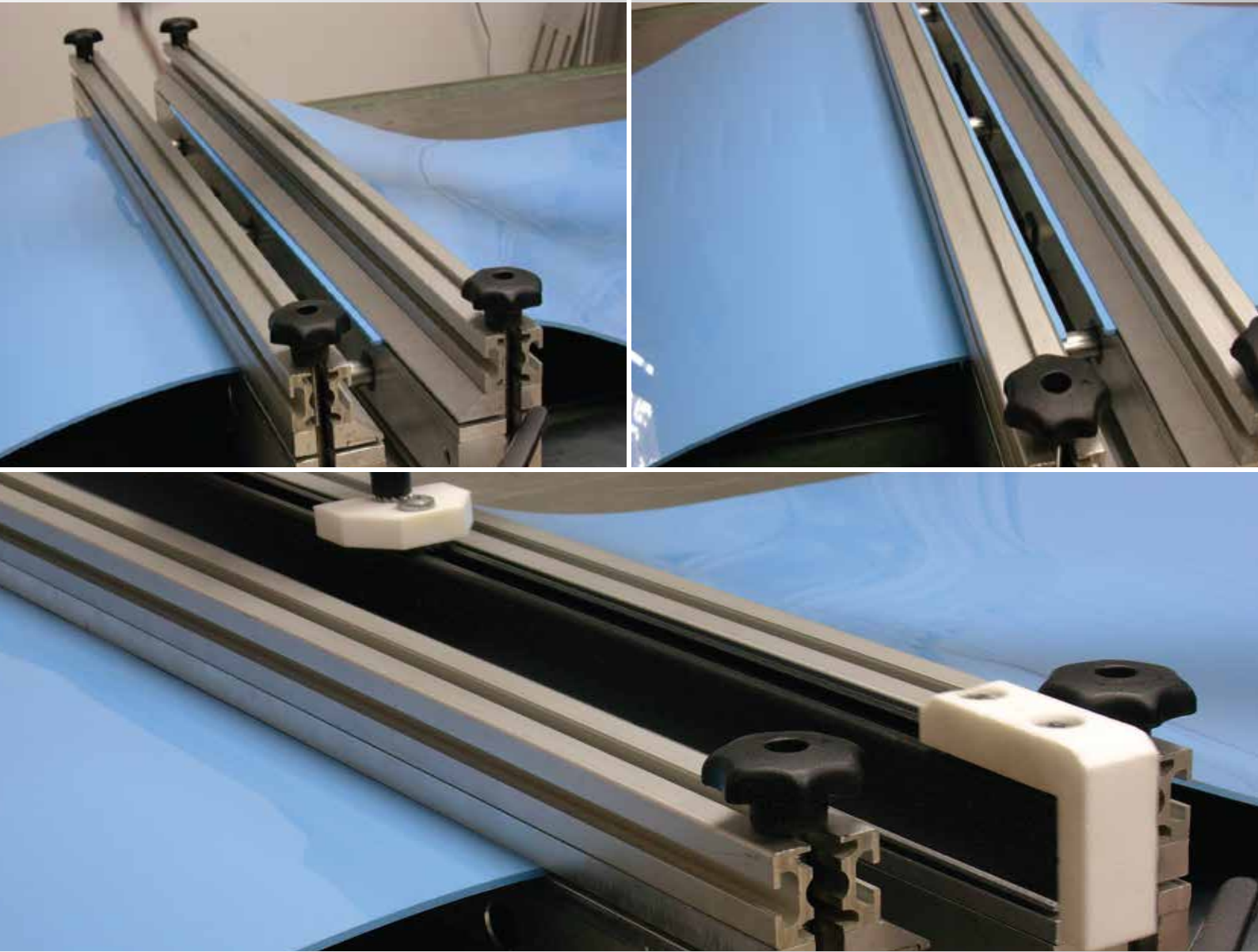




**BELTING**  
Technology

*Welding & Fabrication Tools*  
*FBW-Flat Butt Welding*

*Instruction Manual*



*The Next Step in Belting*

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➔ Thank you for buying the Volta FBW Welding Kit. If you have any questions about the use of this tool please contact our Technical Service Department at email: [sales@voltabelting.com](mailto:sales@voltabelting.com) or visit our website [www.voltabelting.com](http://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 all 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

The FBW Welding Kit is designed to splice Volta flat conveyor belts of up to 2100 mm/ 83" wide.



**FBW Welding Kit**

➔ The FBW Welding Kit is available in a variety of sizes and voltage/power ratings. The model number indicates the width of belt that may be welded on a 90° joint. For example, the Model 300/ 301 welds a 300 mm (12") wide belt and the model 1300/ 1301 welds a belt that is 1300 mm (51") wide.

No.	Qty.	Description	FBW Welding Kit Components Standart kit
1	1	Case for FBW	
2	1	Pliers second line in both charts	
3	1	Welding Accessories (Welder, Control Box)	
4	1	SD Cutting Bar	
5	1	Locator Bar	
6	1	VTrim knife	
	1	Control box Instructions Manual	
	1	FBW Welding Instructions Manual	



FBW Case see picture at the top of the page

➔ Models 300/ 301, 720/721, 1060/1061 and 1300/ 1301 may be operated by one person. The FBW 1700 and 2100 require two operators for correct and safe operation because of the length and weight of the Welder. The FBW Welding Kit is supplied in a storage case to store the system components. Store only the FBW Welding components in this box to avoid damage of the items.

No.	Qty.	Description	FBW Welding Kit Components Positive Drive Set (PD)
1	1	Case for FBW	
2	1	Pliers second line in both charts	
3	1	Welding Accessories (Welder, Control Box)	
4	1	SD Cutting Bar	
5	1	Locator Bar	
6	1	VTrim knife	
7	2	DD Adapter	
8	2	DDSP Adapter	
9	1	Stopper for the DD /DDSP	
	1	Control box Instructions Manual	
	1	FBW Welding Instructions Manual	



FBW Case see picture at the top of the page

## 2. Technical Specifications

Table 1: FBW Welder System Specifications

		FBW 300/ 301	FBW 720/721	FBW 1060/1061	FBW 1300/ 1301	FBW 1700	FBW 2100
Electricity		110 / 230 V Single phase 400 W	110 / 230 V Single phase 800 W	110 / 230 V Single phase 1100 W	110/ 230 VAC Single phase 1300 W	110/ 230 VAC Single phase 1700 W	110/ 230 VAC Single phase 2000 W
Maximum Current	110 VAC	3.7 amps	7.3 amps	10 amps	12 amps	N/A	N/A
	230 VAC	1.8 amps	3.6 amps	5 amps	5.9 amps	7.4 amps	8.7 amps
Fuse	Type	slow-blow	slow-blow	slow-blow	slow-blow	slow-blow	slow-blow
	110 VAC	10 amp	10 amps	15 amps	15 amps	N/A	N/A
	230 VAC	10 amp	10 amps	10 amps	10 amps	10 amps	15 amps
AC plug	110 VAC	yes	yes	yes	yes	N/A	N/A
	230 VAC	yes	yes	yes	yes	yes	yes
Pliers Weight lb/ kg		13 / 6	35 /16	48 / 22	82 / 37	106 / 48*	121 / 55*
Total Weight lb/ kg		22 / 10	70 / 32*	92 / 42*	181 / 82**	225 / 102**	255 / 116**
Max. Belt Width at 90° in/ mm		24 / 300	28 / 720	41.7 / 1060	51 / 1300	66.9 / 1700	82.5 / 2100
Max. Belt Width at 45° in/ mm		6 / 150	15.7 / 400	24.4 / 620	33 / 845	45.7 / 1160	56 / 1420
Belt Thickness: in/ mm		0.06-0.2 / 1.5-5	0.06-0.2 / 1.5-5	0.06-0.2 / 1.5-5	0.06-0.2 / 1.5-5	0.06-0.2 / 1.5-5	0.06-0.2 / 1.5-5
Preheating in minutes		15	15	15	15	15	15
Working Temperature		428 - 518°F	428 - 518°F	428 - 518°F	428 - 518°F	428 - 518°F	428 - 518°F
		220 - 250°C	220 - 250°C	220 - 250°C	220 - 250°C	220 - 250°C	220 - 250°C



\* This equipment is heavy and must be carried by two persons.



\*\* This equipment is heavy and must be carried by a forklift.



\*\* In the USA, units are supplied with a 110 VAC North American Standard plug. In Europe, units are supplied with a 230V German standard plug. Users must adapt the plug to the local electrical standards. This must be done by a certified electrician and in compliance with local electrical codes and standards.



## 2.1. FBW Layout

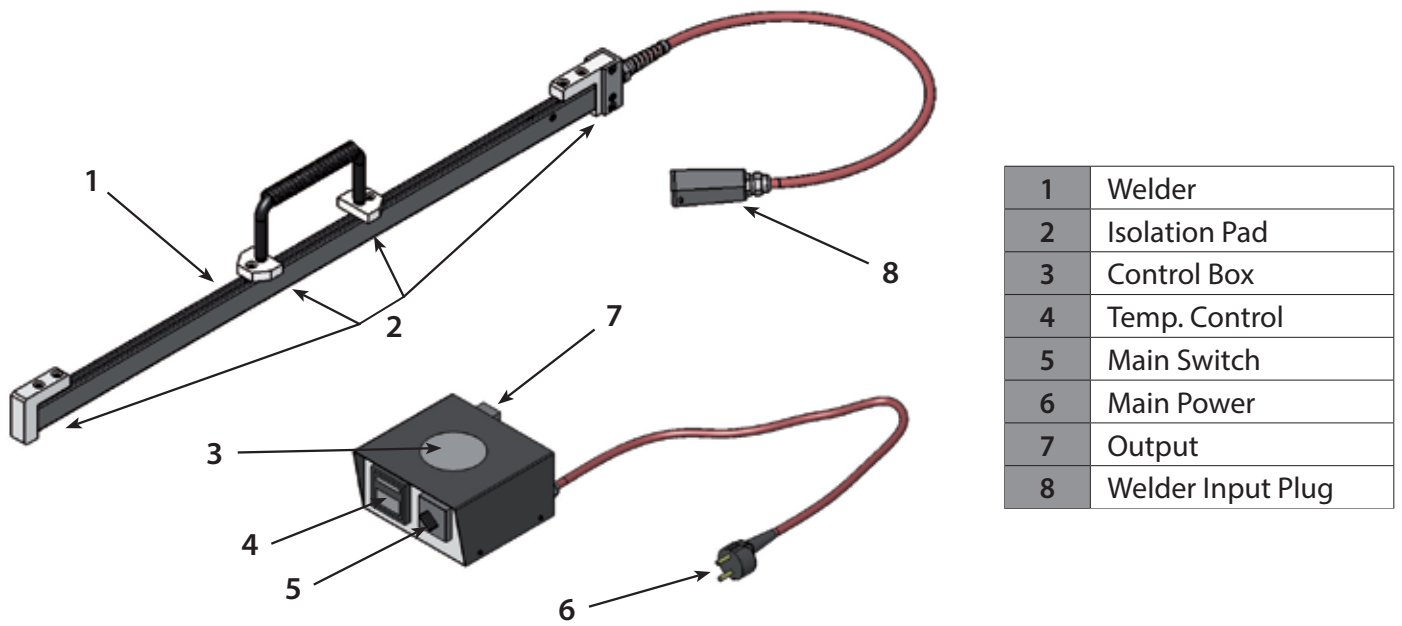


Figure 3: FBW Welder and Temperature Controller

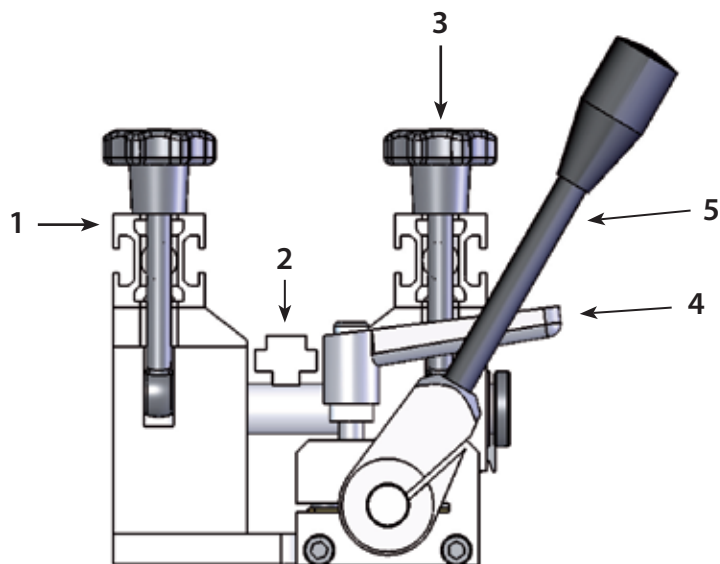


Figure 4: FBW Pliers

## 2.2. The Storage Case

The storage case is meant to protect the tools against dirt and damage during transportation. The case is designed to store the entire FBW system. Tools and other items that do not belong to the FBW Welding System should not be placed in the storage case. Loose, unsecured items may move around and damage the Teflon coating of the Welder.

**Do not store chemicals in the FBW storage case** - chemical fumes and possible spills may damage the wiring and internal components of the Controller.

## 2.3. The Electrical System

All metal parts of the FBW Welding System are grounded. Ensure that the electrical plug is connected to a power source with an earth ground. The thermo-couple wires must not be disconnected as this will cause uncontrolled heating and damage the Welder.



Electrical Shock Hazard - Never remove the ground from the power cord or internal wiring.

## 2.4. Care and Maintenance

Keep the system dry and clean.

Occasionally apply a light coating of oil to sliding metal parts.

The quality of the finished weld is affected by the condition of the Welder. To obtain the highest quality results from your Welder, **always wipe the Welder's flat surfaces with a clean cotton cloth to remove material and dirt immediately after welding.**

When welding is completed, return the tools to their storage box. There is no need to wait for the Welder to fully cool down.

The partitions inside the box will ensure that the system does not move during transportation and guarantee the tool's long lasting functioning.



The Welder must be cleaned while hot. Because the temperature of the welder is high, extra care must be taken to avoid burns. It is recommended that you wear protective gloves.



