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QUICKCHANGE – TOOL ANALYSIS

MS39/MS39R
VS.
KING KONG TOOL

QUALITY INSPECTION

15.10.2020

OVERVIEW OF ANALYSIS

- Visual Analysis
- Hardness Test (HRC)
- Chemical Analysis
- Physical Analysis
- Porosity
- Structure
- Brazing
- Conclusion

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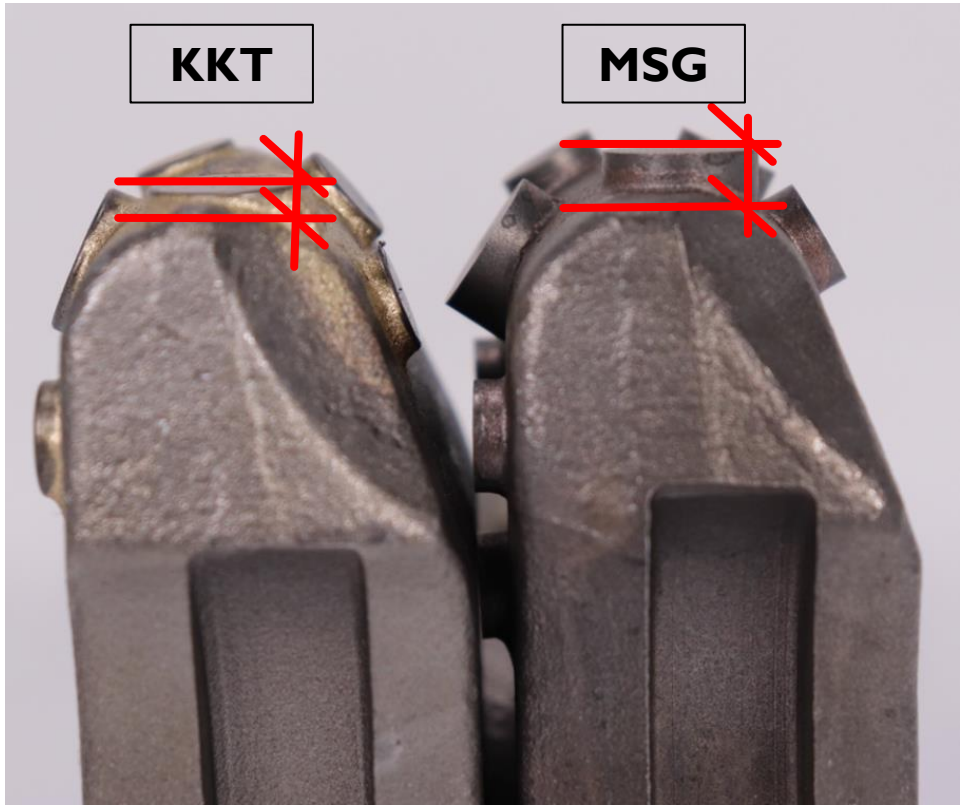
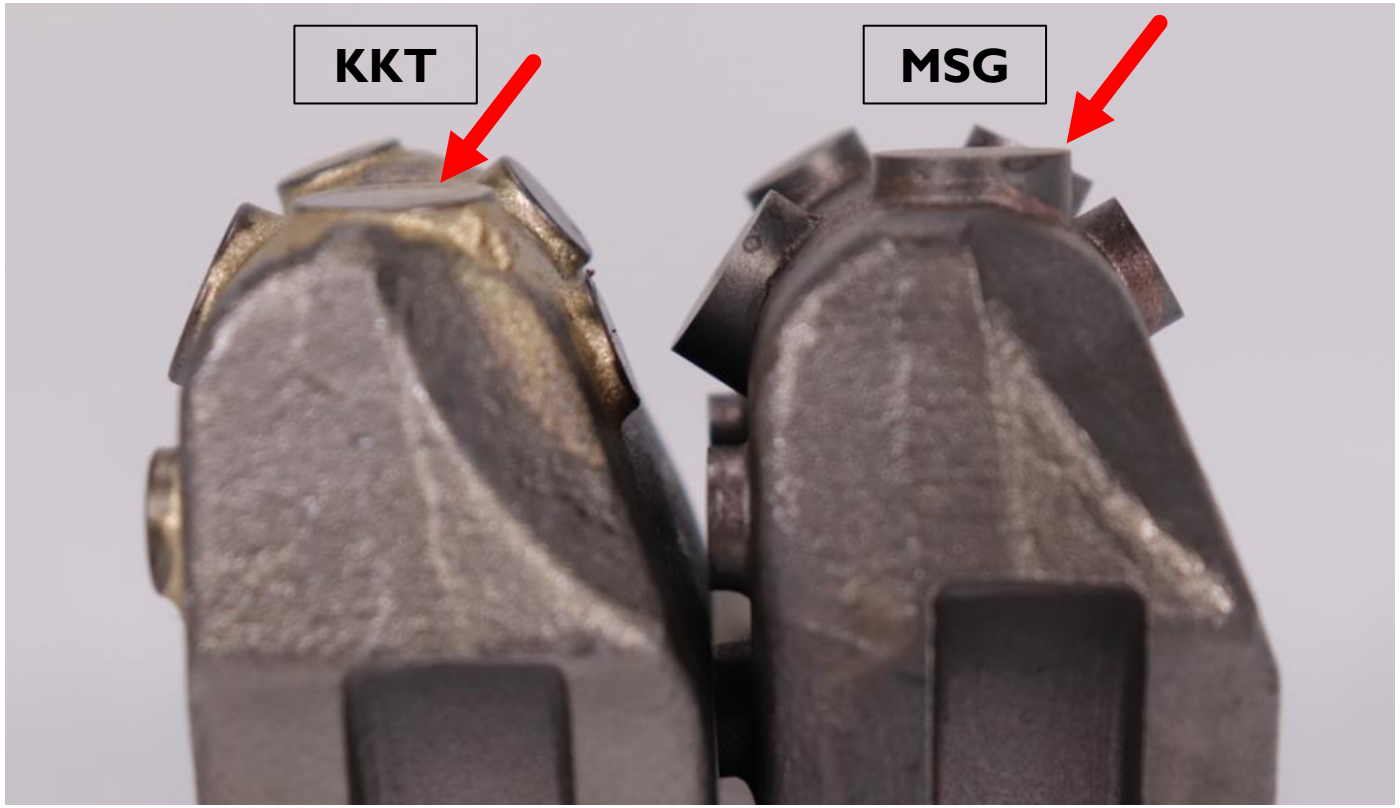
VISUAL ANALYSIS





