KRT KIT
TORQUE MOTOR

AUTOMATION COMPONENTS
20.08.24

SINADRIVES®
DIRECT DRIVE EXPERTS

Index
Innovation & Excellence

KRT01S SERIES - IRON CORE TORQUE MOTOR

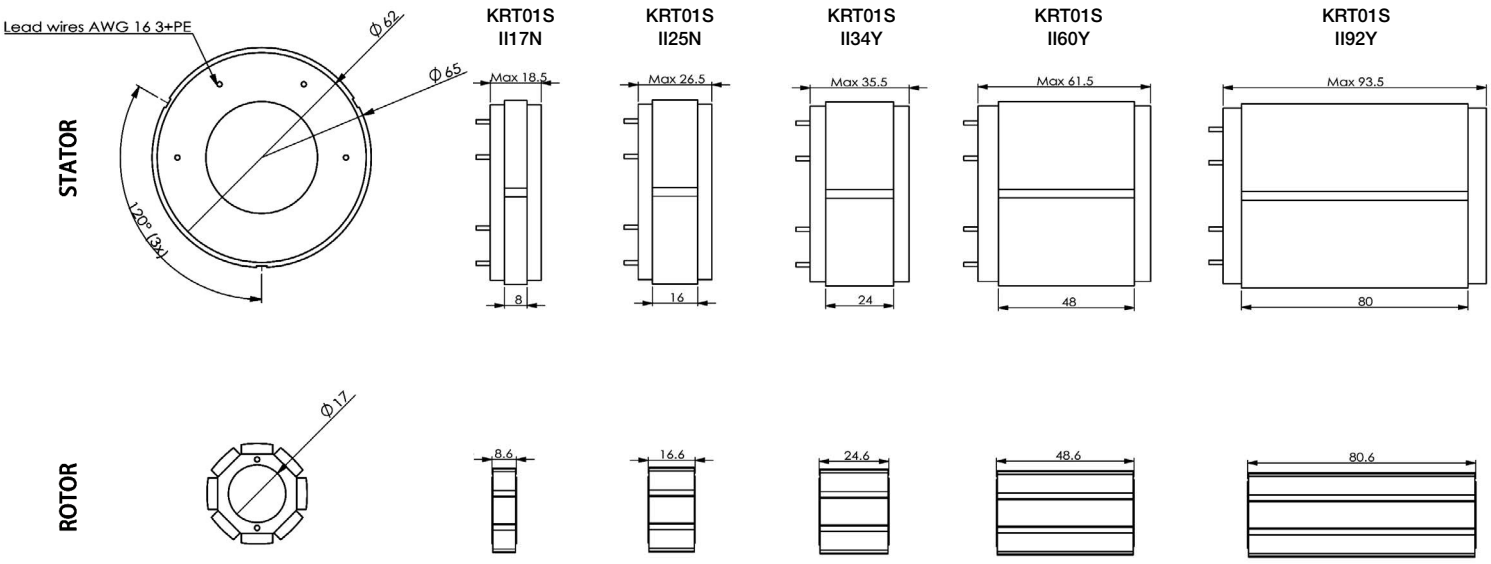
DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT01S					
Performance	**Winding type**				II17N	II25N	II34Y	II60N	II60Y	II92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 220-380 $V_{ac\ rms}$ (48V-600 V_{dc})					
	Peak torque @ 20°C/s increase	Magnet @ 25°C	T_p	Nm	0.77	1.54	2.70	6.60	6.60	11.00
	Continuous torque	Coil @ 100°C	T_c	Nm	0.36	0.85	1.30	2.80	2.78	4.60
	Maximum speed	@T_c	N_{max}	rpm	28000	28000	28000	7700	13000	10000
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.072	0.140	0.118	0.510	0.320	0.418
	Motor constant	Coils @ 25°C	K_m	$(Nm)^2/W$	0.002	0.006	0.012	0.035	0.036	0.046
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	14.5	14.9	30.9	15.0	27.9	35.6
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	5	6.1	11	6.4	8.7	11
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	6	12	10	44	28	36
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	4	9	7	31	19	25
	Coil resistance per phase	Coils @ 25°C	R	Ω	0.73	1.02	0.38	2.45	0.95	1.28
	Coil induction per phase	$I < 0.63\ I_p$	L	mH	1.10	2.04	0.94	6.62	2.66	4.86
	Electrical time constant	Coils @ 25°C	τ_e	ms	1.5	2	2.5	2.7	2.8	3.8
	Max. Continuous Power Loss	All coils	P_C	W	71.2	146.6	177.5	291.2	279.6	604.6
	Poles		N_{mgn}	nr	8					
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	°C/W	1.50	0.80	0.58	0.37	0.37	0.11
	Temperature cut-off / sensor				Optional PTC 1kΩ / NTC					
Mechanical	**Stator OD**		Ods	mm	65					
	Rotor ID		Ods	mm	17					
	Rotor inertia		JR	Kg·cm²	0.04	0.078	0.13	0.25	0.25	0.42
	Total mass	Excluding cables	M_T	g	180	320	460	950	950	1600
	Cable type (power)	Length 0.5 m	d	mm (AWG)	Leadwires (4*1.5mm2)					

RoHS 2002/95/EC

CE

Winding C(mm)
N----------3
Y-Z----------5.5



KRT02S SERIES - IRON CORE TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

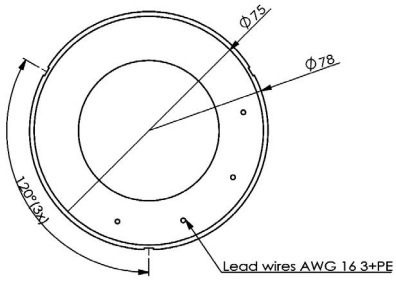
	Parameter	Remarks	Sym	Unit	KRT02S				
Performance	**Winding type**				II17N	II25Y	II34Y	II60Y	II92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 380 $V_{ac\ rms}$ (600V_{dc})				
	Peak torque @ 20ºC/s increase	Magnet @ 25ºC	T_p	Nm	1.5	3.5	5.5	13	21.7
	Continuous torque	Coil @ 100ºC	T_c	Nm	0.68	1.66	2.63	5.29	8.82
	Maximum speed @ 48 Volt	@T_c	N_{max}	rpm	2200	1962	1296	484	220
	Maximum speed @ max. voltage	@T_c	N_{max}	rpm	20000	17500	11500	4300	1900
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.14	0.16	0.24	0.64	1.40
	Motor constant	Coils @ 25ºC	K_m	$(Nm)^2/W$	0.006	0.019	0.034	0.093	0.340
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	14.1	30.1	31	27.6	20.9
	Maximum continuous current	Coils @ 100ºC	I_c	A_{rms}	4.9	10.5	11.1	8.3	6.3
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	12	14	20	55	121
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	9	10	14	39	85
	Coil resistance per phase	Coils @ 25ºC	R	Ω	1.11	0.44	0.56	1.44	1.92
	Coil induction per phase	I < 0.63 I_p	L	mH	1.78	0.97	1.34	4.48	6.53
	Electrical time constant	Coils @ 25ºC	τ_e	ms	1.6	2.2	2.4	3.1	3.4
	Max. Continuous Power Loss	All coils			102.5	190.9	266.7	390	297.2
	Poles		N_{mag}	nr	12				
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.99	0.54	0.39	0.26	0.16
	Temperature cut-off / sensor				Optional PTC 1kΩ / NTC				
Mechanical	**Stator OD**		Ods	mm	78				
	Rotor ID		Ods	mm	29				
	Rotor inertia		JR	Kg·cm²	0.13	0.25	0.38	0.76	1.27
	Total mass	Excluding cables	M_T	g	280	440	650	1300	2000
	Cable type (power)	Length 0.5 m	d	mm (AWG)	Leadwires (4*1.5mm2)				

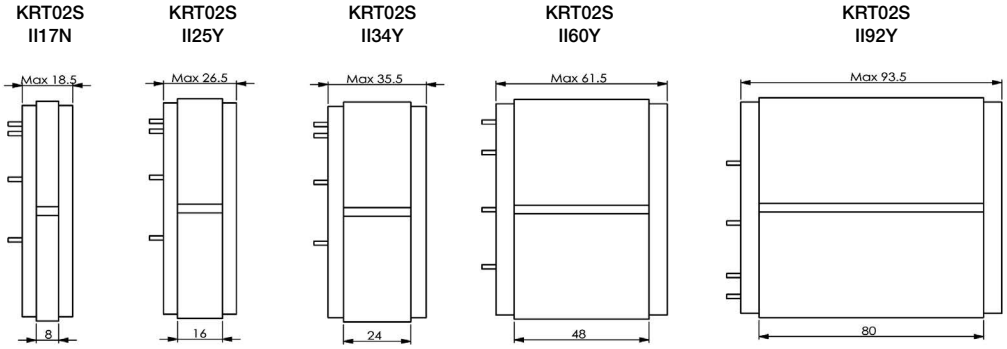
RoHS 2002/95/EC

CE

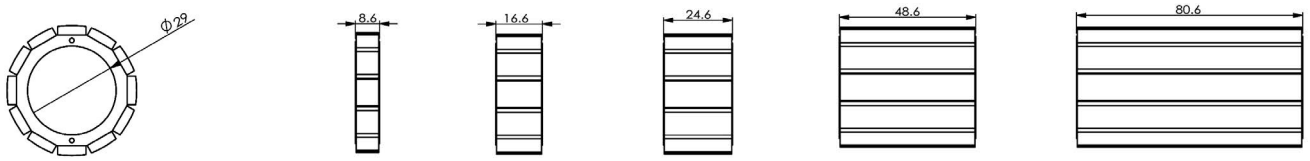
Winding C(mm)
N----------3
Y-Z----------5.5

