WRENTHAM TOOL GROUP

THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

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TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

INDEX

CONTENTS **PAGE**

INDEX

continued

TELEPHONE #: 508-966-2332
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History
WRENTHAM TOOL GROUP

Wrentham Tool Group has been a leading supplier of cold heading tools since its founding in Wrentham, MA, USA in 1948 and is the longest operating and most experienced header tool manufacturer in the world. WTG has undergone many changes since then including ISO 9001:2008 certification and continues to re-invent itself to better serve the ever changing global market. Year after year, WTG continues to outperform the competition and expand its product line and operations. As a result of this dedication to continuous improvement, WTG has become the market leader in a wide range of hot and cold heading tools.

In 2004, Wrentham Steel Products was purchased by Phillips Screw Company and was renamed Wrentham Tool Products. Phillips Screw Company holds patents on several innovative recesses such as the POZIDRIV®, MORTORQ® Super, and HEXSTIX®.

In July 2010, Wrentham Tool Products purchased RICO™ and ASTRO™ from PCC and was renamed Wrentham Tool Group. RICO™ and ASTRO™ are known around the world for their high quality industrial, automotive, and aerospace punches and associated tooling. The close proximity of RICO™/ASTRO™ allowed WTG to retain most of its highly skilled work force.

In April 2012, Wrentham acquired the Acument Pin Shop from Acument Global Technologies. The Acument Pin Shop was the primary manufacturing location for TORX®, TORX PLUS®, and TORX PLUS AUTOSERT® blanks for use as the basic instrument for manufacturing finished tools. Wrentham acquired the machines, dies, and supportive tooling for production of a full range of internal and external TORX®, TORX PLUS®, and TORX PLUS AUTOSERT® recesses. With this acquisition comes a maturing of Wrentham's identity from a header tool supplier to a supplier for header tool manufacturers.

WTG's mission is to provide world-class quality, value pricing and unparalleled customer service. To achieve these goals WTG has dedicated significant financial and human resources to ensure success. WTG has expanded its product line and offerings to include the latest fastener recess innovations such as MORTORQ® Super, HEXSTIX®, and TTAP plus a fullline of Black Diamond Gages. WTG also manufactures a full array of carbide and steel heading tools including Hex Inserts, Hex Pins, and Trim Dies. WTG has increased stock levels and appointed sales agents in strategic locations around the world to better serve the customer and ensure continued expansion.

155 FARM STREET
BELLINGHAM, MA 02019
TEL: 508.966.2332 • FAX: 508.966.2326
email: customerservice@wrenthamtool.com
website www.wrenthamtool.com

GENERAL INFORMATION

ORDERING For best results contact customer service. Please specify on all orders the appropriate code number with description, and the quantity of the item that you require.

CLAIMS Shipments should be checked immediately upon arrival at your plant. Claims for shortages or errors must be presented within ten days after receipt of shipment.

RETURNED GOODS Goods must not be returned without our consent. Please contact our sales department for return goods authorization and procedures.

PAYMENT TERMS
USA—1% 15 Days-Net 30
Canada—1% 20 Days-Net 30
International—2% 30 Days-Net 60

CANCELLATIONS Orders to be cancelled must first be taken up with us. Certain items, which require special tooling, must be promptly attended to.

SPECIAL PUNCHES Made to order specials will be furnished upon request by the customer, and approved by us. Prints or samples may be required depending on the nature of the job. Your request for quotation will receive a speedy reply.

Head and recess styles which we produce can be made to customer specifications in most instances. Punches made to metric, DIN, and other foreign specifications are also available.

FULL BOX QUANTITIES In order to expedite deliveries, full box quantities should be ordered.

All 7/16 diameter punches	50 full box
All 9/16 diameter punches	40 full box
All 3/4 diameter punches	20 full box
All 7/8 diameter punches	15 full box
All 1 diameter punches	12 full box
All 1-1/4 diameter punches	6 full box
All 1-1/2 diameter punches	5 full box

WARNING
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WEAR RESISTANT COATINGS

Wrentham can supply punches with many types of wear resistant coatings, including Chemical Vapor Deposition (CVD) and Physical Vapor Deposition (PVD) types. The useful properties of these coatings are their extreme hardness and excellent lubricity. When applied to punches the coating acts as a chemical and thermal barrier between the punch and the screw. The low coefficient of friction helps to prevent galling and metal pick-up, resulting in increased punch life, improved surface finish, and minimized downtime from fewer setups. *(see page 61 for additional information)*

COATED PLUS

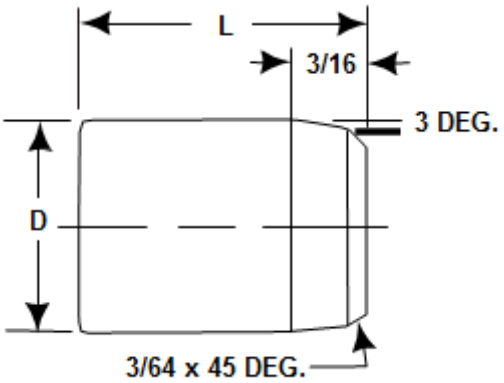
Wrentham Tool Group also supplies “Coated Plus” punches. These punches are highly polished prior to CVD or PVD coating, resulting in an increase of benefits specified above.

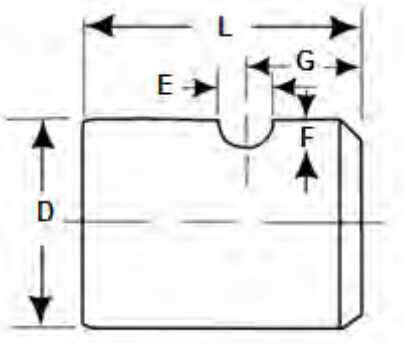
Please specify PVD or CVD “PLUS” when ordering.

WARNING

Our products contain one or more of the following substances: Cobalt, Chromium, Iron, Manganese, Molybdenum, Nickel, Vanadium, Titanium, Carbon, Tungsten, Silicon, Aluminum, Tantalum Carbide, Tungsten Carbide, Silver, Copper, Zinc or Cadmium.

Grinding of these products will produce dust of potentially hazardous ingredients. To avoid hazardous health effects please wear appropriate safety equipment and observe and practice safety procedures at all times.





D	L	G	E	F
.4375	1.000	.457	.125	.061
.5625	1.000	.457	.212	.105
.625	1.000	.457	.212	.105
.750	1.000	.457	.212	.105
.875	1.000	.457	.212	.105
1.000	1.000	.457	.212	.105

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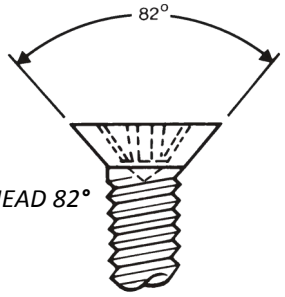
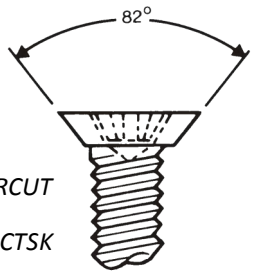
PHILLIPS® FLAT HEAD

SCREW SIZE	WOOD 82° CTSK	MACHINE 82° CTSK	TYPE A TAPING 82° CTSK	82° UNDERCUT CSTK	TAPPING 82° UNDERCUT CSTK	MACHINE & TAPPING 100°CTSK
0	3P 00-4**	3P 00-4**	3P 00-4**	3P 00-4**	3P 00-4**	3P 00-19
1	3P 00-5	3P 00-5	3P 00-5	3P 00-5	3P 00-5	3P 00-4**
2	3P 10-1**	3P 10-1**	3P 10-1**	3P 10-80**	3P 10-80**	3P 10-80**
3	3P 10-2**	3P 10-2**	3P 10-2**	3P 10-1**	3P 10-1**	3P 10-1**
4	3P 10-3**	3P 10-3**	3P 10-3**	3P 10-54**	3P 10-54**	3P 10-54**
5	3P 20-1**	3P 20-1**	3P 20-1**	3P 10-3**	3P 10-3**	3P 20-123
6	3P 20-2**	3P 20-2**	3P 20-2**	3P 20-285**	3P 20-285**	3P 20-1**
7	3P 20-3**	3P 20-6**	3P 20-6**	3P 20-1**	3P 20-1**	3P 20-1**
8	3P 20-4**	3P 20-3**	3P 20-3**	3P 20-2**	3P 20-2**	3P 20-135**
9	3P 20-5					3P 20-2**
10	3P 30-1	3P 20-4**	3P 20-4**	3P 20-3**	3P 20-3**	3P 20-136**
12	3P 30-3**	3P 30-2**	3P 30-2**	3P 30-166**	3P 30-166**	3P 30-46
14	3P 30-4		3P 30-3**		3P 30-85**	3P 30-93
1/4		3P 30-3**		3P 30-85**		3P 30-93
16	3P 30-5		3P 30-4**		3P 30-2**	3P 30-2**
18	3P 40-1		3P 40-4**		3P 40-79	3P 30-3**
5/16		3P 40-4**		3P 40-79		3P 40-79
3/8		3P 40-2**		3P 40-4**		3P 40-106
20	3P 40-2**		3P 40-1		3P 40-64	
7/16		3P 40-5		3P 40-2**		3P 40-24
24	3P 40-3**		3P 40-2**		3P 40-4**	
1/2		3P 40-3**		3P 40-5		3P 40-2**

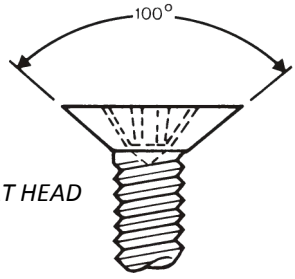
** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS



PHILLIPS FLAT HEAD 82° CTSK



PHILLIPS UNDERCUT FLAT HEAD 82° CTSK



PHILLIPS FLAT HEAD 100° CTSK

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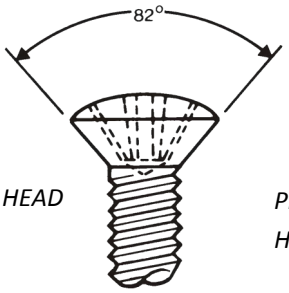
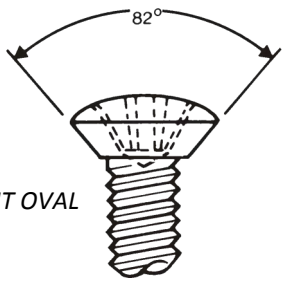
PHILLIPS® OVAL HEAD

SCREW SIZE	WOOD 82° CTSK.	MACHINE 82° CTSK.	TYPE A TAPPING 82° - CTSK.	MACHINE 82° UNDERCUT CTSK.	TYPE A TAPPING 82° UNDERCUT CTSK.	MACHINE & TAPPING - 100° CTSK.
0	3P 00-8	3P 00-8	3P 00-8	3P 00-8	3P 00-8	
1	3P 00-9	3P 00-9	3P 00-9	3P 00-9	3P 00-9	
2	3P 10-4	3P 10-4	3P 10-4	3P 10-4	3P 10-4	3P 10-82
3	3P 10-5	3P 10-5	3P 10-5	3P 10-5	3P 10-5	3P 10-83
4	3P 10-6	3P 10-6	3P 10-6	3P 10-6	3P 10-6	3P 10-84
5	3P 20-7	3P 20-7	3P 20-7	3P 20-7	3P 20-7	3P 20-7
6	3P 20-8**	3P 20-8**	3P 20-8**	3P 20-8**	3P 20-8**	3P 20-8**
7	3P 20-9	3P 20-14	3P 20-14	3P 20-14	3P 20-14	3P 20-14
8	3P 20-10	3P 20-12**	3P 20-12**	3P 20-12**	3P 20-12**	3P 20-12**
9	3P 20-11					3P 20-203
10	3P 30-6	3P 20-13**	3P 20-13**	3P 20-13**	3P 20-13**	3P 20-13**
12	3P 30-8	3P 30-11**	3P 30-11**	3P 30-11**	3P 30-11**	3P 30-11**
14	3P 30-9		3P 30-13			3P 30-13
1/4		3P 30-12**		3P 30-12**		3P 30-12**
16	3P 30-10		3P 30-10		3P 30-142	3P 30-142
18	3P 40-6		3P 40-6		3P 40-145	3P 40-6
5/16		3P 40-13		3P 40-254		3P 40-13
3/8		3P 40-10		3P 40-255		3P 40-10
20	3P 40-7		3P 40-7		3P 40-13	
7/16		3P 40-11		3P 40-256		
24	3P 40-8		3P 40-8		3P 40-7	
1/2		3P 40-12		3P 40-257		

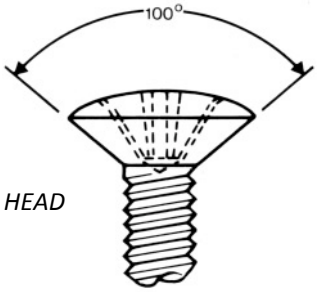
** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS



PHILLIPS OVAL HEAD 82° CTSK



PHILLIPS UNDERCUT OVAL HEAD 82° CTSK



PHILLIPS OVAL HEAD 100° CTSK

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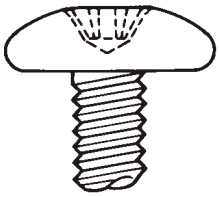
PHILLIPS® TRUSS HEAD

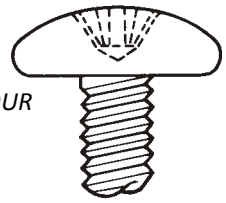
SCREW SIZE	PUNCH DIAMETER	FLAT TOP MACHINE	FULL CONTOUR MACHINE	FULL CONTOUR TAPPING
0		3P 00-16	3P 00-12	
1		3P 00-17	3P 00-13	
2		3P 10-100	3P 00-13	3P 10-13**
3		3P 10-101	3P 10-61	3P 10-61
4		3P 10-102	3P 10-17**	3P 10-17**
5		3P 10-103	3P 10-18	3P 10-18
6	9/16"	3P 20-321	3P 20-63**	3P 20-63**
6	7/16"	3P 20-338	3P 20-142	3P 20-142
7		3P 20-322		3P 20-71
8		3P 20-323**	3P 20-33**	3P 20-33**
9		3P 20-340		3P 20-64
10	7/8"	3P 20-324**	3P 20-34	3P 20-34
10	3/4"	3P 20-339	3P 20-153	3P 20-153
12		3P 30-167	3P 30-24**	3P 30-24**
14	7/8"	3P 30-227		3P 30-25**
14	1"	3P 30-228		3P 30-115
1/4	7/8"	3P 30-168**	3P 30-25**	
1/4	1"	3P 30-180	3P 30-115	
5/16	1"	3P 40-172	3P 40-20**	3P 40-20**
5/16	1-1/4"	3P 40-189	3P 40-94	3P 40-94
24		3P 40-173**		
3/8		3P 40-173**	3P 40-21**	3P 40-21**
7/16		3P 40-174	3P 40-22	3P 40-22
1/2		3P 40-175	3P 40-31	

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

PHILLIPS FLAT TOP TRUSS HEAD



PHILLIPS FULL CONTOUR TRUSS HEAD



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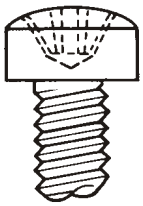
PHILLIPS® FILLISTER HEAD

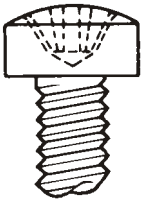
SCREW SIZE	FINISHED MACHINE & TAPPING	SHAVED MACHINE & TAPPING	WOOD
0	3P 00-20	3P 00-14	3P 00-14
1	3P 00-21	3P 00-15	3P 00-15
2	3P 10-35	3P 00-13	3P 10-13**
3	3P 10-37	3P 10-14**	3P 10-14**
4	3P 10-36**	3P 10-15**	3P 10-15**
5	3P 20-265	3P 20-346	3P 20-20**
6	3P 20-257**	3P 20-21**	3P 20-21**
7	3P 20-278	3P 20-22	3P 20-22
8	3P 20-266**	3P 20-33**	3P 20-33**
9			3P 20-24
10	3P 20-258**	3P 20-25**	3P 20-25**
12	3P 30-68	3P 30-21**	3P 30-21**
14	3P 30-67**		3P 30-22**
1/4	3P 30-67**	3P 30-22**	
16			3P 30-185
18			3P 40-201
5/16	3P 30-69	3P 30-140	
20			3P 40-9**
24			3P 40-26
3/8	3P 40-162	3P 40-26	
7/16	3P 40-163	3P 40-27	
1/2	3P 40-164	3P 40-28	

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

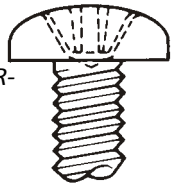
PHILLIPS FILLISTER HEAD (SHAVED HEAD)



PHILLIPS FILLISTER HEAD (FINISHED HEAD)



PHILLIPS FILLISTER-WOOD HEAD



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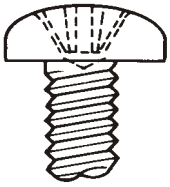
PHILLIPS® PAN HEAD

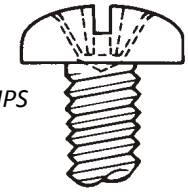
SCREW SIZE	MACHINE & TAPPING	COMB. SLOTTED– MACHINE & TAPPING	ALUMINUM
0	3P 00-14		
1	3P 00-15		
2	3P 10-13**	3P 10-154	
3	3P 10-14**	3P 10-155	
4	3P 10-15**	3P 10-156**	
5	3P 20-20**	3P 20-551**	
6	3P 20-21**	3P 20-552	3P 20-21A
7	3P 20-22	3P 20-553**	
8	3P 20-23**	3P 20-554**	3P 20-23A
10	3P 20-25**	3P 20-555**	3P 20-25A
12	3P 30-21**	3P 30-236**	
14	3P 30-226		
1/4	3P 30-22**	3P 30-237**	3P 30-22A
16	3P 30-185		
18	3P 40-201		
5/16	3P 40-9**	3P 40-267	
20	3P 40-9**		
24	3P 40-26		
3/8	3P 40-26		
7/16	3P 40-27		
1/2	3P 40-28		

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

PHILLIPS PAN HEAD



COMBINATION PHILLIPS SLOTTED HEAD



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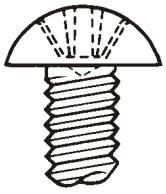
PHILLIPS® ROUND HEAD

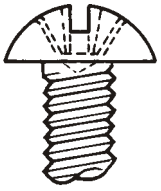
SCREW SIZE	MACHINE & TAPPING	WOOD	ALUMINUM	COMBINATION SLOTTED
0	3P 00-6	3P 00-6		
1	3P 00-7	3P 00-7		
2	3P 10-46	3P 10-9		3P 10-129
3	3P 10-45	3P 10-10	3P 10-45A	3P 10-130
4	3P 10-44**	3P 10-11	3P 10-44A	3P 10-131
5	3P 20-30	3P 20-30	3P 20-30A	3P 20-475
6	3P 20-15	3P 20-15	3P 20-15A	3P 20-389
7	3P 20-16	3P 20-16	3P 20-16A	3P 20-476
8	3P 20-17**	3P 20-17**	3P 20-17A	3P 20-390
10	3P 20-19**	3P 20-19**	3P 20-19A	3P 20-391
12	3P 30-16	3P 30-16	3P 30-16A	3P 30-207
14	3P 30-17	3P 30-17	3P 30-17A	
1/4	3P 30-19		3P 30-19A	3P 30-208
16	3P 30-18	3P 30-18	3P 30-18A	
5/16	3P 30-20		3P 30-20A	3P 30-209
18	3P 40-110	3P 40-14		
20	3P 40-111	3P 40-15		
24	3P 40-16	3P 40-16		
3/8	3P 40-16		3P 40-16A	
7/16	3P 40-17			
1/2	3P 40-18			

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

PHILLIPS ROUND HEAD



PHILLIPS ROUND HEAD
COMBINATION SLOTTED



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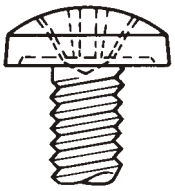
PHILLIPS® BINDING HEAD — MACHINE

SCREW SIZE	PUNCH NUMBER
0	3P 00-24
1	3P 00-25
2	3P 10-63
3	3P 10-64
4	3P 10-62**
5	3P 20-144**
6	3P 20-133
8	3P 20-145**
10	3P 20-143**
12	3P 30-96
1/4	3P 30-97
5/16	3P 40-107
3/8	3P 40-108

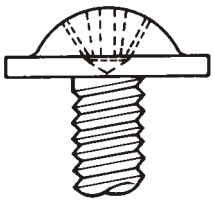


PHILLIPS BINDING HEAD

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

PHILLIPS WASHER HEAD — WOOD, MACHINE & TAPPING TYPE

SCREW SIZE	PUNCH NUMBER
2	3P 10-23
3	3P 10-24
4	3P 10-25
5	3P 20-45
6	3P 20-46
7	3P 20-47
8	3P 20-48**
10	3P 20-49
12	3P 30-42
14	3P 30-39
1/4	3P 30-43
5/16	3P 30-44
3/8	3P 40-36
7/16	3P 40-37
1/2	3P 40-38



PHILLIPS WASHER HEAD

** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS

WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

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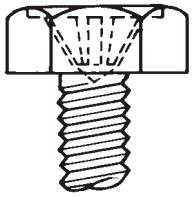
FAX #: 508-966-2326

PHILLIPS® INDENTED HEXAGON HEAD — TAPPING

PHILLIPS INDENTED HEXAGON HEAD

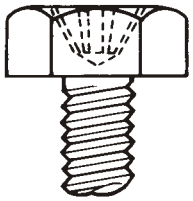


AVAILABLE WITH POZIDRIV® RECESS

SCREW SIZE	PUNCH NUMBER
1	3P 00-18
2	3P 10-127
3	3P 10-128
4	3P 10-41
5	3P 10-42
6	3P 20-100
7	3P 20-101
8	3P 20-102
10	3P 20-103
12	3P 30-59
1/4	3P 30-71
1/4(7/16)	3P 30-87
5/16	3P 40-242
3/8	3P 40-243

PHILLIPS® TRIMMED HEXAGON MACHINE TYPE

PHILLIPS TRIMMED HEXAGON HEAD



AVAILABLE WITH POZIDRIV® RECESS

SCREW SIZE	PUNCH NUMBER
4	3P 10-157
6	3P 20-137
8	3P 20-474
10	3P 20-147
12	3P 30-94
14	3P 30-39
1/4	3P 30-58
5/16	3P 40-65
3/8	3P 40-66
7/16	3P 40-67
1/2	3P 40-68

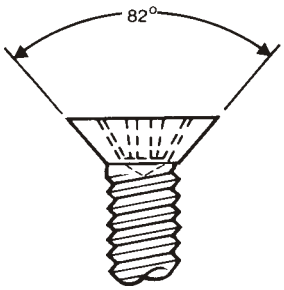
WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

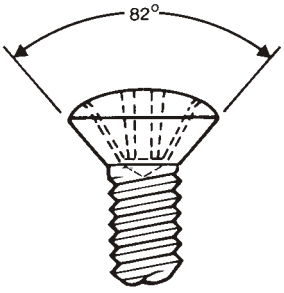
PHILLIPS® TRIM HEAD

SCREW SIZE	HEAD SIZE	OVAL HEAD	FLAT HEAD
4	3	3P 10-5	3P 10-2**
5	4	3P 10-6	3P 10-3**
6	4	3P 10-6	3P 10-3**
6	5	3P 20-7	3P 20-1**
6	5	3P 20-176	
8	5	3P 20-7	3P 20-134
8	5	3P 20-176	
8	6	3P 20-8**	3P 20-6**
8	6	3P 20-28	
10	8	3P 20-12**	3P 20-3**
10	8	3P 20-255	
12	8	3P 20-12**	3P 20-254
12	8	3P 20-255	
12	10	3P 20-13**	3P 20-4**
12	10	3P 20-256	
14	10	3P 20-13**	3P 20-4**
14	10	3P 20-256	
14	12	3P 30-11**	3P 30-2**
5/16	12		3P 30-2**
5/16	14		3P 30-3**
5/16	1/4		3P 30-3**
3/8	5/16		3P 40-4**

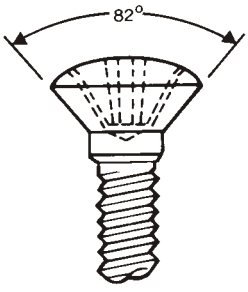
** IN STOCK ITEM
AVAILABLE WITH POZIDRIV® RECESS



PHILLIPS FLAT TRIM HEADS 82°



PHILLIPS OVAL TRIM HEADS—SHORT LENGTHS



PHILLIPS OVAL TRIM HEADS—LONG LENGTHS

WARNING
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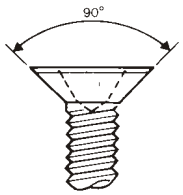
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

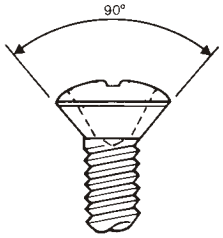
DIN 965 — 90° FLAT COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
1.6	965-1.6	7/16	PZ965-1.6	7/16	1A965-1.6	7/16
2	965-2	7/16	PZ965-2	7/16	1A965-2	7/16
2.5	965-2.5	7/16	PZ965-2.5	7/16	1A965-2.5	7/16
3	965-3	7/16	PZ965-3	7/16	1A965-3	7/16
3.5	965-3.5	7/16	PZ965-3.5	7/16	1A965-3.5	7/16
4	965-4	9/16	PZ965-4	9/16	1A965-4	9/16
5	965-5	9/16	PZ965-5	9/16	1A965-5	9/16
6	965-6	7/8	PZ965-6	7/8	1A965-6	7/8
8	965-8	1	PZ965-8	1	1A965-8	1
10	965-10	1	PZ965-10	1	1A965-10	1



DIN 966 — 90° OVAL COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
1.6	966-1.6	7/16	PZ966-1.6	7/16	1A966-1.6	7/16
2	966-2	7/16	PZ966-2	7/16	1A966-2	7/16
2.5	966-2.5	7/16	PZ966-2.5	7/16	1A966-2.5	7/16
3	966-3	7/16	PZ966-3	7/16	1A966-3	7/16
3.5	966-3.5	7/16	PZ966-3.5	7/16	1A966-3.5	7/16
4	966-4	9/16	PZ966-4	9/16	1A966-4	9/16
5	966-5	9/16	PZ966-5	9/16	1A966-5	9/16
6	966-6	7/8	PZ966-6	7/8	1A966-6	7/8
8	966-8	1	PZ966-8	1	1A966-8	1
10	966-10	1	PZ966-10	1	1A966-10	1



WARNING

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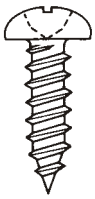
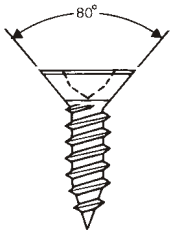
DIN 7981 — PAN HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2.2	7981-2.2	7/16	PZ7981-2.2	7/16	1A7981-2.2	7/16
2.9	7981-2.9	7/16	PZ7981-2.9	7/16	1A7981-2.9	7/16
3.5	7981-3.5	7/16	PZ7981-3.5	7/16	1A7981-3.5	7/16
3.9	7981-3.9	9/16	PZ7981-3.9	9/16	1A7981-3.9	9/16
4.2	7981-4.2	9/16	PZ7981-4.2	9/16	1A7981-4.2	9/16
4.8	7981-4.8	9/16	PZ7981-4.8	9/16	1A7981-4.8	9/16
5.5	7981-5.5	7/8	PZ7981-5.5	7/8	1A7981-5.5	7/8
6.3	7981-6.3	7/8	PZ7981-6.3	7/8	1A7981-6.3	7/8



DIN 7982 — 80° FLAT COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2.2	7982-2.2	7/16	PZ7982-2.2	7/16	1A7982-2.2	7/16
2.9	7982-2.9	7/16	PZ7982-2.9	7/16	1A7982-2.9	7/16
3.5	7982-3.5	7/16	PZ7982-3.5	7/16	1A7982-3.5	7/16
3.9	7982-3.9	9/16	PZ7982-3.9	9/16	1A7982-3.9	9/16
4.2	7982-4.2	9/16	PZ7982-4.2	9/16	1A7982-4.2	9/16
4.8	7982-4.8	9/16	PZ7982-4.8	9/16	1A7982-4.8	9/16
5.5	7982-5.5	7/8	PZ7982-5.5	7/8	1A7982-5.5	7/8
6.3	7982-6.3	7/8	PZ7982-6.3	7/8	1A7982-6.3	7/8



WARNING

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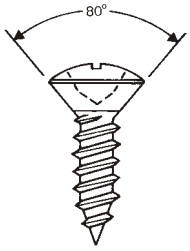
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

DIN 7983 — 80° OVAL COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2.2	7983-2.2	7/16	PZ7983-2.2	7/16	1A7983-2.2	7/16
2.9	7983-2.9	7/16	PZ7983-2.9	7/16	1A7983-2.9	7/16
3.5	7983-3.5**	7/16	PZ7983-3.5	7/16	1A7983-3.5	7/16
3.9	7983-3.9	9/16	PZ7983-3.9	9/16	1A7983-3.9	9/16
4.2	7983-4.2	9/16	PZ7983-4.2	9/16	1A7983-4.2	9/16
4.8	7983-4.8	9/16	PZ7983-4.8	9/16	1A7983-4.8	9/16
5.5	7983-5.5	7/8	PZ7983-5.5	7/8	1A7983-5.5	7/8
6.3	7983-6.3	7/8	PZ7983-6.3	7/8	1A7983-6.3	7/8

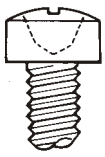
** IN STOCK ITEM



DIN 7985 — CHEESE HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
1.6	7985-1.6	7/16	PZ7985-1.6	7/16	1A7985-1.6	7/16
2	7985-2	7/16	PZ7985-2	7/16	1A7985-2	7/16
2.5	7985-2.5	7/16	PZ7985-2.5	7/16	1A7985-2.5	7/16
3	7985-3**	7/16	PZ7985-3	7/16	1A7985-3	7/16
3.5	7985-3.5	7/16	PZ7985-3.5	7/16	1A7985-3.5	7/16
4	7985-4**	9/16	PZ7985-4	9/16	1A7985-4	9/16
5	7985-5	9/16	PZ7985-5	9/16	1A7985-5	9/16
6	7985-6	7/8	PZ7985-6	7/8	1A7985-6	7/8
8	7985-8	1	PZ7985-8	1	1A7985-8	1
10	7985-10	1-1/4	PZ7985-10	1-1/4	1A7985-10	1-1/4

** IN STOCK ITEM



WARNING

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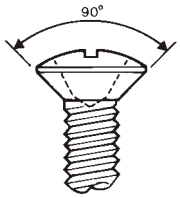
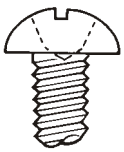
DIN 7995 — 90° OVAL COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2	7995-2	7/16	PZ7995-2	7/16	1A7995-2	7/16
2.5	7995-2.5	7/16	PZ7995-2.5	7/16	1A7995-2.5	7/16
3	7995-3	7/16	PZ7995-3	7/16	1A7995-3	7/16
3.5	7995-3.5	7/16	PZ7995-3.5	7/16	1A7995-3.5	7/16
4	7995-4	9/16	PZ7995-4	9/16	1A7995-4	9/16
5	7995-5	9/16	PZ7995-5	9/16	1A7995-5	9/16
5.5	7995-5.5	7/8	PZ7995-5.5	7/8	1A7995-5.5	7/8
6	7995-6	7/8	PZ7995-6	7/8	1A7995-6	7/8
8	7995-8	1	PZ7995-8	1	1A7995-8	1



DIN 7996 — ROUND HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2.2	7996-2.2	7/16	PZ7996-2.2	7/16	1A7996-2.2	7/16
2.5	7996-2.5	7/16	PZ7996-2.5	7/16	1A7996-2.5	7/16
3	7996-3	7/16	PZ7996-3	7/16	1A7996-3	7/16
3.5	7996-3.5	7/16	PZ7996-3.5	7/16	1A7996-3.5	7/16
4	7996-4	9/16	PZ7996-4	9/16	1A7996-4	9/16
4.5	7996-4.5	9/16	PZ7996-4.5	9/16	1A7996-4.5	9/16
5	7996-5	9/16	PZ7996-5	9/16	1A7996-5	9/16
5.5	7996-5.5	7/8	PZ7996-5.5	7/8	1A7996-5.5	7/8
6	7996-6	7/8	PZ7996-6	7/8	1A7996-6	7/8
7	7996-7	7/8	PZ7996-7	7/8	1A7996-7	7/8
8	7996-8	1	PZ7996-8	1	1A7996-8	1



WARNING

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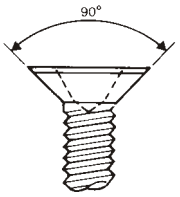
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

DIN 7997 — 90° FLAT COUNTERSUNK HEAD

SCREW SIZE	PHILLIPS		POZIDRIV		1A	
2.5	7997-2.5	7/16	PZ7997-2.5	7/16	1A7997-2.5	7/16
3	7997-3	7/16	PZ7997-3	7/16	1A7997-3	7/16
3.5	7997-3.5	7/16	PZ7997-3.5	7/16	1A7997-3.5	7/16
4	7997-4	7/16	PZ7997-4	7/16	1A7997-4	7/16
4.5	7997-4.5	9/16	PZ7997-4.5	9/16	1A7997-4.5	9/16
5	7997-5	9/16	PZ7997-5	9/16	1A7997-5	9/16
5.5	7997-5.5	7/8	PZ7997-5.5	7/8	1A7997-5.5	7/8
6	7997-6	7/8	PZ7997-6	7/8	1A7997-6	7/8
7	7997-7	7/8	PZ7997-7	7/8	1A7997-7	7/8
8	7997-8	1	PZ7997-8	1	1A7997-8	1



WARNING

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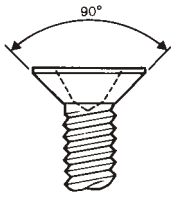
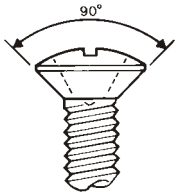
ASME B18.6.7M 1998 IFI 90° FLAT COUNTERSUNK HEAD (MACHINE)

SCREW SIZE	PHILLIPS		1A		PUNCH DIAMETER
M2	3PM2F	1998	1AM2F	1998	7/16
M2.5	3PM2.5F	1998	1AM2.5F	1998	7/16
M3	3PM3F	1998	1AM3F	1998	7/16
M3.5	3PM3.5F	1998	1AM3.5F	1998	9/16
M4	3PM4F	1998	1AM4F	1998	9/16
M5	3PM5F	1998	1AM5F	1998	9/16
M6	3PM6F	1998	1AM6F	1998	9/16
M8	3PM8F	1998	1AM8F	1998	7/8
M10	3PM10F	1998	1AM10F	1998	1 1/4



ASME B18.6.7M 1998 IFI 90° OVAL COUNTERSUNK HEAD (MACHINE)

SCREW SIZE	PHILLIPS		1A		PUNCH DIAMETER
M2	3PM2O	1998	1AM2O	1998	7/16
M2.5	3PM2.5O	1998	1AM2.5O	1998	7/16
M3	3PM3O	1998	1AM3O	1998	7/16
M3.5	3PM3.5O	1998	1AM3.5O	1998	7/16
M4	3PM4O	1998	1AM4O	1998	9/16
M5	3PM5O	1998	1AM5O	1998	9/16
M6	3PM6O	1998	1AM6O	1998	7/8
M8	3PM8O	1998	1AM8O	1998	7/8
M10	3PM10O	1998	1AM10O	1998	1 1/4



WARNING

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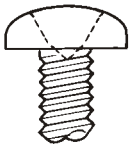
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

ASME B18.6.7M 1998 IFI PAN HEAD (MACHINE)

SCREW SIZE	PHILLIPS		1A		PUNCH DIAMETER
M2	3PM2P	1998	1AM2P	1998	7/16
M2.5	3PM2.5P	1998	1AM2.5P	1998	7/16
M3	3PM3P	1998	1AM3P	1998	7/16
M3.5	3PM3.5P	1998	1AM3.5P	1998	7/16
M4	3PM4P	1998	1AM4P	1998	9/16
M5	3PM5P	1998	1AM5P	1998	9/16
M6	3PM6P	1998	1AM6P	1998	7/8
M8	3PM8P	1998	1AM8P	1998	1
M10	3PM10P	1998	1AM10P	1998	1 1/4



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DIN PUNCH NUMBERS AND EQUIVALENTS

DIN PHILLIPS	DIN POZIDRIV	DIN 1A	USA PHILLIPS	USA POZIDRIV	EUROPEAN POZIDRIV	EUROPEAN 1A
965-1.6	PZ965-1.6	1A965-1.6	3P00-4	3PZ00-5	—	—
965-2	PZ965-2	1A965-2	3P10-80	3PZ10-80	—	—
965-2.5	PZ965-2.5	1A965-2.5	3P10-2	3PZ10-2	1Z-20	11A-20
965-3	PZ965-3	1A965-3	3P10-54	3PZ10-54	1Z-540	11A-540
965-3.5	PZ965-3.5	1A965-3.5	3P20-1	3PZ20-1	2Z-10	21A-10
965-4	PZ965-4	1A965-4	3P20-150	3PZ20-134	2Z-48	21A-48
965-5	PZ965-5	1A965-5	3P20-6	3PZ20-6	2Z-60	21A-60
965-6	PZ965-6	1A965-6	3P30-1	3PZ30-85	3Z-850	31A-850
965-8	PZ965-8	1A965-8	3P40-106	3PZ40-106	4Z-1060	41A-1060
965-10	PZ965-10	1A965-10	3P40-1	3PZ40-1	4Z-10	41A-10
966-1.6	PZ966.1.6	1A966.1.6	—	—	—	—
966-2	PZ966-2	1A966-2	—	—	—	—
966-2.5	PZ966-2.5	1A966-2.5	—	—	—	—
966-3	PZ966-3	1A966-3	—	—	—	—
966-3.5	PZ966-3.5	1A966-3.5	—	—	—	—
966-4	PZ966-4	1A966-4	—	—	—	—
966-5	PZ966-5	1A966-5	—	—	—	—
966-6	PZ966-6	1A966-6	—	—	—	—
966-8	PZ966-8	1A966-8	—	—	—	—
966-10	PZ966-10	1A966-10	—	—	—	—
7981-2.2	PZ7981-2.2	1A7981-2.2	3P10-13	3PZ10-13	1Z-130	11A-130
7981-2.9	PZ7981-2.9	1A7981-2.9	3P10-15	3PZ10-15	1Z-150	11A-150
7981-3.5	PZ7981-3.5	1A7981-3.5	3P20-21	3PZ20-21	2Z-210	21A-210
7981-3.9	PZ7981-3.9	1A7981-3.9	3P20-22	3PZ20-22	2Z-220	21A-220
7981-4.2	PZ7981-4.2	1A7981-4.2	3P20-23	3PZ20-23	2Z-230	21A-230
7981-4.8	PZ7981-4.8	1A7981-4.8	3P20-25	3PZ20-25	2Z-250	21A-250
7981-5.5	PZ7981-5.5	1A7981-5.5	3P30-21	3PZ30-21	—	—
7981-6.3	PZ7981-6.3	1A7981-6.3	3P30-22	3PZ30-22	—	—
7982-2.2	PZ7982-2.2	1A7982-2.2	—	3PZ10-1	1Z-10	11A-10
7982-2.9	PZ7982-2.9	1A7982-2.9	—	3PZ10-54	1Z-540	11A-540
7982-3.5	PZ7982-3.5	1A7982-3.5	—	3PZ20-134	2Z-48	21A-48
7982-3.9	PZ7982-3.9	1A7982-3.9	—	3PZ20-2	2Z-11	21A-11
7982-4.2	PZ7982-4.2	1A7982-4.2	3P20-6	3PZ20-6	2Z-60	21A-60
7982-4.8	PZ7982-4.8	1A7982-4.8	—	3PZ20-4	2Z-40	21A-40
7982-5.5	PZ7982-5.5	1A7982-5.5	3P30-2	3PZ30-1	3Z-11	31A-11
7982-6.3	PZ7982-6.3	1A7982-6.3	3P30-3	3PZ30-3	3Z-30	31A-30
7983-2.2	PZ7983-2.2	1A7983-2.2	—	—	—	—
7983-2.9	PZ7983-2.9	1A7983-2.9	—	—	—	—
7983-3.5	PZ7983-3.5	1A7983-3.5	—	—	—	—
7983-3.9	PZ7983-3.9	1A7983-3.9	—	—	—	—
7983-4.2	PZ7983-4.2	1A7983-4.2	—	—	—	—
7983-4.8	PZ7983-4.8	1A7983-4.8	—	—	—	—
7983-5.5	PZ7983-5.5	1A7983-5.5	—	—	—	—
7983-6.3	PZ7983-6.3	1A7983-6.3	—	—	—	—

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WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

DIN PUNCH NUMBERS AND EQUIVALENTS

DIN PHILLIPS	DIN POZIDRIV	DIN 1A	USA PHILLIPS	USA POZIDRIV	EUROPEAN POZIDRIV	EUROPEAN 1A
7985-1.6	PZ7985-1.6	1A7985-1.6	—	—	—	—
7985-2	PZ7985-2	1A7985-2	—	—	—	—
7985-2.5	PZ7985-2.5	1A7985-2.5	—	—	—	—
7985-3	PZ7985-3	1A7985-3	—	—	—	—
7985-3.5	PZ7985-3.5	1A7985-3.5	—	—	—	—
7985-4	PZ7985-4	1A7985-4	—	—	—	—
7985-5	PZ7985-5	1A7985-5	—	—	—	—
7985-6	PZ7985-6	1A7985-6	—	—	—	—
7985-8	PZ7985-8	1A7985-8	—	—	—	—
7985-10	PZ7985-10	1A7985-10	—	—	—	—
7995-2	PZ7995-2	1A7995-2	—	—	—	—
7995-2.5	PZ7995-2.5	1A7995-2.5	—	—	—	—
7995-3	PZ7995-3	1A7995-3	—	—	—	—
7995-3.5	PZ7995-3.5	1A7995-3.5	—	—	—	—
7995-4	PZ7995-4	1A7995-4	—	—	—	—
7995-4.5	PZ7995-4.5	1A7995-4.5	—	—	—	—
7995-5	PZ7995-5	1A7995-5	—	—	—	—
7995-5.5	PZ7995-5.5	1A7995-5.5	—	—	—	—
7995-6	PZ7995-6	1A7995-6	—	—	—	—
7995-7	PZ7995-7	1A7995-7	—	—	—	—
7995-8	PZ7995-8	1A7995-8	—	—	—	—
7996-2	PZ7996-2	1A7996-2	—	—	—	—
7996-2.5	PZ7996-2.5	1A7996-2.5	—	—	—	—
7996-3	PZ7996-3	1A7996-3	—	—	—	—
7996-3.5	PZ7996-3.5	1A7996-3.5	—	—	—	—
7996-4	PZ7996-4	1A7996-4	—	—	—	—
7996-4.5	PZ7996-4.5	1A7996-4.5	—	—	—	—
7996-5	PZ7996-5	1A7996-5	—	—	—	—
7996-5.5	PZ7996-5.5	1A7996-5.5	—	—	—	—
7996-6	PZ7996-6	1A7996-6	—	—	—	—
7996-7	PZ7996-7	1A7996-7	—	—	—	—
7996-8	PZ7996-8	1A7996-8	—	—	—	—
7997-2	PZ7997-2	1A7997-2	—	—	—	—
7997-2.5	PZ7997-2.5	1A7997-2.5	3P10-2	3PZ10-54	1Z-540	11A-540
7997-3	PZ7997-3	1A7997-3	3P10-54	3PZ10-3	1Z-30	11A-30
7997-3.5	PZ7997-3.5	1A7997-3.5	3P20-1	3PZ20-134	2Z-48	21A-48
7997-4	PZ7997-4	1A7997-4	3P20-2	3PZ20-2	2Z-11	21A-11
7997-4.5	PZ7997-4.5	1A7997-4.5	3P20-6	3PZ20-6	2Z-60	21A-60
7997-5	PZ7997-5	1A7997-5	3P20-3	3PZ20-4	2Z-40	21A-40
7997-5.5	PZ7997-5.5	1A7997-5.5	—	3PZ30-85	3Z-850	31A-850
7997-6	PZ7997-6	1A7997-6	3P30-1	3PZ30-1	3Z-11	31A-11
7997-7	PZ7997-7	1A7997-7	3P30-2	3PZ30-3	3Z-30	31A-30
7997-8	PZ7997-8	1A7997-8	3P40-106	3PZ40-106	4Z-1060	41A-1060

WARNING

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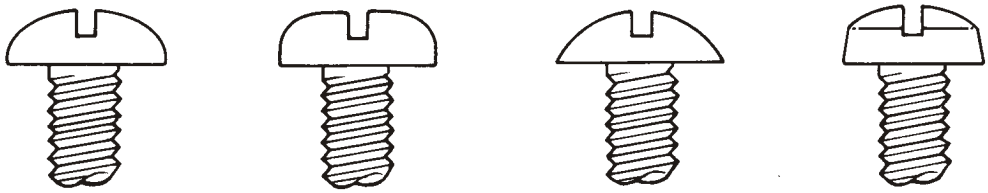
STRUCK SLOT HAMMERS

SCREW SIZE	ROUND TYPE		PAN TYPE		TRUSS TYPE		BINDING TYPE	
1	1RSS	9/16	1PSS	9/16	1TSS	9/16	1BSS	9/16
2	2RSS	9/16	2PSS**	9/16	2TSS	9/16	2BSS	9/16
3	3RSS	9/16	3PSS	9/16	3TSS	9/16	3BSS	9/16
4	4RSS	9/16	4PSS	9/16	4TSS	9/16	4BSS	9/16
5	5RSS	9/16	5PSS	9/16	5TSS	9/16	5BSS	9/16
6	6RSS	9/16	6PSS	9/16	6TSS	9/16	6BSS	9/16
7	7RSS	9/16	7PSS	9/16	7TSS	9/16	7BSS	9/16
8	8RSS	9/16	8PSS**	9/16	8TSS	9/16	8BSS	9/16
9	9RSS	9/16	9PSS	9/16	9TSS	9/16	9BSS	9/16
10	10RSS	9/16	10PSS	9/16	10TSS	9/16	10BSS	9/16
12	12RSS	7/8	12PSS	7/8	12TSS	7/8	12BSS	7/8
14	14RSS	7/8	14PSS	7/8	14TSS	7/8	14BSS	7/8
1/4	1/4RSS	7/8	1/4PSS	7/8	1/4TSS**	7/8	1/4BSS	1
5/16	5/16RSS	1	5/16PSS	1	5/16TSS	1	5/16BSS	1-1/4
3/8	3/8RSS	1-1/4	3/8PSS	1-1/4	3/8TSS	1-1/4	3/8BSS	1-1/4

** IN STOCK ITEM

Other types of slotted head hammers are available on a special order basis. These include Holt Heads, Coin Slots, Oneway Slots, Tri-Slots, and others. Special blank sizes are also available upon request.

