the Economical & Ecological Drive System that realizes ultra-high efficiency and down sizing.

■ 转子损失接近于零！

Loss of rotor is nearly "Zero".

其构造为内嵌永久性磁铁，无二次绕线，所以可将其损失控制在较低水平。

The loss can be suppressed due to no 2ndary winding in the embedded permanent magnet structure.



电动机损失减半。(与感应电机相比)

Loss of motor is reduced to half. (as against induction motor)

例如 110kW 1800min⁻¹
Example of 110kW, 1800min⁻¹

感应电动机损失
Loss of induction motor

7.81kW

EDM 损失
Loss of EDM

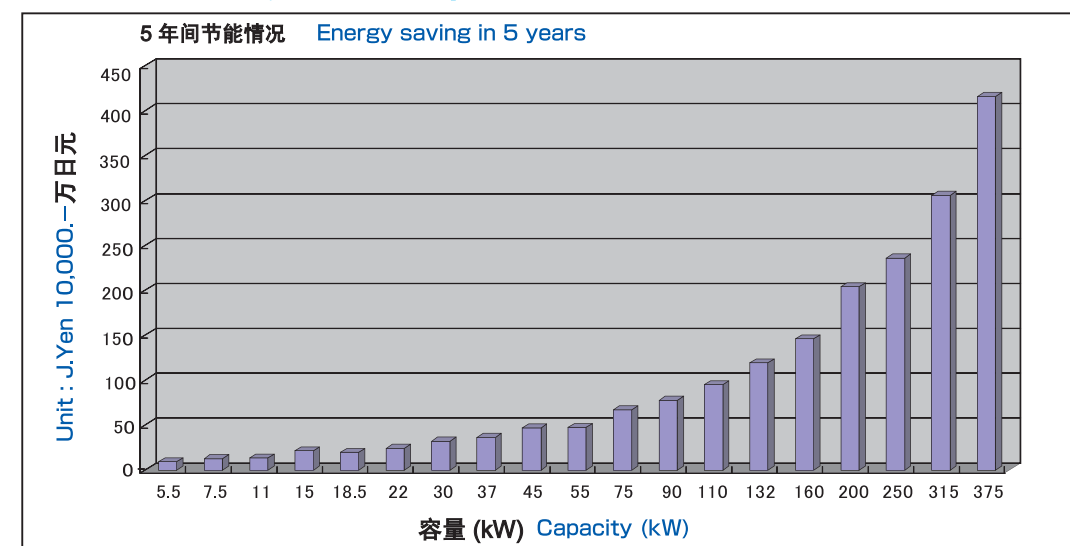
4.62kW

■ 可大幅度节能。(与感应电机相比)

Energy can be saved drastically (against induction motor).

负载率 80%、运转率 85%、10.35 日元 / kWh

Load factor 80%, Rate of operation 85% ¥10.35/kWh



■ 小型、轻便。

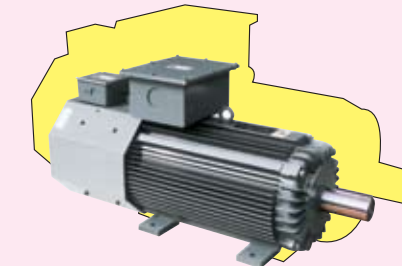
Small in size and light in weight.

机械的构造设计上也有余量。

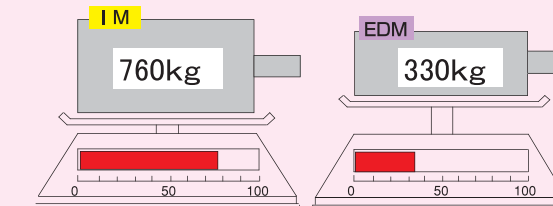
Rooms can be formed in the structure-designing of machinery

例如 110kW 1800min⁻¹
Example of 110kW, 1800min⁻¹

外观
体积比: 减少 54%
External appearance
Volume ratio : 54% less



重量
重量比: 减少 56%
Weight
Weight ratio : 56% less



■ 轴承寿命大约延长至 2 倍！

Life of bearing is doubled!

因为转子损失非常少，所以可使轴承保持低温，寿命延长。

Bearing temperature is low as a result of very small loss of rotor.

例 润滑脂密封型油脂寿命

Example of life of grease-sealed type grease

感应电动机
轴承寿命
Induction motor
Bearing life

27,000h

EDM
轴承寿命
EDM
Bearing life

47,000h

■ 即使无速度传感器也可表现出惊人的速度精度

It has remarkable speed accuracy in spite of speed sensorless

带传感器 Sensor mode

- ☆ $\pm 0.01\%$ (在额定转速)
 $\pm 0.01\%$ (at the rated speed)
- ☆ 1:1000 (速度控制范围)
1:1000 (speed control range)

无传感器 Sensorless mode

- ☆ $\pm 0.01\%$ (在额定转速)
 $\pm 0.01\%$ (at the rated speed)
- ☆ 1:1000 (速度控制范围)
1:100 (speed control range)

■ 高速响应 (带传感器)

High speed response (sensor mode)

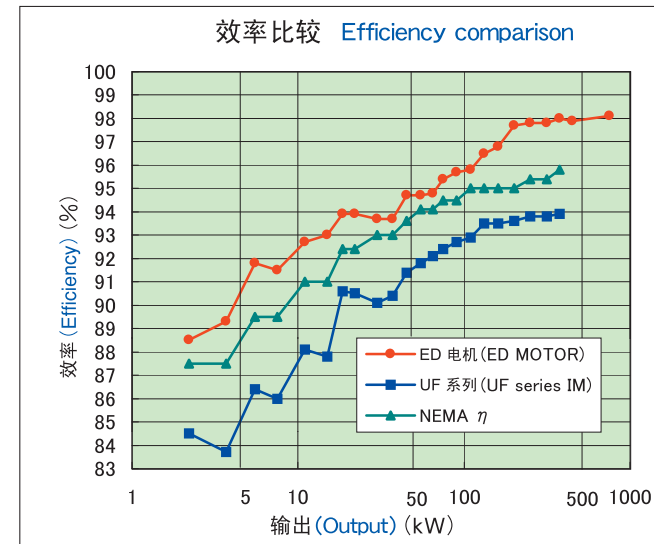
- ☆ 速度控制响应 400rad/s(-3dB)
Speed control response 400rad/sec(-3dB)
- ☆ 扭矩控制响应 2krad/s(-3dB)
Torque control response 2krad/sec(-3dB)

TOYO ED MOTOR

1 特长 FEATURE

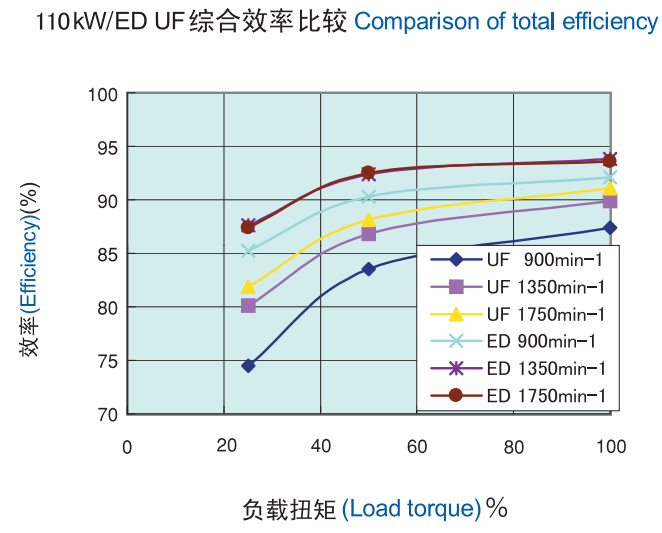
1. 高效率

效率比高效电机 NEMA 标准值约提高 3% 左右, 比本公司 UF 系列变频器专用 IM 约提高 5% 左右。



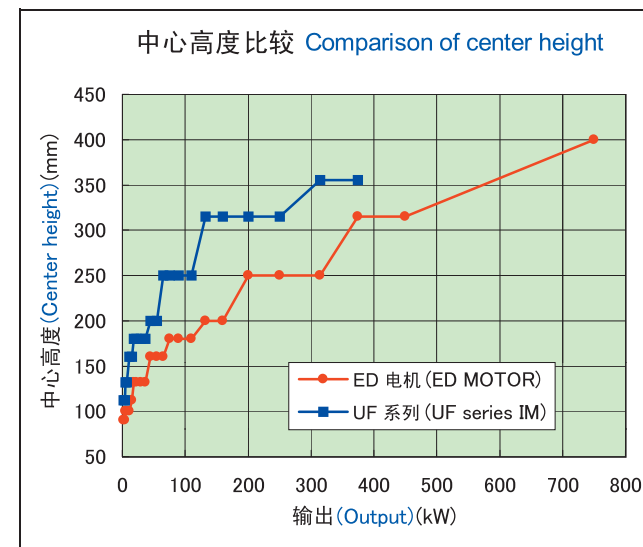
1. High efficiency

Efficiency of ED motor is about 3% higher than NEMA Standard values of high efficiency motor. Also, ED motor realized about 5% higher efficiency than that of our UF series IM of exclusive use for Inverter.



