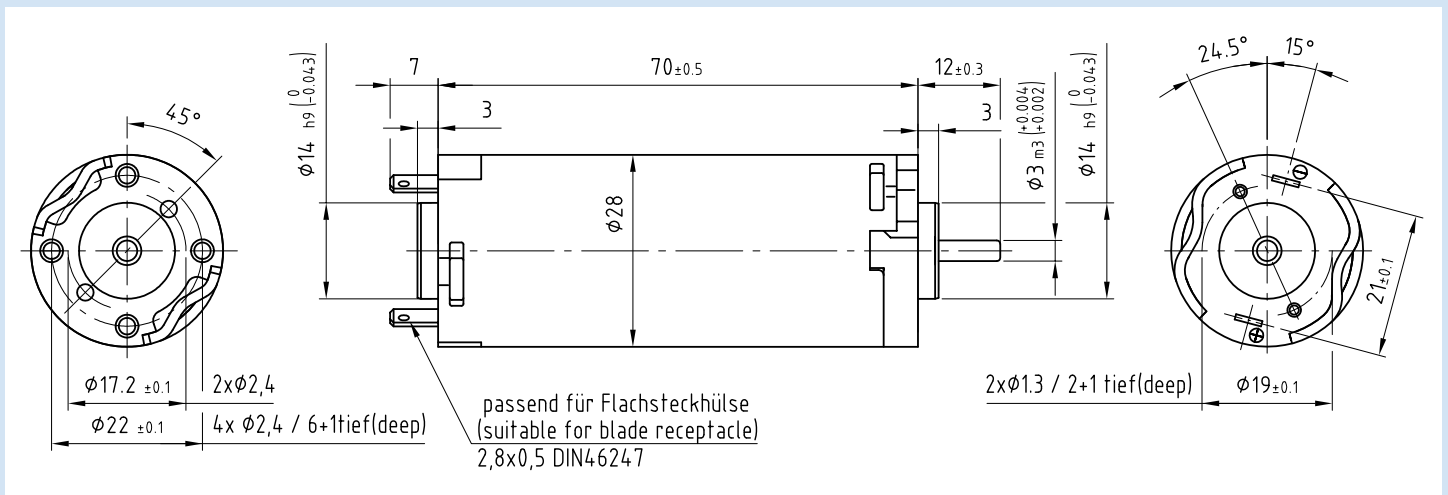


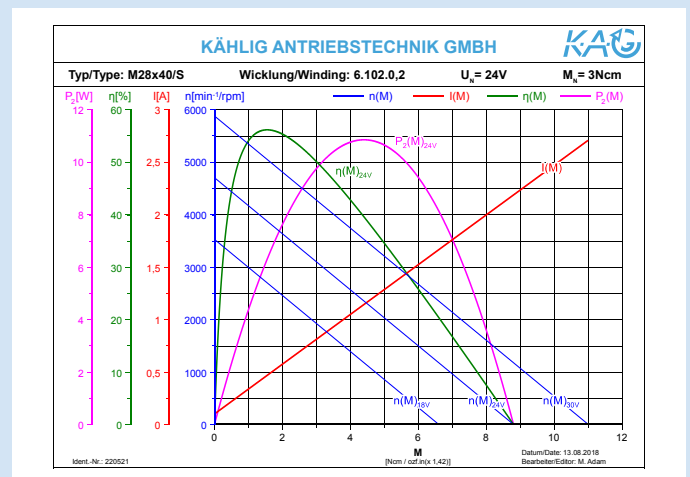
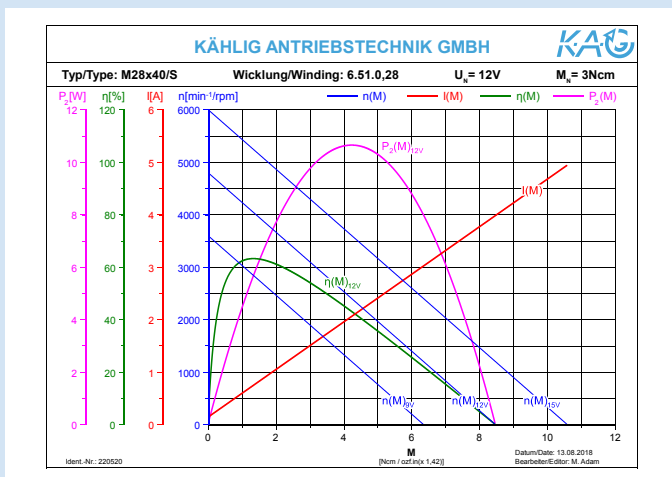
DC-Motor M28x40/S

