GROB

Modern Die Making Machines

The MODEL NS-18 BAND SAW

FAST! SAFE!
COMPLETE IN EVERY DETAIL
FOR EASY OPERATION

GROB BROS. NEWEST ACHIEVEMENT IN DIE-MAKING MACHINES

Never before was a Die-Making machine offered to the trade, complete in every detail with so many built-in features at such low cost. Extremely well designed, neat in appearance and of sturdy, rugged construction. It cuts your die-cost more than what you would dare to expect.—Its low cost is possible only through the most modern productive methods employed by Grob Brothers. New plants tooled up for mass production with ideal working conditions insure highest quality at lowest cost.

WITH THE NEW DEEPER 18" THROAT

Your Die-Makers' Best Friend

No matter how complicated and intricate your job may be, large or small, this machine will get it done efficiently fast and better. Simplicity and ease of operation quickly make this Band Saw your die-makers' best friend.

FEATURES...

Quick accurate welding of Saw Blade . . . Automatic table feed . . . Hydraulic Check . . . Air Blower . . . Chip Remover . . . 4-way tiltable table . . . Table stabilizer . . . circular cutting attachment . . . Speed from 50 to 2030 feet per minute to the saw blade . . . All ball bearing silent V-belt drive . . . Built-in drawer and cabinet . . . Saw guides quickly adjustable to height.

