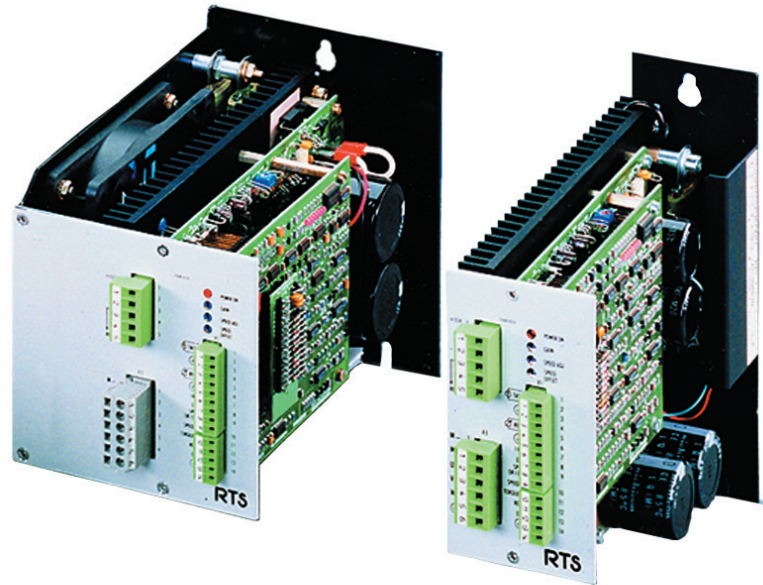




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RTS, RS, RX and AXEM Series

DC Servo Drives



ENGINEERING YOUR SUCCESS.



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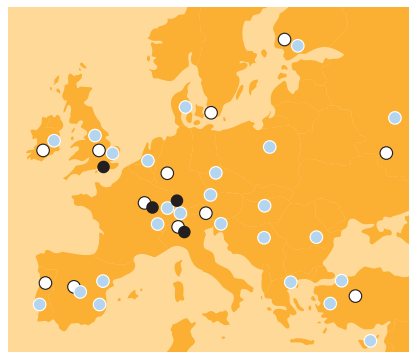
For contact information, please refer to the Sales Offices on the back cover of this document or visit www.parker.com



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DC Servo Drive - RTS Series

Overview

Description

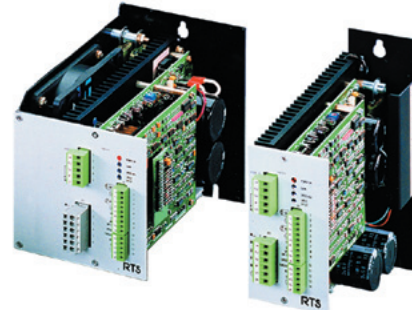
The RTS servo amplifiers are designed for driving DC servo motors and are available in ratings up to 6.5 kW.

These products enable speed control of DC motors with or without tachometers.

They integrate main supply, auxiliary supply and braking resistor circuits in a compact package.

Features

- Battery, single-phase or three-phase power supply
- U-RI or tachometer control
- Integrated braking resistor
- Full protecting features
- High compactness
- Panel or rack mounting
- 3U Eurocard



Technical Characteristics - Overview

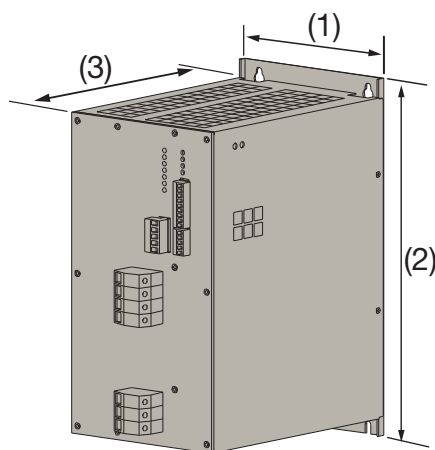
| | |
|------------------------------|---|
| Power supply | Single phase, three phase or battery |
| Nominal current | 3...40 A |
| Peak current | 10...80 A |
| Operating Temperature | 0...40 °C (derate by 35 % per 10 °C >40 °C to 60 °C max.) |
| Altitude | 1000 m (derate by 10 % >1000 m per 1000 m to 4000 m max.) |
| Protection | IP00, IP20 for versions with covering cap |

