

Duroxite® 101

General Product Description

Duroxite® 101 is manufactured by depositing a chromium-rich carbide overlay on Hardox 450 backing plate. The hardfacing overlay is suitable for severe abrasive wear and impact applications. With its optimum carbide concentration, consistently good wear resistance from top surface through 75% depth of overlay, and Hardox backing plate, Duroxite® 101 provides a better combination of wear and impact resistance compared to the traditional mild steel backing overlay plate.

Key Benefits

- Designed to better withstand plastic deformation due to its high yield strength flexing back after impact
- Stronger support due to high hardness of Hardox and better bonding between overlay and base steel
- When overlay wears off Hardox® 450 backing plate will wear at a lower rate than mild steel providing a greater safety margin
- Better performance for impact situations than Duroxite® 100 at elevated temperatures up to 350° C (660° F), but impact resistance is best at room temperature

Typical Applications

Duroxite® 101 is widely used in the mining, cement and power generation industries. Some specific applications include:

Mining	Loader bucket liners, bucket lip and side shrouds, jaw shrouds
Cement	Heel pads and dewatering conveyors
Power	Coal discharger chutes

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

Standard Dimensions

Standard overlay thicknesses	
Metric unit	
6 mm on 6 mm	
10 mm on 10 mm	
12 mm on 12 mm	
6 mm on 20 mm	
6 mm on 25 mm	
6 mm on 32 mm	

Other plate sizes and custom thicknesses can be produced upon request.

Standard plate sizes

Metric unit	Imperial unit
1.85 m x 2.85 m	6.1' x 9.3'
1.2 m x 2.4 m	4' x 8'
1.5 m x 3.0 m	5' x 10'
1.8 m x 3.0 m	6' x 10'

Other plate sizes and custom thicknesses can be produced upon request.

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)
Multiple passes	59 - 64	675 - 800	0.18	0.18

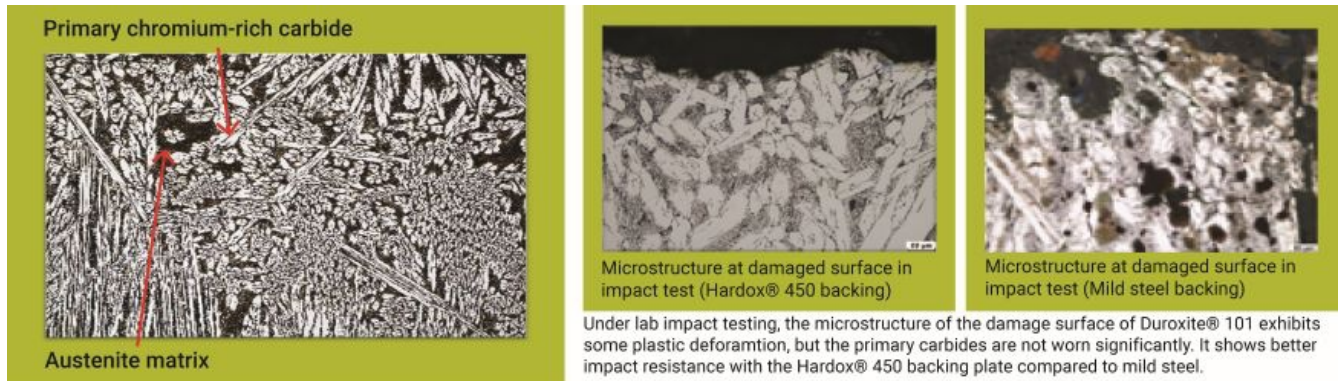
¹⁾ Surface hardness is measured on machined flat surface just below overlay surface.

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 typical overlay microstructure of Duroxite® 101 is composed of a high proportion of extremely hard primary M_7C_3 chromium-rich carbides with a typical hardness of 1700 HK^{*)} 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.



^{*)} HK is the Knoop microhardness which is primarily used for very brittle materials.

Tolerances

More details are given in SSAB's brochure Duroxite® Guarantees or at www.ssab.com.

Thickness

Tolerances according to Duroxite® Thickness Guarantee.

Duroxite® overall and overlay thickness tolerances can be guaranteed within $\pm 10\%$ of specified thickness.

Flatness

Plate flatness tolerance guaranteed over 1.5 m (5').

Standard overlay thicknesses	Plate flatness tolerance guaranteed over 1.5m (5'), Metric unit		
Metric unit	1.5 m x 3.0 m	1.8 m x 3.0 m	2.4 m x 3.0 m
5 mm on 8 mm	12 mm	32 mm	38 mm
6 mm on 6 mm	12 mm	32 mm	38 mm
10 mm on 10 mm	6 mm	19 mm	25 mm
12 mm on 12 mm	3 mm	12 mm	12 mm

For custom sizes, please consult your local sales representative or Hardox Wearparts center for flatness guarantees.

Delivery Conditions

Duroxite® 101 is normally supplied in an as-welded condition, but can also be supplied in a ground condition upon request.

Fabrication and Other Recommendations

Welding, cutting, forming and machining

Recommendations can be found in the Duroxite® Product brochure, or consult your local technical support representative.

Bendability for Duroxite® overlay plate are according to Duroxite® Bending Guarantees.

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.