



SWS

Free Cutting Mild Steel (Steel Black Forest)

Distinctive feature & main attribute

A non-alloyed free cutting mild steel unlead, marked by high machinability and an easy fragmentation of chips. Due to the high sulphur and phosphorus content it is not recommended for heat treatment nor for welding.

Use & application range

This material is designated for the automobile industry, precision parts, appliance construction and apparatus engineering.

Material No. and norms

Material No.	1.0715
DIN Abbreviation	9SMn28
AFNOR	S250
AISI/SAE/ASTM	AISI ~ 1213
ISO	~ 11SMn28
Euro Standard EN	11SMn30
Others	JIS ~ SUM 22

Reference analysis %

C	Si	Mn	P	S	Fe
max.	max.	0.90	max.	0.27	balance
0.14	0.05	1.30	0.11	0.33	

Execution, delivery form, standard sizes and availability

- Execution in 3 m (2 m) round or square & hexagonal bars as well as in coils
- Standard size in stock: [see product range](#)
- Other sizes on request

Tolerances

- Ø < 12.00 mm, cold drawn h8, on request also tighter tolerances available
- Ø > 12.10 mm, cold drawn h9
- Out of roundness standard: ½ of diameter tolerance

Mechanical properties

At delivery status:
 • Tensile strength (Rm): 570 – 820 MPa, size depending

Heat treatment

This quality is not made for hardening purposes, unless the carbon content is at the upper limit it is possible to do an edge hardening or nitridization process up to 60 HRC.

Cutting rates

vc ~ 60 – 80 m/min, value depending on the lubrication oil, cutting tools and shape of parts.