STRUCK SLOT HAMMER STYLE



ROUND *PAN* *TRUSS* *BINDING*

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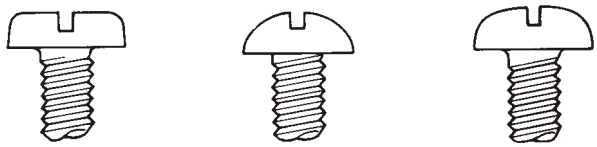
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

METRIC STRUCK SLOT PUNCHES

SCREW SIZE	DIN 85		DIN 96		DIN 84 MOD.	
1.6	— — —		96-1.6SS	9/16	84-1.6SS	9/16
2	— — —		96-2SS	9/16	84-2SS	9/16
2.5	— — —		96-2.5SS	9/16	84-2.5SS	9/16
3	85-3SS	9/16	96-3SS	9/16	84-3SS	9/16
3.5	85-3.5SS	9/16	96-3.5SS	9/16	84-3.5SS	9/16
4	85-4SS	9/16	96-4SS	9/16	84-4SS	9/16
4.5	— — —		96-4.5SS	9/16	— — —	
5	85-5SS	7/8	96-5SS	3/4	84-5SS	3/4
5.5	— — —		96-5.5SS	7/8	— — —	
6	85-6SS	7/8	96-6SS	7/8	84-6SS	7/8
7	— — —		96-7SS	7/8	— — —	
8	85-8SS	1-1/4	96-8SS	1-1/4	84-8SS	7/8
10	85-10SS	1-1/4	— — —		84-10SS	1-1/4



FI METRIC STRUCK SLOT HAMMERS

DIN 7971			ASME B18.6.7M 1998 PAN (MACHINE)			
SCREW SIZE	PUNCH NUMBERS	DIAMETER	SCREW SIZE	PUNCH NUMBERS		DIAMETER
2, 2.2	7971-2.2SS	9/16	M2	M2PSS	1998	9/16
2.5	— — —		M2.5	M2.5PSS	1998	9/16
2.9, 3	7971-2.9SS	9/16	M3	M3PSS	1998	9/16
3.5	7971-3.5SS	9/16	M3.5	M3.5PSS	1998	9/16
4, 4.2	7971-4.2SS	3/4	M4	M4PSS	1998	9/16
4.8, 5	7971-4.8SS	3/4	M5	M5PSS	1998	7/8
6	7971-6SS	7/8	M6	M6PSS	1998	7/8
8	— — —		M8	M8PSS	1998	1
10	— — —		M10	M10PSS	1998	1 1/4

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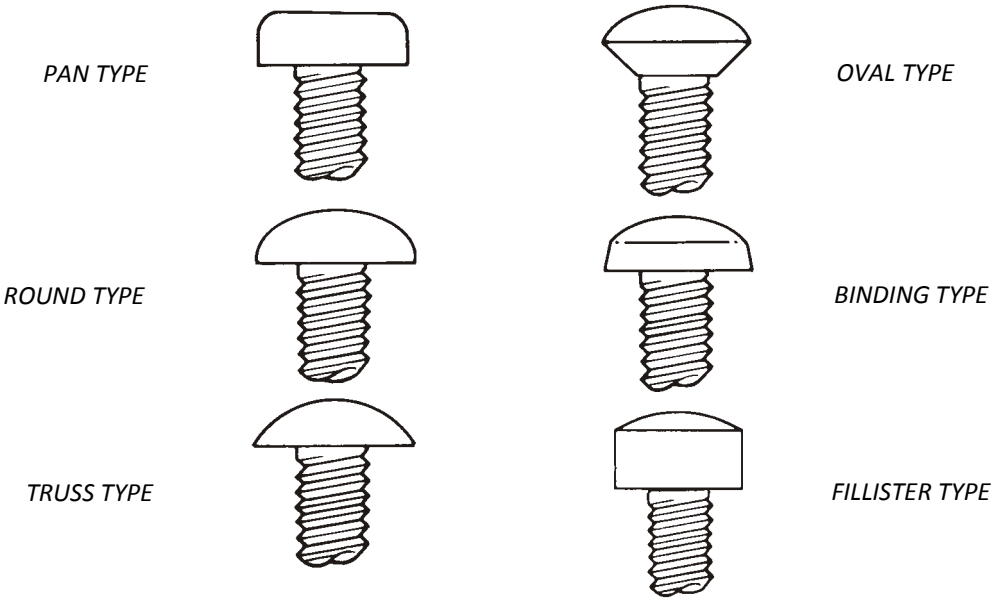
CONVENTIONAL PUNCHES

SCREW SIZE	FILLISTER TYPE		ROUND TYPE		PAN TYPE		TRUSS TYPE		BINDING TYPE		OVAL TYPE	
1	1FILC	9/16	1RC	9/16	1PC	9/16	1TC	9/16	1BC	9/16	1OC	9/16
2	2FILC	9/16	2RC	9/16	2PC	9/16	2TC	9/16	2BC	9/16	2OC	9/16
3	3FILC	9/16	3RC	9/16	3PC	9/16	3TC	9/16	3BC	9/16	3OC	9/16
4	4FILC	9/16	4RC	9/16	4PC	9/16	4TC	9/16	4BC	9/16	4OC	9/16
5	5FILC	9/16	5RC	9/16	5PC	9/16	5TC	9/16	5BC	9/16	5OC	9/16
6	6FILC	9/16	6RC	9/16	6PC	9/16	6TC	9/16	6BC	9/16	6OC	9/16
7	7FILC	9/16	7RC	9/16	7PC	9/16	7TC	9/16	7BC	9/16	7OC	9/16
8	8FILC	9/16	8RC	9/16	8PC	9/16	8TC	9/16	8BC	9/16	8OC	9/16
9	9FILC	9/16	9RC	9/16	9PC	9/16	9TC	9/16	9BC	9/16	9OC	9/16
10	10FILC	9/16	10RC	9/16	10PC	9/16	10TC	9/16	10BC	9/16	10OC	9/16
12	12FILC	7/8	12RC	7/8	12PC	7/8	12TC	7/8	12BC	7/8	12OC	7/8
14	14FILC	7/8	14RC	7/8	14PC	7/8	14TC	7/8	14BC	7/8	14OC	7/8
1/4	1/4FILC	7/8	1/4RC	7/8	1/4PC	7/8	1/4TC	7/8	1/4BC	1	1/4OC	7/8
5/16	5/16FILC	1	5/16RC	1	5/16PC	1	5/16TC	1	5/16BC	1	5/16OC	1
3/8	3/8FILC	1-1/4	3/8RC	1-1/4	3/8PC	1-1/4	3/8TC	1-1/4	3/8BC	1-1/4	3/8OC	1-1/4

Made to order specials to meet customer specifications are available upon request.

CONVENTIONAL HAMMER STYLE



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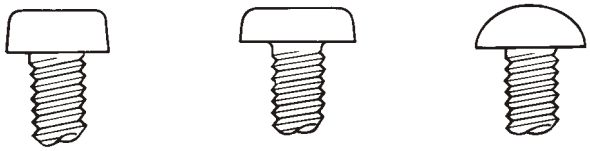
WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

METRIC CONVENTIONAL PUNCHES

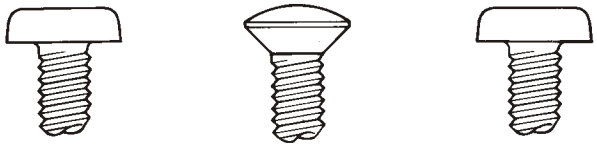
SCREW SIZE	DIN 84		DIN 85		DIN 96	
1.6	84-1.6C	9/16	— — —		96-1.6C	9/16
2	84-2C	9/16	— — —		96-2C	9/16
2.5	84-2.5C	9/16	85-2.5C	9/16	96-2.5C	9/16
3	84-3C	9/16	85-3C	9/16	96-3C	9/16
3.5	84-3.5C	9/16	85-3.5C	9/16	96-3.5C	9/16
4	84-4C	9/16	85-4C	9/16	96-4C	9/16
4.5	— — —		— — —		96-4.5C	9/16
5	84-5C	7/8	85-5C	7/8	96-5C	3/4
5.5	— — —		— — —		96-5.5C	7/8
6	84-6C	7/8	85-6C	7/8	96-6C	7/8
7	— — —		— — —		96-7C	7/8
8	84-8C	7/8	85-8C	1-1/4	96-8C	1-1/4
10	84-10C	1-1/4	85-10C	1-1/4	— — —	



IFI METRIC CONVENTIONAL HAMMERS

ASME B18.6.7M 1998

SCREW SIZE	DIN 7971 PUNCH NUMBERS	SCREW SIZE	PAN (MACHINE)		PUNCH NUMBERS OVAL (MACHINE)		PUNCH DIAMETER
2, 2.2	7971-2.2C	M2	M2PC	1998	M2OC	1998	9/16
2.5	— — —	M2.5	M2.5PC	1998	M2.5OC	1998	9/16
2.9, 3	7971-2.9C	M3	M3PC	1998	M3OC	1998	9/16
3.5	7971-3.5C	M3.5	M3.5PC	1998	M3.5OC	1998	9/16
4, 4.2	7971-4.2C	M4	M4PC	1998	M4OC	1998	9/16
4.8, 5	7971-4.8C	M5	M5PC	1998	M5OC	1998	7/8
6.3	7971-6.3C	M6	M6PC	1998	M6OC	1998	7/8
8	— — —	M8	M8PC	1998	M8OC	1998	1
10	— — —	M10	M10PC	1998	M10OC	1998	1 1/4



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MARKINGS ON SQUARE SOCKET PUNCHES

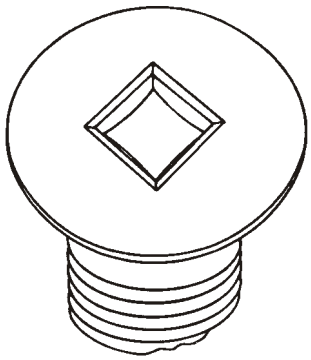
ORDER PUNCHES PER MARKING

1ST NUMBER HEAD SIZE	1ST LETTER HEAD STYLE	2ND NUMBER RECESS SIZE	3RD NUMBER PUNCH DIAMETER
2 THRU 3/8	*F = FLAT R = ROUND O = OVAL P = PAN T = TRUSS PH = FILLISTER W = WASHER	00 0 OR 0S 1 OR 1S 2 OR 2S 3 OR 3S 4 OR 4S	7 = 7/16 9 = 9/16 12 = 3/4 14 = 7/8 16 = 1” 20 = 1-1/4”

EXAMPLES:
#1 F29 = FLAT HEAD, #2 RECESS ON 9/16 BLANK
#2 8P29 = #8 PAN HEAD, #2 RECESS ON 9/16 BLANK
#3 10T214 = #10 TRUSS HEAD, #2 RECESS ON 7/8 BLANK

NOTE: “S” added to recess number indicates short.

*Flat heads only will have no head size markings.



WARNING
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WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

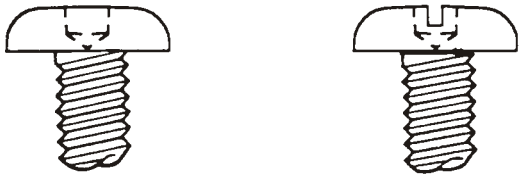
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

SQUARE SOCKET TYPE

SCREW SIZE	HEAD SIZE	OVAL HEAD	ROUND HEAD	PAN HEAD	TRUSS HEAD
2	F007	2O007	2R007	2P007	2T007
3	F07	3O07	3R07	3P07	3T07
4	F07	4O07	4R07	4P07	4T07
5	F1S7	5O17	5R17	5P17	5T1S7
6	F1S7	6O17	6R17	6P17	6T1S7
7	F17	7O17	7R19	7P19	7T1S9
8	F2S9	8O29	8R29	8P29	8T2S9
9	F29	9O29	9R29	9P29	9T2S9
10	F29	10O29	10R29	10P29	10T2S9
12	F314	12O314	12R314	12P314	12T3S14
14	F314	14O314	14R314	14P314	14T3S14
1/4	F314	1/4O314	1/4R314	1/4P314	1/4T3S14
5/16	F416	5/16O416	5/16R416	5/16P416	5/16T416
3/8	F416	3/8O416	3/8R416	3/8P416	3/8T416

Use Oval Type for Fillister Type Screws. Use Round Type for Washer Type Screws.

Add “COMB” to the part number when ordering square and slot combinations.



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QUADREX® PUNCHES

SCREW SIZE	FLAT (RECOMMENDED)	OVAL	PAN	PAN PLUS (COMBINATION)	TRUSS	TRUSS PLUS (COMBINATION)	FILLISTER	RND. WASHER *ROUND
4	QF-02	QO4-02	QP4-02	QPU4-02	QT4-01	QTU4-01	QFL4-02	QRW4-02
5	QF-11	Q05-13	QP5-12	QPU5-12	QT5-12	QTU5-12	QFL5-03	QRW5-13
6	—	—	—	—	—	—	—	QRW6-13
6	QF-12	QO6-14	QP6-13	QPU6-13	QT6-13	QTU6-13	QFL6-12	QRW6-14
6QX	QF-21	QO6-23	QP6-24	QPU6-24	QT6-23	QTU6-23	—	QRW6-24
7	QF-13	QO7-25	QP7-14	QPU7-14	QT7-14	QTU7-14	QFL7-13	QRW7-25
7QX	QF-22	—	QP7-24	QPU7-24	QT7-24	QTU7-24	—	—
8	QF-23	QO8-26	QP8-24	QPU8-24	QT8-24	QTU8-24	QFL8-14	QRW8-24
8QX	—	—	QP8-26	QPU8-26	QT8-26	QTU8-26	—	QRW8-26
9	QF-24	QO9-26	—	—	QT9-25	—	—	
10	QF-26	QO10-27	QP10-26	QPU10-26	QT10-26	QTU10-26	QFL10-25	QRW10-27
12	QF-32	QO12-33	QP12-33	QPU12-33	QT12-33	QTU12-33	QFL12-32	QRW12-33
1/4	QF-34	QO1/4-34	QP1/4-34	QPU1/4-34	QT1/4-34	QTU1/4-34	QFL1/4-33	QRW1/4-34
5/16	QF-42	QO5/16-43	QP5/16-43	QPU5/16-43	QT5/16-43	QTU5/16-43	QFL5/16-34	QRW5/16-36
3/8	QF-44	QO3/8-44	QP3/8-44	QPU3/8-44	QT3/8-44	QTU3/8-44	QFL3/8-43	—

NOTE: *USE ROUND WASHER HEAD PUNCHES FOR ROUND HEAD SCREWS. QUADREX® IS A REGISTERED TRADEMARK OF ISOTECH PARTNERS. QUADREX® PUNCHES WILL ONLY BE SOLD TO QUADREX LICENSEES.

WARNING

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WRENTHAM TOOL GROUP™
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TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

POZIDRIV® PUNCHES

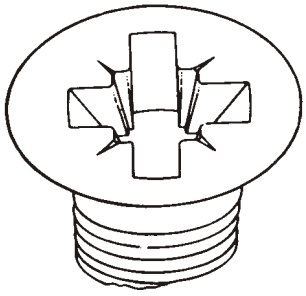
For every PHILLIPS® Recess Punch there is a comparable POZIDRIV® Recess Punch. To determine the appropriate punch number, please use the PHILLIPS® Recess Punch standards tables or the description section. When the number of the PHILLIPS® Recess Punch is located, add a "Z" after the "P" to call out the punch for the POZIDRIV® Recess configuration.

Example: PHILLIPS® 3P20-23
POZIDRIV® 3PZ20-23

POZIDRIV® Punches may be sold only to fastener producers that are licensed to make and sell POZIDRIV® Recess fasteners. For information regarding the licensees of fasteners or for a license, contact

Phillips Screw Company
One Van de Graaff Drive
Burlington, MA 01803

POZIDRIV® and PHILLIPS® are registered trademarks of the Phillips Screw Company.



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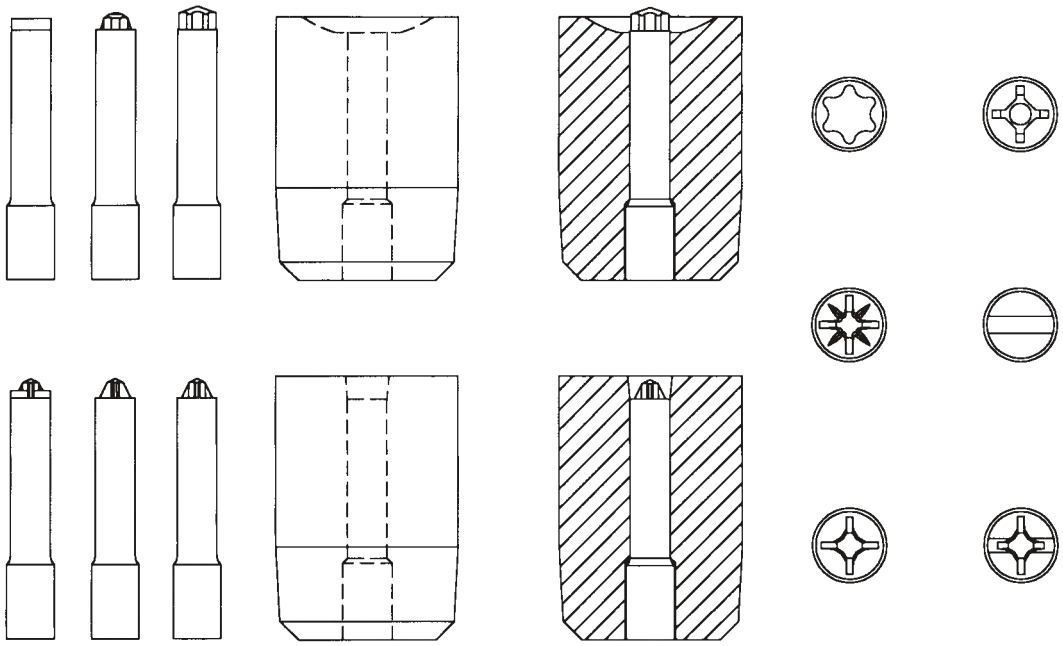
TWO-PIECE PUNCHES

Pins and Holders used in two-piece punch applications are available on request. The pins are designed specifically to customer requirements and come in a variety of recess types. Two-piece punches are typically used for applications where solid-type punches are impractical. Usually, customer dimensional criteria are requested to develop custom made pins to suit your needs.



PIN *HOLDER* *PIN INSERTED INTO HOLDER* *TYPES AVAILABLE*

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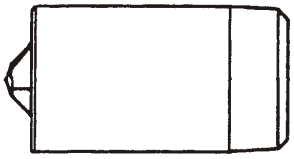
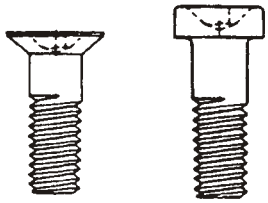
FAX #: 508-966-2326

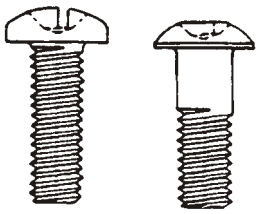
TORQ-SET® RECESS PUNCHES

Also available in ACR® Torq-Set®





SCREW SIZE	100° FLAT HEAD TORQ-SET®	82° FLAT & FLAT TORQ-SET®
0	3K0-1-3M	3K0-1-82
1	3K1-1-3M	3K1-1-82
2	3K2-1-3M	3K2-1-82
3	3K3-1-3M	3K3-1-82
4	3K4-1-3M	3K4-1-82
5	3K5-1-3M	3K5-1-82
6	3K6-1-3M	3K6-1-82
8	3K8-1-3M	3K8-1-82
10	3K10-1-3M	3K10-1-82
1/4	3K25-1-3M	3K25-1-82
5/16	3K31-1-3M	3K31-1-82
3/8	3K37-1-3M	3K37-1-82
7/16	3K43-1-3M	3K43-1-82
1/2	3K50-1-3M	3K50-1-82



SCREW SIZE	PAN HEAD TORQ-SET®	BUTTON HEAD TORQ-SET®
0	3K0-4-4M	—
1	3K1-4-4M	—
2	3K2-4-4M	3K2-6-1
3	3K3-4-4M	—
4	3K4-4-4M	3K4-6-1
5	3K5-4-4M	—
6	3K6-4-4M	3K6-6-1
8	3K8-4-4M	3K8-6-1
10	3K10-4-4M	3K10-6-1
1/4	3K25-4-4M	3K25-6-1
5/16	3K31-4-4M	3K31-6-1
3/8	3K37-4-4M	3K37-6-1
7/16	3K43-4-4M	—
1/2	3K50-4-4M	3K50-6-1

WARNING

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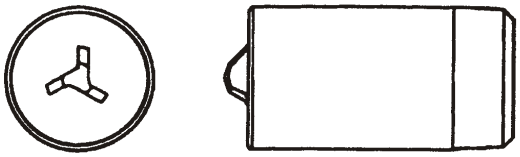
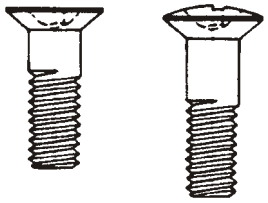
TRI-WING® RECESS PUNCHES

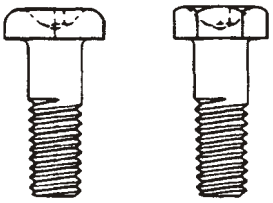


ACR® TRI-WING® also available

SCREW SIZE	FLAT HEAD TRI-WING®	100° OVAL HEAD TRI-WING®
0	TW00-1-1	—
2	TW02-1-1	—
4	TW04-1-1	TW04-3-1
6	TW06-1-1	TW06-3-1
8	TW08-1-1	TW08-3-1
10	TW10-1-1	TW10-3-1
1/4	TW25-1-1	TW25-3-1
5/16	TW31-1-1	TW31-3-1
3/8	TW37-1-1	TW37-3-1
7/16	TW43-1-1	—
1/2	TW50-1-1	—



SCREW SIZE	MODIFIED PAN HEAD TRI-WING®	TRIMMED HEX HEAD TRI-WING®
0	TW00-11-1	—
2	TW02-11-1	—
4	TW04-11-1	TW04-10-1
6	TW06-11-1	TW06-10-1
8	TW08-11-1	TW08-10-1
10	TW10-11-1	TW10-10-1
1/4	TW25-12-1	—
5/16	TW31-12-1	—
3/8	TW37-12-1	—
7/16	TW43-12-1	—
1/2	TW50-12-1	—



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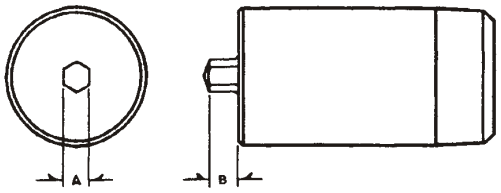
FAX #: 508-966-2326

SOLID HEX RECESS PUNCHES



AMERICAN

SCREW SIZE	82° FLAT	A	B	BUTTON HEAD	A	B	SOCKET CAP	A	B
2	9PHRP-02L	.0505	.043	9PHRP-02U	.0510	.033			
3	9PHRP-03L	.0630	.049	9PHRP-03U	.0630	.040			
4	9PHRP-04L	.0630	.060	9PHRP-04U	.0630	.040	9PHRP-04C	.0945	.056
5	9PHRP-05L	.0786	.066	9PHRP-05U	.0786	.050	9PHRP-05C	.0945	.063
6	9PHRP-06L	.0786	.071	9PHRP-06U	.0786	.050	9PHRP-06C	.1105	.070
8	9PHRP-08L	.0945	.086	9PHRP-08U	.0945	.060	9PHRP-08C	.1424	.084
10	9PHRP-10L	.1260	.097	9PHRP-10U	.1260	.080	9PHRP-10C	.1577	.100
1/4	14PHRP-25L	.1577	.121	*	.1580	.095	14PHRP-25C	.1890	.140
5/16	16PHRP-31L	.1890	.150	*	.1890	.115	16PHRP-31C	.2525	.170
3/8	16PHRP-37L	.2200	.175	*	.2205	.135	16PHRP-37C	.3150	.200
7/16	20PHRP-43L	.2515	.175						
1/2	20PHRP-50L	.3145	.190						
5/8	20PHRP-62L	.3775	.235						
3/4	24PHRP-75L	.5035	.235						

AVAILABLE IN PIN SLOT TYPE ON REQUEST *ONLY AVAILABLE AS TWO-PIECE PUNCHES

METRIC

SIZE	DIN 912	A (mm)	B (mm)	DIN 7991	A (mm)	B (mm)	DIN 7984	A (mm)	B (mm)
M3	9AHRP-912-3	2.56	1.65	9AHRP-7991-3	2.05	1.18			
M4	9AHRP-912-4	3.06	2.34	9AHRP-7991-4	2.57	1.75	9AHRP-7984-4	2.56	2.36
M5	9AHRP-912-5	4.08	2.84	9AHRP-7991-5	3.06	2.29	9AHRP-7984-5	3.06	2.77
M6	14AHRP-912-6	5.12	3.35	14AHRP-7991-6	4.07	2.49	14AHRP-7984-6	4.09	3.06
M8	14AHRP-912-8	6.12	4.80	16AHRP-7991-8	5.11	3.51	14AHRP-7984-8	5.11	4.27
M10	16AHRP-912-10	8.16	5.56	20AHRP-7991-10	6.11	4.39			
M12	20AHRP-912-12	10.16	6.65	20AHRP-7991-12	8.14	4.55			

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TWO-PIECE HEX RECESS PUNCHES

AMERICAN

FLAT HEAD

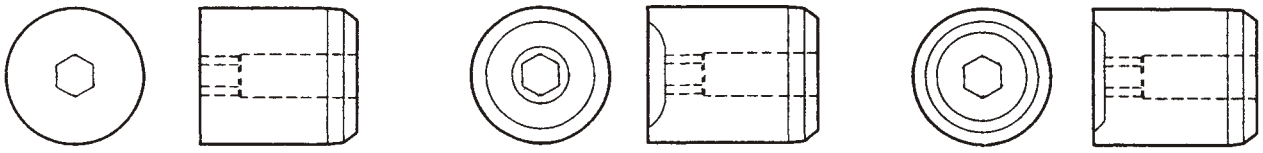
SCREW SIZE	PIN CODE	HOLDER CODE
4	HRP-04L	HRP-04LH
5	HRP-05L	HRP-05LH
6	HRP-06L	HRP-06LH
8	HRP-08L	HRP-08LH
10	HRP-10L	HRP-10LH
1/4	HRP-25L	HRP-25LH
5/16	HRP-31L	HRP-31LH
3/8	HRP-37L	HRP-37LH

BUTTON HEAD

SCREW SIZE	PIN CODE	HOLDER CODE
4	HRP-04U	HRP-04UH
5	HRP-05U	HRP-05UH
6	HRP-06U	HRP-06UH
8	HRP-08U	HRP-08UH
10	HRP-10U	HRP-10UH
1/4	HRP-25U	HRP-25UH
5/16	HRP-31U	HRP-31UH
3/8	HRP-37U	HRP-37UH

SOCKET CAP

SCREW SIZE	PIN CODE	HOLDER CODE
4	HRP-04C	HRP-04CH
5	HRP-05C	HRP-05CH
6	HRP-06C	HRP-06CH
8	HRP-08C	HRP-08CH
10	HRP-10C	HRP-10CH
1/4	HRP-25C	HRP-25CH
5/16	HRP-31C	HRP-31CH
3/8	HRP-37C	HRP-37CH



METRIC

DIN 912

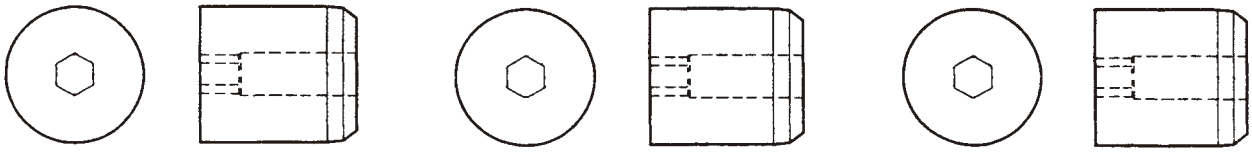
SCREW SIZE	PIN CODE	HOLDER CODE
M3	HRP-912-3	HRP-912-3H
M4	HRP-912-4	HRP-912-4H
M5	HRP-912-5	HRP-912-5H
M6	HRP-912-6	HRP-912-6H
M8	HRP-912-8	HRP-912-8H
M10	HRP-912-10	HRP-912-10H
M12	HRP-912-12	HRP-912-12H

DIN 7991

SCREW SIZE	PIN CODE	HOLDER CODE
M3	HRP-7991-3	HRP-7991-3H
M4	HRP-7991-4	HRP-7991-4H
M5	HRP-7991-5	HRP-7991-5H
M6	HRP-7991-6	HRP-7991-6H
M8	HRP-7991-8	HRP-7991-8H
M10	HRP-7991-10	HRP-7991-10H
M12	HRP-7991-12	HRP-7991-12H

DIN 7984

SCREW SIZE	PIN CODE	HOLDER CODE
M3	HRP-7984-3	HRP-7984-3H
M4	HRP-7984-4	HRP-7984-4H
M5	HRP-7984-5	HRP-7984-5H
M6	HRP-7984-6	HRP-7984-6H
M8	HRP-7984-8	HRP-7984-8H
M10	HRP-7984-10	HRP-7984-10H
M12	HRP-7984-12	HRP-7984-12H



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FAX #: 508-966-2326

EXTRUSION PINS

HEX EXTRUSION PIN WITH HEAD

ROUND EXTRUSION PIN WITH HEAD

ROUND EXTRUSION PIN WITHOUT HEAD

Extrusion pins are available for all makes and models of machines. Wrentham Tool Group manufactures pins using several different types of steels for various applications. For extended life PVD coating is available upon request.

TO ORDER: Specify machine and dimensions, or ask us for a blank dimensioned print for you to fill in.

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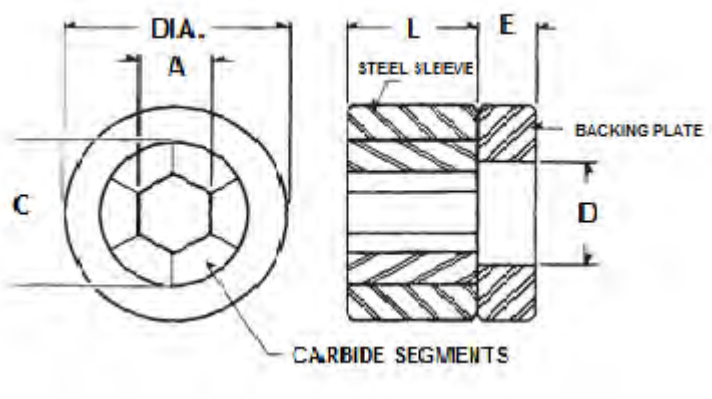
CARBIDE SEGMENTED HEXAGON WASHER HEAD INSERTS



SLEEVED ASSEMBLY - segments assembled in Retaining Sleeve
- ready for pressing into casing

FREE FLOW TYPE

HEX SIZE	PUNCH NO.	A	B	L	C	BACKING PLATE NO.	D	E
3/16	CSHI-3/16	.183	.625	.313	.500	BP1000-16	5/16	.313
1/4	CSHI-1/4	.246	.742	.438	.500	BP1000-4	3/8	.313
5/16	CSHI-5/16	.307	.742	.438	.560	BP1000-17	7/16	.313
3/8	CSHI-3/8	.369	.993	.438	.718	BP1000-6	1/2	.563
7/16	CSHI-7/16	.430	.993	.500	.812	BP1000-8	1/2	.500
1/2	CSHI-1/2	.493	1.244	.500	.950	BP1000-12	5/8	.500
9/16	CSHI-9/16	.554	1.244	.500	1.000	BP1000-12	5/8	.500
5/8	CSHI-5/8	.612	1.244	.500	1.000	BP1000-20	3/4	.500
3/4	CSHI-3/4	.737	1.495	.750	1.250	BP1000-23	1	.250

METRIC FREE FLOW TYPE

HEX SIZE (mm)	PUNCH NO.	A	B	L	C	BACKING PLATE NO.	D	E
5	CSHI-5MM	.193	.625	.313	.500	BP1000-16	5/16	.313
5.5	CSHI-5.5MM	.213	.742	.438	.500	BP1000-2	5/16	.313
6	CSHI-6MM	.232	.742	.438	.500	BP1000-2	5/16	.313
7	CSHI-7MM	.270	.742	.438	.560	BP1000-4	3/8	.313
8	CSHI-8MM	.310	.742	.438	.560	BP1000-4	3/8	.313
10	CSHI-10MM	.388	.993	.438	.718	BP1000-6	1/2	.563
12	CSHI-12MM	.466	.993	.500	.812	BP1000-19	5/8	.500
13	CSHI-13MM	.504	1.244	.500	.950	BP1000-12	5/8	.500
15	CSHI-15MM	.583	1.244	.500	1.000	BP1000-20	3/4	.500
17	CSHI-17MM	.662	1.244	.625	1.125	BP1000-22	3/4	.500
18	CSHI-18MM	.703	1.495	.750	1.250	———	—--	——

FLANGE and CONFINED washer head inserts are available upon request. COMPLETE CASED ASSEMBLIES available to your specifications.

