Reference data

①Hole size and percentage of thread engagement for internal threads

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

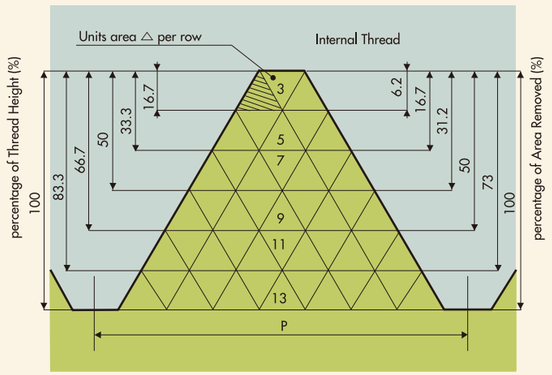
Threads	Hole size(2)							Minor dia of internal threads(3)			
	Percentage of thread engagement(%)								Maximum		
Nominal size	100	95	90	85	80	75	70	Minimum	5H(M 1.6 and over) first class	6H(M 1.6 and over) 2nd class	7H 3rd class
M2X0.4	1.57	1.59	1.61	1.63	1.65	1.68	1.70	1.567	1.657	1.679	—
M2.5X0.45	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)

②About percentage of thread engagement

Percentage of Thread Engagement

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



基準のひっかかり高さ／Basic Thread Overlap：

Metric & Unified Thread	0.5413P
Whitworth Thread	0.5664P
(Rc, Rp, G, PT, PS, PF)／Pipe Thread	0.6403P

P= 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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Website:http://www.yamawa.com

YAMAWA group for Overseas

YAMAWA International Co., Ltd.

ISO 9001 JQA-QMA14664

ISO 14001 JQA-EM3465

Think threads with YAMAWA

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.

■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)

CPR-S Check-pin for roll taps (straight type)

CPR-T Check-pin for roll taps (taper type)

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)

HSS

CPC-T Check pin for Cutting Taper

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

HSS

CPR-S Check pin for Forming Straight

Check-pin for roll taps (straight type)
CPR-S

HSS

CPR-T Check pin for Forming Taper

Check-pin for roll taps (taper type)
CPR-T

HSS

■General process for tapping

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

◀CPS-S straight type

Check threads
http://www.yamawa.jp/

Step.1 Positioning & Chamfering

Point drill PE-Q-V

Step.2 Drilling

Step.3 Reaming

Step.4 Tapping

Step.5 Threads simple check

Simple measur
Ring tool

SMT
(NB-6H)

Point!

Appropriate hole before tapping

→ ●Get longer tool life! ●Improve the quality of internal threads!

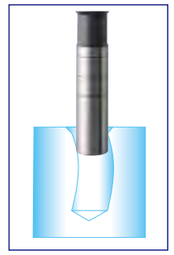
→ Total cost cutting!

■Check the hole condition before tapping!

Hole condition can be inappropriate before tapping.

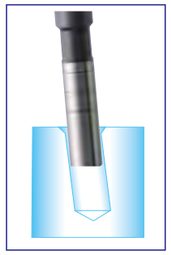
✕ Case 1 — Bending —

Check-pin stops on the way.



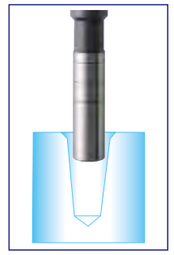
✕ Case 2 — Slanting —

Hole isn't vertical against end face.



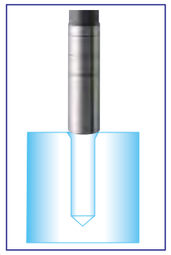
✕ Case 3 —Oversize inlet of hole—

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.

CPC-S Check pin for Cutting Straight for Metric Threads

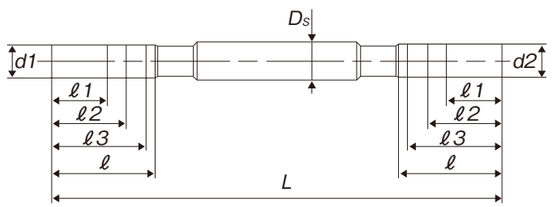
Check-pin for cutting taps (straight type)　CPS-S (5 pcs/set)

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

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

■ Dimension



(unit: mm)

Nominal size	O A L	ℓ	Ds	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	3.0	1.567 (100%)	1.610 (90%)	CPCS2.0EA	3.0	4.0	5.0
				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			
				1.675 (75%)	1.719 (65%)	CPCS2.0EF			
				100%−70% (5pcs/set)		CPCS2.0ES			
				95%−65% (5pcs/set)		CPCS2.0EM			
M2.5×0.45	45	7.5	3.0	2.013 (100%)	2.062 (90%)	CPCS2.5FA	3.8	5.0	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			
				2.135 (75%)	2.183 (65%)	CPCS2.5FF			
				100%−70% (5pcs/set)		CPCS2.5FS			
				95%−65% (5pcs/set)		CPCS2.5FM			
M2.5×0.35	45	7.5	3.0	2.121 (100%)	2.159 (90%)	CPCS2.5DA	3.8	5.0	6.3
				2.140 (95%)	2.178 (85%)	CPCS2.5DB			
				2.159 (90%)	2.197 (80%)	CPCS2.5DC			
				2.178 (85%)	2.216 (75%)	CPCS2.5DD			
				2.197 (80%)	2.235 (70%)	CPCS2.5DE			
				2.216 (75%)	2.254 (65%)	CPCS2.5DF			
				100%−70% (5pcs/set)		CPCS2.5DS			
				95%−65% (5pcs/set)		CPCS2.5DM			
M3 ×0.5	49	9.0	4.0	2.459 (100%)	2.513 (90%)	CPCS3.0GA	4.5	6.0	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			
				2.594 (75%)	2.648 (65%)	CPCS3.0GF			
				100%−70% (5pcs/set)		CPCS3.0GS			
				95%−65% (5pcs/set)		CPCS3.0GM			
M3 ×0.35	49	9.0	4.0	2.621 (100%)	2.659 (90%)	CPCS3.0DA	4.5	6.0	7.5
				2.640 (95%)	2.678 (85%)	CPCS3.0DB			
				2.659 (90%)	2.697 (80%)	CPCS3.0DC			
				2.678 (85%)	2.716 (75%)	CPCS3.0DD			
				2.697 (80%)	2.735 (70%)	CPCS3.0DE			
				2.716 (75%)	2.754 (65%)	CPCS3.0DF			
				100%−70% (5pcs/set)		CPCS3.0DS			
				95%−65% (5pcs/set)		CPCS3.0DM			
M3.5×0.6	57	11.0	5.0	2.850 (100%)	2.915 (90%)	CPCS3.5HA	5.3	7.0	8.8
				2.883 (95%)	2.948 (85%)	CPCS3.5HB			
				2.915 (90%)	2.980 (80%)	CPCS3.5HC			
				2.948 (85%)	3.013 (75%)	CPCS3.5HD			
				2.980 (80%)	3.045 (70%)	CPCS3.5HE			
				3.013 (75%)	3.078 (65%)	CPCS3.5HF			
				100%−70% (5pcs/set)		CPCS3.5HS			
				95%−65% (5pcs/set)		CPCS3.5HM			
M3.5×0.35	57	11.0	5.0	3.121 (100%)	3.159 (90%)	CPCS3.5DA	5.3	7.0	8.8
				3.140 (95%)	3.178 (85%)	CPCS3.5DB			
				3.159 (90%)	3.197 (80%)	CPCS3.5DC			
				3.178 (85%)	3.216 (75%)	CPCS3.5DD			
				3.197 (80%)	3.235 (70%)	CPCS3.5DE			
				3.216 (75%)	3.254 (65%)	CPCS3.5DF			
				100%−70% (5pcs/set)		CPCS3.5DS			
				95%−65% (5pcs/set)		CPCS3.0DM			
M4×0.7	57	11.0	5.0	3.242 (100%)	3.318 (90%)	CPCS4.0IA	6.0	8.0	10.0
				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			
				3.432 (75%)	3.507 (65%)	CPCS4.0IF			
				100%−70% (5pcs/set)		CPCS4.0IS			
				95%−65% (5pcs/set)		CPCS4.0IM			

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

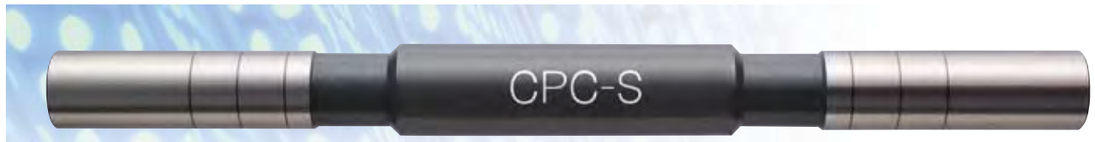
(unit: mm)

Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
M4 ×0.5	57	11.0	5.0	3.459 (100%)	3.513 (90%)	CPCS4.0GA	6.0	8.0	10.0
				3.486 (95%)	3.540 (85%)	CPCS4.0GB			
				3.513 (90%)	3.567 (80%)	CPCS4.0GC			
				3.540 (85%)	3.594 (75%)	CPCS4.0GD			
				3.567 (80%)	3.621 (70%)	CPCS4.0GE			
				3.594 (75%)	3.648 (65%)	CPCS4.0GF			
				100%−70% (5pcs/set)		CPCS4.0GS			
				95%−65% (5pcs/set)		CPCS4.0GM			
M4.5×0.75	65	14.0	5.5	3.688 (100%)	3.769 (90%)	CPCS4.5JA	6.8	9.0	11.3
				3.729 (95%)	3.810 (85%)	CPCS4.5JB			
				3.769 (90%)	3.850 (80%)	CPCS4.5JC			
				3.810 (85%)	3.891 (75%)	CPCS4.5JD			
				3.850 (80%)	3.932 (70%)	CPCS4.5JE			
				3.891 (75%)	3.972 (65%)	CPCS4.5JF			
				100%−70% (5pcs/set)		CPCS4.5JS			
				95%−65% (5pcs/set)		CPCS4.5JM			
M4.5×0.5	65	14.0	5.5	3.959 (100%)	4.013 (90%)	CPCS4.5GA	6.8	9.0	11.3
				3.986 (95%)	4.040 (85%)	CPCS4.5GB			
				4.013 (90%)	4.067 (80%)	CPCS4.5GC			
				4.040 (85%)	4.094 (75%)	CPCS4.5GD			
				4.067 (80%)	4.121 (70%)	CPCS4.5GE			
				4.094 (75%)	4.148 (65%)	CPCS4.5GF			
				100%−70% (5pcs/set)		CPCS4.5GS			
				95%−65% (5pcs/set)		CPCS4.5GM			
M5×0.8	65	14.0	5.5	4.134 (100%)	4.221 (90%)	CPCS5.0KA	7.5	10.0	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			
				4.350 (75%)	4.437 (65%)	CPCS5.0KF			
				100%−70% (5pcs/set)		CPCS5.0KS			
				95%−65% (5pcs/set)		CPCS5.0KM			
M5×0.5	65	14.0	5.5	4.459 (100%)	4.513 (90%)	CPCS5.0GA	7.5	10.0	12.5
				4.486 (95%)	4.540 (85%)	CPCS5.0GB			
				4.513 (90%)	4.567 (80%)	CPCS5.0GC			
				4.540 (85%)	4.594 (75%)	CPCS5.0GD			
				4.567 (80%)	4.621 (70%)	CPCS5.0GE			
				4.594 (75%)	4.648 (65%)	CPCS5.0GF			
				100%−70% (5pcs/set)		CPCS5.0GS			
				95%−65% (5pcs/set)		CPCS5.0GM			
M6×1	73	16.5	6.0	4.917 (100%)	5.026 (90%)	CPCS6.0MA	9.0	12.0	15.0
				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			
				5.188 (75%)	5.296 (65%)	CPCS6.0MF			
				100%−70% (5pcs/set)		CPCS6.0MS			
				95%−65% (5pcs/set)		CPCS6.0MM			
M6×0.75	73	16.5	6.0	5.188 (100%)	5.269 (90%)	CPCS6.0JA	9.0	12.0	15.0
				5.229 (95%)	5.310 (85%)	CPCS6.0JB			
				5.269 (90%)	5.350 (80%)	CPCS6.0JC			
				5.310 (85%)	5.391 (75%)	CPCS6.0JD			
				5.350 (80%)	5.432 (70%)	CPCS6.0JE			
				5.391 (75%)	5.472 (65%)	CPCS6.0JF			
				100%−70% (5pcs/set)		CPCS6.0JS			
				95%−65% (5pcs/set)		CPCS6.0JM			
M7×1	99	22.0	8.0	5.917 (100%)	6.026 (90%)	CPCS7.0MA	10.5	14.0	17.5
				5.972 (95%)	6.080 (85%)	CPCS7.0MB			
				6.026 (90%)	6.134 (80%)	CPCS7.0MC			
				6.080 (85%)	6.188 (75%)	CPCS7.0MD			
				6.134 (80%)	6.242 (70%)	CPCS7.0ME			
				6.188 (75%)	6.296 (65%)	CPCS7.0MF			
				100%−70% (5pcs/set)		CPCS7.0MS			
				95%−65% (5pcs/set)		CPCS7.0MM			
M7×0.75	99	22.0	8.0	6.188 (100%)	6.269 (90%)	CPCS7.0JA	10.5	14.0	17.5
				6.229 (95%)	6.310 (85%)	CPCS7.0JB			
				6.269 (90%)	6.350 (80%)	CPCS7.0JC			
				6.310 (85%)	6.391 (75%)	CPCS7.0JD			
				6.350 (80%)	6.432 (70%)	CPCS7.0JE			
				6.391 (75%)	6.472 (65%)	CPCS7.0JF			
				100%−70% (5pcs/set)		CPCS7.0JS			
				95%−65% (5pcs/set)		CPCS7.0JM			
M8×1.25	99	22.0	8.0	6.647 (100%)	6.782 (90%)	CPCS8.0NA	12.0	16.0	20.0
				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			
				6.985 (75%)	7.120 (65%)	CPCS8.0NF			
				100%−70% (5pcs/set)		CPCS8.0NS			
				95%−65% (5pcs/set)		CPCS8.0NM			
M8×1	99	22.0	8.0	6.917 (100%)	7.026 (90%)	CPCS8.0MA	12.0	16.0	20.0
				6.972 (95%)	7.080 (85%)	CPCS8.0MB			
				7.026 (90%)	7.134 (80%)	CPCS8.0MC			
				7.080 (85%)	7.188 (75%)	CPCS8.0MD			
				7.134 (80%)	7.242 (70%)	CPCS8.0ME			
				7.188 (75%)	7.296 (65%)	CPCS8.0MF			
				100%−70% (5pcs/set)		CPCS8.0MS			
				95%−65% (5pcs/set)		CPCS8.0MM			
M8×0.75	99	22.0	8.0	7.188 (100%)	7.269 (90%)	CPCS8.0JA	12.0	16.0	20.0
				7.229 (95%)	7.310 (85%)	CPCS8.0JB			
				7.269 (90%)	7.350 (80%)	CPCS8.0JC			
				7.310 (85%)	7.391 (75%)	CPCS8.0JD			
				7.350 (80%)	7.432 (70%)	CPCS8.0JE			
				7.391 (75%)	7.472 (65%)	CPCS8.0JF			
				100%−70% (5pcs/set)		CPCS8.0JS			
				95%−65% (5pcs/set)		CPCS8.0JM			
M9×1.25	110	27.5	10.0	7.642 (100%)	7.782 (90%)	CPCS9.0NA	13.5	18.0	22.5
				7.714 (95%)	7.850 (85%)	CPCS9.0NB			
				7.782 (90%)	7.917 (80%)	CPCS9.0NC			
				7.850 (85%)	7.985 (75%)	CPCS9.0ND			
				7.917 (80%)	8.053 (70%)	CPCS9.0NE			
				7.985 (75%)	8.120 (65%)	CPCS9.0NF			
				100%−70% (5pcs/set)		CPCS9.0NS			
				95%−65% (5pcs/set)		CPCS9.0NM			
M9×1	110	27.5	10.0	7.917 (100%)	8.026 (90%)	CPCS9.0MA	13.5	18.0	22.5
				7.972 (95%)	8.080 (85%)	CPCS9.0MB			
				8.026 (90%)	8.134 (80%)	CPCS9.0MC			
				8.080 (85%)	8.188 (75%)	CPCS9.0MD			
				8.134 (80%)	8.242 (70%)	CPCS9.0ME			
				8.188 (75%)	8.296 (65%)	CPCS9.0MF			
				100%−70% (5pcs/set)		CPCS9.0MS			
				95%−65% (5pcs/set)		CPCS9.0MM			
M9×0.75	110	27.5	10.0	8.188 (100%)	8.269 (90%)	CPCS9.0JA	13.5	18.0	22.5
				8.229 (95%)	8.310 (85%)	CPCS9.0JB			
				8.269 (90%)	8.350 (80%)	CPCS9.0JC			
				8.310 (85%)	8.391 (75%)	CPCS9.0JD			
				8.350 (80%)	8.432 (70%)	CPCS9.0JE			
				8.391 (75%)	8.472 (65%)	CPCS9.0JF			
				100%−70% (5pcs/set)		CPCS9.0JS			
				95%−65% (5pcs/set)		CPCS9.0JM			
M10×1.5	110	27.5	10.0	8.376 (100%)	8.538 (90%)	CPCS010OA	15.0	20.0	25.0
				8.457 (95%)	8.620 (85%)	CPCS010OB			
				8.538 (90%)	8.701 (80%)	CPCS010OC			
				8.620 (85%)	8.782 (75%)	CPCS010OD			
				8.701 (80%)	8.863 (70%)	CPCS010OE			
				8.782 (75%)	8.944 (65%)	CPCS010OF			
				100%−70% (5pcs/set)		CPCS010OS			
				95%−65% (5pcs/set)		CPCS010OM			
M10×1.25	110	27.5	10.0	8.647 (100%)	8.782 (90%)	CPCS010NA	15.0	20.0	25.0
				8.714 (95%)	8.850 (85%)	CPCS010NB			
				8.782 (90%)	8.917 (80%)	CPCS010NC			
				8.850 (85%)	8.985 (75%)	CPCS010ND			
				8.917 (80%)	9.053 (70%)	CPCS010NE			
				8.985 (75%)	9.120 (65%)	CPCS010NF			
				100%−70% (5pcs/set)		CPCS010NS			
				95%−65% (5pcs/set)		CPCS010NM			
M10×1	110	27.5	10.0	8.917 (100%)	9.026 (90%)	CPCS010MA	15.0	20.0	25.0
				8.972 (95%)	9.080 (85%)	CPCS010MB			
				9.026 (90%)	9.134 (80%)	CPCS010MC			
				9.080 (85%)	9.188 (75%)	CPCS010MD			
				9.134 (80%)	9.242 (70%)	CPCS010ME			
				9.188 (75%)	9.296 (65%)	CPCS010MF			
				100%−70% (5pcs/set)		CPCS010MS			
				95%−65% (5pcs/set)		CPCS010MM			
M10×0.75	110	27.5	10.0	9.188 (100%)	9.269 (90%)	CPCS010JA	15.0	20.0	25.0
				9.229 (95%)	9.310 (85%)	CPCS010JB			
				9.269 (90%)	9.350 (80%)	CPCS010JC			
				9.310 (85%)	9.391 (75%)	CPCS010JD			
				9.350 (80%)	9.432 (70%)	CPCS010JE			
				9.391 (75%)	9.472 (65%)	CPCS010JF			
				100%−70% (5pcs/set)		CPCS010JS			
				95%−65% (5pcs/set)		CPCS010JM			
M11×1.5	121	33.0	12.0	9.376 (100%)	9.538 (90%)	CPCS011OA	16.5	22.0	27.5
				9.457 (95%)	9.620 (85%)	CPCS011OB			
				9.538 (90%)	9.701 (80%)	CPCS011OC			
				9.620 (85%)	9.782 (75%)	CPCS011OD			
				9.701 (80%)	9.863 (70%)	CPCS011OE			
				9.782 (75%)	9.944 (65%)	CPCS011OF			
				100%−70% (5pcs/set)		CPCS011OS			
				95%−65% (5pcs/set)		CPCS011OM			
M11×1	121	33.0	12.0	9.917(100%)	10.026(90%)	CPCS011MA	16.5	22.0	27.5
				9.972 (95%)	10.080(85%)	CPCS011MB			
				10.026 (90%)	10.134(80%)	CPCS011MC			
				10.080 (85%)	10.188(75%)	CPCS011MD			
				10.134 (80%)	10.242(70%)	CPCS011ME			
				10.134 (80%)	10.242(70%)	CPCS011MF			
				100%−70% (5pcs/set)		CPCS011MS			
				95%−65% (5pcs/set)		CPCS011MM			
M11×0.75	121	33.0	12.0	10.188(100%)	10.269(90%)	CPCS011JA	16.5	22.0	27.5
				10.229 (95%)	10.310(85%)	CPCS011JB			
				10.269 (90%)	10.350(80%)	CPCS011JC			
				10.310 (85%)	10.391(75%)	CPCS011JD			
				10.350 (80%)	10.432(70%)	CPCS011JE			
				10.391 (75%)	10.472(65%)	CPCS011JF			
				100%−70% (5pcs/set)		CPCS011JS			
				95%−65% (5pcs/set)		CPCS011JM			
M12×1.75	121	33.0	12.0	10.105(100%)	10.295(90%)	CPCS012PA	18.0	24.0	30.0
				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			
				10.579 (75%)	10.769(65%)	CPCS012PF			
				100%−70% (5pcs/set)		CPCS012PS			
				95%−65% (5pcs/set)		CPCS012PM			
M12×1.5	121	33.0	12.0	10.376(100%)	10.538(90%)	CPCS012OA	18.0	24.0	30.0
				10.457 (95%)	10.620(85%)	CPCS012OB			
				10.538 (90%)	10.701(80%)	CPCS012OC			
				10.620 (85%)	10.782(75%)	CPCS012OD			
				10.701 (80%)	10.863(70%)	CPCS012OE			
				10.782 (75%)	10.944(65%)	CPCS012OF			
				100%−70% (5pcs/set)		CPCS012OS			
				95%−65% (5pcs/set)		CPCS012OM			
M12×1.25	121	33.0	12.0	10.647(100%)	10.782(90%)	CPCS012NA	18.0	24.0	30.0
				10.714 (95%)	10.850(85%)	CPCS012NB			
				10.782 (90%)	10.917(80%)	CPCS012NC			
				10.850 (85%)	10.985(75%)	CPCS012ND			
				10.917 (80%)	11.053(70%)	CPCS012NE			
				10.985 (75%)	11.120(65%)	CPCS012NF			
				100%−70% (5pcs/set)		CPCS012NS			
				95%−65% (5pcs/set)		CPCS012NM			
M12×1	121	33.0	12.0	10.917(100%)	11.026(90%)	CPCS012MA	18.0	24.0	30.0
				10.972 (95%)	11.080(85%)	CPCS012MB			
				11.026 (90%)	11.134(80%)	CPCS012MC			
				11.080 (85%)	11.188(75%)	CPCS012MD			
				11.134 (80%)	11.242(70%)	CPCS012ME			
				11.188 (75%)	11.296(65%)	CPCS012MF			
				100%−70% (5pcs/set)		CPCS012MS			
				95%−65% (5pcs/set)		CPCS012MM			

