The profile of the thread insert

The thread insert is a kind of screw connecting component which consists of diamond-section stainless material with high strength, accuracy and corrosive resistance. Particularly adopted for soft materials such as aluminum, magnesium, cast iron plastic, is improves the connecting strength with wear resistance when it is fit with nut after screwed into tapping. In the meantime, thanks to its elasticity strains are distributed along the whole thread length, by smoothing our unevenness in pitch and angle in thread walls. It makes screw load uniformly and prolongs its life span. The thread insert can repair effectively and keep these internal threads from being damaged, its all characteristic excel those tapping holes.

Now, the technique of the TOP-LOCK thread insert is widely used in aerospace aviation, shipbuilding military automotive metallurgy, chemical industries and so on.

The tolerance range of the take hole formed by the thread insert is decided by the manufacture, tolerance of the moulding surface of the thread insert and the tolerance range of the mounting hole, the latter is central, which is also the threading precision of the mounting hole, which is the accuracy of the special tap, usually to the tolerance range of the 6H class sometimes to 5H or 4H class, with high accuracy, the users may select the tap, threading means and lubricate manner based on the needed tolerance range.

Tangless threaded inserts

Tangless threaded insert is a kind of wire threaded insert Tangless threaded insert screw thread in articulated type installation tools, guarantee the efficiency of the installation. the installation don't need to handle. no direction to follow. Tangles threaded inserts no tang and no need remove it, improve work efficiency, avoid the problems caused by removing "tang".

Article No.	Nominal Thread Size	Basic Type		Nominal Length			Free OD (mm)		Free Coil No		
		Standard	Self-lock	Length (Dia)					Nominal Length		
				1	11/2	2	Min	Max	1	11/2	2
TLM25045	M2. 5X45	2TMM	2TLM	2. 5	3. 8	5	3. 20	3. 35	3. 375	5. 625	8. 000
TLM30050	M3X. 5	2TNM	2TLM	3	4. 5	6	3. 80	3. 99	3. 750	6. 375	8. 875
TLM40070	M4. 7	2TNM	2TLM	4	6	8	5. 05	5. 28	3. 625	6. 125	8. 625
TLM50080	M5X 8	2TNM	2TLM	5	7. 5	10	6. 20	6. 50	4. 125	6. 875	9. 625
TLM60100	M6X1	2TNM	2TLM	6	9	12	7. 40	7. 78	4. 000	6. 750	9. 500
TLM80125	M8X1. 25	2TNM	2TLM	8	12	16	9. 80	10. 18	4. 500	7. 375	10. 250

Note: 1. The nominal length is calculated value Not in the free state measurement. The value comes from the actual installation length plus 1/2 pitch length.

2. The free coil number is the total number(From one rabbet to the other). The tolerance is +1/4 coil

3. Please contact the factory regarding the supply position of Diameter2--112 and 3

（SIZE SPECIFICATION)

Nominal diameter (d)	Pitch (P)	Nominal length			Number(N)	Outside diameter in the free state Dz		Drill diameter (do)
		X	d	L		min	max	
2	0. 4	1	d	2	2. 9	2. 62	2. 76	2
		1. 5	d	3	4. 7			
		2	d	4	6. 5			
2. 5	0. 45	1	d	2. 5	3. 6	3. 3	3. 5	2. 6
		1. 5	d	3. 8	5. 9			
		2	d	5	8. 2			
		2. 5	d	6. 3	10. 5			
		3	d	7. 5	12. 8			
3	0. 5	1	d	3	4. 2	3. 8	4	3. 1
		1. 5	d	4. 5	6. 8			
		2	d	6	9. 4			
		2. 5	d	7. 5	12			
		3	d	9	14. 6			
3. 5	0. 6	1	d	3. 5	4	4. 55	4. 75	3. 7
		1. 5	d	5. 3	6. 4			
		2	d	7	8. 9			
		2. 5	d	8. 8	11. 4			
		3	d	10. 5	13. 9			
4	0. 7	1	d	4	4	5. 05	5. 25	4. 2
		1. 5	d	6	6. 6			
		2	d	8	9. 1			
		2. 5	d	10	11. 7			
		3	d	12	14. 2			
5	0. 8	1	d	5	4. 4	6. 35	6. 6	5. 2
		1. 5	d	7. 5	7. 1			
		2	d	10	9. 9			
		2. 5	d	12. 5	12. 6			
		3	d	15	15. 3			
6	1	1	d	6	4. 3	7. 6	7. 85	6. 3
		1. 5	d	9	6. 9			
		2	d	12	9. 6			
		2. 5	d	15	12. 2			
		3	d	18	14. 9			
7	1	1	d	7	5. 2	8. 65	8. 9	7. 3
		1. 5	d	10. 5	8. 3			
		2	d	14	11. 5			
		2. 5	d	17. 5	14. 6			
8	1	1	d	8	6	9. 85	10. 1	8. 3
		1. 5	d	12	9. 6			
		2	d	16	13. 1			
		2. 5	d	20	16. 7			
	1. 25	1	d	8	4. 8			
		1. 5	d	12	7. 7			
		2	d	16	10. 6			
		2. 5	d	20	13. 5			
		3	d	24	16. 5			
9	1. 25	1	d	9	5. 5	10. 85	11. 1	9. 3
		1. 5	d	13. 5	8. 9			
		2	d	18	12. 2			
		2. 5	d	22. 5	15. 5			
		3	d	27	18. 8			
10	1. 5	1	d	10	5	12. 1	12. 5	10. 4
		1. 5	d	15	8. 1			
		2	d	20	11. 2			
		2. 5	d	25	14. 2			
		3	d	30	17. 3			
	1. 25	1	d	10	6. 1			10. 3
		1. 5	d	15	9. 7			
		2	d	20	13. 3			
		2. 5	d	25	16. 9			
	1	1	d	10	7. 7	12. 1	12. 5	10. 3
		1. 5	d	15	12. 1			
		2	d	20	16. 5			
		2. 5	d	25	20. 8			
11	1. 5	1	d	11	5. 7	13. 1	13. 5	11. 4
		1. 5	d	16. 5	9. 1			
		2	d	22	12. 5			
		2. 5	d	27. 5	15. 9			
12	1. 75	1	d	12	5. 3	14. 4	14. 8	12. 4
		1. 5	d	18	8. 4			
		2	d	24	11. 6			
		2. 5	d	30	14. 8			
		3	d	36	18			
	1. 5	1	d	12	6. 2			
		1. 5	d	18	9. 8			
		2	d	24	13. 5			
		2 5	d	30	17. 1			
	1. 25	1	d	12	7. 5			12. 3
		1. 5	d	18	11. 8			
		2	d	24	16. 1			
		2. 5	d	30	20. 3			
	1	1	d	12	9. 4			
		1. 5	d	18	14. 8			
		2	d	24	19. 9			

