

High Performance DC Servo Motor - RS Series

Overview

Description

Using high energy magnets, RS DC motors combined with RTS drives are particularly suitable for applications which require a very compact solution or a high dynamic level.

Characteristics and advantages

- High performance characteristics
- Excellent low-speed functioning
- High compactness
- Very long service life
- Rare earth magnets
- Tacho, encoder resolver and brake in option



Features

- **Shaft**
 - RS1 to RS4: Smooth full shaft
 - RS5 and RS6: Full keyed shaft
- **2nd Shaft end**
 - RS1 to RS3: possibility to mount standard tacho or encoder
 - RS5 and RS6: possibility to mount standard tacho, adaptation for encoder mounting in option
- **Output cables 1 m without connector**
- **Options**
 - Brake (RS2 to RS6)
 - Tachometer
 - Adaptation 2nd shaft end for encoder mounting (RS5 and RS6)

Technical Characteristics - Overview

Motor type	DC motors with rare earth magnets
Number of poles	4
Protection degree	RS1 to RS4: IP40 RS5 and RS6: IP54
Insulation	Class F
Torque at low speed	0.05 ... 13 Nm
Permanent current at low speed	1.5 ... 28 A
Rated voltage	20.7 ... 105 V
Rated speed	2 000 ... 3 000 min ⁻¹
Rotor inertia	2.4 ... 8 300 kgmm ²

