

AB2 Series of Flame-proof High-Voltage Three-phase Induction Motors Products Catalogue



CHINA ELECTRIC MOTOR ASSOCIATION
GUANGDONG M&C ELECTRIC POWER CO., LTD

AB2 Series of Flame-proof High-Voltage Three-phase Induction Motor

Products Catalog

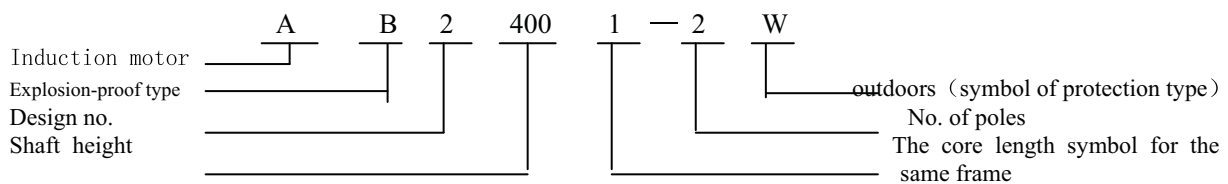
1、General

AB2 Series of Flame-proof High-Voltage Three-phase Induction Motor is domestic originated, independent property right, exclusive produced and 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 explosion-proof motors, through the analysis of construction field, electromagnetic field, fluid field and compound field by large finite element analysis, and through introducing the international advanced pressure self-balancing construction, the principle of double circulated cooling and ventilating system and, recently, the new international achievement about explosion-proof technique.

2、Product feature

This series of motors have advantages of small volume, light weight, compact conformation, good appearance and smooth lines etc.. The noise level is 7-8dB (A) lower than the national standard, it is a new product of meeting the environment requirement, over contained the market demand for almost explosion-proof high-voltage three-phase induction motors, contain the power level of AB355 ~ 450 and AB560 ~ 710 series of explosion-proof high-voltage three-phase induction motors. Meanwhile, it makes up for a regret of no shaft height 500, reflects the integrity of this series of motors.

3、Meaning of motor type



4、Standards

The name of standards	IEC	National standard
Rotating electrical machines — Rating and performance	60034-1	GB 755-2000
Method of measuring loss and efficiency	60034-2	GB/T 755.2-2003
Degree of protection	60034-5	GB/T 4942.1-2006
Method of cooling	60034-6	GB/T 1993-1993
Mounting arrangement	60034-7	GB/T 997-2003
Connecting mark and direction of rotation	60034-8	GB 1971-2006
Noise limit	60034-9	GB 10069.3-2006
Starting performance	60034-12	JB/T 8158-1999
Mechanical vibration	60034-14	GB 10068-2000
Standard voltage	60038	GB 156-2003
Dimension and power level	60072	GB/T 4772
Mounting size and frame size	60072	GB/T 4772
Shaft dimension	60072	GB/T 4772
Insulation material	60085	GB/T 11021
Electrical appratures for explosive gas atmospheres---General requirements	60079-0	GB 3836.1-2000
Electrical appratures for explosive gas atmospheres---General requirements Increased-safety “d”	60079-1	GB 3836.2-2000
Electrical appratures for explosive gas atmospheres---General requirements Increased-safety “e”	60079-7	GB 3836.3-2000

5、Environmental condition

1) Temperature: ambient temperature vary with different reasons, but the max. is +40℃, and the min. is -15, for the sleeve bearing or air-to-water cooling type of motors, it is not lower 0℃.

2) Altitude above sea level: up to 1000m

Note: When the ambient temperature and altitude is different from the above mentioned, please refer to GB755

3) Humidity: Manimum monthly average relative humidity in the humidest month is 90%, and meantime, minimum nonthly average temperature in this month is not more than 25℃(factory), the maximum relative humidity in coal mine underground is not exceed 95%.

