ABA Tech Inc

WIRE THREAD INSERT

- **Metric & UNC/UNF**
- **Stainless Steel 304 & 316**
- **Free Running Wire Thread Insert**

Introduction Of Free Running Wire Thread Insert

ABA Tech Inc was established in 2004 .Since that time our fastening systems have been successfully integrated into numerous applications within many different industries in the world.We provide local support for innovative,high quality fastening systems supplied globally to the strictest environmental and working conditions.

Free running wire thread inserts can be used to strengthen threads, giving applications a longer life. Each insert sharing the load over the entire bolt and hole, improving holding or pull out resistance. With a wire thread insert installed, a more even distribution of load and stress can be achieved. Free running wire thread inserts are generally made of type 304(18-8) stainless steel wire rolled into a diamond shape cross-section.

Free running wire thread inserts can be supplied in other materials such as Inconel, Nimonic 90, Nitronic 60, Phosphor Bronze and type 316 Stainless Steel.

Features :

- Lightweight yet robust design gives superior holding power
- Quick and simple installation process
- Extensive stock of METRIC, UNC, UNF inserts
- Large variety of materials and coating options
- Special lengths and diameter pitch combinations available to order
- A wide range of tooling options available

Defective thread

Repaired thread

Applications :

- Automotive
- Rail carriages
- Metal construction
- Aerospace industry
- Agricultural machinery
- Construction machinery
- Electronic devices
- Mechanical engineering
- Wind power Solar

Free Running Wire Thread Insert Installation

Free running wire thread inserts can be easily and economically installed because there are only a few basic rules to observe. There is a broad range of installation tools for efficient installation – for individual applications as well as for large-scale production. Installation phases are as follows:

Drilling

Common twist drills are used.

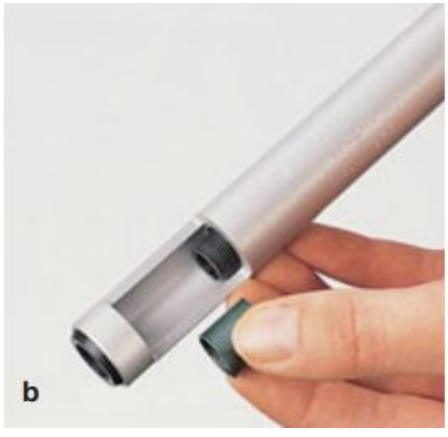
Prior to tapping, counter-bore 90° and deburr. Outside diameter of countersink = DHC + 0.1 mm.

Tapping

To tap the holding thread, system-dependent original taps must be used.

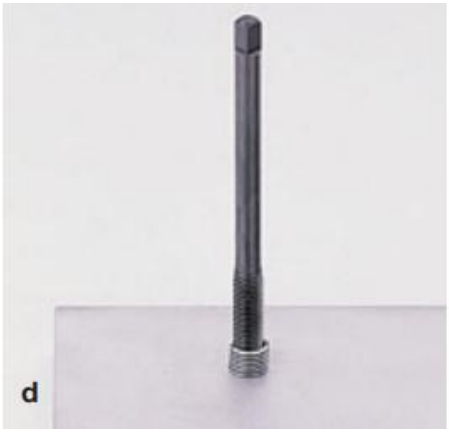
Form tapping

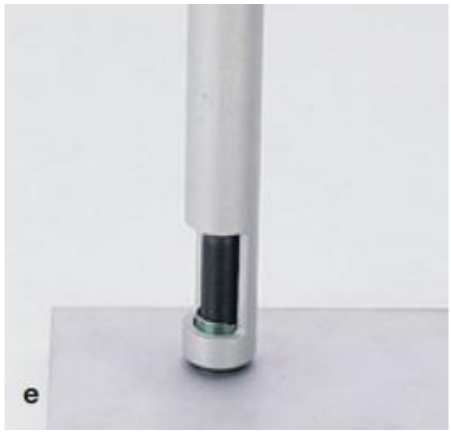
Chipless production of internal threads with forming taps is an efficient production method for many materials.