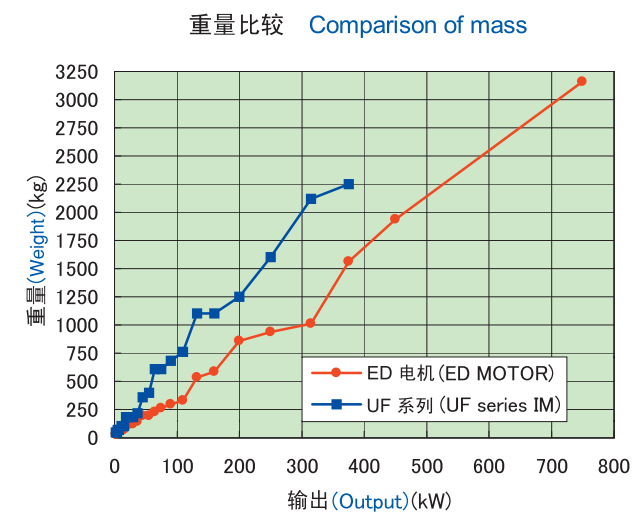
2. 小型轻便

在同一输出下中心高度比本公司 UF 系列变频器专用 IM 下降 2 格。另外, 电机重量也有大幅度减轻。(与本公司 UF 系列变频器专用 IM 相比减轻 32~57%)



2. Small size and light in weight

Compared with our UF series IM of exclusive use for Inverter, center height of ED motor is about 2 divisional lines lower than that of UF series IM and also, weight of ED motor is reduced drastically by (32~57% for our UF series IM) as shown in the relevant graphs below.

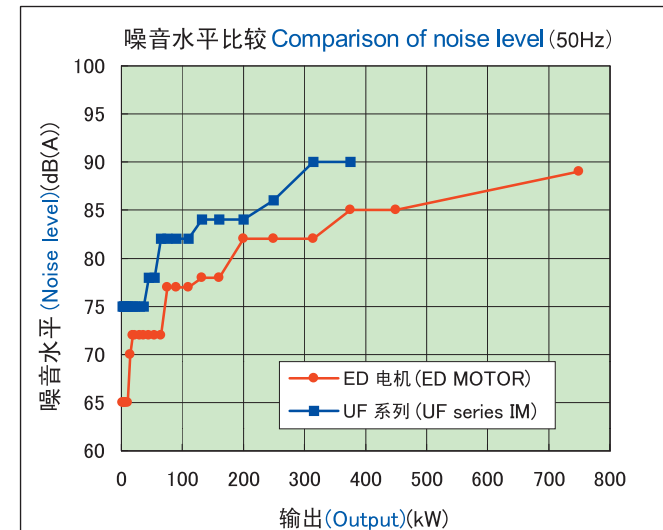


3. 低噪音

通过降低电机总损失, 减少电机冷却风量, 实现了比本公司 UF 系列变频器专用 IM 更低噪音化。

3. Low noise

By reduction of total loss of motor, cooling air volume of motor was reduced and lower noise level than that of UF series motor of exclusive use for Inverter was realized.



5. 减少维护

因为转子几乎不发生损失, 所以轴承温度较低, 密封油脂寿命大约延长至本公司 FU 系列变频器专用 IM 的 1.5 ~ 2 倍 (约 32,000 ~ 47,000 Hr), 可减轻维护工作。

5. Lightening of maintenance work

Since loss of rotor side occurs scarcely, temperature of bearing part is low and life of enclosed grease is about 1.5 - 2 times (about 32,000~47,000 hrs) of that of UF series IM of exclusive use for Inverter. Thus, maintenance work can be lightened.

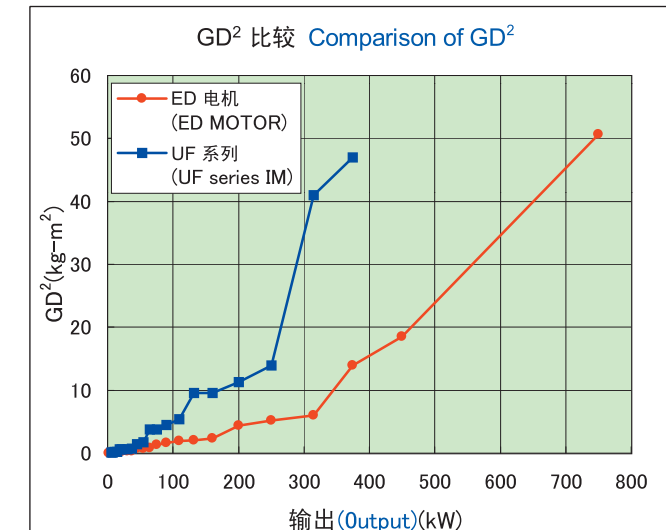
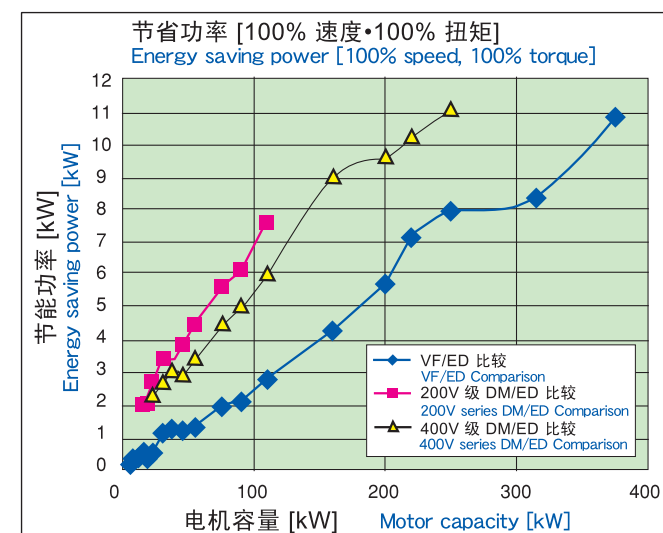
7. 节能计算

下图是通过 (ED 电机 + INV) 组合下的综合效率与 (感应电机 (IM) + INV)、(直流电机 (DM) + 伦纳德装置) 的综合效率之差来表示节省功率的。

通过电机容量求出节省功率 Ps[kW], 然后可以按照下式求出节能金额。

全年节能金额 [日元] = Ps[kW] x 年运转时间 [H] x 功率单位 [日元/kWh]
Annual energy saving amount [¥] = Ps[kW] x Annual operating time [H] x Unit price of power [¥/kWh]

[例] 200 kW 时与直流电机的比较 (75% 速度·75% 扭矩时)
全年节能金额=8.5 kW X (24 h X 300 日) X 10.35 日元/kWh = 633, 400 日元
[Example] Comparison with DC motor at 200kW (In case of 75% speed, 75% torque)
Annual energy saving amount = 8.5kW x (24h x 300 days) x ¥10.35/kWh = ¥633,400.



6. 高性能矢量变频器

控制永久性磁铁电机的专用变频器具有革新性 HC 功能、序列功能和追溯功能, 可构成灵活控制。

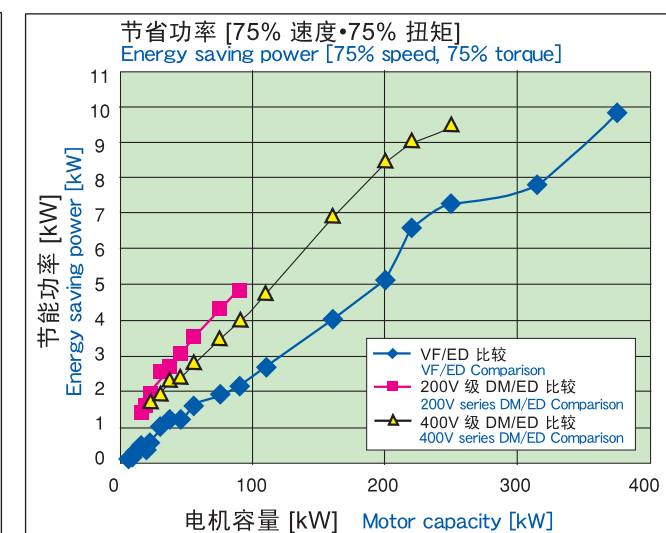
6. High performance vector Inverter

In the Inverter which controls permanent magnet motor exclusively, innovative HC function, sequence function, trace back function are incorporated and by these functions, flexible control can be structured.

