Brass knobs are designed to facilitate spin on. Check tightness before clamping on to workpiece.

Dowelmax cannot control variations in dowels. Dowels should fit snug. If dowels feel loose, use a 9.6 mm (0.378″) drill, or letter V (0.377″) drill for a tighter fit, or a 3/8″ (0.375″) for tightest fit.

Replacement 9.7 mm, 9.6 mm and V drills are available from Dowelmax or any local machine tool supply company under brand names: Nachi, Dormer, Morse, Norseman, Guering, Osbourne, and others. Please call 1-877-986-9400 for technical assistance.

INSTRUCTIONS FOR DOWELMAX

THE VERSATILE DEVICE FOR CREATING EXTREMELY STRONG AND ACCURATE JOINTS ON TIMBERS OF VIRTUALLY ANY THICKNESS, WIDTH OR LENGTH.

CAUTION:

1. Follow instructions carefully until a level of expertise has been attained.
2. ALWAYS THINK SAFETY! Drill bits can shatter during use. Always wear safety glasses when operating power tools. Always disconnect power before changing bits.
3. Insert drill bit into steel guide *BEFORE* switching on electric drill.
4. During the drilling process, never place fingers or hand below wooden work piece. If drill stop is not properly positioned, drill could penetrate work piece and cause injury.
5. All components to be installed and adjusted *finger* tight. Do not use tools to tighten components.

THE NAMES USED TO DESCRIBE THE MAIN COMPONENTS FOR THE DOWELMAX DEVICE ARE SHOWN BELOW IN FIG. 1.

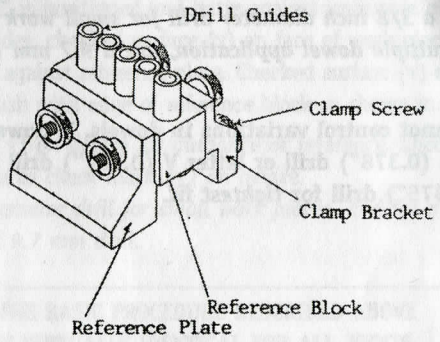


Fig. 1

GENERAL INSTRUCTIONS

Each wooden joint has four surfaces which are required to be flush when the joining process is complete, and these surfaces or reference faces are shown on Fig. 2 and Fig. 2A

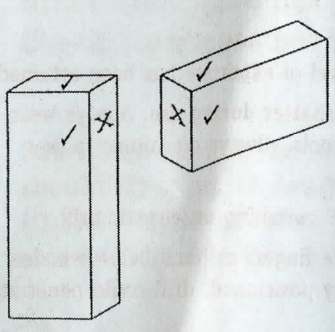


Fig. 2

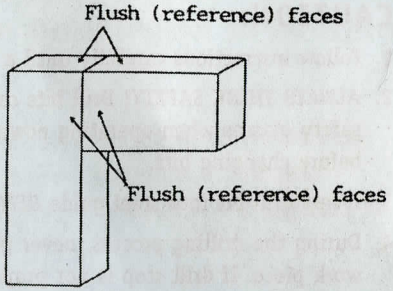


Fig. 2A

In preparation for drilling mating work pieces, the four flush or reference faces are marked with a check mark (√) and surfaces which are to be drilled to receive dowels, are marked with an X as shown on Fig. 2.

Use a 3/8 inch diameter drill for small work pieces, and for multiple dowel application, use a 9.7 mm (.381") drill.

Dowelmax cannot control variations in dowels. If dowels feel loose, use a 9.6 mm (0.378") drill or letter V (0.377") drill for a *tighter* fit, or a 3/8" (0.375") drill for *tightest* fit.

To enable the creation of extremely accurate joints, the device is reversible. Positioning of wooden work pieces within the device is important, and by using the instruction methods described, it is virtually impossible to install the work pieces improperly. Basic positioning is as shown on Fig. 3 and Fig. 3A.