## 2.5. Safety Precautions

Volta Belting accepts no liability for use of this tool in a manner other than that specified in this manual.

Volta Belting accepts no responsibility for unauthorized modifications performed on this tool.

This User Manual and the warnings contained herein must be read carefully and kept clearly visible in the vicinity of the FBW Welding Tool.

Failure to pay attention to these warnings can lead to accidents, injuries or damage to health.



## 2.6. Warning Notice for Welding Tools

1. Always use the original storage box to keep the welding tool when not in use. Always store tools in a dry and secure environment
2. Select and use the most appropriate welding tool for your application. The selection is based on material dimensions.
3. Use the welding tool only at its rated voltage (See Table 1 - FBW Welder System Specifications).
4. Ensure that the unit is connected to an earth grounded power source. Failure to comply with this requirement can cause electrical shock.
5. Do not use the welding tool in a damp or wet environment.
6. Do not carry the welder by its power cord or use it for unsuitable purposes.
7. Protect the cord from heat and sharp objects.
8. Do not pull on the power cord to remove the plug from its socket.
9. Always work in a well ventilated area when welding. Some materials can generate toxic fumes when verheated.
10. Always weld on a non-combustible surface and be aware of surrounding materials. Heat may cause fire or damage other materials.
11. Ensure that the surface of the welding bar is clean and in good condition.
12. Hold the Welder by the handles only. The Welder surface can be very hot and will cause burns.
13. If the unit requires repair, return it to Volta Belting or to your local Volta distributor.



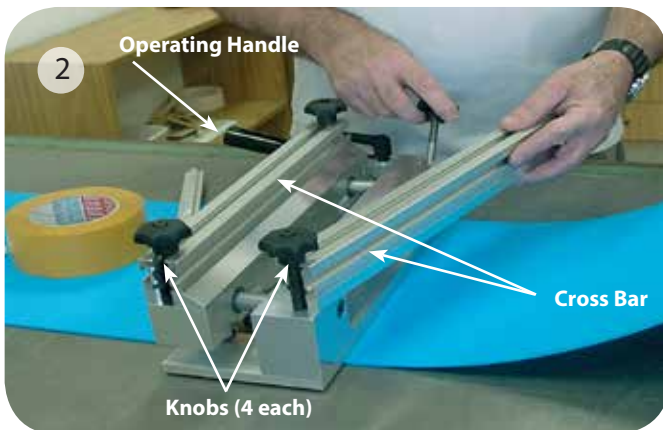
## 3. Welding Instructions

### 3.1. Preparing the Temperature Controller

- a. Connect the Welder to the Controller, and then connect the main power to the power supply. Turn the Power Switch to "ON" and allow 15 minutes for the Welder to warm up and the temperature to stabilize. The Welder is supplied after factory adjustment and should not be altered unless there is a problem. The Temperature Controller should be adjusted to 220°C (428°F) for all belt types. If you need to readjust the temperature, please refer to Page 31.

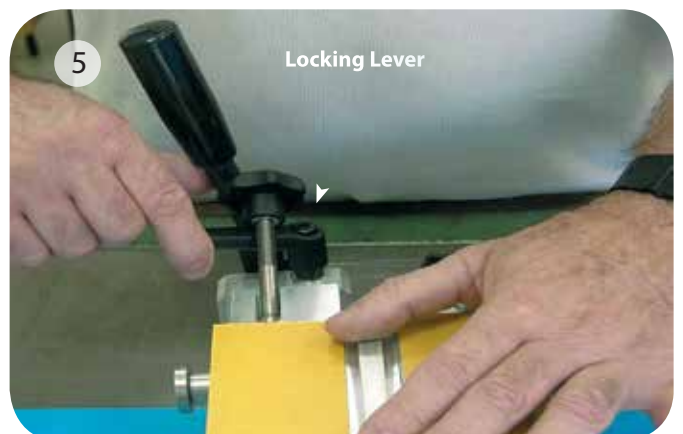


### 3.2. Preparing the Pliers



- a. Position the Pliers with the Operating Handle closest to you.
- b. Loosen the 4 knobs securing the Crossbars. The two knobs closest to the Operating Handle are hinged and can be swung out and down to remove the Crossbars.
- c. Remove the Crossbars and set them aside. FBW models 1300/1301, 1700 & 2100 are equipped with magnetic crossbars. To remove these crossbars, slide or roll them off the Pliers.

- d. Apply strips of good quality double-sided tape on the upper surfaces of the Pliers' jaws.



- e. Position the Locator Bar between the jaws of the Pliers. Place the Locator Bar in the center of the Pliers and over the Pliers Shafts. The belt locator has reference marks for belt alignment, Each side of the Belt Locator Bar has notes for different belt thicknesses. One side is marked for 1.5 to 2.5 mm belts and the opposite side for 3 to 5 mm belts.

- f. Ensure that you have the correct side facing up. Move the Operating Handle to close the Pliers jaws and lock in place using the Locking Lever. (By pulling the lever up you can adjust the handle position).

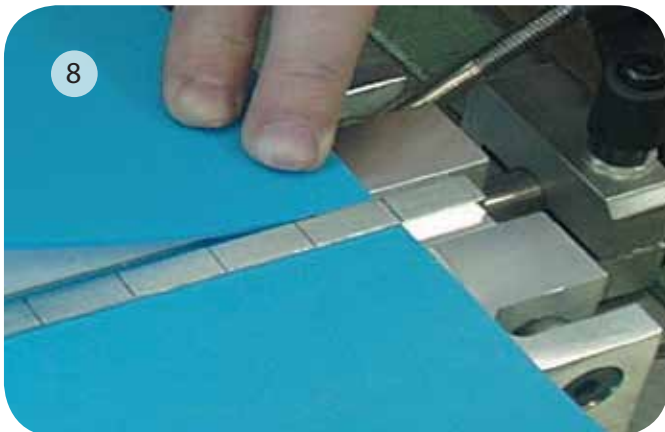
### 3.3. Preparing the Belt



- a. Cut the two ends of the belt at 90°. Ensure that the cut is accurate and straight.
- b. Clean the belt ends with denatured alcohol. The belt ends must be free of dirt and grease in order to ensure a consistent, high quality weld.



- c. Remove the protective paper from one piece of the doublesided tape and place one end of the belt against the Locator Bar in line with a reference mark. Press the belt onto the tape to ensure good adhesion. There should be no gaps between the belt edge and the Locator Bar. Gaps will produce an inconsistent weld and lead to early failure of the weld.



- d. Repeat this procedure for the opposite belt end. Make sure you align the edge of the belt with the reference mark on the Locator Bar, to ensure a straight edge between the two ends of the belt.



- e. Set the Crossbars in place and swing the Locking Bolt into position. Finger tighten the nuts. Be careful to apply even pressure on Crossbars. Uneven pressure will allow the belt to shift during welding and too much pressure will cause the Crossbars to bend.



**Note:** If the belt is narrow in comparison to the tool, add belt pieces to each side of the belt to fill the gap. This will prevent bending of the crossbar.

- f. Open the Pliers and remove the Locator Bar. Leave the Pliers open. The system is now ready for welding.



### 3.4. Welding the Belt



- a. Clean the belt and Welder. With the Welder cable away from the operator, place the pre-heated Welder between the two edges of the belt. Position the Welder over the Pliers guide bars.



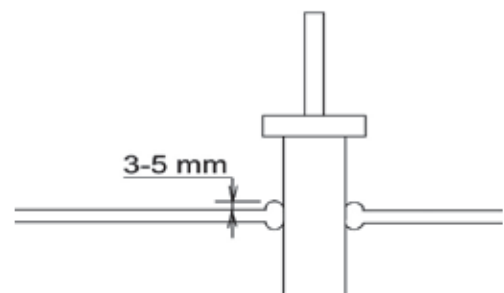
- b. Using the Operating Handle bring the two belt ends into contact with the Welder. Apply very gentle pressure and observe the melting of the material along both sides of the Welder. Do not hold the Welder during the welding process. The Welder should be free to move with the belt. When the material is evenly melted along the length of both sides of the Welder, move the Operating Handle to open the Pliers. Quickly remove the Welder and close the Pliers. This operation should be performed quickly but without too much force.



- c. With the belt ends pressed together, lock the Adjusting Lever. The weld requires approximately 5 minutes to cool. The time required for cooling depends on the thickness of the belt and the ambient temperature. When removing the Welder, pull it straight up, in a quick movement. This will prevent the welder from pulling melted material off of the belt ends.



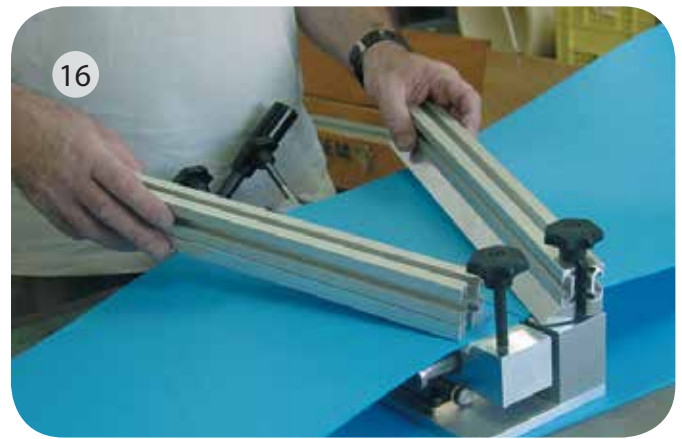
- d. The cooling process can be sped up by directing compressed air along the weld.



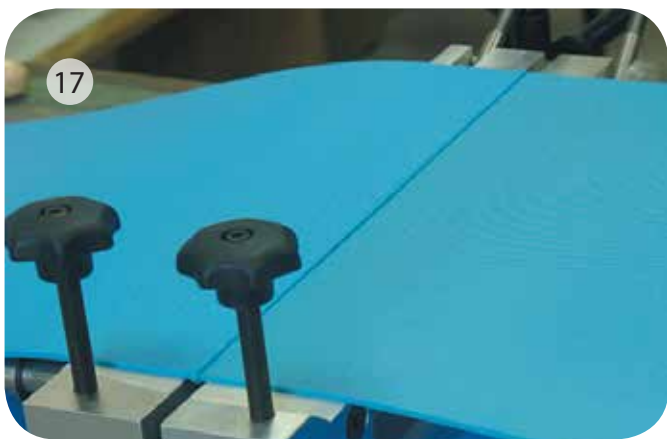
Amount of excess when belt ends are properly melted.



e. Clean the Welder using a clean, dry, lint-free soft Cotton cloth while the Welder is hot. Leaving material on the Welder will damage the Welders surface and reduce the efficiency of the Welder and the quality of the welds.



f. When the belt is cooled, leave the Pliers closed and remove the two Crossbars.



g. Welded belt with excess.



The following factors must be kept in mind when welding:

- The amount of pressure required to secure the ends of the belt depends on the thickness and type of material being welded.
- During welding, air bubbles are formed in the melted ends. The bubbles should be pressed out during the operation.
- If too much pressure is applied during welding, the heat will penetrate only a very narrow section along the edge of the belt. When the Pliers are closed this small amount of melted material will be pushed out. To ensure a quality weld, the heat must penetrate a wide section of the belt.

### 3.5. Trimming and Checking the Weld

Using a Leister Knife or other appropriate tool, trim the excess from the top of the belt.



Using Leister Knife to trim excess from weld



Using V-trimmer to trim excess from weld



Using Utility knife to trim excess from weld

b. Separate the belt from the Pliers and turn it over placing the trimmed surface on the Pliers. Trim the excess from the bottom of the belt.

c. Check the splice quality by bending the belt in both directions. Check the quality of the splice across the width of the belt and on both sides. A good weld will be free of cracks and defects. In case of a bad splice repeat the above steps (this will cause the loss of about 5 mm of the belt's length).

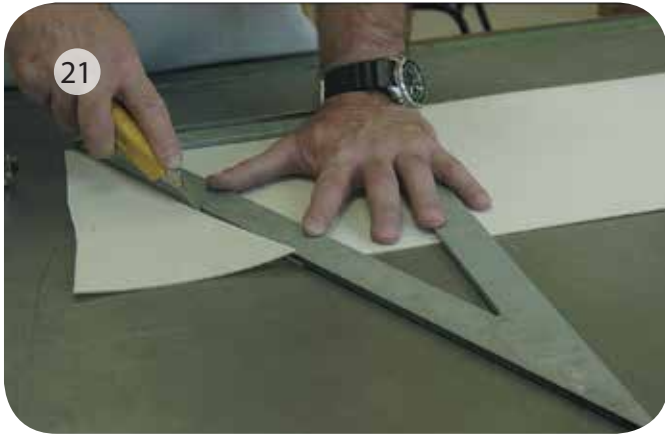


Use a finger guard when engaging in various activities that involve the use of sharp objects. Handle the knife with care. Cut away from your body, not toward it.

### 3.6. Instructions for Splicing Reinforced Flat Belts

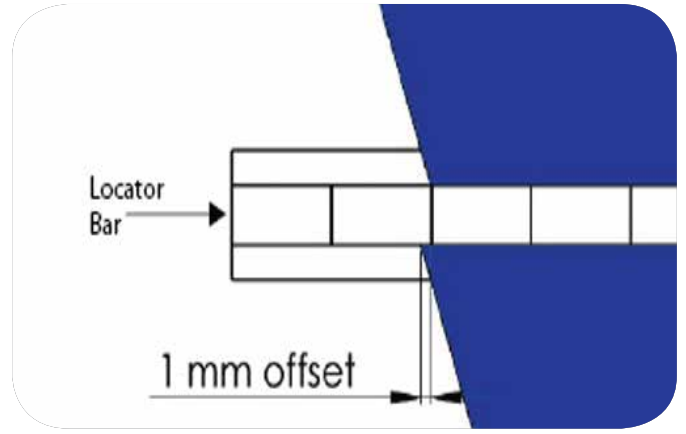


Reinforced belts must be spliced in an angle (15° - 45°).



- a. Prepare the Control Box and Pliers.
- b. Cut both ends of the belt to the desired angle.

- d. Align the sharp upper edge of the belt with a reference mark on the Belt Locator Bar and press the belt onto the doublesided tape.



