Volta™
Belting Technology

The Next Step in Belting

Welding & Fabrication Tools

FT-Flat Electrode Welding

Instruction Manual

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FT-Flat Electrode Welding System

Model	
FT 1000 Welding System (110V)	Cat. No. 8153415
FT 1000 Welding System (230V)	Cat. No. 8153416
FT 1500 Welding System (110V)	Cat. No. 8153420
FT 1500 Welding System (230V)	Cat. No. 8153421

Thank you for buying the Volta FT Welding Kit.
If you have any questions about the use of this tool please contact our Technical Service Department at email: **sales@voltabelting.com** or visit our website **www.voltabelting.com.**

How to Use this Manual

This manual has been designed to provide the operator with all the necessary information on how to use the above tool correctly. Warnings in the manual should be carefully followed for your personal safety. Be sure you carefully read the instructions in this manual before using the tool. This will ensure use in compliance with safety standards.

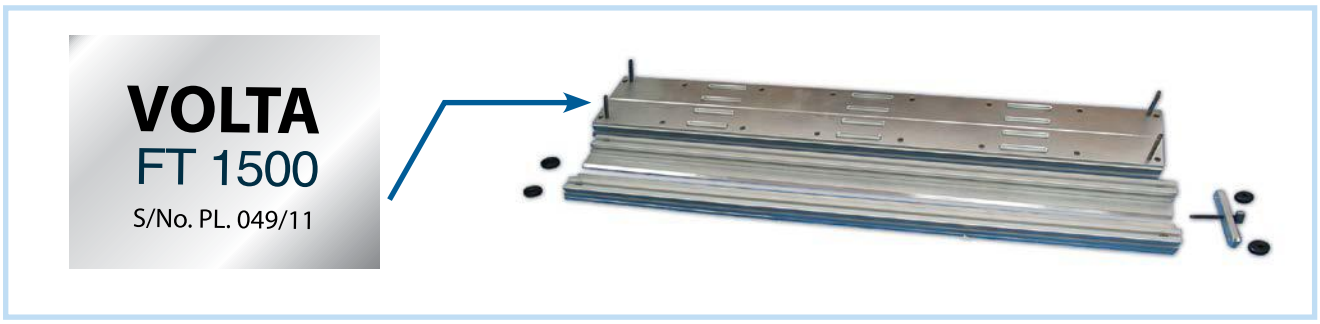
Symbols Used in the Manual

This symbol is used for important Notes & Tips.

This symbol is used to warn you of actions that are dangerous for the operator.
Read the associated warnings and instructions carefully.

Identification Data

The identification plate is on the front of the clamp. You should include the model and serial number in a ll inquiries to Volta Belting about this tool.



Identification Plate Example

Important: the identification plate should never be removed.
The data on the plate should not be modified.

1. Introduction

FT - Flat Electrode Welding System

Make sure that your cutting bit corresponds with the correct bit alignment gauge.

FT Welding Kit Includes:

No.	Qty.	Description	
1		FT-1000/ 1500	**110 VAC**
			220 VAC
1.1	**1**	Base	
1.2	**2**	Belt Clamps	
1.3	**4**	Quick Release Nuts	
1.4	**1**	Electrode Clamp	
1.5	**1**	Positioner + SD Cutting Bar	
1.6	**-**	Trimmer Adaptor	**110 VAC**
			220 VAC
1.7	**-**	Bit Alignment Gauge*	
2	**1**	Trimmer, (Makita Model 3707 FC)	**110 VAC**
		Trimmer, (Makita Model 3703)	**220 VAC**
3	**1 Set**	Trimmer Wrenches (for securing cutting bits)	
4	**1**	¼" x 9/16" Flat Cutting Bit	
5	**1**	¼" x ½" 50° Cutting Bit*	
6	**1**	Case for FT-1000/ 1500	

* The 4-hole bit Alignment Gauge, Cat # 8153320 is to be used together with ¼ x ½ 50° Cutting Bit, Cat #8153337

Equipment not Supplied with the Kit:

- Vacuum cleaner
- Leister Hot Air Gun and Nozzles
- PD1" pitch Adaptor
- Pitch gauge measuring tool for Volta
- positive drive belts

2. Capabilities

The FT-1000 and FT-1500 are designed to provide electrode welding capabilities for all Volta flat belts, including SuperDrive™, DualDrive™ and 1" pitch Positive Drive belts (Mini SuperDrive™ and Mini DualDrive™).
The FT pliers have cutouts in the base designed for the SuperDrive™ and adaptors for DualDrive™ and 1" pitch Positive Drive belts (Mini SuperDrive™ and Mini DualDrive™). The belt is mounted on the Pliers one time and all other operations (from belt-end preparation through trimming the weld on the top of the belts) are done without removing the belt from the Pliers. These changes simplify the electrode welding of the belts.

