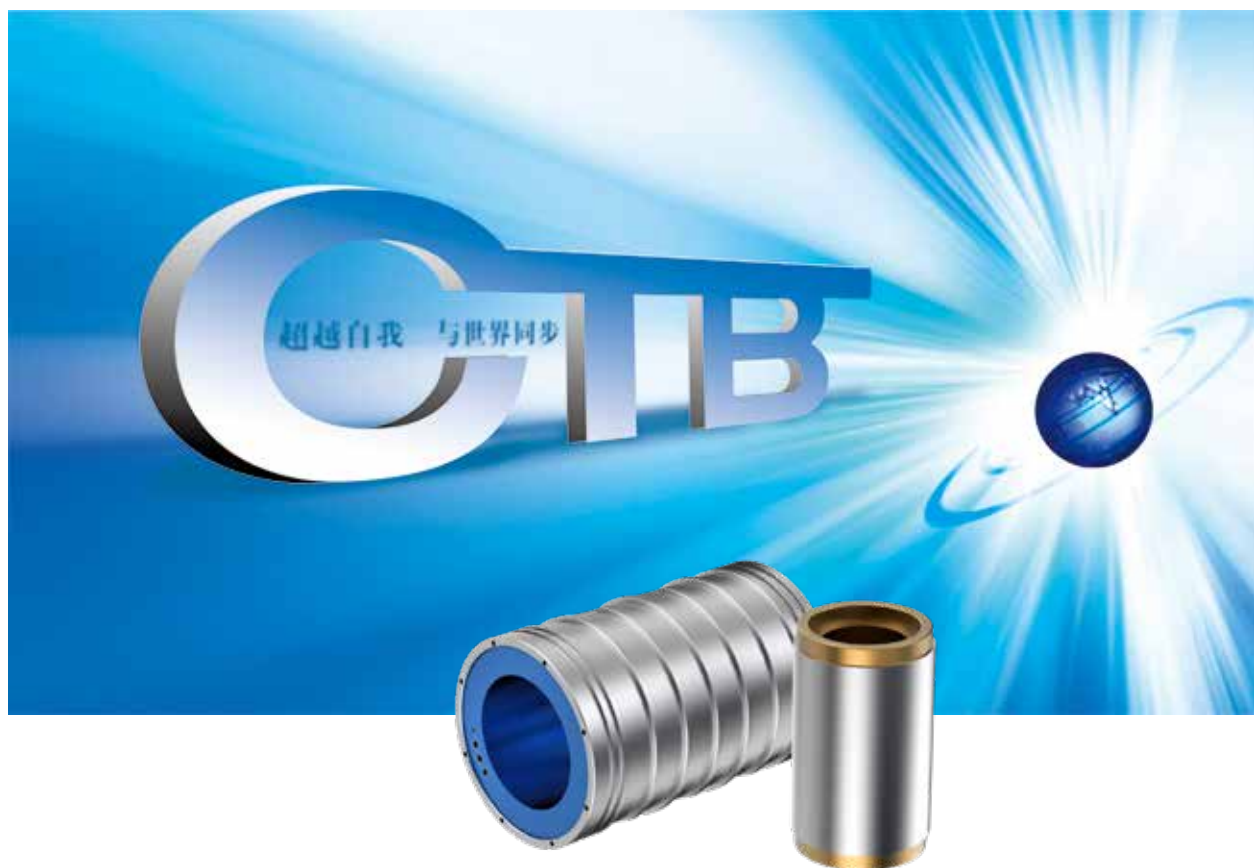


DZM Built-in Motor



COMPANY PROFILE

CTB Co., Ltd. was established in 2008, focusing on the field of intelligent manufacturing, providing core components such as servo motors, torque motors, motorized spindles, and professional automation servo control solutions. The company has two wholly-owned subsidiaries, Beijing CTB technology Co., Ltd. (established in 2000) and Shandong CTB Intelligent Equipment Co., Ltd. (established in 2017).

The company is a national high-tech enterprise, a national specialized and innovative "little giant" enterprise, and a listed enterprise on the New Third Board. The company has been recognized as a "National Green Factory" and a "Smart Factory" in Beijing. It is a Beijing patent demonstration unit, a Beijing enterprise technology research and development institution, and a Beijing enterprise technology center.

The company's products include a full range of industrial automation products such as AC servo motors, AC servo drives, PLC, motion controllers, core functional components such as torque motors, motorized spindles, direct drive turntables. The core technology has reached the international advanced level, and key products can replace imported similar products, widely used in CNC machine tools, industrial robots, industrial automation and other fields.

The company has core technologies with independent intellectual property rights, over 300 patents and software copyrights, including more than 30 invention patents. Its servo control system technology is at the leading level in China, and it has mastered core technologies such as servo control space vector algorithm, control software development, servo drive design, servo motor electromagnetic design, and manufacturing processes.

The company has two intelligent equipment industrial parks in Beijing and Shandong, with a business area of 100000 square meters. Advanced equipment, strict management, sufficient production capacity, and strong production and supply capabilities. There are 30 offices nationwide, with a sales and service network covering the north and south of China, providing efficient and professional pre-sales, in sales, and after-sales services for our customers.



