




UDDEHOLM

Uddeholm Vanadis® 8 SuperClean



Uddeholm
Vanadis 8 Superclean

The next generation of Powder Metallurgical Tool Steel

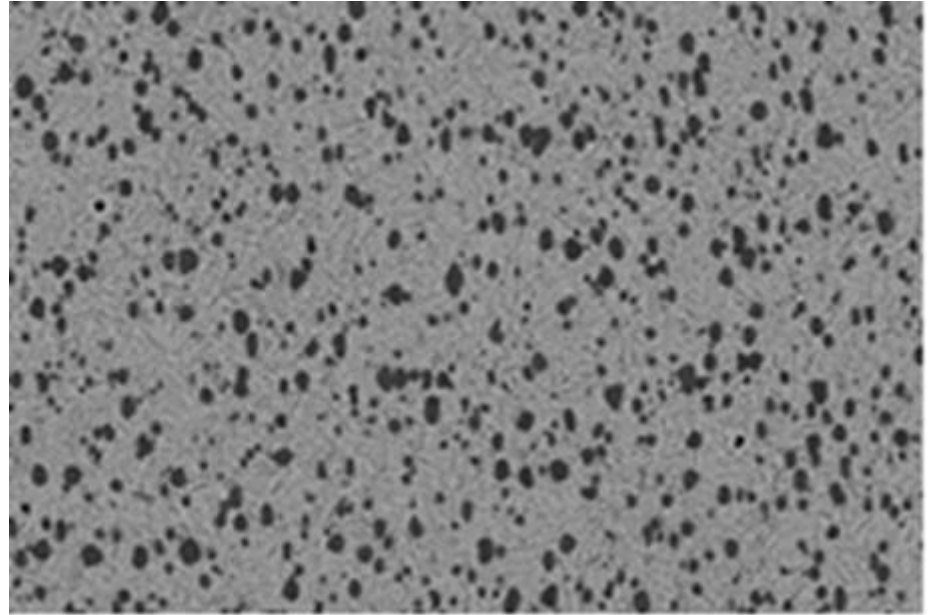
ABRASIVE WEAR RESISTANCE

ABRASIVE WEAR RESISTANCE

15% MC

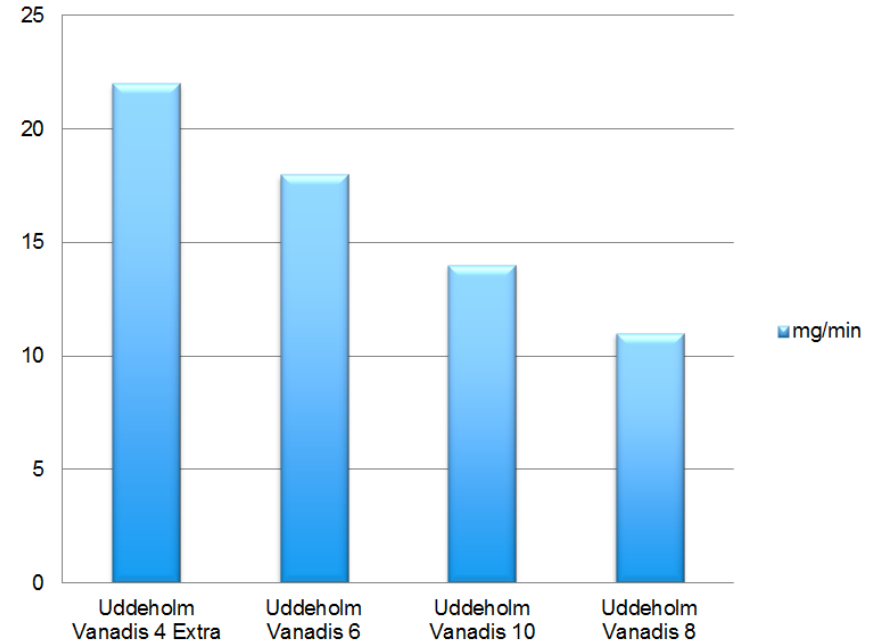
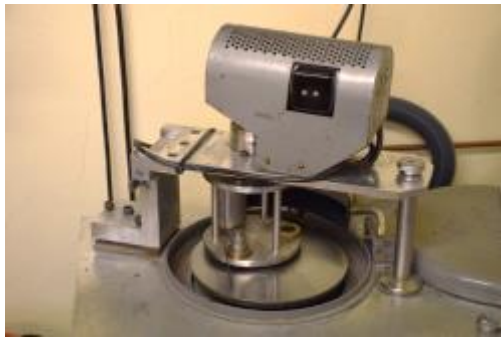
C+V= Vanadium carbide

Hardness: 2800Hv



LAB TEST ABRASIVE WEAR

Pin-on-disc Al_2O_3 (mg/min)



PUNCHING ABRASIVE STEEL

60,000 strokes

Work material: M700-100A (2,3 % Si, Electrical metal sheet)

