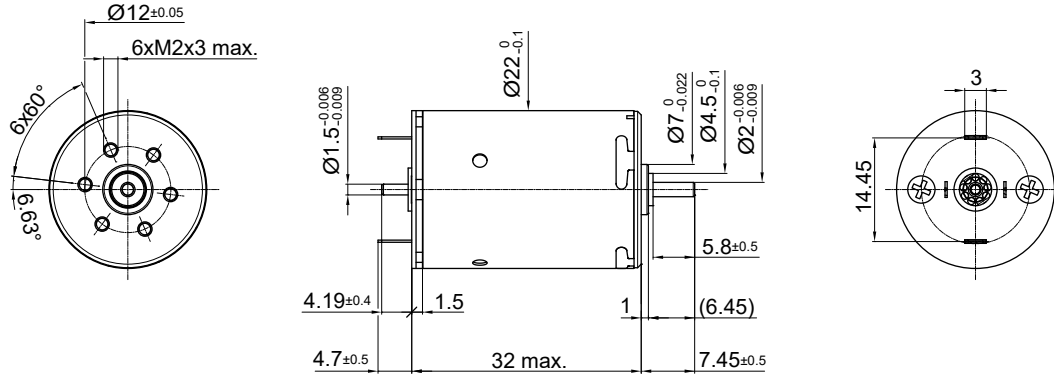


22DCP Athlonix™

Ø 22 mm • Precious metal commutation • 6.5 mNm



Dimensions in mm.

| Electrical Data | Symbol | 22DCP 32P2 2 | | | | | | Unit |
|-----------------------------|--------------|-------------------|--------------|-------------|--------------|--------------|--------------|-------------------|
| | | 221P | 216P | 213P | 211P | 210P | 209P | |
| 1 Nominal Voltage | V | 3 | 6 | 9 | 12 | 15 | 18 | Volt |
| 2 No-Load Speed | n_0 | 8321 | 9739 | 10022 | 9741 | 9741 | 9348 | rpm |
| 3 No-Load Current | I_0 | 58.9 | 34.4 | 23.6 | 17.2 | 13.8 | 11.0 | mA |
| 4 Terminal Resistance | R | 0.7 | 2.0 | 4.1 | 7.8 | 12.1 | 18.6 | Ω |
| 5 Output Power | P_{2max} | 2.9 | 4.1 | 4.4 | 4.2 | 4.2 | 4.0 | W |
| 6 Stall Torque | mNm | 13.65 (1.94) | 17.47 (2.48) | 18.34 (2.6) | 17.81 (2.53) | 17.83 (2.53) | 17.37 (2.46) | mNm (oz-in) |
| 7 Efficiency | η_{max} | 77 | 80 | 80 | 80 | 80 | 80 | % |
| 8 Max Continuous Speed | $n_{e max}$ | 10000 | 10000 | 10000 | 10000 | 10000 | 10000 | rpm |
| 9 Max Continuous Torque | $M_{e max}$ | 6.09 (0.87) | 6.38 (0.91) | 6.45 (0.92) | 6.44 (0.92) | 6.45 (0.92) | 6.5 (0.93) | mNm (oz-in) |
| 10 Max Continuous Current | $I_{e max}$ | 1.85 | 1.13 | 0.78 | 0.57 | 0.46 | 0.37 | A |
| 11 Back-EMF Constant | k_E | 0.36 | 0.61 | 0.89 | 1.22 | 1.52 | 1.90 | mV/rpm |
| 12 Torque Constant | k_M | 3.39 | 5.82 | 8.48 | 11.63 | 14.54 | 18.18 | mNm/A |
| 13 Motor Regulation | R/k^2 | 63.83 | 58.37 | 57.22 | 57.28 | 57.22 | 56.34 | $10^3/Nms$ |
| 14 Friction Torque | T_F | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | mNm (oz-in) |
| 15 Mechanical Time Constant | τ_m | 30.63 | 27.87 | 27.12 | 26.81 | 26.68 | 26.60 | ms |
| 16 Rotor Inertia | J | 4.80 | 4.78 | 4.74 | 4.68 | 4.66 | 4.72 | g-cm ² |

| General Data | | | | |
|---|-------------------|---|--|------------------------|
| 18 Thermal Resistance (rotor/body) | R_{th1}/R_{th2} | 6/22 | | °C/W |
| 19 Thermal Time Constant (rotor/stator) | t_{W1}/t_{W2} | 9/550 | | S |
| 20 Operating Temperature Range: | motor rotor | -30°C to 85°C (-22°F to 185°F) 100°C (212°F) | | °C (°F) °C (°F) |
| 21 Shaft Load Max.: (5 mm. from bearing) | -radial -axial | With sleeve bearings 1.5 (5.39) 100 (359.6) | | N (oz) N (oz) |
| 22 Shaft Play: | -radial -axial | 0.03 (0.0012) 0.15 (0.0059) | | mm (inch) mm (inch) |
| 23 Weight | g | 58 (2.05) | | g (oz) |

*Also available with ball bearing

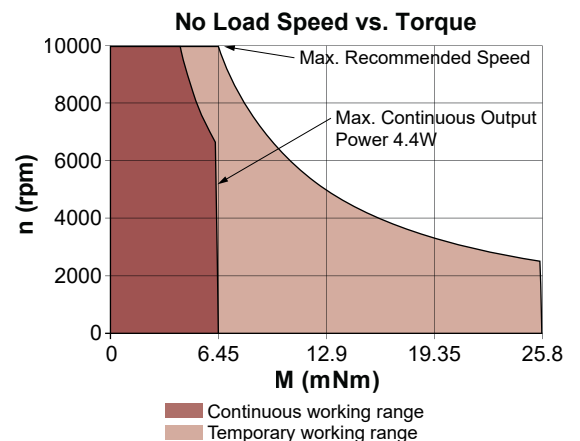
Execution Table

| Gearbox | Single Shaft | MR2 | E9 |
|---------|--------------|--------------|--------------|
| R22 | 4 | 5 | 6 |
| K24 | 7 | 8 | 9 |
| K27 | 1 | 2 | 3 |
| R22HT | 11 | Upon Request | Upon Request |

