

# MLCS PINS & TAILS HALF BLIND DOVETAIL JIG



**COMPLETE INSTRUCTION  
MANUAL & REFERENCE GUIDE**



**PLEASE READ BEFORE USING YOUR JIG.**

**TABLE OF CONTENTS**

General Safety Instructions.....page 3

How to Assemble Your Jig.....page 4

Reference Guide and Specifications.....page 4

Setting Up.....page 4-6

Getting Started.....page 7

Routing Half Blind Dovetail Joints.....page 8

Routing Rabbeted Dovetail Joints.....page 9

Drawer Front Construction.....page 10-12

Making It All Fit: Quick Tips.....page 12

Parts List, Exploded Parts Diagram.....page 13-14

## GENERAL SAFETY INSTRUCTIONS

It is IMPORTANT to read and understand all the information and procedures contained in this manual PRIOR to using your new jig. Failure to do so could result in serious injury. For safety, do not modify this jig or use it for applications other than those described in this manual.

Please review and adhere to any rules and instructions provided with any supplementary tools you plan to use with your jig.

- Dress for safety:
  - Safety equipment including safety glasses, ear protection, and a dust mask should always be worn during the use of power tools.
  - Never wear loose clothing or other items which can become tangled or caught in machinery, such as shirt sleeves, bracelets, watches, chains, rings, drawstrings, etc.
- Prevent electric shock hazards:
  - Don't touch grounded surfaces and don't use tools where moisture is present.
  - Power cords should be kept away from machinery in motion.
  - Do not change bits or make other adjustments until your tool is safely disconnected from the power supply.
  - Before starting your tool, make sure any adjusting keys or wrenches are safely removed.
- NEVER use power tools when tired or using alcohol or medications.
- DOUBLE-CHECK that all parts are adjusted properly, tightened, and secured prior to working.
- INSPECT for damaged parts and always make repairs before working.
- DO NOT ALLOW visitors and children to enter the work area.
- STAY NEAT/STAY SAFE: Avoid clutter and obstructions in your work area.
- NEVER remove the template unless the router has come to a complete stop.
- NEVER use excess force to push the router through the workpiece.

**TOXIC MATERIAL SAFETY:** Some woods and wood products can be irritating or toxic when inhaled or touched. Get safety information from the material supplier and follow all recommended safety practices.

## **HOW TO ASSEMBLE YOUR DOVETAIL JIG:**

- 1) Unpack, sort, and identify all parts as shown in the parts diagrams included in this manual. A Phillips screwdriver and a 13mm open-end wrench are needed for assembly and adjustments.

### **REFERENCE GUIDE and SPECIFICATIONS:**

- Edge Guides: This 24" Dovetail Jig comes complete with 2 Edge Guide Positioning Pieces for Half Blind and for Rabbeted Half Blind Dovetails.
- Guide Bushings: Made for use with routers that accept Porter Cable-style bushings (as used on PC, Dewalt, Black & Decker, and many other popular routers). Adapters can also be purchased to allow most other routers to work with these bushings.
- Router Bits: Always used carbide-tipped bits for best results.
- 1/2" Dovetail Template: For the construction of 1/2" half-blind or rabbeted dovetails for use when making drawers or large boxes. For use with a 5/8" OD guide bushing and lock nut. Use a 1/2" x 14 degree dovetail bit with this template.
- Stock Thickness as follows:
  - Fronts: Maximum thickness of 1", Minimum stock thickness of 5/8"
  - Sides: Maximum thickness of 1", Minimum stock thickness of 1/2"

## **SETTING UP:**

### **THE JIG**

- 1) For stability, the dovetail jig should always be attached to a workbench or table. However, for ease of movement and storage, many woodworkers prefer to mount to a sub-base that can then be clamped or bolted to any surface.
- 2) For direct attachment, plot the position of the pilot holes for the screws as follows: After drawing a center line, mark holes in the following positions:
  - a. For the front of the jig, drill 1/8" pilot holes 3/16" down, spaced 32" apart, positioned evenly spaced from the center and 7/8" from the front edge of the work surface.
  - b. For the rear, position the two 1/8" pilot holes 32" apart, evenly spaced from the center and 4-7/8" from the front edge of the work surface.

