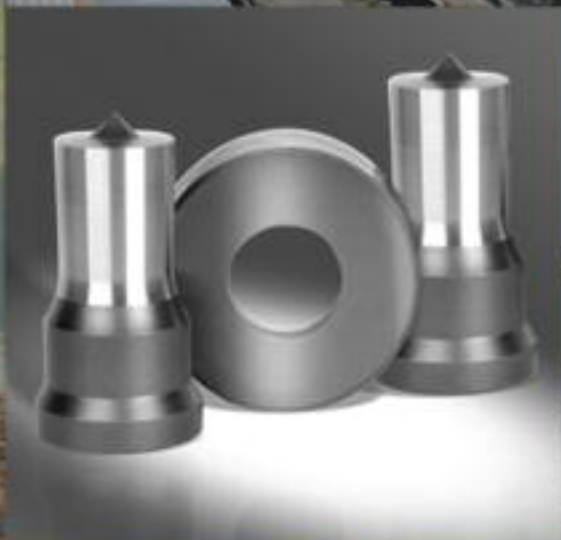


CLEVELAND STEEL TOOL



CATALOG 101

Ironworker Tooling
Punches, Dies and Shear Blades
Annular Cutters

Ironworker Machines
Magnetic Drills
Portable Hydraulic Punch

The Cleveland Steel Tool Company.

Dedicated to meeting the demands of the metalworking industry with a large selection of high-performance products, delivered when promised, at a competitive price, coupled with superior technical expertise, while exceeding the expectations of our customers.



Delivering value to our customers. In 2008 we celebrated our 100th Anniversary as the market leader in punches and dies. As we talked to the large majority of our customers, suppliers, and other members of the extended Cleveland Steel Tool family, this was the message that we kept hearing—the hallmark of our first century in business. Cleveland Steel Tool has always focused first and foremost on delivering value to our customers. And it makes sense that this should become the cornerstone for our next century:

Delivering: We have tens of thousands of different sizes and styles in stock, ready for immediate shipment. Custom sizes ship within 24 hours. And we always ship when we say—with an over 99% on time record.

Value: Quality tools, made right the first time, and built to last. It does not matter whether it is a custom order or stock product, you get the best tooling available in the marketplace, from the industry leader.

To our customers: We are 100% customer driven. Custom orders, rush orders, special requirements are a part of our daily culture here, and we welcome your unique circumstance—we will exceed your expectations.

In 1908 we started out manufacturing punches and dies, and in 2009 we continue to manufacture punches and dies, but we have added so much more.

Shear Blades: Up to 24 inches

Custom Tooling: Picket Tools,
Corner Rounding Tools, Die Sets

Ironworker Machines: from 25 Ton to
120 Ton

Porta Punch: 35 Ton capacity, up to a 13/16" hole through 1/2" steel

Magnetic Drills: Three models to meet your needs

Annular Cutters: One, two, or three inch depth of cut, 7/16 to 2-3/8"



Delivering value to our customers is what drives us. Call us, challenge our technical experts with your difficult applications—and we will deliver. We thank you again for 100 years, and pledge the same quality and service to you for the next 100 years.

 **CLEVELAND
STEEL TOOL**

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The Cleveland Steel Tool Company is not affiliated with nor related to any other manufacturer of punches and dies and related tooling for ironworkers and metal-working machines including the machine manufacturers listed in this catalog. Our products are neither authorized, endorsed or warranted by any of these independent manufacturers.

Ordering Information

Terms

Net 30 days
F.O.B. Cleveland, Ohio

Shortages

All claims must be made within 14 days after date of invoice.

Return Policy

Non-stock and special, made-to-order tooling cannot be returned for credit.

Standard tooling may be returned for credit less a re-stocking charge of 15%. A Return Goods Authorization (RGA) is required. We will not issue credit on used or damaged-by-use items. Returned tooling must be packaged properly to avoid damage in transit and must be shipped to us with the freight charges pre-paid. **Returns will not be accepted after 90 days from the invoice date.**

Delivery

Cleveland Steel Tool has a vast inventory of standard punches and dies ready for immediate shipment. Stock tooling can be shipped the same day. Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be shipped within 48 hours.

Special Tooling

For any special, non-standard tool not listed in this catalog, please provide Cleveland Steel Tool with a sketch, blueprint or sample of your tooling for a quotation.

Minimum Orders

A minimum dollar amount applies to all orders.

Help Us Help You When Ordering

At Cleveland Steel Tool, we've built a solid reputation for delivering your tooling on time, when you need it.

If any of the following information is available, please have it handy when ordering. This will help us prepare and ship your order more accurately and efficiently.

- Machine manufacturer
- Style of punch and die (if not known, have a sample handy to refer to)
- Use of keyways and/or spots to position shapes
- Type of material being punched
- Material thickness
- Hole size (Note: hole size must be slightly larger than item being passed through material)

Helpful Terms

Clearance The amount of extra space required in the hole of the die to allow the punch to pass through to punch a hole in the material. Clearance is determined by the type and thickness of the material being punched.

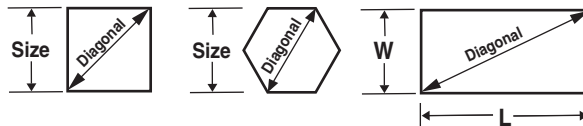
CLEARANCE GUIDE FOR PUNCHING MILD STEEL

Thickness	Clearance
3/4" and over	3/32"
1/2" through 23/32"	1/16"
3/16" through 15/32"	1/32"
3/32" through 5/32"	1/64"
15 gauge through 13 gauge	.010"
16 and lighter	.006"

CLEARANCE GUIDE FOR PUNCHING OTHER MATERIAL (%OF MATERIAL THICKNESS)

Material	Best	Maximum	Minimum
Soft Aluminum	10	15	5
1/2 Hard Brass	11	16	6
1/2 Hard Copper	12	16	8
.50C Steel	18	24	12
Stainless Steel	18	24	12

Diagonal The point-to-point measurement from opposite corners of a square, hex or rectangular punch. (See diagrams.) Important for shaped punches held by a coupling nut because the diagonal dimension is always larger than the punch size which may determine that the punch is too large to fit a coupling nut bore.



To determine the diagonal dimension of a **square punch**, multiply the size of the punch (see diagram) by 1.414.

EXAMPLE: A .500 square punch has a diagonal dimension of .707

To determine the diagonal dimension of a **hexagonal punch**, multiply the size of the punch (see diagram) by 1.155.

EXAMPLE: A .500 square punch has a diagonal dimension of .5775

To determine the diagonal dimension of a **rectangular punch**, determine the square root of the sum of "W²" and "L²" (see diagram).

$$\sqrt{W^2 + L^2}$$

EXAMPLE: A punch that measures .25 X 1, has a diagonal dimension of 1.03

(SEE PAGES 82-83 FOR REFERENCE CHARTS)

Die The female portion of the punching set-up. The hole of the die is slightly larger than the punch used. (Hole size is determined by the type and thickness of material being punched. See "Tonnage Requirement Guide for Punching Mild Steel" next page).

Eccentric/Offset A die with a hole that is not in the center of the die. This type of die is used to punch a hole close to the leg of structural materials such as angle iron, beams or channels. To use an eccentric die, the die holder must be adjustable. See page 72 for more information.

Punch The male (usually upper) portion of a punching set-up that determines the hole size.

Stripping Pulling the punch out of the material after punching.

Tonnage Requirement Guide for Punching Mild Steel

(Tensile strength of approximately 65,000 PSI)

ROUND HOLES

The following formula is the Cleveland Steel Tool recommended equation for computing the approximate tonnage required to punch a single round hole in mild steel.

$$\text{Punch Diameter} \times \text{Material Thickness} \times 80 = \text{Tons of Pressure Required}$$

EXAMPLE: To punch a 1/2" hole through 1/4" thick mild steel:
 $.500 \times .250 \times 80 = 10 \text{ tons}$

SHAPED HOLES

The following formula is the Cleveland Steel Tool recommended equation for computing the approximate tonnage required to punch a single shaped hole in mild steel.

$$\frac{1}{3} \text{ of Perimeter} \times \text{Material Thickness} \times 80 = \text{Tons of Pressure Required}$$

EXAMPLE: To punch a 9/16" x 1" rectangular hole through 1/2" thick mild steel:
 $(.33 \times 3.124) \times .500 \times 80 = 41 \text{ tons}$

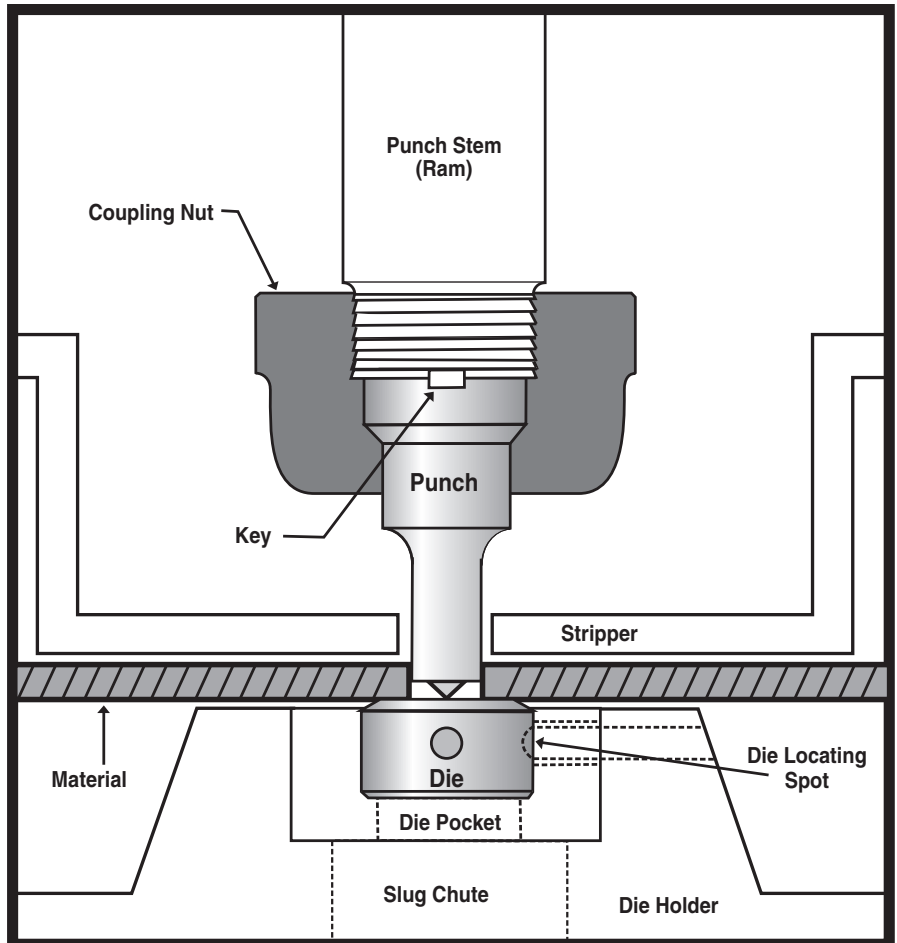
Multiplier

For punching materials with different tensile strength, first determine the tonnage required above, and use the multiplier below.

Material	Multiplier
Aluminum38
Brass70
Copper56
Steel (mild)	1.00
Steel (50% carbon).....	1.50
Steel Cold Drawn	1.20
Stainless Steel (303)	1.50

NOTE: The thickness of the material should not exceed the punch diameter being used.

A Typical Punch Set-Up



Ensure Long Life of Tooling

Every tool manufactured by Cleveland Steel Tool is made of the highest grade of tool steel. For maximum performance, certain precautionary measures must be taken:

1. Correct alignment of the punch with the die must be maintained.
2. Correct placement of the stripper must be maintained to prevent tilting or cocking of the work piece during stripping.
3. Coupling nuts and punch stems must be properly tightened to hold tooling securely.
4. Lubricate whenever possible.

CAUTION: Extreme pressures are generated in all metal punching applications. Use safety guards and all recommended safety precautions.

WARNING: It is the responsibility of the user to set up and use machine and tooling in accordance with local and national OSHA laws and ANSI B11.5 safety standards. Do not allow unqualified personnel to set up or operate machines. Use extreme care at all times.

Buffalo™ (see page 12)	► Model	Uses Punch	Uses Die
	0	P36	D85
	1/2	P66	D14
	1-1/2	P66	D66
	2-1/2 pre 1952 2-1/2 after 1952	P90 P3T	D90 D90
Clausing™/ Metal Muncher™ (see page 17)	► Model	Uses Punch	Uses Die
	DP50, GB35, GB40, GB50, MM35, MM40, MM61	No. 219	No. 417
	DP50/110, GB70, GB7018, GB100, GB10018, GB135, GB13518, MM70A, MM70A18, MM100A, MM100A18, MM135A, MM135A18	No. 228	No. 419
	Alternative Tooling	No. 64	No. 47
	Oversize	28XX	28XX
Cleveland Steel Tool™ (see page 18)	► Model	Uses Punch	Uses Die
	25 Ton, 50 Ton, 55 Ton, 60 Ton, 65 Ton, 75 Ton, 100 Ton, 100 Ton Deluxe, 120 Ton	No. 219	No. 413
	Oversize	No. 228, 241	No. 419, 28XX
	Handy-Mag I, Handy-Mag II, Handy-Mag III Auto	See cutters chart, page 21	
	Porta-Punch	HUSPCH	HUSDIE
Controlled Automation™ (see page 23)	► Model	Uses Punch	Uses Die
	ABL-86T, ABL-741	No. 63, 64	No. 47
	ABL-100 65 Ton	No. 63	No. 47
	115 Ton	No. 64	No. 47
	143 Ton	No. 228	No. 46
	ABL-100-2 65 Ton	No. 63	No. 46
	115 Ton	No. 64	No. 46
	143 Ton	No. 228	No. 46
	BFC-522, BFC-530, PFP-115	No. 64	No. 47
	2AT-175	No. 64, 66	No. 45, 46, 47
115-3	P3T	D85, D90	
Davco™ (Bully™) (see pages 60 and 68 for stock sizes)	► Model	Uses Punch	Uses Die
	All Models	No. 219 No. 228	No. 417 No. 419
Durma™	► Model	Uses Punch	Uses Die
	IW45	219	417
	IW55, IW 80 IW10	221, 228 Short 221, 228	417, 60mm 417, 421
Edwards™ (see page 24)	► Model	Uses Punch	Uses Die
	25 Ton, 30 Ton, 30 Ton Duo, 50 Ton, 50 Ton Duo, 55 Ton, 65 Ton, 75 Ton, 85 Ton, 100 Ton, 100 Ton Deluxe, 115 Ton, 125 Ton Super	No. 219	No. 413
	Oversize	No. 228, 241	No. 419, 28XX
Enerpac™	► Model	Uses Punch	Uses Die
	25 Ton	HUSPUNCH	HUSDIE (see pg 22)
	35 Ton	E212 (see pg 58)	E405 (see pg 66)
	50 Ton	E219 (see pg 60)	417 (see pg 68)
Ficep™ (see pages 60 and 68 for stock sizes)	► Model	Uses Punch	Uses Die
	Super 10	No. 219	No. 408
	Super 13	No. 219	No. 417
	Super 14	No. 221	No. 417
	Super 16-20	No. 228	No. 419

Franklin™
(see page 26)

Model	Uses Punch	Uses Die
F530X3, W530X4	No. 63	No. 48
F550X4, F570X6, F5100X6 W550X7, W570X8, W5100X12	No. 64	No. 47
W5100X18, W5100X30	No. 64	No. 47
F5125X6, F5175X6, F5175X12 F5275X12, W5125X12, W5175X18	No. 66	No. 46
AFC5106, AFC5108, AFC5138	No. 64	No. 47
BL100-5	No. 64	No. 47
PF196X72G	No. 64 No. 66	No. 47 No. 46
SF70A	No. 64	No. 47

Gairu™
(see pages 60 and 68
for stock sizes)

Model	Uses Punch	Uses Die
MF10, Suprema 11, Suprema 13	No. 216	No. 408
MF16, MF20, Suprema 16, Suprema 20	No. 221	No. 417

Geka™
(see page 28)

Model	Uses Punch	Uses Die
Microcrop, Minicrop, Maxicrop 11 H, 13 H, CEP 11, CEP 13 Hydracrop 50, Hydracrop 70 PUMA 11, PUMA 13, PUMA 50H, PUMA 70H	No. 219	No. 417
Multi 11	No. 208	No. 405
16 H, 20 H, CEP 16, CEP 20 Hydracrop 55A, Hydracrop 100 PUMA 16, PUMA 20, PUMA 100H	No. 221	No. 417
25 H, Hydracrop 150, Hydracrop 165, Hydracrop 200, Hydracrop 220, PUMA 150H, PUMA 165H, PUMA 200H, PUMA 220H	No. 228	No. 421
PUMA 55H, PUMA 80 Dual Static, 55A, 80A	No. 221 and No. 228S	No. 417 and 60mm
PUMA 110 H, PUMA 110 A Hydracrop 110	No. 221 and No. 228	No. 417 and No. 421
Oversize	No. 11, No. 12, No. 13, No. 13 Two Piece	No. 11, No. 12, No. 13, No. 421 200mm

Hawthorne™
(see page 24)

Model	Uses Punch	Uses Die
50 Ton, 55 Ton, 75 Ton, 100 Ton	No. 219	No. 413
Oversize	No. 228, 241	No. 419, 28XX

**Hendley
& Whittemore™**
(see pages 60 and 68
for stock sizes)

Model	Uses Punch	Uses Die
51, 52	No. 208	No. 408
53	No. 216	No. 408
54	No. 216	No. 417
55	No. 221	No. 417
55-1/2	No. 228	No. 419

Hill-Acme™/Kling™
(see page 30)

Model	Uses Punch	Uses Die
#3 Combination	No. 208	No. 408, No. 402
#3, #30, MW30	No. 216	No. 408, No. 402
#3A, #4, #4 Combination	No. 221	No. 408, No. 402
#4A, #5, #50, MW50, #6, #6A	No. 221	No. 417, No. 402 No. 408
#7, #7A, #7 Combination	No. 228	No. 419, No. 408

**HMI™ (Hydraulic
Machines Inc.)**
(see page 31)

Model	Uses Punch	Uses Die
35-19, 35-20, 35DT-19, 35DT-20	No. 219	No. 417
42-20, 4214-20	No. 221	No. 417
3514, 35017, 50-19, 50-20, 50-25, 50-31 50DT-19, 50DT-20, 5007, 5010-25 58-20, 5810-25, 5814-20 7025, 70-31, 7010-25, 7014, 7810-25 90-25, 90-31, 9010-25, 9014, 9510-25 110-25, 110-31, 11014, 11810-25 130-25, 130-31, 13014	No. 228	No. 419
Oversize	28XX	28XX

Hougen-Ogura™
(see page 32)

Model	Uses Punch	Uses Die
75001	See Specifications page 32	
75002	See Specifications page 32	
75003	See Specifications page 32	
75004	See Specifications page 32	
75005	See Specifications page 32	
75006	See Specifications page 32	

Ironcrafter™
(see pages 60 and 68
for stock sizes)

Model	Uses Punch	Uses Die
40	No. 62, 63	No. 48, 47
30-41-50-70-95	No. 221	No. 417
120-150	No. 228	No. 419
Oversize	No. 237 28XX	No. 490 28XX

Kingsland™
(see page 33)

Model	Uses Punch	Uses Die
COMPACT 50, COMPACT 65 J14/A or B, J18/GXA or B, J21/GXA or B, J25/GXA or B 60DP, 75DP, 95DP, 125DP 60P625, 75P625, 95P625, 125P625, 175P625 50XA, 65XA 45XM 60XS, 75XS, 95XS, 125XS, 175XS SHARK ULTIMA MODELS *Requires Die Adapter	No. 221 No. 228	No. 419 No. 417*
Oversize	No. 237 No. 9010KND No. 9011KND	No. 422 No. 9024KND No. 9025KND No. 9026KND

Mubea™
(see page 34)

Model	Uses Punch	Uses Die
BF10, 350	BF10	H1
BFL 350 BFLH 400 HIW 450, 550, 600 HP 450 HPS 250, 350, 350E HPSN 350, 450, 500, 600 KBL 1/2, 0, 1-1/2, 48-4, 50-4, 71-5, 88-6, 560 KBLH 500, 700 KL 33, 350, 560, 750 KLH 500, 700 KLSH 550 MIW 400, 600, 800 PROFI 500	H1	H1

Continued on next page

Metal Pro™	Model	Uses Punch	Uses Die
		DVP UHP2 237	DVD UHD2 490
Mubea™ (see page 34)	Model	Uses Punch	Uses Die
	BULLDOG 65	H1	H2
	HIW 1000	H2, H3	H2, H3
	KBL 3-1/2, 110-7, 143-8, 900, 1300		
	KBLH 1000		
	KL 110, 143, 900, 1100, 1300		
KLH 1000			
KLS 1100			
KLSH 1000			
Oversize	H3, H4, H5	H3, H4, H5	
Nitto-Kohki™ (see page 36)	Model	Uses Punch	Uses Die
		NKP, NKP-0	NKD, NKD Bevel
Omera™ (see pages 60 and 68 for stock sizes)	Model	Uses Punch	Uses Die
	M-10, OM1/2 115-35S, 13-45S	No. 221	No. 417
	16-70S	No. 228	No. 419
	20-95S		
Promoco™/Omes™ (see pages 60 and 68 for stock sizes)	Model	Uses Punch	Uses Die
	CH70/CH100	No. 221	No. 417
Peddinghaus™ (see page 37)	Peddinghaus Ironworkers	Uses Punch	Uses Die
	Forax 25E, Forax 45, Forax 65 210/11, 210/13, 225/11, 225/13 225B45, 225B60, 450m 31/44, 44/66H, 66/88, 66/110H, 88/120 360H, 400H, 440, 550, 660, 880, H40, H60N	No. 216	No. 413
	Forax 80, Forax 100 210/16, 210/20, 225/16, 225/20 225B80, 225B100 88/140, 110/140, 110/175H, 120/185 881, H100, H1000, H1000GA, 1050 G1100, H1100, Bradley 500, 700, 1100	No. 221	No. 417
	210/25, 225/25, 225B130 H1400	No. 228	No. 419
	H140	No. 228	No. 420
	Oversize	No. 237	No. 490
	Anglemaster	Uses Punch	Uses Die
	Anglemaster	No. 64Y	No. 47/45
	623, 645	No. 64	No. 47
	643, 823	No. 64 No. 65	No. 47 No. 291
	823B	No. 65	No. 291
	1563, 2063	No. 64 No. 65	No. 47

See next page for Peddinghaus Fabriline

Peddinghaus™
(see page 37)

Fabripunch	Uses Punch	Uses Die
118, 120	No. 64 No. 65	No. 47
500/3, 1120, 1154, 1154-30	No. 64 No. 65	No. 47 No. 47/45 No. 419 No. 419/45
600/3, 1170, 1500/3, 1800/3	No. 64 No. 292C	No. 47 No. 291
Fabriline (Portables)	Uses Punch	Uses Die
FP6	No. 61	No. 49
FP12, FP20, FP20-4, FP20-6, WP20	No. 62	No. 48
FP35, FP35-8	No. 63	No. 47
FP35CC, WP35	No. 63	No. 48
FP45, FP60, FP80, FP80-9, FP100	No. 64 No. 65	No. 47
FP100-12, WP60, WP80, WP100, WP100-18, WP100-25	No. 64 No. 65	No. 47 No. 47F
Stationary 140	No. 292C	No. 421
WP140	No. 292C	No. 291
WP140-12-1/2, FP140-6-1/4, FP140-12-1/2	No. 67	No. 44
FP250-12-1/2	No. 67	No. 43
Others	Uses Punch	Uses Die
7130 Duplicator	No. 64	No. 47
Beam Fabricator	No. 65	No. 47F
2000CNC BPL1000/5	No. 64 No. 65	No. 47 No. 419

Piranha™
(see page 42)

Model	Uses Punch	Uses Die
P-2, P-3, P-36, P-40, P-50, PII-35, SEPP-35	No. 219	No. 413
P-4, P-70, P-90, PII-35, PII-65, PII-88, PII-110, No. 228 SEPP-65, SEPP-88, SEPP-120, SEPP-140	No. 228	No. 419
1-1/2" Oversize	No. 228	No. 419
28XX Oversize Attachment	28XX	28XX

Pittsburgh™
(see page 24)

Model	Uses Punch	Uses Die
25 Ton, 30 Ton, 30 Ton Duo, 50 Ton, 50 Ton Duo, 55 Ton, 65 Ton, 75 Ton, 85 Ton, 100 Ton, 100 Ton Deluxe, 115 Ton, 125 Ton Super	No. 219	No. 413
Oversize	No. 228, 241	No. 419, 28XX

**Rogers™ (Lehman/
Bateman/Bantam)**
(see page 44)

Model	Uses Punch	Uses Die
All Models	BNP	BND

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Scotchman™
(see page 45)

Model	Uses Punch	Uses Die
207, 314, 314C6, 314T, 424, 3209 4014C, 4014CM, 4014T, 4060B, 5014 PRO FAB 45	DVP	DVD
2450, 5024, 5075, 6012, 6509 7012, 7575, 9012, 9075, 12012 9012, 9075, 12012 FI-5009, FI-5109, FI-6008, FI-8507 DO-70, DO-100	NO. 221	No. 417
Oversize Combinations to 1-1/2" over 1-1/2"	No. 228 DVP2	No. 420 DVD2 No. 422 6.5 x 6.5

Spartan™
(see page 48)

Model	Uses Punch	Uses Die
Single cylinder machines manufactured prior to 2000	No. 221 No. 228	No. 413 No. 419
Single cylinder machines	No. 221	No. 413
Dual cylinder machines	No. 228	No. 419
Oversize	51mm, 60mm, 80mm, 90mm 100mm	80mm, 110mm 150mm, 200mm 250mm

Uni-Hydro™
(see page 50)

Model	Uses Punch	Uses Die
All Models	UHP	UHD
Oversize Combinations Over 1-1/2"	UHP2 No. 237	UHD2 NO. 422, No.490

W.A. Whitney™
(see page 51)

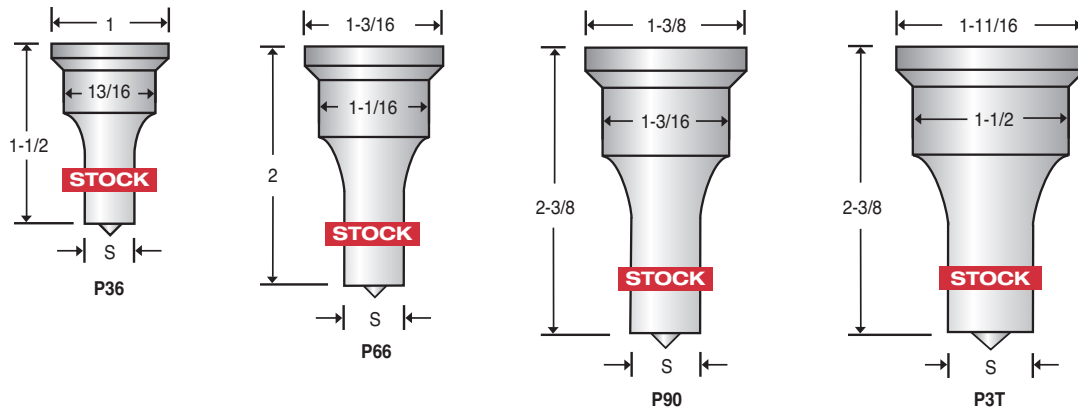
Fabricating Centers	Uses Punch	Uses Die
647 Plus, 647 Plus II, 647 ATC 661-60, 661-84 ATC, 661-84 661-96 ATC, 661-120	36TC™	36TC™
612, 613, 615, 625, 626 627, 630, 635, 637, 647 650, 652, 653, 655, 656, 791-AX18 1524, 2120, 2330, 2530 2548	28XX	28XX
Portables		
705	No. 61	No. 49
710, 720, 720X4, 720X6, 721	No. 62	No. 48
710CC	No. 62	No. 49
730CC, 730X8CC, 731	No. 63	No. 48
730, 730X8, 750, 751	No. 63	No. 47
750AX6, 751AX7, 771AX9, 790AX6 791AX18, 791AX30	No. 64 No. 64XX	No. 47 No. 47XX
770, 771, 790, 791, 791X18	No. 64	No. 47
7150AX6, 7151AX12	No. 64 No. 64XX No. 66	No. 46
7150AX12	No. 64 No. 64XX No. 66	No. 45
7250AX12	No. 66	No. 45
845 Anglematic	No. 64, No. 64XX	No. 47XX
796 Beamline		
7130-60 Plate Duplicator		

All stock items are available for **immediate shipment.**

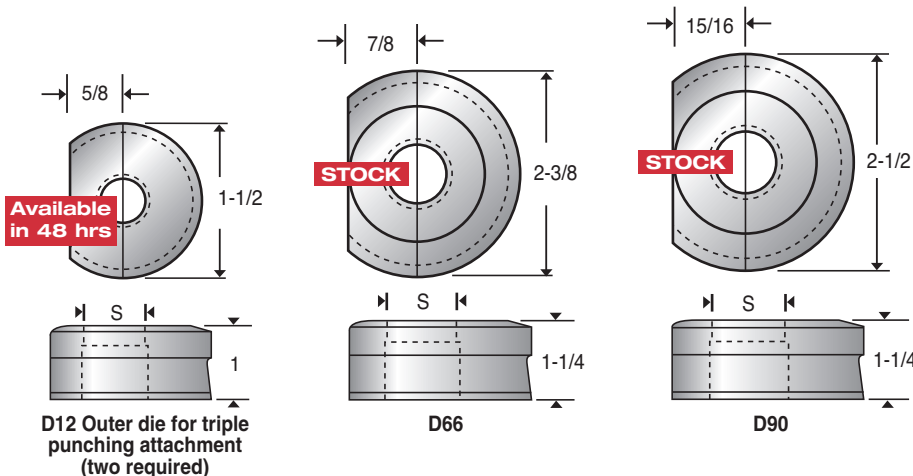
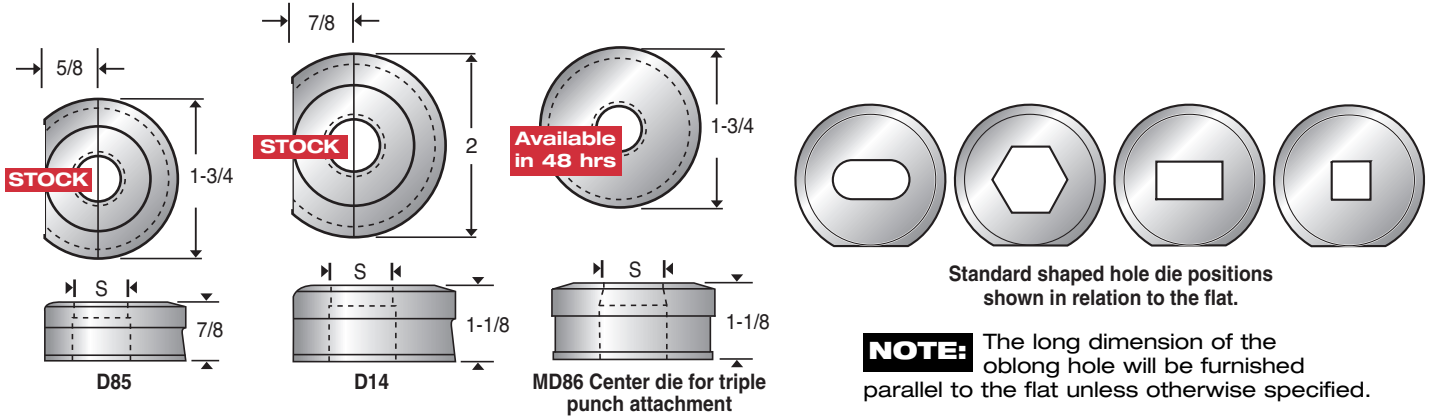
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
0	P36	D85
1/2	P66	D14
1-1/2	P66	D66
2-1/2 pre 1952	P90	D90
2-1/2 after 1952	P3T	D90

Punches



Dies



Stock Punch Sizes



Stock Round Punches

SIZE	P36	P66	P90	P3T
1/8	●	●	●	
5/32	●	●	●	●
3/16	●	●	●	●
7/32	●	●	●	●
1/4	●	●	●	●
9/32	●	●	●	●
5/16	●	●	●	●
11/32	●	●	●	●
3/8	●	●	●	●
13/32	●	●	●	●
7/16	●	●	●	●
15/32	●	●	●	●
1/2	●	●	●	●
17/32	●	●	●	●
9/16	●	●	●	●
19/32	●	●	●	●
5/8	●	●	●	●
21/32	●	●	●	●
11/16	●	●	●	●
23/32	●	●	●	●
3/4	●	●	●	●
25/32	●	●	●	●
13/16	●	●	●	●
27/32	●	●	●	●
7/8	●	●	●	●
29/32	●	●	●	●
15/16	●	●	●	●
31/32	●	●	●	●
1	●	●	●	●
1-1/32	●	●	●	●
1-1/16	●	●	●	●
1-3/32	●	●	●	●
1-1/8	●	●	●	●
1-5/32		●	●	●
1-3/16		●	●	●
1-1/4		●	●	●
1-5/16		●	●	●
1-3/8		●	●	●
1-7/16		●	●	●
1-1/2		●	●	●



Stock Oblong Punches

SIZE	P36	P66	P90	P3T
3/16 x 1		●	●	
7/32 x 1		●	●	
1/4 x 1/2		●	●	
1/4 x 1		●	●	
9/32 x 9/16		●	●	
9/32 x 1		●	●	
5/16 x 5/8		●	●	
5/16 x 3/4	●	●	●	
5/16 x 1		●	●	
11/32 x 11/16		●	●	
11/32 x 1		●	●	
3/8 x 1/2		●	●	
3/8 x 3/4	●	●	●	
3/8 x 1		●	●	
13/32 x 13/16		●	●	
13/32 x 1		●	●	
7/16 x 9/16		●	●	
7/16 x 3/4		●	●	●
7/16 x 13/16	●			
7/16 x 7/8			●	●
7/16 x 1		●	●	●
7/16 x 1-1/4			●	●
7/16 x 1-1/2				●
15/32 x 1		●	●	●
1/2 x 3/4		●	●	
1/2 x 1		●	●	●
1/2 x 1-1/4				●
1/2 x 1-1/2				●
17/32 x 1		●	●	
17/32 x 1-1/4			●	●
17/32 x 1-1/2				●
9/16 x 3/4		●	●	
9/16 x 13/16	●			
9/16 x 1		●	●	
9/16 x 1-1/16				●
9/16 x 1-1/4			●	●
9/16 x 1-1/2				●
5/8 x 1		●	●	●
5/8 x 1-1/4				●
5/8 x 1-1/2				●



Stock Oblong Punches (cont)

SIZE	P36	P66	P90	P3T
11/16 x 1			●	●
11/16 x 1-1/16		●		
11/16 x 1-1/4				●
11/16 x 1-1/2				●
3/4 x 1		●	●	●
3/4 x 1-1/4				●
3/4 x 1-1/2				●
13/16 x 1			●	●
13/16 x 1-1/16		●		
13/16 x 1-3/16				●
13/16 x 1-1/4				●
13/16 x 1-1/2				●
7/8 x 1				●
7/8 x 1-1/4				●
7/8 x 1-1/2				●
15/16 x 1-1/4			●	●
15/16 x 1-1/2				●
1 x 1-1/4				●
1 x 1-1/2				●
1-1/16 x 1-1/2				●



Stock Square Punches

SIZE	P36	P66	P90	P3T
1/4	■	■	■	
9/32	■	■	■	
5/16	■	■	■	
11/32	■	■	■	
3/8	■	■	■	
13/32	■	■	■	
7/16	■	■	■	
15/32	■	■	■	
1/2	■	■	■	
17/32	■	■	■	
9/16	■	■	■	
19/32	■	■	■	
5/8	■	■	■	
21/32	■	■	■	
11/16	■	■	■	
23/32	■	■	■	
3/4	■	■	■	
25/32	■	■	■	
13/16	■	■	■	
27/32	■	■	■	
7/8	■	■	■	

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

▶ Model	Uses Punch	Uses Die
0	P36	D85
1/2	P66	D14
1-1/2	P66	D66
2-1/2 pre 1952	P90	D90
2-1/2 after 1952	P3T	D90

Stock Die Sizes



Stock Round Dies

SIZE	D85	D14	D66	D90
5/32	●	●	●	●
3/16	●	●	●	●
7/32	●	●	●	●
1/4	●	●	●	●
9/32	●	●	●	●
5/16	●	●	●	●
11/32	●	●	●	●
3/8	●	●	●	●
13/32	●	●	●	●
7/16	●	●	●	●
15/32	●	●	●	●
1/2	●	●	●	●
17/32	●	●	●	●
9/16	●	●	●	●
19/32	●	●	●	●
5/8	●	●	●	●
21/32	●	●	●	●
11/16	●	●	●	●
23/32	●	●	●	●
3/4	●	●	●	●
25/32	●	●	●	●
13/16	●	●	●	●
27/32	●	●	●	●
7/8	●	●	●	●
29/32	●	●	●	●
15/16	●	●	●	●
31/32	●	●	●	●
1	●	●	●	●
1-1/32	●	●	●	●
1-1/16	●	●	●	●
1-3/32	●	●	●	●
1-1/8	●	●	●	●
1-5/32	●	●	●	●
1-3/16	●	●	●	●
1-7/32	●	●	●	●
1-1/4	●	●	●	●
1-9/32	●	●	●	●
1-5/16	●	●	●	●
1-11/32	●	●	●	●
1-3/8	●	●	●	●
1-13/32	●	●	●	●
1-7/16	●	●	●	●
1-15/32	●	●	●	●
1-1/2	●	●	●	●
1-17/32	●	●	●	●
1-9/16	●	●	●	●



Stock Oblong Dies

SIZE	D85	D14	D66	D90
7/32 x 1-1/32	●	●	●	●
1/4 x 1-1/32	●	●	●	●
9/32 x 17/32	●	●	●	●
9/32 x 1-1/32	●	●	●	●
5/16 x 19/32	●	●	●	●
5/16 x 1-1/32	●	●	●	●
11/32 x 21/32	●	●	●	●
11/32 x 25/32	●	●	●	●
11/32 x 1-1/32	●	●	●	●
3/8 x 23/32	●	●	●	●
3/8 x 1-1/32	●	●	●	●
13/32 x 17/32	●	●	●	●
13/32 x 25/32	●	●	●	●
13/32 x 1-1/32	●	●	●	●
7/16 x 27/32	●	●	●	●
7/16 x 1-1/32	●	●	●	●
15/32 x 19/32	●	●	●	●
15/32 x 25/32	●	●	●	●
15/32 x 27/32	●	●	●	●
15/32 x 29/32	●	●	●	●
15/32 x 1-1/32	●	●	●	●
15/32 x 1-9/32	●	●	●	●
15/32 x 1-17/32	●	●	●	●
1/2 x 1-1/32	●	●	●	●
17/32 x 25/32	●	●	●	●
17/32 x 1-1/32	●	●	●	●
17/32 x 1-9/32	●	●	●	●
17/32 x 1-17/32	●	●	●	●
9/16 x 1-1/32	●	●	●	●
9/16 x 1-9/32	●	●	●	●
9/16 x 1-17/32	●	●	●	●
19/32 x 25/32	●	●	●	●
19/32 x 27/32	●	●	●	●
19/32 x 1-1/32	●	●	●	●
19/32 x 1-3/32	●	●	●	●
19/32 x 1-9/32	●	●	●	●
19/32 x 1-17/32	●	●	●	●
5/8 x 1-1/16	●	●	●	●
5/8 x 1-5/16	●	●	●	●
5/8 x 1-9/16	●	●	●	●
21/32 x 1-1/32	●	●	●	●
21/32 x 1-9/32	●	●	●	●
21/32 x 1-17/32	●	●	●	●
11/16 x 1-1/16	●	●	●	●
11/16 x 1-5/16	●	●	●	●
11/16 x 1-9/16	●	●	●	●
23/32 x 1-1/32	●	●	●	●
23/32 x 1-3/32	●	●	●	●
23/32 x 1-9/32	●	●	●	●
23/32 x 1-17/32	●	●	●	●

Stock Oblong Dies (cont)

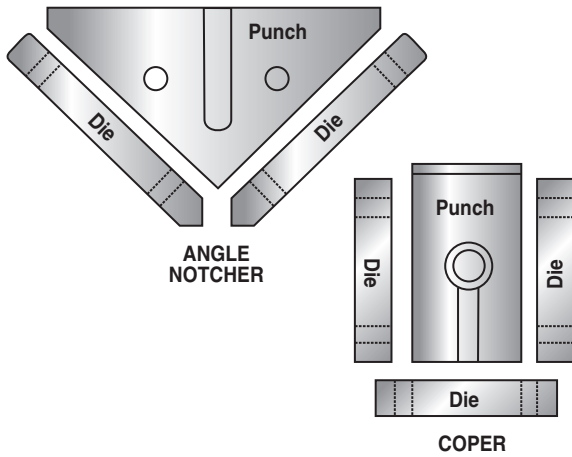
SIZE	D85	D14	D66	D90
3/4 x 1-1/16	●	●	●	●
3/4 x 1-5/16	●	●	●	●
3/4 x 1-9/16	●	●	●	●
25/32 x 1-1/32	●	●	●	●
13/16 x 1-1/16	●	●	●	●
13/16 x 1-5/16	●	●	●	●
13/16 x 1-9/16	●	●	●	●
27/32 x 1-1/32	●	●	●	●
27/32 x 1-3/32	●	●	●	●
27/32 x 1-9/32	●	●	●	●
27/32 x 1-17/32	●	●	●	●
7/8 x 1-1/16	●	●	●	●
7/8 x 1-1/4	●	●	●	●
7/8 x 1-5/16	●	●	●	●
7/8 x 1-9/16	●	●	●	●
29/32 x 1-1/32	●	●	●	●
15/16 x 1-1/16	●	●	●	●
15/16 x 1-5/16	●	●	●	●
15/16 x 1-9/16	●	●	●	●
31/32 x 1-9/32	●	●	●	●
31/32 x 1-17/32	●	●	●	●
1 x 1-5/16	●	●	●	●
1 x 1-9/16	●	●	●	●
1-1/16 x 1-5/16	●	●	●	●
1-1/16 x 1-9/16	●	●	●	●
1-1/8 x 1-9/16	●	●	●	●



Stock Square Dies

SIZE	D85	D14	D66	D90
9/32	■	■	■	■
5/16	■	■	■	■
11/32	■	■	■	■
3/8	■	■	■	■
13/32	■	■	■	■
7/16	■	■	■	■
15/32	■	■	■	■
1/2	■	■	■	■
17/32	■	■	■	■
9/16	■	■	■	■
19/32	■	■	■	■
5/8	■	■	■	■
21/32	■	■	■	■
11/16	■	■	■	■
23/32	■	■	■	■
3/4	■	■	■	■
25/32	■	■	■	■
13/16	■	■	■	■
27/32	■	■	■	■
7/8	■	■	■	■

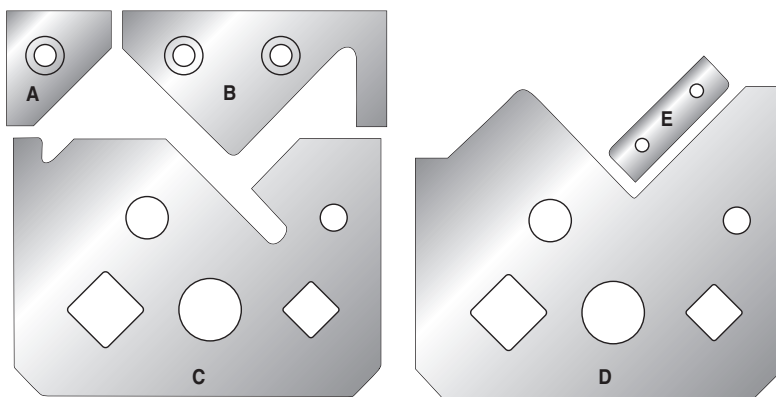
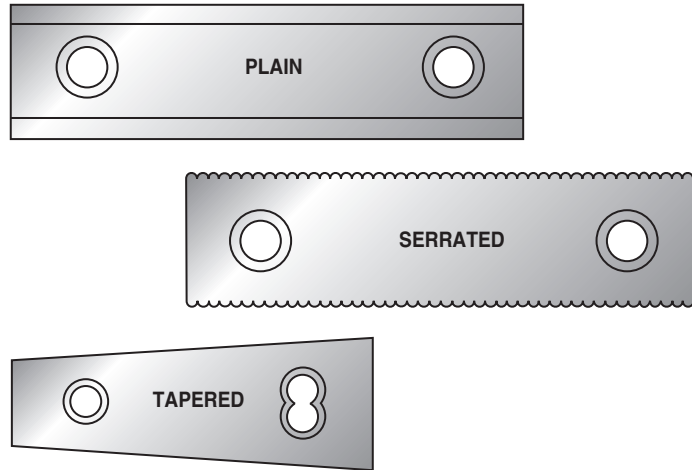
Standard Notcher Tools, Coper Tools, Shear Blades, and Barcutter Blades



MODEL	NOTCHER PUNCH PART #	NOTCHER DIE PART #	COPER PUNCH PART #	COPER DIE PART #
1/2 pre 1963	1-2NP1	1-2ND0	1-2CP3	(2) 1-2CDB (1) 1-2CD1
1/2 after 1963	1-2NP1	1-2ND0	1-2CP4	(3) 1-2CD3
1-1/2 pre 1963	1-2NP1	1-2ND0	1-2CP3	(2) 1-2CDB (1) 1-2CD1
1-1/2 after 1963	1-2NP1	1-2ND0	1-2CP4	(3) 1-2CD3 (2) 3CD2
2-1/2 pre 1963	3NP0	(3) 3ND1	3CP3	(1) 3CD1 (2) 3CD2
2-1/2 after 1963	3NP0	(3) 3ND1	3CP4	(3) 3CD1

Numbers in parenthesis indicate number of pieces required.

