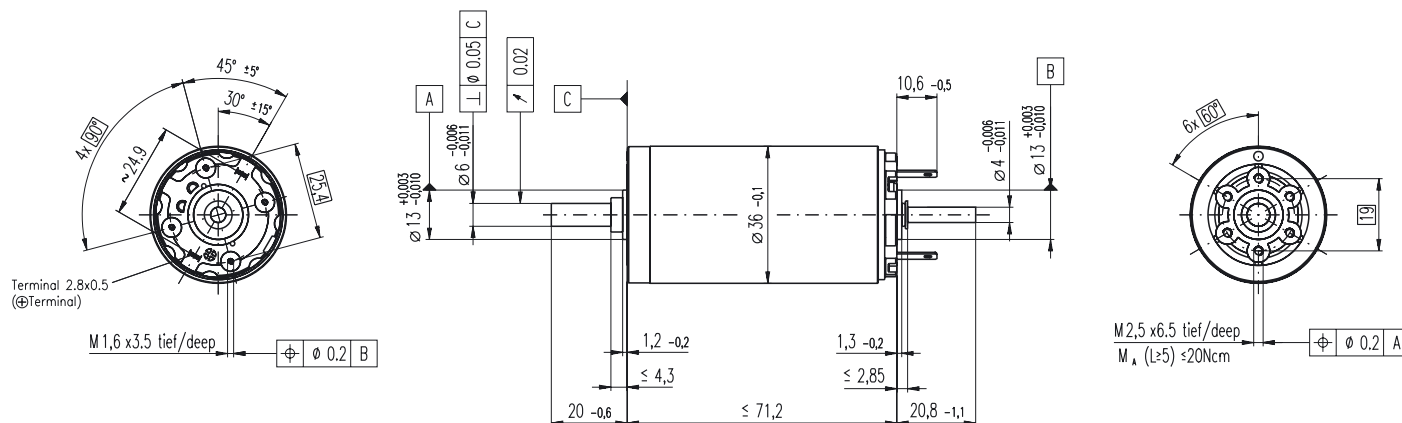


RE 36 Ø36 mm, Graphite Brushes, 70 Watt



M 1:2

- Stock program
- Standard program
- Special program (on request!)

Order Number

Motor Data

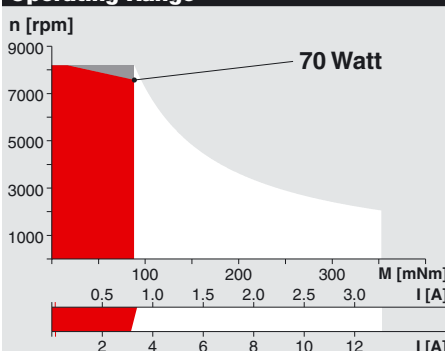
		118797	118798	118799	118800	118801	118802	118803	118804	118805	118806	118807	118808	118809	118810
1 Assigned power rating	W	70	70	70	70	70	70	70	70	70	70	70	70	70	70
2 Nominal voltage	Volt	18.0	24.0	32.0	42.0	42.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0
3 No load speed	rpm	6610	6210	6790	7020	6340	6420	5220	4320	3450	2830	2280	1780	1420	1180
4 Stall torque	mNm	730	783	832	865	786	785	627	504	403	326	258	198	158	127
5 Speed / torque gradient	rpm / mNm	9.23	8.05	8.27	8.19	8.14	8.25	8.41	8.65	8.67	8.80	8.96	9.17	9.21	9.51
6 No load current	mA	153	105	89	70	61	55	42	33	25	20	15	12	9	7
7 Starting current	A	28.6	21.5	18.7	15.3	12.6	11.1	7.22	4.80	3.06	2.04	1.30	0.784	0.501	0.334
8 Terminal resistance	Ohm	0.628	1.11	1.71	2.75	3.35	4.32	6.65	10.00	15.7	23.5	36.8	61.3	95.8	144
9 Max. permissible speed	rpm	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200	8200
10 Max. continuous current	A	3.18	2.44	1.99	1.59	1.44	1.27	1.03	0.847	0.679	0.556	0.445	0.346	0.277	0.226
11 Max. continuous torque	mNm	81	88.8	88.5	89.8	90.4	90.1	89.8	89.0	89.2	88.8	88.1	87.3	87.2	85.8
12 Max. power output at nominal voltage	W	123	125	146	157	129	131	84.9	56.4	36.0	23.9	15.2	9.09	5.78	3.82
13 Max. efficiency	%	84	85	86	86	86	86	85	84	82	81	79	77	75	72
14 Torque constant	mNm / A	25.5	36.4	44.5	56.6	62.6	70.7	86.9	105	131	160	198	253	315	380
15 Speed constant	rpm / V	375	263	215	169	152	135	110	90.9	72.7	59.8	48.2	37.8	30.3	25.1
16 Mechanical time constant	ms	6	6	6	6	6	6	6	6	6	6	6	6	6	6
17 Rotor inertia	gcm ²	60.2	67.7	65.2	65.4	65.6	64.6	63.3	61.5	61.3	60.3	59.2	57.8	57.5	55.7
18 Terminal inductance	mH	0.10	0.20	0.30	0.49	0.60	0.76	1.15	1.68	2.62	3.87	5.96	9.70	15.10	21.90
19 Thermal resistance housing-ambient	K / W	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
20 Thermal resistance rotor-housing	K / W	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
21 Thermal time constant winding	s	38	43	41	41	41	41	40	39	39	38	37	36	36	35

