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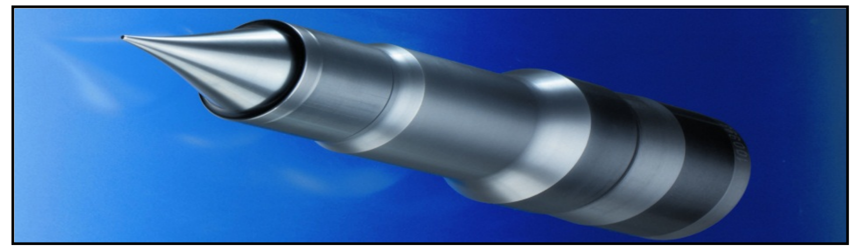
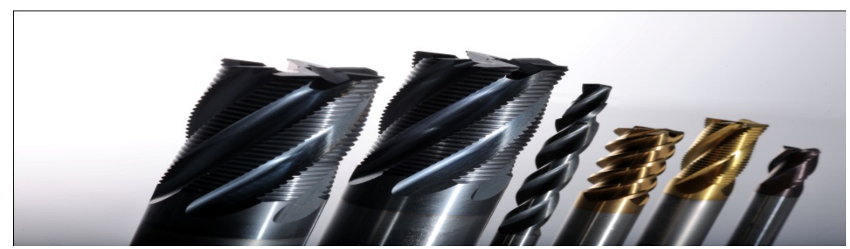
W. Blösch AG
My person

_Name Roland Duttlinger
_age 43
_married
_1 child
_since 4,5 years by W. Blösch Business Development
_before 7 years teamleader from regrinding center and customer by
W.Blösch AG

W. Blösch AG
About us

_independent
_self-financed
_Family-owned
_qualified Personnel (app. 140)
_flat and lean company structure
_technological leader and innovator
_pushing new products in future markets
_job coating center





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Ours Market

_tooling industry

_aircraft- and space industry

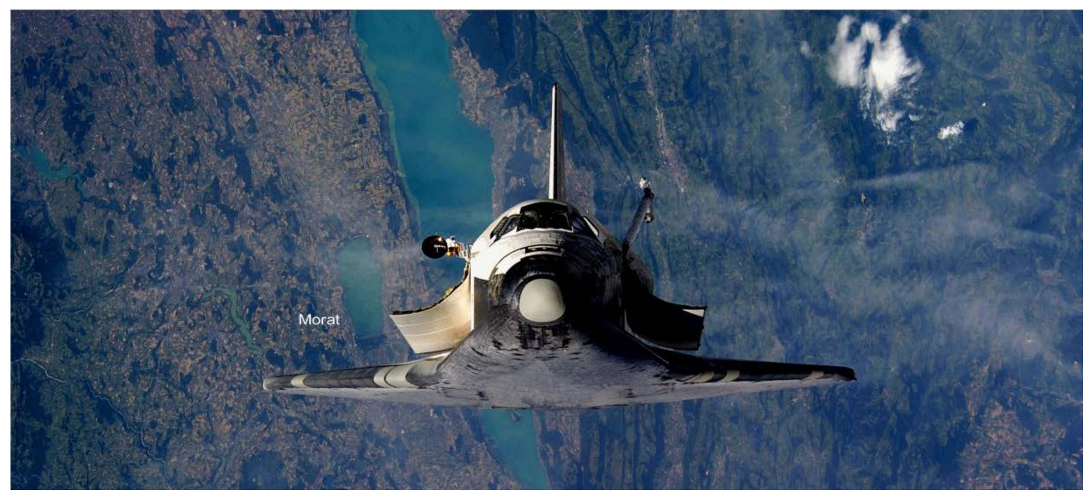
_motor sport

_watch industry

_Telecommunication

_Optics

_Laser- and Medicinal technics



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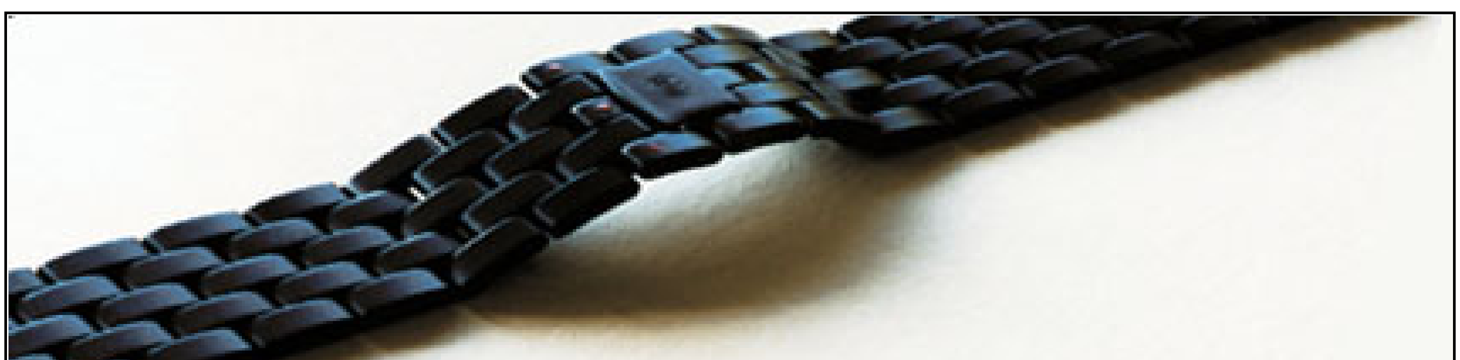
What Kind of Coating we have?

Functional Coating

The main focus is on the application of functional structures

Optical Coating

The main focus is on the combination of function and design



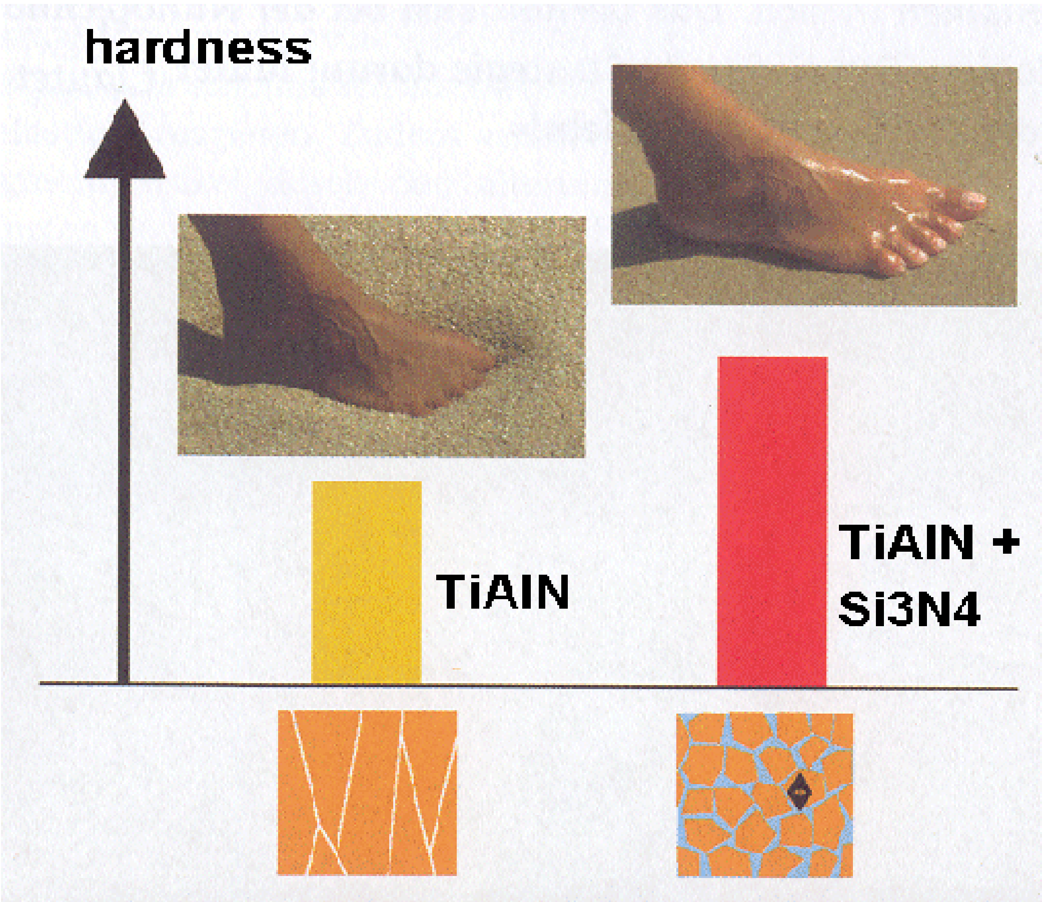
What Kind of Functional Coating we have?

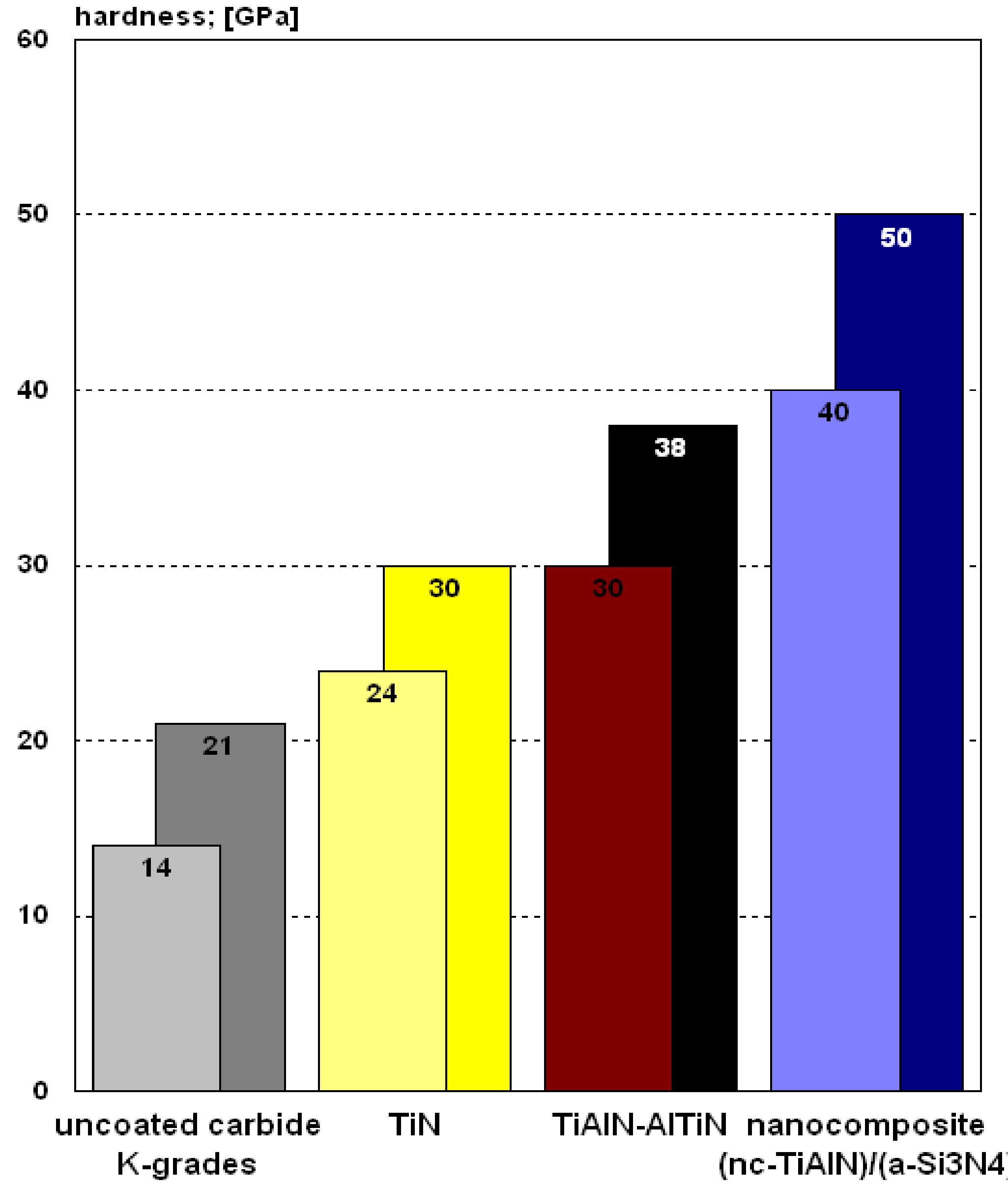
Hard Coating
The main properties for the hard coating is a the wear protection

Soft coating
The soft coating promotes mainly the tribological properties

Soft and hard coating
The combination of soft and hard coatings produced by a combination of the two properties

