PUNCH PLASTIC Ver.7 GUIDE

-STRAIGHT EJECTOR PIN
-SHOULDERED EJECTOR PIN
-RECTANGULAR EJECTOR PIN
-EJECTOR SLEEVE
-CENTER PIN
-STRAIGHT CORE PIN
-STEPS-TYPE CORE PIN

PUNCH INDUSTRY
パンチ工業株式会社

Alteration・Cancel・Return Goods

Alteration・cancelling

alteration・cancelling for ordering are treated differently according to different delivery.

In stock(refer to those that are always kept in storage and can be delivered quickly for ordering product)

Alteration・cancelling should be available before 16:00（JAPAN Time） on the day before delivery.

Intraday delivery is not available for alteration・cancelling.

Products for Quick service（Quick service T）

Alteration・cancelling are not available in principle.

※Table for un-stock product cancelling

Sorts of express service	『Express service』			
	Quick A		Quick B	Quick C
Delivery date is the working days from the order receipt	AM Order	PM Order		
Intraday Before noon（12:00, JAPAN Time）	Free	—	Free	Free
Intraday 12:00~17:00（JAPAN Time）	Paid	Free		
1st working day	×	×	Paid	Free
2nd working day	Ship on	Ship on	×	Paid
3rd working day			×	Paid
4th working day			Ship on	×
5th working day				×
6th working day				Ship on

Free：Free cancelling

Paid：change to paid（40% of product price）

× ：cancelling is not available.

⚠ Delivery alter to the next day for alteration made after 17:00（JAPAN Time）

Delivery	Products of ordinary delivery									
Delivery date is the working days from the order receipt	1 Day	3 Days	4 Days	5 Days	6 Days	7 Days	8 Days	9 Days	10 Days	12 Days
Intraday（17:00, JAPAN Time）	Free	Free	Free	Free	Free	Free	Free	Free	Free	Free
1st working day	×	Paid	Free	Free	Free	Free	Free	Free	Free	Free
2nd working day	Ship on	×	Paid	Paid	Paid	Free	Free	Free	Free	Free
3rd working day		×	×	Paid	Paid	Paid	Paid	Paid	Free	Free
4th working day		Ship on	×	×	Paid	Paid	Paid	Paid	Paid	Free
5th working day			Ship on	×	×	Paid	Paid	Paid	Paid	Paid
6th working day				Ship on	×	×	Paid	Paid	Paid	Paid
7th working day					Ship on	×	×	Paid	Paid	Paid
8th working day						Ship on	×	×	Paid	Paid
9th working day							Ship on	×	×	Paid
10th working day								Ship on	×	Paid
11th working day									Ship on	×
12th working day										×
13th working day										Ship on

Return goods

In stock	Please contact with the sales staff for return goods.
Time of delivery is 1st working day	For return goods, sales staff will give specific introduction. For return goods due to customer's arrangement, the cost of return goods should be paid by customers.
Time of delivery is after 2nd working day	Product delivered after 2nd working day is based on customer's designation. It isn't available for other products, and can not return goods.
Wrong-sent products	If product you receive is not what you order, please contact sales staff in time so we can replace it with the correct product as soon as possible.

Delivery and Shipping

Delivery

For deatils of working day,

refer to the specific page please.

Delivery day	Delivery
Next In stock working day	Next working day
1 Days	2nd working day
3 Days	4th working day
4 Days	5th working day
5 Days	6th working day
6 Days	7th working day
7 Days	8th working day
8 Days	9th working day
9 Days	10th working day
10 Days	11th working day
12 Days	13th working day

How to calculate working day

5 Days **5 working days**

Sun	Mon	Tue	Wed	Thu	Fri	Sat	(JAPAN Calendar)
						1	Ordering day
2	3	4	5	6	7	8	
	1st working day	2nd	3rd	4th	5th working day		

When order is placed on 1st (Saturday), products are finished processing on 7th (Friday)

⚠ For quantities more than listed, please inquire the unit price and delivery day.

▶Quantity discount rate (⚠ Prices less than 1Yen are rounded off)

1～9	10～29	30～99	100～200	201～
100%	95%	90%	85%	Enquiry

Products for Quick service『Express service』

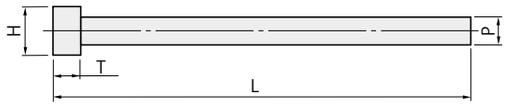
Products for Quick Service are a system quicker than the normal delivery time.
It is available for the products marked with Quick at each page.

Time and shipment for application of the express service system

『Express service』	〈Products for Quick Service system〉			
	Quick T	Quick A	Quick B	Quick C
Time of ordering	9:00～12:00（JAPAN Time）	9:00～17:00（JAPAN Time）	9:00～17:00（JAPAN Time）	9:00～17:00（JAPAN Time）
Ship on	Next day	2nd day	4th day	6th day
Remark	We will ship on the next day. This is applied in case you order by 12:00 o' clock（JAPAN Time）	We will ship on the 2nd day. This is applied in case you order by 17:00 o' clock（JAPAN Time）	We will ship on the 4th day. This is applied in case you order by 17:00 o' clock（JAPAN Time）	We will ship on the 6th day. This is applied in case you order by 17:00 o' clock（JAPAN Time）

⚠ You cannot use this system for products with special quality. Details please confirm with the sales staff.
⚠ Except『Quick service T』,we also could deal with the condition of Alteration ·cancelling after the order issued.
⚠ Details please confirm with the sales staff.

RoHS10 STRAIGHT EJECTOR PINS —GUIDE



▶Straight Ejector Pins

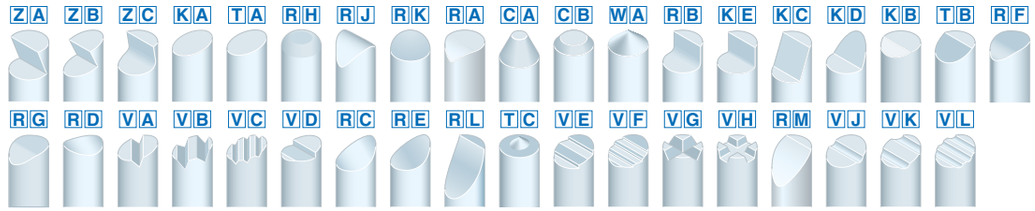
Material	Precision P		Head Thickness T	Type: Blank Code	Blank Delivery/Page	L designation Code	L designation Delivery/Page	P designation Code	P designation Delivery/Page	L & P designation Code	L & P designation Delivery/Page
SKH51 59～61HRC	Extra Precision	0 −0.002	4 6	–		EPHVL	3TA P.102	EPHVP	3TA P.104	EPHVS	3TA P.106
	Precision	0 −0.005	4 6 8	EPH	STOCK・3TA P.108	EPHL	3TA P.110	EPHP	3TA P.112	EPHS	3TA P.114
	Standard	−0.01 −0.02	4 6 8	EPS	STOCK・3TA P.118	EPSL	3TA P.120	EPSP	3TA P.122	EPSS	3TA P.124
	Small Diameter	0 −0.005	4 6 8	–		EPHSYL	3TA P.128	EPHSYP	3TA P.128	EPHSYS	3TA P.128
SKH51 59～61HRC + Hard Chrome	Precision	0 −0.005	4 6 8	–		–		–		EPHS−M	8 P.116
	Standard	−0.01 −0.02	4 6 8	–		–		–		EPSS−M	8 P.126
	Small Diameter	0 −0.005	4	–		–		–		EPHSYS−M	8 P.128
SKD61+Nitriding Surface：900HV～ Inner：40～45HRC	−0.01 −0.02 ≀ −0.01 −0.05		4	EP4N	STOCK・3TA P.130	EP4NL	3TA P.132	EP4NP	5 P.134	EP4NS	5 P.136
			6 8	EPJN	STOCK・3TA P.130	EPJNL	3TA P.132	EPJNP	5 P.134	EPJNS	5 P.136
SKD61 Hardened 50～55HRC	0 −0.005		4	EPBH	3A P.138	EPBHL	3A P.140	EPBHP	3A P.142	EPBHS	3A P.144
	−0.01 −0.02		4	EPBS	3A P.138	EPBSL	3A P.140	EPBSP	3A P.142	EPBSS	3A P.144
SKD61 Pre-hardened 40～45HRC	−0.01 −0.02		4 6 8	EPPH	3TA P.146	EPPHL	3TA P.146	EPPHP	3TA P.146	EPPHS	3A P.146
SUS440C 56～60HRC	0 −0.005		4	EPSU	3TA P.148	EPSUL	3TA P.150	EPSUP	3TA P.150	EPSUS	3A P.150
	0 −0.005		6	EPSUJ	3TA P.148	EPSUJL	3TA P.150	EPSUJP	3TA P.150	EPSUJS	3A P.150

▶Straight Ejector Pins with gas vent **SKH51** 59～61HRC

Shape		Precision P		Head Thickness T	L designation Code	L designation Delivery/Page	L & P designation Code	L & P designation Delivery/Page
	1 groove +1 cut	Precision	0 −0.005	4 6 8	GA−EPHL	3A P.154	GA−EPHS	3A P.154
		Standard	−0.01 −0.02	4 6 8	GA−EPSL	3A P.154	GA−EPSS	3A P.154
	1 groove +1 cut tip designation	Precision	0 −0.005	4 6 8	GB−EPHL	3A P.156	GB−EPHS	3A P.156
		Standard	−0.01 −0.02	4 6 8	GB−EPSL	3A P.156	GB−EPSS	3A P.156
	1 cut	Precision	0 −0.005	4 6 8	GD−EPHL	3A P.158	GD−EPHS	3A P.160
		Standard	−0.01 −0.02	4 6 8	GD−EPSL	3A P.158	GD−EPSS	3A P.160
	4 cuts	Precision	0 −0.005	4 6 8	GF−EPHL	3A P.158	GF−EPHS	3A P.160
		Standard	−0.01 −0.02	4 6 8	GF−EPSL	3A P.158	GF−EPSS	3A P.160

▶Straight Ejector Pins with tip process

Material		Precision P		Head Thickness T	Type: L designation Code	L designation Delivery/Page	L & P designation Code	L & P designation Delivery/Page
	**SKH51** 59～61HRC	Precision	0 −0.005	4 6 8	EPHL□□	3A／P.166	EPHSS□□	3A／P.168
		Standard	−0.01 −0.02	4 6 8	EPSL□□	3A／P.170	EPSSS□□	3A／P.172
	SKD61+Nitriding	−0.01 −0.02 ≀ −0.01 −0.03		4	EP4NL□□	3A／P.174	EP4NS□□	5／P.176
				6 8	EPJNL□□	3A／P.174	EPJNS□□	5／P.176
	SKD61 50～55HRC	Precision	0 −0.005	4	EPBHL□□	3A／P.178	EPBHS□□	5／P.180
		Standard	−0.01 −0.02	4	EPBSL□□	3A／P.178	EPBSS□□	5／P.180



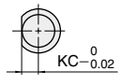
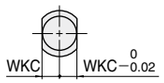
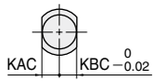
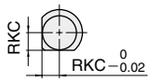
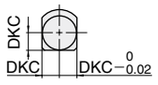
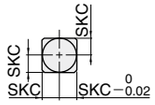
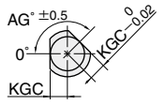
▶Straight Ejector Pins with tip process

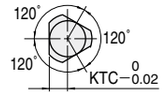
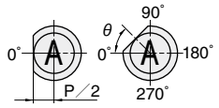
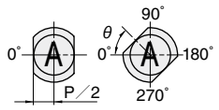
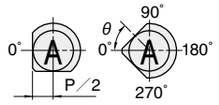
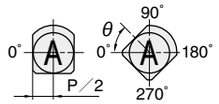
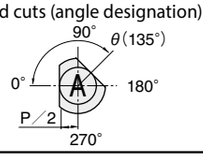
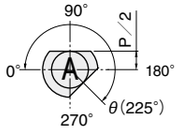
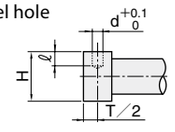
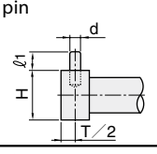
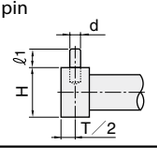
Material			Precision P		Head Thickness T	Type: L designation Code	L designation Delivery/Page	L & P designation Code	L & P designation Delivery/Page
	Concave	**SKH51** 59～61HRC	Extra Precision	0 −0.002	4 6	EPHVL□M EPHVL□MM	3A P.186	EPHVS□M EPHVS□MM	3A P.188
			Precision	0 −0.005	4 6 8	EPHL□M EPHL□MM	3A P.190	EPHSS□M EPHSS□MM	3A P.192
			Standard	−0.01 −0.02	4 6 8	EPSL□M EPSL□MM	3A P.194	EPSSS□M EPSSS□MM	3A P.196
		SKD61+Nitriding Surface：900HV～ Inner：40～45HRC	−0.01 −0.02 ≀ −0.01 −0.04		4	EP4NL□M EP4NL□MM	3A P.198	–	
					6 8	EPJNL□M EPJNL□MM	3A P.198	–	
	Convex	**SKH51** 59～61HRC	Standard	0 −0.005	4 6	EPHL□T	5／P.200	EPHSS□T	5／P.200
			Standard	−0.01 −0.02	4 6	EPSL□T	5／P.200	EPSSS□T	5／P.200

▶Middle Head Ejector Pins **SKH51** 59～61HRC

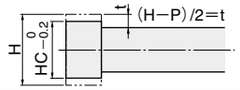
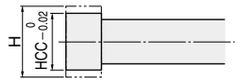
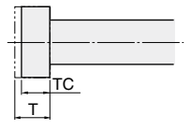
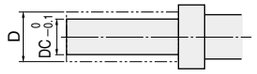
Shape		Precision P		Type: L designation Code	L designation Delivery/Page	L & P designation Code	L & P designation Delivery/Page
	Normal	Precision	0 −0.005	EPCTHL	3／P.152	EPCTHS	3／P.152
		Standard	−0.01 −0.02	EPCTSL	3／P.152	EPCTSS	3／P.152
	Tip process	Precision	0 −0.005	EPCTHL□□	5／P.182	EPCTHS□□	5／P.182
		Standard	−0.01 −0.02	EPCTSL□□	5／P.182	EPCTSS□□	5／P.182
	Engraving	Precision	0 −0.005	EPCTHL□M	5／P.202	EPCTHS□M	5／P.202
		Standard	−0.01 −0.02	EPCTSL□M	5／P.202	EPCTSS□M	5／P.202

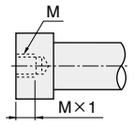
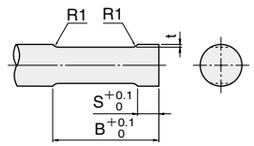
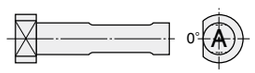
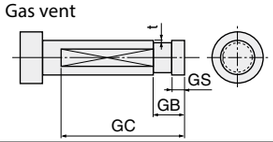
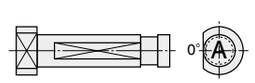
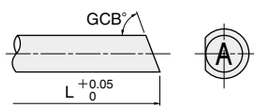
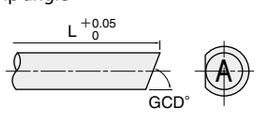
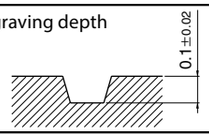
RoHS10 Guide for Straight Ejector Pins

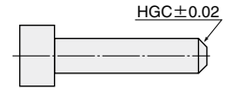
Add.	Code @/P	Spec.
Head cut 	KC 100 Middle head 200	Range of designation P／2≦KC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦KC＜H／2 Unit of designation in 0.1 KC1.4,KC0.75
2 Head cuts (parallel) 	WKC 200 Middle head 400	Range of designation P／2≦WKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦WKC＜H／2 Unit of designation in 0.1 WKC1.4,WKC0.75
2 Head cuts (parallel) 	KAC KBC 300 Middle head 600	Range of designation P／2≦KAC,KBC＜H／2 UUnit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦KAC,KBC＜H／2 Unit of designation in 0.1 ☒KAC=KBC is not available KAC1.4−KBC1.6
2 Head cuts (perpendicular) 	RKC 200 Middle head 400	Range of designation P／2≦RKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦RKC＜H／2 Unit of designation in 0.1 RKC1.4,RKC0.75
3 Head cuts 	DKC 300 Middle head 600	Range of designation P／2≦DKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦DKC＜H／2 Unit of designation in 0.1 DKC1.4,DKC0.75
4 Head cuts 	SKC 400 Middle head 800	Range of designation P／2≦SKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦SKC＜H／2 Unit of designation in 0.1 SKC1.4,SKC0.75
2 Head cuts (angle designation) 	KGC 300 Middle head 600	Range of designation P／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC:in 0.1 It can be 0.01 or 0.001 for P 2. AG:in 1 Middle head Range of designation D／2+0.1≦KGC＜H／2 0＜AG＜360 Unit of designation KGC:in 0.1 AG:in 1 KGC1.4−AG135

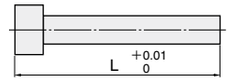
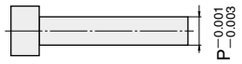
Add.	Code @/P	Spec.
3 Head cuts (angle 120° each) 	KTC 400 Middle head 800	Range of designation P／2≦KTC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P 2. Middle head Range of designation D／2+0.1≦KTC＜H／2 Unit of designation in 0.1 KTC1.4,KTC0.75
Head cut (angle designation) 	AKC 200 Middle head 400	Range of designation 0＜AKC＜360 Unit of designation in 1 ⚠Combined with GCB・GCD in 90 AKC40
2 Head cuts (position designation) 	AWC 300 Middle head 600	Range of designation 0≦AWC＜360 Unit of designation in 1 ⚠Combined with GCB・GCD in 90 AKC40
2 Head cuts (position designation) 	ARC 300 Middle head 600	Range of designation 0≦ARC＜360 Unit of designation in 1 ⚠Combined with GCB・GCD in 90 AKC40
3 Head cuts (position designation) 	ATC 400 Middle head 800	Range of designation 0≦ATC＜360 Unit of designation in 1 ⚠Combined with GCB・GCD in 90 AKC40
2 Head cuts (angle designation) 	AAC 300 Middle head 600	Range of designation 0＜AAC＜360 Unit of designation in 1 AAC135
2 Head cuts (angle designation) 	ABC 300 Middle head 600	Range of designation 0≦ABC＜360 Unit of designation in 1 ☒Angle 90°is not available. ABC225
Dowel hole 	NN 200	☒H＜4 is not available. ☒Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NN T d ℓ: 4 2 3; 6 8 3 5
Spring pin 	NC 200	☒H＜4 is not available. ☒Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NC T d ℓ1: 4 2; 6 8 3 5
Dowel pin 	NS 200	☒H＜4 is not available. ☒Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NS T d ℓ1: 4 2; 6 8 3 5

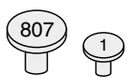
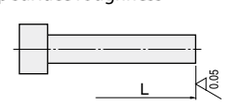
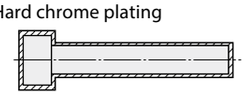
Guide for Straight Ejector Pins

Add.	Code @/P	Spec.
H dimension alteration 	**HC** **200**	Range of designation **t＜1：H−1≦HC＜H** **t≧1：P+1≦HC＜H** Unit of designation (in) 0.1 ☒ P≦0.6 is not available. **HC5.5**
H dimension alteration (precision) 	**HCC** **400**	Range of designation **P+1≦HCC＜H−0.3** Unit of designation (in) 0.1 ☒ P＜1.5 is not available. **HCC5.5**
T dimension alteration 	**TC** **200** **Middle head 500**	Range of designation **2≦TC＜T** **T−TC≦Lmax−L** Unit of designation (in) 0.1 ☒ P≦0.6 is not available. ⚠ TC affects overall length except for L designation type. (Overall length will be (T−TC) smaller.)
D dimension alteration 	**DC** **200**	Range of designation **P−1≦DC＜D　1.5≦DC** Unit of designation (in) 0.1 ☒ Combined with HC・TC is available. This is available for S length side. **DC2.5**

Add.	Code @/P	Spec.
Tap hole 	**MC** **300**	⚠ P≧8 and T=8 ☒ Combined with NN,NC,HC,HCC,NHC,NHN is not available except for nitriding items. ☒ Express is not available. P / M: 8.00～9.99 / 4; 10.00～11.99 / 5; 12.00～15.99 / 6; 16.00～25.99 / 8 **MC**
Gas vent 	**GVC** **800**	Range of designation **2≦S≦10** **S+5≦B≦30** Unit of designation (in) 1 ☒ P＜3 is not available. P / t: 3.00～4.99 / 0.3; 5.00～9.99 / 0.4; 10.00～12.10 / 0.5  **GVC −S3−B15**
Gas vent 	**GVD** **1,000**	Range of designation **1≦GS≦10** **GS+2≦GB≦30** **GB＜GC≦L−T** Unit of designation (in) 0.1 ☒ P＜3 is not available. P / t: 3.00～4.99 / 0.3; 5.00～9.99 / 0.4; 10.00～12.10 / 0.5  **GVD −GS3 −GB5 −GC30**
Tip angle 	**GCB** **1,000**	Range of designation **60≦GCB＜90** Unit of designation (in) 1 ☒ P＜2 and L＞200 ☒ Combined with GCD・EC is not available. ☒ Express is not available. **GCB75**
Tip angle 	**GCD** **1,000**	Range of designation **60≦GCD＜90** Unit of designation (in) 1 ☒ P＜2 and L＞200 ☒ Combined with GCB・EC is not available. ☒ Express is not available. **GCD65**
Engraving depth 	**EC** **300**	0.05→0.1 ☒ Combined with GCB,GCD are not available. ☒ Express is not available. ☒ P＜1 is not available. **EC**

