

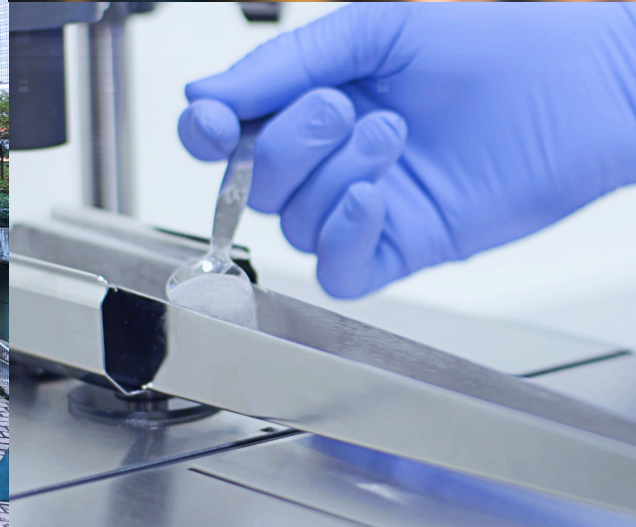
PM-tool steel with revolutionary resistance

Uddeholm Vancron SuperClean
STRENGTH IN MOTION





Uddeholm is the world leader in the development and production of premium tool steel for the manufacturing industry.



AN AWAITED ANTI-GALLING SOLUTION

UNIQUE TOOL STEEL FOR SPECIAL DEMANDS

Uddeholm Vancron SuperClean is the right choice for environments where coating is not an option or is insufficient. This new solution exceed expectations and delivers longer tool life, higher output and shorter time to market.

NEW TOOLING OPPORTUNITIES

When you work in demanding production environments and need a reliable safeguard for your tool's vulnerable areas and weak points, Uddeholm Vancron SuperClean is the answer. The challenges can be tight tolerances, complex

design, need for quick maintenance or delivery times. Thanks to pioneering metallurgy and product development, Uddeholm has secured a chemical composition with prominent anti-galling features that simplify and improve the whole tooling life cycle.



APPLICATION: Drawing die **WORK MATERIAL:** AISI 304, austenitic stainless sheet **THICKNESS:** 0,5 mm **LUBRICANT:** Cl-paraffin oil

REFERENCE COMPANY: Grundfos A/S

STEEL GRADE	Uddeholm Vanadis 23 SuperClean	Uddeholm Vanadis 23 SuperClean +PVD TiN	Uddeholm Vanadis 23 SuperClean +CVD TiC/TiN	Uddeholm Vancron SuperClean
HARDNESS	62 HRC	62 HRC	62 HRC	64 HRC
FAILURE MECHANISM	Galling	Galling	Delamination	None
PARTS PRODUCED	83 000	130 000	1-8x10 ⁶	>16x10 ⁶

FOR COMPLEX SHAPES AND SIZES

GIVES YOUR TOOLS EXTRA LIFE

Uddeholm Vancron SuperClean delivers increased productivity and crucial protection against a "triple combination" of wear, with or without a PVD coating.

LONGER PRODUCTION RUNS

Uddeholm Vancron SuperClean is a unique partner for production environments where neither uncoated nor coated tools are suitable. Even if the tool can be coated, it will still get something extra by using Uddeholm

Vancron SuperClean with a PVD coating. The composition of the steel will adhere better to the PVD coating than other steel grades. It can also be a good backup behind the coating, to keep production going even if the coating wears off in critical areas.