KKT MAIN CARBIDE MUCH SHORTER = NO AGGRESSIVITY

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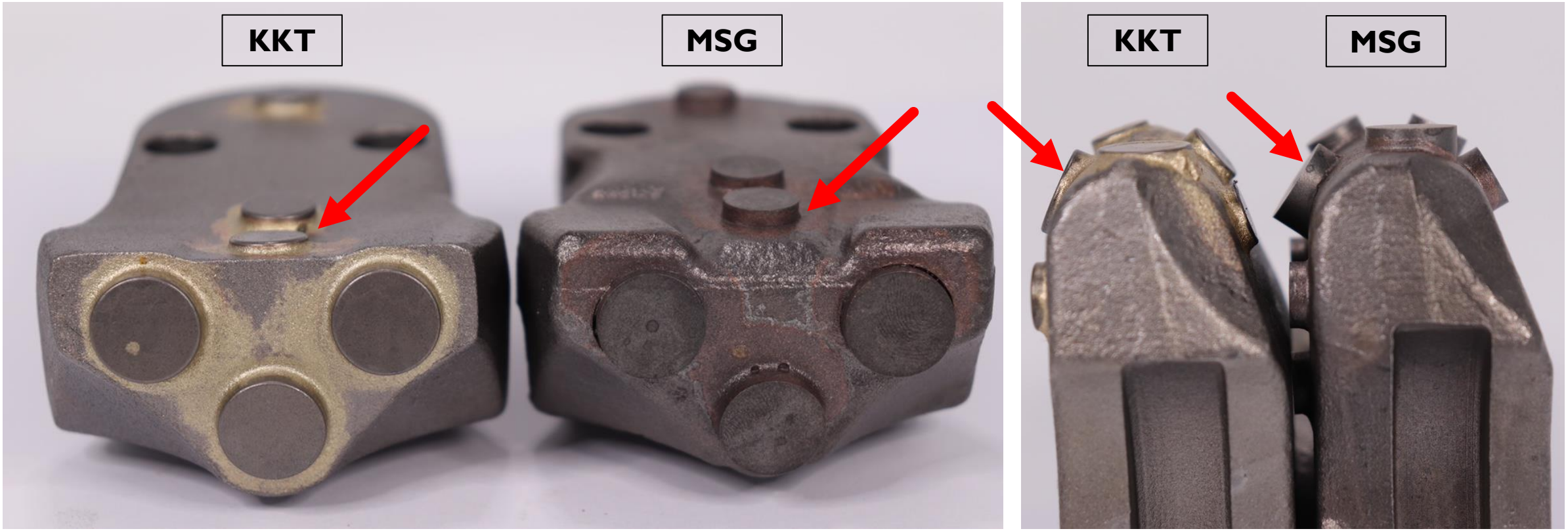
VISUAL ANALYSIS



