

maxon motor driven by precision

Selection
Load calculator
Comparison

Filter 30/4063

Motor load (%)

50

U max (V)

4.0

I max (A)

0.30

Length [mm]

70.8

Diem. [mm]

22.0

Resolution

Optimum angle



Selection	Drive layout	Motor	Sensor	Control	Supply
GP 22 C 14002	500 A-max 19	352922	Precious metal brushes	1	87
GP 22 C 14002	500 A-max 19	352926	Precious metal brushes	2	87
GP 22 C 14002	500 A-max 19	110092	Precious metal brushes	2	87
GP 22 C 14002	500 A-max 19	110093	Precious metal brushes	1	87
GP 22 A 110340	370 RE-max 21	221024	Precious metal brushes	2	79
GP 22 C 143996	370 RE-max 21	221024	Precious metal brushes	2	79
GP 22 C 143996	370 RE-max 21	221011	Precious metal brushes	1	79
GP 22 A 110340	370 RE-max 21	221011	Precious metal brushes	1	79
GP 22 C 143997	388 RE-max 21	221011	Precious metal brushes	1	75
GP 22 C 143997	388 RE-max 21	221024	Precious metal brushes	2	75
GP 22 A 134178	388 RE-max 21	221011	Precious metal brushes	1	75
GP 22 A 134178	388 RE-max 21	221024	Precious metal brushes	2	75
GP 22 C 14003	500 A-max 19	110092	Precious metal brushes	2	74
GP 22 C 14003	500 A-max 19	352922	Precious metal brushes	1	74
GP 22 C 14003	500 A-max 19	352926	Precious metal brushes	2	74
GP 22 C 143998	410 RE-max 21	221011	Precious metal brushes	1	72
GP 22 A 134180	410 RE-max 21	221011	Precious metal brushes	1	72
GP 22 C 14001	561 RE-max 21	221023	Precious metal brushes	2	71
GP 22 C 143998	410 RE-max 21	221024	Precious metal brushes	2	71
GP 22 A 134180	410 RE-max 21	221024	Precious metal brushes	2	71
GP 22 C 14001	561 RE-max 21	221010	Precious metal brushes	1	70
GP 22 C 14002	500 RE-max 21	221023	Precious metal brushes	2	67
GP 22 C 14002	500 RE-max 21	221010	Precious metal brushes	1	67
GP 22 A 134179	455 RE-max 21	221011	Precious metal brushes	1	64
GP 22 C 143999	455 RE-max 21	221011	Precious metal brushes	1	64
GP 22 C 143999	455 RE-max 21	221024	Precious metal brushes	2	64
GP 22 C 14003	500 RE-max 21	221023	Precious metal brushes	2	58
GP 22 C 14003	500 RE-max 21	221010	Precious metal brushes	1	57

Documentation / data sheet

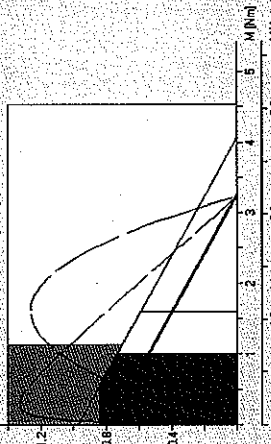
Overview

Motor

Gear

Control/Sensor

- ☐ Scale motor
- ☒ Working points
- ☐ Max. contin. torque motor (e)
- ☐ Contin. current (c)
- ☐ Max. current (c)
- ☒ Max. voltage (d)
- ☒ Output power (e)
- ☒ Efficiency (f)
- ☐ Winding temperature (g)
- ☐ Max. contin. torque gear (h)
- ☐ Max. torque gear (h)
- ☐ Max. speed gear (k)



maxon drive unit

Gear

Motor

Control

110340 GP 22 A
221024 RE-max 21
W, Precious metal brushes, 2 Shift ends, Sintered sleeve bearings

Gear reduction ratio 370:1 Ball bearings

key data of drive

(Needle) motor voltage (U_{nom})

No-load speed (at U_{nom})

Load stall torque (theoretic, at U_{nom})

Starting current (theoretic, at U_{nom})

Max. load current

Motor load

Diameter

Length

Ambient temperature (T_{amb})

