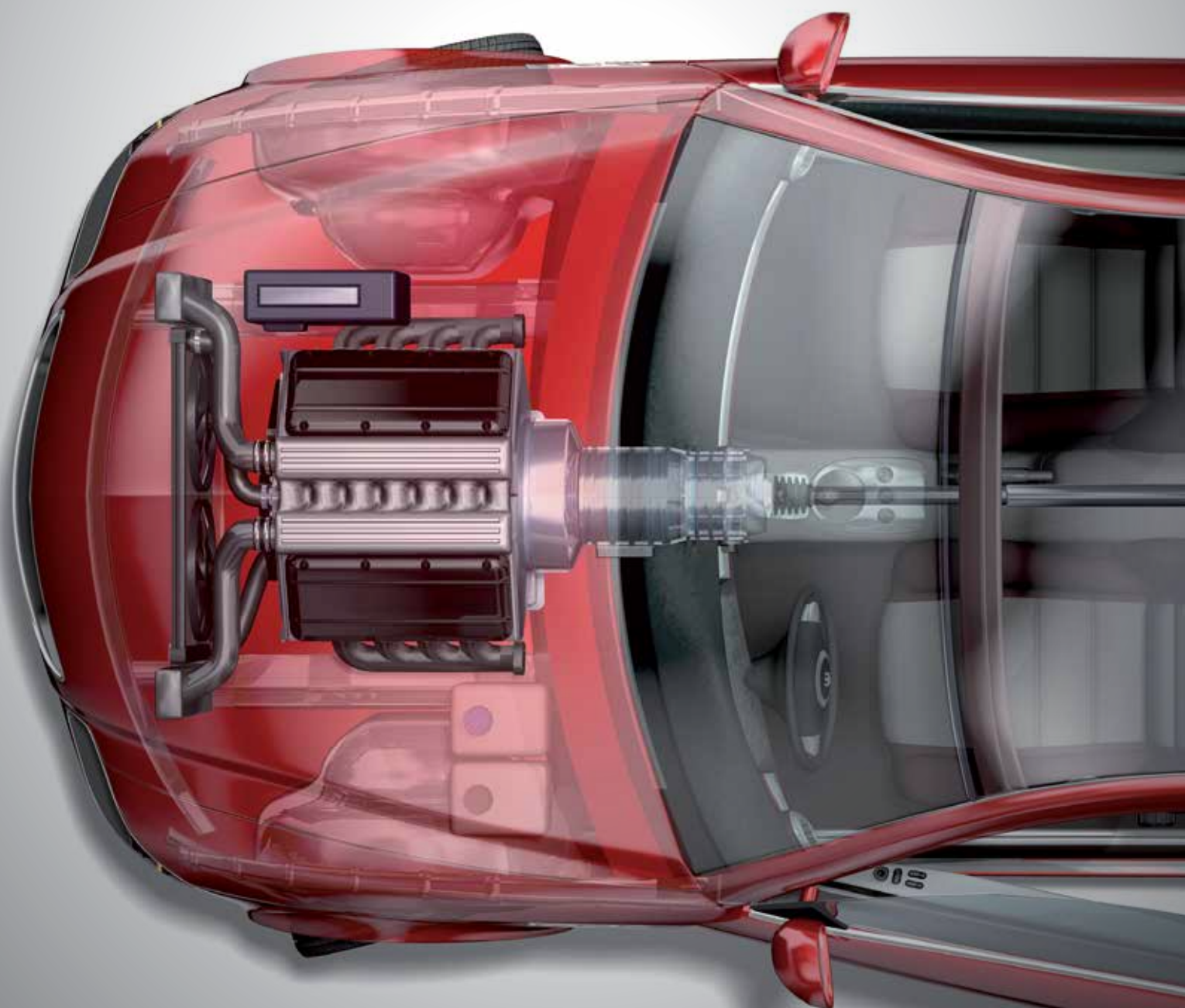


# ABP

Solution For Surface



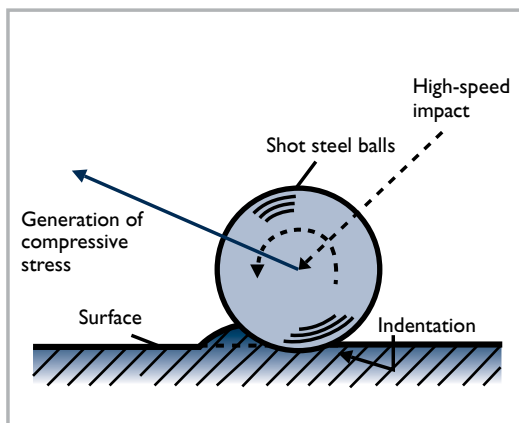
# ABP

ASSAB recognises the need for a one-stop solution for tooling customers and hence, we constantly strive to enhance our service portfolio in the automotive, packaging and construction industry.

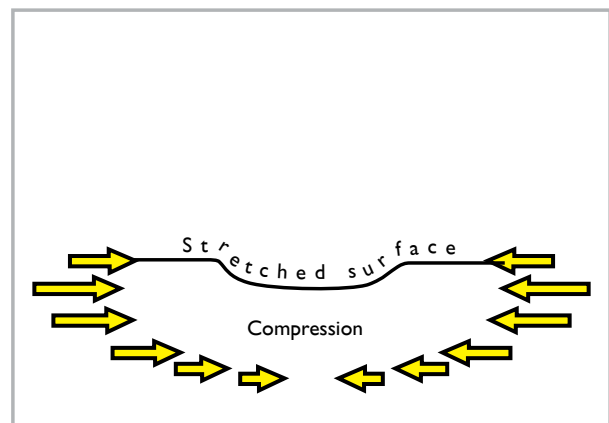
Besides our supply of special steels, ASSAB also offers machining services, heat treatment services, surface treatment and other services like technical consulting and laboratory services. As the demand for improved tooling economy and productivity increases, ASSAB developed ABP.

