



KenCast™

Wear Protection
Proven Solutions

When wear slows,
efficiency grows

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At Kennametal, we understand harsh environments and difficult conditions to which mining equipment and components are subjected. That’s why we work to prevent and reduce the effects that abrasion, friction, impacts, and other types of wear have in these processes.

KenCast is a groundbreaking solution that not only ensures reliable wear protection but also extends the lifespan of your equipment, allowing you to save time and money. Its exceptional durability enables your machines to operate more efficiently and reliably, ensuring peace of mind and boosting production efficiency.

KenCast enables your equipment or infrastructure to resist wear and tear. It has proven its worth not only with mining machines but with their components, too. From the extraction of the mineral to the comminution (pulverizing) stage, Kennametal and its KenCast solution extend the useful life of your equipment.

Versatile in its use, KenCast is the ideal solution for mining parts and plates for transfer systems, hoppers, bucket lips, wear plates, and more.



KenCast™

Unsurpassed Wear Solutions Exclusively from Kennametal



Wear

A small word that describes a big problem. Wear translates to expensive equipment repair and replacement costs and can cause significant downtime.

We understand wear

We understand the importance of preventing wear damage to your equipment. That's why our wear experts developed KenCast.

KenCast helps equipment last longer

Whether you're working above ground or underground, on the road or in the pit, crushing rock or pushing snow. With KenCast protection, you can avoid costly repairs and downtime.

Wear protection for every part

KenCast is extremely versatile and can fit nearly any machine for nearly any application. It is easily welded or attached mechanically into position.



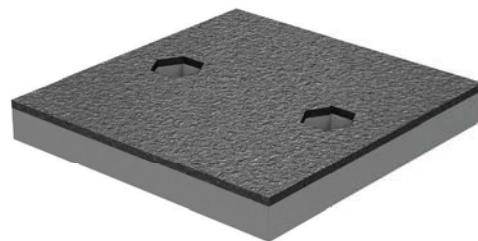
What Is KenCast and How Does It Work?

KenCast is tungsten carbide particles that have been metallurgically bonded to air-hardened steel.

Tungsten carbide is **one of the toughest materials on Earth**, surpassed only by diamond for hardness and wear-resistance properties.

KenCast is proven to withstand extreme abrasive and high-impact applications, and could see a life improvement over standard wear solutions depending on materials and applications.

KenCast is more than rectangular shapes. It's a versatile material that fits most machines and applications, and is easily welded or attached mechanically into position. Simply put, **KenCast is wear protection for your equipment**.



Particle (Grit) Sizes and Applications

Carbide granules give KenCast exceptionally long-lasting protection. Various-sized tungsten carbide particles are blended to create the right combination of carbide protection for a particular application.



Fine
(-12, +18 mesh)



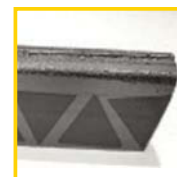
Medium
(-4, +6 mesh)



Standard
(-1/4, +4 mesh)

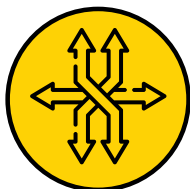


Large
(-3/8, +5/16 mesh)



Preformed
carbide inserts

Key Benefits



Versatility to fit nearly any machine for nearly any application



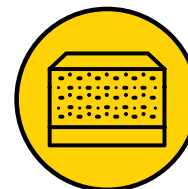
Reduces maintenance, repair, and downtime



Additional protection for your equipment



Easy to apply in the field



Non-layered material

Although KenCast built a reputation on exceptional wear plates and rectangular bars, it continues to provide wear solutions across challenging environments. Our customer base has grown to include applications in manufacturing, agriculture, and even NASCAR®. **Our KenCast experts are looking for new challenges, and can help you with your most challenging wear issues.**

Typical KenCast Uses

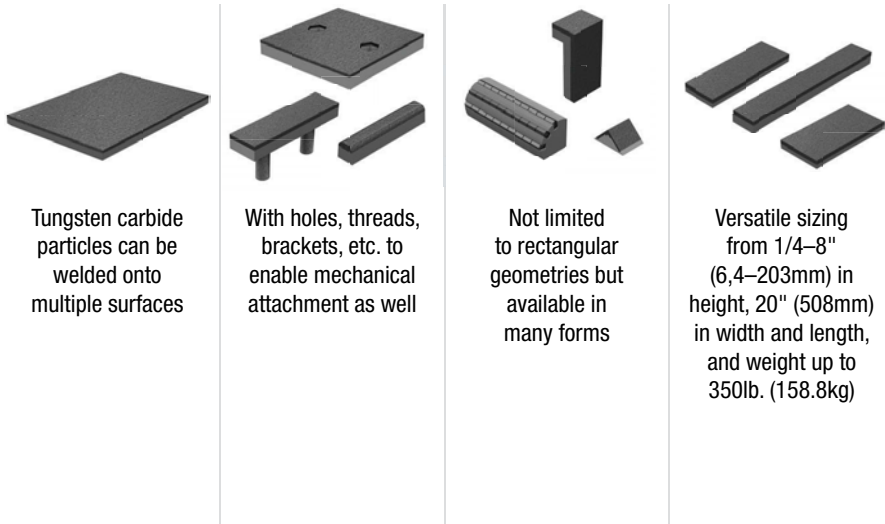
Bucket lips, drill stabilizers, grouser bars, shovel protection, dozer blade wear areas, sugarcane hammers, shingle grinders, grizzly bar screens, chute liners, trenching chains, street sweepers, crushers, sizing equipment, railroad tampers, auger flighting, block protectors, kicker paddles, road maintenance, frame shoes, skid plates, curb guards, and continuous loading arm tips.



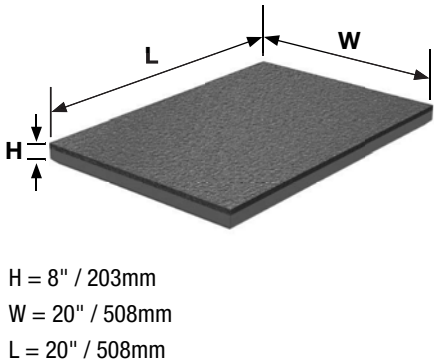
Production Capabilities and Customization

Kennametal produces standard and custom shapes and geometries to solve specific problems. KenCast can also be easily cut with an angle grinder or chop saw for custom sizing.

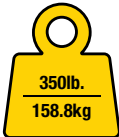
Product Options



Size Capability: Maximum Envelope



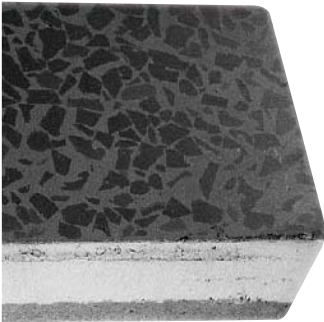
Maximum Weight



Product Versatility

Whether it's sliding, gouging, pushing, or impacting, abrasive wear can add up to costly equipment repair and replacement costs. KenCast can save your operation money by reducing downtime, repair costs, and inventory, while increasing production time — especially if you are hard-facing on a regular basis.

