TAPERED PIN SETS
－PIN・BUSHING PL SIDE FIXING TYPE－

SGP Stock　Printed in Red

POSITIONING STRAIGHT PIN SETS
－STANDARD TYPE－

SGP Stock　Printed in Red

MORE ITEMS

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

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

RoHS

PL installation type

Group	Part Number			$\boxed{T}$ D	Components concentricity of tapered section to the diameter of pin and bushing	$\boxed{M}$	$\boxed{H}$
	Set	Pin only	Bushing only				
Standard	TPVX	TPVXP	TPVXB	Dk6	0.01 or less	SKD11(D2)(1.2379)	58〜62HRC
Precision	VTPVX	VTPVXP	VTPVXB	D$^{+0.005}_{0}$	0.01 or less	comparable	

② Bushing

① Pin

● About N dimension

As shown in the figure, the bushing can be easily removed by screwing a bolt into its tap (N) and extracting it.

● Dimensions when combined

(2L+2)$^{+0.4}_{+0.2}$ (Reference value)

N (Dismounting tap hole)

✏ Escape hole in the screw at the bottom of pin.

D	L	V	E	F	H	① Pin		Bolt for mounting Pin・Bushing	N	(n) Escape hole on pin bottom	J Escape hole diameter on pin bottom
						d	E₁				
13	14	10	6	5	3.3	6.5	3.3	M 3	M 4	8.7	4.4
16	14	12	6	5	4.4	8	4.4	M 4	M 5	5.6	5.4
20	19	14	7	7	5.4	9.5	5.4	M 5	M 6	8.6	6.4
25	24	16	10	10	7	11	6.5	M 6	M 8	11.5	8.6
30	29	22	13	13	9	14	8.6	M 8	M10	13.4	11
35	34	24	16	16	11	17.5	10.8	M10	M12	15.2	13
42	39	30	21	21	13	20	13	M12	M14	19	15

■ Standard DK6・component concentricity 0.01 or less

Dk6		Part Number		A°
		Type	D	
13	+0.012 +0.001	TPVX (①+②Set)	13	1
16			16	
20	+0.015 +0.002	TPVXP (①Pin)	20	3
25			25	
30		TPVXB (②Bushing)	30	*5
35	+0.018 +0.002		*35	
42			42	

✏ A°5 is not available for *D35.

■ Precision D$^{+0.005}_{0}$・component concentricity 0.005 or less

D	Part Number		A°
	Type	D	
+0.005 0	VTPVX (①+②Set)	13	1
		16	
	VTPVXP (①Pin)	20	3
		25	5
	VTPVXB (②Bushing)	30	

• When selecting a pin independently, use a combination of a pin and bushing of the same accuracy.
• Note: TPVX and VTPVX are not available to change combination of TPV and VTPV, PL Installation Type of Tapered Pin Set, due to different V dimension.

Order Example

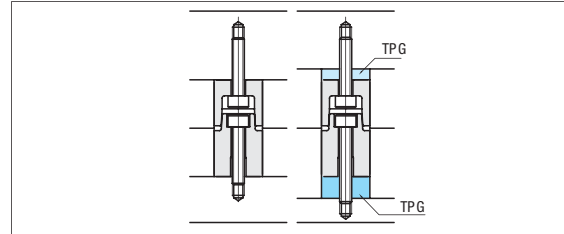Part Number　—　A

TPVX16　—　3

● Printed in Red　● Printed in Blue

SGP Stock　3 Days

Delivery

✏ For area out of Singapore please refer to P.i.

■ How to Mount

TPG

■ Characteristics
• Makes the maintenance easier because it can be installed and removed from PL side.
• It is capable of preventing wear and damage in core pins, since it can be positioned before core pins are inlayed.

■ 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 above drawing) against the width (b in the above 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

RoHS

TPNF（Set）
TPNFP（Pin only）
TPNFB（Bushing only）

②Bushing

①Pin

When positioning is begun　　Mold closed

Tip section

Details of the tip

Catalog No.		S
Type	D	E	(Effective holding amount)
TPNF	10	7	4.5
	13	7	4.5
		13	10.5
	16	7	4.5
		13	10.5
	20	8	5.5
		11	8.5
		16	12.0
	25	11	8.5
		13	10.5
		20	16.0
	30	25	21.0

$\boxed{M}$ SKD11 comparable
$\boxed{H}$ 58〜62HRC

Installation bolt size	M	ℓ	V	ℓ₁	R₁	R₂	F	L	Catalog No.		D	E	U/Price for 1〜9	
									Type				TPNF (①+②Set)	TPNFP(①Pin) TPNFB(②Bushing)
M 4	4	10	5	1.0	0.5	0.8	5	14.5			10	7		
			7				11	24.5			13	7		
												13		
M 5	5	10	10				5	14.5			16	7		
							11	24.5				13		
M 6	6	12	13				6	14.5	TPNF（①+②Set）		20	8		
							9	19.5	TPNFP（①Pin）			11	Quotation	
				2.0	1.0	1.5	14	29	TPNFB（②Bushing）			16		
M 8	8	16	16	1.0	0.5	0.8	9	19.5			25	11		
							11	24.5				13		
				2.0	1.0	1.5	18	34				20		
M10	10	20	20				23	39			30	25		

Order

Catalog No.　—　E

TPNF13　—　7

●TPNF（TPNFP TPNFB）

SGP Stock

✏ For area out of Singapore please refer to P.i.

Delivery

Alterations

Catalog No.　—　E　—（BLC・PLC…etc.）

TPNF16　—　7　—　BLC14.0-BLK

Alterations	Code	Spec.	Price
	BLC	Shortens the bushing's L dimension. BLC＝0.1mm increments L−2≦BLC＜L ✏ The tap depth becomes shorter by（L−BLC）. ✏ Available also for a set. To change the pin length as well, combine alteration PLC.	
	PLC	Changes the pin's L dimension tolerance. PLC＝0.1mm increments L−5≦PLC＜L ✏ The tap depth becomes shorter by（L−PLC）. ✏ Available also for a set. To change the bushing length as well, combines alteration BLC.	Quotation
	BLK	Changes the bushing's L dimension tolerance. L$^{+0.2}_{+0.1}$ ⋯▶L$^{+0.02}_{0}$ ✏ Available also for a set. To change the pin length（L）tolerance as well, combine alteration PLK.	
	PLK	Changes the pin's L dimension tolerance. L$^{+0.2}_{+0.1}$ ⋯▶L$^{+0.02}_{0}$ ✏ Available also for a set. To change the bushing length（L）tolerance as well, combine alteration BLK.	

■Quantity discount rate

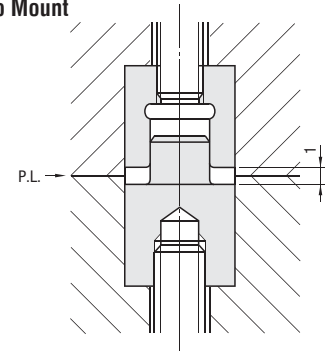| Quantity	1〜9	10〜19	20〜29	30〜50
Rate	—	5%	10%	15%

■Characteristics
● Suitable for positioning in precision molds such as connectors and electronic devices.
● It is capable of preventing wear and damage in core pins, since it can be positioned before core pins are inlayed.

■When using
● Contacting the pin and bushing when mold is closed may cause damage. Please leave a clearance of about 1mm on PL.
● Use precision leader pins since clearance is fairly small.

■How to Mount

P.L.