INTELLIGENT PRODUCTION LINE



Servo Motor Production Line



Functional Component Line



Servo Drive Line



Precision Grinding Line



Punching-Shearing Line



Gantry-Machining Line

Model Description

Take DZM7.5kW for example

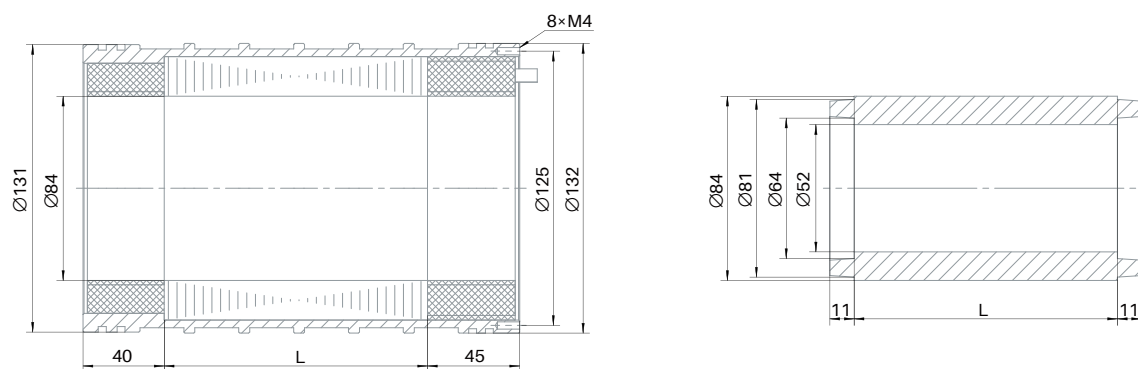
DZM 60A - L180 - 4 7P5 - 3000 / 9000

① ② ③ ④ ⑤ ⑥ ⑦

Code	Description	Instructions	Example Model
①	Motor type code	DZM: Built-in Motor	Built-in Motor
②	Product series	58 60A 74A 85B	60A
③	Core length	unit: mm	180 mm
④	Voltage rating	4: 400V级	400V级
⑤	Torque code	See the standard specification sheet for details	7.5kW
⑥	Rated Speed	unit: rpm	Rated Speed: 3000 rpm
⑦	Max. Speed	unit: rpm	Max. Speed: 19000 rpm
Note	- Insulation class: Class H - Built-in KTY84-130 temperature sensor in the stator - Stator lead wire length: 0.5 m		

Frame Code: DZM58

◆ Overall Dimensions



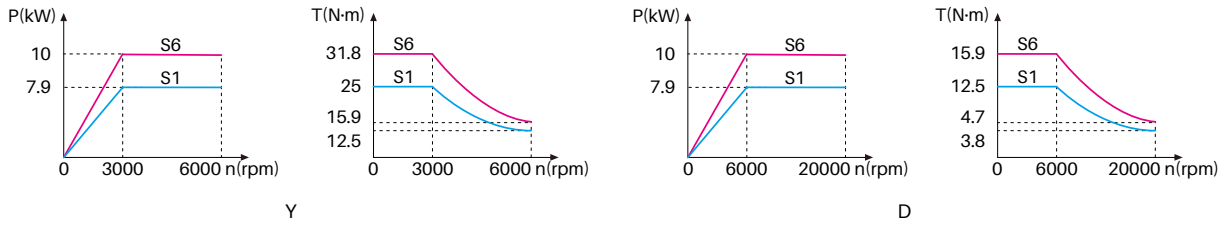
Motor Model	L (mm)
D Z M 5 8 - L 9 0	90
D Z M 5 8 - L 1 2 0	120
D Z M 5 8 - L 1 5 0	150
D Z M 5 8 - L 1 8 0	180

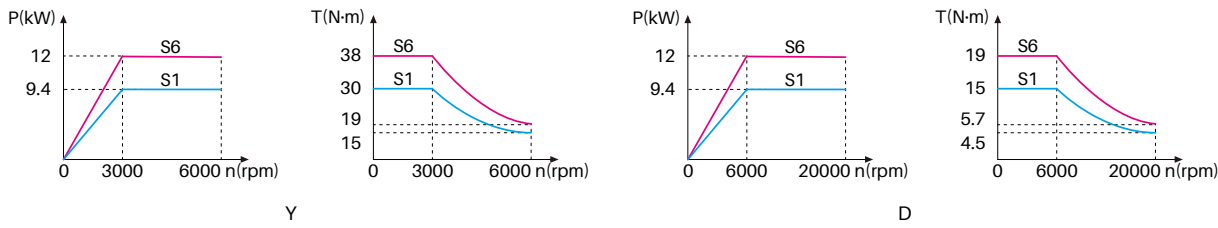
◆ Electrical Specifications

Model: DZM58-L90																																												
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz																																								
4.7	240/250	16.5/17.3	15/7.5	159.7/304.6																																								
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor																																								
1013.5	3000/6000	20000	6	0.80/0.68																																								
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH																																								
19.8	0.531	1.017	0.506	1.748																																								
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection																																											
0.00309	Y/D																																											
Characteristic Curve																																												
The characteristic curves for Model DZM58-L90 are shown in four graphs. The first two graphs are for Y connection (0-6000 rpm) and the last two are for D connection (0-20000 rpm). Each graph shows Power (P) and Torque (T) vs. Speed (n) for S6 and S1 speeds. <table border="1"> <caption>Y Connection Data (0-6000 rpm)</caption> <thead> <tr> <th>Speed (rpm)</th> <th>P (kW) S6</th> <th>P (kW) S1</th> <th>T (N·m) S6</th> <th>T (N·m) S1</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>3000</td> <td>6</td> <td>4.7</td> <td>19</td> <td>15</td> </tr> <tr> <td>6000</td> <td>6</td> <td>4.7</td> <td>9.5</td> <td>7.5</td> </tr> </tbody> </table> <table border="1"> <caption>D Connection Data (0-20000 rpm)</caption> <thead> <tr> <th>Speed (rpm)</th> <th>P (kW) S6</th> <th>P (kW) S1</th> <th>T (N·m) S6</th> <th>T (N·m) S1</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>6000</td> <td>6</td> <td>4.7</td> <td>9.5</td> <td>7.5</td> </tr> <tr> <td>20000</td> <td>6</td> <td>4.7</td> <td>2.3</td> <td>2.3</td> </tr> </tbody> </table>					Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1	0	0	0	0	0	3000	6	4.7	19	15	6000	6	4.7	9.5	7.5	Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1	0	0	0	0	0	6000	6	4.7	9.5	7.5	20000	6	4.7	2.3	2.3
Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1																																								
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3000	6	4.7	19	15																																								
6000	6	4.7	9.5	7.5																																								
Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1																																								
0	0	0	0	0																																								
6000	6	4.7	9.5	7.5																																								
20000	6	4.7	2.3	2.3																																								

