

QTR 105 series



QTR-A-105-17 stator and rotor

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



*N-windings approved, full approval pending.

	Parameter	Remarks	Symbol	Unit	QTR-A-105-17			QTR-A-105-25			QTR-A-105-34			QTR-A-105-60
Performance	Winding type				N	Y	Z	N	Y	Z	N	Y	Z	N
	Motor type, max voltage ph-ph	3-phase synchronous	U _{max}	V _{ac,rms} (V _{dc})	230 (325)									400 (565)
	Ultimate torque @ 20 K/s increase	magnets @ 25°C	T _u	Nm	3.0	3.3	3.3	6.0	7.5	6.8	10.4	11.2	10.3	28.3
	Peak torque @ 6 K/s increase	magnets @ 25°C	T _p	Nm	1.9	2.2	2.2	3.8	4.3	4.3	6.7	6.5	6.5	18.0
	Continuous torque ¹	coils @ 100°C	T _c	Nm	1.4	1.4	1.4	3.2	3.2	3.2	5.3	5.1	5.1	12.1
	Maximum speed ²	@ 48 V _{dc} @ T _c	n _{max}	rpm	819	1803	3398	260	812	1679	4	464	1061	217
	Maximum speed ²	@ U _{max} @ T _c	n _{max}	rpm	7000	7000	7000	4106	7000	7000	2168	5019	7000	1373
	Motor torque constant	I ≤ I _c	K _t	Nm/A _{rms}	0.30	0.17	0.10	0.59	0.33	0.19	1.07	0.50	0.29	2.84
	Motor constant	coils @ 25°C	K _m	(Nm) ² /W	0.021	0.022	0.022	0.061	0.063	0.063	0.125	0.114	0.114	0.397
Electrical	Ultimate current	magnets @ 25°C	I _u	A _{rms}	13.9	28.3	48.9	13.9	28.3	48.9	13.3	28.3	48.9	13.6
	Peak current	magnets @ 25°C	I _p	A _{rms}	7.5	15.3	26.5	7.5	15.3	26.5	7.3	15.3	26.5	7.4
	Continuous current ¹	coils @ 100°C	I _c	A _{rms}	4.6	8.4	14.6	5.3	9.7	16.8	5.0	10.2	17.7	4.3
	Back EMF ph-ph _{peak}		K _e	V/krpm	25	14	8	51	28	16	91	43	25	243
	Back EMF ph-ph _{rms}		K _e	V/krpm	18	10	6	36	20	12	64	30	17	172
	Resistance per phase	coils @ 25°C ex. cable	R _{ph}	Ω	1.38	0.42	0.14	1.93	0.58	0.19	3.03	0.72	0.24	6.78
	Induction per phase	I < 0.6 I _p	L _{ph}	mH	2.62	0.82	0.27	4.08	1.28	0.43	7.98	1.74	0.58	25.42
	Electrical time constant		τ _e	ms	1.9	2.0	2.0	2.1	2.2	2.2	2.6	2.4	2.4	3.7
Thermal	Continuous power loss ¹	coils @ 100°C	P _c	W	116			213			295			483
	Thermal resistance	coils to mount. sfc.	R _{th}	K/W	0.65			0.35			0.25			0.16
	Thermal time constant		τ _{th}	s	19	22	22	14	17	17	16	15	15	23
	Temperature sensor				PTC 1kΩ / KTY83-122									
Mechanical	Stator OD		OD _s	mm	105									
	Rotor ID		ID _r	mm	56									
	Stator height		H _s	mm	17			25			34			60
	Lamination stack height		H _{arm}	mm	8			16			24			48
	Poles		N _{mgn}		20									
	Rotor inertia		J _r	kg m ²	8.0E-05			1.5E-04			2.2E-04			4.3E-04
	Stator mass	ex. cables	m _s	g	299			472			746			1476
	Rotor mass		m _r	g	79			146			218			433
	Total mass	ex. cables	m	g	378			618			964			1909
	Cable mass	all cables	m	g/m	126	180	180	126	180	180	126	180	180	190
	Cable type (power)	length 0.5 m	d	mm (AWG)	6.5 (20)	6.7 (14)	6.7 (14)	6.5 (20)	6.7 (14)	6.7 (14)	6.5 (20)	6.7 (14)	6.7 (14)	9.6 (18)
	Cable type (sensor)	length 0.5 m	d	mm (AWG)	4.5 (26)									

