

# UNICAST

REDEFINING WEAR PARTS

A DECISIVE DIVIDEND COMPANY (TSXV:DE)

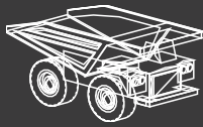
INNOVATIVE WEAR PARTS  
WITH OUTSTANDING  
WEAR LIFE

*Cast replacement wear parts*

**THE BENCHMARK FOR  
SUPERIOR WEAR PARTS**



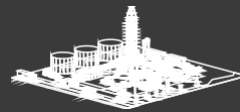
**AGGREGATES**



**MINING**



**CEMENT**



**OIL & GAS**



**COAL**

Proudly Canadian, Unicast designs, assembles and distributes world-leading, high-quality wear parts for the aggregates, mining, cement, oil and gas, and coal industries.

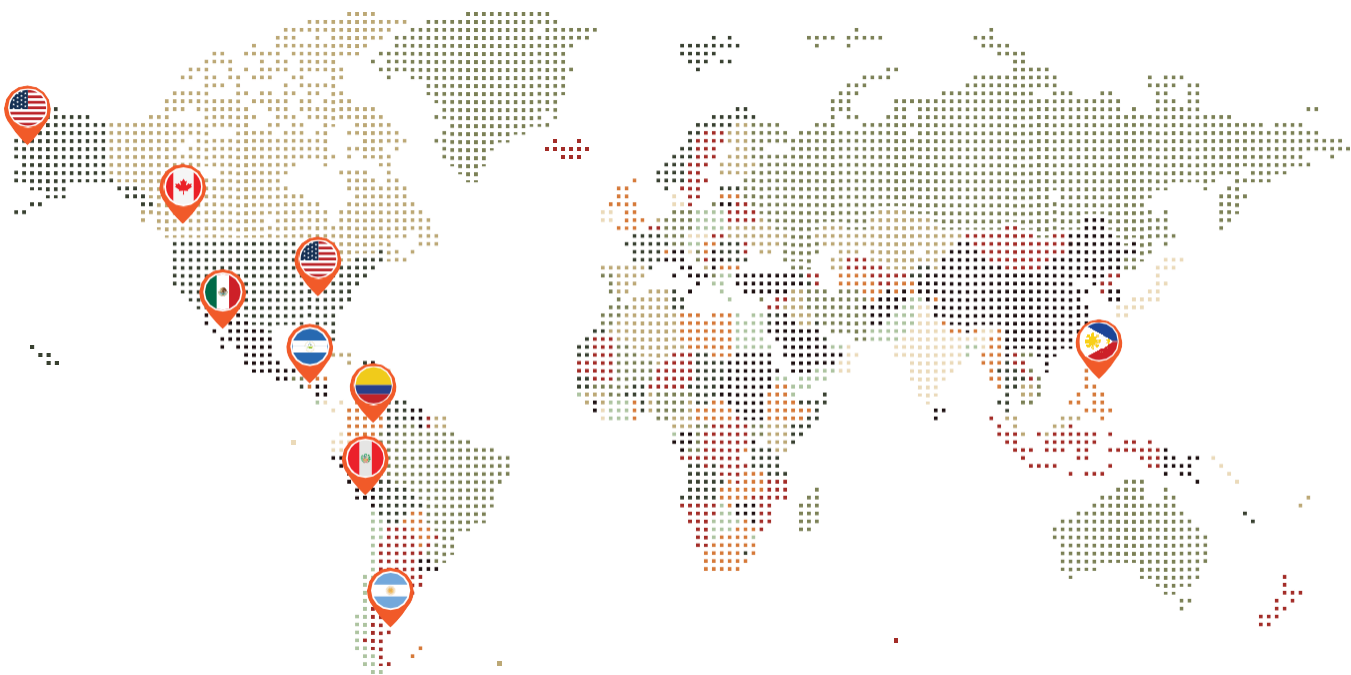
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*Unicast sells to distributors, process plants, and mine sites worldwide.*

# Unicast Global Presence



We are based in Western Canada with representatives throughout Canada, USA, Latin America, Europe and Asia. Unicast parts are used worldwide in the mining, aggregates, cement, oil & gas and bulk material handling industries.



World-leading & high-quality wear parts.

