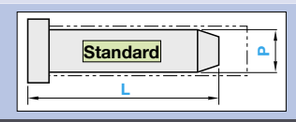
STRAIGHT CORE PINS WITH TIP PROCESS

—SHAFT DIAMETER (P) 0.01mm DESIGNATION TYPE—



Non JIS material definition is listed on P.1351 - 1352

RoHS

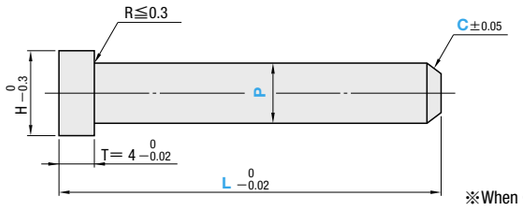
For SKH51 equivalent, the other shapes have been standardized as well. P.419

M H	Part Number Type T P$^{-0.01}_{-0.02}$	Part Number Type T P$^{0}_{-0.005}$	Shape
NAK80 37～43HRC	CPNBL	CPKBL	C
DH2F 38～42HRC	CPFBL	CPGBL	G
SKD61 equivalent 48～52HRC	CPDBL	CPPBL	T
SKH51 equivalent 58～60HRC	CPXBL	CPHBL	T
SUS440C 56～60HRC	—	CPWBL	R
MAS1C 50～54HRC	CPABL	CPYBL	B

MAS1C will be discontinued when stocked materials are finished.

Shape (Tip shape)

Shape C (C chamfered)

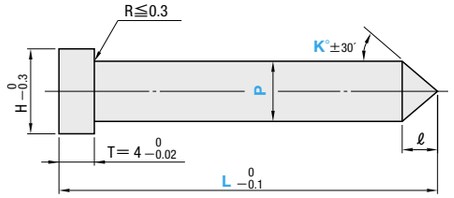


When no C specified
C=0.4±0.1
C···0.1mm increments
$0.1 \leqq C \leqq \frac{P-0.2}{2}$
and
L−C≧9.5

When CKC code is used
CKC=0.05mm increments

※When GVC code is used ℓ=C (When combined with CKC:ℓ=CKC)

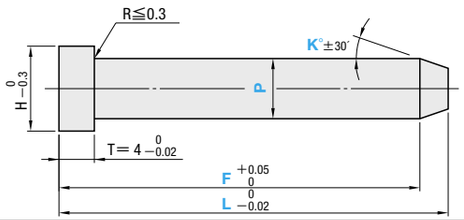
Shape G (Cone)



K···0.5° increments
20≦K≦60
and
(L−ℓ)≧10

ℓ calculation formula
$\ell = \frac{P}{2\tan K}$

Shape T (Tapered)

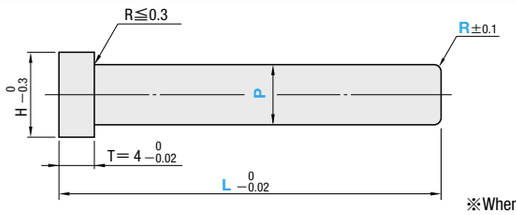


F···0.01mm increments
F≧10.00
and
$0.3 \leqq (L-F) \leqq \frac{L}{2}$
and
$\frac{P}{2} - (L-F)\tan K \geqq 0.1$

K···1° increments
1≦K≦45

※When GVC code is used ℓ=L−F

Shape R (R chamfered)

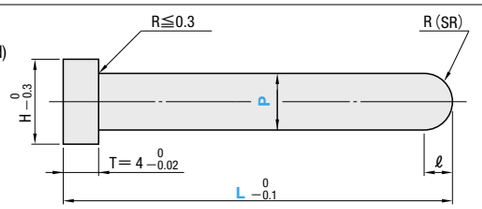


When no R specified
R=0.4±0.1

R···0.1mm increments
$0.2 \leqq R \leqq \frac{P-0.2}{2}$
and
L−R≧10

※When GVC code is used ℓ=R (When combined with RTC:ℓ=RTC)

Shape B (Spherical processed)



Fixed dimension for R
Spherical processed (SR)
$\{R(SR) = \frac{P}{2}\}$
L− $\frac{P}{2}$ ≧7

When RC code is used
RC=0.1mm increments
P/2≦RC≦(1.5×P)
{P≧4 ···P/2≦RC≦(3×P)}
However, RC≦32
and
L−ℓ≧10
ℓ calculation formula
$\ell = RC - \sqrt{RC^2 - \frac{P^2}{4}}$

