











RS and AXEM Series

DC Servo Motors



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High Performance DC Servo Motor - RS Series

Overview

Description

Using high energy magnets, RS DC motors 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 and brake in option**



Features

- **Shaft**
  - RS2 to RS4: Smooth full shaft
  - RS5 and RS6: Full keyed shaft
- **2nd Shaft end**
  - RS2 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	• RS2 to RS4: IP40 • RS5 and RS6: IP54
Insulation	Class F
Torque at low speed	0.22 ... 13 Nm
Permanent current at low speed	4.1 ... 28 A
Rated voltage	25.4 ... 105 V
Rated speed	2000 ... 3000 min^{-1}
Rotor inertia	195 ... 8300 $kgmm^2$

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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		
0.225	4.1	25.4	3000	195	RS220FR1	■	00
0.232	2.8	38.6	3000	195	RS220KR1	■	00
0.31	5.6	24	3000	26	RS230CR1	■	00
0.39	6	27.6	3000	325	RS240BR1	■	00
0.54	4.5	49	3000	83	RS320HR1	■	00
0.78	5.9	51	3000	110	RS330ER1	■	00
0.98	6.9	53	3000	140	RS340CR1	■	00
0.48	3.6	60	3000	137	RS410RR1	■	00
0.93	6.2	60	3000	225	RS420JR1	■	00
1.3	8.1	43	2000	310	RS430FR1	■	00
1.36	6.6	78	3000	310	RS430HR1	■	00
1.74	7	90	3000	400	RS440GR1	■	00
1.9	7.9	82	2700	1 000	RS510LR1	■	00
3.1	10.9	92	2700	1 350	RS520GR1	■	00
4	13	97	2700	1 700	RS530ER1	■	00
5	15	104	2700	2 050	RS540CR1	■	00
8	22.3	100	2400	5 300	RS620GR1	■	00
10.8	25	100	2000	6 800	RS630FR1	■	00
13	28	105	2000	8 300	RS640ER1	■	00

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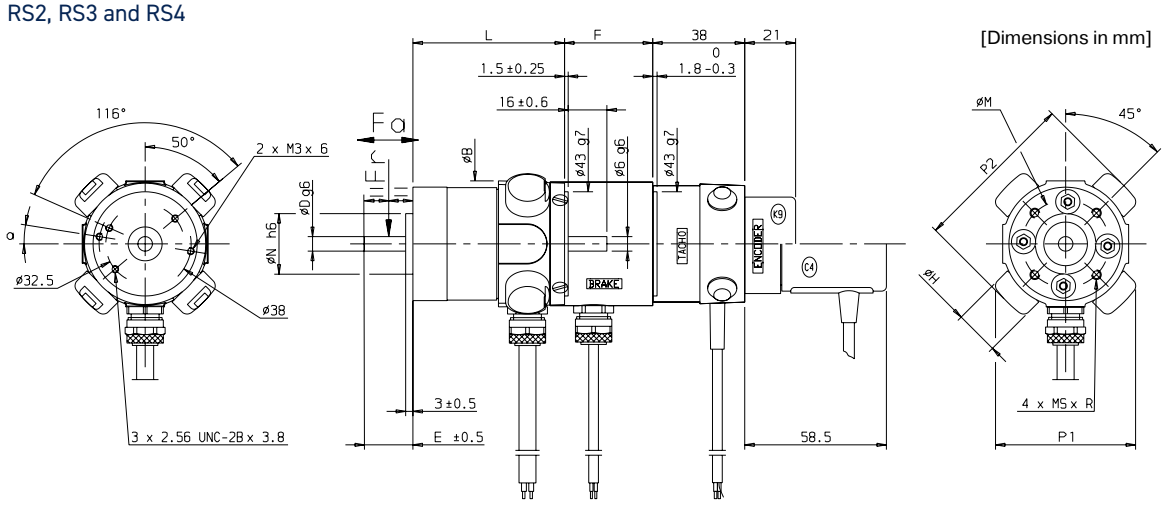
Dimensions

RS2, RS3 and RS4

[Dimensions in mm]



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]
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
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

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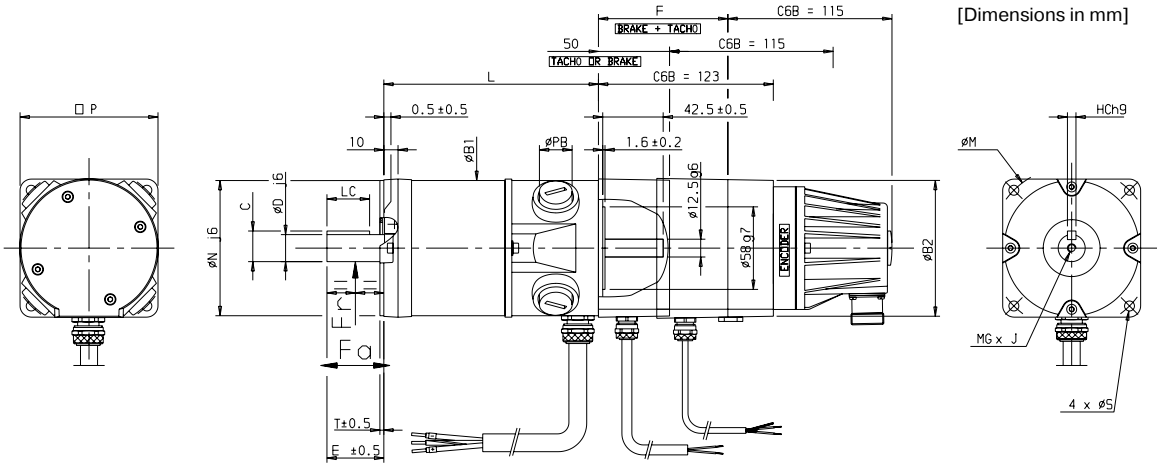
RS5 and RS6

