M2QA-FB5/FB4 低压粉尘防爆电机
M2QA-FB5/FB4 Low voltage Dust ignition proof motors

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ABB 低压电机拥有了 ABB 的一流品质和雄厚支持，这些电机的性能得到大量客户和 OEM（原始设备制造商）的认可。

ABB Low voltage motors are with ABB quality and support. These motors have the features appreciated by volume customers and serial OEMs.

产品概述
General information

标准

ABB M2QA-FB5 和 M2QA-FB4 电机采用全封闭三相鼠笼型设计，其设计符合 IEC 国际标准以及中国 GB 标准，效率达到国标 1 级和 2 级能效等级（GB18613-2020），相当于 IEC 的 IE5 和 IE4 效率水平。

ABB 工厂通过 ISO9001 国际质量认证及 ISO14000 环境标准。

Standards

ABB M2QA-FB5 & M2QA-FB4 motors are of the totally enclosed, three phase squirrel cage type, built to comply with international IEC and China GB standards. The efficiency level reaches GB Grade 1 and Grade 2(GB18613-2020). The efficiency level is equivalent to IEC IE5 and IE4.

ABB production units are certified to ISO 9001 international quality standard as well ISO 14000 environmental standards.

IEC/EN

电气 Electrical	机械 Mechanical
IEC/EN 60034-1	IEC 60072
IEC/EN 60034-2-1	IEC/EN 60034-5
IEC/EN 60034-30	IEC/EN 60034-6
IEC/EN 60034-8	IEC/EN 60034-7
IEC/EN 60034-12	IEC/EN 60034-8
	IEC 60034-14
	IEC 60079-0
	IEC 60079-31

GB

电气 Electrical	机械 Mechanical
GB/T 755	GB/T 4772.1
GB/T 1032	GB/T 4942.1
GB 18613	GB/T 1993
GB 1971	GB/T 997
GB/T 21210	GB 1971
	GB/T 10068
	GB/T 3836.1
	GB/T 3836.31

产品简介

M2QA-FB 系列低压粉尘防爆电机是 ABB 在 M2QA 电机基础上进行粉尘防爆设计的产品，该产品是针对中高端市场开发的一款粉尘防爆铸铁电机产品。效率最高可达 IE5 等级。作为一款外型美观且具有效率高、噪声低、低振动、防爆结构先进、安全可靠的产品，拥有非常出色的机械和电气性能，可以满足客户定制化设计需求。M2QA-FB 粉尘防爆电机可用于涉及粉尘环境的多种应用领域，包括磨粉设备、搅拌机械、传送设备、通风设备等。

Brief

The M2QA-FB series low-voltage dust ignition proof motor is a product designed by ABB based on the M2QA motor. This product is a dust explosion-proof cast iron motor product developed for the mid-to-high-end market. The efficiency can reach up to IE5 level. As a product with beautiful appearance, high efficiency, low noise, low vibration, advanced explosion-proof structure, safety and reliability, it has excellent mechanical and electrical performance and can meet customer customized design requirements. M2QA-FB dust ignition proof motors can be used in a variety of applications involving dust environments, including grinding equipment, mixing machinery, conveying equipment, ventilation equipment, etc.

适用行业

M2QA-FB 粉尘防爆电机广泛应用于可能出现爆炸性粉尘环境的多个应用领域：金属制品加工（铝、镁、钛等金属粉尘）；食品行业的面粉、饲料加工；纺织品加工（棉尘、亚麻、纤维等）；化工行业，化工原料，合成材料，包括塑料，树脂，燃料等，制药行业（药物粉尘），木材加工行业（木屑，树脂粉尘），其他易受爆炸性粉尘危害的行业。

Target industry

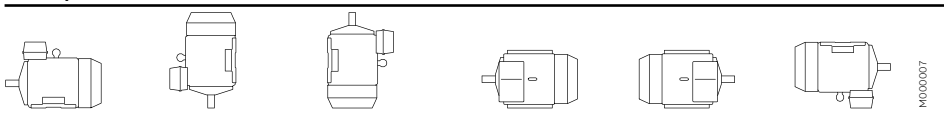
M2QA-FB dust ignition proof motors are widely used in many applications where explosive dust environments may occur. Metal products processing (aluminum, magnesium, titanium and other metal dusts). Flour and feed processing in the food industry. Textile processing (cotton dust, linen, fibers, etc.). chemical industry, chemical raw materials, synthetic materials, including plastics, resins, fuels, etc. Pharmaceutical industry (drug dust).Wood processing industry (wood chips, resin dust). Other industries susceptible to explosive dust hazards.

额定功率	0.37~355kW
机座号	80~355
极数	2~6P
电压与频率	220/380V 50Hz, 380/660V 50Hz, 440V 60Hz, 其他常用电压及变频器驱动可选
冷却方式	IC411
防爆标志	标配：Ex tb IIIC T130° C Db, 可选：Ex tb IIIB T130℃ Db, Ex tc IIIB T130℃ Dc, Ex tc IIIC T130℃ Dc
防护等级	标配：IP65, 可选：IP66
环境温度	标配：-20℃ ~+40℃ , 温度上限可至 +50℃
防爆证书	CCC, CNEx, IECEx, ATEX

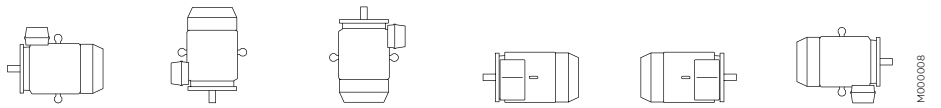
Rated output	0.37~355kW
Frame size	80~355
Poles	2~6P
Voltage and Frequency	220/380V 50Hz, 380/660V 50Hz, 440V 60Hz, Other common voltages and frequency converter drives are optional
Cooling method	IC411
Ex marking	Standard：Ex tb IIIC T130° C Db, Option：Ex tb IIIB T130℃ Db, Ex tc IIIB T130℃ Dc, Ex tc IIIC T130℃ Dc
Protect degree	Standard：IP65, Option：IP66
Ambient temperature	Standard：-20℃ ~+40℃ , max. ambient temperature up to +50℃ as option
Ex certification	CCC, CNEx, IECEx, ATEX

产品概述 - 安装结构形式
General information - Mounting arrangements

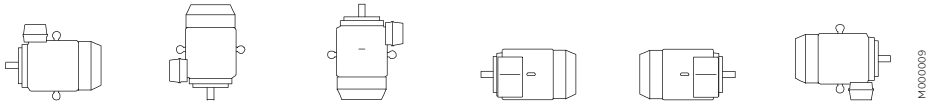
底脚安装型电机
Foot-mounted motor

代码 I/ 代码 II Code I / code II						产品代码位置 12 Product code pos. 12
						A = 底脚安装型，接线盒在顶部 foot-mounted, term.box top
IM B3	IM V5	IM V6	IM B6	IM B7	IM B8	
IM 1001	IM 1011	IM 1031	IM 1051	IM 1061	IM 1071	

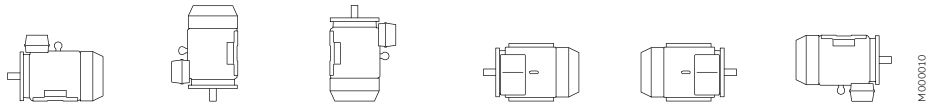
凸缘安装型电机，大凸缘
Flange-mounted motor, large flange

代码 I/ 代码 II Code I / code II						产品代码位置 12 Product code pos. 12
						B = 凸缘安装型，大凸缘 flange mounted, large flange
IM B5	IM V1	IM V3	*)	*)	*)	
IM 3001	IM 3011	IM 3031	IM 3051	IM 3061	IM 3071	

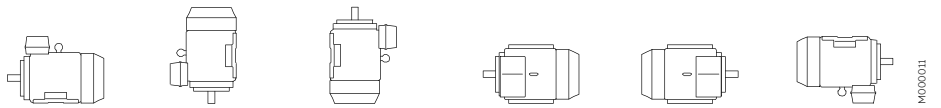
凸缘安装型电机，小凸缘
Flange-mounted motor, small flange

代码 I/ 代码 II Code I / code II						变量代码 Variant code
						047 = B5 派生出 B14 B14 from B5
IM B14	IM V18	IM V19	*)	*)	*)	
IM 3601	IM 3611	IM 3631	IM 3651	IM 3661	IM 3671	

底脚和凸缘安装型电机，大凸缘
Foot- and flange-mounted motor with feet, large flange

代码 I/ 代码 II Code I / code II						变量代码 Variant code
						009 = B3 派生出 B35 B35 from B3
IM B35	IM V15	IM V35	*)	*)	*)	
IM 2001	IM 2011	IM 2031	IM 2051	IM 2061	IM 2071	

底脚和凸缘安装型电机，小凸缘
Foot- and flange-mounted motor with feet, small flange

代码 I/ 代码 II Code I / code II						变量代码 Variant code
						008 = B3 派生出 B34 B34 from B3
IM B34	IM V17					
IM 2101	IM 2111	IM 2131	IM 2151	IM 2161	IM 2171	

*) Not Stated in IEC 60034-7.
IEC 60034-7 无规定

产品概述 - 防护等级：IP 代码 / IK 代码
General information - Degrees of protection: IP code/IK code

按旋转电机外壳提供的防护等级分类符合

• 对于 IP 代码，适用 IEC 60034-5
• 对于 IK 代码，适用 EN 50102

IP 防护
防止人员接触（或接近）带电部件，以及机壳内的运转部件。同时避免外界固体异物侵入机器内，保护机器，避免进水防止受到有害影响。

IK 代码
机壳保护电机不受外部机械冲击不利影响的程度分级。

Classification of degrees of protection provided by enclosures of rotating machines refers to:

• Standard IEC 60034-5 for IP code
• Standard EN 50102 for IK code

IP protection
Protection of persons against getting in contact with (or approaching) live parts and against contact with moving parts inside the enclosure. Also protection of the machine against ingress of solid foreign objects. Protection of machines against the harmful effects due to the ingress of water.

IK code
Classification of degrees of protection provided by enclosure for motors against external mechanical impacts.

IP 代码说明
Explanation of the IP code

特征字母 Ingress protection	对人和机壳内电机部件的保护程度 Degree of protection to persons and to parts of the motors inside the enclosure	机壳防止机器进水，遭受有害影响的防水程度 Degree of protection provided by the enclosure with respect to harmful effects due to ingress of water
IP	5	5
	1	2

IK 代码说明
Explanation of the IK code

国际机械保护 International mechanical protection	特征组 Characteristic group
IK	08
	1

位置1 Position 1
2: 防止大于 12mm 的固体进入机壳 Motors protected against solid objects greater than 12 mm
4: 防止大于 1mm 的固体进入机壳 Motors protected against solid objects greater than 1 mm
5: 防尘保护电机 Dust-protected motors
6: 隔尘电机 Dust-tight motors

位置2 Position 2
3: 使电机被溅水后不受损害 Motors protected against spraying water
4: 使电机被淋水后不受损害 Motors protected against splashing water
5: 使电机被喷水后不受损害 Motors protected against water jets
6: 使电机遭大浪后不受损害 Motors protected against heavy seas

位置1 Position 1	
IK代码和冲击能量之间的关系： Relation between IK code and impact energy:	
IK代码 IK code	冲击能量焦耳 Impact energy/Joule
0:	不按照EN 50102提供保护 Not protected according to EN 50102
01:	0.15
02:	0.2
03:	0.35
04:	0.5
05:	0.7
06:	1
07:	2
08:	5 (ABB 标准) 5 (ABB Standard)
09:	10
10:	20

订购信息
Ordering information

订购时，请按照示例在订单中说明以下最小数据。电机产品代码根据以下示例编写。

When placing an order, please state the following minimum data in the order, as in the example. The product code of the motor is composed in accordance with the following example.

示例	
电机型号	M2QA 180MLA 4-FB5
极数	4
安装方式（IM 代码）	IM B3 (IM1001)
额定输出	22 kW
产品代码	3GQA 182 410-ADP
附加代码（如需）	

Example	
Motor type	M2QA 180MLA 4-FB5
Pole number	4
Mounting arrangement (IM-code)	IM B3 (IM1001)
Rated output	22 kW
Product code	3GQA 182 410-ADP
Variant codes if needed	

产品代码说明
Explanation of the product code

产品代码 Product code	安装方式代码，电压及频率代码，产品族代码 Mounting arrangement, voltage and frequency code, generation codes	变量代码 Variant codes
3GQA 182 410- ADP		**002, etc**
1 2 3 4 5 6 7 8 9 10 11 12 13 14		

位置 1-4			
3GQA = 全封闭铸铁机座电机			
位置 5-6			
IEC 机座			
08 = 80	13 = 132	22 = 225	35 = 355
09 = 90	16 = 160	25 = 250	
10 = 100	18 = 180	28 = 280	
11 = 112	20 = 200	31 = 315	
位置 7 极对数			
1=2 极 2=4 极 3=6 极			
位置 8 -10 序列号			
位置 11 -(破折号)			
位置 12 安装方式			
A = 底脚安装型电机 B = 凸缘安装型电机带通孔的大凸缘。			
位置 13 电压和频率			
D 660 VY, 380 V△ 50Hz, 440 V△ 60 Hz S 380 VY, 220 V△ 50Hz, 440 VY 60 Hz			
位置 14 产品族代码			

Positions 1 to 4			
3GQA = Totally enclosed motor with cast iron frame			
Positions 5 to 6			
IEC size			
08 = 80	13 = 132	22 = 225	35 = 355
09 = 90	16 = 160	25 = 250	
10 = 100	18 = 180	28 = 280	
11 = 112	20 = 200	31 = 315	
Positions 7 Speed (pole pairs)			
1=2 poles 2=4 poles 3=6 poles			
Positions 8 to 10 Serial number			
Positions 11 -(dash)			
Position 12 Mounting arrangement			
A = Foot-mounted motor B = Flange-mounted motor. Large flange with clearance holes.			
Position 13 Voltage and frequency			
D 660 VY, 380 V△ 50Hz, 440 V△ 60 Hz S 380 VY, 220 V△ 50Hz, 440 VY 60 Hz			
Position 14 Generation code			

铭牌
Rating plates

铭牌以表格形式提供三个电压的转速、电流和功率因数的数值。

The rating plates are in table form giving values for speed current and power factor for three voltages.

IE5 铭牌示例
IE5 rating plate sample

ABB Motors
上海ABB电机有限公司
粉尘防爆型三相异步电动机

3 ~ Motor M2QA 180MLA 6-FB5 IMB3/IM1001 2024
Ex tb IIIC T130℃ Db
AMB: 50°C
No. Ins.cl. F IP 66

V	Hz	kW	r/min	A	cos φ	Duty
660 Y	50	15	990	18.3	0.76	S1
380 D	50	15	990	31.8	0.76	S1
440 D	60	15	1191	28.2	0.74	S1

IE5-50Hz-94.3%(100%)
Prod. code 3GQA183410-ADP+VC
CNEx xx.xxxx
6310-2Z/C3 6210-2Z/C3 246 kg
No.88 Tianning Road,Minhang Shanghai P.R.China
IEC 60034-1 Q/JBQS 070

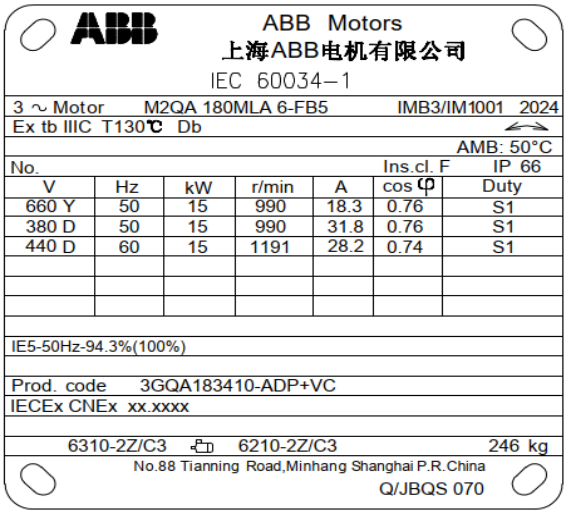
IE4 铭牌示例
IE4 rating plate sample

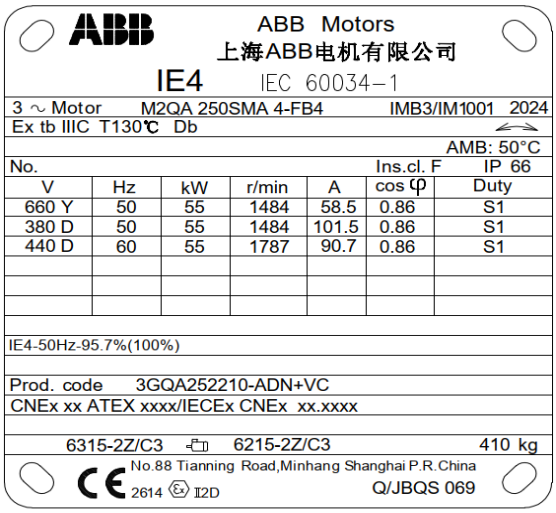
ABB Motors
上海ABB电机有限公司
IE4 粉尘防爆型三相异步电动机

3 ~ Motor M2QA 250SMA 4-FB4 IMB3/IM1001 2024
Ex tb IIIC T130℃ Db
AMB: 50°C
No. Ins.cl. F IP 66

V	Hz	kW	r/min	A	cos φ	Duty
660 Y	50	55	1484	58.5	0.86	S1
380 D	50	55	1484	101.5	0.86	S1
440 D	60	55	1787	90.7	0.86	S1

IE4-50Hz-95.7%(100%)
Prod. code 3GQA252210-ADN+VC
CNEx xx.xxxx
6315-2Z/C3 6215-2Z/C3 410 kg
No.88 Tianning Road,Minhang Shanghai P.R.China
IEC 60034-1 Q/JBQS 069





说明:
铭牌图片仅供格式参考，最终数据以实际铭牌为准。

Remark:
The format of the rating plate is for reference only. The final figure will be subject to the actual rating plate.

电气特性
Electrical design

额定输出
M2QA-FB5/FB4 系列电机的额定功率是指电机运行在 S1- 连续工作制的情况下（IEC 60034-1），此时周围环境温度范围为-20℃~ 40℃，海拔高度不超过1000m。

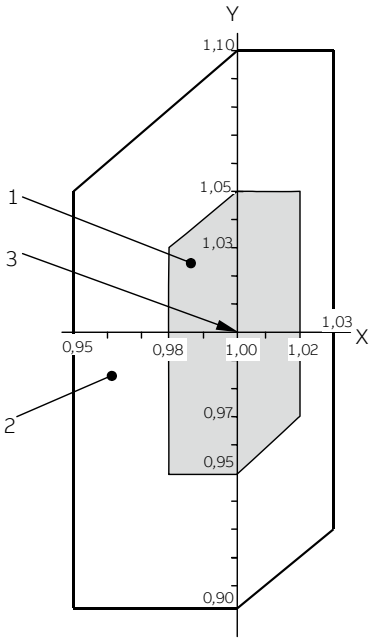
电压、频率
IEC 60034-1 定义了电压和频率的波动对温升的影响。标准将电压和频率的综合变化分为 A 和 B 两个区域。区域 A 是电压偏差 ±5% 和频率偏差 ±2% 的情况；区域 B 是电压偏差 ±10% 和频率偏差 +3%/-5% 的情况。

电机均能在 A 和 B 两区域内提供额定转矩，但温升会高于在额定电压和频率情况下的值。电机只允许在区域 B 中短时间运行。

Rated Output
M2QA-FB5/FB4 motors rated outputs means that the motor runs under continuous duty S1 (IEC 60034-1) operation at ambient temperature from -20℃~ 40℃ and at altitudes of up to 1000 m above sea level.