H	Part Number Type Shaft diameter tolerance P$^{-0.01}_{-0.02}$	Part Number Type Shaft diameter tolerance P$^{0}_{-0.005}$	Shape	No.	0.01mm increments L	0.01mm increments P	Shape (Tip size)
3				1	10.00 ～ 100.00	0.80～ 0.99	Shape C
				1.5		1.00～ 1.49	C···0.1mm increments
4				2		1.50～ 1.99	When no C specified
5	CPNBL	CPKBL	C	2.5		2.00～ 2.49	C=0.4±0.1
6	CPFBL	CPGBL		3		2.50～ 2.99	
				3.5	10.00 ～ 120.00	3.00～ 3.49	Shape G
7	CPDBL	CPPBL	G	4		3.50～ 3.99	K···0.5° increments
	CPXBL	—		4.5		4.00～ 4.49	
8	—	CPHBL	T	5		4.50～ 4.99	Shape T
				5.5		5.00～ 5.49	F···0.01mm increments
9		CPWBL		6		5.50～ 5.99	
			R	6.5		6.00～ 6.49	K···1° increments
10	CPABL (0.8≦P≦3.99)	CPYBL (0.8≦P≦3.99)		7		6.50～ 6.99	
11			B	8		7.00～ 7.99	Shape R
15				10		8.00～ 9.99	R···0.1mm increments
18				13		10.00～12.99	When no R specified
21				16		13.00～15.99	R=0.4±0.1
25	CPDBL CPXBL	CPPBL CPHBL		20		16.00～19.99	Refer to the working limits shown in the drawing.

Order — Part Number — L — P — Tip size (C・F・K・R) — Quotation

CPPBLR 4.5 — 77.50 — P4.40 — R0.5

CPGBLT 4.5 — 23.58 — P4.10 — F21.06 — K1

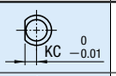
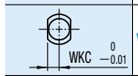
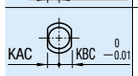
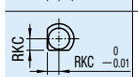
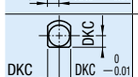
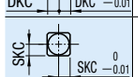
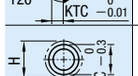
Alterations — Part Number — L — P — Tip size C(CKC)・F・K・R(RTC) — (KC・WKC···etc.)

CPHBLB 2.5 — 33.50 — P2.20 — HC4.0

CPKBLC 4.5 — 33.62 — P4.10 — CKC0.50

Price — Quotation

Alteration details P.395

Alterations	Code	Spec.	1Code
	KC	Single flat cutting P/2≦KC＜H/2	Quotation
	WKC	Two flats cutting P/2≦WKC＜H/2	
	KAC KBC	Varied width parallel flats cutting P/2≦KAC＜H/2 KBC=0.1mm increments only KAC＜KBC＜H/2	
	RKC	Two flats (right angled) cutting P/2≦RKC＜H/2	
	DKC	Three flats cutting P/2≦DKC＜H/2	
	SKC	Four flats cutting P/2≦SKC＜H/2	
	KGC	Two flats (angled) cutting P/2≦KGC＜H/2 0＜AG＜360 AG=1° increments	
	KTC	Three flats cutting at 120° P/2≦KTC＜H/2	
	HC	Head diameter change HC=0.1mm increments P≦HC＜H In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft.	

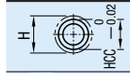
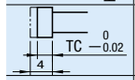
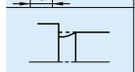
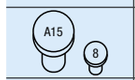
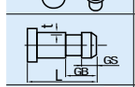
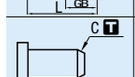
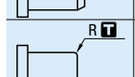
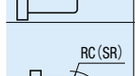
About Designation Unit for Key Flat Cutting

(1)To align the key flat with the shaft diameter

Unit of designation 0.005mm increments possible

(2)To designate arbitrary key flat dimensions

Unit of designation 0.1mm

Alterations	Code	Spec.	1Code
	HCC	Head diameter change (precision) HCC=0.1mm increments P+0.5≦HCC＜H−0.3	Quotation
	TC	Head thickness change TC=0.1mm increments 1.5≦TC＜4 (Dimension L remains unchanged.) 4−TC≦Lmax.−L	
	TRN	Relief under the head (No need for plate chamfering)	
	NHC	Numbering on the head How to order P.396 Available when H≧2 ⊗ Combination with SKC not available.	
	GVC	Gas vent machining GS・GB=1mm increments Available when P≧2 2+ℓ≦GS≦12 GS+2≦GB≦30 L−GB≧10 How to order P.396	
	CKC	Improves C chamfering tolerance C±0.05 ··· ±0.02 0.1≦CKC≦(P−0.2)/2 L−CKC≧9.5 Available for Shape C only CKC=0.05mm increments	
	RTC	Improves tip R tolerance R±0.1 ··· ±0.05 0.2≦RTC≦(P−0.2)/2 L−RTC≧10 Available for Shape R only RTC=0.1mm increments	
	RC	Tip R alteration RC=0.1mm increments P/2＜RC≦RCmax. and L−ℓ≧10 Shaft diameter P＜4 ··· RCmax.=1.5×P Shaft diameter P≧4 ··· RCmax.=3×P However, RC≦32 Available for Shape B only	