Thickness: 1 mm

Comp.str: 305 MPa

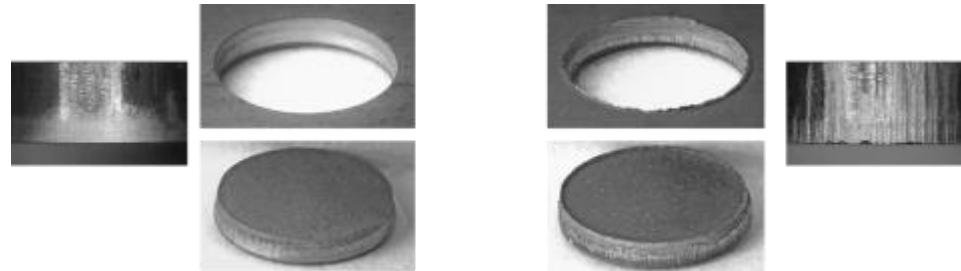
Yield str: 440 MPa

Dimension: \varnothing 9,8 mm

Speed: 200 s/min

Lubrication: Dry

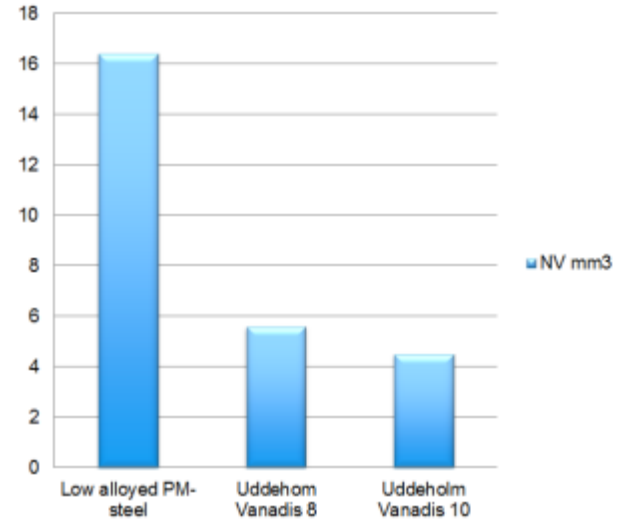
Die clearance: 10 %



ABRASIVE WEAR

60,000 strokes

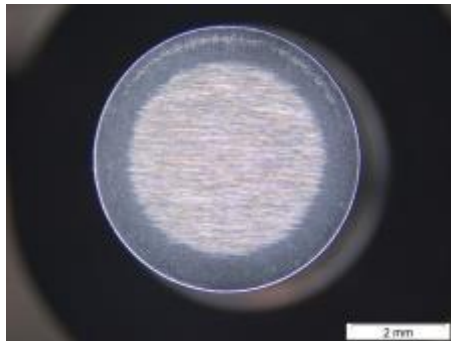
M700-100A (2,3 % Si, electrical metal sheet)



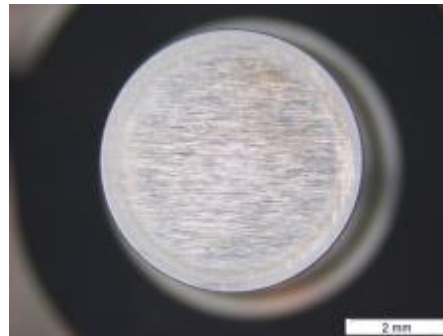
ABRASIVE WEAR

Stamping 60,000 strokes

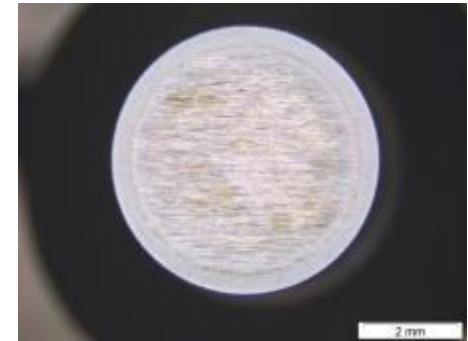
M700-100A (2,3 % Si, electrical metal sheet)



Low alloyed
PM-steel 63 HRC



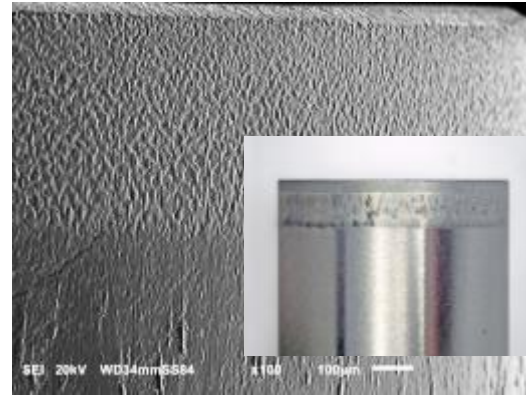
Uddeholm
Vanadis 10 64 HRC



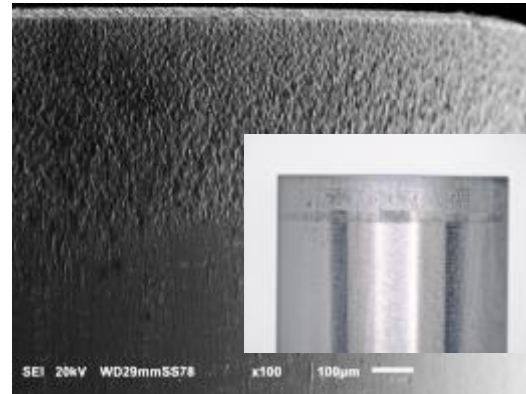
Uddeholm
Vanadis 8 65 HRC

ABRASIVE WEAR

Stamping 60,000 strokes
M700-100A (2,3 % Si,
electrical metal sheet)

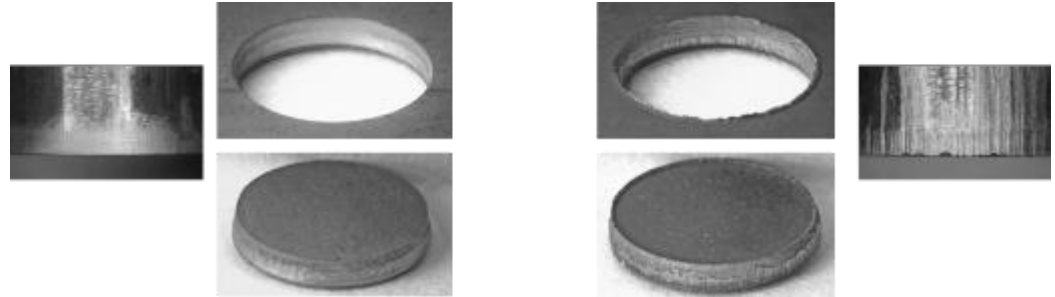


Uddeholm Vanadis 8
65 HRC



Uddeholm Vanadis 10
64 HRC

ABRASIVE WEAR

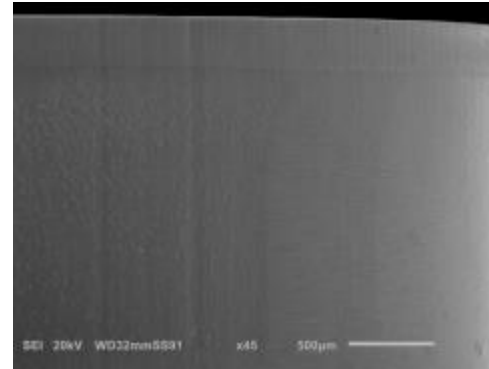


Stamping 100,000 strokes

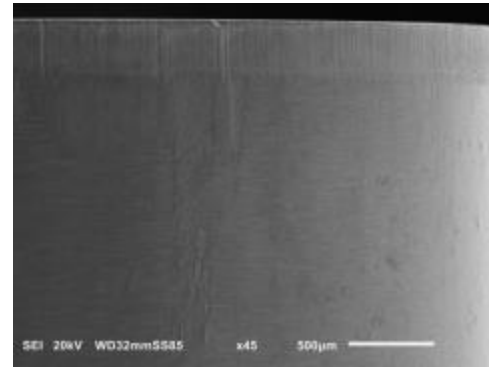
Workmaterial:	Docol 1400M (AHSS)	Dimension:	Ø 9,8 mm
Thickness:	1 mm	Speed:	200 s/min
Compressive strength:	1150 MPa	Lubrication:	None
Yield strenght:	1500 MPa	Clearance:	10 %

