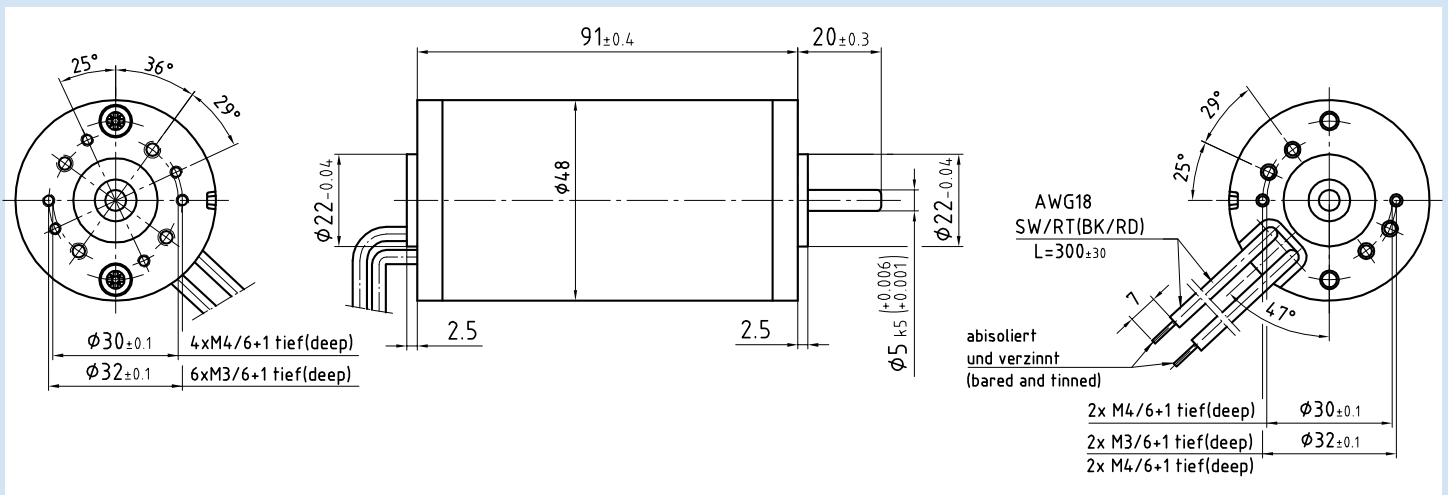
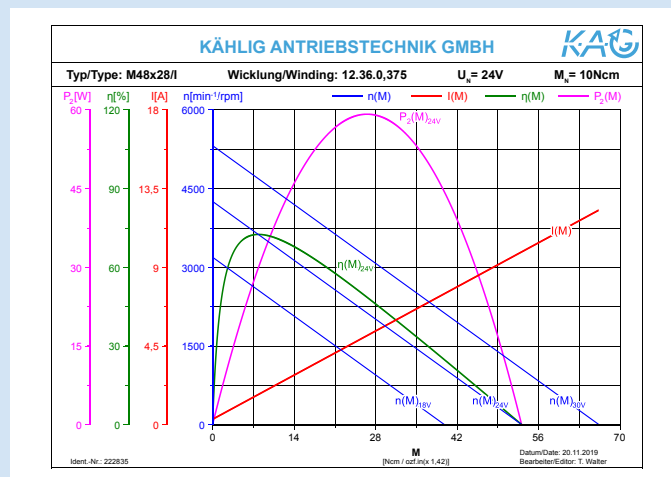


# DC-Motor M48x28/I Id.-Nr. 222835 (24V)

- Brushed DC motor with permanent magnets
- Ball bearings
- Lead wires
- Chromatised housing with zinc-die-cast bearing flanges
- Direction of rotation CW / CCW
- Multiple combination possibilities with gears, encoders, brakes and control electronics



Application on request



Stand: 23. Juli 2020 – changes reserved

# DC-Motor M48x28/I

## Id.-Nr. 222835 (24V)

### Performance

	Sign	Unit	Value 24V	Tolerance
Rated Voltage	$U_N$	V	24	
Rated torque <sup>1)</sup>	$M_N$	Ncm	10	
Rated speed <sup>1)</sup>	$n_N$	min <sup>-1</sup>	3450	±10%
Rated current <sup>1)</sup>	$I_N$	A	2,1	±20%
No load speed <sup>1)</sup>	$n_0$	min <sup>-1</sup>	4250	±15%
No load current <sup>1)</sup>	$I_0$	A	0,3	±50%
Rated power output <sup>1)</sup>	$P_{2N}$	W	36,1	
Rated power input <sup>1)</sup>	$P_{IN}$	W	50,4	
Rated efficiency <sup>1)</sup>	$\eta_N$	%	71,7	
Maximum power output <sup>2)3)</sup>	$P_{2max}$	W	59,1	
Maximum continuous torque <sup>2)3)</sup>	$M_{max}$	Ncm	10	
Maximum continuous current <sup>2)3)</sup>	$I_{max}$	A	2,1	
Maximum speed <sup>1)3)</sup>	$n_{max}$	min <sup>-1</sup>	10000	
Anhaltmoment <sup>1)</sup>	$M_H$	Ncm	53,1	
Stall torque <sup>1)</sup>	$I_H$	A	9,9	
Demagnetization current	$I_E$	A	8,5	
Connecting resistance	R	Ω	2,433	
Armature resistance <sup>1)</sup>	$R_A$	Ω	2,15	±5%
Armature inductance [1 kHz] <sup>1)</sup>	$L_A$	mH	2,55	
Rise of speed-characteristic <sup>1)</sup>	$k_D$	Ncm/min	- 80	
Torque constant <sup>1)</sup>	$k_M$	Ncm/A	5,6	
Voltage constant <sup>1)</sup>	$k_E$	V/10 <sup>3</sup> min <sup>-1</sup>	5,5	
Friction torque <sup>1)</sup>	$M_R$	Ncm	- 1,7	
Mechanical time constant <sup>1)</sup>	$T_M$	ms	12,94	
Electrical time constant <sup>1)</sup>	$T_e$	ms	1,05	
Rotor inertia	$J_R$	gcm <sup>2</sup>	175	
Maximum case temperature <sup>2)</sup>	$\vartheta_G$	°C	80	
Starting voltage <sup>1)</sup>	$U_A$	V	2	
Permissible axial shaft loads <sup>3)</sup>	$F_{axial}$	N	40	
Permissible radial shaft loads <sup>3)</sup>	$F_{radial}$	N	100	
Protection class DIN VDE 0530			IP49	
Duty cycle DIN VDE 0530			S1	
Insulation class DIN VDE 0530			E	
Lifetime at rated torque <sub>N</sub>			≥ 3000 h	
Ambient temperature			-30°C to +40°C	
Bearing			2 ball bearings	
Interference suppression			feasible	

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

Stand: 23. Juli 2020 – changes reserved