FASTMAN®

SCREW THREAD INSERTS

FASTMAN Screw Thread Inserts are made of helically coiled 18-8 stainless steel wire, with precise diamond shaped cross section to accommodate internal and external threads simultaneously. When assembled in a *FASTMAN* tapped hole, the *FASTMAN* Insert presents a permanent internal thread which conforms to standard specification.

THEY PROVIDE PERMANENT THREADS IN ANY MATERIAL AND SOLVE PROBLEMS OF PRODUCTION & SALVAGE

A PRODUCT OF

FASTENER MANUFACTURERS PRIVATE LIMITED

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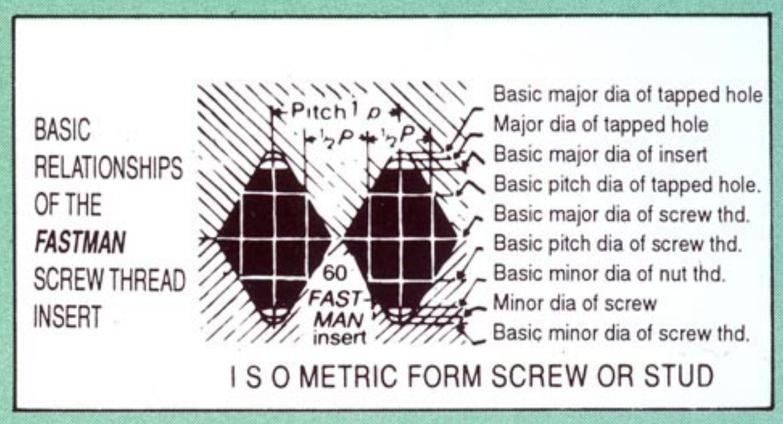
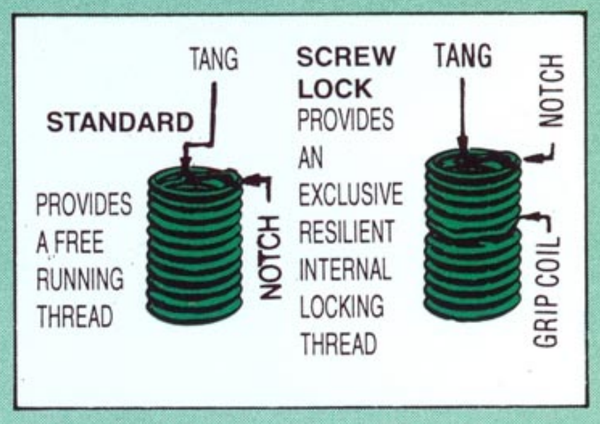
Bulletin : M 103

FASTMAN screw thread Inserts are made of helically coiled 18-8 stainless steel wire with a precise diamond shaped cross section to accommodate internal and external threads simultaneously. When assembled in a ***FASTMAN*** tapped hole the ***FASTMAN*** Insert presents a permanent internal thread which conforms to standard specifications. ***FASTMAN*** Inserts are available in two basic types-STANDARD (free running) and SCREW-LOCK (internal locking)





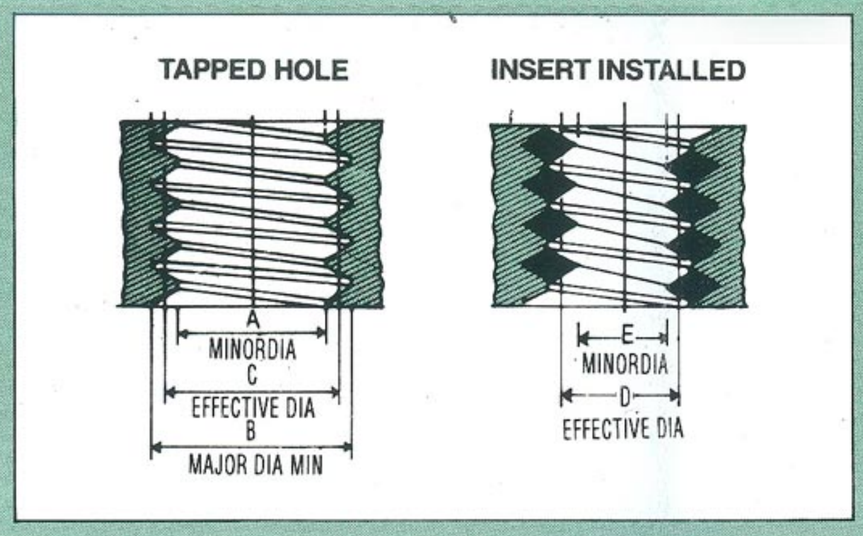
HOW TO ORDER- INSERT-Select Part No. from Cols 2 &3 & add basic length of insert taken from Cols. 4 to 10 Example SL - C16CN X 24 represents an M16x2 screw lock Insert of 24 mm basic length

