Technical Datasheet

High Strength Special Steel HSX® 90

28.06.23 Rev. N°1

Chemical analysis (cast analysis in % by mass)

Element	C	Si	Mn	P	S	Cr	Mo	Ni	V	Ti	Al	B
min.	0,06	0,15	1,85	–	–				0,03	0,06	0,02	0,0015
max.	0,09	0,25	1,95	0,015	0,015	0.20	0.05	0.25	0,05	0,10	0,04	0,0030

Note the chemical elements were shown as in the Swissbain brochure = material

The analysis corresponds to 7MnB8 (1.5519) according to
Deviation of piece analysis from melt analysis according to DIN EN 10263-2
7MnB8 has a CET value of 0.28 and can be easily laser welded.

Mechanical-technological properties

Property	Yield strength $R_{p0.2}$ MPa	Tensile strength R_m MPa	Elongation A_5 %
min.	600	700	10
max.		900	

The mechanical-technological properties can be adjusted to the respective application
by varying the process parameters can be adjusted to the respective application, shown here +C.

Instead of Haigh Diagramm - Fatigue strength σ

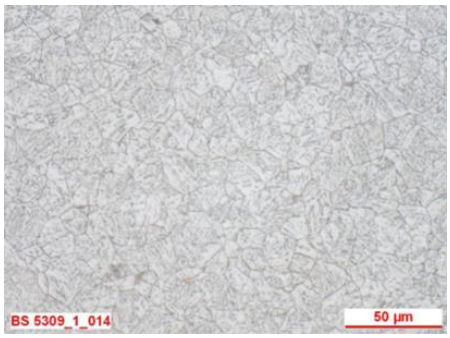
Characteristics	Symbol	Measured value in MPa
Tensile-compression fatigue strength	σ_{aD}	380
Tensile swell strength	σ_{sch}	325
Flexural fatigue strength	σ_{bw}	400

It should be noted that σ_{aD} for an R value of R = -1 is equivalent to the alternating strength σ_{zdw} and for an R value of R = 0 is equivalent to half the value of the threshold strength, i.e. ½-σ_{Sch}.

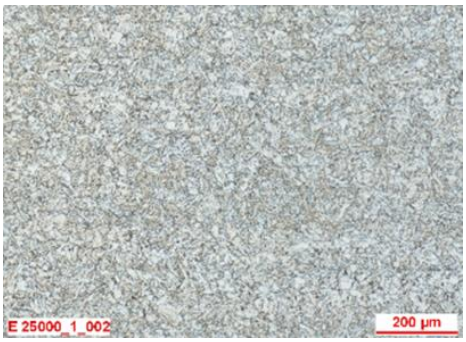
High Strength Special Steel HSX® 90

Microstructure with isotropic characteristics

The microstructure consists of bainite. The grain size based on ASTM E 112 is > 6.



Transverse section, pulled 7.0 mm, specimen position ½ radius, etching, HNO_3-2% strength.



Longitudinal section, drawn 36.0 mm, specimen position ½ radius, etching, HNO_3-2%-ig

Magnetic characteristics (guideline values)

Property	Symbol	Unit	+C
Remanence	B_r	T	0,7
Coercitive field strength	H_c	kA/m	0,8
Max. permeability	μ_{max}	–	400
Field strength H at μ_{max}	H (μ_{max})	kA/m	1,6
Hysteresis losses	W	kJ/m^3	5
Remanence at H 30 kA/m	B_{H30}	T	2
Additional Information: Spec. resistance	R	µΩ cm	33

Instructions for further processing

HSX® 90 is very good cold formable.

Surface quality

The surface finish complies with the specifications of EN 10277. The bars are crack-tested to surface quality class 3 as standard. In the standard version, the bar ends up to 50 mm are untested.

Condition of delivery

Bright steel, drawn
Dimensional range 5 to 40 mm
Tolerance h11

Miscellaneous

Other agreements acc. to order.

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

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