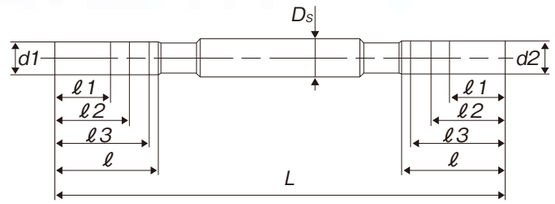
※Depending on the hole sizes for checking, color rings imprinted on its neck part are also available.

CPC-S (Unified) Check pin for Cutting Straight for Unified Threads

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



■ Dimension



(unit: mm)

Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
2-56UNC	41.5	5.5	3	1.695 (100%)	1.742 (90%)	CPCSUN2EA	3.3	4.4	5.5
				1.718 (95%)	1.767 (85%)	CPCSUN2EB			
				1.742 (90%)	1.791 (80%)	CPCSUN2EC			
				1.767 (85%)	1.816 (75%)	CPCSUN2ED			
				1.791 (80%)	1.840 (70%)	CPCSUN2EE			
				(5pcs/set)		CPCSUN2ES			
2-64UNF	41.5	5.5	3	1.756 (100%)	1.797 (90%)	CPCSUN2DA	3.3	4.4	5.5
				1.776 (95%)	1.819 (85%)	CPCSUN2DB			
				1.797 (90%)	1.840 (80%)	CPCSUN2DC			
				1.819 (85%)	1.862 (75%)	CPCSUN2DD			
				1.840 (80%)	1.883 (70%)	CPCSUN2DE			
				(5pcs/set)		CPCSUN2DS			
3-48UNC	45	7.5	3	1.941 (100%)	1.999 (90%)	CPCSUN3FA	3.8	5.0	6.3
				1.971 (95%)	2.028 (85%)	CPCSUN3FB			
				1.999 (90%)	2.057 (80%)	CPCSUN3FC			
				2.028 (85%)	2.085 (75%)	CPCSUN3FD			
				2.057 (80%)	2.114 (70%)	CPCSUN3FE			
				(5pcs/set)		CPCSUN3FS			
3-56UNF	45	7.5	3	2.025 (100%)	2.073 (90%)	CPCSUN3EA	3.8	5.0	6.3
				2.049 (95%)	2.098 (85%)	CPCSUN3EB			
				2.073 (90%)	2.122 (80%)	CPCSUN3EC			
				2.098 (85%)	2.147 (75%)	CPCSUN3ED			
				2.122 (80%)	2.171 (70%)	CPCSUN3EE			
				(5pcs/set)		CPCSUN3ES			
4-40UNC	45	7.5	3	2.157 (100%)	2.226 (90%)	CPCSUN4HA	4.3	5.7	7.1
				2.192 (95%)	2.261 (85%)	CPCSUN4HB			
				2.226 (90%)	2.295 (80%)	CPCSUN4HC			
				2.261 (85%)	2.329 (75%)	CPCSUN4HD			
				2.295 (80%)	2.364 (70%)	CPCSUN4HE			
				(5pcs/set)		CPCSUN4HS			

Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
4-48UNF	45	7.5	3	2.271 (100%)	2.329 (90%)	CPCSUN4FA	4.3	5.7	7.1
				2.301 (95%)	2.358 (85%)	CPCSUN4FB			
				2.329 (90%)	2.387 (80%)	CPCSUN4FC			
				2.358 (85%)	2.415 (75%)	CPCSUN4FD			
				2.387 (80%)	2.444 (70%)	CPCSUN4FE			
				(5pcs/set)		CPCSUN4FS			
5-40UNC	49	9	4	2.487 (100%)	2.556 (90%)	CPCSUN5HA	4.8	6.4	7.9
				2.522 (95%)	2.591 (85%)	CPCSUN5HB			
				2.556 (90%)	2.625 (80%)	CPCSUN5HC			
				2.591 (85%)	2.659 (75%)	CPCSUN5HD			
				2.625 (80%)	2.694 (70%)	CPCSUN5HE			
				(5pcs/set)		CPCSUN5HS			
5-44UNF	49	9	4	2.551 (100%)	2.613 (90%)	CPCSUN5GA	4.8	6.4	7.9
				2.581 (95%)	2.644 (85%)	CPCSUN5GB			
				2.613 (90%)	2.675 (80%)	CPCSUN5GC			
				2.644 (85%)	2.706 (75%)	CPCSUN5GD			
				2.675 (80%)	2.738 (70%)	CPCSUN5GE			
				(5pcs/set)		CPCSUN5GS			
6-32UNC	49	9	4	2.642 (100%)	2.732 (90%)	CPCSUN6JA	5.3	7.0	8.8
				2.689 (95%)	2.775 (85%)	CPCSUN6JB			
				2.732 (90%)	2.818 (80%)	CPCSUN6JC			
				2.775 (85%)	2.861 (75%)	CPCSUN6JD			
				2.818 (80%)	2.903 (70%)	CPCSUN6JE			
				(5pcs/set)		CPCSUN6JS			
6-40UNF	49	9	4	2.820 (100%)	2.886 (90%)	CPCSUN6HA	5.3	7.0	8.8
				2.852 (95%)	2.921 (85%)	CPCSUN6HB			
				2.886 (90%)	2.955 (80%)	CPCSUN6HC			
				2.921 (85%)	2.989 (75%)	CPCSUN6HD			
				2.955 (80%)	3.024 (70%)	CPCSUN6HE			
				(5pcs/set)		CPCSUN6HS			

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

(unit: mm)

Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
8-32UNC	57	11	5	3.302 (100%)	3.394 (90%)	CPCSUN8JA	6.3	8.3	10.4
				3.351 (95%)	3.437 (85%)	CPCSUN8JB			
				3.394 (90%)	3.480 (80%)	CPCSUN8JC			
				3.437 (85%)	3.523 (75%)	CPCSUN8JD			
				3.480 (80%)	3.565 (70%)	CPCSUN8JE			
				(5pcs/set)		CPCSUN8JS			
8-36UNF	57	11	5	3.404 (100%)	3.480 (90%)	CPCSUN8IA	6.3	8.3	10.4
				3.441 (95%)	3.518 (85%)	CPCSUN8IB			
				3.480 (90%)	3.556 (80%)	CPCSUN8IC			
				3.518 (85%)	3.594 (75%)	CPCSUN8ID			
				3.556 (80%)	3.632 (70%)	CPCSUN8IE			
				(5pcs/set)		CPCSUN8IS			
10-24UNC	65	14	5.5	3.683 (100%)	3.795 (90%)	CPCSUNAMA	7.2	9.7	12.1
				3.738 (95%)	3.852 (85%)	CPCSUNAMB			
				3.795 (90%)	3.909 (80%)	CPCSUNAMC			
				3.852 (85%)	3.967 (75%)	CPCSUNAMD			
				3.909 (80%)	4.024 (70%)	CPCSUNAME			
				(5pcs/set)		CPCSUNAMS			
10-32UNF	65	14	5.5	3.963 (100%)	4.053 (90%)	CPCSUNAJA	7.2	9.7	12.1
				4.010 (95%)	4.096 (85%)	CPCSUNAJB			
				4.053 (90%)	4.139 (80%)	CPCSUNAJC			
				4.096 (85%)	4.182 (75%)	CPCSUNAJD			
				4.139 (80%)	4.224 (70%)	CPCSUNAJE			
				(5pcs/set)		CPCSUNAJS			
12-24UNC	65	14	5.5	4.344 (100%)	4.455 (90%)	CPCSUNCMA	8.2	11.0	13.7
				4.398 (95%)	4.512 (85%)	CPCSUNCMB			
				4.455 (90%)	4.569 (80%)	CPCSUNCMC			
				4.512 (85%)	4.627 (75%)	CPCSUNCMD			
				4.569 (80%)	4.684 (70%)	CPCSUNCME			
				(5pcs/set)		CPCSUNCMS			
12-28UNF	65	14	5.5	4.496 (100%)	4.602 (90%)	CPCSUNCKA	8.2	11.0	13.7
				4.553 (95%)	4.651 (85%)	CPCSUNCKB			
				4.602 (90%)	4.700 (80%)	CPCSUNCKC			
				4.651 (85%)	4.749 (75%)	CPCSUNCKD			
				4.700 (80%)	4.799 (70%)	CPCSUNCKE			
				(5pcs/set)		CPCSUNCKS			
1/4-20UNC	73	16.5	6	4.979 (100%)	5.113 (90%)	CPCSU04NA	9.5	12.7	15.9
				5.044 (95%)	5.181 (85%)	CPCSU04NB			
				5.113 (90%)	5.250 (80%)	CPCSU04NC			
				5.181 (85%)	5.319 (75%)	CPCSU04ND			
				5.250 (80%)	5.388 (70%)	CPCSU04NE			
				(5pcs/set)		CPCSU04NS			
1/4-28UNF	73	16.5	6	5.360 (100%)	5.466 (90%)	CPCSU04KA	9.5	12.7	15.9
				5.417 (95%)	5.515 (85%)	CPCSU04KB			
				5.466 (90%)	5.564 (80%)	CPCSU04KC			
				5.515 (85%)	5.613 (75%)	CPCSU04KD			
				5.564 (80%)	5.663 (70%)	CPCSU04KE			
				(5pcs/set)		CPCSU04KS			

Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	ℓ1 (1.5D)	ℓ2 (2D)	ℓ3 (2.5D)
5/16-18UNC	99	22	8	6.401 (100%)	6.563 (90%)	CPCSU050A	11.9	15.9	19.8
				6.487 (95%)	6.639 (85%)	CPCSU050B			
				6.563 (90%)	6.716 (80%)	CPCSU050C			
				6.639 (85%)	6.792 (75%)	CPCSU050D			
				6.716 (80%)	6.869 (70%)	CPCSU050E			
				(5pcs/set)		CPCSU050S			
5/16-24UNF	99	22	8	6.782 (100%)	6.907 (90%)	CPCSU05MA	11.9	15.9	19.8
				6.850 (95%)	6.964 (85%)	CPCSU05MB			
				6.907 (90%)	7.021 (80%)	CPCSU05MC			
				6.964 (85%)	7.079 (75%)	CPCSU05MD			
				7.021 (80%)	7.136 (70%)	CPCSU05ME			
				(5pcs/set)		CPCSU05MS			
3/8-16UNC	110	27.5	10	7.798 (100%)	7.978 (90%)	CPCSU06PA	14.3	19.1	23.8
				7.892 (95%)	8.064 (85%)	CPCSU06PB			
				7.978 (90%)	8.150 (80%)	CPCSU06PC			
				8.064 (85%)	8.236 (75%)	CPCSU06PD			
				8.150 (80%)	8.322 (70%)	CPCSU06PE			
				(5pcs/set)		CPCSU06PS			
3/8-24UNF	110	27.5	10	8.382 (100%)	8.494 (90%)	CPCSU06MA	14.3	19.1	23.8
				8.437 (95%)	8.551 (85%)	CPCSU06MB			
				8.494 (90%)	8.608 (80%)	CPCSU06MC			
				8.551 (85%)	8.666 (75%)	CPCSU06MD			
				8.608 (80%)	8.723 (70%)	CPCSU06ME			
				(5pcs/set)		CPCSU06MS			
7/16-14UNC	121	33	12	9.144 (100%)	9.345 (90%)	CPCSU07QA	16.7	22.2	27.8
				9.247 (95%)	9.443 (85%)	CPCSU07QB			
				9.345 (90%)	9.542 (80%)	CPCSU07QC			
				9.443 (85%)	9.640 (75%)	CPCSU07QD			
				9.542 (80%)	9.738 (70%)	CPCSU07QE			
				(5pcs/set)		CPCSU07QS			
7/16-20UNF	121	33	12	9.729 (100%)	9.876 (90%)	CPCSU07NA	16.7	22.2	27.8
				9.807 (95%)	9.944 (85%)	CPCSU07NB			
				9.876 (90%)	10.013(80%)	CPCSU07NC			
				9.944 (85%)	10.082(75%)	CPCSU07ND			
				10.013 (80%)	10.151(70%)	CPCSU07NE			
				(5pcs/set)		CPCSU07NS			
1/2-13UNC	121	33	12	10.592(100%)	10.796(90%)	CPCSU08RA	19.1	25.4	31.8
				10.691 (95%)	10.902(85%)	CPCSU08RB			
				10.796 (90%)	11.008(80%)	CPCSU08RC			
				10.902 (85%)	11.114(75%)	CPCSU08RD			
				11.008 (80%)	11.219(70%)	CPCSU08RE			
				(5pcs/set)		CPCSU08RS			
1/2-20UNF	121	33	12	11.329(100%)	11.463(90%)	CPCSU08NA	19.1	25.4	31.8
				11.394 (95%)	11.531(85%)	CPCSU08NB			
				11.463 (90%)	11.600(80%)	CPCSU08NC			
				11.531 (85%)	11.669(75%)	CPCSU08ND			
				11.600 (80%)	11.738(70%)	CPCSU08NE			
				(5pcs/set)		CPCSU08NS			

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

CPC-T Check pin for Cutting Taper

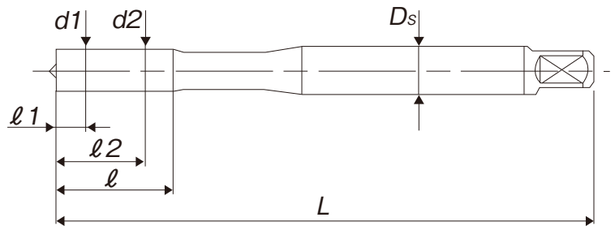
Check-pin for cutting taps (taper type) CPS-T (1 pc)

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

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	O A L	ℓ	D_S	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	(ℓ1)	(ℓ2)
M2 ×0.4	42	7	3	1.567 (100%)	1.679 (74%)	CPCT2.0E	1	6
M2.5×0.45	46	8	3	2.013 (100%)	2.138 (74%)	CPCT2.5F	1.5	6.5
M3 ×0.5	46	8.5	4	2.459 (100%)	2.599 (74%)	CPCT3.0G	1.5	7
M4 ×0.7	52	11	5	3.242 (100%)	3.422 (76%)	CPCT4.0I	2.3	8.3
M5 ×0.8	59.5	13	5.5	4.134 (100%)	4.334 (77%)	CPCT5.0K	2.5	10
M6 ×1	61.5	17	6	4.917 (100%)	5.153 (78%)	CPCT6.0M	3.8	12.8
M8 ×1.25	90	19	8	6.647 (100%)	6.912 (80%)	CPCT8.0N	4.7	14.7
M10×1.5	100	23	10	8.376 (100%)	8.676 (82%)	CPCT010O	6.7	16.7
M12×1.75	110	27	12	10.106 (100%)	10.441 (82%)	CPCT012P	7.7	19.7

※with flat center from M2 to M6

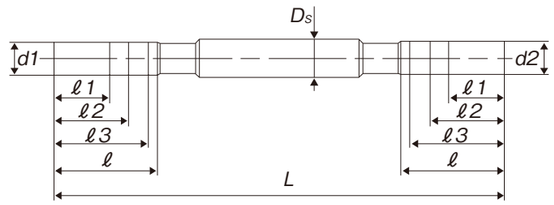
CPR-S Check pin for Forming Straight

Check-pin for roll taps (straight type) CPR-S

Features/Benefits:

1. Check both hole size and depth at the same time
2. Manufactured from High Speed Steel with high wear resistance
3. For checking blind hole

■ Dimension



(unit: mm)

size	O A L	ℓ	D_S	d1	d2	Product code	ℓ1	ℓ2	ℓ3
M2X0.4	41.5	5.5	3	1.790	1.840	CPRS2.0E	3	4	5
M2.5X0.45	41.5	5.5	3	2.270	2.340	CPRS2.5F	3.75	5	6.25
M2.6X0.45	41.5	5.5	3	2.370	2.440	CPRS2.6F	3.9	5.2	6.5
M3X0.5	49	9	4	2.750	2.820	CPRS3.0G	4.5	6	7.5
M4X0.7	57	11	5	3.650	3.720	CPRS4.0I	6	8	10
M5X0.8	65	14	5.5	4.590	4.670	CPRS5.0K	7.5	10	12.5
M6X1	73	16.5	6	5.490	5.590	CPRS6.0M	9	12	5
M8X1.25	99	22	8	7.360	7.490	CPRS8.0N	12	16	20
M10X1.5	110	27.5	10	9.220	9.340	CPRS010O	15	20	25
M10X1.25	110	27.5	10	9.350	9.490	CPRS010N	15	20	25
M12X1.75	121	33	12	11.090	11.230	CPRS012P	18	24	30
M12X1.5	121	33	12	11.220	11.340	CPRS012O	18	24	30
M12X1.25	121	33	12	11.360	11.500	CPRS012N	18	24	30
2-56UNC	41.5	5.5	3	1.960	2.040	CPRSUN2E	3.3	4.4	5.5
2-64UNF	41.5	5.5	3	1.980	2.060	CPRSUN2D	3.3	4.4	5.5
3-48UNC	45	7.5	3	2.250	2.350	CPRSUN3F	3.8	5.0	6.3
3-56UNF	45	7.5	3	2.290	2.370	CPRSUN3E	3.8	5.0	6.3
4-40UNC	49	9	4	2.540	2.640	CPRSUN4H	4.3	5.7	7.1
4-48UNF	49	9	4	2.590	2.680	CPRSUN4F	4.3	5.7	7.1
5-40UNC	49	9	4	2.870	2.970	CPRSUN5H	4.8	6.4	7.9

size	O A L	ℓ	D_S	d1	d2	Product code	ℓ1	ℓ2	ℓ3
5-44UNF	49	9	4	2.900	2.990	CPRSUN5G	4.8	6.4	7.9
6-32UNC	57	11	5	3.110	3.220	CPRSUN6J	5.3	7.0	8.8
6-40UNF	57	11	5	3.190	3.290	CPRSUN6H	5.3	7.0	8.8
8-32UNC	57	11	5	3.780	3.890	CPRSUN8J	6.3	8.3	10.4
8-36UNF	57	11	5	3.810	3.910	CPRSUN8I	6.3	8.3	10.4
10-24UNC	65	14	5.5	4.300	4.440	CPRSUNAM	7.2	9.7	12.1
10-32UNF	65	14	5.5	4.440	4.530	CPRSUNAJ	7.2	9.7	12.1
12-24UNC	73	16.5	6	4.960	5.070	CPRSUNCM	8.2	11	13.7
12-28UNF	73	16.5	6	5.030	5.130	CPRSUNCK	8.2	11	13.7
1/4-20UNC	73	16.5	6	5.730	5.860	CPRSU04N	9.5	12.7	15.9
1/4-28UNF	73	16.5	6	5.910	6.000	CPRSU04K	9.5	12.7	15.9
5/16-18UNC	99	22	8	7.230	7.380	CPRSU05O	12	16	20
5/16-24UNF	99	22	8	7.420	7.530	CPRSU05M	12	16	20
3/8-16UNC	110	27.5	10	8.720	8.890	CPRSU06P	14.3	19.1	23.8
3/8-24UNF	110	27.5	10	8.990	9.100	CPRSU06M	14.3	19.1	23.8
7/16-14UNC	121	33	12	10.200	10.400	CPRSU07O	16.7	22.2	27.8
7/16-20UNF	121	33	12	10.480	10.620	CPRSU07N	16.7	22.2	27.8
1/2-13UNC	110	33	12	11.700	11.920	CPRSU08R	19.1	25.4	31.8
1/2-20UNF	110	33	12	12.060	12.200	CPRSU08N	19.1	25.4	31.8