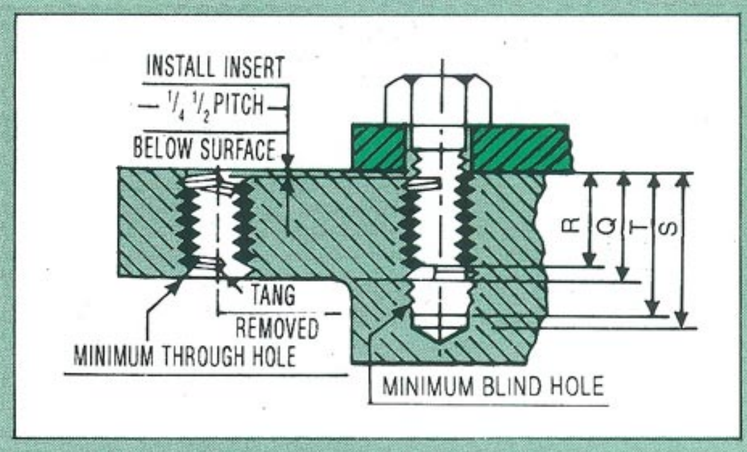
TOOLS - Simply state part Nos. of tools from column below

SCREW THREAD SERIES	NOMINAL THREAD SZIE		*FASTMAN* INSERT IDENTIFICATION NUMBER (For Stainless Steel Notched)		BASIC LENGTHS "Q" MM Equal to length of minimum through hole, or minimum length of full form thread in blind hole. Actual Length of assembled insert equals basic length less ½ pitch.						
	1		2	3	4	5	6	7	8	9	10
	DIA. MM.	PITCH MM.	STANDARD	SCREW LOCK	0.5 DIA	0.75 DIA	1.0 DIA	1.5 DIA	2 DIA	2.5 DIA	3 DIA
METRIC COARSE SERIES	M2	0.4	SD-C2 CN	SL-C2 CN			2	3	4	5	6
	M2.2.	0.45	SD-C2.2 CN	SL-C2.2 CN			2.2	3.3	4.4.	5.5.	6.6
	M2.5	0.45	SD-C2.5 CN	SL-C2.5 CN			2.5	3.8	5.0	6.3	7.5
	M3	0.5	SD-C3 CN	SL-C3 CN			3	4.5	6	7.5	9
	M4	0.7	SD-C4 CN	SL-C4 CN			4	6	8	10	12
	M5	0.8	SD-C5 CN	SL-C5 CN			5	7.5	10	12.5	15
	M6	1	SD-C6 CN	SL-C6 CN			6	9	12	15	18
	M7	1	SD-C7 CN	SL-C7 CN			7	10.5	14	17.5	21
	M8	1.25	SD-C8 CN	SL-C8 CN			8	12	16	20	24
	M10	1.5	SD-C10 CN	SL-C10 CN			10	15	20	25	30
	M12	1.75	SD-C12 CN	SL-C12 CN			12	18	24	30	36
	M14	2	SD-C14 CN	SL-C14 CN			14	21	28	35	42
	M16	2	SD-C16 CN	SL-C16 CN	8	12	16	24	32	40	48
	M18	2.5	SD-C18 CN	SL-C18 CN	9	13.5	18	27	36	45	54
	M20	2.5	SD-C20 CN	SL-C20 CN	10	15	20	30	40	50	60
	M22	2.5	SD-C22 CN		11	16.5	22	33	44	55	66
	M24	3	SD-C24 CN		12	18	24	36	48	60	72
	M27	3	SD-C27 CN		13.5	20.25	27	40.5	54		
	M30	3.5	SD-C30 CN		15	22.5	30	45	60		
	M33	3.5	SD-C33 CN		16.5	24.75	33	49.5	66		
	M36	4	SD-C36 CN		18	27	36	54	72		
	M39	4	SD-C39 CN		19.5	29.25	39	58.5	78		
METRIC FINE SERIES	M8	1	SD-F8 CN	SL-F8 CN			8	12	16	20	24
	M 10	1.25	SD-F10 CN	SL-F10 CN			10	15	20	25	30
	M 12	1.25	SD-F12 CN	SL-F12 CN			12	18	24	30	36
	M14	1.5	SD-F14 CN	SL-F14 CN			14	21	28	35	42
	M 16	1.5	SD-F16 CN	SL-F16 CN	8	12	16	24	32		
	M 18	1.5	SD-F18 CN	SL-F18 CN	9	13.5	18	27	36		
	M 20	1.5	SD- F20 CN	SL-F20 CN	10	15	20	30	40		
	M 22	1.5	SD-F22 CN		11	16.5	22	33	44		
	M 24	2	SD-F24 CN		12	18	24	36	48		
	M 27	2	SD-F27 CN		13.5	20.25	27	40.5			
	M 30	2	SD-F30 CN		15	22.5	30	45			
	M 33	2	SD-F33 CN		16.5	24.75	33	49.5			
	M 36	3	SD-F36 CN		18	27	36	54			
	M39	3	SD-F39 CN		19.5	29.25	39	58.5			

SPARK PLUG SERIES					BASIC LENGTH "Q"		
	M 14	1.25	SP-14 CN		7.5 (for body reach 9.5)	10.5 (for body reach 12.7)	17 for body reach 19)
	M 18	1.5	SP-18 CN		10.5 (for body reach 12.7)	12.0 (for body reach 14)	