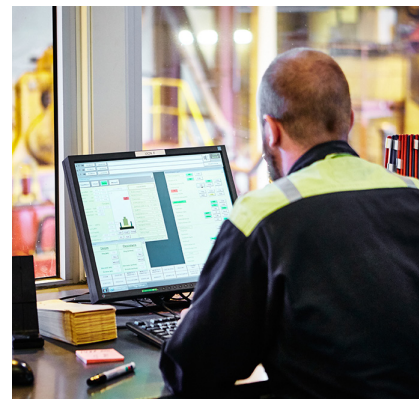
HIGH QUALITY FROM START TO FINISH

The combination of galling resistance, adhesive wear resistance and low friction provides a concrete solution for common challenges in powder compacting, cold extrusion, blanking and forming processes. The tool can easily be fine-machined and adjusted to the tight tolerances needed and polished to high surface finish. Your tool will maintain great shape and condition longer than other tool steels and hence secure the quality of produced parts over time.



RELIABLE AND PREDICTABLE PRODUCTION

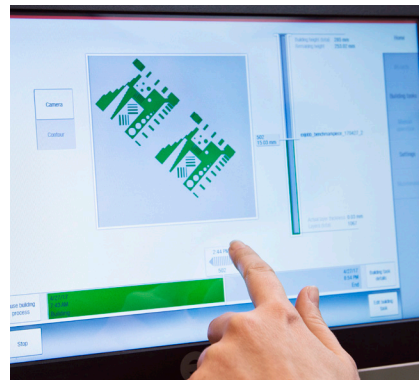
The excellent properties of Uddeholm Vancron SuperClean will ensure that the wear rate will be low and predictable. Adhesive wear is more unpredictable than abrasive wear and therefore the anti-galling properties are very important in order to minimize the unpredictable propagation of tool wear.



BETTER TOTAL TOOLING ECONOMY

The payback starts already during the manufacturing of your tool! The good machining properties in both delivery condition and hardened condition will significantly reduce your tool manufacturing cost.

The extended and more predictable tool life will make your process run seamlessly. During your planned tool maintenance stops, the good hard milling properties, grindability and polishability will make maintenance quick and easy. All together it means higher output and less downtime and will reduce your cost per produced part.



OVERCOME CHALLENGES

MAKES THE IMPOSSIBLE POSSIBLE

Uddeholm Vancron SuperClean is an innovative solution that saves time and money. With a material that doesn't require coating to obtain the same resistance against wear, you simultaneously raise production rates.

GET TO MARKET FASTER

Uddeholm Vancron SuperClean is the perfect match for production with high precision cutting and shaping tools with sharp edges and tooling of complex geometries. Uddeholm's R&D department have secured the properties

and qualities you need to make your product. With its winning combination of resistance, you can be assured reliable performance from the material, no matter the size and shape of tool or parts.





Uddeholm Vancron SuperClean in short

- Extremely good galling and adhesive wear resistance
- Unique low friction properties
- Very good abrasive wear resistance
- High hardness and compressive strength
- Consistent edge retention
- Easy to machine and polish
- Reliable dimensional stability

PROMISING BETTER BUSINESS

A PARTNER FOR TROUBLE-FREE PRODUCTION

Uddeholm's driving force is to increase value and make a difference for our customers. We do so by always choosing the right material for the job at hand.

READY FOR THE FUTURE

With an in-house R&D department and a state-of-the-art powder laboratory, Uddeholm can deliver cleaner material, with improved properties and business-enhancing features.

Uddeholm Vancron SuperClean is our latest answer to customer needs. With third generation PM-technology we have developed a unique and sustainable solution for modern manufacturing environments.