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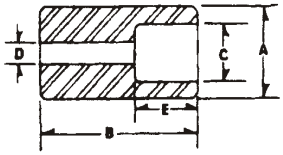
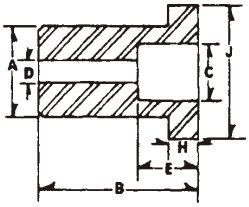
FAX #: 508-966-2326

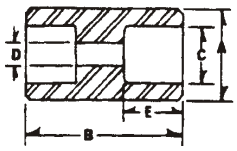
HEXAGON WASHER HEAD PUNCH CASINGS



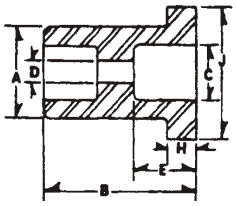
STYLE 1



STYLE 2



STYLE 3



STYLE 4

MACHINE	CODE	A	B	C	E	D	STYLE
1/8 National	PCH-12	7/8	1-1/2	.550	3/4	5/16	1
1/8 National	PCH-12-3	7/8	1-1/2	.550	3/4	3/8	1
1/8 Headmaster	PCH-12	7/8	1-1/2	.550	3/4	5/16	1
1/8 Hartford	PCH-12-3	7/8	1-1/2	.550	3/4	3/8	1
#0 Toggle	PCH-12-1	7/8	1-3/4	.550	3/4	5/16	1
#0 Toggle	PCH-12-4	7/8	2	.550	3/4	5/16	1
H15A Nakashimada	PCH-12-4	7/8	2	.550	3/4	5/16	1
H15A Nakashimada	PCH-12-6	7/8	2	.550	3/4	3/8	1
H15A Nakashimada	PCH-18-24	7/8	2	.550	3/4	3/8	4
3/16 National	PCH-18-1	1	1-1/2	.550	3/4	5/16	1
3/16 National	PCH-18-15	1	1-1/2	.737	3/4	5/16	1
3/16 Headmaster	PCH-12-4	7/8	2	.550	3/4	5/16	1
3/16 Headmaster	PCH-12-6	7/8	2	.550	3/4	3/8	1
3/16 Headmaster	PCH-18-6	1	1-3/4	.550	3/4	5/16	1
3/16 HiPro	PCH-12-4	7/8	2	.550	3/4	5/16	1
3/16 HiPro	PCH-12-6	7/8	2	.550	3/4	3/8	1
3/16 HiPro	PCH-18-6	1	1-3/4	.550	3/4	5/16	1
3/16 Waterbury	PCH-18-7	1-3/16	2-1/8	.550	3/4	5/16	1
3/16 Waterbury	PCH-18-8	1-3/16	2-1/8	.737	3/4	3/8	1
3/16 Hartford	PCH-18-18	1-1/2	2-1/2	.550	3/4	5/16	4
3/16 Hartford	PCH-18-19	1-1/2	2-1/2	.737	3/4	3/8	4
3/16 Hartford	PCH-18-20	1-1/2	2-1/2	.987	1	1/2	4
#1 Toggle	PCH-12-4	7/8	2	.550	3/4	5/16	1
#1 Toggle	PCH-12-6	7/8	2	.550	3/4	3/8	1
SP-01 Sacma	PCH-18-23	7/8	2	.550	3/4	3/8	3
SP-01 Sacma	PCH-18-24	7/8	2	.550	3/4	3/8	4
H20A Nakashimada	PCH-25-1	1-1/4	2-1/32	.737	3/4	3/8	1
H20A Nakashimada	PCH-25-26	1-1/4	2-1/32	.737	3/4	1/2	1
H20A Nakashimada	PCH-25-27	1-1/4	2-1/32	.550	3/4	3/8	1
1/4 National	PCH-25-1	1-1/4	2-1/32	.737	3/4	3/8	1
1/4 National	PCH-25-26	1-1/4	2-1/32	.737	3/4	1/2	1
1/4 National	PCH-25-27	1-1/4	2-1/32	.550	3/4	3/8	1
1/4 Waterbury	PCH-25-8	1-1/2	2-1/2	.987	1	5/8	1
1/4 Waterbury	PCH-25-11	1-1/2	2-1/2	.737	3/4	3/8	1
#2 Toggle	PCH-25-9	1-1/4	2-1/2	.737	3/4	3/8	1
#2 Toggle	PCH-25-10	1-5/16	2-3/8	.737	3/4	3/8	1
SP-11 Sacma	PCH-25-28	1-1/4	2-1/2	.737	3/4	3/8	3
SP-11 Sacma	PCH-25-29	1-1/4	2-1/2	.737	3/4	3/8	4
5/16 National	PCH-31	1-5/8	2-1/8	.987	1	5/8	1
5/16 HiPro	PCH-31-5	1-5/8	2-3/4	.987	1	5/8	1
5/16 Waterbury	PCH-31-6	1-13/16	2-3/4	.987	1	5/8	1
5/16 Hartford	PCH-31-9	1-5/8	2-9/16	.987	1	21/32	4
5/16 Hartford	PCH-31-10	1-5/8	2-9/16	1.236	1	21/32	4
SP-21 Sacma	PCH-31-11	1-5/8	2-7/8	.550	3/4	5/16	3
SP-21 Sacma	PCH-31-12	1-5/8	2-7/8	.737	3/4	3/8	3
SP-21 Sacma	PCH-31-13	1-5/8	2-7/8	.987	1	5/8	4
SP-21 Sacma	PCH-31-14	1-5/8	2-7/8	1.236	1	3/4	4
3/8 National	PCH-37-6	2	3-9/32	1.236	1	3/4	1
3/8 National	PCH-37-9	2	3-9/32	.987	1	5/8	1
3/8 Waterbury	PCH-37	2-1/8	1-3/4	.987	1	5/8	1
3/8 Waterbury	PCH-37-7	2-1/8	2-5/16	1.236	1	3/4	1

WARNING

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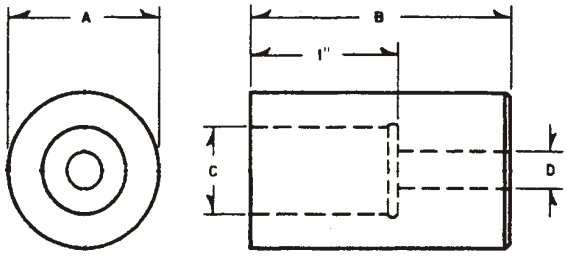
PRESS FIT PUNCH CASINGS



HEADER	CODE NO.	A	B	C	D
1/8 National	PC-12	7/8	1-17/32	.561	1/4
1/8 National	PC-12-3	7/8	1-17/32	.436	3/16
1/8 H S National	PC-12-5	7/8	1-11/16	.436	3/16
1/8 H S National	PC-12-6	7/8	1-11/16	.561	1/4
1/8 Headmaster	PC-12-7	3/4	1-5/8	.436	3/16
1/8 Headmaster	PC-12-8	3/4	1-5/8	.561	1/4
1/8 Headmaster	PC-12-11	7/8	1-5/8	.436	3/16
1/8 Headmaster	PC-12-12	7/8	1-5/8	.561	1/4
1/8 Hartford	PC-12-9	7/8	2	.436	3/16
1/8 Hartford	PC-12-10	7/8	2	.561	1/4
0 Toggle	PC-12-9	7/8	2	.436	3/16
0 Toggle	PC-12-10	7/8	2	.561	1/4
0 Toggle	PC-12-2	7/8	1-3/4	.561	1/4
0 Toggle	PC-12-4	7/8	1-3/4	.436	3/16
3/16 National	PC-18	7/8	1-29/32	.561	1/4
3/16 National	PC-18-6	7/8	1-29/32	.436	3/16
3/16 H S National	PC-18-2	1	1-3/4	.561	1/4
3/16 H S National	PC-18-5	1	1-3/4	.436	3/16
3/16 Headmaster	PC-12-9	7/8	2	.436	3/16
3/16 HiPro	PC-12-10	7/8	2	.561	1/4
3/16 HiPro	PC-18-2	1	1-3/4	.561	1/4
3/16 HiPro	PC-18-5	1	1-3/4	.436	3/16
H15 Nakashimada	PC-18-5	1	1-3/4	.436	3/16
H15 Nakashimada	PC-18-2	1	1-3/4	.561	1/4
3/16 Hartford	PC-18-2	1	1-3/4	.561	1/4
3/16 Hartford	PC-18-5	1	1-3/4	.436	3/16
3/16 Hartford	PC-25-3	1-1/2	2-1/2	.561	1/4
3/16 Hartford	PC-25-4	1-1/2	2-1/2	.998	1/2
3/16 Hartford	PC-25-18	1-1/2	2-1/2	.873	3/8
3/16 Hartford	PC-25-51	1-1/2	2-1/2	.747	3/8
SP01 Sacma	PC-12-9	7/8	2	.436	3/16
SP01 Sacma	PC-12-10	7/8	2	.561	1/4
3/16 Waterbury	PC-18-3	1-3/16	2-1/8	.561	1/4
3/16 Waterbury	PC-18-4	1-3/16	2-1/8	.873	3/8
2 Toggle	PC-25-26	1-1/4	2-1/2	.561	1/4
2 Toggle	PC-25-27	1-1/4	2-1/2	.873	3/8
2 Toggle	PC-25-28	1-5/16	2-3/8	.561	1/4
2 Toggle	PC-25-29	1-5/16	2-3/8	.873	3/8
H20 Nakashimada	PC-25-26	1-1/4	2-1/2	.561	1/4
H20 Nakashimada	PC-25-27	1-1/4	2-1/2	.873	3/8
H20 Nakashimada	PC-25-28	1-5/16	2-3/8	.561	1/4
H20 Nakashimada	PC-25-29	1-5/16	2-3/8	.873	3/8
1/4 National	PC-25-1	1-1/4	2-1/32	.561	1/4

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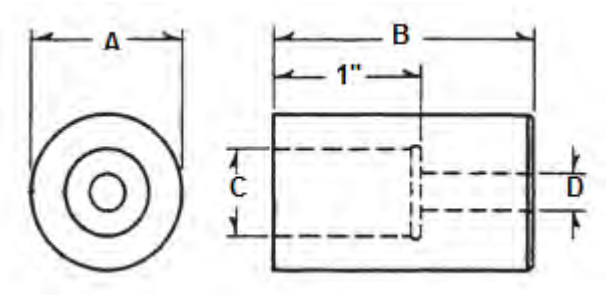
WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

PRESS FIT PUNCH CASINGS



HEADER	CODE NO.	A	B	C	D
SP11 Sacma	PC-25	1-1/4	2-1/32	.436	3/16
SP11 Sacma	PC-25-1	1-1/4	2-1/32	.561	1/4
SP11 Sacma	PC-25-2	1-1/4	2-1/32	.873	3/8
SP11 Sacma	PC-25-26	1-1/4	2-1/2	.561	1/4
SP11 Sacma	PC-25-27	1-1/4	2-1/2	.873	3/8
1/4 Waterbury	PC-25-3	1-1/2	2-1/2	.561	1/4
1/4 Waterbury	PC-25-4	1-1/2	2-1/2	.998	1/2
1/4 Waterbury	PC-25-18	1-1/2	2-1/2	.873	3/8
1/4 Waterbury	PC-25-51	1-1/2	2-1/2	.747	3/8
5/16 HiPro	PC-31-11	1-5/8	2	.561	1/4
5/16 HiPro	PC-31-12	1-5/8	2	.873	3/8
5/16 HiPro	PC-31-13	1-5/8	2	.998	1/2
5/16 HiPro	PC-31-14	1-5/8	2	1.248	3/8
5/16 HiPro	PC-31-15	1-5/8	2-3/4	.561	1/4
5/16 Hartford	PC-31-23	1-5/8	2-9/16	.998	1/2
5/16 Hartford	PC-31-24	1-5/8	2-9/16	.873	3/8
5/16 Hartford	PC-31-25	1-5/8	2-9/16	.561	1/4
SP 21 Sacma	PC-31-16	1-5/8	2-3/4	.873	3/8
SP 21 Sacma	PC-31-17	1-5/8	2-3/4	.998	1/2
SP 21 Sacma	PC-31-18	1-5/8	2-3/4	1.248	5/8
SP 21 Sacma	PC-31-1	1-5/8	2-7/8	.873	3/8
SP 21 Sacma	PC-31-2	1-5/8	2-7/8	.998	1/2
SP 21 Sacma	PC-31-3	1-5/8	2-7/8	1.248	5/8
5/16 National	PC-31	1-5/8	2-7/8	.561	1/4
5/16 Waterbury	PC-31-4	1-13/16	2-3/4	.561	1/4
5/16 Waterbury	PC-31-5	1-13/16	2-3/4	.873	3/8
5/16 Waterbury	PC-31-6	1-13/16	2-3/4	.998	1/2
5/16 Waterbury	PC-31-7	1-13/16	2-3/4	1.248	5/8
5/16 Waterbury	PC-31-8	1-13/16	2-1/2	.873	3/8
5/16 Waterbury	PC-31-9	1-13/16	2-1/2	.998	1/2

•PUNCH CASINGS CAN BE MADE ON SPECIAL ORDER FOR ANY SIZES NOT LISTED.

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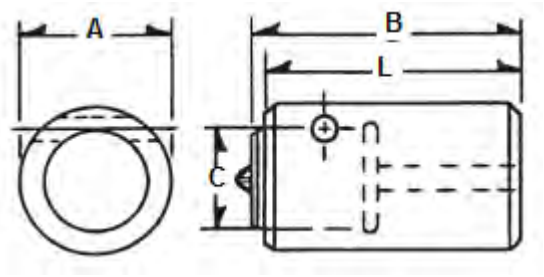
PHILLIPS® TYPE PUNCH ADAPTORS



HEADER	CODE NO.	A	L	B	C
1/8 National	PA-12	7/8	1-7/16	1-17/32	.438
1/8 National	PA-12-1	7/8	1-7/16	1-17/32	.563
1/8 H S National	PA-12-3	7/8	1-19/32	1-11/16	.438
1/8 H S National	PA-12-4	7/8	1-19/32	1-11/16	.563
1/8 Headmaster	PA-12-5	3/4	1-17/32	1-5/8	.438
1/8 Headmaster	PA-12-6	3/4	1-17/32	1-5/8	.563
1/8 Headmaster	PA-12-9	7/8	1-17/32	1-5/8	.438
1/8 Headmaster	PA-12-10	7/8	1-17/32	1-5/8	.563
1/8 Hartford	PA-12-3	7/8	1-19/32	1-11/16	.438
1/8 Hartford	PA-12-4	7/8	1-19/32	1-11/16	.563
1/8 Hartford	PA-12-7	7/8	1-29/32	2	.438
1/8 Hartford	PA-12-8	7/8	1-29/32	2	.563
0 & 1 Toggle	PA-12-7	7/8	1-29/32	2	.438
0 Toggle	PA-12-8	7/8	1-29/32	2	.563
0 Toggle	PA-18-7	7/8	1-21/32	1-3/4	.438
0 Toggle	PA-18-8	7/8	1-21/32	1-3/4	.563
3/16 National	PA-18	7/8	1-13/16	1-29/32	.438
3/16 National	PA-18-1	7/8	1-13/16	1-29/32	.563
1 Toggle	PA-18-2	1	1-21/32	1-3/4	.438
1 Toggle	PA-18-3	1	1-21/32	1-3/4	.563
1 Toggle	PA-18-14	1	1-21/32	1-3/4	.751
3/16 H S National	PA-18-11	1	1-25/32	1-7/8	.438
3/16 H S National	PA-18-12	1	1-25/32	1-7/8	.563
3/16 Headmaster	PA-12-7	7/8	1-29/32	2	.438
3/16 HiPro	PA-12-8	7/8	1-29/32	2	.563
3/16 HiPro	PA-18-2	1	1-21/32	1-3/4	.438
3/16 HiPro	PA-18-3	1	1-21/32	1-3/4	.563
3/16 HiPro	PA-18-14	1	1-21/32	1-3/4	.751
H15 Nakashimada	PA-18-2	1	1-21/32	1-3/4	.438
H15 Nakashimada	PA-18-3	1	1-21/32	1-3/4	.563
3/16 Hartford	PA-18-2	1	1-21/32	1-3/4	.438
3/16 Hartford	PA-18-3	1	1-21/32	1-3/4	.563
3/16 Hartford	PA-18-14	1	1-21/32	1-3/4	.751
3/16 Hartford	PA-25-25	1-1/2	2-13/32	2-1/2	.438
3/16 Hartford	PA-25-3	1-1/2	2-13/32	2-1/2	.563
3/16 Hartford	PA-25-4	1-1/2	2-13/32	2-1/2	.8755
3/16 Hartford	PA-25-5	1-1/2	2-13/32	2-1/2	1.0005
SP 01 Sacma	PA-12-7	7/8	1-29/32	2	.438
SP 01 Sacma	PA-12-8	7/8	1-29/32	2	.563

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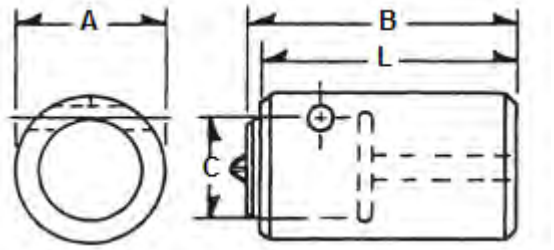
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

PHILLIPS® TYPE PUNCH ADAPTORS



HEADER	CODE NUMBER	A	L	B	C
3/16 Waterbury	PA-18-4	1-3/16	2-1/32	2-1/8	.438
3/16 Waterbury	PA-18-5	1-3/16	2-1/32	2-1/8	.563
2 Toggle	PA-25-15	1-1/4	2-17/32	2-5/8	.438
2 Toggle	PA-25-6	1-1/4	2-13/32	2-1/2	.563
2 Toggle	PA-25-7	1-1/4	2-13/32	2-1/2	.8755
2 Toggle	PA-25-8	1-5/16	2-9/32	2-3/8	.563
2 Toggle	PA-25-9	1-5/16	2-9/32	2-3/8	.8755
H20 Nakashimada	PA-25-15	1-1/4	2-17/32	2-5/8	.438
H20 Nakashimada	PA-25-6	1-1/4	2-13/32	2-1/2	.563
H20 Nakashimada	PA-25-7	1-1/4	2-13/32	2-1/2	.8755
H20 Nakashimada	PA-25-8	1-5/16	2-9/32	2-3/8	.563
H20 Nakashimada	PA-25-9	1-5/16	2-9/32	2-3/8	.438
SP 11Sacma	PA-25-1	1-1/4	1-15/32	2-1/32	.563
SP 11Sacma	PA-25-2	1-1/4	1-15/16	2-1/32	.8755
SP 11Sacma	PA-25-15	1-1/4	2-17/16	2-5/8	.438
SP 11Sacma	PA-25-6	1-1/4	2-13/32	2-1/2	.563
SP 11Sacma	PA-25-7	1-1/4	2-13/32	2-1/2	.8755
1/4 National	PA-25-25	1-1/2	2-13/32	2-1/2	.438
1/4 National	PA-25	1-1/4	1-15/16	2-1/32	.438
1/4 National	PA-25-3	1-1/2	2-13/32	2-1/2	.563
1/4 National	PA-25-4	1-1/2	2-13/32	2-1/2	.8755
1/4 National	PA-25-5	1-1/2	2-13/32	2-1/2	1.0005
5/16 HiPro	PA-31-20	1-5/8	2-21/32	2-3/4	.438
5/16 HiPro	PA-31-11	1-5/8	1-29/32	2	.563
5/16 HiPro	PA-31-12	1-5/8	1-29/32	2	.8755
5/16 HiPro	PA-31-13	1-5/8	1-29/32	2	1.0005
5/16 HiPro	PA-31-14	1-5/8	1-29/32	2	1.2505
5/16 HiPro	PA-31-15	1-5/8	2-21/32	2-3/4	.563
SP 21 Sacma	PA-31-16	1-5/8	2-21/32	2-3/4	.8755
SP 21 Sacma	PA-31-17	1-5/8	2-21/32	2-3/4	1.0005
SP 21 Sacma	PA-31-18	1-5/8	2-21/32	2-3/4	1.2505
5/16 Hartford	PA-31-24	1-5/8	2-15/32	2-9/16	.563
5/16 Hartford	PA-31-21	1-5/8	2-15/32	2-9/16	.8755
5/16 Hartford	PA-31-23	1-5/8	2-15/32	2-9/16	1.0005
5/16 Waterbury	PA-31-4	1-13/16	2-21/32	2-3/4	.563
5/16 Waterbury	PA-31-5	1-13/16	2-21/32	2-3/4	.8755
5/16 Waterbury	PA-31-19	1-13/16	2-21/32	2-3/4	1.0005
5/16 Waterbury	PA-31-6	1-13/16	2-21/32	2-3/4	1.2505
5/16 National	PA-31	1-5/8	2-25/32	2-7/8	.563
5/16 National	PA-31-1	1-5/8	2-25/32	2-7/8	.8755
5/16 National	PA-31-2	1-5/8	2-25/32	2-7/8	1.0005
5/16 National	PA-31-3	1-5/8	2-25/32	2-7/8	1.2505

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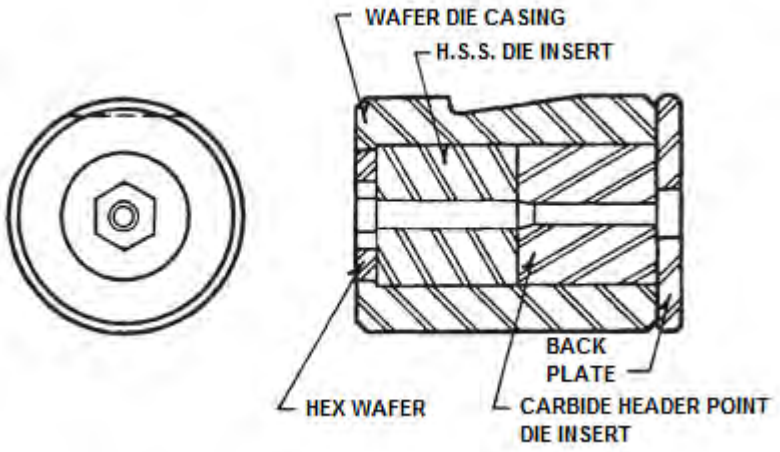
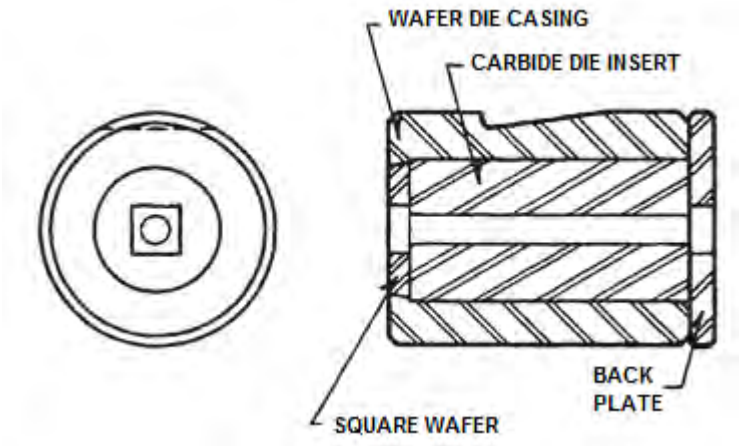
WAFER-TYPE HEADER DIE ASSEMBLY TOOLING

INDENTED HEX HEAD ASSEMBLY



ROUND HEAD SQUARE NECK ASSEMBLY
(CARRIAGE BOLT & DIN 603)

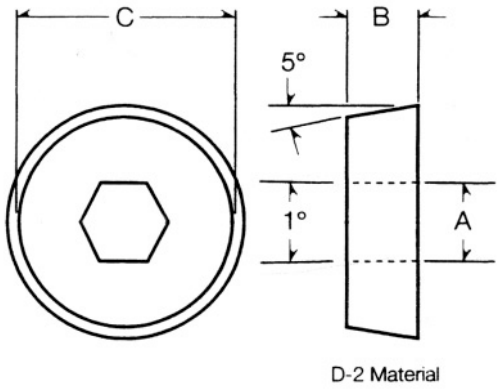


SEE FOLLOWING FOR PAGES DIMENSIONS AND PART NUMBERS

WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

HEXAGON WAFERS



D-2 Material

IFI STANDARD

SCREW SIZE	CODE	A	B	C
2	HW-20	.120	.040	.445
3	HW-30	.182	.044	.445
4	HW-40	.182	.049	.445
5	HW-50	.182	.058	.445
6	HW-60	.245	.067	.445
6	HW-60-1	.245	.080	.445
6	HW-60-2	.245	.067	.671
6	HW-60-3	.245	.080	.671
7	HW-70	.245	.080	.671
8	HW-80	.245	.096	.671
10	HW-100	.306	.106	.671
12	HW-120	.306	.139	.671
14 & 1/4	HW-140	.368	.172	.671
14 & 1/4	HW-140-1	.430	.172	.671
14 & 1/4	HW-140-2	.430	.172	.875
14 & 1/4	HW-140-3	.368	.172	.875
5/16	HW-5160	.490	.207	.875
3/8	HW-380	.554	.270	.875

IFI METRIC STANDARD

NOMINAL HEX(mm)	CODE	A(mm)	A	B	C
3.2	MHW-3.2	3.05	.120	.040	.445
4	MHW-4	3.84	.151	.044	.445
5	MHW-5	4.85	.191	.050	.445
5.5	MHW-5.5	5.36	.211	.080	.445
7	MHW-7	6.83	.269	.096	.671
8	MHW-8	7.82	.308	.105	.671
8	MHW-8-1	7.82	.308	.139	.671
10	MHW-10	9.83	.387	.172	.875
13	MHW-13	12.78	.503	.208	.875

DIN 558

NOMINAL SIZE(mm)	CODE	A	B	C
M4	HW-558-4	.267	.100	.875
M5	HW-558-5	.303	.128	.875
M6	HW-558-6	.383	.147	.875
M8	HW-558-8	.502	.206	.875
M10	HW-558-10	.658	.265	1.125
M12	HW-558-12	.749	.305	1.250

WAFERS CAN BE MADE ON SPECIAL ORDER TO YOUR SPECIFICATIONS

WARNING

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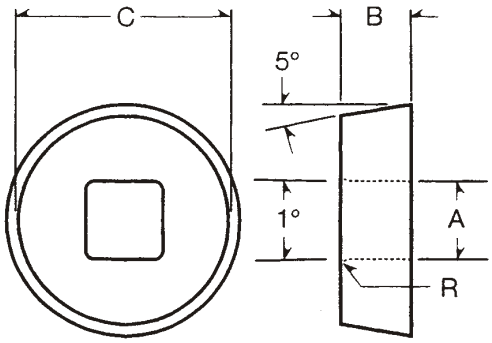
SQUARE & FILLISTER WAFERS

CARRIAGE BOLT

SCREW SIZE	CODE	A	B	C
10	SW-100	.190	.115	.671
1/4	SW-140	.249	.146	.671
5/16	SW-5160	.310	.177	.875
3/8	SW-380	.380	.209	.875



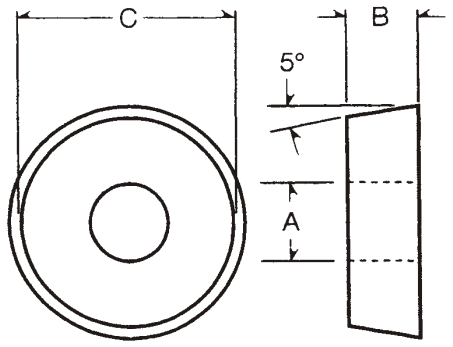
D-2 Material

DIN 603

NOMINAL SIZE(mm)	CODE	A	B	C
M5	SW-603-5	.193	.138	.875
M6	SW-603-6	.232	.158	.875
M8	SW-603-8	.310	.197	.875
M10	SW-603-10	.380	.236	1.125
M12	SW-603-12	.457	.135	1.250

FILLISTER

SCREW SIZE	CODE	A	B	C
1	FW-10	.111	.042	.445
2	FW-20	.132	.048	.445
3	FW-30	.153	.057	.445
4	FW-40	.174	.065	.445
4	FW-40-1	.174	.065	.671
5	FW-50	.196	.074	.445
5	FW-50-1	.196	.074	.671
6	FW-60	.217	.082	.445
6	FW-60-1	.217	.082	.671
7	FW-70	.238	.090	.671
8	FW-80	.260	.098	.671
10	FW-100	.302	.114	.671
10	FW-100-1	.302	.114	.875
12	FW-120	.345	.128	.671
1/4	FW-140	.400	.149	.671
1/4	FW-140-1	.400	.149	.875
5/16	FW-5160	.504	.186	.875
3/8	FW-380	.606	.227	.875



D-2 Material

WAFERS CAN BE MADE ON SPECIAL ORDER TO YOUR SPECIFICATIONS

WARNING

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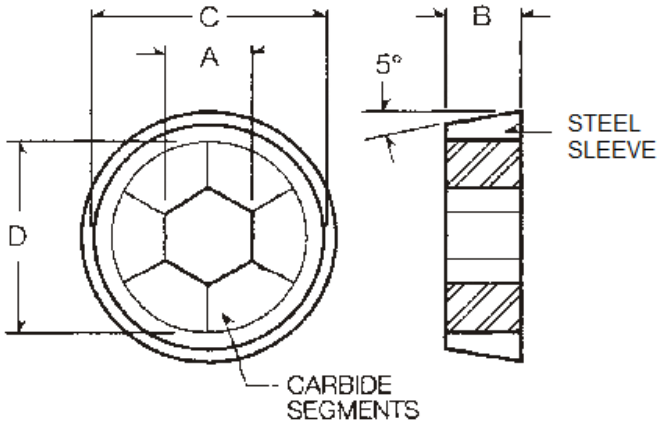
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

CARBIDE SEGMENTED HEXAGON WAFERS



AMERICAN STAND-

SCREW SIZE	CODE	A	B	C	D
8	CSHW-80	.245	.096	.875	.500
10	CSHW-100	.306	.106	.875	.500
12	CSHW-120	.306	.139	.875	.500
14 & 1/4	CSHW-140	.368	.172	1.000	.625
14 & 1/4	CSHW-140-1	.430	.172	1.000	.625
5/16	CSHW-5160	.490	.207	1.125	.750
3/8	CSHW-380	.554	.270	1.125	.750

METRIC STANDARD

NOMINAL HEX(mm)	CODE	A(mm)	A	B	C	D
7	CSHW-7MM	6.83	.269	.096	.875	.500
8	CSHW-8MM	7.82	.308	.105	.875	.500
8	CSHW-8-1MM	7.82	.308	.139	.875	.500
10	CSHW-10MM	9.83	.387	.172	1.000	.625
13	CSHW-13MM	12.78	.503	.208	1.125	.750

WARNING

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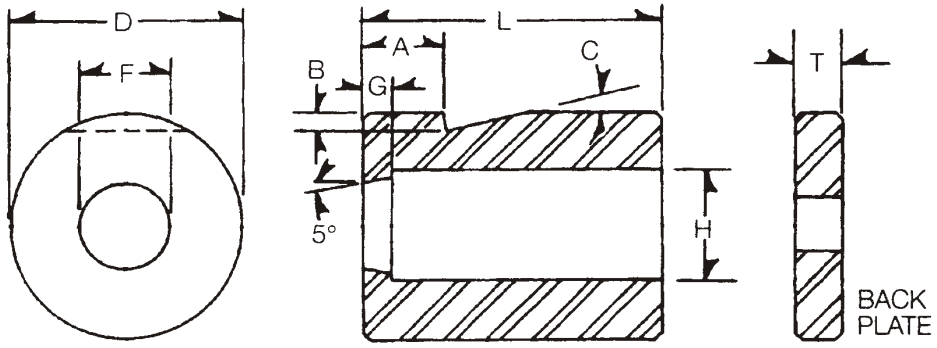
WAFER DIE CASINGS



A.I.S.I. H-13 MATERIAL

SIZE	CODE	D	L	A	B	C	T	H	F	G
1/8 National	W12DC	.997	1-1/4	1/8	1/8	8°	1/8	.550	.443	.081
1/8 Headmaster	W12DC-3	1.122	1	5/16	3/32	10°	3/8	.550	.443	.078
0 Toggle	W12DC-4	1.122	7/8	5/16	3/32	5°	1/4	.550	.443	.081
3/16 National	W18DC-1	1.247	1-5/8	1/2	3/32	4°	1/8	.737	.668	.101
H20A Nakashimada	W18DC-3	1.497	2-1/2	7/8	5/32	10°	1/4	.862	.668	.129
3/16 Waterbury	W18DC-3	1.497	2-1/2	7/8	5/32	10°	1/2	.862	.668	.129
3/16 HiPro	W18DC-9	1.247	1-1/4	5/16	1/16	5°	5/8	.737	.668	.091
3/16 Headmaster	W18DC-9	1.247	1-1/4	5/16	1/16	5°	5/8	.737	.668	.091
3/16 Headmaster	W18DC-16	1.247	1-1/2	1/4	1/16	5°	3/8	.737	.668	.091
3/16 Hartford	W25DC	1.497	2	9/32	3/32	4°	1/4	.862	.668	.165
1 Toggle	W18DC-15	1.247	1-1/4	7/16	1/16	5°	3/8	.737	.668	.101
SP-01 Sacma	W18DC-1	1.247	1-5/8	1/2	3/32	4°	1/8	.737	.668	.101
SP-01 Sacma	W18DC-16	1.247	1-1/2	1/4	1/16	5°	3/8	.737	.668	.091
1/4 National	W25DC	1.497	2	9/32	3/32	4°	1/4	.862	.668	.165
1/4 Waterbury	W25DC-18	1.997	2-27/32	1-1/16	3/16	10°	21/32	.987	.871	.200
2 Toggle	W25DC-17	1.497	2	9/16	1/16	5°	1/2	.862	.668	.101
SP-11 Sacma	W18DC-19	1.497	2	9/32	3/32	4°	—	.987	.871	.178
SP-11 Sacma	W25DC	1.497	2	9/32	3/32	4°	—	.862	.668	.165
5/16 HiPro	W31DC	1.997	2	3/8	1/8	5°	1/2	.987	.871	.200
5/16 HiPro	W31DC-11	1.997	2	3/8	1/8	5°	1/2	.862	.668	.174
5/16 National	W31DC-1	2.122	2-3/8	7/16	3/16	10°	3/8	1.237	.871	.200
5/16 National	W31DC-12	2.122	2-1/2	1/2	1/8	5°	3/8	.987	.871	.174
5/16 Hartford	W31DC-1	2.122	2-3/8	7/16	3/16	10°	3/8	1.237	.871	.200
5/16 Hartford	W31DC-12	2.122	2-1/2	1/2	1/8	5°	3/8	.987	.871	.174
SP-21 Sacma	W31DC-19	1.997	2-1/2	3/8	1/8	5°	—	.987	.871	.200

WAFER DIE CASINGS CAN BE MADE ON SPECIAL ORDER FOR ANY SIZES NOT LISTED.

SPECIFY CASING DIAMETER AND “T” DIMENSION WHEN ORDERING BACKING PLATES.

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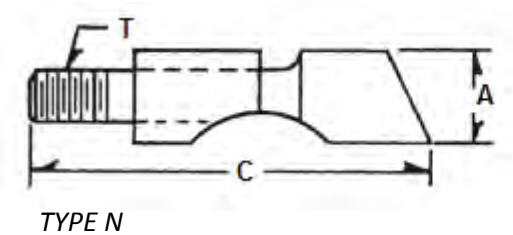
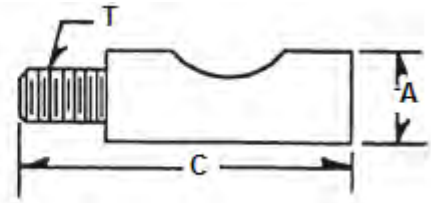
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

DRAW BOLTS



TYPE N



TYPE W

HEADER	CODE	PUNCH DIA.	A	T	C	TYPE
1/8 W.F. Headmaster	B125WH	7/8	.374	1/4-28	1-9/16	W
1/8 National	B125N	7/8	.498	5/16-24	2-1/4	N
1/8 Hartford	B125HF-1	1-3/8	.562	5/16-24	2	N
1/8 Hartford	B125HF-2	7/8	.562	5/16-24	2	N
0 Toggle (Phillips)	B125T	7/8	.624	7/16-20	2-1/8	W
0 Toggle (Plain)	B125T-1	7/8	.624	3/8-16	2-3/16	W
0 Toggle (Plain)	B125T-2	7/8	.624	3/8-16	2-9/16	W
1 Toggle (Phillips)	B187T	7/8	.624	7/16-20	2-1/8	W
1 Toggle (Plain)	B187T-1	7/8	.748	1/2-13	2-9/16	W
1 Toggle (Plain)	B187T-2	1	.748	1/2-13	3-1/16	W
3/16 HiPro (Phillips)	B187H	7/8	.624	7/16-20	2-9/16	W
3/16 HiPro (Plain)	B187H-2	1	.624	7/16-20	2-9/16	W
3/16 HiPro (Plain)	B187H-3	1-1/8	.624	7/16-20	2-9/16	W
3/16 Headmaster	B187WH	7/8	.560	3/4-24	1-15/16	W
3/16 National	B187N	7/8	.748	1/2-13	2-9/32	N
3/16 H.S. National	BHS187N	1	.560	5/16-24	2	N
3/16 Hartford	B187HF-1	1-1/8	.562	5/16-24	2-5/8	N
3/16 Hartford	B187HF-2	1-1/2	.562	5/16-24	2-5/8	N
1/4 National	B250N	1-1/4	.873	1/2-13	3-1/4	N
2 Toggle (Phillips)	B250T	1-1/4	.622	7/16-20	2-13/16	W
2 Toggle (Plain)	B250T-1	1-1/16	.873	5/8-11	3-1/8	W
2 Toggle (Plain)	B250T-2	1-5/16	.873	5/8-11	3-3/4	W
5/16 HiPro	B312H	1-5/8	.748	1/2-13	3-1/2	W
5/16 National	B312N	1-5/8	.998	5/8-11	4-1/8	N
5/16 National	B312N-1	1-1/2	.998	5/8-11	4-1/8	N
5/16 National	B312N-2	1-3/4	.998	5/8-11	4-1/8	N
5/16 Hartford	B312HF-1	1-5/8	.750	1/2-20	3-1/2	N
3/8 National	B375N	1-13/16	.998	5/8-11	4-3/8	N
3/8 National	B375N-1	1-1/2	.998	5/8-11	4-3/8	N
3/8 National	B375N-2	1-3/4	.998	5/8-11	4-3/8	N
00 Manville	B00M	7/8	.499	7/16-20	1-31/32	W
0 Manville	B0M	7/8	.499	7/16-20	2-3/8	W
1 Manville	B1M	1-1/4	.624	7/16-20	2-3/4	W
250C Manville	B250M	1-1/4	.624	7/16-20	2-7/8	W

WARNING

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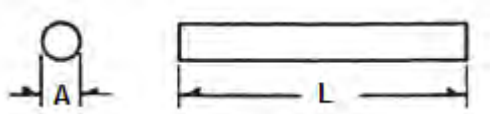
KNOCKOUT PINS

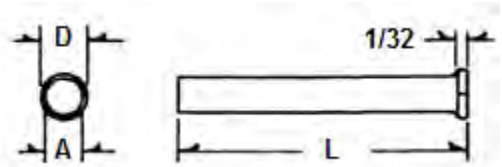
STYLE 1
KNOCKOUT PIN WITHOUT HEAD
M2 HIGH SPEED MATERIAL
R/C 62-64

SEE PAGE 103



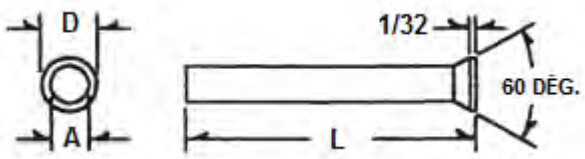
STYLE 2
KNOCKOUT PIN WITH HEAD
M2 HIGH SPEED MATERIAL R/C 62-64
D=A + .010-.025

SEE PAGE 103

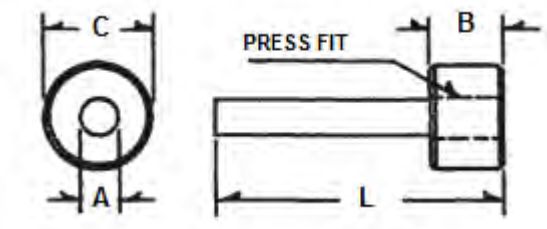


STYLE 3
KNOCKOUT PIN WITH 60° HEAD
M2 HIGH SPEED MATERIAL R/C 62-64
"D: VARIES WITH "A" AS FOLLOWS:

A	D
.059-.156	A + .020 MIN.
.1565-.236	A + .025 MIN.
.2365-.453	A + .040 MIN.
.4535 UP	A + .060 MIN.



STYLE 5
KNOCKOUT PIN WITH BUTTON ASSEMBLY
PIN: M2 HIGH SPEED MATERIAL - R/C 62-64
BUTTON: 01 MATERIAL - H/T AS SPECIFIED



TO ORDER: SPECIFY STYLE, DIAMETER AND LENGTH.