- c. Position the second belt end on the opposite Pliers base. Ensure that there is an offset of 1 mm. This offset will compensate for the material melted during welding and ensure a smooth Straight edge.



- f. Mount the Crossbars on the Pliers. Perform weld as per welding instructions.

- g. After trimming the weld, check that the belt edge is aligned. A small disalignment may be trimmed.



### 3.7. Instructions for Welding Narrow Belts

The FBW models 301, 721 and 1061 can be used to weld narrow belts from 150 mm, by using double-sided tape and without assembling the Crossbars. Observe the following rules:

- a. Use good quality tape and make sure it is thoroughly adhered to the Pliers.
- b. When welding reinforced belts, work upside down with the fabric facing upwards.
- c. If the belt still moves while welding, raise the welding temperature by 15°C to 20°C to allow an easier melting of the material and reduce the pressure required. When you finish, return the Temperature Controller to 220° C.

---

### 3.8. Instructions for Welding H Material Belts

The procedures for welding M and H family materials are basically the same. However when welding H family belts it is necessary to be extra careful. The following are specific areas to watch out for:

- a. When welding H material belts, and especially belts 4 mm thick or more, in ambient conditions of low temperature and high humidity, it is necessary to warm the belt ends before welding.
- b. With the belt ends secured in the Pliers, use a Leister Hot Air Gun to direct hot air over the belts' ends for approximately 2 minutes.
- c. Without delay continue with the standard welding procedures described above.
- d. If you do not have a Leister Hot Air Gun, you can place the Welder in the Pliers over the Pliers supports. Close the Pliers without bringing the belt ends into contact with the Welder at least for a minute. The heat from the Welder will warm the belt ends before you begin to weld.
- e. When you bring the belt ends in contact with the Welder, press gently until the two ends have an even melt along the entire length of both sides of the Welder. At this point stop pressing and maintain this position for approximately 20 seconds. This allows the heat from the Welder to penetrate farther into the "H" material providing a sufficiently large softened area to ensure a good weld. Open the Pliers quickly and with a "snap", which will prevent material from sticking to the Welder. Release pressure, remove the Welder continue with the standard welding procedures described above.
- f. Using the Operating Handle, quickly close the pliers, because the H material cools down quickly. When working with H material belts, especially those that are 4 mm or thicker, apply extra pressure when closing the belt. This is needed to force any air bubbles out of the joint. However, remember that applying too much pressure will reduce the quality of the weld by forcing all of the melted material out of the area of the joint and leaving only cold material.
- g. The splice must be left to cool for at least 10 minutes after welding. Checking the splice by bending it too soon will weaken or break the splice.
- h. Because of the care needed to ensure a quality weld, it is important to perform several trial welds before welding a belt. This will allow you to get the feel for the pressure required while welding and closing the Pliers after welding. If you still have problems, please contact Volta for additional technical advice.

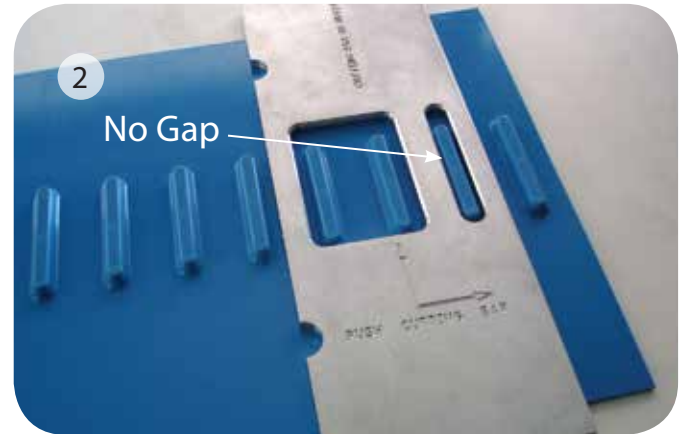


## 4. Welding Positive Drive Volta Products

### 4.1. Instructions for Welding SuperDrive™ H/M Material Belts Using FBW-301, FBW-721, FBW-1061 or FBW-1301.



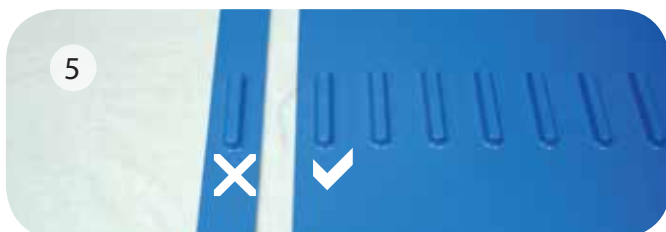
It is Essential to carry out several welding trails to become familiar with welding the Positive Drive conveyor belts.



1. The cutting bar is marked with positioning arrows as per photo 2



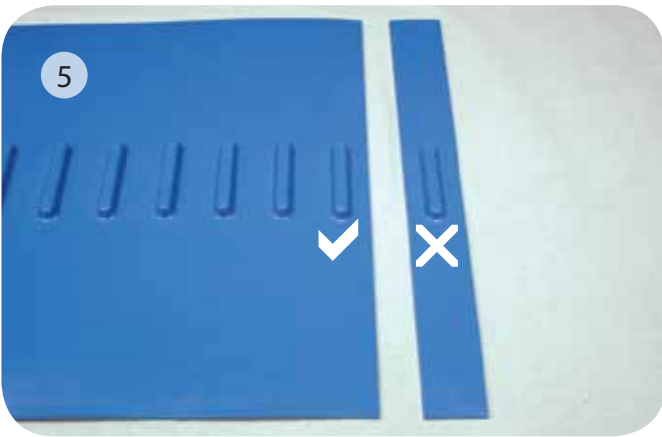
a. Use the Cutting Bar to cut the belt between the teeth, to ensure a 90° cut and the correct pitch. Push the cutting bar away from you and then against the right side until the single tooth stencil fits exactly in line with the tooth, giving you a perfect 90° position for marking your line. Draw a line and then check that the line is parallel to the teeth. Photo's 2 & 3. When cutting the belt this line will help us to make sure that the cut is square.



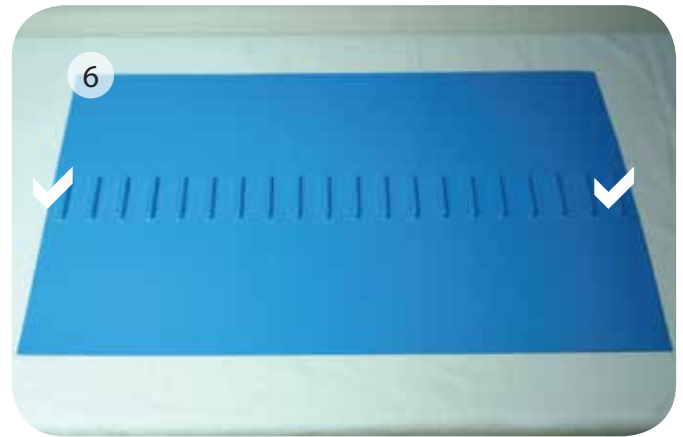
b. Reposition the cutting bar make a clean cut using a sharp knife. When cutting the SD, we will have 2 ends one usable and one unusable (photo 4, 5, 6) this is due to the fact that we did not cut in the middle of the pitch.



**Tip.** Use double sided tape on the bottom side of the cutting bar to prevent slippage while cutting.



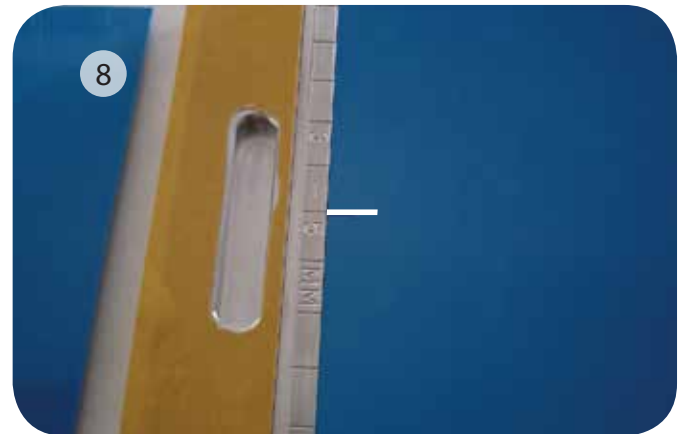
c. Now you must turn the cutting bar 180° and cut the second end of the belt so the scrap/unusable piece will not be part of the belt. **Both edges of the belt must be cut so that both the final ends are usable (1/2 pitch+2 to 3mm).**



d. The end result is that both ends of the belt will have a combined pitch of SuperDrive™ tooth pitch + 3-4mm. When welding the belt, those 3-4mm will melt and the final pitch should be the exact pitch needed. A pitch of - (Minus) 1 to 2mm is acceptable.

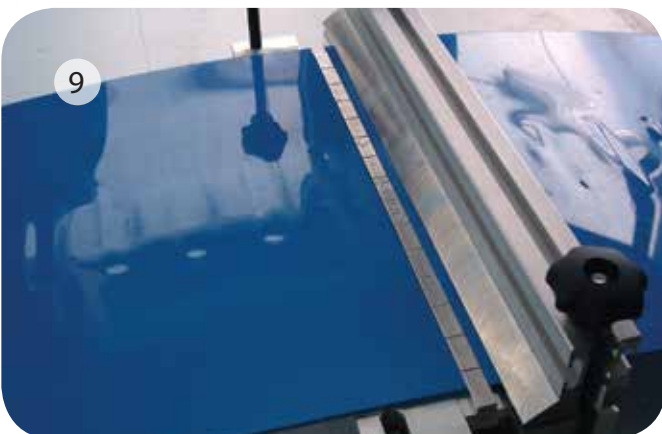


2. Place double-sided tape on both sections of the Pliers base. Cut the tape away from the teeth grooves in the base.



3. Position the locator bar as per normal operation of 3mm -5mm belt, and then slide it until one of the positioning lines is in the center of the groove. photo 8

4. Remove the protective paper from the double-sided tape on one side and position the belt. The difference in working with the SuperDrive™ belt is that you must position the teeth over the groove before bringing the rest of the belt into contact with the tape. To make this easier mark the center of the tooth on the top side of the belt and aline it against the central positioning line. Press the belt against the locator bar and onto the tape to ensure a firm, consistant contact (Photo 8).



5. Position the second belt end against the locator bar and fix the belt with the cross bar. (Photo 9)
6. Position the FBW Welder in place. Apply consistent and gentle pressure until the Stoppers do not allow you to continue. Immediately open the Pliers. Weld the belt according to the welding instructions in the FBW Manual.
7. Check the weld for any cracks or bubbles, if needed cut the belt and rejoin it (you will lose about 80mm from the belt length).
8. Check the pitch; pitch larger than normal is not acceptable, however welding results with pitch up to 2mm shorter is acceptable.

## 4.2. Instructions for welding SuperDrive™ H/ M Material Belts Using FBW H/M Adapter

For owners of the FBW-720 FBW-1060 and FBW-1300, Volta has prepared an Adapter kit for welding SuperDrive™ 'H' and 'M' material belts.

The kit includes:	For FBW-300/301	For FBW-720/721	For FBW-1060/1061	FBW-1300/1301
Cutting Bar, SuperDrive™ H/M (Fig. 1)	Cat. # 8162567	Cat. # 81625901	Cat. # 81625907	Cat. # 81626192
Adapter Bar, SuperDrive™ H/M (Fig. 2)	Cat. # 81307252	Cat. # 81307242	Cat. # 81310602	Cat. # 81313001
Locator Bar Spacer, SuperDrive™ H/M (Fig. 3)	Cat. # 81625902	Cat. # 81625903	Cat. # 81625905	Cat. # 81625906



**Fig. 1**

Cutting Bar - SuperDrive™ H/M



**Fig. 2**

FBW Adapter Bar - SuperDrive™ H/M

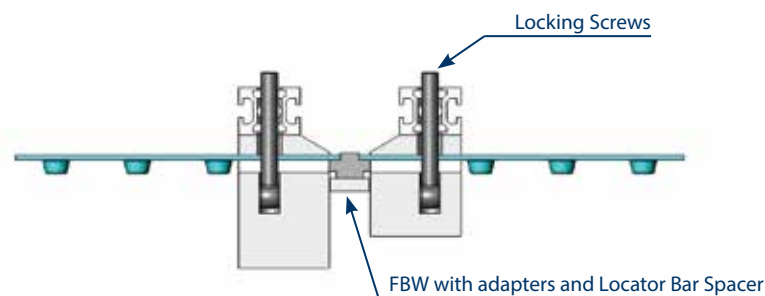


**Fig. 3**

Locator Bar Spacer - SuperDrive™ H/M

### Welding Instructions:

- Use the Cutting Bar to cut the belt between the teeth. To ensure a 90° cut, Repeat stages 1a - 1d on page 15 - 16.
- Position the Locator Bar Spacer and the Adapters on the Pliers Base. Raise the two hinged Locking Screws to a vertical position and close and lock the Pliers (see figure below).
- Apply double-sided tape to the exposed surface of the Adapters and cut away the tape from the SuperDrive™ tooth grooves.
- Remove the protective paper from the double-sided tape on one side and position the belt. The difference in working with the SuperDrive™ belt is that you must position the tooth over the groove before bringing the rest of the belt into contact with the tape. Press the belt onto the tape to ensure a firm and consistent contact.
- Release the Pliers and adjust the Locator Bar so that the belt edge matches one of the scribe marks and re-lock the Pliers.
- Position the other belt end using the scribe mark on the Locator Bar Spacer to align the belt.
- Continue the welding process as for a standard flat belt.



FBW Pliers with adapters and Locator Bar Spacer in place

### 4.3. Welding DualDrive with FBW and Adapter

To ensure an accurate and efficient weld of DualDrive belts when splicing with the FBW Welder, choose the DD Adapter suitable to your FBW Tool from the table below. If you haven't welded this product before, weld a section of a trial belt before welding your Volta conveyor belt.

#### Required Tools:

FBW Welding Kit	
DD Adapter Set for FBW 300/ 301	Cat. # 81307253
DD Adapter Set for FBW 720/ 721	Cat. # 81307244
DD Adapter Set for FBW-1060/ 1061	Cat. # 81310604

DD Adapter Set for FBW-1300/1301*	Cat. # 81313004
V Trim Knife	Cat. # 8153105
Stoppers (2 units)	Cat. # 81626340
Utility Knife	

\* non-standard



You must be familiar with the instructions for welding with FBW before continuing with this procedure.



