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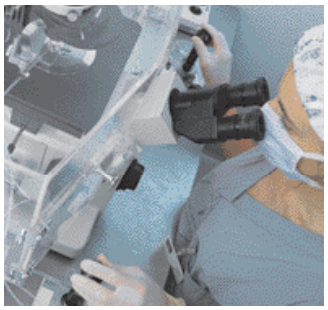






RS and AXEM Series

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	2 000 ... 3 000 min^{-1}
Rotor inertia	195 ... 8 300 $kgmm^2$

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Technical Data

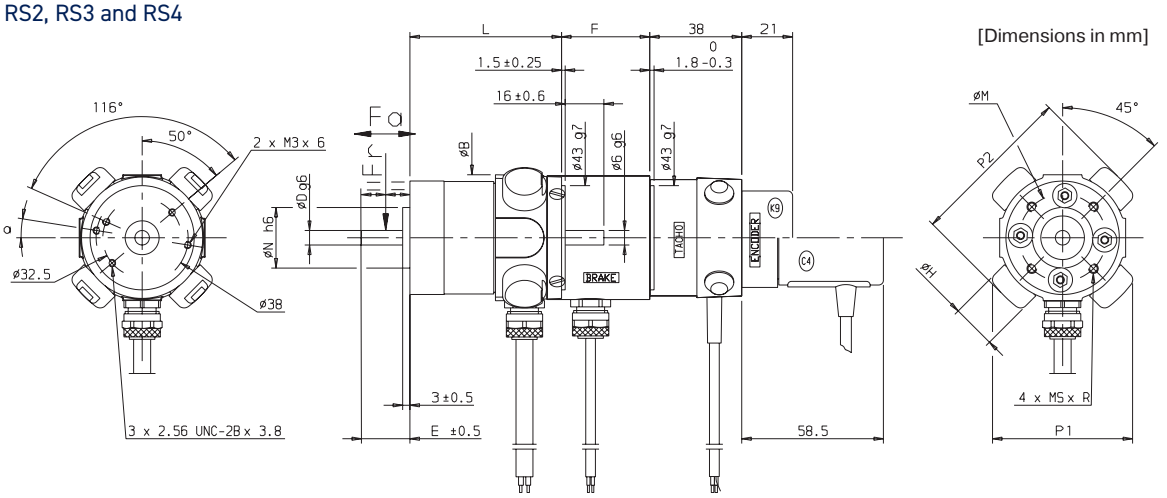
Torque at low speed M_0 [Nm]	Permanent current at low speed I_0 [A]	Rated Voltage U [V]	Rated Speed N [min^{-1}]	Rotor Inertia [$kgmm^2$]	Product Code		
0.225	4.1	25.4	3000	195	RS220FR1	■	00
0.232	2.8	38.6	3000	195	RS220KR1	■	00
0.31	5.6	24	3000	26	RS230CR1	■	00
0.39	6	27.6	3000	325	RS240BR1	■	00
0.54	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]