Voltage and Frequency
The impact on temperature rise caused by voltage and frequency fluctuation is defined in IEC 60034-1. The standard divides the combinations into two zones, zone A and B. Zone A is the combination of voltage deviation ±5% and frequency deviation ±2%. Zone B is the combination of voltage deviation ±10% and frequency deviation +3%/-5%.

The motors are capable of supplying the rated torque in both zone A and B, but the temperature rise will be higher than at rated voltage and frequency. The motors are to be in operation only for a short period of time in zone B.



X 轴　频率标幺值
Y 轴　电压标幺值
1　区域 A
2　区域 B（区域 A 外）
3　定额点

X axis　freqency p.u.
Y axis　voltage p.u.
1　zone A
2　zone B (outside zone A)
3　rating point

电气特性
Electrical design

绝缘系统
ABB 采用 F 级绝缘材料，B 级温升，是当今业界通用的要求。

F 级绝缘系统 B 级温升的采用，使 ABB 产品可获得 25°C的安全裕度。这使电机在短时间内过载使用，或在较高环境温度和海拔，或在高电压和频率容差下使用成为可能。这一设计同样可用于延长绝缘寿命。例如，温度降低 10K，绝缘寿命延长。

B 级绝缘（130°C）
• 额定环境温度 40°C
• 最大允许温升 80K
• 热点温升裕度 10K

F 级绝缘（155°C）
• 额定环境温度 40°C
• 最大允许温升 105K
• 热点温升裕度 10K

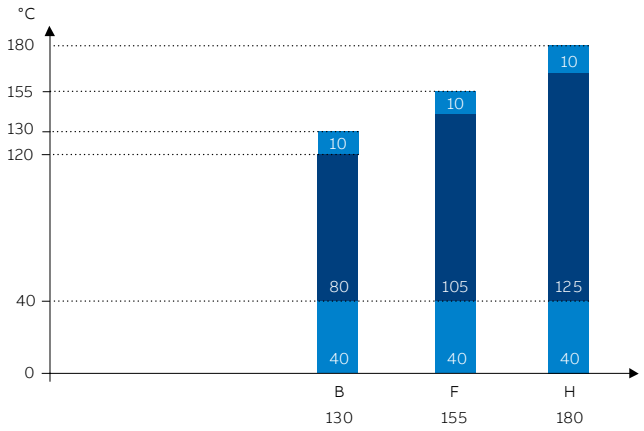
H 级绝缘（180°C）
• 额定环境温度 40°C
• 最大允许温升 125K
• 热点温升裕度 10K

Insulation
ABB uses class F insulation, which with temperature rise B, is the common requirement among industry today. The use of class F insulation with class B temperature rise gives ABB products a 25 °C safety margin. This can be used to increase the loading for limited periods, to operate at higher ambient temperatures or altitudes, or with greater voltage and frequency tolerances. It can also be used to extend insulation life. For instance, a 10 K temperature reduction will extend the insulation life.

Thermal class 130 (B)
• Nominal ambient temperature 40 °C
• Max permissible temperature rise 80K
• Hot spot temperature margin 10K

Thermal class 155 (F)
• Nominal ambient temperature 40 °C
• Max permissible temperature rise 105K
• Hot spot temperature margin 10K

Thermal class 180 (H)
• Nominal ambient temperature 40 °C
• Max permissible temperature rise 125K
• Hot spot temperature margin 10K



各绝缘等级的安全裕度
Safety margins per thermal class

电气特性
Electrical design

运行环境
根据 IEC 60034-1 规定，容差是指测试值与铭牌 (或样本) 标称值之间的最大允许偏差。测试结果基于按照 IEC 60034-2-1, IEC 60034-9, IEC 60034-12 所规定的测试。

Environmental
In accordance with IEC 60034-1, tolerance is the maximum allowed deviation between the test result and the declared value on the rating plate (or in the catalog). Test results are based on test procedures in accordance with IEC 60034-2-1, IEC 60034-9, and IEC 60034-12.

过载倍数
根据IEC 60034，M2QA-FB5/FB4系列电机能够在额定电压和频率下承受1.5倍的额定电流达2分钟。

Overload times
According to IEC 60034, M2QA-FB5/FB4 motors are designed to withstand overload capacity of 1.5 times rated current for 2 minutes at rated voltage and frequency.

电气数据容差
Tolerance for electricel data

	效率 Efficiency	功率因数 * Power factor	启动电流 Locked rotor current I_s / I_N	堵转转矩 Locked rotor torque T_l / T_N	最大转矩 Breakdown torque T_b / T_N	转动惯量 Moment of inertia	噪声等级 Noise level
PN (kW)	-15 %(1-η)	-1/6 (1-cos φ)	+20 % of the current	[-15 % + 25 %] of the torque	-10 % of the value	± 10 % of the value	+3 dB(A)
	转差率 Slip						
PN (kW) < 1	± 30 %						
PN (kW) ≥ 1	± 20 %						

* 功率因数容差最小绝对值：0.02，最大绝对值：0.07。
* Power factor minimum absolute value 0.02, maximum absolute value 0.07.

机械设计
Mechanical design

表面处理
ABB 低压电机标准喷漆系统符合 ISO 12944 的腐蚀类别 C3M（相当于中等耐腐蚀性及耐用性）。其它耐腐蚀类别C4M和C5M，可以使用变量代码115，754 进行订购。

ABB 的标准色为蒙赛尔蓝 8B 4.5/3.25。其它颜色，请用变量代码 114，646 进行订购。

机械振动
ABB标准电机满足IEC60034-14标准中的 A 级振动。如需B级振动，请使用变量代码 417。

Surface treatment
ABB's standard surface treatment is corrosivity category C3, durability range M (which equal to medium corrosivity and medium durability) based on the ISO 12944 standard. Special surface treatment is available in corrosivity categories C4 and C5, durability class M for both. See variant code 115, 754.

The standard ABB paint color for motors is Munsell blue 8B 4.5/3.25. Other colors are also available, see variant code 114, 646.

Vibration
ABB motor meets the requirements of class A vibration based on IEC60034-14 standard. For class B vibration ,use variant code 417.

机械设计
Mechanical design

轴承
电机通常安装以下单列深沟球轴承。

Bearings
General performance motors are normally fitted with single-row deep-groove ball bearings, as shown in the table below.

标准及可选设计

机座号	极数	标准设计		可选设计
		深沟球轴承		圆柱滚子轴承 (VC037)
		D 端	N 端	D 端
80	2-6	6204-2Z/C3	6204-2Z/C3	
90	2-6	6205-2Z/C3	6205-2Z/C3	
100	2-6	6206-2Z/C3	6206-2Z/C3	
112	2-6	6207-2Z/C3	6206-2Z/C3	
132	2-6	6208-2Z/C3	6208-2Z/C3	NU208ECP/C3
160	2-6	6309-2Z/C3	6209-2Z/C3	NU309ECP/C3
180	2-6	6310-2Z/C3	6210-2Z/C3	NU310ECP/C3
200	2-6	6312-2Z/C3	6212-2Z/C3	NU312ECP/C3
225	2-6	6313-2Z/C3	6213-2Z/C3	NU313ECP/C3
250	2-6	6315-2Z/C3	6215-2Z/C3	NU315ECP/C3
280	2-6	6316/C3	6316/C3	NU316ECP/C3
315	2	6316/C3	6316/C3	NU316ECP/C3
	4-6	6319/C3	6319/C3	NU319ECP/C3
355	2	6319/C3	6319/C3	NU319ECP/C3
	4-6	6322/C3	6319/C3	NU322ECP/C3

Standard and alternative designs

Motor size	Number of poles	Standard design		Alternative design
		Deep groove ball bearings		Roller bearings (VC037)
		D-end	N-end	D-end
80	2-6	6204-2Z/C3	6204-2Z/C3	
90	2-6	6205-2Z/C3	6205-2Z/C3	
100	2-6	6206-2Z/C3	6206-2Z/C3	
112	2-6	6207-2Z/C3	6206-2Z/C3	
132	2-6	6208-2Z/C3	6208-2Z/C3	NU208ECP/C3
160	2-6	6309-2Z/C3	6209-2Z/C3	NU309ECP/C3
180	2-6	6310-2Z/C3	6210-2Z/C3	NU310ECP/C3
200	2-6	6312-2Z/C3	6212-2Z/C3	NU312ECP/C3
225	2-6	6313-2Z/C3	6213-2Z/C3	NU313ECP/C3
250	2-6	6315-2Z/C3	6215-2Z/C3	NU315ECP/C3
280	2-6	6316/C3	6316/C3	NU316ECP/C3
315	2	6316/C3	6316/C3	NU316ECP/C3
	4-6	6319/C3	6319/C3	NU319ECP/C3
355	2	6319/C3	6319/C3	NU319ECP/C3
	4-6	6322/C3	6319/C3	NU322ECP/C3

说明：
电机铭牌上显示轴承型号及描述方式仅供客户更换、维修轴承作参考，不代表轴承品牌，具体的轴承品牌以公司实际使用的为准。

Remark:
The bearing type and description on rating plate do not represent the bearing brand, instead it is a technical consideration that can help the owner to make replacement and set up a maintenance program. The brand is subject to the bearing installed.

轴向锁定轴承
所有电机在 D 端标配轴向锁定轴承。

Axially-locked bearings
All motors are equipped as standard with an axially locked bearing. General at D-end.

机械设计
Mechanical design

轴密封件
尺寸和类型符合下表：

Bearing seals
This table presents the standard sizes and types of bearing seals per motor size.

机座号 Motor size	极数 Number of Poles	标准设计 Standard design	
		径向密封 Radial seal	
		D 端 D-end	N 端 N-end
80	2-6P	TC20x40x7	TC20x40x7
90	2-6P	TC25x42x7	TC25x42x7
100	2-6P	TC30x52x7	TC30x52x7
112	2-6P	TC35x55x7	TC30x52x7
132	2-6P	TC40x62x7	TC40x62x7
160	2-6P	TC45x72x8	TC45x72x8
180	2-6P	TC50x80x8	TC50x80x8
200	2-6P	TC60x85x8	TC60x85x8
225	2-6P	TC65x90x10	TC65x90x10
250	2-6P	TC75x100x10	TC75x100x10
280	2-6P	TC80x110x10	TC80x110x10
315	2P	TC80x110x10	TC80x110x10
315	4-6P	TC95x120x12	TC95x120x12
355	2P	TC95x120x12	TC95x120x12
355	4-6P	TC110x140x12	TC95x120x12

机械设计
Mechanical design

轴承寿命

根据 ISO 281，轴承的正常寿命 L_{10h} 定义为在特定条件下 90% 的相同轴承在一系列测试中所达到或超过的运行小时数。50% 的轴承至少达到这一数字的五倍。

润滑

装有封闭式轴承的电机

机座号为80-250的电机采用封闭式轴承。封闭式轴承中装有优质的润滑脂。铭牌上印有轴承型号。

以下数值可作为轴承使用寿命指导值，具体寿命取决于应用和负载情况：2-8 极电机约为 40,000 小时。

皮带轮直径

所需轴承寿命确定后，最小允许皮带轮直径可使用 F_R 计算，如下所示：

$$D = \frac{1.9 \cdot 10^7 \cdot K \cdot P}{n \cdot F_R}$$

其中:	
D：	带轮直径，单位（mm）
P：	功率要求，kW
n：	电机转速，r/min
K：	皮带张力因数，取决于皮带类型和负载类型。 V 形皮带通用值为 2.5。
F_R：	允许径向力

Bearing life

The nominal life L_{10h} of a bearing is defined according to ISO 281 as the number of operating hours achieved or exceeded by 90% of identical bearings in a large test series under specified conditions. 50% of bearings achieve at least five times this lifetime.

Lubrication

Motors with bearings greased for life

Motors in frame sizes 80-250 are equipped with bearings greased for life. Bearings are lubricated with high-quality grease. Bearing types are stated on the rating plate.

The following values can be used as a guide for bearing lifetime, depending on application and load conditions: 2-8 pole motors about 40,000h.

Pulley diameter

When the desired bearing life has been determined, the minimum permissible pulley diameter can be calculated with F_R as follows:

$$D = \frac{1.9 \cdot 10^7 \cdot K \cdot P}{n \cdot F_R}$$

Where:	
D：	Pulley diameter, mm
P：	Power requirement, kW
n：	Motor speed, r/min
K：	Belt tension factor, dependent on belt type and type of duty A common value of V-belts is 2.5
F_R：	Permissible radial force

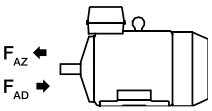
机械设计
Mechanical design

轴上允许负载
允许轴向力
表中提供了环境温度为 25°C时，50Hz 的正常条件下，径向力为零时的轴伸允许轴向力（N）。分别对轴承寿命满足 20000 和 40000 小时进行计算。

在 60 Hz 时，数值将相应减少 10%。

需提供同时存在径向力和轴向力的允许负载值，请联系 ABB。

给定轴向力 F_{AD}，假设 D 端轴承由锁环锁定。



安装方式 IM B3

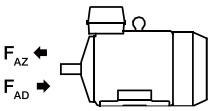
机座号 Motor size	极数 No. of poles	轴伸长度 Length of shaft extension E (mm)	深沟球轴承 Basic design with deep groove ball bearings 20,000 小时 20,000 h F_{AD} (N)	F_{AZ}(N)	40,000 小时 40,000 h F_{AD} (N)	F_{AZ}(N)
80	2	40	785	385	640	240
	4	40	990	590	780	380
	6	40	1130	730	885	485
90	2	50	920	360	765	205
	4	50	1145	585	915	355
	6	50	1300	740	1050	490
100	2	60	1205	545	985	325
	4	60	1480	820	1190	530
	6	60	1720	1060	1355	695
112	2	60	1565	905	1260	600
	4	60	1995	1335	1550	890
	6	60	2000	1340	1555	895
132	2	80	1735	855	1415	535
	4	80	2130	1250	1705	825
	6	80	2480	1600	1930	1050
160	2	110	2740	1960	2150	1370
	4	110	3515	2735	2730	1950
	6	110	4145	3365	3140	2360
180	2	110	3135	2335	2445	1645
	4	110	4005	3205	3095	2295
	6	110	4775	3975	3605	2805

Permissible loading on the shaft
Permissible axial forces
The following table gives the permissible axial forces on shaft in Newton, assuming zero radial force, ambient temperature of 25°C, and normal conditions at 50Hz. The values are given for calculated bearing life of 20000 and 40000 hours per motor size.

At 60 Hz, the values must be reduced by 10 percent.

Permissible loads of simultaneous radial and axial forces can be supplied on request.

For axial force F_{AD}, it is assumed that the D-bearing is locked with a locking ring.



Mounting arrangement IM B3

Motor size 机座号	No. of poles 极数	Length of shaft extension E (mm) 轴伸长度	Basic design with deep groove ball bearings 深沟球轴承 20,000 h 20,000 小时 F_{AD} (N)	F_{AZ}(N)	40,000 h 40,000 小时 F_{AD} (N)	F_{AZ}(N)
200	2	110	4005	3105	3105	2205
	4	110	5140	4240	3960	3060
	6	110	6140	5240	4610	3710
225	2	110	4365	3615	3350	2600
	4	140	5630	4880	4290	3540
	6	140	6785	6035	5045	4295
250	2	140	5355	4195	4125	2965
	4	140	7010	5850	5385	4225
	6	140	8095	6935	6170	5010
280	2	140	6125	4125	4805	2805
	4	140	7755	5755	6025	4025
	6	140	8930	6930	6890	4890
315SM	2	140	6080	4080	4765	2765
	4	170	9710	6310	7655	4255
	6	170	11100	7700	8690	5290
315ML	2	140	6005	4005	4690	2690
	4	170	9470	6070	7430	4030
	6	170	10790	7390	8395	4995
355SM	2	140	7540	4140	5990	2590
	4	210	11720	8320	9095	5695
	6	210	13370	9970	10305	6905
355ML	2	140	7485	4085	5935	2535
	4	210	11595	8195	8975	5575
	6	210	13165	9765	10105	6705

允许径向力

表中提供了环境温度为 25°C时，50Hz 的正常条件下，轴向力为零时的轴伸允许径向力（N）。分别对轴承寿命满足 20,000 小时和 40,000 小时进行计算。

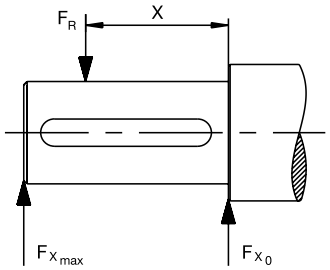
电机为底座安装型 IM B3，并且含横向力。在某些情况下，轴的强度影响允许负载力。在 60Hz 时，数值将相应减少 10%。对于双速电机，数值应以较高的速度为准。

需提供同时存在径向力和轴向力的允许负载值，请联系 ABB。

如果径向力作用于点 X_0 和 X_{max} 之间，则允许负载力 F_R 可以通过以下公式计算：

$$F_R = F_{X_0} - \frac{X}{E}(F_{X_0} - F_{X_{max}})$$

E : 基本型号中的轴伸长度



机座号 Motor size	极数 No. of poles	轴伸长度 Length of shaft extension E (mm)	深沟球轴承 Basic design with deep groove ball bearings 20,000 小时 20,000 h F_{X0} (N)	F_{Xmax}(N)	40,000 小时 40,000 h F_{X0} (N)	F_{Xmax}(N)
80	2	40	725	610	575	480
	4	40	925	790	730	625
	6	40	1060	905	840	715
90	2	50	775	630	495	400
	4	50	995	840	785	660
	6	50	1125	915	890	725
100	2	60	1115	940	845	710
	4	60	1390	1140	1095	900
	6	60	1585	1305	1245	1025
112	2	60	1545	1310	1215	1030
	4	60	1940	1645	1530	1295
	6	60	1925	1595	1515	1260
132	2	80	1635	1295	1290	1020
	4	80	2040	1615	1600	1270
	6	80	2345	1855	1840	1460
160	2	110	2990	2460	2335	1925
	4	110	3800	3125	2975	2450
	6	110	4345	3600	3395	2825
180	2	110	3515	2965	2740	2310
	4	110	4390	3705	3420	2880
	6	110	5100	4300	3985	3360

Permissible radial forces

The following table gives the permissible radial forces on shaft in Newton, assuming zero axial force, ambient temperature of 25°C , and normal conditions at 50Hz. The values are given for calculated bearing life of 20,000 and 40,000 hours per motor size.

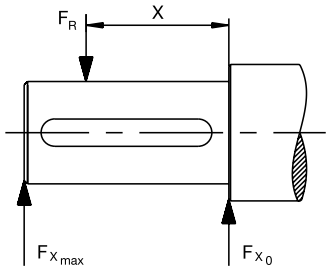
These calculated values further assume mounting position IM B3 (foot-mounted), with force directed sideways. In some cases, the strength of the shaft affects permissible forces.

Permissible loads of simultaneous radial and axial forces can be supplied on request.