Model: DZM58-L120																																												
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz																																								
6.3	270/280	19.7/22.9	20/10	158.5/304.5																																								
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor																																								
1016	3000/6000	20000	6	0.78/0.97																																								
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH																																								
16.9	0.435	0.88	0.449	1.529																																								
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection																																											
0.0040	Y/D																																											
Characteristic Curve																																												
The characteristic curves for Model DZM58-L120 are shown in four graphs. The first two graphs are for Y connection (0-6000 rpm) and the last two are for D connection (0-20000 rpm). Each graph shows Power (P) and Torque (T) vs. Speed (n) for S6 and S1 speeds. <table border="1"> <caption>Y Connection Data (0-6000 rpm)</caption> <thead> <tr> <th>Speed (rpm)</th> <th>P (kW) S6</th> <th>P (kW) S1</th> <th>T (N·m) S6</th> <th>T (N·m) S1</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>3000</td> <td>8</td> <td>6.3</td> <td>25.5</td> <td>20</td> </tr> <tr> <td>6000</td> <td>8</td> <td>6.3</td> <td>12.7</td> <td>10</td> </tr> </tbody> </table> <table border="1"> <caption>D Connection Data (0-20000 rpm)</caption> <thead> <tr> <th>Speed (rpm)</th> <th>P (kW) S6</th> <th>P (kW) S1</th> <th>T (N·m) S6</th> <th>T (N·m) S1</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>6000</td> <td>8</td> <td>6.3</td> <td>12.7</td> <td>10</td> </tr> <tr> <td>20000</td> <td>8</td> <td>6.3</td> <td>3.82</td> <td>3</td> </tr> </tbody> </table>					Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1	0	0	0	0	0	3000	8	6.3	25.5	20	6000	8	6.3	12.7	10	Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1	0	0	0	0	0	6000	8	6.3	12.7	10	20000	8	6.3	3.82	3
Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1																																								
0	0	0	0	0																																								
3000	8	6.3	25.5	20																																								
6000	8	6.3	12.7	10																																								
Speed (rpm)	P (kW) S6	P (kW) S1	T (N·m) S6	T (N·m) S1																																								
0	0	0	0	0																																								
6000	8	6.3	12.7	10																																								
20000	8	6.3	3.82	3																																								

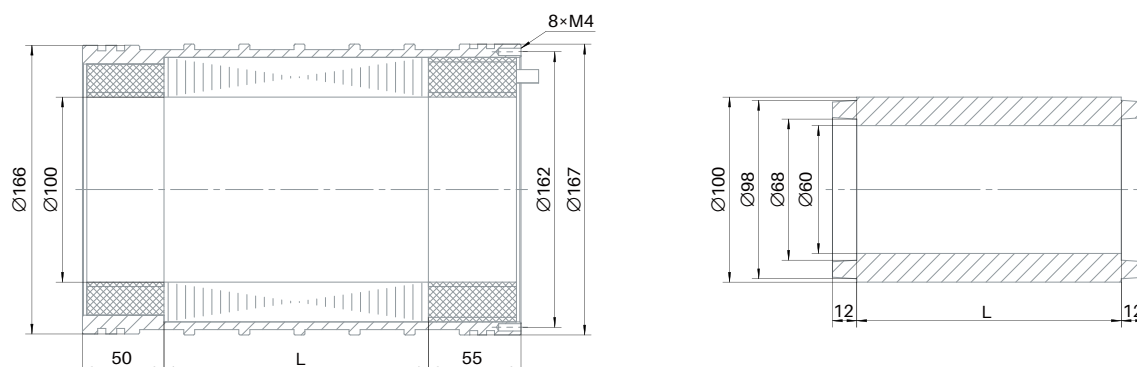
◆ Electrical Specifications

Model: DZM58-L150				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
7.9	290/300	22.5/24	25/12.5	158.2/304.5
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
1019.5	3000/6000	20000	6	0.78/0.68
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
16	0.377	0.801	0.411	1.438
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0048	Y/D			
Characteristic Curve				
 Y D				

Model: DZM58-L180				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
9.4	290/300	26.8/28.2	30/15	158.5/304.4
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
1018	3000/6000	20000	6	0.79/0.69
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
14.19	0.305	0.678	0.347	1.256
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0058	Y/D			
Characteristic Curve				
 Y D				

Frame Code: DZM60A

◆ Overall Dimensions



Motor Model	L (mm)
DZM60A-L90	90
DZM60A-L120	120
DZM60A-L150	150
DZM60A-L180	180

◆ Electrical Specifications

Model: DZM60A-L90				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
6.5	330/350	14.9/14.8	25/12.5	88.1/169
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
609.5	2500/5000	18000	4	0.88/0.79
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
69.947	0.827	2.516	0.672	2.406
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0065	Y/D			
Characteristic Curve				
The figure shows four graphs of Power (P) and Torque (T) versus Speed (n) for the DZM60A-L90 motor. The first two graphs are for the Y connection, and the last two are for the D connection. Each graph shows two curves: S6 (solid line) and S1 (dashed line). The Y connection graphs show speeds up to 5000 rpm, while the D connection graphs show speeds up to 18000 rpm. The Y connection graphs show a peak torque of 34 N·m for S6 and 25 N·m for S1, and a peak power of 9 kW for S6 and 6.5 kW for S1. The D connection graphs show a peak torque of 17 N·m for S6 and 12.5 N·m for S1, and a peak power of 9 kW for S6 and 6.5 kW for S1.				

