

**Features**

The TG series of stripper guides achieve accuracy that is close to precision grades at prices that are close to the SG series. The pin and bushing are finished to tolerances in the 3 μm range, and the clearance (on one side) is 2 ~ 5 μm. Compared with the SG series, the roundness, concentricity, and surface roughness are all improved. These stripper guide pins and bushings are suitable for precision dies used in medium volume production.

**Outer diameter finishing with absolute tolerance**

For precision dies, W-EDM or jig grinding is ordinarily used to machine the mounting holes for the pins and bushings. To support this practice, the pin holder is finished with an absolute tolerance of  $^{+0.003}_0$ , and the bushing outer diameter is finished with an absolute tolerance of  $^{-0.005}_0$ .

**Comparison of stripper guide pin and bushing accuracy**

Series	Dimensional accuracy of sliding part			Clearance (Single side: μm)	Pin holder (Detachable type)	Bushing diameter	Roundness Pins and bushings	Concentricity		Surface roughness [Ra]		Application
	Tolerance range	Pin tolerance	Bushing tolerance					Pins <sup>(2)</sup>	Bushings	Pins	Bushings	
Precision grade VG series WG series	2 μm	-0.010 -0.012 -0.007 <sup>(1)</sup> -0.009	-0.003 -0.005	2.5 ~ 4.5 1 ~ 3 <sup>(1)</sup>	+0.002 0 (-0.002)	+0.002 0	1.5 μm	3 μm	5 μm	0.1	0.1	High speed, high accuracy mass production
TG series	3 μm	-0.010 -0.013	-0.003 -0.006	2 ~ 5	+0.003 0 (-0.003)	0 -0.005	1.5 μm	3 μm	10 μm	0.15	0.2	High accuracy medium-scale production
SG series	5 μm	-0.010 -0.015	-0.003 -0.008	1 ~ 6	m5 0 (-0.005)	h4	2 μm	5 μm	10 μm	0.2	0.2	Standard grade medium-scale production

① (1) When diameter tolerance change DKC is used for stripper guide pins (2) Concentricity of press fit point and sliding part

**Stripper guide pins (3 μm range)**

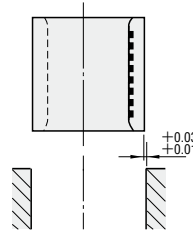
Catalog No.	M	Shape	Features
TGPH	SUJ2	Headed	● The end face on the holder side of the guide pin and the guide part are finished to perpendicularity of 0.01/100mm.
TGPN		Straight	
TGPR		Detachable type	

**Stripper guide bushings (3 μm range)**

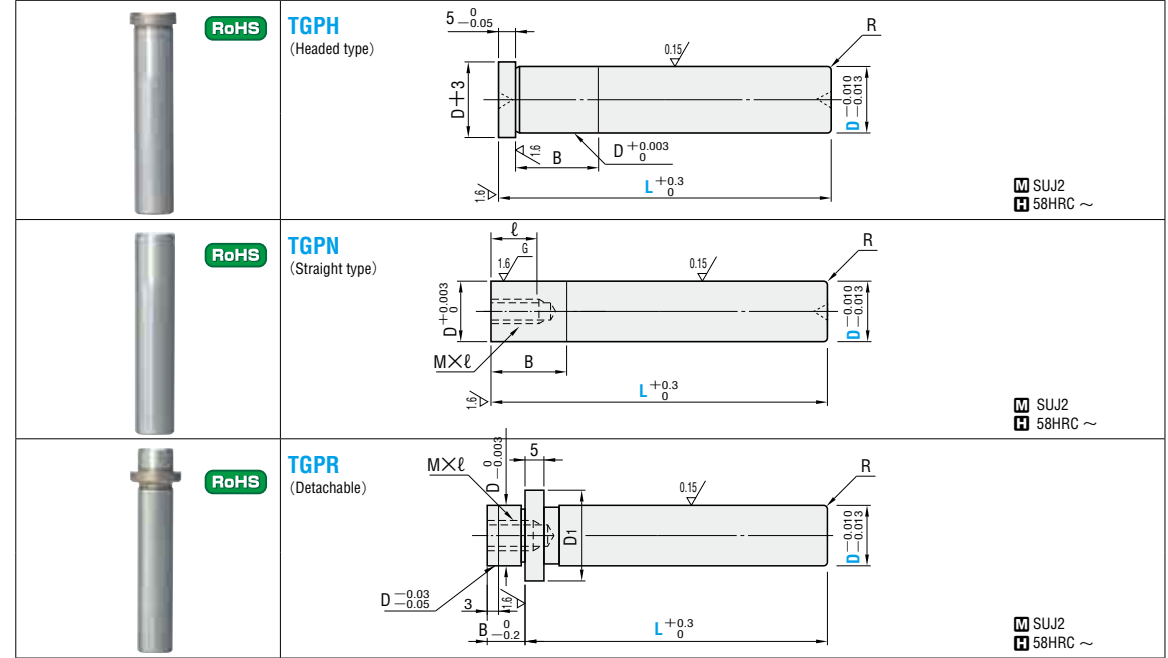
Catalog No.	M	Oil	Shape	Seizure resistance (Poor 1—5 Excellent)
TGBL	SUJ2	Oil type	Straight	3
TGBT			Headed	
TGBZ	FC250+MoS <sub>2</sub>	Oil-free type	Straight	4
TGHZ			Headed	
TGSF	SUJ2+Copper alloy	Oil type	Straight	4
TGBF			Headed	
TGCZ	SUJ2+Copper alloy+MoS <sub>2</sub>	Oil-free type	Straight	5
TGFZ			Headed	
TGBM	Special sintered alloy	Oil-free type	Straight	5
TGHM			Headed	