KKT SIDE CARBIDE MUCH SHORTER = LESS PERFORMANCE IN SIDE CUT

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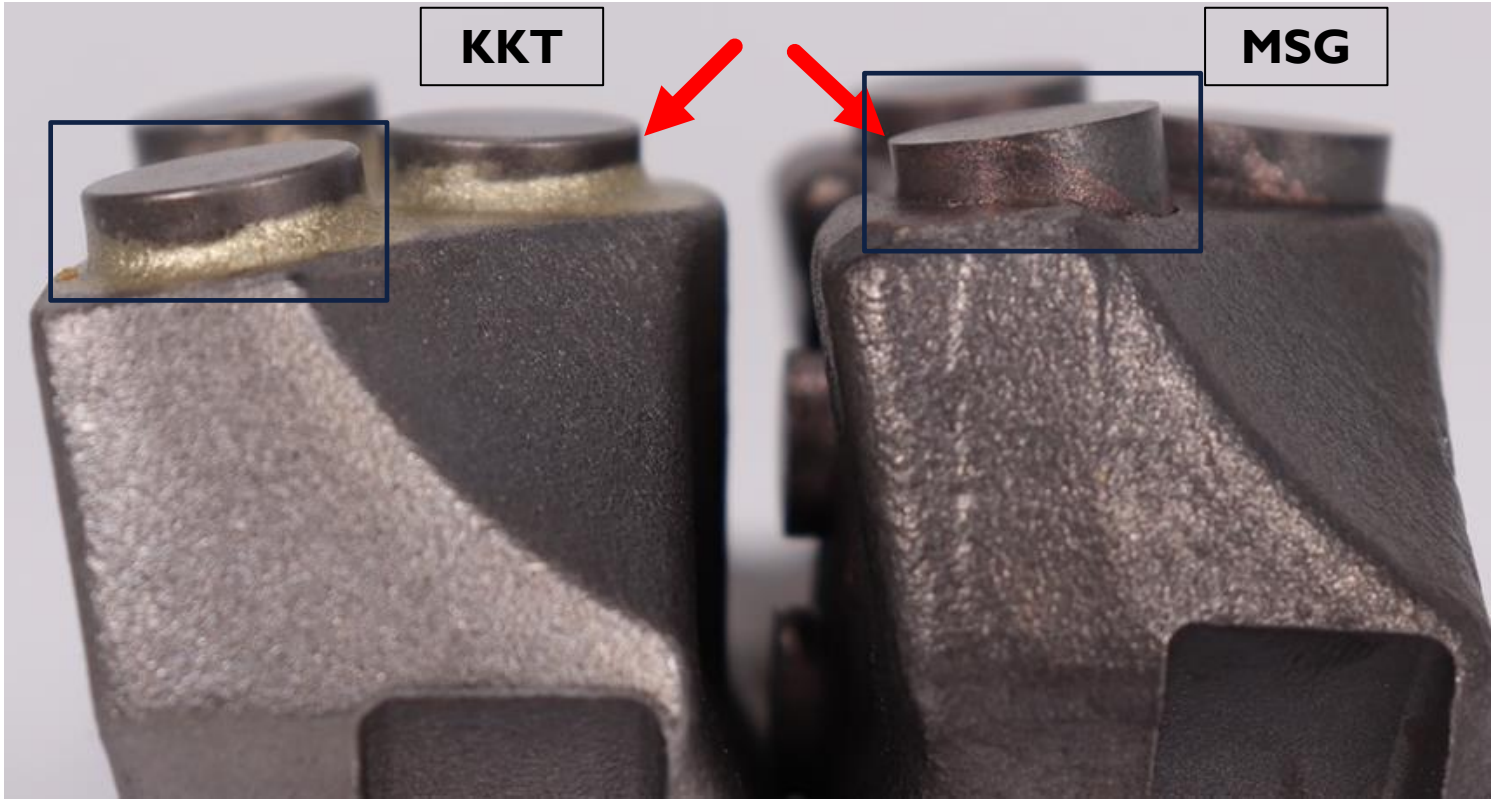
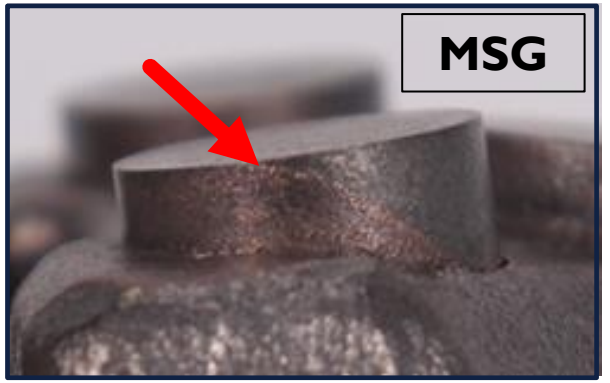
VISUAL ANALYSIS





KKT CARBIDE ROUND EDGES = LESS PENETRATION IN THE CUT

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HARDNESS TEST (HRC)

KKT =
25 HRC

Bauer =
39 HRC

MSG =
41 HRC

KKT = ONLY 25 HRC - WILL RESULT IN QUICK STEEL WASH

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CHEMICAL ANALYSIS KKT CARBIDE VS. MSG

		Analysenwerte der untersuchten HM Stifte D 10,8 mm	Analysenwerte der untersuchten HM Stifte D. 15 mm	Standardwerte MSG
chemische Analyse				
Gehalt an Kobalt	(%)	10, 5	10,54	9,5 ± 0.2
Gehalt an Vanadiumcarbid	(%)	-	-	-
Gehalt Chromcarbid	(%)	-	-	-
Gehalt Wolframcarbid	(%)	Rest	Rest	Rest

