ROPER WHITNEY USA

MANUALLY OPERATED TOOLS

PUNCHES
BENDERS
SHEARS
SHEET METAL TOOLS

CATALOG M

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MADE IN THE USA

An American Tradition Since 1910

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Roper Whitney and Pexto manually operated metal fabricating tools ...for production and craftsman alike

In the midst of today's trend toward automation in the metal fabricating field, there's still room for that right combination of quality and simplicity that's found in Roper Whitney and Pexto tools.

Many Roper Whitney and Pexto tools in this catalog, untethered by power cords, will go to work most anywhere for one-at-a-time punching, shearing, bending or notching. They are at home in most any shop: the high volume production shop, the small job shop, in pre-production and engineering model shops, the school shop, in maintenance and repair shops. And in the field: with the utilities, the service and construction industries, and the farmer. For the finishing touches, or to correct mistakes. To make things work, or keep them working.

Roper Whitney and Pexto tools are tools you can rely on, for many years. There are a lot of old ones around that have withstood the test of time. Why? Because their combination of hand crafted quality, design simplicity and construction detail makes them reliable and easy to use. They were a good buy yesterday... they're an even better value today.

Roper Whitney and Pexto products cover a broad spectrum of the metal fabricating tool field. With the manually operated tools described in this catalog; hydraulic punches that combine big "muscle" with portability (in Catalog H); larger, stationary machinery . . . like single station presses, bending brakes, and power shears and notchers (in Catalog M/P/H); and one of the largest selections of punches and dies available for punching round, irregular and special shapes in mild steel, stainless and other special materials (Punch & Die Price List).

And they're available locally throughout the country through distributors that know your needs and how to satisfy them... service that is dependable.

Pexto products included...

In late 1976, Roper Whitney acquired the Pexto line of tools and machinery. In 1977, manufacturing of all Pexto products began in our Rockford, Illinois plant. This catalog includes, with Roper Whitney standard products, Pexto manually operated tools previously cataloged in Pexto literature which is now obsolete. Because of the familiarity of the established Pexto product numbers in the field, we have retained the Pexto catalog number identifications in this catalog and in our order entry system.

In this catalog...

Complete specifications on all our manually operated tools, from the most portable light duty hand punches to floor mount foot and lever presses. And a large variety of portable and bench punches, plus sheet metal fabricating tools are included in this catalog, as shown in the following Table of Contents.

How to order...

Select the tool(s) you need from the Ordering Guides. (Order by "Catalog Number" only.) When ordering punching tools, punches and dies used with them must be ordered from the listings shown in Punch & Die Price List, Punches and Dies. Up-to-date prices for all Roper Whitney products are shown complete in our Pricing Manual. (Both documents are available from Roper Whitney distributors, or direct from the factory, free of charge.)

NOTE: Always select tools with rated capacity sufficient for the task to be performed. *Do not exceed* the rated capacity (to assure a good measure of safety and long life).

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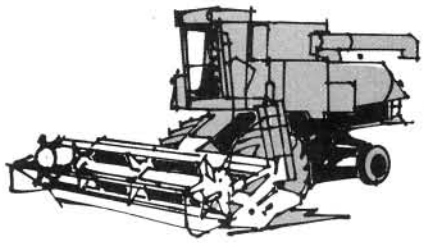


NO. XX

NO. 5 JR.

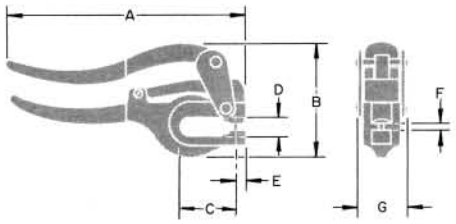
NO. 5 JR.
NO. XX

Light Duty Portable Punches are for limited punching power (1.2 tons or less.) They're easy to carry in the pocket, on a belt or in a tool box. Hardened, machined bearing surfaces are used in these tools to provide dependable long life within the rated capacity.

- Maximum rated capacity:* 1.2 tons
- Smallest available
- Hand operation
- Adjustable stop gauge

The No. 5 Jr. punch has a standard 1 3/4-inch throat depth, while the No. XX has a deep throat configuration to punch up to 3 1/4-inch from the edge. The No. XX may be used to punch light channels with 1" minimum inside dimension and 1 3/8" maximum flange. Both punches have optional mounting bases, and are also available as kits with a standard assortment of round punches and dies in a durable plastic box.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 5 Jr.		No. XX	
	IN.	MM	IN.	MM
A	8 1/4	209.55	10 1/4	260.35
B	3 3/4	96.84	6 3/8	161.93
C	1 3/4	44.45	3 1/4	82.55
D	7/16	11.11	2 1/8	53.98
E	5/16	7.94	9/16	14.29
F	9/32	7.14	9/16	14.29
G	1 13/32	35.72	1 5/8	41.28

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 5 Jr.	No. XX	No. 5 Jr.	No. XX
Tool Only***	130010050†	130010001‡	2 3/4	6
Tool in Kit***	135010050*	135010001**	4	9 1/2
Bench Mounting Base	139010050	139010001	3/4	1 1/8

* Includes tool, and one 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", and 9/32" round punch and die, and plastic box.

** Includes tool and one 5/32", 7/32", 9/32", 11/32", 13/32", 15/32", and 17/32", round punch and die, and plastic box.

*** No substitutions of punches and dies furnished unless 12 or more tools ordered.

† Includes one 3/16" round punch and die.

‡ Includes one 9/32" round punch and die.

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 5 Jr.	1/16-9/32	1/8 X 3/16-1/4 X 9/32	1/8 X 3/16-5/32 X 7/32	1/8 X 3/16-1/4 X 9/32	1/8-3/16	5/32-7/32	5/32-7/32	3/16 X 1/8-9/32 X 1/4
No. XX	1/16-17/32	1/8 X 3/16-7/16 X 1/2	1/8 X 3/16-5/16 X 3/8	1/8 X 3/16-7/16 X 1/2	1/8-17/64	3/16-3/8	3/16-3/8	3/16 X 1/8-17/32 X 1/2

Bench mount bases

FOR NO. XX

FOR NO. 5

NO. 7A

NO. 8

NO. 7A, NO. 8

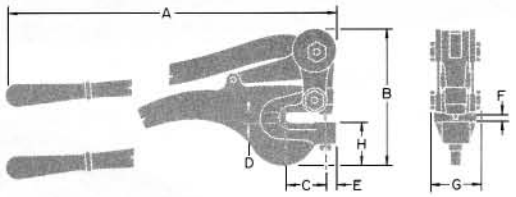
Medium Duty Portable Punches are for medium punching power (up to 5 tons). They are highly portable and of a size that will fit any tool chest or truck locker. The leverage design of these tools assures easy linear operation.

- Maximum Rated Capacities:*
  No. 7A—2.5 tons
  No. 8—5 tons
- Two Hand Linear Operation

These punches are similar except for punching capacity. Unlike other similar tools, these punches will punch and strip inside a 90° arc movement of the lever. And, the upper handle will not disengage when moved to either extreme.

Options include a bench mounting base, with a 3″-3¾″ x 5″ tapped base table; and a factory reversal of the upper handle to provide front pull-down operation when the tool's intended use is as a bench mounted unit.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 7A		No. 8	
	IN.	MM	IN.	MM
A	18	457.2	25½	647.7
B	5¾	146.05	8	203.2
C	1⅝	41.28	2⅛	53.98
D	7/16	11.11	½	12.7
E	½	2.7	⅝	15.88
F	5/16	7.94	⅜	9.53
G	2	50.8	2⅞	73.03
H	1⅞	47.63	2⅝	66.68

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 7A	1/16-7/16	1/8 X 3/16-3/8 X 7/16	1/8 X 3/16-1/4 X 1 1/32	1/8 X 3/16-3/8 X 7/16	1/8-1 7/64	5/32-3/8	3/16-3/8	3/16 X 1/8-7/16 X 3/8
8	1/16-1/2	1/8 X 3/16-7/16 X 1/2	1/8 X 3/16-5/16 X 3/8	1/8 X 3/16-7/16 X 1/2	1/8-1 1/32	3/16-13/32	3/16-13/32	3/8 X 1/8-1/2 X 7/16

