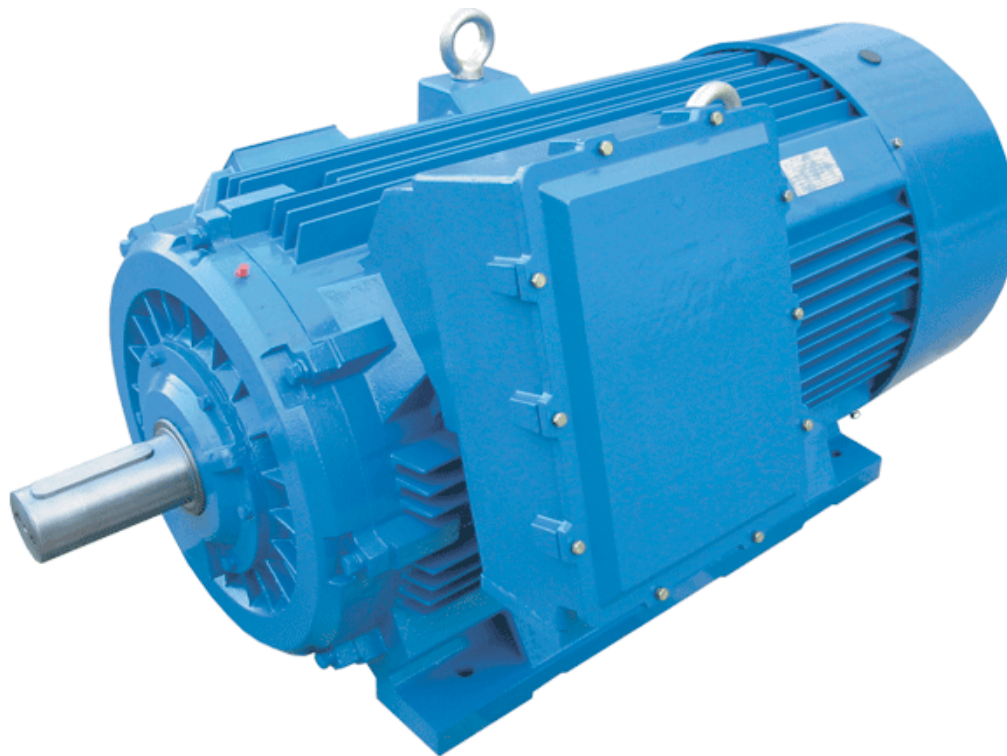


AFJ series

HIGH VOLTAGE THREE-PHASE
ASYNCHRONOUS MOTORS
(3KV,6kV,10kV/3.3kV,6.6kV,11kV)