Hardness Range for Composite Ingredients



Tungsten Carbide — 86–91 HRA
Matrix Steel — 52–58 HRC
Base Steel — 38–50 HRC

KenCast is durable and extremely wear resistant thanks to the combination of steel and tungsten carbide.

On the MOHS scale, its hardness is 9–9.5.

MOHS Hardness Scale		
Hardness Scale	Scale #	Mineral
Softest	1	Talcum Powder
	1.3	Asphalt
	1.5	Tin, Lead, Graphite
	2	Calcium, Cadmium, Sulfur
	2.5–3	Gold, Silver, Aluminum
	3	Copper
	4	Iron, Nickle
	4–4.5	Platinum, Steel
	5	Cobalt, Obsidian
	5–5.6	Glass
	6–7	Fused Quartz, Iron Pyrite
	7.5–8	Reinforced Steel
	9–9.5	Tungsten Carbide, Titanium Carbide
	10	Diamond
Hardest		



Successful Solutions for Wear Applications

Machine/Equipment	Component/Part	Type of Wear
Road Maintenance/Construction		
Snow Plow	Snow Plow Shoes Curb Bumpers	Sliding Impact/Sliding
Graders	Plow Blade End Protectors/Guards	Impact/Sliding
Street Sweeper	Sweeper Skid Shoes	Sliding
Steel Wheel Compactor	Sheepsfoot	Abrasion
Railroad		
Tamping Equipment	Tamping Tools Ballast Regulator Z-Bars	Impact/Abrasion Sliding
Grinding/Recycling		
Horizontal Grinder	Grinder Hammer Tips	Impact/Abrasion
Tub Grinder	Swing Hammer	Impact/Abrasion
Aggregates & Quarries		
Track Equipment	Grouser Bar	Abrasion Sliding
Screening	Grizzlies	Impact Wear
Bucket Loaders	Bucket Lips	Abrasion
Crushers/Sizers	Wall Plates Center Feed Disks Weld-On Teeth Conicals Hammers	Impact/Abrasion
Mining		
Longwall Miner	Vane Protection	Abrasion
Continuous Miner	Block and Pedestal Protection	Abrasion
Continuous Loading Arm (CLA)	CLA Tips	Sliding
Surface Mining Buckets	Bucket Lips Skid Plates Heel Bands Wing Shrouds	Abrasion
Tunneling		
Tunnel Boring Machine	Gage & Cutter Face Protection	Impact/Abrasion
Highway Construction		
Road Reclamation	Pedestal Protectors Side Cleaner Bars	Impact/Abrasion
Road Planer/Milling Machine	Kicker Plates, End Ring Protection Drag Shoes Block Protectors	Abrasion Sliding Impact/Abrasion
Foundation Drilling		
Foundation Drill	KenCast Weld-On Bars Block Protectors Scroll Protection Abrasion Resistance Conical	Cutting (Core Barrels)/Abrasion Impact/Abrasive Abrasion Abrasion
Trenching		
Trencher/Surface Miner	Base Plate Protection Block Protectors Pedestal Protectors	Impact/Abrasion
Agriculture		
Tillage	Tillage Tools	Abrasion
NASCAR® Racing		
Race Car	Underside Wear Plates	Sliding

KenCast in Action — Mining Chute Liner Plates

**ORIGINAL
SOLUTIONS
LASTED
15 TO 50 DAYS**

**KENCAST
LASTED
90+ DAYS**

**KENCAST
RESULTS IN THIS
TEST WERE UP TO
10X LONGER**

**UNPRECEDENTED
REDUCTIONS
OF DOWNTIME**

**RESULTING IN
AN INCREASE OF
MORE THAN 30%
ORE PRODUCTION**

See pages 20–21 to learn more about this proven solution.

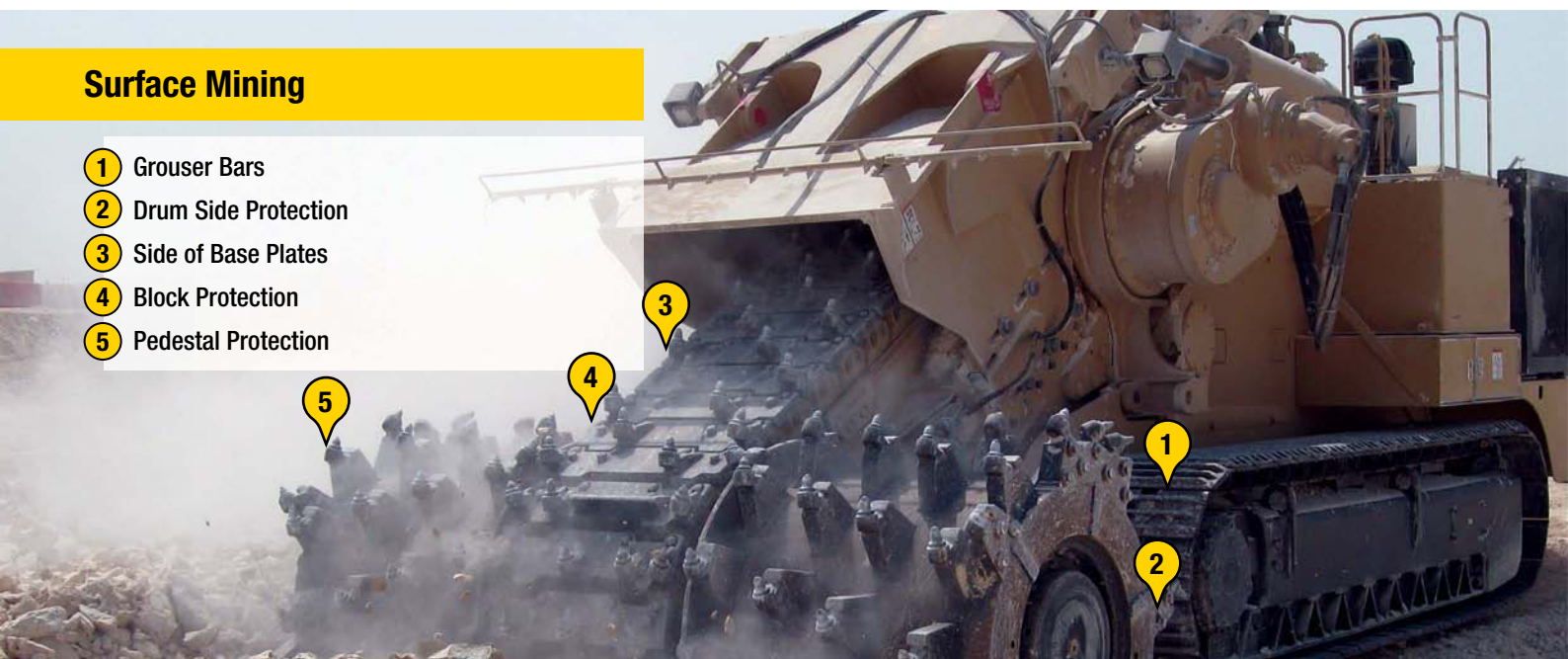
Road Rehabilitation

- 1 Drum Housings
- 2 Base Protectors
- 3 Skis
- 4 Kicker Paddles/End Ring Protection



Surface Mining

- 1 Grouser Bars
- 2 Drum Side Protection
- 3 Side of Base Plates
- 4 Block Protection
- 5 Pedestal Protection



Surface Mining and Quarrying

- 1 Truck Bed Liners
- 2 Grouser Bars
- 3 Bucket Heels
- 4 Wear Bars
- 5 Bucket Lips



Product Icons

Please reference this icon guide to understand features and applications available for each product.



