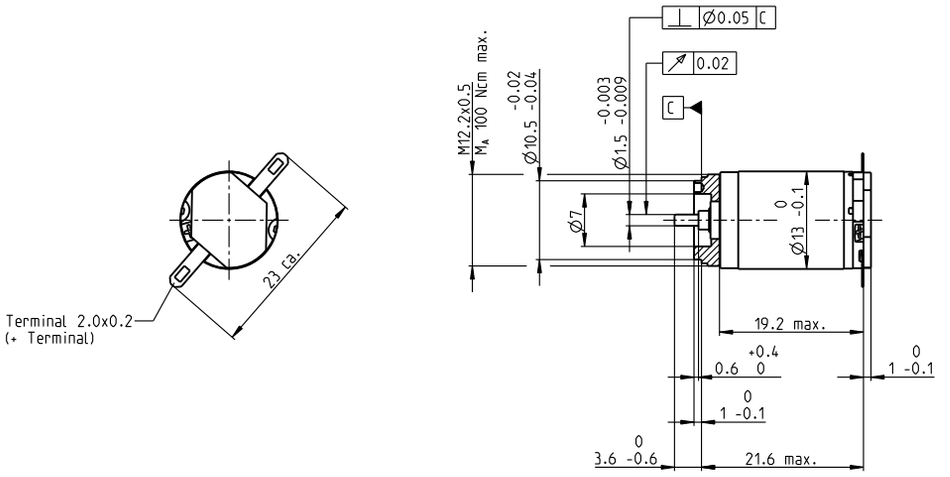
# RE 13 ∅13 mm, precious metal brushes, 1.2 watt




M 1:1

Stock program
Standard program
Special program (on request)

| | | Part numbers | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 118416 | 118417 | 118418 | 118419 | 118420 | 118421 | 118422 | 118423 | 118424 | 118425 | 118426 | 118427 | 118428 | 118429 | 118430 |
| **Motor data** | | | | | | | | | | | | | | | | |
| **Values at nominal voltage** | | | | | | | | | | | | | | | | |
| 1 Nominal voltage | V | 1 | 1.2 | 1.5 | 1.8 | 2.4 | 3 | 3.6 | 4.2 | 5 | 6 | 8 | 9 | 10 | 12 | 15 |
| 2 No load speed | rpm | 11600 | 11300 | 11100 | 11000 | 11300 | 11600 | 12100 | 11500 | 11300 | 10900 | 11700 | 10600 | 11000 | 11200 | 10700 |
| 3 No load current | mA | 104 | 84.1 | 65.7 | 53.8 | 42 | 34.5 | 30.6 | 24.5 | 20.1 | 16 | 13.2 | 10.3 | 9.75 | 8.31 | 6.2 |
| 4 Nominal speed | rpm | 9930 | 8600 | 7670 | 6520 | 5860 | 6250 | 6960 | 6310 | 6010 | 5650 | 6400 | 5210 | 5590 | 5820 | 5190 |
| 5 Nominal torque | mNm | 0.499 | 0.63 | 0.825 | 1.02 | 1.24 | 1.27 | 1.31 | 1.3 | 1.28 | 1.28 | 1.27 | 1.26 | 1.24 | 1.25 | 1.24 |
| 6 Nominal current (max. continuous current) | A | 0.72 | 0.72 | 0.72 | 0.72 | 0.666 | 0.557 | 0.499 | 0.405 | 0.329 | 0.266 | 0.211 | 0.169 | 0.156 | 0.133 | 0.101 |
| 7 Stall torque | mNm | 2.86 | 2.4 | 2.52 | 2.45 | 2.54 | 2.76 | 3.08 | 2.9 | 2.76 | 2.69 | 2.84 | 2.52 | 2.57 | 2.65 | 2.48 |
| 8 Stall current | A | 3.56 | 2.45 | 2.02 | 1.62 | 1.3 | 1.15 | 1.11 | 0.857 | 0.674 | 0.53 | 0.449 | 0.321 | 0.307 | 0.268 | 0.19 |
| 9 Max. efficiency | % | 69 | 67 | 68 | 67 | 68 | 69 | 70 | 70 | 69 | 69 | 69 | 68 | 68 | 68 | 68 |
| **Characteristics** | | | | | | | | | | | | | | | | |
| 10 Terminal resistance | Ω | 0.281 | 0.491 | 0.742 | 1.11 | 1.85 | 2.61 | 3.23 | 4.9 | 7.42 | 11.3 | 17.8 | 28 | 32.6 | 44.9 | 78.8 |
| 11 Terminal inductance | mH | 0.006 | 0.009 | 0.015 | 0.022 | 0.036 | 0.054 | 0.072 | 0.108 | 0.158 | 0.243 | 0.377 | 0.579 | 0.661 | 0.921 | 1.59 |
| 12 Torque constant | mNm/A | 0.802 | 0.98 | 1.25 | 1.51 | 1.96 | 2.41 | 2.76 | 3.39 | 4.1 | 5.08 | 6.32 | 7.84 | 8.37 | 9.89 | 13 |
| 13 Speed constant | rpm/V | 11900 | 9740 | 7660 | 6310 | 4870 | 3970 | 3460 | 2820 | 2330 | 1880 | 1510 | 1220 | 1140 | 966 | 734 |
| 14 Speed / torque gradient | rpm/mNm | 4170 | 4880 | 4560 | 4640 | 4600 | 4310 | 4040 | 4090 | 4220 | 4190 | 4250 | 4350 | 4440 | 4380 | 4450 |
| 15 Mechanical time constant | ms | 15.6 | 14.9 | 14.3 | 14.1 | 13.9 | 13.7 | 13.5 | 13.5 | 13.5 | 13.5 | 13.6 | 13.7 | 13.6 | 13.6 | 13.7 |
| 16 Rotor inertia | gcm² | 0.358 | 0.291 | 0.299 | 0.29 | 0.288 | 0.303 | 0.318 | 0.315 | 0.306 | 0.308 | 0.304 | 0.3 | 0.293 | 0.297 | 0.294 |

