

Ballscrews

General information

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2.1 Properties

There are many benefits associated with HIWIN ballscrews including high efficiency, freedom from axial play, high rigidity and high lead accuracy. The characteristic properties and benefits of HIWIN ballscrews are described in detail below.

2.1.1 High efficiency in both directions

Thanks to the rolling contact between the shaft and nut, ballscrews can achieve an efficiency of up to 90 %.

The special surface treatment used on the ball tracks in HIWIN ballscrews reduces the frictional resistance between the ball and track.

The rolling motion of the balls only requires a low drive torque thanks to the high level of efficiency. Operating costs are therefore cut since less drive output is needed.

- 1 Linear to rotary motion
- 2 Ballscrews Rotary to linear motion
- 3 Ballscrews
- μ Efficiency [%]
- φ Lead angle [°]
- φ_N Lead angle for common transmission [°]
- φ_U Lead angle for reverse transmission [°]

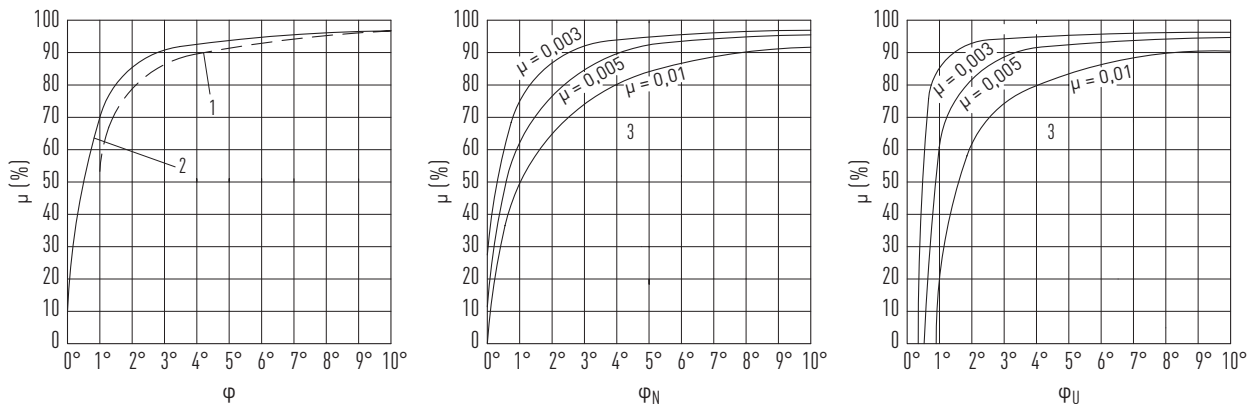


Fig. 2.1 Mechanical efficiency of threaded shafts

2.1.2 Zero play and high rigidity

The pointed profile HIWIN uses for ballscrew shafts and nuts allows the ballscrew nuts to be assembled without any axial play. A preload is usually used to achieve the good overall rigidity and repeatability.

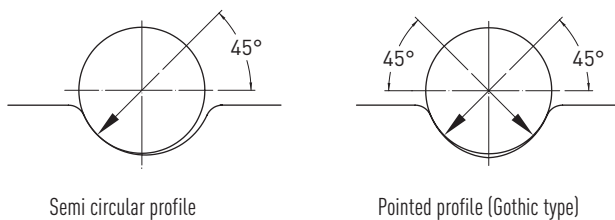


Fig. 2.2 Typical types of contact in ballscrews (semi circular type, Gothic type)

2.1.3 High lead accuracy

For applications requiring very high levels of accuracy, our production meets the requirements of ISO and JIS standards; but we manufacture to customer specifications too.

Accuracy is guaranteed by testing with our laser measurement systems and documented for the customer.

