Threaded Inserts / Tools for Inserts

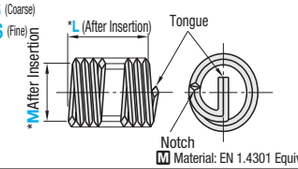
Tangless Inserts / Self-Tapping Inserts
Slotted

When large quantities are needed, box package sales is more economical. P.274

■Threaded Inserts

RoHS10

HLTS (Coarse)
HLSS (Fine)



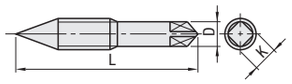
M Material: EN 1.4301 Equiv.

■Taps for Threaded Inserts

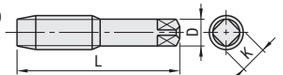
RoHS10

Coarse	Fine	Finish
HLTX	HLSX	Coarse Tapping
HLTY	HLSY	Medium Tapping
HLTZ	HLSZ	Finish Tapping

(M3~5)



(M6 or More)

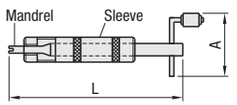


M Material: JIS-SKH (TS for hot work) H Hardness: 61 ~ 64HRC

■Threaded Insert Installation Tools

RoHS10

HLTP

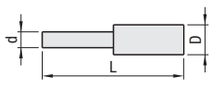


No.	M Material		S Surface Treatment
	Sleeve	Mandrel	
3~6	PPS	EN 1.7220 Equiv.	Black Oxide (for EN 1.7220 Equiv. part)
8~16	EN 1.7220 Equiv.		

■Threaded Insert Tang Break-Off Tools

RoHS10

HLTB

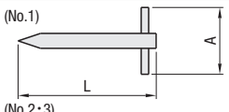


M Material: EN 1.7220 Equiv.
S Surface Treatment: Black Oxide

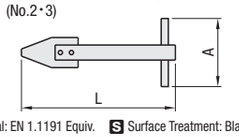
■Threaded Insert Removal Tools

RoHS10

HLTN (No.1)



HLTN (No.2・3)



M Material: EN 1.1191 Equiv. S Surface Treatment: Black Oxide

■Threaded Inserts

Part Number Type	*M	* (L) After Insertion			Pitch	Tap Pilot Hole Dia. (Reference)	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~19	20~49	50~100
HLTS (Coarse)	3	3	4.5	6	0.5	3.11~3.20				
	4	4	6	8	0.7	4.16~4.29				
	5	5	7.5	10	0.8	5.18~5.33				
	6	6	9	12	1.0	6.22~6.40				
	8	8	12	16	1.25	8.28~8.48				
	10	10	15	20	1.5	10.33~10.56				
	12	12	18	24	1.75	12.38~12.64				
	16	16	24	32	2.0	16.44~16.73				

For orders larger than indicated quantity, please check with WOS.

Part Number Type	*M	* (L) After Insertion			Pitch	Tap Pilot Hole Dia. (Reference)	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~19	20~49	50~100
HLSS (Fine)	8	8	16	24	1.0	8.28~8.48				
	10	10	15		1.0	10.33~10.56				
		10	15	20	1.25					
	12	12	18		1.25	12.38~12.64				
		12		24	1.5					

* M and L are sizes when inserted into tapped holes. For orders larger than indicated quantity, please check with WOS.

L dimension before insertion is shorter than that after the insertion.

■Taps for Threaded Inserts

Part Number Type	No.	Applicable Threaded Insert M	L	D	K	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~20
HLTX HLTY HLTZ (Coarse)	3	3	55	5	4		
	4	4	61	5.5	4.5		
	5	5	67	6			
	6	6	65	6.2	5		
	8	8	75	7	5.5		
	10	10	82	8.5	6.5		
	12	12	88	10.5	8		
	16	16	105	14	11		

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	Pitch		L	D	K	Unit Price 1~9 pc(s).	Volume Discount Rate 10~20
HLSX HLSY HLSZ (Fine)	8	1.0		75	7	5.5		
	10	1.0	1.25	82	8.5	6.5		
	12		1.25 1.5	88	10.5	8		

■Threaded Insert Installation Tools

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	Applicable Threaded Insert M	L	A	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~20
HLTP	3	3	150	80		
	4	4				
	5	5				
	6	6	165	103		
	8	8	175			
	10	10	180	124		
	12	12	200			
	16	16	210			

■Tang Break-Off Tools

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	Applicable Threaded Insert M	L	D	d	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~20
HLTB	3	3	100	6	1.8		
	4	4			2.6		
	5	5		9	3.5		
	6	6		10	4.2		
	8	8		12	5.5		
	10	10	110	14	7.5		
	12	12	115	16	8.5		
	16	16	114	20	12		

■Threaded Insert Removal Tools

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	Applicable Threaded Insert M	L	A	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~20
HLTN	1	3・4・5	92	60		
	2	6・8・10	109	75		
	3	12・16	117	100		

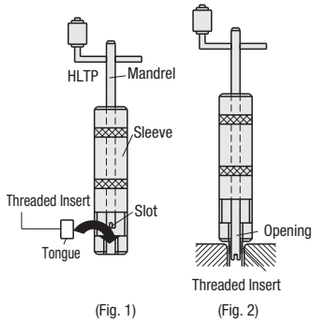
For orders larger than indicated quantity, please check with WOS.