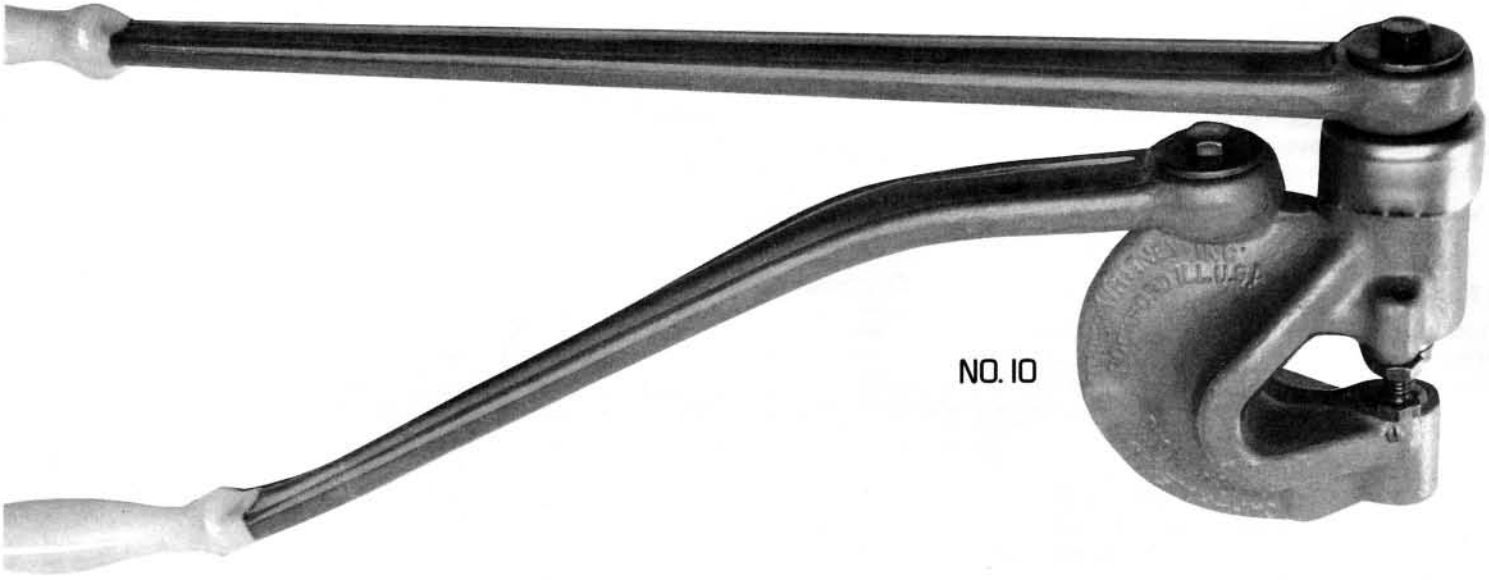
Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 7A	No. 8	No. 7A	No. 8
Punch	130010070*	130020080†	7½	17½
Bench Mounting	139010070	139020080	5½	8½

*Includes one 7/32″ round punch and die. †Includes one 9/32″ round punch and die. No substitutions.

Bench mount bases

FOR NO. 7A, 8



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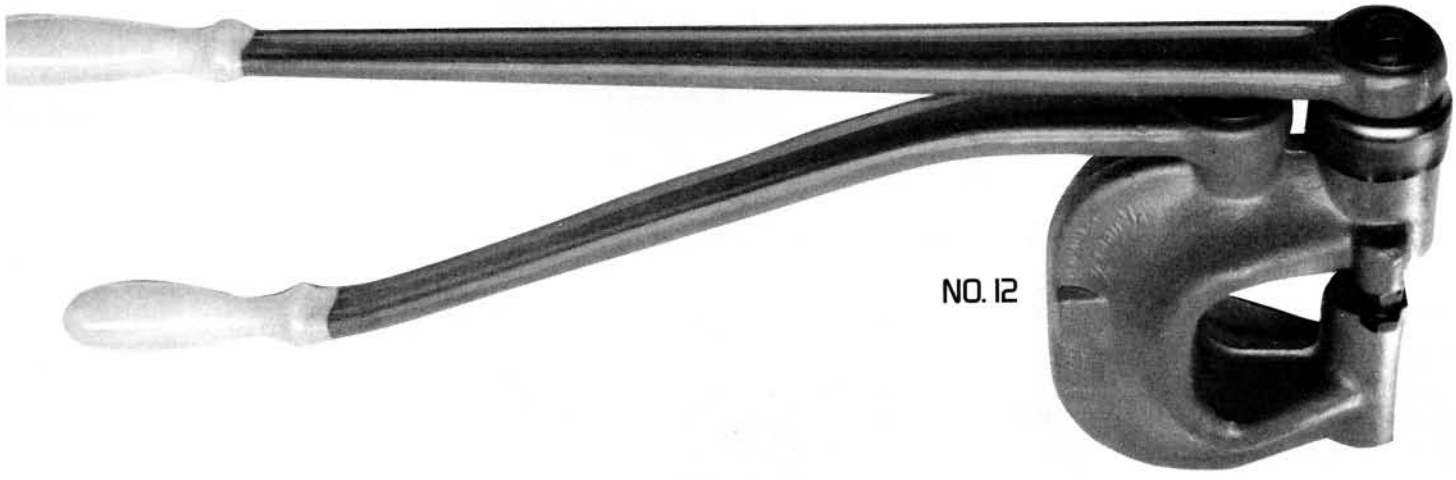
NO. 113



NO. 12

NO. 10
NO. 12

Medium Duty Portable Punches, rotary ball bearing operated, that extend the capacity offered in the Roller Bearing punches 50% while maintaining an equally portable size and weight.

- Maximum Rated Capacity:*
  7.3 tons
- Two Handle Rotary Ball Bearing Operation
- ½-inch Punch Movement in a 360° Revolution

These punches use rotary ball bearing operation to provide punching capacity in the medium duty range, beyond the capacity of linear operation punches shown previously. The two punches are similar, except for the deep throat dimensions of the No. 12 to punch up to 2¼" from the edge and accommodate angles, channels and flanged materials.

Options include a ratchet handle to permit operation in close quarters and a base attachment for bench mounting.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

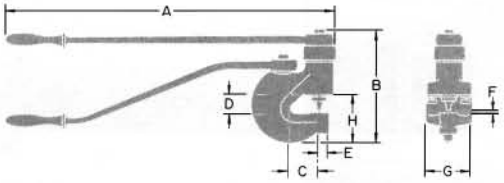
Bench mount base

FOR NO. 10 & 12

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 10	No. 12	No. 10	No. 12
Punch	130030100*	130030120*	9	13
Mounting Base	139030100	139030120	4½	6¼
Ratchet handle	138031130	138031130	3½	3½

*Includes one 9/32" round punch and die. No substitutions.



Dimensions

Reference	No. 10		No. 12	
	IN.	MM	IN.	MM
A	19½	495.3	19½	495.3
B spindle up	6¾	171.65	8 5/16	211.14
spindle down	6¼	158.75	7 13/16	198.44
C	1½	38.1	2¼	57.15
D	1⅛	28.58	2⅛	53.98
E	⅝	15.88	19/32	15.08
F	⅜	9.53	⅜	9.53
G	2⅝	66.68	2⅞	73.03
H	1⅜	34.93	2 19/32	65.88

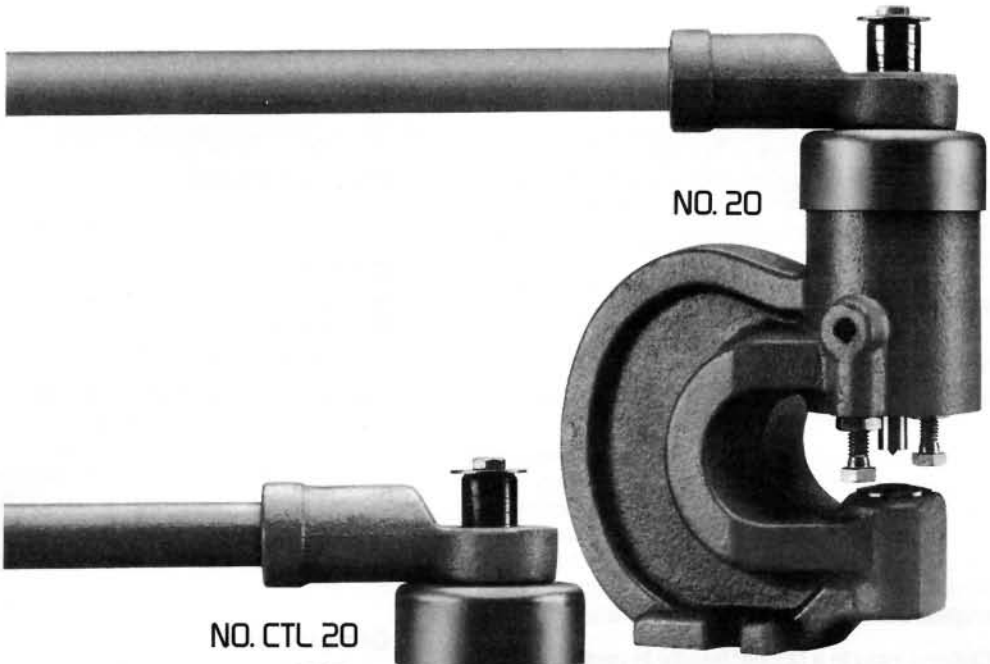
Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 10, & 12	1/16-9/16	1/8 X 1/4-3/8 X 1/2	1/8 X 1/4-5/16 X 3/8	1/8 X 1/4-3/8 X 1/2	1/8-11/32	3/16-13/32	3/16-13/32	3/16 X 1/8-1/2 X 7/16

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.