Specifications

- Axial play 0.05 - 0.15 mm
- Max. **ball bearing** loads
 - axial (dynamic) 5.6 N
 - not preloaded 2.4 N
 - preloaded 28 N
 - radial (5 mm from flange) 110 N
 - Force for press fits (static) 1200 N
- Radial play **ball bearing** 0.025 mm
- Ambient temperature range -20 ... +100°C
- Max. rotor temperature +125°C
- Number of commutator segments 13
- Weight of motor 350 g
- 2 pole permanent magnet
- Values listed in the table are nominal. For applicable tolerances see page 43. For additional details please use the maxon selection program on the enclosed CD-ROM.

⚠ Tolerances may vary from the standard specification.

Operating Range

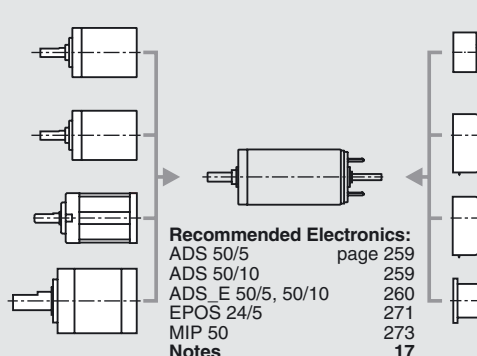


Comments

- Recommended operating range**
- Continuous operation**
In observation of above listed thermal resistances (lines 19 and 20) the maximum permissible rotor temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.
- Short term operation**
The motor may be briefly overloaded (recurring).
- 118804** Motor with high resistance winding
- 118797** Motor with low resistance winding

maxon Modular System

- Planetary Gearhead** Ø32 mm 0.75 - 4.5 Nm Details page 219
- Planetary Gearhead** Ø32 mm 1.0 - 6.0 Nm Details page 220
- Planetary Gearhead** Ø32 mm 0.4 - 2.0 Nm Details page 222
- Planetary Gearhead** Ø42 mm 3 - 15 Nm Details page 224



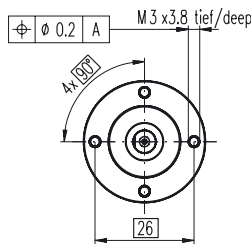
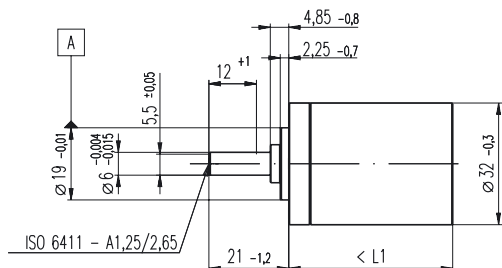
Overview on page 17 - 21

- Encoder MR** 256 - 1024 CPT, 3 channels Details page 239
- Encoder HEDS 5540** 500 CPT, 3 channels Details page 242
- Encoder HEDL 5540** 500 CPT, 3 channels Details page 244
- DC-Tacho DCT** Ø22 mm 0.52 V Details page 252

Planetary Gearhead GP 32 C Ø32 mm, 1.0 - 6.0 Nm

Ceramic Version

maxon gear



M 1:2

Technical Data

Planetary Gearhead	straight teeth
Output shaft	stainless steel, hardened
Shaft diameter as option	8 mm
Bearing at output	ball bearing
Radial play, 5 mm from flange	max. 0.14 mm
Axial play	max. 0.4 mm
Max. radial load, 12 mm from flange	140 N
Max. permissible axial load	120 N
Max. permissible force for press fits	120 N
Sense of rotation, drive to output	=
Recommended input speed	< 8000 rpm
Recommended temperature range	-20 ... +100°C
Extended range as option	-35 ... +100°C

Low-noise version upon request

- Stock program
- Standard program
- Special program (on request!)