STATOR





ROTOR



KRT03S SERIES - IRON CORE TORQUE MOTOR

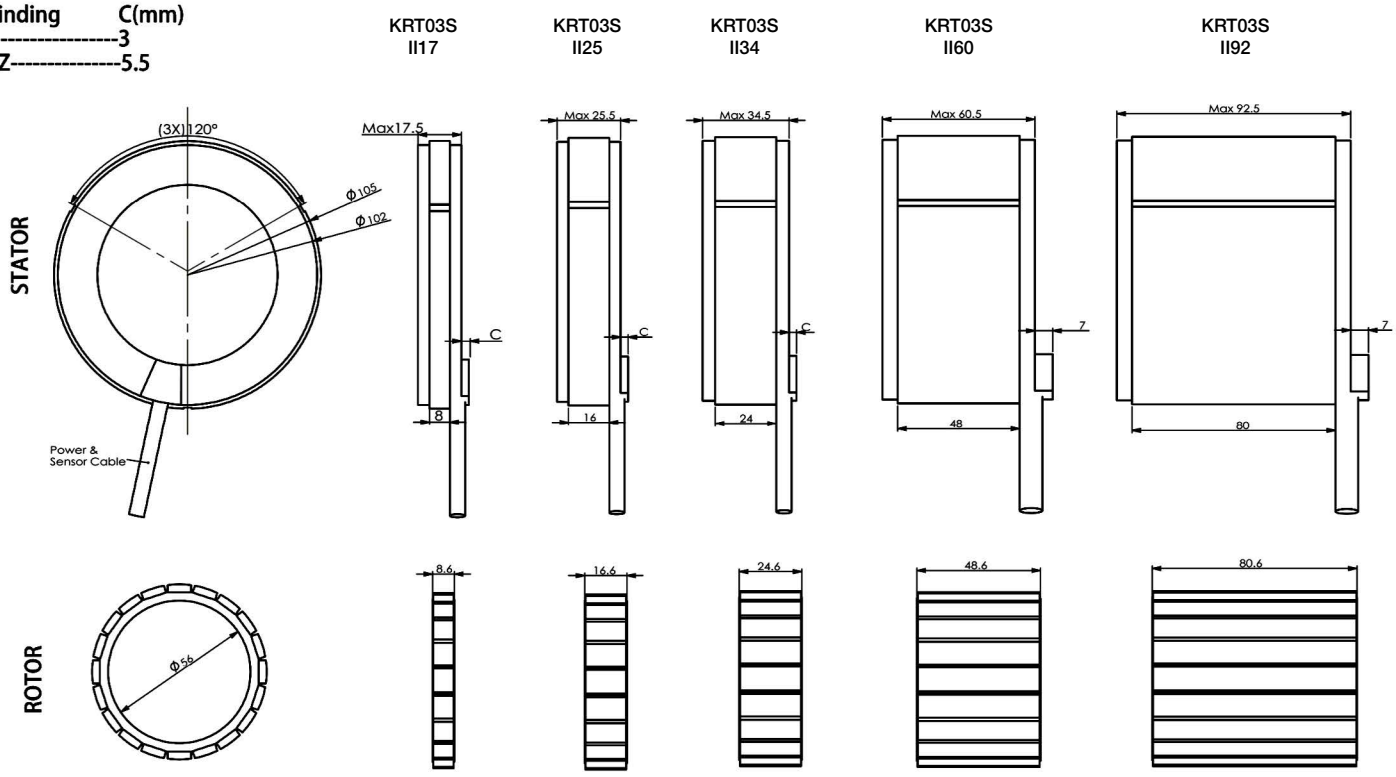
DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT03S										
Performance	**Winding type**				II17N	II17Y	II17I	II25N	II25Y	II25I	II34N	II34Y	II34I	II60N	II92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 230 $V_{ac\ rms}$ (320V_{dc})									380 $V_{ac\ rms}$ (600V_{dc})	
	Peak torque @ 20ºC/s increase	Magnet @ 25ºC	T_p	Nm	3.50	3.96	3.96	7.32	9	8.28	12.72	13.56	12.48	34	56
	Continuous torque	Coil @ 120ºC	T_c	Nm	1.7	1.7	1.7	3.8	4	4	6.5	6.2	6.2	14.4	24
	Maximum speed @ max. voltage	@T_c	N_{max}	rpm	5879	10583	17638	2940	5345	9203	1654	3528	6047	1157	1323
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.36	0.20	0.12	0.72	0.40	0.23	1.28	0.60	0.35	3.43	3
	Motor constant	Coils @ 25ºC	K_m	$(Nm)^2/W$	0.025	0.024	0.027	0.069	0.070	0.073	0.143	0.125	0.131	0.455	0.493
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	13.1	26.8	44.6	13.7	30.7	48.6	13.4	30.5	48.2	13.4	25.2
	Maximum continuous current	Coils @ 110ºC	I_c	A_{rms}	4.7	8.4	14	5.3	10.1	17.4	5.1	10.4	17.8	4.2	8
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	31	17	10	62	34	20	110	52	30	295	258
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	22	12	7	44	24	14	78	37	21	209	183
	Coil resistance per phase	Coils @ 25ºC	R	Ω	1.75	0.55	0.18	2.50	0.75	0.24	3.81	0.96	0.31	8.62	3.26
	Coil induction per phase	I < 0.63 I_p	L	mH	3.50	1.16	0.36	5.25	1.73	0.53	10.29	2.41	0.78	32.76	13.04
	Electrical time constant	Coils @ 25ºC	τ_e	ms	2	2.1	2	2.1	2.3	2.2	2.7	2.5	2.5	3.8	4
	Max. Continuous Power Loss	All coils	P_C	W	148.6	151.4	137.6	277.3	298.4	283.1	380.8	405.8	386.8	592.5	813.7
	Poles		N_{mag}	nr	20										
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.68			0.34			0.24			0.14	0.11
	Temperature cut-off / sensor				Optional PTC 1kΩ / NTC										
Mechanical	**Stator OD**		Ods	mm	105										
	Rotor ID		Ods	mm	56										
	Rotor inertia		JR	Kg·cm²	0.80			1.5			2.3			4.4	7.4
	Total mass	Excluding cables	M_T	g	320			620			960			1930	3120
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)	7.4(17)		6.6(20)	7.4(17)	8.4(15)	6.6(20)	8.4(15)	8.4(15)	6.6(20)	

RoHS 2002/95/EC

CE

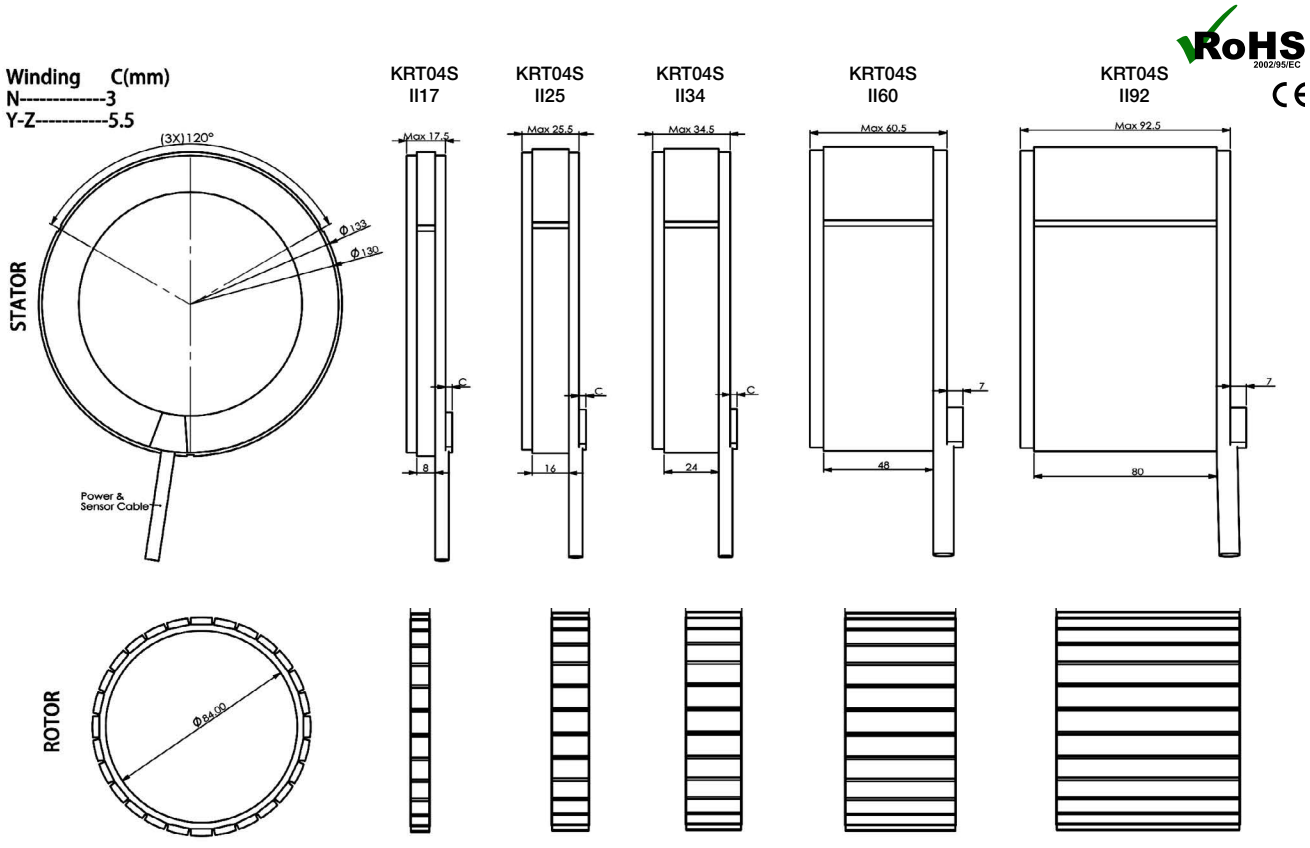
Winding C(mm)
N----------3
Y-Z----------5.5