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PHYSICAL ANALYSIS KKT CARBIDE VS. MSG

		Analysenwerte der untersuchten HM Stifte D 10,8 mm	Analysenwerte der untersuchten HM Stifte D. 15 mm	Standardwerte MSG
Physikalisch - metallurgische Untersuchung				
Dichte	(g/cm³)	14,54	14,56 – 14,57	14,55± 0.10
Koerzitivfeldstärke	(Oe)	68,4 – 71,2	71,4 – 72,6	50 - 68
Magn. Sättigung	(Gcm³/g)	14,9 – 15,0	14,4 – 14,7	13,0 – 15,0
Härte	(HV20)	1074		1050 ± 50

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POROSITY KKT CARBIDE VS. MSG

	Analysenwerte der untersuchten HM Stifte D 10,8 mm	Analysenwerte der untersuchten HM Stifte D. 15 mm	Standardwerte MSG
Porosität			
Grundporosität	< A02	< A02	< A02
Einzelporosität	B00	B00	B00
Poren > 10 µm	keine Poren	keine Poren	keine Poren
Poren > 40 µm	keine Poren	keine Poren	keine Poren

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STRUCTURE KKT CARBIDE VS. MSG

	Analysenwerte der untersuchten HM Stifte D 10,8 mm	Analysenwerte der untersuchten HM Stifte D. 15 mm	Standardwerte MSG
Gefügeausbildung			
mittlere WC Korngröße (WC)	Extra grob	Extra grob	Extra grob
WC Korngrößenverteilung (WC)	gleichmäßig	gleichmäßig	gleichmäßig
Verteilung der Kobaltphase	gleichmäßig	gleichmäßig	gleichmäßig
Auffälligkeiten/Besonderheiten	keine	keine	keine