Low impact



Medium to high impact



Sliding abrasion



Weld-on with chamfer



Weld-on with no chamfer



Weld assembly



Pocketed through hole



Cast flat bottom hole



Cored hole



Threaded stud



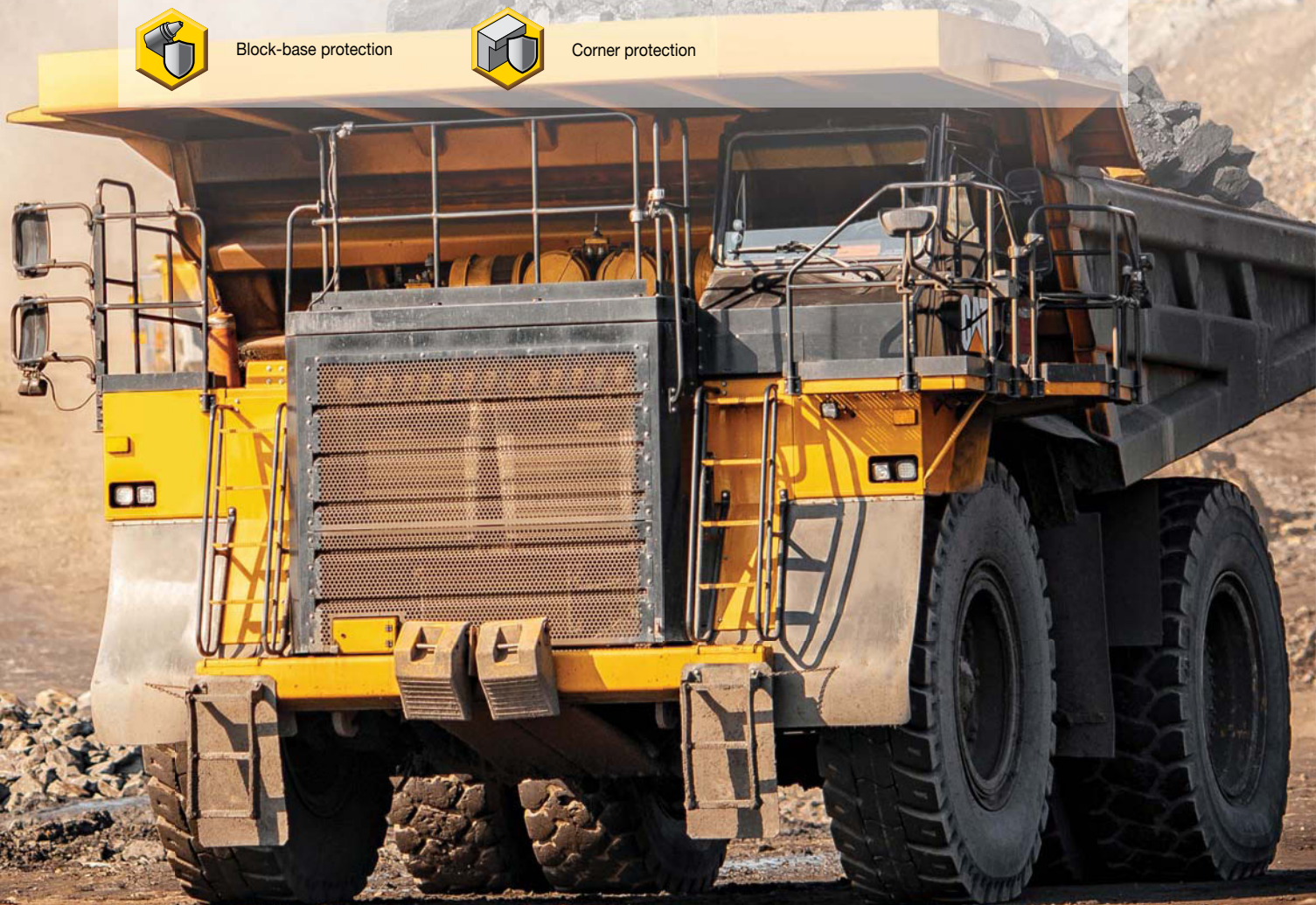
Bolt-on



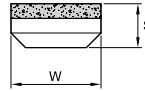
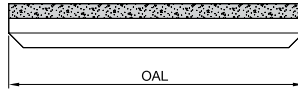
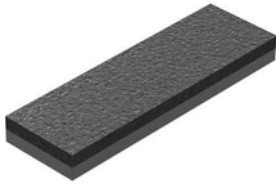
Block-base protection



Corner protection

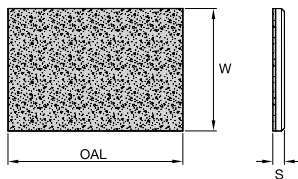
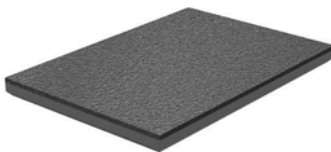


KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar • 4 Weld Chamfers



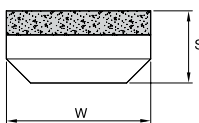
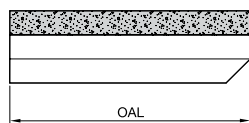
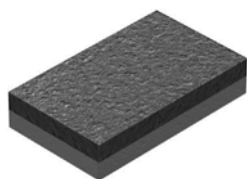
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1012536	KCWB-0246	2.00	50,80	1.00	25,40	.50	12,70
1094287	KCWB-0367	2.00	50,80	1.00	25,40	.50	12,70
1012633	KCWB-0055-20	2.00	50,80	1.00	25,40	.75	19,05
1083967	KCWB-0362	2.00	50,80	1.50	38,10	.75	19,05
1012640	KCWB-0056-20	2.00	50,80	2.00	50,80	.75	19,05
1012645	KCWB-0057-20	2.00	50,80	3.00	76,20	.75	19,05
1308317	KCWB-0389	3.00	76,20	.62	15,75	1.00	25,40
1012634	KCWB-0055-30	3.00	76,20	1.00	25,40	.75	19,05
4040318	KCWB-0471-3	3.00	76,20	1.50	38,10	1.00	25,40
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1012641	KCWB-0056-35	3.50	88,90	2.00	50,80	.75	19,05
1012636	KCWB-0055-40	4.00	101,60	1.00	25,40	.75	19,05
1012443	KCWB-0084	4.00	101,60	1.00	25,40	1.00	25,40
1012642	KCWB0056-40	4.00	101,60	2.00	50,80	.75	19,05
1012647	KCWB-0057-40	4.00	101,60	3.00	76,20	.75	19,05
1155344	KCWB-0378	5.00	127,00	.75	19,05	.75	19,05
1012637	KCWB-0055-50	5.00	127,00	1.00	25,40	.75	19,05
1012436	KCWB-0067	5.04	128,02	1.54	39,12	.75	19,05
1012437	KCWB-0073	5.25	133,35	2.63	66,80	.75	19,05
1919347	KCWB-0471	6.00	152,00	1.50	38,00	1.00	25,40
1012638	KCWB-0055-60	6.00	152,40	1.00	25,40	.75	19,05
1012643	KCWB0056-60	6.00	152,40	2.00	50,80	.75	19,05
1012648	KCWB-0057-60	6.00	152,40	3.00	76,20	.75	19,05
1012639	KCWB-0055-80	8.00	203,20	1.00	25,40	.75	19,05
1012644	KCWB0056-80	8.00	203,20	2.00	50,80	.75	19,05
1012649	KCWB-0057-80	8.00	203,20	3.00	76,20	.75	19,05
1012447	KCWB-0096	10.00	254,00	1.00	25,40	.75	19,05
1083557	KCWB-0094	10.75	273,05	8.75	222,25	1.00	25,40
1012448	KCWB-0097	12.00	304,80	1.00	25,40	.75	19,05
1012452	KCWB-0105	12.00	304,80	2.00	50,80	1.00	25,40

