



**Before starting, watch the Instructional Video**

Scan the QR Code to stream to your tablet or smart phone, or view it in the support section at [Leightools.com](http://Leightools.com)



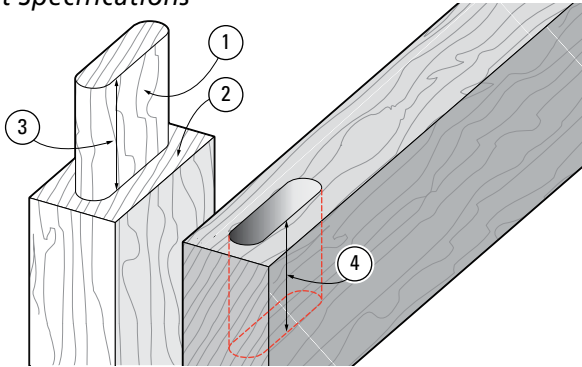
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**FMT PRO Appendix I**

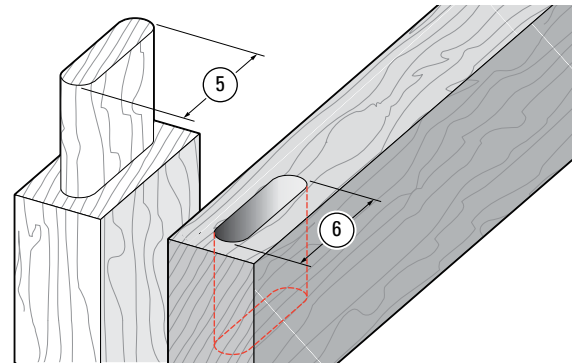
## Joint Specifications, Guide & Bit Selection

**Foreword** The illustrations and specifications in this Appendix show the largest tenon rail and tenon sizes possible on the FMT Pro, either in one table position or multiple table positions as noted. For all smaller sizes, refer to the guide and bit selection chart.

### Joint Specifications

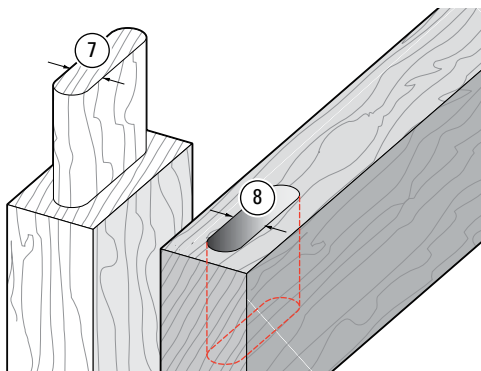


**A1-1 Joint Terminology** The tenon sides are the “Cheeks” ①. The tenon shoulders are called (luckily) the “Shoulders” ②. Unfortunately, references to dimensions of mortises and tenons do not share matching terminology, so... Long or short tenons ③ fit into deep or shallow mortises ④.  
**Tenon Length = Mortise Depth.**



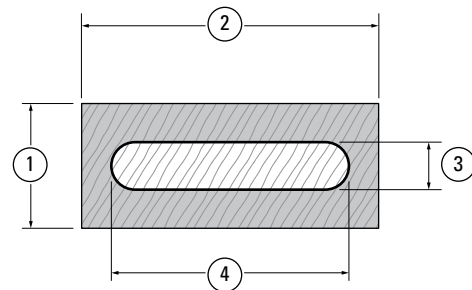
**A1-2** Wide or narrow tenons ⑤ fit into long or short mortises ⑥.

