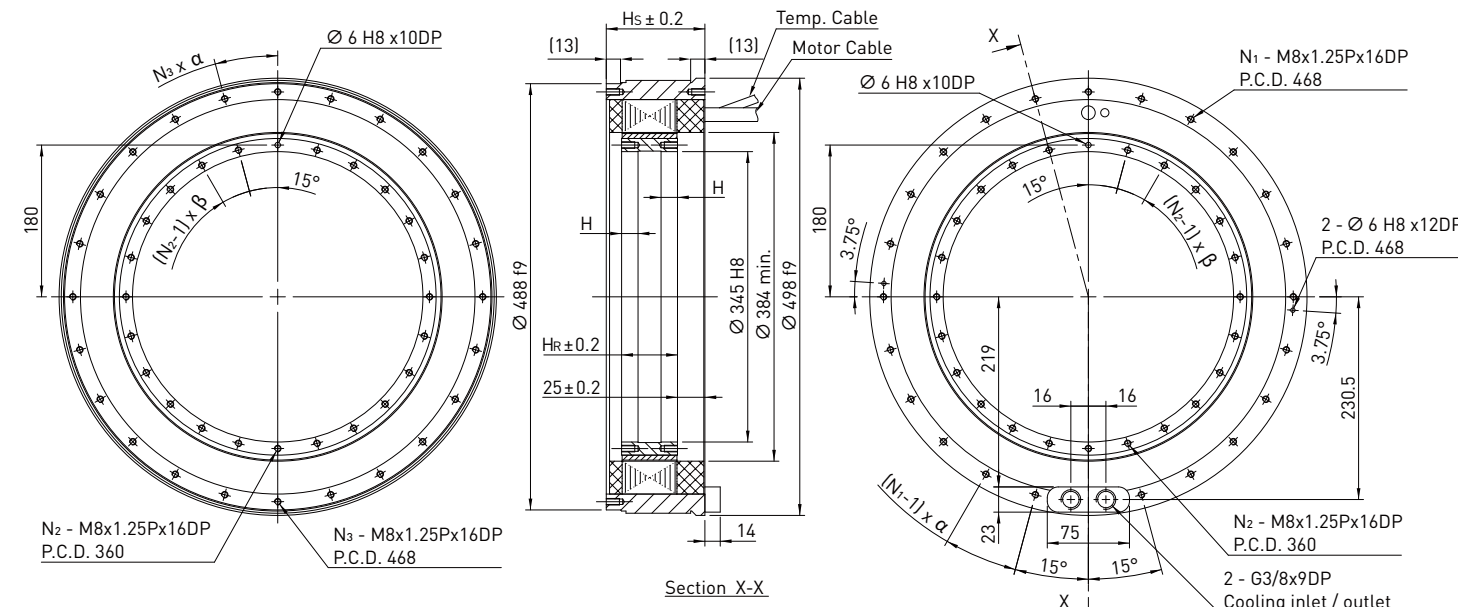
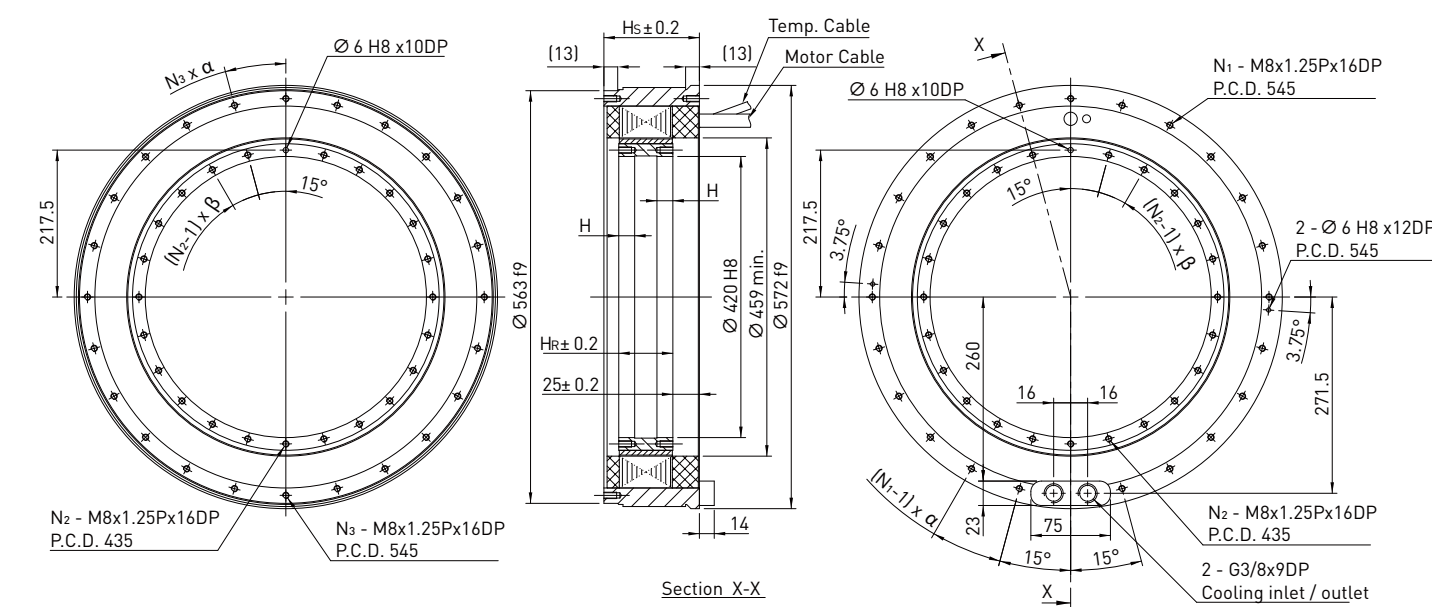


