

# Torque QTR 133 series



QTR-A-133 Stator and rotor shown with a height of 17 mm

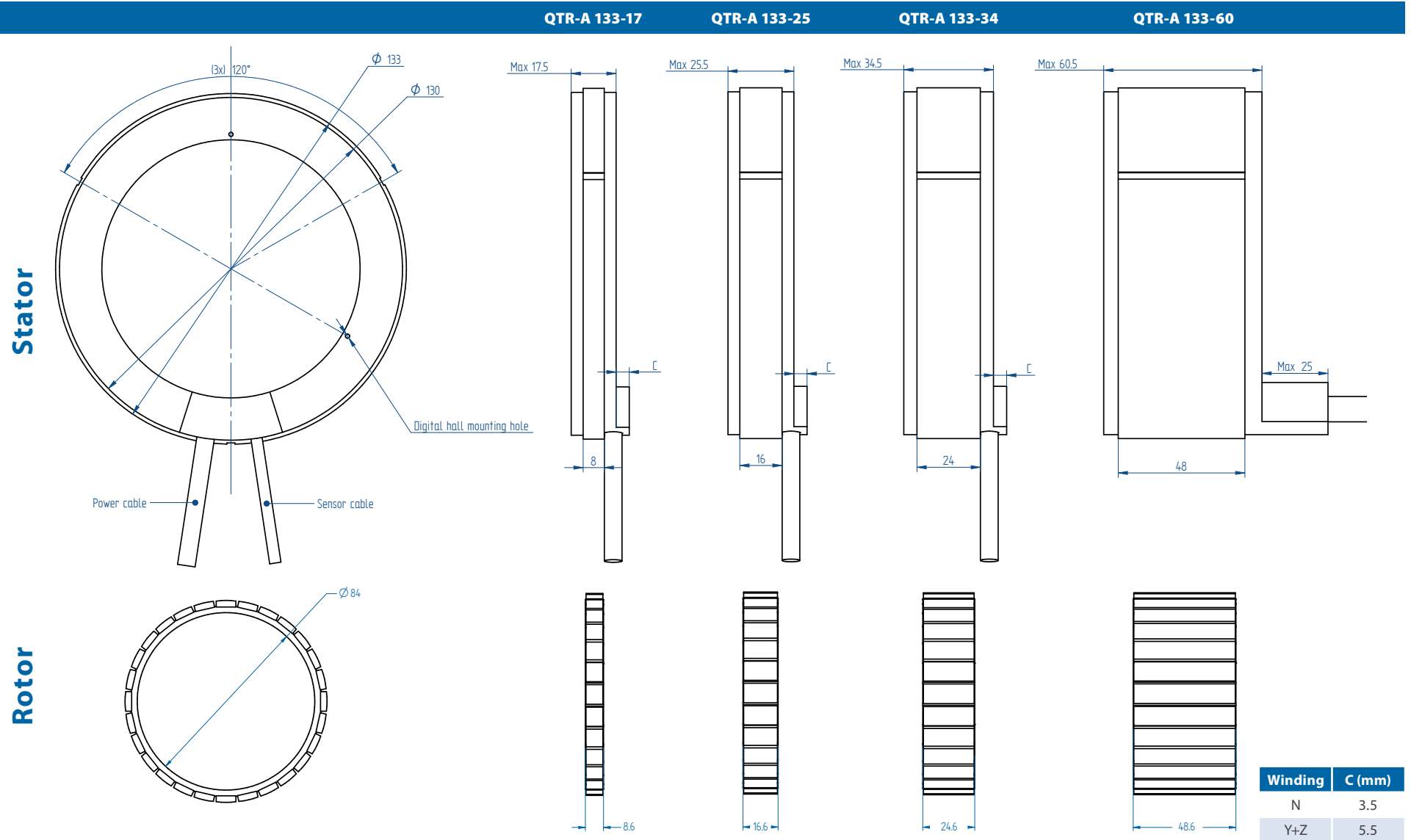
Parameter	Remarks	Symbol	Unit	QTR-A-133-17			QTR-A-133-25			QTR-A-133-34		QTR-A-133-60	
				N	Y	Z	N	Y	Z	N	Z	N	
<b>Performance</b>	Winding type			N	Y	Z	N	Y	Z	N	Z	N	
	Motor type max. voltage ph-ph	3-phase synchronous	$V_{ac\ rms}$ (V <sub>dc</sub> )	230 (325)									420 (600)
	Ultimate torque @ 20°C/s increase	magnet @ 25°C	T <sub>u</sub>	Nm	5.6	6.4	6.4	11.9	13.5	13.5	20.6	20.3	55.5
	Peak torque @ 6°C/s increase	magnet @ 25°C	T <sub>p</sub>	Nm	3.8	4.3	4.3	7.5	8.6	8.6	13.1	12.9	35.3
	Continuous torque	coil @ 100°C	T <sub>c</sub>	Nm	2.6	2.6	2.6	5.9	6.0	6.0	10.0	9.5	21.9
	Maximum speed <sup>(3)</sup> @ 48 Volt	@ T <sub>c</sub>	n <sub>max</sub>	rpm	317	839	1641	33	345	788	0	478	0
	Maximum speed @ max. voltage	@ T <sub>c</sub>	n <sub>max</sub>	rpm	3514	6340	10807	1825	3389	5930	946	4040	724
	Motor torque constant	up to I <sub>c</sub>	K <sub>t</sub>	Nm/A <sub>rms</sub>	0.58	0.33	0.19	1.16	0.65	0.38	2.09	0.56	5.57
	Motor constant	coils @ 25°C	K <sub>m</sub>	(Nm) <sup>2</sup> /W	0.058	0.061	0.061	0.167	0.177	0.180	0.344	0.310	1.08
<b>Electrical</b>	Ultimate current	magnet @ 25°C	I <sub>u</sub>	A <sub>rms</sub>	13.8	28.2	48.8	13.8	28.2	48.8	13.3	48.8	13.5
	Peak current	magnet @ 25°C	I <sub>p</sub>	A <sub>rms</sub>	7.56	15.40	26.70	7.56	15.40	26.70	7.31	26.70	7.37
	Maximum continuous current <sup>(1)</sup>	coils @ 100°C	I <sub>c</sub>	A <sub>rms</sub>	4.43	8.10	14.00	5.05	9.30	16.10	4.77	16.90	3.93
	Back EMF phase-phase <sub>peak</sub>		K <sub>e</sub>	V/krpm	50	28	16	99	56	32	179	48	476
	Back EMF phase-phase <sub>RMS</sub>		K <sub>e</sub>	V/krpm	35	20	11	70	39	23	126	34	337
	Coil resistance per phase	coils @ 25°C ex. cable	R	Ω	1.93	0.58	0.20	2.70	0.80	0.27	4.23	0.34	9.58
