HARDOX®
TechSupport

Information from SSAB Oxelösund.

#41

HARDOX in Waste Management

Are you into recycling, like composting or waste to energy? HARDOX wear plate optimizes your production process and increases your profitability. Its wear performance, crack resistance, uniform properties and workshop friendliness give your wear parts a long and reliable service life.

Use HARDOX in knives, teeth, striker bars, anvils, chutes, feeders, hoppers, hammers, liner plates, sieves, compactors, bailing equipment, conveyor systems, rosters, drums, rotor discs, loaders, buckets, rippers and tumbling units.

SSAB Oxelösund is the only producer of HARDOX Wear Plate.

Why HARDOX in Waste Management

Shorter delivery times

You can cut components directly from HARDOX plates for immediate use in your machines. This shortens your lead times and gives independence from far away foundries or parts distributors. By ordering HARDOX from your local plate supplier you also avoid the unnecessary hassle of delayed or unreliable deliveries.

Reduced down-time for maintenance

The consistent and uniform properties of HARDOX wear plate grant a reliable and predictable service life that lowers the cost per service hour. Your machines will behave as predicted without break downs and you can plan your stops to maximize the running time. Hereby you can also cut your stock costs by getting rid of superfluous stock items.

Optimized productivity

The complete product program of HARDOX allows you to optimize your machines by choosing the right hardness for your wear parts. HARDOX comes in hardness levels from 400 to 600 Brinell, in thicknesses from 3-130 mm and in widths from 1-3.4 meters. Choose what you need and avoid extra costs.

Customized wearparts

You can weld, bend and machine HARDOX in any traditional workshop. Try a new design on your crushing hammers or shredder knives to adapt them for your specific type of waste. The workshop friendliness and uniform properties grant that your components come out the same every time.

Why HARDOX in a shredder

Several leading shredder producers use HARDOX wear plate for their anvils, hoppers and shredder knives. HARDOX has become the most widely used wear plate for these applications due to the reliable service life, wear performance and crack safety.

A shredder from M&H with HARDOX in the knives and liner plates

Reliable Service Life
The consistent hardness of HARDOX assures a uniform wear and predictable wear life. Plan the service life by combining the right thickness and hardness. As compared to hard facing overlay plates and high chromium white iron castings, HARDOX has several times proved that it lowers the total cost per service hour in heavy wear applications.

Outstanding Wear Performance
The worldwide success of HARDOX is largely due to its wear performance. The complete product program lets you choose exactly the wear performance you need. It includes HARDOX 400, HARDOX 450, HARDOX 500, HARDOX 550, HARDOX 600 and HARDOX HiTuf.

Rough Handling Resistance
Your wear components meet lots of pressure, impact and load in addition to wear. So they need to resist not only wear but also cracks and deformation. The HARDOX product line is designed to combine wear performance, crack resistance and form stability.

Why HARDOX in a crusher

Many crusher manufacturers use HARDOX in their hammers, anvils, hoppers and wedge plates. Hammers were traditionally made of various castings, i.e. 12% manganese steels and high chromium white alloy casting. These materials can not match the versatility and cost benefits of HARDOX.

Same Wear Performance every time
HARDOX wear plate has full hardness when delivered and it does not depend on what wear it meets. The hardness and wear resistance of 12 % manganese steel castings depend on the impact wear exposure and merely reach a hardness just above 500 Brinell. By using HARDOX you reach full productivity from day one and all through the service life.

Customize your crusher for different types of waste
The workshop friendliness of HARDOX makes it easy to customize your wear parts. You can modify your hammer design to make it more fit for processing even the toughest kinds of waste. Castings permit limited flexibility since the moulds are fixed. Components made of HARDOX are easy to customize for best performance.

No need for recalibration when changing hammers
Hammers made of castings differ in weight from one hammer to the other, so you are often advised to calibrate your crusher when changing hammers. Components made of HARDOX always have the same properties so you can change hammers without recalibrating your crusher.

A hammer made of HARDOX 550 is inserted into a crusher

Why HARDOX in a mobile shredder or crusher

The number of mobile units for shredding and crushing has increased during the last years. This puts extra demands on the machines, materials and components used. HARDOX offers two main advantages: You optimize the waste management process and you get a lighter vehicle.

Lower costs for fuel, taxes and road tariffs
By using a HARDOX grade of higher hardness you can produce wear parts from thinner plates without reducing the wear life. This cuts the total weight of your vehicle and reduces the axial pressure. You lower the expenses for fuel and in most countries you also decrease taxes and road tariffs.

