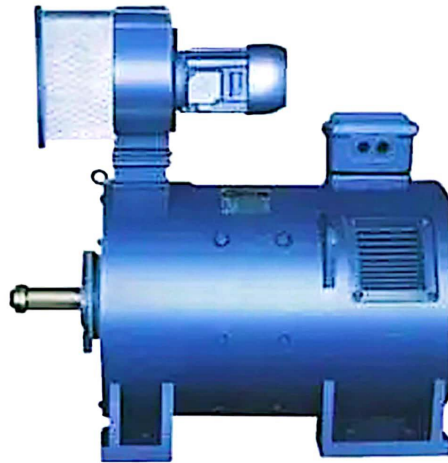




Xian Putai Electric Motor

ZZJ-800 series



Xian Putai Electric Motor Equipment Co., Ltd.

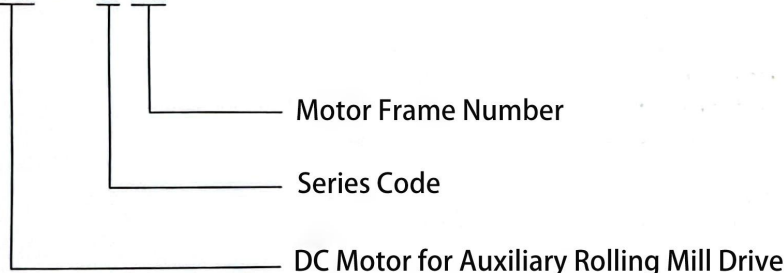
► 1/ Features and Uses

The ZZJ-800 series DC motor for auxiliary rolling mill drive is our company's main product, manufactured according to the international IEC-34-13 standard for "Electric Motors for Auxiliary Rolling Mill Drives". It is an important power equipment in the steel industry. It can withstand frequent starts, stops, and frequent reversals in harsh working environments, as well as large and repetitive overload torques. It is mainly used for working roller tables, press-down devices, looper tension rollers, shears, and ingot cranes, etc. It is an updated and replacement product for ZZ/ZZK, ZZY, ZZJO, ZZJ2 and other series motors.

This series of motors has a round structure, good heat dissipation, is suitable for rectifier power supply, and can withstand pulsating current and rapid changes in current (load changes) during operation with good commutation. This series of motors maintains the external dimensions and installation dimensions of the 600 series, while the power level is one level higher than the 600 series, reaching an internationally advanced level. The insulation class of the motor is F. Reliable insulation structure and impregnation process are adopted to ensure stable insulation performance and good heat dissipation. The motor is suitable for DC generator set power supply and also for static rectifier power supply. When the rectifier power supply is connected according to the three-phase fully controlled bridge circuit, filter reactors can be avoided for long-term and good operation.

► 2/ Motor Model Meaning

Example : ZZJ—8 1 2



► 3/ Motor Performance

3.1 The data in the technical parameter table should be used under the following conditions:

- Altitude: Not exceeding 1000m.
- Ambient Air Temperature: -30°C to +40°C.
- Working Environment: Should not contain acidic, alkaline, or other gases that are corrosive to insulation.
- Motor Duty Cycle: S1 - Continuous Duty with external ventilation, S2 - Short-Time Duty (totally enclosed), S3 - Intermittent Periodic Duty (totally enclosed), (Load Duration Rate FC=30%)
- Motor Armature Circuit and Excitation Circuit: Can be powered by a static rectifier power supply, and is also suitable for power supply from a DC generator.
- Performance: The performance of this series of motors meets the requirements of GB 5227-85 ("DC Motors for Auxiliary Rolling Mill Drives").

3.2 Motor Standard Rated Voltages: 220V, 440V. Other voltage levels can be negotiated with our company.

3.3 The rated speed of the motor should comply with the specifications in the technical data sheet according to the motor's characteristics. A 220V rated voltage motor should be capable of over-voltage speed regulation.

3.4 When the motor is powered by a DC power supply without obvious pulsations (i.e., powered by a rotary generator), and operates under the rated output power and specified duty cycle, and the ambient air temperature does not exceed 40° C, the temperature rise of each winding, measured by the thermometer method, should not exceed 75K or by the resistance method, should not exceed 110K. The temperature rise of the commutator, measured by the thermometer method, should not exceed 85° C.

