



SKA ROTARY TABLE
DIRECT DRIVE
SERVOMOTORS

MOTORS

**MOTOR
POWER**
COMPANY



**WELCOME TO
MOTOR POWER COMPANY**

Directly driven Motor Power Company rotary tables provide versatile applications due to their backlash free structure. If necessary a compact servo system with high torque and high accuracy, SKA Rotary Table is the perfect answer for the ideal application. This complete series is provided with or without its perfectly coupling amplifier. Motor Power Company proposes not just components but complete motion solutions, combining direct drive motors with a series of drives with high flexibility and exceptional capabilities in a wide range of applications.

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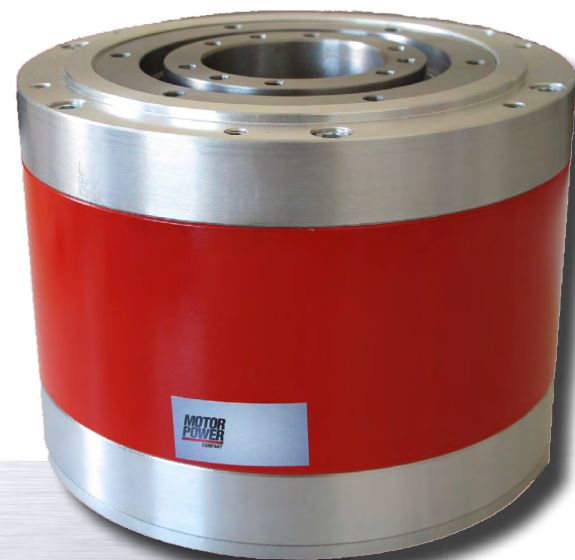
Motor Power Company
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info@motorpowerco.it

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All technical data in this catalog
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DIRECT DRIVE TECHNOLOGY



GEARLESS POWERFUL SOLUTION WITH HIGHER POSITION ACCURACY

Instantaneous peak torque till 2400 Nm
A high-speed operation up to 900 rpm
Rated motor speed up to 600 rpm
High-precision indexing with over 16,000,000 cpr, after interpolation
Absolute accuracy till ± 1 arc sec
No backlash for a high-precision, high-speed operation with shorter settling time
Improved positioning accuracy
Uncomplicated and trouble-free usability drives
Perfect matching between motor and drives with different network communication
Analog encoder for increasing the final resolution
Absolute encoder for the purest positional information
Parameters to change: speed control, torque or positioning control

DIRECT DRIVE SYSTEM TECHNICAL IMPROVEMENTS

Simplified machine structure, adjustement and maintenance
Direct connection to load increases torsional stiffness
Low noise level
No maintenance for lubrication, ideal for cleaning room applications
Compact design for reduced space requirement
Easy wiring and piping using the motor's hollow shaft
No limits due to backlash, friction or inertia
SKA Rotary Table motor peak torque can provide 800% of continuous torque
Reduction and control of energy costs
Energy efficiency

APPLICATIONS

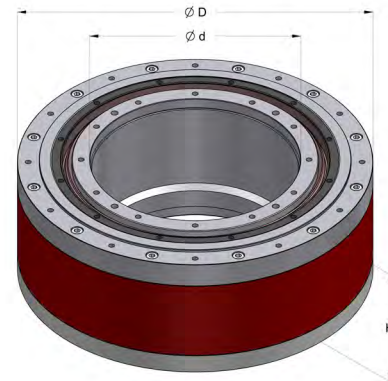
SKA Rotary Table is suitable for a wide variety of applications.

Semiconductor manufacturing	Packaging machinery	Converting equipment
Integrated circuit inspection	Part unloaders	Print registration stands
Liquid crystal screen manufacture	Actuators	
Electronic parts assembly	Rotary tables	Alternative energy
Manipulators	Material handling	Solar energy
Electronic parts assembly	Capping machines	Wind energy
LED die bonding machine	Labelling processes	

SKA ROTARY TABLE

DIRECT DRIVE SERVOMOTORS

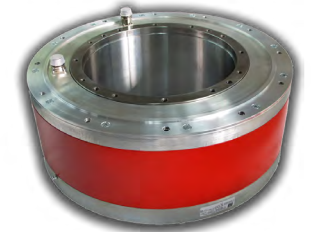
PRODUCT LINEUP



	STALL TORQUE (Nm)	PEAK TORQUE (Nm)	RATED SPEED (Rpm)	POLES (nr)	INERTIA (kg cm ²)	WEIGHT (kg)	EXTERNAL DIAMETER D (mm)	HOLE DIAMETER d (mm)	HEIGHT H (mm)	RATED VOLTAGE (Vac)	DRIVE TYPE
SKA RT 148.30 19	8	35	400	14	68,5	15,3	179	60	127,5	230	BL4104-C
SKA RT 148.60 19	14	68	400	14	91,8	18,1	179	60	157,5	230	BL4104-C
SKA RT 148.90 19	20	103	400	14	114,2	22	179	60	187,5	230	BL4108-C
SKA RT 148.120 50	26	141	400	14	137,1	26,1	179	60	217,5	230	BL4108-C
SKA RT 245.30 42	41	128	350	28	542	42,9	290	135	136,5	400	BL4308-C
SKA RT 245.60 51	70	241	350	28	651	55,4	290	135	166,5	400	BL4308-C
SKA RT 245.90 51	93	330	350	28	777	67,8	290	135	196,5	400	BL4312-C
SKA RT 245.120 52	115	458	350	28	904	80,3	290	135	226,5	400	BL4312-C
SKA RT 245.120 65	115	458	350	28	904	80,3	290	135	226,5	400	BL4308-C
SKA RT 335.30 51	100	290	150	42	2847	73,1	390	190	138	400	BL4312-C
SKA RT 335.30 65	100	290	150	42	2847	73,1	390	190	138	400	BL4308-C
SKA RT 335.60 65	164	585	150	42	3629	94,1	390	190	168	400	BL4312-C
SKA RT 335.90 65	220	800	150	42	4411	115	390	190	198	400	BL4320-C
SKA RT 335.120 65	270	975	150	42	5193	136,1	390	190	228	400	BL4320-C
SKA RT 335.150 54	320	1200	150	42	5975	157	390	190	258	400	BL4312-C
SKA RT 335.150 65	320	1200	150	42	5975	157	390	190	258	400	BL4340-C
SKA RT 430.30 56	210	458	100	56	8698	105,7	490	290	150	400	BL4312-C
SKA RT 430.60 52	340	840	100	56	10637	133,7	490	290	180	400	BL4340-C
SKA RT 430.60 56	340	840	100	56	10637	133,7	490	290	180	400	BL4320-C
SKA RT 430.90 55	450	1200	70	56	12577	161,1	490	290	210	400	BL4308-C
SKA RT 430.90 56	450	1200	100	56	12577	161,1	490	290	210	400	BL4340-C
SKA RT 430.120 53	560	1600	100	56	14516	188,7	490	290	240	400	BL4340-C
SKA RT 430.150 66	660	1900	100	56	16455	215,7	490	290	270	400	BL4340-C
SKA RT 430.180 54	760	2400	100	56	18394	243,3	490	290	300	400	BL4340-C

MOTOR TYPE DESIGNATION

SKA RT	148	30	19	10	00	19
Servomotor Name	Model	Size	Winding code	Feedback	Degree of protection	Connectors
	1	2	3	4	5	6



1 Choose SKA ROTARY TABLE model among

148 - 245 - 335 - 430

2 Choose SKA ROTARY TABLE size among

30-60-90-120 for model 148
30-60-90-120 for model 245
30-60-90-120-150 for model 335
30-60-90-120-150 -180 for model 430

3	Winding Code	19	42	50	51	52	53	54	55	56	65	66
Motor												
SKA RT 148.30		•	-		-	-	-	-	-	-	-	-
SKA RT 148.60		•	-		-	-	-	-	-	-	-	-
SKA RT 148.90		•	-		-	-	-	-	-	-	-	-
SKA RT 148.120		-	-	•	-	-	-	-	-	-	-	-
SKA RT 245.30		-	•	-	-	-	-	-	-	-	-	-
SKA RT 245.60		-	-	-	•	-	-	-	-	-	-	-
SKA RT 245.90		-	-	-	•	-	-	-	-	-	-	-
SKA RT 245.120		-	-	-	-	•	-	-	-	-	•	-
SKA RT 335.30		-	-	-	•	-	-	-	-	-	•	-
SKA RT 335.60		-	-	-	-	-	-	-	-	-	•	-
SKA RT 335.90		-	-	-	-	-	-	-	-	-	•	-
SKA RT 335.120		-	-	-	-	-	-	-	-	-	•	-
SKA RT 335.150		-	-	-	-	-	-	•	-	-	•	-
SKA RT 430.30		-	-	-	-	-	-	-	-	•	-	-
SKA RT 430.60		-	-	-	-	•	-	-	-	•	-	-
SKA RT 430.90		-	-	-	-	-	-	-	•	•	-	-
SKA RT 430.120		-	-	-	-	-	•	-	-	-	-	-
SKA RT 430.150		-	-	-	-	-	-	-	-	-	-	•
SKA RT 430.180		-	-	-	-	-	-	•	-	-	-	-