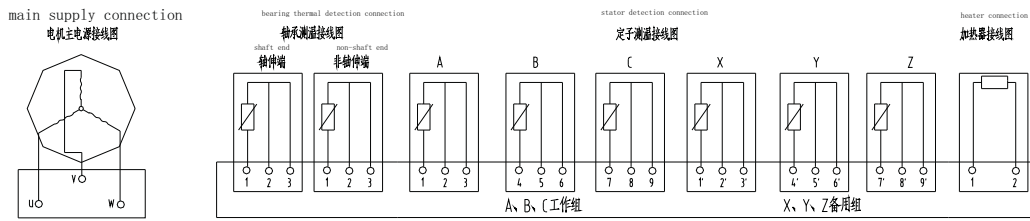
4) Rated frequency: 50Hz、60Hz

5) Rated voltage: 2300V、3000V、3300V、4600V、6000V、6300V、6600V、10000V、10500V、11000V

Note: If there’s special requirements for frequency, voltage, ambient temperature and altitude etc., please informed when ordering.

6、Mounting arrangement: IMB3

7、 Indicating diagram for connection



8、 Components name

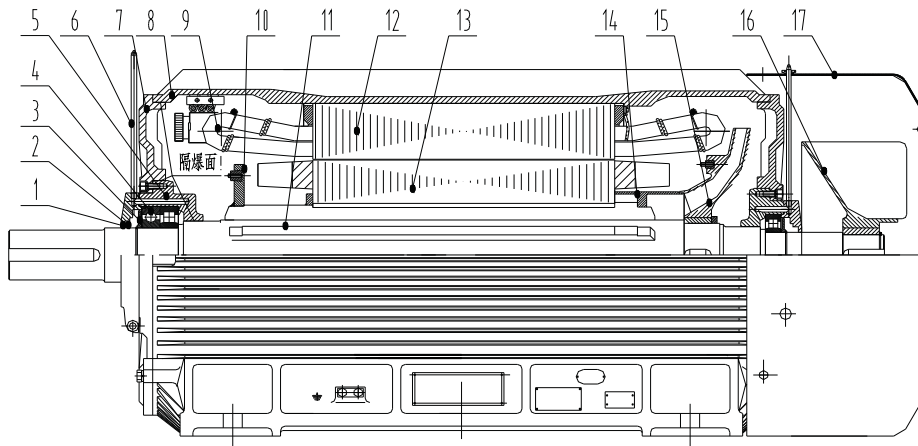


Fig.2 Construction diagram of AB2 series of explosion-proof high-voltage motors (IC411)

- 1.External cover of bearing 2.Seal ring 3.oil slinger 4.Bearing 5.Bearing sleeve 6.oil filler pipe
- 7.Endshield 8.Frame size 9.Stator coil 10.Balancing ring 11.Shast 12. Stator core 13. Rotor core
- 14. Ventilating tube 15.Internal fan 16.External fan 17.Fan cover

9、Performance data

For the data sheet of AB2 (6kV) series of explosion-proof high-voltage three-phase induction motors, see table 1

Table 1

Type	Rated power (kW)	Rated current (A)	Rated speed (r/min)	Efficiency (%)	Power factor cos Φ	breakdown 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)	
AB2 3551-2	185	20.9	2985	94.8	0.90	2.0	0.7	7.0	2.0	13.6	2035
AB2 3552-2	200	22.5		2.5					14.8	2080	
AB2 3553-2	220	24.7		2.4					16.2	2155	
AB2 3554-2	250	28.0		2.5					19.1	2195	
AB2 3555-2	280	31.3		2.8					21.6	2240	
AB2 4001-2	315	35.2		4.3					21	2730	
AB2 4002-2	355	39.6		4.5					24	2810	
AB2 4003-2	400	44.5		4.9					29	2925	
AB2 4004-2	450	50.0		5.3					32	3015	
AB2 4501-2	500	54.9		6	43				3475		
AB2 4502-2	560	61.5		6.2	50				3610		
AB2 4503-2	630	69.2		6.8	58				3770		
AB2 4504-2	710	77.8		7.5	64				3910		
AB2 5001-2	800	87.7		15	85				5725		
AB2 5002-2	900	98.6		16	92				5855		
AB2 5003-2	1000	109.5		17	103				5990		
AB2 5004-2	1120	122.3		19	107				6230		
AB2 5601-2	1250	136.4		28	119				7475		
AB2 5602-2	1400	151.1	30	135	7765						
AB2 5603-2	1600	172.5	32	165	8085						
AB2 3551-4	185	22.1	1488	94.6	0.85	0.8	6.5	4.8	89	2175	
AB2 3552-4	200	23.9		5.4				95	2250		
AB2 3553-4	220	26.2		5.8				105	2310		
AB2 3554-4	250	29.7		6.1				112	2345		
AB2 3555-4	280	33.2		6.4				138	2385		
AB2 4001-4	315	37.3		8.0				150	2935		
AB2 4002-4	355	41.9		8.5				170	3035		
AB2 4003-4	400	47.1		9.3				200	3120		
AB2 4004-4	450	52.3		9.8				220	3190		
AB2 4501-4	500	58.1		13	240			3850			
AB2 4502-4	560	65.1		15	260			4045			
AB2 4503-4	630	73.1		16	290			4310			
AB2 4504-4	710	81.3		18	320			4550			
AB2 5001-4	800	91.5		33	330			5540			
AB2 5002-4	900	102.9		35	380			5730			
AB2 5003-4	1000	114.3		37	440			5845			
AB2 5004-4	1120	127.9		39	510			5970			
AB2 5601-4	1250	142.7		63	750			7575			

