

Developed by experts – made for tooling by Additive Manufacturing

Uddeholm Corrax

ADDING VALUE TO YOUR BUSINESS





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WARNING: Risk of fire
Please use the correct
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#1 IN HIGH PERFORMANCE TOOL STEEL

With pioneering research and development, innovative thinking and deep commitment, Uddeholm offers business-enhancing steel solutions to premium clients all over the world.

What started as a small iron mill in 1668 has now become the world's leading provider of tool steel, with business and operations in 90 countries. Always with the promise to deliver solutions that enhance competitiveness and create added value for our customers.



SETTING A NEW STANDARD

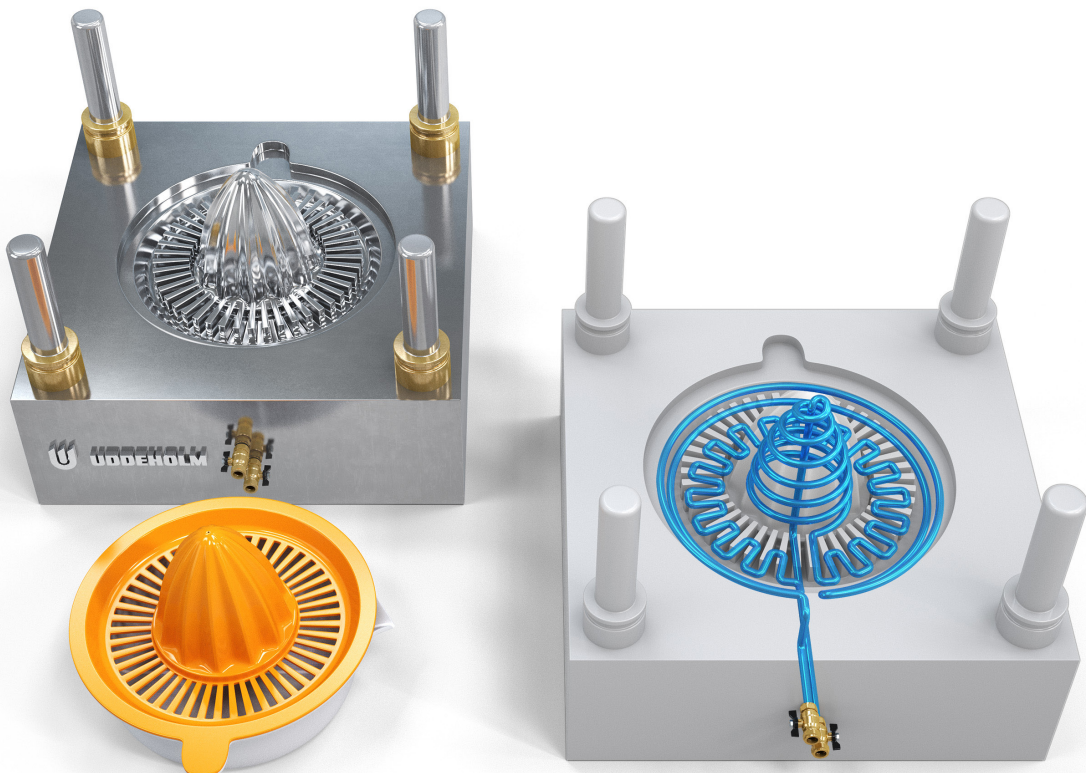
SHAPING THE FUTURE

From start to finish, customer needs are what matters. Uddeholm Corrax is changing the rules and raising the standards for additive manufacturing.

ALWAYS MOVING FORWARD

For you, Uddeholm's latest launch is a promise of better business and unlimited production possibilities. For us, this is over 350 years of experience and market-leading metallurgy applied to new technology. From R&D to testing, your needs and our quality standards are the two constant variables that accompany everything we do, no matter the name of the finished product. With Uddeholm Corrax for AM we are securing our position as the world's leading provider of tool steel

solutions and offering manufacturers the chance to take a giant leap forward within printing. Parallel to Uddeholm winning ground in a new area of expertise, the industry now has to adjust to a new perspective regarding additive manufacturing material. The work of the best metallurgists and field specialists in the world has resulted in the superior solution for challenging shapes and complex demands. Uddeholm Corrax is the first AM-powder developed specifically for tooling.