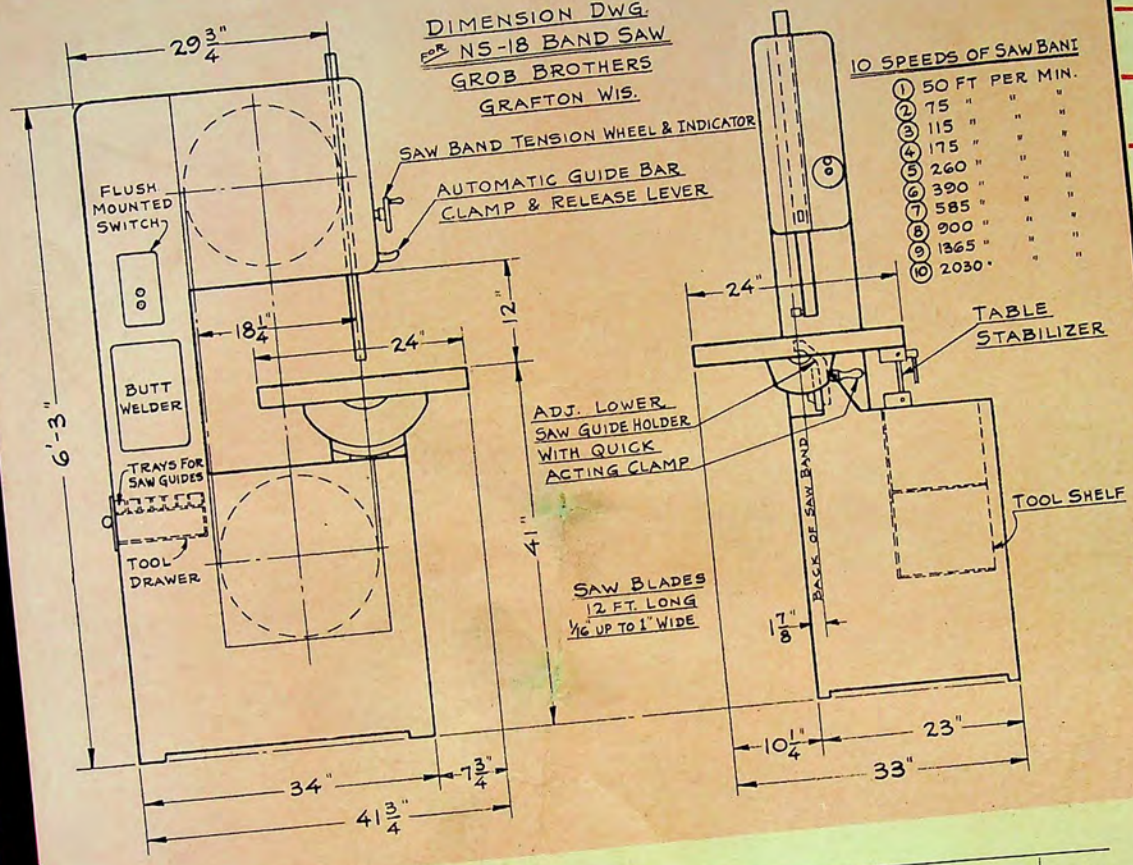
See specifications on next page

GROB BROTHERS

GRAFTON, WISCONSIN

DESIGNERS AND MANUFACTURERS OF PRECISION DIE-MAKING EQUIPMENT

SPECIFICATIONS



MODEL	SPEEDS OF SAW BLADE	MOTOR	STARTER	TABLE	TABLE STABILIZER	AUTOMATIC TABLE FEED HYDRAULIC CHECKED	CIRCULAR CUTTING ATTACHMENT	SAW BLADES	WEIGHT IN LBS.
NS-18-3	3 50—115 F.P.M.	¼ HP, single phase, 60 cycle, 110 or 220 volt.	Manual Overload protection	20"x20"	No	No	No	1/16" to ½" wide 12' long	Net 920 crated 1070
NS-18-5	5 50—260 F.P.M.	⅓ HP, 3 phase, 60 cycle, 220 or 440 volt.	Manual Overload protection	24"x24"	Yes	Optional	Optional	1/16" to 1" wide 12' long	Net 1040 Crated 1190
NS-18-10	10 50-2030 F.P.M.	1 HP, 3 phase, 60 cycle, 220 or 440 volt.	Manual Overload protection	24"x24"	Yes	Optional	Optional	1/16" to 1" wide 12' long	Net 1050 Crated 1200

Optional Equipment furnished on all above models: Butt Welder, Air Blower, Magnifying Glass, Tachometer.

Manufactured by

GROB BROTHERS, Grafton, Wisconsin

LITHO IN U.S.A. D. & J.

Sold by

INSTRUCTIONS FOR OPERATING
GROB BUTT WELDER TYPE BW

The ends of the saw blade to be welded should be cut off straight. This is especially important for 1/2" wide blades. Clamp the ends of the blade with knob in "clamp" position in such a way that the ends meet in the center between the clamps.

After clamping, adjust spring pressure by putting knob into position according to the width of saw blade. A slight variation is provided on account of various thicknesses of saw blades and on account of the difference between having the welder in vertical or in horizontal position. The operator will quickly find which pressure works best for the various conditions.

Now select the proper welding heat. Because of a fluctuation in voltage in various plants, a setting giving the best results must be determined by the operator.

To weld the saw blade press switch until weld is completed. Release clamps and set knob in annealing position. For annealing, clamp welded saw blade so that welded part is in center between the clamps. Anneal weld by operating switch intermittently until band is cherry red.

Grind off flash of weld until welded part of blade is no thicker than the blade itself so that it will freely pass through the saw guides.