• available

- not available

4 Choose feedback for SKA ROTARY TABLE among

10- for incremental SinCos encoder
30- for absolute EnDat encoder

5 Choose degree of protection for SKA ROTARY TABLE among

00- for IP 42 Standard version
Flanges not sealed

01- for IP65 top flange (view A)

6 Choose connectors for SKA ROTARY TABLE

19- M23 connectors - PT 1000 on power connector
20- M23 connectors - PT 1000 on signal connector



1	Position	Description
	1	Type designation: Basic Line
	2	4th servo drive generation
	3	Mains power connection: 1 = single-phase / 3 = three-phase
	4	Nominal current in [A effl]
	5	Cooling type: W = water cooling / not stated = air cooling
	6	C: Cabinet (control cabinet device) D: Decentral (separate from the motor) M: Mounted (mounted on the motor)

SKA ROTARY TABLE

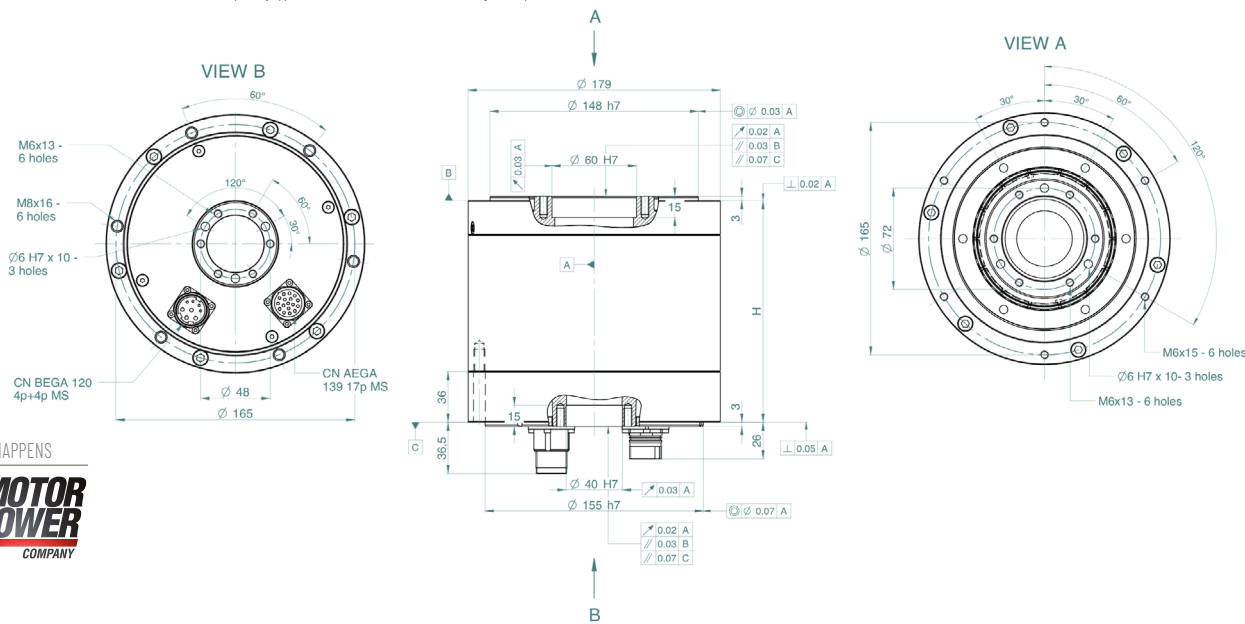
**DIRECT DRIVE
SERVOMOTORS
RATINGS AND
SPECIFICATIONS**

SKA RT 148 RATINGS AND SPECIFICATIONS

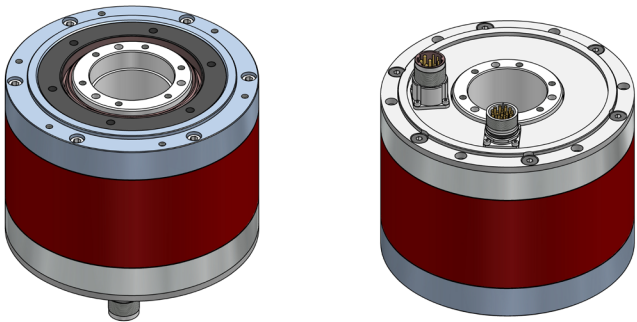
TIME RATING	Continuous	AMBIENT TEMPERATURE	0 to 40 °C
INSULATION CLASS	F	AMBIENT HUMIDITY	20 to 80% RH (non condensing)
ENCLOSURE	Totally enclosed, self-cooled	POLES	14
ENCLOSURE RATING	IP 42 (standard)	THERMAL PROTECTION	PT 1000

		SKA RT 148.30 19	SKA RT 148.60 19	SKA RT 148.90 19	SKA RT 148.120 50
Stall torque	Nm	8	14	20	26
Peak torque	Nm	35	68	103	141
Rated torque	Nm	6,8	11,6	16,3	21
Rated voltage	Vac	230	230	230	230
Stall current	Arms	2,02	3,53	5,04	4,62
Peak current	Arms	10,80	20,0	32,0	31,0
Rated current	Arms	1,76	3,01	4,23	3,85
Rated speed	rpm	400	400	400	400
Maximum speed	rpm	600	600	600	600
Torque constant ± 5%	Nm/Arms	3,97	3,97	3,97	5,62
Voltage constant ± 5%	Vrms/krpm	240	240	240	340
Phase/phase resistance ± 5%	Ohm	6,40	2,90	1,88	2,80
Phase/phase inductance	mH	20	12,30	9,50	14,80
Electrical time constant	msec	3,1	4,2	5,1	5,3
Thermal resistance	°C/W	1,75	1,26	0,95	0,76
Mechanical time constant	ms	4,17	2,52	2,04	1,82
Max. theoretical acceleration	rad/s ²	5109	7440	9019	10284
Rotor inertia	Kg cm ²	68,5	91,4	114,2	137,1
Motor height H	mm	127,5	157,5	187,5	217,5
Motor weight	Kg	15,3	18,1	22	26,1
Radial load	N(@30rpm)	4680	4680	4680	4680
Axial load	N(@60rpm)	4370	4370	4370	4370
Tilt moment	N(@15rpm)	150	150	150	150

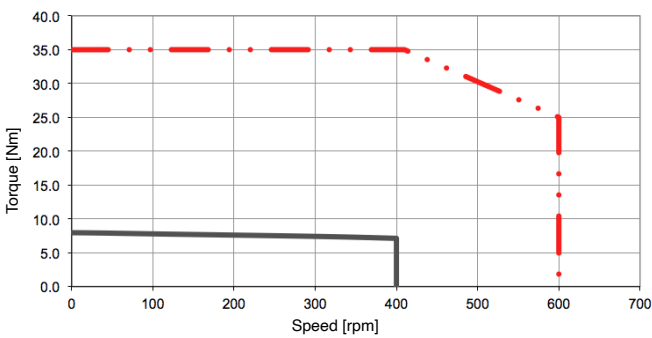
Values and torque/speed specifications here detailed are obtained with the SKA Rotary Table coupled to FLEXI PRO drive, with a coil temperature of 100°C. All others data are with a coil temperature of 25°C. Output continuous rating with 370x370x10mm heat sink flange coupling and with top flange not sealed. Tilt moment, radial and axial load must be understood as separately applied on the motors. For different loads configuration, please, contact us.



