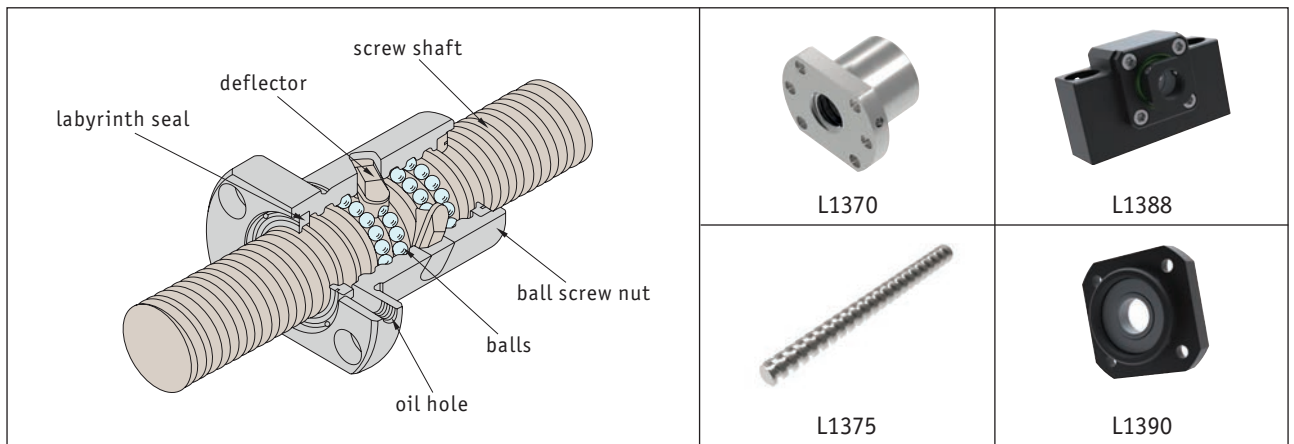




Ball Screws

Overview



Standard ball screws



Miniature ball screws



Rolled ball screws

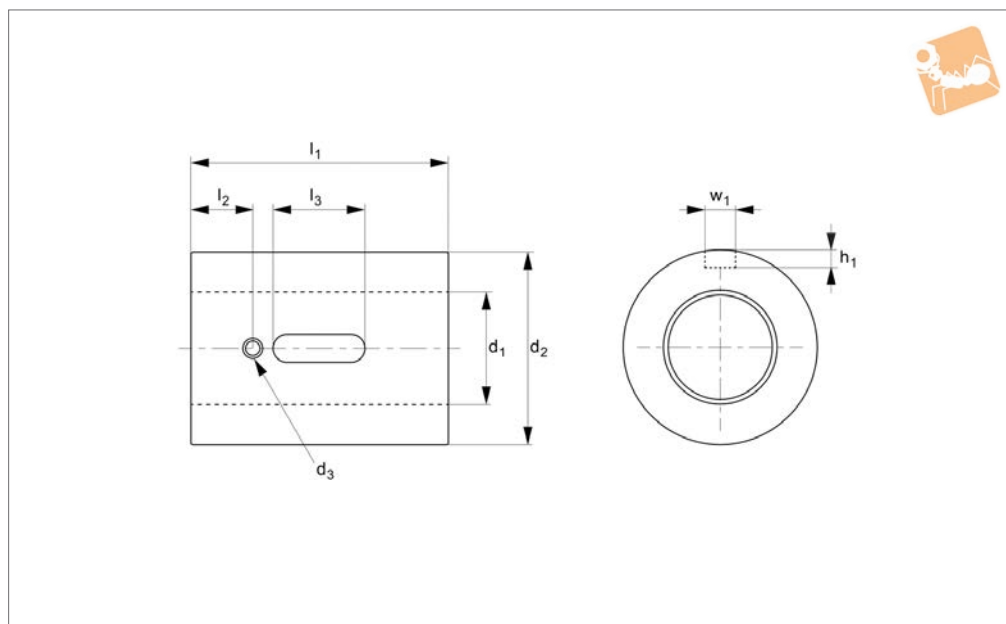
	Pitch (travel per revolution)						
Ø	5	10	16	20	25	40	50
16	●	●	●				
20	●	●		●			
25	●	●			●		
32	●	●		●			
40	●	●		●		●	
50		●		●			●
63		●		●			
80		●		●			

Miniature ball screws

	Pitch (travel per revolution)					
Ø	1	2	2.5	4	5	Nut
6	●					flanged
8	●	●	●			flanged
10		●		●		flanged/cylinder
12		●		●	●	flanged/cylinder
14		●				flanged/cylinder



L1373



Material

Steel (16MnCr5 or 100Cr6), with Vulkolan seals.

