

HIWIN[®]

Motion Control & Systems



Torque Motors

Motors, Drives & Accessories

Torque Motors

Alongside complete rotary tables, HIWIN also offers individual torque motor components for the customised design of directly driven rotary axes. The torque motor components each consist of a hollow shaft rotor and a stator with coils.

Torque Motors

Contents

Contents

1	Product overview.....	7
2	HIWIN torque motors TMR.....	8
2.1	Special characteristics of the TMR torque motors	8
2.2	Order code TMR torque motor	8
2.3	TMR torques	9
2.4	TMR torque motor specifications	10
2.4.1	TMR0 specifications	10
2.4.2	TMR1 specifications	12
2.4.3	TMR3 specifications	14
2.4.4	TMR7 specifications	16
3	HIWIN torque motors TMRW.....	18
3.1	Special characteristics of the TMRW torque motors	18
3.2	Order code TMRW torque motor	18
3.3	Closed cooling jacket (option)	18
3.4	Cable outlet orientations of the TMRW torque motors	19
3.5	TMRW torques	20
3.6	TMRW torque motor specifications	22
3.6.1	TMRW1 specifications	22
3.6.2	TMRW2 specifications	24
3.6.3	TMRW4 specifications	26
3.6.4	TMRW7 specifications	28
3.6.5	TMRWA specifications	30
3.6.6	TMRWD specifications	32
3.6.7	TMRWG specifications	34
4	HIWIN torque motors TMRI.....	36
4.1	Special characteristics of the TMRI torque motors	36
4.2	Order code TMRI torque motor	36
4.3	TMRI torques	37
4.4	Closed cooling jacket (option)	37
4.5	TMRI torque motor specifications	38
4.5.1	TMRIA specifications	38
4.5.2	TMRIG specifications	41

Torque Motors

Product overview

1. Product overview



HIWIN torque motors TMR

[Page 8](#)

- High continuous and peak torques
- High dynamics
- High efficiency
- Maintenance-free and wear-free operation
- Integrated thermal sensors
- UL-certified



HIWIN torque motors TMRW

[Page 18](#)

- Efficient cooling system
- High continuous and peak torques
- High dynamics
- High efficiency
- Maintenance-free and wear-free operation
- UL-certified



HIWIN torque motors TMRI

[Page 36](#)

- Optimised for high speed ranges
- High continuous and peak torques
- High dynamics
- High efficiency
- Maintenance-free and wear-free operation
- UL-certified

Torque Motors

HIWIN torque motors TMR

2. HIWIN torque motors TMR

2.1 Special characteristics of the TMR torque motors

TMR series torque motors are ready-to-install motor elements consisting of a stator and rotor. The rotor is in the form of a ring. Their high power density enables high acceleration rates and hence short cycle times. In most cases a transmission system can be omitted when using a torque motor.



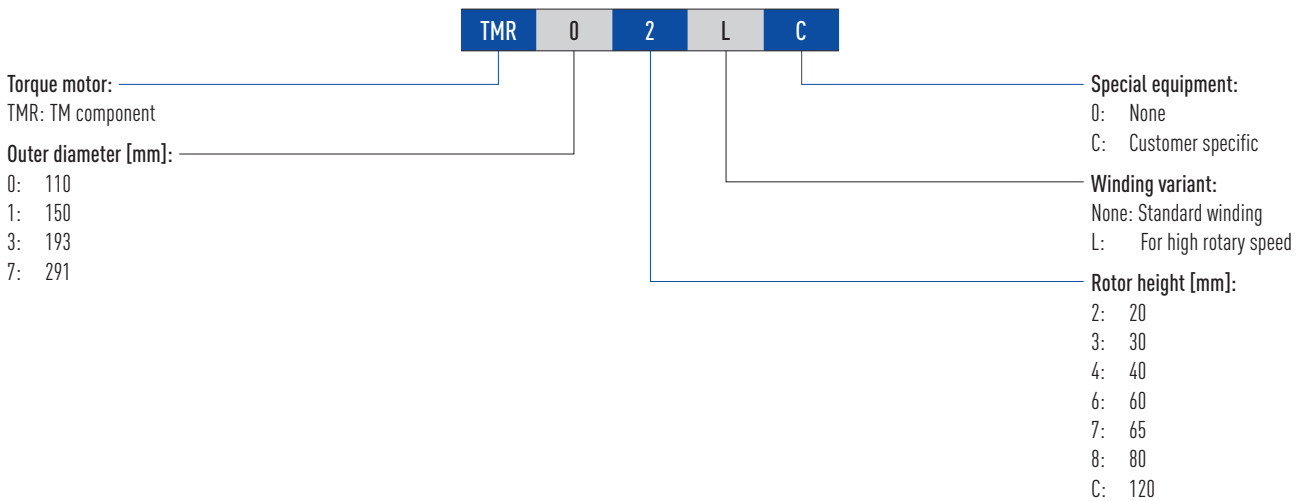
Key features of the TMR torque motor:

- High continuous and peak torques
- High dynamics
- High efficiency
- Maintenance-free and wear-free operation
- Integrated thermal sensors
- UL-certified (TMR3, TMR7)

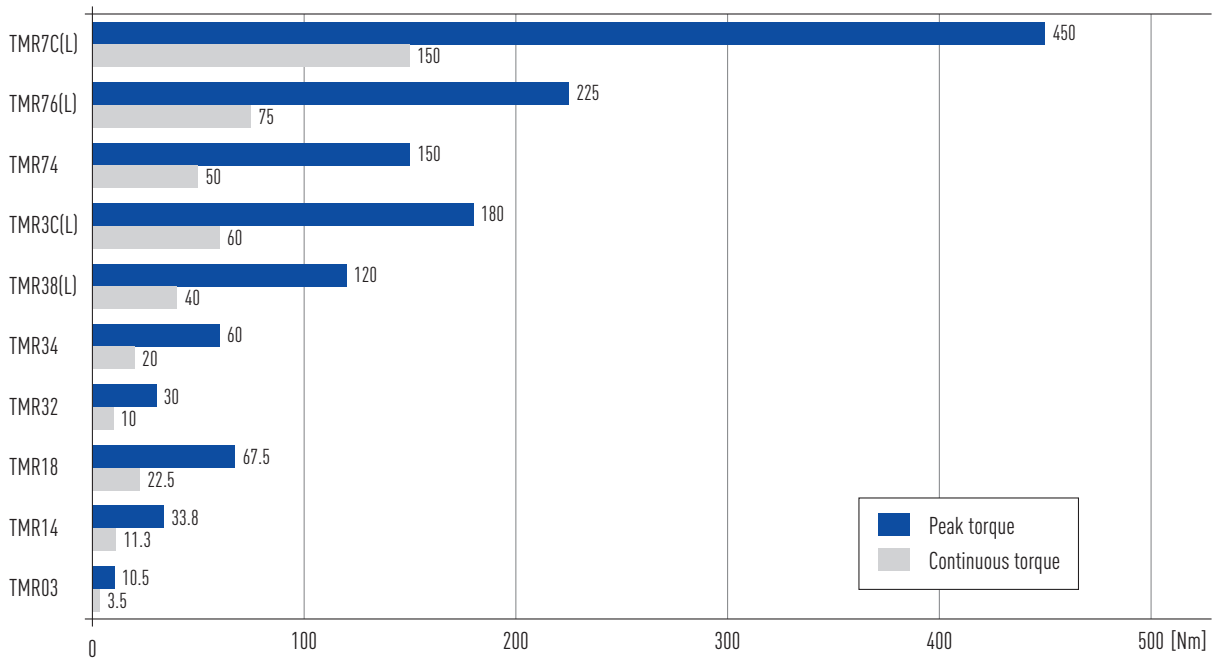
Typical fields of application:

- Automation technology
- Rotary tables

2.2 Order code TMR torque motor



2.3 TMR torques



Torque Motors

HIWIN torque motors TMR

2.4 TMR torque motor specifications

2.4.1 TMR0 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

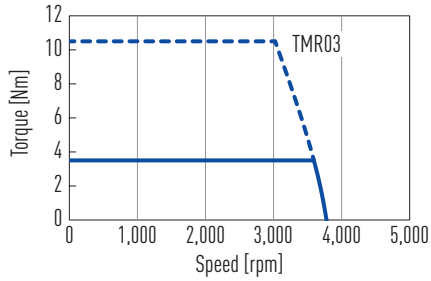


Table 2.1 Technical data for TMR0

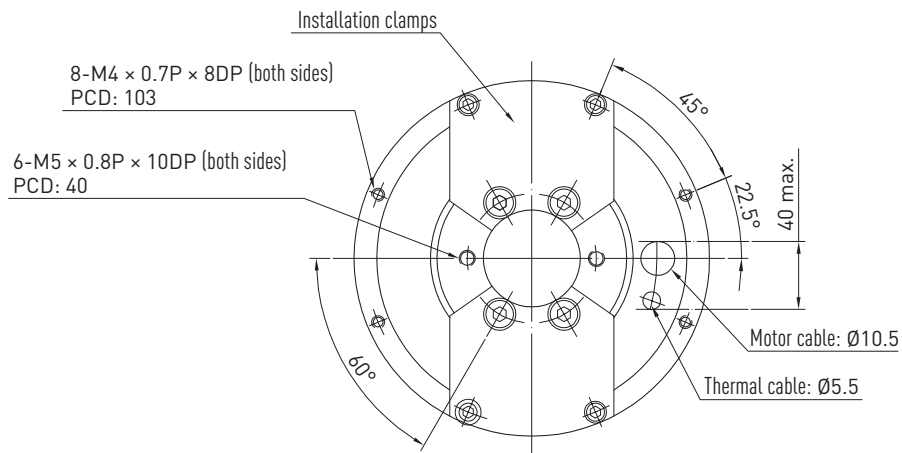
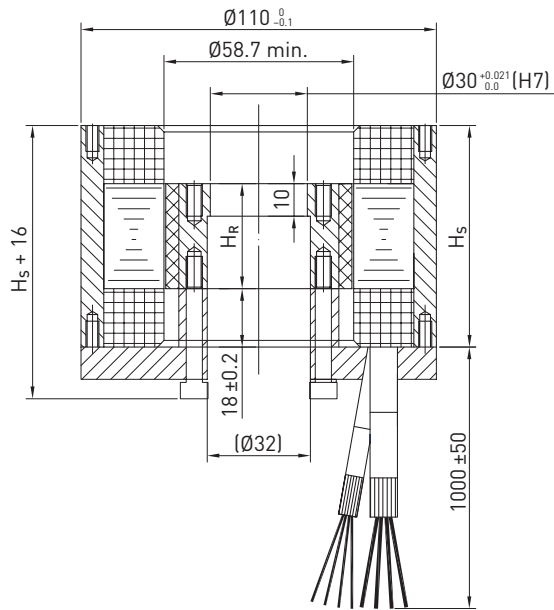
	Symbol	Unit	TMR03
Torques and electrical parameters			
Peak torque (for 1 sec.)	T_p	Nm	10.5
Continuous torque ¹⁾	T_c	Nm	3.5
Stall torque	T_s	Nm	2.5
Peak current (for 1 sec.)	I_p	A	6.8
Continuous current ¹⁾	I_c	A	2.3
Stall current	I_s	A	1.6
Resistance ²⁾	R_{25}	Ω	7.1
Inductance ²⁾	L_{25}	mH	15.2
Motor constant	K_m	Nm/ \sqrt{W}	0.5
Electrical time constant	K_e	ms	2.1
Torque constant	K_t	Nm/A	1.55
Back emf constant	K_u	V _{eff} /rad/s	0.82
Inertia of rotor	J	kgm ²	0.00018
Thermal resistance	R_{th}	°C/W	1.76
Thermal time constant	T_{th}	s	1,930
Max. DC Bus	U_{max}	VDC	600
Mechanical parameters			
Number of poles	2p		10
Thermal sensor			PTC SNM 120
Stator height	H_S	mm	68.5
Rotor height	H_R	mm	32.5
Mass of motor	M_m	kg	2.6

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 °C ambient temperature

¹⁾ Coil temperature 120 °C

²⁾ Line to line

Dimensions TMR0



Torque Motors

HIWIN torque motors TMR

2.4.2 TMR1 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

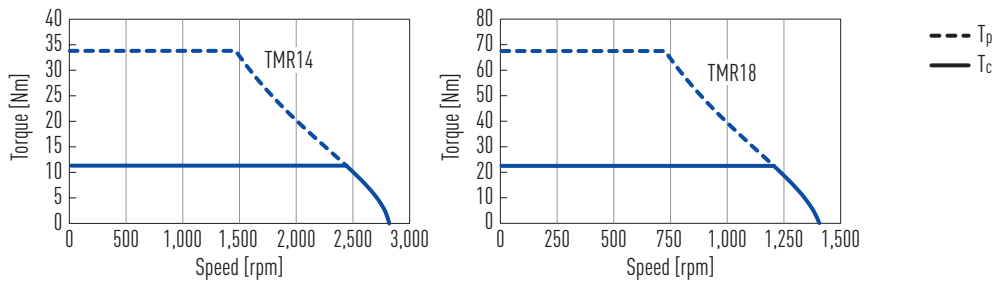


Table 2.2 Technical data for TMR1

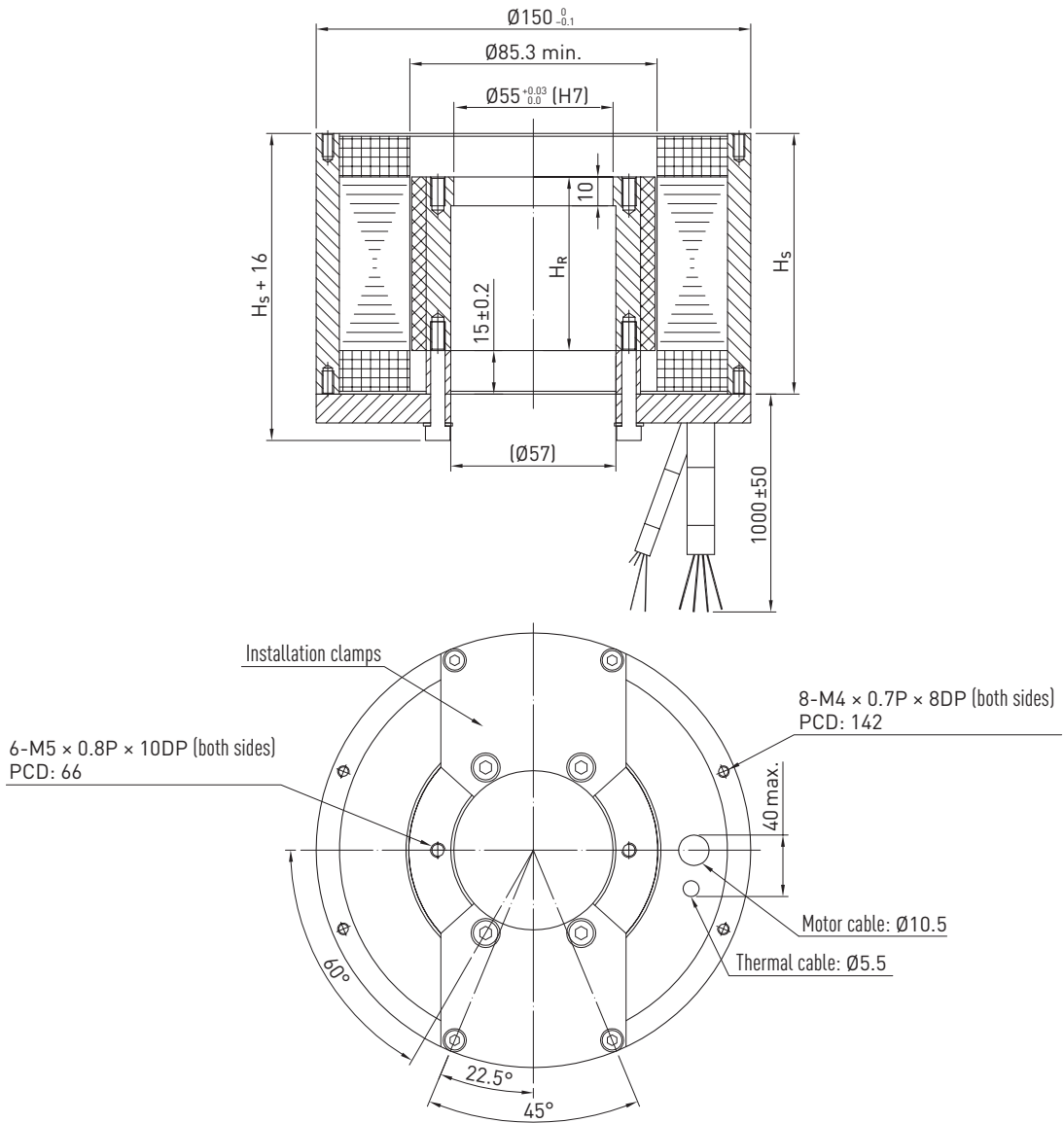
	Symbol	Unit	TMR14	TMR18
Torques and electrical parameters				
Peak torque (for 1 sec.)	T_p	Nm	33.8	67.5
Continuous torque ¹⁾	T_c	Nm	11.3	22.5
Stall torque	T_s	Nm	7.9	15.8
Peak current (for 1 sec.)	I_p	A	13.5	13.5
Continuous current ¹⁾	I_c	A	4.5	4.5
Stall current	I_s	A	3.2	3.2
Resistance ²⁾	R_{25}	Ω	3.9	6.5
Inductance ²⁾	L_{25}	mH	14	26
Motor constant	K_m	Nm/ \sqrt{W}	1.0	1.6
Electrical time constant	K_e	ms	3.6	4.0
Torque constant	K_t	Nm/A	2.50	5.0
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	1.2	2.4
Inertia of rotor	J	kgm ²	0.00088	0.00175
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.8	0.48
Thermal time constant	T_{th}	s	2,290	2,520
Max. DC Bus	U_{max}	VDC	600	
Mechanical parameters				
Number of poles	2p		22	
Thermal sensor			PTC SNM 120	
Stator height	H_s	mm	70	110
Rotor height	H_r	mm	40	80
Mass of motor	M_m	kg	4.8	8.3