If the radial force is applied between points X_0 and X_{max}, the permissible force F_R can be calculated with the following formula:

$$F_R = F_{X_0} - \frac{X}{E}(F_{X_0} - F_{X_{max}})$$

E : Length of the shaft extension in the standard version



机座号 Motor size	极数 No. of poles	轴伸长度 Length of shaft extension E (mm)	深沟球轴承 Basic design with deep groove ball bearings 20,000 小时 20,000 h F_{X0} (N)	F_{Xmax}(N)	40,000 小时 40,000 h F_{X0} (N)	F_{Xmax}(N)
200	2	110	4565	3885	3550	3025
	4	110	5725	4875	4450	3790
	6	110	6620	5635	5160	4395
225	2	110	5135	4455	3978	3450
	4	140	6420	5375	4960	4150
	6	140	7490	6270	5815	4870
250	2	140	6105	5135	4700	3950
	4	140	7960	6695	6185	5200
	6	140	8950	7525	6915	5815
280	2	140	6565	5605	5060	4320
	4	140	8230	7025	6330	5405
	6	140	9350	7980	7180	6130
315SM	2	140	6415	5465	4925	4195
	4	170	9725	8025	7485	6175
	6	170	11060	9125	8495	7010
315ML	2	140	6305	5470	4795	4160
	4	170	9415	8130	7115	6140
	6	170	10640	9125	8010	6915
355SM	2	140	7235	6340	5450	4775
	4	210	12150	10025	9225	7615
	6	210	13620	11240	10275	8480
355ML	2	140	7175	6370	5370	4765
	4	210	11975	10065	9020	7585
	6	210	13280	11165	9900	8320

机械设计
Mechanical design

标准接线盒交付
标准接线盒的防护等级为 IP65。标准情况下，接线盒安装在电机 D 端顶部。此外，还可以将接线盒安装在左侧或右侧，请参考订购信息。机座号80-132的电机，采用一体式接线盒。机座号160-355的电机，采用分体式接线盒。

机座号为 160-355 的电机接线盒可 4x90°转动。因此电机的两侧都可以接入电缆。

接线盒进线口标配一个塑料螺塞，其他进线孔使用符合防爆要求的金属堵头密封。电机使用时，需将塑料堵头更换为具有防爆认证的电缆引入装置。

如果未另行规定，则采用标准交付。

注意：对于其他供电电压及/或侧面安装的电机，请联系ABB!

Standard terminal box
The degree of protection for the standard terminal box is IP 65. By default, terminal boxes are mounted on top of the motor at D-end. In motor sizes 80-132, the terminal box is integrated with motor frame. In motor sizes 160-355, the terminal box is separate from motor frame.

The terminal boxes of motor sizes 160-355 can be turned 4x90° , to allow cable entry from either side of motor.

The terminal box is equipped with one plastic plug, other inlet holes are sealed with Ex metal plugs as standard. When the motor is in use, the plastic plug needs to be replaced with an Ex gland.

Standard delivery if no other information is provided.

Note: For other network voltages and/or side-mounted motors, contact your ABB sales office.

机座号 Motor size	极数 Pole number	螺纹孔 Threaded holes	电缆外径 mm Cable outer diameter mm	单芯横截面 平方毫米/相 Single core cross-section mm^2/phase	端子螺栓尺寸 6x terminal bolt size 6x
80-90	2-6	2xM25x1.5	2xØ11-16	4	M4
100-132	2-6	2xM32x1.5	2xØ14-21	10	M5
160-180	2-6	2xM40x1.5, M16x1.5	2xØ19-27, Ø5-9	35	M6
200-250	2-6	2xM63x1.5, M16x1.5	2xØ37-44, Ø5-9	70	M10
280	2-6	2xM63x1.5, 2xM20x1.5	2xØ37-44, 2xØ8-14	2x150	M10
315	2-6	2xM63x1.5, 2xM20x1.5	2xØ37-44, 2xØ8-14	2x240	M12
355	2-6	2xM75x1.5, 2xM20x1.5	2xØ48-60, 2xØ8-14	4x240	M12

电机接地 Earthing	机座接地 Earthing on frame	主接线盒接地 Earthing in main terminal box
80-132	M5	M5
160-250	M6	M6
280-355	M10	M10

变频器驱动
Variable speed drives

鼠笼式感应电机具有很好的的可用性、可靠性与效率。通过变频器—一种变速驱动器（VSD），该电机的性能将更优异。电机不是一直处于全速运转状态，相反，变速驱动器能够根据实际需要调节速度。这样，就能够准确地控制工艺过程，在某些情况下，甚至可以达到比标称速度更快的运转速度，从而提高产能。

Squirrel cage induction motors offer excellent availability, reliability and efficiency. With a variable speed drive (VSD) – a frequency converter – the motor performance can be further improved. Instead of running the motor continuously at full speed, the VSD enables speed adjustment according to actual need. The VSD makes it possible to control the process accurately and in some cases even to improve the capacity of the process by operating at higher than nominal speeds.

与传统的全压启动（DOL）不同，变速驱动器（VSD）能够平滑地进行启动。这样就大大地减少了电机及驱动应用中的压力。平滑启动还意味着供电网络不受高启动电流的影响。在电网设计时，应将该因素纳入考虑。

In contrast with conventional applications operating with a direct-on-line (DOL) supply, a VSD makes smooth starting possible. This significantly reduces the stress on the motor and driven application. Smooth starting also means that the supply network will not be affected by high starting current transients, a fact that can be taken into account in the design of the network.

由于在速度和工艺用电方面的优化，ABB低压电机以及变频器的使用，尤其是ABB变频器的使用，通常能够在很大程度上实现节能。节能不仅能够产生环境效益，还能够带来经济效益。ABB低压电机适用于DOL运行，也适用于变速运行。选择面广，电机能够适应严苛的应用要求。

The use of ABB industrial drives together with motors usually provides substantial energy savings as the speed and therefore the power required by the process can be optimized. Motors are designed for both DOL and variable speed operation. A wide range of options is available, so motors can be adapted to the demanding applications.

在为变速驱动器选择低压电机时，应考虑以下方面：

When selecting motors for VSDs, the following points must be taken into consideration.

1. 确定规格
变频器所馈送的电压（或电流）并非完全是正弦的。这可能会增加电机的损耗、振动以及噪音等级。此外，这些损耗分布的变化可能影响电机的温升。因此，在任何情况下，需要根据特定的变频器说明书正确选择电机规格。

1. Dimensioning
The voltage (or current) fed by the VSD is not purely sinusoidal. This may increase motor losses, vibration, and noise level. Further, a change in the distribution of losses may affect the motor's temperature rise. In each case, the motor must be correctly sized according to the instructions supplied for the frequency converter.

使用 ABB 变频器时，请使用 ABB 的 DriveSize 程序来确定电机规格。该工具利用的是基本综合性组合型式试验的规格确定规则。

ABB's DriveSize program utilizes dimensioning rules that are based on comprehensive motor and drive type tests. Please use DriveSize for selecting the correct motor and drive combination for a desired load profile.

当手动确定规格时，请注意，此目录中以及相关手册中给出的负载率（负载能力）曲线仅供参考。可根据要求提供针对各个电机和变频器的精确数值。除确定热容量外，必须保持一个转矩裕度，以保持稳定。电机的最大转矩在整个工作周期内应至少高于负载转矩 30%。

In case of manual dimensioning, note that the loadability (or load capacity) curves provided in this catalog and in the respective manuals are indicative only. Values for a specific motor and drive are available on request. In addition to thermal dimensioning, an adequate torque margin must be maintained for stability. The maximum torque of the motor must be at least 30 % higher than the load torque over the whole duty range.

尤其是在使用较长的供电电缆时，还必须考虑供电电缆的压降。

Voltage drop in the supply cable must also be taken into consideration, especially in cases where long supply cables are needed.

变频器驱动
Variable speed drives

2. 工作转速、振动及轴密封

低压电机设计可以在宽转速范围下工作，在大多数情况下，也可以显著高于额定转速（即铭牌上印制的转速）的较高转速运行可以通过铭牌或DriveSize工具获知最大转速。除电机转速范围外，请确保不超出整个应用的最大或临界转速。

下表 1 给出了低压电机的最大规定转速值。

机座号	2 极电机		4 极电机		6 极电机	
	标准风扇	金属风扇	标准风扇	金属风扇	标准风扇	金属风扇
80-112	6000	6000	6000	6000	6000	6000
132-200	4500	4500	4500	4500	4500	4500
225-250	4200	4200	4200	4200	4200	4200
280	3600	3800	2500	2800	2500	2800
315 SM	3600	3600	2000	2800	2000	2800
315 ML	3600	3600	2000	2400	2000	2400
355	3600	3600	1800	2400	1800	2400

2. Operating speed, vibrations and shaft seals

Motors are designed to work over a wide speed range and also at significantly higher than nominal speeds. The maximum speeds can be found on motor rating plates or in DriveSize. In addition to motor speed, make sure that the maximum or critical speed of the entire application is not exceeded.

Guideline maximum speed values for motors are shown in Table 1.

Motor Size	2-pole motors		4-pole motors		6-pole motors	
	standard fan	metal fan	standard fan	metal fan	standard fan	metal fan
80-112	6000	6000	6000	6000	6000	6000
132-200	4500	4500	4500	4500	4500	4500
225-250	4200	4200	4200	4200	4200	4200
280	3600	3800	2500	2800	2500	2800
315 SM	3600	3600	2000	2800	2000	2800
315 ML	3600	3600	2000	2400	2000	2400
355	3600	3600	1800	2400	1800	2400

3. 润滑

在变速应用场合中，轴承温度的变化是由于速度和电机负载变化的结果。这时，在正常工作条件下，通过测量轴承温度，可以得到精确的润滑间隔时间。如果测量温度高于 +80°C，则需要缩短在润滑铭牌或电机手册中规定的润滑间隔时间，或使用适用于高温工况的润滑脂。请参见 ABB 低压电机手册。

在非常低的速度和温度（低于 20°C）下连续工作时，标准润滑脂的润滑能力可能不足，而需要使用含添加剂的特定润滑脂。更多详情，请联系 ABB。

3. Lubrication

In variable speed applications, bearing temperature varies as a function of speed and motor load. In such cases, the accurate relubrication intervals can be obtained by measuring the bearing temperature under normal operating conditions. If the measured temperature is higher than +80°C , the relubrication intervals specified on the lubrication plate or in the maintenance manual must be shortened, or lubricants suitable for high operating temperatures must be used. See ABB Low voltage motor manual.

In case of continuous operation at very low speeds and at very low temperatures (below -20°C), the lubrication properties of standard greases may not be sufficient, and special greases with additives are needed.

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如果电机配备密封轴承，即一次性润滑轴承，则务必注意，当工作温度与设计温度不同时，轴承的工作寿命也会与设计值不同。有关轴承工作寿命的详细信息，请参见本目录及相关手册中与产品相关的章节。

Operating temperatures also affect bearing life. When motors are equipped with sealed bearings, that is, bearings greased for life, it must be noted that if the operating temperature differs from the design temperature, the bearing life will also be different. More information on bearing lifetimes can be found in section Mechanical design of this catalog and in the relevant manuals.

我们不建议使用所谓的导电润滑脂来消除轴承电流，因为此类产品的润滑性能不良，因此导电性很弱。

The use of so-called conductive greases for elimination of bearing currents is not recommended because of their poor lubrication characteristics and low conductivity.

4. 绕组绝缘

为确保电机的可靠性，当为电机选择正确的绝缘系统和为变频器选择正确的输出滤波器时，必须考虑变频器的非正弦输出电压的影响。

4. Winding insulation

To ensure that motors operate reliably, the effects of non-sinusoidal output voltages from the converter must be taken into consideration when selecting the correct insulation system for the motor and output filters for the converter.

当使用具有非受控直流电压的变频器时，应根据表 2 选择绝缘和滤波器。

Insulation and filters must be selected according to Table 2.

所要求的绕组绝缘和滤波器	
500V < U_N ≤ 600V	ABB 变频绝缘 +dU/dt 滤波器或 ABB 变频加强绝缘（变量代码 405）
600V < U_N ≤ 690V	ABB 变频加强绝缘（变量代码 405） 及变频器输出端的 dU/dt 滤波器

Winding insulation and filters required	
500V < U_N ≤ 600V	VSD insulation + dU/dt filters OR VSD reinforced insulation (variant code 405)
600V < U_N ≤ 690V	VSD reinforced insulation (variant code 405) AND dU/dt filters at converter output

dU/dt 滤波器的详细信息，请参见相关的 ABB 驱动目录。

For more information on dU/dt filters, see the relevant ABB Drives catalogs.

如果表 2 中的内容不适用，以及对于其它类型的变频器，则应根据电机端子电压进行选择。

For other converters and cases where the guidelines shown in Table 2 cannot be applied, selection must be based on the voltages present at motor terminals.

电机端子处允许的相对地电压峰值为：
• ABB 变频绝缘 1300V
• ABB 变频加强绝缘（变量代码 405）1800V

The allowed phase-toground voltage peaks at motor terminals:
• 1300 V peak: VSD insulation
• 1800 V peak: VSD reinforced insulation, variant code 405

受脉冲上升时间的影响，电机端子处允许的最大相对地电压峰值见图 1。最高的曲线（即“ABB 变频加强绝缘”）适用于变频器电源采用特殊绕组绝缘的电机，变量代码为 405。“ABB 变频绝缘”适用于具有标准设计的电机。

The maximum allowed phase-to-phase voltage peaks at the motor terminals as a function of pulse rise time are shown in Figure 1. The higher curve, VSD reinforced insulation, applies to motors with special winding insulation for frequency converter supply, variant code 405. VSD insulation applies to motors with standard design.

变频器驱动
Variable speed drives

图 1 受脉冲上升时间的影响，电机端子处允许的最大相对地电压峰值

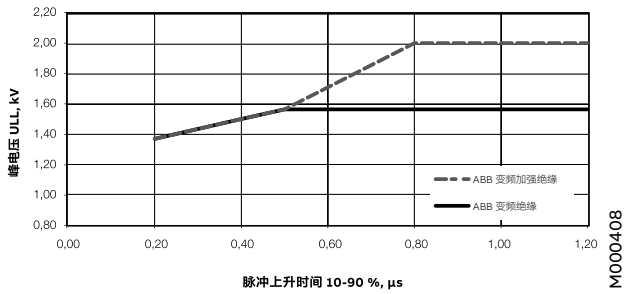
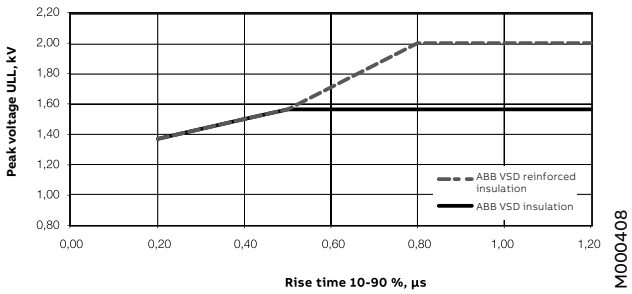


Figure 1. Maximum allowed phase-to-phase voltage peaks at motor terminals, as a function pulse rise time.



5. 轴承电流

必须在所有电机中消除轴承电压和电流,确保整项工作的可靠开展。如果使用具有非受控直流电压的ABB ACS800 or ACS550 驱动器，则必须按照下表 3 所示，使用绝缘轴承（变量代码 701）和 / 或在变频器输出上加上适当规格的滤波器。有关其它代替产品和变频器类型，请联系 ABB。订购时，请明确注明将使用的代替产品。

有关轴承电流和电压的详细资料，请参见“AC 驱动系统中的轴承电流”工厂文件或联系 ABB。

表 3 与变频器（其具有非受控直流电压）配合使用的电机中的轴承电流防护。

标称功率（P_N）及 / 或机座号（IEC）	防护措施
P_N < 100 kW	无需采取措施
P_N ≥ 100 kW 或 IEC 315 ≤ 机座号 ≤ IEC 355	非驱动端绝缘轴承
P_N ≥ 350 kW	非驱动端绝缘轴承，并在变频器中设置共模滤波器

共模滤波器

共模滤波器减少了共模电流，从而减少了出现轴承电流的风险。共模滤波器不会严重影响电机接线端子的相电压或电源电压。更多详情，请参见 ABB 驱动器目录。

5. Bearing currents

Bearing voltages and currents must be avoided in all motors to ensure reliable operation of the entire application. With ACS800 or ACS550 drives and uncontrolled DC voltage, insulated bearings (variant code 701) and/or properly dimensioned filters at the converter must be used, as indicated in Table 3.

For information on other converter types, contact ABB Sales. When ordering, clearly state which alternative will be used.

Table 3. Precautionary measures to avoid bearing currents in variable speed drives.

Nominal Output (P_N) AND / OR Motor size (IEC)	Precautionary measures
P_N < 100 kW	No action needed
P_N ≥ 100 kW OR IEC 315 ≤ Frame size ≤ IEC 355	Insulated non-drive end bearing
P_N ≥ 350 kW	Insulated non-drive end bearing AND Common mode fi lter at the converter

Common mode filters

Common mode filters reduce common mode currents and so decrease the risk of bearing currents. Common mode filters do not significantly affect the phase of main voltages on motor terminals. For more information, see ABB drives catalogs.

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绝缘轴承
ABB 使用带绝缘内圈或外圈的轴承。所谓混合轴承，也就是带非导电性陶瓷滚动元件的轴承，也可用于特定用途。

6. 电缆敷设、接地及 EMC
变频器对驱动系统的电缆铺设和接地提出了更高的要求。应使用屏蔽对称电缆和提供 360°接头的电缆接头（也称为 EMC 接头，变量代码 704）来连接电机。对于输出功率不高于 30kW 的电机，可使用非对称电缆，但使始终建议使用屏蔽电缆，尤其在驱动应用中存在敏感部件时。

对于机座号为 IEC 280 及以上的电机，除非在一个公共的金属底座上安装电机和驱动机器，否则需要在电机机座和机器之间另外进行电位均衡处理。当使用一个金属底座来实现电位均衡时，应检查此连接的高频导电性。有关变速驱动器的接地和电缆敷设的更多信息，请参见手册“驱动系统的接地和电缆敷设”（编号：3AFY 61201998 R0125 REV B）。

为满足 EMC 的要求，除安装正确的电缆接头外，还必须使用专用的 EMC 电缆（另外具有专用接地件）。请参见变频器手册。

7. 变频器的电机负载能力
图 2、图 3 所示的负载能力曲线具有指导意义。欲知精确数值，请联系 ABB。这些负载能力曲线还可以用于其它变频器的初步规格确定，但必须注意的是，不同变频器的谐波分量和控制算法互不相同，因此电机的温升也会不同。

Insulated bearings
ABB uses bearings with insulated inner or outer races. Hybrid bearings, that is, bearings with non-conductive ceramic rolling elements, can also be used in special applications.

6. Cabling, grounding, and EMC
The use of a variable speed drive sets higher demands on the cabling and grounding of the drive system. The motor must be cabled using shielded symmetrical cables and cable glands providing 360° bonding (EMC glands, variant code 704). For motors up to 30 kW, asymmetrical cables can be used, but shielded cables are always recommended, especially if there are sensitive components in the driven application.

For motor sizes IEC 280 and above, additional potential equalization is needed between the motor frame and the machinery, unless the motor and the driven machine are installed on a common steel base. When a steel base is used for potential equalization, high frequency conductivity of the connection must be checked.

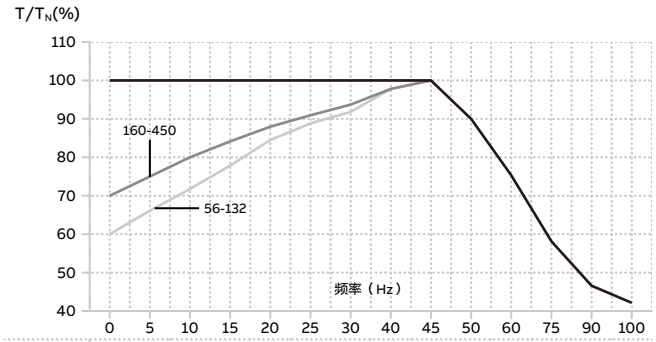
To meet EMC requirements, special EMC cables must be used in addition to appropriate cable gland mounting with special earthing pieces. Refer to ABB drives manuals for more information.

7. Motor loadability with frequency converter drives
The loadability curves shown in Figures 2 and 3 are indicative guidelines and do not present exact values. These loadability curves can also be used for preliminary dimensioning of motors used at frequency converter duty, but it must be noted that the harmonic content and control algorithms vary between frequency converters, so the motor temperature rise will also be different.

