Friends of Coal

JADCO is a leading provider and manufacturer of proven protection for impact and abrasion challenges faced by customers worldwide in:

- > Mining
- > OEM
- > Material Handling
- > Asphalt and Road Building
- > Tunneling
- > Concrete and Cement
- > Oil and Gas
- > Power Generation
- > General Industrial
- > Steel Mills and Foundries
- > Pulp and Paper
- > Aggregates
- > Waste and Recycling
- > Dredging

Our QT-PLUS® Wear Steel has up to *3-5 times the wear life* of commodity AR wear steel, making it ideal for a wide range of plates and liners requiring high hardness and tensile strength.

Our CHROMEWELD, a Chromium Carbide Overlay Wear Steel, is a unique material with a consistent chemistry that reduces severe abrasion challenges of liners, plates, hoods, and wear parts.

Our HARDGUARD Wear Steel is an extremely hard, laminated bi-metallic composite with chrome-moly white iron bonded onto a mild steel backing plate. Available in a wide array of shapes, it has a 63 HRC (minimum) alloy hardness and can be custom-designed and fitted to your exact application.

We also design and manufacture Screen Plates, Grizzly Bars, Wear Bars, Plates, Castings, Forgings, and Custom-Fabricated Parts for a multitude of industrial applications.

JADCO

JADCO Manufacturing, Inc.
P.O. Box 465 · Zelienople, PA 16063
phone: 724-452-5252 · fax: 724-452-1318
JADCOMFG.COM

ISO 9001:2008 Certified

JADCO

PROVEN PROTECTION

FOR IMPACT AND ABRASION CHALLENGES

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PROVEN PROTECTION... FOR IMPACT AND ABRASION CHALLENGES

Table of Contents

About JADCO	1
QT-PLUS® Wear Steel	2-3
CHROMEWELD Chromium Carbide Overlay	4
CHROMEWELD 600	5
CHROMEWELD Nb PLUS / CHROMEWELD SHIELD	6
CHROMEWELD COMPLEX / CHROMEWELD GLIDE	7
CHROMEWELD FLOW	8
CHROMEWELD FUSION	9
Duracorr®300	10
RT500 / JADCO 400 - 450 Abrasion Resistant Steel	11
Screen Plates / Grizzly Bars / Wear Bars	12
Buildings	13
Fabricated Parts	14
Fabricated Kits / Castings and Forgings	15
HARDGUARD Wear Steel	16
CORNERSAFE / TRU-TUFF	17

JADCO Manufacturing, Inc.

> Family-owned business, established in 1980

> Is a leading global provider of unique solutions to combat impact and abrasion challenges

> Provides unmatched technical expertise, quality, and customer service

> Offers an unparalleled array of proprietary products to optimize operations

Our commitment to you:

We examine raw materials, work-in-progress, and finished goods to ensure that everything we manufacture is to your precise specifications. Our technical support team will work directly with your designers and engineers, using Autocad™ and SolidWorks®, to plan every project detail. Our design and fabrication expertise delivers genuine value to you no matter what your objective: increased tonnage, superior wear life, or reduced maintenance costs. We will take the time to understand and help solve the performance and operational challenges that you face while helping you maximize profits and productivity.

Industries Served:

> Mining
> OEM
> Material Handling
> Asphalt and Road Building
> Tunneling
> Concrete and Cement
> Oil and Gas
> Power Generation
> General Industrial
> Steel Mills and Foundries
> Pulp and Paper
> Aggregates
> Waste and Recycling
> Dredging

If you're looking for an industry that isn't listed above contact JADCO and learn more about solutions to solve your greatest wear challenges.

PREMIUM QUALITY THROUGH HARDENED WEAR STEEL WITH UP TO 3-5 TIMES WEAR LIFE OF COMMODITY AR WEAR STEEL

QT-PLUS® Wear Steel

JADCO QT-PLUS® wear steel, a company exclusive, combines a specific chemistry with a unique thermal heat-treating process. Result: a premium-quality grade of alloy steel unmatched in the industry, with up to *3-5 times the wear life* of commodity AR Wear Steel.

