

# Butt Welding Instructions



## WARNINGS

1. Heating element becomes extremely hot during operation. Use caution to prevent burns.
2. Allow unit to cool completely before servicing or storing to prevent fire and burns.
3. Do not allow welder to overheat belt material; doing so may produce hazardous fumes.
4. Do not use welder in the presence of highly flammable or explosive materials or atmospheres.
5. Use the Fenner Drives Butt Welder only with Fenner Drives Eagle Belts. Using this welder with other materials or belts may result in a hazardous situation.

*A proper butt weld will yield 100% of the non-reinforced belt's ultimate tensile strength. Note: A clean environment is necessary for a good weld. Make sure the area is well ventilated and free of dirt, dust and draft.*

1. Examine the coated hot knife blade for scratches. A damaged hot knife can negatively affect weld results.
2. Plug the hot knife into either a 110/120 V or a 240 V AC electric power source, depending on unit, and preheat for approximately ten minutes. Once hot, use a clean, dry cotton cloth (synthetic fibers could melt to blade) and gently remove any residue on the blade from previous welding. **Warning: Do not use a hard object to scrape polyurethane from hot knife blade.**

3. Using the cutting shears provided, cut each end of the belt perfectly square. Under certain circumstances it may be necessary to butt weld a reinforced belt. In these situations the reinforcement at each cut end must be drilled back 3/16" – 1/4" (5mm – 7mm) prior to welding. The butt welding clamp can be used to hold the belt while drilling back the reinforcement. See Table 1 to determine the appropriate drill bit. If unclear about the circumstances that would require butt welding a reinforced belt, please contact Fenner Drives Applications Engineering. **Note: Contact Fenner Drives for instructions on determining correct belt length.**
4. Refer to Figure 1. Using the Hand Clamp, slide the spacer toward the mounting clamps, squeeze the handles closed, and finger tighten the thumb nut located to the right of the right side mounting clamp.

5. Figure 2 illustrates possible belt clamp mounting positions. Starting on one side, loosen the clamp nuts and place belt in desired clamping position. Slide belt in clamp so that the end is halfway between the two mounting clamps. Tighten clamp nuts. **Note: For round and ridge top profiles, remove bottom plate.**

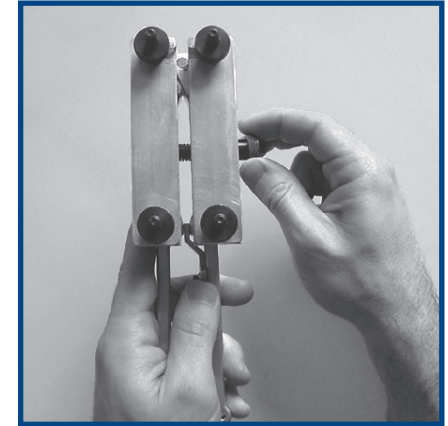


Figure 1

Cross Section	Use Drill Bit
1/4" – 5/16"	
6mm – 8mm	5/64", 2mm
Z/10 – A/13	
3/8" – 1/2"	
10mm – 12mm	9/64", 3.5mm
B/17	
9/16" – 3/4"	
15mm – 18mm	1 3/64", 5mm
C/22	

Table 1

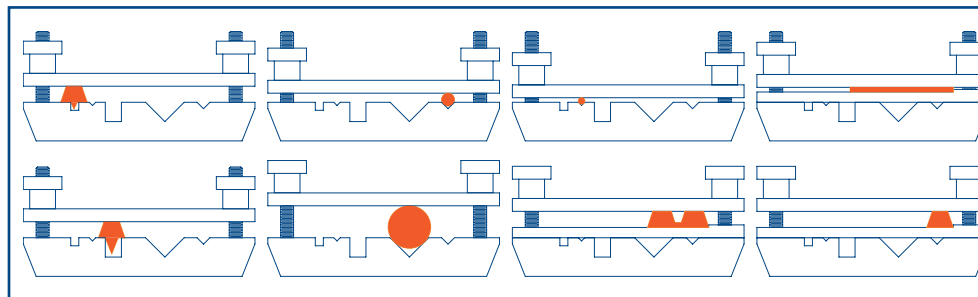


Figure 2

Cross Section	Use V-Groove
3/32" – 1/8"	Small
2mm – 3mm	
3/16" – 5/16"	Medium
4mm – 8mm	
3/8" – 3/4"	Large
10mm – 15mm	

