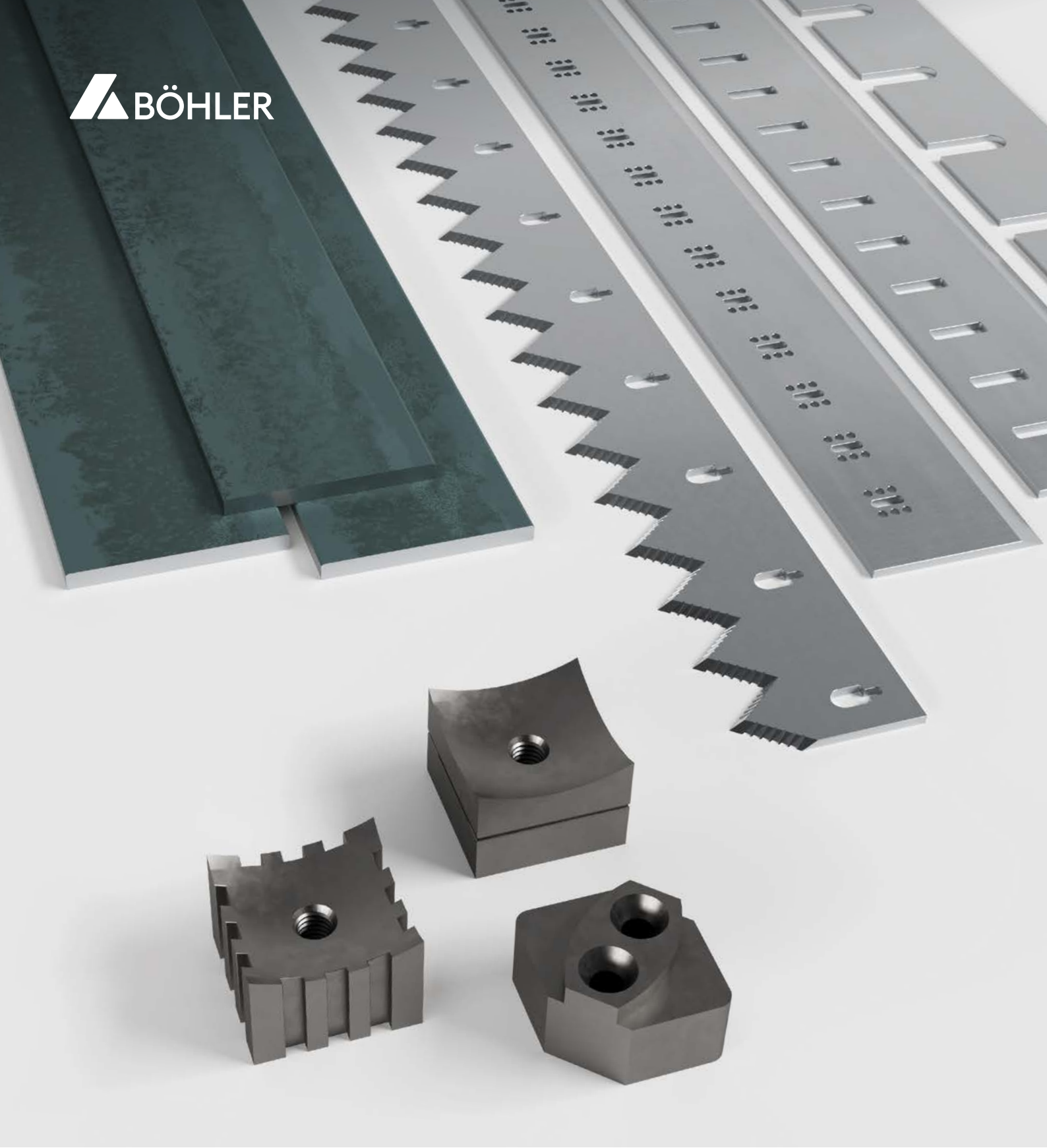


BÖHLER HIGH-PERFORMANCE MATERIALS

for industrial knives

BÖHLER KNIFE STEELS PERFORM BETTER!

BÖHLER KNIFE STEELS STAND FOR HIGH QUALITY AND ECONOMIC PRODUCTION

High quality

Based on many years of market and industry knowledge as well as technical know-how, BÖHLER is constantly working on product improvements to offer steels that increase the economic efficiency and benefit for our customers.

The decisive reasons why you should choose **BÖHLER knife steels**, both as a manufacturer and as a user of industrial knives, lie in the **state of the art sustainable manufacturing processes and the selection of first-class materials for the manufacturing of machine knives**.

Properties of the primary material

voestalpine BÖHLER Edelstahl manufactures high-quality standard and specialty steels in the most modern facilities. During the production process, care is taken to ensure that the chemical composition of the tool steel achieves the best and most optimized product properties.

The primary material (bar steel) for the production of knives is characterized by the lowest possible processing effort, which is based on:

- Lower machining allowances
- Tighter tolerances
- Plane parallelism
- Straightness
- Sharp edges
- The consistent product quality of the primary material means that the heat treatment of the knives is reliable and reproducible

Benefits to knife producers:

- Cost savings on materials
- Easy and reliable heat treatment
- Uncomplicated production of high-quality knives

THAT MEANS:

YOU CAN REACH YOUR CUSTOMERS WITH YOUR KNIVES MORE CAREFREE, FASTER AND MORE COST-EFFECTIVELY.