GENERAL INSTRUCTIONS

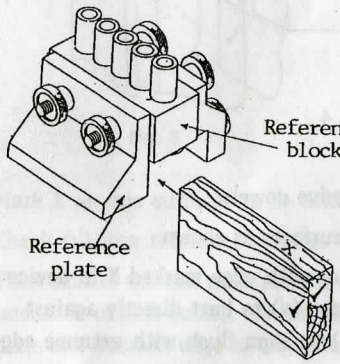


Fig. 3

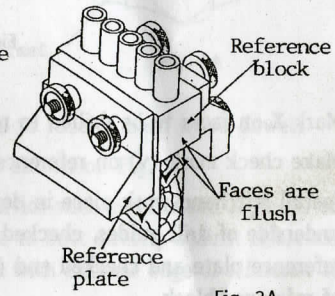


Fig. 3A

Surface marked "X" is positioned and butts against underside of reference block and drill guides, checked surface (√) on face of work piece is positioned and butts directly against reference plate. Checked surface (√) on end of work piece is aligned flush with edge of reference block as shown in Fig. 3A.

Use check marks (√) on device for guidance or reference. Check mark (√) on wooden work piece to check mark (√) on device.
Use a 3/8 inch diameter drill for small work pieces, and for multiple dowel application, use a 9.7 mm drill.

THE BASIC PROCEDURE DESCRIBED ABOVE
IS VIRTUALLY IDENTICAL FOR ALL JOINTS.

TO CREATE ACCURATE AND STRONG JOINTS FOR A CONFIGURATION AS SHOWN ON FIG. 4, PROCEED WITH INSTRUCTIONS BELOW.

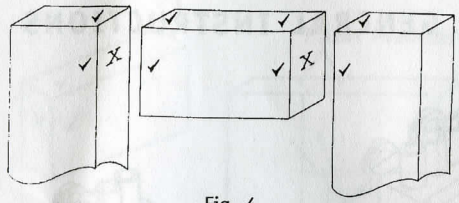


Fig. 4

1. Mark X on faces to be drilled to receive dowels
2. Make check mark (√) on reference surfaces as shown
3. Install left hand work piece in device with edge marked X in device to underside of drill guides, checked face (√) to butt directly against reference plate and checked end (√) to align flush with extreme edge of reference block
4. Drill required sequence of holes to receive dowels
5. Install centre wooden work piece in device with end marked X positioned to underside of drill guides, checked face to butt directly against reference plate and checked edge to be positioned flush with extreme end of reference block
6. Tighten clamp screws and drill same sequence of holes as for first work piece
7. Glue work pieces, install dowels and lightly clamp assembly
8. Follow exactly same procedures for wooden work pieces on right hand side of assembly.

TO CREATE OFFSET JOINTS AS SHOWN ON FIG. 5 AND FIG. 5A PROCEED WITH INSTRUCTIONS BELOW

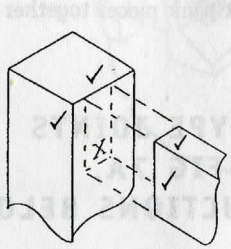


Fig. 5

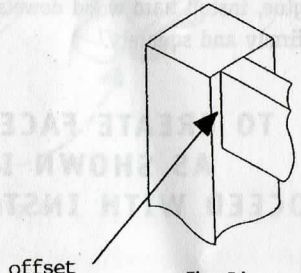


Fig. 5A

1. Mark X on two surfaces to be drilled to receive hard wood dowels
2. Check (√) four reference surfaces as shown on Fig. 5
3. Place smaller marked work piece in device with end marked X placed on underside of drill guides, checked face to butt directly against reference plate and checked edge to align flush with extreme edge of reference block
4. Tighten clamp screws and drill required sequence of holes
5. For offset joint, install spacer between reference plate and reference block and tighten assembly (see Fig.6) (Finger tight only, do not use tools)

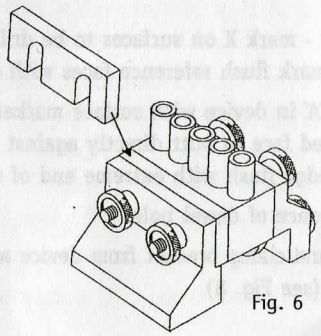


Fig. 6

6. Install larger work piece in device with surface X to underside of drill guides, checked edge to butt directly against reference plate and checked end to align flush with extreme end of reference block
7. Drill same sequence of bores as for first work piece
8. Apply glue, install hard wood dowels, fit work pieces together and clamp firmly and squarely.

TO CREATE FACE TYPE JOINTS AS SHOWN IN FIG 7A, PROCEED WITH INSTRUCTIONS BELOW:

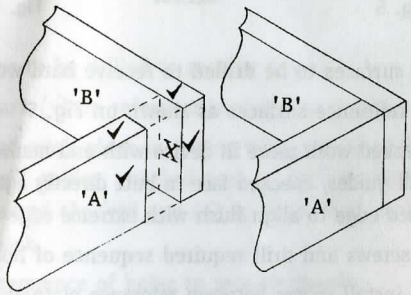


Fig 7.