TM-2-D□(J0) Series



TM-2-G□(J0) Series



Motor type	Symbol	Unit	TM-2-D5 -SA0(J0)	TM-2-D5 -SB0(J0)	TM-2-D7 -SA0(J0)	TM-2-D7 -SB0(J0)	TM-2-D9 -SA0(J0)	TM-2-D9 -SB0(J0)	TM-2-DC -SB0(J0)	TM-2-DC -SD0(J0)	TM-2-DH -SB0(J0)	TM-2-DH -SD0(J0)
Continuous torque [WC]	T _{cw}	Nm	700	700	990	990	1273	1273	1690	1690	2394	2394
Continuous current [WC]	I _{cw}	A _{rms}	17.7	35.4	17.7	35.4	17.7	35.4	70.8	70.8	35.4	70.8
Stall torque [WC]	T _{sw}	Nm	570	572	807	801	1027	1031	1376	1376	1950	1950
Stall current [WC]	I _{sw}	A _{rms}	14.2	28.3	14.2	28.3	14.2	28.3	28.3	56.6	28.3	56.6
Peak torque [for 1sec.]	T _p	Nm	1410	1410	1980	1980	2546	2546	3380	3380	4640	4788
Peak current [for 1sec.]	I _p	A _{rms}	53	106	53	106	39.4	106	106	212	95	212
Torque constant	K _t	Nm/A _{rms}	40.53	20.26	56.81	28.41	72.92	36.55	48.67	24.42	68.94	34.47
Electrical time constant	T _e	ms	6.3	6.3	6.2	6.2	6.1	6.1	6.2	5.9	5.9	5.9
Resistance (line to line at 25°C)	R ₂₅	Ω	5.6	1.4	7.6	1.9	9.6	2.4	3.06	0.8	4.4	1.1
Inductance (line to line)	L	mH	35.2	8.8	46.8	11.7	58.4	14.6	18.86	4.7	26	6.5
Number of poles	Z _p		88									
Back EMF constant (line to line)	K _v	V _{rms} /rad/s	23.4	11.7	32.8	16.4	42.1	21.1	28.1	14.1	39.8	19.9
Motor constant (at 25°C)	K _m	Nm/√W	13.85	19.95	16.83	16.78	38.4	19.2	22.69	22.19	26.82	26.82
Thermal resistance [WC]	R _{thw}	K/W	0.04	0.04	0.029	0.029	0.023	0.023	0.018	0.017	0.013	0.013
Thermal sensor			PTC100+PTC130+Pt1000									
Max. DC BUS		V _{dc}	750									
Inertia of rotor	J	kgm ²	0.26	0.26	0.37	0.37	0.48	0.48	0.64	0.64	0.91	0.91
Max. speed at cont. torque [WC]		rpm	93	204	63	145	45	110	80	176	51	121
Max. speed at peak torque		rpm	30	84	13	57	14	41	25	75	10	47
Rated speed ¹⁾	ω _r	rpm	93	204	63	145	45	110	80	176	51	121
Mass of rotor	M _r	kg	7.9	7.9	11	11	14.1	14.1	19	19	26.9	26.9
Mass of stator	M _s	kg	40.4	40.4	50.1	50.1	59.8	59.8	74.9	74.9	101.6	101.6
Height of stator	H _s	mm	90	90	110	110	130	130	160	160	210	210
Height of rotor	H _r	mm	51	51	71	71	91	91	121	121	171	171
Height	H	mm	15	15	15	15	15	15	15	15	15	15
Number of stator mounting holes	N ₁		12	12	12	12	23	23	23	23	23	23
Number of stator mounting holes	N ₃		12	12	12	12	24	24	24	24	24	24
Number of rotor mounting holes	N _z		12	12	12	12	23	23	23	23	23	23
Angle of stator mounting holes	α	°	30	30	30	30	15	15	15	15	15	15
Angle of rotor mounting holes	β	°	30	30	30	30	15	15	15	15	15	15

