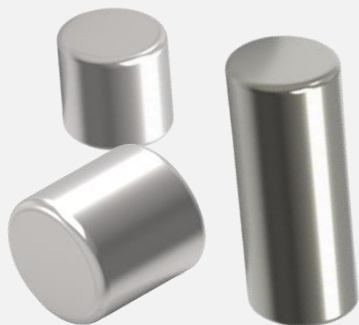




## Cross Rollers

The rollers are used for precision applications such as cross roller bearing, linear motion guide and Bearing. Rollers are made with high running accuracy and precision geometry.



## Cylindrical Rollers

The cylindrical roller has high load capacity and accuracy size. The rollers' applications are for precision machines and mechanisms.



## Inner Rings

The inner ring could act as bearing raceway at the shaft without heat treatment or precision grinding. Other applications are spacers and sleeves.

# Machining capability & precision

## Cross Rollers

OD ( $D_w$ )	3~10 mm
Length ( $L_w$ )	3~10 mm
Hardness	HRC 58~66
Length deviation( $V_{LwL}$ )	0.006 mm
OD deviation ( $V_{DwL}$ )	0.002 mm
Roundness( $\Delta_{Rw}$ )	0.001 mm
Cylindricity	0.001 mm
End face parallelism	0.01 mm
OD surface Roughness ( $Ra$ )	0.05 $\mu\text{m}$
End face roughness ( $Ra$ )	0.1 $\mu\text{m}$

※ JIS B 1056 (ISO 12297)

## Cylindrical Rollers

OD ( $D_w$ )	2~50 mm
Length ( $L_w$ )	2~50 mm
Hardness	HRC 58~66
Length deviation( $V_{LwL}$ )	0.01~0.05 mm
OD deviation ( $V_{DwL}$ )	0.002 mm
Roundness( $\Delta_{Rw}$ )	0.001 mm
Cylindricity	0.001 mm
OD surface roughness ( $Ra$ )	0.1 $\mu\text{m}$

※ JIS B 1056 (ISO 12297)

## Inner Rings

ID ( $d$ )	5~50 mm
OD ( $F$ )	7~60 mm
Width ( $B$ )	40 mm (Max.)
Hardness	HRC 58~66
ID deviation ( $\Delta_{dmp}$ )	0.004 mm
Width deviation ( $\Delta_{Bs}$ )	0.04 mm
End face parallelism ( $V_{Bs}$ )	0.0025 mm
Radial run out ( $K_{ia}$ )	0.0025 mm

※ JIS B 1514 (ISO 492)

# Needle Roller Bearing

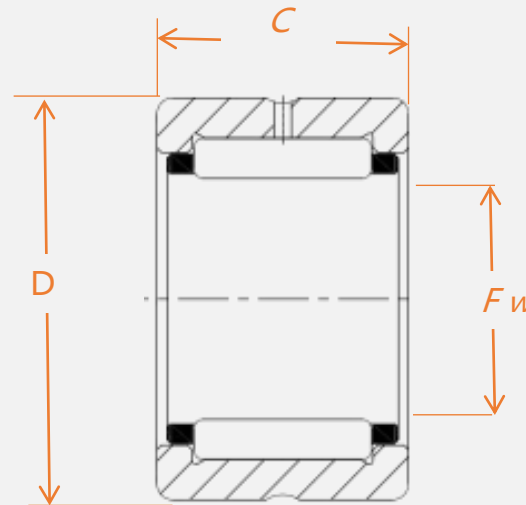
SOLID RACE **with/without inner ring**

Low weight and section height, having heavy load capacity and high rigidity, the bearings, either caged type or full complement, are suitable for high load, accuracy, and variable speed uses in restricted spaces.

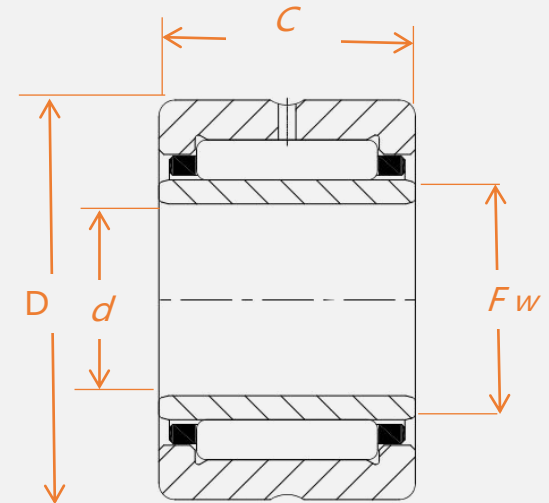


	RNA49/59/69/NK	NA49/59/69/NKI
Shaft dia. ( $F_w/d$ )	14~47 mm	15~42 mm
OD ( $D$ )	22~57 mm	27~57 mm
Width ( $C$ )	13~30 mm	

※JIS B 1514 (ISO 492)



RNA49/59/69/NK



NA49/59/69/NKI

# Needle Roller Bearing

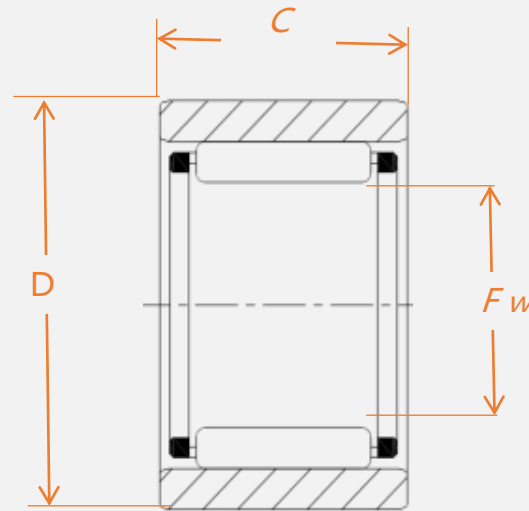
## SOLID RACE without flanges

The needle and cage assembly, inner ring and outer ring can be fitted independently of each other. The bearings are easy to assemble with different radial clearances.

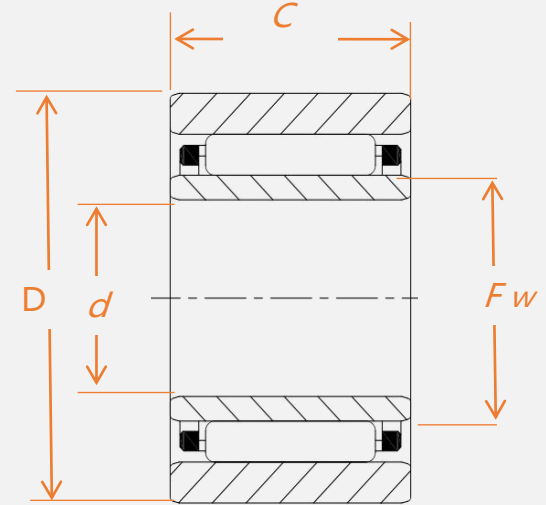


	RNAF	NAF
Shaft dia. ( $F_w/d$ )	10~45 mm	9~40 mm
OD ( $D$ )	17~55 mm	22~55 mm
Width ( $C$ )	10~20 mm	

※JIS B 1514 (ISO 492)



RNAF



NAF