

TOOL & HIGH SPEED STEEL UK

voestalpine WORLDWIDE

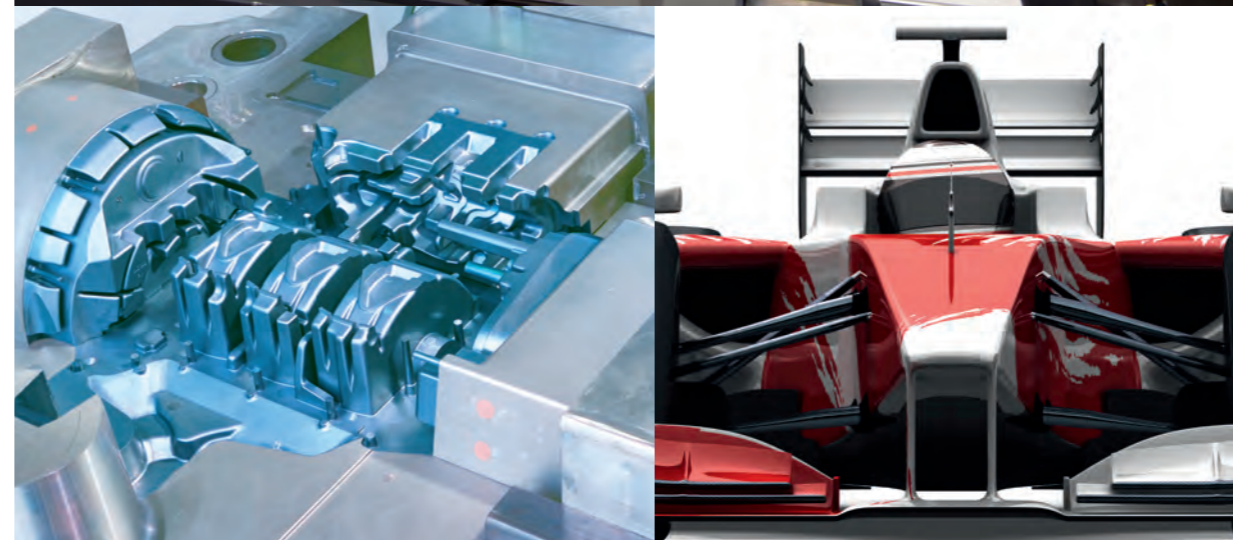
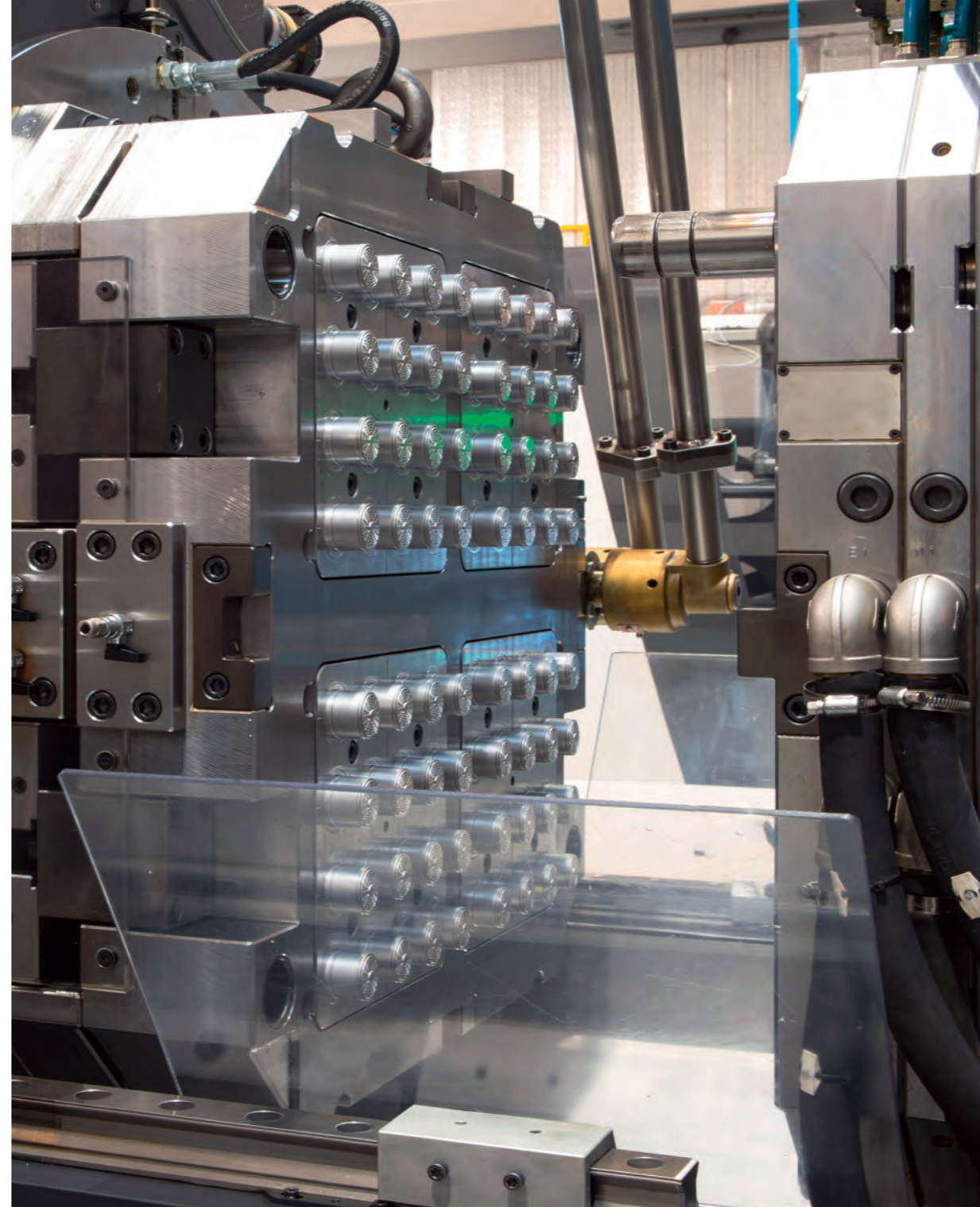
voestalpine AG Group is a leading technology and capital goods group with world-wide material and processing expertise. The Group focuses on product and system solutions based on steel and other metals of the highest quality, in technology-intensive industries, and has a combined turnover in excess of EUR 11 billion and employs around 50,000 people world-wide. Headquartered in Linz, voestalpine is represented by 500 Group companies and locations in more than 50 countries on 5 continents.