Parts made from QT-PLUS® not only provide outstanding resistance to abrasion (500 BHN) and wear, but are amazingly ductile.

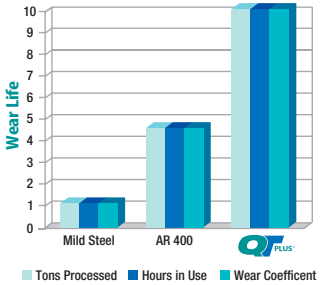
Individual Plates Available

QT-PLUS® steel plates come in a variety of standard or cut-to-size dimensions. JADCO stocks plate in sizes from 1/4" up to 5" thick.

Why QT-PLUS®?

	QT-PLUS® Wear Steel	Commodity AR Steels
Weldability	Excellent	Poor (due to high carbon content)
Toughness	Extreme	Moderate (due to little or no alloy)
Through-Hardness	Excellent	None
Consistent Properties	Uniform	"Hard" and "Soft" Spots (due to improper heat-treating)
Quality Parts	Made Under Strictest Standards	Often Warped or Wavy (making installation difficult)
Fabrication	User-Friendly	Difficult

QT-PLUS® VS. AR 400 & MILD STEEL



Typical Applications:

- Wear Plates
- Breaker Plates
- Truck Bed Liners
- Bin Liners
- Sprockets
- Flume Liners
- Impact Plates
- Mixer Paddles
- Rock Crusher Liners
- Screens
- Nose Plates
- Bucket Lips
- Hopper & Bin Liners
- Fan Blade Liners
- Cyclones
- Skip Car Liners
- Cone Liners

1/4" up to 5" thick in stock

Mechanical Properties:

Hardness – Thickness <1" – 461/537 BHN
Thickness >1" – 444/514 BHN
Tensile (typical) – 225,000 psi
Elongation in 2" – 11% (typical)
Charpy V – 20 ft/lbs @ -40°F (typical)
Yield (typical) – 165,000

TYPICAL CHEMISTRY

C	Mn	Ph	S	Si	Ni	Mo	Cr	B	H
.24/.26 max.	1.0	0.035 max.	0.005 max.	0.55 max.	1.0	0.25	0.5	0.003 max.	<4 ppm

Percentages Shown

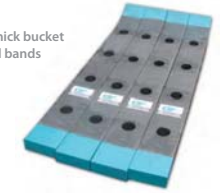
Fabrication Facts

Machining: With proper tooling and speeds, QT-PLUS® can be machined and drilled using conventional methods. Please contact your JADCO representative to discuss your specific requirements.

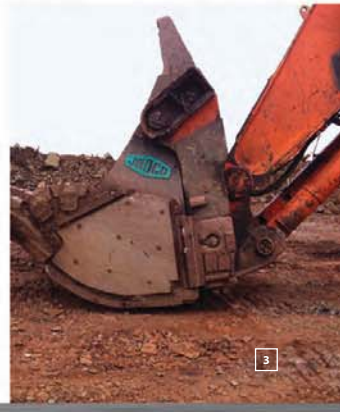
Welding: Rods should be dry-welded on a moisture-free surface. Pre-heating is preferred to reduce thermal shock (250° is a rule of thumb). Use E7018 or E8018 weld rod. If no pre-heat is possible, a 309 stainless rod is preferred. Welds in restraint should be avoided.

Flame Cutting: QT-PLUS® is easily flame cut with oxyacetylene or plasma. Hardening will occur at the edge of the cut, and it's beneficial to pre-heat before flame cutting (350°F) or allow enough stock to get below the hardened edge.

Bending: QT-PLUS® is cold-formable with the proper equipment. The material's toughness enables it to be rolled or formed for almost any application. We recommend 8T across the grain and 12T with the grain. Transverse to the grain is preferred.