3.5 For ventilated continuous duty (S1) or totally enclosed short-time duty (S2) with a 1-hour limit, the excitation ampere-turns ratio of the cumulative compound DC motor is approximately 50% series excitation ampere-turns and 50% shunt excitation ampere-turns.

3.6 For ventilated continuous duty (S1) or totally enclosed short-time duty (S2) with a 1-hour limit, the maximum speed regulation rate of the DC motor should not exceed the following specifications:

RATIO OF BASIC SPEED TO RATED SPEED (%)	MAXIMUM SPEED REGULATION RATE (%)
100	15
200	20
300	25

3.7 During the specified running period, with cold-state full-load speed variations, the externally ventilated DC motor should not exceed 15% of the rated speed, and the totally enclosed DC motor should not exceed 20% of the rated speed. Under normal operating temperature, rated load, rated voltage, and rated current, the speed tolerance of the motor should not be higher than or lower than 7.5% of the rated speed.

3.8 ZZJ-810 motors and above are equipped with compensating windings.

t3.9 The motor is provided with grounding terminals marked with grounding symbols.

4/ Motor Structure Overview

4.1 Motor Protection and Installation Structure Forms:

a. Overall series protection form:

Totally Enclosed: IP44

Ventilated: IP23

b. Installation method complies with national standard GB997-81 as IMB3. Other installation methods can be negotiated separately with our company.

4.2 Cooling Methods:

Totally enclosed motors have two types of cooling: natural surface cooling of the enclosure (IC0040) and forced air cooling driven by an internal fan (IC0041).

Ventilated motors have three types of cooling: ducted air inlet and natural air outlet (IC17), ducted air inlet and ducted air outlet (IC37), and those equipped with an independent blower (IC16).

○ Required Cooling Air Volume for Each Frame Size (See Table)

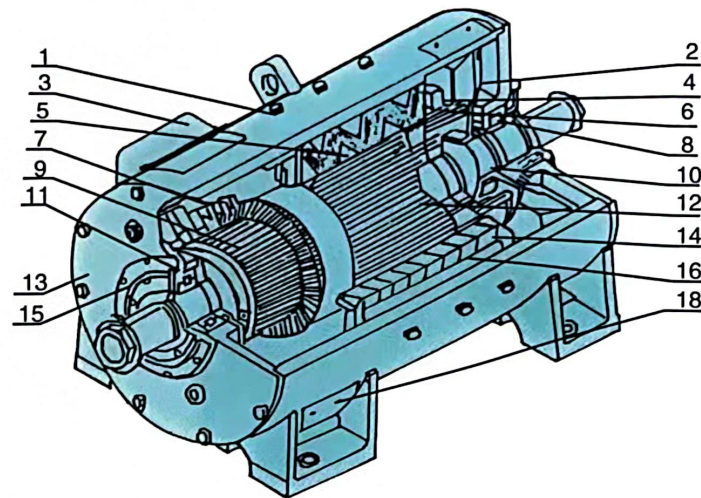
FRAME SIZE	CONTINUOUS DUTY AIR FLOW WITH EXTERNAL VENTILATION (m ³ /s)
802A	0.052
802B	0.052
802C	0.076
803	0.094
804	0.12
806	0.16
808	0.20
810	0.25
812	0.35
814	0.42
816	0.57
818	0.75

- 4.3 Location of the terminal box: Viewed from the main drive end, it is on the right side of the frame. If the left side or top is required, please consult with our company separately.
- 4.4 The motor can be equipped with a tachometer generator and accessories at the auxiliary drive end.
- 4.5 The motor has a double tapered shaft extension, with a standard taper of 1:10. If a shaft extension taper of 1:9 is required, or if the overall length of the motor needs to be changed, please consult with our company separately.
- 4.6 The motor's transmission is connected by a flexible coupling. Careful alignment is required during assembly.

