

■ Check-pin for hole size before tapping ■

CPC-S

Check-pin for cutting taps
(straight type)

CPC-T

Check-pin for cutting taps
(taper type)

CP-RY

Check-pin for forming taps

Check Pin Series

For "Reliable screw threads", control of hole size before tapping is really important. You can check hole size before tapping quite easily and precisely.



Important!

Do you check holes before tapping?

■ Check-pin for hole size before tapping ■

CPC-S Check pin for Cutting Straight

Check-pin for cutting taps (straight type)
CPS-S (5 pcs/set)



CPC-T Check pin for Cutting Taper

Check-pin for cutting taps (taper type)
CPS-T (1 pc)



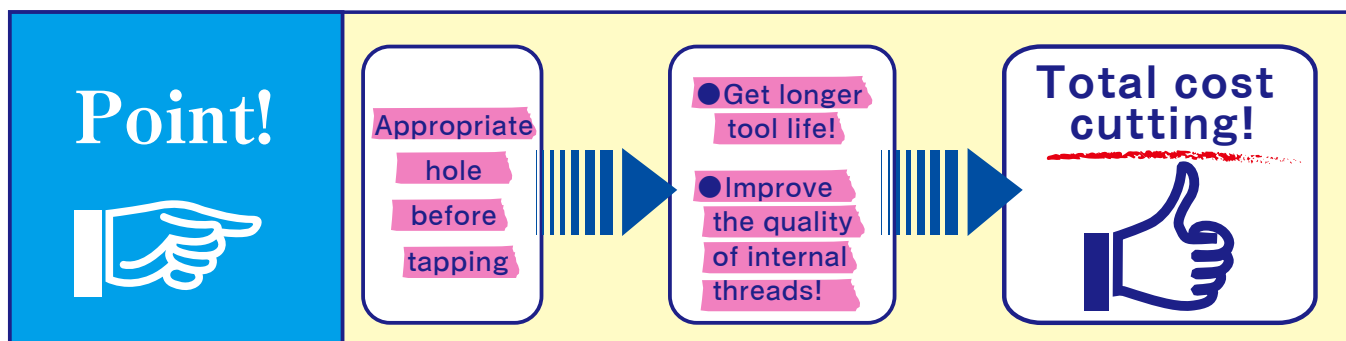
■ General process for tapping



Check both hole size and its condition at the same time by this Check-pin!

◀ CPC-S straight type

Check finished screw thread by thread gauge!



Check the hole condition before tapping!



Hole condition can be inappropriate before tapping.

Case 1
— Bending —

Check-pin stops on the way.

Case 2
— Slanting —

Hole isn't vertical against end face.

Case 3
— Oversize inlet of hole —

Inlet is too big.

Case 4
— Undersize hole —

Hole is smaller than minimum size of the standard.

Troubles caused by bad holes before tapping

- 1) Bending hole
- 2) Slanting hole
- 3) Oversize inlet of hole
- 4) Undersize hole etc.



By setting efficient hole size and boring holes correctly, you can get the longer tool life and keep away from any tapping troubles. Let's check the hole before tapping.

Check the hole size before tapping!



Let's check the hole size before tapping M6X1 6H internal threads by using Check-pin for cutting taps

Example for use of CPC-S (Straight type)

Step. 1 Check the standard minor dia for M6X1 6H internal

Step. 2 Size of the Check-pin

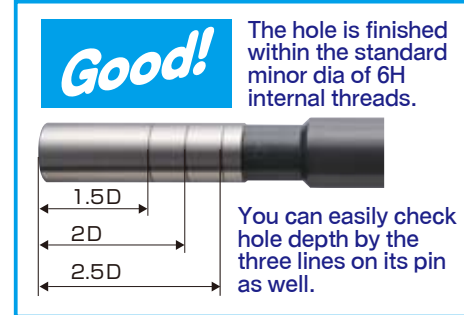
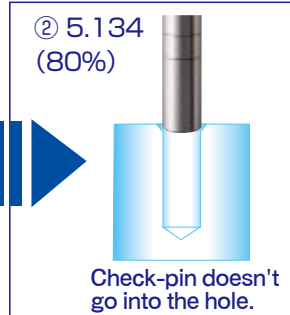
Nominal size	O A L	ℓ	D _s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)
M6 × 1	73	16.5	6	4.917 (100%)	5.026 (90%)
				4.972 (95%)	5.080 (85%)
				5.026 (90%)	5.134 (80%)
				5.080 (85%)	5.188 (75%)
				5.134 (80%)	5.242 (70%)

Select the nearest sizes of the Check-pins to the max and min size of minor dia of 6H internal thread by checking the table listed on the left-hand side.

