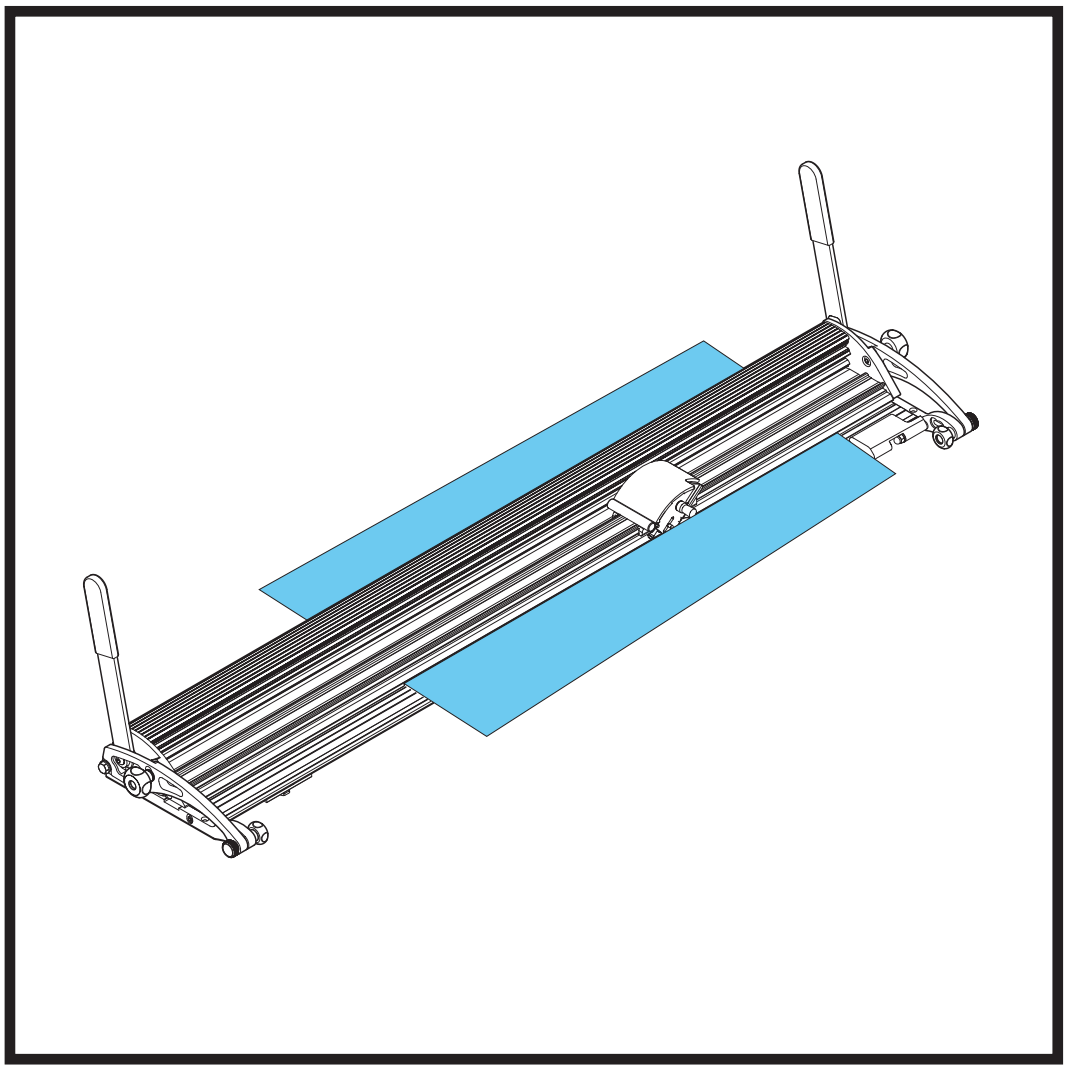
KEENCUT

Evolution

Inspired Design – Precision Engineering

INSTRUCTIONS

Thank you for choosing the Keencut Evolution, the most advanced manual wide-format cutting machine available. Every effort has been made to bring you a precision engineered product with the promise of many years of valuable service.



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KC 6748-English 9/09

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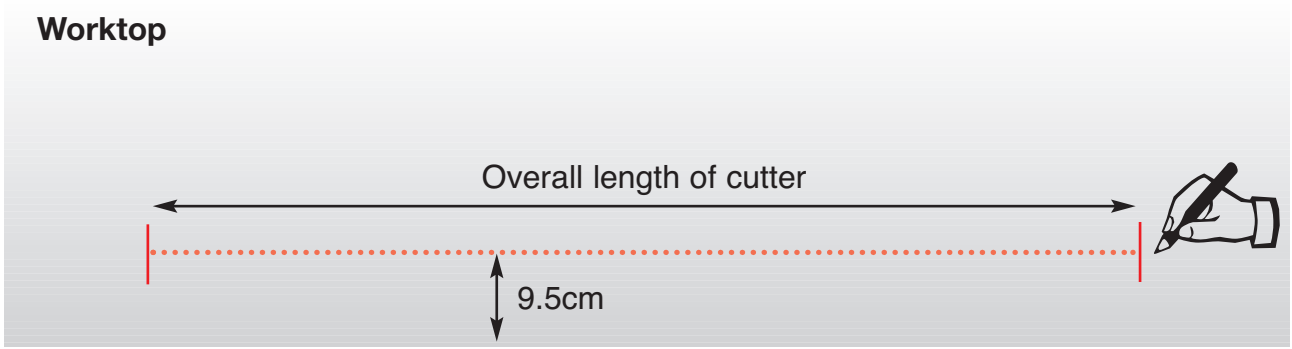
CHECKING THE BENCH FOR INSTALLATION

■ **Please note!** As part of the installation there are a number of checks and adjustments to be made and it is important to perform them correctly to ensure consistent top quality performance for the life of the machine.

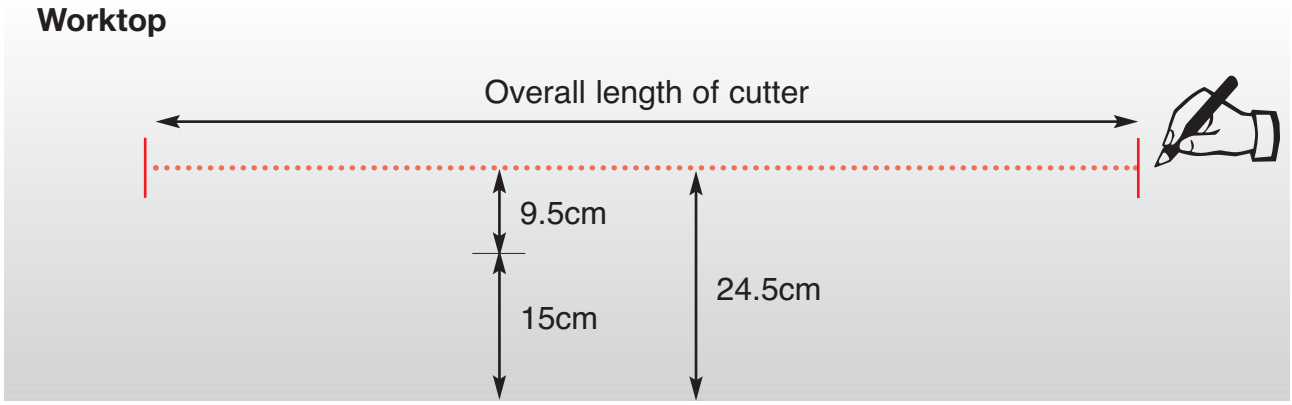
The Evolution Cutter Bar can be fixed to a KEENCUT Proteus bench or to an existing work bench. The bench should be rigid with a flat worktop (within 3mm (1/8") overall) and made from MDF or similar material to accept fixing screws.

To enable the flip-over storage function to operate the Evolution must be fitted close to the edge of the bench but if it is required nearer the centre of the bench do remember that cutting tough materials will be more difficult if the operator needs to stretch too far to reach the cutter head.

If the cutter is to be mounted along the edge of the bench draw a line **9.5cm** in from the edge of the worktop and the length of the cutter as listed below.



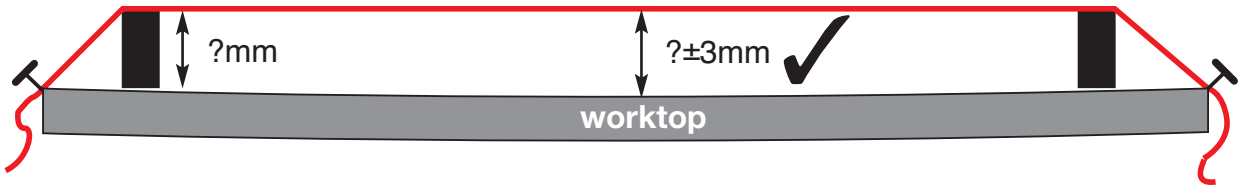
Should you want to use the cutter, for example 15cm in from the edge, draw the line **15 + 9.5 = 24.5cm** from the edge of the worktop.