SCREW THREAD SERIES	NOMINAL THREAD SZIE		TAPPED HOLE & FITTED SIZE DATA FOR *FASTMAN* INSERTS (See Diagrams above) MM							
	1		11		12	13		14		15
	DIA. MM.	PITCH MM.	A MAX.	A MIN.	B MIN.	C MAX.	C MIN.	D MAX.	D MIN.	E MIN.
METRIC COARSE SERIES	M2	0.4	2.180	2.09	2.520	2.296	2.260	1.796	1.740	1.57
	M2.2.	0.45	2.40	2.30	2.785	2.532	2.492	1.968	1.908	1.71
	M2.5	0.45	2.70	2.60	3.085	2.832	2.792	2.268	2.208	2.01
	M3	0.5	3.22	3.11	3.611	3.367	3.325	2.738	2.675	2.46
	M4	0.7	4.29	4.15	4.842	4.509	4.455	3.620	3.545	3.24
	M5	0.8	5.33	5.17	5.954	5.577	5.520	4.560	4.480	4.13
	M6	1	6.41	6.22	7.187	6.719	6.650	5.445	5.350	4.92
	M7	1	7.41	7.22	8.187	7.719	7.650	6.445	6.350	5.92
	M8	1.25	8.48	8.27	9.465	8.886	8.812	7.288	7.188	6.65
	M10	1.5	10.56	10.32	11.751	11.061	10.974	9.138	9.026	8.38
	M12	1.75	12.64	12.38	14.040	13.236	13.137	10.988	10.863	10.11
	M14	2	14.73	14.43	16.322	15.406	15.299	12.833	12.701	11.84
	M16	2	16.73	16.43	18.322	17.406	17.299	14.833	14.701	13.84
	M18	2.5	18.90	18.54	20.873	19.738	19.624	16.516	16.376	15.29
	M20	2.5	20.90	20.54	22.873	21.738	21.624	18.516	18.376	17.29
	M22	2.5	22.90	22.54	24.873	23.738	23.624	20.516	20.376	19.29
	M24	3	25.05	24.65	27.447	26.093	25.948	22.221	22.051	20.75
	M27	3	28.05	27.65	30.447	29.093	28.948	25.221	25.051	23.75
	M30	3.5	31.21	30.76	34.000	32.428	32.273	27.907	27.727	26.21
	M33	3.5	34.21	33.76	37.000	35.428	35.273	30.907	30.727	29.21
	M36	4	37.34	36.87	40.553	38.763	38.598	33.592	33.402	31.67
	M39	4	40.34	39.87	43.553	41.763	41.598	36.592	36.402	34.67
METRIC FINE SERIES	M8	1	8.41	8.22	9.187	8.719	8.650	7.445	7.350	6.92
	M 10	1.25	10.48	10.27	11.465	10.886	10.812	9.288	9.188	8.65
	M 12	1.25	12.48	12.27	13.477	12.898	12.812	11.300	11.188	10.65
	M14	1.5	14.56	14.32	15.761	15.067	14.974	13.144	13.026	12.38
	M 16	1.5	16.56	16.32	17.761	17.067	16.974	15.144	15.026	14.38
	M 18	1.5	18.56	18.32	19.761	19.067	19.974	17.144	17.026	16.38
	M 20	1.5	20.56	20.32	21.761	21.067	20.974	19.144	19.026	18.38
	M 22	1.5	22.56	22.32	23.761	23.067	22.974	21.144	21.026	20.38
	M 24	2	24.73	24.43	26.332	25.414	25.299	22.841	22.701	21.84
	M 27	2	27.88	27.43	29.332	28.414	28.299	25.841	25.701	24.84
	M 30	2	30.88	30.43	32.332	31.414	31.299	28.841	28.701	27.84
	M 33	2	33.88	33.43	35.332	34.414	34.299	31.841	31.701	30.84
	M 36	3	37.05	36.65	39.447	38.093	37.948	34.221	34.051	32.75
	M39	3	40.05	39.65	42.447	41.093	40.948	37.221	37.051	35.75
SPARK PLUG SERIES										
	M 14	1.25	14.48	14.27	15.477	14.898	14.812	14.300	13.188	12.65
	M 18	1.5	18.56	18.32	19.761	19.067	18.974	17.144	17.026	16.38





FORMULAE FOR CALCULATING MINIMUM DRILLING & TAPPING DEPTHS.

P = PITCH in MM.
Q = Minimum full form tapped thread length. Values for Q are the same as the values listed in columns 4 to 10.
R = Entering portion of Screw (max.) if tang is not removed = Q—1P.
S = Drill Depth (min.) excluding point.
= Q + 4½ P (if finishing taps are used).
or S = Q + 2½ P (if bottoming taps are used)
T = Tap Depth (min.)
= Q + 3½ P (if finishing taps are used)
or T = Q + 1½ P (if bottoming taps are used).
Depths of counterbores or countersinks, if any, must be added to values for Q, R, S & T.