⇒ ① 4.917 (100%) & ② 5.134 (80%)

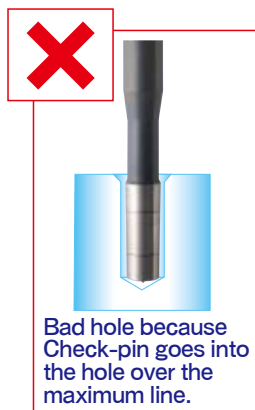
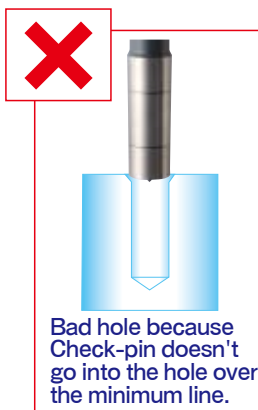
Depending on the feature of work-piece materials, it is beneficial to tapping for the hole size before tapping to be as large as possible and yet within the tolerance.

Step. 3 Insert the Check-pins ① and ② selected in by step 2.



Example for use of CPC-T (Taper type)

Nominal size	O A L	ℓ	D _s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	(ℓ 1)	(ℓ 2)
M6 × 1	61.5	17	6	4.917 (100%)	5.153 (78%)	CPCT6.0M	3.8	12.8



For detailed usage (video), check the QR code!



CPC-S Check pin for Cutting Straight

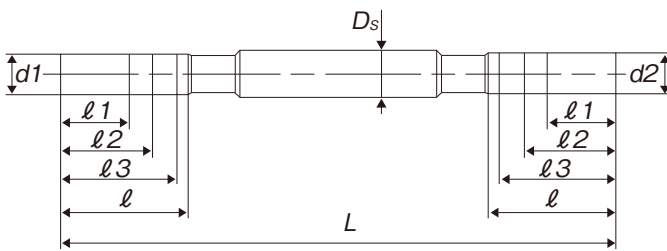
Check-pin for cutting taps (straight type) **CPS-S (5 pcs/set)**



Features/Benefits:

1. Check both hole size and depth at the same time by 5 pcs of Check-pins!
2. Manufactured from High Speed Steel with high wear resistance
3. For checking both through hole and blind hole

Dimension



Nominal size	O A L	ℓ	D _s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
M2 × 0.4	41.5	5.5	3	1.567 (100%)	1.610 (90%)	CPCS2.0EA	3	4	5
				1.589 (95%)	1.632 (85%)	CPCS2.0EB			
				1.610 (90%)	1.654 (80%)	CPCS2.0EC			
				1.632 (85%)	1.675 (75%)	CPCS2.0ED			
				1.654 (80%)	1.697 (70%)	CPCS2.0EE			
				※5pcs/set		CPCS2.0ES			
M2.5×0.45	45	7	3	2.013 (100%)	2.062 (90%)	CPCS2.5FA	3.8	5	6.3
				2.037 (95%)	2.086 (85%)	CPCS2.5FB			
				2.062 (90%)	2.110 (80%)	CPCS2.5FC			
				2.086 (85%)	2.135 (75%)	CPCS2.5FD			
				2.110 (80%)	2.159 (70%)	CPCS2.5FE			
				※5pcs/set		CPCS2.5FS			
M3 × 0.5	49	8.5	4	2.459 (100%)	2.513 (90%)	CPCS3.0GA	4.5	6	7.5
				2.486 (95%)	2.540 (85%)	CPCS3.0GB			
				2.513 (90%)	2.567 (80%)	CPCS3.0GC			
				2.540 (85%)	2.594 (75%)	CPCS3.0GD			
				2.567 (80%)	2.621 (70%)	CPCS3.0GE			
				※5pcs/set		CPCS3.0GS			
M4 × 0.7	57	11	5	3.242 (100%)	3.318 (90%)	CPCS4.0IA	6	8	10
				3.280 (95%)	3.356 (85%)	CPCS4.0IB			
				3.318 (90%)	3.394 (80%)	CPCS4.0IC			
				3.356 (85%)	3.432 (75%)	CPCS4.0ID			
				3.394 (80%)	3.470 (70%)	CPCS4.0IE			
				※5pcs/set		CPCS4.0IS			
M5 × 0.8	65	14	5.5	4.134 (100%)	4.221 (90%)	CPCS5.0KA	7.5	10	12.5
				4.177 (95%)	4.264 (85%)	CPCS5.0KB			
				4.221 (90%)	4.307 (80%)	CPCS5.0KC			
				4.264 (85%)	4.350 (75%)	CPCS5.0KD			
				4.307 (80%)	4.394 (70%)	CPCS5.0KE			
				※5pcs/set		CPCS5.0KS			