ABOUT HIGH PERFORMANCE METALS UK

Our voestalpine High Performance Metals UK subsidiary, located in Oldbury in the West Midlands, focuses on technologically demanding product segments and is a UK market leader for specialty steels, tool steel, tube and piping products, plus other value added services such as machining, milling, testing and additive manufacturing.

The strength of the voestalpine Group and expertise of its production companies means the UK business will continue to benefit from a strong supply chain, extensive product portfolio and financial backing. This has allowed for extensive investment in our award winning, purpose-built distribution and service facilities at Oldbury, ensuring we are better placed to meet your existing and future needs

We believe that first class special steel only goes part of the way in providing our customers with exceptional quality. At voestalpine our coordination with design engineers, manufacturing, as well as end users, allows us to present our customers with complete solutions.



BÖHLER TOOL & HIGH SPEED STEEL UK

Part of the voestalpine group, Bohler is recognised as a world leading producer of tool steels and high speed steels. Our products are developed to improve the service life of tools, enabling our clients to increase productivity, reduce cost and maximise their production processes. Working directly with our mills, our specialist UK team support all sectors in the UK ensuring we can deliver tailor made solutions for our customers.

About Us	4
High Speed Steel	6
Cold Work Tool Steel	8
Hot Work Tool Steel	10
Plastic Mould Steel	12
Powder Metallurgy Steels	14
Value Added Services	16
Six Side Machining Processing Service	18



ABOUT US

TOOL & HIGH SPEED STEEL UK

Tool Steels & High Speed Steels are a fundamental part of our modern world. BÖHLER has built its reputation on producing the highest quality products underpinned by industry leading technical support. Whether they are serving as tools in manufacturing or integrated as components, our products are specifically designed to enable our clients to increase productivity, reduce cost and maximise their production processes.

Our extensive product portfolio reflects the broad customer segments we supply which include: Automotive; Packaging; Aerospace; Medical; Recycling and Motorsport.

