

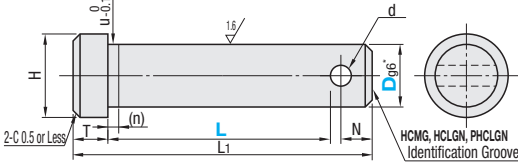
Pivot Pins

Cotter Pins with Shoulder



Type	Material	Hardness	Surface Treatment	Accessory
L Dimension Selectable	L Dimension Configurable			
HCMG	HCLGN	EN 1.1191 Equiv.	-	
HCMGH	HCLGHN	40~45HRC	Black Oxide	
-	PHCLGN	40~45HRC	Electroless Nickel	
-	PHCLGHN	40~45HRC	Plating	
-	GHCLGN	40~45HRC	Hard Chrome Plating: Plating Thickness 3µm or more	
SHCMG	SHCLGN	EN 1.4301 Equiv.	-	
-	SHCLGHN	EN 1.4301 Equiv.	45~50HRC	
-	GSCLGHN	EN 1.4125 Equiv.	45~50HRC Plating Hardness 750HV~	

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



*Dg6 Tolerance is available for L dimensions only. Others are general tolerance.
There are identification grooves on the side of HCMG, HCLGN and PHCLGN to be distinguished from Hardened Type.
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	Unit Price
HCMG	3	4	10 12 14 15 16 18 20	L+ 4.4	2.5	2.9	0.8	5.5	NPNO.8- 8	NSPN0.8- 8	HCMG HCMGH SHCMG	
HCMGH	4	5	10 12 14 15 16 18 20	L+ 4.5	3.9	1.2	1.5	6.5	NPN1 -10	NSPN1 -10		
(Hardened)	5	6	15 16 18 20 22 24 25 30	L+ 5.6	4.9	1.2	1.5	8	NPN1.2-10	NSPN1.2-10		
SHCMG	6	8	15 16 18 20 22 24 25 30	L+ 5.8	5.8	1.5	1.6	9	NPN1.6-10	NSPN1.6-10		
(Stainless Steel)	8	10	18 20 22 24 25 30 35 40 45 50	L+ 7	4	7.8	2	12	NPN2 -12	NSPN2 -12		
	10	12	22 24 25 30 35 40 45 50	L+ 8.25	5	9.8	2.5	14	NPN2.5-15	NSPN2.5-15		
	12	12	22 24 25 30 35 40 45 50	L+10.6	6	11.8	3.2	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	Unit Price
HCLGN	3	4	5.0~50.0	L+ 4.4	2.5	2.9	0.8	5.5	NPNO.8- 8	NSPN0.8- 8		
HCLGHN	4	5	10.0~60.0	L+ 4.5	3.9	1.2	1.5	6.5	NPN1 -10	NSPN1 -10		
PHCLGN	5	6	10.0~60.0	L+ 5.6	4.9	1.2	1.5	8	NPN1.2-10	NSPN1.2-10		
PHCLGHN	6	8	10.0~100.0	L+ 5.8	5.8	1.5	1.6	9	NPN1.6-10	NSPN1.6-10		
GHCLGN	8	10	15.0~100.0	L+ 7	4	7.8	2	12	NPN2 -12	NSPN2 -12		
SHCLGN	10	12	15.0~200.0	L+ 8.25	5	9.8	2.5	14	NPN2.5-15	NSPN2.5-15		
SHCLGHN	12	13	15.0~200.0	L+10.6	6	11.8	3.2	17	NPN3.2-20	NSPN3.2-20		
GSCLGHN	13	14	20.0~200.0	L+12	7	14.8	4	18	NPN4 -20	NSPN4 -20		
	15	16	20.0~200.0	L+12	7	15.8	4	19	NPN4 -25	NSPN4 -25		
	17	18	20.0~200.0	L+12	7	16.8	4	20	NPN4 -25	NSPN4 -25		
	20	21	20.0~200.0	L+12	7	17.8	4	21	NPN4 -25	NSPN4 -25		
	22	23	20.0~200.0	L+12	7	18.8	4	22	NPN4 -25	NSPN4 -25		
	25	26	20.0~200.0	L+14.5	8	19.8	5	23	NPN5 -35	NSPN5 -35		
	25	27	20.0~200.0	L+15.5	9	20.8	5	24	NPN5 -35	NSPN5 -35		

SHCLGHN and GSCLGHN may be discolored by hardening.

Ordering Example	Part Number	-	L
	HCMG8	-	30
	HCLGN15	-	120.3

Alterations	Part Number	-	L	(NC, TC, HC)	Applicable to L Dimension Configurable Type.
	HCLGN15	-	120.3	- NC3	

Alterations	Cotter Pin Hole Position	Shoulder Thickness	Shoulder Diameter Cut
	NC	TC	HC
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.