◆ Electrical Specifications

Model: DZM60A-L120				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
9.9	330/350	22.7/23.5	38/19	87.2/168.7
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
607	2500/5000	18000	4	0.87/0.75
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
37.5	0.425	1.195	0.377	1.331
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0082	Y/D			
Characteristic Curve				

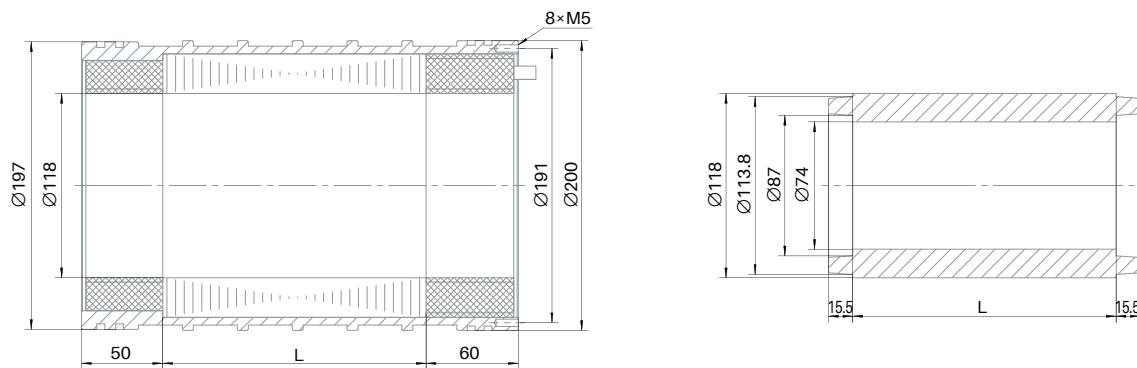
Model: DZM60A-L150				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
11	350/350	23.4/23.7	42/21	88/169
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
608.8	2500/5000	18000	4	0.87/0.82
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
40	0.442	1.297	0.409	1.417
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.013	Y/D			
Characteristic Curve				

◆ Electrical Specifications

Model: DZM60A-L180				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
13.1	380/380	25.2/25.4	50/25	87.4/169
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
611.6	2500/5000	18000	4	0.87/0.82
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
41.4	0.4	1.238	0.408	1.448
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0102	Y/D			
Characteristic Curve				

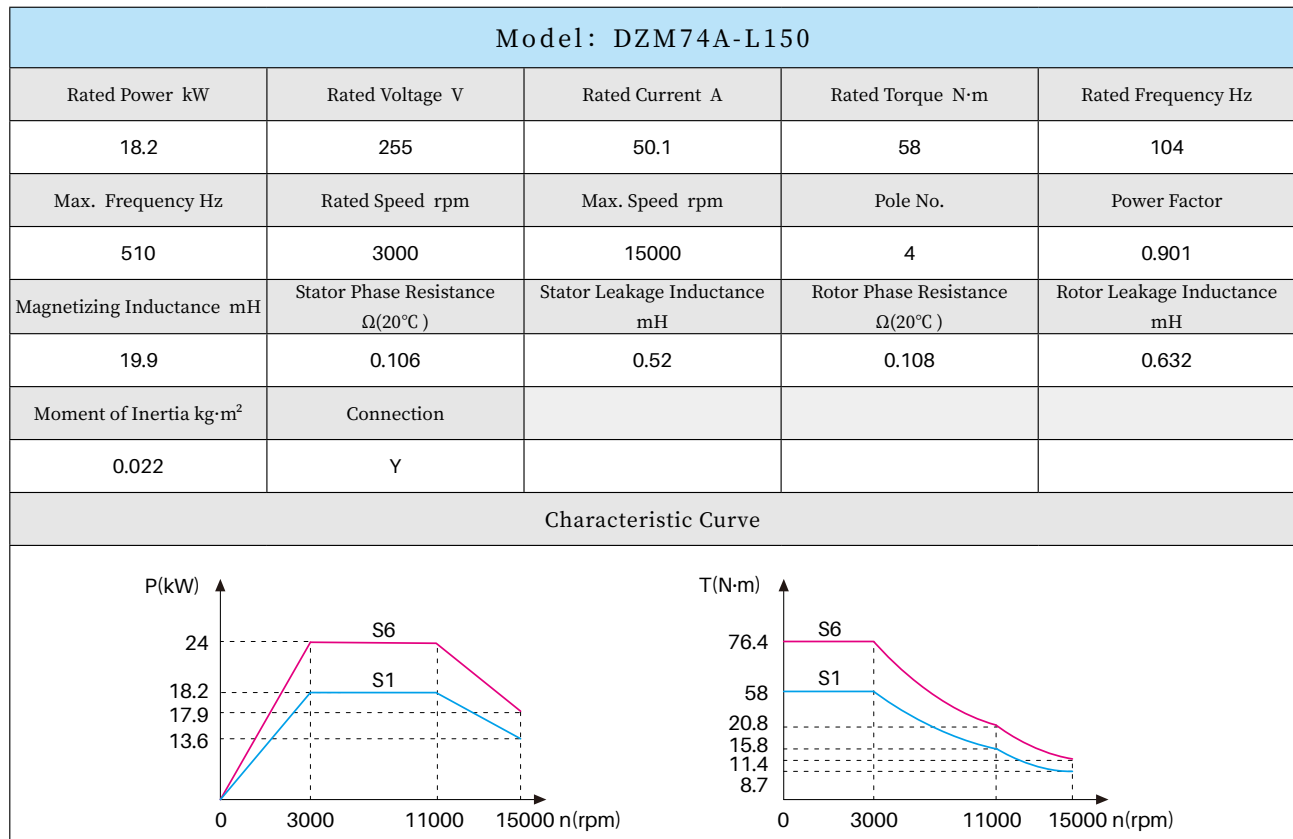
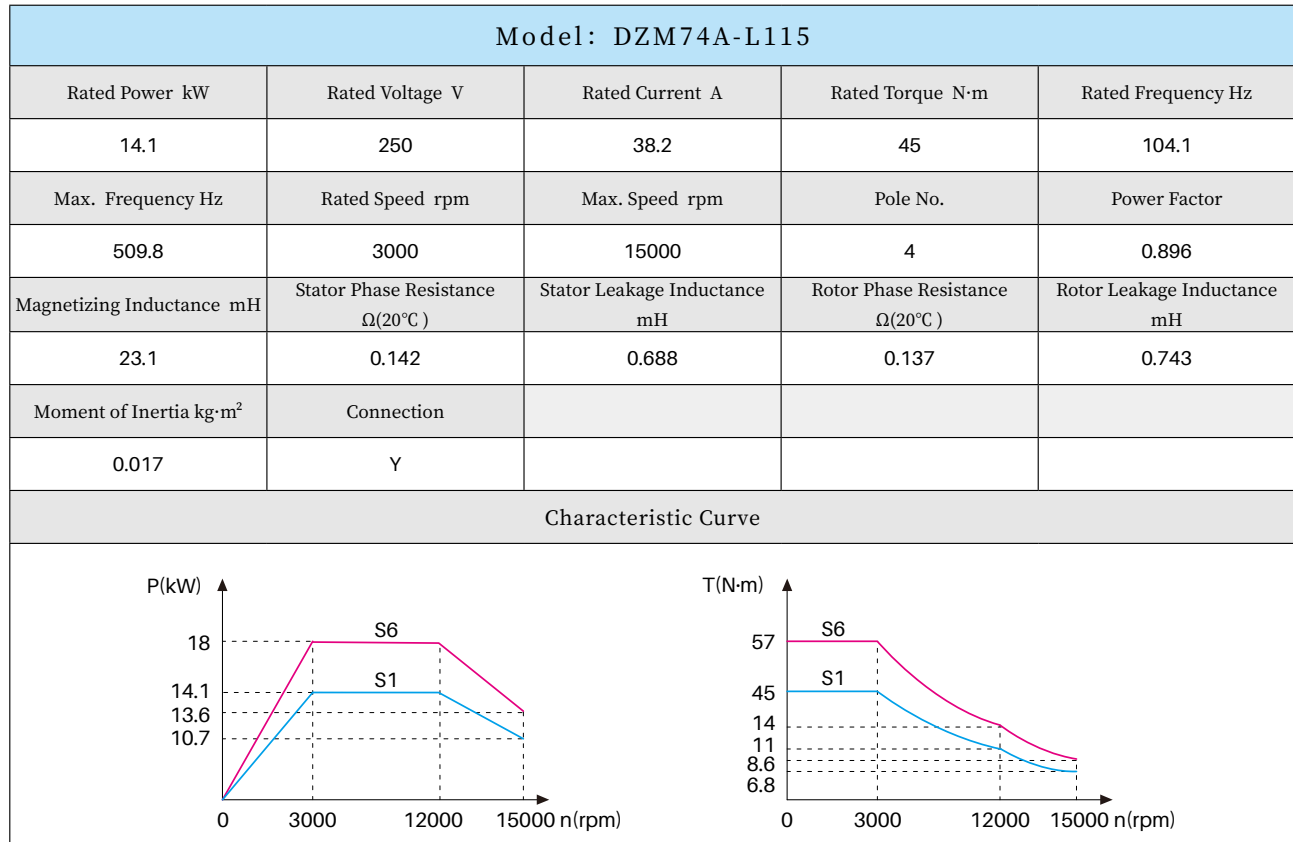
Frame Code: DZM74A