2.1 Belt Width Welding Capabilities

FT-1000	FT-1500
up to 1000 mm	up to 1500 mm

The FT-1000 and FT-1500 Electrode Welding Kit is designed for use by personnel who have been trained in Electrode Welding of Volta belts. These instructions are not a substitute for training and experience.

Safety Precautions

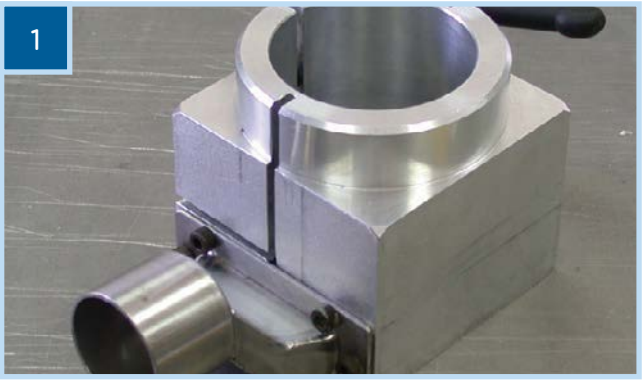
- Always disconnect the Trimmer from electricity before replacing the bits. Failure to do so can cause both mechanical damage and personal injury.
- Turn the Trimmer ON only when it is in position on the pliers.
  Never apply power when the bits are exposed.
- When operating the Trimmer always wear protective glasses.
- Before operating the Trimmer read the Safety Instructions included with the Trimmer.
- The Trimmer Bits are precision tools and, as such, must be handled with care. Dropping a bit will damage the cutting edge making the bit dull. This reduces the effectiveness of the tool and the quality of the work.
- The Trimmer must be laid on it`s side when not in use. This is to prevent damage of the bits.

3. Welding Instructions

3.1. Vacuum Cleaner Adapter

The FT-1000 and FT-1500 are designed to operate with a vacuum cleaner attached to the Trimmer mount. The Trimmer base has a vacuum hose connector already attached. The vacuum cleaner will draw-off the trimmings, leaving a clean work surface. By removing the loose trimmings the vacuum permits a smoother and cleaner trimming operation. Both the FT-1000 and FT-1500 may be used and are compatible with the requirements for cleanliness in food processing facilities.

1



a. If your vacuum hose does not match correctly, you will need to provide an adaptor. One possibility is to make an insert of cardboard or other flat, flexible material (Fig. 3).
b. Position the insert in the Trimmer mount and mount the vacuum hose on the insert.
c. An alternative is to purchase a Universal Adaptor. You can cut the adaptor to match the vacuum and hose diameters you require (Fig. 2).
d. The final step is to tape the joint. This provides a solid connection and also maintains the vacuum (Fig. 4).

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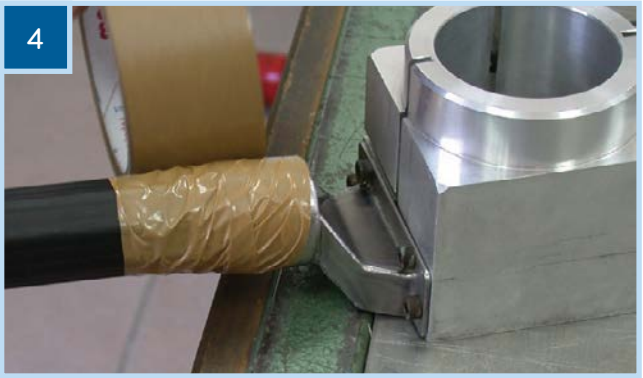

3.2 Preparing the Belt

a. Cut the belt to the required length using a straight edge ruler. Repeat the square process for the second belt end. Mount two strips of double-sided tape on the Pliers base. The strips are mounted on either side of the central groove. At this stage do not remove the backing.

