



YE-CT15
EUROPE



Combo TAP

SPIRAL FLUTE / SPIRAL POINT

YG-1 CO., LTD.

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Tool specifications are subject to change without prior notice.



You Tube YG Combo Tap

* When you search 'YG-1 Cutting Tool' or 'YG-1 CO., LTD.', you can watch more video clips.

YG1CT150512003

YG-1 CO., LTD.

TEST RESULT AGAINST COMPETITOR'S TAP

Combo Tap for Multi Purpose

● **TEST I - M8 x 1.25 (TC804366)**

Test Condition

- Work Material: Carbon Steel
- DIN: C45
- WR: 1.0503
- JIS: S45C
- Tapping Depth: 20mm
- Coolant: Water Soluble Oil
- Vc (Tapping Speed): 10.0m/min

YG-1 (Total Tapping 204 Holes)	
Surface Roughness of Work Piece	
	204 Holes ▶
COMPETITOR A (Total Tapping 159 Holes)	
Surface Roughness of Work Piece	
	159 Holes ▶
COMPETITOR B (Total Tapping 204 Holes)	
Surface Roughness of Work Piece	
	204 Holes ▶

● **TEST II - M10 x 1.5 (TC804396)**

Test Condition

- Work Material: Carbon Steel
- DIN: C45
- WR: 1.0503
- JIS: S45C
- Tapping Depth: 25mm
- Coolant: Water Soluble Oil
- Vc (Tapping Speed): 10.0m/min

YG-1 (Total Tapping 216 Holes)	
Surface Roughness of Work Piece	
	216 Holes ▶
COMPETITOR A (Total Tapping 99 Holes)	
Surface Roughness of Work Piece	
	99 Holes ▶
COMPETITOR B (Total Tapping 196 Holes)	
Surface Roughness of Work Piece	
	196 Holes ▶

TEST RESULT AGAINST COMPETITOR'S TAP

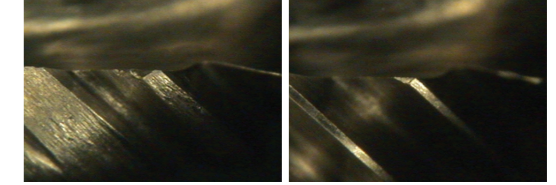
Combo Tap for Stainless Steels

● **TEST I - M4 x 0.7 (TQ744246)**

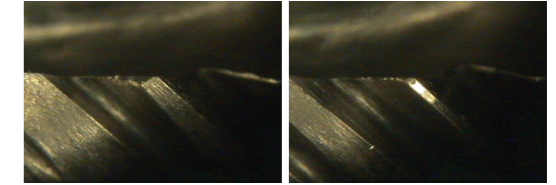
Test Condition

- Work Material: Stainless Steel
- DIN: X5CrNi18 10
- (X 4 CrNi18-10)
- WR: 1.4303
- JIS: SUS304
- Tapping Depth: 10mm
- Coolant: Wet Cut
- Vc (Tapping Speed): 8m/min

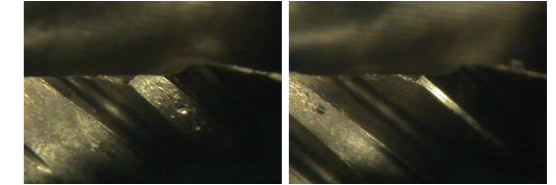
YG-1 (Total Tapping 170 Holes)



YG-1 (Total Tapping 170 Holes)



COMPETITOR A (Total Tapping 170 Holes)



COMPETITOR B

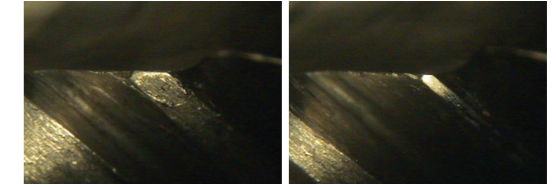
tool broke after 83 holes tapping

● **TEST II - M6 x 1.0 (TQ744316)**

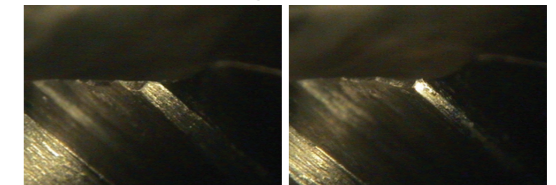
Test Condition

- Work Material: Stainless Steel
- DIN: X5CrNi18 10
- (X 4 CrNi18-10)
- WR: 1.4303
- JIS: SUS304
- Tapping Depth: 15mm
- Coolant: Wet Cut
- Vc (Tapping Speed): 8m/min

YG-1 (Total Tapping 230 Holes)



YG-1 (Total Tapping 230 Holes)



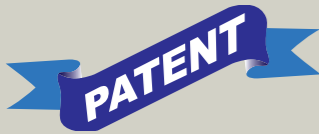
COMPETITOR A

tool broke after 92 holes tapping

COMPETITOR B

tool broke after 98 holes tapping

COMBINATION OF MULTI-APPLICATIONS



FEATURES OF COMBO TAP

- Thread configuration with a special design. (Patented)
 - * Prevents over-feeding, thin thread, and pitch diameter oversize.
- Engineered design of the flute geometry
 - * Better chip evacuation.
 - * Prevents chip clogging.
 - * Improves thread quality.
- Excellent performance on various work materials.
 - * Stainless steels, carbon steels, alloyed steels, tool steels etc.

EDP No.	Model	Tool Material	Standard	Dimensions	Tolerance	Chamfer	Surface Treatment	Page
NEW TB804 TD804 TC844		HSS-E	M	DIN371/376	ISO 6H	Form C	VAP Bright TiN	6
NEW TB844 TC844 TD844		HSS-E	MF	DIN374	ISO 6H	Form C	VAP Bright TiN	7
TC804-IC	with internal coolant	HSS-E	M	DIN371/376	ISO 6H	Form C	Bright	8
TC807		HSS-E	M	DIN371/376	ISO 6H	Form E	Bright	9
TC633		HSS-E	M	LONG	ISO 6H	Form C	Bright	10
TQ744 TB744		HSS-PM HSS-E	M	DIN371/376	ISO 6H	Form C	VAP	11
TQ754 TB754		HSS-PM HSS-E	MF	DIN374	ISO 6H	Form C	VAP	12
NEW TB824 TC824 TD824		HSS-E	UNC	DIN371/376	2B	Form C	VAP Bright TiN	13
NEW TB864 TC864 TD864		HSS-E	UNF	DIN371/374	2B	Form C	VAP Bright TiN	14
NEW TB814 TC814 TD814		HSS-E	M	DIN371/376	ISO 6H	Form B	VAP Bright TiN	15
NEW TB854 TC854 TD854		HSS-E	MF	DIN374	ISO 6H	Form B	VAP Bright TiN	16
TC814-IC	with internal coolant	HSS-E	M	DIN371/376	ISO 6H	Form B	Bright	17
TC445		HSS-E	M	LONG	ISO 6H	Form B	Bright	18
TQ428 TB428		HSS-PM HSS-E	M	DIN371/376	ISO 6H	Form B	VAP	19
TQ438 TB438		HSS-PM HSS-E	MF	DIN374	ISO 6H	Form B	VAP	20
NEW TB834 TC834 TD834		HSS-E	UNC	DIN371/376	2B	Form B	VAP Bright TiN	21
NEW TB874 TC874 TD874		HSS-E	UNF	DIN371/374	2B	Form B	VAP Bright TiN	22

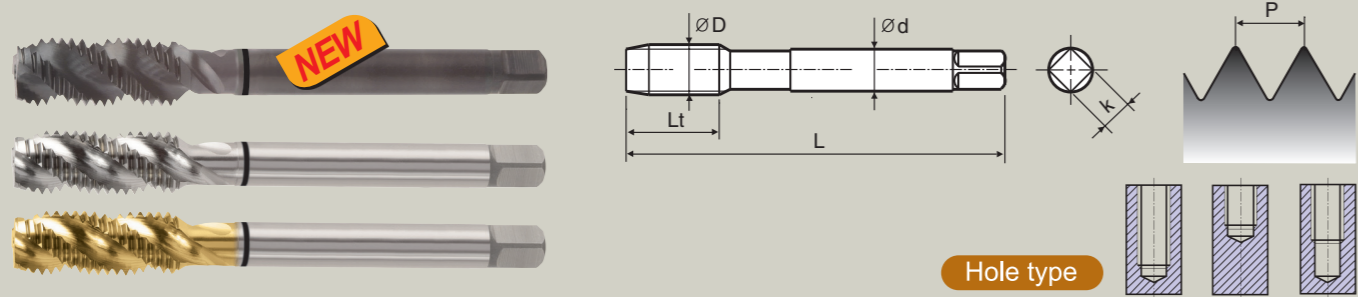
RECOMMENDATION TABLE

● : RECOMMENDED
○ : SUITABLE

Tapping Speed	P				M		K				N				S					
	Steels				Stainless steels		Cast iron				Aluminum				Copper	Brass	Bronze	Titanium		Nickel
	15~20	12~18	10~15	6~10	7~10	5~8	10~15	10~15	10~15	15~20	10~15	8~12	15~20	15~20	15~20	10~15	8~12	8~12	10~15	
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M SPIRAL FLUTE TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13