KenCast Tungsten Carbide & Steel Wear Protection • Wear Plate with Holes • 4 Weld Chamfers



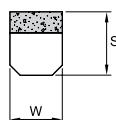
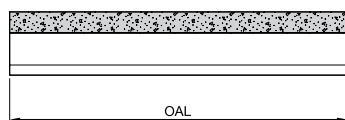
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KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar • 3 Weld Chamfers



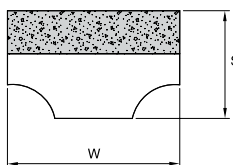
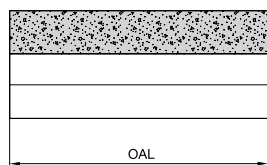
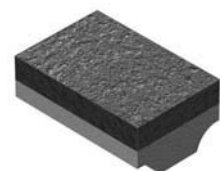
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1011713	KCWB-0410	2.50	63,50	1.50	38,10	.75	19,05

KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar • 2 Weld Chamfers



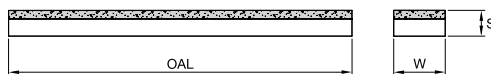
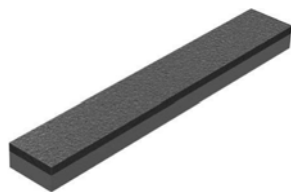
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KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar • 2 Radii



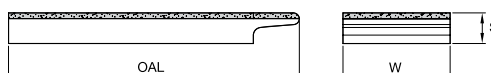
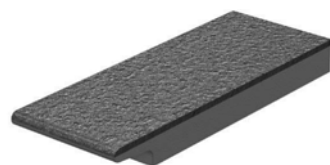
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1317315	KCWB-0371-MOD	1.50	38,10	1.00	25,40	.63	15,88

KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar • No Weld Chamfer



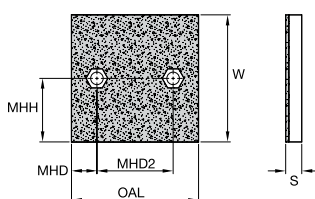
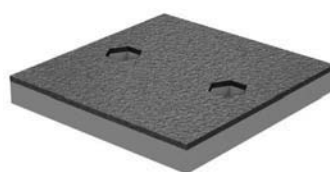
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1796637	KCWB-0438	12.00	304,80	2.00	50,80	1.02	25,91
1012575	KCWB-0286	12.00	304,80	5.00	127,00	.75	19,05
1714704	KCWB-0010	13.00	330,20	7.00	177,80	2.00	50,80

KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar with Lip • No Weld Chamfer



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KenCast Tungsten Carbide & Steel Wear Protection • Wear Plate with Holes • No Weld Chamfer



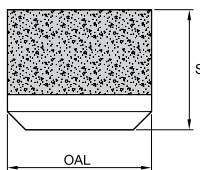
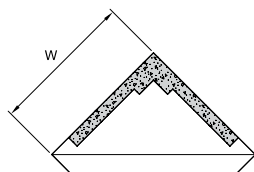
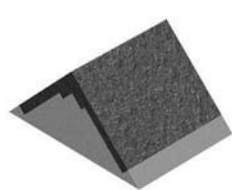
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3054831	KCWB-0599	9.88	250,83	9.88	250,83	1.25	31,75	4.94	125,48	1.98	50,29	5.92	150,37

We Offer Custom-Designed Chute Liners for Your Operation

See our recent case study on pages 20–21. Contact your Kennametal Sales Representative today to discuss your KenCast custom solution requirements. Some restrictions apply.

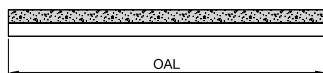
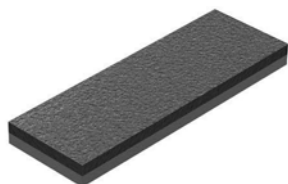


KenCast Tungsten Carbide & Steel Wear Protection • Wedge • 4 Weld Chamfers



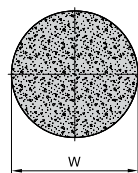
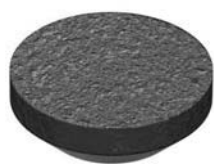
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1012579	KCWB-0290	3.25	82,55	1.50	38,10	1.25	31,75

KenCast Tungsten Carbide & Steel Wear Protection • Wear Bar (Thin) • No Weld Chamfer



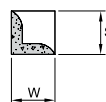
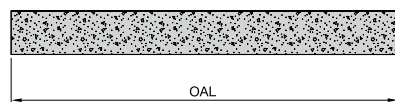
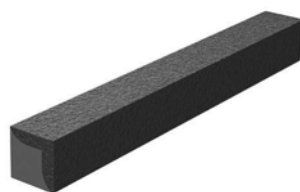
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1174410	KCWB-0301	3.00	76,20	1.00	25,40	.50	12,70
1012445	KCWB-0092	3.00	76,20	2.00	50,80	.50	12,70
1012461	KCWB-0132	4.00	101,60	.50	12,70	.50	12,70
1012586	KCWB-0300	4.00	101,60	.75	19,05	.50	12,70
1012454	KCWB-0114	4.00	101,60	1.00	25,40	.50	12,70
1012494	KCWB-0188	5.00	127,00	1.50	38,10	.50	12,70
1012614	KCWB-0329	5.31	134,87	1.97	50,04	.50	12,70
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1012444	KCWB-0091	6.00	152,40	2.00	50,80	.50	12,70
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1012539	KCWB-0249	6.00	152,40	3.00	76,20	.50	12,70
1012566	KCWB-0277	8.00	203,20	1.00	25,40	.25	6,35
1012567	KCWB-0278	8.00	203,20	2.00	50,80	.25	6,35
1012450	KCWB-0100	8.00	203,20	2.00	50,80	.50	12,70
1719256	KCWB-0206-NH	9.13	231,78	2.38	60,33	.38	9,53
1012446	KCWB-0095	15.75	400,05	2.00	50,80	.50	12,70

