
BÖHLER
PREMIUM KNIFE STEELS BROUGHT TO YOU BY EDRO
MADE TO WITHSTAND THE TOUGHEST REQUIREMENTS
NOW STOCKED IN THE USA
MORE INFO
VISIT OUR WEBSITE
KNIFE STEELS AND SERVICES
EDRO
(888) 368-3376 | INFO@EDRO.COM | EDRO.COM

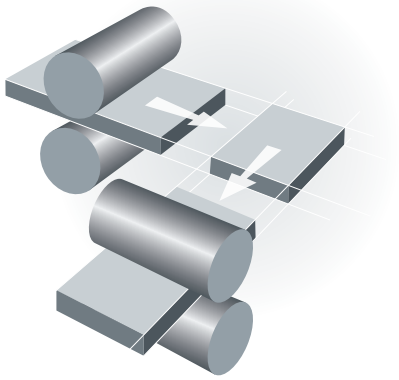
STATE-OF-THE-ART STEEL MANUFACTURING THAT PUTS YOU IN POLE POSITION

OUR CROSS-ROLLING TECHNOLOGY RESULTS IN TIGHTER TOLERANCES, SMALLER OVERSIZE, AND SUPERIOR FLATNESS.

BÖHLER knife steels combine consistent high quality standards with premium machining properties. Our cross-rolling technology and state-of-the-art production facilities offer uniform material properties and minimize required machining allowances, satisfying the most stringent demands for producing and using industrial and hand knives.
Local US availability and technical support are added benefits for our customers.

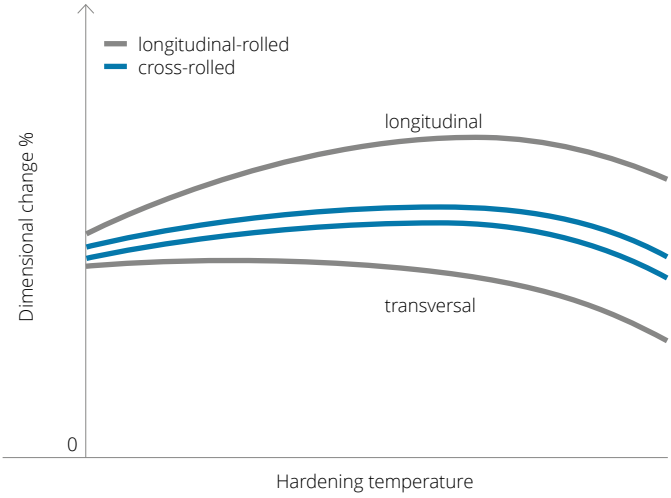
Your advantage by using BÖHLER sheet and plate - In processing and practice compared to conventional rolled material:

- Optimized output
- Tighter machining allowances
- More uniform properties
- Less distortion in heat treatment
- Higher safety in production