◆ Overall Dimensions



Motor Model	L (mm)
DZM74A-L115	115
DZM74A-L150	150
DZM74A-L180	180
DZM74A-L226	226

◆ Electrical Specifications



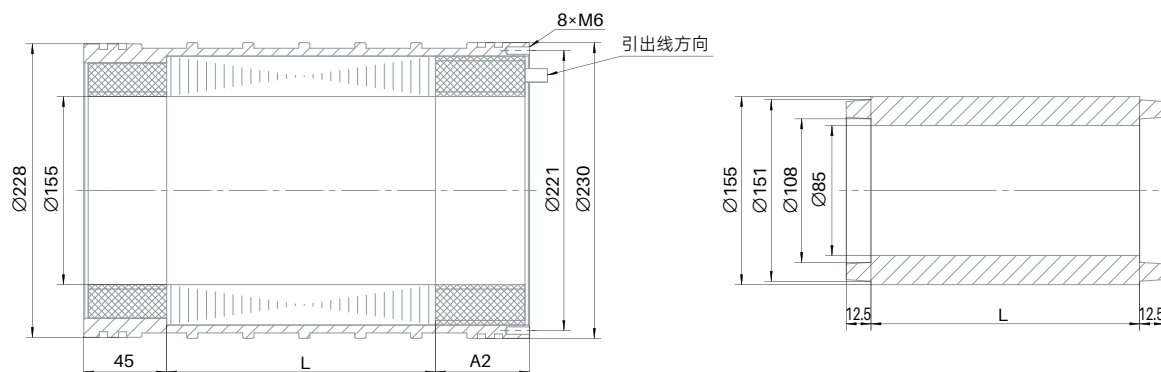
◆ Electrical Specifications

Model: DZM74A-L180				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
22	270	56.8	70	103.8
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
507.5	3000	15000	4	0.903
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
17.4	0.093	0.443	0.096	0.559
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.026	Y			
Characteristic Curve				
The left graph shows Power P(kW) on the y-axis (0 to 29) versus Speed n(rpm) on the x-axis (0 to 15000). Curve S1 (blue) starts at (0,0), rises to a peak of 22 kW at 3000 rpm, and then decreases to 14 kW at 15000 rpm. Curve S6 (pink) starts at (0,0), rises to a peak of 29 kW at 3000 rpm, and then decreases to 18.48 kW at 15000 rpm. The right graph shows Torque T(N·m) on the y-axis (0 to 92) versus Speed n(rpm) on the x-axis (0 to 15000). Curve S1 (blue) starts at (0,0), rises to a peak of 70 N·m at 3000 rpm, and then decreases to 11.7 N·m at 15000 rpm. Curve S6 (pink) starts at (0,0), rises to a peak of 92 N·m at 3000 rpm, and then decreases to 19 N·m at 15000 rpm.				