Depending on customer requirements, in addition to conventionally produced steel grades Bohler offers various options for the production of its top products, these include:

ISODUR®

Cold work tool steels – ESR/PESR

ISOBLOC®

Hot work tool steels – ER/PESR

ISOPLAST®

Plastic mould steels - ESR

ISORAPID®

Electro-slag-remelted steels - ESR

ISODISC®

Hot work tool steels in conventionally quality with special heat treatment

VMR®

Tool steels subjected to vacuum refining or melting during at least one stage of manufacture

MICROCLEAN®

Powder metallurgical steels

EXTRA

Special property and/or achievement characteristics



HIGH SPEED STEEL

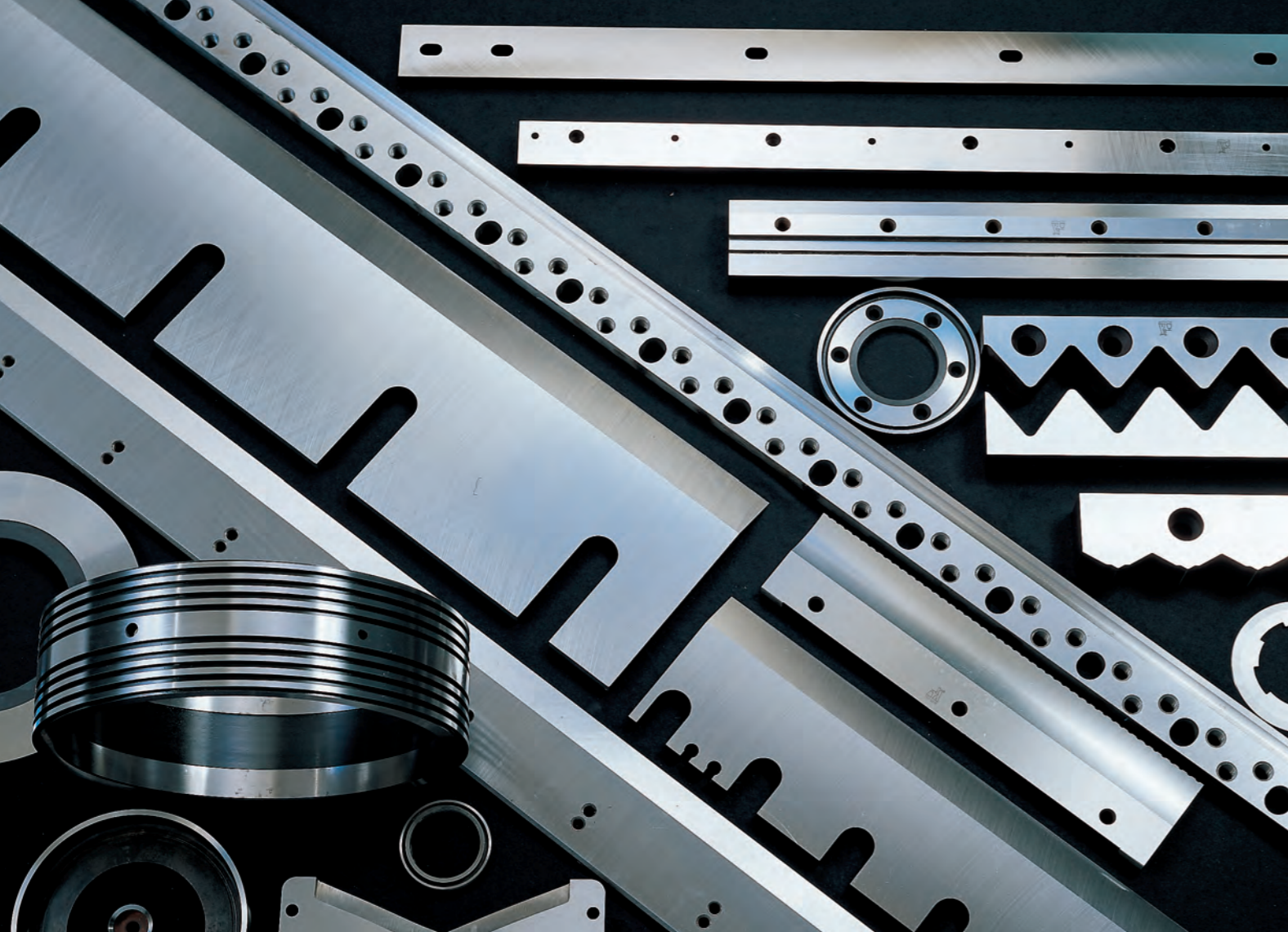
For modern industrial production, in particular mass production, machining is one of the most important shaping and forming processes. Almost all tools employed for this purpose are made from high-speed steels. In recent times, the use of high speed steels has gained increasing importance for chipless shaping, e.g. for extrusion, blanking and punching tools.