INNOVATION AND CUSTOMIZATION

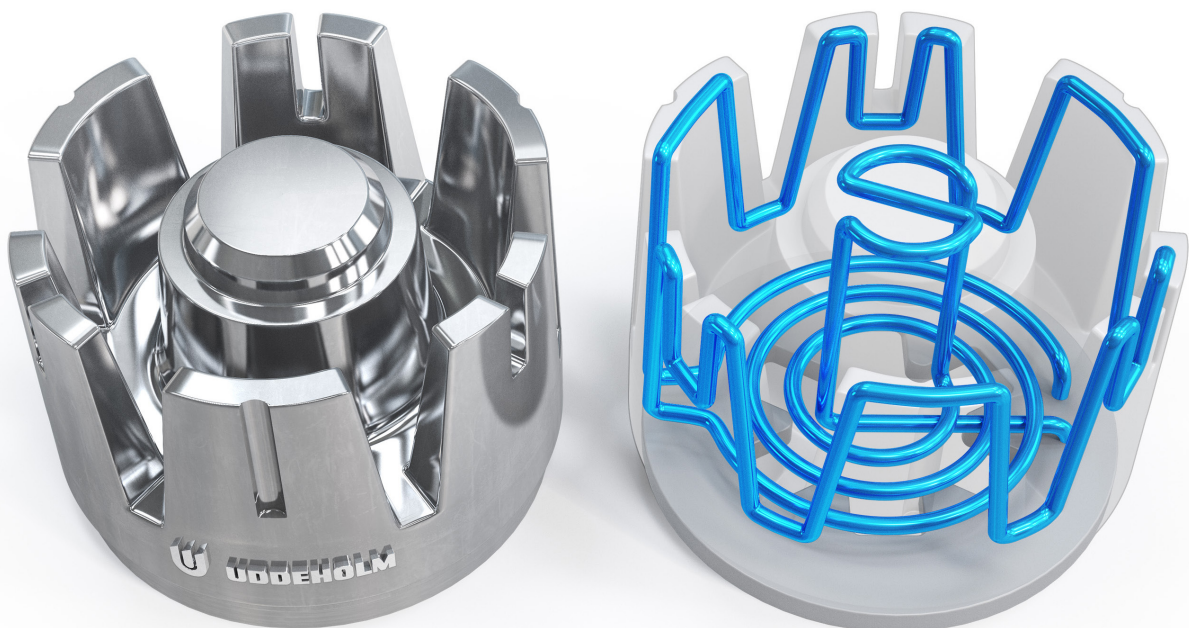
MOULDS THAT MEET YOUR NEEDS

Tool steel from Uddeholm is a quality guarantee that increases productivity and lowers maintenance costs. Uddeholm Corrax is the pioneering printing material for high demands and efficient design.

UTILIZE THE TECHNOLOGY

Understanding your needs is the key to developing and refining a finished product that not only meets your requirements, but also presents an answer to possible challenges before they arise. Great material knowledge and understanding your production

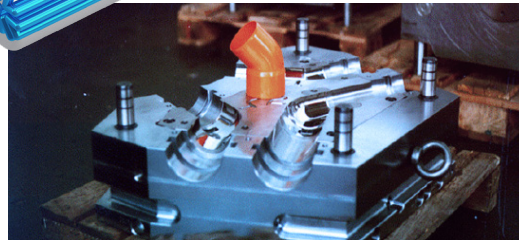
environment is always the starting point. With the most advanced tool steel your production and high-end technology are no longer suppressed by material limitations and good enough-quality. Uddeholm Corrax is the stepping stone that transforms your high expectations into a value-adding solution.