KRT04S SERIES - IRON CORE TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

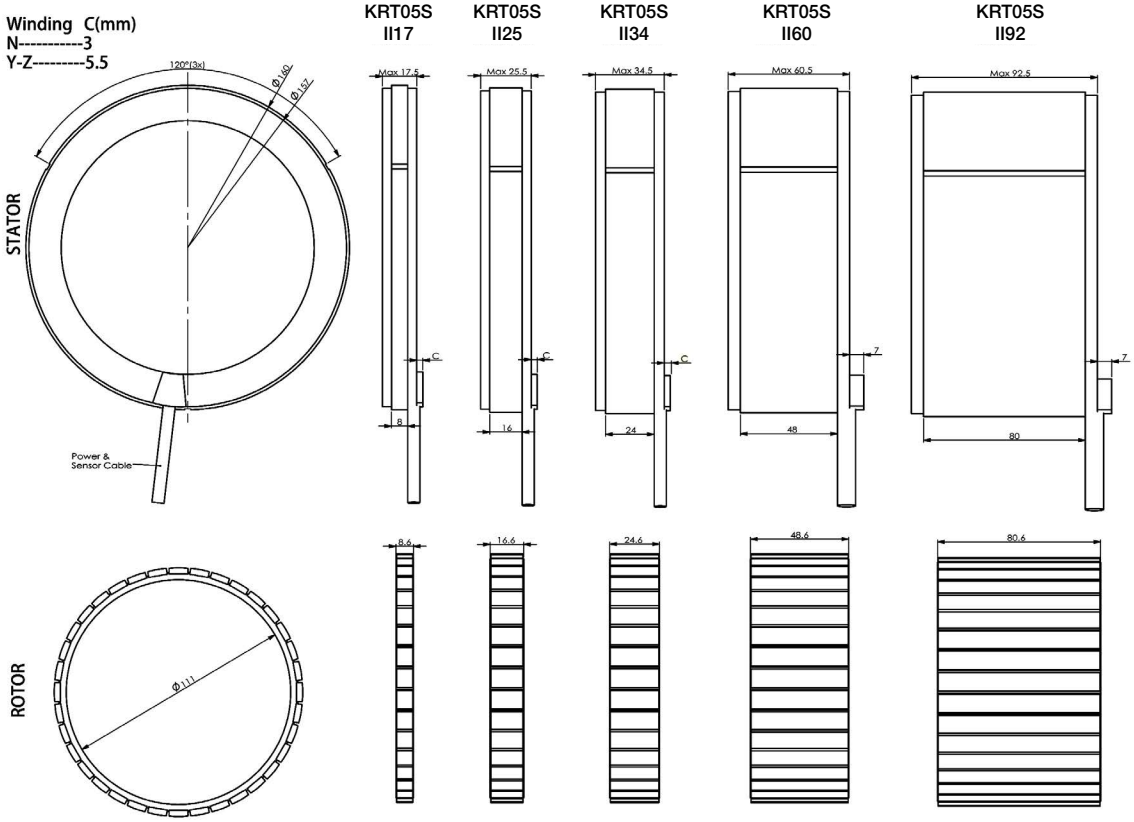
	Parameter	Remarks	Sym	Unit	KRT04S									
Performance	**Winding type**				II17N	II17Y	II17I	II25N	II25Y	II25I	II34N	II34I	II60N	II92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 230 $V_{ac\ rms}$ (320V_{dc})								380 $V_{ac\ rms}$ (600V_{dc})	
	Peak torque @ 20ºC/s increase	Magnet @ 25ºC	T_p	Nm	6.72	7.68	7.68	14.28	16.20	16.20	24.72	24.72	66.60	110
	Continuous torque	Coil @ 120ºC	T_c	Nm	3.20	3.20	3.20	7.60	7.80	7.80	13.00	12.40	28.00	46.70
	Maximum speed @ max. voltage	@T_c	N_{max}	rpm	3045	5345	9283	1521	2714	4642	843	3150	594	1018
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.70	0.40	0.23	1.39	0.78	0.46	2.51	0.67	6.68	3.90
	Motor constant	Coils @ 25ºC	K_m	(Nm)²/W	0.066	0.070	0.067	0.189	0.201	0.203	0.394	0.352	1.236	1.449
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	13.10	26.20	45.50	13.90	28.10	48.00	13.30	49.70	13.50	38.10
	Maximum continuous current	Coils @ 110ºC	I_c	A_{rms}	4.60	8.10	14.00	5.50	10.00	17.10	5.20	17.00	4.00	12.00
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	60	34	20	120	67	39	216	58	575	336
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	42	24	14	85	47	28	153	41	407	237
	Coil resistance per phase	Coils @ 25ºC	R	Ω	2.44	0.75	0.26	3.42	1.01	0.34	5.33	0.43	12.05	4.56
	Coil induction per phase	I < 0.63 I_p	L	mH	4.88	1.65	0.55	7.87	2.53	0.82	14.92	1.11	46.98	18.24
	Electrical time constant	Coils @ 25ºC	τ_e	ms	2.00	2.20	2.10	2.30	2.50	2.40	2.80	2.60	3.90	4.00
	Max. Continuous Power Loss	All coils	P_C	W	201.7	191	199.7	397.6	393.9	389.1	557.6	563.8	824.4	2546.7
	Poles		N_{mag}	nr	28									
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.50			0.28			0.20		0.13	0.0955
	Temperature cut-off / sensor				Optional PTC 1kΩ / NTC									
Mechanical	**Stator OD**		Ods	mm	133									
	Rotor ID		Ods	mm	84									
	Rotor inertia		JR	Kg·cm²	2.1			4.2			6.2		12	18
	Total mass	Excluding cables	M_T	g	550			955			1370		2750	430
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)	7.4(17)		6.6(20)	7.4(17)	8.4(15)	6.6(20)	8.4(15)	6.6(20)	7.4(17)



KRT05S SERIES - IRON CORE TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

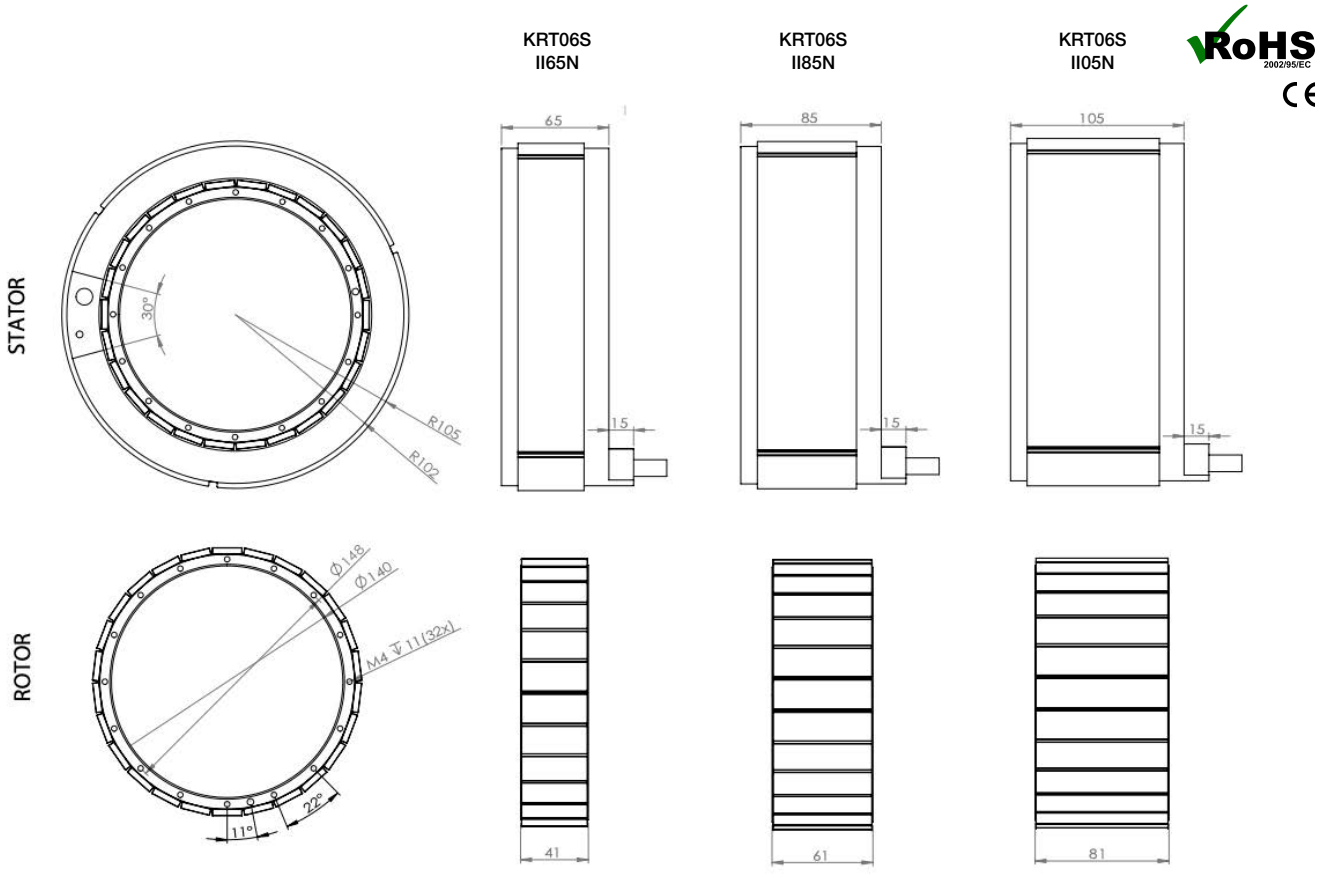
	Parameter	Remarks	Sym	Unit	KRT05S										
Performance	**Winding type**				II17N	II17Y	II17I	II25N	II25Y	II25I	II34N	II34I	II60N	II60Y	II92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 230 $V_{ac\ rms}$ (320V_{dc})								380 $V_{ac\ rms}$ (600V_{dc})		
	Peak torque @ 20ºC/s increase	Magnet @ 25ºC	T_p	Nm	11.16	12.72	12.72	23.52	26.88	26.88	40.92	40.30	110	84	183.20
	Continuous torque	Coil @ 120ºC	T_c	Nm	4.92	5.04	5.04	11.28	11.64	11.64	18.84	18.00	43.56	44	72.00
	Maximum speed @ max. voltage	@T_c	N_{max}	rpm	1837	3266	5690	916	1648	2845	511	1890	361	650	397
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	1.15	0.65	0.37	2.31	1.28	0.74	4.14	1.12	11.00	6.11	10.00
	Motor constant	Coils @ 25ºC	K_m	(Nm)²/W	0.140	0.147	0.149	0.407	0.423	0.418	0.832	0.760	2.605	2.910	4.263
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	13.10	26.50	46.20	13.80	28.30	48.80	13.40	48.60	13.50	16.00	24.80
	Maximum continuous current	Coils @ 110ºC	I_c	A_{rms}	4.30	7.80	13.50	4.90	9.10	16.00	4.60	16.10	4.00	7.20	7.20
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	99	56	32	199	111	64	356	96	947	526	861
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	70	39	23	141	78	45	252	68	670	372	609
	Coil resistance per phase	Coils @ 25ºC	R	Ω	3.15	0.95	0.31	4.37	1.30	0.44	6.87	0.55	15.49	4.27	5.86
	Coil induction per phase	I < 0.63 I_p	L	mH	6.62	2.09	0.68	10.05	3.25	1.10	19.92	1.43	61.94	17.08	24.61
	Electrical time constant	Coils @ 25ºC	τ_e	ms	2.10	2.20	2.20	2.30	2.50	2.50	2.90	2.60	4.00	4.00	4.20
	Max. Continuous Power Loss	All coils	P_C	W	224.1	224.1	221.9	406.4	416	421	554.9	554	947.1	864.9	1184.8
	Poles		N_{mag}	nr	36										
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.43			0.23			0.17		0.1	0.1	0.06
	Temperature cut-off / sensor				Optional PTC 1kΩ / NTC										
Mechanical	**Stator OD**		Ods	mm	160										
	Rotor ID		Ods	mm	111										
	Rotor inertia		JR	Kg·cm²	4.6			9.2			14		26	26	42
	Total mass	Excluding cables	M_T	g	650			1150			1600		3300	3300	5500
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)	7.4(17)		6.6(20)	7.4(17)	8.4(15)	6.6(20)	8.4(15)	6.6(20)		



