

FOR SUPERIOR HOT FORMING TOOLS

Uddeholm Skolvar®


# Tailormade

TO OUTPERFORM THE CHALLENGES





The word Skol comes from Norse mythology. Skol is one of two wolves that chase the sun and moon across the sky and Skol is the one chasing the sun. To be able to chase the sun, it needs the properties found in the product: hot wear resistance, and the ability to withstand extreme heat without losing hardness or durability.

A misty landscape with a bright sun in the sky and evergreen trees in the foreground. The sun is a large, bright, glowing orb in the upper center of the frame, casting a soft, golden light across the scene. The sky is a pale, hazy yellow. The foreground is dominated by the dark, silhouetted branches of evergreen trees, some of which are in sharp focus while others are blurred. The overall atmosphere is serene and atmospheric.

Uddeholm offer a wide range of high-quality hot forming material for superior performance in a variety of applications. The unique forging grade Uddeholm Skolvar is designed to withstand extreme heat, pressure, and wear, making it ideal for the most demanding hot forming applications.

To improve the heat resistance of hot forming dies and reduce the risk for wear, manufacturers may use high-performance materials such as Uddeholm Skolvar. This material has excellent thermal stability and can withstand the high temperatures and load involved in the forming process.



# The challenges

## SUPERIOR HOT FORMING TOOLS

One of the main challenges in selecting materials for hot forming dies is ensuring hot wear resistance. With high contact pressures and temperatures, the die surface can wear significantly, leading to a decrease in dimensional accuracy of the final product.

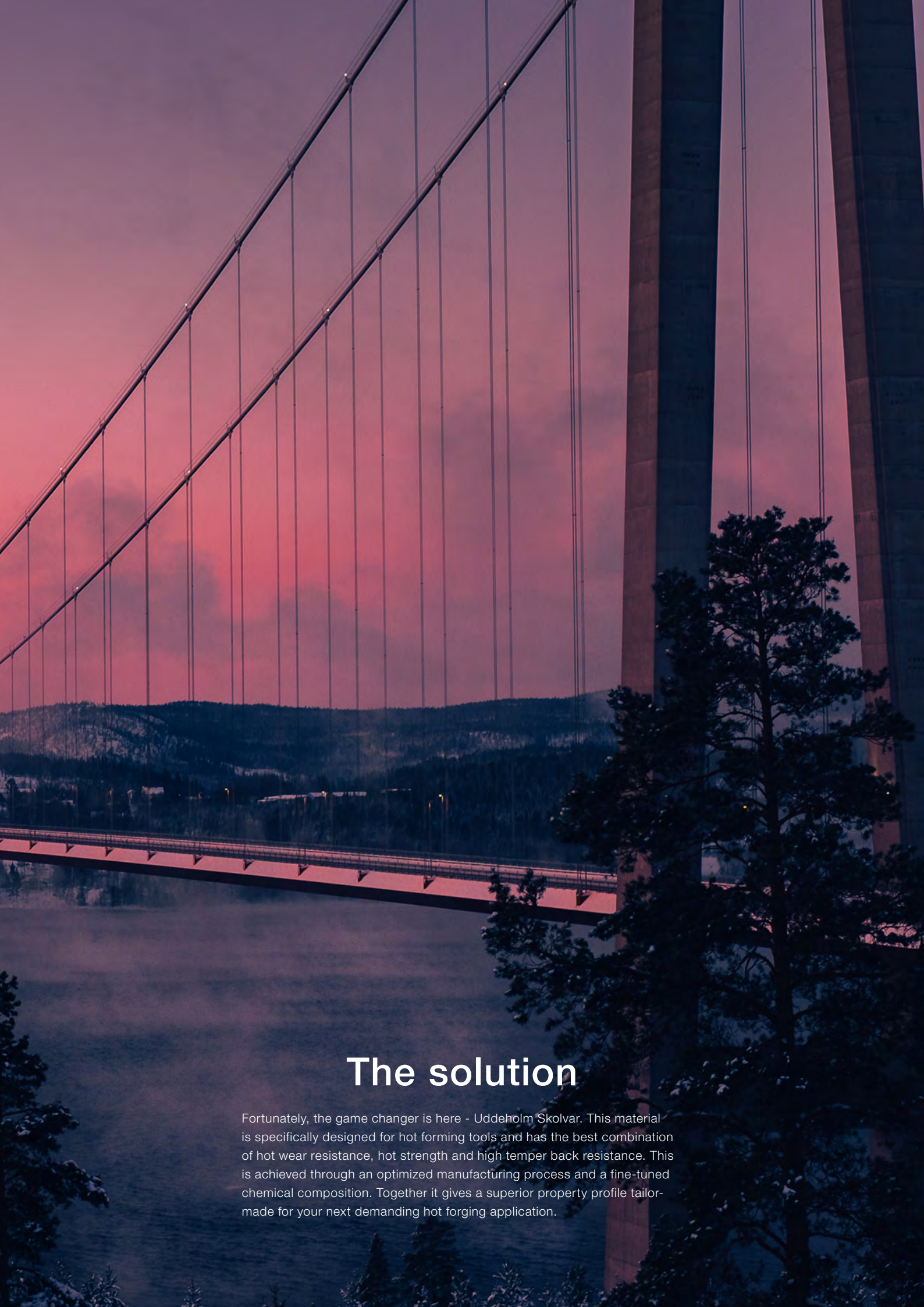
Many tool steels, such as AISI H13 and H11 types, are commonly used but do not have the properties required to resist hot wear. Higher alloyed grades, such as AISI D2 types, improve hardness and wear resistance but lack high-temperature stability, making them non-durable and not resistant to hot wear for long production cycles. Therefore, it's crucial to choose a material that is highly hot wear-resistant and can withstand these harsh conditions.

