

TECHNICAL INSIGHT

A PUBLICATION OF NSK EUROPE

Thin Thrust Needle Roller Bearing for Planetary Gear Mechanism for use in Automobile Step AT

Development Objectives

The washers are changed to Thin Thrust Needle Roller Bearings

- › Reduced friction loss to washers
- › Changes to dimension of peripheral parts are kept to an absolute minimum

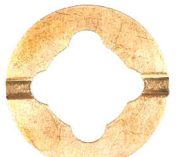
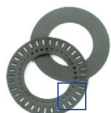


General Description and Product Features (Structure and Operating Principles)

Reduction in friction loss

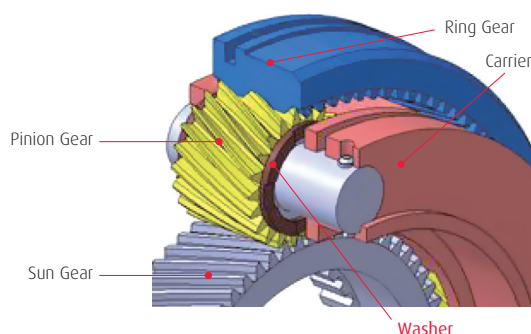
Friction loss (driving shaft torque) is reduced by up to 0.2 N·m compared to washer.

Minimization of size changes of peripheral components

The combined use of the roller of world's smallest level having $\phi 1$ mm in diameter (1.8 mm in length) and the race having plate thickness of 0.2 mm enabled "replacement of the washer with NSK race in size equivalent to that of a washer"

		Washer	Development Product		
External View			Usable with various types		
			 Lubrication Hole Cage & Roller Flat Plate Race		
Dimensions	Width	~1.4 mm	1.2 mm	1.2 mm	1.4 mm
	Roller	- - -	Diameter $\phi 1$ mm \times Length 1.8		
	Race thickness	- - -	0.2 mm		
Friction Loss		Large	Small		
Rate of Mass*		1	0.4 (Reduction by 60%)	0.6 (Reduction by 40%)	0.6 (Reduction by 40%)
		Made of copper, iron, etc.	Cage: Retainer: Resin; Race: Iron		

* Comparison with washer having plate thickness $t=1.2$ mm made of copper



Measurement Result of Friction Loss (Shaft Driving Torque)