Hardness Increasing by Nanocomposite (nc-$Ti_{1-x}Al_xN$)/(a-Si_3N_4) Structure





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Innovative Coatings for Watch Industry

Hard-Antireflective coatings on Sapphire Watch glasses

Colour coating on Watch dials

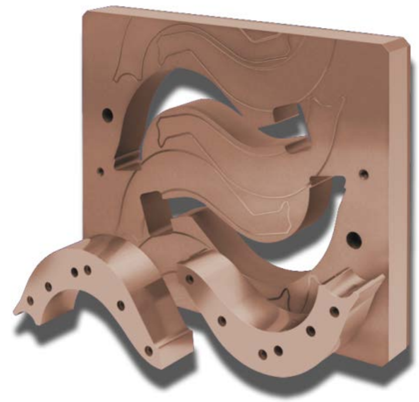
Special effects on Moonphase disc

Anti-Allergical Hardcoatings on stainless steel Watch parts

Black Diamond-Like-Carbon coating on Watch bracelets

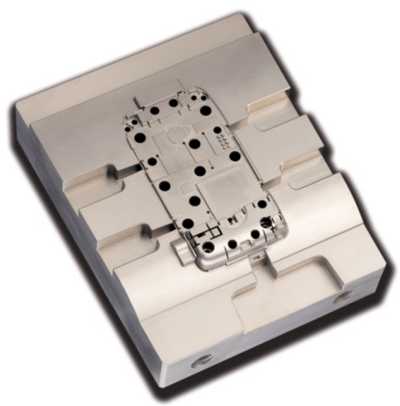
application examples

Cutting



Punch

Forming



molding / die casting

Tribology

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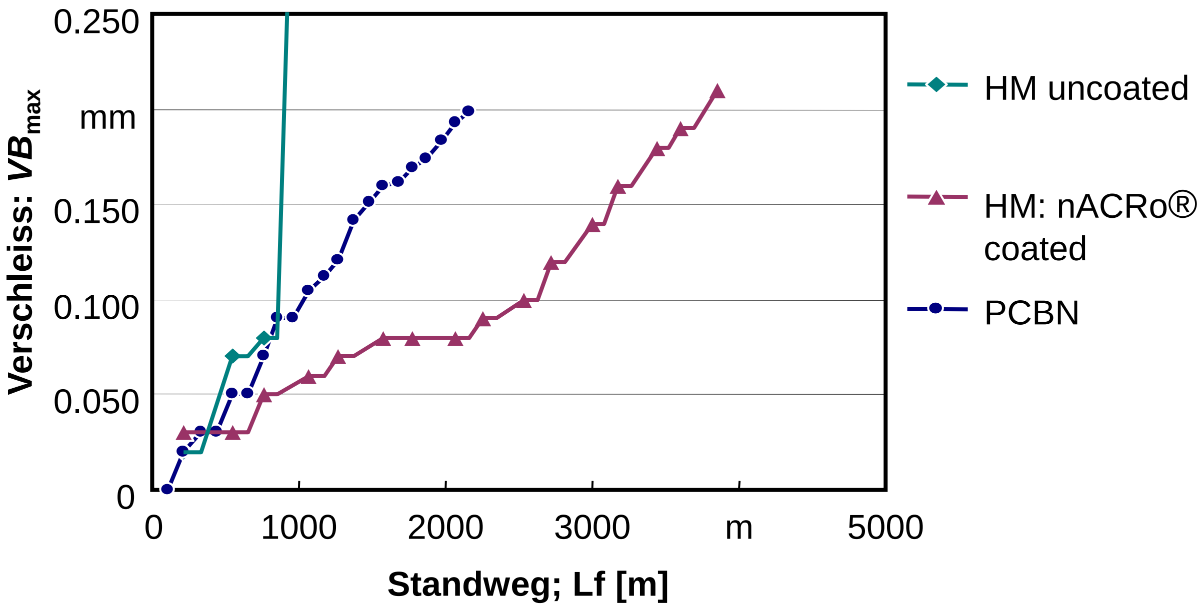
pratice examples



Werkstückmaterial: Somaloy SMC550; Soft Magnetic Composites

v_c = 700 m/min / f = 0.1 mm/U - a_p = 0.2 mm

Gemessen am IWF/ TU Berlin / PM-MACH Projekt

PCBN
DBW85
SPUN120304

HM-WSP
MG 12
SPUN120304

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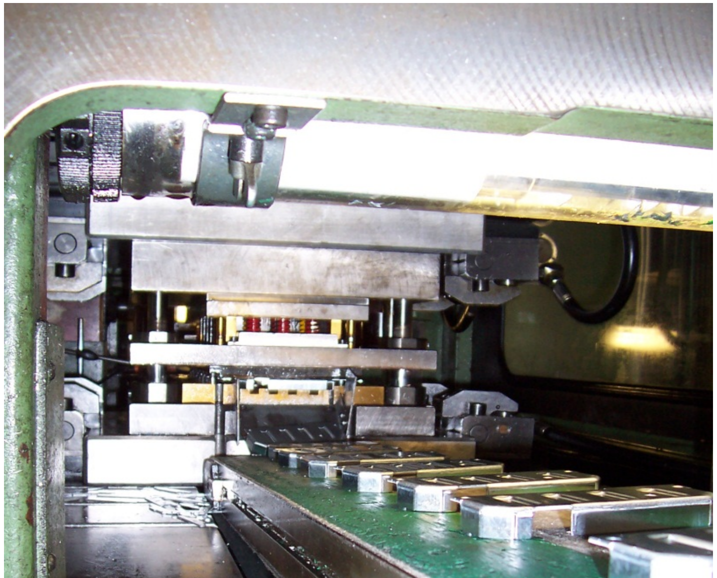
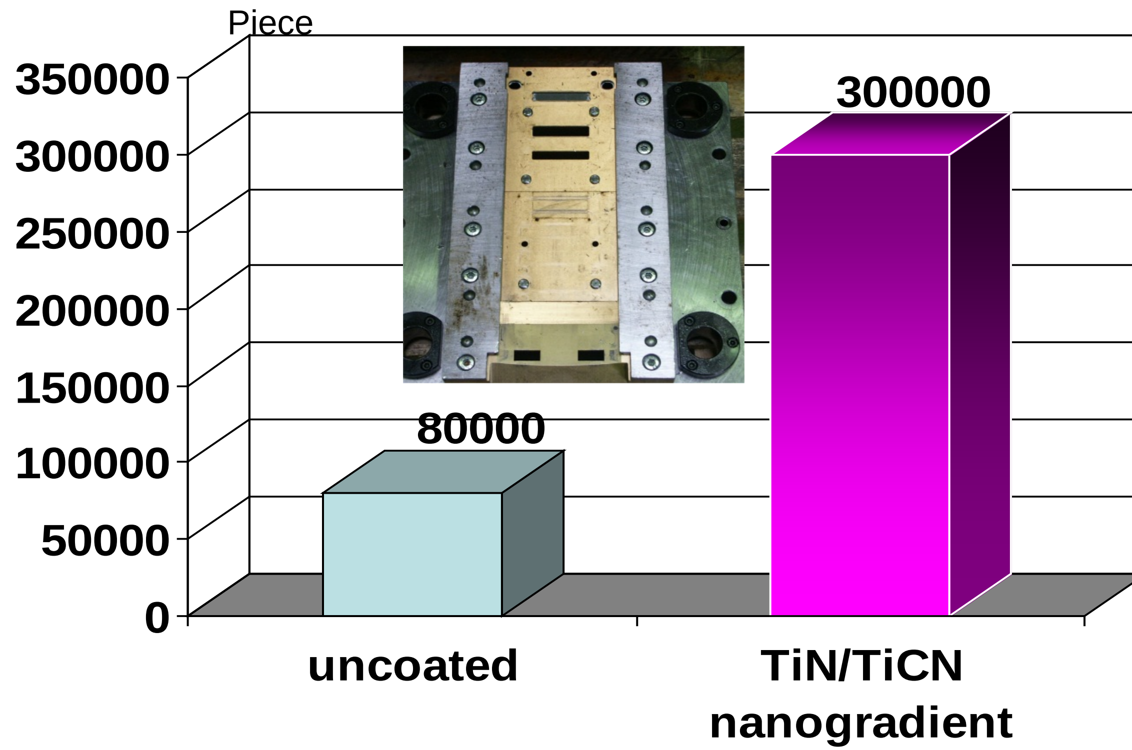
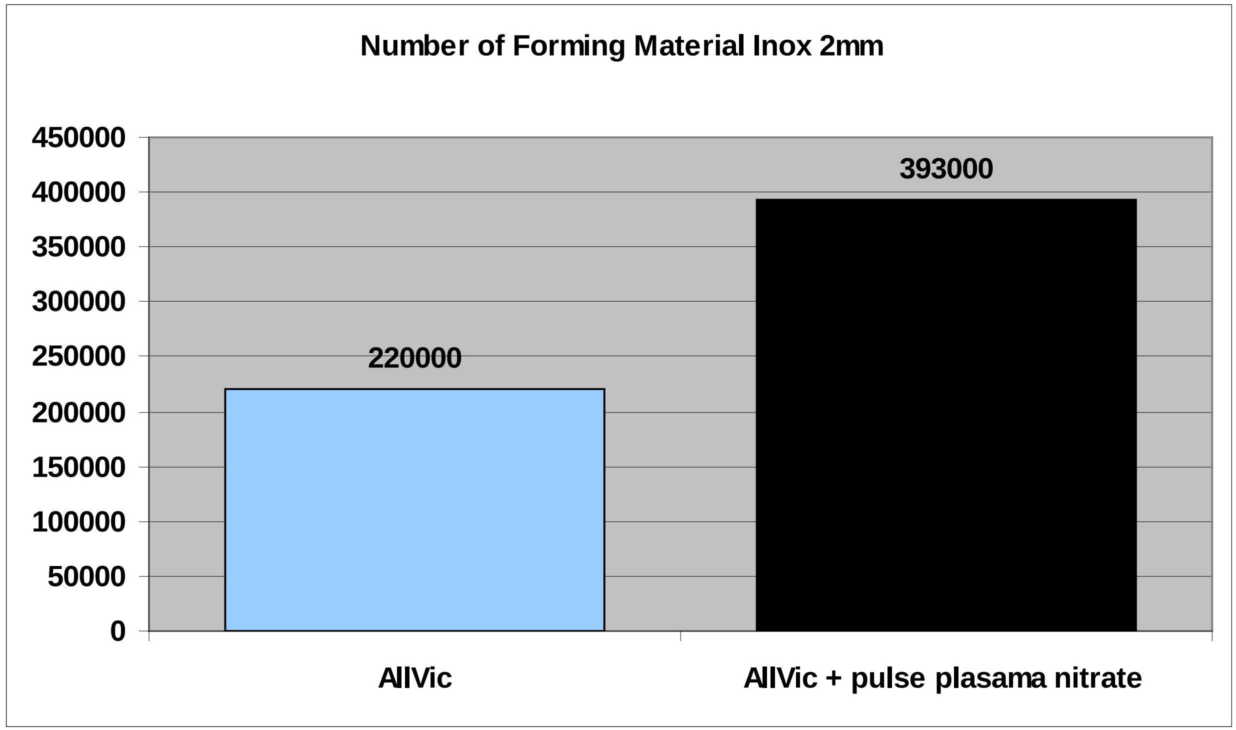
pratice examples