7. Calculation of energy saving

Graphs shown below indicate the power of energy saving, obtained from difference between overall efficiency by combination of [ED motor + INV] and overall efficiency by [Induction motor (IM) + INV], [DC motor (DM) + SCR equipment].

Find the energy saving power Ps[kW] from motor capacity. After that, energy saving amount can be found by the under-mentioned equation.



1) 标准规格 Standard Specifications

			标准规格 Standard	准标准规格 Available on Request
1	额定项目 Rating	极数 (No. of pole) 输出 (Output) 电压 (Voltage) 额定基底转速 (Rated Rotating speed) 时间定额 (Time rating)	6 极 (6 Poles) 1.5~750kW 190/380V (190 级可达到 90kw) 190/380V (190V class is up to 90kW) 1800min ⁻¹ 输出恒定范围比基底回转 1:1.33 Output constant range is 1:1.33 against basic rotating speed. 连续 (Continuous)	1500min ⁻¹ / 1200min ⁻¹ 转速、固定输出范围的变更时请协商 Comply with another min ⁻¹
2	外壳 Enclosure	保护形式 (Protection) 冷却 (Cooling)	IP44 (全封闭防溅型) IP44 (Totally enclosed splash proof) IC416 (外壳表面冷却/借助外力) IC416 (Surface forced cooling)	IC411 (外壳表面冷却自助型) IC411 (Surface self cooling)
3		绝缘种类 (Insulation) 温度上升 (Temp rise)	F 类 (class F)、H 类 (class H) ...只有 750 kW (only 750kw) F 类、或 B 类 rise (F or B rise) H 类 rise ...只有 750 kW (only 750kw)	
4	使用环境 Environment	周围温度 (Ambient temp.) 相对湿度 (Relative humidity) 海拔 (Altitude) 使用场所 (Installation place) 燃气、蒸汽 (Gas, vapor)	-10~+40°C 95%RH 以下 (less than 95%RH) 1000m 以下 (less than 1000m) 屋内 (Indoor) 无有害的腐蚀性、易爆性燃气或蒸汽的屋内 (Indoor without hazardous gases, such as corrosive or explosive gases)	+40~+60°C, -10~-30°C 超过 95% (Over 95%RH) 超过 1000m (Over 1000m) 防腐蚀 2 类、3 类 (Corrosion proof class 2, class 3)
5		安装方式 (Mounting)	固定腿侧安装 (B3) Foot mounting (B3) 齿轮电机 Geared Motors. 1.5kW~55kW	法兰式、立式 See“Mounting arrengment.”
6		与负载的结合 Coupling method	直接连接/用皮带连接 (用皮带连接可达到 250kW) Direct coupling/Belt driving (Up to 250kW in case of belt driving)	
7		振动 Class of vibration	双振幅 V30 以下 Less than V30: Full-amplitude (Peak to peak)	双振幅 V10 以下 V10: and less
8		噪音水平 Noise level	帧号 Frame size.....dB(A) 50/60Hz 90.....65/67 dB(A) 100.....65/67 dB(A) 112.....70/72 dB(A) 132.....75/78 dB(A) 160.....75/78 dB(A) 180.....77/80 dB(A) 200.....78/81 dB(A) 250.....82/85 dB(A) 315.....85/88 dB(A) 400.....89/93 dB(A)	
9		始动扭矩 Starting torque	150% 150% of Full load	超过或未满 150% 150% over or 150% under
10		瞬间扭矩过剩 Momentary excess torque	150% 1 分钟 150% of Full load, 1min.	超过或未满 150% 150% over or 150% under
11		附属品 Accessories	电动送风机、光电编码器、 PTC 热敏电阻器元件 Independent electric cooling fan, Optcoder PTC thermistor element	带制动器 (非励磁起动型) 减速机 (齿轮传动) 防爆规格等 Electromagnetic brake Reduction gear,Explosion Proofetc.

2) 输出、帧号适用、额定电流

Application Between Output (kW), Rotating Speed (min⁻¹) & Frame Size, Full Load Current (A)

帧号 Frame size □□ A / □□ A 190V 最高速度电流 / 190V 基底速度电流 Top / Base speed Current at 190V	型号 Type □□ A / □□ A 380V 最高速度电流 / 380V 基底速度电流 Top / Base speed Current at 380V
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	标准规格 Standard		准标准规格 Available on Request			
输出恒定速度 Power constant speed	2400~1800min ⁻¹		2000~1500min ⁻¹		1600~1200min ⁻¹	
扭矩恒定范围 Torque constant range	1800~0min ⁻¹		1500~0min ⁻¹		1200~0min ⁻¹	
基底速度 Base speed	1800min ⁻¹		1500min ⁻¹		1200min ⁻¹	
额定电压 Rated voltage	190V	380V	190V	380V	190V	380V
额定输出 Rated output						
1.5kW	90A EDM1311V* 5.2A/6.7A 2.6A/3.3A		90A EDM1311V 5.3A/6.1A 2.7A/3.0A		90A EDM1311V 5.3A/6.2A 2.6A/3.1A	
2.2kW	90A EDM1311V* 7.6A/9.1A 3.8A/4.5A		90A EDM1321V 7.7A/8.8A 3.8A/4.6A		90A EDM1321V 7.7A/9.0A 3.8A/4.5A	
3.7kW	90A EDM1321V* 12.5A/15.9A 6.2A/7.9A		100A EDM1711V 15.1A/13.5A 7.6A/6.7A		100A EDM1711V 14.3A/13.6A 6.9A/6.7A	
5.5kW	100A EDM1711V 20.8A/19.8A 10.4A/9.9A		100A EDM1711V 19.5A/20.0A 9.8A/9.9A		100B EDM1721V 21.3A/19.4A 10.7A/9.7A	
7.5kW	100A EDM1711V 25.9A/27.2A 13.0A/13.5A		100B EDM1721V 28.3A/26.3A 14.3A/13.1A		112A EDM1921V 26.4A/27.0A 13.2A/13.6A	
11kW	100B EDM1721V 38.0A/39.4A 19.0A/19.6A		112A EDM1921V 36.2A/42.2A 18.1A/21.1A		112B EDM1931V 37.5A/41.0A 19.0A/20.1A	
15kW	112A EDM1921V 50.2A/60.8A 24.9A/27.5A		112B EDM1931V 51.2A/53.6A 24.5A/29.6A		112B EDM1931V 49.8A/56.4A 25.0A/27.9A	
18.5kW	112B EDM1931V 61.6A/68.4A 30.8A/34.0A		112B EDM1931V 61.5A/67.2A 30.8A/36.8A		132A EDM2221V 62.9A/65.9A 31.5A/32.8A	
22kW	112B EDM1931V 72.4A/81.7A 36.2A/40.6A		132A EDM2221V 74.1A/79.4A 37.1A/39.5A		132B EDM2231V 72.7A/80.9A 36.4A/40.3A	
30kW	132A EDM2221V 97.9A/114A 48.9A/56.8A		132B EDM2231V 98.9A/110A 49.2A/54.5A		160A EDM2761V 95.9A/117A 47.9A/58.2A	
37kW	132B EDM2231V 121A/134A 60.6A/66.8A		160A EDM2761V 119A/146A 59.7A/68.1A		160A EDM2761V 119A/143A 59.3A/71.2A	
45kW	160A EDM2761V 146A/164A 72.6A/81.9A		160A EDM2761V 144A/175A 71.9A/83.5A		160A EDM2761V 144A/169A 71.8A/84.1A	
55kW	160A EDM2761V 176A/202A 88.0A/101A		160A EDM2771V 176A/202A 88.0A/101A		160B-2 EDM2781V 176A/198A 88.1A/98.7A	
75kW	160B-1 EDM2772V 240A/270A 120A/135A		160B-2 EDM2781V 239A/280A 119A/140A		180A EDM3141V 239A/269A 119A/134A	
90kW	160B-2 EDM2781V 287A/325A 143A/162A		180A EDM3141V 286A/322A 143A/161A		180B-1 EDM3151V 286A/340A 143A/177A	
110kW	180A EDM3151V — 175A/203A		180B-1 EDM3151V — 174A/197A		180B-2 EDM3161V — 174A/196A	
132kW	180B-1 EDM3151V — 210A/253A		180B-2 EDM3151V — 209A/240A		200A EDM3541V — 208A/235A	
160kW	180B-2 EDM3161V — 294A 441A		200B EDM3551V — 258A/278A		200B EDM3551V — 252A/290A	
200kW	200B EDM3551V — 366A		200B EDM3561V — 328A/336A		200B EDM3561V — 314A/367A	
250kW	200B EDM3561V — 393A/451A		250A-1 EDM4331V — 393A/451A		250A-1 EDM4331V — 392A/422A	
315kW	250A-2 EDM4332V — 599A		315A-2 EDM5422V — 493A/581A		315A-1 EDM5411V — 489A/598A	
375kW	315A-2 EDM5412V — 600A		315A-2 EDM5422V — 590/688A		315A-1 EDM5451V — 597A/652A	
400kW	— —		— —		315A-1 EDM5451V — 631A/696A	
450kW	315A-2 EDM5452V — 707A		315A-2 EDM5462V — 700/781A		315A-2 EDM5462V — 701A/840A	
750kW	— —		— —		400A EDM6851V — 1260A	