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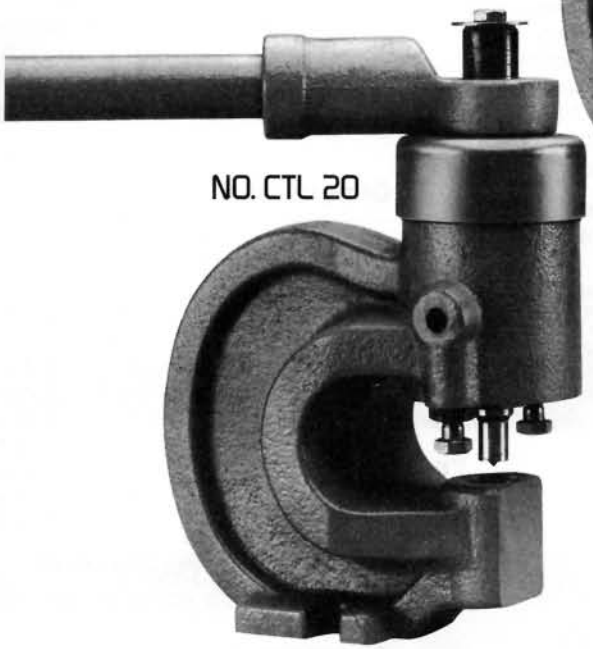


NO. CTL 20

NO. 119

NO. 20, NO. CTL 20

Heavy Duty Portable Punches are for heavy punching requirements. They operate through ball bearing action and rotary operating motion. While considered portable, they are equally adept as stationary bench mounted tools.

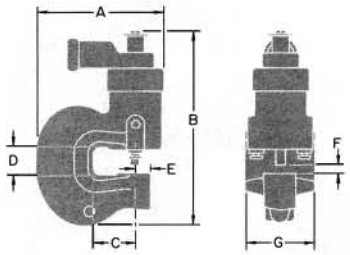
- Maximum Rated Capacities:* No. 20 and CTL 20—20 tons
- Rotary Ball Bearing Operation (360° equals 1/2-inch punch movement)

These tools offer punching capacities to meet heavier job requirements, and greater versatility in punching flat sheets and angles.

No. 20 and No. CTL 20 are similar, except that the frame around the die pocket of the CTL 20 is machined to allow punching close to the web of angle iron (9/16" from web to center of hole).

Options for these tools include a ratchet attachment (for No. 20 and No. CTL 20) to permit operation in close quarters, pipe handles to provide adequate leverage with minimal effort.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 20		No. CTL 20	
	IN.	MM	IN.	MM
A	7	177.8	7	177.8
B spindle up	11 1/2	292.1	11 1/2	292.1
spindle down	10 1/2	266.7	10 1/2	266.7
C	2 1/4	57.15	2 1/4	57.15
D	1 5/8	41.28	1 5/8	41.28
E	7/8	22.23	1/2	12.7
F	3/4	19.05	3/4	19.05
G	3 7/8	98.43	3 7/8	98.43

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 20	1/8-13/16	1/8 X 1/4-1/2 X 11/16	1/8 X 1/4-3/8 X 9/16	1/8 X 1/4-1/2 X 11/16	1/8-9/16	3/16-19/32	3/16-19/32	3/16 X 1/8-11/16 X 5/8
No. CTL 20	1/8-9/16	1/8 X 1/4-7/16 X 1/2	1/8 X 1/4-5/16 X 3/8	1/8 X 1/4-7/16 X 1/2	1/8-1 1/32	3/16-13/32	3/16-13/32	3/16 X 1/8-9/16 X 1/2

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.

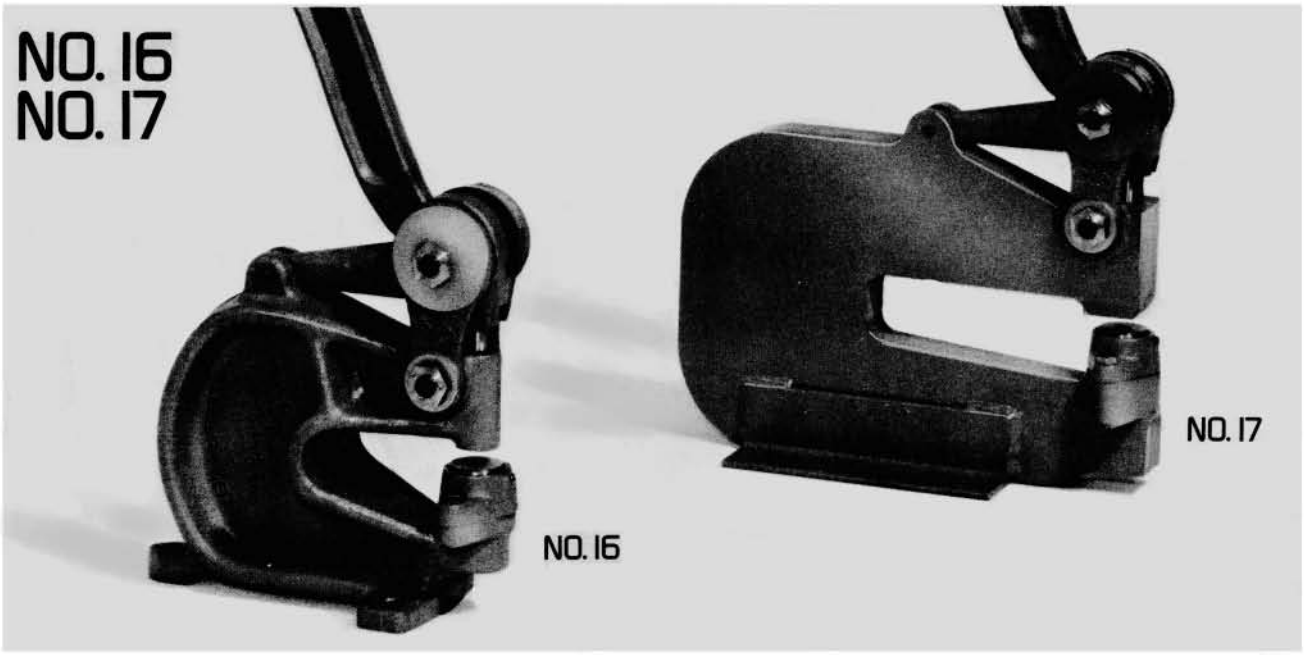
Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 20	No. CTL 20	No. 20	No. CTL 20
Punch	130030200*	130030201*	25	25
Ratchet attachment	138031190	138031190	4 1/2	4 1/2
48" pipe handle	138032026	138032026	4	4

*Includes one 1/2" round punch and die. No substitutions.

†No. 20 and No. CTL 20 built after early 1981 require no separate mounting base.

BENCH PUNCHES, MEDIUM DUTY



Medium Duty *Bench* Punches are similar in operating design and capacity to the Medium Duty Roller Bearing *Portable* Punches described in this catalog. However, in addition to stationary mounting, they also provide greater throat dimensions and a slightly broader range of punch and die sizes.

- Maximum Rated Capacities:*
  No. 16—7.3 tons
  No. 17—5 tons
- Linear Roller Bearing Cam Operation
- Standard and Deep Throat Options (up to 6½")

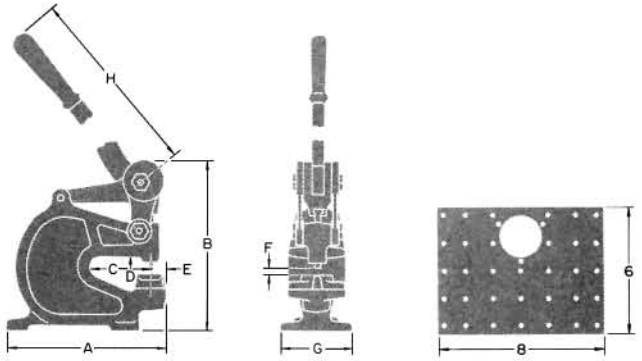
These two punches are similar in use, yet slightly different in their construction detail. The No. 16, with its solid forged frame, has the higher rated capacity and a standard throat. The No. 17 steel frame punch provides a deeper throat dimension to punch up to 6½ inches from the edge of a work piece. Both punches have adjustable die shoes to permit the proper alignment of close fitting punches and dies to punch light gauge materials. Both also have the option of a removable 6" x 8" work table with stops to position materials in the tool.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 16	No. 17	No. 16	No. 17
Punch*	131020160	131020170	26½	38½
Work table	137020160	137020160	3½	3½

*Includes one 9/32" round punch and die. No substitutions.