# About Unicast

 *The world's longest lasting wear parts.*

For over 30 years, Unicast's mission has remained the same: **To respond to industrial wear part challenges and deliver innovative wear parts and engineered solutions with outstanding wear life.**

Extreme temperatures, high-impact work, and tough materials wreak havoc on wear parts. The frequent replacement and maintenance of these parts waste huge amounts of time and money. Unicast helps cut down on costs and makes maintenance staff's job easy by providing wear parts that can withstand even the most abrasive conditions and materials.

Unicast wear parts last longer than other products on the market and are easy to install and maintain. This minimizes downtime while maximizing operations' profitability.

Founded in 1994, Unicast is a subsidiary of Decisive Dividend Corporation, a growing and publicly traded company on the TSX Venture Exchange under the symbol 'DE'.

Unicast sells to distributors, process plants, and mine sites worldwide. Based in Kelowna, British Columbia, Unicast works across multiple continents in the mining, cement, oil, gas, aggregates, and coal industries.



## Capabilities



### OEM REPLACEMENT CASTINGS

Our capabilities range from investment castings a few grams in weight to sand castings weighing several tonnes.



### QUALITY CONTROL

Unicast prides itself on its rigorous quality control procedures such as partner foundry reports, materials characterization, and much more!



### METALLURGY

We offer multiple cutting-edge, secondary materials that enhance the durability and quality of products.



### FOUNDRIES

Unicast products are engineered by our dedicated team of in-house engineers in British Columbia and manufactured by our partner network of global foundries.

# Crusher Wear Parts

## JAW CRUSHER

Unicast's Jaw Crusher wear parts are cast to last, with a customized fit.

Available for aggregates, cement, and mining industries. Parts designed to improve efficiency and reduce costs by extending wear life and minimizing downtime.



M2, M19, and M22 alloys surpass OEM jaw crusher replacement wear parts.

Custom fit for greater performance and easier replacement.

Titanium Carbide (TiC) options for incredible wear life.

Personalized service by a team of experienced engineers.



See page 10 for case study



## CONE CRUSHER

Unicast's Cone Crusher parts are designed to improve efficiency and reduce costs by extending wear life and minimizing downtime.



## GYRATORY CRUSHER

Unicast's Gyratory Crusher wear parts feature unique design improvements to extend wear life.



## ROLL CRUSHER

Our engineers get to know your specific needs through a one-on-one consultation and customize a best-fit solution for your application.

# Metallurgy

Unicast has been at the forefront of metallurgical innovation for decades. We offer multiple cutting-edge secondary materials that enhance the durability and quality of products while providing extra protection against abrasion and high-impact wear. Unicast prides itself on its rigorous quality control procedures during R&D and manufacturing stages, aided by advanced research in university laboratories.

# Valves & Pipes

## DIVERTER VALVES

With an industry leading 25-year warranty, Unicast Diverter Valves and Split Modular Valves set the standard for inline maintenance and durability. Unicast's family of valves provides cost savings and minimized downtimes for bulk material plants around the world. Single-handedly perform routine maintenance in 4-hours or less. Valves are available in multiple sizes and actuation options including manual, pneumatic and motorized.



30-degree and 45-degree angled outlets available.

Ceramic liners in outlets.

Right-left convertibility

Large access panel maintenance.

One-piece seat with two bolts.



## UNIBALL 3-WAY CHECK VALVE

Perform regular maintenance on the UniBall Converging Valve without removing it from the pipeline.



## CERAMIC-LINED SLURRY VALVES (CLV)

The CLV is designed specifically for the transport of slurry.



## SHUT-OFF VALVES

Total protection in abrasive environments. Less downtime.



Titanium Carbide (TiC) inserts added to the original alloys has shown to significantly increase the wear life and durability up to 7.5x.



Tungsten Carbide (WC) metallurgy mixes tungsten particles into the primary casting metal, resulting in extremely tough wear parts.



Unicast's Ceramic Reinforced Alloy (CRA) products last up to 10x longer than their traditional alloy counterparts.

# Impactor Wear Parts

## HORIZONTAL SHAFT IMPACTOR (HSI)

Unicast's HSI Crusher wear parts are designed for the longest usable wear life for significant cost savings. Unique design features combine with proprietary high-strength alloys for greater reliability and bottom lines.



Superior design, HSI Blow Bars deliver up to 7x wear life for significant cost savings.