注 1) EDM13 形也可以制作成自冷却式的。自冷却式的型号为 EDM13**F。而且，此时变速范围为 1:20，需要在低速下减少负载。（参考第 13 页的降低特性）
注 2) 315kW 375kW 450kW 以及 750kW 中，* 标记只表示扭矩转换器控制。但是，如果容量从 750kW 降低到 700kW，则可适用于电源转换器范围 1500 ~ 1200 min⁻¹。(700kW 1500/1200 min⁻¹ 1101/1170A)
注 3) 将 375kW 1600-1200 min⁻¹ 只用于 1200 min⁻¹ 的扭矩转换器控制时，可制作帧号 EDM5431V (593A)。
注 4) 375kW 及 450kW 基底速度 1500 min⁻¹ 的电源转换器范围为 1800 ~ 1500 min⁻¹。而且，450kW 基底速度 1200 min⁻¹ 的电源转换器范围为 1500 ~ 1200 min⁻¹。
(★ 标记)
注 5) 132kW 160kW 200kW 及 250kW 中，☆ 标记只表示扭矩转换器控制。需要电源转换器控制时各帧号会增大一帧，变为 132kW EDM3161V
Note 1) The EDM13 type can produce the self-cooling type. In this case, the model become EDM13**F, variable speed range becomes 1:20 and load derating at low speed is needed. (Refer to derating factor of P.13)
Note 2) * of 315kW 375kW, 450kW and 750kW is only torque constant. However, if 750kW decreases to 700kW, it can be applied within power constant range of 1500-1200min⁻¹. (700kW 1500/1200min⁻¹ 1101/1170A)
Note 3) In case that 375kW 1600-1200min⁻¹ is used by torque constant only of 1200min⁻¹, Frame size EDM5431V (593A) can also be used.
Note 4) Power constant control range of base speed 1500min⁻¹ of 375kW and 450kW becomes 1800-1500min⁻¹. And power constant range of base speed 1200min⁻¹ of 450kW becomes 1500 1200min⁻¹. (★ sign)
Note 5) Among 132kW, 160kW, 200kW and 250kW, ☆ maked type is torque constant control only. In case that power constant is needed one rank larger frame types are used respectively, i.e., 132kW EDM3161V (210/247A), 160kW EDM3551V (253/297A), 200kW EDM3561V (315/352A), 250kW EDM4332V (395/460A).

TOYO ED MOTOR

3) 外形尺寸（脚安装型）Dimensions (Foot mounting)

型号·Type		电机主机 General																		
图、号码		(mm)																		
帧号 Frame Size	Fig. Symbol	C	D	E	F	G	H	J	K1	K2	K3	L	M	N	R	XB	Z	KD		
EDM1311F	A	90 _{3.5}	185	70	62.5	12	247	—	38	38	19	459.5	180	163	178.5	56	10	22		
90A																				
EDM1321F		90 _{3.5}	185	70	62.5	12	247	—	38	38	19	459.5	180	163	178.5	56	10	22		
90A																				
EDM1311V		90 _{3.5}	185	70	62.5	12	247	—	38	38	19	510	180	163	178.5	56	10	22		
90A																				
EDM1321V		90 _{3.5}	185	70	62.5	12	247	—	38	38	19	510	180	163	178.5	56	10	22		
90A																				
EDM1711V		100 _{8.5}	225	95	79.5	12	304	—	38	38	19	563	220	197	222.5	63	12	35		
100A																				
EDM1721V	100 _{8.5}	225	95	79.5	12	304	—	38	38	19	663	220	197	278.5	89	12	35			
100B																				
EDM1921V	B	112 _{0.5}	249	108	101.5	12	322	—	38	38	19	674	250	241	300.5	89	12	35		
112A																				
EDM1931V		112 _{0.5}	249	108	101.5	12	352	—	38	38	19	674	250	241	300.5	89	12	51		
112B																				
EDM2221V		132 _{2.5}	283	127	127	17	393	—	65	65	32.5	794.5	300	319	345	108	14.5	51		
132A																				
EDM2231V		132 _{2.5}	283	127	139.5	17	393	—	65	65	32.5	834.5	300	344	357.5	108	14.5	51		
132B																				
EDM2761V		160 _{3.5}	333	139.5	159	20	447	70	85	85	42.5	944	350	403	467	168	18.5	64		
160A																				
EDM2771V	160 _{3.5}	333	139.5	159	20	447	70	85	85	42.5	944	350	403	467	168	18.5	64			
160A																				
EDM2772V	C	160 _{3.5}	355	139.5	159	20	488	70	85	85	42.5	971	350	403	467	168	18.5	80		
160B-1																				
EDM2781V		160 _{3.5}	355	139.5	159	20	488	70	85	85	42.5	1014	350	403	467	168	18.5	80		
160B-2																				
EDM3141V		180 _{3.5}	375	159	203	20	531	105	100	100	50	1061	370	506	511	168	24	80		
180A																				
EDM3151V		180 _{3.5}	375	159	203	20	531	105	100	100	50	1116	370	506	581	208	24	80		
180B-1																				
EDM3161V		180 _{3.5}	375	159	203	20	531	105	100	100	50	1196	370	506	581	208	24	80		
180B-2																				
EDM3541V	D	200 _{3.5}	444	203	254	32	593	100	114	114	50	1343	460	608	592	168	24	80		
200A																				
EDM3551V		200 _{3.5}	444	228.5	315	32	593	135	120	120	50	1445	520	730	715	225	28	80		
200B																				
EDM3561V		200 _{3.5}	489.5	228.5	315	32	643	135	120	120	50	1445	520	730	715	225	28	102		
200B																				
EDM4331V		250 _{3.5}	547	228.5	315	32	733	100	120	120	50	1481	520	730	715	225	28	102		
250A-1																				
EDM4332V		250 _{3.5}	547	228.5	315	32	733	100	120	120	50	1561	520	730	715	225	28	102		
250A-2																				
EDM5411V	E	315 ₁	679	305	355	32	884	110	130	130	55	1781	680	820	781	251	28	—		
315A-1																				
EDM5431V		315 ₁	679	305	355	32	884	110	130	130	55	1781	680	820	781	251	28	—		
315A-1																				
EDM5451V		315 ₁	679	305	355	32	884	110	130	130	55	1781	680	820	781	251	28	—		
315A-1																				
EDM5412V		315 ₁	679	305	355	32	884	110	130	130	55	1821	680	820	781	251	28	—		
315A-2																				
EDM5422V		315 ₁	679	305	355	32	884	110	130	130	55	1821	680	820	781	251	28	—		
315A-2																				
EDM5452V	D	315 ₁	679	305	355	32	1275	110	130	130	55	2045	680	820	781	251	28	—		
315A-2																				
EDM5462V	E	315 ₁	679	305	355	32	1275	110	130	130	55	2045	680	820	781	251	28	—		
315A-2																				
EDM6851V	E	400 ₁	830	375	450	38	1524	180	140	140	70	2073	830	1040	940	280	35	—		
400A																				