SPIRAL FLUTE TAPS
TB804 / TC804 / TD804



Unit : mm

Size	Pitch	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
M2	x 0.4	6H	TB804136	TC804136	TD804136	45.0	8.0	2.8	2.1
M2.2	x 0.45	6H	TB804156	TC804156	TD804156	45.0	8.0	2.8	2.1
M2.3	x 0.4	6H	TB804196	TC804196	TD804196	45.0	8.0	2.8	2.1
M2.5	x 0.45	6H	TB804176	TC804176	TD804176	50.0	9.0	2.8	2.1
M2.6	x 0.45	6H	TB804496	TC804496	TD804496	50.0	9.0	2.8	2.1
M3	x 0.5	6H	TB804206	TC804206	TD804206	56.0	6.0	3.5	2.7
M3.5	x 0.6	6H	TB804226	TC804226	TD804226	56.0	7.0	4.0	3.0
M4	x 0.7	6H	TB804246	TC804246	TD804246	63.0	7.0	4.5	3.4
M4.5	x 0.75	6H	TB804266	TC804266	TD804266	70.0	8.0	6.0	4.9
M5	x 0.8	6H	TB804286	TC804286	TD804286	70.0	8.0	6.0	4.9
M6	x 1.0	6H	TB804316	TC804316	TD804316	80.0	10.0	6.0	4.9
M7	x 1.0	6H	TB804346	TC804346	TD804346	80.0	10.0	7.0	5.5
M8	x 1.25	6H	TB804366	TC804366	TD804366	90.0	13.0	8.0	6.2
M9	x 1.25	6H	TB804396	TC804396	TD804396	90.0	13.0	9.0	7.0
M10	x 1.5	6H	TB804426	TC804426	TD804426	100.0	15.0	10.0	8.0
M11	x 1.5	6H	TB804466	TC804466	TD804466	100.0	17.0	8.0	6.2
M12	x 1.75	6H	TB804506	TC804506	TD804506	110.0	18.0	9.0	7.0
M14	x 2.0	6H	TB804546	TC804546	TD804546	110.0	20.0	11.0	9.0
M16	x 2.0	6H	TB804606	TC804606	TD804606	110.0	20.0	12.0	9.0
M18	x 2.5	6H	TB804656	TC804656	TD804656	125.0	25.0	14.0	11.0
M20	x 2.5	6H	TB804706	TC804706	TD804706	140.0	25.0	16.0	12.0
M22	x 2.5	6H	TB804746	TC804746	TD804746	140.0	25.0	18.0	14.5
M24	x 3.0	6H	TB804786	TC804786	TD804786	160.0	30.0	18.0	14.5
M27	x 3.0	6H	TB804866	TC804866	TD804866	160.0	30.0	20.0	16.0
M30	x 3.5	6H	TB804946	TC804946	TD804946	180.0	35.0	22.0	18.0

► DIN371 (M2~M10) and DIN376 (M11~M30)

* TiCN and TiAlN coatings are available on request

Combo Spiral Flute Tap Set

Set No.	Series	Surface Treatment	Size	Quantity
TB804SET5	TB804	VAP	M5, M6, M8, M10, M12	5 pcs
TC804SET7	TC804	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs

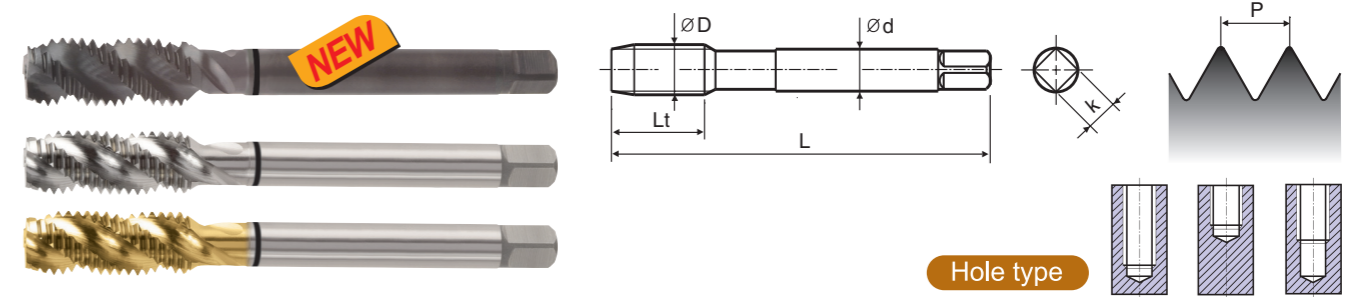
Combo Spiral Flute Tap + Gold-P Drill (HSS-E, DIN 338, Straight Shank, 135° Split Point, Jobber Length) Set

Set No.	Series	Surface Treatment	Size	Quantity
TD804SET7-GLP195	TD804	TiN	M3 M4 M5 M6 M8 M10 M12	14pcs
	DLGP195	TiN	2.5 3.3 4.2 5 6.8 8.5 10.2	

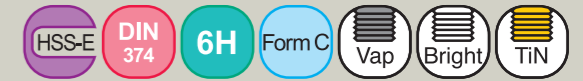
* Custom set available on request

MF SPIRAL FLUTE TAPS for Multi-Purpose

ISO Metric fine threads DIN 13



SPIRAL FLUTE TAPS
TB844 / TC844 / TD844



Unit : mm

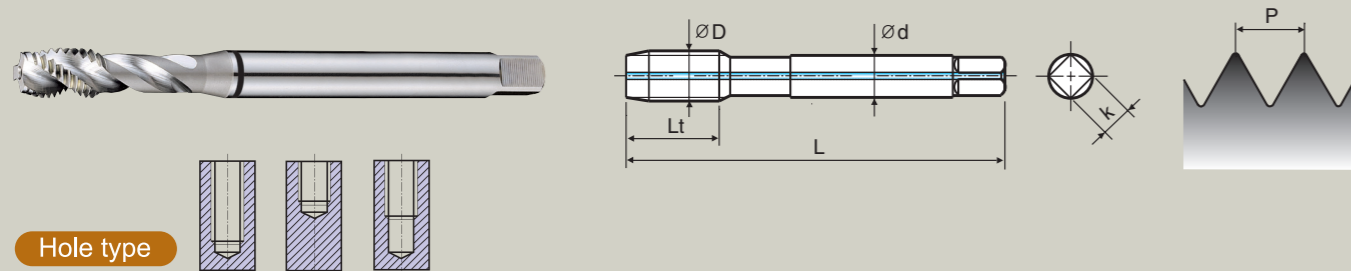
Size	Pitch	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
M4	x 0.5	6H	TB844256	TC844256	TD844256	63.0	5.0	2.8	2.1
M5	x 0.5	6H	TB844296	TC844296	TD844296	70.0	5.0	3.5	2.7
M6	x 0.75	6H	TB844326	TC844326	TD844326	80.0	8.0	4.5	3.4
M6	x 0.5	6H	TB844336	TC844336	TD844336	80.0	5.0	4.5	3.4
M7	x 0.75	6H	TB844356	TC844356	TD844356	80.0	10.0	5.5	4.3
M8	x 1.0	6H	TB844376	TC844376	TD844376	90.0	10.0	6.0	4.9
M8	x 0.75	6H	TB844386	TC844386	TD844386	80.0	8.0	6.0	4.9
M10	x 1.25	6H	TB844436	TC844436	TD844436	100.0	16.0	7.0	5.5
M10	x 1.0	6H	TB844446	TC844446	TD844446	90.0	10.0	7.0	5.5
M10	x 0.75	6H	TB844456	TC844456	TD844456	90.0	10.0	7.0	5.5
M12	x 1.5	6H	TB844516	TC844516	TD844516	100.0	15.0	9.0	7.0
M12	x 1.25	6H	TB844526	TC844526	TD844526	100.0	15.0	9.0	7.0
M12	x 1.0	6H	TB844536	TC844536	TD844536	100.0	11.0	9.0	7.0
M14	x 1.5	6H	TB844556	TC844556	TD844556	100.0	15.0	11.0	9.0
M14	x 1.25	6H	TB844566	TC844566	TD844566	100.0	15.0	11.0	9.0
M14	x 1.0	6H	TB844576	TC844576	TD844576	100.0	11.0	11.0	9.0
M16	x 1.5	6H	TB844616	TC844616	TD844616	100.0	15.0	12.0	9.0
M16	x 1.0	6H	TB844626	TC844626	TD844626	100.0	12.0	12.0	9.0
M18	x 1.5	6H	TB844676	TC844676	TD844676	110.0	17.0	14.0	11.0
M18	x 1.0	6H	TB844686	TC844686	TD844686	110.0	13.0	14.0	11.0
M20	x 1.5	6H	TB844726	TC844726	TD844726	125.0	17.0	16.0	12.0
M20	x 1.0	6H	TB844736	TC844736	TD844736	125.0	14.0	16.0	12.0
M22	x 1.5	6H	TB844766	TC844766	TD844766	125.0	17.0	18.0	14.5
M22	x 1.0	6H	TB844776	TC844776	TD844776	125.0	14.0	18.0	14.5
M24	x 2.0	6H	TB844796	TC844796	TD844796	140.0	20.0	18.0	14.5
M24	x 1.5	6H	TB844806	TC844806	TD844806	140.0	20.0	18.0	14.5
M26	x 1.5	6H	TB844856	TC844856	TD844856	140.0	20.0	18.0	14.5
M27	x 2.0	6H	TB844876	TC844876	TD844876	140.0	20.0	20.0	16.0
M27	x 1.5	6H	TB844886	TC844886	TD844886	140.0	20.0	20.0	16.0
M28	x 1.5	6H	TB844916	TC844916	TD844916	140.0	20.0	20.0	16.0
M30	x 2.0	6H	TB844966	TC844966	TD844966	150.0	22.0	22.0	18.0
M30	x 1.5	6H	TB844976	TC844976	TD844976	150.0	22.0	22.0	18.0

* TiCN and TiAlN coatings are available on request

M SPIRAL FLUTE TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13

with Internal Coolant



SPIRAL FLUTE TAPS ♦ **TC804-IC**



Unit : mm

Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M6	x 1.0	6H	TC804316IC	80.0	10.0	6.0	4.9
M8	x 1.25	6H	TC804366IC	90.0	13.0	8.0	6.2
M10	x 1.5	6H	TC804426IC	100.0	15.0	10.0	8.0
M12	x 1.75	6H	TC804506IC	110.0	18.0	9.0	7.0
M14	x 2.0	6H	TC804546IC	110.0	20.0	11.0	9.0
M16	x 2.0	6H	TC804606IC	110.0	20.0	12.0	9.0
M18	x 2.5	6H	TC804656IC	125.0	25.0	14.0	11.0
M20	x 2.5	6H	TC804706IC	140.0	25.0	16.0	12.0

