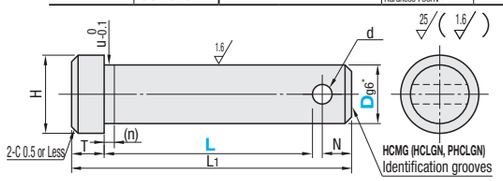
Pivot Pins
Cotter Pins with Shoulder

RoHS10

Type		Material	Hardness	Surface Treatment	Accessory	
L Dimension Selectable	L Dimension Configurable	M Material	H Hardness	S Surface Treatment	A Accessory	
HCMG	HCLGN	S45C (HCMG) S45C Equivalent (HCLGN)	-	Black Oxide	Cotter Pin 1 pc.	M SWRM or Low carbon steel
HCMGH	HCLGHN	S45C (HCMGH) S45C Equivalent (HCLGHN)	40~45HRC			
-	PHCLGN	S45C Equivalent (PHCLGN)	-	Electroless Nickel Plating		M SUS304
-	PHCLGHN	S45C Equivalent (PHCLGHN)	40~45HRC			
-	GHCLGN	S45C Equivalent (GHCLGN)	Plating Hardness 750HV~	Hard Chrome Plating		M SWRM or Low carbon steel
SHCMG	SHCLGN	SUS304 Equivalent	-	-		M SUS304
-	SHCLGHN	SUS440C Equivalent	45~50HRC			
-	GSHCLGHN		45~50HRC Plating Hardness 750HV~	Hard Chrome Plating		

(Ⓨ) L Dimension Selectable Type is S45C Equivalent.

D Tolerance (g6)	
3	-0.002 -0.008
4~6	-0.004 -0.012
8, 10	-0.005 -0.014
12~18	-0.006 -0.017
20~25	-0.007 -0.020



* The tolerance Dg6 is only available for the diameter over the length L. The front diameter has a negative tolerance.
(Ⓨ) **HCMG** has identification grooves on the side in order to distinguish it from Hardened Type. (**HCLGN** and **PHCLGN** may also have identification grooves.)
(Ⓨ) Relief dimension under the shoulder is for reference.
(Ⓨ) For L Dimension, Standard Machining Tolerances (Class: Medium) is used.
(Ⓨ) This type may have centering holes depending on dimensions.

■L Dimension Selectable

Part Number Type	D	L Selection	L1	N	u	(n)	d	T	H	Included Cotter Pin HCMG HCMGH	Included Cotter Pin SHCMG	Unit Price HCMG	Unit Price HCMGH	Unit Price SHCMG
HCMG	3	10 12 14 15 16 18 20	L+ 4.4	2.5	2.9	1.5	0.8	1.5	5.5	NPN0.8- 8	NSPN0.8- 8			
HCMGH (Hardened)	4		L+ 4.5		3.9		1		6.5	NPN1 -10	NSPN1 -10			
	5		L+ 5.6	3.5	4.9		1.2		8	NPN1.2-10	NSPN1.2-10			
SHCMG (Stainless Steel)	6	15 16 18 20 22 24 25 30	L+ 5.8		5.8		1.6		9	NPN1.6-10	NSPN1.6-10			
	8	18 20 22 24 25 30 35 40 45 50	L+ 7	4	7.8		2	2	12	NPN2 -12	NSPN2 -12			
	10		L+ 8.25	5	9.8		2.5		14	NPN2.5-15	NSPN2.5-15			
	12	22 24 25 30 35 40 45 50	L+10.6	6	11.8		3.2	3	17	NPN3.2-20	NSPN3.2-20			

■L Dimension Configurable Type (0.1mm Increment)