KenCast Tungsten Carbide & Steel Wear Protection • Round (Tapered Face) • 1 Weld Chamfer



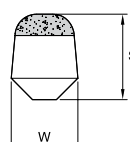
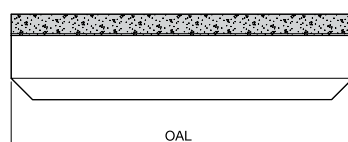
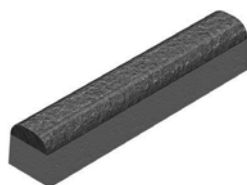
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		in	mm	in	mm
1012568	KCWB-0279	1.50	38,10	.50	12,70
1012569	KCWB-0280	2.00	50,80	.50	12,70
1012570	KCWB-0281	3.00	76,20	.50	12,70

KenCast Tungsten Carbide & Steel Wear Protection • Grouser • 2 Face • No Weld Chamfer



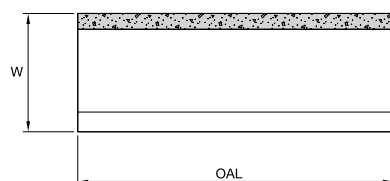
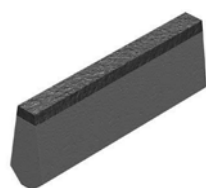
order number	catalog number	OAL		W		S	
		in	mm	in	mm	in	mm
2039770	KCWB-0499-VCP	20.00	508,00	2.25	57,15	2.25	57,15

KenCast Tungsten Carbide & Steel Wear Protection • Grouser • 4 Weld Chamfers



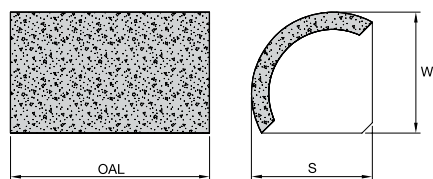
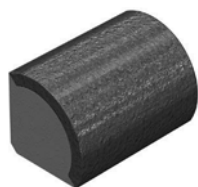
order number	catalog number	OAL		W		S	
		in	mm	in	mm	in	mm
2271390	KCWB-0541	1.50	38,10	.78	19,81	1.00	25,40
1012537	KCWB-0247	4.00	101,60	.78	19,81	1.00	25,40

KenCast Tungsten Carbide & Steel Wear Protection • Grouser • 2 Weld Chamfers



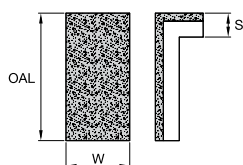
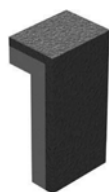
order number	catalog number	OAL		W		S	
		in	mm	in	mm	in	mm
2259012	KCWB-0515	4.00	101,60	1.50	38,10	.75	19,05

KenCast Tungsten Carbide & Steel Wear Protection • Quarter Round • No Weld Chamfer



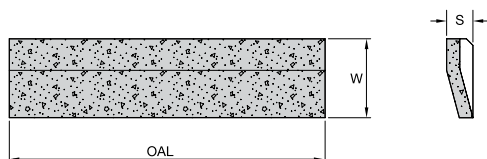
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1012574	KCWB-0285	2.88	73,15	1.75	44,45	1.75	44,45
2426055	KCWB-0526	8.00	203,20	1.74	44,20	1.74	44,20

KenCast Tungsten Carbide & Steel Wear Protection • L Shape VCP • No Weld Chamfer



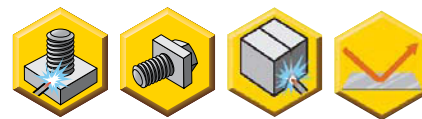
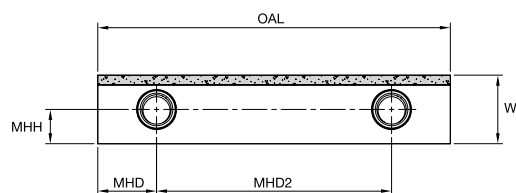
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		in	mm	in	mm	in	mm
1850291	KCWB-0457-VCP	2.00	50,80	4.00	101,60	.75	19,05
1829225	KCWB-0447-VCP	4.00	101,60	2.00	50,80	.75	19,05
6053055	KCWB-0734 VCP	5.00	127,00	3.50	88,90	.75	19,05

KenCast Tungsten Carbide & Steel Wear Protection • Wedge • No Chamfers



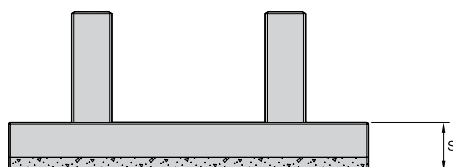
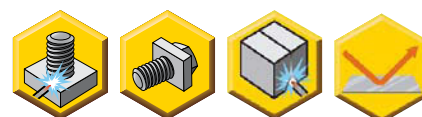
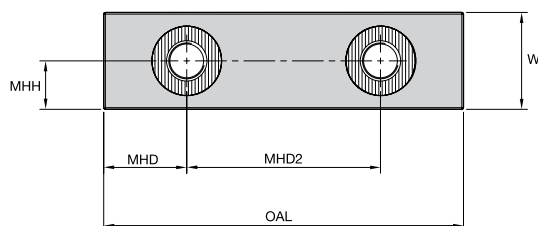
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		in	mm	in	mm	in	mm
3549052	KCWB-0591	12.00	304,80	3.00	76,20	1.00	25,40

KenCast Tungsten Carbide & Steel Wear Protection • Reclaimer Bar • No Weld Chamfer



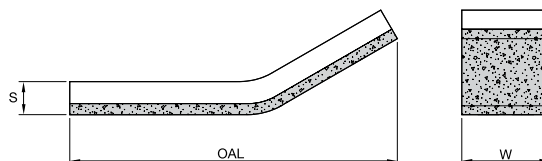
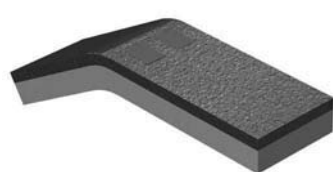
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		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
1731649	KCWB-0420	9.00	228,60	1.75	44,45	1.50	38,10	0.88	22,23	1.50	38,10	6.00	152,40

KenCast Tungsten Carbide & Steel Wear Protection • Bolt-On Wear Protection



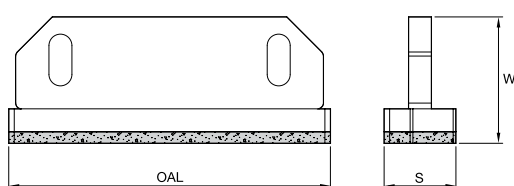
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		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
1542508	KCWB-0406	1.50	38,10	3.50	88,90	.88	22,23	6.50	165,10	1.75	44,45	.88	22,35

KenCast Tungsten Carbide & Steel Wear Protection • Wear Ski (Weld-On) • No Weld Chamfer