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature

¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

Dimensions TMR1



Torque Motors

HIWIN torque motors TMR

2.4.3 TMR3 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

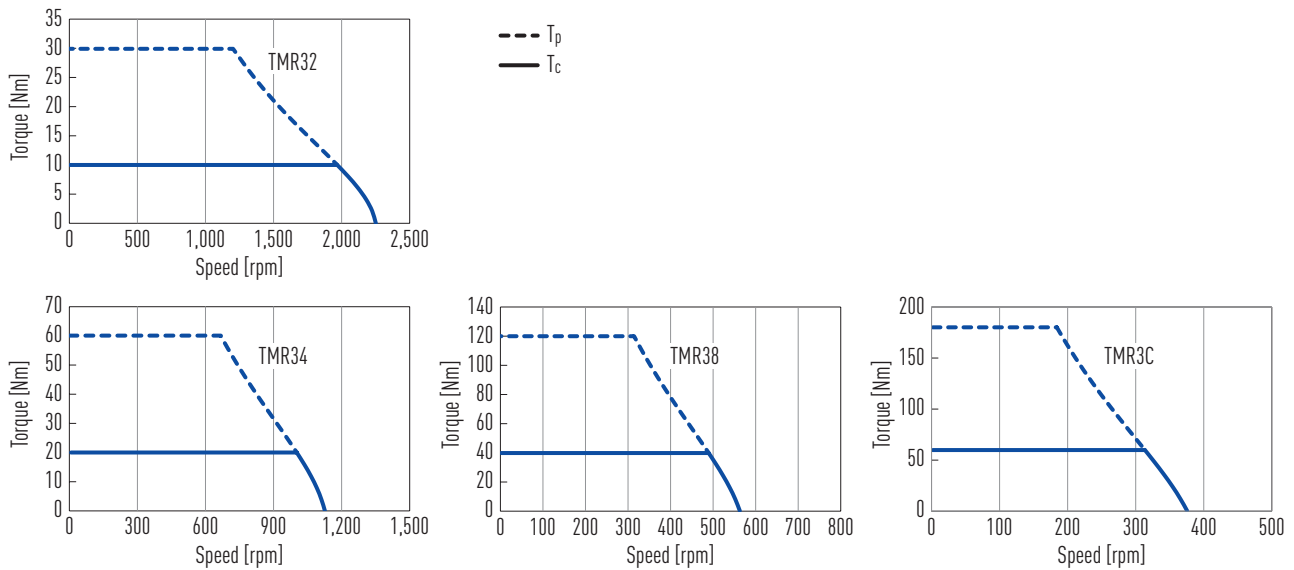


Table 2.3 Technical data for TMR3

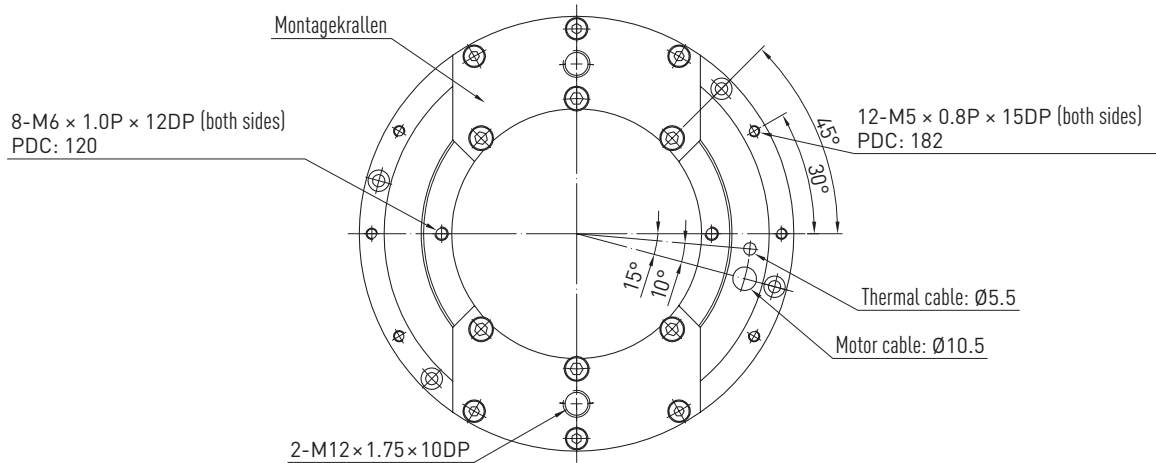
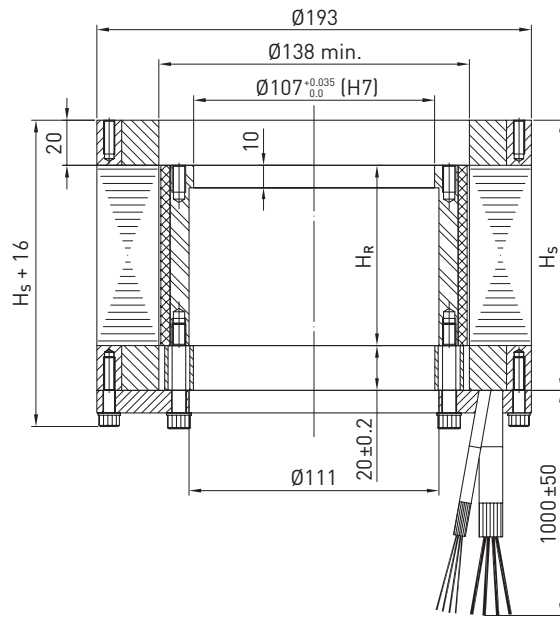
	Symbol	Unit	TMR32	TMR34	TMR38	TMR3C
Torques and electrical parameters						
Peak torque (for 1 sec.)	T_p	Nm	30	60	120	180
Continuous torque ¹⁾	T_c	Nm	10	20	40	60
Stall torque	T_s	Nm	7	14	28	42
Peak current (for 1 sec.)	I_p	A	10.2	10.2	10.2	10.2
Continuous current ¹⁾	I_c	A	3.4	3.4	3.4	3.4
Stall current	I_s	A	2.4	2.4	2.4	2.4
Resistance ²⁾	R_{25}	Ω	5.0	7.5	12.0	17.1
Inductance ²⁾	L_{25}	mH	20.6	34.6	53.6	84.4
Motor constant	K_m	Nm/ \sqrt{W}	1.1	1.8	2.8	3.6
Electrical time constant	K_e	ms	4.1	4.6	4.5	4.9
Torque constant	K_t	Nm/A	3	6	12	18
Back emf constant	K_v	$V_{eff}/(\text{rad/s})$	1.5	3	6	9
Inertia of rotor	J	kgm ²	0.002	0.005	0.009	0.014
Thermal resistance	R_{th}	$^{\circ}\text{C}/\text{W}$	1.1	0.73	0.46	0.32
Thermal time constant	T_{th}	s	1,980	2,020	2,130	2,170
Max. DC Bus	U_{max}	VDC	600			
Mechanical parameters						
Number of poles	2p		22			
Thermal sensor			PTC SNM 120			
Stator height	H_s	mm	60	80	120	160
Rotor height	H_R	mm	20	40	80	120
Mass of motor	M_m	kg	5.7	8.2	13.2	18.1

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature

¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

Dimensions TMR3



Torque Motors

HIWIN torque motors TMR

2.4.4 TMR7 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

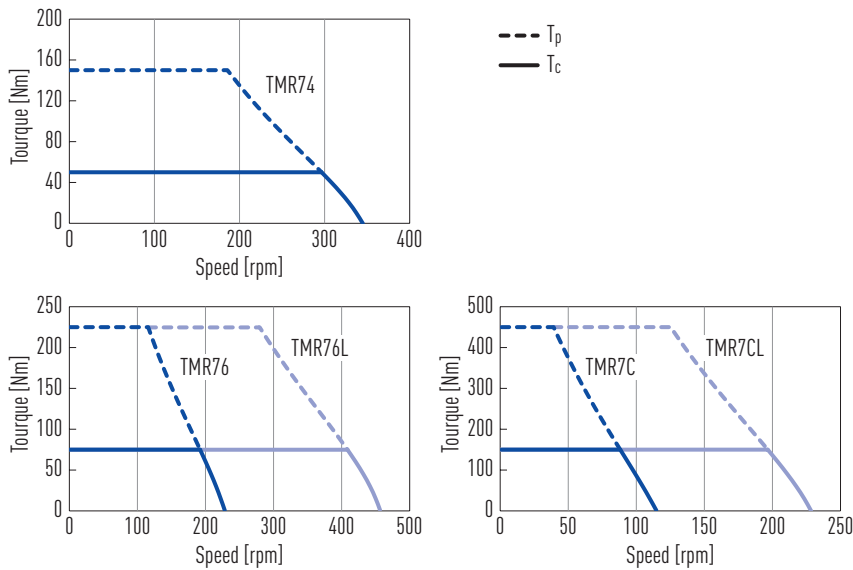


Table 2.4 Technical data for TMR7

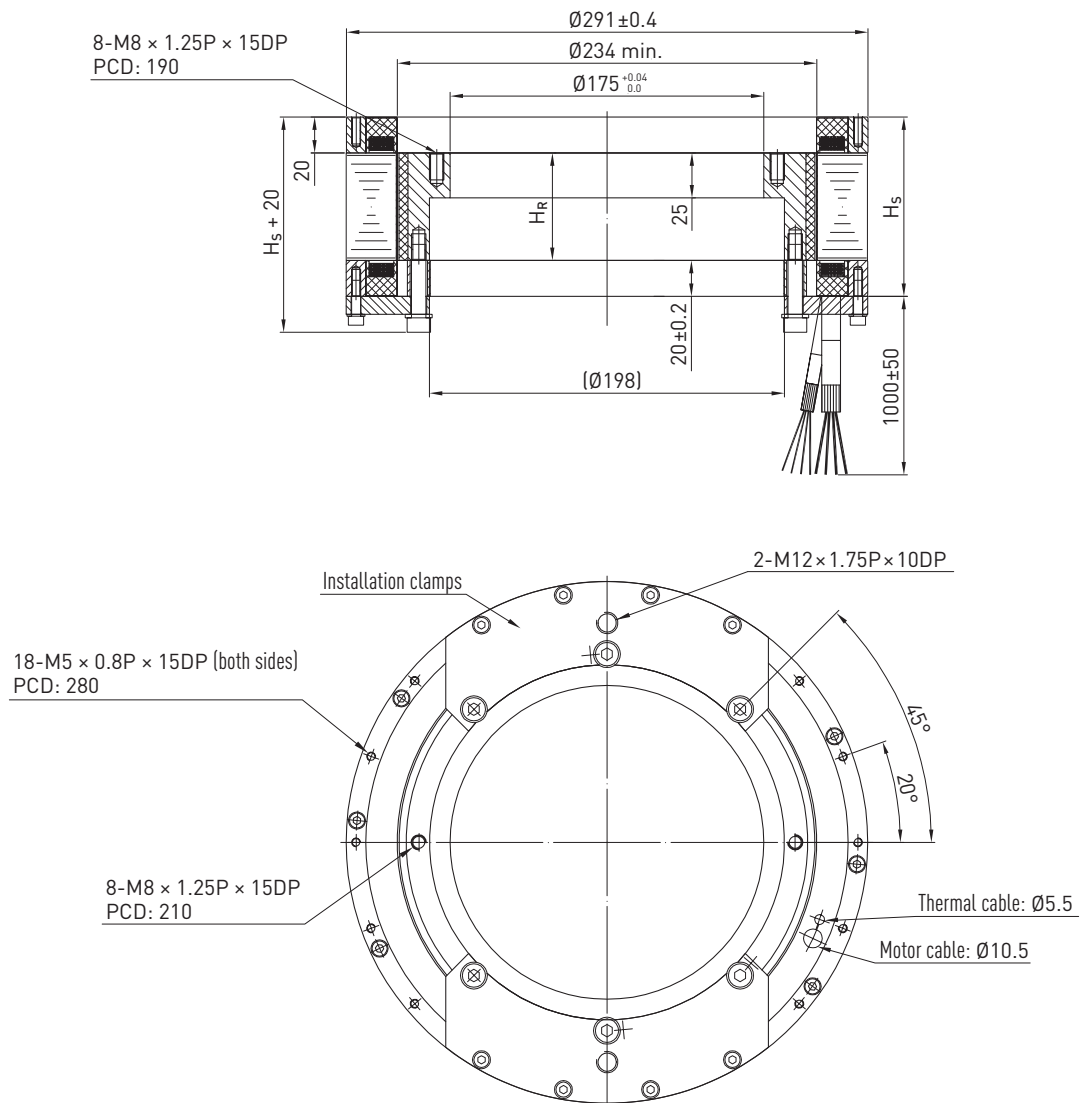
	Symbol	Unit	TMR74	TMR76	TMR76L	TMR7C	TMR7CL
Torques and electrical parameters							
Peak torque (for 1 sec.)	T_p	Nm	150	225		450	
Continuous torque ¹⁾	T_c	Nm	50	75		150	
Stall torque	T_s	Nm	35	52.5		105	
Peak current (for 1 sec.)	I_p	A	10.2	10.2	20.4	10.2	20.4
Continuous current ¹⁾	I_c	A	3.4	3.4	6.8	3.4	6.8
Stall current	I_s	A	2.4	2.4	4.8	2.4	4.8
Resistance ²⁾	R_{25}	Ω	12.9	17	4.3	29	7.3
Inductance ²⁾	L_{25}	mH	55	76	19	145	36.3
Motor constant	K_m	Nm/ \sqrt{W}	3.9	5.1	5	7.7	7.7
Electrical time constant	K_e	ms	4.3	4.5	4.4	5	5
Torque constant	K_t	Nm/A	17	25.6	12.8	51.1	25.5
Back emf constant	K_v	$V_{eff}/(\text{rad/s})$	9.8	14.8	7.4	29.5	14.8
Inertia of rotor	J	kgm ²	0.044	0.061		0.11	
Thermal resistance	R_{th}	$^{\circ}\text{C}/\text{W}$	0.42	0.32		0.19	
Thermal time constant	T_{th}	s	2,230	2,330		2,350	
Max. DC Bus	U_{max}	VDC	600				
Mechanical parameters							
Number of poles	2p		44				
Thermal sensor			PTC SNM 120				
Stator height	H_s	mm	80	100		160	
Rotor height	H_R	mm	40	60		120	
Mass of motor	M_m	kg	15.9	20.4		33.7	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature

¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

Dimensions TMR7



Torque Motors

HIWIN torque motors TMRW

3. HIWIN torque motors TMRW

3.1 Special characteristics of the TMRW torque motors

TMR series torque motors are ready-to-install, UL-certified motor elements consisting of a stator and rotor, especially suitable for applications in machine tools. They differ from the TMR series by the integrated cooling channels in the stator. Through the liquid cooling higher continuous torques and at the same time lower motor temperatures are achieved, in order to avoid additional process heat in the machine tool. All TMRW torque motors are equipped with temperature sensors to protect the motor even under extreme loads.



Key features of the TMRW torque motor:

- UL-certified
- High continuous and peak torque
- High dynamics
- Efficient cooling system, optionally with steel cooling jacket
- High efficiency
- Maintenance-free and wear-free operation
- Integrated thermal sensors

Typical fields of application:

- Machine tools
- Rotary tables

3.2 Order code TMRW torque motor

TMRW A 3 L C

Torque motor: _____
TMRW: TM component with water cooling

Outer diameter [mm]: _____

- 1: 160
- 2: 198
- 4: 230
- 7: 310
- A: 385
- D: 485
- G: 565

Special equipment:

- 0: None
- C: Customer specific
- K: Closed cooling jacket

Winding variant:

- None: Standard winding
- L: For high rotary speed

Rotor height [mm]:

- 3: 31
- 5: 51
- 7: 71
- A: 101
- F: 151

3.3 Closed cooling jacket (option)

For easy integration of our water-cooled torque motors, we also supply them in a closed version. The connection to the cooling unit is realised via 2 G $\frac{1}{8}$ threads in the stainless steel jacket. As in the version without a closed cooling jacket, the alignment of the motor is realised easily via the fit of the stator. Available for the sizes TMRW7, TMRWA, TMRWD and TMRWG. All other sizes upon request.



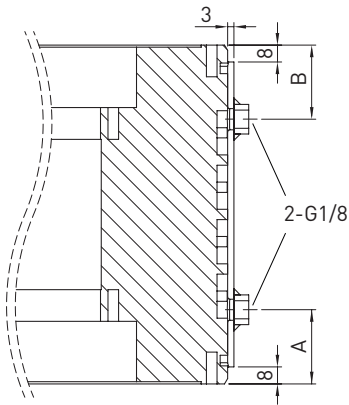


Table 3.1 Dimensions of steel cooling jacket TMRW

Torque motor	Dimensions A [mm]	Dimensions B [mm]
TMRW7	35	25
TMRWA	35	35
TMRWG	35	35
TMRWD	27	43

3.4 Cable outlet orientations of the TMRW torque motors

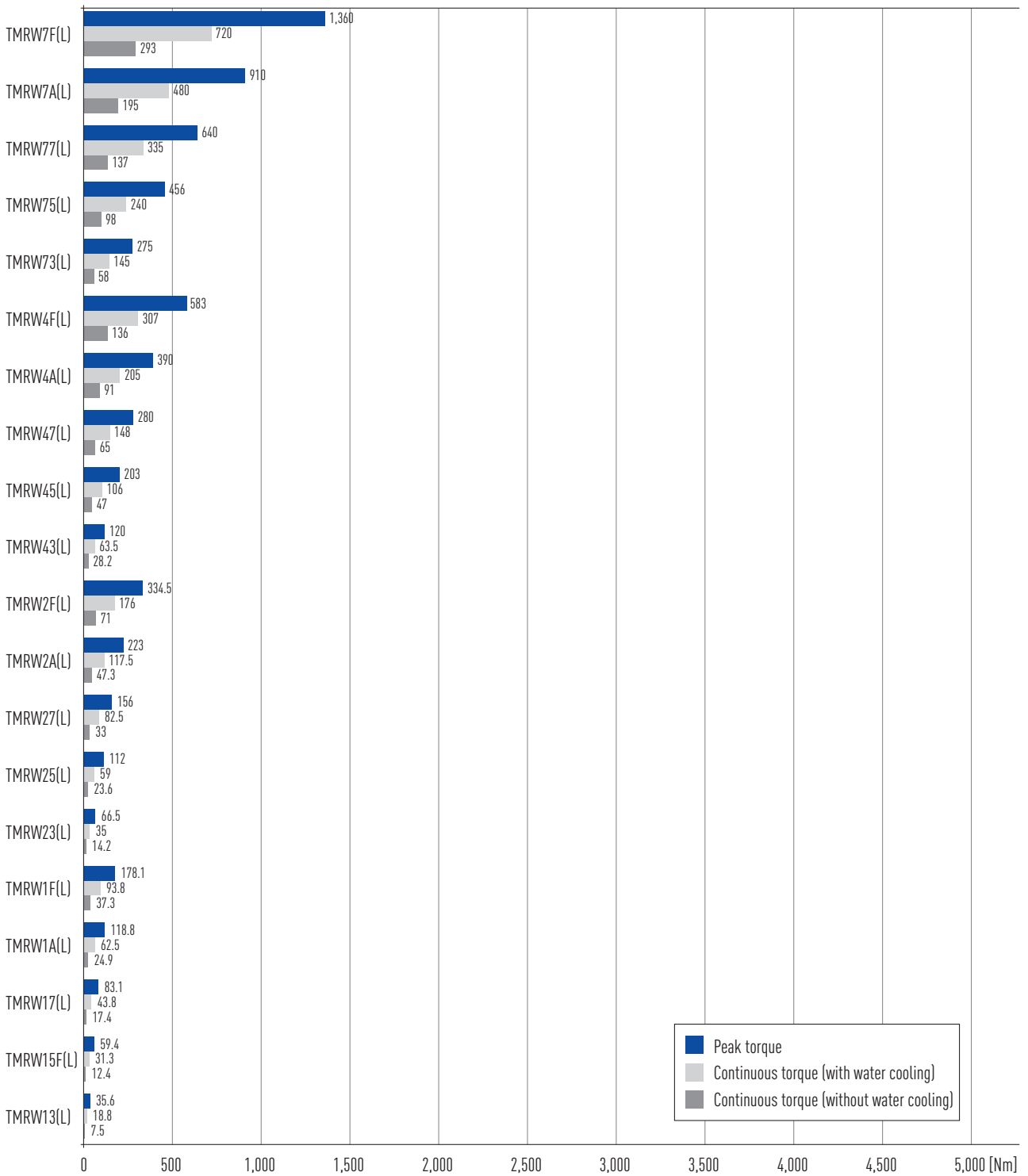
Table 3.2 Cable outlet orientations of the TMRW torque motors