ABP is a shot peening process that introduces compressive stress to the surface of material. When you purchase ASSAB tool steels with ABP, you will enjoy the following key benefits:

- Reduced thermal fatigue and heat checking
- Reduced wear
- Improved surface finish
- Reduced stress crack
- Reduced growth of initialised cracks
- Extended mould life by 30 - 40%



Shot peening - Surface bombarded with high speed particles.



Formation of compressive stress by ABP.

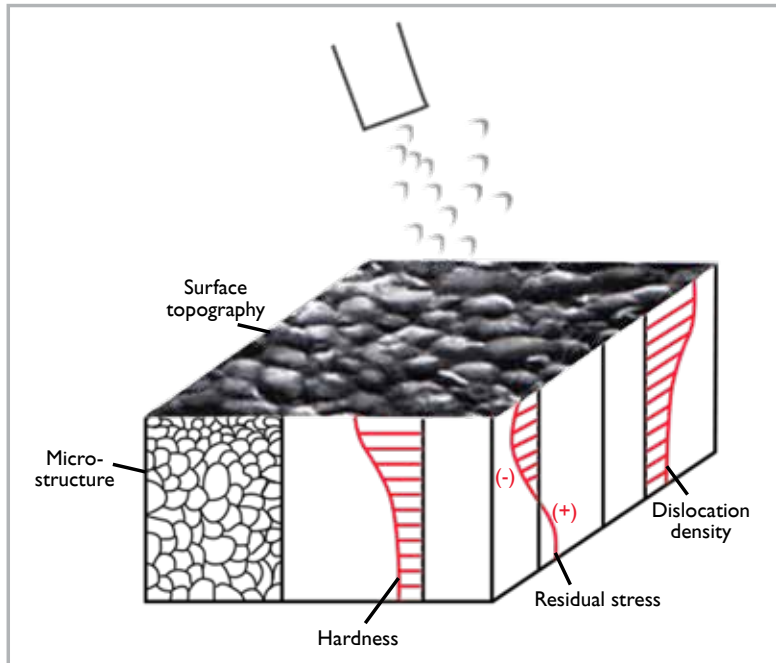
"ASSAB" and the logo are trademark registered. The information contained herein is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty for fitness for a particular purpose. Each user of ASSAB products is responsible for making its own determination as to the suitability of ASSAB products and services.