3" thick bucket heel bands



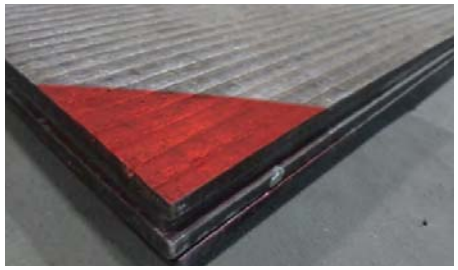
CHROMEWELD
PREMIUM OVERLAY PROTECTION

HEAVY-DUTY CHROMIUM CARBIDE OVERLAY STANDS UP TO THE TOUGHEST, MOST DEMANDING ABRASION WEAR CONDITIONS

JADCO's CHROMEWELD Family has continued to evolve and grow over time. With our proprietary chemistry and manufacturing processes, we continue to strive to meet all your abrasion needs.

Our products are used in a wide range of applications, from mobile equipment liners to fraq sand transportation. CHROMEWELD has met those needs with a variety of overlay materials including plates (600), pipes (FLOW) and wire (FUSION).

Each grade of CHROMEWELD is developed to meet a specific wear application. Whether that challenge is extreme abrasion (Nb PLUS), combating corrosion and abrasion (SHIELD) or fighting those ultra-demanding conditions (COMPLEX), JADCO's CHROMEWELD series will be able to meet your application. The unique chemistries allow for uniformity of the overlay, yet enough customization to meet the needs of each application head on.



Underground and above ground mobile equipment along with power plants, cement plants, asphalt plants, steel mills, and coal preparation plants are among the many industries that provide ideal conditions for the use of CHROMEWELD wear plate.

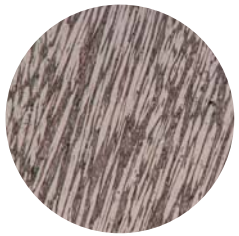
Key Benefits:

- More cost-effective solution when compared to traditional abrasion-resistant steels.
- Superior impact resistance and performance in elevated temperatures.
- Low maintenance cost and easy installation.

Typical Applications:

- Continuous & Longwall Miner Parts
- Chutes & Hopper Liners
- Screen Plate
- Skirt Boards
- Screw Conveyor Flights
- Mobile Equipment Liners
- Drag & Shovel Bucket Liners
- Haulage Systems
- Truck Bed Liners
- Fan Blades
- Cheek Plates
- Washer Bottoms
- Chipper Hoods

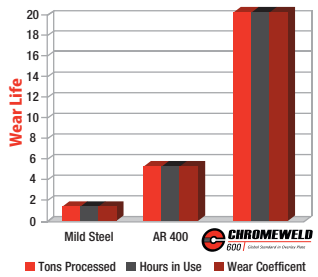
CHROMEWELD 600 | Global Standard in Overlay Plate



Micro Etched @ 50X

The JADCO process produces a mircostructure consisting of fully austenitic matrix filled with primary carbides. This structure provides outstanding abrasion resistance in the most challenging applications.

CHROMEWELD VS. AR 400 & MILD STEEL



TYPICAL CHEMISTRY				
2-Layer Deposit				
C	Cr	Mn	Si	Fe
4.5 – 6	25 – 30	2 – 3	1	balance

Percentages Shown

CHROMEWELD 600 Overlay

A premium grade of chromium carbide wear plate. Produced with a mild steel (A36) base plate and hardfaced/overlayed with our unique proprietary JADCO CHROMEWIRE.

Displays excellent abrasion resistance and will withstand continuous moderate impact. The plate maintains abrasion resistance in operating temperatures up to 1100°F.

CHROMEWELD 600 typical hardness ranges from 58-62 HRC based on weld deposit thickness. The surface of the plate exhibits numerous hairline cracks that are essential to the performance of the plate and enable it to be formed, bent, and rolled without damage.

Standard plate size is 90" wide x 120" long. Standard thickness range from 1/8" on 1/8" (.25") through 1/2" on 1" (1.5"). As with all our products, custom is standard at JADCO. Many other thicknesses and grades are available.

Specific overlay solutions can be customized to meet your abrasion challenges.