Technical Notes

Axial play for 5mm pitch = 0,05mm; for 10mm pitch = 0,10mm; for multi-starts = 0,20mm.

Preload max. 5% of max. dynamic load.

For axial run-out, concentricity and parallelism figures see technical pages.

With lubrication and fixing holes.

For use with ball screws no. L1375.

Tips

For miniature ball screws $\varnothing 6$ to $\varnothing 14$ see part no. L1379.

Important Notes

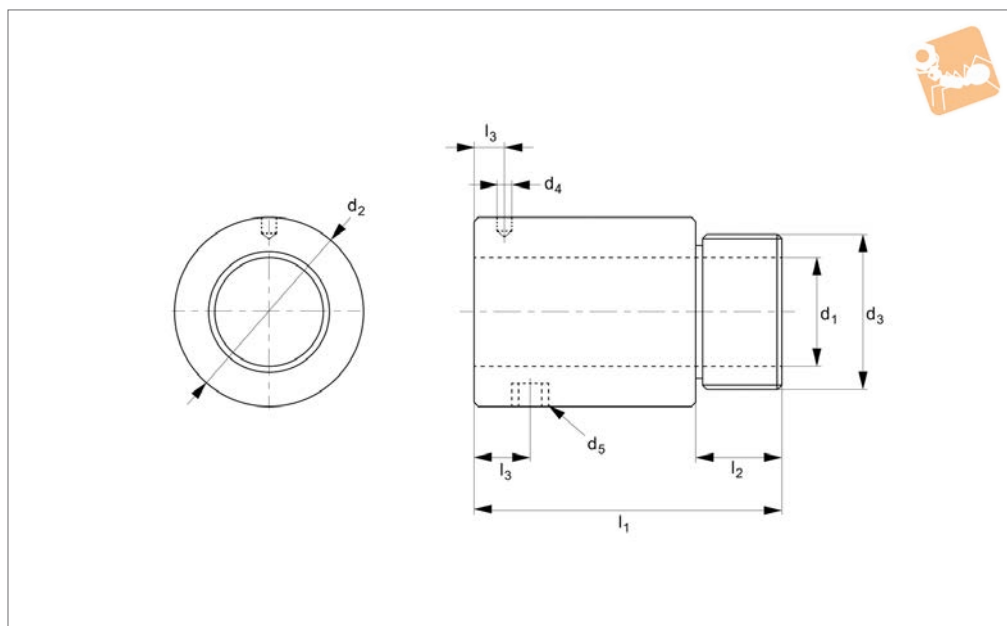
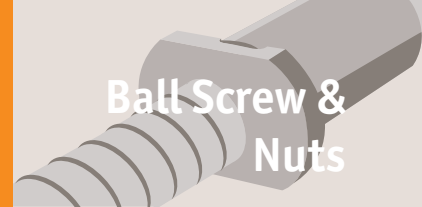
Fit ball nut to screw using the sleeve provided. Offer up the ball nut to the screw and slide carefully on. Do not remove the ball nut from the sleeve provided - the ball bearings can come loose rendering the ball nut unusable.

Order No.	d_1 for screw	Pitch	d_2 tol. G6	d_3	$h_1 \pm 0.05$	l_1	l_2	l_3	w_1	Ball dia.	Dyn. load C kN max.	Static load C_0 kN max.	Stiffness N/ μ m
L1373.016-05	16	5	30	3.5	3	45	9	20	5	3,175	13.53	29.93	324
L1373.020-05	20	5	34	3.5	3	45	9	20	5	3,175	15.21	38.00	382
L1373.025-05	25	5	40	3.5	3	45	9	20	5	3,175	16.91	48.09	441
L1373.025-10	25	10	46	3.5	3	85	13	30	5	4,762	28.97	71.54	500
L1373.032-05	32	5	46	3.5	3	45	9	20	5	3,175	18.84	62.20	510
L1373.032-10	32	10	54	3.5	3	85	13	30	5	6,350	47.12	119.72	608
L1373.040-05	40	5	56	3.5	3	45	9	20	5	3,175	20.69	78.33	579
L1373.040-10	40	10	62	3.5	3	85	13	30	5	6,350	52.95	152.00	706



Cylindrical Ball Nuts with thread

Ball Screw & Nuts



L1374

BALL SCREW & NUTS

Material

Steel (16MnCr5 or 100Cr6), with Vulkolan seals.