SCREW THREAD SERIES	NOMINAL THREAD SZIE	DRILLS		TAPS			GAUGES	TOOLS			NOMINAL THREAD SIZE	SCREW THREAD SERIES
	1	16	16A	17	18	19	20	21	22	23	24	
	DIA MM	PITCH MM	RECOMME-NDED SIZE	ALTERNATIVE SIZE	ROUGHING TAP	FINISHING PLUG TAP	FINISHING BOTTOMING TAP	FASTMAN GAUGE	PREWINDER TYPE INSERTING TOOL	TANG BREAK OFF TOOL	EXTRACT-ING TOOL	DIA MM	PITCH MM
METRIC COARSE SERIES	M2	0.4	2.1	2.15	MC2 R	MC2 P	MC2 B	MC2-GN	MC2-IM	MC2-TB	1227-06	M2	0.4
	M2.2.	0.45	2.3	2.35	MC2.2 R	MC2.2 P	MC2.2 B	MC2.2-GN	MC2.2-IM	MC2.2-TB	1227-06	M2.2	0.45
	M2.5	0.45	2.6	2.65	MC2.5 R	MC2.5 P	MC2.5 B	MC2.5-GN	MC2.5-IM	MC2.5-TB	1227-06	M2.5	0.45
	M3	0.5	3.1	3.2	MC3 R	MC3 P	MC3 B	MC3-GN	MC3-IP	MC3-TB	1227-06	M3	0.5
	M4	0.7	4.1	4.2	MC4 R	MC4 P	MC4 B	MC4-GN	MC4-IP	MC4-TB	1227-06	M4	0.7
	M5	0.8	5.1	5.2	MC5 R	MC5 P	MC5 B	MC5-GN	MC5-IP	MC5-TB	1227-6	M5	0.8
	M6	1	6.2	6.3	MC6 R	MC6 P	MC6 B	MC6-GN	MC6-IP	MC6-TB	1227-6	M6	1
	M7	1	7.2	7.3	MC7 R	MC7 P	MC7 B	MC7-GN	MC7-IP	MC7-TB	1227-6	M7	1
	M8	1.25	8.2	8.3	MC8 R	MC8 P	MC8 B	MC8-GN	MC8-IP	MC8-TB	1227-6	M8	1.25
	M10	1.5	10.2	10.3	MC10 R	MC10 P	MC10 B	MC10-GN	MC10-IP	MC10-TB	1227-6	M10	1.5
	M12	1.75	12.25	31/64"	MC12 R	MC12 P	MC12 B	MC12-GN	MC12-IP	MC12-TB	1227-16	M12	1.75
	M14	2	14.25	14.5	MC14 R	MC14 P	MC14 B	MC14-GN	MC14-IP	MC14-TB	1227-16	M14	2
	M16	2	16.25	16.5	MC16 R	MC16 P	MC16 B	MC16-GN	MC16-IP	MC16-TB	1227-16	M16	2
	M18	2.5	18.5	18.75	MC18 R	MC18 P	MC18 B	MC18-GN	MC18-IP	MC18-TB	1227-16	M18	2.5
	M20	2.5	20.5	20.75	MC20 R	MC20 P	MC20 B	MC20-GN	MC20-IP	MC20-TB	1227-16	M20	2.5
	M22	2.5	22.5	22.75	MC22 R	MC22 P	MC22 B	MC22-GN	MC22-IP	MC22-TB	1227-16	M22	2.5
	M24	3	24.5	24.75	MC24 R	MC24 P	MC24 B	MC24-GN	MC24-IP	MC24-TB	1227-16	M24	3