More profit load
Since HARDOX reduces the tar weight of your mobile unit, you can take heavier pay loads and even add more equipment.

The number of mobile units have increased during the last years

Abrasion resistance where you normally use structural steel
The combined wear resistance and structural capacity of HARDOX 400 (up to 30 mm) give you abrasion resistance where you normally use structural steel. This is vital for mobile units meeting wear not only in the actual crusher or shredder.

Case Study

- improved productivity, shorter lead times, decreased costs for maintenance and stocks

A waste to energy plant which previously used steel castings in their hammers has now permanently switched to hammers made of HARDOX 550. They previously used hammers made of 12% manganese steel casting, supplied by a foreign distributor in another country. The purpose of trying HARDOX 550 was to extend the wear life of the hammer to get longer maintenance time intervals.

Since the material cost of 12% manganese steel is relatively low and the production series is large, it should be tough for HARDOX to compete in terms of price/ kg wear part. However, the difference in purchasing price between fabricated hammers made of 12%Mn-castings and hammers produced by oxy-cutting from a HARDOX 550 plate was insignificant.

After a test period it was obvious that the hammers made of HARDOX 550 extended the process life considerably, and that they enhanced the process efficiency as well. One of the major benefits was that the material losses on the sides of the hammers were reduced as compared to the castings. The reason for this was that the impact exposure on the sides of the hammers was not high enough to create the deformation hardening effect needed for the 12% manganese steel castings to match the 550 Brinell hardness of the HARDOX plate. Due to this difference the maintenance time interval was increased by switching to HARDOX 550 hammers.

When it comes to logistics, the waste to energy plant buy the HARDOX hammers from a local supplier of ready-made wear parts. This was a totally new and positive experience. Before they had to order the cast hammers from a distant foundry, now the handling is quick and trouble free. Earlier they had to place orders far in advance, while the lead times were long and the stocks grew costly big. Now they order and receive delivery without delay. This is not only cost efficient but also logistically easier to handle.

All in all, thanks to improved productivity, shorter lead times, decreased costs for maintenance and stocks, the waste to energy plant estimates to save more than 100 000 Euro a year.

Short introduction to the HARDOX Product Programme

HARDOX 400 Hardness: 400 Brinell Thickness: 3 – 130 mm Typ imp. toughness 20 mm: 45 J/-40C Typical applications: Barges, Crushers	HARDOX 400 is the versatile wear plate that offers a wide range of alternatives. The excellent crack resistance and work shop performance of the steel enables quick and easy manufacturing of wear parts for a long and predictable service life. In thickness up to 30 mm the steel displays structural performance.
HARDOX 450 Hardness: 450 Brinell Thickness: 3 – 80 mm Typ imp. toughness 20 mm: 35 J/-40C Typical applications: Containers, Truck bodies	The characteristic feature of HARDOX 450 is the unique combination of hardness and toughness. In spite of the 450 Brinell hardness, bending and machining can be performed as easily as for HARDOX 400.
HARDOX 500 Hardness: 500 Brinell Thickness: 4 – 80 mm Typ imp. toughness 20 mm: 30 J/-40C Typical applications: Cutting edges, Buckets	HARDOX 500 is a bendable and weldable wear plate suitable for applications exposed to heavy wear from hard waste abrasives.
HARDOX 550 Hardness: 550 Brinell Thickness: 10 – 50 mm Typ imp. toughness 20 mm: 30 J/-40C Typical applications: Shredders, Cutters	HARDOX 550 is a weldable wear plate especially developed for users and producers of wear parts. With a hardness of 550 Brinell the plate has shown its competitive strength in reducing the cost/performance ratio when substituting manganese steels and 500 Brinell wear plates.
HARDOX 600 Hardness: 600 Brinell Thickness: 8 – 50 mm Typ imp. toughness 20 mm: 20 J/-40C Typical applications: Hammers, Lining plates	HARDOX 600 is the worlds hardest wear plate. It is designed specifically for extreme wear conditions and is mainly intended to substitute hardfacings, overlay and chromium rich castings. The steel is weldable.
HARDOX HiTuf Hardness: 350 Brinell Thickness: 40 – 120 mm Typ imp. toughness 70 mm: 95 J/-40C Typical applications: Demolition tools, Cutting edges	HARDOX HiTuf is intended for heavy section wear applications with extra demand on crack resistance. Typical applications are thick demolition shearers and cutting edges.

For more info about HARDOX, you're most welcome to visit www.hardox.com or consult our online technical support at www.ssabox.com/techsupport.

HARDOX®
WEAR PLATE

HARDOX wear plate only from SSAB Oxelösund
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