ABRASIVE WEAR

Stamping 100,000 strokes
Docol 1400 M (AHSS)



Uddeholm Vanadis 8
65 HRC



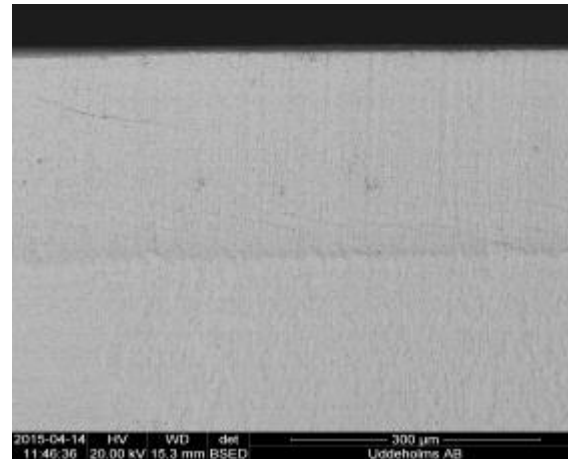
Uddeholm Vanadis 10
64 HRC

CHIPPING RESISTANCE

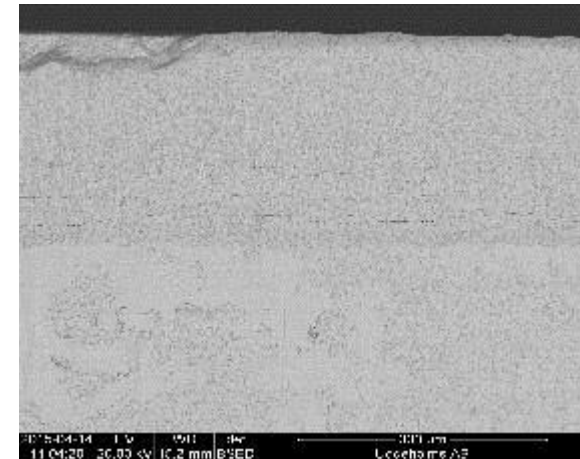
CHIPPING RESISTANCE

Stamping 50,000 strokes

Docol 1400M (AHSS)



Uddeholm Vanadis 8
65 HRC

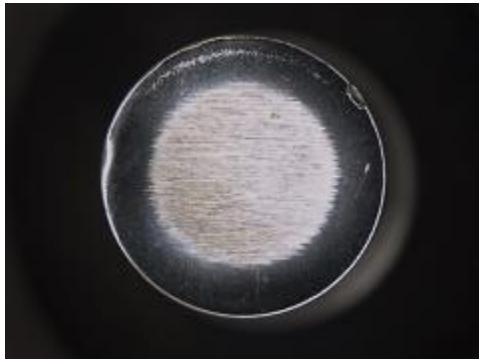


Uddeholm Vanadis 10
64 HRC

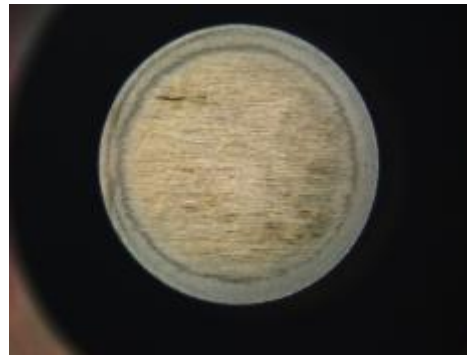
CHIPPING RESISTANCE

Stamping 120,000 strokes

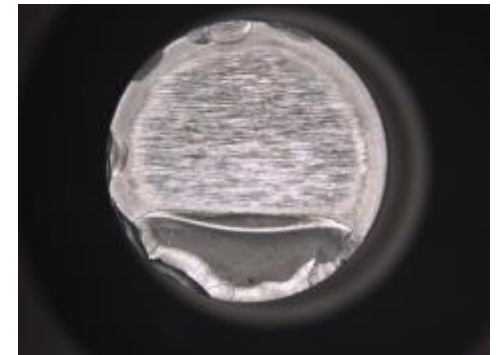
M700-100A (2,3 % Si, electrical metal sheet)



Low alloyed PM-steel
63 HRC



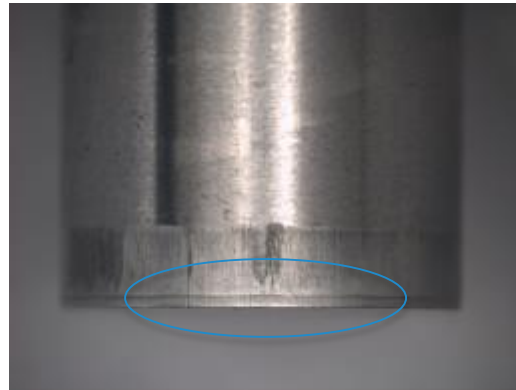
Uddeholm Vanadis 8
65 HRC



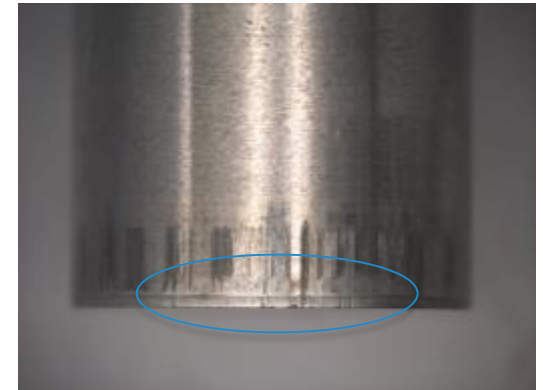
Uddeholm Vanadis 10
64 HRC

CHIPPING RESISTANCE

Stamping 100,000 strokes
Docol 1400M (AHSS)

