

Material Product Data Sheet

Dip-Coated, Sintered Tungsten Carbide Electrodes with Iron, Chromium Carbide and Niobium Additives

Welding Products: WokaDur S70

1 Introduction

WokaDur™ S70 is a dip-coated electrode comprised of a sintered tungsten carbide with iron, chromium carbide and niobium additives.

WokaDur S70 is designed for application using manual metal arc welding processes.

WokaDur S70 is designed to be used where hard, wear resistant overlay deposits are needed and where impact is minimal. Deposits of WokaDur S70 resists wear, abrasion and erosion from sand and other hard minerals.

WokaDur S70 can be used on nearly all steel substrates and is appropriate for use on thin-walled metals and edges. It produces weld deposits are smooth and extremely hard with hardly any slag. The electrodes ignite readily.

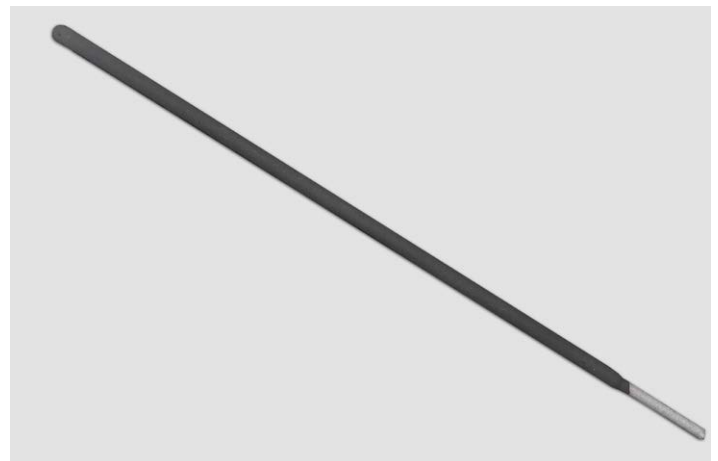
1.1 Typical Uses and Applications:

WokaDur S70 is typically used in mining and ceramics industries for applications that include:

- Conveyor screws for brick production
- Mixer blades used for concrete, clays and other minerals
- Brick manufacturing and clay processing equipment

Quick Facts

Classification	Electrode, tungsten carbide
Chemistry	16.5Fe 66W 6Cr 7.5C 4Nb
Manufacture	Sintered and dip-coated rod
Deposit Hardness	63 – 66 HRC (1 st layer) 66 – 70 HRC (2 nd layer)
Weld Deposit Density	12.2 g/cm ³
Service Temperature	≤ 500 °C (930 °F)
Purpose	Wear resistance
Process	Manual metal arc welding



WokaDur S70 5.0 mm dip-coated, sintered electrode.

2 Material Information

2.1 Chemical Composition

Product	Nominal Chemical Composition (wt.%)					Carbide Hardness (HRC)
	C _{TOTAL}	W	Fe	Cr	Nb	
WokaDur S70	7.5	66	16.5	6	4	56 – 60

2.2 Primary Carbide Grain Size and Type, Available Lengths and Diameters

Product	Available Length	Available Diameters
WokaDur S70	300 mm (11.8 in)	4.0 mm (0.16 in) 5.0 mm (0.20 in)

2.3 Key Selection Criteria

Choose WokaDur S70 for applications where:

- An extremely hard surface is required to resist abrasive minerals and/or sliding wear.
- Surfaces are exposed to minimal impact stress.
- Parts having thin walls and/or edges to be welded.
- Parts comprised of almost any type of steel.

2.4 Related Products

Oerlikon Metco offers a wide variety of carbide-containing hardfacing welding products in a number of forms designed for convenient application. Products are available for oxy-acetylene welding, MIG / open arc welding and powders for PTA welding. These products are available with different carbide types and hardness, matrix materials and matrix materials so customers can choose a product that is suitable for both their budget and surface application. Please contact your Oerlikon Metco Account Representative for additional information.

3 Coating Information

3.1 Key Welding Recommendations

- The surface to be welded should be free from grease, oil, fats, lipids, rust and other foreign matter.
- Use welding positions: All except PG.
- Use AC or DC; DC+ (reverse polarity) is preferred.
- Before welding, a slow, uniform preheat to a temperature of 100 to 200 °C (212 to 392 °F) is recommended to avoid delayed cracking, depending on the substrate composition.

- Welding without a preheat may be possible, but deposits are prone to cracking during and after welding.
- Low current intensity and a short arc are recommended
- When necessary, nearly vertical welding can be accomplished.
- Avoid excessive puddling during processing.
- Deposits are not machinable or forgeable, but can be ground to dimension or finished with diamond tools.

3.2 Recommended Welding Parameters

Rod Diameter	Current Intensity
2.8 mm	110 – 130 A
4.0 mm	150 – 170 A
5.0 mm	190 – 210 A

Parameter reference: Mild steel with carbon content of 0.1 %; thickness 15 mm (0.59 in)

3.3 Welding Parameter Development

For specific application needs, Oerlikon Metco can provide parameter advice and parameter development services may be available.

4 Commercial Information

4.1 Ordering Information and Availability

Product	Order No.	Package Size	Rod Length	Rod Diameter
WokaDur S70	1065240	5 kg (11 lb)	300 mm (11.8 in)	4.0 mm (0.16 in)
WokaDur S70	1065241	5 kg (11 lb)	300 mm (11.8 in)	5.0 mm (0.20 in)

Please note: All materials are globally available on a Special Order basis. Please allow adequate lead time.

4.2 Handling Recommendations

- Store in the original, closed container in a dry location
- Open containers should be stored in a drying oven to prevent moisture pickup

4.3 Safety Recommendations

See SDS 50-1089 (Safety Data Sheet) in the version localized for the country where the material will be used. SDS are available from the Oerlikon web site at www.oerlikon.com/metco (Resources – Safety Data Sheets).