MODEL	PLAIN SHEAR BLADE PART #	SERRATED SHEAR BLADE PART #	TAPERED SHEAR BLADE PART #
1/2 pre 1963	1SB3	1SB1	1SB8
1/2 after 1963	1SB3	1SB1	1SB4
1-1/2 pre 1963	2SB3	2SBU	2SB9
1-1/2 after 1963	2SB3	2SBU	2SB4
2-1/2 pre 1963	3SB3	3SB9	3SB7
2-1/2 after 1963	3SB3	3SB9	3SB7



MODEL	BARCUTTER BLADES				
	A	B	C	D	E
1/2 pre 1963	1K5A	1K5B	1K5C	1K1D	1K1E
1/2 after 1963	1K5A*	1K5B	1K5C	1K5D	not req'd
1-1/2 pre 1963	2K5A	2K5B	2K5C	2K4D	2K4E
1-1/2 after 1963	2K5A*	2K5B*	2K5C*	2K9D*	not req'd
2-1/2 pre 1963	3K9A	3K9B	3K5C	3K9D	3K9E
2-1/2 after 1963	3K5A	3K5B	3K5C	3K4D	not req'd

* Indicates that these blades are used on machines built 1963-1975. Call the sales department for information on machines built after 1975.

NOTE: Contact our sales department for availability of tooling for the "O" Buffalo Ironworker

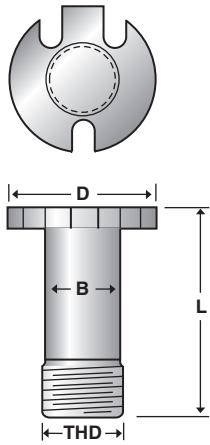
(Continued on next page)

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

► Model	Uses Punch	Uses Die
0	P36	D85
1/2	P66	D14
1-1/2	P66	D66
2-1/2 pre 1952	P90	D90
2-1/2 after 1952	P3T	D90

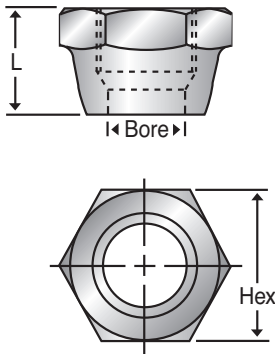
Standard Punch Stems



PUNCH STEM PART #	HEAD DIAMETER D	BODY DIMENSION B	LENGTH L	THD		FOR BUFFALO IRONWORKER MODEL
				THREAD DIAMETER	THREADS /INCH	
S90	3-1/2	1-3/8	3-7/8	1-3/8	12	1-1/2 pre 1966
S30	3-1/2	1-3/8	3-1/2	1-3/8	12	1/2 after 1966
S3T	4	1-3/4	3-3/8	1-7/8	12	2-1/2 after 1952
S42	4	1-5/8	3-3/8	1-5/8	12	2-1/2 pre 1952
S4T	3-1/2	1-3/8	4-3/4	1-3/8	12	1-1/2 after 1966
S90	3-1/2	1-3/8	3-7/8	1-3/8	12	1-1/2 pre 1963
S93	3-1/2	1-3/8	4-7/32	1-3/8	12	1-1/2 1963-6

NOTE: Contact our sales department for availability of punch stems used in triple punching attachments.

Standard Coupling Nuts



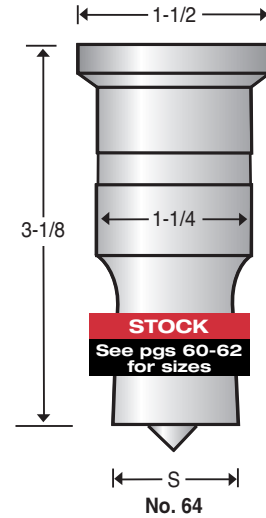
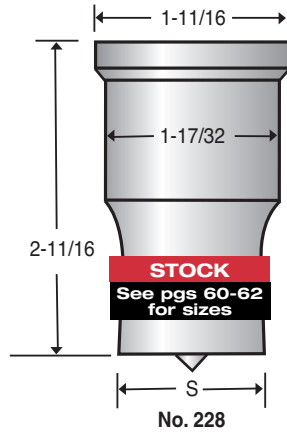
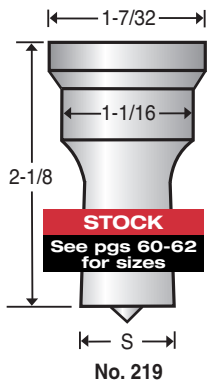
MODEL	COUPLING NUT PART #	THREAD DIAMETER	THREADS /INCH	HEX	LENGTH	BORE DIA.	TO HOLD PUNCH #
0	C7A	1-1/8	14	1-5/8	1-3/32	53/64	P36
1/2 & 1-1/2	C7B	1-3/8	12	2	1-7/32	1-5/64	P66
2-1/2 before 1952	C7D	1-5/8	12	2-3/8	1-11/32	1-13/64	P90
2-1/2 after 1952	C7E	1-7/8	12	2-1/2	1-5/16	1-33/64	P3T

All stock items are available for **immediate shipment.**

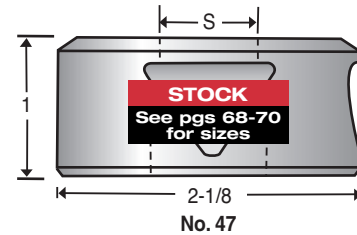
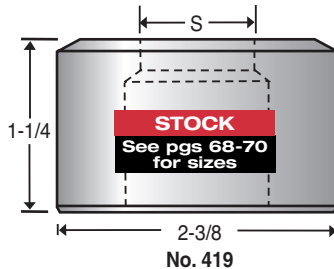
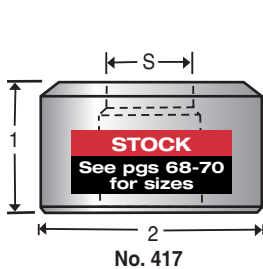
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

▶ Model	Uses Punch	Uses Die
DP50, GB35, GB40, GB50, MM35, MM40, MM61	No. 219	No. 417
DP50/110, GB70, GB7018, GB100, GB10018, GB135, GB13518, MM70A, MM70A18, MM100A, MM100A18, MM135A, MM135A18	No. 228	No. 419
Alternative Tooling	No. 64	No. 47
Oversize (see page 53 for available sizes)	28XX	28XX

Standard Punches



Standard Dies



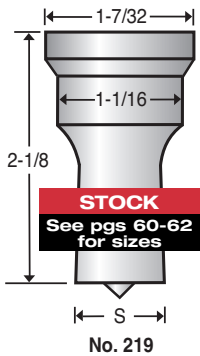
All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

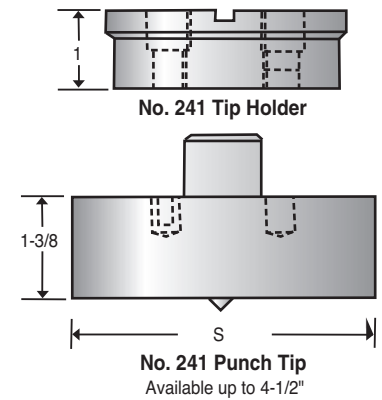
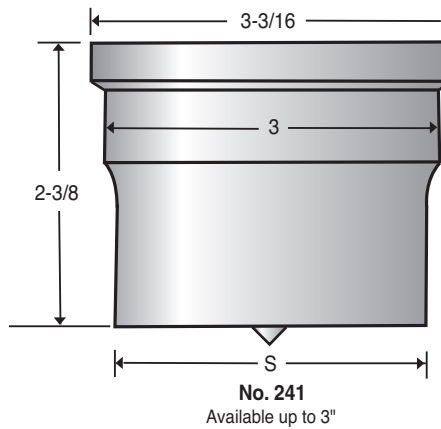
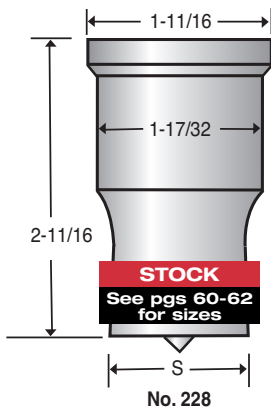
Model	Uses Punch	Uses Die
25 Ton, 50 Ton, 55 Ton, 60 Ton, 65 Ton, 75 Ton, 100 Ton, 100 Ton Deluxe, 120 Ton	No. 219	No. 413
Oversize (see page 53 for available sizes of 28XX)	No. 228, No. 241	No. 419, 28XX

Punches and Dies

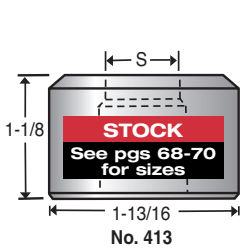
Standard Punch



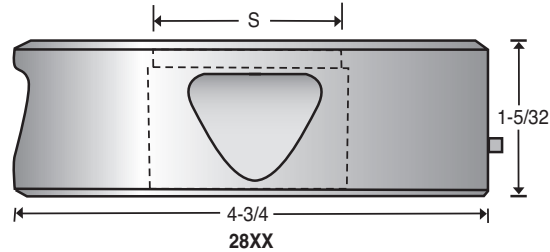
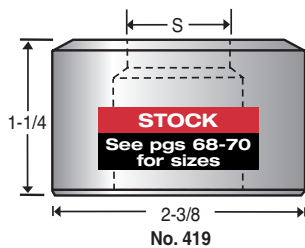
Oversize Punches



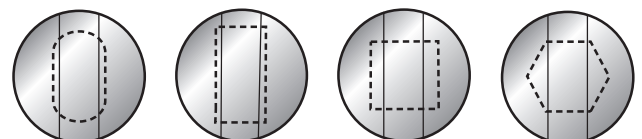
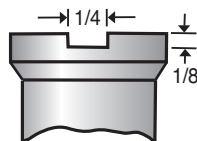
Standard Die



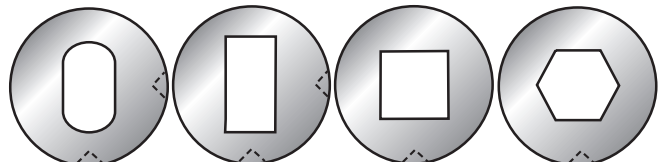
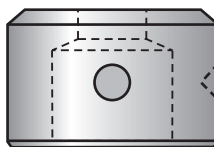
Oversize Dies



NOTE: Keyways and locating spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Cleveland Steel Tool Ironworker and a 1/4" wide x 1/8" deep keyway will be added to the head of shaped punches and a set screw will be added to shaped dies. If no machinery is specified, keyways will not be furnished.

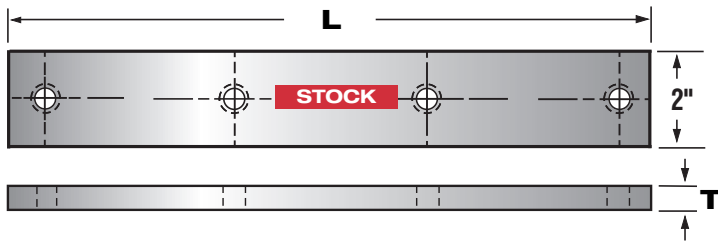


Standard Keyway Positions for Alignment of Shaped Punches



Standard Locating Spot Positions for Alignment of Shaped Dies

Shear Blades



Flat Bar Shear Blades

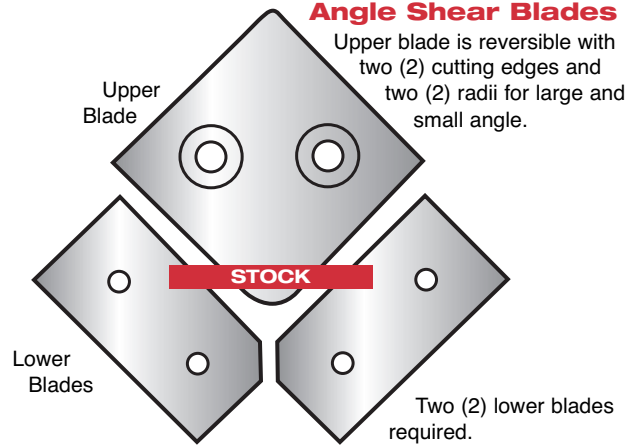
Reversible with four (4) cutting edges.
Two (2) required.

Stock Shear Blades

MODEL	L	T	PART #
50 Ton	10"	1/2"	T20003
55 Ton	14"	1/2"	T20004
65 and 115 Ton	24"	3/4"	T20005
75 and 100 Ton	14"	3/4"	T20006

Angle Shear Blades

Upper blade is reversible with two (2) cutting edges and two (2) radii for large and small angle.



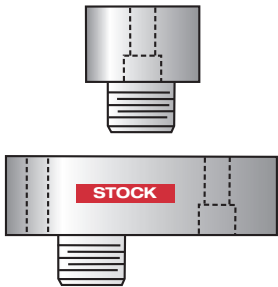
Two (2) lower blades required.

Stock Shear Blades

MODEL	PART #	
	UPPER BLADE	LOWER BLADE
50 and 55 Ton	T20101	T20102
65 and 75 Ton	T20103	T20104
100 and 115 Ton	T20105	T20106

Miscellaneous Tooling

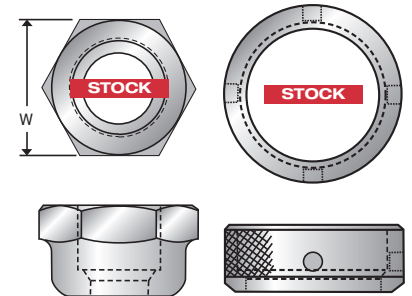
Stock Punch Stems and Coupling Nuts



Punch Stem

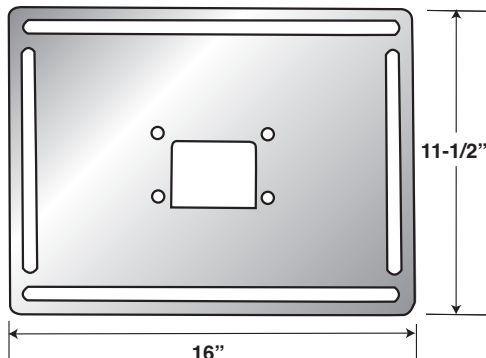
MODEL	PUNCH STEM PART #	COUPLING NUT PART #	W	FITS PUNCH
25 Ton	T10006	CSTNUT	2"	No. 219
All Other Models	T10005	CSTNUT	2"	No. 219
	T10105	CNUT21	2-1/2"	No. 228
	T10206*	T10207	SPANNER	No. 241

*Requires Part # T10205 Stem Holder (not shown).

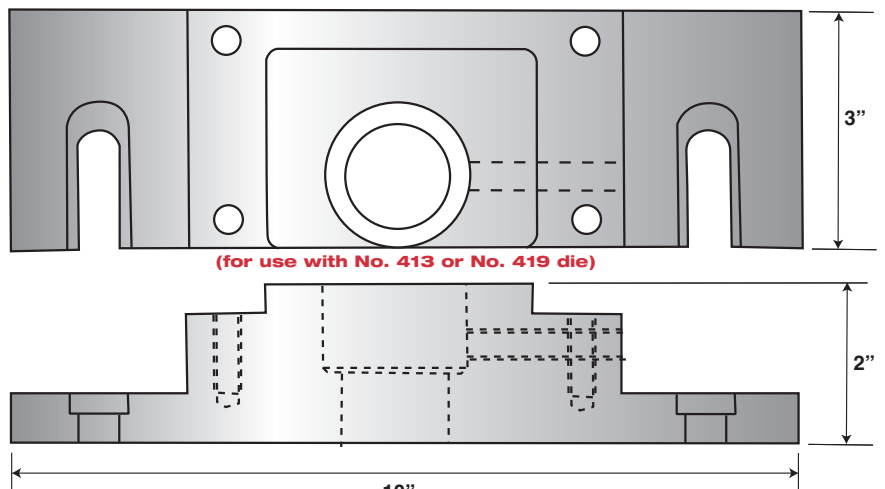


Coupling Nut

Spanner



Pedestal Die Gauge Table



Pedestal Die Holder

(for use with No. 413 or No. 419 die)

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

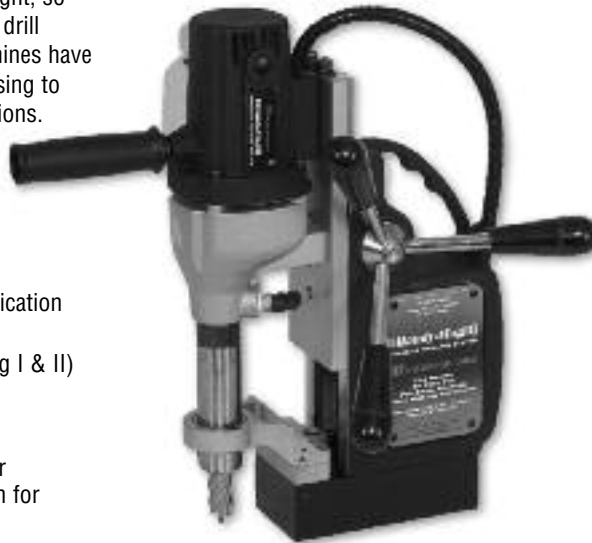
▶ Model	Uses Punch	Uses Die
Handy-Mags	See cutter chart	
Porta-Punch	See next page	

The Handy-Mags

MAXIMUM HOLDING FORCE FOR THE POWER TO STAY PUT

Our magnetic drilling machines give you the power to stay put. They're compact and lightweight, so you can take them anywhere you need to drill holes. Each of our magnetic drilling machines have powerful motors and cast aluminum housing to hold up to even the harshest work conditions. With three models to choose from, our line of Handy-Mags can surely meet your hole drilling needs. Each Handy-Mag features:

- Coolant system with internal cutter lubrication for increased cutter tool life
- Left or right hand operation (Handy-Mag I & II)
- Positive slug ejection system
- Safety chain
- No predrilling necessary. Patented arbor system provides maximum pilot tension for predrilling alignment.
- Powerful motor with cast aluminum housing
- Adjustable slide gibs
- One year warranty
- Rugged carrying case



SPECIFICATIONS HANDY-MAG I

DRILLING

Maximum Cutter Diameter	1-3/8"
Maximum Cutter Depth	2"
Twist Drill Capacity with included chuck and adapter	1/8" – 1/2"

MOTOR 110v AC, 10 amp
1200 watts, grounded and double insulated
RPM no load: 550 RPM
Frequency: 50-60 Hz

MAGNETIC HOLDING FORCE

3/8" plate, 2200 lbs.

DIMENSIONS

Height	15"
Base	3" x 6-1/2"
Weight	26 lbs.



SPECIFICATIONS HANDY-MAG II

DRILLING

Maximum Cutter Diameter	2-1/16"
Maximum Cutter Depth	3"
Twist Drill Capacity with optional chuck and adapter	3/16" – 5/8"

MOTOR 110v AC, 15 amp
1800 watts, grounded and double insulated
2 speed gearbox
RPM no load: 380 & 500 RPM
Frequency: 50-60 Hz

MAGNETIC HOLDING FORCE

3/8" plate, 3500 lbs.

DIMENSIONS

Height	20"
Base	3" x 8"
Weight	48 lbs.

Cutters



- 3/4" shank to also fit Hougen™, Jancy™, Universal™, CML™, and most other drills
- Stocked in 1" and 2" depth of cut in common bolt holes sizes from 7/16" to 2-3/8" diameter.
- Cutters sold individually or in sets
- Sharpening and reconditioning available
- Center pins are included with all cutters
- Metric sizes and carbide cutters also available



SPECIFICATIONS HANDY-MAG III AUTO

DRILLING

Maximum Cutter Diameter
with automatic feed 1-3/16"
Maximum Cutter Depth
with manual feed 1-3/8"
Maximum Cutter Depth:
with automatic feed 1-3/4"
with manual feed 2"

MOTOR 110v AC, 10 amp
1200 watts, grounded and
double insulated
RPM no load: 550 RPM
Frequency: 50-60 Hz

MAGNETIC HOLDING FORCE

3/8" plate, 3500 lbs.

DIMENSIONS

Height 17"
Base 3" x 8"
Weight 38 lbs.

CUTTER SIZE	IN STOCK 1" DEPTH	IN STOCK 2" DEPTH	AVAILABLE 3" DEPTH
7/16	H4375	HL437	
1/2	H5000	HL500	
9/16	H5625	HL562	
5/8	H6250	HL625	
11/16	H6875	HL687	
3/4	H7500	HL750	7500H
13/16	H8125	HL812	8125H
7/8	H8750	HL875	8750H
15/16	H9375	HL937	9375H
1"	H1000	HL100	1000H
1-1/16	H1062	HL106	1062H
1-1/8	H1125	HL112	1125H
1-3/16	H1187	HL119	1187H
1-1/4	H1250	HL125	1250H
1-5/16	H1312	HL131	1312H
1-3/8	H1375	HL137	1375H
1-7/16	H1437	HL143	1437H
1-1/2	H1500	HL150	1500H
1-9/16	H1562	HL156	1562H
1-5/8	H1625	HL162	1625H
1-11/16	H1687	HL168	1687H
1-3/4	H1750	HL175	1750H
1-13/16	H1812	HL181	1812H
1-7/8	H1875	HL187	1875H
1-15/16	H1937	HL193	1937H
2"	H2000	HL200	2000H
2-1/16	H2062	HL206	2062H
2-1/8	H2125.75H	HL212.75H	2125H.75H
2-3/16	H2187.75H	HL218.75H	2187H.75H
2-1/4	H2250.75H	HL225.75H	2250H.75H
2-5/16	H2312.75H	HL231.75H	2312H.75H
2-3/8	H2375.75H	HL237.75H	2375H.75H

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
Handy-Mags	See previous page	
Porta-Punch	HUSPCH	HUSDIE

The Porta-Punch



PUNCH UP TO 13/16" ROUND AND 9/16" SQUARE HOLES IN 1/2" THICK MILD STEEL ON THE SPOT!

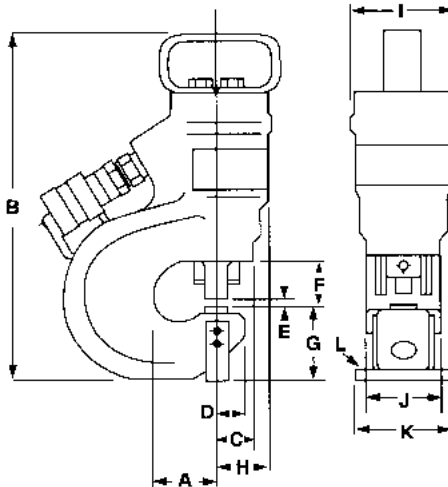
Only The Cleveland Steel Tool Company has the quickest, easiest way to make round and shaped holes in mild steel up to 1/2" thick. Our 35-ton portable hydraulic punching unit is lightweight (weighs just 31 lbs.), easy to use and allows you to punch right on the job site. And, it punches in seconds.

The C-frame is forged, not cast, for greater durability and strength. The dual-action stripper holds the material being punched and then strips the material from the punch so you're ready to punch the next hole.

Our Porta-Punch Package includes the punching unit with a metal carry case, four sets of stock round punches and dies, a 10' hydraulic hose and a 10,000 psi hydraulic power source (110v).

- Operates from any 10,000 psi hydraulic source (electric hydraulic pump available from Cleveland Steel Tool).
- Comes in a metal carrying case.
- Can punch round, oblong, square, hex and rectangular holes.

- Shaped punches and dies available in 48 hours.
- Can be mounted to a workbench for production jobs.
- 3/8" female coupler attached.
- One-year warranty against manufacturing defects.



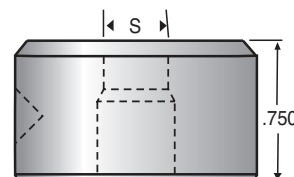
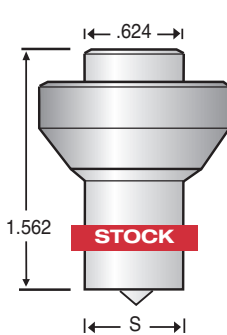
THROAT OPENING:
2.75"

DIMENSIONS:
13-1/4" x 7-1/2" x 3-3/4"

WEIGHT:
31 lbs.

PUNCHING CAPACITY:
13/16" round hole through
1/2" thick mild steel maximum

A MAX THROAT DEPTH	B	C	D	E	F	G	H	I	J	K	L MOUNTING HOLES
2 3/4	13 3/4	1 1/2	15/16	9/16	2 1/8	2 7/8	1 1/16	3 3/4	3 1/16	3 1/2	1/4



NOTE: Dies are marked with the punch size. A standard 1/16" clearance is furnished.

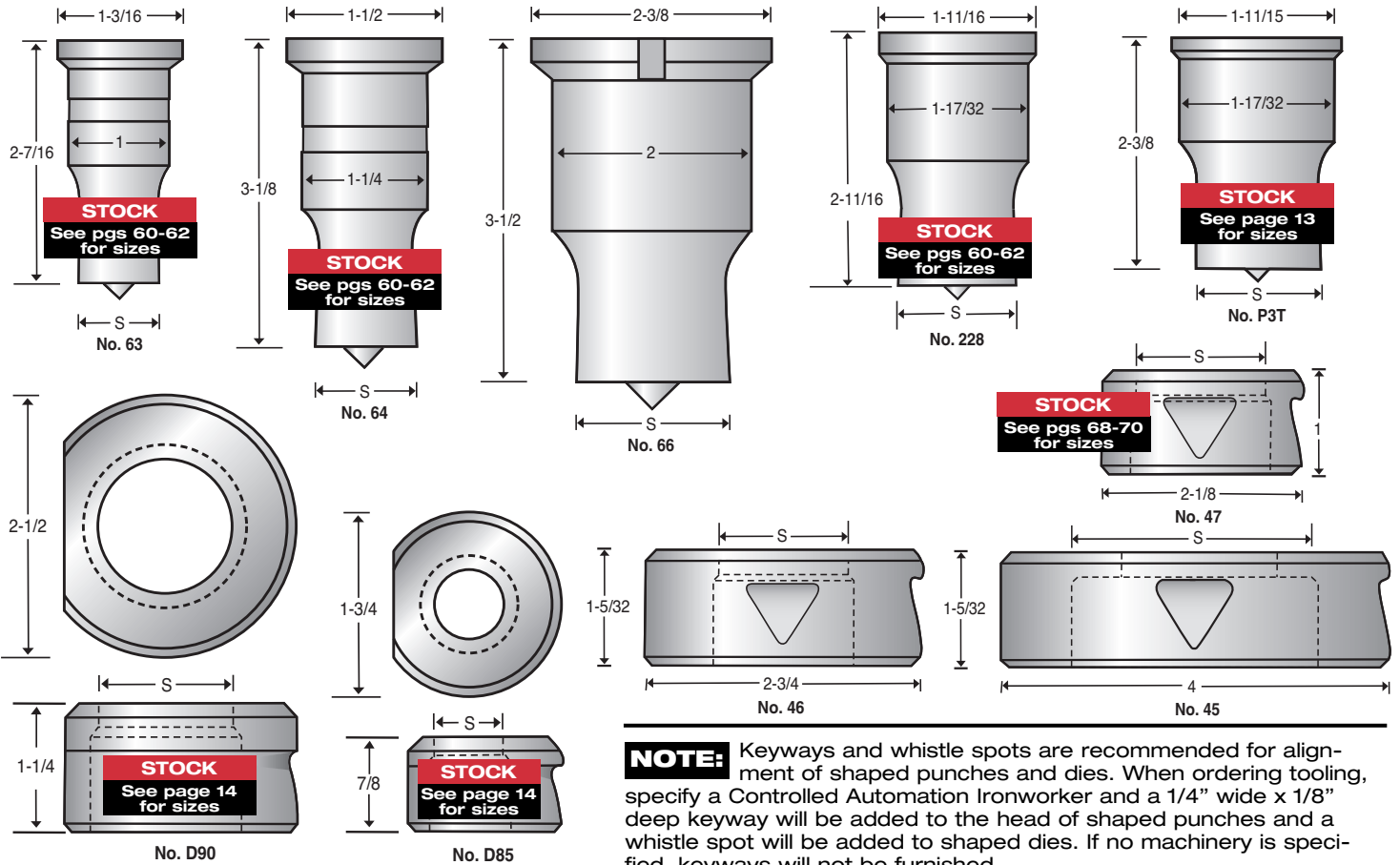
STOCK ROUND SIZES
5/16
3/8
7/16
1/2
17/32
9/16
5/8
11/16
3/4
25/32
13/16

All stock items are available for immediate shipment.

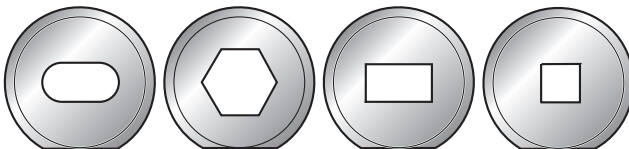
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be shipped within 48 hours.

Model	Uses Punch	Uses Die
ABL-86T, ABL-741	No. 63, 64	No. 47
ABL-100 65 Ton 115 Ton 143 Ton	No. 63 No. 64 No. 228	No. 47 No. 47 No. 46
ABL-100-2 65 Ton 115 Ton 143 Ton	No. 63 No. 64 No. 228	No. 46 No. 46 No. 46
BFC-522, BFC-530, PFP-115	No. 64	No. 47
2AT-175	No. 64, 66	No. 45, 46, 47
115-3	P3T	D85, D90

Punches and Dies

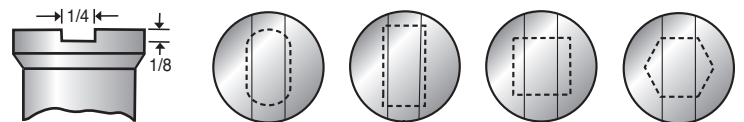


NOTE: Keyways and whistle spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Controlled Automation Ironworker and a 1/4" wide x 1/8" deep keyway will be added to the head of shaped punches and a whistle spot will be added to shaped dies. If no machinery is specified, keyways will not be furnished.

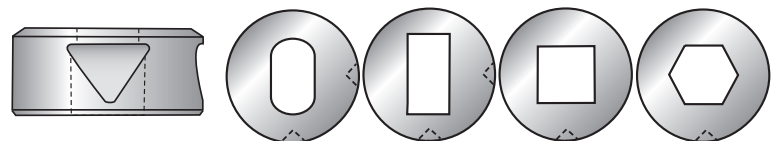


Standard Shaped Hole Die Positions Shown In Relation to the Flat

NOTE: The long dimension of the oblong hole will be furnished parallel to the flat unless otherwise specified.



Standard Keyway Positions for Alignment of Shaped Punches



Standard Whistle Spot Positions for Alignment of Shaped Dies

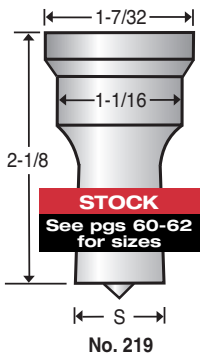
All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

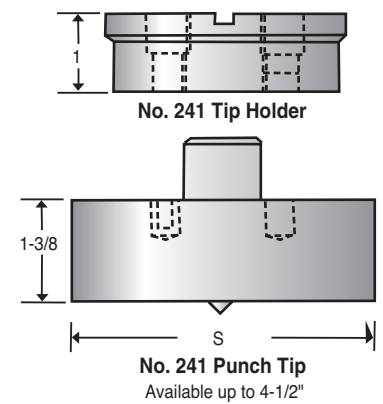
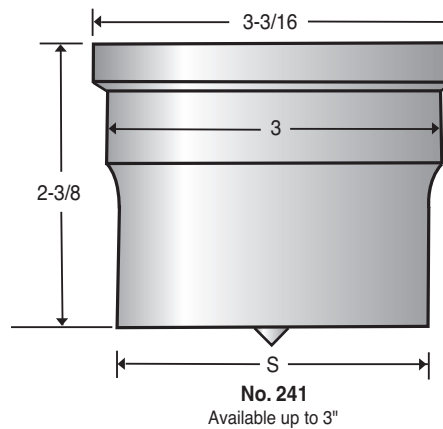
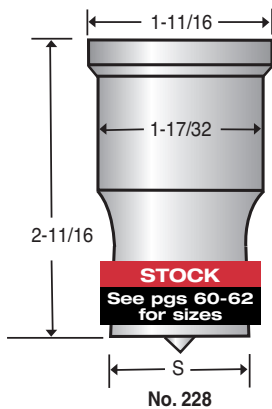
Model	Uses Punch	Uses Die
25 Ton, 30 Ton, 30 Ton Duo, 50 Ton, 50 Ton Duo, 55 Ton, 65 Ton, 75 Ton, 85 Ton, 100 Ton, 100 Ton Deluxe, 115 Ton, 125 Ton Super	No. 219	No. 413
Oversize	No. 228, 241	No. 419, 28XX

Punches and Dies

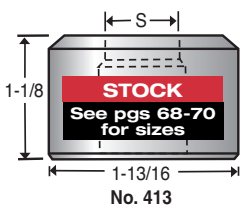
Standard Punch



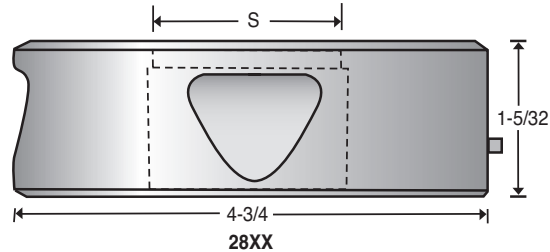
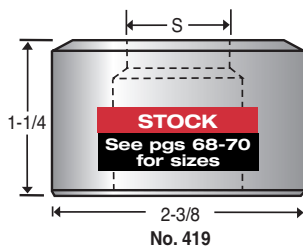
Oversize Punches



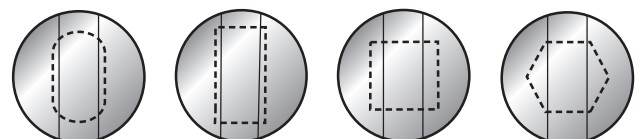
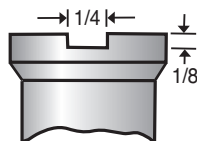
Standard Die



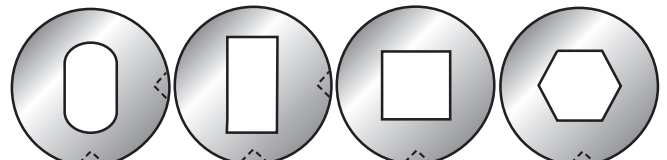
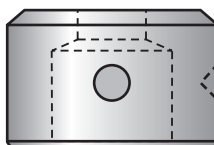
Oversize Dies



NOTE: Keyways and locating spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Cleveland Steel Tool Ironworker and a 1/4" wide x 1/8" deep keyway will be added to the head of shaped punches and a set screw will be added to shaped dies. If no machinery is specified, keyways will not be furnished.

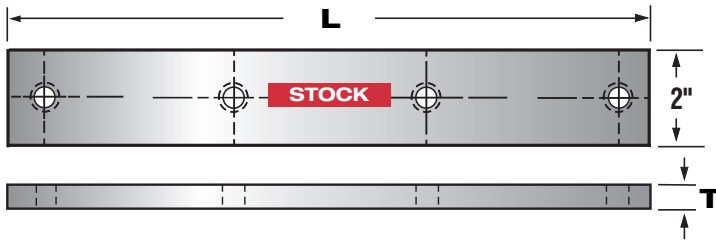


Standard Keyway Positions for Alignment of Shaped Punches



Standard Locating Spot Positions for Alignment of Shaped Dies

Shear Blades

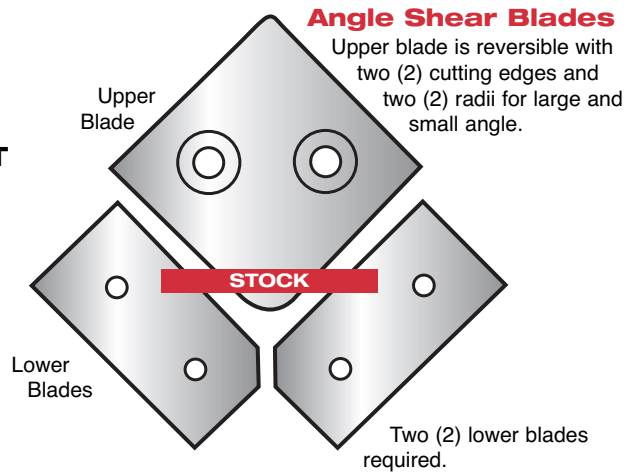


Flat Bar Shear Blades

Reversible with four (4) cutting edges.
Two (2) required.