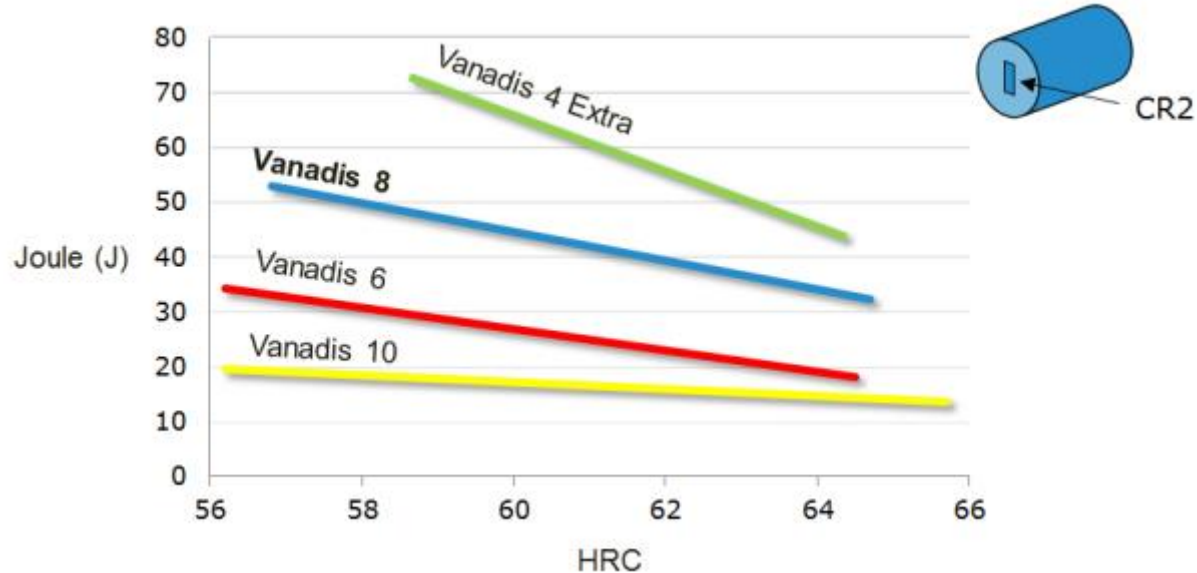


Uddeholm Vanadis 8
65 HRC



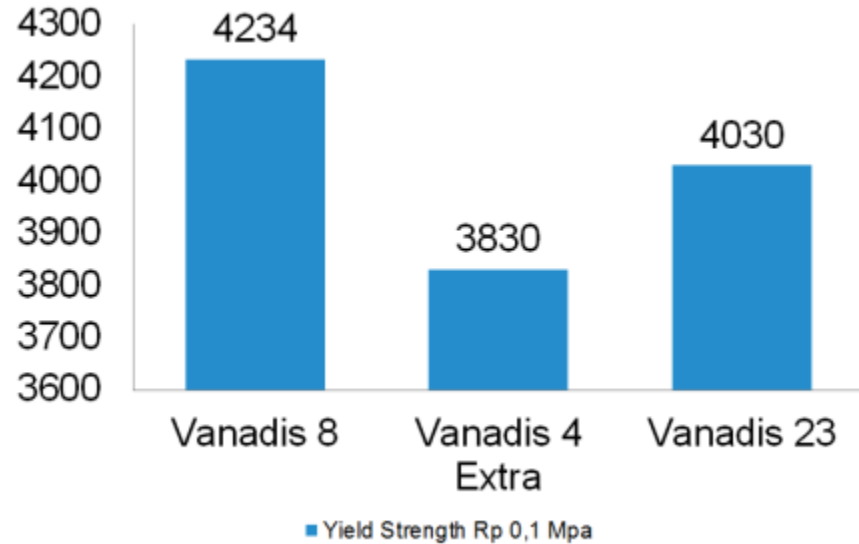
Uddeholm Vanadis 10
64 HRC

IMPACT ENERGY TEST

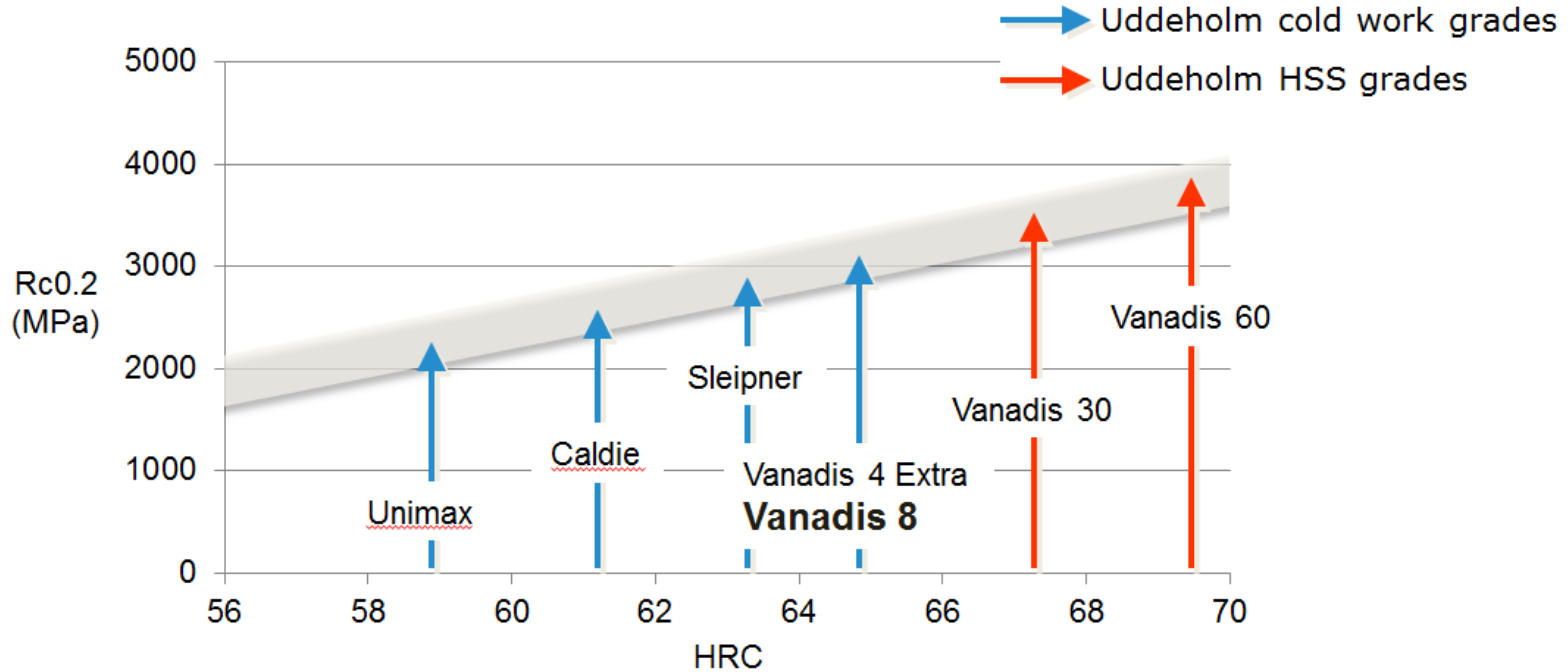


YIELD STRENGTH

4 point bending test
64 HRC



COMPRESSIVE STRENGTH



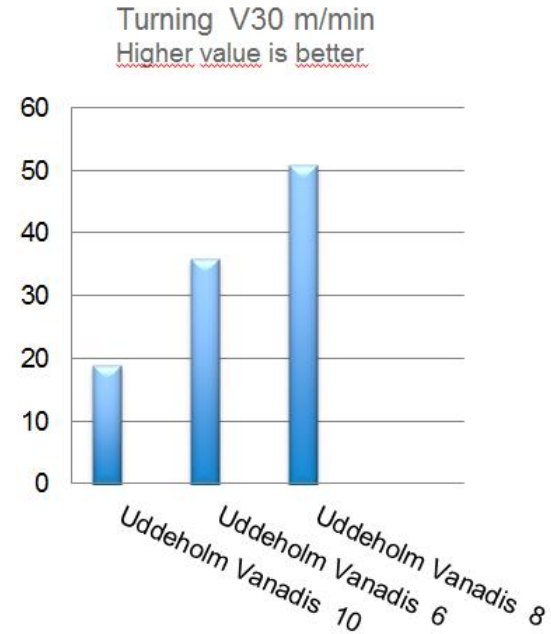
MACHINABILITY

TURNING

"V30 method"

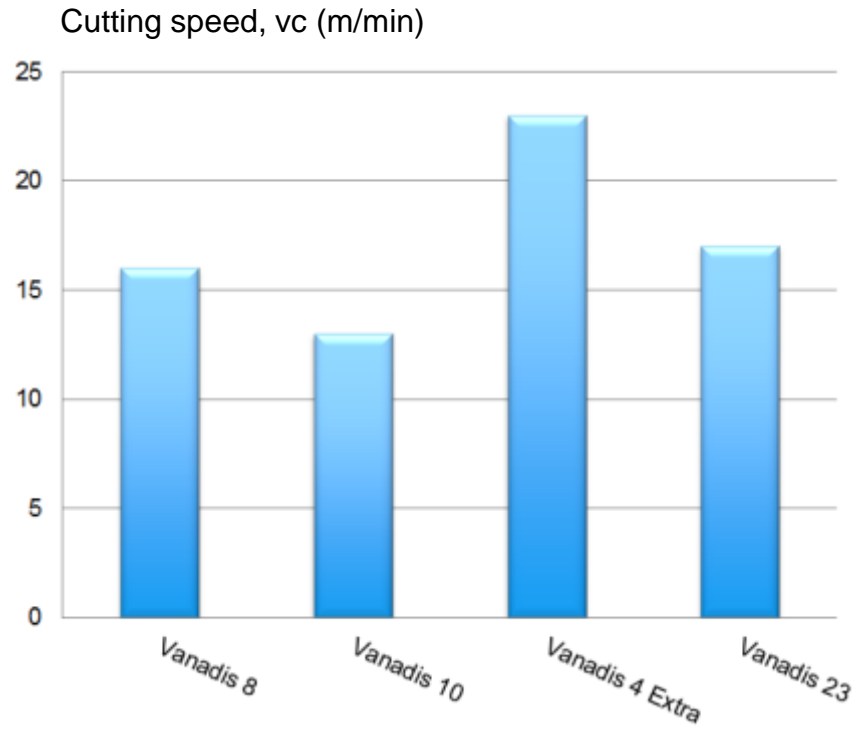
"V30 is a standardized test method emphasizing turning. The method is described in ISO 3685.