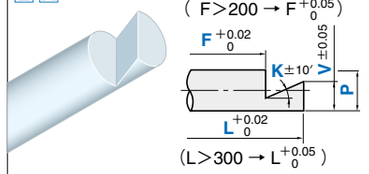
Add.	Code @/P	Spec.
Tip R 	**HRC** **200**	Range of designation **0.2≦HRC＜P／2** Unit of designation (in) 0.1 ☒ P＜0.8 is not available. ☒ Blank type, P designation type are not available. ☒ Combined with HGC is not available. ⚠ Nitriding process cannot be remained on the tip. **HRC0.3**
Tip C 	**HGC** **200**	Range of designation **0.2≦HGC＜P／2** Unit of designation (in) 0.1 ☒ P＜0.5 is not available. ☒ Blank type, P designation type are not available. ☒ Combined with HRC is not available. ⚠ Nitriding process cannot be remained on the tip. **HGC0.2**

Add.	Code @/P	Spec.
L tolerance 	**LKC** **200**	$L^{+0.02}_{0} \rightarrow L^{+0.01}_{0}$ ☒ L＞200 is not available. ☒ Express is not available. **LKC**
P tolerance 	**PKC** **Free**	$P^{0}_{-0.002} \rightarrow P^{-0.001}_{-0.003}$ ☒ Combined with MC is not available. ☒ Express is not available. **PKC**
P tolerance 	**PKCP** **Free**	$P^{0}_{-0.002} \rightarrow P^{+0.002}_{0}$ ☒ Combined with MC is not available. ☒ Express is not available. **PKCP**
P tolerance 	**PKCZ** **Free**	$P^{0}_{-0.002} \rightarrow P \pm 0.001$ ☒ Combined with MC is not available. ☒ Express is not available. **PKCZ**

Add.	Code @/P	Spec.
Identifying mark 	**NHC** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ H＜2 is not available. ☒ Combined with SKC・MC are not available. ☒ Express is not available. **NHC−8**
Identifying mark (sequence) 	**NHN** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ H＜2 is not available. ☒ Combined with SKC・MC are not available. ☒ Express is not available. 〈Sample〉NHN−5 3pcs→"5","6","7" 1pc each
Tip surface roughness 	**TMC** **1,000**	P≦6：1.6Ra→0.05Ra P＞6：1.6Ra→0.1Ra ☒ P＜0.6 is not available. ☒ Express is not available. **TMC**
Hard chrome plating 	**CM** **600**	⚠ Thickness 2～3μm ☒ Express is not available (8 working days). **CM**

RoHS10 STRAIGHT EJECTOR PINS with TIP PROCESS

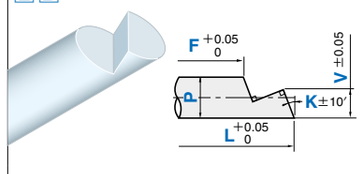
ZA



K: in 0.5
F: in 0.01
V: in 0.01

1≦L−F≦10
1.5≦V<P
0<K≦45
V−(L−F)tanK≧1

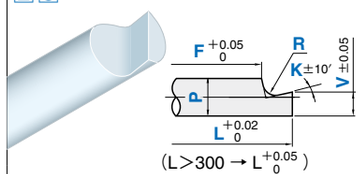
ZB



K: in 0.5
F: in 0.01
V: in 0.01

1≦L−F≦10
1.5≦V<P
0<K≦45

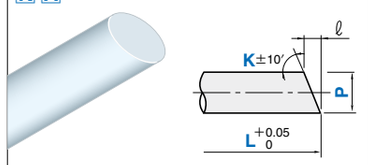
ZC



K: in 0.5
F: in 0.01
V: in 0.01
R: in 0.1

1≦L−F≦10
1.5≦V<P
0<K≦45
R≦P−V
R≦L−F

KA

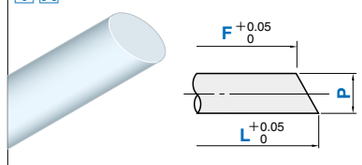


K: in 0.5

$\ell=\frac{P}{\tan K}$

30≦K<90

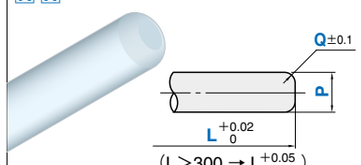
TA



F: in 0.01

0.05≦(L−F)≦P

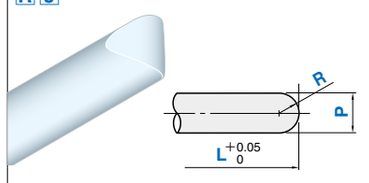
RH



Q: in 0.1

$0.2 \leqq Q \leqq \left(\frac{P}{2}-0.1\right)$

RJ

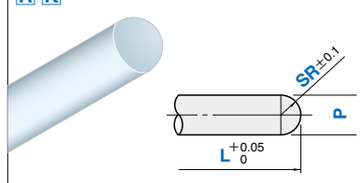


⚠ $R=\frac{P}{2}$ (normal)

⚠ You can designate R dimension in the range of $\frac{P}{2}<R\leqq 30$.

R: in 0.1

RK

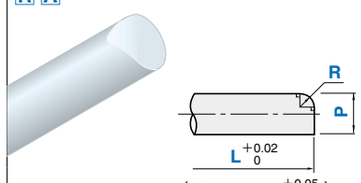


⚠ $SR=\frac{P}{2}$ (normal)

⚠ You can designate SR dimension in the range of $\frac{P}{2}<SR\leqq 30$.

SR: in 0.1

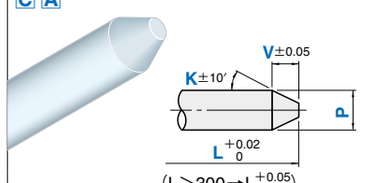
RA



R: in 0.01

0.2≦R<P

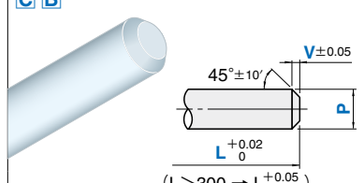
CA



V: in 0.1
K: in 0.5

0.1≦V≦(P×2)
$\frac{P}{2}-V\tan K\geqq 0.1$
0<K≦45

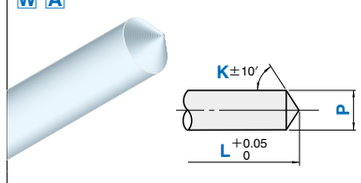
CB



V: in 0.1

$0.1 \leqq V \leqq \left(\frac{P}{2}-0.1\right)$

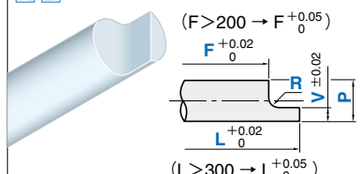
WA



K: in 0.5

45≦K<90

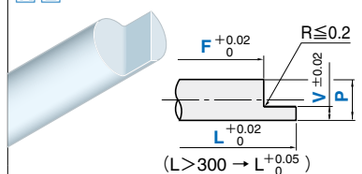
RB



R: in 0.1
F: in 0.01
V: in 0.01

0.3≦R≦(P−V)
R≦(L−F)
0.2≦(L−F)≦10
1≦V<P

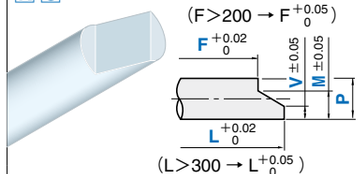
KE



F: in 0.01
V: in 0.01

0.2≦(L−F)≦10
1≦V<P

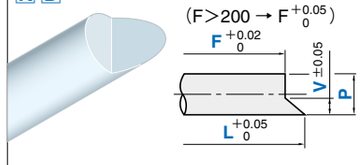
KC



F: in 0.01
M: in 0.01
V: in 0.01

0.2≦(L−F)≦10
V≧0.5
V<M<P

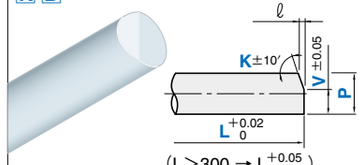
KD



F: in 0.01
V: in 0.01

0.2≦(L−F)≦10
0.3≦V<P

KB

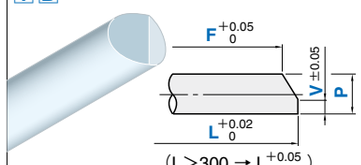


K: in 1
V: in 0.01

45≦K<90
0.5≦V<P

$\ell=\frac{P-V}{\tan K}$

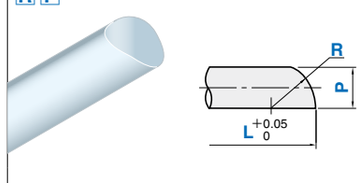
TB



V: in 0.1
F: in 0.01

0.05≦(L−F)≦(P−V)
1.5≦V<P

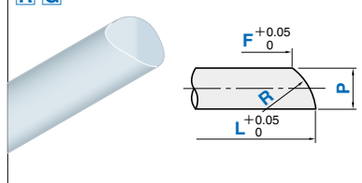
RF



R: in 0.01

P<R≦30

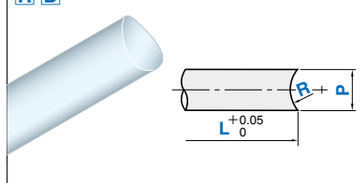
RG



R: in 0.01
F: in 0.01

P<R≦30
$(L-F)>(R-\sqrt{R^2-P^2})$

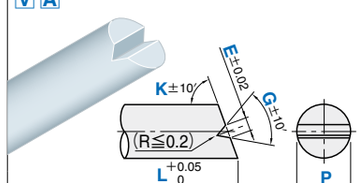
RD



R: in 0.01

1.2P≦R≦30

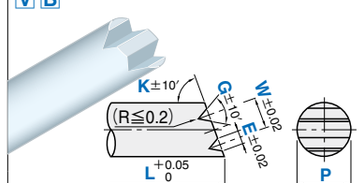
VA



E: in 0.1
K: in 0.5
G: 60°or 90°

45≦K<90
0.3≦E≦3.0
$E\leqq\frac{P}{2}$

VB



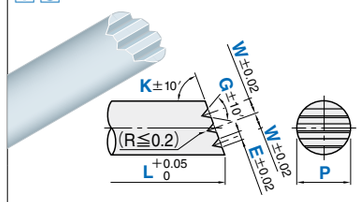
E: in 0.1
W: in 0.1
K: in 0.5
G: 60°or 90°

45≦K<90
0.3≦E≦3.0
$E\leqq\frac{P}{3}$
(E+0.2)≦W≦(P−E−0.4)

Material	T R Tolerance
SKH51	±0.02 ⚠ RJ・RB・ZC→±0.1
SKD Nitriding	±0.1
SKD Hardened	

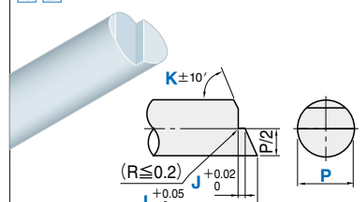
RoHS10 STRAIGHT EJECTOR PINS with TIP PROCESS

VC



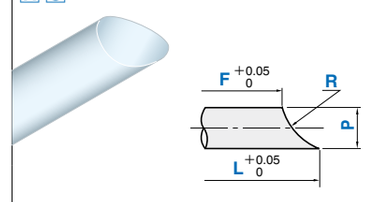
E : ㎜ 0.1 — 45≦K<90
W: ㎜ 0.1 — 0.3≦E≦3.0
K : ㎜ 0.5 — $E \leqq \frac{P}{4}$
G:60°or 90°
$(E+0.2) \leqq W \leqq (P-\frac{E}{2}-0.2)$

VD



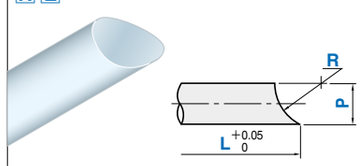
J : ㎜ 0.1 — 45≦K<90
K: ㎜ 0.5 — 0.3≦J≦3.0
$J \leqq \frac{P}{3\tan K}$

RC



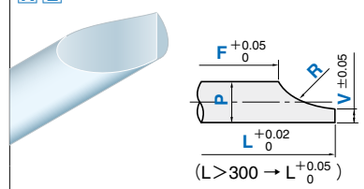
R: ㎜ 0.01 — P<R≦30
F: ㎜ 0.01 — $(L-F) > (R-\sqrt{R^2-P^2})$

RE



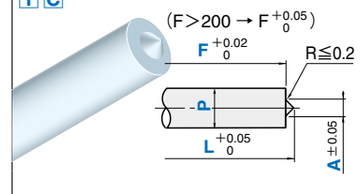
R: ㎜ 0.01
P<R≦30

RL



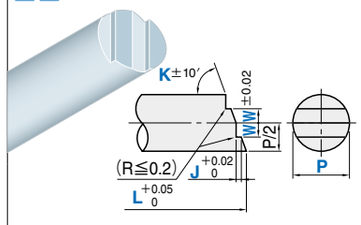
R: ㎜ 0.01 — P<R≦30
V: ㎜ 0.1 — $L-F > R-\sqrt{R^2-(P-V)^2}$
F: ㎜ 0.01 — 1.5≦V<P

TC



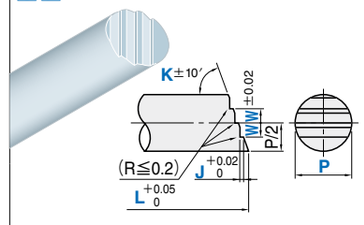
A: ㎜ 0.1 — $1 \leqq A \leqq (P-1)$ and $\frac{P}{3} \leqq A$
F: ㎜ 0.01 — $1 \leqq (L-F) \leqq (A \times 3)$
☒ You cannot designate R dimension.

VE



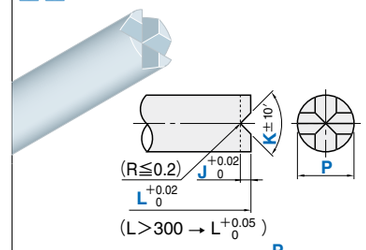
J : ㎜ 0.1 — 45≦K<90 — $J \leqq \frac{P}{4\tan K}$
K : ㎜ 0.5 — 0.3≦J≦3.0
W: ㎜ 0.1 — $0.1+J\tan K \leqq W \leqq (\frac{P}{2}-0.2)$

VF



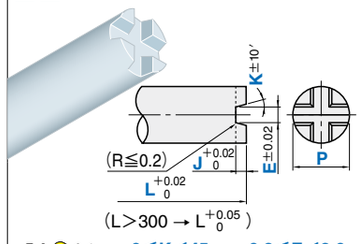
J : ㎜ 0.1 — 45≦K<90 — $J \leqq \frac{P}{5\tan K}$
K : ㎜ 0.5 — 0.3≦J≦3.0
W: ㎜ 0.1 — $0.1+J\tan K \leqq W \leqq (\frac{P}{2}-0.2)$

VG



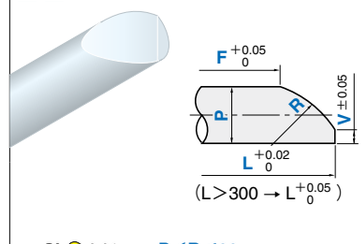
J : ㎜ 0.1 — 30≦K<90 — $J \leqq \frac{P}{3}$
K : ㎜ 0.5 — 0.3≦J≦3.0

VH



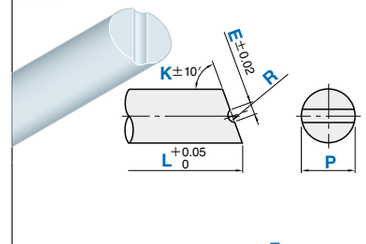
E : ㎜ 0.1 — 0≦K<45 — 0.3≦E<3.0
J : ㎜ 0.1 — 0.3≦J≦3.0 — $E \leqq \frac{P}{3}$
K : ㎜ 0.5 — $J \leqq \frac{P}{3}$

RM



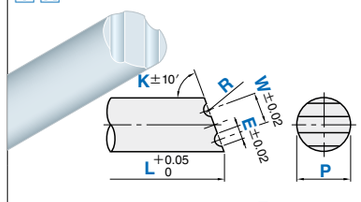
R: ㎜ 0.01 — P<R≦30
F: ㎜ 0.01 — $L-F > R-\sqrt{R^2-(P-V)^2}$
V: ㎜ 0.01 — 1.5≦V<P

VJ



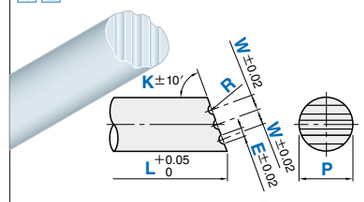
E: ㎜ 0.1 — 45≦K<90 — $\frac{E}{2} \leqq R$
K: ㎜ 0.5 — 0.6≦E≦3.0
R : ㎜ 0.1 — $E \leqq \frac{P}{2}$

VK



E : ㎜ 0.1 — 45≦K<90 — $\frac{E}{2} \leqq R$
W: ㎜ 0.1 — 0.6≦E≦3.0
K : ㎜ 0.5 — $E \leqq \frac{P}{3}$
R : ㎜ 0.1 — $(E+0.2) \leqq W \leqq (P-E-0.4)$

VL

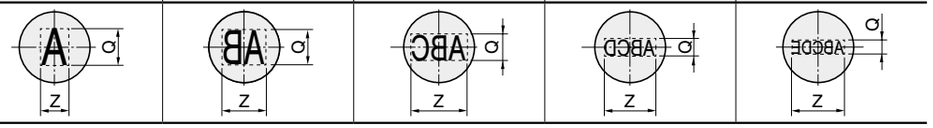


E : ㎜ 0.1 — 45≦K<90 — $\frac{E}{2} \leqq R$
W: ㎜ 0.1 — 0.3≦E≦3.0
K : ㎜ 0.5 — $E \leqq \frac{P}{4}$
R : ㎜ 0.1 — $(E+0.2) \leqq W \leqq (P-\frac{E}{2}-0.2)$

Material	T R Tolerance
SKH51	±0.02
SKD Nitriding	±0.1
SKD Hardened	

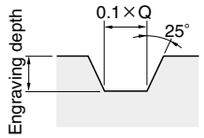
RoHS10 ENGRAVING DETAIL

▶For Round Ejector Pins, Core Pins

The number of characters	1 character	2 characters	3 characters	4 characters	5 characters
P Range	0.300≦P≦12.100	1.000≦P≦12.100	1.500≦P≦12.100	2.000≦P≦12.100	2.500≦P≦12.100
Detail					

Engraving depth

P	Depth
0.30～0.39	0.02 max
0.40～0.49	0.03±0.01
0.50～	0.05±0.02



Tolerance

Height Q	±0.1
Width Z	＊Reference dimension

⚠ ＊Width depends on the character.

Engraving detail

1 character		
P	Height Q	Width Z
0.30～ 1.49＊1	P×0.5～0.6	≒P×0.6
1.50～ 1.69	0.8	0.5
1.70～ 1.79	0.9	0.5
1.80～ 1.89	0.95	0.6
1.90～ 1.99	1.0	0.6
2.00～ 2.19	1.05	0.6
2.20～ 2.29	1.15	0.65
2.30～ 2.49	1.2	0.7
2.50～ 2.79	1.3	0.75
2.80～ 2.99	1.45	0.85
3.00～ 3.29	1.55	0.9
3.30～ 3.99	1.75	1.0
4.00～ 4.49	2.0	1.15
4.50～ 4.99	2.25	1.3
5.00～ 5.29	2.4	1.4
5.30～ 5.49	2.6	1.5
5.50～ 5.99	2.8	1.6
6.00～ 6.49	3.0	1.8
6.50～ 6.99	3.3	1.9
7.00～ 7.49	3.5	2.0
7.50～ 7.99	3.9	2.2
8.00～ 8.99	4.1	2.4
9.00～ 9.99	4.6	2.6
10.00～11.99	5.0	2.8
12.00～	6.0	3.5

⚠ ＊1 For the detail of P＜1.50, please confirm with the sales staff.

