

Mounting instructions and specifications for ball rollers

Ball rollers allow bulky goods to be easily transported, rotated and directed. They have long proven their worth in conveyor systems, feeder systems, machining centres and packaging plants.

Applications:

Conveyor technology

- ball pallets, rotary tables and sorting and distribution switch points
- crossing points in permanent conveyance systems
- Airport luggage sorting plants
- Steel pipe transport
- Lifting platforms

General machine shops

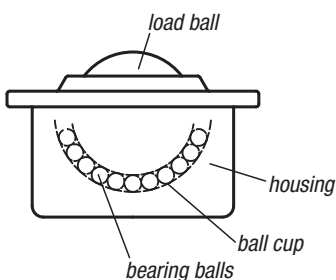
- Feed tables for sheetmetal cutting machines
- Fixtures for metal forming presses
- Feeders for machining centres and drilling machines
- Motor driven assembly aids in heavy engineering

Other applications

- Custom machine construction
- Aerospace technology
- Beverage production and stone cutting

Ball rollers have a steel housing with a hardened ball cup. This serves as the track for a number of small bearing balls. These bearing balls roll in the cup with the rotation of the load ball.

Ball rollers are designed so that precise rolling and load carrying is guaranteed in all positions. Ball rollers are low maintenance and almost all types have an oil soaked felt seal to protect from dirt.



Calculating the ball roller loading

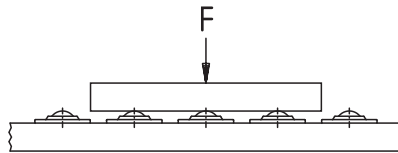
To calculate the loading for a ball roller divide the weight of the transported goods by 3. With good coordination of the load ball surface and, depending on the properties of the goods transported, the number of load bearing ball rollers can also be calculated.

Example:

Weight of the transported goods = 300 kg

Ball roller loading:

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



Arrangement of the ball rollers

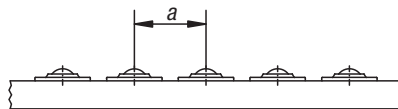
The arrangement of the ball rollers depends on the surface area of the goods to be transported. By goods with a uniform, level surface area, such as the base of boxes, the distance between the ball rollers is simply calculated from the length of the shortest edge divided by 2.5.

Example:

Surface area of goods = 500 x 1000 mm

Distance between ball rollers:

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



Transport speed and load capacity

The recommended conveyance speed is 1 m/sec. With polyamid load balls 0.25 m/sec. The specified load capacity applies to all mounting positions and relates to 10⁶ revolutions of the load ball. By extended use in excess of 1 m/sec and depending on the loading, the temperature can be expected to rise and the useful life reduced, particularly with balls Ø60 to Ø90.

Calculating the lifespan

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

L = lifespan

C = load capacity (N)

F = loading (N)

Attention:

Use high temperature lubricant!

Follow manufacturer's instructions!

It is possible that the existing lubrication oil may have to be washed out.

Temperature load ball		Temperature factor ft
steel °C	polyamid °C	
125	40	0,9
150	50	0,8
175	60	0,7
-	70	0,6
200	80	0,5

Temperature resistance

For ball rollers with a felt seal the temperature resistance is 100 °C by constant temperature. Only non-galvanised ball rollers with a steel ball and no felt seal can be used at temperatures in excess of 100 °C. Note the load capacity reduction! Multiply the load capacity by the temperature factor (table).

Calculating the loading by undersprung ball rollers.

For these types the determining factor is the value given in the „Pre-tension“ column of the table. The weight of the transported goods is divided by the number of supporting ball rollers.