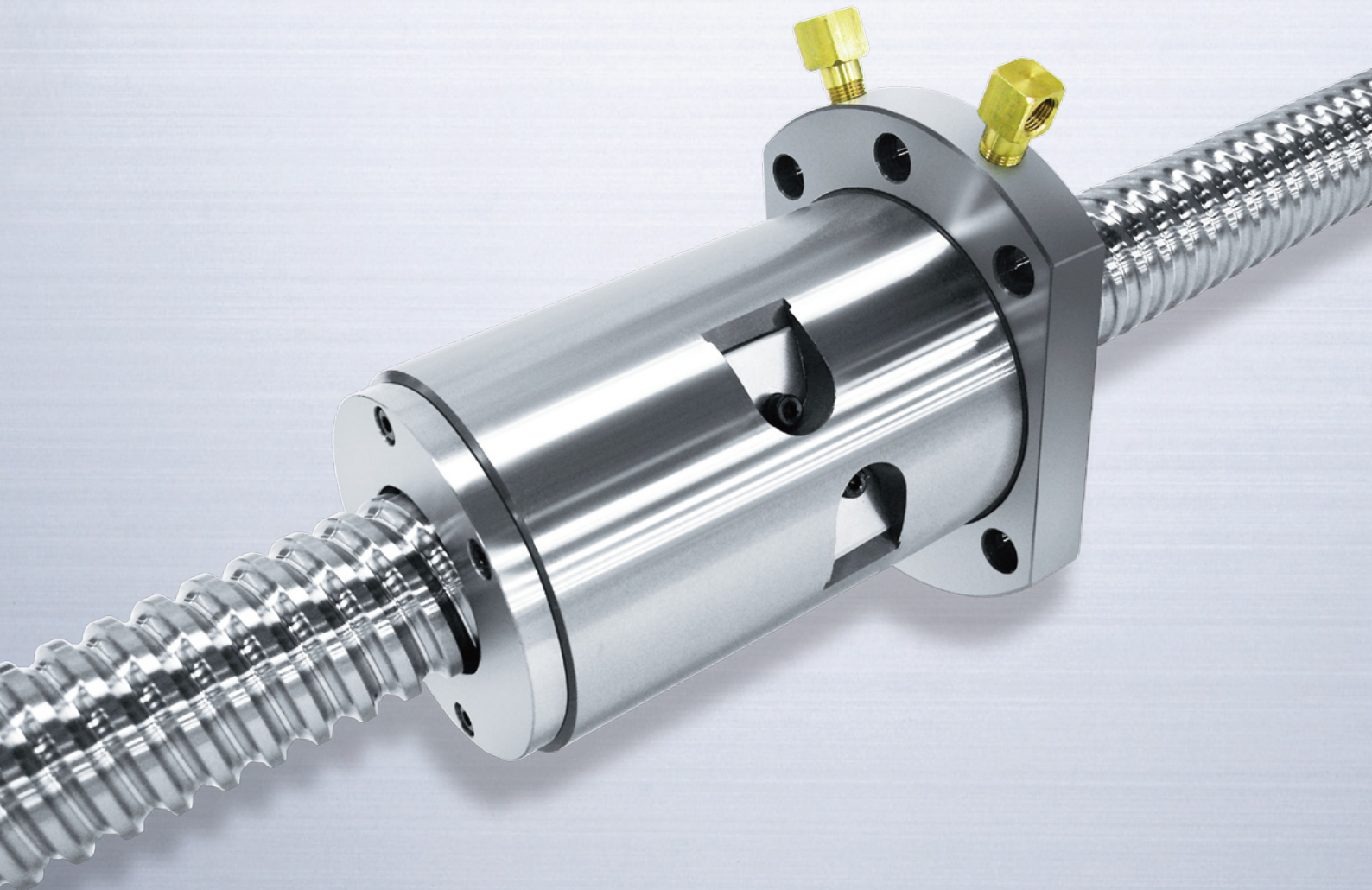


Nut Cooling Ball Screws

This new ball screw can simplify ball screw cooling to make machine tools more speedy and precise. By simply attaching piping to the outer periphery of the nut flange, a cooling capacity equivalent to existing hollow-shaft ball screws is achieved.

New!

Patent Pending



■ Features

1. Highly effective cooling

By optimizing the cooling mechanism inside the ball nut, cooling capacity equivalent to or greater than hollow-shaft ball screws is achieved.

2. Internal design in consideration of preload torque change

Innovative internal design means the preload torque does not increase even if the nut is cooled.