PROPERTY COMPARISON

Uddeholm Sverker 21

Uddeholm Vanadis 4 Extra SuperClean

Uddeholm Vanadis 8 SuperClean

Uddeholm Vancron SuperClean

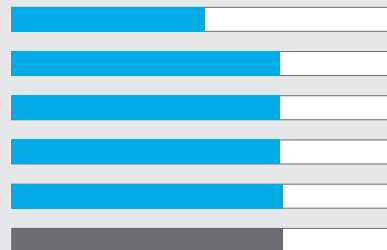
Powder metallurgical high speed steel

Uddeholm Vanadis 23 SuperClean

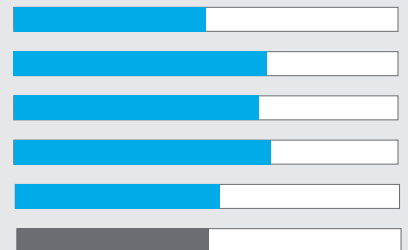
Conventional high speed steel

AISI M2

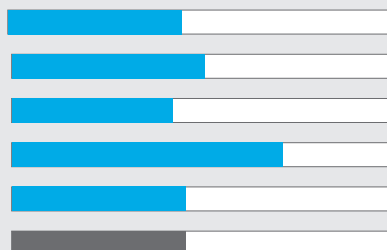
Hardness/resistance to plastic deformation



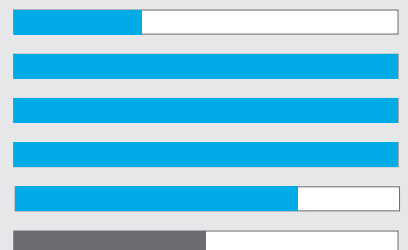
Grindability



Machinability



Dimension stability



Uddeholm Sverker 21

Uddeholm Vanadis 4 Extra SuperClean

Uddeholm Vanadis 8 SuperClean

Uddeholm Vancron SuperClean

Powder metallurgical high speed steel

Uddeholm Vanadis 23 SuperClean

Conventional high speed steel

AISI M2

MARKET LEADING METALLURGY

THE BENEFITS OF INNOVATION

With the right material for your environment, every step of the process can be calibrated to reduce maintenance and raise production rates.

SMOOTHER AND SIMPLER

Thanks to the coating property embodied in the steel, it has the same performance through a cross section of the whole tool and the tool can be refurbished continuously.

Uddeholm Vancron SuperClean is a money maker and a time-saver, as corrections and adjustments can be made without re-coating when running-in the tool and, active surfaces are easily re-polished with short stop-times.

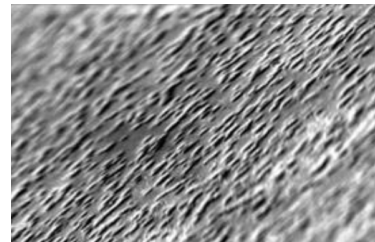
TYPICAL ANALYSIS %

C	N	Cr	Mo	V
1,3	1,8	4,5	1,8	10,0

Maximum hardness: 63–65 HRC

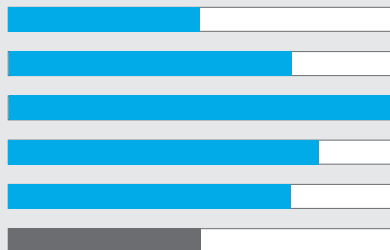
PICTURE PERFECT PROPERTIES

The smaller-sized hard phase and dense distribution of vanadium nitrides reduce friction and make up the internal surface coating. On a polished surface the small peaks of hard phase are surrounded by valleys that can act as reservoirs for lubricant. Together, the combination keeps your tools in shape much longer and improves the quality of the finished part.



