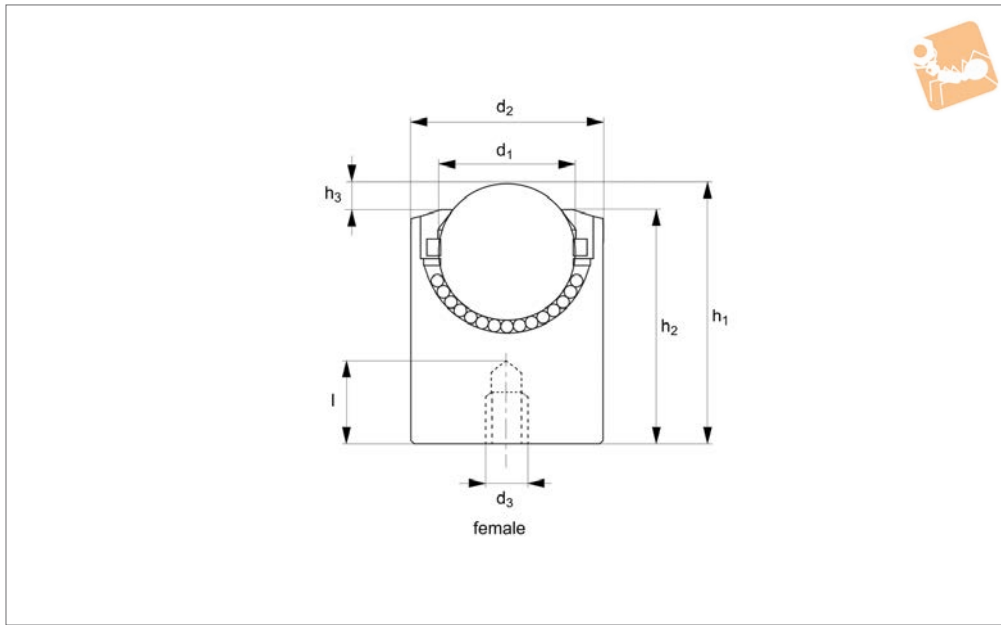




Threaded Ball Transfer Units

medium duty, female



P2712

MATERIAL HANDLING

Material

Steel (AISI 1040 housing and AISI 52100 for balls), stainless steel (AISI 416 for housing and AISI 420 for balls) and acetal (POM).

Technical Notes

These ball transfer units are made of a solid steel block with a precision machined hemispherical

carrying bowl.

Top cover plates are shaped to ensure the perfect conveyance of items which have possible burred or bent edges. This design also prevents possible damage to the carrying ball.

Provided with a hole in the base of the bearing cup to dispose of particles of dirt and swarf

(this may also be used for re-lubrication purposes).

Manufactured without a flange on the housing, therefore the whole load is being supported only by the bottom face of the unit.

Tips

For male version see P2713.

Order No.	Type	d ₁	d ₂	h ₁	h ₂	d ₃	h ₃	l ₁	Housing	Ball	Load kg max.
P2712.120-CC	Female	12	22	24.0	20.5	M8	3.5	5	Steel	Steel	25
P2712.120-CA	Female	12	22	24.0	20.5	M8	3.5	5	Steel	Acetal	5
P2712.120-SS	Female	12	22	24.0	20.5	M8	3.5	5	Stainless	Stainless	17
P2712.120-CS	Female	12	22	24.0	20.5	M8	3.5	5	Steel	Stainless	20
P2712.220-CS	Female	22	36	40.5	34	M8	4.5	10	Steel	Stainless	180
P2712.450-CS	Female	45	62	63.5	50.5	M8	13.0	10	Steel	Stainless	600
P2712.300-CS	Female	30	45	46.8	38.8	M8	8.0	10	Steel	Stainless	350
P2712.150-CS	Female	15	24	28.0	23	M8	5.0	8	Steel	Stainless	50
P2712.150-CC	Female	15	24	28.0	23	M8	5.0	8	Steel	Steel	60
P2712.150-CA	Female	15	24	28.0	23	M8	5.0	8	Steel	Acetal	10
P2712.150-SS	Female	15	24	28.0	23	M8	5.0	8	Stainless	Stainless	40
P2712.220-CC	Female	22	36	40.5	34	M8	4.5	10	Steel	Steel	180
P2712.220-CA	Female	22	36	40.5	34	M8	4.5	10	Steel	Acetal	20
P2712.220-SS	Female	22	36	40.5	34	M8	4.5	10	Stainless	Stainless	126
P2712.300-CC	Female	30	45	46.8	38.8	M8	8.0	10	Steel	Steel	350
P2712.300-CA	Female	30	45	46.8	38.8	M8	8.0	10	Steel	Acetal	25
P2712.300-SS	Female	30	45	46.8	38.8	M8	8.0	10	Stainless	Stainless	245
P2712.450-CC	Female	45	62	63.5	50.5	M8	13.0	10	Steel	Steel	600
P2712.450-CA	Female	45	62	63.5	50.5	M8	13.0	10	Steel	Acetal	25
P2712.450-SS	Female	45	62	63.5	50.5	M8	13.0	10	Stainless	Stainless	420



