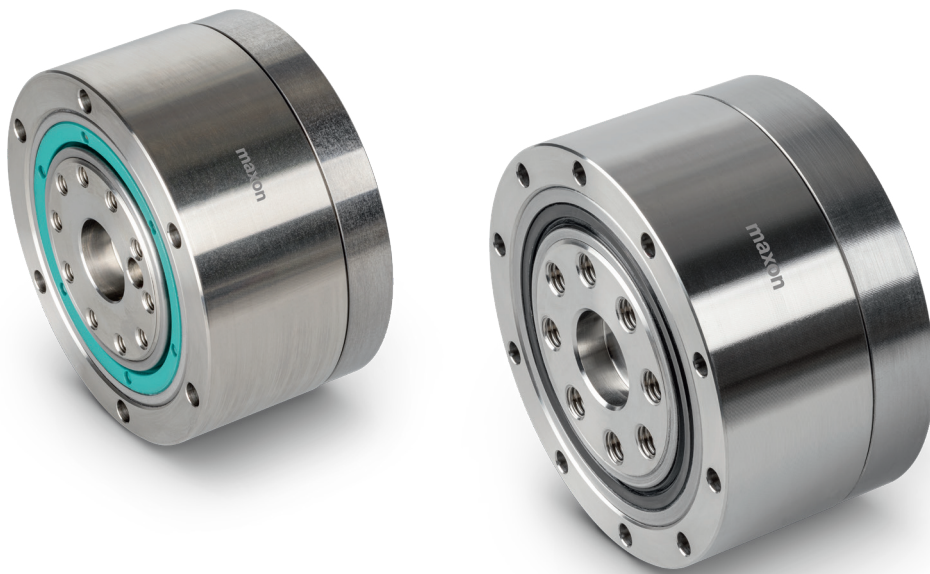


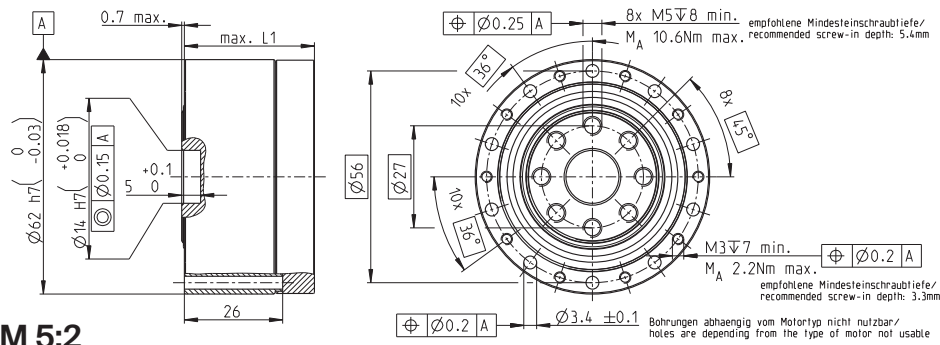
Strain wave gearhead – high-precision,  
compact, and efficient.