Nominal diameter (d)	Pitch (P)	Nominal length			Number(N)	Outside diameter in the free state Dz		Drill diameter (do)
		X	d	L		min	max	
13	1.25	1	d	13	8	15.8	16.3	13.3
		1.5	d	19.5	12.5			
		2	d	26	17			
14	2	1	d	14	5.4	16.8	17.2	14.5
		1.5	d	21	8.7			
		2	d	28	11.9			
		2.5	d	35	15.2			
		3	d	42	18.4			
	1.5	0.75	d	10.5	5.2			14.4
		1	d	14	7.3			
		1.5	d	21	11.5			
		2	d	28	15.7			
		2.5	d	35	19.9			
	1.25	1	d	14	8.8			14.3
		1.5	d	21	13.8			
16	2	1	d	16	6.3	19	19.4	16.5
		1.5	d	24	10			
		2	d	32	13.7			
		2.5	d	40	17.5			
		3	d	48	21.2			
	1.5	0.75	d	12	6.1			16.4
		1	d	16	8.5			
		1.5	d	24	13.3			
		2	d	32	18.1			
18	2.5	1	d	18	5.6	21.5	22	18.6
		1.5	d	27	9			
		2	d	36	12.3			
		2.5	d	45	15.7			
		3	d	54	19			
	2	0.75	d	13.5	5			18.5
		1	d	18	7.1			
		1.5	d	27	11.2			
		2	d	36	15.2			
	1.5	0.75	d	13.5	7.1	21.48	21.82	18.4
		1	d	18	9.8			
		1.5	d	27	15			
20	2.5	1	d	20	6.5	23.7	24.2	20.6
		1.5	d	30	10			
		2	d	40	13.8			
		2.5	d	50	17.5			
		3	d	60	21.2			
	2	0.75	d	15	5.7			20.5
		1	d	20	8			
		1.5	d	30	12.5			
		2	d	40	17.1			
	1.5	0.5	d	10	4.8			20.4
		0.75	d	15	7.8			
		1	d	20	10.7			
		1.5	d	30	16.7			

Introduction of TOP-LOCK®Self-tapping threaded inserts

TOP-LOCK ®self-tapping threaded insert with external and internal thread, cutting slots or cutting bores is also called self-tapping wire thread insert which was developed and exploited by. The accuracy grade for external thread is 6H and for internal thread is 6H. The bottom hole thread will be more strength and better after installation.

The hardness of insert surface can reach 450-500Hv.The insert can self tapping, there is no need to drive the bottom hole thread by screw tap.it can be screwed into directly with setting tool after driling the pre-drilled hole(For quick installation,pre-drilled hole needed). It is efficient,convenient and also improve the bonding strength and abrasion resistance obviously and simplify the product design effectively, etc.Self-tapping threaded insert is applied to the following materials:

Light alloys(Aluminum, magnesium, zinc and other alloy)、Cast iron、brass、 bronze、thermoplastics、laminates、 hardwoods. The insert can repair damaged internal thread, after the installation of TOP-LOCK® , the original screw can still be used, not only economy and artistic but also convenient and Speedy. TOP-LOCK® Self-tapping threaded insert is in successful application in a wide variety of different industrial sectors eg: automobile industry, the subway system, military supplies, household appliance, construction machinery, transaction machinery, electronic products, engineering plastics, advanced combination of furniture, aluminu malloy castings by a number of countries around the world.

Applications for TOP-LOCK®Self-tapping threaded inserts

There are two kinds of commonly styles for TOP-LOCK® self-tapping threaded inserts---cutting slots or cutting bores. TL-302 with cutting slot(and some other cutting slot Model) is recommended for most application cases. In some materials, TL-302 creating a certain screw locking effect. If this effect is not required, we recommend using TL-307/308. TL-307/308 (with cutting bores) was developed for materials with difficult cutting properties. This insert has a thick wall and the cutting force is distributed over three cutting edges. The version TL-307/308 is particularly suitable where minimal material thicknesses are involved. If you have special requirements, we will manufacture the products as your require. Self-tapping threaded insert is used throughout the whole of the metal and plastics processing industry. eg. for a very long time applied to automotive industry、passenger and commercial vehicles engines、transmissions、aviation industry、rail car and so on. The quality has never been questioned.

Threaded insert self-tapping with cutting slot/Metric thread TL-302 series

Application:

Threaded insert with a cutting slot and inner thread is a self-tapping sastener for the creation of wear-free,vibration resistant screw Joints with high loading capacity in materials with low shearing strength.