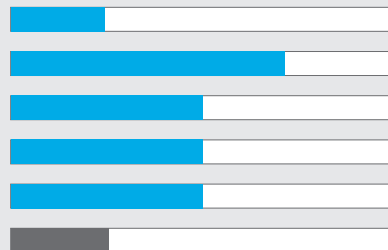
RESISTANCE TO

Abrasive wear



FATIGUE CRACKING RESISTANCE

Ductility/resistance to chipping



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Uddeholm Vancron SuperClean

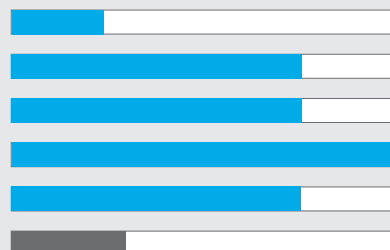
Powder metallurgical high speed steel

Uddeholm Vanadis 23 SuperClean

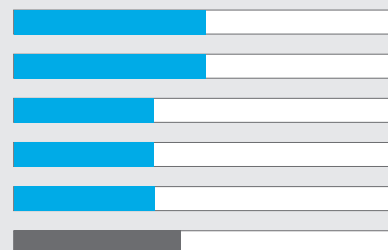
Conventional high speed steel

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Adhesive wear/galling



Toughness/gross cracking



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Uddeholm Vancron SuperClean

Powder metallurgical high speed steel

Uddeholm Vanadis 23 SuperClean

Conventional high speed steel

AISI M2

#1 IN HIGH PERFORMANCE TOOL STEEL

ALWAYS MOVING FORWARD

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.