变频器驱动
Variable speed drives

图 2 具有 DTC 控制的变频器负载曲线
Figure 2. Loadability curves for frequency converters with DTC control

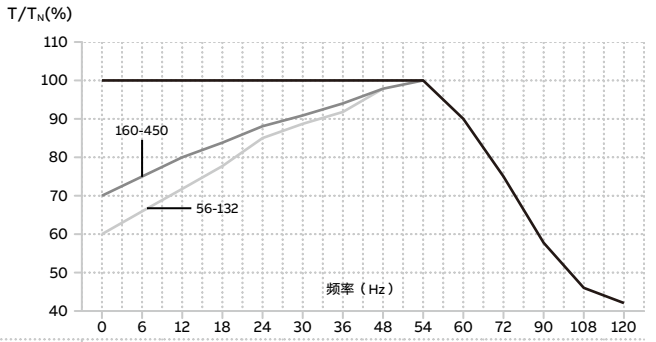
50Hz



IC411[1]	60	66	72	78	85	89	92	98	100	90	75	58	46	42
IC411[2]	70	75	80	84	88	91	94	98	100	90	75	58	46	42
IC416[3]	100	100	100	100	100	100	100	100	100	90	75	58	46	42

1) 自扇冷，IEC机座号 56-132
2) 自扇冷，IEC机座号160-450
3) 分体式风机冷却(强迫风冷)
1) Self ventilated, IEC frame sizes 56-132
2) Self ventilated, IEC frame sizes 160-450
3) Separate motor cooling (force ventilated)

60Hz

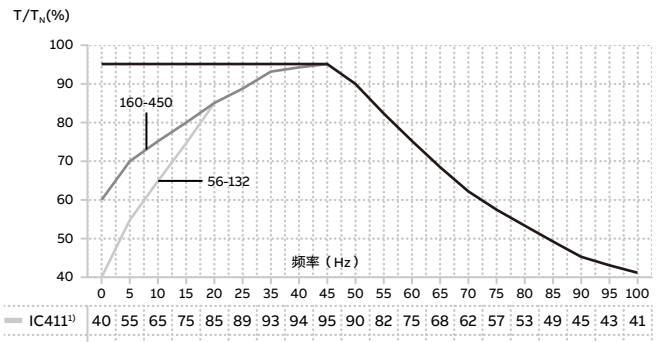


IC411[1]	60	66	72	78	85	89	92	98	100	90	75	58	46	42
IC411[2]	70	75	80	84	88	91	94	98	100	90	75	58	46	42
IC416[3]	100	100	100	100	100	100	100	100	100	90	75	58	46	42

1) 自扇冷，IEC机座号 56-132
2) 自扇冷，IEC机座号160-450
3) 分体式风机冷却(强迫风冷)
1) Self ventilated, IEC frame sizes 56-132
2) Self ventilated, IEC frame sizes 160-450
3) Separate motor cooling (force ventilated)

图 3 其它控制类型的变频器负载曲线
Figure 3. Loadability curves for other frequency converters

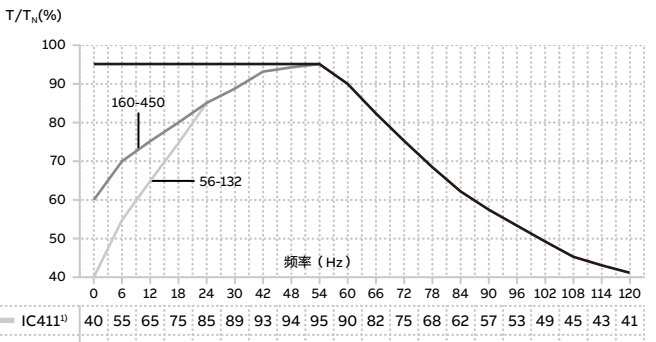
50Hz



IC411[1]	40	55	65	75	85	89	93	94	95	90	82	75	68	62	57	53	49	45	43	41
IC411[2]	60	70	75	80	85	89	93	94	95	90	82	75	68	62	57	53	49	45	43	41
IC416[3]	95	95	95	95	95	95	95	95	95	90	82	75	68	62	57	53	49	45	43	41

1) 自扇冷，IEC机座号 56-132
2) 自扇冷，IEC机座号160-450
3) 分体式风机冷却(强迫风冷)
1) Self ventilated, IEC frame sizes 56-132
2) Self ventilated, IEC frame sizes 160-450
3) Separate motor cooling (force ventilated)

60Hz



IC411[1]	40	55	65	75	85	89	93	94	95	90	82	75	68	62	57	53	49	45	43	41
IC411[2]	60	70	75	80	85	89	93	94	95	90	82	75	68	62	57	53	49	45	43	41
IC416[3]	95	95	95	95	95	95	95	95	95	90	82	75	68	62	57	53	49	45	43	41

1) 自扇冷，IEC机座号 56-132
2) 自扇冷，IEC机座号160-450
3) 分体式风机冷却(强迫风冷)
1) Self ventilated, IEC frame sizes 56-132
2) Self ventilated, IEC frame sizes 160-450
3) Separate motor cooling (force ventilated)

技术数据
Technical data

IE5
2P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.75-355kW，符合GB 18613-2020 的1 级能效
IP65 - IC411 Insulation class F, temperature class B
0.75-355kW, Grade 1 according to GB 18613-2020

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
kW			r/min	满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%	cosϕ	I_N A	I_S/I_N	T_N Nm	T_I/T_N	T_B/T_N	J=1/4 GD^2kgm^2	kg	dB
3000 r/min = 2 极 / 2 poles			380 V 50Hz					CENELEC- 设计 design							
0.75	M2QA 80MA 2-FB5	3GQA081310-••P	2914	86.3	86.3	84.9	0.84	1.57	8.4	2.50	2.9	4.1	0.00119	17	55
1.1	M2QA 80MLA 2-FB5	3GQA081410-••P	2911	87.8	87.8	86.9	0.85	2.20	9.0	3.60	3.2	4.3	0.00149	20	55
1.5	M2QA 90SLA 2-FB5	3GQA091010-••P	2906	88.9	89.2	88.1	0.85	3.00	9.0	4.90	4.1	4.6	0.00265	32	60
2.2	M2QA 90SLB 2-FB5	3GQA091020-••P	2909	90.2	90.8	90.3	0.87	4.20	8.8	7.20	4.1	4.4	0.00306	34	60
3	M2QA 100LKA 2-FB5	3GQA101810-••P	2926	91.1	92.1	92.1	0.89	5.60	8.3	9.80	2.7	3.7	0.00588	48	57
4	M2QA 112MLA 2-FB5	3GQA111410-••P	2908	91.8	92.7	93.3	0.90	7.30	7.7	13.2	2.4	3.6	0.00922	57	66
5.5	M2QA 132SA 2-FB5	3GQA131110-••P	2929	92.6	93.2	93.1	0.89	10.1	7.8	17.9	2.6	3.6	0.0126	74	65
7.5	M2QA 132SMA 2-FB5	3GQA131210-••P	2936	93.3	93.8	93.7	0.90	13.5	9.1	24.4	2.9	4.1	0.0162	88	65
11	M2QA 160MLA 2-FB5	3GQA161410-••P	2968	94	94.1	93.5	0.89	20.0	8.1	35.4	2.4	3.8	0.0758	162	67
15	M2QA 160MLB 2-FB5	3GQA161420-••P	2968	94.5	94.7	94.1	0.89	27.1	9.2	48.3	2.8	3.9	0.0982	186	68
18.5	M2QA 160MLC 2-FB5	3GQA161430-••P	2960	94.9	95.2	95	0.90	32.9	7.9	59.7	2.4	3.5	0.119	217	68
22	M2QA 180MLA 2-FB5	3GQA181410-••P	2975	95.1	95.1	94.5	0.88	39.9	8.9	70.6	2.7	3.7	0.165	263	69
30	M2QA 200MLA 2-FB5	3GQA201410-••P	2976	95.5	95.5	94.8	0.88	54.2	6.6	96.3	2.1	3.4	0.306	330	73
37	M2QA 200MLB 2-FB5	3GQA201420-••P	2978	95.8	95.8	95.2	0.88	66.7	7.3	119	2.4	3.6	0.365	367	75
45	M2QA 225SMA 2-FB5	3GQA221210-••P	2984	96	96	95.4	0.92	77.4	8.4	144	2.6	4.5	0.620	480	76
55	M2QA 250SMA 2-FB5	3GQA251210-••P	2979	96.2	96.2	95.6	0.90	97.1	9.5	176	2.8	5.2	1.24	590	73
75	M2QA 280SMA 2-FB5	3GQA281210-••P	2979	96.5	96.6	96.2	0.89	133	8.3	240	2.7	3.2	0.920	701	76
90	M2QA 280SMB 2-FB5	3GQA281220-••P	2981	96.6	96.6	96.2	0.89	160	9.4	288	3.3	3.4	1.12	776	78
110	M2QA 315SMA 2-FB5	3GQA311210-••P	2985	96.8	96.8	96.4	0.89	194	7.6	352	1.9	3.0	1.70	950	72
132	M2QA 315MLA 2-FB5	3GQA311410-••P	2986	96.9	96.9	96.5	0.88	235	8.6	422	2.3	3.8	1.90	1045	72
160	M2QA 315MLB 2-FB5	3GQA311420-••P	2984	97	97.1	96.8	0.89	282	8.7	512	2.4	3.8	2.00	1092	73
185	M2QA 315MLC 2-FB5	3GQA311430-••P	2979	97.1	97.3	97.2	0.89	325	7.4	593	1.8	2.6	2.10	1125	74
200	M2QA 315MLD 2-FB5	3GQA311440-••P	2977	97.2	97.5	97.5	0.90	347	6.9	642	1.8	2.2	2.10	1125	75
220	M2QA 355SMA 2-FB5	3GQA351210-••P	2984	97.2	97.2	96.8	0.88	391	8.4	704	2.2	3.3	3.64	1592	78
250	M2QA 355SMB 2-FB5	3GQA351220-••P	2982	97.2	97.3	97	0.89	439	7.6	801	2.0	3.0	3.64	1592	78
280	M2QA 355MLA 2-FB5	3GQA351410-••P	2985	97.2	97.1	96.6	0.87	503	7.7	896	2.3	3.6	3.94	1754	79
315	M2QA 355MLB 2-FB5	3GQA351420-••P	2982	97.2	97.2	96.9	0.87	566	6.9	1009	2.2	3.2	3.94	1754	80
355	M2QA 355MLC 2-FB5	3GQA351430-••P	2982	97.2	97.4	97.2	0.89	621	7.0	1137	2.3	3.1	3.74	1754	79

产品代码中的两个圆点表示可选的安装方式、电压及频率代码（见订购信息一页）。

The two bullet s in the product code indica te choice of mountin g arrangements , voltage and frequency code (see ordering information page).

I_s / I_N = 启动电流
T_I / T_N = 转子堵转转矩
T_b / T_N = 最大转矩

I_s / I_N = Starting current
T_I / T_N = Locked rotor torque
T_b / T_N = Breakdown torque

技术数据 Technical data

IE5 4P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.55-355kW，符合GB 18613-2020 的1 级能效
IP65 - IC411 Insulation class F, temperature class B
0.55-355kW, Grade 1 according to GB 18613-2020

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
kW			r/min	满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%	cosϕ	I_N A	I_S/I_N	T_N Nm	T_I/T_N	T_B/T_N	J=1/4 GD^2kgm²	kg	dB
1500 r/min = 4 极 / 4 poles			380 V 50Hz					CENELEC- 设计 design							
0.55	M2QA 80MLA 4-FB5	3GQA082410-••P	1460	86.7	85.9	83.0	0.74	1.33	8.0	3.60	3.5	4.2	0.00285	22	46
0.75	M2QA 80MLB 4-FB5	3GQA082420-••P	1459	88.2	87.1	84.6	0.75	1.77	8.2	4.90	3.6	4.3	0.00342	25	46
1.1	M2QA 90SLA 4-FB5	3GQA092010-••P	1468	89.5	89.6	88.1	0.77	2.40	8.3	7.20	2.8	3.8	0.00577	34	44
1.5	M2QA 90SLB 4-FB5	3GQA092020-••P	1466	90.4	90.6	89.5	0.78	3.20	8.5	9.80	3.0	3.7	0.00725	40	44
2.2	M2QA 100LKA 4-FB5	3GQA102810-••P	1475	91.4	91.3	90.0	0.78	4.80	8.5	14.2	2.6	3.8	0.013	50	54
3	M2QA 100LKB 4-FB5	3GQA102820-••P	1478	92.1	92.1	90.9	0.79	6.40	9.0	19.4	2.7	3.8	0.0174	59	54
4	M2QA 112MLA 4-FB5	3GQA112410-••P	1472	92.8	92.5	91.9	0.81	8.10	5.4	26.0	2.4	3.9	0.0234	66	57
5.5	M2QA 132SMA 4-FB5	3GQA132210-••P	1480	93.4	93.7	93.1	0.81	11.0	8.6	35.5	3.4	3.8	0.0493	92	54
7.5	M2QA 132SMB 4-FB5	3GQA132220-••P	1480	94.0	94.2	93.7	0.80	15.0	9.2	48.4	3.7	4.1	0.0627	108	54
11	M2QA 160MLA 4-FB5	3GQA162410-••P	1484	94.6	94.7	94.2	0.83	21.3	8.8	70.8	2.7	4.0	0.132	178	59
15	M2QA 160MLB 4-FB5	3GQA162420-••P	1485	95.1	95.3	95	0.83	28.9	8.9	96.5	2.7	4.0	0.163	208	60
18.5	M2QA 180MLA 4-FB5	3GQA182410-••P	1485	95.3	95.3	94.7	0.82	36.0	7.4	119	2.1	2.9	0.272	248	66
22	M2QA 180MLB 4-FB5	3GQA182420-••P	1485	95.5	95.5	95	0.82	42.7	7.3	141	2.0	2.8	0.316	271	67
30	M2QA 200MLA 4-FB5	3GQA202410-••P	1488	95.9	95.9	95.3	0.82	58.0	7.0	192	2.5	3.7	0.700	357	64
37	M2QA 225SMA 4-FB5	3GQA222210-••P	1492	96.1	96.1	95.5	0.83	70.5	7.2	237	2.0	3.0	0.900	444	62
45	M2QA 225SMB 4-FB5	3GQA222220-••P	1493	96.3	96.2	95.6	0.82	86.6	8.1	288	2.4	3.4	1.10	487	64
55	M2QA 250SMA 4-FB5	3GQA252210-••P	1491	96.5	96.4	95.7	0.83	105	8.4	352	2.4	3.7	1.15	540	62
75	M2QA 280SMA 4-FB5	3GQA282210-••P	1488	96.7	96.9	96.6	0.87	136	8.4	481	3.0	3.2	1.70	718	62
90	M2QA 280SMB 4-FB5	3GQA282220-••P	1489	96.9	97.1	96.8	0.86	164	9.0	577	3.7	3.4	1.99	782	63
110	M2QA 315SMA 4-FB5	3GQA312210-••P	1489	97	97.2	97.2	0.86	200	7.6	706	2.5	2.8	3.00	996	66
132	M2QA 315MLA 4-FB5	3GQA312410-••P	1490	97.1	97.3	97.1	0.86	240	8.1	846	2.6	3.7	4.10	1312	67
160	M2QA 315MLB 4-FB5	3GQA312420-••P	1491	97.2	97.3	97.1	0.87	287	7.6	1025	2.2	3.6	4.20	1381	67
185	M2QA 315MLC 4-FB5	3GQA312430-••P	1493	97.3	97.3	96.9	0.84	344	8.8	1183	2.7	4.1	4.60	1453	68
200	M2QA 315MLD 4-FB5	3GQA312440-••P	1492	97.4	97.5	97.3	0.85	367	8.5	1280	2.6	4.1	4.60	1453	68
220	M2QA 355SMA 4-FB5	3GQA352210-••P	1493	97.4	97.4	97	0.85	404	7.6	1407	2.2	4.0	6.97	1703	78
250	M2QA 355MLA 4-FB5	3GQA352410-••P	1493	97.4	97.4	97	0.85	459	7.9	1598	2.3	3.6	7.55	1860	78
280	M2QA 355MLB 4-FB5	3GQA352420-••P	1493	97.4	97.4	97.1	0.86	508	7.1	1791	2.2	3.7	7.56	1859	79
315	M2QA 355MLC 4-FB5	3GQA352430-••P	1494	97.4	97.4	97	0.85	578	8.2	2014	2.3	4.0	8.17	1946	79
355	M2QA 355MLD 4-FB5	3GQA352440-••P	1490	97.4	97.6	97.5	0.87	638	7.3	2275	2.5	3.3	7.4	1945	79

产品代码中的两个圆点表示可选的安装方式、电压及频率代码（见订购信息一页）。

I_s / I_N = 启动电流
T_I / T_N = 转子堵转转矩
T_b / T_N = 最大转矩

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I_s / I_N = Starting current
T_I / T_N = Locked rotor torque
T_b / T_N = Breakdown torque

技术数据
Technical data

IE5
6P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.37-355kW，符合GB 18613-2020 的1 级能效
IP65 - IC411 Insulation class F, temperature class B
0.37-355kW, Grade 1 according to GB 18613-2020