● Evolution 160cm (64”)	overall length	177.5cm (69.9”)	**4 base fixing brackets**
● Evolution 210cm (84”)	overall length	227.5cm (89.6”)	**5 base fixing brackets**
● Evolution 260cm (104”)	overall length	277.5cm (109.25”)	**6 base fixing brackets**
● Evolution 310cm (124”)	overall length	327.5cm (128.9”)	**7 base fixing brackets**
● Evolution 360cm (144”)	overall length	377.5cm (148.6”)	**8 base fixing brackets**

CHECK & ADJUST THE WORKTOP FLATNESS

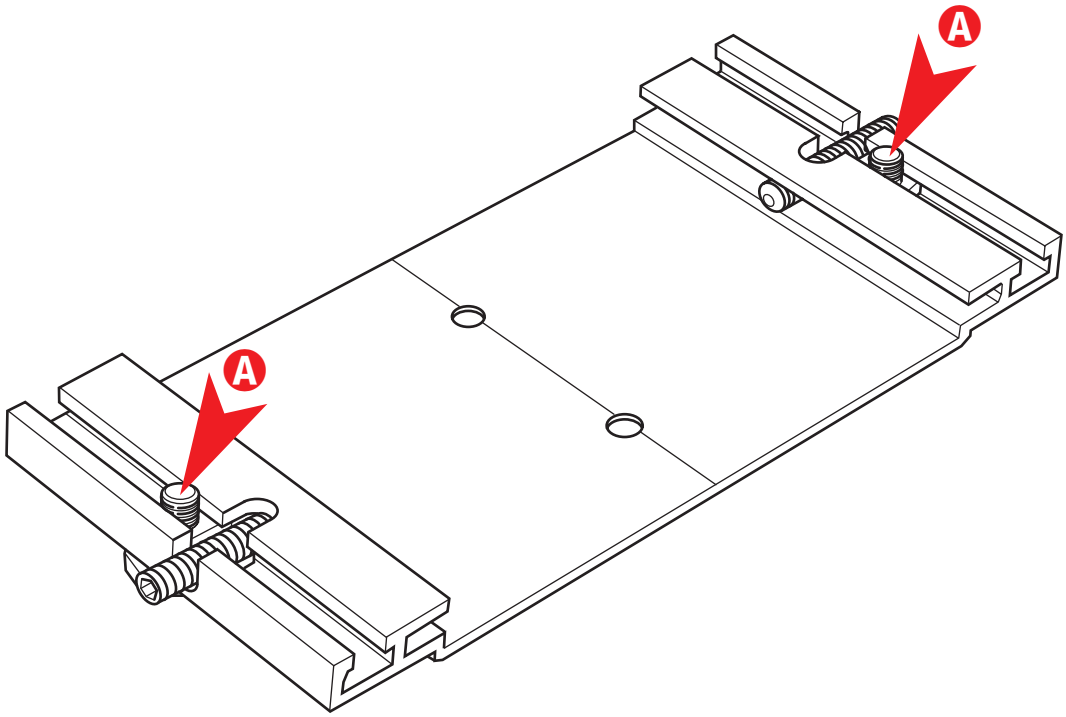
Check the flatness of the worktop by stretching a thin piece of strong thread between two blocks (of the same height) approximately over the line. Measure the highest and lowest part of the worktop under the thread, the difference between the two measurements should be no more than 3mm (1/8"). If it is greater it will be necessary to adjust the surface flatness with a new top or by using spacing pieces under each bracket.



Adjust the surface flatness by adding packing pieces made from 1.5mm - 3mm (1/16" - 1/8") thick rigid material such as PVC Foamboard, under the Base Mounting Brackets as they are installed (next section).

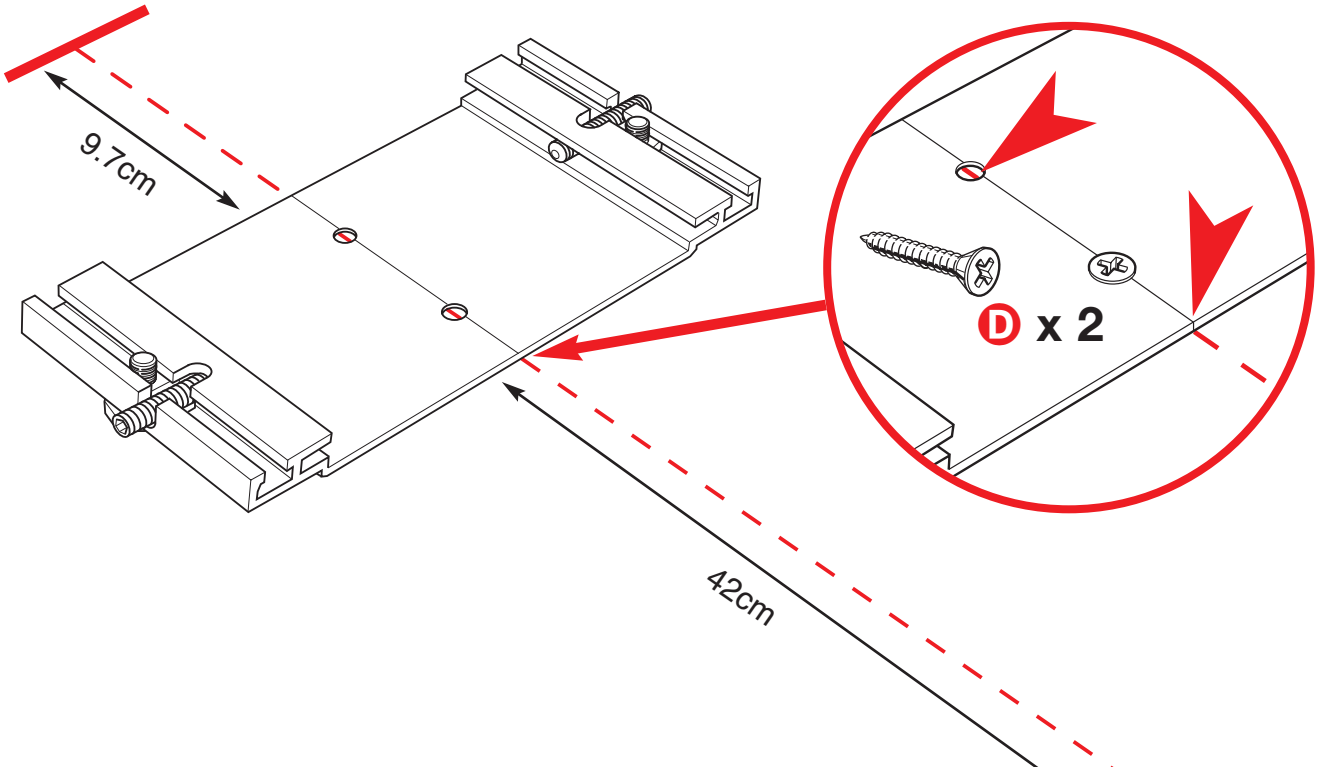
THE FIXING BRACKET JACKING SCREWS

The Base Fixing Brackets are designed to hold the Base of the cutter firmly in position and provide a means to adjust the cutter Base for both flatness and alignment of the cutting groove. Check that the Jacking Screws "A" are inserted finger tight as shown before fitting the Brackets to the worktop.

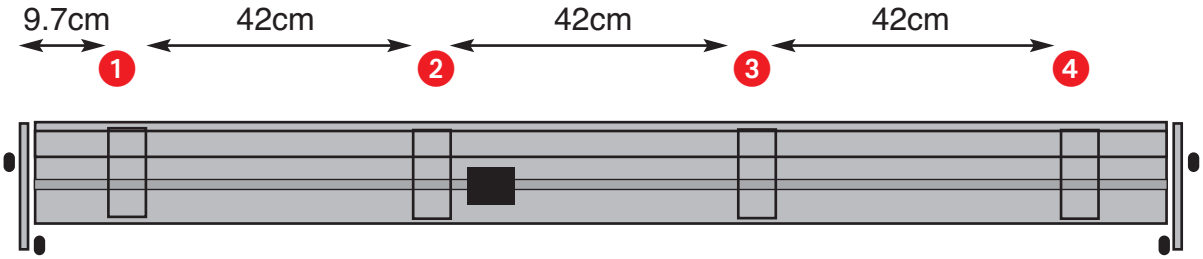


SET OUT THE FIXING BRACKETS

Place a Bracket 9.7cm (3.8") from the end of the pencil line as shown, ensuring that the groove in the centre of the Bracket is aligned with the pencil line and fix to the worktop using two short screws "Ⓓ" provided. Fix the remaining brackets accurately along the line leaving a 42cm (16.5") gap between each one. Check that the brackets are all aligned correctly and if not remove the incorrectly positioned bracket and replace slightly to one side of the original position to create new screw holes.