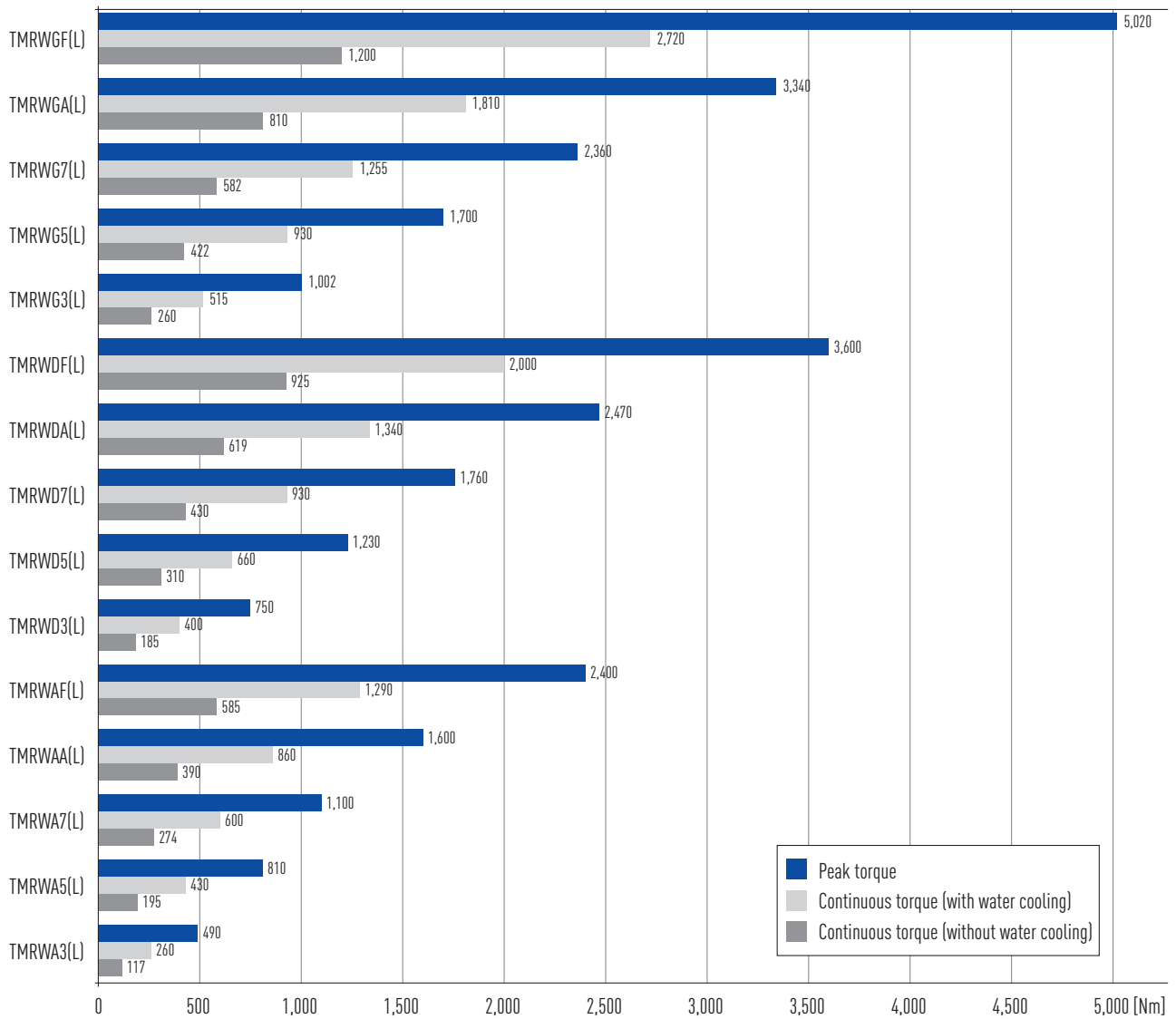
	<p>Standard:</p> <ul style="list-style-type: none"> ○ Motor cables potted in the stator
	<p>Option 1:</p> <ul style="list-style-type: none"> ○ Motor cables potted in the stator ○ Additional strain relief plate
	<p>Option 2:</p> <ul style="list-style-type: none"> ○ Motor cables potted in the stator ○ Additional strain relief plate ○ PG screw connections
	<p>Option 3:</p> <ul style="list-style-type: none"> ○ Motor cables potted in the stator ○ Additional strain relief plate ○ 90° cable outlet

Torque Motors

HIWIN torque motors TMRW

3.5 TMRW torques





Torque Motors

HIWIN torque motors TMRW

3.6 TMRW torque motor specifications

3.6.1 TMRW1 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

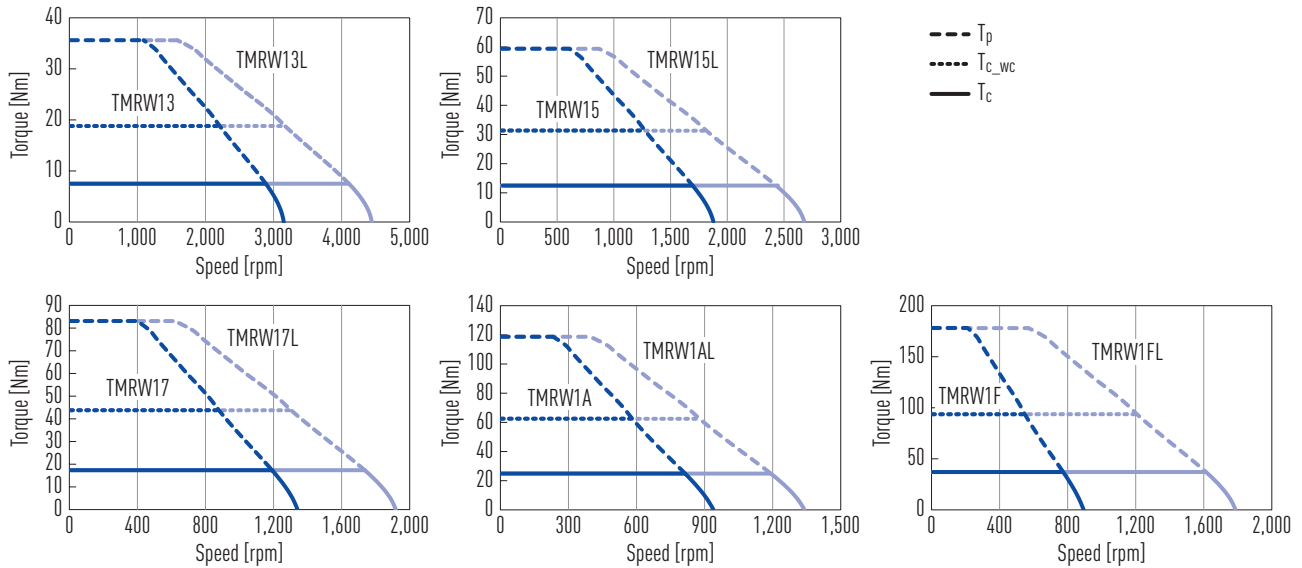
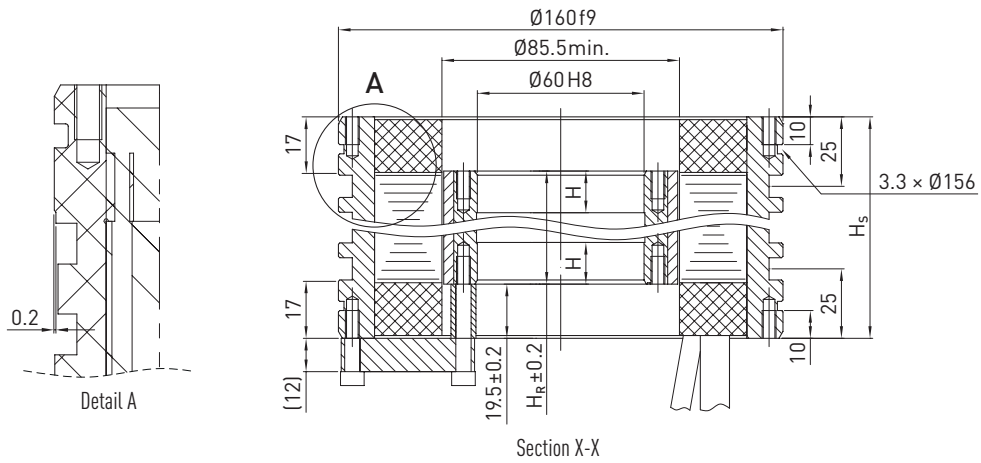


Table 3.3 Technical data for TMRW1

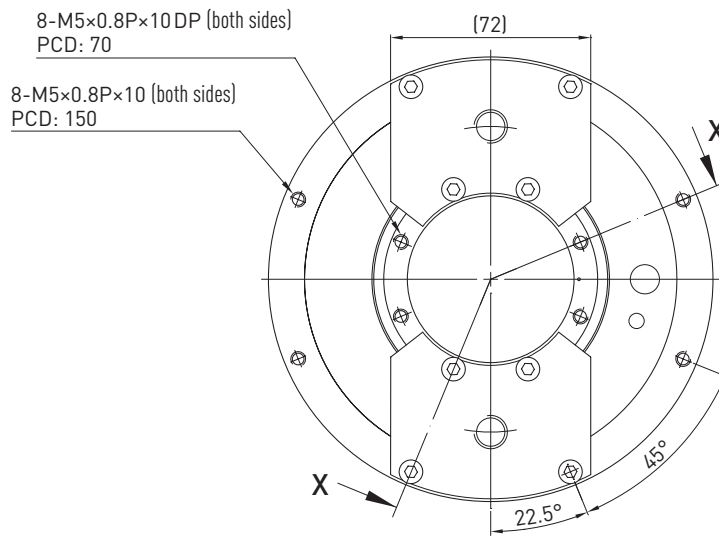
	Symbol	Unit	TMRW13	TMRW13L	TMRW15	TMRW15L	TMRW17	TMRW17L	TMRW1A	TMRW1AL	TMRW1F	TMRW1FL		
Torques and electrical parameters														
Peak torque (for 1 sec.)	T_p	Nm	35.6		59.4		83.1		118.8		178.1			
Continuous torque ¹⁾	T_c	Nm	7.5		12.4		17.4		24.9		37.3			
Continuous torque (WC)	T_{c_wc}	Nm	18.8		31.3		43.8		62.5		93.8			
Stall torque	T_s	Nm	5		9		12		17		26			
Stall torque (WC)	T_{s_wc}	Nm	13		22		31		44		66			
Peak current (for 1 sec.)	I_p	A	27	38.9	27	38.9	27	38.9	27	38.9	38.9	77.8		
Continuous current ¹⁾	I_c	A	4	5.7	4	5.7	4	5.7	4	5.7	5.7	11.4		
Continuous current (WC)	I_{c_wc}	A	10	14.4	10	14.4	10	14.4	10	14.4	14.4	28.8		
Stall current	I_s	A	2.8	4	2.8	4	2.8	4	2.8	4	4	8		
Stall current (WC)	I_{s_wc}	A	7	10.1	7	10.1	7	10.1	7	10.1	10.1	20.2		
Resistance ²⁾	R_{25}	Ω	3.3	1.6	4.88	2.36	6.83	3.32	7.7	3.8	5.5	1.37		
Inductance ²⁾	L_{25}	mH	10.5	5.1	17.5	8	22.5	11.9	31	14.8	21.7	5.9		
Motor constant	K_m	Nm/ \sqrt{W}	0.84	0.85	1.15	1.16	1.36	1.37	1.83	1.83	2.28	2.28		
Electrical time constant	K_e	ms	3.2	3.2	3.6	3.4	3.3	3.6	4	3.9	3.9	4.3		
Torque constant	K_t	Nm/A	1.87	1.32	3.1	2.18	4.36	3.06	6.23	4.36	6.55	3.27		
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	1.08	0.76	1.8	1.26	2.52	1.76	3.6	2.52	3.78	1.89		
Inertia of rotor	J	kgm ²	0.001			0.0016		0.0023		0.0033		0.0049		
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	1.2	1.22	0.81	0.83	0.58	0.59	0.51	0.51	0.35	0.36		
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C/W}$	0.192	0.191	0.13	0.129	0.093	0.092	0.082	0.08	0.056	0.056		
Max. DC Bus	U_{max}	VDC	750											
Mechanical parameters														
Number of poles	2p		22											
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)											
Stator height	H_S	mm	70		90		110		140		190			
Rotor height	H_R	mm	31		51		71		101		151			
Length	H	mm	10		15									
Mass of motor	M_m	kg	4.3		6.1		7.6		10.6		15.2			

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling; ¹⁾ Coil temperature 120 $^{\circ}\text{C}$; ²⁾ Line-to-line