Product selection

Available materials

Housing	Ball	Load Factor	
Steel	Steel	1,0	Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: AISI 52100 chrome steel
Steel	Stainless	0,7	Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: AISI 420 stainless steel
Stainless	Stainless	0,7	Housing: AISI 416 stainless steel. Ball: AISI 420 stainless steel
Steel	Acetal		Housing: AISI 1040 steel, machined, toughened & zinc plated. Ball: POM acetal
Aluminium	Stainless		Housing: aluminium. Ball: AISI 420 stainless steel
Acetal	Acetal		Housing: POM acetal. Ball: POM acetal
Acetal	Stainless		Housing: POM acetal. Ball: AISI 420 stainless steel

Fixing clip selection

Part No.	Ball Size	Minimum Bore ø	Maximum Bore ø
67202.W9015	15	24,8	25,0
67202.W9022	22	37,0	37,2
67202.W9030	30	46,3	46,7

Clip requires a minimum plate thickness of 3mm to grip securely

How to select the correct unit

Ball Type	Max Load (Kg)	Friction (% of load)	Speed (m/s)	Shock Loads	Arduous Conditions	Orientation	Instant Change
Medium Duty	20-3500	2%	1,5	✓✓✓	✓✓		✓✓✓
Light Duty	7-250	3%	1,0	✓	✓✓		✓✓✓

Variables to consider



Shock Loads:
Specify High Capacity series & spring loaded units



Track Hardness/Conveyed Item Material:
Standard material ball units have Rockwell 'C' hardness of 60 minimum

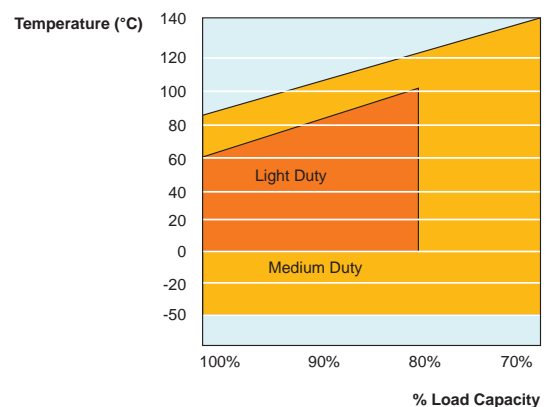


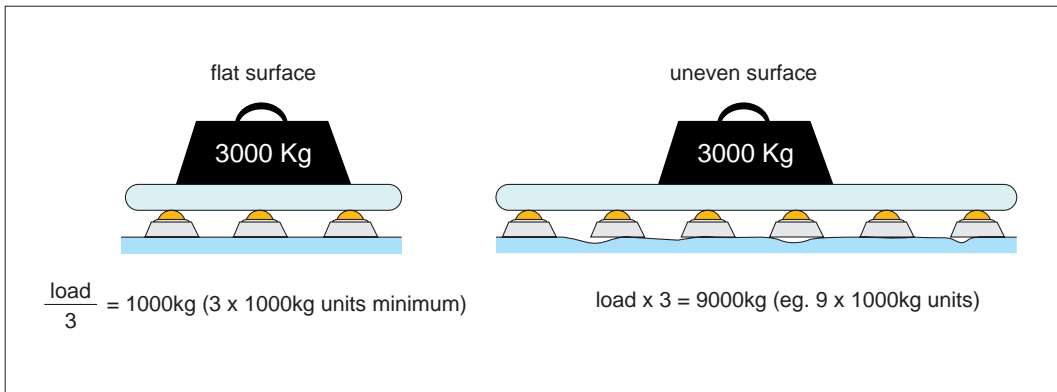
Delicate Surfaces:
Ball Units - Acetal (POM) & Phenolic Resin



