

# Fitting tips and technical data for Ball Transfer Units



Bulky goods can be easily pushed, turned and steered by using ball transfer units. They have best proven their worth as components in conveyor systems, machining lathes and packaging machines.

## Areas of use:

### Conveyor technology

- ball stages, rotary tables and points in sorting and distribution plants
- crossing points in constant conveyors
- luggage sorting plants at airports
- transport of steel tubes
- lifting stages

### General mechanical engineering

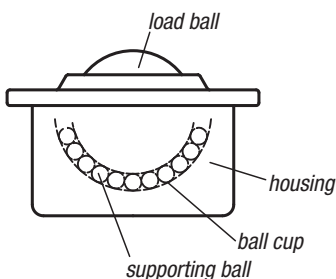
- feed tables for sheet-metal machining lathes
- jigs for press brakes
- feeder facilities for machining centres
- drill tables and motor-driven supporting tables
- assembly aids in large motor engineering

### Other areas

- specialist mechanical engineering
- aeronautical engineering industry
- drinks and rock-processing industry

Ball transfer units have a steel housing with a bearing-mounted, hardened ball cup. This serves as the track for a variety of smaller supporting balls. The supporting balls move with the rotation of the load ball on the ball cup.

Ball transfer units are designed so that precise rolling and load-carrying is guaranteed in all fitting positions. Ball transfer units are low maintenance and almost all variants are protected from dirt by an oilsoaked felt gasket.



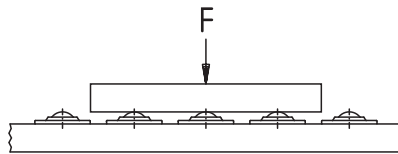
## Calculating the ball transfer unit load

To calculate the load for a ball transfer unit, the weight of the transported goods is divided by 3. With proper balancing of the level of the load balls and dependent on the properties of the goods transported, the number of load-carrying ball transfer units can also be used.

### Example:

Weight of the transported goods = 300 kg  
Ball transfer unit load:

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



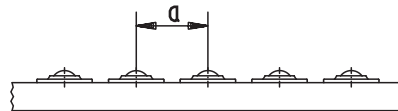
## Arrangement of the ball transfer units

The arrangement of the ball transfer units is in line with the area of the goods transported. In the case of goods with a uniform, smooth area, such as the bases of chests, for example, the distance between the ball transfer units is calculated from the length of the smallest edge divided by 2.5.

### Example:

Base area of the transported goods = 500 x 1000 mm  
Distance between the ball transfer units:

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



## Transportation speed and load-carrying number

The recommended conveyor speed is 1 m/sec and with polyamid load balls 0.25 m/sec. The specified load-carrying numbers apply to all fitting positions and relate to 106 revs of the load ball. The temperature can be expected to rise and the useful life reduce with longer term use at speeds in excess of 1 m/sec, particularly in balls 60 to 90 in diameter.

## Calculating the lifespan

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

L = lifespan

C = load-carrying (N)

F = load (N)

Attention:

Use high-temperature lubricant!

Follow the manufacturer's instructions!

The lubricating oil in situ may have to be washed out.

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

## Temperature resistance

In the case of ball transfer units with a felt gasket, the temperature resistance is 100 °C constant temperature.

Only non-galvanised ball transfer units having a steel load ball and no felt gasket can be used at temperatures in excess of 100 °C.

Pay attention to the reduction in load-carrying number!

Multiply the load-carrying number by the temperature factor (table).

## Calculating the bearing load in spring-loaded ball transfer units

In these variants the determining factor for selecting the size is the values specified under the heading „Pre-clamping force“. As part of this the weight of the transported goods is divided by the number of load-carrying ball transfer units.