The characteristic properties of all our high-speed steel grades include:

- High working hardness
- High wear resistance
- Excellent toughness
- Compressive strength
- High retention of hardness and red hardness

This combination of properties prevents cutting edges from fracturing. This guarantees high tool life, low maintenance and down times, and ensures a reproducible production process. BÖHLER high-speed steels are typically used for cutting tools such as drills, mills and broaches, cold-forming tools and components.

BÖHLER Grade	Standards		
	EN / DIN		AISI
BÖHLER S200	< 1.3355 >	HS18-0-1	T1
BÖHLER S290 MICROCLEAN®	--		--
BÖHLER S390 MICROCLEAN®	--		--
BÖHLER S400	< 1.3348 >	HS2-9-2	M7
BÖHLER S401	< 1.3346 >	HS2-9-1	M1
BÖHLER S404	< 1.3326 >	HS1-4-2	M52
BÖHLER S405	< 1.3325 >	HS0-4-1	M50
BÖHLER S500	< 1.3247 >	HS2-10-1-8	- M42
BÖHLER S590 MICROCLEAN®	< 1.3244 >	HS6-5-3-8	--
BÖHLER S600	< 1.3343 >	HS6-5-2 C	- M2 reg. C
BÖHLER S607	< 1.3344 >	HS6-5-3	- M3 Cl.2
BÖHLER S690 MICROCLEAN®	~ 1.3351	HS6-5-4	- M4
BÖHLER S700	< 1.3207 >	HS10-4-3-10	--
BÖHLER S705	< 1.3243 >	HS6-5-2-5	- M35
BÖHLER S790 MICROCLEAN®	< 1.3345 >	HS6-5-3 C	- M3 Cl.2