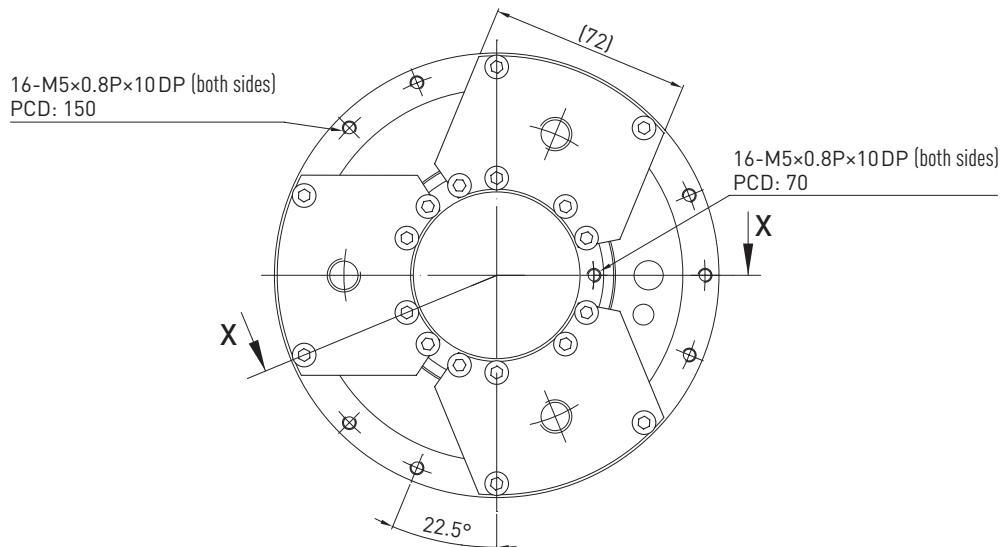
Dimensions TMRW1



TMRW13, TMRW15, TMRW17



TMRW1A, TMRW1F



Torque Motors

HIWIN torque motors TMRW

3.6.2 TMRW2 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

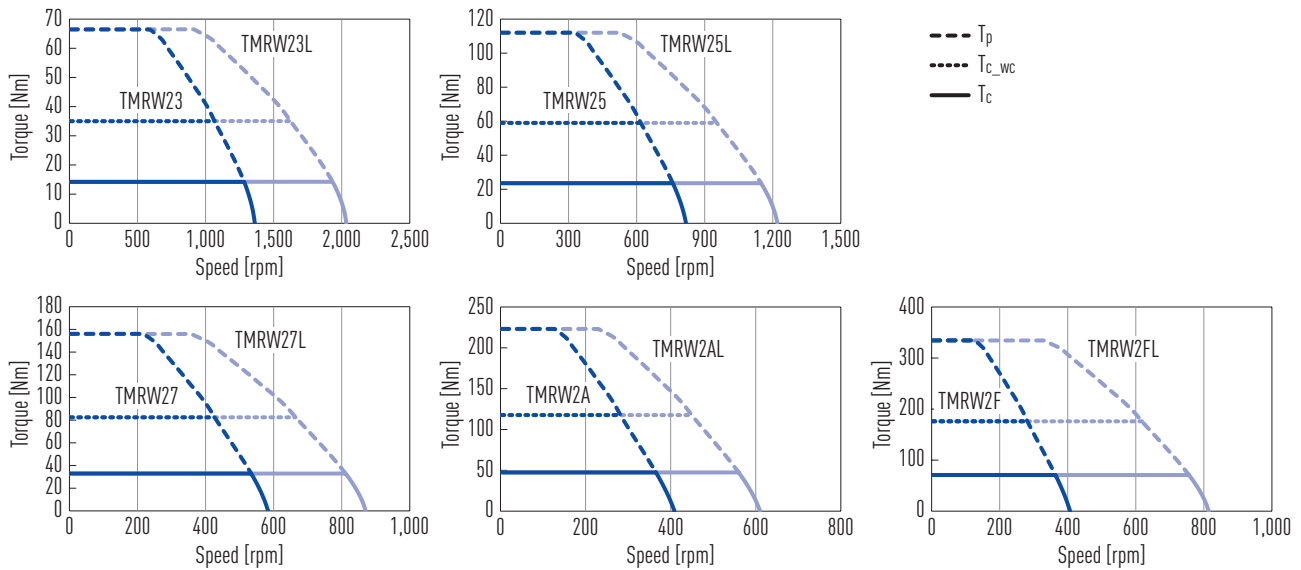


Table 3.4 Technical data for TMRW2

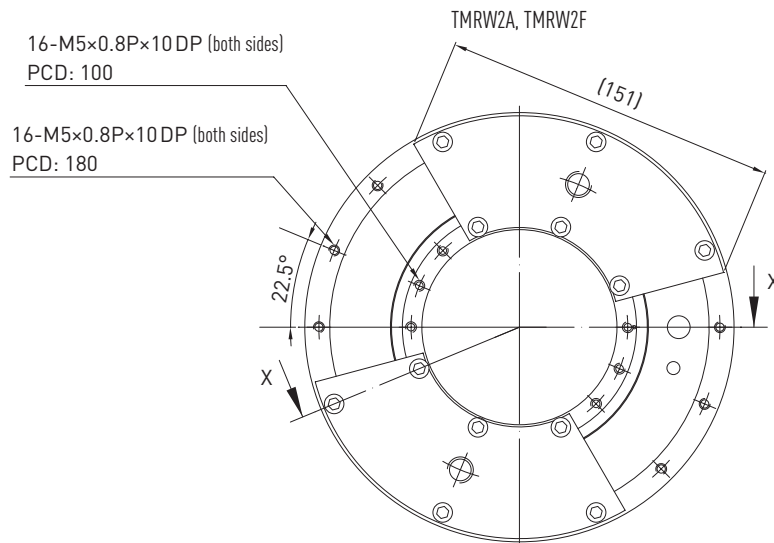
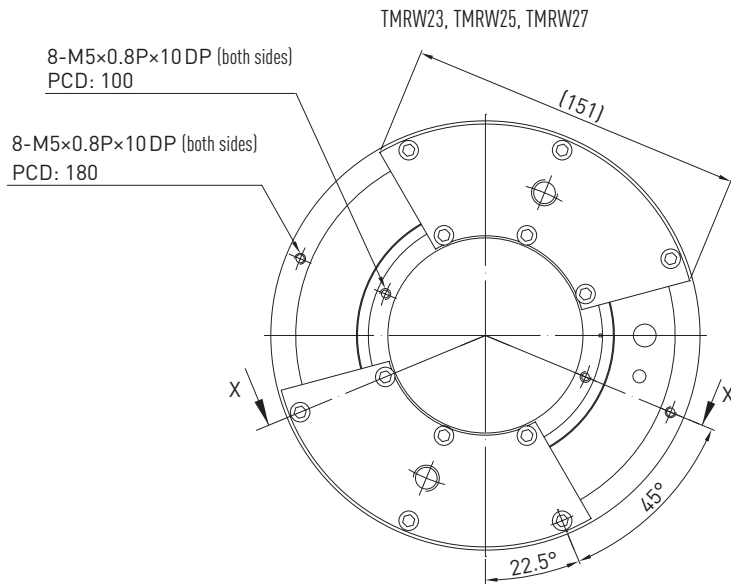
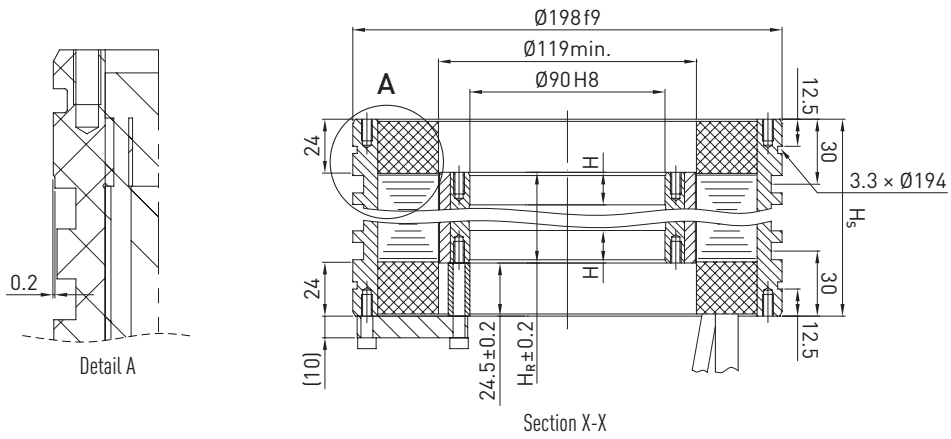
	Symbol	Unit	TMRW23	TMRW23L	TMRW25	TMRW25L	TMRW27	TMRW27L	TMRW2A	TMRW2AL	TMRW2F	TMRW2FL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	66.5		112		156		223		334.5	
Continuous torque ¹⁾	T_c	Nm	14.2		23.6		33		47.3		71	
Continuous torque (WC)	T_{c_wc}	Nm	35		59		82.5		117.5		176	
Stall torque	T_s	Nm	10		17		23		33		50	
Stall torque (WC)	T_{s_wc}	Nm	25		41		58		82		123	
Peak current (for 1 sec.)	I_p	A	22.3	33.2	22.3	33.2	22.3	33.2	22.3	33.2	33.2	66.4
Continuous current ¹⁾	I_c	A	3.3	4.9	3.3	4.9	3.3	4.9	3.3	4.9	4.9	9.9
Continuous current (WC)	I_{c_wc}	A	8.3	12.3	8.3	12.3	8.3	12.3	8.3	12.3	12.3	24.6
Stall current	I_s	A	2.3	3.4	2.3	3.4	2.3	3.4	2.3	3.4	3.4	6.9
Stall current (WC)	I_{s_wc}	A	5.8	8.6	5.8	8.6	5.8	8.6	5.8	8.6	8.6	17.2
Resistance ²⁾	R_{25}	Ω	4.3	1.9	5.7	2.5	7.8	3.5	9.6	5	6	1.5
Inductance ²⁾	L_{25}	mH	24.95	11.5	39	16.23	50.7	22.72	70.8	32.46	43	10.4
Motor constant	K_m	Nm/ \sqrt{W}	1.68	1.72	2.45	2.49	2.92	2.94	3.78	3.52	4.83	4.78
Electrical time constant	K_e	ms	5.8	6.1	6.8	6.5	6.5	6.5	7.4	6.5	7.2	6.9
Torque constant	K_t	Nm/A	4.29	2.8	7.16	4.8	10.03	6.72	14.32	9.6	14.39	7.2
Back emf constant	K_u	$V_{eff}/(rad/s)$	2.48	1.6	4.13	2.77	5.79	3.88	8.27	5.54	8.31	4.15
Inertia of rotor	J	kgm ²	0.0027		0.0045		0.0063		0.009		0.013	
Thermal resistance	R_{th}	$^{\circ}C/W$	1.35	1.39	1.02	1.06	0.75	0.75	0.61	0.53	0.44	0.43
Thermal resistance (WC)	R_{th_wc}	$^{\circ}C/W$	0.214	0.22	0.161	0.167	0.118	0.12	0.096	0.084	0.07	0.07
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		22									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	80		100		120		150		200	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	10		15		15		15		15	
Mass of motor	M_m	kg	7.05		10		12.4		17.4		24.9	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}C$ ambient temperature; WC = with water cooling

¹⁾ Coil temperature 120 $^{\circ}C$

²⁾ Line-to-line

Dimensions TMRW2



Torque Motors

HIWIN torque motors TMRW

3.6.3 TMRW4 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

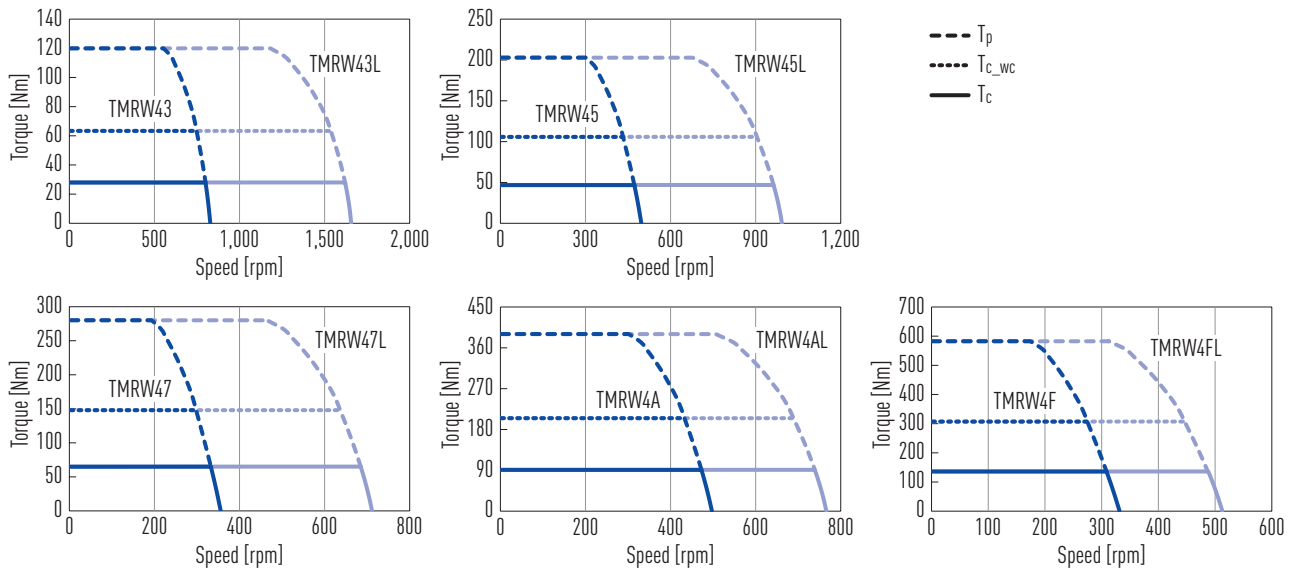


Table 3.5 Technical data for TMRW4

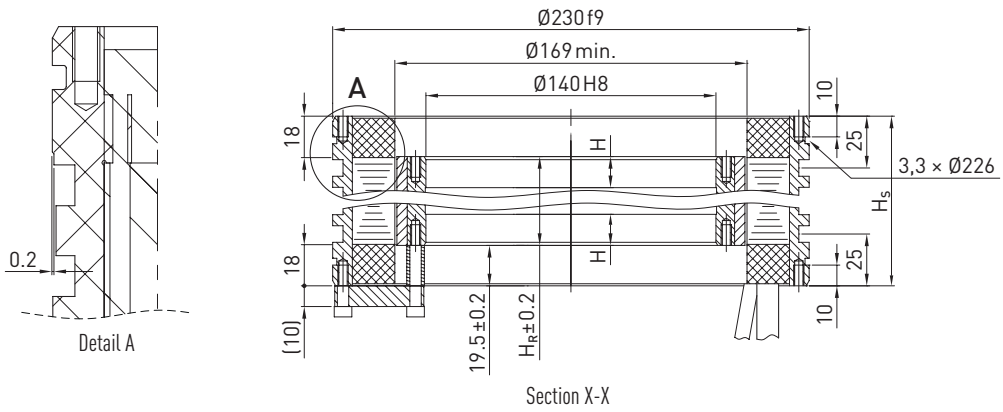
	Symbol	Unit	TMRW43	TMRW43L	TMRW45	TMRW45L	TMRW47	TMRW47L	TMRW4A	TMRW4AL	TMRW4F	TMRW4FL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	120		203		280		390		583	
Continuous torque ¹⁾	T_c	Nm	28.2		47		65		91		136	
Continuous torque (WC)	T_{c_wc}	Nm	63.5		106		148		205		307	
Stall torque	T_s	Nm	20		33		46		64		95	
Stall torque (WC)	T_{s_wc}	Nm	44		74		104		144		215	
Peak current (for 1 sec.)	I_p	A	24.3	48.6	24.3	48.6	24.3	48.6	48.6	72.9	48.6	72.9
Continuous current ¹⁾	I_c	A	4	8	4	8	4	8	8	12	8	12
Continuous current (WC)	I_{c_wc}	A	9	18	9	18	9	18	18	27	18	27
Stall current	I_s	A	2.8	5.6	2.8	5.6	2.8	5.6	5.6	8.4	5.6	8.4
Stall current (WC)	I_{s_wc}	A	6.3	12.6	6.3	12.6	6.3	12.6	12.6	18.9	12.6	18.9
Resistance ²⁾	R_{25}	Ω	4.38	1.1	6.01	1.5	7.63	1.9	2.5	1.06	3.66	1.58
Inductance ²⁾	L_{25}	mH	17.9	3.83	26	6.38	35.7	8.93	12.1	4.57	19.13	6.9
Motor constant	K_m	Nm/ \sqrt{W}	2.75	2.74	3.91	3.92	4.8	4.81	5.87	6.01	7.26	7.36
Electrical time constant	K_e	ms	4.1	3.5	4.3	4.3	4.7	4.7	4.8	4.3	5.2	4.4
Torque constant	K_t	Nm/A	7.06	3.53	11.76	5.88	16.47	8.23	11.76	7.61	17.65	11.42
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	4.08	2.04	6.8	3.4	9.5	4.75	6.79	4.39	10.19	6.59
Inertia of rotor	J	kgm ²	0.0085		0.014		0.022		0.029		0.045	
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.9	0.9	0.66	0.66	0.52	0.52	0.4	0.41	0.27	0.28
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C/W}$	0.179	0.178	0.13	0.13	0.102	0.103	0.078	0.082	0.053	0.055
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		22									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	70		90		110		140		190	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	10		15		15		15		15	
Mass of motor	M_m	kg	7.2		10.2		12.9		17.4		25.8	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling

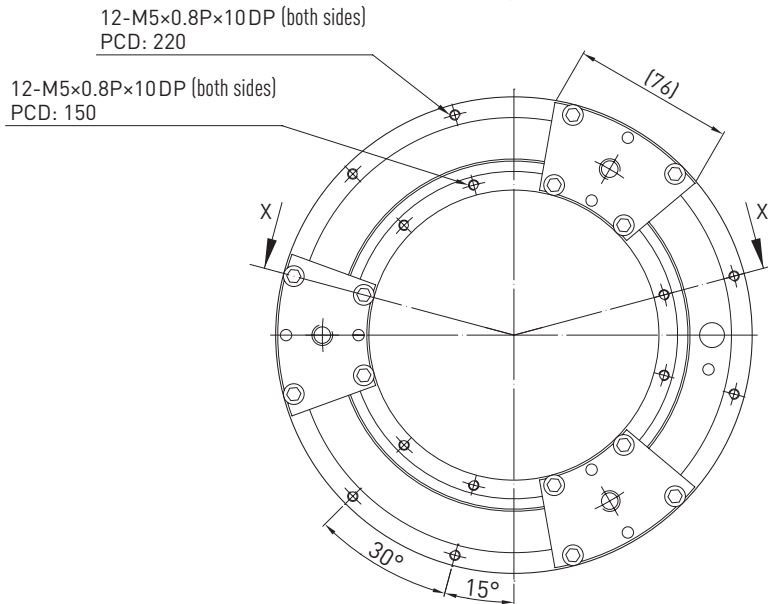
¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

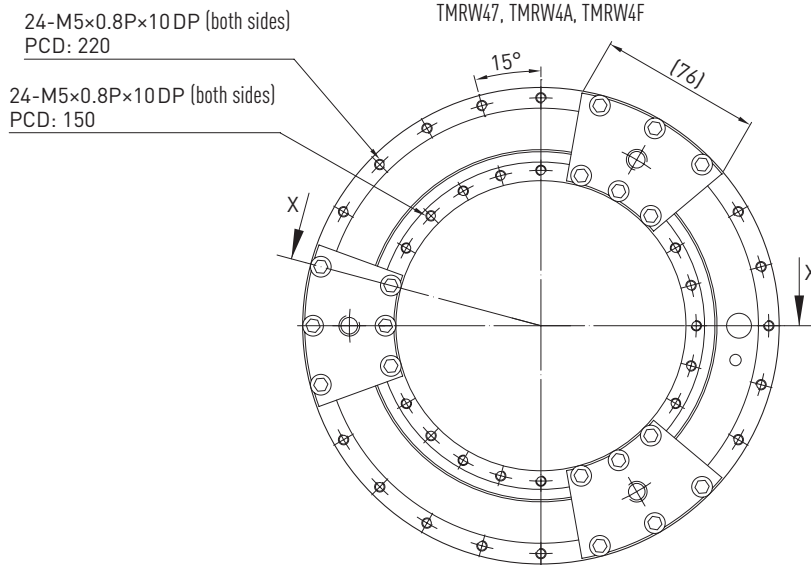
Dimensions TMRW4



TMRW43, TMRW45



TMRW47, TMRW4A, TMRW4F



Torque Motors

HIWIN torque motors TMRW

3.6.4 TMRW7 specifications

Torque-speed curves (DC bus voltage: 600 VDC)