Id.-Nr. 220520 (12V) 220521 (24V)

- Brushed DC motor with permanent magnets
- Sintered bearings
- Clip connection
- Closed zinc-plated housing with plastic bearing flanges
- Direction of rotation CW / CCW



Application on request



Stand: 4. September 2020 – changes reserved

DC-Motor M28x40/S

Id.-Nr. 220520 (12V) 220521 (24V)

Performance

| | Sign | Unit | Value 12V | Value 24V | Tolerances |
|----------------------------------------------|---------------|-------------------------------------|---------------------|-----------|------------|
| Rated Voltage | U_N | V | 12 | 24 | |
| Rated torque ¹⁾ | M_N | Ncm | 3 | 3 | |
| Rated speed ¹⁾ | n_N | min ⁻¹ | 3100 | 3100 | ±10% |
| Rated current ¹⁾ | I_N | A | 1,5 | 0,81 | ±20% |
| No load speed ¹⁾ | n_0 | min ⁻¹ | 4800 | 4700 | ±15% |
| No load current ¹⁾ | I_0 | A | 0,14 | 0,1 | ±50% |
| Rated power output ¹⁾ | P_{2N} | W | 9,7 | 9,7 | |
| Rated power input ¹⁾ | P_{1N} | W | 18 | 19,4 | |
| Rated efficiency ¹⁾ | η_N | % | 54,1 | 50,1 | |
| Maximum power output ²⁾³⁾ | P_{2max} | W | 10,6 | 10,8 | |
| Maximum continuous torque ²⁾³⁾ | M_{max} | Ncm | 3 | 3 | |
| Maximum continuous current ²⁾³⁾ | I_{max} | A | 1,5 | 0,81 | |
| Maximum speed ¹⁾³⁾ | n_{max} | min ⁻¹ | 12000 | 12000 | |
| Stall torque ¹⁾ | M_H | Ncm | 8,5 | 8,8 | |
| Stall current ¹⁾ | I_H | A | 4 | 2,2 | |
| Demagnetization current ¹⁾ | I_E | A | 6,2 | 3,61 | |
| Connecting resistance | R | Ω | 3,02 | 10,98 | |
| Armature resistance ¹⁾ | R_A | Ω | 2,55 | 10,1 | ±5% |
| Armature inductance [1 kHz] ¹⁾ | L_A | mH | 2,01 | 8,23 | |
| Rise of speed-characteristic ¹⁾ | k_D | Ncm/min | - 566,7 | - 533,33 | |
| Torque constant ¹⁾ | k_M | Ncm/A | 2,2 | 4,23 | |
| Voltage constant ¹⁾ | k_E | V/10 ³ min ⁻¹ | 2,4 | 4,87 | |
| Friction torque ¹⁾ | M_R | Ncm | - 0,3 | - 0,42 | |
| Mechanical time constant ¹⁾ | T_M | ms | 10,7 | 10,19 | |
| Electrical time constant ¹⁾ | T_e | ms | 0,7 | 0,75 | |
| Rotor inertia | J_R | gcm ² | 24 | 24 | |
| Maximum case temperature ²⁾ | ϑ_G | °C | 80 | 80 | |
| Starting voltage ¹⁾ | U_A | V | 2 | 2 | |
| Permissible axial shaft loads ³⁾ | F_{axial} | N | 5 | 5 | |
| Permissible radial shaft loads ³⁾ | F_{radial} | N | 20 | 20 | |
| Protection class DIN VDE 0530 | | | IP30 | | |
| Duty cycle DIN VDE 0530 | | | S1 | | |
| Insulation class DIN VDE 0530 | | | E | | |
| Lifetime at rated torque _N | | | ≥ 1500 h | | |
| Ambient temperature | | | -15°C to +40°C | | |
| Bearing | | | 2 Sintered bearings | | |
| Interference suppression | | | feasible | | |

1) ϑ_w Winding temperature ≈ 20°C 2) $\Delta\vartheta_w$ allowable = 100K
 3) The operating at maximum levels reduces the lifespan

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