- 1、有时会变更尺寸。接到订单后，我们会重新提供审批用尺寸图。
2、需要滑轨时，请参照第 13 页，另行提出要求。

轴端 Shaft Extension (mm)							轴承 Bearing	大致 重量 Approx Weight (kg)	GD ² Rotor Inertia (kgf-m)	电动送风机输入规格 Independent Electric Cooling Fan Motor								
Q	QR	S	T	U	W	ED	驱动端 Drive End			非驱动端 Non-Drive End	相、极数 Phase Poles	容量 Output	频率-电压 Frequency -Voltage	电流 Input Current				
60	0.5	28j6	7	4	8	50	6206ZZ/5K		25	0.023	-	-	-	-				
							6205ZZ/5K											
60	0.5	28j6	7	4	8	50	6206ZZ/5K		30	0.026								
							6205ZZ/5K											
60	0.5	28j6	7	4	8	50	6206ZZ/5K		26	0.011	单相 2P Single phase	30W	50/60Hz 200/220V	0.33/0.33A				
							6205ZZ/5K											
60	0.5	28j6	7	4	8	50	6206ZZ/5K		31	0.014								
							6205ZZ/5K											
80	0.5	38k6	8	5	10	56	6308ZZ/5K		46	0.063	单相 2P Single phase	40W	50/60Hz 200/220V	0.87/0.89A				
							6308ZZ/5K											
110	1.0	42k6	8	5	12	86	6309ZZ/5K		60	0.090								
							6309ZZ/5K											
110	1.0	42k6	8	5	12	86	6309ZZ/5K		60	0.066	单相 2P Single phase	40W	50/60Hz 200/220V	0.87/0.89A				
							6309ZZ/5K											
110	1.0	48k6	9	5.5	14	86	6311ZZ/5K		71	0.090								
							6309ZZ/5K											
110	1.5	55m6	10	6	16	84	6312ZZ/5K		121	0.29	单相 2P Single phase	65W	50/60Hz 200/220V	0.85/1.0A				
							6312ZZ/5K											
110	1.5	55m6	10	6	16	84	6312ZZ/5K		140	0.33								
							6312ZZ/5K											
140	1.0	60m6	11	7	18	110	NU313		185	0.46	单相 2P Single phase	65W	50/60Hz 200/220V	0.85/1.0A				
							6312ZZ/5K											
140	1.0	60m6	11	7	18	110	NU313		225	0.58								
							6312ZZ/5K											
140	1.0	75m6	12	7.5	20	110	NU316		235	0.62	单相 2P Single phase	65W	50/60Hz 200/220V	0.85/1.0A				
							6312ZZ/5K											
140	1.0	75m6	12	7.5	20	110	NU316		255	0.69								
							6312ZZ/5K											
140	1.0	75m6	12	7.5	20	110	NU316		305	1.02	单相 2P Single phase	65W	50/60Hz 200/220V	0.85/1.0A				
							6315ZZ/5K											
170	1.0	95m6	14	9	25	135	NU320		330	1.23								
							6315ZZ/5K											
170	1.0	95m6	14	9	25	135	NU320		415	1.46	3 相 4P Three phase	150W	50Hz 200/400V	1.1/0.55A				
							6315ZZ/5K											
170	1.0	95m6	14	9	25	135	NU320		510	2.34								
							6315ZZ/5K											
175	-	110m6	16	10	28	165	NU324		650	2.93	3 相 4P Three phase	220W	60Hz 220/440V	1.2/0.6A				
							6318											
175	-	110m6	16	10	28	165	NU324		700	3.24								
							6318											
175	-	110m6	16	10	28	165	NU324		1010	6.04	3 相 4P Three phase	270W	50Hz 200/400V	2.0/1.1A				
							6318											
175	-	110m6	16	10	28	165	NU324		1050	6.50								
							6318											
175	-	110m6	16	10	28	165	6324		1500	12.7	3 相 4P Three phase	480/750W	50/60Hz 200V	2.8/3.5A				
							6318											
175	-	110m6	16	10	28	165	6324		1620	15.0								
							6318											
175	-	110m6	16	10	28	165	6324		1740	17.4	3 相 4P Three phase	480/750W	50/60Hz 200V	2.8/3.5A				
							6318											
175	-	110m6	16	10	28	165	6324		1560	13.9								
							6318											
175	-	110m6	16	10	28	165	6324		1620	15.0	3 相 4P Three phase	480/750W	50/60Hz 200V	2.8/3.5A				
							6318											
175	-	110m6	16	10	28	165	6324		1940	18.5								
							6318											
175	-	110m6	16	10	28	165	6324		2000	19.7	3 相 4P Three phase	3.7kW	50Hz 200/400V	15/7.5A				
							6318							60Hz 220/440V	13.5/6.8A			
							6326							50Hz 200/400V	22.5/11.5A			
210	-	120m6	18	11	32	200	6324		3160	50.6			3 相 4P Three phase	5.5kW	60Hz 220/440V	20/10A		

1. Dimension may be changed without pre-advice. At the time of order from customer, dimension drawing for approval is supplied newly.
2. In case of need of slide rail, see it on page 13 and require us separately.

外形尺寸 (脚安装型) Dimensions (Foot mounting)

图 A (90A~132B 帧) Fig.A (90A~132B Frame size)

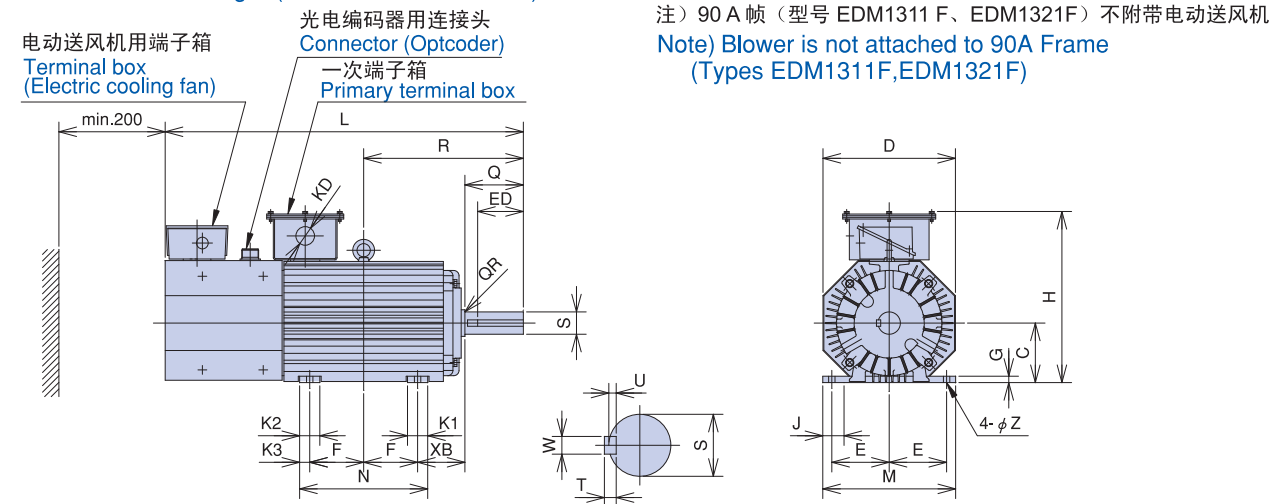


图 B (160A-1~200A 帧) Fig.B (160A-1~200A Frame size)

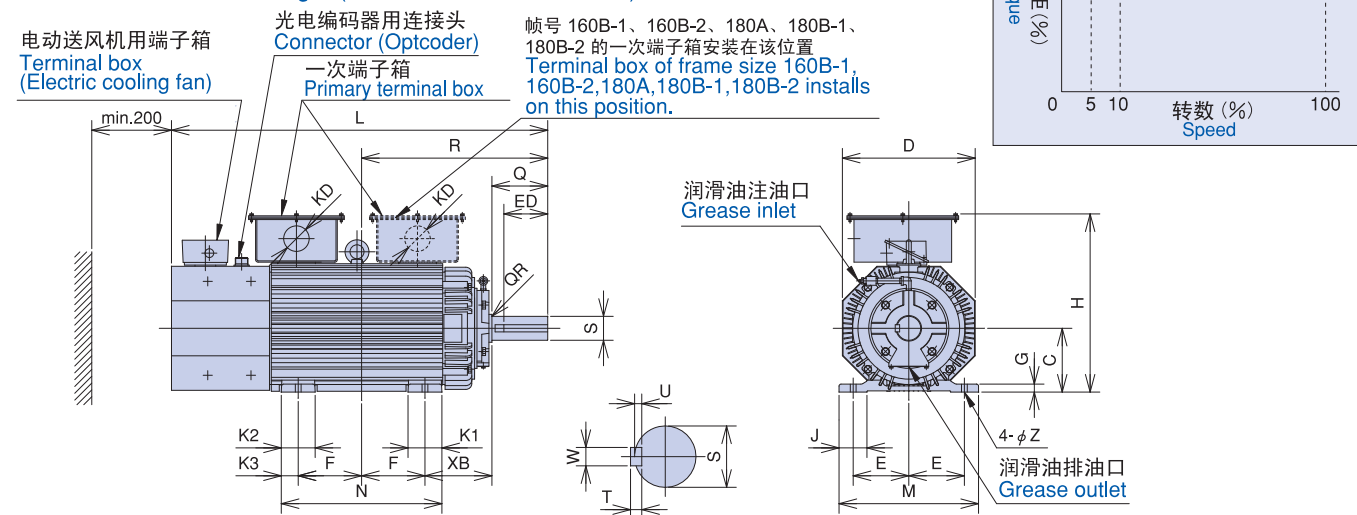


图 C (200B 帧~315A-2 帧, 型号 EDM5422V) Fig.C (200B Frame size ~ 315A-2 Frame size, Type EDM5422V)