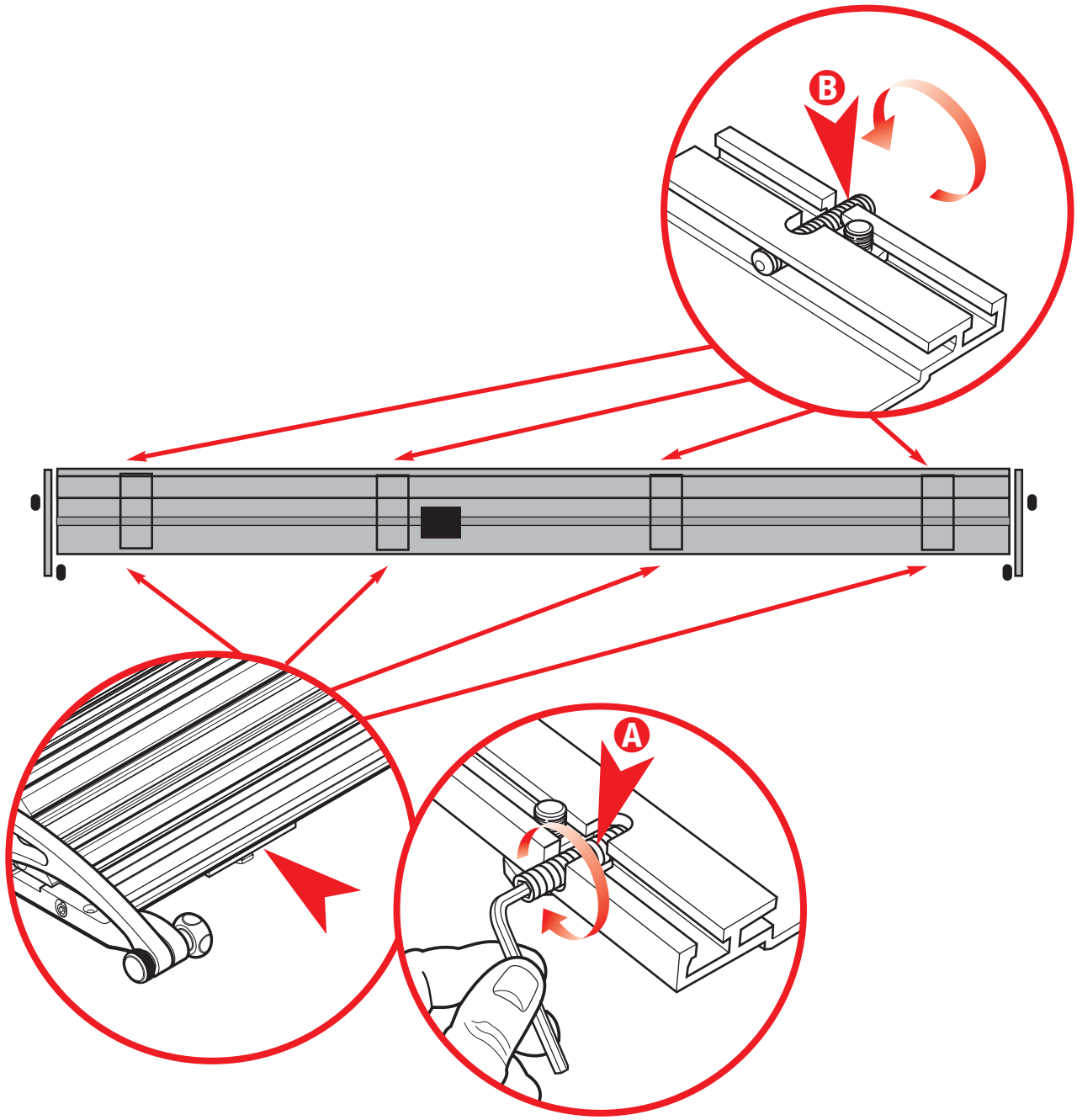
● Example:
Evolution 160, 4 base fixing brackets



Evolution 160cm (64”)

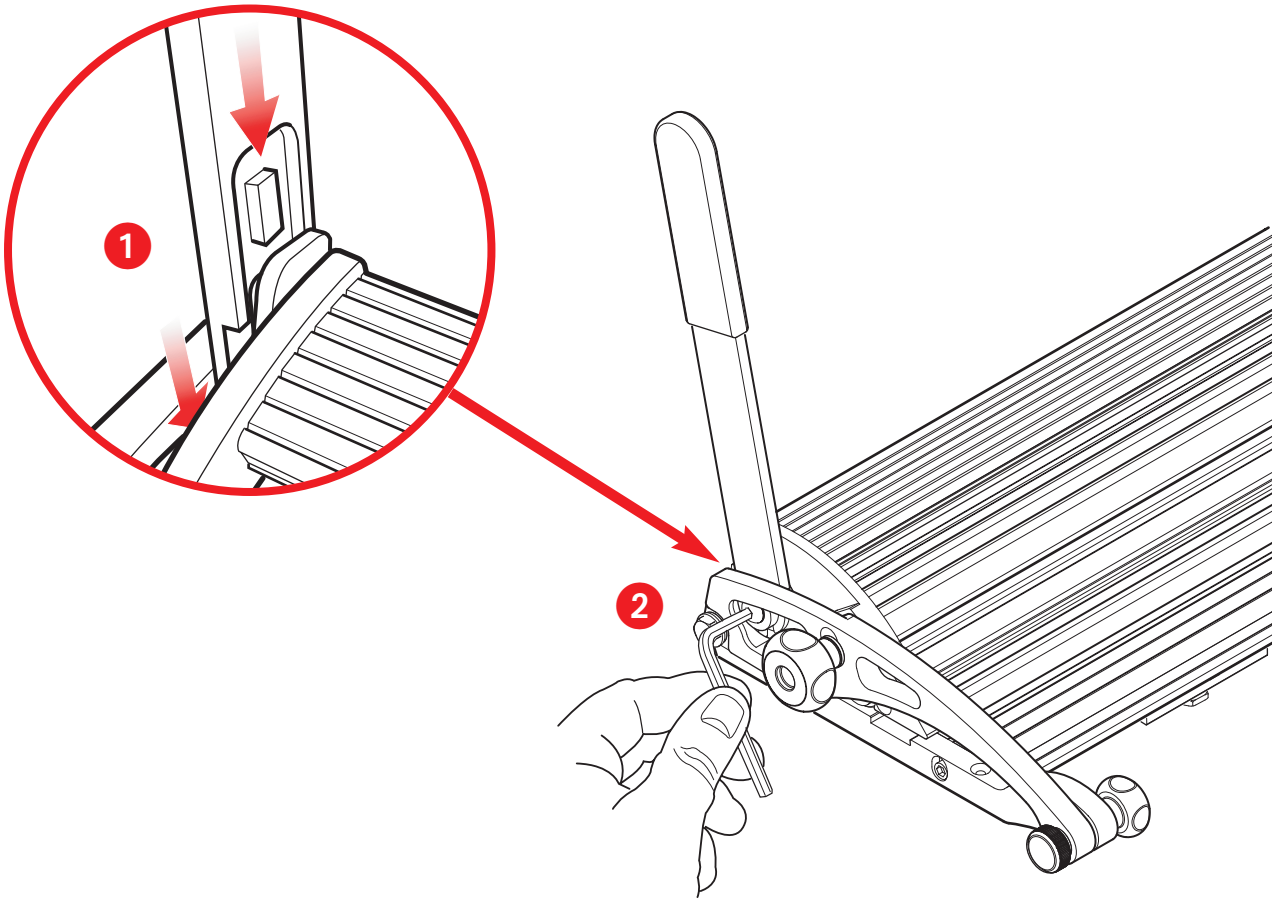
Lift the Evolution cutter bar from its crate **but <u>do not remove the clear plastic stretch-wrap bands</u>** holding the base to the cutter bar. Place the Evolution centrally on the Brackets and manoeuvre it until the base is located properly down on each of the Brackets.

Tighten the grub screws "Ⓑ" at the back of each of the Brackets by 4 full turns and then tighten the front grub screws "Ⓐ" fully (approx 4- 6 turns). Remove the clear plastic stretch-wrap bands.



FIT THE LIFTING HANDLES

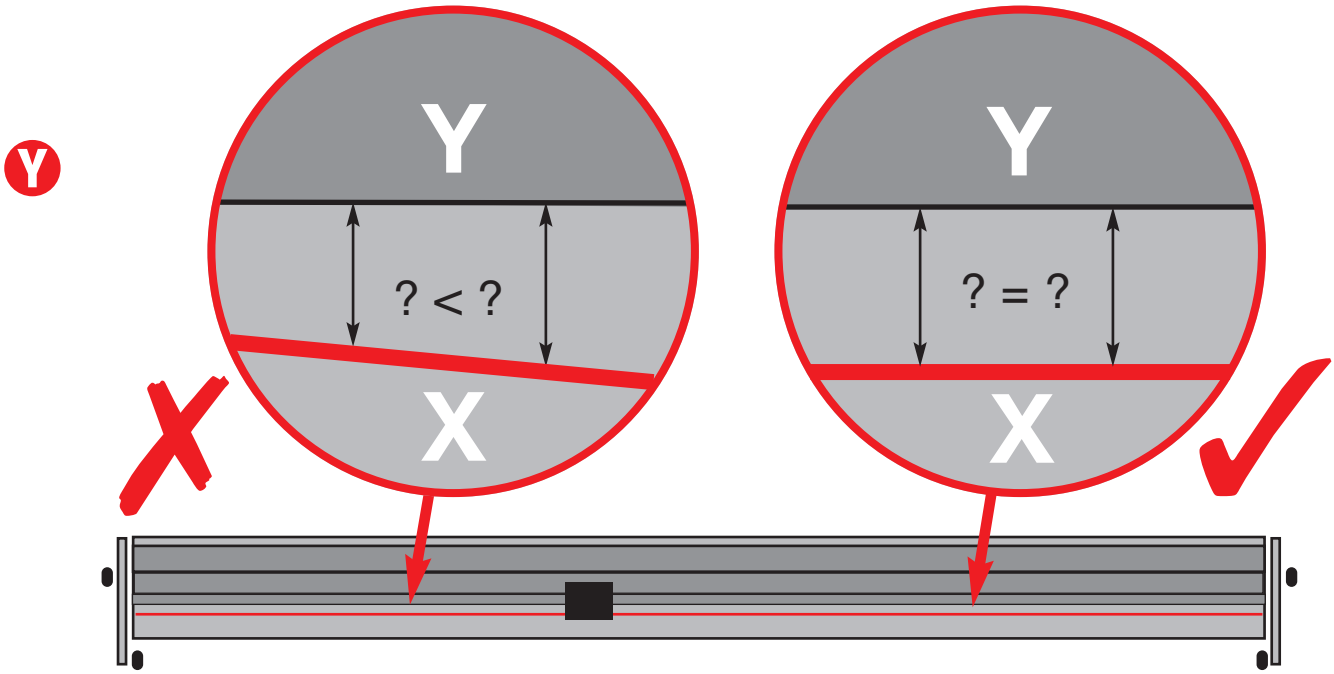
Fit the Lift & Hold Handles at each end of the cutter bar. Position the machined section of the handle towards the centre of the Evolution and insert it into place at the angle shown (Fig 1). Once in position straighten so that the rectangular feature on the handle fits into its mating hole in the adjacent black steel component attached to the machine. Fully tighten the fixing screw (Fig 2) using the 5mm Allen key provided.



CHECK & ADJUST THE CUTTING GROOVE ALIGNMENT

The Evolution cutter bar has been adjusted to a straightness of 1:15000 along its full length using a laser beam controlled instrument. It is desirable to adjust the cutting groove in the aluminium base to match the straightness of the cutter bar and the base brackets provide the means to do so.