Stock Shear Blades

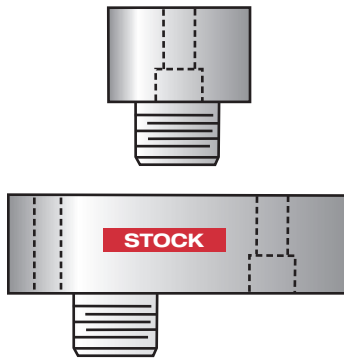
MODEL	L	T	PART #
50 Ton	10"	1/2"	T20003
55 Ton	14"	1/2"	T20004
65 and 115 Ton	24"	3/4"	T20005
75 and 100 Ton	14"	3/4"	T20006
100 Ton Delux	18"	3/4"	T20020



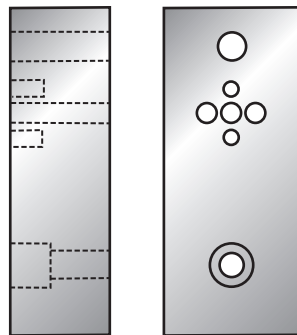
Stock Shear Blades

MODEL	PART #	
	UPPER BLADE	LOWER BLADE
50 and 55 Ton	T20101	T20102
65 and 75 Ton	T20103	T20104
100 and 115 Ton	T20105	T20106

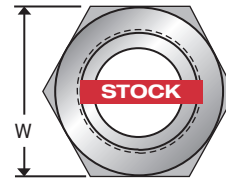
Miscellaneous Tooling



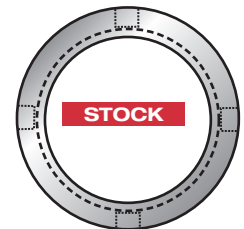
Punch Stem



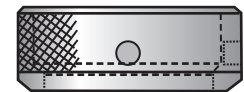
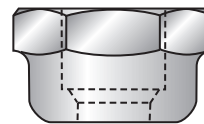
Punch Stem



Coupling Nut



Spanner



Stock Punch Stems and Coupling Nuts

MODEL	PUNCH STEM PART #	COUPLING NUT PART #	W	FITS PUNCH
25 Ton	T10006	EDWARDSNUT	2"	No. 219
All Other Models	T10005	EDWARDSNUT	2"	No. 219
	T10105	CNUT21	2-1/2"	No. 228
	T10206*	T10207	SPANNER	No. 241
	T10201 (not stock)	N/A	N/A	Bolt Hole

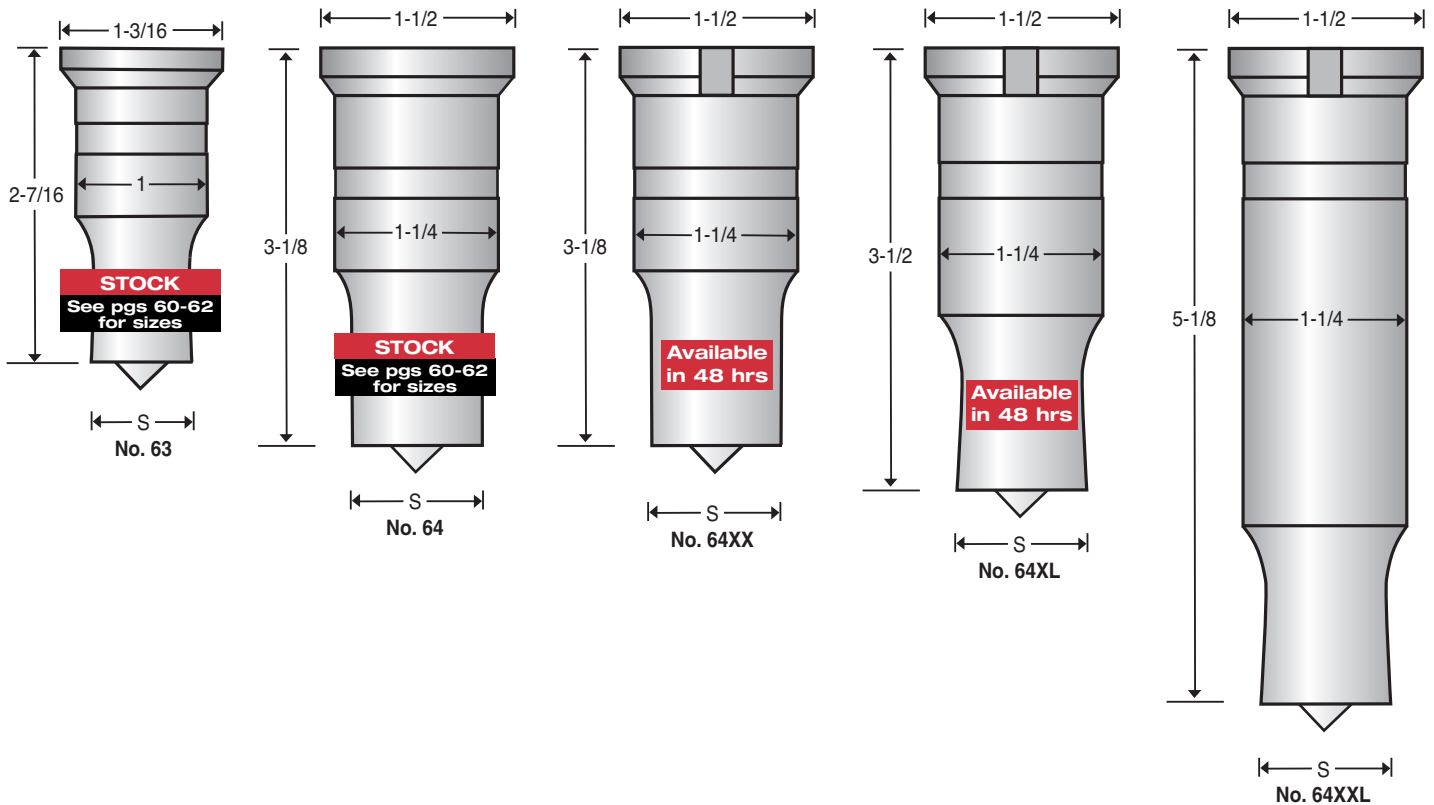
*Requires Part # T10205 Stem Holder (not shown).

All stock items are available for **immediate shipment.**

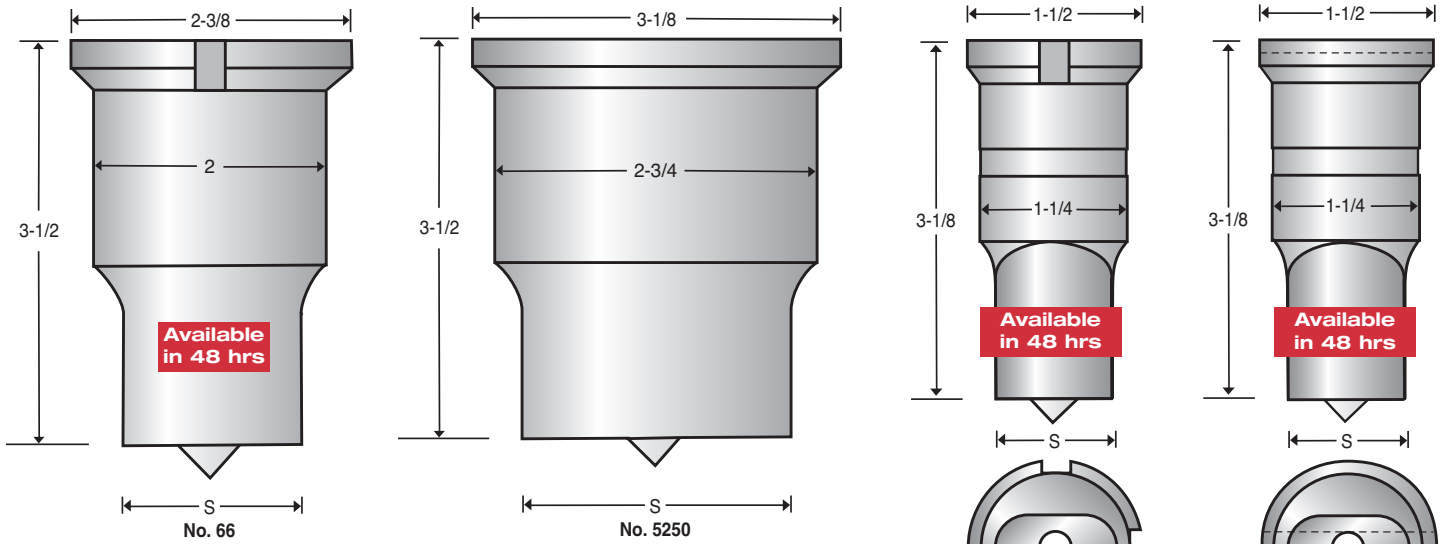
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

► Portable Machines	Uses Punch	Uses Die
F530X3, W530X4	No. 63	No. 48
F550X4, F570X6, F5100X6 W550X7, W570X8, W5100X12	No. 64	No. 47
W5100X18, W5100X30	No. 64	No. 47
F5125X6, F5175X6, F5175X12 F5275X12, W5125X12, W5175X18	No. 66	No. 46
► Angle Fabricators		
AFC5106, AFC5108, AFC5138	No. 64	No. 47
► Beam Line		
BL100-5	No. 64	No. 47
► Plate Fabricator		
PF196X72G	No. 64 No. 66	No. 47 No. 46
► Structural Fabricator		
SF70A	No. 64	No. 47

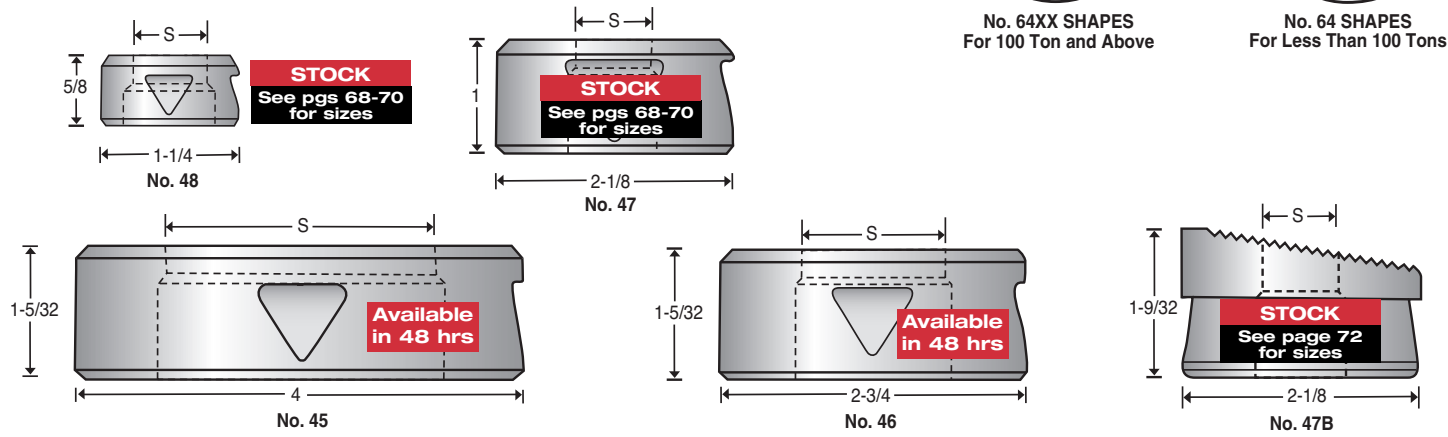
Punches



Punches (con't)



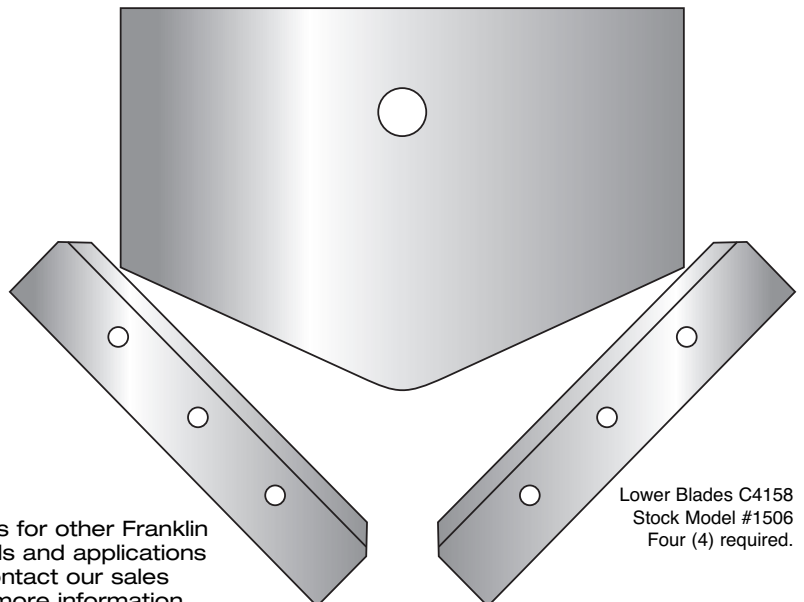
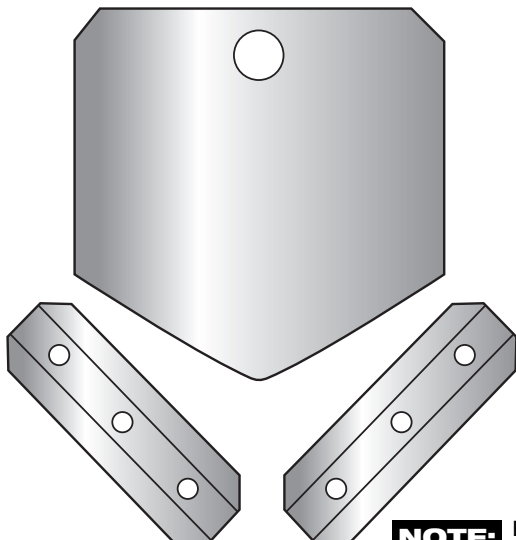
Dies



Angle Blades

Upper Blade 17276 • Stock Model #1504

Upper Blade C4159 • Stock Model #1506



Lower Blades 17277
Stock Model #1504
Two (2) required.

NOTE: Blades for other Franklin models and applications are available. Contact our sales department for more information.

Lower Blades C4158
Stock Model #1506
Four (4) required.

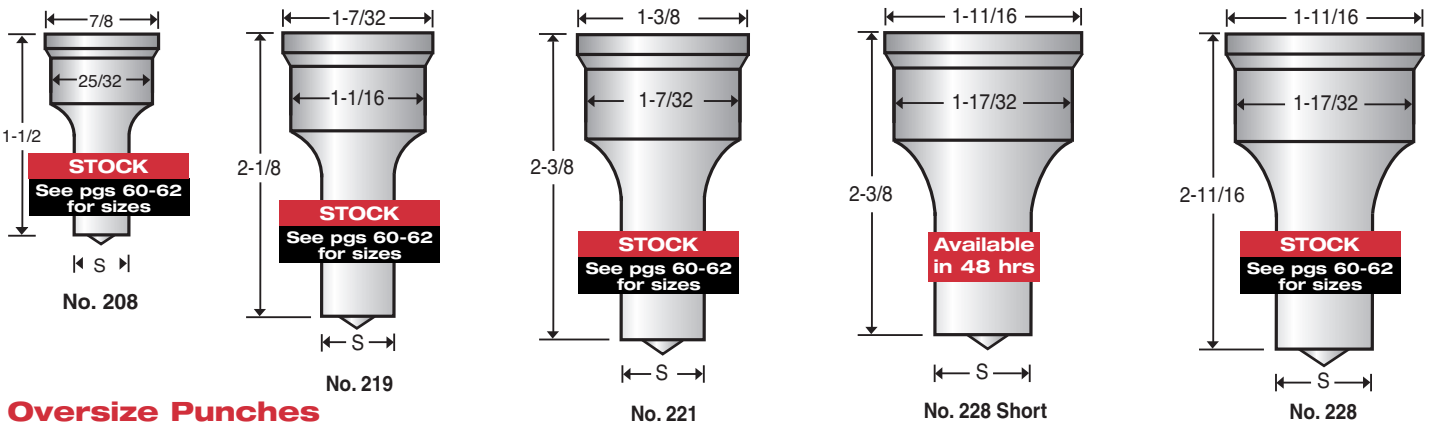
All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

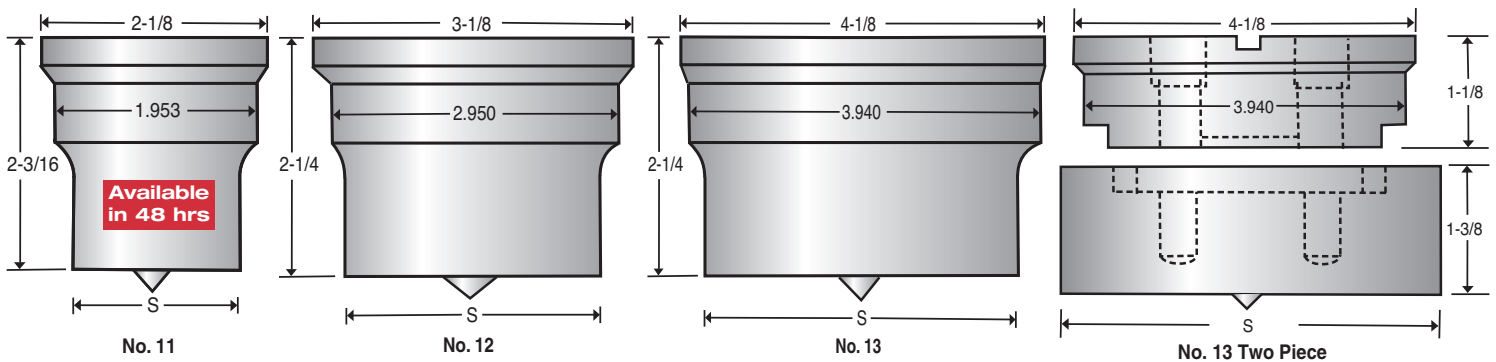
Model	Uses Punch	Uses Die
Microcrop, Minicrop, Maxicrop 11 H, 13 H, CEP 11, CEP 13 Hydracrop 50, Hydracrop 70 PUMA 11, PUMA 13, PUMA 50H, PUMA 70H	No. 219	No. 417
Multi 11	No. 208	No. 405
16 H, 20 H, CEP 16, CEP 20 Hydracrop 55A, Hydracrop 100 PUMA 16, PUMA 20, PUMA100H	No. 221	No. 417
25 H, Hydracrop 150, Hydracrop 165, Hydracrop 200, Hydracrop 220, PUMA 150H, PUMA 165H, PUMA 200H, PUMA 220H	No. 228	No. 421
PUMA 55H, PUMA 80 Dual Static, 55A, 80A	No. 221 and No. 228S	No. 417 and 60mm
PUMA 110 H, PUMA 110 A Hydracrop 110	No. 221 and No. 228	No. 417 and No. 421
▶ Oversize	No. 11, No. 12, No. 13, No. 13 Two Piece	No. 11, No. 12, No. 13, No. 421 200mm

Punches

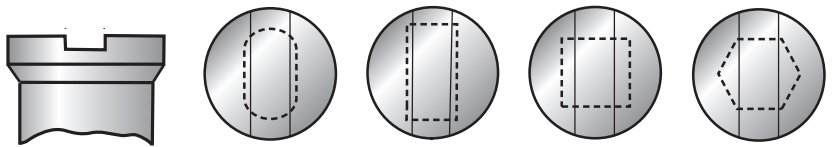
Standard Punches



Oversize Punches

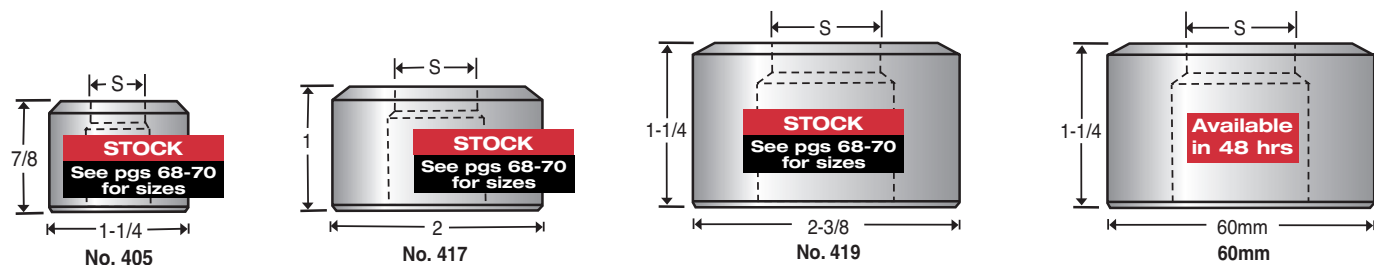


NOTE: Keyways are recommended for alignment of shaped punches. When ordering tooling, specify a Geka Ironworker and a metric keyway will be added to the head of shaped punches. If no machinery is specified, keyways will not be furnished.

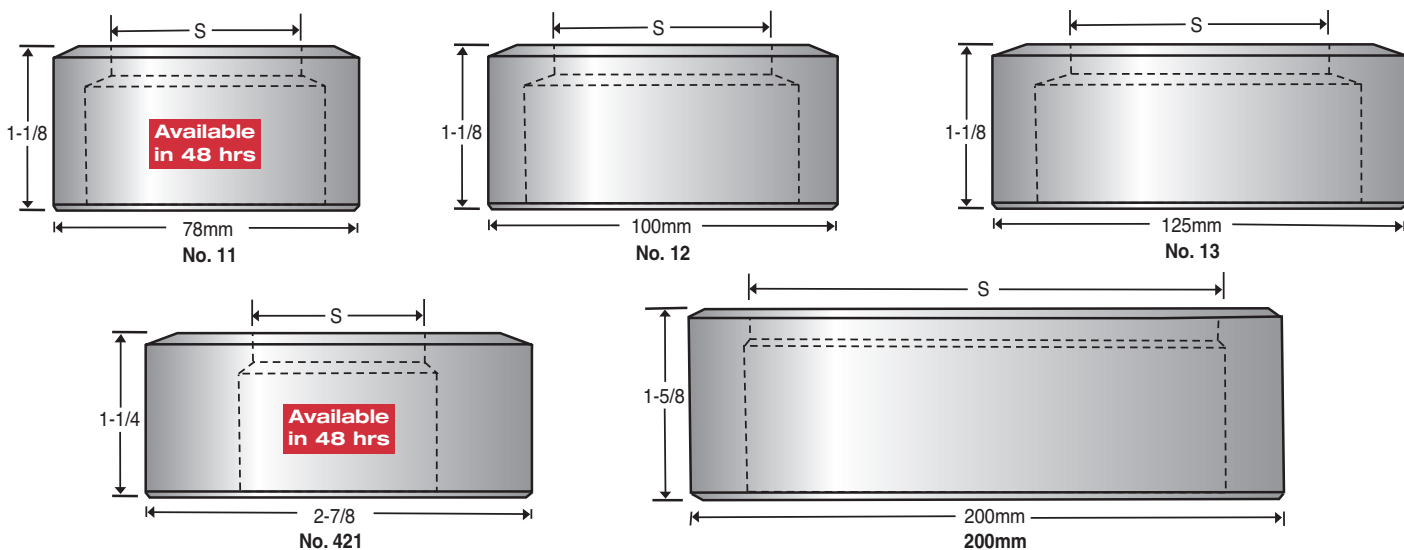


Dies

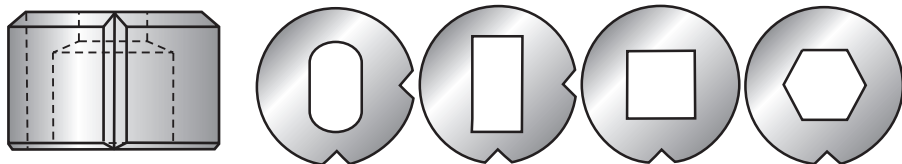
Standard Dies



Oversize Dies

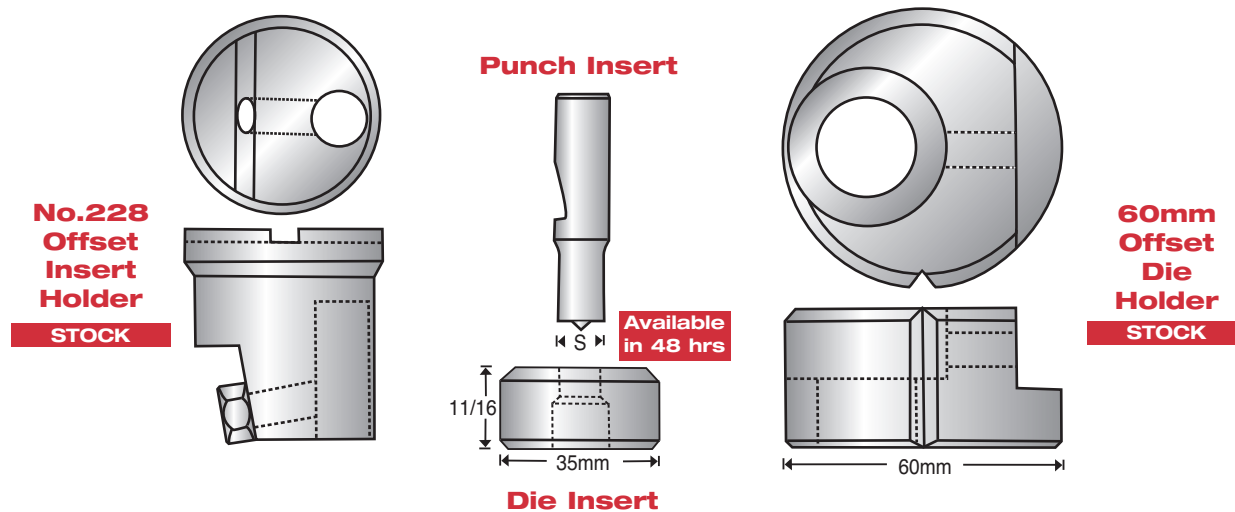


NOTE: Locating spots are recommended for alignment of shaped dies. When ordering tooling, specify a Geka Ironworker and a "V" groove will be added to shaped dies. If no machinery is specified, keyways will not be furnished.



Standard Locating Spot Positions for Alignment of Shaped Dies

Miscellaneous Offset Tooling

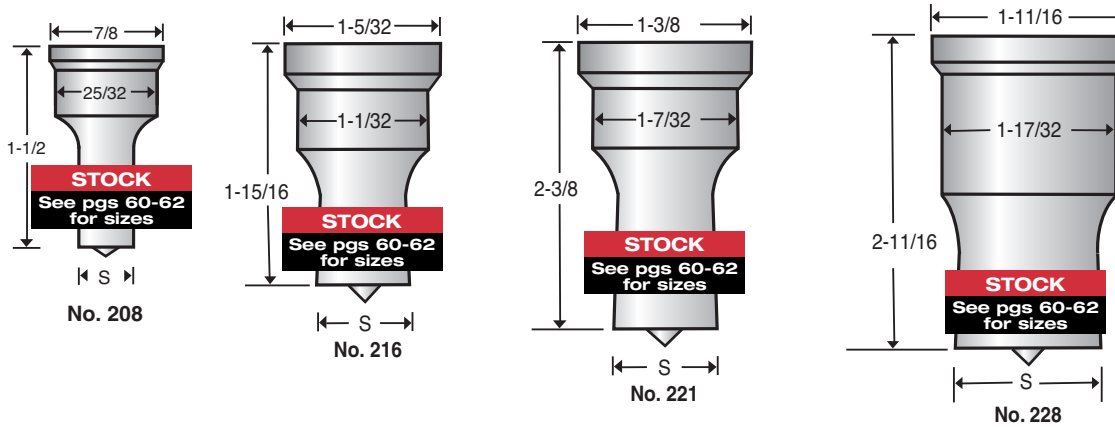


All stock items are available for **immediate shipment.**

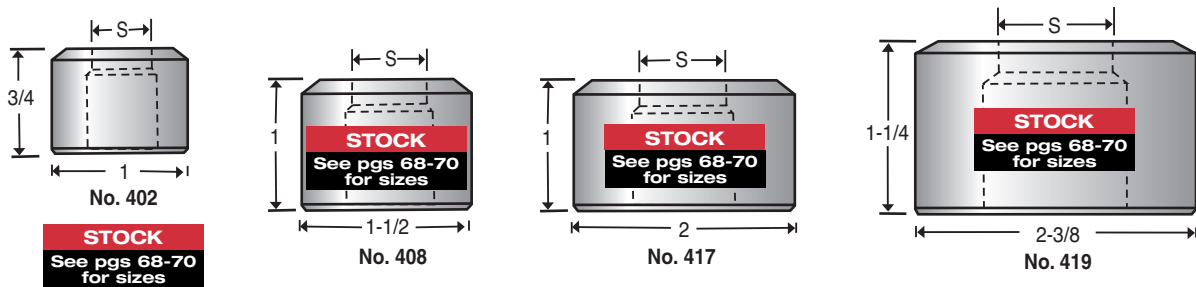
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
#3 Combination	No. 208	No. 408, No. 402
#3, #30, MW30	No. 216	No. 408, No. 402
#3A, #4, #4 Combination	No. 221	No. 408, No. 402
#4A, #5, #50, MW50, #6, #6A	No. 221	No. 417, No. 402, No. 408
#7, #7A, #7 Combination	No. 228	No. 419, No. 408

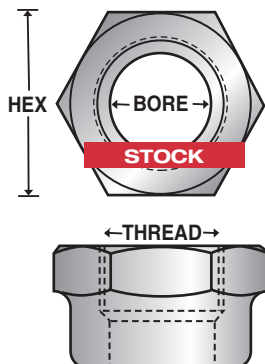
Punches



Dies



Coupling Nut



Stock Coupling Nuts

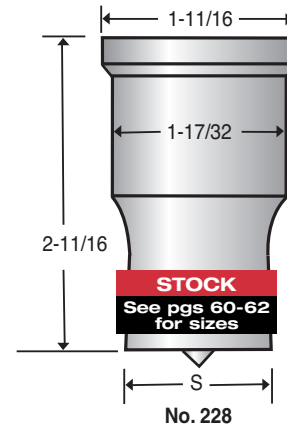
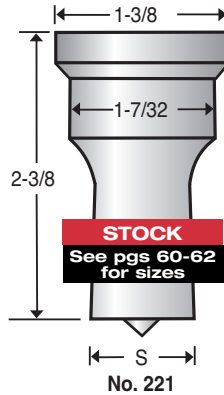
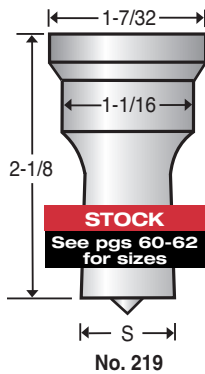
COUPLING NUT PART NO.	THREAD	BORE	HEX	FITS PUNCH
#7	1-1/16-12 UN	53/64"	1-11/16"	No. 208
#12	1-5/16-12 UN	1-5/64"	2"	No. 216
#17	1-9/16-12 UN	1-17/64"	2-1/4"	No. 221
#21	1-7/8-12 UN	1-37/64"	2-1/2"	No. 228

All stock items are available for **immediate shipment.**

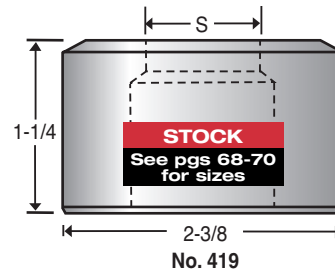
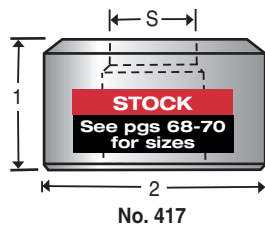
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

▶ Model	Uses Punch	Uses Die
35-19, 35-20, 35DT-19, 35DT-20	No. 219	No. 417
42-20, 4214-20	No. 221	No. 417
3514, 35017, 50-19, 50-20, 50-25, 50-31 50DT-19, 50DT-20, 5007, 5010-25 58-20, 5810-25, 5814-20 7025, 70-31, 7010-25, 7014, 7810-25 90-25, 90-31, 9010-25, 9014, 9510-25 110-25, 110-31, 11014, 11810-25 130-25, 130-31, 13014	No. 228	No. 419
Oversize (see page 53 for available sizes)	No. 28XX	No. 28XX

Punches



Dies

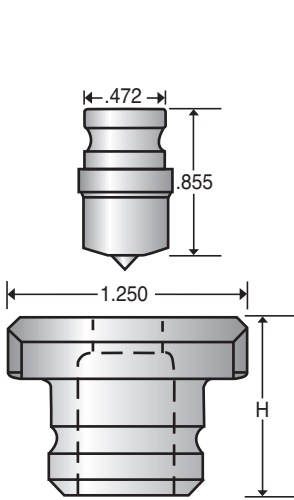


All stock items are available for **immediate shipment.**

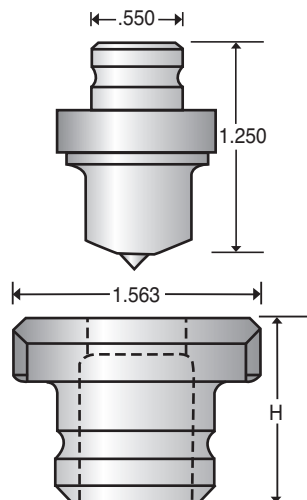
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

▶ Model	Uses Punch	Uses Die
75001	See Below	
75002	See Below	
75003	See Below	
75004	See Below	
75005	See Below	
75006	See Below	

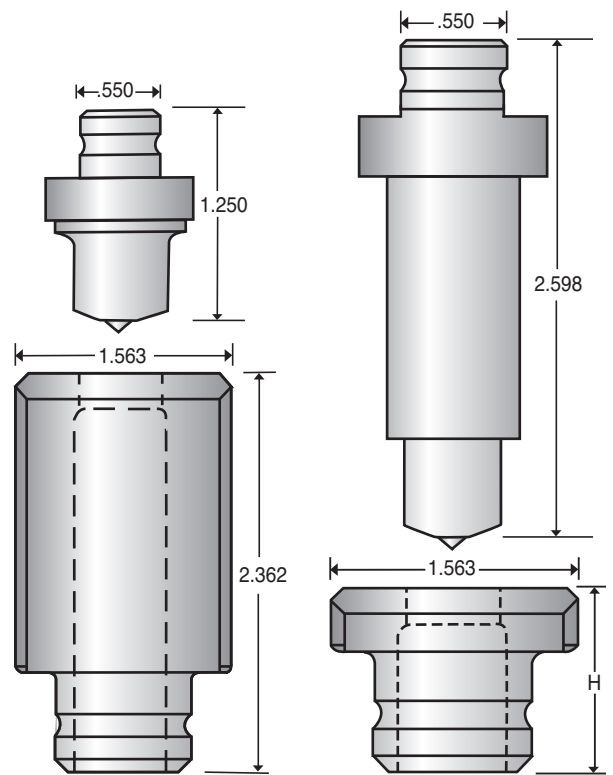
Punches and Dies



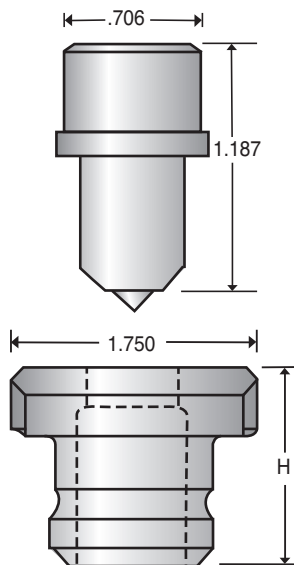
Model 75001
Max Punch Size: 7/16
Max Material Thickness: 1/4



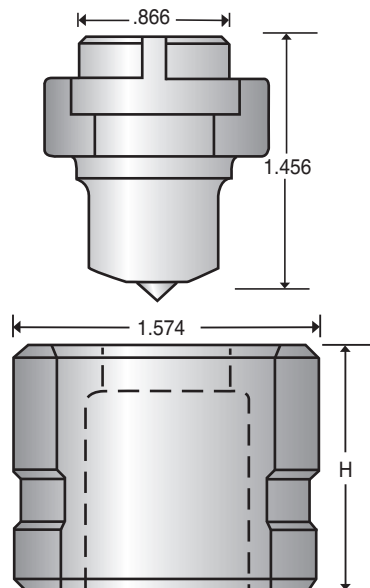
Model 75002
Max Punch Size: 11/16
Max Material Thickness: 1/4



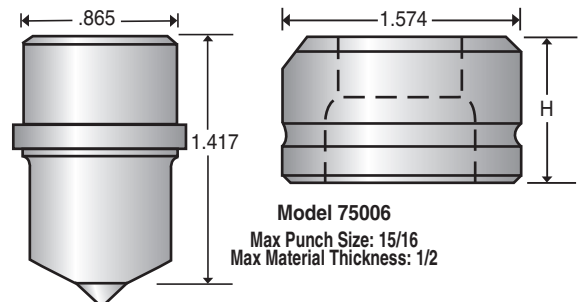
Model 75003
Max Punch Size: 25/32
Max Material Thickness: 1/4



Model 75004
Max Punch Size: 25/32
Max Material Thickness: 3/8



Model 75005
Max Punch Size: 7/8
Max Material Thickness: 3/8



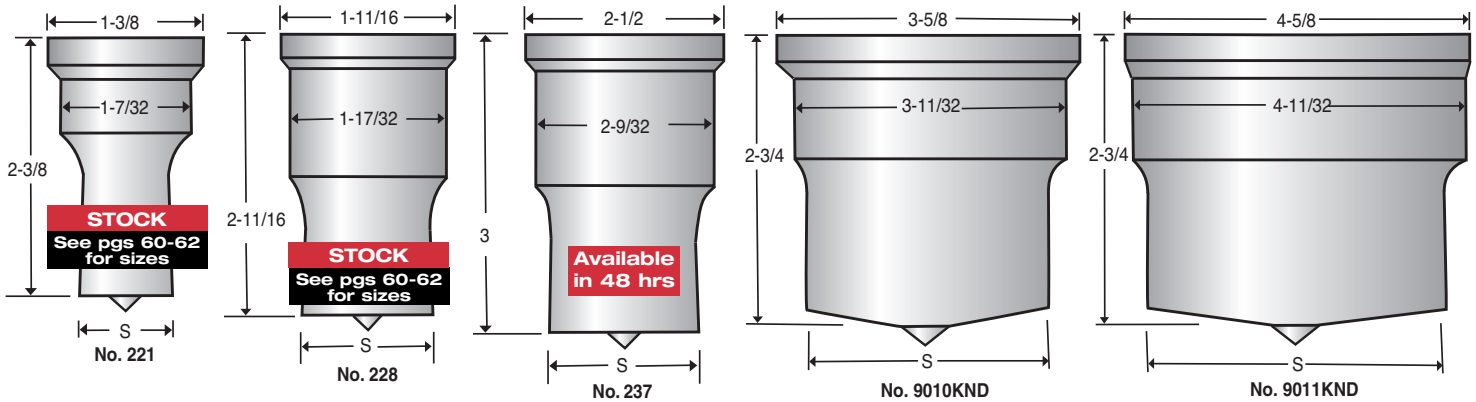
Model 75006
Max Punch Size: 15/16
Max Material Thickness: 1/2

All stock items are available for **immediate shipment.**

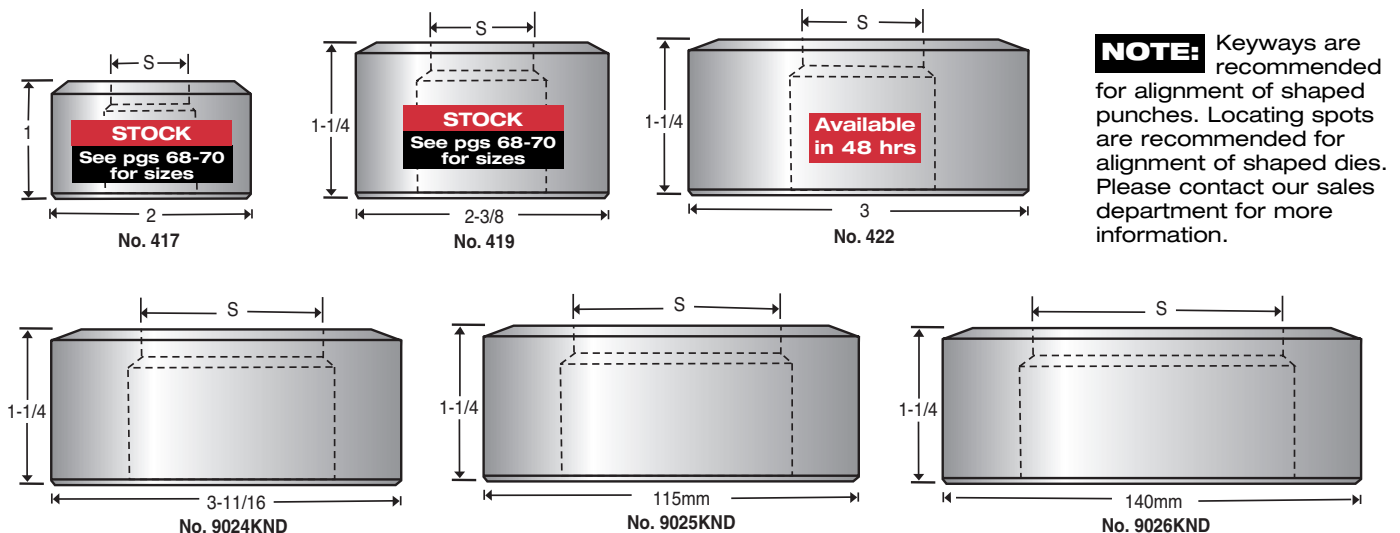
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
COMPACT 50, COMPACT 65 J14/A or B, J18/GXA or B, J21/GXA or B, J25/GXA or B 60DP, 75DP, 95DP, 125DP 60P625, 75P625, 95P625, 125P625, 175P625 50XA, 65XA 45XM 60XS, 75XS, 95XS, 125XS, 175XS SHARK ULTIMA MODELS	No. 221 No. 228	No. 419 No. 417*
*Requires Die Adapter		
Oversize	No. 237 No. 9010KND No. 9011KND	No. 422 No. 9024KND No. 9025KND No. 9026KND

Punches



Dies

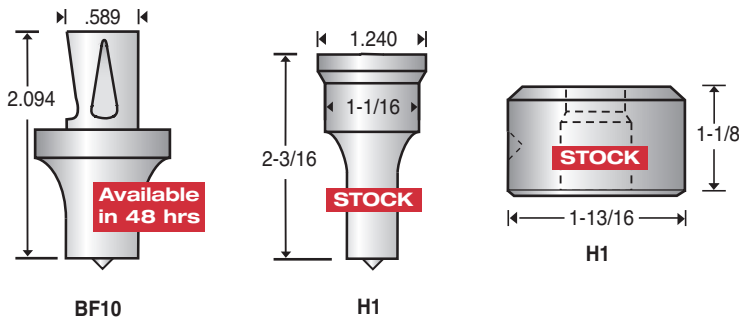


All stock items are available for **immediate shipment.**

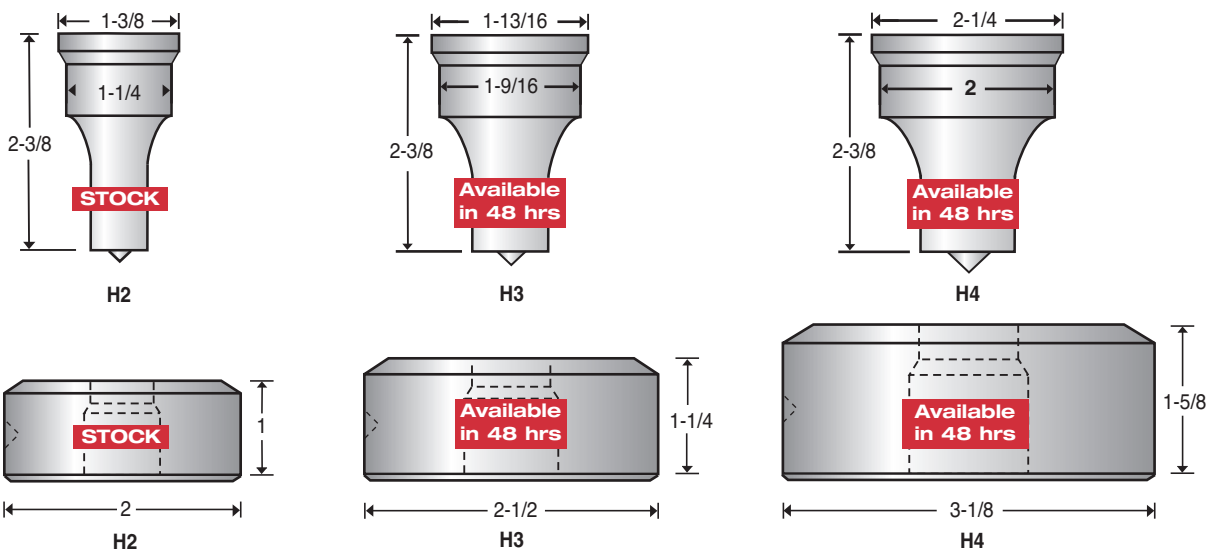
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
BF10, 350	BF10	H1
BFL 350 BFLH 400 HIW 450, 550, 600 HP 450 HPS 250, 350, 350E HPSN 350, 450, 500, 600 KBL 1/2, 0, 1-1/2, 48-4, 50-4, 71-5, 88-6, 560 KBLH 500, 700 KL 33, 350, 560, 750 KLH 500, 700 KLSH 550 MIW 400, 600, 800 PROFI 500	H1	H1
BULLDOG 65	H1	H2
HIW 1000 KBL 3-1/2, 110-7, 143-8, 900, 1300 KBLH 1000 KL 110, 143, 900, 1100, 1300 KLH 1000 KLS 1100 KLSH 1000	H2, H3	H2, H3
Oversize	H4, H5	H4, H5

Punches and Dies

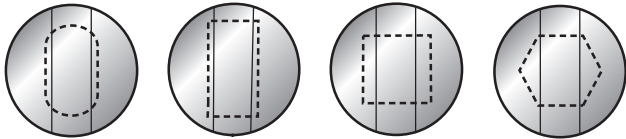


NOTE: H1 die is used with the BF10 punch.