Technical Data

| Product type | Power supply input [V..] | Output current (nominal/peak) [A] | Nominal output voltage [VDC] | Associated transformer (minimum power) |
|-----------------------|-----------------------------|---|------------------------------------|--|
| Panel mounting | | | | |
| RTS 71 04- 301 | 32 VAC 1 ph. ±10 % | 3/10 | 40 | TT_11133 |
| RTS 71 060 102R | 48 VAC 1 ph. ±10 % | 10/20 | 60 | TT-11135 |
| RTS 71 130 102R | 100 VAC 1 ph. ±10 % | 12/24 | 130 | TT_11147 |
| RTS 73 060 102R | 48 VAC 3 ph. ±10 % | 10/20 | 60 | TT-11136 |
| RTS 73 130 102R | 100 VAC 3 ph. ±10 % | 12/24 | 130 | TT_11145 |
| RTS 73 130 204R | 100 VAC 3 ph. ±10 % | 20/40 | 130 | TT_11140 |
| RTS 73 190 103R | 135 VAC 3 ph. ±10 % | 16/32 | 190 | TT_11117 |
| RTS 73 200 408R | 150 VAC 3 ph. ±10 % | 40/80 | 200 | TT_11119 |
| RTS 42 BA0 102 | 24-48 VDC battery | 12/24 | Ubatt-2 | |
| RTS P2 BA0 204 | 24-48 VDC battery | 20/40 | Ubatt-2 | |
| RTS 72 BA0 408 | 36-72 VDC battery | 40/80 | Ubatt-2 | |
| Rack Mounting | | | | |
| RTS 61 04- 301 | 32 VAC 1 ph. ±10 % | 3/10 | 40 | TT_11133 |
| RTS 63 060 102R | 48 VAC 3 ph. ±10 % | 10/20 | 60 | TT_11136 |
| RTS 63 130 102R | 100 VAC 3 ph. ±10 % | 12/24 | 130 | TT_11145 |
| RTS 42 BA0 102 | 24-48 VDC battery | 12/24 | Ubatt-2 | |

All the RTS servo amplifiers are supplied with a RZ6602 setting board.

Dimensions



| Product type / size | Height (2) [mm] | Width (1) [mm] | Depth (3) [mm] | Weight [kg] |
|-----------------------|--------------------|-------------------|-------------------|----------------|
| Panel mounting | | | | |
| RTS 71 04- 301 | 150 | 65 | 212 | 1 |
| RTS 71 060 102R | 180 | 65 | 212 | 1.1 |
| RTS 71 130 102R | 180 | 95 | 212 | 1.9 |
| RTS 73 060 102R | 149 | 65 | 212 | 1 |
| RTS 73 130 102R | 149 | 95 | 212 | 1.5 |
| RTS 73 130 204R | 149 | 121 | 221 | 1.9 |
| RTS 73 190 103R | 149 | 121 | 212 | 1.9 |
| RTS 73 200 408R | 275 | 139 | 229 | 6 |
| RTS 42 BA0 102 | 149 | 65 | 212 | 1 |
| RTS P2 BA0 204 | 149 | 65 | 212 | 1.5 |
| RTS 72 BA0 408 | 275 | 70 | 229 | 2.5 |
| Rack mounting | | | | |
| RTS 61 04- 301 | 128.4 | 60.6 | 215 | 0.9 |
| RTS 63 060 102R | 128.4 | 60.6 | 215 | 0.9 |
| RTS 63 130 102R | 128.4 | 60.6 | 215 | 0.9 |
| RTS 42 BA0 102 | 128.4 | 50.4 | 215 | 0.85 |

Accessories

| Accessories | Description |
|-------------|--|
| TT_11133 | 0.12 kVA transformer 230/400 VAC primary 32 VAC 1 ph. ± 5 % secondary |
| TT_11134 | 0.63 kVA transformer 230/400 VAC primary 32 VAC 1 ph. ± 5 % secondary |
| TT_11135 | 0.63 kVA transformer 230/400 VAC primary 48 VAC 1 ph. ± 5 % secondary |
| TT_11136 | 0.5 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary |
| TT_11137 | 1.6 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary |
| TT_11138 | 2.5 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary |
| TT_11147 | 1.6 kVA transformer 230/400 VAC primary 100 VAC 3ph. ± 5 % secondary |
| TT_11144 | 0.63 kVA transformer 230/400 VAC primary 100 VAC ± 5 % secondary |
| TT_11145 | 1 kVA transformer 230/400 VAC primary 100 VAC 3 ph. ± 5 % secondary |
| TT_11139 | 1.6 kVA transformer 230/400 VAC primary 100 VAC 3 ph. ± 5 % secondary |
| TT_11140 | 2.5 kVA transformer 230/400 VAC primary 100 VAC + 48 VAC 3 ph. ± 5 % secondary |
| TT_11141 | 4 kVA transformer 230/400 VAC primary 100 VAC + 48 VAC 3 ph. ± 5 % secondary |
| TT_11115 | 1 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| TT_11116 | 1.6 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| TT_11117 | 2.5 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| TT_11118 | 4 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| TT_11119 | 6.3 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| TT_11120 | 10 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary |
| CZ463068 | 56 Ω 200 W Brake Resistor FC - one per phase - to be added with 10 kVA transformer |
| TP_83131 | Cover for RTS 16/32 A & 20/40 A |
| TP_83132 | Cover for RTS 3/10 A & 10/20 A - 60 VDC Three phase & 12/24 A battery |
| TP_83133 | Cover for RTS 12/24 A - 130 VDC Three phase |
| TP_83138 | Cover for RTS 10/20 A - 60 VDC Single phase |
| TP_83140 | Cover for RTS 12/24 A - 130 VDC Single phase |
| RACE234 | Rack RTS 3 U - 1 to 4 axis |
| RACE234V | 22 Rack RTS 3 U - 1 to 4 axis with ventilation |
| RACE238 | Rack RTS 3 U - 1 to 8 axis |
| RACE238V | 32 Rack RTS 3 U - 1 to 8 axis with ventilation |
| TL_84032 | Cover for rack RTS 81 mm |
| TL_84045 | Cover for rack RTS 51 mm |
| RG_6601 | Acceleration / deceleration board |
| RG_6602 | Acceleration / deceleration board for RTS 40/80 A |
| SF_02022 | Choke for RTS - 16 A - 2.5 mH (recommended for cables > 40 m) |
| SF_02023 | Choke for RTS - 25 A - 1.5 mH (recommended for cables > 40 m) |
| SF_02024 | Choke for RTS - 40 A - 1.25 mH (recommended for cables > 40 m) |
| SF_02031 | Choke for RTS - 12 A - 1 mH (recommended for cables > 40 m) |
| FR_13020 | 20 A 1 ph. / 3 ph. input main filter |