[Dimensions in mm]



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		
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	RS2 / RS3 / RS4 RS2 / RS3 / RS4	500 1000	220215P0001 220215P0004	220071R0025 220071R0025	

Other encoders: on request

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Order Code

RS Series

	1	2	3	4	5	6	7
Order example	**RS**	**220**	**F**	**R**	**1**	**0**	**11**

1	**Motor type**	
	RS	Motor with neodyme magnets
2	**Motor size and length**	
	220 **230** **320** **...**	see table "Technical data"
3	**Winding**	
	F **L** **H** **...**	Depend of motor size, speed and voltage/current, see table "Technical data"
4	**Fix code**	
	R	
5	**Mechanical features**	
	1	Output cables (standard)
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 RS2, RS3 and RS4.

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Pancake DC Servo Motor - AXEM Series

Overview

Description

The AXEM motor, with more than 2 million units produced, is one of the most widespread servo motors in the world. With its disk rotor, composed solely of copper and insulator the Axem motor achieves high dynamics and excellent regulation of motion at low speed, as well as silent and vibration-free functioning.
It is robust , efficient, and low maintenance.



Advantages

- **Very low speed modulation**
- **Exceptional regulation at low speed**
- **High dynamic characteristics low rotor inertia**
- **Silent and vibration-free functioning**
- **Maintenance free**
- **Disk rotor**
- **Protection: IP44**
- **Class F insulation**

Applications

- **Factory Automation**
- **Life Science Diagnostic**

Technical Characteristics - Overview

Nominal torque	0.14...19.2 Nm
Nominal current	6.4...44 A
Nominal voltage	14...178 V
Nominal speed	3000, 4800 min^{-1}
Inertia	29...7400 $kgmm^2$



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Technical Data

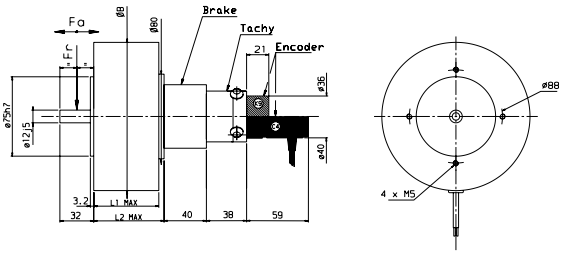
Motor	Nominal torque [Nm]	Nominal current [A]	Nominal voltage [V]	Nominal speed [min^{-1}]	Inertia [kgmm^2]
F9M4R	0.14	6.4	22	4800	35
F9M2	0.282	11	14	3000	29
F9M4	0.346	6.7	26	3000	35
F9M4H	0.537	6.5	35	3000	34
MC19P	3.2	14.5	83	3000	1000
MC19S	3.2	7.3	165	3000	1000
MC24P	7.3	18.9	136	3000	3200
MC27P	14.3	33	152	3000	7400

Tachy		
Type	**Associated motor**	**EMF [V/1000 min^{-1}]**
F9T	F9	3
FC12T	MC	6
TBN 206	F9	6
TBN 420	MC	20

Dimensions

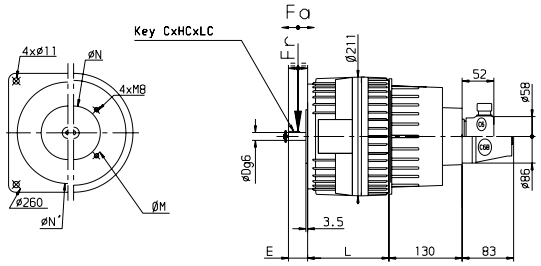
F9 dimensions					
Motor	**L1 [mm]**	**L2 [mm]**	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
F9M4R	34	46.5	1.1	14	2.5
F9M2	52.5	65	2.3	14	2.5
F9M4	52.5	65	2.3	14	2.5
F9M4H	64	76.5	2.8	14	2.5

F9: øB = ø110



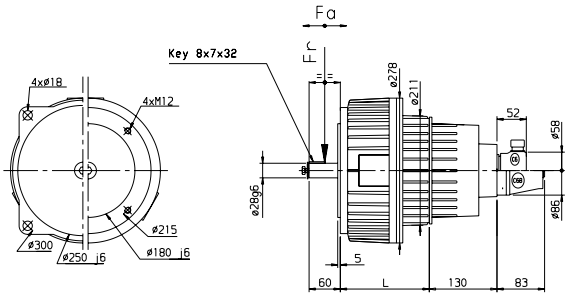
MC19 dimensions			
Motor	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
MC19	9.7	60	35

(1) Fr and Fa not cumulative



MC24 - MC27 dimensions			
Motor	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
MC24	23	80	45
MC27	35	90	50

(1) Fr and Fa not cumulative



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