▷ 5/ Ordering Information

- 5.1 Before ordering, please consult the product catalog and clarify the product model, specifications, and other data. If the variety, specifications, or other data differ from the catalog, please contact our company. If there are special requirements, please specify them clearly in advance and negotiate with the relevant departments of our company. A formal contract or trial manufacturing agreement will be signed after agreement.
- 5.2 When ordering, please specify the motor model, power, voltage, speed, duty cycle, structural type, cooling method, excitation method, excitation voltage, outlet/terminal box location, and the names of accessories and spare parts.
- 5.3 If the operating environment is special and a humid-heat type is required, please indicate "TH" after the original model number.

► 6/ZZJ-800 Series DC Motor Structure Diagram for Auxiliary Drives in Rolling Mills



1. 机座	1. Frame
2. 风扇	2. Fan coil
3. 出线盒	3. Terminal box
4. 主极线圈	4. Field
5. 主极铁心	5. Main pole core
6. 电枢线圈	6. Armature winding
7. 刷架	7. Brush rocker
8. 轴承	8. Bearing
9. 换向器	9. Communtator
10. 转轴	10. Rotating shaft
11. 轴承盖	11. Bearing cover
12. 电枢	12. Armature
13. 端盖	13. Endshield
14. 换向极线圈	14. Compole winding
15. 注油孔	15. Oil nipple
16. 换向极铁心	16. Compole core
17. 螺母垫圈	17. Nut, Washer
18. 视察窗	18. Viewing window

7/ Technical Data Sheet: Rated Values for Motors of Each Frame Size (220V, 440V)

Frame	Open-ventilated continuous duty, or totally enclosed short-time (S2) 1-hour duty				Totally enclosed series-wound short-time (S2)	Totally Enclosed Intermittent Periodic Duty (S3) Duty Cycle FC=30%				Air Flow Rate for Externally		Maximum Starting Torque	Maximum Running Torque		Maximum Safe Operating Speed								
	Rated Speed at Rated Voltage r/min				30-minute duty rating	Series-Wound		Compound -Wound	Shunt-Wound	Ventilated Continuous		Compound -Wound	Series -Wound	Shunt-Wound	Moment of Inertia								
	Power kw	Series-Wound	Compound -Wound	Shunt-Wound	Speed at rated voltage r/min	Speed	Power kw	Speed r/min	Power kw	Speed r/min	Duty (S1) m³/s												
		Separately Excited	Speed Regulation	220V								440V											
													Separately Excited	Speed Regulation	220V	440V							
	Power kw	Series-Wound	Compound -Wound	Shunt-Wound	Separately Excited	Speed	Power kw	Speed r/min	Power kw	Speed r/min	Power kw	Speed r/min	Compound -Wound	Series -Wound	Shunt-Wound	GD² kgf. m²	Weight r/min kg						
802A	3.75	900	1025	1025	1025/2025	5.0	750	4.1	840	3.75	1080	3.75	1130	0.052	198	157	126	158	123	102	0.5	3600	240
802B	5.6	800	900	900	900/1800	7.5	675	6.0	780	5.6	950	5.6	1000	0.052	330	270	216	268	210	177	0.75	3600	270
802C	7.5	800	900	900	900/1800	10.0	675	7.5	800	7.1	940	6.7	1000	0.076	450	360	237	360	280	220	0.75	3600	270
803	11.2	725	800	800	800/2000	14.1	620	11.2	725	10.8	840	10.5	880	0.094	740	610	400	600	470	360	1.8	3300	390
804	15.0	650	725	725	725/1800	19.5	580	15.0	650	13.8	775	12.7	800	0.12	1100	880	590	880	685	530	3.0	3000	550
806	22.4	575	650	650	650/1950	29.0	500	22.4	575	21.2	690	18.6	715	0.16	1870	1500	980	1490	1170	880	5.6	2600	870
808	37.3	525	575	575	575/1725	48.5	450	30.0	570	28	625	26.0	630	0.20	3400	2800	1860	2700	2150	1650	11.5	2300	1030
810	52	500	550	550	550/1650	67	440	45.0	550	39	615	33.5	600	0.25	5000	4000	2700	4000	3100	2450	17.5	2200	1250
812	75	475	515	515	515/1300	100	420	63.5	525	56	580	45.0	565	0.35	7450	6250	4150	6000	4900	3750	28	1900	1550
814	112	460	500	500	500/1250	149	400	86	515	82	565	63.5	560	0.42	11600	9600	6400	9300	7500	5800	48	1700	2400
816	150	450	480	480	480/1200	200	400	112	500	104	540	82	535	0.57	16000	13300	8900	12600	10400	8000	75	1600	3200
818	186	410	435	435	435/1100	243	360	138	485	123	490	97	470	0.75	21700	18400	12300	17400	14400	11000	110	1500	4300