Order Number

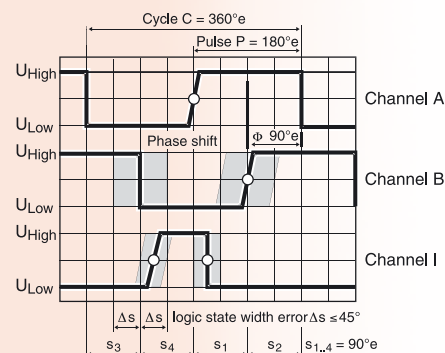
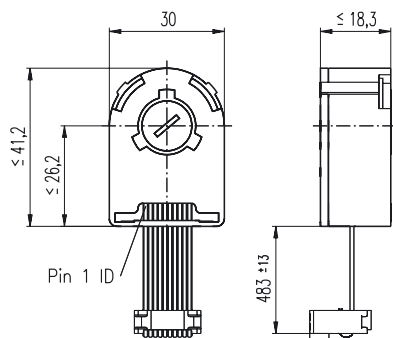
Gearhead Data	166930	166933	166938	166939	166944	166949	166954	166959	166962	166967	166972	166977
1 Reduction	3.7 : 1	14 : 1	33 : 1	51 : 1	111 : 1	246 : 1	492 : 1	762 : 1	1181 : 1	1972 : 1	2829 : 1	4380 : 1
2 Reduction absolute	26/7	676/49	529/16	17576/343	13824/125	421824/1715	86112/175	19044/25	10123776/8575	8626176/4375	495144/175	109503/25
3 Max. motor shaft diameter	mm 6	6	3	6	4	4	3	3	4	4	3	3
Order Number	166931	166934		166940	166945	166950	166955	166960	166963	166968	166973	166978
1 Reduction	4.8 : 1	18 : 1		66 : 1	123 : 1	295 : 1	531 : 1	913 : 1	1414 : 1	2189 : 1	3052 : 1	5247 : 1
2 Reduction absolute	24/5	624/35		16224/245	6877/56	101062/343	331776/625	36501/40	2425488/1715	536406/245	1907712/625	839523/160
3 Max. motor shaft diameter	mm 4	4		4	3	3	4	3	3	3	3	3
Order Number	166932	166935		166941	166946	166951	166956	166961	166964	166969	166974	166979
1 Reduction	5.8 : 1	21 : 1		79 : 1	132 : 1	318 : 1	589 : 1	1093 : 1	1526 : 1	2362 : 1	3389 : 1	6285 : 1
2 Reduction absolute	23/4	299/14		3887/49	3312/25	389376/1225	20631/35	279841/256	9345024/6125	2066688/875	474513/140	6436343/1024
3 Max. motor shaft diameter	mm 3	3		3	3	4	3	3	4	3	3	3
Order Number		166936		166942	166947	166952	166957		166965	166970	166975	
1 Reduction		23 : 1		86 : 1	159 : 1	411 : 1	636 : 1		1694 : 1	2548 : 1	3656 : 1	
2 Reduction absolute		578/25		14976/175	1587/10	359424/875	79488/125		1162213/686	7962624/3125	457056/125	
3 Max. motor shaft diameter	mm 4	4		4	3	4	3		3	4	3	
Order Number		166937		166943	166948	166953	166958		166966	166971	166976	
1 Reduction		28 : 1		103 : 1	190 : 1	456 : 1	706 : 1		1828 : 1	2623 : 1	4060 : 1	
2 Reduction absolute		138/5		3588/35	12167/64	89401/196	15817/224		2238912/1225	2056223/84	3637933/896	
3 Max. motor shaft diameter	mm 3	3		3	3	3	3		3	3	3	
4 Number of stages	1	2	2	3	3	4	4	4	5	5	5	5
5 Max. continuous torque	Nm 1	3	3	6	6	6	6	6	6	6	6	6
6 Intermittently permissible torque at gear output	Nm 1.25	3.75	3.75	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
7 Max. efficiency	% 80	75	75	70	70	60	60	60	50	50	50	50
8 Weight	g 118	162	162	194	194	226	226	226	258	258	258	258
9 Average backlash no load	° 1.4	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
10 Mass inertia	gcm ² 1.5	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
11 Gearhead length L1	mm 26.4	36.3	36.3	43.0	43.0	49.7	49.7	49.7	56.4	56.4	56.4	56.4