Table 1(continuous)

Type	Rated power (kW)	Rated current (A)	Rated speed (r/min)	Efficiency (%)	Power factor cos Φ	breakdown 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)	
AB2 5602-4	1400	156.1	1488	97.0	0.89	2.0	0.8	6.5	68	810	7885
AB2 5603-4	1600	178.0		97.2					76	910	8245
AB2 3553-6	160	20.1	987	94.4	0.81				6.5	202	2330
AB2 3554-6	185	23.2		94.6					7.0	235	2395
AB2 3555-6	200	25.1		94.8					7.8	254	2480
AB2 4001-6	220	27.2		94.9					11.8	270	2950
AB2 4002-6	250	30.4		95.4					12.5	306	3000
AB2 4003-6	280	34.0		95.5					13.3	340	3110
AB2 4004-6	315	38.2		95.7					14.3	390	3220
AB2 4501-6	355	43.0		95.7					16	420	3960
AB2 4502-6	400	48.5		95.7				18	490	4170	
AB2 4503-6	450	54.5		95.8				20	550	4370	
AB2 4504-6	500	60.4	96.0	22	620			4570			
AB2 5001-6	560	67.6	96.1	44	910			5725			
AB2 5002-6	630	75.9	96.2	46	1020			5845			
AB2 5003-6	710	85.4	96.4	48	1150			6120			
AB2 5004-6	800	96.1	96.5	51	1310			6300			
AB2 5601-6	900	106.7	96.6	97	1116			7350			
AB2 5602-6	1000	118.5	96.7	101	1265			7620			
AB2 5603-6	1120	132.4	96.9	106	1411			7840			
AB2 5604-6	1250	147.6	97.0	113	1586	8095					
AB2 4001-8	160	21.6	742	93.9	0.76	5.5	12.5	390	2930		
AB2 4002-8	185	24.9		94.1			13.0	450	2975		
AB2 4003-8	200	26.5		94.3			14.0	490	3085		
AB2 4004-8	220	29.1		94.5			15.3	540	3205		
AB2 4501-8	250	32.6		94.7			16	600	3955		
AB2 4502-8	280	36.4		94.8			18	630	4155		
AB2 4503-8	315	40.9		95.0			20	660	4355		
AB2 4504-8	355	46.1		95.1			22	690	4560		
AB2 5001-8	400	50.5		95.3			44	590	5720		
AB2 5002-8	450	56.6		95.6			46	650	5840		
AB2 5003-8	500	62.8	95.7	48	710	6110					
AB2 5004-8	560	70.3	95.8	51	790	6290					
AB2 5601-8	630	78.0	95.9	120	1390	6860					
AB2 5602-8	710	88.0	95.9	128	1571	7145					
AB2 5603-8	800	98.9	96.1	134	1780	7370					
AB2 5604-8	900	111.1	96.2	140	2017	7610					

For the data sheet of AB2 (10kV series of explosion-proof high-voltage three-phase induction motors, see table 2

