EschmannStahlGrades
Plastic Mould Steel
Hot Work Tool Steel
Cold Work Tool Steel
Overview

Products

ESCHMANNSTAHL

HIGH QUALITY, COMPREHENSIVE AND APPLICATION-ORIENTED

We Have the Right Solution – High Quality and Quickly Availabe

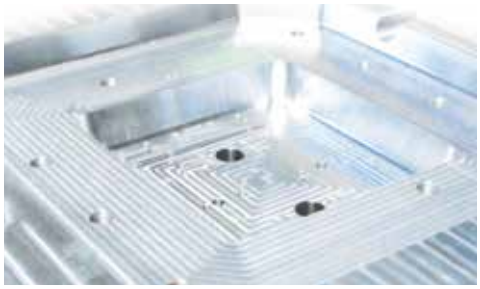
A wide range of products and fast delivery: EschmannStahl stocks all standard tool steels, as well as high performance EschmannStahlGrades, for various requirements. We offer application-specific steels with customized properties for a variety of industries and manufacturing processes. Also, we advise you in choosing the right materials.

04 ESCHMANNSTAHLGRADES

High Performance and
Always Available

06 PLASTIC MOULD STEEL

Optimum Choice of Materials
from a Wide Range of Products



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Tool Steels for High-
Performance Tools

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Fast Availability at Good Value

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Versatile Manufacturing Processes
and Designs

Our EschmannStahlGrades

ALLOW

tool makers and tool users to

SPECIFICALLY REACT *to the*

requirements of their markets.

Jörn Maubach,
Head of Sales

High Performance and Always Available

Continuous monitoring of quality and enhancement of materials are designed to enable both tool makers and tool users to operate more efficiently.

As a result of these activities and our extensive expertise we have developed EschmannStahlGrades.

ESPRIMUS SL

For more reliable production and longer service life!

- Increased toughness
- Better thermal conductivity
- Increased wear resistance through enhanced hardness
- Good machinability
- A special hardening process facilitates an isotropic structure.

ESANTIKOR SL

Corrosion resistance and excellent machinability!

- Minimal tool wear
- Very good weldability
- Increased production reliability through increased toughness
- Also suitable for grained blow molds

ESMULTIFORM SL

Premium, versatile, high quality - an all-rounder for all applications!

- Homogeneous properties over the entire cross-section
- High graining suitability

ESAKTUELL 1200

Excellent graining properties over the entire cross-section!

- Very high thermal conductivity
- Very high toughness
- Pre-annealed up to 1200 N/mm²

INFORMATION

Our brochures offer more detailed information.