	M27	3	27.5	27.75	MC27 R	MC27 P	MC27 B	MC27-GN	MC27-IP	USE LONG-NOSED PLIERS	1227-24	M27	3
	M30	3.5	30.5	30.75	MC30 R	MC30 P	MC30 B	MC30-GN	MC30-IP		1227-24	M30	3.5
	M33	3.5	33.5	33.75	MC33 R	MC33P	MC33 B	MC33-GN	MC33-IP		1227-24	M33	3.5
	M36	4	36.75	37	MC36 R	MC36 P	MC36 B	MC36-GN	MC36-IP		1227-24	M36	4
	M39	4	39.75	40	MC39 R	MC39 P	MC39 B	MC39-GN	MC39-IP		1227-24	M39	4
METRIC FINE SERIES	M8	1	8.2	8.3	MF8 R	MF8 P	MF8 B	MF8-GN	MF8-IP	MF8-TB	1227-6	M8	1
	M 10	1.25	10.2	10.3	MF10 R	MF10 P	MF10 B	MF10-GN	MF10-IP	MF10-TB	1227-6	M10	1.25
	M 12	1.25	12.2	12.3	MF12 R	MF12 P	MF12 B	MF12-GN	MF12-IP	MF12-TB	1227-16	M12	1.25
	M14	1.5	14.25	9/16"	MF14 R	MF14 P	MF14 B	MF14-GN	MF14-IP	MF14-TB	1227-16	M14	1.5
	M 16	1.5	16.25	41/64"	MF16 R	MF16 P	MF16 B	MF16-GN	MF16-IP	MF16-TB	1227-16	M16	1.5
	M 18	1.5	18.25		MF18 R	MF18 P	MF18 B	MF18-GN	MF18-IP	MF18-TB	1227-16	M18	1.5
	M 20	1.5	20.25		MF20 R	MF20 P	MF20 B	MF20-GN	MF20-IP	MF20-TB	1227-16	M20	1.5
	M 22	1.5	22.25		MF22 R	MF22 P	MF22 B	MF22-GN	MF22-IP	MF22-TB	1227-16	M22	1.5
	M 24	2	24.25	24.5	MF24 R	MF24 P	MF24 B	MF24-GN	MF24-IP	MF24-TB	1227-16	M24	2
	M 27	2	27.25	27.5	MF27 R	MF27 P	MF27 B	MF27-GN	MF27-IP	USE LONG-NOSED PLIERS	1227-24	M27	2
	M 30	2	30.25	30.5	MF30 R	MF30 P	MF30 B	MF30-GN	MF30-IP		1227-24	M30	2
	M 33	2	33.25	33.5	MF33 R	MF33 P	MF33 B	MF33-GN	MF33-IP		1227-24	M33	2
	M 36	3	36.5	36.75	MF36 R	MF36 P	MF36 B	MF36-GN	MF36-IP		1227-24	M36	3
	M39	3	39.5	39.75	MF39 R	MF39 P	MF39 B	MF39-GN	MF39-IP		1227-24	M39	3
SPARK PLUG SERIES													
	M 14	1.25	14.25	9/16"	SP14 R	SP14 P	SP14 B	SP14-GN	SP14-IP	USE PLIERS	1227-16	M 14	1.25
	M 18	1.5	18.25		SP18 R	SP18 P	SP18 B	SP18-GN	SP18-IP	DO	1227-16	M 18	1.5

