

# 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
- **2<sup>nd</sup> 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 2<sup>nd</sup> shaft end for encoder mounting (RX5 and RX6)



### Technical Characteristics - Overview

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

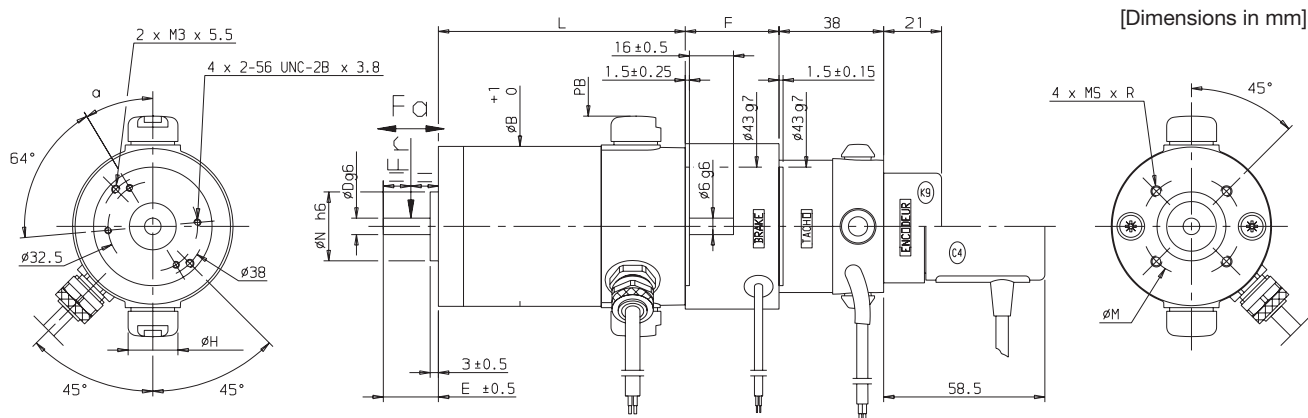
## Technical Data

| Torque at low speed $M_0$ [Nm] | Permanent current at low speed $I_0$ [A] | Rated Voltage $U$ [V] | Rated Speed $N$ [min <sup>-1</sup> ] | Rotor Inertia [kgmm <sup>2</sup> ] | Product Code         |        |          | Typical combination  |
|--------------------------------|--|-----------------------|--------------------------------------|------------------------------------|----------------------|--------|----------|--|
|                                |  |                       |                                      |                                    |                      |        |          |  |
| 0.285<br>0.4                   | 2.8<br>3.6                               | 44.5<br>46            | 3000<br>3000                         | 50<br>68                           | RX120LR1<br>RX130HR1 | ■<br>■ | 00<br>00 | RTS 3/10-40 M<br>RTS 10/20-60 <sup>(1)</sup>               |
| 1.08<br>1.54                   | 7.8<br>9.4                               | 54<br>59              | 3000<br>2900                         | 500<br>720                         | RX320ER1<br>RX330CR1 | ■<br>■ | 00<br>00 | RTS 10/20-60 <sup>(1)</sup><br>RTS 10/20-60 <sup>(1)</sup> |
| 2.7<br>3.7                     | 7.7<br>10.3                              | 119<br>116            | 2800<br>2700                         | 1280<br>1740                       | RX520KR1<br>RX530FR1 | ■<br>■ | 00<br>00 | RTS 12/24-130 T<br>RTS 12/24-130 T                         |
| 5<br>7.8                       | 10.5<br>16                               | 134<br>134            | 2400<br>2400                         | 3500<br>5000                       | RX620JR1<br>RX630ER1 | ■<br>■ | 00<br>00 | RTS 12/24-130 T<br>RTS 20/40-130 T                         |