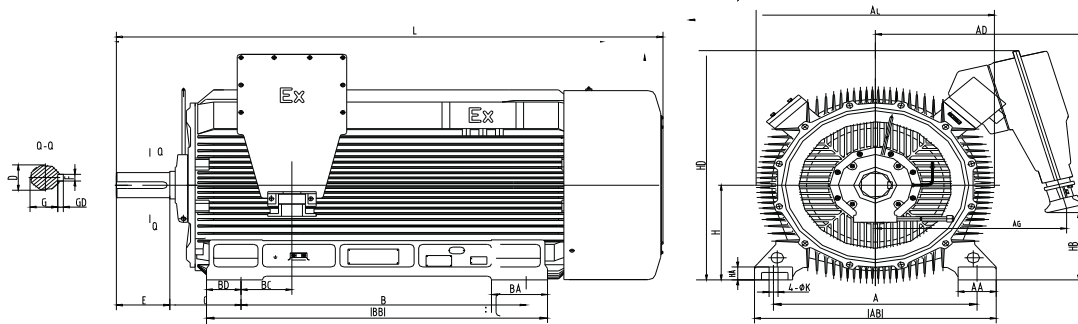
Type	Rated power (kW)	Rated current (A)	Rated speed (r/min)	Efficiency (%)	Power factor cos Φ	breakdown torque Rated torque	locked-rotor torque Rated torque	locked-rotor current Rated current	Moment of inertia		Weight (kg)	
									Motor Jm (kg.m ²)	Permissible load J(kg.m ²)		
AB2 4501-2	220	16.0	2985	94.6	0.84		0.7	7.0	5.6	14	2875	
AB2 4502-2	250	18.1		94.7					6.5	15	3015	
AB2 4503-2	280	19.8		94.9					0.86	7.4	18	3155
AB2 4504-2	315	22.2		95.1	8.6					21	3315	
AB2 4505-2	355	25.0		95.2	9.1					26	3400	
AB2 4506-2	400	28.1		95.5	0.87				9.7	31	3480	
AB2 4507-2	450	31.6		95.6					10.2	36	3525	
AB2 4508-2	500	34.7		95.7					10.8	41	3615	
AB2 5001-2	560	38.8		95.8	0.88				12	60	4970	
AB2 5002-2	630	43.6		95.9					14	70	5090	
AB2 5003-2	710	49.0		96.0					15	85	5220	
AB2 5004-2	800	54.6		96.1	0.89				16	92	5330	
AB2 5005-2	900	61.4		96.2					17	103	5460	
AB2 5601-2	1000	68.1		96.3					19	94	6860	
AB2 5602-2	1120	75.3		96.4	0.88				28	98	7160	
AB2 5603-2	1250	83.9		96.5					30	111	7495	
AB2 5604-2	1400	93.9		96.6					32	126	7795	
AB2 4501-4	220	16.0		1488	94.6				0.84	2.0	0.8	6.5
AB2 4502-4	250	18.1	94.7		14.8	120	3150					
AB2 4503-4	280	20.3	94.9		0.85	16.9	135	3305				
AB2 4504-4	315	22.5	95.1			19.2	150	3455				
AB2 4505-4	355	25.3	95.2			20.3	163	3525				
AB2 4506-4	400	28.5	95.5		0.86	21.6	175	3570				
AB2 4507-4	450	32.0	95.6			22.5	188	3645				
AB2 4508-4	500	35.1	95.7			23.6	200	3730				
AB2 5001-4	560	39.2	95.8		0.87	31	290	5045				
AB2 5002-4	630	44.1	95.9			33	330	5205				
AB2 5003-4	710	49.6	96.0			35	380	5305				
AB2 5004-4	800	55.2	96.1		0.88	37	440	5450				
AB2 5005-4	900	62.1	96.2			39	510	5565				
AB2 5601-4	1000	68.9	96.3			0.88	58	617	6725			
AB2 5602-4	1120	76.2	96.4		0.7		63	692	7020			
AB2 5603-4	1250	85.0	96.5				68	775	7315			
AB2 5604-4	1400	95.1	96.6			76	868	7710				
AB2 4504-6	220	16.4	987		94.2	0.82	0.8	6.0				
AB2 4505-6	250	18.7		94.3	28.8					238	3565	
AB2 4506-6	280	20.9		94.5	30.2					252	3645	
AB2 4507-6	315	23.4		94.7	33.0	264				3795		
AB2 4508-6	355	26.3		94.9	34.9	280				3900		
AB2 5001-6	400	29.6		95.0	0.83	43				510	5090	
AB2 5002-6	450	32.9		95.1		44				590	5240	
AB2 5003-6	500	36.5		95.2		46				650	5350	

