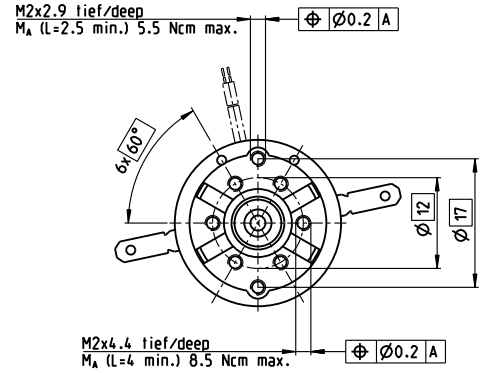
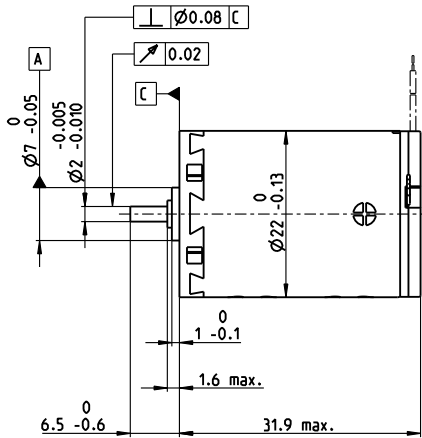
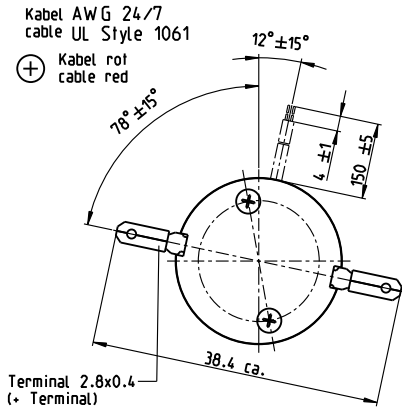


# A-max 22 Ø22 mm, Graphite Brushes, 6 Watt



M 1:1

- Stock program
- Standard program
- Special program (on request)

|                |  | Part Numbers |        |        |               |        |        |        |               |        |        |        |        |
|----------------|--|--------------|--------|--------|---------------|--------|--------|--------|---------------|--------|--------|--------|--------|
| with terminals |  | 110143       | 110145 | 110146 | <b>110147</b> | 110148 | 110149 | 110150 | <b>110151</b> | 110152 | 110153 | 110154 | 110155 |
| with cables    |  | 139840       | 353017 | 199807 | 320206        | 323856 | 108828 | 199424 | 202921        | 267433 | 325492 | 313302 | 353019 |

| Motor Data                                  |                  |       |       |       |       |       |       |       |       |       |       |       |       |
|---|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Values at nominal voltage                   |                  |       |       |       |       |       |       |       |       |       |       |       |       |
| 1 Nominal voltage                           | V                | 6     | 9     | 9     | 12    | 12    | 15    | 18    | 24    | 24    | 36    | 48    | 48    |
| 2 No load speed                             | rpm              | 9240  | 9690  | 8500  | 10200 | 9170  | 10000 | 9770  | 10500 | 8480  | 9630  | 9110  | 8210  |
| 3 No load current                           | mA               | 83.1  | 57.9  | 49.6  | 45.8  | 40.5  | 36    | 29    | 23.7  | 18.4  | 14.2  | 9.99  | 8.84  |
| 4 Nominal speed                             | rpm              | 6240  | 6530  | 5350  | 7060  | 6000  | 6890  | 6600  | 7380  | 5270  | 6420  | 5840  | 4940  |
| 5 Nominal torque (max. continuous torque)   | mNm              | 5.91  | 6.88  | 7.04  | 6.96  | 6.95  | 6.93  | 6.92  | 6.9   | 6.97  | 6.86  | 6.75  | 6.86  |
| 6 Nominal current (max. continuous current) | A                | 1.08  | 0.859 | 0.77  | 0.681 | 0.613 | 0.534 | 0.432 | 0.347 | 0.283 | 0.21  | 0.147 | 0.135 |
| 7 Stall torque                              | mNm              | 19.4  | 22.1  | 19.8  | 23.7  | 20.9  | 22.9  | 22    | 23.7  | 18.9  | 21.1  | 19.2  | 17.6  |
| 8 Stall current                             | A                | 3.29  | 2.59  | 2.04  | 2.17  | 1.72  | 1.65  | 1.29  | 1.12  | 0.721 | 0.606 | 0.393 | 0.325 |
| 9 Max. efficiency                           | %                | 67    | 70    | 69    | 72    | 70    | 72    | 72    | 73    | 70    | 72    | 71    | 70    |
| Characteristics                             |                  |       |       |       |       |       |       |       |       |       |       |       |       |
| 10 Terminal resistance                      | Ω                | 1.82  | 3.48  | 4.42  | 5.53  | 6.96  | 9.09  | 14    | 21.5  | 33.3  | 59.4  | 122   | 148   |
| 11 Terminal inductance                      | mH               | 0.106 | 0.223 | 0.288 | 0.363 | 0.445 | 0.585 | 0.891 | 1.37  | 2.1   | 3.69  | 7.3   | 8.97  |
| 12 Torque constant                          | mNm/A            | 5.9   | 8.55  | 9.73  | 10.9  | 12.1  | 13.9  | 17.1  | 21.2  | 26.2  | 34.8  | 48.9  | 54.3  |
| 13 Speed constant                           | rpm/V            | 1620  | 1120  | 981   | 875   | 790   | 689   | 558   | 450   | 364   | 274   | 195   | 176   |
| 14 Speed / torque gradient                  | rpm/mNm          | 500   | 454   | 446   | 444   | 455   | 452   | 457   | 456   | 461   | 468   | 487   | 479   |
| 15 Mechanical time constant                 | ms               | 20.9  | 20.2  | 20.1  | 19.9  | 19.9  | 19.9  | 19.7  | 19.7  | 19.8  | 19.7  | 19.9  | 19.8  |
| 16 Rotor inertia                            | gcm <sup>2</sup> | 4     | 4.25  | 4.3   | 4.29  | 4.19  | 4.2   | 4.13  | 4.13  | 4.09  | 4.02  | 3.9   | 3.94  |