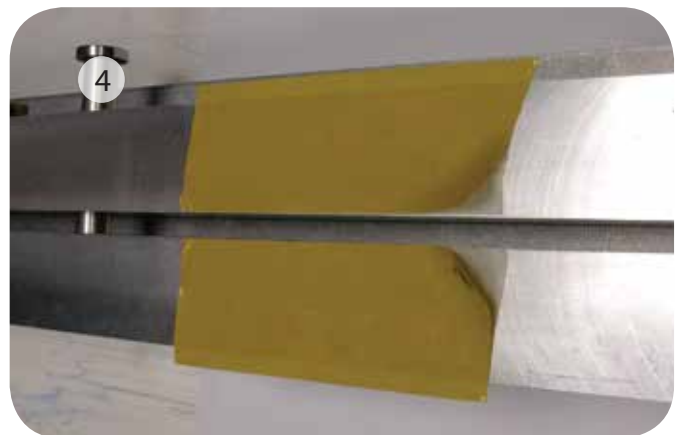
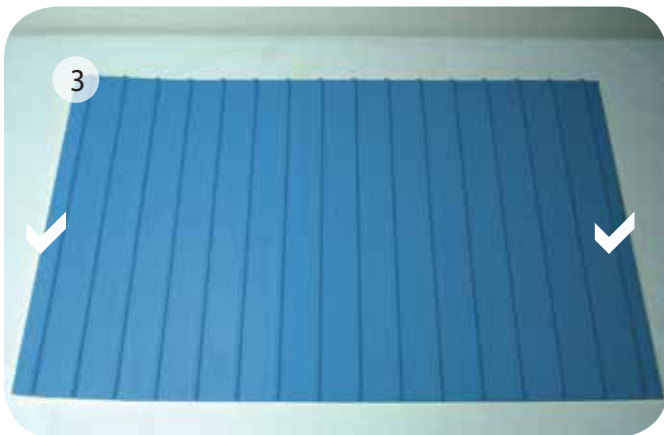
To keep the correct pitch, place the stopper on the welder. Loosen the screws of the Stoppers and place them in the groove on the end sides of the Welder. Tightly secure the screws.



Place the adapter on the belt and push the cutting bar against the tooth towards the cutting side. cut the first end of the belt along the "Cutting" side. Turn the cutting bar 180° and cut the second end of the belt.

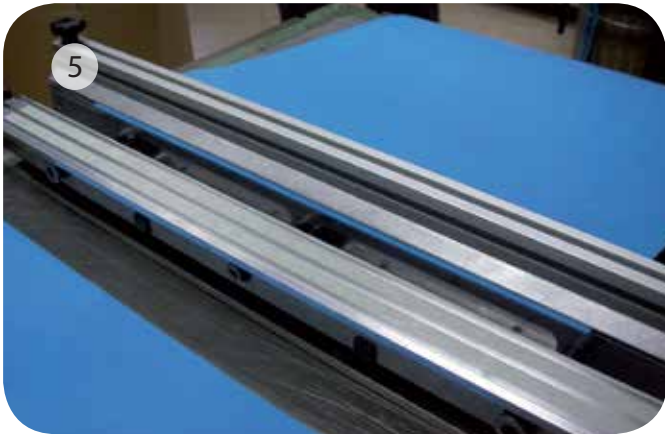


Do not assemble/disassemble stoppers when welder is hot.

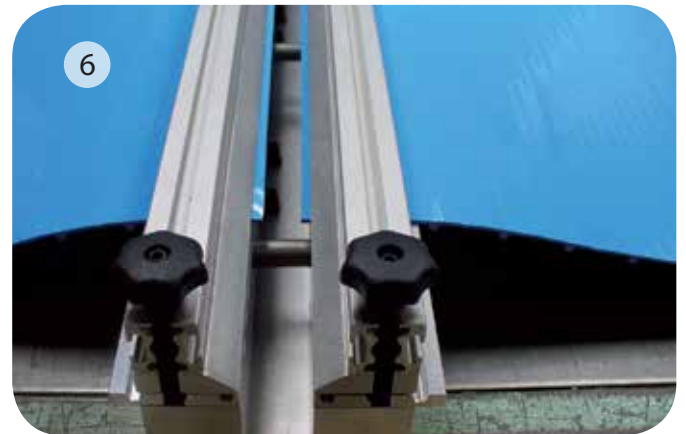


For the FBW-721 and FBW-1061 Apply about 10cm of double sided tape on the center plier base, this will hold the adaptors in place.

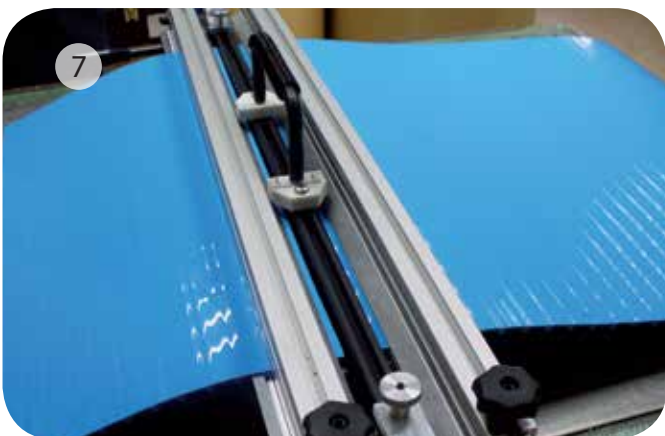




Position the Adapters onto the Pliers with the "Cutting" sides facing outwards. Position both sides of the belt on the Pliers. The belts' teeth should face down and interlock with the grooves of the adapters.



Position the crossbar without tightening the knobs. Close the plier and push the two ends together, this will align the two ends of the belt with the adapters. Now tighten the FBW Crossbars.



Position the FBW Welder in place. Apply consistent and gentle pressure until the Stoppers do not allow you to continue. **Immediately** open the Pliers. Weld the belt according to the welding instructions in the FBW Manual.



Trim and check the weld. A good weld will be free of cracks and defect. **Pitch tolerance should be +0.8 mm, -0.8 mm.**

## 4.4. Welding DualDrive SP (DDSP) and DDSP Lace\*

To ensure an accurate and efficient weld of DualDrive SP belts, use FBW DualDrive SP Adapter Kit. If you haven't welded this product before, weld a section of a trial belt before welding your Volta conveyor belt.

\* For welding DD SP Lace follow the same instructions as seen on pages 22-23.

### Required Tools:

FBW Welding Kit	
DDSP Adapter Set for FBW 300/ 301	Cat. # 81626315
DDSP Adapter Set for FBW 720/ 721	Cat. # 81626325
DDSP Adapter Set for FBW-1060/ 1061	Cat. # 81626330

DDSP Adapter Set for FBW-1300/1301*	Cat. # 81626335
V Trim Knife Narrow	Cat. # 8153108
Stoppers (2 units)	Cat. # 81626340
Utility Knife	

\* non-standard



You must be familiar with the instructions for welding with FBW before continuing with this procedure.



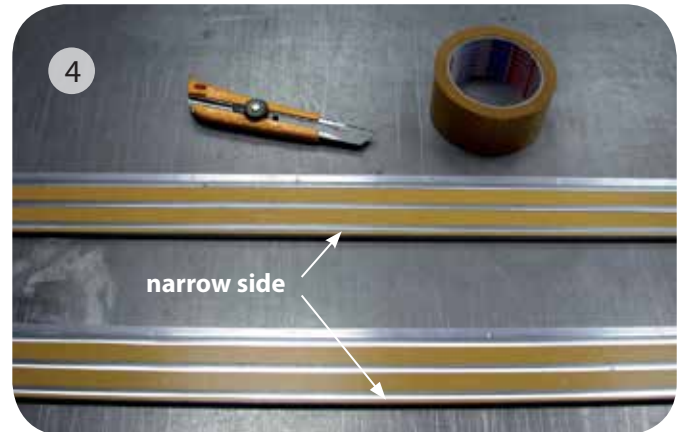
To keep the correct pitch, place the stopper on the welder. Loosen the screws of the Stoppers and place them in the groove on the end sides of the Welder. Tightly secure the screws.



Heat up the Welder. Choose the DualDrive SP Adapter that fits to the Pliers (see Required Tools above). Cut the two ends of the belt along the side marked Cutting. Ensure that the cut is accurate and straight.

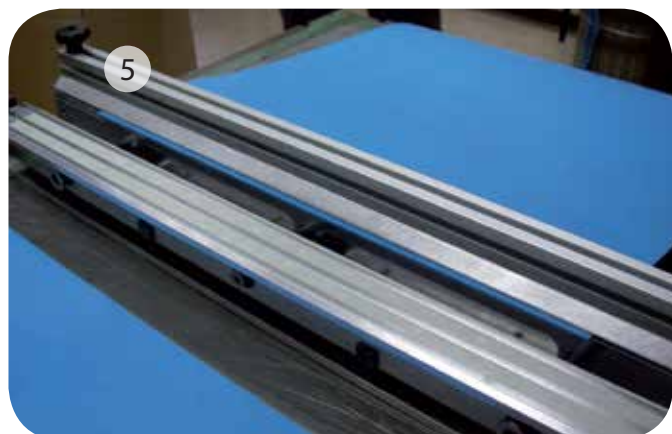


Do not assemble/disassemble stoppers when welder is hot.

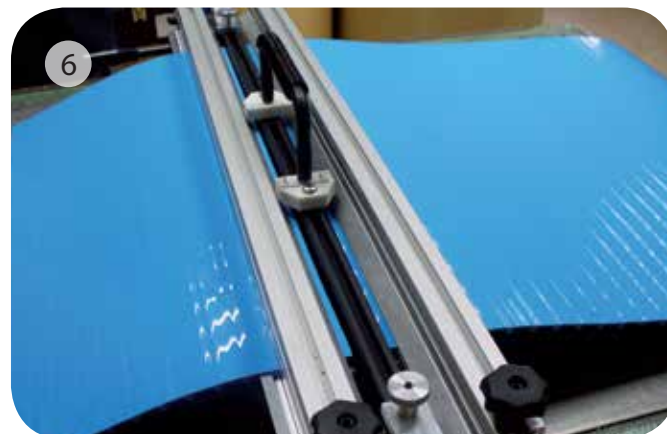


Apply strips of good quality Double-Sided Tape on the Adapters on the grooved surfaces from the narrow side inwards. Trim the unnecessary tape from the grooves.





Position the Adapters onto the Pliers with the narrow sides facing inwards. Position both sides of the belt on the Pliers. The belts' teeth should face down and interlock with the grooves of the adaptors, tighten the FBW Crossbars.



Position the FBW Welder in place. Apply consistent and gentle pressure until the Stoppers do not allow you to continue. Immediately open the Pliers. Weld the belt according to the welding instructions in the FBW Manual.



Trim the excess from both sides of the belt. Apply soap water for easier trimming.



Trim and check the weld. A good weld will be free of cracks and defects. Pitch tolerance should be  $+0.8$  mm,  $-0.8$  mm.

#### 4.5. Welding Volta Hinge Lace with FBW

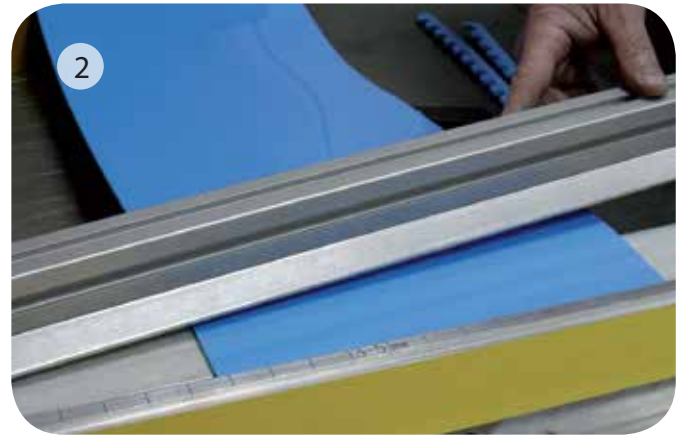
There are occasions when it may be necessary to splice the flat belt using Volta Hinge Lace. This hinge lace is suitable for belt thicknesses of 2.5 to 4 mm. When working with lace, it is important that you work according to the following instructions. If you haven't welded this product before, weld a section of a trial belt before welding your Volta conveyor belt.



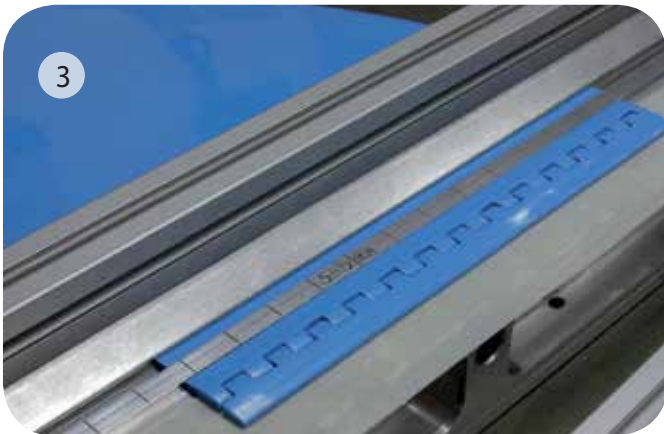
You must be familiar with the welding instruction in the FBW Manual before continuing with this procedure.



Cut the belt to the required length taking into consideration the lace. Join the lace and cut to the belt's width.



Position one side of the belt on the Pliers according to the welding instructions in the FBW Manual. Remember to use double-sided tape for this task.



Position the lace as you did the belt. Make sure the lace sides interlock and the flat side faces down. The lace should be symmetrically aligned to the belt.



Weld the belt to the lace according to the welding instructions for FBW. The thicker the belt, the longer the melt should be to match the thickness of your belt.



Heat a Round Chisel with the Leister Hot Air Gun and trim the excess from the top of the belt, or apply some soap water for easier trimming. You may use a V-Knife or a Lesiter Knife to trim the excess from the bottom of the belt.



