



DUROXITE® 100 WIRE

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General Product Description

Duroxite® 100 WIRE is a flux-cored welding wire for hardfacing components subject to severe sliding wear and moderate to low impact applications using an open-arc welding process. The weld deposit contains abrasion-resistant materials composed of a high proportion of extremely hard primary M_7C_3 chromium-rich carbides. With a typical hardness of 1700 HK¹⁾ these carbides are dispersed evenly in a ductile eutectic austenite matrix. It naturally reveals stress-relief cracks after welding. Duroxite® 100 WIRE is suitable for single-layer or multiple-layer deposits up to a maximum of three layers.

¹⁾HK is the Knoop microhardness used primarily for very brittle materials.

Key Benefits

- Same wear resistance guaranteed from surface through 75% depth of overlay in multi-layer deposit
- Optimal alloy formulation that forms a carbide composition which provides a good combination of wear resistance and homogenous bonding

Typical Applications

Duroxite® 100 WIRE is mainly designed to use for hardfacing wear parts undergoing wear by earth, sand and abrasives up to 350°C (660°F). Typical examples include: Crusher hammers, gyratory crusher cones and mantles, dredging pumps, slurry pipes, dragline bucket liners, coal pulverizer rolls, coke hammers, sand dredging parts, mining and earthmoving components, and sorting screens.

Standard Dimensions

Standard Diameter			
Metric	1.2 mm	1.6 mm	2.8 mm
Imperial	0.045"	1/16"	7/64"

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Wear Properties

Number of overlay passes	ASTM G65 – Procedure A weight loss ³⁾	
	Surface	75% depth of overlay ⁴⁾
Multiple passes	0.18 g maximum	0.18 g maximum

³⁾ ASTM G65 is a standard test measuring sliding abrasion resistance using a dry sand/rubber wheel apparatus. ASTM G65-Procedure A is the most severe test method.

⁴⁾ ASTM G65 wear test is conducted at 75% depth of the overlay materials to ensure consistently good wear resistance from the top surface through to the depth of 75% of the overlay.

Mechanical Properties

Classifications

DIN 14700 T Fe15 g

DIN 8555 MF 10 GF 60 G

Typical all-weld metal chemical composition (wt. %)

Diameter Metric	Diameter Imperial	C	Mn	Si	Cr	Fe
1.2 mm	0.045"	4.7	0.2	0.6	29.0	Balance
1.6 mm	1/16"	5.5	0.2	0.6	29.0	Balance
2.8 mm	7/64"	5.5	0.2	0.6	29.0	Balance

Typical all-weld metal surface hardness²⁾

Three-layer deposit on mild steel: 60–65 HRC

²⁾ Surface hardness is measured on machined flat surface just below overlay surface.

Welding recommendations

Welding conditions

Current type	Shielding gas	Welding positions
DCEP (Direct current electrode positive)	None (Self-shielded)	Flat, half up, half down

Welding parameters recommendations

Diameter		Amperage (A)		Voltage (V)		Stick-out			
						Range		Optimum	
Metric	Imperial	Range	Optimum	Range	Optimum	Metric	Imperial	Metric	Imperial
1.2 mm	0.045"	110–250	190	24–30	28	20 mm–45 mm	3/4"–1-3/4"	25 mm	1"
1.6 mm	1/16"	150–270	200	25–30	28	20 mm–45 mm	3/4"–1-3/4"	25 mm	1"
2.8 mm	7/64"	250–450	300	28–32	30	20 mm–45 mm	3/4"–1-3/4"	25 mm	1"

Recovery: 90%

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Delivery Conditions

Standard package	Diameter		Weight	
Type	Metric	Imperial	Metric	Imperial
Spool	1.2 mm	0.045"	15 kg	33 lbs
Spool	1.6 mm	1/16"	15 kg	33 lbs
Spool	2.8 mm	7/64"	25 kg	55 lbs

Fabrication and Other Recommendations

The welded overlay components can be processed by welding, cutting, forming and machining. Specific recommendations can be found in the Duroxite® Product brochure or by consulting your local technical support representative.

Safety precautions

When welding or cutting Duroxite® products, smoke is produced containing harmful fumes and gases that are chemically highly complex and difficult to easily classify. The major toxic component in the fumes and gases produced in the process is hexavalent chromium. The proper exhaust ventilation equipment and fume-extraction torches are recommended, as well as suitable protective clothing and respiratory protection for operators.