**Tenon Width = Mortise Length.**



**A1-3** Thick or thin tenons ⑦ fit into wide or narrow mortises ⑧.

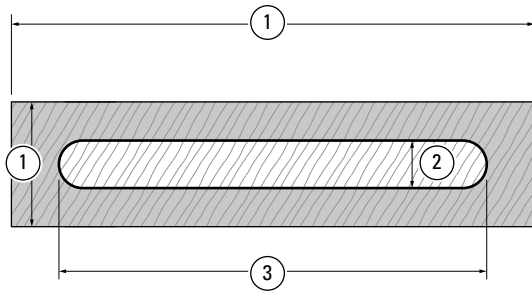
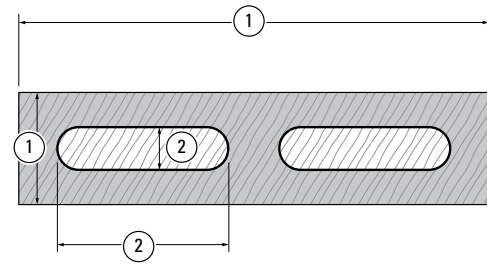
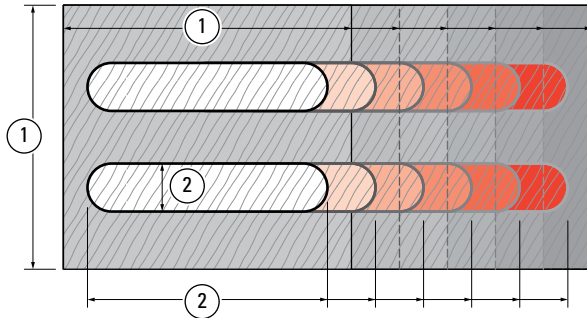
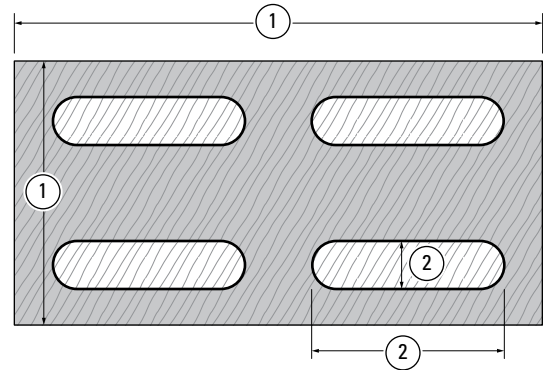
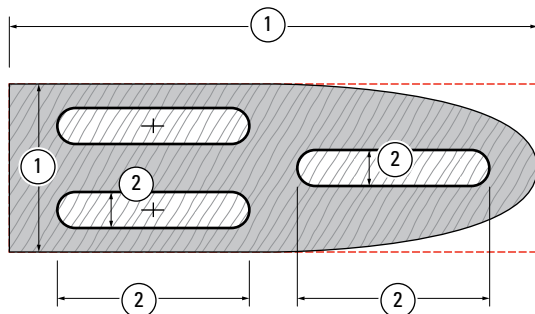
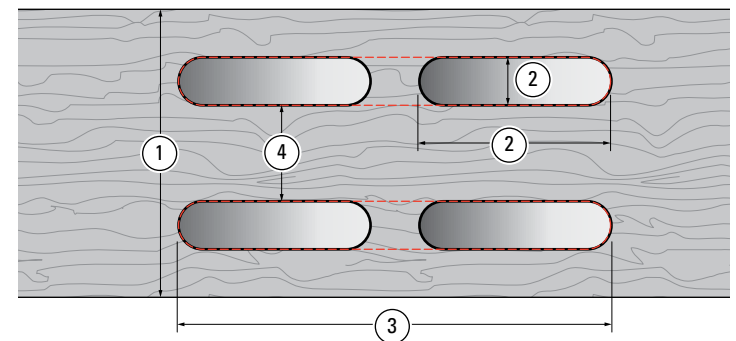
**Tenon Thickness = Mortise Width.**



### A1-4 Largest Single Rail and Tenon Using One Table Position with 1/2" Bit

- ① Workpiece thickness 1 5/16" [34mm]
- ② Workpiece width 3 1/8" [80mm]
- ③ Tenon thickness 1/2" [12mm]
- ④ Tenon width 2 1/2" [65mm]