KRT06S SERIES - IRON CORE TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT06S		
Performance	**Winding type**				II65N	II85N	II05N
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 380 $V_{ac\ rms}$ (560V_{dc})		
	Peak torque @ 20°C/s increase	Magnet @ 25°C	T_p	Nm	175	260	350
	Continuous torque	Coil @ 110°C	T_c	Nm	68	105	145
	Stall torque	Coil @ 110°C	T_c	Nm	48	74	102
	Maximum speed	@T_c 560Vdc	N_{max}	rpm	426	283	212
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	8.70	13.10	17.50
	Motor constant	Coils @ 25°C	K_m	$(Nm)^2/W$	6.500	10.896	15.705
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	27.20	26.80	27.00
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	7.80	8.00	8.30
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	749	1128	1507
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	530	798	1066
	Coil resistance per phase	Coils @ 25°C	R	Ω	3.93	5.25	6.50
	Coil induction per phase	I < 0.63 I_p	L	mH	15.50	22.00	28.00
	Electrical time constant	Coils @ 25°C	τ_e	ms	4.00	4.20	4.30
	Max. Continuous Power Loss	Coils @ 100°C	P_c	W	924.8	1270	1685
	Poles		N_{mgn}	nr	26		
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	°C/W	0.097	0.071	0.053
	Temperature cut-off / sensor				Optional PTC 110/ NTC 10kΩ		
Mechanical	**Stator OD**		Ods	mm	210		
	Rotor ID		Ods	mm	140		
	Rotor inertia		JR	Kg·cm²	90	140	190
	Rotor mass		W_r	g	16000	24000	32000
	Total mass	Excluding cables	M_T	g	58000	83000	107000



KRT07S SERIES - IRON CORE TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT07S		
Performance	**Winding type**				II65N	II85N	II05N
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 380 $V_{ac\ rms}$ ($560V_{dc}$)		
	Peak torque @ 20°C/s increase	Magnet @ 25°C	T_p	Nm	400	600	800
	Continuous torque	Coil @ 110°C	T_c	Nm	145	228	315
	Stall torque	Coil @ 110°C	T_c	Nm	102	160	221
	Maximum speed	@T_c 560Vdc	N_{max}	rpm	185	123	95
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	20.00	30.00	39.50
	Motor constant	Coils @ 25°C	K_m	$(Nm)^2/W$	22.599	38.071	52.854
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	27.00	27.00	27.40
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	7.30	7.60	8.00
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	1722	2583	3401
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	1218	1827	2405
	Coil resistance per phase	Coils @ 25°C	R	Ω	5.90	7.88	9.84
	Coil induction per phase	I < 0.63 I_p	L	mH	23.50	34	45
	Electrical time constant	Coils @ 25°C	τ_e	ms	4.00	4.30	4.60
	Poles		N_{mgn}	nr	38		
Thermal	**Continuous power loss**	Coils @ 100°C	P_c	W	1209	1775	2441
	Thermal resistance	Coils to mount. sfc.	R_{th}	°C/W	0.051	0.037	0.053
	Temperature cut-off / sensor				Optional PTC 110/ NTC 10kΩ		
Mechanical	**Stator OD**		Ods	mm	290		
	Rotor ID		Ods	mm	220		
	Rotor inertia		JR	Kg·cm²	310	460	610
	Rotor mass		W_r	g	23000	35000	47000
	Total mass	Excluding cables	M_T	g	83000	118000	155000

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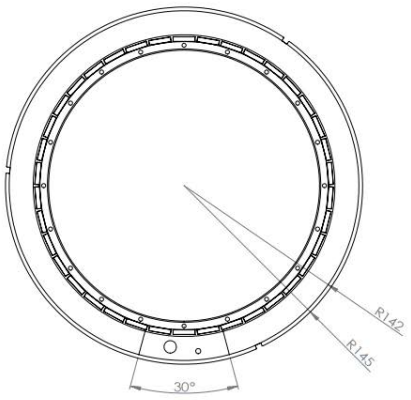
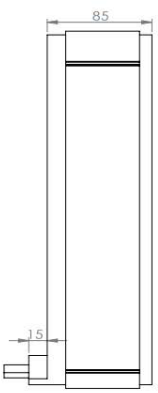
STATOR



KRT07S II65N

KRT07S II85N



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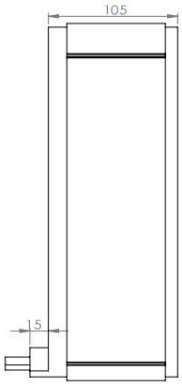
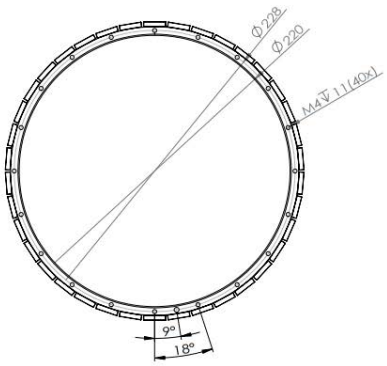


ROTOR



KRT91S SERIES - IRONLESS TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT91S				
Performance	**Winding type**				UI17N	UI25N	UI34Y	UI60Y	UI92Y
	Motortype, max voltage ph-ph				3 Phase synchronous slotless 220V-380Vac rms (48V-600V)				
	Peak torque @ 20°C/s increase	Magnet @ 25°C	T_p	Nm	0.28	0.85	1.44	3.84	6.40
	Continuous torque	Coil @ 100°C	T_c	Nm	0.07	0.21	0.36	0.96	1.60
	Maximum speed @320 Volt	@T_c	N_{max}	rpm	30000	30000	30000	30000	30000
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.015	0.030	0.025	0.067	0.113
	Motor constant	Coils @ 25°C	K_m	$(Nm)^2/W$	0.0001	0.0003	0.0005	0.0016	0.0033
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	18.7	28.4	58.8	57.5	56.6
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	4.7	7.1	14.7	14.4	14.2
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	1.29	2.58	2.11	5.75	9.73
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	0.91	1.83	1.49	4.06	6.88
	Coil resistance per phase	Coils @ 25°C	R	Ω	0.73	1.02	0.38	0.95	1.28
	Coil induction per phase	I < 0.63 I_p	L	mH	0.37	0.67	0.30	1.08	1.72
	Electrical time constant	Coils @ 25°C	τ_e	ms	0.50	0.70	0.80	1.10	1.30
	Max. Continuous Power Loss	All coils	P_C	W	62	200.5	315.8	766.4	1000.8
	Poles		N_{mgn}	nr	8				
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	°C/W	1.50	0.80	0.58	0.37	0.11
	Temperature cut-off / sensor				PTC 1kΩ / NTC				
Mechanical	**Stator OD**		Ods	mm	65				
	Rotor ID		Ods	mm	15				
	Rotor inertia		JR	Kg·cm²	0.031	0.062	0.092	0.18	0.32
	Total mass	Excluding cables	M_T	g	180	320	460	950	1600
	Cable type (power)	Length 0.5 m	d	mm (AWG)	Leadwires (4*1.5mm2)				

