

Chemical composition (cast analysis in percentage by mass)

Element	C	Si	Mn	P	S	N	Cr	Mo	V
min.	0,26	0,15	1,20	–	0,007	0,010	–	–	0,08
max.	0,33	0,80	1,60	0,025	0,020	0,020	0,30	0,08	0,20

The analysis corresponds to 30MnVS6 steel (EN steel number: 1.1302)
Sulfur range outside that specified for 30MnVS6 steel, but admissible according to EN 10267:1998
Deviations in the product analysis from the limits specified in the cast analysis are in accordance with EN 10267:1998

Physical and mechanical properties

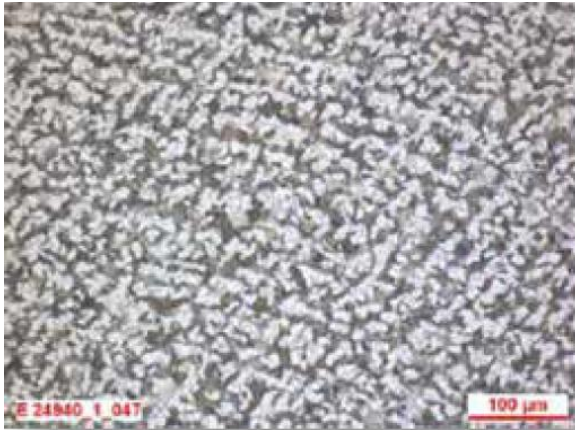
Property	Yield point R _{p0.2} MPa	Tensile strength R _m MPa	Elongation after fracture A ₅ %
min.	850	900	10
max.	–	1100	–

Careful control of production process parameters allows the physical and mechanical properties to be tailored to the needs of specific applications

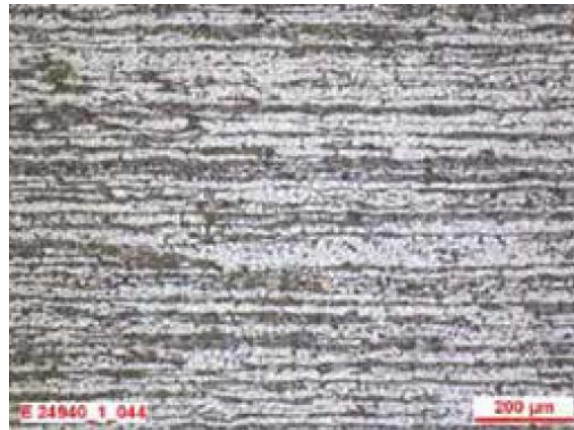
Microstructure

HSX[®] Z10 has a ferrite-pearlite microstructure.

The average grain size is ≥ 6 (grain size number determined on the basis of ASTM E112).