- 3) You can use a piece of hardwood, plywood, or MDF about 40" x 10" x 3/4" for a sub-base. Mount a 40" x 1-1/2" x 3/4" face to the edge of this piece which will hook over the front of your workbench. Drill pilot holes as previously described and screw on the jig. You can now securely connect your jig to your workstation with clamps or bolts at both ends of the base.

## **THE ROUTER**

- 1) Any router with a 5/8" guide bushing can be used. For ease of operation, use a plunge router with a fine adjusting knob (or install one prior to working) for ease in bit adjustments.
- 2) Remember, bit height adjustments should be measured from the base plate rather than the guide bushing, as most guide bushings are recessed slightly in the base. The proper bit depth for 1/2" dovetails is 5/8".
- 3) Make only small adjustments of the bit height because most work involves the cutting of two workpieces at the same time. Hence, any adjustments will be twice as large in your finished piece.
- 4) Be sure your router collet does not lock in a position where it will contact the guide bushing.
- 5) **SAFETY NOTE:** Be careful when setting your router down between use as small router bits can be fragile. You can use a small block with a hole cut out for the bit and guide bushing to use as a safe stand for the router when not in use. The hole in the block should be just enough to fit the bushing and bit.

## **SET UP BOARD**

Creating a reference board for proper placement of the template when making template changes can make set-up easier and faster. These boards will be used over and over again, so take special care for top accuracy and store in a safe place when not in use. Using a sharp knife to cut the layout marks will ensure that they are precise and long lasting. Use of the boards will be detailed later in this manual.

### **Constructing Boards for 1/2" Blind Dovetails**

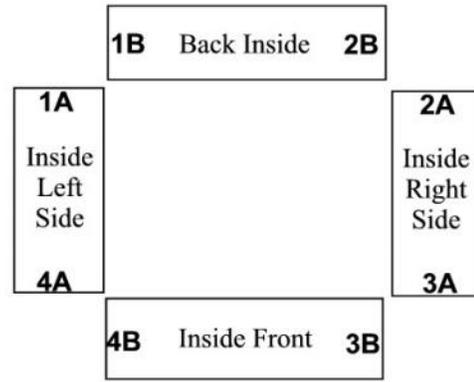
- 1) Choose a piece of flat stock at least 6" wide by 8" long and square it up.
- 2) Mark a line 19/32" from the end for alignment of the templates. (See figure at right)



## PREPARING YOUR STOCK

- Planning in advance and having a step-by-step procedure laid out beforehand will save time, frustration, and costly errors.
- While you can use both sides of the jig to make dovetails, don't try to rout more than one set of stock at a time.
- When routing on the jig, stock should be laid inside out. Careful marking and layout of your stock lets you determine a routing order that works best for you. Doing so also allows you to arrange the wood properly to expose the best grain and color in your finished work.
- Clearly mark and label (on the inside face) pieces for left, right, front, back, outside, and inside. Outside faces are always oriented TOWARD the jig.
- 3/4" for the drawer front and 1/2" for the drawer sides is the standard stock size for drawers made with 1/2" dovetails. To join the drawer back with dovetails, the back and front must use the same size stock. A minimum of 5/8" thick stock for drawer fronts is recommended for maximum strength of the dovetail joint.

### *Proper Layout for Drawers or Boxes*



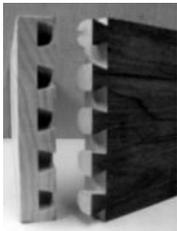
## For Symmetrical Dovetails

The jig's design ensures that front and sides of the piece will match for assembly. However, this may or may not provide a symmetrical joint (with pins and tails equally divided at top and bottom), depending on your stock width. You can adjust the position of the guide relative to the template in order to even out the pins and tails if you prefer to do so. Some trial and error is required (on scrap stock) but the proper alignment for your stock size can be determined visually.