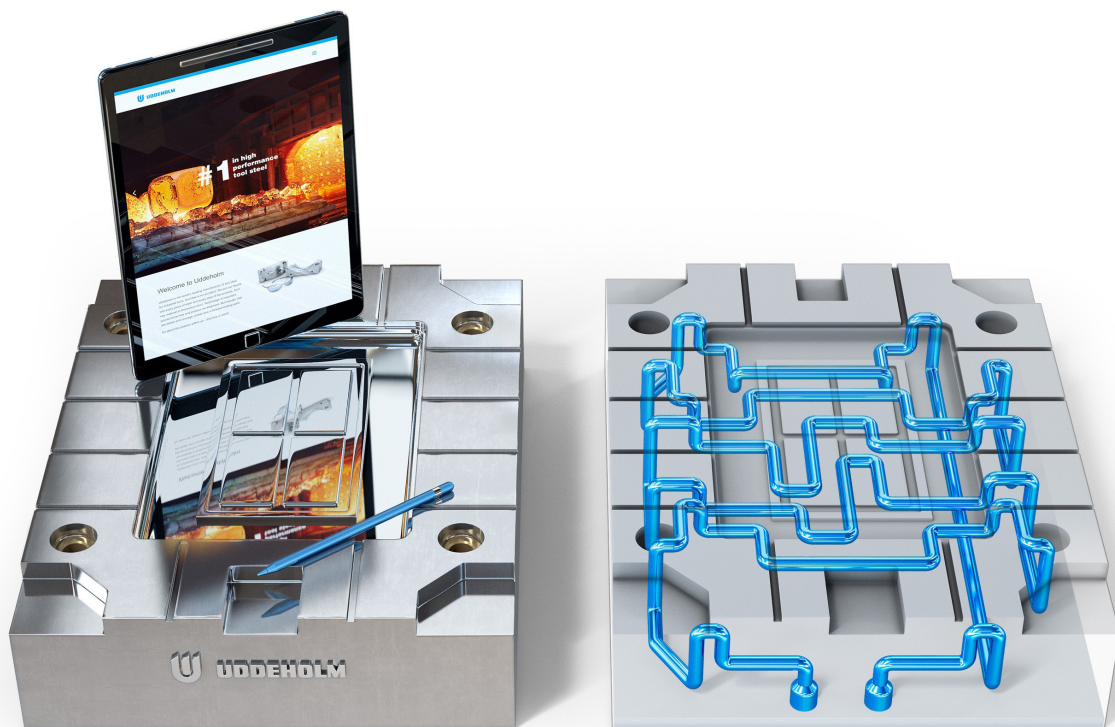
YOUR TOTAL SOLUTION PARTNER

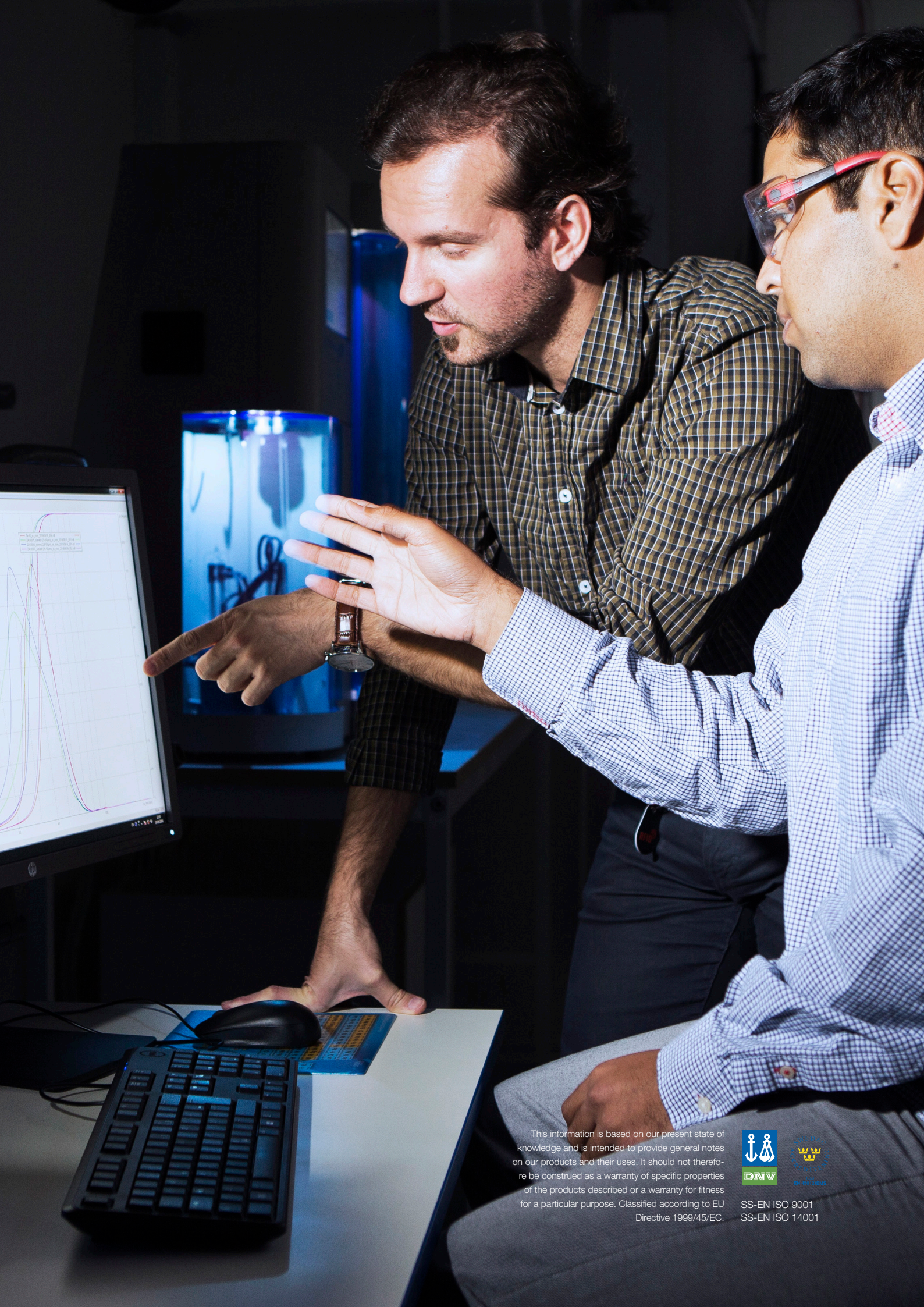
With a new tailored PM-plant and powder laboratory up and running we have the capability to

match your demands and develop a tool steel solution that will take you to first place.

WORLDWIDE SERVICE AND SUPPORT

With excellent technical support, delivery service and a range of additional steel treatment services, you can be assured to always get the optimal performance out of your investment, wherever your production is located.





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.