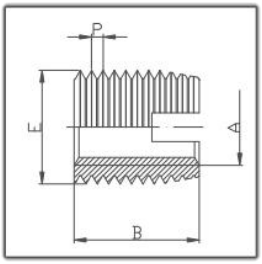
It is suitable for installation in the following materials:

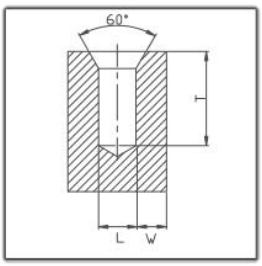
Light alloys;Cast iron,brass,bronze,NF metals; Plastics,laminates;Hardwoods

TL-302 series is most widely used, it belongs to the slot cutting type,with a bit of a thread self-locking feature.

Dimensions in mm

Article No.	Internal Thread	External Thread		Length	Mini bore Hole depth For blind holes	L Retaining hole diameter	
	A	E	P	B	T	Metal	Plastic
TL-302-Z02-. . .	M2	4.5	0.5	6	8	φ4.2-4.3	φ4.1-4.2
TL-302-Z25-. . .	M2.5	4.5	0.5	6	8	φ4.2-4.3	φ4.1-4.2
TL-302-Z03-. . .	M3	5	0.5	6	8	φ4.7-4.8	φ4.6-4.7
TL-302-Z35-. . .	M3.5	6	0.75	8	10	Φ5.6-5.7	Φ5.5-5.6
TL-302-Z04-. . .	M4	6.5	0.75	8	10	φ6.1-6.2	φ6.0-6.1
TL-302-Z05-. . .	M5	8	1	10	13	Φ7.5-7.6	Φ7.3-7.5
TL-302-Z06-. . .	M6(a)	9	1	12	15	φ8.5-8.6	φ8.3-8.5
TL-302-Z61-. . .	M6	10	1.5	14	17	Φ9.2-9.4	Φ8.9-9.2
TL-302-Z08-. . .	M8	12	1.5	15	18	Φ11.2-11.4	φ10.9-11.2
TL-302-Z10-. . .	M10	14	1.5	18	22	Φ13.2-13.4	Φ12.9-13.2
TL-302-Z12-. . .	M12	16	1.5	22	26	φ15.2-15.4	φ14.9-15.2
TL-302-Z14-. . .	M14	18	1.5	24	28	Φ17.2-17.4	Φ16.9-17.2
TL-302-Z16-. . .	M16	20	1.5	22	27	φ19.2-19.4	φ18.9-19.2
TL-302-Z18-. . .	M18	22	1.5	24	29	Φ21.2-21.4	Φ20.9-21.2
TL-302-Z20-. . .	M20	26	1.5	27	32	φ25.2-25.4	φ24.9-25.2
TL-302-Z22-. . .	M22	26	1.5	30	36	Φ25.2-25.4	Φ24.9-25.2
TL-302-Z24-. . .	M24	30	1.5	30	36	φ29.2-29.4	φ28.9-29.2
TL-302-Z27-. . .	M27	34	1.5	30	36	Φ33.2-33.4	Φ32.9-33.2
TL-302-Z30-. . .	M30	36	1.5	40	46	φ35.2-35.4	φ34.9-35.2





Example for finding：Self-tapping threaded insert TL-302 With internal thread A=M2,
the article numb made of hardened,zinc-plated and chrome -plated:TL-302-Z02-02

Materials : Unquenched steel, surface plated with environmental protection color zinc(1215MS or equivalent)
Article no……01

Hardened carbon steel,coated with environmental protection color zinc (1215MS or equivalent)
Article no……02

Brass (C3604 etc.) Article no……03

Corrosion resistant stainless steel ， passivation treatment (SUS316, etc.) Article no……04

Stainless steel, passivation treatment (SUS303, etc.) Article no……05

Other materials designs and finishes on request (material, type, coating, etc.)

Tolerances:ISO2768-m

Thread: Internal thread A: as per ISO 6H;External thread E:metric,tolerances in accordance with works standard.

For details of bore diameter guideline values

Edge distance W：Light alloy:≥ 0.2-0.6E Cast iron:≥ 0.3-0.5E Plastics:≥ 0.25-0.9E

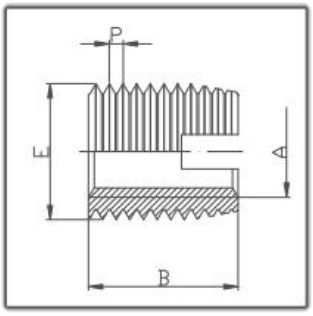
Please note：M2/M2.5 are only suitable for low-strength materials,as the shear resistance of studs in the driving Tools may be insufficient.

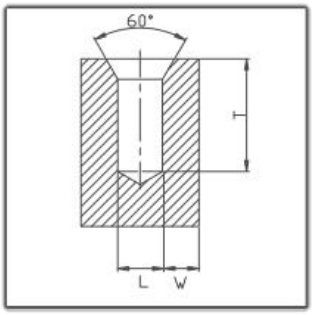
Threaded insert self-tapping with cutting slot/imperial thread TL-302 series

Application:Thread insert with cutting slot and internal thread Whit worth,UNC.or UNF.