The back of the cutting groove in the Evolution Base should be in line with the edge of the cutter bar to allow the blade in the cutting head to run the full length of the machine without touching either side of the groove, if it does not....

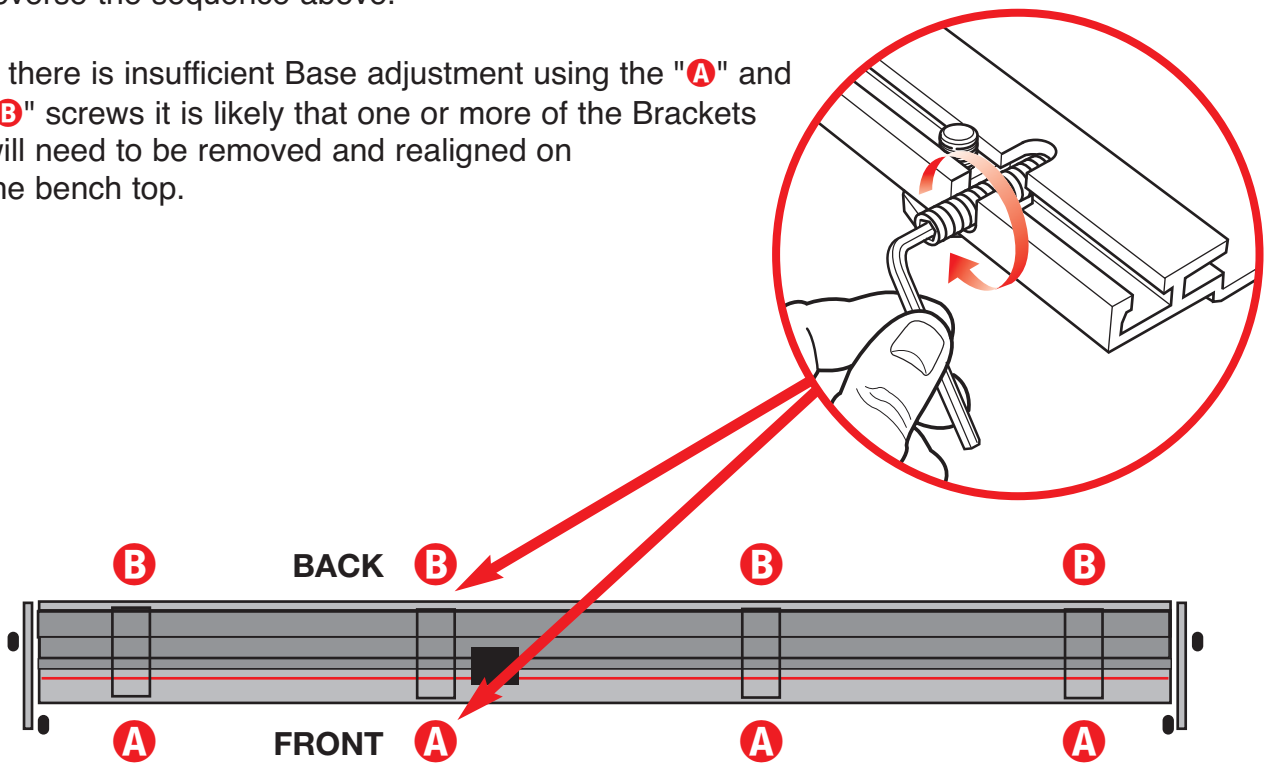


Adjust the straightness of the Base by adjusting the front "A" and rear "B" grub screws in the Base Fixing Brackets:

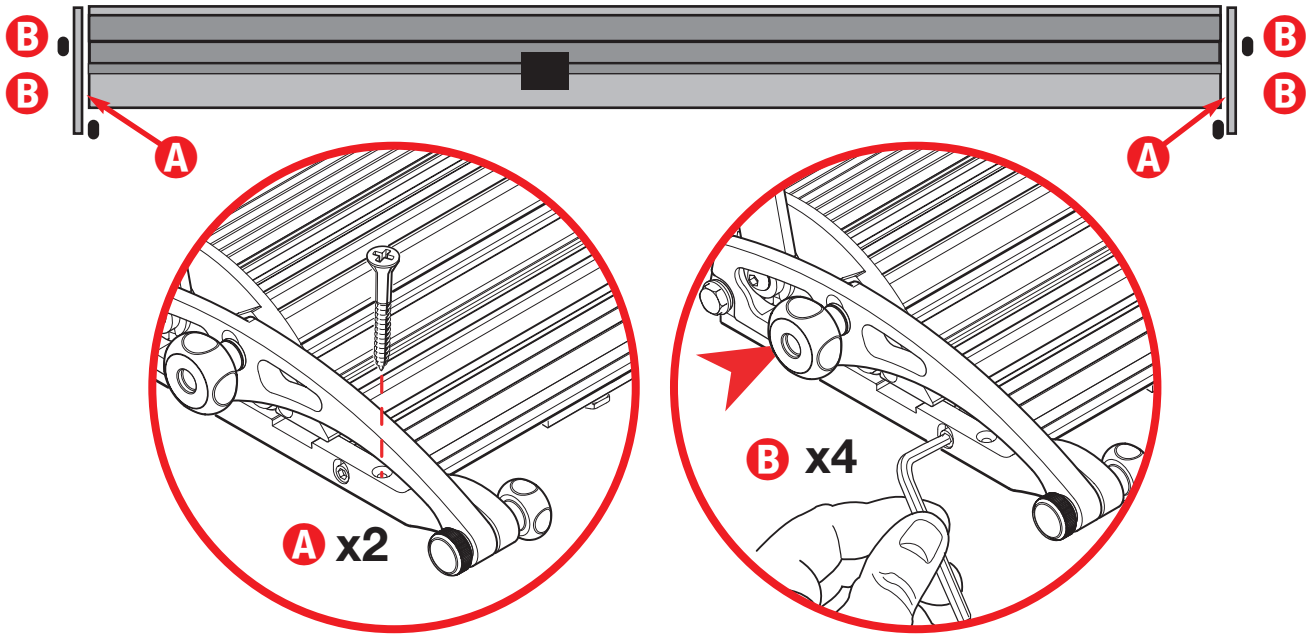
To move the cutting groove towards "Y" loosen the rear grub screw "B" in the nearest Brackets and tighten the front grub screw "A" until the groove is aligned with the cutter bar. Tighten the rear grub screw "B" until it meets resistance and the Base is held firmly. Using a Lift handle raise the cutter bar and lower it again to the Base surface and check the alignment. Adjust the cutting groove finally if required.

To move the cutting groove towards "X" loosen screw "B" first and reverse the sequence above.

If there is insufficient Base adjustment using the "A" and "B" screws it is likely that one or more of the Brackets will need to be removed and realigned on the bench top.



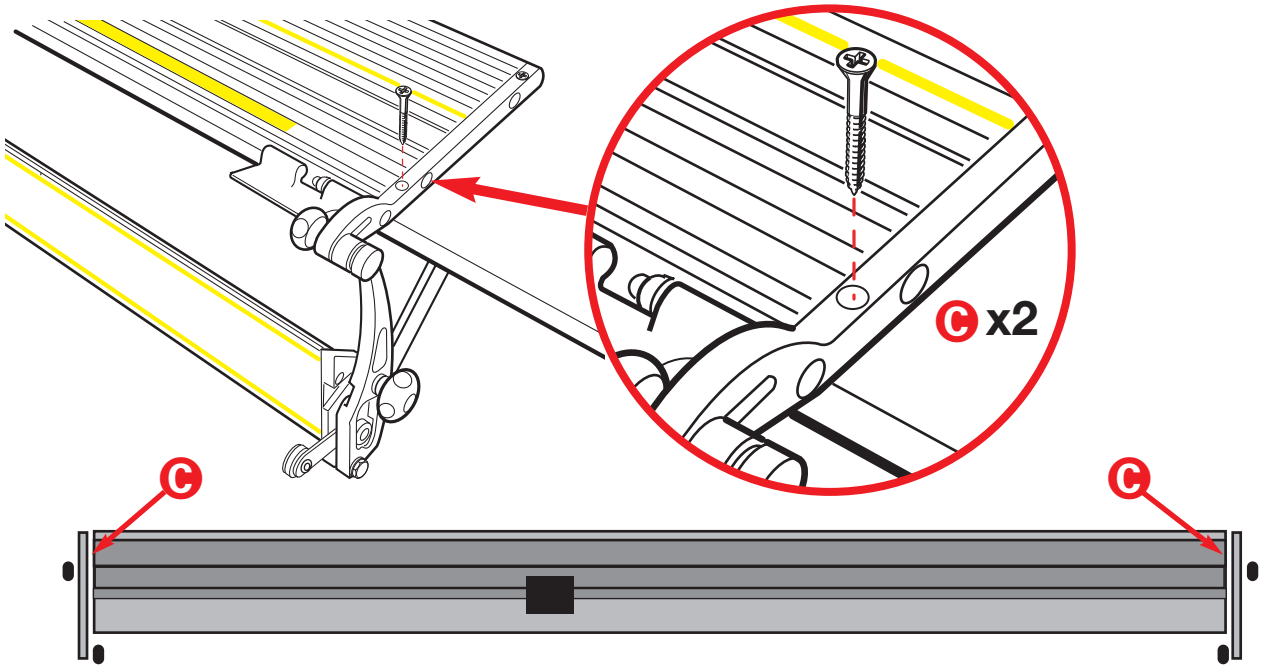
Place two of the long wood screws "Ⓐ" in the front holes of the Fixed Arms and partially insert them into the bench surface but do not tighten. Loosen, by one full turn anticlockwise, the four hexagon socket screws "Ⓑ" joining the Fixed Arms to the Base. Fully insert the two wood screws "Ⓐ".