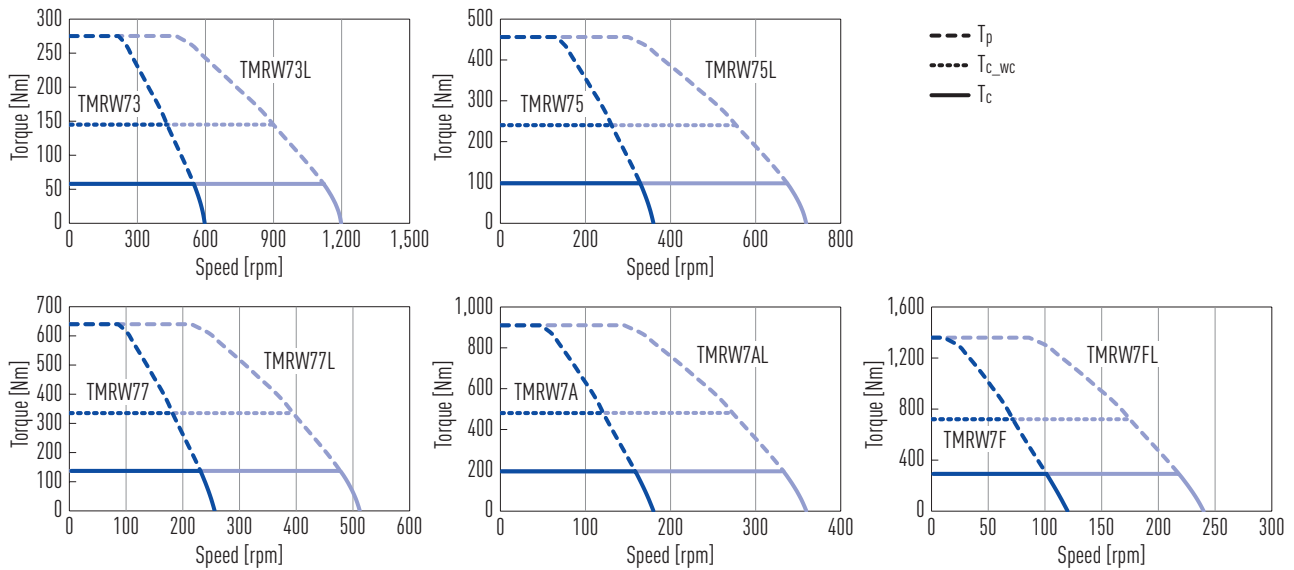


Table 3.6 Technical data for TMRW7

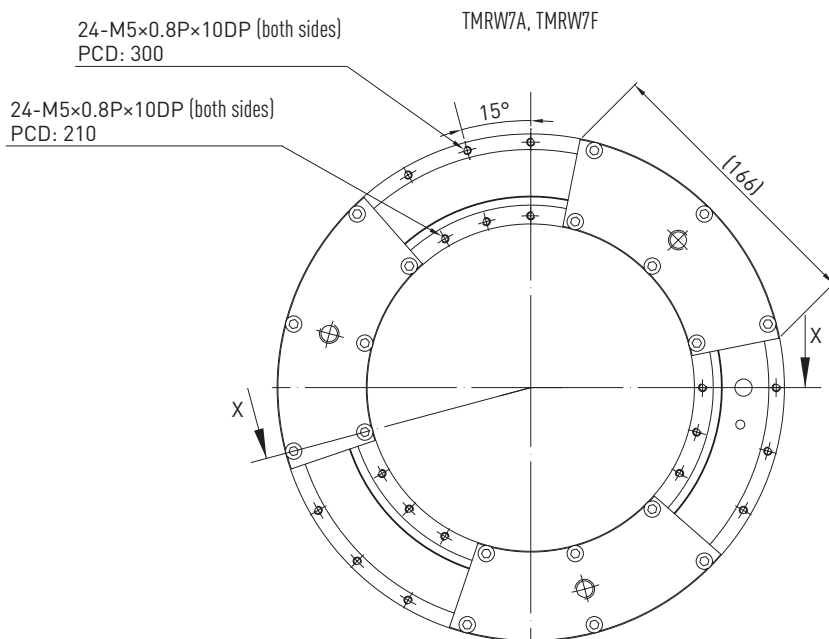
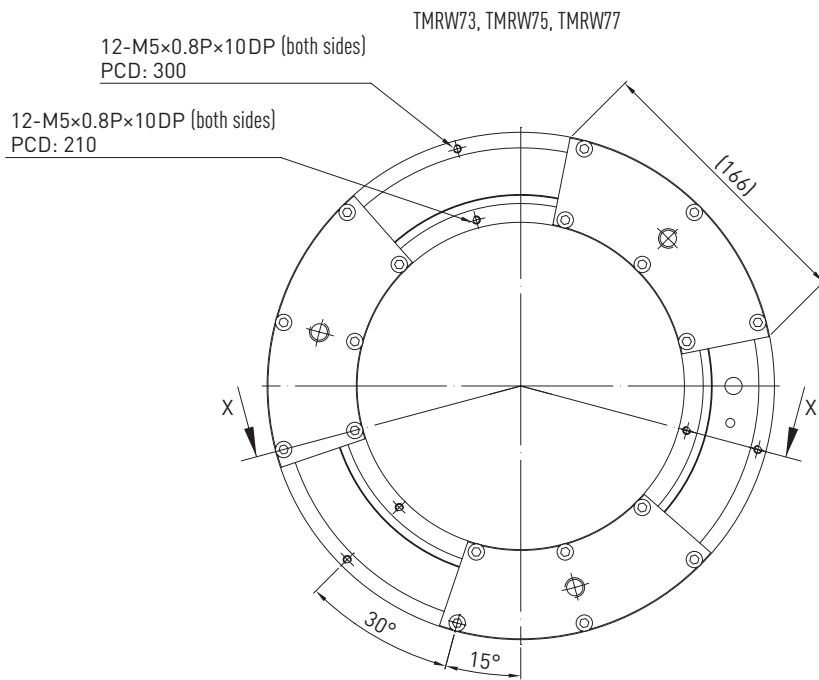
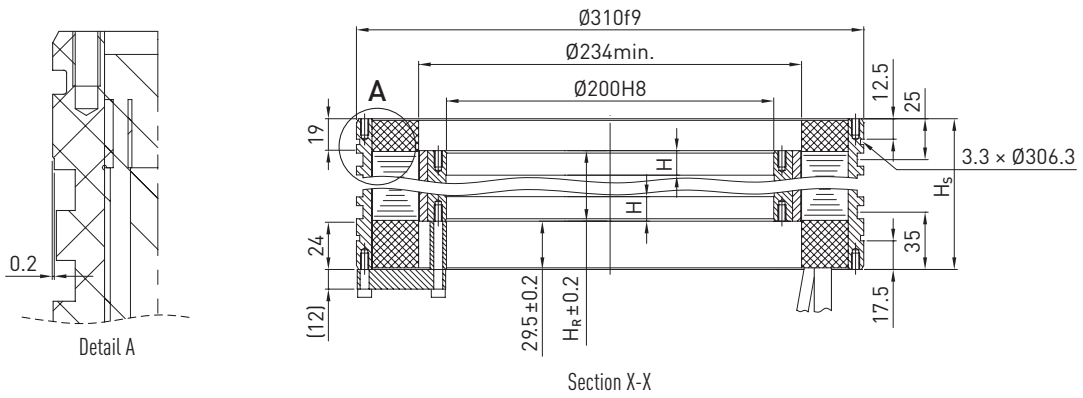
	Symbol	Unit	TMRW73	TMRW73L	TMRW75	TMRW75L	TMRW77	TMRW77L	TMRW7A	TMRW7AL	TMRW7F	TMRW7FL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	275		456		640		910		1,360	
Continuous torque ¹⁾	T_c	Nm	58	98	137	195	293					
Continuous torque (WC)	T_{c_wc}	Nm	145	240	335	480	720					
Stall torque	T_s	Nm	41	69	96	137	205					
Stall torque (WC)	T_{s_wc}	Nm	102	168	235	336	504					
Peak current (for 1 sec.)	I_p	A	40.5	81	40.5	81	40.5	81	40.5	81	40.5	81
Continuous current ¹⁾	I_c	A	6	12	6	12	6	12	6	12	6	12
Continuous current (WC)	I_{c_wc}	A	15	30	15	30	15	30	15	30	15	30
Stall current	I_s	A	4.2	8.4	4.2	8.4	4.2	8.4	4.2	8.4	4.2	8.4
Stall current (WC)	I_{s_wc}	A	10.5	21	10.5	21	10.5	21	10.5	21	10.5	21
Resistance ²⁾	R_{25}	Ω	2.86	0.72	4.19	1.05	5.52	1.38	7.52	1.88	10.84	2.5
Inductance ²⁾	L_{25}	mH	16	4	23.45	5.86	30.9	7.73	42.07	10.52	60.68	14.5
Motor constant	K_m	Nm/ \sqrt{W}	4.67	4.65	6.52	6.51	7.92	7.94	9.68	9.68	12.11	12.61
Electrical time constant	K_e	ms	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.8
Torque constant	K_t	Nm/A	9.77	4.89	16.3	8.15	22.8	11.4	32.56	16.28	48.85	24.45
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	5.64	2.82	9.4	4.7	13.2	6.6	18.8	9.4	28.2	14.1
Inertia of rotor	J	kgm ²	0.023		0.039		0.059		0.079		0.11	
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.62	0.61	0.42	0.42	0.32	0.32	0.23	0.23	0.16	0.18
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C/W}$	0.098	0.098	0.067	0.067	0.051	0.051	0.037	0.037	0.026	0.028
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		44									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	80		100		120		150		200	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	10		15		15		15		15	
Mass of motor	M_m	kg	16.7		23		29.4		39		55.7	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling

¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

Dimensions TMRW7



Torque Motors

HIWIN torque motors TMRW

3.6.5 TMRWA specifications

Torque-speed curves (DC bus voltage: 600 VDC)

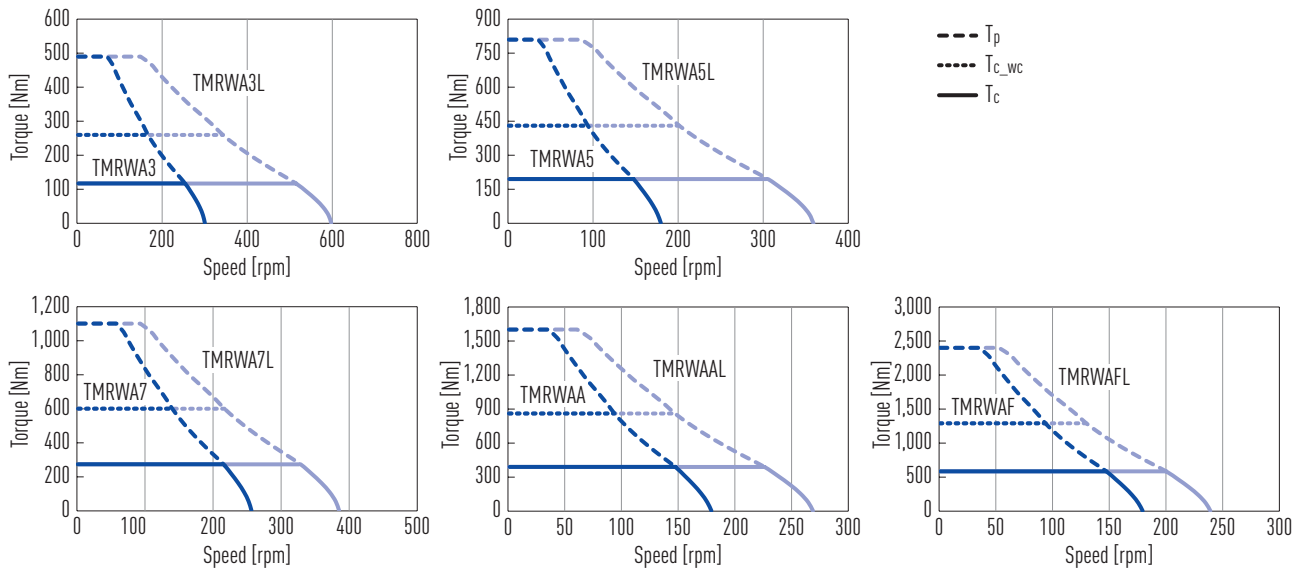


Table 3.7 Technical data for TMRWA

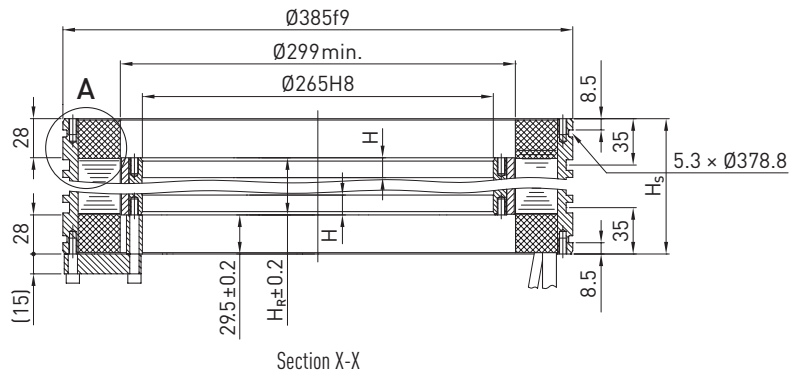
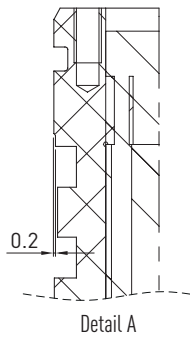
	Symbol	Unit	TMRWA3	TMRWA3L	TMRWA5	TMRWA5L	TMRWA7	TMRWA7L	TMRWAA	TMRWAAAL	TMRWAF	TMRWAFAL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	490	810			1,100		1,600		2,400	
Continuous torque ¹⁾	T_c	Nm	117	195			274		390		585	
Continuous torque (WC)	T_{c_wc}	Nm	260	430			600		860		1,290	
Stall torque	T_s	Nm	82	137			192		273		410	
Stall torque (WC)	T_{s_wc}	Nm	182	301			420		602		903	
Peak current (for 1 sec.)	I_p	A	40.5	81	40.5	81	81	121.5	81	121.5	121.5	162
Continuous current ¹⁾	I_c	A	6	12	6	12	12	18	12	18	18	24
Continuous current (WC)	I_{c_wc}	A	15	30	15	30	30	45	30	45	45	60
Stall current	I_s	A	4.2	8.4	4.2	8.4	8.4	12.6	8.4	12.6	12.6	16.8
Stall current (WC)	I_{s_wc}	A	10.5	21	10.5	21	21	31.5	21	31.5	31.5	42
Resistance ²⁾	R_{25}	Ω	3.57	0.89	7.1	1.78	2.2	0.98	2.97	1.32	1.98	1.11
Inductance ²⁾	L_{25}	mH	35.7	8.93	53.4	13.35	17.21	7.6	24.2	10.5	15.6	8.5
Motor constant	K_m	Nm/ \sqrt{W}	8.43	8.44	9.96	9.94	12.57	12.56	15.4	15.4	18.86	18.89
Electrical time constant	K_e	ms	10	10	7.5	7.5	7.8	7.8	8.1	8	7.9	7.7
Torque constant	K_t	Nm/A	19.57	9.79	32.6	16.32	22.84	15.23	32.63	21.75	32.63	24.45
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	11.3	5.65	18.8	9.42	13.18	8.79	18.83	12.55	18.83	14.12
Inertia of rotor	J	kgm ²	0.065		0.1		0.15		0.21		0.32	
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.49	0.49	0.25	0.25	0.2	0.2	0.15	0.15	0.1	0.1
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C/W}$	0.079	0.079	0.04	0.04	0.032	0.032	0.024	0.024	0.016	0.016
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		66									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	90		110		130		160		210	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	10		15		15		15		15	
Mass of motor	M_m	kg	23.2		31.9		41.6		55.1		78.4	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling

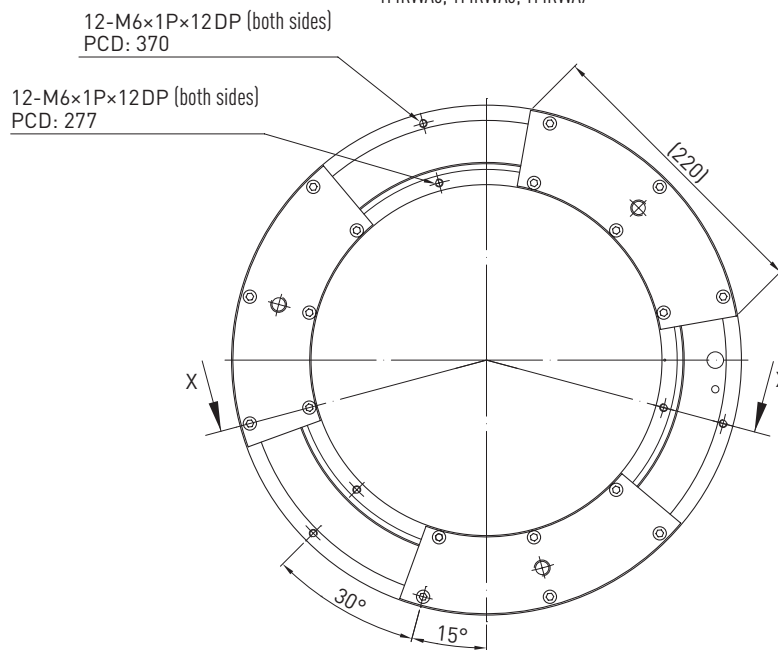
¹⁾ Coil temperature 120 $^{\circ}\text{C}$;

²⁾ Line-to-line

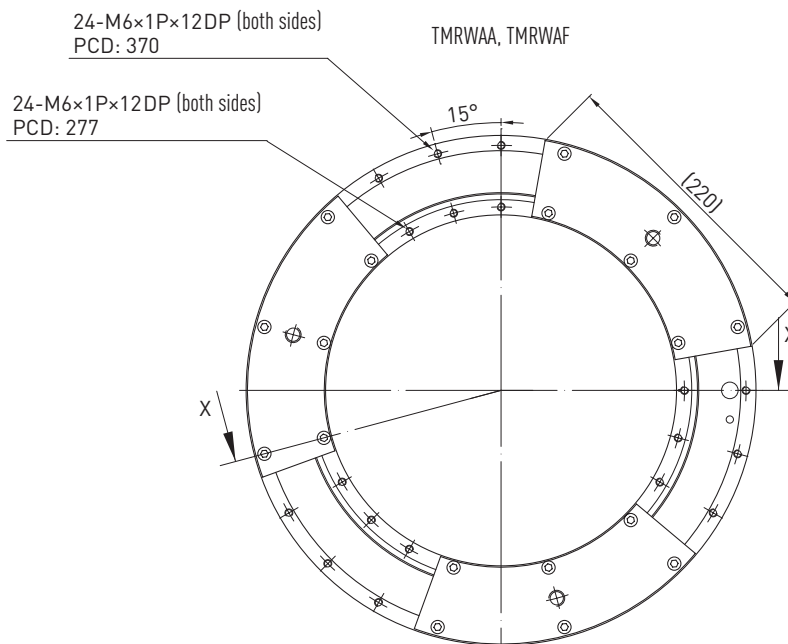
Dimensions TMRWA



TMRWA3, TMRWA5, TMRWA7



TMRWAA, TMRWAF



Torque Motors

HIWIN torque motors TMRW

3.6.6 TMRWD specifications

Torque-speed curves (DC bus voltage: 600 VDC)