Model: DZM74A-L226				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
26.1	240	75.1	83	103.3
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
513	3000	15000	4	0.901
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
10.6	0.502	0.261	0.059	0.347
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0329	Y			
Characteristic Curve				
The left graph shows Power P(kW) on the y-axis (0 to 34) versus Speed n(rpm) on the x-axis (0 to 15000). Curve S1 (blue) starts at (0,0), rises to a peak of 26.4 kW at 3000 rpm, and then decreases to 16.6 kW at 15000 rpm. Curve S6 (pink) starts at (0,0), rises to a peak of 34 kW at 3000 rpm, and then decreases to 21.6 kW at 15000 rpm. The right graph shows Torque T(N·m) on the y-axis (0 to 108) versus Speed n(rpm) on the x-axis (0 to 15000). Curve S1 (blue) starts at (0,0), rises to a peak of 83 N·m at 3000 rpm, and then decreases to 16.6 N·m at 15000 rpm. Curve S6 (pink) starts at (0,0), rises to a peak of 108 N·m at 3000 rpm, and then decreases to 21.6 N·m at 15000 rpm.				

Frame Code: DZM85B

◆ Overall Dimensions

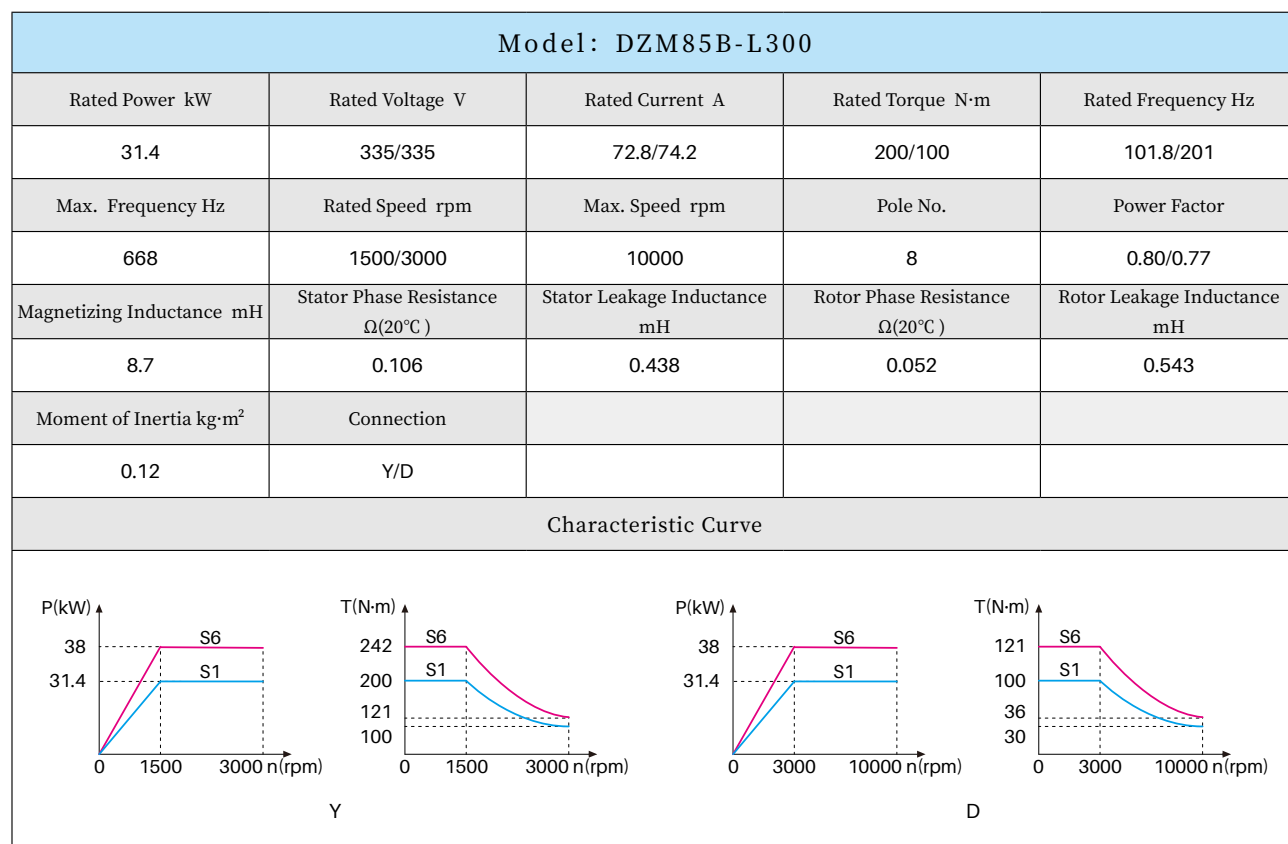
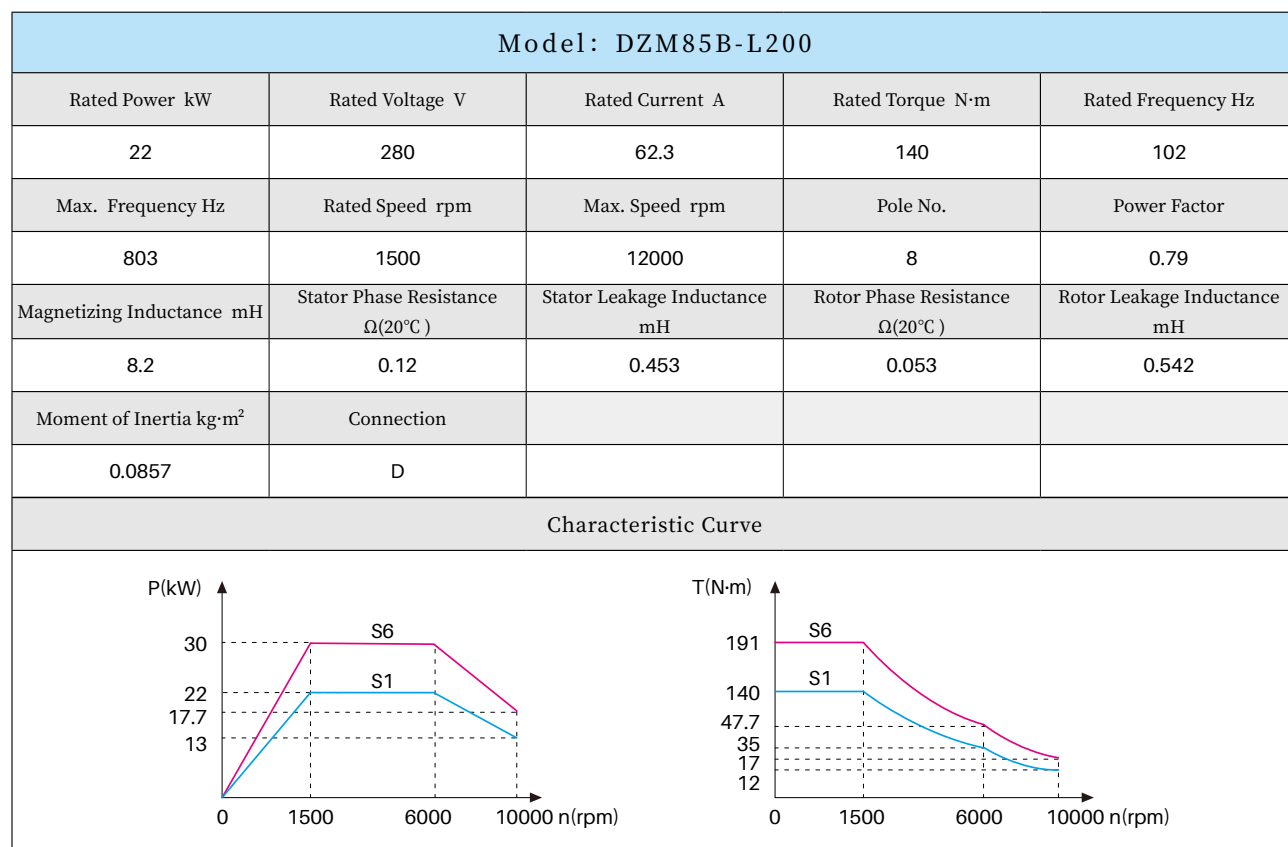