2 characters		
P	Height Q	Width Z
1.00～ 1.49＊2	P×0.5～0.6	≒P×0.6
1.50～ 1.69	0.8	1.05
1.70～ 1.79	0.9	1.17
1.80～ 1.89	0.95	1.24
1.90～ 1.99	1.0	1.3
2.00～ 2.19	1.05	1.4
2.20～ 2.29	1.15	1.5
2.30～ 2.49	1.2	1.6
2.50～ 2.79	1.3	1.7
2.80～ 2.99	1.45	1.85
3.00～ 3.29	1.55	2.05
3.30～ 3.99	1.75	2.25
4.00～ 4.49	2.0	2.6
4.50～ 4.99	2.25	2.95
5.00～ 5.29	2.4	3.2
5.30～ 5.49	2.6	3.4
5.50～ 5.99	2.8	3.6
6.00～ 6.49	3.0	4.0
6.50～ 6.99	3.3	4.3
7.00～ 7.49	3.5	4.6
7.50～ 7.99	3.9	5.1
8.00～ 8.99	4.1	5.4
9.00～ 9.99	4.6	6.1
10.00～11.99	5.0	6.6
12.00～	6.0	7.9

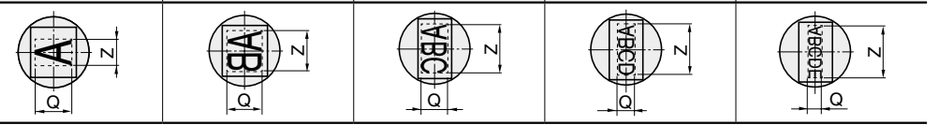
⚠ ＊2 For the detail of P＜1.50, please confirm with the sales staff.

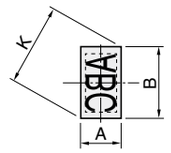
3 characters		
P	Height Q	Width Z
1.50～1.79	0.55	1.25
1.80～1.99	0.65	1.4
2.00～2.19	0.75	1.6
2.20～2.49	0.8	1.75
2.50～2.79	0.9	1.95
2.80～2.99	1.0	2.15
3.00～3.49	1.1	2.4
3.50～3.99	1.25	2.75
4.00～4.49	1.35	2.95
4.50～4.99	1.45	3.2
5.00～5.49	1.75	3.8
5.50～5.99	2.0	4.3
6.00～6.49	2.2	4.8
6.50～6.99	2.5	5.2
7.00～7.99	2.7	5.6
8.00～9.99	3.1	6.6
10.00～	3.5	7.2

4 characters		
P	Height Q	Width Z
2.00～ 2.19	0.59	1.75
2.20～ 2.49	0.63	1.9
2.50～ 2.99	0.74	2.1
3.00～ 3.49	0.82	2.4
3.50～ 3.99	1.0	2.95
4.00～ 4.49	1.1	3.25
4.50～ 4.99	1.25	3.75
5.00～ 5.49	1.35	4.0
5.50～ 5.99	1.45	4.35
6.00～ 6.49	1.6	4.75
6.50～ 6.99	1.75	5.2
7.00～ 7.99	2.0	5.8
8.00～ 8.99	2.2	6.5
9.00～ 9.99	2.5	7.5
10.00～	2.7	8.1

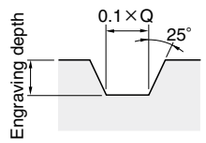
5 characters		
P	Height Q	Width Z
2.50～ 2.79	0.6	2.3
2.80～ 2.99	0.65	2.4
3.00～ 3.49	0.75	2.7
3.50～ 3.99	0.8	3.1
4.00～ 4.49	0.9	3.4
4.50～ 4.99	1.0	3.7
5.00～ 5.49	1.1	4.1
5.50～ 5.99	1.2	4.5
6.00～ 6.49	1.35	5.1
6.50～ 6.69	1.45	5.5
7.00～ 7.99	1.6	6.0
8.00～ 8.99	1.75	6.6
9.00～ 9.99	2.1	7.8
10.00～	2.4	8.9

▶For Rectangular Ejector Pins

The number of characters	1 character	2 characters	3 characters	4 characters	5 characters
B Range	0.80≦B≦11.80	1.00≦B≦11.80	1.50≦B≦11.80	2.00≦B≦11.80	2.50≦B≦11.80
Detail					



⚠ A≦B
⚠ $K=\sqrt{A^2+B^2}$



Engraving depth

A	Depth
0.30～0.39	0.02 max
0.40～0.49	0.03±0.01
0.50～	0.05±0.02

Tolerance

Height Q	±0.1
Width Z	＊Reference dimension

⚠ ＊Width depends on the character.

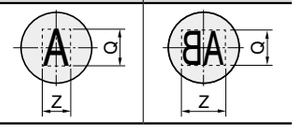
The number of character's limit by B dimension

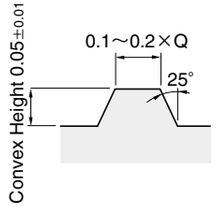
B Range	Height Q	Width Z				
		1 character	2 characters	3 characters	4 characters	5 characters
B＞Width Z＋0.3	0.5	0.35	0.75	1.2	1.6	2
	0.55	0.4	0.9	1.35	1.9	2.2
	0.65	0.45	1.1	1.7	2.3	2.9
B＞Width Z＋0.5	0.8	0.45	1.1	1.8	2.4	3
	1	0.6	1.3	2.2	3	3.8
	1.2	0.7	1.7	2.6	3.5	4.5
	1.4	0.8	2	3	4.1	5.3
	1.6	0.9	2.3	3.5	4.8	6.1
	A×0.8	A×0.45	A×1.1	A×1.8	A×2.4	A×3

Q limit by A dimension

A dimension	Height Q
0.80～	0.65
1.00～	0.8
1.20～	1
1.50～	1.2
1.70～	1.4
2.00～	1.6
2.50～	A×0.8

▶For Convex Ejector Pins, Convex Core Pins

The number of characters	1 character	2 characters
P Range	1.00≦P≦4.00	2.00≦P≦4.00
Detail		



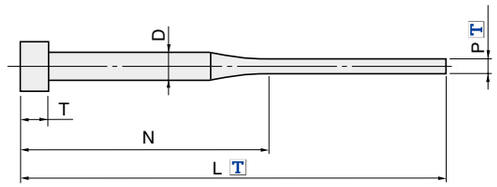
Engraving detail

1 character		
P	Height Q	Width Z
1.00～1.49＊1	0.5～0.6×P	≒0.6×P
1.50～1.69	0.8	0.5
1.70～1.79	0.9	0.5
1.80～1.89	0.95	0.6
1.90～1.99	1.0	0.6
2.00～2.19	1.05	0.6
2.20～2.29	1.15	0.65
2.30～2.49	1.2	0.7
2.50～2.79	1.3	0.75
2.80～2.99	1.45	0.85
3.00～3.29	1.55	0.9
3.30～3.99	1.75	1.0
4	2.0	1.15

⚠ ＊1 For the detail of P＜1.50 please confirm with the sales staff.

2 characters		
P	Height Q	Width Z
2.00～2.19	1.05	1.4
2.20～2.29	1.15	1.5
2.30～2.49	1.2	1.6
2.50～2.79	1.3	1.7
2.80～2.99	1.45	1.85
3.00～3.29	1.55	2.05
3.30～3.99	1.75	2.25
4	2.0	2.6

RoHS10 SHOULDERED EJECTOR PINS — GUIDE



▶Shouldered Ejector Pins

Material	Precision P		Head Thickness T	Type							
				Blank		L designation		P・N designation		L・P designation	
				Code	Delivery/Page	Code	Delivery/Page	Code	Delivery/Page	Code	Delivery/Page
SKH51 59～61HRC	Extra Precision	0 −0.002	4	—		ESHVL	3A P.216	ESHVN	3A P.218	ESHVS	3A P.220
	Precision	0 −0.005	4 6 (8)	ESH	STOCK・3TA P.222	ESHL	3TA P.224	ESHN	3TA P.226	ESHS	3TA P.228
	Standard	−0.01 −0.02	4 6 (8)	ESS	STOCK・3TA P.230	ESSL	3TA P.232	ESSN	3TA P.234	ESSS	3TA P.236
SKH51 + Hard Chrome	Precision	0 −0.005	4 6 8	—		—		—		ESHS−M	8 P.238
	Standard	−0.01 −0.02	4 6 8	—		—		—		ESSS−M	8 P.238
SKH51 59～61HRC	Small Diameter	0 −0.005	4	—		—		—		ESHSYS	3TA P.240
SKH51 + Hard Chrome	Small Diameter	0 −0.005	4	—		—		—		ESHSYS−M	8 P.240
SKD61 +Nitriding		−0.01 −0.02	4	ESD4N	STOCK・3TA P.242	ESD4NL	3TA P.244	ESD4NN	5 P.246	ESD4NS	5 P.248
		−0.01 −0.04	6 8	ESDJN	STOCK・3TA P.242	ESDJNL	3TA P.244	ESDJNN	5 P.246	ESDJNS	5 P.248
SKD61 Hardened 50～55HRC		0 −0.005	4	—		—		ESBHN	3A P.250	ESBHS	3A P.252
		−0.01 −0.02	4	—		—		ESBSN	3A P.250	ESBSS	3A P.252
SKD61 Pre-hardened 40～45HRC		−0.01 −0.02	4	—		—		ESPHN	3TA P.254	ESPHS	3A P.254
		−0.01 −0.04	6 8	—		—		ESPHJN	3TA P.254	ESPHJS	3A P.254
SUS440C 56～60HRC		0 −0.005	4	—		—		ESUN	3TA P.256	ESUS	3A P.256
		0 −0.005	6	—		—		ESUJN	3TA P.256	ESUJS	3A P.256

▶Straight Ejector Pins with gas vent **SKH51**

Shape		Precision P		Head Thickness T	Type			
					L designation		L・P designation	
					Code	Delivery/Page	Code	Delivery/Page
	1 groove +1 cut	Precision	0 −0.005	4 6 8	GB−ESHL	3A P.262	GB−ESHS	3A P.264
		Standard	−0.01 −0.02	4 6 8	GB−ESSL	3A P.262	GB−ESSS	3A P.264
	1 cut	Precision	0 −0.005	4 6 8	GD−ESHL	3A P.266	GD−ESHS	3A P.270
		Standard	−0.01 −0.02	4 6 8	GD−ESSL	3A P.268	GD−ESSS	3A P.270
	4 cuts	Precision	0 −0.005	4 6 8	GF−ESHL	3A P.266	GF−ESHS	3A P.270
		Standard	−0.01 −0.02	4 6 8	GF−ESSL	3A P.268	GF−ESSS	3A P.270

▶Shouldered Ejector Pins with Tip process

Material	Precision P		Head Thickness T	L・P designation	
				Code	Delivery/Page
SKH51 59～61HRC	Precision	0 −0.005	4 6 8	ESHS□□	3A／P.276
	Standard	−0.01 −0.02	4 6 8	ESSS□□	3A／P.276

▶Shouldered Ejector Pins with Engraving

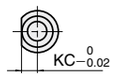
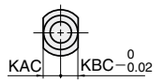
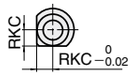
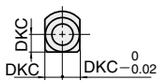
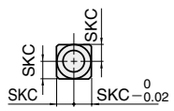
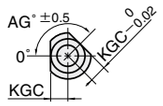
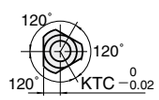
Material	Precision P		Head Thickness T	L・P designation	
				Code	Delivery/Page
SKH51 59～61HRC	Precision	0 −0.005	4 6 8	ESHS□M ESHS□MM	3A／P.282
	Standard	−0.01 −0.02	4 6 8	ESSS□M ESSS□MM	3A／P.282

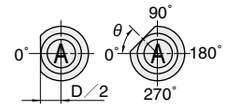
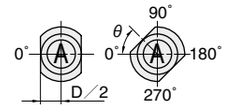
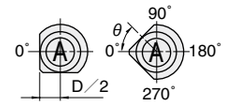
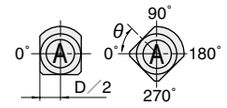
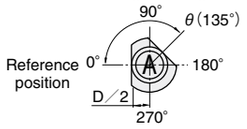
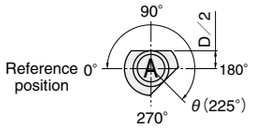
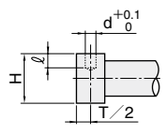
▶Middle Head Shouldered Ejector Pins **SKH51**

Shape		Precision P		L・P designation	
				Code	Delivery/Page
	Normal	Precision	0 −0.005	ESHCTHS	3 P.260
		Standard	−0.01 −0.02	ESHCTSS	3 P.260
	Tip process	Precision	0 −0.005	ESHCTHS□□	5 P.278
		Standard	−0.01 −0.02	ESHCTSS□□	5 P.278

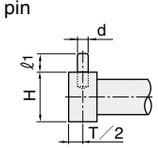
2 Shouldered Ejector Pins	
P.258	
	
ESHWS	3

RoHS10 Guide for Shouldered Ejector Pins

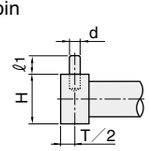
Add.	Code @/P	Spec.
Head cut 	KC 100 Middle head 200	Range of designation D／2≦KC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦KC＜H／2 Unit of designation in 0.1 KC1.4,KC0.75
2 Head cuts (parallel) 	WKC 200 Middle head 400	Range of designation D／2≦WKC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦WKC＜H／2 Unit of designation in 0.1 WKC1.4,WKC0.75
2 Head cuts (parallel) 	KAC KBC 300 Middle head 600	Range of designation D／2≦KAC,KBC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦KAC,KBC＜H／2 Unit of designation in 0.1 ☒ KAC＝KBC is not available.
2 Head cuts (perpendicular) 	RKC 200 Middle head 400	Range of designation D／2≦RKC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦RKC＜H／2 Unit of designation in 0.1 RKC1.4,RKC0.75
3 Head cuts 	DKC 300 Middle head 600	Range of designation D／2≦DKC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦DKC＜H／2 Unit of designation in 0.1 DKC1.4,DKC0.75
4 Head cuts 	SKC 400 Middle head 800	Range of designation D／2≦SKC＜H／2 Unit of designation in 0.1 It can be in 0.05 for D/2. Middle head Range of designation D／2+0.1≦SKC＜H／2 Unit of designation in 0.1 SKC1.4,SKC0.75
2 Head cuts (angle designation) 	KGC 300 Middle head 600	Range of designation D／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC: in 0.1 It can be in 0.05 for D/2. AG: in 1 Middle head Range of designation D／2+0.1≦KGC＜H／2 0＜AG＜360 Unit of designation KGC: in 0.1 AG: in 1 KGC1.4−AG135
3 Head cuts (angle 120° each) 	KTC 400 Middle head 800	Range of designation D／2≦KTC＜H／2 Unit of designation in 0.1→It can be in 0.05 in case of D/2. Middle head Range of designation D／2+0.1≦KTC＜H／2 Unit of designation in 0.1 KTC1.4,KTC0.75

Add.	Code @/P	Spec.
Head cut (angle designation) 	AKC 200 Middle head 400	Range of designation 0＜AKC＜360 Unit of designation in 1 ⚠ Combined with GCB・GCD → in 90 AKC40
2 Head cuts (position designation) 	AWC 300 Middle head 600	Range of designation 0≦AWC＜360 Unit of designation in 1 ⚠ Combined with GCB・GCD → in 90 AWC40
2 Head cuts (position designation) 	ARC 300 Middle head 600	Range of designation 0≦ARC＜360 Unit of designation in 1 ⚠ Combined with GCB・GCD → in 90 ARC40
3 Head cuts (position designation) 	ATC 400 Middle head 800	Range of designation 0≦ATC＜360 Unit of designation in 1 ⚠ Combined with GCB・GCD → in 90 ATC40
2 Head cuts (angle designation) 	AAC 300 Middle head 600	Range of designation 0＜AAC＜360 Unit of designation in 1 AAC135
2 Head cuts (angle designation) 	ABC 300 Middle head 600	Range of designation 0≦ABC＜360 Unit of designation in 1 ☒ Angle 90° is not available.
No head cut 	NKC Free	⚠ The tip process RH・RK・CA・CB・WA・TC are available. ⚠ Combined with HC・HCC・TC・NHC・NHN is available. NKC
Dowel hole 	NN 200	☒ H＜4 is not available. ☒ Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NN

T	d	ℓ
4	2	3
6	3	5
8		

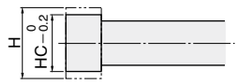
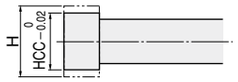
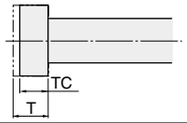
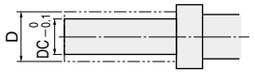
Add.	Code @/P	Spec.
Spring pin 	NC 200	☒ H＜4 is not available. ☒ Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NC

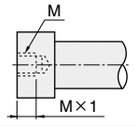
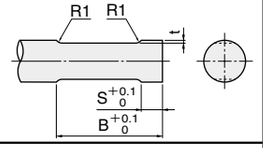
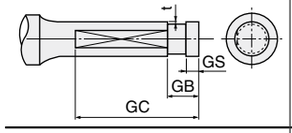
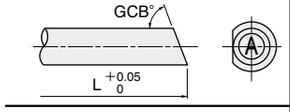
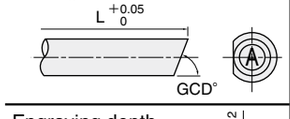
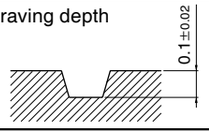
T	d	ℓ1
4	2	5
6	3	
8		

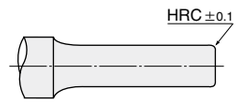
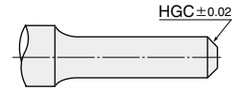
Add.	Code @/P	Spec.
Dowel pin 	NS 200	☒ H＜4 is not available. ☒ Combined with NHC・NHN・LKC・TMC・PKCP・PKCZ GVC・GVD is available. NS

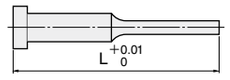
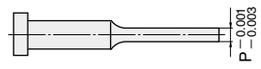
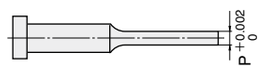
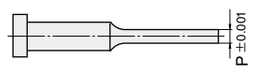
T	d	ℓ1
4	2	5
6	3	
8		

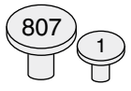
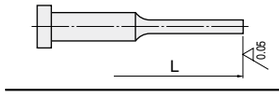
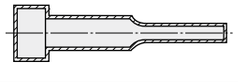
RoHS10 Guide for Shouldered Ejector Pins

Add.	Code @/P	Spec.
H dimension alteration 	**HC** **200**	Range of designation **D＜2:H−1≦HC＜H** **D≧2:D+1≦HC＜H** Unit of designation (in) 0.1 ☒ D≦0.6 is not available. **HC5.5**
H dimension alteration (precision) 	**HCC** **400**	Range of designation **D+1≦HCC＜H−0.3** Unit of designation (in) 0.1 ☒ D≦0.6 is not available. **HC5.5**
T dimension alteration 	**TC** **200** **Middle head 500**	Range of designation **2≦TC＜T** **T−TC≦Lmax−L** Unit of designation (in) 0.1 ☒ D≦0.6 is not available. ⚠ TC affects overall length except for L designation type. (Overall length will be (T−TC) smaller.) **HC5.5**
D dimension alteration 	**DC** **200**	Range of designation **D−2≦DC＜D** **1.5≦DC** Unit of designation (in) 0.1 ☒ Only HC and TC can use with DC. ⚠ You can use this alteration for S-side diameter only. **DC2.5**

Add.	Code @/P	Spec.
Tap hole M 	**MC** **300**	⚠ P≧8 and T=8 ☒ Combined with NN,NC,HC,HCC,NHC,NHN is not available except for nitriding items. ☒ Express is not available. **MC** D: 8 9 / 10 / 12 15 / 16 20 → M: 4 / 5 / 6 / 8
Gas vent 	**GVC** **800**	Range of designation **2≦S≦10** **S+5≦B≦30** Unit of designation (in) 1 ☒ P＜3 is not available. P: 3.00～4.99 → t: 0.3 / 5.00～9.99 → 0.4 / 10.00～11.90 → 0.5 **GVC −S3−B15**
Gas vent 	**GVD** **1,000**	Range of designation **1≦GS≦10** **GS+2≦GB≦30** **GB＜GC≦L−T** Unit of designation (in) 0.1 ☒ P＜3 is not available. P: 3.00～4.99 → t: 0.3 / 5.00～9.99 → 0.4 / 10.00～11.90 → 0.5 **GVD −GS3 −GB5 −GC30**
Tip angle 	**GCB** **1,000**	Range of designation **60≦GCB＜90** Unit of designation (in) 1 ☒ P＜2 and L＞200 and D＜3 ☒ Combined with GCD・EC is not available. ☒ Express is not available. **GCB75**
Tip angle 	**GCD** **1,000**	Range of designation **60≦GCD＜90** Unit of designation (in) 1 ☒ P＜2 and L＞200 and D＜3 ☒ Combined with GCB・EC is not available. ☒ Express is not available. **GCD65**
Engraving depth 	**EC** **300**	0.05→0.1 ☒ Combined with GCB,GCD is not available. ☒ Express is not available. ☒ P＜1 is not available. **EC**

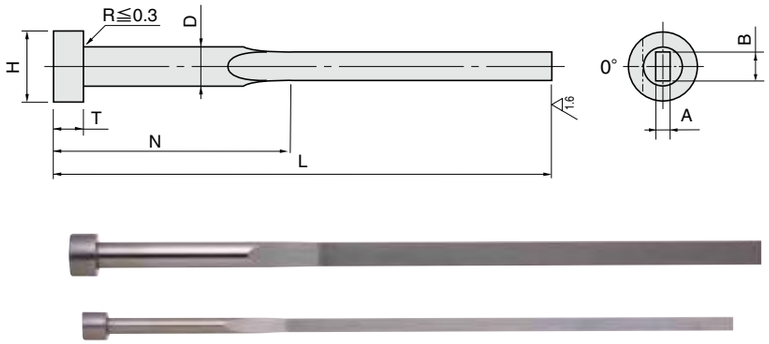
Add.	Code @/P	Spec.
Tip R 	**HRC** **200**	Range of designation **0.2≦HRC＜P／2** Unit of designation (in) 0.1 ☒ P＜0.8 is not available. ☒ Blank type is not available. ☒ Combined with HGC is not available. ⚠ Nitriding process cannot be remained on the tip. **HRC0.3**
Tip C 	**HGC** **200**	Range of designation **0.1≦HGC＜P／2** Unit of designation (in) 0.1 ☒ P＜0.5 is not available. ☒ Blank type is not available. ☒ Combined with HRC is not available. ⚠ Nitriding process cannot be remained on the tip. **HGC0.2**

Add.	Code @/P	Spec.
L tolerance 	**LKC** **200**	L +0.02 0 → L +0.01 0 ☒ L＞200 is not available. ☒ Express is not available. **LKC**
P tolerance 	**PKC** **Free**	P 0 −0.002 → P −0.001 −0.003 ☒ Combined with MC is not available. ☒ Express is not available. **PKC**
P tolerance 	**PKCP** **Free**	P 0 −0.002 → P +0.002 0 ☒ Combined with MC is not available. ☒ Express is not available. **PKCP**
P tolerance 	**PKCZ** **Free**	P 0 −0.002 → P ±0.001 ☒ Combined with MC is not available. ☒ Express is not available.