Order Code

DC Servo Drive - RTS

| | 1 | 2 | 3 | 4 | 5 |
|---------------|------------|-----------|------------|------------|----------|
| Order example | RTS | 71 | 060 | 102 | R |

| | | |
|----------|-------------------------------------|----------------------------|
| 1 | Type | |
| | RTS | DC Servo Drive |
| 2 | Mounting type / power supply | |
| | 71 | |
| | 73 | see table "Technical Data" |
| | 42 | |
| | ... | |
| 3 | Output voltage | |
| | 40 | |
| | 60 | see table "Technical Data" |
| | 130 | |
| | ... | |
| 4 | Output current | |
| | 102 | see table "Technical Data" |
| 5 | Brake resistance | |
| | R | see table "Technical Data" |

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 |

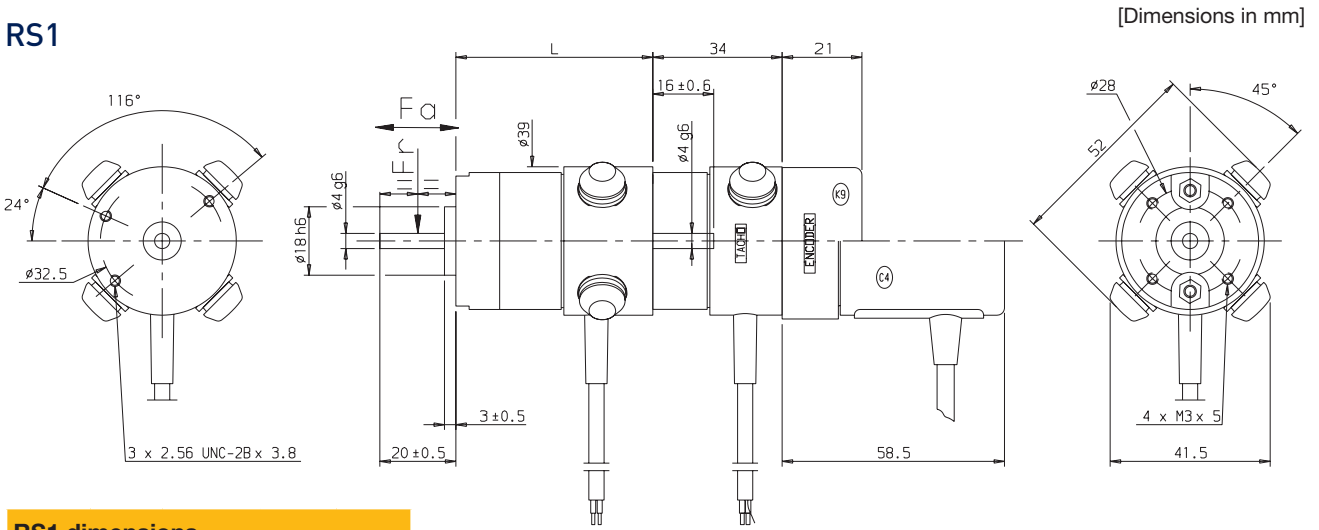
Technical Data

| 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 |
|--|---|----------------------------------|--|---------------------------------------|--|-----------------------|----------------------------|---|
| | | | | | ■ | 00 | | |
| 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