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
				满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%		I_N	I_S/I_N	T_N	T_I/T_N	T_B/T_N			
kW			r/min				cosϕ	A		Nm			$J=1/4\ GD^2 kgm^2$	kg	dB
1000 r/min = 6 极 / 6 poles			380 V 50Hz					CENELEC- 设计 design							
0.37	M2QA 80MLA 6-FB5	3GQA083410-••P	956	81.6	81.0	77.9	0.72	0.95	6.0	3.70	3.0	3.3	0.00295	22	56
0.55	M2QA 80MLB 6-FB5	3GQA083420-••P	957	84.2	82.4	79.7	0.71	1.39	6.1	5.50	3.1	3.4	0.00354	25	56
0.75	M2QA 90SLA 6-FB5	3GQA093010-••P	974	85.7	84.5	80.6	0.74	1.79	6.4	7.40	2.4	3.3	0.00604	32	48
1.1	M2QA 90SLB 6-FB5	3GQA093020-••P	969	87.2	87.0	84.9	0.73	2.60	5.7	10.8	2.2	3.0	0.00731	36	48
1.5	M2QA 100LKA 6-FB5	3GQA103810-••P	975	88.4	88.6	87.3	0.75	3.50	6.4	14.7	2.6	3.1	0.0154	44	47
2.2	M2QA 112MLA 6-FB5	3GQA113410-••P	973	89.7	89.9	89.4	0.75	5.00	5.4	21.6	1.8	2.7	0.0198	57	48
3	M2QA 132SA 6-FB5	3GQA133110-••P	987	90.6	90.6	89.4	0.73	6.80	7.4	29.0	2.1	3.1	0.0472	74	61
4	M2QA 132SMA 6-FB5	3GQA133210-••P	987	91.4	91.4	90.2	0.73	9.00	7.9	38.7	2.4	3.2	0.0596	89	61
5.5	M2QA 132SMB 6-FB5	3GQA133220-••P	987	92.2	92.3	91.3	0.74	12.1	8.0	53.2	2.3	3.3	0.0811	110	61
7.5	M2QA 160MLA 6-FB5	3GQA163410-••P	991	92.9	93.2	92.7	0.72	17.0	7.5	72.3	2.2	3.4	0.169	163	57
11	M2QA 160MLB 6-FB5	3GQA163420-••P	992	93.7	93.8	93.2	0.71	25.1	8.3	106	2.5	3.7	0.237	206	58
15	M2QA 180MLA 6-FB5	3GQA183410-••P	990	94.3	94.4	93.8	0.76	31.8	7.4	145	2.3	3.1	0.357	246	63
18.5	M2QA 200MLA 6-FB5	3GQA203410-••P	991	94.6	94.8	94.3	0.82	36.2	8.0	178	2.8	3.8	0.662	307	63
22	M2QA 200MLB 6-FB5	3GQA203420-••P	992	94.9	95	94.4	0.81	43.5	8.8	212	3.2	4.2	0.795	343	63
30	M2QA 225SMA 6-FB5	3GQA223210-••P	993	95.3	95.3	94.6	0.80	59.8	8.9	288	2.6	4.0	1.00	466	65
37	M2QA 250SMA 6-FB5	3GQA253210-••P	994	95.6	95.6	95	0.83	71.2	7.2	356	2.1	2.8	1.73	596	61
45	M2QA 280SMA 6-FB5	3GQA283210-••P	993	95.8	96	95.7	0.85	84.0	8.2	433	3.0	2.9	2.59	698	66
55	M2QA 280SMB 6-FB5	3GQA283220-••P	993	96	96.2	95.9	0.85	102	8.6	529	3.2	3.0	3.13	778	68
75	M2QA 315SMA 6-FB5	3GQA313210-••P	994	96.3	96.6	96.5	0.83	143	7.6	721	2.5	2.7	5.00	952	61
90	M2QA 315MLA 6-FB5	3GQA313410-••P	993	96.5	96.8	96.8	0.84	169	6.9	865	2.5	2.9	5.70	1067	61
110	M2QA 315MLB 6-FB5	3GQA313420-••P	993	96.6	96.9	96.8	0.84	207	7.3	1057	2.5	3.0	6.50	1149	62
132	M2QA 315MLC 6-FB5	3GQA313430-••P	993	96.8	97.1	97	0.84	248	7.5	1269	2.6	3.2	7.70	1352	62
160	M2QA 355SMA 6-FB5	3GQA353210-••P	995	96.9	97	96.7	0.85	295	8.4	1535	2.4	3.2	12.0	1767	72
185	M2QA 355SMB 6-FB5	3GQA353220-••P	995	97	97.1	96.9	0.85	341	8.3	1775	2.4	3.4	12.0	1767	72
200	M2QA 355MLA 6-FB5	3GQA353410-••P	995	97	97.3	97.1	0.84	373	7.6	1920	2.2	3.6	12.7	1897	73
220	M2QA 355MLB 6-FB5	3GQA353420-••P	995	97	97.2	97.1	0.83	415	7.6	2112	2.3	3.6	13.3	1949	73
250	M2QA 355MLC 6-FB5	3GQA353430-••P	995	97	97.2	97.1	0.83	472	7.4	2399	2.3	3.5	13.9	2007	74
280	M2QA 355MLD 6-FB5	3GQA353440-••P	995	97	97.2	97.3	0.84	522	7.7	2687	2.3	3.5	14.4	2053	74
315	M2QA 355LKA 6-FB5	3GQA353810-••P	994	97	97.2	97	0.83	595	6.1	3027	2.4	2.4	13.8	2212	76
355	M2QA 355LKB 6-FB5	3GQA353820-••P	995	97	97.2	96.9	0.81	686	7.0	3409	2.4	3.2	14.6	2277	76

产品代码中的两个圆点表示可选的安装方式、电压及频率代码（见订购信息一页）。

The two bullets in the product code indicate choice of mounting arrangements, voltage and frequency code (see ordering information page).

I_s / I_N = 启动电流
T_l / T_N = 转子堵转转矩
T_b / T_N = 最大转矩

I_s / I_N = Starting current
T_l / T_N = Locked rotor torque
T_b / T_N = Breakdown torque

技术数据
Technical data

IE4
2P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.75-355kW，符合GB 18613-2020 的2 级能效，符合IEC 60034-30-1:2014 的IE4 效率等级
IP65 - IC411 Insulation class F, temperature class B
0.75-355kW, Grade 2 according to GB 18613-2020, IE4 according to IEC 60034-30-1:2014

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
				满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%		I_N	I_S/I_N	T_N	T_I/T_N	T_B/T_N			
kW			r/min				cosϕ	A		Nm			$J=1/4\ GD^2 kgm^2$	kg	dB
3000 r/min = 2 极 / 2 poles			380 V 50Hz					CENELEC- 设计 design							
0.75	M2QA 80MA 2-FB4	3GQA081310-••N	2890	83.5	84.3	83.3	0.86	1.58	6.9	2.50	2.3	3.3	0.00101	17	55
1.1	M2QA 80MLA 2-FB4	3GQA081410-••N	2892	85.2	85.9	85.1	0.87	2.20	7.6	3.60	2.6	3.6	0.00132	19	55
1.5	M2QA 90SA 2-FB4	3GQA091110-••N	2890	86.5	87.5	87.0	0.87	3.30	7.2	4.90	3.0	3.9	0.00229	28	60
2.2	M2QA 90SLA 2-FB4	3GQA091010-••N	2870	88.0	89.0	88.7	0.87	4.30	6.5	7.30	2.8	3.6	0.00306	33	60
3	M2QA 100LKA 2-FB4	3GQA101810-••N	2923	89.1	89.7	89.1	0.89	5.70	7.9	9.80	2.6	3.4	0.00495	44	57
4	M2QA 112MLA 2-FB4	3GQA111410-••N	2909	90.0	91.1	91.1	0.89	7.60	6.8	13.1	2.4	3.1	0.00728	51	66
5.5	M2QA 132SA 2-FB4	3GQA131110-••N	2900	90.9	91.3	91.4	0.87	10.4	7.7	18.1	2.2	3.3	0.0122	70	65
7.5	M2QA 132SMA 2-FB4	3GQA131210-••N	2900	91.7	92.8	93.0	0.90	13.8	7.6	24.7	2.2	3.2	0.0148	83	65
11	M2QA 160MLA 2-FB4	3GQA161410-••N	2954	92.6	93.1	92.8	0.87	20.6	6.8	35.6	2.0	2.9	0.0509	132	65
15	M2QA 160MLB 2-FB4	3GQA161420-••N	2953	93.3	93.9	93.8	0.89	27.5	7.1	48.5	2.2	3.0	0.0641	147	65
18.5	M2QA 160MLC 2-FB4	3GQA161430-••N	2955	93.7	94.3	94.3	0.89	33.6	7.5	59.8	2.3	3.1	0.0745	159	65
22	M2QA 180MLA 2-FB4	3GQA181410-••N	2958	94.0	94.6	94.6	0.88	40.3	7.5	71.0	2.3	3.3	0.089	192	68
30	M2QA 200MLA 2-FB4	3GQA201410-••N	2966	94.5	94.6	94.1	0.89	54.1	6.8	96.6	2.3	1.9	0.222	289	73
37	M2QA 200MLB 2-FB4	3GQA201420-••N	2962	94.8	95.0	94.7	0.89	66.6	6.3	119	2.3	2.9	0.23	296	73
45	M2QA 225SMA 2-FB4	3GQA221210-••N	2980	95.0	95.2	94.7	0.89	80.5	7.5	144	2.2	3.3	0.358	338	74
55	M2QA 250SMA 2-FB4	3GQA251210-••N	2974	95.3	95.6	95.3	0.90	97.1	7.7	177	3.0	3.2	0.514	432	79
75	M2QA 280SMA 2-FB4	3GQA281210-••N	2977	95.6	95.5	94.8	0.88	135	7.2	241	1.9	3.0	0.780	578	74
90	M2QA 280SMB 2-FB4	3GQA281220-••N	2974	95.8	95.8	95.1	0.89	160	8.4	289	1.8	2.6	0.910	676	74
110	M2QA 315SMA 2-FB4	3GQA311210-••N	2981	96.0	95.9	95.2	0.87	200	6.2	352	1.6	3.0	1.40	828	76
132	M2QA 315SMB 2-FB4	3GQA311220-••N	2982	96.2	96.0	95.4	0.88	237	7.5	423	2.1	3.4	1.60	906	77
160	M2QA 315MLA 2-FB4	3GQA311410-••N	2981	96.3	96.0	95.3	0.89	284	6.9	513	2.0	3.1	1.90	1037	77
185	M2QA 315MLC 2-FB4	3GQA311430-••N	2983	96.4	96.5	96.0	0.89	328	6.8	592	2.1	3.3	1.90	1062	77
200	M2QA 315MLB 2-FB4	3GQA311420-••N	2980	96.5	96.6	96.3	0.89	354	6.3	641	1.9	3.0	2.00	1099	77
220	M2QA 355SMC 2-FB4	3GQA351230-••N	2985	96.5	96.3	95.6	0.89	389	8.1	704	2.1	4.1	3.36	1493	79
250	M2QA 355SMA 2-FB4	3GQA351210-••N	2983	96.5	96.4	95.8	0.90	437	7.6	800	2.0	3.8	3.36	1492	79
280	M2QA 355SMD 2-FB4	3GQA351240-••N	2983	96.5	96.3	95.6	0.89	495	7.7	896	2.3	3.8	3.64	1562	82
315	M2QA 355SMB 2-FB4	3GQA351220-••N	2982	96.5	96.4	95.8	0.89	557	7.1	1009	2.2	3.3	3.84	1627	82
355	M2QA 355MLA 2-FB4	3GQA351410-••N	2982	96.5	96.5	96.0	0.89	628	7.1	1137	2.2	3.2	3.87	1698	82

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I_s / I_N = Starting current
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T_b / T_N = Breakdown torque

技术数据
Technical data

IE4
4P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.55-355kW，符合GB 18613-2020 的2 级能效，符合IEC 60034-30-1:2014 的IE4 效率等级
IP65 - IC411 Insulation class F, temperature class B
0.55-355kW, Grade 2 according to GB 18613-2020, IE4 according to IEC 60034-30-1:2014

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
kW			r/min	满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%	cosϕ	I_N A	I_S/I_N	T_N Nm	T_I/T_N	T_B/T_N	J=1/4 GD^2kgm²	kg	dB
1500 r/min = 4 极 / 4 poles			380 V 50Hz					CENELEC- 设计 design							
0.55	M2QA 80MLA 4-FB4	3GQA082410-••N	1447	83.9	83.9	81.7	0.84	1.20	6.3	3.60	2.4	3.0	0.00236	19	46
0.75	M2QA 80MLB 4-FB4	3GQA082420-••N	1458	85.7	83.8	80.3	0.77	1.76	7.7	4.90	3.3	4.0	0.00277	22	46
1.1	M2QA 90SLA 4-FB4	3GQA092010-••N	1452	87.2	87.5	86.2	0.82	2.30	6.8	7.20	2.5	3.3	0.00507	32	44
1.5	M2QA 90SLB 4-FB4	3GQA092020-••N	1448	88.2	88.9	88.3	0.80	3.20	7.0	9.90	2.6	3.2	0.00577	35	44
2.2	M2QA 100LKA 4-FB4	3GQA102810-••N	1467	89.5	90.8	90.5	0.78	4.80	7.6	14.3	2.1	3.3	0.0103	40	54
3	M2QA 100LKB 4-FB4	3GQA102820-••N	1465	90.4	91.6	90.8	0.80	6.30	7.6	19.6	2.1	3.2	0.0136	48	54
4	M2QA 112MLA 4-FB4	3GQA112410-••N	1471	91.1	91.3	90.3	0.81	8.20	7.8	26.0	2.7	3.6	0.0196	58	57
5.5	M2QA 132SA 4-FB4	3GQA132110-••N	1475	91.9	92.4	91.9	0.81	11.2	7.9	35.6	2.7	3.4	0.04	77	54
7.5	M2QA 132SMA 4-FB4	3GQA132210-••N	1471	92.6	92.7	92.6	0.82	15.1	7.9	48.7	3.4	3.7	0.051	93	54
11	M2QA 160MLA 4-FB4	3GQA162410-••N	1481	93.3	93.6	93.1	0.85	21.2	8.7	70.9	2.6	3.6	0.0985	153	61
15	M2QA 160MLB 4-FB4	3GQA162420-••N	1480	93.9	94.3	94.0	0.86	28.4	8.6	96.8	2.7	3.7	0.132	186	61
18.5	M2QA 180MLA 4-FB4	3GQA182410-••N	1482	94.2	94.6	94.4	0.84	35.5	7.3	119	2.8	2.9	0.173	200	61
22	M2QA 180MLB 4-FB4	3GQA182420-••N	1482	94.5	94.9	94.8	0.84	42.0	7.5	142	2.9	3.0	0.216	224	61
30	M2QA 200MLA 4-FB4	3GQA202410-••N	1484	94.9	95.3	95.0	0.83	57.8	7.8	193	2.4	3.2	0.395	282	64
37	M2QA 225SMA 4-FB4	3GQA222210-••N	1489	95.2	95.4	95.0	0.85	69.4	6.8	237	2.5	3.1	0.547	325	68
45	M2QA 225SMB 4-FB4	3GQA222220-••N	1488	95.4	95.7	95.4	0.85	84.3	6.7	289	2.4	3.0	0.593	344	68
55	M2QA 250SMA 4-FB4	3GQA252210-••N	1484	95.7	96.0	95.9	0.86	102	7.7	354	2.3	3.1	0.768	410	68
75	M2QA 280SMA 4-FB4	3GQA282210-••N	1484	96.0	96.1	95.8	0.85	140	6.7	483	2.5	2.8	1.43	664	63
90	M2QA 280SMB 4-FB4	3GQA282220-••N	1484	96.1	96.4	96.3	0.85	167	7.7	580	2.9	3.1	1.68	712	63
110	M2QA 315SMA 4-FB4	3GQA312210-••N	1489	96.3	96.4	96.0	0.86	202	7.2	705	2.2	2.8	2.50	897	66
132	M2QA 315SMB 4-FB4	3GQA312220-••N	1489	96.4	96.5	96.2	0.86	242	7.6	846	2.4	3.1	2.80	952	66
160	M2QA 315MLA 4-FB4	3GQA312410-••N	1488	96.6	96.8	96.6	0.87	289	7.5	1026	2.5	3.1	3.40	1103	67
185	M2QA 315MLC 4-FB4	3GQA312430-••N	1489	96.7	96.9	96.7	0.87	335	7.6	1186	2.3	3.5	4.20	1334	68
200	M2QA 315MLB 4-FB4	3GQA312420-••N	1488	96.7	97.0	97.0	0.88	357	7.1	1283	2.2	3.2	4.20	1334	68
220	M2QA 355SMC 4-FB4	3GQA352230-••N	1492	96.7	96.8	96.5	0.85	407	7.1	1408	2.4	4.0	6.20	1533	74
250	M2QA 355SMA 4-FB4	3GQA352210-••N	1489	96.7	97.0	96.9	0.87	457	7.2	1603	2.4	2.6	6.60	1594	74
280	M2QA 355SMD 4-FB4	3GQA352240-••N	1491	96.7	96.8	96.6	0.86	512	6.8	1794	2.3	3.7	7.33	1638	76
315	M2QA 355SMB 4-FB4	3GQA352220-••N	1489	96.7	97.0	96.8	0.87	582	7.1	2021	2.5	2.6	7.33	1648	76
355	M2QA 355MLA 4-FB4	3GQA352410-••N	1490	96.7	96.9	96.7	0.87	641	6.8	2275	2.4	3.7	8.74	1944	76

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技术数据
Technical data

IE4
6P 380V 50Hz

低压粉尘防爆电机的技术数据
Technical data for Low voltage Dust ignition proof motors

IP65 - IC411 绝缘等级F，温升等级B
0.37-355kW，符合GB 18613-2020 的2 级能效，符合IEC 60034-30-1:2014 的IE4 效率等级
IP65 - IC411 Insulation class F, temperature class B
0.37-355kW, Grade 2 according to GB 18613-2020, IE4 according to IEC 60034-30-1:2014

输出 Output	电机型号 Motor type	产品代码 Product code	转速 Speed	效率 / Efficiency IEC 60034-30-1;2014			功率因数 Power factor	电流 Current		转矩 / Torque			转动惯量 Moment of inertia	重量 Weight	声压等级 Sound pressure level, L_{PA}
				满载 load 100%	3/4 负载 load 75%	1/2 负载 load 50%		I_N	I_S/I_N	T_N	T_I/T_N	T_B/T_N			
kW			r/min				cosΦ	A		Nm			$J=1/4\ GD^2 kgm^2$	kg	dB
1000 r/min = 6 极 / 6 poles			380 V 50Hz					CENELEC- 设计 design							
0.37	M2QA 80MLA 6-FB4	3GQA083410-••N	952	78.0	78.6	75.4	0.77	0.94	5.5	3.70	2.5	2.9	0.00244	19	56
0.55	M2QA 80MLB 6-FB4	3GQA083420-••N	954	80.9	79.6	76.2	0.74	1.39	5.9	5.50	2.9	3.2	0.00308	23	56
0.75	M2QA 90SA 6-FB4	3GQA093110-••N	964	82.7	81.5	77.6	0.75	1.83	5.8	7.40	1.9	2.9	0.00426	25	48
1.1	M2QA 90SLA 6-FB4	3GQA093010-••N	964	84.5	83.7	80.5	0.74	2.70	5.7	10.9	2.0	3.0	0.00559	31	48
1.5	M2QA 100LKA 6-FB4	3GQA103810-••N	969	85.9	86.1	85.0	0.76	3.30	6.9	14.9	2.3	3.3	0.0133	45	47
2.2	M2QA 112MLA 6-FB4	3GQA113410-••N	973	87.4	87.4	85.6	0.73	5.20	5.2	21.6	1.6	2.5	0.0154	48	48
3	M2QA 132SA 6-FB4	3GQA133110-••N	981	88.6	89.9	89.0	0.72	7.20	6.7	29.2	2.0	3.0	0.0394	68	61
4	M2QA 132SMA 6-FB4	3GQA133210-••N	981	89.5	90.7	90.0	0.73	9.40	7.0	38.9	2.1	3.1	0.0502	81	61
5.5	M2QA 132SMB 6-FB4	3GQA133220-••N	979	90.5	91.4	91.1	0.75	12.5	6.9	53.7	2.1	3.0	0.0655	94	61
7.5	M2QA 160MLA 6-FB4	3GQA163410-••N	989	91.3	91.5	90.6	0.76	16.3	7.5	72.4	2.0	3.0	0.132	146	62
11	M2QA 160MLB 6-FB4	3GQA163420-••N	987	92.3	92.9	92.4	0.79	23.0	8.3	106	1.8	2.7	0.181	185	62
15	M2QA 180MLA 6-FB4	3GQA183410-••N	984	92.9	93.4	93.1	0.79	31.1	6.9	146	2.4	2.9	0.198	215	64
18.5	M2QA 200MLA 6-FB4	3GQA203410-••N	988	93.4	93.5	92.7	0.80	37.6	7.8	179	2.5	3.1	0.371	255	59
22	M2QA 200MLB 6-FB4	3GQA203420-••N	989	93.7	93.8	93.0	0.82	43.5	8.1	212	2.5	3.2	0.459	285	59
30	M2QA 225SMA 6-FB4	3GQA223210-••N	991	94.2	94.4	93.9	0.81	59.9	8.2	289	2.5	3.2	0.662	352	64
37	M2QA 250SMA 6-FB4	3GQA253210-••N	992	94.5	94.9	94.6	0.80	74.7	7.9	356	3.1	3.1	1.49	447	61
45	M2QA 280SMA 6-FB4	3GQA283210-••N	989	94.8	95.1	94.9	0.85	84.6	7.5	435	2.7	2.6	2.16	590	63
55	M2QA 280SMB 6-FB4	3GQA283220-••N	988	95.1	95.5	95.4	0.85	103	6.5	531	2.6	2.5	2.42	679	63
75	M2QA 315SMA 6-FB4	3GQA313210-••N	993	95.4	95.6	95.2	0.83	144	7.2	721	2.5	2.9	4.80	916	67
90	M2QA 315SMB 6-FB4	3GQA313220-••N	993	95.6	95.8	95.4	0.82	174	7.3	865	2.5	2.8	5.20	924	67
110	M2QA 315MLA 6-FB4	3GQA313410-••N	993	95.8	96.1	95.9	0.83	210	7.0	1058	2.2	2.6	6.10	1103	68
132	M2QA 315MLB 6-FB4	3GQA313420-••N	992	96.0	96.4	96.3	0.84	249	6.3	1270	2.3	2.8	7.30	1291	68
160	M2QA 355SMA 6-FB4	3GQA353210-••N	994	96.2	96.3	96.0	0.83	304	7.0	1537	2.3	2.9	9.40	1552	70
185	M2QA 355SMC 6-FB4	3GQA353230-••N	993	96.3	96.5	96.3	0.84	349	5.7	1780	1.7	3.1	10.4	1641	70
200	M2QA 355SMB 6-FB4	3GQA353220-••N	994	96.3	96.4	96.0	0.82	384	7.5	1921	2.3	2.8	11.2	1693	70
220	M2QA 355MLB 6-FB4	3GQA353420-••N	992	96.5	96.8	96.7	0.84	411	5.4	2117	1.7	2.9	12.0	1834	70
250	M2QA 355MLA 6-FB4	3GQA353410-••N	994	96.5	96.8	96.8	0.84	469	5.8	2402	1.8	3.1	13.0	1991	70
280	M2QA 355MLC 6-FB4	3GQA353430-••N	993	96.6	96.8	96.7	0.83	527	5.8	2693	1.9	3.1	13.5	2007	70
315	M2QA 355MLD 6-FB4	3GQA353440-••N	994	96.6	96.9	96.8	0.84	590	7.6	3026	2.2	2.8	14.0	2090	73
355	M2QA 355LKA 6-FB4	3GQA353810-••N	995	96.6	96.8	96.5	0.81	686	7.0	3409	2.4	3.2	14.6	2277	76