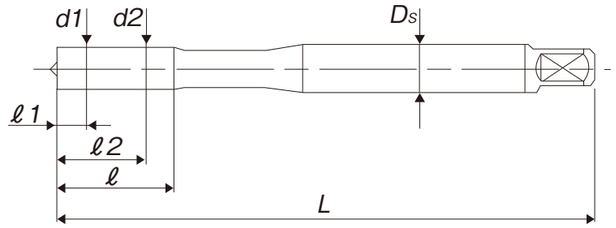
CPR-T Check pin for Forming Straight

Check-pin for roll taps (taper type) CPR-T

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)

size	O A L	ℓ	Ds	d1	d2	Product code	ℓ1	ℓ2
M2X0.4	42	7	3	1.790	1.840	CPRT2.0E	1	6
M2.5X0.45	46	8	3	2.270	2.340	CPRT2.5F	1.5	6.5
M2.6X0.45	46	8	4	2.370	2.440	CPRT2.6F	1.5	6.5
M3X0.5	46	8.5	4	2.750	2.820	CPRT3.0G	1.5	7
M4X0.7	52	10.5	5	3.650	3.720	CPRT4.0I	2.3	8.3
M5X0.8	59.5	12.5	5.5	4.590	4.670	CPRT5.0K	2.5	10
M6X1	61.5	16.5	6	5.490	5.590	CPRT6.0M	3.8	12.8
M8X1.25	90	19.4	8	7.360	7.490	CPRT8.0N	4.7	14.7
M10X1.5	100	23.4	10	9.220	9.340	CPRT010O	6.7	16.7
M10X1.25	100	23.4	10	9.350	9.490	CPRT010N	6.7	16.7
M12X1.75	110	27.4	12	11.090	11.230	CPRT012P	7.7	19.7
M12X1.5	110	27.4	12	11.220	11.340	CPRT012O	7.7	19.7
M12X1.25	110	27.4	12	11.360	11.500	CPRT012N	7.7	19.7
2-56UNC	46	8	3	1.960	2.040	CPRTUN2E	1.5	6.5
2-64UNF	46	8	3	1.980	2.060	CPRTUN2D	1.5	6.5
3-48UNC	46	8	3	2.250	2.350	CPRTUN3F	1.5	6.5
3-56UNF	46	8	3	2.290	2.370	CPRTUN3E	1.5	6.5
4-40UNC	46	8.5	4	2.540	2.640	CPRTUN4H	1.5	7
4-48UNF	46	8.5	4	2.590	2.680	CPRTUN4F	1.5	7
5-40UNC	46	8.5	4	2.870	2.970	CPRTUN5H	1.5	7

size	O A L	ℓ	Ds	d1	d2	Product code	ℓ1	ℓ2
5-44UNF	46	8.5	4	2.900	2.990	CPRTUN5G	1.5	7
6-32UNC	52	10.5	5	3.110	3.220	CPRTUN6J	2.25	8.3
6-40UNF	52	10.5	5	3.190	3.290	CPRTUN6H	2.25	8.3
8-32UNC	52	10.5	5	3.780	3.890	CPRTUN8J	2.25	8.3
8-36UNF	52	10.5	5	3.810	3.910	CPRTUN8I	2.25	8.3
10-24UNC	59.5	12.5	5.5	4.300	4.440	CPRTUNAM	2.5	10
10-32UNF	59.5	12.5	5.5	4.440	4.530	CPRTUNAJ	2.5	10
12-24UNC	61.5	16.5	6	4.960	5.070	CPRTUNCM	3.75	12.8
12-28UNF	61.5	16.5	6	5.030	5.130	CPRTUNCK	3.75	12.8
1/4-20UNC	61.5	16.5	6	5.730	5.860	CPRTU04N	3.75	12.8
1/4-28UNF	61.5	16.5	6	5.910	6.000	CPRTU04K	3.75	12.8
5/16-18UNC	90	19.4	8	7.230	7.380	CPRTU05O	4.7	14.7
5/16-24UNF	90	19.4	8	7.420	7.530	CPRTU05M	4.7	14.7
3/8-16UNC	100	23.4	10	8.720	8.890	CPRTU06P	6.7	16.7
3/8-24UNF	100	23.4	10	8.990	9.100	CPRTU06M	6.7	16.7
7/16-14UNC	110	27.4	12	10.200	10.400	CPRTU07O	7.7	19.7
7/16-20UNF	110	27.4	12	10.480	10.620	CPRTU07N	7.7	19.7
1/2-13UNC	110	27.4	12	11.700	11.920	CPRTU08R	7.7	19.7
1/2-20UNF	110	27.4	12	12.060	12.200	CPRTU08N	7.7	19.7

■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

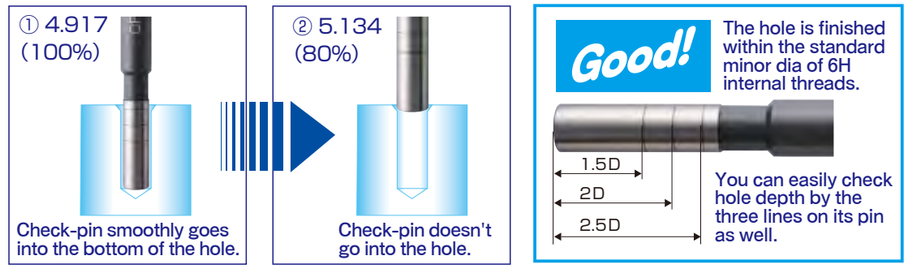
Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)
M6 ×1	73	16.5	6	4.917 (100%)	5.026 (90%)
				4.972 (95%)	5.080 (85%)
				5.026 (90%)	5.134 (80%)
				5.080 (85%)	5.188 (75%)
				5.134 (80%)	5.242 (70%)

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.

⇒ ①4.917(100%) & ②5.134(80%)

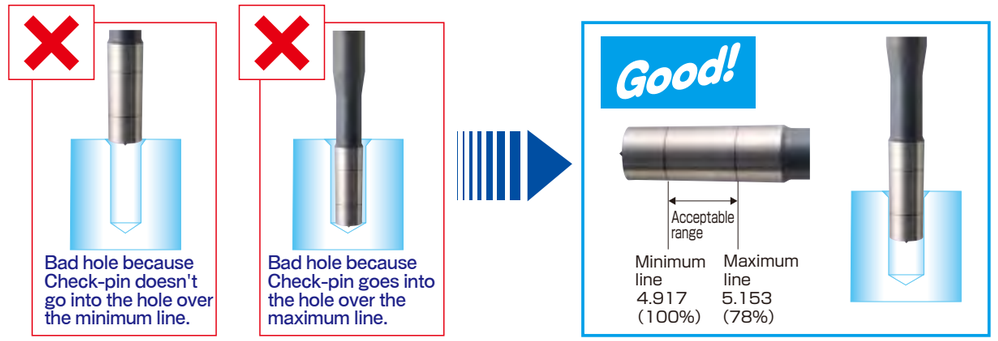
Depending on the feature of work-piece materials, it is beneficial to tapping for the hole size before tapping to be as large as possible and yet within the tolerance.

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



Example for use of CPC-T (Taper type)

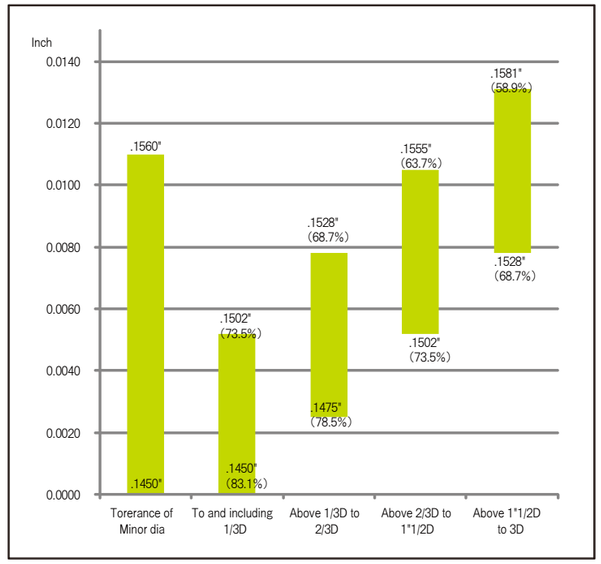
Nominal size	O A L	ℓ	Ds	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	(ℓ1)	(ℓ2)
M6 ×1	61.5	17	6	4.917 (100%)	5.153 (78%)	CPCT6.0M	3.8	12.8



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

RECOMMENDED HOLE SIZE LIMITS FOR DIFFERENT LENGTHS OF ENGAGEMENT

（Example） 10-24UNC 3B



There may be applications where the length of engagement of mating threads may be long because of design considerations or the combination of materials used for mating threads. As the threads engaged increase in number, their height of engagement may be shallower and still develop stripping strength greater than the external thread breaking strength. In these case, the maximum tolerance should be increased to reduce the possibility of tapping difficulties.

