

# Cage Freewheels E

for installation between customer-supplied inner and outer rings  
with highest torque capacity



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E08.121e

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## Possible application as

- ▶ Backstop
- ▶ Overrunning Clutch
- ▶ Indexing Freewheel

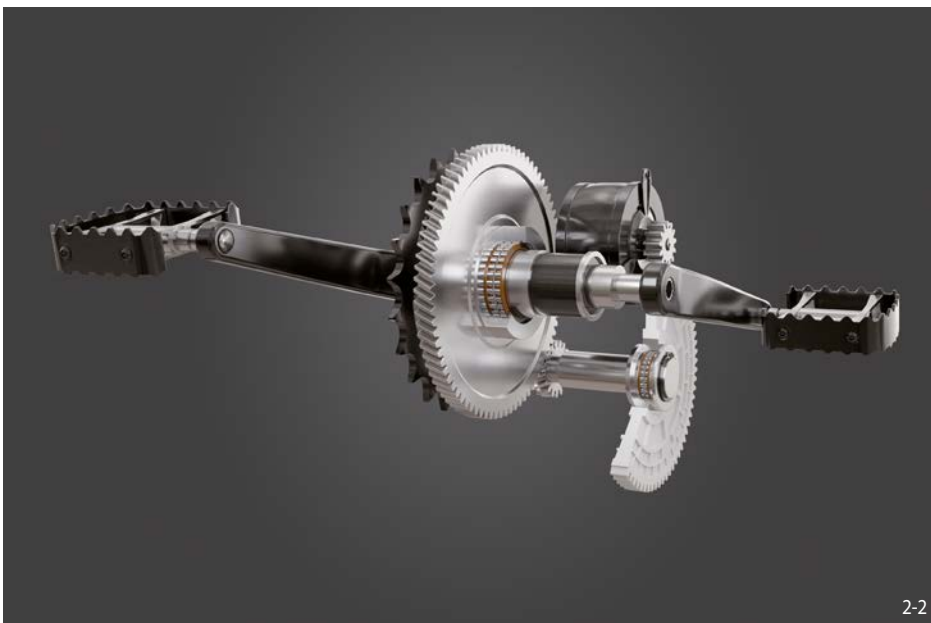
## Features

Cage Freewheels E are sprag freewheels for installation between customer-supplied inner and outer rings. The sprags are made of hardened chrome steel and have an optimized geometry. Cages are made from plastic (PA).

Nominal torques up to 278 Nm.

## Advantages

- Highest torque capacity; more than three times higher torque capacity than drawn cup roller clutches
- Increased, customer-supplied component tolerances possible due to optimized sprag geometry
- Particularly suitable for space-optimized applications such as e-bike drives
- Customer-specific solutions can be implemented at short notice



E-bike drive with two Cage Freewheels E

## Mounting

The lateral guidance of the Cage Freewheels can be effected either by a shoulder on the outer ring or by guard rings or guard discs which are fixed in the outer ring.

The transmissible torque can be increased if several cages are arranged side by side. In this case please consult with RINGSPANN on transmissible torques.

Cage Freewheels are not self-centering and have no own bearing support. Centric alignment of inner and outer ring must be provided by the customer.

Cages made from plastic (PA). The permissible operating temperature of the Cage Freewheel is  $-40\text{ °C}$  to  $+140\text{ °C}$ . Please contact us if the temperature is different to the given values.

The sprag tracks must have the following characteristics:

- Conicity:  $\leq 5\text{ }\mu\text{m}$  per 10 mm track width
- Average peak-to-valley height Rz as per DIN 4768, page 1:  $1,6\text{ }\mu\text{m} \leq Rz \leq 6,3\text{ }\mu\text{m}$
- Hardness:  $62 \pm 2\text{ HRc}$

With case hardening:

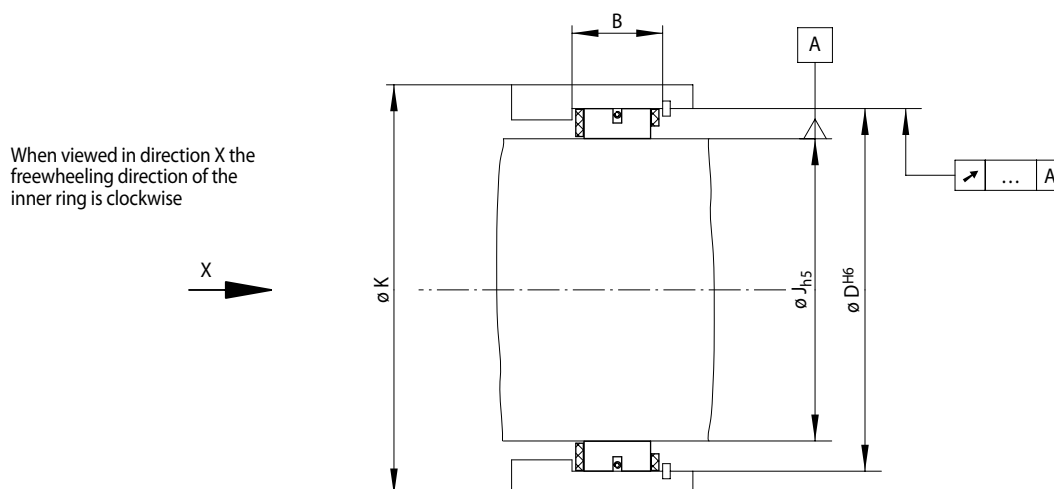
Case hardening depth Eht as per DIN 50190, page 1:  $1+0,5\text{ mm}$ , hardness limit HG = 550 HV1, core strength  $\geq 1\text{ }100\text{ N/mm}^2$

If other hardness processes are to be applied or if you need to deviate from the specified directives, we will gladly offer assistance in working out a solution.