Part Number Type	D	L=0.1mm Increment	L1	N	u	(n)	d	T	H	Included Cotter Pin HCLGN HCLGHN GHCLGN	Included Cotter Pin PHCLGN PHCLGHN GSHCLGHN	Included Cotter Pin SHCLGN SHCLGHN	Unit Price HCLGN	Unit Price HCLGHN	Unit Price PHCLGN	Unit Price PHCLGHN	Unit Price GHCLGN	Unit Price SHCLGN	Unit Price SHCLGHN	Unit Price GSHCLGHN
HCLGN	3	5.0~50.0	L+ 4.4	2.5	2.9	1.5 or Less	0.8	1.5	5.5	NPN0.8- 8	NSPN0.8- 8									
HCLGHN	4		L+ 4.5		3.9		1		6.5	NPN1 -10	NSPN1 -10									
PHCLGN	5	10.0~60.0	L+ 5.6	3.5	4.9		1.2		8	NPN1.2-10	NSPN1.2-10									
PHCLGHN	6	10.0~100.0	L+ 5.8		5.8		1.6		9	NPN1.6-10	NSPN1.6-10									
GHCLGN	8	10.0~100.0	L+ 7	4	7.8		2	2	12	NPN2 -12	NSPN2 -12									
SHCLGN	10	15.0~100.0	L+ 8.25	5	9.8		2.5		14	NPN2.5-15	NSPN2.5-15									
SHCLGHN	12	15.0~200.0	L+10.6	6	11.8		3.2		17	NPN3.2-20	NSPN3.2-20									
GSHCLGHN	13	20.0~200.0	L+12	7	12.8		4	3	18	NPN4 -20	NSPN4 -20									
	14				13.8				19											
	15				14.8				20											
	16	20.0~200.0			15.8				21	NPN4 -25	NSPN4 -25									
	17				16.8				22											
	18				17.8				23											
	20		L+14.5	8	19.8		5	4	26	NPN5 -35	NSPN5 -35									
	22				21.8				27											
	25		L+15.5	9	24.8				30											

(Ⓨ) SHCLGHN and GSHCLGHN may be discolored by hardening.

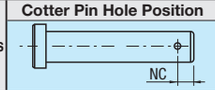
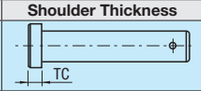
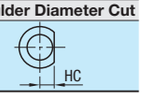
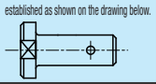
Ordering Example

Part Number	-	L
HCMG8	-	30
HCLGN15	-	120.3

Alterations

Part Number	-	L	-	(NC, TC, HC)
HCLGN15	-	120.3	-	NC3

(Ⓨ) Applicable to L Dimension Configurable Type.

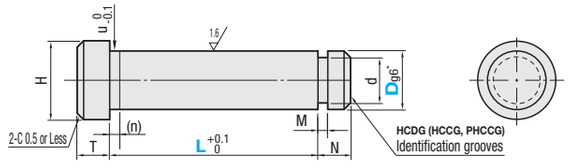
Alterations	Cotter Pin Hole Position	Shoulder Thickness	Shoulder Diameter Cut
			
Code	NC	TC	HC
Spec.	Ordering Code NC3 D / NC (Selection Range) 3 / 1.5 4 / 1.5 2 5 / 1.5 2 2.5 6, 8 / 2 2.5 3 10 / 2.5 3 4 12 / 3 4 5 13~18 / 3 4 5 6 20~25 / 4 5 6 7 (Ⓨ) L1=L+NC+d/2+T	Ordering Code TC3 (Ⓨ) TC=0.5mm Increment (Ⓨ) T<TC≤5 (Ⓨ) L1=L+N+d/2+TC	Ordering Code HC ・D=3~10 HC=H/2-1 ・D=12~25 HC=H/2-2 (Ⓨ) The positional relationship between the shoulder diameter cut and the cotter pin is established as shown on the drawing below. 

Pivot Pins
Retaining Ring with Shoulder

RoHS10

Type		Material	Hardness	Surface Treatment	Accessory	
L Dimension Selectable	L Dimension Configurable	M Material	H Hardness	S Surface Treatment	A Accessory	
HCDG	HCCG	S45C Equivalent (HCDG) S45C (HCCG)	-	Black Oxide	Retaining Ring 1 pc.	M Spring Steel
HCDGH	HCCGH	S45C Equivalent (HCDGH) S45C (HCCGH)	40~45HRC			
-	PHCCG	S45C Equivalent (PHCCG)	-	Electroless Nickel Plating		M SUS304
-	PHCCGH	S45C Equivalent (PHCCGH)	40~45HRC			
-	GHCCG	S45C Equivalent (GHCCG)	Plating Hardness 750HV~	Hard Chrome Plating		M Spring Steel
SHCDG	SHCCG	SUS304	-	-		M SUS304
-	SHCCGH	SUS440C Equivalent	45~50HRC			
-	GSHCCGH		45~50HRC Plating Hardness 750HV~	Hard Chrome Plating		

D Tolerance (g6)	
2, 3	-0.002 -0.008
4~6	-0.004 -0.012
8, 10	-0.005 -0.014
12~18	-0.006 -0.017
20~25	-0.007 -0.020



* The tolerance Dg6 is only available for the diameter over the length L. The front diameter has a negative tolerance.
(Ⓨ) **HCDG** has identification grooves on the side in order to distinguish it from Hardened Type. (**HCCG** and **PHCCG** may also have identification grooves.)
(Ⓨ) Relief dimension under the shoulder is for reference.
(Ⓨ) For L Dimension, Standard Machining Tolerances (Class: Medium) is used.
(Ⓨ) This type may have centering holes depending on dimensions.