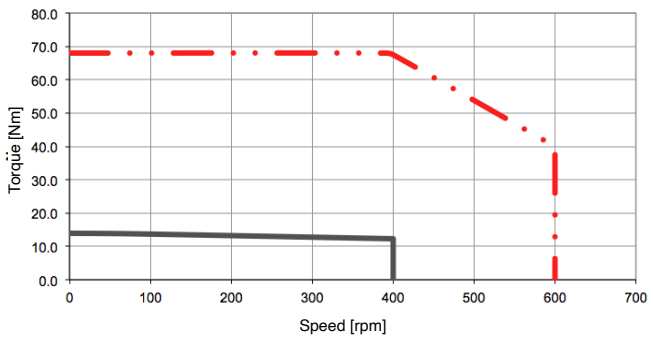
SKA RT 148 TORQUE AND SPEED CHARTS



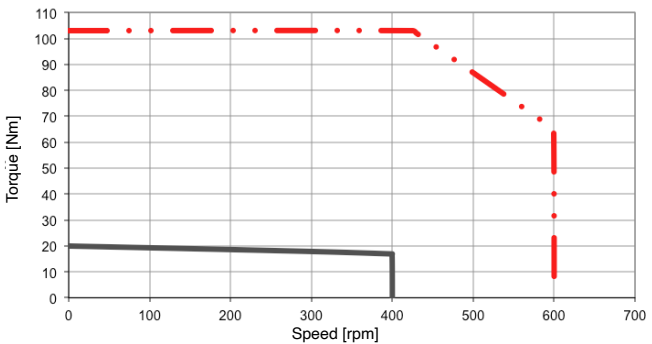
SKA RT 148.30 19



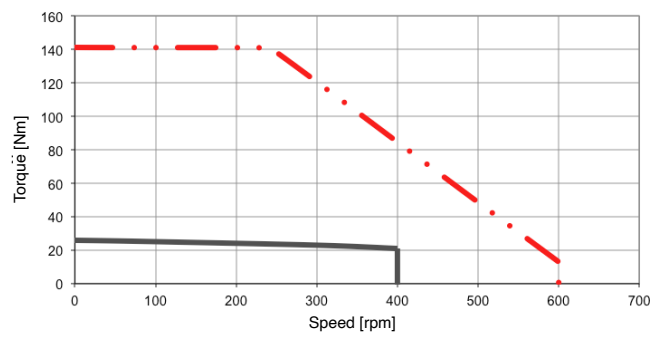
SKA RT 148.60 19



SKA RT 148.90 19



SKA RT 148.120 50



SEE IT BEFORE IT HAPPENS



— CONTINUOUS DUTY @ RATED VOLTAGE
- - - - - INTERMITTENT DUTY @ RATED VOLTAGE

SKA RT 245 RATINGS AND SPECIFICATIONS

TIME RATING
INSULATION CLASS
ENCLOSURE
ENCLOSURE RATING

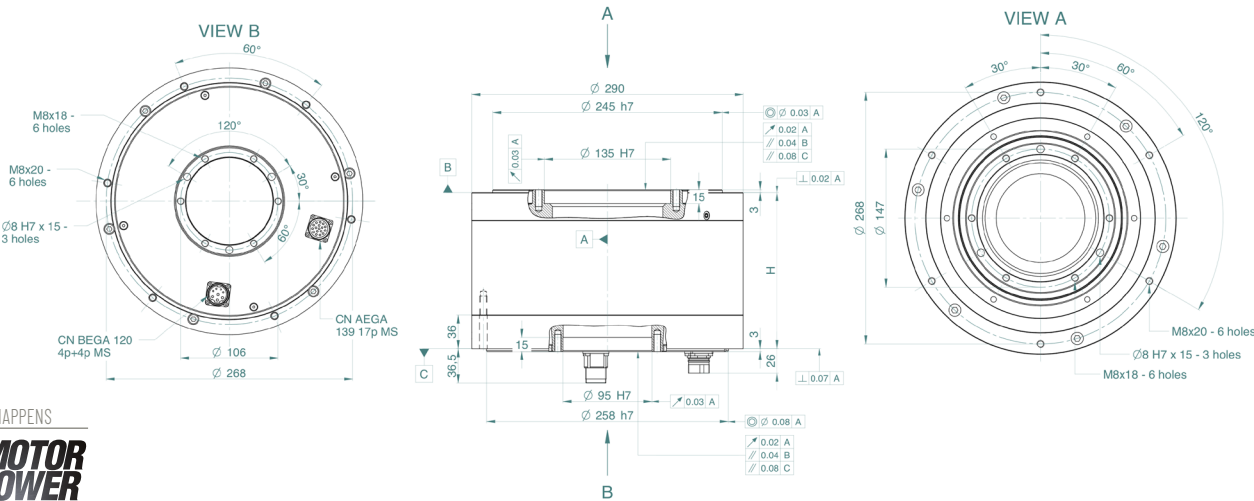
Continuous
F
Totally enclosed, self-cooled
IP 42 (standard)

AMBIENT TEMPERATURE
AMBIENT HUMIDITY
POLES
THERMAL PROTECTION

0 to 40 °C
20 to 80% RH (non condensing)
28
PT 1000

		SKA RT 245.30 42	SKA RT 245.60 51	SKA RT 245.90 51	SKA RT 245.120 52	SKA RT 245.120 65
Stall torque	Nm	41	70	93	115	115
Peak torque	Nm	128	241	330	458	458
Rated torque	Nm	36	57	76	90	90
Rated voltage	Vac	400	400	400	400	400
Stall current	Arms	6,20	7,42	9,86	7,32	6,05
Peak current	Arms	22,90	30,30	40,0	34,50	28,50
Rated current	Arms	5,60	6,23	8,30	5,90	4,87
Rated speed	rpm	350	350	350	300	290
Maximum speed	rpm	500	500	500	380	348
Torque constant ± 5%	Nm/Arms	6,62	9,43	9,43	15,72	19,02
Voltage constant ± 5%	Vrms/krpm	400	570	570	950	1150
Phase/phase resistance ± 5%	Ohm	2,56	2,38	1,59	3,23	4,74
Phase/phase inductance	mH	15,80	20	15	31	45,43
Electrical time constant	msec	6,2	8,4	9,5	9,6	9,6
Thermal resistance	°C/W	0,46	0,35	0,29	0,26	0,26
Mechanical time constant	ms	4,76	2,61	2,08	1,78	1,78
Max. theoretical acceleration	rad/s²	2362	3702	4247	5066	5066
Rotor inertia	Kg cm²	542	651	777	904	904
Motor height H	mm	136,5	166,5	196,5	226,5	226,5
Motor weight	Kg	42,9	55,4	67,8	80,3	80,3
Radial load	N(@30rpm)	6050	6050	6050	6050	6050
Axial load	N(@60rpm)	5460	5460	5460	5460	5460
Tilt moment	Nm(@15rpm)	300	300	300	300	300

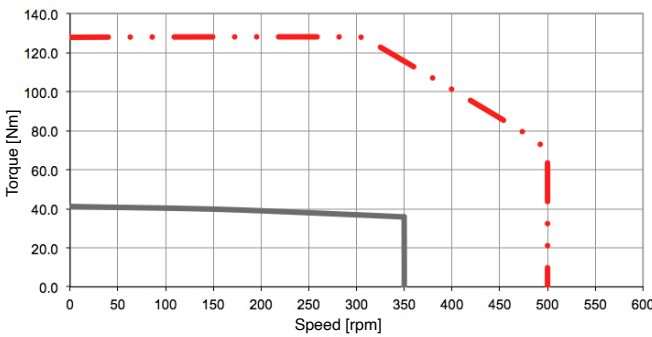
Values and torque/speed specifications here detailed are obtained with the SKA Rotary Table coupled to FLEXI PRO drive, with a coil temperature of 100°C. All others data are with a coil temperature of 25°C. Output continuous rating with 60x60x20mm heat sink flange coupling and with top flange not sealed. Tilt moment, radial and axial load must be understood as separately applied on the motors. For different loads configuration, please, contact us.