■ Example: M12X1.75 (Hole size φ10.37)



(unit: mm)

Nominal size	O A L	ℓ	D _s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
M6 × 1	73	16.5	6	4.917 (100%)	5.026 (90%)	CPCS6.0MA	9	12	15
				4.972 (95%)	5.080 (85%)	CPCS6.0MB			
				5.026 (90%)	5.134 (80%)	CPCS6.0MC			
				5.080 (85%)	5.188 (75%)	CPCS6.0MD			
				5.134 (80%)	5.242 (70%)	CPCS6.0ME			
				※5pcs/set		CPCS6.0MS			
M8 × 1.25	99	22	8	6.647 (100%)	6.782 (90%)	CPCS8.0NA	12	16	20
				6.714 (95%)	6.850 (85%)	CPCS8.0NB			
				6.782 (90%)	6.917 (80%)	CPCS8.0NC			
				6.850 (85%)	6.985 (75%)	CPCS8.0ND			
				6.917 (80%)	7.053 (70%)	CPCS8.0NE			
				※5pcs/set		CPCS8.0NS			
M10×1.5	110	27.5	10	8.376 (100%)	8.538 (90%)	CPCS0100A	15	20	25
				8.457 (95%)	8.620 (85%)	CPCS0100B			
				8.538 (90%)	8.701 (80%)	CPCS0100C			
				8.620 (85%)	8.782 (75%)	CPCS0100D			
				8.701 (80%)	8.863 (70%)	CPCS0100E			
				※5pcs/set		CPCS0100S			
M12×1.75	121	33	12	10.105 (100%)	10.295 (90%)	CPCS012PA	18	24	30
				10.200 (95%)	10.390 (85%)	CPCS012PB			
				10.295 (90%)	10.484 (80%)	CPCS012PC			
				10.390 (85%)	10.579 (75%)	CPCS012PD			
				10.484 (80%)	10.674 (70%)	CPCS012PE			
				※5pcs/set		CPCS012PS			

※Depending on the hole sizes for checking, color rings imprinted on its neck part are also available.

CPC-T

Check pin for Cutting Taper

Check-pin for cutting taps (taper type) CPS-T (1 pc)



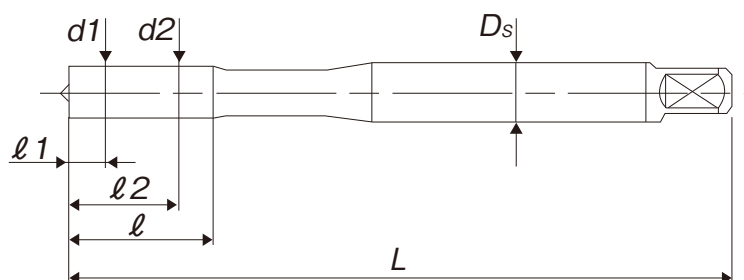
■ Example: M12X1.75 (Hole size $\phi 10.37$)

Features/Benefits:

1. Check hole size easily by the Check-pin!
2. Manufactured from High Speed Steel with high wear resistance
3. For checking both through hole and blind hole deep enough



Dimension



(unit: mm)

Nominal size	OA L	l	D_s	$d1$ (Percentage of thread engagement)	$d2$ (Percentage of thread engagement)	Product code	($l1$)	($l2$)
M2 $\times 0.4$	42	7	3	1.567 (100%)	1.679 (74%)	CPCT2.0E	1	6
M2.5 $\times 0.45$	46	8	3	2.013 (100%)	2.138 (74%)	CPCT2.5F	1.5	6.5
M3 $\times 0.5$	46	8.5	4	2.459 (100%)	2.599 (74%)	CPCT3.0G	1.5	7
M4 $\times 0.7$	52	11	5	3.242 (100%)	3.422 (76%)	CPCT4.0I	2.3	8.3
M5 $\times 0.8$	59.5	13	5.5	4.134 (100%)	4.334 (77%)	CPCT5.0K	2.5	10
M6 $\times 1$	61.5	17	6	4.917 (100%)	5.153 (78%)	CPCT6.0M	3.8	12.8
M8 $\times 1.25$	90	19	8	6.647 (100%)	6.912 (80%)	CPCT8.0N	4.7	14.7
M10 $\times 1.5$	100	23	10	8.376 (100%)	8.676 (82%)	CPCT0100	6.7	16.7
M12 $\times 1.75$	110	27	12	10.106 (100%)	10.441 (82%)	CPCT012P	7.7	19.7