ADVANTAGE THROUGH RELIABILITY AND ECONOMIC EFFICIENCY

KNIFE MANUFACTURER

Benefit from the economical production of machine knives:

- Provision of primary material for the lowest possible processing effort (as mentioned: tolerances, machining allowances, plane parallelism, straightness, sharp edges)
- Good machinability and grindability
- Safe, simple heat treatment
- Best dimensional stability during heat treatment

KNIFE USER

Achieve high and consistent levels due to a high level of safety against failure during use:

- » High wear resistance*
- » Best toughness*
- » Highest edge retention*
- » Simple regrinding
- » Sufficient hardness*

* Properties even at increased working temperatures

OUR STEELS FOR INDUSTRIAL KNIVES AT A GLANCE

BÖHLER GRADE	DIN-Nr.	AISI	EN	JIS
COLD WORK TOOL STEELS				
BÖHLER K100	1.2080	~D3	X210Cr12	~SKD1
BÖHLER K110	1.2379	D2	X153CrMoV12	~SKD11
BÖHLER K305	1.2363	A2	X100CrMoV5	SKD12
BÖHLER K306	~1.2345			
BÖHLER K329		~A8		
BÖHLER K340 ECOSTAR				
BÖHLER K346				
BÖHLER K353				
BÖHLER K390 MICROCLEAN				
BÖHLER K460	1.2510	O1	100MnCrW4	~SKS3
BÖHLER K490 MICROCLEAN				
BÖHLER K600	1.2767		45NiCrMo16	
BÖHLER K720	1.2842	~O2	90MnCrV8	
BÖHLER K888 MATRIX				
BÖHLER K890 MICROCLEAN				
CORROSION RESISTANT STEELS				
BÖHLER M340 ISOPLAST				
BÖHLER M368 MICROCLEAN				
BÖHLER M380 ISOPLAST	1.4108		X30CrMoN15-1	
BÖHLER M390 MICROCLEAN				
BÖHLER N685	1.4112	440B	X90CrMoV18	
BÖHLER N690	1.4528		X105CrCoMo18-2	
HIGH SPEED STEELS				
BÖHLER S600	1.3343	~M2 REG C	HS6-5-2C	SKH51
BÖHLER S630				
BÖHLER S390 MICROCLEAN				
BÖHLER S790 MICROCLEAN	1.3345		HS6-5-3C	
HOT WORK TOOL STEELS				
BÖHLER W302 ISODISC	1.2344	H13	X40CrMoV5-1	SKD61
BÖHLER W360 ISOBLOC				

CHEMICAL COMPOSITION (CONTENT VALUES IN %)

BÖHLER GRADE	C	Si	Mn	Cr	Mo	Ni	V	W	Co
COLD WORK TOOL STEELS									
BÖHLER K100	2.00	0.25	0.35	11.50	–	–	–	–	–
BÖHLER K110	1.55	0.30	0.30	11.30	0.75	–	0.75	–	–
BÖHLER K305	1.00	0.30	0.55	5.20	1.10	–	0.25	–	–
BÖHLER K306	0.51	0.95	0.30	5.00	1.40	–	1.40	–	–
BÖHLER K329	0.52	0.95	0.40	8.00	1.40	–	0.35	–	–
BÖHLER K340 ECOSTAR	1.10	0.70	0.40	8.20	2.10	–	0.50	–	–
BÖHLER K346	1.13	1.20	0.35	7.80	1.60	–	2.40	–	–
BÖHLER K353	0.82	0.70	0.40	8.00	1.60	–	0.60	–	–
BÖHLER K390 MICROCLEAN	2.47	0.55	0.40	4.20	3.80	–	9.00	1.00	2.00
BÖHLER K460	0.95	0.25	1.10	0.55	–	–	0.10	0.55	–
BÖHLER K490 MICROCLEAN	1.40	0.60	0.40	6.40	1.50	–	3.70	3.50	–
BÖHLER K600	0.48	0.23	0.40	1.30	0.25	4.00	–	–	–
BÖHLER K720	0.90	0.25	2.00	0.35	–	–	0.10	–	–
BÖHLER K888 MATRIX	0.60	0.85	–	4.40	2.80	–	1.10	2.45	3.80
BÖHLER K890 MICROCLEAN	0.85	0.55	0.40	4.35	2.80	–	2.10	2.55	4.50
CORROSION RESISTANT STEELS									
BÖHLER M340 ISOPLAST	0.54	0.45	0.40	17.30	1.10	–	0.10	–	–
BÖHLER M368 MICROCLEAN	0.54	0.45	0.40	17.30	1.10	–	0.10	–	–
BÖHLER M380 ISOPLAST	0.30	0.60	0.40	15.00	1.00	–	–	–	–
BÖHLER M390 MICROCLEAN	1.90	0.70	0.30	20.00	1.00	–	4.00	0.60	–
BÖHLER N685	0.90S	0.45	0.40	17.50	1.10	–	0.10	–	–
BÖHLER N690	1.08	0.40	0.40	17.30	1.10	–	0.10	–	1.50
HIGH SPEED STEELS									
BÖHLER S600	0.90	–	–	4.10	5.00	–	1.80	6.20	–
BÖHLER S630	0.95	–	–	4.00	4.00	–	2.00	4.00	–
BÖHLER S390 MICROCLEAN	1.64	0.60	0.30	4.80	2.00	–	4.80	10.40	8.00
BÖHLER S790 MICROCLEAN	1.29	0.60	0.30	4.20	5.00	–	3.00	6.30	–
HOT WORK TOOL STEELS									
BÖHLER W302 ISODISC	0.39	1.10	0.40	5.20	1.30	–	0.95	–	–
BÖHLER W360 ISOBLOC	0.50	0.20	0.25	4.50	3.00	–	0.60	–	–

MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

WOOD PROCESSING

- Veneer knives
- Strip knives
- Scoring knives
- Peeling knives
- Planing knives
- Chipping knives

CELLULOSE, PAPER AND FIBERBOARD INDUSTRY

- Chopping knives
- Paper cutting knives
- Cross-cutting knives
- Cardboard cutting knives

STEEL, IRON AND METAL INDUSTRY

» Hot and cold shear blades of all types

SPECIAL APPLICATIONS

» Knives for food processing/packaging*

» Staple fiber cutting knives in the textile industry

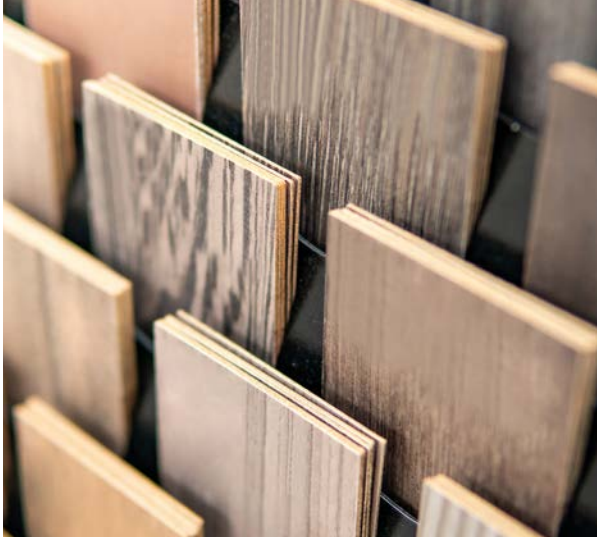
» Pelletizing knives for the plastics industry

» Plastic cutting knives

» Recycling industry

» High-performance special applications

* Knives for food processing - see separate brochure:
"NOT JUST A MATTER OF TASTE - Corrosion resistant, high performance tool steels for the food industry"



MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

WOOD PROCESSING

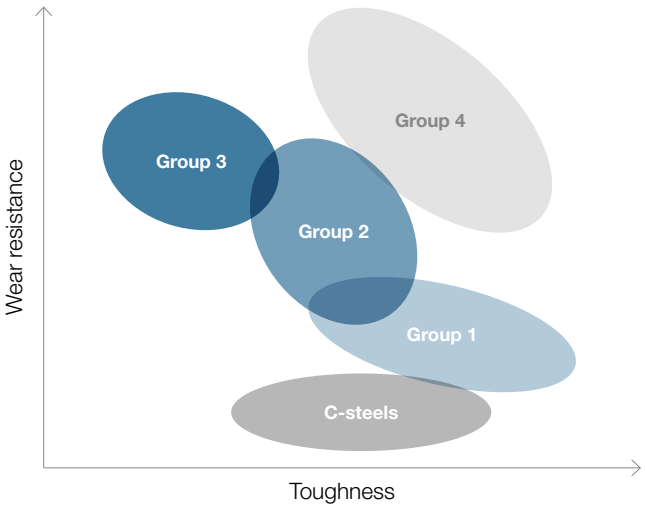
The various types of machining and processing of wood, whether by sawing, peeling, cutting, chopping, chipping or profiling, sets different demands on knife steels.

voestalpine BÖHLER Edelstahl offers suitable specialty steels and comprehensive services for the manufacture of veneer knives, strip knives, scoring knives, peeling knives and other knife products. We offer and supply steels with outstanding wear resistance, toughness and compressive strength that meet the respective requirement profiles of industrial knife applications.

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]	Group
BÖHLER K100	17	M_7C_3	No	57-62	3
BÖHLER K110	15	M_7C_3	Yes	56-61	3
BÖHLER K305	5-6	M_7C_3	Yes	56-61	1
BÖHLER K329	4-5	M_7C_3	Yes	54-58	2
BÖHLER K340 ECOSTAR	8,5	M_7C_3, MC	Yes	57-62	2
BÖHLER K346	7-8	M_7C_3, MC	Yes	56-61	3
BÖHLER K353	3,5	M_7C_3, MC	Yes	56-61	2
BÖHLER K460	<1	-	No	57-62	C-steel
BÖHLER K720	<1	-	No	57-62	C-steel

*Carbide content depends on the heat treatment condition

Qualitative decision guide



- **Classic carbon steels** with good hardenability, but only moderate through-hardenability.
- **Group 1:** 5% chromium steels with good through-hardenability
- **Group 2:** Chipper steels with good toughness and wear resistance
- **Group 3:** Tool steels with high wear resistance
- **Group 4:** High-performance tool steels for applications with the highest requirements

Source: TKM-Group/Germany

COMPARISON WITHIN THE INDIVIDUAL GROUPS:

Classic carbon steels with good hardenability, but only moderate through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K460	★★★★☆	★☆☆☆☆	★★★★☆	★★☆☆☆
BÖHLER K720	★★☆☆☆	★☆☆☆☆	★★★★☆	★☆☆☆☆

Group 1: 5% chromium steels with good through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K305	★★★☆☆	★★★☆☆	★★☆☆☆	★★★★☆

Group 2: Chipper steels with good toughness and wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K329	★★★☆☆	★★★☆☆	★★★☆☆	★☆☆☆☆
BÖHLER K340 ECOSTAR	★★★☆☆	★★★☆☆	★★☆☆☆	★★☆☆☆
BÖHLER K353	★★☆☆☆	★★★☆☆	★★☆☆☆	★★☆☆☆

Group 3: Tool steels with high wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K100	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K110	★★☆☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K346	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.
We also offer and supply modified alloys with special property profiles – see also website voestalpine BÖHLER Edelstahl or on request.

MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

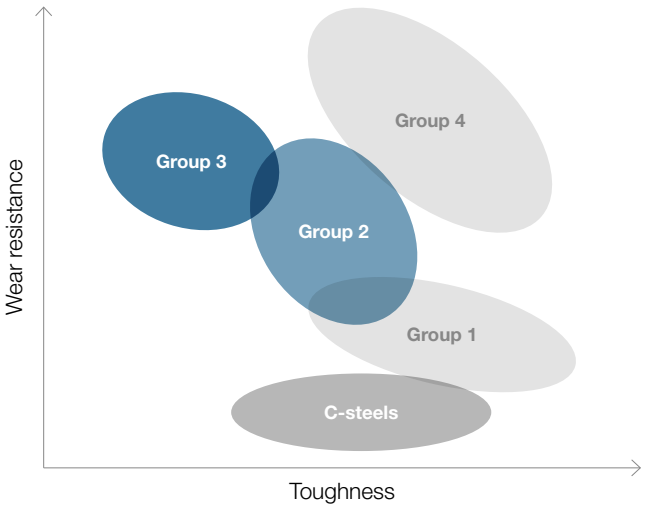
CELLULOSE, PAPER AND FIBERBOARD INDUSTRY

voestalpine BÖHLER Edelstahl offers standard and special cold work steels as well as high speed steels for the production of chipper and stick knives, paper cutting knives, cross cutting knives and cardboard cutting knives. We find the optimum solution for every individual requirement!

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]	Group
BÖHLER K100	17	M_7C_3	No	57-62	3
BÖHLER K110	15	M_7C_3	Yes	56-61	3
BÖHLER K329	4-5	M_7C_3	Yes	54-58	2
BÖHLER K460	<1	-	No	57-62	C-steel
BÖHLER K720	<1	-	No	57-62	C-steel
BÖHLER S600	9	M_6C, MC	Yes	64-66	3
BÖHLER S630	6-7	M_6C, MC	Yes	64-66	3

*Carbide content depends on the heat treatment condition

Qualitative decision guide



- **Classic carbon steels** with good hardenability, but only moderate through-hardenability.
- **Group 1:** 5% chromium steels with good through-hardenability
- **Group 2:** Chipper steels with good toughness and wear resistance
- **Group 3:** Tool steels with high wear resistance
- **Group 4:** High-performance tool steels for applications with the highest requirements

Source: TKM-Group/Germany

COMPARISON WITHIN THE INDIVIDUAL GROUPS:

Classic carbon steels with good hardenability, but only moderate through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K460	★★★★☆	★☆☆☆☆	★★★★☆	★★☆☆☆
BÖHLER K720	★★☆☆☆	★☆☆☆☆	★★★★☆	★☆☆☆☆

Group 2: Chipper steels with good toughness and wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K329	★★★☆☆	★★★☆☆	★★★☆☆	★☆☆☆☆

Group 3: Tool steels with high wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K100	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K110	★★☆☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆
BÖHLER S600	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆
BÖHLER S630	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.
We also offer and supply modified alloys with special property profiles - see also website voestalpine BÖHLER Edelstahl or on request.

MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

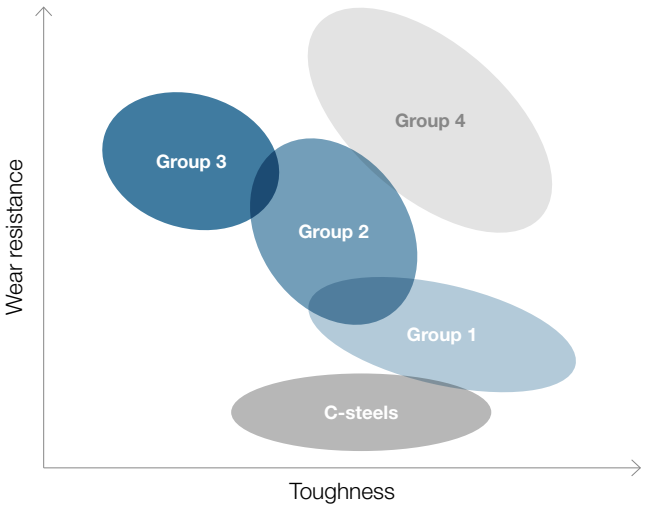
STEEL, IRON AND METAL INDUSTRY

In addition to standard materials, we recommend our remelted (ESR/PESR) products for all types of hot and cold shear blades. These are characterized not only by their good toughness properties, but also by their long service life.