Average winding temperature

Housing temperature

4.8	V
14.9	rpm
350	mNm
2.19	A
0.824	A
79	%
22	mm
74.7	mm
25	°C
58	°C
50	°C



English

V1.2 - 11/2007

221024/110340

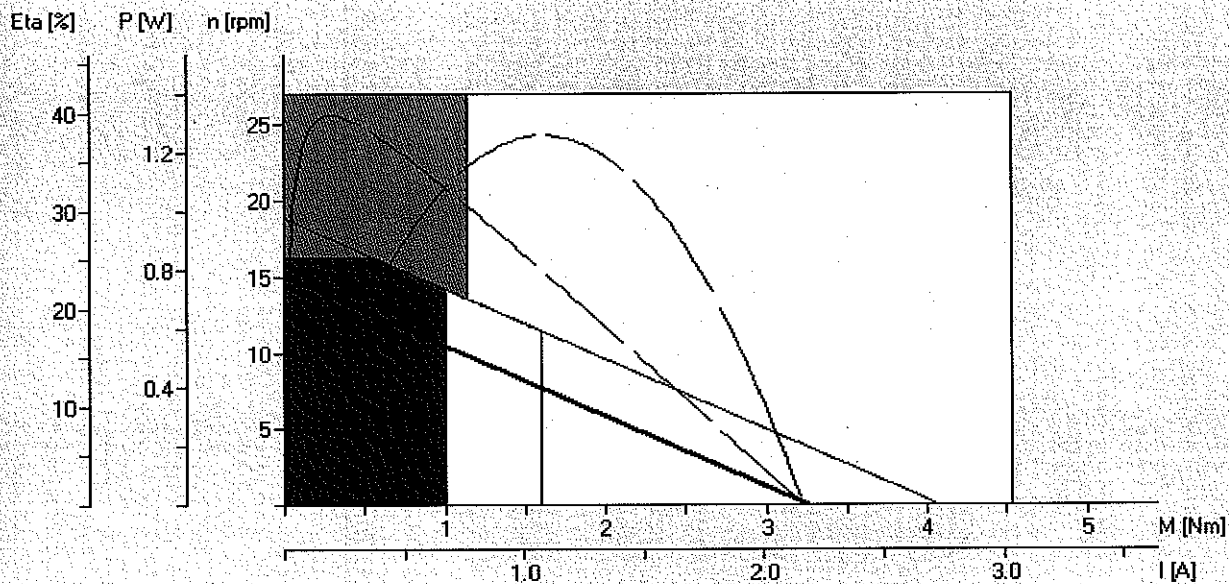
221024/110340

maxon drive unit

Gear	110340	GP 22 A	Gear reduction ratio 370:1, Ball bearings
Motor	221024	RE-max 21	3.5W, Precious metal brushes, 2 Shaft ends, Sintered sleeve bearings
Control			

Key data of drive

(Needed) motor voltage (= U _{mot})	4.8	V
No-load speed (at U _{mot})	14.9	rpm
Load stall torque (theoretic, at U _{mot})	3260	mNm
Starting current (theoretic, at U _{mot})	2.18	A
Max. load current	0.604	A
Motor load	79	%
Diameter	22	mm
Length	74.7	mm
Ambient temperature (=T _{amb})	25	°C
Average winding temperature	58	°C
Housing temperature	50	°C



- ☐ Scale motor
- ☒ Working points
- ☐ Max. contin. torque motor (a)
- ☐ Contin. current (b)
- ☐ Max. current (c)
- ☒ Max. voltage (d)
- ☒ Output power (e)
- ☒ Efficiency (f)
- ☐ Winding temperature (g)
- ☐ Max. contin. torque gear (h)
- ☐ Max. torque gear (i)
- ☐ Max. speed gear (k)

Load input

Max. load speed	11	rpm
Load torque (RMS)	870	mNm
Max. load torque	870	mNm
Duration of max. load	86400	s

Power supply input

Min. supply voltage	0	V
Max. supply voltage	6	V
Max. continuous current	1	A
Max. current (peak)	10	A
Max. duration of peak current	1	s

Drive parameter

Motor order number

221024

RE-max 21, 3.5W, Precious metal brushes, 2 Shaft ends, Sintered sleeve bearings

Motor data	Min.	Nominal	Max.	
Nominal voltage		5		V
No-load speed	5281	5740	6199	rpm
No-load current		21.1	31.7	mA
Rated torque (max. continuous torque at Tmax)		6.25		mNm
Rated current (max. continuous current)		0.777		A
Stall torque	15.9	18.7	21.5	mNm
Starting current	2.11	2.27	2.43	A
Max. efficiency		82		%
Terminal resistance	2.05	2.2	2.35	Ohm
Terminal inductance		0.0846		mH
Torque constant	7.57	8.23	8.89	mNm/A
Speed constant	1070	1160	1250	rpm/V
Speed-torque gradient	248	310	372	rpm/mNm
Mechanical time constant		7.08		ms
Rotor inertia	1.96	2.18	2.4	gcm ²
Therm. resistance housing-ambient		28		K/W
Therm. resistance winding-housing		8		K/W
Therm. time constant winding		8.83		s
Ambient temperature range	-30	25	85	°C
Max. winding temperature		85		°C
Max. speed		10000		rpm
Motorweight		43		g

Motor data at actual motor voltage and ambient temperature	Nominal	
Ambient temperature (=Tamb)	25	°C
Motor voltage (=Umot)	4.8	V
No-load speed (at Umot and Tamb)	5514	rpm
Max. continuous torque (at Tamb)	6.39	mNm
Max. continuous current (at Tamb)	0.777	A
Stall torque (theoretic, at Umot and Tamb)	18	mNm
Starting current (theoretic, Umot and Tamb)	2.18	A

Gear order number 110340

GP 22 A, Gear reduction ratio 370:1, Ball bearings

Gear data

Gear reduction ratio	370	:1
Gear reduction absolute	0	:1
Gear efficiency	49	%
Max. continuous gear torque	1000	mNm
Short-term torque	1600	mNm
Max. gear input speed	6000	rpm
Gear mass inertia	0.4	gcm ²
No of stages	4	-

Controller order number

Sensors

Sensor type	Sensor No.	Counts/turn	Channels	Line Driver	Max.freq.(kHz)	Brake
Encoder MR	201935	32	2	No	8	No
Encoder MR	201937	512	2	Yes	320	No
Encoder MR	201938	32	3	No	8	No
Encoder MR	201940	512	3	Yes	320	No
Encoder MR	228177	128	3	Yes	80	No
Encoder MR	228179	128	2	Yes	80	No
Encoder MR	228181	256	2	Yes	160	No
Encoder MR	228182	256	3	Yes	160	No