Manufactured By

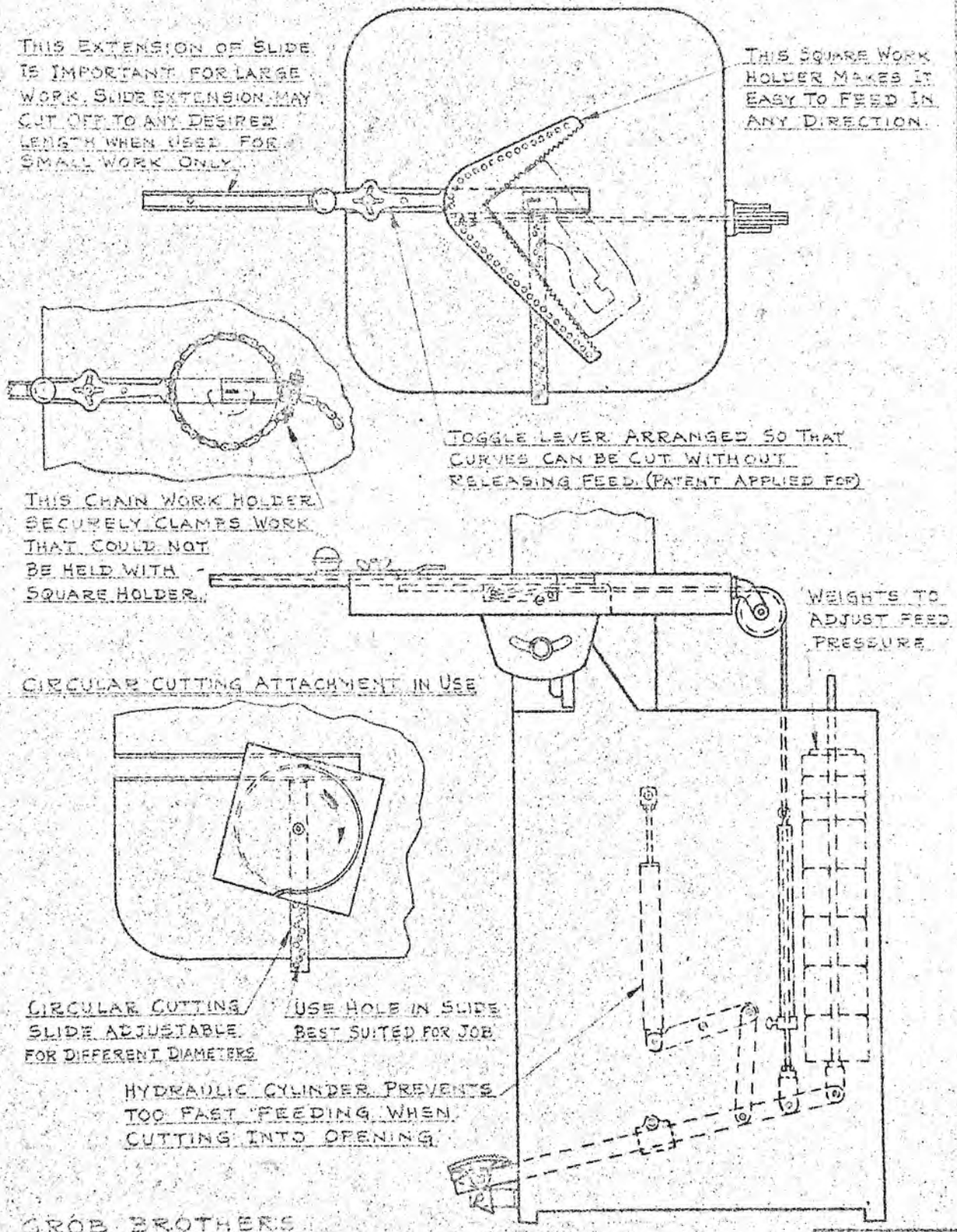
GROB BROTHERS

GRAFTON, WISCONSIN

IMPORTANT

Be sure to use bakelite wheels only on grinder as other wheels will not endure the extreme high speed of this grinder.

AUTOMATIC TABLE FEED WITH HYDRAULIC CHECK

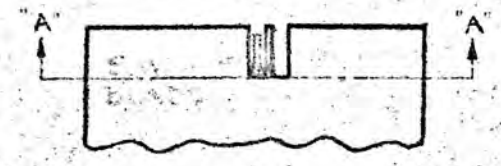


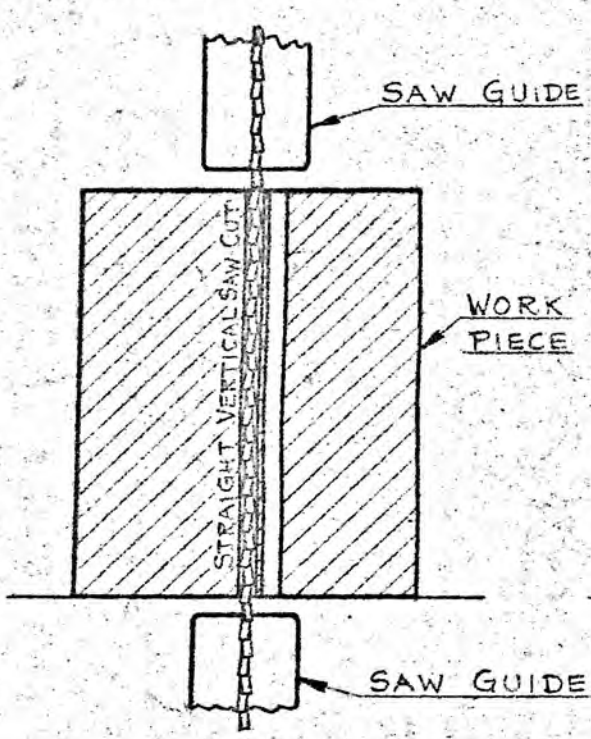
GROB BROTHERS
GRAFTON, WIS.

