

# S650MC / HSM 650 HD

Product information for hot-rolled precision strip



thyssenkrupp

Version 1/18

## Microalloyed fine grain structural steel High ductility (HD)

High ductility (HD) microalloyed fine grain structural steels from BU Precision Steel meet the specifications of DIN EN 10149.

They are produced with a very fine microstructure and embedded nano-precipitates. These steel grades open up new design options in lightweight auto construction. Their extremely low carbon content counters the formation of coarse and brittle areas in the microstructure.

These materials are particularly suitable for the manufacture of complex forming geometries. Compared with conventional microalloyed steels they offer higher shear strain values and multiaxial elongation for greater process reliability in component production and are readily weldable.

### Hohenlimburg precision strip:

- is used in virtually all industry sectors.
- offers close thickness tolerances similar to cold-rolled strip, optimum surface finishes and consistent material properties over the entire strip length and width.
- is characterized by its symmetrical strip profiles and mill edges.
- is the sum of all the experience we have gained in more than 100 years of manufacturing and processing steel.

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## Contents

Brief portrait  
Technical features  
Chemical composition  
Mechanical properties  
General thickness tolerances  
Delivery options  
Application examples

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## Technical features

Microalloyed fine grain structural steel High ductility (HD)

Material number: 1.8976

Material name: S650MC

Proprietary brand: HSM 650 HD

Delivery specification: DIN EN 10149-2

Application: Steels with first class forming, fine blanking and welding properties

Special feature: An adapted and optimized chemical analysis creates a ferritic microstructure with nano-precipitates. This results in increased forming reserves compared with the standard variant S650MC

### Chemical composition

Ladle analysis mass percentages	C [%]	Mn [%]	Si [%]	P [%]	S [%]	Al [%]	Nb [%]	V [%]	Ti [%]	Mo [%]	B [%]
min.	–	–	–	–	–	0.015	–	–	–	–	–
max.	0.05	1.95	0.15	0.020	0.008	0.060	0.05	0.05	0.10	0.25	0.005

Further special analyses available

### Mechanical properties

Longitudinal to rolling direction	Yield strength $R_{eH}$ [MPa]	Tensile strength $R_m$ [MPa]	Elongation $A_5$ [%]	$A_{80}$ [%]
Rolled condition	min. 650	700 – 860	min. 17	min. 13

### General thickness tolerances

Strip thickness [mm]	1.5 – 2.54	2.55 – 4.03	4.04 – 6.03	6.04 – 8.03	8.04 – 9.03	9.04 – 11.03	11.04 – 14.03	14.04 – 16.00
Standard tolerances [mm]	± 0.04	± 0.04	± 0.05	± 0.055	± 0.06	± 0.07	± 0.08	± 0.10
Special tolerances [mm]	± 0.03	± 0.035	± 0.04	± 0.045	± 0.05	± 0.055	± 0.06	± 0.07

### Possible delivery options

Options	Mill edge (NK) Cut edge (GK)	pickled	unpickled	slit	trimmed	cut to length
	HSM 650 HD	NK or GK	√	or √	√	√

### General delivery options

Coil inner diameter:	standard 508 mm / optional 610 mm
Coil outer diameter:	max. 1,890 mm
Coil weight:	max. 20.5 kg/mm strip width
Strip width:	max. 720 mm
Strip thickness:	1.5 – 16 mm

Please contact our sales/technical customer advice team for detailed information.

## Application examples for microalloyed fine grain structural steel High ductility (HD)



Special mill grades feature unique thyssenkrupp properties. Other terms and conditions of supply not specified here will be based on the applicable specifications. The specifications used will be those valid on the date of publication of this product information.

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