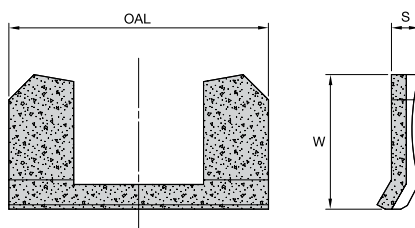
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1012596	KCWB-0311 PLANERSKID	7.44	188,98	2.00	50,80	.75	19,05
1012597	KCWB-0312	7.44	188,98	3.00	76,20	.75	19,05
2048483	KCWB-0327-BODY NO BRACKETS	15.13	384,30	10.02	254,51	6.00	152,40

KenCast Tungsten Carbide & Steel Wear Protection • Wear Ski (Bolt-On) • No Weld Chamfer



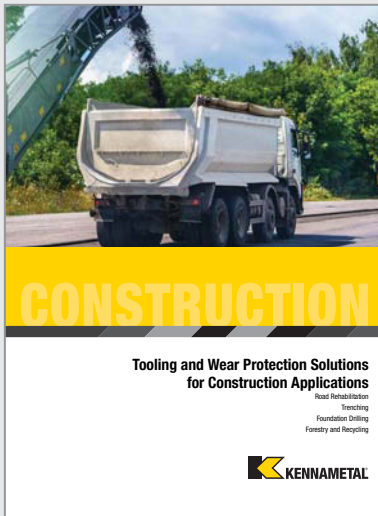
order number	catalog number	OAL		W		S	
		in	mm	in	mm	in	mm
4099269	KCWB-0638	7.00	177,80	2.75	69,85	1.56	39,62
4110656	KCWB-0639	24.66	626,36	6.47	164,34	2.03	51,56

KenCast Tungsten Carbide & Steel Wear Protection • Base Protector • No Weld Chamfer



order number	catalog number	OAL		W		S	
		in	mm	in	mm	in	mm
1621388	KCWB-0413	2.75	69,85	2.12	53,85	.38	9,65
1621288	KCWB-0412	3.50	88,90	1.82	46,23	.38	9,65

For additional products not included in this catalog, please see our other KenCast publications below.

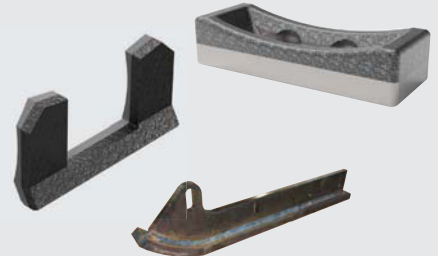


Looking for protection to extend the life of your construction equipment and avoid costly repairs and downtime?



SCAN

To access our Construction Brochure

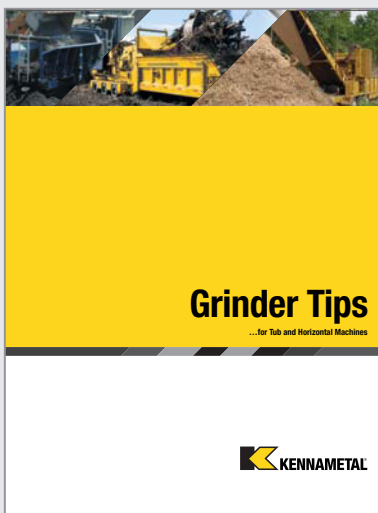


Looking for protection to extend the life of your snowplow and grader blades?



SCAN

To access our Snow Removal Catalog



Looking for protection to recycle asphalt shingles, and other extreme applications?



SCAN

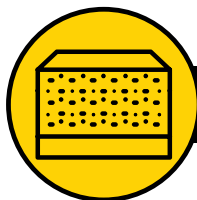
To access our Grinder Tips Catalog



KenCast

Construction Solutions

CASE STUDY



The KenCast Application

Machine — Telsmith™ 24-21 HSI RAP Crusher

Customer — Hawbaker® – 8 crushers, with 3 apron plates per crusher



Geographic Location

Pleasant Gap, PA, USA



Welded or Mechanical?

Mechanical



Competition for Similar Applications

Baldwin International has developed Tuffbraz 600 plate for industrial applications requiring the highest levels of strength and fatigue resistance. Customer claimed they typically processed 10–15K tons of material before end of life.



Results

KenCast apron plates — Performance results for this test:

- Customer stated they processed 74K tons of material with minimal wear
- Estimated 7X life



Telsmith 24-21 HSI
RAP Crusher



Used KenCast apron plate
with minimal wear
after 74,000 tons

The information contained in this report is intended for comparative purposes only and is based upon a limited test sample. The information has no guarantee of actual future results. The information is provided 'as is' without any warranty of any kind whether express or implied.

KenCast Mining Solutions

CASE STUDY

CURRENT SOLUTION AT THIS SITED LASTED 1500 OPERATIONAL HOURS

KENCAST LASTED 3400+ HOURS

KENCAST WEAR PRODUCTS PROVIDED NEARLY 8000 OPERATIONAL HOURS OF WEAR PROTECTION OVER 20 MONTHS

KENCAST OBSERVED TO LAST UP TO 5X LONGER LIFE IN THIS TEST

Tackling Tough Surface Mining Conditions

APPLICATION	PROBLEM	SOLUTION	RESULT
PRIMARY SURFACE WEAR OPERATION: Excavator Bucket	ABRASIVE AND HARD ROCK ENVIRONMENT: Abrasion and Impact Wear	KENCAST: KCWB-0010 and KCWB-0902	INCREASED PRODUCTIVITY: 5X Longer Life

KenCast Tackles the Toughest Surface Mining Conditions with Insane Results

We know KenCast is tough enough to face your most challenging wear issues, even in extreme mining conditions. But don't just take our word for it — here's what a surface mining customer had to say after installing KenCast on their hydraulic excavator: "This is just too good to be true." Read on to find out more.



Geographic Location

Tough Conditions

A small town in Western Australia has a deep history of mining gold, copper, cobalt, palladium, and platinum. Located in an extremely remote location, this gold mining customer faces severe wear conditions in an abrasive and hard rock environment. Nevertheless, our experts jumped in right away to help solve the customer's surface mining wear issues.



Competition for Similar Applications

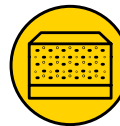
A Formidable Challenge

Machine: Bucket of a Komatsu PC3000, a 300-ton hydraulic excavator, specifically the bucket lip wear pads and the bucket base wear strips

Application: Working in ROM (run of mine) at surface mine operation

Problem: Extreme wear conditions occurring on the customer's hydraulic excavator bucket, with less than 1500 hours of protection provided by current wear protection pads

The Competitor: Aftermarket alloy steel wear pads and strips



KenCast Application

Kennametal Solutions

Our experts put two KenCast wear products to the test, a standard solution and a custom solution.

- Standard Catalog Item: KCWB-0010
- Custom Item: KWCB-0902

The team installed seven KenCast wear pads, spaced evenly across the underside of the bucket lip, the area experiencing the most wear. Five custom KenCast wear strips were also installed to cover the width of the bucket and were stacked together to form protection for the base of the excavator bucket.