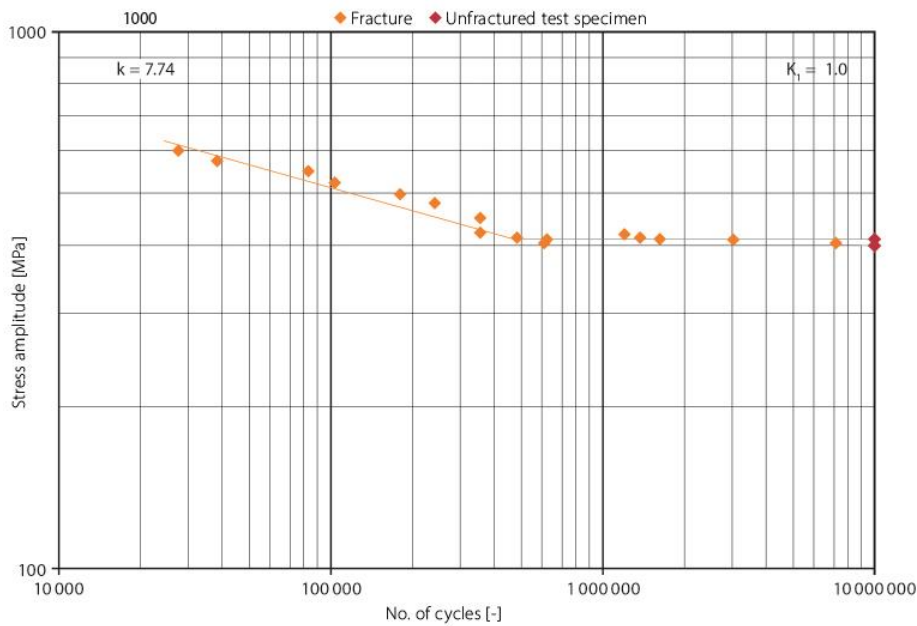


Transverse section, drawn 19.0 mm, Location of specimen: 1/2 radius, Etchant: 2 % HNO₃



Longitudinal section, drawn 19.0 mm, Location of specimen: 1/2 radius, Etchant: 2 % HNO₃

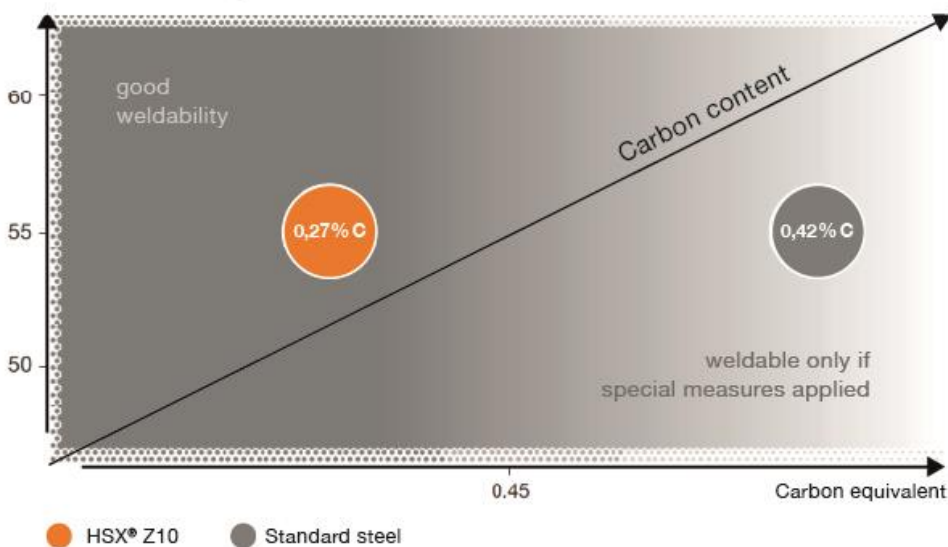
Fatigue strength under alternating tension-compression loading



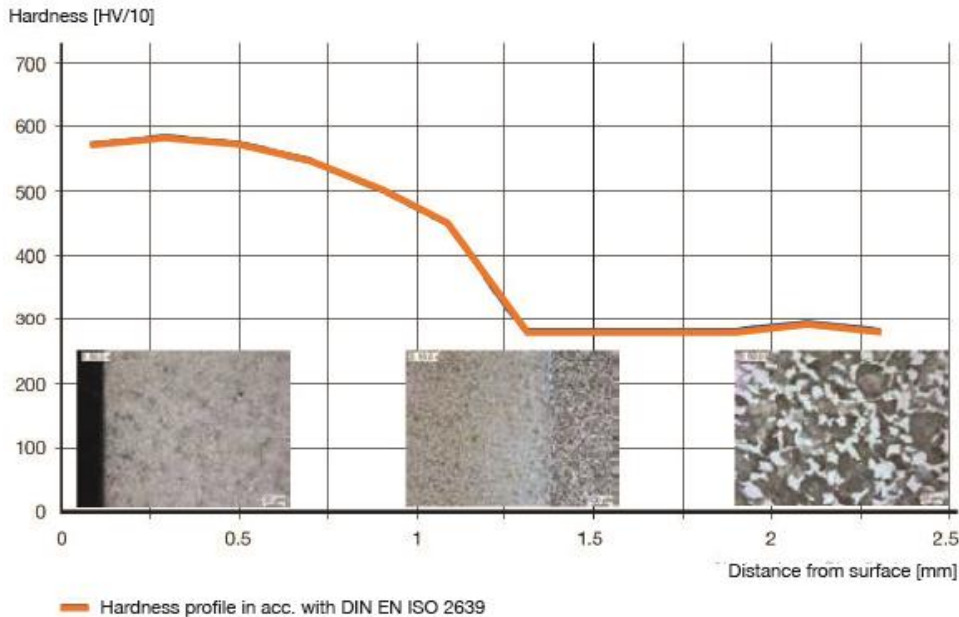
S-N curve ($R = -1$) in the low-cycle and high-cycle regions for $P_s = 50\%$ and $\gamma = 50\%$ [P_s : probability of survival; γ : confidence level]