Temper back is a condition that occurs when the die surface is exposed to high temperatures over time. This can cause a drop in hardness, strength, wear resistance, and the ability to maintain its shape. To avoid this, it's important to use alloying elements that give high temper back resistance.

Hot strength is another important factor to consider. The die material must be strong enough to handle the significant load and forces exerted during the hot forming process without deforming. Yield and proof strength of a material has normally a tendency to significant drop at elevated temperature.

Uddeholm Skolvar with its properties resist this significant drop making it less vulnerable for plastic deformation during the hot forming process. For superior hot forming tools these properties lead to increased efficiency and decreased maintenance costs.





## The solution

Fortunately, the game changer is here - Uddeholm Skolvar. This material is specifically designed for hot forming tools and has the best combination of hot wear resistance, hot strength and high temper back resistance. This is achieved through an optimized manufacturing process and a fine-tuned chemical composition. Together it gives a superior property profile tailor-made for your next demanding hot forging application.



The performance of hot forming dies used in high demand applications is critical to the quality and precision of the final product. These dies must be made of materials that can withstand the high temperatures and pressures of the forming process without deforming or wearing out. Accuracy and consistency are also important factors to consider.



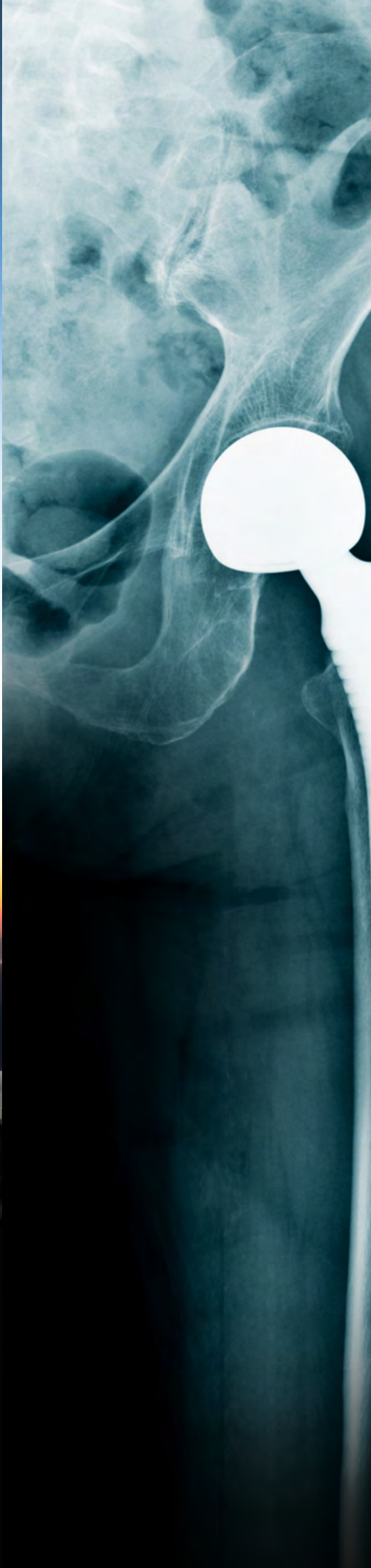


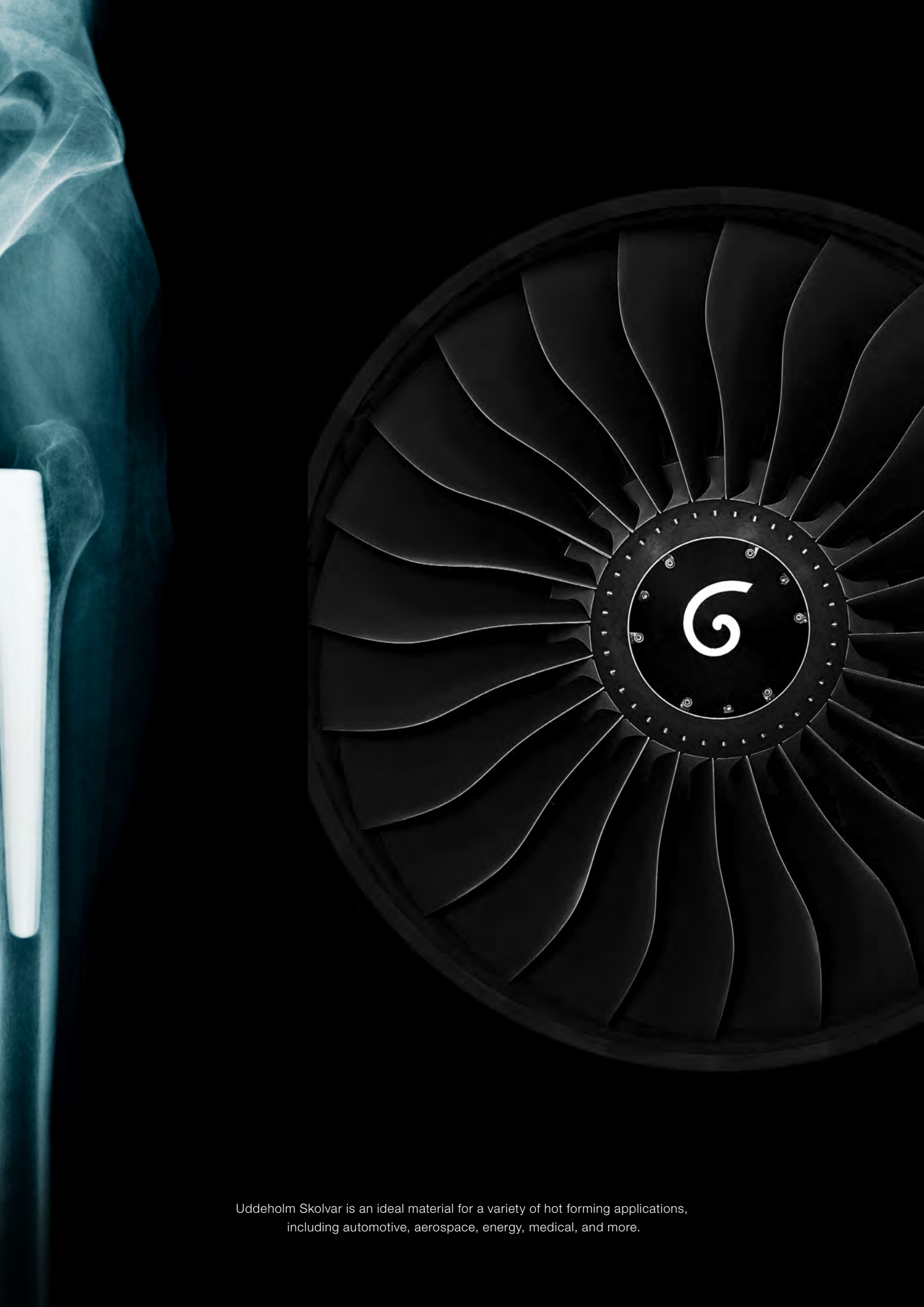




Uddeholm Skolvar is developed to meet your strictest quality standards through Electro Slag Remelting (ESR). It is an ideal material for a variety of hot forming applications, including automotive, aerospace, energy, medical, and more.

Uddeholm Skolvar meets your exact specifications so you can rest assured that you're getting the best quality for your high-demand products.





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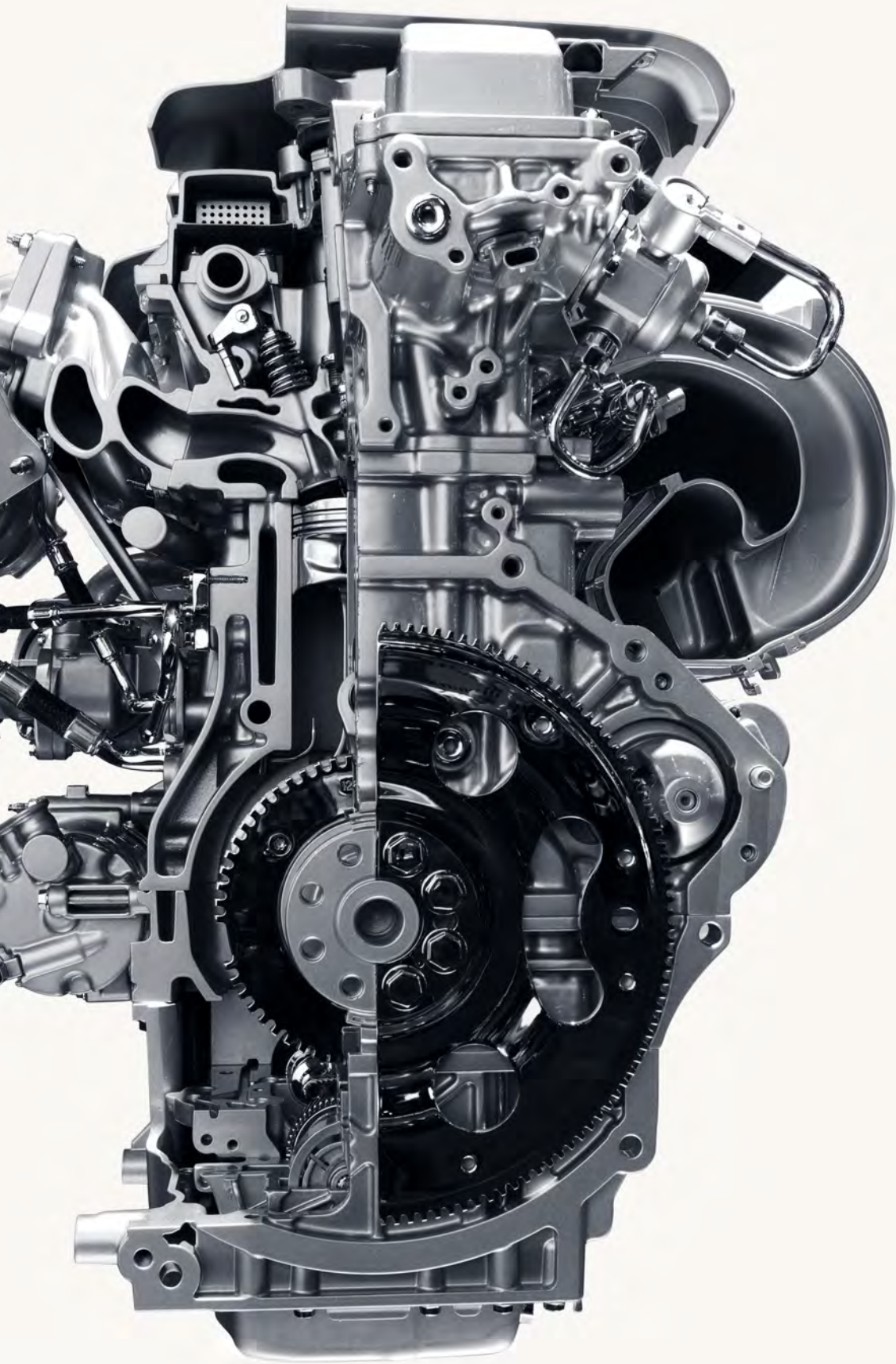
## Application areas