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STRUCTURE KKT CARBIDE

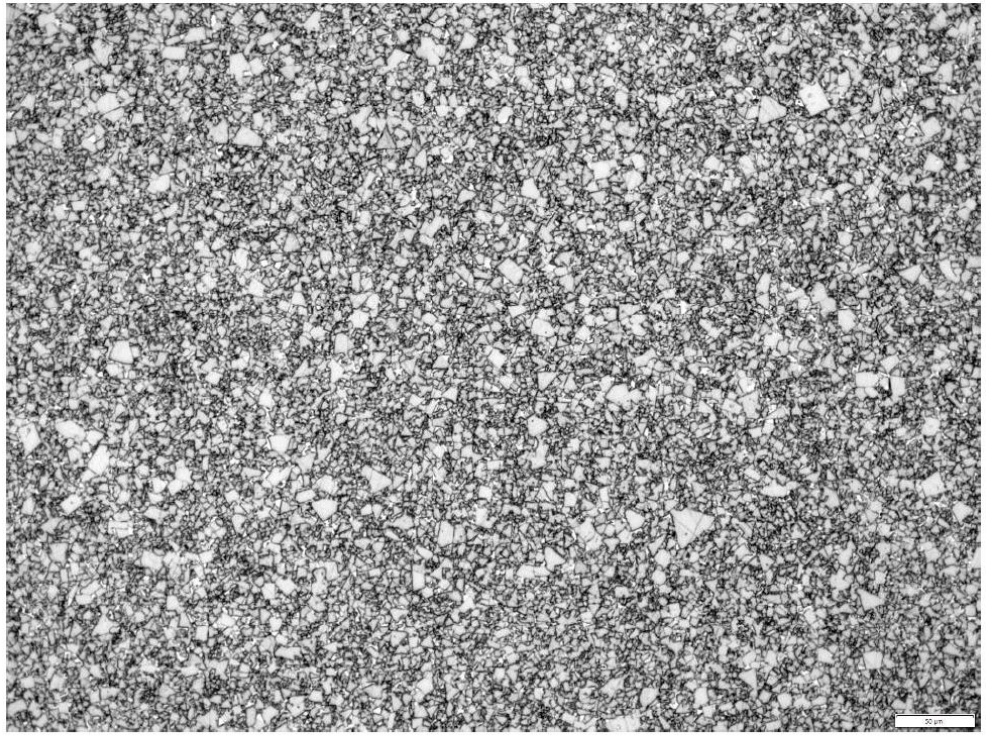

Abbildung 1: Gefüge HM Stift 200 x Vergrößerung

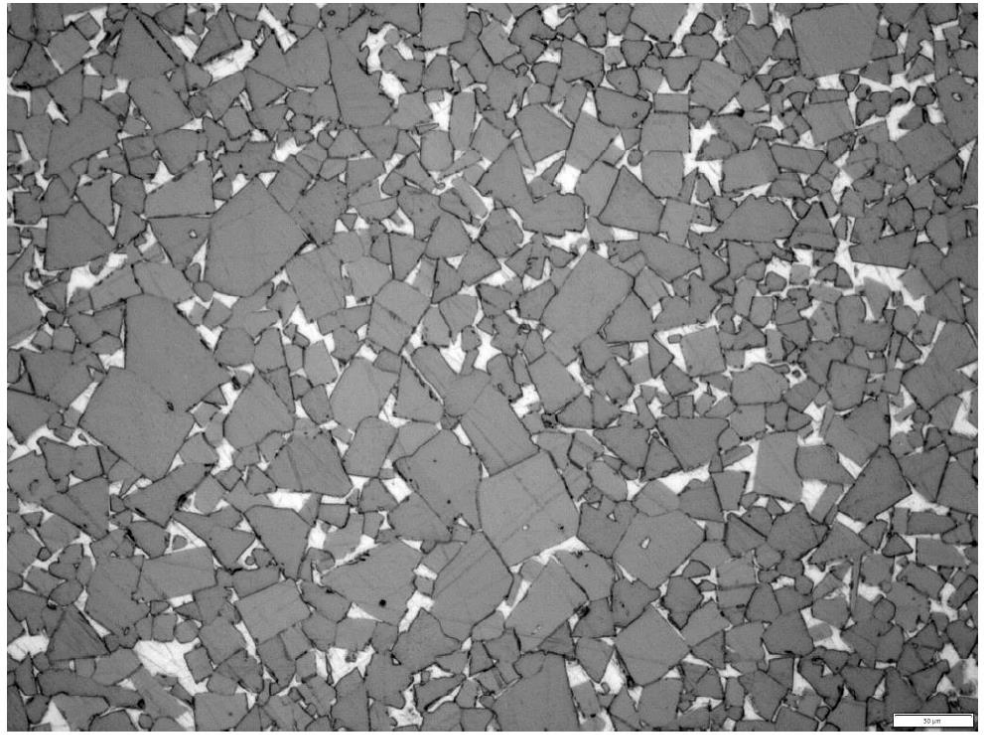

Abbildung 2: Gefüge HM Stift 10000 x Vergrößerung

HIGH VARIETY IN GRAIN SIZES (BIG – SMALL)