Note: 1, There are 3 types of 802 frame motors. The motor mounting dimensions are the same, but the electromagnetic designs are different.

2, To obtain a wider adjustment range for variable speed motors, a small amount of stable field winding is allowed.

3, Intermittent periodic duty cycle (S3) has a period of 5 minutes, with continuous field excitation.

4, The maximum starting torque and maximum operating torque can reach the maximum values within the limits specified by other performance requirements.

5, The tolerance for the armature moment of inertia GD² should be taken as a positive value.

8. ZZJ-800 series DC motor for auxiliary rolling mill drive, the maximum operating torque after voltage boost adjustment of the separately (or shunt) excited motor for 220V (or 230V). See Figure 1 for reference.

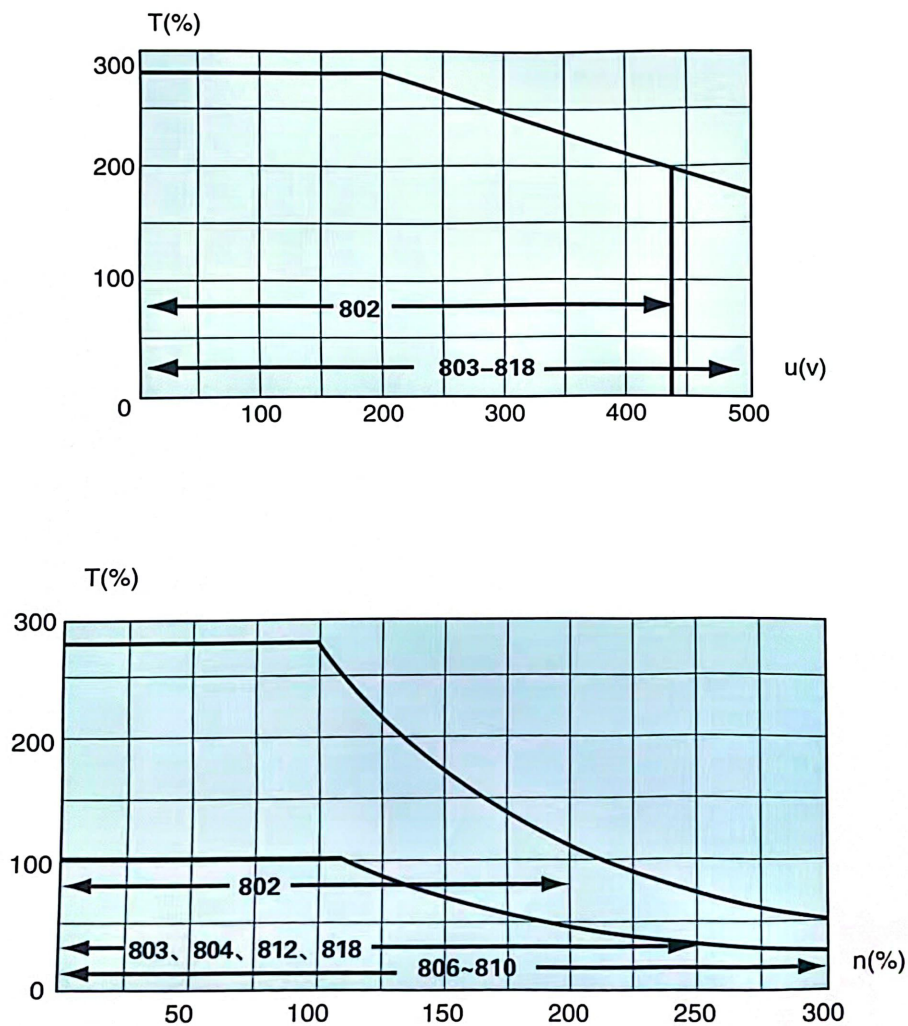


Figure 2: Maximum operating torque after field weakening speed regulation of 220 (230) V, separately (or shunt) excited DC motor.

