

consists of:

**Planetary Gearhead GP 32 A Ø32 mm, 0.75 - 4.5 Nm, Metal Version**

Part number 166162

**A-max 32 Ø32 mm, Graphite Brushes, 20 Watt, with terminals**

Part number 236669

**Encoder HEDS 5540, 500 Counts per turn, 3 Channels**

Part number 110513

**Your Contact**

maxon motor worldwide

[http://www.maxonmotor.com:80/maxon/view/content/contact\\_page](http://www.maxonmotor.com:80/maxon/view/content/contact_page)

E-Mail: [info@maxonmotor.com](mailto:info@maxonmotor.com)

Internet: <http://www.maxonmotor.com:80>

retail price:

<b>1-4 Pieces</b>	<b>CHF 421.20</b>
<b>5-19 Pieces</b>	<b>CHF 339.40</b>
<b>20-49 Pieces</b>	<b>CHF 309.20</b>
<b>from 50 Pieces</b>	<b>On Request</b>

Terms and conditions

## Planetary Gearhead GP 32 A Ø32 mm, 0.75 - 4.5 Nm, Metal Version

Part number 166162



### General information

Gearhead type	GP
Outer diameter	32 mm
Version	A

### Gearhead Data

Reduction	28 : 1
Absolute reduction	138/5
Max. motor shaft diameter	3 mm
Number of stages	2
Max. continuous torque	2.25 Nm
Max. intermittent torque	3.4 Nm
Direction of rotation, drive to output	=
Max. efficiency	75 %
Average backlash no load	0.8 °
Mass inertia	0.8 gcm <sup>2</sup>
Gearhead length (L1)	36.3 mm
Max. transmittable power (continuous)	50 W
Max. transmittable power (intermittent)	76 W

### Technical Data

Radial play	max. 0.14 mm, 5 mm from flange
Axial play	max. 0.4 mm
Max. radial load	140 N, 12 mm from flange
Max. axial load (dynamic)	120 N
Max. force for press fits	120 N
Max. continuous input speed	6000 rpm
Max. intermittent input speed	6000 rpm
Recommended temperature range	-20...+100 °C
Extended temperature range	-35...+100 °C
Number of autoclave cycles	0

### Product

Weight	160 g
--------	-------

## A-max 32 Ø32 mm, Graphite Brushes, 20 Watt, with terminals

Part number 236669



### Values at nominal voltage

Nominal voltage	24 V
No load speed	6460 rpm
No load current	42.8 mA
Nominal speed	5060 rpm
Nominal torque (max. continuous torque)	45.5 mNm
Nominal current (max. continuous current)	1.33 A
Stall torque	212 mNm
Stall current	6.02 A
Max. efficiency	84 %

### Characteristics

Terminal resistance	3.99 $\Omega$
Terminal inductance	0.556 mH
Torque constant	35.2 mNm/A
Speed constant	271 rpm/V
Speed / torque gradient	30.8 rpm/mNm
Mechanical time constant	14.6 ms
Rotor inertia	45.3 gcm <sup>2</sup>

### Thermal data

Thermal resistance housing-ambient	7.5 K/W
Thermal resistance winding-housing	2.1 K/W
Thermal time constant winding	18.3 s
Thermal time constant motor	521 s
Ambient temperature	-20...+85 °C
Max. winding temperature	+125 °C

### Mechanical data

Bearing type	ball bearings
Max. speed	6000 rpm
Axial play	0.12 - 0.22 mm
Radial play	0.025 mm
Max. axial load (dynamic)	7.6 N
Max. force for press fits (static)	110 N
(static, shaft supported)	0 N
Max. radial load	32 N, 5 mm from flange

### Other specifications

Number of pole pairs	1
Number of commutator segments	13
Number of autoclave cycles	0

### Product

Weight	240 g
--------	-------

## Encoder HEDS 5540, 500 Counts per turn, 3 Channels

Part number 110513



### General information

Counts per turn	500
Number of channels	3
Line Driver	No
Max. mechanical speed	12000 rpm
Shaft diameter	4 mm

### Technical Data

Supply voltage Vcc	5.0V $\pm$ 10.0%
Driver used logic	TTL
Max. angular acceleration	250000 rad / s <sup>2</sup>
Output current per channel	-1...5 mA
Signal rise time	180 ns
Measurement condition for signal rise time	CL=25pF, RL=2.7kOhm,
Signal fall time	40 ns
Measurement condition for signal fall time	CL=25pF, RL=2.7kOhm,
Phase shift	90 °e
Phase shift, inaccuracy	45 °e
Index synchronized to AB	Yes
Max. moment of inertia of code wheel	0.6 gcm <sup>2</sup>
Operating temperature	-40...+100 °C
Orientation of encoder output to motor flange	-1 °