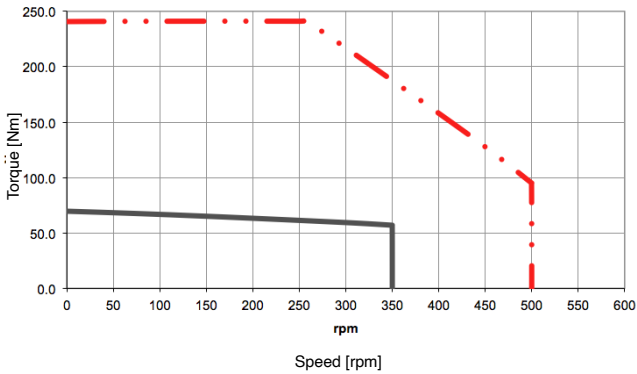
SKA RT 245 TORQUE AND SPEED CHARTS



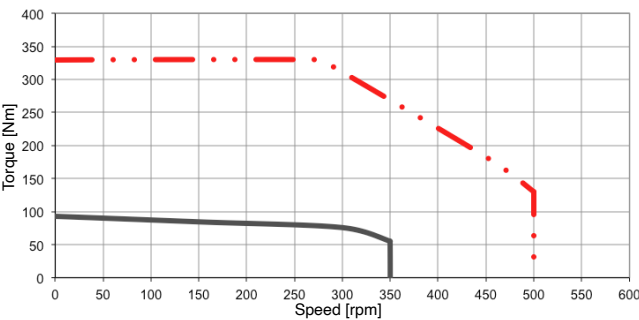
SKA RT 245.30 42



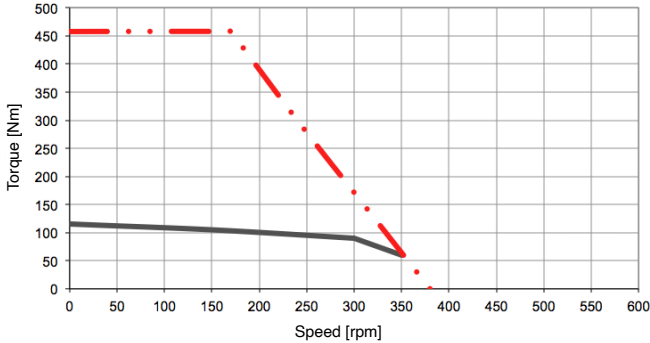
SKA RT 245.60 51



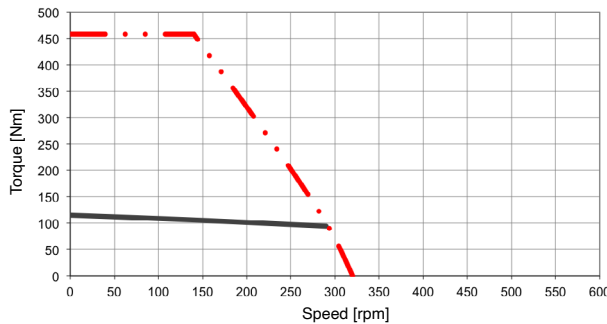
SKA RT 245.90 51



SKA RT 245.120 52



SKA RT 245.120 65



SEE IT BEFORE IT HAPPENS

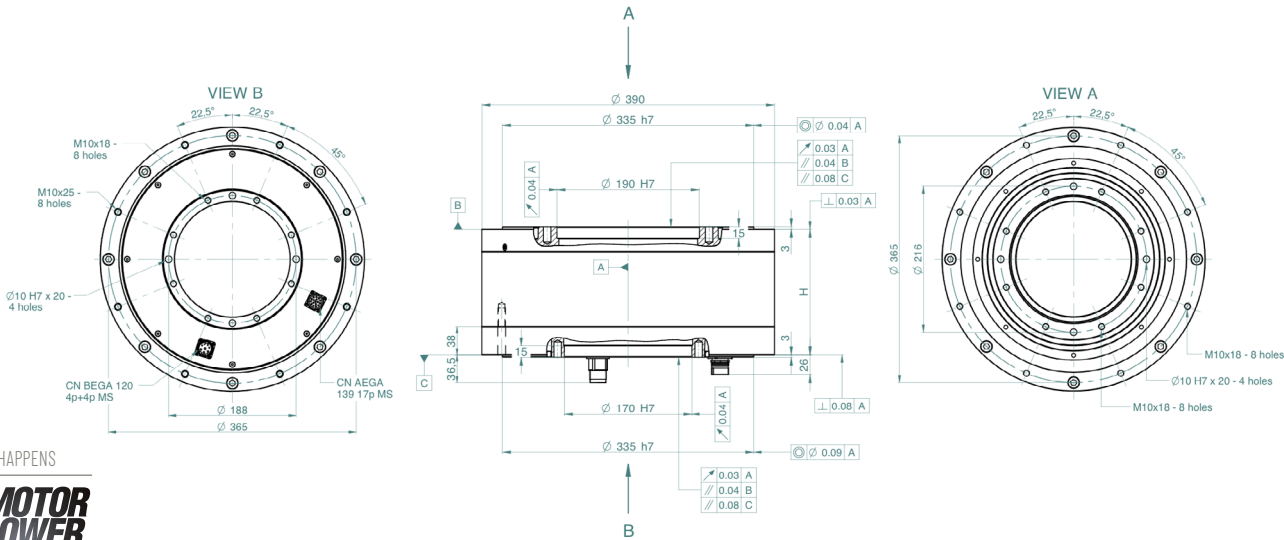


— CONTINUOUS DUTY @ RATED VOLTAGE
- - - - - INTERMITTENT DUTY @ RATED VOLTAGE

SKA RT 335 RATINGS AND SPECIFICATIONS

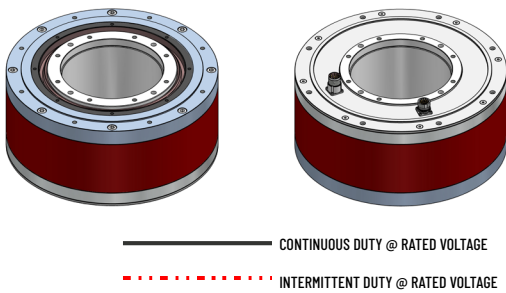
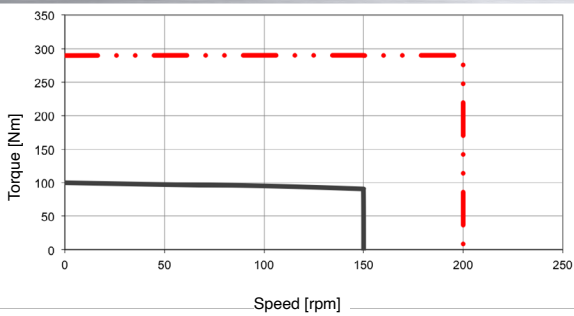
TIME RATING		Continuous		AMBIENT TEMPERATURE		0 to 40 °C		
INSULATION CLASS		F		AMBIENT HUMIDITY		20 to 80% RH (non condensing)		
ENCLOSURE		Totally enclosed, self-cooled		POLES		42		
ENCLOSURE RATING		IP 42 (standard)		THERMAL PROTECTION		PT 1000		
		SKA RT 335.30 51	SKA RT 335.30 65	SKA RT 335.60 65	SKA RT 335.90 65	SKA RT 335.120 65	SKA RT 335.150 54	SKA RT 335.150 65
Stall torque	Nm	100	100	164	220	270	320	320
Peak torque	Nm	290	290	535	800	975	1200	1200
Rated torque	Nm	87	87	136	167	206	232	232
Rated voltage	Vac	400	400	400	400	400	400	400
Stall current	Arms	10,61	5,26	8,62	11,56	14,19	6,14	16,82
Peak current	Arms	36,70	18,19	33,04	50,06	57,82	25,56	70
Rated current	Arms	9,50	4,71	7,36	9,04	11,15	4,59	12,56
Rated speed	rpm	150	150	150	150	150	110	150
Maximum speed	rpm	200	200	200	200	200	127	200
Torque constant ± 5%	Nm/Arms	9,43	19,02	19,02	19,02	19,02	52,11	19,02
Voltage constant ± 5%	Vrms/krpm	570	1150	1150	1150	1150	3150	1150
Phase/phase resistance ±5%	Ohm	1,60	6,50	2,96	2,07	1,44	8,10	1,08
Phase/phase inductance	mH	10,66	43,39	27,16	19,71	15,77	90,03	12
Electrical time constant	msec	6,7	6,7	9,2	9,5	11,0	11,1	11,1
Thermal resistance	°C/W	0,25	0,25	0,21	0,16	0,16	0,15	0,15
Mechanical time constant	ms	7,68	7,68	4,45	3,78	3,10	2,67	2,67
Max. theoretical acceleration	rad/s²	1019	1019	1474	1814	1878	2008	2008
Rotor inertia	Kg cm²	2847	2847	3629	4411	5193	5975	5975
Motor height H	mm	138	138	168	198	228	258	258
Motor weight	Kg	73,1	73,1	94,1	115	136	157	157
Radial load	N(@30rpm)	6900	6900	6900	6900	6900	6900	6900
Axial load	N(@60rpm)	6300	6300	6300	6300	6300	6300	6300
Tilt moment	Nm(@15rpm)	600	600	600	600	600	600	600

Values and torque/speed specifications here detailed are obtained with the SKA Rotary Table coupled to FLEXI PRO drive, with a coil temperature of 100°C. All others data are with a coil temperature of 25°C. Output continuous rating with 840x840x30mm heat sink flange coupling and with top flange not sealed. Tilt moment, radial and axial load must be understood as separately applied on the motors. For different loads configuration, please, contact us.