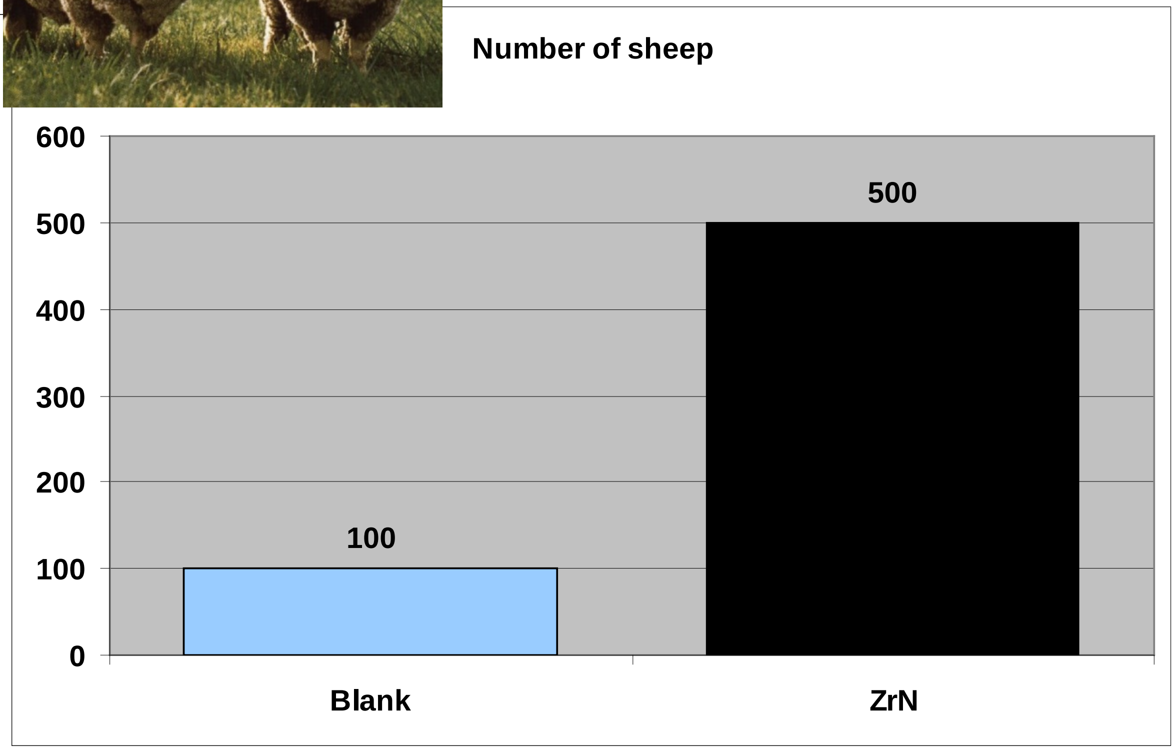
Quelle: Winkhaus – GFE, Schmalkalden

pratice examples



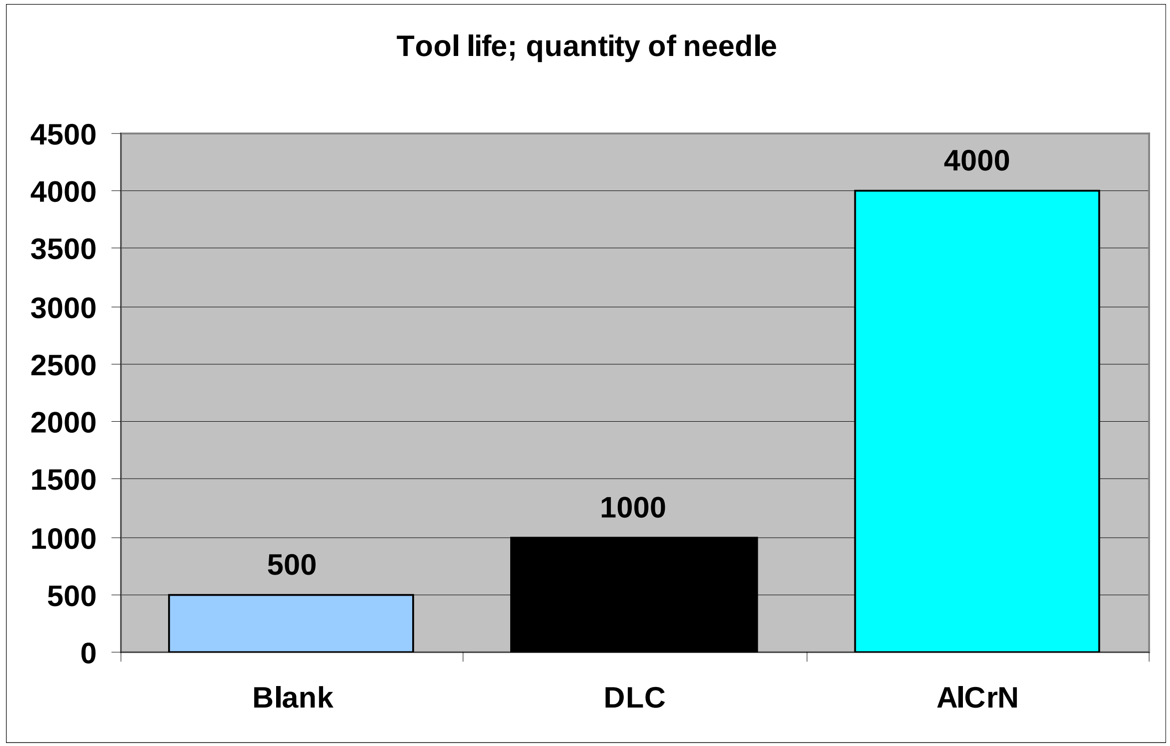
pratice examples

shear steal



pratice examples

Drilling Carbide Diameter 0.40 mm



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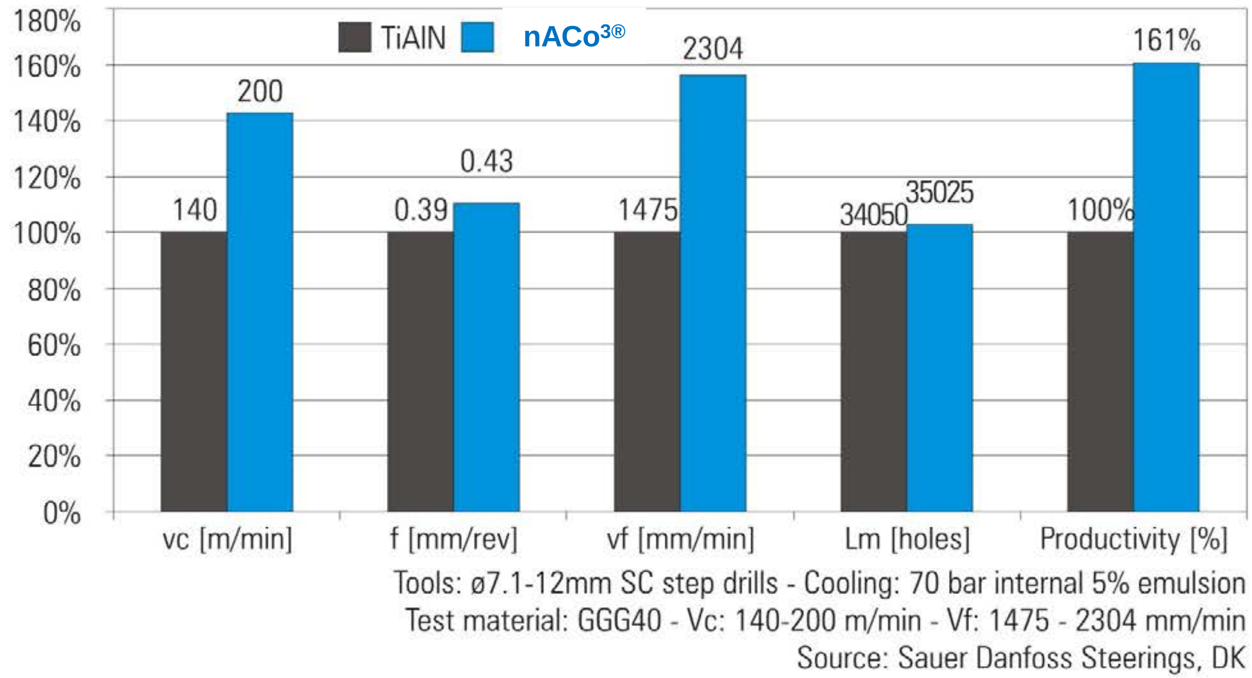
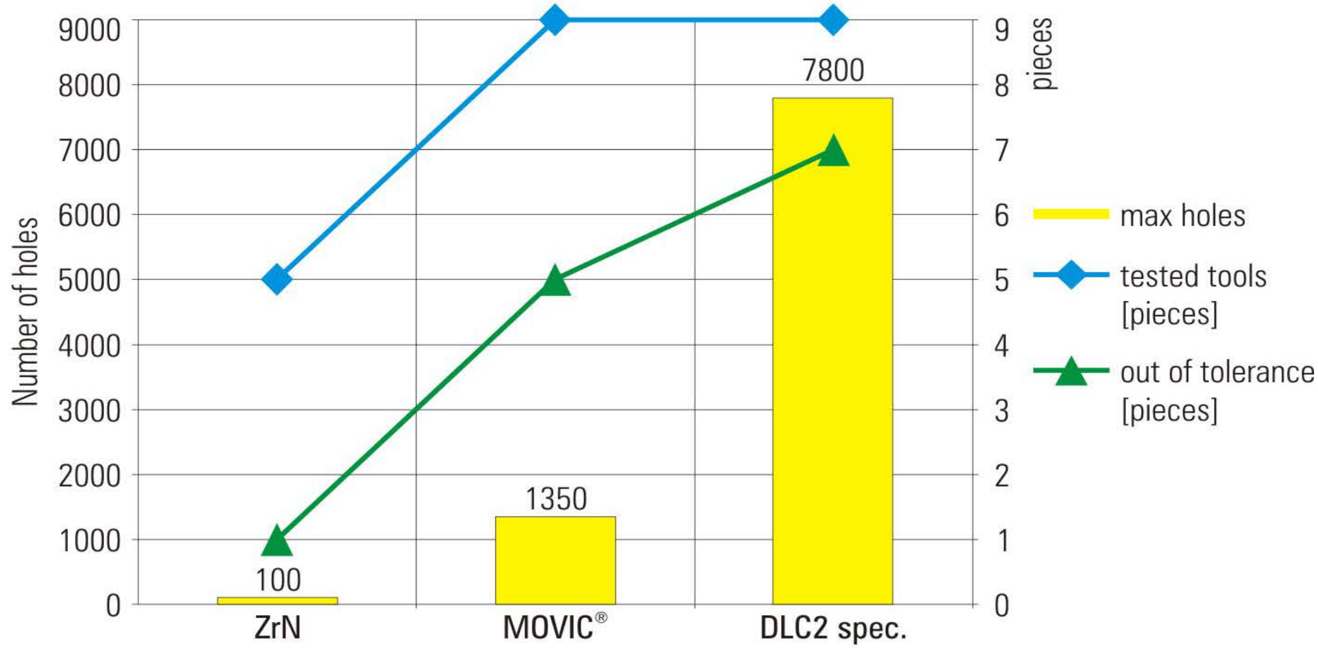
pratice examples



pratice examples



Source: Diamond SA, Losone, Switzerland

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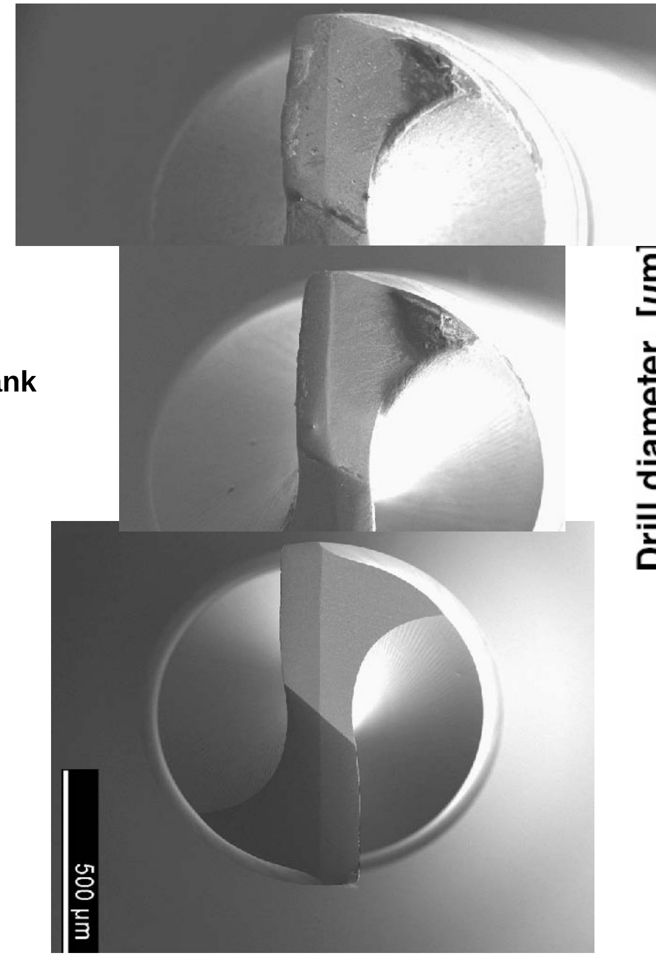
Tool Life Criterium at Micro Drilling; Min. Diameter