RELATION BETWEEN PERCENTAGE OF THREAD HEIGHT AND AREA REMOVED

【Percentage of Full Thread】

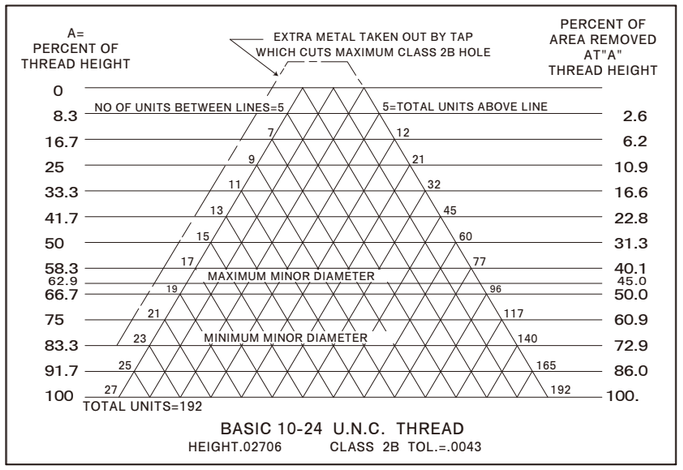
$$\text{Percentage of Full Thread} = \text{Number of Threads per inch} \times \frac{\text{Basic Major Dia. of Thread (inch)} - \text{Drill Hole Size (inch)}}{.0130}$$

$$\text{Percentage of Full Thread} = \frac{\text{Basic Major Dia. of Thread (inch)} - \text{Drill Hole Size (inch)}}{.64952 \times P}$$

【Basic Thread Height】

Unified Thread : .64952P

$$\text{P: Pitch} = \frac{1}{\text{Number of Threads per inch}}$$



As shown above, when the thread height increases, the amount of material to be removed increases rapidly, so it is an advantage to tap users to keep the hole size (thread minor diameter) as large as possible

CPC-S （ANSI Standard）

（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)
2-56UNC	1.63	0.22	0.12	0.0667 (83.1%)	0.0705 (66.8%)	CPCSAUN2EA	0.13	0.17	0.22
				0.0686 (75.0%)	0.0724 (58.6%)	CPCSAUN2EB			
				0.0699 (69.4%)	0.0737 (53.0%)	CPCSAUN2EC			
2-64UNF	1.63	0.22	0.12	0.0691 (83.1%)	0.0724 (67.0%)	CPCSAUN2DA	0.13	0.17	0.22
				0.0707 (75.4%)	0.0740 (59.1%)	CPCSAUN2DB			
				0.0720 (69.0%)	0.0753 (52.7%)	CPCSAUN2DC			
3-48UNC	1.77	0.30	0.12	0.0764 (83.4%)	0.0804 (68.7%)	CPCSAUN3FA	0.15	0.20	0.25
				0.0785 (75.7%)	0.0825 (61.0%)	CPCSAUN3FB			
				0.0805 (68.4%)	0.0845 (53.6%)	CPCSAUN3FC			
3-56UNF	1.77	0.30	0.12	0.0797 (83.1%)	0.0831 (68.5%)	CPCSAUN3EA	0.15	0.20	0.25
				0.0814 (75.9%)	0.0848 (61.2%)	CPCSAUN3EB			
				0.0831 (68.5%)	0.0865 (53.9%)	CPCSAUN3EC			
				0.0833 (67.7%)	0.0867 (53.0%)	CPCSAUN3ED			
4-40UNC	1.77	0.30	0.12	0.0849 (83.4%)	0.0894 (69.6%)	CPCSAUN4HA	0.17	0.22	0.28
				0.0871 (76.7%)	0.0916 (62.8%)	CPCSAUN4HB			
				0.0894 (69.6%)	0.0939 (55.7%)	CPCSAUN4HC			
				0.0902 (67.1%)	0.0947 (53.3%)	CPCSAUN4HD			
4-48UNF	1.77	0.30	0.12	0.0894 (83.5%)	0.0931 (69.8%)	CPCSAUN4FA	0.17	0.22	0.28
				0.0912 (76.9%)	0.0949 (63.2%)	CPCSAUN4FB			
				0.0931 (69.8%)	0.0968 (56.2%)	CPCSAUN4FC			
				0.0939 (66.9%)	0.0976 (53.2%)	CPCSAUN4FD			
5-40UNC	1.93	0.35	0.16	0.0979 (83.4%)	0.1020 (70.8%)	CPCSAUN5HA	0.19	0.25	0.31
				0.1000 (77.0%)	0.1041 (64.4%)	CPCSAUN5HB			
				0.1021 (70.5%)	0.1062 (57.9%)	CPCSAUN5HC			
				0.1036 (65.9%)	0.1077 (53.3%)	CPCSAUN5HD			
5-44UNF	1.93	0.35	0.16	0.1004 (83.2%)	0.1042 (70.5%)	CPCSAUN5GA	0.19	0.25	0.31
				0.1023 (76.9%)	0.1060 (64.4%)	CPCSAUN5GB			
				0.1042 (70.5%)	0.1079 (57.9%)	CPCSAUN5GC			
				0.1060 (64.4%)	0.1097 (51.8%)	CPCSAUN5GD			
6-32UNC	1.93	0.35	0.16	0.1040 (83.7%)	0.1091 (71.2%)	CPCSAUN6JA	0.21	0.28	0.35
				0.1066 (77.3%)	0.1115 (65.3%)	CPCSAUN6JB			
				0.1091 (71.2%)	0.1140 (59.1%)	CPCSAUN6JC			
				0.1115 (65.3%)	0.1164 (53.2%)	CPCSAUN6JD			
6-40UNF	1.93	0.35	0.16	0.1110 (83.1%)	0.1148 (71.4%)	CPCSAUN6HA	0.21	0.28	0.35
				0.1128 (77.6%)	0.1167 (65.6%)	CPCSAUN6HB			
				0.1147 (71.7%)	0.1186 (59.7%)	CPCSAUN6HC			
				0.1166 (65.9%)	0.1205 (53.9%)	CPCSAUN6HD			
8-32UNC	2.24	0.43	0.20	0.1300 (83.8%)	0.1345 (72.7%)	CPCSAUN8JA	0.25	0.33	0.41
				0.1324 (77.8%)	0.1367 (67.2%)	CPCSAUN8JB			
				0.1346 (72.4%)	0.1389 (61.8%)	CPCSAUN8JC			
				0.1367 (67.2%)	0.1410 (56.7%)	CPCSAUN8JD			
8-36UNF	2.24	0.43	0.20	0.1340 (83.1%)	0.1377 (72.9%)	CPCSAUN8IA	0.25	0.33	0.41
				0.1359 (77.9%)	0.1397 (67.3%)	CPCSAUN8IB			
				0.1378 (72.6%)	0.1416 (62.1%)	CPCSAUN8IC			
				0.1397 (67.3%)	0.1435 (56.8%)	CPCSAUN8ID			
10-24UNC	2.56	0.55	0.22	0.1450 (83.1%)	0.1502 (73.5%)	CPCSAUNAMA	0.29	0.38	0.48
				0.1475 (78.5%)	0.1528 (68.7%)	CPCSAUNAMB			
				0.1502 (73.5%)	0.1555 (63.7%)	CPCSAUNAMC			
				0.1528 (68.7%)	0.1581 (58.9%)	CPCSAUNAMD			