## **GETTING STARTED**

- Test all setup on scrap wood before beginning your work on quality stock.
- Confirm that your stock is well-squared and of consistent thickness to ensure accurately matched joints.
- Even pressure is essential across the full width of stock when under the clamping bars. If working with narrow stock, you should use a piece of stock of equal thickness under the bar at the far end.

- Bowing of wood can be reduced using the clamping bars. However, for best results, use wood that is flat to start.
- Precise jig setup is essential. Use a quality steel rule marked at least in 1/32" increments when setting your jig.
- When setting up the template, you can get an accurate basis for front to back measurements with a flat square board mounted level with the template and secured in the front clamp.
- After you have successfully set up your jig, use a piece of scrap stock, mark your reference lines and save for speedy future setup.
- Sharp router bits free of sawdust or pitch buildup will make for the tightest joint fit.
- Do not force the router bit into the wood. The bit may break and damage stock and can even cause personal injury.
- NEVER remove the router bit from the jig until it has stopped completely.

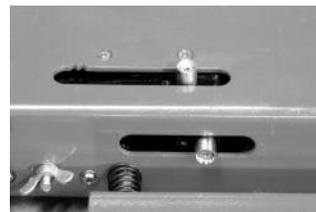


## ROUTING HALF-BLIND DOVETAIL JOINTS

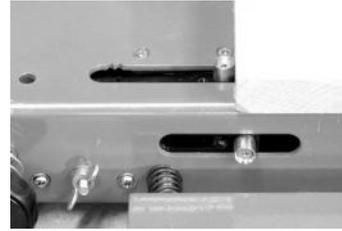


### Set-up

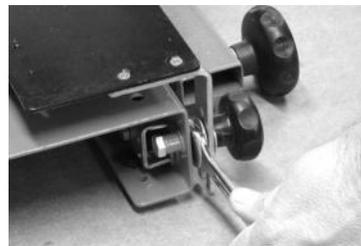
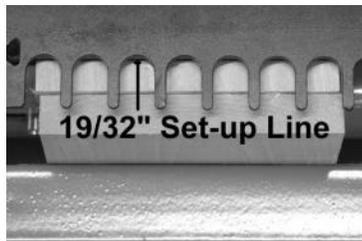
- 1) Screw edge guide positioners into the threaded holes at the innermost position on both the horizontal and vertical faces of the sliding edge guide. (See figure at right)
- 2) Loosen knob. Move sliding stop away from the center of the jig.
- 3) Place workpiece loosely beneath the top clamp.
- 4) Position comb assembly and tighten knobs.
- 5) Line up edge lines of workpiece with the edge of the sight hole on the template. (See figure at right)



- 6) Secure top clamp bar knobs. Move sliding stop towards edge of workpiece and use wing nut to lock in position. (See figure at right; note the template is removed for illustration purposes)



- 7) Repeat for opposite side.
- 8) Place a piece of scrap wood under the front clamping bar so that it sits underneath the template comb. Secure the scrap wood in place using front clamping knobs. Place the template set-up board underneath the top clamping bar and flush against the scrap wood, which is held in place by the front clamping bar. Secure the template set-up board in position by tightening the top clamping knobs.
- 9) The Star Template Position Adjustment must be loosened. Then, align the back edge of the template slots with the setup board's template setting line (see figure on below left) by loosening the lock nuts with a 13mm open-end wrench. (See figure on below right)



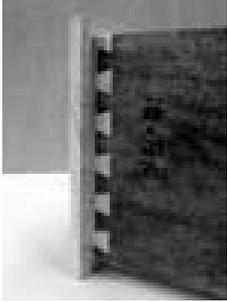
- 10) The setup block can now be taken out and saved for use on future projects.
- 11) Be certain that stock pieces are level with each other and firmly against each other and the edge guide whenever you make a joint. All stock should be clamped firmly with the template flat on top, locked into place with the brass knobs.

### **Routing Half Blind Dovetail Joints**

- 1) Set the router bit depth to 5/8". **Make sure you measure from the router baseplate, not the template guide.**
- 2) Make a light pass from right to left across the stock's front edge. In this way, you can avoid chipping when routing between the template fingers.
- 3) Working from left to right, rout between the template fingers. Make a second pass if needed to ensure that the fingers and slots are clean.