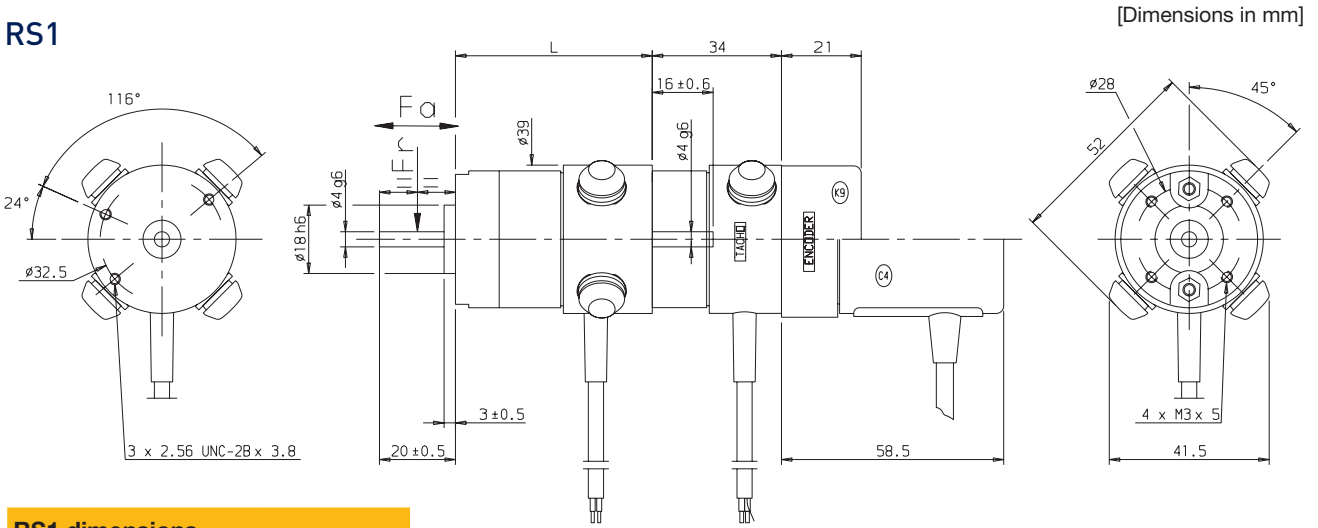
Technical Data

Torque at low speed M_0 [Nm]	Permanent current at low speed I_0 [A]	Rated Voltage U [V]	Rated Speed N [min ⁻¹]	Rotor Inertia [kgmm ²]	Product Code			Typical combination
0.05 0.092 0.13	1.5 2.3 2.7	20.7 21.2 23.7	3000 3000 3000	2.4 4.1 5.8	RS110MR1 RS120GR1 RS130ER1	■ ■ ■	00 00 00	RTS 3/10-40M RTS 3/10-40M RTS 3/10-40M
0.11 0.225 0.232 0.31 0.39	2.5 4.1 2.8 5.6 6	24 25.4 38.6 24 27.6	3000 3000 3000 3000 3000	13 195 195 26 325	RS210LR1 RS220FR1 RS220KR1 RS230CR1 RS240BR1	■ ■ ■ ■ ■	00 00 00 00 00	RTS 3/10-40M RTS 10/20-60 ⁽¹⁾ RTS 3/10-40M RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾
0.28 0.54 0.78 0.98	2.6 4.5 5.9 6.9	49 49 51 53	3000 3000 3000 3000	54 83 110 140	RS310NR1 RS320HR1 RS330ER1 RS340CR1	■ ■ ■ ■	00 00 00 00	RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾
0.48 0.93 1.3 1.36 1.74	3.6 6.2 8.1 6.6 7	60 60 43 78 90	3000 3000 2000 3000 3000	137 225 310 310 400	RS410RR1 RS420JR1 RS430FR1 RS430HR1 RS440GR1	■ ■ ■ ■ ■	00 00 00 00 00	RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾ RTS 12/24-130 T RTS 12/24-130 T
1.9 3.1 4 5	7.9 10.9 13 15	82 92 97 104	2700 2700 2700 2700	1000 1350 1700 2050	RS510LR1 RS520GR1 RS530ER1 RS540CR1	■ ■ ■ ■	00 00 00 00	RTS 12/24-130 T RTS 12/24-130 T RTS 20/40-130 T RTS 20/40-130 T
8 10.8 13	22.3 25 28	100 100 105	2400 2000 2000	5300 6800 8300	RS620GR1 RS630FR1 RS640ER1	■ ■ ■	00 00 00	RTS 40/80-190 T RTS 40/80-190 T RTS 40/80-190 T

⁽¹⁾ M = single phase or T = three phase

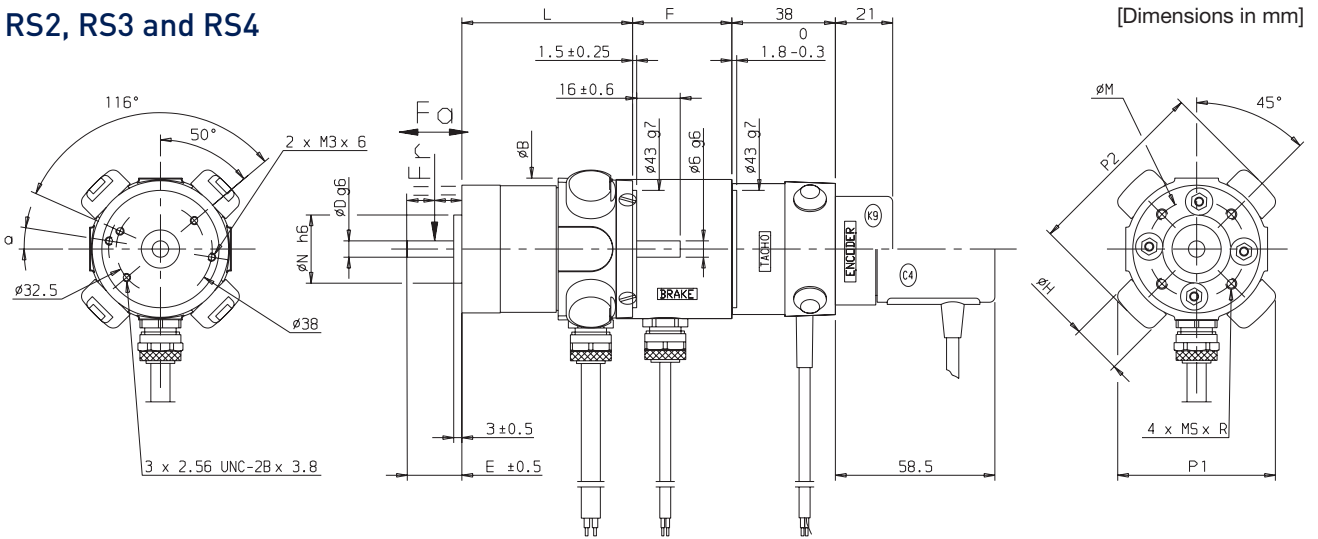
Dimensions

RS1



RS1 dimensions				
Motor	L	Weight [kg]	Fr ⁽¹⁾ [daN]	Fa ⁽¹⁾ [daN]
RS110	52.1	0.27	6	3
RS120	68.1	0.36	6	3
RS130	84.1	0.45	6	3