Insertion of thread insert

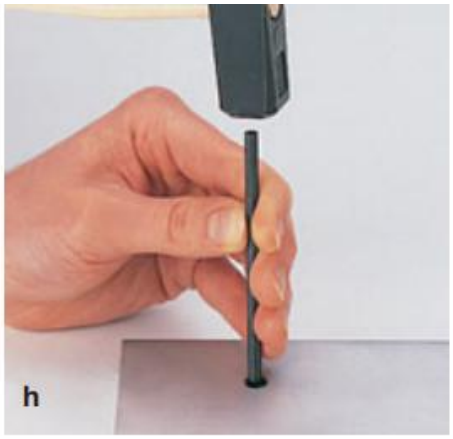
The installation can be done manually, automatically or with machine tools.
Wire thread insert is screwed onto the installation mandrel with the tang down (a), inserted into the leader cartridge (b) or placed on the fly-over tool (c). Then, the tool is placed over the tapped hole.





Installation

By turning the threaded mandrel (d), the mandrel (e) or the fly-over tool (f), respectively, manually or triggering the drive, the thread insert is screwed in. It must be installed at least 0.25 P below the surface.

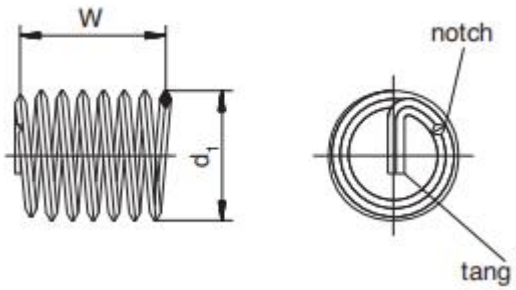


Breaking off the tang

To produce a through-hole thread, the tang is broken off at the notch. For that, a tang break-off tool is used (g and h). For threads from M 14 (fine and normal pitch), the tang can be removed with long nose pliers (i). For blind-hole threads, the tang does not have to be removed if the maximum screw-in depth of the screw is observed.

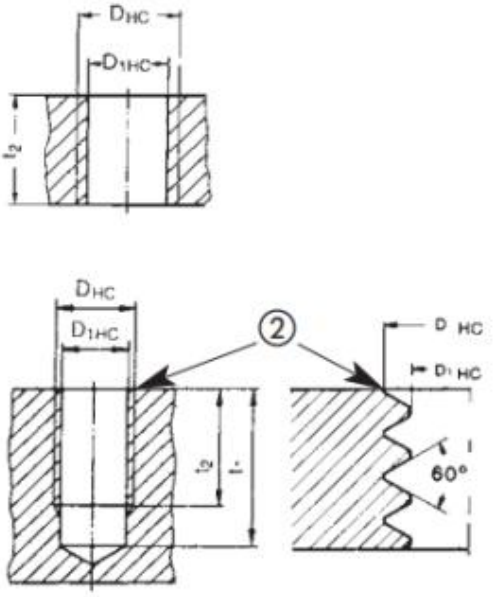
Free Running Wire Thread Insert Technical Parameters

Free Running

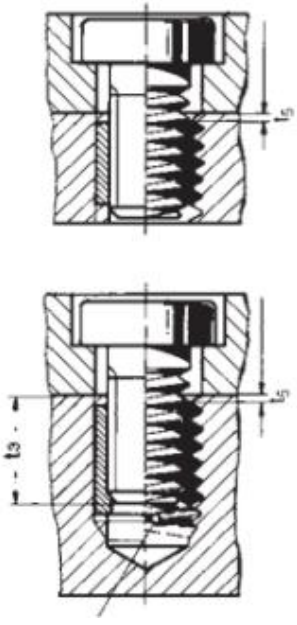


W and d1 are the control values for thread inserts (Free Running) before they have been installed. The length can only be measured for installed thread inserts.