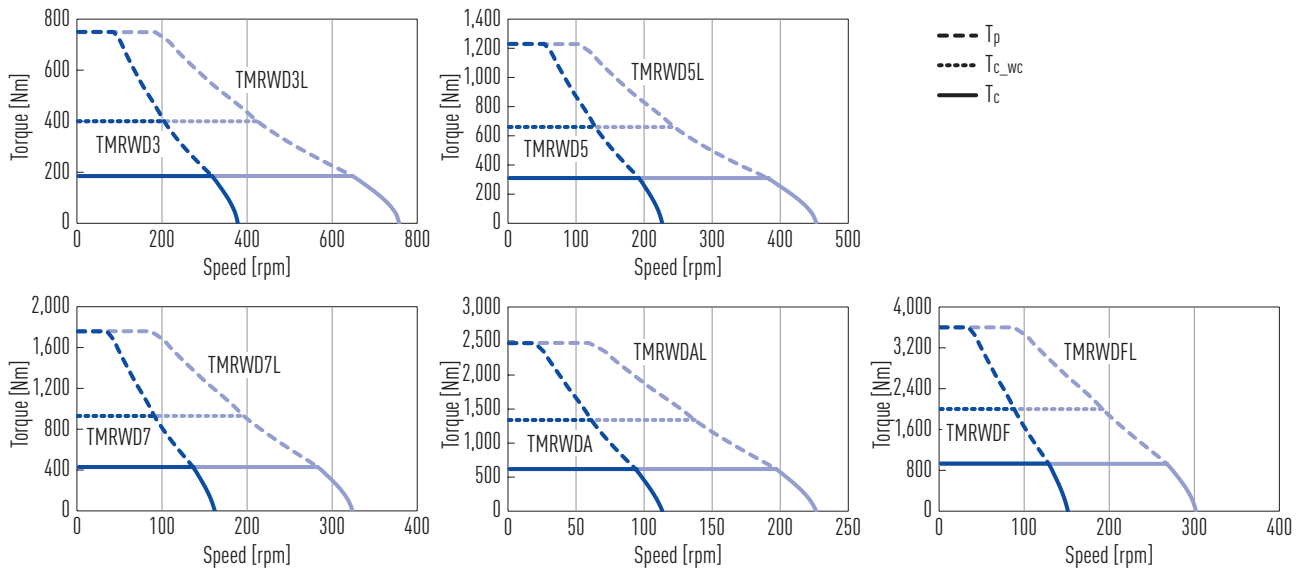


Table 3.8 Technical data for TMRWD

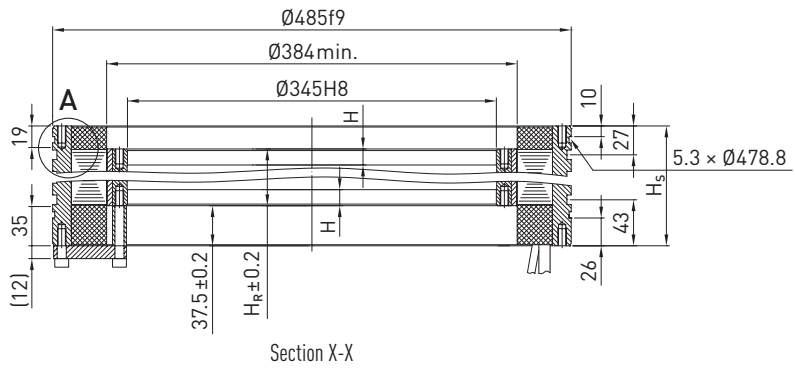
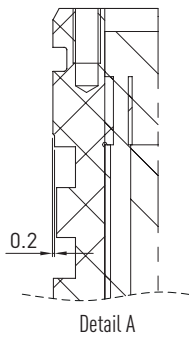
	Symbol	Unit	TMRWD3	TMRWD3L	TMRWD5	TMRWD5L	TMRWD7	TMRWD7L	TMRWDA	TMRWDAL	TMRWDF	TMRWDFL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	750		1,230		1,760		2,470		3,600	
Continuous torque ¹⁾	T_c	Nm	185		310		430		619		925	
Continuous torque (WC)	T_{c_wc}	Nm	400		660		930		1,340		2,000	
Stall torque	T_s	Nm	130		217		301		433		648	
Stall torque (WC)	T_{s_wc}	Nm	280		462		651		938		1,400	
Peak current (for 1 sec.)	I_p	A	81	162	81	162	81	162	81	162	162	324
Continuous current ¹⁾	I_c	A	12	24	12	24	12	24	12	24	24	48
Continuous current (WC)	I_{c_wc}	A	30	60	30	60	30	60	30	60	60	120
Stall current	I_s	A	8.4	16.8	8.4	16.8	8.4	16.8	8.4	16.8	16.8	33.6
Stall current (WC)	I_{s_wc}	A	21	42	21	42	21	42	21	42	42	84
Resistance ²⁾	R_{25}	Ω	1.57	0.39	2.31	0.59	3.04	0.76	4.14	1.04	1.35	0.33
Inductance ²⁾	L_{25}	mH	11.13	2.78	16.3	4.78	21.5	5.38	29.3	7.33	9.9	2.6
Motor constant	K_m	Nm/ \sqrt{W}	10.05	10.08	13.88	13.73	16.78	16.78	20.7	20.65	27.08	25.39
Electrical time constant	K_e	ms	7.1	7.1	7.1	8.1	7.1	7.1	7.1	7	7.3	7.9
Torque constant	K_t	Nm/A	15.48	7.74	25.8	12.9	36.11	18.1	51.6	25.8	38.7	19.35
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	8.94	4.47	14.9	7.45	20.85	10.43	29.8	14.9	22.35	11.18
Inertia of rotor	J	kgm ²	0.16		0.26		0.37		0.53		0.8	
Thermal resistance	R_{th}	$^{\circ}\text{C}/\text{W}$	0.28	0.28	0.19	0.19	0.14	0.14	0.11	0.11	0.08	0.08
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C}/\text{W}$	0.045	0.045	0.03	0.03	0.023	0.023	0.017	0.017	0.013	0.013
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		88									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	90		110		130		160		210	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	10		15		15		15		15	
Mass of motor	M_m	kg	28.3		47.2		66		94.3		141.4	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling

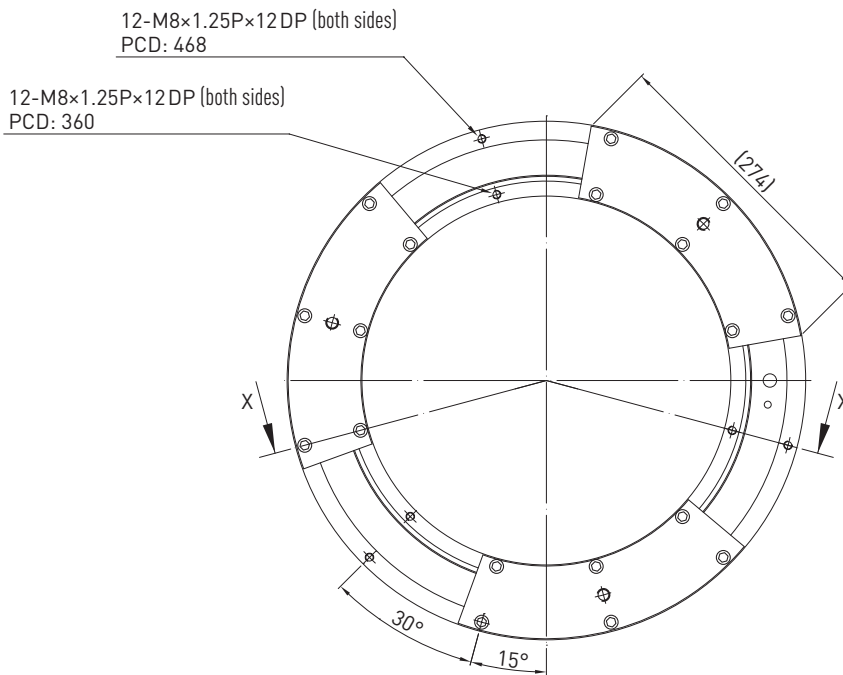
¹⁾ Coil temperature 120 $^{\circ}\text{C}$;

²⁾ Line-to-line

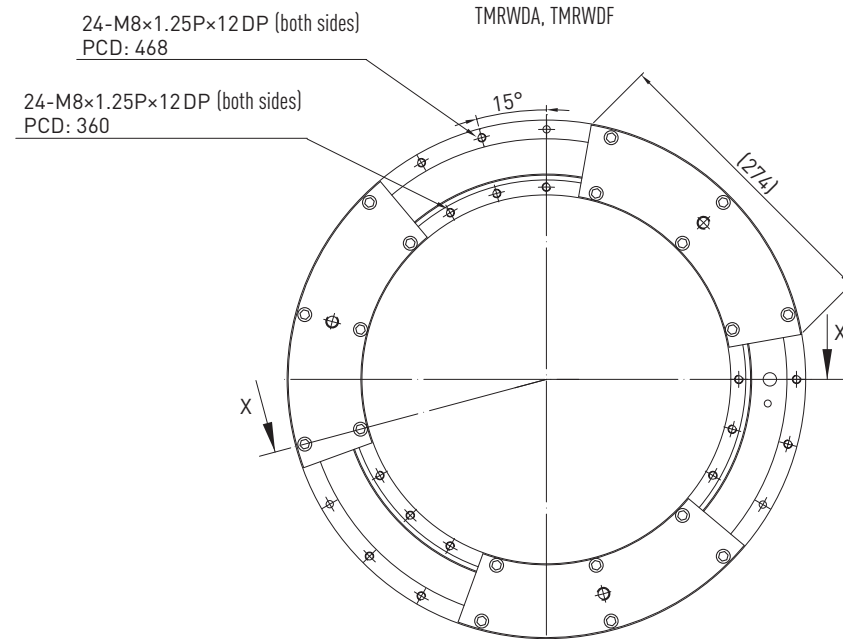
Dimensions TMRWD



TMRWD3, TMRWD5, TMRWD7



TMRWDA, TMRWDF



Torque Motors

HIWIN torque motors TMRW

3.6.7 TMRWG specifications

Torque-speed curves (DC bus voltage: 600 VDC)

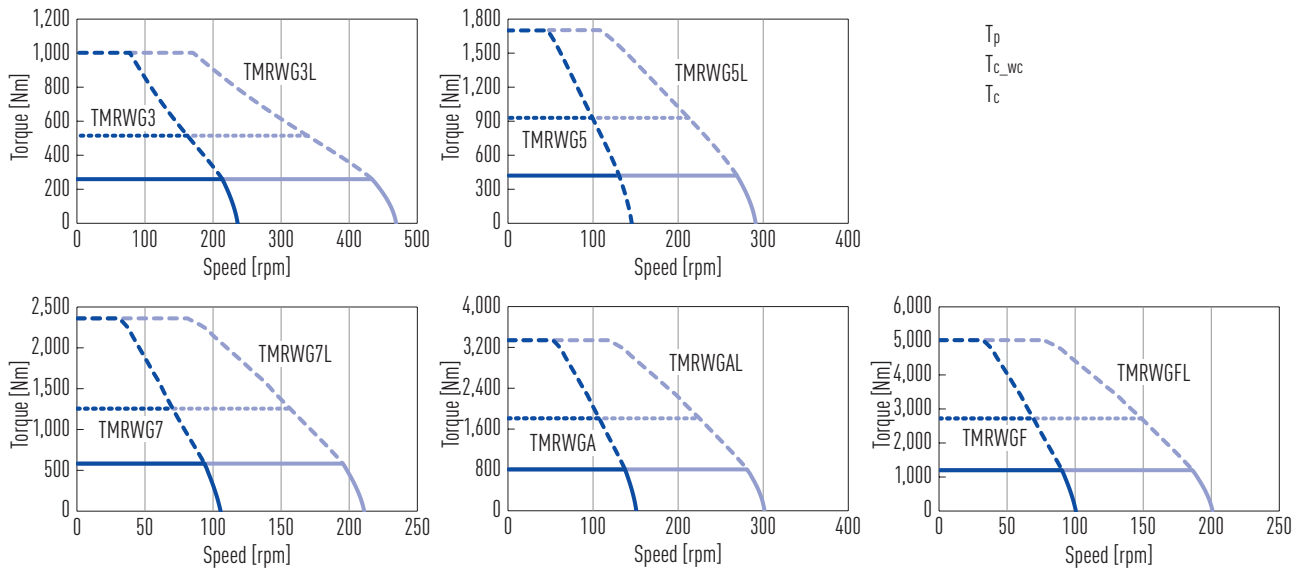


Table 3.9 Technical data for TMRWG

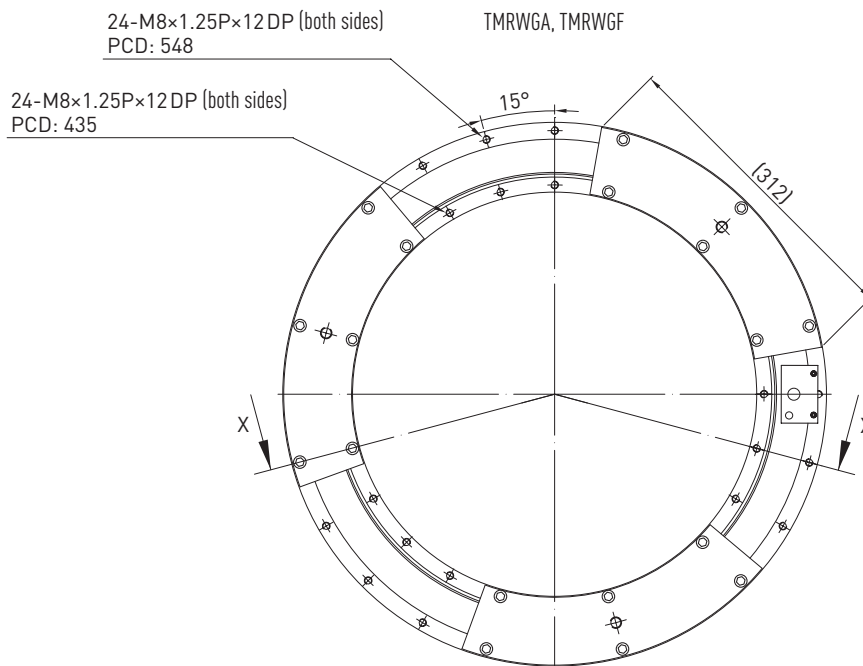
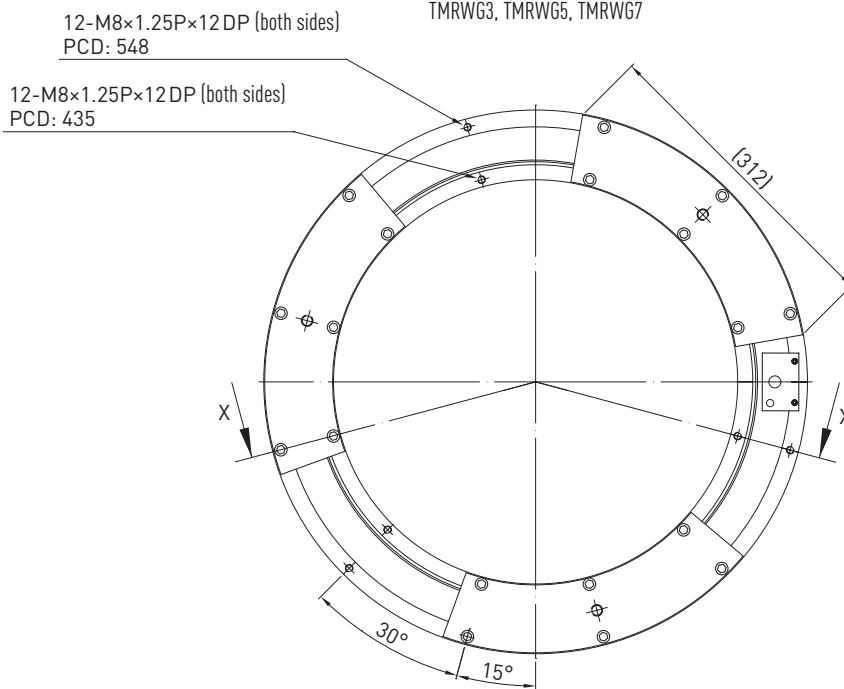
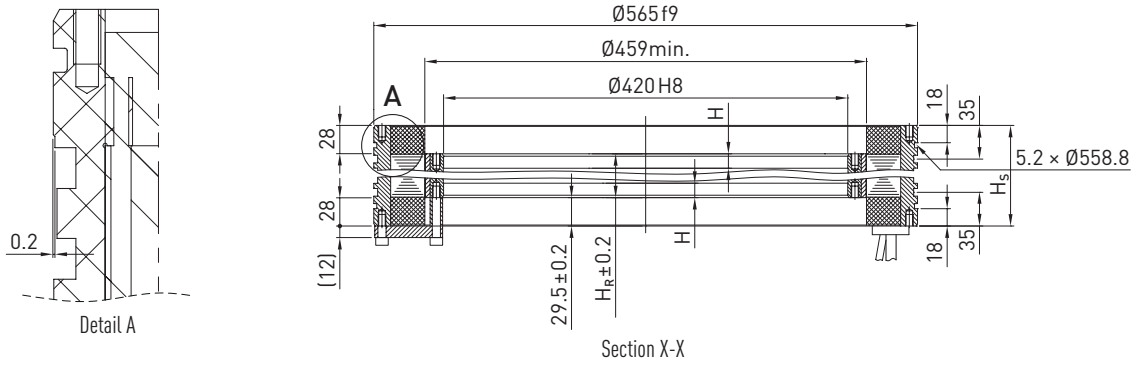
	Symbol	Unit	TMRWG3	TMRWG3L	TMRWG5	TMRWG5L	TMRWG7	TMRWG7L	TMRWGA	TMRWGAL	TMRWGF	TMRWGL
Torques and electrical parameters												
Peak torque (for 1 sec.)	T_p	Nm	1,002		1,700		2,360		3,340		5,020	
Continuous torque ¹⁾	T_c	Nm	260		422		582		810		1,200	
Continuous torque (WC)	T_{c_wc}	Nm	515		930		1,255		1,810		2,720	
Stall torque	T_s	Nm	182		295		407		567		840	
Stall torque (WC)	T_{s_wc}	Nm	361		651		879		1,267		1,904	
Peak current (for 1 sec.)	I_p	A	71	142	71	142	71	142	142	284	142	284
Continuous current ¹⁾	I_c	A	10.5	21	10.5	21	10.5	21	21	42	21	42
Continuous current (WC)	I_{c_wc}	A	26.3	52.5	26.3	52.5	26.3	52.5	52.5	105	52.5	105
Stall current	I_s	A	7.4	14.7	7.4	14.7	7.4	14.7	14.7	29.4	14.7	29.4
Stall current (WC)	I_{s_wc}	A	18.4	36.8	18.4	36.8	18.4	36.8	36.8	73.5	36.8	73.5
Resistance ²⁾	R_{25}	Ω	2.03	0.51	2.67	0.67	3.3	0.83	1.06	0.27	1.46	0.37
Inductance ²⁾	L_{25}	mH	12.55	3.14	19.13	4.78	25.7	6	8.9	2.23	13	3.25
Motor constant	K_m	Nm/ \sqrt{W}	14.19	14.16	20.08	20.05	24.91	24.84	30.59	30.3	38.61	38.35
Electrical time constant	K_e	ms	6.2	6.2	7.2	7.1	7.8	7.2	8.4	8.3	8.9	8.8
Torque constant	K_t	Nm/A	24.7	12.4	40.2	20.1	55.4	27.7	38.8	19.4	57	28.5
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	14.3	7.2	23.2	11.6	32	16	22.4	11.2	33.6	16.8
Inertia of rotor	J	kgm ²	0.267		0.452		0.619		0.904		1.38	
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.28	0.28	0.22	0.21	0.17	0.17	0.14	0.13	0.1	0.1
Thermal resistance (WC)	R_{th_wc}	$^{\circ}\text{C/W}$	0.045	0.045	0.034	0.034	0.028	0.028	0.022	0.021	0.016	0.016
Max. DC Bus	U_{max}	VDC	750									
Mechanical parameters												
Number of poles	2p		88									
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000 (optional: KTY84)									
Stator height	H_S	mm	90		110		130		160		210	
Rotor height	H_R	mm	31		51		71		101		151	
Length	H	mm	15									
Mass of motor	M_m	kg	43.6		57.5		74.4		94.0		135.8	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature; WC = with water cooling

¹⁾ Coil temperature 120 $^{\circ}\text{C}$;

²⁾ Line-to-line

Dimensions TMRWG



Torque Motors

HIWIN torque motors TMRI

4. HIWIN torque motors TMRI

4.1 Special characteristics of the TMRI torque motors

TMRI series torque motors are ready-to-install, UL-certified motor elements consisting of a stator and rotor. They differ from the TMRW series by their significantly higher speed range which predestines them for use in turning and milling centres. Through the liquid cooling higher continuous torques and at the same time lower motor temperatures are achieved, in order to avoid additional process heat in the machine tool. All TMRI torque motors are equipped with temperature sensors to protect the motor even under extreme loads.



