**WELD PREP APPLICATIONS**

**Mill Scale Removal**

**WHAT IS IT?**
- A flaky surface that forms on hot-worked steel
- Formed by surface oxidation during slow cooling
- Consists of magnetite and hematite
- Very poor heat and current conductivity ensures that the arc spot remains too small and that the weld cannot flow effectively, resulting in a convex weld
- The weld contains a lot of silicates because the mill-scale contains impurities

**PRODUCTS USED:**
- Pipeline Notch & Grind Wheel
- Coarse Grit Flap Disc with Top Size
- Resin Fiber Disc

**Dross & Slag Removal & Clean-up**

**WHAT IS IT?**
- Dross is re-solidified metal that contains impurities, oxides and/or nitrides that form on the sides or bottom of the kerf (cut-line)
- Slag is a mix of metal oxides and silicon dioxide, which is a by-product of welding
- Dross must be removed prior to welding. Slag is continuously monitored and cleaned throughout the welding process

**PRODUCTS USED:**
- 1/4” Grinding or 1/8” Combo Wheel
- Pipeline Notch & Grind Wheel
- Coarse Grit Flap Disc
- Resin Fiber Disc

**GRINDING**

**Type 1 Flat**

**BENEFITS:**
- Max number of cuts per wheel
- Reduced risk of work-piece interference

**CHOOSE WHEN:**
- Cutting profiles / protrusions
- Chop and plunge cutting
- Most general-purpose cutting

**Type 27 Depressed Center**

**BENEFITS:**
- Increased clearance / offset
- Available with hub for additional clearance / offset

**CHOOSE WHEN:**
- Flash cutting
- Cutting bolts, rebar, etc.
- Blending / beveling (combo only)

**FILLER BRUSHES** have additional wire strands and a wider profile (face) for more-aggressive brushing and increased durability. Their wider contact area makes them an excellent choice for cleaning filler passes quickly and efficiently. Also referred to as cable twist brushes.

**BEAD BRUSHES** have narrow, tightly twisted knots for high-impact cleaning and aggression. The narrower profile (face) and aggressive cleaning make them popular for cleaning in narrow gaps between weld passes. Also referred to as stronger bead brushes or root pass brushes.

**KNOT TWIST CONFIGURATIONS**

**STANDARD** knots are similar to filler brushes but are not twisted tightly all the way to the end, allowing the wire tips to flare, adding conformability and wider contact with the work-piece. Welder cup brushes feature this knot style to maximize cleaning on large surfaces.

**WHEEL vs. CUP**

**PROS**
- Fast and aggressive from the start
- Extremely durable
- Low overall product cost-per-part

**CONS**
- Non-conformable
- Potential to gouge work-piece
- Rough finish
- High noise and vibration level

**WHEEL**

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**CRIMPED WIRE**

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**CRIMPED VS. KNOT WIRE**

**PROS**
- Increased ability to shed material
- Reduced clogging/loudness
- Increased conformability to work-piece

**KNOT WIRE**

**CONS**
- Increased rigidity
- Increased durability
- Increased aggression - can mar surface
- Less conformable to work-piece

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STEP 1
Beveling

Type 29 flap discs are aggressive, easy to control, and highly effective for cleaning, removing pits, and residue such as oil, rust, paint, primer, corrosion, burrs, or any impurity on the surface of the steel. Finally, the bevel must be cleaned. To achieve a proper union, it is important to remove any surface set the face (land).

Weiler’s 1/8” pipeline wheel allows flat grinding, making it an excellent choice to quickly and effectively when beveling. Discs, like Weiler’s Tiger Paw, are an excellent choice because they reduce vibration and increase control.

Any joint, whether tubing, plate, or structural, requires significant prep to ensure strong and consistent surface prep for wider surface areas. Knot wheels are also commonly used.

Correct facing makes it easier to line up pipes before welding and also contributes to having a constant root opening between parts.

Stephen 3/32” Mech Wheel are thinner than standard pipe notching grinding wheels, allowing the operator to grind the bead without widening or scarring the surface on the end of the pipe.

For a complete listing of product sizes and grits or to learn more about Weiler Multi-Pass Solutions at:

BEFORE, DURING AND AFTER THE WELD, WE HAVE YOU COVERED.