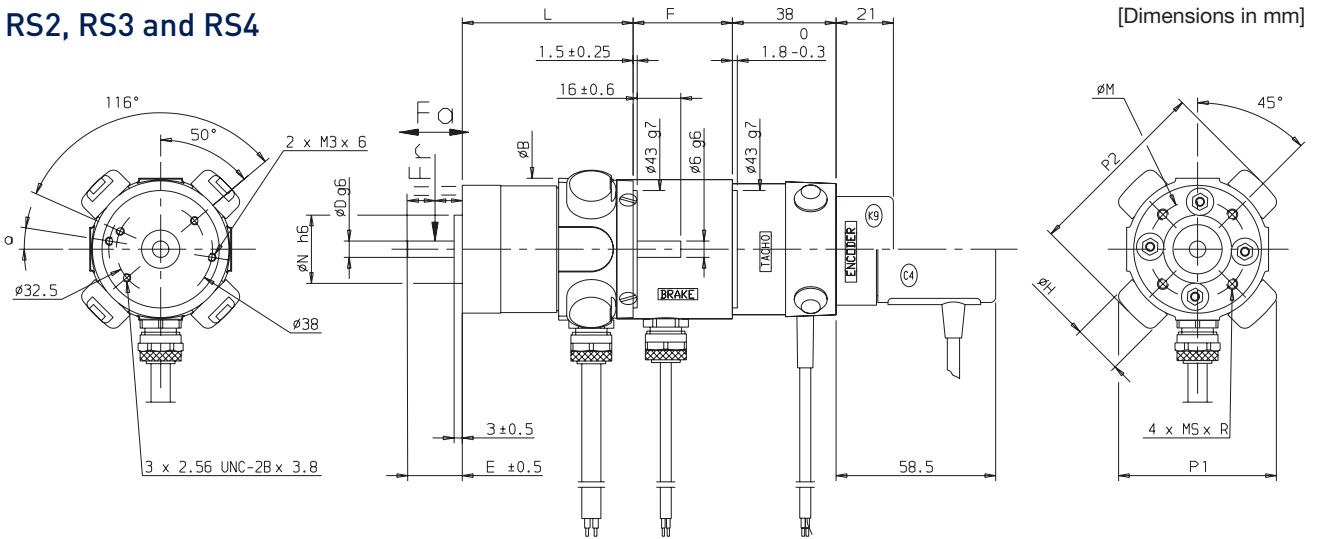
Dimensions

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 |

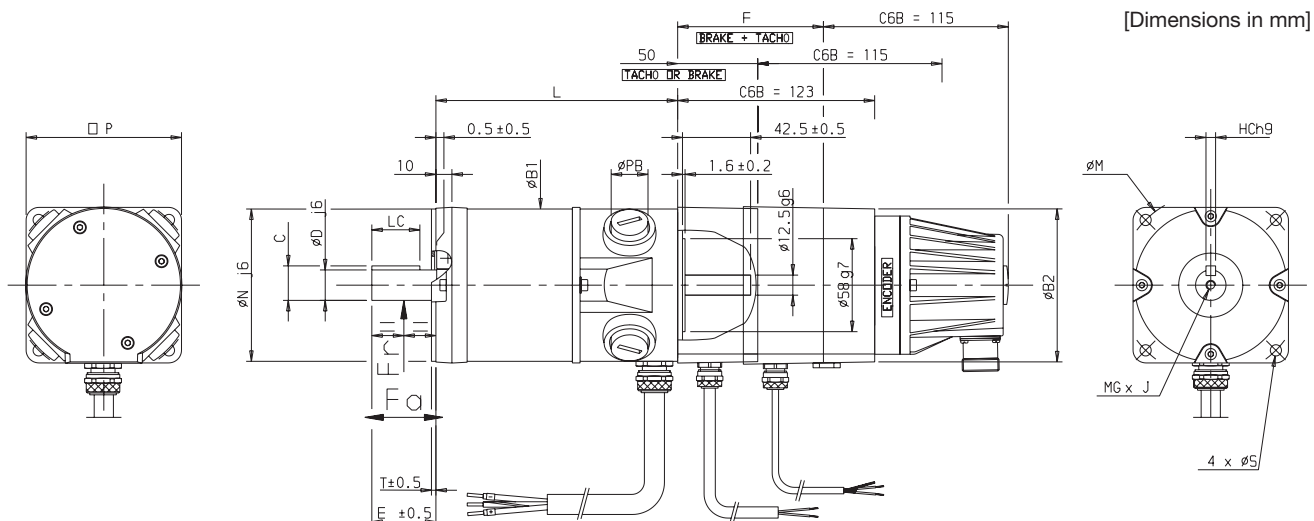
RS2, RS3 and RS4



| 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 | Depend of motor size, speed and voltage/current, see table "Technical data" |
| | H | |
| | M | |
| | ... | |
| 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.

Low-Cost DC Servo Motor - RX Series

Overview

Description

The RX DC motors, combined with RTS drives, provide an economical solution for any servo applications. They are particularly suitable for low power systems in clean atmospheres.