Edition 20210913

## ABP SERVICE PORTFOLIO

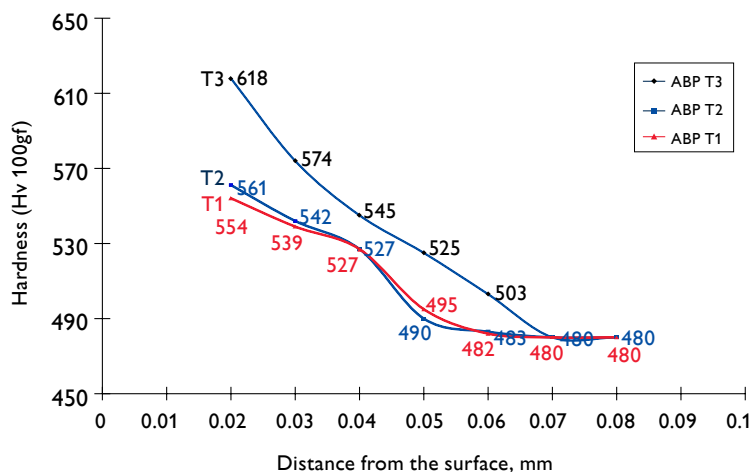
Cold working process is sometimes engaged to increase surface hardness of tool steels. ABP treatment is similar to the cold working process whereby the surface of a part is bombarded with impacts from small spherical media. As nearly all fatigue and stress corrosion failures originate from the surface of tool steels, compressive stress induced through ABP increases tooling life.

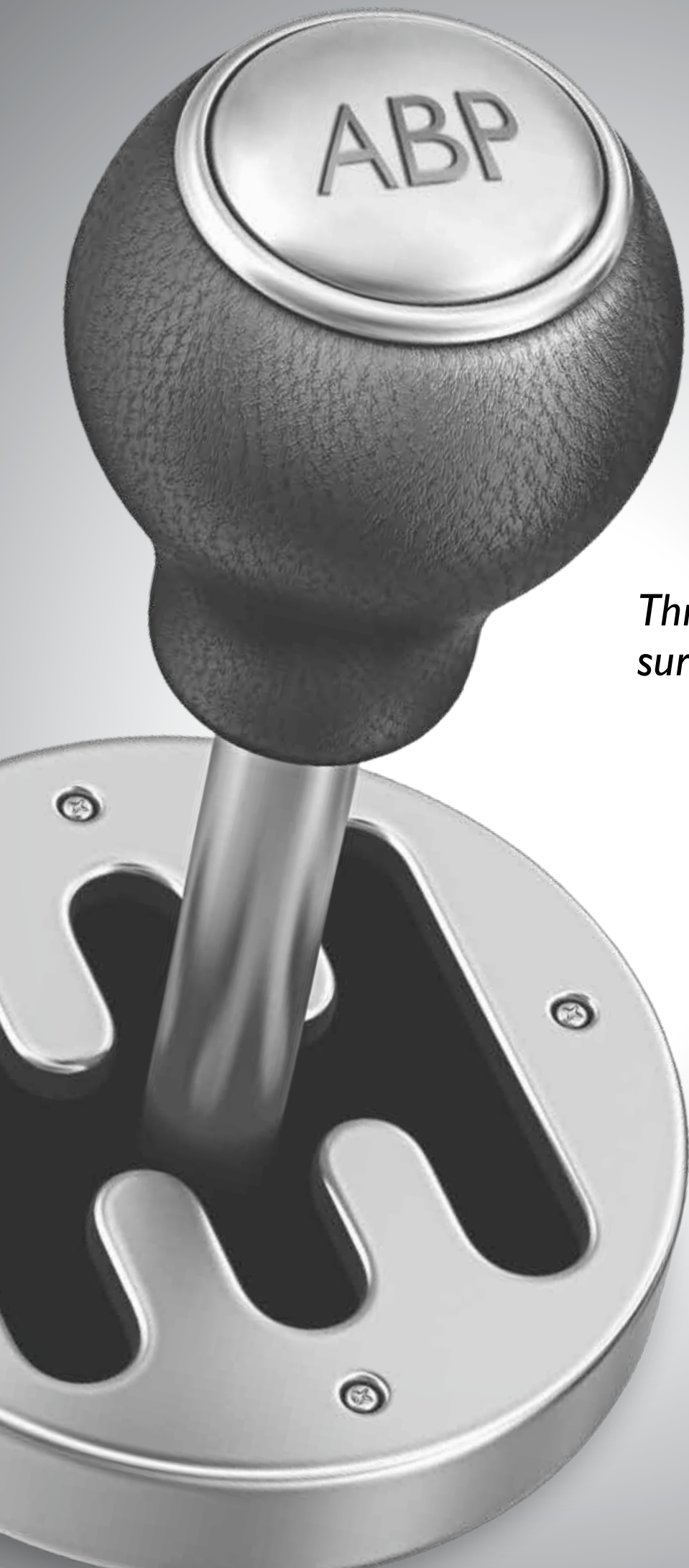
ABP improves the surface hardness and thereby reduces the risk of surface defects leading to fatigue cracking.



