# Duroxite® 200 Wire

## General Product Description

Duroxite® 200 Wire is a flux-cored welding wire for hardfacing components subject to severe abrasive wear and moderate impact applications using an open-arc welding process. The deposit contains hard complex carbides in a tough matrix and performs exceptionally well for both fine and coarse abrasion applications. It naturally reveals stress-relief cracks after welding.

Duroxite® 200 Wire is suitable for single or double-layer deposits. Preheating, interpass temperature, and post-weld heat treatment are as needed according to base metal recommendations. If welding with downhill or uphill position, reduced wire feed speed and voltage are preferred to apply.

### Key Benefits

- Same wear resistance guaranteed from surface through 75% depth of overlay in multi-layer deposit.
- Optimal alloy formulation that forms a primary chromium-rich carbide with co-existing refined multi-alloys carbides which provide a good combination of wear and impact resistance.

### Typical Applications

Duroxite® 200 Wire is mainly designed to use for hardfacing components undergoing heavy wear by earth, sand or abrasives up to 600 ºC (1100ºF).

Typical examples include: Sand and earthmoving equipment, ground engaged teeth, slurry pipe, railway ballast tampers, dredge buckets and lips, sand dreging parts, dragline bucket liners, crushing equipment, brick industry components, coke hammers, rippers, sizing screens, Muller tyres, catalyst lift pipes, pump impellers, fan blades, rockwool rolls, wear plates or wear parts operating at high temperature in steelmaking industry.

## Standard Dimensions

| Standard diameter<br>Metric |
|---|
| 1.2 mm |
| 1.6 mm |
| 2.8 mm |

## Mechanical Properties

| | | ASTM G65 – Procedure A weight loss [2] | | Typical all-weld metal surface hardness [1] | Typical surface hardness | |
|---|---|---|---|---|---|---|
| Number of overlay passes | Classifications | Surface (g max) | 75 % depth of overlay [3] (g max) | Hardness: 3-layer deposit on mild steel | Single pass | Double pass |
| Single pass | DIN 8555: MF 10-GF-65-GRT | – | – | – | 57 - 60 HRC | – |
| Multiple passes | DIN 8555: MF 10-GF-65-GRT | 0.12 | 0.12 | 62 - 67 HRC | – | 60 - 65 HRC |

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

[2] 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.

[3] 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.

### Test results for mechanical properties

Test results for mechanical properties, deposit overlay chemical composition, surface hardness, and ASTM G65-A weight loss were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, substrate chemistry and working temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended applications.

## Chemical Composition

| Standard diameter | Typical all-weld metal analysis (Weight %) | | | | | |
|---|---|---|---|---|---|---|
| Metric | C (%) | Mn (%) | Si (%) | Cr (%) | Nb (%) | Fe |
| 1.2 mm | 4.0 | 0.5 | 0.2 | 20.0 | 6.0 | Balance |
| 1.6 mm | 5.3 | 0.5 | 0.2 | 22.0 | 6.5 | Balance |
| 2.8 mm | 5.3 | 0.5 | 0.2 | 22.0 | 6.5 | Balance |

## 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 | |
|---|---|---|---|---|---|---|
| Metric | Range | Optimum | Range | Optimum | Range | Optimum |
| 1.2 mm | 150 - 200 | 180 | 25 - 30 | 28 | 10 mm - 20 mm | 15 mm |
| 1.6 mm | 190 - 210 | 200 | 27.5 - 28.5 | 28 | 10 mm - 20 mm | 15 mm |
| 2.8 mm | 290 - 310 | 300 | 29.5 - 30.5 | 30 | 15 mm - 25 mm | 20 mm |

Recovery: 90%

## Delivery Conditions

| Standard package | Diameter | Weight |
|---|---|---|
| Type | Metric | Metric |
| Spool | 1.2 mm | 15 kg |
| Spool | 1.6 mm | 15 kg |
| Spool | 2.8 mm | 25 kg |

## 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, 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.



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