※with flat center from M2 to M6

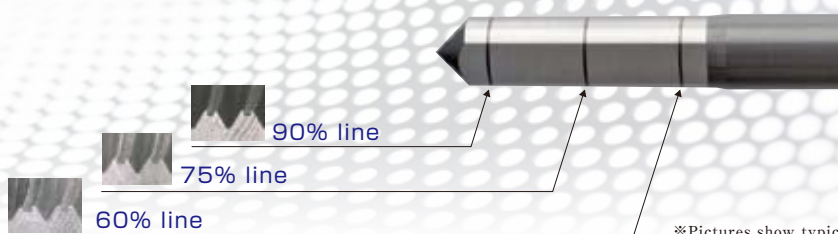
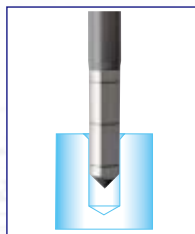
CP-RY

Check pin for R-Y

Check the hole size before tapping by CP-RY !



Hole size before use of forming taps isn't equal to the minor dia of internal threads. Finished minor dia can change depending on the hole size before tapping because forming taps push up the materials to build up the internal threads.



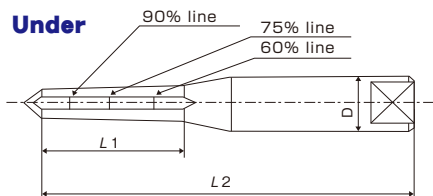
*Pictures show typical examples

Features/ Benefits:

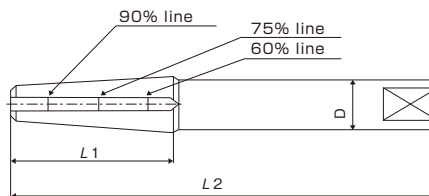
1. Check hole size easily by the Check-pin!
2. Manufactured from High Speed Steel with high wear resistance
3. For checking both through hole and blind hole deep enough

Dimension

● M6 and Under



● M8



(unit: mm)

Nominal size	L2	L1	D	Percentage of thread engagement and pin dia.			Product code
				60%	75%	90%	
M2 × 0.4	42	9	3	1.89	1.86	1.83	RYC2.0
M2.5 × 0.45	44	10	3	2.37	2.34	2.31	RYC2.5
M2.6 × 0.45	44	10	3	2.47	2.44	2.41	RYC2.6
M3 × 0.5	46	13	4	2.87	2.83	2.78	RYC3.0
M4 × 0.7	52	16	5	3.81	3.75	3.69	RYC4.0
M5 × 0.8	60	16	5.5	4.77	4.71	4.65	RYC5.0
M6 × 1	62	19	6	5.70	5.63	5.55	RYC6.0
M8 × 1.25	70	25	6.2	7.63	7.53	7.42	RYC8.0

R-Y (Forming taps for thin soft structural steel sheets)

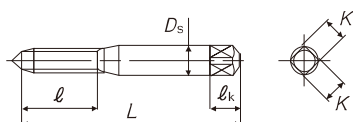


Suitable for tapping thin soft sheet plates such as SPCC, SPH, SS400 and S20C.