Dimensions in mm

Article No.	Internal Thread	External Thread		Length	Mini bore Hole depth For blind holes	L Retaining hole diameter	
	A	E	P	B	T	Metal	Plastic
TL-302-Y01-. . .	1/4	10	1. 5	14	17	φ9. 2-9. 4	φ8. 9-9. 2
TL-302-Y02-. . .	5/16	12	1. 5	15	18	φ11. 2-11. 4	φ10. 9-11. 2
TL-302-Y03-. . .	3/8	14	1. 5	18	22	φ13. 2-13. 4	φ12. 9-13. 2
TL-302-Y04-. . .	7/16	16	1. 5	22	26	φ15. 2-15. 4	φ14. 9-15. 2
TL-302-Y05-. . .	1/2	18	1. 5	22	26	φ17. 2-17. 4	φ16. 9-17. 2
TL-302-Y06-. . .	5/8	20	1. 5	22	27	φ19. 2-19. 4	φ18. 9-19. 2
TL-302-Y07-. . .	4-40	5	0. 5	6	8	φ4. 7-4. 8	φ4. 6-4. 7
TL-302-Y08-. . .	6-32	6	0. 75	8	10	φ5. 6-5. 7	φ5. 5-5. 6
TL-302-Y09-. . .	8-32	6. 5	0. 75	8	10	φ6. 1-6. 2	φ6. 0-6. 1
TL-302-Y10-. . .	10-24	8	1	10	13	φ7. 5-7. 6	φ7. 3-7. 5
TL-302-Y11-. . .	1/4-20	10	1. 5	14	17	φ9. 2-9. 4	φ8. 9-9. 2
TL-302-Y12-. . .	5/16-18	12	1. 5	15	18	φ11. 2-11. 4	φ10. 9-11. 2
TL-302-Y13-. . .	3/8-16	14	1. 5	18	22	φ13. 2-13. 4	φ12. 9-13. 2
TL-302-Y14-. . .	7/16-14	16	1. 5	22	26	φ15. 2-15. 4	φ14. 9-15. 2
TL-302-Y15-. . .	1/2-13	18	1. 5	22	28	φ17. 2-17. 4	φ16. 9-17. 2
TL-302-Y16-. . .	5/8-11	20	1. 5	22	27	φ19. 2-19. 4	φ18. 9-19. 2
TL-302-Y17-. . .	4-48	5	0. 5	6	8	φ4. 7-4. 8	φ4. 6-4. 7
TL-302-Y18-. . .	6-40	6	0. 75	8	10	φ5. 6-5. 7	φ5. 5-5. 6
TL-302-Y19-. . .	8-36	6. 5	0. 75	8	10	φ6. 1-6. 2	φ6. 0-6. 1
TL-302-Y20-. . .	10-32	8	1	10	13	φ7. 5-7. 6	φ7. 3-7. 5
TL-302-Y21-. . .	1/4-28	10	1. 5	14	17	φ9. 2-9. 4	φ8. 9-9. 2
TL-302-Y22-. . .	5/16-24	12	1. 5	15	18	φ11. 2-11. 4	φ10. 9-11. 2
TL-302-Y23-. . .	3/8-24	14	1. 5	18	22	φ13. 2-13. 4	φ12. 9-13. 2
TL-302-Y24-. . .	7/16-20	16	1. 5	22	26	φ15. 2-15. 4	φ14. 9-15. 2
TL-302-Y25-. . .	1/2-20	18	1. 5	22	28	φ17. 2-17. 4	φ16. 9-17. 2
TL-302-Y26-. . .	5/8-18	20	1. 5	22	27	φ19. 2-19. 4	φ18. 9-19. 2





Example for finding he article number: Self-tapping threaded insert TL-302 With internal thread UNF 1/4"-28, made of hardened,zinc-plated and chrome -plated steel:TL-302-Y21-02

Materials : Unquenched steel, surface plated with environmental protection color zinc(1215MS or equivalent) Article no……01

Hardened carbon steel,coated with environmental protection color zinc (1215MS or equivalent) Article no……02

Brass (C3604 etc.) Article no……03

Corrosion resistant stainless steel ， passivation treatment (SUS316, etc.) Article no……04

Stainless steel, passivation treatment (SUS303, etc.) Article no……05

Other materials designs and finishes on request (material, type, coating, etc.)

Tolerances： ISO2768-m

Edge distance W: Light alloy:≥ 0.2-0.6E Cast iron:≥0.3-0.5E Plastics:≥0.25-0.9E

Threaded insert self-tapping with three bores

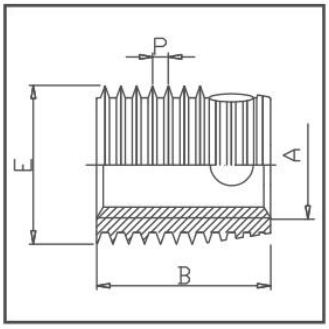
TL-307 series
TL-308 series

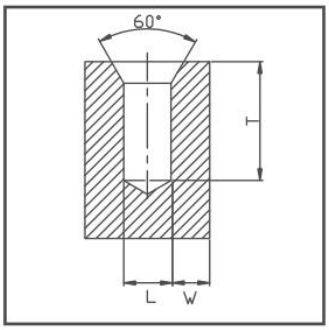
Application：Threaded insert with three bores was developed for materials with difficult cutting properties, the three bores self-cutting for the creation of wear-free vibration resistant screw joints with high loading capacity in materials with low shearing strength.

It is suitable for installation in the following materials: Aluminium and aluminium alloys Magnesium alloys Dur oplastics thermoplastics(with the exception of rubber soft thermoplastics(100shoreA)

