

Mounting instructions and specifications for ball transfer units

Ball transfer units 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

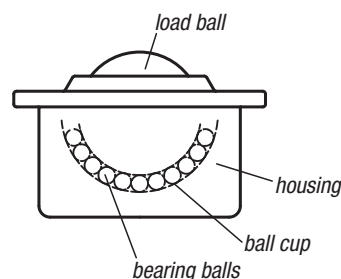
- Feed tables for sheetmetal handling machines
- Fixtures for bending machines
- Conveyors for machining centres
- Motor driven assembly aids in heavy engineering

Other applications

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

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



Calculating the ball transfer unit loading

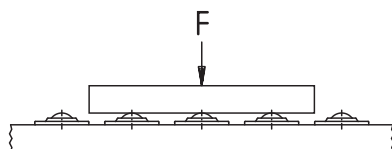
To calculate the loading for a ball transfer units divide the weight of the transported goods by 3. With good coordination of the load ball surface and, depending on the properties of the goods transported the number of load bearing ball transfer units can also be calculated.

Example:

Weight of the transported goods = 300 kg

Ball transfer unit loading:

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



Arrangement of the ball transfer units

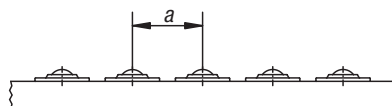
The arrangement of the ball transfer units depends on the surface area of the goods to be transported. By goods with a uniform, level surface area, such as the base of boxes, the distance between the ball transfer units is simply calculated from the length of the shortest edge divided by 2.5.

Example:

Surface area of goods = 500 x 1000 mm

Distance between ball transfer units:

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



Transport speed and load capacity

The recommended conveyance speed is 1 m/sec. With polyamid load balls 0.25 m/sec. The specified load rating 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 rating (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 transfer units with a felt seal the temperature resistance is 100 °C by constant temperature.

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

Calculating the loading by undersprung ball transfer units.

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 transfer units.