NOTES

DRILLS - Tapping drills listed in col.16 are suitable for Aluminium. For Steel, Magnesium and Plastics, the alternative larger size drills (col.16A) should be used.

TAPS - Finishing Taps (cols.18 & 19) will ordinarily produce both Normal 5H & Fine 4H5H fits.

GAUGES - Thread Plug Gauges (col.20) are for Normal 5H fit. These are used to check ***FASTMAN*** tapped holes before installation of the insert.

INSERTING TOOLS — Prewinder Type (col.20) recommended for all sizes of Inserts.

SPARK PLUG — Inserts listed are suitable for 14 mm spark plugs according to Indian Standard Specification No IS - 1063 - 1963.

* INSERTING TOOLS are of Mandrel type for sizes M2, M2.2 and M2.5.

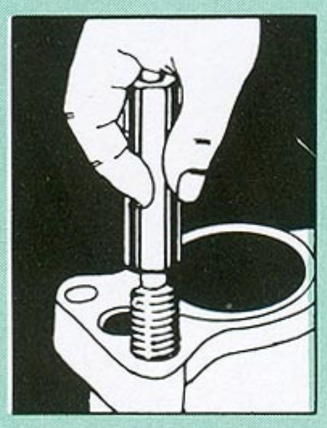
INSTALLATION PROCEDURE

DRILLING

Use regular procedures, working to diameters specified in the Table on reverse. The first column is for Aluminium. For Steel, Magnesium and Plastics, the alternative larger size drills recommended in the second column should be used.

TAPPING

FASTMAN tapping is usually done in a single operation with one of the types of *FASTMAN* finishing taps. *FASTMAN* roughing taps are available, however, for occasions when tough materials make both rough and finish cuts neccessary.



GAUGING

Clean tapped hole. Use required *FASTMAN* thread gauge to check size and full thread depth in conventional manner.