General Description

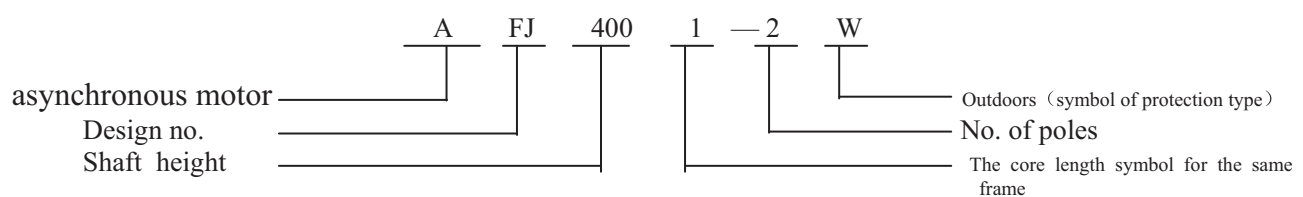


General Description

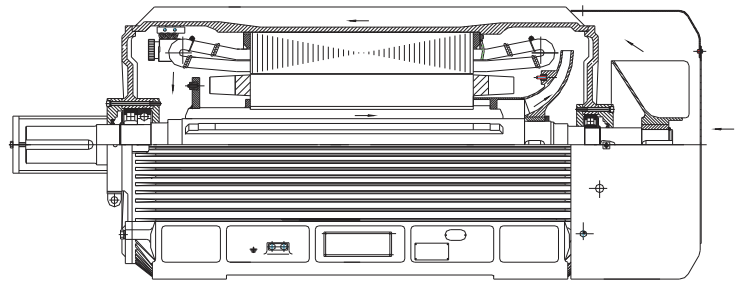
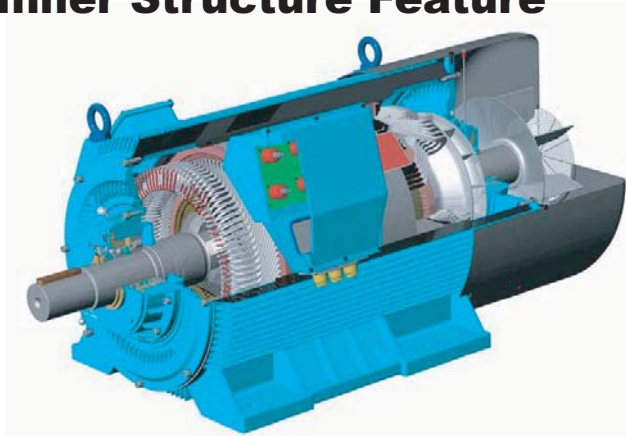
M&C developed its three phase induction motors which allow easy maintenance and high performance level. Optimized design, quality of materials used. These motors suitable for several market segment applications including mining, sanitation, cooling systems, cement, oil and gas, steel plants, pulp and paper and others. Veritas Quality Institute in accordance with ISO 9001 requirements. As well as all M&C medium and high voltage motors are also certified by internationally recognized certifying institutions such as CSA (Canada) and CQC (China).

Each parts of the motor's mechanical dimension and tolerances comply with GB/T1800~GB/T1804 and ISO standard. Outline and mounting dimensions and power class of the motors comply with IEC72/JBT10444-2004 standard. These series motor's IP class comply with GB/T4942.1-2001(IP code)-IP55, also customized; These series motor's Cooling method comply with IEC60034-5 standard -IC411, and the mounting comply with IEC60034-7(IM code) .

Nomenclature



Inner Structure Feature



AFJ Series of High-Voltage Compact type Three-phase Induction Motor is the latest-generation motor with high efficiency, energy saving and environmental protecting advantages. It is designed and manufactured on the basis of experiences of years of manufacturing motors, through the analysis of construction field, electromagnetic field, fluid field and compound field by large finite element analysis, and through the principle of double circulated cooling and ventilating system. This series of motors have advantages of small volume, light weight, compact conformation, good appearance and smooth lines etc.

1. Cooling air path, frame and end shield

AFJ series of motors has two independent cooling air paths: internal cooling air path and external cooling air path, most of the loss heat transmit from stator core to motor frame, and then bring away by external cooling air, the rest loss heat transmit to motor frame through internal cooling circuit and take away by external cooling air.

The motor frame use quadrature distributed total cooling fin casting frame, between cooling fins use nonisometric distribution and discentric circle combination method, 4 axial air duct are provided at 45° direction. Because of the motor frame has reduced scale, outer cooling air from non-driving end can reach to driving end more effectively through cooling fins, so as to achieve the best cooling effect. The terminal box is located at upper motor side where air duct has placed in order to not influence heat dissipation and the flowing of cooling air. The frame inner surface around stator winding end provided with heat absorption rib. Frame enough large area of dissipation with rib type construction guaranteed powerful heat sinking ability.

Two lifting rings are opposite angle mounted on the air duct (the angle of lifting rings can be random adjusted) to make the motor hoisting more convenient.

The end shield of driving end and non-driving end has the same structure; heat sinking rib is provided for inner and outer of end shield to enhance the end shield stiffness and heat

Application

The motors are mainly used in the areas of explosive gas atmosphere, for example: petroleum, chemical industry, coal, power plant, metallurgy, traffic, spinning and weaving, medicine, grain processing, etc. or so of general-purpose machine, such as fan, water pump, compressor, crusher, trimming machine tool, transport machinery etc., or other similar mechanical equipments.

