FAULHABER

71,2 mNm
73,4 W

# DC-Micromotors
## Graphite Commutation

## Series 2668 ... CR

| Values at 22°C and nominal voltage | 2668 W | | 018 CR | 024 CR | 036 CR | 048 CR | |
|---|---|---|---|---|---|---|---|
| Nominal voltage | $U_N$ | | 18 | 24 | 36 | 48 | V |
| Terminal resistance | $R$ | | 0,57 | 1,03 | 2,53 | 4,23 | Ω |
| Rotor inductance | $L$ | | 86,7 | 159 | 389 | 662 | µH |
| Efficiency, max. | $\eta_{max.}$ | | 86 | 87 | 87 | 88 | % |
| No-load current, typ. | $I_0$ | | 0,105 | 0,0779 | 0,0497 | 0,0381 | A |
| No-load speed | $n_0$ | | 7 980 | 7 910 | 7 630 | 7 830 | min⁻¹ |
| Stall torque | $M_H$ | | 653 | 656 | 632 | 660 | mNm |
| Rotor inertia | $J$ | | 27 | 25 | 25 | 26 | gcm² |
| Friction torque | $M_R$ | | 2,2 | 2,2 | 2,2 | 2,2 | mNm |
| Torque constant | $k_M$ | | 21,3 | 28,9 | 45,2 | 59 | mNm/A |
| Speed constant | $k_n$ | | 448 | 331 | 211 | 162 | min⁻¹/V |
| Slope of n-M curve | $\Delta n/\Delta M$ | | 12 | 11,8 | 11,8 | 11,6 | min⁻¹/mNm |
| | | | | | | | |
| Thermal resistance: | | | | | | | |
| – winding to housing | $R_{th1}$ | 3,6 | | | | | K/W |
| – housing to ambient (external plastic flange) | $R_{th2\,p}$ | 10 | | | | | K/W |
| – housing to ambient (external metal flange) | $R_{th2\,m}$ | 2,3 | | | | | K/W |
| Thermal time constant: | | | | | | | |
| – winding | $\tau_{w1}$ | 38 | | | | | s |
| – housing (external plastic flange) | $\tau_{w2\,p}$ | 780 | | | | | s |
| – housing (external metal flange) | $\tau_{w2\,m}$ | 170 | | | | | s |
| Operating temperature range: | | | | | | | |
| – motor | | -30 ... +125 | | | | | °C |
| – winding, max. permissible | | +155 | | | | | °C |
| Shaft bearings | | ball bearings, preloaded | | | | | |
| Shaft diameter | | 4 | | | | | mm |
| Radial shaft load max.: | | | | | | | |
| – dynamic at 3 000 min⁻¹ (4 mm from mounting flange) | | 20 | | | | | N |
| Axial shaft load max.: | | | | | | | |
| – dynamic at 3 000 min⁻¹ | | 2 | | | | | N |
| – static (shaft unsupported) | | 20 | | | | | N |
| – static (shaft supported) | | 1 400 | | | | | N |
| Shaft play, max.: | | | | | | | |
| – radial | | 0,015 | | | | | mm |
| – axial | | 0 | | | | | mm |
| Speed up to | $n_{max.}$ | 10 000 | | | | | min⁻¹ |
| Number of pole pairs | | 1 | | | | | |
| Mass | | 189 | | | | | g |
| Housing material | | steel, black coated | | | | | |
| Magnet material | | NdFeB | | | | | |
| | | | | | | | |
| **Rated values for continuous operation** | | | | | | | |
| Rated torque | $M_N$ | | 56,5 | 69,4 | 70,2 | 71,2 | mNm |
| Rated current (thermal limit) | $I_N$ | | 3 | 2,91 | 1,88 | 1,46 | A |
| Rated speed | $n_N$ | | 7 460 | 7 340 | 7 000 | 7 230 | min⁻¹ |