Dimensions in mm

Article No.	Internal Thread	External Thread		Length	Mini bore Hole depth For blind holes	L Retaining hole diameter	
	A	E	P	B	T	Metal	Plastic
TL-307-Z03-. . . TL-308-Z03-. . .	M3	5	0. 6	4 6	6 8	φ4. 7-4. 8 φ4. 7-4. 8	φ4. 6-4. 7 φ4. 6-4. 7
TL-307-Z35-. . . TL-308-Z35-. . .	M3. 5	6	0. 8	5 8	7 10	φ5. 6-5. 1 φ5. 6-5. 7	φ5. 5-5. 6 φ5. 5-5. 6
TL-307-Z04-. . . TL-308-Z04-. . .	M4	6. 5	0. 8	6 8	8 10	φ6. 1-6. 2 φ6. 1-6. 2	φ6. 0-6. 1 φ6. 0-6. 1
TL-307-Z05-. . . TL-308-Z05-. . .	M5	8	1. 0	7 10	9 10	φ7. 6-7. 7 φ7. 6-7. 7	φ7. 4-7. 6 φ7. 4-7. 6
TL-307-Z06-. . . TL-308-Z06-. . .	M6	10	1. 25	8 12	10 15	φ9. 5-9. 6 φ9. 5-9. 6	φ9. 3-9. 5 φ9. 3-9. 5
TL-307-Z08-. . . TL-308-Z08-. . .	M8	12	1. 5	9 14	11 17	φ11. 3-11. 5 φ11. 3-11. 5	φ11. 1-11. 3 φ11. 1-11. 3
TL-307-Z10-. . . TL-308-Z10-. . .	M10	14	1. 5	10 18	13 22	φ13. 4-13. 5 φ13. 4-13. 5	φ13. 1-13. 3 φ13. 1-13. 3
TL-307-Z12-. . . TL-308-Z12-. . .	M12	16	1. 75	12 22	15 26	φ15. 2-15. 4 φ15. 2-15. 4	φ15. 0-15. 2 φ15. 0-15. 2
TL-307-Z14-. . . TL-308-Z14-. . .	M14	18	2	14 24	17 28	φ17. 4-17. 4 φ17. 4-17. 4	φ17. 0-17. 2 φ17. 0-17. 2
TL-307-Z16-. . . TL-308-Z16-. . .	M16	20	2	14 24	17 28	φ19. 2-19. 4 φ19. 2-19. 4	φ19. 0-19. 2 φ19. 0-19. 2





Example for finding： self-tapping threaded insert TL-307 with internal thread A=M5；
the article number：made of hardened zinc-plated and chrome -plated steel：TL-307-Z05-02

Short design / Long design： TL-307 / TL-308

Materials : Unquenched steel, surface plated with environmental protection color zinc(1215MS or equivalent)
Article no·····01

Hardened carbon steel,coated with environmental protection color zinc (1215MS or equivalent)
Article no·····02

Brass (C3604 etc.) Article no·····03

Corrosion resistant stainless steel ， passivation treatment (SUS316, etc.) Article no·····04

Stainless steel, passivation treatment (SUS303, etc.) Article no·····05

Other materials designs and finishes on request.

Tolerances： ISO2768-m

Thread: Internal thread A: as per ISO 6H;External thread E:metric,tolerances in accordance with works standard.

Internal thread unified standard coarse or fine thread, can be customized according to requirements.

See installation recommendations for detailed data on drilling diameters

For details of bore diameter guideline values

Edge distance W：Light alloy:≥ 0.2-0.6E Cast iron:≥ 0.3-0.5E Plastics:≥ 0.25-0.9E

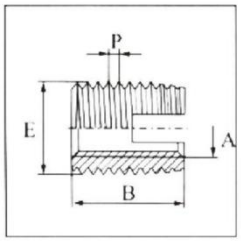
Special applications: Applications in detritus sensitive environments (such as electronics): there are three closed bores that act as a detritus reservoir.

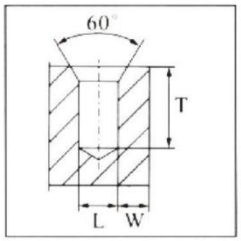
Thin-walled threaded insert self-tapping with cutting slot TL-201series

Application：

Threaded insert with cutting slot in a special thin-walled and shortened version .Particularly suitable for plastic with thin residual walls W and for light-weight constructions, These versions are designed primarily for processing on thread tapping machines, as the pitch of the outside and inside thread is identical. For processing thin-walled inserts in metal , the tensile strength/hardness of the base material is always the determining factor .In critical cases, we recommend lubricating with suitable in order to prevent fracture of the thin-walled inserts.

Dimensions in mm





Article No.	Internal Thread	External Thread		Length	Mini bore Hole depth For blind holes	Retaining hole diameter L		
	A	E	P	B	T	Metal	Plastic	NF metals
TL-201-T03-. . .	M3	4. 5	0. 5	6	8	φ4. 2-4. 3	φ4. 1-4. 2	φ4. 2-4. 3
TL-201-T35-. . .	M3. 5	5	0. 6	6	8	φ4. 7-4. 8	φ4. 6-4. 7	φ4. 6-4. 7
TL-201-T04-. . .	M4	6	0. 7	6	8	φ5. 6-5. 7	φ5. 5-5. 6	φ5. 6-5. 7
TL-201-T05-. . .	M5	7	0. 8	8	10	φ6. 6-6. 7	φ6. 5-5. 6	φ6. 6-6. 7
TL-201-T06-. . .	M6	8	1. 0	10	13	Φ7. 5-7. 6	Φ7. 3-7. 5	Φ7. 5-7. 6
TL-201-T08-. . .	M8	10	1. 25	12	15	φ9. 2-9. 4	φ8. 9-9. 2	φ9. 2-9. 4
TL-201-T10-. . .	M10	12	1. 5	15	18	Φ11. 2-11. 4	Φ10. 9-11. 2	Φ11. 2-11. 4

Example for finding the article number: self-tapping threaded insert TL-201 with internal thread A=M5； made of hardened zinc-plated and chrome -plated steel：TL-201-T05-02

Materials :

Unquenched steel, surface plated with environmental protection color zinc(1215MS or equivalent) Article no……01

Hardened carbon steel,coated with environmental protection color zinc (1215MS or equivalent) Article no……02

Brass (C3604 etc.) Article no……03

Corrosion resistant stainless steel ， passivation treatment (SUS316, etc.) Article no……04

Stainless steel, passivation treatment (SUS303, etc.) Article no……05

According to customer requirements can be designed and customized (material, type, coating, etc.) such as: high hardness anticorrosive stainless steel process

Other materials,designs and finishes on request.

Tolerances：ISO2768-m

Thread：Internal thread A：as perISO6H External thread E：metric tolerances in accordance with works standard.