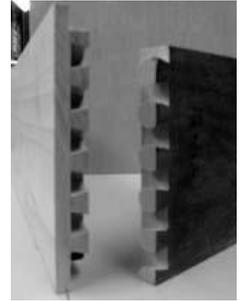


- 4) NEVER remove the router bit from the jig until it has stopped completely.
- 5) Take the stock from the jig and make sure the joint fits snugly. If you have a problem, make any necessary adjustments and run the joint again. See “**Quick Tips**” later in this manual.



## ROUTING RABBETED DOVETAIL JOINTS

Half-Blind Rabbeted Dovetail Joints for use on drawer fronts are constructed very much like half blind dovetails. However, the drawer front and side must be routed one at a time. To allow for the rabbet, the drawer front will hang over the jig. You will also need a different set of setup boards.

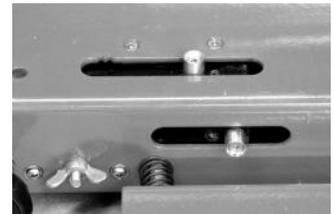


### Drawer Front Construction

Drawer front stock should be at least 3/4” wider and longer than the drawer you desire and made with stock 3/4” thick or greater. Rabbeted half-blind dovetails can be cut on stock a maximum 21-1/2” wide across the end grain.

### Setup

- 1) Screw the edge guide positioners into the threaded holes on the sliding edge guide. Use the outer-most position on the horizontal (upper) face and innermost position on the vertical (front) face. (See figure at right)



***REMEMBER to rout the drawer front and sides separately.***

### Drawer Front

- 1) Rout a 3/8" wide by 7/16" deep rabbet on all four edges of the piece of stock that will be used for your drawer front. (see figure at right)
- 2) Draw a template setting line, 19/32" from the 3/8" rabbeted shoulder on one of the ends of the drawer front, created in the previous step. This will be used to set the template comb depth.

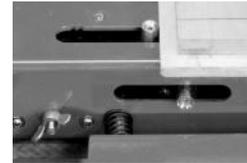


3) Position the drawer front under the top clamping bar the template setting line facing toward you. Position the template comb in place over top of the drawer front.

4) Line up the rabbeted shoulder on the drawer front with the sightline on the template comb. (See figure at right)



5) Move the sliding stop towards the edge of the workpiece and secure it in place against the edge of the drawer front by using the wing nut to lock it in position. Remove the template comb from the jig. (See figure at right)



6) Repeat for the opposite side.

7) Construct a gauge block in order to align the drawer front with the correct overhang. This block will need to have a 3/8" x 3/8" rabbet cut on one of its edges.

8) The template should be positioned on the jig without tightening the knobs. Move the drawer front under the top clamping bar and template, flush with the left sliding edge positioner. The template must be flat on the drawer front so it can be accurately adjusted.

9) The gauge block should be placed under the front clamping bar and firmly against the left sliding edge positioner before clamping it down. Move the drawer front so it is flush with the gauge block to aloe the proper 3/8" overhang. Turn the knobs to firmly position the drawer front beneath the top clamping bar. (See figure at right)



10) Remove the gauge block from under the front clamping bar

12) The Star Template Position Adjustment must be loosened. Then, align the back edge of the template slots with the setup board's template setting line (See figure below left) by loosening the lock nuts with a 13mm open-end wrench. (See figure below right)



13) Attach the 5/8" diameter guide bushing to your router base.

- 14) Put your 1/2" diameter, 14 degree dovetail bit into the router and adjust the router bit height to 5/8". Measure from the bottom of your router base not the guide bushing as most guide bushings are slightly recessed below the router base.