ABP enhances and strengthens the microstructure of die surface.

The three different curves, T1, T2 and T3, represent different ABP treatment time. T1 represents the shortest time and T3 the longest time.





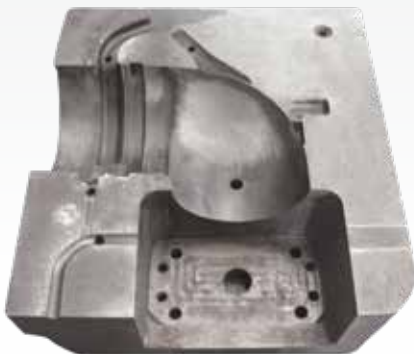
*Three different ABP  
surface treatments*

# ABP

ABP is a patented process developed mainly for die-casting application by ASSAB as an economical and simple method for increasing fatigue and wear resistance of tooling materials. ABP can be applied on new dies, and old dies that have undergone more than 20,000 shots or when heat cracking has appeared on the die surface.

ABP includes:

- Tempering (optional)
- Sand blasting
- Shot peening



Before ABP.

After ABP.



*The right direction*

## ABP Plus

ABP Plus, for die-casting dies, combines three processes—blasting, gas nitriding and oxidation. It is widely applied to new dies. Although ABP Plus for die-casting dies cannot be repeated like the ABP treatment, it has no limitation on shapes of dies. It is important to optimise the nitriding process based on the die-casting dies profile and size to obtain the right depth and case structure in the nitriding layer.

For hot forging and extrusion, ABP Plus consists of two processes, blasting and gas nitriding.

ABP Plus includes:

- Sand blasting
- Nitriding
- Oxidation (optional)



After ABP Plus.

# ABP Dual Plus

The latest addition to the ABP range of service portfolio is the ABP Dual Plus. This treatment includes ABP, nitriding and oxidation. It is mainly used on special die-casting dies that require higher tool life over 100,000 shots.

It is important to optimise the nitriding process according to the die-casting dies profile and size to obtain the right depth and case structure in the nitriding layer.