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]	Group
BÖHLER K100	17	M_7C_3	No	57-62	3
BÖHLER K110	15	M_7C_3	Yes	56-61	3
BÖHLER K306	8	M_7C_3, MC	Yes	52-56	1
BÖHLER K346	7-8	M_7C_3, MC	Yes	56-61	3
BÖHLER K460	<1	-	No	57-62	C-steel
BÖHLER K600	<1	-	No	48-55	2
BÖHLER K720	<1	-	No	57-62	C-steel
BÖHLER W360 ISOBLOC	<1	-	Yes	max. 57	1
BÖHLER W302 ISOBLOC	<1	-	Yes	max. 54	1

*Carbide content depends on the heat treatment condition

Qualitative decision guide



- **Classic carbon steels** with good hardenability, but only moderate through-hardenability.
- **Group 1:** 5% chromium steels with good through-hardenability
- **Group 2:** Chipper steels with good toughness and wear resistance
- **Group 3:** Tool steels with high wear resistance
- **Group 4:** High-performance tool steels for applications with the highest requirements

Source: TKM-Group/Germany

COMPARISON WITHIN THE INDIVIDUAL GROUPS:

Classic carbon steels with good hardenability, but only moderate through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K460	★★★★☆	★☆☆☆☆	★★★★☆	★★☆☆☆
BÖHLER K720	★★☆☆☆	★☆☆☆☆	★★★★☆	★☆☆☆☆

Group 1: 5% chromium steels with good through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K306	★★★★☆	★★★☆☆	★★★☆☆	★★★☆☆
BÖHLER W302 ISODISC	★★☆☆☆	★★★☆☆	★★★☆☆	★★☆☆☆
BÖHLER W360 ISOBLOC	★★★☆☆	★★★★☆	★★★★★	★★★☆☆

Group 2: Chipper steels with good toughness and wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K600	★☆☆☆☆	★★★☆☆	★★★★★	★☆☆☆☆

Group 3: Tool steels with high wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K100	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K110	★★☆☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K346	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.
We also offer and supply modified alloys with special property profiles - see also website voestalpine BÖHLER Edelstahl or on request.

MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

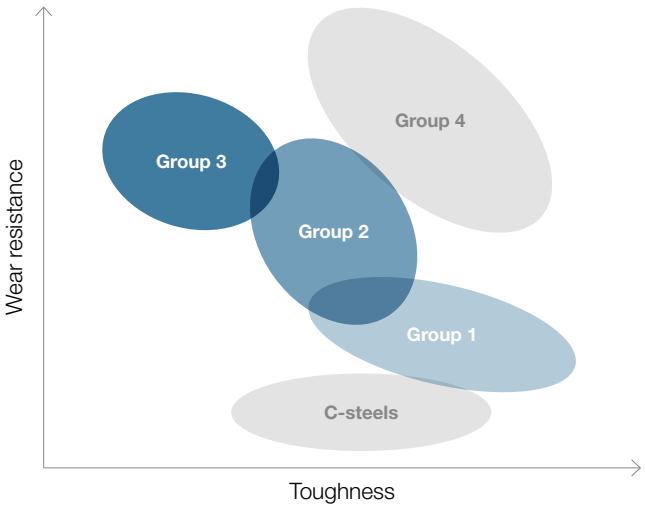
SPECIAL APPLICATIONS - RECYCLING INDUSTRY

Mixed plastics can only be separated with great effort. The majority of mixed plastics are processed into agglomerates and are recycled as raw materials, and in some cases as materials.
Standard materials with high wear and compressive strength requirements are usually used for processing. Economic growth is closely linked to the use of metals. The processing of scrap metal is not only economically but also increasingly ecologically important. voestalpine BÖHLER Edelstahl has the right blade materials for the increasing requirements in all sectors of the recycling industry.

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]	Group
BÖHLER K100	17	M_7C_3	No	57-62	3
BÖHLER K110	15	M_7C_3	Yes	56-61	3
BÖHLER K306	8	M_7C_3, MC	Yes	52-56	1
BÖHLER K340 ECOSTAR	8,5	M_7C_3, MC	Yes	57-62	2
BÖHLER K346	7-8	M_7C_3, MC	Yes	56-61	3
BÖHLER K353	3,5	M_7C_3, MC	Yes	56-61	2
BÖHLER K600	<1	-	No	48-55	2
BÖHLER S600	9	M_6C, MC	Yes	64-66	3
BÖHLER S630	6-7	M_6C, MC	Yes	64-66	3

*Carbide content depends on the heat treatment condition

Qualitative decision guide



Classic carbon steels with good hardenability, but only moderate through-hardenability.

Group 1: 5% chromium steels with good through-hardenability

Group 2: Chipper steels with good toughness and wear resistance

Group 3: Tool steels with high wear resistance

Group 4: High-performance tool steels for applications with the highest requirements

Source: CutMetall/Germany

Source: TKM-Group/Germany

COMPARISON WITHIN THE INDIVIDUAL GROUPS

Group 1: 5% chromium steels with good through-hardenability

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K306	★★★★☆	★★★☆☆	★★★☆☆	★★★☆☆

Group 2: Chipper steels with good toughness and wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K340 ECOSTAR	★★★☆☆	★★★☆☆	★★☆☆☆	★★☆☆☆
BÖHLER K353	★★☆☆☆	★★★☆☆	★★☆☆☆	★★☆☆☆
BÖHLER K600	★☆☆☆☆	★★★☆☆	★★★★★	★☆☆☆☆

Group 3: Tool steels with high wear resistance

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K100	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K110	★★☆☆☆	★★★☆☆	★☆☆☆☆	★★★☆☆
BÖHLER K346	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆
BÖHLER S600	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆
BÖHLER S630	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.
We also offer and supply modified alloys with special property profiles - see also website voestalpine BÖHLER Edelstahl or on request.




MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

SPECIAL APPLICATIONS - HIGH-PERFORMANCE SPECIAL APPLICATIONS

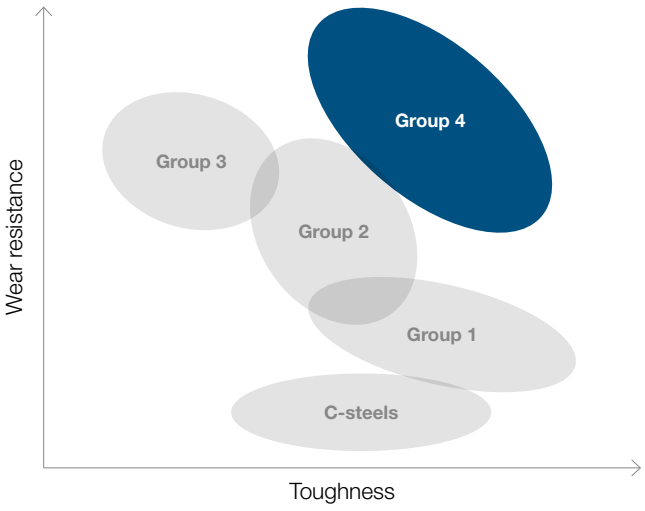
The numerous and varied special applications often place special demands on the knife steels used.

voestalpine BÖHLER Edelstahl supplies customized high-performance knife steels worldwide! We ensure that our customers always receive the optimum steel by providing detailed, individual advice on the application.

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]	Group
BÖHLER K390 MICROCLEAN	17	MC	Yes	58-64	4
BÖHLER K490 MICROCLEAN	10	MC, M_6C, M_7C_3	Yes	58-64	4
BÖHLER K888 MATRIX	≤3	MC, M_6C	Yes	60-64	4
BÖHLER K890 MICROCLEAN	6	MC, M_6C	Yes	60-64	4
BÖHLER S390 MICROCLEAN	17	MC, M_6C	Yes	62-65	4
BÖHLER S790 MICROCLEAN	11	MC, M_6C	Yes	64-66	4

*Carbide content depends on the heat treatment condition

Qualitative decision guide



- **Classic carbon steels** with good hardenability, but only moderate through-hardenability.
- **Group 1:** 5% chromium steels with good through-hardenability
- **Group 2:** Chipper steels with good toughness and wear resistance
- **Group 3:** Tool steels with high wear resistance
- **Group 4:** High-performance tool steels for applications with the highest requirements

Source: TKM-Group/Germany

COMPARISON WITHIN THE INDIVIDUAL GROUPS

Group 4: High-performance tool steels for applications with the highest requirements

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive
BÖHLER K390 MICROCLEAN	★★★★★	★★★★★	★★★★½	★★★★★
BÖHLER K490 MICROCLEAN	★★★★½	★★★★★	★★★★½	★★★★½
BÖHLER K888 MATRIX	★★★★★	★★★★★	★★★★★	★★½☆☆
BÖHLER K890 MICROCLEAN	★★★★½	★★★★★	★★★★★	★★★½☆
BÖHLER S390 MICROCLEAN	★★★★★	★★★★★	★★★★½	★★★★★
BÖHLER S790 MICROCLEAN	★★★★½	★★★★★	★★★★½	★★★★★

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.

MACHINE KNIVES – A WIDE RANGE OF APPLICATIONS

SPECIAL APPLICATIONS - CORROSION RESISTANCE

In addition to conventional standard steels, voestalpine BÖHLER Edelstahl also offers and supplies a selection of special materials for applications that require effective corrosion protection. This applies in particular to areas such as the processing of plastics and other corrosive substances.
Our wide range of steels, coupled with appropriate individual advice, guarantees that all our customers' requirements are met and that user satisfaction is fully guaranteed in the long term.

BÖHLER BRAND	Carbide content* [%]	Carbide types	Secondary hardness maximum	Recommended working hardness [HRC]
BÖHLER M340 ISOPLAST	8	$M_{23}C_6$	Yes	54-55
BÖHLER M368 MICROCLEAN	8	$M_{23}C_6$	Yes	54-55
BÖHLER M380 ISOPLAST	2	$M_2(C,N)$	Yes	57-59
BÖHLER M390 MICROCLEAN	20	M_7C_3, MC	Yes	56-58
BÖHLER N685	9	M_7C_3	Yes	55-57
BÖHLER N690	10	M_7C_3	Yes	56-58

*Carbide content depends on the heat treatment condition

Qualitative decision guide

CORROSION RESISTANCE TEST:
Hardened and ground samples are placed in boiling 20% acetic acid for 24 hours. The corrosion rate is evaluated in g/m_2h