Allows for plant maintenance team to rotate the bar 3x.

Available in material options to suit your application (high-strength alloys, manganese, TiC, and CRA).



See page 10 for case study 

## VERTICAL SHAFT IMPACTORS (VSI)

Get the longest wear life between changeouts. Trusted product in the aggregates and mining industries.



## HORIZONTAL SHAFT IMPACTOR LINERS (HSI)

HSI wall liners, side liners, and apron liners deliver outstanding wear life.



# Mill Wear Parts

## ROLLER MILL WEAR PARTS

Unicast supplies replacement castings for roller mills, including roller wear segments, roller mill wear liners, table segments, roller wheels/tires, ported air rings, bearing housings, and roller mill bases.



Perfect fit design for worry-free changeouts.

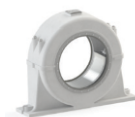
Different materials and welding options available.

## BALL MILL/SAG MILL WEAR PARTS



### SHELL & HEAD LINERS

Cast in materials ranging from chrome-moly steels to high chrome white iron.



### DRIVERS, GEARS, PINIONS, BEARINGS

With infield measuring with a high accuracy 3D scanner, we can reverse engineer your existing wear parts.



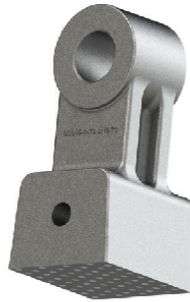
### GRATES & SCREENS

Our headliners, partition, and discharge grates are designed for efficient mill performance with reduced maintenance needs.

# Hammermill Wear Parts

## TIC HAMMERS

Unicast Hammers with TiC inserts deliver outstanding durability and strength where needed. Our successful hammer design cast in M2-M19 alloy is even tougher with TiC columns embedded within the hammer's high impact zone.



Fewer changeouts and more uptime.

Decreased downtime reduces maintenance and operation costs.

Hammer body is cast in durable manganese steel (M2-M19) that gets harder the longer you work it.

More consistent wear profile for uniform product output.



See page 11 for case study.



## ALLOY HAMMERS

Tough. Durable. Cost-efficient. Unicast offers design and wear life analysis with three common alloys for improved wear life: M2 with WC insert and WR1 cast quench and tempered alloy steel.



Made to exceed OEM standards.

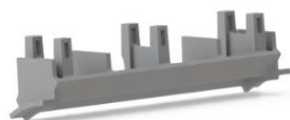
Efficient cast design is superior versus other hammers prone to deforming and cracking.

Stronger alloys deliver longer wear life and fewer part changeouts.



## CAGE ASSEMBLIES & GRATES

A Unicast innovation designed to save time and hassle. Save time with a cast block of cage bars for quick and easy installation.



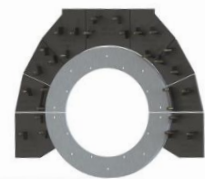
## BREAKER BLOCKS

Unicast Breaker Blocks are cast in manganese steel for improved wear life and decreased costs.



## CRUSHER ROTOR ASSEMBLIES

One-piece cast disks in wear-resistant WR3 for longer wear life. Crusher rotor assemblies are precision balanced to eliminate vibration.



## END LINERS

Unicast Hammermill End Liners are cast to include welded supports and bolt protectors for longer wear life.



# Cooler Wear Parts

## DRAG CHAIN

Unicast Drag Chains are the industry choice for a wide range of heavy-duty applications where superior strength and abrasion resistance are needed.

The Unicast casting process enables the design of many wear protective features.



Two choices of alloy to suit your application.

Chromium carbide overlay to extend chain wear life.

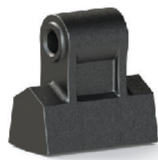
One-piece casting produces a more consistent, solid chain links with no welds to fail.

Multiple performance features designed to increase longevity.



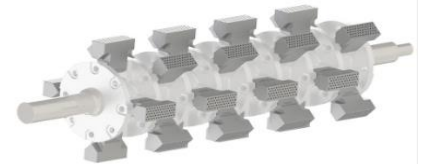
## COOLER GRATES

Unicast Cooler Grates are available in a variety of styles: RFT, CFG, and flat panel grates. They are precision cast using high integrity molding methods producing an excellent surface finishing and absolute dimensional control.



## CLINKER BREAKER HAMMERS

Made in a manganese steel with controlled carbon-manganese ratio for optimum high temperature impact resistance.