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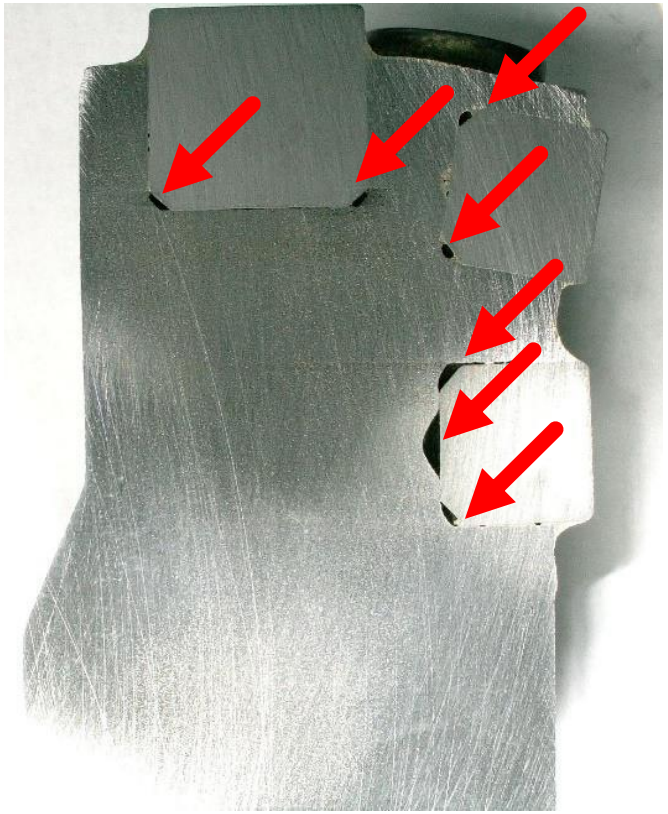
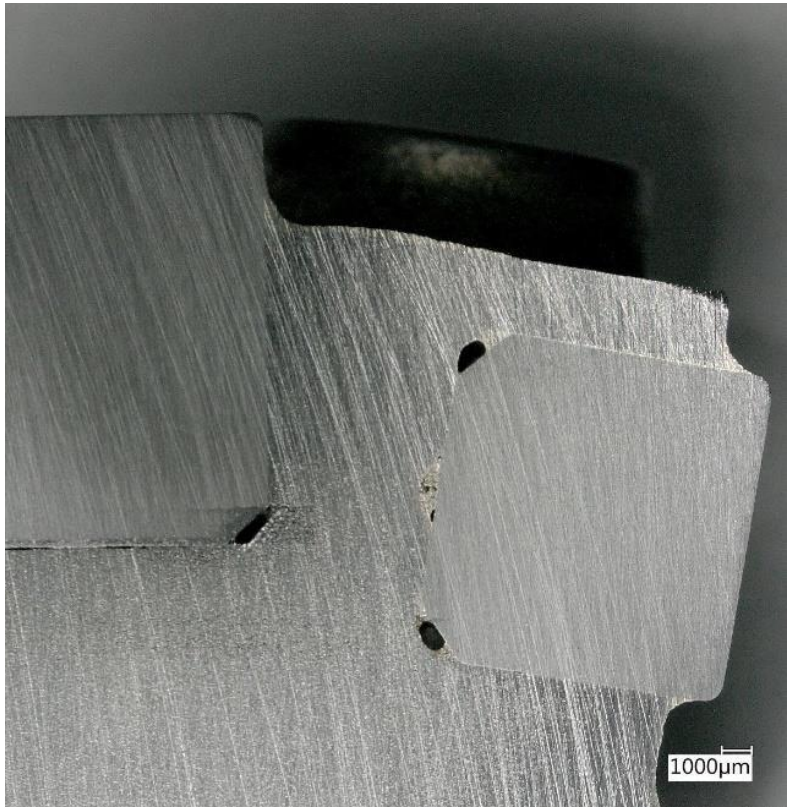
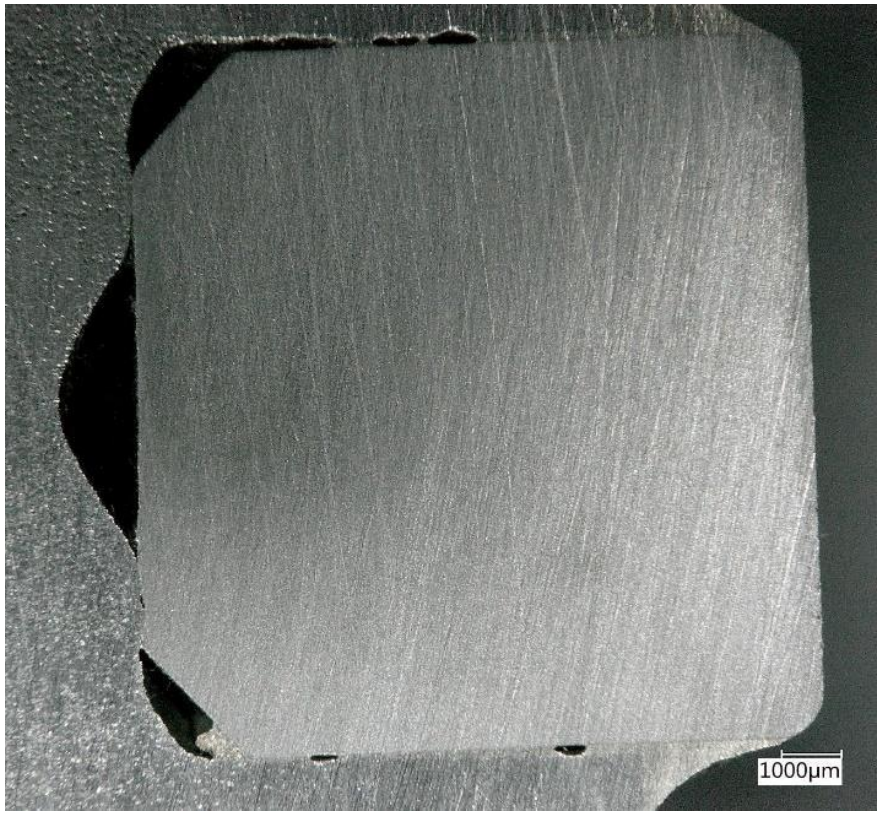
BRAZING KKT CARBIDE







VERY POOR BRAZING COVERAGE

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CONCLUSION – BENEFITS OF M&S GRUSECK TOOLS

- TALLER CARBIDE TIPS = INCREASED CUTTING AGRESSIVITY & HIGHER BODY PROTECTION
- SHARP CARBIDE EDGES = INCREASED PENETRATION
- HARDNESS = 40-45 HRC vs. ONLY 25 HRC. LESS STEEL WASCH = INCREASED LIFETIME
- EXCELLENT BRAZING COVERAGE = BEST TIP SUPPORT AND STRENGTH
- DIFFERENT MODULES (MS39, MS39R, MS46) FOR ALL APPLICATIONS
- PRODUCT MADE IN GERMANY vs. PRODUCT MADE IN CHINA
- **CAUTION: As M&S Carbide is "higher", it is mandatory to use a full set of M&S Tools for testing, otherwise our tools will do the complete job and test result can not be meaningful!!**