The value specified as V30 is the cutting speed which gives a flank wear of 0,3 mm under the cutting edge after 30 minutes of turning."



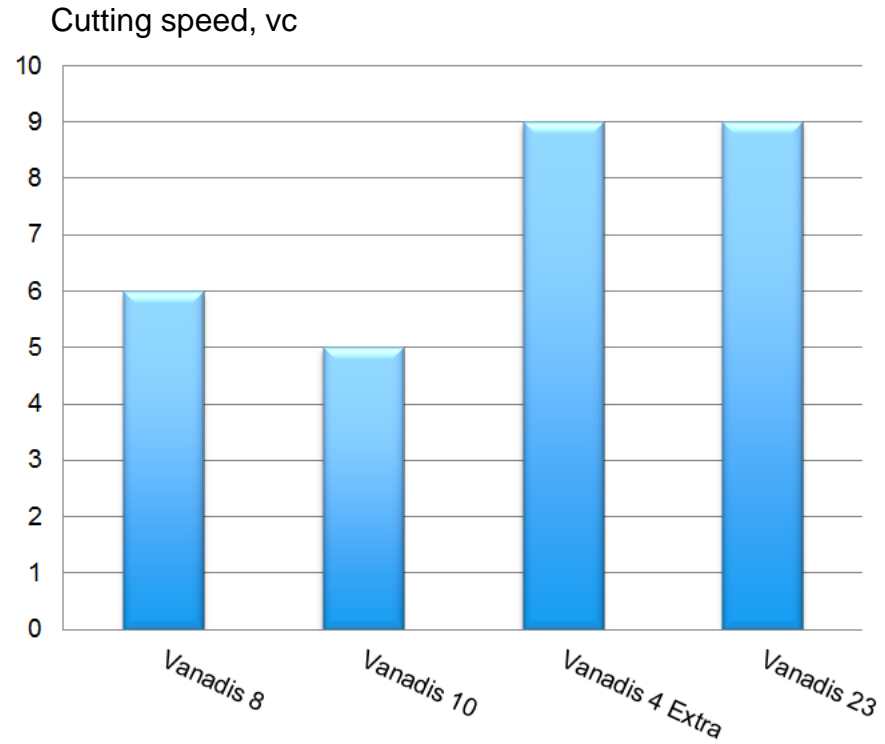
DRILLING

Coated HSS



TAPPING

HSS



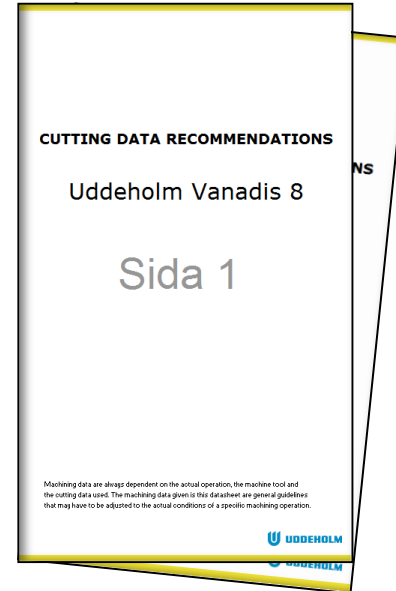
MACHINING APP

For iOS, Android & Windows



MACHINING BROSCHURE

For download at Mediaworld



HEAT TREATMENT

HEAT TREATMENT

Stress relieving

650°C (1200°F), holding time 2 hours.
Cool slowly to 500°C (930°F), then freely in air.