# GSW 62 A $\varnothing 62$ mm, strain wave gearhead

Zero backlash

**NEW**



## M 5:2

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

### Part numbers

867137    867132    867073

### Gearhead data

		867137	867132	867073
1	Reduction	50:1	80:1	100:1
2	Max. continuous torque	Nm 18.0	19.0	27.0
3	Max. intermittent torque	Nm 23.0	29.0	37.0
4	Max. overload torque	Nm 48.0	61.0	71.0
5	Max. continuous input speed	rpm 3500	3500	3500
	Max. intermittent input speed	rpm 7300	7300	7300
6	Max. efficiency	% 72	72	75
7	Weight	g 460	460	460
8	Mass moment of inertia	gcm <sup>2</sup> 8.77	8.49	8.40
9	Gearhead length L1	mm 32.4	32.4	32.4
10	Mech. positioning accuracy	arcmin 1.50	1.80	1.56
11	Mech. repeatability	arcmin k.a.	0.036	0.047
12	Hysteresis loss	arcmin 2.00	1.00	1.00
13	Torsional rigidity C1	10 <sup>4</sup> Nm/rad 0.67	0.56	0.63
	Torsional rigidity C2	10 <sup>4</sup> Nm/rad 0.88	0.56	0.66
	Torsional rigidity C3	10 <sup>4</sup> Nm/rad 1.20	0.67	0.56
14	Torque M1	Nm 3.90	3.00	3.00
	Torque M2	Nm 12.00	7.00	7.00
15	Starting torque, no load	Nm 3.40	2.20	1.90
16	Backdriving torque, no load	Nm 2.50	2.00	2.30
17	Ratcheting torque	Nm 105	140	110
18	Buckling torque	Nm 330	330	330

### Technical data

19	Bearing at output	cross roller bearings
20	Tilting rigidity	17 Nm/arcmin
21	Max. tilting torque	42.0 Nm
22	Max. radial load	2030 N
23	Max. axial load	4075 N
24	Dynamic load rating	2060 N
25	Static load rating	2640 N
26	Distance rolling bearing center to output	10 mm
27	Pitch diameter	42.7 mm
28	Ambient temperature	-40...+100°C

### Modular system

<b>EC motor</b>	
249-251_IDX 56	
312-313_EC-i 52	
321-323_EC 60 flat	
<b>Compact drive</b>	
353-355_IDX 56	

### Additional information

Explanation of the line numbers and additional information on page 454.

# Explanations of maxon terminology: Strain wave gearhead

## Dimensional drawings

Presentation of the views according to the projection method E (ISO). All dimensions in [mm].

## Mounting in plastic

Screwed connections on motors with plastic flanges require special attention.

## $M_A$ Max. tightening torque [Ncm]

A torque screwdriver may be adjusted to this value.

## L Active thread depth [mm]

The relation of the thread depth to the thread diameter must be at least 2:1. The screw-in depth must be less than the usable length of the thread!

## Gearhead data

Values are based on an ambient temperature of around 25 °C (known as cold data).

### Gearhead data

#### 1 Reduction ratio

The reduction indicates the ratio by which the speed of the gear output shaft is smaller than the motor speed.

#### 2 Max. continuous torque [Nm]

The continuous torque provides the maximum load permanently applied to the output shaft. If it is exceeded, the service life is significantly shortened.

#### 3 Max. intermittent torque\* [Nm]

The short-time torque is the maximum torque that may be output on the output shaft for a short period of time without damaging it.

#### 4 Max. overload torque [Nm]

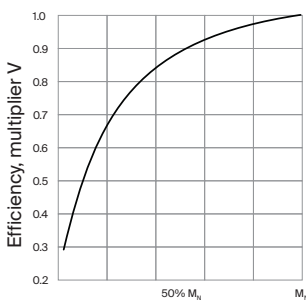
The maximum torque that may be applied for a short period of time without causing mechanical damage to the gearhead; for instance, in the event of a collision.

#### 5 Max. continuous/intermittent\* input speed [rpm]

It is based on service life considerations. If this value is greatly exceeded, the service life can be shortened, the gear heats up more and more noise is generated.

#### 6 Efficiency [%]

The specified efficiency is a maximum value that applies under continuous torque load ( $M_{cV}$ ). Under very small loads, the efficiency decreases (by a factor of V).



#### 7 Weight [g]

The specified weight corresponds to the net weight, including motor add-on components.

#### 8 Mass inertia [gcm<sup>2</sup>]

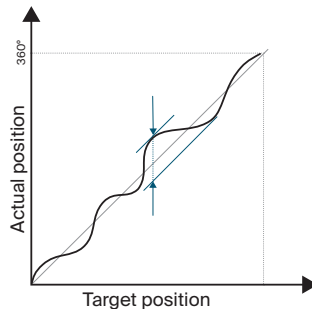
The gear moment of inertia is given at the motor shaft. It is required in order to calculate the additional torque needed for acceleration of the gear components in the case of highly dynamic drives. Variations may arise depending on how lubrication is distributed.