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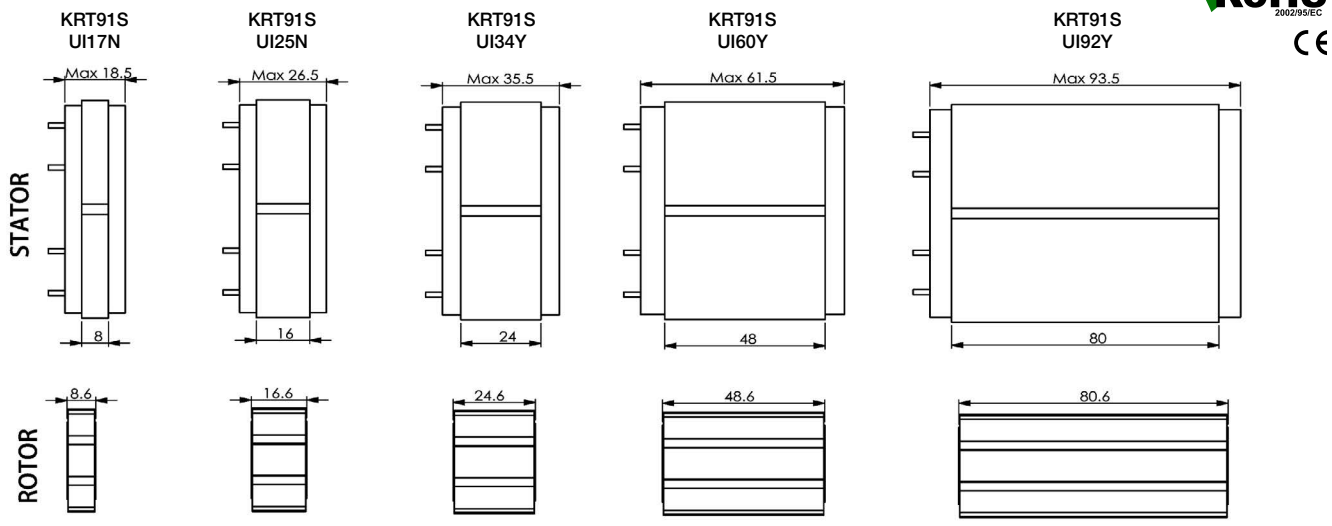

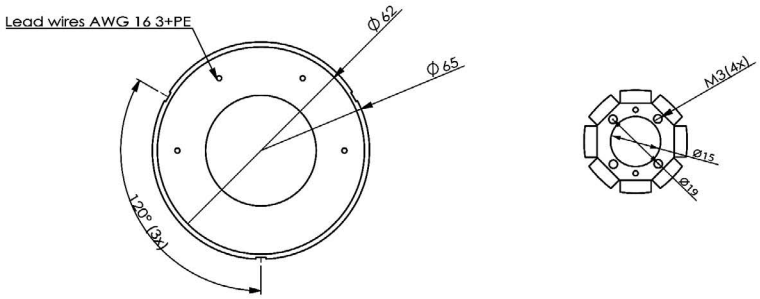

KRT92S SERIES - IRONLESS TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT92S				
Performance	**Winding type**				UI17N	UI25Y	UI34Y	UI60Y	UI92Y
	Motortype, max voltage ph-ph				3 Phase synchronous slotless 220V-380Vac rms (48V-600Vdc)				
	Peak torque @ 6°C/s increase	Magnet @ 25°C	T_p	Nm	0.57	1.38	2.20	4.40	7.33
	Continuous torque	Coil @ 100°C	T_c	Nm	0.14	0.35	0.54	1.10	1.80
	Maximum speed @ 48 Volt	@T_c	N_{max}	rpm	3000	3000	3000	3000	3000
	Maximum speed @320 Volt	@T_c	N_{max}	rpm	25000	25000	25000	25000	25000
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.027	0.033	0.05	0.13	0.28
	Motor constant	Coils @ 25°C	K_m	$(Nm)^2/W$	0.0002	0.0008	0.0015	0.0039	0.0084
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	21.00	41.80	44.00	33.80	26.00
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	4.90	11.00	11.10	8.30	6.40
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	2.30	2.80	4.30	11.20	24.10
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	1.60	2.00	3.00	7.90	170
	Coil resistance per phase	Coils @ 25°C	R	Ω	1.11	0.44	0.56	1.44	1.92
	Coil induction per phase	$I < 0.63\ I_p$	L	mH	0.67	0.40	0.56	1.88	2.88
	Electrical time constant	Coils @ 25°C	τ_e	ms	0.60	0.90	1.00	1.30	1.50
	Max. Continuous Power Loss	All coils	P_c	W	116.80	187.60	254.30	403.30	309.50
	Poles		N_{mgn}	nr	12				
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	°C/W	0.99	0.54	0.39	0.26	0.14
	Temperature cut-off / sensor				PTC 1kΩ / NTC				
Mechanical	**Stator OD**		Ods	mm	78				
	Rotor ID		Ods	mm	27				
	Rotor inertia		JR	Kg·cm²	0.13	0.25	0.38	0.75	1.27
	Total mass	Excluding cables	M_T	g	280	440	650	1300	2000
	Cable type (power)	Length 0.5 m	d	mm (AWG)	Leadwires (4*1.5mm2)				

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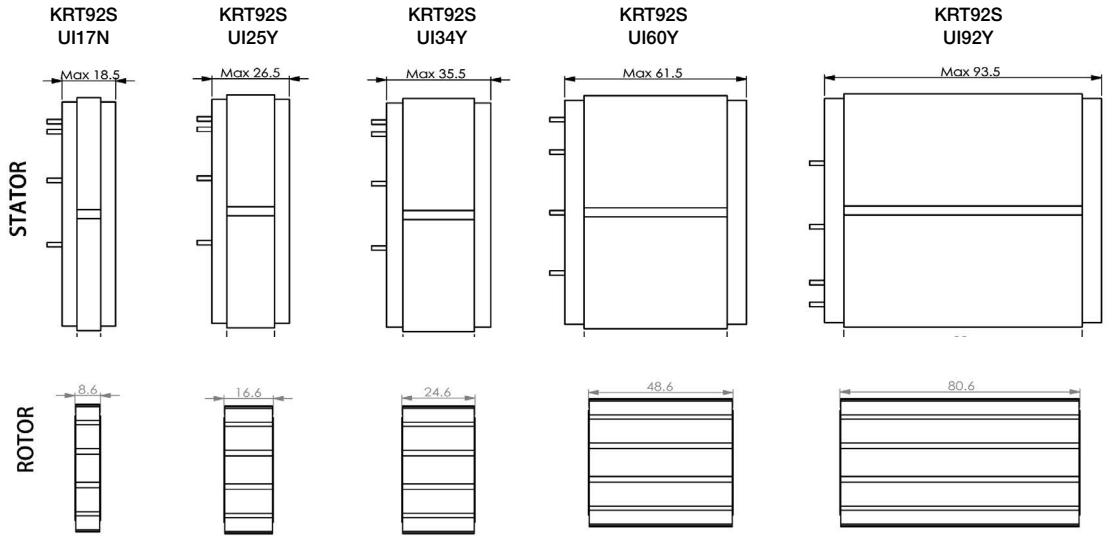

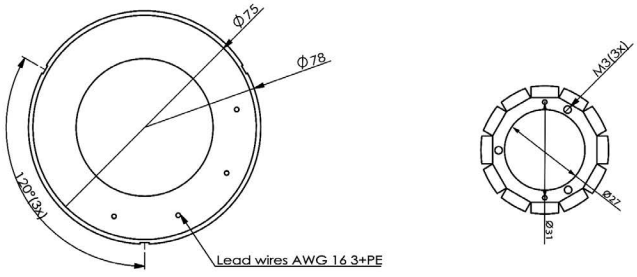

KRT93S SERIES - IRONLESS TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT93S										
Performance	**Winding type**				UI17N	UI17Y	UI17I	UI25N	UI25Y	UI25I	UI34N	UI34Y	UI34I	UI60N	UI92Y
	Motortype, max voltage ph-ph				3-phase synchronous Iron core, 230 $V_{ac\ rms}$ (320V_{dc})									380 $V_{ac\ rms}$ (600V_{dc})	
	Peak torque @ 20°C/s increase	Magnet @ 25°C	T_p	Nm	1.20	1.20	1.20	3.20	3.20	3.20	5.40	5.40	5.40	12.00	20.00
	Continuous torque	Coil @ 100°C	T_c	Nm	0.32	0.32	0.32	0.80	0.80	0.80	1.35	1.35	1.35	3.00	5.00
	Maximum speed @ 48 Volt	@T_c	N_{max}	rpm	20000	30000	50000	10000	20000	30000	5000	10000	20000	3000	3000
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.07	0.04	0.02	0.15	0.08	0.05	0.26	0.13	0.07	0.71	0.60
	Motor constant	Coils @ 25°C	K_m	(Nm)²/W	0.0009	0.0009	0.0009	0.0029	0.0028	0.0031	0.0061	0.0054	0.0058	0.0197	0.0199
Electrical	**Peak current**	Magnet @ 25°C	I_p	A_{rms}	17.30	31.90	55.10	21.60	40.00	68.00	20.40	43.20	73.60	16.80	33.20
	Maximum continuous current	Coils @ 100°C	I_c	A_{rms}	4.60	8.50	14.70	5.40	10.00	17.00	5.10	10.80	18.40	4.20	8.30
	Back EMF Phase-Phase$_{peak}$	25°C+/-10%	K_e	V/krpm	6	3	2	13	7	4	23	11	6	62	52
	Back EMF Phase-Phase$_{RMS}$	C25°C+/-10%	K_e	V/krpm	4	2	1	9	5	3	16	8	4	43	37
	Coil resistance per phase	Coils @ 25°C	R	Ω	1.75	0.55	0.18	2.50	0.75	0.24	3.81	0.96	0.31	8.62	6.08
	Coil induction per phase	I < 0.63 I_p	L	mH	1.61	0.56	0.16	3.00	0.75	0.25	4.99	1.25	0.37	16.01	12.75
	Electrical time constant	Coils @ 25°C	τ_e	ms	0.90	1.00	0.90	1.20	1.00	1.00	1.20	1.30	1.20	1.80	1.90
	Max. Continuous Power Loss	All coils	P_c	W	144.40	155	151.70	284.30	292.50	270.50	386.50	437.60	412	593	1633.50
	Poles		N_{mgn}	nr	20										
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	°C/W	0.68	0.68	0.68	0.34	0.34	0.34	0.24	0.24	0.24	0.14	0.11
	Temperature cut-off / sensor				PTC 1kΩ / NTC										
Mechanical	**Stator OD**		Ods	mm	105										
	Rotor ID		Ods	mm	52										
	Rotor inertia		JR	Kg·cm²	0.76			1.50			2.20			4.50	7.58
	Total mass	Excluding cables	M_T	g	320			620			960			1930	3120
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)		7.4(17)	6.6(20)	7.4(17)	8.4(15)	6.6(20)	8.4(15)	8.4(15)	6.6(20)	

