

DC-Motors

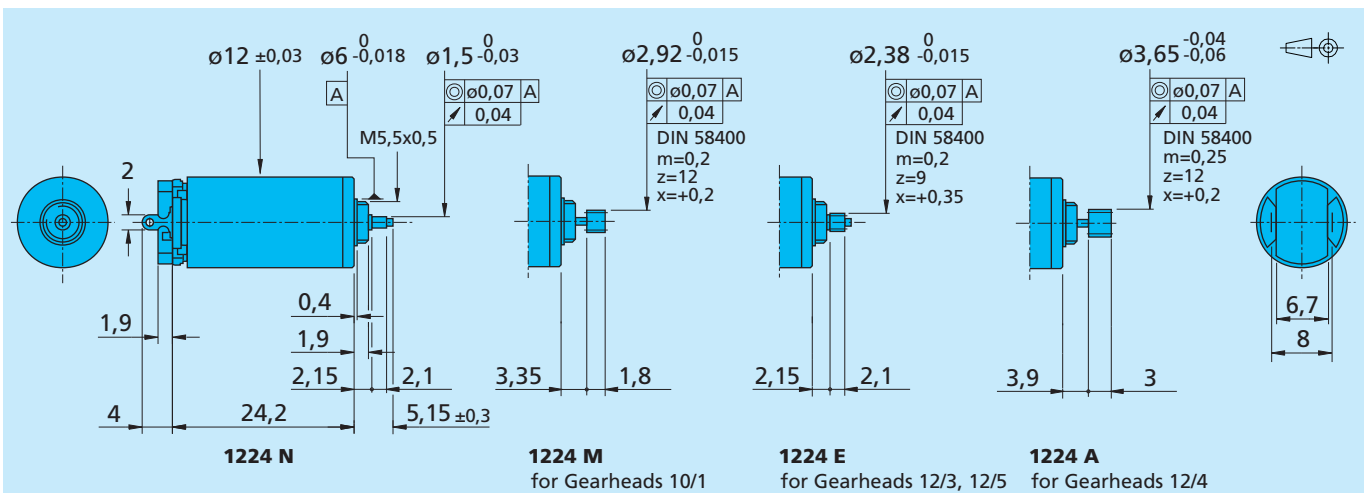
Precious Metal Commutation

1,8 mNm

For combination with
 Gearheads: 10/1, 12/3, 12/4, 12/5
 Encoders: HEM, HEM3-256, PA2-100

Series 1224 ... SR

	1224 N	006 S	012 S	015 S	
1 Nominal voltage	U_N	6	12	15	Volt
2 Terminal resistance	R	4,6	18,2	29,4	Ω
3 Output power	$P_{2 \max.}$	1,92	1,95	1,88	W
4 Efficiency	$\eta_{\max.}$	82	83	83	%
5 No-load speed	n_o	13 800	13 700	13 400	rpm
6 No-load current (with shaft \varnothing 1,0 mm)	I_o	0,011	0,005	0,004	A
7 Stall torque	M_H	5,31	5,43	5,36	mNm
8 Friction torque	M_R	0,05	0,05	0,05	mNm
9 Speed constant	k_n	2 323	1 151	901	rpm/V
10 Back-EMF constant	k_E	0,430	0,869	1,110	mV/rpm
11 Torque constant	k_M	4,11	8,30	10,60	mNm/A
12 Current constant	k_I	0,243	0,120	0,094	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$	2 600	2 523	2 499	rpm/mNm
14 Rotor inductance	L	55	220	350	μH
15 Mechanical time constant	τ_m	5	5	5	ms
16 Rotor inertia	J	0,18	0,18	0,18	gcm^2
17 Angular acceleration	$\alpha_{\max.}$	295	302	298	$\cdot 10^3 rad/s^2$
18 Thermal resistance	$R_{th 1} / R_{th 2}$	17 / 37			K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	6,5 / 371			s
20 Operating temperature range:					
- motor		- 30 ... + 85			$^{\circ}C$
- rotor, max. permissible		+ 85			$^{\circ}C$
21 Shaft bearings		sintered bronze sleeves			
22 Shaft load max.:					
- with shaft diameter		1,0			mm
- radial at 3 000 rpm (1,5 mm from bearing)		0,5			N
- axial at 3 000 rpm		0,1			N
- axial at standstill		20			N
23 Shaft play:					
- radial	\leq	0,03			mm
- axial	\leq	0,2			mm
24 Housing material		steel, black coated			
25 Weight		13,5			g
26 Direction of rotation		clockwise, viewed from the front face			
Recommended values - mathematically independent of each other					
27 Speed up to	$n_{e \max.}$	12 000	12 000	12 000	rpm
28 Torque up to	$M_{e \max.}$	1,80	1,86	1,86	mNm
29 Current up to (thermal limits)	$I_{e \max.}$	0,450	0,230	0,180	A



How to Order a 1224 ... SR

Part number	Voltage	Description	Stocked items
1224N006SR	6	Standard motor	no
1224N012SR	12	Standard motor	no
1224N015SR	15	Standard motor	no
1224M006SR	6	Standard motor with pinion for 10/1 gearhead	yes
1224M012SR	12	Standard motor with pinion for 10/1 gearhead	yes
1224M015SR	15	Standard motor with pinion for 10/1 gearhead	yes
1224E006SR	6	Standard motor with pinion for 12/3 & 12/5 gearhead	yes
1224E012SR	12	Standard motor with pinion for 12/3 & 12/5 gearhead	yes
1224E015SR	15	Standard motor with pinion for 12/3 & 12/5 gearhead	no
1224A006SR	6	Standard motor with pinion for 12/4 gearhead	yes
1224A012SR	12	Standard motor with pinion for 12/4 gearhead	yes
1224A015SR	15	Standard motor with pinion for 12/4 gearhead	no