

## Wear: The inside story

Your choice of wear plate has consequences for your business. 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's performance remains invariable across its lifetime. That also makes its service life very predictable, allowing you to rationalize your repair schedule.

With its combination of high hardness, high strength and good toughness, Hardox can be used in a variety of applications, including loading, transport and crushing in quarrying and mining.

What's the secret of Hardox's top performance? The production processes include the state-of-the-art metallurgical cleaning of steel and a unique hardening process, resulting in wear plates with outstanding hardness, toughness and workshop friendliness.

### Expertise at your service

In addition to plate, SSAB provides you with expertise. We share our knowledge with you through our Technical Support functions.

The Technical Support consists of experts that can help optimize your product from a design perspective and is committed to developing the technical knowledge of wear. We offer you access to Ph.D's and experts with decades of experience in solving wear challenges. You can get applied support and information on wear-critical components.

### Information about wear

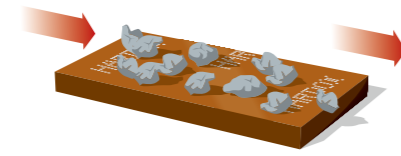
Wear comes in different forms and each has a different impact on the service life of your application.

The most common wear types are sliding wear and impact wear. Abrasive particles trapped in a narrow gap between two rigid surfaces causing squeezing wear is also a common wear type.

Each variety of rock is composed of a unique set of minerals and these also contribute to the specific type of abrasive wear damage.

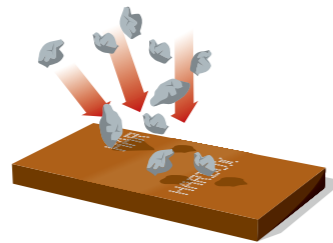
WearCalc software, available from our Technical Managers, describes and calculates the relative differences between materials. It allows you to predict relative wear life and compare different wear solutions.

Whatever your application and wear situation, Hardox is your ticket to outstanding wear performance.



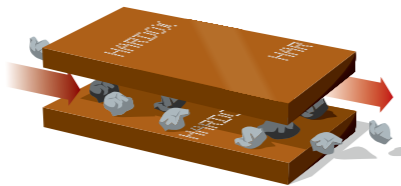
#### SLIDING

In sliding wear, abrasive bodies such as aggregate rocks are free to slide and roll. By selecting a harder Hardox grade, service life can be improved considerably.



#### IMPACT

In impact wear, the aggregate rocks hit the surface of the wear component at various angles. A harder grade of Hardox will deliver a longer service life here as well.



#### SQUEEZING

With squeezing wear, the improvement in service life of wear components is more difficult to quantify. However, an increased Hardox plate hardness often improves the service life significantly.

### Hardox – Complete product program

You'll always find a Hardox plate to fit your wear challenge. With a wide range of hardness grades, thicknesses and widths to choose from, you'll always be able to maximize your application's performance.

Hardox 400 and 450 are versatile wear plates with high toughness, good bendability and excellent weldability.

Hardox 500 is a tough, bendable and weldable abrasion resistant plate used in applications requiring high resistance.

Hardox 550, with a hardness of 550 Brinell and a toughness equal to Hardox 500, is designed to increase wear life but not at the expense of reduced resistance to cracking.

Hardox 600 has a hardness of 600 Brinell but can still be cut and welded—an excellent plate for high performance applications.

Hardox HiTuf is a wear resistant plate with extra high toughness intended for heavy section wear parts requiring extraordinary wear and crack resistance.

Hardox Extreme is intended for applications requiring extremely high abrasion resistance. It can replace costly wear products like hard-faced overlay plates and high chrome white iron. Despite its hardness, it can be welded, cut, milled and drilled using standard workshop practices.

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. [www.ssab.com](http://www.ssab.com).