Holding thread



Assembly



Tang not broken off

d = Nominal thread diameter
P = Thread pitch
d1 = Outside diameter of thread insert prior to installation
W = Number of threads prior to installation
DHC = Outside diameter of the parent thread
D1HC = Crest diameter
B = Suitable twist drill diameter. Please note:
D1HC is critical for selecting the correct twist drill diameter

t1 = Minimum depth of tapped hole
t2 = The nominal length of the thread insert corresponds to the minimum length of the full parent thread for blind holes or the minimum plate thickness for a through hole
t3 = Maximum screw-in depth when the tang is not removed
t5 = Distance of the thread insert from the joint face = 0.25 to 0.5 P, if t2 corresponds to the above mentioned minimum value

Material :

- Stainless steel grade 304 (AS7245) austenitic corrosion resistant steel.

  For normal applications up to 425°C .

- Stainless steel grade 316 (AISI 316) austenitic corrosion resistant steel.

  For Marine applications up to 425°C .

Coating & Finishing :

- Silver Plating

  Primarily used to reduce the effects of screw thread seizure in high temperature applications.

- Coloured Dye

  Red, blue and green colour dyes are available for fast and secure visual inspection and identification. These organic resin based dyes do not affect the installation or function of the inserts and normally do not need to be removed.

Technical Parameters - Metric

dx p	x d	L(mm)	W	d1 min.max(mm)	B(mm)
M1.6x0.35	1d	1.6	3.1	2.1～2.3	1.6
	1.5d	2.4	4.5		
	2d	3.2	6.2		
M2x0.4	1d	2	3.2	2.5～2.8	2.1
	1.5d	3	5.3		
	2d	4	7.4		
	2.5d	5	9.5		
	3d	6	11.6		
M2.5x0.45	1d	2	3.6	3.3～3.5	2.6
	1.5d	3.8	5.9		
	2d	5	8.2		
	2.5d	6.3	10.5		
	3d	7.5	12.8		

M3x0.5	1d	3	4.2	3.8～4	3.1
	1.5d	4.5	6.8		
	2d	6	9.4		
	2.5d	7.5	12		
	3d	9	14.6		
M3.5x0.6	1d	3.5	4	4.55～4.75	3.7
	1.5d	5.3	6.4		
	2d	7	8.9		
	2.5d	8.8	11.4		
	3d	10.5	13.9		
M4x0.7	1d	4	4	5.05～5.25	4.2
	1.5d	6	6.6		
	2d	8	9.1		
	2.5d	10	11.7		
	3d	12	14.2		
M5x0.8	1d	5	4.4	6.35～6.6	5.2
	1.5d	7.5	7.1		
	2d	10	9.9		
	2.5d	12.5	12.6		
	3d	15	15.3		
M6x1	1d	6	4.3	7.6～7.85	6.3
	1.5d	9	6.9		
	2d	12	9.6		
	2.5d	15	12.2		
	3d	18	14.9		
M7x1	1d	7	5.2	8.65～8.9	7.3
	1.5d	10.5	8.3		
	2d	14	11.5		
	2.5d	17.5	14.6		
M8x1.25	1d	8	4.8	9.85～10.1	8.3
	1.5d	12	7.7		
	2d	16	10.6		
	2.5d	20	13.5		
	3d	24	16.5		
M8x1	1d	8	6	9.85～10.1	8.3
	1.5d	12	9.6		
	2d	16	13.1		
	2.5d	20	16.7		
M10x1.5	1d	10	5	12.1～12.5	10.4
	1.5d	15	8.1		
	2d	20	11.2		
	2.5d	25	14.2		
	3d	30	17.3		
M10x1.25	1d	10	6.1	12.1～12.5	10.3
	1.5d	15	9.7		
	2d	20	13.3		
	2.5d	25	16.9		
M10x1	1d	10	7.7	12.0～12.5	10.3
	1.5d	15	12.1		
	2d	20	16.5		