<sup>(1)</sup> M = single phase or T = three phase

## Dimensions

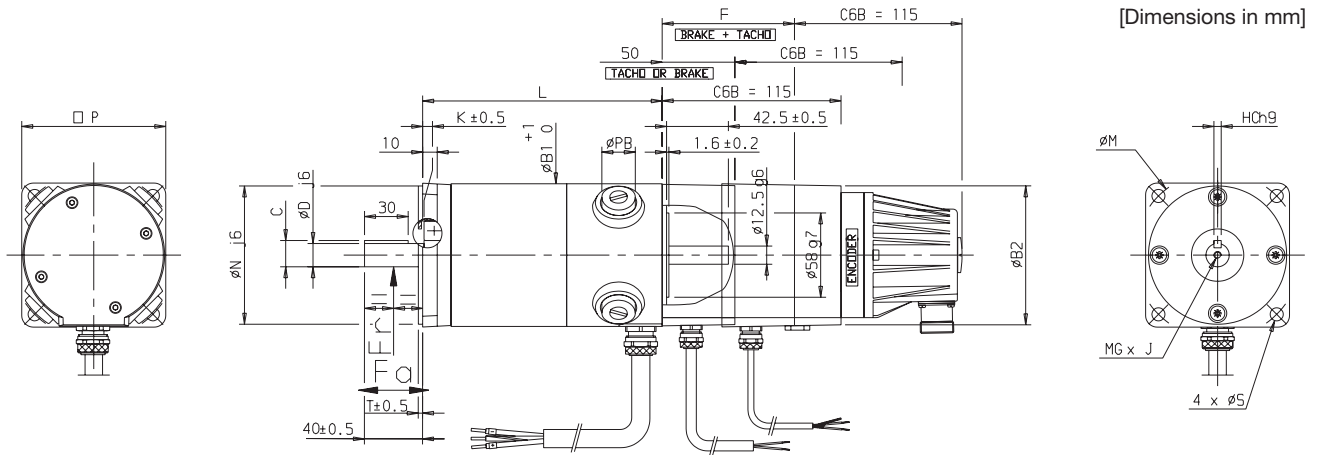
### RX1 and RX3



RX1 and RX3 with brake, tacho and encoder dimensions

| Motor | H    | a   | N  | D  | E  | B  | PB  | L     | F  | MSxR  | M  | Weight [kg] | Fr <sup>(1)</sup> [daN] | Fa <sup>(1)</sup> [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 <sup>(1)</sup> [daN] | Fa <sup>(1)</sup> [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                      |

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

## Options

### Tachometers and brakes

| Motors | Tachometer |                                    | Brakes<br>[Voltage 24 VDC +/- 10 %] |        |                                 |                |
|--------|------------|------------------------------------|-------------------------------------|--------|---------------------------------|----------------|
|        | Model      | EMF<br>[V/1000 min <sup>-1</sup> ] | Holding torque [Nm]                 |        | Inertia<br>[kgmm <sup>2</sup> ] | Weight<br>[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 | <b>RX</b> | <b>120</b> | <b>E</b> | <b>R</b> | <b>1</b> | <b>0</b> | <b>11</b> |

|          |                               |  |
|----------|-------------------------------|--|
| <b>1</b> | <b>Motor type</b>             |  |
|          | <b>RX</b>                     | Motor with ferrite magnets   |
| <b>2</b> | <b>Motor size and length</b>  |  |
|          | <b>120</b>                    |  |
|          | <b>130</b>                    | see table "Technical data"   |
|          | <b>320</b>                    |  |
|          | ...                           |  |
| <b>3</b> | <b>Winding</b>                |  |
|          | <b>L</b>                      |  |
|          | <b>H</b>                      | Depend of motor size, speed and voltage/current,   |
|          | <b>M</b>                      | see table "Technical data"   |
|          | ...                           |  |
| <b>4</b> | <b>Fix code</b>               |  |
|          | <b>R</b>                      |  |
| <b>5</b> | <b>Mechanical features</b>    |  |
|          | <b>1</b>                      | Output cables (standard)   |
|          | <b>2</b>                      | Terminal box   |
|          | <b>3</b>                      | Motor with resolver  |
|          | <b>5</b>                      | Special motor  |
| <b>6</b> | <b>Options</b>                |  |
|          | <b>0</b>                      | No accessories (standard)  |
|          | <b>1</b>                      | Tacho  |
|          | <b>2</b>                      | Brake (RX3, RX5, RX6)  |
|          | <b>3</b>                      | Tacho + brake (RX3, RX5, RX6)  |
|          | <b>4</b>                      | Encoder adaptation <sup>(1)</sup><br>(size 5 and 6 only)   |
|          | <b>5</b>                      | Tacho + Encoder adaptation<br>(size 5 and 6 only)  |
|          | <b>6</b>                      | Brake + Encoder adaptation<br>(size 5 and 6 only)  |
|          | <b>7</b>                      | Tacho + Brake + Encoder adaptation<br>(size 5 and 6 only)  |
| <b>7</b> | <b>Customer specification</b> |  |
|          | <b>00</b>                     | Standard catalogue definition<br>- smooth shaft (size 1 -> 4)<br>- shaft with key way (size 5-6) |

<sup>(1)</sup> Encoder adaptation is standard for RX1 and RX3.