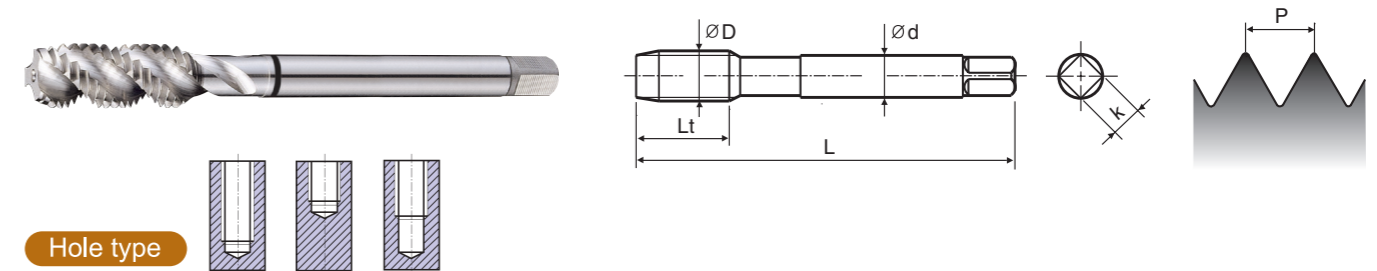
► DIN371 (M6~M10) and DIN376 (M12~M20)

* TiN, TiCN and TiAlN coatings or Steam Homo are available on request

M SPIRAL FLUTE TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13

Short Chamfer



SPIRAL FLUTE TAPS ♦ **TC807**



Unit : mm

Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M2	x 0.4	6H	TC807136	45.0	8.0	2.8	2.1
M2.2	x 0.45	6H	TC807156	45.0	8.0	2.8	2.1
M2.3	x 0.4	6H	TC807196	45.0	8.0	2.8	2.1
M2.5	x 0.45	6H	TC807176	50.0	9.0	2.8	2.1
M2.6	x 0.45	6H	TC807496	50.0	9.0	2.8	2.1
M3	x 0.5	6H	TC807206	56.0	6.0	3.5	2.7
M3.5	x 0.6	6H	TC807226	56.0	7.0	4.0	3.0
M4	x 0.7	6H	TC807246	63.0	7.0	4.5	3.4
M4.5	x 0.75	6H	TC807266	70.0	8.0	6.0	4.9
M5	x 0.8	6H	TC807286	70.0	8.0	6.0	4.9
M6	x 1.0	6H	TC807316	80.0	10.0	6.0	4.9
M7	x 1.0	6H	TC807346	80.0	10.0	7.0	5.5
M8	x 1.25	6H	TC807366	90.0	13.0	8.0	6.2
M9	x 1.25	6H	TC807396	90.0	13.0	9.0	7.0
M10	x 1.5	6H	TC807426	100.0	15.0	10.0	8.0
M11	x 1.5	6H	TC807466	100.0	17.0	8.0	6.2
M12	x 1.75	6H	TC807506	110.0	18.0	9.0	7.0
M14	x 2.0	6H	TC807546	110.0	20.0	11.0	9.0
M16	x 2.0	6H	TC807606	110.0	20.0	12.0	9.0
M18	x 2.5	6H	TC807656	125.0	25.0	14.0	11.0
M20	x 2.5	6H	TC807706	140.0	25.0	16.0	12.0
M22	x 2.5	6H	TC807746	140.0	25.0	18.0	14.5
M24	x 3.0	6H	TC807786	160.0	30.0	18.0	14.5
M27	x 3.0	6H	TC807866	160.0	30.0	20.0	16.0
M30	x 3.5	6H	TC807946	180.0	35.0	22.0	18.0

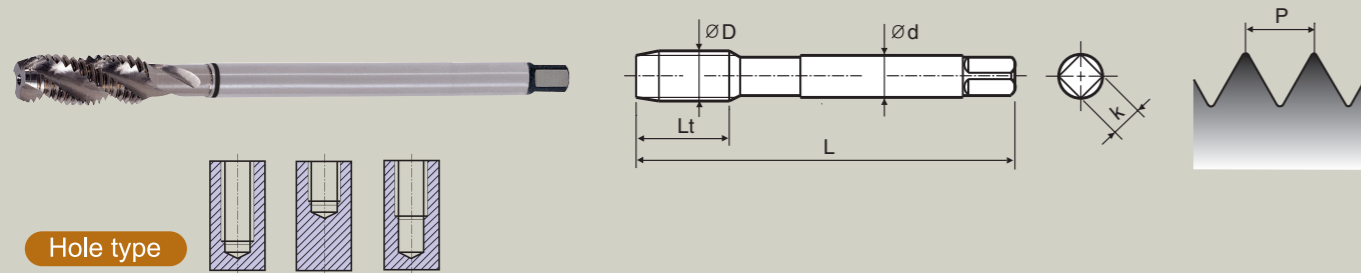
► DIN371 (M2~M10) and DIN376 (M11~M30)

* TiN, TiCN and TiAlN coatings or Steam Homo are available on request

M SPIRAL FLUTE TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13

Long Shank



SPIRAL FLUTE TAPS ◆ **TC633**



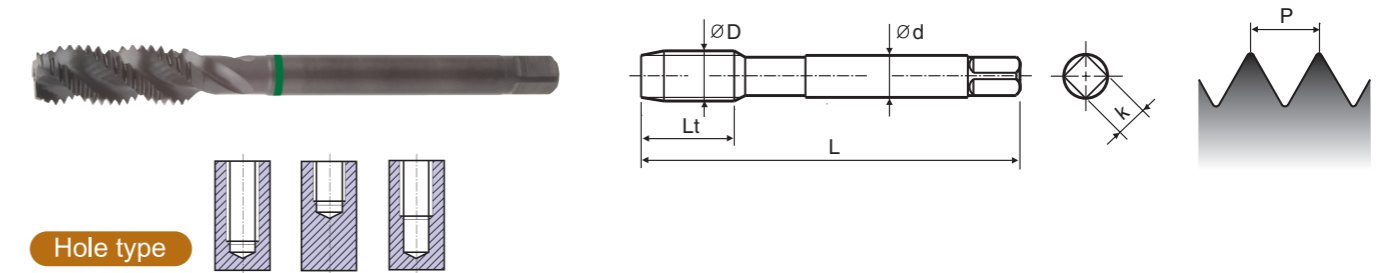
Unit : mm

Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M3	x 0.5	6H	TC633206	100.0	11.0	3.5	2.7
M4	x 0.7	6H	TC633246	125.0	13.0	4.5	3.4
M5	x 0.8	6H	TC633286	140.0	15.0	6.0	4.9
M6	x 1.0	6H	TC633316	160.0	17.0	6.0	4.9
M8	x 1.25	6H	TC633366	180.0	20.0	6.0	4.9
M10	x 1.5	6H	TC633426	200.0	22.0	7.0	5.5
M12	x 1.75	6H	TC633506	220.0	24.0	9.0	7.0
M14	x 2.0	6H	TC633546	220.0	26.0	11.0	9.0
M16	x 2.0	6H	TC633606	220.0	27.0	12.0	9.0
M20	x 2.5	6H	TC633706	280.0	32.0	16.0	12.0

* TiN, TiCN and TiAlN coatings or Steam Homo are available on request.

M SPIRAL FLUTE TAPS for Stainless Steels

ISO Metric coarse threads DIN 13



SPIRAL FLUTE TAPS ◆ **TQ744 / TB744**



Unit : mm

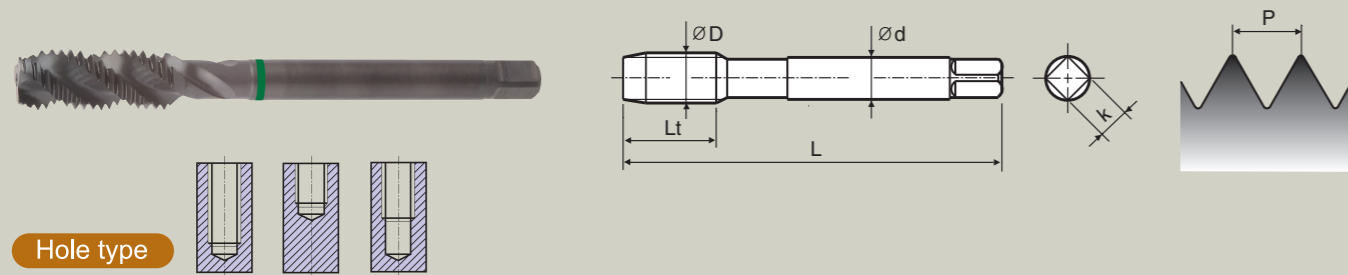
Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M2	x 0.4	6H	TQ744136	45.0	8.0	2.8	2.1
M2.2	x 0.45	6H	TQ744156	45.0	8.0	2.8	2.1
M2.3	x 0.4	6H	TQ744196	45.0	8.0	2.8	2.1
M2.5	x 0.45	6H	TQ744176	50.0	9.0	2.8	2.1
M2.6	x 0.45	6H	TQ744496	50.0	9.0	2.8	2.1
M3	x 0.5	6H	TQ744206	56.0	6.0	3.5	2.7
M3.5	x 0.6	6H	TQ744226	56.0	7.0	4.0	3.0
M4	x 0.7	6H	TQ744246	63.0	7.0	4.5	3.4
M4.5	x 0.75	6H	TQ744266	70.0	8.0	6.0	4.9
M5	x 0.8	6H	TQ744286	70.0	8.0	6.0	4.9
M6	x 1.0	6H	TQ744316	80.0	10.0	6.0	4.9
M7	x 1.0	6H	TQ744346	80.0	10.0	7.0	5.5
M8	x 1.25	6H	TQ744366	90.0	13.0	8.0	6.2
M9	x 1.25	6H	TQ744396	90.0	13.0	9.0	7.0
M10	x 1.5	6H	TQ744426	100.0	15.0	10.0	8.0
M11	x 1.5	6H	TQ744466	100.0	17.0	8.0	6.2
M12	x 1.75	6H	TQ744506	110.0	18.0	9.0	7.0
M14	x 2.0	6H	TB744546	110.0	20.0	11.0	9.0
M16	x 2.0	6H	TB744606	110.0	20.0	12.0	9.0
M18	x 2.5	6H	TB744656	125.0	25.0	14.0	11.0
M20	x 2.5	6H	TB744706	140.0	25.0	16.0	12.0
M22	x 2.5	6H	TB744746	140.0	25.0	18.0	14.5
M24	x 3.0	6H	TB744786	160.0	30.0	18.0	14.5
M27	x 3.0	6H	TB744866	160.0	30.0	20.0	16.0
M30	x 3.5	6H	TB744946	180.0	35.0	22.0	18.0