THE DURABILITY YOUR TOOLS NEED

Selecting the right material for your forging project is crucial to ensure that your parts meet the highest standards of quality and performance.

By using Uddeholm Skolvar, you can benefit from its superior strength and durability, excellent wear and heat resistance, consistent quality and performance, and wide range of sizes available. Uddeholm Skolvar is perfect for several forging applications and press hardening dies, including those that require high-strength materials or longer forging cycles.

The challenges that come with forging complex shapes of titanium, stainless steel, and nickel base alloys. That's why we recommend using Uddeholm Skolvar. With Uddeholm Skolvar, you can achieve accurate and repeatable production of parts while keeping costs under control.

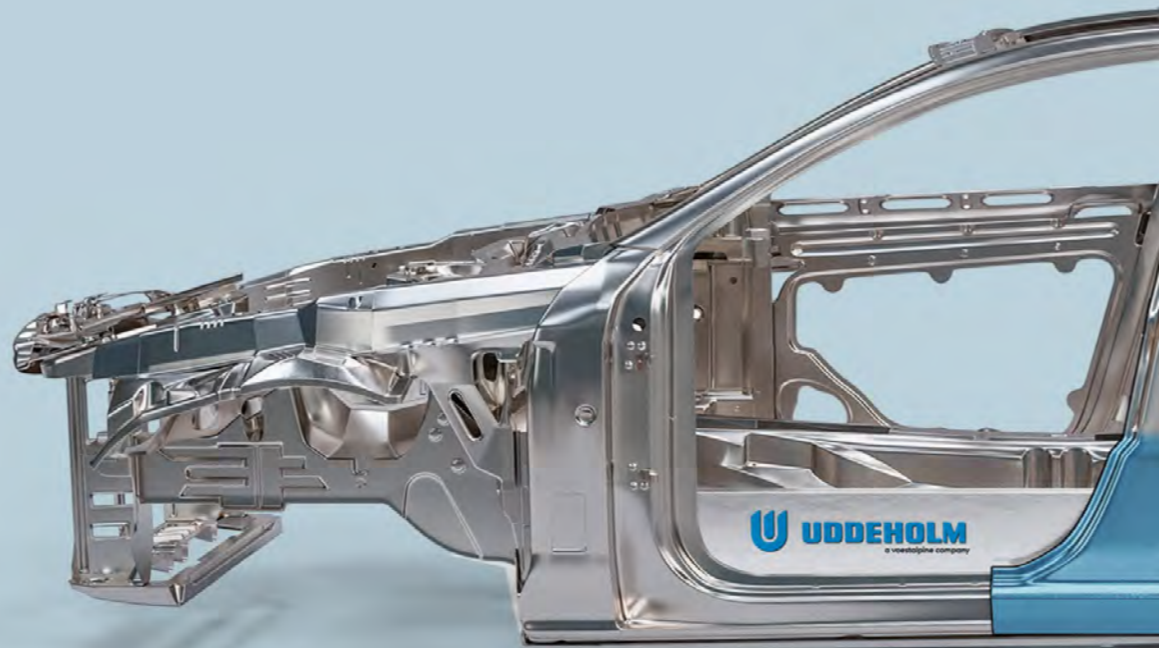








Forming dies can be expensive and time-consuming to manufacture, which is why many manufacturers prefer to extend their lifespan by performing die recuts. Uddeholm Skolvar is an ideal material for die recuts, it can be refurbished through various methods including machining, grinding and welding.



