SpinArc® Welding Guide

CHANGING

HOW THE WORLD WELDS

SpinArc®
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WELD REVOLUTION
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For easier communication in training and support situations, it is important to be familiar with the basic parts of a SpinArc® torch.

This diagram labels all of the major components accessible during normal use and maintenance.

For more information regarding parts, consumables, and accessories take a look at the support page on our website or contact us at sales@weldrevolution.com
SpinArc® Benefits

JOINT REDUCTION
By "stirring" the weld puddle and directing the arc out to the sides, SpinArc® technology allows better side wall fusion in narrow groove applications. Reduced joint bevels allow shorter prep times, less filler material, and fewer passes.

WELD PRODUCTIVITY
SpinArc® torches spread out the weld puddle and more effectively fill the joint. This allows for faster travel speeds and better deposition rates. Less welding time per part increases throughput and saves money.

DISTORTION CONTROL
Increased travel speeds and fewer passes means less heat. By better controlling heat input, SpinArc® technology reduces, or even eliminates, distortion and costly rework.
**SpinArc® Target Applications**

**Butt / Groove Welding Applications**
- Reduce weld volume
- Increase deposition rate
- Minimize weld distortion

**Fillet Welding Applications**
- Increase travel speed
- Improve bead profile
- Minimize weld distortion

**Cladding/Overlay Applications**
- Increase deposition rate
- Decrease dilution
- Control penetration depth

**Out-of-Position Welding Applications**
- Reduce welding time
- Improve weld quality
- Minimize weld distortion
Flexure

SpinArc® torches have one unusual consumable item. The flexure is a small conductive disk which carries weld current to the spin shaft.

The unique design creates sufficient electrical conductivity while providing enough flexibility to allow the spin shaft to function.

Flexures should be inspected regularly, and replaced as necessary (see operation manual for full maintenance schedule and instructions).

Flexure Life

Staying below the recommended RPM limit for each crank setting (see Figure 1) will maximize flexure life.

For some welds, it is necessary/beneficial to exceed these limits. In such cases, it may be necessary to check/replace the flexure more frequently.

For information about proper maintenance procedures see the operation manual, or visit our support page at www.weldrevolution.com/support
Nominal Diameter
Nominal spin diameter is determined by eight settings on the crank. This diameter starts at 1mm and increases by approximately 1 mm for each crank setting (1-8).

Effective Diameter
Effective spin diameter is a product of crank setting, CTWD, and RPM. This value can be measured with a set of calipers at the end of the wire stickout.

Increasing any of the three variables (crank setting, CTWD, or RPM) will increase the effective spin diameter, but RPM has another noteworthy effect.

As the RPM increases, the end of the wire is deflected further out to the edges of the rotation. This not only increases the effective spin diameter, but also directs the arc out to the side. This property is very important for superior side wall fusion in narrow groove applications.
Developing SpinArc® Procedures

This is a basic outline for developing welding procedures with SpinArc®. For further assistance, contact us at sales@weldrevolution.com

Begin with non-SpinArc® parameters.

1. When welding without spin, adjust the crank to setting one (1) and set the RPM to zero (0).

2. Using standard MIG welding principles, establish acceptable non-SpinArc® parameters for the weld (if a procedure already exists, it can be used here).

   NOTE: This stage builds a solid foundation for the procedure. It is especially critical before gaining familiarity with SpinArc®.

With acceptable parameters established, add spin to boost productivity.

3. Adjust gas flow to a minimum of 45 CFH and wire stick-out to at least 0.75".

4. Change the crank setting to four (4) and set the RPM to one thousand (1000). This is a starting point for the SpinArc® parameters. Adjust as necessary based on joint geometry, weld parameters, and weld results.

   NOTE: Increasing the effective spin diameter decreases the penetration depth

   This effect can be demonstrated by adjusting the crank setting or RPM while maintaining all other parameters.

   Penetration control makes SpinArc® ideally suited for cladding/overlay work.
5. For right-to-left travel, set Spin Direction to Counter-Clockwise. For left-to-right, set to Clockwise.

NOTE: This is a general guideline. If not achieving the desired bead profile, switching spin direction may be useful.

NOTE: This step is primarily important for 2G and fillet welds but may have an effect in certain other situations.

6. Attempt improvements one at a time. SpinArc® boosts productivity primarily through decreasing joint volume and increasing travel speed (distortion control is achieved through one or both of these).

NOTE: Higher travel speeds typically require higher RPM. If bead appearance deteriorates after increasing travel speed, try increasing RPM.

Share your results!
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Email us at info@weldrevolution.com