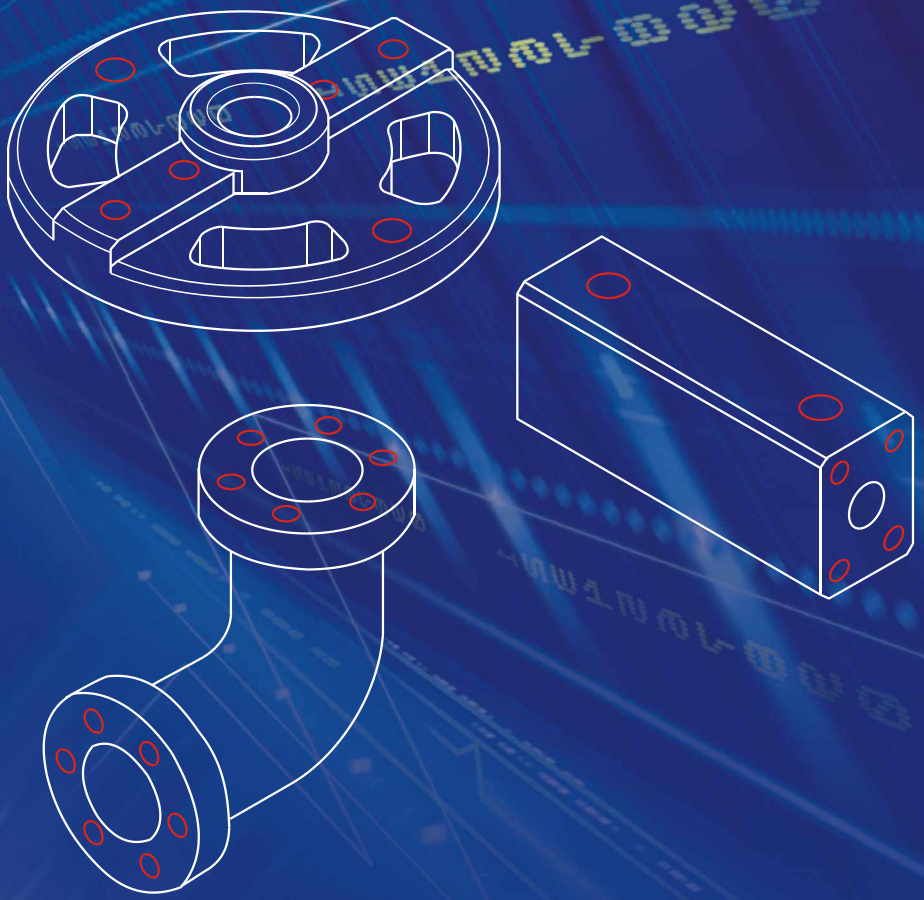
Efsat® Self-Tapping Inserts
(high strength)

The best tech-product for solving the broken thread & increasing the connection strength

★High strength, self-tapping ability.
★High connection and resistant to vibration.
★Easy install, install automatically.
★Simple install tools - can use general screw & nut.

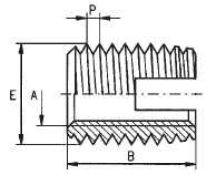


E.FULL
鐿富企業有限公司
E.FULL ENTERPRISE CO., LTD.

TEL:886-3-3113808
FAX:886-3-3113985
Web:www.efulls.com.tw
Email: tony@efulls.com.tw

Efsat self-tapping inserts specifications :

Description of a self-tapping insert, works standard 302 with internal thread A=M5, in steel, hardened, zinc plated and yellow chromated: Efsat 302 0 050.16



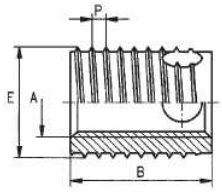
302 Threaded inserts (cutting hole)
Self - Tapping

Material code: 16···steel, hardened, zinc plated
80···brass
40···stainless steel 303
50···stainless steel 316