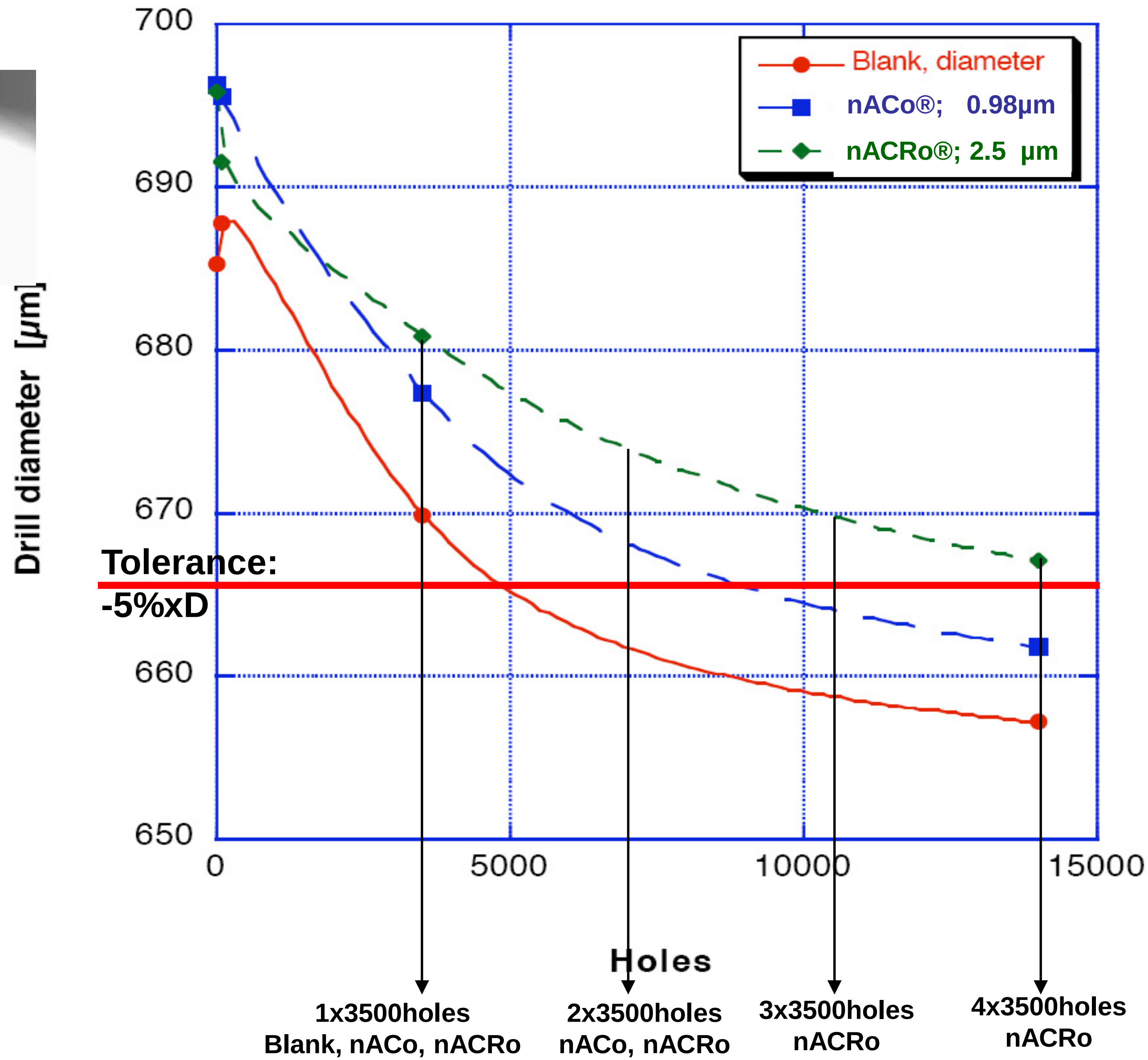
pratice examples

nACRo®; 2.5 µm after 14‘000 holes

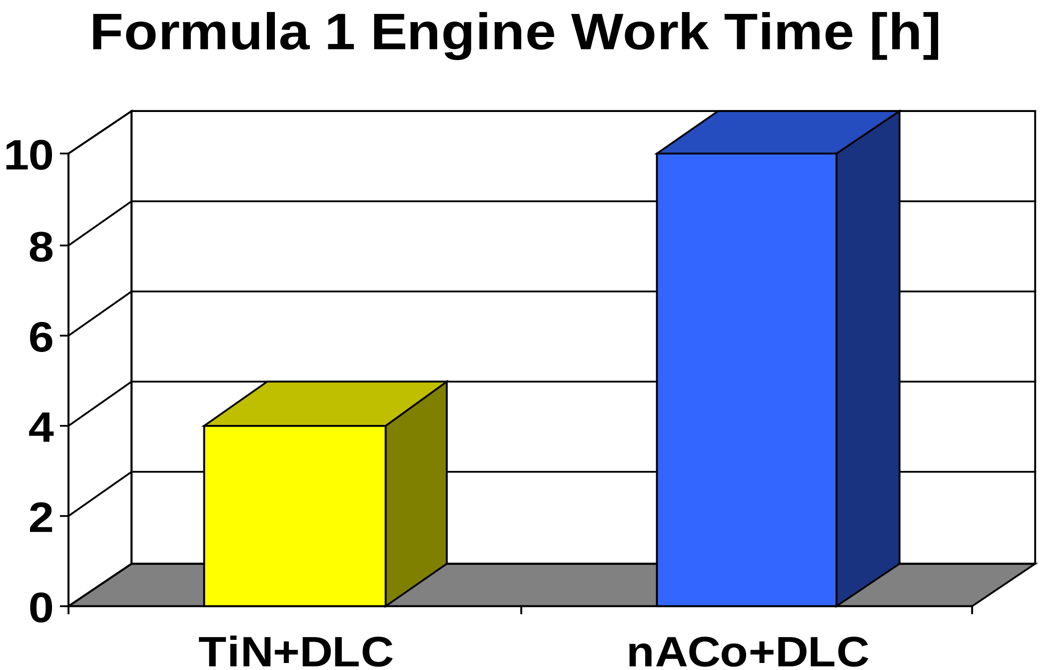


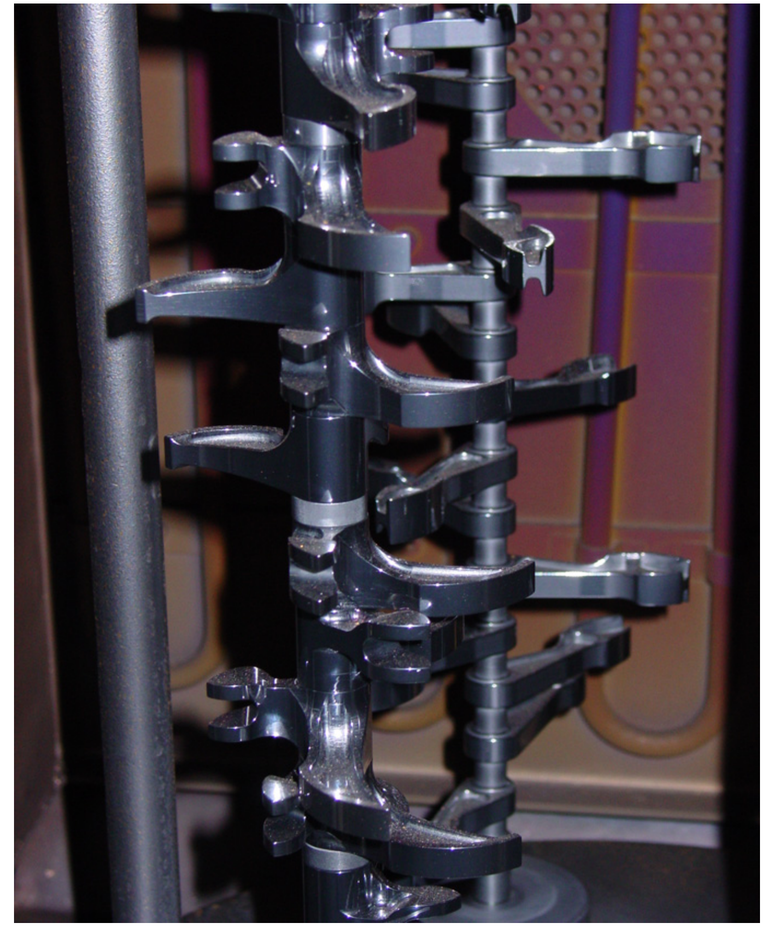
Blank

Blank before work



pratice examples





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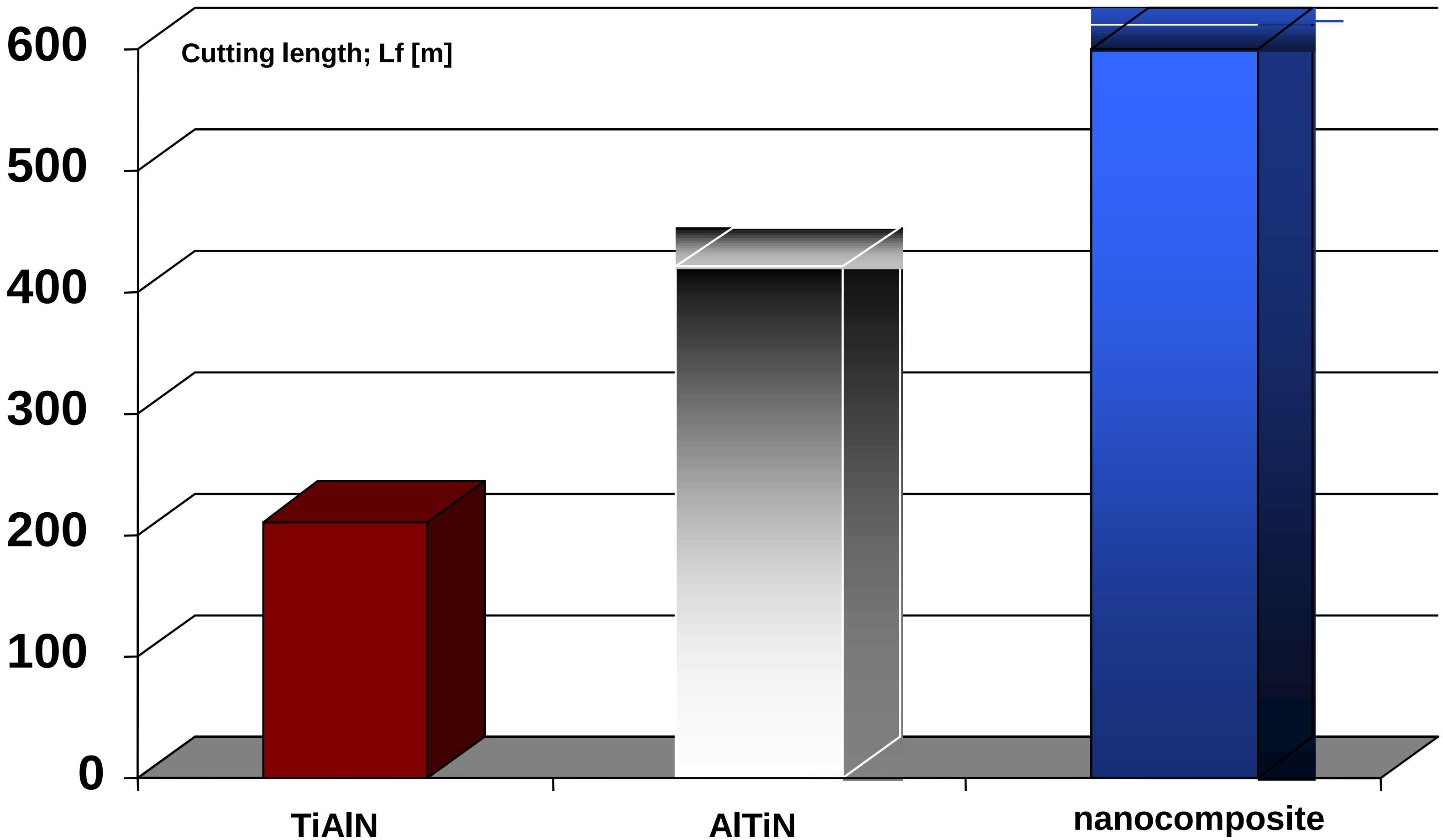
pratice examples