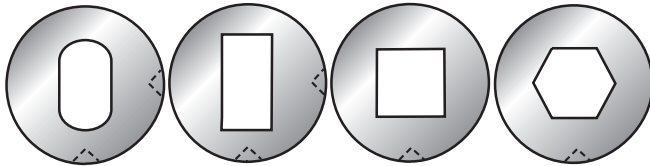
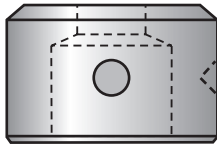


Punches and Dies

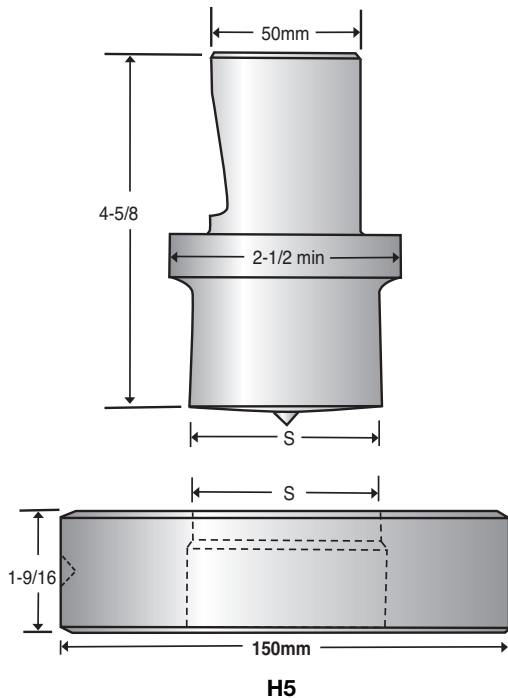
NOTE: Keyways and locating spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Mubea Ironworker and a "V" groove keyway will be added to the head of shaped punches and set screw spots will be added to shaped dies. If no machinery is specified, keyways will not be furnished.



Standard Keyway Positions for Alignment of Shaped Punches



Standard Locating Spot Positions for Alignment of Shaped Dies



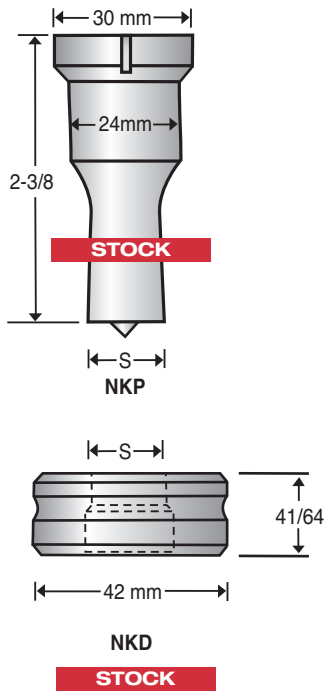
Stock Round Punch and Die Sizes

SIZE	BF10 PUNCH	H1		H2	
		PUNCH	DIE	PUNCH	DIE
7/32	●	●	●	●	●
1/4	●	●	●	●	●
9/32	●	●	●	●	●
5/16	●	●	●	●	●
11/32	●	●	●	●	●
3/8	●	●	●	●	●
13/32	●	●	●	●	●
7/16	●	●	●	●	●
15/32	●	●	●	●	●
1/2	●	●	●	●	●
17/32	●	●	●	●	●
9/16	●	●	●	●	●
19/32	●	●	●	●	●
5/8	●	●	●	●	●
21/32	●	●	●	●	●
11/16	●	●	●	●	●
23/32	●	●	●	●	●
3/4	●	●	●	●	●
25/32	●	●	●	●	●
13/16	●	●	●	●	●
27/32	●	●	●	●	●
7/8	●	●	●	●	●
29/32	●	●	●	●	●
15/16	●	●	●	●	●
31/32	●	●	●	●	●
1	●	●	●	●	●
1-1/32	●	●	●	●	●
1-1/16	●	●	●	●	●
1-1/8	●	●	●	●	●
1-3/16	●	●	●	●	●
1-1/4	●	●	●	●	●
1-5/16	●	●	●	●	●

All stock items are available for **immediate shipment.**

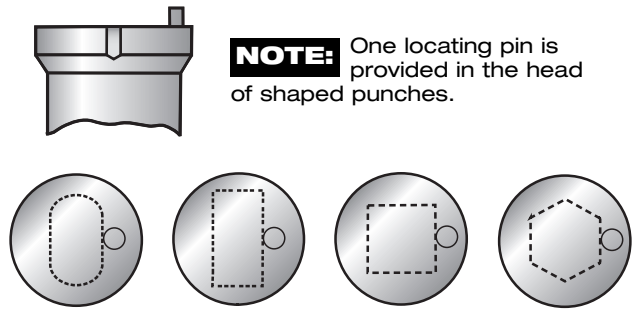
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Punches and Dies



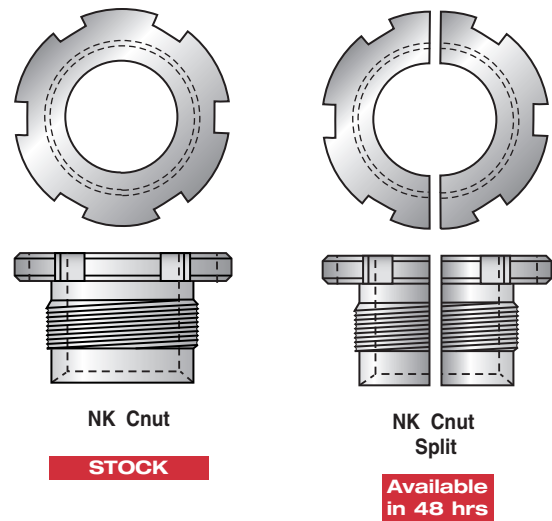
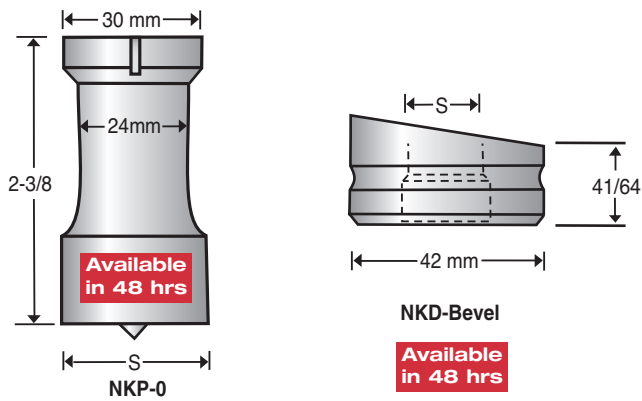
Stock Round Punch and Die Sizes

NKP	NKD
5/16	11/32
3/8	13/32
7/16	15/32
1/2	17/32
9/16	19/32
5/8	21/32
11/16	23/32
3/4	25/32
13/16	27/32
7/8	29/32
15/16	31/32



NOTE: One locating pin is provided in the head of shaped punches.

Miscellaneous Tooling

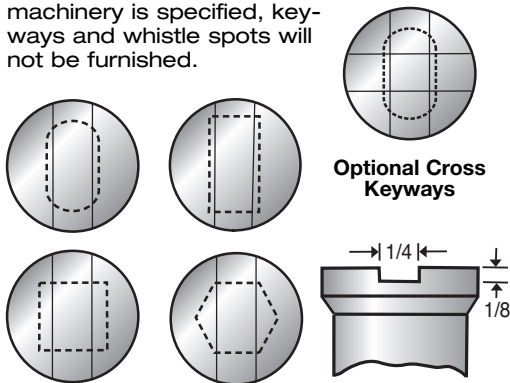


Available in 48 hrs

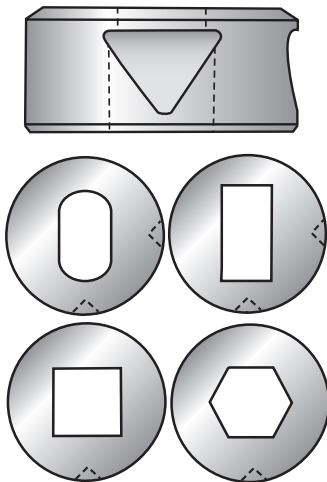
All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

NOTE: Keyways and whistle spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Peddinghaus Ironworker and keyways will be added to the head of shaped punches and whistle spots will be added to shaped dies. If no machinery is specified, keyways and whistle spots will not be furnished.



Standard Keyway Positions for Alignment of Shaped Punches



Standard Whistle Spot Positions for Alignment of Shaped Dies

► Peddinghaus Ironworkers	Uses Punch	Uses Die
Forax 25E, Forax 45, Forax 65 210/11, 210/13, 225/11, 225/13 225B45, 225B60, 450m 31/44, 44/66H, 66/88, 66/110H, 88/120 360H, 400H, 440, 550, 660, 880 H40, H60N	No. 216	No. 413
Forax 80, Forax 100 210/16, 210/20, 225/16, 225/20 225B80, 225B100 88/140, 110/140, 110/175H, 120/185 881, H100, H1000, H1000GA, 1050 G1100, H1100 Bradley 500, 700, 1100	No. 221	No. 417
210/25, 225/25, 225B130 H1400	No. 228	No. 419
H140	No. 228	No. 420
Oversize	No. 237	No. 490
► Anglemaster	Uses Punch	Uses Die
Anglemaster	No. 64Y	No. 47/45
623, 645	No. 64	No. 47
823	No. 64, No. 65	No. 47, No. 291
823B	No. 65	No. 291
1563, 2063	No. 64 No. 65	No. 47
► Fabripunch	Uses Punch	Uses Die
118, 120	No. 64, No. 65	No. 47
500/3, 1120, 1154, 1154-30	No. 64 No. 65	No. 47 No. 47/45 No. 419 No. 419/45
600/3, 1170, 1500/3, 1800/3	No. 64, No. 292C	No. 47, No. 291
► Fabriline (Portables)	Uses Punch	Uses Die
FP6	No. 61	No. 49
FP12, FP20, FP20-4, FP20-6, WP20	No. 62	No. 48
FP35, FP35-8	No. 63	No. 47
FP35CC, WP35	No. 63	No. 48
FP45, FP60, FP80, FP80-9, FP100	No. 64, No. 65	No. 47
FP100-12, WP60, WP80, WP100, WP100-18, WP100-25	No. 64 No. 65	No. 47 No. 47F
Stationary 140	No. 292C	No. 421
WP140	No. 292C	No. 291
WP140-12-1/2, FP140-6-1/4, FP140-12-1/2	No. 67	No. 44
FP250-12-1/2	No. 67	No. 43
► Others	Uses Punch	Uses Die
7130 Duplicator	No. 64	No. 47
Beam Fabricator	No. 65	No. 47F
2000CNC BPL1000/5	No. 64, No. 65	No. 47, No. 419

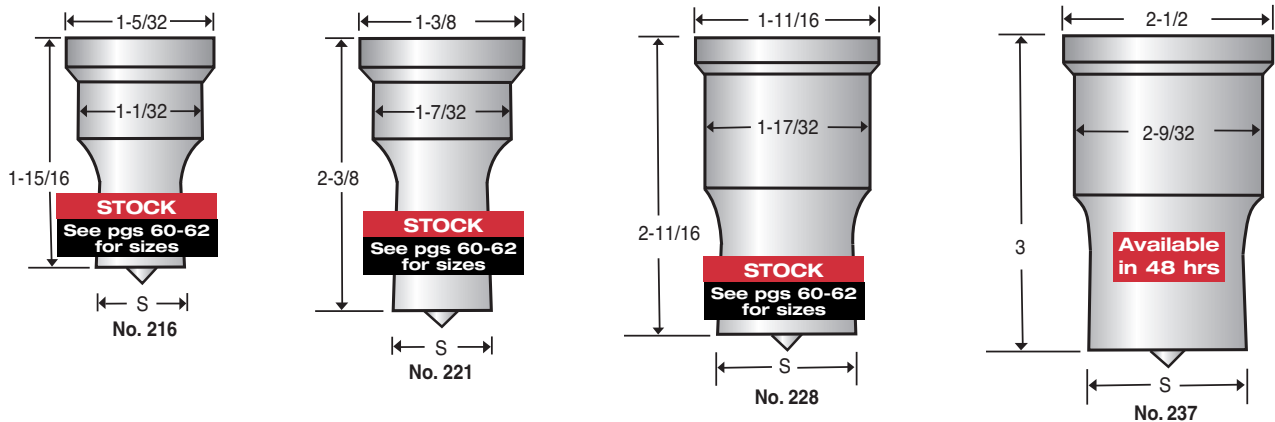
(Continued on next page)

All stock items are available for **immediate shipment.**

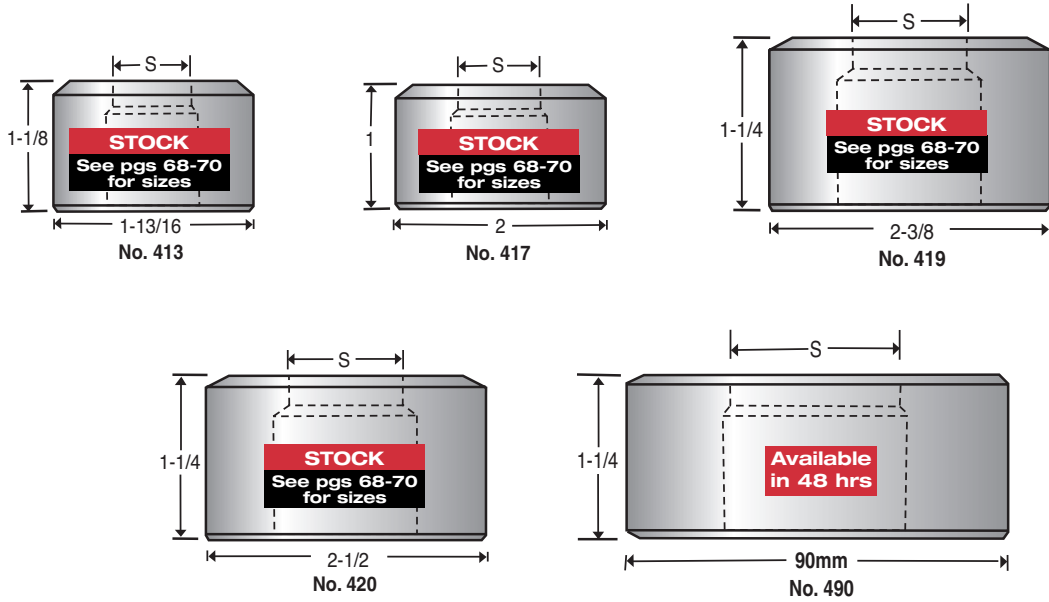
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

► Peddinghaus Ironworkers	Uses Punch	Uses Die
Forax 25E, Forax 45, Forax 65 210/11, 210/13, 225/11, 225/13 225B45, 225B60, 450m 31/44, 44/66H, 66/88, 66/110H, 88/120 360H, 400H, 440, 550, 660, 880 H40, H60N	No. 216	No. 413
Forax 80, Forax 100 210/16, 210/20, 225/16, 225/20 225B80, 225B100 88/140, 110/140, 110/175H, 120/185 881, H100, H1000, H1000GA, 1050 G1100, H1100 Bradley 500, 700, 1100	No. 221	No. 417
210/25, 225/25, 225B130 H1400	No. 228	No. 419
H140	No. 228	No. 420
Oversize	No. 237	No. 490
► Anglemaster	See page 40	
► Fabripunch	See page 40	
► Fabriline	See page 40	
► Other Peddinghaus/Fabriline	See page 40	

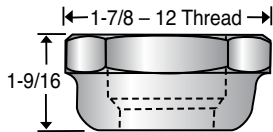
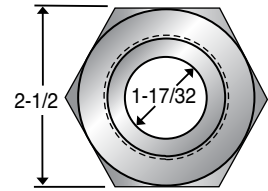
Punches



Dies



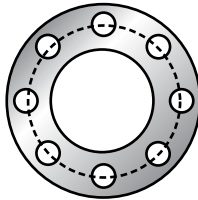
Miscellaneous Tooling



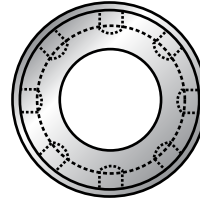
FC-228

STOCK
No. 21

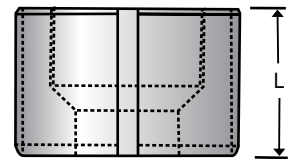
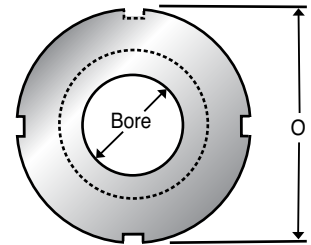
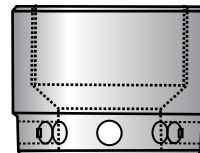
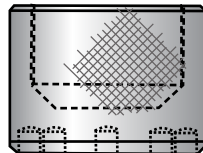
Hex Nut



Coupling Nut



Coupling Nut



FC-61, FC-62, F-63
FC-64, FC-65

STOCK
No. 64

Available in 48 hrs
No. 65

Spanner Nut

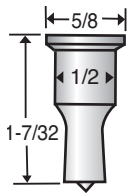
SPANNER NUT #	THREAD	BORE	HEX	FITS PUNCH
FC-61	7/8-12 UN	1/2	1-1/2"	#61
FC-62	1"-14 UNF	11/16	1-3/16"	#62
FC-63	1-3/8-12 UNF	1"	1-15/16"	#63
FC-64	1-7/8-12 UN	1-1/4	2-3/4"	#64
FC-65	1-7/8-12 UN	1-1/2	2-3/4"	#65

(Continued on next page)

All stock items are available for **immediate shipment.**

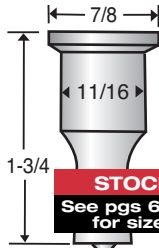
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Punches



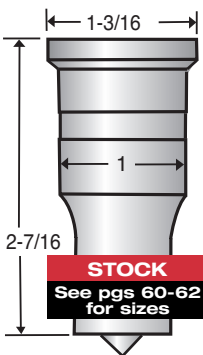
No. 61

STOCK
See pgs 60-62
for sizes



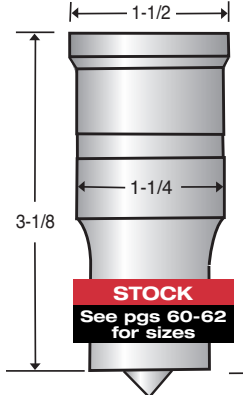
No. 62

STOCK
See pgs 60-62
for sizes



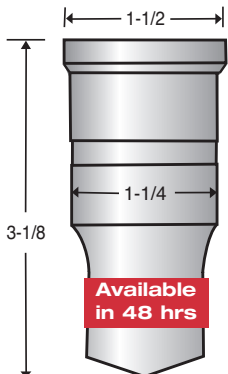
No. 63

STOCK
See pgs 60-62
for sizes



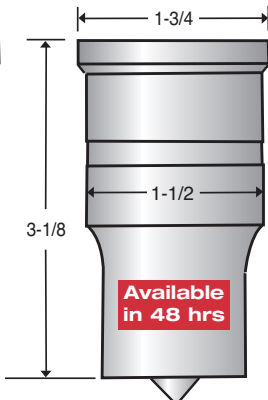
No. 64

STOCK
See pgs 60-62
for sizes



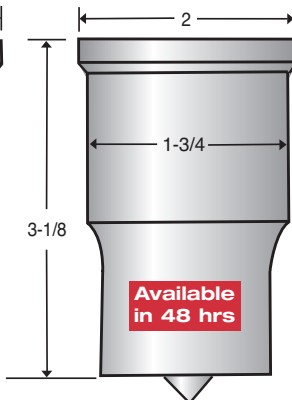
No. 64Y

Available in 48 hrs



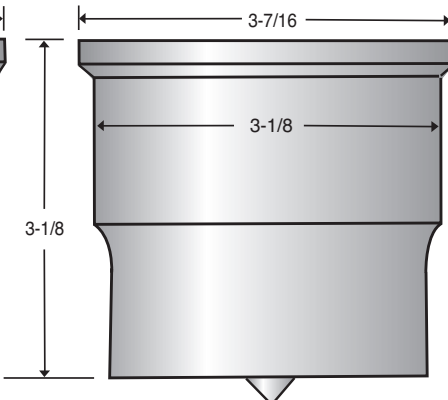
No. 65

Available in 48 hrs



No. 292C

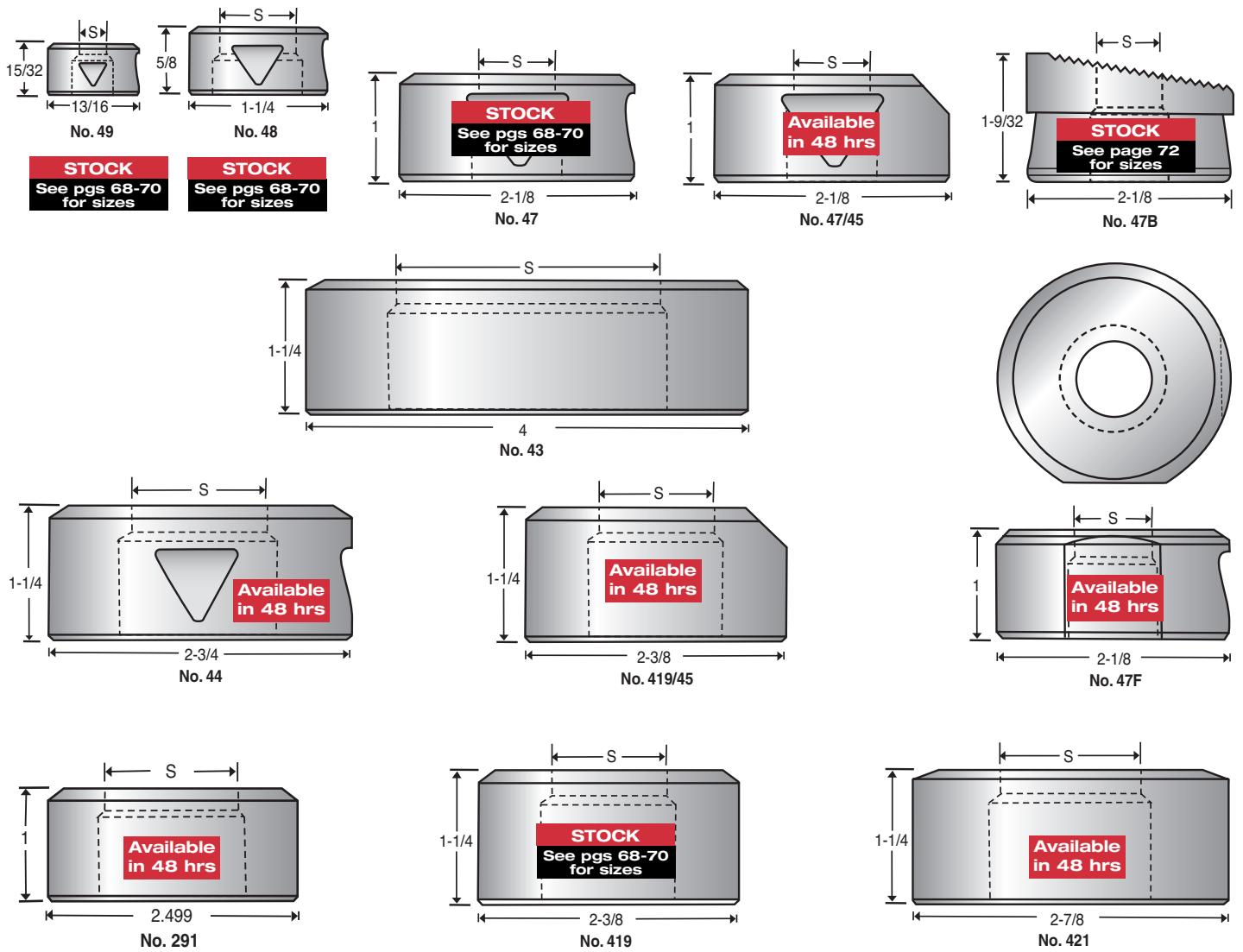
Available in 48 hrs



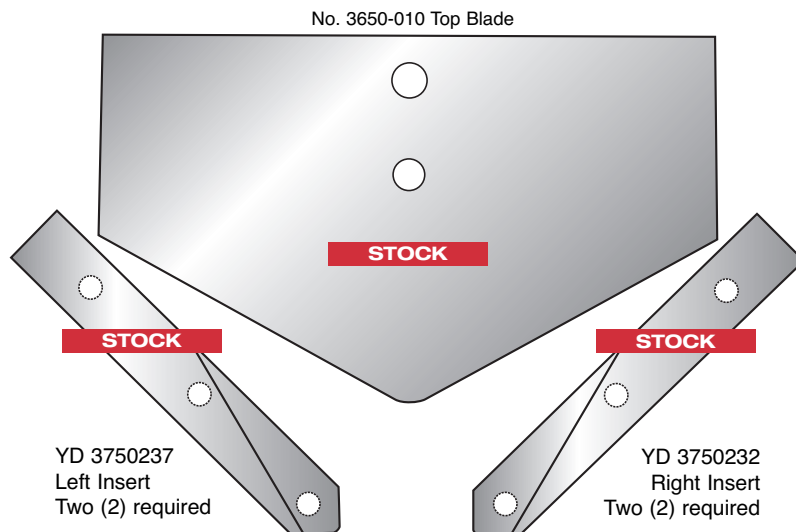
No. 67

► Peddinghaus Ironworkers	See previous page	
► Anglemaster	Uses Punch	Uses Die
Anglemaster	No. 64Y	No. 47/45
623, 645	No. 64	No. 47
643, 823	No. 64, No. 65	No. 47, No. 291
823B	No. 65	No. 291
1563, 2063	No. 64, No. 65	No. 47
► Fabripunch	Uses Punch	Uses Die
118, 120	No. 64, No. 65	No. 47
500/3, 1120, 1154, 1154-30	No. 64	No. 47 No. 47/45
	No. 65	No. 419 No. 419/45
600/3, 1170, 1500/3, 1800/3	No. 64 No. 292C	No. 47 No. 291
► Fabriline (Portables)	Uses Punch	Uses Die
FP6	No. 61	No. 49
FP12, FP20, FP20-4, FP20-6, WP20	No. 62	No. 48
FP35, FP35-8	No. 63	No. 47
FP35CC, WP35	No. 63	No. 48
FP45, FP60, FP80, FP80-9, FP100	No. 64, No. 65	No. 47
FP100-12, WP60, WP80, WP100, WP100-18, WP100-25	No. 64 No. 65	No. 47 No. 47F
Stationary 140	No. 292C	No. 421
WP140	No. 292C	No. 291
WP140-12-1/2, FP140-6-1/4, FP140-12-1/2	No. 67	No. 44
FP250-12-1/2	No. 67	No. 43
► Others	Uses Punch	Uses Die
7130 Duplicator	No. 64	No. 47
Beam Fabricator	No. 65	No. 47F
2000CNC BPL1000/5	No. 64, No. 65	No. 47, No. 419

Dies



Shear Blades for Anglemaster

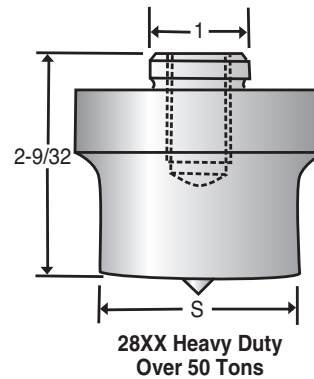
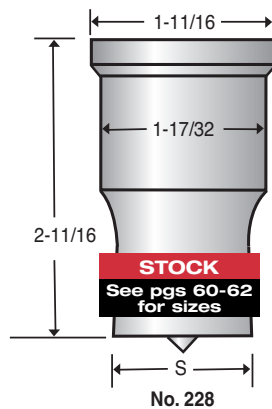
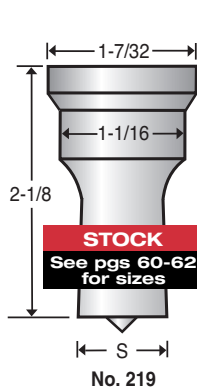


All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

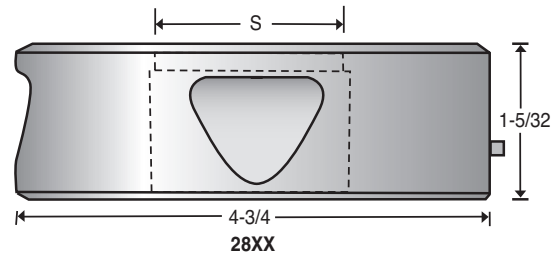
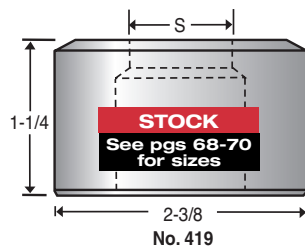
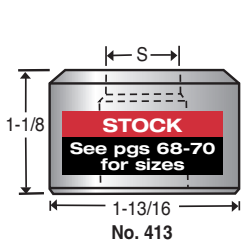
Model	Uses Punch	Uses Die
P-2, P-3, P-36, P-40, P-50, PII-35, SEPP-35	No. 219	No. 413
P-4, P-70, P-90, PII-35, PII-65, PII-88, PII-110, SEPP-65, SEPP-88, SEPP-120, SEPP-140	No. 228	No. 419
1-1/2" Oversize	No. 228	No. 419
28XX Oversize Attachment	28XX	28XX

Punches



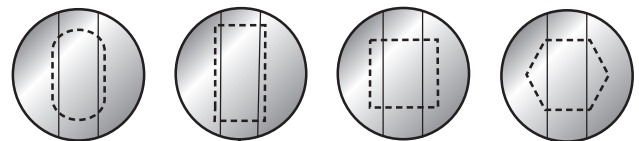
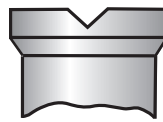
For 28XX light duty under 50 Tons, see page 53.

Dies

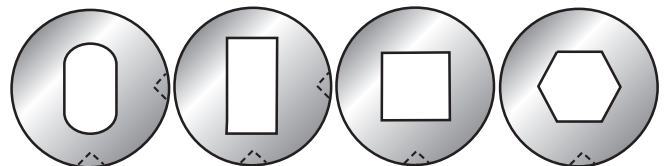
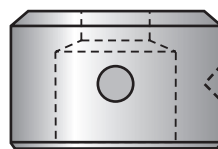


AVAILABLE OD SIZES
5-3/4
4-3/4
3-3/4
2-3/4

NOTE: Keyways and locating spots are recommended for alignment of shaped punches and dies. When ordering tooling, specify a Piranha Ironworker and a "V" groove keyway will be added to the head of shaped punches and set screw spots will be added to shaped dies. If no machinery is specified, keyways will not be furnished.

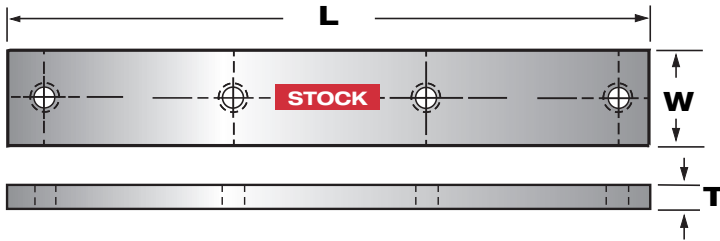


Standard Keyway Positions for Alignment of Shaped Punches



Standard Locating Spot Positions for Alignment of Shaped Dies

Shear Blades



Flat Bar Shear Blades

Reversible with four (4) cutting edges.
Two (2) required.

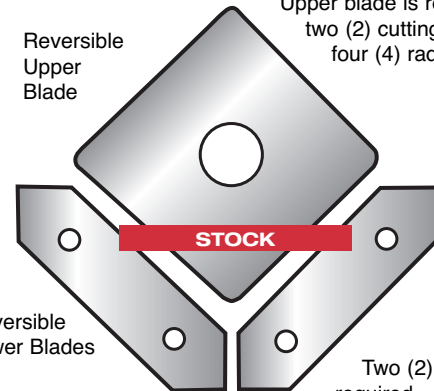
Stock Shear Blades

MODEL	T	L	W	PART #
P2, P36, P11-35	5/8"	10"	1-1/2"	P2A
	5/8"	13"	1-1/2"	P2B
P3, P50	3/4"	11-1/4"	1-1/2"	P3A
	3/4"	14-5/8"	1-1/2"	P3B
P4, P90 P11-110	1"	16-5/8"	2"	P4A
	1"	20-1/2"	2"	P4B

Angle Shear Blades

Upper blade is reversible with
two (2) cutting edges and
four (4) radii.

Reversible
Upper
Blade



Reversible
Lower
Blades

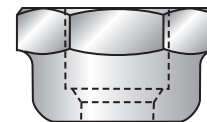
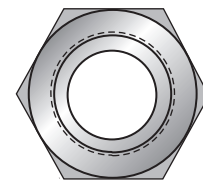
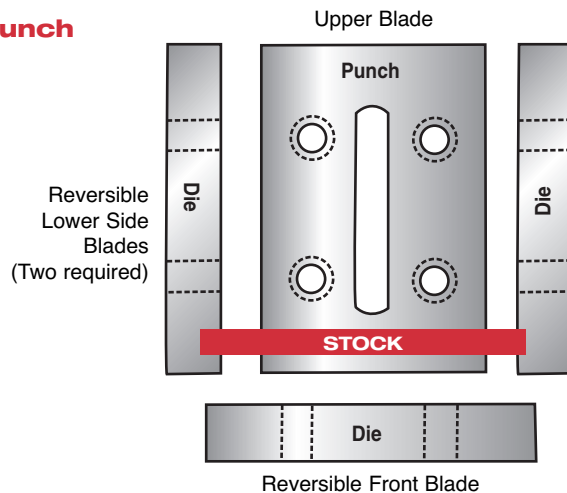
Two (2) lower blades
required.

Stock Shear Blades

MODEL	PART #	
	UPPER BLADE	LOWER BLADE
P3, P50, P11-65, P11-88	C13147	C13148

Miscellaneous Tooling

Coper Punch



Coupling Nut

STOCK

Stock Coper Tooling

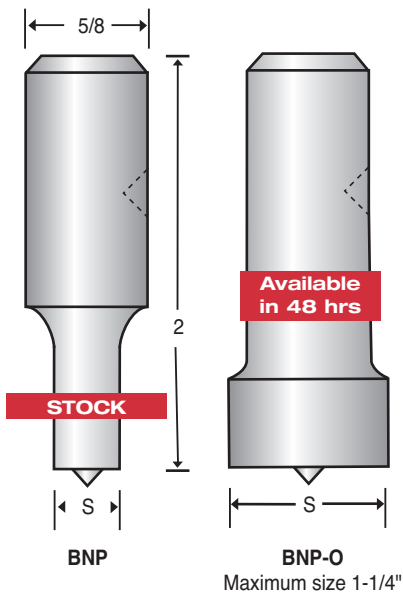
MODEL	COPER BLADES	
	COPER PUNCH PART #	COPER DIE PART #
P3, P50, P11-65 P11-88	P3 Coper	P3 Blade

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
All Models	BNP, BNP-O	BND

Punches and Dies

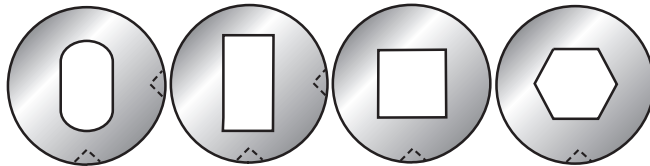
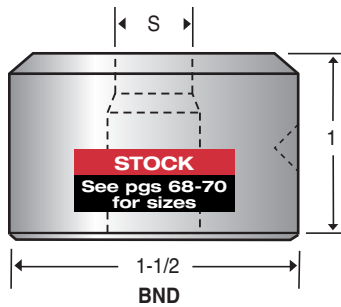


Stock Sizes Round Punches and Dies

BNP	BND
3/16	7/32
1/4	9/32
5/16	11/32
3/8	13/32
7/16	15/32
1/2	17/32
9/16	19/32

NOTE: Round oversize punches and dies up to 1-1/8" available.

NOTE: Round punches and dies are furnished with one locating spot. When ordering tooling, specify a Rogers (Lehman/Bateman) Ironworker and a locating spot will be added to shaped tooling. If no machinery is specified, locating spots will not be furnished.