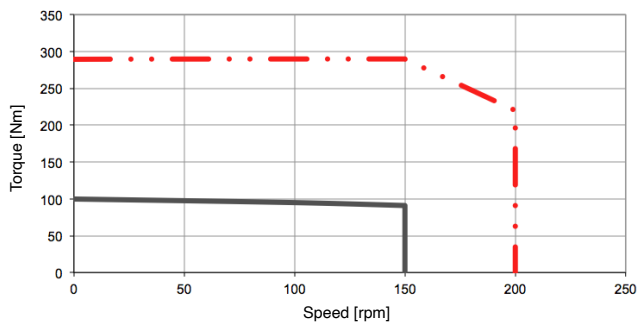


SKA RT 335 TORQUE AND SPEED CHARTS

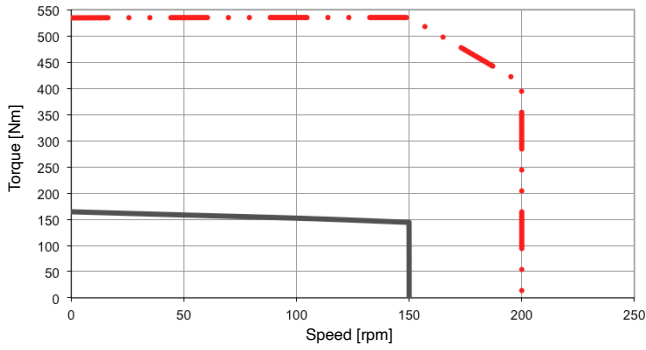
SKA RT 335.30 51



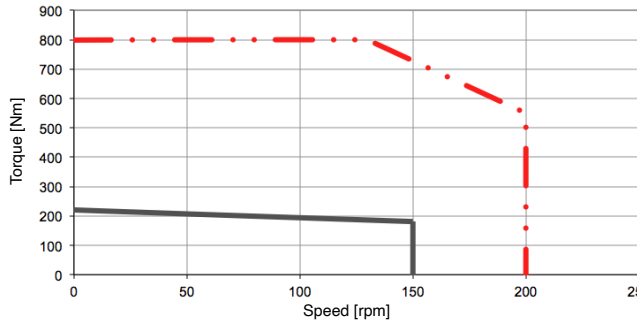
SKA RT 335.30 65



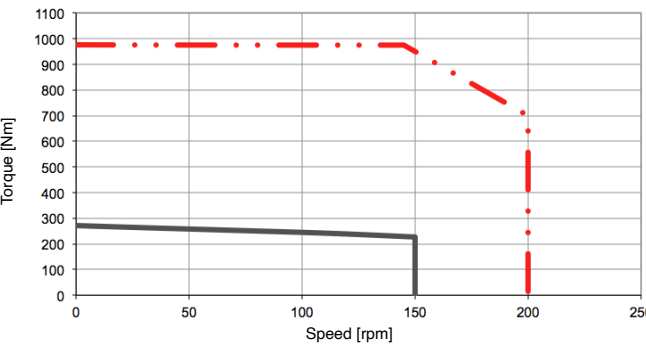
SKA RT 335.60 65



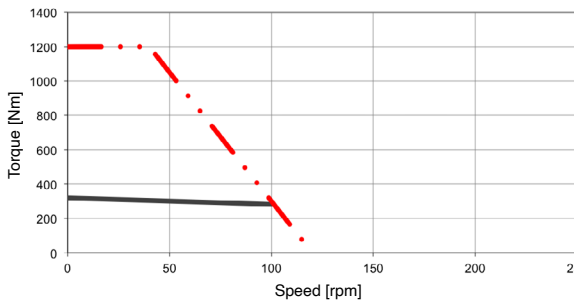
SKA RT 335.90 65



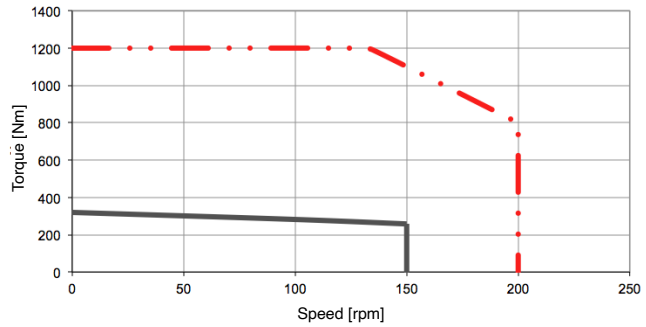
SKA RT 335.120 65



SKA RT 335.150 54



SKA RT 335.150 65



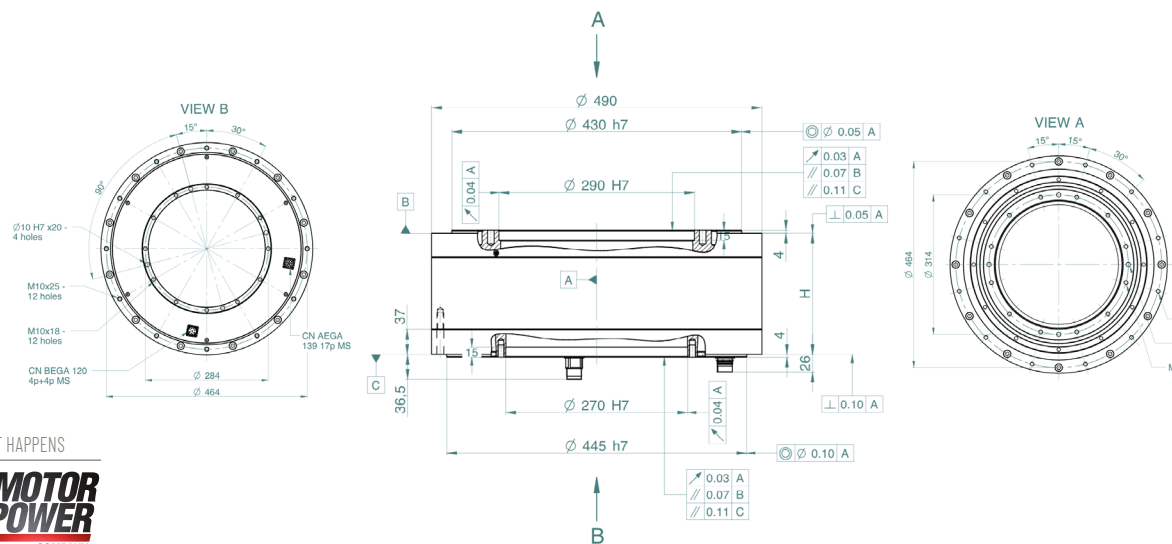
SEE IT BEFORE IT HAPPENS



SKA RT 430 RATINGS AND SPECIFICATIONS

TIME RATING		Continuous		AMBIENT TEMPERATURE		0 to 40 °C			
INSULATION CLASS		F		AMBIENT HUMIDITY		20 to 80% RH (non condensing)			
ENCLOSURE		Totally enclosed, self-cooled		POLES		56			
ENCLOSURE RATING		IP 42 (standard)		THERMAL PROTECTION		PT 1000			
		SKA RT 430.30 56	SKA RT 430.60 52	SKA RT 430.60 56	SKA RT 430.90 55	SKA RT 430.90 56	SKA RT 430.120 53	SKA RT 430.150 66	SKA RT 430.180 54
Stall torque	Nm	210	340	340	450	450	560	660	760
Peak torque	Nm	458	840	840	1200	1200	1600	1900	2400
Rated torque	Nm	175	268	268	332	332	450	520	680
Rated voltage	Vac	400	400	400	400	400	400	400	400
Stall current	Arms	9,07	21,63	14,68	4,77	19,43	17,82	17,73	14,58
Peak current	Arms	27	70	47,5	17,19	70	70	70	63,5
Rated current	Arms	7,78	17,56	11,92	3,63	14,77	14,75	14,39	13,44
Rated speed	rpm	100	100	100	60	100	100	100	100
Maximum speed	rpm	150	150	150	70	150	150	150	110
Torque constant ± 5%	Nm/Arms	23,16	15,72	23,16	94,29	23,16	31,43	37,22	52,11
Voltage constant ± 5%	Vrms/krpm	1400	950	1400	5700	1400	1900	2250	3150
Phase/phase resistance ± 5%	Ohm	3,25	0,68	1,47	16,16	0,98	1,37	1,64	2,50
Phase/phase inductance	mH	22,80	6,68	14,50	162	9,80	16	20	32
Electrical time constant	msec	70	9,9	9,9	10,0	10,1	11,7	12,2	12,8
Thermal resistance	°C/W	0,17	0,14	0,14	0,12	0,12	0,10	0,09	0,09
Mechanical time constant	ms	7,91	4,37	4,37	3,43	3,43	3,01	2,92	2,54
Max. theoretical acceleration	rad/s²	527	790	790	954	954	1102	1155	1305
Rotor inertia	Kg cm²	8698	10637	10637	12577	12577	14516	16455	18394
Motor height H	mm	150	180	180	210	210	240	270	300
Motor weight	kg	105,7	133,7	133,7	161,1	161,1	188,7	215,7	243,3
Radial load	N(@30rpm)	7700	7700	7700	7700	7700	7700	7700	7700
Axial load	N(@60rpm)	6700	6700	6700	6700	6700	6700	6700	6700
Tilt moment	Nm(@15rpm)	800	800	800	800	800	800	800	800

Values and torque/speed specifications here detailed are obtained with the SKA Rotary Table coupled to FLEXI PRO drive with a coil temperature of 100°C. All others data are for coil a temperature of 25°C. Output continuous rating with 1000x1000x30mm heat sink flange coupling with top flange not sealed. Tilt moment, radial and axial load must be understood as separately applied on the motors. For different loads configuration, please, contact us.

