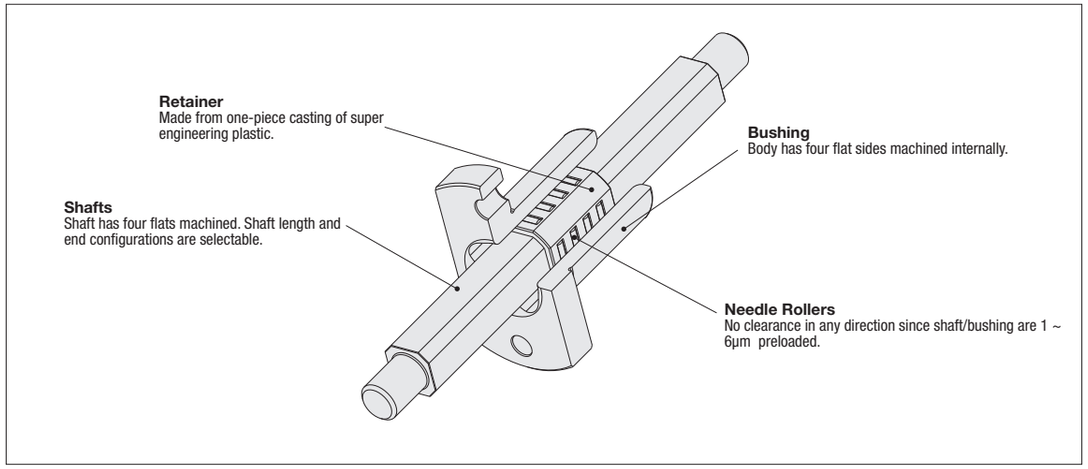
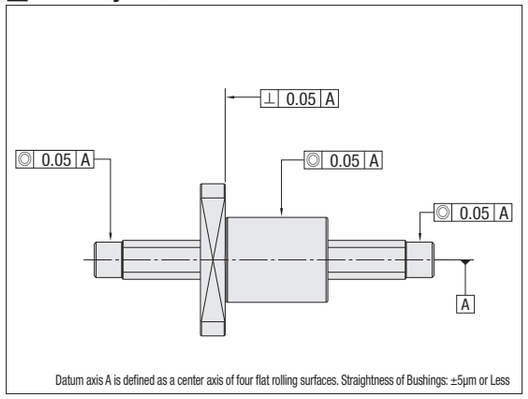
High Rigidity Needle Guide Sets

Features

High accuracy needle rollers are arranged in four directions against the square shafts. Shafts/bushings are designed to be 1 ~ 6μm preloaded. Widely used in parts of semiconductor, liquid crystal manufacturing equipment and inspection device, lift/slide stages, robotic systems, press machines and transfer mechanism as the guide with high rigidity, straightness and high speed. Capable of torque loading without rotation due to square cross section with low yawing and pitching, maintaining smooth rotation and stable accuracy.



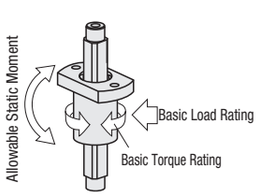
Accuracy Standards

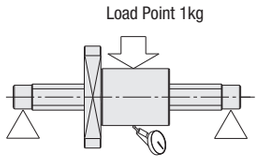


Datum axis A is defined as a center axis of four flat rolling surfaces. Straightness of Bushings: ±5μm or Less

Load Rating Table

D	Basic Rated Torque		Basic Load Rating		Allowable Static Moment
	CT Dynamic (N·m)	CoT Static (N·m)	C Dynamic (kN)	Co Static (kN)	Mo(N·m)
6	12.3	21.0	3.4	5.0	10.6
10	48.7	84.4	6.8	10.0	23.0
12	91.3	162.9	11.9	17.4	76.4
16	115.7	212.0	11.9	17.4	83.6