Repeat from Step 3 to weld the other end of the belt.



Make sure the lace and the belt are symmetrically aligned.



Trim the lace approximately 5 mm from each side. Insert a hinge pin into the slit and check its symmetry and adequacy.



Belt with Volta Hinge Lace.



## 5. Welding Special Volta Products

### 5.1. Welding MiniCleave with Adapter and FBW

#### Required Tools:

FBW Welding Kit	
MC Adapter Set for FBW 300/ 301	Cat. # 81307251
MC Adapter Set for FBW 720/ 721	Cat. # 81307240
MC Adapter Set for FBW-1060/ 1061	Cat. # 81310600

MC Adapter Set for FBW-1300/130*	Cat. # 81313007
V Trim Knife	Cat. # 8153105
Utility Knife	

\* non-standard



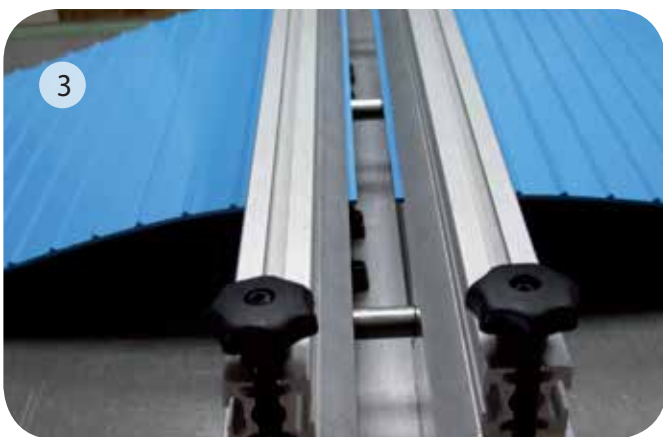
You must be familiar with the instructions for welding with FBW before continuing with this procedure.



To ensure correct position on the pliers and right pitch of the pattern, place the adapter on the belt and cut the two ends of the belt along the "Cutting" side of the Adapter.



Position both sides of the belt on the Pliers with the belts' patten facing up. Position the Adapters onto the Belt. Align the belt patten to the Adapter grooves.



Position and then tighten the FBW Crossbars. Weld the belt according to the FBW Instructions Manual.



Trim and check the weld. A good weld will be free of cracks and defects.\*

## 5.2. Welding Volta Spikes with FBW

### Required Tools:

FBW Welding Kit	
SpikesAdapter Set for FBW 300/ 301	Cat. # 813072533
SpikesAdapter Set for FBW 720/ 721	Cat. # 81307247
SpikesAdapter Set for FBW-1060/ 1061	Cat. # 81310607

SpikesAdapter Set for FBW-1300/1301*	Cat. # 81313010
V Trim Knife Narrow	Cat. # 8153108
Utility Knife	

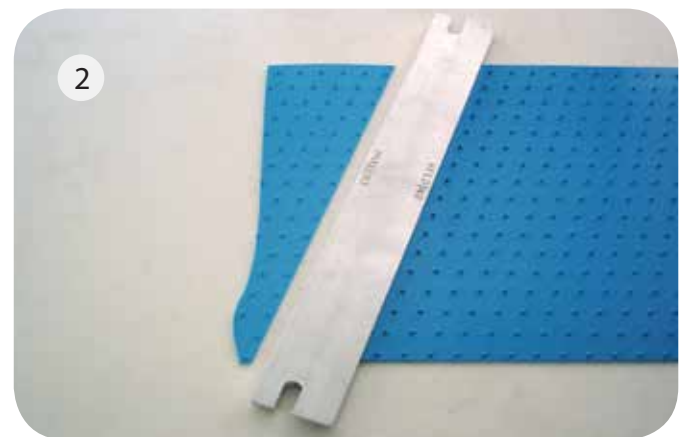
\* non-standard



You must be familiar with the instructions for welding with FBW before continuing with this procedure.



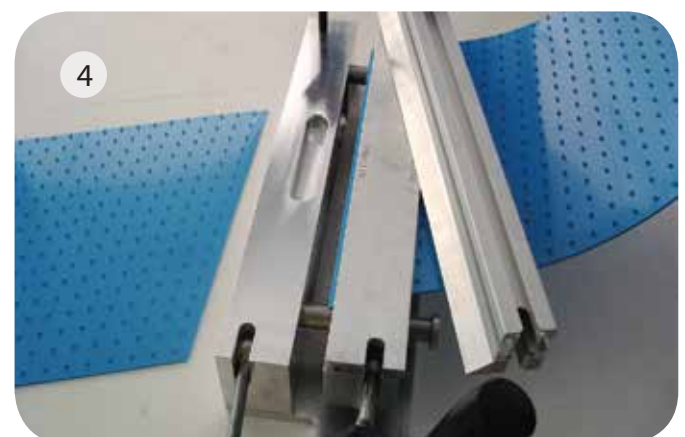
Insert the Cutting Bar at an angle between the Patterns when the "Cutting" engraving (on the bar) and the belt scrap is on the right-hand side. Push the cutting bar toward the "Cutting" side and cut the first side with a sharp knife. Measure the belt length and mark other end.



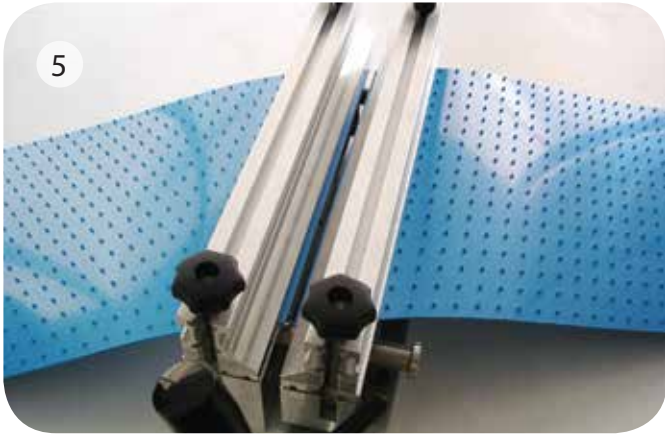
Rotate the cutting bar 180 degree, and insert the Cutting Bar as close to the required size. Make sure that the scrap and the "Cutting" engraving (on the bar) are on your right-hand side. Add or deduct from the length of the belt according to the position of the pattern.



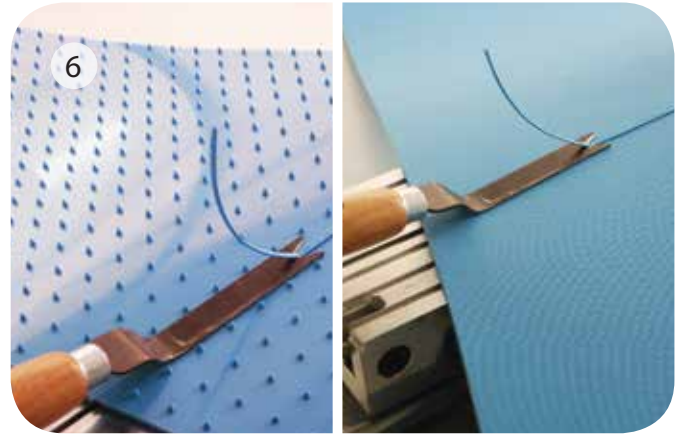
The weld is performed at an angle alongside the pattern. There will be about 15 mm difference on the final length of the belt according to the cutting line between the patterns.



Position the adapter on top of the belt with the «Welding» side facing outward, position the belt and the adapter on the FBW.



Insert the cross bar on the first side and repeat the same stages on the other side. As the cut is in an angle, position the belt ends according to reinforced belt joining instructions (page 16) Weld the belt according to the instructions as described in the FBW Users Manual.



After the belt is cooled down, trim the weld with the 'V' shape knife. Use liquid soap to improve the cut if required Turn the belt and position it on top of the cutting bar in a way that the spikes are inserted to the grooves, this will allow you an easy trim of the underside. Check the weld and perform "cosmetic" finish if necessary. A good weld will be free of cracks and defects.

### 5.3. Welding Crescent top (CT) with FBW

The weld is performed at an angle alongside the crescent pattern. There will be a 20 mm difference on the final length of the belt according to the cutting line between the patterns.

#### Required Tools:

<b>FBW Welding Kit</b>	
CT Cutting Bar	Cat. #81626365
Wood Chisel 6 mm (1/4")	



You must be familiar with the instructions for welding with FBW before continuing with this procedure.

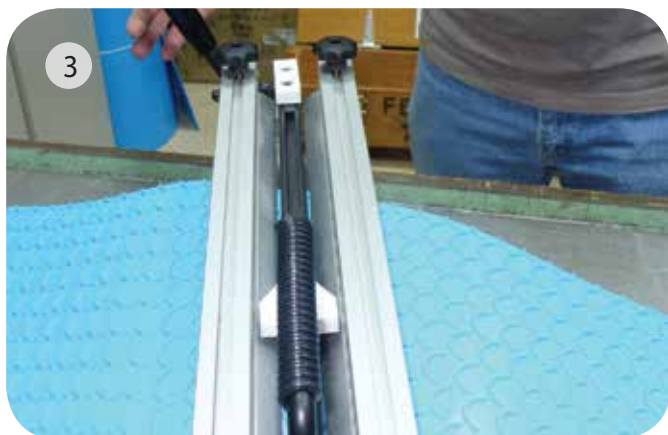


Place the belt with the pattern facing to the left as shown in the picture. Insert the Cutting Bar at an angle between the patterns when the "Cutting" engraving (on the bar) and the belt scrap is on the right-hand side. Cut the belt with a sharp knife. If the belt is wider than the adapter, cut the belt in two steps.



Go to the other side of the belt and insert the Cutting Bar as close to the required size. Make sure that the scrap and the "Cutting" engraving (on the bar) are on your right-hand side. To carry out this step, please stand on the opposite side of the belt. Add or deduct from the length of the belt according to the position of the pattern.





Weld the belt according to the instructions as described in the FBW Instruction Manual (Page 13). When welding belts made of L material, be careful and use less pressure during the melting process and tightening after melting.



After cooling the belt, trim the weld with a wood chisel when the flat side is facing the belt. Use liquid soap to improve the cut if required. Turn the belt and trim the bottom weld as usual. Check the weld and perform “cosmetic” finish if necessary. A good weld will be free of cracks and defects.



Remains of the pattern after cutting will disappear during the final trimming of the weld.

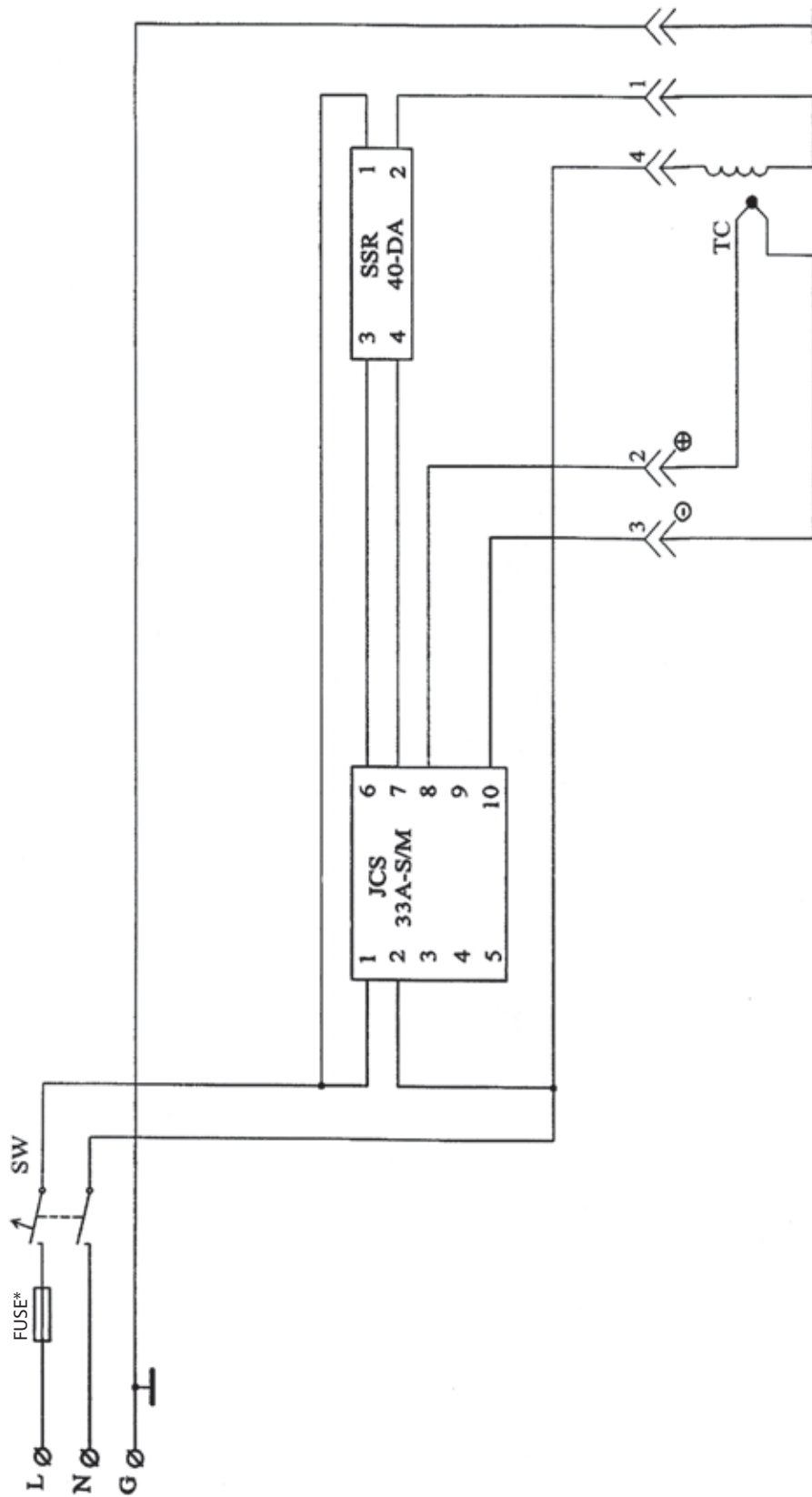
## 6. General Tips

Before splicing “H” family, FELW 1.6, FELW-2, FRL 2 or belts with adapters, it is strongly recommended that you spend a few minutes practicing before welding the actual belt.