### **Making the Pin Socket in the Drawer Front**

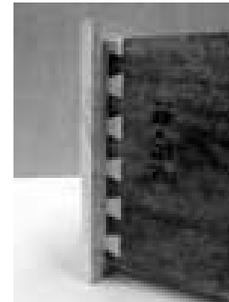
- 1) Position the router on the template comb.
- 2) Turn on your router and rout from left to right with the guide bushing following the slots.
- 3) Turn off your router and remove from jig.
- 4) Inspect the results to be sure the entire piece has been cleanly routed.
- 5) Remove template comb assembly and remove workpiece from jig.

### **Drawer Sides**

- 1) Position workpiece under front clamp, tight against the edge guide.
- 2) Hold the workpiece in place by tightening the front clamp bar knobs.
- 3) Put the piece of scrap wood under the top clamp, firm against the workpiece already installed. (See figure at right)
- 4) Use a square to make sure the top of the front workpiece is flush with the back workpiece.
- 5) Tighten the top clamp knobs.
- 6) Place the template comb assembly on the jig.



***TIP: If you'd like to make future setup faster and easier, the setup board can be routed in the same position as the drawer front and then used in the future to set the bit height.***



### ***Routing the Drawer Side***

- 1) Position the router on the template comb.

- 2) Turn on the router and make one very light cut from right to left. ONLY cut the front edge.
- 3) Carefully rout from left to right with the guide bushing following along the slots.
- 4) Turn off your router and remove from jig.
- 5) Inspect the results to be sure the entire piece has been cleanly routed.
- 6) Remove template comb assembly and remove workpiece from jig.
- 7) Test fit your joint.

**MAKING IT ALL FIT:  
QUICK TIPS for RESOLVING COMMON ISSUES**

**Loose Joint:**

- ✓ Cutting depth may need to be increased a bit
- ✓ Ensure that you are using the correct guide bushing
- ✓ Inspect guide bushing, bit and template for excess wear

**Tight Joint:**

- ✓ Cutting depth may need to be decreased a bit

**Front Overhanging Side:**

- ✓ The distance from the front edge of the jig to the back edge of the slots on the template (the 19/32" dimension) should be made smaller.

**Side Overhangs Front:**

- ✓ The distance from the front edge of the jig to the back edge of the slots on the template (the 19/32" dimension) should be made wider.

**Sides and Front are Offset:**

- ✓ You may be using the wrong edge guide—double-check.
- ✓ Be sure the template was referenced off the correct side.

**Joint Raised from Side to Side or in the Middle:**

- ✓ Double-check that the end cuts of stock are square.
- ✓ Double-check that stock is firmly positioned against the edge guides.
- ✓ Ensure that stock is not cupped or bowed and of consistent thickness.

**Cross-Grain Tear Out:**

- ✓ Use a very sharp marking tool at the same height as the cutter to scribe the stock ends.