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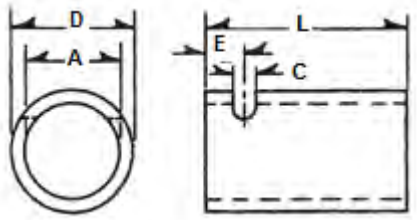
FAX #: 508-966-2326

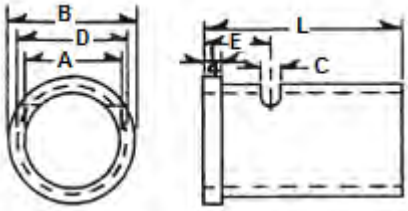
SPRING PUNCH BUSHINGS & BACKING PLUGS

SPRING PUNCH BUSHINGS

STYLE 1



STYLE 2



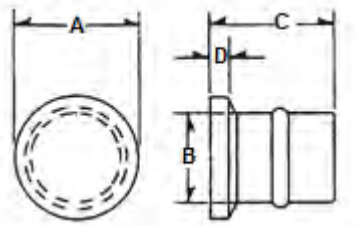
Specials Available
On Request

HEADER	CODE	A	D	L	E	C
1/8 H.S. NATIONAL	SP-125-2	.750	.876	1-9/16	11/16	.313
1/8 NATIONAL	SP-125-N	.8125	1.001	1-7/16	3/8	.250
1/8 HEADMASTER	SP-125-0	.8125	1.001	1-7/16	9/32	.192
1/8 HARTFORD	SP-125-3	.8125	1.001	2-3/64	3/8	.282
0 TOGGLE	SP-125-0	.8125	1.001	1-7/16	9/32	.192
0 TOGGLE	SP-125-1	.875	1.001	1-7/16	9/32	.192
3/16 H.S. NATIONAL*	SP-187-5	.875	1.001	2-1/16	3/4	.313
3/16 NATIONAL	SP-187-N	.875	1.126	1-3/4	3/8	.250
3/16 NATIONAL	SP-187-12	.875	1.126	1-7/8	3/8	.250
3/16 HEADMASTER	SP-187-1	.875	1.126	1-1/2	9/32	.250
3/16 HARTFORD	SP-187-11	.875	1.126	2-11/16	7/16	.343
1 TOGGLE	SP-187-1	.875	1.126	1-1/2	9/32	.250
SP 01 SACMA	SP-187-1	.875	1.126	1-1/2	9/32	.250
3/16 HIPRO	SP-187-1	.875	1.126	1-1/2	9/32	.250
3/16 HIPRO	SP-187-4	.875	1.126	2-1/4	9/32	.250
H15 NAKASHIMADA	SP-187-1	.875	1.126	1-1/2	9/32	.250
H15 NAKASHIMADA	SP-187-4	.875	1.126	2-1/4	9/32	.250
1/4 NATIONAL	SP-250-N	1.250	1.501	2-7/16	17/32	.250
2 TOGGLE	SP-250-2	1.250	1.501	2-1/4	9/32	.250
H20 NAKASHIMADA	SP-250-N	1.250	1.501	2-7/16	17/32	.250
1/4 SUPER HIPRO	SP-250-SH	1.251	1.501	2-15/16	5/8	.250
SP 11 SACMA	SP-250-7	1.250	1.501	2-1/32	9/32	.250
1/4 WATERBURY	SP-250-3	1.250	1.502	3-3/8	9/32	.250
5/16 NATIONAL	SP-312-N	1.375	1.626	2-13/16	31/64	.250
5/16 HARTFORD	SP-312-6	1.375	1.625	3-1/16	33/64	.313
5/16 HARTFORD	SP-312-6A	1.375	1.625	3-5/64	1/2	.344
5/16 HIPRO	SP-312-3	1.375	1.626	2-43/64	9/32	.313
SP 21 SACMA	SP-312-8	1.375	1.626	2-9/16	9/32	.313
3/8 NATIONAL	SP-375-N	1.750	2.001	2-15/16	7/16	.347

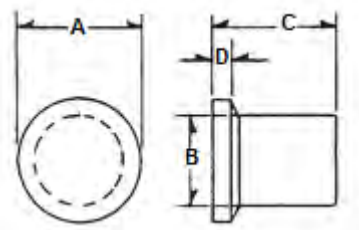
* STYLE 2
** IN STOCK ITEM

SPRING PUNCH BACKING

STYLE 1



STYLE 2



PLUGS HEADER	CODE	C	B	D	A	STYLE
1/8 HEADMASTER	BP-125WH	23/32	1/2	1/4	.810	2
1/8 NATIONAL	BP-125N	17/32	19/32	1/32	.777	1
1/8 H.S. NATIONAL	BP-125HSN	17/32	———	———	.500	———
1/8 HARTFORD	BP-125HF	15/16	17/32	1/4	.780	2
0 TOGGLE, 00 MANVILLE	BP-125T	27/32	9/16	1/4	.995	2
1 TOGGLE, 0 MANVILLE	BP-187T	41/64	21/32	7/64	1.121	2
3/16 HIPRO	BP-187H	1-25/64	21/32	55/64	.871	2
3/16 HEADMASTER	BP-187WH	41/64	21/32	7/64	1.121	2
3/16 HARTFORD	BP-187HF	1.317	11/16	1/4	.875	2
3/16 NATIONAL	BP-187N	45/64	21/32	3/64	.870	1
SP 01 SACMA	BP-SP01	37/64	.590	5/64	.866	2
1/4 NATIONAL	BP-250N	1-1/8	15/16	5/16	1.230	1
2 TOGGLE, 1 MANVILLE	BP-250T	51/64	15/16	11/64	1.497	2
SP 11 SACMA	BP-SP11	3/4	.884	1/8	1.247	2
5/16 HIPRO	BP-312H	1-9/16	7/8	5/8	1.808	2
5/16 NATIONAL	BP-312N	1-1/8	1-1/32	11/64	1.370	1
5/16 HARTFORD	BP-312HF	1.590	.669	1/8	1.000	———
SP 21 SACMA	BP-SP21	1-9/64	.913	1/8	1.370	2

WARNING

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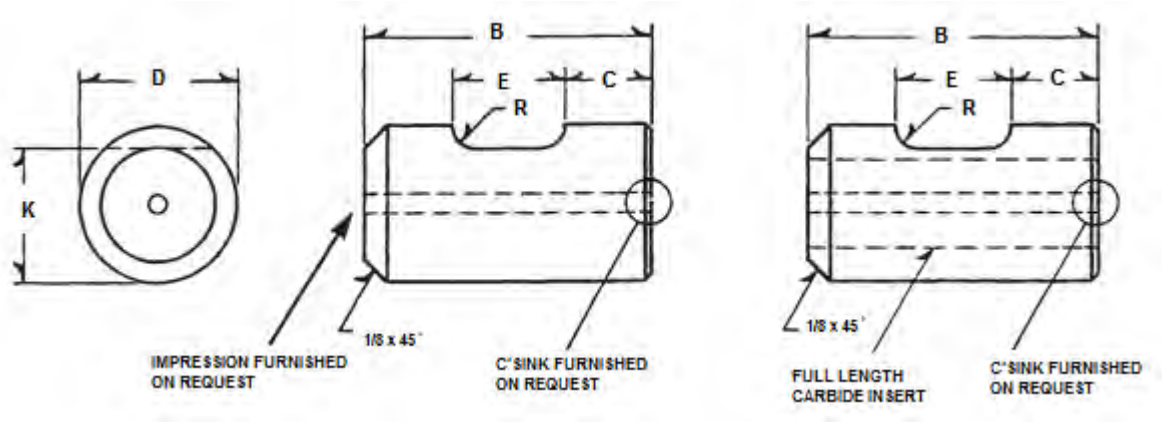
SPRING PUNCHES, STEEL & CARBIDE



MACHINE	CODE	B	D	K	R	C	E	CARBIDE DIA.
1/8 National	SP130-S	1-17/64	.812	.720	1/8	7/32	39/64	3/8
1/8 HEADMASTER	SP130-W	1-13/32	.812	.720	3/32	7/32	39/64	3/8
0 Toggle	SP130-W	1-13/32	.812	.720	3/32	7/32	39/64	3/8
1/8 Hartford	SP130-H	1-17/64	.812	.720	1/8	—	—	3/8
3/16 HiPro	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
H15 Nakashimada	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
3/16 Headmaster	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
1 Toggle	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
SP01 Sacma	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
3/16 National	SP188-S	1-39/64	.8745	.751	1/8	31/64	3/4	1/2
3/16 Hartford	SP188-H	1-7/8	.8745	.812	5/32	9/32	3/4	5/8
1/4 National	SP250-S	2-13/64	1.2495	1.063	1/8	23/32	31/32	5/8
SP11 Sacma	SP250-S	2-13/64	1.2495	1.063	1/8	23/32	31/32	5/8
2 Toggle	SP250-S	2-13/64	1.2495	1.063	1/8	23/32	31/32	5/8
H20 Nakashimada	SP250-S	2-13/64	1.2495	1.063	1/8	23/32	31/32	5/8
1/4 Super HiPro	SP250-SH	2-1/4	1.2495	1.059	1/8	7/16	31/32	5/8
5/16 National	SP312-S	2-3/32	1.374	1.187	5/32	7/8	55/64	3/4
SP21 Sacma	SP312-R	2-9/16	1.374	1.374	1.187	19/32	—	3/4
5/16 HiPro	SP312-W	1-15/16	1.374	1.187	5/32	7/8	—	3/4
5/16 Hartford	SP312-H	2-31/64	1.374	1.187	5/32	3/4	13/16	3/4
3/8 National	SP375-S	2-5/8	1.749	1.530	5/32	13/16	1-1/4	7/8

TO ORDER: *TOOL STEEL- USE THE CODE NO. ABOVE.*
CARBIDE INSERTED- ADD "C" TO CODE NO. ABOVE.

WARNING

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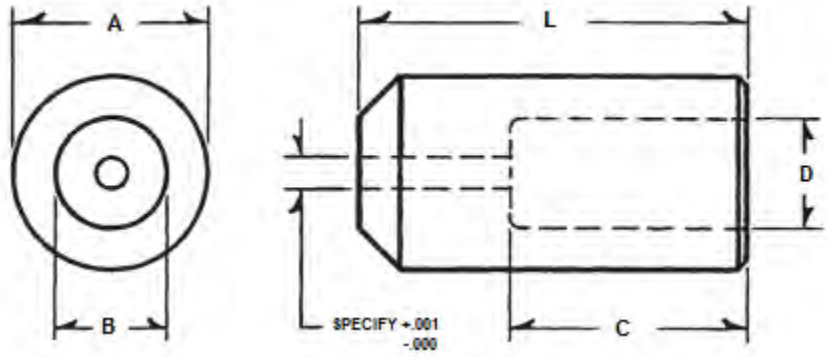
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

CONING PUNCHES



MACHINE	CODE	A	B	C	D	L
1/4 Hartford Special	CP-250	1.123	.625	1-3/8	.660	2-19/32
1/8 Headmaster	CP-12	.624	—	5/8	.375	1-5/8
3/16 HiPro	CP-18	.875	1/2	1-1/16	.500	1-3/4
1/4 Waterbury	CP-25	1.498	1-1/8	1	.625	1-15/16
0 WFF	CP-0	.874	3/8	1	.437	1-1/2
1 WFF	CP-1	.874	1/2	1	.500	1-1/2
2 WFF	CP-2	1.061	1/2	1-1/16	.625	2-3/8

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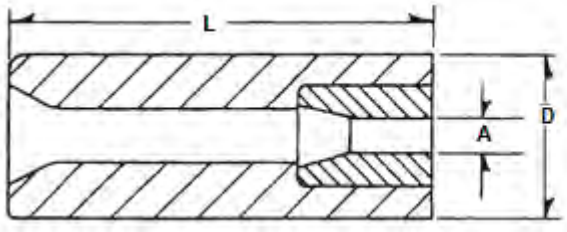
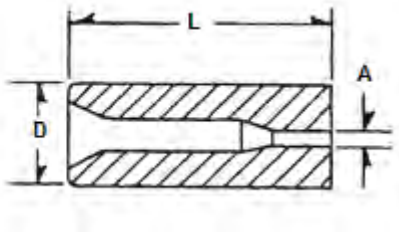
CARBIDE QUILLS



CARBIDE INSERTED



SOLID CARBIDE

MACHINE	CODE NO.	D	L
1/8 National H.S.	Q-125-3C	.437*	25/32
1/8 National DSSD	Q-125-1C	.437*	1-3/16
1/8 Hartford	Q-125-1C	.437*	1-3/16
1/8 Headmaster	Q-125-C	.562	1-3/8
0 Waterbury Toggle	Q-125-2C	.562	1-1/8
25 National H.S. DSSD	Q-187-3C	.499*	1-5/32
10 Wat. Tub. Riv. Hdr.	Q-187-5C	.499*	1-3/8
3/16 Naitional H.S. DSSD	Q-187-3C	.499*	1-5/32
1 Waterbury Toggle	Q-187-1C	.687	1-5/8
3/16 HiPro	Q-187-1C	.687	1-5/8
3/16 Headmaster	Q-187-1C	.687	1-5/8
SP 01 Sacma	Q-187-1C	.687	1-5/8
3/16 Waterbury	Q-187-2C	.874	1-3/8
SP 11 Sacma	Q-250-5C	.874	1-5/8
3/16 Hartford	Q-250-C	.874	2
1/4 National DSSD	Q-250-C	.874	2
1/4 Sacma	Q-250-C	.874	2
45 National L.S. DSSD	Q-250-C	.874	2
H20A Nakashimada	Q-250-C	.874	2
1/4 National H.S. DSSD	Q-250-3C	.749	1-1/2
1/4 Waterbury	Q-250-2C	.999	1-3/4
2 Waterbury Toggle	Q-312-C	.874	2-1/2
5/16 National DSSD	Q-312-C	.874	2-1/2
5/16 HiPro	Q-312-3C	.999	2-1/2
SP 21 Sacma	Q-312-3C	.999	2-1/2
5/16 National H.S. DSSD	Q-312-5C	1.124	1-7/8
56 National L.S. DSSD	Q-312-6C	1.124	2-1/2
5/16 Waterbury	Q-312-4C	1.249	2-1/4
5/16 Hartford	Q-312-2C	1.249	2-1/2
3/8 Waterbury	Q-375-1C	1.499	2-1/2
68 National L.S. DSSD	Q-375-2C	1.374	3
810 National L.S. DSSD	Q-500-C	1.624	3-1/4
525 Raycarl	Q-525RC-C	1.060	1-5/16
45 Raycarl	Q-45RC-C	.998	2-1/4
575 Raycarl	Q-575RC-C	1.624	1-15/16
100 Raycarl	Q-100RC-C	1.498	3-1/2

* These sizes furnished in solid carbide.

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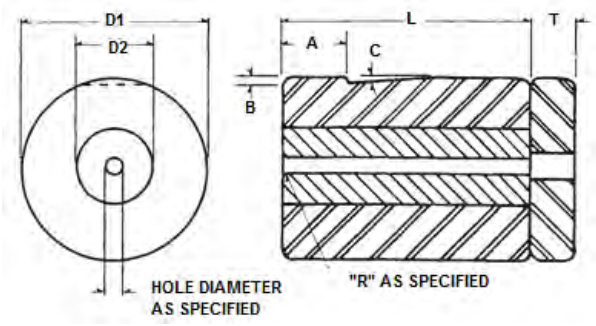
CARBIDE DIES



TYPE B STRAIGHT HOLE

MACHINE	CODE	D1	L	T	D2	A	B	C
1/8 National S.S.	12DA-C	.999	1-1/8	1/4	.495	—	—	—
1/8 Hartford	12DA-C	.999	1-1/8	1/4	.495	—	—	—
1/8 Hartford	12DA-2C	.999	1-1/4	1/8	.495	—	—	—
1/8 National L.S.	12DA-1C	.999	1-1/2	1/4	.495	—	—	—
1/8 Headmaster	12DA-3C	1.124	1	3/8	.495	5/16	3/32	10°
0 Waterbury Toggle	12DA-4C	1.124	7/8	1/4	.495	5/16	3/32	5°
25 National H.S.	12DA-5C	1.249	1-1/2	1/4	.495	—	—	—
1 Waterbury Toggle	18DA-15C	1.249	1-1/4	3/8	.495	7/16	1/16	5°
3/16 HiPro	18DA-9C	1.249	1-1/4	3/8	.495	5/16	5/64	5°
3/16 Headmaster	18DA-16C	1.249	1-1/2	3/8	.495	5/16	5/64	5°
3/16 National S.S.	18DA-1C	1.249	1-1/2	1/4	.495	1/2	3/32	4°
3/16 National L.S.	18DA-17C	1.249	2-1/2	1/4	.495	11/16	5/32	15°
SP-01 Sacma	18DA-C	1.249	1-5/8	—	.495	1/2	3/64	4°
3/16 National H.S. DSSD	18DA-18C	1.499	1-1/2	1/4	.620	9/16	—	15°
3/16 Waterbury	18DA-3C	1.499	2-1/2	1/2	.620	7/8	5/32	10°
H20A Nakashimada	18DA-3C	1.499	2-1/2	21/32	.620	7/8	5/32	10°
3/16 Hartford	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
1/4 National S.S.	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
1/4 Sacma	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
2 Waterbury Toggle	25DA-17C	1.499	2	1/2	.620	9/16	1/16	5°
SP-11 Sacma	25DA-29C	1.499	2-1/2	—	.620	9/32	3/32	4°
3-300 Hartford	25DA-29C	1.499	2-1/2	—	.620	9/32	3/32	4°
1/4 National L.S.	25DA-19C	1.499	3-1/8	1/4	.620	13/16	3/16	15°
3/16 National L.S. DSSD	18DA-19C	1.624	2-1/2	1/4	.620	3/4	—	15°
1/4 National H.S. DSSD	25DA-20C	1.749	2	1/2	.744	5/8	—	15°
1/4 Waterbury	25DA-18C	1.999	2-7/8	5/8	.744	1-1/16	3/16	10°
1/4 Super HiPro	25DA-21C	1.999	2-1/8	3/4	.744	3/8	1/8	—
5/16 HiPro	31DA-C	1.999	2	1/2	.744	3/8	1/8	10°
SP-21 Sacma	31DA-18C	1.999	3-1/2	—	.744	3/8	1/8	10°
5/16 National S.S.	31DA-1C	2.124	2-3/8	3/8	.992	7/16	3/16	10°
5/16 National L.S.	31DA-9C	2.124	3-3/8	3/8	.992	11/16	13/64	15°
5/16 Hartford	31DA-1C	2.124	2-3/8	3/8	.992	7/16	3/16	10°
45 National S.S. DSSD	31DA-12C	2.124	3	3/8	.992	5/8	—	15°
5/16 National H.S. DSSD	31DA-13C	2.374	2-1/2	1/2	.992	3/4	—	15°
3/8 National S.S.	37DA-2C	2.436	2-3/4	1/2	1.118	1	3/32	4°
3/8 National L.S.	37DA-3C	2.436	3-3/4	1/2	1.118	7/8	15/64	15°
5/16 Waterbury	31DA-4C	2.499	4	5/8	1.118	1-1/4	3/16	10°
56 National L.S. DSSD	37DA-5C	2.499	3-1/4	1/2	1.118	3/4	—	15°
3/8 Waterbury	37DA-C	2.999	4	3/4	1.118	1-1/2	1/4	10°
68 National L.S. DSSD	37DA-6C	2.999	4	3/4	1.118	1	—	15°

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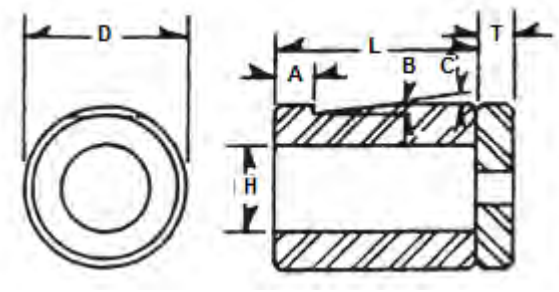
HEADER DIE CASINGS FOR H.S. STEEL & CARBIDE INSERTS



MACHINE	CODE NO.	D	L	T	H	A	B	C
1/8 National S.S.	12DC	.999	1-1/4	1/8	.550	—	—	—
1/8 National S.S.	12DA-C	.999	1-1/8	1/4	.495	—	—	—
1/8 Hartford	12DC	.999	1-1/4	1/8	.550	—	—	—
1/8 Hartford	12DA-C	.999	1-1/8	1/4	.495	—	—	—
1/8 Hartford	12DA-2C	.999	1-1/4	1/8	.495	—	—	—
1/8 National L.S.	12DC-1	.999	1-5/8	1/8	.550	—	—	—
1/8 National L.S.	12DA-1C	.999	1-1/2	1/4	.495	—	—	—
1/8 Headmaster	12DC-3	1.124	1	3/8	.550	5/16	3/32	10°
1/8 Headmaster	12DA-3C	1.124	1	3/8	.495	5/16	3/32	10°
0 Waterbury Toggle	12DC-4	1.124	7/8	1/4	.550	5/16	1/16	5°
0 Waterbury Toggle	12DA-4C	1.124	7/8	1/4	.495	5/16	3/32	5°
25 National H.S.	18DC-23	1.249	1-1/2	1/4	.550	—	—	—
25 National H.S.	18DA-5C	1.249	1-1/2	1/4	.495	—	—	—
1 Waterbury Toggle	18DC-15	1.249	1-1/4	3/8	.737	7/16	1/16	5°
1 Waterbury Toggle	18DA-15C	1.249	1-1/4	3/8	.495	7/16	1/16	5°
3/16 HiPro	18DC-9	1.249	1-1/4	3/8	.737	1/4	5/64	5°
3/16 HiPro	18DA-9C	1.249	1-1/4	3/8	.495	1/4	5/64	5°
3/16 Headmaster	18DC-9	1.249	1-1/4	3/8	.737	1/4	5/64	5°
3/16 Headmaster	18DC-16	1.249	1-1/2	3/8	.737	1/4	1/16	5°
3/16 Headmaster	18DA-16C	1.249	1-1/2	3/8	.495	5/16	5/64	5°
3/16 National S.S.	18DC-1	1.249	1-5/8	1/8	.737	1/2	3/32	4°
3/16 National S.S.	18DA-1C	1.249	1-1/2	1/4	.495	1/2	3/32	4°
3/16 National L.S.	18DC-17	1.249	2-5/8	1/8	.737	11/16	5/32	15°
3/16 National L.S.	18DA-17C	1.249	2-1/2	1/4	.495	11/16	5/32	15°
3/16 National L.S.	18DA-19C	1.624	2-1/2	1/4	.620	3/4	—	15°
3/16 National H.S.	18DC-24	1.499	1-1/2	1/4	.737	9/16	1/8	15°
3/16 National H.S.	18DA-18C	1.499	1-1/2	1/4	.620	9/16	—	15°
3/16 Hartford	18DC-25	1.499	2	1/4	.737	9/32	3/32	4°
3/16 Hartford	18DC-26	1.499	2	1/4	.550	9/32	3/32	4°
3/16 Hartford	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
3/16 Waterbury	18DC-3	1.499	2-1/2	1/2	.862	7/8	5/32	10°
3/16 Waterbury	18DA-3C	1.499	2-1/2	1/2	.620	7/8	5/32	10°
H20 Nakashimada	18DC-3	1.499	2-1/2	21/32	.862	7/8	5/32	10°
H20 Nakashimada	18DA-3C	1.499	2-1/2	21/32	.620	7/8	5/32	10°
SP-01 Sacma	18DC	1.249	1-5/8	—	.550	1/2	3/32	4°
SP-01 Sacma	18DC-1	1.249	1-5/8	—	.737	1/2	3/32	4°

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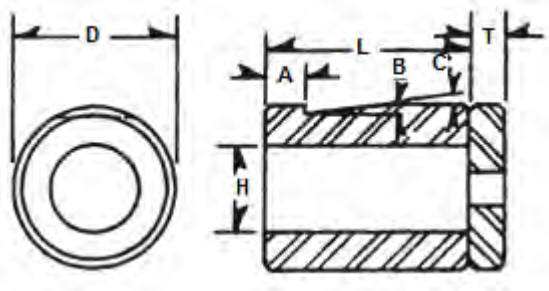
FAX #: 508-966-2326

HEADER DIE CASINGS FOR H.S. STEEL & CARIDE INSERTS



MACHINE	CODE NO.	D	L	T	H	A	B	C
1/4 National S.S.	25DC	1.499	2	1/4	.862	5/16	3/32	4°
1/4 National S.S.	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
1/4 Sacma	25DC	1.499	2	1/4	.862	5/16	3/32	4°
1/4 Sacma	25DA-C	1.499	2	1/4	.620	9/32	3/32	4°
1/4 Super HiPro	25DC-28	1.999	2-1/8	3/4	.987	9/32	3/32	4°
1/4 Super HiPro	25DA-21C	1.999	2-1/8	3/4	.744	3/8	1/8	—
2 Waterbury Toggle	25DC-17	1.499	2	1/2	.862	9/16	1/16	5°
2 Waterbury Toggle	25DA-17C	1.499	2	1/2	.620	9/16	1/16	5°
1/4 National L.S.	25DC-19	1.499	3-1/8	1/4	.862	13/16	3/16	15°
1/4 National L.S.	25DA-19C	1.499	3-1/8	1/4	.620	13/16	3/16	15°
1/4 National H.S.	25DC-27	1.749	2	1/2	.987	5/8	5/32	15°
1/4 National H.S.	25DA-20C	1.749	2	1/2	.744	5/8	—	15°
1/4 Waterbury	25DC-18	1.999	2-27/32	5/8	.987	1-1/16	3/16	10°
1/4 Waterbury	25DA-18C	1.999	2-7/8	5/8	.744	1-1/16	3/16	10°
SP-11 Sacma	18DC-25	1.499	2	—	.737	9/32	3/32	4°
SP-11 Sacma	18DC-26	1.499	2	—	.550	9/32	3/32	4°
SP-11 Sacma	25DC-29	1.499	2-1/2	—	.862	9/32	3/32	4°
5/16 HiPro	31DC	1.999	2	1/2	.862	3/8	1/8	10°
5/16 HiPro	31DA-C	1.999	2	1/2	.744	3/8	1/8	10°
5/16 HiPro	31DC-11	1.999	2	1/2	.987	3/8	1/8	10°
SP-21 Sacma	31DC-13	1.999	2-1/2	—	.862	3/8	1/8	10°
SP-21 Sacma	31DC-18	1.999	3-1/2	—	.862	3/8	1/8	10°
SP-21 Sacma	31DA-18C	1.999	3-1/2	—	.744	3/8	1/8	10°
5/16 National S.S.	31DC-1	2.124	2-3/8	3/8	1.237	7/16	3/16	10°
5/16 National S.S.	31DA-1C	2.124	2-3/8	3/8	.992	7/16	3/16	10°
5/16 National L.S.	31DC-9	2.124	3-3/8	3/8	1.237	11/16	13/64	15°
5/16 National L.S.	31DA-9C	2.124	3-3/8	3/8	.992	11/16	13/64	15°
5/16 National H.S.	31DC-15	2.374	3	1/2	1.237	3/4	3/16	15°
5/16 National H.S.	31DA-13C	2.374	2-1/2	1/2	.992	3/4	—	15°
5/16 Hartford	31DC-1	2.124	2-3/8	3/8	1.237	7/16	3/16	10°
5/16 Hartford	31DA-1C	2.124	2-3/8	3/8	.992	7/16	3/16	10°
45 National H.S.	31DC-14	2.124	3	3/8	1.237	5/8	5/32	15°
45 National H.S.	31DA-12C	2.124	3	3/8	.992	5/8	—	15°

WARNING

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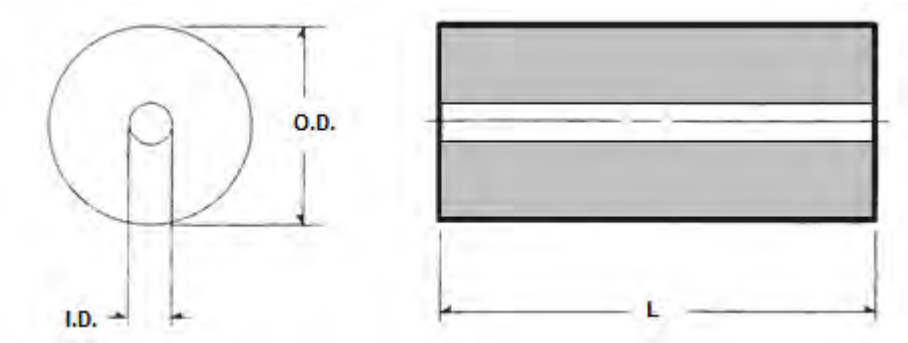
SEMI-FINISHED CARBIDE INSERTS



INSERTS MADE TO ORDER

Standard Tolerances

O.D.- Outside Diameters are accurately ground to specified sizes plus .0005" (.013mm), minus .0000 tolerance

I.D.- Inner Diameter is burned on a wire EDM, then lapped and honed **straight** and **round** with a minus .003" (.08mm) to minus .005" (.13mm) tolerance

L - Ends are ground square with O.D. to a plus .010" (.25mm) to a plus .020" (.51mm) tolerance

T.I.R.- Less than .001" (.025mm)

Sizes to 3.250" (38.1mm) O.D. and 3.000" (76.2mm) Long

Other tolerances are available up request. All grades of carbide are available.

OUR STRAIGHT HOLES MEAN . . .
. . .BETTER QUALITY FINISHED DIES
. . .EXTRUSION DIES THAT ARE CONCENTRIC
. . .MULTIPLE INSERTS WILL BE CONCENTRIC

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

WTG PVD and CVD COATINGS

WTG PVD and CVD COATINGS

Wrentham (WTG hard coatings are very thin but harder than steel and chemically inert. They significantly reduce punch wear, cold welding and friction. More and more companies are adding WTG Coatings to their punches and forming tools to boost productivity and quality.

Lower costs result due to less tool wear, fewer punch failures and predictable punch changes. As a result manufacturing costs are reduced.

Longer punch life reduces machine down time which in turn reduces product manufacturing costs. WTG coated punches also generate a higher quality fastener due to smoother surfaces and better dimensional stability from piece to piece. Our coatings feature a micro-hardness as high as 10,000 (HV 0.05), coefficient of friction against dry steel as low as .1 and max service temperatures as high as 1100°C/ 2012°F. It is not uncommon for WTG coated punches to last 3 to 5 and even 10 times longer than uncoated plain punches.

With WTG Coated punches you can:

- significantly boost productivity
- reduce manufacturing costs
- improve manufacturing reliability
- enhance product quality
- shorten delivery times
- reduce energy and lubricant requirements.

Please consider specifying WTG Coatings on your next order.

AVAILABLE COATINGS

BALINIT® ALCRONA PRO
TIALN
TICN
CRN
PVD TIN
CVD TIN
W C/C
CRYSTALLINE DIAMOND
NANOCRYSTALLINE DIAMOND
A-C:H
ALTIN
TICRN

WARNING

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INDENTED HEX PINS AND PUNCHES

INDENTED HEX PINS AND PUNCHES

Indented hexagon pins and punches are available in many sizes and varieties. They can be made to meet your individual specifications.

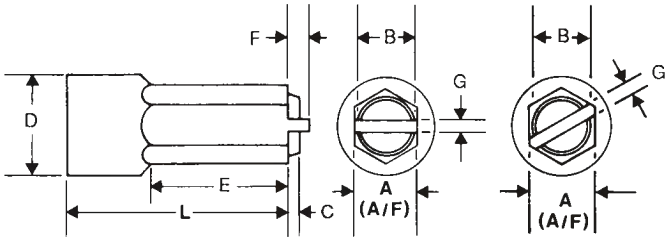
Hex pins are available in plain, struck slot, POZIDRIV® and Phillips® type styles. Pricing is done on an individual basis.

INDENTED HEXAGON SLOTTED PINS

SCREW SIZE	HEX SIZE A/F	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	F +0.002 -0.000	G +0.002 -0.000	L WTP STD	OPTIONAL L
4	3/16	4IHPSS 520	0.179	0.135	0.012	0.311	0.500	0.031	0.034	1.250	2.500
6	1/4	6IHPSS 520	0.242	0.210	0.015	0.311	0.562	0.040	0.043	1.250	2.500
7	1/4	7IHPSS 520	0.242	0.210	0.016	0.311	0.562	0.053	0.043	1.250	2.500
8	1/4	8IHPSS 520**	0.242	0.210	0.018	0.311	0.562	0.060	0.049	1.250	2.500
10	5/16	10IHPSS 620**	0.302	0.270	0.020	0.374	0.625	0.068	0.054	1.250	2.500
12	5/16	12IHPSS 620	0.302	0.270	0.020	0.374	0.625	0.087	0.059	1.250	2.500
1/4	3/8	1/4IHPSS 820	0.364	0.320	0.033	0.499	0.625	0.088	0.068	1.250	2.500
1/4	7/16	1/4(7)IHPSS 820	0.425	0.380	0.038	0.499	0.625	0.090	0.068	1.250	2.562

Add “AC” to the PIN number when ordering PINS with the slot across the corners.

** IN STOCK ITEM



NOTE: Please specify length of pin when ordering.

WARNING

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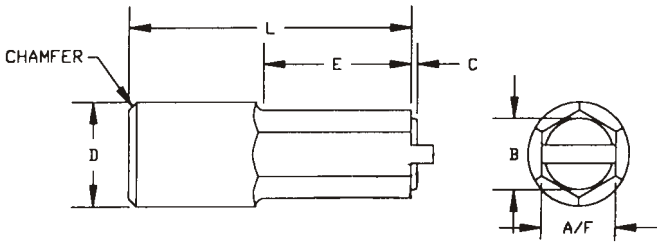
WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

METRIC INDENTED STRUCK SLOT (ACROSS FLATS) HEXAGON PINS

HEXAGON SIZE A/F M/M	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L	SLOT WIDTH +/-.001	SLOT DEPTH +/-.001
5	M5IHPSS 520	0.189	0.156	0.019	0.311	0.562	1.250	2.500	0.031	0.043
5.5	M5.5IHPSS 520	0.209	0.173	0.019	0.311	0.562	1.250	2.500	0.039	0.049
6	M6IHPSS 520	0.228	0.189	0.019	0.311	0.562	1.250	2.500	0.044	0.054
7	M7IHPSS 620	0.265	0.220	0.022	0.374	0.562	1.250	2.500	0.047	0.059
7.3	M7.3IHPSS 520	0.265	0.220	0.022	0.311	0.562	1.250	2.500	0.047	0.059
8	M8IHPSS 620	0.305	0.252	0.026	0.374	0.562	1.250	2.500	0.063	0.074
10	M10IHPSS 820	0.383	0.321	0.039	0.499	0.625	1.250	2.500	0.078	0.089
11	M11IHPSS 820	0.422	0.353	0.039	0.499	0.625	1.250	2.562	0.089	0.099
12	M12IHPSS 1020	0.461	0.387	0.047	0.624	0.687	1.250	2.562	0.098	0.108
13	M13IHPSS 1020	0.499	0.419	0.047	0.624	0.687	1.250	2.562	0.098	0.108
15	M15IHPSS 1020	0.578	0.486	0.061	0.749	0.687	1.250	2.562	0.113	0.123



NOTE: Please specify length of pin when ordering.

WARNING

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PLAIN INDENTED HEX PINS

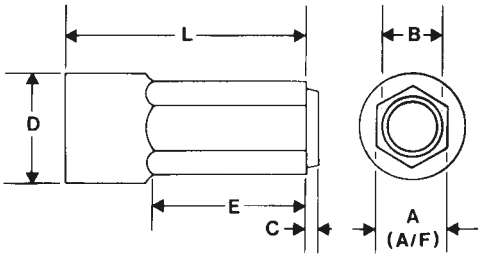
STANDARD INDENTED HEXAGON PINS

SCREW SIZE	HEX SIZE A/F	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L
2-3	1/8	2IHP 520	0.119	0.095	0.014	0.311	0.500	1.250	2.500
4-5	3/16	4IHP 520	0.179	0.150	0.020	0.311	0.500	1.250	2.500
6-8	1/4	6IHP 520**	0.242	0.200	0.020	0.311	0.562	1.250	2.500
10-12	5/16	10IHP 620**	0.302	0.265	0.030	0.374	0.562	1.250	2.500
1/4	3/8	1/4IHP 820**	0.364	0.315	0.037	0.499	0.625	1.250	2.500
1/4	7/16	1/4(7)IHP 820	0.425	0.375	0.040	0.499	0.625	1.250	2.562
5/16	1/2	5/16IHP 1024	0.487	0.445	0.055	0.624	0.687	1.500	2.562
3/8	9/16	3/8IHP 1024	0.548	0.495	0.055	0.624	0.687	1.500	2.562

** IN STOCK ITEM

HEXAGON SIZE A/F	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L
4	M4IHP 520	0.150	0.123	0.016	0.311	0.500	1.250	2.500
5	M5IHP 520	0.189	0.156	0.019	0.311	0.562	1.250	2.500
5.5	M5.5IHP 520	0.209	0.173	0.019	0.311	0.562	1.250	2.500
6	M6IHP 520	0.228	0.189	0.019	0.311	0.562	1.250	2.500
7	M7IHP 620	0.265	0.220	0.022	0.374	0.562	1.250	2.500
7.3	M7.3IHP 520	0.265	0.220	0.022	0.311	0.562	1.250	2.500
8	M8IHP 620	0.305	0.252	0.026	0.374	0.562	1.250	2.500
10	M10IHP 820**	0.383	0.321	0.039	0.499	0.625	1.250	2.500
12	M12IHP 1020	0.461	0.387	0.047	0.624	0.687	1.250	2.562
13	M13IHP 1020	0.499	0.419	0.047	0.624	0.687	1.250	2.562
15	M15IHP 1020	0.578	0.486	0.061	0.749	0.687	1.250	2.562

** IN STOCK ITEM



NOTE: Please specify length of pin when ordering.

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WRENTHAM TOOL GROUP™
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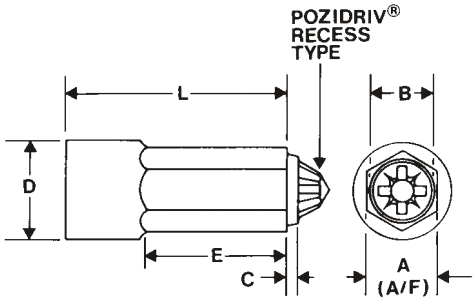
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

POZIDRIV® INDENTED HEXAGON PINS

STANDARD INDENTED POZIDRIV® HEXAGON PINS

SCREW SIZE	HEX SIZE A/F	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.003 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L	PUNCH PEN. +0.000 -0.006
6	1/4	3RPZ 20-100 520	0.242	0.208	0.017	0.311	0.562	1.250	2.500	0.087
8	1/4	3RPZ 20-102 520	0.242	0.208	0.017	0.311	0.562	1.250	2.500	0.106
10	5/16	3RPZ 20-103 620	0.302	0.258	0.027	0.374	0.562	1.250	2.500	0.125
1/4	3/8	3RPZ 30-71 820	0.364	0.314	0.034	0.499	0.625	1.250	2.500	0.180
1/4	7/16	3RPZ 30-87 820	0.425	0.360	0.037	0.499	0.625	1.250	2.562	0.183



NOTE: Please specify length of pin when ordering.

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PHILLIPS® INDENTED HEXAGON PINS

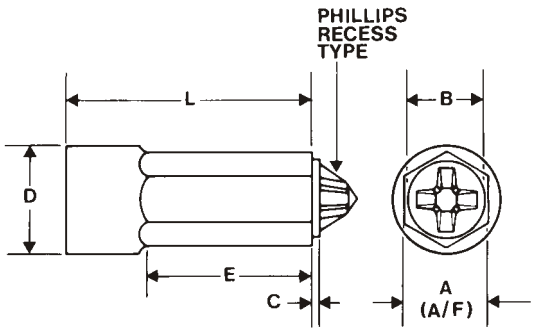
STANDARD INDENTED PHILLIPS® HEXAGON PINS

SCREW SIZE	HEX SIZE A/F	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L	PUNCH PEN. +0.000 -0.012
4	3/16	3P10-41IHP 520	0.179	0.153	0.006	0.311	0.562	1.250	2.500	0.057/0.065
5	3/16	3P10-42IHP 520	0.179	0.153	0.006	0.311	0.562	1.250	2.500	0.065/0.073
6	1/4	3P20-1IHP 520**	0.242	0.210	0.012	0.311	0.562	1.250	2.500	0.089
8	1/4	3P20-2IHP 520**	0.242	0.210	0.018	0.311	0.562	1.250	2.500	0.115
8	1/4	3P20-2IHP 620	0.242	0.210	0.018	0.374	0.562	1.250	2.500	0.115
10	5/16	3P20-6IHP 620**	0.302	0.270	0.020	0.374	0.562	1.250	2.500	0.125
1/4	3/8	3P30-3IHP 820	0.364	0.320	0.030	0.499	0.625	1.250	2.500	0.186
1/4	7/16	3P30-3(7)IHP 820	0.425	0.381	0.030	0.499	0.625	1.250	2.562	0.186

** IN STOCK ITEM

METRIC PHILLIPS® TYPE INDENTED HEXAGON PINS

HEXAGON SIZE A/F MM	PIN NUMBER	A/F +0.000 -0.001	B +0.005 -0.000	C +0.002 -0.000	D +0.000 -0.001	E +0.015 -0.000	L WTP STD	OPTIONAL L	PUNCH PEN. +0.000 -0.012
4	M4IHP-3P10-1 520	0.150	0.125	0.016	0.311	0.500	1.250	2.500	0.066/0.074
5.5	M5.5IHP-3P20-1 520	0.209	0.182	0.019	0.311	0.562	1.250	2.500	0.096
6	M6IHP-3P20-2 520	0.228	0.198	0.019	0.311	0.562	1.250	2.500	0.116
7	M7IHP-3P20-6 620	0.265	0.232	0.022	0.374	0.562	1.250	2.500	0.125
8	M8IHP-3P20-3 620	0.305	0.268	0.027	0.374	0.562	1.250	2.500	0.139



NOTE: Please specify length of pin when ordering.