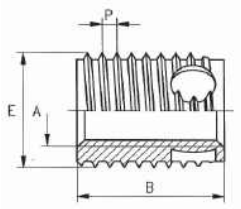
Part no. EF..	Internal thread		External thread		Length B	Recommended hole size(1) Plastics soft ←	Aluminum Alloy	Steel → hard	Drill depth Min.(2)
	Metric A	Imperial	Outside dia.	P					
302 0 025 . . **302 0 030 . .**	M 2.5 M 3	NO. 2 NO. 4	4.5 5	0.5 0.5	6 6	4.0 ~ 4.1 4.5 ~ 4.6	4.1 ~ 4.2 4.6 ~ 4.7	4.2 ~ 4.3 4.7 ~ 4.8	8 8
302 0 035 **302 0 040 . .**	M 3.5 M 4	NO. 6 NO. 8	6 6.5	0.75 0.75	8 8	5.3 ~ 5.4 5.8 ~ 5.9	5.5 ~ 5.6 6.0 ~ 6.1	5.6 ~ 5.7 6.1 ~ 6.2	10 10
302 0 050 . . **302 0 061 . .**	M 5 M 6(a)	NO. 10 NO. 12	8 9	1.0 1.0	10 12	7.1 ~ 7.2 8.1 ~ 8.2	7.3 ~ 7.5 8.3 ~ 8.5	7.5 ~ 7.6 8.5 ~ 8.6	13 15
302 0 060 . . **302 0 080 . .**	M 6 M 8	1/4" 5/16"	10 12	1.5 1.5	14 15	9.0 ~ 9.2 10.6 ~ 10.8	9.2 ~ 9.3 11.0 ~ 11.2	9.3 ~ 9.4 11.2 ~ 11.4	17 18
302 0 100 **302 0 120 . .**	M 10 M 12	3/8" 7/16"	14 16	1.5 1.5	18 22	12.6 ~ 12.8 14.6 ~ 14.8	13.0 ~ 13.3 15.0 ~ 15.3	13.2 ~ 13.4 15.2 ~ 15.4	22 26
302 0 140 . . **302 0 160 . .**	M 14 M 16	1/2" 5/8"	18 20	1.5 1.5	24 22	16.6 ~ 16.8 18.6 ~ 18.8	17.0 ~ 17.3 19.0 ~ 19.3	17.2 ~ 17.5 19.2 ~ 19.5	28 27
302 0 180 . . **302 0 200 . .**	M 18 M 20	- -	22 26	1.5 1.5	24 27	20.6 ~ 20.8 24.6 ~ 24.8	21.0 ~ 21.3 25.0 ~ 25.3	21.2 ~ 21.5 25.2 ~ 25.5	29 32
302 0 220 **302 0 240 . .**	M 22 M 24	3/4" 7/8"	26 30	1.5 1.5	30 30	24.6 ~ 24.8 28.6 ~ 28.8	25.0 ~ 25.3 29.0 ~ 29.3	25.2 ~ 25.5 29.2 ~ 29.5	36 36
302 0 270 . . **302 0 300 . .**	M 27 M 30	1" -	34 36	1.5 1.5	30 40	32.6 ~ 32.8 34.6 ~ 34.8	33.0 ~ 33.3 35.0 ~ 35.3	33.2 ~ 33.5 35.2 ~ 35.5	36 46

Material type : 16 , 40 , 50 , 80

(1) : The hole sizes above are just for reference. Drilling the hole should be accorded to your practical experience to reach to the best working efficiency and connection strength. The most important is you must install Efsat based on the correct torque and speed. You can refer to the install speed and torque on page4.
(2) : The minimum of drill depth is required for chips. We recommended you should drill according to the data.
(3) : The hole size for hard and brittle plastic can be the same with the hole size of aluminum alloy or be determined by trial.