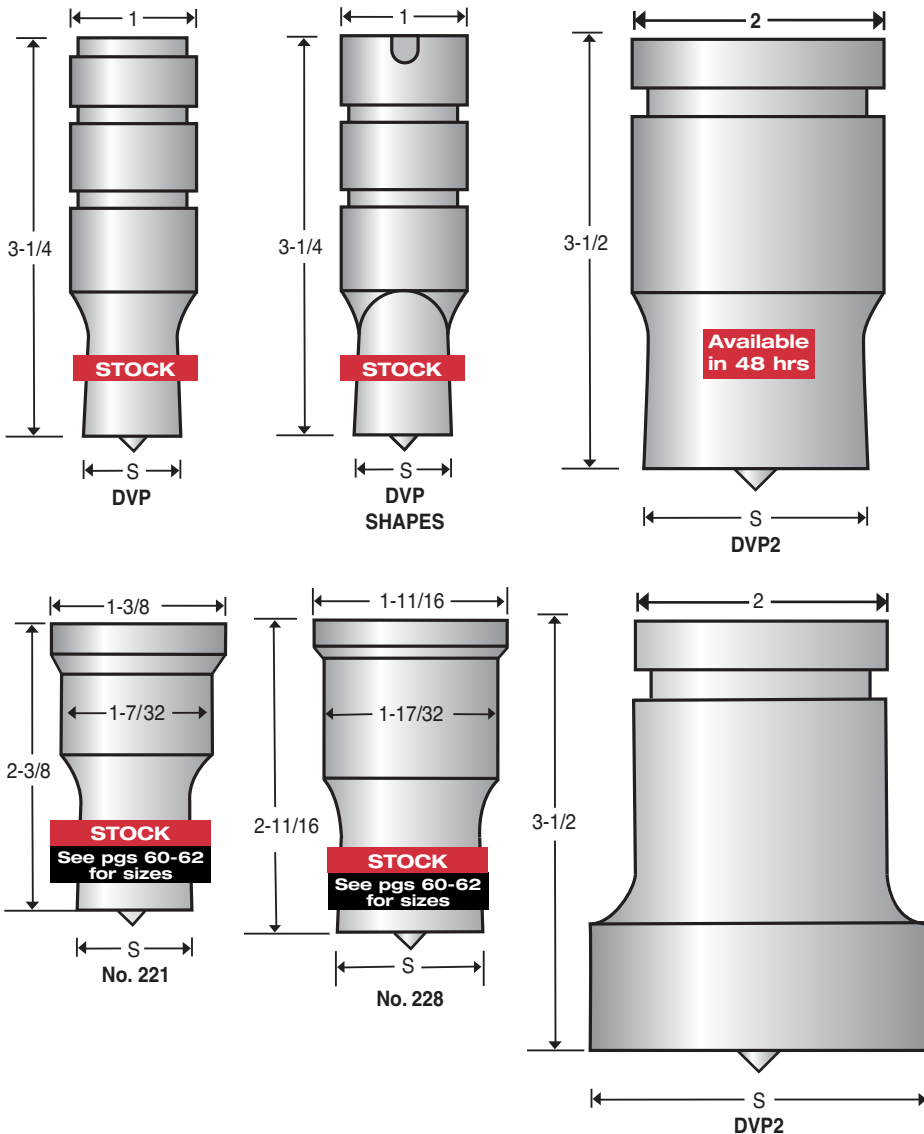
Standard Locating Spot Positions for Alignment of Shaped Dies

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
207, 314, 314C6, 314T, 424 4014C, 4014CM, 4014T, 4060B, 5014 PRO FAB 45	DVP	DVD
2450, 5024, 5075, 6012, 6509 7012, 7575, 9012, 9075, 12012 9012, 9075, 12012 FI-5009, FI-5109, FI-6008, FI-8507 DO-70, DO-100	NO. 221	No. 417
Oversize Combinations to 1-1/2" over 1-1/2"	No. 228 DVP2	No. 420 DVD2 No. 422 6.5 x 6.5

Punches



Stock Punch Sizes

ROUND PUNCHES		OBLONG PUNCHES	
SIZE	DVP	SIZE	DVP
1/4	●	9/16 X 1	●
9/32	●	11/16 X 1	●
5/16	●	13/16 X 1	●
11/32	●		
3/8	●		
13/32	●		
7/16	●		
15/32	●		
1/2	●		
17/32	●		
9/16	●		
19/32	●		
5/8	●		
21/32	●		
11/16	●		
23/32	●		
3/4	●		
25/32	●		
13/16	●		
27/32	●		
7/8	●		
29/32	●		
15/16	●		
31/32	●		
1	●		

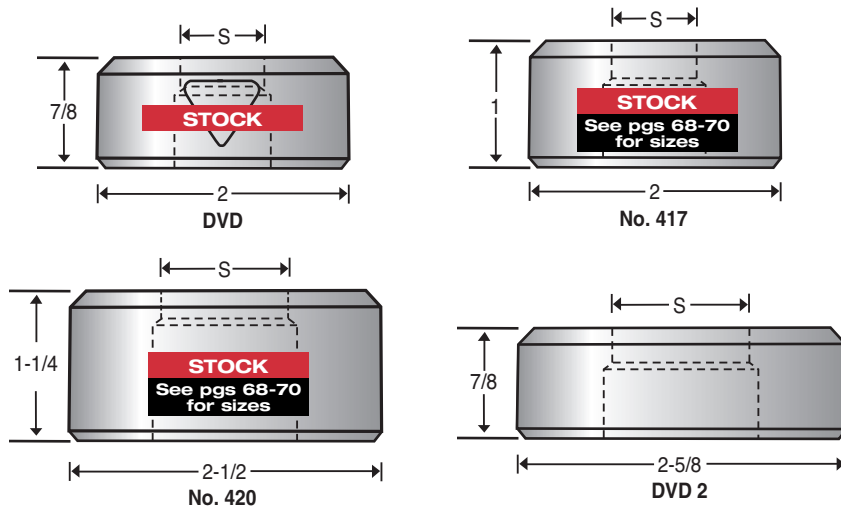
(Continued on next page)

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

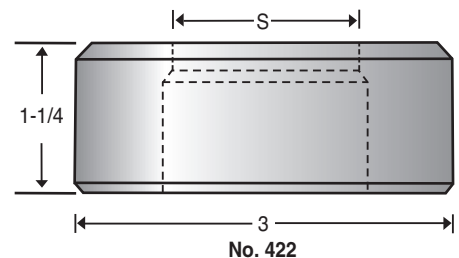
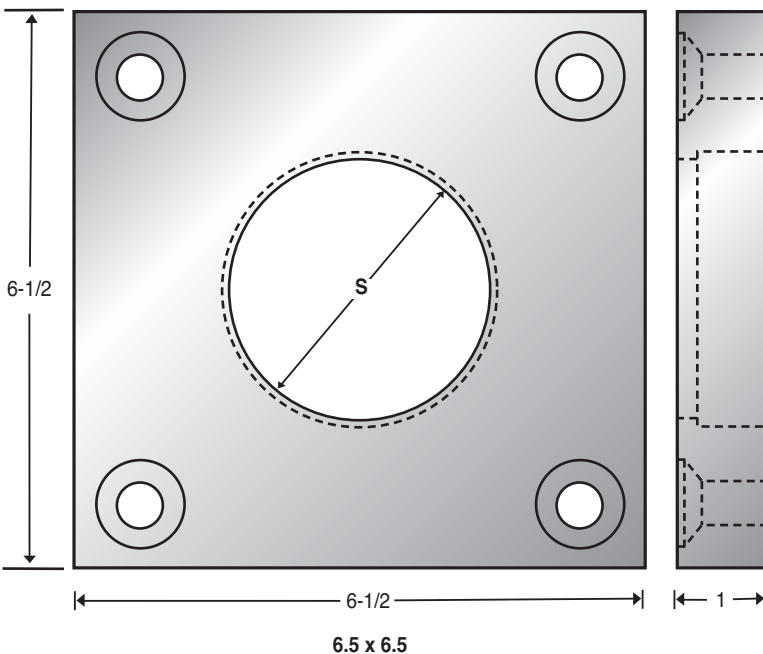
Model	Uses Punch	Uses Die
207, 314, 314C6, 314T, 424 4014C, 4014CM, 4014T, 4060B, 5014 PRO FAB 45	DVP	DVD
2450, 5024, 5075, 6012, 6509 7012, 7575, 9012, 9075, 12012 9012, 9075, 12012 FI-5009, FI-5109, FI-6008, FI-8507 DO-70, DO-100	NO. 221	No. 417
Oversize Combinations to 1-1/2" over 1-1/2"	No. 228 DVP2	No. 420 DVD2 No. 422 6.5 x 6.5

Dies



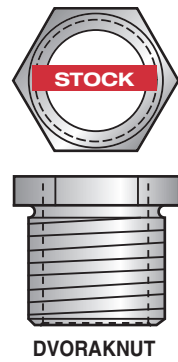
Stock Die Sizes

ROUND DIES		OBLONG DIES	
SIZE	DVD	SIZE	DVD
9/32	●	19/32 x 1-1/32	●
5/16	●	23/32 x 1-1/32	●
11/32	●	27/32 x 1-1/32	●
3/8	●		
13/32	●		
7/16	●		
15/32	●		
1/2	●		
17/32	●		
9/16	●		
19/32	●		
5/8	●		
21/32	●		
11/16	●		
23/32	●		
3/4	●		
25/32	●		
13/16	●		
27/32	●		
7/8	●		
29/32	●		
15/16	●		
31/32	●		
1	●		
1-1/32	●		

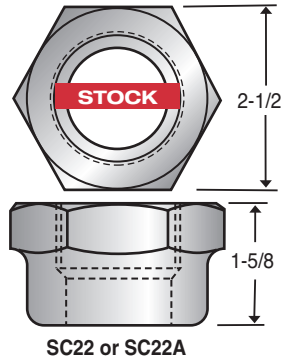


Coupling Nuts

Snap Ring



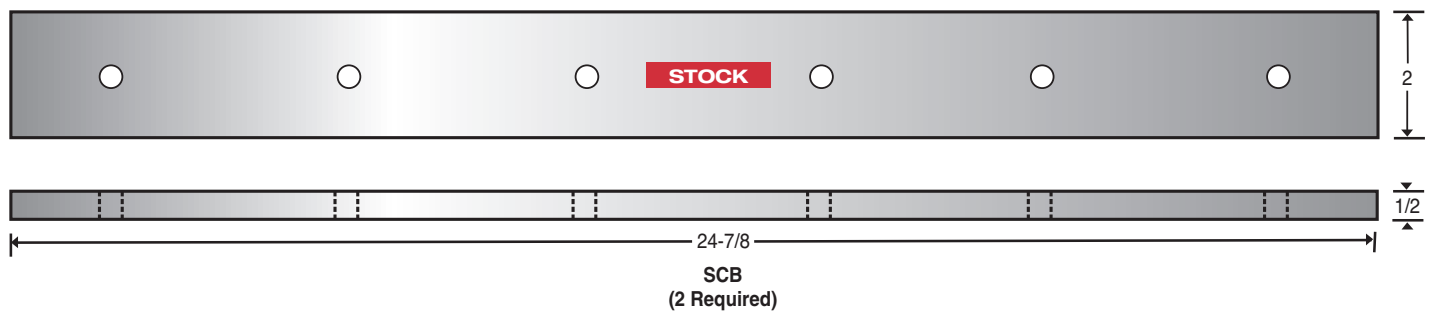
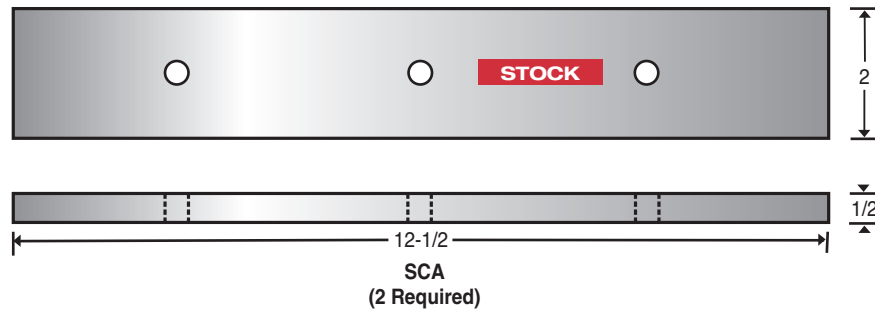
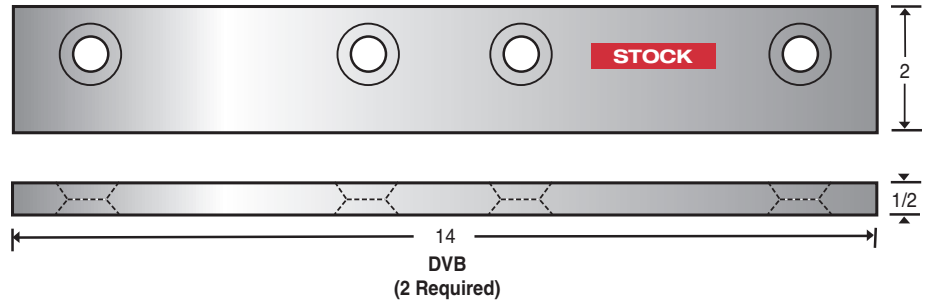
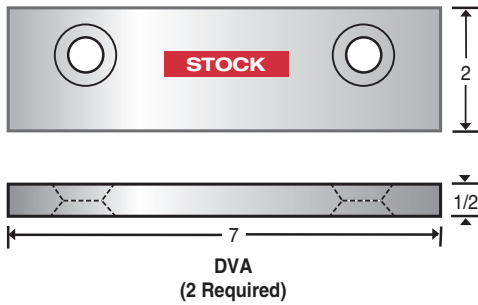
Headed



Stock Coupling Nuts

COUPLING NUT PART #	FITS PUNCH
SC22	No. 221
SC22A	No. 228
DVORAKNUT	DVP

Flat Bar Shear Blades

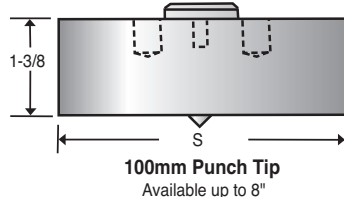
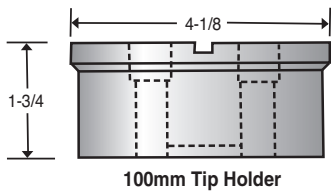
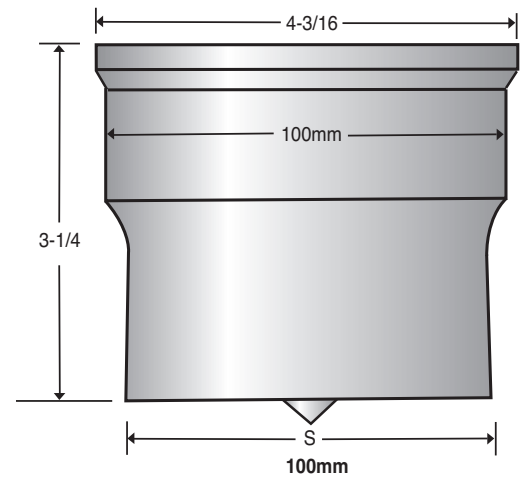
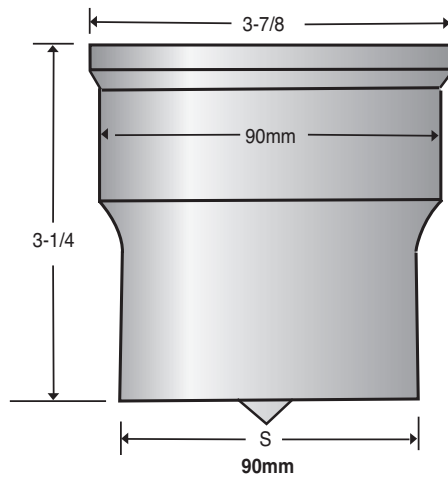
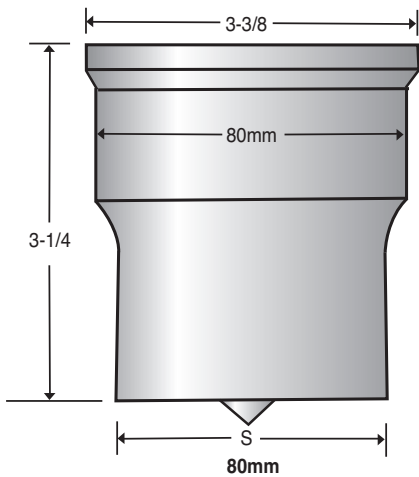
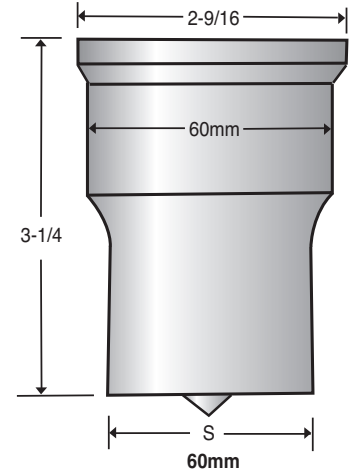
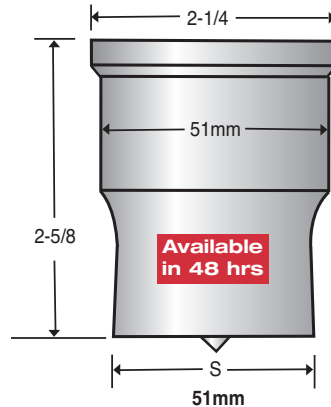
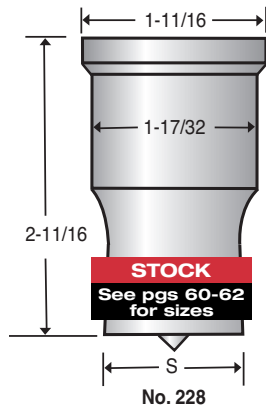
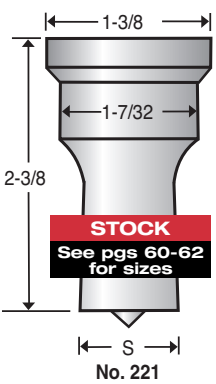


All stock items are available for **immediate shipment.**

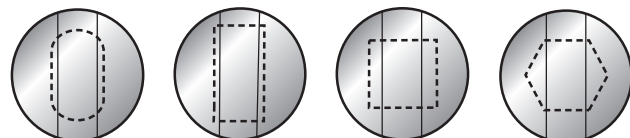
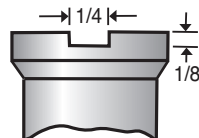
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
Single cylinder machines manufactured prior to 2000	No. 221 No. 228	No. 413 No. 419
Single cylinder machines	No. 221	No. 413
Dual cylinder machines	No. 228	No.419
Oversize	51mm, 60mm 80mm, 90mm 100mm	80mm, 110mm, 150mm, 200mm, 250mm

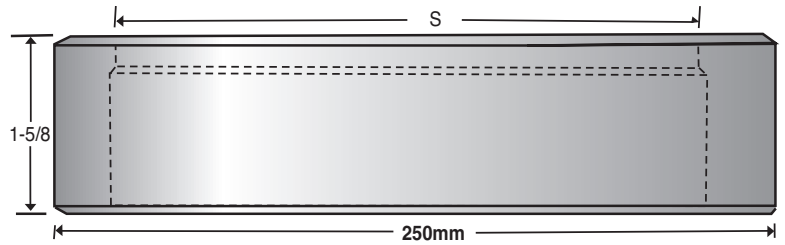
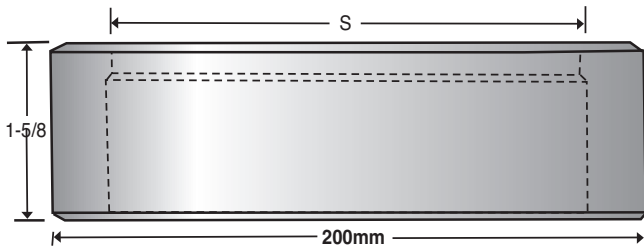
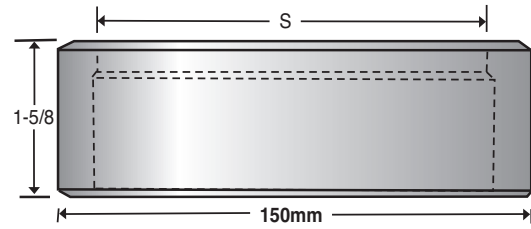
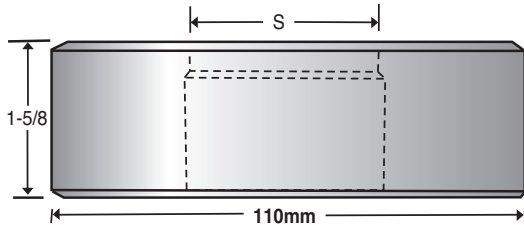
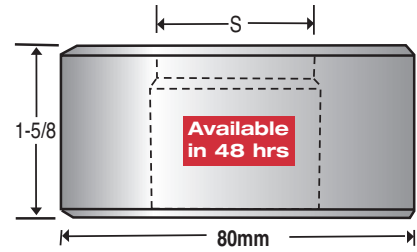
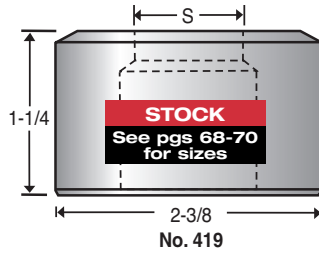
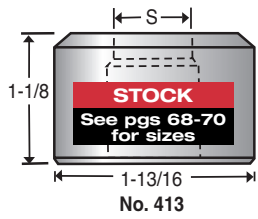
Punches



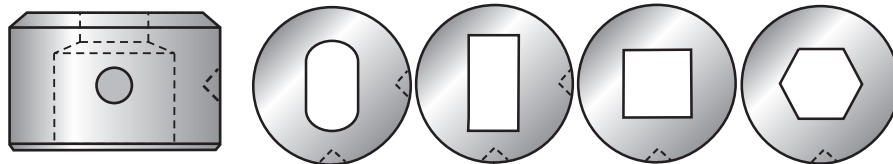
NOTE: Keyways are recommended for alignment of shaped punches. When ordering tooling, specify a Spartan Ironworker and a 1/4" wide x 1/8" deep keyway will be added to the head of shaped punches. If no machinery is specified, keyways will not be furnished.



Standard Keyway Positions for Alignment of Shaped Punches



NOTE: Locating spots are recommended for alignment of shaped dies. When ordering tooling, specify a Spartan Ironworker and a set screw spot will be added to shaped dies. If no machinery is specified, keyways will not be furnished.



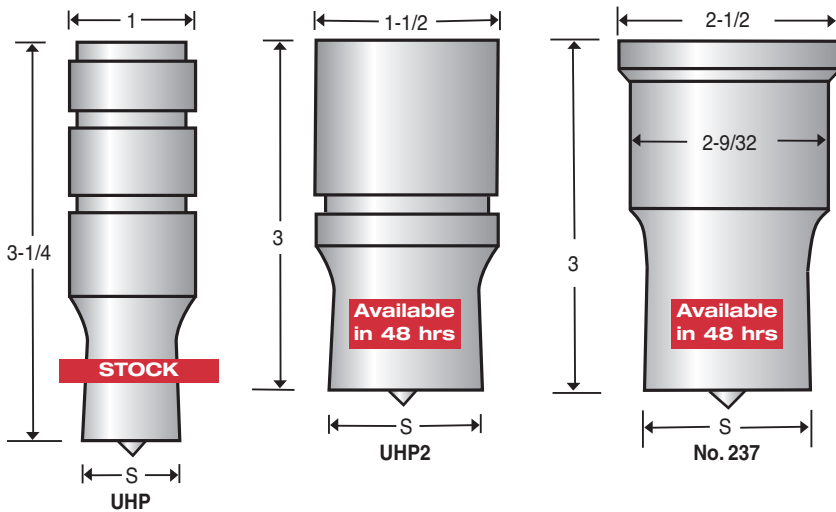
Standard Locating Spot Positions for Alignment of Shaped Dies

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

Model	Uses Punch	Uses Die
All Models	UHP	UHD
Oversize Combinations Over 1-1/2"	UHP2 No. 237	No. 420 No. 422 No. 490

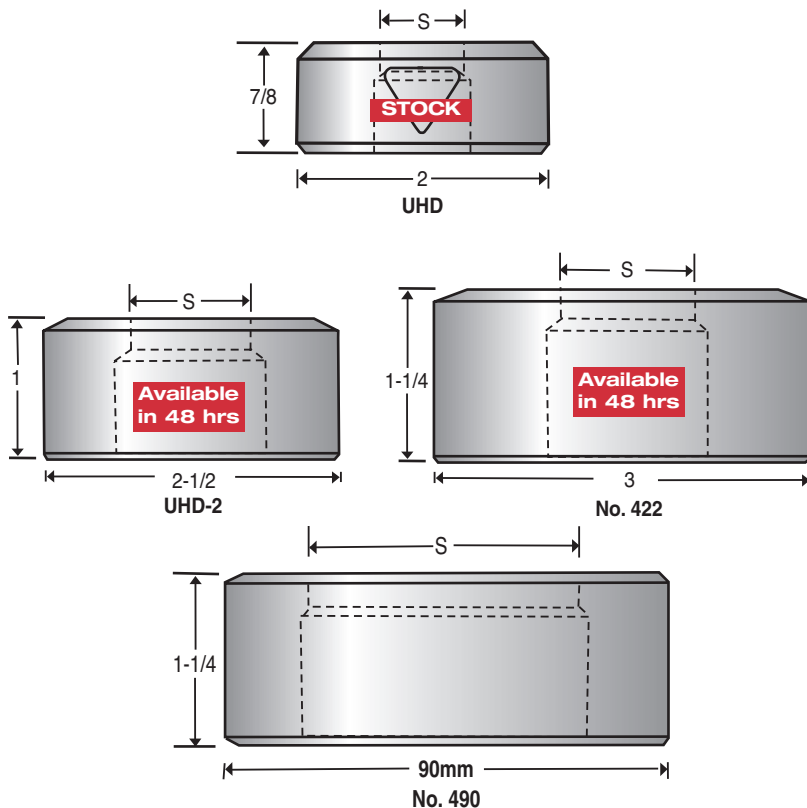
Punches



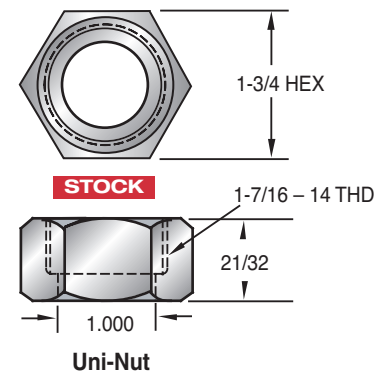
Stock Punch and Die Sizes

ROUND SIZES		OBLONG SIZES	
PUNCHES UHP	DIES UHD	PUNCHES UHP	DIES UHD
1/4	9/32	9/16 X 1	19/32 x 1-1/32
9/32	5/16	11/16 X 1	23/32 x 1-1/32
5/16	11/32	13/16 X 1	27/32 x 1-1/32
11/32	3/8		
3/8	13/32		
13/32	7/16		
7/16	15/32		
15/32	1/2		
1/2	17/32		
17/32	9/16		
9/16	19/32		
19/32	5/8		
5/8	21/32		
21/32	11/16		
11/16	23/32		
23/32	3/4		
3/4	25/32		
25/32	13/16		
13/16	27/32		
27/32	7/8		
7/8	29/32		
29/32	15/16		
15/16	31/32		
31/32	1		
1	1-1/32		

Dies



Coupling Nut



All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

NOTE: 36TC is a trademark of The W.A. Whitney Company. The Cleveland Steel Tool Company is not affiliated with nor related to The W.A. Whitney Company. The Cleveland Steel Tool Company does not produce or sell authorized W.A. Whitney products. The W.A. Whitney Company does not endorse or warrant Cleveland Steel Tool products.

Fabricating Centers	Uses Punch	Uses Die
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647 Plus, 647 Plus II, 647 ATC 661-60, 661-84 ATC, 661-84 661-96 ATC, 661-120	36TC™	36TC™
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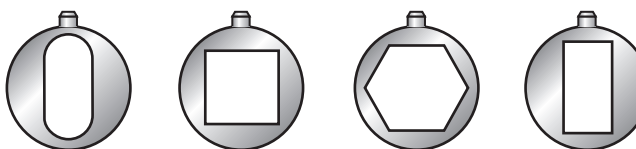
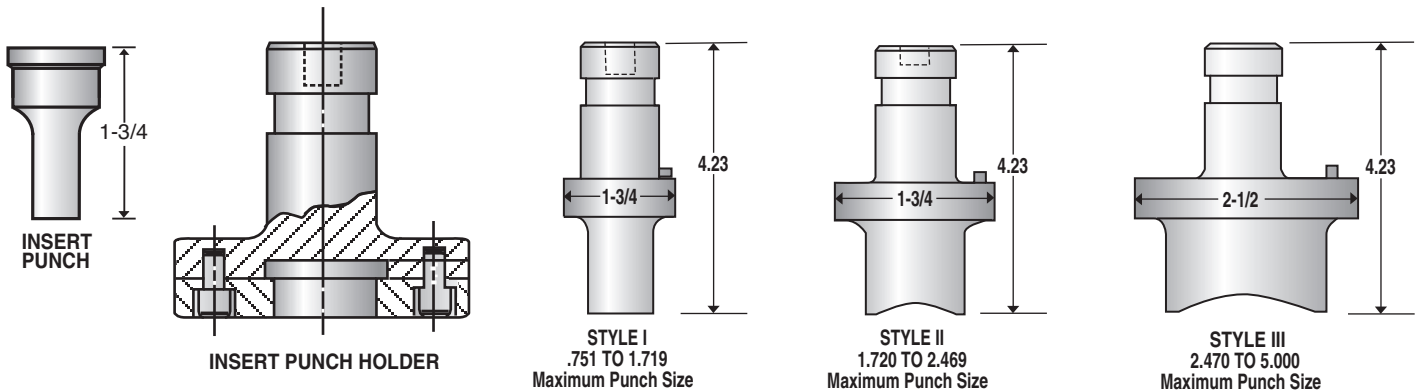
612, 613, 615, 625, 626 627, 630, 635, 637, 647 650, 652, 653, 655, 656, 791-AX18 1524, 2120, 2330, 2530 2548	28XX	28XX
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Portables

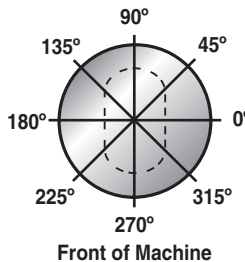
705	No. 61	No. 49
710, 720, 720X4, 720X6, 721	No. 62	No. 48
710CC	No. 62	No. 49
730CC, 730X8CC, 731	No. 63	No. 48
730, 730X8, 750, 751	No. 63	No. 47
750AX6, 751AX7, 771AX9, 790AX6 791AX18, 791AX30	No. 64 No. 64XX	No. 47 No. 47XX
770, 771, 790, 791, 791X18	No. 64	No. 47
7150AX6, 7151AX12	No. 64 No. 64XX No. 66	No. 46
7150AX12	No. 64 No. 64XX No. 66	No. 45
7250AX12	No. 66	No. 45

**845 Anglematic
796 Beamline
7130-60 Plate Duplicator**

No. 64, No. 64XX No. 47XX

36TC Punches


Standard Locating Pin Position on Shaped Punches and Dies



Orientation for shaped punches and dies is not limited to 90°. Diagram shows various angles of orientation possible.

(Continued on next page)

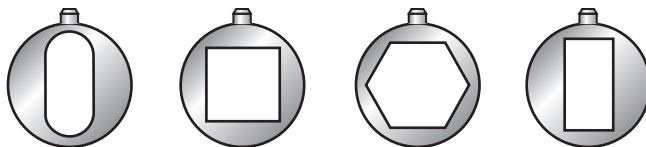
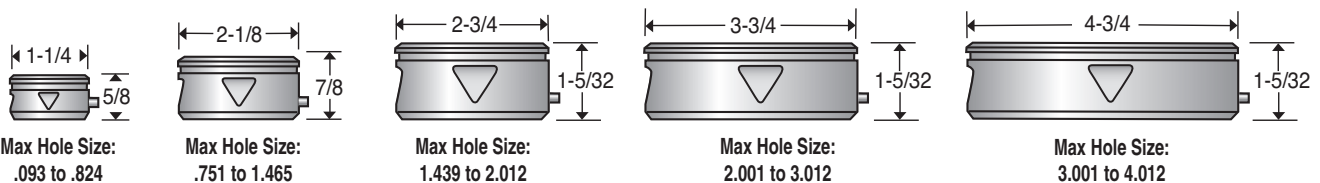
All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

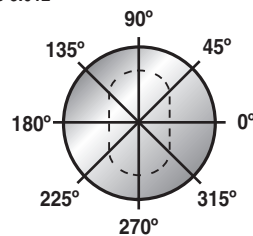
NOTE: 36TC is a trademark of The W.A. Whitney Company. The Cleveland Steel Tool Company is not affiliated with nor related to The W.A. Whitney Company. The Cleveland Steel Tool Company does not produce or sell authorized W.A. Whitney products. The W.A. Whitney Company does not endorse or warrant Cleveland Steel Tool products.

Fabricating Centers	Uses Punch	Uses Die
647 Plus, 647 Plus II, 647 ATC 661-60, 661-84 ATC, 661-84 661-96 ATC, 661-120	36TC™	36TC™
612, 613, 615, 625, 626 627, 630, 635, 637, 647 650, 652, 653, 655, 656 1524, 2120, 2330, 2530 2548	28XX	28XX
Portables		
705	No. 61	No. 49
710, 720, 720X4, 720X6, 721	No. 62	No. 48
710CC	No. 62	No. 49
730CC, 730X8CC, 731	No. 63	No. 48
730, 730X8, 750, 751	No. 63	No. 47
750AX6, 751AX7, 771AX9, 790AX6 791AX18, 791AX30	No. 64 No. 64XX	No. 47 No. 47XX
770, 771, 790, 791, 791X18	No. 64	No. 47
7150AX6, 7151AX12	No. 64 No. 64XX No. 66	No. 46
7150AX12	No. 64 No. 64XX No. 66	No. 45
7250AX12	No. 66	No. 45
845 Anglematic	No. 64	No. 47XX
796 Beamline	No. 64XX	
7130-60 Plate Duplicator		

36TC™ Dies



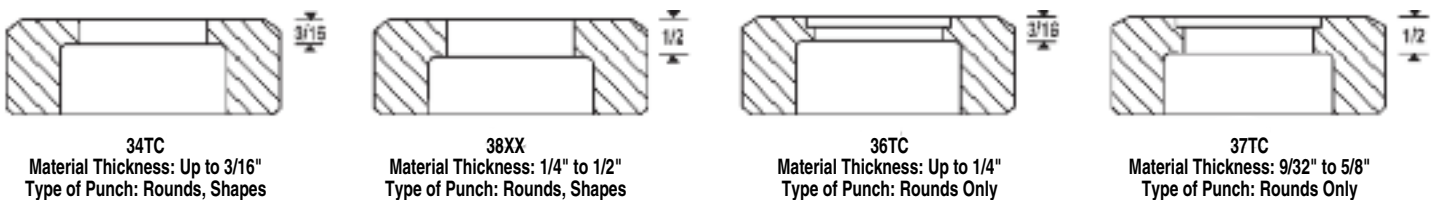
Standard Locating Pin Position on Shaped Punches and Dies



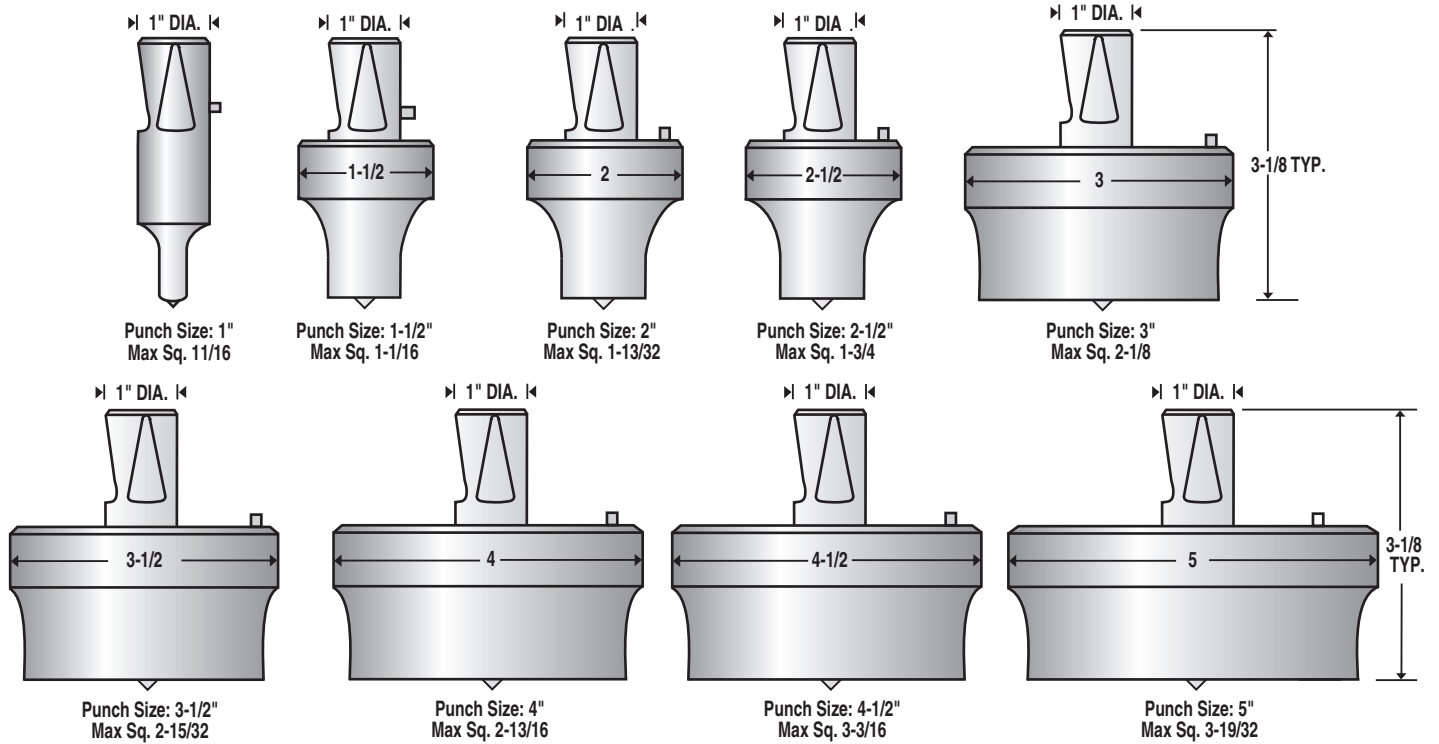
Front of Machine

Orientation for shaped punches and dies is not limited to 90°. Diagram shows various angles of orientation possible.

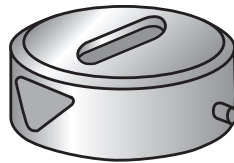
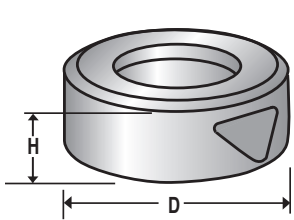
Quick Change Die Styles



28XX Punches



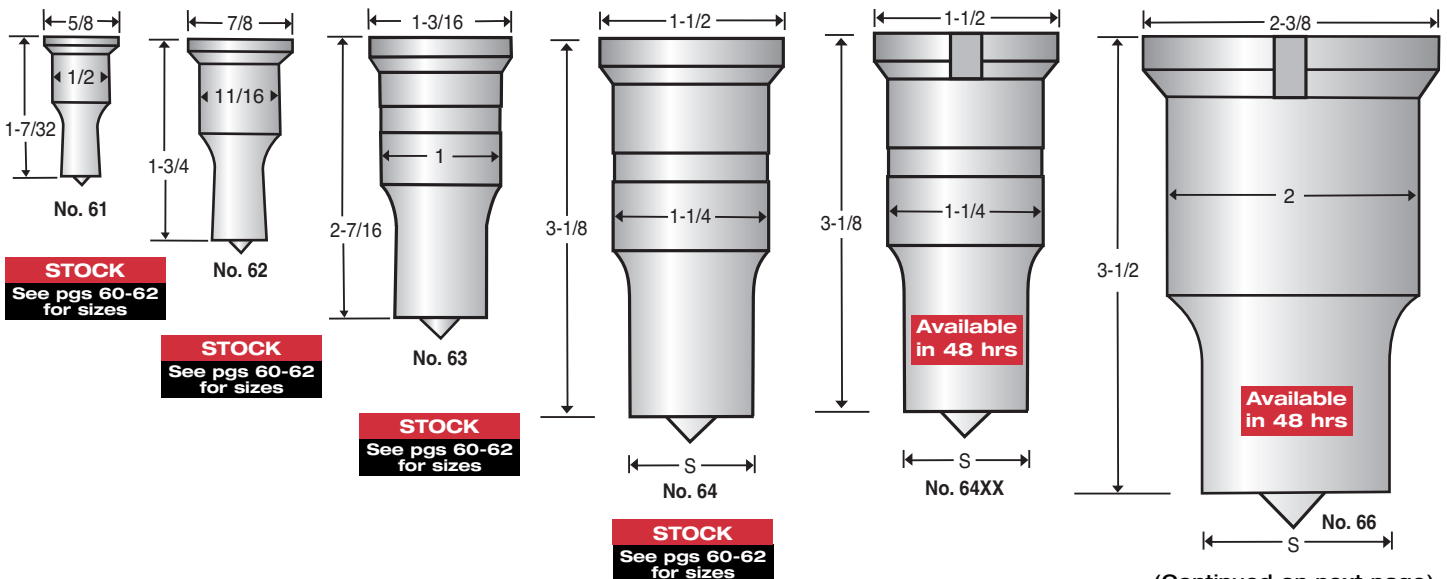
28XX Dies



D	H
1-1/4	5/8
2-1/8	7/8
2-3/4	1-5/32
3-3/4	1-5/32
4-3/4	1-5/32
5-3/4	1-25/32

NOTE: Non-stock tooling in sizes up to 2" equivalent diameter can be shipped within 48 hours. Contact our sales department for price and availability for sizes over 2".

Standard Sq Punches



(Continued on next page)

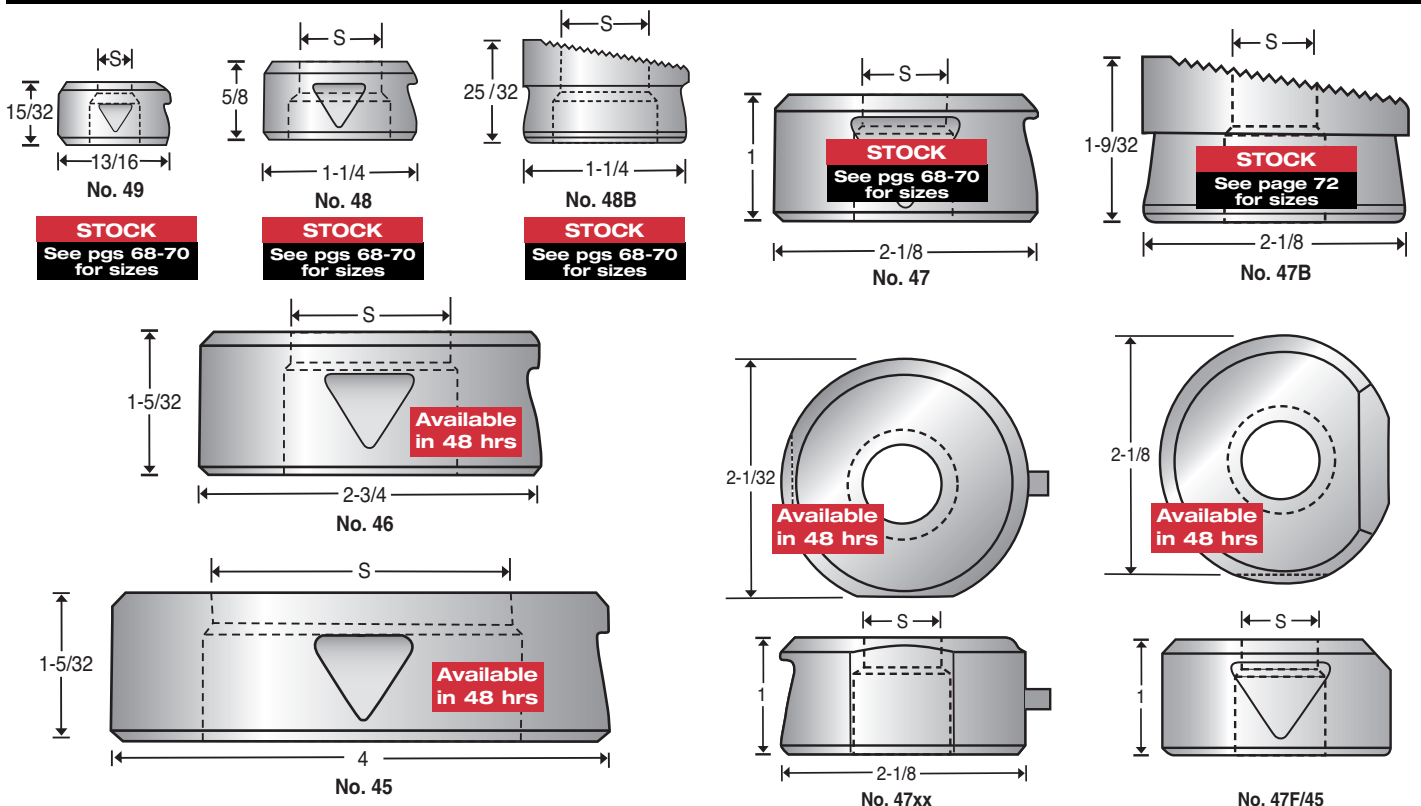
All stock items are available for immediate shipment.