Dimensions

Reference	No. 16		No. 17	
	IN.	MM	IN.	MM
A	8 7/16	214.31	12 3/8	314.33
B	9 5/8	244.48	10 9/16	268.29
C	3¼	82.55	6½	165.1
D	1¾	44.45	2⅛	53.98
E	⅞	22.23	⅞	22.23
F	⅜	9.53	⅜	9.53
G	3⅞	98.43	4½	114.3
H	24½	622.3	24½	622.3

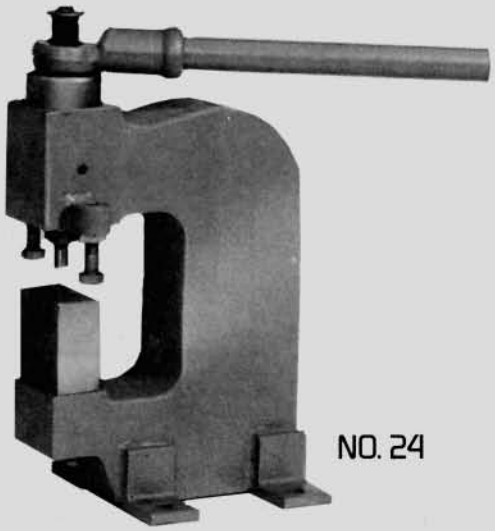
Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 16 & 17	1/16-9/16	1/8 X 1/4-3/8 X 9/16	1/8 X 1/4-1/4 X 1/2	1/8 X 1/4-3/8 X 9/16	1/8-3/8	3/16-15/32	3/16-15/32	3/16 X 1/8-9/16 X 1/2

NO. 24



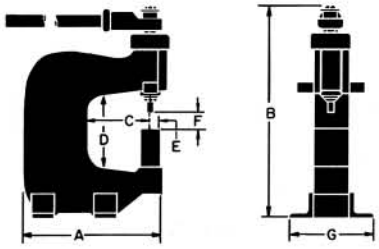
NO. 24

Heavy Duty Bench Punches incorporate the same operating mechanism design as the Heavy Duty Portable Punches in this catalog. Their much greater throat dimensions are a definite advantage in the shop.

- Maximum Rated Capacities:*
  No. 24—20 tons
- Rotary Ball Bearing Operation
- Ideal for Angle and Channel Punching

These heavy duty punches are specifically designed to accommodate angles, channels and flanged parts. They are recommended for stock 10 guage and thicker. They are similar in construction, with the No. 24 providing the higher tonnage capacity with the standard throat depth. A 4-foot pipe handle is also available as an accessory to provide the leverage needed for punching through heavy materials.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 24 IN.	No. 24 MM
A	9¼	234.95
B spindle up	16½	419.10
spindle down	15½	393.70
C	3¾	95.25
D	5¾	146.05
E	13/16	20.62
F	¾	19.05
G	6¾	161.45

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 24 & 25	⅛-13/16	⅛ X ¼-½ X 11/16	⅛ X ¼-⅜ X 9/16	⅛ X ¼-½ X 11/16	⅛-9/16	3/16-19/32	3/16-19/32	3/16 X ⅛-11/16 X ⅝

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.

Ordering Guide

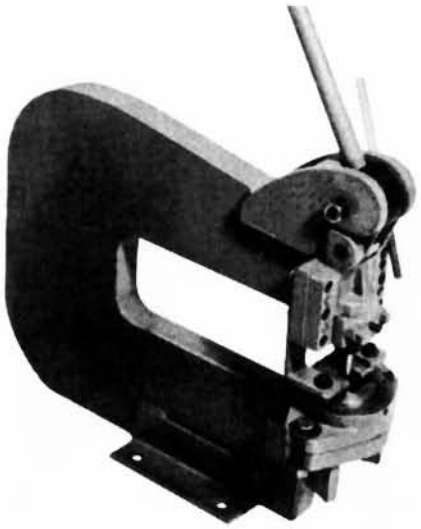
Description	Catalog No. No. 24	Weight (Lbs.) No. 24
Punch*	131030240	75½
Ratchet Attachment	138031190	4½
48" Pipe Handle	138032026	4

*Includes one ½" round punch and die. No substitutions.

NO. 119

BENCH PUNCH, DEEP THROAT

NO. 218

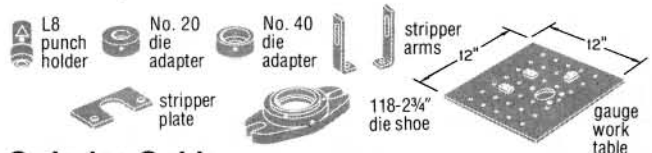


- Maximum Rated Capacity:* 4 tons
- Linear Hand Operation
- Deep Throat (Punch holes up to 12″ from edge of material)
- Work Heavy to Ultra Light Materials

This accurate punch is ideal for prototype, short production runs and model shops. The adjustable die shoe permits the proper alignment of close fitting punches and dies to accommodate very thin materials, as well as heavier stock. The option of a cabinet base, and a 12" square gauge work table to extend their usefulness and is provided with standard equipment as indicated below.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

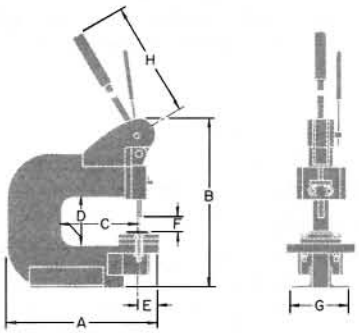
Auxiliary Attachments



Ordering Guide

Description	Catalog No.	Weight (Lbs.)
218 Punch*	131012180	134
Cabinet base	139001180	95
L8 punch holder	136112808	1
No. 20 die adapter	136313020	2
No. 40 die adapter	136323040	1
118-2¾" die shoe	139571180	5
Stripper plate:		
A6 (½" max. punch)	331200500	1
B6 (1" max. punch)	331201000	2
C6 (2" max. punch)	331202000	2
Stripper arms (2)	231940004	2
Gauge work table	137001180	8

*Includes standard equipment: One L8 punch holder, one No. 20 die adapter, one No. 40 die adapter, one 118-2¾" die shoe, stripper arms, one A6 stripper plate, and one ½" round punch and die.



Dimensions

Reference	No. 218 IN.	No. 218 MM
A	21½	546.1
B	17⅝	447.68
C	12¼	311.15
D	4½	114.3
E	2 1/16	52.39
F	¾	19.05
G	5	127
H	24	609.6

Floor space for cabinet base, 23″ (584.2 MM) W x 37″ (939.8 MM) H x 14″ (355.6 MM) Deep.

Specifications

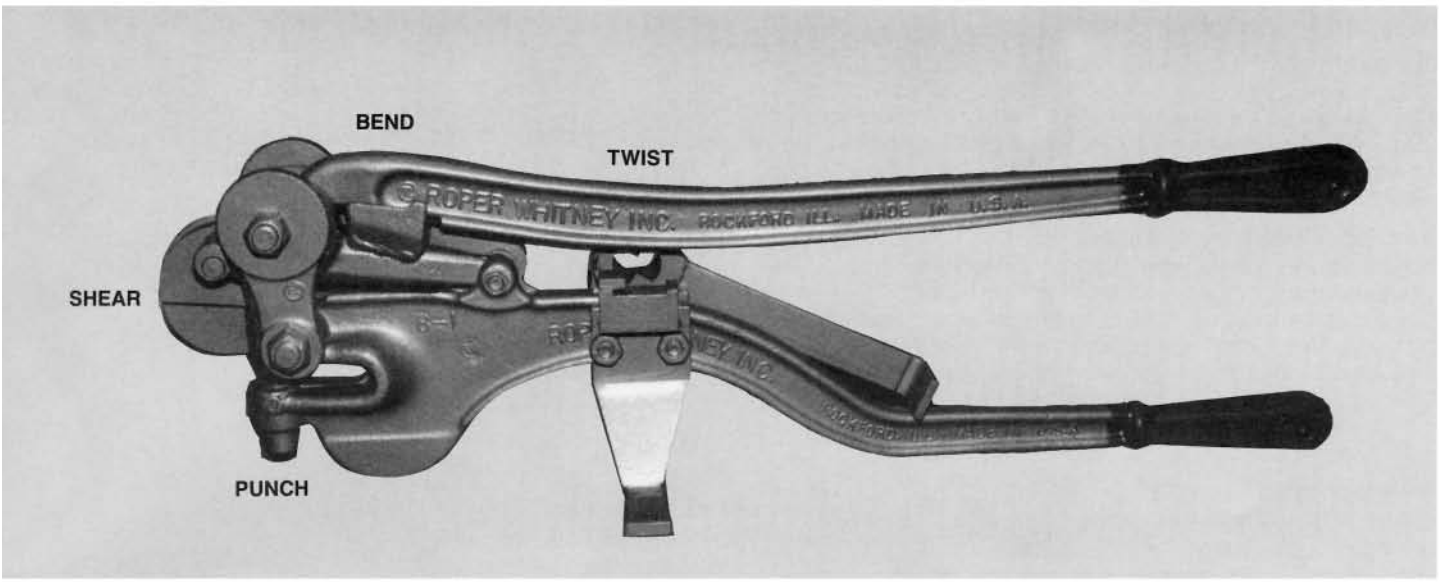
Height of throat with work table—2¾″ (69.85 MM)
Length of stroke—¾″ (19.05 MM)
Slug hole clearance—2¼″ (57.15 MM)
Diameter of punch shank hole in ram—1″ (25.4 MM)

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
218	1/8-2	1/8 x 3/16-1 3/16 x 2	1/8 x 3/16-1 x 1½	1/8 x 3/16-¾ x 2	1/8-1 5/16	5/32-1 7/16	5/32-1 7/16	5/32 x 1/8-2 x 1⅞

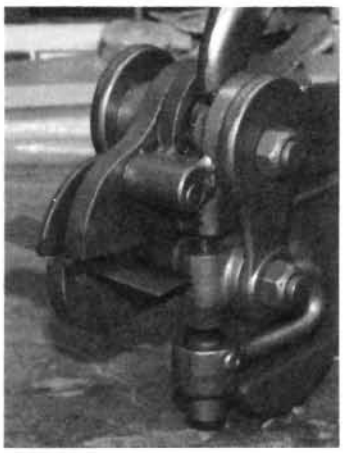


Hang Four Fabricator

Hang Four Fabricator allows you to fabricate a wide variety of wall anchors, braces, hangers and more . . . on the job. It punches, bends, twists and cuts to your specifications with no more costly delays.