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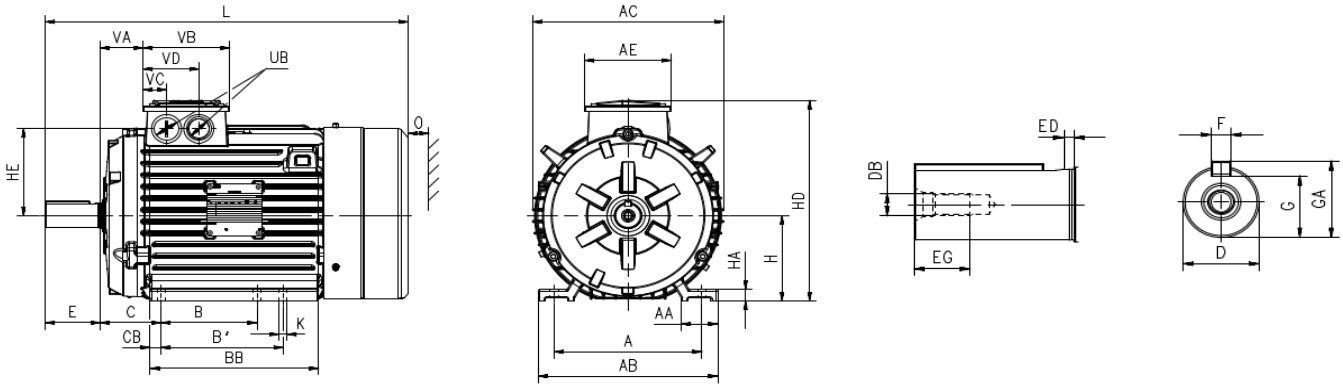
外形图及外形尺寸 机座号 80-132
Dimension drawings Frame size 80-132

底脚安装型电机 IM1001, B3
Foot-mounted motor IM1001, B3



电机尺寸 Motor size		A	AA	AB	AC	AE	B	B'	BB	C	CB	D-tol.	DB	E	EG	ED
M2QA -FB5	80M	125	33	154	164	111	100	-	125	50	12.5	19-j6	M6	40	16	4
	80MLA2	125	33	154	184	111	100	112	150	50	12.5	19-j6	M6	40	16	4
	80MLA4/MLA6	125	33	154	184	111	100	112	165	50	12.5	19-j6	M6	40	16	4
	80MLB4/MLB6	125	33	154	184	111	100	112	180	50	12.5	19-j6	M6	40	16	4
	90SLA2/SLB2/SLA4/SLA6	140	33	170	195	111	100	125	185	56	12	24-j6	M8	50	19	5
	90SLB4/SLB6	140	33	170	195	111	100	125	185	56	12	24-j6	M8	50	19	5
	100LKA2/LKA4	160	38	200	231.5	127	140	160	205	63	15	28-j6	M10	60	22	5
	100LKB4	160	38	200	231.5	127	140	160	225	63	15	28-j6	M10	60	22	5
	100LKA6	160	38	200	231.5	127	140	160	190	63	15	28-j6	M10	60	22	5
	112MLA2/MLA6	190	48	230	236	127	140	159	215	70	15	28-j6	M10	60	22	5
	112MLA4	190	48	230	236	127	140	159	219	70	15	28-j6	M10	60	22	5
	132S	216	53	262	279	127	140	-	196	89	16	38-k6	M12	80	28	5
	132SMA2/SMA4/SMA6	216	53	262	279	127	140	178	246	89	16	38-k6	M12	80	28	5
	132SMB4/SMB	216	53	262	279	127	140	178	246	89	16	38-k6	M12	80	28	5

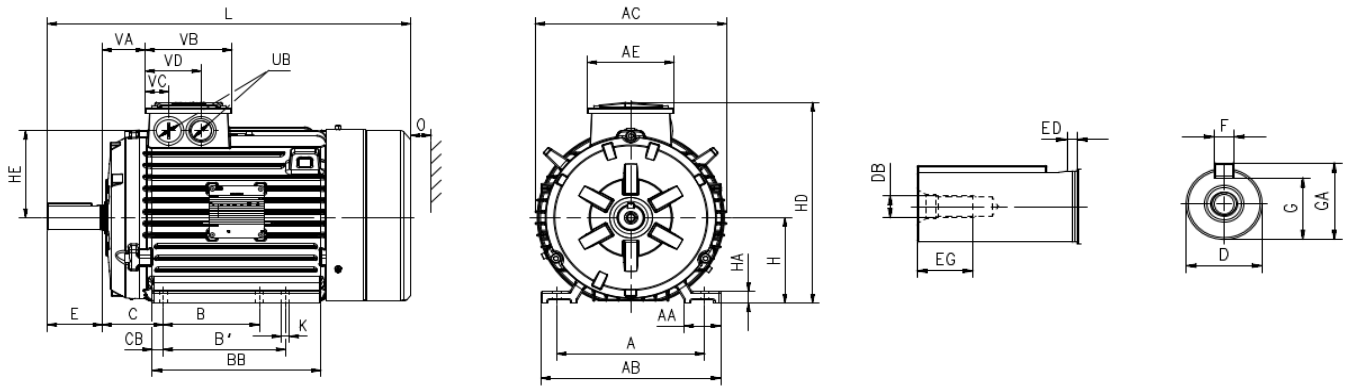
电机尺寸 Motor size		F(h9)	G	GA	H	HA	HD	HE	K	L	UB	VA	VB	VC	VD	O
M2QA -FB5	80M	6	15.5	21.5	80	12	193	69.5	10	312	M25x1.5	40	111	30	70	20
	80MLA2	6	15.5	21.5	80	12	193	69.5	10	337	M25x1.5	40	111	30	70	20
	80MLA4/MLA6	6	15.5	21.5	80	12	193	69.5	10	367	M25x1.5	40	111	30	70	20
	80MLB4/MLB6	6	15.5	21.5	80	12	193	69.5	10	397	M25x1.5	40	111	30	70	20
	90SLA2/SLB2/SLA4/SLA6	8	20	27	90	12	219	86	10	390	M25x1.5	48	111	30	70	20
	90SLB4/SLB6	8	20	27	90	12	219	86	10	430	M25x1.5	48	111	30	70	20
	100LKA2/LKA4	8	24	31	100	15	249	103	12	463.5	M32x1.5	53	127	34	81	25
	100LKB4	8	24	31	100	15	249	103	12	508.5	M32x1.5	53	127	34	81	25
	100LKA6	8	24	31	100	15	249	103	12	418.5	M32x1.5	53	127	34	81	25
	112MLA2/MLA6	8	24	31	112	15	268	112	12	480	M32x1.5	64	127	34	81	25
	112MLA4	8	24	31	112	15	268	112	12	520	M32x1.5	64	127	34	81	25
	132S	10	33	41	132	18	310	134	12	480	M32x1.5	63	127	34	81	30
	132SMA2/SMA4/SMA6	10	33	41	132	18	310	134	12	530	M32x1.5	63	127	34	81	30
	132SMB4/SMB	10	33	41	132	18	310	134	12	580	M32x1.5	63	127	34	81	30

上表给出了主要尺寸（单位：mm）
如需图纸详情，请访问我们的网页
www.abb.com/motors&generators 或联系 ABB。

Above table gives the main dimensions in mm.
For detailed drawings please see our web-pages
www.abb.com/morors&generators or contact ABB.

外形图及外形尺寸 机座号 80-132
Dimension drawings Frame size 80-132

底脚安装型电机 IM1001, B3
Foot-mounted motor IM1001, B3



电机尺寸 Motor size		A	AA	AB	AC	AE	B	B'	BB	C	CB	D-tol.	DB	E	EG	ED
M2QA -FB4	80M	125	33	154	164	111	100	-	125	50	12.5	19-j6	M6	40	16	4
	80MLA2/MLA4/MLA6	125	33	154	184	111	100	112	150	50	12.5	19-j6	M6	40	16	4
	80MLB4/MLB6	125	33	154	184	111	100	112	165	50	12.5	19-j6	M6	40	16	4
	90SA2/SA6	140	33	170	195	111	100	-	124	56	12	24-j6	M8	50	19	5
	90SLA2/SLA4/SLB4/SLA6	140	33	170	195	111	100	125	185	56	12	24-j6	M8	50	19	5
	100LKA2/LKB4	160	38	200	231.5	126.5	140	160	205	63	15	28-j6	M10	60	22	5
	100LKA4/LKA6	160	38	200	231.5	126.5	140	160	190	63	15	28-j6	M10	60	22	5
	112MLA2/ML4	190	48	230	236	127	140	159	215	70	15	28-j6	M10	60	22	5
	112MLA6	190	48	230	236	127	140	159	189	70	15	28-j6	M10	60	22	5
	132S	216	53	262	279	127	140	178	246	89	16	38-k6	M12	80	28	5
	132SM	216	53	262	279	127	140	178	246	89	16	38-k6	M12	80	28	5

电机尺寸 Motor size		F(h9)	G	GA	H	HA	HD	HE	K	L	UB	VA	VB	VC	VD	O
M2QA -FB4	80M	6	15.5	21.5	80	12	193	69.5	10	312	M25x1.5	40	111	30	70	20
	80MLA2/MLA4/MLA6	6	15.5	21.5	80	12	193	69.5	10	337	M25x1.5	40	111	30	70	20
	80MLB4/MLB6	6	15.5	21.5	80	12	193	69.5	10	367	M25x1.5	40	111	30	70	20
	90SA2/SA6	8	20	27	90	12	219	86	10	339	M25x1.5	48	111	30	70	20
	90SLA2/SLA4/SLB4/SLA6	8	20	27	90	12	219	86	10	390	M25x1.5	48	111	30	70	20
	100LKA2/LKB4	8	24	31	100	15	249	103	12	463.5	M32x1.5	53	127	34	81	25
	100LKA4/LKA6	8	24	31	100	15	249	103	12	418.5	M32x1.5	53	127	34	81	25
	112MLA2/ML4	8	24	31	112	15	268	112	12	480	M32x1.5	64	127	34	81	25
	112MLA6	8	24	31	112	15	268	112	12	440	M32x1.5	64	127	34	81	25
	132S	10	33	41	132	18	310	134	12	480	M32x1.5	63	127	34	81	30
	132SM	10	33	41	132	18	310	134	12	530	M32x1.5	63	127	34	81	30

上表给出了主要尺寸（单位：mm）
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Above table gives the main dimensions in mm.
For detailed drawings please see our web-pages
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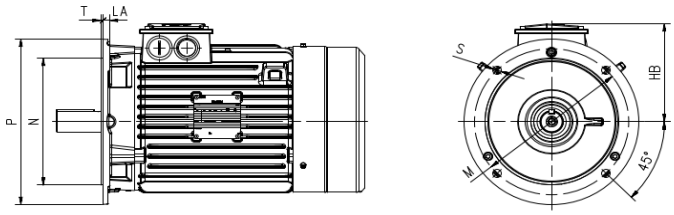
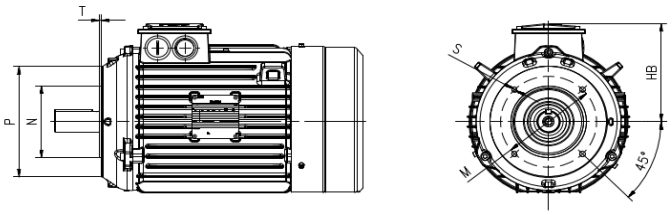
外形图及外形尺寸 机座号 80-132
Dimension drawings Frame size 80-132

凸缘安装型电机 IM3001, B5
Flange-mounted motor IM3001, B5



电机尺寸 Motor size		HB	LA	M	N	P	S	T
M2QA -FB5/FB4	80	113	10	165	130	200	12	3.5
	90	129	10	165	130	200	12	3.5
	100	149	11	215	180	250	14.5	4
	112	156	11	215	180	250	14.5	4
	132	178	12	265	230	300	14.5	4

小凸缘安装型电机 IM3601, B14
Small flange-mounted motor IM3601, B14



电机尺寸 Motor size		HB	M	N	P	S	T
M2QA -FB5/FB4	80	113	100	80	120	M6	3
	90	129	115	95	140	M8	3
	100	149	130	110	160	M8	3.5
	112	156	130	110	160	M8	3.5
	132	178	165	130	200	M10	3.5

上表给出了主要尺寸（单位：mm）
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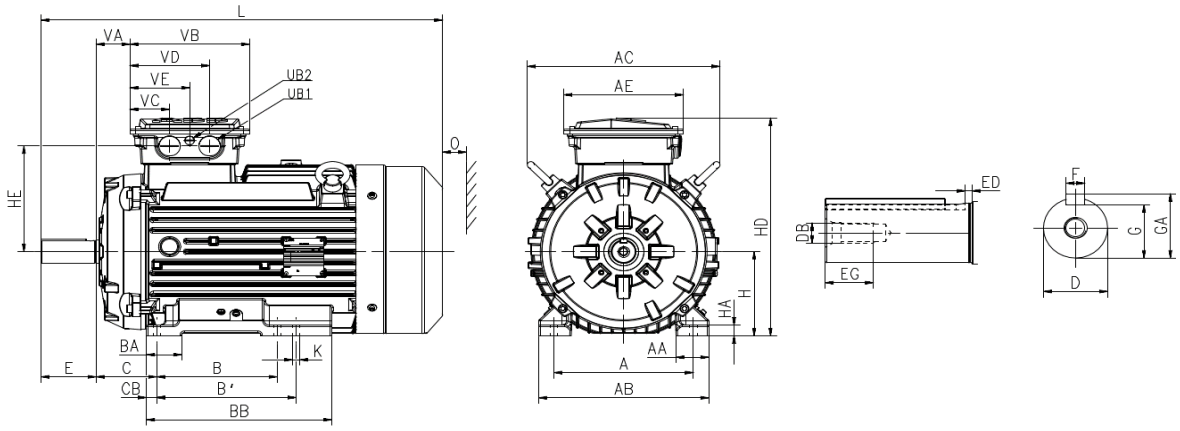
外形图及外形尺寸 机座号 160-250
Dimension drawings Frame size 160-250

底脚安装型电机 IM1001, B3
Foot-mounted motor IM1001, B3



电机尺寸 Motor size		极数 Poles	A	AA	AB	AC	AE	B	B'	BA	BB	C	CB	D-tol.	DB	E	EG	ED
M2QA	160ML[1)]	2-6p	254	67	310	348	239	210	254	71	295	108	20	42-k6	M16	110	36	10
-FB5	160ML[2)]	2-6p	254	67	310	348	239	210	254	71	350	108	20	42-k6	M16	110	36	10
	180ML	2-6p	279	65	340	382	239	241	279	70	370	121	20	48-k6	M16	110	36	5
	200ML	2-6p	318	69	378	442	257	267	305	82	408	133	19.5	55-m6	M20	110	42	5
	225SM	2P	356	90	434	486	257	286	311	68	407	149	20	55-m6	M20	110	42	5
	225SM	4-6P	356	90	434	486	257	286	311	68	407	149	20	60-m6	M20	140	42	7.5
	250SM	2P	406	96	480	506	257	311	349	79	420	168	24	60-m6	M20	140	42	7.5
	250SM	4-6P	406	96	480	506	257	311	349	79	420	168	24	65-m6	M20	140	42	7.5
M2QA	160ML[3)]	2-6p	254	67	310	348	239	210	254	71	295	108	20	42-k6	M16	110	36	10
-FB4	160ML[4)]	2-6p	254	67	310	348	239	210	254	71	295	108	20	42-k6	M16	110	36	10
	180ML	2-6p	279	65	340	382	239	241	279	70	319	121	20	48-k6	M16	110	36	5
	200ML	2-6p	318	69	378	442	257	267	305	82	344	133	19.5	55-m6	M20	110	42	5
	225SM	2P	356	90	434	486	257	286	311	68	356	149	20	55-m6	M20	110	42	5
	225SM	4-6P	356	90	434	486	257	286	311	68	356	149	20	60-m6	M20	140	42	7.5
	250SM	2P	406	96	480	506	257	311	349	79	397	168	24	60-m6	M20	140	42	7.5
	250SM	4-6P	406	96	480	506	257	311	349	79	397	168	24	65-m6	M20	140	42	7.5

电机尺寸 Motor size		极数 Poles	F(h9)	G	GA	H	HA	HD	HE	K	L	UB1	UB2	VA	VB	VC	VD	VE	O
M2QA	160ML[1)]	2-6p	12	37	45	160	23	430	208	14.5	715	M40x1.5	M16X1.5	60.5	239	80	160	120	45
-FB5	160ML[2)]	2-6p	12	37	45	160	23	430	208	14.5	788	M40x1.5	M16X1.5	60.5	239	80	160	120	45
	180ML	2-6p	14	42.5	51.5	180	23	466	226	14.5	803	M40x1.5	M16x1.5	68	239	80	160	120	50
	200ML	2-6p	16	49	59	200	23	537	264	18.5	883	M63x1.5	M16x1.5	81	257	81	177	129	70
	225SM	2P	16	49	59	225	23.5	580	282	18.5	976	M63x1.5	M16x1.5	78	257	81	177	129	80
	225SM	4-6P	18	53	64	225	23.5	580	282	18.5	1006	M63x1.5	M16x1.5	78	257	81	177	129	80
	250SM	2P	18	53	64	250	24	626	303	24	1029	M63x1.5	M16x1.5	80	257	81	177	129	90
	250SM	4-6P	18	58	69	250	24	626	303	24	1029	M63x1.5	M16x1.5	80	257	81	177	129	90
M2QA	160ML[3)]	2-6p	12	37	45	160	23	430	208	14.5	655	M40x1.5	M16X1.5	60.5	239	80	160	120	45
-FB4	160ML[4)]	2-6p	12	37	45	160	23	430	208	14.5	715	M40x1.5	M16X1.5	60.5	239	80	160	120	45
	180ML	2-6p	14	42.5	51.5	180	23	466	226	14.5	728	M40x1.5	M16x1.5	68	239	80	160	120	50
	200ML	2-6p	16	49	59	200	23	537	264	18.5	793	M63x1.5	M16x1.5	81	257	81	177	129	70
	225SM	2P	16	49	59	225	23.5	580	282	18.5	826	M63x1.5	M16x1.5	78	257	81	177	129	80
	225SM	4-6P	18	53	64	225	23.5	580	282	18.5	856	M63x1.5	M16x1.5	78	257	81	177	129	80
	250SM	2P	18	53	64	250	24	626	303	24	884	M63x1.5	M16x1.5	80	257	81	177	129	90
	250SM	4-6P	18	58	69	250	24	626	303	24	884	M63x1.5	M16x1.5	80	257	81	177	129	90