- Oil type: Circular oil grooves are machined on the inner surface.
- Oil-free type: Molybdenum disulfide (MoS<sub>2</sub>), a solid lubricant with a particularly low friction coefficient, is embedded in the sliding part, impregnating the product with lubricant for improved wear resistance and seizure resistance. Because no solid lubricant is embedded in the bushing outer periphery, the bushings can be degreased to facilitate Loctite bonding. Although this product can be used with no oil, applying initial break-in grease or oil will further improve the durability.
- Copper alloy type: covered by the, the resistance to seizure is excellent.
- Sintered alloy type: This is an oil-free bushing made of a special alloy on which a solid lubricant composed mainly of graphite is dispersed and sintered for oil-impregnation. The friction coefficient is lower than for cast iron or copper alloy bushings, and the wear resistance is superior. Because the solid lubricant is dispersed and sintered over the entire bushing, the product is resistant to oil film depletion, allowing it to be used for high-speed operations.

Notes: Use oil-free types (except for sintered alloy types) with a stroke of 1mm or more. Because the inner surface of the bushing is impregnated with lubricant, do not clean it.



- Recommended clearance between bushing and mounting hole (Single side  $^{+0.03}_{+0.01}$ )
- When the mounting hole is machined using jig grinding or similar means and the bushing is bonded with zero clearance, use alteration DLC (addition of grooves for Loctite).
- Use Loctite No. 638 when mounting the bushing.
- To improve the bonding strength, decrease the bushing outer periphery and mounting hole. (Do not decrease the bushing inner surface.)



TGPN M×ℓ Pitch	R	B	Catalog No.		L						Base unit price for 1 ~ 9 pieces		
			Type	D	10	50	60	70	80	100	TGPH	TGPN	
M5×12 P0.8	1.0	13	TGPH	10									
M6×15 P1.0	1.5	16 20		13		50	60	70	80	90	100		
M8×20 P1.25	2.0	25 28	TGPN	16		50	60	70	80	90	100	110	120
				20								110	120
				25									110

M×ℓ Pitch	D1	R	B	Catalog No.		L						Base unit price 1 ~ 9 pieces	
				Type	D	10	50	60	70	80	90	100	TGPH
M5×12 P0.8	16	1.0	8	TGPR	10								
M6×15 P1.0	20	1.5	10		13		40	50	60	70			
					16		40	50	60	70	80	90	100
M8×20 P1.25	27	2.0	13		20		50	60	70	80	90	100	

Order **Catalog No.** — **L**  
TGPH 16 — 100

Days to Ship **Quotation**

Price **Quotation**

Alterations **Catalog No.** — **L(LC)** — **(TC-GC-RC)**  
TGPH 16 — LC95.0 — TC4.0 — RC2.5  
**Quotation**

Alteration	Code	Spec.	1Code		
	LC	L dimension change 0.5mm increments			
		D		TGPH-TGPN	TGPR
		10		30 ≤ LC < L	30 ≤ LC < L
		13-16		40 ≤ LC < L	40 ≤ LC < L
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments			
		Full length L is shortened by (5-TC). If combined with LC, full length is equal to LC. (5-TC ≤ Lmax-LC) (Can be used for TGPH only.)			
	BC	B dimension change 0.1mm increments			
		5 ≤ BC < B			
	GC	Taper machining of the pin tip			
				D	Y
				10	3
				13-16	5
				20-25	5
	RC	Tip R change			
				D	Standard R(RC (Selection))
				10	1.0 1.5-2.0
				13-16	1.5 2.0-2.5