

Pioneers break barriers

LEAD THE WAY WITH ASSAB AUTOMOTIVE LIGHTING



ESR MATERIALS FOR HIGH SURFACE FINISH DEMANDS AND METALLURGICALLY BALANCED GRADES.

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Edition 20170101

OUTSTANDING LIGHTING SOLUTIONS

TOOL RELIABILITY

AND PRODUCTION

ECONOMY

A change from metal to plastic parts makes an important difference for your business. Lower fuel consumption and reduced CO₂-emissions place demands on vehicle weight reduction. This coupled with severe pressure on prices and short lead time means that choosing the right tool steel for your moulds is a crucial first step to better total tooling economy.

OPTIMAL TOOL STEEL LOWERS COSTS

The development in the automotive industry points to increasing demands for higher strength plastic vehicle parts. The parts are also becoming larger and the surface requirements more challenging. ASSAB's product program for large plastic moulds includes several steel grades perfectly suited for the tough demands of the automotive industry. By selecting the optimal tool steel for the respective application, you get the possibility to maximise tool life and performance, giving the lowest possible total tooling cost per part produced.

FOR YOUR BENEFIT

ASSAB and Uddeholm's committed partnership stretches all the way from R&D to distribution service. Offering a worldwide marketing organisation and strategically located warehouses, we place great emphasis on matching our stock size programme and stock levels with the needs of individual markets. Each of our stock locations has a well established distribution system to assure ready availability wherever and whenever you need it.





UDDEHOLM



**Complex design requires
intelligent tool steel**

FROM LENS TO HOUSING

ASSAB's solutions for the automotive industry are the result of dedicated research and innovative product development from the best metallurgists and field specialists in the world. Tool steel from ASSAB not only meets the toughest demands on production, it delivers the added value that enhances competitiveness for you.

HIGH QUALITY FOR BETTER BUSINESS

ASSAB's range of steel grades is developed and refined to meet the needs of the plastic moulding industry. With market leading metallurgy and production technology we secure the mechanical properties and provide the unique material characteristics that are required for demanding applications.

Our business-enhancing solutions multiply the life and performance of the mould, reduce maintenance and increase production rates. It's your fastest way to lower costs and better total tooling economy.

PROFESSIONAL PROBLEM SOLVERS

Technology and design trends both affect the world of lighting. But regardless how development changes the industry, we know that high standards for tool steel will always be present and play an important role on the market.

With ASSAB as a partner, you get access to the best metallurgists and field specialists in the world. In close collaboration with our customers we research, develop and test materials, tools and production so that you always can be one step ahead of your competitors.

PIONEERING RESEARCH AND INNOVATIVE PRODUCT DEVELOPMENT

ONE SOURCE FOR ALL YOUR TOOL STEEL NEEDS

ASSAB provides the world's most advanced tool steel, perfectly suited for moulds with complex shapes and demanding surfaces. Corrosion, high temperatures, temperature changes and wear are just a few of the challenges you face everyday. Choosing the right tool steel is the solution.

The headlights represent an essential part of the car's design and have a great influence on its personality.



SCHEME FRONT LIGHT

1 LENS

PLASTIC MATERIAL: Polycarbonate

FEATURES: Complex shapes, high polished surfaces

- ✓ Mechanical properties
- ✓ Wear and compression resistance
- ✓ Polishability
- ✓ Hardenability

2 EXTENSION

PLASTIC MATERIAL: Polycarbonate or PA66

FEATURES: Complex shapes, high polished surfaces

- ✓ Mechanical properties
- ✓ Wear and compression resistance
- ✓ Polishability
- ✓ Hardenability

3 REFLECTOR

PLASTIC MATERIAL: BMC Thermosetting

FEATURES: Complex shapes, PVD coating or chromium plating is sometimes used

- ✓ Abrasive wear resistance
- ✓ Mechanical properties
- ✓ Corrosion resistance

4 HOUSING

PLASTIC MATERIAL: Polypropylene or PBT with 20-40% Talc or Glass fibre

FEATURES: Complex shapes

- ✓ Mechanical properties
- ✓ Good machinability
- ✓ Pre-hardened tool steel
- ✓ Good heat conductivity

KNOWING WHAT YOU WANT AND MEETING YOUR DEMANDS

Because the reflector and housing are grouped in one piece the production process for backlights is less complex. Nevertheless, the high demands on material properties are consistent. ASSAB's quality tool steel developed specifically for automotive lighting meets and exceeds your mould requirements.



SCHEME BACK LIGHT

1 COLOURED LENS

PLASTIC MATERIAL: Polymethyl methacrylate (PMMA)

FEATURES: Complex shapes, high polished surfaces, double moulding

- ✓ Mechanical properties
- ✓ Wear and compression resistance
- ✓ Polishability
- ✓ Hardenability

2 REFLECTOR AND HOUSING

PLASTIC MATERIAL: ABS/Polycarbonate

FEATURES: Complex shapes

- ✓ Mechanical properties
- ✓ Good machinability
- ✓ Pre-hardened tool steel
- ✓ Good heat conductivity

HIGH END CUSTOMISATION WITH LASER

New technology such as LED and laser bring the advantages of more design options as well as energy savings.