OPTIMIZED CYCLE TIMES

Uddeholm Corrax for AM is the latest addition to Uddeholms' broad range of market-leading tooling solutions. Its unique material and mechanical properties offer an improved way of manufacturing – the finishing piece of the puzzle for your high performance tools. By using the best additive manufacturing material available it is possible to create the customized cooling channels you need for efficient and reliable moulds that



push production rates to the top. This fine particle powder guarantees ground-breaking polishability, so you will always meet the high surface requirements that characterize demanding applications.

GAME-CHANGING QUALITY

With the latest launch from Uddeholm, the relationship between tooling and additive manufacturing takes a different form and reaches a new level. By applying our experience and expertise of raw material and metallurgy to innovative technology, we are forcing new challenges to adjust to our ever-present and indispensable rule: choose the right material for the job. It is a simple way of developing advanced



tool steel and delivering tooling solutions that make a difference for our customers. Profitable benefits that saves time and money, from tool steel with long-lasting performance.

SHORTER TIME TO MARKET

From start to finish Uddeholm's specialists have been driven by the committed ambition to establish the material properties and printing parameters that place equal value on tooling efficiency and product quality. This means that Uddeholm Corrax is the first powder for additive manufacturing developed with a specific application in mind. It is designed to maximize tool life,



to raise production rates and to make unplanned stoppage and money-draining maintenance a thing of the past.

WITH THE PROMISE TO CREATE VALUE

FROM SUITABLE TO PERFECT

Uddeholm Corrax for AM is developed for complex shapes and innovative design in a fast and changing industry. You get all the benefits from our conventional stainless steel grade in the form of an advanced metallurgical powder. New, improved and made for tooling.

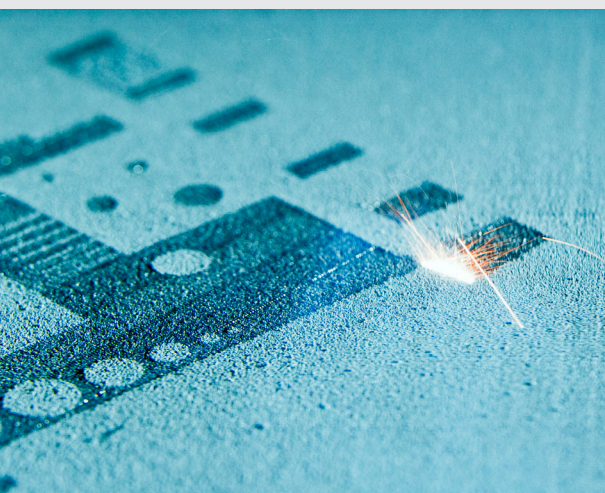
BETTER BUSINESS FROM START TO FINISH

Controlling and understanding the quality of the powder is essential in order to achieve the desired mechanical properties of the printed components. Most powders for additive manufacturing currently available on the market are there because they suit the technology and not the other way around. Uddeholm is now leading the shift from suitable to perfect by developing the right

metallurgical match for your final application. Every step of the process behind Uddeholm's AM-material is focused on meeting your tooling needs. From chemical composition to size and shape distribution and flowability in the printer, we are always considering the factors that enhance quality and create value. Thanks to our close collaboration with leading partners we can research and test materials, tools and production so that you can be one step ahead of your competitors.

Uddeholm Corrax in short

- Corrosion-resistant tool steel
- Flexible hardness 34–50 HRC
- Ageing treatment 425–600°C (790–1110°F)
- Extremely good homogeneity
- Extremely good polishability
- Easy to process by AM technologies



FIRST AM-POWDER MADE FOR TOOLING 01

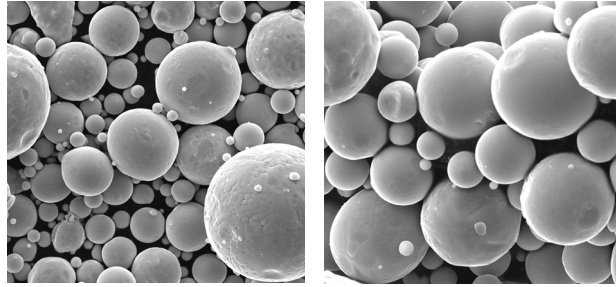
OPTIMIZED MOULDS 02

IMPROVED PART QUALITY 03

INCREASED PRODUCTIVITY 04

MATERIAL KNOWLEDGE IS WHAT MATTERS

The process and quality control in Uddeholm's powder lab is your reliable guarantee for homogeneity in size and shape. The result is powder with minimal cladding.