X-134

SAWING INSTRUCTIONS

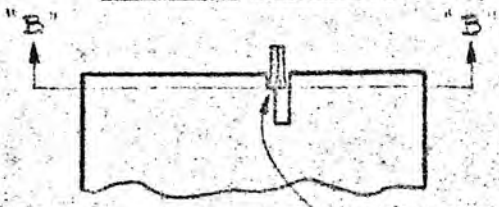
RIGHT WAY



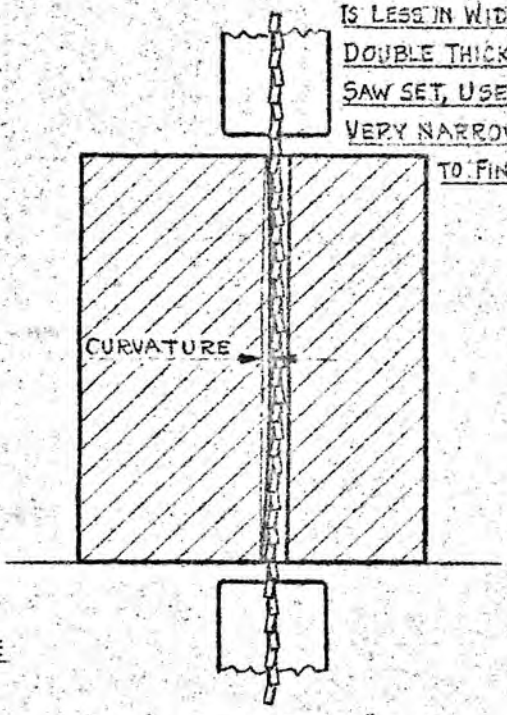


SECTION "A-A"

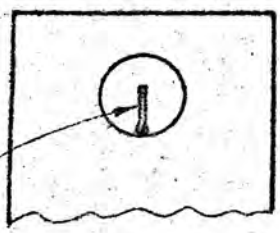
WRONG WAY



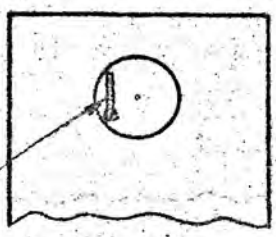
IF WORK TO BE NOTCHED IS LESS IN WIDTH THAN DOUBLE THICKNESS OF SAW SET, USE FRONT OF VERY NARROW SAW BLADE TO FINISH WORK.



SECTION "B-B"



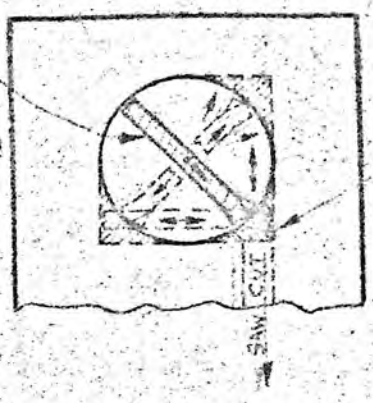
THIS WILL PRODUCE A STRAIGHT VERTICAL SAW CUT.



THIS WILL PRODUCE A CORVED VERTICAL SAW CUT. TO MAKE TANGENT CUT FROM HOLE, NOTCHING MUST BE DONE FIRST. SEE NOTCHING INSTRUCTIONS.

NOTCHING INSTRUCTIONS

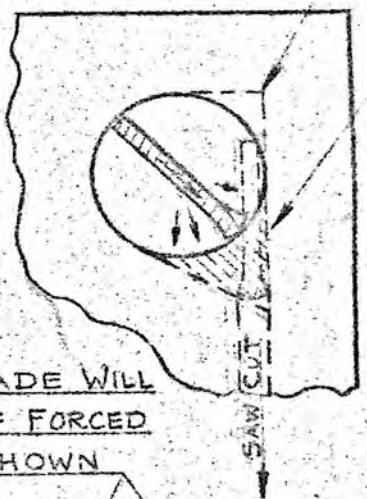
START OF NOTCHING OPERATION



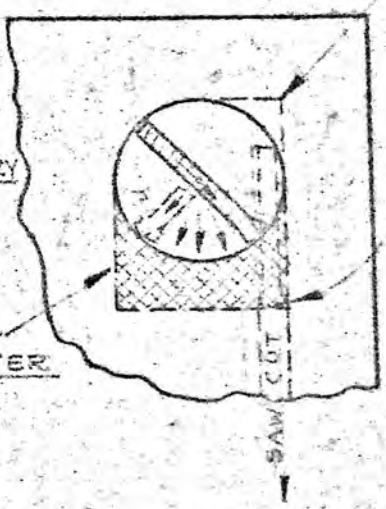
IT IS EXTREMELY IMPORTANT TO HAVE STARTING POINT OF SAW CUT PERFECTLY STRAIGHT & VERTICAL TO INSURE STRAIGHT CUT.