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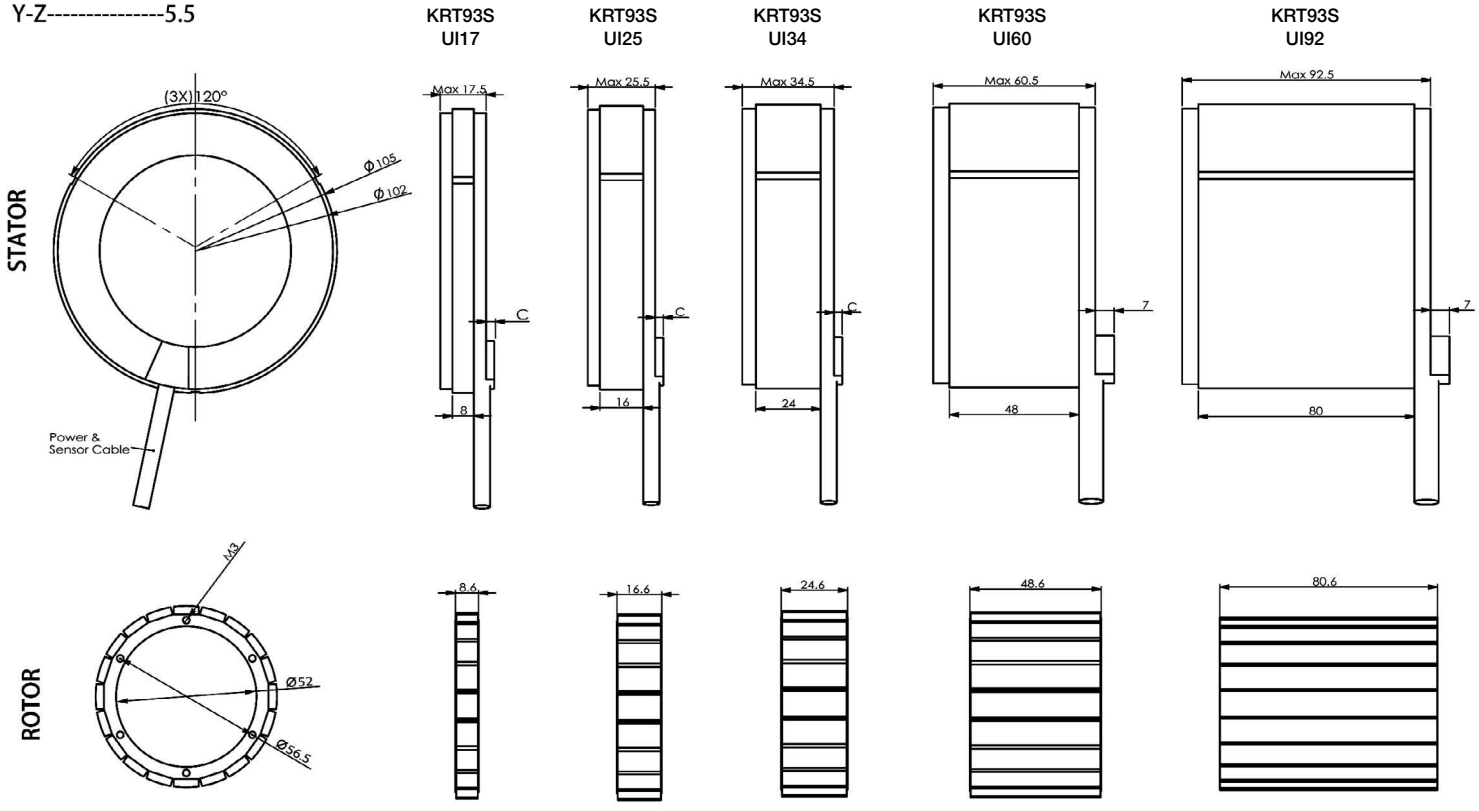
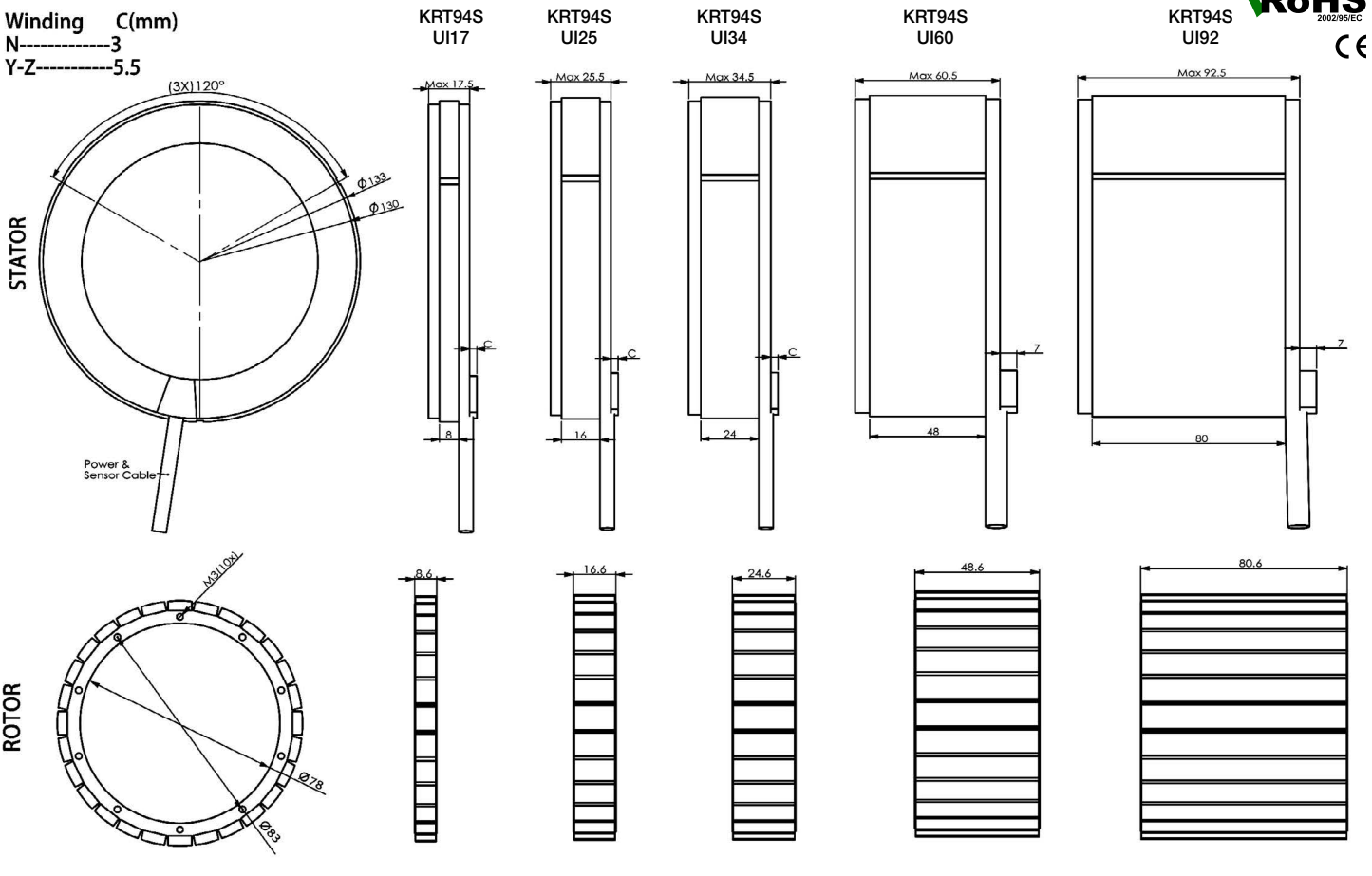
Winding C(mm)
N----------3
Y-Z----------5.5