Add.	Code @/P	Spec.
Identifying mark 	**NHC** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ H＜2 is not available. ☒ Combined with SKC・MC is not available. ☒ Express is not available. **NHC−8**
Identifying mark (sequence) 	**NHN** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ H＜2 is not available. ☒ Combined with SKC・MC is not available. ☒ Express is not available. 〈Sample〉NHN−5 3pcs→"5","6","7" 1pc each
Tip surface roughness 	**TMC** **1,000**	P≦6：1.6Ra→0.05Ra P＞6：1.6Ra→0.1Ra ☒ P＜0.6 is not available. ☒ Express is not available. **TMC**
Hard chrome plating 	**CM** **600**	⚠ Thickness 2～3 μm ☒ Express is not available (8 working days). **CM**

RECTANGULAR EJECTOR PINS—GUIDE

Precision and Shape	Perpendicularity	Corner area
	⊥0.005 Z ※0.02 in case of Nitriding Z ⫽0.005 Z ※0.02 in case of Nitriding	Edge We leave a slight grinding burr on the edge. Please remove the burr if you need.



▶Rectangular Ejector Pins

Type	Material	Precision of A・B		Head Thickness	Type: Blank Code	Blank Delivery	Blank Page	L designation Code	L Delivery	L Page	A,B,L,N designation Code	A,B,L,N Delivery	A,B,L,N Page
Normal	SKH51	Extra Precision	0 −0.003	4 6	—			—			ERHVS	3 A	P.292
		Precision	0 −0.005	4 6 8	ERH	STOCK 3 A	P.294	ERHL	3 A	P.298	ERHS	3 A	P.300
		Standard	0 −0.01	4 6 8	ERS	STOCK 3 A	P.302	ERSL	3 A	P.306	ERSS	3 A	P.308
	SUS 440C	Precision	0 −0.005	4	—			—			ERSUHS	3 A	P.350
				6							ERSUHJS		
		Standard	0 −0.01	4							ERSUSS		
				6							ERSUSJS		
Large pin	SKH51	Standard	0 −0.02	8	ERXJB	5 B	P.354	ERXJL	5 B	P.354	ERXJ	5	P.356
	SKD Nitriding		0 −0.02	8	ERXNB	8	P.358	ERXNL	8	P.358	ERXN	8	P.360

▶Rectangular Ejector Pins with edge R or C

Edge R 

Edge C 

Shape	Type	Material	Precision of A・B		Head Thickness	Code: 1 edge	2 edges	3 edges	4 edges	Delivery	Page
Edge R	L designation	SKH51	Precision	0 −0.005	4 6 8	—	ERHLWR	—	ERHLFR	5	P.314
			Standard	0 −0.01	4 6 8		ERSLWR		ERSLFR	5	P.316
	A,B,L,N designation		Precision	0 −0.005	4 6 8	ERHNR ERHANR	ERHWR ERH□WR	ERHTR ERHATR	ERHFR	5	P.318
			Standard	0 −0.01	4 6 8	ERSNR ERSANR	ERSWR ERS□WR	ERSTR ERSATR	ERSFR	5	P.320
Edge R (Large pins)	A,B,L,N designation	SKH51	Standard	0 −0.02	8	ERXJNR	ERXJWR	ERXJTR	ERXJFR	8	P.362
		SKD Nitriding	Standard	0 −0.02	8	—	ERXNWR	—	ERXNFR	8	P.364
Edge C	A,B,L,N designation	SKH51	Precision	0 −0.005	4 6 8	ERHS1□C	ERHS2□C	—	ERHS4AC	5 B	P.322
			Standard	0 −0.01	4 6 8	ERSS1□C	ERSS2□C		ERSS4AC	5 B	P.324

▶Rectangular Ejector Pins with gas vent

Material		Precision	Head Thickness	Code	Delivery	Page
SKH51		Precision 0 −0.005	4 6 8	GA−ERHS	5	P.310
		Standard 0 −0.01	4 6 8	GA−ERSS	5	P.312

▶Rectangular Ejector Pins with Tip process

HA	HB	HC	HD	HE	HF	HR
VA	VB	VC	VD	VE	VF	VR

Material:SKH51

Shape	Precision		Head Thickness	Code	Delivery	Page
Tip process	Precision	0 −0.005	4 6 8	ERH□□	3 A	P.326
	Standard	0 −0.01	4 6 8	ERS□□	3 A	P.328
Tip process with edge R	Precision	0 −0.005	4 6 8	ERHWR□□ ERHFR□□	5	P.330
	Standard	0 −0.01	4 6 8	ERSWR□□ ERSFR□□	5	P.332

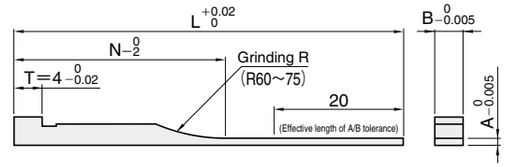
▶Rectangular Ejector Pins with Engraving

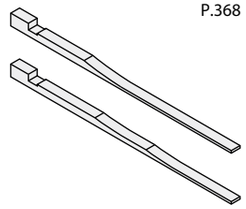
Material:SKH51

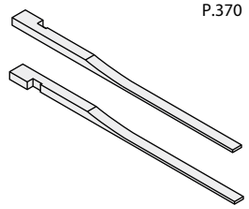
Shape	Precision		Head Thickness	Code	Delivery	Page
Engraving	Precision	0 −0.005	4 6 8	ERH□M ERH□MM	5 B	P.342
	Standard	0 −0.01	4 6 8	ERS□M ERS□MM	5 B	P.344
Engraving with edge R	Precision	0 −0.005	4 6 8	ERHWR□M ERHWR□MM ERHFR□M ERHFR□MM	5	P.346
	Standard	0 −0.01	4 6 8	ERSWR□M ERSWR□MM ERSFR□M ERSFR□MM	5	P.348

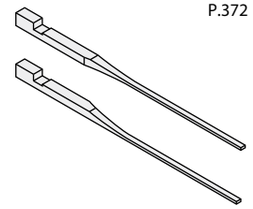
▶ Rectangular Ejector Pins Blade Type

Material:SKH51
Delivery:5days



ERBHAS P.368
ERBHAT


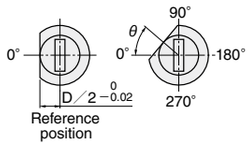
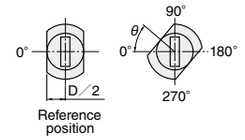
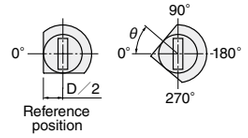
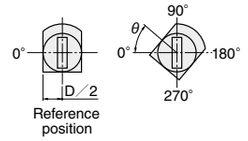
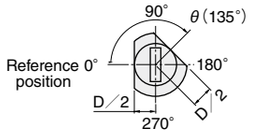
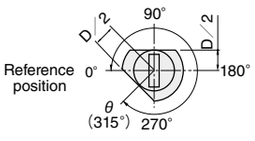
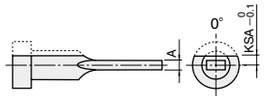
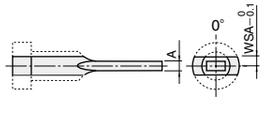
ERBHBR P.370
ERBHBL


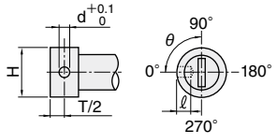
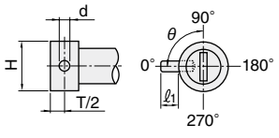
ERBHCR P.372
ERBHCL


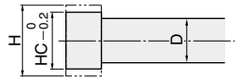
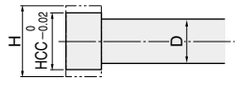
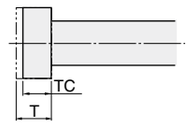
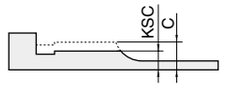
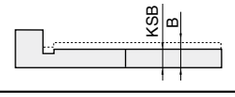
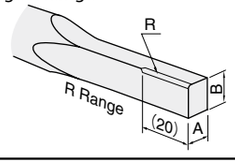
Name	SKH Rectangular Ejector Pins Middle Head Type		SKH Ejector Pins D Shape	
Appearance	P. 352 		P. 366 	
Code	ERCHS ERCSS	3	EDPS EDSS	3

RECTANGULAR EJECTOR PINS

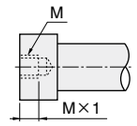
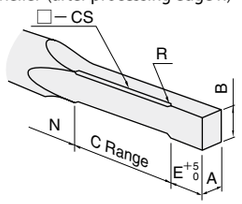
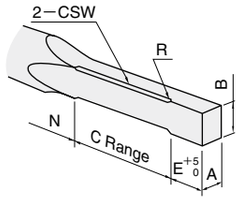
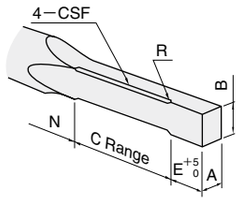
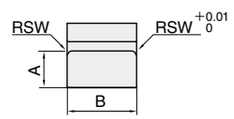
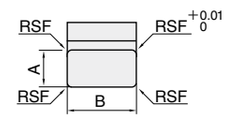
Guide for Rectangular Ejector Pins

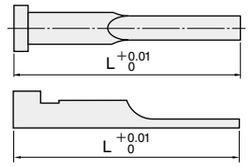
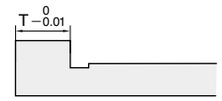
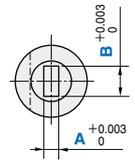
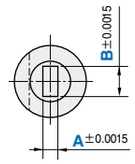
Add.	Code @/P	Spec.
Head cut (angle designation) 	**HKC** **200** **Middle head 400**	Range of designation **0≦HKC＜360** Unit of designation 1 Combined with KSA・WSA→ 90. ⚠ Middle head D／2→D／2＋0.1 **HKC40**
2 Head cuts (angle designation) 	**HWC** **300** **Middle head 600**	Range of designation **0≦HWC＜360** Unit of designation 1 Combined with KSA・WSA→ 90. ⚠ Middle head D／2→D／2＋0.1 **HWC40**
2 Head cuts (angle designation) 	**HRC** **300** **Middle head 600**	Range of designation **0≦HRC＜360** Unit of designation 1 Combined with KSA・WSA→ 90. ⚠ Middle head D／2→D／2＋0.1 **HRC40**
3 Head cuts (angle designation) 	**HTC** **400** **Middle head 800**	Range of designation **0≦HTC＜360** Unit of designation 1 Combined with KSA・WSA→ 90. ⚠ Middle head D／2→D／2＋0.1 **HTC40**
2 Head cuts (angle designation) 	**HAC** **300** **Middle head 600**	Range of designation **0＜HAC＜360** Unit of designation 1 ⚠ Middle head D／2→D／2＋0.1 **HAC135**
2 Head cuts (angle designation) 	**HBC** **300** **Middle head 600**	Range of designation **0≦HBC＜360** Unit of designation 1 ⚠ Middle head D／2→D／2＋0.1 ☒ Angle 90° is not available. **HBC315**
Shank cut 	**KSA** **600**	Range of designation **A／2＋0.1≦KSA≦D／2−0.1** **0.1≦KSA≦D／2−0.1** (D-Shape Ejector Pins) Unit of designation 1 ☒ D＜1.5 is not available. ☒ Express is not available. **KSA3.5**
2 Shank cuts 	**WSA** **1,200**	Range of designation **A／2＋0.1≦WSA≦D／2−0.1** **0.1≦WSA≦D／2−0.1** (D-Shape Ejector Pins) Unit of designation 0.1 ☒ D＜1.5 is not available. ☒ Express is not available. **WSA2.0**

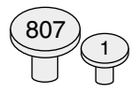
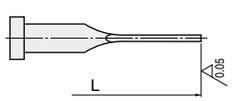
Add.	Code @/P	Spec.
Dowel hole 	**NN** **200**	Range of designation **0≦NN＜360** Unit of designation 90° ☒ H＜4 is not available. ☒ Combined with NHC・NHN are not available only. ☒ A＜0.5 and B＜1 are not available. **NN0** T: 4, 6, 8 / d: 2, 3 / ℓ: 3, 5
Spring pin 	**NC** **200**	Range of designation **0≦NC＜360** Unit of designation 90° ☒ H＜4 is not available. ☒ Combined with NHC・NHN are not available only. ☒ A＜0.5 and B＜1 are not available. **NC90** T: 4, 6, 8 / d: 2, 3 / ℓ: 5

Add.	Code @/P	Spec.
H dimension alteration 	**HC** **200**	Range of designation **D＋1≦HC＜H** ⚠ D1～1.5：**2≦HC＜H** **H−1≦HC＜H** (EROY) **C＋0.5≦HC＜H** (Blade Type) Unit of designation 0.1 **HC5.5**
H dimension alteration (precision) 	**HCC** **400**	Range of designation **D＋1≦HCC＜H−0.3** Unit of designation 0.1 ☒ D＜1.5 is not available. **HCC5.5**
T dimension alteration 	**TC** **200** **Middle head 500**	Range of designation **2≦TC＜T** **4.0≦TC＜8** (ERXJ・ERXJWR・ERXJFR) **T−TC≦Lmax−L** Unit of designation 0.1 ⚠ L is shortened according to (T−TC). When LC is applied, L is equal to LC. **TC3.5**
Shank alteration 	**KSC** **250**	Range of designation **1≦KSC＜C** Unit of designation 0.01 ⚠ AS・CR・CL type：**A≦KSC** ⚠ AT type：**D＜KSC** **KSC1.25**
Shank alteration 	**KSB** **250**	Range of designation **1≦KSB＜B** Unit of designation 0.01 **KSB1.25**
Edge R Range 	**RC** **on the right table**	Range of designation **5≦RC≦(L−N)−30** **RC≦60** Unit of designation 1 **RC30** The number of edges / @／P: 1 → 300; 2 → 600; 3 → 900; 4 → 1,200

Guide for Rectangular Ejector Pins

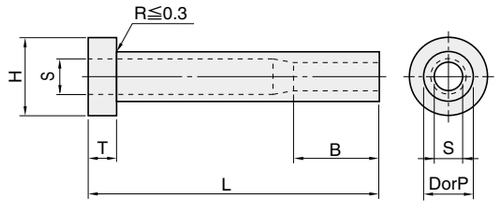
Add.	Code @/P	Spec.
Tap hole 	**MC** **300**	⚠ D≧8 and T=8 ☒ Combined with HKC,HWC,HRC,HTC,HAC,HBC,KSA, WSA,NN,NC,TC,HC,HCC,NHC,NHN is not available. ☒ Express is not available. **MC** D / M: 8～9 / 4; 10～11.5 / 5; 12～15 / 6; 16 20 / 8
C Relief (after processing edge R) 	**CS** **1 edge 200** **2 edges 400** **3 edges 600**	Range of designation **0.2≦CS＜1.5, 5≦E≦(L−N)−20** Unit of designation CS:in 0.1, E:in 1 ⚠ B≧1.5 and A≧0.8 are available. ☒ For edge R, R＞1.5 is not available. ⚠ R≦CS ⚠ Combined with RC (In case of E≧20),E=RC. **CS0.5−E3**
C Relief (2 egdes) 	**CSW** **400** **Blade type 250**	Range of designation **0.2≦CSW＜1.5, 5≦E≦(L−N)−20** **CSW≦0.5, 3≦E≦(L−N)−20**(Blade type) Unit of designation CSW:in 0.1, E:in 1 ⚠ A≦B→CSW≦A／2−0.05, A＞B→CSW≧B／2−0.05(Blade type) ⚠ B≧1.5 and A≧0.8 are availabele.(except for Blade type) ☒ For edge R, R＞1.5 is not available. ⚠ R≦CSW ⚠ For tip process, HA:E＞Btank and E≧5　HB:E＞(B−V)tank and E≧5 VA:Atank and E≧5　VB:(A−V)tank and E≧5 **CSW0.5−E3**
C Relief (4 egdes) 	**CSF** **800** **Blade type 500**	Range of designation **0.2≦CSF＜1.5, 5≦E≦(L−N)−20** **CSF≦0.5, 3≦E≦(L−N)−20**(Blade type) Unit of designation CSF:in 0.1, E:in 1 ⚠ A≦B→CSF≦A／2−0.05, A＞B→CSF≧B／2−0.05(Blade type) ⚠ B≧1.5 and A≧0.8 are available.(except for Blade type) ☒ For edge R, R＞1.5 is not available. ⚠ R≦CSF ⚠ For tip process, HA:E＞Btank and E≧5　HB:E＞(B−V)tank and E≧5 VA:Atank and E≧5　VB:(A−V)tank and E≧5 **CSF0.5−E3**
Corner R 	**RSW** **600**	Range of designation **0.1≦RSW≦0.3** **A≦B→RSW≦A／2−0.05** **A＞B→RSW≧B／2−0.05** Unit of designation in 0.05 ⚠ Effective length is 20mm from the tip. **RSW0.2**
Corner R 	**RSF** **1,200**	Range of designation **0.1≦RSF≦0.3** **A≦B→RSF≦A／2−0.05** **A＞B→RSF≧B／2−0.05** Unit of designation in 0.05 ⚠ Effective length is 20mm from the tip. **RSF0.15**

Add.	Code @/P	Spec.
L dimension tolerance alteration 	**LKC** **200**	$L^{+0.02}_{0}$ →$L^{+0.01}_{0}$ ⚠ L≦200 **LKC**
T dimension tolerance alteration 	**TKC** **200**	$T^{0}_{-0.02}$ →$T^{0}_{-0.01}$ **TKC**
A･Bdimension tolerance alteration 	**PKCP** **Free**	$A･B^{0}_{-0.003}$ →$A･B^{+0.003}_{0}$ ☒ Express is not available. **PKCP**
A･Bdimension tolerance alteration 	**PKCZ** **Free**	$A･B^{0}_{-0.003}$ →$A･B^{\pm0.0015}$ ☒ Express is not available. **PKCZ**

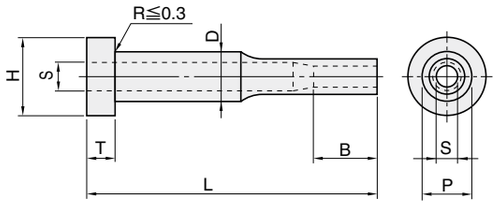
Add.	Code @/P	Spec.
Identifying mark 	**NHC** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ Combined with MC is not available. ☒ Express is not available.　**NHC-8,NHC-87,NHC-A12**
Identifying mark (sequence) 	**NHN** **1,2characters 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ Combined with MC is not available. ☒ Express is not available.　〈Sample〉NHN−5 3pcs→"5","6","7" 1pc each
Tip surface roughness 	**TMC** **1,000**	D≦6：1.6Ra→0.05Ra D＞6：1.6Ra→0.1Ra ☒ B＜0.6 is not available. ☒ Express is not available. **TMC**