	2.5d	25	20.8		
M11x1.5	1d	11	5.7	13.0~13.4	11.4
	1.5d	16.5	9.1		
	2d	22	12.5		
M12x1.75	1d	12	5.3	14.3~14.8	12.4
	1.5d	18	8.4		
	2d	24	11.6		
	2.5d	30	14.8		
	3d	36	18		
M12x1.5	1d	12	6.2	14.3~14.8	12.4
	1.5d	18	9.8		
	2d	24	13.5		
	2.5d	30	17.1		
M12x1.25	1d	12	7.5	14.3～14.8	12.3
	1.5d	18	11.8		
	2d	24	16.1		
	2.5d	30	20.3		
M12x1	1d	12	9.4	14.3～14.8	12.3
	1.5d	18	14.7		
	2d	24	19.9		
M14x2	1d	14	5.4	16.7～17.2	14.5
	1.5d	21	8.7		
	2d	28	11.9		
	2.5d	35	15.2		
	3d	42	18.4		
M14x1.5	0.75d	10.5	5.2	16.7～17.2	14.4
	1d	14	7.3		
	1.5d	21	11.5		
	2d	28	15.7		
	2.5d	35	19.9		
M14x1.25	1d	14	8.8	16.7～17.2	14.3
	1.5d	21	13.8		
M16x2	1d	16	6.3	18.8～19.4	16.5
	1.5d	24	10		
	2d	32	13.7		
	2.5d	40	17.5		
	3d	48	21.2		
M16x1.5	0.75d	12	6.1	18.8～19.4	16.4
	1d	16	8.5		
	1.5d	24	13.3		
	2d	32	18.1		
M18x2.5	1d	18	5.6	21.4~22	18.6
	1.5d	27	9		
	2d	36	12.3		
	2.5d	45	15.7		
	3d	54	19		
M18x2	0.75d	13.5	5	21.4~22	18.5
	1d	18	7.1		
	1.5d	27	11.2		
	2d	36	15.2		

M18x1.5	0.75d	13.5	7.1	21.4~22	18.4
	1d	18	9.8		
	1.5d	27	15		
	2d	36	20.3		
M20x2.5	1d	20	6.5	23.6~24.2	20.6
	1.5d	30	10		
	2d	40	13.8		
	2.5d	50	17.5		
	3d	60	21.2		
M20x2	0.75d	15	5.7	23.6~24.2	20.5
	1d	20	8		
	1.5d	30	12.5		
	2d	40	17.1		
M20x1.5	0.5d	10	4.8	23.6~24.2	20.4
	0.75d	15	7.8		
	1d	20	10.7		
	1.5d	30	16.7		
M22x2.5	1d	22	6.9	26.2～26.8	22.6
	1.5d	33	11		
	2d	44	15		
	2.5d	55	19		
	3d	66	23		
M22x2	0.75d	16.5	6.3	26.2～26.8	22.5
	1d	22	8.8		
	1.5d	33	13.7		
	2d	44	18.6		
M22x1.5	0.5d	11	5.4	26.2～26.8	22.4
	0.75d	16.5	8.7		
	1d	22	11.9		
	1.5d	33	18.4		
M24x3	1d	24	6.3	28.5~29.1	24.8
	1.5d	36	10		
	2d	48	13.7		
	2.5d	60	17.5		
	3d	72	21.2		
M24x2	0.75d	18	7	28.5~29.1	24.5
	1d	24	9.6		
	1.5d	36	15		
	2d	48	20.3		
M24x1.5	0.5d	12	6	28.4~28.9	24.4
	0.75d	18	9.5		
	1d	24	13		
	1.5d	36	20		
M26x1.5	0.5d	13	6.5	28.5~30	26.4
	0.75d	19.5	10.3		
	1d	26	14		
M27x3	1d	27	7.2	32.1~32.5	27.8
	1.5d	40.5	11.3		
	2d	54	15.4		
	2.5d	67.5	19.5		