307/308 Threaded inserts
(three lateral cutting holes)
Self - Tapping

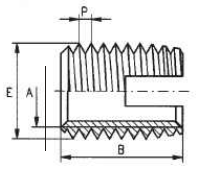


337 and 338 Threaded inserts
Self tapping with blind holes

Part no. EF..		Internal thread		External thread		Length B	Recommended hole size(1)		Drill depth Min.(2)
		Metric A	Imperial	Outside dia.	P		Aluminum Alloy	Steel	
307 0 030 . . **308 0 030 . .**	**337 0 030 . .** **338 0 030 . .**	M 3	No. 4	5	0.6	4 6	4.6~4.7	4.7~4.8	6 8
307 0 035 . . **308 0 035 . .**	**337 0 035 . .** **338 0 035 . .**	M 3.5	No. 6	6	0.8	5 8	5.5~5.6	5.6~5.7	7 10
307 0 040 . . **308 0 040 . .**	**337 0 040 . .** **338 0 040 . .**	M 4	No. 8	6.5	0.8	6 8	6.0~6.1	6.1~6.2	8 10
307 0 050 . . **308 0 050 . .**	**337 0 050 . .** **338 0 050 . .**	M 5	No. 10	8	1.0	7 10	7.4~7.5	7.6~7.7	9 13
307 0 060 . . **308 0 060 . .**	**337 0 060 . .** **338 0 060 . .**	M 6	1/4"	10	1.25	8 12	9.3~9.4	9.5~9.6	10 15
307 0 080 . . **308 0 080 . .**	**337 0 080 . .** **338 0 080 . .**	M 8	5/16"	12	1.5	9 14	11.1~11.3	11.3~11.5	11 17
307 0 100 . . **308 0 100 . .**	**337 0 100 . .** **338 0 100 . .**	M 10	3/8"	14	1.5	10 18	13.1~13.3	13.3~13.5	13 22
307 0 120 . . **308 0 120 . .**	**337 0 120 . .** **338 0 120 . .**	M 12	7/16"	16	1.75	12 22	15.0~15.2	15.3~15.5	15 26
307 0 140 . . **308 0 140 . .**	**337 0 140 . .** **338 0 140 . .**	M 14	1/2"	18	2.0	14 24	17.0~17.2	17.3~17.5	17 28
307 0 160 . . **308 0 160 . .**	**337 0 160 . .** **338 0 160 . .**	M 16	5/8"	20	2.0	14 24	19.0~19.2	19.3~19.5	17 28

Material type : 16 , 40 , 50

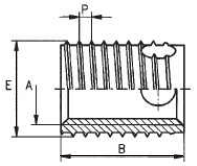
Efsat self-tapping inserts specifications :



303 Thin Walled Threaded inserts
Self - Tapping

Part no. EF..	Internal thread		External thread E	Length B	Recommended hole size Plastics soft ← Aluminum Alloy → Steel hard			Drill depth Min T
	Metric A	Imperial						
303 0 030 . . **303 0 035** . .	M 3 M 3.5	NO. 4 NO. 6	4.5 5	6 6	4.0 4.5	4.1 4.6	4.2 4.7	8 8
303 0 040 . . **303 0 050** . .	M 4 M 5	NO. 8 NO. 10	6 7	6 8	5.3 6.3	5.5 6.4	5.6 6.5	8 10
303 0 060 . . **303 0 080** . .	M 6 M 8	1/4" 5/16"	8 10	10 12	7.1 8.6	7.3 8.9	7.5 9.3	13 15
303 0 100 . . **303 0 120** . .	M 10 M 12	3/8" 7/16"	12 14	15 18	10.6 12.6	10.9 12.9	11.3 13.2	18 22

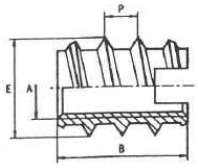
Material type：16、40、50



347 / 348 Thin Walled Threaded inserts
Self - Tapping

Part no. EF..	Internal thread		External thread E	Length B		Recommended hole size		Drill depth Min T	
	Metric A	Imperial		347	348	Aluminum Alloy	Steel	347	348
3 . . **0 040** . . **3** . . **0 050** . .	M 4 M 5	NO. 8 NO. 10	6 6.5	6 7	8 10	5.5 6.0	5.6 6.1	8 9	10 13
3 . . **0 060** . . **3** . . **0 080** . .	M 6 M 8	1/4" 5/16"	8 10	8 9	12 14	7.4 9.1	7.5 9.3	10 11	15 17
3 . . **0 100** . . **3** . . **0 120** . .	M 10 M 12	3/8" 7/16"	12 14	10 12	18 22	11.0 13.0	11.3 13.3	13 15	22 26
3 . . **0 140** . . **3** . . **0 160** . .	M 14 M 16	1/2" 5/8"	16 18	14 14	24 24	15.0 17.0	15.2 17.2	17 17	28 28

Material type：16、40、50



309 Threaded inserts (cutting slot facing upwards)
Self - Tapping

Part no. EF..	Internal thread		External thread E	Length B	Recommended hole size Soft wood, soft plastic	Hardwood	Drill depth Min
	Metric A	Imperial					
309 0 025 . .	M 2.5	NO. 2	5	6	3.5	3.7	8
309 0 030 . .	M 3	NO. 4	5.5	6	4.1	4.3	8
309 0 035 . .	M 3.5	NO. 6	6.5	8	4.6	4.8	10
309 0 040 . .	M 4	NO. 8	7	10	5.1	5.3	13
309 0 050 . .	M 5	NO. 10	9	12	6.6	6.9	15
309 0 060 . .	M 6	1/4"	10	14	7.6	7.9	17
309 0 080 . .	M 8	5/16"	13	20	9.9	10.3	23
309 0 100 . .	M 10	3/8"	16	23	12.4	12.8	26
309 0 120 . .	M 12	7/16"	19	26	15.4	15.8	30
309 0 160 . .	M 16	5/8"	24	26	20.4	20.8	30