Motor Model	A2 (mm)	L (mm)
DZM85B-L150	50	150
DZM85B-L200		200
DZM85B-L300	60	300

◆ Electrical Specifications

Model: DZM85B-L150				
Rated Power kW	Rated Voltage V	Rated Current A	Rated Torque N·m	Rated Frequency Hz
15	220	51.8	95.5	102.5
Max. Frequency Hz	Rated Speed rpm	Max. Speed rpm	Pole No.	Power Factor
805	1500	12000	8	0.84
Magnetizing Inductance mH	Stator Phase Resistance $\Omega(20^{\circ}\text{C})$	Stator Leakage Inductance mH	Rotor Phase Resistance $\Omega(20^{\circ}\text{C})$	Rotor Leakage Inductance mH
11.8	0.132	0.546	0.059	0.671
Moment of Inertia $\text{kg}\cdot\text{m}^2$	Connection			
0.0642	Y			
Characteristic Curve				
The characteristic curves for the DZM85B-L150 motor are shown. The left graph plots Power (P) in kW against Speed (n) in rpm, showing two curves: S6 (pink) and S1 (blue). The right graph plots Torque (T) in N·m against Speed (n) in rpm, also showing S6 (pink) and S1 (blue) curves. Both graphs show a peak at 1500 rpm and a drop-off at 12000 rpm.				

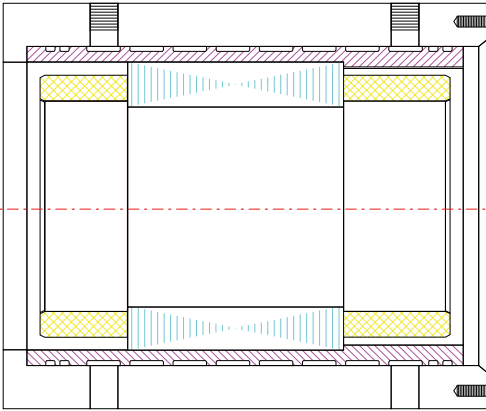
◆ Electrical Specifications



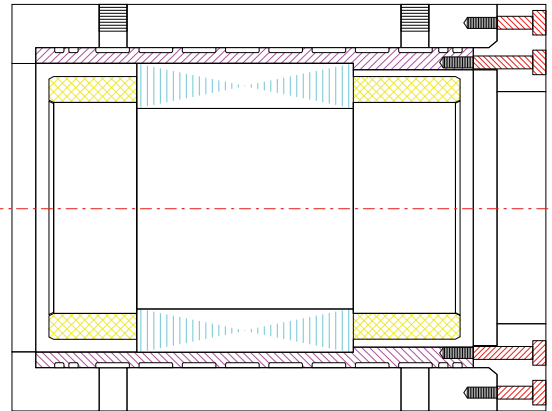
Stator and Rotor Mounting & Fixing Methods

- ◆ Two mounting types are available for stator installation: interference fit and clearance fit.