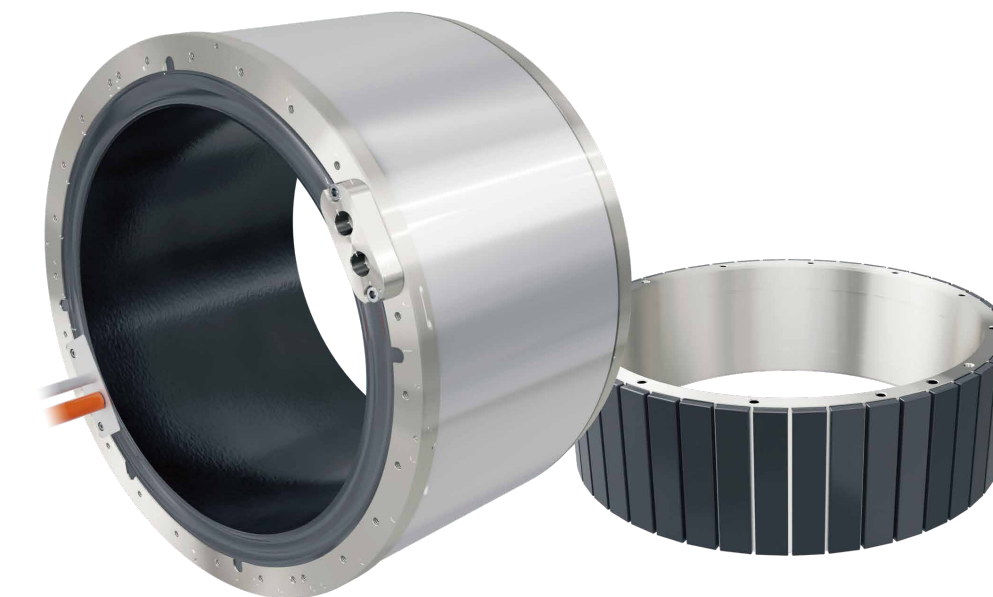
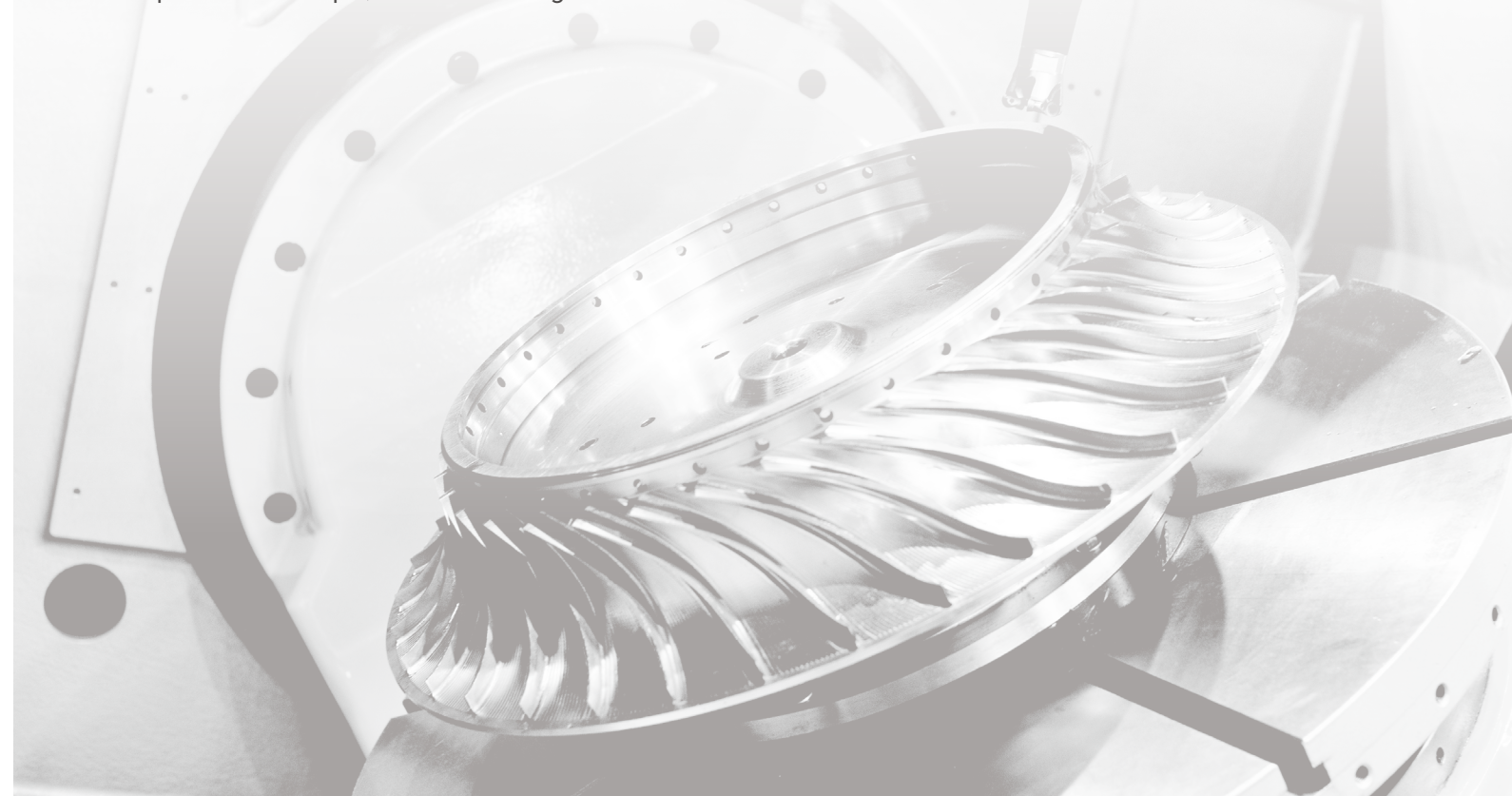
Note: WC: water cooled
All the specifications in the table are in ±10% of tolerance except dimensions.
1)The rated speed is the maximum speed which the motor can run continuously without rest.