► DIN371 (M2~M10) and DIN376 (M11~M30)
► HSS-PM (M2~M12/TQ744) and HSS-E (M14~M30/TB744)

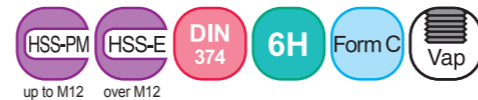
* TiN, TiCN and TiAlN coatings are available on request.

MF SPIRAL FLUTE TAPS for Stainless Steels

ISO Metric fine threads DIN 13



SPIRAL FLUTE TAPS ◆ **TQ754 / TB754**



Unit : mm

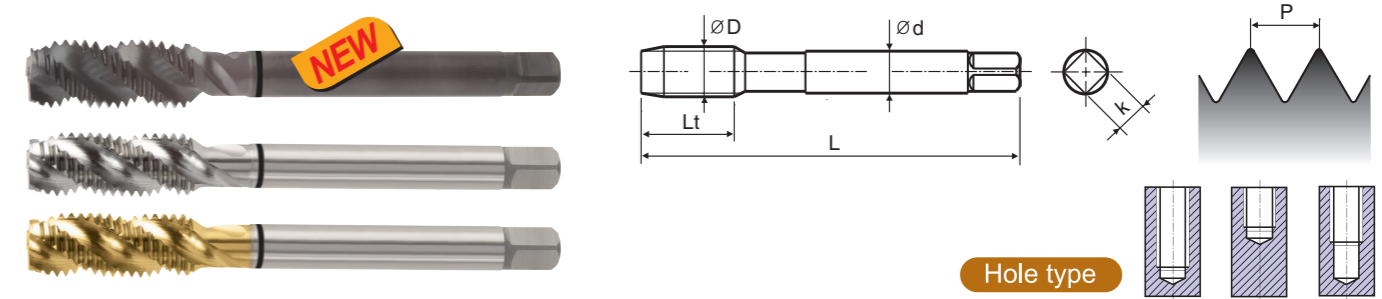
Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M4	x 0.5	6H	TQ754256	63.0	5.0	2.8	2.1
M5	x 0.5	6H	TQ754296	70.0	5.0	3.5	2.7
M6	x 0.75	6H	TQ754326	80.0	8.0	4.5	3.4
M6	x 0.5	6H	TQ754336	80.0	5.0	4.5	3.4
M7	x 0.75	6H	TQ754356	80.0	10.0	5.5	4.3
M8	x 1.0	6H	TQ754376	90.0	10.0	6.0	4.9
M8	x 0.75	6H	TQ754386	80.0	8.0	6.0	4.9
M10	x 1.25	6H	TQ754436	100.0	16.0	7.0	5.5
M10	x 1.0	6H	TQ754446	90.0	10.0	7.0	5.5
M10	x 0.75	6H	TQ754456	90.0	10.0	7.0	5.5
M12	x 1.5	6H	TQ754516	100.0	15.0	9.0	7.0
M12	x 1.25	6H	TQ754526	100.0	15.0	9.0	7.0
M12	x 1.0	6H	TQ754536	100.0	11.0	9.0	7.0
M14	x 1.5	6H	TB754556	100.0	15.0	11.0	9.0
M14	x 1.25	6H	TB754566	100.0	15.0	11.0	9.0
M14	x 1.0	6H	TB754576	100.0	11.0	11.0	9.0
M16	x 1.5	6H	TB754616	100.0	15.0	12.0	9.0
M16	x 1.0	6H	TB754626	100.0	12.0	12.0	9.0
M18	x 1.5	6H	TB754676	110.0	17.0	14.0	11.0
M18	x 1.0	6H	TB754686	110.0	13.0	14.0	11.0
M20	x 1.5	6H	TB754726	125.0	17.0	16.0	12.0
M20	x 1.0	6H	TB754736	125.0	14.0	16.0	12.0
M22	x 1.5	6H	TB754766	125.0	17.0	18.0	14.5
M22	x 1.0	6H	TB754776	125.0	14.0	18.0	14.5
M24	x 2.0	6H	TB754796	140.0	20.0	18.0	14.5
M24	x 1.5	6H	TB754806	140.0	20.0	18.0	14.5
M26	x 1.5	6H	TB754856	140.0	20.0	18.0	14.5
M27	x 2.0	6H	TB754876	140.0	20.0	20.0	16.0
M27	x 1.5	6H	TB754886	140.0	20.0	20.0	16.0
M28	x 1.5	6H	TB754916	140.0	20.0	20.0	16.0
M30	x 2.0	6H	TB754966	150.0	22.0	22.0	18.0
M30	x 1.5	6H	TB754976	150.0	22.0	22.0	18.0

► HSS-PM (M4~M12/TQ754) and HSS-E (M14~M30/TB754)

* TiN, TiCN and TiAlN coatings are available on request

UNC SPIRAL FLUTE TAPS for Multi-Purpose

Unified coarse threads



SPIRAL FLUTE TAPS
TB824 / TC824 / TD824



Unit : mm

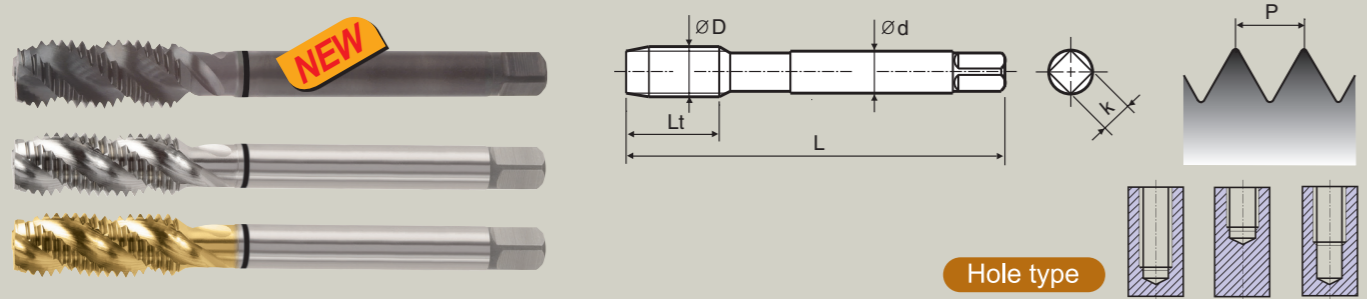
Size	Pitch	Limit	EDP No.			Overall Length	Thread Length	Shank Diameter	Square Size
D	P		Vap	Bright	TiN	L	Lt	d	k
#4	- 40 UNC	2B	TB824162	TC824162	TD824162	56.0	6.0	3.5	2.7
#5	- 40 UNC	2B	TB824202	TC824202	TD824202	56.0	7.0	3.5	2.7
#6	- 32 UNC	2B	TB824242	TC824242	TD824242	56.0	7.0	4.0	3.0
#8	- 32 UNC	2B	TB824282	TC824282	TD824282	63.0	8.0	4.5	3.4
#10	- 24 UNC	2B	TB824322	TC824322	TD824322	70.0	10.0	6.0	4.9
#12	- 24 UNC	2B	TB824362	TC824362	TD824362	80.0	10.0	6.0	4.9
1/4	- 20 UNC	2B	TB824402	TC824402	TD824402	80.0	13.0	7.0	5.5
5/16	- 18 UNC	2B	TB824442	TC824442	TD824442	90.0	14.0	8.0	6.2
3/8	- 16 UNC	2B	TB824482	TC824482	TD824482	100.0	16.0	9.0	7.0
7/16	- 14 UNC	2B	TB824522	TC824522	TD824522	100.0	17.0	8.0	6.2
1/2	- 13 UNC	2B	TB824562	TC824562	TD824562	110.0	20.0	9.0	7.0
9/16	- 12 UNC	2B	TB824602	TC824602	TD824602	110.0	20.0	11.0	9.0
5/8	- 11 UNC	2B	TB824642	TC824642	TD824642	110.0	22.0	12.0	9.0
3/4	- 10 UNC	2B	TB824702	TC824702	TD824702	125.0	25.0	14.0	11.0
7/8	- 9 UNC	2B	TB824742	TC824742	TD824742	140.0	27.0	18.0	14.5
1"	- 8 UNC	2B	TB824782	TC824782	TD824782	160.0	30.0	20.0	16.0

► DIN371 (#4~3/8) and DIN376 (7/16~1")