## 7. Troubleshooting Guide

Symptom	Possible cause	Suggested solution
Unstable temperature reading	Thermocouple	Contact a qualified technician.
Welder overheating	Thermocouple	Contact a qualified technician.
Irregularity in the excess	Belt not cut properly	Re-cut and re-weld.
Belt moves during welding	Low quality double-sided tape	Use a high-quality double-sided tape.
	Inadequate or uneven pressure on the Crossbars.	Make sure the Crossbars have been properly tightened. Refer to Welding Instructions.
Bubbles in the joint	Welder Temperature is too high	Ensure that the Temperature Controller has been properly setup.
	Insufficient pressure when closing the Pliers after removing the Welder, or too slow an action.	Perform a number of trial welds to improve closing pressure and/ or speed.
Bad or inadequate joint on “H” material belts	Pressing too hard when closing the Pliers after welding.	Reduce pressure when closing the Pliers. Refer to Page 14, Instructions for Welding “H” Material.
	Too slow an operation when closing the Pliers after welding.	Repeat the procedure to increase speed Refer to Page 14, Instructions for Welding “H” Material.

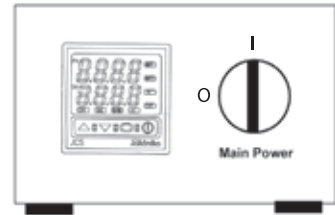
## 8. FBW Controller and Welder Electrical Diagram



FBW Welder and Temperature Controller Electrical Schematic

## 9. Calibrating the FBW Welder Controller

### Temperature Controller Model JCS






I = (On)  
O = (Off)











Before calibrating the welder, make sure it is not plugged in and that the tip is at Room Temperature.

#### General

- Perform steps 1& 2 before connecting the Welder to the Temperature Controller.
- Steps 3 and 4 must be done, when a different Welder is connected to the Temperature Controller.
- When pressing  +  (**MODE**), press  first.

#### Temperature Scale Selection

Select Fahrenheit or Celsius temperature scales.













1. Turn the Main Power switch to 'ON' and wait for the display to stabilize (upper display is 4 blinking lines; lower display is a temperature value), about 2 – 3 seconds.
2. While holding both  and  press  (**MODE**) for 3 seconds until  appears in the upper display (PV). The lower display (SV) will show the Thermocouple Type and temp. scale.
3. Using  and , select the desired temperature scale.  = Centigrade (°C)  = Fahrenheit (°F)  
J for Thermo Cuple Type, C & F for temperature scale.

 | There are approximately 20 options to scroll through.

4. Press  (**MODE**) several times to return to the original display (see step in temperature scale selection).





#### Maximum Temperature Setting

This step sets the Welder's maximum allowable temperature.

1. Press  +  (**MODE**) and hold both for 3 seconds until  appears in upper display. Lower display will be four non blinking lights.
2. Press the  (**MODE**) button once. The symbol  will appear in the upper display.
3. Press  or  to set the maximum allowable temperature (270 °C / 518 °F).
4. Press the  (**MODE**) button once. The symbol  will appear in the upper display.
5. Press  or  to set the minimum allowable temperature (0 °C / 0 °F) - factory settings.
6. Press  (**MODE**) several times to return to the original display (see step in temperature scale selection).
7. Turn the Main Power switch to "OFF".
8. Connect Welder and turn main switch "on".

#### Welder Working Temperature

Select the Welder operating temperature.






1. Press  (**MODE**) until the symbol  appears in the upper display.
2. Press on  or  to select the desired temperature (220 °C / 428 °F).
3. Press **MODE** several times to return to the original display (see step 1).


## Auto Tuning

This step calibrates the Temperature Controller to a new Welder.

1. Connect the Welder to the Controller and turn the Main Power switch "ON".

 **The Welder must be cold when beginning this procedure.**


2. While holding the  press  (**MODE**) several times until  appears (red) in the upper display; on the lower display appears 4 non blinking lights.
3. Press  until the symbol  appears (green) in the lower display.
4. Press **MODE** to start the Auto Tuning cycle.





 **A LED at the bottom right corner of the display (marked AT) will blink indicating that the device is in the AUTO TUNING mode. Do NOT press any buttons while the unit is AUTO TUNING. This process takes approximately 20 minutes.**

5. When the AT light stops blinking and the temperatures are equivalent, the Auto Tuning process has ended.
6. Proceed to the next step, TEMPERATURE CORRECTION.





## Temperature Correction (Off-Set)

This step provides compensation for the cable and circuit differences between the Welder and the Controller and must be performed when either the Welder or Controller has been replaced. The correct performance of this step, and therefore of the FBW Welder, requires an accurate temperature measuring device with a quick read probe. These units are available at most industrial supply outlets.

 **This step is to be done immediately after completing step 4. (from Auto Tuning section) The off-set can be done only if you have a thermometer in order to compare the data against the temperature shown in the Temperature Controller.**

1. Measure and record the temperature on the surface of the Welder.
2. Note the difference in temperature between the upper display of the Temperature Controller and the temperature measured on the welder. Record this number and whether the welder temperature is higher or lower than the Temperature Controller Temperature
3. Press  +  (**MODE**) and hold both for 3 seconds until  appears in the upper display; on the lower display appears 4 non blinking lights.
4. Press **MODE** several times until the symbol  appears in the upper display. This symbol will remain throughout the remainder of step 5.

 **The number that appears in the lower display represents the compensation value of the previous Welder.**

5. Using  or , enter the new compensation factor into the Temperature Controller. If the welder temperature was higher than the Controller temperature, add (  ) the value recorded in step 2 to the compensation value. If the Welder temperature was lower than the Controller Temperature subtract (  ) the value from step 2 from the compensation value.


Example:

Temperature Controller upper display shows a temperature of 220° C.

Welder temperature is measured as being 230° C.

Lower Display of the Temperature Controller displays (Correction Factor) 4°.

Use the  and reduce the lower display value by 10°. The new compensation value will be -6° (4° - 10° = -6°).

6. Press  (**MODE**) to return to the original display.
7. Allow 5 minutes for the welder to stabilize and measure the temperature again.
8. If the temperature is 5° C (9° F) or less, the Controller and the Welder is ready for use; if not - repeat temperature correction step 3-7.
9. If you finished working, turn the Main Power switch to "OFF" .



# 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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CAT600EN00 - Ver. H - November 2013





.....  
***Welding & Fabrication Tools***  
*FT-Flat Electrode Welding*

**Instruction Manual**



*The Next Step in Belting*

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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

- The FT Welding System includes a build-in adapter for splicing SuperDrive™ belt.

➔ 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](mailto:sales@voltabelting.com) or visit our website [www.voltabelting.com](http://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 all 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

## Flat Belt Electrode Welder

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
			220 VAC
3	1 Set	Trimmer Wrenches (for securing cutting bits)	
4	1	1/4" x 9/16" Flat Cutting Bit	
5	1	1/4" x 1/2" 50° Cutting Bit*	
6	1	Case for FT-1000/ 1500	

\* The 4-hole bit Alignment Gauge, Cat # 8153320 is to be used together with 1/4 x 1/2 50° Cutting Bit, Cat # 8153337

Equipment not Supplied with the Kit:

- Vacuum cleaner
- Leister Hot Air Gun and Nozzles





## 2. Capabilities

The FT-1000 and FT-1500 are designed to provide electrode welding capabilities for all Volta flat belts, including SuperDrive™, DualDrive and DualDrive SP. The FT pliers have cutouts in the base designed for the SuperDrive™ and adapters for DualDrive and DualDrive SP. 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 flat belts.

### Belt Width Welding Capabilities 2.1

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 flat 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 its 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.



- a. If your vacuum hose does not match correctly, you will need to provide an adapter. 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 Adapter. You can cut the adapter 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).



#### 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.

- 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.



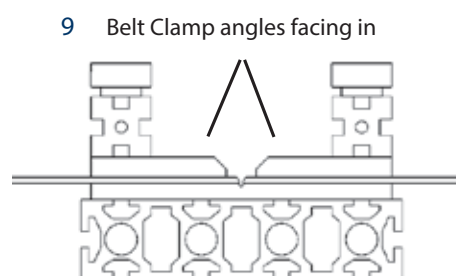
- c. Remove the protective paper from the exposed double-sided tape. Position the end of the belt against the Positioner edge and press down on the tape. Ensure that the edge of the belt is flush against the Positioner edge. Press the belt end firmly onto the Pliers base. This will ensure good adhesion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

### 3.3 Preparation for Securing the Belt Ends

- 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 should only be hand tightened. It is not necessary to overtighten the quick release nuts.



### 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.



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.



The groove after milling.

### 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 and H material electrodes on H material belts.

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

#### Tips for successful joining of M type material belts:

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 cosmetics finishes to the top surface using the Hot Air Gun & Teflon coated pressure wheel to create smooth surface.



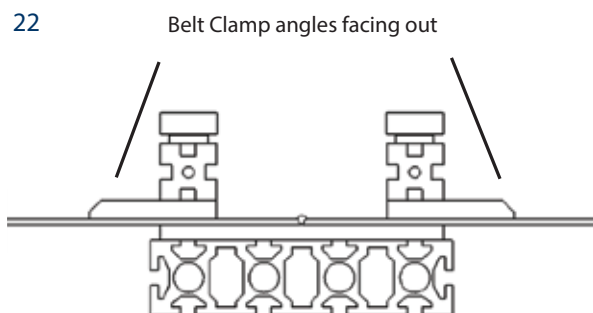
Welding at a high temperature may result in some bubbles forming on the top surface. These are acceptable and will not affect the joint strength; however any longitudinal cracks will probably evolve into a breakage at a later stage.

### 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.



- 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.



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 (three holes face down).

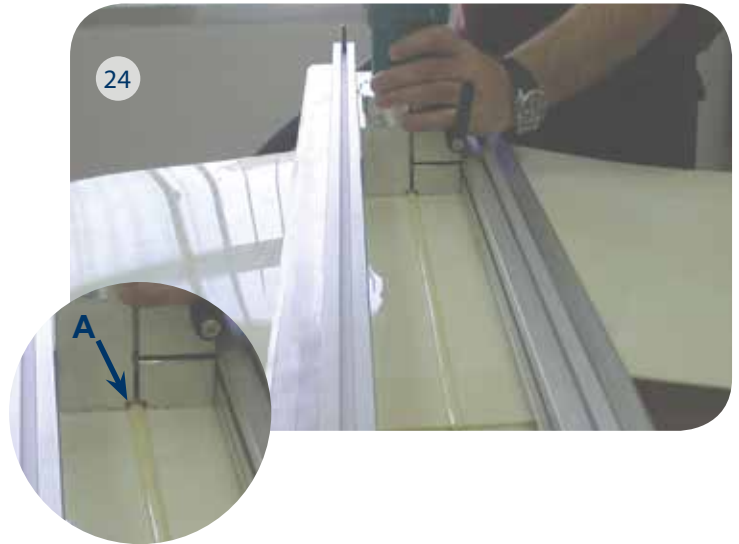
Place the Trimmer in the alignment base. Ease the Trimmer into position so that the bit is flush with the flat surface. Tighten the Trimmer base clamp. The Trimmer operates at high speed. Hold it firmly to prevent it from jumping out of control when it is turned on.





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.

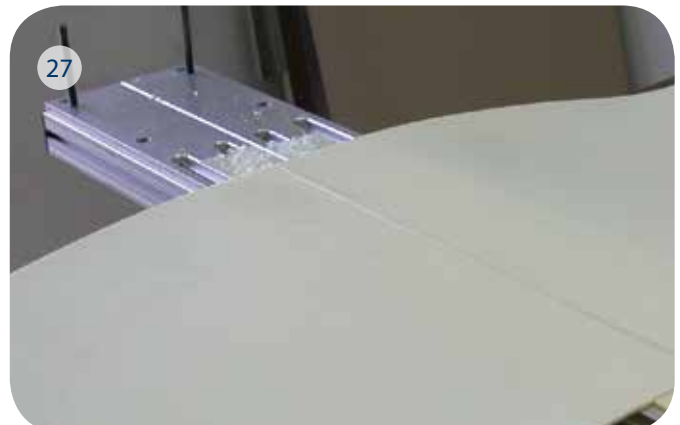


Make some cosmetic finishes, using the Hot Air Gun melt the top surface and quickly apply pressure using a teflon coated roller.

- 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 angle 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™ with FT



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.



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.



### 3.9 Welding DualDrive and DualDrive SP with FT



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



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



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



Weld the belt according to the welding instructions (3.2 b. on Page 5).