CORRECT WAY OF NOTCHING
CUT HOLE BEFORE STARTING TANGENT SAW CUT IN DIRECTION SHOWN.

HOW TO NOTCH WHEN IT IS NOT PERMISSIBLE TO SAW THIS CORNER.

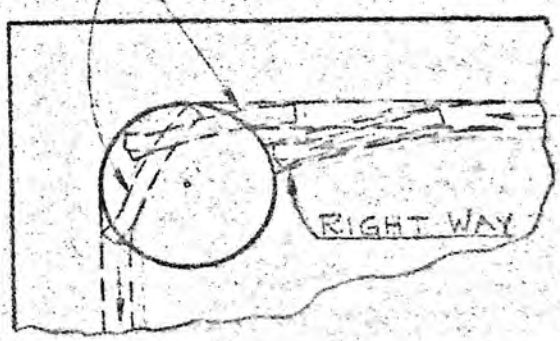


THIS WAY IN MOST CASES IS SATISFACTORY



THIS WAY IS STILL BETTER

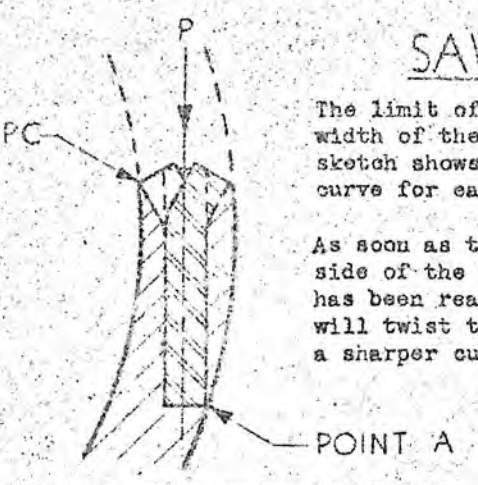
SAW BLADE WILL TWIST IF FORCED AS SHOWN



GROB BROTHERS
GRAFTON, WIS.
11-28-40

DWG. NO
X-140

SAWING CURVES



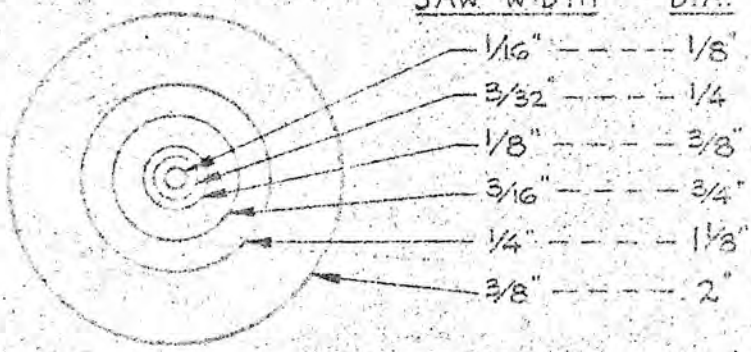
The limit of the curve to be sawed depends on the width of the band and the set of the teeth. The sketch shows how to determine the sharpest possible curve for each individual saw band.

As soon as the edge of the saw blade touches the side of the slot indicated by Point A, the limit has been reached. Any further turning of the block will twist the saw blade without actually cutting a sharper curve.

