

DC-Micromotors

Graphite Commutation

20,2 mNm
22,7 W

Series 2342 ... CR

| Values at 22°C and nominal voltage | 2342 S | 006 CR | 012 CR | 018 CR | 024 CR | 036 CR | 048 CR | |
|--|---------------------|--------------------------|--------|--------|--------|--------|--------|------------------------------|
| Nominal voltage | U_N | 6 | 12 | 18 | 24 | 36 | 48 | V |
| Terminal resistance | R | 0,362 | 1,93 | 4,14 | 7,14 | 15,9 | 31,2 | Ω |
| Rotor inductance | L | 13,1 | 69,1 | 142 | 264 | 569 | 1 130 | μH |
| Efficiency, max. | η_{max} | 75 | 77 | 78 | 79 | 79 | 80 | % |
| No-load current, typ. | I_0 | 0,157 | 0,0694 | 0,0479 | 0,0351 | 0,024 | 0,0163 | A |
| No-load speed | n_0 | 8 310 | 7 530 | 7 990 | 7 870 | 8 110 | 7 690 | min^{-1} |
| Stall torque | M_H | 95,6 | 86,1 | 87,7 | 93,2 | 92,9 | 89 | mNm |
| Rotor inertia | J | 5,6 | 5,7 | 6,2 | 5,8 | 6,5 | 6 | gcm^2 |
| Friction torque | M_R | 0,98 | 1 | 0,99 | 0,99 | 0,99 | 0,95 | mNm |
| Torque constant | k_M | 6,36 | 14,6 | 21 | 28,6 | 42 | 59,1 | mNm/A |
| Speed constant | k_n | 1 500 | 653 | 455 | 334 | 228 | 162 | min^{-1}/V |
| Slope of n-M curve | $\Delta n/\Delta M$ | 85,5 | 86,2 | 89,8 | 83,3 | 86,1 | 85,3 | $\text{min}^{-1}/\text{mNm}$ |
| Thermal resistance: | | | | | | | | |
| – winding to housing | R_{th1} | 5,6 | | | | | | K/W |
| – housing to ambient (external plastic flange) | $R_{\text{th2 p}}$ | 15 | | | | | | K/W |
| – housing to ambient (external metal flange) | $R_{\text{th2 m}}$ | 2,1 | | | | | | K/W |
| Thermal time constant: | | | | | | | | |
| – winding | τ_{w1} | 12 | | | | | | s |
| – housing (external plastic flange) | $\tau_{w2 p}$ | 580 | | | | | | s |
| – housing (external metal flange) | $\tau_{w2 m}$ | 78 | | | | | | s |
| Operating temperature range: | | | | | | | | |
| – motor | | -30 ... +100 | | | | | | °C |
| – winding, max. permissible | | +125 | | | | | | °C |
| Shaft bearings | | ball bearings, preloaded | | | | | | |
| Shaft diameter | | 3 | | | | | | mm |
| Radial shaft load max.: | | | | | | | | |
| – dynamic at 3 000 min^{-1} (3 mm from bearing) | | 20 | | | | | | N |
| Axial shaft load max.: | | | | | | | | |
| – dynamic at 3 000 min^{-1} | | 2 | | | | | | N |
| – static (shaft unsupported) | | 20 | | | | | | N |
| – static (shaft supported) | | 900 | | | | | | N |
| Shaft play, max.: | | | | | | | | |
| – radial | | 0,015 | | | | | | mm |
| – axial | | 0 | | | | | | mm |
| Speed up to | n_{max} | 11 000 | | | | | | min^{-1} |
| Number of pole pairs | | 1 | | | | | | |
| Mass | | 88 | | | | | | g |
| Housing material | | steel, nickel plated | | | | | | |
| Magnet material | | NdFeB | | | | | | |
| Rated values for continuous operation | | | | | | | | |
| Rated torque | M_N | 16,6 | 19,8 | 19,6 | 20,5 | 20,2 | 20,5 | mNm |
| Rated current (thermal limit) | I_N | 3 | 1,6 | 1,11 | 0,846 | 0,57 | 0,409 | A |
| Rated speed | n_N | 6 700 | 5 270 | 5 690 | 5 660 | 5 850 | 5 390 | min^{-1} |

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 50%.