Operating Environment:
Wet, dirty, outdoor, radioactive

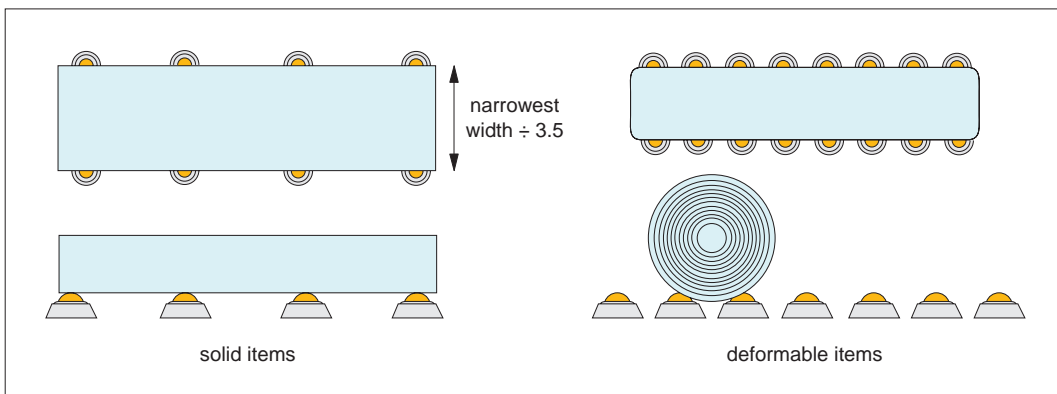
Operation temperature





Load and stability

To determine the load of a ball transfer unit, the weight of the article to be conveyed should be divided by 3. If the height tolerance of the load balls is good and the surface of the workpiece to be conveyed is suitable, the calculation can be based on the number of ball transfer units under the load.



Pitching and spacing

How the ball transfer units should be arranged depends on the bottom surface of the load to be transported. For loads with a uniform, even bottom surface, e.g. packing cases, the distance between the ball transfer units is calculated by dividing the smallest dimension by 3,5.

The maximum conveying speed allowed amounts to 2m/s. The load capacities specified apply to any mounting position and are based on 10^6 rotations of the load ball. With the units being used over a longer time at speeds exceeding 1m/s, an increase in temperature as well as a reduction in travel life must be expected depending on the load.

Conveying speed and load capacity

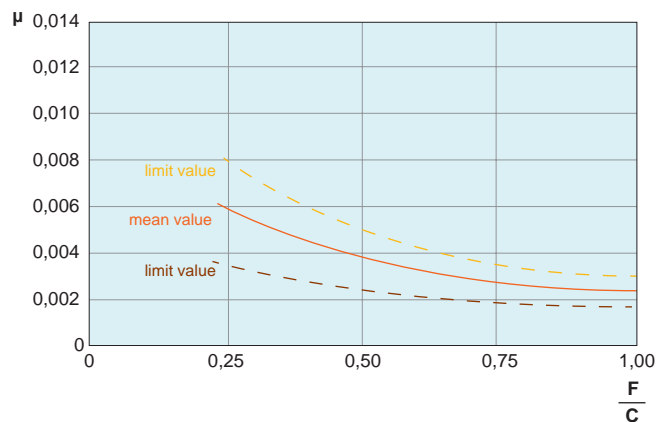
$$L = \frac{C^3}{F} 10^6 \text{ rotations}$$

L = travel life
C = load capacity (N)
F = load (N)

Calculation of travel life

The diagram shows the friction values as a function of load and speed for ball transfer units. These approximate values apply to all mounting positions with operation on a hardened steel plate.

v = 1m/s



Friction