SPECIALTY APPLICATIONS

CHROMEWELD Nb PLUS

Niobium carbide overlay plate engineered for fine particle and extreme abrasion

CHROMEWELD Nb PLUS

CHROMEWELD Nb Plus is a Niobium (Nb) carbide overlay plate optimized for fine particle and extreme abrasion. CHROMEWELD Nb PLUS weld deposit consists of primary chromium carbides compiled with niobium carbides in an austenitic matrix.

By comparison, CHROMEWELD Nb PLUS contains a more abrasion resistant deposit to traditional chrome carbide plates. Depending on the specific environment, wear life can be extended 30-60%. This plate also offers better wear resistant at elevated temperatures due to its enhanced chemistry. These plates exhibit high hardness, typically in the range of 63-68 HRC. Standard plate size is 90" wide x 120" long. Standard thicknesses range from 1/8" on ¼" (.375") through ½" on ½" (1").

Austenitic Matrix

TYPICAL CHEMISTRY					
2-Layer Deposit					
Carbon	Chromium	Manganese	Silicon	Iron	Niobium
C	Cr	Mn	Si	Fe	Nb
4– 6	20 – 26	0 – 1	0 – 2	balance	6 – 8

Percentages Shown

CHROMEWELD COMPLEX

Complex-Carbide Overlay Plate for Ultra-Demanding Conditions

CHROMEWELD COMPLEX

is an overlay plate consisting of small primary chromium carbides, and secondary Niobium and Vanadium carbides for ultra-demanding conditions. The high concentration of small carbides greatly improves wear resistance and toughness over standard chromium carbide plate.

CHROMEWELD SHIELD

Specially Blended Overlay Plate to Combat Corrosion and Abrasion

First developed to combat the harsh conditions of the oil fields in Canada, **CHROMEWELD SHIELD** is specifically designed to resist erosion and corrosive environments. SHIELD has a standard HRC of 60-65, but corrosion resistance will depend on the corrosive medium.

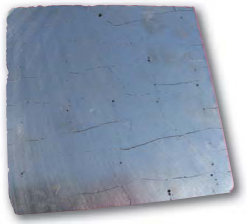
CHROMEWELD GLIDE

Ultra smooth surface to enhance material flow

CHROMEWELD GLIDE

CHROMEWELD GLIDE is a polished, non-stick surface produced to minimize or eliminate material adhering to the surface.

The low coefficient of friction allows for reduced sticking or carryback in a variety of applications such as chutes, hoppers, mobile equipment and truck box liners.



CHROMEWELD GLIDE CHROMEWELD 600

CHROMEWELD FLOW

Optimum-Performance Wear Pipe

CHROMEWELD FLOW

CHROMEWELD FLOW is a unique piping system that is ideal for material movement with high levels of abrasion resistance.

The JADCO process produces a microstructure consisting of fully austenitic matrix filled with primary carbides. This structure provides outstanding abrasion resistance in the most challenging applications. Standard wall thickness range from 1/8" through 3/8".

- Diameters are available from 5" to 48"
- Hardness 52-56 HRC
- Flanges available per application
- Abrasion resistant up to 1100°F

Different Types of FLOW

Straight

T-Pipe

Elbow

Y-Pipe

CHROMEWELD FUSION

Hardfacing Wire and Electrodes for Ultimate Weld Protection

CHROMEWELD FUSION-AP

is an all-position, gas shielded hardfacing wire designed for general purpose use. The deposit is a specially formulated wear resistant alloy which produces a uniform distribution of small primary carbides in a martensitic matrix. AP boasts greater wear resistance over other solutions.

FUSION-AP possesses excellent resistance to impact and plastic deformation. The material is characterized by a high hardness and excellent wear resistance. FUSION-AP is recommended for parts where cross checking is undesirable. FUSION-AP offers improved weldability over chromium carbide and many other welding wires.

Available in 30 lbs. Fiber Spool | .045" Diameter

Primary applications for **FUSION-E** involve severe abrasion with moderate to heavy impact. It is normally used for earth-to-metal wear or wear due to abrasion of other particulate material. FUSION-E is a solid cored electrode with a heavy extruded coating which contains the alloying elements.