* TiCN and TiAlN coatings are available on request

UNF SPIRAL FLUTE TAPS for Multi-Purpose

Unified fine threads



SPIRAL FLUTE TAPS
TB864 / TC864 / TD864



Unit : mm

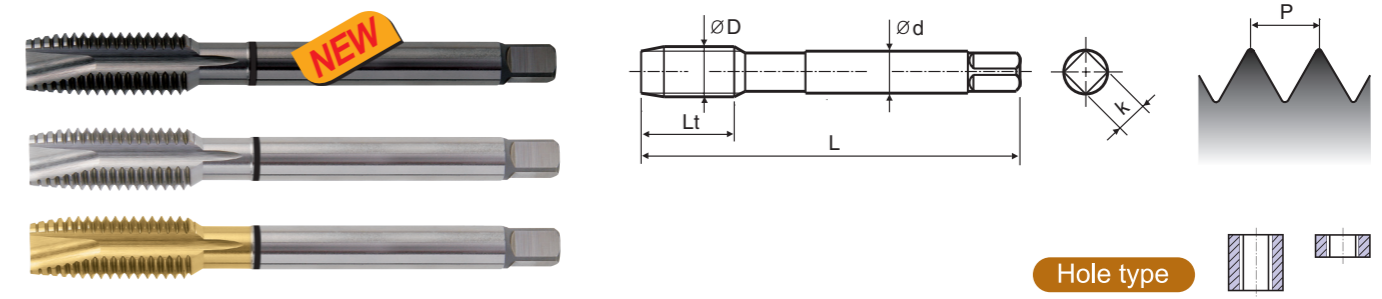
Size	Pitch	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
#4	- 48 UNF	2B	TB864182	TC864182	TD864182	56.0	6.0	3.5	2.7
#5	- 44 UNF	2B	TB864222	TC864222	TD864222	56.0	7.0	3.5	2.7
#6	- 40 UNF	2B	TB864262	TC864262	TD864262	56.0	7.0	4.0	3.0
#8	- 36 UNF	2B	TB864302	TC864302	TD864302	63.0	8.0	4.5	3.4
#10	- 32 UNF	2B	TB864342	TC864342	TD864342	70.0	10.0	6.0	4.9
#12	- 28 UNF	2B	TB864382	TC864382	TD864382	80.0	10.0	6.0	4.9
1/4	- 28 UNF	2B	TB864422	TC864422	TD864422	80.0	10.0	7.0	5.5
5/16	- 24 UNF	2B	TB864462	TC864462	TD864462	90.0	10.0	8.0	6.2
3/8	- 24 UNF	2B	TB864502	TC864502	TD864502	100.0	10.0	9.0	7.0
7/16	- 20 UNF	2B	TB864542	TC864542	TD864542	100.0	13.0	8.0	6.2
1/2	- 20 UNF	2B	TB864582	TC864582	TD864582	100.0	13.0	9.0	7.0
9/16	- 18 UNF	2B	TB864622	TC864622	TD864622	100.0	15.0	11.0	9.0
5/8	- 18 UNF	2B	TB864662	TC864662	TD864662	100.0	15.0	12.0	9.0
3/4	- 16 UNF	2B	TB864722	TC864722	TD864722	110.0	17.0	14.0	11.0
7/8	- 14 UNF	2B	TB864762	TC864762	TD864762	125.0	17.0	18.0	14.5
1"	- 12 UNF	2B	TB864802	TC864802	TD864802	140.0	20.0	20.0	16.0

► DIN371 (#4~3/8) and DIN374 (7/16~1")

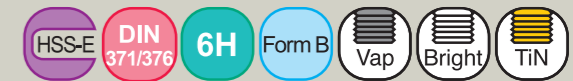
* TiCN and TiAlN coatings are available on request

M SPIRAL POINT TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13



SPIRAL POINT TAPS
TB814 / TC814 / TD814



Unit : mm

Size	Pitch	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
M2	x 0.4	6H	TB814136	TC814136	TD814136	45.0	8.0	2.8	2.1
M2.2	x 0.45	6H	TB814156	TC814156	TD814156	45.0	8.0	2.8	2.1
M2.3	x 0.4	6H	TB814196	TC814196	TD814196	45.0	8.0	2.8	2.1
M2.5	x 0.45	6H	TB814176	TC814176	TD814176	50.0	9.0	2.8	2.1
M2.6	x 0.45	6H	TB814496	TC814496	TD814496	50.0	9.0	2.8	2.1
M3	x 0.5	6H	TB814206	TC814206	TD814206	56.0	11.0	3.5	2.7
M3.5	x 0.6	6H	TB814226	TC814226	TD814226	56.0	12.0	4.0	3.0
M4	x 0.7	6H	TB814246	TC814246	TD814246	63.0	13.0	4.5	3.4
M4.5	x 0.75	6H	TB814266	TC814266	TD814266	70.0	14.0	6.0	4.9
M5	x 0.8	6H	TB814286	TC814286	TD814286	70.0	15.0	6.0	4.9
M6	x 1.0	6H	TB814316	TC814316	TD814316	80.0	17.0	6.0	4.9
M7	x 1.0	6H	TB814346	TC814346	TD814346	80.0	17.0	7.0	5.5
M8	x 1.25	6H	TB814366	TC814366	TD814366	90.0	20.0	8.0	6.2
M9	x 1.25	6H	TB814396	TC814396	TD814396	90.0	20.0	9.0	7.0
M10	x 1.5	6H	TB814426	TC814426	TD814426	100.0	22.0	10.0	8.0
M11	x 1.5	6H	TB814466	TC814466	TD814466	100.0	22.0	8.0	6.2
M12	x 1.75	6H	TB814506	TC814506	TD814506	110.0	24.0	9.0	7.0
M14	x 2.0	6H	TB814546	TC814546	TD814546	110.0	26.0	11.0	9.0
M16	x 2.0	6H	TB814606	TC814606	TD814606	110.0	27.0	12.0	9.0
M18	x 2.5	6H	TB814656	TC814656	TD814656	125.0	30.0	14.0	11.0
M20	x 2.5	6H	TB814706	TC814706	TD814706	140.0	32.0	16.0	12.0
M22	x 2.5	6H	TB814746	TC814746	TD814746	140.0	32.0	18.0	14.5
M24	x 3.0	6H	TB814786	TC814786	TD814786	160.0	34.0	18.0	14.5
M27	x 3.0	6H	TB814866	TC814866	TD814866	160.0	36.0	20.0	16.0
M30	x 3.5	6H	TB814946	TC814946	TD814946	180.0	40.0	22.0	18.0

► DIN371 (M2~M10) and DIN376 (M11~M30)

* TiCN and TiAlN coatings are available on request

Combo Spiral Point Tap Set

Set No.	Series	Surface Treatment	Size	Quantity
TB844SET5	TB814	VAP	M5, M6, M8, M10, M12	5 pcs
TC814SET7	TC814	Bright	M3, M4, M5, M6, M8, M10, M12	7 pcs

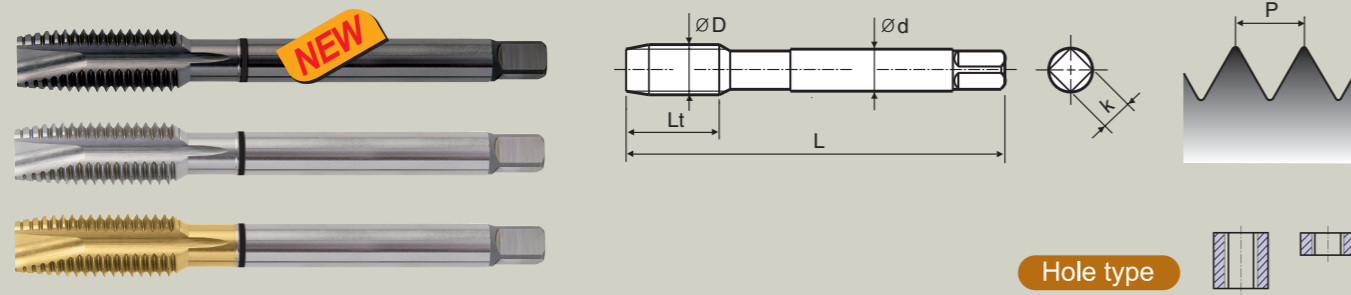
Combo Spiral Point Tap + Gold-P Drill (HSS-E, DIN 338, Straight Shank, 135° Split Point, Jobber Length) Set

Set No.	Series	Surface Treatment	Size								Quantity
TD814SET7-GLP195	TD814	TiN	M3	M4	M5	M6	M8	M10	M12	14 pcs	
	DLGP195	TiN	2.5	3.3	4.2	5	6.8	8.5	10.2		