## CLINKER BREAKER ROTORS

Precision balanced for optimum wear life. Our rotors are designed with an extra set of pin holes to allow for repositioning of the hammers when the holes wear. Designed to reduce replacement costs and downtime.

# Grizzly Panels

## GRIZZLIES

Unicast Tapered Grizzly Panels are cast in one-piece for extreme impact applications.



Cast in a high-strength alloy is made to perform over the long haul.

Self-cleaning tapered openings, and pre-drilled for quick installation.

Cast in one-piece.

See page 11 for case study





# Feeder Wear Parts

## APRON FEEDER PANS

Unicast Apron Feeder Pans are cast for exact fit and outstanding wear life making them a top choice for mining facilities around the world.

Cast using the V-Process molding technique creating accurate dimensions and a good surface finish. The one-piece casting method eliminates failure due to weld cracks—a common problem with traditional fabrication—ensuring greater durability and wear life.



Cast to not crack! No welds which eliminate risk of failure at joints.

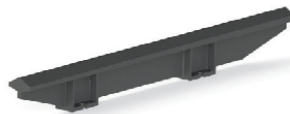
Cast in work-hardening manganese steel (M2), gets stronger the more it's used.

Performance features such as cast grouser and recessed bolt holes extended wear life even further.



## WOBBLER FEEDER BARS

Cast in alloy steel for longest wear life and lower costs. Wobbler bars are customized to suit your specific application. Available in both solid and hollow versions.



## VIBRATING GRIZZLY BARS

Uniquely designed for easy installation. Double tapered to reduce product buildup and feature a rounded surface in high-wear areas for longer wear life.



## CHUTE LINERS

Unicast Chute Liners are cast, which lowers manufacturing costs. The benefits of casting include greater durability, custom designs at a lower cost than fabricated steel plate, and a variety of material options.



# Rotary Breaker Wear Parts

## ROTARY BREAKER SCREEN PLATES

Inspired by hands-on, in-the-trenches frustrations with traditional fabricated breaker screen plates, lifters, and ploughs, Unicast Rotary Breaker wear parts are designed to work for you.



Cost saving, hassle-free design features guarantee quick and easy removal and replacement.

Eliminates common problems of cracking, warping, high maintenance costs, downtime, and man-hours.

# Jaw Plate Wear Life Increase from 3.5 to 30 Days

Unicast supplies mine with TiC Jaw Crusher wear parts to combat extremely hard and abrasive material.



## PRODUCT

M2TiC Jaw Plates.

## APPLICATION

Mining, Jaw Crusher.

## CHALLENGE

Standard manganese jaws wore out in 3.5 days which was not acceptable.

## SOLUTION

Switch to Unicast’s TiC reinforced manganese alloy jaw plates.

## RESULTS

Wear life increased to 30 days for a 8.57x improvement.



*“A great benefit was obtained from the primary crusher because the size of the material feeding the SAG mill was consistent.”*

**MAINTENANCE MANAGER,  
TRITON MINERA**

# TiC Blow Bars Deliver 94% Increase in Runtime

Unicast’s innovative use of TiC inserts nearly double wear life of impactors and blow bars for significant cost savings.



## PRODUCT

80mm TiC M19 Blow Bar.

## APPLICATION

Cement Plant, Horizontal Shaft Impactor.

## CHALLENGE

Crush more limestone before needing to be replaced or rotated.

## SOLUTION

Replace OEM blow bars with Unicast’s TiC reinforced blow bars.

## RESULTS

The TiC Blow Bars delivered a 94 percent increase in runtime.



*“The performance of Unicast’s TiC Blow Bars far exceeded our production expectations, and also translated into a substantial annual labor cost savings.”*

**RELIABILITY ENGINEER CEMENT PLANT  
TEHACHAPI, CALIFORNIA, USA**

## 40mm TiC Hammers Last 2.5x Longer Than Hammers Without

Unicast’s innovative TiC Hammer inserts result in less frequent hammer replacements and significant cost savings.



### PRODUCT

40mm TiC Hammers.

### APPLICATION

Cement Plant, Clinker Cooler.

### CHALLENGE

Improve wear life and avoid unscheduled shutdowns of the kiln due to part replacement.