All specifications ±10%

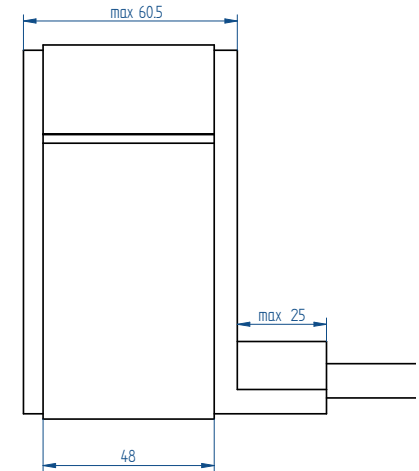
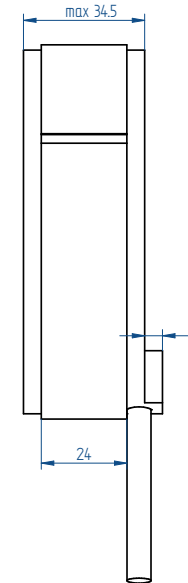
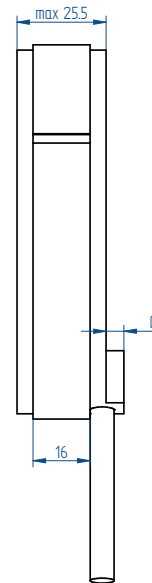
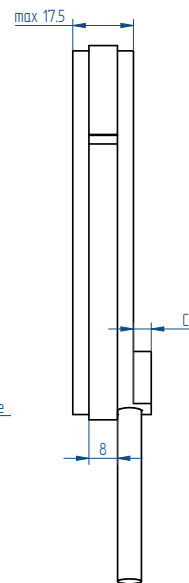
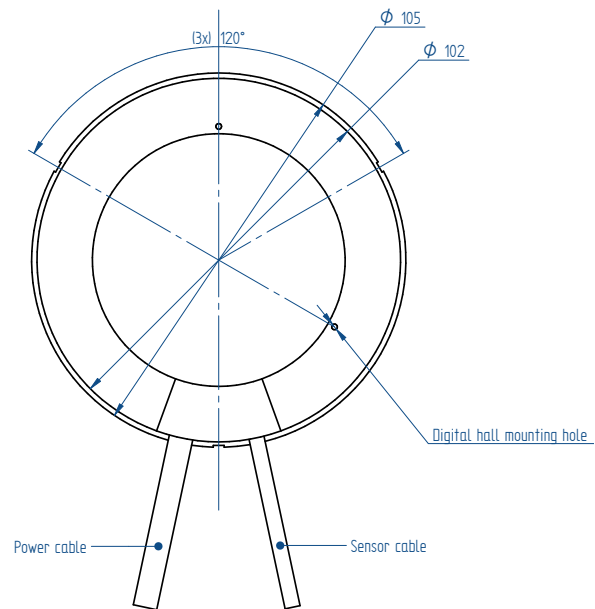
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QTR-A-105-25

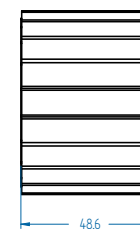
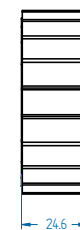
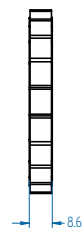
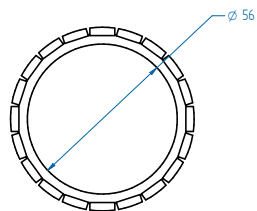
QTR-A-105-34

QTR-A-105-60

Stator



Rotor



Winding	C (mm)
N	max 3.5
Y+Z	max 5.5