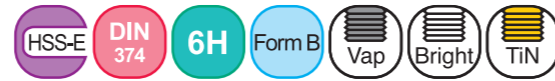
* Custom set available on request

MF SPIRAL POINT TAPS for Multi-Purpose

ISO Metric fine threads DIN 13



SPIRAL POINT TAPS
TB854 / TC854 / TD854



Unit : mm

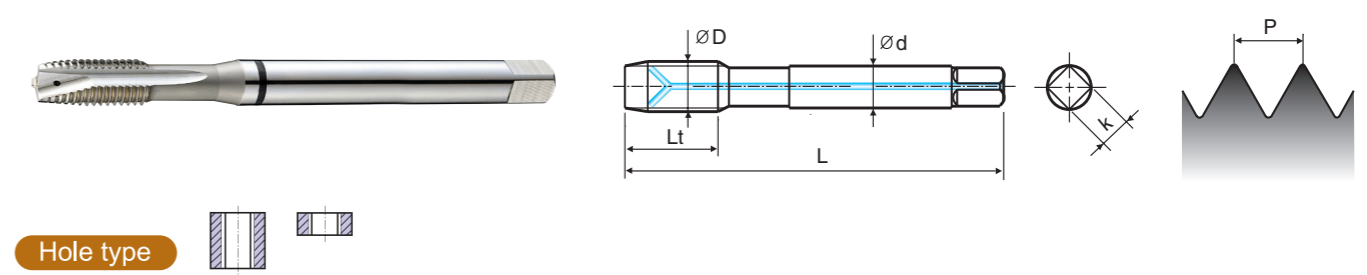
Size	Pitch	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
M4	x 0.5	6H	TB854256	TC854256	TD854256	63.0	10.0	2.8	2.1
M5	x 0.5	6H	TB854296	TC854296	TD854296	70.0	11.0	3.5	2.7
M6	x 0.75	6H	TB854326	TC854326	TD854326	80.0	13.0	4.5	3.4
M6	x 0.5	6H	TB854336	TC854336	TD854336	80.0	13.0	4.5	3.4
M7	x 0.75	6H	TB854356	TC854356	TD854356	80.0	14.0	5.5	4.3
M8	x 1.0	6H	TB854376	TC854376	TD854376	90.0	17.0	6.0	4.9
M8	x 0.75	6H	TB854386	TC854386	TD854386	80.0	14.0	6.0	4.9
M10	x 1.25	6H	TB854436	TC854436	TD854436	100.0	22.0	7.0	5.5
M10	x 1.0	6H	TB854446	TC854446	TD854446	90.0	18.0	7.0	5.5
M10	x 0.75	6H	TB854456	TC854456	TD854456	90.0	18.0	7.0	5.5
M12	x 1.5	6H	TB854516	TC854516	TD854516	100.0	22.0	9.0	7.0
M12	x 1.25	6H	TB854526	TC854526	TD854526	100.0	22.0	9.0	7.0
M12	x 1.0	6H	TB854536	TC854536	TD854536	100.0	18.0	9.0	7.0
M14	x 1.5	6H	TB854556	TC854556	TD854556	100.0	22.0	11.0	9.0
M14	x 1.25	6H	TB854566	TC854566	TD854566	100.0	22.0	11.0	9.0
M14	x 1.0	6H	TB854576	TC854576	TD854576	100.0	18.0	11.0	9.0
M16	x 1.5	6H	TB854616	TC854616	TD854616	100.0	22.0	12.0	9.0
M16	x 1.0	6H	TB854626	TC854626	TD854626	100.0	18.0	12.0	9.0
M18	x 1.5	6H	TB854676	TC854676	TD854676	110.0	25.0	14.0	11.0
M18	x 1.0	6H	TB854686	TC854686	TD854686	110.0	20.0	14.0	11.0
M20	x 1.5	6H	TB854726	TC854726	TD854726	125.0	25.0	16.0	12.0
M20	x 1.0	6H	TB854736	TC854736	TD854736	125.0	20.0	16.0	12.0
M22	x 1.5	6H	TB854766	TC854766	TD854766	125.0	25.0	18.0	14.5
M22	x 1.0	6H	TB854776	TC854776	TD854776	125.0	20.0	18.0	14.5
M24	x 2.0	6H	TB854796	TC854796	TD854796	140.0	27.0	18.0	14.5
M24	x 1.5	6H	TB854806	TC854806	TD854806	140.0	27.0	18.0	14.5
M26	x 1.5	6H	TB854856	TC854856	TD854856	140.0	28.0	18.0	14.5
M27	x 2.0	6H	TB854876	TC854876	TD854876	140.0	28.0	20.0	16.0
M27	x 1.5	6H	TB854886	TC854886	TD854886	140.0	28.0	20.0	16.0
M28	x 1.5	6H	TB854916	TC854916	TD854916	140.0	28.0	20.0	16.0
M30	x 2.0	6H	TB854966	TC854966	TD854966	150.0	30.0	22.0	18.0
M30	x 1.5	6H	TB854976	TC854976	TD854976	150.0	30.0	22.0	18.0

* TiCN and TiAlN coatings are available on request

M SPIRAL POINT TAPS for Multi-Purpose

ISO Metric coarse threads DIN 13

with Internal Coolant



SPIRAL POINT TAPS **TC814-IC**



Unit : mm

Size	Pitch	Limit	EDP No.	Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
M6	x 1.0	6H	TC814316IC	80.0	17.0	6.0	4.9
M8	x 1.25	6H	TC814366IC	90.0	20.0	8.0	6.2
M10	x 1.5	6H	TC814426IC	100.0	22.0	10.0	8.0
M12	x 1.75	6H	TC814506IC	110.0	24.0	9.0	7.0
M14	x 2.0	6H	TC814546IC	110.0	26.0	11.0	9.0
M16	x 2.0	6H	TC814606IC	110.0	27.0	12.0	9.0
M18	x 2.5	6H	TC814656IC	125.0	30.0	14.0	11.0
M20	x 2.5	6H	TC814706IC	140.0	32.0	16.0	12.0

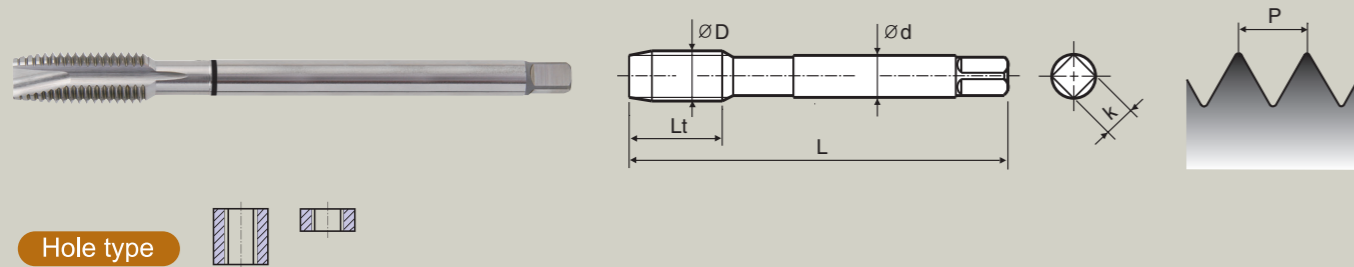
► DIN371 (M6~M10) and DIN376 (M12~M20)

* TiN, TiCN and TiAlN coatings or Steam Homo are available on request

M SPIRAL POINT for Multi-Purpose

ISO Metric coarse threads DIN 13

Long Shank



Hole type

SPIRAL POINT TAPS ◆ **TC445**



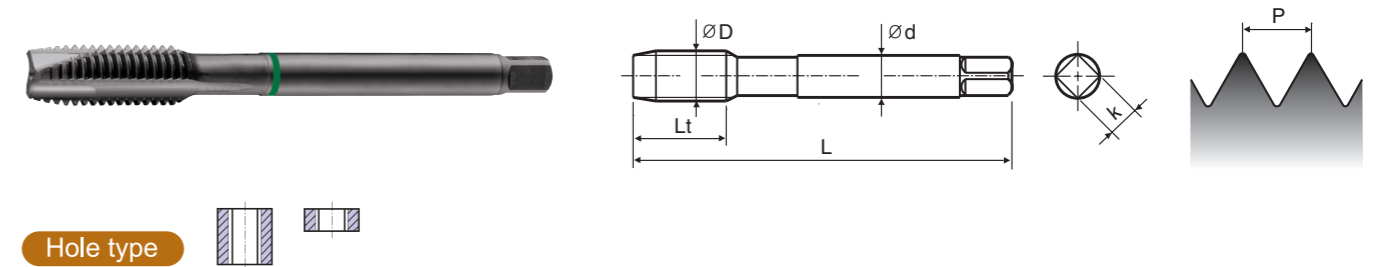
Unit : mm

Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M3	x 0.5	6H	TC445206	100.0	11.0	3.5	2.7
M4	x 0.7	6H	TC445246	125.0	13.0	4.5	3.4
M5	x 0.8	6H	TC445286	140.0	15.0	6.0	4.9
M6	x 1.0	6H	TC445316	160.0	17.0	6.0	4.9
M8	x 1.25	6H	TC445366	180.0	20.0	6.0	4.9
M10	x 1.5	6H	TC445426	200.0	22.0	7.0	5.5
M12	x 1.75	6H	TC445506	220.0	24.0	9.0	7.0
M14	x 2.0	6H	TC445546	220.0	26.0	11.0	9.0
M16	x 2.0	6H	TC445606	220.0	27.0	12.0	9.0
M20	x 2.5	6H	TC445706	280.0	32.0	16.0	12.0

* TiN, TiCN and TiAlN coatings or Steam Homo are available on request

M SPIRAL POINT TAPS for Stainless Steels

ISO Metric coarse threads DIN 13



Hole type

SPIRAL POINT TAPS ◆ **TQ428 / TB428**



Unit : mm

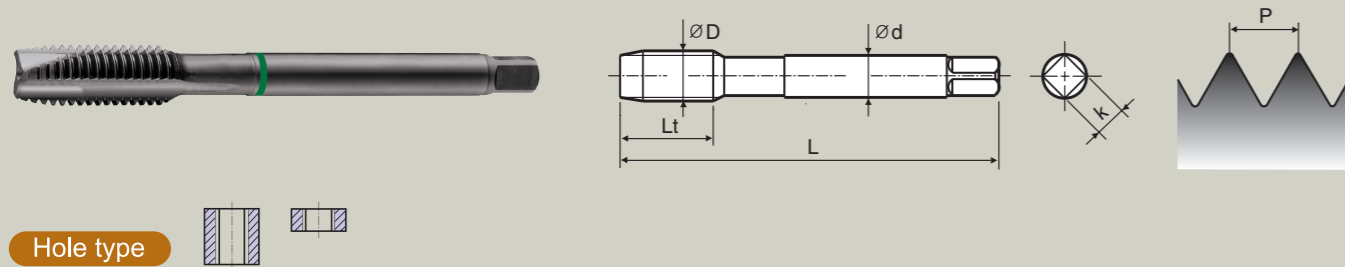
Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M2	x 0.4	6H	TQ428136	45.0	8.0	2.8	2.1
M2.2	x 0.45	6H	TQ428156	45.0	8.0	2.8	2.1
M2.3	x 0.4	6H	TQ428196	45.0	8.0	2.8	2.1
M2.5	x 0.45	6H	TQ428176	50.0	9.0	2.8	2.1
M2.6	x 0.45	6H	TQ428496	50.0	9.0	2.8	2.1
M3	x 0.5	6H	TQ428206	56.0	11.0	3.5	2.7
M3.5	x 0.6	6H	TQ428226	56.0	12.0	4.0	3.0
M4	x 0.7	6H	TQ428246	63.0	13.0	4.5	3.4
M4.5	x 0.75	6H	TQ428266	70.0	14.0	6.0	4.9
M5	x 0.8	6H	TQ428286	70.0	15.0	6.0	4.9
M6	x 1.0	6H	TQ428316	80.0	17.0	6.0	4.9
M7	x 1.0	6H	TQ428346	80.0	17.0	7.0	5.5
M8	x 1.25	6H	TQ428366	90.0	20.0	8.0	6.2
M9	x 1.25	6H	TQ428396	90.0	20.0	9.0	7.0
M10	x 1.5	6H	TQ428426	100.0	22.0	10.0	8.0
M11	x 1.5	6H	TQ428466	100.0	22.0	8.0	6.2
M12	x 1.75	6H	TQ428506	110.0	24.0	9.0	7.0
M14	x 2.0	6H	TB428546	110.0	26.0	11.0	9.0
M16	x 2.0	6H	TB428606	110.0	27.0	12.0	9.0
M18	x 2.5	6H	TB428656	125.0	30.0	14.0	11.0
M20	x 2.5	6H	TB428706	140.0	32.0	16.0	12.0
M22	x 2.5	6H	TB428746	140.0	32.0	18.0	14.5
M24	x 3.0	6H	TB428786	160.0	34.0	18.0	14.5
M27	x 3.0	6H	TB428866	160.0	36.0	20.0	16.0
M30	x 3.5	6H	TB428946	180.0	40.0	22.0	18.0