EJECTOR SLEEVES — GUIDE

▶Straight Ejector Sleeves



▶Shouldered Ejector Sleeves



▶**SKH51** 59~61HRC

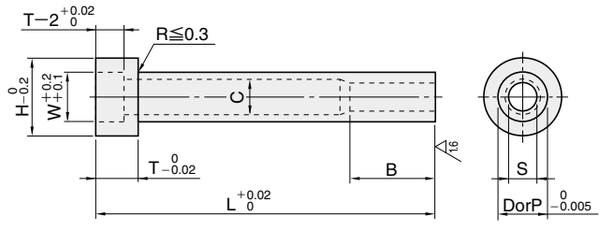
	Type	Head Thickness	◎ Concentricity	Tolerance: Outer diameter	Tolerance: Hole diameter	D fixed: Code: Normal	D fixed: Code: Small head type	D fixed: Delivery	D fixed: Page	D designaion: Code: Normal	D designaion: Code: Small head type	D designaion: Delivery	D designaion: Page
Straight	Thin-wall	4	φ0.003	0 −0.005	+0.005 0	—	—	–	–	ELPHV	—	3	P.386
	Small diameter	4	φ0.005	0 −0.005	+0.005 0	—	—	–	–	ELPSY	—	3	P.387
	Tapered relief	4	φ0.003	0 −0.005	+0.005 0	—	—	–	–	ELPHVX	—	3	P.388
		4	φ0.005			—	—	–	–	ELPHX	—	3	P.388
	Normal	4	φ0.005	0 −0.005	+0.005 0	ELPHE	ELPHE−S	3	P.390	ELPH	ELPH−S	3	P.392
		6 8				ELPHJE	ELPHJE−S	3	P.390	ELPHJ	ELPHJ−S	3	P.392
		4			+0.01 0	ELPSE	ELPSE−S	3	P.390	ELPS	ELPS−S	3	P.392
		6 8				ELPSJE	ELPSJE−S	3	P.390	ELPSJ	ELPSJ−S	3	P.392
		4	φ0.01	−0.01 −0.02	+0.01 0	ELPME	ELPME−S	3	P.394	ELPM	ELPM−S	3	P.394
		6 8				ELPMJE	ELPMJE−S	3	P.394	ELPMJ	ELPMJ−S	3	P.394
	Long effective length	4	φ0.01	0 −0.005	+0.01 0	ELPSLE	ELPSLE−S	3	P.396	ELPSL	ELPSL−S	3	P.396
		6 8				ELPSJLE	ELPSJLE−S	3	P.396	ELPSJL	ELPSJL−S	3	P.396
		4		−0.01 −0.02		ELPMLE	ELPMLE−S	3	P.398	ELPML	ELPML−S	3	P.398
		6 8				ELPMJLE	ELPMJLE−S	3	P.398	ELPMJL	ELPMJL−S	3	P.398
	Short	4	φ0.01	0 −0.005	+0.005 0	ELPHB	—	3	P.410	—	—	–	–
		4			+0.01	ELPSB	—	3	P.410	—	—	–	–
		4		−0.01 −0.02		0	—	3	P.410	—	—	–	–
Shouldered	Thin-wall	4	φ0.003	0 −0.005	+0.005 0	ELVH	—	3	P.380	—	—	–	–
		4	φ0.005			—	—	–	–	ELVHF	—	3	P.382
	Small diameter	4	φ0.01	0 −0.005	+0.01 0	ELVHL	—	3	P.380	ELVHLF	—	3	P.382
	Tapered relief	4	φ0.005	0 −0.005	+0.005 0	ELVHX	—	3	P.384	—	—	–	–
	Normal	4	φ0.005	0 −0.005	+0.005 0	ELSHE	ELSHE−S	3	P.400	ELSH	ELSH−S	3	P.402
		6 8				ELSHJE	ELSHJE−S	3	P.400	ELSHJ	ELSHJ−S	3	P.402
		4	φ0.01		+0.01 0	ELSSE	ELSSE−S	3	P.400	ELSS	ELSS−S	3	P.402
		6 8				ELSSJE	ELSSJE−S	3	P.400	ELSSJ	ELSSJ−S	3	P.402
		4		−0.01 −0.02		ELSME	ELSME−S	3	P.404	ELSM	ELSM−S	3	P.404
		6 8				ELSMJE	ELSMJE−S	3	P.404	ELSMJ	ELSMJ−S	3	P.404
	Long effective length	4	φ0.01	0 −0.005	+0.01 0	ELSSLE	ELSSLE−S	3	P.406	ELSSL	ELSSL−S	3	P.406
		6 8				ELSSJLE	ELSSJLE−S	3	P.406	ELSSJL	ELSSJL−S	3	P.406
		4		−0.01 −0.02	+0.01 0	ELSMLE	ELSMLE−S	3	P.408	ELSML	ELSML−S	3	P.408
		6 8				ELSMJLE	ELSMJLE−S	3	P.408	ELSMJL	ELSMJL−S	3	P.408

▶**SKD61** Nitriding＊

Type		Head Thickness	◎ Concentricity	Tolerance: Outer diameter	Tolerance: Hole diameter	Code: Normal	Code: Small head type	Delivery	Page
Straight	Blank	4	φ0.03	−0.01 −0.02	H7	ELNPV	ELNPV−S	5	P.412
		4	φ0.06	−0.01 ＊ −0.02		ELNP	ELNP−S	1,3A	P.416
		6 8				ELJNP	ELJNP−S	3A	P.422
	L designation	4	φ0.03	−0.01 −0.02	H7	ELNPLV	ELNPLV−S	5	P.414
		4	φ0.06	−0.01 ＊ −0.02		ELNPL	ELNPL−S	3A	P.416
		6 8				ELJNPL	ELJNPL−S	3A	P.424
	D fixed	4	φ0.03	−0.01 −0.02	H7	ELNPSVE	ELNPSVE−S	5	P.418
		4	φ0.06	−0.01 ＊ −0.02		ELNPSE	ELNPSE−S	3,5B	P.420
		6 8	φ0.03	−0.01 −0.02		ELJNPSVE	ELJNPSVE−S	5	P.426
		6 8	φ0.06	−0.01 ＊ −0.02		ELJNPSE	ELJNPSE−S	3,5B	P.428
	D designation	4	φ0.03	−0.01 −0.02	H7	ELNPSV	ELNPSV−S	5	P.418
		4	φ0.06	−0.01 ＊ −0.02		ELNPS	ELNPS−S	5B	P.420
		6 8	φ0.03	−0.01 −0.02		ELJNPSV	ELJNPSV−S	5	P.426
		6 8	φ0.06	−0.01 ＊ −0.02		ELJNPS	ELJNPS−S	5B	P.428
Straight Short	Hole diameter fixed	4	φ0.06	−0.01 −0.02	0.01 0	EPNBS	—	3A	P.446
	Hole diameter designation	4	φ0.06	−0.01 −0.02	0.01 0	EPNBSS	—	3A	P.446
Shouldered	Blank	4	φ0.06	−0.01 −0.02	H7	ELNSB	—	5B	P.430
		6 8				ELJNSB	ELJNSB−S	5B	P.430
	L designation	4	φ0.06	−0.01 −0.02	H7	ELNSL	—	5B	P.432
		6 8				ELJNSL	ELJNSL−S	5B	P.432
	D fixed	4	φ0.03	−0.01 −0.02	H7	ELNSSV	ELNSSV−S	5	P.434
		4	φ0.06	−0.01 −0.02	H7	ELNSS	ELNSS−S	5B	P.436
		6 8	φ0.03	−0.01 −0.02	H7	ELJNSSV	ELJNSSV−S	5	P.438
		6 8	φ0.06	−0.01 ＊ −0.02	H7	ELJNSS	ELJNSS−S	5B	P.440

⚠ ＊ It can be changed to $^{-0.01}_{-0.03}$ according to the size.

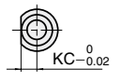
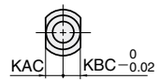
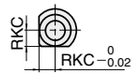
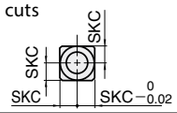
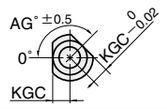
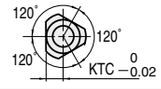
▶Straight Core Sleeves

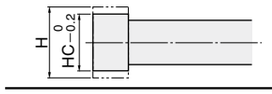
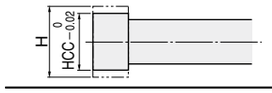
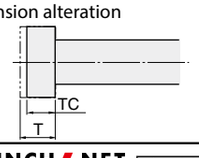


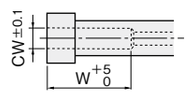
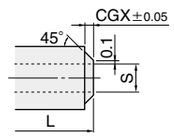
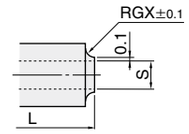
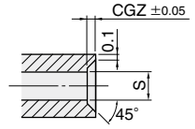
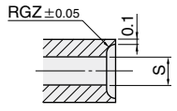
Type	Material	Head Thickness	◎ Concentricity	Tolerance: Outer diameter	Tolerance: Hole diameter	Code: D fixed	Code: P designation	Delivery	Page
Precision	SKH51	4	φ0.005	0 −0.005	+0.005 0	CSFHB	CSFHP	5	P.442
	SKH51	6				CSSHB	CSSHP	5	P.442
	NAK80	4				CSFNB	CSFNP	5	P.442
	NAK80	6				CSSNB	CSSNP	5	P.442
Standard	SKH51	4	φ0.005	0 −0.005	+0.01 0	CSFEB	CSFEP	5	P.443
	SKH51	6				CSSEB	CSSEP	5	P.443
	NAK80	4				CSFKB	CSFKP	5	P.443
	NAK80	6				CSSKB	CSSKP	5	P.443
Precision (Effective length fixed)	SKH51	4	φ0.005	0 −0.005	+0.005 0	CSFHBL	CSFHPL	5	P.444
	SKH51	6				CSSHBL	CSSHPL	5	P.444
	NAK80	4				CSFNBL	CSFNPL	5	P.444
	NAK80	6				CSSNBL	CSSNPL	5	P.444
Standard (Effective length fixed)	SKH51	4	φ0.01	0 −0.005	0.01 0	CSFEBL	CSFEPL	5	P.445
	SKH51	6				CSSEBL	CSSEPL	5	P.445
	NAK80	4				CSFKBL	CSFKPL	5	P.445
	NAK80	6				CSSKBL	CSSKPL	5	P.445

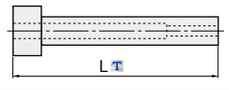
EJECTOR SLEEVES

Guide for Ejector Sleeves

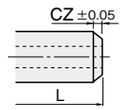
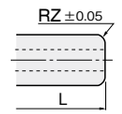
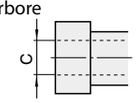
Add.	Code @/P	Spec.
Head cut 	KC 100	Range of designation D(P)／2≦KC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. KC1.4,KC5.25,KC3.125
2 Head cuts (parallel) 	WKC 200	Range of designation D(P)／2≦WKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. WKC1.4,WKC5.25,WKC3.125
2 Head cuts (parallel) 	KAC KBC 300	Range of designation D(P)／2≦KAC,KBC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. ☒ KAC=KBC is not available. KAC5.2−KBC5.5,KAC5.2−KBC5.15,KAC5.2−KBC3.125
2 Head cuts (perpendicular) 	RKC 200	D(P)／2≦RKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. RKC4.2,RKC5.25,RKC3.125
3 Head cuts 	DKC 300	Range of designation D(P)／2≦DKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. DKC4.2,DKC5.25,DKC3.125
4 Head cuts 	SKC 400	Range of designation D(P)／2≦SKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 only. SKC4.2,SKC5.25,SKC3.125
2 Head cuts (angle designation) 	KGC 300	Range of designation D(P)／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC: (in) 0.1 It can be (in) 0.05 for D(P)／2. AG: (in) 1 KGC4.2−AG135,KGC5.25−AG135,KGC3.125−AG135
3 Head cuts (angle 120° each) 	KTC 400	Range of designation D(P)／2≦KTC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2 . KTC4.2,KTC5.25,KTC3.125

Add.	Code @/P	Spec.
H dimension alteration 	HC 200	Range of designation D(P)≦HC＜H Unit of designation (in) 0.1 HC5.5
H dimension alteration (precision) 	HCC 400	Range of designation D(P)＋1≦HCC＜H−0.3 Unit of designation (in) 0.1 HCC5.5
T dimension alteration 	TC 200	Range of designation SKH51(T=4)→2≦TC＜8 SKH51(T=6･8)→2≦TC＜T SKD61(T=4)→2≦TC＜T SKD61(T=6･8)→T／2≦TC＜T Unit of designation (in) 0.1 TC3.5

Add.	Code @/P	Spec.
Relief hole 	CW 1,000	Range of designation D(P)≦12→C＋0.5≦CW≦D(P)−1.5 D(P)＞12→C＋0.5≦CW≦D(P)−2.0 10≦W≦L−B−10 , W≦200 ⚠ For Shouldered: 10≦W≦L−B−10, W≦200 10≦W≦N−20 Unit of designation CW: (in) 0.1 W: (in) 5 CW3.5−W25
Tip C 	CGX 1,500	Range of designation 0.2≦CGX≦1.5 CGX≦(D(P)−S)／2−0.1 Unit of designation (in) 0.1 ☒ L＞300 is not available. ☒ Combined with RGX･CGZ･RGZ is not available. ☒ Express is not available. CGX0.3
Tip R 	RGX 2,000	Range of designation 0.3≦RGX≦1.5 RGX≦(D(P)−S)／2−0.1 Unit of designation (in) 0.1 ☒ L＞300 is not available. ☒ Combined with CGX･CGZ･RGZ is not available. ☒ Express is not available. RGX0.4
Tip C (inner side) 	CGZ 2,500	Range of designation 0.2≦CGZ≦1.0 CGZ≦(D(P)−S)／2−0.1 Unit of designation (in) 0.1 ☒ L＞300 is not available. ☒ Combined with CGX･RGX･RGZ is not available. ☒ Express is not available. CGZ0.3
Tip R (inner side) 	RGZ 3,000	Range of designation 0.5≦RGZ≦1.0 RGZ≦(D(P)−S)／2−0.1 Unit of designation (in) 0.1 ☒ L＞300 is not available. ☒ Combined with CGX･RGX･CGZ is not available. ☒ Express is not available. RGZ0.6

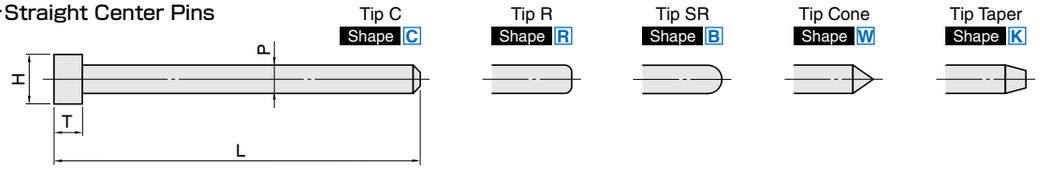
Add.	Code @/P	Spec.
L tolerance 	LKC 200	$L^{+0.02}_{0}$ →$L^{+0.01}_{0}$ LKC

▶For Straight Core Sleeves

Add.	Code @/P	Spec.
Tip C 	CZ 1,000	Range of designation 0.1≦CZ＜(D(P)−S)／2 Unit of designation (in) 0.1 ☒ Combined with RZ is not available. CZ0.5
Tip R 	RZ 1,000	Range of designation 0.2≦RZ＜(D(P)−S)／2 Unit of designation (in) 0.1 ☒ Combined with CZ is not available. RZ0.5
No counterbore 	WN −500	

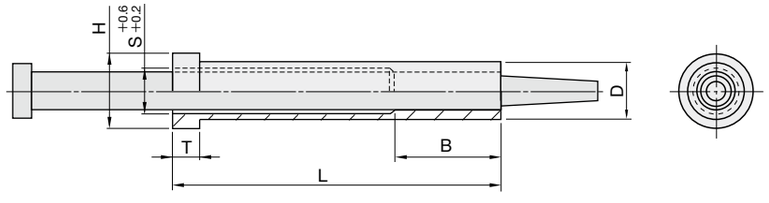
CENTER PINS — GUIDE

▶Straight Center Pins



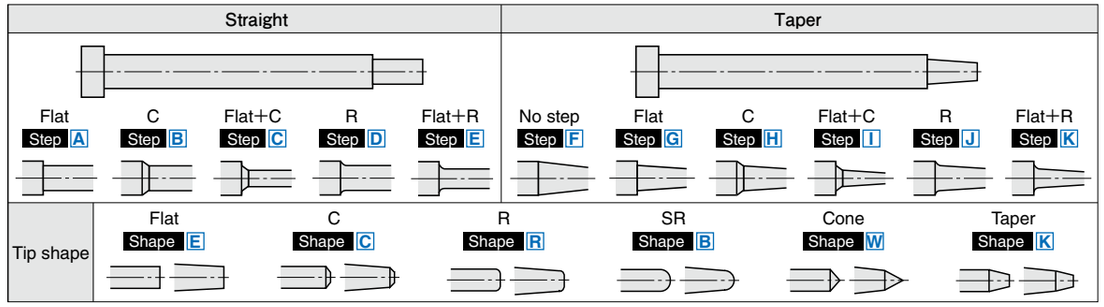
Precision	Material	Tolerance		Head Thickness	Type	Code		Process Range		Delivery	Page
		Diameter P	Length L			Normal	Small head type	Diameter P	Length L		
Precision	SKH51	0 −0.005	+0.01 0	4	P fixed	SQH2T	SQH2T−S	1 ～12	50.00～300.00	3A	P.454
					P designation	SRH2T	SRH2T−S	0.80～11.99			P.456
				JIS	P fixed	SQHJ2T	SQHJ2T−S	4 ～12			P.454
					P designation	SRHJ2T	SRHJ2T−S	3.50～11.99			P.456
	SKD61			4	P fixed	SQDP2T	SQDP2T−S	1.5 ～12			P.454
					P designation	SRDP2T	SRDP2T−S	1.0 ～11.99			P.456
	SKH51	0 −0.005	+0.02 0	4	P fixed	SQH3T	SQH3T−S	1 ～12	50.00～350.00	3A	P.458
					P designation	SRH3T	SRH3T−S	0.80～11.99			P.460
				JIS	P fixed	SQHJ3T	SQHJ3T−S	4 ～12	50.00～350.00		P.458
					P designation	SRHJ3T	SRHJ3T−S	3.50～11.99			P.460
	SKD61			4	P fixed	SQDP3T	SQDP3T−S	1.5 ～12	50.00～350.00		P.458
					P designation	SRDP3T	SRDP3T−S	1.0 ～11.99			P.460
Standard	SKH51	−0.01 −0.02	+0.02 0	4	P fixed	SQH9T	SQH9T−S	1 ～12	50.00～350.00	3A	P.462
					P designation	SRH9T	SRH9T−S	0.80～11.99			P.464
				JIS	P fixed	SQHJ9T	SQHJ9T−S	4 ～12	50.00～350.00		P.462
					P designation	SRHJ9T	SRHJ9T−S	3.50～11.99			P.464
	SKD61			4	P fixed	SQDP9T	SQDP9T−S	1.5 ～12	50.00～350.00		P.462
					P designation	SRDP9T	SRDP9T−S	1.0 ～11.99			P.464
	SKD61 Nitriding	−0.01 −0.02	+0.02 0	4	P fixed	SQD9T	SQD9T−S	1.5 ～12	50.00～500.00	3A	P.466
					P designation	SRD9T	SRD9T−S	1.00～11.99		3	
				JIS	P fixed	SQDJ9T	SQDJ9T−S	4 ～16	50.00～700.00	3A	
					P designation	SRDJ9T	SRDJ9T−S	3.50～15.99	50.00～500.00	3	

▶Ejector Sleeves &Center Pins set



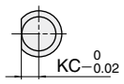
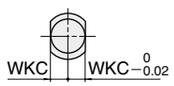
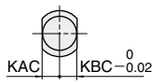
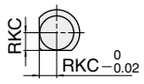
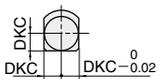
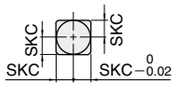
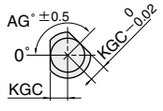
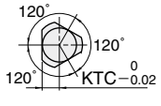
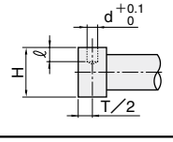
Material	Tolerance		Type		Head Thickness	Code		Process Range		Delivery	Page
	Outer Diameter	Hole	Outer Diameter	Hole Diameter		Normal	Small head type	Outer Diameter	Length L		
SKH51	0 −0.005	+0.005 0	Fixed	Designation	4	ELPH−S□	ELPH−SS□	4～14	50～200	5	P.504
SKD61 Nitriding	−0.01 −0.02	H7	Fixed	Fixed	4	ELNPL−S□	ELNPL−SS□	4～12	80～400	5	P.506
					JIS	ELJNPL−S□	ELJNPL−SS□				
			Fixed	Designation	4	ELNPSB−S□	ELNPSB−SS□	4～12	50～300	5	P.508
					JIS	ELJNPSB−S□	ELJNPSB−SS□				
			Fixed	Designation	4	ELNSSB−S□	ELNSSB−SS□	5～12	50～300	5	P.510
					JIS	ELJNSSB−S□	ELJNSSB−SS□				