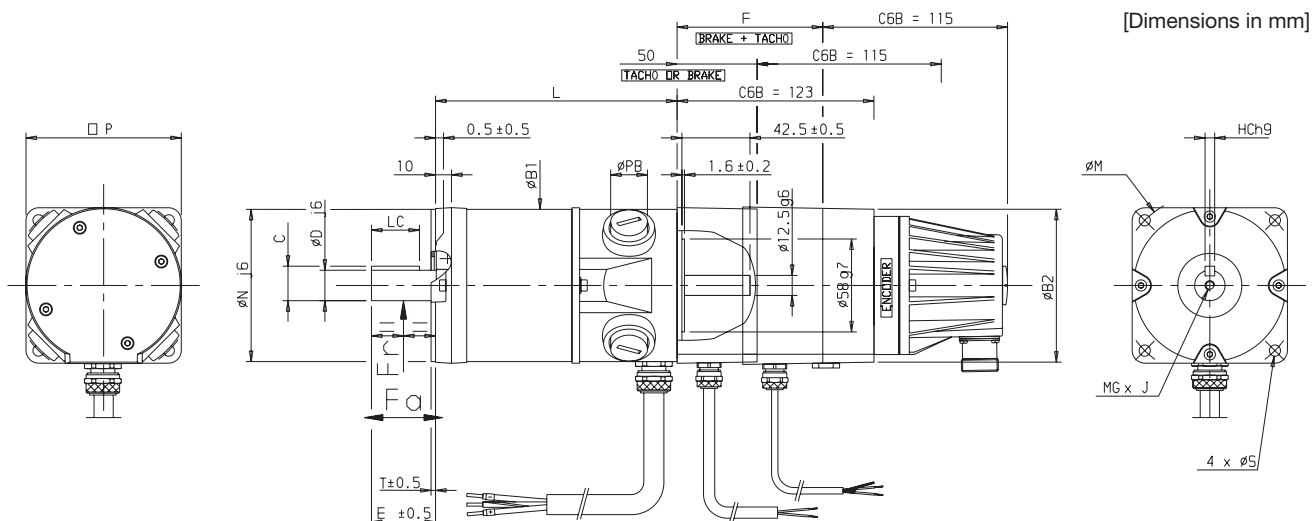
RS2, RS3 and RS4



RS2, RS3 and RS4 with brake, tacho and encoder dimensions																
Motor	a	N	D	E	B	L	F	P1	P2	H	MSxR	M	Weight [kg]	Fr ⁽¹⁾ [daN]	Fa ⁽¹⁾ [daN]	
RS210	9°	25	6	20	52	63	36.4	58	68	18.5	M4x6	36	0.54	18	10	
RS220	9°	25	6	20	52	79	36.4	58	68	18.5	M4x6	36	0.7	18	10	
RS230	9°	25	6	20	52	95	36.4	58	68	18.5	M4x6	36	0.86	18	10	
RS240	9°	25	6	20	52	111	36.4	58	68	18.5	M4x6	36	1	18	10	
RS310	-	32	9	25	68	80.5	41	69	83	18.5	M5x8	45	0.9	28	15	
RS320	-	32	9	25	68	100.5	41	69	83	18.5	M5x8	45	1.3	28	15	
RS330	-	32	9	25	68	120.5	41	69	83	18.5	M5x8	45	1.6	28	15	
RS340	-	32	9	25	68	140.5	41	69	83	18.5	M5x8	45	2	28	15	
RS410	-	50	11	32	83	95.5	40	82	98	22	M5x8	65	1.2	40	20	
RS420	-	50	11	32	83	115.5	40	82	98	22	M5x8	65	1.8	40	20	
RS430	-	50	11	32	83	135.5	40	82	98	22	M5x8	65	2.4	40	20	
RS440	-	50	11	32	83	155.5	40	82	98	22	M5x8	65	3	40	20	