Combination

+ Motor	Page	+ Tacho / Encoder / Brake	Page	Overall length [mm] = Motor length + gearhead length + (tacho / encoder / brake) + assembly parts								
RE 25, 10 W	77			81.0	90.9	90.9	97.6	97.6	104.3	104.3	111.0	111.0
RE 25, 10 W	77	MR	238	92.0	101.9	101.9	108.6	108.6	115.3	115.3	122.0	122.0
RE 25, 10 W	77	Enc 22	240	95.1	105.0	105.0	111.7	111.7	118.4	118.4	125.1	125.1
RE 25, 10 W	77	HED_ 5540	242/244	101.8	111.7	111.7	118.4	118.4	125.1	125.1	131.8	131.8
RE 25, 10 W	77	DCT 22	252	103.3	113.2	113.2	119.9	119.9	126.6	126.6	133.3	133.3
RE 25, 20 W	78			81.0	90.9	90.9	97.6	97.6	104.3	104.3	111.0	111.0
RE 25, 20 W	78	MR	238	92.0	101.9	101.9	108.6	108.6	115.3	115.3	122.0	122.0
RE 25, 20 W	78	Enc 22	240	95.1	105.0	105.0	111.7	111.7	118.4	118.4	125.1	125.1
RE 25, 20 W	78	HED_ 5540	242/244	101.8	111.7	111.7	118.4	118.4	125.1	125.1	131.8	131.8
RE 25, 20 W	78	DCT 22	252	103.3	113.2	113.2	119.9	119.9	126.6	126.6	133.3	133.3
RE 25, 20 W	78	AB 40	279	115.1	125.0	125.0	131.7	131.7	138.4	138.4	145.1	145.1
RE 26, 18 W	79			85.3	95.2	95.2	101.9	101.9	108.6	108.6	115.3	115.3
RE 26, 18 W	79	MR	238	96.3	106.2	106.2	112.9	112.9	119.6	119.6	126.3	126.3
RE 26, 18 W	79	Enc 22	240	102.7	112.6	112.6	119.3	119.3	126.0	126.0	132.7	132.7
RE 26, 18 W	79	HED_ 5540	242/244	103.7	113.6	113.6	120.3	120.3	127.0	127.0	133.7	133.7
RE 26, 18 W	79	DCT 22	252	106.3	116.2	116.2	122.9	122.9	129.6	129.6	136.3	136.3
RE 30, 60 W	80			94.5	104.4	104.4	111.1	111.1	117.8	117.8	124.5	124.5
RE 30, 60 W	80	MR	239	105.9	115.8	115.8	122.5	122.5	129.2	129.2	135.9	135.9
RE 35, 90 W	81			97.4	107.3	107.3	114.0	114.0	120.7	120.7	127.4	127.4
RE 35, 90 W	81	MR	239	108.8	118.7	118.7	125.4	125.4	132.1	132.1	138.8	138.8
RE 35, 90 W	81	HED_ 5540	242/244	118.4	128.3	128.3	135.0	135.0	141.7	141.7	148.4	148.4
RE 35, 90 W	81	DCT 22	252	115.5	125.4	125.4	132.1	132.1	138.8	138.8	145.5	145.5
RE 35, 90 W	81	AB 40	279	133.5	143.4	143.4	150.1	150.1	156.8	156.8	163.5	163.5
RE 35, 90 W	81	HEDS 5540 / AB 40	242/279	150.6	160.5	160.5	167.2	167.2	173.9	173.9	180.6	180.6
RE 36, 70 W	82			97.7	107.6	107.6	114.3	114.3	121.0	121.0	127.7	127.7
RE 36, 70 W	82	MR	239	109.1	119.0	119.0	125.7	125.7	132.4	132.4	139.1	139.1
RE 36, 70 W	82	HED_ 5540	242/244	118.7	128.6	128.6	135.3	135.3	142.0	142.0	148.7	148.7
RE 36, 70 W	82	DCT 22	252	115.8	125.7	125.7	132.4	132.4	139.1	139.1	145.8	145.8

Encoder HEDL 5540, 500 Counts per turn, 3 Channels, with Line Driver RS 422



- Stock program
- Standard program
- Special program (on request!)