To enable the table surface to be cleared of the cutter bar when it is required for other work the whole cutter bar can be lifted and rotated on its hinges towards you so that it hangs down along the edge of the work bench (this also helps with cleaning).

NOTE: Be particularly careful with the longer versions of cutter as they are very heavy.

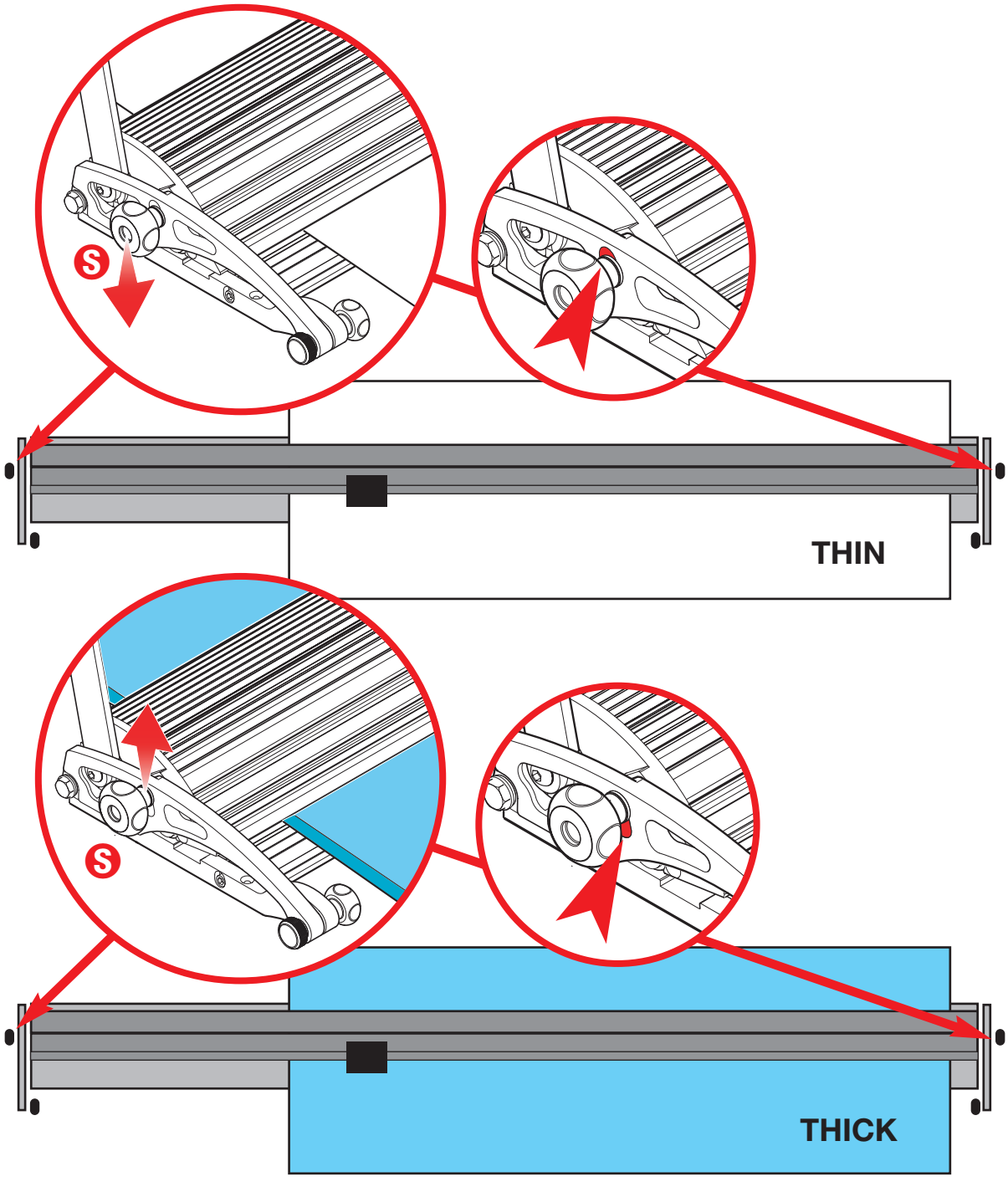
Carefully swing the cutter bar down and place the remaining two long wood screws "Ⓒ" into the back two holes of the Fixed Arms and tighten. Return the cutter bar to its working position. Tighten all four Allen screws "Ⓑ".



It is essential that the material being cut, whether a thin paper/film or a thick board, is held securely in the machine during cutting. There is a silicon cord set into the Evolution Base to grip the underside of the material and two similar grip cords set into the underside of the Cutter Bar. These should be periodically checked for good condition and replacements obtained from your Keencut distributor.

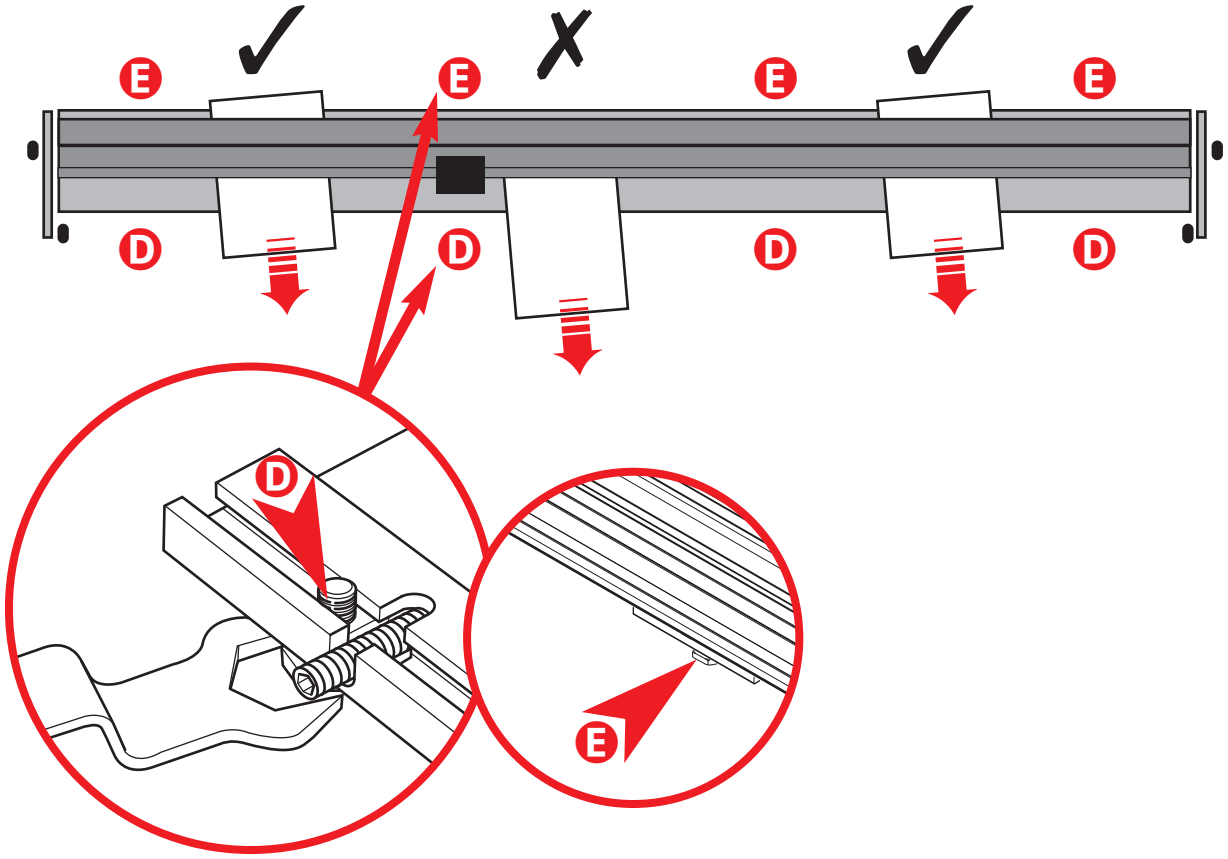
There is an integral Levelling Adjustment that enables the full width of the cutter bar to lay flat on any thickness of material. Place the chosen material under the cutter bar and release both thumbscrews "Ⓢ" the cutter bar will settle to the surface of the new material. Raise the cutter bar using the lift handle and lower again to ensure correct alignment and tighten both thumbscrews "Ⓢ".

Set the Levelling adjustment knobs to suit paper.