Advantages

- Excellent price/performance ratio
- Very low torque modulation
- High quality construction
- Very long service life
- 2nd shaft end for tacho and encoder mounting
- Tacho and brake as option

Applications

- Factory Automation
- Life Science Diagnostic

Features

- **Shaft**
 - RX1 and RX3: Smooth full shaft
 - RX5 and RX6: Full keyed shaft
- **2nd Shaft end**
 - RX1 and RX3: possibility to mount standard tacho or encoder
 - RX5 and RX6: possibility to mount standard tacho, adaptation for encoder mounting in option
- **Output cables 1 m without connector**
- **Options**
 - Brake
 - Tachometer
 - Adaptation 2nd shaft end for encoder mounting (RX5 and RX6)



Technical Characteristics - Overview

| | |
|--------------------------|--|
| Motor type | CC Motors with rare ferrite magnets |
| Protection degree | RX1 and RX3: IP40 RX5 and RX6: IP54 |
| Insulation | Class F |

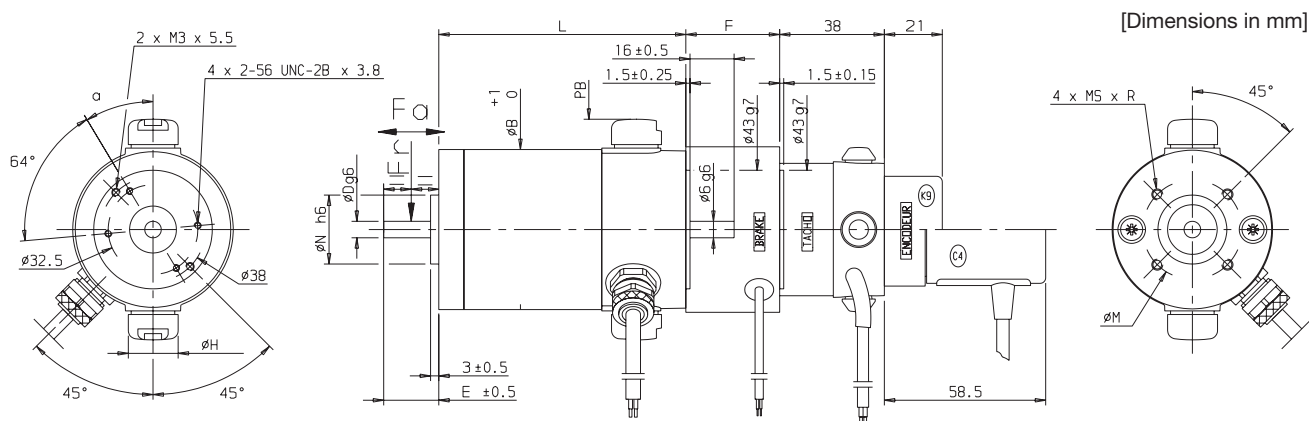
Technical Data

| 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 |
|--------------------------------|--|-----------------------|--------------------------------------|------------------------------------|----------------------|--------|----------|--|
| | | | | | | | | |
| 0.285 0.4 | 2.8 3.6 | 44.5 46 | 3000 3000 | 50 68 | RX120LR1 RX130HR1 | ■ ■ | 00 00 | RTS 3/10-40 M RTS 10/20-60 ⁽¹⁾ |
| 1.08 1.54 | 7.8 9.4 | 54 59 | 3000 2900 | 500 720 | RX320ER1 RX330CR1 | ■ ■ | 00 00 | RTS 10/20-60 ⁽¹⁾ RTS 10/20-60 ⁽¹⁾ |
| 2.7 3.7 | 7.7 10.3 | 119 116 | 2800 2700 | 1280 1740 | RX520KR1 RX530FR1 | ■ ■ | 00 00 | RTS 12/24-130 T RTS 12/24-130 T |
| 5 7.8 | 10.5 16 | 134 134 | 2400 2400 | 3500 5000 | RX620JR1 RX630ER1 | ■ ■ | 00 00 | RTS 12/24-130 T RTS 20/40-130 T |