9. For ZZJ-800 series rolling mill auxiliary drive DC motors operating under totally enclosed intermittent duty (S3), refer to Figure 3 for the output power of series-wound DC motors under various load duty cycles (FC). Refer to Figure 4 for the output power of other (shunt) excited DC motors under various duty cycles operating under totally enclosed intermittent duty (S3).

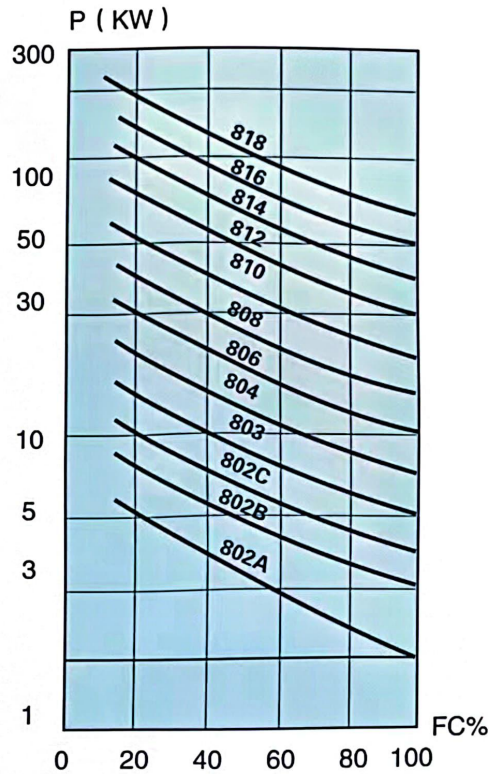


Figure 3: Output power of series-wound motor under Totally Enclosed Intermittent Duty (S3)

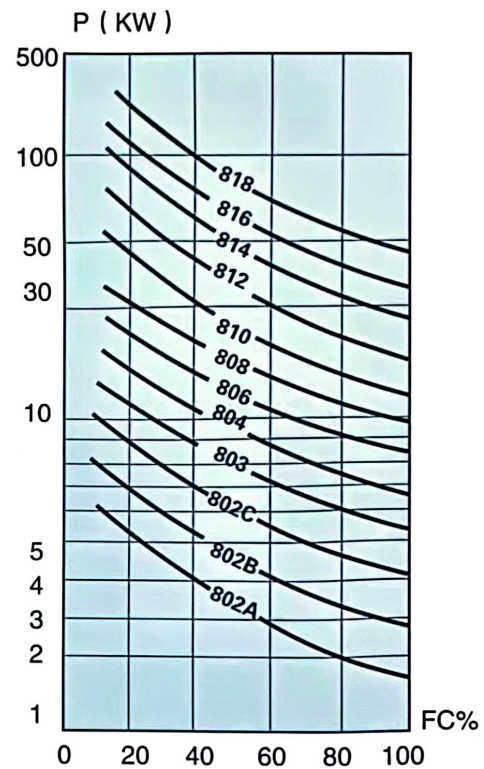
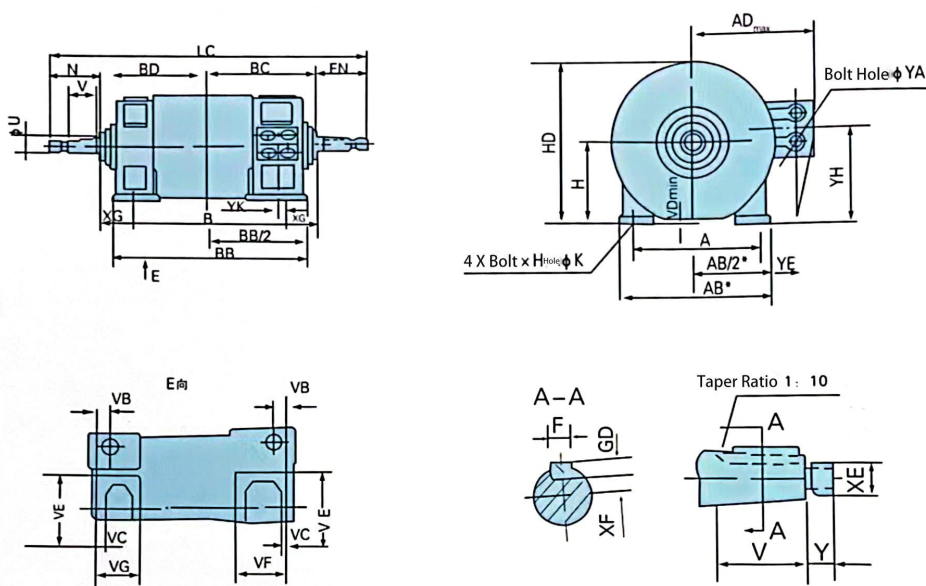