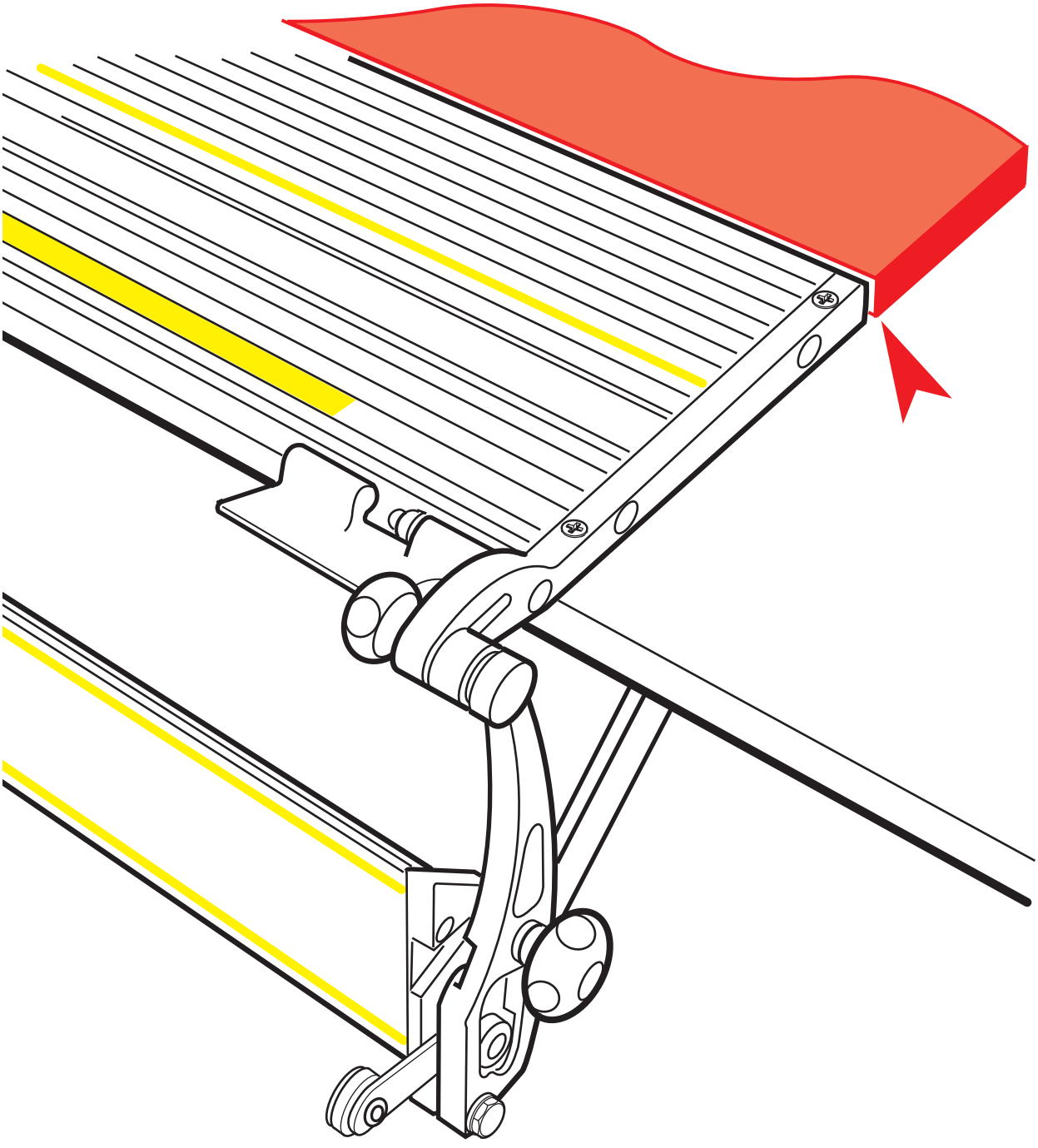
CHECK AND ADJUST THE CLAMPING

Check the grip of the cutter bar using a sheet of office copy paper. Starting at one end, lift the cutter bar and place the paper under it, when lowered, the weight of the cutter bar should grip the paper. Try to pull the paper free, if it is not clamped sufficiently note its position and work your way down the cutter repeating the test with the paper and noting where it is not clamped sufficiently.



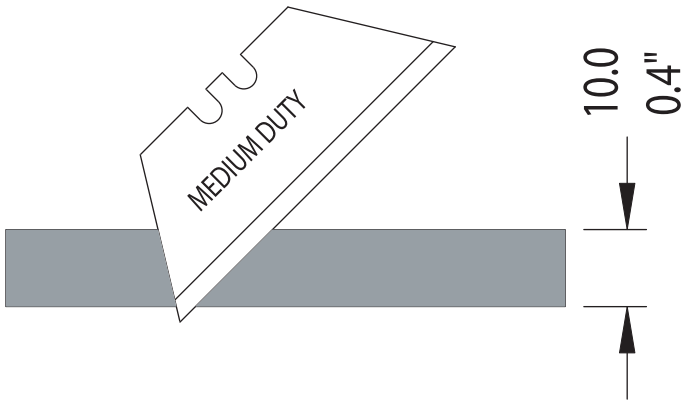
Adjust the clamping by turning the Jacking Screws "Ⓓ" & "Ⓔ" in the Base Fixing Brackets that are adjacent to the areas that are not clamping the paper. Turn the Jacking Screws clockwise (as you look down on them) using the wrench supplied, turn both the front and rear Jacking Screw by the same amount (to keep the Bracket level) until the paper is gripped. You may find that two or three adjacent Brackets need adjusting if you have a wide area that does not clamp.

Once the Evolution has been installed all that remains is to raise the level of the remaining surface of the bench by 15 - 16 mm (5/8") The best way is to add a new top made of MDF or similar solid material. To fix the new top use a thick sealant type adhesive in preference to screws, as screws may distort the bench top and disturb the Evolution Base installation adjustments.

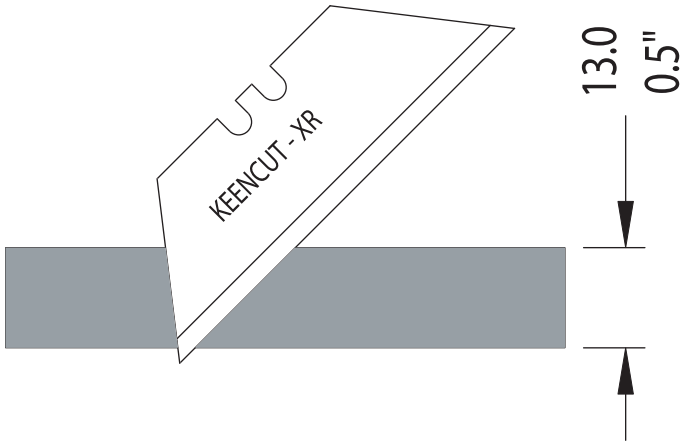


CUTTING DEPTH AND BLADE INFORMATION

The Evolution Cutter Bar has been designed to cut a variety of boards to a thickness of 10mm (0.4") using a Medium Duty utility blade.



An increased cutting depth of 13mm (0.5") requires the KEENCUT XR utility blade available from Keencut distributors.

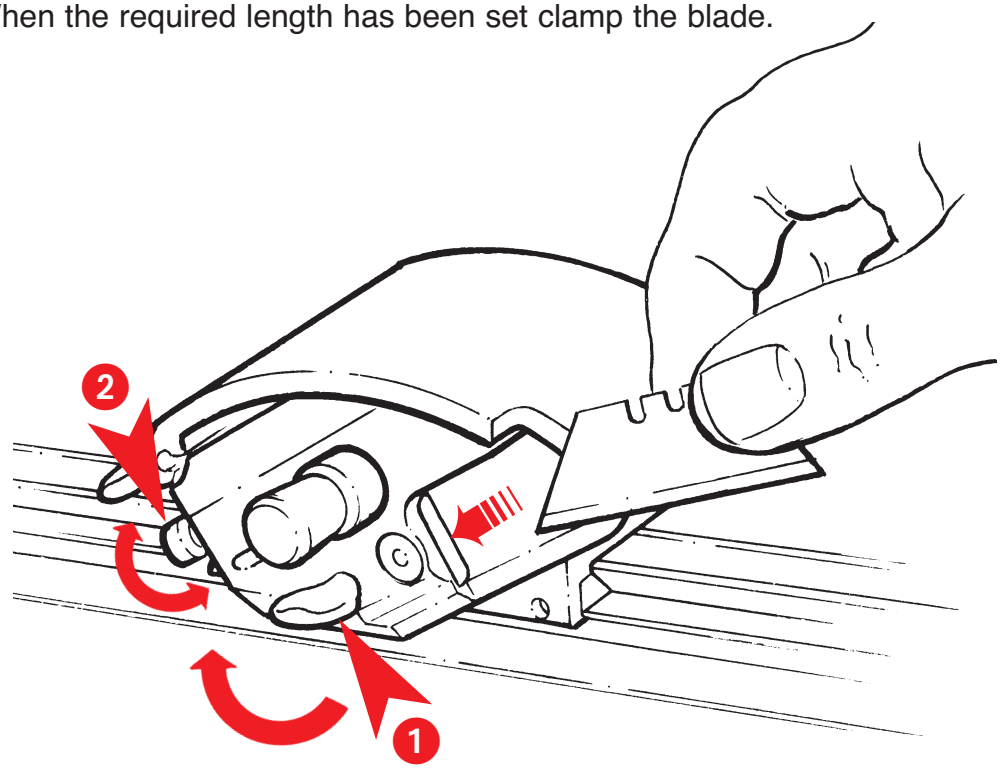


Consideration should be given to the toughness of the board being cut and the maximum depth of cut. For ease of operation it is recommended that dense materials such as PVC foamboard should not exceed 6mm (0.25") in thickness. Lighter materials, such as foam centred board can be cut up to 13mm (0.5") thick using the KEENCUT XR blade.

INSERT THE BLADE AND SET THE DEPTH

1. The blade is inserted from the back of the blade holder. Slide the blade forward until it touches the adjustable depth stop. Tighten the blade clamp screw "1".

2. To set the blade depth for specific materials unclamp the blade by loosening the Blade Clamp Screw "1". Rotate the blade adjustment screw "2" at the front of the blade holder clockwise to decrease the blade depth and counter-clockwise to increase the depth. When the required length has been set clamp the blade.