M27x2	0.75d	20.3	7.9	32.1~32.2	27.5
	1d	27	10.9		
	1.5d	40.5	16.9		
M27x1.5	0.5d	13.5	6.9	31.3~32.1	27.4
	0.75d	20.3	10.9		
	1d	27	14.9		
	1.5d	40.5	22.8		
M28x1.5	0.5d	14	7.1	33.0～33.6	28.4
	0.75d	21	11.2		
	1d	28	15.3		
	1.5d	42	23.5		
M30x3.5	1d	30	6.9	35.0～35.6	30.9
	1.5d	45	11		
	2d	60	15		
	2.5d	75	19		
M30x2	0.5d	15	5.6	34.7～35.3	30.5
	0.75d	22.5	9		
	1d	30	12.3		
	1.5d	45	19		
M30x1.5	0.5d	15	7.8	34.3~34.9	30.4
	0.75d	22.5	12.2		
	1d	30	16.7		
	1.5d	45	25.5		
M33x3.5	1d	33	7.8	38.1~38.6	33.9
	1.5d	49.5	12.2		
	2d	66	16.6		
	2.5d	82.5	21.1		
	3d	99	25.5		
M33x2	0.5d	16.5	6.4	38.0~38.5	33.5
	0.75d	24.8	10.1		
	1d	33	13.8		
	1.5d	49.5	21.2		
M33x1.5	0.5d	16.5	8.7	37.8~38.3	33.4
	0.75d	24.8	13.6		
	1d	33	18.5		
M36x4	0.75d	27	5.2	41.9~42.3	37
	1d	36	3.7		
	1.5d	54	11.6		
	2d	72	15.8		
M36x3	0.5d	18	4.4	41.8~42.3	36.8
	0.75d	27	7.1		
	1d	36	9.9		
	1.5d	54	15.4		
M36x2	0.5d	18	6.9	41.7~42.3	36.5
	0.75d	27	11		
	1d	36	15		
	1.5d	54	23		
M39x2	0.5d	19.5	7.7	44.8～45.4	39.5
	0.75d	29.3	12.1		
	1d	39	16.4		

M42x4.5	1d	42	7.3	49～51	43
	1.25d	52	9.5		
	1.5d	63	11.6		
M42x3.0	1d	42	11.7	48～50.5	43
	1.25d	52	14.8		
	1.5d	63	18.1		
M48x3	0.5d	24	6.2	55~55.5	48.8
	0.75d	36	9.9		
	1d	48	13.6		
M56x4	0.5d	28	5.4	64~65	17
	0.75d	42	8.6		
	1d	56	11.8		
M60x3	0.5d	30	7.9	69~70	60.8
	0.75d	45	12.4		
	1d	60	16.9		
	1.5d	90	25.9		
M60x4	0.5d	30	5.8	69~70	61
	0.75d	45	9.2		
	1d	60	12.6		
	1.5d	90	19.5		

Technical Parameters - UNC/UNF

d Number-threads	d	p	x d	L(mm)	W	d1 min.max (mm)	B(mm)
2-56	2.184	0.45	1d	2.18	3.3	2.7-3.1	2.3
			1.5d	3.28	5		
			2d	4.37	6.8		
4-40	2.845	0.64	1d	2.90	3.2	3.6-4.0	3.0
			1.5d	4.30	5.1		
			2d	5.80	7.2		
5-40	3.175	0.64	1d	3.20	3.7	4.0-4.4	3.3
			1.5d	4.80	5.9		
			2d	6.40	8.2		
6-32	3.505	0.79	1d	3.50	2.8	4.5-4.9	3.7
			1.5d	5.30	4.8		
			2d	7.00	6.8		
8-32	4.166	0.79	1d	4.20	4	5.2-5.6	4.4
			1.5d	6.25	6		
			2d	8.30	8.7		
8-36	4.166	0.71	1d	4.20	4.5	5.1-5.6	4.3
			1.5d	6.30	7.2		
			2d	8.30	9.7		
10-24	4.826	1.06	1d	4.80	3.3	6.1-6.6	5.1
			1.5d	7.20	5.4		
			2d	9.60	7.5		
10-32	4.826	0.79	1d	4.83	4.3	5.9-6.5	5.0