Edge distance W： Light alloy≥ 0.2-0.6E Cast iron：≥ 0.3-0.5E plastics：≥ 0.25-0.9E

TL-306

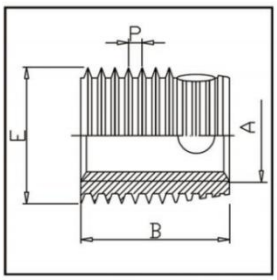
TL-309

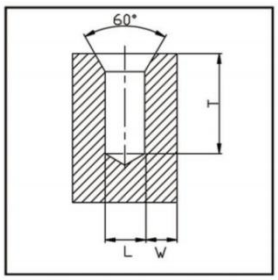
Thin walled threaded insert self-tapping with 3 cutting bores

Application:

Threaded insert with three cutting bores in special thin-walled and shortened version. Particularly suitable for plastic with thin residual walls W and for light-weight constructions. This version is designed primarily for processing on thread tapping machines , as the pitches of the external and internal threads are identical. For processing thin-walled inserts in metal, the tensile strength/hardness of the base material is always the determining factor. In critical cases we recommend lubricating with suitable media in order to prevent fracture of the thin-walled inserts.

Dimensions in mm





Article No.	Internal Thread	External Thread		Length B Factory Standard		Mini bore Hole depth For blind holes		Retaining hole diameter L		
	A	E	P	306	309	T	T1	Metal	Plastic	NF metals
TL-...-Z35-...	M3.5	5	0.6	5	8	7	10	φ4.7-4.8	φ4.6-4.7	φ4.6-4.7
TL-...-Z04-...	M4	6	0.7	6	8	8	10	φ5.6-5.7	φ5.4-5.6	φ5.4-5.6
TL-...-Z05-...	M5	6.5	0.8	7	10	9	13	Φ6.1-6.2	Φ6.0-6.1	Φ6.0-6.1
TL-...-Z06-...	M6	8	1.0	8	12	10	15	Φ7.5-7.7	Φ7.4-7.6	Φ7.4-7.6
TL-...-Z08-...	M8	10	1.25	9	14	11	17	φ9.4-9.6	φ9.3-9.5	φ9.3-9.5
TL-...-Z10-...	M10	12	1.5	10	18	13	22	Φ11.2-11.5	Φ11.1-11.3	Φ11.1-11.3
TL-...-Z12-...	M12	14	1.75	12	22	15	26	φ13.2-13.5	φ13.1-13.3	φ13.1-13.3
TL-...-Z14-...	M14	16	2	14	24	17	28	Φ15.1-15.4	Φ15.0-15.2	Φ15.0-15.2
TL-...-Z16-...	M16	18	2	14	24	17	28	φ17.1-17.4	φ17.0-17.2	φ17.0-17.2

Short design:TL-306

Long design: TL-309

Materials : Unquenched steel, surface plated with environmental protection color zinc(1215MS or equivalent)
Article no……01

Hardened carbon steel,coated with environmental protection color zinc (1215MS or equivalent)
Article no……02

Brass (C3604 etc.) Article no……03

Corrosion resistant stainless steel ， passivation treatment (SUS316, etc.) Article no……04

Stainless steel, passivation treatment (SUS303, etc.) Article no……05

According to customer requirements can be designed and customized (material, type, coating, etc.) such as: high hardness anticorrosive stainless steel process

Other materials, designs and finishes on request.

Tolerances: ISO2768-m

External thread: Internal thread A : as per ISO 6H

External thread E:Special thread with flattened root, tolerances in accordance with works standard

Internal thread with UNC, UNF, whit worth or fine threads on request.

Edge distance W:Light alloy : ≥ 0.2-0.6E Cast iron ≥ 0.3-0.5E Plastics:≥0.25-0.9E

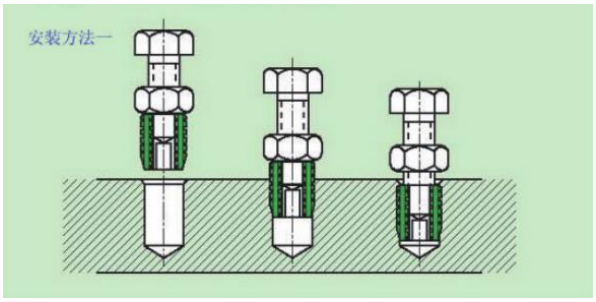
Installation Methods for threaded inserts

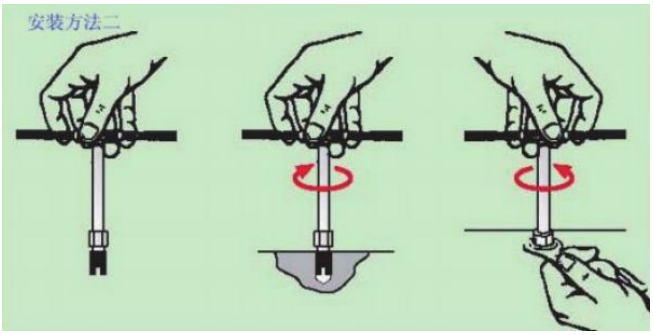
No.1 Simple installation:Taking simple installation method when the number of inserts is not large which is in virtue of usingthe correspondina screw and nut, Screw the insert onto the screw then fix it with the corresponding nut to making the threeas a whole. Screw the screw with tap wrench making the insert to the bottom of hole, then reverse spin the screw out.

No.2 Professional installation: Taking professional installation method with special setting tool when the number of inserts is large(Tool TL-610 and Tool TL-620). Screw the insert onto the setting tool, then Screw the setting tool with insert intopre-drilled hole around a circle. Screw the insert forcibly after making sure the tool and surface of pre-drilled hole was upright.Stop screwing the insert when the surface of insert below the surface of the pre-drilled hole appro. 0,2 mm. The end of setting tool is a hexagonal socket which can connect the manual tap wrench

TL-610

TL-620





The advantages of self-tapping threaded inserts

◆Self-tapping threaded insert can self tapping screw, there is no need to tap for the workpiece in advance . Hence save cost、simplify the product design、improve the product strength.

