



## RS and AXEM Series

DC Servo Motors



ENGINEERING YOUR SUCCESS.



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## RS and AXEM Series

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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
- **2<sup>nd</sup> 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 2<sup>nd</sup> shaft end for encoder mounting (RS5 and RS6)

### Technical Characteristics - Overview

<b>Motor type</b>	DC motors with rare earth magnets
<b>Number of poles</b>	4
<b>Protection degree</b>	<ul style="list-style-type: none"> <li>• RS2 to RS4: IP40</li> <li>• RS5 and RS6: IP54</li> </ul>
<b>Insulation</b>	Class F
<b>Torque at low speed</b>	0.22 ... 13 Nm
<b>Permanent current at low speed</b>	4.1 ... 28 A
<b>Rated voltage</b>	25.4 ... 105 V
<b>Rated speed</b>	2000 ... 3000 min <sup>-1</sup>
<b>Rotor inertia</b>	195 ... 8300 kgmm <sup>2</sup>

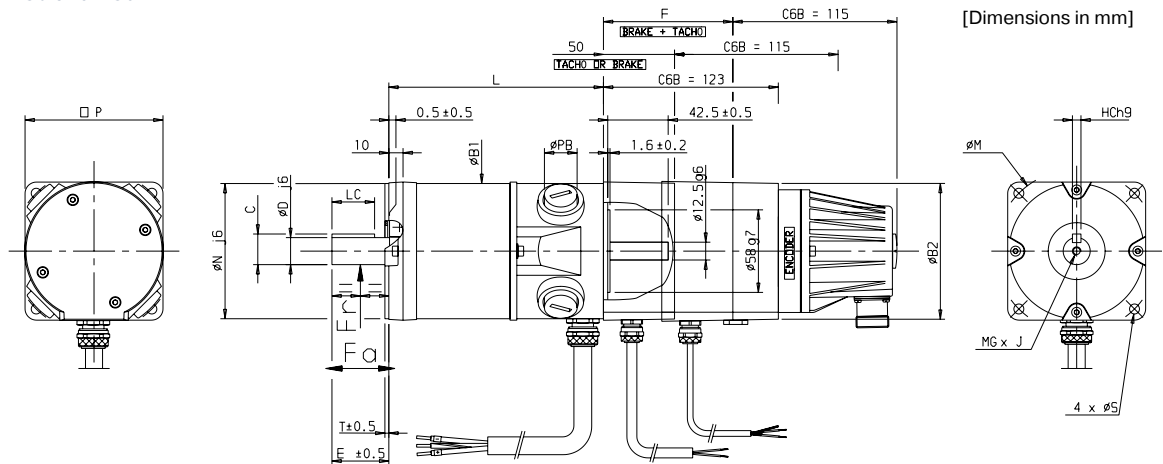
## Technical Data

Torque at low speed $M_0$ [Nm]	Permanent current at low speed $I_0$ [A]	Rated Voltage $U$ [V]	Rated Speed $N$ [min <sup>-1</sup> ]	Rotor Inertia [kgmm <sup>2</sup> ]	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	1000	RS510LR1	■	00
3.1	10.9	92	2700	1350	RS520GR1	■	00
4	13	97	2700	1700	RS530ER1	■	00
5	15	104	2700	2 050	RS540CR1	■	00
8	22.3	100	2400	5300	RS620GR1	■	00
10.8	25	100	2000	6800	RS630FR1	■	00
13	28	105	2000	8 300	RS640ER1	■	00



High Performance DC Servo Motor - RS Series

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 <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
<b>RS510</b>	97	95	21.5	19	30	40	3	96	25	151	91	96	7	115	M6x18	6	5.1	70	23
<b>RS520</b>	97	95	21.5	19	30	40	3	96	25	180	91	96	7	115	M6x18	6	6.3	70	23
<b>RS530</b>	97	95	21.5	19	30	40	3	96	25	209	91	96	7	115	M6x18	6	7.5	70	23
<b>RS540</b>	97	95	21.5	19	30	40	3	96	25	238	91	96	7	115	M6x18	6	8.7	70	23
<b>RS620</b>	120	110	27	24	40	50	3.5	117	30	246	93	117	10	130	M8x20	8	11.5	80	26
<b>RS630</b>	120	110	27	24	40	50	3.5	117	30	284	93	117	10	130	M8x20	8	14	80	26
<b>RS640</b>	120	110	27	24	40	50	3.5	117	30	321	93	117	10	130	M8x20	8	16.3	80	26

<sup>(1)</sup> Fr and Fa not cumulative

## Options

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

Encoders					
Model	Associated motors	Pulse per rev	Encoder reference	Mounting kit reference	Connector reference
<b>C2</b>	RS2 / RS3 / RS4 RS2 / RS3 / RS4	500 1000	220215P0001 220215P0004	220071R0025 220071R0025	