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WRENTHAM TOOL GROUP™
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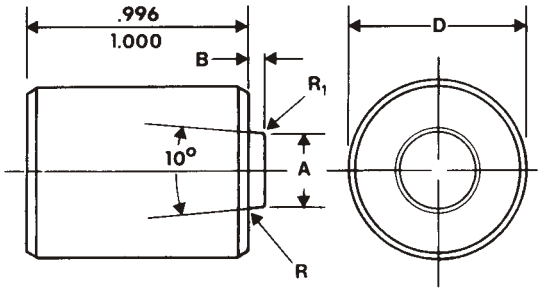
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

INDENTED HEXAGON PUNCHES

PLAIN HEXAGON PUNCHES

PUNCH NO.	SCREW SIZE	A +0.000 -0.005	B +0.001 -0.000	D +0.0005 -0.0000	R +0.005 -0.000	R_1 +0.005 -0.000
4 & 5 IHPU	4 & 5	0.150	0.025	0.5625	0.004	0.010
6 IHPU	6	0.220	0.035	0.5625	0.006	0.010
7 & 8 IHPU	7 & 8	0.220	0.045	0.5625	0.008	0.015
10 IHPU	10	0.280	0.045	0.5625	0.010	0.015
12 IHPU	12	0.280	0.060	0.5625	0.012	0.020
14 & 1/4 IHPU*	14 & 1/4*	0.338	0.070	0.8750	0.014	0.025
1/4 IHPU**	1/4**	0.380	0.070	0.8750	0.014	0.025
5/16 IHPU	5/16	0.452	0.085	0.8750	0.017	0.035
3/8 IHPU	3/8	0.505	0.105	1.0000	0.021	0.045

*3/8 HEX
**7/16 HEX (IN STOCK)



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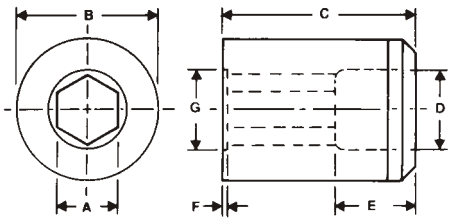
HEXAGON WASHER HEAD INSERTS

CONTAINED WASHER

SCREW SIZE	HEX SIZE	CODE	A +0.001 -0.001	B +0.0005 -0.0000	C +0.003 -0.000	D +1/64 -0	E +1/64 -0	F +0.003 -0.000	G
4	3/16	HWI-187	0.182	0.5520	0.750	5/16	5/16	0.009	0.234
5	3/16	HWI-187-1	0.182	0.5520	0.750	5/16	5/16	0.013	0.250
6	1/4	HWI-250-2	0.245	0.5520	0.750	5/16	5/16	0.016	0.315
6	1/4	HWI-250-1	0.245	0.7400	0.750	3/8	5/16	0.013	0.315
8	1/4	HWI-250-3	0.245	0.5520	0.750	5/16	5/16	0.017	0.335
8	1/4	HWI-250-4**	0.245	0.7400	0.750	3/8	5/16	0.017	0.335
10	5/16	HWI-312**	0.306	0.7400	0.750	7/16	5/16	0.017	0.400
10	5/16	HWI-312-1**	0.306	0.5520	0.750	3/8	5/16	0.017	0.400
12	5/16	HWI-312-2	0.306	0.7400	0.750	7/16	5/16	0.020	0.415
1/4	3/8	HWI-375**	0.368	0.9900	1.000	1/2	9/16	0.028	0.500
1/4	3/8	HWI-375-2**	0.368	0.7400	0.750	1/2	5/16	0.023	0.500
1/4	7/16	HWI-437	0.429	0.9900	1.000	0.503	1/2	0.035	0.500
5/16	1/2	HWI-500	0.492	0.9900	1.000	5/8	1/2	0.030	0.650
5/16	1/2	HWI-500-1	0.492	1.2400	1.000	5/8	1/2	0.030	0.650
3/8	9/16	HWI-562	0.554	1.2400	1.000	3/4	1/2	0.032	0.750

** IN STOCK ITEM



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WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

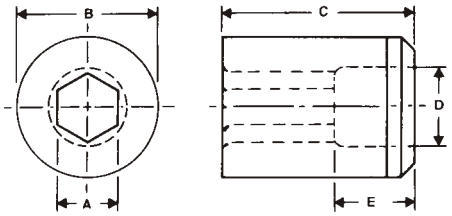
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

HEXAGON WASHER HEAD INSERTS

FREE FLOWED WASHER

SCREW SIZE	HEX SIZE	CODE	A +0.001 -0.001	B +0.0005 -0.0000	C +0.003 -0.000	D +1/64 -0	E +1/64 -0
2-3	1/8	HI-125	0.121	0.5520	0.750	5/16	1/2
4-5	3/16	HI-187	0.182	0.5520	0.750	5/16	5/16
4-5	3/16	HI-187-1	0.182	0.7400	0.750	3/8	5/16
6-8	1/4	HI-250**	0.245	0.5520	0.750	5/16	5/16
6-8	1/4	HI-250-1**	0.245	0.7400	0.750	3/8	5/16
10-12	5/16	HI-312**	0.306	0.7400	0.750	7/16	5/16
10-12	5/16	HI-312-1**	0.306	0.5520	0.750	3/8	5/16
1/4	3/8	HI-375**	0.368	0.9900	1.000	1/2	9/16
1/4	3/8	HI-375-2**	0.368	0.7400	0.750	1/2	5/16
1/4	7/16	HI-437**	0.429	0.9900	1.000	1/2	1/2
5/16	1/2	HI-500**	0.492	0.9900	1.000	5/8	1/2
5/16	1/2	HI-500-1**	0.492	1.2400	1.000	5/8	1/2
3/8	9/16	HI-562**	0.553	1.2400	1.000	3/4	1/2
3/8	9/16	HI-562-1	0.553	1.4900	1.000	3/4	1/2
7/16	5/8	HI-625**	0.612	1.4900	1.000	3/4	1/4
1/2	3/4	HI-750**	0.737	1.4900	1.000	1 1/64	1/4

** IN STOCK ITEM



WARNING

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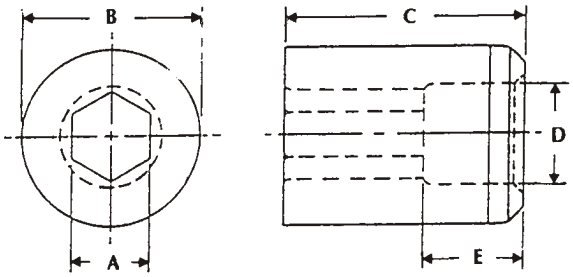
METRIC HEXAGON WASHER HEAD INSERTS

FREE FLOWED TYPE

NOMINAL HEX A/F	CODE	A (MM)	B +0.0005 -0.0000	C +0.003 -0.000	D + 1/64 - 0	E + 1/64 - 0
4	MHI-4	3.89	0.5520	0.750	5/16	5/16
5	MHI-5	4.85	0.5520	0.750	5/16	5/16
5.5	MHI-5.5**	5.36	0.5520	0.750	5/16	5/16
6	MHI-6**	5.87	0.5520	0.750	5/16	5/16
7	MHI-7**	6.83	0.7400	0.750	3/8	3/8
7	MHI-7-3**	6.83	0.5520	0.750	5/16	3/8
8	MHI-8**	7.85	0.7400	0.750	7/16	3/8
8	MHI-8-2	7.85	0.5520	0.552	3/8	3/8
10	MHI-10**	9.83	0.7400	0.750	1/2	3/8
10	MHI-10-1**	9.83	0.9900	1.000	1/2	9/16
11	MHI-11	10.82	0.9900	1.000	1/2	1/2
12	MHI-12**	11.81	0.9900	1.000	5/8	1/2
13	MHI-13**	12.80	0.9900	1.000	5/8	1/2
13	MHI-13-1**	12.80	1.2400	1.000	5/8	1/2
15	MHI-15**	14.80	1.2400	1.000	3/4	1/2
16	MHI-16**	15.77	1.2400	1.000	3/4	1/2
17	MHI-17**	16.79	1.2400	1.000	3/4	1/2
18	MHI-18	17.78	1.4900	1.250	1	5/8
19	MHI-19	18.71	1.4900	1.250	1	5/8
21	MHI-21	20.78	1.4900	1.250	1	5/8

** IN STOCK ITEM



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WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

HEXAGON WASHER HEAD INSERTS

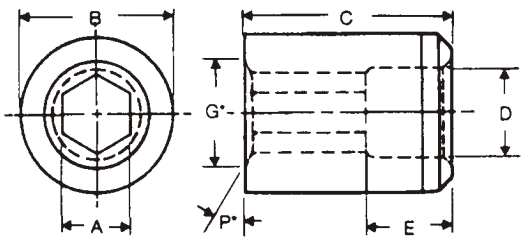
FLANGE TYPE

SCREW SIZE	HEX SIZE	CODE*	A ±0.001	B +0.0005 -0.0000	C +0.003 -0.000	D + 1/64 - 0	E + 1/64 - 0
4	3/16	HI-187-FL	0.182	0.5520	0.750	5/16	5/16
5	3/16	HI-187-1-FL	0.182	0.7400	0.750	3/8	5/16
6-8	1/4	HI-250-FL	0.245	0.5520	0.750	5/16	5/16
6-8	1/4	HI-250-1-FL	0.245	0.7400	0.750	3/8	5/16
10-12	5/16	HI-312-FL	0.306	0.7400	0.750	7/16	5/16
10	5/16	HI-312-1-FL	0.306	0.5520	0.750	3/8	5/16
1/4	3/8	HI-375-FL	0.368	0.9900	1.000	1/2	9/16
5/16	1/2	HI-500-FL	0.492	0.9900	1.000	5/8	1/2
5/16	1/2	HI-500-1-FL	0.492	1.2400	1.000	5/8	1/2
3/8	9/16	HI-562-FL	0.554	1.2400	1.000	3/8	1/2

METRIC FLANGE TYPE

NOMINAL HEX A/F	CODE*	A (mm)	A ±0.001	B +0.0005 -0.0000	C +0.003 -0.000	D + 1/64 - 0	E + 1/64 - 0
5	MHI-5-FL	4.85	0.191	0.5520	0.750	5/16	5/16
5.5	MHI-5.5-FL	5.36	0.211	0.5520	0.750	5/16	5/16
6	MHI-6-FL	5.87	0.231	0.5520	0.750	5/16	5/16
7	MHI-7-FL	6.83	0.269	0.7400	0.750	3/8	3/8
7	MHI-7-3-FL	6.83	0.269	0.5520	0.750	5/16	3/8
8	MHI-8-FL	7.85	0.309	0.7400	0.750	3/8	3/8
8	MHI-8-2-FL	7.85	0.309	0.5520	0.750	3/8	3/8
10	MHI-10-FL	9.83	0.387	0.7400	0.750	1/2	3/8
10	MHI-10-1-FL	9.83	0.387	0.9900	1.000	1/2	9/16
11	MHI-11-FL	10.82	0.426	0.9900	1.000	1/2	1/2
12	MHI-12-FL	11.81	0.465	0.9900	1.000	5/8	1/2
13	MHI-13-FL	12.80	0.504	0.9900	1.000	5/8	1/2
13	MHI-13-1-FL	12.80	0.504	1.2400	1.000	5/8	1/2
15	MHI-15-FL	14.80	0.582	1.2400	1.000	3/4	1/2

*Specify P and G when ordering.



PRICES FURNISHED UPON REQUEST

WARNING

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WRENTHAM TOOL GROUP™
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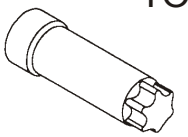
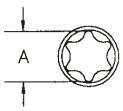
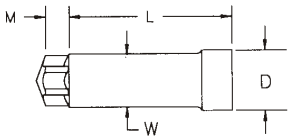
TORX PUNCH PINS

TORX® PUNCH PINS TXP-20, 21







Also available in HEXLOBE® style

T5

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
5-TXI-250	0.031				
5-TXI-251	0.017	0.0590	0.073	0.375	0.0625
5-TXI-252	0.025				

T6

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
6-TXI-250	0.041				
6-TXI-251	0.022	0.0700	0.086	0.375	0.0740
6-TXI-252**	0.030				
6-TXI-253	0.033				

T7

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
7-TXI-250	0.033				
7-TXI-251	0.038				
7-TXI-252	0.043	0.0825	0.099	0.375	0.0865
7-TXI-253	0.030				
7-TXI-254	0.025				
7-TXI-255	0.035				

T8

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
8-TXI-250	0.033				
8-TXI-252	0.051				
8-TXI-253	0.038				
8-TXI-254	0.030	0.0952	0.111	0.375	0.0995
8-TXI-255	0.028				
8-TXI-256	0.043				
8-TXI-257**	0.035				
8-TXI-258**	0.041				

T9

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
9-TXI-250	0.040				
9-TXI-251	0.055	0.1025	0.118	0.375	0.1065
9-TXI-252	0.046				
9-TXI-253	0.037				

T10

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
10-TXI-250	0.050				
10-TXI-251**	0.040				
10-TXI-252	0.060	0.1110	0.128	0.629	0.1150
10-TXI-253**	0.035				
10-TXI-254**	0.045				
10-TXI-255	0.030				
10-TXI-256	0.033				

T15

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
15-TXI-250**	0.060				
15-TXI-251**	0.045				
15-TXI-252	0.070				
15-TXI-253	0.035	0.1320	0.149	0.629	0.1360
15-TXI-254**	0.050				
15-TXI-255	0.033				
15-TXI-256**	0.041				

T20

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
20-TXI-250	0.089				
20-TXI-251**	0.065				
20-TXI-252	0.080				
20-TXI-253**	0.050				
20-TXI-254**	0.038	0.1550	0.183	0.629	0.1590
20-TXI-255**	0.060				
20-TXI-256**	0.056				
20-TXI-257	0.036				
20-TXI-258	0.045				

** IN STOCK ITEM

WRENTHAM TOOL GROUP™
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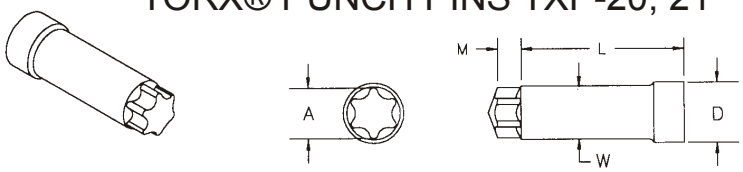
TORX PUNCH PINS

TORX® PUNCH PINS TXP-20, 21



Also available in HEXLOBE® style

T25

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
25-TXI-250	0.115				
25-TXI-251**	0.065				
25-TXI-252**	0.090				
25-TXI-253**	0.055	0.1785	0.204	0.632	0.1825
25-TXI-254**	0.075				
25-TXI-255	0.044				
25-TXI-256**	0.060				

T27

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
27-TXI-250	0.120				
27-TXI-251**	0.065				
27-TXI-252**	0.105				
27-TXI-253**	0.085	0.2005	0.225	0.632	0.2080
27-TXI-254**	0.075				
27-TXI-255	0.050				
27-TXI-258**	0.060				
27-TXI-259**	0.090				

T30

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
30-TXI-250**	0.125				
30-TXI-251**	0.090				
30-TXI-252**	0.105				
30-TXI-253**	0.070				
30-TXI-254**	0.055	0.2215	0.254	0.632	0.2255
30-TXI-255	0.043				
30-TXI-256**	0.080				
30-TXI-257**	0.075				
30-TXI-258	0.060				
30-TXI-260**	0.065				

T40

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
40-TXI-250**	0.135				
40-TXI-251**	0.110				
40-TXI-252**	0.125				
40-TXI-253**	0.120	0.2670	0.300	0.760	0.2710
40-TXI-254**	0.097				
40-TXI-255	0.085				
40-TXI-256	0.070				
40-TXI-257**	0.090				
40-TXI-260**	0.080				

T45

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
45-TXI-250	0.155				
45-TXI-251**	0.115				
45-TXI-252**	0.140	0.3130	0.374	1.010	0.3300
45-TXI-253**	0.110				
45-TXI-254	0.085				
45-TXI-256**	0.105				

T50

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
50-TXI-250**	0.154				
50-TXI-251	0.135				
50-TXI-252**	0.160				
50-TXI-253	0.095				
50-TXI-255**	0.176	0.3530	0.417	1.010	0.3740
50-TXI-256**	0.129				
50-TXI-257**	0.110				
50-TXI-258**	0.143				
50-TXI-259**	0.120				

** IN STOCK ITEM

WRENTHAM TOOL GROUP™
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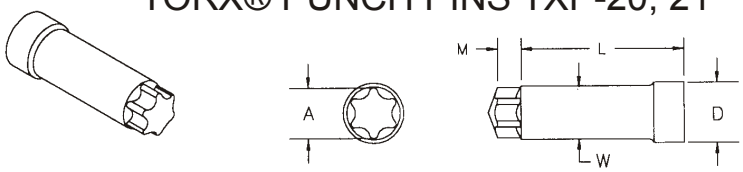
TORX® PUNCH PINS

TORX® PUNCH PINS TXP-20, 21



Also available in HEXLOBE® style

T55

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
55-TXI-250	0.215				
55-TXI-251	0.110				
55-TXI-252**	0.200				
55-TXI-253	0.145				
55-TXI-254	0.175	0.4475	0.515	1.010	0.4690
55-TXI-255	0.095				
55-TXI-256	0.155				
55-TXI-257	0.135				
55-TXI-258	0.115				
55-TXI-259**	0.190				

T60

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
60-TXI-250	0.280				
60-TXI-251	0.145				
60-TXI-252	0.245				
60-TXI-253	0.215	0.5295	0.592	1.010	0.5620
60-TXI-254	0.185				
60-TXI-256	0.150				
60-TXI-257	0.221				

T70

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
70-TXI-250	0.320				
70-TXI-251	0.240				
70-TXI-252	0.280	0.6195	0.682	1.510	0.6520
70-TXI-255	0.174				
70-TXI-256	0.261				

T80

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
80-TXI-250	0.370				
80-TXI-251	0.315	0.7005	0.762	1.510	0.7330
80-TXI-254	0.202				
80-TXI-255	0.300				

T90

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
90-TXI-250	0.380				
90-TXI-251	0.300				
90-TXI-252	0.360	0.7960	0.870	1.510	0.8295
90-TXI-253	0.240				
90-TXI-255	0.221				
90-TXI-256	0.347				

T100

PIN NUMBER	M REF	A REF	D REF	L REF	W REF
100-TXI-250	0.400				
100-TXI-251	0.450	0.8830	0.948	1.510	0.9165
100-TXI-252	0.510				

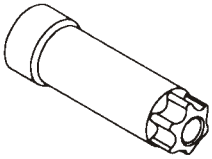
** IN STOCK ITEM

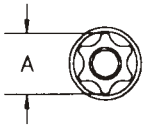
WRENTHAM TOOL GROUP
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

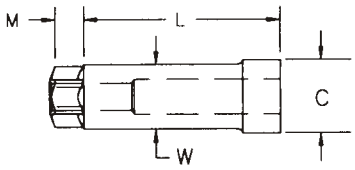
TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

TORX® PUNCH PIN

TAMPER RESISTANT TORX®PUNCH PINS TXP-19







Also available in HEXLOBE® style

TORX® is a registered trademark of Camcar/Textron
HEXLOBE® is a registered trademark of Wrentham Tool Group

T8

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
8TXI-257-HX	0.035	0.0952	0.111	0.375	0.0995

T27

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
27TXI-251-HX**	0.065	0.2005	0.225	0.632	0.2080

T10

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
10TXI-251-HX**	0.040	0.1110	0.128	0.629	0.1150

T30

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
30TXI-253-HX**	0.070	0.2215	0.254	0.632	0.2255

T15

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
15TXI-251-HX**	0.045	0.1320	0.149	0.629	0.1360

T40

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
40TXI-254-HX	0.097	0.2670	0.300	0.760	0.2710

T20

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
20TXI-253-HX**	0.050	0.1550	0.183	0.629	0.1590

T45

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
45TXI-253-HX	0.110	0.3130	0.374	1.010	0.3300

T25

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
25TXI-253-HX**	0.055	0.1785	0.204	0.632	0.1825

T50

PIN NUMBER	M +0.005	A REF	C REF	L REF	W REF
50TXI-257-HX	0.110	0.3530	0.417	1.010	0.3740

** IN STOCK ITEM

WARNING

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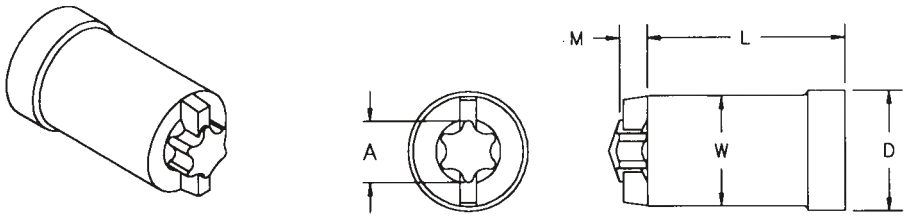
TORX® PUNCH PIN

STRUCK SLOT TORX® PUNCH PIN TXP-33.4A



Also available in HEXLOBE® style

DRIVE SIZE	PIN NUMBER	M +0.005	A REF	D REF	L REF	W REF
T7	7-TXI-277	0.030	0.0820	0.161		0.1410
T8	8-TXI-277	0.040	0.0947	0.178		0.1580
T9	9-TXI-277	0.040	0.1020	0.196	0.629	0.1760
T10	10-TXI-277	0.045	0.1110	0.214		0.1940
T15	15-TXI-277	0.050	0.1320	0.237		0.2170
T20	20-TXI-277	0.060	0.1550	0.286		0.2560
T25	25-TXI-277	0.075	0.1785	0.325		0.2950
T27	27-TXI-277	0.080	0.2005	0.364	0.632	0.3340
T30	30-TXI-277	0.095	0.2215	0.410		0.3800
T40	40-TXI-277	0.110	0.2670	0.519	0.760	0.4690
T45	45-TXI-277	0.140	0.3130	0.614	1.010	0.5640

WARNING

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WRENTHAM TOOL GROUP™
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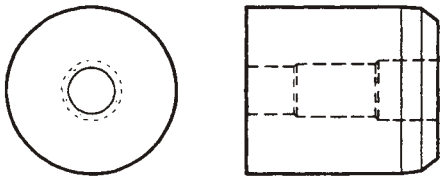
FAX #: 508-966-2326

TORX® PUNCH PIN HOLDERS

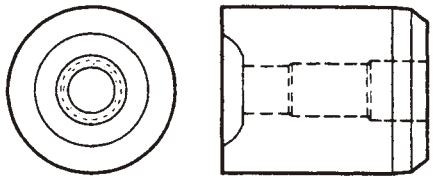
FLAT HEAD TORX® PIN HOLDER TXP-22

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-201**	.5625
T15	15TXI-201**	.5625
T20	20TXI-201**	.5625
T25	25TXI-201**	.875
T27	27TXI-201	.875
T30	30TXI-201**	.875
T40	40TXI-201	.875
T45	45TXI-201**	1.000
T50	50TXI-201	1.000
T55	55TXI-201	1.250



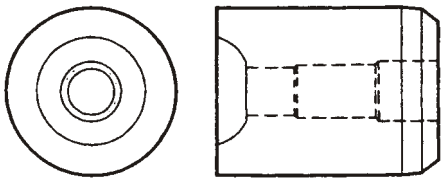
STRUCK SLOT PAN HEAD TORX® PIN HOLDER TXP-33.4B

DRIVE SIZE	PUNCH CODE	DIA.
T7	7TXI-270	.5625
T8	8TXI-270	.5625
T9	9TXI-270	.5625
T10	10TXI-270	.5625
T15	15TXI-270	.5625
T20	20TXI-270	.5625
T25	25TXI-270	.875
T27	27TXI-270	.875
T30	30TXI-270	.875
T40	40TXI-270	.875
T45	45TXI-270	1.000
T50	50TXI-270	1.000
T55	55TXI-270	1.250



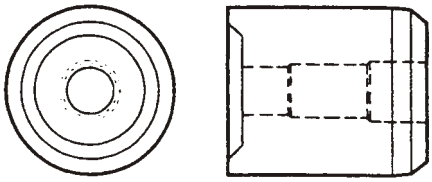
ROUND WASHER HEAD TORX® PIN HOLDER TXP-32

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-280	.5625
T10	10TXI-281	.5625
T15	15TXI-280	.5625
T20	20TXI-280**	.5625
T25	25TXI-280	.875
T27	27TXI-280	.875
T30	30TXI-280	.875



SOCKET HEAD TORX® PIN HOLDER TXP-23

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-300	.5625
T10	10TXI-300A	.5625
T15	15TXI-300	.5625
T25	25TXI-300	.875
T27	27TXI-300	.875
T30	30TXI-300	.875



** IN STOCK ITEM

WARNING

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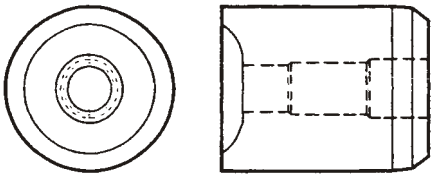
TORX® PUNCH PIN HOLDERS

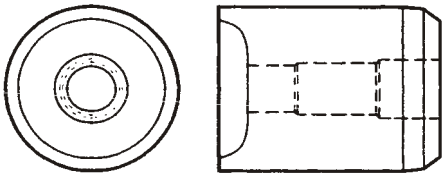
BUTTON HEAD TORX®
PIN HOLDER TXP-26

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-301	.5625
T10	10TXI-301A	.5625
T15	15TXI-301	.5625
T25	25TXI-301**	.875
T27	27TXI-301	.875
T30	30TXI-301	.875
T40	40TXI-301	.875
T45	45TXI-301	1.000
T50	50TXI-301	1.000
T55	55TXI-301	1.250
T60	60TXI-301	1.500



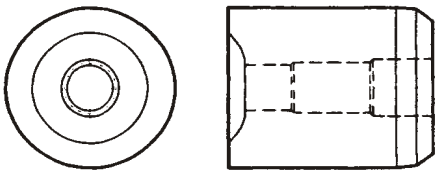
PAN HEAD TORX®
PIN HOLDER TXP-33

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-303	.5625
T15	15TXI-303	.5625
T20	20TXI-303	.5625
T25	25TXI-303	.875
T27	27TXI-303	.875
T30	30TXI-303	.875
T40	40TXI-303	.875
T45	45TXI-303	1.000
T50	50TXI-303	1.000
T55	55TXI-303	1.250



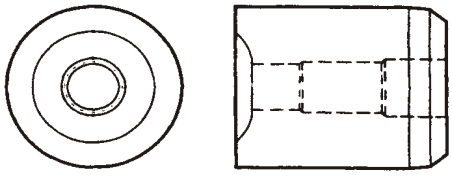
PAN HEAD TORX®
PIN HOLDER TXP-33.5

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-307	.5625
T15	15TXI-307	.5625
T20	20TXI-307	.5625
T25	25TXI-307	.875
T27	27TXI-307	.875
T30	30TXI-307	.875
T40	40TXI-307	.875
T45	45TXI-307	1.000
T50	50TXI-307	1.000
T55	55TXI-307	1.250



PAN HEAD TORX®
PIN HOLDER TXP-33.5A

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-308**	.5625
T15	15TXI-308**	.5625
T20	20TXI-308**	.5625
T25	25TXI-308**	.875
T27	27TXI-308	.875
T30	30TXI-308**	.875
T40	40TXI-308**	.875
T45	45TXI-308	1.000
T50	50TXI-308	1.000
T55	55TXI-308	1.250



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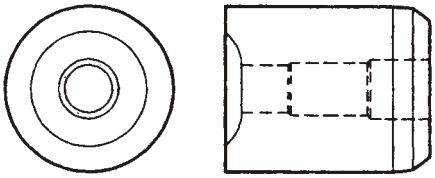
FAX #: 508-966-2326

TORX® PUNCH PIN HOLDERS

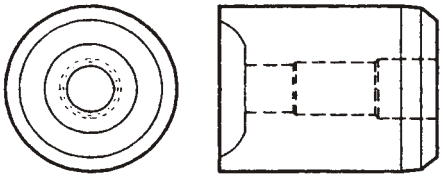
OVAL HEAD TORX® PIN HOLDER TXP-36

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-350	.5625
T15	15TXI-350	.5625
T20	20TXI-350	.5625
T25	25TXI-350	.875
T27	27TXI-350	.875
T30	30TXI-350	.875
T40	40TXI-350	.875
T45	45TXI-350	1.000
T50	50TXI-350	1.000
T55	55TXI-350A	1.250
T60	60TXI-350	1.500



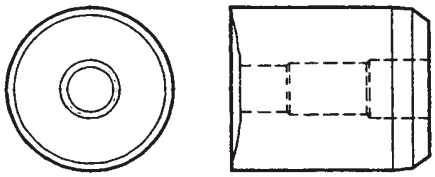
TRUSS HEAD TORX® PIN HOLDER TXP-35

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-360	.5625
T15	15TXI-360	.5625
T20	20TXI-360**	.5625
T25	25TXI-360	.875
T27	27TXI-360	.875
T30	30TXI-360**	.875
T40	40TXI-360**	.875
T45	45TXI-360	1.000
T50	50TXI-360	1.000
T55	55TXI-360	1.250



FILLISTER HEAD TORX® PIN HOLDER TXP-37

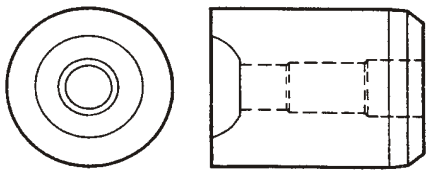
DRIVE SIZE	PUNCH CODE	DIA.
T10	10TXI-370	.5625
T10	10TXI-371	.5625
T15	15TXI-370	.5625
T20	20TXI-370	.5625
T25	25TXI-370	.875
T27	27TXI-370	.875
T30	30TXI-370	.875
T40	40TXI-370	.875
T45	45TXI-370	1.000
T50	50TXI-370	1.000
T55	55TXI-370	1.250



ROUND WASHER HEAD TORX® HOLDERS TMP-44, 45

DRIVE SIZE	PUNCH CODE	DIA.
T6	6TMI-318*	.4375
T8	8TMI-318*	.5625
T10	10TMI-318	.5625
T15	15TMI-318	.5625
T20	20TMI-318	.5625
T25	25TMI-318	.875
T30	30TMI-318	.875
T40	40TMI-318	.875
T50	50TMI-318	1.250
T55	50TMI-318	1.250

*1-PC. PUNCH



HEAD STYLES NOT SHOWN ARE AVAILABLE UPON REQUEST.

** IN STOCK ITEM

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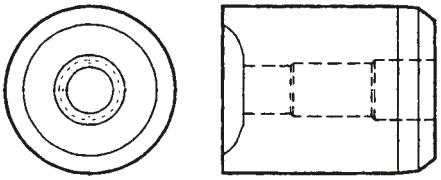
METRIC TORX® PUNCH PIN HOLDERS

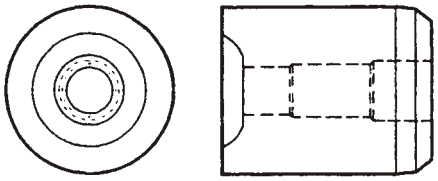
BUTTON HEAD TORX® PIN HOLDER TMP-46

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-302	.5625
T10	10TMI-302A	.5625
T15	15TMI-320	.5625
T25	25TMI-302	.875
T27	27TMI-302	.875
T30	30TMI-302	.875
T40	40TMI-302	1.000
T45	45TMI-302	1.000
T50	50TMI-302	1.500
T50	50TMI-302	1.500
T55	55TMI-302	1.500



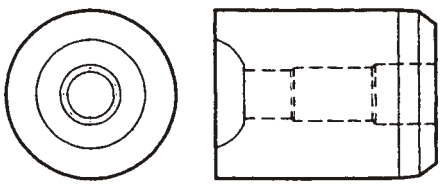
STRUCK SLOT PAN HEAD TORX® PIN HOLDER TMP-49B

DRIVE SIZE	PUNCH CODE	DIA.
T8	8TMI-272*	.5625
T10	10TMI-272	.5625
T10	10TMI-273	.5625
T15	15TMI-271	.5625
T20	20TMI-272	.5625
T20	20TMI-273	.5625
T25	25TMI-271	.875
T30	30TMI-272	.875
T30	30TMI-273	.875
T40	40TMI-272	1.000
T50	50TMI-272	1.250
T50	50TMI-273	1.250



ROUND WASHER HEAD TORX® PIN HOLDER TMP-50

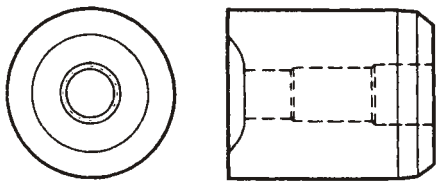
DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-281	.5625
T10	10TMI-282	.5625
T20	20TMI-281	.5625
T20	20TMI-282	.5625
T20	20TMI-283	.5625
T30	30TMI-282	.875
T40	40TMI-281	.875
T50	50TMI-281	1.000



PAN HEAD TORX® PIN HOLDER TMP-44, 45

DRIVE SIZE	PUNCH CODE	DIA.
T6	6TMI-315*	.4375
T8	8TMI-315*	.5625
T10	10TMI-315	.5625
T15	15TMI-315	.5625
T20	20TMI-315	.5625
T25	25TMI-315	.875
T27	27TMI-315	.875
T30	30TMI-315	.875
T40	40TMI-315	.875
T50	50TMI-315	1.000

*1-PC. PUNCH



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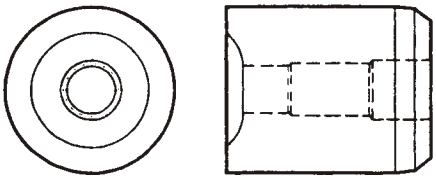
FAX #: 508-966-2326

METRIC TORX® PUNCH PIN HOLDERS

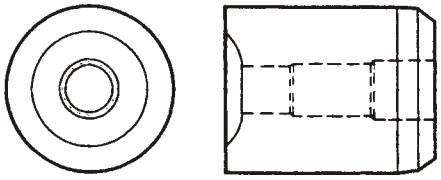
PAN HEAD TORX®
PIN HOLDER TMP-51

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-307	.5625
T15	15TMI-307	.5625
T20	20TMI-307	.5625
T25	25TMI-307	.875
T25	25TMI-307A	.875
T30	30TMI-307	.875
T40	40TMI-307	.875
T50	50TMI-307	1.000



PAN HEAD TORX®
PIN HOLDER TMP-51A

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-308	.5625
T15	15TMI-308	.5625
T20	20TMI-308**	.5625
T25	25TMI-308**	.875
T25	25TMI-308A	.875
T30	30TMI-308**	.875
T40	40TMI-308**	.875
T50	50TMI-308	1.000



OVAL HEAD TORX®
PIN HOLDER TMP-44, 45

DRIVE SIZE	PUNCH CODE	DIA.
T8	8TMI-620*	.5625
T10	10TMI-620	.5625
T10	10TMI-621	.5625
T15	15TMI-620	.5625
T20	20TMI-620	.5625
T25	25TMI-620	.875
T25	25TMI-621	.875

*1-PC. PUNCH

ROUND WASHER HEAD TORX®
PIN HOLDER TMP-44, 45

DRIVE SIZE	PUNCH CODE	DIA.
T6	6TMI-305*	.4375
T8	8TMI-305*	.5625
T10	10TMI-305	.5625
T15	15TMI-305	.5625
T20	20TMI-305	.5625
T25	25TMI-305	.875
T30	30TMI-305	.875
T40	40TMI-305	.875
T50	50TMI-305	1.000

** IN STOCK ITEM

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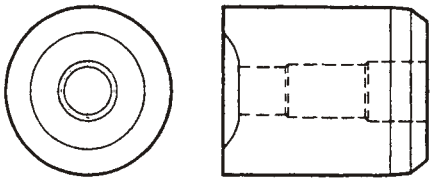
METRIC TORX® PUNCH PIN HOLDERS

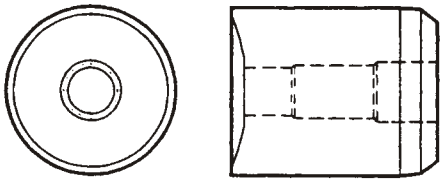
PAN HEAD TORX®
PIN HOLDER TMP-48

DRIVE SIZE	PUNCH CODE	DIA.
T6	6TMI-343*	.4375
T8	8TMI-340*	.5625
T8	8TMI-342*	.5625
T10	10TMI-340**	.5625
T10	10TMI-341	.5625
T15	15TMI-340	.5625
T20	20TMI-340**	.5625
T20	20TMI-341	.5625
T20	20TMI-342	.5625
T25	25TMI-340	.875
T25	25TMI-341	.875
T25	25TMI-342**	.875
T30	30TMI-340	.875
T30	30TMI-341	.875
T30	30TMI-342	.875
T30	30TMI-343	.875
T40	40TMI-341	.875



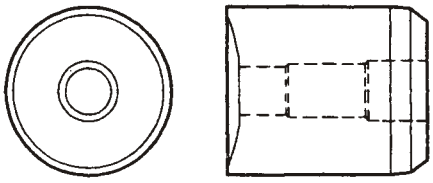
OVAL HEAD TORX®
PIN HOLDER TMP-45, 47

DRIVE SIZE	PUNCH CODE	DIA.
T8	8TMI-350*	.5625
T8	8TMI-351*	.5625
T8	8TMI-352*	.5625
T8	8TMI-353*	.5625
T10	10TMI-351	.5625
T10	10TMI-352	.5625
T15	15TMI-351	.5625
T15	15TMI-352	.5625
T20	20TMI-351	.5625
T20	20TMI-352	.5625
T20	20TMI-353	.5625
T25	25TMI-351	.875
T25	25TMI-352	.875
T30	30TMI-351	.875
T30	30TMI-352	.875
T30	30TMI-353	.875
T40	40TMI-352	.875



OVAL HEAD TORX®
PIN HOLDER TMP-53

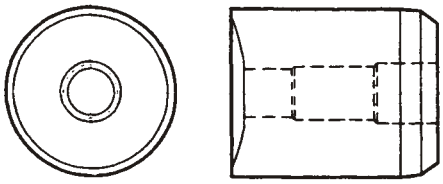
DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-313	.5625
T15	15TMI-313	.5625
T20	20TMI-313	.5625
T25	25TMI-313	.875



** IN STOCK ITEM

OVAL HEAD TORX®
PIN HOLDER TMP-52

DRIVE SIZE	PUNCH CODE	DIA.
T10	10TMI-332	.5625
T15	15TMI-332	.5625
T20	20TMI-332	.5625
T25	25TMI-332	.875
T30	30TMI-332	.875
T40	40TMI-332	.875
T50	50TMI-332	1.000



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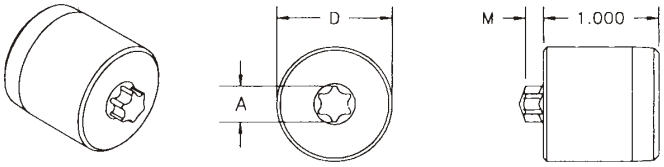
FLAT TORX® PUNCHES

ONE PIECE FLAT TORX® PUNCHES TXP-21.1

Also available with Hexlobe® Recess.



T10

PIN NUMBER	M +0.003	A REF	D REF
10-TXI-150	0.055		
10-TXI-151	0.047		
10-TXI-152	0.065		
10-TXI-153	0.040	0.1110	0.5625
10-TXI-154	0.053		
10-TXI-155	0.037		
10-TXI-156	0.030		

T15

PIN NUMBER	M +0.003	A REF	D REF
15-TXI-150	0.065		
15-TXI-151	0.050		
15-TXI-152	0.075		
15-TXI-153	0.040	0.1320	0.5625
15-TXI-154	0.047		
15-TXI-155	0.037		
15-TXI-156	0.063		

T20

PIN NUMBER	M +0.003	A REF	D REF
20-TXI-150	0.094		
20-TXI-152	0.085		
20-TXI-153	0.062	0.1550	0.5625
20-TXI-154	0.052		
20-TXI-155	0.065		
20-TXI-156	0.042		

T25

PIN NUMBER	M +0.003	A REF	D REF
25-TXI-150	0.120		
25-TXI-151	0.070		
25-TXI-152	0.095	0.1785	0.8750
25-TXI-153	0.062		
25-TXI-154	0.088		

T27

PIN NUMBER	M +0.003	A REF	D REF
27-TXI-150	0.125		
27-TXI-151	0.077		
27-TXI-152	0.110	0.2005	0.8750
27-TXI-153	0.090		
27-TXI-154	0.080		

T30

PIN NUMBER	M +0.003	A REF	D REF
30-TXI-150	0.130		
30-TXI-151	0.098		
30-TXI-152	0.110		
30-TXI-153	0.075	0.2215	0.8750
30-TXI-154	0.062		
30-TXI-155	0.048		
30-TXI-156	0.092		
30-TXI-157	0.072		

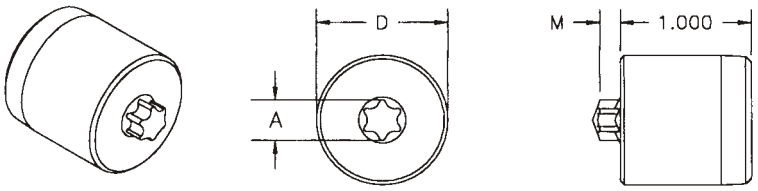
T40

PIN NUMBER	M +0.003	A REF	D REF
40-TXI-150	0.140		
40-TXI-151	0.115		
40-TXI-152	0.130		
40-TXI-153	0.125	0.2670	0.8750
40-TXI-154	0.108		
40-TXI-155	0.090		
40-TXI-156	0.077		
40-TXI-157	0.112		

T45

PIN NUMBER	M +0.003	A REF	D REF
45-TXI-150	0.160		
45-TXI-151	0.120		
45-TXI-152	0.145		
45-TXI-153	0.115	0.3130	1.0000
45-TXI-154	0.097		
45-TXI-155	0.087		
45-TXI-156	0.142		

ONE PIECE FLAT TORX® PUNCHES TXP-15, 15.1



Also available with Hexlobe® Recess.