3. Improved handling

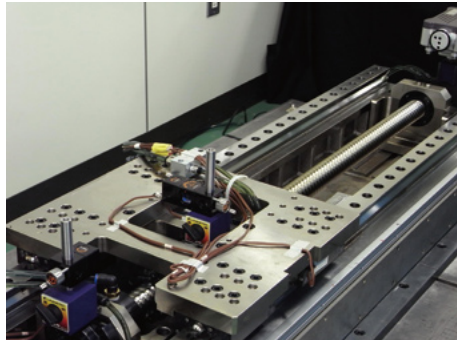
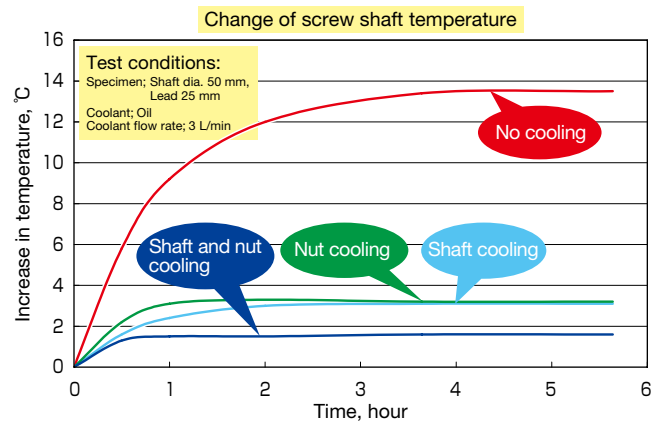
Ball screw cooling is achieved by simply attaching piping to the outer periphery of the nut flange. There is no need for sliding seal or rotary joints.

Nut Cooling Ball Screws

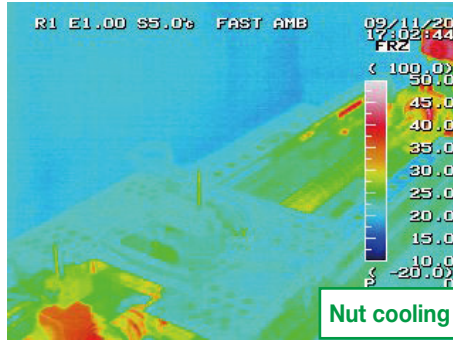
Cooling effects

By optimizing the cooling structure inside the nut, the increase in temperature in the screw shaft is comparable to shaft cooling. Moreover, the screw shaft and ball nut can be cooled at the same time for even more precise temperature control.

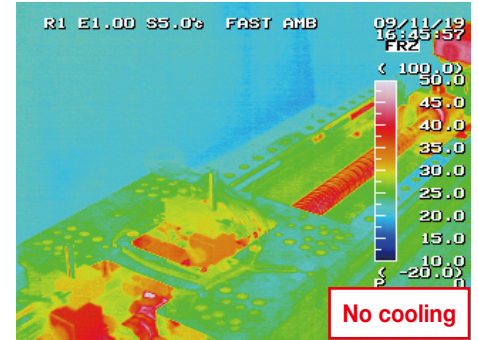
The nut in contact with the table is cooled, so that heat conduction from the ball screw to the table is blocked.



Test table appearance



Temperature distribution with nut cooling



Temperature distribution without cooling

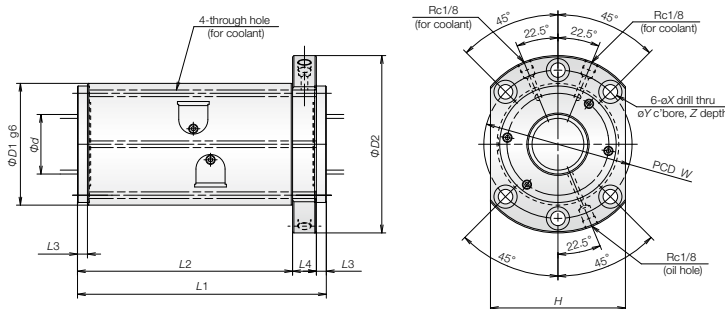
Internal design in consideration of preload torque change

The nut cooling ball screw has double contact-point preload in the tensile direction. This prevents an increase in preload torque when the nut is cooled, enabling an effective cooling of the ball screw.

Improved handling

Ball screw cooling is achieved by attaching piping to the outer periphery of the nut flange. No sliding seals or rotary joints are required. Dimensions for mounting area are identical to the HMD series ball screws for high speed machine tools, so the nut cooling can be implemented without changing machine designs. Please contact NSK for application to other types of ball screws.

Nut cooling for HMD Series



Option symbols 'NC' are included in the assembly part number.
Example: W4012-123ZMNCX-C5Z20

Applicable dimensions for HMD Series

Model No.	Shaft dia. d	Lead l	Nut dimensions										Unit: mm	
			D1	D2	H	L1	L2	L3	L4	L5	W	X	Y	Z
EM4016-4E	40	16	86	128	96	166	140.5	7.5	18	18	106	11	17.5	11
		20				156	130.5	7.5	18					
		25				188	162.5	7.5	18					
		30				219	193.5	7.5	18					
EM4516-4E	45	16	92	134	102	166	140.5	7.5	18	18	112	11	17.5	11
		20				156	130.5	7.5	18					
		25				188	162.5	7.5	18					
		30				219	193.5	7.5	18					
EM5016-4E	50	16	98	140	107	166	140.5	7.5	18	18	118	11	17.5	11
		20				156	130.5	7.5	18					
		25				188	162.5	7.5	18					
		30				219	193.5	7.5	18					
EM6316-4E	63	16	122	180	138	176	139	9	28	28	150	18	26	17.5

Operating suggestions

If heat impact from the bearing is too great, separate cooling for bearing and surrounding areas is recommended. For details, please contact NSK.

For more information about NSK products, please contact: www.nsk.com



NSK used environmentally friendly paper and printing methods for this publication.