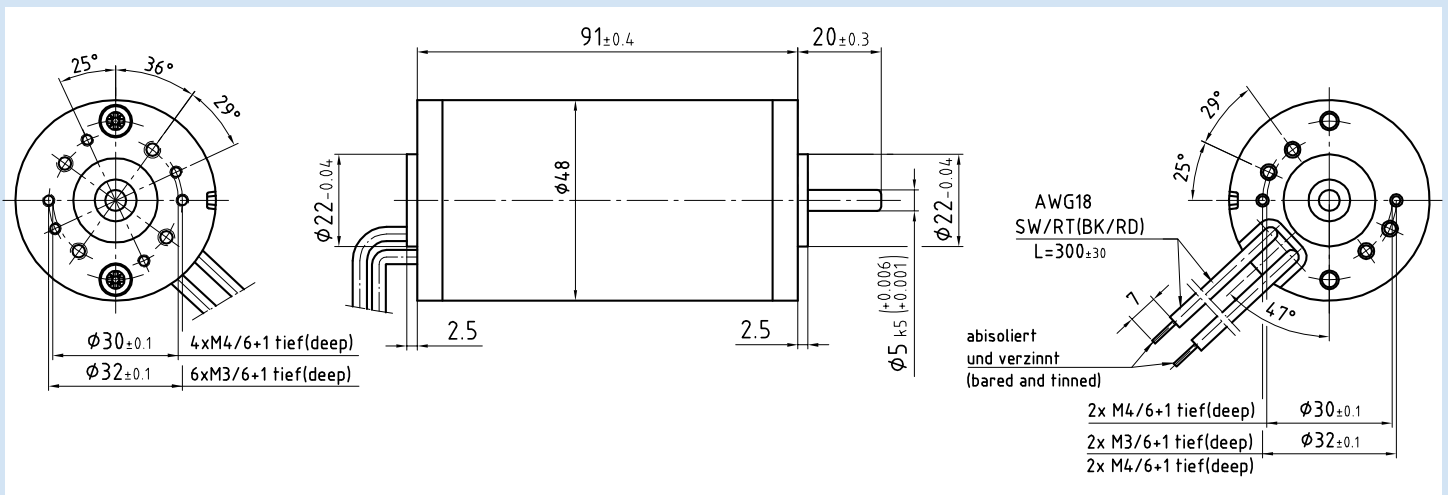


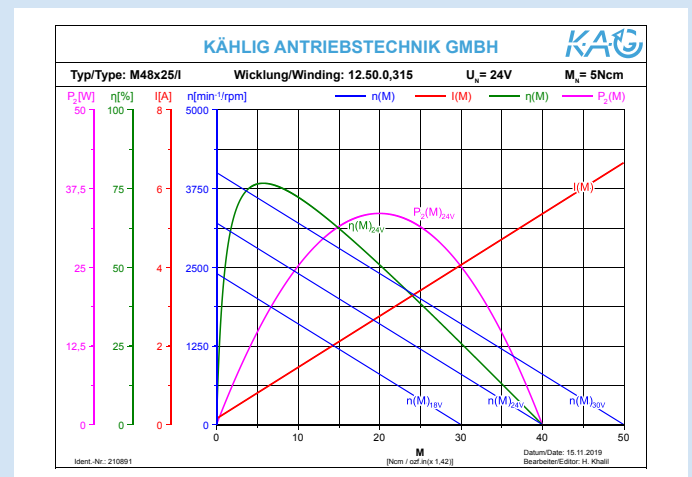
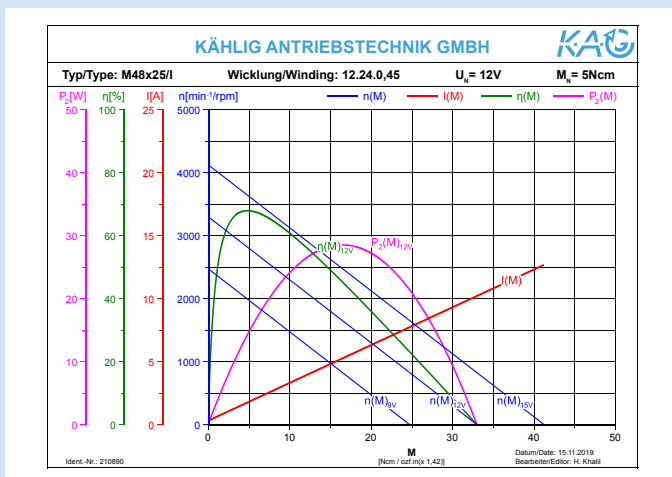
# DC-Motor M48x25/I

## Id.-Nr. 210890 (12V) 210891 (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



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# DC-Motor M48x25/I

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### Performance

	Sign	Unit	Value 12V	Value 24V	Tolerances
Rated Voltage	$U_N$	V	12	24	
Rated torque <sup>1)</sup>	$M_N$	Ncm	5	5	
Rated speed <sup>1)</sup>	$n_N$	min <sup>-1</sup>	2800	2800	±10%
Rated current <sup>1)</sup>	$I_N$	A	1.8	0.8	±20%
No load speed <sup>1)</sup>	$n_0$	min <sup>-1</sup>	3300	3200	±15%
No load current <sup>1)</sup>	$I_0$	A	0.3	0.15	±50%
Rated power output <sup>1)</sup>	$P_{2N}$	W	14.7	14.7	
Rated power input <sup>1)</sup>	$P_{IN}$	W	21.6	19.2	
Rated efficiency <sup>1)</sup>	$\eta_N$	%	67.9	76.4	
Maximum power output <sup>2)3)</sup>	$P_{2max}$	W	28.5	33.5	
Maximum continuous torque <sup>2)3)</sup>	$M_{max}$	Ncm	5	5	
Maximum continuous current <sup>2)3)</sup>	$I_{max}$	A	1.8	0.8	
Maximum speed <sup>1)3)</sup>	$n_{max}$	min <sup>-1</sup>	10000	10000	
Anhaltmoment <sup>1)</sup>	$M_H$	Ncm	33	40	
Stall torque <sup>1)</sup>	$I_H$	A	10.2	5.4	
Demagnetization current	$I_E$	A	12.7	6.1	
Connecting resistance	R	Ω	1.18	4.49	
Armature resistance <sup>1)</sup>	$R_A$	Ω	0.87	3.95	±5%
Armature inductance [1 kHz] <sup>1)</sup>	$L_A$	mH	0.9	3.92	
Rise of speed-characteristic <sup>1)</sup>	$k_D$	Ncm/min	- 100	- 80	
Torque constant <sup>1)</sup>	$k_M$	Ncm/A	3.3	7.7	
Voltage constant <sup>1)</sup>	$k_E$	V/10 <sup>3</sup> min <sup>-1</sup>	3.5	7.3	
Friction torque <sup>1)</sup>	$M_R$	Ncm	- 1	- 1.2	
Mechanical time constant <sup>1)</sup>	$T_M$	ms	11.9	12.7	
Electrical time constant <sup>1)</sup>	$T_e$	ms	0.8	0.9	
Rotor inertia	$J_R$	gcm <sup>2</sup>	165	165	
Maximum case temperature <sup>2)</sup>	$\vartheta_G$	°C	80	80	
Starting voltage <sup>1)</sup>	$U_A$	V	2	2	
Permissible axial shaft loads <sup>3)</sup>	$F_{axial}$	N	40	40	
Permissible radial shaft loads <sup>3)</sup>	$F_{radial}$	N	100	100	
Protection class DIN VDE 0530			IP40		
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

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