■L Dimension Selectable

Part Number Type	D	L Selection	M	Tolerance	N	u	(n)	d	Tolerance	T	H	Included Retaining Ring Shape	Included Retaining Ring JIS Nominal*	Unit Price HCDG	Unit Price HCDGH	Unit Price SHCDG
HCDG	3	10 12 14 15 16 18 20 22 24 25 30	0.5	+0.05 0	2	2.9	1.5	2	+0.06 0	1.5	5.5	E Type	No. 2			
HCDGH (Hardened)	4					3.9		3			6.5		No. 3			
	5		0.7	+0.1 0		4.9		4	+0.075 0		8		No. 4			
SHCDG (Stainless Steel)	6	15 16 18 20 22 24 25 30 35 40 45 50				5.8		5			9		No. 5			
	8		0.9			7.8		7	+0.09 0 -0.09	2	12		No. 7			
	10	18 20 22 24 25 30 35 40 45 50	1.15	+0.14 0	3	9.8		9.6			14	C Type	No.10			
	12	22 24 25 30 35 40 45 50				11.8		11.5	+0.11 0	3	17		No.12			

(Ⓨ) * For details, see **P.2303**.

■L Dimension Configurable Type (0.1mm Increment)

Part Number Type	D	L=0.1mm Increment	M	Tolerance	N	u	(n)	d	Tolerance	T	H	Included Retaining Ring Shape	Included Retaining Ring JIS Nominal*	Unit Price HCCG	Unit Price HCCGH	Unit Price PHCCG	Unit Price PHCCGH	Unit Price GHCCG	Unit Price SHCCG	Unit Price SHCCGH	Unit Price GSHCCGH
HCCG	2	5.0~ 30.0	0.5	+0.05 0	2	1.9	1.5 or Less	1.5	+0.06 0	1.5	4.5	E Type	No. 1.5								
HCCGH	3	5.0~ 50.0				2.9		2.9			5.5		No. 2								
PHCCG	4					3.9		3			6.5		No. 3								
PHCCGH	5	10.0~ 60.0	0.7	+0.1 0		4.9		4	+0.075 0		8		No. 4								
GHCCG	6	10.0~100.0				5.8		5	0 -0.075		9		No. 5								
SHCCG	8		0.9			7.8		7	+0.09 0 -0.09	2	12		No. 7								
SHCCGH	10	15.0~100.0	1.15	+0.14 0	3	9.8		9.6			14	C Type	No.10								
GSHCCGH	12	15.0~200.0				11.8		11.5		3	17		No.12								
	13	20.0~200.0				12.8		12.4			18		No.13								
	14					13.8		13.4			19		No.14								
	15					14.8		14.3			20		No.15								
	16	20.0~200.0				15.8		15.2			21		No.16								
	17					16.8		16.2			22		No.17								
	18					17.8		17			23		No.18								
	20		1.35			19.8		19	0 -0.21	4	26		No.20								
	22					21.8		21			27		No.22								
	25					24.8		23.9			30		No.25								

(Ⓨ) * For details, see **P.2303**. (Ⓨ) SHCCGH and GSHCCGH may be discolored by hardening.

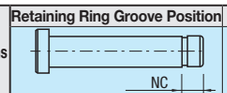
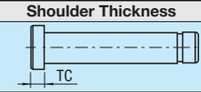
Ordering Example

Part Number	-	L
HCDG8	-	30
HCCG15	-	120.3

Alterations

Part Number	-	L	-	(NC, TC, HC)
HCCG15	-	120.3 - NC3.5 - TC3.5		

(Ⓨ) Applicable to L Dimension Configurable Type.

Alterations	Retaining Ring Groove Position	Shoulder Thickness	Shoulder Diameter Cut
			
Code	NC	TC	HC
Spec.	Ordering Code NC3.5 D / NC (0.1mm Increment) 2~4 / 1.5~3 5 / 1.7~3 6 / 1.9~4 8 / 2.4~5 10~18 / 2.7~5 20~25 / 2.9~5 (Ⓨ) Overall Length is L+NC+T.	Ordering Code TC3 (Ⓨ) TC=0.5mm Increment (Ⓨ) T<TC≤5 (Ⓨ) Overall Length is L+N+TC.	Ordering Code HC ・D=2~10 HC=H/2-1 ・D=12~25 HC=H/2-2