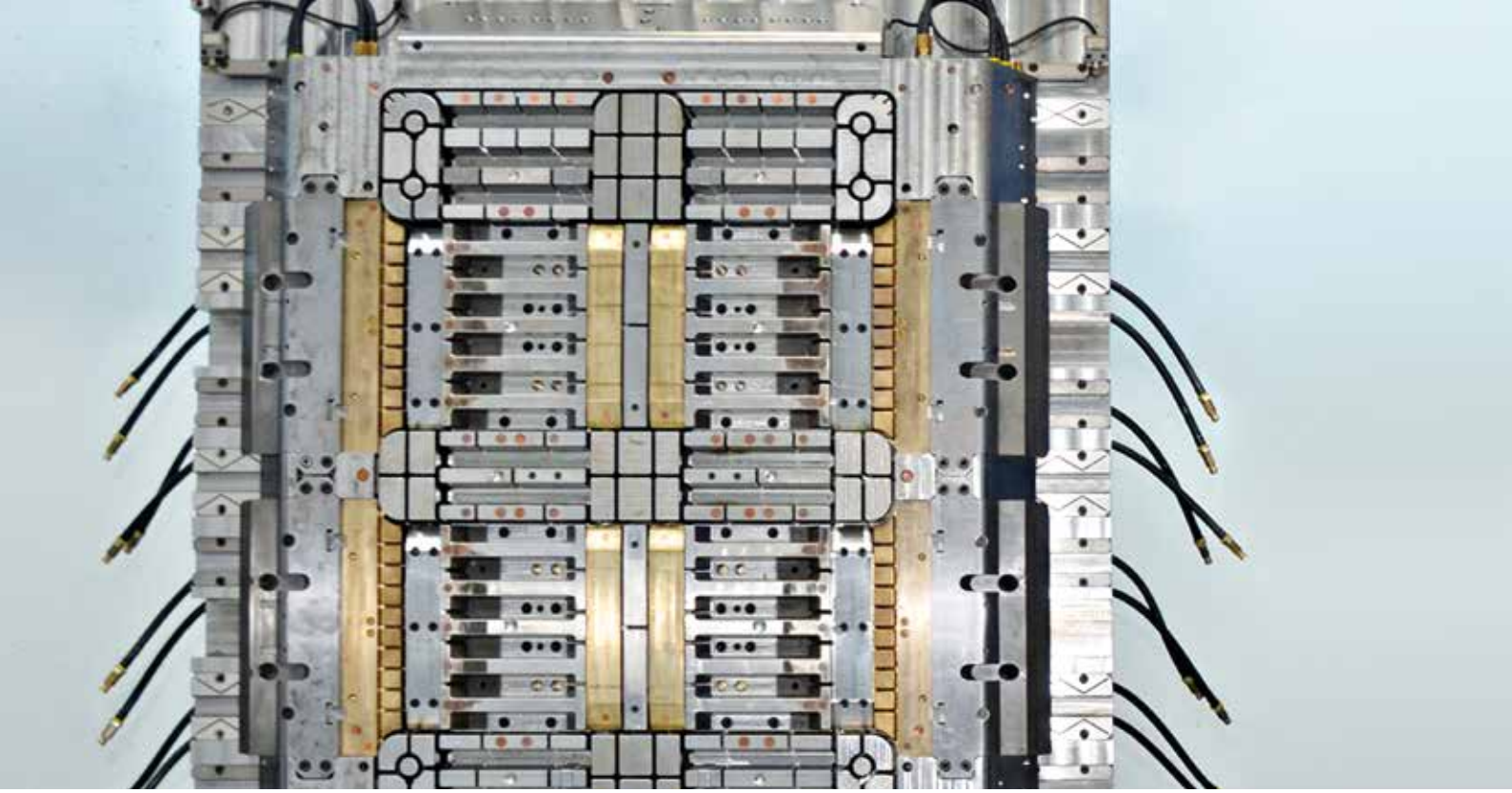
"*Our* KNOWLEDGE *for your* SUCCESS."

Horst Wendland,
Area Sales Manager

Optimum Choice of Materials from a Wide Range of Products

For decades, we have been supplying the tool and mold making (e.g. plastics processing) industries. We are pleased to pass our industry expertise on to customers.

Given the corporation‘s range of proprietary surface treatment options, we can provide you with further technologies, such as coating, plasma nitriding, welding and laser hardening. These procedures enable you to specifically improve the performance and service life of your tools. We achieve this in cooperation with the Eifeler Group, a company of voestalpine group. For further advice, please feel free to contact our sales managers.

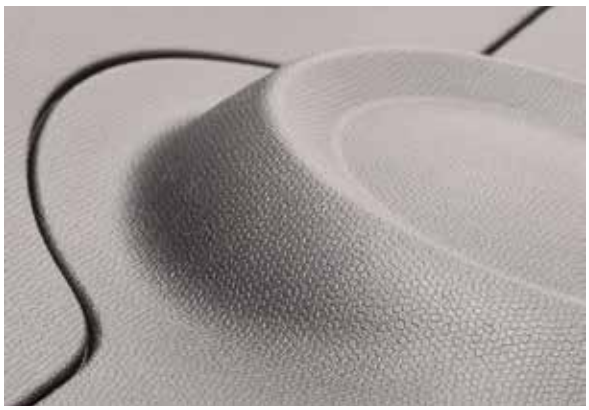


Make the Right Choice by Taking Application-Focused Advice.

We can supply tool steels with higher thermal conductivity for plastic molding inserts or corrosion-resistant frame material with excellent machinability.

The available tool steels help customers to increase efficiency in all production processes, in which tool steel is used.