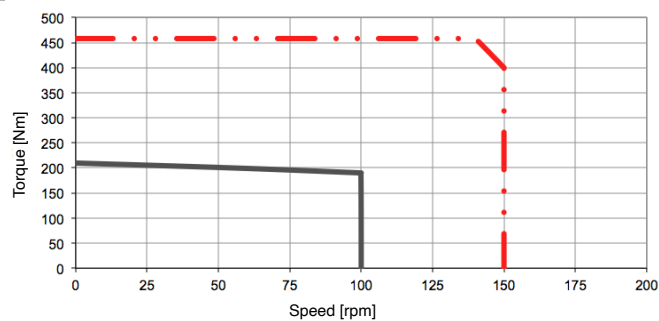


SEE IT BEFORE IT HAPPENS

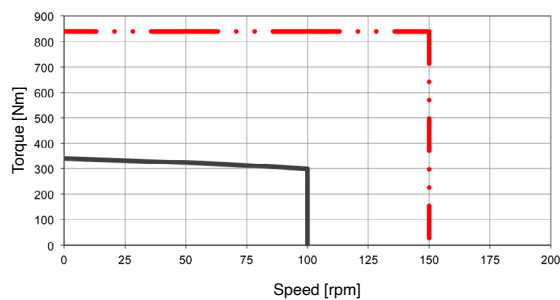


SKA RT 430 TORQUE AND SPEED CHARTS

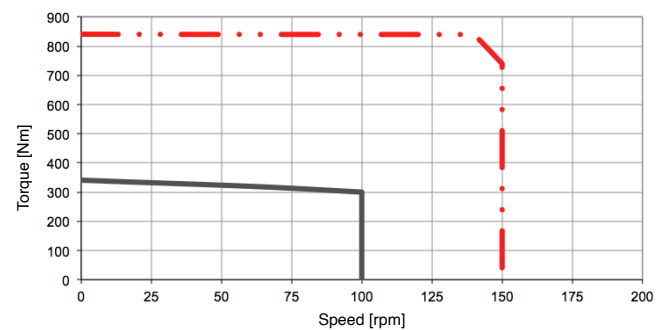
SKA RT 430.30 56



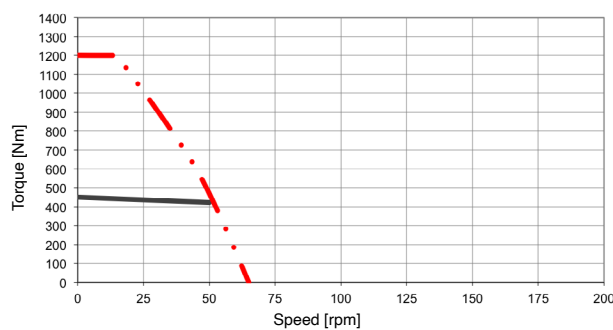
SKA RT 430.60 52



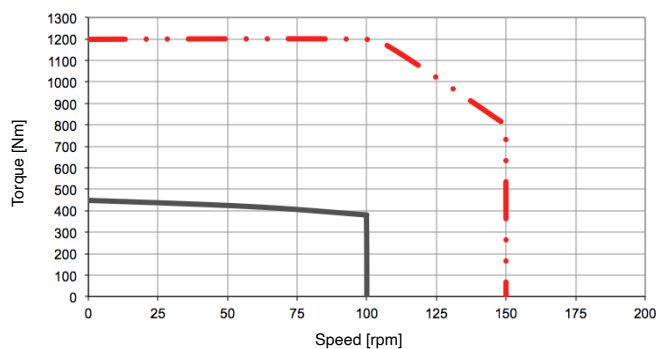
SKA RT 430.60 56



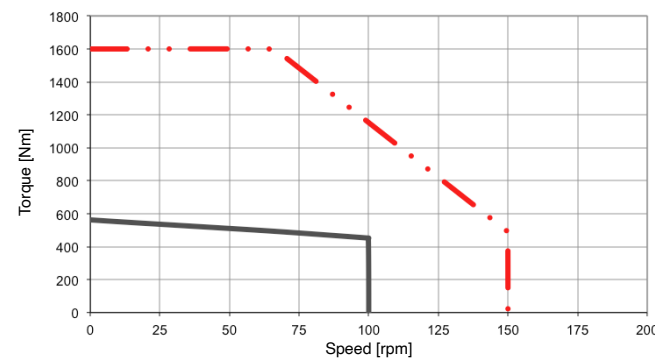
SKA RT 430.90 55



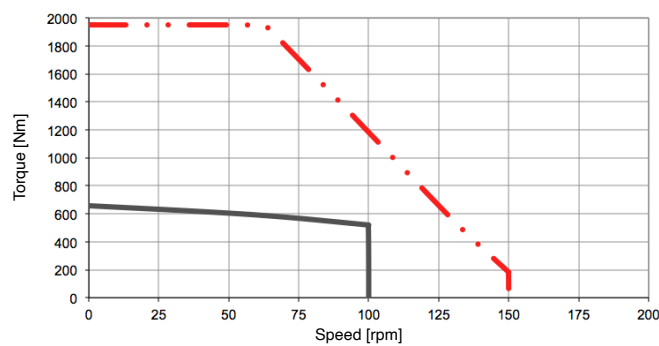
SKA RT 430.90 56



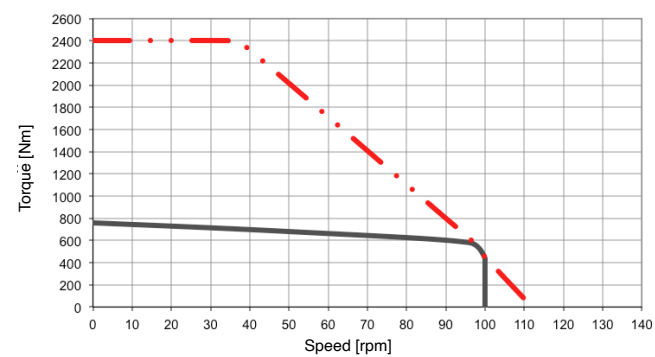
SKA RT 430.120 53



SKA RT 430.150 66



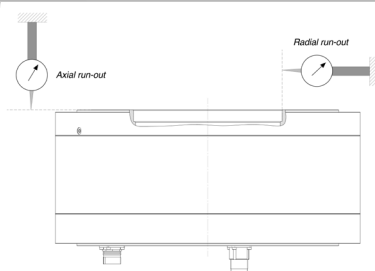
SKA RT 430.180 54



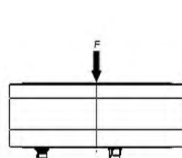
CONTINUOUS DUTY @ RATED VOLTAGE

INTERMITTENT DUTY @ RATED VOLTAGE

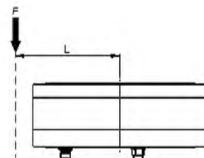
RUNOUT AND LOAD



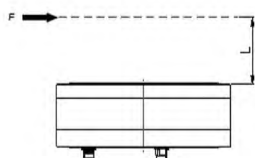
			SKA RT 148	SKA RT 245	SKA RT 335	SKA RT 430
Axial run-out	mm		0,02	0,02	0,03	0,03
Radial run-out	mm		0,03	0,03	0,04	0,04



Force: F
Radial load: $F_r=0$
Thrust load: $F_a=F$
Tilt moment: $M=0$



Force: F
Radial load: $F_r=0$
Thrust load: $F_a=F$
Tilt moment: $M=F \times L$



Force: F
Radial load: $F_r=F$
Thrust load: $F_a=0$
Tilt moment: $M=F \times L$

RELUBRICATION MAINTENANCE

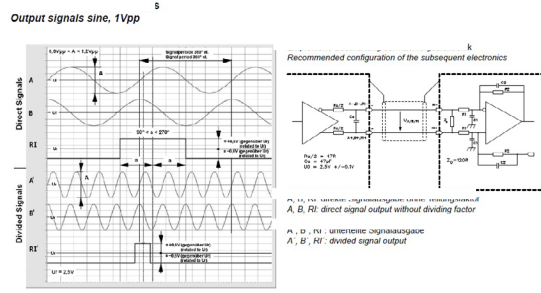
The relubrication interval depends on the environment and the type of application. As standard the SKA RT bearing should be relubricated every 5000 hours of operation. The grease quantity (grams) is calculated by this formula:
 $3720 \times X$

Where X depending in which time the bearing reach 5000h of operation.
X weeks = 0.002 X months = 0.003 X annual = 0.004 X two-year or three-year = 0.005
In case of 8 hours of operation per day, we have: $3720 \times 0.005 = 19$ grams

Relubrication must be applied using one of the two M6 radial holes on the front flange. The holes are closed by grub screw. The operator must remove the grain, and apply a M6 Grease nipple(not provided). Once the grease is applied, the grease nipple must be removed, and the hole must be close again with M6 grub screw.
We recommend Kluber Isoflexkopas NCA52 grease for the proper lubrication of SKA RT series motor.

