

# TAPERED PIN SETS

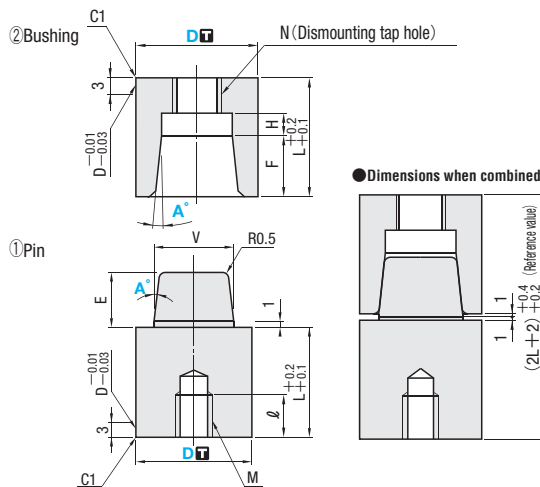
— PL INSTALLATION TYPE —



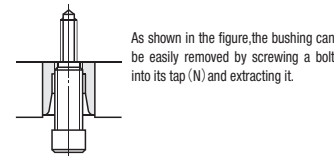
The volume discount rate is also applicable to alteration cost. All price & lead time are to be quoted.



Group	Catalog No.			D <sub>K6</sub>	Components concentricity of tapered section to the diameter of pin and bushing	M	H
	Set	Pin only	Bushing only				
Standard	TPNC	—	—	D <sub>K6</sub>	(Match mark type)	SKD11 comparable	58~62HRC
Precision	TPV	TPVP	TPVB	D <sup>+0.005</sup> <sub>0</sub>	0.01 or less		
Extra Precision	VTPV	VTPVP	VTPVB		0.005 or less		
	ZTPV	ZTPVP	ZTPVB		0.003 or less		



### About N dimension



D	L	V	E	F	H	① Pin	② Bolt for mounting bushing	③ Bushing N
13	14	7	6	5	3.3	M 3	φ 3	M 4
16	14	10	6	5	5.3	M 5	φ 5	M 6
20	19	13	7	7	7	M 6	φ 6	M 8
25	24	16	10	10	9	M 8	φ 8	M10
30	29	20	13	13	11	M10	φ 10	M12
32	29	20	13	13	11	M10	φ 10	M12
35	34	24	16	16	13	M12	φ 12	M14
42	39	30	21	21	13	M12	φ 12	M14

Standard D <sub>K6</sub> match mark type			
D <sub>K6</sub>	Catalog No. Type	D	A°
13	TPNC	13	1
16		16	
20		20	
25		25	
30		30	
32		32	5
35		35	
42		42	

Standard D <sub>K6</sub> component concentricity 0.01 or less			
D <sub>K6</sub>	Catalog No. Type	D	A°
13	TPV (①+②Set)	13	1
16		16	
20	TPVP (①Pin)	20	3
25		25	
30	TPVB (②Bushing)	30	5
32		32	
35		35	

Precision D <sup>+0.005</sup> <sub>0</sub> component concentricity 0.005 or less			
D tolerance	Catalog No. Type	D	A°
+0.005 0	VTPV (①+②Set)	13	1
	VTPVP (①Pin)	16	
	VTPVB (②Bushing)	20	
		25	
		30	5
		35	

Extra precision D <sup>+0.005</sup> <sub>0</sub> component concentricity 0.003 or less			
D tolerance	Catalog No. Type	D	A°
+0.005 0	ZTPV (①+②Set)	16	1
	ZTPVP (①Pin)	20	
	ZTPVB (②Bushing)	25	
		30	
		35	

- Before using a TPNC(match mark type), align the match marks.
- If you select a pin independently, use a combination of a pin and bushing of the same accuracy.

Order **Catalog No.** — **A**  
**TPNC16** — **3**

Delivery **SGP Stock** **3** Days  
 •TPNC · TPV (TPVP · TPVB) • Printed in Blue  
 •VTPV (VTPVP · VTPVB) · ZTPV (ZTPVP · ZTPVB)  
 5 Days Express A  
 • For area out of Singapore please refer to P.i.