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)
10-32UNF	2.56	0.55	0.22	0.1560 (83.7%)	0.1601 (73.7%)	CPCSAUNAJA	0.29	0.38	0.48
				0.1581 (78.6%)	0.1621 (68.7%)	CPCSAUNAJB			
				0.1601 (73.7%)	0.1641 (63.8%)	CPCSAUNAJC			
				0.1621 (68.7%)	0.1661 (58.9%)	CPCSAUNAJD			
12-24UNC	2.56	0.55	0.22	0.1710 (83.1%)	0.1758 (74.3%)	CPCSAUNCMA	0.32	0.43	0.54
				0.1733 (78.9%)	0.1782 (69.8%)	CPCSAUNCMB			
				0.1758 (74.3%)	0.1807 (65.2%)	CPCSAUNCMC			
				0.1782 (69.8%)	0.1831 (60.8%)	CPCSAUNCMD			
12-28UNF	2.56	0.55	0.22	0.1770 (84.0%)	0.1815 (74.4%)	CPCSAUNCKA	0.32	0.43	0.54
				0.1794 (78.9%)	0.1836 (69.8%)	CPCSAUNCKB			
				0.1815 (74.4%)	0.1857 (65.3%)	CPCSAUNCKC			
				0.1836 (69.8%)	0.1878 (60.8%)	CPCSAUNCKD			
1/4-20UNC	2.87	0.65	0.24	0.1960 (83.1%)	0.2013 (75.0%)	CPCSAU04NA	0.38	0.50	0.63
				0.1986 (79.2%)	0.2040 (70.8%)	CPCSAU04NB			
				0.2013 (75.0%)	0.2067 (66.7%)	CPCSAU04NC			
				0.2040 (70.8%)	0.2094 (62.5%)	CPCSAU04ND			
1/4-28UNF	2.87	0.65	0.24	0.2110 (84.0%)	0.2152 (75.0%)	CPCSAU04KA	0.38	0.50	0.63
				0.2131 (79.5%)	0.2171 (70.8%)	CPCSAU04KB			
				0.2150 (75.4%)	0.2190 (66.8%)	CPCSAU04KC			
				0.2169 (71.3%)	0.2209 (62.7%)	CPCSAU04KD			
5/16-18UNC	3.90	0.87	0.31	0.2520 (83.8%)	0.2577 (75.9%)	CPCSAU05OA	0.47	0.63	0.78
				0.2551 (79.5%)	0.2604 (72.2%)	CPCSAU05OB			
				0.2577 (75.9%)	0.2630 (68.6%)	CPCSAU05OC			
				0.2604 (72.2%)	0.2657 (64.8%)	CPCSAU05OD			
5/16-24UNF	3.90	0.87	0.31	0.2670 (84.0%)	0.2714 (75.9%)	CPCSAU05MA	0.47	0.63	0.78
				0.2694 (79.6%)	0.2734 (72.2%)	CPCSAU05MB			
				0.2714 (75.9%)	0.2754 (68.5%)	CPCSAU05MC			
				0.2734 (72.2%)	0.2774 (64.8%)	CPCSAU05MD			
3/8-16UNC	4.33	1.08	0.39	0.3070 (83.7%)	0.3127 (76.7%)	CPCSAU06PA	0.56	0.75	0.94
				0.3101 (79.9%)	0.3155 (73.3%)	CPCSAU06PB			
				0.3128 (76.6%)	0.3182 (70.0%)	CPCSAU06PC			
				0.3155 (73.3%)	0.3209 (66.6%)	CPCSAU06PD			
3/8-24UNF	4.33	1.08	0.39	0.3300 (83.1%)	0.3336 (76.5%)	CPCSAU06MA	0.56	0.75	0.94
				0.3314 (80.6%)	0.3354 (73.2%)	CPCSAU06MB			
				0.3332 (77.2%)	0.3372 (69.8%)	CPCSAU06MC			
				0.3351 (73.7%)	0.3391 (66.3%)	CPCSAU06MD			
7/16-14UNC	4.76	1.30	0.47	0.3600 (83.5%)	0.3660 (77.1%)	CPCSAU07QA	0.66	0.88	1.09
				0.3630 (80.3%)	0.3688 (74.0%)	CPCSU07QBB			
				0.3659 (77.2%)	0.3717 (70.9%)	CPCSAU07QC			
				0.3688 (74.0%)	0.3746 (67.8%)	CPCSAU07QD			
7/16-20UNF	4.76	1.30	0.47	0.3830 (83.9%)	0.3875 (77.0%)	CPCSAU07NA	0.66	0.88	1.09
				0.3855 (80.1%)	0.3896 (73.7%)	CPCSAU07NB			
				0.3875 (77.0%)	0.3916 (70.7%)	CPCSAU07NC			
				0.3896 (73.7%)	0.3937 (67.4%)	CPCSAU07ND			
1/2-13UNC	4.76	1.30	0.47	0.4170 (83.1%)	0.4225 (77.6%)	CPCSAU08RA	0.75	1.00	1.25
				0.4196 (80.5%)	0.4254 (74.7%)	CPCSAU08RB			
				0.4226 (77.5%)	0.4284 (71.7%)	CPCSAU08RC			
				0.4255 (74.6%)	0.4313 (68.8%)	CPCSAU08RD			
1/2-20UNF	4.76	1.30	0.47	0.4460 (83.1%)	0.4498 (77.3%)	CPCSAU08NA	0.75	1.00	1.25
				0.4477 (80.5%)	0.4517 (74.4%)	CPCSAU08NB			
				0.4497 (77.4%)	0.4537 (71.3%)	CPCSAU08NC			
				0.4516 (74.5%)	0.4556 (68.4%)	CPCSAU08ND			

CPC-T （ANSI Standard）

（unit: mm）

Nominal size	O A L	ℓ	D_s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	(ℓ1)	(ℓ2)
2-56UNC	1.65	0.28	0.21	0.0667(83.1%)	0.0737 (53.2%)	CPCTAUN2E	0.04	0.24
2-64UNC	1.65	0.28	0.21	0.0691(83.1%)	0.0753 (52.8%)	CPCTAUN2D	0.04	0.24
3-48UNC	1.81	0.31	0.21	0.0764(83.4%)	0.0845 (53.6%)	CPCTAUN3F	0.06	0.26
3-56UNC	1.81	0.31	0.21	0.0797(83.1%)	0.0865 (53.9%)	CPCTAUN3E	0.06	0.26
4-40UNC	1.81	0.31	0.21	0.0849(83.4%)	0.0939 (55.7%)	CPCTAUN4H	0.06	0.26
4-48UNC	1.81	0.31	0.21	0.0894(83.5%)	0.0968 (56.3%)	CPCTAUN4F	0.06	0.26
5-40UNC	1.81	0.33	0.16	0.0979(83.4%)	0.1062 (57.9%)	CPCTAUN5H	0.06	0.28
5-44UNC	1.81	0.33	0.16	0.1004(83.2%)	0.1079 (58.0%)	CPCTAUN5G	0.06	0.28
6-32UNC	1.81	0.33	0.16	0.1040(83.7%)	0.1140 (59.2%)	CPCTAUN6J	0.06	0.28
6-40UNF	1.81	0.33	0.16	0.1110(83.1%)	0.1186 (59.7%)	CPCTAUN6H	0.06	0.28
8-32UNC	2.05	0.41	0.20	0.1300(83.8%)	0.1389 (61.8%)	CPCTAUN8J	0.09	0.33
8-36UNF	2.05	0.41	0.20	0.1340(83.1%)	0.1416 (62.1%)	CPCTAUN8I	0.09	0.33
10-24UNC	2.34	0.49	0.22	0.1450(83.1%)	0.1555 (63.7%)	CPCTAUNAM	0.10	0.39

（unit: mm）

Nominal size	O A L	ℓ	D_s	d1 (Percentage of thread engagement)	d2 (Percentage of thread engagement)	Product code	(ℓ1)	(ℓ2)
10-32UNF	2.34	0.49	0.22	0.1560 (83.7%)	0.1641 (63.8%)	CPCTAUNAJ	0.10	0.39
12-24UNC	2.34	0.49	0.22	0.1710 (83.1%)	0.1807 (65.2%)	CPCTAUNCM	2.5	10
12-28UNF	2.34	0.49	0.22	0.1770 (84.0%)	0.1857 (65.3%)	CPCTAUNCK	2.5	10
1/4-20UNC	2.42	0.65	0.24	0.1960 (83.1%)	0.2067 (66.7%)	CPCTAU04N	3.8	12.8
1/4-28UNF	2.42	0.65	0.24	0.2110 (84.0%)	0.2190 (66.8%)	CPCTAU04K	3.8	12.8
5/16-18UNC	3.54	0.76	0.31	0.2520 (83.8%)	0.2630 (68.6%)	CPCTAU05O	4.7	14.7
5/16-24UNF	3.54	0.76	0.31	0.2670 (84.0%)	0.2754 (68.5%)	CPCTAU05M	4.7	14.7
3/8-16UNC	3.94	0.92	0.39	0.3070 (83.7%)	0.3182 (70.0%)	CPCTAU06P	6.7	16.7
3/8-24UNF	3.94	0.92	0.39	0.3300 (83.1%)	0.3372 (69.8%)	CPCTAU06M	6.7	16.7
7/16-14UNC	4.33	1.08	0.47	0.3600 (83.5%)	0.3717 (70.9%)	CPCTAU07Q	7.7	19.7
7/16-20UNF	4.33	1.08	0.47	0.3830 (83.9%)	0.3916 (70.7%)	CPCTAU07N	7.7	19.7
1/2-13UNC	4.33	1.08	0.47	0.4170 (83.1%)	0.4284 (71.7%)	CPCTAU08R	7.7	19.7
1/2-20UNF	4.33	1.08	0.47	0.4460 (83.1%)	0.4537 (71.3%)	CPCTAU08N	7.7	19.7