Bildnachweis: Schlenker, Werkzeugschleiferei, Böblingen

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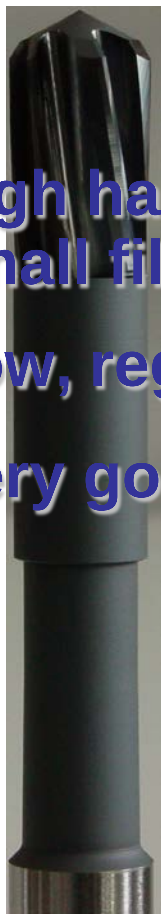
Reaming of GG25 using nACo®

pratice examples

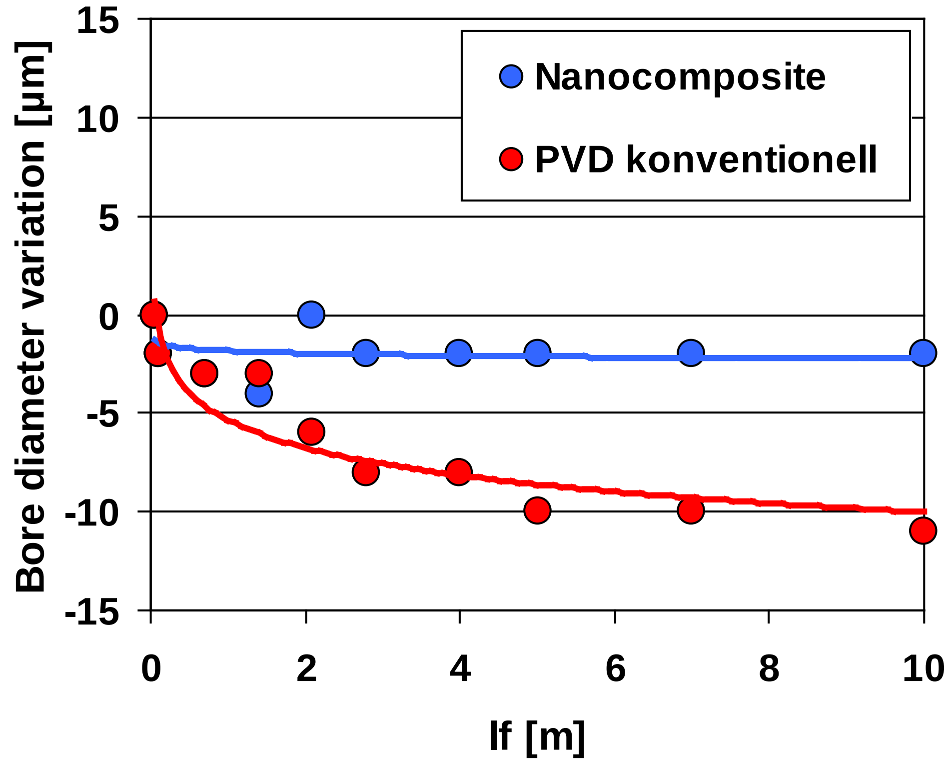
Tool: **High-performance hardmetal reamer, Ø 11.5 mm**

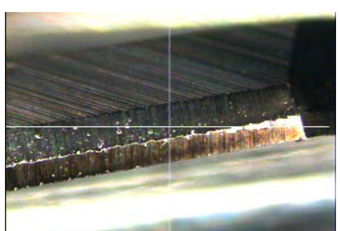
Parameters:

vc = 80 m/min, f = 0.4 mm/rev

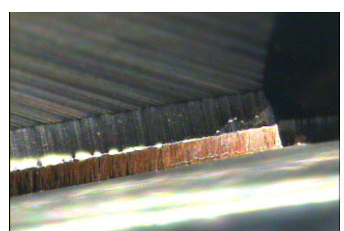


- **High hardness at small film thickness**
- **Low, regular wear**
- **Very good adhesion**

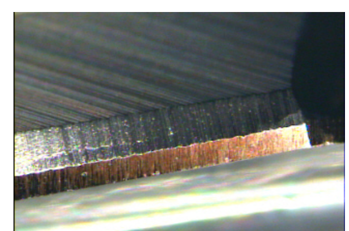




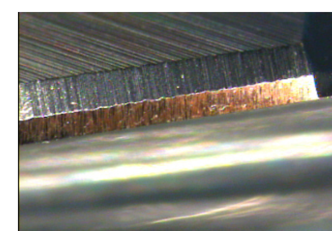
l_f = 0.7 m



l_f = 5 m



l_f = 10 m



l_f = 20 m

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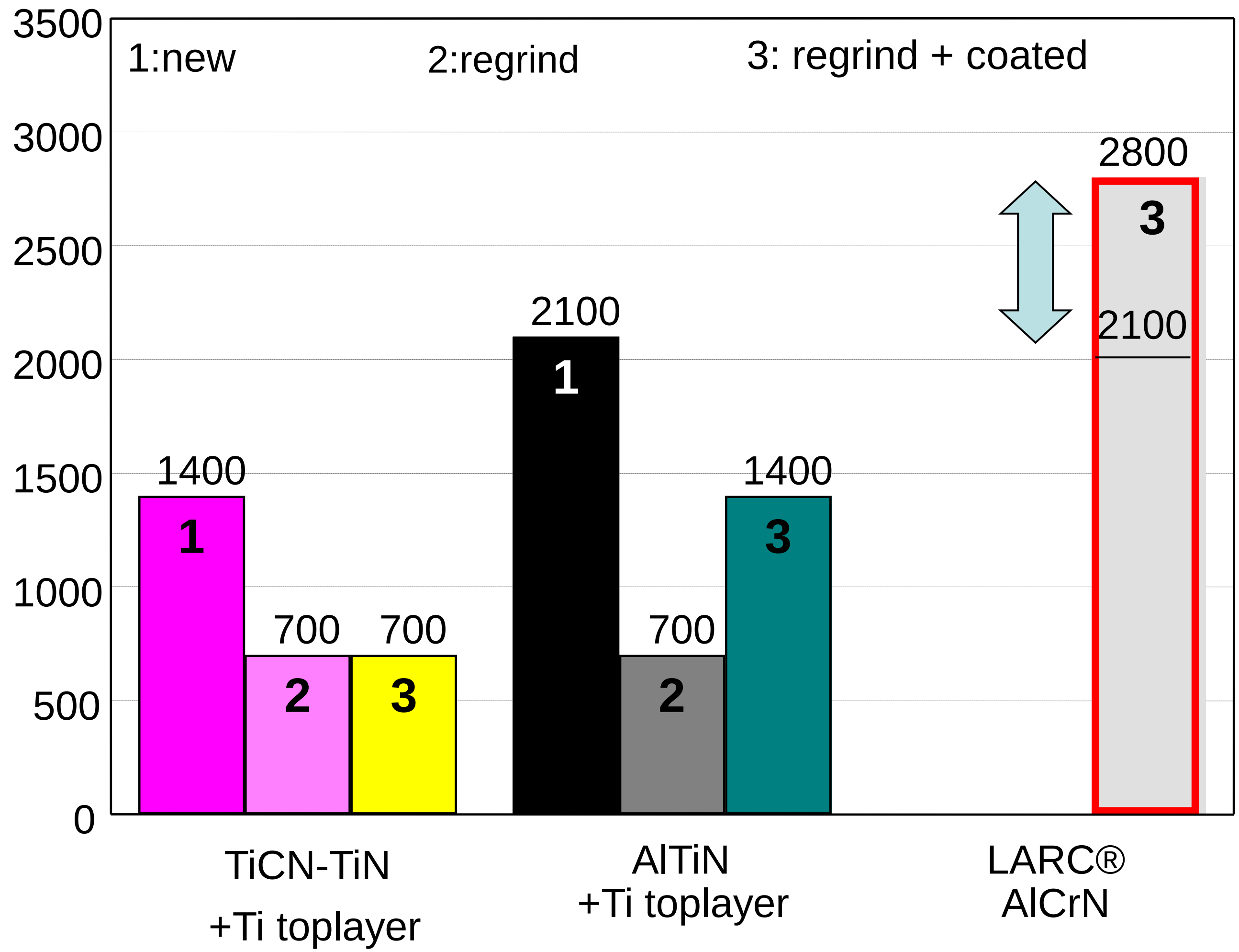
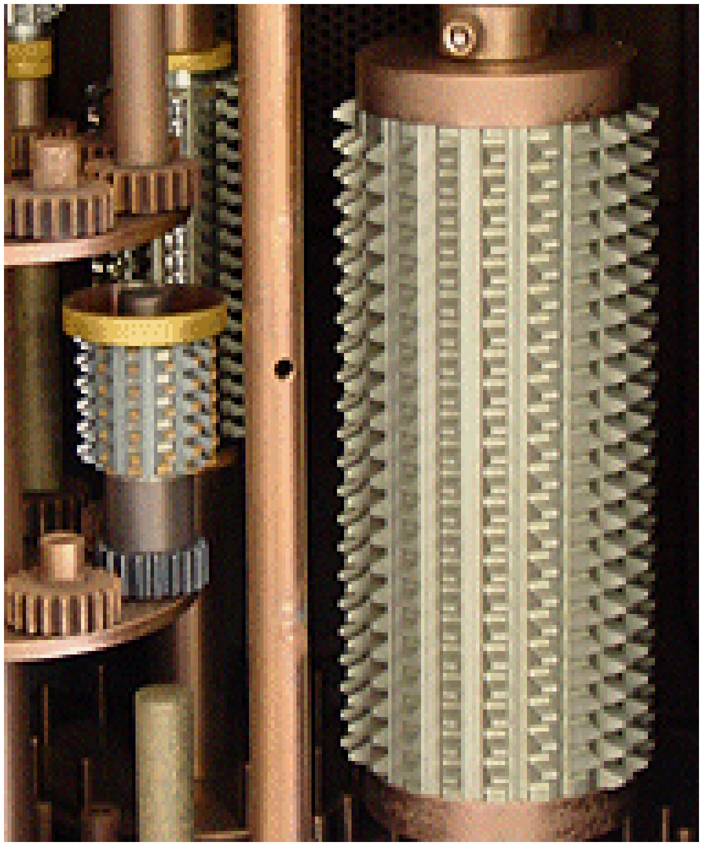
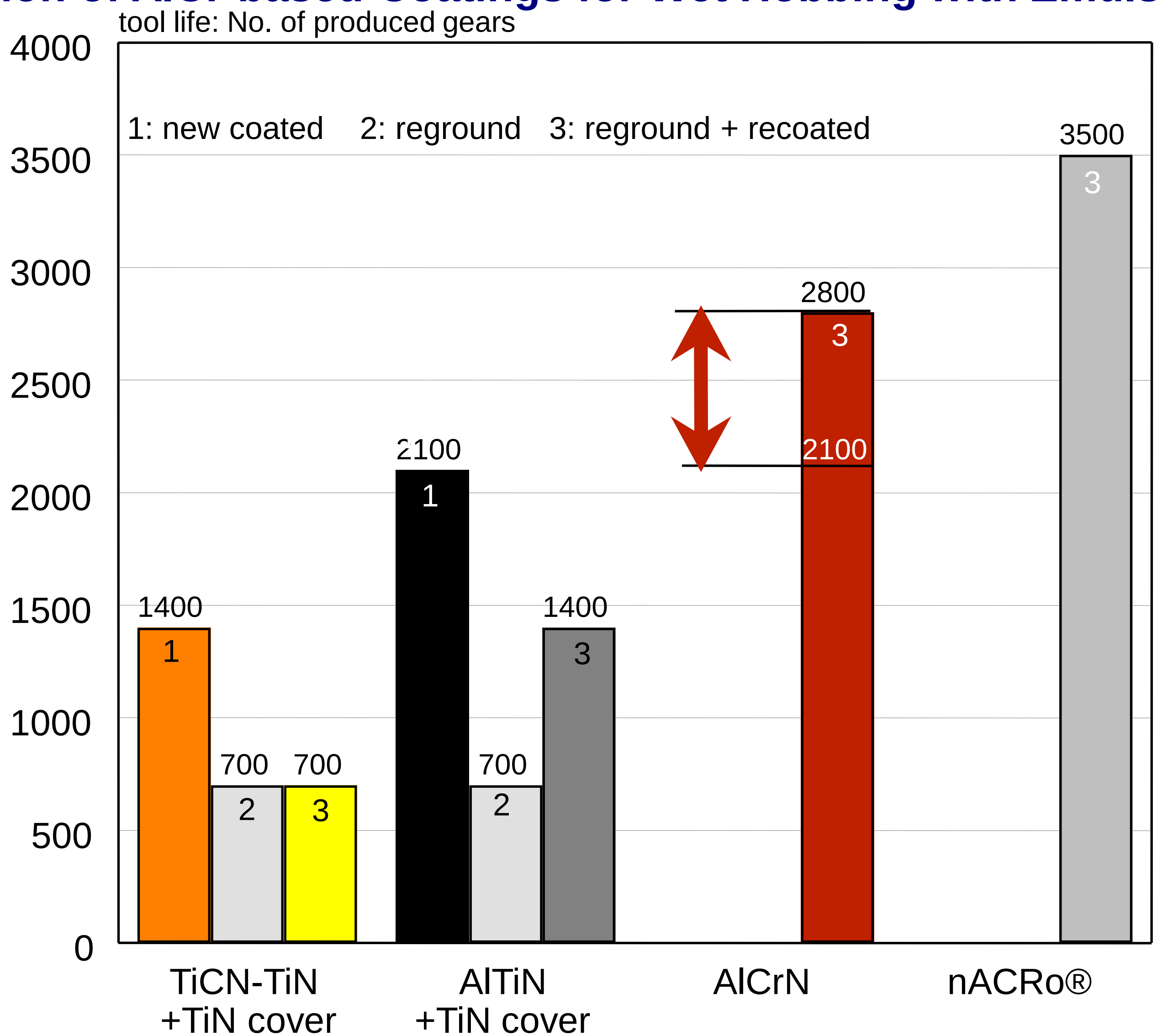
pratice examples