Table 2(continuous)

Type	Rated power (kW)	Rated current (A)	Rated speed (r/min)	Efficiency (%)	Power factor cos Φ	breakdown 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)	
AB2 5004-6	560	40.8	987	95.5	0.83	2.0	0.8	6.0	48	710	5495
AB2 5005-6	630	45.8		95.6					51	790	5635
AB2 5601-6	710	51.6		95.7					93	984	6950
AB2 5602-6	800	58.1		95.8	97				1116	7220	
AB2 5603-6	900	64.4		96.0	101				1265	7495	
AB2 5604-6	1000	71.5		96.1	106				1411	7740	
AB2 5605-6	1120	80.0	96.2	113	1586	8010					
AB2 4506-8	220	17.5	742	94.1	0.77	2.0	0.7	5.5	30	394	3635
AB2 4507-8	250	19.6		94.2	33				406	3770	
AB2 4508-8	280	22.0		94.3	35				419	3890	
AB2 5002-8	315	24.7		94.4	43				820	5150	
AB2 5003-8	355	27.8		94.6	44				870	5295	
AB2 5004-8	400	30.9		94.7	46				950	5405	
AB2 5005-8	450	34.7		94.8	48				1010	5575	
AB2 5601-8	500	38.5		95.0	113				1236	6525	
AB2 5602-8	560	42.5		95.1	120				1390	6760	
AB2 5603-8	630	47.7		95.3	128				1571	7005	
AB2 5604-8	710	53.0		95.5	134				1780	7230	
AB2 5605-8	800	59.6		95.6	140				2017	7470	

10. Overall and mounting dimensions drawing

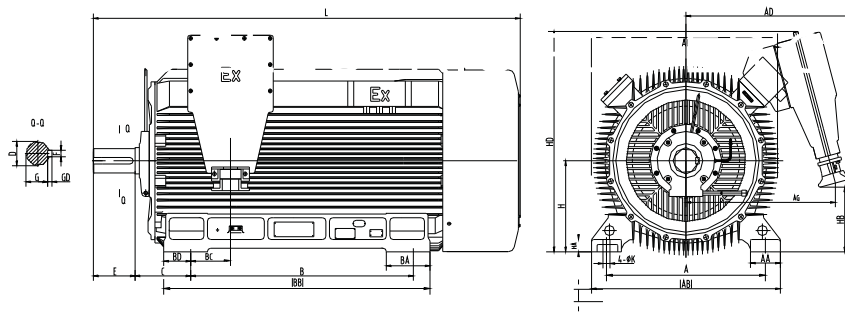
10.1 Overall and mounting dimensions for AB2 (3kV, 6kV) series of explosion-proof high-voltage three-phase induction motors



frame size	no. of poles	Mounting dimension and tolerance											Overall dimension (limited value)												
		A	B	C	D	E	F	G	H	I	J	K	AA	AB	AC	AD	AG	BA	BB	BC	BD	GD	HA	HB	HD
355	2	630	900	254	75	140	20	67.5	355	28	12	790	750	780	730	240	1110	217	112	16	210	1010	1770	50	1840
	100				210	28	90	16																	
400	2	710	1000	280	85	170	22	76	400	35	14	160	870	840	830	745	240	1200	200	115	14	335	1110	1900	
	110				210	28	100	16																	
450	2	800	1120	±4.0	95	170	25	86	450	0	14	950	910	855	790	240	1340	165	136	14	50	370	1170	2070	
	120				210	32	109	18																	
500	2	900	1250	±4.0	110	210	28	100	500	0	14	200	1080	1035	910	820	300	1490	264	114	16	50	490	1290	2580
	130				250	32	119	18																	
560	2	1000	1400	±4.0	130	250	32	119	560	0	14	210	1170	1185	955	870	300	1680	178	170	18	60	595	1400	2900
	150				300	36	138	20																	
	6-8				160	300	40	147													22				2775

* In order to select the motor size of sleeve bearing, the axial play can be defined by manufacturer and client

verall and mounting dimensions for AB2 (10kv) series of explosion-proof high-voltage three-phase induction motors