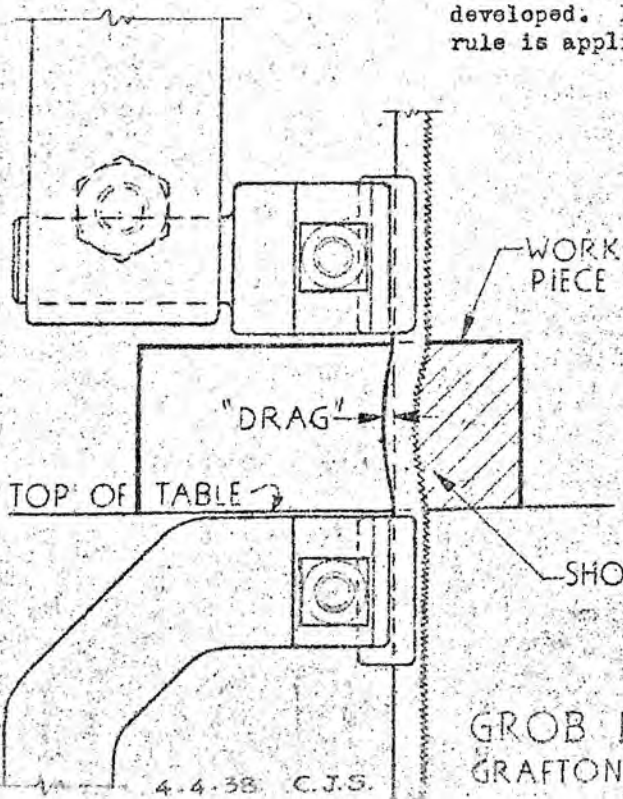
To help cutting curves apply slight side pressure from inside of curve as indicated by arrow PC thus giving the saw blade the tendency to provide additional clearance at point A.

To cut a straight line, be sure to apply pressure as indicated by arrow P.

Smallest possible radii that can be cut with standard saw blades of various width.



When cutting curves at an angle, a cone like body is developed. It is very important that above mentioned rule is applied to the smaller curve on said cone.



GENERAL RULE

On curve cutting less pressure must be applied than on straight cutting, and the smaller the curve the more care must be exercised. It must be realized that on all flexible band cutting the middle part of the band deflects in accordance with the cutting pressure. This "dragging" of the middle portion will not affect a straight cut, but in curve cutting will cause a so called "belly" in the cut. Reduced pressure greatly reduces "drag", thereby reducing "belly" to a minimum.

4-4-38 C.J.S.

GROB BROTHERS
GRAFTON, WISCONSIN

INSTRUCTION SHEET
DWG. NO X-29

SELECTION OF SAW BLADES

1. Use as wide a saw blade as possible. Width is determined by smallest radius to be cut.

2. Use as coarse a blade as possible since faster cutting is obtained with coarser teeth. At least two teeth should engage the material to be cut at all times; this means fine pitch saws must be used on sheet metal.

SPEED AND FEED OF SAW BLADES

Only a general rule can be given since the same kinds of material vary in toughness. Also higher speed and feed at times will get the job done faster at the cost of reducing the life of the saw blade. It is up to the user to determine the advantages of the one against the other.

Slowest speed 60 f.p.m. S 14, NS 14, and OS 20	High Chrome high carbon steel, High Speed Steel, Oil hardening steel, Cast Iron
Second speed 100 f.p.m. S 14, NS 14, and OS 20	Oil Hardening Tool Steel, Water Hardening Tool Steel, Mild Steel, C.R.S., etc.
Third speed 160 f.p.m. S 14, NS 14, and OS 20	Mild Steel, C.R.S. Sheet Metal
Fourth speed 180 f.p.m. OS 20 200 f.p.m. NS 14	Soft metals such as brass, copper, aluminum, etc.
Fifth speed 400 f.p.m. NS 14	Wood, etc.

Approximate feeds recommended for straight cutting, (curve cutting must not be forced) when using a 1/4" wide saw blade. A wider blade will cut faster and a blade less wide will cut slower.

Thickness	1/4"	1/2"	1"	2"	4"	6"
Cast Iron	15"	8"	4"	1-3/4"	13/16"	3/8"
C.R.S.	6"	2-1/2"	1-3/4"	13/16"	3/8"	3/16"
Tool Steel	4"	2"	1"	7/16"	3/16"	3/32"
H.S. Steel	2-1/2"	1-1/4"	3/4"	5/16"	5/32"	1/16"
High Chrome, high carbon steel	1-3/8"	13/16"	7/16"	3/16"	3/32"	3/64"

The improved saw guides of the NS 14 and OS 20 allow faster feeding. The positive drive to the saw blades and the elimination of the brazed or welded joints on the OS 20 make this machine the fastest cutting die band saw.

GROB BROTHERS
GRAFTON, WISCONSIN
5-6-38 C.J.S.

INSTRUCTION DWG N°
X-32