Ordering Example

Part Number - L - Pitch

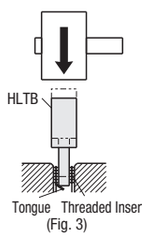
HLTS3 - 4.5
HLTX5
HLSS10 - 15 - 1.25
HLSX - 8 - 1.0

■How to Handle Threaded Inserts

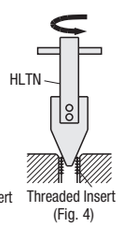


(Fig. 1)

(Fig. 2)



(Fig. 3)



(Fig. 4)

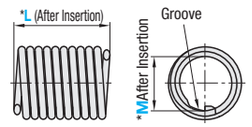
1. Drill a pilot hole in the workpiece within the appropriate limit of tap pilot hole diameters shown in the above table.
(Hole Depth > Length after Insertion +2.5xP (Pitch))
2. Tap with "Taps for Threaded Inserts" (Coarse, Medium, Finish Tapping in that order), and completely remove metal chips.
3. Insert Threaded Inserts to tip of sleeve of the Insert Tool (with tang on the tip side), and clip on the tang at the mandrel slot (Fig. 1). Turn the handle and insert Threaded Insert into the guide of thread part on the tool tip. Set it so that the threaded insert does not protrude more than the sleeve tip (leaving 1 or 2 pitches).
4. Turn the handle to install Threaded Inserts by positioning the insert tool perpendicular to the work (Fig. 2). Check the insertion condition from the opening of the sleeve tip. Remove the tool from the work when insertion is complete.
*Inserting while pressing the handle hard in the insertion direction causes damages such as skipped threads. Always turn the handle lightly in the horizontal direction. Do not reverse the rotation during the insertion as that will cause damages.
5. After the insertion is complete, insert the tang break-off tool, and break off the tang from the notch by striking the head sharply with a hammer (Fig. 3).
6. When removing Threaded Inserts, press an Insert Removal Tool onto the insert, and slowly turn counterclockwise to remove it (Fig. 4). When reinserting the Thread Insert into the removed hole, use special tap again before inserting.

When large quantities are needed, box package sales is more economical. P.274

■Tangless Inserts

RoHS10

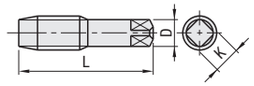
TLTS (EN 1.4301 Equiv.)



■Tangless Insert Hand Taps

RoHS10

TLTK (Set of a plug tap and a bottom tap)

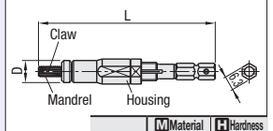


M Material: HSSV
H Hardness: 63 ~ 68HRC

■Tangless Insert Insertions / Removal Tools

Caps are removable.

TLTP TLTN

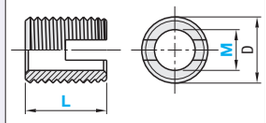


	M Material	H Hardness
Claw	HAP-10	64~65HRC
Mandrel	DC 53 @ (Daido)	57~60HRC
Housing	EN 1.4305 Equiv.	-

■Self-Tapping Inserts Slotted

The hex chrome content for surface treatment is within threshold value.

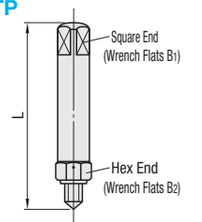
Type	M Material	S Surface Treatment
ENT	Free-Cutting Steel	Chromate
ENTS	EN 1.4305 Equiv.	-



■Self-Tapping Inserts Hand Tools for Self-Tapping Inserts

RoHS10

ENTP



M Material: EN 1.0715 Equiv.

Ordering Example

Part Number - L

TLTS2.5 -- 5
ENT3 -- 6
ENTP5
TLTP10

■Tangless Inserts

Part Number Type	*M	*(L)After Insertion			Tap Pilot Hole Dia. (Reference)	Unit Price 1 ~ 49 pc(s).	Volume Discount Rate 50~100
TLTS	2.5	2.5	3.8	5	2.60~2.65		
	3	3	4.5	6	3.12~3.20		
	4	4	6	8	4.17~4.30		
	5	5	7.5	10	5.16~5.33		
	6	6	9	12	6.25~6.42		
	8	8	12	16	8.31~8.52		
	10	10	15	20	10.37~10.62		

* M (Coarse Thread) and L are the sizes after insertion. For orders larger than indicated quantity, please check with WOS.
L dimension before insertion is shorter than that after insertion.
These specialized tools allow insertion and removal of tangless inserts, reducing working human hours.