Welded or Mechanical?

Welded

(We also offer mechanical attachment solutions)



Results

Impressive Results*

The team checked in on the results nine months later. After more than 3400 hours of operation, the Kennametal wear pads were still going strong, far outlasting the less than 1500 operational hours delivered by the aftermarket alloy steel wear pads the customer previously used.

After 611 days of use, the Kennametal wear pads and strips on the Komatsu PC3000 bucket had fully worn and completed their service for our surface mining customer. In total, the KenCast wear products provided nearly 8000 operational hours of wear protection over 20 months — that's a 5X longer life than the customer's previous solution.

Our customer had one thing to say about KenCast's unbelievable performance: *"This is just too good to be true!"*

Interested in getting insane results like this from KenCast? Talk to our experts to find out how KenCast can provide you with wear protection and extend the life of your equipment.

*Data based on Kennametal field testing

The information contained in this report is intended for comparative purposes only and is based upon a limited test sample. The information has no guarantee of actual future results. The information is provided "as is" without any warranty of any kind whether express or implied.

KenCast Mining Solutions

CASE STUDY

**ORIGINAL
SOLUTIONS
LASTED
15 TO 50 DAYS**

**KENCAST
LASTED
90+ DAYS**

**KENCAST
RESULTS IN THIS
TEST WERE UP TO
10X LONGER**

**UNPRECEDENTED
REDUCTIONS
OF DOWNTIME**

**RESULTING IN
AN INCREASE OF
MORE THAN 30%
ORE PRODUCTION**

KenCast Crushes Abrasion Resistance Records In Crushing Operations

APPLICATION	PROBLEM	SOLUTION	RESULT
PRIMARY CRUSHING OPERATION: Discharge Chute	DOWNTIME: Abrasion and Impact Wear	KENCAST: Custom Wear Plates to Armor the Chute	INCREASED PRODUCTIVITY: 10X Increase in Maintenance Interval



Geographic Location

Downtime Means No Time for Second Best

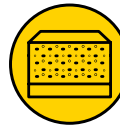
A mining company in Brazil known for its high volume of mineral extraction in the processing and production of gold needed to reduce downtime replacing wall plates in chutes used in its crushing operations.



Competition for Similar Applications

The environment in which the wall plates are used is predominantly abrasive. However, weight is also a factor, as the flow of minerals inside the chute can concentrate in several different areas and cause wear similar to an impact on the plates. Depending upon the area of the chute, most of the competitors wall plates used at this site only provided 15 to 50 days of use before downtime was required to replace them – according to the customer.

In March 2022, the customer asked us to develop plates — with a particular emphasis on those used in the discharge chute walls — that would reduce inspection- and replacement-related downtime to increase productivity at its gold mine.



KenCast Application

Kennametal Solutions

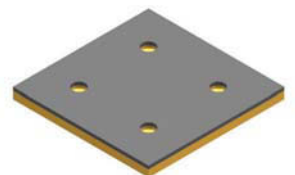
In September 2022, we presented a test protocol to the mining company pertaining to the durability of our solution. Additionally, we provided reports from other customers who claim they achieved 30 percent longer wear with our solution compared to the competitors' wall plates they used.

Our experts then put two KenCast KCWB-0938 wall plates to the test. In November 2022, a pair of these plates were painted black for easier identification and placed in the most challenging environment of the chute wall alongside the plates currently in use.

Kennametal KenCast Plate KCWB-0938

Surface: Tungsten-carbide grains in the mixture of -3/8, +5/16 and -1/4, +4

Base steel: Carbon, manganese, silicon, aluminum, nickel, chromium, and molybdenum



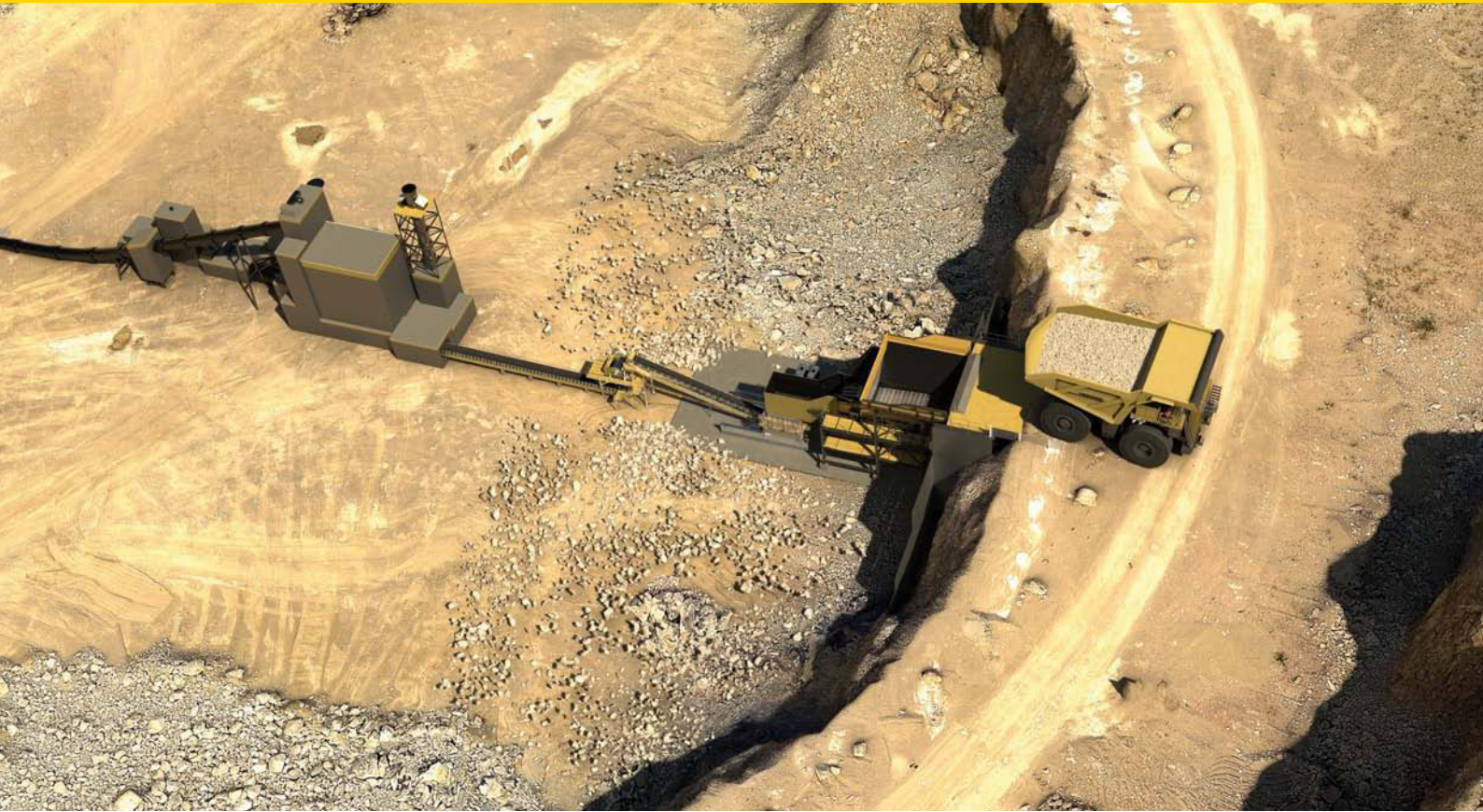
Welded or Mechanical?