⁽¹⁾ Fr and Fa not cumulative

RS5 and RS6



RS5 and RS6 with brake, tacho and encoder dimensions																			
Motor	P	N	C	D	LC	E	T	B1	PB	L	F	B2	S	M	MGxJ	HC	Weight [kg]	Fr ⁽¹⁾ [daN]	Fa ⁽¹⁾ [daN]
RS510	97	95	21.5	19	30	40	3	96	25	151	91	96	7	115	M6x18	6	5.1	70	23
RS520	97	95	21.5	19	30	40	3	96	25	180	91	96	7	115	M6x18	6	6.3	70	23
RS530	97	95	21.5	19	30	40	3	96	25	209	91	96	7	115	M6x18	6	7.5	70	23
RS540	97	95	21.5	19	30	40	3	96	25	238	91	96	7	115	M6x18	6	8.7	70	23
RS620	120	110	27	24	40	50	3.5	117	30	246	93	117	10	130	M8x20	8	11.5	80	26
RS630	120	110	27	24	40	50	3.5	117	30	284	93	117	10	130	M8x20	8	14	80	26
RS640	120	110	27	24	40	50	3.5	117	30	321	93	117	10	130	M8x20	8	16.3	80	26

⁽¹⁾ Fr and Fa not cumulative

Options

Tachometers and brakes						
Motors	Tachometer		Brakes [Voltage 24 VDC +/- 10 %]			
	Model	EMF [V/1000 min ⁻¹]	Holding torque [Nm]		Inertia [kgmm ²]	Weight [kg]
			20 °C	100 °C		
RS1	TBN 103	3	-	-	-	-
RS2	TBN 206	6	0.6	0.55	2	0.2
RS3	TBN 206	6	1.5	1.4	10	0.18
RS4	TBN 206	6	1.5	1.4	10	0.18
RS5	TBN 306	6	6	5.5	53	0.45
RS6	TBN 306	6	12	11.5	157	0.9

Encoders					
Model	Associated motors	Pulse per rev	Encoder reference	Mounting kit reference	Connector reference
C2	RS1	500	220215P0002	220071R0025	
	RS1	1000	220215P0012	220071R0025	
	RS2 / RS3 / RS4	500	220215P0001	220071R0025	
	RS2 / RS3 / RS4	1000	220215P0004	220071R0025	
C6	RS5 / RS6	500	220024P0001	220071R0002	220065R4621
	RS5 / RS6	1000	220024P0003	220071R0002	220065R4621
	RS5 / RS6	2000	220024P0006	220071R0002	220065R4621
	RS5 / RS6	5000	220024P0005	220071R0002	220065R4621
C6B	RS5 / RS6	500	220031R0001	220071R0004	220065R4621
	RS5 / RS6	1000	220031R0003	220071R0004	220065R4621
	RS5 / RS6	2000	220031R0008	220071R0004	220065R4621
	RS5 / RS6	2500	220031R0004	220071R0004	220065R4621
	RS5 / RS6	5000	220031R0005	220071R0004	220065R4621

Order Code

RS Series

	1	2	3	4	5	6	7
Order example	RS	120	E	R	1	0	11

1	Motor type	
	RS	Motor with neodyme magnets
2	Motor size and length	
	120	
	130	see table "Technical data"
	320	
	...	
3	Winding	
	L	
	H	Depend of motor size, speed and voltage/current,
	M	see table "Technical data"
	...	
4	Fix code	
	R	
5	Mechanical features	
	1	Output cables (standard)
	2	Terminal box
	3	Motor with resolver
	5	Special motor
6	Options	
	0	No accessories (standard)
	1	Tacho
	2	Brake (RS2 to RS6)
	3	Tacho + brake (RS2 to RS6)
	4	Encoder adaptation ⁽¹⁾ (size 5 and 6 only)
	5	Tacho + Encoder adaptation (size 5 and 6 only)
	6	Brake + Encoder adaptation (size 5 and 6 only)
	7	Tacho + Brake + Encoder adaptation (size 5 and 6 only)
7	Customer specification	
	00	Standard catalogue definition - smooth shaft (size 1 -> 4) - shaft with key way (size 5-6)

⁽¹⁾ Encoder adaptation is standard for RS1, RS2, RS3 and RS4.