Increasing corrosion resistance

BÖHLER M368 MICROCLEAN

BÖHLER M380 ISOPLAST

BÖHLER M340 ISOPLAST

BÖHLER N685

BÖHLER M390 MICROCLEAN

BÖHLER N690

Source: TKM-Group/Germany

Group of corrosion-resistant knife steels

BÖHLER BRAND	Compressive strength	Dimensional stability during heat treatment	Toughness	Wear resistance abrasive	Corrosion resistance
BÖHLER M340 ISOPLAST	★★☆☆☆	★★★☆☆	★★★☆☆	★★★☆☆	★★★★☆
BÖHLER M368 MICROCLEAN	★★★☆☆	★★★★☆	★★★☆☆	★★★☆☆	★★★★★
BÖHLER M380 ISOPLAST	★★★★☆	★★★★★	★★★★☆	★★★☆☆	★★★★★
BÖHLER M390 MICROCLEAN	★★☆☆☆	★★☆☆☆	★☆☆☆☆	★★★★☆	★★★☆☆
BÖHLER N685	★☆☆☆☆	★★☆☆☆	★☆☆☆☆	★★★☆☆	★★★★☆
BÖHLER N690	★☆☆☆☆	★☆☆☆☆	★☆☆☆☆	★★★★☆	★★☆☆☆

Note:
Comparison only within the individual groups (see qualitative decision guide) and only valid for this brochure.

2 ROLLING TECHNOLOGIES

The name BÖHLER is synonymous worldwide with tool steel of the highest quality. What drives us to give our best every day are our customers. Leading companies in future-oriented industrial sectors, highly innovative specialists who not only demand high-performance materials, but also intelligent solutions that push the boundaries of what is possible.

COGGING MILL

The cost-efficient cogging mill produces the larger finished dimensions or provides the starting material for the downstream multi-line rolling mill.

Cross section	unprocessed	machined
Square	61 - 120 mm	56 - 110 mm
Flat	Width: 97.5 - 332.5 mm Thickness: 15 - 112.5 mm	Width: 90 - 322.5 mm Thickness: 25 - 91 mm

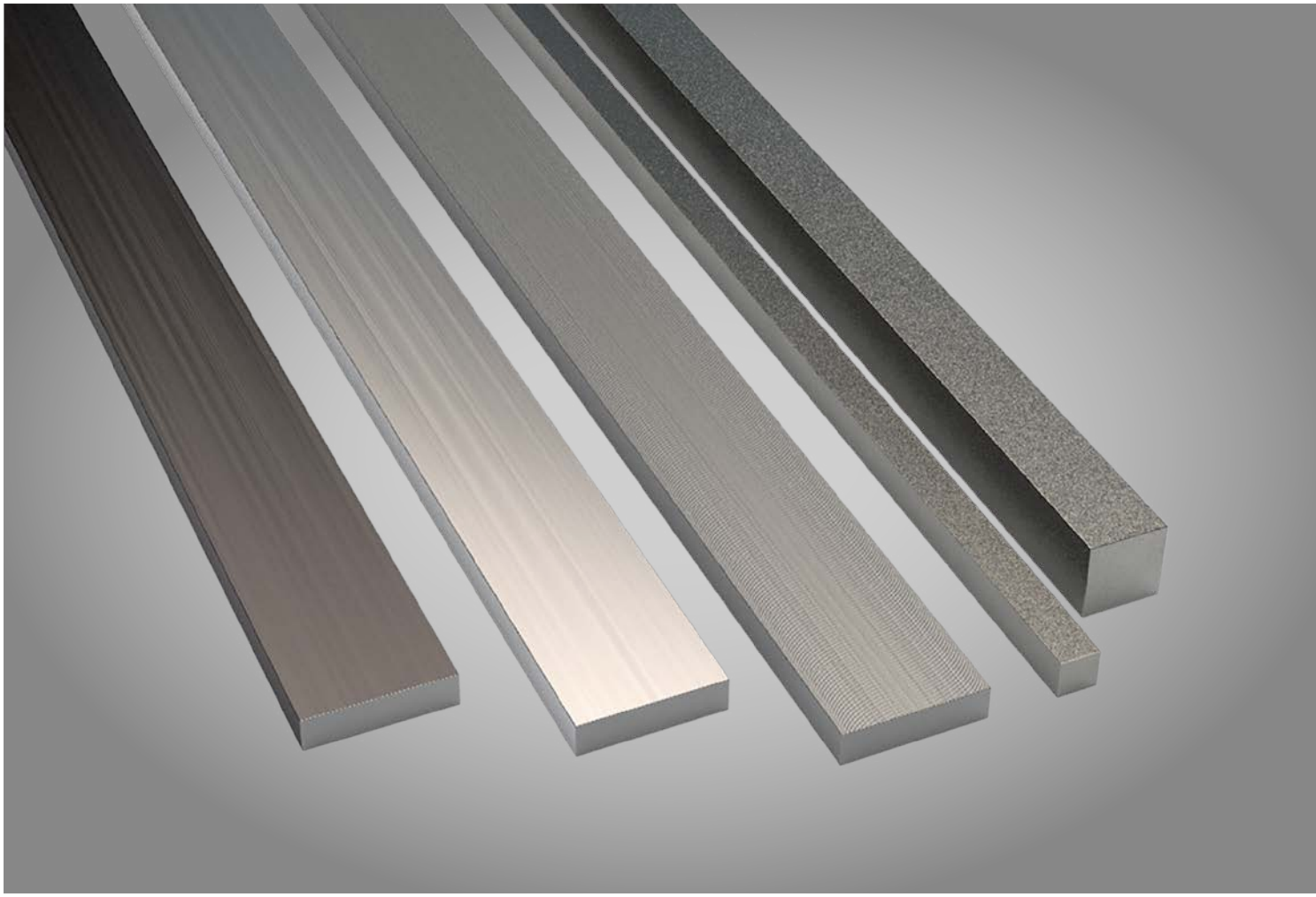
Combination width to thickness on request

