

Torque QMT-LA 310 series



QMT-LA 310 series,
with a height of 110 mm

Parameter	Remarks	Symbol	Unit	QMT-LA 310-70	QMT-LA 310-90	QMT-LA 310-110	QMT-LA 310-140
Performance	Winding type			I	I	I	I
Motor type, max voltage ph-ph	3-phase synchronous	U_{max}	V_{dc}	680			
Ultimate torque @ 10 K/s increase	magnets @ 25°C	T_u	Nm	347	581	815	1162
Peak torque @ 6 K/s increase	magnets @ 25°C	T_p	Nm	305	511	717	1023
Continuous torque ¹	coils @ 130°C	T_c	Nm	153	280	410	605
Stall torque ¹	coils @ 130°C	T_s	Nm	118	216	316	466
Maximum speed ²	@ U_{max} @ T_c	n_{max}	rpm	675	376	251	160
Motor torque constant	$I \leq I_c$	K_t	Nm/A _{rms}	9.8	16.5	23.1	32.9
Motor constant	coils @ 25°C	K_m	(Nm) ² /W	25.6	51.3	78.3	119.8
Electrical	Ultimate current	I_u	A _{rms}	45.8	45.8	45.8	45.8
Peak current	magnets @ 25°C	I_p	A _{rms}	35.5	35.5	35.5	35.5
Continuous current ¹	coils @ 130°C	I_c	A _{rms}	15.5	17.0	17.8	18.4
Stall current ¹	coils @ 130°C	I_s	A _{rms}	12.0	13.1	13.7	14.2
Back EMF ph-ph _{peak}		K_e	$V_{dc}/krpm$	841	1407	1974	2815
Back EMF ph-ph _{rms}		K_e	$V_{ac}/krpm$	595	995	1396	1990
Resistance per phase	coils @ 25°C ex. cable	R_{ph}	Ω	1.26	1.76	2.27	3.02
Induction per phase	$I < 0.6 I_p$	L_{ph}	mH	4.4	7.4	10.3	14.7
Electrical time constant	coils @ 25°C	τ_e	ms	3.5	4.2	4.6	4.9
Thermal	Continuous power loss ¹	P_c	W	1297	2171	3045	4342
Thermal resistance	coils to mount. sfc.	R_{th}	K/W	0.085	0.051	0.036	0.025
Thermal time constant			s	61	51	47	44
Water cooling flow rate	for ΔT=8K	Φ_w	l/min	2.3	3.8	5.4	7.6
Temperature cut-off / sensor				PTC130 (3x) / Pt1000 (3x)			
Mechanical	Stator OD	OD_s	mm	310			
Rotor ID		ID_r	mm	220			
Stator height		H_s	mm	70	90	110	140
Rotor height		H_r	mm	31	51	71	101
Poles		N_{mgn}		42			
Rotor inertia		J_r	kgm ²	0.033	0.055	0.076	0.108
Stator mass	ex. cables	m_s	kg	7.0	9.7	12.4	16.4
Rotor mass		m_r	kg	2.4	3.9	5.5	7.8
Total mass	ex. cables	m	kg	9.4	13.6	17.9	24.2
Cable mass	all cables		kg/m	0.25			
Cable type (power)	length 2 m	d	mm (AWG)	10.6 (13)			
Cable type (sensor)	length 2 m	d	mm (AWG)	6.4 (25)			

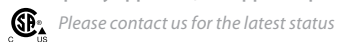
¹ These values are only applicable when the mounting surface is at 20°C and the motor is driven at continuous current. If these values differ in your application, please check our simulation tool.

² Actual values depend on bus voltage. Please check the T/n diagram in our manual or online simulation tool.