Other encoders: on request

## Order Code

### RS Series

	1	2	3	4	5	6	7
Order example	<b>RS</b>	<b>220</b>	<b>F</b>	<b>R</b>	<b>1</b>	<b>0</b>	<b>11</b>

<b>1 Motor type</b>	<b>RS</b>	Motor with neodyme magnets
<b>2 Motor size and length</b>	<b>220</b>	
	<b>230</b>	see table "Technical data"
	<b>320</b>	
	...	
<b>3 Winding</b>	<b>F</b>	Depend of motor size, speed and voltage/current, see table "Technical data"
	<b>L</b>	
	<b>H</b>	
	...	
<b>4 Fix code</b>	<b>R</b>	
<b>5 Mechanical features</b>	<b>1</b>	Output cables (standard)
<b>6 Options</b>	<b>0</b>	No accessories (standard)
	<b>1</b>	Tacho
	<b>2</b>	Brake (RS2 to RS6)
	<b>3</b>	Tacho + brake (RS2 to RS6)
	<b>4</b>	Encoder adaptation <sup>(1)</sup> (size 5 and 6 only)
	<b>5</b>	Tacho + Encoder adaptation (size 5 and 6 only)
	<b>6</b>	Brake + Encoder adaptation (size 5 and 6 only)
	<b>7</b>	Tacho + Brake + Encoder adaptation (size 5 and 6 only)
<b>7 Customer specification</b>	<b>00</b>	Standard catalogue definition - smooth shaft (size 1 -> 4) - shaft with key way (size 5-6)

<sup>(1)</sup> Encoder adaptation is standard for RS2, RS3 and RS4.

# 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

<b>Nominal torque</b>	0.14...19.2 Nm
<b>Nominal current</b>	6.4...44 A
<b>Nominal voltage</b>	14...178 V
<b>Nominal speed</b>	3000, 4800 min <sup>-1</sup>
<b>Inertia</b>	29...7400 kgmm <sup>2</sup>



## Technical Data

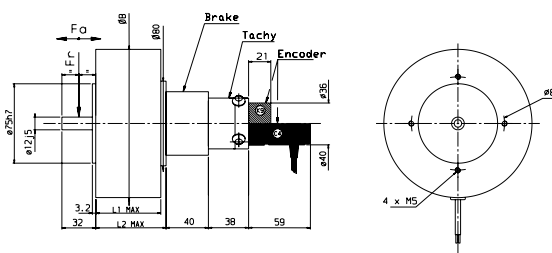
Motor	Nominal torque [Nm]	Nominal current [A]	Nominal voltage [V]	Nominal speed [min <sup>-1</sup> ]	Inertia [kgmm <sup>2</sup> ]
F9M4R	0.14	6.4	22	4800	35
F9M2	0.282	11	14	3000	29
F9M4	0.346	6.7	26	3000	35
F9M4H	0.537	6.5	35	3000	34
MC19P	3.2	14.5	83	3000	1000
MC19S	3.2	7.3	165	3000	1000
MC24P	7.3	18.9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

Tachy		
Type	Associated motor	EMF [V/1000 min <sup>-1</sup> ]
F9T	F9	3
FC12T	MC	6
TBN 206	F9	6
TBN 420	MC	20

## Dimensions

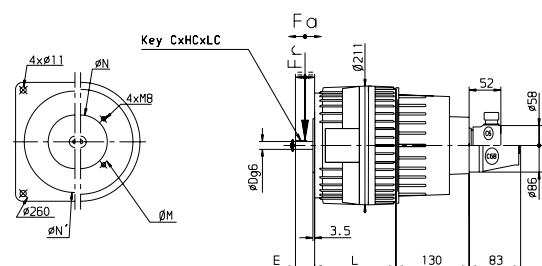
F9 dimensions					
Motor	L1 [mm]	L2 [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
F9M4R	34	46.5	1.1	14	2.5
F9M2	52.5	65	2.3	14	2.5
F9M4	52.5	65	2.3	14	2.5
F9M4H	64	76.5	2.8	14	2.5

F9:  $\varnothing B = \varnothing 110$



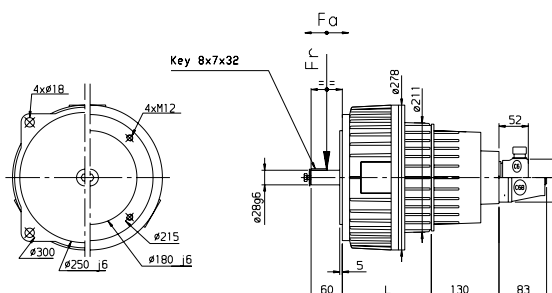
MC19 dimensions			
Motor	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC19	9.7	60	35

<sup>(1)</sup> Fr and Fa not cumulative



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

<sup>(1)</sup> Fr and Fa not cumulative



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