

# LINCOLN® SHS®9500U

Severe Abrasion, Flux-Cored (FCAW-S) Wire

## Application Process

FCAW-S/GMAW-C

Weld Overlay for Hardfacing

## Material Chemistry (wt%)

Chromium	< 10%
Niobium	< 9%
Boron	< 6%
Manganese	< 5%
Carbon	< 3%
Silicon	< 2%
Iron	Balance

## Rockwell C (HRC) Hardness

58 - 62 HRC Typical

## Wear Resistance

ASTM G65-04 Procedure A

Typical 0.22 g mass loss

## Weld Deposit Properties

Density (g/cm<sup>3</sup>) 7.59

## Impact Resistance

Drop Impact Testing:

Passed multiple impacts  
at 165 ft-lbs

## Overlay Description

SHS9500U is an iron based steel alloy featuring medium hardness, high toughness and high wear resistance.

## Key Performance Characteristics

- 58 - 62 HRC single and double pass weld deposits
- Minimal cracking when applied to plain carbon and alloy steels
- Cost effective: contains no tungsten, molybdenum or nickel
- High resistance to abrasion and galling

SHS9500U features a unique uniform glass-forming melt chemistry that allows high undercooling to be achieved during welding. This results in considerable refinement of the crystalline microstructure down to a near nanoscale (400 nm length scale) range.

## Minimal Cracking

Thermal expansion (CTE) matches engineering grade steels over a wide temperature range. When applied to plain carbon and alloy steels, SHS9500U can be welded without significant preheat (i.e. 600° F) and produce an as-welded bead with minimal cracking.

## Wear Resistance

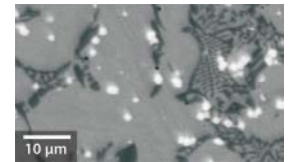
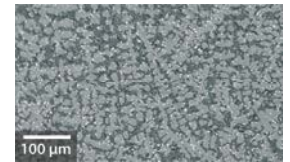
In ASTM G65-04 dry sand/rubber wheel abrasion tests, SHS9500U provides maximum wear resistance of typical mass loss of 0.22 g which results in high abrasion and galling resistance, especially in applications where metal-to-metal friction is likely.

## Industrial Uses

Mining

Oil & Gas

## Structure



400 nm length, near  
nanoscale microstructures

### CUSTOMER ASSISTANCE POLICY

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