HEAT TREATMENT

Hardening

Pre-heating 1: 600–650°C (1110–1200°F)

Pre-heating 2: 850–900°C (1560–1650°F)

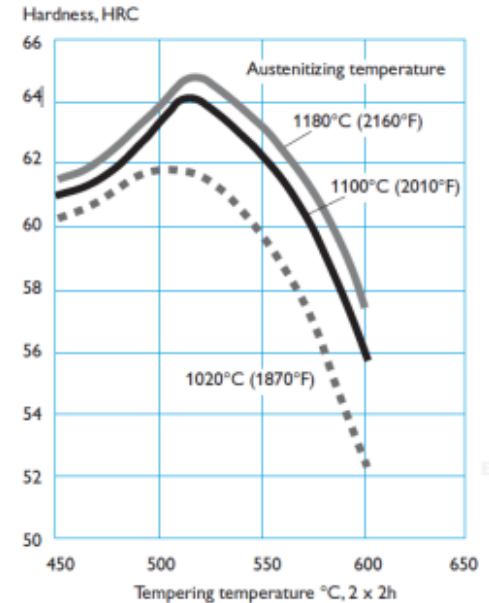
Austenitizing: 1020–1180°C (1870–2160°F)

Holding time:

30 min for temperatures $\leq 1100^{\circ}\text{C}$ (2010°F)

15 min for temperatures $> 1100^{\circ}\text{C}$ (2010°F)

TEMPERING GRAPH



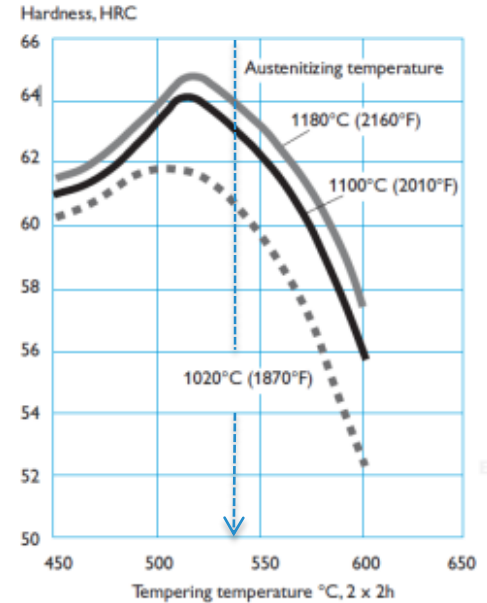
HEAT TREATMENT

Tempering

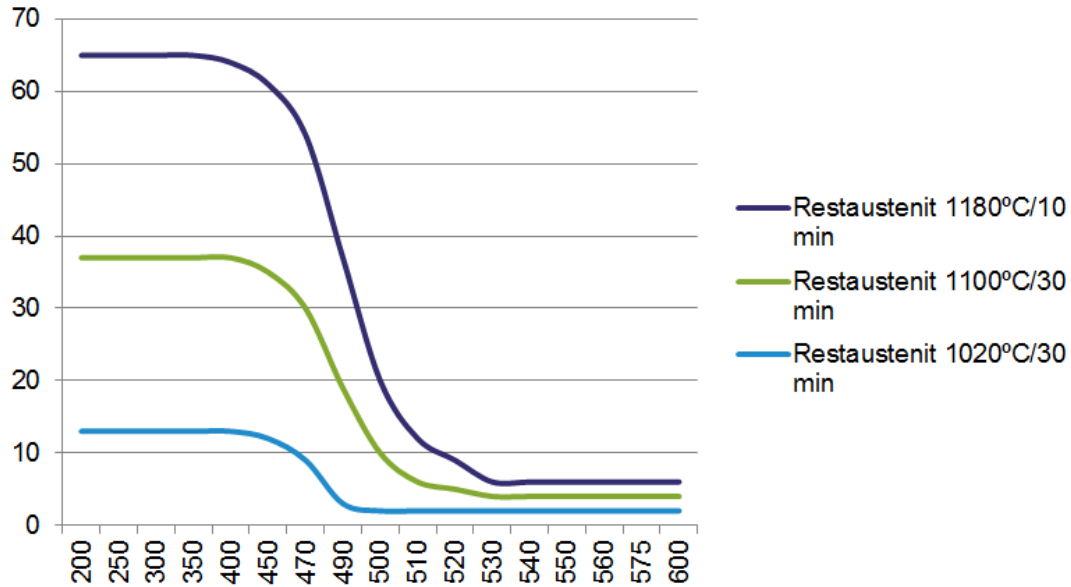
Recommended 540°C (1000°F) / 3x1h

3 temperings strongly recommended!