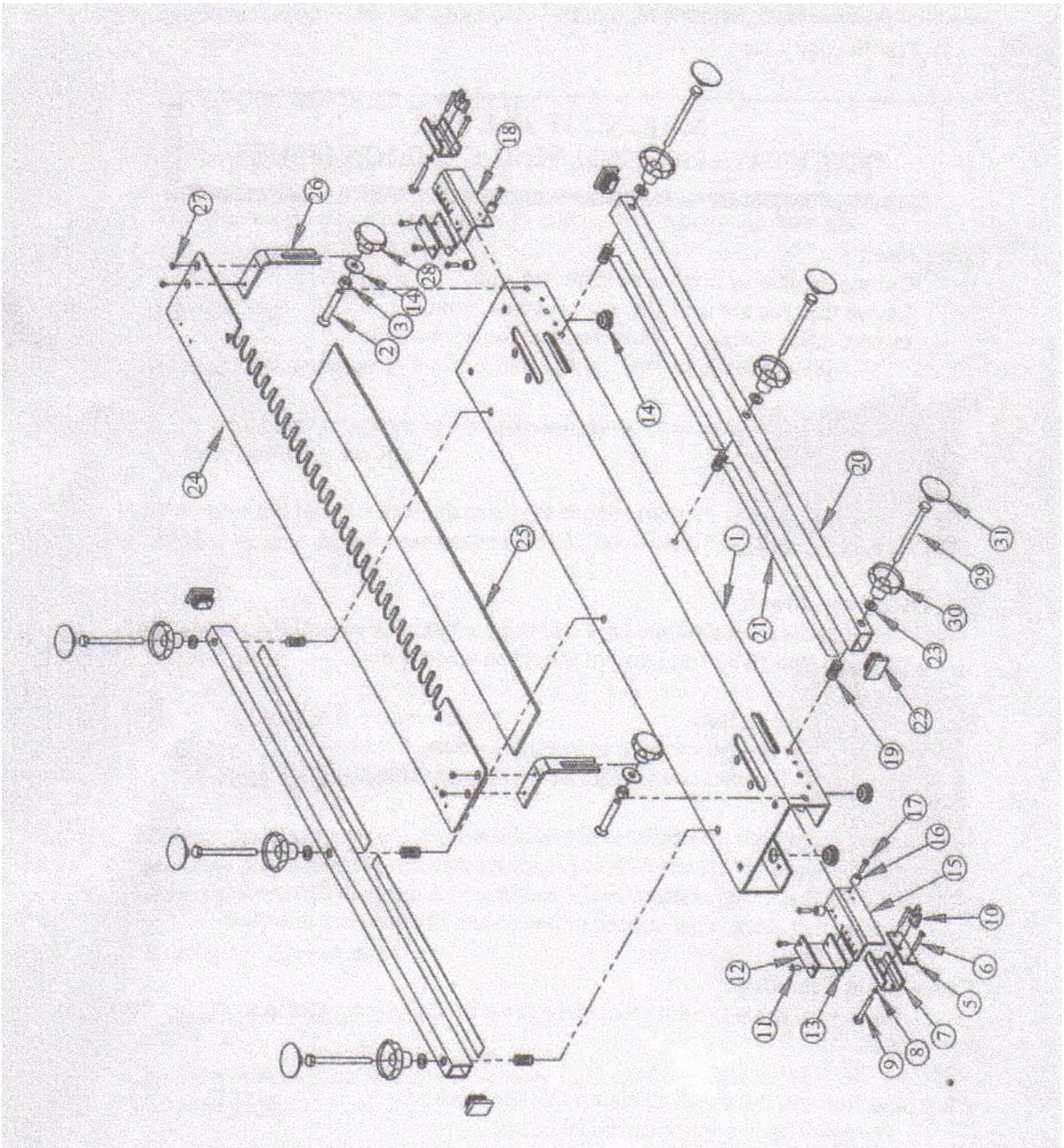
**Clamping Bar will not reach to clamp thicker stock:**

- ✓ The nylon knob spacers can be taken out.

**Thin Stock cannot be clamped securely:**

- ✓ Additional spacers can be used.

**MLCS #9086 (24" HALF BLIND DOVETAIL JIG) EXPLODED DIAGRAM**



**MLCS #9086 (24" HALF BLIND DOVETAIL JIG) PARTS LIST**

<b>PART NO.</b>	<b>PART DESCRIPTION</b>	<b>QUANTITY</b>
1	Body	1
2	Screw Bolt M8X50	2
3	Self-Lock Nut M8	2
4	Washer 8mm ID	2
5	Lock Plate	2
6	Screw Bolt M4X20	4
7	"U" Lock Plate	2
8	Spring Washer 6mm ID	2
9	Hex Bolt M6X35	2
10	Wing Knob	2
11	Screw Bolt M4X10	4
12	Upper Fix Plate	2
13	Lower Fix Plate	2
14	Rubber Feet	4
15	Left Offset Rule	1
16	Sleeve	2
17	Screw Bolt M4X10	2
18	Right Offset Rule	1
19	Spring	6
20	Clamp Bar	2
21	Anti-Slip Paper	4
22	Plug	4
23	Washer 8mm ID	6
24	Template	1
25	Spacer	1
26	Template Bracket	2
27	Screw Bolt M5X8	4
28	Template Bracket Knob	2
29	Hex Bolt M8X100	6
30	Clamp Bar Knob	6
31	Clamp Bar Knob Cover	6
32	Nut M8	2
33	Template Bracket Knob Cover	2