KRT94S SERIES - IRONLESS TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

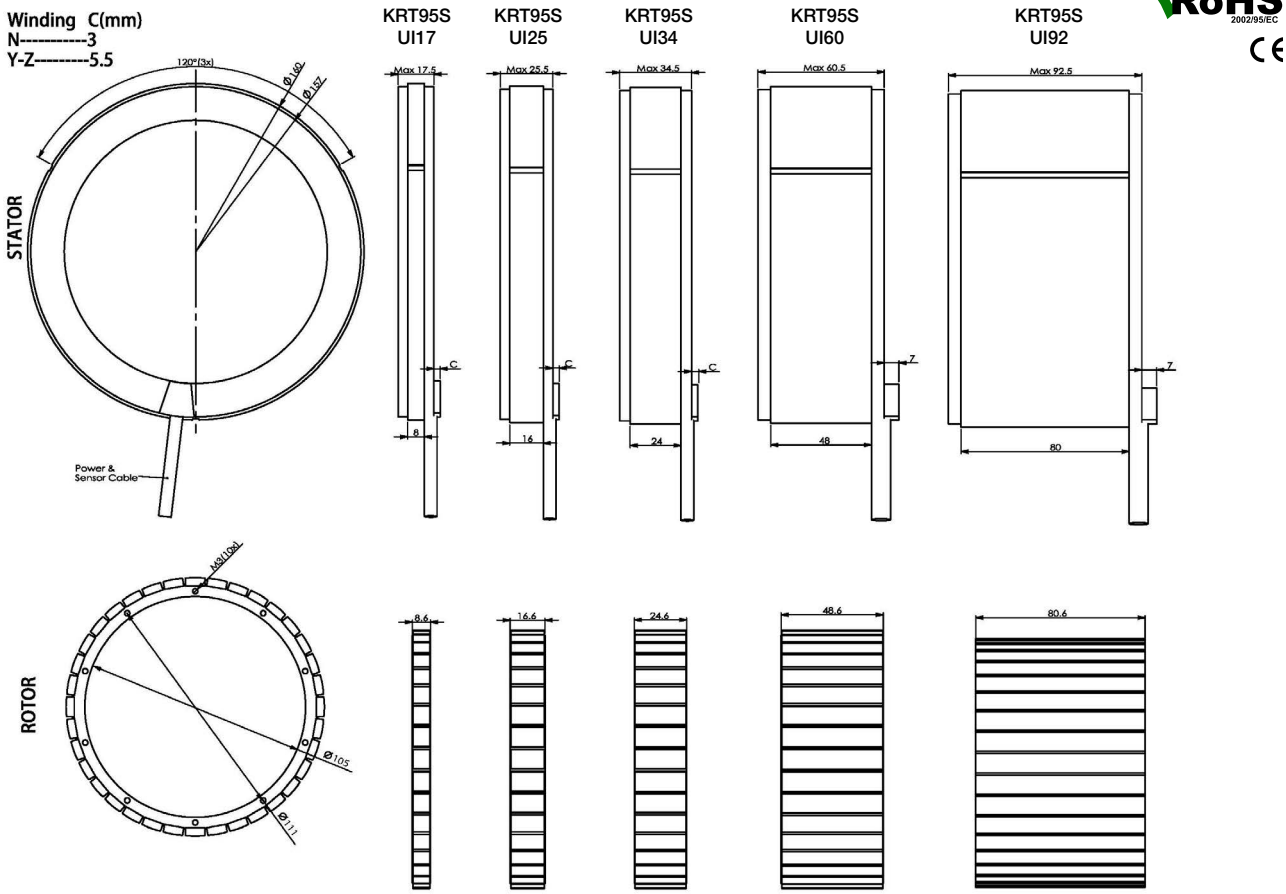
	Parameter	Remarks	Sym	Unit	KRT94S											
Performance	**Winding type**				UI17N	UI17Y	UI17I	UI25N	UI25Y	UI25I	UI34N	UI34Y	UI34I	UI60N	UI60Y	UI92Y
	Motortype, max voltage ph-ph				3 Phase synchronous slotless 220V-380Vac rms (48V-600Vdc)									380Vac rms (600Vdc)		
	Peak torque @ 20ºC/s increase	Magnet @ 25ºC	T_p	Nm	2.70	2.70	2.80	6.00	6.00	6.00	10.00	10.00	10.00	22.00	22.00	36.80
	Continuous torque	Coil @ 100ºC	T_c	Nm	0.70	0.70	0.70	1.50	1.50	1.50	2.50	2.40	2.50	5.50	5.50	9.20
	Maximum speed @ 48 Volt	@T_c	N_{max}	rpm	14111	25501	44096	7055	12985	22280	4047	8819	15119	2835	11339	1725
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.150	0.083	0.048	0.300	0.163	0.095	0.523	0.24	0.140	1.400	0.35	2.300
	Motor constant	Coils @ 25ºC	K_m	$(Nm)^2/W$	0.003	0.003	0.003	0.009	0.009	0.009	0.017	0.015	0.015	0.054	0.051	0.504
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	18.00	32.00	58.00	20.00	36.80	63.20	19.10	41.70	71.40	15.70	72.90	16.00
	Maximum continuous current	Coils @ 100ºC	I_c	A_{rms}	4.50	8.00	14.60	5.00	9.20	16.00	4.80	10.00	17.90	3.90	16.00	4.00
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	13	7	4	26	14	8	45	21	12	121	30	198
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	9	5	3	18	10	6	32	15	9	85	21	140
	Coil resistance per phase	Coils @ 25ºC	R	Ω	2.44	0.75	0.26	3.42	1.01	0.34	5.33	1.28	0.43	12.05	0.80	4.56
	Coil induction per phase	I < 0.63 I_p	L	mH	2.44	0.75	0.26	3.42	1.01	0.34	5.33	1.28	0.43	12.05	0.80	4.56
	Electrical time constant	Coils @ 25ºC	τ_e	ms	1											
	Max. Continuous Power Loss	All Coils	P_c	W	192.70	187.20	215.70	333.50	333.60	331.60	475.00	499.20	532.30	725.00	770.40	284.50
	Poles		N_{mgn}	nr	28											
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.50	0.50	0.50	0.28	0.28	0.28	0.20	0.20	0.20	0.13	0.13	0.095
	Temperature cut-off / sensor				PTC 1kΩ / NTC											
Mechanical	**Stator OD**		Ods	mm	133											
	Rotor ID		Ods	mm	78											
	Rotor inertia		JR	Kg·cm²	2.49			4.86			7.20			14.40		24.60
	Total mass	Excluding cables	M_T	g	550			955			1370			2750		4300
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)		7.4(17)	6.6(20)	7.4(17)	8.4(15)	6.6(20)	8.4(15)		8.4(15)		8.4(15)



KRT95S SERIES - IRONLESS TORQUE MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRT95S									
Performance	**Winding type**				UI17N	UI17Y	UI17I	UI25N	UI25Y	UI25I	UI34N	UI34I	UI60N	UI92Y
	Motortype, max voltage ph-ph				3 phases synchronous slotless 230Vac rms (320Vdc)								380Vac rms (600Vdc)	
	Peak torque @20ºC/s increase	Magnet @ 25ºC	T_p	Nm	4.10	4.10	4.10	9.70	9.70	9.70	15.90	15.00	36.40	60.80
	Continuous torque	Coil @ 100ºC	T_c	Nm	1.03	1.03	1.03	2.43	2.43	2.43	3.98	3.75	9.10	15.20
	Maximum speed @ 48 Volt	@T_c	N_{max}	rpm	8819	15679	26458	4410	7898	13656	2453	9407	1725	1036
	Motor torque constant	Up to I_c	K_t	Nm/A_{rms}	0.24	0.14	0.08	0.48	0.27	0.16	0.86	0.23	2.30	3.83
	Motor constant	Coils @ 25ºC	K_m	$(Nm)^2/W$	0.006	0.006	0.007	0.018	0.018	0.018	0.036	0.031	0.114	0.625
Electrical	**Peak current**	Magnet @ 25ºC	I_p	A_{rms}	17.20	30.50	51.50	20.30	36.30	62.70	18.40	66.70	15.80	15.90
	Maximum continuous current	Coils @ 100ºC	I_c	A_{rms}	4.30	7.60	12.90	5.10	9.10	15.70	4.60	16.70	4.00	4.00
	Back EMF Phase-Phase$_{peak}$	25ºC+/-10%	K_e	V/krpm	21	12	7	41	23	13	74	19	198	330
	Back EMF Phase-Phase$_{RMS}$	C25ºC+/-10%	K_e	V/krpm	15	8	5	29	16	9	53	14	140	233
	Coil resistance per phase	Coils @ 25ºC	R	Ω	3.15	0.95	0.31	4.37	1.30	0.44	6.87	0.55	15.49	5.86
	Coil induction per phase	I < 0.63 I_p	L	mH	3.78	1.24	0.40	6.12	1.95	0.66	10.99	0.88	26.33	16.47
	Electrical time constant	Coils @ 25ºC	τ_e	ms	1.20	1.30	1.30	1.40	1.50	1.50	1.60	1.60	1.70	2.90
	Max. Continuous Power Loss	All coils	P_c	W	226.3	215.7	200.4	436.8	416.2	422.7	568.4	595.8	945.4	348.9
	Poles		N_{mgn}	nr	36									
Thermal	**Thermal resistance**	Coils to mount. sfc.	R_{th}	ºC/W	0.43	0.43	0.43	0.23	0.23	0.23	0.17	0.17	0.10	0.06
	Temperature cut-off / sensor				Optional PTC 1kΩ/NTC									
Mechanical	**Stator OD**		Ods	mm	160									
	Rotor ID		Ods	mm	105									
	Rotor inertia		JR	Kg·cm²	5.70			11.00			16.00		33.60	57.50
	Total mass	Excluding cables	M_T	g	0.65			1.15			1.60		3.30	5.50
	Cable type (power)	Length 0.5 m	d	mm (AWG)	6.6(20)		7.4(17)	6.6(20)	7.4(17)	8.4(17)	6.6(20)	8.4(17)	6.6(20)	6.6(17)



KRTS1S SERIES - SEGMENT IRONLESS MOTOR

DIMENSIONS AND SPECIFICATIONS

	Parameter	Remarks	Sym	Unit	KRTS1S
Performance	**Winding type**				UI06H
	Motortype, max voltage ph-ph				3 Phase synchronous ironless 230Vac rms (320Vdc)
	Peak torque @ 6ºC/s increase	Magnet @ 25ºC	T_p	Nm	40
	Continuous force	Coil @ 110ºC	T_c	Nm	11
Electrical	**Current@Tp**		I_p	A_{mps}	10.5
	Max. Current@Tc		I_c	A_{mps}	3
	Maximum speed	@Tc@320Vrms	nmax	R_{mp}	576
	Motor torque constant		Kt	Nm/A_{rms}	3.67
	Motor constant	Coil@25ºC	Km	Nm^2/W	1.6
	Back EMF constant	25ºC+/-10%	Bemf	V/(rad/sec)	2.12
	Coil resistance per phase	Coils @ 25ºC		Ω	2.75
	Coil induction per phase	$I < 0.63\ I_p$	Lph	mH	0.9
	Electrical time constant	Coils @ 25ºC	τ_e	ms	0.33
	Max. Continuous Power Loss	All Coils	P_c	W	98
Mechanical	**Coil Unit Weight**	ex.cables	Wc	kg	0.16
	Magnet Yoke 72°Weight		Wm	kg	0.98
	Magnet Pitch	N-N	τ	Degree	9