TEMPERING GRAPH

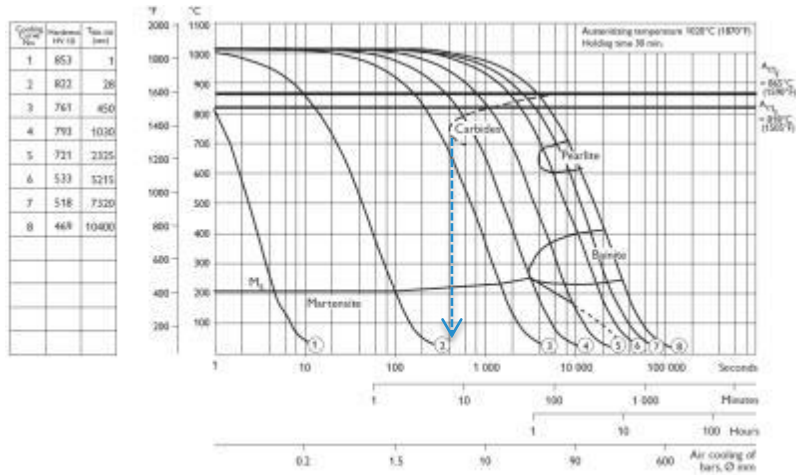


RETAINED AUSTENITE

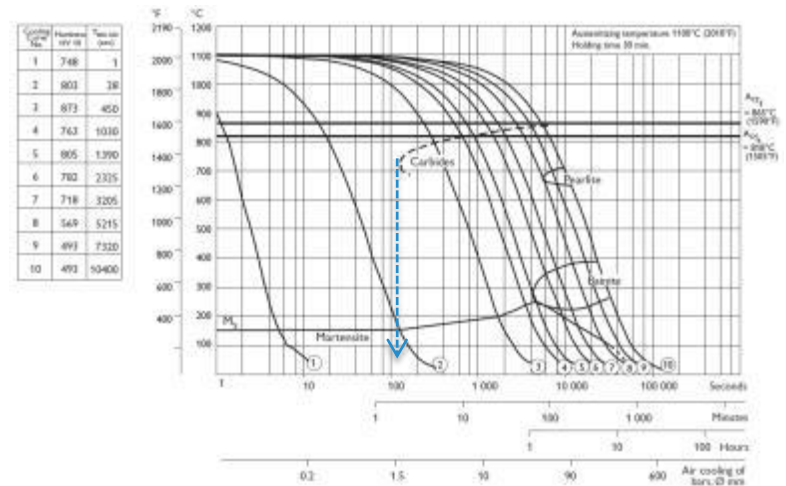


CCT GRAPHS

1020°C

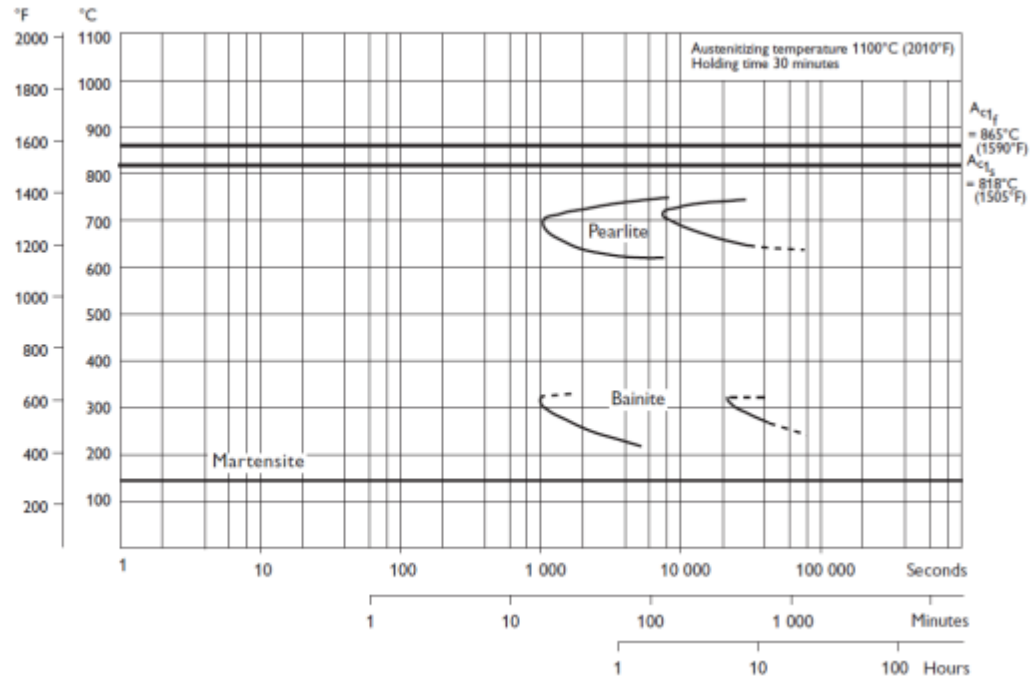


1100°C



TTT GRAPH 1100°C

Temp. °C	Time hours	Hard. HV 10
750	15	270
725	12	299
700	10	365
675	8	387
650	15	403
625	20	535
350	40	867
325	28,3	736
300	23,5	572
275	15,4	599
250	22,7	620
225	22,1	583



CHEMICAL COMPOSITION

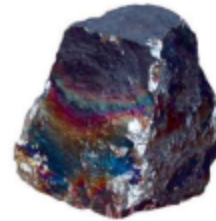
CHEMICAL COMPOSITION



C 2,3



Si 0,4



Mn 0,4



Cr 4,8



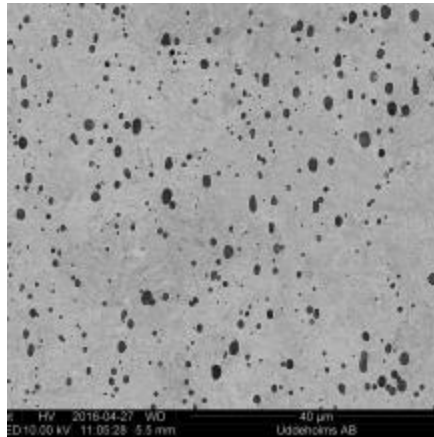
Mo 3,6



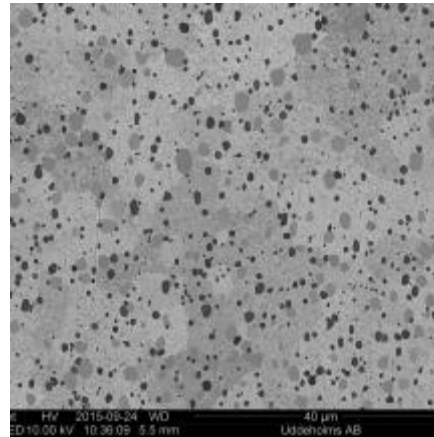
V 8,0

MICROSTRUCTURE

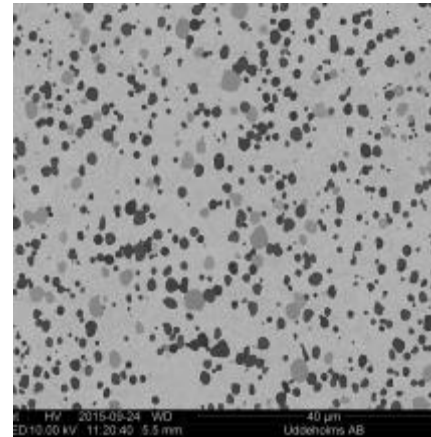
	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>Cr</u>	<u>Mo</u>	<u>V</u>
Uddeholm Vanadis 8	2,3	0,4	0,4	4,8	3,6	8,0
Uddeholm Vanadis 6	2,1	1,0	0,4	6,8	1,5	5,4
Uddeholm Vanadis 10	2,9	0,5	0,5	8,0	1,5	9,8
Uddeholm Vanadis 4 Extra	1,4	0,4	0,4	4,7	3,5	3,7