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

Dimensions

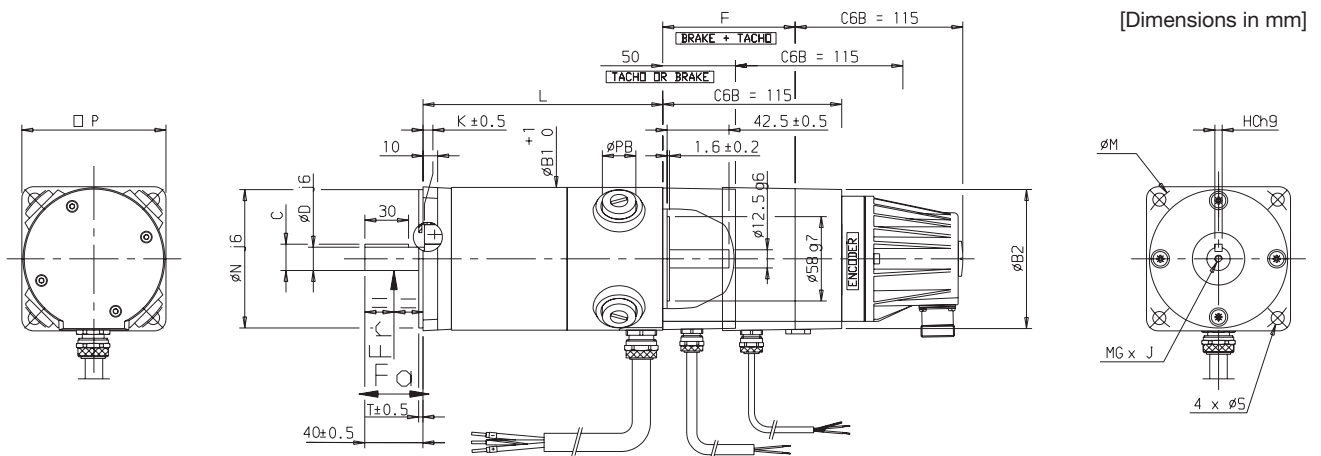
RX1 and RX3



RX1 and RX3 with brake, tacho and encoder dimensions

| Motor | H | a | N | D | E | B | PB | L | F | MSxR | M | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|-------|------|-----|----|----|----|----|-----|-------|----|-------|----|-------------|-------------------------|-------------------------|
| RX120 | 18.5 | 31° | 25 | 6 | 20 | 58 | 80 | 122.5 | 34 | M4x6 | 36 | 1.35 | 18 | 16 |
| RX130 | 18.5 | 31° | 25 | 6 | 20 | 58 | 80 | 147.5 | 34 | M4x6 | 36 | 1.6 | 20 | 16 |
| RX320 | 23 | 26° | 50 | 11 | 32 | 84 | 100 | 178.5 | 40 | M5x10 | 65 | 4 | 45 | 23 |
| RX330 | 23 | 26° | 50 | 11 | 32 | 84 | 100 | 218.5 | 40 | M5x10 | 65 | 5.2 | 50 | 23 |

RX5 and RX6



RX5 and RX6 with brake, tacho and encoder dimensions

| Motor | P | N | C | D | T | K | B1 | PB | L | F | B2 | S | M | MGxJ | HC | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|-------|-----|-----|------|----|-----|-----|-----|----|-----|----|-----|----|-----|-------|----|-------------|-------------------------|-------------------------|
| RX520 | 100 | 95 | 18 | 16 | 3 | 1 | 98 | 25 | 216 | 91 | 96 | 9 | 115 | M5x15 | 5 | 6.6 | 80 | 30 |
| RX530 | 100 | 95 | 18 | 16 | 3 | 1 | 98 | 25 | 266 | 91 | 96 | 9 | 115 | M5x15 | 5 | 8.7 | 85 | 30 |
| RX620 | 120 | 110 | 21.5 | 19 | 3.5 | 0.5 | 116 | 30 | 272 | 93 | 117 | 10 | 130 | M6x18 | 6 | 13 | 95 | 40 |
| RX630 | 120 | 110 | 21.5 | 19 | 3.5 | 0.5 | 116 | 30 | 358 | 93 | 117 | 10 | 130 | M6x18 | 6 | 18.5 | 100 | 40 |

⁽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 | | |
| RX1 | TBN 206 | 6 | 1 | 0.9 | 10 | 0.4 |
| RX3 | TBN 206 | 6 | 1.5 | 1.4 | 10 | 0.18 |
| RX5 | TBN 306 | 6 | 6 | 5.5 | 53 | 0.45 |
| RX6 | TBN 306 | 6 | 12 | 11.5 | 157 | 0.9 |

Encoders

| Model | Associated Motors | Pulse per rev | Encoder Reference | Mounting kit Reference | Connector Reference |
|-------|-------------------|---------------|-------------------|------------------------|---------------------|
| C 2 | RX1 / RX3 | 500 | 220215P0001 | 220071R0025 | - |
| | RX1 / RX3 | 1000 | 220215P0004 | 220071R0025 | - |
| C 6 | RX5 / RX6 | 500 | 220024P0001 | 220071R0002 | 220065R4621 |
| | RX5 / RX6 | 1000 | 220024P0003 | 220071R0002 | 220065R4621 |
| | RX5 / RX6 | 2000 | 220024P0006 | 220071R0002 | 220065R4621 |
| | RX5 / RX6 | 5000 | 220024P0005 | 220071R0002 | 220065R4621 |
| C 6 B | RX5 / RX6 | 500 | 220031R0001 | 220071R0004 | 220065R4621 |
| | RX5 / RX6 | 1000 | 220031R0003 | 220071R0004 | 220065R4621 |
| | RX5 / RX6 | 2000 | 220031R0008 | 220071R0004 | 220065R4621 |
| | RX5 / RX6 | 2500 | 220031R0004 | 220071R0004 | 220065R4621 |
| | RX5 / RX6 | 5000 | 220031R0005 | 220071R0004 | - |

Order Code

RX Series

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------|-----------|------------|----------|----------|----------|----------|-----------|
| Order example | RX | 120 | E | R | 1 | 0 | 11 |

| | | |
|----------|-------------------------------|--|
| 1 | Motor type | |
| | RX | Motor with ferrite magnets |
| 2 | Motor size and length | |
| | 120 | |
| | 130 | see table "Technical data" |
| | 320 | |
| | ... | |
| 3 | Winding | |
| | L | Depend of motor size, speed and voltage/current, see table "Technical data" |
| | H | |
| | M | |
| | ... | |
| 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 (RX3, RX5, RX6) |
| | 3 | Tacho + brake (RX3, RX5, RX6) |
| | 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 RX1 and RX3.