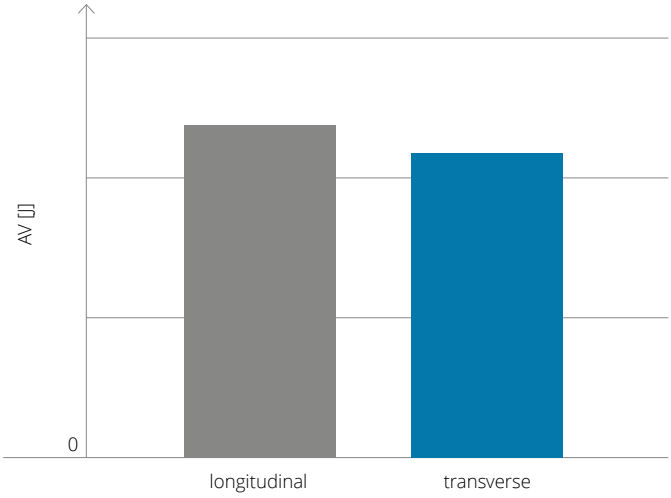


COLD WORK STEELS, HIGH SPEED STEELS, AND CORROSION RESISTANT KNIFE STEELS ARE OUR STRENGTH

Dimensional change during heat treatment



Impact energy for unnotched specimens [J] acc. SEP 1314

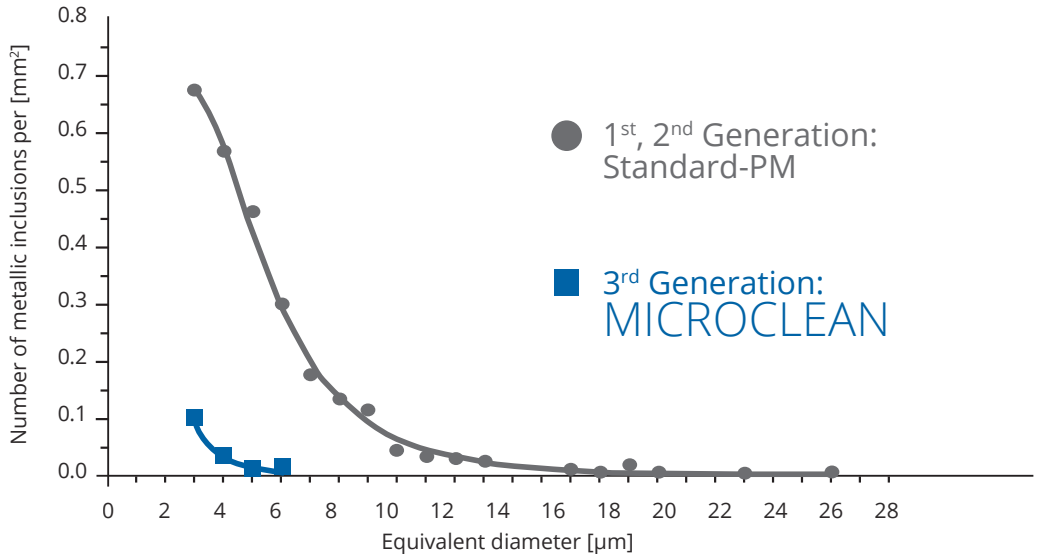


BÖHLER 3RD GENERATION PM

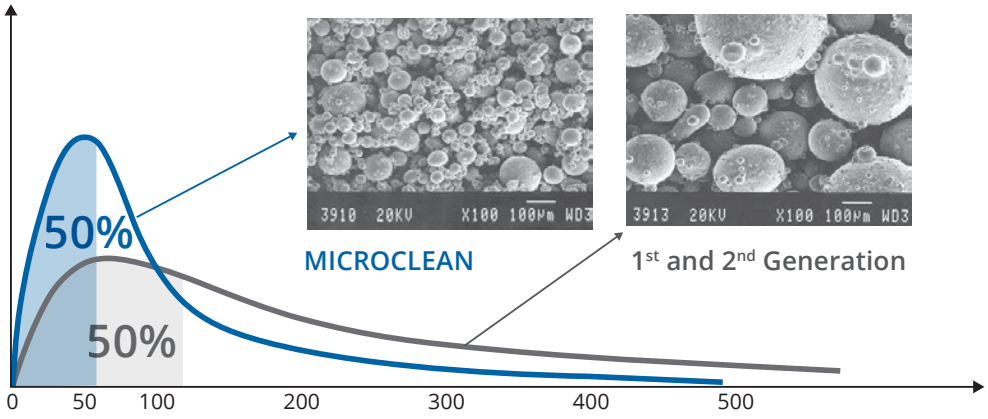
MICRO - in terms of powder size
CLEAN - in terms of inclusions

MICROCLEAN

CLEANLINESS: MICROCLEAN VS. STANDARD PM



DISTRIBUTION OF POWDERSIZE



POWDER METALLURGICAL PRODUCTION


Microstructure PM materials

MICROCLEAN

Features:

- Segregation free high performance steel
- The finest carbide distribution
- The highest metallurgical purity
- Isotropic properties

Benefits:

- Maximum wear resistance with extremely high toughness
- A high degree of achievable hardness
- Very high dimensional stability
- Very high compressive strength

HIGHLIGHT GRADES

NOW STOCKED IN THE USA

STAINLESS STEELS

Grade	C	Si	Mn	Cr	Mo	V	Co	W
BÖHLER M390	1.90	0.70	0.30	20.00	1.00	4.00	-	0.60
BÖHLER M398	2.70	0.50	0.50	20.00	1.00	7.20	-	0.70
BÖHLER N690	1.08	0.40	0.40	17.30	1.10	0.10	1.50	-
BÖHLER N695	1.10	1.00	1.00	17.00	0.75	-	-	-

NON-STAINLESS STEELS

Grade	C	Si	Mn	Cr	Mo	V	Co	W
BÖHLER K390	2.47	0.55	0.40	4.20	3.80	9.00	1.00	2.00
BÖHLER K890	0.85	0.55	0.40	4.35	2.80	2.10	4.55	2.55
BÖHLER K110	1.51	0.30	0.30	12.00	0.80	0.80	-	-

Titanium and other specialty materials available for handles. Please inquire with customer service.