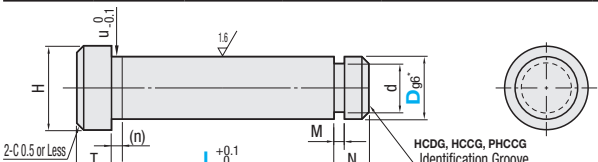
Pivot Pins

Retaining Ring with Shoulder



Type	Material	Hardness	Surface Treatment	Accessory
L Dimension Selectable	L Dimension Configurable			
HCDG	HCCG	EN 1.1191 Equiv.	-	
HCDGH	HCCGH	40~45HRC	Black Oxide	
-	PHCCG	40~45HRC	Electroless Nickel	
-	PHCCGH	40~45HRC	Plating	
-	GHCCG	40~45HRC	Hard Chrome Plating: Plating Thickness 3µm or more	
SHCDG	SHCCG	EN 1.4301 Equiv.	-	
-	SHCCGH	EN 1.4301 Equiv.	45~50HRC	
-	GSCHCCGH	EN 1.4125 Equiv.	45~50HRC Plating Hardness 750HV~	

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



*Dg6 Tolerance is available for L dimensions only. Others are general tolerance.
There are identification grooves on the side of HCDG, HCCG and PHCCG to be distinguished from Hardened Type.
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	JIS Nominal	Unit Price
HCDG	3	4	10 12 14 15 16 18 20 22 24 25 30	0.5	2	2.9	1.5	2	+0.06	5.5	E Type	No. 2	
HCDGH	4	5	10 12 14 15 16 18 20 22 24 25 30	0.7	2	3.9	1.5	3	0	6.5	E Type	No. 3	
(Hardened)	5	6	15 16 18 20 22 24 25 30 35 40 45 50	0.9	2	4.9	1.5	4	+0.075	8	E Type	No. 4	
SHCDG	8	10	18 20 22 24 25 30 35 40 45 50	1.15	3	5.8	1.5	5	0	9	C Type	No. 5	
(Stainless Steel)	12	12	22 24 25 30 35 40 45 50	1.15	3	7.8	1.5	7	+0.09	12	C Type	No. 7	
	12	12	22 24 25 30 35 40 45 50	1.15	3	9.6	1.5	9	0	14	C Type	No. 9	
	12	12	22 24 25 30 35 40 45 50	1.15	3	11.8	1.5	11.5	-0.11	17	C Type	No.12	

* For details, see P2303.

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	JIS Nominal	Unit Price
HCCG	2	3	5.0~ 30.0	0.5	1	1.9	1.5	1.9	+0.06	4.5	E Type	No. 1.5	
HCCGH	3	4	5.0~ 50.0	0.7	2	2.9	1.5	2.9	0	5.5	E Type	No. 2	
PHCCG	4	5	10.0~ 60.0	0.9	2	3.9	1.5	3.9	0	6.5	E Type	No. 3	
PHCCGH	5	6	10.0~ 60.0	0.9	2	4.9	1.5	4.9	+0.075	8	E Type	No. 4	
GHCCG	6	8	10.0~100.0	1.15	3	5.8	1.5	5.8	0	9	C Type	No. 5	
SHCCG	8	10	15.0~100.0	1.35	3	7.8	1.5	7.8	+0.09	12	C Type	No. 7	
SHCCGH	10	12	15.0~200.0	1.35	3	9.6	1.5	9.6	0	14	C Type	No. 9	
GSCHCCGH	12	13	20.0~200.0	1.35	3	11.8	1.5	11.8	-0.11	17	C Type	No.12	
	14	15	20.0~200.0	1.35	3	13.8	1.5	13.8	0	18	C Type	No.13	
	16	17	20.0~200.0	1.35	3	14.8	1.5	14.8	0	19	C Type	No.14	
	18	19	20.0~200.0	1.35	3	15.8	1.5	15.8	0	20	C Type	No.15	
	20	21	20.0~200.0	1.35	3	16.8	1.5	16.8	0	22	C Type	No.17	
	22	23	20.0~200.0	1.35	3	17.8	1.5	17.8	0	23	C Type	No.18	
	25	26	20.0~200.0	1.35	3	19.8	1.5	19.8	0	26	C Type	No.20	
	25	27	20.0~200.0	1.35	3	21.8	1.5	21.8	-0.21	27	C Type	No.22	
	25	28	20.0~200.0	1.35	3	23.8	1.5	23.8	-0.21	31	C Type	No.25	

* For details, see P2303. SHCCGH and GSCHCCGH may be discolored by hardening.

Ordering Example	Part Number	-	L
	HCDG8	-	30
	HCCG15	-	120.3

Alterations	Part Number	-	L	(NC, TC, HC)	Applicable to L Dimension Configurable Type.
	HCCG15	-	120.3	- NC3.5 - TC3.5	

Alterations	Retaining Ring Groove Position	Shoulder Thickness	Shoulder Diameter Cut
	NC	TC	HC
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