

Duroxite® 100 Pipe

General Product Description

Duroxite® 100 Pipe is manufactured by depositing chromium-rich, abrasion-resistant materials on a mild steel base using a traditional arc welding process. The hardfacing overlay pipe is designed with extreme wear capabilities for working in the most severe environments. Duroxite® 100 Pipe is available with double or multiple overlay passes. Schedule 40 and Schedule 80 steel pipe as well as tubing can be hardfaced. Overlay Pipe can be fabricated as square-to-round transitions, elbows, T or Y-shaped, or as long sweeps.

Key Benefits

- Same wear resistance guaranteed from surface down to 75% of the overlay
- Optimal carbide composition to provide good combination of wear resistance and homogenous bonding

Typical Applications

Duroxite® 100 Pipe is widely used in the mining, cement, oil sands, dredging, recycling and steel production industries. Some specific applications include:

Mining, Cement, Oil Sands	Slurry pumps, chutes
Dredging	Dredging pipes
Recycling	Cullet glass
Steel	Air ducts, carbon injection pipes, suction lines, troughs

For more information on applications see the Duroxite® Product brochure.

Standard Dimensions

Diameter	Length	
Metric unit	Metric unit	Other Custom Specifications
50 - 150 mm 200 - 600 mm 600 - 900 mm	0.9 - 1.0 m 0.9 - 3.0 m 1.8 - 3.0 m	- All available gauges > Schedule 40 steel pipe - Lengths cut or fabricated as needed - Stainless steel and other pipe grades available - Custom diameters, lengths and gauge sizes are available upon request. - Diameters larger than 0.9 m can be fabricated from formed Duroxite® 100 plate.

Mechanical Properties

Wear properties			ASTM G65 – Procedure A weight loss ²⁾	
Number of overlay passes	Typical surface hardness ¹⁾ (HRC)	Typical surface hardness ¹⁾ (HV)	Surface (g max)	75 % depth of overlay ³⁾ (g max)
Double or multiple	59 - 62	675 - 750	0.18	0.18

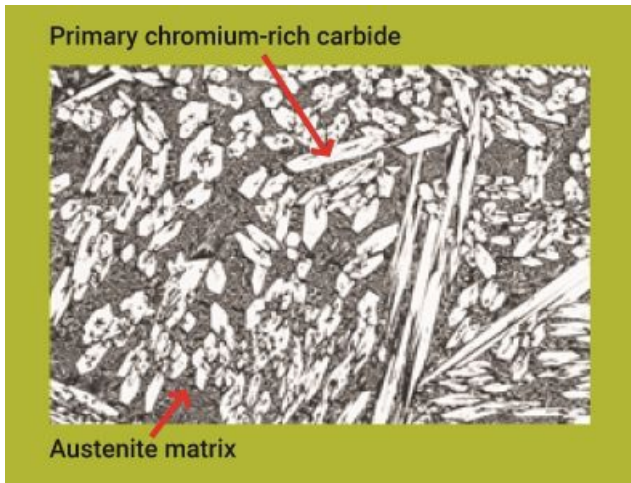
¹⁾ Surface hardness is measured on machined flat surface just below overlay surface.

²⁾ ASTM G65 - Procedure A weight loss, 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.

³⁾ ASTM G65 - Procedure A weight loss, 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.

Microstructure

The microstructure of Duroxite® 100 Pipe is composed of a high proportion of extremely hard primary M_7C_3 chromium-rich carbides with a typical hardness of 1700 HK⁴⁾ dispersed evenly in a ductile eutectic austenite matrix. The volume fraction of primary carbides is maintained between 30 to 50% to provide a good combination of wear resistance and homogenous bonding.



⁴⁾ HK is the Knoop microhardness used primarily for very brittle materials.

Fabrication and Other Recommendations

Welding, cutting, forming and machining

Workshop recommendations can be found in the Duroxite® overlay brochure or you can consult your local technical support representative for more information.

Safety precautions

When welding or cutting Duroxite® products, gases and harmful fumes are produced that are chemically complex and difficult to classify. The major toxic component in the fumes 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.