Technical Notes

Axial play for 5mm pitch = 0,05mm; for 10mm pitch = 0,10mm; for multi-starts = 0,20mm.

Preload max. 5% of max. dynamic load.

For axial run-out, concentricity and parallelism figures see technical pages.

With lubrication and fixing holes.

For use with ball screws no. L1375.

Tips

For miniature ball screws Ø6 to Ø14 see part no. L1379.

Important Notes

Fit ball nut to screw using the sleeve provided. Offer up the ball nut to the screw and slide carefully on. Do not remove the ball nut from the sleeve provided - the ball bearings can come loose rendering the ball nut unusable.

Order No.	d ₁ for screw	Pitch	d ₂ tol. G6	d ₃	d ₄	d ₅	l ₁ ±0.15	l ₂	l ₃	l ₄	No. of circuits	Ball dia.	Dyn. load C _{max.} kN	Static load C _{0 max.} kN	Stiffness C ₀ N/μm
L1374.16-05	16	5	32,5	M26x1,5P	3,0		42	12	19,25		3x1	3,175	10,56	22,44	245
L1374.16-10	16	10	32,0	M26x1,5P	4,0	M 4	50	12	3,00	3	2x1	3,175	6,61	11,09	245
L1374.20-05	20	5	38,0	M35x1,5P	3,0		45	15	20,30		3x1	3,175	11,87	28,49	294
L1374.25-05	25	5	43,0	M40x1,5P	3,0	M 6	69	19	32,11	8	4x1	3,175	16,90	48,08	363
L1374.25-10	25	10	43,0	M40x1,5P	6,0	M 6	84	19	8,00	8	4x1	3,175	28,96	71,53	363





When selecting a ball screw some of the main factors to consider are:

- Maximum required travel speed
- Maximum axial compression (buckling load)
- Method of support of the ball screws
- Type of unit required, flanged, cylindrical etc.

In general it is best to support the ball screws with our ball screw support units (L1388 to L1406) with a fixed end (generally where the motor is mounted) and a floating (support) end. The support units are selected to suit the loads likely to be required, the size of the ball screw (especially its core diameter) and the type of mounting required. Details of the machining required for each end of the ball screw are shown in the bearing mounts technical section.

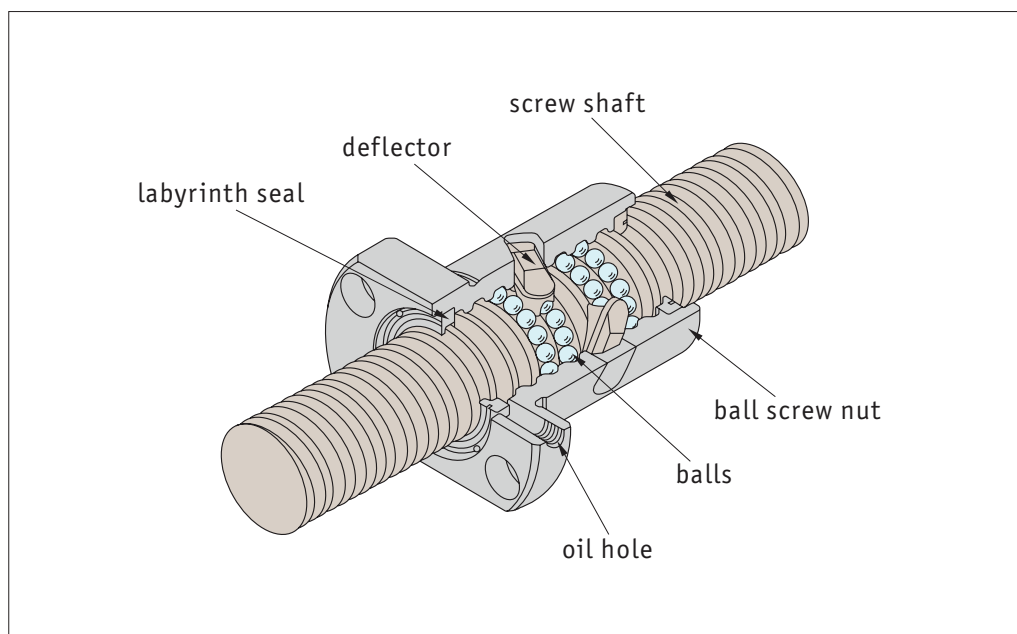
The data table for the ball screws show the diameter, the lead of the ball screw (i.e. how far the nut travels for one complete revolution of the screw) as well as the mass moment of inertia (also known as the rotational moment of inertia) - this is the extent to which an object resists rotational acceleration about its axis.