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
4 in 1 Multi Tool	130068537	20



Cutting: One stroke in 11 gage material up to 1 1/2" wide.

Bending: A perfect right angle. Capacity 16 ga.

Punching: Any size hole up to 1/2" through 11 ga. mild steel.

Twisting: Gives full 90° twist automatically with one stroke of the lever. No attachments needed.

Selecting a Punch or Press

The following information, while not totally applicable to all hydraulic operated tools included in this catalog, is provided as a convenient general reference for metal punching operations up to and including large power presses. Specific questions not answered by this data may be directed to Roper Whitney without obligation.

Hole Size vs. Material Thickness

Punching holes in metal is the fast, economical way to get precise hole size, smoothness and minimum burr. Compressive strength of the punch steel determines that the thickness of the metal being punched must not exceed the diameter of the punch. This relationship varies with the type of material. For example: the minimum hole diameter will be ¼" in ¼" mild steel, ¼" in 3/16" stainless steel, and ¼" in 5/16" aluminum.

Maximum Rated Capacity

All punching tools have their maximum capacities for safe, dependable operation over a long life span. Tools listed in this catalog have a "rated capacity" based on their design strength. Before selecting a tool, use the following charts to determine the specific tonnage required to punch the size and shape holes through the type and gauge metal considered. These figures are for flat punch points. Shear on the punches (explained later) will reduce the tonnage required.

Determining Tonnages

For Round Holes

To determine tonnages for hot rolled mild steel (typically used in bar size angle iron, channels, tees and zees) with a 50,000 psi shear strength, read direct from chart #1.

Example: To punch a 4" diameter hole thru 20 gauge mild steel, the chart shows 11.3 tons are required.

For ASTM A-36 steel (typically used for structural size wide flange, H and I beams, tees and zees) with a 60,000 psi shear strength, read direct from chart #2.

Example: To punch a ¼" round hole in No. 10 gauge A-36 steel, the chart shows 3.2 tons pressure is needed.

For other metals select the proper multiplier from chart #3, and apply it to the tonnage figure for mild steel shown in chart #1.

Example: To punch a 4" diameter hole thru 20 gauge #202 stainless steel with a 1.8 multiplier, calculate as follows: 11.3 tons × 1.8 = 20.3 tons required.

For Irregular Shape Holes

For punching irregular shaped holes (square, rectangular, obround, triangular, etc.) multiply the length of metal to be cut by the multiplier given for a 1" length in chart #4.

Example: The shear length (or total distance around a 1" × 2" rectangular hole) is 6". To punch such a hole in 20 gauge mild steel multiply 6" × 1.01 (from chart #4) = 6.06 tons. For stainless steel this would be 6 × 1.50 = 9.0 tons.

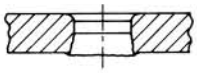
Die Clearance

The relationship of the larger die hole size to the punch size is die clearance and is stated as a percentage of the thickness of the material being punched. The range of clearances varies from 10% for thin materials to 20% for thicker materials. For ¾" material the total die clearance is .150". Clearance should always be specified when there is any reason for doubt.

Die Clearance has the following effects:

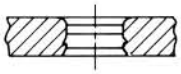
Too much clearance

1. Extra roll-in at top of the hole.
2. Too much burr at bottom of the hole.



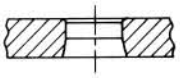
Too little clearance

1. More punching pressure needed. Can reduce tool life.
2. High stripping force causes part distortion and extra punch wear.



Correct clearance

1. Straighter hole thru material.
2. Minimum distortion at top of hole.
3. Minimum burr at bottom of hole.



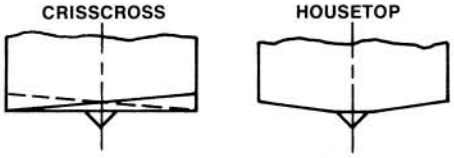
Effects of die clearance are more noticeable in thicker materials (such as ¼") than in thinner materials (such as 16 gauge). Roper Whitney stocks #28 style dies with .006" clearance. For punching 24 gauge thru 14 gauge mild steel or most grades of aluminum, we recommend that you order the #28 style dies for generally satisfactory holes and fast delivery. For other gauges and material thicknesses and minimum burr, specify the type and thickness of material being punched and the exact clearance (see chart #5).

Shear

Shear may be added to most any punch (½" or larger*) to reduce the shock load on machine components and the punch and die, and increase their life expectancy. Shear, in essence, proportions the force through part of the stroke length of the ram . . . much less material is being cut at any one time than would be with a punch without shear.

*There is no advantage of adding shear to smaller than ½".

Two types of shear are added to most Roper Whitney punches:



Round punches 5/8" diameter and larger, and square punches 1 1/16" and larger have the "crisscross" shear. Rectangular and obround punches with 1" major dimension and larger have the "housetop" shear.

Shear is most effective when punching 14 gauge or lighter materials. It can reduce the punching force by as much as 50%.

Example: Chart #1 shows that 11.3 tons are needed to punch a 4" diameter hole thru 20 gauge mild steel. A punch with shear reduces the force to 5.7 tons.

Chart #1 Tons of Pressure Required To Punch Mild Steel

Round Hole Diameter		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
Ga.	In.																					
20	.036	.4	.5	.7	.9	1.1	1.2	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8	4.2	5.6	7.0	8.5	9.9	11.3
18	.048	.5	.7	.9	1.2	1.4	1.6	1.9	2.1	2.4	2.6	2.8	3.1	3.3	3.5	3.8	5.5	7.5	9.4	11.3	13.0	15.0
16	.062	.6	.9	1.2	1.5	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8	4.1	4.4	4.7	7.0	9.5	11.7	14.0	16.5	18.8
14	.075	.7	1.1	1.5	1.8	2.2	2.6	2.9	3.3	3.7	4.0	4.4	4.8	5.1	5.5	5.9	8.8	11.7	14.7	17.6	20.5	23.5
12	.105	1.0	1.5	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.7	6.2	6.7	7.2	7.7	8.2	12.3	16.4	20.5	24.5	28.8	32.8
11	.120	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.1	5.9	6.2	7.1	7.6	8.3	8.8	9.4	14.0	18.8	23.5	28.2	32.7	37.6
10	.135	1.3	2.0	2.6	3.3	4.0	4.6	5.3	5.9	6.6	7.3	7.9	8.6	9.2	9.9	10.6	15.9	21.0	26.5	31.7	37.0	42.2
3/16"	.188	—	2.8	3.7	4.6	5.5	6.4	7.4	8.3	9.2	10.1	11.0	12.0	12.9	13.8	14.8	22.0	29.5	36.8	44.2	51.5	60.0
1/4"	.250	—	—	4.9	6.1	7.4	8.6	9.8	11.1	12.3	13.5	14.7	16.0	17.2	18.4	19.7	34.4	39.3	49.0	60.0	68.7	78.5
5/16"	.312	—	—	—	7.8	9.2	10.7	12.3	13.9	15.4	17.0	18.5	20.0	21.5	23.0	24.6	43.0	49.0	61.5	73.5	86.0	98.0
3/8"	.375	—	—	—	—	11.1	12.8	14.8	16.5	18.5	20.2	22.1	23.8	25.8	27.5	29.5	51.5	59.0	73.6	88.4	103.0	118.0
1/2"	.500	—	—	—	—	—	—	19.7	22.0	24.6	26.9	29.5	31.8	34.4	36.8	39.4	68.8	78.5	98.2	118.0	137.0	157.0