COLD WORK TOOL STEEL

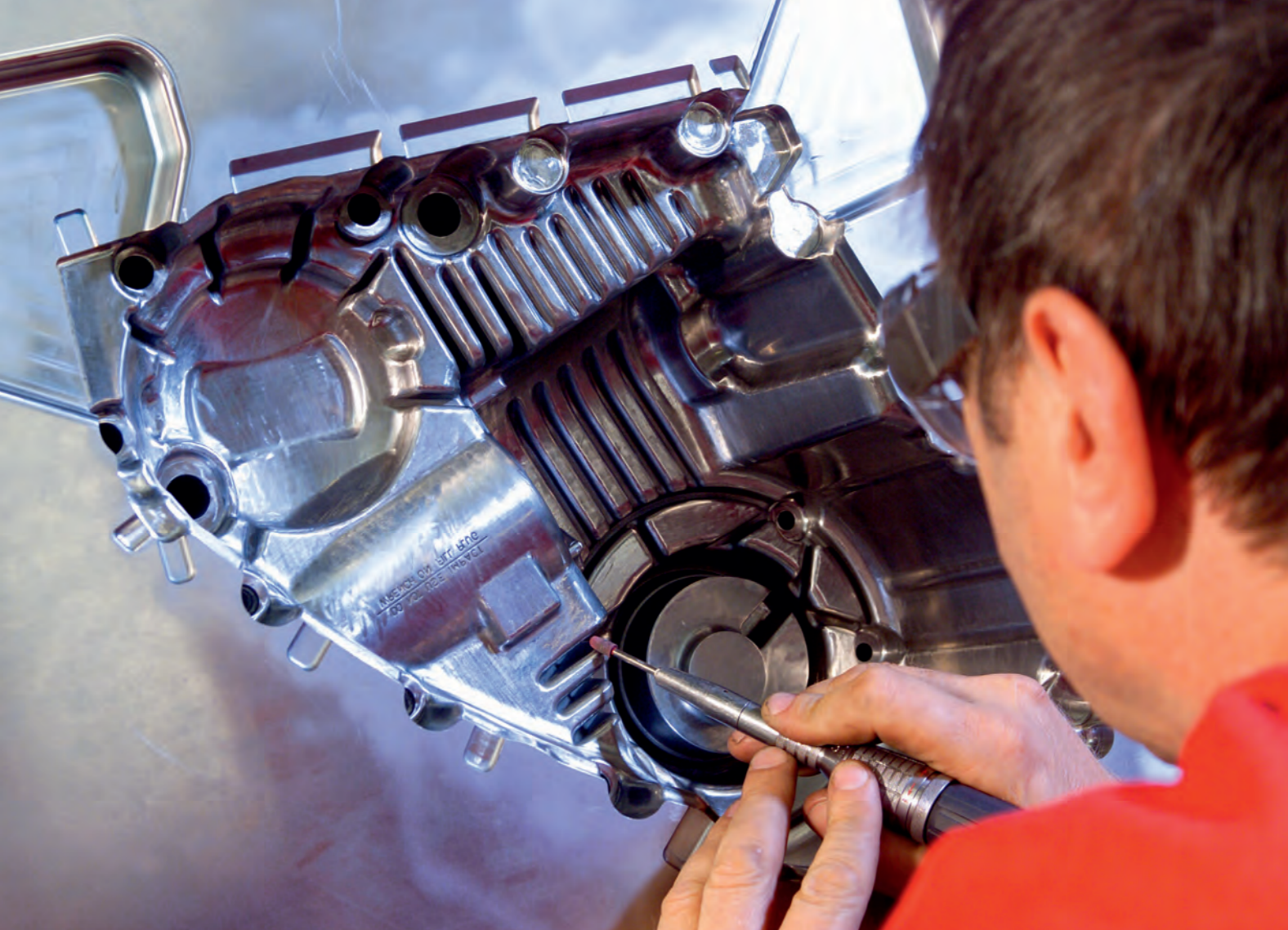
The requirements on forming, cutting, punching and blanking tools are constantly rising. Significantly longer service life is expected for tools today compared with just a few years ago; consequently the requirements on tool steels are increasing.

BÖHLER cold-working steels are used to produce tools that do not generally work at a surface temperature of more than 200°C. The characteristic properties of our cold work tool steel grades include:

- Superior hardness
- High wear resistance
- Good toughness
- Excellent compressive and impact strength
- High dimensional stability in heat treatment
- Sufficient machinability

Due to this combination of properties our cold work tool steels are extensively used to manufacture punching & blanking tools, die plates, knives, drawing tools, thread rolling dies and coining dies.

BÖHLER Grade	Standards		
	EN / DIN		AISI
BÖHLER K100	< 1.2080 >	X210Cr12	~ D3
BÖHLER K105	< 1.2601 >	X165CrMoV12	~ D2
BÖHLER K107	< 1.2436 >	X210CrW12	~ D6
BÖHLER K110	< 1.2379 >	X153CrMoV12	D2
BÖHLER K245	< 1.2101 >	62SiMnCr4	--
BÖHLER K305	< 1.2363 >	X100CrMoV5-1	A2
BÖHLER K306	~ 1.2345	X50CrVMo5-1	--
BÖHLER K329	--		--
BÖHLER K340	--		--
ISODUR®			
BÖHLER K353	--		--
BÖHLER K360	--		--
ISODUR®			
BÖHLER K390	--		--
MICROCLEAN®			
BÖHLER K455	< 1.2550 >	60WCrV7	~ S1
BÖHLER K460	< 1.2510 >	100MnCrW4	O1
BÖHLER K490	--		--
MICROCLEAN®			
BÖHLER K600	< 1.2767 >	X45NiCrMo4	--
BÖHLER K605	~ 1.2721	50NiCr13	--
BÖHLER K700	< 1.3401 >	X120Mn12	--
BÖHLER K720	< 1.2842 >	90MnCrV8	~ O2
BÖHLER K890	--		--
MICROCLEAN®			



HOT WORK TOOL STEEL

The special properties of BÖHLER hot-working steels are specifically tuned for high-temperature applications. Our hot work tool steels are used to produce tools which generally adopt a constant temperature of more than 200°C during service. Consequently, steels used for such applications have to be able to stand up to not only the universal mechanical and abrasive stress generally occurring in tool steels, they must also be able to withstand the effects of long term thermal load and periodic temperature change.