Description	DualDrive FT-1000	DualDrive FT-1500	DualDrive SP FT-1000	DualDrive SP FT-1500
Welding Adaptor Set	8153318	8153319	81626344	81626354
Each Set includes the following items:				
Adapter	815331800	815331900	81626345	81626355
Cutting Bar	815331801	815331901	81626350	81626360



# 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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Volta Belting makes no warranty with respect to any of its products for a particular purpose.  
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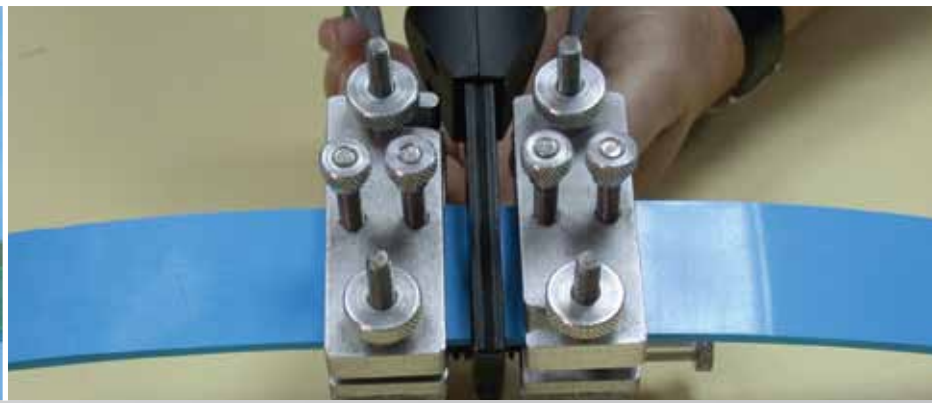
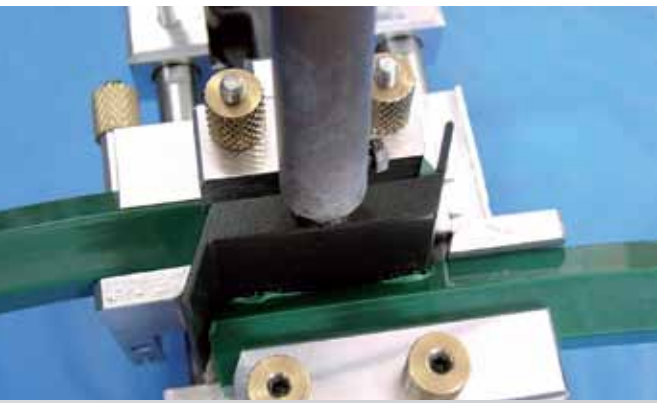




**BELTING**  
Technology



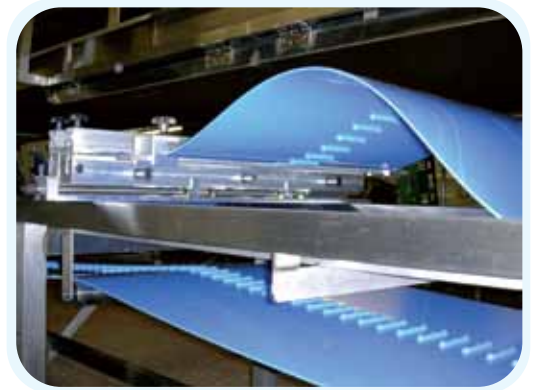
*Conveying Solutions*  
*Welding & Fabrication Tools*



*The Next Step in Belting*

# Welding & Fabrication Tools

➔ Volta Belting Technology has been manufacturing conveyor belting for over 40 years. The knowledge gained in those years of experience has gone into the design and assembly of every Volta belting tool. We have worked with belting houses in the shops and in the field to see how our tools would be used. We also checked the conditions experienced by conveyor belting technicians on-site.



➔ What we learned in the field has gone into the design of a full and very versatile line of belting tools. Whether you buy our tools separately or in kits, the result is always the same. Volta tools have a light-weight design so that each tool is compact, rugged and easy to use. Our tools will always provide you with long and reliable service. We design and manufacture custom-made tools to specification for your special belting requirements.

*Our state of the art tools and accessories make welding and fabricating your Volta belts an effortless & professional experience.*



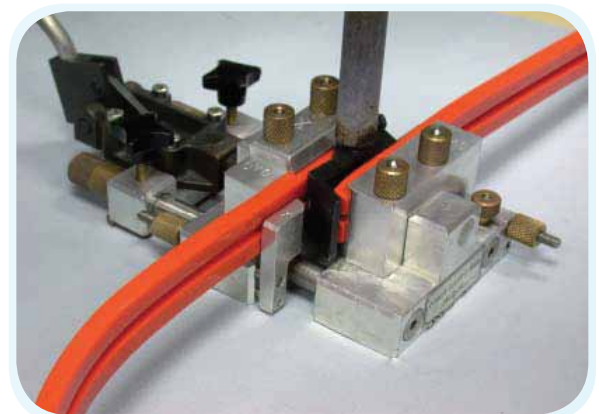
Mini Pliers R - 8



F-51 Pliers for standard 'V' and Round profile

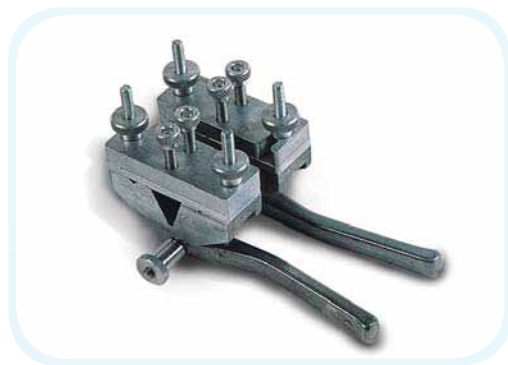


F-51 Pliers for special products



Easy Overlap Welding Tool

## VaR Tools



Pliers F-51

Cat. No. 8130201

- This versatile tool is ideal for welding a wide range of "V" and round belts: V-belts from 8mm to 32mm. Round belts with diameters from 2 mm ( $\frac{5}{64}$ " to 20 mm ( $\frac{3}{4}$ ").
- Flat belts with widths up to 50 mm (2").
- The F-51 Pliers is used with our welders to produce clean and exceptionally strong welds.
- The F-51 Pliers are available as a separate unit and also as part of the VaR Tool Kit.

Mini Pliers R-8	Cat. No. 8130202
Handles for Mini Pliers R-8	Cat. No. 8130208

- For accurate welding of small belt profiles, use Volta Mini Pliers R-8.
- The Mini Pliers R-8 is a very versatile tool. You may weld round belts with a maximum diameter of 8 mm ( $\frac{5}{16}$ ") and "V" belts up to section "A".
- The Mini Pliers R-8 may be used with or without optional handles. The handles are easily mounted and are convenient and easy to use.
- The Mini Pliers R-8 are available as a separate unit and also as part of the Mini VaR Tool Kit.



Driller D-11 Set (Includes Driller and three bits: I, II, III)	Cat. No. 8151600
Drill Bit I	Cat. No. 8151601
Drill Bit II	Cat. No. 8151602
Drill Bit III	Cat. No. 8151603

- The Driller is used for removing the reinforcing cord from the ends of reinforced VaR belts before welding. The Driller is supplied with three standard bits.
- The technical data sheets for reinforced belts include a column indicating which bit to use for each belt dimension.
- The Driller is available as a separate unit and also as part of the VaR Tool Kit and EZ Overlap Kit.

## VaR Tools



Belt cutter with replaceable blade	Cat. No. 81533010
- Stanley Blade 1992	Cat. No. 1160030

- The Cutter is designed to provide a clean and accurate cut on all VaR and narrow flat belts. It can cut all belts up to 32mm.

Mini-Welder (110 V/40 W)	Cat. No. 8111110
Mini-Welder (230 V/40 W)	Cat. No. 8111220

- The Mini-Welder is used for welding "V" and Round belts. Round profiles of up to 8 mm diameter and trapezoid of up to 13mm.
- The Mini-Welder is available as a separate unit and also as part of the Mini VaR Tool Kit.



	Welding Width	
Welder, Universal WU-1*	50 mm (2")	Cat. No. 8111203
Welder, Universal WU-2**		Cat. No. 8111204
Welder, W-141-110V	100 mm (4")	Cat. No. 81113044
Welder, W-142-230V		Cat. No. 81113045
Welder, W-241-110V	200 mm (8")	Cat. No. 81113046
Welder, W-242-230V		Cat. No. 81113047

\* supplied with 110 VAC plug

\*\* supplied with German 230 VAC plug

- These welders are designed for both shop and field use. The blade length of each welder is designed for use with specific Volta pliers. Refer to the Pliers section of this catalog to determine the correct welder for use with your pliers. These welders are designed to be used with our pliers.
- These welders are available as a separate unit. The WU Welder is available as a separate unit and also as part of the VaR Tool Kit.



## VaR Tools Kits



VaR Tool Kit (110V)	Cat. No. 8160716
VaR Tool Kit (230V)	Cat. No. 8160715

- The VaR Tool Kit is a plastic case with foam insert to hold a set of VaR welding tools. This provides a convenient method of storing and carrying your VaR Welding Tools.

The kit includes:

F-51 Pliers

WU Welder (110 or 230 V)

D-11 Driller

Belt Snippers

- The F-51 Pliers make this kit the most versatile on the market with the capability of welding "V" and round belts from 2 mm up to 32mm.

Mini VaR Tool Kit (110V)	Cat. No. 8160718
Mini VaR Tool Kit (230V)	Cat. No. 8160719

- The Mini VaR Tool Kit combines all the tools necessary to weld small belt sections. Welds round belts up to 8 mm ( $\frac{5}{16}$ ) and "V" belts up to 13mm.

The kit includes:

Tool case

Mini pliers

Mini welder and stand

Mini snippers and trimmer

- \* Handles for the pliers are optional. For availability, contact your local Volta Belting distributor.



VaR Easy Overlap Welding Kit (110V)	Cat. No. 8140016
VaR Easy Overlap Welding Kit (230V)	Cat. No. 8140019

- The VaR Easy Overlap Welding Kit provides easy, accurate and strong connections for Volta reinforced belts. Dies are available to adapt the Pliers to receive most "V" and Round sizes, Ridge-Top, Super-Grip, Multi-Grip and Double-V.

The kit includes:

Easy Overlap Pliers (dies not shown\*)

Welder and Stand

D-11 Driller

Utility Knife

Double-Sided Tape

- \* The kit does not include dies. Order specific dies based on the belts size you intend to weld.

## Flat Belt Welding and Fabrication Tools

➔ High quality, reliability, as well as maximum flexibility are only some of the benefits you will receive when using our Flat Belt Welding and Fabrication Tools. Flat conveyor belts range in widths from less than 50 mm (2") up to 2 meters (80") and more. We manufacture a variety of tools capable of welding a broad range of belts, both in the shop and the field.

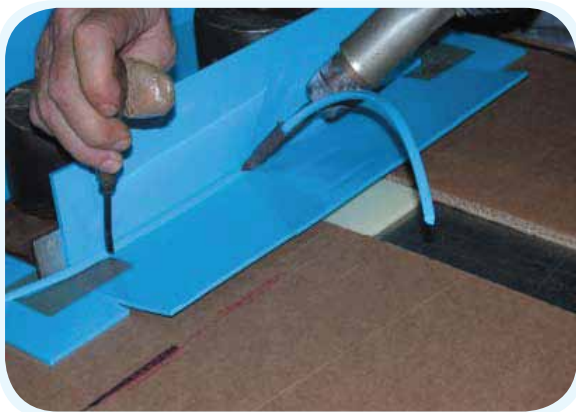


Flat Butt Welder



Welding narrow flat belts with Pliers P-200

➔ The welding process is completely reliable when using Volta Tools because of its unique and versatile design. Our tools are durable and rugged, and do not require cooling water or air pressure. We designed our tools for ease of handling and use. Most units can be transported and operated by one technician and if the welding belts are over 1.5 m (60" in width), they require only two people for handling.



Electrode welding of cleats



FT Electrode welder

*Volta fabrications are thermo welded to ensure a superior bond.*

## Flat Belt Fabrication Tools



Sidewall Trolley Set (SWT 100) (Including the following 5 items)	Cat. No. 814151800
1. Trolley Frame	Cat. No. 814151802
2. Nozzle 40 mm	Cat. No. 814151804
3. Nozzle 70 mm	Cat. No. 814151806
4. Sidewall Wheel Set 20-40 mm	Cat. No. 814151808
5. Sidewall Wheel Set 50-100 mm	Cat. No. 814151810

- The Sidewall Trolley is designed to facilitate welding of sidewalls on flat belts. A pair of wheels and an air nozzle are available for each group of sidewalls.

<b>Guide Roller Frame For Triac S</b>	<b>Cat. No. 8141506</b>
---------------------------------------	-------------------------

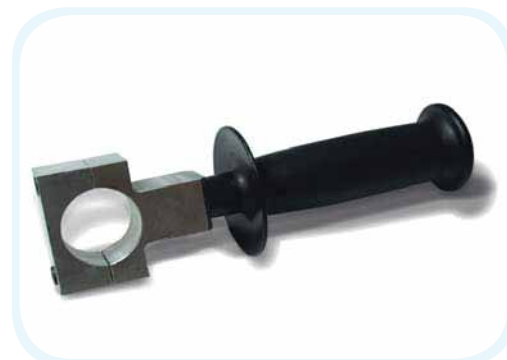
- The Guide Roller Frame mounts on the barrel of the Leister Triac S providing a frame for welding guides and V-belt fabrications on flat belts. The Roller Frame requires use of rollers (see Guide Roller Frame below) for correct operation. Roller selection is based on the dimensions of the V-belt or guide being used.
- The Roller is mounted in the frame and the hot air output of the Leister Gun is aimed at the point of contact between the guide (V-belt) and the flat belt.



Roller 6 mm for Guide Roller Frame	Cat. No. 8141507
Roller 8/M for Guide Roller Frame	Cat. No. 8141502
Roller 10/Z for Guide Roller Frame	Cat. No. 8141501
Roller 13/A for Guide Roller Frame	Cat. No. 8141503
Roller 17/B for Guide Roller Frame	Cat. No. 8141504
Roller 22/C for Guide Roller Frame	Cat. No. 8141505
Flat (Roller) Nozzle - 6, M/8, Z/10 mm	Cat. No. 8121420
Flat (Roller) Nozzle A/13 mm	Cat. No. 8121421
Flat (Roller) Nozzle B/17 mm	Cat. No. 8121422
Flat (Roller) Nozzle C/22 mm	Cat. No. 8121423

<b>Hot Air Gun Handle for Triac S</b>	<b>Cat. No. 8141408</b>
---------------------------------------	-------------------------

- The Hot Air Gun Handle provides additional grip and stability when using the Triac S. This allows the technician to apply additional pressure to the material in order to ensure maximum contact between the materials being welded.



## Flat Belt Fabrication Tools



Leister Triac S 110V/1600W	Cat. No. 8111403
Leister Triac S 230V/1600W	Cat. No. 8111404
Nozzle, Pencil Tip 5 mm	Cat. No. 8120005

- The Leister Triac S features an adjustable temperature control. This allows the Triac S to be used to weld different belt materials. The Triac S comes equipped with a pencil nozzle for focus work. Nozzles can be used to adapt the Triac S to weld V guides and electrodes.

Nozzle, 5 mm Round*	Cat. No. 8121405
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- For special fabrications

Nozzle, 7/9 mm Inverted Electrode	Cat. No. 8121409
-----------------------------------	------------------

- For welding 7 or 9 mm electrodes upside down on flat belts as low profile cleats

Nozzle, 7 mm Electrode	Cat. No. 8121406
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- For electrode welding 1.5 to 2.5 mm thick flat belts

Nozzle, 9 mm Electrode	Cat. No. 8121408
------------------------	------------------

- For electrode welding 3 to 5 mm thick flat belts

\* Non-standard item - Contact your Volta distributor for availability.