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

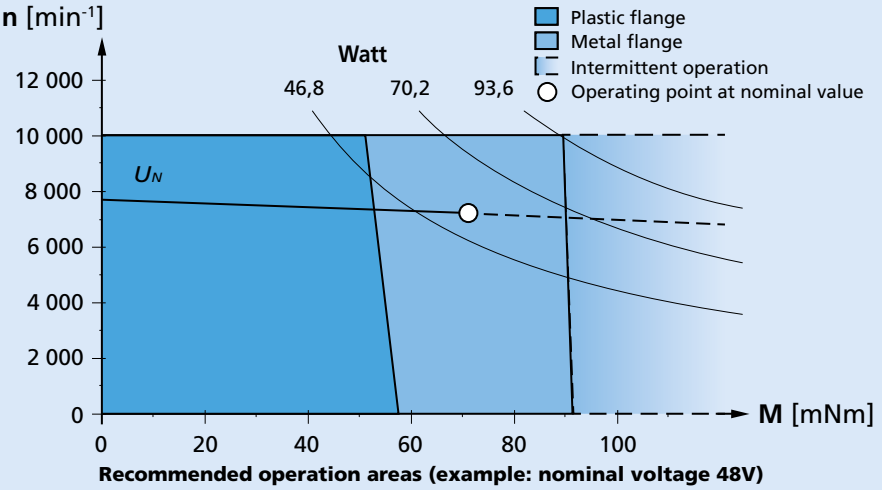
**Note:**

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.

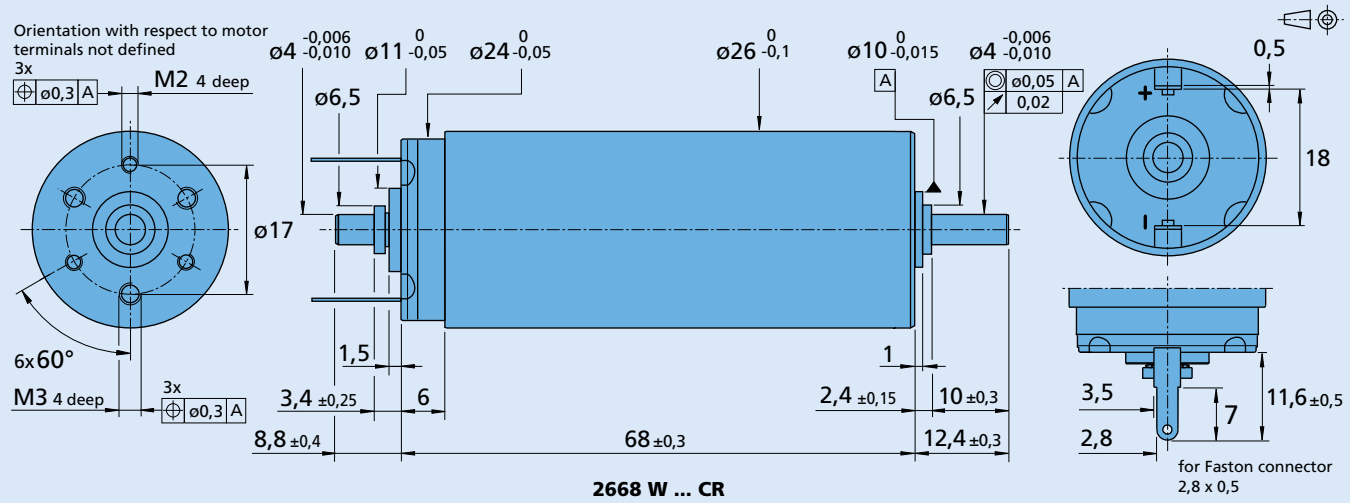



**Recommended operation areas (example: nominal voltage 48V)**

For notes on technical data and lifetime performance refer to "Technical Information".

© DR. FRITZ FAULHABER GMBH & CO. KG
Specifications subject to change without notice.

## Dimensional drawing




**2668 W ... CR**

## Options

Example product designation: **2668W048CR-158**

| Option | Type | Description |
|---|---|---|
| U | Single Leads | For motors with single leads (PTFE), length 160 mm, red (+) / black (-) |
| 158 | Shaft end | No second shaft end |

## Product combination

| Precision Gearheads / Lead Screws | Encoders | Drive Electronics | Cables / Accessories |
|---|---|---|---|
| 22GPT | IE3-1024 | SC 2804 S | MBZ |
| 22GPT LN | IE3-1024 L | SC 5004 P | |
| 22GPT HT | IERS3-500 | SC 5008 S | To view our large range of accessory parts, please refer to the “Accessories” chapter. |
| 26A | IERS3-500 L | MC 3602 B | |
| 26/1R | IER3-10000 | MC 3603 S | |
| 30/1 | IER3-10000 L | MC 3606 B | |
| 30/1 S | | MC 5004 P | |
| 32GPT | | MC 5005 S | |
| 32GPT LN | | | |
| 32GPT HT | | | |
| 32/3R | | | |
| 22L ... ML | | | |
| 22L ... SB | | | |
| 22L ... PB | | | |
| 32L ... TL | | | |
| 32L ... ML | | | |
| 32L ... SB | | | |
| 32L ... PB | | | |



© DR. FRITZ FAULHABER GMBH & CO. KG
Specifications subject to change without notice.