Motor type	Symbol	Unit	TM-2-G5 -SA0(J0)	TM-2-G5 -SB0(J0)	TM-2-G7 -PB0(J0)	TM-2-G7 -SB0(J0)	TM-2-G9 -SB0(J0)	TM-2-G9 -SD0(J0)	TM-2-GC -PD0(J0)	TM-2-GC -SD0(J0)	TM-2-GH -PD0(J0)	TM-2-GH -SD0(J0)
Continuous torque [WC]	T _{cw}	Nm	1125	1125	1575	1575	2025	2025	2700	2700	3825	3825
Continuous current [WC]	I _{cw}	A _{rms}	15.2	30.3	19.2	30.3	60.6	60.6	38	60.6	38	60.6
Stall torque [WC]	T _{sw}	Nm	934	930	1307	1302	1674	1677	2238	2238	3165	3165
Stall current [WC]	I _{sw}	A _{rms}	12.2	24.2	15.4	24.2	48.5	48.5	30.4	48.5	30.4	48.5
Peak torque [for 1sec.]	T _p	Nm	2000	2000	2800	2800	3600	3600	4800	4800	6720	6900
Peak current [for 1sec.]	I _p	A _{rms}	40	80	50.5	80	80	160	101	160	92	160
Torque constant	K _t	Nm/A _{rms}	80.37	40.18	91.11	56.29	72.4	36.2	77.94	48.15	110.5	68.42
Electrical time constant	T _e	ms	10	10	9.7	10.1	9.9	10.1	10	10.1	9.7	10.1
Resistance (line to line at 25°C)	R ₂₅	Ω	8.4	2.1	7.2	2.76	3.5	0.86	2.8	1.11	4	1.5
Inductance (line to line)	L	mH	84	21	70	27.8	34.6	8.65	28.1	11.2	38.8	15.39
Number of poles	Z _p		88									
Back EMF constant (line to line)	K _v	V _{rms} /rad/s	46.4	23.2	52.6	32.5	41.8	20.9	45	27.8	63.8	39.5
Motor constant (at 25°C)	K _m	Nm/√W	22.59	22.59	27.16	27.65	31.56	31.83	37.91	37.63	44.59	45.06
Thermal resistance [WC]	R _{thw}	K/W	0.036	0.036	0.026	0.028	0.022	0.022	0.017	0.017	0.012	0.012
Thermal sensor			PTC100+PTC130+Pt1000									
Max. DC BUS		V _{dc}	750									
Inertia of rotor	J	kgm ²	0.452	0.452	0.619	0.619	0.796	0.796	1.1	1.1	1.564	1.564
Max. speed at cont. torque [WC]		rpm	43	99	39	70	53	117	50	86	32	59
Max. speed at peak torque		rpm	14	44	11	30	20	55	19	40	10	25
Rated speed ¹⁾	ω _r	rpm	43	99	39	70	53	117	50	86	32	59
Mass of rotor	M _r	kg	9.7	9.7	13.5	13.5	17.4	17.4	23.2	23.2	32.9	32.9
Mass of stator	M _s	kg	46.2	46.2	57.7	57.7	69.6	69.6	87.0	87.0	118.2	118.2
Height of stator	H _s	mm	90	90	110	110	130	130	160	160	210	210
Height of rotor	H _r	mm	51	51	71	71	91	91	121	121	171	171
Height	H	mm	15	15	15	15	15	15	15	15	15	15
Number of stator mounting holes	N ₁		12	12	12	12	23	23	23	23	23	23
Number of stator mounting holes	N ₃		12	12	12	12	24	24	24	24	24	24
Number of rotor mounting holes	N _z		12	12	12	12	23	23	23	23	23	23
Angle of stator mounting holes	α	°	30	30	30	30	15	15	15	15	15	15
Angle of rotor mounting holes	β	°	30	30	30	30	15	15	15	15	15	15

Note: WC: water cooled
All the specifications in the table are in ±10% of tolerance except dimensions.
1)The rated speed is the maximum speed which the motor can run continuously without rest.