pratice examples

Application of AlCr-based Coatings for Wet Hobbing with Emulsion





Source: KLS-Gazela, Renault, Slovenia

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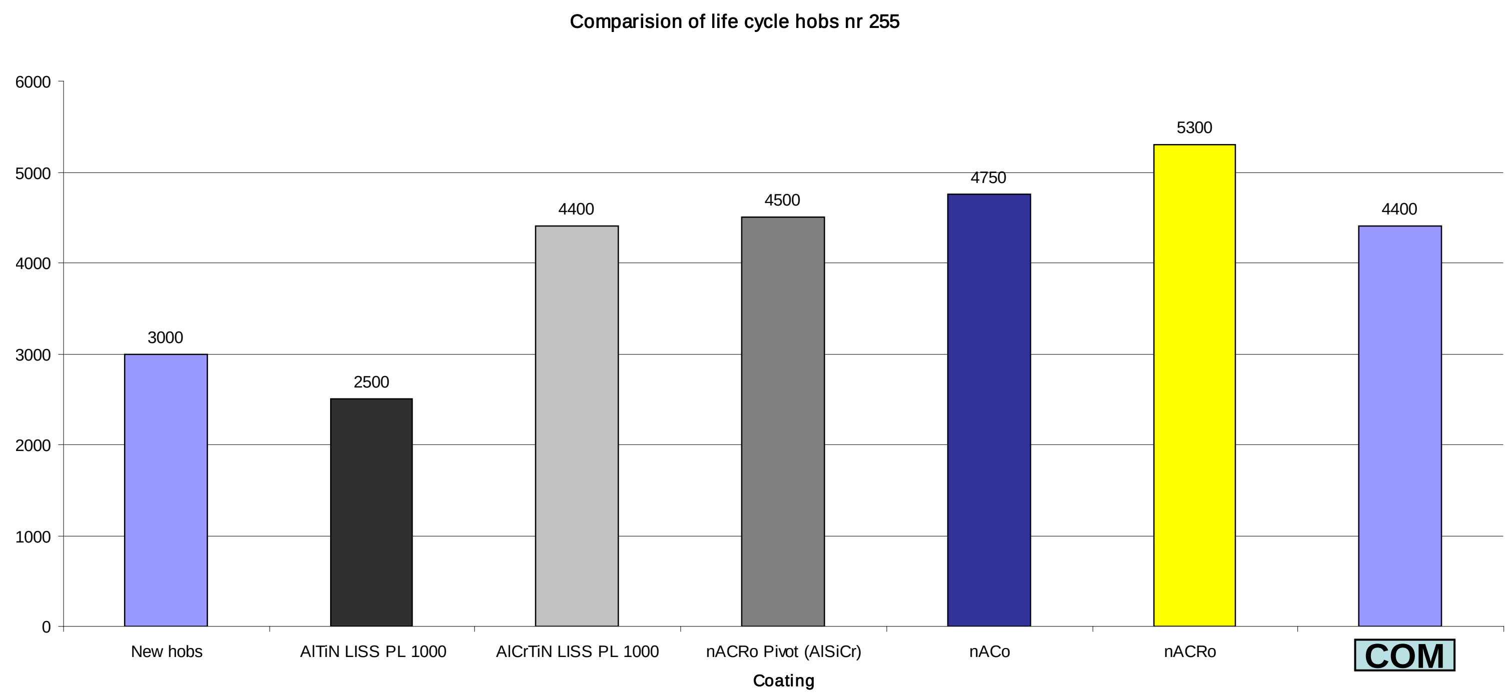
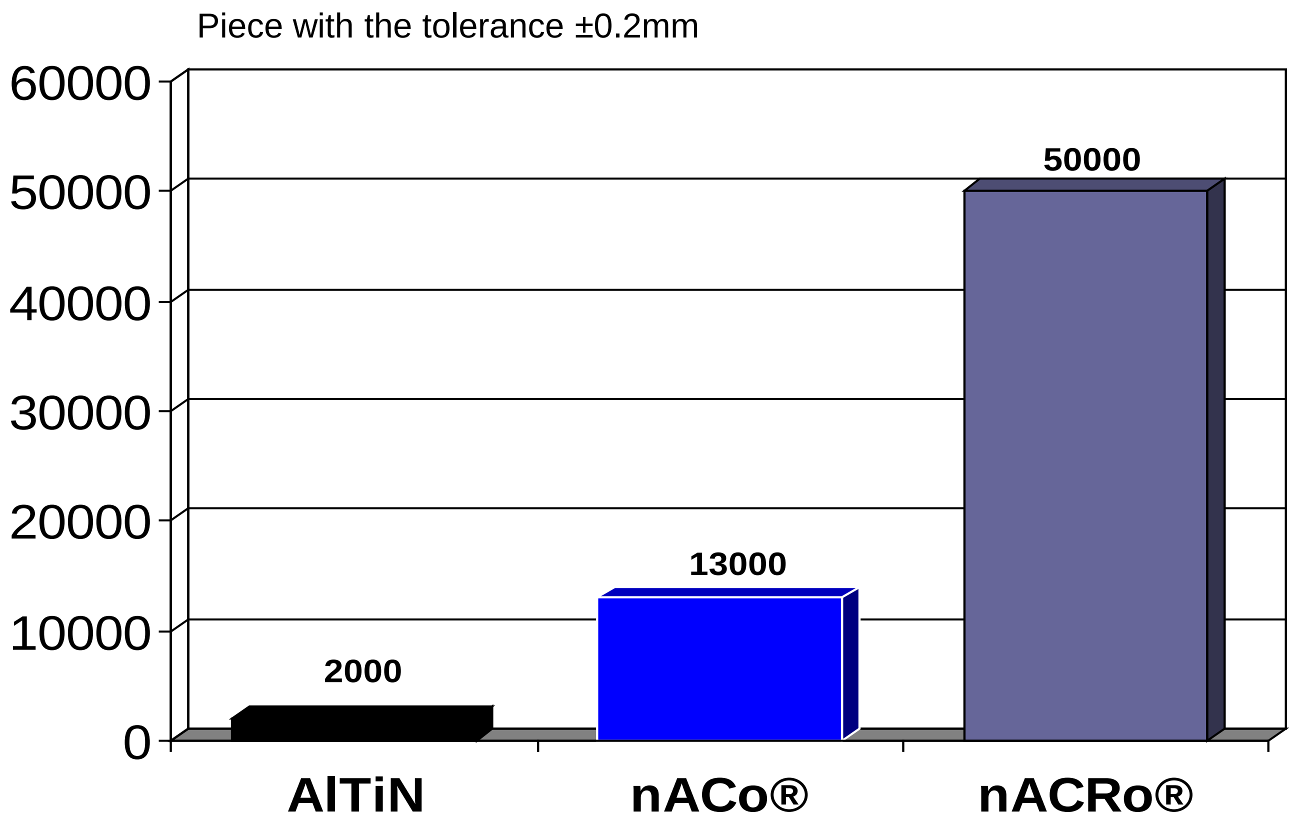
pratice examples



Condition: hobs - HSS PM 4, Fette, m 2.5, vc=150 m/min, dry, material:800-900 MPa
Source: Liss, Skoda, Czech Republic

pratice examples



Carbide Saw, Ø 125 x 3.6 mm, z=100 - Quelle: Prétat, Selzach, CH

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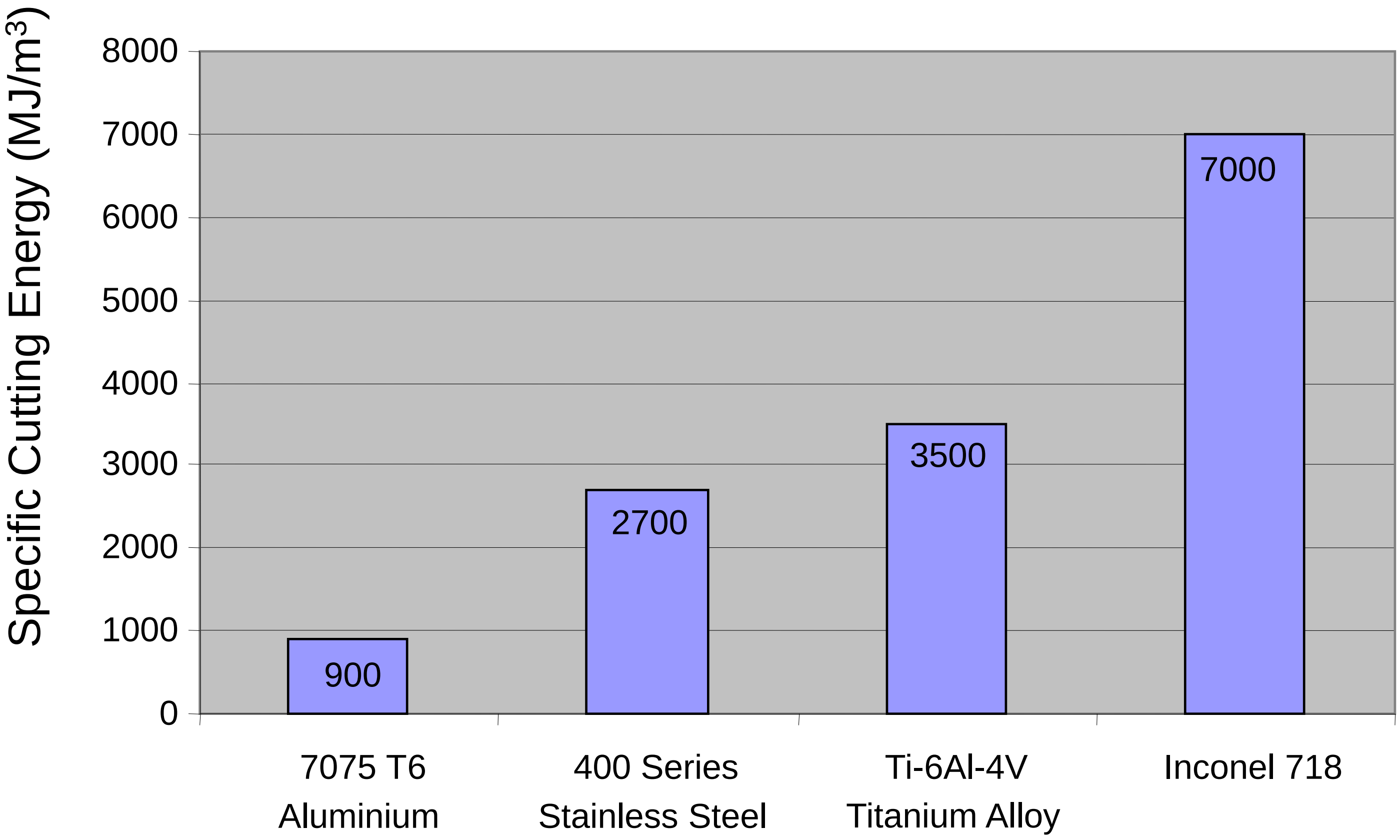
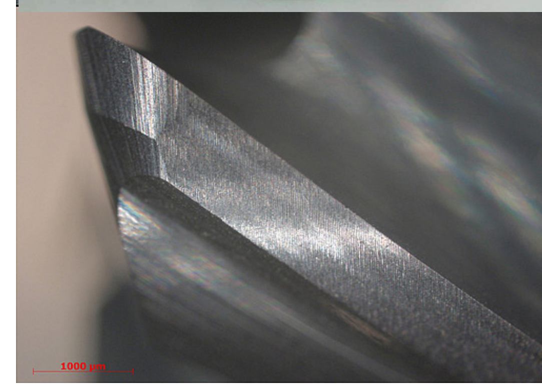
pratice examples