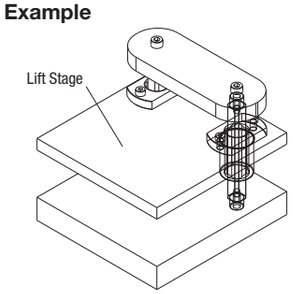




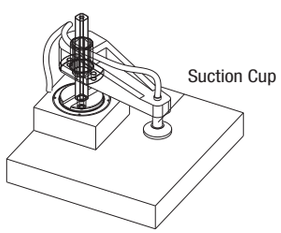
Displacement Measuring Point

D	Deflection (L is max.)
6	6μm
10	2μm
12	2μm
16	1μm

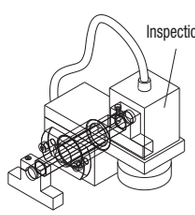
App. Example



Lift Stage



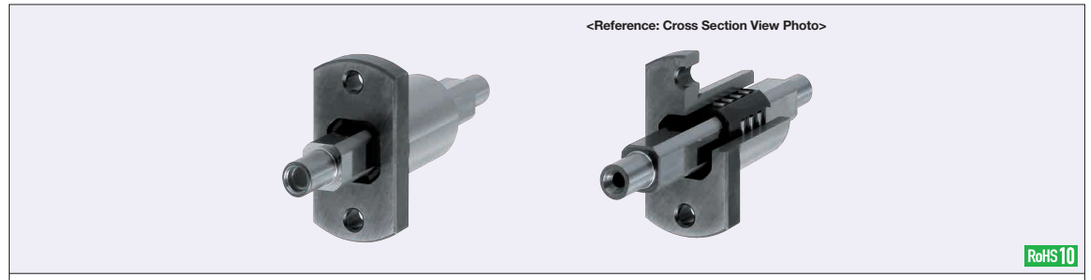
Swiveling Arm



Slide Stage

Notes on handling

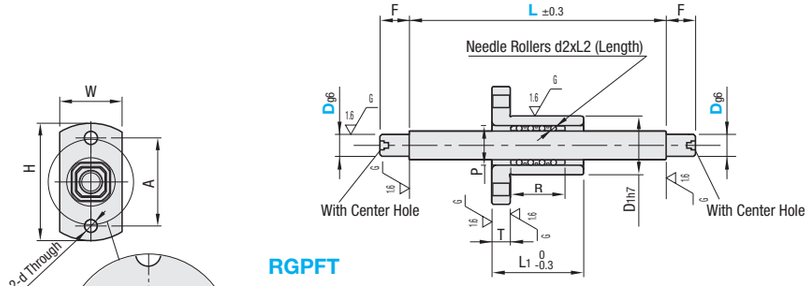
- Anti-rust oil is applied to the products when they are shipped. Administer lubrication maintenance with high-pressure grease (AFC Grease by THK), etc. as needed.
- When designing, position the bushing where the retainer does not fall out from the bushing at stroke ends.
- As a preload is applied, assemble slowly without any prying when inserting retainers. (It may cause damages to the retainers as well as damages on the rolling surfaces).
- Use covers, etc. if any foreign objects or dust may fall on the rolling surfaces.
  If the product is used for long periods of time with foreign objects or dust attached, the needle roller may slip and the movement of the retainer may be misaligned.
- Avoid using in high temperature environments, keep below 80°C.
- Do not cold shrink fit the bushings and shafts. Residual austenite will transform into martensite and will expand I.D./O.D. of bushings and shafts, rendering them unusable.



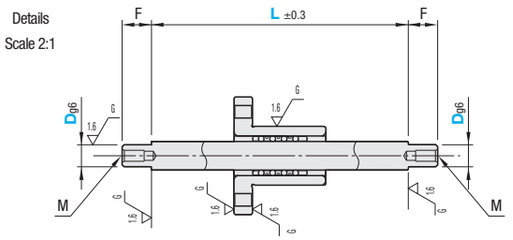
RoHS10

Type	Shafts / Bushings		Retainer	Needle Rollers		Ambient Operating Temp.
	M Material	H Hardness	M Material	M Material	H Hardness	
RGPFN RGPFT	EN 1.3505 Equiv.	58HRC~	Polyacetal	EN 1.3505 Equiv.	58HRC~	0~80°C

RGPFN



RGPFT



Part Number Type	Dg6		L 10mm Increment	Effective Stroke (Reciprocating)	Shafts F	Shafts B	Shafts M	Bushing D1	Bushing L1	Bushing T	Bushing H	Bushing W	Bushing P	Bushing d	Bushing A	Retainer R	Retainer d2	Retainer L2 (Length)	Retainer Needle Quantity
RGPFN RGPFT	6	-0.004 -0.012	50~70	20	8	7.8	M3x 6	16	25	5	32	17	10.8	3.4	24	15	1.5	4.8	14
	10	-0.005 -0.014	60~80	30	8	11.0	M5x10	24	36	7	43	25	15.0	4.5	33	19	2	4.8	20
	12	-0.006 -0.017	90~120	40	10	14.6	M6x12	31	50	7	50	32	18.6	5.5	40	30	2	6.8	24
	16		100~130	50	10	18.9	M8x16	32	60	7	55	33	22.9	6.6	43	33	2	6.8	24

Ordering Example

Part Number	-	L
RGPFN10	-	60

Part Number Type	D	L 10mm Increment	Unit Price 1 ~ 10 pc(s).	Volume Discount Rate 11~20
RGPFN	6	50~70		
	10	60~80		
	12	90~120		
	16	100~130		
RGPFT	6	50~70		
	10	60~80		
	12	90~120		
	16	100~130		