▶Stepped Center Pins



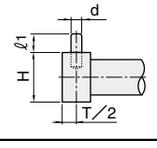
Precision	Material	Tolerance		Tip Tolerance		Head Thickness	Type	Code		Delivery	Page
		Diameter P	Length L	Straight A	Taper AV			Normal	Small head type		
Precision	SKH51	0 −0.005	+0.02 0	0 −0.005	±0.01	4	Fixed	SPH3T	SPH3T−S	3A	P.468・470
				—	±0.005	4	Fixed	SPH3TV	SPH3TV−S	3A	P.470
				0 −0.005	±0.01	JIS	Fixed	SPHJ3T	SPHJ3T−S	3A	P.468・470
				—	±0.005	JIS	Fixed	SPHJ3TV	SPHJ3TV−S	3A	P.470
	SKD61			0 −0.005	±0.01	4	Fixed	SPDH3T	SPDH3T−S	3A	P.468・470
				—	±0.005	4	Fixed	SPDH3TV	SPDH3TV−S	3A	P.470
	SKH51	0 −0.005	+0.02 0	0 −0.005	±0.01	4	Designation	SUH3T	SUH3T−S	3A	P.472・474
				—	±0.005	4	Designation	SUH3TV	SUH3TV−S	3A	P.474
				0 −0.005	±0.01	JIS	Designation	SUHJ3T	SUHJ3T−S	3A	P.472・474
				—	±0.005	JIS	Designation	SUHJ3TV	SUHJ3TV−S	3A	P.474
	SKD61			0 −0.005	±0.01	4	Designation	SUDH3T	SUDH3T−S	3	P.472・474
				—	±0.005	4	Designation	SUDH3TV	SUDH3TV−S	3	P.474
Standard	SKH51	−0.01 −0.02	+0.02 0	0 −0.01	±0.015	4	Fixed	SPH9T	SPH9T−S	3A	P.482・486
				—	±0.01	4	Fixed	SPH9TM	SPH9TM−S	3A	P.484
				0 −0.005	±0.005	4	Fixed	SPH9TV	SPH9TV−S	3A	P.482・484
				0 −0.01	±0.015	JIS	Fixed	SPHJ9T	SPHJ9T−S	3A	P.482・486
				—	±0.01	JIS	Fixed	SPHJ9TM	SPHJ9TM−S	3A	P.484
				0 −0.005	±0.005	JIS	Fixed	SPHJ9TV	SPHJ9TV−S	3A	P.482・484
	SKD61			0 −0.01	±0.015	4	Fixed	SPDH9T	SPDH9T−S	3A	P.482・486
				—	±0.01	4	Fixed	SPDH9TM	SPDH9TM−S	3A	P.484
				0 −0.005	±0.005	4	Fixed	SPDH9TV	SPDH9TV−S	3A	P.482・484
	SKD61 Nitriding			0 −0.01	±0.015	4	Fixed	SPD9T	SPD9T−S	3A	P.482・486
				—	±0.01	4	Fixed	SPD9TM	SPD9TM−S	3A	P.484
				0 −0.01	±0.015	JIS	Fixed	SPDJ9T	SPDJ9T−S	3A	P.482・486
				—	±0.01	JIS	Fixed	SPDJ9TM	SPDJ9TM−S	3A	P.484
	SKH51	−0.01 −0.02	+0.02 0	0 −0.01	±0.015	4	Designation	SUH9T	SUH9T−S	3A	P.488・492
				—	±0.01	4	Designation	SUH9TM	SUH9TM−S	3A	P.490
				0 −0.005	±0.005	4	Designation	SUH9TV	SUH9TV−S	3A	P.488・490
				0 −0.01	±0.015	JIS	Designation	SUHJ9T	SUHJ9T−S	3A	P.488・492
				—	±0.01	JIS	Designation	SUHJ9TM	SUHJ9TM−S	3A	P.490
				0 −0.005	±0.005	JIS	Designation	SUHJ9TV	SUHJ9TV−S	3A	P.488・490
	SKD61			0 −0.01	±0.015	4	Designation	SUDH9T	SUDH9T−S	3	P.488・492
				—	±0.01	4	Designation	SUDH9TM	SUDH9TM−S	3	P.490
				0 −0.005	±0.005	4	Designation	SUDH9TV	SUDH9TV−S	3	P.488・490
	SKD61 Nitriding			0 −0.01	±0.015	4	Designation	SUD9T	SUD9T−S	5	P.488・492
				—	±0.01	4	Designation	SUD9TM	SUD9TM−S	5	P.490
				0 −0.01	±0.015	JIS	Designation	SUDJ9T	SUDJ9T−S	5	P.488・492
				—	±0.01	JIS	Designation	SUDJ9TM	SUDJ9TM−S	5	P.490

Guide for Center Pins

Add.	Code @/P	Spec.
Head cut 	**KC** 100	Range of designation P／2≦KC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **KC1.4,KC0.75,KC0.755**
2 Head cuts (parallel) 	**WKC** 200	Range of designation P／2≦WKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **WKC1.4,WKC0.75,WKC0.755**
2 Head cuts (parallel) 	**KAC** **KBC** 300	Range of designation P／2≦KAC,KBC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . ☒ KAC＝KBC is not available. **KAC1.4－KBC1.6,KAC1.4－KBC0.75,KAC1.4－KBC0.755**
2 Head cuts (perpendicular) 	**RKC** 200	Range of designation P／2≦RKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **RKC1.4,RKC0.75,RKC0.755**
3 Head cuts 	**DKC** 300	Range of designation P／2≦DKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **DKC1.4,DKC0.75,DKC0.755**
4 Head cuts 	**SKC** 400	Range of designation P／2≦SKC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **SKC1.4,SKC0.75,SKC0.755**
2 Head cuts (angle designation) 	**KGC** 300	Range of designation P／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC：in 0.1 It can be 0.01 or 0.001 for P／2 . AG：in 1 **KGC1.4－AG135,KGC0.75－AG135,KGC0.755－AG135**
3 Head cuts (angle 120° each) 	**KTC** 400	Range of designation P／2≦KTC＜H／2 Unit of designation in 0.1 It can be 0.01 or 0.001 for P／2 . **KTC1.4,KTC0.75,KTC0.755**
Dowel hole 	**NN** 200	☒H＜4,T＜4 are not available. ☒Combined with WKC,KAC/KBC, RKC,DKC,SKC,KGC,KTC,HC,HCC, TC is not available. **NN**

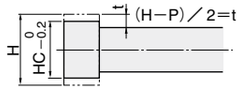
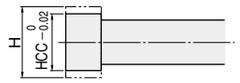
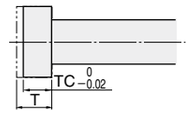
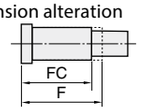
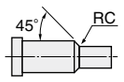
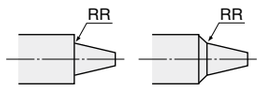
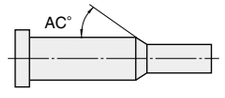
T	d	ℓ
4	2	3
6	3	5
8		

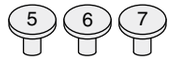
⚠ Combined with KC, the head cut position is fixed as below.

Spring pin 	**NC** 200	☒H＜4,T＜4 are not available. ☒Combined with WKC,KAC/KBC, RKC,DKC,SKC,KGC,KTC,HC,HCC, TC is not available. **NC**

T	d	ℓ
4	2	5
6	3	
8		

⚠ Combined with KC, the head cut position is fixed as below.

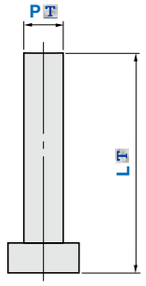
Add.	Code @/P	Spec.
H dimension alteration 	**HC** 200	Range of designation t＜1:H−1≦HC＜H t≧1:P+1≦HC＜H Unit of designation in 0.1 **HC5.5**
H dimension alteration precision 	**HCC** 400	Range of designation P+0.5≦HCC＜H−0.3 Unit of designation in 0.1 ⚠ P≧1.5 is available. **HCC5.5**
T dimension alteration 	**TC** 200	Range of designation 2.0≦TC＜T T−TC≦Lmax−L Unit of designation in 0.1 ⚠ This alteration doesn't affect L & F. **TC3.5**
F dimension alteration 	**FC** 1,200	Range of designation Fmin／2≦FC＜Fmin Unit of designation in 0.01 **FC45.0**
Minimum R alteration 	**RC** 200	⚠ This is available for Step A,B and C. ⚠ This is available for Normal type only. **RC**
R alteration 	**RR** 300	⚠ This is available for Step A,B,C,G,H and I.(Stepped Center pin) This is available for Step B,C and D.(Sleeve & Center pin) ⚠ P−A≧1.0 ⚠ C≧0.5 in case of Step B,H.(Stepped Center pin) C≧0.5 in case of Step C.(Sleeve & Center pin) **RR**
Connecting angle alteration 	**AC** 400	Range of designation 30≦AC≦60 Unit of designation in 1 ⚠ This is available for Step B,C,H and I. ⚠ StepC：I→C≦1.0、A+2(C×tanAC)＜P **AC40**

Add.	Code @/P	Spec.
Identifying mark	**NHC** 1,2characters 50 3,4characters 100	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number 0～9、Alphabet A～Z ⚠ In case of 2 or more characters, you can select Alphabet in the 1st only. ☒ H＜2 is not available. ☒ Combined with SKC is not available. ☒ Express is not available. **NHC－5,NHC－12,NHC－C30**
Identifying mark (sequence) 	**NHN** 1,2characters 50 3,4characters 100	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number 0～9、Alphabet A～Z ⚠ In case of 2 or more characters, you can select Alphabet in the 1st only. ☒ H＜2 is not available. ☒ Combined with SKC is not available. ☒ Express is not available. 〈Sample〉NHN－5 3pcs→"5","6","7" 1pc each

STRAIGHT CORE PINS—GUIDE

▶Core Pin Blanks

Material Hardness	Type	P dimension	P tolerance	L dimension	L tolerance	Code	Page
SKH51 59～61HRC	Precision	0.3～16	0 −0.005	40 50	+5 +0.1	CPH	P.522
				60 100		CPLH	
SKD61 Pre-hardened 40～45HRC	Standard	1 ～14	0 −0.01	60	+5 +0.1	CPD	P.522
SKD61 48～52HRC	Standard	1 ～16	−0.01 −0.02	60 100	+5 +0.1	CDH	P.522



▶Straight Core Pins

Material Hardness	Type	P dimension	P tolerance	L dimension	L tolerance	L designation Code	L designation Page	P designation Code	P designation Page	L・P designation Code	L・P designation Page	Free Code	Free Page
SKH51 59～61HRC	Extra Precision	0.3～13	0 −0.002	8～100	+0.01 0	CHL1T	P.524	CHP1T	P.524	CHS1T	P.524	—	–
	Precision	0.3～20	0 −0.005		+0.01 0	CHL2T	P.526	—	–	CHS2T	P.526	FCHT2TE	P.560
	Precision	0.3～20	0 −0.005		+0.02 0	CHL3T	P.526	CHP3T	P.526	CHS3T	P.526	FCHT3TE	P.560
	Standard	0.3～20	−0.01 −0.02		+0.02 0	CHL9T	P.526	CHP9T	P.526	CHS9T	P.526	FCHT9TE	P.560
	TiCN Coating	1.9～23	0 −0.01	10～100	+0.02 0	—	–	—	–	—	–	HH−FCHT4TE	P.564
	TiCN Coating	1.9～23	−0.01 −0.02	10～100	+0.02 0	—	–	—	–	—	–	HH−FCHT5TE	P.564
SKD61 Pre-hardened 40～45HRC	Standard	1 ～14	0 −0.01	8～ 60	+0.02 0	CDL	P.528	CDP	P.528	CDS	P.528	—	–
SKD61 48～52HRC	Precision	0.6～20	0 −0.005	8～100	+0.01 0	CDHL2T	P.530	—	–	CDHS2T	P.530	FCDHT2TE	P.560
	Precision	0.6～20	0 −0.005		+0.02 0	CDHL3T	P.530	CDHP3T	P.530	CDHS3T	P.530	FCDHT3TE	P.560
	Standard	0.6～20	−0.01 −0.02		+0.02 0	CDHL9T	P.530	CDHP9T	P.530	CDHS9T	P.530	FCDHT9TE	P.560
	TiCN Coating	1.9～23	0 −0.01	10～100	+0.02 0	—	–	—	–	—	–	HH−FCDHT4TE	P.564
	TiCN Coating	1.9～23	−0.01 −0.02	10～100	+0.02 0	—	–	—	–	—	–	HH−FCDHT5TE	P.564
NAK80 37～43HRC	Precision	0.8～16	0 −0.005	8～100	+0.02 0	CNL3T	P.530	CNP3T	P.530	CNS3T	P.530	FCNT3TE	P.560
	Standard	0.8～16	−0.01 −0.02		+0.02 0	CNL9T	P.530	CNP9T	P.530	CNS9T	P.530	FCNT9TE	P.560
DH2F 38～42HRC	Precision	0.8～16	0 −0.005	8～100	+0.02 0	CFL3T	P.530	CFP3T	P.530	CFS3T	P.530	FCFT3TE	P.560
	Standard	0.8～16	−0.01 −0.02		+0.02 0	CFL9T	P.530	CFP9T	P.530	CFS9T	P.530	FCFT9TE	P.560
SUS440C 56～60HRC	Precision	0.6～16	0 −0.005	8～100	+0.02 0	CSUL3T	P.530	CSUP3T	P.530	CSUS3T	P.530	FCSUT3TE	P.560
	Standard	0.6～16	−0.01 −0.02		+0.02 0	CSUL9T	P.530	CSUP9T	P.530	CSUS9T	P.530	FCSUT9TE	P.560
STAVAX Pre-hardened 29～35HRC	Precision	3 ～16	0 −0.005	8～100	+0.02 0	CTL3T	P.530	CTP3T	P.530	CTS3T	P.530	—	
	Standard	3 ～16	−0.01 −0.02	8～100	+0.02 0	CTL9T	P.530	CTP9T	P.530	CTS9T	P.530	—	
STAVAX Hardened 50～54HRC	Precision	3 ～16	0 −0.005	8～100	+0.02 0	CTHL3T	P.530	CTHP3T	P.530	CTHS3T	P.530	—	
	Standard	3 ～16	−0.01 −0.02	8～100	+0.02 0	CTHL9T	P.530	CTHP9T	P.530	CTHS9T	P.530	—	
SKD61 48～52HRC	Head Thickness JIS	4 ～10	−0.01 −0.02	30～100	+0.02 0	CDHJL9T	P.534	CDHJP9T	P.534	CDHJS9T	P.534	—	

⚠For Free type, P dimension is 0.8～23. ⚠For P designation, L tolerance is $^{+5}_{+0.1}$.

▶Straight Core Pins with Gas Vent - Tip dia designation type

Material	Type	P dimension	P tolerance	L dimension	L tolerance	L designation Code	L designation Page	L・P designation Code	L・P designation Page
SKH51 59～61HRC	Extra Precision	0.5～13	0 −0.002	15～100	+0.01 0	GA−CHL1T	P.536	GA−CHS1T	P.536
	Precision	0.5～13	0 −0.005	15～100	+0.01 0	GA−CHL2T	P.538	GA−CHS2T	P.538
	Precision	0.5～13	0 −0.005	15～100	+0.02 0	GA−CHL3T	P.538	GA−CHS3T	P.538
	Standard	0.5～13	−0.01 −0.02	15～100	+0.02 0	GA−CHL9T	P.538	GA−CHS9T	P.538
SKD61 48～52HRC	Precision	0.6～13	0 −0.005	15～100	+0.01 0	GA−CDHL2T	P.540	GA−CDHS2T	P.540
	Precision	0.6～13	0 −0.005	15～100	+0.01 0	GA−CDHL3T	P.540	GA−CDHS3T	P.540
	Standard	0.6～13	−0.01 −0.02	15～100	+0.02 0	GA−CDHL9T	P.540	GA−CDHS9T	P.540
NAK80 37～43HRC	Precision	0.8～13	0 −0.005	15～100	+0.01 0	GA−CNL3T	P.540	GA−CNS3T	P.540
	Standard	0.8～13	−0.01 −0.02	15～100	+0.02 0	GA−CNL9T	P.540	GA−CNS9T	P.540
DH2F 38～42HRC	Precision	0.8～13	0 −0.005	15～100	+0.02 0	GA−CFL3T	P.540	GA−CFS3T	P.540
	Standard	0.8～13	−0.01 −0.02	15～100	+0.02 0	GA−CFL9T	P.540	GA−CFS9T	P.540

▶Straight Core Pins with Gas Vent 1-cut type

Material	Type	P dimension	P tolerance	L dimension	L tolerance	L designation Code	L designation Page	L・P designation Code	L・P designation Page
SKH51 59～61HRC	Precision	0.5～13	0 −0.005	15～100	+0.01 0	GD−CHL2T	P.542	GD−CHS2T	P.542
	Precision	0.5～13	0 −0.005	15～100	+0.02 0	GD−CHL3T	P.542	GD−CHS3T	P.542
	Standard	0.5～13	−0.01 −0.02	15～100	+0.02 0	GD−CHL9T	P.542	GD−CHS9T	P.542

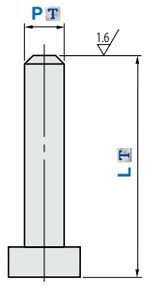
▶Straight Core Pins with Gas Vent 4-cut type

Material	Type	P dimension	P tolerance	L dimension	L tolerance	L designation Code	L designation Page	L・P designation Code	L・P designation Page
SKH51 59～61HRC	Precision	1～13	0 −0.005	15～100	+0.01 0	GF−CHL2T	P.542	GF−CHS2T	P.542
	Precision	1～13	0 −0.005	15～100	+0.02 0	GF−CHL3T	P.542	GF−CHS3T	P.542
	Standard	1～13	−0.01 −0.02	15～100	+0.02 0	GF−CHL9T	P.542	GF−CHS9T	P.542

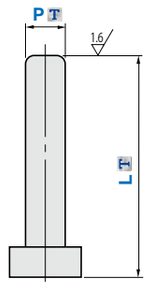
STRAIGHT CORE PINS—GUIDE

▶Straight Core Pins with Tip Process

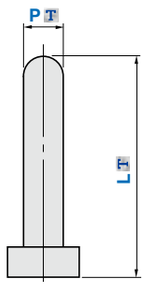
Shape C Tip C



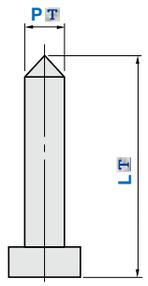
Shape R Tip R



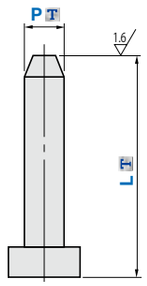
Shape B Tip SR



Shape W Tip Cone



Shape K Tip Taper

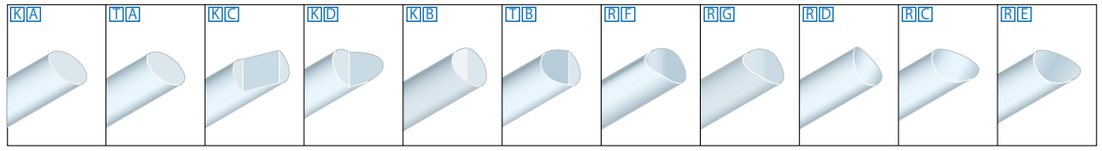


Material Hardness	Type	P		L		P fixed			P designation			Free		
		dimension	tolerance	dimension	tolerance	Code	Shape	Page	Code	Shape	Page	Code	Shape	Page
SKH51 59～61HRC	Extra Precision	0.6～13	0 −0.002	10～100	+0.01 0	CHLT1T	C R B W K	P.544	CHST1T	C R B W K	P.546	—	C R B W K	–
	Precision	0.6～20	0 −0.005	10～100	+0.01 0	CHLT2T＊		P.548	CHST2T＊		P.550	FCHT2T＊		P.560
	Precision	0.6～20	0 −0.005	10～100	+0.02 0	CHLT3T		P.548	CHST3T		P.550	FCHT3T		P.560
	Standard	0.6～20	−0.01 −0.02	10～100	+0.02 0	CHLT9T		P.548	CHST9T		P.550	FCHT9T		P.560
	TiCN Coating	1.9～23	0 −0.01	10～100	+0.02 0	—		–	—		–	HH−FCHT4T		P.564
	TiCN Coating	1.9～23	−0.01 −0.02	10～100	+0.02 0	—		–	—		–	HH−FCHT5T		P.564
SKD61 Pre-hardened 40～45HRC	Standard	1 ～14	0 −0.01	10～ 60	+0.02 0	CDLT	C·R·B W·K	P.552	CDST	C·R·B W·K	P.554	—		–
SKD61 48～52HRC	Precision	0.6～20	0 −0.005	10～100	+0.01 0	CDHLT2T＊	C R B W K	P.556	CDHST2T＊	C R B W K	P.558	FCDHT2T＊	C R B W K	P.560
	Precision	0.6～20	0 −0.005	10～100	+0.02 0	CDHLT3T		P.556	CDHST3T		P.558	FCDHT3T		P.560
	Standard	0.6～20	−0.01 −0.02	10～100	+0.02 0	CDHLT9T		P.556	CDHST9T		P.558	FCDHT9T		P.560
	TiCN Coating	1.9～23	0 −0.01	10～100	+0.02 0	—		–	—		–	HH−FCDHT4T		P.564
	TiCN Coating	1.9～23	−0.01 −0.02	10～100	+0.02 0	—		–	—		–	HH−FCDHT5T		P.564
NAK80 37～43HRC	Precision	0.6～16	0 −0.005	10～100	+0.02 0	CNLT3T	C·R·B W·K	P.556	CNST3T	C·R·B W·K	P.558	FCNT3T	C·R·B W·K	P.560
	Standard	0.6～16	−0.01 −0.02	10～100	+0.02 0	CNLT9T		P.556	CNST9T		P.558	FCNT9T		P.560
DH2F 38～42HRC	Precision	0.6～16	0 −0.005	10～100	+0.02 0	CFLT3T	C·R·B W·K	P.556	CFST3T	C·R·B W·K	P.558	FCFT3T	C·R·B W·K	P.560
	Standard	0.6～16	−0.01 −0.02	10～100	+0.02 0	CFLT9T		P.556	CFST9T		P.558	FCFT9T		P.560
SUS440C 56～60HRC	Precision	0.6～16	0 −0.005	10～100	+0.02 0	CSULT3T	C·R·B W·K	P.556	CSUST3T	C·R·B W·K	P.558	FCSUT3T	C·R·B W·K	P.560
	Standard	0.6～16	−0.01 −0.02	10～100	+0.02 0	CSULT9T		P.556	CSUST9T		P.558	FCSUT9T		P.560
SKD61 48～52HRC	Head Thickness JIS	3.5～10	−0.01 −0.02	30～100	+0.02 0	CDHJLT9T		P.562	CDHJST9T		P.562	—		–

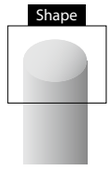
⚠ For Free type, P dimension is 0.8～23.

