Hard and tough throughout
Hardox® maximizes the wear performance of your equipment and machines, reducing workshop lead times and increasing the overall productivity of your operations. Thanks to its consistent properties, Hardox performance remains constant over its lifetime. That also makes its service life very predictable, allowing you to rationalize your maintenance work. Hardnox can be used in a variety of operations that include loading, transport and crushing of hard materials. What’s the secret of its performance? The production processes include state-of-the-art metallurgical cleaning of steel and a unique hardening process resulting in wear plates with outstanding hardness, toughness and workpiece-friendliness.

Expertise at your service
In addition to wear plate, SSAB provides wear expertise through our Technical Support functions. The Technical Support wear specialists can help to optimize your products for a longer service life and an increased productivity. They can assist in predicting wear performance and in selecting the best Hardox plate grade. The Technical Support wear specialists can help you optimize your product for a longer service life and an increased productivity. They can assist in predicting wear performance and in selecting the best Hardox plate grade. The Technical Support wear specialists can help you optimize your product for a longer service life and an increased productivity. They can assist in predicting wear performance and in selecting the best Hardox plate grade.

Information about wear
Wear occurs in different forms and each has a different impact on the service life of your application. The most common wear types are sliding wear, impact wear and squeezing wear. Abrasive particles trapped in a narrow gap between two rigid surfaces cause squeezing wear, which is a common wear type. In a variety of rock types, a range of minerals can contribute to the type of abrasion wear damage. Abrasive wear can be the result of differences in the rock structure, it can affect rock to rock wear and it can affect different wear conditions. Whatever your application and wear situation, Hardox is your ticket to outstanding wear performance.

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SSAB is a Nordic and US-based steel company. SSAB offers value-added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world. SSAB has employees in over 50 countries. SSAB has production facilities in Sweden, Finland and the US. SSAB is listed on the Nasdaq OMX Nordic Exchange in Stockholm and has a secondary listing on the Nasdaq OMX in Helsinki.
Hardox® wear plate delivers great advantages through the whole production flow. Its superior wear resistance translates into bottom line benefits such as more uptime, higher productivity, longer service life and reduced maintenance.

Hardox® cuts down on weight and extends the service life of steel structures in comparison with regular steel. A common limestone rock has an average hardness of 150 HV. With relative widening the service life is approximately 3 to 4 times longer with Hardox® than with a standard S235 steel. Translated into thickness, a 25 mm plate of S235 is equivalent to 8 mm Hardox®. Reducing weight dramatically and makes it a lot more workshop-friendly.

The hardness of Hardox® minimizes wear because it is difficult for the "edges" of abrasive material to cut into the material. Hardox® delivers the same wear resistance during the plate’s entire service life, since it remains equally hard throughout. Toughness is the other strong point of Hardox®. While hardness makes it wear resistant and strong, toughness is what makes it possible for Hardox® to be bent, formed and welded without cracking.

Its unique combination of hardness and toughness also allows Hardox® to perform as a load-carrying part in many applications. With Hardox®, steel structures for the cement industry can be wear-resistant, strong and lightweight at the same time.

**CEMENT PRODUCTION FLOW**

1. Open pit
2. Loader and tipper
3. Excavator and dump truck
4. Hopper
5. Excavator belt
6. 60° cracker
7. Excavator belt rubber
8. Concrete screen
9. 60° Main mill
10. Outer liner
11. Cone liner
12. Inner liner
13. Rotary kiln
14. Conveyer belt rubber
15. Hopper
16. Elevator bucket
17. Hopper
18. Screw conveyor
19. 150° Ball mill
20. Elevator bucket liner
21. Hopper
22. Silo
23. Transport of finished product
24. Concrete transit mixer
25. Concrete pump truck
26. Ball mill
27. Hopper
28. Silo
29. Transport of finished product
30. Concrete transit mixer
31. Concrete pump truck

**Jaw crusher**

For the cheek plates in a jaw crusher Hardox® 500, 550 or 600 is an excellent choice for better wear and impact loads generated by crushing limestone.

**Vertical raw mill**

Hardox® 500 and 550 are preferred wear resistant grades for the guide plates in the vertical raw mill. Hardox® 600 is used as the guide plates in the grinding table C.

**Guide plates**

Hardox® 500 is the common choice for guide plates in the clinker cooling bed.

**Liner plates**

Hardox® 500, 550 and 600 are versatile grades for liner plates in all types of mills, chutes, hoppers, crushers, silos, and other applications in the cement production chain.

**Concrete mixer drum**

Hardox® 400 and 450 in the drum shell, spirals, chutes and hopper of a concrete mixer truck are the perfect choice for a durable and lightweight solution.

**Ball mills**

Hardox® 500, 550 or 600 are the recommended materials for wear protection at the inlet and outlet in ball mills.

MORE UPTIME AND REDUCED MAINTENANCE ALL THE WAY