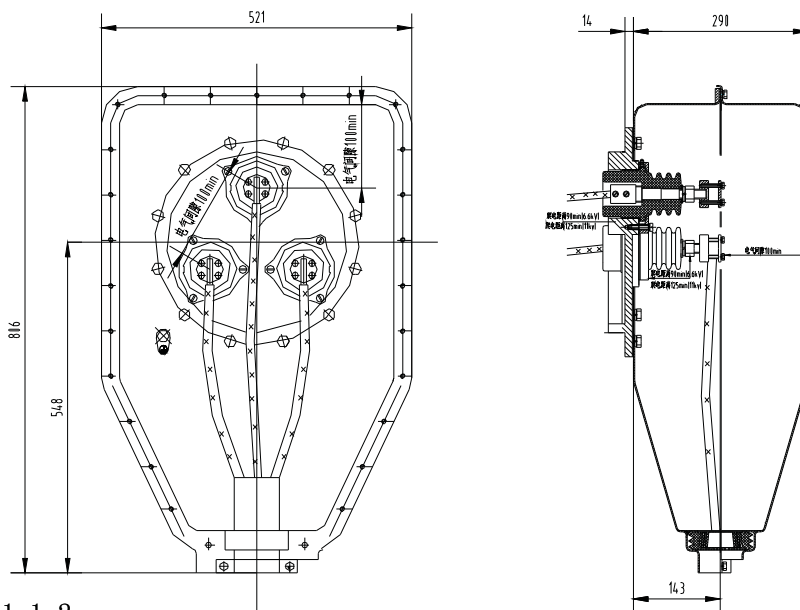


frame size	no. of poles	Mounting dimension and tolerance										Overall dimension (limited value)													
		A	B	C ^c	D	E	F	G	H	K	AA	AB	AC	AD	AG	BA	BB	BC	BD	GD	HA	HB	HD	L	
450	2				95 ^{+0.035} _{-0.013}	170 ^{±0.50}	25 ⁰ _{-0.062}	86																	2070
	4	800	1120	280	120 ^{+0.040} _{-0.015}	210		109		450										14				2150	
	6-8				130 ^{+0.040} _{-0.015}	250		119												18	50	385	1170	2250	
500	2			315 ^{±4.0}	100 ^{+0.035} _{-0.013}	210		90																2460	
	4	900	1250		130 ^{+0.040} _{-0.015}	250	±0.57	119		500 ⁰ _{-1.0}										16				2380	
	6-8				140 ^{+0.040} _{-0.015}			128												18	50	490	1290	2485	
560	2			530 [±]	130 ^{+0.040} _{-0.015}			119																2900	
	4	1000	1400		150 ^{+0.040} _{-0.015}			138		560										18				2600	
	6-8			355	160	300 ^{±0.65}	40	147											20	60	595	1400	2775		

* In order to select the motor size of sleeve bearing, the axial play can be defined by manufacturer and client ^{1s}

11.1.1 The following diagram is overall dimensions drawing of mixed-mold explosion-proof terminal box(6kV、10kV).

explosion-proof marks : ExdeIIAT4、ExdeIIBT4



11.1.2

The following diagram is overall dimension drawing (3kV、6kV) of explosion-proof terminal box.

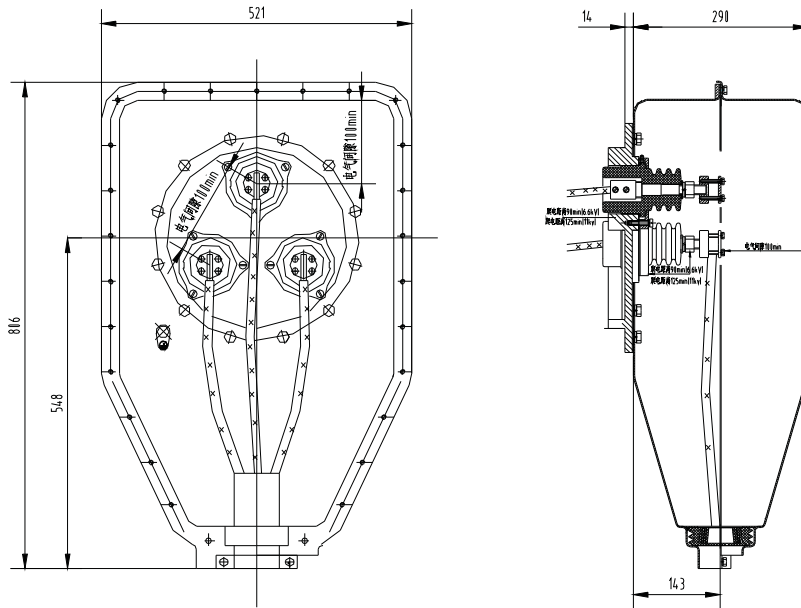
explosion-proof group: ExdI、ExdIIAT4、ExdIIBT4