Order Number

110512	110514	110516	110518
--------	--------	--------	--------

Type				
Counts per turn	500	500	500	500
Number of channels	3	3	3	3
Max. operating frequency (kHz)	100	100	100	100
Shaft diameter (mm)	3	4	6	8



Combination

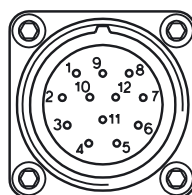
+ Motor	Page	+ Gearhead	Page	+ Brake	Page	Overall length [mm] / see: + Gearhead
RE 25, 10 W*	77					75.3
RE 25, 10 W*	77	GP 26, 0.5 - 2.0 Nm	216			•
RE 25, 10 W*	77	GP 32, 0.75 - 6.0 Nm	218/220			•
RE 25, 10 W*	77	GP 32, 0.4 - 2.0 Nm	222			•
RE 25, 20 W*	78					75.3
RE 25, 20 W*	78	GP 26, 0.5 - 2.0 Nm	216			•
RE 25, 20 W*	78	GP 32, 0.75 - 6.0 Nm	218/220			•
RE 25, 20 W*	78	GP 32, 0.4 - 2.0 Nm	222			•
RE 26, 18 W*	79					77.2
RE 26, 18 W*	79	GP 26, 0.5 - 2.0 Nm	216			•
RE 26, 18 W*	79	GP 32, 0.75 - 6.0 Nm	218/220			•
RE 26, 18 W*	79	GP 32, 0.4 - 2.0 Nm	222			•
RE 35, 90 W*	81					91.9
RE 35, 90 W*	81	GP 32, 0.75 - 6.0 Nm	219/220			•
RE 35, 90 W*	81	GP 42, 3.0 - 15 Nm	224			•
RE 35, 90 W*	81			AB 40	279	124.1
RE 35, 90 W*	81	GP 32, 0.75 - 6.0 Nm	219/220	AB 40	279	•
RE 35, 90 W*	81	GP 42, 3.0 - 15 Nm	224	AB 40	279	•
RE 36, 70 W*	82					92.2
RE 36, 70 W*	82	GP 32, 0.75 - 6.0 Nm	219/220			•
RE 36, 70 W*	82	GP 32, 0.4 - 2.0 Nm	222			•
RE 36, 70 W*	82	GP 42, 3.0 - 15 Nm	224			•
RE 40, 150 W*	83					91.7
RE 40, 150 W*	83	GP 42, 3.0 - 15 Nm	224			•
RE 40, 150 W*	83	GP 52, 4.0 - 30 Nm	227			•
RE 40, 150 W*	83			AB 40	279	124.2
RE 40, 150 W*	83	GP 42, 3.0 - 15 Nm	224	AB 40	279	•
RE 40, 150 W*	83	GP 42, 4.0 - 30 Nm	227	AB 40	279	•
RE 75, 250 W	84					241.5
RE 75, 250 W	84	GP 81, 20 - 120 Nm	230			•
RE 75, 250 W	84			AB 75	282	281.4
RE 75, 250 W	84	GP 81, 20 - 120 Nm	230	AB 75	282	•

*Pin allocation see page 245

Technical Data

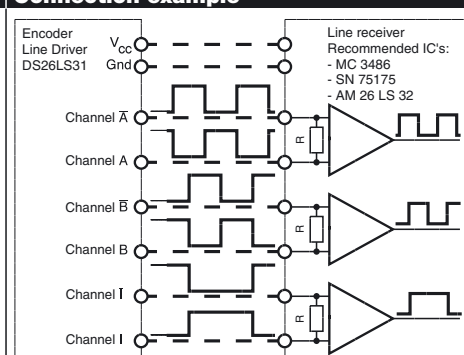
Supply voltage	5 V ± 10 %
Output signal	EIA Standard RS 422
drivers used:	DS26LS31
Phase shift Φ (nominal)	90°e
Logic state width s	min. 45°e
Signal rise time (typical at $C_L = 25$ pF, $R_L = 2.7$ k Ω , 25°C)	180 ns
Signal fall time (typical at $C_L = 25$ pF, $R_L = 2.7$ k Ω , 25°C)	40 ns
Index pulse width (nominal)	90°e
Operating temperature range	0 ... +70°C
Moment of inertia of code wheel	≤ 0.6 gcm ²
Max. angular acceleration	250 000 rad s ⁻²
Output current per channel	min. -20 mA, max. 20 mA
Option	1000 counts per turn, 2 channel

Pin Allocation for motor RE 75



- Flanged connector**
Type SOURIAU 8GM-QL2-12P
- V_{CC}
 - N.C. (do not connect)
 - GND
 - N.C. (do not connect)
 - Channel I (Index)
 - Channel I
 - Channel B
 - Channel B
 - Channel A
 - Channel A
 - N.C. (do not connect)
 - N.C. (do not connect)
- recommended cable plug
Type SOURIAU 8GM-DM2-12S
(metal, straight exit:
maxon Art. No. 2675.538) or
8G-V2-12S (plastic, 90° angle:
maxon Art. No. 2675.539)

Connection example



Terminal resistance R = typical 100 Ω