Another important benefit with the new lighting solutions is that they are more efficient and take up less space in the vehicle. They produce less heat for the same or better light output in comparison to the solutions of earlier generations. However, when the design becomes more intricate, the shapes of moulds must develop and become more advanced.

The system behind laser and LED is characterised by a larger number of smaller and more complex pieces. This means high demands on the tool steel for both manufacturing and moulding.

All lighting techniques demand intelligent, high performance tool steel and the standards of ASSAB's portfolio are perfectly suited for the production models required for high end headlights.

SOLUTIONS THAT MAKE A DIFFERENCE

TOOL STEEL THAT SAVES TIME AND MONEY

For manufacturers, ASSAB's automotive tooling has the technological capability to meet the demands for complex moulds and production. For the automotive industry we're answering the need for cost-saving and efficient production of parts that reduce vehicle weight. ASSAB's ambition is always to find the answer to future challenges before they even arise.



ADDITIONAL SERVICES

We can support you with business-enhancing services and technical advice regarding:

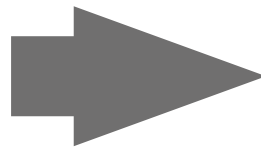
✓ Heat treatment ✓ PVD coating ✓ Polishing ✓ Pocketing ✓ Fine machining ✓ Welding and supporting materials

ASSAB's product program for large plastic moulds is developed and customised for the tough demands of the automotive industry.

FIND YOUR MATCH!

THROUGH-HARDENING

46 – 52 HRC



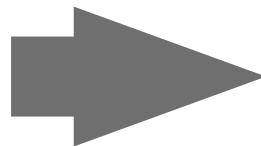
Vidar 1 ESR

ASSAB 8407 Supreme

Mirrax ESR

PRE-HARDENED

30 – 40 HRC



Mirrax 40

Nimax

Nimax ESR

	WEAR RESISTANCE	TOUGHNESS	POLISHABILITY	CORROSION RESISTANCE
Vidar 1 ESR	██████████	██████████	██████████	██
ASSAB 8407 Supreme	██████████	██████████	██████████	██
Mirrax ESR	██████████	██████████	██████████	██████████
Mirrax 40	██████	██████████	██████████	██████████
Nimax ESR	██████	██████████	██████████	██
Nimax	██████	██████████	██████████	██

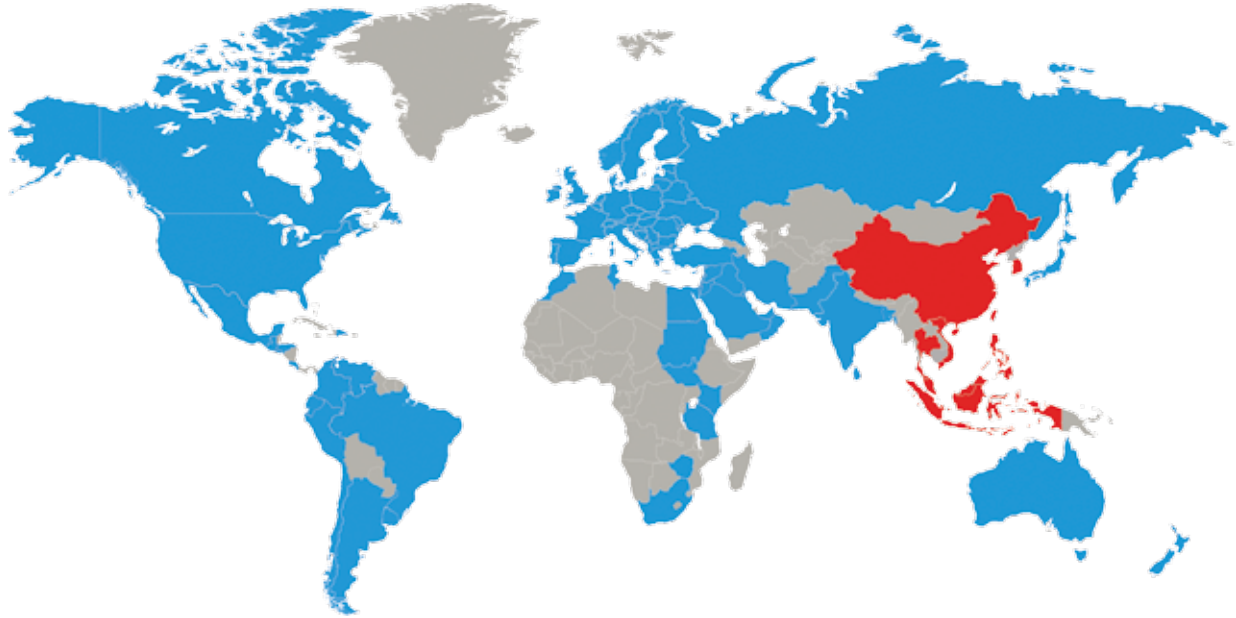


ASSAB SUPERIOR TOOLING SOLUTIONS A ONE-STOP SHOP



ASSAB is unmatched as a one-stop product and service provider that offers superior tooling solutions. In addition to the supply of tool steel and other special steel, our range of comprehensive value-added services, such as machining, heat treatment and coating services, span the entire supply chain to ensure convenience, accountability and optimal usage of steel for customers. We are committed to achieving solutions for our customers, with a constant eye on time-to-market and total tooling economy.





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