**HARDOX®**  
WEAR PLATE

# HARDOX ON SITE

## Quarry & Open Pit Mine

A Part of Your Success



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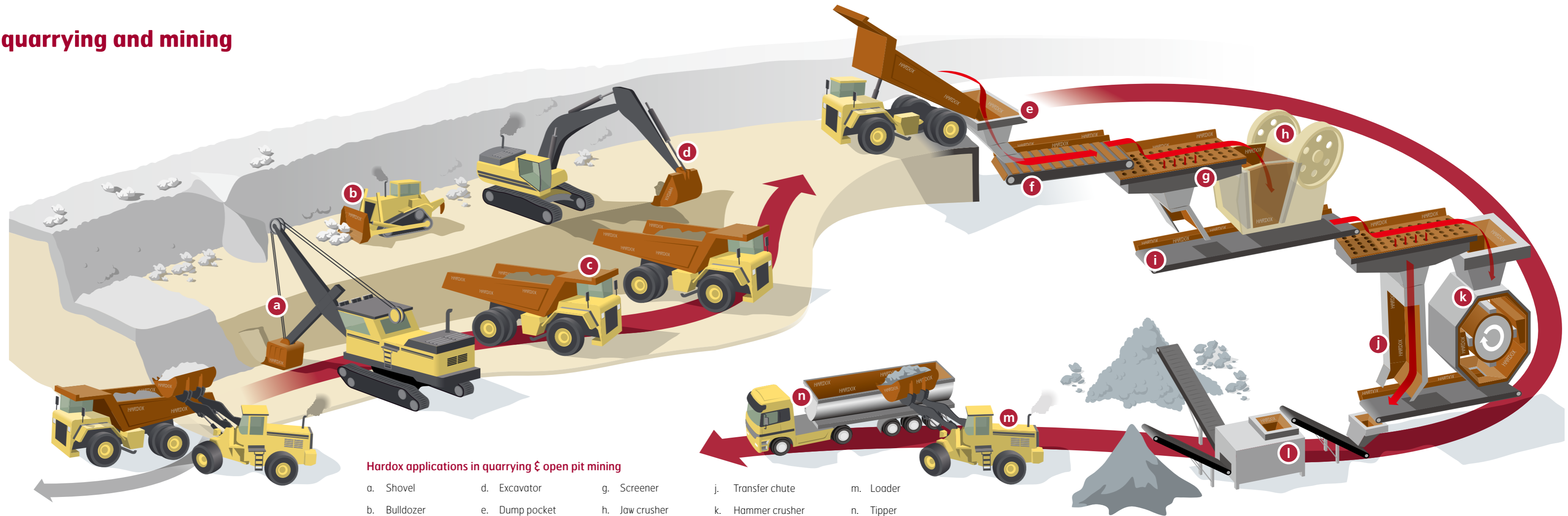
## Down-to-earth advantages for quarrying and mining

Quarry and open pit mine operations put high demands on equipment. When it comes to abrasion resistance, compromise can be costly. Hardox® wear plate delivers unsurpassed advantages to the quarrying and mining sector through out the whole production flow. This includes economic benefits that can make a significant difference in mining operations.

It starts with Hardox wear plate's superior wear resistance, translating to significant increases in the interval between repairs.

Hardox wear plate is the fast and flexible on-site solution. Its outstanding weldability and workshop-friendly properties allow it to be integrated easily into repair regimes, keeping production up and running. It also eliminates the need for a large stock of spare parts.

When it comes to design, the unique properties of Hardox wear plate take you beyond conventional thinking, allowing you to design in new levels of performance and cost-savings. For example, its superior strength allows a thinner plate to be used, lowering overall weight and enabling increased payloads and thus productivity.



### Hardox applications in quarrying & open pit mining

- |               |                |                |                    |           |
|---------------|----------------|----------------|--------------------|-----------|
| a. Shovel     | d. Excavator   | g. Screener    | j. Transfer chute  | m. Loader |
| b. Bulldozer  | e. Dump pocket | h. Jaw crusher | k. Hammer crusher  | n. Tipper |
| c. Dump truck | f. Feeder      | i. Conveyor    | l. Final screening |           |



#### SHOVEL

Shovel bucket structures can be built with Hardox 400/450. Hardox HiTuf is recommended for cutting edges while Hardox 500/550 are ideal for bucket cheek plates.



#### DUMP TRUCK

Hardox lets you design low-weight bodies with the wear resistant qualities of much heavier structures. It is also an excellent choice for truck body liner plates. The sides, floors and fronts are ideally protected by Hardox 400/450/500.



#### HOPPER & FEEDER

Hardox 500/550/600 are right choice for hoppers and feeders.



#### TRANSFER CHUTE

Every change of transfer direction needs a chute. The chutes can be made of Hardox 450/500/550/600.



#### HARDOX IN BUCKETS

- ① Beam: Hardox 400/450
- ② Attachment: Hardox HiTuf/400
- ③ Shell: Hardox 400/450
- ④ Wear bar: Hardox 500/550
- ⑤ Side sheet: Hardox 400/450/500
- ⑥ Cheek plate: Hardox 500/550
- ⑦ Side corner: Hardox 500/550
- ⑧ Side cutter: Hardox 450/500
- ⑨ Cutting edge: Hardox Hituf /400/450/500



#### BULLDOZER

Hardox 400/450/500 grades are ideal for premium blade structures. Use Hardox 500/550 for cutting edges and Hardox HiTuf for the rippers.



#### DUMP POCKET

At the discharge site, use Hardox 400/450/500 to line dump pockets.



#### CRUSHER

All Hardox grades can be used in crushers depending on the crusher type and the nature of the wear exposure.



#### TIPPER

Use Hardox 400/450/500 in the body of the tippers. Hardox is an outstanding wear fighter in this application. Hardox also has great impact and dent resistance, making it an excellent design solution.

#### BUCKET

Buckets are subjected to sliding and impact wear as well as high loads. The combination of Hardox 400/450/500/550 makes it possible to optimize loading performance and service life.