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be shipped within 48 hours.

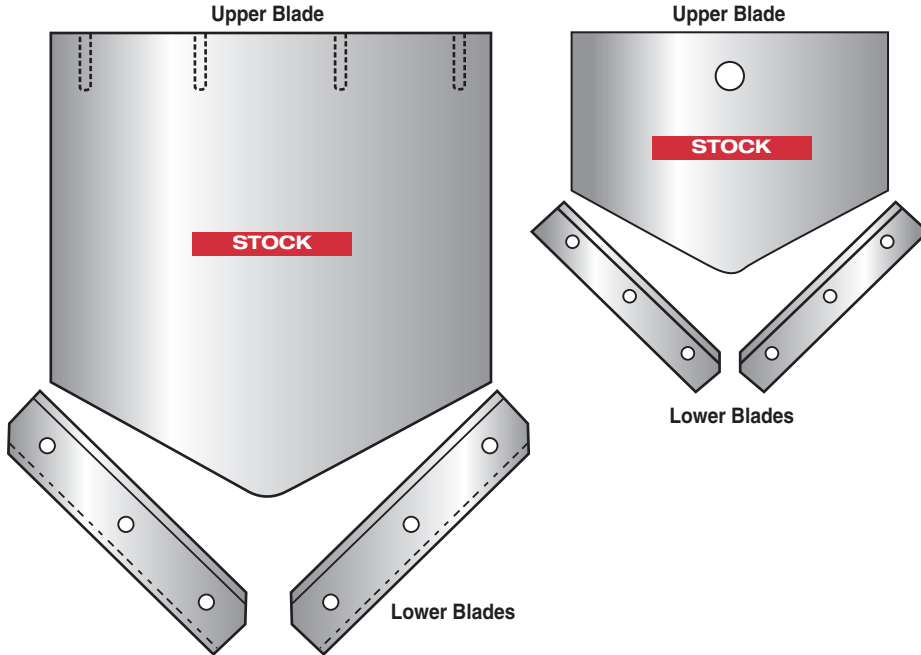
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Fabricating Centers	Uses Punch	Uses Die
647 Plus, 647 Plus II, 647 ATC 661-60, 661-84 ATC, 661-84 661-96 ATC, 661-120	36TC™	36TC™
612, 613, 615, 625, 626 627, 630, 635, 637, 647 650, 652, 653, 655, 656 1524, 2120, 2330, 2530 2548	28XX	28XX
Portables		
705	No. 61	No. 49
710, 720, 720X4, 720X6, 721	No. 62	No. 48
710CC	No. 62	No. 49
730CC, 730X8CC, 731	No. 63	No. 48
730, 730X8, 750, 751	No. 63	No. 47
750AX6, 751AX7, 771AX9, 790AX6 791AX18, 791AX30	No. 64 No. 64XX	No. 47 No. 47XX
770, 771, 790, 791, 791X18	No. 64	No. 47
7150AX6, 7151AX12	No. 64 No. 64XX No. 66	No. 46
7150AX12	No. 64 No. 64XX No. 66	No. 45
7250AX12	No. 66	No. 45
845 Anglematic	No. 64	No. 47XX
796 Beamline	No. 64XX	
7130-60 Plate Duplicator		

Standard Dies



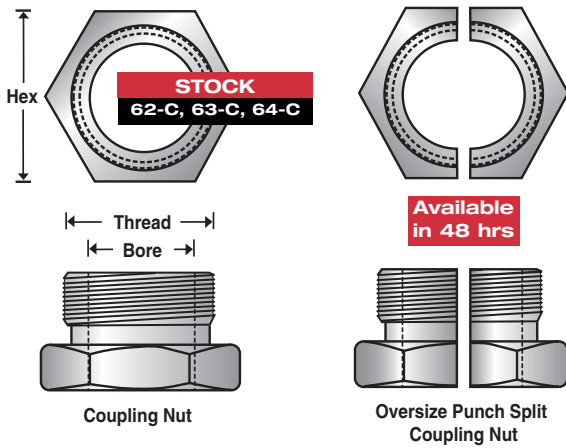
Shear Blades



Stock Shear Blades

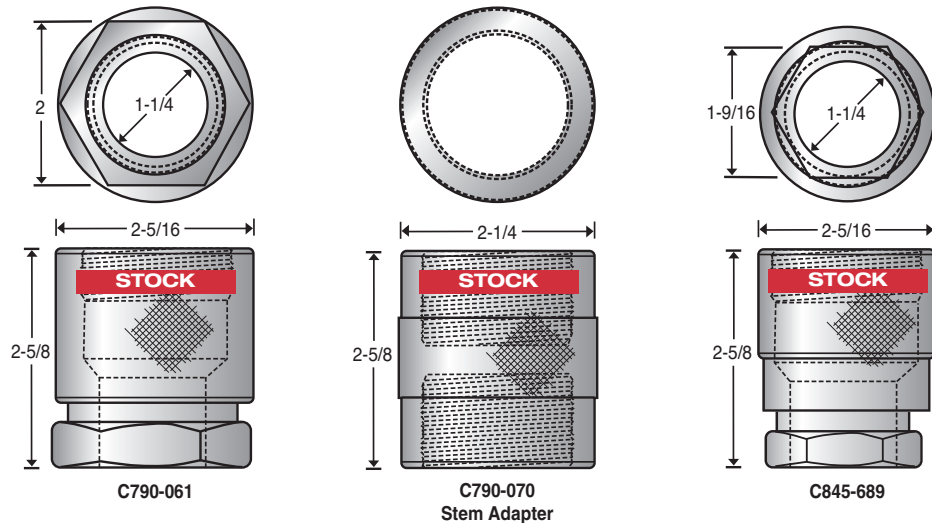
MODEL	UPPER SHEAR BLADE PART #	LOWER SHEAR BLADE PART #
606	C606-008	C606-010L (2) C606-113R (2)
609	C609-004	C609-039L (2) C609-040R (2)
664	C664-061	C609-039L (2) C609-040R (2)
764	C664-061	C609-039L (2) C609-040R (2)
765	C765-036	C765-032 (4)
845	C609-004	C845-269R (2) C845-270L (2)

Punch Coupling Nuts and Adapters



Stock Coupling Nuts

COUPLING NUT PART NO.	THREAD	BORE	HEX	FITS PUNCH
62-C	1", 16 UN	11/16"	1"	No. 62
63-C	1-3/8", 12NUF	1"	1-3/4"	No. 63
64-C	1-3/4", 12 UN	1-1/4"	2"	No. 64
C790-061	1-3/4", 12 UN	1-1/4"	2"	No. 64
C845-689	1-3/4", 12 UN	1-1/4"	1-9/16"	No. 64



(Continued on next page)

All stock items are available for immediate shipment.

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Fabricating Centers	Uses Punch	Uses Die
647 Plus, 647 Plus II, 647 ATC 661-60, 661-84 ATC, 661-84 661-96 ATC, 661-120	36TC™	36TC™
612, 613, 615, 625, 626 627, 630, 635, 637, 647 650, 652, 653, 655, 656 1524, 2120, 2330, 2530 2548	28XX	28XX
Portables		
705	No. 61	No. 49
710, 720, 720X4, 720X6, 721	No. 62	No. 48
710CC	No. 62	No. 49
730CC, 730X8CC, 731	No. 63	No. 48
730, 730X8, 750, 751	No. 63	No. 47
750AX6, 751AX7, 771AX9, 790AX6 791AX18, 791AX30	No. 64 No. 64XX	No. 47 No. 47XX
770, 771, 790, 791, 791X18	No. 64	No. 47
7150AX6, 7151AX12	No. 64 No. 64XX No. 66	No. 46
7150AX12	No. 64 No. 64XX No. 66	No. 45
7250AX12	No. 66	No. 45
845 Anglematic	No. 64	No. 47XX
796 Beamline	No. 64XX	
7130-60 Plate Duplicator		

Punch Holder

Stock Punch Holders

28XX PUNCH HOLDER PART NO.	BAR CLAMP	WEAR BLOCK	SPACER
C637-086	C630-326	C630-327	C647-487
C652-065	N/A	N/A	N/A
C653-090	C630-326	C630-327	N/A
C828-319	N/A	N/A	N/A

Spacer

STOCK

Punch Holder

Wear Block

Bar Clamp

Miscellaneous Tooling

STOCK

Clamp Piston
C630-036

STOCK

Pivot Screw
C636-329

STOCK

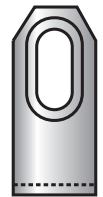
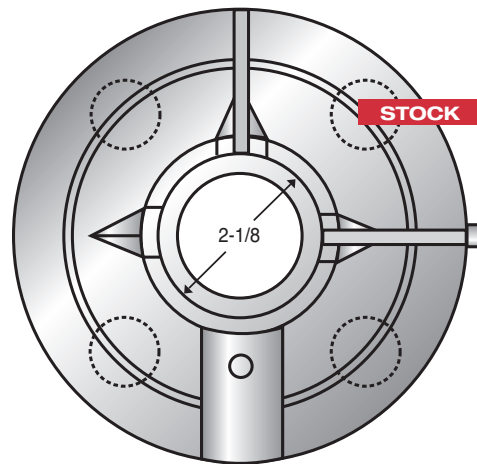
Top Clamp
C636-262

Die Adapters and Pockets

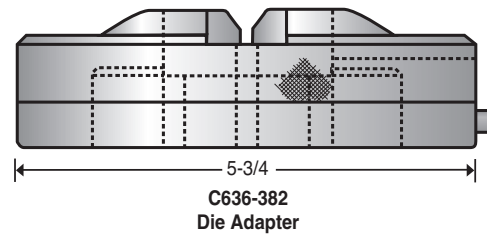
Stock Die Adapters

DIE ADAPTER PART NO.	DIE DIAMETER	DIE CLAMP	DIE PIN
C636-381	1-1/4"	C630-268*	N/A
C636-382	2-1/8"	C630-269*	N/A
C636-436	2-3/4"	N/A	C636-604
C636-437	3-3/4"	N/A	C636-605
C636-438	4-3/4"	N/A	C636-606
C845-699	2-1/8"	N/A	N/A

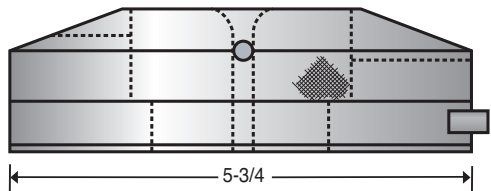
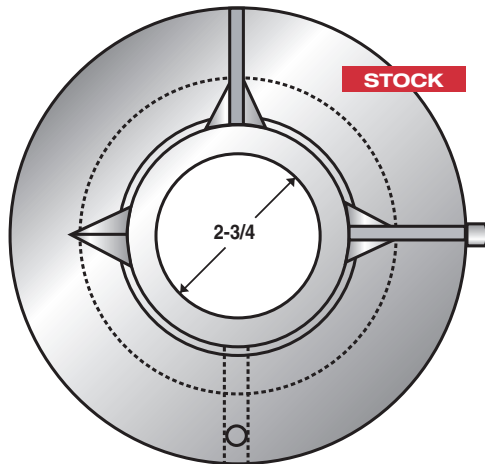
*Uses C630-271 adapter screw.



C630-268
Die Clamp



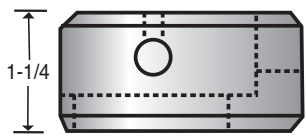
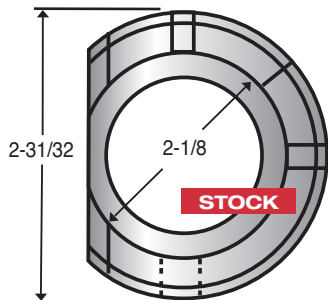
C636-382
Die Adapter



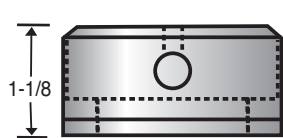
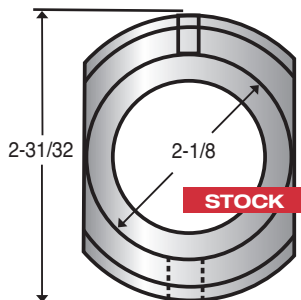
C636-436
Die Adapter



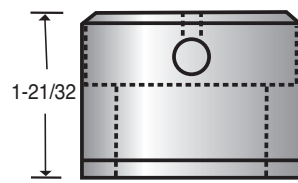
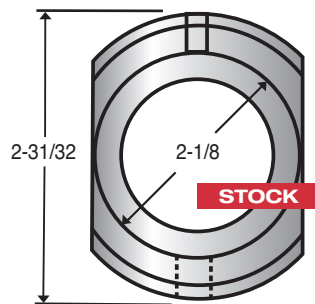
C363-604
Die Pin



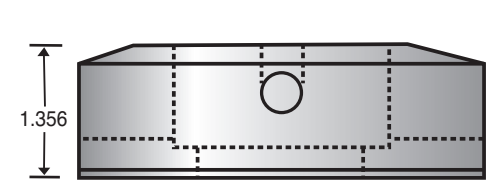
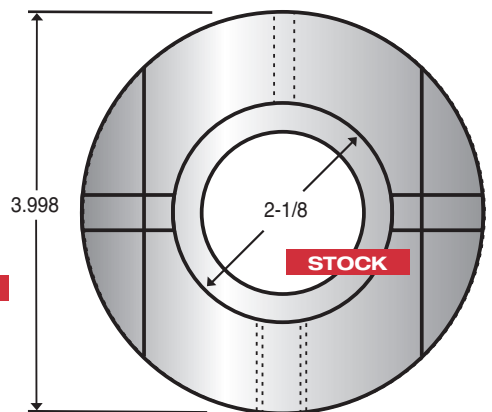
C790-379



C791-059



C791-037

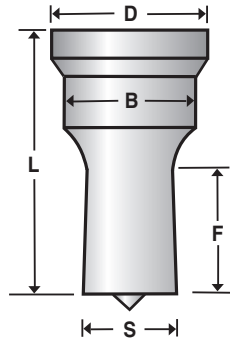


C845-699

Standard Punches

All stock items are available for **immediate shipment.**

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**



D = Head Diameter

B = Body Diameter

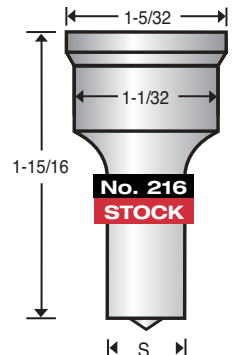
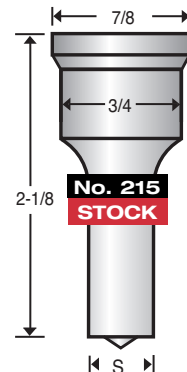
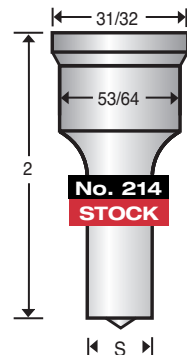
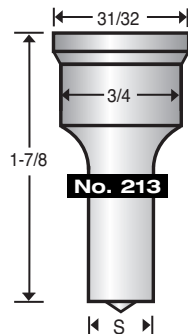
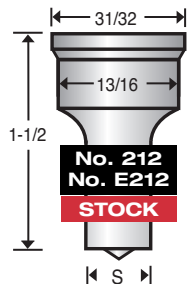
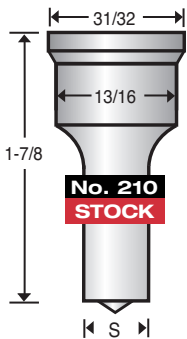
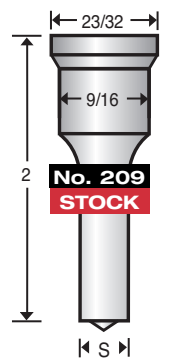
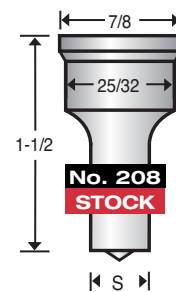
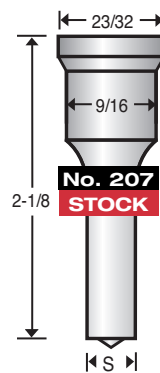
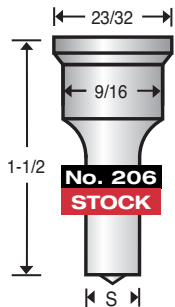
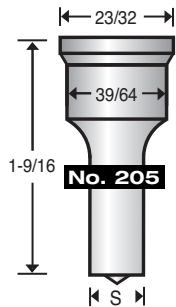
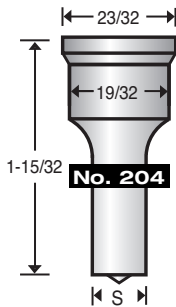
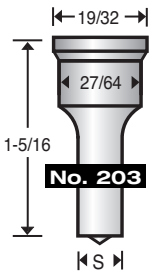
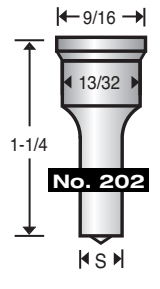
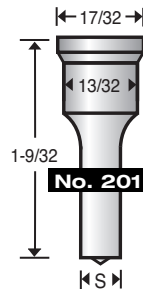
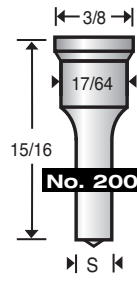
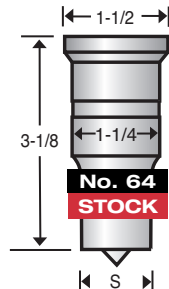
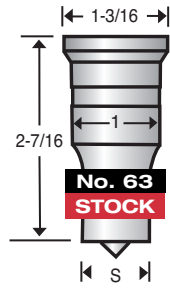
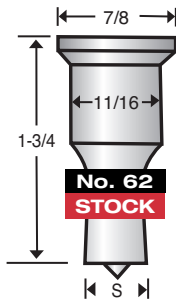
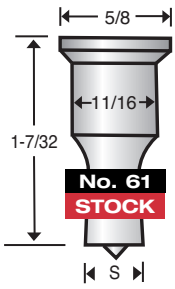
L = Overall length of punch (not including center point)

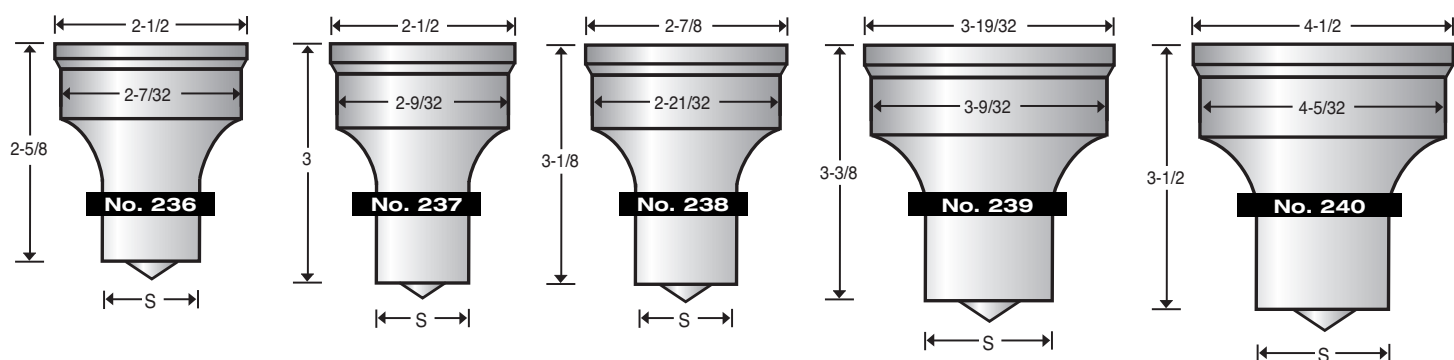
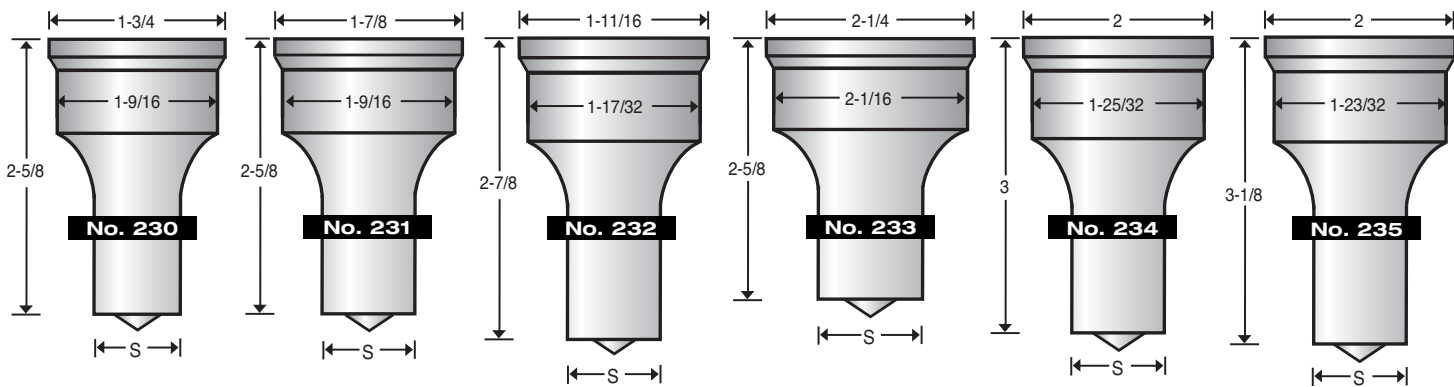
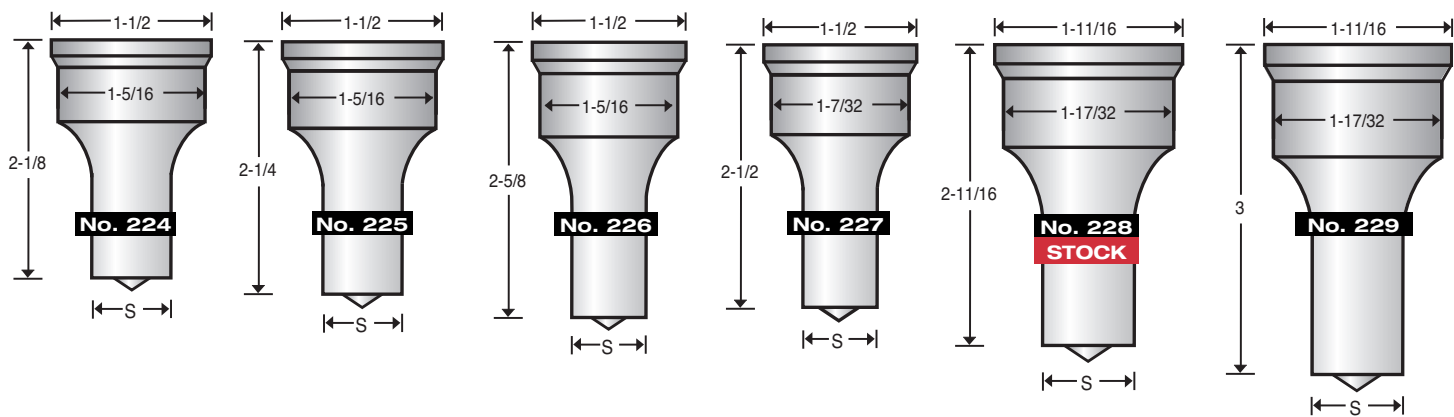
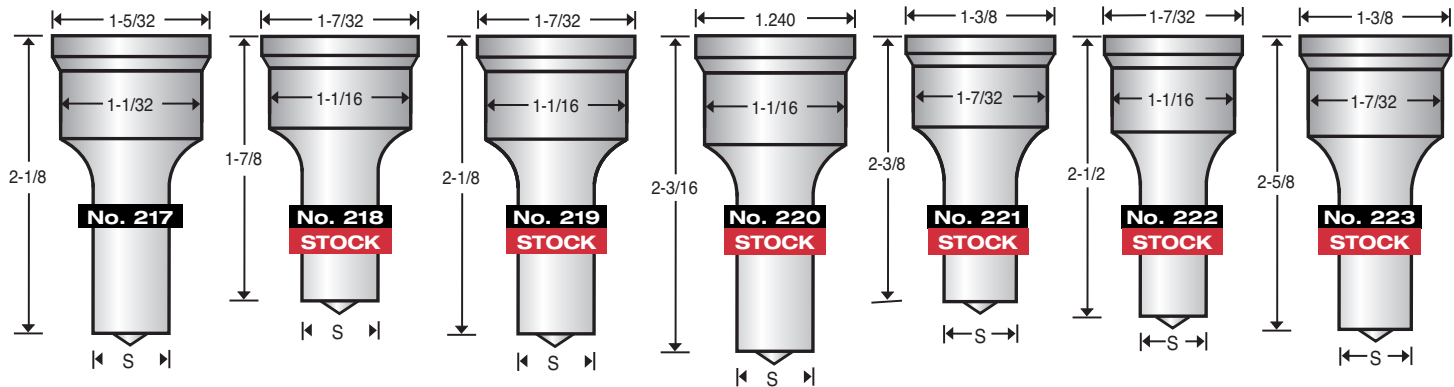
S = Punch size (hole size)

F = Effective working length of punch (determined by punch diameter)

NOTE: All standard punches are supplied with a back taper unless otherwise specified.

NOTE: The thickness of the material should not exceed the punch diameter being used.







SIZE	61	62	63	64	206	207	208	210	212	215	216	218	219	220	221	222	223	228
1/8	●	●	●										●		●			
5/32	●	●	●		●	●					●		●		●			
3/16	●	●	●	●	●	●	●		●		●		●	●	●	●		●
7/32	●	●	●	●	●	●	●		●		●		●	●	●	●		●
1/4	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
5/16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3/8	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
13/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7/16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
15/32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1/2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
17/32		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9/16		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
19/32		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
5/8		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
21/32		●	●	●			●	●	●	●	●	●	●	●	●	●	●	●
11/16		●	●	●			●	●	●	●		●	●	●	●	●	●	●
23/32		●	●	●			●	●	●		●	●	●	●	●	●	●	●
3/4		●	●	●			●	●	●		●	●	●	●	●	●	●	●
25/32		●	●	●			●	●	●		●	●	●	●	●	●	●	●
13/16		●	●	●			●	●	●		●	●	●	●	●	●	●	●
27/32		●	●	●							●	●	●	●	●	●	●	●
7/8			●	●							●	●	●	●	●	●	●	●
29/32			●	●							●	●	●	●	●	●	●	●
15/16			●	●							●	●	●	●	●	●	●	●
31/32			●	●							●	●	●	●	●	●	●	●
1			●	●							●	●	●	●	●	●	●	●
1-1/32			●	●							●		●	●	●			●
1-1/16			●	●							●		●	●	●	●	●	●
1-3/32			●	●											●			●
1-1/8			●	●									●	●	●		●	●
1-5/32				●											●			●
1-3/16				●											●		●	●
1-7/32				●											●			●
1-1/4				●											●		●	●
1-9/32				●														●
1-5/16				●												●		●
1-11/32				●														●
1-3/8				●														●
1-13/32				●														●
1-7/16				●														●
1-15/32				●														●
1-1/2				●														●
1-17/32																		●
1-9/16																		●

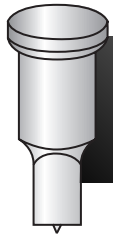
All stock items are available for immediate shipment.

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be shipped within 48 hours.

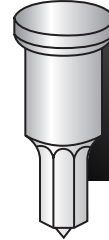


SIZE	63	64	216	219	221	228
3/16 x 3/4			●	●	●	
3/16 x 1			●	●	●	●
1/4 x 1/2			●	●	●	
1/4 x 3/4			●	●	●	
1/4 x 1	●	●	●	●	●	
9/32 x 9/16			●	●	●	
9/32 x 3/4			●	●	●	
9/32 x 1			●	●	●	
5/16 x 1/2			●	●	●	
5/16 x 5/8			●	●	●	
5/16 x 3/4			●	●	●	
5/16 x 1	●	●	●	●	●	●
5/16 x 1-1/16				●		
5/16 x 1-1/4		●			●	●
11/32 x 11/16			●	●	●	
11/32 x 1			●	●	●	●
3/8 x 1/2			●	●	●	
3/8 x 3/4			●	●	●	●
3/8 x 1	●	●	●	●	●	●
3/8 x 1-1/4					●	●
13/32 x 13/16			●	●	●	
13/32 x 1			●	●	●	●
13/32 x 1-1/4					●	●
7/16 x 9/16			●	●	●	
7/16 x 3/4			●	●	●	●
7/16 x 7/8			●	●	●	●
7/16 x 1	●	●	●	●	●	●
7/16 x 1-1/16			●	●	●	●
7/16 x 1-1/4		●			●	●
7/16 x 1-1/2						●
15/32 x 1			●	●	●	●
1/2 x 3/4			●	●	●	
1/2 x 1	●	●	●	●	●	●
1/2 x 1-1/16				●		
1/2 x 1-1/4					●	●

SIZE	63	64	216	219	221	228
1/2 x 1-1/2						●
17/32 x 1			●	●	●	●
17/32 x 1-1/4					●	●
17/32 x 1-1/2						●
9/16 x 3/4			●	●	●	●
9/16 x 1	●	●	●	●	●	●
9/16 x 1-1/16		●		●	●	
9/16 x 1-1/4		●			●	●
9/16 x 1-1/2		●				●
5/8 x 1	●	●	●	●	●	●
5/8 x 1-1/4		●			●	●
5/8 x 1-1/2						●
11/16 x 1	●	●	●	●	●	●
11/16 x 1-1/16		●		●	●	
11/16 x 1-1/4		●			●	●
11/16 x 1-1/2		●				●
3/4 x 1	●	●	●	●	●	●
3/4 x 1-1/4		●			●	●
3/4 x 1-1/2						●
13/16 x 1	●	●	●	●	●	●
13/16 x 1-1/16		●		●	●	●
13/16 x 1-1/8		●			●	●
13/16 x 1-1/4		●			●	●
13/16 x 1-1/2		●				●
7/8 x 1-1/4		●			●	●
7/8 x 1-1/2						●
15/16 x 1-1/16	●	●			●	
15/16 x 1-1/8		●				
15/16 x 1-1/4		●			●	●
15/16 x 1-1/2		●				●
15/16 x 1-9/16						●
1 x 1-1/4					●	●
1 x 1-1/2						●
1 x 1-9/16						●
1-1/16 x 1-9/16						●


**Stock Square
Punch Sizes**

SIZE	61	62	63	64	216	219	221	228
1/4					■	■	■	
9/32					■	■	■	
5/16			■	■	■	■	■	
11/32					■	■	■	
3/8			■	■	■	■	■	
13/32			■	■	■	■	■	■
7/16			■	■	■	■	■	■
15/32			■	■	■	■	■	■
1/2			■	■	■	■	■	■
17/32			■	■	■	■	■	■
9/16			■	■	■	■	■	■
19/32					■	■	■	■
5/8			■	■	■	■	■	■
21/32				■	■	■	■	■
11/16				■	■	■	■	■
23/32					■	■	■	■
3/4				■	■	■	■	■
25/32				■	■	■	■	■
13/16				■	■	■	■	■
27/32							■	
7/8							■	■
15/16								■
1								■
1-1/16								■


**Stock Hexagonal
Punch Sizes**

SIZE	61	62	63	64	216	219	221	228
11/32					■	■	■	■
3/8					■	■	■	■
13/32					■	■	■	■
7/16					■	■	■	■
15/32					■	■	■	■
1/2					■	■	■	■
17/32					■	■	■	■
9/16					■	■	■	■
19/32					■	■	■	■
5/8					■	■	■	■
21/32					■	■	■	■
11/16					■	■	■	■
23/32					■	■	■	■
3/4					■	■	■	■
25/32					■	■	■	■
13/16					■	■	■	■
27/32					■	■	■	■
7/8							■	■
15/16								■
1								■
1-1/16								■
1-1/8								■

All stock items are available for
immediate shipment.

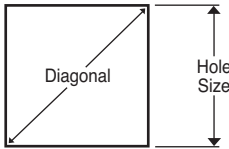
Non-stock sizes of a round, oblong,
square, hexagonal and rectangular
shape of standard tooling will be
shipped within 48 hours.

Shapes

Cleveland Steel Tool can supply you with any style of punch or die in most shapes. If you require a shape that is not shown, send your sketch, sample or blueprint for a quotation.

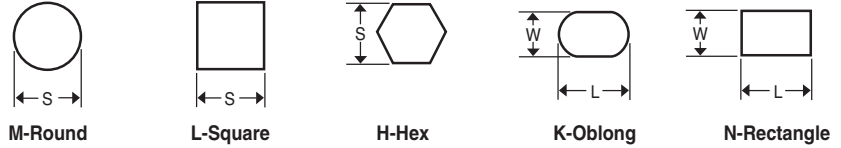


NOTE: Radius corners can be furnished upon request. Please specify shape and radius required.



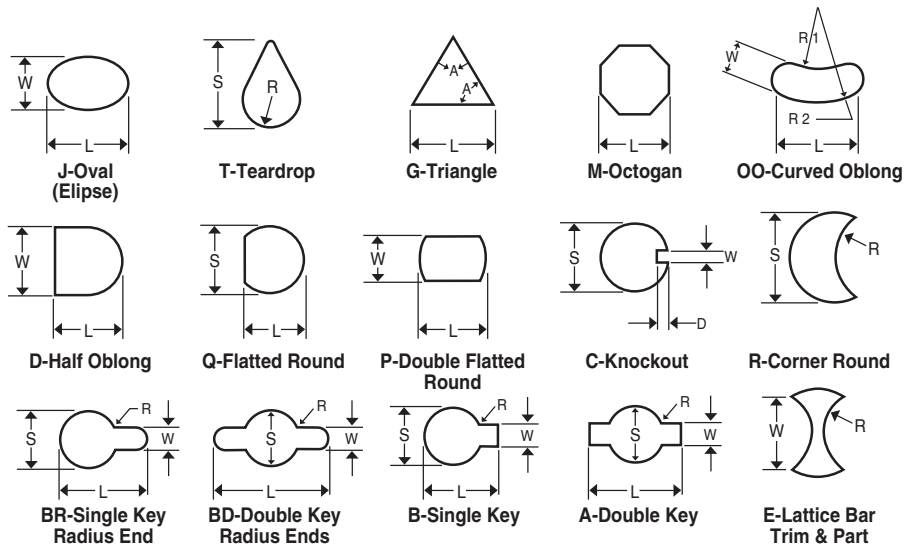
NOTE: For square, rectangle, hex and other shapes, use the diagonal dimension (corner to corner) and not the hole size to the maximum size that will fit the bore in your coupling nut and the slug hole of your machine.

STANDARD SHAPES



NOTE: Non-stock sizes of round, square, hexagonal, oblong and rectangular stock style tooling can be shipped in 48 hours.

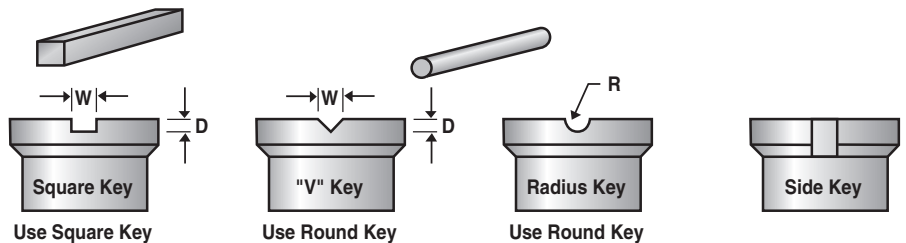
NON-STANDARD SHAPES



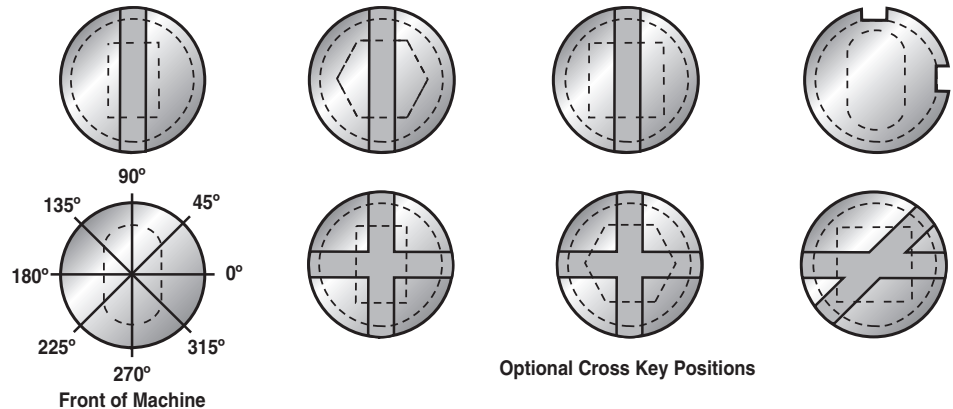
Choice of Keyways

Keyways are recommended for positive location of shaped punches using coupling nut mountings. Keyways are not standard on shaped punches due to numerous variations. The proper keyway can be added to punches upon request. The machine manufacturer is required. Standard keyway positions (see illustration) will be furnished unless otherwise specified. If ordering special keyway positions, please indicate the direction of the keyway in relation to the shape.

STANDARD KEYWAYS (SINGLE KEY FOR STEMS WITH CROSS KEYS)

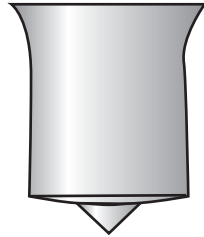


STANDARD KEY POSITIONS

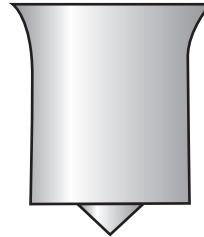


Choice of Punch Faces

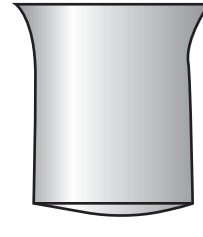
Unless otherwise specified, Cleveland Steel Tool furnishes punches with a "Crown Face Center Point." Other punch faces are available, as shown, upon request.