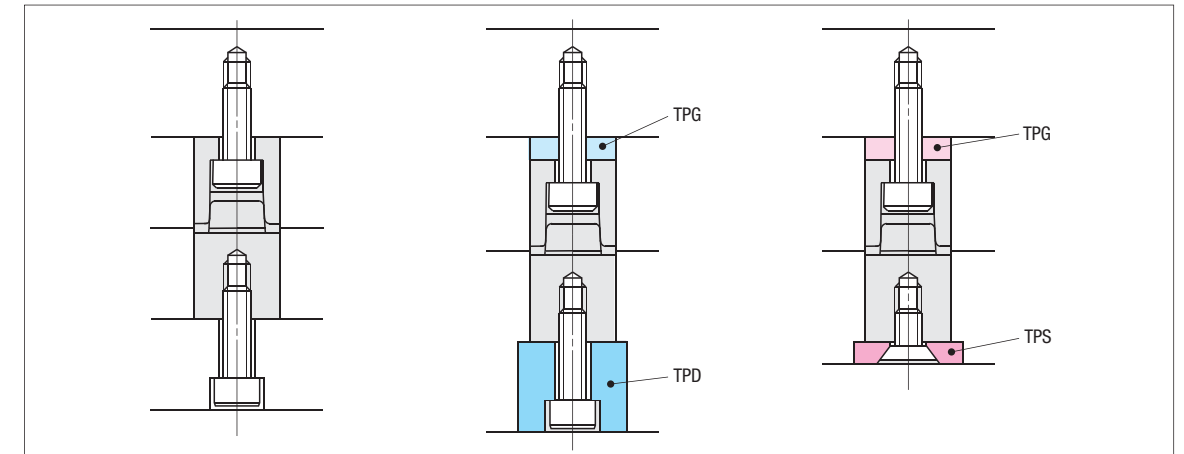
Alterations **Catalog No.** — **A** — (PLC · AC · BLK · PLK)  
**TPNC16** — **3** — **PLC12.0-AC-BLK-PLK**  
 5 Days Express A  
 • For area out of Singapore please refer to P.i.

Quantity discount rate				
Quantity	1~9	10~19	20~29	30~50
Rate	—	5%	10%	15%

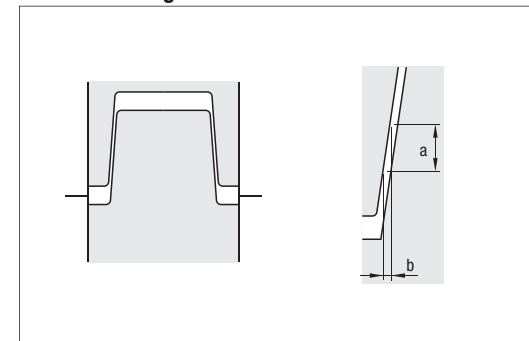
Alterations	Code	Spec.	Price
	PLC	Shortens the Pin's L dimension. PLC=0.1mm increments L-5≤PLC<L • The tap depth becomes shorter by (L-PLC). • Available also for a set.	Quotation
	AC	Air vent processing (single) A 0.3mm deep flat chamfering is performed in parallel to the cone angle.	

Alterations	Code	Spec.	Price
	BLK	Changes the bushing's L dimension tolerance. +0.2 → L +0.02 L+0.1 → L 0 • Available also for a set. To change the pin length (L) tolerance as well, combine with alteration PLC. • Not applicable to the L dimension tolerance (reference valve) for a set.	Quotation
	PLK	Changes the pin's L dimension tolerance. +0.2 → L +0.02 L+0.1 → L 0 • Available also for a set. To change the bushing length (L) tolerance as well, combine with alteration BLK. • Not applicable to the L dimension tolerance (reference valve) for a set.	

### How to Mount



### When using



When the matching cone angle is large, the height of tapered pin and bushing must be adjusted so that they fit more tightly. On the other hand, it is necessary to take possible sticking of the pin and bushing into consideration when the angle is small. At 1° taper (also 3° taper in some cases), sticking can be avoided by setting them slightly afloat as shown in the figure. When the angle is small, the creep of the height (a in the left drawing) against the width (b in the left drawing) is also small so that there is no need to worry about positioning inaccuracies.

(Value b to error a)

Angle	a	0.1	0.3	0.5
1°		0.0018	0.005	0.009
3°		0.005	0.016	0.026