

Hot work tool steel for universal application

Chemical composition

Standard analysis in mass -%

C	Si	Mn	Cr	Mo	V
0.37	1.00	0.40	5.30	1.30	0.40

10.05.23 Rev.00

Standards and designations

DIN EN ISO 4967	SEL	AISI	B.S. ¹	AFNOR ¹	JIS	GOST	UNE ¹
X37CrMoV5-1	1.2343	H11	BH11	Z38CDV5	SKD6	4Ch5MFS	F.520.G

¹ obsolete standard

Properties

- Cr-Mo-V alloyed hot work tool steel with extras fine structure
- Excellent toughness
- Very good thermal shock resistance
- Good high temperature strength
- Good hot wear resistance
- Excellent polishing ability (Superclean)
- Highest isotropy and homogeneity when remelted (ESR→Thermotur[®]2343Superclean)

Applications

- Universally applicable tool steel
- Die casting tools and molds
- Extrusion dies
- Forging dies and die inserts
- Plastic molds and mold inserts
- Extruder screws and cylinders
- Ejector pins
- Mold holders and chucks
- Reinforcing rings

Physical properties

Coefficient of thermal expansion in 10⁻⁶/K

20 - 100 °C	11.9
20 - 200 °C	12.4
20 - 300 °C	12.6
20 - 400 °C	12.7
20 - 500 °C	12.8
20 - 600 °C	12.9
20 - 700 °C	12.9

Thermal conductivity in W/(mK)

	annealed	Hardened and tempered
20 °C	29.8	26.8
350 °C	30.0	27.3
700 °C	33.4	30.3

Heat treatment

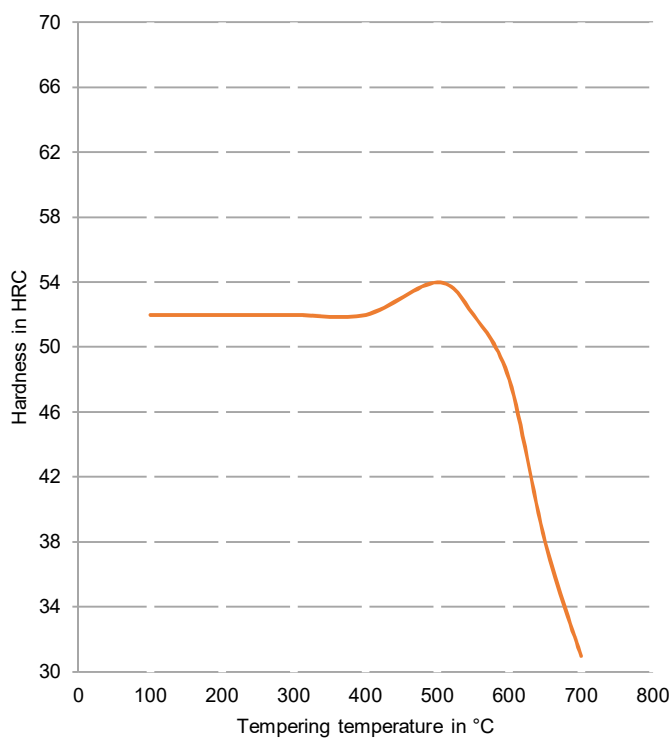
Heat treatment parameters

	Temperature	Cooling / Quenching	Hardness
Soft annealing	750 – 800 °C	furnace	max. 229 BHN
Stress relieving	600 – 650 °C	furnace	
Hardening	1010 – 1030 °C	Air, N ₂ , oil, salt bath (500 – 550 °C)	54 HRC (after quenching)

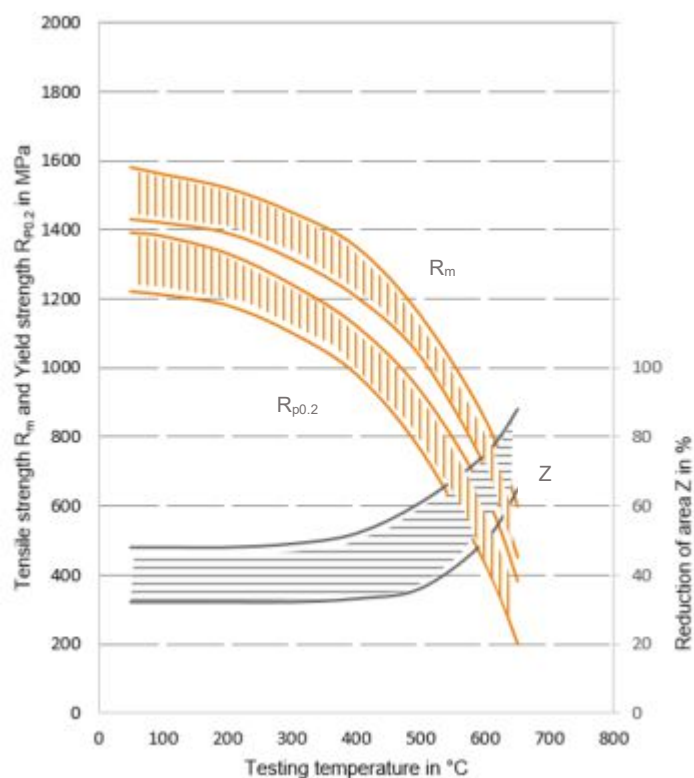
Tempering

Temperature in °C	100	200	300	400	500	550	600	650	700
Hardness in HRC	52	52	52	52	54	52	48	38	31