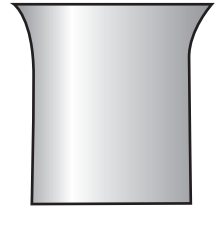
**Crown Face
Center Point
(Standard)**



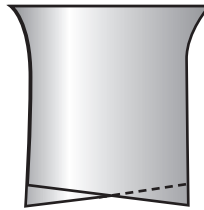
**Flat Face
Center**



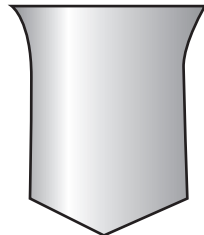
**Full Crown
(Used on Spring Steel)**



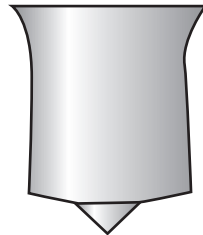
**Flat Face
(Reduces deformation
on slug and material)**



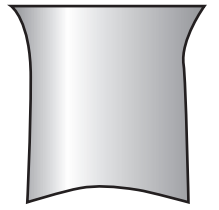
**"Z" Shear
(Used on 16 gauge or
lighter material to
reduce deformation)**



**"Y" Shear
(Reduces tonnage
and "bang")**



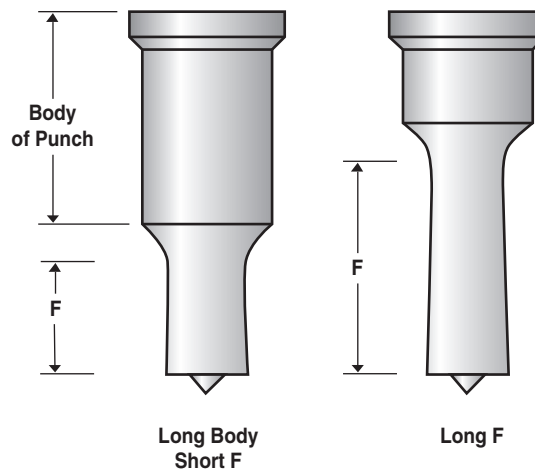
**"Y" Shear
with Center
(Reduces tonnage)**



**Concave Shear
(Reduces tonnage
and minimizes distortion
for material 3/16" or thinner)**

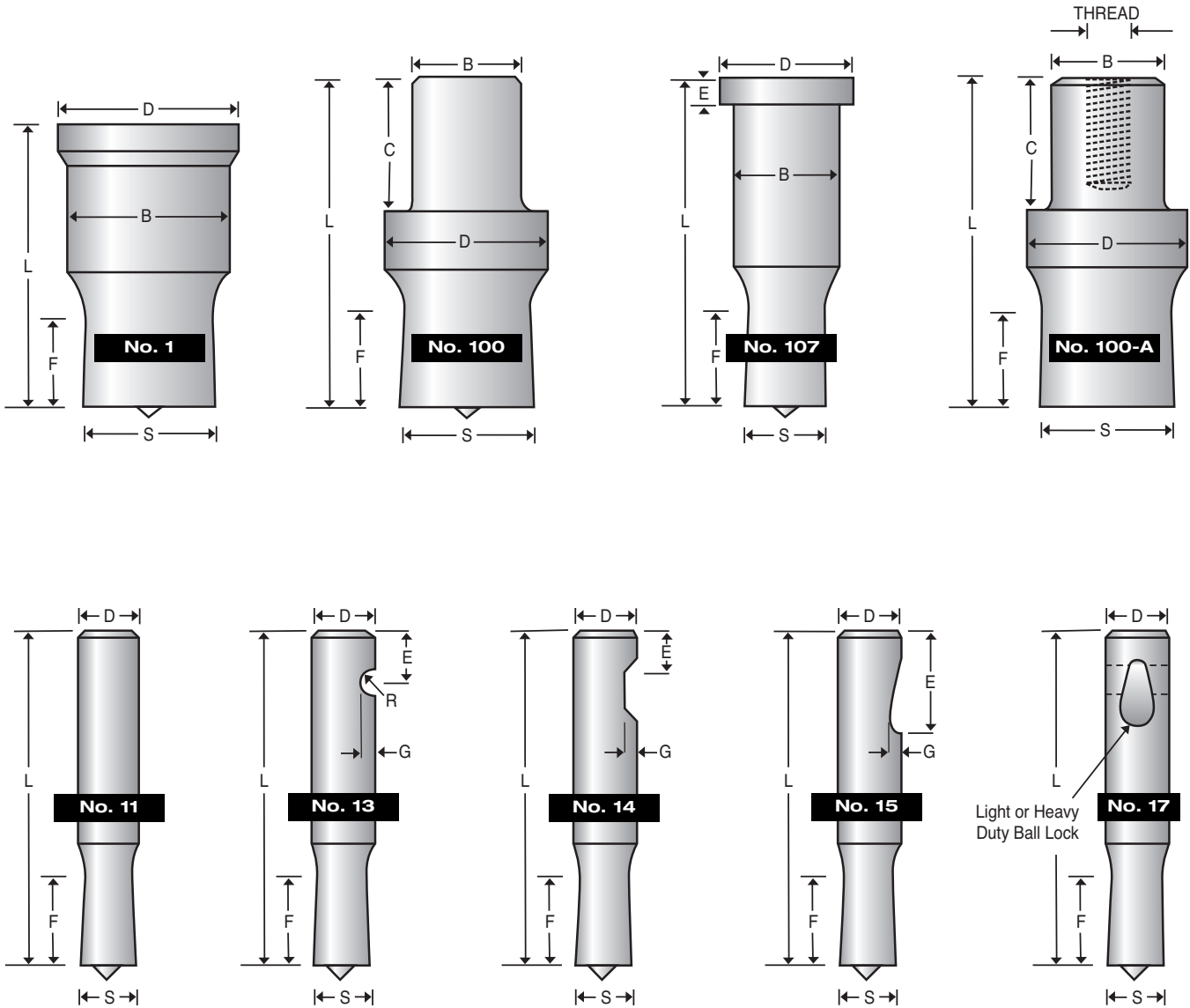
Extra Length Punches

Some applications require extra length to be added to the "F" dimension (working end of the punch) or the "Body" dimension. When ordering, please specify the length of the "F" dimension or "Body of Punch."



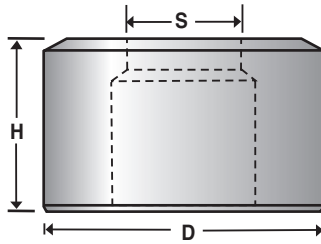
Punch Styles

These punch styles can be made to your exact specifications. Please provide the punch number you require including all dimensions.



All stock items are available for **immediate shipment.**

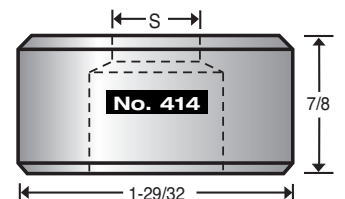
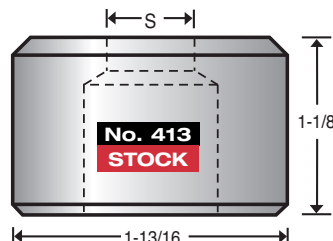
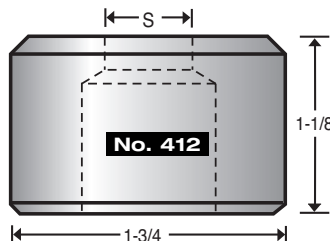
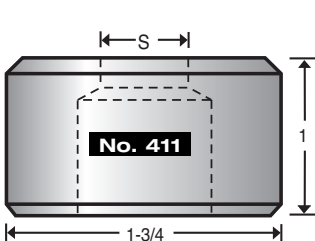
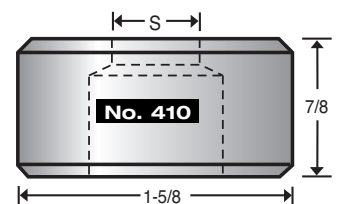
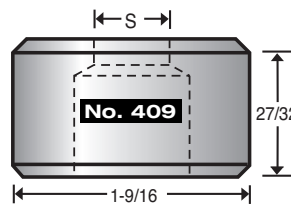
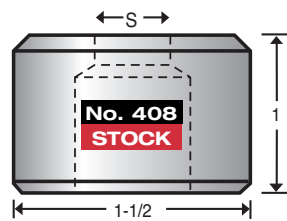
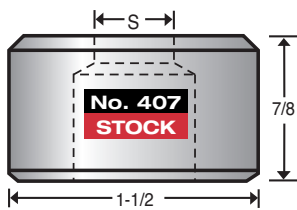
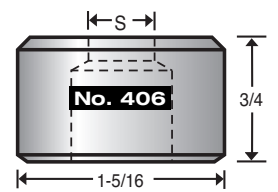
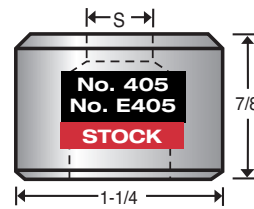
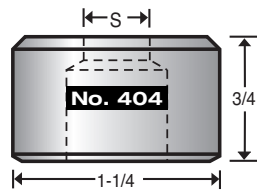
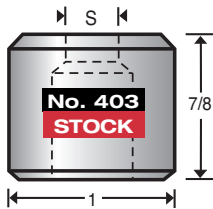
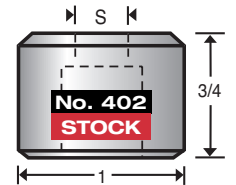
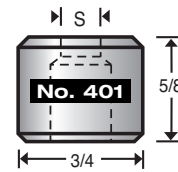
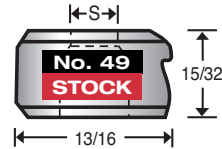
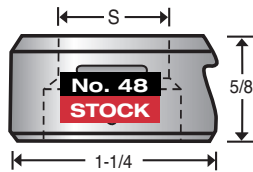
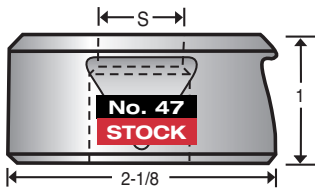
Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be **shipped within 48 hours.**

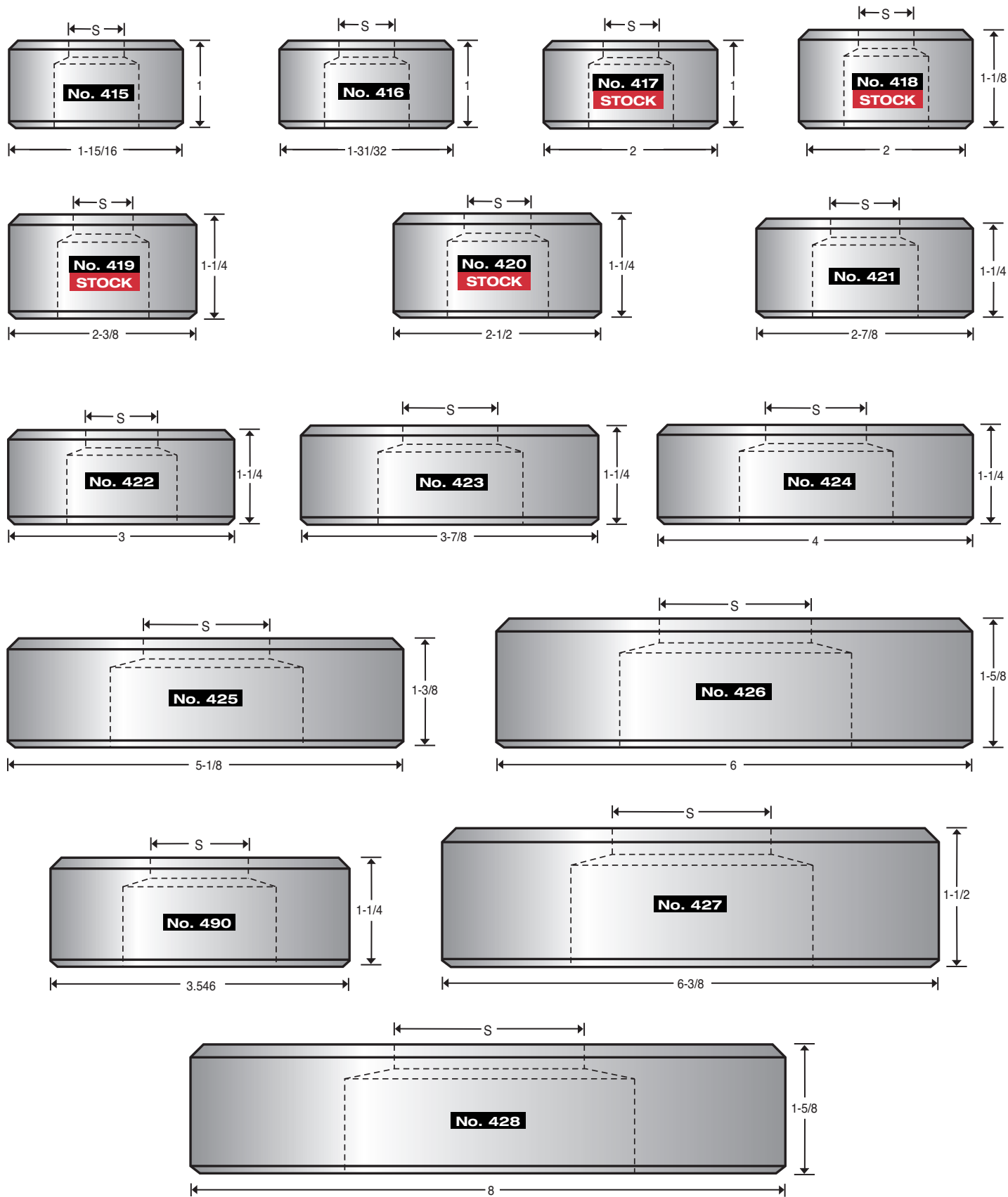


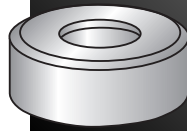
D = Diameter

S = Size

H = Height







SIZE	47	48	49	402	403	405	407	408	413	417	418	419	420
5/32	●	●	●							●			
3/16	●	●	●	●	●	●		●		●		●	
7/32	●	●	●	●	●	●		●	●	●	●	●	
1/4	●	●	●	●	●	●	●	●	●	●	●	●	
9/32	●	●	●	●	●	●	●	●	●	●	●	●	
5/16	●	●	●	●	●	●	●	●	●	●	●	●	●
11/32	●	●	●	●	●	●	●	●	●	●	●	●	●
3/8	●	●	●	●	●	●	●	●	●	●	●	●	●
13/32	●	●	●	●	●	●	●	●	●	●	●	●	●
7/16	●	●	●	●	●	●	●	●	●	●	●	●	●
15/32	●	●	●	●	●	●	●	●	●	●	●	●	●
1/2	●	●	●	●	●	●	●	●	●	●	●	●	●
17/32	●	●	●	●	●	●	●	●	●	●	●	●	●
9/16	●	●	●	●	●	●	●	●	●	●	●	●	●
19/32	●	●	●	●	●	●	●	●	●	●	●	●	●
5/8	●	●		●	●	●	●	●	●	●	●	●	●
21/32	●	●		●	●	●	●	●	●	●	●	●	●
11/16	●	●		●	●	●	●	●	●	●	●	●	●
23/32	●	●		●	●	●	●	●	●	●	●	●	●
3/4	●	●			●	●	●	●	●	●	●	●	●
25/32	●	●				●	●	●	●	●	●	●	●
13/16	●	●				●	●	●	●	●	●	●	●
27/32	●	●				●	●	●	●	●	●	●	●
7/8	●	●				●	●	●	●	●	●	●	●
29/32	●	●				●	●	●	●	●	●	●	●
15/16	●					●	●	●	●	●	●	●	●
31/32	●					●	●	●	●	●	●	●	●
1	●					●	●	●	●	●	●	●	●
1-1/32	●							●	●	●	●	●	
1-1/16	●							●	●	●	●	●	●
1-3/32	●							●	●	●	●	●	
1-1/8	●							●	●	●	●	●	●
1-5/32	●							●	●	●	●	●	
1-3/16	●								●	●	●	●	●
1-7/32	●								●	●	●	●	
1-1/4	●								●	●	●	●	●
1-9/32	●								●	●	●	●	
1-5/16	●								●	●	●	●	●
1-11/32	●									●		●	
1-3/8	●									●		●	●
1-13/32	●											●	
1-7/16	●											●	●
1-15/32	●											●	
1-1/2	●											●	●
1-17/32	●											●	●
1-9/16	●											●	●
1-19/32												●	
1-5/8												●	

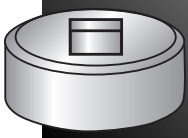
All stock items are available for immediate shipment.

Non-stock sizes of a round, oblong, square, hexagonal and rectangular shape of standard tooling will be shipped within 48 hours.



SIZE	47	408	413	417	418	419
7/32 x 25/32			●		●	
7/32 x 1-1/32		●	●	●		●
9/32 x 17/32		●	●	●		
9/32 x 25/32		●	●	●		
9/32 x 1-1/32	●	●	●	●		
5/16 x 19/32		●	●	●		
5/16 x 25/32		●	●	●		
5/16 x 1-1/32		●	●	●	●	
11/32 x 17/32		●	●	●		
11/32 x 21/32		●	●	●		
11/32 x 25/32		●	●	●	●	
11/32 x 1-1/32	●	●	●	●	●	●
11/32 x 1-3/32			●	●		
11/32 x 1-9/32	●		●	●		●
3/8 x 23/32		●	●	●		
3/8 x 1-1/32		●	●	●	●	●
3/8 x 1-5/16						●
13/32 x 17/32		●	●	●	●	
13/32 x 25/32		●	●	●		
13/32 x 1-1/32	●	●	●	●	●	●
13/32 x 1-9/32				●		●
7/16 x 27/32		●	●	●		
7/16 x 1-1/32		●	●	●	●	●
7/16 x 1-9/32				●		●
7/16 x 1-5/16						●
15/32 x 19/32		●	●	●	●	●
15/32 x 25/32		●	●	●	●	●
15/32 x 29/32		●	●	●	●	●
15/32 x 1-1/32	●	●	●	●	●	●
15/32 x 1-3/32		●	●	●	●	●
15/32 x 1-9/32	●		●	●	●	●
15/32 x 1-17/32					●	●
1/2 x 1-1/32		●	●	●	●	●
1/2 x 1-5/16						●
17/32 x 25/32		●	●	●	●	
17/32 x 1-1/32	●	●	●	●	●	●
17/32 x 1-3/32			●			
17/32 x 1-9/32				●	●	●
17/32 x 1-17/32					●	●
9/16 x 13/16		●	●	●		
9/16 x 1-1/32		●	●	●	●	●
9/16 x 1-1/16	●	●	●	●	●	●
9/16 x 1-1/8			●	●		
9/16 x 1-9/32				●	●	●
9/16 x 1-5/16						●
9/16 x 1-17/32					●	●
9/16 x 1-9/16						●
19/32 x 25/32		●	●	●	●	
19/32 x 1-1/32	●	●	●	●	●	●
19/32 x 1-3/32	●	●	●	●	●	●
19/32 x 1-9/32	●		●	●	●	●
19/32 x 1-17/32	●				●	●
5/8 x 13/16		●	●	●		●

SIZE	47	408	413	417	418	419
5/8 x 1-1/16	●	●	●	●	●	●
5/8 x 1-1/8	●	●	●	●	●	
5/8 x 1-5/16	●		●	●	●	●
5/8 x 1-9/16	●				●	●
21/32 x 1-1/32	●	●	●	●	●	●
21/32 x 1-9/32	●			●	●	●
21/32 x 1-17/32					●	●
11/16 x 1-1/16	●	●	●	●	●	●
11/16 x 1-5/16	●			●	●	●
11/16 x 1-9/16					●	●
23/32 x 1-1/32	●	●	●	●	●	●
23/32 x 1-3/32	●	●	●	●	●	
23/32 x 1-9/32	●		●	●	●	●
23/32 x 1-17/32	●				●	●
3/4 x 1-1/16	●	●	●	●	●	●
3/4 x 1-1/8	●	●	●	●	●	
3/4 x 1-5/16	●		●	●	●	●
3/4 x 1-9/16	●				●	●
25/32 x 1-1/32	●	●	●	●	●	●
25/32 x 1-9/32	●			●	●	●
25/32 x 1-17/32						●
13/16 x 1-1/16	●	●	●	●	●	●
13/16 x 1-5/16	●			●	●	●
13/16 x 1-9/16					●	●
27/32 x 1-1/32	●	●	●	●	●	●
27/32 x 1-3/32	●	●	●	●	●	●
27/32 x 1-5/32	●			●		●
27/32 x 1-9/32	●		●	●	●	●
27/32 x 1-17/32	●				●	●
7/8 x 1-1/16	●	●	●	●	●	●
7/8 x 1-1/8	●	●	●	●	●	●
7/8 x 1-3/16	●				●	●
7/8 x 1-5/16	●		●	●	●	●
7/8 x 1-9/16	●				●	●
29/32 x 1-9/32	●			●	●	●
29/32 x 1-17/32					●	●
15/16 x 1-5/16	●			●	●	●
15/16 x 1-9/16					●	●
31/32 x 1-3/32				●	●	●
31/32 x 1-5/32	●					
31/32 x 1-9/32	●			●	●	●
31/32 x 1-17/32	●				●	●
1 x 1-1/8				●	●	
1 x 1-3/16	●					
1 x 1-5/16	●			●	●	●
1 x 1-9/16	●				●	●
1 x 1-5/8						●
1-1/32 x 1-9/32				●	●	●
1-1/16 x 1-5/16				●	●	●
1-1/16 x 1-9/16						●
1-1/16 x 1-5/8						●
1-1/8 x 1-5/8						●


**Stock Square
Die Sizes**

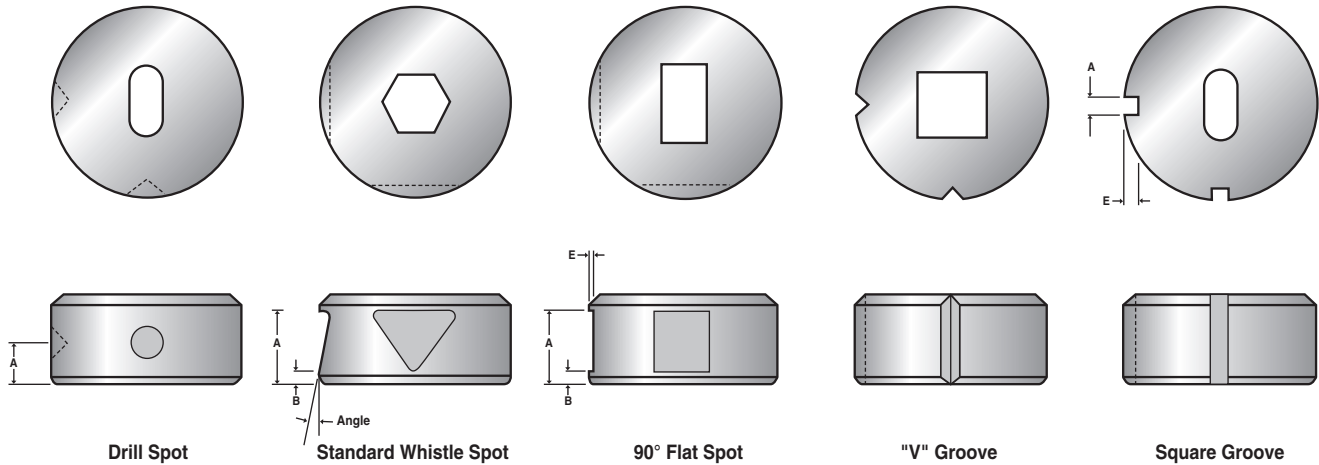
SIZE	47	48	408	413	417	418	419
9/32			■	■	■	■	
5/16			■	■	■	■	
11/32	■	■	■	■	■	■	
3/8			■	■	■	■	
13/32	■	■	■	■	■	■	
7/16	■	■	■	■	■	■	■
15/32	■	■	■	■	■	■	■
1/2	■	■	■	■	■	■	■
17/32	■	■	■	■	■	■	■
9/16	■	■	■	■	■	■	■
19/32	■	■	■	■	■	■	■
5/8	■	■	■	■	■	■	■
21/32	■		■	■	■	■	■
11/16	■		■	■	■	■	■
23/32	■		■	■	■	■	■
3/4	■		■	■	■	■	■
25/32	■		■	■	■	■	■
13/16	■		■	■	■	■	■
27/32	■		■	■	■	■	■
7/8	■			■	■	■	■
29/32				■	■	■	■
15/16				■	■	■	■
31/32						■	■
1					■	■	■
1-1/32						■	■
1-1/16					■	■	■
1-3/32						■	■
1-1/8					■	■	■


**Stock Hexagonal
Die Sizes**

SIZE	47	48	408	413	417	418	419
3/8			●	●	●		●
13/32			●	●	●		●
7/16			●	●	●		●
15/32			●	●	●		●
1/2			●	●	●		●
17/32			●	●	●		●
9/16			●	●	●		●
19/32			●	●	●		●
5/8			●	●	●		●
21/32			●	●	●		●
11/16			●	●	●		●
23/32			●	●	●		●
3/4			●	●	●	●	●
25/32			●	●	●		●
13/16			●	●	●	●	●
27/32			●	●	●		●
29/32					●		●
15/16					●		●
31/32							●
1							●
1-1/32							●
1-1/16							●
1-3/32							●
1-1/8							●
1-5/32							●
1-3/16							●

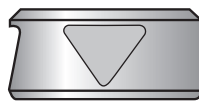
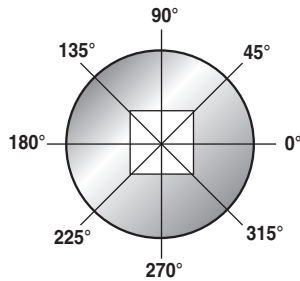
Locating Spots and Grooves

Locating spots and grooves are recommended for positive alignment of shaped dies as well as for securing the die in the die holder. Cleveland Steel Tool offers a variety of styles to fit your machine.



Orientation of Dies

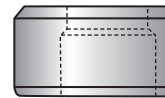
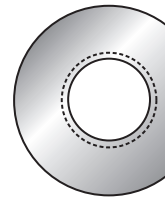
Orientation for shaped dies is not limited to 90°. Diagram shows various angles of orientation possible.



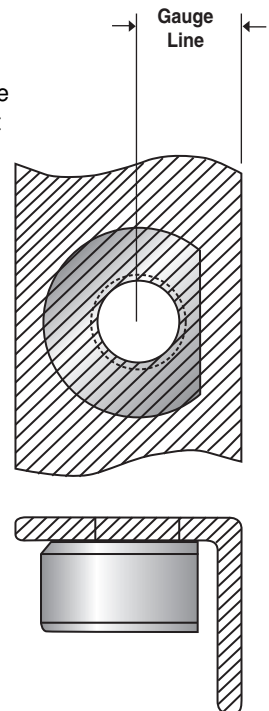
Front of Machine

Flat Sided Dies

When punching angle iron, a flat sided die will allow the hole to be punched closer to the gauge line of the angle. The flat on the die must be flush with the front of the die holder.

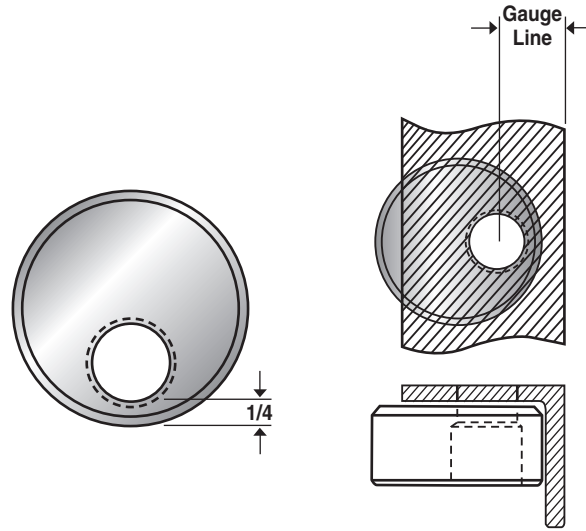


Flat Sided Die

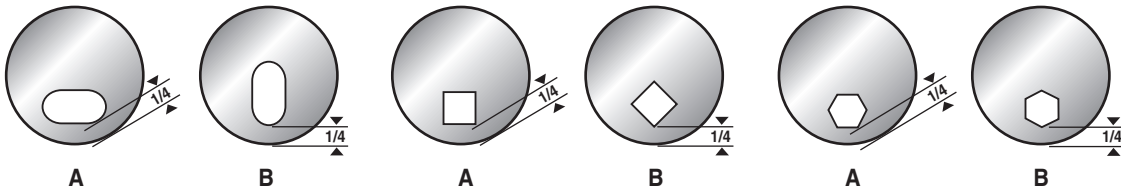


Eccentric/Offset Die Hole Position

Some applications require the hole of the die to be offset. This allows the hole to be punched closer to a desired gauge line. **Note: Offset hole dies can only be used on machines with a moveable die block.** Standard offset dies require a minimum 1/4" wall thickness from the edge of the hole to the outside of the die.

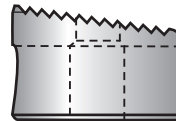
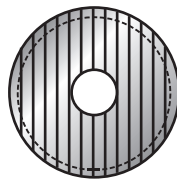
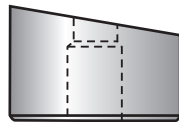
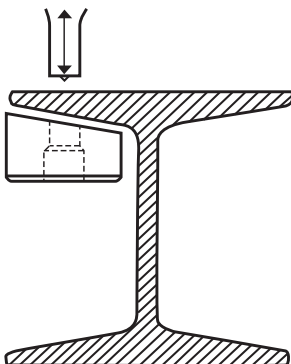


Offset Shaped Hole Positions

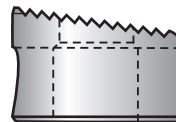


Bevel Top Dies

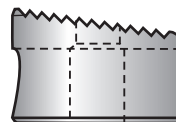
Bevel top dies are used for maintaining vertical punch and die alignment when punching structural "I" beams and channels. Bevel corrugated top dies can be supplied when extreme punching pressures may cause slipping of punched material. When punching shapes, please indicate the position of the hole. Bevel top dies may also be offset provided the die block is moveable.



Bevel Corrugated Top



Shape Parallel to Bevel



Shape Perpendicular to Bevel



Stock Bevel Corrugated Dies

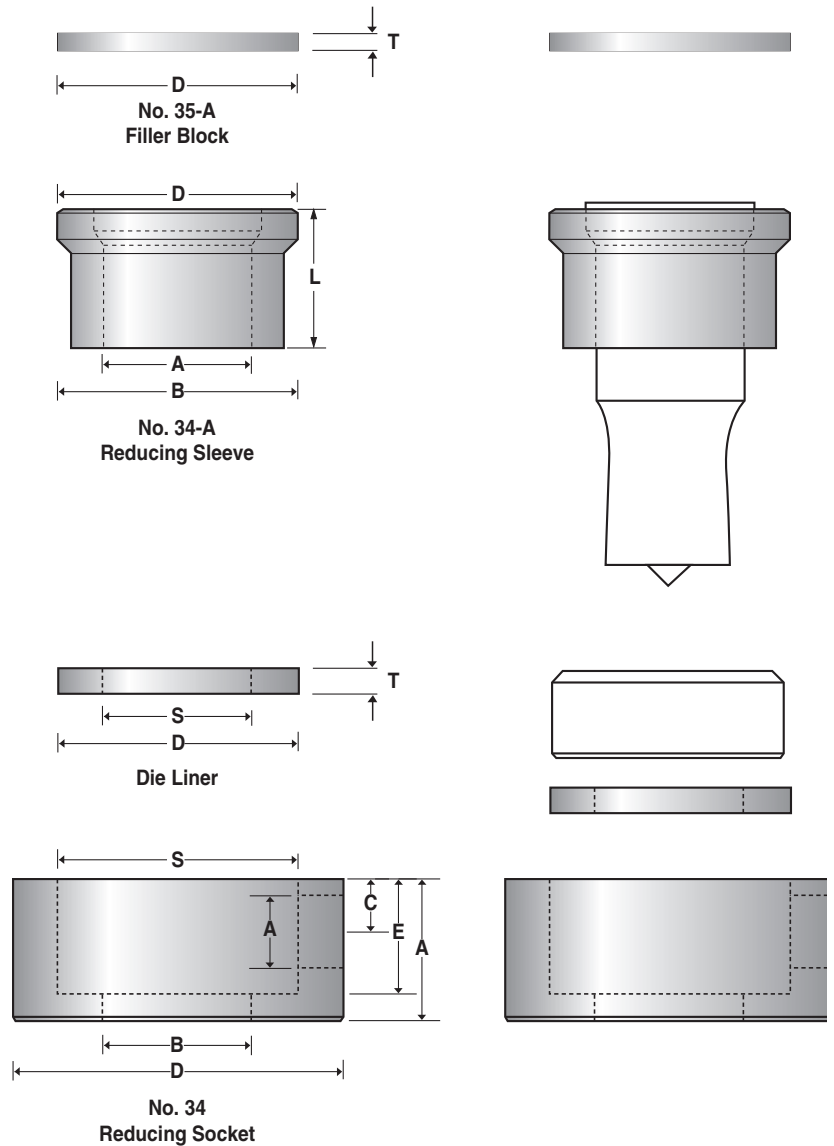
SIZE	47B	48B
11/32	●	●
13/32	●	●
7/16	●	●
15/32	●	●
1/2	●	●
17/32	●	●
9/16	●	●
19/32	●	●
5/8	●	●
21/32	●	●
11/16	●	●
23/32	●	●
3/4	●	●
25/32	●	●
13/16	●	●
27/32	●	●
7/8	●	●
29/32	●	●
15/16	●	●
31/32	●	●
1	●	●
1-1/32	●	●
1-1/16	●	●
1-3/32	●	●
1-1/8	●	●

Tooling to Adapt Machines

The Cleveland Steel Tool Company can help you adapt your equipment. In cases where non-stock tooling is used, a reducing sleeve, die liner, hardened filler block or a reducing socket may permit you to buy standard punches and dies.

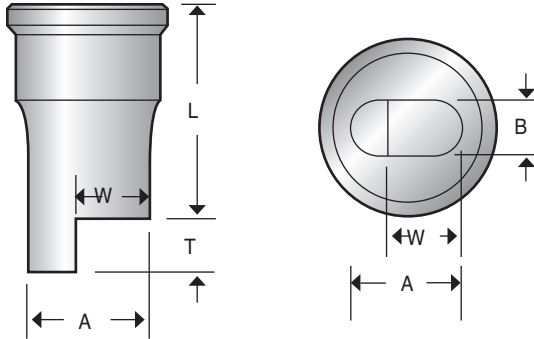
Reducing sleeves can be used in your coupling nut to accommodate a variety of different styles of punches. **NOTE: This can only be done on machines that provide for stroke adjustment or where the overall length of the punches used are the same. The hardened filler block can act as a spacer over the punch to adjust for non-standard punch lengths when necessary. Call the sales department for information on additional reducing sleeves available.**

A reducing socket will fit into your existing die holder to enable you to use smaller die styles. A die liner acts as a spacer and will allow you to use dies of a shorter height.



Ripping Punch

The ripping punch is used to elongate existing holes or to notch material. The ripping punch is used with a standard oblong or rectangular matching die. Please specify style number of punch required. **Note: The guide (T) is 1/8" longer than the material thickness to allow for material clearance.**

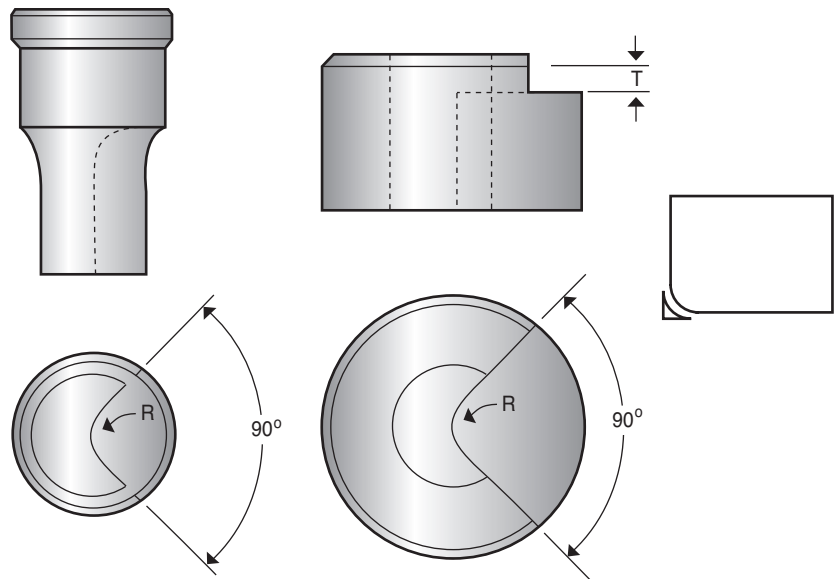


Corner Rounding Tooling

The corner rounding punch is used to round the corners on material up to 5/16" thick. The bottom die has a built in guide at least 1/8" higher than material thickness. **Note: Indicate radius (R) and material thickness (T) when ordering.**

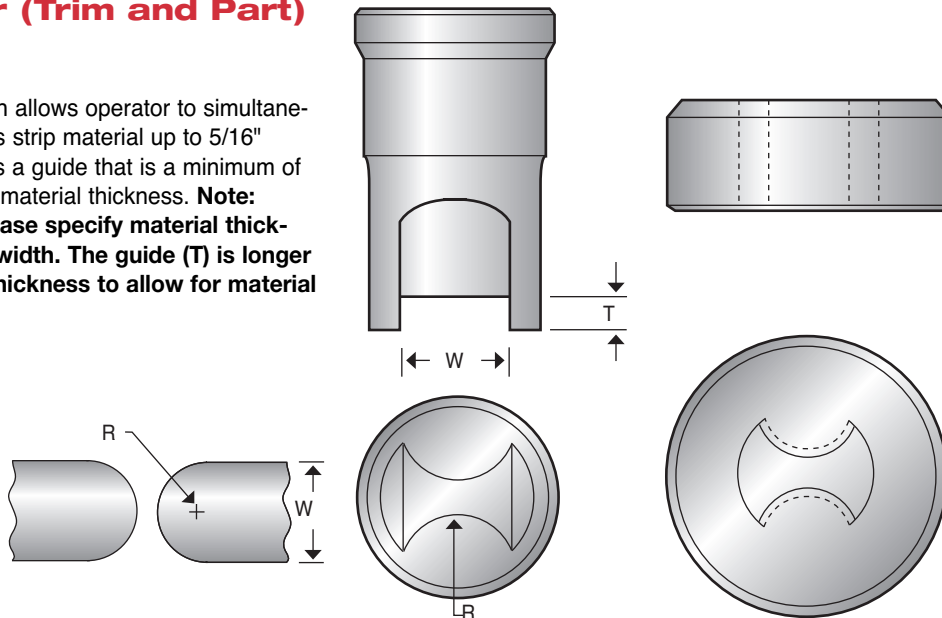
Stock Corner Rounding Tooling

RADI	PUNCH				DIE		
	219	220	221	228	413	417	419
3/8"	•	•	•		•	•	•
1/2"	•	•	•	•	•	•	•
5/8"	•	•	•	•	•	•	•
3/4"			•	•	•	•	•



Lattice Bar (Trim and Part) Tooling

The lattice bar punch allows operator to simultaneously trim and radius strip material up to 5/16" thick. The punch has a guide that is a minimum of 1/8" longer than the material thickness. **Note: When ordering, please specify material thickness and material width. The guide (T) is longer than the material thickness to allow for material clearance.**

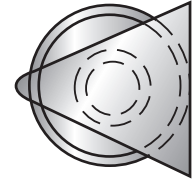


Picket Tooling

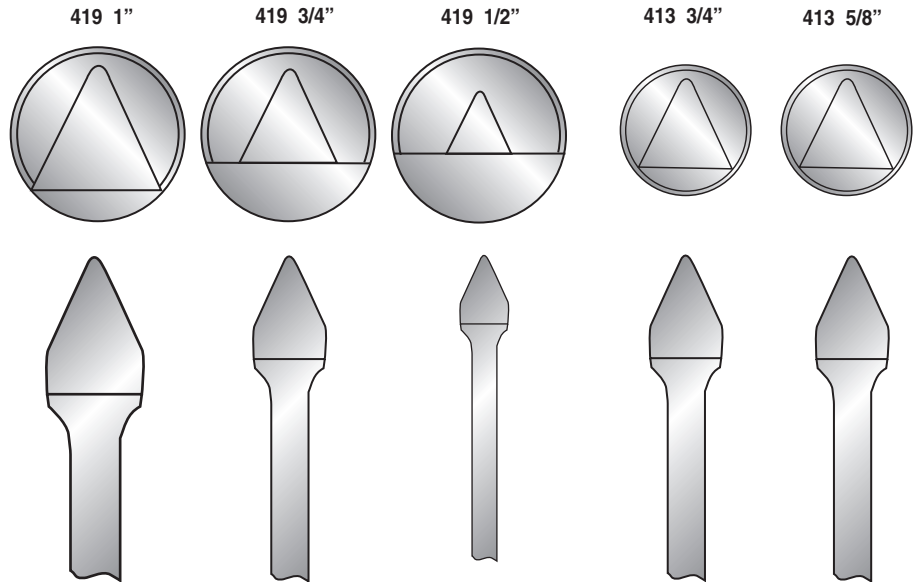
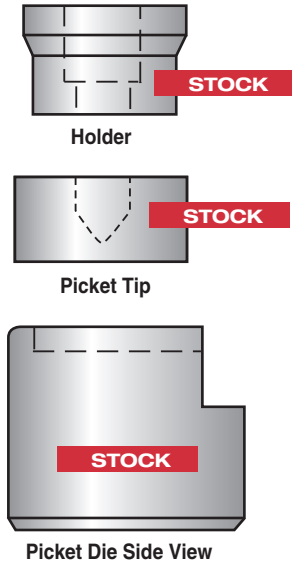
The picket punch is used to make pickets in ornamental iron. Available in 1/2" through 1" for thin gauge hollow wall square tubing only.

Stock Picket Tooling

TUBING SIZE	PUNCH STYLE	DIE STYLE
5/8" to 3/4"	No. 219	No. 413
1"	No. 228	No. 419

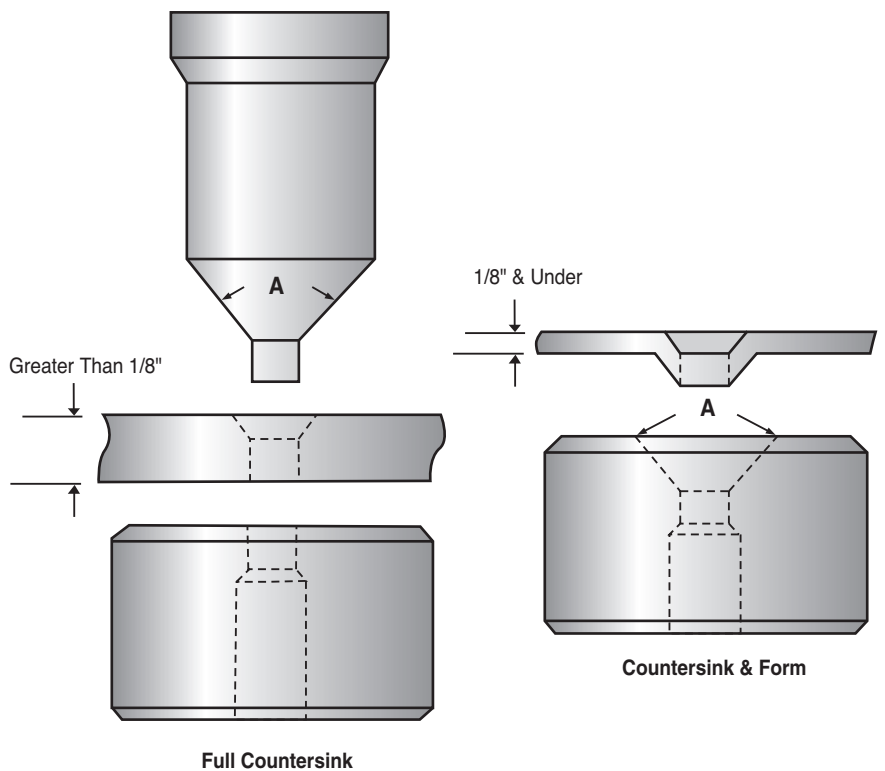


Assembled View



Countersink Tools

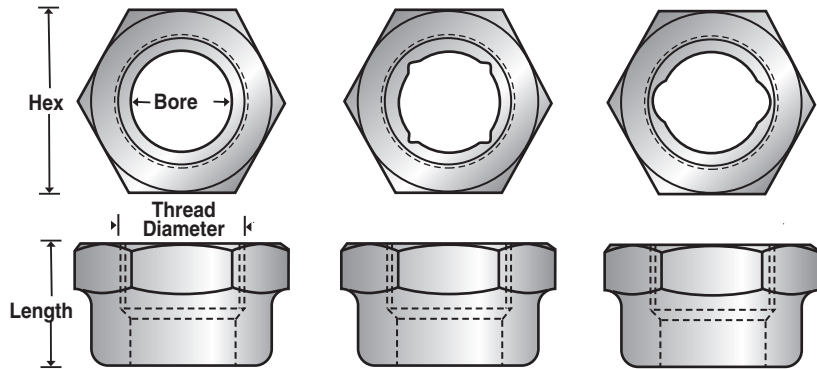
Countersink tooling produces a countersunk hole for flat head screws. Please indicate screw size, material thickness, punch and die style and type of countersink required.