■Hand Taps for Tangless Inserts

Part Number Type	No.	Applicable Threaded Insert M	L	D	K	Unit Price 1 ~ 3 pc(s).	Volume Discount Rate 4 pcs.
TLTK	2.5	2.5	46	4	3.2		
	3	3	52	4	3.2		
	4	4	60	5.5	4.5		
	5	5	62	6	4.5		
	6	6	70	6.2	5		
	8	8	75	7	5.5		
	10	10	82	8.5	6.5		

■Insertions / Removal Tools

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	D	L	Unit Price 1 ~ 3 pc(s).	Volume Discount Rate 4 pcs.
TLTP (Insert Tool) TLTN (Removal Tool)	2.5	6.0	69.0		
	3	6.8	68.5		
	4	9.0	75.8		
	5	9.7	78.6		
	6	11.0	78.1		
	8	13.0	98.4		
	10	15.5	104.4		

TLTP and TLTN are not RoHS compliant, but the content of hex chrome for surface treatment is within threshold value.
・No damages on the threads and bodies at removal.
・No need for breaking tangs off and looking for broken tangs, or checking gauge positions.

For orders larger than indicated quantity, please check with WOS.

Part Number Type	M (Coarse)	L	Tap Pilot Hole Dia. (Reference) Softer← Mating Material→ Harder: Soft Plastic, Hardwood	Hard Plastic Cast Iron ~ HB200	Cast Iron HB200 ~ Light Metal such as Aluminum Alloy Tensile Strength: ~ 350N/mm2	Light Metal such as Aluminum Alloy Tensile Strength: 350N/mm2 ~ Brass, Other Nonferrous Metals	D (Outer Screw) O.D.	Pitch	ENT Unit Price 1 ~ 99 pc(s).	ENT Volume Discount Rate 100~300	ENTS Unit Price 1 ~ 99 pc(s).	ENTS Volume Discount Rate 100~300
ENT ENTS	3	6	4.5	4.6	4.7	4.8	5	0.5				
	4	8	5.9	6.0	6.1	6.2	6.5	0.75				
	5	10	7.2	7.3	7.5	7.6	8	1.0				
	6	14	8.8	9.0	9.2	9.4	10	1.5				
	8	15	10.8	11.0	11.2	11.4	12	1.5				
	10	18	12.8	13.0	13.2	13.4	14	1.5				
	12	22	14.8	15.0	15.2	15.4	16	1.5				

Do not use this for difficult-to-cut high strength Aluminum (Duralumin etc.)
When the tapped material has high hardness, drill a pilot hole of slightly larger diameter within the range.

For orders larger than indicated quantity, please check with WOS.

Part Number Type	No.	Applicable Threaded Insert M	L	B1	B2	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10~20
ENTP	3	3	55	5	7		
	4	4	60	5	7		
	5	5	75	8	13		
	6	6	75	8	13		
	8	8	75	8	13		
	10	10	95	12.5	19		
	12	12	95	12.5	19		

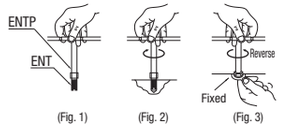
For orders larger than indicated quantity, please check with WOS.

■Features of Self-Tapping Inserts

・Slotted tap inserts with both external and internal threads.
This fastener components reinforce relatively-low mechanical thread strength and allow skipping of the pre-tapping.

■Machining Procedure and Precautions for Use

1. Drill a pilot hole in the workpiece within the appropriate limit of tap pilot hole diameters shown in the above table. When the tapped material has high hardness, drill a pilot hole of slightly larger diameter within the range.
2. With the slot facing down, fit the self-tapping insert all the way onto the tip of the hand tool (Fig. 1). Put the insert vertically into the pilot hole by turning the tool handle. (Fig. 2)
* If the pilot hole diameter is too small, it may cause a lag in pitch or looseness, and can damage tools.
*At the start of tapping (1 to 2 pitches), check to see if the tools are aligned straight with the pilot hole.
If the insert is going in slanted, stop turning the tool and re-align. Realignment after inserting almost halfway (1/3 to 1/2) is too late. Do not reverse the rotation during the insertion as that will cause damages.
3. When the insert has arrived at a predetermined depth, tighten the hex part of the tool with a wrench, and then turn the handle counterclockwise to separate the tool from the workpiece. (Fig. 3)
* Further turning a tool when already in contact with the workpiece can damage the self-tapping part of the insert and result in a loose fit.
4. Before the first use, please select a proper pilot hole dia. through trials.



(Fig. 1) (Fig. 2) (Fig. 3)

■How to Use a Bolt and a Nut

Use a hex nut and a Self-Tapping Insert in a double-nut arrangement as shown below. Do not obstruct the first thread or the 3-holes with the bolt. After the insertion is complete, loosen the hex nut while holding the bolt head.