Applications:

Torque Motor Rotary Table, 5-axis Machining Center, 2-axis Fork Milling Head, Gear Machine, Gear Hobbing Machine, Power Skiving, Magnetic Fluid Coupling, Roller Feeder, Digital Print, Space Telescope, Wire Drawing Machine



TM-2 (J0)

Torque Motor with Closed Cooling

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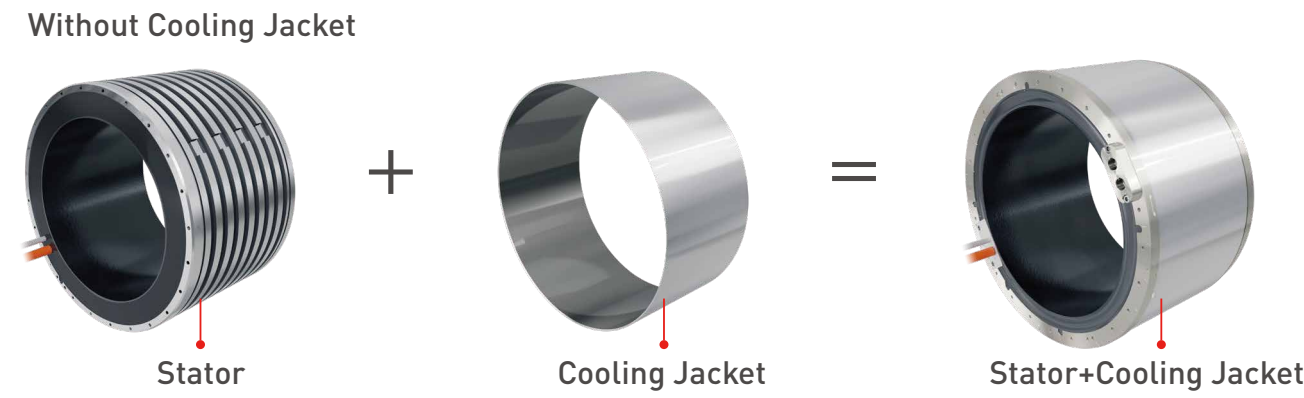
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Product Overview

Torque motor with closed cooling metal sleeve eliminates the need to design and assemble the jacket while ensuring a tight seal for the liquid coolant.



Easy integration

Flexible installation interface

The cooling channel is integrated inside the motor, and except for the locking interface, the rest of the structure can be designed freely without the need to accommodate sealing requirements.

Easy assembly

O-rings are already installed inside the cooling jacket, eliminating the process of assembling the o-ring during motor installation and avoiding o-ring rupture during installation.

Space-saving design

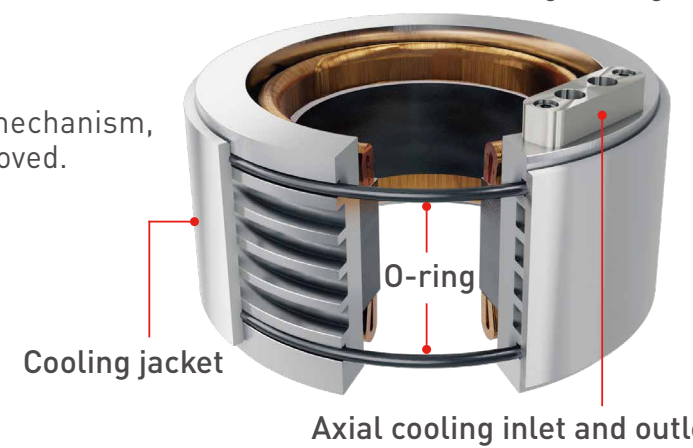
Cooling channels are integrated into the axial end face for inlet and outlet, eliminating the need for separate cooling channel provisions at the inlet and outlet. The cooling flow channels are integrated into the motor fastening interface. Cooling channel inlet and outlet are integrated into the motor locking interface, eliminating the need to reserve a channel for cooling inlet and outlet, and saving radial space.

Reduced maintenance cost

Only the motor locking interface needs to be maintained, and no other sealing mating surfaces need to be machined.

Longer life

With a zero wear and contactless mechanism, the life of the machine is greatly improved.



Motor Features

- With colsed cooling Jacket
- Water cooling
- Large hollow shaft-Max.420 mm
- Cogging torque is reduced down to 50% compared with TMRW.
- Compared with starand TM-2, the torque is increased by up to 6-66% at the same height.