- Polishability
- Graining suitability
- Corrosion resistance
- High degree of toughness
- Wear resistance
- Temperature resistance



Excellent graining properties

Brand	Material No.	Name	As-Supplied Condition
Plastic Mould Steel			
ESAKTUELL 1200			Quenched and tempered to 310–355 HB (1050–1200 N/mm²)
ESANTIKOR SL			Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ESMULTIFORM SL			Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ESPRIMUS SL			Annealed to max. 230 HB (780 N/mm²)
ES ULW 65	1.1730	C 45 U	Annealed to max. 190 HB (ca. 650 N/mm²)
ES 120 K	1.2083 EST	X 40 Cr 14	Soft-annealed to max. 241 HB (810 N/mm²)
ES 120 K ESU	1.2083 ESU	X 40 Cr 14	Soft-annealed to max. 241 HB (810 N/mm²)
ESANTIKOR S	1.2085	X 33 CrS 16	Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ES 100 K	1.2162	21 MnCr 5	BG annealed to max. 210 HB (710 N/mm²)
ESAKTUELL	1.2311 EST	40 CrMnMo 7	Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ESAKTUELL S	1.2312	40 CrMnMoS 8-6	Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ESANTIKOR	1.2316 EST mod.	X 38 CrMo 16 mod.	Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ES 235 W	1.2343 EST	X 37 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ESMAXIMUM 500	1.2343 ESU	X 37 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ES 245 W	1.2344 EST	X 40 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ES 245 W ESU	1.2344 ESU	X 40 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ESAKTUELL 1000	1.2738 EST	40 CrMnNiMo 8-6-4	Quenched and tempered to 280–325 HB (950–1100 N/mm²)
ES 275 K	1.2767 EST	45 NiCrMo 16	Soft-annealed to max. 285 HB (965 N/mm²)
ES 275 K ESU	1.2767 ESU	45 NiCrMo 16	Soft-annealed to max. 285 HB (965 N/mm²)

Inserts also for plastics blow molds

The end products are versatile.

> *I can* RELY *on the steel* QUALITY *when* CONSULTING *customers.*
>
> Joachim Stotz,
> Key-Account-Manager

Tool Steels for High-Performance Tools

Our R&D work enables us to constantly improve the toughness properties of hot work steels.

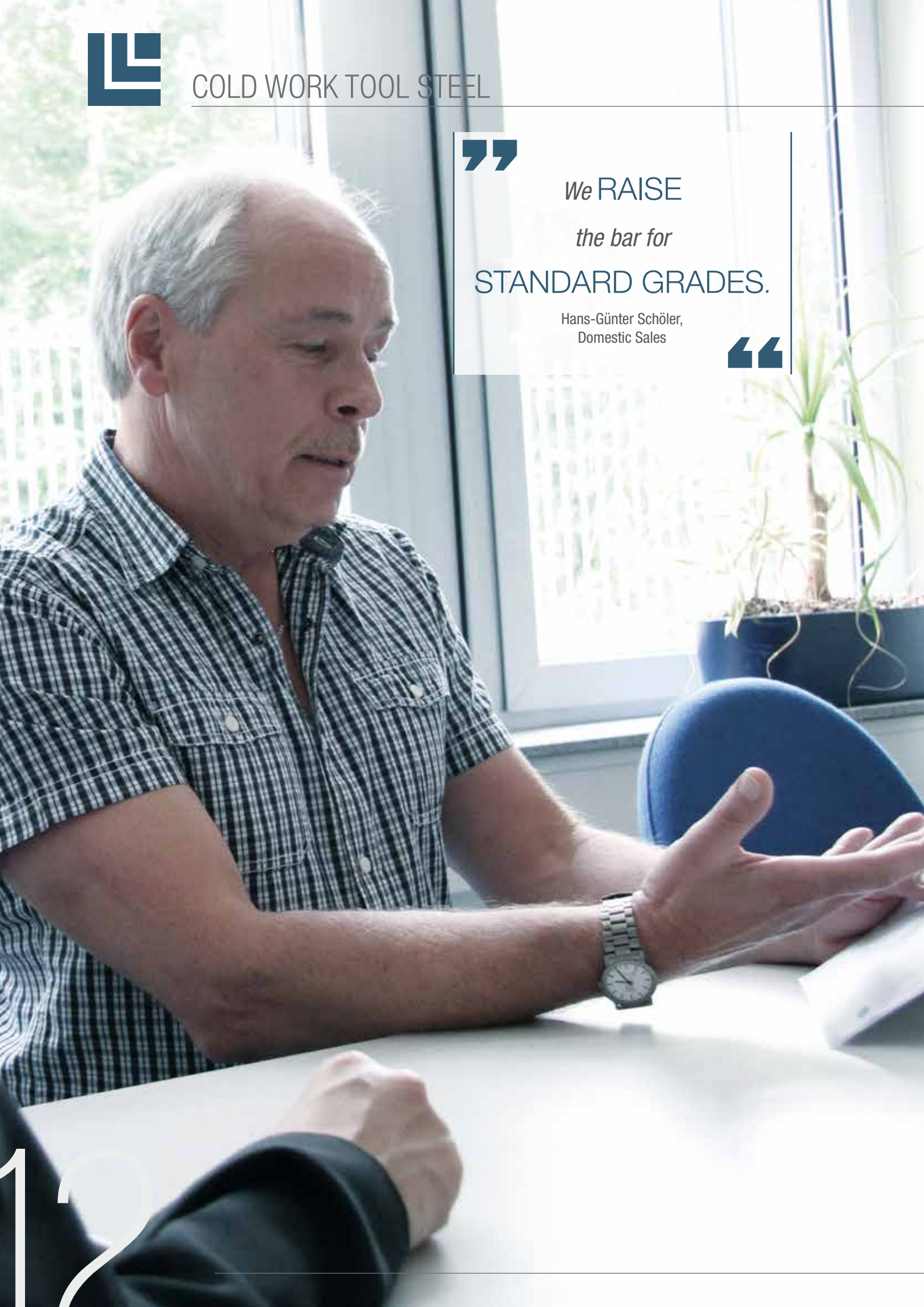
The steels are used in various industries, especially in pressure die casting, plastics processing, forging, extrusion of plastics and metal alloys, as well as in hot forming.

