

Mounting instructions and specifications for ball rollers

Technical Information

Ball rollers allow bulky goods to be lightly moved, rotated and directed. They have proven their usefulness as components in conveyor systems, feed systems, on machine tools and packaging equipment.

Uses:

Conveyor equipment

- Ball tables, rotary tables and diverters in sorting and distribution systems
- Crossing points on continuous conveyors
- Baggage handling equipment in airports
- Transport of steel pipes
- Lifting platforms

General mechanical engineering

- Feed tables for sheet metal processing machinery
- Fixtures for bending machinery
- Feed mechanisms for machining centres
- Borers and motor-powered support tables
- Assembly aids for large motors construction

Other uses

- Special machine construction
- Aerospace industry
- Beverage and masonry industries

Determining the ball roller loading

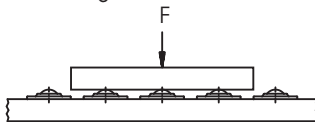
To determine the loading for one ball roller, divide the weight of the transported item by 3. By good coordination of the ball plane and depending on the properties of the goods to be transported, the number of supporting balls can also be calculated.

Example:

Weight of the transported item = 300 kg

Ball roller loading:

$$F = \frac{300 \text{ kg}}{3} = 100 \text{ kg}$$



Ball roller arrangement

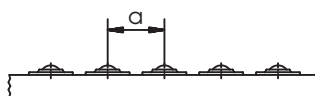
The arrangement of the ball rollers depends on the contact surface of the transported goods. For items with a uniform, smooth base e.g. crate bases, the distance between the ball rollers is simply calculated by dividing the shortest corner length 2.5.

Example:

Base of transported item = 500 x 1000 mm

Ball roller spacing

$$a = \frac{500 \text{ mm}}{2,5} = 200 \text{ mm}$$



Transport speed and load rating

The permissible transport speed is 2 m/sec. The load ratings specified apply to all mounting position and are based on 100 rotations of the load ball. Depending on

the loading, if the units are used over long periods at speeds exceeding 1 m/sec. an increase in temperature and a reduction in service life can be expected, in particular for balls Ø 60 to 90.

Calculating the lifespan

$$L = \left(\frac{C}{F}\right)^3 10^6 \text{ revolutions}$$

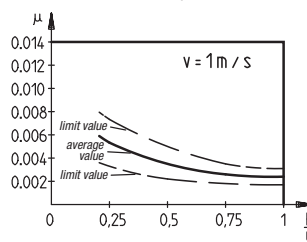
L = service life

C = load rating (N)

F = loading (N)

Coefficient of friction

The graph shows the coefficient of friction for ball rollers depending on loading and speed. These reference values apply to all mounting positions by transporting a hardened steel plate.



Attention:

Use a high-temperature lubricant!

Observe the manufacturer's instructions! It may be necessary to wash out any lubricating oil present.

°C	f _T
125	0,9
150	0,8
175	0,7
200	0,5

Temperature resistance

Ball rollers with felt seals are temperature resistant up 100 °C permanent operating temperature.

At temperatures over 100 °C, only ball rollers with steel load balls and without a felt seal should be used.

Observe load rating reductions! Multiply the load rating by the temperature factor (see table).

Ball rollers have steel housings with inserted, hardened ball seatings. These serve as a race for a number of small support balls. The support balls roll on the ball seating as the load ball rotates. The ball rollers are designed to ensure precise rolling and full loading is maintained in any mounting position. Ball rollers are low maintenance and almost every type has an oil-soaked felt seal to protect against dirt.