TECHNICAL DATA

6000V datasheet

Type	Rated power (kW)	Rated current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)
									Motor Jm (kg.m ²)	Permissible load J (kg.m ²)	
AFJ 3551-2	185	20.9	2985	94.8	0.90	2.0	0.7	7.0	2.0	13.6	2035
A F J 3552-2	200	22.5		95.1					2.5	14.8	2080
A F J 3553-2	220	24.7		95.4					2.4	16.2	2155
A F J 3554-2	250	28.0		95.6					2.5	19.1	2195
A F J 3555-2	280	31.3		95.8					2.8	21.6	2240
A F J 4001-2	315	35.2		95.8					4.3	21	2730
A F J 4002-2	355	39.6		95.9					4.5	24	2810
A F J 4003-2	400	44.5		96.0					4.9	29	2925
A F J 4004-2	450	50.0		96.2					5.3	32	3015
A F J 4501-2	500	54.9		96.3	6				43	3475	
A F J 4502-2	560	61.5		96.3	6.2				50	3610	
A F J 4503-2	630	69.2		96.3	6.8				58	3770	
A F J 4504-2	710	77.8		96.5	7.5				64	3910	
A F J 5001-2	800	87.7		96.5	15				85	5725	
A F J 5002-2	900	98.6		96.5	16				92	5855	
A F J 5003-2	1000	109.5		96.6	17				103	5990	
A F J 5004-2	1120	122.3		96.8	19				107	6230	
A F J 5601-2	1250	136.4		96.9	28				119	7475	
A F J 5602-2	1400	151.1	96.9	30	135	7765					
A F J 5603-2	1600	172.5	97.0	32	165	8085					
A F J 3551-4	185	22.1	1488	94.6	0.85	0.8	6.5	4.8	89	2175	
A F J 3552-4	200	23.9		94.8				5.4	95	2250	
A F J 3553-4	220	26.2		95.0				5.8	105	2310	
A F J 3554-4	250	29.7		95.2				6.1	112	3345	
A F J 3555-4	280	33.2		95.5				6.4	138	2385	
A F J 4001-4	315	37.3		95.6				8.0	150	2935	
A F J 4002-4	355	41.9		95.9				8.5	170	3035	
A F J 4003-4	400	47.1		96.1				9.3	200	3120	
A F J 4004-4	450	52.3		96.2				9.8	220	3190	
A F J 4501-4	500	58.1		96.3	13			240	3850		
A F J 4502-4	560	65.1		96.3	15			260	4045		
A F J 4503-4	630	73.1		96.4	16			290	4310		
A F J 4504-4	710	81.3		96.6	18			320	4550		
A F J 5001-4	800	91.5		96.7	33			330	5540		
A F J 5002-4	900	102.9		96.7	35			380	5730		
A F J 5003-4	1000	114.3		96.8	37			440	5845		
A F J 5004-4	1120	127.9		96.9	39			510	5970		
A F J 5601-4	1250	142.7		96.9	63			750	7575		