5

b. Mount the Positioner (see Welding Kit, Page 4) on one side of the Pliers base, so that the straight edge of the Positioner corresponds with the center of the groove in the Pliers base.

c. Remove the protective paper from the exposed doublesided tape. Position the end of the belt against the Positioner edge and press down on the tape. Ensure that the edge of the belt is flush against the Positioner edge. Press the belt end firmly onto the Pliers base. This will ensure good adhesion with the tape.

Remove the belt Positioner and the protective paper from the second piece of double-sided tape. Position the free end of the belt end against the mounted belt. Ensure that the edge of the belt is flush against the opposite belt edge. Press the belt end firmly onto the Pliers base. This will ensure good adhesion with the tape.

6

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a. Position two pieces of flat belt material which is identical to the belt being welded, at both outer edges of the belt and across the groove in the Pliers base. These pieces must be as wide as the Trimmer base to provide a smooth surface to start the trimming and cleaning procedures. The positioning of these pieces purpose is to start and finish the weld outside the belt area.
Position four small pieces of belt material near the four studs on the Pliers base. These pieces will ensure that both clamps will maintain an even pressure across the belt's width.
All pieces must be the same material and thickness as the actual belt being welded.

b. Position the two belt clamps over the belt with the angled edge facing one another.

c. Position the electrode clamp on the end of the Pliers base opposite to you. Secure the belt and electrode clamps in position using the Quick Release Nuts. The nuts sould only be hand tightend. It is not necessary to overtighten the quick release nuts.

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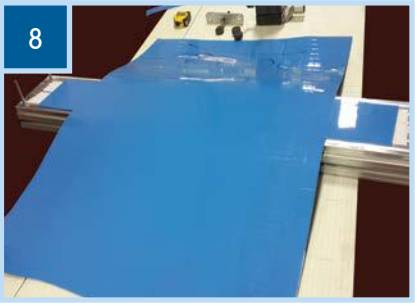

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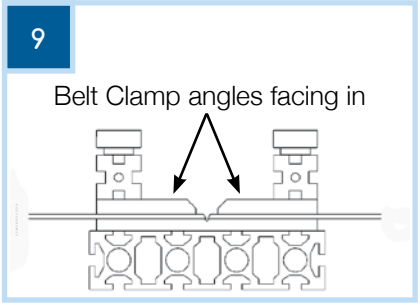

10

3.4 Preparing the Trimmer for Beveling the Belt Edges

a. Mount the 50° Cutting Bit (see #5, Page 4) in the Trimmer using the two wrenches supplied with the Trimmer. Ensure that the Trimmer is not connected to power before proceeding with these steps.

b. Set the Trimmer in the Trimmer base. Do not tighten the base handle at this point.

c. Set the bit alignment gauge flat on the table with the four holes facing up. Place the Trimmer on the alignment gauge with the bit positioned over the hole marked with the belt thickness required.

Lower the Trimmer into position so that the bit is sitting all the way down in the hole. Tighten the Trimmer base clamp.

The Trimmer base is shown without the vacuum attachment. The vacuum can be attached after mounting the bits and aligning the Trimmer in the Trimmer base to facilitate this step.

3.5 Bevel the Belt Ends

Set the Trimmer Mount between the two belt clamps. Before turning it on, conduct a visual check to make sure that the router bit does not touch the aluminum base. Turn on the vacuum cleaner. Plug in the Trimmer and, after ensuring that the area is ready and the bit is not touching the base, turn the Trimmer on.

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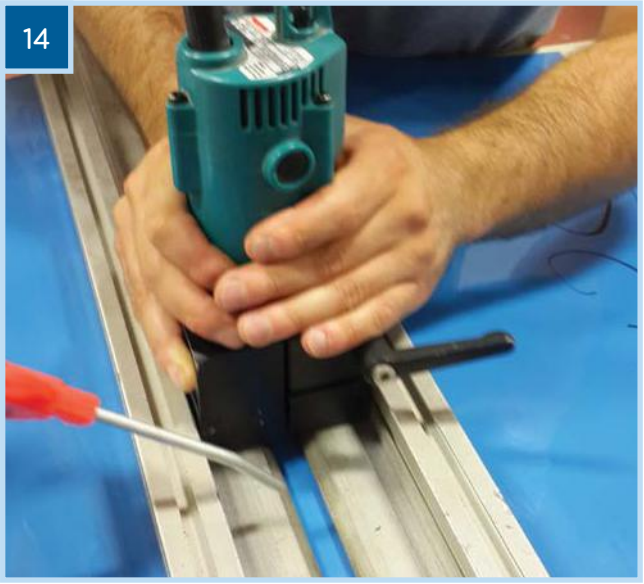

The Trimmer operates at high speed. Hold it firmly to prevent it from jumping out of control when it is turned on.