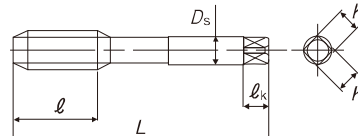
○ = Commercially available

Nominal size	Class	ℓc	Stock	Product code	L	ℓ	Ds	Number of lobes	Type of front end	Type
M2 × 0.4	6H	3P	○	RY20E3	42	7	3	4	□	p
M2.5 × 0.45				RY25F3	44	8	3			
M2.6 × 0.45				RY26F3	44	8	3			
M3 × 0.5				RY30G3	46	9	4			
M4 × 0.7				RY40I3	52	11	5			
M5 × 0.8				RY50K3	60	12	5.5			
M6 × 1				RY60M3	62	15	6			
M8 × 1.25				RY80N3	70	18	6.2			

TYPE p



TYPE e



Reference data

① Hole size and percentage of thread engagement for internal threads

Relationship between hole size and percentage of thread engagement (unit: mm)

Threads	Hole size ⁽²⁾							Minor dia of internal threads ⁽³⁾			
	Percentage of thread engagement (%)							Minimum	Maximum		
	100	95	90	85	80	75	70		5 H (M 1.6 and over) first class	6 H (M 1.6 and over) 2nd class	7 H 3rd class
M2X0.4	1.57	1.59	1.61	1.63	1.65	1.68	1.70	1.567	1.657	1.679	—
M2.5X0.45	2.01	2.04	2.06	2.09	2.11	2.13	2.16	2.013	2.113	2.138	—
M3X0.5	2.4	2.49	2.51	2.54	2.57	2.59	2.62	2.459	2.571	2.599	2.639
M4X0.7	3.24	3.28	3.32	3.36	3.39	3.43	3.47	3.242	3.382	3.422	3.466
M5X0.8	4.13	4.18	4.22	4.26	4.31	4.35	4.39	4.134	4.294	4.334	4.384
M6X1	4.92	4.97	5.03	5.08	5.13	5.19	5.24	4.917	5.107	5.153	5.217
M8X1.25	6.65	6.71	6.78	6.85	6.92	6.99	7.05	6.647	6.859	6.912	6.982
M10X1.5	8.38	8.46	8.54	8.62	8.70	8.78	8.86	8.376	8.612	8.676	8.751
M12X1.75	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.106	10.371	10.441	10.531

--- line are within 5H or JIS 1st, and --- line within 6H or JIS 2nd, and --- Sizes left hand side of line within 7H or JIS 3rd. (Excerpt from JIS B 1004:2009 hole size for internal threads)

② About percentage of thread engagement

ひっかかり率 (%) / Percentage of Thread Engagement

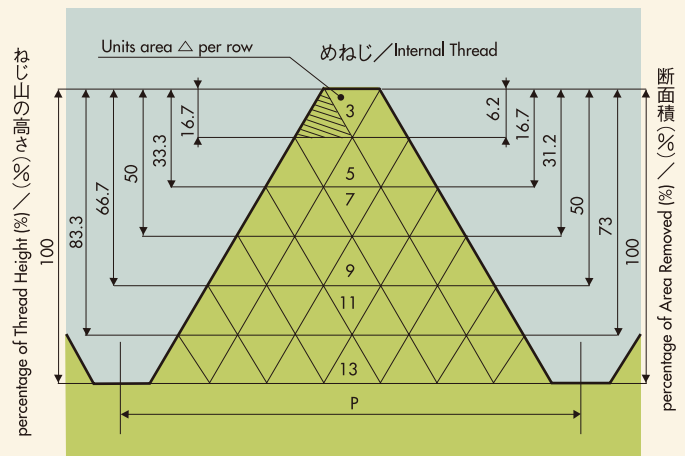
$$\frac{\text{外径の基準寸法} - \text{一下穴径}}{2 \times (\text{標準のひっかかり高さ})} \times 100$$

$$\frac{\text{Basic Major Dia.} - \text{Hole Size Before Tapping}}{2 \times (\text{Basic Thread Overlap})} \times 100$$

基準のひっかかり高さ / Basic Thread Overlap :

メートルねじ、ユニファイねじ / Metric & Unified Thread	0.5413P
ウイットねじ / Whitworth Thread	0.5664P
管用ねじ (Rc, Rp, G, PT, PS, PF) / Pipe Thread	0.6403P

P=ピッチ、Pitch



Instructions and directions for use

- ◆ Don't use the tools on machine to prevent accidents. Please use by hand.
- ◆ Tools may fragment in use. Always wear safety equipment.
- ◆ Clean the check pins before use
- ◆ Prevent too much stress on the check pins
- ◆ Rustproof the check pins after use

The specification might be changed to improve without notice.

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YAMAWA group for Overseas

YAMAWA International Co., Ltd.



Our target is to reduce the energy per each tool.

We will reduce the excessive machining toward such portions as do not affect the tool's performance and reduce energy consumption. Without affecting the tool's performance, we aim to minimize the excessive machining power and hence reduce the energy consumption.