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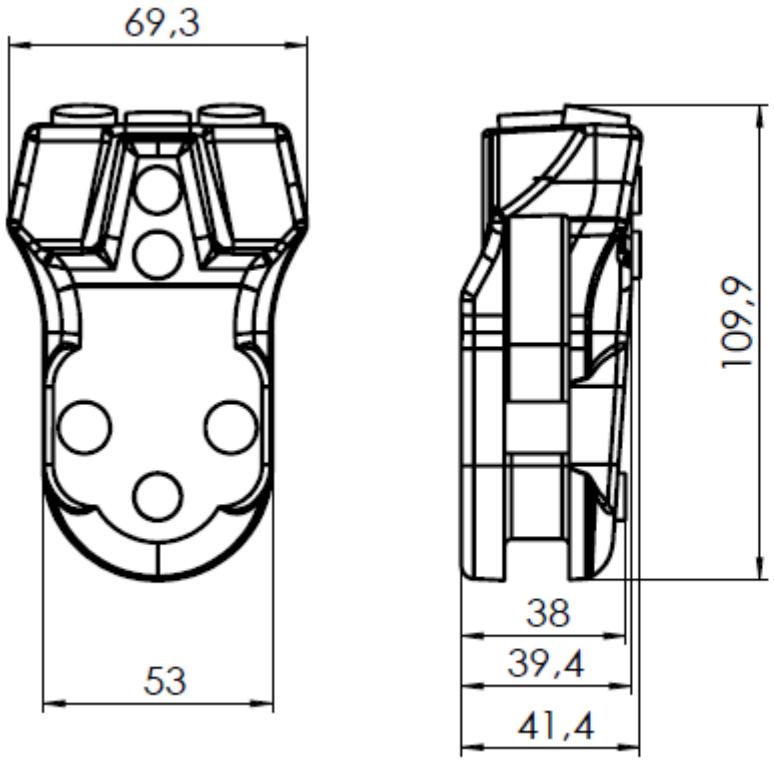
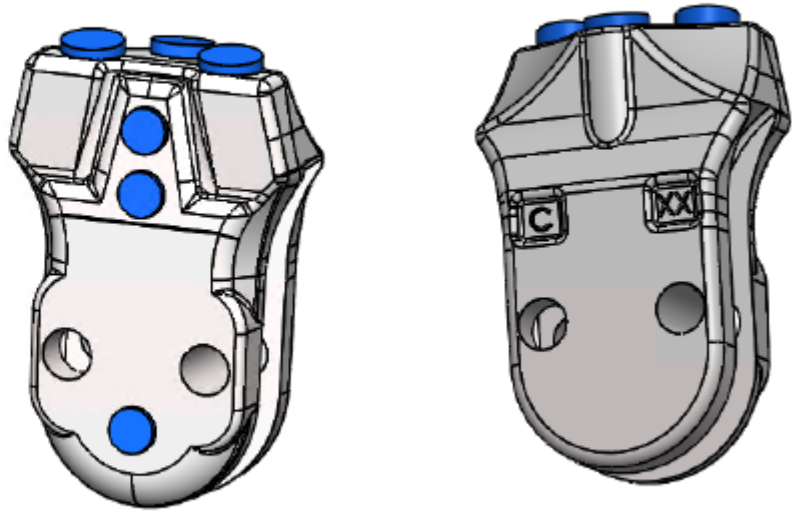
DRAWING MS39





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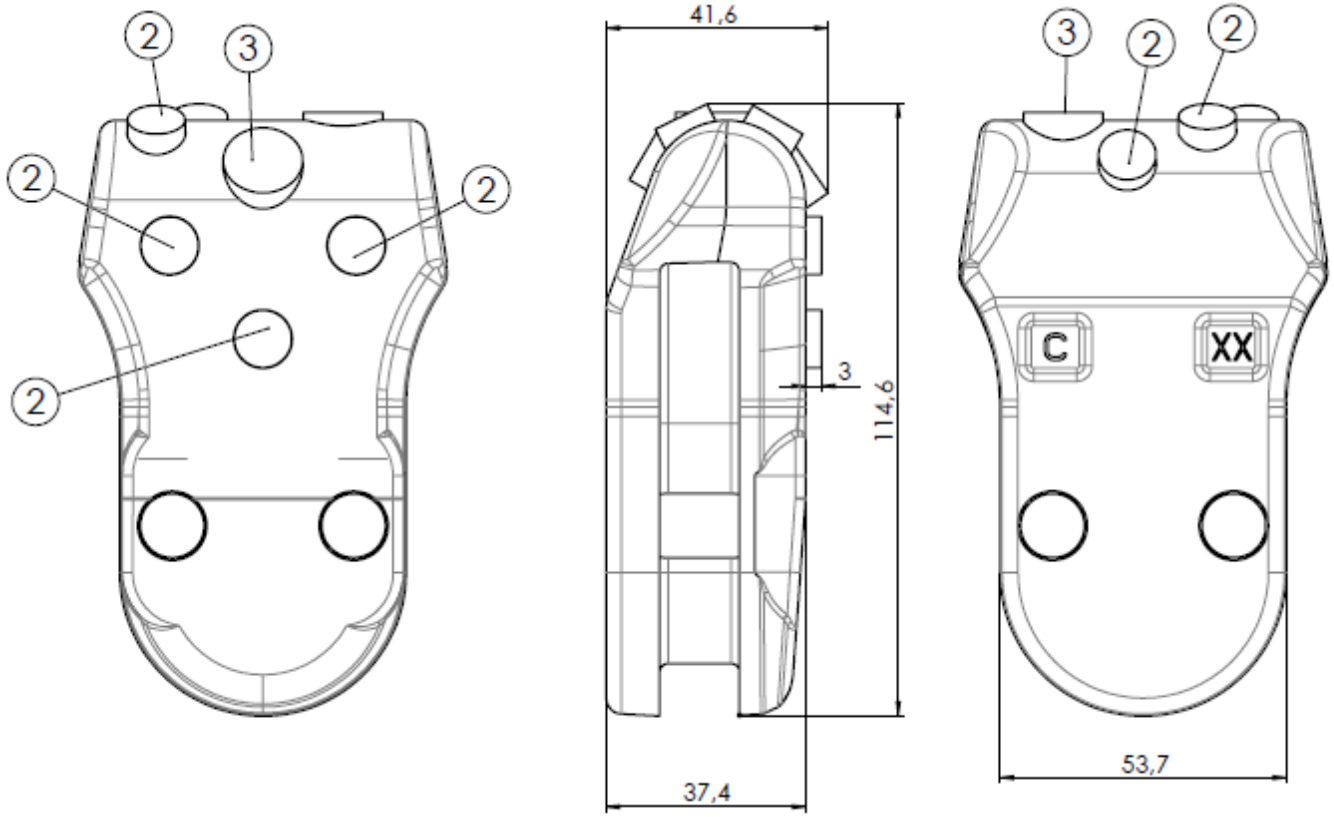
DRAWING MS39R