Standard Coupling Nuts

The critical dimensions required to identify a coupling nut are the thread diameter, threads per inch, bore and size of hex from flat to flat. Be sure you have accurately measured the outside diameter of the thread on your punch stem and determined the threads per inch, preferably with a thread gauge.

Coupling nuts are designed to be turned on the stem by hand and then tightened with a wrench or spanner wrench. Over-torquing may cause damage to the threads. Check periodically to ensure that the nut remains tight and the punch cannot move up and down, a major cause of punch breakage.



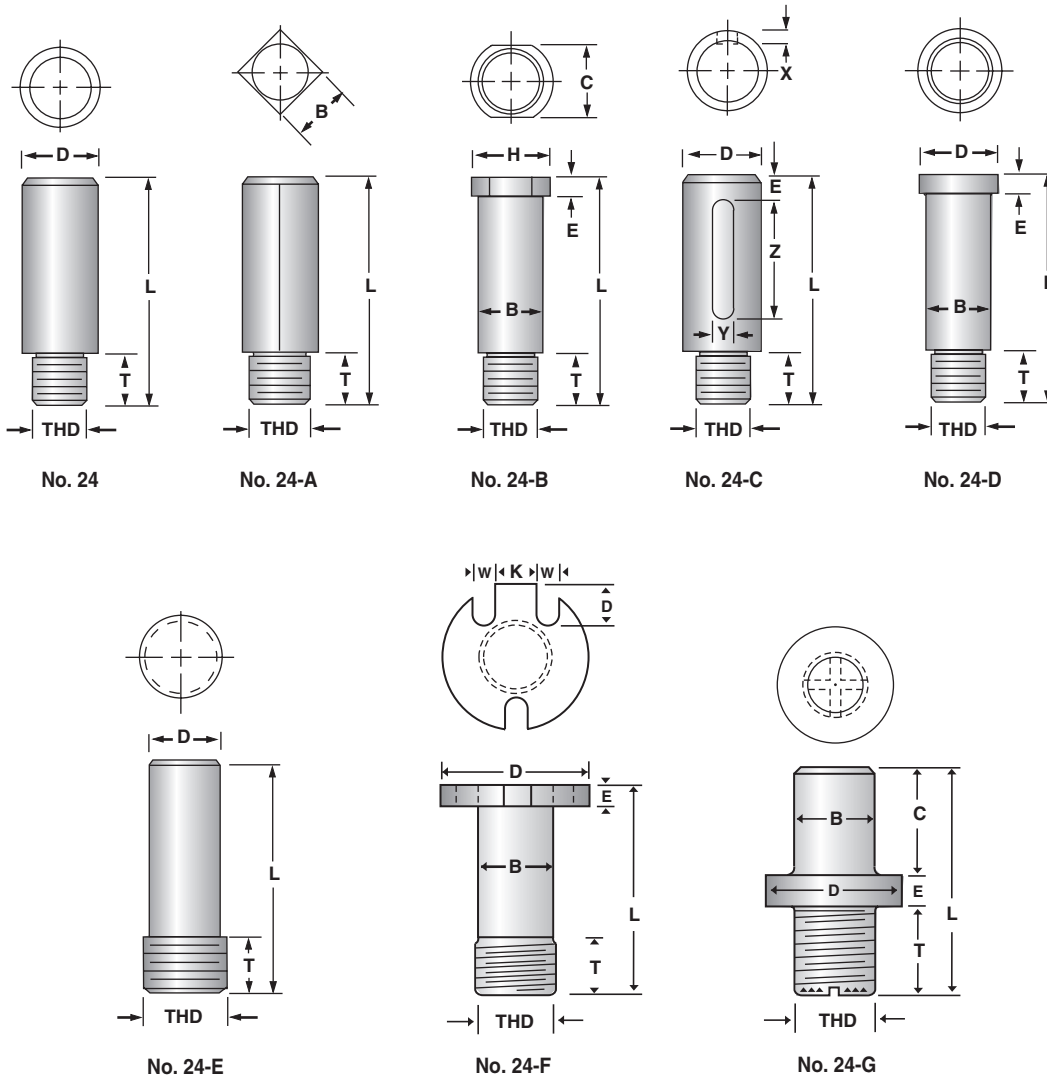
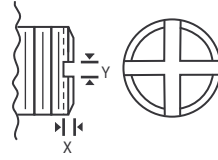
Coupling nuts may be modified for oversize shaped punches.

Stock sizes shown in gray bars.

COUP NUT #	THREADS		HEX	LENGTH	BORE DIA.	TO HOLD PUNCH #	COUP NUT #	THREADS		HEX	LENGTH	BORE DIA.	TO HOLD PUNCH #
	DIA.	/INCH						DIA.	/INCH				
1	11/16	12	1-1/8	1	7/16	201, 202, 203	23	2	10	2-5/8	1-3/4	1-21/64	224, 225, 226
2	11/16	14	1-1/16	1-1/16	7/16	201, 202, 203	24	2	10	2-3/4	1-3/4	1-19/32	230, 231
3	11/16	14	1-1/8	15/16	7/16	201, 202, 203	25	2	10	2-3/4	1-3/4	1-11/32	224, 225
4	7/8	12	1-5/16	1-3/16	37/64	209	26	2	12	2-3/4	1-7/8	1-37/64	228, 229
5	7/8	12	1-7/16	1-3/32	5/8	204, 205	27	2-1/4	12	3	1-11/16	1-13/16	234
6	7/8	12	1-7/16	1-3/8	5/8	204, 205	28	2-1/4	12	3-1/8	2	1-3/4	235
7	1-1/16	12	1-11/16	1-3/16	53/64	208, 210, 212	29	2-5/16	10	3	1-3/4	1-27/32	234
8	1-1/8	10	1-5/8	1-3/8	37/64	209	30	2-5/8	10	3-1/2	2-1/8	1-37/64	228
9	1-1/8	10	1-5/8	1-3/8	49/64	213, 215	31	2-5/8	10	3-1/2	2-1/8	2-5/64	233
10	1-1/8	10	1-5/8	1-5/16	27/32	212, 214	32	2-5/8	10	3-1/2	1-3/4	2-3/32	233
11	1-1/4	12	1-7/8	1-1/2	53/64	208, 210, 212	33	2-3/4	12	3-3/4	2-1/4	2-1/4	236
12	1-5/16	12	2	1-1/4	1-5/64	216, 217	34	2-3/4	12	3-3/4	1-13/16	2-5/16	237
13	1-3/8	10	2	1-5/8	1-5/64	218, 219, 220, 222	35	3	10	4	1-3/4	2-19/32	
14	1-13/32	10	2	1-3/8	27/32	210, 212	36	3	10	4	2-3/8	2-37/64	
15	1-13/32	10	2	1-3/8	1-5/64	218, 219, 220, 222	37	3-1/4	8	4-1/4	2-1/32	2-11/16	238
16	1-1/2	12	2-1/4	1-5/8	1-1/16	216, 217	38	3-1/4	12	4-1/4	2-1/2	2-5/8	
17	1-9/16	12	2-1/4	1-1/2	1-17/64	221, 223	39	3-1/2	10	4-1/2	1-7/8	3-3/32	
18	1-11/16	10	2-1/4	1-1/2	1-5/64	218, 219, 220, 222	40	3-7/8	8	5	2-5/32	3-5/16	239
19	1-11/16	10	2-1/4	1-1/2	1-11/32	224, 225, 226	41	3-7/8	10	5	2-3/4	3-5/16	239
20	1-13/16	12	2-1/2	1-7/8	1-17/64	221, 223	42	4	10	5	1-15/16	3-19/32	
21	1-7/8	12	2-1/2	1-9/16	1-37/64	228, 229	43	4-3/4	10	5-3/4	1-15/16	4-3/16	240
22	2	10	2-5/8	1-3/4	1-5/64	218, 219, 220, 222	44	4-7/8	6	6	2-25/32	4-3/16	240

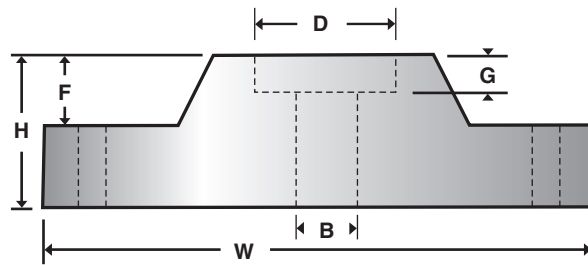
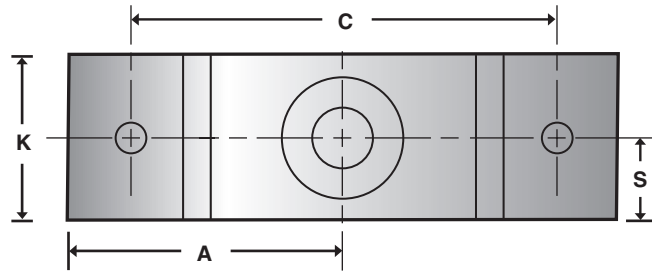
Punch Stems

Shown below are general styles of punch stems. Cleveland Steel Tool can provide a quote from a sketch, blueprint, or sample for punch stems not shown. Please provide dimensions of the punch stem needed. **Note: The use of two 90° keyways in the face of the threaded end of a punch stem is recommended to ensure proper alignment of shaped punches with matching dies.** (See page 63 for more information on keyways).

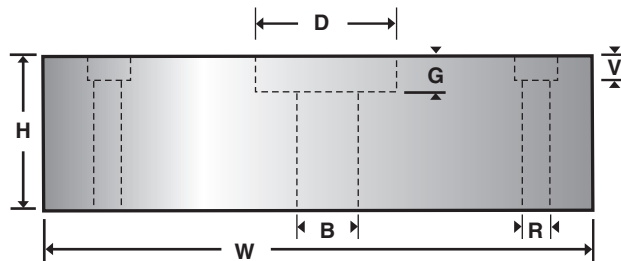
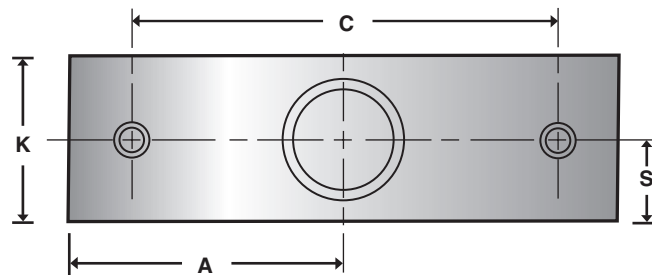


Die Holders

Shown below are general designs of die holders. Special adapters can be supplied to permit the use of standard punches and dies. See page 73 for additional information. Cleveland Steel Tool can provide a quote from a sketch, blueprint, or sample for die holders not shown.



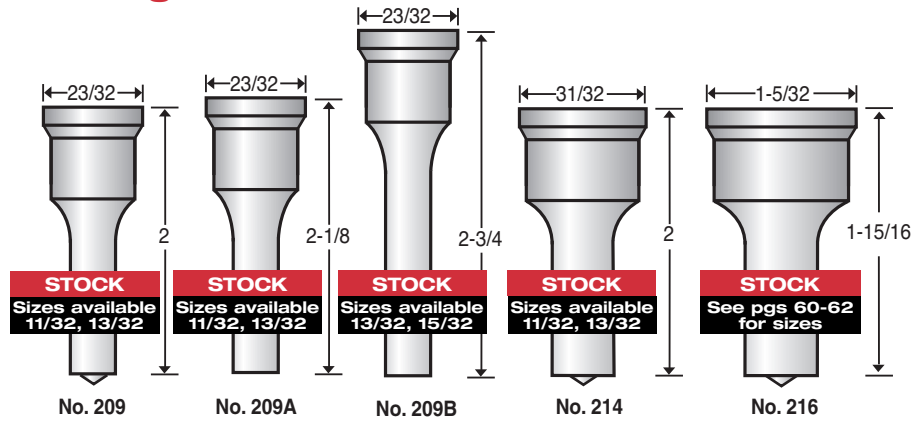
DH-1



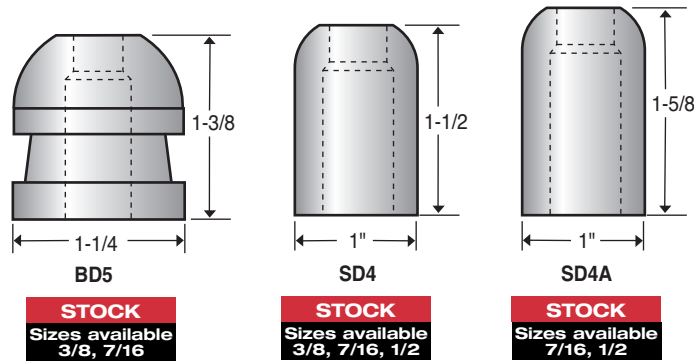
DH-2

Tooling for Metal Culvert Punching

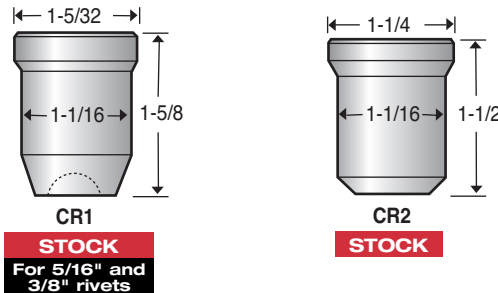
Standard Punches



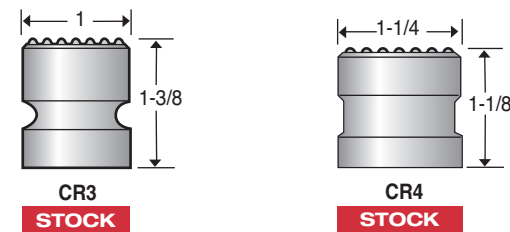
Standard Dies



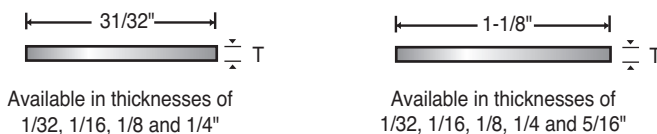
Upper Rivet Blocks



Lower Rivet Blocks



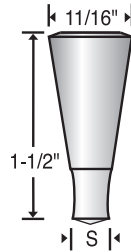
Filler Blocks



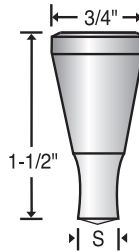
Tooling for Cold/Hot Punching Leaf Spring

Taper Shank Punches

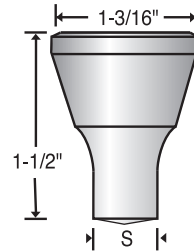
STOCK ROUND PUNCH SIZES		
9/32	1/2	25/32
5/16	17/32	13/16
11/32	17/32 HOT	27/32
11/32 HOT	9/16	7/8
3/8	19/32	29/32
13/32	5/8	15/16
13/32 HOT	21/32	31/32
7/16	11/16	1
15/32	23/32	1-1/32
15/32 HOT	3/4	



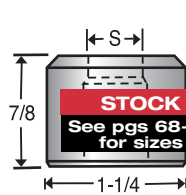
Stock sizes:
9/32 thru 15/32"



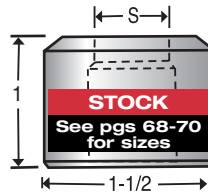
Stock sizes:
1/2 thru 19/32"



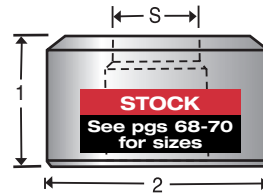
Stock sizes:
5/8 thru 1-1/32"



No. 405



No. 408



No. 417

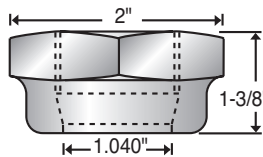
Standard Dies

Reducing Sleeves



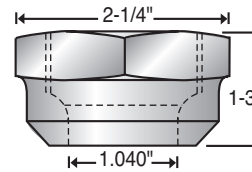
T-11/16 sleeve takes
11/16" head punch.
T-13/16 sleeve takes
3/4" head punch.

Coupling Nuts



No. 15
Taper Bore
Thread: 1-13/32" -10

STOCK



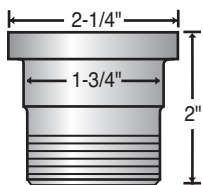
No. 55
Taper Bore
Thread: 1-9/16" -12

STOCK

Tooling for Hendley & Whittemore

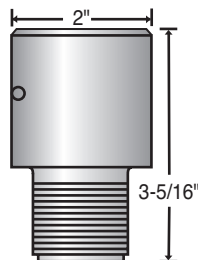
(Models 53, 54, 55)

Punch Stems



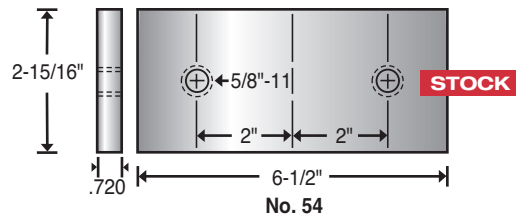
No. 55
Thread: 1-9/16" -12

STOCK

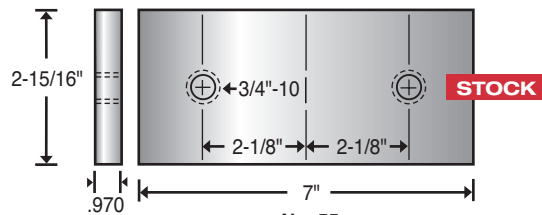


No. 54
Thread: 1-13/32" -10

Shear Blades



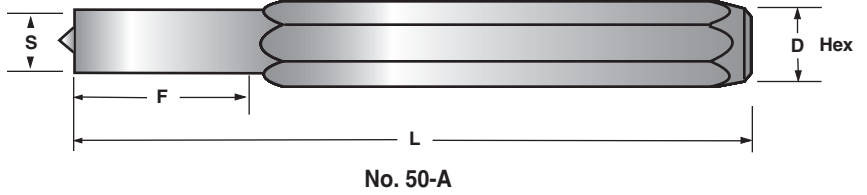
No. 54



No. 55

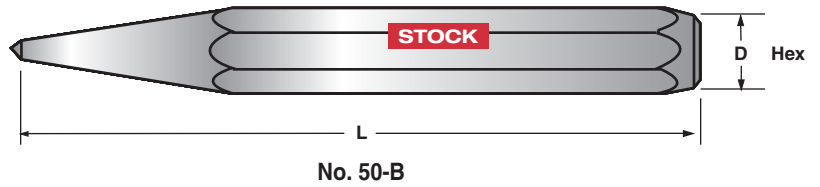
Hand Tools

Markers



Center Punches

STOCK SIZE
5/8 hexagon, 6" long



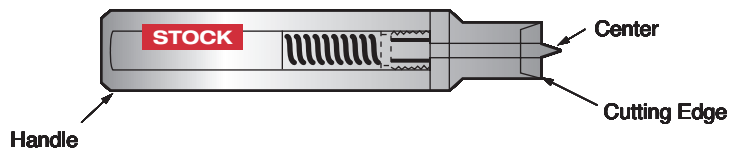
Template Punches

These paper template punches are designed with easily assembled components. One handle and a complete range of cutter sizes may be purchased. Available in special shapes and sizes.

STOCK SIZES
7/16
9/16
11/16
13/16
15/16
1-1/16
1-3/16

NOTE: These punches are not recommended for punching steel.

Assembled Template Punch



Disassembled Template Punch

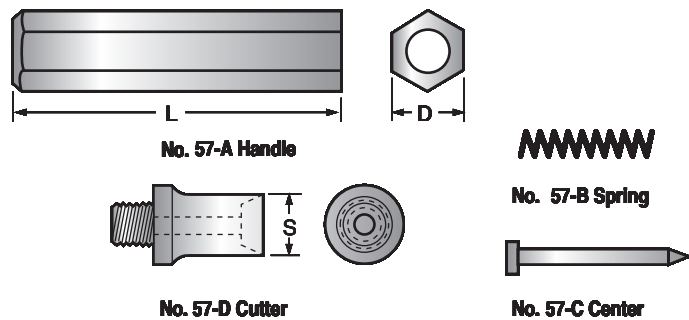
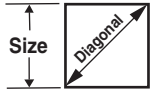
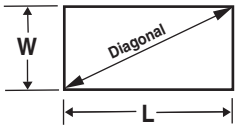


Table of Diagonals (Squares and Rectangles)



To determine the diagonal dimension of a **square punch**, multiply the size of the punch (see diagram) by 1.414.
EXAMPLE: A .500 square punch has a diagonal dimension of .707



To determine the diagonal dimension of a **rectangular punch**, determine the square root of the sum of "W²" and "L²" (see diagram).

$$\sqrt{W^2 + L^2}$$

EXAMPLE: A rectangular punch that measures .25 X 1, has a diagonal dimension of 1.03



To determine the diagonal dimension of a **hexagonal punch**, multiply the size of the punch (see diagram) by 1.155.
EXAMPLE: A .500 hexagonal punch has a diagonal dimension of .5775



CORRECT SPECIFICATION



INCORRECT SPECIFICATION

	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	13/32	7/16	15/32	1/2				
1/8	.1767	.2001	.2253	.2519	.2795	.3077	.3365	.3657	.3953	.4250	.4550	.4851	.5153				1/8
5/32	.2001	.2209	.2440	.2689	.2948	.3217	.3494	.3775	.4062	.4352	.4645	.4941	.5240				5/32
3/16	.2253	.2440	.2651	.2881	.3125	.3378	.3644	.3914	.4192	.4474	.4759	.5048	.5340				3/16
7/32	.2519	.2689	.2881	.3093	.3322	.3563	.3814	.4074	.4340	.4614	.4891	.5172	.5458				7/32
1/4	.2795	.2948	.3125	.3322	.3535	.3763	.4001	.4250	.4507	.4770	.5035	.5312	.5591				1/4
9/32	.3077	.3217	.3378	.3563	.3763	.3977	.4204	.4441	.4687	.4941	.5201	.5467	.5737				9/32
5/16	.3365	.3494	.3644	.3814	.4001	.4204	.4419	.4645	.4881	.5125	.5376	.5633	.5897				5/16
11/32	.3657	.3775	.3914	.4074	.4250	.4441	.4645	.4861	.5087	.5321	.5564	.5812	.6067				11/32
3/8	.3953	.4062	.4192	.4340	.4507	.4687	.4881	.5087	.5303	.5528	.5762	.6003	.6250				3/8
13/32	.4250	.4352	.4474	.4614	.4770	.4941	.5125	.5321	.5528	.5745	.5970	.6203	.6442				13/32
7/16	.4550	.4645	.4759	.4891	.5035	.5201	.5376	.5564	.5762	.5970	.6187	.6412	.6644				7/16
15/32	.4851	.4941	.5048	.5172	.5312	.5467	.5633	.5812	.6003	.6203	.6412	.6629	.6854				15/32
1/2	.5153	.5240	.5340	.5458	.5591	.5737	.5897	.6067	.6250	.6442	.6644	.6854	.7071				1/2

	17/32	9/16	19/32	5/8	21/32	11/16	23/32	3/4	25/32	13/16	27/32	7/8	29/32	15/16	31/32	1"	
1/8	.5457	.5762	.6067	.6373	.6680	.6987	.7295	.7603	.7911	.8220	.8529	.8839	.9148	.9458	.9768	1.0078	1/8
5/32	.5537	.5838	.6139	.6442	.6746	.7050	.7355	.7661	.7967	.8274	.8581	.8888	.9196	.9504	.9812	1.0121	5/32
3/16	.5633	.5929	.6226	.6525	.6825	.7126	.7428	.7731	.8034	.8339	.8643	.8948	.9254	.9560	.9867	1.0174	3/16
7/32	.5745	.6035	.6327	.6622	.6918	.7215	.7513	.7812	.8113	.8414	.8716	.9019	.9323	.9627	.9931	1.0236	7/32
1/4	.5871	.6155	.6442	.6731	.7022	.7315	.7610	.7906	.8203	.8501	.8800	.9100	.9401	.9703	1.0000	1.0307	1/4
9/32	.6011	.6289	.6570	.6853	.7140	.7428	.7718	.8010	.8303	.8598	.8894	.9191	.9488	.9788	1.0087	1.0387	9/32
5/16	.6163	.6434	.6709	.6987	.7268	.7552	.7837	.8125	.8414	.8705	.8997	.9291	.9586	.9882	1.0179	1.0477	5/16
11/32	.6327	.6592	.6861	.7133	.7408	.7686	.7967	.8250	.8535	.8822	.9111	.9401	.9692	.9985	1.0279	1.0574	11/32
3/8	.6503	.6760	.7022	.7288	.7558	.7831	.8107	.8385	.8666	.8948	.9233	.9519	.9808	1.0097	1.0387	1.0680	3/8
13/32	.6688	.6938	.7194	.7454	.7718	.7985	.8256	.8529	.8805	.9084	.9364	.9647	.9931	1.0217	1.0505	1.0794	13/32
7/16	.6882	.7126	.7375	.7629	.7887	.8149	.8414	.8682	.8954	.9228	.9504	.9783	1.0063	1.0345	1.0629	1.0915	7/16
15/32	.7085	.7322	.7565	.7812	.8064	.8321	.8581	.8844	.9111	.9380	.9652	.9926	1.0203	1.0481	1.0762	1.1044	15/32
1/2	.7295	.7526	.7763	.8004	.8250	.8501	.8756	.9014	.9275	.9540	.9808	1.0077	1.0350	1.0625	1.0902	1.1180	1/2

	17/32	9/16	19/32	5/8	21/32	11/16	23/32	3/4	25/32	13/16	27/32	7/8	29/32	15/16	31/32	1"	
17/32	.7513	.7737	.7967	.8203	.8443	.8688	.8938	.9191	.9447	.9707	.9971	1.0236	1.0505	1.0775	1.1048	1.1323	17/32
9/16	.7737	.7955	.8179	.8408	.8643	.8883	.9127	.9375	.9627	.9882	1.0141	1.0402	1.0666	1.0933	1.1202	1.1473	9/16
19/32	.7967	.8179	.8397	.8620	.8850	.9084	.9323	.9566	.9813	1.0063	1.0317	1.0574	1.0834	1.1097	1.1362	1.1630	19/32
5/8	.8203	.8408	.8620	.8839	.9062	.9291	.9525	.9763	1.0005	1.0251	1.0500	1.0753	1.1009	1.1267	1.1529	1.1792	5/8
21/32	.8443	.8643	.8850	.9062	.9281	.9504	.9733	.9965	1.0203	1.0444	1.0689	1.0937	1.1189	1.1443	1.1701	1.1961	21/32
11/16	.8688	.8883	.9084	.9291	.9504	.9723	.9946	1.0174	1.0407	1.0643	1.0884	1.1128	1.1375	1.1625	1.1879	1.2135	11/16
23/32	.8938	.9127	.9323	.9525	.9733	.9946	1.0164	1.0388	1.0616	1.0848	1.1084	1.1324	1.1566	1.1813	1.2062	1.2315	23/32
3/4	.9191	.9375	.9566	.9763	.9965	1.0174	1.0388	1.0606	1.0829	1.1057	1.1289	1.1524	1.1763	1.2006	1.2251	1.2500	3/4
25/32	.9447	.9627	.9813	1.0005	1.0203	1.0407	1.0616	1.0829	1.1048	1.1271	1.1499	1.1730	1.1965	1.2203	1.2445	1.2690	25/32
13/16	.9707	.9882	1.0063	1.0251	1.0444	1.0643	1.0848	1.1057	1.1271	1.1490	1.1713	1.1941	1.2171	1.2406	1.2644	1.2884	13/16
27/32	.9971	1.0141	1.0317	1.0500	1.0689	1.0884	1.1084	1.1289	1.1499	1.1713	1.1932	1.2155	1.2382	1.2613	1.2847	1.3084	27/32
7/8	1.0236	1.0402	1.0574	1.0753	1.0937	1.1128	1.1324	1.1524	1.1730	1.1941	1.2155	1.2374	1.2597	1.2824	1.3054	1.3287	7/8
29/32	1.0505	1.0666	1.0834	1.1009	1.1189	1.1375	1.1566	1.1763	1.1965	1.2171	1.2382	1.2597	1.2816	1.3039	1.3265	1.3495	29/32
15/16	1.0775	1.0933	1.1097	1.1267	1.1443	1.1625	1.1813	1.2006	1.2203	1.2406	1.2613	1.2824	1.3039	1.3258	1.3481	1.3707	15/16
31/32	1.1048	1.1202	1.1362	1.1529	1.1701	1.1879	1.2062	1.2251	1.2445	1.2644	1.2847	1.3054	1.3265	1.3481	1.3700	1.3923	31/32
1"	1.1323	1.1473	1.1630	1.1792	1.1961	1.2135	1.2315	1.2500	1.2690	1.2884	1.3084	1.3287	1.3495	1.3707	1.3923	1.4142	1"

Table of Diagonals (Hexagons)

SIZE	DIAGONAL	SIZE	DIAGONAL	SIZE	DIAGONAL
1/4	.2886	12/16	.9380	1-11/32	.9380
9/32	.3247	27/32	.9941	13/8	1.5877
5/16	.3608	7/8	1.0102	1-13/32	1.5877
11/32	.3968	29/32	1.0463	17/16	1.6598
3/8	.4329	15/16	1.0824	1-15/32	1.6959
13/32	.4690	31/32	1.1184	11/2	1.7320
7/16	.5051	1	1.1547	1-17/32	1.7681
15/32	.5412	1-1/32	1.1907	19/16	1.8042
1/2	.5773	1-1/16	1.2268	1-19/32	1.8403
17/32	.6133	1-3/32	1.2629	15/8	1.8764
9/16	.6494	1-1/8	1.2990	1-21/32	1.9124
19/32	.6855	1-5/32	1.3351	1-11/16	1.9485
5/8	.7216	1-3/16	1.3712	13/4	2.0207
21/32	.7576	1-7/32	1.4073	1-13/16	2.0929
11/16	.7937	1-1/4	1.4434	17/8	2.1650
23/32	.8298	1-9/32	1.4794	1-15/16	2.2372
3/4	.8659	1-5/16	1.5155	2	2.3094
25/32	.9020				

Cross Reference Table

Punch Cross Reference Table			
CST (Style No.)	CPD (Fig. No.)	AP (Style No.)	Piranha/ Whitney
28XX	28XX	100XX	28XX
51MM	SP51P		TU
60MM	SP60P		TV
80MM	SP80P		TW
90MM	SP90P		TX
100MM	SP100P		TY
61	C-232(C-710)		710
62	C-242(C-720)		720
63	C-252(C-740)	163	740
64	C-272(C-770)	164	770
64XX	C-790XX	164XX	790XX
65	C-282	165	PY
66	C-282(C-7501)	166	7501
67	C-400		UP
206	4	106	PU
207	6	107	PW
208	7	108	PX
209			
210	10	110	RP
212	9	112	
214			
215			
216	12	116	DE
218	15	118	
219	16	119	DH
220	17	120	
221	20	121	EA
222	19	122	RZ
223	21	123	SR
228	26	128	EF
234	C-48		UY
237	C-50	137	VP
239	C-53		VT
240	C-54		VU
241			VV
292C	C-292		PZ
DVP OR UHP	SR20	190	BF
DVP2	SR-150	190-A	
BNP	158		BJ
H-1	H-1	119M	DH
H-2	H-2	121M	EA
H-3	H-3	A3	VX
HUSPCH	5	105	
P36	9	3620	FF
P3T	3T-10220	3T10	FJ
P66	664	6640	FG
P90	903		
NKP	13	192	
UHP2	SR-200		VR

Die Cross Reference Table			
CST (Style No.)	CPD (Fig. No.)	AP (Style No.)	Piranha/ Whitney
28XX	28XX	100XX	28XX
291	C-291FS/291A3	391	UW
43	C-403	343	UR
44	C-400	344	UU
45	C-7602	345	7602
46	C-7502	346	7502
47	C-740	347	740
47B	C-740	347BC	740BS
47-F	C-281	347F	
47XX	C-790XX	347XX	790XX
47/45	C-273	347/45	
48	C-720	348	720
48B	C-720		720BS
49	C-710		710
402	41		HC
403	42		
405	43		
407	45		
408	46	308	HH
413	55	313	JB
417	59	317	JC
418	60	318	WP
419	62	319	JF
420	65	320	JG
421	C-89	321	JK
422	71		XR
490	C-91MM	390	ZR
C5921	C-291		
DVD OR UHD	59	351A	BG
DVD2			RS
D14	201	1400	
D85	200	85350	KJ
D66	202	665	BA
D90	203	9040	BB
H-1	H-1	313M	JB
H-2	H-2	317M	JC
H-3	H-3	320M	JG
HUSDIE	44	244	
NKD	51	352	166

Standard Features and Specifications

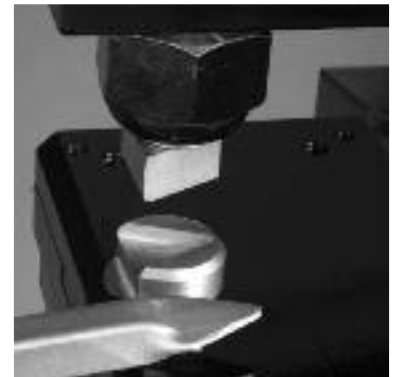
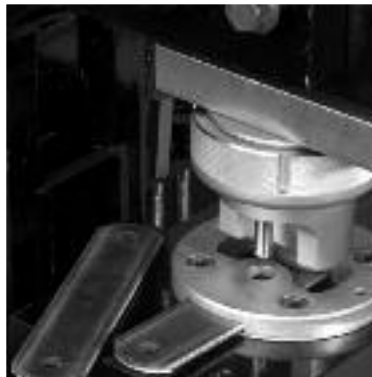
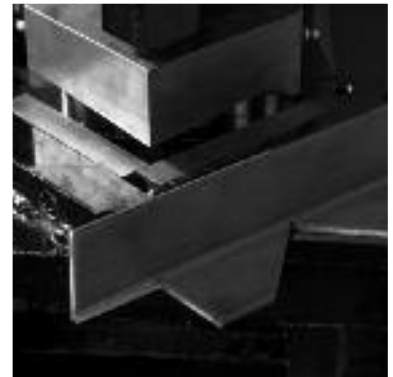
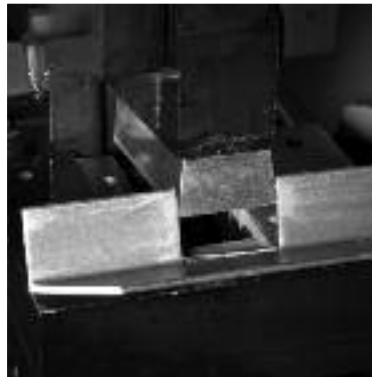
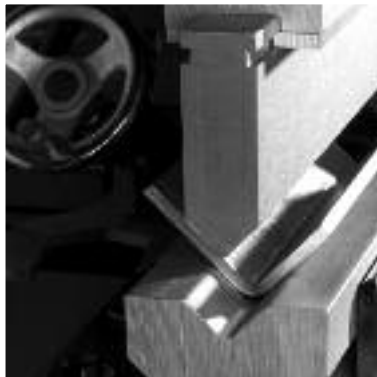
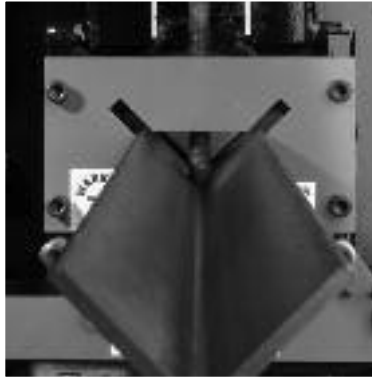
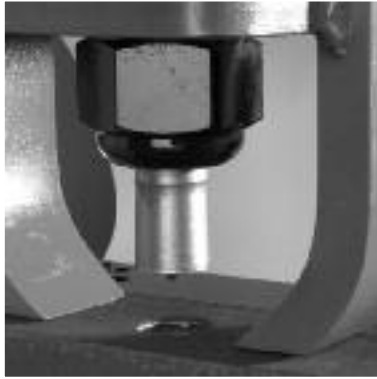
MODEL	CST 25	CST 50	CST 55	CST 60
RATED CAPACITY	25 Ton	50 Ton	55 Ton	60 Ton
PUNCHING				
Largest standard punch/thickness	1-1/16" punch 1/4" mild steel	1-1/16" punch 9/16" mild steel	1-1/8" punch 5/8" mild steel	1-1/16" punch 3/4" mild steel
Maximum diameter/thickness	3" thru 12 gauge	3" / 3/16"	3-1/2" / 3/16"	3-1/2" / 3/16"
OPEN HEIGHT	Front 6" / Rear 8"	8"	8"	8"
STROKE	1"	1-1/8"	1-1/4"	1-1/4"
THROAT DEPTH	5"	7"	7-1/2"	7-1/2"
SHEARING				
Angle	2"x 2"x 1/4"*	4"x 4"x 1/4" 3"x 3"x 3/8"	4"x 4"x 1/4" 3"x 3"x 3/8"	4"x 4"x 3/8" 3"x 3"x 1/2"
Flat Bar	1/4"x 6"* 3/8"x 3"	1/2"x 10" 3/4"x 4"	1/2"x 12" 3/8"x 14"	1/2"x 12" 3/4"x 8"
Rounds/Squares	3/4"*	1-1/8"	1-1/8"	1-1/8"
NO. WORKSTATIONS	2	4	4	4
STANDARD MOTOR	1 HP, single phase, 110/220V	5 HP, 3 phase 208/240V	5 HP, 3 phase 208/240V	5 HP, 3 phase 208/240V
OPTIONAL MOTOR	N/A	5 HP, 3 phase 440V 5 HP, single phase 208/220V	5 HP, 3 phase 440V 5 HP, single phase 208/220V	5 HP, 3 phase 440V 5 HP, single phase 208/220V
DIMENSIONS				
Base	29" x 32"	28-1/4" x 37"	41-1/2" x 40"	36" x 42-1/2"
Height	54"	57"	57"	57"
Weight	825 lbs.	1,505 lbs.	2,160 lbs.	2,160 lbs.

*with optional attachment

MODEL	CST 65	CST 75	CST 100	CST 100 Deluxe	CST 120
RATED CAPACITY	65 Ton	75 Ton	100 Ton	100 Ton	120 Ton
PUNCHING					
Largest standard punch/thickness	1-1/16" punch 3/4" mild steel	1-1/16" punch 7/8" mild steel	1-1/16" punch 1" mild steel	1-1/16" punch 1" mild steel	1-1/12" punch 1" mild steel
Maximum diameter/thickness	3-1/2" / 3/16"*	3-1/2" / 1/4"*	3-1/2" / 5/16"*	3-1/2" / 5/16"*	3-1/2" / 3/8"*
OPEN HEIGHT	8-1/8"	8-1/4"	8-1/4"	8-1/2"	9-1/8"
STROKE	1-3/8"	1-7/8"	1-7/8"	1-3/8"	2-1/2"
THROAT DEPTH	9-3/4"	10"	10"	10"	11"
SHEARING					
Angle	5"x 5"x 1/4" 4"x 4"x 3/8"	5"x 5"x 3/8"	6"x 6"x 1/2"	5"x 5"x 1/2"	6"x 6"x 1/2"
Flat Bar	1/2"x 14" 3/8"x 24"	3/4"x 10" 1/2"x 14"	1"x 10" 3/4"x 14"	1/2" x 16" 3/8" x 18"	1" x 12" or 1/2" x 24" 1" x 12"
Rounds/Squares	1-1/8"	1-1/8"	1-1/8"	Rounds 1-1/2" / Squares 1-1/4"	1-1/4"
NO. WORKSTATIONS	5	4	4	5	5
STANDARD MOTOR	5 HP, 3 phase, 208/240V	5 HP, 3 phase 208/240V	5 HP, 3 phase 208/240V	10 HP, 3 phase 208/240V	10 HP, 3 phase 208/240V
OPTIONAL MOTOR	5 HP, 3 phase, 440V 5 HP, single phase 208/220V	5 HP, 3 phase 440V 5 HP, single phase 208/220V	5 HP, 3 phase 440V 5 HP, single phase 208/220V	10 HP, 3 phase 440V	10 HP, 3 phase 440V
DIMENSIONS					
Base	42" x 58"	38" x 44"	44" x 48-1/2"	43" x 44"	60" x 60"
Height	55"	60"	66-1/2"	62"	84"
Weight	3,900 lbs.	2,975 lbs.	3,250 lbs.	4,850 lbs.	5,450 lbs.

*with optional attachment NOTE: All specifications are subject to change.

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