Chart #2 Tons of Pressure Required To Punch ASTM-A36 Structural Steel

Round Hole Diameter		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1 1/16"	1 1/8"	1 3/16"
Ga.	In.																		
12 1/8" or 11	0.105	1.2	1.9	2.5	3.1	3.7	4.3	4.9	5.6	6.2	6.8	7.4	8.0	8.7	9.3	9.9	10.5	11.1	11.7
	0.120	1.4	2.1	2.8	3.5	4.2	4.9	5.7	6.4	7.1	7.8	8.5	9.2	9.9	10.6	11.3	12.0	12.7	13.4
10	0.135	—	2.4	3.2	4.0	4.8	5.6	6.4	7.2	7.9	8.7	9.5	10.3	11.1	12.0	12.7	13.5	14.3	15.1
3/16"	0.187	—	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.3	15.4	16.5	17.6	18.7	19.8	20.9
1/4"	0.250	—	4.4	5.9	7.4	8.6	10.3	11.8	13.2	14.7	16.2	17.7	19.1	20.6	22.1	23.6	25.0	26.5	28.0
5/16"	0.312	—	—	7.4	9.2	11.0	12.9	14.7	16.5	18.4	20.2	22.0	24.0	25.7	27.6	29.4	31.3	33.0	34.9
3/8"	0.375	—	—	8.8	11.0	13.3	15.5	17.7	19.9	22.1	24.3	26.5	28.7	31.0	33.1	35.3	37.6	39.7	42.0
1/2"	0.500	—	—	—	—	—	—	23.6	26.5	29.4	32.4	35.3	38.3	41.2	44.2	47.1	50.0	52.9	55.9
5/8"	0.625	—	—	—	—	—	—	—	—	37.0	40.5	44.2	48.0	51.5	55.2	58.9	62.7	66.3	70.0
3/4"	0.750	—	—	—	—	—	—	—	—	—	—	53.0	57.5	61.8	66.3	70.8	75.0	79.4	83.9

Chart #3 Shear Strength

Material Description	Hardness	Ultimate Tensile (Tons)	Ultimate Shear (Tons)	Multiplier For Chart No. 1
Steels				
Low Carbon, H.R. Sheet Low Carbon, C.R. Sheet Structural Steel, ASTM A-36	Rb 70	30	25	1.0
Low Carbon, C.R. Sheet				
Soft	Rb 45-60	26.5	21	.84
1/4 Hard	Rb 60-75	30	22.5	.9
1/2 Hard	Rb 70-85	36	25	1.0
Hard	Rb 80-95	46	30.5	1.2
.40-.50% Carbon Steel H.R. Sheet	BHN 200	50	40	1.6
SAE 1074 C.R. Annealed Spring Steel	Rb 90	42.5	37.5	1.5
SAE 1095 C.R. Annealed Spring Steel	Rb 95	50	40	1.6
SAE 1074 or 1095 Spring Steel Hardened to Spring Temper	Rc 45-50	130	100	4.0
Abrasion-Resisting H.R. Steel Sheet	BHN 200/245	60	50	2.0
Cor-Ten Steel	BHN 140	35	27.5	1.1
Tri-Ten Steel	BHN 120	30	25	1.0
T-1 Steel Types A & B 100,000 P.S.I.Y.S.	BHN 260	65	52.5	2.1
Stainless Steels				
202-Annealed	Rb 95	55	45	1.8
302, 303, 304-Annealed	Rb 85	47.5	37.5	1.5
310-Annealed	Rb 90	52.5	45	1.8
316, 321, 430-Annealed	Rb 90	47.5	37.5	1.5
410-Annealed	Rb 85	42.5	37.5	1.5

Material Description	Hardness	Ultimate Tensile (Tons)	Ultimate Shear (Tons)	Multiplier For Chart No. 1
Aluminum Base*				
Alloy-Temper				
1100-0	BHN 23	6.5	4.5	.2
-H14	BHN 32	9	5.5	.22
2024-0	BHN 47	13.5	9	.36
-T3	BHN 120	35	20.5	.82
3003-0	BHN 28	8	5.5	.22
-H14	BHN 40	11	7	.28
-H16	BHN 47	13	7.5	.3
3105-H25	BHN 47	13	8	.32
5005-H34	BHN 41	11.5	7	.28
5052-0	BHN 47	14	9	.36
5052-H32	BHN 60	16.5	10	.4
6061-0	BHN 30	9	6	.24
-T6	BHN 95	22.5	15	.6
7075-0	BHN 60	16.5	11	.44
-T6	BHN 150	41.5	24	.96
Copper Base				
Alloy-Temper				
110-Electrolytic Tough Pitch Copper				
-.050 mm G.S.	Rf 40	16	11	.44
-1/2 Hard	Rb 40	21	13	.52
-Hard	Rb 50	25	14	.56
220 Comm. Bronze, 90%				
-1/2 Hard	Rb 58	26	17.5	.7
230 Red Brass, 85%-1/4 Hard	Rb 55	25	17.5	.7
260 Cartridge Brass, 70%				
-.035 mm G.S.	Rf 68	24.5	17	.68
-1/2 Hard	Rb 70	31	20	.8
-Spring	Rb 91	47	24	.96
280 Muntz Metal-1/8 Hard	Rb 55	30	21	.84
342-A High Leaded Brass-1/2 Hard	Rb 70	30.5	20	.8
675 Manganese Bronze, A				
-Soft Anneal	Rb 65	32.5	21	.84

*500 Kg Lead 10 mm Ball

Chart #4 Tons Pressure Required To Shear 1" Length

Metal Gauge	Mild Steel	Stainless Steel	Brass
20	1.01	1.50	.75
18	1.25	1.75	1.00
16	1.75	2.50	1.25
13	2.50	3.50	2.00
11	3.25	4.75	2.25
3/16"	4.25	7.00	3.25
1/4"	6.25	9.50	4.50
5/16"	8.00	12.00	5.50
3/8"	9.50	14.25	6.25
7/16"	11.00	16.50	7.75
1/2"	12.50	18.75	8.75
5/8"	15.75	23.50	11.00
3/4"	18.75	28.25	13.25
7/8"	22.00	33.00	15.50
1"	25.00	37.50	17.50

Chart #5 Clearances For Mild Steel

Gauge or Size	Approx. Decimal Thickness	Overall Clearance—Add To Punch Size
30	.0120	Slip Fit
28	.0149	Slip Fit
26	.0179	Slip Fit
24	.0239	.003
22	.0299	.003
20	.0359	.004
18	.0478	.005
16	.0598	.005
14	.0747	.006
13	.0897	.009
12	.1046	.009
11	.1196	.011
1/8	.125	.011
10	.1345	.013
5/32	.156	.015
8	.164	.017
7	.1793	.021
3/16	.1875	.023
1/4	.250	.037
5/16	.3125	.047
3/8	.375	.057
1/2	.500	.075
5/8	.625	.125
3/4	.750	.150

NOTE—Most grades of half hard aluminum use the same clearance as shown above. In many cases, your own experience may dictate that you call for clearances different than the above, especially when punching other materials such as stainless steel. Special clearances may be ordered for that purpose.

ORDERING INFORMATION

TERMS: All prices net, f.o.b. factory.

WEIGHTS: All weights listed are shipping weights.

ORDERING CHANGES: No purchase order changes will be allowed after order has been processed by our order entry department except to correct an address or to cancel the order. If changes are necessary, a new purchase order must be entered.

CLAIMS: All claims for shortages must be made within 10 days of invoice date.

QUOTATIONS: Phone quotations are effective only if confirmed prior to shipment. All quotations must be in writing and are effective 30 days only.

ORDERING RULES: BEFORE PLACING AN ORDER, BE SURE TO OBSERVE FOLLOWING RULES TO SAVE TIME AND COST OF PHONE CALLS OR CORRESPONDENCE.

PUNCHING TOOLS . . . (1) Thickness of material. (2) Type of material. (3) Location of hole in material.

SHEARING TOOLS . . . (1)Thickness of material. (2) Width of material. (3) Length of material. (4) Type of material.

PUNCHES OR DIES . . . (1) Thickness of material. (2) Type of material. (3) Tool to be used.

PARTS . . . The model number and serial number of the machine or tool.

SHIPPING INSTRUCTIONS . . . Be sure to advise method of shipping. All orders will be shipped UPS, Parcel Post or Motor Freight unless otherwise indicated.

RETURN MERCHANDISE POLICY: The following is Roper Whitney Co. policy on merchandise returned.

(1) Merchandise returned will not be accepted without written authorization.

(2) Merchandise will not be accepted if the merchandise is not properly packed.

(3) Credit will not be allowed on merchandise that has been used or has been damaged as outlined in our Standard Warranty and subject to our inspection.

(4) All shipments to Roper Whitney Co. must be shipped prepaid unless prior written authorization has been issued.

(5) A restocking charge will be assessed on returned goods.

(6) Tools and machines returned to the factory for repairs will not be accepted unless formal purchase order accompanies or precedes tool or machine. If the tool or machine will require extensive repairs, the factory will notify the customer of the approximate cost of such repairs. Authorization for the repairs must be received by the factory before the necessary repairs will be made. Minor repairs will be made by the factory without notification to the customer. Units considered unrepairable by the factory will be scrapped within 30 days unless return is requested in advance.