Model Numbers for TM-2

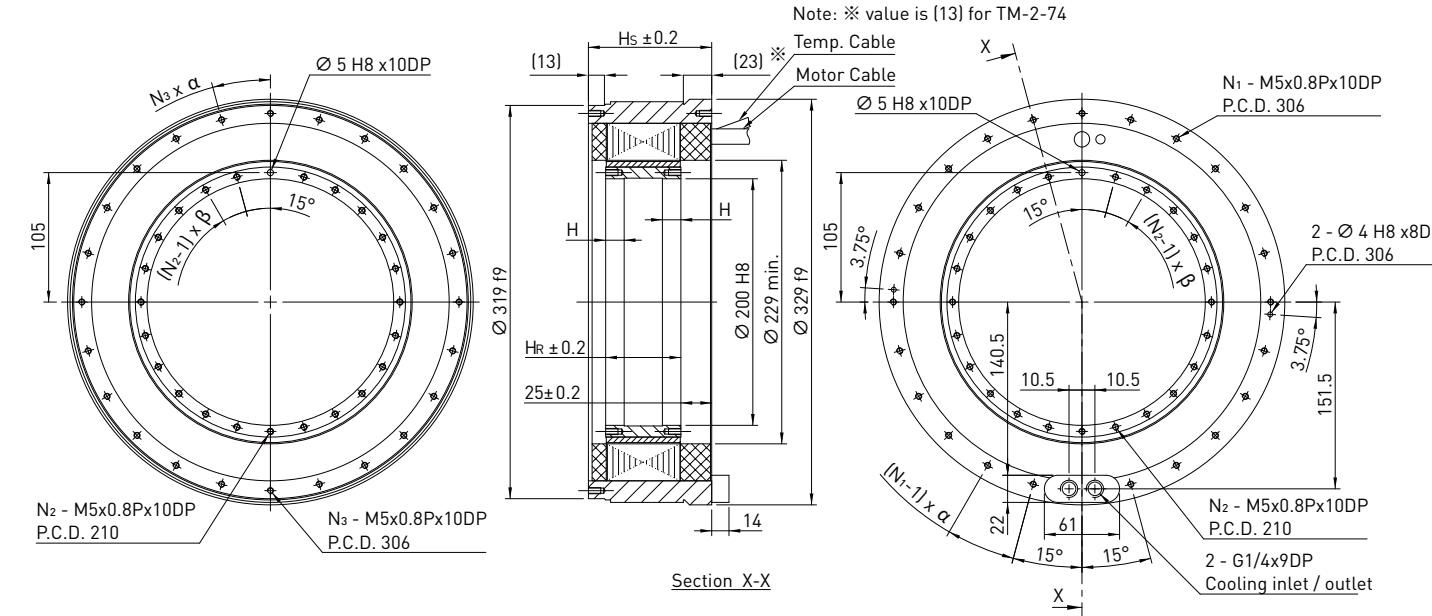
Motor Specification	Temp. Sensor	Cable Output	Reserved Code
TM-2-74-LB0-0-20S-J0			
Series			Reserved
TM-2 : Torque Motor			J0 : Jacket (without bridge) J3 : Jacket (with bridge)
External Diameter of Stator			Cable Output Style
7 : Ø329 mm A : Ø399 mm D : Ø498 mm G : Ø572 mm			S : Straight output V : Straight output with cable clamp A : Straight output with cable gland H : 90° output in tangent direction with cable clamp P : All cable separate with cable clamp (straight output)
Rotor (Magnet) Height			Cable Length
4 : 40 mm 5 : 50 mm 6 : 60 mm 7 : 70 mm 8 : 80 mm 9 : 90 mm B : 110 mm C : 120 mm G : 160 mm H : 170 mm			20 : 2.0m (Standard) 05 : 0.5m 10 : 1.0m
Temp. Sensor Configuration			
0 : PTC130+PTC100+Pt1000 (Standard) 1 : PTC130+PTC100+Pt1000x3			