Fig. 7A

1. Referring to Fig. 7 - mark X on surfaces to be drilled to receive hard wood dowels and mark flush reference faces with check mark (√)
2. Insert work piece 'A' in device with surface marked X to underside of drill guides, checked face to butt directly against reference plate and position checked edge flush with extreme end of reference block
3. Drill required sequence of dowel holes
4. Disconnect studs and clamp bracket from device and bolt to underside of reference plate (see Fig. 8)

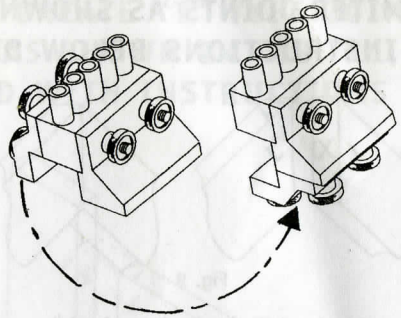


Fig. 8

5. Insert work piece 'B' into device with face marked X to underside of drill guides, checked end to butt directly against reference plate and checked edge flush with extreme end of reference block
6. Drill same sequence of dowel holes as for first work piece
7. Apply glue, install hard wood dowels, fit work pieces together and clamp firmly and squarely.

TO CREATE MITER JOINTS AS SHOWN IN FIG. 9, FOLLOW INSTRUCTIONS BELOW DIAGRAM:

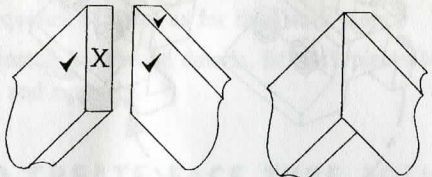


Fig. 9

1. Mark X on surfaces to be drilled, check marks (√) on opposing reference surfaces as shown on Fig. 9.
2. Insert first work piece into device with surface X positioned to underside of drill guides, checked face to butt directly against reference plate, and checked edge (apex) to align flush with edge of reference block (see Fig. 10 below)

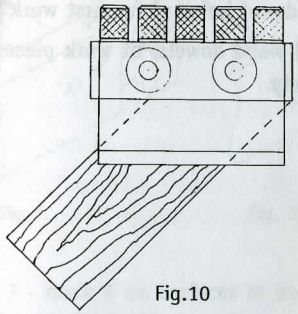


Fig.10

3. Drill required sequence of dowel holes, do not use drill guide #1 for miter joints, as drill will penetrate wooden work piece.
4. Install second work piece in device with surface X to underside of guide body, checked face to butt directly against reference plate and checked edge (apex) to align with extreme edge of guide block.
5. Drill same sequence of dowel holes as for first work piece.
6. Apply glue, install hard wood dowels, fit work pieces together and clamp firmly and squarely.

TO CREATE "T" TYPE JOINTS AS SHOWN IN FIG. 11, PROCEED WITH INSTRUCTIONS BELOW:

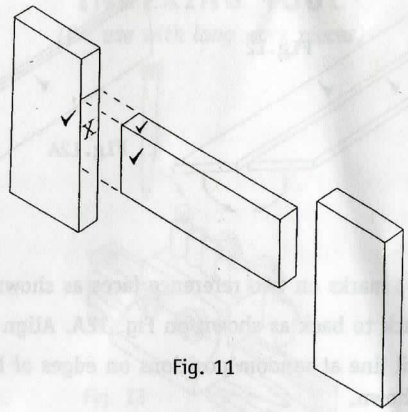


Fig. 11

1. Make pencil line on edge of left hand work piece to coincide with desired position of centre horizontal work piece.
2. Mark X on both surfaces to be drilled to accept hard wood dowels and make check (√) marks on reference faces (3) as shown.
3. Install left hand work piece in device with edge marked X to underside of drill guides, checked surface butting directly against reference plate, and marked pencil line flush with extreme edge of reference block.
4. Clamp and drill required sequence of dowel holes.
5. Install centre work piece in device with end marked X to underside of drill guides, checked face to butt directly against reference plate and checked edge to align with extreme edge of reference block.
6. Clamp and drill same sequence of dowels as for first work piece.
7. Apply glue, install hard wood dowels, fit work pieces together and clamp firmly and squarely.