ROPER WHITNEY USA

FABRICATING MACHINERY INCLUDING MANUALLY OPERATED AND HYDRAULIC TOOLS

CATALOG M/P/H

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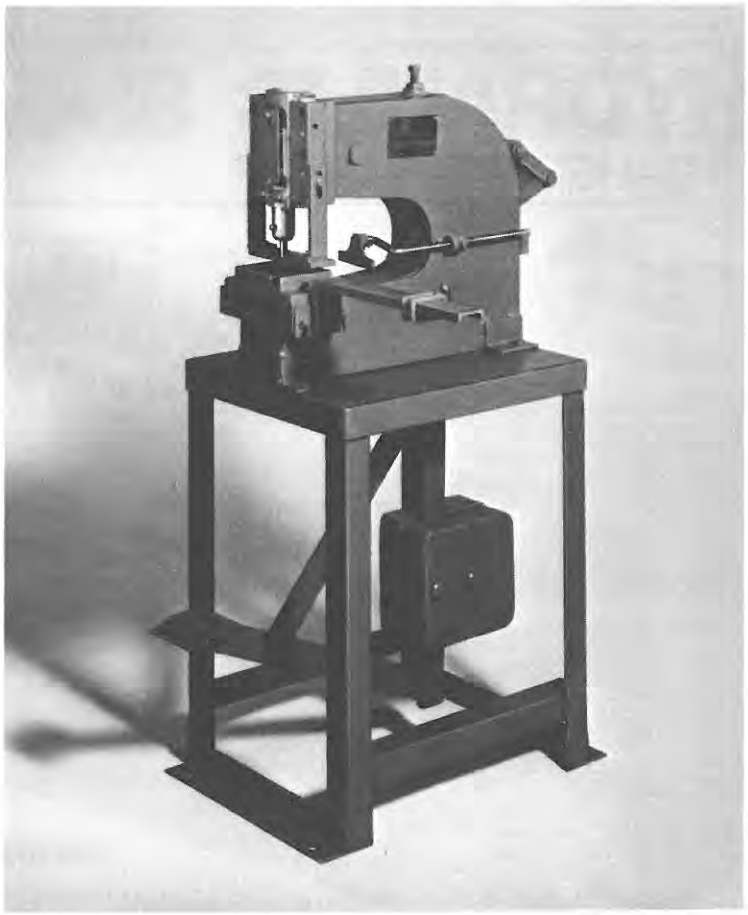
NO. 58

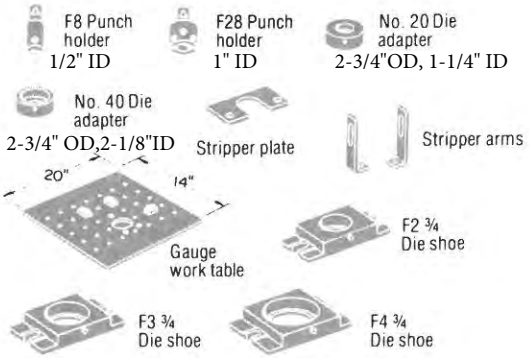
- Maximum Rated Capacity:*
  5 tons
- Foot operated
- 18 inch throat depth

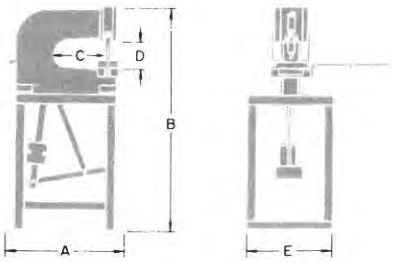
These toggle action foot presses offer the distinct advantage of freeing both hands to position the stock, as well as providing close, nearly effortless control of the punching cycle. The throat depth allows you to punch 18 inches from the edge of the material.

*Refer to the tonnage chart on page 32 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Auxiliary Attachments





Dimensions

Reference	No. 58 IN.	No. 58 MM	29	68
			Discontinued	
A	34	863.6	25	40
B	48	1219.2	48	48
C	18	457.2	10	24
D	5¾	146.05	5-3/4	5-3/4
E	18	457.2	18	18

	IN.	MM
Length of stroke	1	25.4
Adjustment of ram	¾	19.05
Die space with stroke down, adjustment up	5	127.0
Diameter of punch shank hole in ram	1	25.4
Depth of punch shank hole in ram	1¼	31.75
Slug clearance	3 x 5	76.2 x 127.0
Bed plate holes (C to C)	6¾	171.45
Bed plate dimensions	4½ x 8¼	114.3 x 209.55

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 58 Foot Press*	132050580	505
F8 punch holder	136122808	2
F28 punch holder	136132828	2
No. 20 die adapter	136313020	2
No. 40 die adapter	136323040	1
F2 ¾ die shoe	139404030	8
F3 ¾ die shoe	139415050	9
F4 ¾ die shoe	139426060	14
Stripper arms (2)	232930001	3
Stripper plate:		
A7 (½" max. punch)	332200500	2
B7 (1" max. punch)	332201000	2
C7 (2" max. punch)	332202000	3
D7 (3" max. punch)	332203000	3
E7 (4" max. punch)	332204000	3
Gauge work table	137000320	18

*Includes standard equipment: Side gauge, depth gauge, one F8 and F28 punch holder, one No. 20 and No. 40 die adapter, F2 ¾" die shoe, one set ½" round punch and die, one set stripper arms, A7 stripper plate.

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

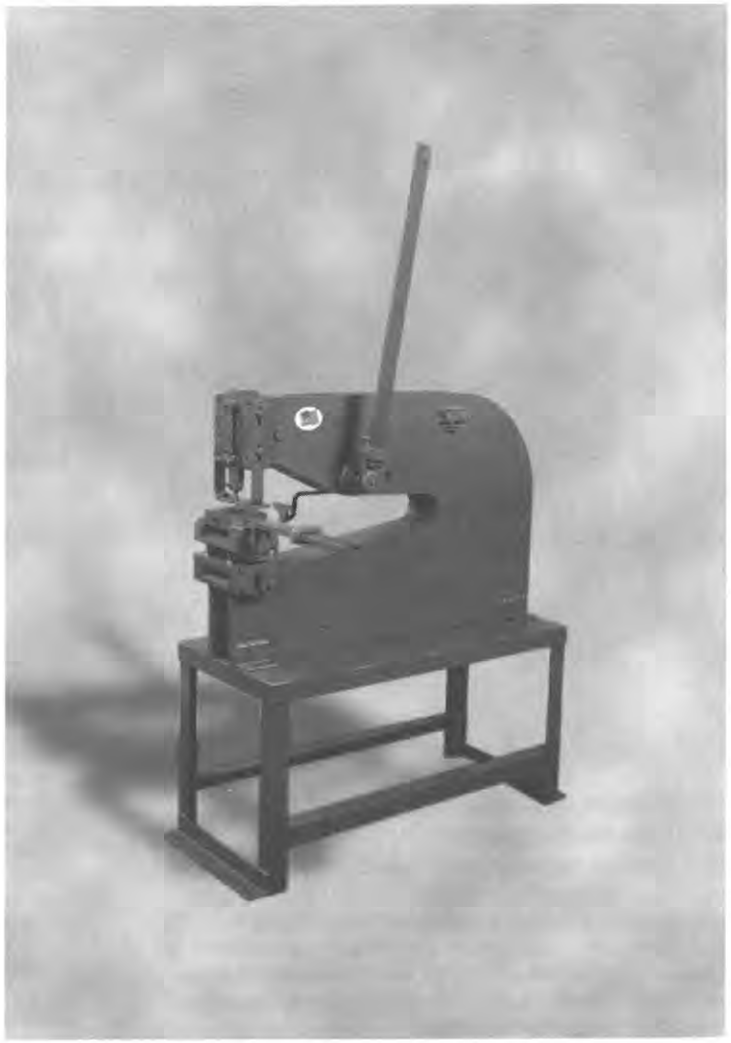
	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 29, 58 & 68	1/8-4	1/8 x 3/16 3 x 3¾	1/8 x 3/16- 2 x 3¼	1/8 x 3/16- 3 x 3¾	1/8- 2⅝	5/32- 1½	5/32- 1¼	5/32 x 1/8- 4 x 3⅞

NO. 34

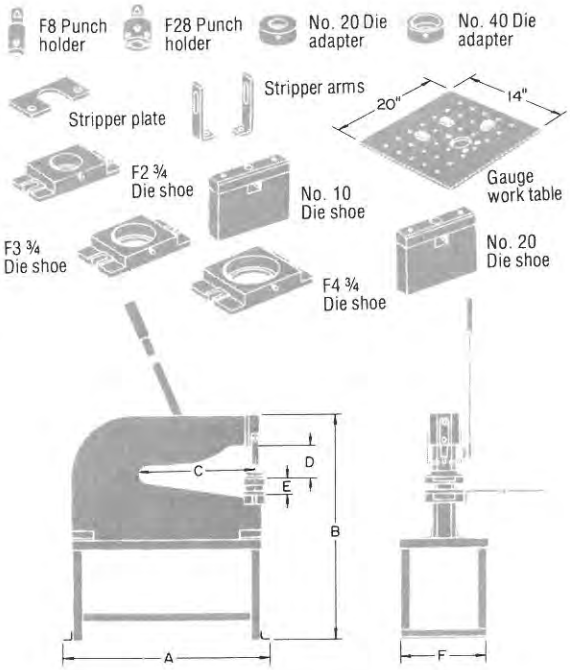
- Maximum Rated Capacity:* 8 tons
- Linear Actuation
- Standard and deep throat models

This lever press provides power press capacity with manual press economy for prototype and short run work. Their large throat openings accommodate a wide variety of part sizes and shapes.