DRIVE SIZE	PIN NUMBER	M +0.003	A REF	D
T1	1-TXI-275	0.014	0.0354	0.4375
T2	2-TXI-275	0.016	0.0398	0.4375
T3	3-TXI-275	0.018	0.0478	0.4375
T4	4-TXI-275	0.022	0.0541	0.4375
T5	5-TXI-009	0.014		
T5	5-TXI-017	0.022	0.0590	0.4375
T5	5-TXI-025	0.028		
T6	6-TXI-015	0.019		
T6	6-TXI-022	0.027	0.0700	0.4375
T6	6-TXI-030	0.030		
T6	6-TXI-035	0.038		
T7	7-TXI-015	0.022		
T7	7-TXI-020	0.027		
T7	7-TXI-025	0.030		
T7	7-TXI-027	0.032	0.0825	0.4375
T7	7-TXI-030	0.035		
T7	7-TXI-035	0.040		
T8	8-TXI-018	0.025		
T8	8-TXI-020	0.027		
T8	8-TXI-025	0.030		
T8	8-TXI-028	0.035		
T8	8-TXI-030	0.032	0.0952	0.5625
T8	8-TXI-033	0.038		
T8	8-TXI-040	0.040		
T8	8-TXI-043	0.048		
T9	9-TXI-029	0.034		
T9	9-TXI-032	0.037	0.1025	0.5625
T9	9-TXI-035	0.043		
T9	9-TXI-047	0.052		

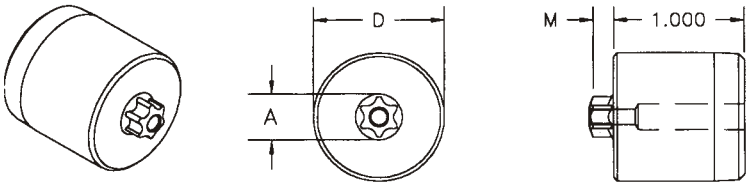
WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

FLAT TORX® PUNCHES

TAMPER RESISTANT FLAT TORX® PUNCHES TXP-19.1



Also available with Hexlobe® Recess.

DRIVE SIZE	PIN NUMBER	M +0.003	A REF	D
T8	8-TXI-30-HX	0.032 / 0.035	0.0942	0.4375
T9	9-TXI-250-HX	0.035 / 0.040	0.1015	0.5625

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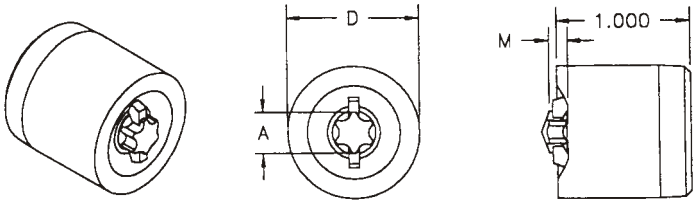
COMBINATION TORX® STRUCK SLOT PAN HEAD PUNCHES TXP-33.4



Also available with Hexlobe® Recess.

DRIVE SIZE	PIN NUMBER	M +0.004	A REF	D
T7	7-TXI-175	0.031	0.0815	
T8	8-TXI-175	0.041	0.0942	0.4375
T8	8-TXI-176	0.041	0.0942	
T9	9-TXI-175	0.040	0.1015	
T10	10-TXI-175**	0.051	0.1110	
T10	10-TXI-176	0.051	0.1110	0.5625
T15	15-TXI-175	0.051	0.1320	
T20	20-TXI-175	0.060	0.1550	
T25	25-TXI-175	0.075	0.1785	
T27	27-TXI-175	0.075	0.2005	0.8750
T30	30-TXI-175	0.090	0.2215	
T40	40-TXI-175	0.110	0.2665	
T45	45-TXI-175	0.140	0.3125	1.0000

** IN STOCK ITEM

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WRENTHAM TOOL GROUP
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FAX #: 508-966-2326

METRIC TORX® PUNCHES

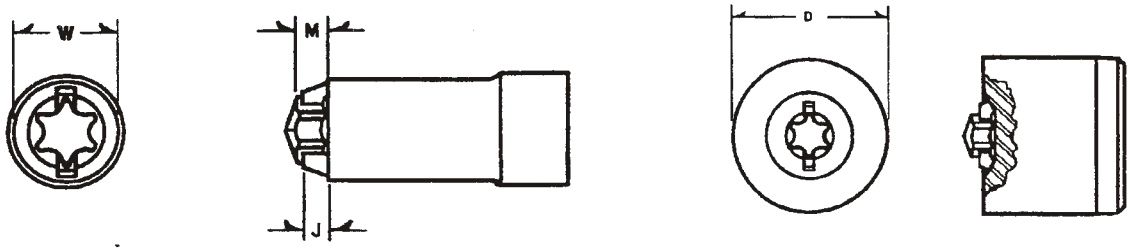
Hexlobe® Style is also available.

STRUCK SLOT TORX® PIN TMP-49A

DRIVE SIZE	PUNCH CODE	M REF.	J
T7	7TXI-170	.030	.027
T8	8TXI-170	.040	.030
T9	9TXI-170	.040	.035
T10	10TXI-170	.045	.040
T15	15TXI-170	.050	.045
T20	20TXI-170	.060	.050
T25	25TXI-170**	.070	.065
T27	27TXI-170	.080	.065
T30	30TXI-170	.095	.070
T40	40TXI-170	.110	.095
T45	45TXI-170	.140	.120
T50	50TXI-170	.154	.135
T55	55TXI-170	.175	.150

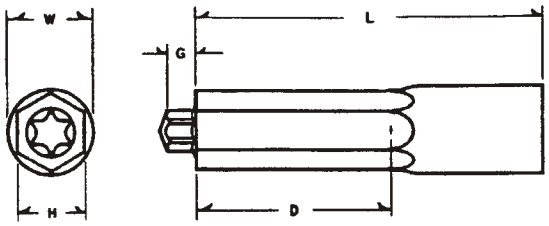
STRUCK SLOT TORX® PUNCHES TMP-51.1

DRIVE SIZE	PUNCH CODE	DIA.
T6	6TMI-175	.4375
T7	7TMI-175	.4375
T8	8TMI-175	.4375
T9	9TMI-175	.4375
T10	10TMI-175	.5625
T15	15TMI-175	.5625
T20	20TMI-175	.5625
T25	25TMI-175	.875
T27	27TMI-175	.875
T30	30TMI-175	.875
T40	40TMI-175	.875
T45	45TMI-175	1.250
T50	50TMI-175	1.250
T55	55TMI-175	1.250



TORX® HEX WASHER HEAD PUNCH PINS TMP-56

DRIVE SIZE	PUNCH CODE	DIA.	G REF.	H	L	W
T10	10TMI-200	.687	.045	.142	1.227	.307
T15	15TMI-200	.687	.050	.187	1.227	.307
T20	20TMI-200	.687	.065	.207	1.227	.307
T25	25TMI-200	.687	.070	.263	1.227	.371
T27	27TMI-200	.687	.080	.302	1.227	.371
T30	30TMI-200	1.250	.095	.381	1.602	.494
T40	40TMI-200	1.250	.115	.497	1.559	.619
T45	45TMI-200	1.250	.140	.575	1.559	.619



** IN STOCK ITEM

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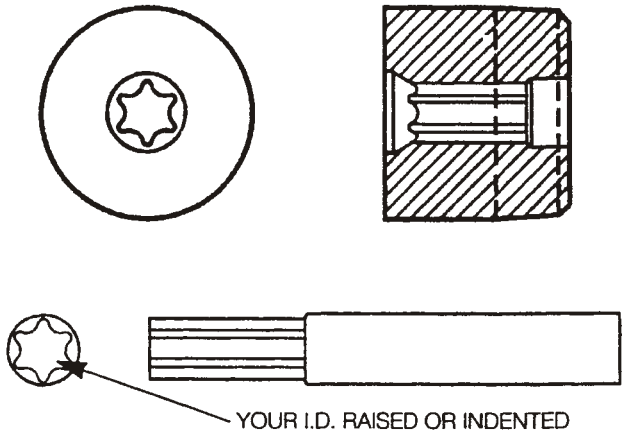
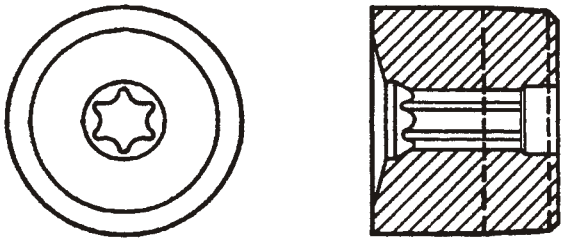
EXTERNAL TORX® PUNCHES

CARBIDE EXTRUSION PUNCH TXP-11, 12

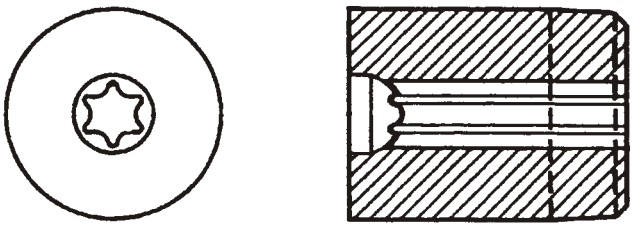
DRIVE SIZE	PUNCH CODE	DIA.	LEN.	PIN CODE
E4	4TXE-200	.500	.750	4TXE-100
E5	5TXE-200	.625	.750	5TXE-100
E6	6TXE-200	.625	.750	6TXE-100
E8	8TXE-200	.750	.750	8TXE-100
E10	10TXE-200	1.000	1.000	10TXE-100
E12	12TXE-200	1.250	1.000	12TXE-100
E14	14TXE-200	1.250	1.000	14TXE-100
E16	16TXE-200	1.250	1.000	16TXE-100
E18	18TXE-200	1.250	1.000	18TXE-100
E20	20TXE-200	1.500	1.500	20TXE-100
E24	24TXE-200	2.000	1.500	24TXE-100
E28	28TXE-200	2.000	1.500	28TXE-100
E32	32TXE-200	2.250	1.750	32TXE-100
E36	36TXE-200	2.000	1.750	36TXE-100
E40	40TXE-200	2.250	1.750	40TXE-100



AUDITORX® PUNCH TXP-40, 41



TORXstem® DIE INSERT TXP-42



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WRENTHAM TOOL GROUP
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

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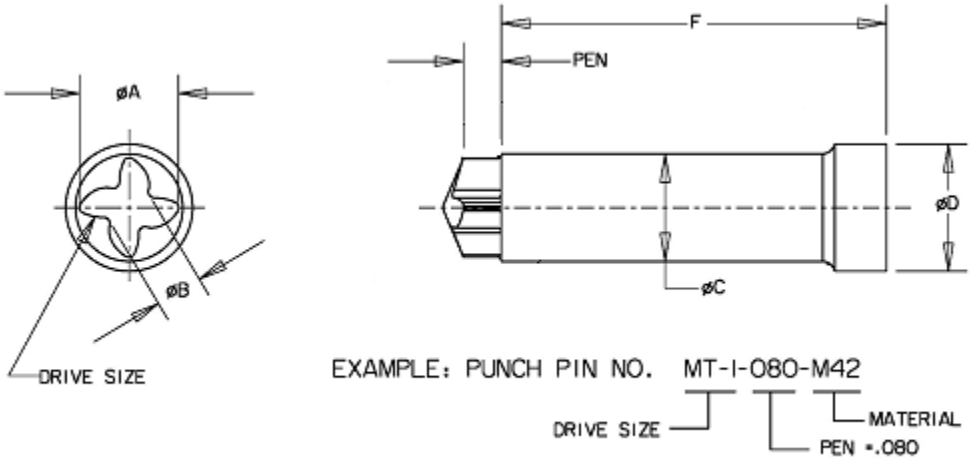
FAX #: 508-966-2326

MORTORQ® SPIRAL PUNCH PINS



DRIVE SIZE	A REF	B REF	D REF	F REF	C REF	PEN -.003
MT-000	.0720	.0345	.086	.376	.0740	SPECIFY
MT-00	.1200	.0575	.149	.629	.1360	SPECIFY
MT-0	.1694	.0811	.204	.632	.1825	SPECIFY
MT-1	.2395	.1131	.300	.760	.2710	SPECIFY
MT-2	.3070	.1450	.374	1.010	.3300	SPECIFY
MT-3	.3527	.1666	.417	1.010	.3740	SPECIFY
MT-4	.4275	.2020	.515	1.010	.4690	SPECIFY
MT-5	.5053	.2389	.592	1.010	.5620	SPECIFY
MT-6	.5928	.2801	.682	1.510	.6520	SPECIFY
MT-7	.7993	.3777	.860	1.510	.8295	SPECIFY
MT-8	.8200	.5218	.948	1.510	.9165	SPECIFY

WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

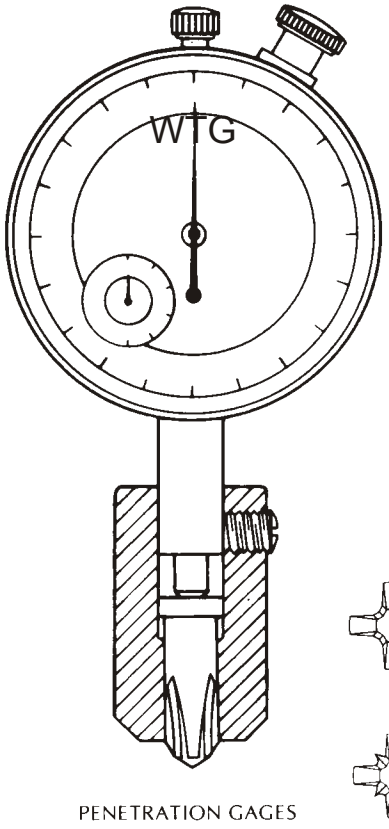
GAGES

PENETRATION GAGES: These gages are used to determine whether recesses, in the heads of screws, are within the allowable tolerance specified in dimensional tables. They are avail- able in Phillips, POZIDRIV®, 1A, QUADREX® and square recess type. Recess sizes available are 0, 1, 2, 3, & 4.

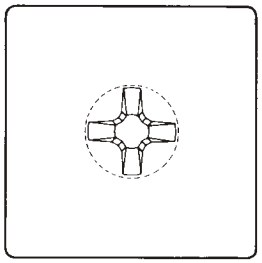
PLUG GAGES: Plug type gages are for checking driver fit in the screw recess. These are available in Phillips, POZIDRIV®, 1A, QUADREX® and square socket recesses.

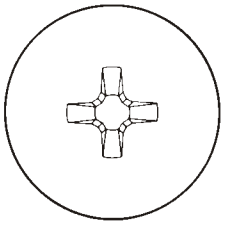
RING GAGES: Available in Phillips®, POZIDRIV® and square recess type, these are used in checking driver fit on a "GO - NO GO" basis.

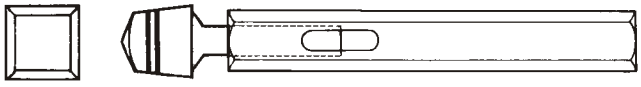
TEST BLOCKS: These blocks are used in measuring the amount of torque exerted upon driver bits in inspection procedures. Available in Phillips®, POZIDRIV®, and Square recess type.

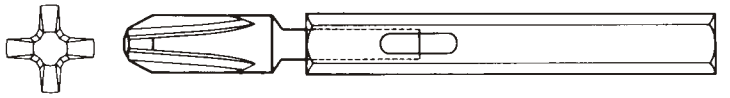


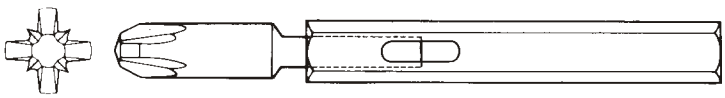
PENETRATION GAGES

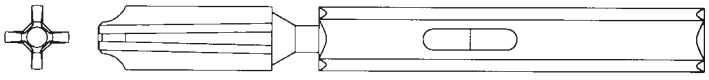

TEST BLOCKS


PHILLIPS RING GAGE


SQUARE SOCKET PLUG GAGE


PHILLIPS® PLUG GAGE


POZIDRIV® AND 1A PLUG GAGE


QUADREX® PLUG GAGE

Prices furnished upon request.

Gages also available in the following:

HEXLOBE®, B.N.A.E., HEX SOCKET, PHILLIPS SQUARE-DRIV®, TORQ-SET®, ACR®TORQ-SET®, TRI-WING®, DIN/ JIS PHILLIPS® ACR®, ACR® PHILLIPS II®, MORTORQ®, MORTORQ® Super, HEXSTIX® TORX®, TORX PLUS®, TORX PLUS® Autosert, and TTAP® gage available from Acument Global Technologies

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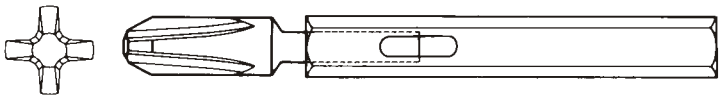
FAX #: 508-966-2326

PHILLIPS®, POZIDRIV®, 1A, QUADREX® & SQUARE SOCKET

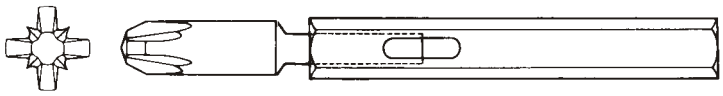
PLUG GAGES

SIZES 0-4



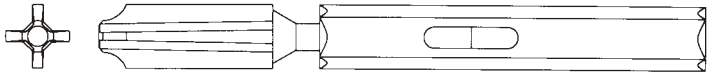
PHILLIPS®

SIZES 0-4



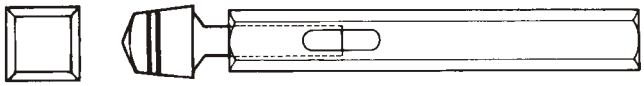
POZIDRIV® AND 1A

SIZES 0-4



QUADREX®

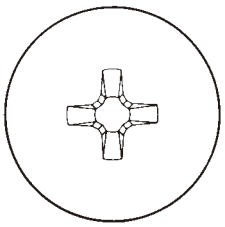
SIZES 0-4



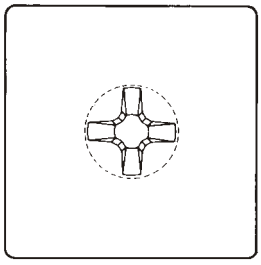
SQUARE SOCKET

TO ORDER: SPECIFY RECESS TYPE & SIZE EXAMPLE —
#3 *PHILLIPS*® PLUG GAGE
EXAMPLE — #2 *SQUARE* SOCKET PLUG GAGE

RING GAGES & TEST BLOCKS



PHILLIPS®
RECESS SIZES
0, 1, 2, 3, & 4



PHILLIPS®
RECESS SIZES
0, 1, 2, 3, & 4

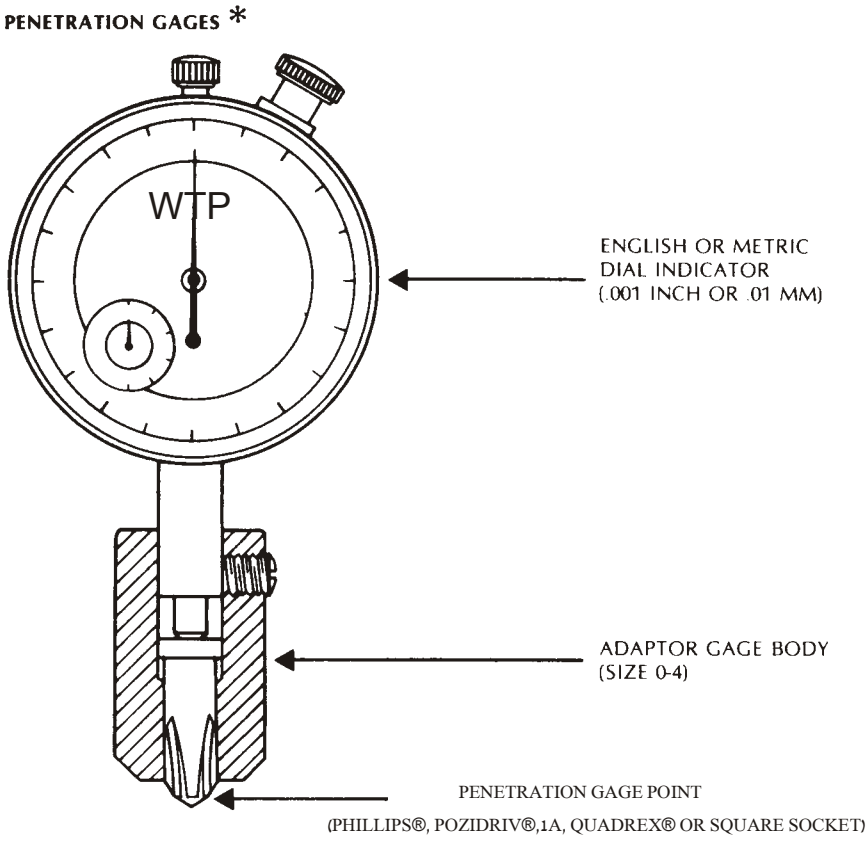
TO ORDER: SPECIFY SIZE & DESCRIPTION
EXAMPLE — *#2 PHILLIPS*® RING GAGE

Gages also available in the following:

HEXLOBE®, B.N.A.E., HEX SOCKET, PHILLIPS SQUARE-DRIV®, TORQ-SET®, ACR®TORQ-SET®, TRI-WING®, DIN/JIS PHILLIPS® ACR®, ACR® PHILLIPS II®, MORTORQ®, MORTORQ® Super, HEXSTIX®

TORX®, TORX PLUS®, TORX PLUS® Autosert, and TTAP® gage available from Acument Global Technologies

PHILLIPS®, POZIDRIV®, QUADREX® AND SQUARE SOCKET



COMPLETE GAGE PART NUMBERS

SIZE	PHILLIPS	POZIDRIV	1A	SQUARE SOCKET	QUADREX
0	0 PHPG	0 PZPG	0 1APG	0 SQPG	0 QXPG
1	1 PHPG	1 PZPG	1 1APG	1 SQPG	1 QXPG
2	2 PHPG	2 PZPG	2 1APG	2 SQPG	2 QXPG
3	3 PHPG	3 PZPG	3 1APG	3 SQPG	3 QXPG
4	4 PHPG	4 PZPG	4 1APG	4 SQPG	4 QXPG

*Please note that all components can be purchased individually or as a complete gage.

Gages also available in the following:

HEXLOBE®, B.N.A.E., HEX SOCKET, PHILLIPS SQUARE-DRIV®, TORQ-SET®, ACR®TORQ-SET®, TRI-WING®, DIN/JIS PHILLIPS® ACR®, ACR® PHILLIPS II®, MORTORQ®, MORTORQ® Super, HEXSTIX®, TORX®, TORX PLUS®, TORX PLUS® Autosert, and TTAP® gage available from Acument Global Technologies

WRENTHAM TOOL GROUP
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

Code No.	Blank Diam.	Description
3P00-1	7/16	#0 Special Binding Head
3P00-3	7/16	#1 Special Binding Head
3P00-4	7/16	#0 Flat Head
3P00-5	7/16	#1 Flat Head
3P00-6	7/16	#0 Round Head
3P00-7	7/16	#1 Round Head
3P00-8	7/16	#0 Oval Head
3P00-9	7/16	#1 Oval Head
3P00-12	7/16	#0 Truss Head
3P00-13	7/16	#1 Truss Head
3P00-14	7/16	#0 Pan and Fillister Head
3P00-15	7/16	#1 Pan and Fillister Head
3P00-16	7/16	#0 Flat Top Truss Head
3P00-17	7/16	#1 Flat Top Truss Head
3P00-18	7/16	#1 Indented Hex Head
3P00-19	7/16	#0 100° Flat Head
3P00-20	7/16	#0 Finished Fillister Head
3P00-21	7/16	#1 Finished Fillister Head
3P00-24	7/16	#0 Binding Head
3P00-25	7/16	#1 Binding Head

Code No.	Blank Diam.	Description
3P10-1	7/16	#2 Flat Head Wood, Machine & Tapping #3 Undercut
3P10-2	7/16	#3 Flat Head Wood, Machine & Tapping
3P10-3	7/16	#4 Flat Head Wood, Machine & Tapping #5 Undercut
3P10-4	7/16	#2 Oval Head Wood, Machine & Tapping
3P10-5	7/16	#3 Oval Head Wood, Machine & Tapping #4 Trim
3P10-6	7/16	#4 Oval Head Wood, Machine & Tapping #5 & #6 with #4 Head Oval Trim
3P10-9	7/16	#2 Round Head Wood
3P10-10	7/16	#3 Round Head Wood
3P10-11	7/16	#4 Round Head Wood
3P10-12	7/16	#4 Old Style Fillister
3P10-13	7/16	#2 Fillister Head and Pan
3P10-14	7/16	#3 Pan Head Wood
3P10-15	7/16	#4 Pan Head Wood, Machine & Tapping
3P10-16	9/16	#6 low Round Head Machine
3P10-17	7/16	#4 Truss Head Machine & Tapping
3P10-18	7/16	#5 Truss Head Machine & Tapping
3P10-20	7/16	#2 Miniature Pan Head Machine
3P10-23	7/16	#2 Washer Head Wood, Machine & Tapping
3P10-24	7/16	#3 Washer Head Wood, Machine & Tapping
3P10-25	7/16	#4 Washer Head Wood, Machine & Tapping
3P10-26	7/16	#6 Flat Top Binding Head Machine
3P10-35	7/16	#2 Finished Fillister Head Machine
3P10-36	7/16	#4 Finished Fillister Head Machine & Tapping
3P10-37	7/16	#3 Finished Fillister Head Machine
3P10-41	7/16	#4 Indented Hex Head Tapping
3P10-42	7/16	#5 Indented Hex Head Tapping
3P10-44	7/16	#4 Round Head Machine & Tapping

Code No.	Blank Diam.	Description
3P10-45	7/16	#3 Round Head Machine & Tapping
3P10-46	7/16	#2 Round Head Machine & Tapping
3P10-54	7/16	#4-82° Flat Head Machine Undercut
3P10-61	7/16	#3 Truss Head Machine & Tapping (Obsolete)
3P10-62	7/16	#4 Electric Binding Head
3P10-63	7/16	#2 Electric Binding Head
3P10-64	7/16	#3 Electric Binding Head
3P10-66	7/16	#2 Binding Head Machine (Special)
3P10-80	7/16	#2-100° Flat Head Machine Undercut, Machine
3P10-82	7/16	#2-100° Oval Head Tapping
3P10-83	7/16	#3-100° Oval Head Tapping
3P10-84	7/16	#4-100° Oval Head Tapping
3P10-100	7/16	#2 Flat Top Truss Head Machine & Tapping
3P10-101	7/16	#3 Flat Top Truss Head Machine & Tapping
3P10-102	7/16	#4 Flat Top Truss Head Machine & Tapping
3P10-103	7/16	#5 Flat Top Truss Head Machine & Tapping
3P10-119	7/16	4-40 E.K. Miniature Pan Head
3P10-127	7/16	#2 Indented Hex Head
3P10-128	7/16	#3 Indented Hex Head
3P10-129	7/16	#2 Round Combination Slot
3P10-130	7/16	#3 Round Combination Slot
3P10-131	7/16	#4 Round Combination Slot
3P10-154	7/16	#2 Pan Combination
3P10-155	7/16	#3 Pan Combination
3P10-156	7/16	#4 Pan Combination
3P10-157	7/16	#4 Trimmed Hex
3P10-158	9/16	Flat Baseboard Screw
3P10-159	7/16	10-6 with “S”
3P10-163	7/16	10-3 with “S”
3P10-169	9/16	10-158 with “S”

Made to order punches, to customer specifications are available on a special basis. Punches made to metric, DIN, and other foreign standards are also available in the head and recess styles which we produce.

WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
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Code No.	Blank Diam.	Description
3P20-1	7/16	#5 Flat Head Wood, Machine & Tapping, #7 Undercut
3P20-2	7/16	#6 Flat Head Wood, Machine & Tapping, #8 Undercut
3P20-3	9/16	#7 Flat Head Wood, #8 Machine & Tapping, #10 Undercut
3P20-4	9/16	#8 Flat Head Wood, #10 Machine & Tapping
3P20-5	9/16	#9 Flat Head Wood
3P20-6	9/16	#7 Flat Head Tapping
3P20-7	7/16	#5 Oval Head Wood, Machine & Tapping, #6 & #8 with #5 Head Oval Trim
3P20-8	7/16	#6 Oval Head Wood, Machine & Tapping, #8 Trim with #6 Head
3P20-9	9/16	#7 Oval Head Wood
3P20-10	9/16	#8 Oval Head Wood
3P20-11	9/16	#9 Oval Head Wood
3P20-12	9/16	#8 Oval Head Machine & Tapping, #10 Oval Head Trim with #8 Head and #10 & #12 Oval Head Trim with #8 Head
3P20-13	9/16	#10 Oval Head Machine & Tapping, #12 & #14 Oval Trim with #10 Head
3P20-14	9/16	#7 Oval Head Tapping
3P20-15	7/16	#6 Round Head Wood & Machine & Tapping
3P20-16	9/16	#7 Round Head Wood & Tapping
3P20-17	9/16	#8 Round Head Wood, Machine & Tapping
3P20-18	9/16	#9 Round Head Wood
3P20-19	9/16	#10 Round Head Wood, Machine & Tapping
3P20-20	7/16	#5 Pan Head Machine & Tapping
3P20-21	7/16	#6 Pan Head Machine & Tapping
3P20-22	9/16	#7 Pan Head Tapping
3P20-23	9/16	#8 Pan Head Machine & Tapping
3P20-24	9/16	#9 Pan Head Machine & Tapping
3P20-25	9/16	#10 Pan Head Machine & Tapping
3P20-26	7/8	#10 Binding Head (Special)
3P20-28	9/16	#8 Oval Head Trim, #6 Head
3P20-29	9/16	#6 Low Round Head Wood
3P20-30	7/16	#5 Round Head Wood, Machine & Tapping
3P20-31	9/16	#10 Flat Head Wood
3P20-32	9/16	#10 Oval Head Wood (Special)

Code No.	Blank Diam.	Description
3P20-33	9/16	#8 Truss Head Machine & Tapping
3P20-34	7/8	#10 Truss Head Machine & Tapping
3P20-43	7/8	Special for Continental
3P20-44	9/16	Special for Continental
3P20-45	7/16	#5 Washer Head Wood, Machine & Tapping
3P20-46	7/16	#6 Washer Head Wood, Machine & Tapping
3P20-47	9/16	#7 Washer Head Wood, Machine & Tapping
3P20-48	9/16	#8 Washer Head Wood, Machine & Tapping
3P20-49	9/16	#10 Washer Head Wood, Machine & Tapping
3P20-60	7/8	1/4” Binding Head Machine (Special)
3P20-63	9/16	#6 Truss Head Machine & Tapping
3P20-64	7/8	#9 Truss Head Tapping
3P20-71	9/16	#7 Truss Head Tapping
3P20-91	7/8	1/4” Lentil Machine (Special)
3P20-92	7/8	1/4” Oval Head Machine (Special)
3P20-100	7/16	#6 Indented Hex Head Tapping
3P20-101	7/16	#7 Indented Hex Head Tapping
3P20-102	9/16	#8 Indented Hex Head Tapping
3P20-103	9/16	#10 Indented Hex Head Tapping
3P20-123	7/16	#5 100° Flat Head Tapping
3P20-131	9/16	#8 100° Flat Head Machine with X
3P20-132	9/16	#10 100° Flat Head Machine with X
3P20-133	9/16	#6 Binding Head Machine (Special)
3P20-134	7/16	#8 Flat Head Sheet Metal (Special)
3P20-135	9/16	#8 100° Flat Head Machine
3P20-136	9/16	#10 100° Flat Head Machine
3P20-137	7/16	#6 Trimmed Hex Head Machine
3P20-142	7/16	#6 Truss Head Machine & Tapping
3P20-143	9/16	#10 Electric Binding Head
3P20-144	9/16	#5 Electric Binding Head
3P20-145	9/16	#8 Electric Binding Head — Fisher #9718526
3P20-147	9/16	#10 Trimmed Hex Head Machine
3P20-148	9/16	#6 Truss Head Machine & Tapping
3P20-149	7/16	#6 Truss Head Machine & Tapping
3P20-150	9/16	#6 Flat Head Wood & Machine
3P20-153	3/4	#10 Truss Head Machine & Metal
3P20-156	9/16	#8 Washer Head Tapping (Special)
3P20-163	9/16	#8 Flat Head Machine with dash
3P20-164	9/16	#6 Pan Head Spinlock Machine & Tapping

WRENTHAM TOOL GROUP
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

Code No.	Blank Diam.	Description
3P20-176	7/16	#6 & #8 Oval Head Trim with #5 Head
3P20-203	9/16	#9 Oval 100° Machine
3P20-207	7/16	#6-100° Flat Head Machine with dash
3P20-210	7/8	#12 Oval Head Machine (Special)
3P20-212	5/8	#10 Truss Head same as 3P20-34 except No Pin Slot
3P20-219	9/16	#10 Truss Head same as 3P20-34 except No Pin Slot
3P20-223	9/16	#8 Undercut Binding Head Machine
3P20-229	9/16	#6 Flat Head Wood Fillister (Special)
3P20-231	9/16	#10 Flat Head Tapping wide Flat
3P20-239	9/16	#10-100° Flat Head NAS517
3P20-243	9/16	#8 Flat Head Tapping wide Flat
3P20-248	9/16	#8-100° Flat Head with X dash X
3P20-249	9/16	#10-100° Flat Head with X dash X
3P20-254	9/16	#12 Flat with #8 Head
3P20-255	9/16	#10 & #12 Oval Head Trim with #8 Head
3P20-256	9/16	#12 & #14 Oval Head Trim with #10 Head
3P20-257	7/16	#6 Finished Fillister Head Machine & Tapping
3P20-258	9/16	#10 Finished Fillister Head Machine & Tapping
3P20-265	7/16	#5 Finished Fillister Head Machine & Tapping
3P20-266	9/16	#8 Finished Fillister Head Machine & Tapping
3P20-278	9/16	#7 Finished Fillister Machine
3P20-285	7/16	#6 Flat Head Undercut Machine & Tapping
3P20-321	9/16	#6 Flat Top Truss Head Machine & Tapping
3P20-322	9/16	#7 Flat Top Truss Head Tapping
3P20-323	9/16	#8 Flat Top Truss Head Machine & Tapping
3P20-324	7/8	#10 Flat Top Truss Head Machine & Tapping
3P20-338	7/16	#6 Flat Top Truss Head Machine
3P20-339	3/4	#10 Flat Top Truss Head Machine
3P20-340	7/8	#9 Flat Top Truss Head Machine
3P20-346	7/16	#5 Shaved Fillister Head Type A Tapping
3P20-347	9/16	#10 Flat Top Truss Head No Pin Slot
3P20-348	5/8	#10 Flat Top Truss Head No Pin Slot
3P20-361	7/8	Special Fisher Body #8 Gimlet Screw
3P20-362	9/16	#6 Pyramid Head
3P20-385	9/16	Same as 3P20-323 No Pin Slot
3P20-387	7/16	Special Washer Head for Fisher Body #4765687
3P20-388	5/8	Special #10 Washer Head
3P20-389	7/16	3P20-15 with Struck Slot
3P20-390	9/16	3P20-17 with Struck Slot

Code No.	Blank Diam.	Description
3P20-391	9/16	3P20-19 with Struck Slot
3P20-395	7/8	Special Washer Head for Fisher Body
3P20-396	9/16	Oversize #10 100° Flat to shave
3P20-397	7/8	3P20-13 button with 3P30-13 recess
3P20-398	7/8	Same as 3P30-24 with 3P20-34 recess
3P20-435	9/16	#7 Pyramid Head
3P20-436	9/16	Nash Kelvinator #1146128
3P20-474	9/16	#8 Trimmed Hex Head
3P20-475	7/16	#5 Combination Round Head Phillips & Slotted
3P20-476	9/16	#7 Combination Round Head Phillips & Slotted
3P20-483	7/8	Same as 3P20-2 except blank diameter
3P20-486	7/8	Same as 3P20-4 except blank diameter
3P20-499	7/8	Part #4719582 Fisher Body
3P20-500	7/8	Chevrolet #3786100
3P20-510	7/8	Special
3P20-522	9/16	Ford Motor #376129
3P20-524	9/16	Westinghouse #NA-20A142-2
3P20-526	3/4	Delco-Remy #1957501
3P20-540	9/16	Special Flat Head Construction Screw
3P20-551	7/16	#5 Pan Combination
3P20-552	7/16	#6 Pan Combination
3P20-553	9/16	#7 Pan Combination
3P20-554	9/16	#8 Pan Combination
3P20-555	9/16	#10 Pan Combination
3P20-563	9/16	Same as 20-6 with “S” on head
3P20-564	7/16	Same as 20-7 with “S” on head
3P20-565	7/16	Same as 20-8 with “S” on head
3P20-566	9/16	Same as 20-12 with “S” on head
3P20-567	9/16	Same as 20-13 with “S” on head
3P20-568	7/16	Same as 20-2 with “S” on head
3P20-569	9/16	Same as 20-3 with “S” on head
3P20-570	9/16	Same as 20-4 with “S” on head
3P20-571	7/8	Same as 20-3 7/8 Blank
3P20-572	7/8	Same as 20-6 7/8 Blank 11/16 Flat
3P20-573	7/8	Same as 20-156 7/8 Blank 1/2 Flat
3P20-574	7/8	Same as 20-322 7/8 Blank 11/16 Flat
3P20-575	9/16	Binding POZIDRIV®
3P20-576	9/16	#6 Flat Top Washer, Chrysler, #6029069, #6028545

WRENTHAM TOOL GROUP™
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TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

Code No.	Blank Diam.	Description
3P20-577	9/16	Same as 20-540 with “S” on head
3P20-583	7/8	#6023386 or #6023476
3P20-584	7/8	20-499 with “S”
3P20-585	7/16	20-387 Larger “N”
3P20-586	9/16	#10 Flat Top Washer Head, Chrysler, #6028439, #6029299
3P20-592	7/8	#10 Flat Top Washer
3P20-596	9/16	#8 Flat Top Washer — Ford 56919-5Z
3P20-597	9/16	#10 Flat Top Washer
3P20-598	7/8	20-34 Combination
3P20-599	7/8	20-499 except Head Height & Flat Top — Ford 381081
3P20-600	9/16	20-25 with “S”
3P20-601	9/16	Special #10 Flat
3PZ20-603	5/8	20-4 5/8” Blank POZIDRIV®
3P20-616	9/16	20-596 Full Flat
3P20-617	9/16	20-11 with “S” on head
3P20-619	9/16	20-540 3 Rings
3P20-624	9/16	Same as 20-540 with “B”
3P20-629	7/8	20-324 12 Radial Lines
3P20-630	9/16	Chrysler #6027604, #6028240, #6028097
3P20-631	7/16	**Special** 5 Oval Combination
3PZ20-632	9/16	#10 Flange Head
3P20-633	7/16	**Special** 6 Oval Combination
3P20-634	9/16	**Special** 8 Oval Combination
3P20-636	9/16	Olds 588546 Chev 6264140 Fisher 96162310
3PZ20-639	7/8	POZIDRIV®-20-499 except Head Diam.
3P20-640	3/4	20-324 12 Radial Lines — Frigidaire 0619229
3PZ20-641	9/16	Fisher 750P04735-22
3PZ20-642	9/16	Special Curved Top Combination — POZIDRIV®
3PZ20-643	7/8	Fisher 20016079
3PZ20-644	—	#8 Indented Hex Pin — Fisher 11503250
3PZ20-645	9/16	AMC 4004403
3PZ20-646	9/16	Fisher 20006694

Made to order punches, to customer specifications are available on a special basis. Punches made to metric, DIN, and other foreign standards are also available in the head and recess styles which we produce.