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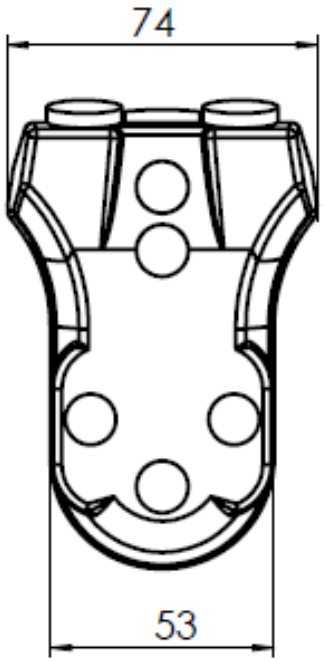
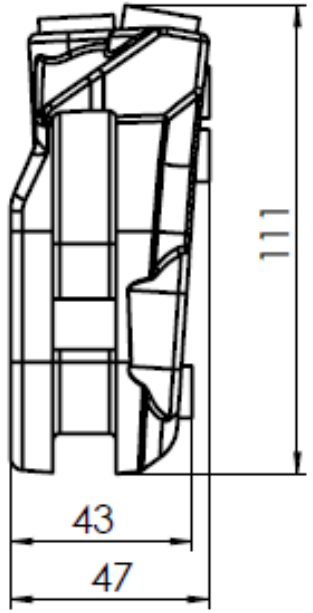
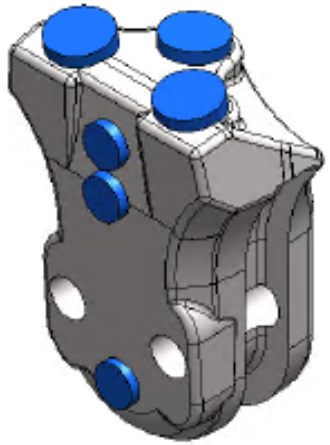
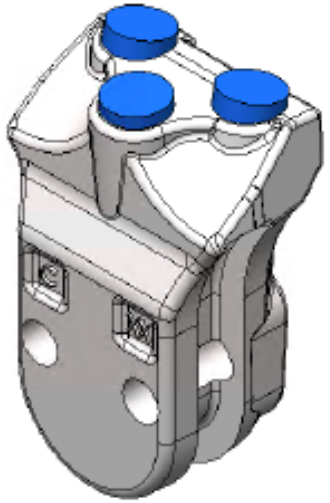
DRAWING MS46









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TEST METHODS AND MACHINES

GERÄTE und Normen

Name	Hersteller	Typ	DIN
Lichtmikroskop	Zeiss	Axiovert 40Mat	/
Digital Stereomikroskop	Keyence	VHX-900F	/
Dichtewaage	Mettler	AG204	DIN EN ISO 1183
Koerzimat	Förster	1.097 HCJ	DIN EN ISO 3326
Mag. Sättigungswaage	Seteram	D6025	DIN EN 60404-14
	Förster	1.097 MS	DIN EN 60404-14
Härtemessgerät	Emcotest	M1 C010	DIN EN ISO 6507
Digital Stereomikroskop	Keyence	VHX-900F	/
Trennmaschine	Struers	Discotom-6	/
Polierschliff, Schleifmaschine	Buehler	Phoenix 4000	/
Stereomikroskop	Leica	S6D	/
Digital Stereomikroskop	Keyence	VHX-900F	/

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