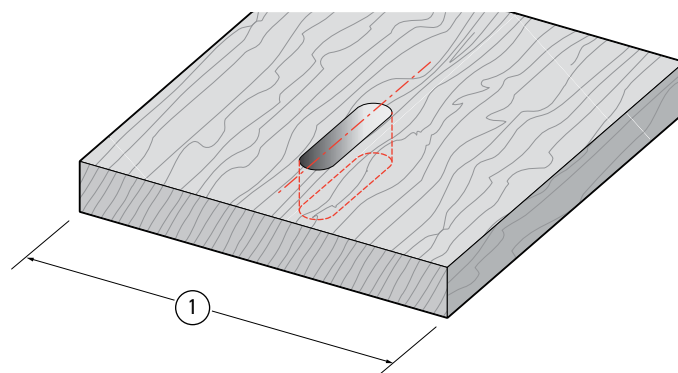
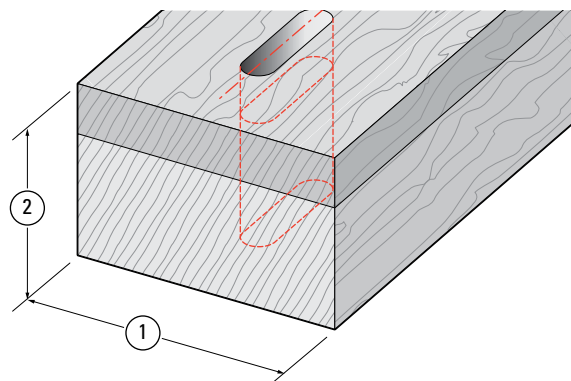
*Note: To rout single tenons in stock thicker than 1 5/16" [34mm] would require the bit to be plunged into the edge of the workpiece and so “trapping” the bit. That could be dangerous, so follow the “Third Tenon” procedure (see 5-39 through 5-44).*

**A1-5 Largest Single Rail and Tenon - Two Table Positions.**Workpiece  $1\frac{5}{16}$ " x  $5\frac{1}{2}$ " [34 x 140mm] ①.Tenon  $\frac{1}{2}$ " x  $4\frac{1}{2}$ "\* [12 x 115mm] ②.Guide  $\frac{1}{2}$ " x  $2\frac{1}{2}$ " [12 x 65mm].*\*Note: Using three table positions, tenon width ③ may be up to 5" [125mm]***A1-6 Largest Tandem Double Tenon - Two Table Positions.**Workpiece  $1\frac{5}{16}$ " x  $5\frac{1}{2}$ " [34 x 140mm] ①.Tenons  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.Guide  $\frac{1}{2}$ " x 2" [12 x 50mm].**A1-7 Largest Side-by-Side Twin Tenon - Two\* Table Positions.**Workpiece 3" x  $5\frac{1}{2}$ " [76 x 140mm] ①.Tenons  $\frac{1}{2}$ " x  $2\frac{1}{2}$ "\* [12 x 65+mm] ②.Guide  $\frac{1}{2}$ " x  $2\frac{1}{2}$ " [12 x 65mm].*\*Note: Add left-right table positions to the two front-back settings, for maximum workpiece and tenons extension. See A1-5***A1-8 Largest Quadruple Tenon - Four table positions.**Workpiece 3" x  $5\frac{1}{2}$ " [76 x 140mm] ①.Tenons  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.Guide  $\frac{1}{2}$ " x 2" [12 x 50mm].**A1-9 Largest Triple Tenon - Five\* Table Positions.**Workpiece  $1\frac{3}{4}$ " x  $5\frac{1}{2}$ " [44 x 140mm] ①.Tenons  $\frac{3}{8}$ " x 2" [10 x 50mm] ②.Guide  $\frac{3}{8}$ " x 2" [10 x 50mm].*\*Note: To avoid "trapping" the bit on larger workpieces it is necessary to rout the third tenon in three different  $\text{FB}$  table positions. See Chapter 5, Triple Joints.***A1-10 Thickest Mortise Board and Mortise Centers - Four table positions**

Thickness 3" [75mm] ①.