- High temperature strength and toughness
- High temperature wear resistance
- Good thermal shock resistance
- Good tempering resistance
- Easy machinability
- High dimensional stability in heat treatment
- In ESR grades: high-gloss polishability

Resistance to heat change

High-gloss polishability

Brand	Material No.	Name	As-supplied condition
Hot Work Tool Steel			
ESPRIMUS SL			Annealed to max. 230 HB (780 N/mm²)
ES 235 W	1.2343 EST	X 37 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ESMAXIMUM 500	1.2343 ESU	X 37 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ES 245 W	1.2344 EST	X 40 CrMoV 5-1	Soft-annealed to max. 229 HB (770 N/mm²)
ES 245 W ESU	1.2344 ESU	X 40 CrMoV 5-1	Soft-annealed to max. 229 HB
ES 265 W	1.2367 EST	X 38 CrMoV 5-3	Soft-annealed to max. 229 HB (770 N/mm²)
ES 370 G	1.2714	55 NiCrMoV 7	Soft-annealed to max. 248 HB (830 N/mm²)



We RAISE

the bar for

STANDARD GRADES.

Hans-Günter Schöler,
Domestic Sales

Fast Availability at Good Value

Cold work tool steels are usually used at operating temperatures below 200 °C. Typical applications include punching and cutting tools for dies and knives, tools for cold forging, embossing and recessing for thread rolling dies, shear blades, etc.

Application example: punching tool

Requirements that cold work tool steels have to meet:

- High wear resistance
- Sufficient toughness
- Adequate fatigue strength
- Good machinability
- Very good dimensional stability during heat treatment

Application example: embossing tool

Brand	Material No.	Name	As-supplied condition
Cold Work Steel			
ES ULW 65	1.1730	C 45 U	Annealed to about 190 HB (ca. 650 N/mm²)
ES 65 S	1.2363	X 100 CrMoV 5	Soft-annealed to max. 241 HB (810 N/mm²)
ES 70 S	1.2379	X 153 CrMoV 12	Soft-annealed to max. 255 HB (860 N/mm²)
ES 50 SW	1.2436	X 210 CrW 12	Soft-annealed to max. 255 HB (855 N/mm²)
ES 275 K	1.2767 EST	45 NiCrMo 16	Soft-annealed to max. 285 HB (965 N/mm²)
ES 275 K ESU	1.2767 ESU	45 NiCrMo 16	Soft-annealed to max. 285 HB (965 N/mm²)
ES 60 S	1.2842	90 MnCrV 8	Soft-annealed to max. 229 HB (770 N/mm²)

Versatile Manufacturing Processes and Designs

Cross-rolled sheets with 1.2379

EschmannStahl also stocks sheets, which are formed in both longitudinal and transverse directions, i.e. cross-rolled. Their mechanical properties are therefore more homogeneous than those of conventionally rolled sheets. As a result, production is simplified for the user because the rolling direction does not have to be factored in.