Joining processes – Welding

Surface hardness in HRC after induction hardening



High-frequency induction hardening



The maximum achievable surface hardness is approximately – 55 HRC.

Surface condition

The quality of the surface meets the specifications in EN 10277-1. Round bars are subjected to crack detection testing to verify conformity with surface quality class 3. However, no testing is carried out on the final 50 mm at the ends of standard issue rods.

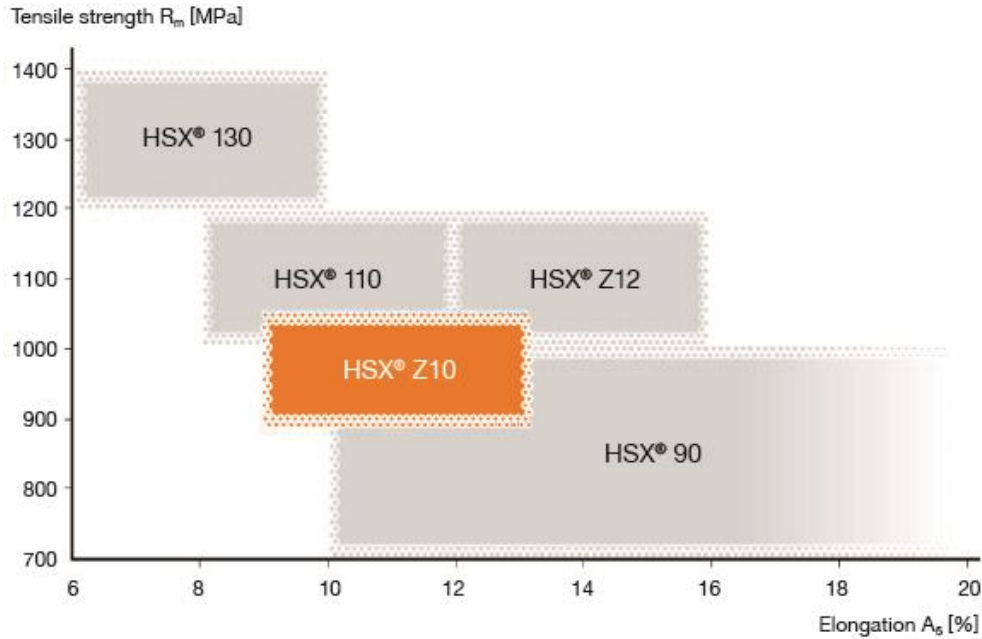
Miscellaneous

Other agreements may be specified in the order documents.

Delivery condition

Bright steel, drawn bars
Dimensional range 4.15 bis 55 mm
ISO tolerance h11

HSX[®] Z10 Comparison with other products



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

28.06.23 Rev. N°1

Discover our Green Steel portfolio on www.swissgreensteel.com

The information and data contained in this document represent standard or average values and do not constitute a warranty or guarantee of minimum or maximum values. The information contained in our material test certificates is solely authoritative. Application recommendations for the materials described in this document are provided for guidance only to enable the reader to make their own decisions and do not constitute an express or implied warranty or guarantee that a material is suitable for a particular application.

Subject to change, errors and printing mistakes. The desired performance characteristics are only binding if they are exclusively agreed upon at the time of contract conclusion.

Swiss Steel Group
 Steeltec AG / Steeltec GmbH:
 Emmenbrücke / Düsseldorf
info.engineering@swisssteelgroup.com