TO EDGE JOIN LONG BOARDS PROCEED AS SHOWN IN FIG.12 AND 12A.

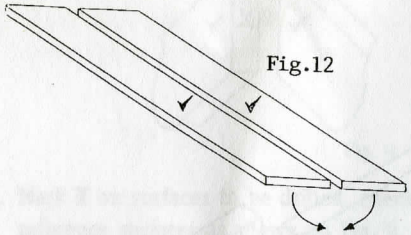


Fig.12

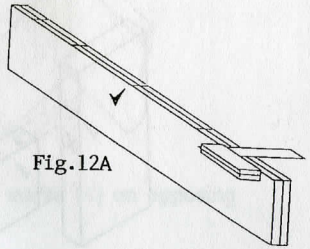


Fig.12A

1. Pencil check (√) marks on two reference faces as shown on Fig. 12.
2. Place boards back to back as shown on Fig. 12A. Align and position.
3. Mark fine pencil line at random positions on edges of boards utilizing set square as shown.
4. Place device on first board with checked (√) surface against reference plate, fine pencil line to align with extreme edge of reference block.
5. Clamp and drill single hole to required depth.
6. Slide device to the second fine pencil line and align line with edge of reference block.
7. Clamp and drill single hole as before.
8. Repeat process for remaining drill holes.
9. Place device on opposing board, again with check mark butting directly against reference plate, fine pencil line to align with edge of reference block.
10. Clamp and drill utilizing same drill guide as before.
11. Continue same process for remaining pencil lines.
12. Glue surfaces, install hardwood dowels, clamp work pieces and lightly clamp assembly.

ACCESSORIES

Accessories are available for increasing the scope of DOWELMAX and are described as follows:

INDEXING TOOL

(for use with long work pieces)

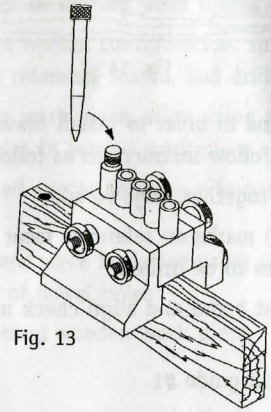


Fig. 13

1. Pencil check (√) marks on reference faces and reference ends of both work pieces
2. Mark "X" on surfaces to be drilled
3. Place first work piece in device with edge marked "X" to underside of drill guides, checked (√) face to butt directly against reference plate and checked (√) end to align flush with extreme edge of reference block
4. Drill holes using #1 and #5 drill guides
5. Unclamp and move device along work piece until drill guide #1 aligns with hole #5
6. Insert indexing tool as shown in Fig. 13
7. Drill third hole using drill guide #5
8. Continue along work piece as required
9. Reverse device and repeat procedure on second work piece

ADJUSTABLE DISTANCE GAUGE

(used to increase the distance between holes)

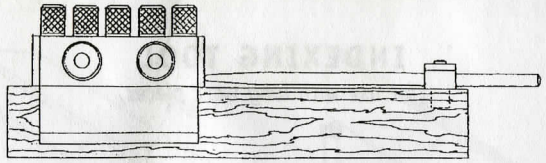


Fig. 14

For longer work pieces, and in order to install fewer dowels, the adjustable distance gauge is used. Follow instructions as follows:

1. Place two long boards together, edge to edge
2. Scribe pencil check (√) marks on reference faces and ends as required, and mark X on surfaces to be drilled
3. Place Dowelmax on first board and align check mark to check mark as before
4. Drill one hole using drill guide #1
5. Remove Dowelmax, insert cylindrical locating pin of distance gauge into drilled hole and adjust length of pointer as required (see Fig. 14)
6. Slide Dowelmax along board till contact with end of pointer occurs, secure Dowelmax and drill hole #1 as before
7. Continue along length of board
8. Repeat process for second work piece

SPACERS

The assorted width slotted spacers which come with the Dowelmax Kit, can be fitted between reference plate and reference block, or alternatively, between clamp bracket and reference block, the former to centre on work pieces, to create double row, triple row, or offset joints, and the latter to enable the fitting and clamping of larger wood work pieces i.e. 3" x 3" and 4" x 4" in the jig.