INSTALLING INSERTS

Prewinder Type *FASTMAN* Inserting Tools are available for hand installation of Inserts. The Prewinder Type is a precision tool which aligns and precompresses the insert for easy installation. A slotted mandrel in the tool drives the insert by its tang. This tool is recommended for hand installation of all sizes of Coarse & Fine Series of Inserts.

REMOVING INSERT TANGS

The tang on a *FASTMAN* Insert should be removed after installation only when neccessary for screw clearance or product appearance, and in such cases notched inserts should be used. This is easily accomplished by placing the punch of the Tang Break Off Tool into the installed insert and resting tool squarely on the insert tang. Strike the top of the tool with a hammer, using a sharp blow. (Fig.4)

EXTRACTING INSERTS

In rare instances, inserts are installed too deep, cross-threaded or otherwise improperly inserted. Such inserts are readily removed with *FASTMAN* Extracting Tools which are available in four sizes to fit all sizes of inserts. Place the blade of the extracting tool into the insert as shown in Fig. 5. Hit the top of the tool with a hammer, causing the blade to bite into the insert. Push down on the tool and rotate counterclockwise to back the insert out of the hole.

(FASTMAN inserts produce permanent threads ; hence extraction is not normally necessary.)

METHOD OF USING THE PREWINDER TYPE INSERTING TOOL

To use *FASTMAN* Pre-winder Type Inserting Tool, (Fig.1) retract mandrel and place insert in chamber with tang end towards threaded tip of tool (Fig. 2). Advance the mandrel until slot fully engages the insert tang. Rotate and advance the mandrel until the mandrel protrudes 1 mm from tip. Hold tool firmly and squarely. against work (Fig. 3) and install insert into tapped hole by rotating mandrel at a slow, uniform rate, until the top coil of the insert is ¼ to ½ turn below top surface of hole. DO NOT PUSH ON MANDREL. DO NOT REVERSE MANDREL TO REMOVE TANG.

When inserts are installed in small parts which can be held in hand, the Inserting Tool should preferably be mounted in a vice and the work brought to the tool.