Note:

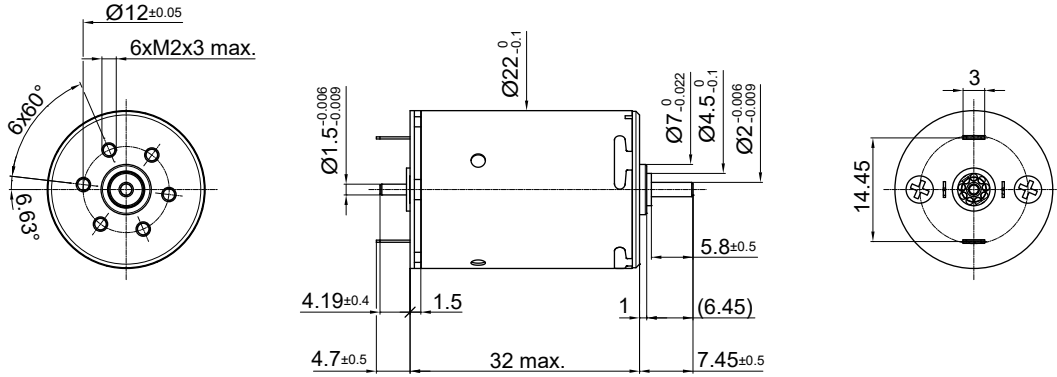
P1: standard commutation

P2: special commutation for double shaft version



22DCP Athlonix™

Ø 22 mm • Precious metal commutation • 6.5 mNm



Dimensions in mm.

| Electrical Data | Symbol | 22DCP 32P2 2 | | | | | Unit |
|-----------------------------|-------------|-------------------|-------------|--------------|--------------|--------------|-------------------|
| | | 212E | 211E | 210E | 209E | 208E | |
| 1 Nominal Voltage | V | 21 | 24 | 30 | 36 | 48 | Volt |
| 2 No-Load Speed | n_0 | 10,357 | 10,465 | 10,806 | 10,281 | 11,049 | rpm |
| 3 No-Load Current | I_0 | 10.5 | 9.2 | 7.6 | 6.1 | 4.9 | mA |
| 4 Terminal Resistance | R | 23.4 | 30.4 | 46.1 | 71.7 | 112.6 | Ω |
| 5 Output Power | P_{2max} | 4.2 | 4.3 | 4.4 | 4.1 | 4.5 | W |
| 6 Stall Torque | mNm | 16.95 (2.41) | 16.89 (2.4) | 16.85 (2.39) | 16.39 (2.33) | 17.28 (2.45) | mNm (oz-in) |
| 7 Efficiency | h_{max} | 80 | 80 | 80 | 79 | 80 | % |
| 8 Max Continuous Speed | $n_{e max}$ | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | rpm |
| 9 Max Continuous Torque | $M_{e max}$ | 6.08 (0.86) | 6.04 (0.86) | 5.93 (0.84) | 6 (0.85) | 5.94 (0.85) | mNm (oz-in) |
| 10 Max Continuous Current | $I_{e max}$ | 0.33 | 0.29 | 0.23 | 0.19 | 0.15 | A |
| 11 Back-EMF Constant | k_E | 2.00 | 2.27 | 2.74 | 3.46 | 4.29 | mV/rpm |
| 12 Torque Constant | k_M | 19.14 | 21.64 | 26.20 | 33.03 | 41.01 | mNm/A |
| 13 Motor Regulation | R/k^2 | 64.0 | 64.9 | 67.2 | 65.70 | 66.95 | $10^3/Nms$ |
| 14 Friction Torque | T_F | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | 0.2 (0.03) | mNm (oz-in) |
| 15 Mechanical Time Constant | τ_m | 30.1 | 30.0 | 30.0 | 30.0 | 30.0 | ms |
| 16 Rotor Inertia | J | 4.70 | 4.63 | 4.47 | 4.56 | 4.48 | g-cm ² |

| General Data | | | | |
|---|-------------------|------------------------------------|--|---------------------------------------|
| 18 Thermal Resistance (rotor/body) | R_{th1}/R_{th2} | 6/22 | | $^\circ\text{C}/\text{W}$ |
| 19 Thermal Time Constant (rotor/stator) | t_{W1}/t_{W2} | 9/550 | | S |
| 20 Operating Temperature Range: | motor | -30°C to 85°C (-22°F to 185°F) | | $^\circ\text{C}$ ($^\circ\text{F}$) |
| | rotor | 100°C (212°F) | | $^\circ\text{C}$ ($^\circ\text{F}$) |
| 21 Shaft Load Max.: (5 mm. from bearing) | -radial | With sleeve bearings 1.5 (5.39) | | N (oz) |
| | -axial | 100 (359.6) | | N (oz) |
| | -radial | 0.03 (0.0012) | | mm (inch) |
| 22 Shaft Play: | -axial | 0.15 (0.0059) | | mm (inch) |
| | g | 58 (2.05) | | g (oz) |

*Also available with ball bearing

Execution Table

| Gearbox | Single Shaft | MR2 | E9 |
|---------|--------------|--------------|--------------|
| R22 | 4 | 5 | 6 |
| K24 | 7 | 8 | 9 |
| K27 | 1 | 2 | 3 |
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