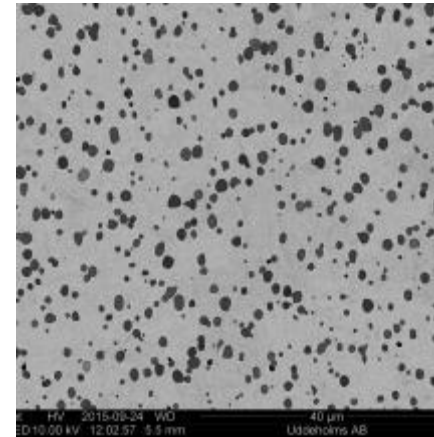
**Uddeholm
Vanadis 4 Extra**



**Uddeholm
Vanadis 6**




**Uddeholm
Vanadis 10**




**Uddeholm
Vanadis 8**


PROPERTIES

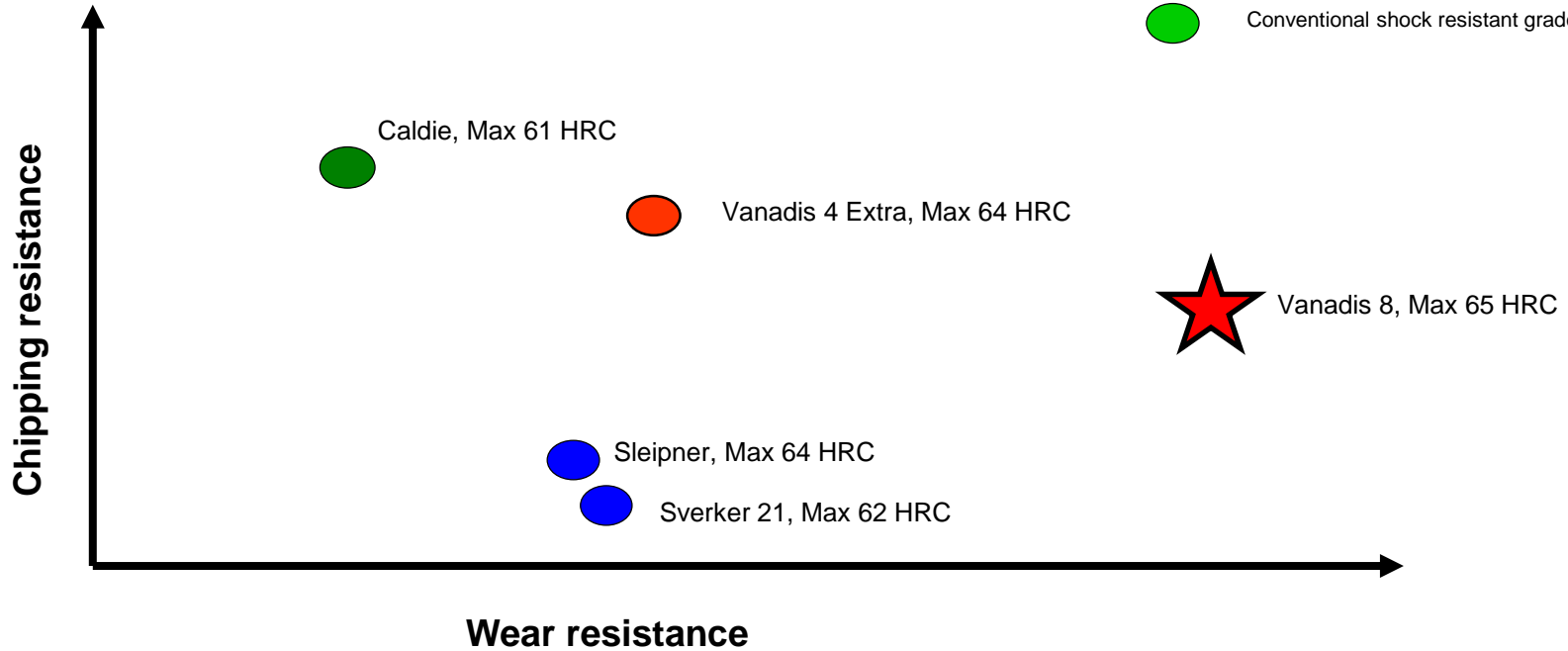
 Unimax, Max 59 HRC

 Conventional grades

 SuperClean PM grades

 ESR shock resistant grades

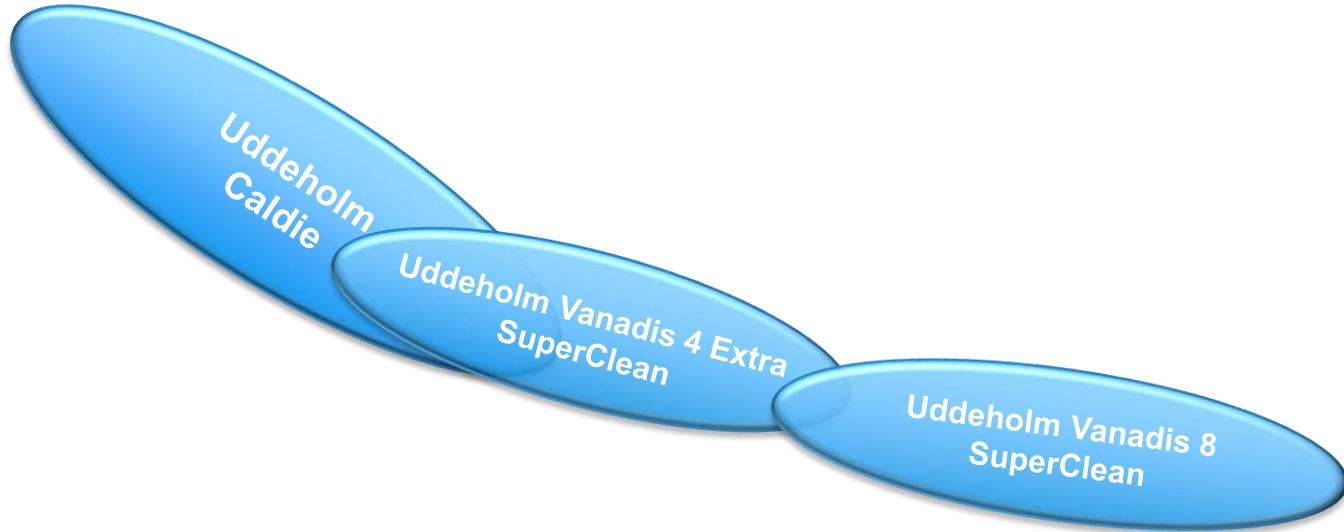
 Conventional shock resistant grades



COLD WORK PREMIUM GRADES



Chipping resistance



Wear resistance



A close-up, low-angle shot of a person's legs and feet as they run on a rocky, desert trail. The person is wearing light-colored running shoes with distinctive red and grey patterns on the soles. The background shows a vast, arid landscape with rolling hills under a bright sky. The text "A PROFITABLE LONG DISTANCE RUNNER" is overlaid in the center in a bold, white, sans-serif font.

**A PROFITABLE LONG
DISTANCE RUNNER**



UDDEHOLM