Torque/Speed Characteristics

See Table

TM-2 Torque Motor

TM-2-7□(J0) Series



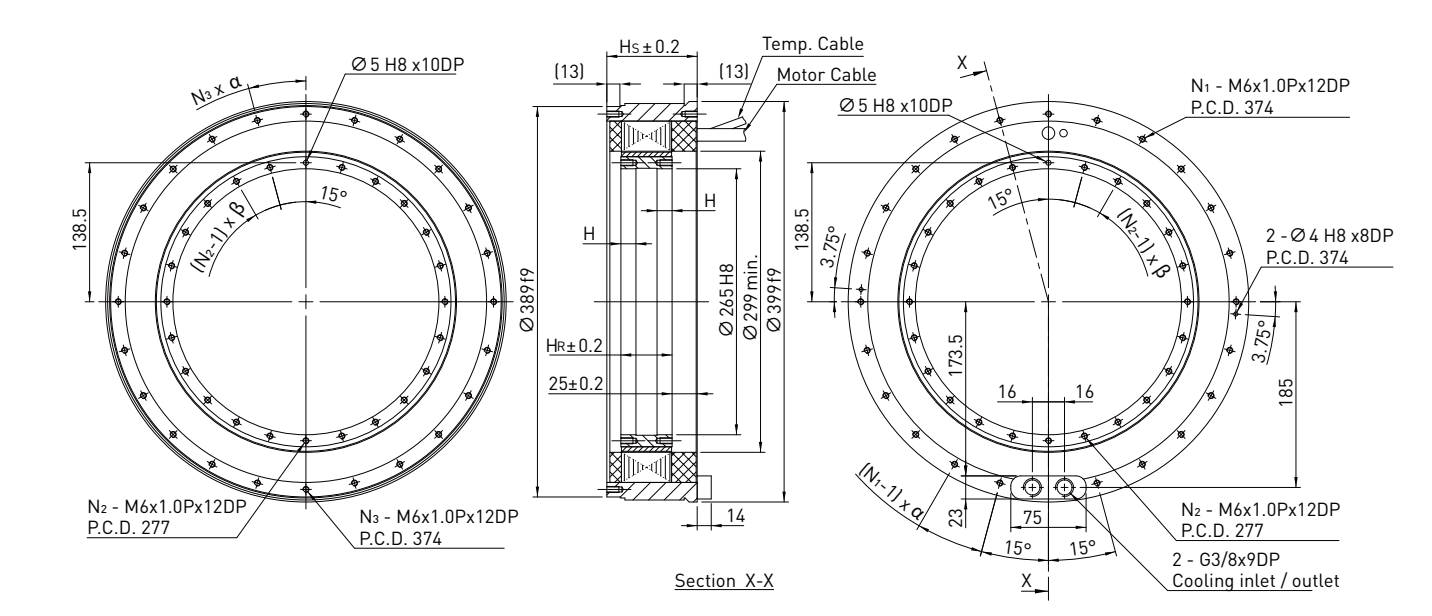
Motor type	Symbol	Unit	TM-2-74-LB0(J0)	TM-2-74-PB0(J0)	TM-2-76-LB0(J0)	TM-2-76-PB0(J0)	TM-2-78-SB0(J0)	TM-2-78-SB0(J0)	TM-2-7B-PB0(J0)	TM-2-7B-PB0(J0)	TM-2-7G-PB0(J0)	TM-2-7G-SB0(J0)	
Continuous torque [WC]	T_{cw}	Nm	233	228	348	341	457	432	626	594	910	863	
Continuous current [WC]	I_{cw}	Arms	14	20.5	14	20.5	20.5	32.3	20.5	32.3	20.5	32.3	
Stall torque [WC]	T_{sw}	Nm	192	187	286	280	376	354	515	487	747	707	
Stall current [WC]	I_{sw}	Arms	11.2	16.4	11.2	16.4	16.4	25.8	16.4	25.8	16.4	25.8	
Peak torque [for 1sec.]	T_p	Nm	460	453	696	684	914	869	1254	1221	1824	1781	
Peak current [for 1sec.]	I_p	Arms	38.1	56	38.1	56	56	88.3	56	88.3	51.3	88.3	
Torque constant	K_t	Nm/Arms	17.84	11.78	26.67	17.84	23.73	14.2	32.56	19.57	47.46	28.41	
Electrical time constant	T_e	ms	8	7	8	7	7	6.6	7.7	6.7	7.9	6.6	
Resistance (line to line at 25°C)	R_{25}	Ω	4.3	2.1	5.9	2.9	3.7	1.5	4.9	1.96	6.9	2.8	
Inductance (line to line)	L	mH	34.5	14.6	47.4	20.2	25.8	9.9	37.6	13.1	54.2	18.5	
Number of poles	2_p		44										
Back EMF constant (line to line)	K_v	$V_{rms}/(rad/s)$	10.3	6.8	15.4	10.3	13.7	8.2	18.8	11.3	27.4	16.4	
Motor constant (at 25°C)	K_m	Nm/\sqrt{W}	6.9	6.9	8.91	6.9	10.06	9.47	12.03	11.38	14.73	13.86	
Thermal resistance [WC]	R_{thw}	K/W	0.075	0.072	0.055	0.052	0.041	0.04	0.031	0.031	0.022	0.022	
Thermal sensor			PTC100+PTC130+Pt1000										
Max. DC BUS	V_{dc}		750										
Inertia of rotor	J	kgm^2	0.033	0.033	0.049	0.049	0.065	0.065	0.089	0.089	0.129	0.129	
Max. speed at cont. torque [WC]		rpm	241	386	159	255	188	331	128	236	80	155	
Max. speed at peak torque		rpm	112	190	70	125	88	168	51	117	26	69	
Rated speed ¹⁾	ω_n	rpm	241	386	159	255	188	331	128	236	80	155	
Mass of rotor	M_r	kg	2.9	2.9	4.3	4.3	5.7	5.7	7.8	7.8	12.4	12.4	
Mass of stator	M_s	kg	20.0	20.0	25.6	25.6	31.1	31.1	39.5	39.5	53.9	53.9	
Height of stator	H_s	mm	80	80	100	100	120	120	150	150	200	200	
Height of rotor	H_r	mm	41	41	61	61	81	81	111	111	161	161	
Height	H	mm	10	10	15	15	15	15	15	15	15	15	
Number of stator mounting holes	N_1		12	12	12	12	23	23	23	23	23	23	
Number of stator mounting holes	N_2		12	12	12	12	24	24	24	24	24	24	
Number of rotor mounting holes	N_3		12	12	12	12	23	23	23	23	23	23	
Angle of stator mounting holes	α	°	30	30	30	30	15	15	15	15	15	15	
Angle of rotor mounting holes	β	°	30	30	30	30	15	15	15	15	15	15	