The cleanliness of the steel is a deciding factor for a long tool life and for resistance to heat checking. Additionally, hot work tool steels exhibit the following properties:

- Good high temperature toughness
- High temperature wear resistance
- Retention of hardness
- Thermal shock resistance
- Excellent thermal conductivity

Typical applications for hot work tool steels include: High-pressure die casting, hot extrusion, open die forging & plastic processing.

BÖHLER Grade	Standards	
	EN / DIN	AISI
BÖHLER W100	< 1.2581 > X30WCrV9-3	~ H21
BÖHLER W300 ISO DISC®	< 1.2343 > X38CrMoV5-1	H11
BÖHLER W302 ISO DISC®	< 1.2344 > X40CrMoV5-1	H13
BÖHLER W303 ISO DISC®	< 1.2367 > X38CrMoV5-3	--
BÖHLER W320 ISO DISC®	< 1.2365 > 32CrMoV12-28 (X32CrMoV3-3)	~ H10
BÖHLER W321 ISO DISC®	~ 1.2885 X32CrMoCoV3-3-3	--
BÖHLER W350 ISO BLOC®	--	--
BÖHLER W360 ISO BLOC®	--	--
BÖHLER W400 VMR®	~ 1.2343 X37CrMoV5-1	~ H11
BÖHLER W403 VMR®	~ 1.2367 X38CrMoV5-3	--
BÖHLER W500	< 1.2714 > 56NiCrMoV7	~ L6
BÖHLER W705	< 1.3345 > X15CrCoMoV10-10-5	--
BÖHLER W720 VMR®	~ 1.2709 X3NiCoMoTi18-9-5	Marage 300
BÖHLER W722 VMR®	< 1.2709 > X3NiCoMoTi18-9-5	--
BÖHLER W750 VMR®	~ 1.2779 X6NiCrTi26-15	~ 660



PLASTIC MOULD STEEL

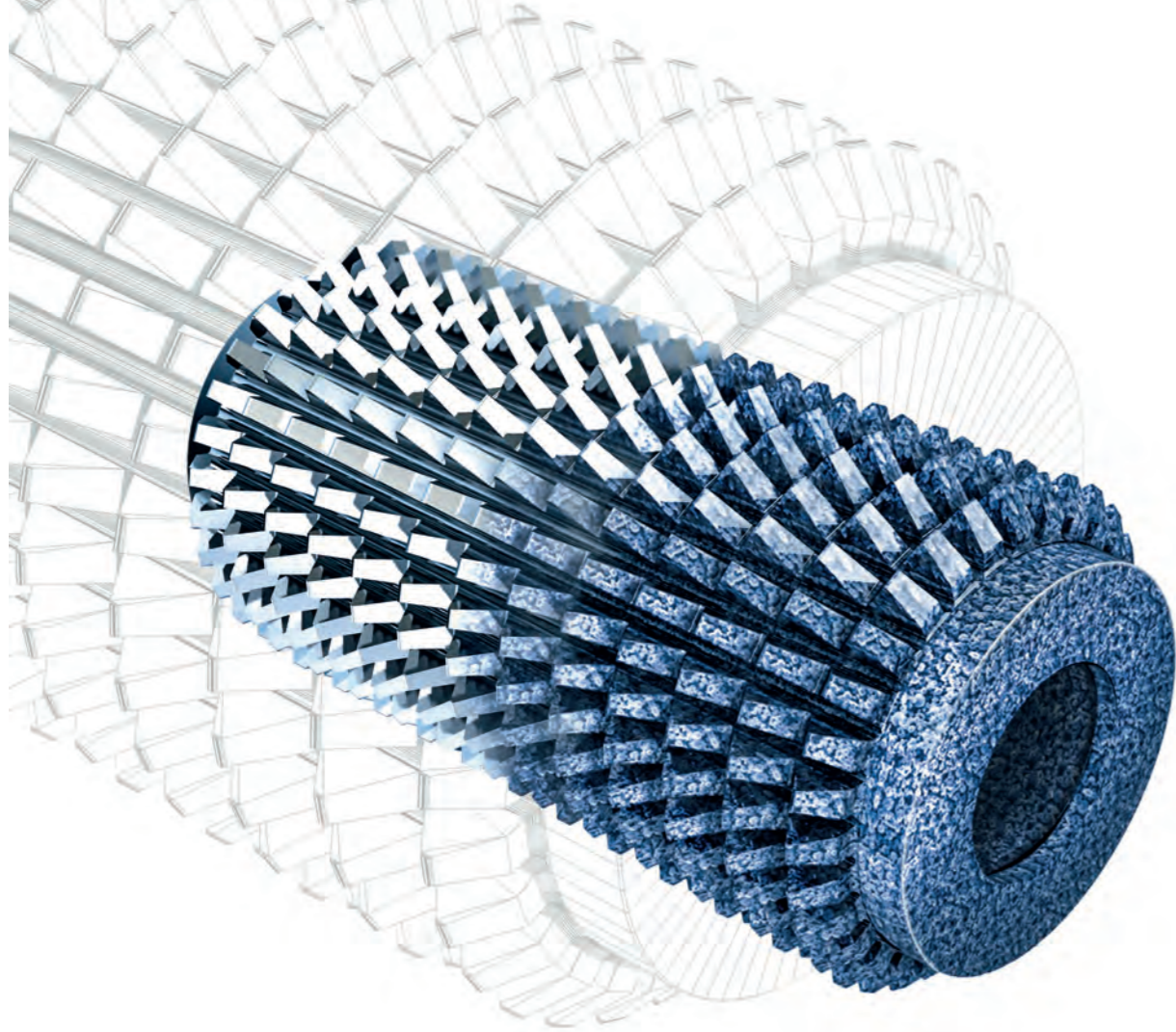
Examples of plastic parts are found all around us in our everyday lives, in consumer goods packaging, electronic components and the vehicles we drive. In the highly differentiated field of plastics manufacturing, every tool has very specific requirements. Bohler offers a wide range of high-performance steels customised for each particular application. Processing of plastics which often contain chemically aggressive or abrasive fillers can prove challenging. Consequently, the tools used to process these materials must be able to withstand corrosion, abrasive wear and mechanical load.