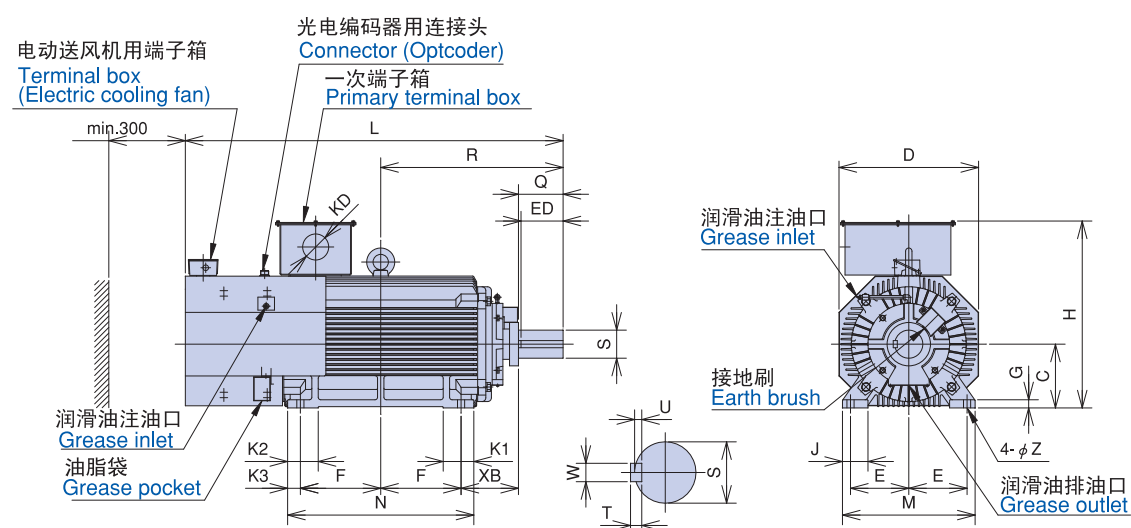


图 D (315A-2 帧, 型号 EDM5452V, EDM5462V)
Fig.D (315A-2 Frame size, Type EDM5452V, EDM5462V)

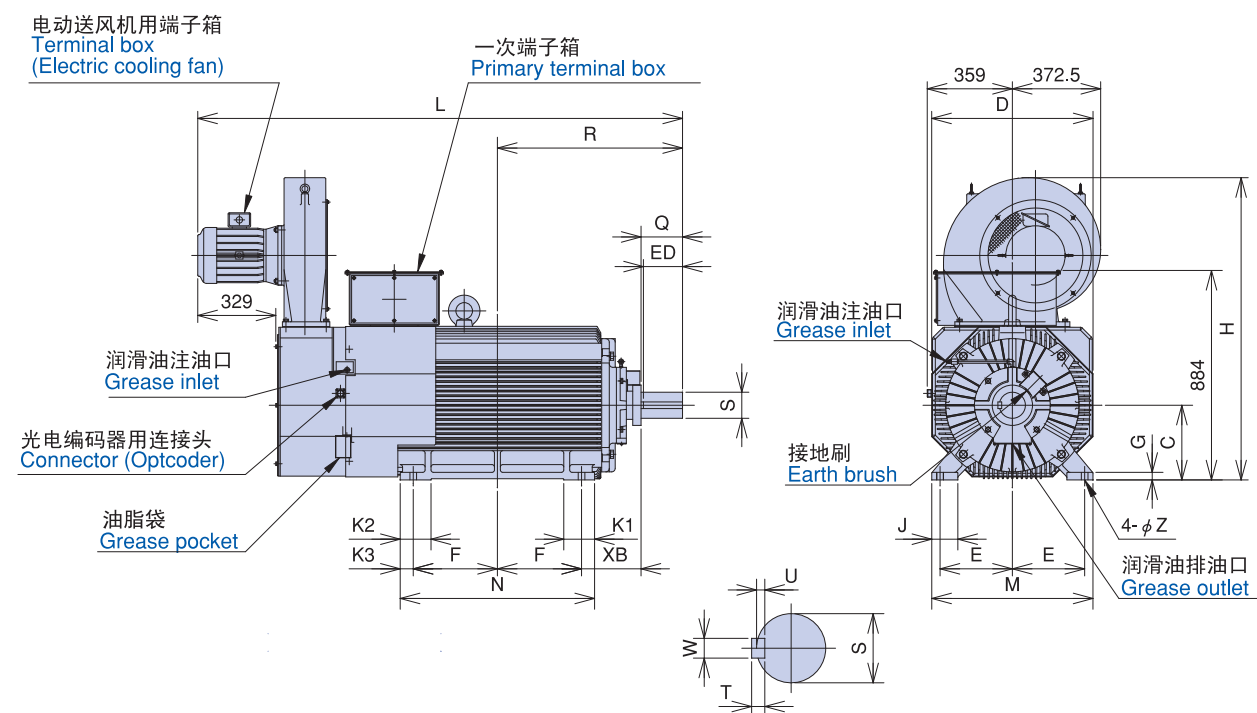
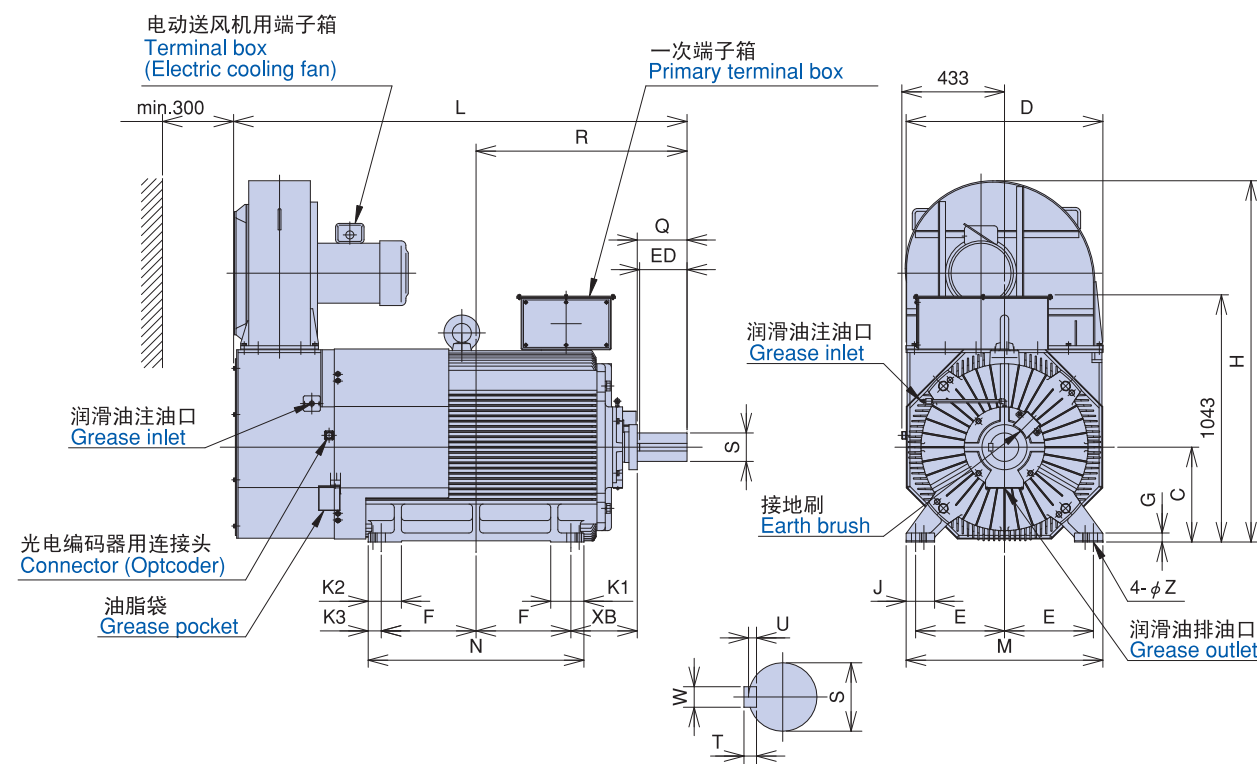


图 E (400A 帧) Fig.E (400A Frame size)