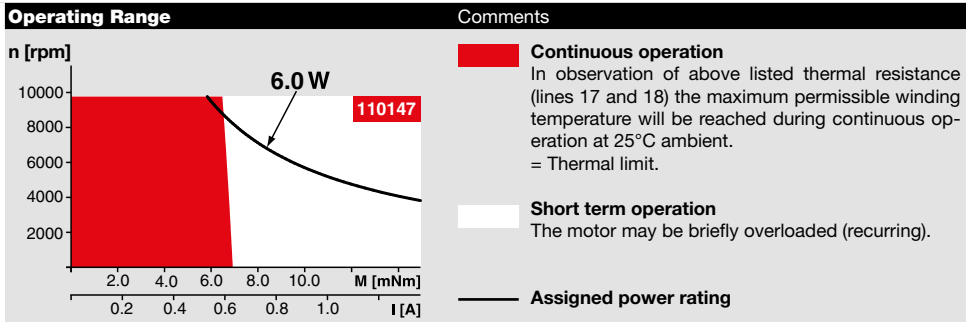
| Specifications                        |                |
|---------------------------------------|----------------|
| Thermal data                          |                |
| 17 Thermal resistance housing-ambient | 20 K/W         |
| 18 Thermal resistance winding-housing | 6.0 K/W        |
| 19 Thermal time constant winding      | 10.2 s         |
| 20 Thermal time constant motor        | 314 s          |
| 21 Ambient temperature                | -30...+85°C    |
| 22 Max. winding temperature           | +125°C         |
| Mechanical data (sleeve bearings)     |                |
| 23 Max. speed                         | 9800 rpm       |
| 24 Axial play                         | 0.05 - 0.15 mm |
| 25 Radial play                        | 0.012 mm       |
| 26 Max. axial load (dynamic)          | 1 N            |
| 27 Max. force for press fits (static) | 80 N           |
| 28 Max. radial load, 5 mm from flange | 2.8 N          |

| Mechanical data (ball bearings)       |                |
|---------------------------------------|----------------|
| 23 Max. speed                         | 9800 rpm       |
| 24 Axial play                         | 0.05 - 0.15 mm |
| 25 Radial play                        | 0.025 mm       |
| 26 Max. axial load (dynamic)          | 3.3 N          |
| 27 Max. force for press fits (static) | 45 N           |
| 28 Max. radial load, 5 mm from flange | 12.3 N         |

| Other specifications             |      |
|----------------------------------|------|
| 29 Number of pole pairs          | 1    |
| 30 Number of commutator segments | 9    |
| 31 Weight of motor               | 54 g |

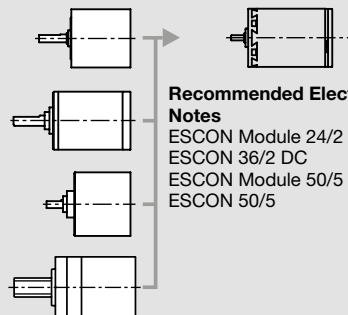
Values listed in the table are nominal.  
Explanation of the figures on page 68.

**Option**  
Ball bearings in place of sleeve bearings



**maxon Modular System** Details on catalog page 32

- Planetary Gearhead**  
Ø22 mm  
0.1 - 0.6 Nm  
Page 337/338
- Planetary Gearhead**  
Ø22 mm  
0.5 - 2.0 Nm  
Page 339/341
- Spur Gearhead**  
Ø24 mm  
0.1 Nm  
Page 345
- Screw Drive**  
Ø22 mm  
Page 380/381



- Recommended Electronics:**
- | Notes             | Page 32 |
|-------------------|---------|
| ESCON Module 24/2 | 454     |
| ESCON 36/2 DC     | 454     |
| ESCON Module 50/5 | 455     |
| ESCON 50/5        | 457     |