FEEDBACK SPECIFICATIONS

INCREMENTAL ENCODER	Motor size		148	245	335	430
	Nominal voltage	Vdc	4 to 7			
	Nominal current @5Vdc (without load)	mA	≤ 220			
	Maximum frequency	kHz	400			
	Output signal		Sine 1 Vpp			
	Zero impulse	pulse/turn	1			
	N° of periods per revolution	periods/rev	8192	16384	23040	32768
	Accuracy	arc sec	37	18,5	13	9,5
	Resolution	cpr	Function of interpolator			



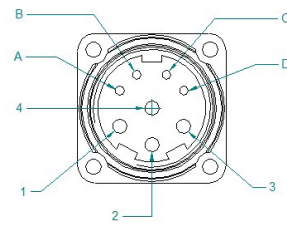
ABSOLUTE Endat ENCODER	Motor size		148	245	335	430
	Nominal voltage	Vdc	3,6 to 14			
	Nominal current @5Vdc	mA	300			
	Maximum frequency	MHz	16			
	Absolute interface		Endat 2.2 22			
	Number of bits (singleturn)		22	23	23	24
	Absolute resolution per revolution	increments/rev	4.194.304	8.388.608	8.388.608	16.777.216
	Accuracy	arc sec	27	14	10	7,5

WIRING MOTOR CONNECTIONS for incremental encoder

CONNECTORS TYPE 19

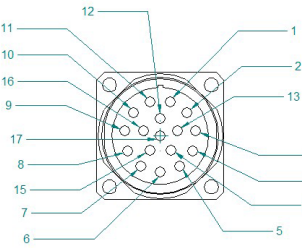
POWER CONNECTOR

PIN	FUNCTION
1	Phase U
2	PE
3	Phase W
4	Phase V
A	N.C.
B	N.C.
C	PT 1000 (+)
D	PT 1000 (-)



FEEDBACK CONNECTOR

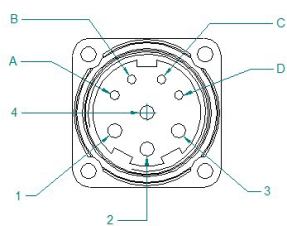
PIN	FEEDBACK FUNCTION
1	N.C.
2	N.C.
3	0 Vdc
4	+ 5Vdc
5	Sin/A
6	Sin A
7	Ref R -
8	Ref R +
9	N.C.
10	Shield
11	Cos/B
12	Cos B
13	+5Vdc **Sense
14	0Vdc **Sense
15	N.C.
16	Reserved: do not connect
17	Reserved: do not connect



CONNECTORS TYPE 20

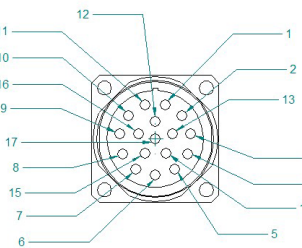
POWER CONNECTOR

PIN	FUNCTION
1	Phase U
2	PE
3	Phase W
4	Phase V
A	N.C.
B	N.C.
C	N.C.
D	N.C.



FEEDBACK CONNECTOR

PIN	FEEDBACK FUNCTION
1	PT 1000 (+)
2	PT 1000 (-)
3	0 Vdc
4	+ 5Vdc
5	Sin/A
6	Sin A
7	Ref R -
8	Ref R +
9	N.C.
10	Shield
11	Cos/B
12	Cos B
13	+5Vdc **Sense
14	0Vdc **Sense
15	N.C.
16	Reserved: do not connect
17	Reserved: do not connect

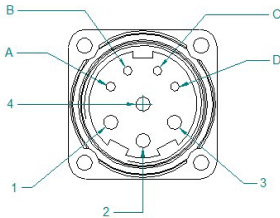


WIRING MOTOR CONNECTIONS
for absolute encoder

CONNECTORS TYPE 19

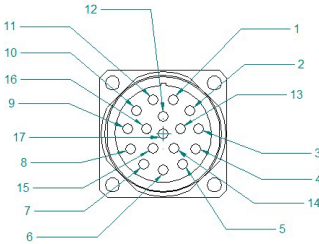
POWER CONNECTOR

PIN	FUNCTION
1	Phase U
2	PE
3	Phase W
4	Phase V
A	N.C.
B	N.C.
C	PT 1000 (+)
D	PT 1000 (-)



FEEDBACK CONNECTOR

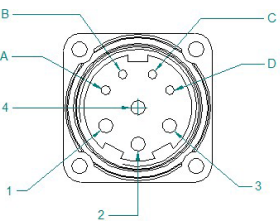
PIN	FEEDBACK FUNCTION
1	+ 5Vdc **Sense
2	N.C.
3	N.C.
4	0Vdc **Sense
5	N.C.
6	N.C.
7	+ 5Vdc
8	Clock +
9	Clock -
10	0Vdc
11	Shield
12	-
13	-
14	Data +
15	-
16	-
17	Data -



CONNECTORS TYPE 20

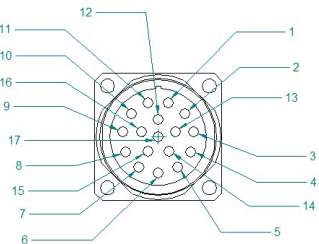
POWER CONNECTOR

PIN	FUNCTION
1	Phase U
2	PE
3	Phase W
4	Phase V
A	N.C.
B	N.C.
C	N.C.
D	N.C.



FEEDBACK CONNECTOR

PIN	FEEDBACK FUNCTION
1	+ 5Vdc **Sense
2	PT 1000 (+)
3	PT 1000 (-)
4	0Vdc **Sense
5	N.C.
6	N.C.
7	+5Vdc
8	Clock +
9	Clock -
10	0Vdc
11	Shield
12	-
13	-
14	Data +
15	-
16	-
17	Data -



CABLES SPECIFICATIONS

SIGNAL CABLES for incremental encoder

MOTOR SIDE	WIRE COLOUR	FUNCTION	DRIVE SIDE
1	White	Temperature Sensor +	1
2	Brown	Temperature Sensor -	3
3	Red 1	GND	3
4	Blue 1	5 Vdc	10
5	Green	SIN A-	8
6	Yellow	SIN A+	15
7	Grey	Ref R-	4
8	Pink	Ref R+	11
10	Shield 2	CASE	CASE
11	Violet	COS B-	7
12	Black	COS B+	14
13	Red	U sense+	9
14	Blue	U sense-	2

All signal cables are for static laying.
For dynamic laying cables, please contact our front office.

Signal cable for BL Drives	
Lenght (mm)	Order code
3000	003108020854
5000	003108020855
10000	003108020856

COLOUR	FUNCTION	PIN/M23
Grey/Pink	PT 1000 (+)	1
White/Yellow	PT 1000 (-)	2
White	0 Vdc	3
Brown	+5 Vdc	4
Yellow	SIN/	5
Green	SIN	6
Grey	Ref R-	7
Pink	Ref R+	8
White/Green	-	9
Shield01	Shield	10
Black	COS/	11
Violet	COS	12
Red/Blue	-	13
Brown/Green	-	14
Yellow/Brown	-	15
Red	-	16
Blue	-	17

Signal free wire cable for general purpose	
Lenght (mm)	Order code
3000	003108010500
5000	003108010502
10000	003108010504

Signal free wire cable for general purpose with M23 90° connector	
Lenght (mm)	Order code
3000	003108020072
5000	003108020073
10000	003108020074

CABLES SPECIFICATIONS

SIGNAL CABLES for absolute encoder

MOTOR SIDE	WIRE COLOUR	FUNCTION	DRIVE SIDE	Signal cable for BL Drives		
1	Green	U_Sens+	9		Lenght (mm)	Order code
2	Violet	Thermal Sensor (+)	1		3000	003108020769
3	Blue	Thermal Sensor (-)	3		5000	003108020770
4	Brown1	U_Sens-	2		10000	003108020771
7	Brown	+5 Vdc	10		15000	003108021014
8	Grey	CLOCK+/MA+	13			
9	Pink	CLOCK-/MA-	6			
10	White	GND	3			
11	Shield 2	EXT. Shield	CASE			
14	Red	DATA+/SLO+	12			
17	Black	DATA-/SLO-	5			

All signal cables are for static laying.
For dynamic laying cables, please contact our front office.