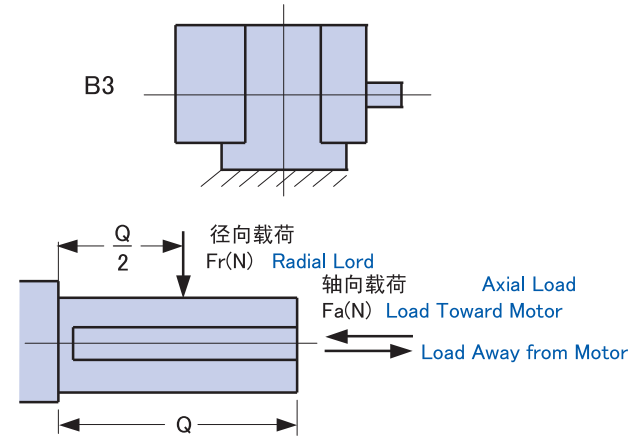


4) 参考事项 For Reference

1. 外伸荷载（轴荷载）允许值

Maximum Permissible External Axial and Radial Thrust Load in N

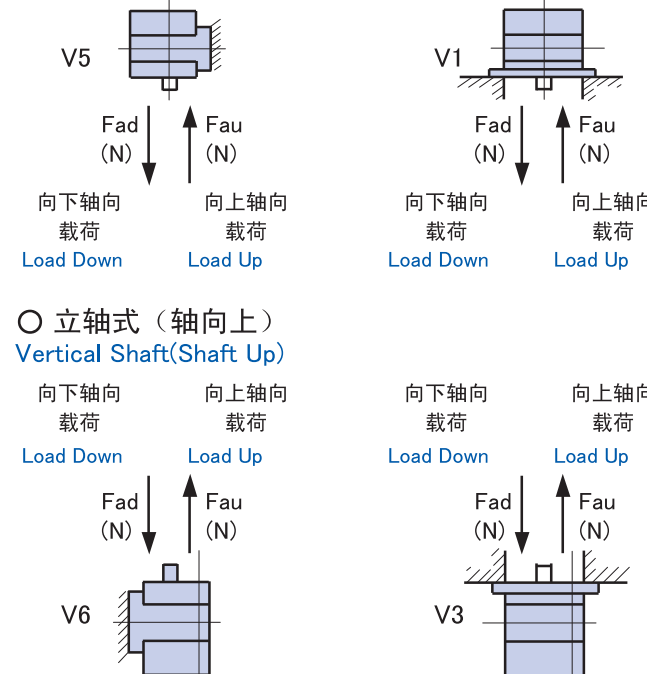
○ 横向安装式
Horizontal Shaft



表示 F_r 和 F_a 不同时作用时的允许值。
同时作用请向弊公司询问。

Permissible value described in case that F_r and F_a does not work at the same time.
When F_r and F_a work both at the same time, kindly inquire us.

○ 立式（轴向下）
Vertical Shaft (Shaft Down)



○ 立式（轴向上）
Vertical Shaft (Shaft Up)

电机 Motor			横向安装式 B3 Horizontal Shaft		立式（轴向下、向上） Vertical Shaft (Shaft Down & Up) V1, V3, V5, V6			
帧号 Frame Size	型号 Type	1800~2400min ⁻¹ 范围内的输出 Output at 1800~2400min ⁻¹ (kW)	径向（轴呈 直角）载荷 Radial Load $F_r(N)$	轴向（轴平行） 载荷 Load Towards Motor Load Away from Motor $F_a(N)$	向下轴向（轴平行） 载荷 Load Down $F_{ad}(N)$	向上轴向（轴平行） 载荷 Load Up $F_{au}(N)$	向下轴向（轴平行） 载荷 Load Down $F_{ad}(N)$	向上轴向（轴平行） 载荷 Load Up $F_{au}(N)$
90A	EDM1311F	2.2	880	480	410	410	550	480
	EDM1311F	3.7		410	340			
100A	EDM1711V	5.5	1430	1450	1250	1310	1110	1390
		7.5		1840	1610	1630	1400	2050
100B	EDM1721V	11	1920					1820
112A	EDM1921V	15		2520				
	EDM1931V	18.5	3696	1840	1610	1630	1400	2050
		22						1820
132A	EDM2221V	30	4630	2750	2390	2390	2030	3110
132B	EDM2231V	37				2340	1980	3160
160A	EDM2761V	45	9700	2560	2230	2070	1740	3050
		55						2720
160B-1	EDM2772V	75	14200	2560	2230	1938	1608	3182
160B-2	EDM2781V	90				1885	1555	3235
180A	EDM3141V	110	14200	3480	3050	2673	2243	4287
180B-1	EDM3151V	132				2427	1997	4173
180B-2	EDM3161V	160	19400	3300	2870	2202	1772	4398
200A	EDM3541V	132 但 1200min ⁻¹ 时		3300	2870	1760	1330	4720
200B	EDM3551V	200	26900	3930	3330	2070	1470	5790
	EDM3561V	250				1960	1360	5900
250A-2	EDM4332V	315				1530	930	6330
315A-1	EDM5411V	315, 375, 400	7200	3250	—	****	—	****
	~EDM5451V	但 1200min ⁻¹ 时				****	—	****
315A-2	EDM5412V	375, 450				****	—	****
	~EDM5462V					****	—	****
400A	EDM6851V	750 但 1200min ⁻¹ 时	8100	6200	—	****	—	****

注) 关于****部分的数值请进行询问。

NOTE) For the figure in **** position contact us.

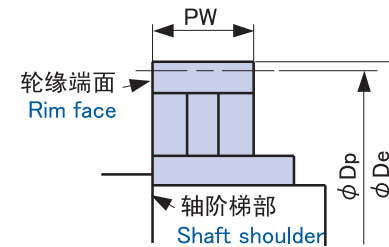
2. 安装 Mounting Arrangement.

标准 Standard			准标准 Available on Request		
标记 Symbol	形状 Outline	帧号 Frame Size	标记 Symbol	形状 Outline	帧号 Frame Size
B3		90A 100A 100B	B5		90A 100A 100B
B6		112A, 112B 132A 132B	V1		112A, 112B 132A 132B
B7		160A, 160B 180A, 180B 200A, 200B	V3		160A, 160B 180A, 180B 200A, 200B
B8		250A 315A 400A	V5		250A 315A 400A
V5		90A 100A 100B	V6		160A 180A 200A, 200B
V6		112A, 112B 132A 132B			250A 315A 400B

3. 标准 V 皮带、V 滑轮适用表 Standard V belt · Narrow type V belt application

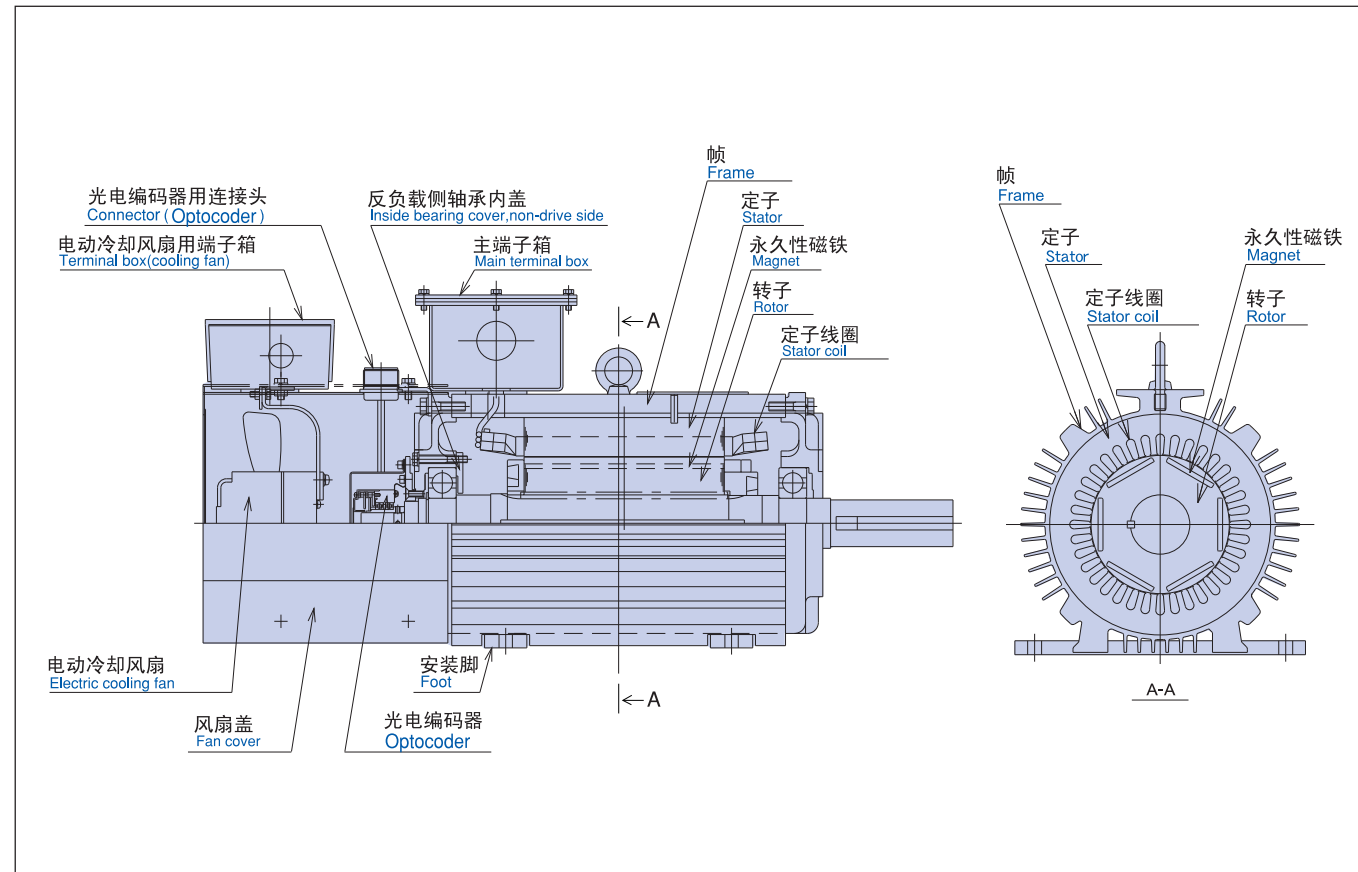
为了减小电机输出轴上的载荷, 安装时请按照下图安装, 使 V 滑轮的轮缘端面与轴阶梯部在同一平面。

To minimize the load to motor's output shaft, rim face of V pulley and step part of shaft shall be installed with same level like a following picture.