Note: WC: water cooled

All the specifications in the table are in $\pm 10\%$ of tolerance except dimensions.

1)The rated speed is the maximum speed which the motor can run continuously without rest.

TM-2-A□(J0) Series



Motor type	Symbol	Unit	TM-2-A5-PA0(J0)	TM-2-A5-SA0(J0)	TM-2-A7-PA0(J0)	TM-2-A7-SA0(J0)	TM-2-A9-PA0(J0)	TM-2-A9-SA0(J0)	TM-2-AC-PA0(J0)	TM-2-AC-PC0(J0)	TM-2-AH-PC0(J0)	TM-2-AH-SC0(J0)	
Continuous torque [WC]	T_{cw}	Nm	453	414	579	633	744	814	1086	1086	1539	1405	
Continuous current [WC]	I_{cw}	Arms	11.5	18.8	18.8	23	18.8	23	35	35	35	57.2	
Stall torque [WC]	T_{sw}	Nm	371	338	473	518	608	666	891	891	1259	1155	
Stall current [WC]	I_{sw}	Arms	9.2	15	15	18.4	15	18.4	28	28	28	45.8	
Peak torque [for 1sec.]	T_p	Nm	860	786	1097	1200	1410	1543	2060	2060	3030	2663	
Peak current [for 1sec.]	I_p	Arms	26	42.5	42.5	52	42.5	52	78	78	78	127.5	
Torque constant	K_t	$Nm/Arms$	41.57	23.73	32.56	29.1	41.92	37.41	51.1	51.1	34.12	48.32	
Electrical time constant	T_e	ms	6.8	6.7	6.7	6.8	6.7	6.7	6.8	6.7	6.8	6.5	
Resistance (line to line at 25°C)	R_{25}	Ω	10.8	4.1	5.4	3.6	6.8	4.5	5.8	2.6	3.6	1.4	
Inductance (line to line)	L	mH	773.2	27.4	36.4	24.3	45.3	30.2	39.3	17.4	24.3	9.1	
Number of poles	2_p		66										
Back EMF constant (line to line)	K_v	$V_{rms}/(rad/s)$	24	13.7	18.8	16.8	24.2	21.6	29.5	19.7	27.9	15.7	
Motor constant (at 25°C)	K_m	Nm/\sqrt{W}	10.31	9.43	11.51	12.53	13.2	14.43	17.29	17.22	20.76	18.66	
Thermal resistance [WC]	R_{thw}	K/W	0.049	0.048	0.037	0.037	0.029	0.029	0.023	0.022	0.016	0.015	
Thermal sensor			PTC100+PTC130+Pt1000										
Max. DC BUS	V_{dc}		750										
Inertia of rotor	J	kgm^2	0.108	0.108	0.151	0.151	0.194	0.194	0.256	0.256	0.363	0.363	
Max. speed at cont. torque [WC]		rpm	87	162	114	138	85	104	73	119	78	149	
Max. speed at peak torque		rpm	38	82	55	71	37	51	31	62	36	79	
Rated speed ¹⁾	ω_n	rpm	87	162	114	138	85	104	73	119	78	149	
Mass of rotor	M_r	kg	5.5	5.5	7.6	7.6	9.8	9.8	12.9	12.9	18.4	18.4	
Mass of stator	M_s	kg	27.1	27.1	33.5	33.5	40.3	40.3	50.4	50.4	68.5	68.5	
Height of stator	H_s	mm	90	90	110	110	130	130	160	160	210	210	
Height of rotor	H_r	mm	51	51	71	71	91	91	121	121	171	171	
Height	H	mm	15	15	15	15	15	15	15	15	15	15	
Number of stator mounting holes	N_1		12	12	12	12	23	23	23	23	23	23	
Number of stator mounting holes	N_2		12	12	12	12	24	24	24	24	24	24	
Number of rotor mounting holes	N_3		12	12	12	12	23	23	23	23	23	23	
Angle of stator mounting holes	α	°	30	30	30	30	15	15	15	15	15	15	
Angle of rotor mounting holes	β	°	30	30	30	30	15	15	15	15	15	15	

Note: WC: water cooled

All the specifications in the table are in $\pm 10\%$ of tolerance except dimensions.

1)The rated speed is the maximum speed which the motor can run continuously without rest.