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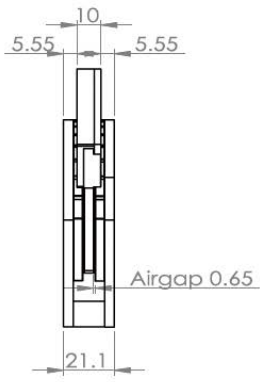
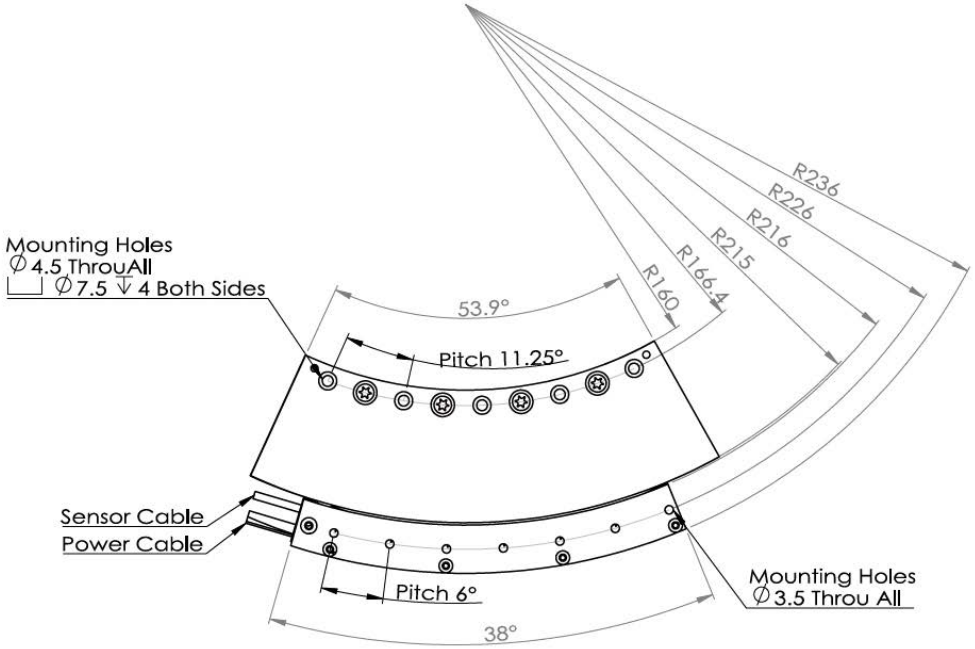




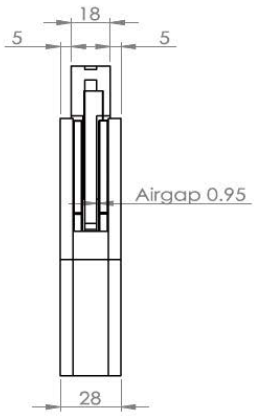
KRTS2S SERIES - SEGMENT IRONLESS MOTOR

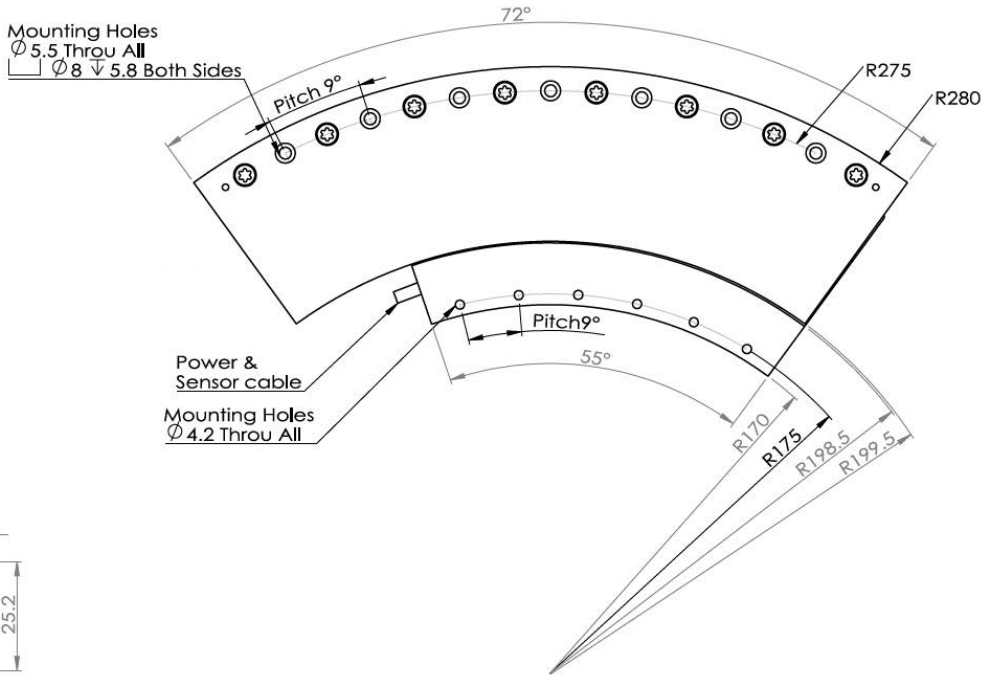
DIMENSIONS AND SPECIFICATIONS

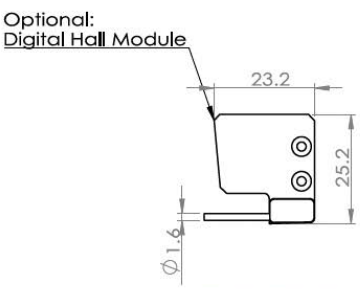
	Parameter	Remarks	Sym	Unit	KRTS2S
Performance	**Winding type**				UI09N
	Motortype, max voltage ph-ph				3 Phase synchronous ironless 230Vac rms (320Vdc)
	Peak torque @ 6ºC/s increase	Magnet @ 25ºC	T_p	Nm	142
	Continuous force	Coil @ 100ºC	T_c	Nm	35.6
Electrical	**Current@Tp**		I_p	A_{mps}	12
	Max. Current@Tc		I_c	A_{mps}	3
	Maximum speed	@Tc@320Vrms	nmax	R_{mp}	456
	Motor torque constant		Kt	Nm/A_{rms}	11.3
	Motor constant	Coil@25ºC	Km	Nm^2/W	10.64
	Back EMF constant	25ºC+/-10%	Bemf	V/(rad/sec)	6.5
	Coil resistance per phase	Coils @ 25ºC		Ω	4.2
	Coil induction per phase	$I < 0.63\ I_p$	Lph	mH	4
	Electrical time constant	Coils @ 25ºC	τ_e	ms	0.95
	Max. Continuous Power Loss	All coils	P_c	W	155
Mechanical	**Coil Unit Weight**	ex.cables	Wc	Kg	0.6
	Magnet Yoke 72°Weight		Wm	kg	3.2
	Magnet Pitch	N-N	τ	Degree	9

RoHS 2002/95/EC

CE







KRT TORQUE MOTOR COIL

ORDER CODE

Type
KRT - Torque motor

KRT □□S - □□□□□ - □□□ - □□

Motor size (□□)
Size Iron core:
01 - KRT01S
02 - KRT02S
03 - KRT03S
04 - KRT04S
05 - KRT05S
06 - KRT06S
07 - KRT07S

Size Ironless:
91 - KRT91S
92 - KRT92S
93 - KRT93S
94 - KRT94S
95 - KRT95S

Size Segment:
S1 - KRTS1S
S2 - KRTS2S

Motor (□□)
Motor technology:
II - Iron core motor
UI - Ironless motor

Winding (□)
Motor winding:
N - Standard winding
H - High-speed winding
I - Low voltage winding
Y - MedUIm voltage winding

Connectors (□□)
Typ [2]:
04A - Cable with connector M23
05A - Cable without connector
06A - Cable with connector Y-TEC

Cable (□□□)
Cable length in cm
Max. cable lenght 50 cm

Peak torque, Nm (aircooled) [1] (□□)

KRT01S	**17** - 0.77Nm **25** - 1.54Nm **34** - 2.70Nm **60** - 6.60Nm **92** - 11.00Nm	KRT91S	**17** - 0.28Nm **25** - 0.85Nm **34** - 1.44Nm **60** - 3.84Nm **92** - 6.40Nm
KRT02S	**17** - 1.50Nm **25** - 3.50Nm **34** - 5.50Nm **60** - 13.00Nm **92** - 21.70Nm	KRT92S	**17** - 0.57Nm **25** - 1.38Nm **34** - 2.20Nm **60** - 4.40Nm **92** - 7.33Nm
KRT03S	**17** - 3.50Nm **25** - 7.32Nm **34** - 12.72Nm **60** - 34.00Nm **92** - 56.00Nm	KRT93S	**17** - 1.20Nm **25** - 3.20Nm **34** - 5.40Nm **60** - 12.00Nm **92** - 20.00Nm
KRT04S	**17** - 6.72Nm **25** - 14.28Nm **34** - 24.72Nm **60** - 66.60Nm **92** - 110Nm	KRT94S	**17** - 2.70Nm **25** - 6.00Nm **34** - 10.00Nm **60** - 22.00Nm **92** - 36.80Nm
KRT05S	**17** - 11.16Nm **25** - 23.52Nm **34** - 40.92Nm **60** - 110Nm **92** - 183Nm	KRT95S	**17** - 4.10Nm **25** - 9.70Nm **34** - 15.90Nm **60** - 36.40Nm **92** - 60.80Nm
KRT06S	**65** - 175Nm **85** - 260Nm **05** - 350Nm	KRTS1S	**06** - 40.00Nm
KRT07S	**65** - 400Nm **85** - 600Nm **05** - 800Nm	KRTS2S	**09** - 142Nm

KRTS SEGMENT MOTOR MAGNET

ORDER CODE

Type
KMMS - Segment motor magnet

KMMS□ - □□□□

□ □□□□

Motor size
1 - KMMS1
2 - KMMS2

Magnet size
KRTS1S
- **0045** - 45°
- **0054** - 54°

KRTS2S
- **0072** - 72°

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