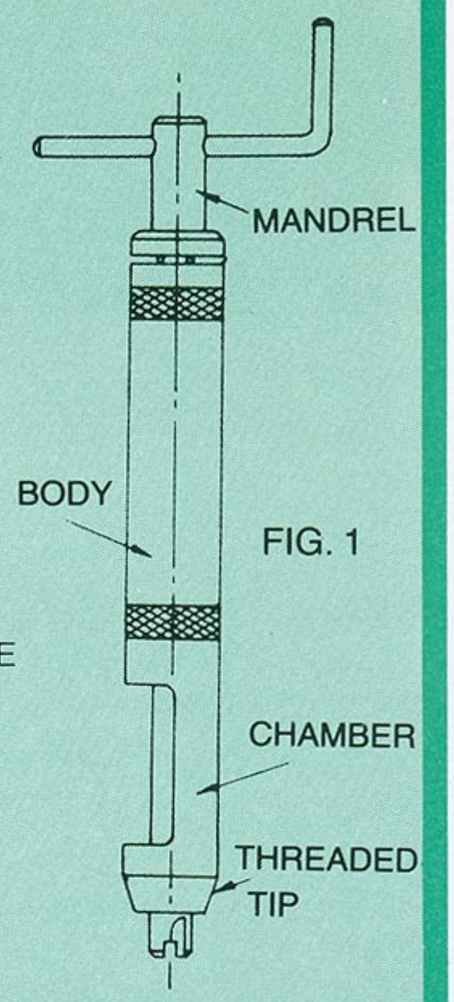


FIG. 1

PREWINDER TYPE INSERTING TOOL

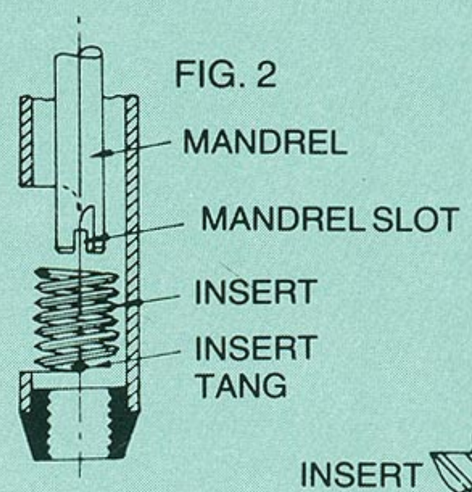


FIG. 2

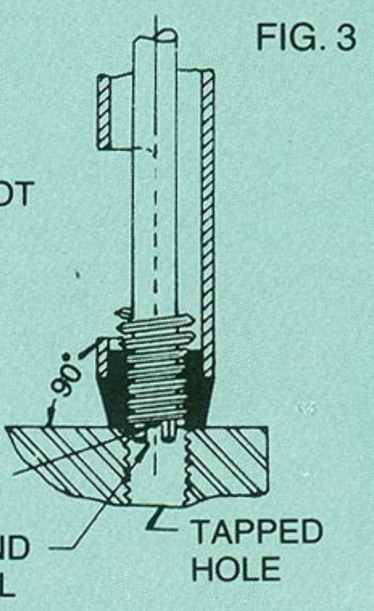
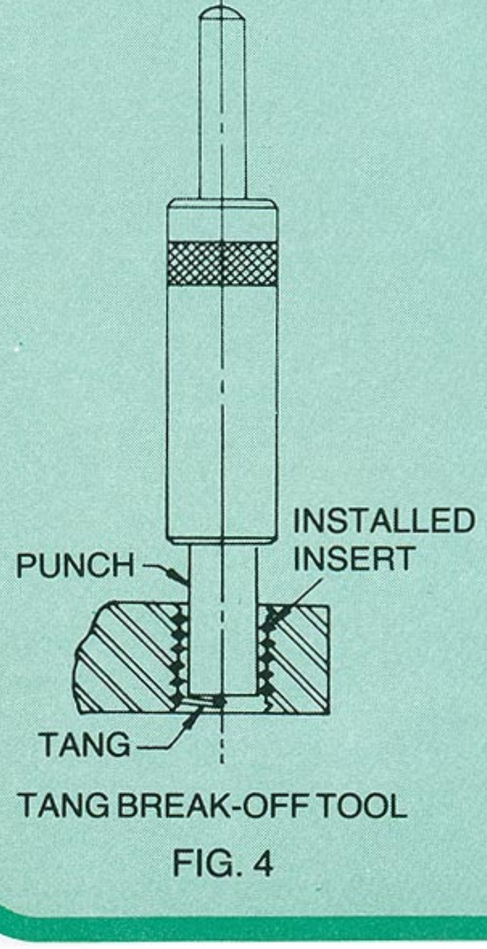
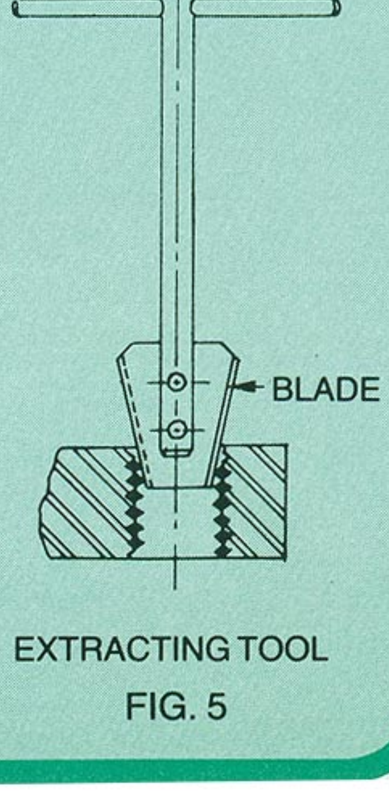


FIG. 3



TANG BREAK-OFF TOOL

FIG. 4



EXTRACTING TOOL

FIG. 5