TECHNICAL DATA

6000V datasheet

Type	Rated power (kW)	Stator current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)
									Motor Jm (kg.m ²)	Permissible load J (kg.m ²)	
A F J 5602-4	1400	156.1	1488	97.0	0.89	2.0	0.8	6.5	68	810	7885
A F J 5603-4	1600	178.0		97.2					76	910	8245
A F J 3553-6	160	20.1	987	94.4	0.81				6.5	202	2330
A F J 3554-6	185	23.2		94.6					7.0	235	2395
A F J 3555-6	200	25.1		94.8					7.8	254	2480
A F J 4001-6	220	27.2		94.9					11.8	270	2950
A F J 4002-6	250	30.4		95.4	12.5				306	3000	
A F J 4003-6	280	34.0		95.5	13.3				340	3110	
A F J 4004-6	315	38.2		95.7	14.3				390	3220	
A F J 4501-6	355	43.0		95.7	6.0				16	420	3960
A F J 4502-6	400	48.5		95.7					18	490	4170
A F J 4503-6	450	54.5		95.8					20	550	4370
A F J 4504-6	500	60.4	96.0	22					620	4570	
A F J 5001-6	560	67.6	96.1	44					910	5725	
A F J 5002-6	630	75.9	96.2	46					1020	5845	
A F J 5003-6	710	85.4	96.4	48					1150	6120	
A F J 5004-6	800	96.1	96.5	51					1310	6300	
A F J 5601-6	900	106.7	96.6	97					1116	7350	
A F J 5602-6	1000	118.5	96.7	101					1265	7620	
A F J 5603-6	1120	132.4	96.9	106	1411				7840		
A F J 5604-6	1250	147.6	97.0	113	1586	8095					
A F J 4001-8	160	21.6	742	93.9	0.76	5.5	12.5	390	2930		
A F J 4002-8	185	24.9		94.1			13.0	450	2975		
A F J 4003-8	200	26.5		94.3			14.0	490	3085		
A F J 4004-8	220	29.1		94.5	15.3		540	3205			
A F J 4501-8	250	32.6		94.7	16		600	3955			
A F J 4502-8	280	36.4		94.8	18		630	4155			
A F J 4503-8	315	40.9		95.0	20		660	4355			
A F J 4504-8	355	46.1		95.1	22		690	4560			
A F J 5001-8	400	50.5		95.3	44		590	5720			
A F J 5002-8	450	56.6		95.6	46		650	5840			
A F J 5003-8	500	62.8	95.7	48	710	6110					
A F J 5004-8	560	70.3	95.8	51	790	6290					
A F J 5601-8	630	78.0	95.9	120	1390	6860					
A F J 5602-8	710	88.0	95.9	128	1571	7145					
A F J 5603-8	800	98.9	96.1	134	1780	7370					
A F J 5604-8	900	111.1	96.2	140	2017	7610					

TECHNICAL DATA

10000V datasheet

Type	Rated power (kW)	Stator current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)	
									Motor Jm (kg.m ²)	Permissible load J (kg.m ²)		
A F J 5602-4	1400	156.1	1488	97.0	0.89					68	810	7885
A F J 5603-4	1600	178.0		97.2						76	910	8245
A F J 3553-6	160	20.1	987	94.4	0.81	2.0	0.8	6.5		6.5	202	2330
A F J 3554-6	185	23.2		94.6						7.0	235	2395
A F J 3555-6	200	25.1		94.8	7.8					254	2480	
A F J 4001-6	220	27.2		94.9	11.8					270	2950	
A F J 4002-6	250	30.4		95.4	12.5					306	3000	
A F J 4003-6	280	34.0		95.5	13.3					340	3110	
A F J 4004-6	315	38.2		95.7	14.3					390	3220	
A F J 4501-6	355	43.0		95.7	16					420	3960	
A F J 4502-6	400	48.5		95.7	18					490	4170	
A F J 4503-6	450	54.5		95.8	20					550	4370	
A F J 4504-6	500	60.4	96.0	22	620	4570						
A F J 5001-6	560	67.6	96.1	44	910	5725						
A F J 5002-6	630	75.9	96.2	46	1020	5845						
A F J 5003-6	710	85.4	96.4	48	1150	6120						
A F J 5004-6	800	96.1	96.5	51	1310	6300						
A F J 5601-6	900	106.7	96.6	97	1116	7350						
A F J 5602-6	1000	118.5	96.7	101	1265	7620						
A F J 5603-6	1120	132.4	96.9	106	1411	7840						
A F J 5604-6	1250	147.6	97.0	113	1586	8095						
A F J 4001-8	160	21.6	742	93.9	0.76	2.0	0.8	6.0		12.5	390	2930
A F J 4002-8	185	24.9		94.1						13.0	450	2975
A F J 4003-8	200	26.5		94.3	14.0					490	3085	
A F J 4004-8	220	29.1		94.5	15.3					540	3205	
A F J 4501-8	250	32.6		94.7	16					600	3955	
A F J 4502-8	280	36.4		94.8	18					630	4155	
A F J 4503-8	315	40.9		95.0	20					660	4355	
A F J 4504-8	355	46.1		95.1	22					690	4560	
A F J 5001-8	400	50.5		95.3	44					590	5720	
A F J 5002-8	450	56.6		95.6	46					650	5840	
A F J 5003-8	500	62.8	95.7	48	710	6110						
A F J 5004-8	560	70.3	95.8	51	790	6290						
A F J 5601-8	630	78.0	95.9	120	1390	6860						
A F J 5602-8	710	88.0	95.9	128	1571	7145						
A F J 5603-8	800	98.9	96.1	134	1780	7370						
A F J 5604-8	900	111.1	96.2	140	2017	7610						