SIZE AND SHAPE

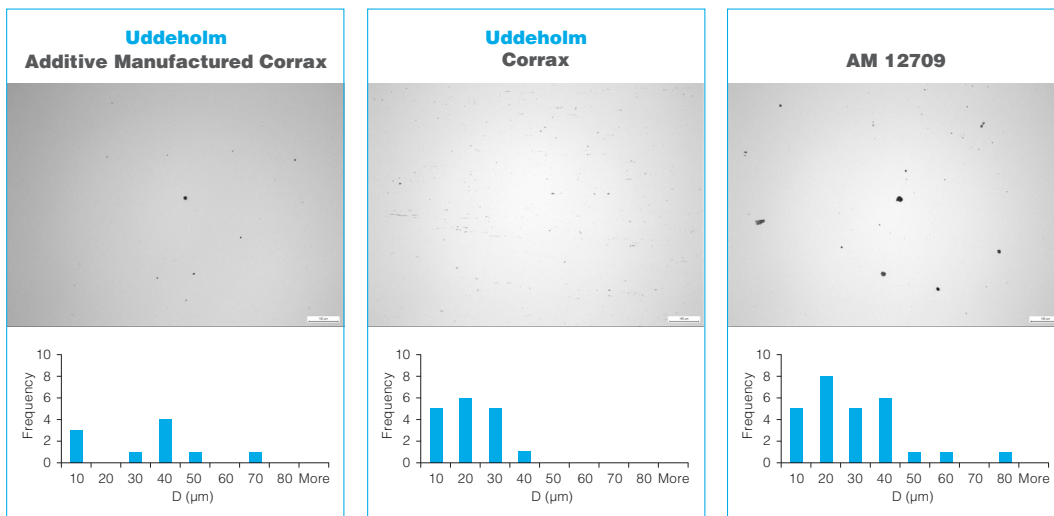
Uddeholm Corrax for AM	D10 (µm)	D50 (µm)	D90 (µm)	Sphericity	Aspect Ratio
	25	38	48	0.93	0.88

MECHANICAL PROPERTIES*

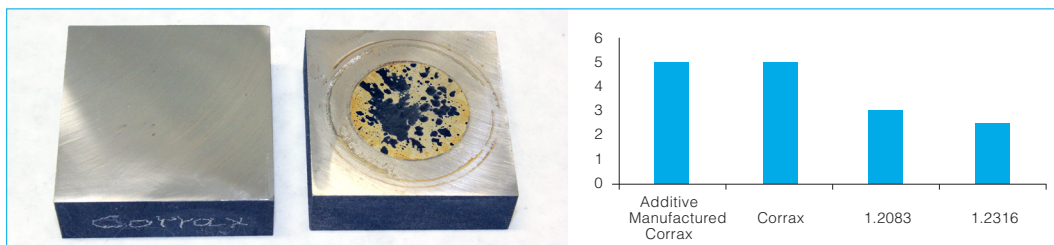
Tensile Strength Rm (Mpa)	Yield Strength Rp0,2 (Mpa)	Elongation A5 (%)	Modulus of elasticity (MPa)	Impact toughness (J)	Compressive stress (Mpa)
1700	1600	10	200000	20	1800