公差 Tolerance	
A, B	±0.8
H	+0, -0.5
C	±0.8

附注 Footnotes

[1)]MLA2/MLB2/MLA4/MLA6
[2)]MLC2/MLB4/MLB6
[3)]MLA2/MLB2/MLA4/MLA6
[4)]MLB4/MLB6

上表给出了主要尺寸（单位：mm）
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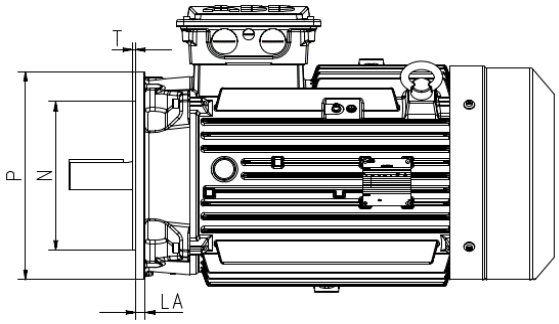
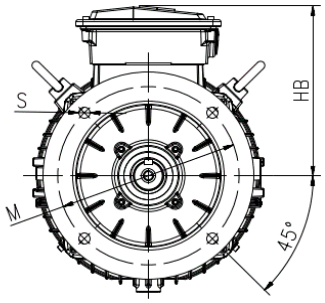
外形图及外形尺寸 机座号 160-250
Dimension drawings Frame size 160-250

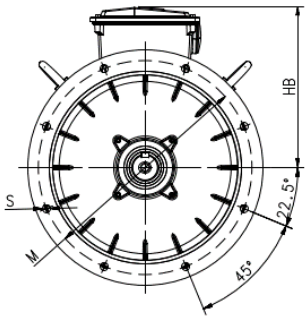
凸缘安装型电机 IM3001, B5
Flange-mounted motor IM3001, B5



机座号 160-200
Frame size 160-200



机座号 225-250
Frame size 225-250



电机尺寸 Motor size		极数 Poles	HB	LA	M	N	P	S	T
M2QA -FB5/FB4	160ML	2-6p	270	15	300	250-j6	350	18.5	5
	180ML	2-6p	286	16	300	250-j6	350	18.5	5
	200ML	2-6p	337	20	350	300-h6	400	18.5	5
	225SM	2-6p	355	20	400	350-h6	450	18.5	5
	250SM	2-6p	376	20	500	450-h6	550	18.5	5

公差 Tolerance	
A, B	±0.8
H	+0, -0.5
C	±0.8

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www.abb.com/motors&generators 或联系 ABB。

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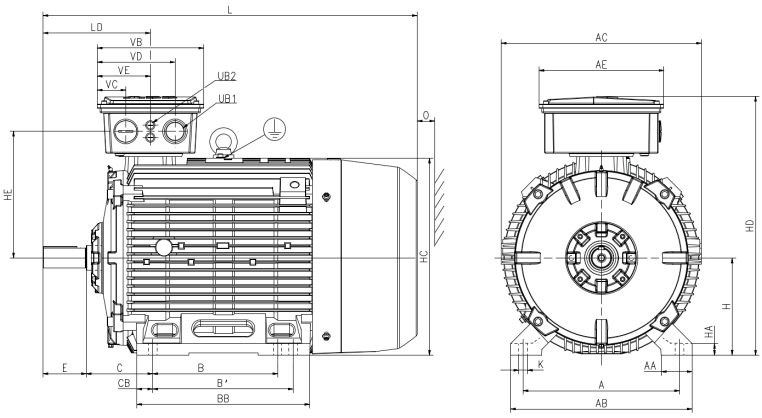
外形图及外形尺寸 机座号 280-355
Dimension drawings Frame size 280-355

底脚安装型电机 IM1001, B3
Foot-mounted motor IM1001, B3



电机尺寸 Motor size		极数 Poles	A	AA	AB	AC	AE	B	B'	BB	C	CB	D-tol.	DB	E	EG	F(h9)	G
M2QA -FB5	280SM	2P	457	75	530	590	348	368	419	596	190	47	65-m6	M20	140	42	18	58
	280SM	4-6P	457	75	530	590	348	368	419	596	190	47	75-m6	M20	140	42	20	67.5
	315SM	2P	508	100	590	650	406	406	457	562	216	52	65-m6	M20	140	42	18	58
	315SM	4-6P	508	100	590	650	406	406	457	562	216	52	80-m6	M20	170	42	22	71
	315ML	2P	508	100	590	650	406	457	508	664	216	52	65-m6	M20	140	42	18	58
	315ML[1)]	6P	508	100	590	650	406	457	508	664	216	52	80-m6	M20	170	42	22	71
	315ML[2)]	6P	508	100	590	650	406	457	508	664	216	52	90-m6	M24	170	50	25	81
	315ML[3)]	4P	508	100	590	660	406	457	508	831	216	59	80-m6	M20	170	50	22	71
	315ML[4)]	4-6P	508	100	590	660	406	457	508	831	216	59	90-m6	M24	170	50	25	81
	355SM	2P	610	120	700	744	466	500	560	698	254	72	70-m6	M20	140	42	20	62.5
	355SM	4-6P	610	120	700	744	466	500	560	698	254	72	100-m6	M24	210	50	28	90
	355ML	2P	610	120	700	754	466	560	630	782	254	79.5	70-m6	M20	140	42	20	62.5
	355ML	4-6P	610	120	700	754	466	560	630	782	254	79.5	100-m6	M24	210	50	28	90
	355LK	6P	610	120	700	754	466	630	710	1035	254	89.5	100-m6	M24	210	50	28	90

电机尺寸 Motor size		极数 Poles	GA	H	HA	HC	HD	HE	K	L	LD	O	UB1	UB2	VB	VC	VD	VE
M2QA -FB5	280SM	2P	69	280	30	580	747	354	24	1182	342	100	M63x1.5	M20x1.5	286	81	205	143
	280SM	4-6P	79.5	280	30	580	747	354	24	1182	342	100	M63x1.5	M20x1.5	286	81	205	143
	315SM	2P	69	315	38	637	837	409	28	1216	348	115	M63x1.5	M20x1.5	346	93	253	173
	315SM	4-6P	85	315	38	637	837	409	28	1246	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML	2P	69	315	38	637	837	409	28	1327	348	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[1)]	6P	85	315	38	637	837	409	28	1357	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[2)]	6P	95	315	38	637	837	409	28	1357	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[3)]	4P	85	315	38	637	837	409	28	1518	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[4)]	4-6P	95	315	38	637	837	409	28	1518	378	115	M63x1.5	M20x1.5	346	93	253	173
	355SM	2P	74.5	355	41	742	935	462	35	1399	399	130	M75x1.5	M20x1.5	356	98	258	178
	355SM	4-6P	106	355	41	742	935	462	35	1469	469	130	M75x1.5	M20x1.5	356	98	258	178
	355ML	2P	74.5	355	41	742	935	462	35	1514	399	130	M75x1.5	M20x1.5	356	98	258	178
	355ML	4-6P	106	355	41	742	935	462	35	1584	469	130	M75x1.5	M20x1.5	356	98	258	178
	355LK	6P	106	355	41	742	935	462	35	1748	469	130	M75x1.5	M20x1.5	356	98	258	178

公差 Tolerance	
A, B	±0.8
H	+0, -1
C	±0.8

M2QA-FB5 附注 Footnotes	M2QA-FB4 附注 Footnotes
[1)] MLA6	[5)] SMA2/SMA6
[2)] MLB6	[6)] SMB2/SMA4/SMB4/SMB6
[3)] MLA4	[7)] MLA4/MLA6
[4)] MLB4/MLC4/MLD4/MLC6	[8)] MLB4/MLC4/MLB6

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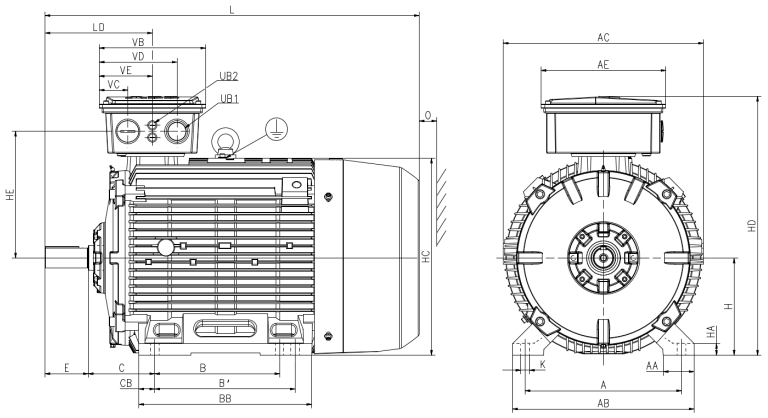
外形图及外形尺寸 机座号 280-355
Dimension drawings Frame size 280-355

底脚安装型电机 IM1001, B3
Foot-mounted motor IM1001, B3



电机尺寸 Motor size		极数 Poles	A	AA	AB	AC	AE	B	B'	BB	C	CB	D-tol.	DB	E	EG	F(h9)	G
M2QA	280SM[5]	2P	457	75	530	590	348	368	419	485	190	38	65-m6	M20	140	42	18	58
-FB4	280SM[6]	2P	457	75	530	590	348	368	419	596	190	47	65-m6	M20	140	42	18	58
	280SM[5]	4-6P	457	75	530	590	348	368	419	485	190	38	75-m6	M20	140	42	20	67.5
	280SM[6]	4-6P	457	75	530	590	348	368	419	596	190	47	75-m6	M20	140	42	20	67.5
	315SM	2P	508	100	590	650	406	406	457	562	216	52	65-m6	M20	140	42	18	58
	315SM	4-6P	508	100	590	650	406	406	457	562	216	52	80-m6	M20	170	42	22	71
	315ML	2P	508	100	590	650	406	457	508	664	216	52	65-m6	M20	140	42	18	58
	315ML[7]	4-6P	508	100	590	650	406	457	508	664	216	52	90-m6	M24	170	50	25	81
	315ML[8]	4-6P	508	100	590	660	406	457	508	831	216	59	90-m6	M24	170	50	25	81
	355SM	2P	610	120	700	744	466	500	560	698	254	72	70-m6	M20	140	42	20	62.5
	355SM	4-6P	610	120	700	744	466	500	560	698	254	72	100-m6	M24	210	50	28	90
	355ML	2P	610	120	700	754	466	560	630	782	254	79.5	70-m6	M20	140	42	20	62.5
	355ML	4-6P	610	120	700	754	466	560	630	782	254	79.5	100-m6	M24	210	50	28	90
	355LK	6P	610	120	700	754	466	630	710	1035	254	89.5	100-m6	M24	210	50	28	90

电机尺寸 Motor size		极数 Poles	GA	H	HA	HC	HD	HE	K	L	LD	O	UB1	UB2	VB	VC	VD	VE
M2QA	280SM[5]	2P	69	280	30	580	747	354	24	1052	342	100	M63x1.5	M20x1.5	286	81	205	143
-FB4	280SM[6]	2P	69	280	30	580	747	354	24	1182	342	100	M63x1.5	M20x1.5	286	81	205	143
	280SM[5]	4-6P	79.5	280	30	580	747	354	24	1052	342	100	M63x1.5	M20x1.5	286	81	205	143
	280SM[6]	4-6P	79.5	280	30	580	747	354	24	1182	342	100	M63x1.5	M20x1.5	286	81	205	143
	315SM	2P	69	315	38	637	837	409	28	1216	348	115	M63x1.5	M20x1.5	346	93	253	173
	315SM	4-6P	85	315	38	637	837	409	28	1246	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML	2P	69	315	38	637	837	409	28	1327	348	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[7]	4-6P	95	315	38	637	837	409	28	1357	378	115	M63x1.5	M20x1.5	346	93	253	173
	315ML[8]	4-6P	95	315	38	637	837	409	28	1518	378	115	M63x1.5	M20x1.5	346	93	253	173
	355SM	2P	74.5	355	41	742	935	462	35	1399	399	130	M75x1.5	M20x1.5	356	98	258	178
	355SM	4-6P	106	355	41	742	935	462	35	1469	469	130	M75x1.5	M20x1.5	356	98	258	178
	355ML	2P	74.5	355	41	742	935	462	35	1514	399	130	M75x1.5	M20x1.5	356	98	258	178
	355ML	4-6P	106	355	41	742	935	462	35	1584	469	130	M75x1.5	M20x1.5	356	98	258	178
	355LK	6P	106	355	41	742	935	462	35	1748	469	130	M75x1.5	M20x1.5	356	98	258	178

公差 Tolerance	
A, B	±0.8
H	+0, -1
C	±0.8

M2QA-FB5 附注 Footnotes

[1] MLA6
[2] MLB6
[3] MLA4
[4] MLB4/MLC4/MLD4/MLC6

M2QA-FB4 附注 Footnotes

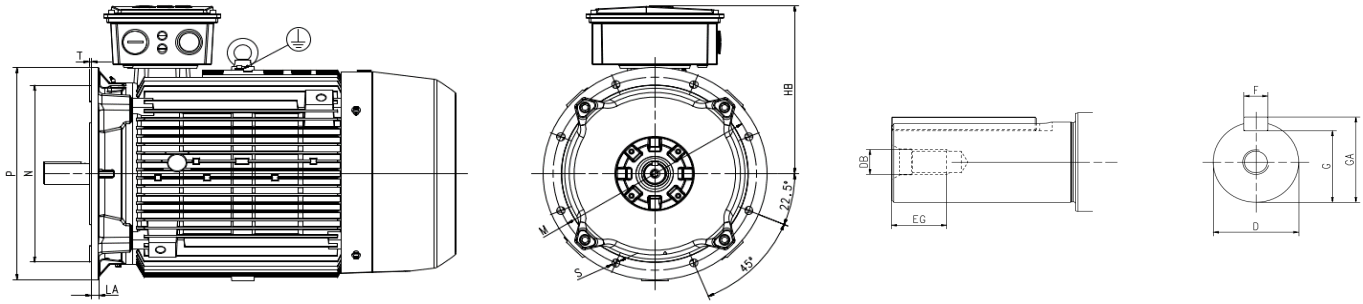
[5] SMA2/SMA6
[6] SMB2/SMA4/SMB4/SMB6
[7] MLA4/MLA6
[8] MLB4/MLC4/MLB6

上表给出了主要尺寸（单位：mm）
如需图纸详情，请访问我们的网页
www.abb.com/motors&generators 或联系 ABB。

Above table gives the main dimensions in mm.
For detailed drawings please see our web-pages
www.abb.com/morors&generators or contact ABB.

外形图及外形尺寸 机座号 280-355
Dimension drawings Frame size 280-355

凸缘安装型电机 IM3001, B5
Flange-mounted motor IM3001, B5



电机尺寸 Motor size		极数 Poles	HB	LA	M	N	P	S	T
M2QA -FB5/FB4	280	2-6P	467	22	500	450-h6	550	18.5	5
	315	2-6P	522	22	600	550-h6	660	24	6
	355	2-6P	580	22	740	680-h6	800	24	6

公差 Tolerance	
A, B	±0.8
H	+0, -1
C	±0.8

附注 Footnotes

[1] SMA2/SMA6
[2] SMB2/SMA4/SMB4/SMB6
[3] MLA4/MLA6
[4] MLB4/MLC4/MLB6

上表给出了主要尺寸（单位：mm）
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Above table gives the main dimensions in mm.
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变量代码
Variant codes

变量代码 Variant code		M2QA 80	90	100	112	132	160	180	200	225	250	280	315	355
管理 Administration														
530	正常质保期延长 2 年 Two-year extension on standard warranty	●	●	●	●	●	●	●	●	●	●	●	●	●
531	海运包装 Sea freight packing	●	●	●	●	●	●	●	●	●	●	●	●	●
533	木制海运包装 Wooden sea freight packing	●	●	●	●	●	●	●	●	●	●	●	●	●
865	延长一年质保 One-year extension on standard warranty	●	●	●	●	●	●	●	●	●	●	●	●	●
100	特殊设计长交期需求 Special design according to quotation (production orders).	●	●	●	●	●	●	●	●	●	●	●	●	●
平衡 Balancing														
417	B 级振动 (IEC60034-14) Vibration acc. to Grade B (IEC 60034-14).	●	●	●	●	●	●	●	●	●	●	●	●	●
423	无键平衡 Balanced without key.	●	●	●	●	●	●	●	●	●	●	●	●	●
424	全键平衡 Full-key balancing	●	●	●	●	●	●	●	●	●	●	●	●	●
轴承与润滑 Bearings and Lubrication														
036	轴承运输锁 Transport lock for bearings.	-	-	-	-	●	●	●	●	●	●	●	●	●
037	D 端圆柱滚子轴承 Roller bearing at D-end.	-	-	-	-	●	●	●	●	●	●	●	●	●
039	耐低温油脂 Cold-resistant grease	●	●	●	●	●	●	●	●	●	●	●	●	●
040	耐高温油脂 Heat-resistant grease	●	●	●	●	●	●	●	●	●	●	●	●	●
041	通过注油嘴对轴承加油 Bearings regreasable via grease nipples.	●	●	●	●	●	●	●	●	●	●	○	○	○
043	SPM 振动测量接头 SPM compatible nipples for vibration measurement	●	●	●	●	●	●	●	●	●	●	●	●	●
107	轴承 Pt100(2 线) Pt100 2-wire in bearings.	●	●	●	●	●	●	●	●	●	●	●	●	●
130	轴承安装 Pt100(3 线) Pt100 3-wire in bearings.	●	●	●	●	●	●	●	●	●	●	●	●	●
188	D 端 63 系列轴承 63-series bearing in D-end	●	●	●	●	●	○	○	○	○	○	○	○	○
379	SKF 轴承 SKF bearings	●	●	●	●	●	●	●	●	●	●	●	●	●
798	不锈钢注油嘴 Stainless steel grease nipples	●	●	●	●	●	●	●	●	●	●	●	●	●
866	不锈钢注油嘴 PT1/4" Stainless steel grease nipples, PT1/4"	●	●	●	●	●	●	●	●	●	●	●	●	●
部门标准设计 Branch standard designs														
178	不锈钢 / 耐酸螺栓 Stainless steel / acid proof bolts.	●	●	●	●	●	●	●	●	●	●	●	●	●
209	非标电压或频率 (特殊绕组) Non-standard voltage or frequency, (special winding).	●	●	●	●	●	●	●	●	●	●	●	●	●
425	防腐蚀定子和转子 Corrosion protected stator and rotor core.	●	●	●	●	●	●	●	●	●	●	●	●	●
584	加强型铸件 , 牌号升一档 Cast iron material with increased tensile strenght	●	●	●	●	●	●	●	●	●	●	●	●	●
冷却系统 Cooling system														
068	轻合金金属风扇 Light alloy metal fan	●	●	●	●	●	●	●	●	●	●	●	●	●

○ 标配 | ● 可选 | - 不适用
○ = Included as standard | ● = Available as option | - = Not applicable