3/4 INCH DROP-IN SLOTTED SPACER

(For use in creating a double or triple column of dowel holes – create stronger joints e.g. for chair leg assembly)

FOR DOUBLE ROW OF DOWELS PROCEED AS BELOW:

1. Pencil reference marks on wooden work pieces as previously described
2. Using Dowelmax in its normal configuration, insert first wooden work piece, again aligning reference marks, and drill first row of dowel holes
3. Install second wooden work piece, align using reference marks and drill first row of dowel holes in second work piece
4. Install 3/4 inch slotted spacer between reference plate and reference block (see Fig. 15)
5. Place first wooden work piece in device using reference marks to align and drill second row of dowel holes
6. Repeat process on second wooden work piece

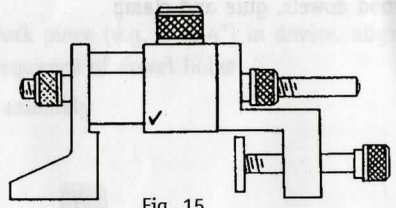


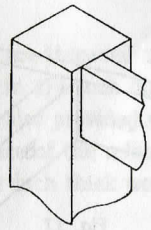
Fig. 15

FOR TRIPLE ROW OR COLUMN OF DOWEL HOLES PROCEED AS BELOW:

1. Pencil reference marks on both 2 inch x 4 inch wooden work pieces
2. Using Dowelmax in its normal configuration, (no spacer) drill 3 holes using drill guides 1, 3 & 5 (holes must be staggered to avoid interference)
3. Place second wooden work piece in device, align using reference marks, and drill corresponding holes using drill guides 1, 3 & 5
4. Install 3/8 inch spacer between reference plate and reference block
5. Place first wooden work piece in device and align using reference marks, drill second row of holes using drill guides 2 & 4
6. Repeat process for second wooden work piece
7. Remove 3/8 inch spacer and drop in 3/4 inch spacer, again between reference plate and reference block
8. Place first work piece in device and align using same reference marks, and drill third row of dowel holes using drill guides 1, 3 & 5
9. Install second wooden work piece in device and drill corresponding holes using drill guides 1, 3 & 5
10. Install hard wood dowels, glue and clamp

1 5/8 INCH DROP-IN SLOTTED SPACER

(For use with 3" x 3" or 4" x 4" timbers e.g. table leg and cross bar)



1. Pencil reference marks on work piece surfaces as previously described
2. Using Dowelmax in the basic configuration (no spacer), install smaller work piece (e.g. 1" x 4"), align using reference marks
3. Clamp and drill required number of holes
4. Drop in the 1-5/8 inch slotted spacer between clamp bracket and reference block and tighten bracket as shown
5. Move 3/8" spacer into position between reference plate and reference block
6. Install second work piece (e.g. 4" x 4") in device, align as before and drill the same sequence of dowel holes
7. Glue and clamp assembly

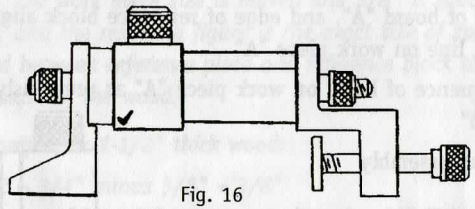


Fig. 16

TO CREATE FACE TYPE "T" JOINTS AS SHOWN IN FIG. 17, AN ANGLE BRACKET MAY BE PURCHASED AS AN OPTIONAL ACCESSORY

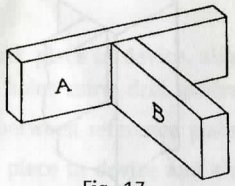


Fig. 17

1. Draw vertical line on work piece "A" to coincide with centre line of work piece "B"
2. Mark second line exactly 1/2 inch distant from centre line (to reference to edge of reference block)
3. Pencil reference marks on work pieces "A" and "B"
4. Using Dowelmax in its normal configuration, clamp, align and drill required sequence of holes on work piece "B"
5. Disconnect and remove both alignment plate and clamp bracket
6. Install angle bracket on short studs and secure with knobs as shown in Fig. 18.
7. Position and align device on face of timber "A" and fasten with "C" clamp. Use check (√) marks to ensure end of reference block aligns with top face of board "A", and edge of reference block aligns with second pencil line on work piece "A"
8. Drill same sequence of holes on work piece "A" as previously done on work piece "B"
9. Glue and clamp assembly

When reassembling Dowelmax, make sure check mark on the reference block is positioned adjacent to reference plate.