Code No.	Blank Diam.	Description
3P30-1	9/16	#10 Flat Head Wood
3P30-2	7/8	#11 Flat Head Wood, #12 Machine & Tapping, #16 Undercut machine & Tapping
3P30-3	7/8	#12 Flat Head Wood, 1/4” Machine, #14 Tapping
3P30-4	7/8	#14 Flat Head Wood, #16 Tapping
3P30-5	1	#16 Flat Head Wood
3P30-6	7/8	#10 Oval Head Wood
3P30-7	7/8	#11 Oval Head Wood
3P30-8	7/8	#12 Oval Head Wood
3P30-9	7/8	#14 Oval Head Wood
3P30-10	1	#16 Oval Head Wood & Tapping
3P30-11	7/8	#12 Oval Head Machine & Tapping, #14 Oval Trim with #12 Head
3P30-12	7/8	1/4” Oval Head Machine
3P30-13	7/8	#14 Oval Head Tapping
3P30-15	7/8	#11 Round Head Wood
3P30-16	7/8	#12 Round Head Wood, Machine & Tapping
3P30-17	7/8	#14 Round Head Wood & Tapping
3P30-18	1	#16 Round Head Wood & Tapping
3P30-19	7/8	1/4” Round Head Machine
3P30-20	1	5/16” Round Head Machine
3P30-21	7/8	#12 Pan Head Machine & Tapping
3P30-22	7/8	1/4” Pan Head Machine, #14 Tapping
3P30-24	7/8	#12 Truss Head Machine & Tapping
3P30-25	7/8	1/4” Truss Head Machine
3P30-26	7/8	5/16” Lentil Machine
3P30-30	7/8	5/16” Fillister Head Machine & Metal
3P30-39	7/8	#14 Washer Head Wood, Machine & Tapping
3P30-42	7/8	#12 Washer Head Wood, Machine & Tapping
3P30-43	7/8	1/4 Washer Head Wood, Machine & Tapping
3P30-44	1	5/16” Washer Head Wood, Machine & Tapping
3P30-46	7/8	#12 Flat Head Machine (Special)
3P30-58	1	1/4” Trimmed Hex Head Machine
3P30-59	7/8	#12 Indented Hex Head Tapping
3P30-67	7/8	1/4” Finisher Fillister Head machine & #14 Tapping
3P30-68	7/8	#12 Finished Fillister Machine & Tapping
3P30-69	7/8	5/16” Finished Fillister Machine
3P30-70	7/8	#14 Indented Hex Head Tapping
3P30-71	7/8	1/4 Indented Hex Head
3P30-85	7/8	#12-100° Flat Head Tapping 1/4” Undercut Machine #14 Tapping
3P30-87	7/8	1/4” Special Hex Head
3P30-92	7/8	1/4”-100° Flat Head Machine with X
3P30-93	7/8	1/4”-100° Flat Head Machine
3P30-94	1	#12 Trimmed Hex Head Machine

WRENTHAM TOOL GROUP™
THE GLOBAL LEADER FOR FASTENER TOOLING & GAGE TECHNOLOGY

TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

Code No.	Blank Diam.	Description
3P30-96	7/8	#12 Electric Binding Head
3P30-97	7/8	1/4” Electric Binding Head
3P30-115	1	1/4” Truss Machine
3P30-127	7/8	1/4” Flat Head Spinlock Machine
3P30-140	1	5/16” Truss Head Machine (Special)
3P30-142	1	#16-100° Oval Head Tapping
3P30-147	9/16	#10 Oval Head Wood
3P30-148	7/8	1/4”-100° Flat Head Machine with C
3P30-166	7/8	#12 Flat Head Undercut Machine & Tapping
3P30-167	7/8	#12 Flat Top Truss Head Machine & Tapping
3P30-168	7/8	1/4” Flat Top Truss Head Machine
3P30-169	7/8	1/4” Flat Top Washer Head
3P30-180	1	1/4” Flat Top Truss Head Machine & Tapping
3P30-184	1	#16 Flat Top Truss Head Tapping
3P30-185	7/8	#16 Fillister — Wood
3P30-206		#14 Trimmed Hex Head
3P30-207	7/8	#12 Round Head Combination
3P30-208	7/8	1/4” Round Head Combination
3P30-209	1	5/16” Round Head Combination
3P30-226	7/8	#14 Pan Head Tapping
3P30-227	7/8	#14 Flat Top Truss Head Type A
3P30-228	1	#14 Flat Top Truss Head Type A
3P30-231	7/8	West Germany
3P30-232	7/8	West Germany
3P30-235	1	30-3, 8 Rings
3P30-236	7/8	#12 Pan Combination
3P30-237	7/8	1/4” Pan Combination
3P30-238	7/8	30-6 with “S”
3P30-239	7/8	30-11 with “S”
3P30-241	7/8	30-2 with “S”
3P30-242	7/8	30-3 with “S”
3P30-244	7/8	30-12 with “S”
3P30-246	7/8	5/16” Miniature Pan
3PZ30-247	7/8	#16 Pan Combination POZIDRIV®
3PZ30-249	7/8	#14 Pan Combination POZIDRIV®
3P30-251	1-1/4	Special 1/4” Flat Top Truss
3P30-252	1	West Germany
3P30-253	7/8	30-19 with “S”
3P30-254	7/8	DIN 7893 5.5
3P30-256	1	1/4” Trimmed Hex
3P30-257	7/8	DIN 7995 6
3PZ30-274	7/8	Pozi 30-167 12 Lines
3P30-275	7/8	1/4” Flat Top Washer
3PZ30-277	7/8	1/4” Flat Top Truss POZIDRIV® — Fisher #1708768
3PZ30-278	7/8	Fisher #20006670 — POZIDRIV®

Made to order punches, to customer specifications are available on a special basis. Punches made to metric, DIN, and other foreign standards are also available in the head and recess styles which we produce.

Code No.	Blank Diam.	Description
3P40-1	1	#18 Flat Head Wood, #20 Tapping
3P40-2	1-1/4	#20 Flat Head Wood, 3/8 Machine, #24 Tapping, 7/16" Undercut Machine
3P40-3	1-1/4	#24 Flat Head Wood, 1/2" Machine
3P40-4	1	5/16" Flat Head Machine, #18 Tapping, 3/8" Undercut Machine, #24 Undercut Tapping
3P40-5	1-1/4	7/16" Flat Head Machine, 1/2" Undercut Flat
3P40-6	1	#18 Oval Head Wood & Tapping
3P40-7	1	#20 Oval Head Wood & Tapping
3P40-8	1-1/4	#24 Oval Head Wood & Tapping
3P40-9	1	5/16" Pan Head Machine
3P40-10	1-1/4	3/8" Oval Head Machine
3P40-11	1-1/4	7/16" Oval Head Machine
3P40-12	1-1/4	1/2" Oval Head Machine
3P40-13	1	5/16" Oval Head Machine
3P40-14	1	#18 Round Head Wood
3P40-15	1-1/4	#20 Round Head Wood
3P40-16	1-1/4	#24 Round Head Wood & Tapping, 3/8" Round Machine
3P40-17	1-1/4	7/16" Round Head Machine
3P40-18	1-1/4	1/2" Round Head Machine
3P40-20	1	5/16" Truss Head Machine
3P40-21	1-1/4	3/8" Truss Head Machine
3P40-22	1-1/4	7/16" Truss Head Machine
3P40-24	1-1/4	5/16" Flat Wafer Machine
3P40-26	1-1/4	3/8" Pan Head Machine & Fillister
3P40-27	1-1/4	7/16" Pan Head Machine & Fillister
3P40-28	1-1/2	1/2" Pan Head Machine & Fillister
3P40-31	1-1/2	1/2" Truss Head — Machine & Tapping
3P40-36	1-1/4	3/8" Washer Head Wood, Machine & Tapping
3P40-37	1-1/4	7/16" Washer Head Wood, Machine & Tapping
3P40-38	1-1/4	1/2" Washer Head Wood, Machine & Tapping
3P40-64	1	#20 Flat Head Undercut — Tapping
3P40-65	1	5/16" Trimmed Hex Head — Machine
3P40-66	1-1/4	3/8" Trimmed Hex Head — Machine
3P40-67	1-1/4	7/16" Trimmed Hex Head — Machine
3P40-68	1-1/4	1/2" Trimmed Hex Head — Machine
3P40-79	1	5/16"-100° Flat Head Machine & Undercut
3P40-94	1-1/4	5/16" Truss Head Machine (Special)
3P40-106	1	3/8"-100° Flat Head Machine
3P40-107	1	5/16"Electric Binding Head
3P40-108	1	3/8"Electric Binding Head
3P40-110	1	#18 Round Head Tapping
3P40-111	1	#20 Round Head Tapping
3P40-116	1	5/16" Truss Head Spinlock Machine
3P40-145	1	#18 Oval Head Tapping

WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

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TELEPHONE #: 508-966-2332
FAX #: 508-966-2326

Code No.	Blank Diam.	Description
3P40-162	1	3/8” Finished Fillister Head Machine
3P40-163	1-1/4	7/16” Finished Fillister Head Machine
3P40-164	1-1/4	1/2” Finished Fillister Head
3P40-172	1	5/16” Flat Top Truss Head Machine
3P40-173	1-1/4	3/8” Flat Top Truss Head Machine
3P40-174	1-1/4	7/16” Flat Top Truss Head Machine
3P40-175	1-1/2	1/2” Flat Top Truss Head Machine
3P40-189	1-1/4	5/16” Flat Top Truss Head Machine
3P40-198	1	5/16” Truss Flat Top
3P40-199	1	#18 Flat Top Truss Head Tapping
3P40-200	1	#20 Flat Top Truss Head Tapping
3P40-201	1	#18 Pan Head Machine & Tapping
3P40-242	1	5/16” Indented Hex Head
3P40-243	1	3/8” Indented Hex Head
3P40-244	1	#20 Indented Hex Head
3P40-245	1	#24 Indented Hex Head
3P40-254	1	5/16” Oval Undercut
3P40-255	1	3/8” Oval Undercut
3P40-256	1-1/4	7/16” Oval Undercut
3P40-257	1-1/4	1/2” Oval Undercut
3P40-261	1	West Germany
3P40-267	1	5/16” Pan Combination
3P40-268	1-1/2	40-2, “12” on head
3P40-269	1	Ford #380024-3
3P40-270	1-1/2	Special Truss National Lock
3PZ40-271	1-1/4	3/8” Special Pan POZIDRIV®
3PZ40-272	1-1/4	3/8” Special Truss Ford #379163-S8 POZIDRIV®
3PZ40-273	1	3/8” Miniature Pan POZIDRIV®
3PZ40-274	1	Special POZIDRIV® Continental
3P40-275		Special Townsend
3P40-276	1	#18 Combination Pan
3P40-277	1	#20 Combination Pan
3P40-278	1-1/4	#24 Combination Pan
3P40-279	1	40-79 #80S20551-FB on head
3PZ40-280	1-1/2	Special 7/16” Truss, Ford #381755, POZIDRIV®
3PZ40-281	1-1/2	9/16” Shaved Fillister, POZIDRIV®
3P40-282	1	Chrysler #6024972
3PZ40-283	1-1/4	American Motors #4001944, POZIDRIV®
3PZ40-284	1	5/16” Indented Hex, POZIDRIV®
3P40-285	1-1/4	Fisher Body #4463087
3P40-295	1-1/2	Nat. Lock 18-0-063-7934
3P40-296	1-1/2	Ford 378430-S40
3PZ40-298	1	Flange Head 5/16”
3PZ40-299	1	Flange Head 3/8”
3PZ40-300	1-1/4	Pozi Fisher 9887356
3P40-301	1-1/2	1/2” Special Flat Top Truss — Ford #80385-283-S40

Code No.	Blank Diam.	Description
3P10-11A	7/16	#4 Round Head Wood — Aluminum
3P10-15A	7/16	#4 Pan & Fillister Head — Aluminum
3P10-44A	7/16	#4 Round Head Machine — Aluminum
3P10-45A	7/16	#3 Round Head Machine — Aluminum
3P20-15A	7/16	#6 Round Head — Aluminum
3P20-16A	9/16	#7 Round Head Wood — Aluminum
3P20-17A	9/16	#8 Round Head — Aluminum
3P20-18A	9/16	#9 Round Head Wood — Aluminum
3P20-19A	9/16	#10 Round Head — Aluminum
3P20-21A	9/16	#6 Pan Head — Aluminum
3P20-23A	9/16	#8 Pan Head — Aluminum
3P20-25A	9/16	#10 Pan Head — Aluminum
3P20-30A	7/16	#5 Round Head — Aluminum
3P20-30A	9/16	#5 Round Head — Aluminum
3P30-16A	7/8	#12 Round Head Wood — Aluminum
3P30-17A	7/8	#14 Round Head Wood — Aluminum
3P30-18A	1	#16 Round Head Wood — Aluminum
3P30-19A	7/8	1/4” Round Head — Aluminum
3P30-20A	1	5/16” Round Head — Aluminum
3P30-21A	1	#14 Pan Head — Aluminum
3P30-22A	7/8	1/4” Pan Head — Aluminum
3P30-22A	1	1/4” Pan Head — Aluminum
3P40-16A	1-1/4	3/8” Round Head — Aluminum

Made to order punches, to customer specifications are available on a special basis. Punches made to metric, DIN, and other foreign standards are also available in the head and recess styles which we produce.

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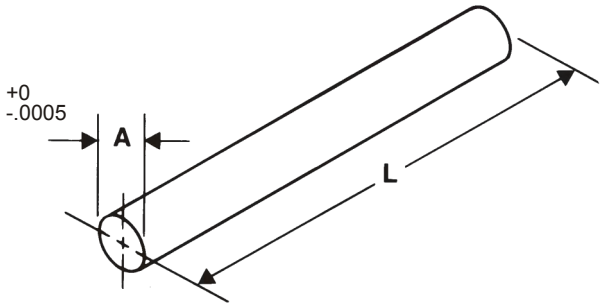
FAX #: 508-966-2326

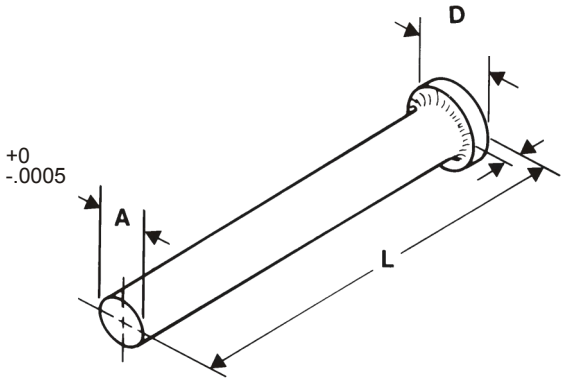
Straight Pin



Material: A.I.S.I. M-2
Heat Treat: Triple drawn to RC 62-64
Diameter Range: .062-1.000

To Order: Specify diameter **A** and length **L**

Headed Pin



Material: A.I.S.I. M-2
Heat Treat: Triple drawn to RC 62-64
Diameter Range: .062-1.000

To Order: Specify diameter **A** and length **L**

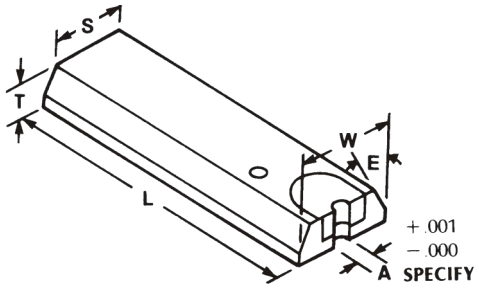
PRICES FURNISHED UPON REQUEST

CUT-OFF KNIVES

NAKASHIMADA

Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

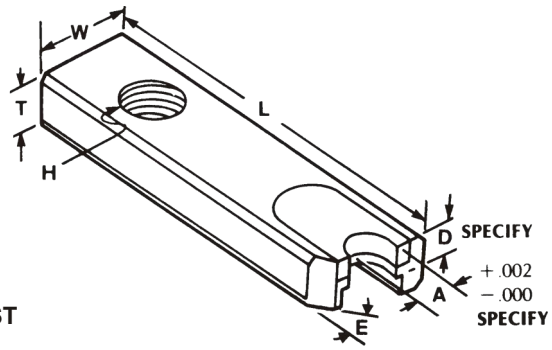
TOOL NO.	MACHINE TYPE	T	W	L	S	0
800	1/8" H10-10A	5 mm	16 mm	55 mm	12.24 mm	30°
900	5/32" PF-420	6 mm	20 mm	65 mm	15.08 mm	30°
900	3/16" H15/15A	6 mm	20 mm	65 mm	15.08 mm	30°
1000	1/4" H20/20A/20AU/20U/PF630	7 mm	28 mm	70 mm	21.92 mm	30°
1500	1/4" H20C/20E/20F/CS	12 mm	28 mm	70 mm	21.26 mm	20°
1600	1/4" DH20	10 mm	25 mm	75 mm		
1700	1/4" H25	30 mm	30 mm	87 mm		
1300	5/16" PF860	8.5 mm	35 mm	90 mm	27.33 mm	30°
1200	3/8" H30/30A	20 mm	35 mm	120 mm	30.94 mm	45°
1400	1/2" PF1280	19.8 mm	45 mm	130 mm	38.70 mm	45°



CARLO SALVI

Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.
Note! Standard Knives Furnished with Square Nose. For Short Blanks specify "D" Dimension.

TOOL NO.	MACHINE TYPE	T	W	L	H
7000	1/8" PSV-RF/SV	8 mm	12 mm	45 mm	M 5
7050	5/32" TP2/CL-RF/PL	8 mm	12 mm	65 mm	M 6
7100	3/16" 476/SV-RF/476/SV	10 mm	12 mm	65 mm	M 6
7200	1/4" 635/SV-RF 635/SV	12 mm	20 mm	90 mm	M 8
7250	1/4" INT/CL-RF/ML	11 mm	20 mm	90 mm	M 8
7300	5/16" RF/873/SV	13 mm	25 mm	115 mm	M 12
7350	5/16" TM/CL-RF/GL	—	—	—	—



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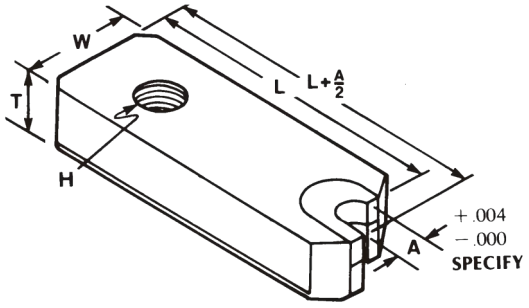
FAX #: 508-966-2326

CUT-OFF KNIVES

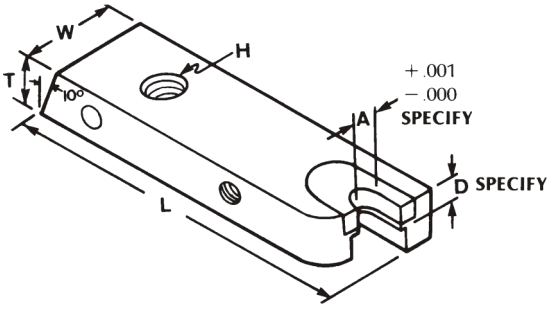
SACMA Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE TYPE	T	W	L	H
3000	SP-01	.390	.704	2.165	5/16-18
3100	SP-11	.452	.941	3.051	3/8-16
3200	SP-21	.547	1.098	3.543	9/16-12
3300	SP-31	.666	1.700	4.882	9/16-12



WATERBURY FARREL Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension. Note! Standard Knives furnished with Square Nose. For Short Blanks specify "D" Dimension. "E" Dimension as shown or specify your needs.

TOOL NO.	MACHINE TYPE	T	W	L	H	E
4000	1/8" HEADMASTER	3/8	3/4	2-1/16	1/4-28	20°
4150	No. 0 TOGGLE	.341	11/16	2-1/4	5/16-18	20°
4150	No. 0 TUB RIVET	.341	11/16	2-1/4	5/16-18	20°
4150	3/16 HIPRO	.341	11/16	2-1/4	5/16-18	20°
4200	#10 HIPRO LONG WORK	.341	11/16	2-1/4	5/16-18	20°
4250	#10 HIPRO SHORT WORK	.341	11/16	2-1/4	5/16-18	20°
4300	No. 1 TOGGLE	.371	1-1/16	2-9/16	7/16-20	20°
4300	No. 1 TUB RIVET	.371	1-1/16	2-9/16	7/16-20	20°
4400	3/16 HEADMASTER	3/8	1-1/16	2-9/16	5/16-24	20°
4450	No. 2 TOGGLE	.371	1-3/8	3-1/16	7/16-20	20°
4500	5/16 HIPRO	1/2	1-7/16	3-11/16	5/8-11	20°
4550	No. 3 TOGGLE	1/2	1-11/16	4-13/16	5/8-11	20°



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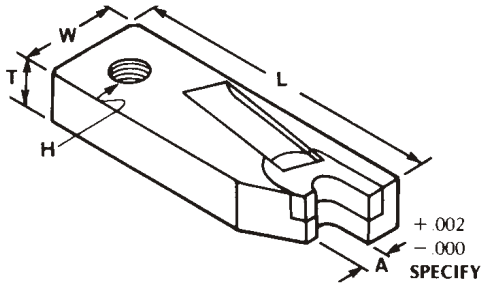
CUT-OFF KNIVES

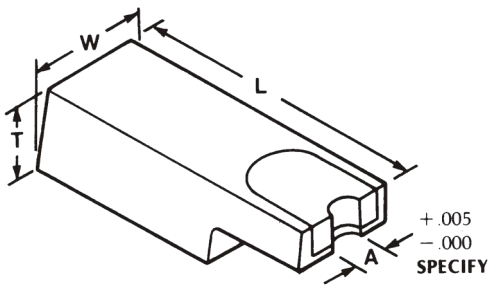
HARTFORD Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE TYPE	T	W	L	H
5000	1/8" HARTFORD #2-425	.392	.875	3.080	5/16-24
5100	1/8" HARTFORD #2-450	.392	.940	2.800	5/16-24
5200	3/16" HARTFORD #3-300 #3-350	.392	1.100	3.270	3/8-16
5300	5/16" HARTFORD #4-250 #5-250	.471	1.344	3.780	3/8-24



LEWIS Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE TYPE	T	W	L
8000	OSC	1/2	11/16	2-1/2
8040	1C	9/16	7/8	2-1/4
8100	2C	3/4	1	2-7/8
8180	2CV	3/4	1	2-7/8
8200	2C SC	3/4	1.137	3
8320	7C1-254	9/16	3/4	2-3/4
8340	8C-9C	7/8	55/64	3-3/4
8380	9F	7/8	1-5/8	3-3/8
8400	10C	1-1/8	2.300	4-1/2
8440	3F	1/2	1	2-1/4
8480	4F	3/4	1-1/4	2-1/2



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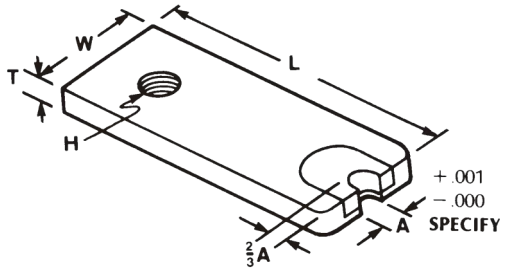
CUT-OFF KNIVES

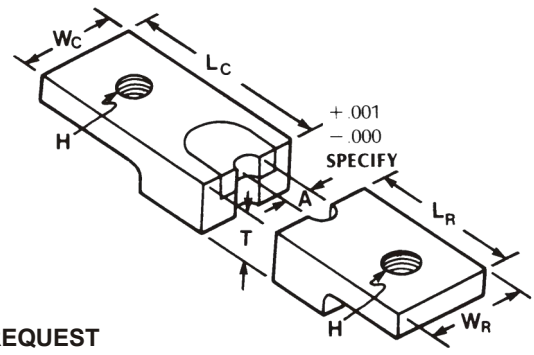
NATIONAL Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE TYPE	T	W	L	H
2000	1/8" DSSD	.250	3/4	1-13/16	3/8-16
2100	3/16" DSSD	.312	1-1/16	2-5/16	7/16-14
2200	1/4" DSSD	.375	1-3/8	3-1/2	1/2-13
2300	5/16" DSSD	.500	1-7/16	4	5/8-11
2400	3/8" DSSD	.437	1-1/2	4-1/4	5/8-11
2500	1/2" DSSD	.562	1-7/8	5	3/4-10



WATERBURY Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE TYPE	T	WC	WR	LC	LR	H
6000	3/16" WTBY	5/8	13/16	—	1-11/16	—	5/16-24
6100	3/16" WTBY	5/8	—	7/8	—	1-3/16	5/16-24
6200	1/4" WTBY	3/4	1-1/16	—	2	—	3/8-24
6300	1/4" WTBY	3/4	—	1-1/8	—	1-7/16	3/8-24
6400	5/16" WTBY	7/8	1-3/16	—	2-3/8	—	7/16-20
6500	5/16" WTBY	7/8	—	1-1/4	—	1-11/16	7/16-20
6600	3/8" WTBY	1	1-5/16	—	2-11/16	—	1/2-20
6700	3/8" WTBY	1	—	1-3/8	—	1-15/16	1/2-20
6800	1/2" WTBY	1-1/4	1-9/16	—	3-1/2	—	5/8-18
6900	1/2" WTBY	1-1/4	—	1-1/2	—	3-1/4	5/8-18



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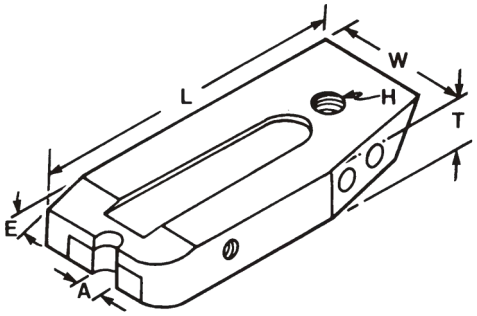
CUT-OFF KNIVES

COLD HEADER MACHINE CORP. Material: Tool Steel Carbide Inserted. To order, specify Tool Number and "A" Dimension.

TOOL NO.	MACHINE MAKE	HEADER NO.	T	W	L	H
9000	TSUKIBOSHI	MS 200	1/4	7/8	1-15/16	1/4-20
9050		MT 200	1/4	7/8	1-15/16	1/4-20
9100		MT 300	.300	.995	2-3/16	3/8-16
9150		MT 350	.300	.995	2-3/16	3/8-16
9200	TOKYO JOODKI	HO Header Copper Cutter	9.5	25	57	M 8
9200		HO Header Silver Cutter	9	25	60	M 8
9300	AYASE SEIKI	MS 340	.275	5/8	2.480	5/16-18
9400		MTR 360	.315	.786	2-5/8	5/16-18
9500		MS 360	.275	.632	2-1/8	5/16-18
9600	KOSONO	MS 350	.300	.995	2-1/8	3/8-16
9650		MS 400	.375	1-1/4	2-1/2	
9700	SUKEGAWA	MS 500	.400	1-1/4	2-15/16	
9730		MS 500L	7/16	1-1/4	2.910	



+ .002
- .000
SPECIFY

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WARNING

Any heading punch may break or shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment at all times in the vicinity of use.

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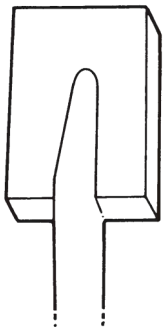
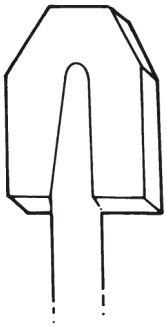
CARBIDE REAMERS

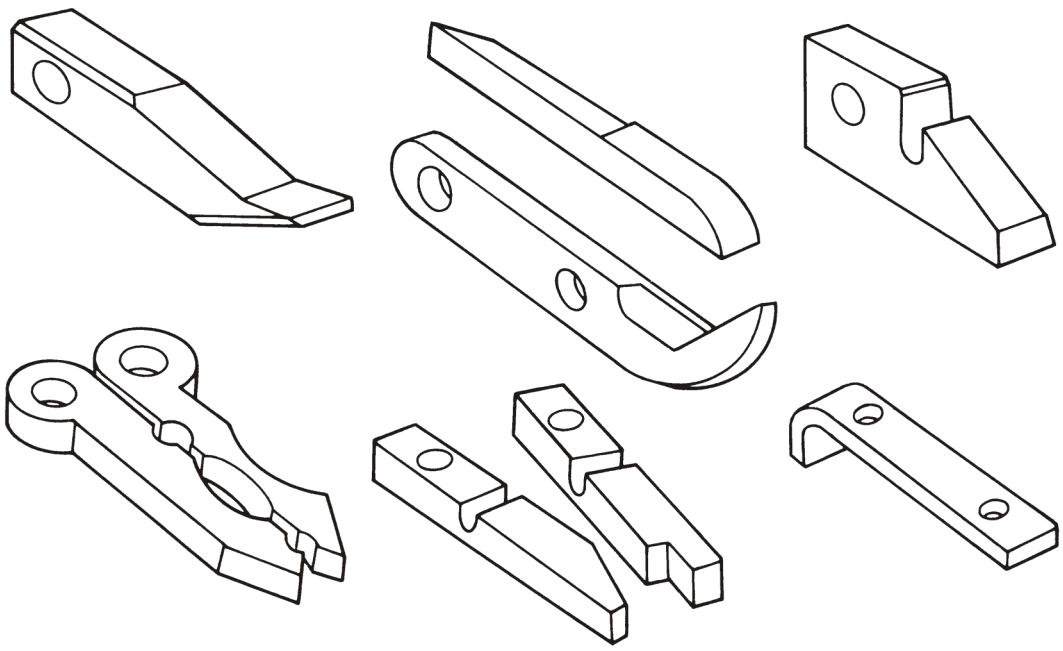
UN-GROUND	
1/8	.078 or 3/32 or .085
5/32	7/64
3/16	1/8 or 9/64
7/32	5/32
1/4	3/16
9/32	7/32
5/16	7/32
11/32	1/4
3/8	9/32
7/16	5/16
1/2	11/32
9/16	3/8
5/8	7/16
3/4	1/2



FINISHED READY TO USE		
Reaming Size Tolerance + .0003-.0003	SHANK	TIPS
.90-.127	3/32x4	1/32-1/4
.128-.155	7/64x4	3/64x1/4
.156-.190	1/8x4	1/16-5/16
.191-.250	3/16x5	.072-3/8
.251-.315	7/32x5	3/32-3/8
.316-.380	9/32-x5	1/8-7/16
.381-.440	5/16-x6	1-1/8-1/2
.441-.500	11/32x6	1/8-1/2



FINGERS



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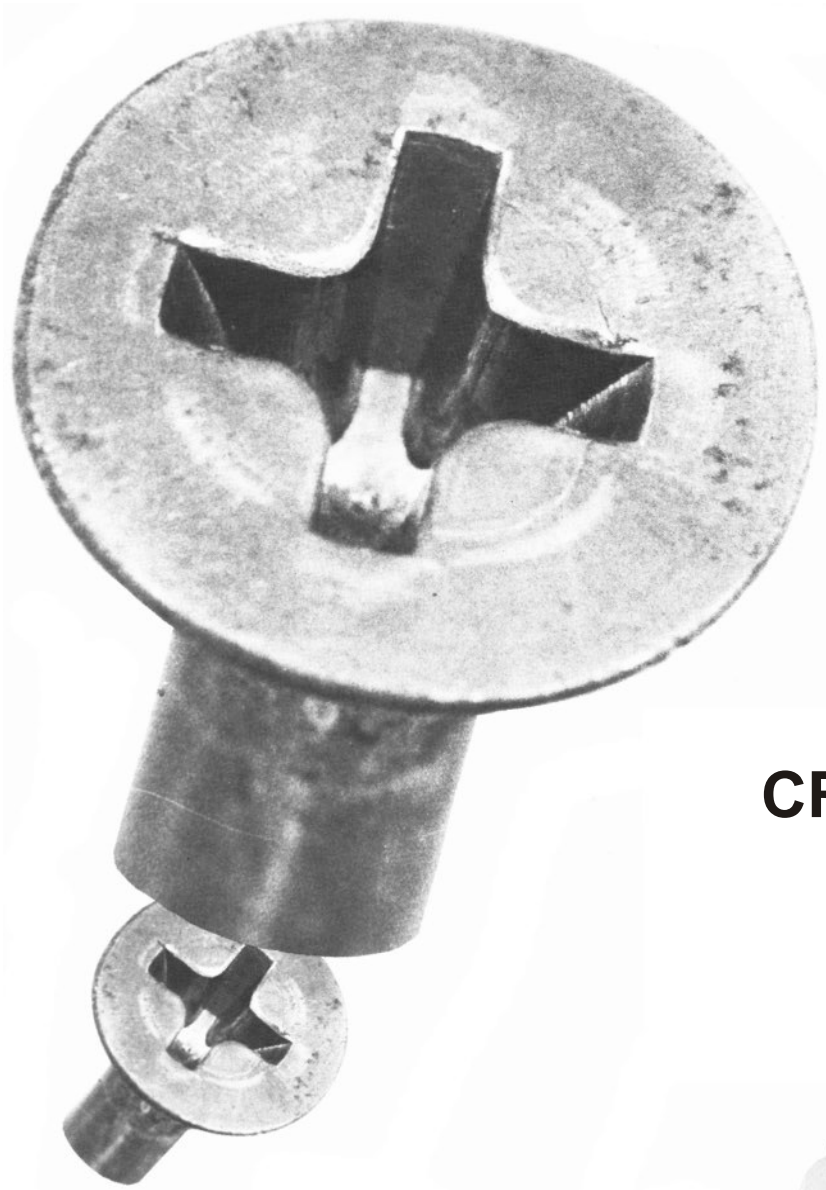
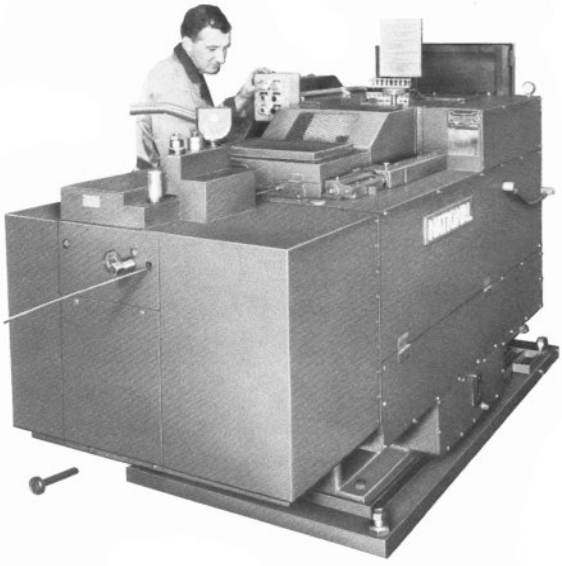
National Machinery®



GETTING
MAXIMUM
RESULTS
FROM

CROSS-RECESS PUNCHES



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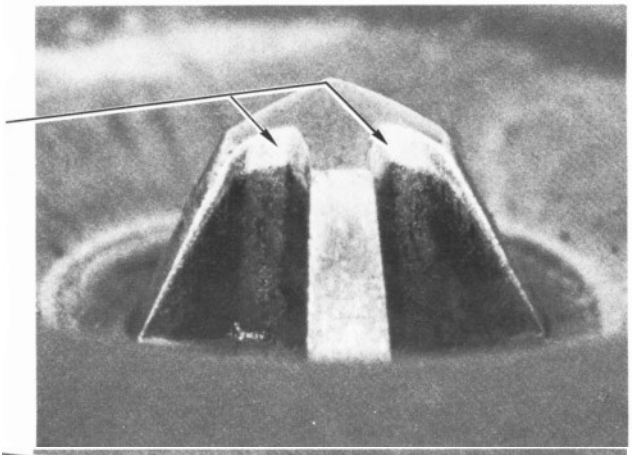
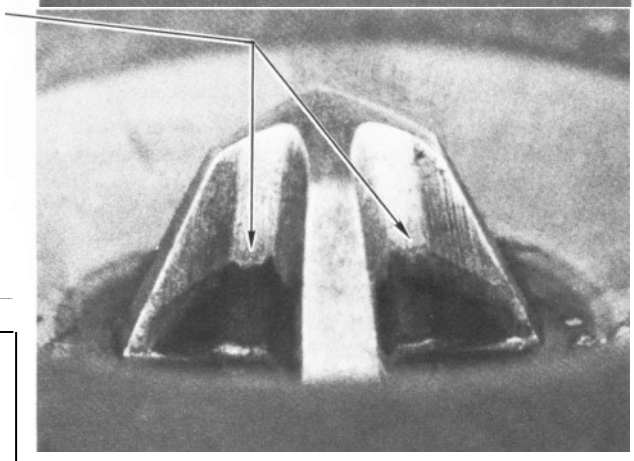
FAX #: 508-966-2326

HOW TO READ PUNCH WEAR

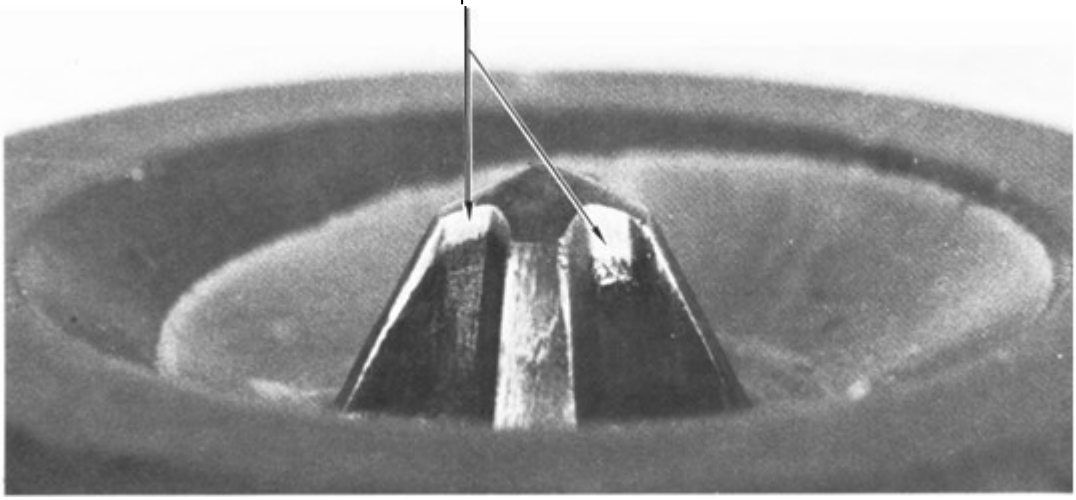
This punch has made 6,000 screws. It tells a good story about the header and tooling. The bright areas at the edges of the flutes show normal wear. The worn areas shown here are nearly identical on all flutes. This indicates the wear pattern on the nib (and the forces) are uniform and evenly distributed over the entire nib. A wear pattern like this is desirable.



As the punch runs longer, the wear pattern moves farther into and down the flutes. This nib has run 60,000 screws and is almost worn undersize. The wear pattern is still uniform.



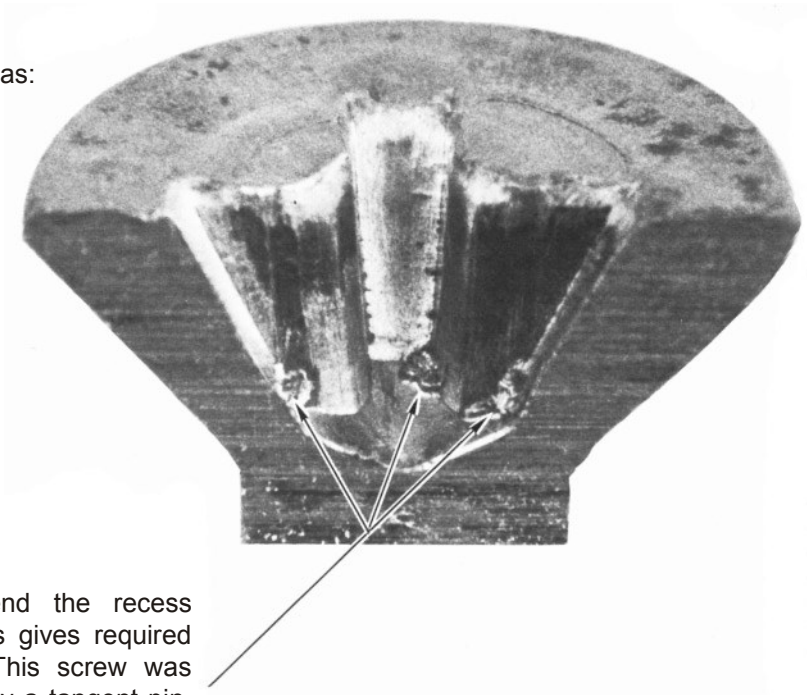
This punch shows an uneven wear pattern. Note the difference in the shape and size of these shiny areas. This punch is des- tined for earlier failure. What causes uneven wear patterns? Mostly looseness, eccentricity and out-of-squareness. Let's check these three conditions.



LOOSENESS (lack of proper fit)

Excessive looseness can occur in these areas:

1. Punch fit in case.
2. Case fit in holder.
3. Holder fit on punch rocker.
4. Cone punch fit in holder.
5. Wire fit in cone punch bore.
6. Wire fit in die bore.
7. Die fit in die block.
8. Punch rocker fit in bearings.
9. Heading slide fit in liners.



1. Punch fit in case. We recommend the recess punch be pressed into the case. This gives required rigidity and support to the punch. This screw was formed with a punch held in the case by a tangent pin. This allowed the punch to rotate 10°-15° and move endwise .015”-.020”. The punch case bore was .002”-.003” larger than the punch. Chipping occurs at about the same location on all four flutes. Punch looseness in the case was eliminated and the chipping disappeared.

2. Case fit in holder. The punch case should be a slip fit in the holder with no excessive clearance.

3. Punch holder fit on punch rocker. No looseness. Clamp screws should tighten the punch holder firmly, without rocking.

4. Cone punch fit in holder. Slip fit. Sliding cone punches should be well guided in a hardened sleeve. Use only as much slide as needed for the job. (See page 121)

5. Wire fit in cone punch bore. No excessive clearance - bore only .0015” to .003” larger than wire diameter.

6. Wire fit in die bore. Same here, no excess clearance. An easy slip fit without wobble. Bore only .0015” to .003” larger than wire.