It can be applied out of position. Deposits are uniform with excellent bead appearance and slag removal. FUSION-E bonds readily to carbon, low alloy, and manganese steel. It develops surface checks and is not machinable or forgeable. Compressive strength is very high.

Available in 10 lbs. Vac Pak | 5/32" Diameter

CHROMEWELD FUSION-GO

is a unique chrome free hardfacing wire, meant for particularly high abrasive wear and moderate impact applications. Being chrome-free there is no hexavalent chromium produced by the welding wire when being used, eliminating health concerns.

The special formulation allows you to produce excellent abrasion resistance in a single layer. It can be applied to carbon, low alloy, or manganese steels and can be used in hot wear applications up to 1100°F. No shielding gas is required for this welding wire making it a convenient material to work with. CHROMEWELD FUSION-GO hardfacing wire is formulated to be used in applications where sand and earth are the main wear material.

Available in 30 lbs. Fiber Spool | .045" Diameter

Duracorr® 300

JADCO Manufacturing is an approved reseller of **Duracorr® 300.** Duracorr®300, is a low carbon, 12% chromium stainless steel which is produced to a nominal hardness of 300 BHN, for applications where both abrasion and corrosion resistance are required. Improved dent resistance is a strong attribute for Duracorr®300 over the other stainless steels.

Typical Applications:

- Truck Liners (including Salt)
- Coal Processing
- Paper Mills
- Power Plants
- Quarry Chutes
- Storage Bins
- Dry Docks
- Fertilizer Handling and Storage

TYPICAL CHEMISTRY								
maximums unless a range is shown								
C	Cr	Mn	S	P	Si	Ni	N	Mo
0.025	11 – 12.5	1.5	0.010	0.040	0.70	1.00	0.030	0.20 – 0.35

Percentages Shown

RT500 RAZOR TUFF

RAZOR-THIN WEAR PROTECTION FOR SUPERIOR ABRASION RESISTANCE

RAZOR TUFF Wear Steel

As a JADCO 500 BHN wear steel, **RT500** is intended for applications requiring a combination of high abrasion resistance but yet maintain weldability. Available in 1/8" or 3/16" thicknesses, it is produced to achieve a fine-grain and clean microstructure with low levels of non-metallic inclusions.

Size Ranges*:

Thickness – 1/8" and 3/16"

Dimensions – 60" width x 120" length

* Other thicknesses and sizes available upon request.

Mechanical Properties:

Surface Hardness – 470 BHN – 535 BHN (target: 500 BHN)

Methods – Mechanical tests in compliance with ASTM A370 (latest version).

Frequency – Test material per heat, per size, and per heat-treat load.

JADCO 400 & JADCO 450

Both JADCO 400 and JADCO 450 are superior steels designed for moderate to high abrasion and impact applications. Due to the heat-treating process and chemistry JADCO 400 and JADCO 450 yield a lengthier server to the end user than mild steel. With a low carbon and alloy content their properties allow for great capabilities weldability and forming.

INCREASED PRODUCTIVITY FEWER CHANGEOUTS LESS DOWNTIME

Screen Plates

JADCO offers custom-designed screen plates for efficient screening in a variety of applications, including mining/aggregate and general industry.

Produced with JADCO QT-PLUS®, these plates provide *up to 3-5 times the wear life* of commodity AR Wear Steel used for screen applications. Result: a premium-quality grade of alloy steel unmatched in the industry, with up to *3-5 times the wear life* of commodity AR Wear Steel used for screen applications. That means a significantly greater return on your screen investments.

As the applications range for metal screens increases, JADCO's ability to design and fabricate virtually any opening, using high-definition plasma, enables us to quickly deliver custom or standard screen plates.

Grizzly Bars

Don't compromise. Use JADCO QT-PLUS® grizzly bars to protect your grates and other equipment.

We produce high-impact and abrasion-resistant grizzly bars in round, flat, square, and custom shapes. These can be produced to any length and weight you require.

Manufactured with our proprietary QT-PLUS® steel plate, our grizzly bars offer up to *3-5 times* the wear life of commodity AR Wear Steel.