Hot Air Gun Electron 110V/2700 W	Cat. No. 8111401
Hot Air Gun Electron 230V/3400 W	Cat. No. 8111402

- The Leister Hot Air Gun Electron is used for welding sidewalls and other coating materials to flat belts. The Hot Air Gun Electron mounts in the Sidewall Trolley Frame.

V-Guide Nozzle 6 mm	Cat. No. 8121410
V-Guide Nozzle Z/M - 10/8	Cat. No. 8121411
V-Guide Nozzle 13/A	Cat. No. 8121412
V-Guide Nozzle 17/B	Cat. No. 8121413
V-Guide Nozzle 22/C	Cat. No. 8121414

- The nozzles attach to the Leister Triac S for welding V-cleats or guides on flat belts. Nozzle selection is based on the profile being welded.

\* We recommend using the Hot Air Gun Handle for Triac S.





## Flat Belt Welding Tools

➔ The **FBW System** is a light-weight, easy-to-use tool for butt-welding flat belts in both the shop and field. The FBW requires only electrical power for correct and efficient operation.

### FBW-Flat Butt Welding System



Model	Maximum Weld	
FBW 301 <sup>(1) (2)</sup> (110V)	300 mm (12")	Cat. No. 8160708
FBW 301 <sup>(1) (2)</sup> (230V)	300 mm (12")	Cat. No. 8160709
FBW 721 <sup>(2)</sup> (110V)	720 mm (29")	Cat. No. 81607210
FBW 721 <sup>(2)</sup> (230V)	720 mm (29")	Cat. No. 81607200
FBW 1061 <sup>(2)</sup> (110V)	1060 mm (42")	Cat. No. 81610610
FBW 1061 <sup>(2)</sup> (230V)	1060 mm (42")	Cat. No. 81610600
FBW 1301 <sup>(1) (2)</sup> (110V)	1300 mm (51")	Cat. No. 81613000
FBW 1301 <sup>(2)</sup> (230V)	1300 mm (51")	Cat. No. 81613010
FBW 1700 (230V)	1700 mm (67")	Cat. No. 8161701
FBW 2100 <sup>(1)</sup> (230V)	2100 mm (83")	Cat. No. 8162100

(1) Non-standard item - contact your local Volta Belting distributor for availability.

(2) Includes a built-in adapter for splicing the SuperDrive™ belt.

**Note:** Special adapters for Crescent Top, Spikes and MiniCleave are also available.

### FBW-PD-Flat Butt Welding System for Positive Drive Belts



Model	Maximum Weld	
FBW 301 PD (110V)	300 mm (12")	Cat. No. 81613100
FBW 301 PD (230V)	300 mm (12")	Cat. No. 81613105
FBW 721 PD (110V)	720 mm (29")	Cat. No. 81613110
FBW 721 PD (230V)	720 mm (29")	Cat. No. 81613115
FBW 1061 PD (110V)	1060 mm (42")	Cat. No. 81613120
FBW 1061 PD (230V)	1060 mm (42")	Cat. No. 81613125
FBW 1301 PD (110V)	1300 mm (51")	Cat. No. 81613130
FBW 1301 PD (230V)	1300 mm (51")	Cat. No. 81613135

- The Positive Drive welding system includes built-in adapter and Stoppers for splicing the SuperDrive™, DualDrive and DualDrive SP belts.
- The DualDrive & DualDrive SP adapter is also available as separate unit.

## Flat Belt Welding Tools

➔ The **FT Welding** System includes a built-in adapter for splicing SuperDrive™. The FT Welding System is a light weight, easy-to-use tool for electrode welding flat belts, in both the shop and field. The FT Welding System uses a router to cut the bevel on the belt edges and to trim the weld after welding. The weld is carried out by using a Leister Hot Air Gun and Volta electrodes. Electrode sizes are selected based on the thickness of the belt being welded. Refer to our Technical Data Catalog for details.

### 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

- The FT Welding System includes a built-in adapter for splicing SuperDrive™ belt.

DD Adapter for FT 1000	Cat. No. 8153318
DD Adapter for FT 1500	Cat. No. 8153319

- The DualDrive adapter is also available as separate unit.



DDSP Adapter for FT 1000	Cat. No. 81626344
DDSP Adapter for FT 1500	Cat. No. 81626354

- The DualDrive SP adapter is also available as separate unit.

### Pliers for Narrow Flat Belt Welding

Pliers P-100	Cat. No. 8130300
Pliers P-200	Cat. No. 8130310
P-100 Adapter D/E	Cat. No. 8130302

- The P-100 and P-200 are the latest additions to the line of narrow flat belt welding tools. The P-100 is designed to butt weld belts of up to 100 mm in width. The P-200 is designed to butt weld belts of up to 200 mm in width. When welding at an angle the maximum belt width is reduced.



## Miscellaneous Tools



Leister Knife

Cat. No. 8153100

- The Leister knife is designed to provide clean and accurate trimming and also for cutting conveyor belt splices.

Sleeve Mounting Jig Base

Cat. No. 8151660

Sleeve Mounting Adapter Set\*

- The Sleeve Mounting Tool is designed to mount Volta Sleeves (SLV) on rollers. The tool uses air pressure to form a cushion between the roller and the sleeve during sleeve installation.
- The tool consists of a base, sleeve adapter and push rod. The base is standard and used with all adapter sizes. The adapter and push rod are suited to specific sleeve diameters and must be ordered based on the specific sleeve size being used.

\* For information on adapter and push rod catalog numbers, contact your local Volta Belting distributor.



VaR Flash Trimming Tool (110V)

Cat. No. 8140030

VaR Flash Trimming Tool (230V)

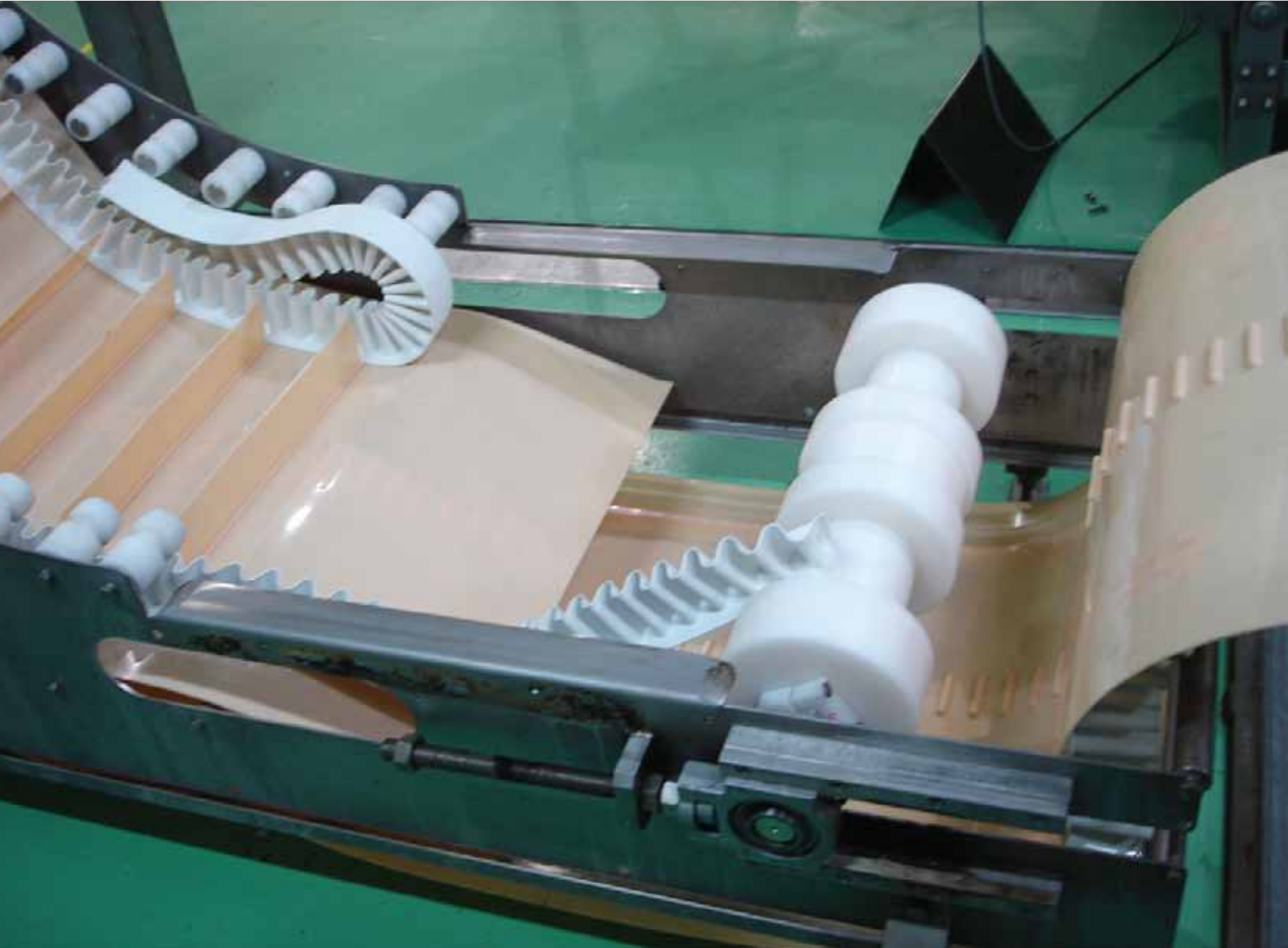
Cat. No. 8140031

- When producing large quantities of round belt rings, use our Flash Trimming Tool to trim the flash after welding. This jig provides adjustments for different belt diameters and a heated blade for smoothly trimming the flash from the belt. The finished weld presents a physically smooth and visually clean joint.
- This tool is suitable to use with round profiles from 3mm to 12mm.
- Available only in selected markets.



## 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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See **Volta** General Terms and Conditions.

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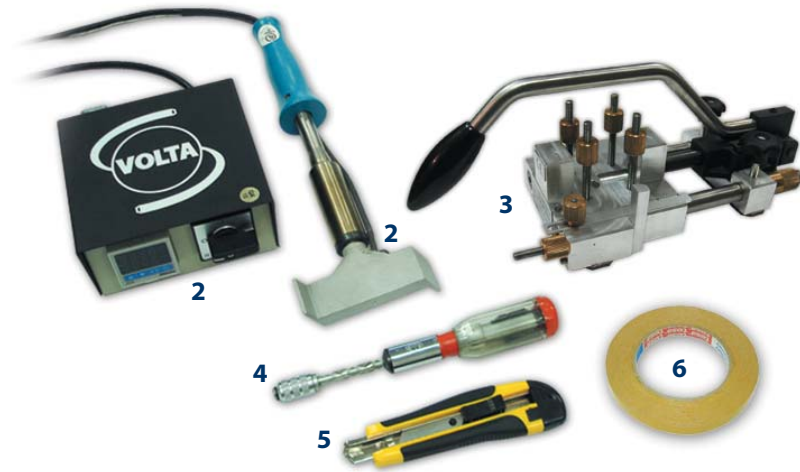




# Thermo-Regulated Easy Overlap Welding Tool

## Special Features:

- Welder heat is precisely thermo regulated with the cutting edge technology PID Controller.
- The Welding Wand has a much higher electric flow capacity.
- The Welder Tip is 90mm long creating a greatly extended overlap area at the join.
- Strong, durable case protects and holds all parts of the kit together in convenient set.



## Kit Contents:

1. Case
2. Welder and Welder Control box
3. Clamp
4. Manual drill, D-11
5. Knife
6. Double-sided adhesive tape

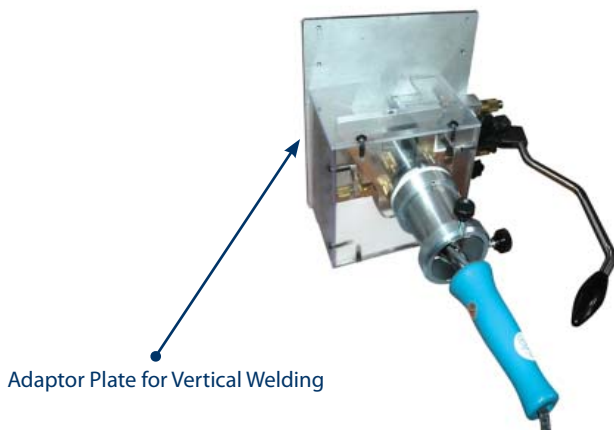


In addition specific size dies  
Should be orderd seperatly

## Special Benefits:

- Constant welding temperature enables successful joins in differing environmental conditions.
- Welder Temperature is controlled in extreme cold conditions of up to  $-30^{\circ}\text{C}$  /  $-22^{\circ}\text{F}$ .
- Extended 90mm overlap area results in a much stronger join.
- The normal strength of the belt is achieved, eliminating any weak spot at the join.
- A higher work load can be conveyed.
- Suitable for round profiles of up to 12.5mm diameter.

### Additional Accessories for Cold Atmosphere:



Adaptor Plate for Vertical Welding



Incubator Hood : neutralizes the welder from varying environmental influences that could cause the welding tip to cool down



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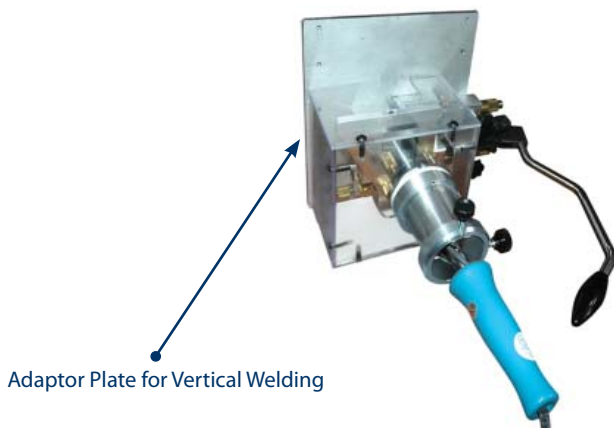


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