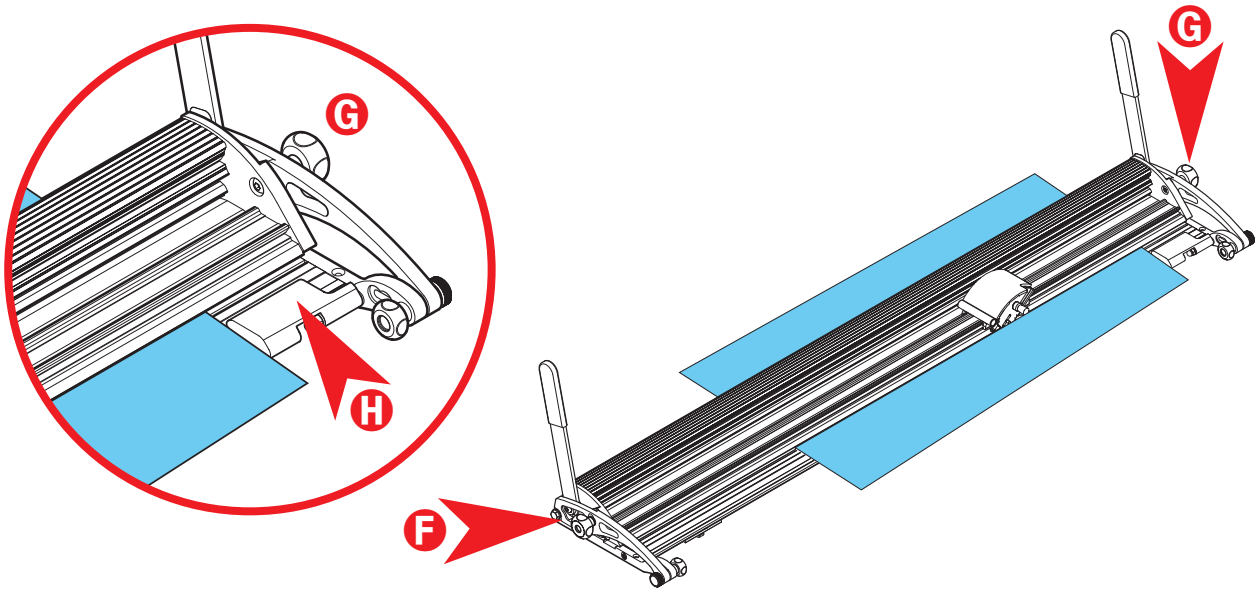
TIP - Set the blade depth with the tip protruding through the material just enough to cut consistently along the full length. A blade set too deep requires much more effort when cutting dense materials.

INSERT AND ALIGN THE MATERIAL

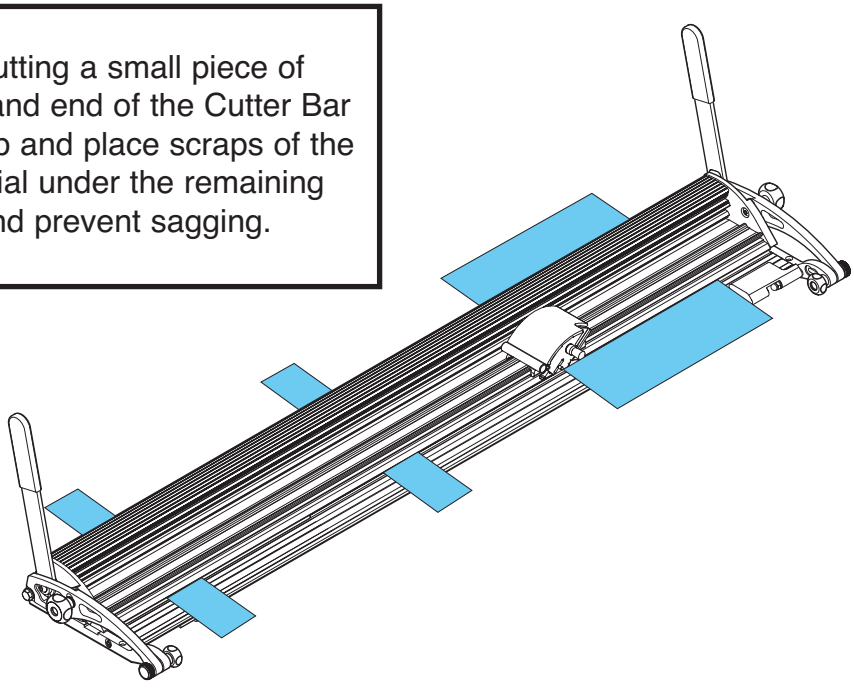
Use one of the two Lift Handles to raise the Cutter Bar. With the cutter bar raised place the material to be cut on the Base. Lower the Cutter Bar by pushing the Lift Handle towards the cutting edge of the machine. To align the edge of the cutter bar with your cutting marks slightly raising the Cutter Bar, using the Lift Handle, and adjust the position of the board at each end. The blade will cut within 0.5 to 1mm [0.02" to 0.04"] of the sight edge; this small gap allows easier alignment when cutting to the edge of an image.

Check that the width of the Cutter Bar is laying flat on the surface of the material, if not loosen both Tilt Adjustment Knobs "G" & "F" then lift the Cutter Bar and lower it down again to settle it in position and tighten both "G" & "F". The cutter is now set for cutting all types of material of that thickness.

The flip over Material Stop "H" is provided to prevent tough materials such as PVC Foamboard from moving during cutting.

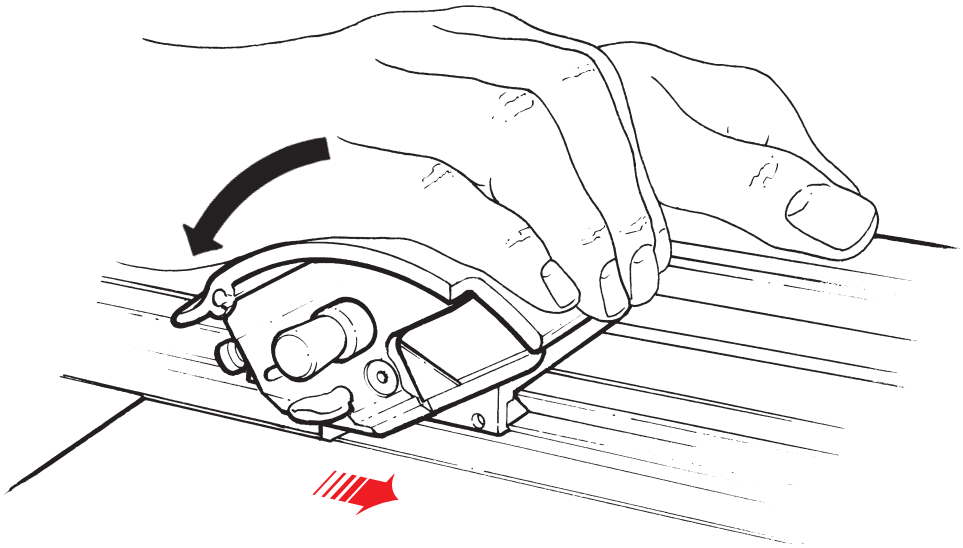


NOTE: If you are cutting a small piece of board place it at right hand end of the Cutter Bar against the Material Stop and place scraps of the same thickness material under the remaining bar to support it and prevent sagging.



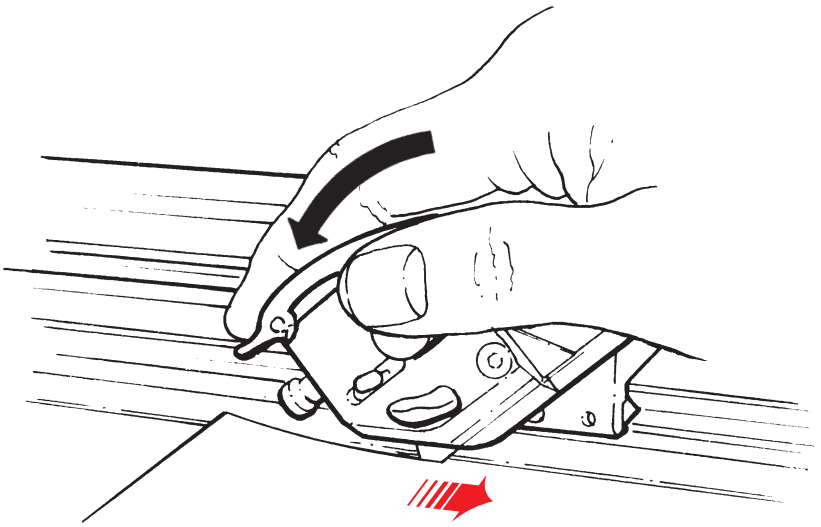
...for cutting foam centred board, PVC foamboard and heavyweight materials.

Place your hand on the cutter, as shown, with the palm of your hand positioned over the silver coloured bar on the front edge of the cutter. Place your left hand on the finger grip of the straight edge, depress the cutter and push it away from you to cut. Dependent upon the nature and thickness of the material you may need to take more than one cut gradually increasing the depth.



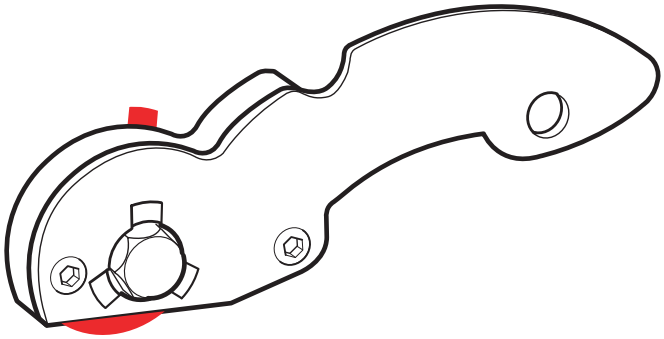
..for cutting film and lightweight materials.

Place your hand on the cutter, as shown, with your finger tips positioned on the silver coloured bar across the front edge of the cutter. Depress the cutter and pull to cut, there is no need to hold the cutter bar down when cutting.