◆The insert has a large contact area with workpiece bearing strong tension, therefore lower strength of materials can be used for workpiece.

◆Self-tapping threaded insert can repair wearing or damaged female thread. When using self-tapping threaded insert,the same screw can be reused.

◆Self-tapping threaded insert can prevent the loose with strong resistance to vibration.

◆there is no inter space between the insert with workpiece. It can keep good air tightness when the workpiece with bubbles.

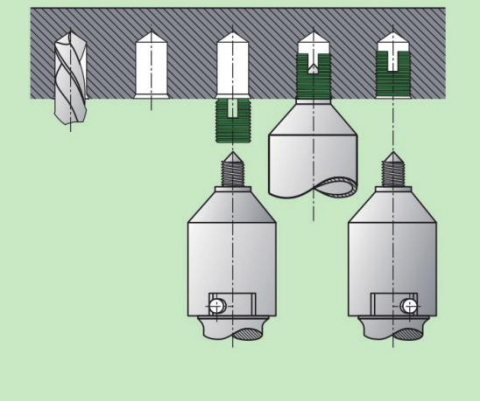
◆It is simple and quick for installation of insert with only one setting tool. Low cost and almost no defective rate.

Installation Notes

◆ According to different materials which will be drilled, drilling the pre-drill holes on the basis of hole size specifications. Increase the bottom hole within the scope of hole size, when the material's hardness is higher.

◆ Installation method for threaded insert self-tapping with cutting slot, With the cutting slot facing downwards,drive the insert on to tool entirely and must be vertical with the workpiece.Make sure aim at the bottom hole when loading(1-2pitch) and ensure that it does not tilt! Please do not reverse tool and readiust it when it tilts. When entering into 1/3 ~ 1/2, it can not start all over again .in addition, please do not rotate tool oppositely, otherwise it will damage the product.

◆After installation, the insert should below the surface of the workpiece 1mm at least.



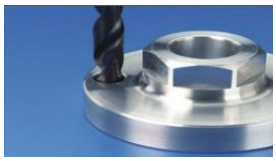
The introduction for keylocking threaded insert

TOP-LOCK® keylocking threaded insert is a kind of special fastener with external and internal thread and there are4 or 2 keylocking keys on external thread. Install insert into the tapped hole, then press-into 4 keylocking keys,resulting a strong tightening effect. keylocking threaded inserts are widely used for the products of high strength of screw thread, such as: airborne, ship, vehicle military electronic equipment and instruments and meters, locomotives, etc and also have been suffered severe vibration, impact, salt spray test, humid heat test and actual use test.The keylocking threaded insert has a higher strength in screw joint (anti-tensile and anti-torsional) than the ordinary wire threaded insert. The installation is simple and high success rate also easy to repair. When the base material is very thin or it's through-hole, the wire threaded insert is difficult to apply, but the keylocking threaded insert is an ideal choice. It is a reasonable and economic method for using the keylocking threaded insert in the expensive workpieces with multi-screw holes.

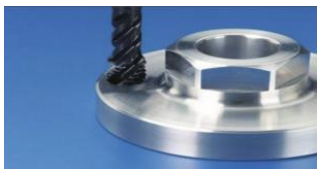
Installation Method for TI-insert keylocking threaded inserts

TL-insert keylocking threaded insert is a kind of special fastener with eternal and internal thread and there are 4 or 2 keys on external thread. Install insert into the tapped hole, then press-into 4 keys, resulting a strong tightening effect. This kind of inserts are mainly used for the products of high strength of screw thread such as: military, aerospace, railway locomotives mechanical vibration and so on. The following is installation methods for keylocking threaded inserts:

1. Drill: The drill holes depth should be greater than keylocking threaded inserts length.
2. Tapping: the tapped thread should be matched with external thread of keylocking threaded insert.
3. Install: screw insert into hole, the insert should below the surface of the workpiece
4. Lock: press the inserts keys into hole with special tools
5. The state of keylocking threaded insert, after installation. (as picture)



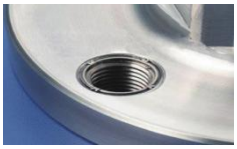
Drill



Tapping

Install

Lock



after installation

Heavy duty · metric keylocking threaded insert application parameters

Insert				Installation				Removal	
Article No.	Internal Thread Class 6H	External Thread Class6g	Length L	Tap Drill Size	C 'sink Diameter +0.25 -0.00	Thread Tap		Drill	
						Size Class 6H	Min Depth	Size	Depth
TL-ZZ-M04-...	M4×0.7	M8×1.25	8	6.9	8.25	M8×1.25	9.5	5.5	4
TL-ZZ-M05-...	M5×0.8	M10×1.25	10	8.8	10.25	M10×1.25	12.5	7.5	4.75
TL-ZZ-M06-...	M6×1.0	M12×1.25	12	10.8	12.25	M12×1.25	14.5	9.5	4.75
TL-ZZ-M08-...	M8×1.25	M14×1.5	14	12.8	14.25	M14×1.5	16.5	11.5	4.75
TL-ZZ-M81-...	M8×1.0								
TL-ZZ-M10-...	M10×1.5	M16×1.5	16	14.75	16.25	M16×1.5	18.5	13.5	4.75
TL-ZZ-M11-...	M10×1.25								
TL-ZZ-M12-...	M12×1.75	M18×1.5	18	16.75	18.25	M18×1.5	20.5	15.5	4.75
TL-ZZ-M13-...	M12×1.25								
TL-ZZ-M14-...	M14×2.0	M20×1.5	20	18.75	20.25	M20×1.5	22.5	17.5	4.75
TL-ZZ-M15-...	M14×1.5								
TL-ZZ-M16-...	M16×2.0	M22×1.5	22	20.5	22.25	M22×1.5	24.5	17.75	6.35
TL-ZZ-M17-...	M16×1.5								
TL-ZZ-M18-...	M18×1.5	M24×1.5	24	22.5	24.25	M24×1.5	26.5	19.75	6.35
TL-ZZ-M20-...	M20×2.5	M30×2	30	28	30.25	M30×2	34.5	25.75	6.35
TL-ZZ-M21-...	M20×1.5								6.35
TL-ZZ-M22-...	M22×1.5	M32×2	32	30	32.25	M32×2	36.5	27.75	6.35
TL-ZZ-M24-...	M24×3.0	M33×2	33	31	33.25	M33×2	37.5	28.75	6.35
TL-ZZ-M25-...	M24×2.0								