	Coil induction per phase	I < 0.6 I <sub>p</sub>	L	mH	3.74	1.20	0.40	5.87	1.87	0.62	11.50	0.85	36.6
	Electrical time constant	coils @ 25°C	τ <sub>e</sub>	ms	1.9	2.1	2.0	2.2	2.4	2.3	2.7	2.5	3.8
	Poles		N <sub>mgn</sub>	nr	28	28	28	28	28	28	28	28	28
<b>Thermal</b>	Continuous power loss	coils @ 100°C	P <sub>c</sub>	W	147	147	147	268	268	268	375	375	577
	Thermal resistance <sup>(2)</sup>	coils to mount. sfc.	R <sub>th</sub>	°C/W	0.51	0.51	0.51	0.28	0.28	0.28	0.20	0.20	0.13
	Thermal time constant	up to 63% max. coiltemp.	τ <sub>th</sub>	s	23	27	27	18	21	21	19	19	29
	Temperature cut-off / sensor				PTC 1kΩ / KTY83-122								
<b>Mechanical</b>	Stator OD		OD <sub>s</sub>	mm							133		
	Rotor ID		ID <sub>R</sub>	mm							84		
	Motor height		H <sub>motor</sub>	mm	17			25			34		60
	Lamination stack height		H <sub>arm</sub>	mm	8			16			24		48
	Rotor inertia		J <sub>R</sub>	kg*m <sup>2</sup>	2.1E-04			4.2E-04			6.2E-04		1.2E-03
	Stator mass	excluding cables	M <sub>S</sub>	g	414			717			1037		2090
	Rotor mass		M <sub>R</sub>	g	106			208			309		613
	Total mass	excluding cables	M <sub>T</sub>	g	520			925			1346		2703
	Cable mass	all cables	m	g	63	90	90	63	90	90	63	90	95
	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)	9.6 (18)
	Cable type (sensor)	length 0.5 m	d	mm (AWG)	4.3 (26)								

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

2. R<sub>th</sub> based on radial mounting of stator lamination stack.

3. MAXIMUM allowable speed for QTR-A 133 series motors is 14.000 rpm. If you plan a high speed application, please contact Tecnotion.

All specifications ±10%



Mounting instructions and tolerances can be found in the torque installation manual. Manuals and 3D CAD files can be downloaded from our website.

\* All sizes are in mm