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
IP20 for ventilated models
- Class F insulation

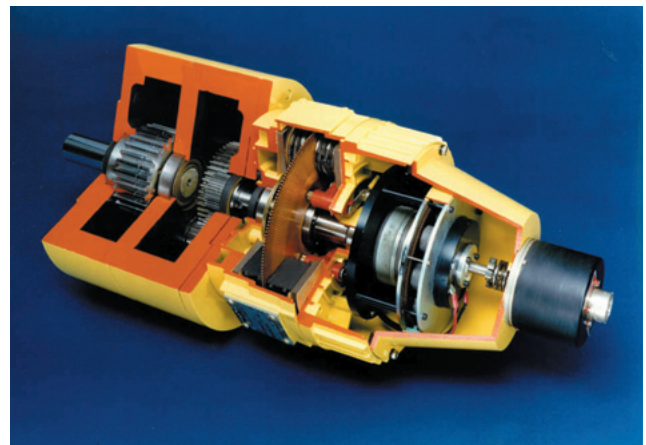
Applications

- 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 |



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 |
| MC17B | 1.2 | 24 | 23.5 | 3200 | 790 |
| MC19P | 3.2 | 14.5 | 83 | 3000 | 1000 |
| MC19P ⁽¹⁾ | 5.1 | 22.2 | 87 | 3000 | 1000 |
| MC19S | 3.2 | 7.3 | 165 | 3000 | 1000 |
| MC19S ⁽¹⁾ | 5.1 | 11.1 | 171 | 3000 | 1000 |
| MC19B | 2.8 | 46 | 23.5 | 3000 | 1000 |
| MC23S | 6.1 | 13 | 170 | 3000 | 2300 |
| MC23S ⁽¹⁾ | 10.5 | 21.8 | 178 | 3000 | 2300 |
| MC24P | 7.3 | 18.9 | 136 | 3000 | 3200 |
| MC24P ⁽¹⁾ | 14.3 | 36 | 142 | 3000 | 3200 |
| MC27P | 14.3 | 33 | 152 | 3000 | 7400 |
| MC27P ⁽¹⁾ | 19.2 | 44 | 154 | 3000 | 7400 |

⁽¹⁾ Cooling by external fan 10 l/s

| Encoder | | | | | |
|---------|------------------|------------|--------|------------------------------|-------------|
| Type | Associated motor | Pulse/rev. | | Inertia [kgmm ²] | Weight [kg] |
| | | standard | option | | |
| C2 | F | 500 | 1000 | 0.1 | 0.035 |
| | | 250 | | | |
| C4 | F | 500 | 1000 | 2.3 | 0.2 |
| | | | 2500 | | |
| C6B | MC | 500 | 1000 | 3 | 0.45 |
| | | | 2500 | | |
| | | | 5000 | | |

| 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 |

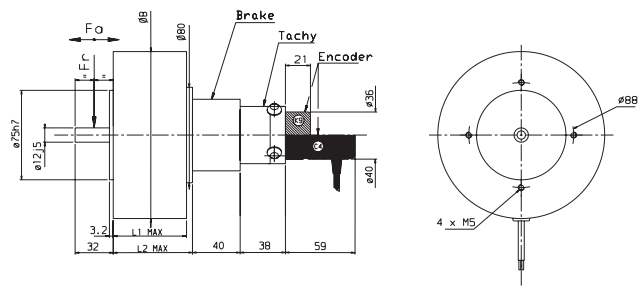
| Brake (24 VDC ± 10%) | | | | |
|----------------------|-------------------|-------------------|------------------------------|-------------|
| Associated motor | Holding torque | | Inertia [kgmm ²] | Weight [kg] |
| | Magnet brake [Nm] | Spring brake [Nm] | | |
| F9 - F12 | - | 1.5 | 10 | 0.47 |
| MC13 | 2 | - | 23 | 0.3 |
| MC17 / MC19 | 5 | - | 65 | 0.6 |
| MC23 / MC24 | 12 | - | 214 | 1.1 |
| MC27 | 20 | - | 570 | 1.9 |
| MC17 | - | 4 | 25 | 1.4 |
| MC19 | - | 8 | 70 | 1.9 |
| MC23 / 24 / 27 | - | 16 | 135 | 2.8 |