ABP Dual Plus includes:

- Sand blasting
- Shot peening
- Nitriding
- Oxidation



## ABP services for various tooling applications

ABP and ABP Plus have been successfully used in:

- Die casting for aluminum, magnesium and zinc alloys.
- Hot forging dies for various alloys, including aluminum, copper and titanium alloys.
- Cold forging dies for aluminum alloys and extrusion application.

The ABP range of treatment can be applied to both new and used dies in order to improve the surface performance. With ABP, surface hardness increases, reducing the possibility of defects on surface resulting in erosion failure.

After 1<sup>st</sup> ABP -  
65,000 shots.



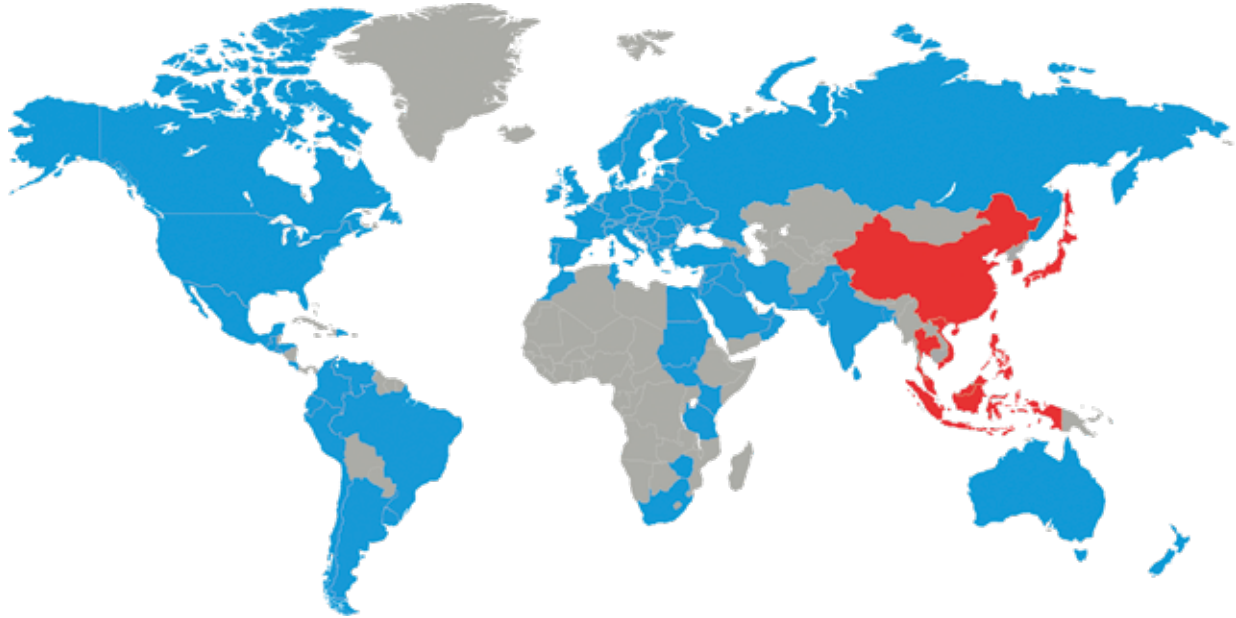
After 2<sup>nd</sup> ABP - additional  
95,000 shots.



ABP can be repeated on dies.



ABP can reduce erosion failure.



Choosing the right steel is of vital importance. ASSAB engineers and metallurgists are always ready to assist you in your choice of the optimum steel grade and the best treatment for each application. ASSAB not only supplies steel products with superior quality, we offer state-of-the-art machining, heat treatment and surface treatment services to enhance steel properties to meet your requirement in the shortest lead time. Using a holistic approach as a one-stop solution provider, we are more than just another tool steel supplier.

ASSAB and Uddeholm are present on every continent. This ensures you that high quality tool steel and local support are available wherever you are. Together we secure our position as the world's leading supplier of tooling materials.

For more information, please visit  
[www.assab.com](http://www.assab.com)