KEY ALLOYING ELEMENTS IN KNIFE STEELS

Carbon (C) – Carbon produces the properties that give steel its strength. As carbon increases, there is typically a corresponding increase in achievable hardness and carbide formation.
Chromium (Cr) – Chromium is responsible for carbide formation ($Cr_{23}C_6$ and Cr_7C_3) and in high amounts (around 12 wt%. and above), corrosion resistance properties.
Vanadium (V) – Vanadium helps promote a finer grain structure and also forms extremely hard VC carbides. VC carbides are the hardest carbides found in steel.
Molybdenum (Mo) – Molybdenum enhances strength, hardness, toughness, and aids in corrosion resistance. It can also produce M_6C carbides.
Tungsten (W) – Tungsten increases strength and toughness. Additions of Tungsten also forms very hard WC carbides.
Cobalt (Co) – Cobalt additions increase strength and achievable hardness.

Carbide Type	Composition	Hardness (Vickers)	Hardness (HRC)
Iron	Fe_3C	1000	69
$Chromium_1$	$Cr_{23}C_6$	1200	72
Molybdenum	M_6C	1400	75
$Chromium_2$	Cr_7C_3	1500	76
Tungsten	WC	2600	86
Vanadium	VC	2800	87

STAINLESS STEELS

	AISI/DIN	Corrosion Resistance	Toughness	Wear Resistance	Dimensional Stability
BÖHLER M390 MICROCLEAN	Custom PM	★★★★☆	★★★☆☆	★★★★☆	★★★★★
BÖHLER M398 MICROCLEAN	Custom PM	★★★☆☆	★★★☆☆	★★★★★	★★★★★
BÖHLER N690	440C+Co/1.4528	★★★☆☆	★★☆☆☆	★★★☆☆	★★★☆☆
BÖHLER N695	440C/1.4125	★★★☆☆	★★☆☆☆	★★☆☆☆	★★★☆☆

NON-STAINLESS STEELS

	AISI/DIN	Compressive Strength	Toughness	Wear Resistance	Dimensional Stability
BÖHLER K390 MICROCLEAN	Custom PM	★★★★★	★★★★☆	★★★★★	★★★★★
BÖHLER K890 MICROCLEAN	Custom PM	★★★★☆	★★★★★	★★★★☆	★★★★★
BÖHLER K110	D2/1.2379	★★☆☆☆	★☆☆☆☆	★★★☆☆	★★★☆☆

STAINLESS GRADE DETAILS

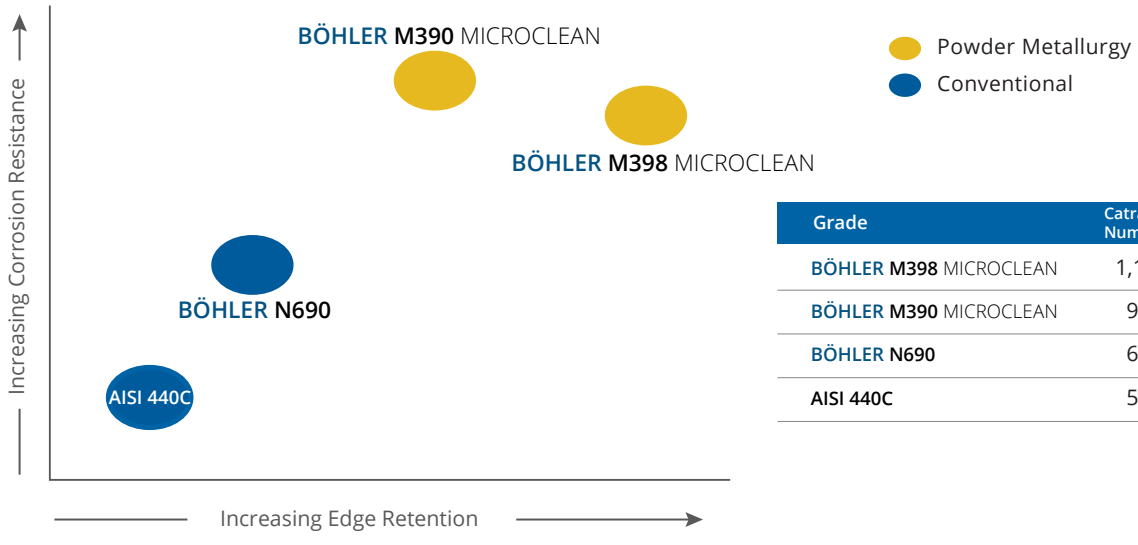
BÖHLER M390 MICROCLEAN

Third generation powder metal technology. Developed for knife blades requiring the perfect balance of corrosion resistance with very high hardness for excellent edge retention to and molybdenum, vanadium and tungsten are added for excellent sharpness and wear resistance, can be polished to an extremely high surface finish. Hardens and tempers to 60-62 HRC. For the highest in hardness and edge retention consider M398 MICROCLEAN