Maximum speeds and buckling load data are shown in the technical pages.

When using a ball screw the ambient temperature should not exceed +80°C.

During assembly, the parallel alignment of the guides should be ensure.

The details on the concentricity of the ball nuts to the ball screws are shown on the technical pages. For linear guideways for use with ball screws please see our part numbers L1016 etc.



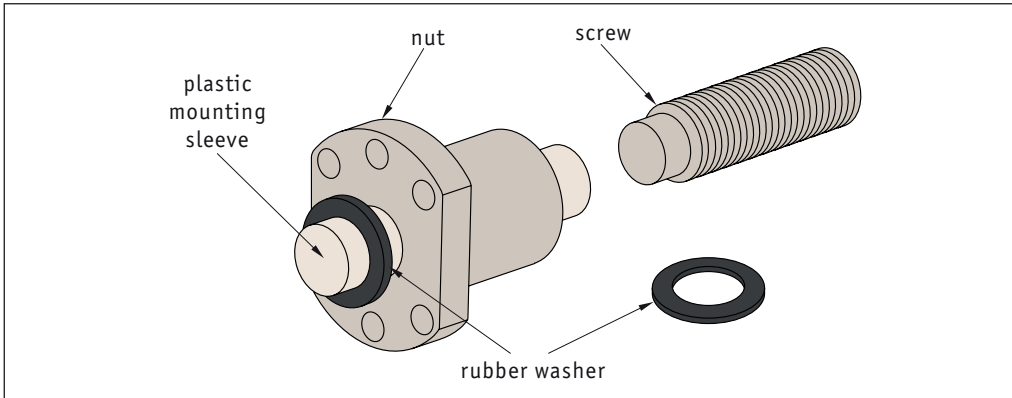
Lubrication - the ball screws must be adequately lubricated. This is dependent on load, speed, motion sequence and temperature. Do not use lubricants containing Mo/SO or graphite.



In general, the ball nut is already on the ball screw and should not be removed. If you need to machine the ball screw, then the plastic mounting sleeve should be used to retain the ball bearings whilst the nut is removed.

Mounting the nut on the screw

Sometimes ball screws are delivered with a separate ball nut. When mounting the nut on to the screw take care as if done incorrectly the ball bearings may come off the ball nut.



Ball nuts should be mounted only with the help of a plastic mounting sleeve (delivered with the nut). The start of the thread should be aligned so that the seal and the internal parts of the nut are not damaged.

1. Remove the rubber washer from one side of the sleeve. Push on the nut with the sleeve on the end of the screw. Press the sleeve against the start of the screw thread.
2. Screw the nut onto the thread using a slight axial pressure, then screw the nut on for its entire length.
3. Remove the mounting sleeve only when the nut is completely threaded on to the screw.
4. Lock the nut on to the screw (to prevent any unscrewing) using an O ring or similar - whilst installing the system.

If the balls do unfortunately escape...

1. Pick them up (the nut is only compatible with the original balls). The load capacity can still be achieved if one or two balls are missing.
2. Carefully clean all parts, use the sleeve as a mounting jig and replace the balls.
3. Start with the lowest circuit. Insert the balls into the nut circuit - the sleeve prevents the balls from falling out again.
4. Do not place the balls in the empty circuit located between the two deflectors.

If you have any technical queries please call **0333 207 4498**.