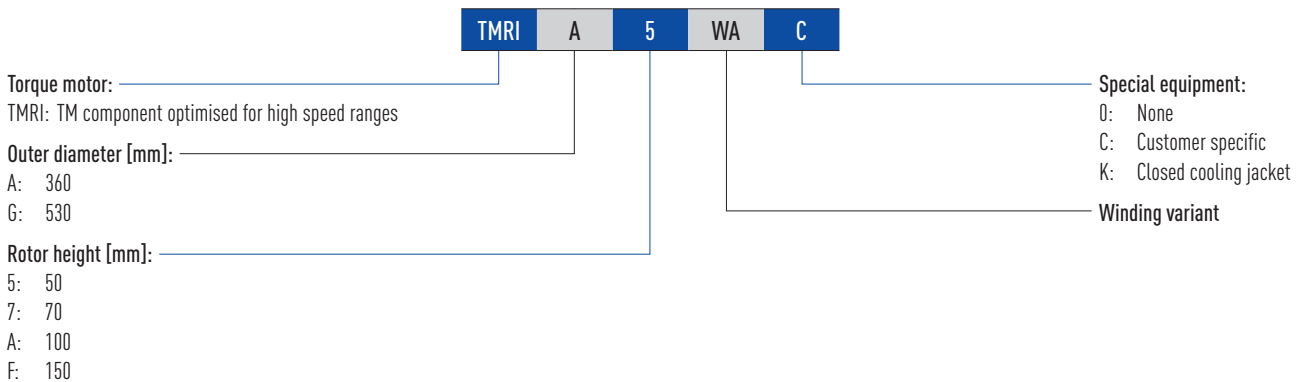
Key features of the TMRI torque motor:

- Optimised for high speed ranges
- UL-certified
- High continuous and peak torque
- High dynamics
- Efficient cooling system, optionally with steel cooling jacket
- High efficiency
- Maintenance-free and wear-free operation
- Integrated thermal sensors

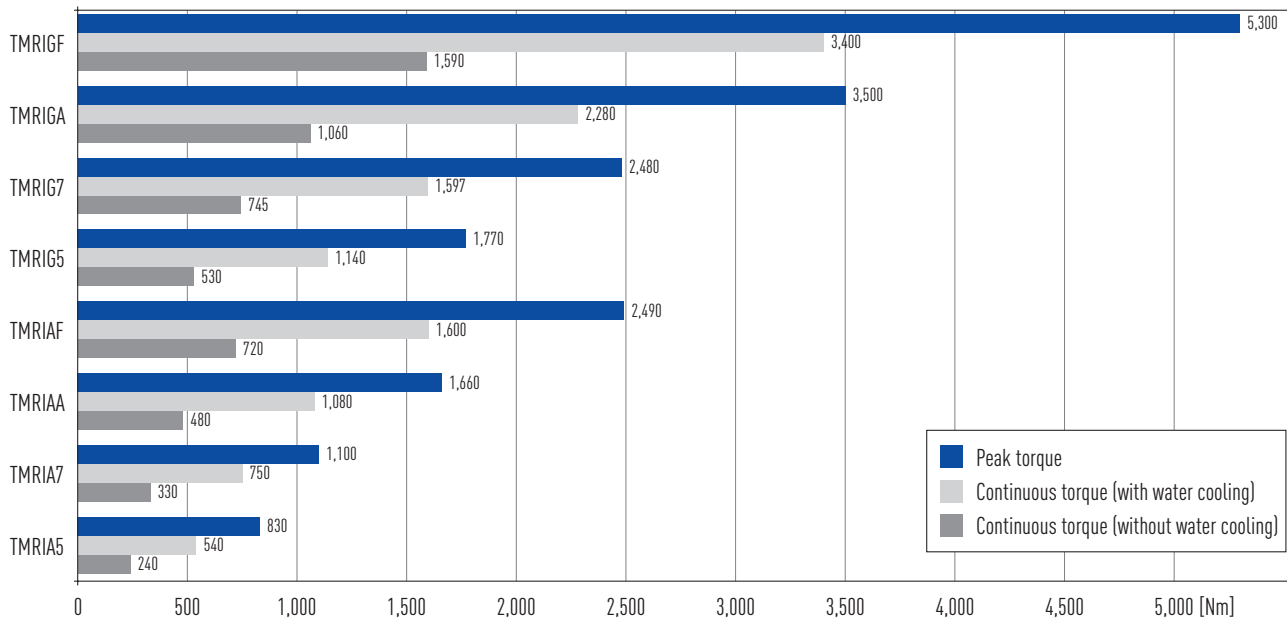
Typical fields of application:

- Machine tools
- Turning and milling centres

4.2 Order code TMRI torque motor



4.3 TMRI torques



4.4 Closed cooling jacket (option)

For easy integration of our water-cooled torque motors, we also supply them in a closed version. The connection to the cooling unit is realised via 2 G1/8 threads in the stainless steel jacket. As in the version without a closed cooling jacket, the alignment of the motor is realised easily via the fit of the stator. Available for the sizes TMRIA and TMRIG.

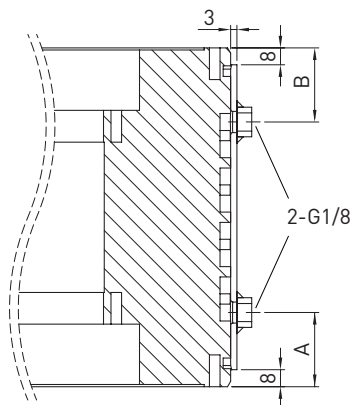


Table 4.1 Dimensions of steel cooling jacket TMRI

Torque motor	Dimensions A [mm]	Dimensions B [mm]
TMRIA	35	35
TMRIG	35	35

Torque Motors

HIWIN torque motors TMRI

4.5 TMRI torque motor specifications

4.5.1 TMRIA specifications

Torque-speed curves (DC bus voltage: 600 VDC)

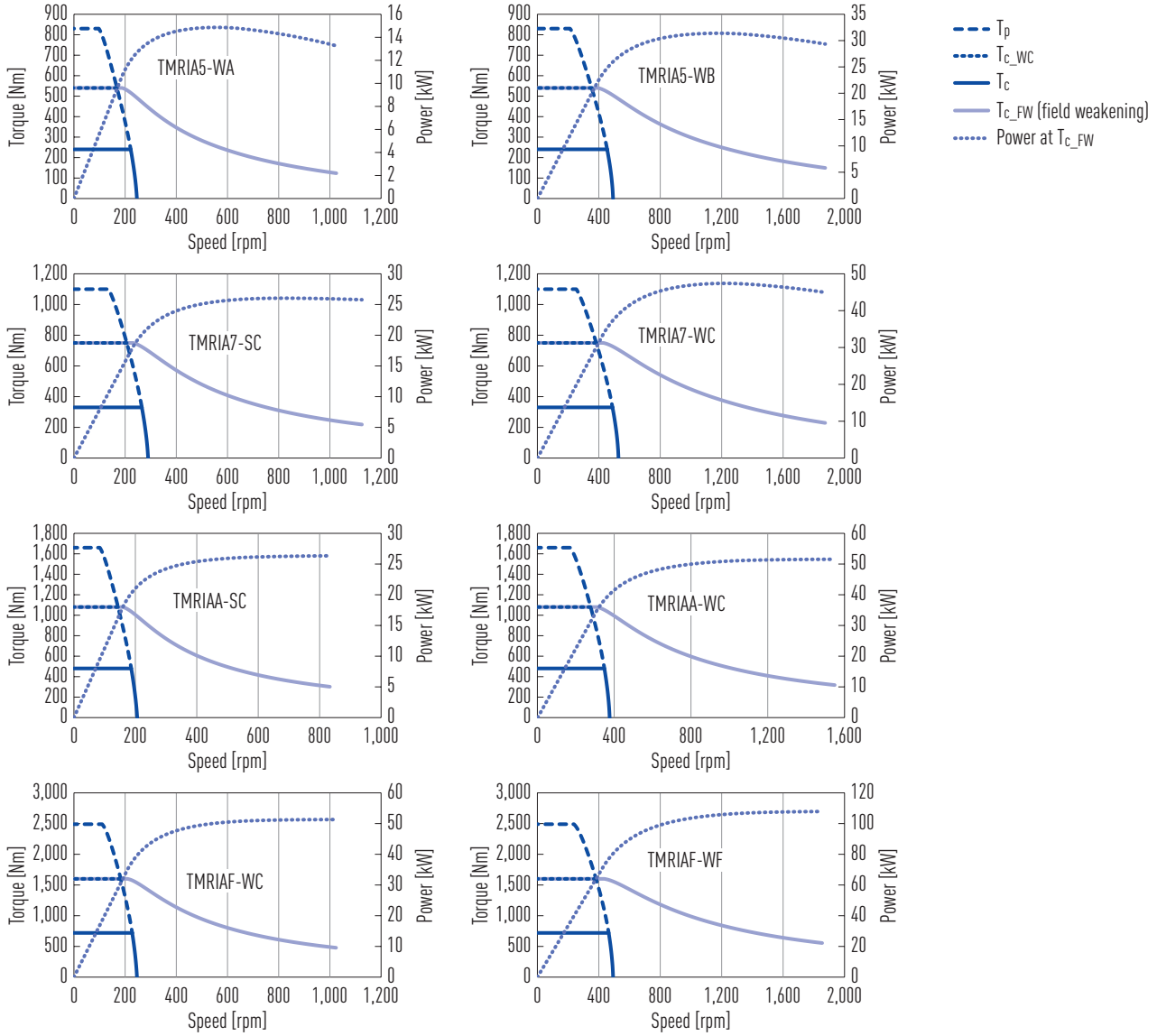


Table 4.2 Technical data for TMRIA

	Symbol	Unit	TMRIA5-WA	TMRIA5-WB	TMRIA7-SC	TMRIA7-WC	TMRIAA-SC	TMRIAA-WC	TMRIAF-WC	TMRIAF-WF
Torques and electrical parameters										
Peak torque (for 1 sec.)	T_p	Nm	830		1,100		1,660		2,490	
Continuous torque ¹⁾	T_c	Nm	240		330		480		720	
Continuous torque (WC)	T_{c_WC}	Nm	540		750		1,080		1,600	
Stall torque	T_s	Nm	168		231		336		504	
Stall torque (WC)	T_{s_WC}	Nm	378		525		756		1,120	
Peak current (for 1 sec.)	I_p	A	75.3	150.6	121.5	225.9	121.5	225.9	225.9	451.8
Continuous current ¹⁾	I_c	A	11.2	22.4	18.0	33.6	18.0	33.6	33.6	67.2
Continuous current (WC)	I_{c_WC}	A	27.9	55.8	45.0	83.7	45.0	83.7	83.7	167.4
Stall current	I_s	A	7.8	15.7	10.6	23.5	10.6	23.5	23.5	47.0
Stall current (WC)	I_{s_WC}	A	19.5	39.1	30.1	58.6	30.1	58.6	58.6	117.2
Resistance ²⁾	R_{25}	Ω	2.00	0.50	0.98	0.29	1.32	0.38	0.53	0.13
Inductance ²⁾	L_{25}	mH	15.20	3.80	7.60	2.33	10.50	3.06	4.27	1.06
Motor constant	K_m	Nm/ \sqrt{W}	12.37	12.37	15.12	14.89	18.95	18.92	24.03	24.26
Electrical time constant	K_e	ms	7.60	7.60	7.76	8.03	7.95	8.05	8.06	8.15
Torque constant	K_t	Nm/A	23.76	11.88	20.18	11.08	28.39	15.59	23.75	11.86
Back emf constant	K_u	$V_{eff}/(rad/s)$	13.72	6.86	11.65	6.40	16.39	9.00	13.71	6.85
Inertia of rotor	J	kgm ²	0.27		0.35		0.46		0.69	
Thermal resistance	R_{th}	$^{\circ}C/W$	0.25	0.25	0.20	0.19	0.15	0.15	0.11	0.11
Thermal resistance (WC)	R_{th_WC}	$^{\circ}C/W$	0.041	0.041	0.032	0.031	0.024	0.024	0.017	0.017
Max. DC Bus	U_{max}	VDC	750							
Mechanical parameters										
Number of poles	2p		66							
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000							
Stator height	H_s	mm	110		130		160		210	
Rotor height	H_r	mm	81		101		131		181	
Mass of motor	M_m	kg	42.3		55.0		71.9		103.6	

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}C$ ambient temperature

WC = with water cooling

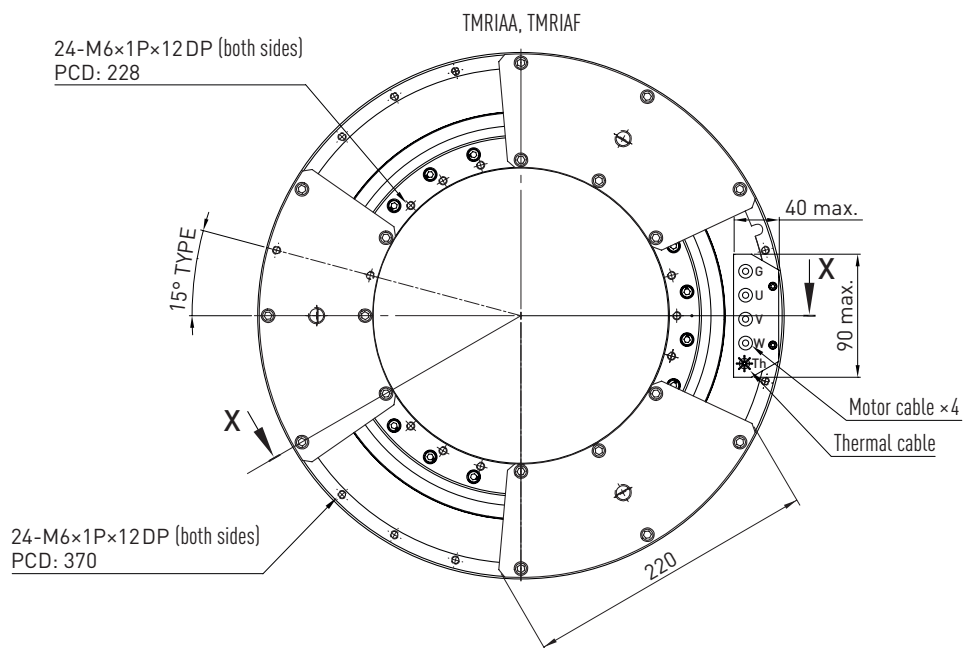
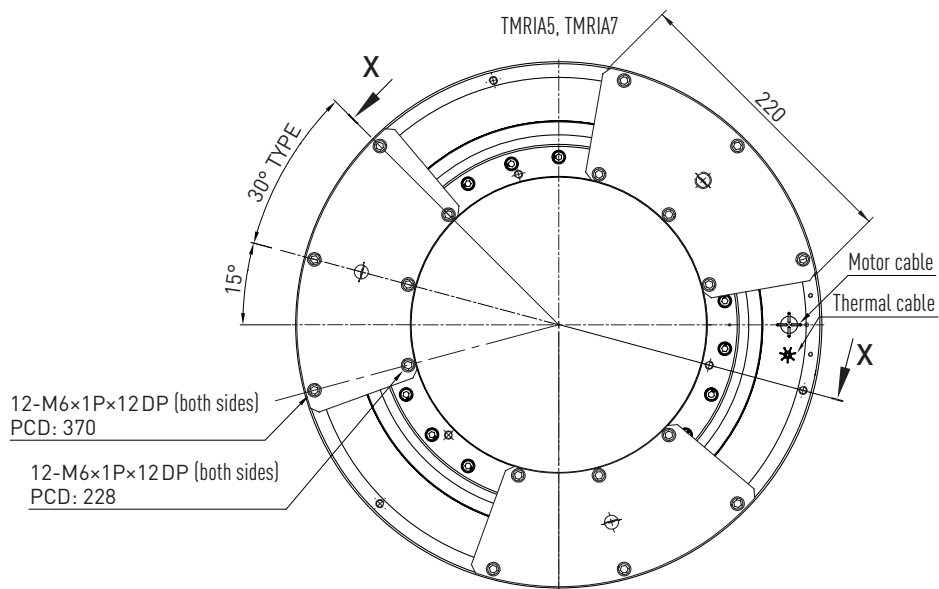
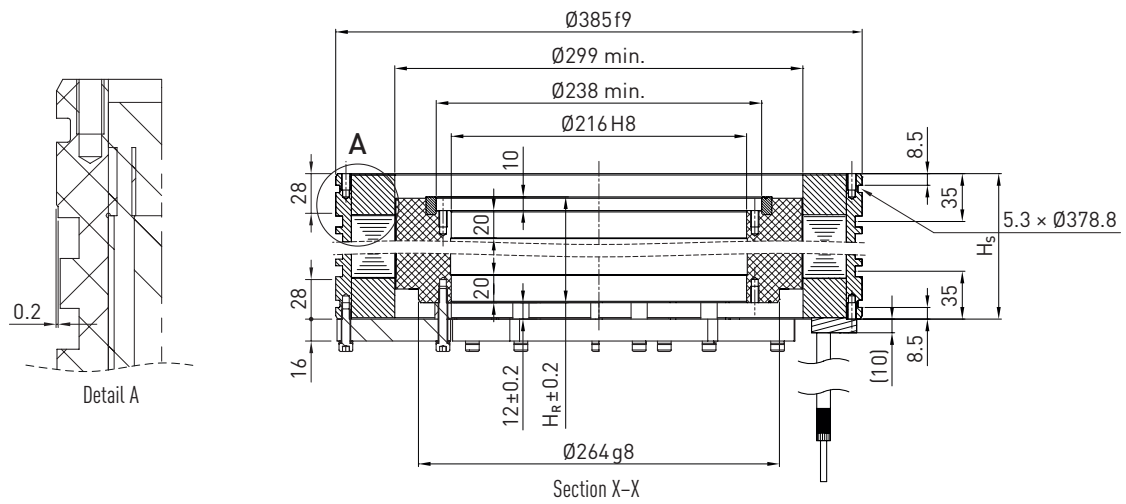
¹⁾ Coil temperature 120 $^{\circ}C$