TECHNICAL DATA

10000V datasheet

Type	Rated power (kW)	Rated current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)
									Motor Jm (kg.m)	Permissible load J (kg.m ²)	
AFJ 4501-2	220	16.0	2985	94.6	0.84	2.0	0.7	7.0	5.6	14	2875
AFJ 4502-2	250	18.1		94.7					6.5	15	3015
AFJ 4503-2	280	19.8		94.9	0.86				7.4	18	3155
AFJ 4504-2	315	22.2		95.1					8.6	21	3315
AFJ 4505-2	355	25.0		95.2	9.1				26	3400	
AFJ 4506-2	400	28.1		95.5	9.7				31	3480	
AFJ 4507-2	450	31.6		95.6	10.2				36	3525	
AFJ 4508-2	500	34.7		95.7	10.8				41	3615	
AFJ 5001-2	560	38.8		95.8	0.87				12	60	4970
AFJ 5002-2	630	43.6		95.9					14	70	5090
AFJ 5003-2	710	49.0		96.0	15				85	5220	
AFJ 5004-2	800	54.6		96.1	0.88				16	92	5330
AFJ 5005-2	900	61.4		96.2					17	103	5460
AFJ 5601-2	1000	68.1		96.3	19				94	6860	
AFJ 5602-2	1120	75.3		96.4	0.89				28	98	7160
AFJ 5603-2	1250	83.9		96.5					30	111	7495
AFJ 5604-2	1400	93.9	96.6	32	126	7795					
AFJ 4501-4	220	16.0	1488	94.6	0.84	2.0	0.8	6.5	12.9	105	3025
AFJ 4502-4	250	18.1		94.7					14.8	120	3150
AFJ 4503-4	280	20.3		94.9	16.9				135	3305	
AFJ 4504-4	315	22.5		95.1	0.85				19.2	150	3455
AFJ 4505-4	355	25.3		95.2					20.3	163	3525
AFJ 4506-4	400	28.5		95.5	21.6				175	3570	
AFJ 4507-4	450	32.0		95.6	22.5				188	3645	
AFJ 4508-4	500	35.1		95.7	23.6				200	3730	
AFJ 5001-4	560	39.2		95.8	0.86				31	290	5045
AFJ 5002-4	630	44.1		95.9					33	330	5205
AFJ 5003-4	710	49.6		96.0	35				380	5305	
AFJ 5004-4	800	55.2		96.1	0.87				37	440	5450
AFJ 5005-4	900	62.1		96.2					39	510	5565
AFJ 5601-4	1000	68.9		96.3	0.88				58	617	6725
AFJ 5602-4	1120	76.2		96.4					63	692	7020
AFJ 5603-4	1250	85.0		96.5	0.88				68	775	7315
AFJ 5604-4	1400	95.1	96.6	76		868	7710				
AFJ 4504-6	220	16.4	987	94.2	0.82	0.8	6.0	27.4	225	3500	
AFJ 4505-6	250	18.7		94.3				28.8	238	3565	
AFJ 4506-6	280	20.9		94.5	30.2			252	3645		
AFJ 4507-6	315	23.4		94.7	33.0			264	3795		
AFJ 4508-6	355	26.3		94.9	34.9			280	3900		
AFJ 5001-6	400	29.6		95.0	0.83			43	510	5090	
AFJ 5002-6	450	32.9		95.1				44	590	5240	
AFJ 5003-6	500	36.5		95.2	46			650	5350		