nARCo® for "tough" use





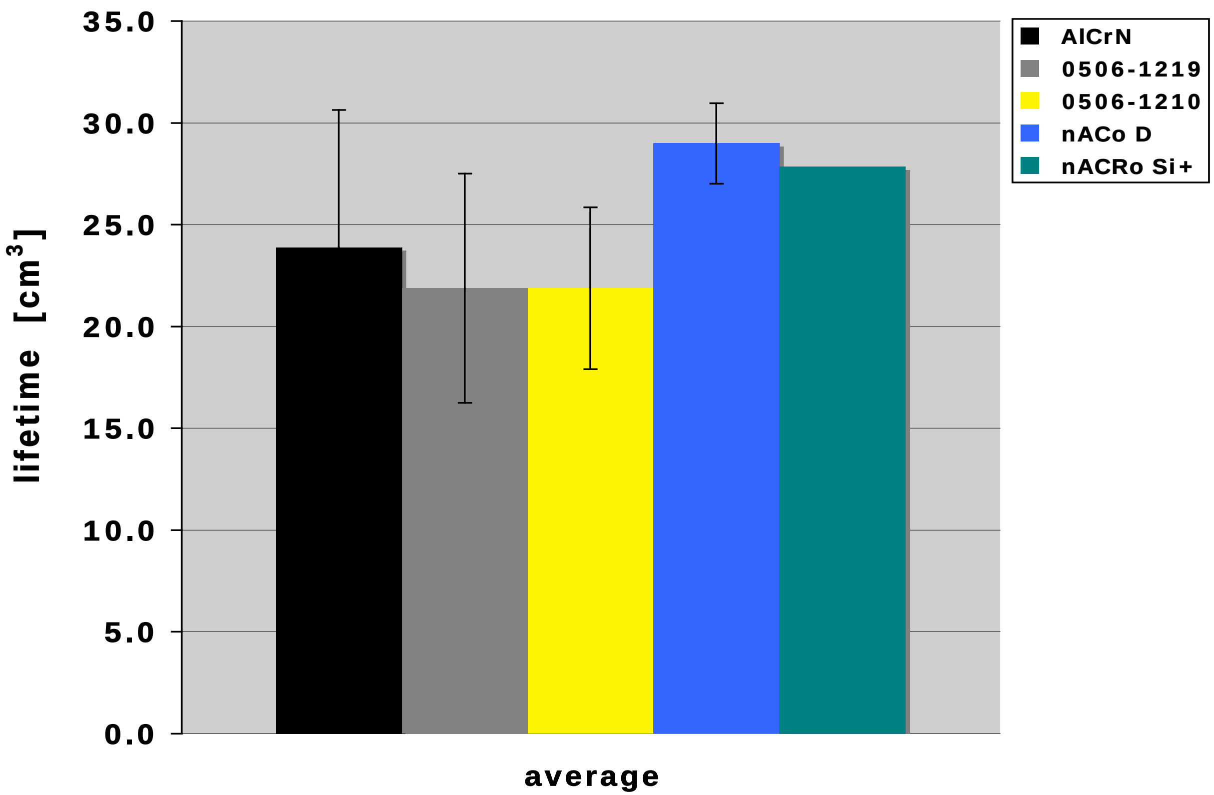
FRAISA 5325.450 NX-V, Ø10 mm z=4, helix angle 38/41°, γ = 0°, r=1 mm (custom)

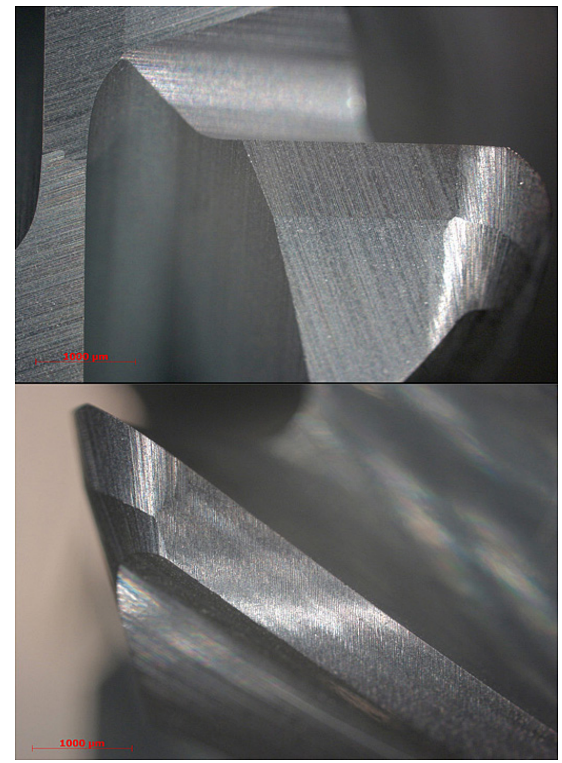
Conditions: a_e=10 mm, a_p=2.5 mm, v_c=25m/min, f_z=0.025 mm

pratice examples

Inconel 718 - Slotting

- Long arc of contact between tool and workpiece, high heat load on tool
- Regular wear with microchipping, corner of this tool is quite stable despite vibrations
- Effect of advanced coatings is visible but an optimum tool is needed!





FRAISA 5325.450 NX-V, Ø10 mm z=4, helix angle 38/41°, γ = 0°, r=1 mm (custom)

Conditions: a_e=10 mm, a_p=2.5 mm, v_c=25m/min, f_z=0.025 mm

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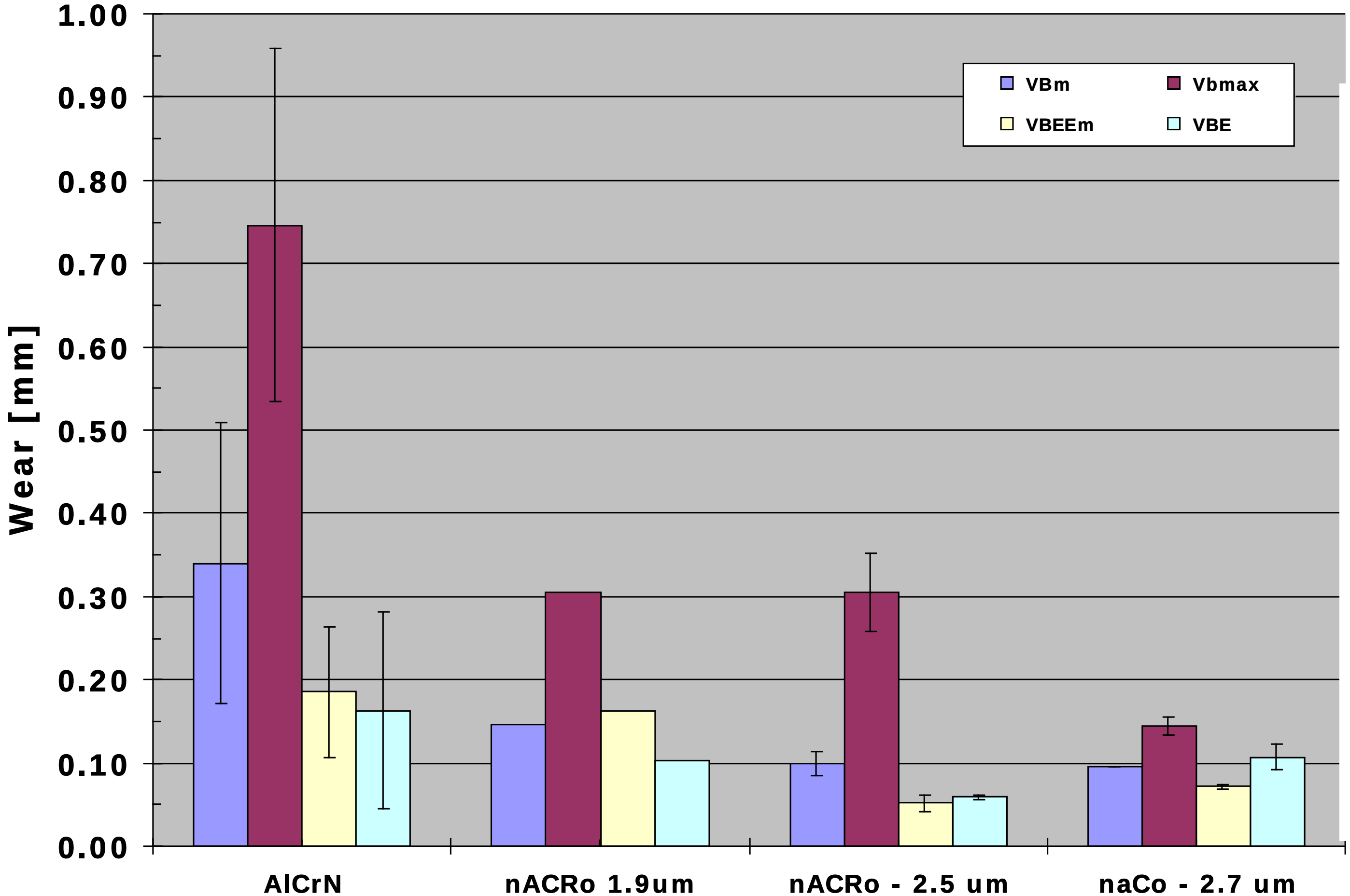
pratice examples

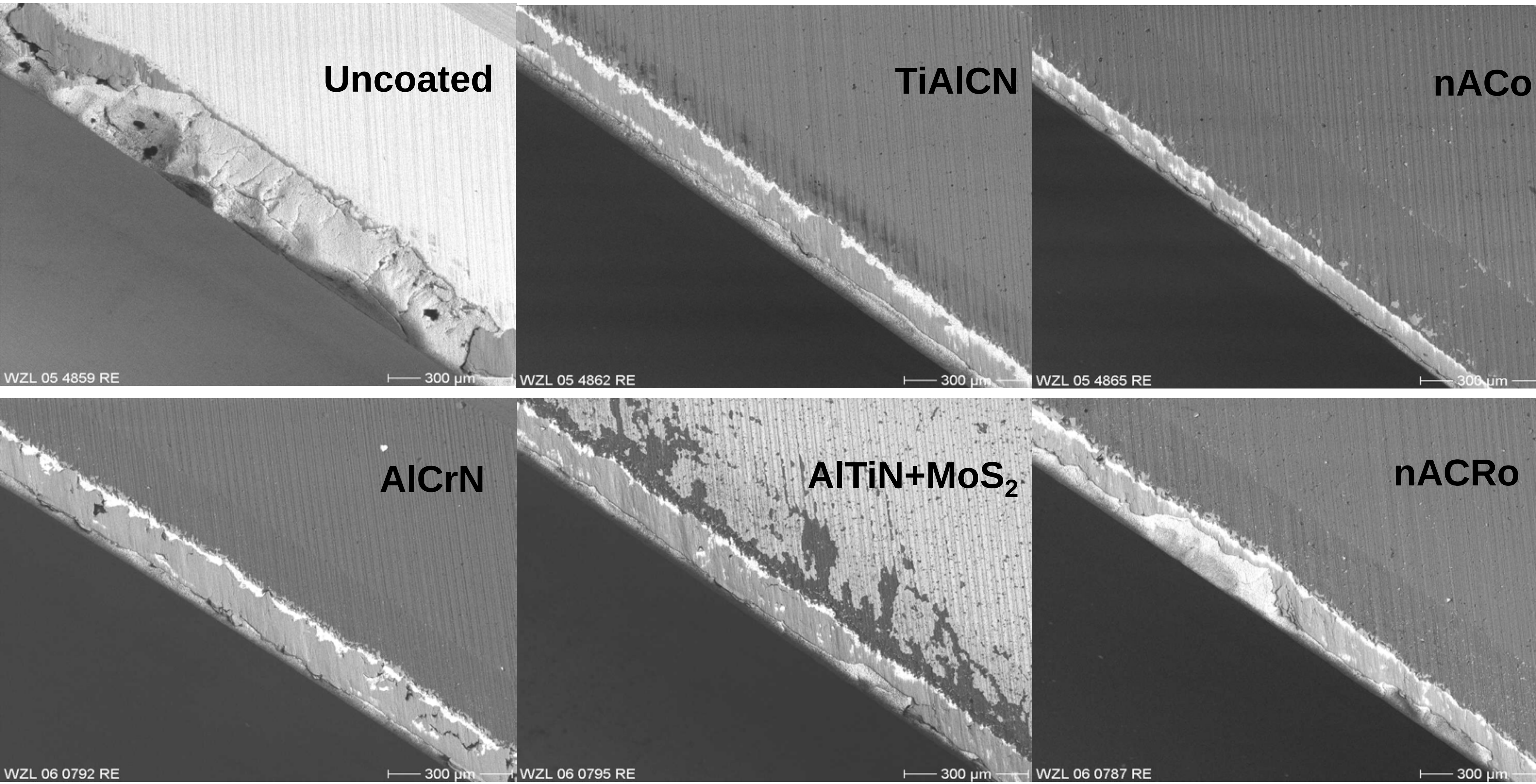
Roughing of 42CrMo4 Steel
Ø10 mm NRC type HM Endmills after 12.5 m milling distance