²⁾ Line-to-line

Torque Motors

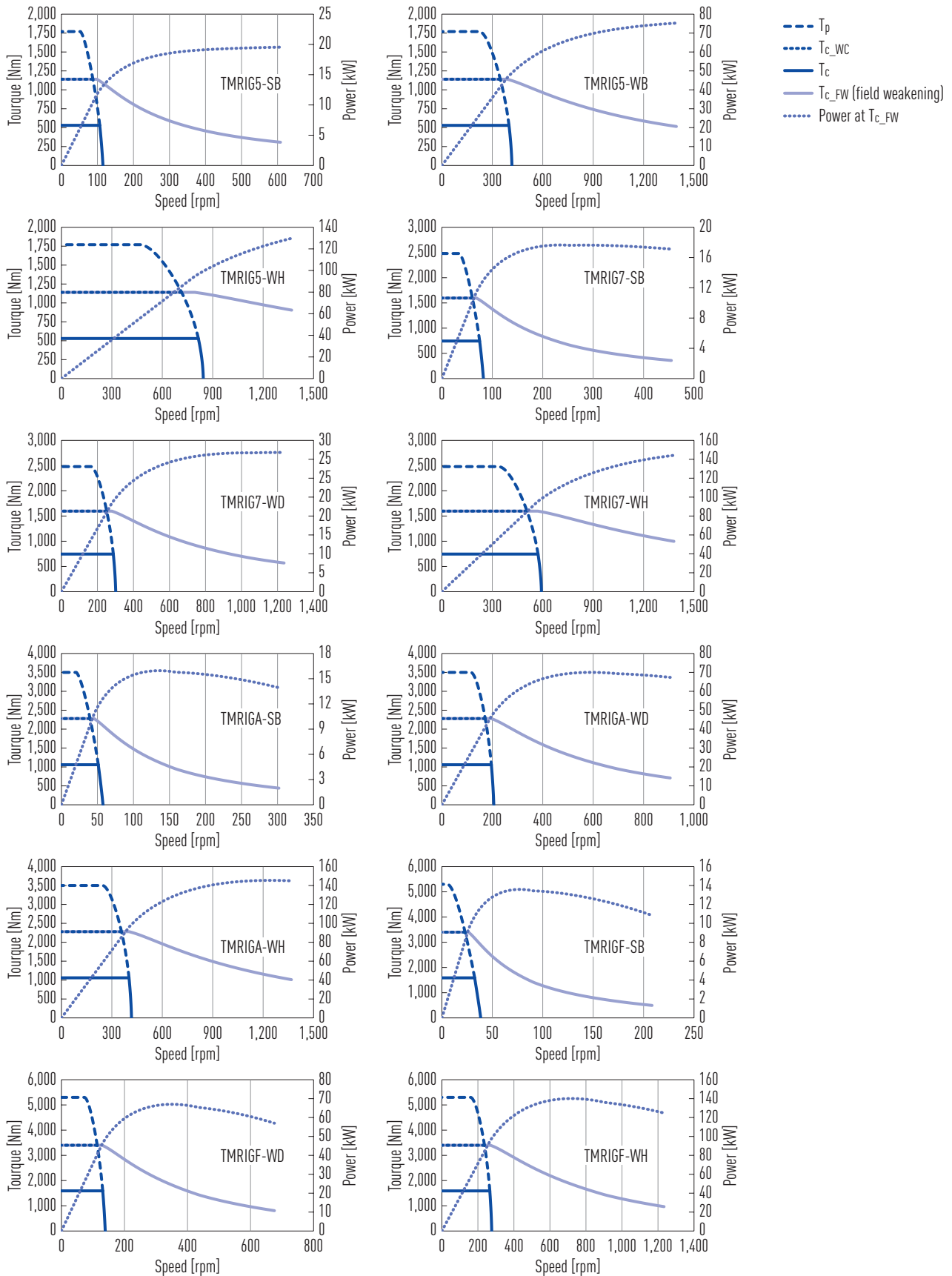
HIWIN torque motors TMRI

Dimensions TMRIA



4.5.2 TMRIG specifications

Torque-speed curves (DC bus voltage: 600 VDC)



Torque Motors

HIWIN torque motors TMRI

Table 4.3 Technical data for TMRIG5, TMRIG7

	Symbol	Unit	TMRIG5-SB	TMRIG5-WD	TMRIG5-WH	TMRIG7-SB	TMRIG7-WD	TMRIG7-WH
Torques and electrical parameters								
Peak torque (for 1 sec,)	T_p	Nm	1,770			2,480		
Continuous torque ¹⁾	T_c	Nm	530			745		
Continuous torque (WC)	T_{c_WC}	Nm	1,140			1,597		
Stall torque	T_s	Nm	371			522		
Stall torque (WC)	T_{s_WC}	Nm	798			1,118		
Peak current (for 1 sec,)	I_p	A	71	239	478	71	239	478
Continuous current ¹⁾	I_c	A	10.5	39.0	78.0	10.5	39.0	78.0
Continuous current (WC)	I_{c_WC}	A	26.3	95.0	190.0	26.3	95.0	190.0
Stall current	I_s	A	7.4	27.3	54.6	7.4	27.3	54.6
Stall current (WC)	I_{s_WC}	A	18.4	66.5	133.0	18.4	66.5	133.0
Resistance ²⁾	R_{25}	Ω	2.4	0.18	0.04	3.2	0.24	0.06
Inductance ²⁾	L_{25}	mH	17.80	1.33	0.33	23.50	1.76	0.44
Motor constant	K_m	Nm/ \sqrt{W}	26.60	26.15	27.74	32.39	31.84	31.84
Electrical time constant	K_e	ms	7.4	7.4	8.3	7.3	7.3	7.3
Torque constant	K_t	Nm/A	50.7	14.0	6.9	71.0	19.4	9.9
Back emf constant	K_u	$V_{eff}/(\text{rad/s})$	29.3	8.1	4.0	41.0	11.2	5.7
Inertia of rotor	J	kgm ²	1.16			1.63		
Thermal resistance	R_{th}	$^{\circ}\text{C/W}$	0.24	0.23	0.26	0.18	0.17	0.17
Thermal resistance (WC)	R_{th_WC}	$^{\circ}\text{C/W}$	0.038	0.039	0.044	0.029	0.029	0.029
Max, DC Bus	U_{max}	VDC	750					
Mechanical parameters								
Number of poles	2p		88					
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000					
Stator height	H_s	mm	110			130		
Rotor height	H_r	mm	81			101		
Mass of motor	M_m	kg	75.3			99.4		

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}\text{C}$ ambient temperature

WC = with water cooling

¹⁾ Coil temperature 120 $^{\circ}\text{C}$

²⁾ Line-to-line

Table 4.4 Technical data for TMRIGA, TMRIGF

	Symbol	Unit	TMRIGA-SB	TMRIGA-WD	TMRIGA-WH	TMRIGF-SB	TMRIGF-WD	TMRIGF-WH
Torques and electrical parameters								
Peak torque (for 1 sec.)	T_p	Nm	3,500			5,300		
Continuous torque ¹⁾	T_c	Nm	1,060			1,590		
Continuous torque (WC)	T_{c_WC}	Nm	2,280			3,400		
Stall torque	T_s	Nm	742			1,113		
Stall torque (WC)	T_{s_WC}	Nm	1,596			2,380		
Peak current (for 1 sec.)	I_p	A	71	239	478	71	239	478
Continuous current ¹⁾	I_c	A	10.5	39.0	78.0	10.5	39.0	78.0
Continuous current (WC)	I_{c_WC}	A	26.3	95.0	190.0	26.3	95.0	190.0
Stall current	I_s	A	7.4	27.3	54.6	7.4	27.3	54.6
Stall current (WC)	I_{s_WC}	A	18.4	66.5	133.0	18.4	66.5	133.0
Resistance ²⁾	R_{25}	Ω	4.40	0.32	0.08	6.50	0.46	0.11
Inductance ²⁾	L_{25}	mH	32.20	2.40	0.60	48.10	3.48	0.87
Motor constant	K_m	Nm/ \sqrt{W}	39.30	39.23	39.23	48.50	49.08	50.18
Electrical time constant	K_e	ms	7.3	7.5	7.5	7.4	7.6	7.9
Torque constant	K_t	Nm/A	101.3	28.4	14.0	152.1	42.1	21.1
Back emf constant	K_u	$V_{eff}/(rad/s)$	58.5	16.4	8.1	87.8	24.3	12.2
Inertia of rotor	J	kgm ²	2.32			3.48		
Thermal resistance	R_{th}	$^{\circ}C/W$	0.13			0.09		
Thermal resistance (WC)	R_{th_WC}	$^{\circ}C/W$	0.021	0.022	0.022	0.014	0.015	0.016
Max. DC Bus	U_{max}	VDC	750					
Mechanical parameters								
Number of poles	2p		88					
Thermal sensors			PTC SNM 100; PTC SNM 120; PT1000					
Stator height	H_s	mm	160			210		
Rotor height	H_r	mm	131			181		
Mass of motor	M_m	kg	129.7			189.5		

All the specifications in the table (except dimensions) are in $\pm 10\%$ of tolerance at 25 $^{\circ}C$ ambient temperature

WC = with water cooling

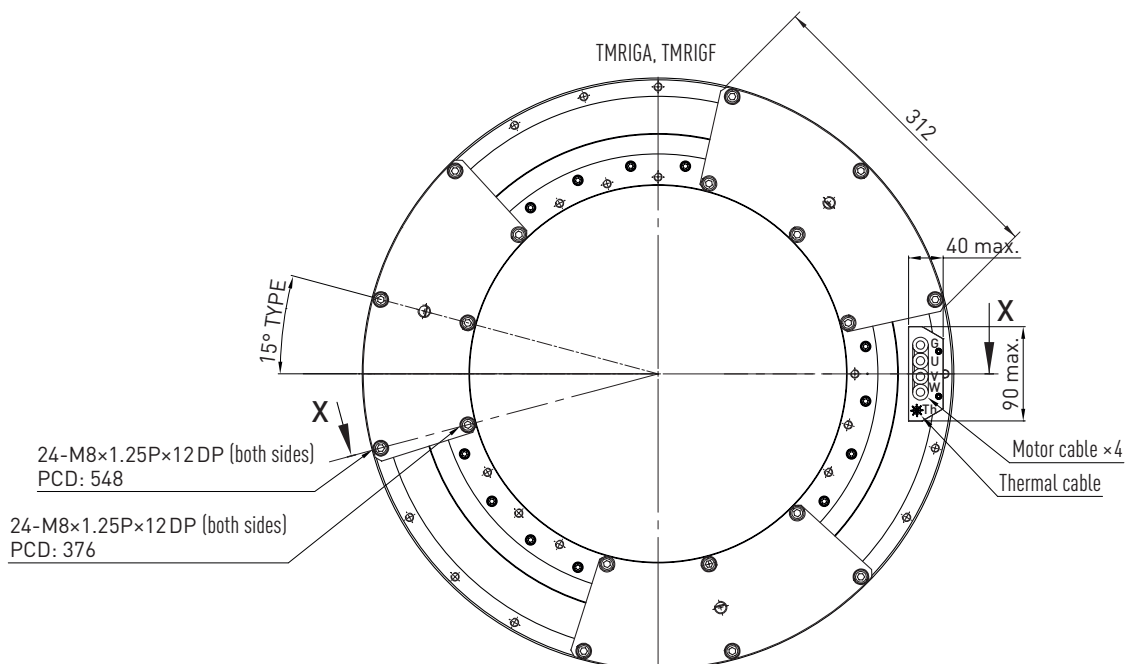
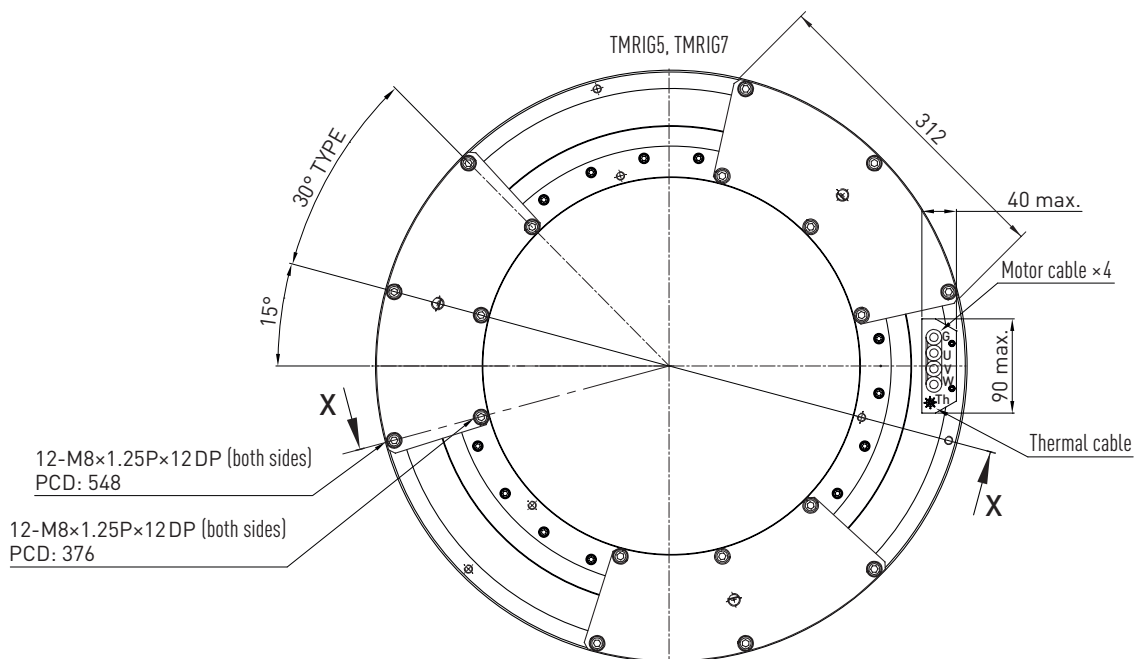
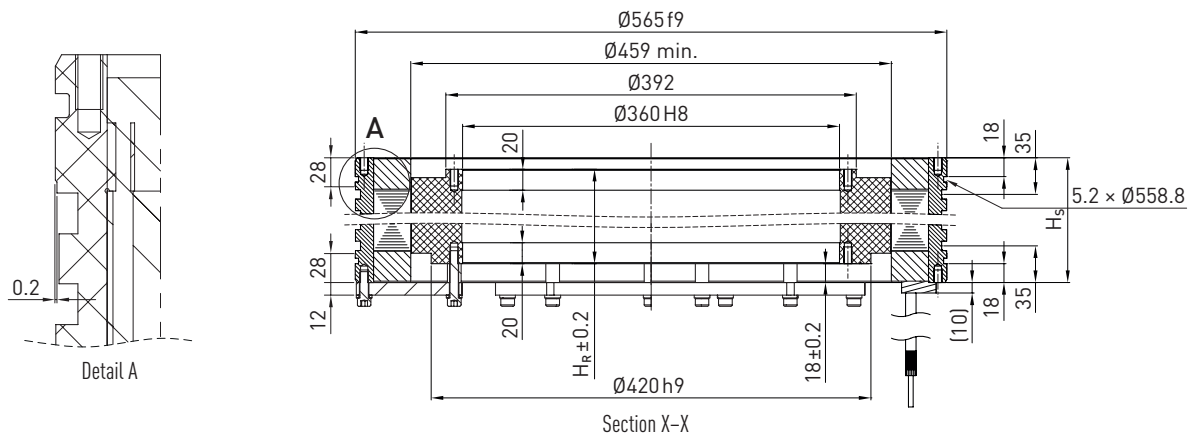
¹⁾ Coil temperature 120 $^{\circ}C$

²⁾ Line-to-line

Torque Motors

HIWIN torque motors TMR

Dimensions TMRIG

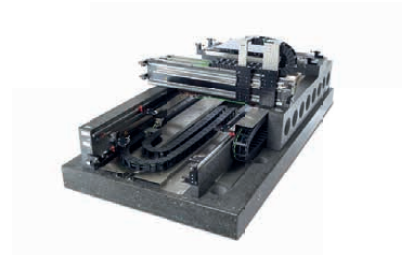




Linear Guideways



Ballscrews



Linear Motor Systems



Linear Axes



Linear Actuators



Robots



Linear Motor Components



Rotary Tables



Drives & Servo Motors

Germany

HIWIN GmbH
Brücklesbünd 2
D-77654 Offenburg
Phone +49 (0) 7 81 9 32 78 -0
Fax +49 (0) 7 81 9 32 78 -90
info@hiwin.de
www.hiwin.de

Taiwan

Headquarters
HIWIN Technologies Corp.
No. 7, Jingke Road
Taichung Precision Machinery Park
Taichung 40852, Taiwan
Phone +886-4-2359-4510
Fax +886-4-2359-4420
business@hiwin.tw
www.hiwin.tw

Taiwan

Headquarters
HIWIN Mikrosystem Corp.
No. 6, Jingke Central Road
Taichung Precision Machinery Park
Taichung 40852, Taiwan
Phone +886-4-2355-0110
Fax +886-4-2355-0123
business@hiwinmikro.tw
www.hiwinmikro.tw

France

HIWIN France s.a.r.l.
20 Rue du Vieux Bourg
F-61370 Echauffour
Phone +33 (2) 33 34 11 15
Fax +33 (2) 33 34 73 79
info@hiwin.fr
www.hiwin.fr

Italy

HIWIN Srl
Via Pitagora 4
I-20861 Brugherio (MB)
Phone +39 039 287 61 68
Fax +39 039 287 43 73
info@hiwin.it
www.hiwin.it

Poland

HIWIN GmbH
ul. Puławska 405a
PL-02-801 Warszawa
Phone +48 22 544 07 07
Fax +48 22 544 07 08
info@hiwin.pl
www.hiwin.pl

Switzerland

HIWIN Schweiz GmbH
Eichwiesstrasse 20
CH-8645 Jona
Phone +41 (0) 55 225 00 25
Fax +41 (0) 55 225 00 20
info@hiwin.ch
www.hiwin.ch

Slovakia

HIWIN s.r.o., o.z.z.o.
Mládežnícka 2101
SK-01701 Považská Bystrica
Phone +421 424 43 47 77
Fax +421 424 26 23 06
info@hiwin.sk
www.hiwin.sk

Czech Republic

HIWIN s.r.o.
Medkova 888/11
CZ-62700 BRNO
Phone +42 05 48 528 238
Fax +42 05 48 220 223
info@hiwin.cz
www.hiwin.cz

Netherlands

HIWIN GmbH
info@hiwin.nl
www.hiwin.nl

Austria

HIWIN GmbH
info@hiwin.at
www.hiwin.at

Slovenia

HIWIN GmbH
info@hiwin.si
www.hiwin.si

Hungary

HIWIN GmbH
info@hiwin.hu
www.hiwin.hu

China

HIWIN Corp.
www.hiwin.cn

Japan

HIWIN Corp.
mail@hiwin.co.jp
www.hiwin.co.jp

USA

HIWIN Corp.
info@hiwin.com
www.hiwin.com

Korea

HIWIN Corp.
www.hiwin.kr

Singapore

HIWIN Corp.
www.hiwin.sg