TECHNICAL DATA

10000V datasheet

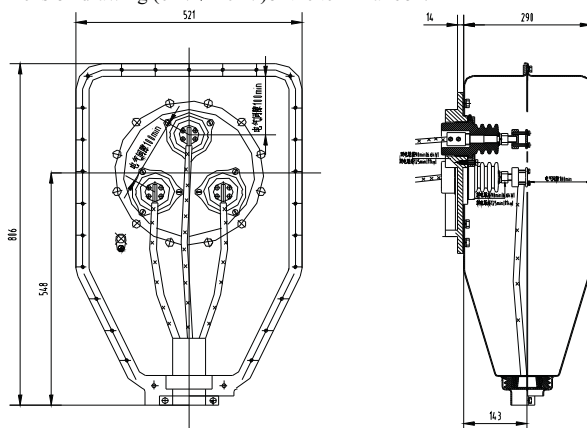
Type	Rated power (kW)	Rated current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)
									Motor Jm (kg.m)	Permissible load J (kg.m ²)	
AFJ 4501-2	220	16.0	2985	94.6	0.84	2.0	0.7	7.0	5.6	14	2875
AFJ 4502-2	250	18.1		94.7					6.5	15	3015
AFJ 4503-2	280	19.8		94.9	0.86				7.4	18	3155
AFJ 4504-2	315	22.2		95.1					8.6	21	3315
AFJ 4505-2	355	25.0		95.2	9.1				26	3400	
AFJ 4506-2	400	28.1		95.5	9.7				31	3480	
AFJ 4507-2	450	31.6		95.6	10.2				36	3525	
AFJ 4508-2	500	34.7		95.7	10.8				41	3615	
AFJ 5001-2	560	38.8		95.8	0.87				12	60	4970
AFJ 5002-2	630	43.6		95.9					14	70	5090
AFJ 5003-2	710	49.0		96.0	15				85	5220	
AFJ 5004-2	800	54.6		96.1	0.88				16	92	5330
AFJ 5005-2	900	61.4		96.2					17	103	5460
AFJ 5601-2	1000	68.1		96.3	19				94	6860	
AFJ 5602-2	1120	75.3		96.4	0.89				28	98	7160
AFJ 5603-2	1250	83.9		96.5					30	111	7495
AFJ 5604-2	1400	93.9	96.6	32	126	7795					
AFJ 4501-4	220	16.0	1488	94.6	0.84	2.0	0.8	6.5	12.9	105	3025
AFJ 4502-4	250	18.1		94.7					14.8	120	3150
AFJ 4503-4	280	20.3		94.9	16.9				135	3305	
AFJ 4504-4	315	22.5		95.1	0.85				19.2	150	3455
AFJ 4505-4	355	25.3		95.2					20.3	163	3525
AFJ 4506-4	400	28.5		95.5	21.6				175	3570	
AFJ 4507-4	450	32.0		95.6	22.5				188	3645	
AFJ 4508-4	500	35.1		95.7	23.6				200	3730	
AFJ 5001-4	560	39.2		95.8	0.86				31	290	5045
AFJ 5002-4	630	44.1		95.9					33	330	5205
AFJ 5003-4	710	49.6		96.0	35				380	5305	
AFJ 5004-4	800	55.2		96.1	0.87				37	440	5450
AFJ 5005-4	900	62.1		96.2					39	510	5565
AFJ 5601-4	1000	68.9		96.3	0.88				58	617	6725
AFJ 5602-4	1120	76.2		96.4					0.7	63	692
AFJ 5603-4	1250	85.0		96.5	68					775	7315
AFJ 5604-4	1400	95.1	96.6	76	868	7710					
AFJ 4504-6	220	16.4	987	94.2	0.82	0.8	6.0	27.4	225	3500	
AFJ 4505-6	250	18.7		94.3				28.8	238	3565	
AFJ 4506-6	280	20.9		94.5	30.2			252	3645		
AFJ 4507-6	315	23.4		94.7	33.0			264	3795		
AFJ 4508-6	355	26.3		94.9	34.9			280	3900		
AFJ 5001-6	400	29.6		95.0	0.83			43	510	5090	
AFJ 5002-6	450	32.9		95.1				44	590	5240	
AFJ 5003-6	500	36.5		95.2	46			650	5350		