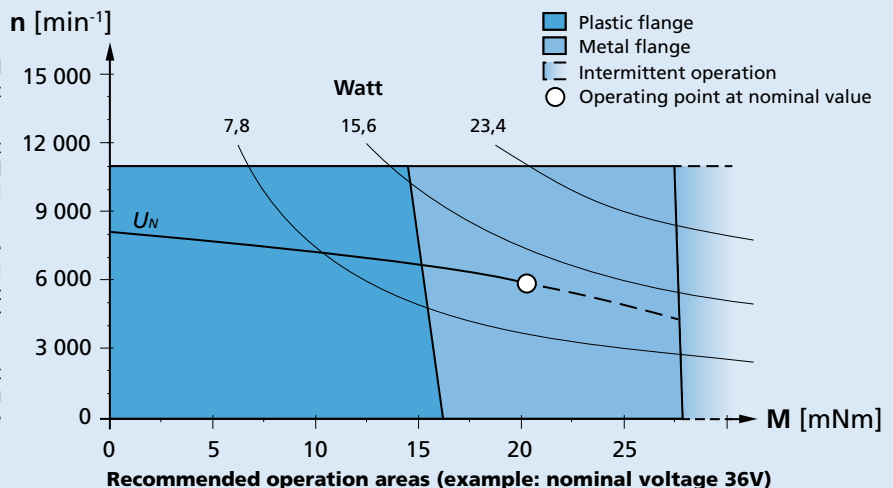
Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

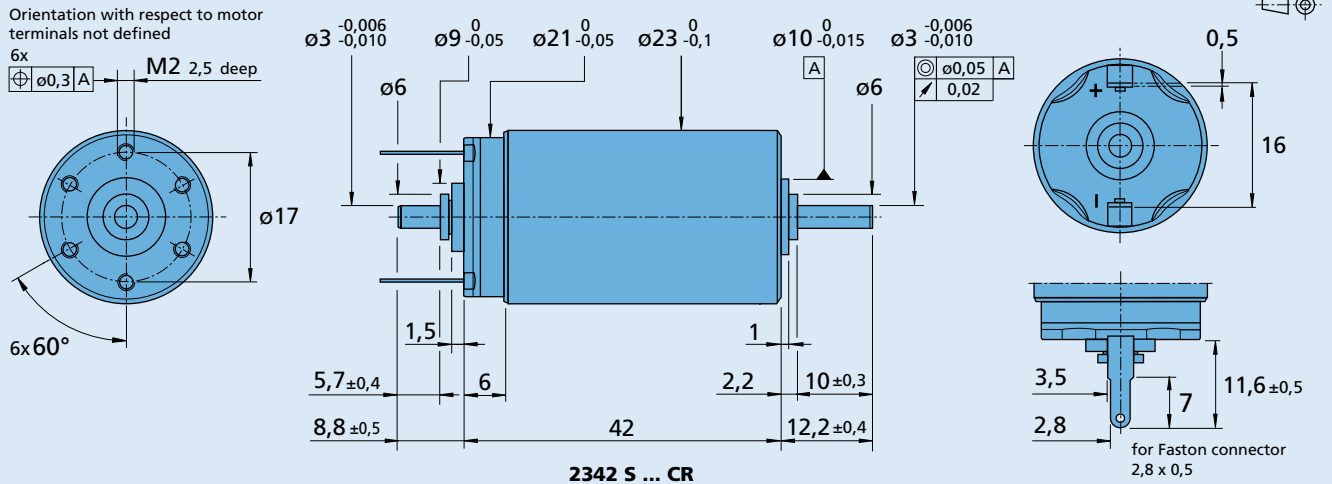
The diagram shows the motor in different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Dimensional drawing



Options

Example product designation: **2342S012CR-158**

[illegible]

| Product combination |
|--|
| <p> 1. Product A and Product B: This combination is highly popular among customers, leading to a significant increase in sales volume. </p> <p> 2. Product C and Product D: This combination is also popular, but it requires more inventory space, which may impact logistics. </p> <p> 3. Product E and Product F: This combination is less popular but has a higher profit margin, making it a strategic choice. </p> <p> 4. Product G and Product H: This combination is new and has not yet gained traction, but it shows potential for future growth. </p> |

| Precision Gearheads / Lead Screws | Encoders | Drive Electronics | Cables / Accessories |
|---|--|---|---|
| 22GPT 22/7 23/1 26A 26/1R 30/1 30/1 S 22L ... ML 22L ... SB 22L ... PB | IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L | SC 2402 P SC 2804 S SC 5004 P SC 5008 S MCDC 3002 P MCDC 3002 S MCDC 3003 P MCDC 3006 S MC 3001 B MC 3001 P MC 3603 S MC 5004 P MC 5005 S | MBZ To view our large range of accessory parts, please refer to the “Accessories” chapter. |