Overview

Protect Your Equipment, Reduce Downtime, Save Money.

Companies spend a great deal of money purchasing and maintaining equipment. But even the best maintained equipment experiences wear, especially in highly abrasive environments or impact conditions. While you often can’t change the environment in which equipment is used, you can protect equipment from the effects of wear by using the proper hardfacing product to increase wear resistance and wear life. Extending wear life by just a little can lead to huge savings. The key to increasing wear life is to choose the proper wear-resistant product for the appropriate environment.

What is Hardfacing?

Hardfacing is a metal deposit intended to reduce how quickly a metallic part wears. It is an excellent way to increase the life of your equipment and wear parts by protecting them from abrasion and impact.

Choosing the right hardfacing (wear-resistant product) will reduce changeovers, equipment downtime and installation labor and extend equipment life, and increase productivity and efficiency.

What is Wear?

There are many types of wear, many kinds of material which can cause wear and many metallic alloys to prevent wear.

Types of Wear:

- Abrasive Wear: The most common type of wear is caused by abrasive particles or material rubbing against metal (for example, sandpaper wearing away metal)
- Impact Wear: The second most common type of wear is caused by large objects impacting metal or smaller objects propelled at high speed into the metal (for example: hammers breaking up rock or a large rock being dropped)
- Other Types of Wear: Corrosion wear, high heat wear, metal-to-metal wear and other less common types of wear

Types of Materials Which Cause Wear:

- Abrasive materials such as sandstone, sand, coal, ash, rock, metal-to-metal, etc.
- Impact materials such as rock, metal, etc.
Preventing Wear

You cannot eliminate wear, but you can make equipment, parts and components less susceptible to wear by adding wear-resistant materials to the equipment surfaces.

Types of Materials That Prevent Wear:

- Very Abrasion Resistant (Carbide-Bearing)
  - 80% of the market: Cronatron 711, 7355 and 7310 M-FC
- Moderate Impact and Abrasion Resistant (Martensitic)
  - 10% of the market: Cronatron 750 and 7500 M-FC
- Impact Resistant (Austenitic)
  - 5% of the market: Cronatron 777 and 7109 M-FC
- Buildup Products
  - Cronatron 7770 and 7770 M-FC
- Other Wear Mechanisms (High-Heat, Corrosion, Metal-to-Metal)
  - 5% of the market: Cronatron 7000 and 7000 M-FC

Choosing a Product

Assess the Application

- What size is the media creating the wear problem?
- At what velocity is the media traveling?
- What is the media made from?
- Is it a wet or dry environment?
- Does the application involve abrasion, impact or a combination of both?
- What products have been used in this application?

Other Factors

Are there other wear considerations like heat, friction, corrosion or extreme velocity?

CAUTION: Fine particle impingement creates enormous wear problems. For example: Never use a carbide product in a sandblasting application. The fine sand particles will wear away the soft matrix instead of the carbide.

We do not recommend mixing product classes. For example, do not put a martensitic product over an austenitic buildup. In rare cases, some products may be mixed and matched, but care must be taken when doing this and the risk of failure increases. Please consult Cronatron Technical Service. We do not recommend applying more than two layers of carbide-bearing material, because the likelihood of chunking or spalling increases rapidly. It is acceptable to put as many layers as needed of martensitic and austenitic products.

Wearplate

The Dimension Wearplate line is a high-chrome carbide hardfacing deposited over mild steel. It is sold in 4’ x 8’ sheets and can be cut with a plasma cutter and welded or bolted into place. It is also available in custom-cut pieces and fabricated parts upon request. Pipe and pipe assemblies are also available.

Typical applications include liners, chutes, buckets, augers, pipe, pipe components, digesters, snow plow blade shoes, compactor wheel pads, rampers, cyclones, hoppers, conveyors, loaders, forks, log stackers and pickers.
This page contains a table comparing different hardfacing and wearplate products. The table categorizes products based on their build-up type and intended use, with columns for austenitic, low RC martensitic, high RC martensitic, and carbide-bearing products. Each product is rated for its impact and abrasion resistance, with additional notes on specific applications and materials.

### Table: Hardfacing and Wearplate Products

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<th>Buildup</th>
<th>Austenitic Products</th>
<th>Low RC Martensitic</th>
<th>High RC Martensitic</th>
<th>Carbide-Bearing Products</th>
<th>Specialty Products</th>
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<td>General Purpose and Carbon Steels</td>
<td>Torch cuttable</td>
<td>Good impact resistance, poor abrasion resistance</td>
<td>Moderate abrasion resistance and high impact</td>
<td>Good abrasion resistance and significant impact</td>
<td>Very good abrasion resistance and moderate impact</td>
<td>Very good abrasion resistance and minimal impact</td>
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<td>Multipurpose for All Steels</td>
<td>Non-torch cuttable, work hardens in use</td>
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<td>High Manganese</td>
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<td>Low Chrome Carbide</td>
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<td>Titanium Carbide</td>
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<td>Moderate Chrome Carbide</td>
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<td>High Chrome Carbide</td>
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<td>Complex Carbide</td>
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<tr>
<td>Cobalt, Nickel, Chrome, Boron</td>
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### Applications

- **General Description**: Torch cuttable or non-torch cuttable, work hardens in use.
- **Specific**: Carbon steel hard but easily machinable, manganese steel workhardened in use.

### Impact and Abrasion

- **Impact**: Determine impact/abrasion balance to determine best product selection.

### Buildup Types

- **Hardfacing**: Choice of materials depends on the application.
- **Brazing Alloys**: Used to join metals at high temperatures.
- **Tubular Alloys**: Specialized for applications requiring improved properties.
- **Stack Alloys**: Designed for specific wear conditions.
- **Plate**: Protects against wear and abrasion.

### Notes

- Higher alloyed products are indicated with an asterisk (*).
- Better corrosion resistance is indicated with an exclamation mark (!).
- Certa Plates (204): Dim 1 (Single)