### SOLUTION

Replace M2 Hammers with applied manual hard surfacing with 40mm TiC Hammers.

### RESULTS

Unicast’s 40mm TiC Hammers outperformed the previous parts by more than 3x.



*“Original hammers only last 11 months. We installed (TiC) hammers two years ago now, running for 20 months, and still going.”*

**SUPERVISOR CEMENT PLANT  
EDMONTON, ALBERTA, CA**

## Grizzly Panel TiC Tips Deliver 89% Reduction in Parts Costs Over 10 Months

Unicast’s replaceable TiC Tips bolt on to a grizzly panel’s high-wear zone and significantly mitigate wear on the grizzly panel body.



### PRODUCT

Replaceable TiC Tips.

### APPLICATION

Limestone Quarry, Grizzly Panel.

### CHALLENGE

Mitigate downtime and decrease maintenance costs incurred by frequent grizzly panel replacements.

### SOLUTION

Removable TiC Tips were bolted onto the high-wear zone of the grizzly panel.

### RESULTS

Unicast’s TiC Tips decreased part costs by 89 percent in 10 months.



*“Best design out of five companies brought on site to improve our crusher anvil.”*

**MAINTENANCE MANAGER, LIME PLANT  
DELTA, UTAH, USA**

**AUSTENITIC MANGANESE STEEL**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
M5	-	-	1.2	-	-	13	1.0	Drag Chains. High Temperature Applications
M2	(210-230)	ASTM A128 Gr.C	1.2	2.0	-	12.5	-	Crusher Parts. Medium Sections, Hammers
M19	(210-250)	-	1.4	2.0	-	18.0	-	Crusher Parts. High Abrasion, Lower Impact
M22	(230-250)	-	1.3	0.7	-	23.0	-	Special High Abrasion

**CARBON LOW ALLOY STEEL**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
A1	(140-170)	ASTM A27 70-36	0.25	-	-	0.6	-	Mild Carbon Steel, Adjusts to WCB & LCB
CS1	(250-300)	ASTM A148 90-60	0.35	0.7	-	1.1	-	General Purpose Medium Strength Steel
CS2	(275-350)	AISI 4130	0.3	0.9	-	0.5	0.2	Higher Impact Strength Medium Carbon Steel

**WEAR ALLOY STEEL**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
WR1	(min. 45HRC)	-	0.25	1.1	0.7	0.8	0.4	Impeller Bars, Hammers
WR2	(450-500)	-	0.35	1.1	-	1.0	0.4	General Wear, Impact Resistant
WR3	(380-450)	AISI 4140 Modified	0.4	1.2	-	1.0	0.3	Diaphragm, Grate Liners
UI11	(48-57 HRC)	-	1.6	13.0	-	0.5 max	-	Shell Liners

**HEAT RESISTANT STEEL**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
S3	-	ASTM A297 HH	0.4	25.5	12.5	2.0 max	0.5 max	Cooler Grates. High Heat Strength (up to 1800°F)
S4	-	ASTM A297 HK	0.4	25.5	21.0	2.0 max	0.5 max	Nose Ring Segments. High Heat Strength (up to 1900°F)
S5	-	ASTM A297 HN	0.4	21.0	25.0	2.0 max	0.5 max	Improved High-Strength at 1900°F
S8	-	Unicast Proprietary	0.4	25.0	25.0	0.3	-	Cooler Grates & Kiln. High Heat Strength (up to 2300°F)

**STANDARD IRON**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
D1	(185-210)	ASTM A536 65/45/1	3.7	-	-	-	0.6 max	Ductile Iron
HE3	-	-	3.4	0.6	-	-	0.6 max	Heat Resistant Iron

**MARTENSITIC IRON**

	Nominal Hardness HRC (BHN)	Typical Equivalent Standard	Carb	Cr	Ni	Mang	Moly	Remarks & Common Usages
UI15	(min. 52HRC)	ASTM A532 IIB	2.7	16.0	2.5 max	2.0 max	3.0 max	Shell Liners, Impeller Bars
UI25	(min. 58HRC)	ASTM A532 IIIA	2.7	26.5	2.5 max	2.0 max	3.0 max	Shell Liners, Valve, Pump Parts
UN1	(min. 52HRC)	ASTM A532 IA	3.2	2.5	4.0	2.0 max	1.0 max	NiHard Equivalent, Thin Section Castings