The Trimmer should be positioned to start trimming in the piece of belt added at the edge of the base belt.
To ensure a clean trim, the Trimmer should be pushed forward at a slow pace.
After trimming the belt ends in one direction, reverse the direction of movement and slowly return to your starting position. It is not necessary to remove burs from the edge of the trimmed belt. These small pieces will melt during the welding process. If there are loose pieces on the belt, you can clear them away before proceeding.

Turn the Trimmer off and unplug it.

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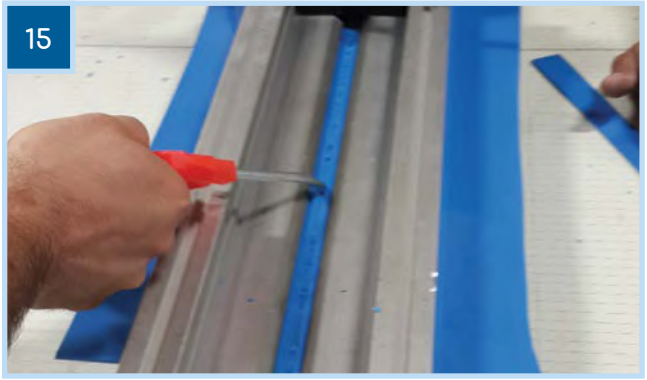

The groove after milling.

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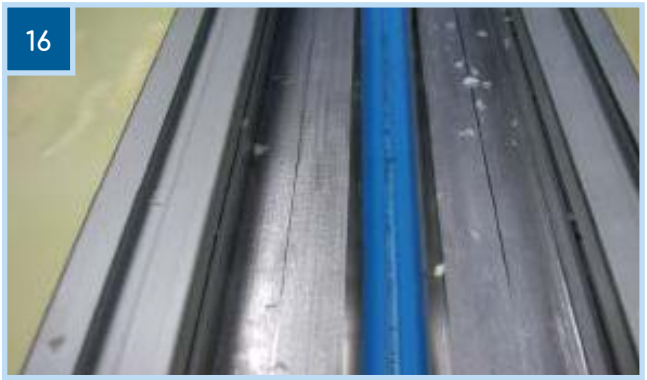

3.6 Welding the Belt

The process of electrode welding is the same for all Volta flat belts. Follow standard Volta procedures.

The electrode must always be of the same material as the belt being welded.
Use M material electrodes on M material belts.
L material electrodes on L material belts.
LT material electrodes on Low temperature (LT) belts.
H material electrodes on H material belts.

Belt Thickness	7 mm Electrode	9 mm Electrode
2	X	
2.5, 3, 4, 5		X

Safety Precautions

1. Check that the router bit height is set to the position where it almost touches the bottom of the groove (as low as possible without actually touching).

2. Make a clean groove. Repeat the grinding a few times and use a knife to clean any remaining material.

3. Preheat both the belt and the electrode.

4. Use a relatively high welding temperature, with the new type LEISTER hot air gun (1600W) setup at mark #8/8.5 and with the old type (1400W) set on mark # 8.5/9.

5. Weld relatively slowly while applying moderate downward pressure continuously (use Leister top handle to assist in pressing down Cat. No. 8141408).

6. While welding make sure that the electrode runs freely into the nozzle and is not stretched by being pulled. Use a second person to feed the electrode loosely if needed.

7. Check the weld to make sure that there are no longitudinal cracks on either side.

8. If needed, make some "cosmetic" finish to the top surface using the Hot Air Gun & Teflon coated pressure wheel to create smooth surface.

Welding at a high temperature may result in some bubbles formed on the top surface. These are acceptable and will not affect the joint strength; however any longitudinal cracks will probably evolve into a breakage at a later stage.

3.7 Trimming the Excess from the Weld

a. Release the four Quick Release Nuts and remove the belt clamps.

b. Remount the belt clamps with the angle facing out. Do not tighten the quick release nuts.

21

c. Prepare the Trimmer for trimming the excess material:
Mount the flat cutting bit in the Trimmer (see #4, page 4). The belt should be allowed to cool approximately five minutes before trimming off the excess material.
The time required to prepare the Trimmer for use will be sufficient for this cooling period.