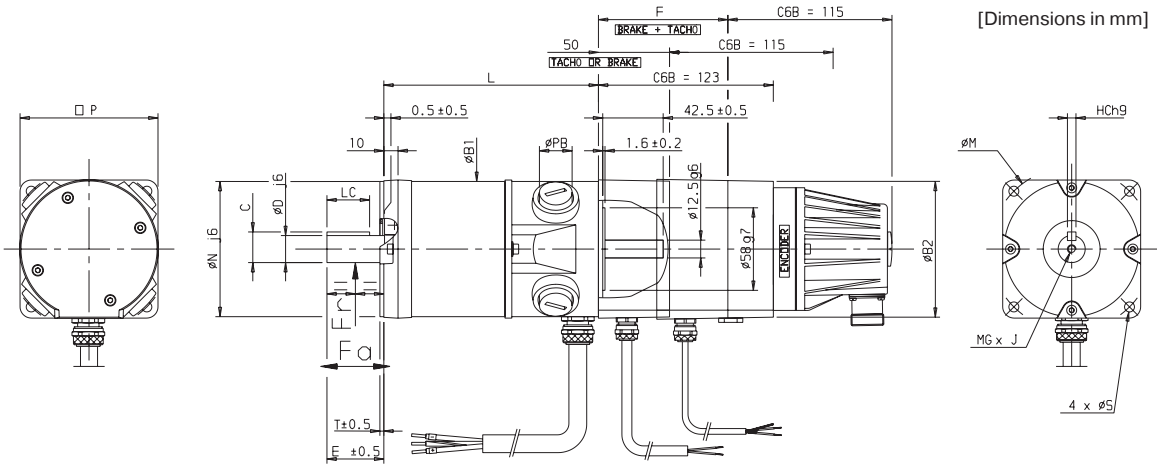
RS2, RS3 and RS4 with brake, tacho and encoder dimensions															
Motor	**a**	**N**	**D**	**E**	**B**	**L**	**F**	**P1**	**P2**	**H**	**MSxR**	**M**	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
RS220	9°	25	6	20	52	79	36.4	58	68	18.5	M4x6	36	0.7	18	10
RS230	9°	25	6	20	52	95	36.4	58	68	18.5	M4x6	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

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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

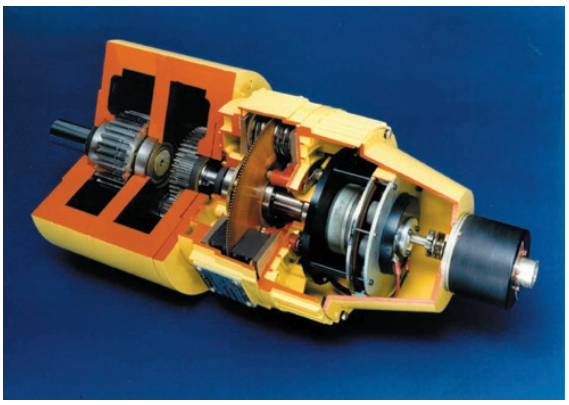
- Very low speed modulation
- Exceptional regulation at low speed
- High dynamic characteristics
  low rotor inertia
- Silent and vibration-free functioning
- Maintenance free
- Disk rotor
- Protection: IP44
- Class F insulation

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
F12M4R	0.42	8	37	4800	150
F12M2	0.61	11.7	24	3000	105
F12M4	0.77	7.7	43	3000	150
F12M4H	1.1	7.2	61	3000	160
MC13S	1.2	7.6	64	3000	235
MC17H	1.8	6.9	102	3000	790
MC19P	3.2	14.5	83	3000	1000
MC19S	3.2	7.3	165	3000	1000
MC23S	6.1	13	170	3000	2300
MC24P	7.3	18.9	136	3000	3200
MC27P	14.3	33	152	3000	7400

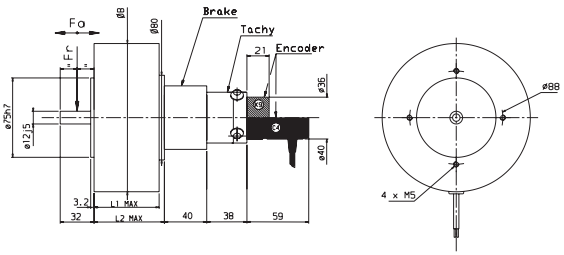
Tachy		
Type	**Associated motor**	**EMF [V/1000 min^{-1}]**
F9T	F9	3
FC12T	F12 / MC	6
TBN 206	F9 / F12	6
TBN 420	MC	20