			1.5d	7.24	6.9		
			2d	9.60	9.5		
12-24	5.486	1.06	1d	5.50	4	6.8-7.2	5.8
			1.5d	8.20	6.3		
			2d	11.00	8.8		
1/4''-20	6.35	1.27	1d	6.40	3.9	7.8-8.3	6.7
			1.5d	9.50	6.2		
			2d	12.70	8.6		
1/4''-28	6.35	0.91	1d	6.35	5.3	7.7-8.3	6.6
			1.5d	9.50	8.6		
			2d	12.70	11.8		
5/16''-18	7.938	1.41	1d	7.90	4.3	9.6-10.2	8.3
			1.5d	11.90	6.8		
			2d	15.90	9.4		
5/16''-24	7.938	1.06	1d	7.90	5.9	9.6-10.2	8.2
			1.5d	11.90	9.4		
			2d	15.90	12.8		
3/18''-16	9.525	1.59	1d	9.50	4.8	11.4-11.9	9.9
			1.5d	14.30	7.7		
			2d	19.10	10.6		
3/8''-24	9.525	1.06	1d	9.50	7.3	11.4-11.9	9.8
			1.5d	14.30	11.5		
			2d	19.10	15.6		
7/16''-14	11.113	1.81	1d	11.10	4.9	13.3-13.9	11.6
			1.5d	16.70	7.9		
			2d	22.20	10.7		
7/16''-20	11.113	1.27	1d	11.10	7	13.3-13.7	11.4
			1.5d	16.70	11.1		
			2d	22.20	15		
1/12''-13	12.7	1.95	1d	12.70	5.2	15.1-15.7	13.2
			1.5d	19.10	8.3		
			2d	25.40	11.4		
1/12''-20	12.7	1.27	1d	12.70	7.9	15-15.6	13.0
			1.5d	19.10	12.8		
			2d	25.40	17.3		
9/16''-18	14.288	1.41	1d	14.30	7.9	16.91-17.55	14.6
			1.5d	21.50	12		
			2d	28.60	16		
5/8''-11	15.875	2.31	1d	15.9	5.7	18.8-19.4	16.5
			1.5d	23.8	9		
			2d	31.8	12.3		
5/8''-18	15.875	1.41	1d	15.9	9.4	18.6-19.3	16.2
			1.5d	23.8	14.5		
			2d	31.8	19.7		
3/4''-10	19.05	2.54	1d	19.1	6.3	22.3-23.0	19.7
			1.5d	28.6	9.9		
			2d	38.1	13.5		
3/4''-16	19.05	1.59	1d	19.1	10.1	22.2-22.8	19.4
			1.5d	28.6	15.6		
			2d	38.1	21		

7/8''-14	22.225	1.81	1d	22.2	10.3	25.9-26.7	22.6
			1.5d	33.3	15.9		
			2d	44.5	21.6		
1/8''-14	25.4	3.18	1d	25.4	6.8	29.6-30.4	26.1
			1.5d	38.1	10.6		
			2d	50.8	15.4		
1''-12	25.4	2.12	1d	25.4	10	29.6-30.4	30.0
			1.5d	38.1	15.6		
			2d	25.4	11.8		
1''-14	25.4	1.81	1d	25.4	11.8	29.6-30.4	25.9
			1.5d	38.1	18.1		
			2d	50.8	24.5		