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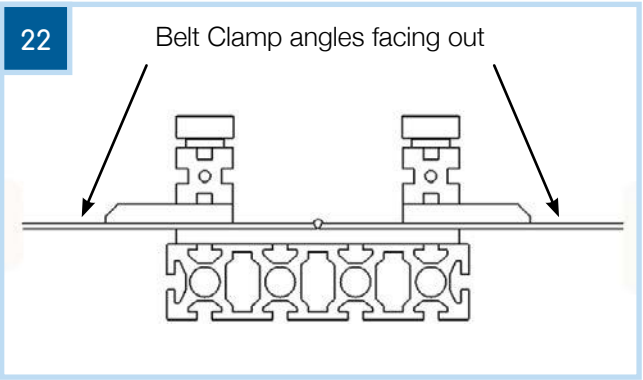
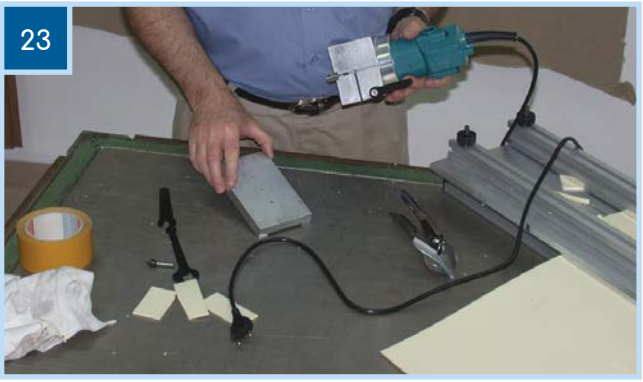


When performing the following steps remember to follow all the Safety Precautions, Page 5.

The procedure for preparing the Trimmer for use is identical (Page 8) with the following exceptions: Mount the flat cutting bit onto the Trimmer (refer to #4 in Page 4). Set the bit alignment gauge flat on the table with the flat surface face up (four holes face down).

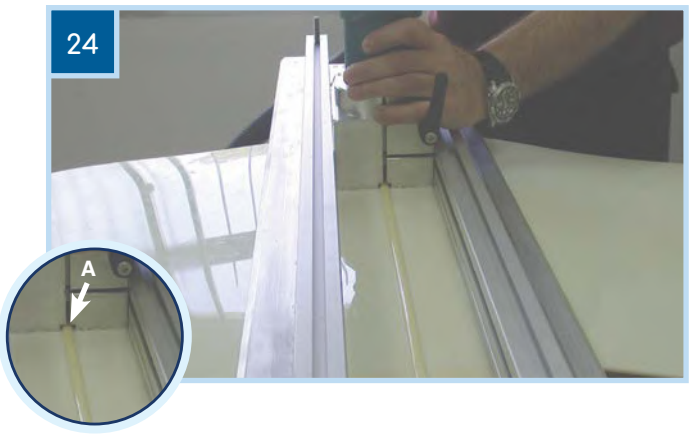
Place the Trimmer in the alignment base. Ease the Trimmer into position so that the bit is flush with the flat surface. Tighten the Trimmer base clamp. The Trimmer operates at high speed. Hold it firmly to prevent it form jumping out of control when it is turned on.

23



Check the height of the cutting bit on a different piece of belt before starting this procedure.

d. Set the Trimmer base between the two belt clamps. Note that the Trimmer base has a groove across one dimension (A). This groove must be aligned with the belt joint so that the excess material (flash) passes under the groove. Turn the vacuum cleaner on. Plug in the Trimmer and after ensuring that the area is ready turn the Trimmer on. The Trimmer should be positioned to start trimming on the piece of belt added to the edge of the base belt.
After trimming the belt ends in one direction, reverse the direction of movement and slowly return to your starting position.If it is necessary perform the trimming operation a second time. You must thoroughly clean the area between the belt clamps first. Turn the Trimmer off and unplug it.