Interference Fit Mounting



Clearance Fit Mounting

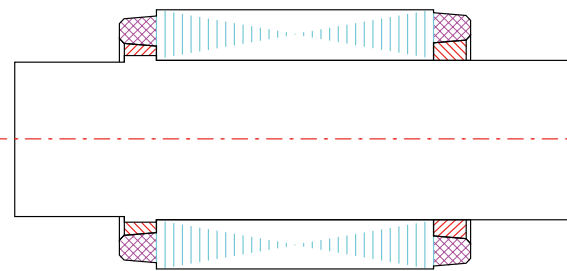


Notes

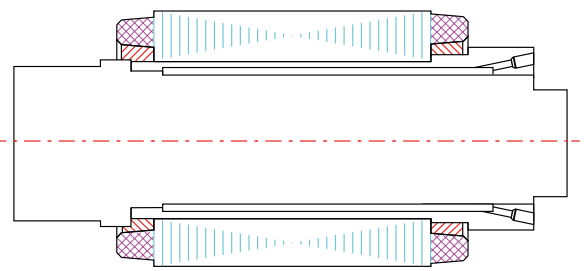
1. For both interference fit and clearance fit mounting, seal ring guiding structures shall be machined inside the housing to prevent cutting damage to the seal ring.
2. The cooling liquid inlet and outlet shall align with the two annular grooves at the leftmost and rightmost outer ends of the built-in motor stator to avoid insufficient cooling.
3. The material of seal rings shall be considered during hot fitting; fluororubber is recommended to prevent high-temperature aging of seal rings.

- ◆ Common rotor mounting methods include hot fitting, hydraulic disassembly, and expansion sleeve mounting.

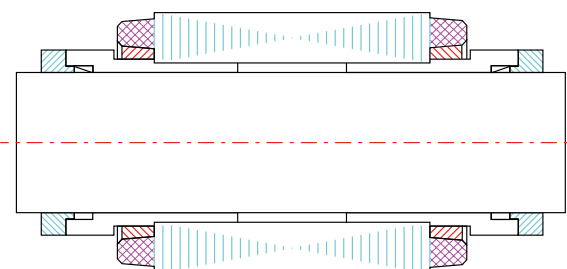
Rotor Hot Fitting



Rotor Hydraulic Disassembly

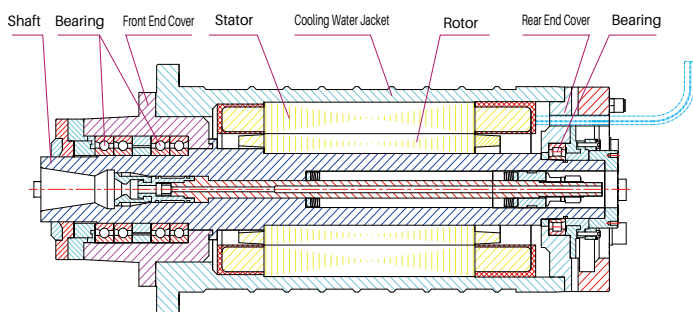


Expansion Sleeve Mounting



Design Scheme

◆ Machining Center Motorized Spindle



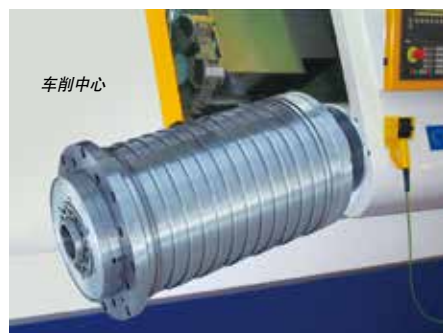
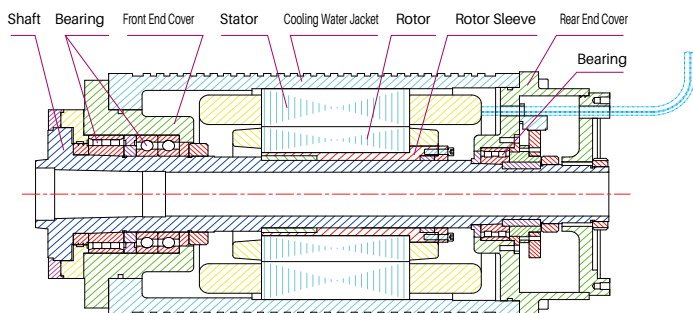
Applicable Range

CNC Milling Machines, Machining Centers, CNC Boring Machines

Applicable Tool Holders

BT(CT) series, CAT series, ISO series, BIN series, ER series

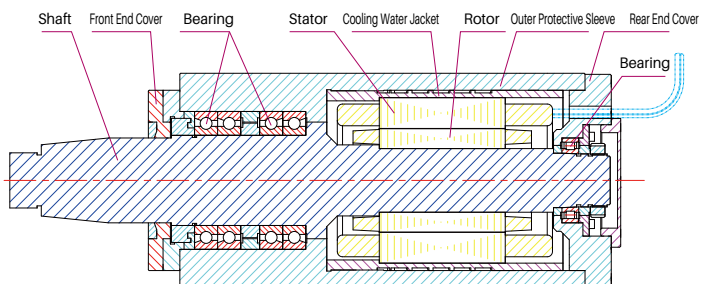
◆ CNC Lathe Motorized Spindle



Applicable Range

Instrument Lathes, Gang Tool Lathes, CNC Lathes (Flat Bed, Slant Bed)

◆ Grinding Machine Motorized Spindle



Applicable Range

Internal Grinding Machines, External Grinding Machines, Surface Grinding Machines

STRIVE FOR CONTINUAL SELF-RENEWAL KEEP PACE WITH THE WORLD



MOTORIZED TURNING SPINDLE



MOTORIZED MILLING SPINDLE

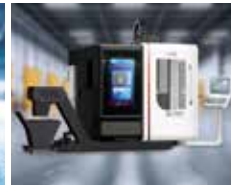


MOTORIZED GRINDING SPINDLE

Professional manufacturer of mechatronics products



TURN-MILL MACHINING CENTER



5-AXIS MACHINING CENTER



5-AXIS TOOL GRINDING MACHINE

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Due to constant technological improvements, texts, drawings and technical data in the manual may be changed without prior notice.