Material: heat treated steel 1.7225, Rm=850N/mm² – Tools: FRAISA 5370.450, Ø 10 mm, z = 4
vc=120 m min⁻¹ - fz=0.040 mm – ap=10 mm – ae=5 mm - n=3820 min⁻¹ – vf=610 mm min⁻¹, emulsion coolant

pratice examples

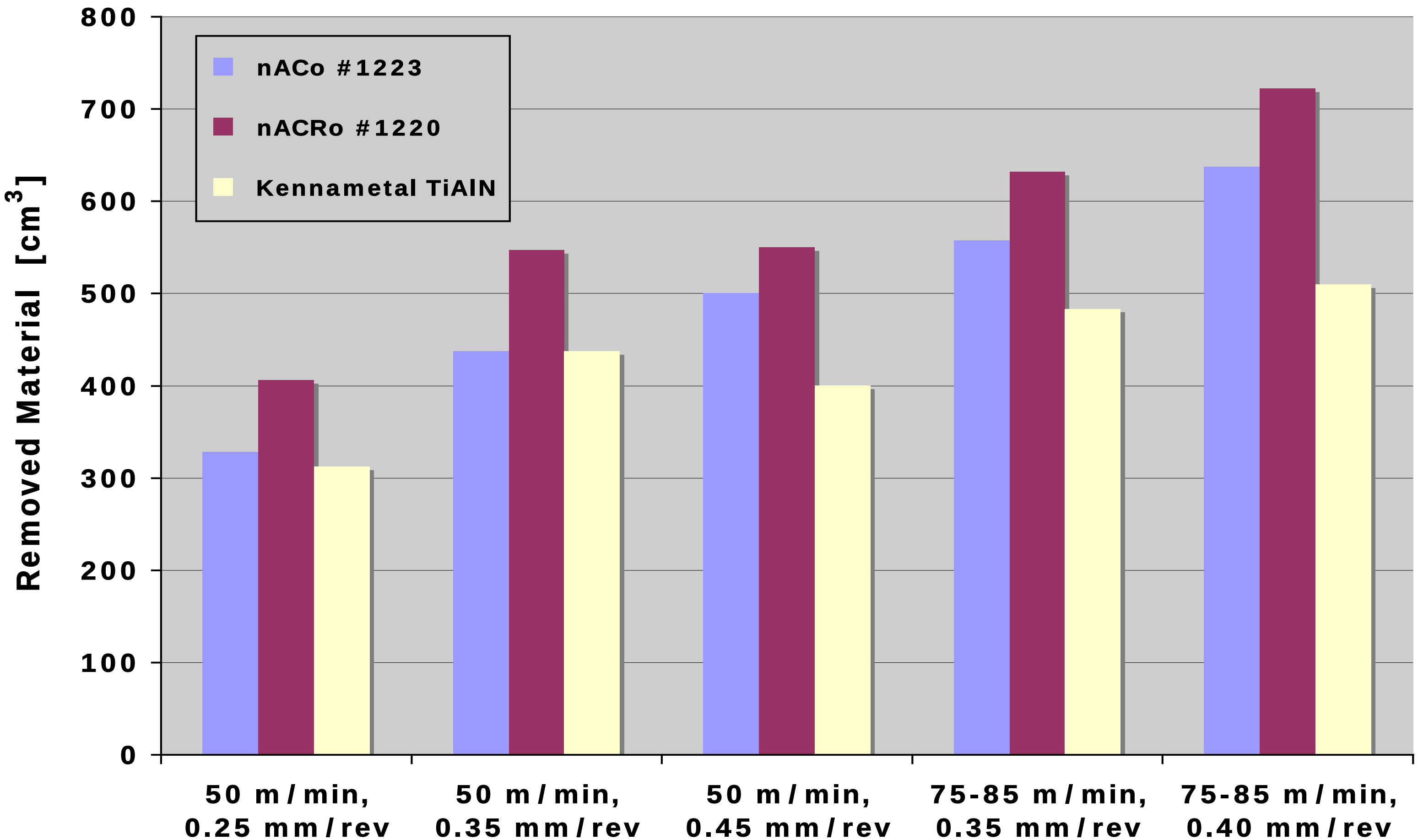
Wear Land of Hardmetal Finishing Mills After 1200 mm Milling Length in IN100 mod.



Source: MACHERENA 6th FP EU Project, WZL Aachen, D. Lung, I Essel

pratice examples

Turning of A286 high-Ni Austenitic Alloy



- ap = 1.25 mm, emulsion coolant
- Both nanocomposite coatings are always better than the TiAlN reference

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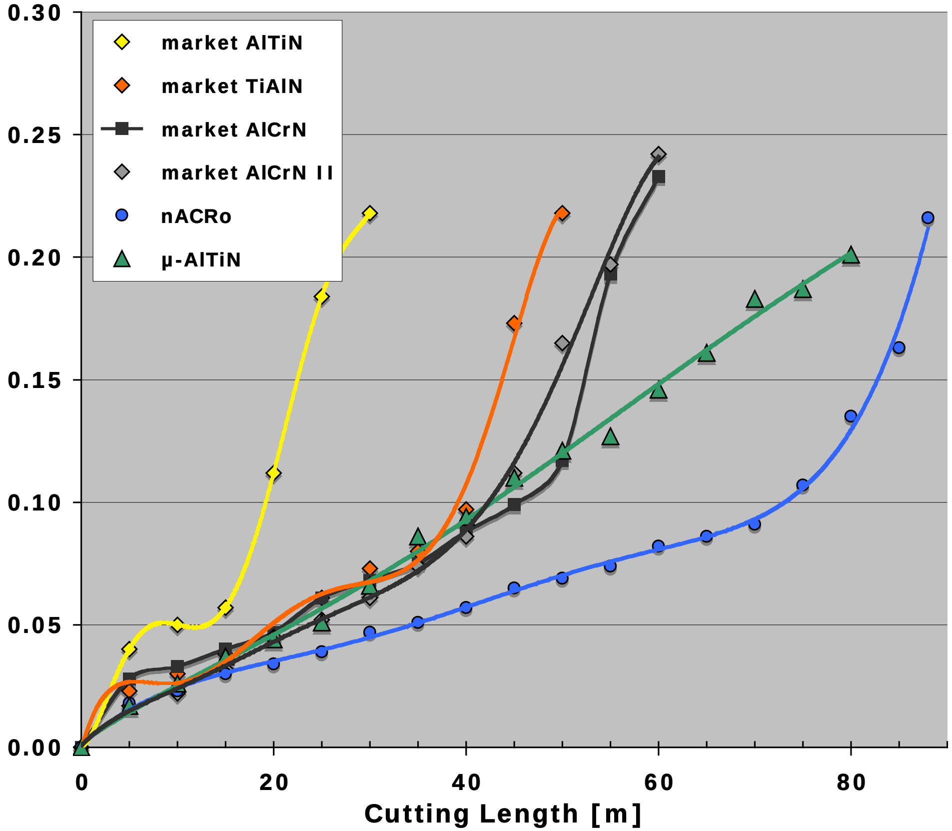
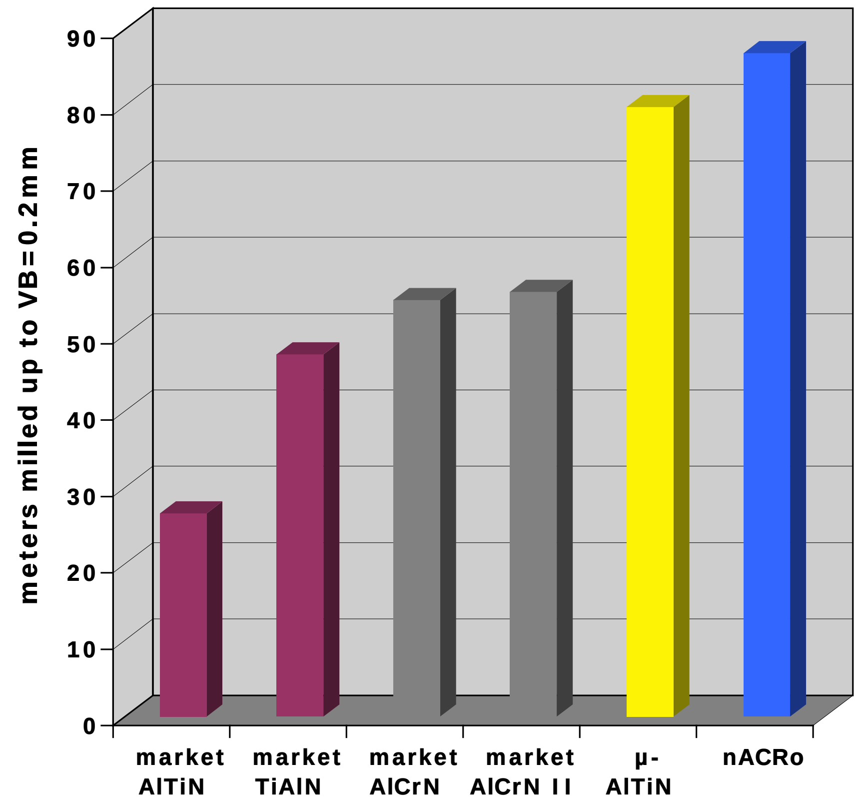
pratice examples

Machining of Hardened STC3 Alloy Steel

Finishing using Carbide Cutters

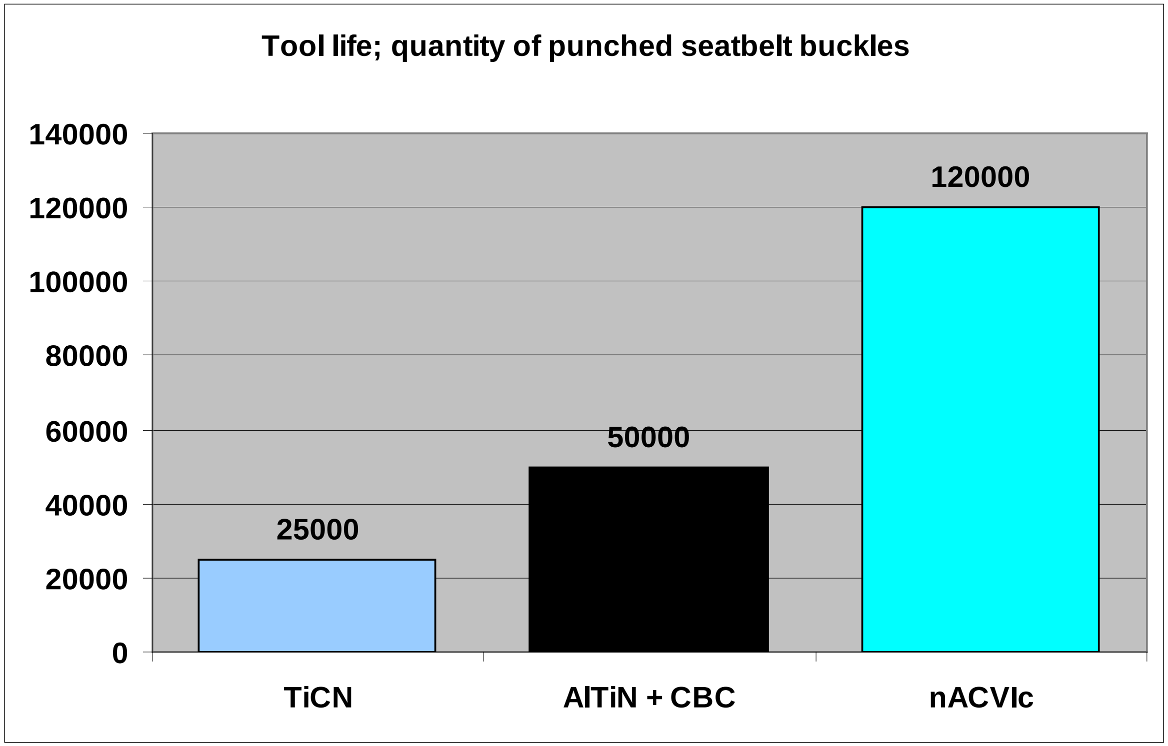




Material: heat treated steel STC3, 45 HRC, - Tools: Cylindrical carbide finishers, Ø 10 mm, z = 4 vc=113 m min^{-1} - fz=0.042 mm – ap=15 mm – ae=0.2mm – n=3600 min^{-1} – vf=600 mm min^{-1}, emulsion coolant

Source: HANA Precision Tools, Korea

pratice examples



Material: C45 – 3mm thick
Source: Liss, Rosnov, CZ

BLÖSCH

european
social fund in the
czech republic

EUROPEAN UNION

MINISTRY OF EDUCATION,
YOUTH AND SPORTS

OP Education
for Competitiveness

UNIVERSITY
OF WEST BOHEMIA

INVESTMENTS
IN EDUCATION
DEVELOPMENT

Message from me is:

We still a great chance with PVD Coatings to make our world better. Coating will be the future from market, that we have no ideas.

This is why need people the have interessant searching and develope this Coating