MULTI-LINE ROLLING MILL

The multi-line rolling mill produces steel bars with low machining allowances and tolerances and has enjoyed a good reputation worldwide for decades for its excellent surface and edge finish as well as for the straightness of the bars.

Cross section	unprocessed	machined
Square	15 - 86 mm	50 - 80 mm
Flat	Width: 15 - 200 mm Thickness: 4.5 - 86 mm	Width: 70 - 165 mm Thickness: 8 - 76 mm

Combination width to thickness on request



GREAT VARIETY ACCORDING TO YOUR NEEDS

Surface finishes
- » Unprocessed (black)
- » Blasted
- » Milled

Delivery lengths
- » Cogging mill: 3000 - 6000 mm
- » Multi-line rolling mill: 3000 - 6000 mm
- » Fixed lengths and multiple lengths by agreement

Tolerances
- » In accordance with international standards; tighter tolerances by agreement

Heat treatment
- » Annealed (by default)
- » Pre-hardened (material specification or customer request)
- » Delivery hardness: depending on material and heat treatment condition

State-of-the-art systems – from melting and hot forming to heat treatment offer the best conditions for the production of the highest quality knife steels.

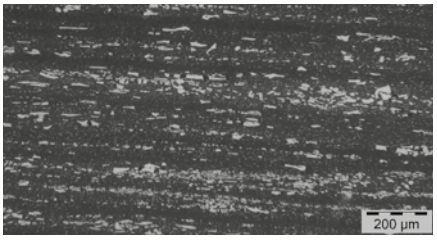
Thanks to alternative manufacturing processes to the electric arc furnace, such as electroslag remelting under inert gas or powder metallurgy, we are able to guarantee the highest quality standards.

3 PRODUCTION ROUTES

CONVENTIONAL PRODUCTION

The products manufactured in the electric arc furnace are described as conventionally melted materials and represent the "basic materials" for normal use with the following main properties:

- Linear carbide arrangement
- High degree of purity thanks to state-of-the-art systems in the conventional process route

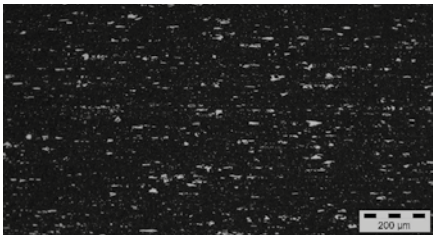


Microstructure of conventional 12% Cr steel

REMELTING

By using the ESR or PESR process, products with improved properties can be manufactured. The use of remelted materials leads to improved tool life. This is achieved by:

- High degree of purity
- Low segregations
- The production of large bar dimensions with consistent carbide distribution
- Uniform dimensional change
- Improved toughness

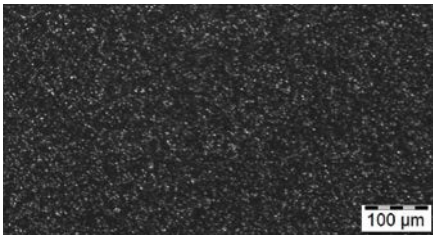


Microstructure
8% Cr steel in
ESR quality

POWDER METALLURGICAL PRODUCTION

In order to meet the highest requirements in the various processing methods, materials are increasingly being used that are produced by powder metallurgy. These materials offer properties at a sophisticated, high level:

- Segregation free
- Finest carbide distribution
- Homogeneous properties
- High wear resistance
- High toughness with high hardness



Microstructure
of PM materials

SUSTAINABLE STRATEGY

Strategic focus topics of voestalpine BÖHLER Edelstahl

Circular Economy

We promote circular economy

Our stainless steel production focuses on recycling and reducing waste. We aim to use less raw materials by replacing them with recycled scrap. We are always looking for new ways to reuse by-products, cut down waste, and make the best use of resources.

Social Impact

Take on social responsibility

Since 1870, social responsibility has been at the heart of BÖHLER. We stay true to this value by supporting our society and taking care of our employees. We value their diversity, potential, and hard work, and we engage responsibly with all those who are part of our journey.

Climate Impact

Our contribution to climate protection

We are committed to sustainability, with a strong focus on protecting the climate. We prioritize eco-friendly energy solutions, boost energy efficiency, and use the latest technologies. A key part of our strategy is cutting greenhouse gas emissions through a clear decarbonization plan.

Sustainable Sourcing

Ensure sustainable procurement

As a global company, we know our supply chain affects both people and the planet. Our sustainable purchasing strategy ensures fair treatment, transparent sourcing, and lower emissions. We focus on social, ethical, and environmental responsibility in all our processes.

BÖHLER SPECIAL STEELS FOR THE WORLD'S TOP PERFORMERS

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