COLOUR	FUNCTION	PIN/M23	Signal free wire cable for general purpose		
Grey/Pink	-	1		Lenght (mm)	Order code
White/Yellow	PT 1000 (+)	2		3000	003108011128
White	PT 1000 (-)	3		5000	003108011130
Brown	-	4		10000	003108011132
Yellow	-	5			
Green	-	6		Signal free wire cable for general purpose with M23 90° connector	
Grey	+5Vdc	7		Lenght (mm)	Order code
Pink	Clock+	8		3000	003108011134
White/Green	Clock-	9		5000	003108011136
Black	0Vdc	10		10000	003108011138
Shield1	Shield	11			
Violet	-	12			
Red/Blue	-	13			
Brown/Green	DATA+	14			
Yellow/Brown	-	15			
Red	-	16			
Blue	DATA-	17			

CABLES SPECIFICATIONS

POWER CABLES

FUNCTION		PIN/M23	Power free wire cable				
Phase U		1		SKA RT 148 - 245		SKA RT 335 - 430	
Phase V		4		Lenght (mm)	Order code	Lenght (mm)	Order code
Phase W		3		3000	003108020797	3000	003108020800
PE		2		5000	003108020798	5000	003108020801
N.C.		A		10000	003108020799	10000	003108020803
N.C.		B					
PT 1000(+)		C					
PT 1000(-)		D					

ACCESSORIES FOR CABINET VERSION

Description	Order code
BL4304/8-C 9222-4212-00 CONNECTORS SET	051800910011
BL4100 9200-4210-00 CONNECTORS SET	051800910016
BL4108-C 9222-4208-00 CONNECTORS SET	051800910018
BL4320-C 9222-4220-00 CONNECTORS SET	051800910020
BL4340-C 9222-4240-00 CONNECTORS SET	051800910021
BL4360W-C 9222-4260-00 CONNECTORS SET	051800910022

FLYING CONNECTORS M23

Straight power connector pin included BSTA108NN00580236000 + 4 PIN 60.003.11 FM/2mm CRIMP,0,35-2,5 SPRING + 4 PIN 60.001.11 FM/1mm CRIMP,0,14-1 SPRING	order code 007117000472	 
Straight signal connenctor pin included ASTA014NN00410235000 17p/FM + 17 PIN 60.011.11 FM/1mm CRIMP,0,14-1	order code 007117000462	 
90° power connector pin included BSDA108NN00420200000 + 4 PIN 60.003.11 FM/2mm CRIMP,0,35-2,5 SPRING + 4 PIN 60.001.11 FM/1mm CRIMP,0,14-1 SPRING	order code 007117002055	 
90° signal connenctor pin included ASDA014NN00480150000 + 17 PIN 60.011.11 FM/1mm CRIMP,0,14-1	order code 007117002056	 

Single and three-phase servo drive

The BL servo drives support all our direct drive and brushless servomotors and all their available feedback. These single and three-phase smart and compact drives can be adapted very flexible to a variety of applications via simple parameterization. Numerous integrated software functions make the BL servo drives real all-rounders in drive technology.

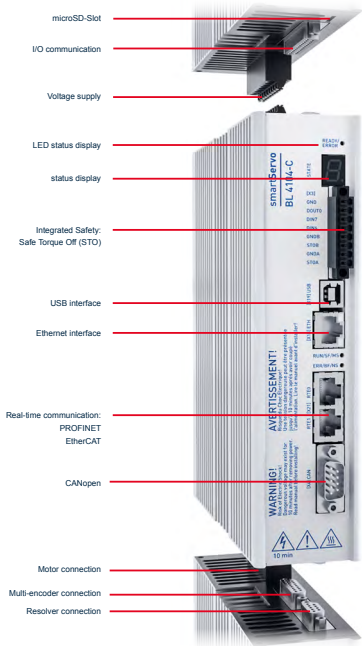
Fieldbus Connectivity

BL drives offer full flexibility thanks to the availability of all major industrial fieldbus systems. CANopen (CiA 402) provides proven multi-mode control and full parameterization. Ethernet enables easy commissioning, diagnostics, and remote maintenance. EtherCAT ensures high-performance, highly synchronous multi-axis motion with distributed clocks. PROFINET with PROFIdrive guarantees seamless integration, fast commissioning, and clear diagnostics directly from the control system.



Technical data			
Features	BL 4102-C	BL 4104-C	BL 4108-C
Voltage supply	1 x 75...230 VAC [± 10 %], 50...60 Hz		
Control voltage	24 VDC [± 20 %] (0,35 A) ^{*)}		
DC link voltage	325 VDC (with U _{mains} = 230 VAC)		
Output power	400 W	800 W	1600 W
Max. output power for 2 s	1 kW	2 kW	4,8 kW
Rated output current	2 A _{rms}	4 A _{rms}	8 A _{rms}
Max. output current for 2 s	6 A _{rms}	12 A _{rms}	24 A _{rms}
Internal brake resistor	75 Ω		30 Ω
Continuous power / pulse power	8 W / 2 kW		50 W / 6,4 kW
External brake resistor	75 Ω, max. 2 kW		≥ 30 Ω
Holding brake	24 VDC, max. 2 A		
Dimensions servo drive H x W x D	200 x 50 x 163 mm 245 x 50 x 163 mm with mounting plate		230 x 67 x 200 275 x 67 x 200 with mounting plate
Weight	1,5 kg		2,9 kg
Encoder evaluation	EnDat 2.2, HIPERFACE®, HIPERFACE DSL®, resolver, analogue and digital incremental encoders with/without commutation signals, BiSS (Type C)		
Interfaces	USB 2.0, Ethernet, CAN-Bus, EtherCAT, PROFINET, MicroSD card Ethernet Powerlink		
Inputs/outputs	8 x digital in (24 VDC), 2 x analogue in (±10 V) 3 x digital out (24 VDC)		

- › Highest performance and dynamics internal sampling time < 32 µs
- › USB and Ethernet as parameterisation interfaces
- › Fieldbus on board EtherCAT, PROFINET, CANopen
- › Universal encoder evaluation HIPERFACE®, HIPERFACE DSL®,
- › EnDat 2.2, resolver, analogue and digital incremental encoders, BiSS



BL 4304-C	BL 4308-C	BL 4312-C	BL 4320-C	BL 4340-C
3 x 230... 480 VAC [± 10 %], 45 ... 66 Hz				
24 VDC [± 20 %] (0,35 A) ^{*)}	24 VDC [± 20 %] (0,45 A) ^{*)}	24 VDC [± 20 %] (0,65 A) ^{*)}	24 VDC [± 20 %] (max. 1A) ^{*)}	
565 VDC (with U _{mains} = 400 VAC)				
1,6 kW	3,2 kW	4,8 kW	8 kW	16 kW
4,8 kW	9,6 kW	12 kW	20 kW	40 kW
4 A _{rms}	8 A _{rms}	12 A _{rms}	20 A _{rms}	40 A _{rms}
12 A _{rms}	24 A _{rms}	30 A _{rms}	50 A _{rms}	100 A _{rms}
30 Ω			15 Ω	
50 W / 24 kW			80 W / 18 kW	160 W / 36 kW
≥ 30 Ω			15 Ω ≤ R _{Extern} ≤ 50 Ω	
24 VDC, max. 2 A				
230 x 67 x 200 mm 275 x 67 x 200 mm with mounting plate			351 x 90,5 x 256,5 390 x 93 x 263 with mounting plate	351 x 162,5 x 256,5 390 x 165 x 263 with mounting plate
2,9 kg			8 kg	13,5 kg
EnDat 2.2, HIPERFACE®, HIPERFACE DSL®, resolver, analogue and digital incremental encoders with/without commutation signals, BiSS (Type C)				
USB 2.0, Ethernet, CAN-Bus, EtherCAT, PROFINET, MicroSD card, Ethernet Powerlink				
8 x digital in (24 VDC), 2 x analogue in (±10 V) 3 x digital out (24 VDC)				



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