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Dimensions

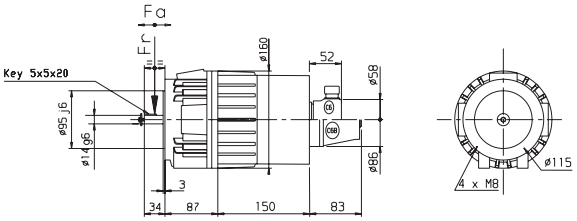
F9 - F12 dimensions					
Motor	**L1 [mm]**	**L2 [mm]**	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
F9M4R	34	46.5	1.1	14	2.5
F9M2	52.5	65	2.3	14	2.5
F9M4	52.5	65	2.3	14	2.5
F9M4H	64	76.5	2.8	14	2.5
F12M4R	37.5	51	2.9	14	2.5
F12M2	61.5	71.5	3.85	14	2.5
F12M4	61.5	71.5	3.85	14	2.5
F12M4H	74	84	5	14	2.5

F9: øB = ø110
F12: øB = ø140



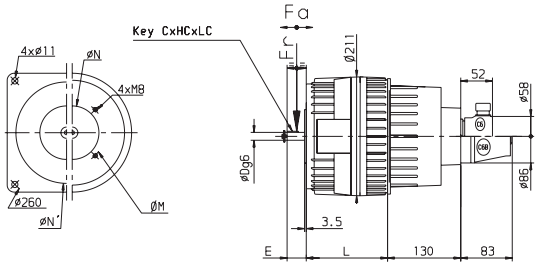
MC13 dimensions			
Motor	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
MC13	4	35	13

(1) Fr and Fa not cumulative



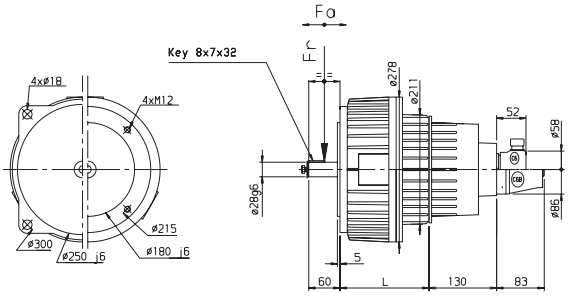
MC17 - MC19 dimensions			
Motor	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
MC17	6.5	60	35
MC19	9.7	60	35

(1) Fr and Fa not cumulative



MC23 - MC24 - MC27 dimensions			
Motor	**Weight [kg]**	**Fr(1) [daN]**	**Fa(1) [daN]**
MC23	17	75	40
MC24	23	80	45
MC27	35	90	50

(1) Fr and Fa not cumulative



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Aerospace

Key Markets

Aftermarket services
Commercial transports
Engines
General & business aviation
Helicopters
Launch vehicles
Military aircraft
Missiles
Power generation
Regional transports
Unmanned aerial vehicles

Key Products

Control systems & actuation products
Engine systems & components
Fluid conveyance systems & components
Fluid metering, delivery & atomization devices
Fuel systems & components
Fuel tank inerting systems
Hydraulic systems & components
Thermal management
Wheels & brakes



Climate Control

Key Markets

Agriculture
Air conditioning
Construction Machinery
Food & beverage
Industrial machinery
Life sciences
Oil & gas
Precision cooling
Process
Refrigeration
Transportation

Key Products

Accumulators
Advanced actuators
CO_2 controls
Electronic controllers
Filter driers
Hand shut-off valves
Heat exchangers
Hose & fittings
Pressure regulating valves
Refrigerant distributors
Safety relief valves
Smart pumps
Solenoid valves
Thermostatic expansion valves



Electromechanical

Key Markets

Aerospace
Factory automation
Life science & medical
Machine tools
Packaging machinery
Paper machinery
Plastics machinery & converting
Primary metals
Semiconductor & electronics
Textile
Wire & cable

Key Products

AC/DC drives & systems
Electric actuators, gantry robots & slides
Electrohydrostatic actuation systems
Electromechanical actuation systems
Human machine interface
Linear motors
Stepper motors, servo motors, drives & controls
Structural extrusions