#### 9 Gear length L1 [mm]

L1 describes the gear length down to the motor's axial mount area (reference C in motors).

#### 10 Mech. positioning accuracy [arcmin]

The mechanical positioning accuracy describes the absolute positioning error at the output. It is measured over a full revolution (360°) at the output and shown as the maximum value of the bandwidth.

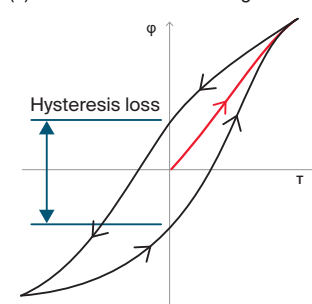


#### 11 Mech. repeatability [arcmin]

The mechanical repeatability describes how accurately a position can be reached repeatedly from the same direction. It is defined as half of the maximum deviation and is expressed as a ± value.

#### 12 Hysteresis loss [arcmin]

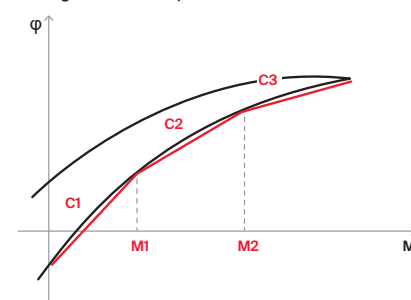
The hysteresis loss describes the angular deviation ( $\phi$ ) resulting from fluctuating loads on the output shaft (T). It is measured while the gearhead input is blocked.



#### 13 Torsional rigidity [10<sup>4</sup> Nm/rad]

The torsional rigidity describes the elastic deformation of the output under load. The torsional strength is presented in a linearized form, divided into three segments.

- C1: up to torque M1
- C2: between torque M1 and M2
- C3: higher than torque M2



#### 15 Starting torque, no load [Nm]

The starting torque specifies the torque that must be applied at the gearhead input to set the gearhead in motion. No load is applied to the gearhead output in this case.

#### 16 Backdriving torque, no load [Nm]

The backdriving torque specifies the torque that must be applied at the gearhead output to drive the gearhead from the output side. No load is applied to the gearhead input in this case.

#### 17 Ratcheting torque [Nm]

The ratcheting torque describes the torque during operation at which the tooth contact between the flexspline and circular spline is lost and the teeth slide over each other. This results in asymmetric tooth meshing. Continued operation leads to increased wear and tear, ultimately destroying the gearhead.

#### 18 Buckling torque [Nm]

The buckling torque describes the torque at standstill at which the flexspline can plastically deform or even tear away from the base. The gearhead is irreparably damaged afterward.

### Technical data

#### 20 Tilting rigidity [Nm/arcmin]

The tilting rigidity describes the resistance of the output bearing to tilting.

#### 21 Max. tilting torque [Nm]

The specified value only refers to the tilting torque without axial/radial load in a static condition.

#### 22/23 Max. axial/radial load [N]

The specified value only refers to the axial/radial load without tilting torque in a static condition.

#### 24/25 Dynamic/static load rating [N]

The load ratings are specifications for calculating the expected service life of the output bearing.

#### 26 Distance rolling bearing center to output [mm]

This values describes the distance from the output to the center of the output bearing.

#### 27 Pitch diameter [mm]

The pitch diameter describes the diameter of the circle along which the centers of the rolling elements move.

#### 28 Ambient temperature [°C]

Specifies the permissible ambient temperature for proper operation of the gearhead. The gearhead properties depend on the ambient temperature. Special lubricants are available on request.

#### \*intermittent

Short-term operation is defined as follows:

- during 1 second
- during max. 10% of the operating cycle

If these values are exceeded, a reduced service life must be expected.