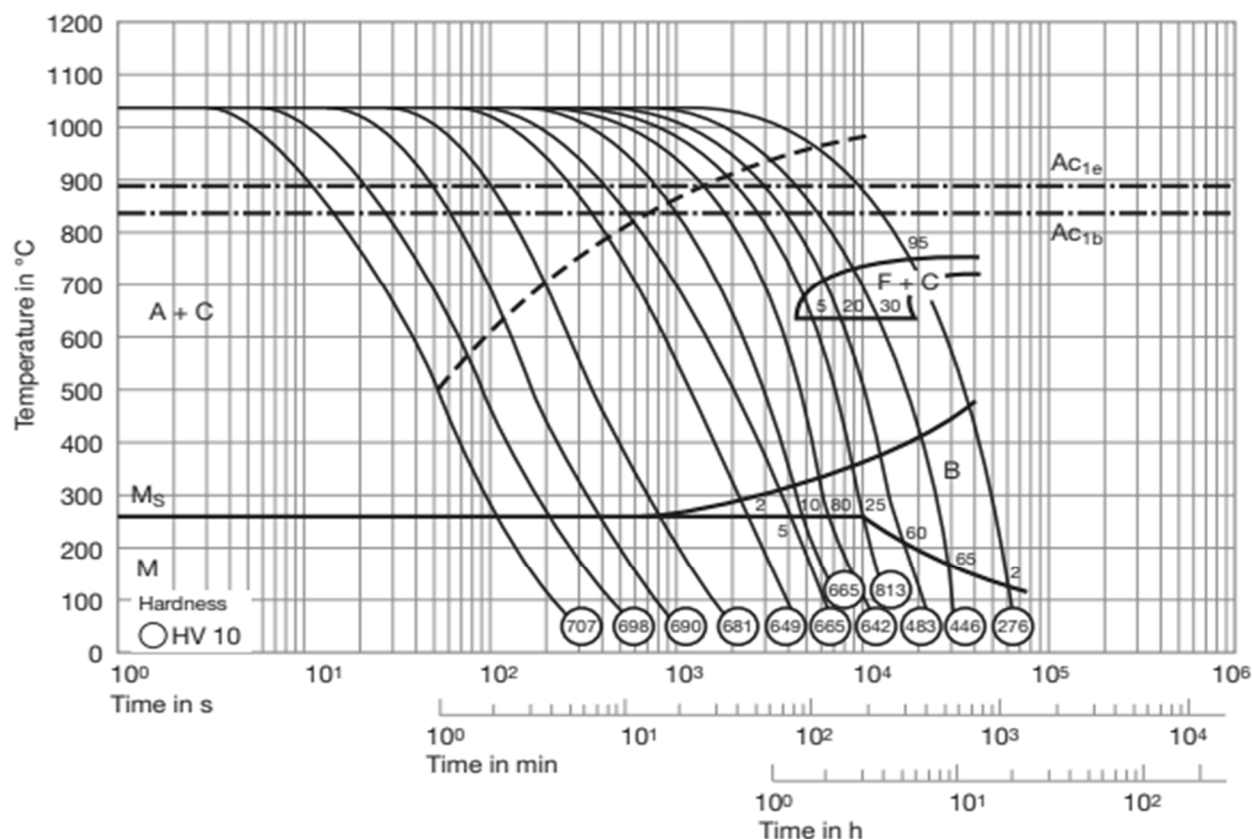
Tempering diagram



Hot wear resistance



Time-temperature-transformation diagram



Condition of delivery

Thermodur®2343 EFS and Thermodur®2343 Superclean are given an extra fine structure (EFS) thanks to the application of the most modern special technological processes from the melting of selected feed materials to heat treatment. Although these processes already provide a high isotropy of material properties, we recommend using the remelted grade Thermodur®2343 Superclean for highest requirements.

Thermodur®2343 EFS and Thermodur®2343 Superclean are usually supplied in normalized and annealed condition with a hardness of max. 229 BHN.

For further info on our product range of tool steel, stainless steel and Engineering steel please visit www.swisssteelgroup.com

Discover our Green Steel portfolio on www.swissgreensteel.com

The information and data presented herein are typical or average values and are not a guarantee of maximum or minimum values. Only the information reported on our material certificates is to be considered as relevant. Applications specifically suggested for material described herein are made for the purpose of illustration only to enable the reader to make its own evaluation and are not intended as warranties, either express or implied, of fitness for any purposes.

We reserve the right to make changes and technical improvements without notice. Errors and omissions excepted. The desired performance characteristics are only binding if they had been agreed upon exclusively at the time that the contract was made.

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