Thin-wall keylocking threaded insert application information as follow(Metric):

Insert				Installation					Removal	
Article No.	Internal Thread Class 6H	External Thread Class 6g	Length L	Installation Toll Part No	Tap Drill Size	C sink Diameter +0.25 -0.00	Thread Tap		Drill	
							Size Class 6H	Min Depth	Size	Depth
TL-TZ-M25-...	M2.5x0.45	M4x0.7	3.8	TL-TZ-M25	2.1	2.75	M4x0.7	5.3	3.0	3.6
TL-TZ-M03-...	M3x0.5	M5x0.8	4.2	TL-TZ-M3	4.3	5.25	M5x0.8	5.7	3.6	3.7
TL-TZ-M04-...	M4X0.7	M6x0.75	5.2	TL-TZ-M4	5.4	6.25	M6x0.75	7.2	4.5	4.0
TL-TZ-M05-...	M5x0.8	M8x1.25	8.0	TL-TZ-M5	6.9	8.25	M8x1.25	9.5	5.5	4.0
TL-TZ-M06-...	M6x1.0	M10x1.25	10.0	TL-TZ-M6	8.8	10.25	M10x1.25	11.5	7.5	4.75
TL-TZ-M08-...	M8x1.25	M12x1.25	12.0	TL-TZ-M8	10.8	12.25	M12x1.25	13.5	9.5	4.75
TL-TZ-M81-...	M8x1.0			TL-TZ-M81						
TL-TZ-M10-...	M10x1.5	M14x1.5	14.0	TL-TZ-M10	12.8	14.25	M14x1.5	15.5	11.5	4.75
TL-TZ-M11-...	M10x1.25			TL-TZ-M11						
TL-TZ-M12-...	M12x1.75	M16x1.5	16.0	TL-TZ-M12	14.75	16.25	M16x1.5	17.5	13.5	4.75
TL-TZ-M13-...	M12x1.25			TL-TZ-M13						

Material: carbon steel, phosphate anti-rust treatment Article no.....202

Stainless steel EN1.4305 Passivation treatment fixed key 302 material Article no.....205

Stainless steel EN1.4401 passivation treatment fixed key 302 material Article no.....206

Tolerance :±0.010 inches Metric :±0.25 mm

The above are standard materials, models, other materials, sizes, types, etc. designed and customized according to customer needs, find product code examples: latch screw sleeve TL-TZ series; Internal thread :M5*0.8, the material is carbon steel, then the product code of the latch screw sleeve is TL-TZ-M5-202

The advantages of keylocking threaded insert:

◆Repair the damaged threads effectively.

◆Especially suitable for application in high strength of internal thread environment. Strong anti-seismic and anti-tensile ability.

◆Can enhance strength of threaded hole more effectively than ordinary stainless steel wire threaded insert

◆Two materials: carbon steel and stainless steel for metric &inch.

◆Easy for use and installation.

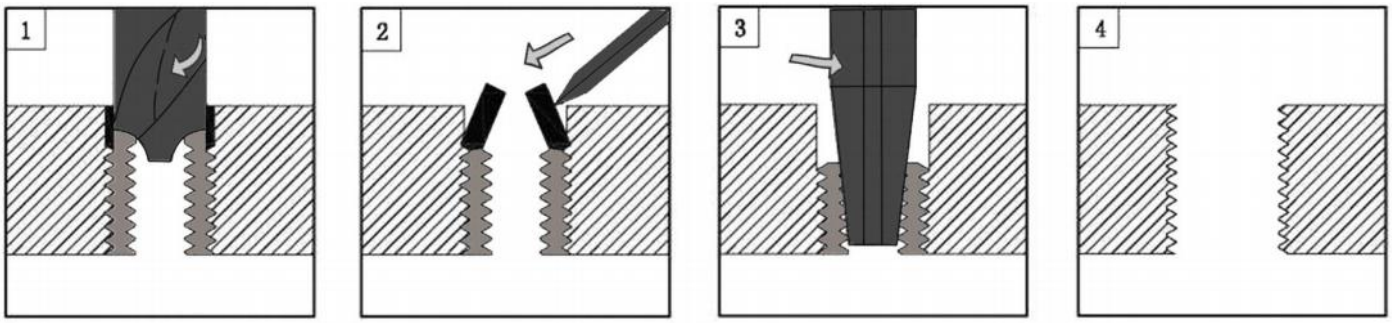
Remove method keylocking threaded inserts

The insert can be removed, details are as following.

1.Drill off part of it.

2.Bend inward the keys.

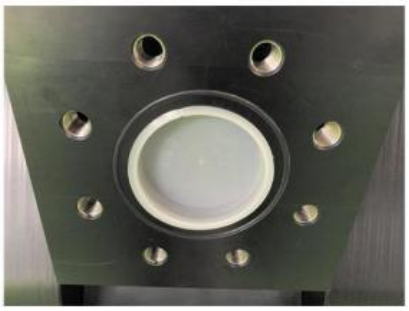
Reverse screw the insert out with " withdrawal tools" or Similar tools.



Application examples

Threaded inserts for terminals of high voltage electrical appliances

Threaded inserts for motor housing



Threaded inserts for welding machines