BÖHLER N690

Our best conventional melted grade. Great value in a corrosion resistant knife steel with excellent edge holding capabilities. Additions of chromium and vanadium enhance edge holding capability, while cobalt and carbon help to retain high hardness. Hardens and tempers to 58-60 HRC

STAINLES STEEL



Grade	Catra Testing Number (TCC)	Hardness (HRC)
BÖHLER M398 MICROCLEAN	1,113.0	at 63 HRC
BÖHLER M390 MICROCLEAN	958.6	at 62 HRC
BÖHLER N690	635.1	at 61 HRC
AISI 440C	536.0	at 59 HRC

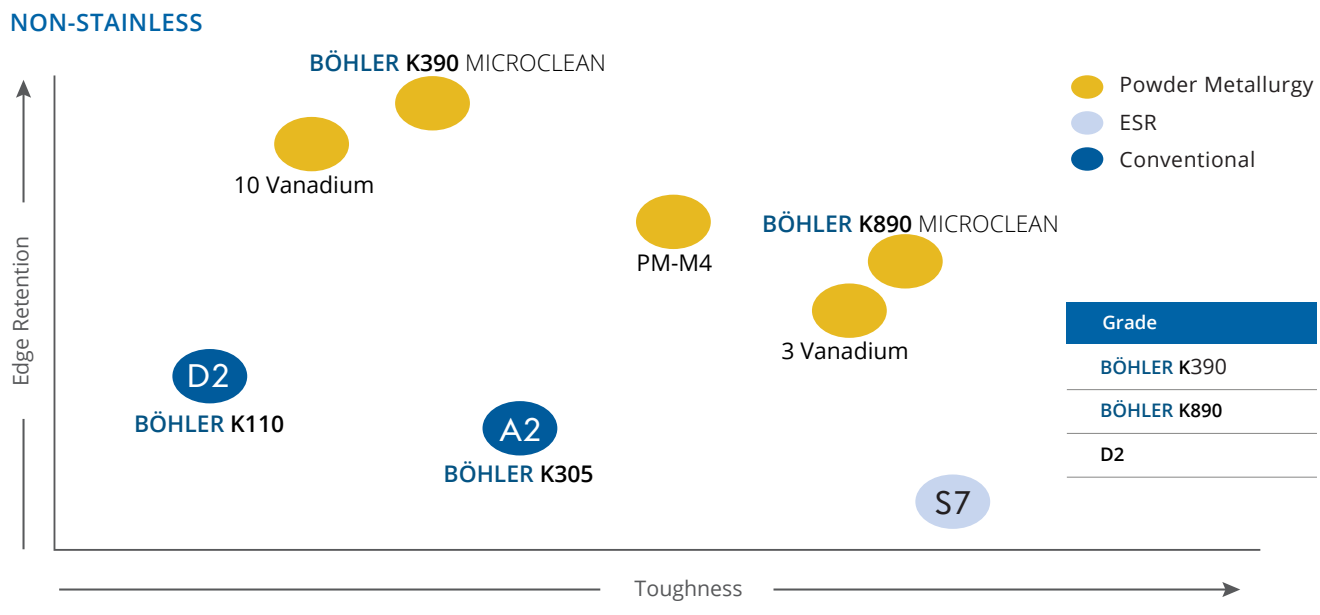
NON-STAINLESS GRADE DETAILS

BÖHLER K390 MICROCLEAN

Third generation powder metal technology and our maximum wear resistance offering for the hand knife market. Capable of reaching 64 HRC, Bohler K390 MICROCLEAN combines high amounts of Carbon and Vanadium for superior edge retention and wear resistance.

BÖHLER K890 MICROCLEAN

Third generation powder metal technology and our maximum toughness offering for the hand knife market. Bohler K890 MICROCLEAN offers the high wear resistance properties of PM tool steels while maintaining an extremely high level of toughness. Capable of reaching 64 HRC, Bohler K890 MICROCLEAN is the ideal material for large platform cutting tools.



PRODUCTS AND SERVICES

MATERIALS

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Local US availability and technical support are added benefits for our customers.

REQUEST FOR A QUOTE

PVD / DLC COATINGS

Known as a global leader in Physical Vapor Deposition (PVD) and surface technology, voestalpine eifeler Coatings has partnered with sister company EDRO Engineering to house the latest PVD, DLC and Duplex Treatment technology in California.

+ High quality thin film coatings
+ Enhance performance, durability, and appearance
+ State-of-the-art ultrasonic cleaning line
+ In house media blasting and polishing

PVD/DLC COATINGS

TECHNICAL SERVICES

EDRO

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