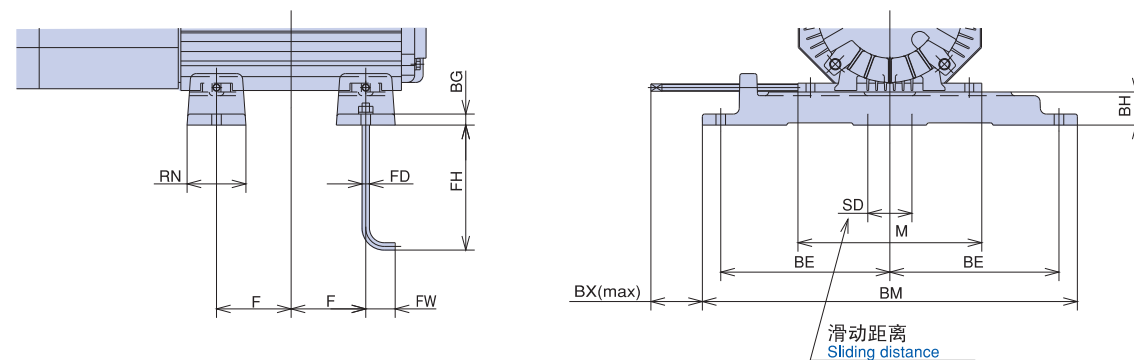


输出 Motor Output (kW)	标准 V 皮带 Standard V Belt					细窄 V 皮带 Narrow Type V Belt				
	V 皮带 V Belt		V 滑轮 V Pulley		额定转速 Rated Rotating Speed (min ⁻¹)	V 皮带 V Belt		V 滑轮 V Pulley		额定转速 Rated Rotating Speed (min ⁻¹)
	类型 Type	根数 Qty	Dp (mm)	PW (mm)		类型 Type	根数 Qty	Dp (mm)	PW (mm)	
2.2	A	2	100	35	1800~2400	3V	2	75	27.7	1800~2400
3.7	A	3	112	50	1800~2400	3V	2	100	27.7	1800~2400
5.5	B	3	125	63	1800~2400	3V	3	100	38	1800~2400
7.5	B	3	150	63	1800~2400	3V	3	125	38	1800~2400
11	B	4	160	82	1800~2400	3V	4	125	48.3	1800~2400
15	B	5	170	101	1800~2400	3V	6	125	68.9	1800~2400
18.5	B	5	200	101	1800~2400	3V	6	140	68.9	1800~2400
22	B	5	224	101	1800~2400	3V	6	160	68.9	1800~2400
30	C	5	224	136	1800~2400	5V	4	180	77.9	1800~2400
37	—	—	—	—	—	5V	4	200	77.9	1800~2400
45	C	6	265	161.5	1800~2400	5V	4	224	77.9	1800~2400
55	C	7	265	187	1800~2400	5V	5	224	95.4	1800~2400
65	—	—	—	—	—	5V	5	250	95.4	1800~2400
75	C	8	315	212.5	1800~2400	5V	6	250	112.9	1800~2400
90	—	—	—	—	—	5V	6	280	112.9	1800~2400
110	—	—	—	—	—	5V	6	315	112.9	1800~2400
132	—	—	—	—	—	5V	8	315	147.6	1800~2400
160	—	—	—	—	—	5V	9	315	165.1	1800~2400
200	—	—	—	—	—	5V	10	355	182.5	1800~2150
250	—	—	—	—	—	5V	12	400	217.5	1800~1900

5) 东洋 ED 电机截面图 TOYO ED Motor cross section



6) 滑轨（选件） Slide rail (Option)



滑轨号码 Slide rail No.	电机帧号 Motor's frame size	外形尺寸 Outline dimensions												滑轨 粗略重量 Slide rail's approx weight (kg)
		(mm)												
		BE	BH	BM	BG	M	BX	FD	FH	FW	RN	F	SD	
SR-0	90A	200	40	450	15	180	45	M10	130	40	60	62.5	60	7
SR-1	100A,100B	230	45	510	15	220	85	M10	170	40	80	79.5	60	11
	112A					250	100					101.5		
SR-2	132A	310	55	670	20	300	55	M12	160	50	100	127	80	22
	132B											139.5		
SR-3	160A	320	60	700	25	350	65	M16	355	63	110	159	80	32
SR-4	180A	420	70	900	28	370	60	M20	455	80	130	203	120	58
SR-5	200A	510	75	1080	30	460	100	M20	445	80	150	254	160	60
SR-6	250A	575	90	1220	35	520	70	M24	560	100	160	315	140	100

ED 电机适用上的注意事项

- 1) 不能直接用商用电源使其启动运转。直接用商用电源时请使用感应电机。
- 2) 切断电源后电机仍处于运转中时，电机端子间会产生电压，请不要用手触摸。
- 3) 如果切断电源后电机由于有负荷仍然有可能以额定转数以上的速度动作时，请不要使用于该用途。
- 4) 电机中内置的温度传感器与电机保护继电器组合使用，检测出温度异常时请停止电机运转。
- 5) 在高于规定温度 (40°C) 的环境下使用时，电机需要降额使用，该情况下请与弊公司商量。
- 6) 1 台变频器不能带动多台 ED 电机运转。需要用 1 台变频器带动多台电机时，请使用弊公司的 UF 电机（感应电机）。
- 7) 在输出不变的情况下使用时，请务必在变频器和电机之间设置电磁接触器，停电或变频器及电机发生异常时请停止变频器，同时关闭电磁接触器，切断回路。

Point to be attended on use of ED motor

- 1) Direct-on-line starting by commercial power is not available. Please use induction motors when using it by such a usage.
- 2) Don't touch motor terminal even in the state after turning off of the power, since voltage is generated while motor is running.
- 3) Don't use motor for the application which has possibility of running (by load) of higher speed than motor rating speed, in the state of powering off.
- 4) Please combine with Motor guard relay, use, and stop drive of motor about temperature sensor built into motor because of temperature abnormality detection.
- 5) Derating of motor output is needed when using it in environment more than regulated temperature (40°C). For this case, please consult our company.
- 6) Two or more ED motors cannot be driven in one inverter. Please use our company UF motor (induction motors) when such a drive is needed.
- 7) Magnetic contactor is installed between inverter and motor whenever using it by power constant control, and please stop inverter when power failure, inverter or motor are abnormal, turn off magnetic contactor, and intercept circuit.



使用时的安全注意事项 SAFETY PRECAUTIONS ON USE

使用前请认真阅读《使用说明书》，以便正确使用该产品。我们设计制造 ED 电机不是为了将其用于危害人生命的情况下所使用的机器或系统上。将本资料所述产品用于乘坐工具类、医疗、航天、核能控制、海底中继设备或系统等特殊情况时，请向弊公司营业窗口询问。本产品严格品质管理下进行生产，但是需要将本产品用于变频器故障可能导致人生命危险的设备或估计可能发生重大损失的设备时，为避免重大事故发生需要设置安全装备。该产品需要电气施工。请由专业人员进行本产品的电气安装。

Before using the product, please read [Instruction Manual] carefully. ED Motor made by us is not designed and manufactured for use in any equipment or system that is applied in an environment affecting human life. If you intend to use the product for specific applications such as passenger mobile, medical, aerospace, nuclear control or submarine relay equipment or system, please contact us. This product was manufactured under strict quality control however, safety device or system must be used with this product when applied to any facility in which failure of the Inverter to perform can be reasonably expected to cause a problem critical to human life or its loss. This product requires electrical work, which must be done by specialists.

本说明书中记载的内容，发生变更时不会事前通知，敬请谅解。

A part of specification and dimension is subject to change without notification in advance because of improvement of product, for which please understand.