JADCO grizzly bars are especially suited to heavy-duty, high-capacity applications.

Wear Bars & Plates

Wear bars and plates made with QT-PLUS® premium steel combine the ductility of 400 BHN with the abrasion resistance of 500 BHN. These products are designed to combine hardness and toughness with ease of machining and fabrication. They offer up to *3-5 times the wear life* of AR Wear Steel bars and plates.

JADCO wear bars and plates come in custom thicknesses and widths. Also, 24 - to 48-hour emergency service is available.

Typical Applications:

- Chip Drag Conveyors
- Guide Bars
- Chain Returns
- Transfer Bars
- Conveyer Wear Bars
- Hold Down Bars
- Rambo Bars
- Chock Blocks

BUILDINGS SUITED TO YOUR FACTORY PERSONNEL AND STORAGE NEEDS

TekBuilt JADCO STEEL BUILDINGS

TekBuilt Pre-Assembled Buildings

JADCO manufactures TekBuilt custom steel enclosures to fit most application control building needs.

Our modular buildings provide a cost-effective solution for personnel space requirements. From control rooms to security booths to work trailers and office buildings, our enclosures always work for you. Your particular enclosure may be standard or we'll custom-design one based on your specifications.

Modular Building Products

JADCO offers a variety of modular building products, even modular/panelized buildings for personnel and storage applications. We can custom design and install an office, clean room, or computer room, to fit your needs.

Tool cribs, robotic enclosures, and safety gates are just a few of the uses for JADCO wire fence partitions. We also provide platforms, stairs, and mezzanines for production and storage applications.

JADCO

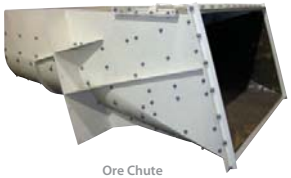
NO MATTER THE SIZE, NO MATTER THE QUANTITY, LOOK TO JADCO FOR QUALITY FABRICATION

Heavy Steel Fabrication

JADCO is a high-tech steel fabricator, employing the latest technology and manufacturing processes to make the finest steel products available. We pride ourselves on being able to provide total solutions on most projects. We maintain a full complement of fabrication equipment and can handle complex jobs, including hoppers, troughs, and sumps in standard and special sizes.

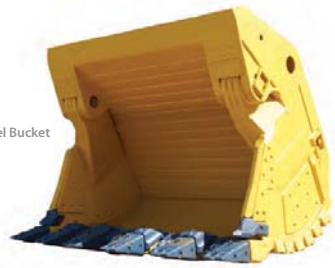
Whether it's a custom or large production run, we're committed to meeting your fabrication needs.

Hydraulic Shovel Bucket



Ore Chute

Hydraulic Shovel Bucket



Design Capabilities

To ensure complete customer satisfaction, JADCO provides support for product design and development. By helping our customers in the development of their products, we hope to build lasting relationships and trust.

Services:

- > Oxyfuel & High-Definition Plasma Cutting
- > Forming & Plate Rolling
- > Full Weld Shop – AWS D1.1 Certified
- > Machining
- > Saw Cutting
- > Painting
- > Assembly
- > Logistics

Fabrication Facts

Hardfacing: JADCO specializes in hard surface coatings that apply overlays to existing parts to protect against abrasion and corrosion.

Rolled & Welded Parts: We supply a variety of rolled and welded parts, from thin gauges through 8-inch thick steel.

Burnouts: JADCO manufactures precision-made parts using the latest technology including: high definition plasma, oxyacetylene, and water-jet.

QT PLUS®

CHROMEWELD PREMIUM OVERLAY PROTECTION

FABRICATED KITS SUPPLIED TO YOUR SPECIFICATIONS

Kit examples include truck liner packages, chutes, hoppers and conveyors, dipper buckets, and dragline buckets.

Kits

We also offer complete fabricated kits – made to almost any specification or requirement. Our unique capability to produce custom-component parts enables us to provide, for example, wear-liner packages for buckets and chutes, including installation diagrams and identification tags to eliminate any guesswork by your on-site crew. Bearings, paint, and hardware can be part of the package, too, if needed.