Series approvals

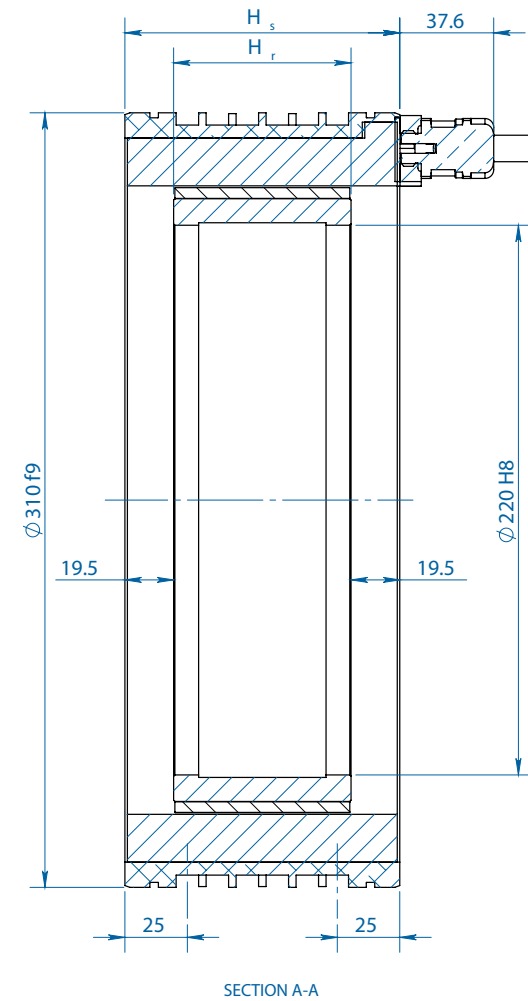
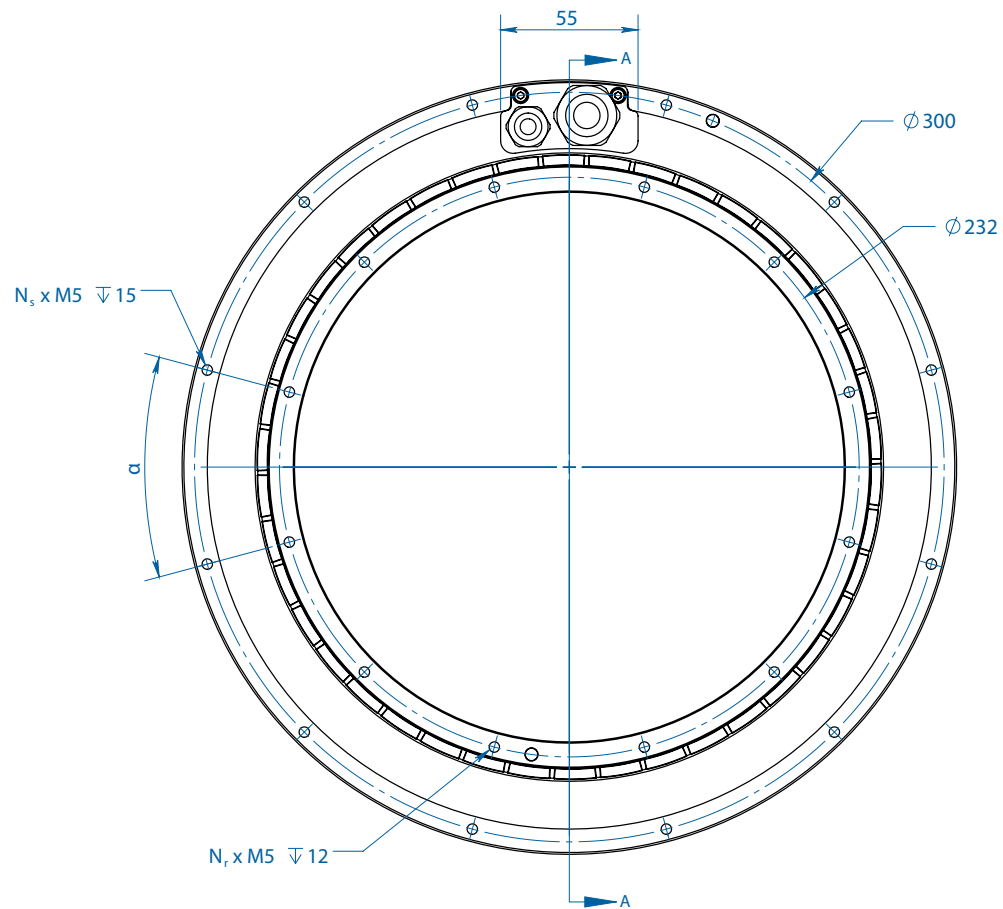


Series partly approved, full approval pending:



All specifications ±10%

QMT-LA 310



Motor type	H_s	H_r	N_s	N_r	α
QMT-LA-310-70	70	31	12	12	30
QMT-LA-310-90	90	51	12	12	30
QMT-LA-310-110	110	71	12	12	30
QMT-LA-310-140	140	101	23	24	15

* All sizes are in mm