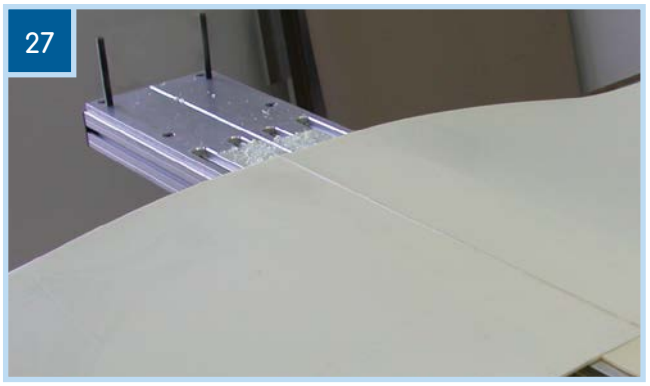


Make some "cosmetic" finish, using the Hot Air gun; melt the top surface and quickly apply pressure using a teflon coated roller.

e. Remove the Quick Release Nuts and the Belt Clamps. Carefully pull the belt to release it from the double-sided tape. Flip the belt over and place it upside down on a smooth, flat surface. (you can use the plier base)

Using a sharp knife such as a Leister Knife or the V-Knife, trim the excess material from the bottom of the joint.

Trim off the two pieces of the material that were added to the edges of the belt to facilitate the electrode welding.

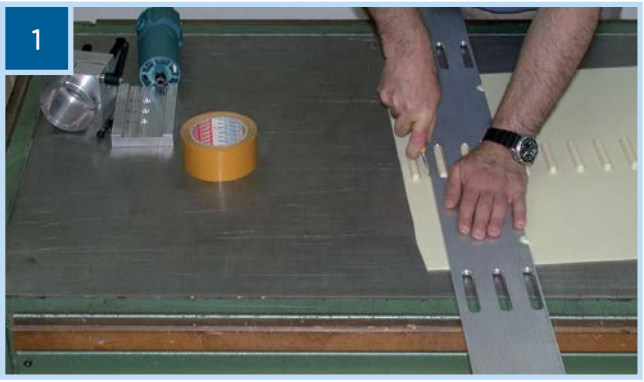


3.8 Welding SuperDrive™ and Mini SuperDrive™ with FT

The welding procedure of the SuperDrive™ and the Mini SuperDrive™ are similar. For the Mini SuperDrive™ belt use the 1" Pitch adapter set. The adaptors are not included in the FT welding kit.

Use 9mm electrodes for welding the SuperDrive™ and Mini SuperDrive™ belt.

1



Cut the belt to the required length using the straight edge of the Positioner that is included in the kit.

2

Apply strips of good quality Double-Sided Tape on the Pliers. Trim the unnecessary tape from the grooves.

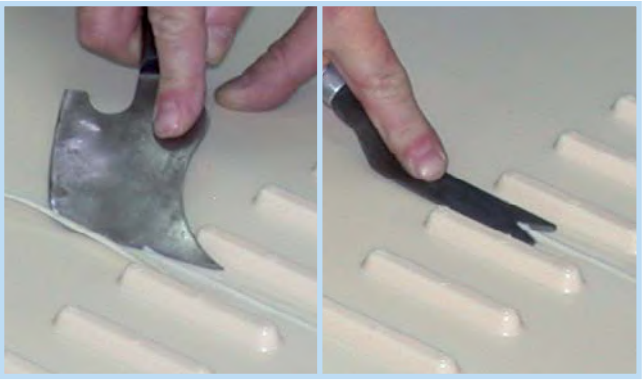
3

Replace the Positioner on the Pliers. Position one side of the belt on the Pliers using the Positioner as reference.

4

Remove the Positioner and position the other side of the belt and weld the belt according to the welding instructions (3.3 on Page 7). Trim the excess. Turn the belt over and trim the flash from the bottom side of the belt with a knife. A good weld will be free of cracks and defects.

Model	
PD 1" pitch Adaptor for FT1000	Cat. No. 815331805
PD 1" pitch Adaptor for FT1500	Cat. No. 815331905



Use a finger guard when engaging in various activities that involve the use of sharp objects. Handle the knife with care. Cut away from your body, not toward it. Make sure that the electrode used is the same as the base belt material.

3.9 Welding DualDrive™ and Mini DualDrive™ with FT

The welding procedure of the DualDrive™ and the Mini DualDrive™ are similar.

Use 9mm electrodes for welding the DualDrive™ and Mini DualDrive belt.

1

Cut the belt using the Cutting Bar to the required length.

2

Select the appropriate adaptor for the belt type to be welded. Position the Adaptor onto the pliers when the groove of the electrode is facing up.

3

Apply Double-side Tape on the Adaptor surface and trim the unnecessary tape from the grooves. At this stage do not remove the protective paper.