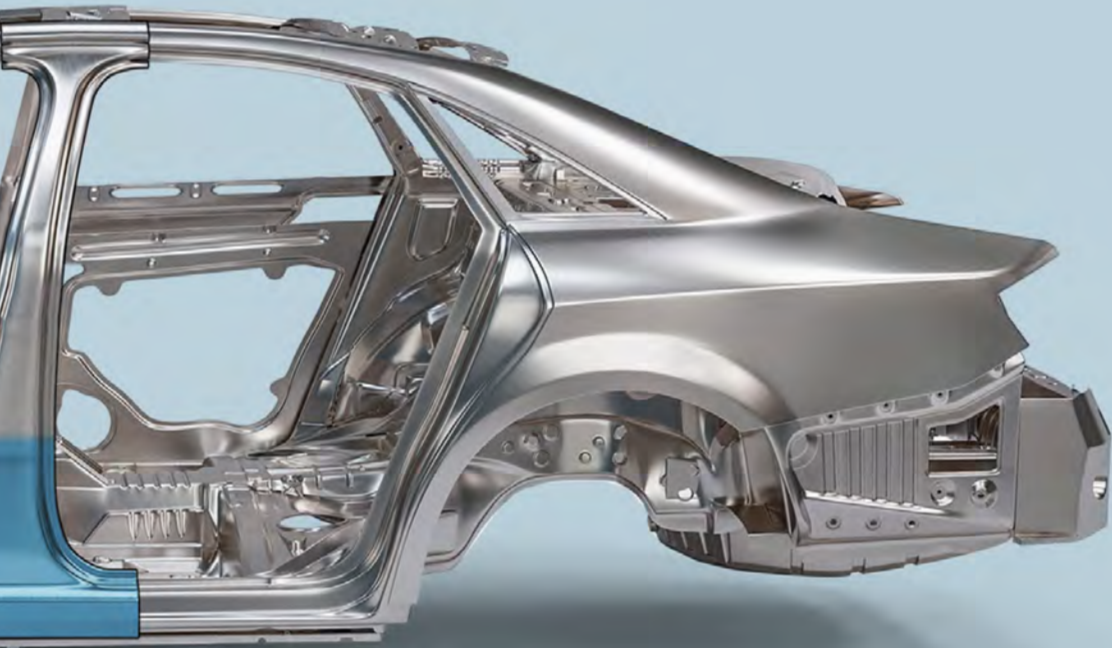
#### TYPICAL CHEMICAL COMPOSITION %

Alloying element	C	Si	Mn	Cr	Mo	V
Uddeholm Skolvar	0.70	0.20	0.45	5.00	2.25	1.60

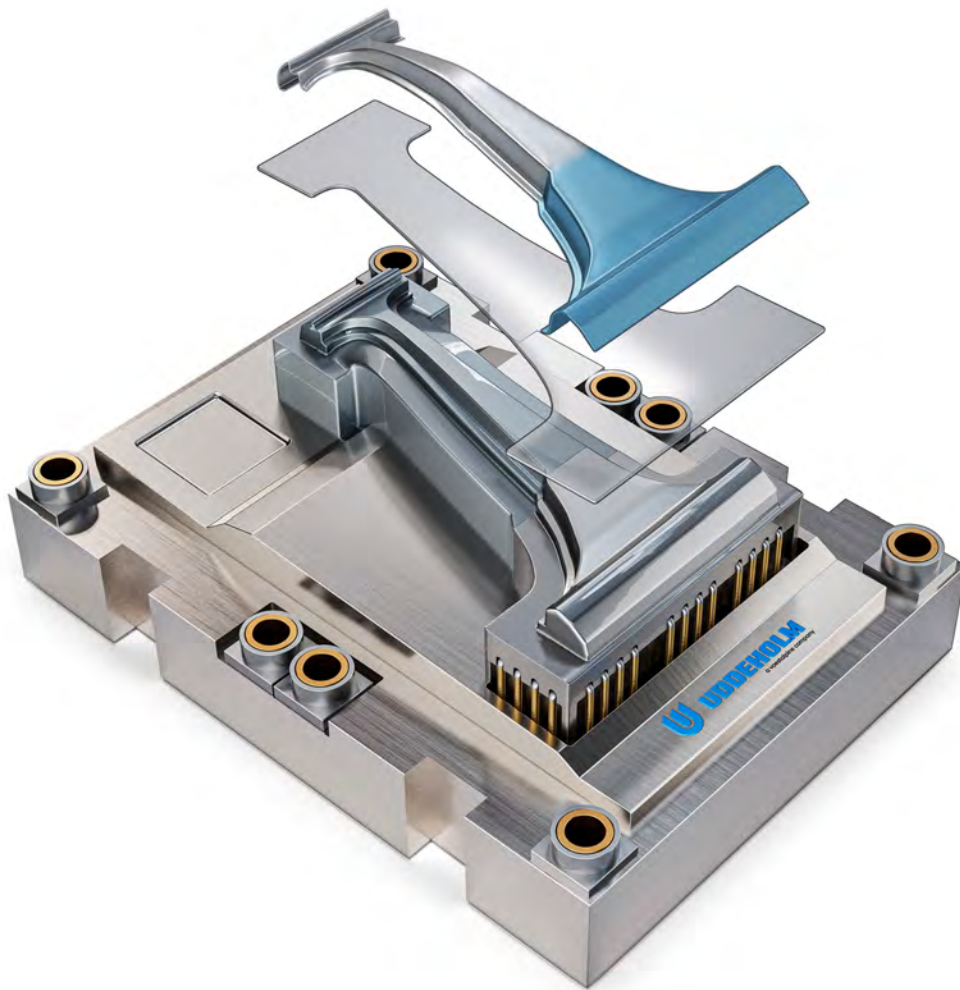
#### Next step in high-performance tool steel

The benefits of using Uddeholm Skolvar in hot forming applications, including forging, press hardening, and more. It is recommended that you take the following four steps:

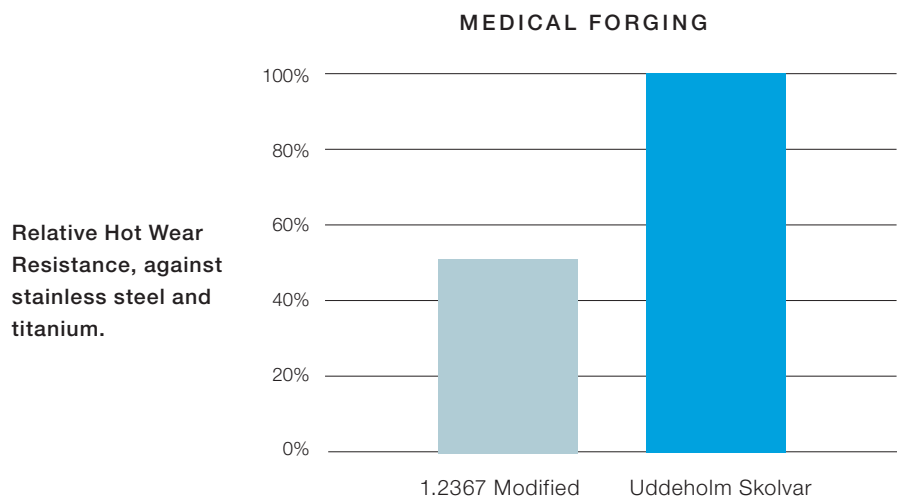
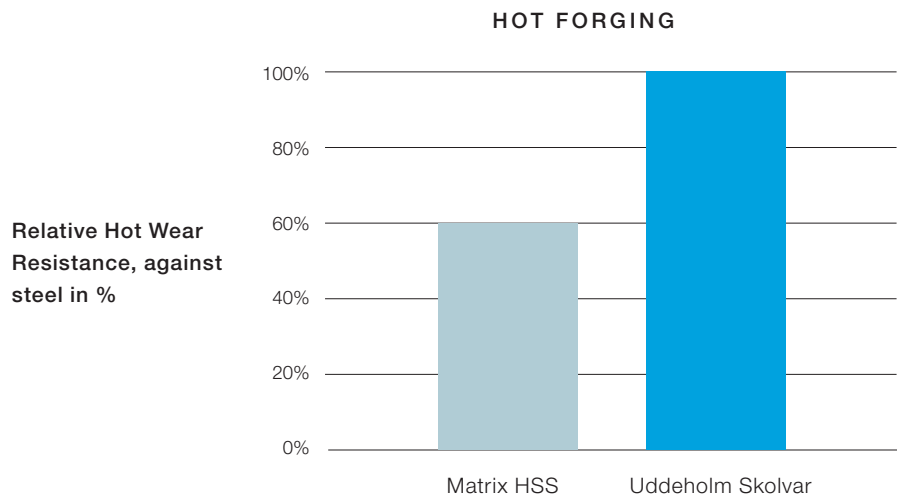
1. Identify your specific project needs and material requirements for your applications.
2. Consider the key benefits of Uddeholm Skolvar, including:
  - Superior Strength and Durability
  - Excellent Wear and Heat Resistance
  - Consistent Quality and Performance through ESR
  - A wide range of Sizes available for your need



	Uddeholm Skolvar	AISI H11/H13 Types of alloys	AISI D2 Types of alloys
Hot Wear Resistance	●	◐	◑
Temper Back Resistance	●	◐	◑
Hot Strength	●	◐	◑
Cracking Resistance	◐	●	◑
Weldability	●	●	◐



3. Take into account the impact of hot forming process parameters on die wear and choose the right material to ensure it continues to function properly and produce high-quality parts, which can help minimize waste and reduce production costs.



4. Follow proper die maintenance procedures to ensure the longevity and effectiveness of the Uddeholm Skolvar material in your application.

Longer production runs and higher quality end products, supports your on-going sustainability efforts. This is thanks to the high quality and dimensional stability of the end products, which simply means fewer discarded end products, resulting in a higher return on investment.



# Why Uddeholm?

ENABLING YOUR COMPETITIVENESS

More and more tool users are choosing the exclusive range of Uddeholm tool steel. How do we do it? By putting your business needs first. We are the only tool steel supplier with dedicated international tool steel researchers, metallurgists, and product development teams.

Uddeholm provides you with proven and exclusive tool steel that increases your competitiveness in the markets in which you operate. You can also enjoy customised sales and support services worldwide.



Manufacturing solutions for generations to come

## SHAPING THE WORLD®

We are shaping the world together with the global manufacturing industry. Uddeholm manufactures steel that shapes products used in our every day life. We do it sustainably, fair to people and the environment. Enabling us to continue shaping the world – today and for generations to come.



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