Parts can be manufactured individually or shipped together for final assembly.

CHROMEWELD PREMIUM OVERLAY PROTECTION

QT PLUS®

CASTINGS AND FORGING SOLUTIONS FROM BASIC STEELS TO COMPLEX ALLOYS

JADCO utilizes an extensive network of world-class foundries and forging facilities to provide flexibility for casting and forging requirements in a vast array of alloy types, although specializing in wear and abrasion applications.

JADCO can supply castings ranging in size from a few ounces to more than 30,000 lbs. Forgings are available up to several hundred pounds as forged and can be rough-machined or machined complete per specifications.

Available Materials:

- > Carbon Steel
- > Low Alloy Steel
- > Stainless Steel
- > Grey Iron
- > Ductile Iron
- > Manganese
- > Ni-Hard

HG HARDGUARD WEAR BLOCKS FOR THE HARSHEST, MOST ABRASIVE OPERATING CONDITIONS

HARDGUARD Wear Steel

JADCO HARDGUARD blocks, available in a wide array of shapes and sizes, are an extremely hard, laminated bi-metallic, wear-resistant composite with chrome-moly white iron bonded onto a mild-steel backing plate. Its bonding shear strength is over 30,500 psi (or 210 Mpa) and will not separate.

To ensure that our blocks have finely dispersed microstructure and ultra-consistent properties versus most competitive brands, we conduct rigid post-bonding heat treatment. Our alloy hardness (63 HRC, at a minimum) delivers maximum abrasion protection, while the steel backing plate absorbs high impact and facilitates ease of fitting and use. We do not recommend HARDGUARD block applications in working temperatures over 572°F (300° C).

In addition, our blocks can be custom-designed to your exact application. Each block is quality-tested… and regularly subjected to thorough chemical, microstructure, visual, hardness, ultrasonic, and destructive examinations.

Typical Applications:

- Buckets
- Spider Arm Guards
- Discharge Chutes
- Rock Boxes
- Grizzly Bars
- Sugarcane Knife Edges
- Adapters & Attachments
- Dredging Equipment
- Screen-Feed Distribution
- Hoppers

HARDGUARD Types:

- HardChoc – Chocky Bars
- HardBar – Standard
- HardBar – Shaped
- HardEdge – Knife Edges
- HARDGUARD Buttons
- HARDGUARD Donuts
- HardRoll – Roll Bars
- HardTip – Shredder Tips
- HardBoom – Boomerangs
- HardPlate – Wear Plates
- HardSkid – Skid Bars

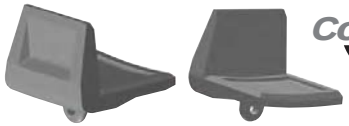
HardChoc – Chocky Bars

HARDGUARD Buttons & Donuts

CORNERSAFE WELD-ON BUCKET GUARDS

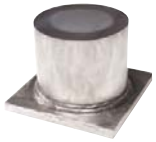
With a 300 plus BHN hardness, CornerSafe Weld-on Bucket Guards are made to protect against the harshest environments and materials. CornerSafe is designed to take the wear and abuse seen in the most demanding applications to ensure your bucket's durability is maintained.

Not only will CornerSafe protect these high wear areas, but they are easily field welded to minimize equipment downtime and unnecessary bucket repairs or replacements. Multiple sizes are available for both shovel and loader styles to fit almost every application.



CornerSafe

OUR PROPRIETARY HEAT-TREAT PROCESS ENSURES OPTIMAL HARDNESS AND DUCTILITY FOR EVEN THE MOST DEMANDING APPLICATIONS



Through our proprietary heat-treat process, we are able to ensure that we have optimal hardness and ductility for even the most demanding applications.

JADCO's specifically designed pins are used to achieve maximum protection and wear life. Because each one is custom fit for the application, TRU-TUFF products will assist in increasing productivity by providing longer periods of uptime.

TRU-TUFF PINS