## Specifications

**Thermal data**

| | | |
|---|---|---|
| 17 | Thermal resistance housing-ambient | 46 K/W |
| 18 | Thermal resistance winding-housing | 14 K/W |
| 19 | Thermal time constant winding | 5.18 s |
| 20 | Thermal time constant motor | 76.1 s |
| 21 | Ambient temperature | -20...+65°C |
| 22 | Max. winding temperature | +85°C |

**Mechanical data (sleeve bearings)**

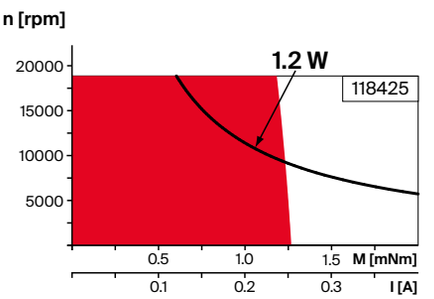
| | | |
|---|---|---|
| 23 | Max. speed | 19 000 rpm |
| 24 | Axial play | 0.05 - 0.15 mm |
| 25 | Radial play | 0.014 mm |
| 26 | Max. axial load (dynamic) | 0.8 N |
| 27 | Max. force for press fits (static) | 15 N |
| 28 | Max. radial load, 5 mm from flange | 1.4 N |

**Other specifications**

| | | |
|---|---|---|
| 29 | Number of pole pairs | 1 |
| 30 | Number of commutator segments | 7 |
| 31 | Weight of motor | 15 g |

Values listed in the table are nominal.
Explanation of the figures on page 94.

## Operating range




## Comments

**Continuous operation**
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

**Short term operation**
The motor may be briefly overloaded (recurring).

**Assigned power rating**

## Modular system

Details on catalog page 48

**Gear**
415_GP 13 A

**Motor Control**
550_ESCON Module 24/2
550_ESCON 36/2 DC
557_ESCON2 Nano 24/2