*All data at 50 HRC

POLISHING



CORROSION RESISTANCE



TYPICAL ANALYSIS %

C	Si	Mn	Cr	Ni	Mo	Al
0.03	0.3	0.3	12.0	9.2	1.4	1.6

Maximum hardness: 48–50 HRC

A REWARDING RELATIONSHIP

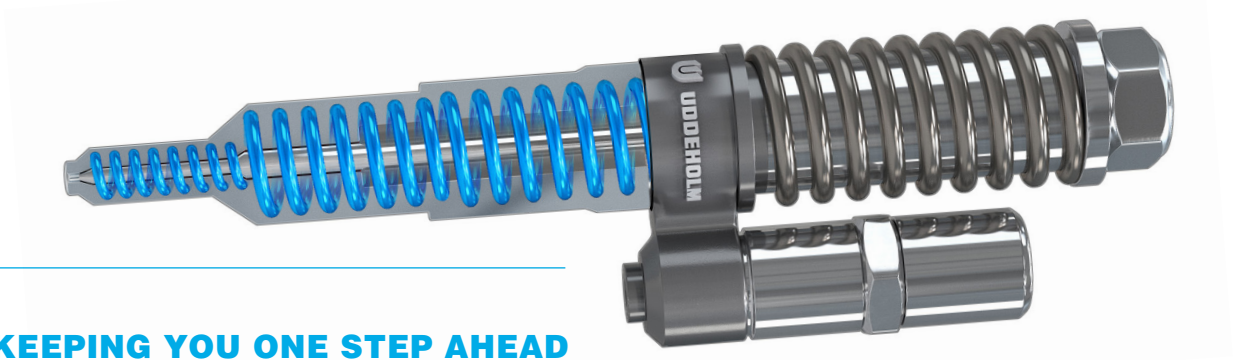
INVESTING IN YOUR SUCCESS

The quality of your product is determined by the quality of the tool steel. Let AM-powder from the world's leading tool steel provider transform additive manufacturing technology from trial-and-error to customized success.

READY WHEN YOU ARE

Pairing with the right strategic partner from the start makes it easy for you to take advantage of the opportunities offered by AM-technology. Efficient cooling channels, complex geometries and special internal features are all value-making steps in the supply chain that can be taken to a new level with Uddeholm's AM-powder made for tooling. Our unique competence and material knowledge are the two fundamental tools we