To facilitate mounting when sliding on the Cage Freewheel, a lead-in chamfer of, for example,  $30^\circ$ , should be provided on each edge of the sprag tracks.

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|                                                                                 |                                                     |  |  |  |            |  |  |  |  |  |  |
|---------------------------------------------------------------------------------|-----------------------------------------------------|--|--|--|------------|--|--|--|--|--|--|
| <div>Indexing Freewheel</div> <div>Overrunning Clutch</div> <div>Backstop</div> | Type for high run out (T.I.R.)<br>For universal use |  |  |  | Dimensions |  |  |  |  |  |  |
|                                                                                 |                                                     |  |  |  |            |  |  |  |  |  |  |
|                                                                                 |                                                     |  |  |  |            |  |  |  |  |  |  |
|                                                                                 |                                                     |  |  |  |            |  |  |  |  |  |  |

| Freewheel Size | Theoretical nominal torque                           | Nominal torque at existing run out (T.I.R.)           |                                                       |                                                       |      | Inner sprag track | Outer sprag track | Installation width | Housing diameter | Sprags | Weight |
|----------------|------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|------|-------------------|-------------------|--------------------|------------------|--------|--------|
|                | <div><div><div></div></div>0,0 A</div> <div>Nm</div> | <div><div><div></div></div>0,02 A</div> <div>Nm</div> | <div><div><div></div></div>0,04 A</div> <div>Nm</div> | <div><div><div></div></div>0,06 A</div> <div>Nm</div> | J mm | D mm              | B mm              | K mm               | Quantity         | kg     |        |
| E 14-11/16     | 40                                                   | 40                                                    | 39                                                    | 37                                                    | 14   | 22                | 11,5 +1           | 31,0               | 16               | 0,010  |        |
| E 24-11/24     | 115                                                  | 112                                                   | 110                                                   | 106                                                   | 24   | 32                | 11,5 +1           | 44,8               | 24               | 0,016  |        |
| E 25-6,3/26    | 67                                                   | 65                                                    | 65                                                    | 60                                                    | 25   | 33                | 6,7 +0,6          | 46,0               | 26               | 0,009  |        |
| E 25-11/26     | 130                                                  | 127                                                   | 125                                                   | 120                                                   | 25   | 33                | 11,5 +1           | 46,2               | 26               | 0,017  |        |
| E 30-6,3/30    | 100                                                  | 95                                                    | 95                                                    | 90                                                    | 30   | 38                | 6,7 +0,6          | 53,0               | 30               | 0,010  |        |
| E 30-11/20     | 120                                                  | 115                                                   | 110                                                   | 110                                                   | 30   | 38                | 11,5 +1           | 53,0               | 20               | 0,014  |        |
| E 30-11/26     | 160                                                  | 160                                                   | 160                                                   | 150                                                   | 30   | 38                | 11,5 +1           | 53,0               | 26               | 0,017  |        |
| E 32-11/30     | 197                                                  | 197                                                   | 197                                                   | 193                                                   | 32   | 40                | 11,5 +1           | 56,0               | 30               | 0,020  |        |
| E 34-11/33     | 245                                                  | 240                                                   | 240                                                   | 235                                                   | 34   | 42                | 11,5 +1           | 59,0               | 33               | 0,021  |        |
| E 35-11/28     | 210                                                  | 200                                                   | 200                                                   | 200                                                   | 35   | 43                | 11,5 +1           | 61,0               | 28               | 0,018  |        |
| E 40-11/30     | 260                                                  | 250                                                   | 250                                                   | 240                                                   | 40   | 48                | 11,5 +1           | 67,0               | 30               | 0,020  |        |
| E 45-6,3/42    | 206                                                  | 203                                                   | 200                                                   | 195                                                   | 45   | 53                | 6,7 +0,6          | 74,2               | 42               | 0,014  |        |
| E 55-6,3/46    | 278                                                  | 275                                                   | 269                                                   | 260                                                   | 55   | 63                | 6,7 +0,6          | 88,2               | 46               | 0,015  |        |

The maximum transmissible torque is 2 times the specified nominal torque. See page 14 for determination of selection torque.

The theoretical nominal torque applies only for ideal concentricity between the inner and outer ring. In practice, the concentricity is affected by the bearing play and centering errors of the neighbouring parts.

The specified nominal torques refer to the housing diameter K specified in the table. Smaller housing diameters are subject to reduced nominal torques. In such a case, please contact us.

## Lubrication

It is necessary to provide an oil or grease lubrication with the specified quality.

## Example for ordering

- E 40-11/30

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