4

Weld the belt according to the welding instructions (3.2 b. on Page 6-7).

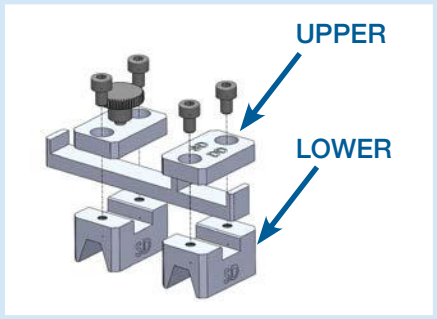
Description	DualDrive™ FT-1000	DualDrive™ FT-1500	PD 1" pitch Adaptor FT-1000	PD 1" pitch Adaptor FT-1500
Welding Adaptor Set	8153318	8153319	815331805	815331905

Note: Each set includes Adaptor and Cutting Bar.

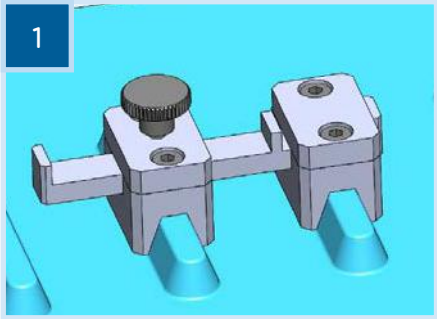
4. Pitch Gauge Measuring Tool for Volta Positive Drive Belts

Volta Positive drive belts need to be welded endlessly while maintaining a correct pitch tolerance between the teeth closest to the weld. A small tool has been developed to ensure this.
The Pitch Gauge Measuring Tool is not included in the FBW Welding kit.
This tool can be purchased as a separate unit - Cat.No. - 81307570.

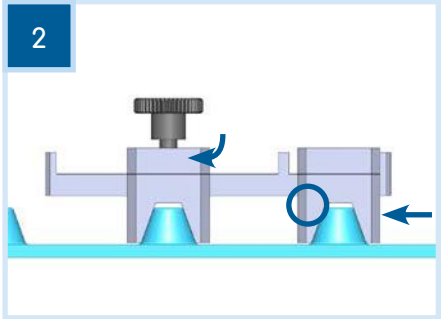
Positive Drive Pitch Gauge Tool Instructions



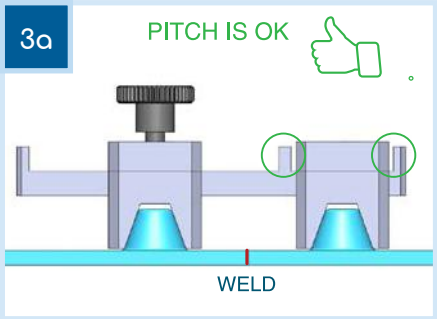
Replacing the belt type gauge blocks:
Remove the four bolts using the supplied 3mm Allen key and reconnect upper and lower to the desired belt type gauge block.

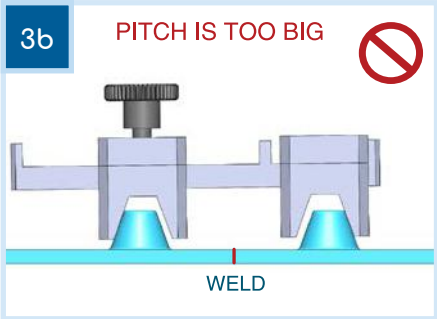


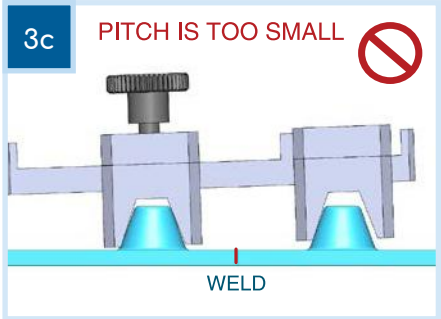
Calibrating the gauge:
1. Unfasten the knob and place the gauge blocks on two adjacent belt teeth. (Not the teeth adjacent to the weld).



2. Push the gauge base to the position so it sits firmly to the outer side of the gage block. (The gauge blocks should sit firmly on both teeth). Tighten the knob to lock the gauge in place.