⚠ ＊CHLT2T CHST2T FCHT2T CDHLT2T CDHST2T FCDHT2Tは Shape B･W are not available for 2T.

▶Straight Core Pins with Tip Process



Shape



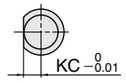
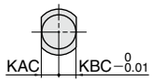
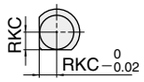
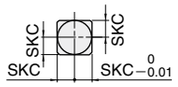
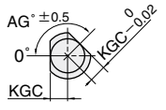
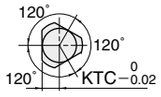
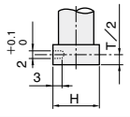
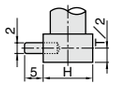
Material Hardness	Type	P		L		L designation		L・P designation	
		dimension	tolerance	dimension	tolerance	Code	Page	Code	Page
SKH51 59～61HRC	Precision	1～16	0 −0.005	8～100	+0.02 0	CHL3T□□	P.566	CHS3T□□	P.566
	Standard	1～16	−0.01 −0.02	8～100	+0.02 0	CHL9T□□	P.566	CHS9T□□	P.566
SKD61 48～52HRC	Precision	1～16	0 −0.005	10～100	+0.02 0	CDHL3T□□	P.568	CDHS3T□□	P.568
	Standard	1～16	−0.01 −0.02	10～100	+0.02 0	CDHL9T□□	P.568	CDHS9T□□	P.568

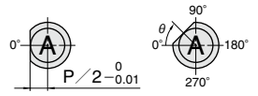
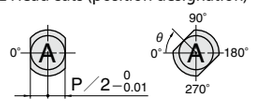
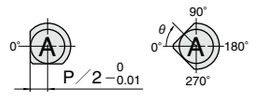
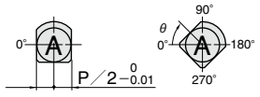
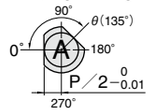
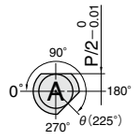
▶Straight Core Pins with Engraving

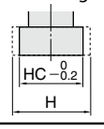
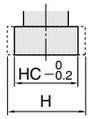
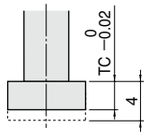
Material	Type		P		L		L designation		L・P designation	
			dimension	tolerance	dimension	tolerance	Code	Page	Code	Page
SKH51 59～61HRC	Concave	Precision	0.6～12	0 −0.005	8～100	+0.02 0	CHL3T□M CHL3T□MM	P.572	CHS3T□M CHS3T□MM	P.572
		Standard	0.6～12	−0.01 −0.02	8～100	+0.02 0	CHL9T□M CHL9T□MM	P.572	CHS9T□M CHS9T□MM	P.572
	Convex	Precision	1 ～ 4	0 −0.005	10～100	+0.02 0	CHL3T□T	P.574	CHS3T□T	P.574
		Standard	1 ～ 4	−0.01 −0.02	10～100	+0.02 0	CHL9T□T	P.574	CHLS9T□T	P.574

STRAIGHT CORE PINS

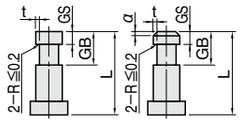
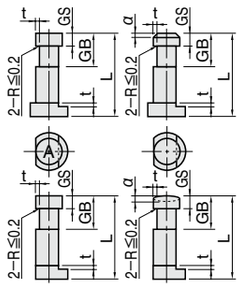
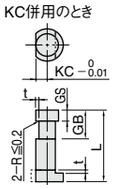
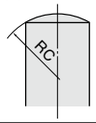
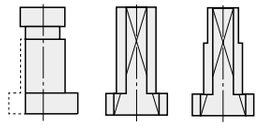
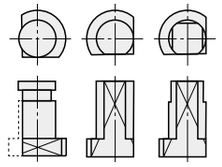
Guide for Straight Core Pins

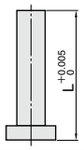
Add.	Code @/P	Spec.
Head cut 	KC 100	Range of designation P／2≦KC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . KC1.4,KC0.75,KC0.755 ☒P＜0.6 is not available.
2 Head cuts (parallel) 	WKC 200	Range of designation P／2≦WKC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . WKC1.4,WKC0.75,WKC0.755 ☒P＜0.6 is not available.
2 Head cuts (parallel) 	KAC KBC 300	Range of designation P／2≦KAC, KBC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . KAC1.4－KBC1.6,KAC1.4－KBC0.75 ☒P＜0.6 is not available.
2 Head cuts (perpendicular) 	RKC 200	Range of designation P／2≦RKC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . RKC1.4,RKC0.75,RKC0.755 ☒P＜0.6 is not available.
3 Head cuts 	DKC 300	Range of designation P／2≦DKC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . DKC1.4,DKC0.75,DKC0.755 ☒P＜0.6 is not available.
4 Head cuts 	SKC 400	Range of designation P／2≦SKC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . SKC1.4,SKC0.75,SKC0.755 ☒P＜0.6 is not available.
2 Head cuts (Angle designation) 	KGC 300	Range of designation P／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC: (if) 0.1 It can be 0.01 or 0.001 for P／2 . AG: (if) 1 KGC1.4－AG135,KGC0.75－AG135 ☒P＜0.6 is not available.
3 Head cuts (Angle 120° each) 	KTC 400	Range of designation P／2≦KTC＜H／2 Unit of designation (if) 0.1 It can be 0.01 or 0.001 for P／2 . KTC1.4,KTC0.75,KTC0.755 ☒P＜0.6 is not available.
Dowel hole 	NN 200	H≧4、T≧4 ☒Combined with NHC・LKC・GVC・GVD is not available. ☒SKH51,SUSS440C,STAVAX(Hardened) are not available. NN
Spring pin 	NC 200	H≧4、T≧4 ☒Combined with NHC・LKC・GVC・GVD is not available. ☒SKH51,SUSS440C,STAVAX(Hardened) are not available. NC

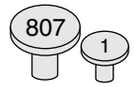
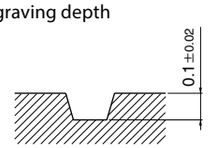
Add.	Code @/P	Spec.
Head cut (angle designation) 	AKC 200	Range of designation 0＜AKC＜360 Unit of designation (if) 1 AKC45
2 Head cuts (position designation) 	AWC 300	Range of designation 0≦AWC＜360 Unit of designation (if) 1 AWC45
2 Head cuts (position designation) 	ARC 300	Range of designation 0≦ARC＜360 Unit of designation (if) 1 ARC45
2 Head cuts (position designation) 	ATC 400	Range of designation 0≦ATC＜360 Unit of designation (if) 1 ATC45
2 Head cuts (angle designation) 	AAC 300	Range of designation 0＜AAC＜360 Unit of designation (if) 1 AAC135
2 Head cuts (angle designation) 	ABC 300	Range of designation 0≦ABC＜360 Unit of designation (if) 1 ☒Angle 90°is not available. ABC225

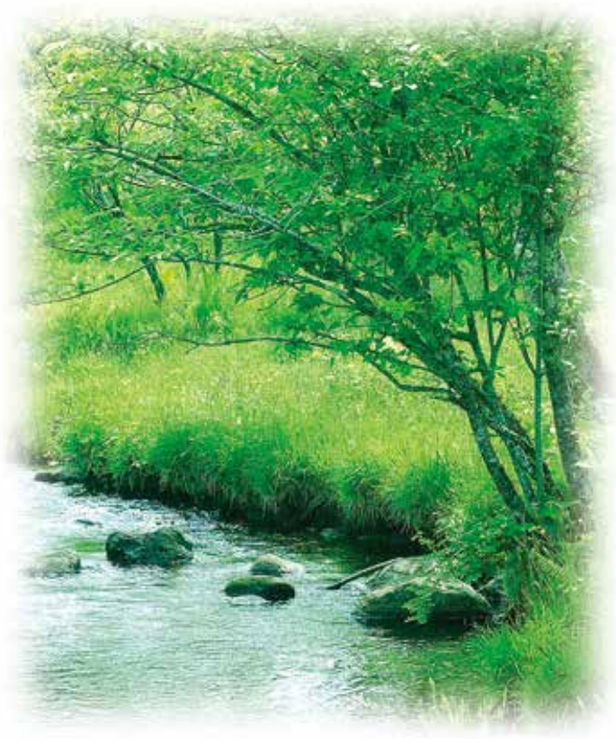
Add.	Code @/P	Spec.
Head Diameter designation 	HC 200	Range of designation P≦HC＜H Unit of designation (if) 0.1 ☒P＜0.6 is not available. HC4.0
Head Diameter designation (Precision) 	HCC 400	Range of designation P＋0.5≦HCC＜H－0.3 Unit of designation (if) 0.1 ☒P＜0.6 is not available. HCC3.2
Head Thickness designation 	TC 200	Range of designation 2≦TC＜4 4－TC≦Lmax－L Unit of designation (if) 0.1 ⚠ TC affects overall length except for L designation type. (Overall length will be (4－TC) smaller.) ☒P＜0.6 is not available. TC2.5

Guide for Straight Core Pins

Add.	Code @/P	Spec.
Gas vent 	**GVC** **600**	Straight Core Pins　Straight Core Pins with Tip process Range of designation **1≦GS≦10　GS+2≦GB≦30　1+α≦GS≦10　GS+2≦GB≦30** Unit of designation GS：in 1　⚠10≦L−GB GB：in 1　☒P＜2.00 is not available. ☒KC, AKC are the only head position additions you can combine with. **GVC−GS1−GB3** P: 2.000～4.999 t: 0.1 / 5.000～9.999 t: 0.2 / 10.000～ t: 0.3 Cα=G　Rα=Q　Bα=P／2　Wα=P／2tanK　Kα=L−F　α=Tip process
Gas vent 	**GVD** **1,000**	Straight Core Pins　Straight Core Pins with Tip process Range of designation **1≦GS≦10　GS+2≦GB≦30　1+α≦GS≦10　GS+2≦GB≦30** Unit of designation GS：in 1　⚠10≦L−GB GB：in 1　☒P＜2.00 is not available. ☒KC, AKC are the only head position additions you can combine with. ⚠In case of head cut, D cut will be placed on the opposite side of the head cut. ⚠Combined with tip process and engraving, delivery will be 5 working days. ☒Express is not available. **GVD−GS1−GB3** KC併用のとき 
SR designation 	**RC** **P≦7 300** **P＞7 500**	Range of designation **P／2＜RC≦RCmax**　**P＜4→RCmax=1.5×P**　**P≧4→RCmax=2×P** ⚠$10 \leqq L - \left(RC - \sqrt{RC^2 - \frac{P^2}{4}}\right)$ Only Shape B is available.　Unit of designation in 0.1 **RC10**
Gas vent cut extention 	**SVC** **600**	⚠In case of P＜1,Lmax is 60. ⚠Combined with head cut, the head cut will be vertical. ⚠In case of 4 head cuts, gas vent cut will be only 1 side. 

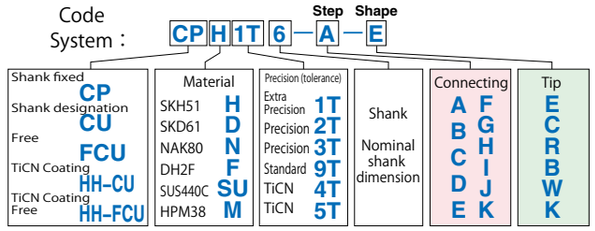
Add.	Code @/P	Spec.
L dimension tolerance alteration 	**LKC** **400**	$L\,^{+0.01}_{0} \rightarrow L\,^{+0.005}_{0}$ ⚠1T and 2T. ☒P＜0.7 is not available. ☒Shape B・W are not available. **LKC**

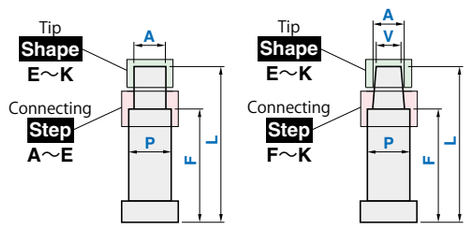
Add.	Code @/P	Spec.
Identifying mark 	**NHC** 1,2characters **50** 3,4characters **100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠In case of 2 or more characters, you can select Alphabet in the 1st only. ☒Combined with SKC is not available. ☒Express is not available. **NHC−807,NHC−A6**
Identifying mark (sequence) 	**NHN** 1,2characters **50** 3,4characters **100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0～9**、Alphabet **A～Z** ⚠In case of 2 or more characters, you can select Alphabet in the 1st only. ☒H＜2 is not available. ☒Combined with SKC is not available. ☒Express is not available. 〈Sample〉NHN−5 3pcs→"5","6","7" 1pc each
Engraving depth 	**EC** **300**	☒Express is not available. ☒P＜1 is not available

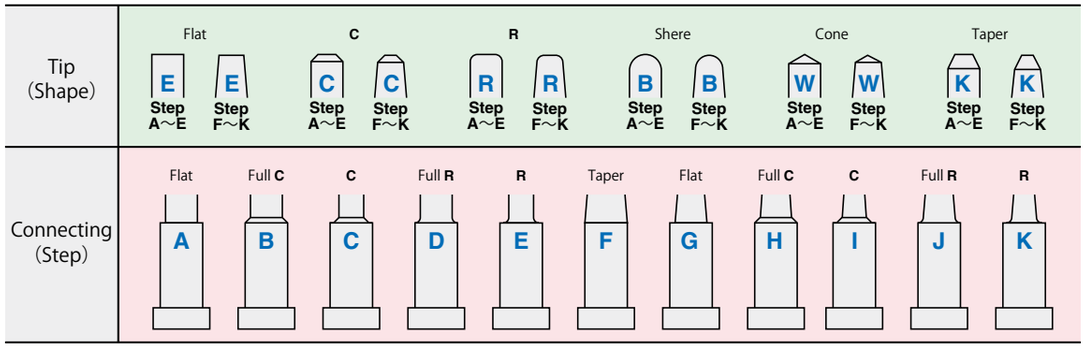


STEPS—TYPE CORE PINS GUIDE

▶1 Step Core Pins







Material	Type	Step	Tolerance P	Tolerance L	Tolerance F	Tolerance A·V	P fixed Code	P fixed Page	P designation Code	P designation Page	Free Code	Free Page
SKH51	Extra Precision	A~E	0 −0.002	+0.005 0	+0.01 0	0 −0.002	CPH1T	P.586	CUH1T	P.590	FCUH1T	P.594
		F~K				±0.005		P.588		P.592		P.596
	Precision	A~E	0 −0.005	+0.01 0		0 −0.005	CPH2T	P.598	CUH2T	P.602	FCUH2T	P.606
		F~K				±0.005		P.600		P.604		P.608
		A~E			+0.02 0	0 −0.005	CPH3T	P.610	CUH3T	P.614	FCUH3T	P.618
		F~K				±0.01		P.612		P.616		P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	CPH9T	P.622	CUH9T	P.626	FCUH9T	P.630
		F~K				±0.015		P.624		P.628		P.632
	TiCN Coating	A~E	0 −0.01			0 −0.01	—	—	HH−CUH4T	P.634	HH−FCUH4T	P.638
		F~K				±0.015				P.636		P.640
		A~E	−0.01 −0.02			0 −0.01	—	—	HH−CUH5T	P.634	HH−FCUH5T	P.638
		F~K				±0.015				P.636		P.640
SKD61	Precision	A~E	0 −0.005	+0.01 0	+0.01 0	0 −0.005	CPD2T	P.598	CUD2T	P.602	FCUD2T	P.606
		F~K				±0.005		P.600		P.604		P.608
		A~E		+0.02 0	+0.02 0	0 −0.005	CPD3T	P.610	CUD3T	P.614	FCUD3T	P.618
		F~K				±0.01		P.612		P.616		P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	CPD9T	P.622	CUD9T	P.626	FCUD9T	P.630
		F~K				±0.015		P.624		P.628		P.632
	TiCN Coating	A~E	0 −0.01			0 −0.01	—	—	HH−CUD4T	P.634	HH−FCUD4T	P.638
		F~K				±0.015				P.636		P.640
		A~E	−0.01 −0.02			0 −0.01	—	—	HH−CUD5T	P.634	HH−FCUD5T	P.638
		F~K				±0.015				P.636		P.640
NAK80	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	CPN3T	P.610	CUN3T	P.614	FCUN3T	P.618
		F~K				±0.01		P.612		P.616		P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	CPN9T	P.622	CUN9T	P.626	FCUN9T	P.630
		F~K				±0.015		P.624		P.628		P.632
DH2F	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	CPF3T	P.610	CUF3T	P.614	FCUF3T	P.618
		F~K				±0.01		P.612		P.616		P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	CPF9T	P.622	CUF9T	P.626	FCUF9T	P.630
		F~K				±0.015		P.624		P.628		P.632
SUS440C	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	CPSU3T	P.610	CUSU3T	P.614	FCUSU3T	P.618
		F~K				±0.01		P.612		P.616		P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	CPSU9T	P.622	CUSU9T	P.626	FCUSU9T	P.630
		F~K				±0.015		P.624		P.628		P.632
HPM38	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	—	—	—	—	FCUM3T	P.618
		F~K				±0.01						P.620
	Standard	A~E	−0.01 −0.02			0 −0.01	—	—	—	—	FCUM9T	P.630
		F~K				±0.015						P.632

⚠ L tolerance differs by tip shape. F tolerance also differs by step shape. Please see the detail on each page.

▶1 Step Core Pins with Gas Vent

Material	Type	Step	Tolerance P	Tolerance L	Tolerance F	Tolerance A·V	P fixed Code	P fixed Page	P designation Code	P designation Page
SKH51	Extra Precision	A~E	0 −0.002	+0.005 0	+0.01 0	0 −0.002	GA−CPH1T	P.642	GA−CUH1T	P.646
		F~K				±0.005		P.644		P.648
	Precision	A~E	0 −0.005	+0.01 0		0 −0.005	GA−CPH2T	P.650	GA−CUH2T	P.654
		F~K				±0.005		P.652		P.656
		A~E		+0.02 0	+0.02 0	0 −0.005	GA−CPH3T	P.658	GA−CUH3T	P.662
		F~K				±0.01		P.660		P.664
	Standard	A~E	−0.01 −0.02			0 −0.01	GA−CPH9T	P.666	GA−CUH9T	P.670
		F~K				±0.015		P.668		P.672
SKD61	Precision	A~E	0 −0.005	+0.01 0	+0.01 0	0 −0.005	GA−CPD2T	P.650	GA−CUD2T	P.654
		F~K				±0.005		P.652		P.656
		A~E		+0.02 0	+0.02 0	0 −0.005	GA−CPD3T	P.658	GA−CUD3T	P.662
		F~K				±0.01		P.660		P.664
	Standard	A~E	−0.01 −0.02			0 −0.01	GA−CPD9T	P.666	GA−CUD9T	P.670
		F~K				±0.015		P.668		P.672
NAK80	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	GA−CPN3T	P.658	GA−CUN3T	P.662
		F~K				±0.01		P.660		P.664
	Standard	A~E	−0.01 −0.02			0 −0.01	GA−CPN9T	P.666	GA−CUN9T	P.670
		F~K				±0.015		P.668		P.672
DH2F	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	GA−CPF3T	P.658	GA−CUF3T	P.662
		F~K				±0.01		P.660		P.664
	Standard	A~E	−0.01 −0.02			0 −0.01	GA−CPF9T	P.666	GA−CUF9T	P.670
		F~K				±0.015		P.668		P.672
SUS440C	Precision	A~E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	GA−CPSU3T	P.658	GA−CUSU3T	P.662
		F~K				±0.01		P.660		P.664
	Standard	A~E	−0.01 −0.02			0 −0.01	GA−CPSU9T	P.666	GA−CUSU9T	P.670
		F~K				±0.015		P.668		P.672

⚠ L tolerance differs by tip shape. F tolerance also differs by step shape. Please see the detail on each page.