Figure 4: Output power of other (shunt) motors under Totally Enclosed Intermittent Duty (S3)

Notes:

When starting separately excited motors, the field winding must be connected to the rated voltage before connecting the armature circuit. When stopping, disconnect the armature circuit first, then disconnect the field circuit to avoid overspeed caused by weak magnetism during starting and stopping, which can damage the motor. Start the external ventilation fan and open the air path at the same time when connecting the excitation circuit power supply to avoid thermal damage to the motor.

10. The base mounting dimensions and shaft extension of this series of motors meet the following dimensions:



Motor Frame Size and Shaft Extension Dimensions

mm

Frame	Taper: 1:10 Conical Shaft Extension								
	Shaft Extension Dimensions				Shaft Extension Thread			Key	
	FN	U	V	(XF)	Y	XE	Pitch	F	GD
802	111	45	82	15.4	28	M30	2	12	8
803	123.5	50	82	17.9	28	M36	3	12	8
804	123	50	82	17.9	28	M36	3	12	8
806	143	65	105	23.9	35	M42	3	16	10
808	155.5	75	105	27.9	35	M48	3	18	11
810	161	85	90	31.7	40	M56	4	20	12
812	173	95	90	35.2	40	M64	4	22	14
814	178.5	110	120	41.9	45	M80	4	25	14
816	191	120	120	45.9	45	M90	4	28	16
818	199	130	150	50	40*	M100	4	28	16

Frame Size Dimensions of Motors

mm

Frame	AB	BB	LC	H		A	B	XG	K	XH		BC	BD	HD	Surface of the Air Duct Flange						Motor Lead Wires				Terminal Box
				Basic Dimension 1:10	Limit Deviation					Taper 1:10	Taper 1:10				VB	VC	VD	VE	VF	VG	YA	YE	YH	YK	
802	381	521	831	193.5		381	419	95	22	20	20	304.5	400		22	10	10	184	121	56	10	127	219	76	320
803	432	597	932	215.8	0 -0.5	356	457	114	22	20	20	342.5	444		44	13	10	216	127	83	10	127	241	76	335
804	457	648	983	228.5		381	483	127	22	20	20	368.5	470		57	13	10	229	140	70	10	127	254	76	355
806	508	698	1073	254.0		419	533	127	26	24	24	393.5	521		54	13	10	260	152	86	10	127	279	76	385
808	578	794	1200	285.5		476	629	130	33	30	30	444.5	584		51	13	19	292	165	89	10	178	318	76	425
810	622	826	1274	311.0	0 -1.0	521	660	146	33	30	30	476	635		54	13	19	305	178	92	10	178	342	76	460
812	686	914	1388	339.5		572	724	159	33	30	30	521	692		64	16	19	349	210	124	10	178	371	76	495
814	762	1054	1538	374.5		635	813	184	39	36	36	590.5	762		86	16	19	387	235	140	10	229	413	76	535
816	826	1187	1703	406.2		686	889	216	39	36	36	660.5	829		114	25	19	406	279	168	10	229	444	114	580
818	914	1264	1795	450.8		762	991	203	45	42	42	698.5	918		98	25	19	457	305	181	10	229	489	114	620

Motor lead wires apply only when no terminal box is installed.