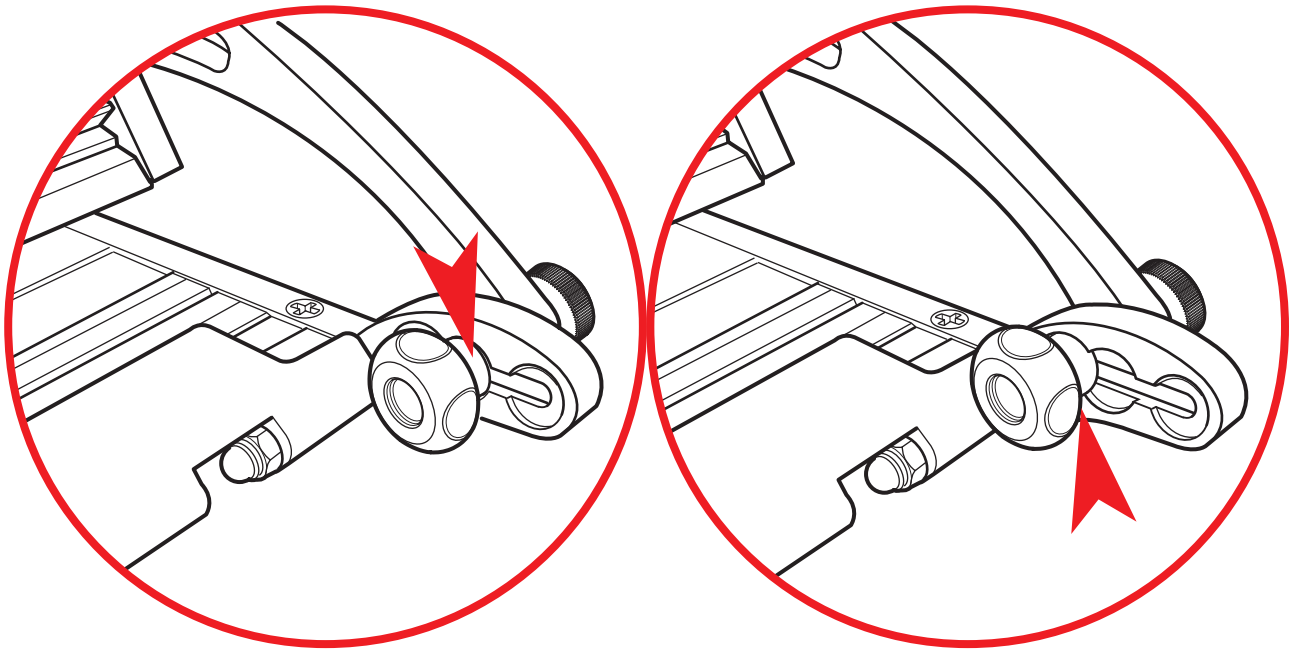


USING THE TEXTILE CUTTING ATTACHMENT

The Evolution is supplied with a razor-sharp circular blade attachment that fits onto the spring loaded cutting head to enable it to cut textiles. When the circular blade is pressed down with finger pressure to penetrate the textile it should run on the special plastic strip cutting surface fitted into the machine base.

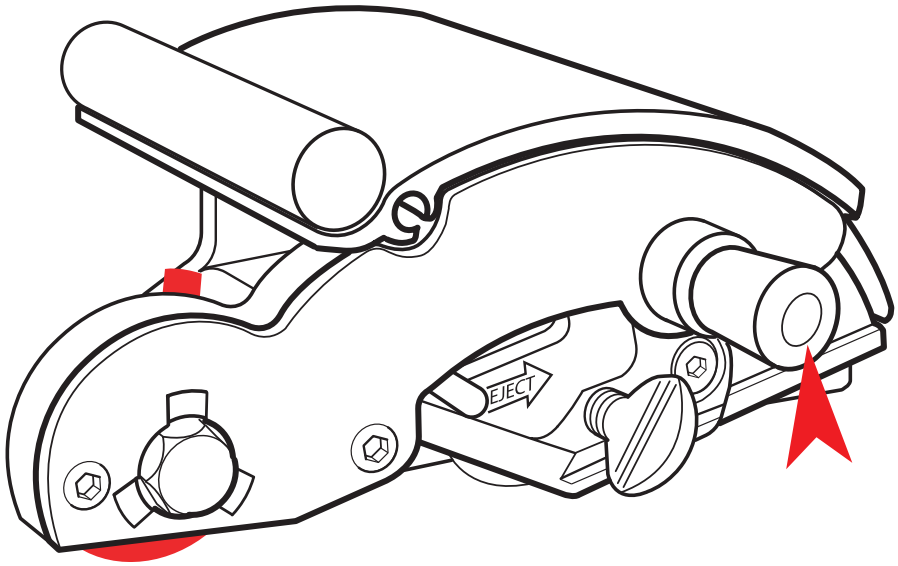


First raise the Cutter Bar using either Lift & Hold Lever, then loosen both of the Hinge location screws until the underside of the screw clears its location recess. Push the Cutter Bar until the underside of the location screw is positioned over the middle recess and tighten Hinge location screws. Repeat at the other end. The Cutter Bar is now positioned over the plastic Cutting Strip.

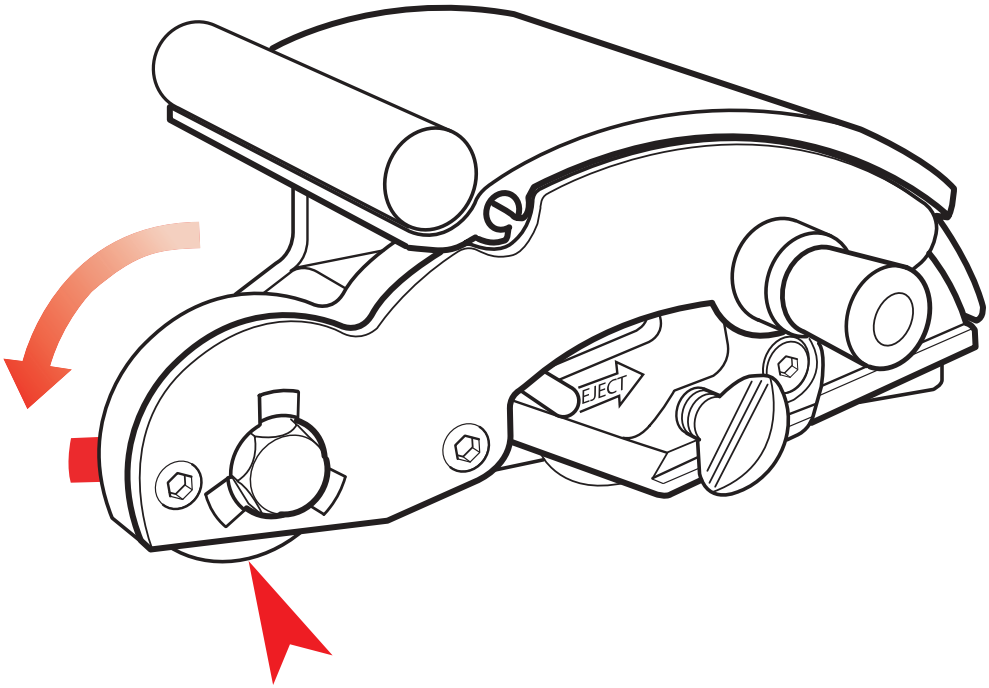


The third (furthest) position is also for cutting textile but uses a different part of the Cutting Strip should it become worn. The Cutting Strip can also be removed, turned around or flipped over to allow eight tracks to be used before the strip requires replacement. Replacement Cutting Strips are available from your Keencut agent.

To fit the Textile Cutter, remove the utility blade, unscrew the Thumb Cap and position the attachment on the side of the Cutting Head then replace the Thumb Cap.



Position the textile on the machine and lower the Cutter Bar. Rotate the red safety guard into the cutting position, lower the Cutting Head until the circular blade makes contact with the textile and will cut cleanly without any excess pressure. Using steady pressure cut the textile in one smooth motion.



The textile cutter will cut many fine materials such as specialist paper and non woven textiles but it is wise to test a small piece first.

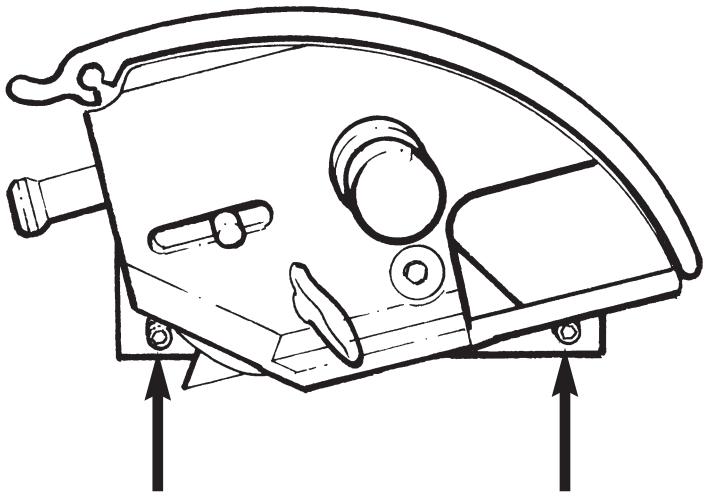
Do not use oil or spirits to lubricate or clean the cutter, some of the plastic components and bearings may be damaged.

CLEANING AND LUBRICATION

It is good practice to keep a dust sheet over the cutter if it is not to be used for extended periods.

Regularly clean the tracks and base with a dry cloth. To remove stubborn stains use a cloth dampened with water only.

Should the cutting head slideway require lubrication use a silicon spray applied to a cloth or a silicon impregnated sponge.



CUTTING HEAD BEARINGS

The bearings that control the sliding motion of the cutting head are manufactured from a high grade polymer and under normal use will last for an extremely long time. As they settle into position you may find a slight amount of side play, this can be removed by tightening the two adjustment screws:

Place the long end of the 2mm Allen key provided onto either of the two screws and very gradually tighten it with one hand whilst moving the Cutting Head slowly with the other hand. Once you feel the sliding motion start to tighten undo the screw the smallest amount so the Cutting Head just slides easily.

Repeat this on the second screw, two or three finer adjustments on each screw may be needed to achieve an easy sliding movement with zero side play.