▶1 Step Core Pins with Gas Vent 1-cut type

Material	Type	Step	Tolerance P	Tolerance L	Tolerance F	Tolerance A·V	P fixed Code	P fixed Page	P designation Code	P designation Page
SKH51	Precision	A~E	0 −0.005	+0.01 0	+0.01 0	0 −0.005	GD−CPH2T	P.674	GD−CUH2T	P.674
		F~K				±0.005		P.676		P.676
		A~E		+0.02 0	+0.02 0	0 −0.005	GD−CPH3T	P.678	GD−CUH3T	P.678
		F~K				±0.01		P.680		P.680
	Standard	A~E	−0.01 −0.02			0 −0.01	GD−CPH9T	P.678	GD−CUH9T	P.678
		F~K				±0.015		P.680		P.680

⚠ L tolerance differs by tip shape.

▶1 Step Core Pins with Gas Vent 4-cut type

Material	Type	Step	Tolerance P	Tolerance L	Tolerance F	Tolerance A·V	P fixed Code	P fixed Page	P designation Code	P designation Page
SKH51	Precision	A~E	0 −0.005	+0.01 0	+0.01 0	0 −0.005	GF−CPH2T	P.674	GF−CUH2T	P.674
		F~K				±0.005		P.676		P.676
		A~E		+0.02 0	+0.02 0	0 −0.005	GF−CPH3T	P.678	GF−CUH3T	P.678
		F~K				±0.01		P.680		P.680
	Standard	A~E	−0.01 −0.02			0 −0.01	GF−CPH9T	P.678	GF−CUH9T	P.678
		F~K				±0.015		P.680		P.680

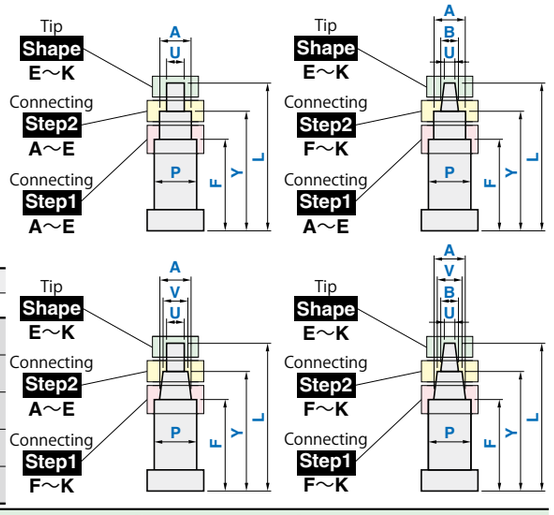
⚠ L tolerance differs by tip shape.

STEPS—TYPE CORE PINS GUIDE

▶2 Steps Core Pins

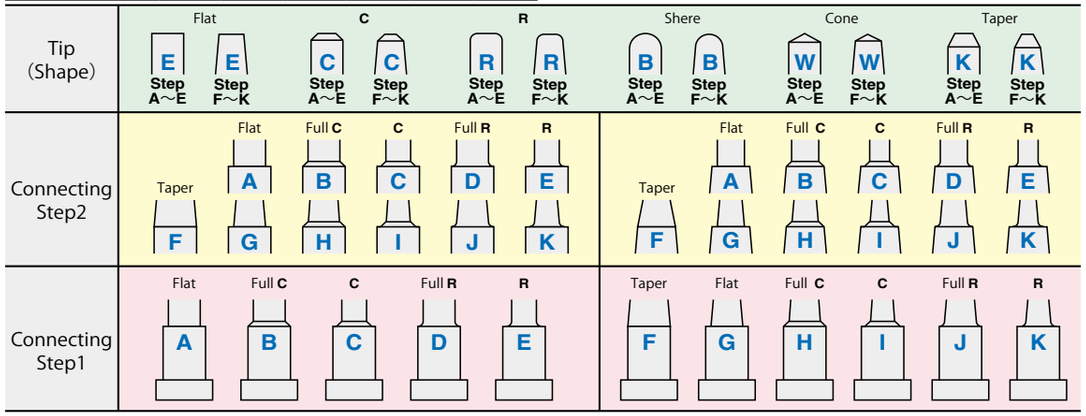
Code System : CW H 1T 6 — A — A — E (Step1 Step2 Shape)

Shank fixed	Material	Precision(Tolerance)	Shank	Connecting	Connecting	Tip
CW	SKH51 H	Extra Precision 1T	Nominal shank dimension	A B C D E F G H I J K	A B C D E F G H I J K	E C R B W K
Shank designation CY	SKD61 D	Precision 2T				
	NAK80 N	Precision 3T				
	DH2F F	Standard 9T				
	SUS440C SU					



Tolerance list(4T・5T are coating pins)

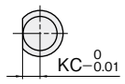
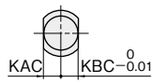
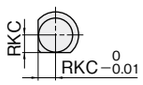
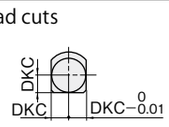
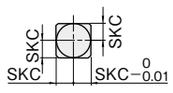
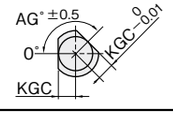
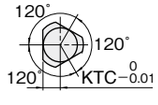
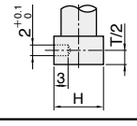
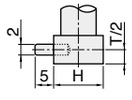
Tolerance Code	P	L	F・Y	Straight A	Straight U	Taper A・V	Taper B・U
1T	0 −0.002	+0.005 0	+0.01 0	0 −0.002	0 −0.002	±0.005	±0.005
2T	0 −0.005	+0.01 0	+0.01 0	0 −0.005	0 −0.005	±0.005	±0.005
3T	0 −0.005	+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	±0.01
4T	0 −0.01	+0.02 0	+0.02 0	0 −0.01	0 −0.01	±0.015	±0.015
5T・9T	−0.01 −0.02	+0.02 0	+0.02 0	0 −0.01	0 −0.01	±0.015	±0.015

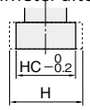
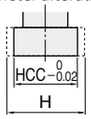
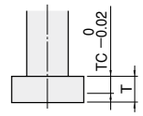
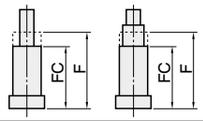
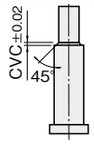
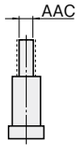


Material	Type	Step1	Tolerance P	Tolerance L	Tolerance F・Y	Tolerance A・V	Tolerance B・U Step2 A～E	Tolerance B・U Step2 F～K	P fixed Code	P fixed Page	P designation Code	P designation Page
SKH51	Extra Precision	A～E	0 −0.002	+0.005 0	+0.01 0	0 −0.002	0 −0.002	±0.005	CWH1T	P.686	CYH1T	P.690
		F～K				±0.005				P.688		P.692
	Precision	A～E	0 −0.005	+0.01 0		0 −0.005	0 −0.005	±0.005	CWH2T	P.694	CYH2T	P.698
		F～K				±0.005				P.696		P.700
		A～E		+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	CWH3T	P.702	CYH3T	P.706
		F～K				±0.01				P.704		P.708
	Standard	A～E	−0.01 −0.02			0 −0.01	0 −0.01	±0.015	CWH9T	P.710	CYH9T	P.714
		F～K				±0.015				P.712		P.716
SKD61	Precision	A～E	0 −0.005	+0.01 0	+0.01 0	0 −0.005	0 −0.005	±0.005	CWD2T	P.694	CYD2T	P.698
		F～K				±0.005				P.696		P.700
		A～E		+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	CWD3T	P.702	CYD3T	P.706
		F～K				±0.01				P.704		P.708
	Standard	A～E	−0.01 −0.02			0 −0.01	0 −0.01	±0.015	CWD9T	P.710	CYD9T	P.714
		F～K				±0.015				P.712		P.716
NAK80	Precision	A～E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	CWN3T	P.702	CYN3T	P.706
		F～K				±0.01				P.704		P.708
	Standard	A～E	−0.01 −0.02			0 −0.01	0 −0.01	±0.015	CWN9T	P.710	CYN9T	P.714
		F～K				±0.015				P.712		P.716
DH2F	Precision	A～E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	CWF3T	P.702	CYF3T	P.706
		F～K				±0.01				P.704		P.708
	Standard	A～E	−0.01 −0.02			0 −0.01	0 −0.01	±0.015	CWF9T	P.710	CYF9T	P.714
		F～K				±0.015				P.712		P.716
SUS440C	Precision	A～E	0 −0.005	+0.02 0	+0.02 0	0 −0.005	0 −0.005	±0.01	CWSU3T	P.702	CYSU3T	P.706
		F～K				±0.01				P.704		P.708
	Standard	A～E	−0.01 −0.02			0 −0.01	0 −0.01	±0.015	CWSU9T	P.710	CYSU9T	P.714
		F～K				±0.015				P.712		P.716

⚠ L tolerance differs by tip shape. F tolerance also differs by step shape. Please see the detail on each page.

Guide for Steps—type Core Pins

Add.	Code @/P	Spec.
Head cut 	KC 100	Range of designation P／2≦KC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. KC1.4,KC0.75,KC0.755
2 Head cuts (parallel) 	WKC 200	Range of designation P／2≦WKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. WKC1.4,WKC0.75,WKC0.755
2 Head cuts (parallel) 	KAC KBC 300	Range of designation P／2≦KAC KBC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. KAC1.4－KBC1.6,KAC1.4－KBC0.75
2 Head cuts (perpendicular) 	RKC 200	Range of designation P／2≦RKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. RKC1.4,RKC0.75,RKC0.755
3 Head cuts 	DKC 300	Range of designation P／2≦DKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. DKC1.4,DKC0.75,DKC0.755
4 Head cuts 	SKC 400	Range of designation P／2≦SKC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. SKC1.4,SKC0.75,SKC0.755
2 Head cuts (angle designation) 	KGC 300	Range of designation P／2≦KGC＜H／2 0＜AG＜360 Unit of designation KGC: (in) 0.1 It can be 0.01 or 0.001 for P／2. AG: (in) 1 KGC1.4－AG135,KGC0.75－AG135
3 Head cuts (angle 120° each) 	KTC 400	Range of designation P／2≦KTC＜H／2 Unit of designation (in) 0.1 It can be 0.01 or 0.001 for P／2. KTC1.4,KTC0.75,KTC0.755
Dowel hole 	NN 200	H≧4、T≧4 ☒Combined with NHC・GVC・GVD is not available. ☒Material SKH51,SUS440C are not available. NN
Spring pin 	NC 200	H≧4、T≧4 ☒Combined with NHC・GVC・GVD is not available. ☒Material SKH51,SUS440C are not available. NC

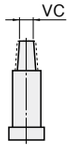
Add.	Code @/P	Spec.
Head diameter alteration 	HC 200	Range of designation P≦HC＜H ☒P＜0.6 is not available. Unit of designation (in) 0.1 HC5.5
Head diameter alteration (precision) 	HCC 400	Range of designation P＋0.5≦HCC＜H－0.3 ☒P＜0.6 is not available. Unit of designation (in) 0.1 HCC5.0
Head thickness cut 	TC 200	Range of designation 2≦TC＜T ☒P＜0.6 is not available. Unit of designation (in) 0.1 TC3.5
F alteration 	FC 1,200	Range of designation 5.00≦FC＜Fmin ⚠7≦Lmin Unit of designation (in) 0.01 This is available for 1T・2T type only. FC20.25
C inch alteration 	CVC 400	Range of designation 0.10≦CVC≦1.00 ☒Combined with AC is not available. Unit of designation (in) 0.01 This is available for Step C,I only. CVC0.85
A dimension alteration 	AAC 600	Range of designation ACmin＜AAC＜Amin ⚠ ℓ≦10×AAC Unit of designation (in) 0.01 (in) 0.001 (1T only) AAC0.42

P fix/designation

P(No.)	Amin	AACmin
1 ～ 3	0.500	0.400
3.5 ～ 4	1.000	0.700
4.5 ～ 5	1.000	0.900
5.5	1.500	1.000
6 ～16	2.000	1.500
20	5.000	4.000

Free

P	Amin	AACmin
0.600 ～ 3.000	0.500	0.400
3.001 ～ 4.000	1.000	0.700
4.001 ～ 5.000	1.000	0.900
5.001 ～ 5.500	1.500	1.000
5.501 ～16.000	2.000	1.500
16.001～23.000	5.000	4.000

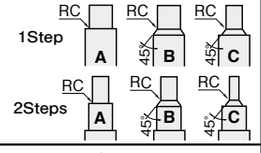
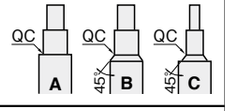
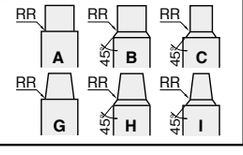
V dimension altertion 	VC 600	Range of designation VCmin＜VC＜Vmin ⚠ ℓ≦5×VC Unit of designation (in) 0.01 (in) 0.001 (1T only) VC0.73

P fix/designation

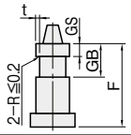
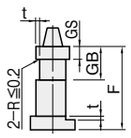
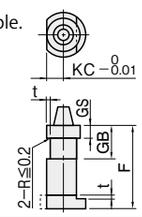
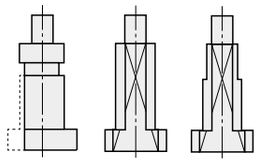
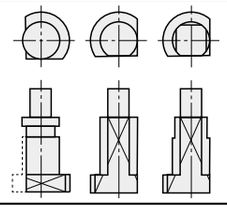
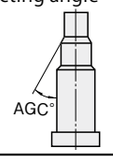
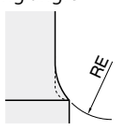
P(No.)	Vmin	VCmin
1 ～ 3	0.500	0.400
3.5 ～ 4	1.000	0.700
4.5 ～ 5	1.000	0.900
5.5	1.500	1.000
6 ～16	2.000	1.500
20	5.000	4.000

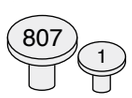
Free

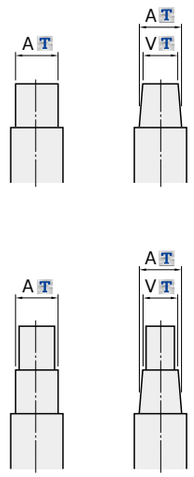
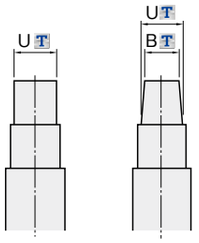
P	Vmin	VCmin
0.600 ～ 3.000	0.500	0.400
3.001 ～ 4.000	1.000	0.700
4.001 ～ 5.000	1.000	0.900
5.001 ～ 5.500	1.500	1.000
5.501 ～16.000	2.000	1.500
16.001～23.000	5.000	4.000

Minimum R alteration 	RC 200	1 Step → available for Step A・B・C of 1T・2T type 2 Steps→ available for Step2 A・B・C of 1T・2T type RC
Minimum R alteration 	QC 200	2 Steps→ available for Step1 A・B・C of 1T・2T type QC
Minimum R alteration 	RR 300	1 Step → available for Step1 A・B・C・G・H・I ⚠ 1.0≦P－A ⚠ Step C・I→0.5≦C ☒1T・2T type are not available. RR

Guide for Steps—type Core Pins

Add.	Code @/P	Spec.
Gas vent 	**GVC** **600**	Range of designation **1≦GS≦10　GS+2≦GB≦30** Unit of designation GS：in 1　⚠ Fmin≦F−GB GB：in 1　☒ P＜2.00 is not available. **GVC−GS1−GB4** P: 2.000~ 4.999 t: 0.1; 5.000~ 9.999 t: 0.2; 10.000~20.000 t: 0.3
Gas vent 	**GVD** **1,000**	Range of designation **1≦GS≦10　GS+2≦GB≦30** Unit of designation GS：in 1　⚠ Fmin≦F−GB GB：in 1　☒ P＜2.00 is not available. ⚠ In case of head cut, D cut will be placed on the opposite side of the head cut. ☒ KC is the only head position addition you can combine with. 5 Days　☒ Express is not available. **GVD−GS1−GB4** Addition KC  P: 2.000~ 4.999 t: 0.1; 5.000~ 9.999 t: 0.2; 10.000~20.000 t: 0.3
Gas vent cut extention 	**SVC** **600**	⚠ In case of P＜1, Lmax is 60. ⚠ Combined with head cut, the head cut will be vertical. ⚠ This will be remained on 1 side (SVC process) for 4 head cuts. 
Connecting angle 	**AC** **400**	Range of designation **30≦AC≦60**　in 1 Unit of designation 1 Step → available for Step B・C・H・I　2 Steps → available for Step1 B・C・H・I ⚠ Step,Step1 C・I → A+2(C×tanAC)＜P ⚠ Step,Step1 C・I → C≦1.0 ☒ Combined with RC・RR・CVC is not available. **AC40**
Connecting angle 	**AGC** **400**	Range of designation **30≦AGC≦60**　in 1 Unit of designation This is available for Step2 B・C・H・I. ⚠ Step2 C → U+2(S×tanAGC)＜P ⚠ Step1 I → B+2(S×tanAGC)＜P ☒ Combined with RC・RR・CVC is not available. **AGC43**
Connecting angle 	**RE** **400**	Range of designation **0.5≦RE≦2.0**　in 0.5 Unit of designation This is available for 1Step E・K. ⚠ F tolerance is changed to $^{+0.05}_{0}$. ☒ 1T・2T is not available. **RE1.5**

Add.	Code @/P	Spec.
Identifying mark 	**NHC** **1,2character 50** **3,4characters 100**	〈Range〉 1 character→2≦H 2 characters→5≦H 3,4 characters→7≦H 〈character〉 Number **0~9**、Alphabet **A~Z** **NHC−807,NHC−A16** ⚠ In case of 2 or more characters, you can select the 1st Alphabet only. ☒ Combined with SKC is not available. ☒ Express is not available.

Add.	Code @/P	Spec.
A・V tolerance alteration 	**AKCP** **Free**	1 Step → available for Step A・B・C・D・E　1 Step → available for Step F・G・H・I・J・K 2 Steps → available for Step1 A・B・C・D・E　2 Steps → available for Step1 F・G・H・I・J・K $A^{0}_{-0.002}\rightarrow^{+0.002}_{0}$　$A\cdot V^{\pm0.005}\rightarrow^{+0.01}_{0}$ $A^{0}_{-0.005}\rightarrow^{+0.005}_{0}$　$A\cdot V^{\pm0.01}\rightarrow^{+0.02}_{0}$ $A^{0}_{-0.01}\rightarrow^{+0.01}_{0}$　$A\cdot V^{\pm0.015}\rightarrow^{+0.03}_{0}$ ⚠ Step F → Only V tolerance is altered. **AKCP**
	AKCZ **Free**	1 Step → available for Step A・B・C・D・E 2 Steps → available for Step1 A・B・C・D・E $A^{0}_{-0.002}\rightarrow\pm0.001$ $A^{0}_{-0.005}\rightarrow\pm0.0025$ $A^{0}_{-0.01}\rightarrow\pm0.005$ **AKCZ**
	AKCM **Free**	1 Step → available for Step F・G・H・I・J・K 2 Steps → available for Step1 F・G・H・I・J・K $A\cdot V^{\pm0.005}\rightarrow^{0}_{-0.01}$ $A\cdot V^{\pm0.01}\rightarrow^{0}_{-0.02}$ $A\cdot V^{\pm0.015}\rightarrow^{0}_{-0.03}$ ⚠ Step F → Only V tolerance is altered. **AKCM**
B・U tolerance alteration 	**UKCP** **Free**	2 Steps → available for Step2 A・B・C・D・E　2 Steps → available for Step2 F・G・H・I・J・K $U^{0}_{-0.002}\rightarrow^{+0.002}_{0}$　$B\cdot U^{\pm0.005}\rightarrow^{+0.01}_{0}$ $U^{0}_{-0.005}\rightarrow^{+0.005}_{0}$　$B\cdot U^{\pm0.01}\rightarrow^{+0.02}_{0}$ $U^{0}_{-0.01}\rightarrow^{+0.01}_{0}$　$B\cdot U^{\pm0.015}\rightarrow^{+0.03}_{0}$ **UKCP**
	UKCZ **Free**	2 Steps → available for Step2 A・B・C・D・E $U^{0}_{-0.002}\rightarrow\pm0.001$ $U^{0}_{-0.005}\rightarrow\pm0.0025$ $U^{0}_{-0.01}\rightarrow\pm0.005$ **UKCZ**
	UKCM **Free**	2 Steps → available for Step2 F・G・H・I・J・K $B\cdot U^{\pm0.005}\rightarrow^{0}_{-0.01}$ $B\cdot U^{\pm0.01}\rightarrow^{0}_{-0.02}$ $B\cdot U^{\pm0.015}\rightarrow^{0}_{-0.03}$ **UKCM**

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