11、 The interface dimensions of site mounting of motor

11.1 In the main power supply are three M16 connection terminals

11.1.1 The following diagram is overall dimensions drawing of mixed-mold explosion-proof terminal box(6kV、10kV).

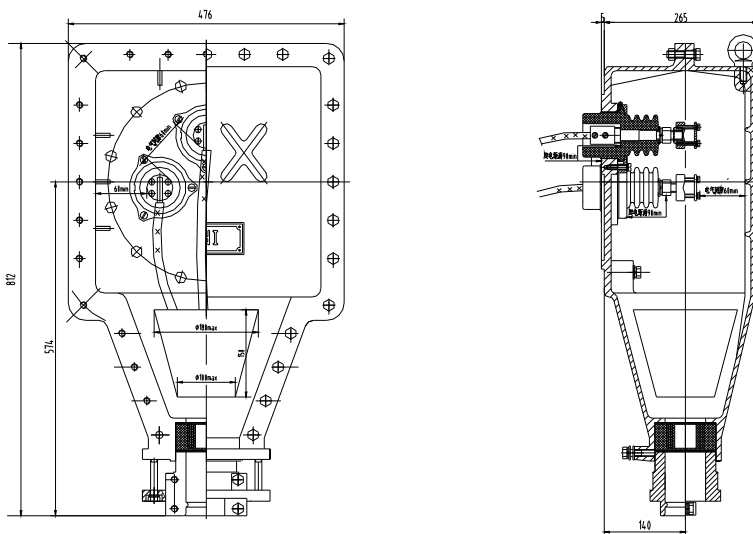
explosion-proof marks : ExdeIIAT4、ExdeIIBT4



11.1.2

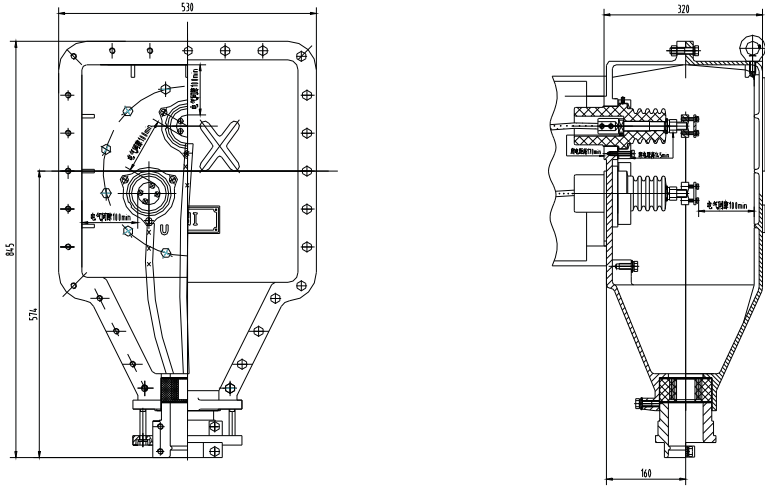
The following diagram is overall dimension drawing (3kV、6kV) of explosion-proof terminal box.