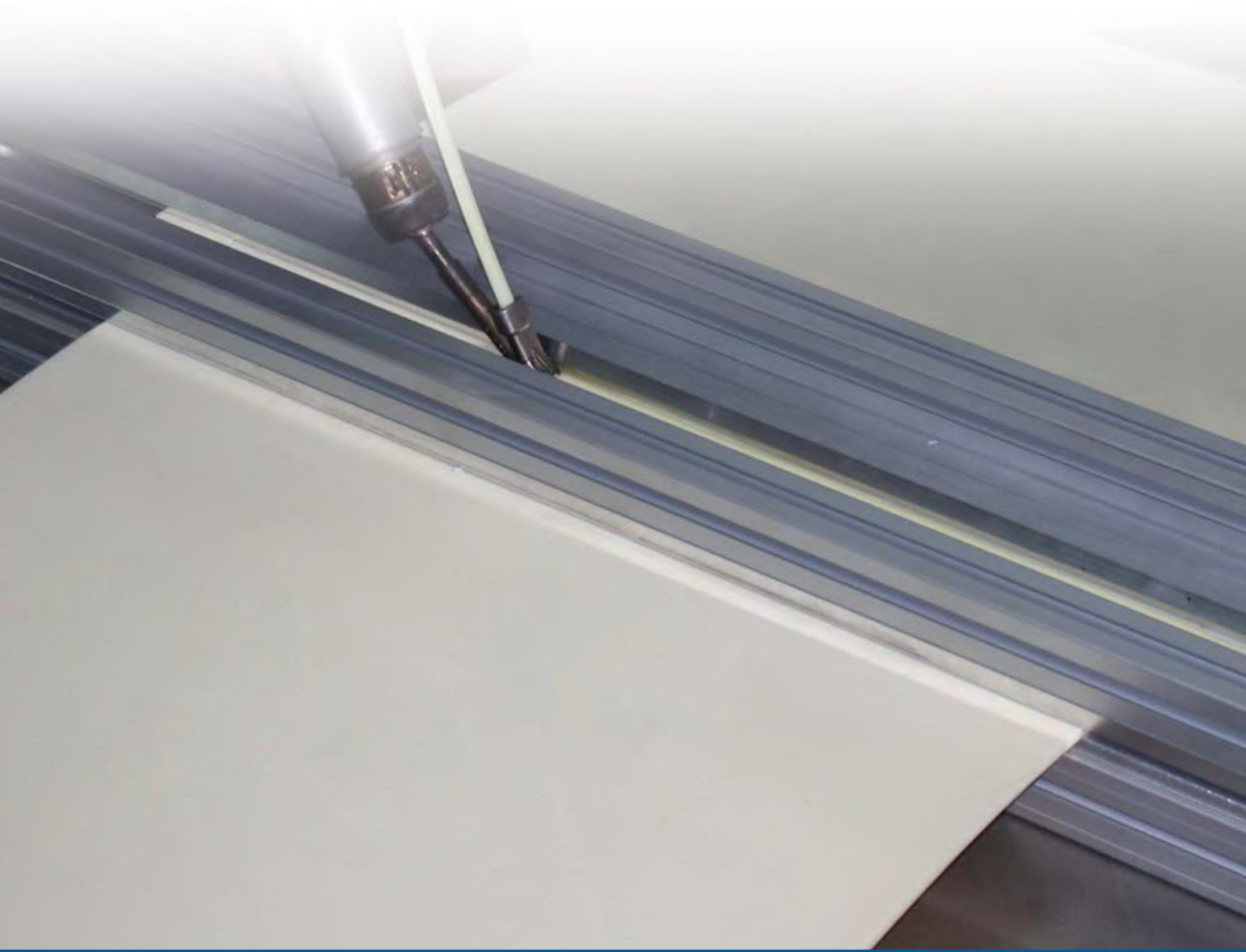




3. **Checking the weld:**
Place the gauge on the two closest teeth on both sides of the weld.
The gauge should sit firmly on both teeth. If there is a small gap as seen in picture 3a the pitch is within the allowed tolerance. In case the gauge doesn't sits firmly on the teeth refer to pictures 3b and 3c.

With Volta Tools You Can Never Go Wrong!

- Fast and simple belt installation.
- Unique and versatile design - compact, rugged and easy-to-use.
- Designed for both shop and field use.
- Light-weight construction.
- Usually does not require cooling water or air pressure.
- Convenient design and method of storing and carrying your tools.
- Welds and fabrications are strong, reliable and will last as long as your belt life.



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CAT602EN00 - Ver.I - September 2022