*Refer to the tonnage chart on page 32 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Auxiliary Attachments



Dimensions

Reference	No. 34 IN.	No. 34 MM
A	44	1117.6
B	48	1219.2
C	24	609.6
D	6	152.4
E	4	101.6
F	18	457.2

	IN.	MM
Throat height at ram	10	254.0
Throat depth, No. 34	24	609.6
Length of stroke	1	25.4
Ram adjustment	¾	19.05
Bed plate holes (C to C)	6¾	171.45
Dia. of punch shank hole in ram	1	25.4
Depth of punch shank hole in ram	1¼	31.75
Slug clearance	3 x 5	76.2 x 127.0

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 34 Lever Press*	132040340	770
F8 Punch holder	136122808	2
F28 Punch holder	136132828	2
No. 20 Die adapter	136313020	2
No. 40 Die adapter	136323040	1
No. 10 Die shoe	139541010	15
No. 20 Die shoe	139552020	16
F2 ¾ Die shoe	139404030	8
F3 ¾ Die shoe	139415050	9
F4 ¾ Die shoe	139426060	14
Stripper arms (2)	232930001	3
Stripper plate:		
A7 (½" max. punch)	332200500	2
B7 (1" max. punch)	33220100C	2
C7 (2" max. punch)	332202000	3
D7 (3" max. punch)	332203000	3
E7 (4" max. punch)	332204000	3
Gauge work table	137000320	18

*Includes standard equipment: Side gauge, depth gauge, one F8 and F28 punch holder, one No. 20 and No. 40 die adapter, F2¾" die shoe, one ½" round punch and die, one set stripper arms, A7 stripper plate, and 48" bar handle.

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

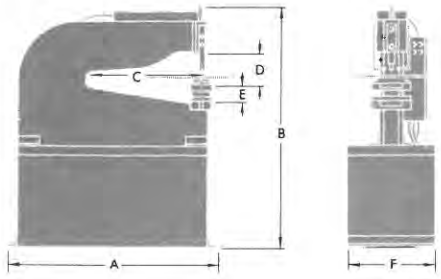
	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 32, & 34	⅛-4	⅛ x 3/16-3 x 3¾	⅛ x 3/16-2 x 3¼	⅛ x 3/16-3 x 3¾	⅛-2⅝	5/32-1½	5/32-1¼	5/32 x ⅛-4 x 3⅞

NO. 134

- Maximum rated capacity:* 8 tons
- Throat depths up to 24″

Designed for the small shop, this press economically upgrades production capability. For convenient set-up, operator efficiency and increased productivity the press has a control system that allows the operator to choose jog (for set-up) or run (for production) simply and conveniently. It also has adjustable stroke length and a full "override" capability.

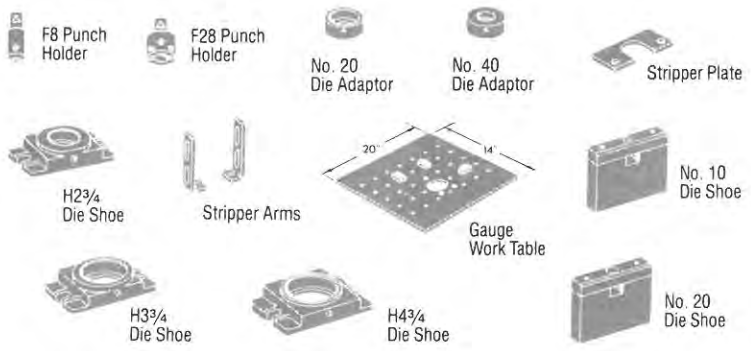
*Refer to the tonnage chart in Roper Whitney catalogs to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	IN.	MM.
A	44	1117.6
B	51	1295.4
C	24	609.6
D	6	152.4
E	4	101.6
F	18	457.2

Auxiliary Attachments



Specifications

Characteristic	IN.	MM.
Throat height at ram	10	254.0
Throat depth	24	609.6
Length of stroke	1	25.4
Ram adjustment	¾	19.05
Bed plate holes (C to C)	6¾	171.45
Dia. of punch shank hole in ram	1	25.4
Depth of punch shank hole in ram	1¼	31.75
Slug clearance	3 x 5	76.2 x 127.0

Ordering Guide

Description	Catalog No.	Weight (lbs.)
No. 134 Hydraulic Press*	133310134	900
F8 Punch holder	136122808	2
F28 Punch holder	136132828	2
No. 20 Die adaptor	136313020	2
No. 40 Die adaptor	136323040	1
No. 10 Die shoe	139541010	15
No. 20 Die shoe	139552020	16
H2¾ Die shoe	233450001	8
H3¾ Die shoe	233460001	9
H4¾ Die shoe	233470001	14
Stripper arms (2)	233940003	3
Stripper plate:		
A7 (½″ max. punch)	332200500	2
B7 (1″ max. punch)	332201000	2
C7 (2″ max. punch)	332202000	3
D7 (3″ max. punch)	332203000	3
E7 (4″ max. punch)	332204000	3
Gauge work table	233940002	18

*Includes standard equipment: Side gauge, depth gauge, one F8 and F28 punch holder, one No. 20 and No. 40 die adaptor, H2¾″ die shoe, one ½″ round punch and die, one set stripper arms. A7 stripper plate. Gauge work table.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 134	1/8-4	1/8 x 3/16-3 x 3¾	1/8 x 3/16-2 x 3¼	1/8 x 3/16-3 x 3¾	1/8-2⅝	5/32-1½	5/32-1¼	5/32 x 1/8-4 x 3⅞

Warranty Statement:

3 YEAR LIMITED WARRANTY

Roper Whitney ("Manufacturer") warrants, commencing with the date of shipment to first end-user ("Customer") and for a period of thirty-six (36) months thereafter, all machinery and parts manufactured by Manufacturer to be free of defects in workmanship and material. **This warranty remains in force for the above time period only if all of Manufacturer's operational procedures are followed and recommended maintenance is performed**. If, within such warranty period, any machinery or parts manufactured by Manufacturer shall be proved to Manufacturer's satisfaction to be defective, such machinery or parts shall be repaired or replaced, at Manufacturer's option. All warranty claims are made F.O.B Manufacturer's plant, providing such machinery or parts are returned freight prepaid to Manufacturer's plant or designated service center for Manufacturer's inspection. All failed parts or components must be returned to Manufacturer prepaid for inspection before credit will be issued for new parts or components. Manufacturer's obligation hereunder shall be confined to such repair or replacement and does not include any charges, direct or indirect, for removing or replacing defective machinery or parts. No warranty shall apply to machinery, or parts or accessories, which have been furnished, repaired, or altered by others so as, in Manufacturer's judgment, to affect the same adversely or which shall have been subject to negligence, accident or improper care, installation, maintenance, storage, or other than normal use or service, during or after shipment. No warranty shall apply to the cost of repairs made or attempted outside of Manufacturer's plant or designated service center without Manufacturer's authorization. No warranty shall apply with respect to machinery or part not manufactured by Manufacturer, including but not limited to motors, accessories, electrical and hydraulic components, if such machinery or part is subject to warranty by the manufacturer of such machinery or part. No warranty claims by Customer will be honored with respect to any machinery or part from which the name and date plate has been removed or is otherwise no longer located or exhibited on such machinery or part. **THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER WITH RESPECT TO MACHINERY, PARTS, ACCESSORIES, OR SERVICES MANUFACTURED OR FURNISHED BY IT OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. UNDER NO CIRCUMSTANCES SHALL MANUFACTURER BE LIABLE FOR ANY CONSEQUENTIAL OR OTHER DAMAGES, EXPENSES, LOSSES, OR DELAYS HOW SO EVER CAUSED.**

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Note: Consumable tooling is not covered under the 3 year manufacturer's warranty.

RETURN OF THE PRODUCT REGISTRATION CARD FURNISHED WITH THE PRODUCT IS NECESSARY TO OBTAIN WARRANTY COVERAGE THEREON. CARD MUST BE FULLY COMPLETED, SIGNED BY THE PURCHASER, AND IF APPLICABLE, SIGNED BY THE DISTRIBUTOR. RETURN REGISTRATION CARD TO:

ROPER WHITNEY COMPANY
2833 Huffman Blvd., Rockford, IL 61103
815/962-3011 FAX 815/962-2227
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