Filtration

Key Markets

Aerospace
Food & beverage
Industrial plant & equipment
Life sciences
Marine
Mobile equipment
Oil & gas
Power generation & renewable energy
Process
Transportation
Water Purification

Key Products

Analytical gas generators
Compressed air filters & dryers
Engine air, coolant, fuel & oil filtration systems
Fluid condition monitoring systems
Hydraulic & lubrication filters
Hydrogen, nitrogen & zero air generators
Instrumentation filters
Membrane & fiber filters
Microfiltration
Sterile air filtration
Water desalination & purification filters & systems



Fluid & Gas Handling

Key Markets

Aerial lift
Agriculture
Bulk chemical handling
Construction machinery
Food & beverage
Fuel & gas delivery
Industrial machinery
Life sciences
Marine
Mining
Mobile
Oil & gas
Renewable energy
Transportation

Key Products

Check valves
Connectors for low pressure fluid conveyance
Deep sea umbilicals
Diagnostic equipment
Hose couplings
Industrial hose
Mooring systems & power cables
PTFE hose & tubing
Quick couplings
Rubber & thermoplastic hose
Tube fittings & adapters
Tubing & plastic fittings



Hydraulics

Key Markets

Aerial lift
Agriculture
Alternative energy
Construction machinery
Forestry
Industrial machinery
Machine tools
Marine
Material handling
Mining
Oil & gas
Power generation
Refuse vehicles
Renewable energy
Truck hydraulics
Turf equipment

Key Products

Accumulators
Cartridge valves
Electrohydraulic actuators
Human machine interfaces
Hybrid drives
Hydraulic cylinders
Hydraulic motors & pumps
Hydraulic systems
Hydraulic valves & controls
Hydrostatic steering
Integrated hydraulic circuits
Power take-offs
Power units
Rotary actuators
Sensors



Pneumatics

Key Markets

Aerospace
Conveyor & material handling
Factory automation
Life science & medical
Machine tools
Packaging machinery
Transportation & automotive

Key Products

Air preparation
Brass fittings & valves
Manifolds
Pneumatic accessories
Pneumatic actuators & grippers
Pneumatic valves & controls
Quick disconnects
Rotary actuators
Rubber & thermoplastic hose & couplings
Structural extrusions
Thermoplastic tubing & fittings
Vacuum generators, cups & sensors



Process Control

Key Markets

Alternative fuels
Biopharmaceuticals
Chemical & refining
Food & beverage
Marine & shipbuilding
Medical & dental
Microelectronics
Nuclear Power
Offshore oil exploration
Oil & gas
Pharmaceuticals
Power generation
Pulp & paper
Steel
Water/wastewater

Key Products

Analytical Instruments
Analytical sample conditioning products & systems
Chemical injection fittings & valves
Fluoropolymer chemical delivery fittings, valves & pumps
High purity gas delivery fittings, valves, regulators & digital flow controllers
Industrial mass flow meters/controllers
Permanent no-weld tube fittings
Precision industrial regulators & flow controllers
Process control double block & bleeds
Process control fittings, valves, regulators & manifold valves



Sealing & Shielding

Key Markets

Aerospace
Chemical processing
Consumer
Fluid power
General industrial
Information technology
Life sciences
Microelectronics
Military
Oil & gas
Power generation
Renewable energy
Telecommunications
Transportation

Key Products

Dynamic seals
Elastomeric o-rings
Electro-medical instrument design & assembly
EMI shielding
Extruded & precision-cut, fabricated elastomeric seals
High temperature metal seals
Homogeneous & inserted elastomeric shapes
Medical device fabrication & assembly
Metal & plastic retained composite seals
Shielded optical windows
Silicone tubing & extrusions
Thermal management
Vibration dampening

192-124400N3 01/2023

www.parker.com

European Headquarters
La Tuilière 6, 1163 Etoy,
Switzerland
Tel: +41 21 821 85 00

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