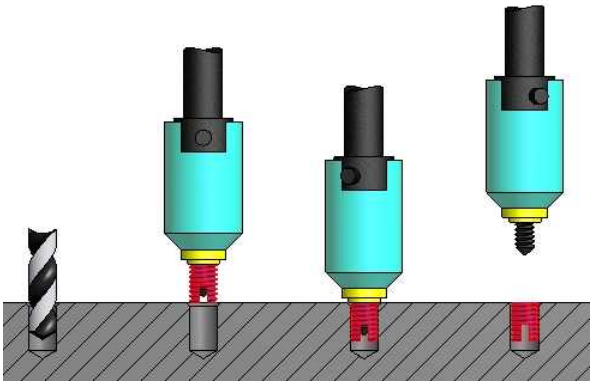
Material type：80

Part No. of Install Toolings:

Internal thread	M2.5	M3	M3.5	M4	M5	M6(a)	M6	M8	M10	M12	M14	M16
	#2(1)	#4	#6	#8	#10	#12	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"
Part no.	EF..											
Manual tooling 610	610 025	610 030	610 035	610 040	610 050	610 061	610 060	610 080	610 100	610 120	610 140	610 160
Mechanical tooling 620	620 025	620 030	620 035	620 040	620 050	620 061	620 060	620 080	620 100	620 120	620 140	620 160
Mechanical tooling-extra length 621	621 025	621 030	621 035	621 040	621 050	621 061	621 060	621 080	621 100	621 120	621 140	621 160
Tooling mandrel	620 025.07	620 030.07	620 035.07	620 040.07	620 050.07	620 061.07	620 060.07	620 080.07	620 100.07	620 120.07	620 140.07	620 160.07
Tooling mandrel - Extra length	621 025.17	621 030.17	621 035.17	621 040.17	621 050.17	621 061.17	621 060.17	621 080.17	621 100.17	621 120.17	621 140.17	621 160.17

(1): The part no. of imperial series will have NC or NF.
Ex: #4-40 of manual tool is 610 030NC

(Ⅰ)Install Efsat Procedure :

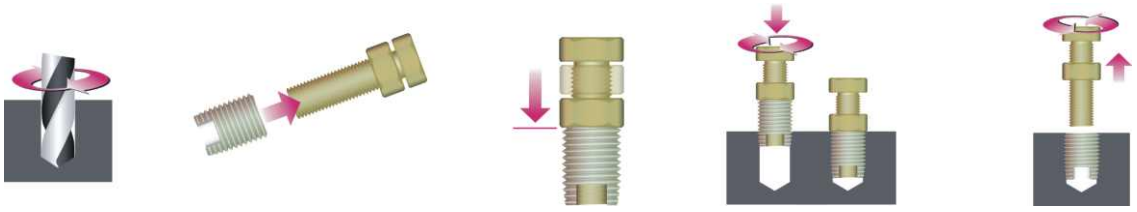


(1) Drill → (2) Put Efsat on the Mandrel → (3) Install → (4) Reverse

Mechanical tooling 620

Manual tooling 610

(Ⅱ)Other Install Way - Use General Screw & Nut :



(1) → (2) → (3) → (4) → (5)

(Ⅲ) Pneumatic Tooling :

(Ⅳ)Install Speed (RPM) & Torque Value :

Torque Value :
To make sure the tool life, please control the torque in the 80% of max. torque value when high volumes are required.

	Kgf-cm	N-m
Efsat M2.5	Max 16	1.6
Efsat M3	26	2.5
Efsat M4	56	5.5
Efsat M5	102	10
Efsat M6	153	15
Efsat M8	286	28
Efsat M10	408	40
Efsat M12	612	60

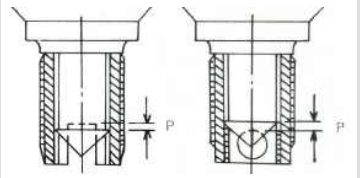
Install Speed :

	RPM
M2.5/M3	650~900
M4/M5	400~600
M6/M8	280~400
M10/M12	200~300
M14/M16	150~200
M18/M20	120~200
M22/M24	100~160
M27/M30	80~140

(Ⅴ) Note :

To make sure the chips can be voided smoothly and avoid the mandrel being broken, picture demonstrates correct length of stud referring to slotted Efsat and 3-hole Efsat.

Cutting slot　three lateral cutting holes



P : external thread pitch