Stress relief annealed sheets

We stock stress relieved sheets for particular applications. We will advise the user of any special requirements.

EST – Extra structural treatment

The EST process serves quality improvement of EschmannStahl's materials. Using primary and secondary metallurgy, we have reduced negative by-products such as phosphorus and sulfur to a minimum. At the same time, this allows for creating a homogenous microstructure. This leads to:

- Improvement in degree of purity
- Increase in toughness values
- More uniform annealing and tempering microstructure
- Greater dimensional stability during heat treatment
- Improved polishability and graining suitability

ESR – Electro-slag remelting

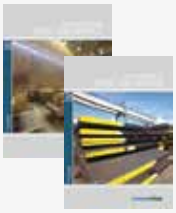
In electro-slag remelting, a normally produced round ingot is remelted in a special furnace. Due to their high cooling rate, steels produced by this method have superior purity and homogeneity.

- Reduction of ingot segregations
- Lowest sulfur and phosphorous content
- Minimal sulfide and oxide inclusions
- Highest toughness properties longitudinally and transversely
- Fine-grained structure because of targeted and rapid solidification
- Highest homogeneity
- Best high-gloss polishability and graining suitability

INFORMATION

More information in our ex-stock list and the technical catalog.

www.eschmannstahl.de



Types

Our tool steels are manufactured according to DIN EN ISO 4957. The steels can be forged or rolled.

In order to reliably eliminate scale and decarburization in rolled or forged materials, certain machining allowances are required in tool-making. These tolerance ranges correspond to the standards for:

- Forged steels: DIN 7527
- Rolled ingot steel: DIN EN 10060
- Rolled square section steel: DIN 1014
- Rolled flat steel: DIN EN 10058
- Universal mill plate: DIN 59200
- Rolled sheets: EN 10029

For forged black material, the following machining allowances can be taken as a basis.

Final dimensions f1 or f2		Cross-section addition	
over	to	2z	allowed deviation
16	25	2,6	± 0,6
25	40	3	± 0,7
40	63	4	± 0,9
63	80	5	± 1,1
80	100	6	± 1,3
100	125	7	± 1,5
125	160	9	± 1,8
160	200	11	± 2,2
200	250	13	± 2,6
250	315	16	± 3,2
315	400	19	± 4,0
400	500	24	± 4,9
500	630	30	± 6,0
630	800	37	± 7,4
800	1000	46	± 9,3

Rapid availability

EschmannStahl stocks a wide range of all standard tool steels and also has EschmannStahlGrades for various requirements available for delivery.

Brand	Material No.	Name
ES ULW 65	1.1730	C 45 U
ES 120 K	1.2083 EST	X 40 Cr 14
ES 120 K ESU	1.2083 ESU	X 40 Cr 14
ESANTIKOR S	1.2085	X 33 CrS 16
ESANTIKOR SL		
ES 100 K	1.2162	21 MnCr 5
ESAKTUELL	1.2311 EST	40 CrMnMo 7
ESMULTIFORM SL		
ESAKTUELL S	1.2312	40 CrMnMoS 8-6
ESANTIKOR	1.2316 EST mod.	X 38 CrMo 16 mod.
ES 235 W	1.2343 EST	X 37 CrMoV 5-1
ESMAXIMUM 500	1.2343 ESU	X 37 CrMoV 5-1
ES 245 W	1.2344 EST	X 40 CrMoV 5-1
ES 245 W ESU	1.2344 ESU	X 40 CrMoV 5-1
ESPRIMUS SL		
ES 65 S	1.2363	X 100 CrMoV 5
ES 265 W	1.2367 EST	X 38 CrMoV 5-3
ES 265 W ESU	1.2367 ESU	X 38 CrMoV 5-3
ES 70 S	1.2379	X 153 CrMoV 12
ES 50 SW	1.2436	X 210 CrW 12
ES 370 G	1.2714	55 NiCrMoV 7
ESAKTUELL 1000	1.2738 EST	40 CrMnNiMo 8-6-4
ESAKTUELL 1200		
ES 106 K	1.2764	X 19 NiCrMo4
ES 275 K	1.2767 EST	45 NiCrMo 16
ES 275 K ESU	1.2767 ESU	45 NiCrMo 16
ES 60 S	1.2842	90 Mn CrV 8

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