Hardfacing Product Summary

Assessing the Application:

What size is the media creating the wear problem?

What is the media made of?

At what velocity is the media traveling?

What is the base metal?

What products have been used with moderate success?

What is the product failure risk and does the customer understand the risks?

What is the customer's history and skill with hardfacing?

What welding processes can be used?

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

CAUTIONS:

Fine particle impingement creates enormous wear problems. Example: Sand blasting – never use a carbide product in this kind of application. The fine particles of sand will wear out the soft matrix instead of the carbide.

We do not recommend mixing product classes. For example, putting a Martensitic product over an Austenitic buildup. In rare cases we will mix and match some, but you must be very careful 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.

Impact ← **Determine impact/abrasion balance to determine best product selection.** → **Abrasion**

When comparing products in the same group, use the following codes to help differentiate products.
^ = Higher alloyed product
! = Better corrosion resistance
( ) = Certanium product

	Product Description and Contents	Buildup		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#10	Specialty Products
		General Purpose and Carbon Steels	Multipurpose for All Steels	Austenitic Products	Low Rc Martensitic	High Rc Martensitic	Carbide-Bearing Products								
Applications	General Description	Torch cuttable	Non-torch cuttable, work hardens in use	High Manganese	High Carbon, Heat-Treated		Boron Carbide	Low Chrome Carbide	Titanium Carbide	Moderate Chrome Carbide	Stabilized Chrome Carbide	High Chrome Carbide	Complex Carbide	Tungsten Carbide	Cobalt, Nickel, Chrome, Boron
Applications	Specific	Carbon Steels Hard but easily machinable	Manganese Steel Work hardens in use	Good impact resistance, poor abrasion resistance	Moderate abrasion resistance and high impact	Good abrasion resistance and significant impact	Good abrasion resistance and moderate impact			Very good abrasion resistance, minimal impact	Good abrasion resistance with improved corrosion resistance	Very good abrasion resistance, little impact	Very good abrasion resistance in corrosive environment	Maximum abrasion resistance	High heat, metal to metal
Applications	Specific	Carbon Steels Hard but easily machinable	Manganese Steel Work hardens in use	Large rock crusher rolls	Large crushers	Medium rock crushers	Fine particle wear	Gravel crushers	Fine particle wear	Auger flights	Dredge pumps	Fork lift tines	Coal oven chutes	Earth core drill	-
Applications	Specific	Carbon Steels Hard but easily machinable	Manganese Steel Work hardens in use	Crushing hammers	Hard but machinable applications	Blade edges and debarkers	Screw conveyors	Chutes – Volleyball size rocks	Buckets – Rock and coal	Chutes – Softball size rocks	Screw conveyor	Chutes – Sand, coal, gravel, etc.	Coke pushers	Coal augers	-
Applications	Specific	Carbon Steels Hard but easily machinable	Manganese Steel Work hardens in use	2 foot boulder at 5 foot drop		Leading edge of buckets	Chromium-free hardfacing	Mining truck beds – Small and medium rock	-	Mining truck beds – Dirt and sand	-	-	Cement paddles	-	-
Hardfacing	Brazing Alloys	-	-	-	-	-	-	-	-	-	-	-	-	75	79
Hardfacing	Wire Alloys	VX-GP	7770M-FC (706FC) VX-MP	7109M-FC 777M-FC (282FC) VX-H1	7540M-FC VX-H2	^7500M-FC (281FC) VX-H3	VX-H4	(284FC) VX-H5	VX-H6	VX-H7	VX-H8	7310M-FC VX-H9	7000M-FC VX-H10	-	MAD-H 65 and 75
Hardfacing	Tubular Alloys	-	-	-	-	-	-	-	-	7350 (247)	7370 (248)	7330 7355 (246)	!7230	7220 7222A	-
Hardfacing	Stick Alloys	-	7770, 706	777 7108	-	-	-	711 284	-	-	-	-	7000	-	747
Hardfacing	Plate	-	-	-	-	Certa Plates (200, 201) MarTuff 55	-		-	CronaClad, Dim 1 (Single)	-	MK II, Dim 1 (Double)	-	-	-