变量代码
Variant codes

变量代码 Variant code		M2QA 80	90	100	112	132	160	180	200	225	250	280	315	355
尺寸图纸 Documentation														
141	配二维主要尺寸图 Binding 2D main dimension drawing.	●	●	●	●	●	●	●	●	●	●	●	●	●
危险环境 Hazardous Environments														
839	Ex tb IIIC T130°C Db, IP6X (导电粉尘) Ex tb IIIC T130°C Db, IP6X (conductive dust)	●	●	●	●	●	●	●	●	●	●	●	●	●
加热元件 Heating elements														
450	加热带 ,100-120V Heating element, 100-120 V	●	●	●	●	●	●	●	●	●	●	●	●	●
451	加热带 ,200-240V Heating element, 200 - 240 V	●	●	●	●	●	●	●	●	●	●	●	●	●
绝缘系统 Insulation system														
014	H 级绝缘绕组 Winding insulation class H.	●	●	●	●	●	●	●	●	●	●	●	●	●
405	用于变频电源的特殊绕组绝缘 Special winding insulation for frequency converter supply.	●	●	●	●	●	●	●	●	●	●	●	●	●
安装方式 Mounting arrangements														
008	IM 2101 底脚 / 法兰安装 , IEC 法兰 , 由 IM 1001 派生 (B3 派生出 B34) IM 2101 foot/flange mounted, IEC flange, from IM 1001 (B34 from B3).	●	●	●	●	●	-	-	-	-	-	-	-	-
009	IM 2001 底脚 / 法兰安装 ,IEC 法兰 , 由 IM 1001 派生 (B3 派生出 B35) IM 2001 foot/flange mounted, IEC flange, from IM 1001 (B35 from B3).	●	●	●	●	●	●	●	●	●	●	●	●	●
047	IM 3601 法兰安装 ,IEC 法兰 , 由 IM 3001 派生 (B5 派生出 B14) IM 3601 flange mounted, IEC flange, from IM 3001 (B14 from B5).	●	●	●	●	●	-	-	-	-	-	-	-	-
066	非标安装方式 (请指定 IM xxxx) (除 B3(1001),B5(3001), B14 (3601), IM B35 (2001) & IM B34 (2101)) 外的其它安装型式须在定单中注明) Modified for specified mounting position differing from IM B3 (1001), IM B5 (3001), B14 (3601), IM B35 (2001), IM B34 (2101)	●	●	●	●	●	●	●	●	●	●	●	●	●
320	IM2001 底脚 / 缺边法兰安装 , 由 IM1001 派生 (B3 派生出 B35) IM2001 foot/flat bottom flange mounted, from IM1001 (B35 flat bottom flange from B3)	●	●	●	●	●	●	-	-	-	-	-	-	-
622	铸铁轴承内盖 (低窜动) Inner bearing cover of cast iron	●	●	●	●	●	●	●	●	●	●	○	○	○
623	大法兰 (C***) Big flange (China)	●	●	●	●	-	-	-	-	-	-	-	-	-
涂装 Painting														
114	特殊油漆颜色 , 标准等级 Special paint color, standard grade	●	●	●	●	●	●	●	●	●	●	●	●	●
115	喷漆系统 C4, 中等耐久度 Painting system C4,durability Medium	●	●	●	●	●	●	●	●	●	●	●	●	●
168	仅涂底漆 Primer paint only.	●	●	●	●	●	●	●	●	●	●	●	●	●
179	特殊油漆要求 (VC114 以外的颜色) Special paint specification.	●	●	●	-	-	-	-	-	-	-	-	-	-
646	除 VC114 外的特殊油漆颜色 Special paint colour (China)	●	●	●	●	●	●	●	●	●	●	●	●	●
754	喷漆系统 C5, 中等耐久度 Painting system C5, durability Medium	●	●	●	●	●	●	●	●	●	●	●	●	●
防护 Protection														
005	防护罩 , 立式电机 , 轴伸向下 Protective roof	●	●	●	●	●	●	●	●	●	●	●	●	●
072	驱动端径向密封，不适用于机座号 280、315 的 2 极电机 Radial seal at D-end. Not possible for 2-pole , 280 and 315 frames	○	○	○	○	○	○	○	○	○	○	○	○	○

○ 标配 | ● 可选 | - 不适用
○ = Included as standard | ● = Available as option | - = Not applicable

变量代码
Variant codes

变量代码 Variant code		M2QA												
		80	90	100	112	132	160	180	200	225	250	280	315	355
158	防护等级 IP65 Degree of protection IP65.	○	○	○	○	○	○	○	○	○	○	○	○	○
250	防护等级 IP66 Degree of protection IP66	●	●	●	●	●	●	●	●	●	●	●	●	●
铭牌和指示牌 Rating & instruction plates														
002	重敲铭牌电压、频率、输出、连续工作制 Restamping voltage, frequency and output, continuous duty.	●	●	●	●	●	●	●	●	●	●	●	●	●
135	安装额外不锈钢指示牌 轴承与润滑	●	●	●	●	●	●	●	●	●	●	●	●	●
163	变频铭牌 . 铭牌数据根据报价单 Frequency converter rating plate. Rating data according to quotation.	●	●	●	●	●	●	●	●	●	●	●	●	●
181	ABB 标准负载参数 ,VSD 驱动铭牌。配变速驱动用附件 Rating plate with ABB standard loadability values for VSD operation. Other auxiliaries for VSD operation to be selected as necessary.	●	●	●	●	●	●	●	●	●	●	●	●	●
轴和转子 Shaft & rotor														
069	根据基本目录的双伸轴 Two shaft extensions according to catalog drawings.	●	●	●	●	●	●	●	●	●	●	●	●	●
070	D 端特殊轴伸 , 标准材料 Special shaft extension at D-End, standard shaft material	●	●	●	●	●	●	●	●	●	●	●	●	●
164	闭口键槽轴伸 Shaft extension with closed keyway	●	●	●	●	●	●	●	●	●	●	●	●	●
410	不锈钢轴（仅限 SUS304、SUS316） Shaft material stainless steel	●	●	●	●	●	●	●	●	●	●	●	●	●
600	N 端特殊轴伸 , 标准材料 Special shaft extension at N-end, standard shaft material.	●	●	●	●	●	●	●	●	●	●	●	●	●
631	调质轴 Quenched and tempered shaft material	●	●	●	●	●	●	●	●	●	●	●	●	●
定子绕组温度传感器 Stator winding temperature sensors														
435	定子绕组安装 PTC- 热敏电阻 (3 个串联),130 °C PTC - thermistors (3 in series), 130 ºC, in stator winding	●	●	●	●	●	●	●	●	●	●	●	●	●
436	定子绕组安装 PTC- 热敏电阻 (3 个串联),150 °C PTC - thermistors (3 in series), 150 ºC, in stator winding	●	●	●	●	●	●	●	●	●	●	○	○	○
437	定子绕组安装 PTC- 热敏电阻 (3 个串联), 170 °C PTC - thermistors (3 in series), 170 ºC, in stator winding	●	●	●	●	●	●	●	●	●	●	●	●	●
439	定子绕组安装 PTC- 热敏电阻 (2×3 个串联),150 °C PTC - thermistors (2x3 in series), 150 ºC, in stator winding	●	●	●	●	●	●	●	●	●	●	●	●	●
441	定子绕组安装 PTC- 热敏电阻 (3 个串联 ,130 °C 以及 3 个串联 ,150 °C) PTC - thermistors (3 in series, 130 ºC & 3 in series, 150 ºC), in stator winding	●	●	●	●	●	●	●	●	●	●	●	●	●
442	定子绕组安装 PTC- 热敏电阻 (3 个串联 ,150 °C 以及 3 个串联 ,170 °C) PTC - thermistors (3 in series, 150 ºC & 3 in series, 170 ºC), in stator winding	●	●	●	●	●	●	●	●	●	●	●	●	●
445	定子绕组安装 Pt100(2 线), 每相 1 个 Pt100 2-wire in stator winding, 1 per phase	-	-	-	-	-	●	●	●	●	●	●	●	●
446	定子绕组安装 Pt100(2 线), 每相 2 个 Pt100 2-wire in stator winding, 2 per phase	-	-	-	-	-	●	●	●	●	●	●	●	●
502	定子绕组安装 Pt100(3 线), 每相 1 个 Pt100 3-wire in stator winding, 1 per phase	-	-	-	-	-	●	●	●	●	●	●	●	●
503	定子绕组安装 Pt100(3 线), 每相 2 个 Pt100 3-wire in stator winding, 2 per phase	-	-	-	-	-	●	●	●	●	●	●	●	●
接线盒 Terminal box														
021	左侧接线盒 (从 D 端看) Terminal box LHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●
022	电缆进线孔在左侧 (从 D 端看) Cable entry LHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●
180	右侧接线盒 (从 D 端看) Terminal box RHS (seen from D-end).	●	●	●	●	●	●	●	●	●	●	●	●	●

○ 标配 | ● 可选 | - 不适用
○ = Included as standard | ● = Available as option | - = Not applicable

变量代码
Variant codes

变量代码 Variant code		M2QA												
		80	90	100	112	132	160	180	200	225	250	280	315	355
230	标准金属电缆密封管 Standard metal cable gland.	●	●	●	●	●	●	●	●	●	●	●	●	●
400	4 x 90 度可转动的接线盒 4 x 90 degr turnable terminal box.	-	-	-	-	-	O	O	O	O	O	O	-	-
468	电缆进口从 D 端 Cable entry from D-end.	-	-	-	-	-	●	●	●	●	●	●	●	●
469	电缆进口从 N 端 Cable entry from N-end.	●	●	●	●	●	●	●	●	●	●	●	●	●
731	2 个标准金属电缆密封管 Two standard metal cable glands.	●	●	●	●	●	●	●	●	●	●	●	●	●
999K016	金属电缆密封管，定制规格数量（注明规格与数量） Metal cable glands, custom specification quantity (specify specification and quantity)	●	●	●	●	●	●	●	●	●	●	●	●	●
试验 Testing														
145	目录电机的型式试验报告 ,400V 50Hz Type test report from a catalogue motor, 400V 50Hz.	●	●	●	●	●	●	●	●	●	●	●	●	●
146	指定交货批次内的某一电机的型式试验报告 Type test with report for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●
148	出厂试验报告 Routine test report.	●	●	●	●	●	●	●	●	●	●	●	●	●
221	指定交货批次的电机型式试验和多点负载测试 , 并提交报告 Type test and multi-point load test with report for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●
222	指定交货批次的一台电机转矩转速曲线、型式试验 和多点负载测试 , 并提交报告 Torque/speed test, type test and multi-point load test with report for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●
760	振动等级测试 Vibration level test	●	●	●	●	●	●	●	●	●	●	●	●	●
762	对指定交货批次内的一台电机进行噪声等级测试 Noise level test for one motor from specific delivery batch.	●	●	●	●	●	●	●	●	●	●	●	●	●
变速驱动 Variable speed drives														
701	N 端绝缘轴承 Insulated bearing at N-end.	-	-	-	-	-	-	-	-	-	-	●	●	●

O 标配 | ● 可选 | - 不适用
O = Included as standard | ● = Available as option | - = Not applicable

低压粉尘防爆电机简介 机座号 80-132
Low voltage Dust ignition proof motors in brief Frame size 80-132

电机尺寸 Motor size		80	90	100	112	132
机座与端盖 Stator and end shields	材料 Material	铸铁 Cast iron				
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
底脚 Feet		一体式铸铁底脚 Integrated cast iron feet				
轴承 Bearings	D 端 D-end	6204-2Z/C3	6205-2Z/C3	6206-2Z/C3	6207-2Z/C3	6208-2Z/C3
	N 端 N-end	6204-2Z/C3	6205-2Z/C3	6206-2Z/C3	6206-2Z/C3	6208-2Z/C3
轴向锁定轴承 Axially locked bearings		D 端锁定 Locked at D-end				
轴承密封 Bearing seals	D 端 , N 端 D-end, N-end	径向密封 Radial seal				
润滑 Lubrication		封闭式轴承 Bearings greased for life				
铭牌 Rating plate	材料 Material	不锈钢 Stainless steel				
接线盒 Terminal box	接线盒材料 Frame material	铸铁 Cast iron				
	接线盒盖材料 Cover material	铸铁 Cast iron				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
	螺钉 Screws	电镀锌钢 Zinc-electroplated steel				
	螺纹孔 Threaded openings	2xM25		2xM32		
连接件 Connections	最大铜线 (Cu) 截面积 (mm^2) Max Cu-area mm^2	6		10		
	接线 Terminals	电缆接线头，6 个端子 Cable lugs, 6 terminals				
风扇 Fan	材料 Material	导电聚酰胺 Conductive polyamide				
风罩 Fan cover	材料 Material	钢板 Steel				
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
定子绕组 Stator winding	材料 Material	铜 Copper				
	绝缘 Insulation	F 级绝缘，B 级温升，除非另有规定 Insulation class F. Temperature rise class B unless otherwise stated				
	绕组保护 Winding protection	可选 As option				
转子绕组 Rotor winding	材料 Material	压铸铝 Pressure die-cast aluminum				
平衡方法 Balancing method		半键平衡 Half-key balancing as standard				
排水孔 Drain holes		排水孔具有可闭合塞，交付时为打开状态 Drain holes with closable plastic plugs, open on delivery				
键槽 Keyway		开口槽 Open keyway				
防护等级 Enclosure		IP 65				
冷却方式 Cooling method		IC 411				
吊环 Lifting lug		一体式铸铁吊环 Integrated cast iron lifting lug				

低压粉尘防爆电机简介 机座号 160-250
Low voltage Dust ignition proof motors in brief Frame size 160-250

电机尺寸 Motor size		160	180	200	225	250
机座与端盖 Stator and end shields	材料 Material	铸铁 Cast iron				
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
底脚 Feet		一体式铸铁底脚 Integrated cast iron feet				
轴承 Bearings	D 端 D-end	6309-2Z/C3	6310-2Z/C3	6312-2Z/C3	6313-2Z/C3	6315-2Z/C3
	N 端 N-end	6209-2Z/C3	6210-2Z/C3	6212-2Z/C3	6213-2Z/C3	6215-2Z/C3
轴向锁定轴承 Axially locked bearings		D 端锁定 Locked at D-end				
轴承密封 Bearing seals	D 端 , N 端 D-end, N-end	径向密封 Radial seal				
润滑 Lubrication		封闭式轴承 Bearings greased for life				
铭牌 Rating plate	材料 Material	不锈钢 Stainless steel				
接线盒 Terminal box	接线盒材料 Frame material	铸铁 Cast iron				
	接线盒盖材料 Cover material	铸铁 Cast iron				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
	螺钉 Screws	电镀锌钢 Zinc-electroplated steel				
	螺纹孔 Threaded openings	2xM40+M16		2xM63+M16		
连接件 Connections	最大铜线 (Cu) 截面积 (mm^2) Max Cu-area mm^2	35		70		
	接线 Terminals	电缆接线头，6 个端子 Cable lugs, 6 terminals				
风扇 Fan	材料 Material	导电聚酰胺 Conductive polyamide				
风罩 Fan cover	材料 Material	钢板 Steel				
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25				
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)				
定子绕组 Stator winding	材料 Material	铜 Copper				
	绝缘 Insulation	F 级绝缘，B 级温升，除非另有规定 Insulation class F. Temperature rise class B unless otherwise stated				
	绕组保护 Winding protection	可选 As option				
转子绕组 Rotor winding	材料 Material	压铸铝 Pressure die-cast aluminum				
平衡方法 Balancing method		半键平衡 Half-key balancing as standard				
排水孔 Drain holes		排水孔具有可闭合塞，交付时为打开状态 Drain holes with closable plastic plugs, open on delivery				
键槽 Keyway		开口槽 Open keyway				
防护等级 Enclosure		IP 65				
冷却方式 Cooling method		IC 411				
吊环 Lifting lug		分体式钢制吊环，通过吊环螺纹连接到机座 Separate steel lifting lug, bolted to the stator				

低压粉尘防爆电机简介 机座号 280-355
Low voltage Dust ignition proof motors in brief Frame size 280-355

电机尺寸 Motor size		280	315	355
机座与端盖 Stator and end shields	材料 Material	铸铁 Cast iron		
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25		
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)		
底脚 Feet		一体式铸铁底脚 Integrated cast iron feet		
轴承 Bearings	D 端 D-end	6316/C3	6316/C3 (2P) 6319/C3 (4-6P)	6319/C3 (2P) 6322/C3 (4-6P)
	N 端 N-end	6316/C3	6316/C3 (2P) 6319/C3 (4-6P)	6319/C3
轴向锁定轴承 Axially locked bearings		D 端锁定 Locked at D-end		
轴承密封 Bearing seals	D 端 , N 端 D-end, N-end	径向密封 Radial seal		
润滑 Lubrication		可润滑轴承 Regreasable bearings		
铭牌 Rating plate	材料 Material	不锈钢 Stainless steel		
接线盒 Terminal box	接线盒材料 Frame material	铸铁 Cast iron		
	接线盒盖材料 Cover material	铸铁 Cast iron		
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)		
	螺钉 Screws	电镀锌钢 Zinc-electroplated steel		
	螺纹孔 Threaded openings	2xM63+2xM20	2xM63+2xM20	2xM75+2xM20
连接件 Connections	最大铜线 (Cu) 截面积 (mm^2) Max Cu-area mm^2	2x150	2x240	4x240
	接线 Terminals	电缆接线头，6 个端子 Cable lugs, 6 terminals		
风扇 Fan	材料 Material	导电聚酰胺或铝合金 Conductive polyamide or Aluminium		
风罩 Fan cover	材料 Material	钢板 Steel		
	油漆颜色 Paint color shade	Munsell 蓝 8B 4.5/3.25 Munsell blue 8B 4.5/3.25		
	防腐蚀等级 Corrosion class	C3 (中等) C3 (medium)		
定子绕组 Stator winding	材料 Material	铜 Copper		
	绝缘 Insulation	F 级绝缘，B 级温升，除非另有规定 Insulation class F. Temperature rise class B unless otherwise stated		
	绕组保护 Winding protection	定子绕组安装 PTC 热敏电阻 (3 个串联), 150ºC PTC - thermistors (3 in series), 150 ºC, in stator winding.		
转子绕组 Rotor winding	材料 Material	压铸铝 Pressure die-cast aluminum		
平衡方法 Balancing method		半键平衡 Half-key balancing as standard		
排水孔 Drain holes		排水孔具有可闭合塞，交付时为打开状态 Drain holes with closable plastic plugs, open on delivery		
键槽 Keyway		开口槽 Open keyway		
防护等级 Enclosure		IP 65		
冷却方式 Cooling method		IC 411		
吊环 Lifting lug		分体式钢制吊环，通过吊环螺纹连接到机座 Separate steel lifting lug, bolted to the stator		

备注
Notes

ABB中国电机与发电机业务单元区域中心

北方区域中心（北京、天津、河北、河南、山西及内蒙古）
北京市朝阳区酒仙桥路甲10号D区1号 401楼
邮编: 100015
电话: +86 18101197623

南方区域中心（广东、广西、福建及海南）
广东省广州市珠江新城珠江西路15号珠江城大厦29楼
邮编: 510623
电话: +86 18116179306

华东区域中心（上海、浙江、江苏、安徽及山东）
上海市闵行区天星路380号
邮编: 200245
电话: +86 18116176178

西北区域中心（陕西、宁夏、青海、甘肃及新疆）
西安市经济技术开发区文景路中段158号3层
邮编: 710075
电话: +86 18112997797

西南区域中心（四川、云南、贵州、西藏及重庆）
成都市人民南路4段三号来福士广场塔T1楼
803-805室
邮编: 610042
电话: +86 18108199063

华中区域中心（湖北、湖南及江西）
湖北省武汉市武昌区临江大道96号武汉万达中心21楼
邮编: 430060
电话: +86 18116177129

东北区域中心（辽宁、吉林及黑龙江）
辽宁省沈阳市沈河区青年大街1-1号
市府恒隆广场办公楼1座3610-3612单元
邮编: 110063
电话: +86 18040066506

http://new.abb.com/motors-generators/zh

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