6. On the opposite clamp, loosen nuts and place belt in the same clamping position. **Warning:** Make sure there are no twists in the belt. When inserting the belt in to the clamps, follow the natural curve of the belt to avoid twisting the belt. Slide belt in clamp until the two belt ends butt together. Make sure that ends are properly aligned on all sides; see Figure 3. Tighten clamp nuts. Note: Try to keep both clamping plates parallel to the grooved base blocks.
7. Loosen thumb nut on right approximately 1-1/2 turns and allow the handles to open. With your left thumb, hold the spacer forward and with your right hand, insert the hot knife blade between belt ends and squeeze handles gently, allowing the blade to melt the ends without compressing the material. Refer to Figure 4.
8. When the handles pinch the spacer, the belt should be melted sufficiently. Hold handles tight against the spacer. Release the handles as quickly as possible, slide the spacer toward yourself, withdraw the hot knife blade, and squeeze the handles together.
9. Tighten the thumb nut on the right and allow the welded joint to cure. Small cross section belts should be left in the clamp for a minimum of one minute to allow for initial cooling. Belt cross sections over 1/4" (6mm) wide should be left in the clamp a minimum of three minutes. **Warning:** Allow the belt to cure for a minimum of ½ hour prior to installing, tensioning, or straining the belt weld. **Note:** While the belt is cooling, use a clean, dry cotton cloth (synthetic fibers could melt to blade) to remove any residue from the hot knife blade.
10. Loosen clamp nuts and remove belt from clamp. Using the flash cutters, remove the bead from the splice; see Figure 5.

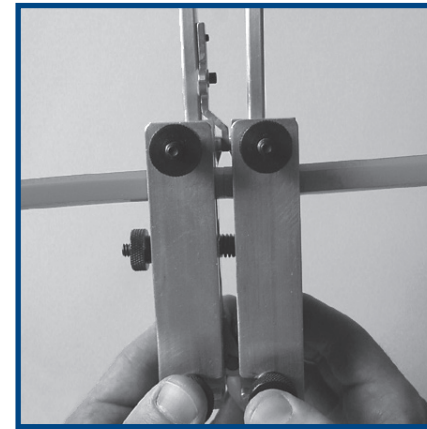


Figure 3

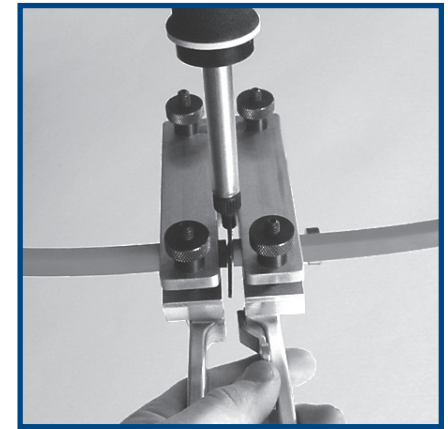


Figure 4

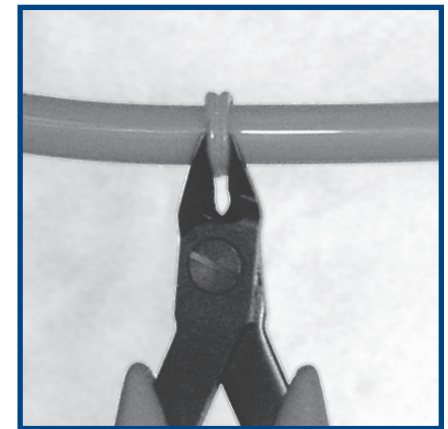


Figure 5



To view a video demonstration of the butt welding process, go to <http://bit.ly/EagleButtWeld>

Fenner Drives accepts no responsibility for damage or injury caused by the misuse of this equipment.