Dimensions

F9 - F12 dimensions

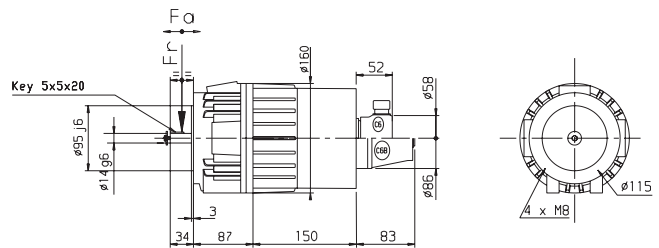
| Motor | L1 [mm] | L2 [mm] | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|--------|---------|---------|-------------|-------------------------|-------------------------|
| F9M4R | 34 | 46.5 | 1.1 | 14 | 2.5 |
| F9M2 | 52.5 | 65 | 2.3 | 14 | 2.5 |
| F9M4 | 52.5 | 65 | 2.3 | 14 | 2.5 |
| F9M4H | 64 | 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: $\phi B = \phi 110$
F12: $\phi B = \phi 140$



MC13 dimensions

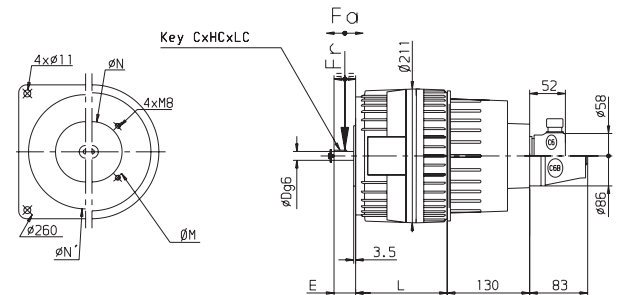
| Motor | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|-------|-------------|-------------------------|-------------------------|
| MC13 | 4 | 35 | 13 |



MC17 - MC19 dimensions

| Motor | M [mm] | N [mm] | N ⁽¹⁾ [mm] | E [mm] | L [mm] | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|-------|--------|--------|-----------------------|--------|--------|-------------|-------------------------|-------------------------|
| MC17 | 115 | 95 | 180 | 34 | 163 | 6.5 | 60 | 35 |
| MC19 | 165 | 130 | 130 | 50 | 163 | 9.7 | 60 | 35 |

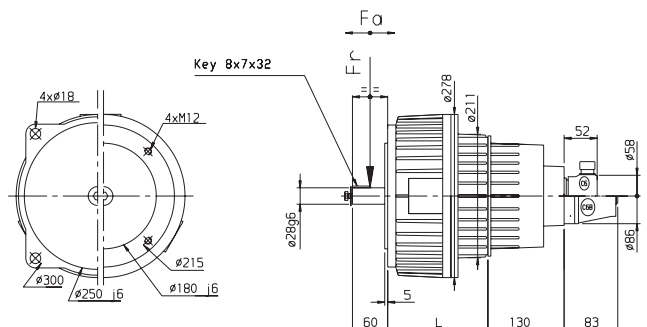
MC17: C x HC x LC = 5 x 5 x 20
MC19: C x HC x LC = 8 x 7 x 32



MC23 - MC24 - MC27 dimensions

| Motor | L [mm] | B [mm] | Weight [kg] | Fr ⁽¹⁾ [daN] | Fa ⁽¹⁾ [daN] |
|-------|--------|--------|-------------|-------------------------|-------------------------|
| MC23 | 173 | 278 | 17 | 75 | 40 |
| MC24 | 185 | 278 | 23 | 80 | 45 |
| MC27 | 198 | 316 | 35 | 90 | 50 |

Dimensions including brake, tachy and encoder
(¹) Fr and Fa not cumulative



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- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



CLIMATE CONTROL

Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

Key Products

- CO² controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



ELECTROMECHANICAL

Key Markets

- Aerospace
- Factory automation
- Food & beverage
- 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
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



FILTRATION

Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



FLUID & GAS HANDLING

Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



HYDRAULICS

Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



PNEUMATICS

Key Markets

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

Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



PROCESS CONTROL

Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



SEALING & SHIELDING

Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

Key Products

- Dynamic seals
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- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates, Dubai
Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt
Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt
Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles
Tel: +32 (0)67 280 900
parker.belgium@parker.com

BY – Belarus, Minsk
Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany
Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup
Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid
Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens
Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs
Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal
Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker
Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira
Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest
Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow
Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga
Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica
Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul
Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev
Tel: +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
Tel: +1 216 896 3000

Asia Pacific

AU – Australia, Castle Hill
Tel: +61 (0)2-9634 7777

CN – China, Shanghai
Tel: +86 21 2899 5000

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Tel: +852 2428 8008

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Tel: +91 22 6513 7081-85

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Tel: +81 (0)3 6408 3901

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Tel: +60 3 7849 0800

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Tel: +64 9 574 1744

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Tel: +662 186 7000-99

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Tel: +54 3327 44 4129

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