explosion-proof group: ExdI、ExdIIAT4、ExdIIBT4

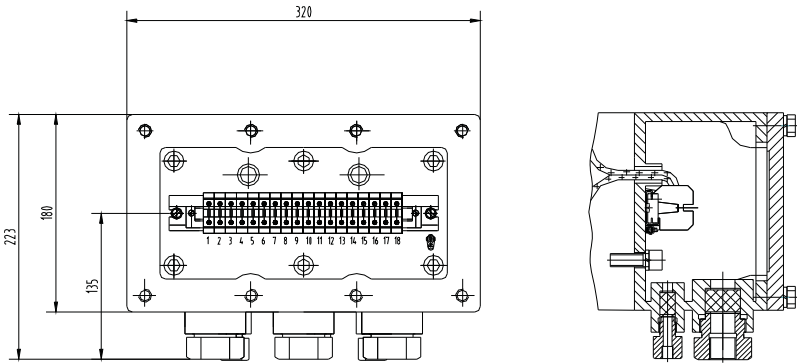


11.1.3 The following diagram is overall dimension drawing (10kV) of explosion-proof terminal box.

Explosion-proof group: ExdI、ExdIIAT4、ExdIIBT4

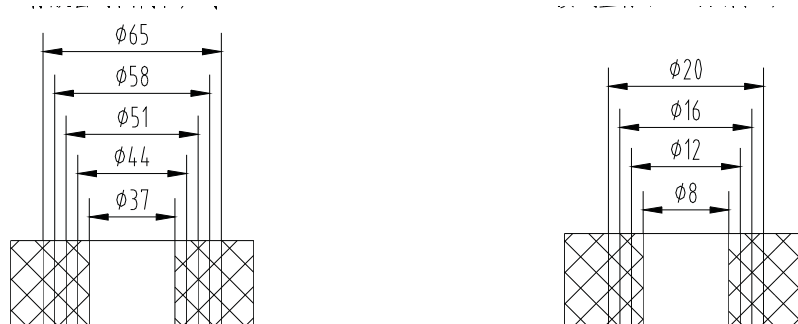


The stator temperature detector, bearing temperature detector and heater are share one overall dimensions drawing of auxiliary terminal box



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.

11.2 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 the following diagram. The threaded interface also can be supplied, and the dimension of which is M24×2.



12、 Ordering information

12.1 When selecting three-phase induction motors, the following matters must be taken into account

- a. Operating environment, ambient temperature, altitude, etc.
- b. Mechanical characteristic and moment of inertia for the driven device.
- c. Starting method, starting frequency and starting voltage drop
- d. Direction of rotation of motor
- e. The mechanical connection method and requirement between motor and driven load
- f. The position of terminal box.
- g. Duty type and other special requirement

12.2 Motors supplied in the Sample book are standard motor design

- a. The altitude for standard motor is not more than 1000m
- b. The max. ambient temperature is not more than 40°C, and the min. is not lower than -15°C, for motor of sleeve bearing or air-to-water cooling, the min. ambient temperature is not lower than 0°C.
- c. Direct on line and full voltage starting
- d. CW. rotated for standard motors (as viewed from DE)
- e. the main and auxiliary terminal boxes are on the right side of motor (as viewed from DE)
- f. For the standard designed motors of sleeve bearings, normally provided with forced lubrication and no pressure oil return.

12.3 Normal ordering

The order without special requirements is normal order, the following parameters should be noted when ordering. (eg.)

Item:AB2-500-2
Rated voltage: 6kV
Rated frequency: 50Hz
Rated power: 800kW
No. of poles: 2-pole
Rated speed: 2985r/min
Explosion-proof mark: Exe II BT4
Mounting arrangement: B3
Duty type: S1
Method of cooling: IC411
Degree of protection: IP54
Direction of rotation :CW.
Operating environment: indoors

Method of incoming line: rubber tyre

12.4 Order with additional requirements

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

12.4.1 The voltage are not 3000、6000 and 10000V, eg.:3.3kV、6.3kV;

12.4.2 Frequency is 60Hz;

12.4.3 Power is not the standard value in data sheet, or coincidence relations between power and mounting demension are different from data sheet.

12.4.4 The altitude above sea level is more than 1000m.

12.4.5 Ambient temperature:more than 40℃, or the lowest temperature is less than -15℃.

12.4.6 Low noise: the noise is lower than the specification of GB10069

12.4.7 Non-standard mounting arrangement: corrsponding relations between frame size and mounting arrangement are different from data sheet.

12.4.8 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.

12.4.9 The direction of rotation of motor is CCW.

12.4.10 The special requirement for electric performance, eg: high locked-rotor torque, high slip, high moment of inertia and low locked-rotor current, etc.

12.4.11 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.

12.4.12 If there's above special requirements and other requirements, please negotiate with our technical department or sign technical agreement.

12.4.13 With technical development of products and revisal of relevant standards at home and aboard, technical data shown herein are subject to change without notice.

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