

Premium Open Arc, Wearfacing Wire for Impact, High Compression Loading  
and Combined Abrasion

# 5022 FW - Mang Steel



## WIRE

- Excellent for combatting impact plus abrasion
- May be used for high volume re-builds on “Hadfield” manganese castings and carbon steels
- Excellent work-hardening properties



## PRODUCT DESCRIPTION:

FW-Manganese Steel is a high manganese wire for combating impact plus abrasion. It can be used for high-volume rebuilds on "Hadfield" manganese castings, carbon steels and most steel used for mining and construction equipment. Weld deposits have excellent work-hardening properties, and under the right application conditions can achieve hardnesses up to 45-50 HRC.

## TYPICAL ANTI-WEAR APPLICATIONS & INDUSTRIES

### APPLICATIONS

Roll Grinders - anvils - breaker bars...  
Latch keys/bars - side lips - teeth...  
Bucket scoops - clamshells - pump casings...  
Scraper blades - stump removers...  
Secondary crushers - discharge chutes...  
Plows - recycle screws - asphalt blenders...

### INDUSTRY

Cement  
Open-Pit Mining  
Dredging  
Earthmoving  
Quarries  
Municipal Works

## WELDING PROCEDURE & TECHNIQUE:

**Caution:** Although a 2-roll wire drive assembly will work the optimum for maintaining arc voltage stability and consistent and smooth wire feeding is a serrated 4-roll drive assembly. Smooth drive rolls are not recommended!

**Step 1:** Remove all "old" cracked or spalled weld metal down to a sound base.

**Step 2:** FW-Manganese Steel has unlimited build-up, it is often field practice to deposit a base-coat depending on the type of wear, severity, and the total amount of build-up required.

**Step 3:** Preheat the part to be hardfaced depending on its air hardenability potential and/or carbon level. For most constructional steels a nominal preheat of 150°F is suggested and for medium alloy steels, ~250°F.

**Note 3:** *Do not heat high manganese steels such as Hadfield Castings!*

**Step 4:** After checking that the welding conditions are optimal by testing on scrap metal, position the gun head at a 70-80° angle and use a "push" technique for downhand welding. For fully automated welding such as hardfacing cement crusher rolls, the wire should exit at about a 10° lagging angle from top dead center. Using this technique will assure a smooth and regular weld deposit profile with the optimum level of fusion.

**Note:** *If welding is interrupted and the part being welded cools to room temperature, make sure to reheat to the original preheat temperature. For hardenable steels slow cooling is advised using silicone blankets, vermiculite, or other environmentally suitable heat-retardant material.*

**Step 5:** For most applications, other than a superficial grind, finishing is not required. If some level of profiling is needed, grinding can be used for more precise shaping.

## 5022 FW-MANGANESE STEEL TECHNICAL DATA & SET-UP INFORMATION

- Hardness as-deposited (2-passes): HRC 15-20 depending on dilution
- Typical Work Hardening Hardness: 45 - 50 HRC

### Set-up Parameters for 1/16" (1.6 mm) Diameter

- Power Source Type: Constant voltage & Integrated Wire Drive
- Current & Polarity: DC (+) electrode positive
- Current Range: 190 - 250 amps
- Voltage Range: 25 - 28 volts
- Wire Extension:  $\frac{3}{4}'' \pm 1/16''$  Contact Tip Use short nozzle

*Note: Parameter adjustments will be needed depending on the size, weight, and shape of the part to be welded. For optimum wear resistance keep to the low end of the amperage & voltage ranges.*

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