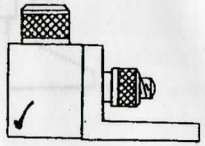


Fig. 18

ADDITIONAL HINTS AND TIPS

OPTIONAL 1/4 INCH HARDENED STEEL DRILL GUIDES & SPACER

All hardened steel drill guides are threaded and removable, and additional steel drill guides are available in 1/4 inch diameter for utilizing 1/4 inch hardwood dowels. A spacer is also provided which is 1/8 inch in width and is fastened to the lower face of the reference plate to enable Dowelmax to be used with 1/2 inch thick work pieces.

TIP FOR 1/4 INCH DRILL GUIDES

After drilling your holes using a 1/4 inch drill bit, if you find the 1/4 inch dowels are too snug, you can achieve an easier fit by using a 1/4 inch letter "F" drill bit.

WORKSHOP TIPS

TIP #1

For optimum results ensure workpieces cut and prepared in either a tablesaw or planer are absolutely square.

TIP #2

A simple method exists to provide centering on wooden work pieces of any thickness. The work piece size is halved and 3/8" is subtracted from the remainder, and the resulting figure is the exact size of spacer required to be inserted between reference plate and reference block to bring the holes into the centre of the wood.

Simple example for 1-1/2" thick wood:

1-1/2" ÷ 2 = 3/4" minus 3/8" = 3/8"
therefore you need a 3/8" spacer to centre the drill holes on a 1-1/2" work piece (Use same formula for any width of wood)

SUGGESTIONS POUR L'ATELIER

SUGGESTION #1

Il existe une façon toute simple de centrer une pièce de bois, quelle que soit son épaisseur. On divise par deux l'épaisseur de la pièce à travailler, puis on soustrait 3/8". Le chiffre ainsi obtenu indique la dimension exacte du bloc d'espacement qui doit être inséré entre la plaque de référence et le bloc de référence de façon à ce que les trous soient au centre de la pièce de bois.

Un exemple tout simple pour une pièce de bois épaisse de 1-1/2:
1-1/2 ÷ 2 = 3/4 moins 3/8" = 3/8"
il vous faut donc un bloc d'espacement de 3/8" pour centrer les trous sur une pièce de bois de 1-1/2".
(la même formule s'applique pour toute épaisseur de bois)

SUGGESTION #2

Il est recommandé d'utiliser une butée quand on pratique des trous avec une perceuse. Ceci garantit que la profondeur des trous soit toujours exacte.

SUGGESTION #3

Assurez-vous que la mèche de la perceuse électrique ait cessé de tourner avant de l'insérer dans le guide de perçage.

SUGGESTION #4

Avant de pratiquer des trous dans la pièce à travailler, assurez-vous que celle-ci soit bien à l'équerre et au contact de la face inférieure du bloc de référence.

SUGGESTION # 5

Quand vous vous apprêtez à pratiquer des trous sur le bout de pièces de 1" x 1", insérez une autre pièce de même épaisseur pour servir de guide et garantir que la pièce à travailler de 1" x 1" soit absolument droite et à l'équerre dans le dispositif. Immobilisez avec une pince et percez un seul trou.

TIP #3

When disassembling and re-assembling device, ensure check mark on reference block is adjacent to reference plate and not clamp bracket.

TIP #4

When utilizing the 1/4 Inch Drill Guide accessory package and preparing a face joint, the clamp disc will foul the 1/8 inch aluminum spacer plate. Therefore, use a soft wood clamp block between clamp disc and workpiece. Clamp and drill as before.

TIP #5

To centre on 5/8 inch material, secure 1/8 inch spacer plate (included in 1/4 inch guide kit) to reference plate (using the 2 screws), then install the 2 x 1/16 inch brass washers between the reference block and reference plate.

TIP #6

It is advisable when drilling a work piece to use a drill stop. This ensures constant accuracy with respect to hole depth.

TIP #7

Ensure electric drill has stopped rotating before inserting drill bit in drill guide bore.

TIP #8

Before drilling work piece, ensure wooden work piece is square and in full contact with underside of reference block.

TIP #9

When preparing to drill 1" x 1" work pieces on the end surface, insert another piece of equal thickness to act as guide and to ensure 1" x 1" work piece is absolutely true and square in device. Clamp and drill single hole.

TIP #10

When using the Dowelmax in the second configuration to prepare a face joint, it may be necessary to adjust the drill collar stop depth to avoid accidentally drilling through to the opposite side of the workpiece.