TECHNICAL DATA (10000V datasheet)

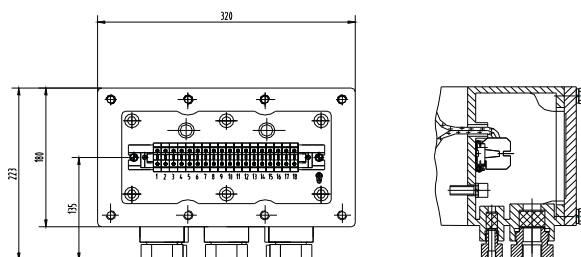
Type	Rated power (kW)	Rated current (A)	Rated torque (r/min)	Efficiency (%)	Power factor cosΦ	Max. torque Rated torque	Locked-rotor torque Rated torque	Locked-rotor current Rated current	Moment of inertia		Weight (kg)	
									Motor Jm (kg.m)	Permissible load J (kg.m ²)		
AFJ5004-6	560	40.8	987	95.5	0.83	2.0	0.8	6.0	48	710	5495	
AFJ5005-6	630	45.8		95.6					51	790	5635	
AFJ5601-6	710	51.6		95.7					93	984	6950	
AFJ5602-6	800	58.1		95.8					97	1116	7220	
AFJ5603-6	900	64.4		96.0					101	1265	7495	
AFJ5604-6	1000	71.5	96.1	106	1411		7740					
AFJ5605-6	1120	80.0	96.2	113	1586		8010					
AFJ4506-8	220	17.5	742	94.1	0.77		2.0	0.8	5.5	30	394	3635
AFJ4507-8	250	19.6		94.2						33	406	3770
AFJ4508-8	280	22.0		94.3						35	419	3890
AFJ5002-8	315	24.7		94.4		43				820	5150	
AFJ5003-8	355	27.8		94.6		44				870	5295	
AFJ5004-8	400	30.9		94.7	46	950		5405				
AFJ5005-8	450	34.7		94.8	48	1010		5575				
AFJ5601-8	500	38.5		95.0	113	1236		6525				
AFJ5602-8	560	42.5		95.1	120	1390		6760				
AFJ5603-8	630	47.7		95.3	128	1571		7005				
AFJ5604-8	710	53.0	95.5	134	1780	7230						
AFJ5605-8	800	59.6	95.6	140	2017	7470						

Terminal Box

1 In the main power supply there are three M16 connection terminals,the following diagram is overall dimension drawing (6kV、10kV)of the terminal box:

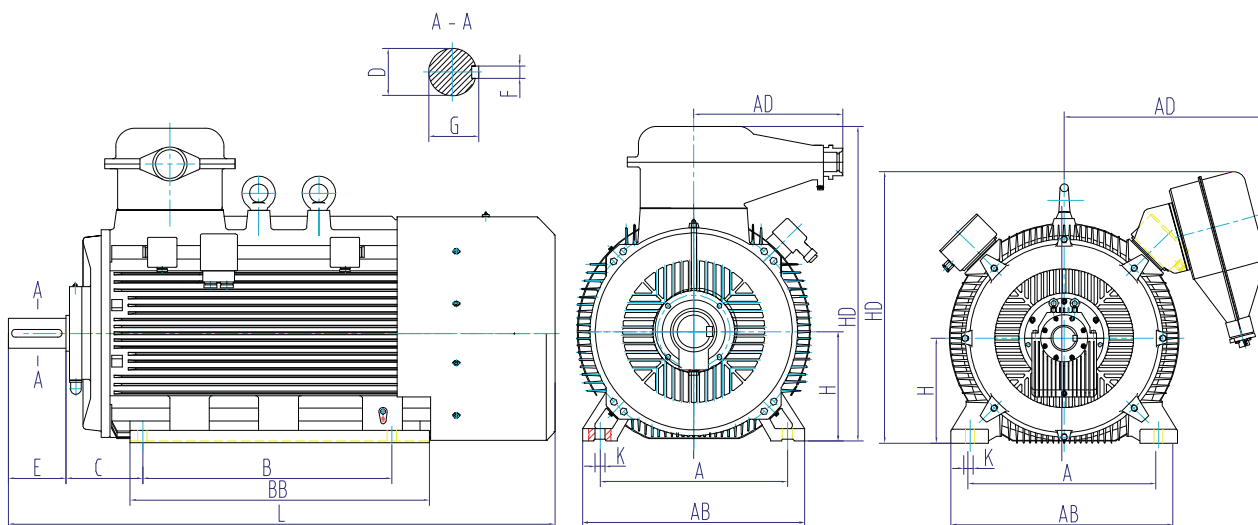


2 The stator temperature detector, bearing temperature detector and heater are share one overall dimensions drawing of auxiliary terminal box



3 Inner diameter of rubber sealing ring for the incoming line of the main power supply is shown in the following diagram. The threaded interface also can be supplied,and the dimension of which is G3. The stator temperature detector, bearing temperature detector and heater are share one auxiliary terminal box, there are three interface. For the inner diameter of seal ring of cable entry, see above diagram. The threaded interface also can be supplied, and the dimension of which is M24×2.

INSTALLATION SIZE & OVERALL DIMENSION



Frame	A	B	C	D	E	F	G	H	K	AD	HD	L	BB	AB
355-2				75	140	20	67.5							
355-4-6	630	900	254	100	210	28	90	355	28	860	1250	2000	1110	750
400-2				85	170	22	76							
400-4-8	710	1000	280	110	210	28	100	400	35	860	1340	2200	1200	870
450-2				95	170	25	86							
450-4				120	210	32	109							
450-6-8	800	1120	280	130	250	32	119	450	35	930	1200	2310	1340	950
500-2			C'	110	210	28	100							
500-4				130	250	32	119							
500-6-8	900	1250	315	140	250	36	128	500	42	970	1280	2610	1490	1080
560-2			C'	130	250	32	119							
560-4				150	250	36	138							
560-6-8	1000	1400	355	160	300	40	147	560	42	1030	1380	2900	1680	1180

Notice on order

If there's one or more requirements for the following items, it should be declared in ordering.

1. The voltage are not 3000 、 6000 and 10000V, eg.:3.3kV、 6.3kV;
2. Frequency is 60Hz ;
3. Power is not the standard value in data sheet, or coincidence relations between power and mounting demension are different from data sheet.
4. The altitude above sea level is more than 1000m.
5. Ambient temperature:more than 40 °C, or the lowest temperature is less than -20°C.
6. Low noise: the noise is lower than the specification of GB10069
- 7.7Non-standard mounting arrangement: corrsponding relations between frame size and mounting arrangement are different from data sheet.
8. The special environment needing declaring,for example: humid tropics, outdoors, corrosion, salt spray, mold, dust and blown sand, etc., for corrosion, it must be listed for taking corresponding measures according to the corrosiveness.
9. The direction of rotation of motor is CCW.
10. The special requirement for electric performance, eg: high locked-rotor torque, high slip, high moment of inertia and low locked-rotor current, etc.
11. Other special requirements, eg.: protective relay device (temperature monitoring device for winding and bearing, differential protection), special bearing, special packing and spare parts ahead of specification,etc.
- 12.If there's above special requirements and other requirements, please negotiate with our technical department or sign technical agreement.
13. With technical development of products and revisal of relevant standards at home and aboard, technical data shown herein are subject to change without notice.

M&C[®]
ELECTRIC POWER

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