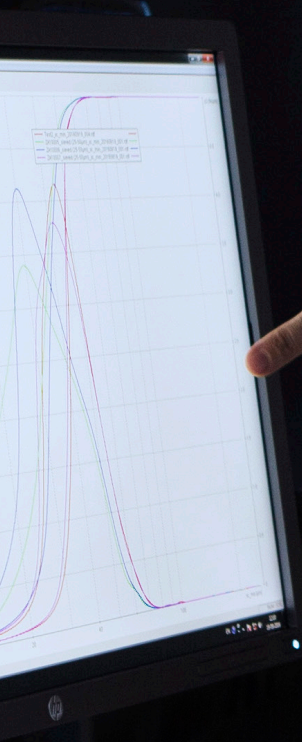
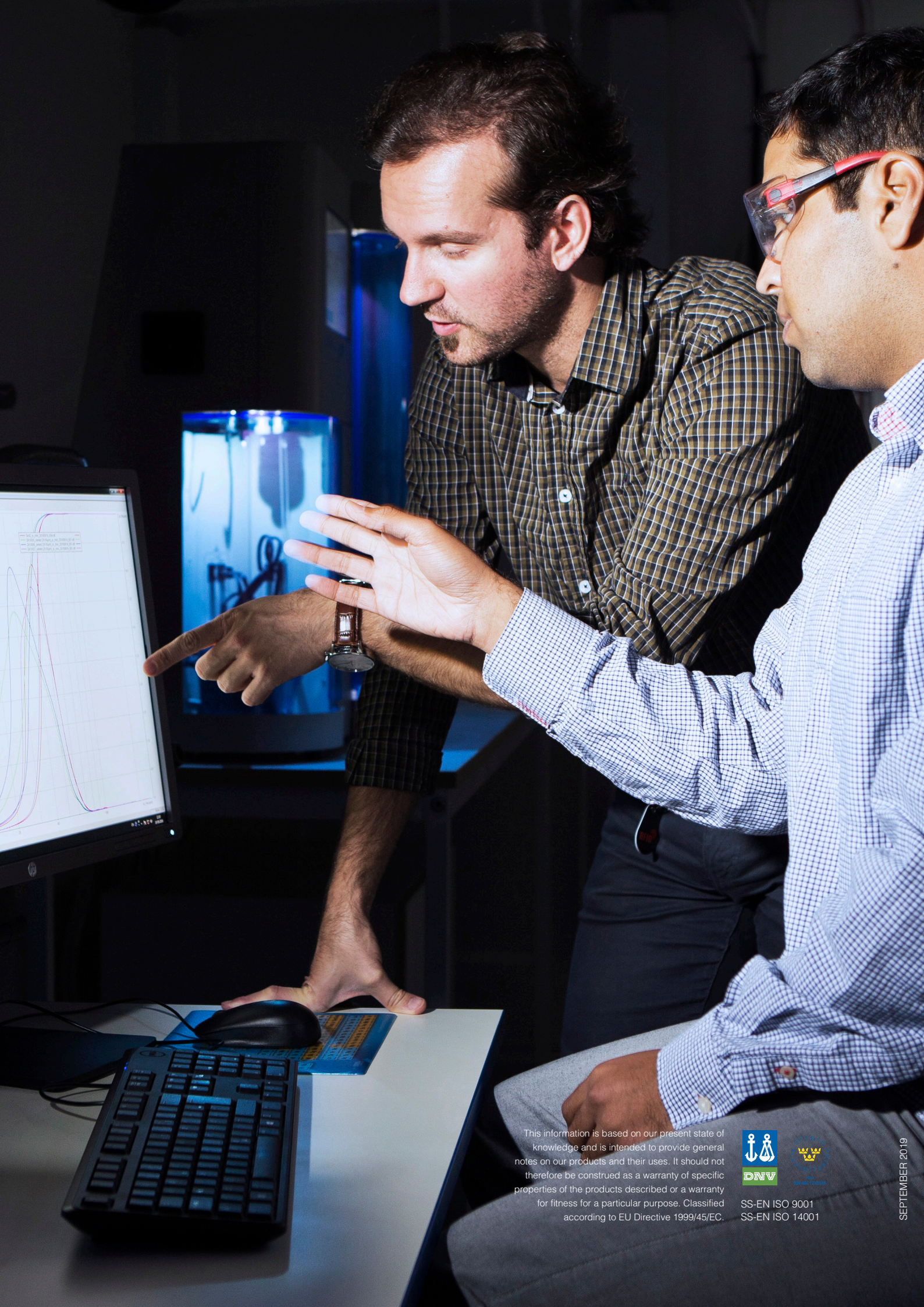
use to help you create the best conditions for profitable tool making and manufacturing. Facing a rapidly changing tooling industry we have made several business-enhancing investments in powder production, R&D and 3D-printing in order to expand our tooling expertise. With a new tailored PM-plant and powder laboratory up and running we have the capability to match your demands and develop the tool steel solution that will take you to first place.



KEEPING YOU ONE STEP AHEAD

Access to the market's best powder opens up new ground for innovation, and used right additive manufacturing allows the creation of new types of objects with unique material properties. Reliable prototypes and short production runs with a predictable cost and

safe result is now a sustainable possibility. We know the challenges you face everyday and understand your tooling needs. Uddeholm Corrax for AM is the latest proof of our priorities and efforts for better moulds and components with improved performance and reliability.



This information 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. Classified according to EU Directive 1999/45/EC.



SS-EN ISO 9001
SS-EN ISO 14001

Manufacturing solutions for generations to come

SHAPING THE WORLD

Since 1668 we have been providing a wide range of innovative cutting-edge solutions for our customers in demanding segments. Our dedicated employees work in almost ninety countries and together we deliver improved competitiveness to clients worldwide. Welcome to Uddeholm.