Typical characteristics of Plastic mould steels include

- High wear resistance
- Corrosion resistance
- Excellent polishability
- Good machinability
- Dimensional stability
- Good thermal conductivity

Typical applications for plastic mould steels include: Injection moulding, plastic extrusion, blow moulding and screws and barrels.

BÖHLER Grade	Standards		AISI
	EN / DIN		
BÖHLER M121	~ 1.5752	15NiCr13	--
BÖHLER M200	< 1.2312 >	40CrMnMoS8-6	~ P20
BÖHLER M238	< 1.3345 >	40CrMnNiMo8-6-4	~ P20
BÖHLER M261 EXTRA	--		--
BÖHLER M268 VMR®	< 1.2738 >	40CrMnNiMo8-6-4	~ P20
BÖHLER M300 EXTRA	~ 1.2316	X38CrMo16	--
BÖHLER M303 EXTRA	~ 1.2316	X38CrMo16	--
BÖHLER M310 ISOPLAST®	~ 1.2083	X42Cr13	~ 420
BÖHLER M314 EXTRA	~ 1.2085	X33CrS16	--
BÖHLER M315 EXTRA	--		--
BÖHLER M333 ISOPLAST®	--		--
BÖHLER M340 ISOPLAST®	--		--
BÖHLER M390 MICROCLEAN®	--		--



POWDER METALLURGY STEELS

Ever-increasing requirements for tooling are driving demand for new, highly functional materials. The solution can be found in our range of high-performance materials produced using powder metallurgy. In order to meet increasing quality demands, Bohler have installed the world's most modern powder-metallurgy production system..

Our extensive product portfolio includes cold work tool, plastic mould and high speed steels all of which are manufactured via our patented MICROCLEAN process. Specialised metallurgical knowledge forms the basis for focused development of problem-solving steel grades and gives our customers a decisive competitive advantage. With homogenous carbide structure and excellent mechanical properties our MICROCLEAN steels are specifically designed to deliver optimum tooling performance.