4 Mortises  $\frac{1}{2}$ " x 2" [12 x 50mm] ②.2 Mortises  $\frac{1}{2}$ " x  $4\frac{1}{2}$ " [12 x 115mm] ③.Spacing  $\frac{9}{16}$ " to 1" [13 x 26mm] ④.

Board Width Clamping Capacity: 5" [128mm].



### A1-11 Maximum Mortise Board Width and Thickness for Mortising to Center

Width: up to 4 $\frac{5}{8}$ " [115mm] ①.

Thickness: up to 4" [100mm] ②.

Note: See 6-21 mounting instructions for these pieces.

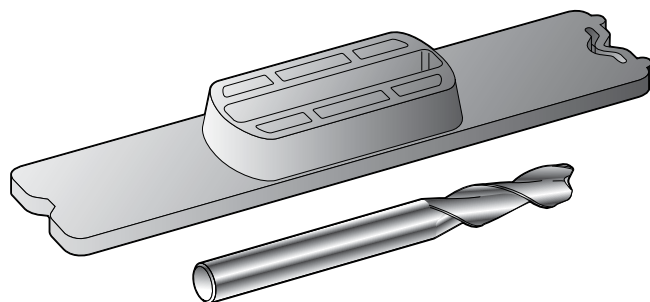
### A1-12 Maximum Width Mortise Board for Mortising to Center

Width from 4 $\frac{5}{8}$ " [115mm] up to 6 $\frac{1}{2}$ " [165mm] ①.

See 6-22 for special instructions. ■

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## Guide and Bit Selection



### Guide and Bit Selection

Use the following charts to select appropriate guide and bit combinations. →

**Directions:** Joints routed with a single bit are shown shaded. In addition to the joint sizes listed in the charts, any tenon width (mortise length) can easily be achieved by using the jig's quick-acting table movement and limit stops as described in Chapter 6, Longer and Shorter Joints. By using combinations of machine tool bits, even more sizes of small and miniature joints may be routed. See information on small joints in Chapter 4.