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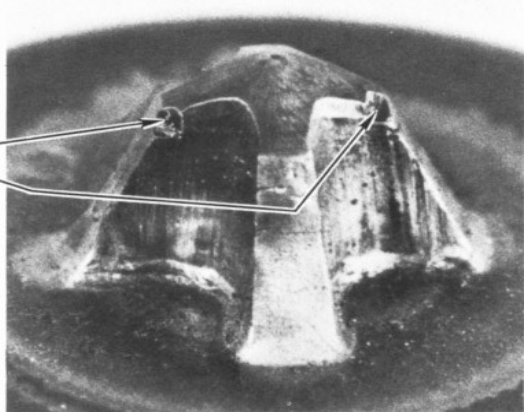
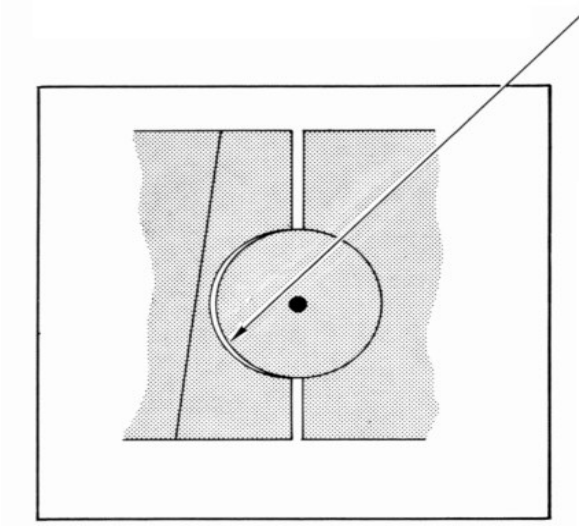
7. Die fit in die block. The die block should rigidly support the die. Check the die for taper on the O. D. Check the die block for wear causing the die to be slightly loose. This nib is chipped on the same side of opposite flutes, indicating off-center forces. The cause of chip- ping was traced to a worn die block. The bore had worn slightly egg-shaped allowing the die to move under load - just a few thousandths but enough to cause nib chipping.





8. Punch rocker fit in bearings. For High-Speed Cold Headers, see Maintenance Adjustments Manual. For best results with recess work, end play should be no more than .002" feeler gage clearance between punch rocker and bearing block. Rotational movement of the punch rocker (at front-dead-center with lock screws removed) should be only about .006" indicator reading. Punch rocker bushing clearance, only .001"-.003" micrometer. Check complete punch rocker system. Maintenance Adjustments Manual gives a complete step-by-step procedure.

9. Heading slide fit in liners. Check slide clearances with feeler gages.

1/8:, 3/16", 25	=	.002" go,	.004" no go
34, 1/4, 31, 5	=	.003" go,	.005" no go
45, 56, 5/16", 51	=	.004" go,	.006" no go
68, 61	=	.005" go,	.007" no go

Use a pry bar to push the slide to one side and check clearances between slide and front vertical bronze liners. See page 119 for proper method of reducing clearance if needed.

A word of caution here. Before checking heading slide clearance, reseat the die block wedge. Driving the wedge down too far can cause extra slide clearance. To set the wedge properly, first remove the wedge. Place the wedge in position and push down by hand only. Turn the wedge screw down until it touches the hard washer. Turn the wedge screw up one turn. Place the lock nut on top of the wedge screw and tighten. This moves the wedge down a predetermined distance. Whenever setting the wedge, use the same procedure.

Check clearance between top of slide and cap liners. Should be no more than .0015"-.002" feeler gage clearance.

ECCENTRICITY (concentricity-runout)

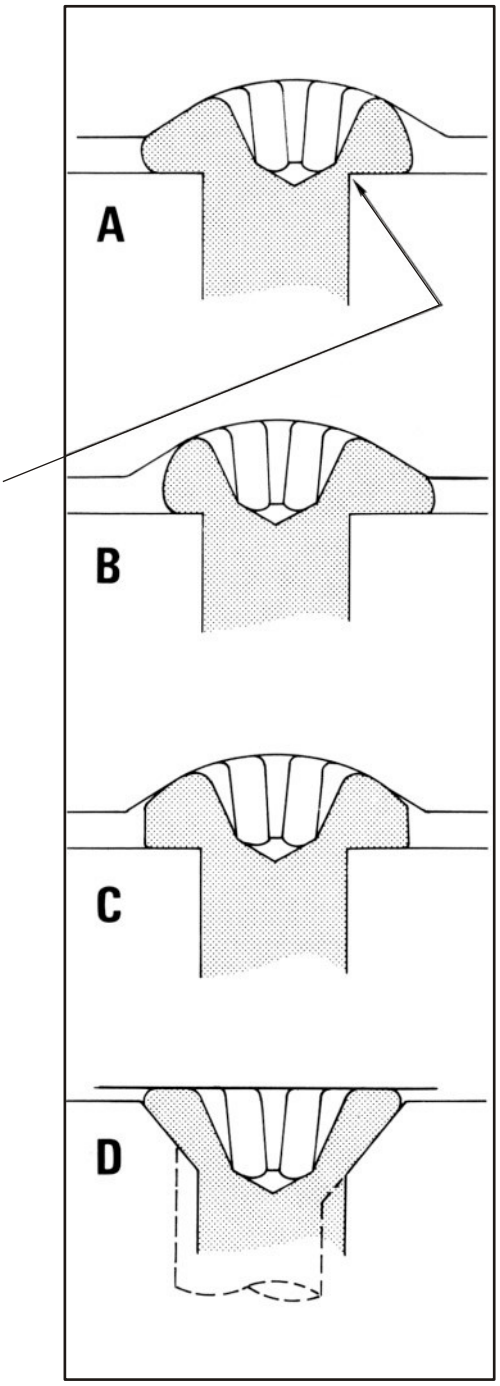
When the axis of the shank and the axis of the head are not the same, the head is eccentric with the shank (they do not have the same center). This is also called lack of concentricity or runout. Screw tolerances permit a certain amount of eccentricity. For example on a No. 10 pan head screw, the head can be as much as .010" eccentric (.020" Total Indicator Reading - TIR). The recess can have as much as .030" TIR runout and still be within tolerance. This much eccentricity or runout is acceptable for tolerances but not for maximum punch life.

Here are some eccentric conditions illustrated with the punch at front-dead-center. Sketch A shows the recess punch off center. This places the nib closer to the die bore on one side than the other. This thinner section exerts more pressure against the punch thus setting up uneven forces on the nib and probably causing premature failure.

Sketch B shows the insert nub on center. The head is upsetting off center. This comes from an eccentric cone. Here, too, uneven forces affect maximum punch life. You can check the eccentricity of the cone blow upset by using a dial indicator. The less runout, the better. Make final eccentricity checks after the machine is warm and on upsets made AT FULL SPEED.

On-center cone and finish punches make an even upset and place uniform stresses on the nib, Sketch C. This is extra important as head sections become thin. Good setup with on-center punch alignment is essential. Another point to check with counter sunk screws is the eccentricity of the countersink, Sketch D.

CHECK ECCENTRICITY OF HEADS AND RECESSES ON SCREWS MADE AT FULL SPEED.



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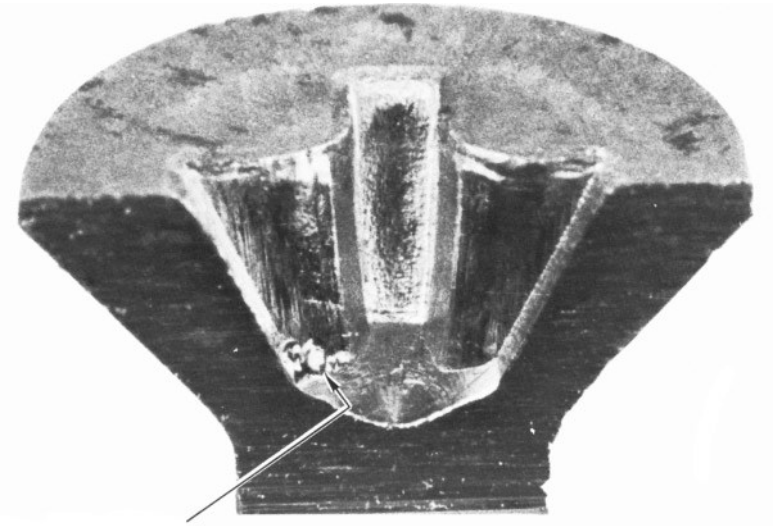
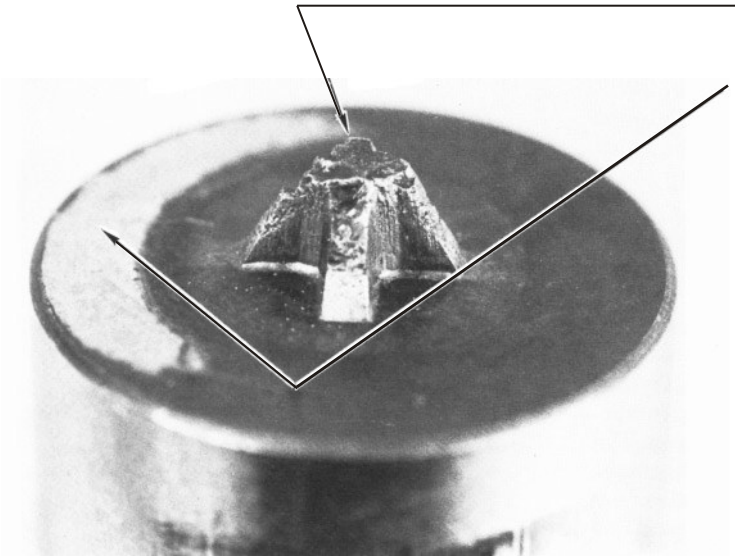
OUT OF SQUARENESS (tools and tool holders)



The nib that made this screw shows signs of chipping at only 6,000 pieces. The chipping was eliminated by shimming the die square (later replacing die block).

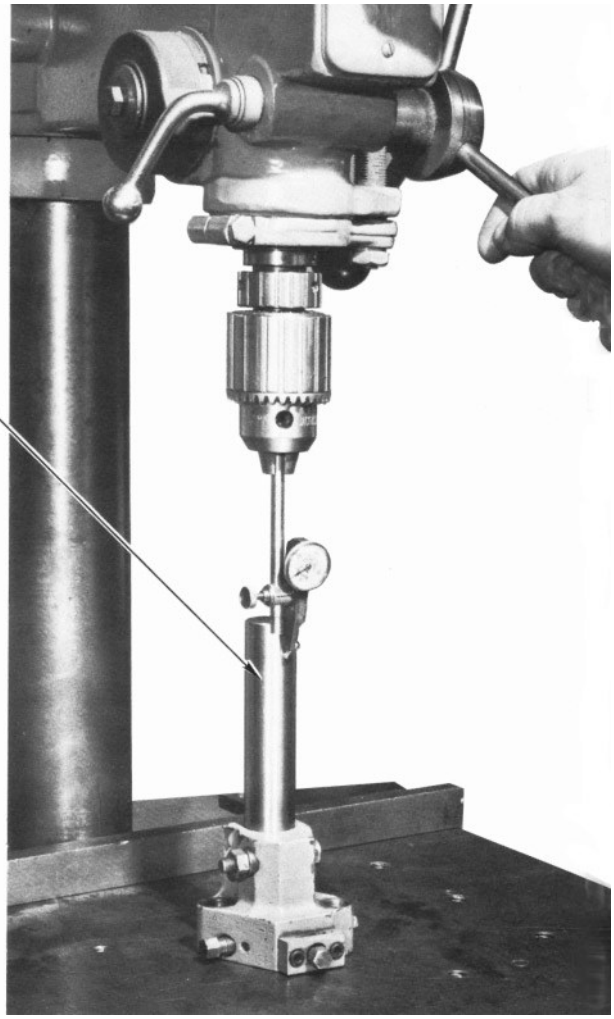


This nib shows chipping plus this shiny crescent shape. Finish punch holder was .009" out of square. This caused the punch to hit the face of the die on one side, causing the crescent.

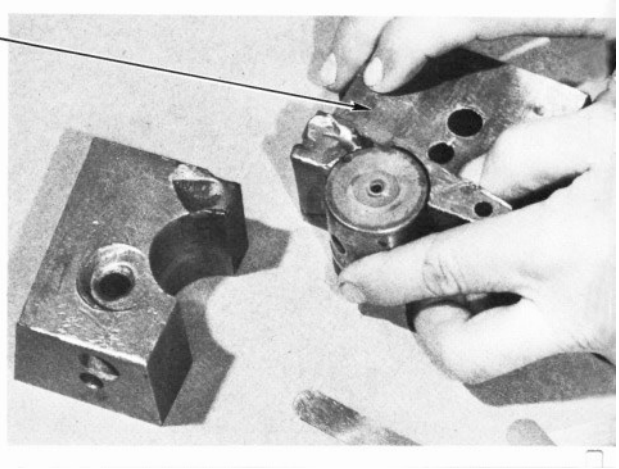
These are just a couple examples of many observed where out-of-squareness caused reduced punch life.

First, tools themselves must be made accurately. Eccentricity of bore & O. D. should be within .003" TIR. Bore or O. D. to ends, within .003" TIR.

Check punch holder for squareness of bore to seat. Here's how: Remove punch holders from machine. Loosen draw bolt and slide punch out of holder as far as possible and still be clamped. (Preferably use a longer mandrel held full length of the bore). The quickest way to check squareness is on a comparator. If not available, put punch holder on table of good drill press or vertical mill as shown here. Put a dial indicator in the chuck or spindle. Move the indicator up and down along the O. D. of the punch case or mandrel at several different places. Indicator should show less than .001" variation. Also check the punch seat for squareness with sides. Check fillers and centering block with micrometers for uniform thickness. They should provide even distribution of heading loads without tilting the punch.



Check die block for squareness of bore to seat. Remove the die block and die. File or stone the seat (the surface toward the front of the machine against the face plate) to remove rough edges or burrs. Lay seat down on surface plate. Coat die with red lead or similar coating. Push die into one half of the die block, pull out and look at contact area. Die should contact block uniformly throughout its length. Repeat with other half of the die block. If die block does not hold die squarely, temporarily put a shim between the die block and die where needed. Re-adjust punches. Get a new die block or die.



Keep clean all tools and tool seating areas. Remove accumulations of dirt and wire coating. Pay particular attention to the vent slot under the kickout rod hole in the face plate. Occasionally remove face plate and clean out any accumulation of dirt that has worked into the kickout rod bore in the bedframe.

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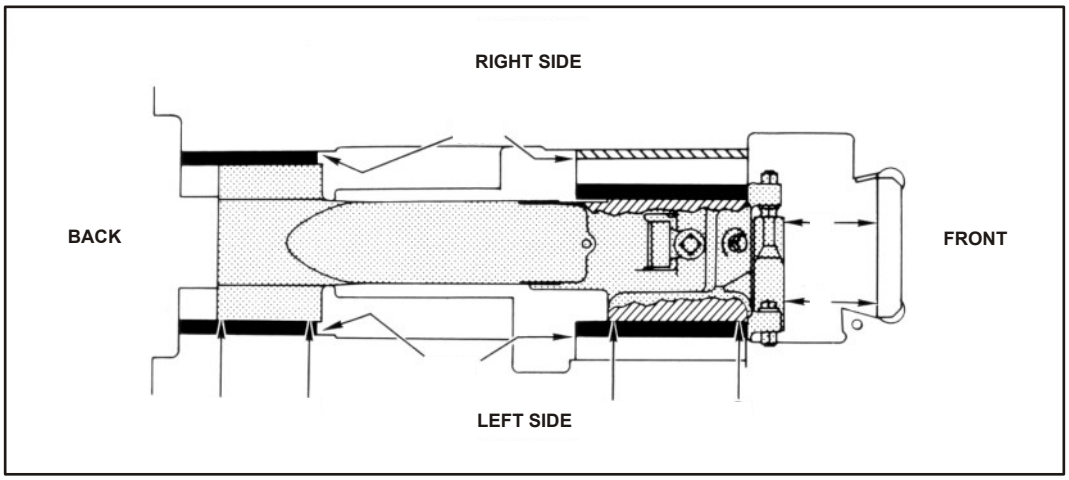
OUT OF SQUARENESS

When shimming out excess slide clearances, faulty procedures can cause the slide to run out of parallel with the centerline of the header. An out-of-square slide can be checked as follows. The letters in the illustration below indicate various measuring points.



TO CHECK:

1. Remove die block, wedge and punch holders.
2. Pry slide against left side liners.*
3. With micrometers, measure from face plate to punch rocker at X and Y.
4. X and Y should be equal, plus or minus .001” (0.03 mm).

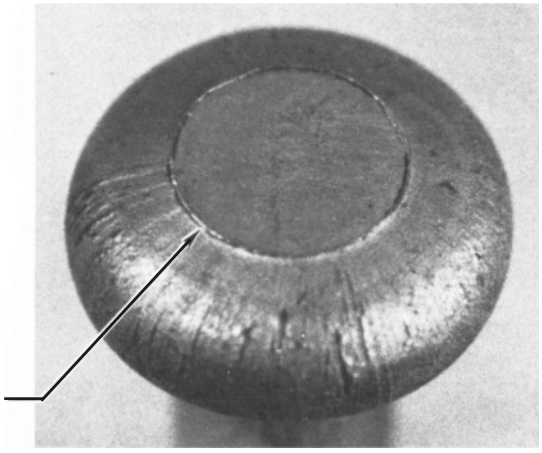
*NOTE: Push on slide near center so that both front and back of slide are against liners.

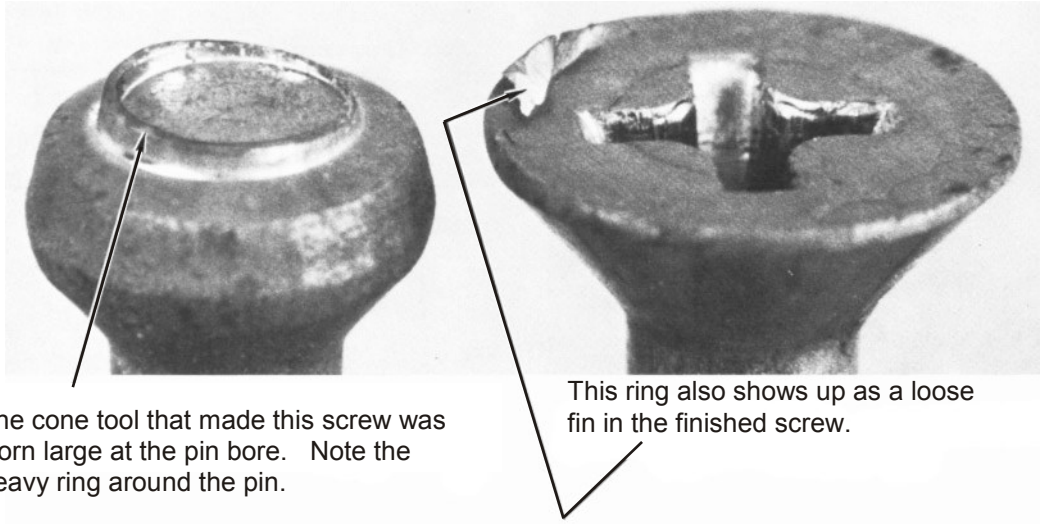
TO CORRECT:

1. Add feeler gages at D. then pry slide against left side liners, until X=Y.
2. Add shim same thickness as feeler gages between left front liner and bedframe.
3. Scrape both left side liners for full bear- ing.
4. Place .0015” (0.04mm) feeler gages at A, B, C, D.
5. Push slide against left side. All four feel- er gages should have the same amount of drag indicating slide and liners are paral- lel and X=Y.
6. Remove feeler gages.
7. Shim out right side liners to get run- ning clearance (see page 115) and scrape for good bearing.

THE CONE

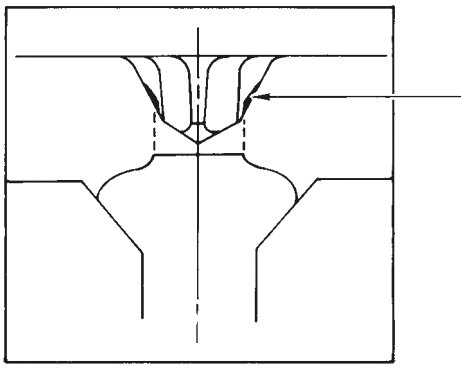
Don't blame the recess punch for short life that's really the fault of the cone tool. If life is averaged over a group of punches, just a few short-run punches can lower the average. Faulty cone tool can cause recess punch breakage. A chipped cone tool pin or one with crooked ends or a broken pin can contribute to shortening recess punch life by not giving the punch a flat end to enter. Also a crooked pin end tends to upset stock off center resulting in inconsistent upsets. The pin should be made of a good material, fit the bore closely (about .001"-.0015" clearance), be square on both ends and be of the proper length. The upset should be flush at the pin end with as little fin as possible.





The cone tool that made this screw was worn large at the pin bore. Note the heavy ring around the pin.

This ring also shows up as a loose fin in the finished screw.



This type of pin ring also contributes to nib wear. By observing recess nibs making heads from a cone with exaggerated pin ring, a definite wear pattern shows up where the nib hits the ring.

Worn pin bore (or pin bore too much larger than wire) is also the cause of wandering eccentricity. If when checking eccentricity of cone upsets made at full speed, some are good while others are eccentric or eccentricity is in different directions, check the cone pin bore for wear or for proper size. The bore should be only about .002" larger than wire diameter.

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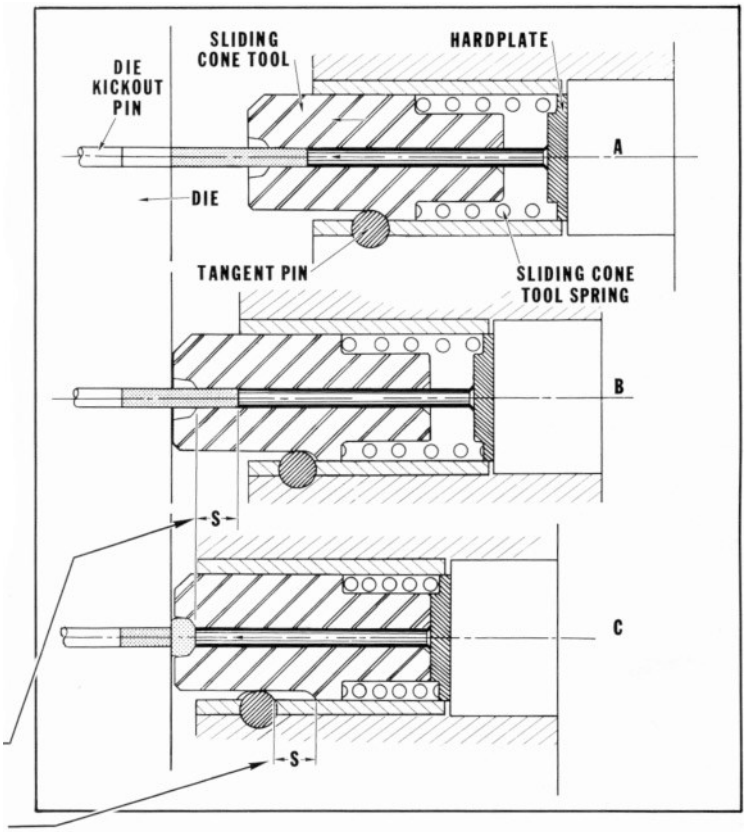
The height of the cone blank should be slightly greater than the height of the finished head. Head height plus .030" to .060" is rough rule of thumb for cone height. The more stock there is in the cone upset, the higher the cone may be.

Flat head recess screws sometimes tend to form with the head a round-cornered-square making cone larger in diameter, with a height only slightly more than finish head height, minimizes this.

Be sure the cone tool impression is the proper size and shape for the head being made.

Sliding cone tools are commonly used for recess heads to give added control of metal flow during upsetting. Use as little slide as needed for the job being run. Excessive tool slide means less tool guide, less pin support and more spring deflection. Also length of tool slide must be subtracted from maximum length capacity of header. Less slide means longer parts can be headed.



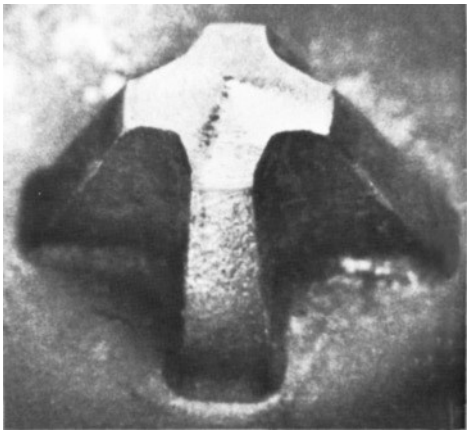
The end positions of the pin before and after sliding is the amount of tool slide required (shown at S in drawing B). The amount of slide used is the length of the tangent pin slot shown at S in drawing C. The amount of slide used (C-S) should equal the amount needed, (B-S).

The sliding tool should be lubricated. An air mist of light oil works well and is reported to improve cone tool life. An oily rag tied around the wire as it enters the feed rolls lubricates the wire going into the cone tool bore. The oily rag also collects loose wire coating that can plug the cone tool bore. Check also for good quality cut-off, consistent feed length, distortion of wire by feed rolls and the quality of the wire. The type of wire and processing can also affect cone and recess punch life. Where practical, considering tool size, carbide-inserted cone tool reduces tool wear giving a consistent cone blank. This is of particular advantage for standard screws run in large quantities.

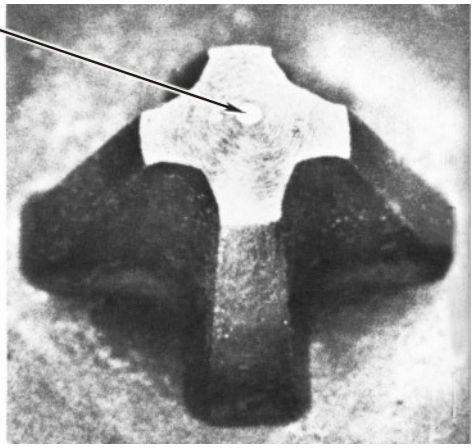
Nib chipping and uneven wear patterns can also be caused by the cone punch during the finish blow. If the cone tool is pounding against the die block it could cause shock or movement of the recess punch. Machine a relief in the die block for the cone tool.

THE RECESS PUNCH

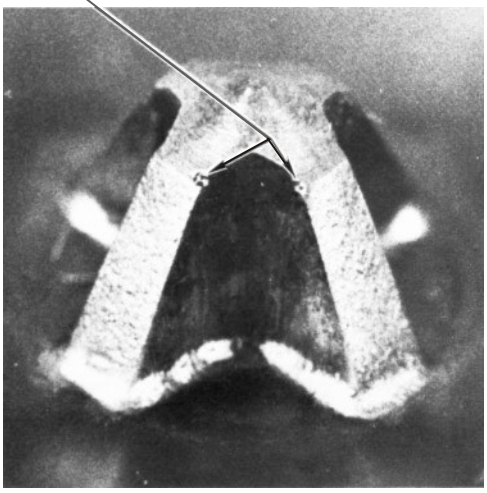
Handle punches carefully. Treat them like the fine precision tooling they are. Don't allow nibs to knock against each other before use. This can cause nicks and burrs that con- tribute to early failure.

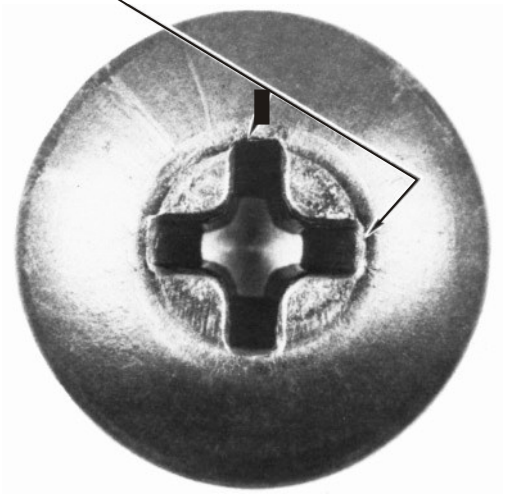


Some head types allow the recess nib to hit the die kickout pin when running without making work. Nibs hitting the kickout pin at full speed fail prema- turely. The two nibs at the right have not made work. The top nib is new. The bot- tom nib shows a flattened tip caused by only two minutes running while hitting the kickout pin.



It is generally agreed that jogging the recess punch over front-dead-center while making work tends to decrease punch life. This punch made less than 30 pieces while jogging. A better setup practice is to make a cone upset then move the recess punch to the upset by hand just enough to mark the upset. Check the mark for concentricity with the shank. When close, make work at full speed for final check. If cone upsets made at full speed are "on center," recess punch eccentricity can be easily checked by looking at the recess width in relation to the ring mark left by the cone tool pin. Ends of recess line up with ring.





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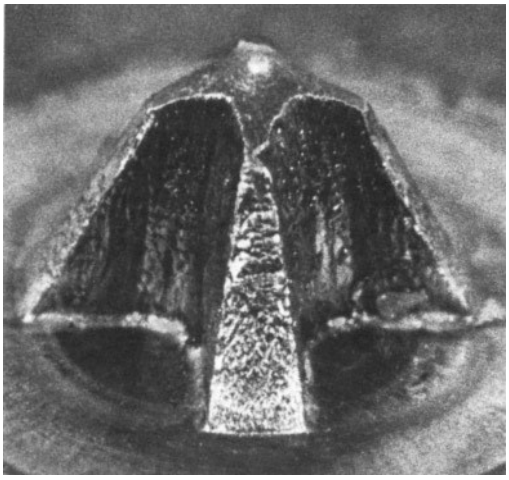
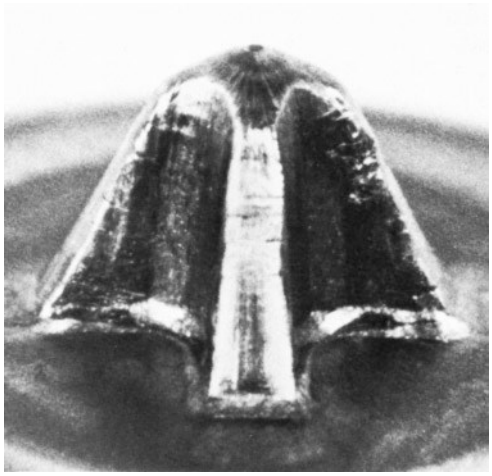
LUBRICATE RECESS PUNCHES

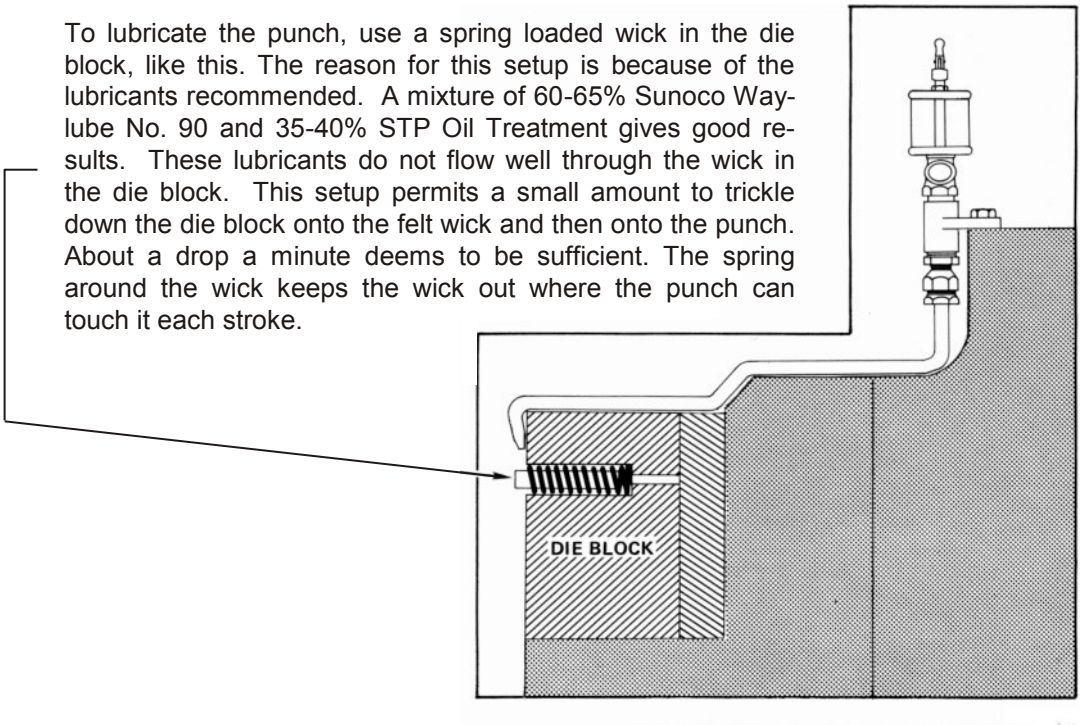


Lubricate the recess punch. This punch made fewer than 10,000 screws. Note the blackness and erosion. Also, the end of this flute is about worn away. This punch was lubricated but with an ineffective type of oil.



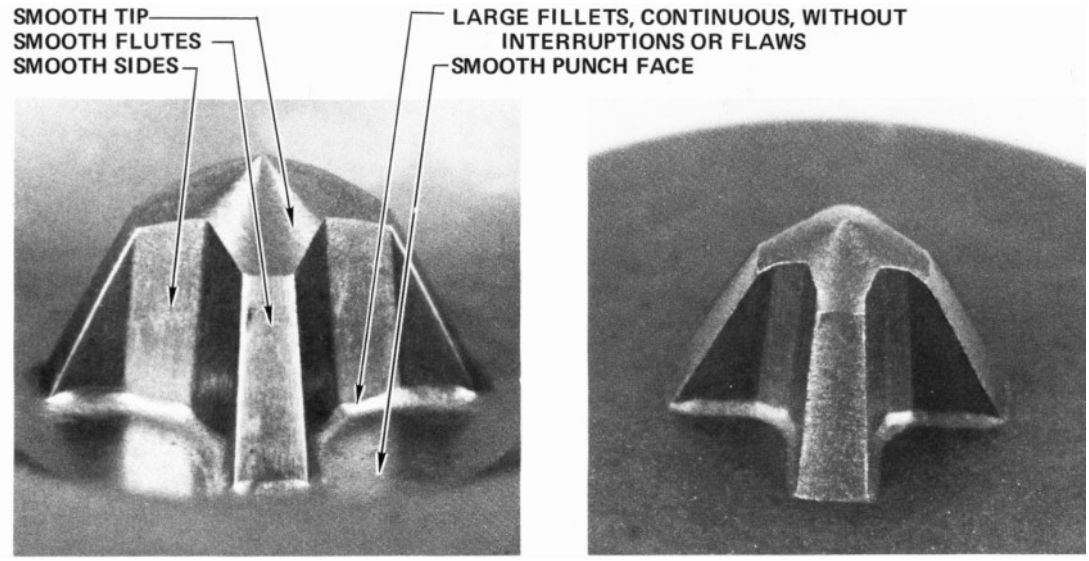
This punch ran 126,000 wall board screws. This may be a bit unusual but this producer consistently averages 60,000 to 100,000 per punch

To lubricate the punch, use a spring loaded wick in the die block, like this. The reason for this setup is because of the lubricants recommended. A mixture of 60-65% Sunoco Way-lube No. 90 and 35-40% STP Oil Treatment gives good results. These lubricants do not flow well through the wick in the die block. This setup permits a small amount to trickle down the die block onto the felt wick and then onto the punch. About a drop a minute deems to be sufficient. The spring around the wick keeps the wick out where the punch can touch it each stroke.

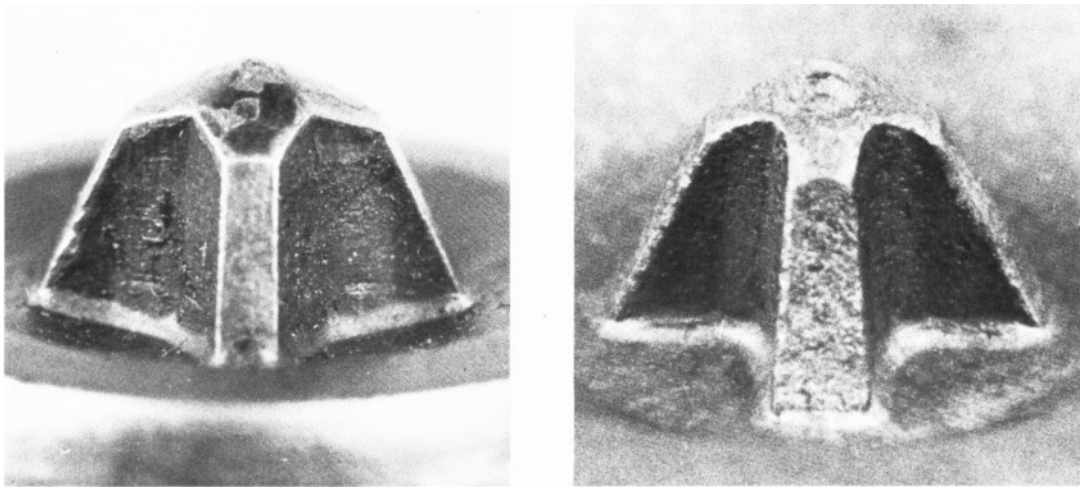


USE HIGH QUALITY RECESS PUNCHES

These two punches look good. Punches with these characteristics usually perform well:



Well lubricated punches at 60-66 Rc hardness seem to make longer runs if breakage from other causes is eliminated. One of the more pronounced differences in new punches is in the surface condition. Punches like those below show a surface roughness or scaling, possibly an indication of decarburization. Watching punches like this run gives the impression there is a soft outer covering that wears away quickly - in just a few minutes - followed by radical surface erosion or nib breakage.



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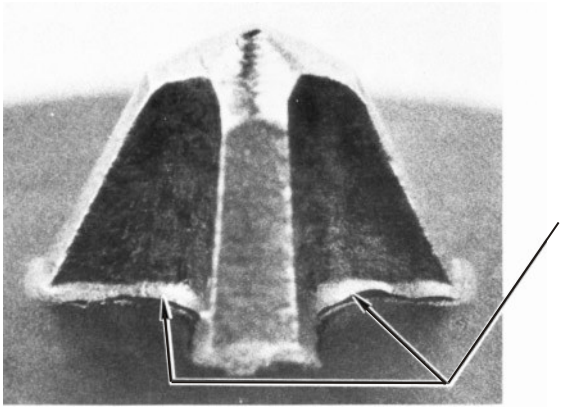
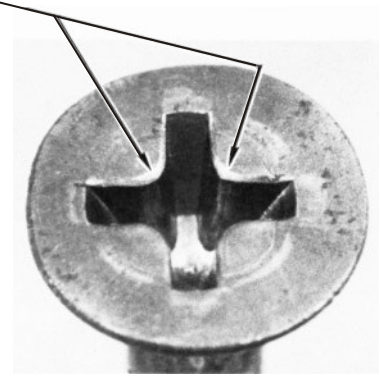
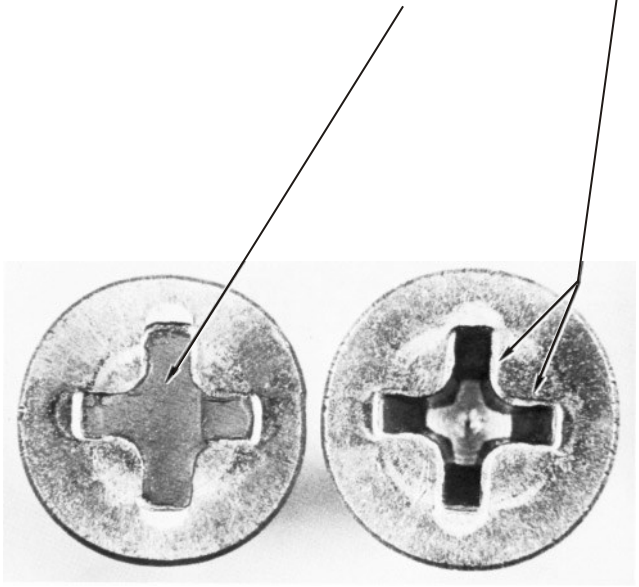


As in any metal part subject to stress, fillets are important for minimizing stress concentrations. Close observation of punches that fail prematurely indicates that discontinuities of the fillets hasten nib breakage. Irregular fillets can be seen on the nib and in some cases appear almost as a separation of the fillet from the face of the punch.

Odd fillet formation can also be seen on the screw head. In this case the nib is also shown separated at the fillet.

Generous fillets without discontinuities contribute to good punch life and form screw heads with pleasing transition from recess to head.





Finally, let's discuss discontinuities in the face of the punch. These may or may not mark the head of the screw. Sometimes the crack is visible in a new punch. Other times it opens up as the punch runs. In either case, these cracks contribute to premature failure by causing uneven heading loads on the nib, usually indicated by uneven wear pattern and early failure.