BÖHLER Grade	Standards	
	EN / DIN	AISI
BÖHLER S290 MICROCLEAN®	--	--
BÖHLER S390 MICROCLEAN®	--	--
BÖHLER S590 MICROCLEAN®	< 1.3244 > HS6-5-3-8	--
BÖHLER S690 MICROCLEAN®	~ 1.3351 HS6-5-4	- M4
BÖHLER S790 MICROCLEAN®	< 1.3345 > HS6-5-3 C	- M3 Cl.2
BÖHLER K390 MICROCLEAN®	--	--
BÖHLER K490 MICROCLEAN®	--	--
BÖHLER K890 MICROCLEAN®	--	--
BÖHLER M368 MICROCLEAN®	--	--
BÖHLER M390 MICROCLEAN®	--	--

VALUE ADDED SERVICES

Value added services give our customers access to cutting, machining, bevelling, testing and other services providing turnkey customer solutions. Our broad range of capabilities combined with efficient processing times allow us to provide our clients with the perfect pre materials so that you can devote your valuable resources to what matters: your core business.



BÖHLER STOCKHOLDING AND SAWING SERVICES

All high-performance special steel stocks are held by our award winning, purpose-built warehouse facility, located at our Headquarters in Oldbury, West Midlands. The new KASTO system is the tallest in the UK and one of the largest in Europe. With an average picking time of 6mins, orders can be picked and despatched the same day.

With 18 specialist saws located onsite and standing right next to our High Rack Storage facility materials can be cut and despatched to individual customer specifications quickly and efficiently. We run a 2-shift system with highly trained operatives to enable us to react quickly to customer demands. Using both bi-metal and carbide blades gives us the ability to cut basic stainless steels up to the hardest of nickel grade alloys. Our saws have various cutting capabilities with the largest saw being able to cut up to a maximum of 1270mm cutting width. Full batch traceability is guaranteed and hard stamping, etching and labelling facilities are all available.

BÖHLER LAB TESTING AND TECHNICAL SERVICES

Our specialist laboratory facility located at our UK Head Office and warehouse facility in Oldbury, allows the rapid testing of samples to your specifications. For example, chemical analysis, tensile, charpy and micro examination can all be done onsite.

BÖHLER ADDITIVE MANUFACTURING











As the world's largest special steel producer, BÖHLER Edelstahl leverages metallurgical knowledge and manufacturing options. Our specialist team in the UK can support your specific requirement, from supply of our AMPO branded powders to finished parts, we have the technological expertise in this growing sector.

SIX SIDE MACHINING PROCESSING SERVICE

First stage machining can be an expensive and time-consuming task, absorbing the resources of skilled machinists on basic operations. Bohler offer a full range of products in a variety of pre-machined finishes from simple milled faces to precision ground pieces. Our broad range of capabilities allows us to handle a wide dimensional range. We are able to offer three standard options or, if required pieces can be machined to your bespoke requirements with the option to include heat treatment and surface coatings.

As pressures to reduce costs continue to increase, our state of the art machines can produce parts in a fraction of the time it would take via conventional machining, saving time, resources & money.



Service level	Tolerances					
	Height	Width	Length	Edge		
ECO6	rough milled / 10mm - 600mm -0.0mm / +0.25mm	sawn / 20mm - 1000mm	sawn / 20mm - 2000mm	deburred / chamfering *	 	With our ECO6 machining concept, we offer you the simplest version of our manufacturing program. The length and width is supplied sawn and the height is rough milled to your desired dimension.
ALL6	fine milled / 10mm x 600mm -0.0mm / +0.1mm	fine milled / 10mm x 1000mm -0.0mm / +0.1mm	fine milled / 20mm - 830mm -0.0mm / +0.1mm	deburred / chamfering *	 	With the ALL6 variant, we offer the perfect pre-material. Here all six sides are supplied fine milled to tight tolerances.
PRECISE6	precision ground -0.0mm / +0.05mm 10mm - 400mm	fine milled 20mm - 830mm -0.0mm / +0.1mm	fine milled 20mm - 830mm -0.0mm / +0.1mm	deburred / chamfering *	  	With the PRECISE6 variant, we offer the same as ALL6 but with the height precision ground top and bottom to a tolerance of -0.0mm + 0.05mm
CUSTOM6	completely bespoke depending on your needs			deburred / chamfering *	  	With the CUSTOM6 option, we can fulfill any bespoke requirement. Here you can choose the manufacturing variant, tolerances and dimensions according to your needs.

* Chamfering available upon request

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voestalpine

ONE STEP AHEAD.