INCH GUIDE AND BIT SELECTION CHART							
JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE	JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE
1/16" x 1/8"	1/16	7/16	1/4" x 5/16"	1/4" x 5/16"	1/4	1/4	1/4" x 5/16"
1/16" x 3/16"	1/16	7/16	1/4" x 3/8"	1/4" x 3/8"	1/4	1/4	1/4" x 3/8"
1/16" x 5/16"	1/16	7/16	1/4" x 1/2"	1/4" x 7/16"	1/4	3/8	5/16" x 1/2"
1/16" x 7/16"	1/16	7/16	1/4" x 5/8"	1/4" x 1/2"	1/4	1/4	1/4" x 1/2"
1/16" x 9/16"	1/16	7/16	1/4" x 3/4"	1/4" x 5/8"	1/4	1/4	1/4" x 5/8"
1/16" x 13/16"	1/16	7/16	1/4" x 1"	1/4" x 11/16"	1/4	3/8	5/16" x 3/4"
1/16" x 1-1/16"	1/16	7/16	1/4" x 1-1/4"	1/4" x 3/4"	1/4	1/4	1/4" x 3/4"
1/16" x 1-5/16"	1/16	7/16	1/4" x 1-1/2"	1/4" x 7/8"	1/4	1/2	3/8" x 1"
1/8" x 3/16"	1/8	3/8	1/4" x 5/16"	1/4" x 15/16"	1/4	3/8	5/16" x 1"
1/8" x 1/4"	1/8	3/8	1/4" x 3/8"	1/4" x 1"	1/4	1/4	1/4" x 1"
1/8" x 5/16"	1/8	1/2	5/16" x 1/2"	1/4" x 1-3/16"	1/4	3/8	5/16" x 1-1/4"
1/8" x 3/8"	1/8	3/8	1/4" x 1/2"	1/4" x 1-1/4"	1/4	1/4	1/4" x 1-1/4"
1/8" x 1/2"	1/8	3/8	1/4" x 5/8"	1/4" x 1-3/8"	1/4	1/2	3/8" x 1-1/2"
1/8" x 9/16"	1/8	1/2	5/16" x 3/4"	1/4" x 1-7/16"	1/4	3/8	5/16" x 1-1/2"
1/8" x 5/8"	1/8	3/8	1/4" x 3/4"	1/4" x 1-1/2"	1/4	1/4	1/4" x 1-1/2"
1/8" x 13/16"	1/8	1/2	5/16" x 1"	1/4" x 1-7/8"	1/4	1/2	3/8" x 2"
1/8" x 7/8"	1/8	3/8	1/4" x 1"	1/4" x 2-3/8"	1/4	1/2	3/8" x 2-1/2"
1/8" x 1-1/16"	1/8	1/2	5/16" x 1-1/4"	5/16" x 1/2"	5/16	5/16	5/16" x 1/2"
1/8" x 1-1/8"	1/8	3/8	1/4" x 1-1/4"	5/16" x 3/4"	5/16	5/16	5/16" x 3/4"
1/8" x 1-5/16"	1/8	1/2	5/16" x 1-1/2"	5/16" x 15/16"	5/16	7/16	3/8" x 1"
1/8" x 1-3/8"	1/8	3/8	1/4" x 1-1/2"	5/16" x 1"	5/16	5/16	5/16" x 1"
3/16" x 1/4"	3/16	5/16	1/4" x 5/16"	5/16" x 1-1/4"	5/16	5/16	5/16" x 1-1/4"
3/16" x 5/16"	3/16	5/16	1/4" x 3/8"	5/16" x 1-7/16"	5/16	7/16	3/8" x 1-1/2"
3/16" x 3/8"	3/16	7/16	5/16" x 1/2"	5/16" x 1-1/2"	5/16	5/16	5/16" x 1-1/2"
3/16" x 7/16"	3/16	5/16	1/4" x 1/2"	5/16" x 1-15/16"	5/16	7/16	3/8" x 2"
3/16" x 9/16"	3/16	5/16	1/4" x 5/8"	5/16" x 2-7/16"	5/16	7/16	3/8" x 2-1/2"
3/16" x 5/8"	3/16	7/16	5/16" x 3/4"	3/8" x 1"	3/8	3/8	3/8" x 1"
3/16" x 11/16"	3/16	5/16	1/4" x 3/4"	3/8" x 1-1/2"	3/8	3/8	3/8" x 1-1/2"
3/16" x 7/8"	3/16	7/16	5/16" x 1"	3/8" x 2"	3/8	3/8	3/8" x 2"
3/16" x 15/16"	3/16	5/16	1/4" x 1"	3/8" x 2-1/2"	3/8	3/8	3/8" x 2-1/2"
3/16" x 1-1/8"	3/16	7/16	5/16" x 1-1/4"	1/2" x 1"	1/2	1/2	1/2" x 1"
3/16" x 1-3/16"	3/16	5/16	1/4" x 1-1/4"	1/2" x 1-1/2"	1/2	1/2	1/2" x 1-1/2"
3/16" x 1-3/8"	3/16	7/16	5/16" x 1-1/2"	1/2" x 2"	1/2	1/2	1/2" x 2"
3/16" x 1-7/16"	3/16	5/16	1/4" x 1-1/2"	1/2" x 2-1/2"	1/2	1/2	1/2" x 2-1/2"

### INCH BIT SPECIFICATIONS

LEIGH BIT ITEM NO.		Mortise Size Cutting Diameter	HSS Cutting Depth	Solid Carbide Cutting Depth	Shank Diameter
HSS Spiral Upcut	Solid Carbide Spiral Upcut				
162	N/A	1/16"	3/16"	-	1/4"
164	164C	1/8"	3/8"	1/2"	1/4"
166	166C	3/16"	5/8"	3/4"	1/4"
168	168C	1/4"	1"	1-1/8"	1/4"
170-500	170-500C	5/16"	1"	1-1/4"	1/2"
173-500	173-500C	3/8"	1-1/4"	1-1/4"	1/2"
177	177C	7/16"	1-3/4"	1-3/4"	1/2"
180	180CL	1/2"	1-1/2"	2-1/8"	1/2"