► DIN371 (M2~M10) and DIN376 (M11~M30)
► HSS-PM (M2~M12/TQ428) and HSS-E (M14~M30/TB428)

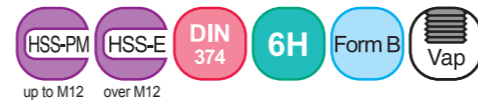
* TiN, TiCN and TiAlN coatings are available on request

MF SPIRAL POINT TAPS for Stainless Steels

ISO Metric fine threads DIN 13



SPIRAL POINT TAPS ◆ TQ438 / TB438



Unit : mm

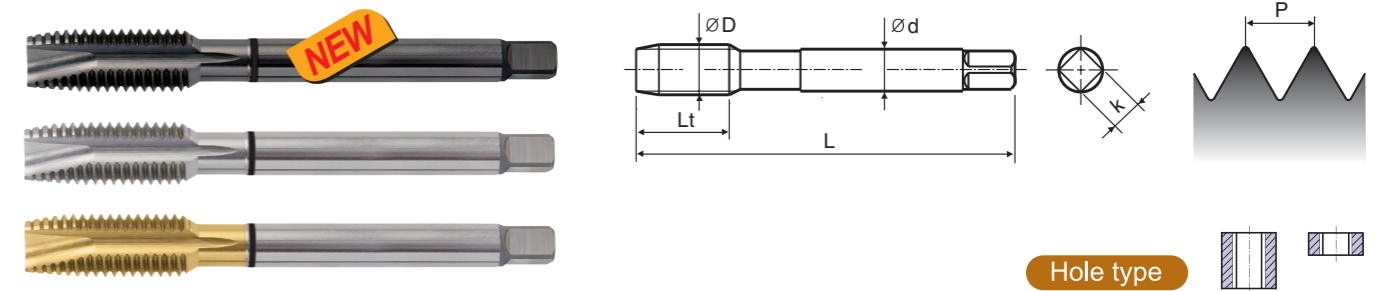
Size	Pitch	Limit	EDP No.	Overall Length	Thread Length	Shank Diameter	Square Size
D	P			L	Lt	d	k
M4	x 0.5	6H	TQ438256	63.0	10.0	2.8	2.1
M5	x 0.5	6H	TQ438296	70.0	11.0	3.5	2.7
M6	x 0.75	6H	TQ438326	80.0	13.0	4.5	3.4
M6	x 0.5	6H	TQ438336	80.0	13.0	4.5	3.4
M7	x 0.75	6H	TQ438356	80.0	14.0	5.5	4.3
M8	x 1.0	6H	TQ438376	90.0	17.0	6.0	4.9
M8	x 0.75	6H	TQ438386	80.0	14.0	6.0	4.9
M10	x 1.25	6H	TQ438436	100.0	22.0	7.0	5.5
M10	x 1.0	6H	TQ438446	90.0	18.0	7.0	5.5
M10	x 0.75	6H	TQ438456	90.0	18.0	7.0	5.5
M12	x 1.5	6H	TQ438516	100.0	22.0	9.0	7.0
M12	x 1.25	6H	TQ438526	100.0	22.0	9.0	7.0
M12	x 1.0	6H	TQ438536	100.0	18.0	9.0	7.0
M14	x 1.5	6H	TB438556	100.0	22.0	11.0	9.0
M14	x 1.25	6H	TB438566	100.0	22.0	11.0	9.0
M14	x 1.0	6H	TB438576	100.0	18.0	11.0	9.0
M16	x 1.5	6H	TB438616	100.0	22.0	12.0	9.0
M16	x 1.0	6H	TB438626	100.0	18.0	12.0	9.0
M18	x 1.5	6H	TB438676	110.0	25.0	14.0	11.0
M18	x 1.0	6H	TB438686	110.0	20.0	14.0	11.0
M20	x 1.5	6H	TB438726	125.0	25.0	16.0	12.0
M20	x 1.0	6H	TB438736	125.0	20.0	16.0	12.0
M22	x 1.5	6H	TB438766	125.0	25.0	18.0	14.5
M22	x 1.0	6H	TB438776	125.0	20.0	18.0	14.5
M24	x 2.0	6H	TB438796	140.0	27.0	18.0	14.5
M24	x 1.5	6H	TB438806	140.0	27.0	18.0	14.5
M26	x 1.5	6H	TB438856	140.0	28.0	18.0	14.5
M27	x 2.0	6H	TB438876	140.0	28.0	20.0	16.0
M27	x 1.5	6H	TB438886	140.0	28.0	20.0	16.0
M28	x 1.5	6H	TB438916	140.0	28.0	20.0	16.0
M30	x 2.0	6H	TB438966	150.0	30.0	22.0	18.0
M30	x 1.5	6H	TB438976	150.0	30.0	22.0	18.0

► HSS-PM (M4~M12/TQ438) and HSS-E (M14~M30/TB438)

* TiN, TiCN and TiAlN coatings are available on request

UNC SPIRAL POINT TAPS for Multi-Purpose

Unified coarse threads



SPIRAL POINT TAPS TB834 / TC834 / TD834



Unit : mm

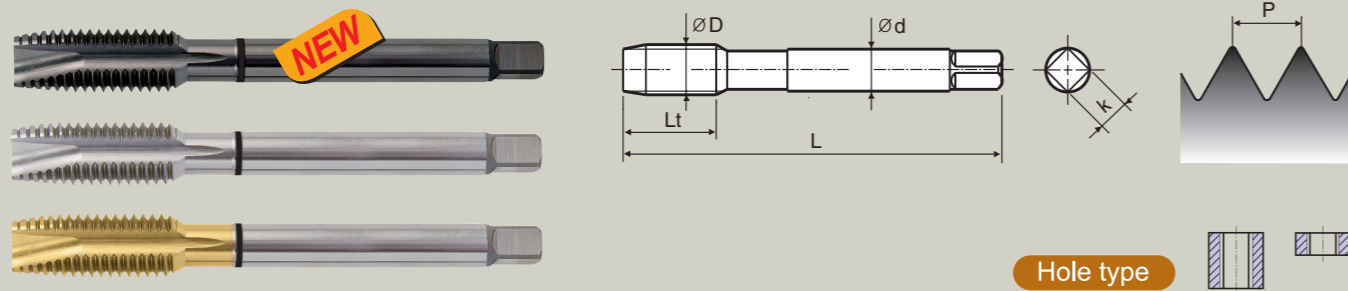
Size	Pitch	Limit	EDP No.			Overall Length	Thread Length	Shank Diameter	Square Size
D	P		Vap	Bright	TiN	L	Lt	d	k
#4	- 40 UNC	2B	TB834162	TC834162	TD834162	56.0	11.0	3.5	2.7
#5	- 40 UNC	2B	TB834202	TC834202	TD834202	56.0	11.0	3.5	2.7
#6	- 32 UNC	2B	TB834242	TC834242	TD834242	56.0	12.0	4.0	3.0
#8	- 32 UNC	2B	TB834282	TC834282	TD834282	63.0	13.0	4.5	3.4
#10	- 24 UNC	2B	TB834322	TC834322	TD834322	70.0	15.0	6.0	4.9
#12	- 24 UNC	2B	TB834362	TC834362	TD834362	80.0	16.0	6.0	4.9
1/4	- 20 UNC	2B	TB834402	TC834402	TD834402	80.0	17.0	7.0	5.5
5/16	- 18 UNC	2B	TB834442	TC834442	TD834442	90.0	20.0	8.0	6.2
3/8	- 16 UNC	2B	TB834482	TC834482	TD834482	100.0	22.0	9.0	7.0
7/16	- 14 UNC	2B	TB834522	TC834522	TD834522	100.0	22.0	8.0	6.2
1/2	- 13 UNC	2B	TB834562	TC834562	TD834562	110.0	25.0	9.0	7.0
9/16	- 12 UNC	2B	TB834602	TC834602	TD834602	110.0	26.0	11.0	9.0
5/8	- 11 UNC	2B	TB834642	TC834642	TD834642	110.0	27.0	12.0	9.0
3/4	- 10 UNC	2B	TB834702	TC834702	TD834702	125.0	30.0	14.0	11.0
7/8	- 9 UNC	2B	TB834742	TC834742	TD834742	140.0	32.0	18.0	14.5
1"	- 8 UNC	2B	TB834782	TC834782	TD834782	160.0	36.0	20.0	16.0