Mechanical

(We also offer welded attachment solutions)

We Offer Custom Designed Chute Liners for Your Operation

Contact your Kennametal Sales Representative today to discuss your KenCast custom solution requirements.



Results

Outstanding, Outlasting Abrasion Resistance

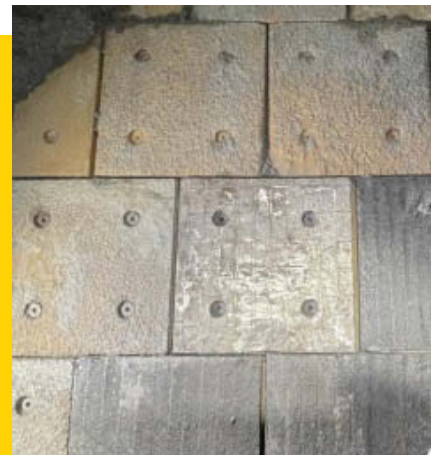
On two separate inspection dates in December 2022 and one after 59 days of operation in January 2023, the KenCast plates were shown to have excellent thickness preservation and carbide grit remaining intact.

The differentiated composition of the KenCast steel base provided exceptional resistance to abrasion. While the competition's nodular iron base plates used at the site for this test were worn down and needed to be replaced, the KenCast solution kept going and going.

Eventually, one of our plates needed to be swapped out in February 2023 after 90+ days of continuous operation. However, one of the customer's inspectors also concluded that the remaining KenCast plate had potential useful life of another 30 to 60 days.

Compared to the iron-based plates, KenCast plates, based on this test, could last up to nearly 10 times longer! Just as important, the customer could achieve unprecedented reduction of downtime and a significant increase of more than 30 percent in ore extraction, depending on application and material being processed.

Want these kind of results for your operation? Talk to our experts to find out how KenCast mining solutions can provide excellent wear protection and extend the life of your equipment.



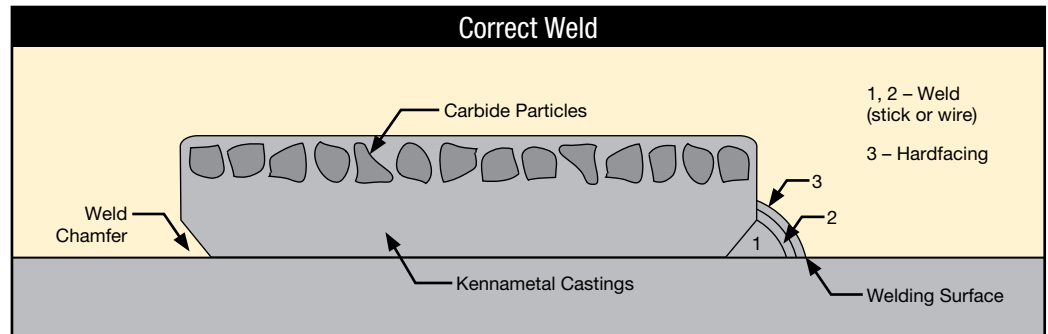
Check out our KenCast video at [Kennametal.com](https://www.kennametal.com)

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Weld Attachment Guidelines

These are general guidelines on how to apply KenCast to your equipment. However, weld applications may vary substantially, depending on the material to which KenCast is applied. Consult a local welding representative or contact your Kennametal Representative for recommendations on your particular application.

How to Apply KenCast



Weld Material

.052" (13,2mm) wire (flux cored)

- 7100 ESAB or equivalent, shielded with carbon dioxide
- 22–24 volts and 200–235 amps

1/8" (3,1mm) weld rod

- 7018M or equivalent, low hydrogen
- 21–33 volts/135–185 amps

These specifications are for welding to low- to medium-carbon steels. When welding to specialty steels, such as stainless and manganese, contact your Kennametal Representative for welding recommendations.

Welding Instructions

KenCast parts must be welded properly to achieve optimum performance:

- Always attach castings with the steel side against the surface to be protected.
- The carbide surface side, painted black to identify the wear side, faces outward.
- Welding the carbide surface can cause cracking and is detrimental to carbide particles.

Cutting Instructions

There are two ways to cut KenCast:

Option #1

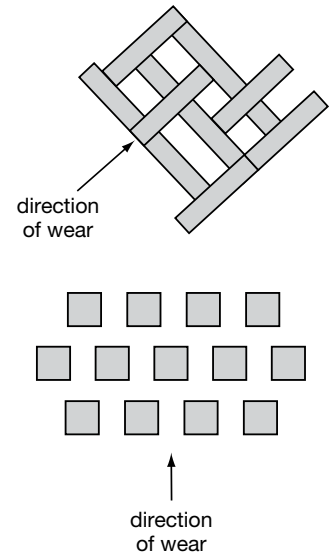
Score the steel side with an angle grinder or chop saw with corundum wheel, then strike with a hammer.

Option #2

Plasma or waterjet.

Welding Recommendations

- Protect welds by using weld chamfers, hardfacing over the welds, or positioning the KenCast part to avoid wear on the welds.
- When using KenCast parts to cover large areas, create a “dead-bed” effect by positioning the castings so that the work material packs between the KenCast pieces (see illustrations).
- Stagger the placements of the KenCast parts to avoid wearing troughs between the parts.
- Parts to be welded should be about 70°F (21°C).
- The KenCast part should not exceed 600°F (315°C) at any time during welding.
- First tack weld parts lightly to ensure proper placement before total welding is done.
- Pre-heating and post-heating of KenCast parts is not usually necessary. However, if the material to which the KenCast part is being applied requires heating, then pre-heat the KenCast part up to 600°F (315°C) (do not exceed 600°F [315°C]). Our KenCast parts have been welded to 4130 and 4140 steel with no pre- or post-heating. Pre-heating is recommended to prevent underbead cracking when KenCast parts are applied to oil-and-gas string components and to high-manganese steels.
- If weld washout is a concern, we recommend applying hardface material over the welds.
- Do not weld on the carbide layer of the KenCast part.
- For identification, the carbide wear surface of the KenCast part is painted black. This is especially helpful for small or irregular-shaped KenCast parts. If the KenCast part is marked with a part number, that number is always cast into the steel side of the part.



Mechanical Attachment Guidelines

KenCast Threaded Plate Assembly KenCast Casting • Dark Gray = Carbide Grit Layer • Yellow = Steel Layer	KenCast Recessed Pocket and Holes Casting KenCast Casting • Dark Gray = Carbide Grit Layer • Yellow = Steel Layer
KenCast Threaded Stud Assembly KenCast Casting • Dark Gray = Carbide Grit Layer • Yellow = Steel Layer	KenCast Bracketed Assembly KenCast Casting • Dark Gray = Carbide Grit Layer • Yellow = Steel Layer





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kennametal.com

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