METRIC GUIDE AND BIT SELECTION CHART							
JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE	JOINT SIZE	MORTISE BIT	TENON BIT	GUIDE SIZE
2 x 4	2	10	6 x 8	6 x 8	6	6	6 x 8
2 x 6	2	10	6 x 10	6 x 10	6	6	6 x 10
2 x 11	2	10	6 x 15	6 x 13	6	10	8 x 15
2 x 16	2	10	6 x 20	6 x 15	6	6	6 x 15
2 x 21	2	10	6 x 25	6 x 18	6	10	8 x 20
2 x 26	2	10	6 x 30	6 x 20	6	6	6 x 20
2 x 31	2	10	6 x 35	6 x 23	6	10	8 x 25
2 x 36	2	10	6 x 40	6 x 25	6	6	6 x 25
3 x 5	3	9	6 x 8	6 x 28	6	10	8 x 30
3 x 7	3	9	6 x 10	6 x 30	6	6	6 x 30
3 x 12	3	9	6 x 15	6 x 33	6	10	8 x 35
3 x 17	3	9	6 x 20	6 x 35	6	6	6 x 35
3 x 22	3	9	6 x 25	6 x 38	6	10	8 x 40
3 x 27	3	9	6 x 30	6 x 40	6	6	6 x 40
3 x 32	3	9	6 x 35	7 x 14	7	9	8 x 15
3 x 37	3	9	6 x 40	7 x 19	7	9	8 x 20
4 x 6	4	8	6 x 8	7 x 24	7	9	8 x 25
4 x 8	4	8	6 x 10	7 x 29	7	9	8 x 30
4 x 11	4	12	8 x 15	7 x 34	7	9	8 x 35
4 x 13	4	8	6 x 15	7 x 39	7	9	8 x 40
4 x 16	4	12	8 x 20	8 x 15	8	8	8 x 15
4 x 18	4	8	6 x 20	8 x 20	8	8	8 x 20
4 x 21	4	12	8 x 25	8 x 23	8	12	10 x 25
4 x 23	4	8	6 x 25	8 x 25	8	8	8 x 25
4 x 26	4	12	8 x 30	8 x 30	8	8	8 x 30
4 x 28	4	8	6 x 30	8 x 33	8	12	10 x 35
4 x 31	4	12	8 x 35	8 x 35	8	8	8 x 35
4 x 33	4	8	6 x 35	8 x 40	8	8	8 x 40
4 x 36	4	12	8 x 40	8 x 43	8	12	10 x 45
4 x 38	4	8	6 x 40	8 x 53	8	12	10 x 55
5 x 7	5	7	6 x 8	8 x 63	8	12	10 x 65
5 x 9	5	7	6 x 10	10 x 25	10	10	10 x 25
5 x 14	5	7	6 x 15	10 x 35	10	10	10 x 35
5 x 19	5	7	6 x 20	10 x 45	10	10	10 x 45
5 x 24	5	7	6 x 25	10 x 55	10	10	10 x 55
5 x 29	5	7	6 x 30	10 x 65	10	10	10 x 65
5 x 34	5	7	6 x 35	12 x 25	12	12	12 x 25
5 x 39	5	7	6 x 40	12 x 35	12	12	12 x 35
				12 x 45	12	12	12 x 45
				12 x 55	12	12	12 x 55
				12 x 65	12	12	12 x 65

**METRIC BIT SPECIFICATIONS**

**Important Note:** Due to limited availability of metric bits in North America, Leigh does not stock or sell metric bits. Contact the national Leigh distributor or local supplier in your region.