► DIN371 (#4~3/8) and DIN376 (7/16~1")

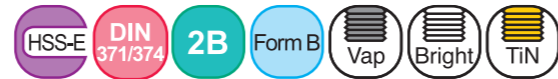
* TiCN and TiAlN coatings are available on request

UNF SPIRAL POINT TAPS for Multi-Purpose

Unified fine threads



SPIRAL POINT TAPS
TB874 / TC874 / TD874



Unit : mm

Size D	Pitch P	Limit	EDP No.			Overall Length L	Thread Length Lt	Shank Diameter d	Square Size k
			Vap	Bright	TiN				
#4	- 48 UNF	2B	TB874182	TC874182	TD874182	56.0	11.0	3.5	2.7
#5	- 44 UNF	2B	TB874222	TC874222	TD874222	56.0	11.0	3.5	2.7
#6	- 40 UNF	2B	TB874262	TC874262	TD874262	56.0	12.0	4.0	3.0
#8	- 36 UNF	2B	TB874302	TC874302	TD874302	63.0	13.0	4.5	3.4
#10	- 32 UNF	2B	TB874342	TC874342	TD874342	70.0	15.0	6.0	4.9
#12	- 28 UNF	2B	TB874382	TC874382	TD874382	80.0	16.0	6.0	4.9
1/4	- 28 UNF	2B	TB874422	TC874422	TD874422	80.0	17.0	7.0	5.5
5/16	- 24 UNF	2B	TB874462	TC874462	TD874462	90.0	17.0	8.0	6.2
3/8	- 24 UNF	2B	TB874502	TC874502	TD874502	100.0	18.0	9.0	7.0
7/16	- 20 UNF	2B	TB874542	TC874542	TD874542	100.0	22.0	8.0	6.2
1/2	- 20 UNF	2B	TB874582	TC874582	TD874582	100.0	22.0	9.0	7.0
9/16	- 18 UNF	2B	TB874622	TC874622	TD874622	100.0	22.0	11.0	9.0
5/8	- 18 UNF	2B	TB874662	TC874662	TD874662	100.0	22.0	12.0	9.0
3/4	- 16 UNF	2B	TB874722	TC874722	TD874722	110.0	25.0	14.0	11.0
7/8	- 14 UNF	2B	TB874762	TC874762	TD874762	125.0	26.0	18.0	14.5
1"	- 12 UNF	2B	TB874802	TC874802	TD874802	140.0	28.0	20.0	16.0

► DIN371 (#4~3/8) and DIN374 (7/16~1")

* TiCN and TiAlN coatings are available on request

SURFACE TREATMENT AND COATING

The High Speed Steels we use grant a good wear resistance and toughness. Therefore we normally deliver our taps with bright, untreated surface. In machining certain materials, various surface treatments are of advantage.

STEAM TEMPERED - Vap

The Steam Tempered is a Fe₃O₄-oxyd-coating which reduces the friction between tool and workpiece and prevents cold welding.

NITRIDING - NI

This surface treatment is recommended for hard wear abrasion machining such as grey cast iron, al-alloys with more than 10% silicon

The above surface finishes are suitable for many applications and will prove to be an added value to your machining strategy. All our surface treatments are made in-house using state of the art technology.

We also offer various coatings to enhance toughness and increase tool life.

TiN-COATING

TiN-coating has a hardness of approx. **2,300 HV** and is temperature-resistant up to approx. **600°C**. TiN-coating is an excellent all-round coating for normal applications.
Color: **Gold** Coefficient of friction against steel: 0.4

TiCN-COATING

TiCN takes place of TiN when the conditions require a coating to have a different hardness and toughness. TiCN brings advantage in machining very difficult steels or cutting interrupted bores. TiCN-coating hardness is approx. **3,000 HV** and its temperature resistance is approx. **400°C**. Due to its lower temperature resistance, tools using TiCN will need to be used in combination with an excellent cooling to ensure a longer tool life.
Color: **Blue-Grey** Coefficient of friction against steel: 0.4

TiAlN-COATING

TiAlN coating has been especially engineered for abrasive material applications such as grey cast iron, alu-alloys with silicon, fiber reinforced plastics etc. or machining under high temperatures with insufficient cooling or high speed $\geq 600\text{m/min}$. TiAlN hardness is approx. **3,000 HV** and its temperature resistance is approx. **800°C**
Color: **Violet-Grey** Coefficient of friction against steel: 0.4

HARDSLICK-COATING

Hardslick-coating combines the advantages of an extremely hard, thermally stable TiAlN-coating with the sliding and lubricating properties of an outer WC/C (tungsten carbide/carbon)-coating in a new technological way. Hardslick coating has ~and its temperature resistance is approx. **800°C**
Color: **Violet-Grey** Coefficient of friction against steel: 0.2

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Oversized Pitch Diameter	Incorrect Tap	<ol style="list-style-type: none"> 1. Use proper GH limits of taps 2. Use longer chamfered taps
	Chip Packing	<ol style="list-style-type: none"> 1. Use spiral point or spiral fluted taps 2. Reduce number of flutes to provide extra chip room 3. Use larger hole size 4. If tapping a hole, allow deeper hole where applicable or shorten the thread length of the parts 5. Use proper lubricant
	Galling	<ol style="list-style-type: none"> 1. Apply proper surface treatment such as Hardslick or chrome 2. Use proper cutting lubricant 3. Reduce tapping speed 4. Use proper cutting angle in accordance with material being tapped 5. Use large hole size
	Operating Conditions	<ol style="list-style-type: none"> 1. Apply proper tapping speed 2. Correct alignment of tap and drill hole 3. Free cutting either tap or workpiece 4. Use proper tapping speed to avoid torn or rough threads 5. Use lead screw tapper 6. Use proper tapping machine with suitable power 7. Avoid misalignment of the tap and drill hole from loose spindle or worn holder
	Tool Condition	<ol style="list-style-type: none"> 1. Obtain proper indexing angle for the flutes at the cutting edge 2. Grind proper cutting angle and chamfer angle 3. Avoid too narrow land width 4. Remove burrs from regrinding
Oversized Internal Diameter	Hole Size	<ol style="list-style-type: none"> 1. Use minimum hole size 2. Avoid tapered hole 3. Use proper chamfered taps
	Galling	<ol style="list-style-type: none"> 1. Galling solutions 1 through 4 above can be applied to this specific problem
Undersized Pitch Diameter	Incorrect Tap	<ol style="list-style-type: none"> 1. Use oversize taps 2. Apply proper chamfer angle 3. Increase cutting angle
	Damaged Thread	<ol style="list-style-type: none"> 1. Use proper reversing speed to avoid damaging tapped thread on the way out of the hole
	Left-Over Chips	<ol style="list-style-type: none"> 1. Increase cutting performance to avoid any left over chips in the hole 2. Remove left over chips from the hole for gage checking
Undersized Internal Diameter	Hole Size	<ol style="list-style-type: none"> 1. Use maximum drill size
Breakage	Incorrect Tap Selection	<ol style="list-style-type: none"> 1. Avoid chip packing in the flutes or on the bottom of the hole Use spiral pointed or spiral fluted taps or fluteless taps 2. Apply correct surface treatment such as Hardslick or bright
	Excessive Tapping Torque	<ol style="list-style-type: none"> 1. Use larger drill size 2. Try to shorten thread length 3. Increase cutting angle 4. Apply a tap with more thread relief and reduced land width 5. Apply correct surface treatment such as Hardslick

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Breakage	Operating Conditions	<ol style="list-style-type: none"> 1. Reduce tapping speed 2. Avoid misalignment between tap, hole and tapered hole 3. Use floating type of tapping holder 4. Use tapping holder with torque adjustment 5. Avoid hitting bottom of the hole with tap
	Tool Condition	<ol style="list-style-type: none"> 1. Do not grind the bottom of the flute 2. Avoid too narrow land width 3. Remove all worn sections when regrinding the flutes 4. Regrind tool more frequently
Chipping	Incorrect Tap Selection	<ol style="list-style-type: none"> 1. Reduce cutting angle 2. Use a different kind of high-speed steel tap 3. Reduce hardness of the tap 4. Increase chamfer length 5. Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps
	Operating Conditions	<ol style="list-style-type: none"> 1. Reduce tapping speed 2. Avoid misalignment between tap and hole 3. Avoid sudden return of reverse in blind hole tapping 4. Avoid galling 5. Use larger hole size
Wear	Incorrect Tap Selection	<ol style="list-style-type: none"> 1. Apply specially designed tap for tapping heat treated material 2. Change to a type of high-speed steel tap that contains vanadium 3. Apply special surface treatment such as TiCN or Hardslick 4. Increase chamfer length
	Operating Conditions	<ol style="list-style-type: none"> 1. Reduce tapping speed 2. Apply proper cutting lubricants 3. Avoid work hardened hole 4. Use larger hole size
	Tool Condition	<ol style="list-style-type: none"> 1. Grind proper cutting angle 2. Avoid hardness reduction from grinding process
Torn or Rough Thread	Chamfer Too Short	<ol style="list-style-type: none"> 1. Increase chamfer length
	Wrong Cutting Angle	<ol style="list-style-type: none"> 1. Apply proper cutting angle
	Galling	<ol style="list-style-type: none"> 1. Use thread relieved taps 2. Reduce land width 3. Apply surface treatment such as Hardslick or chrome 4. Use proper cutting lubricant 5. Reduce tapping speed 6. Use larger hole size 7. Obtain proper alignment between tap and work
	Chip Packing	<ol style="list-style-type: none"> 1. Use spiral pointed or spiral fluted taps 2. Use larger drill size
Chattering on Tapped Thread	Tool Free Cutting	<ol style="list-style-type: none"> 1. Reduce cutting angle 2. Reduce amount of thread relief
	Tool Condition	<ol style="list-style-type: none"> 1. Avoid too narrow land width 2. Do not grind the bottom of the flute