



SWP

Free Cutting Mild Steel (Steel Black Forest)

Distinctive feature & main attribute

A non-alloyed free cutting mild steel with sulphur and lead, marked by a 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.	1.0718
DIN Abbreviation	9SMnPb28
AFNOR	S250Pb
AISI/SAE/ASTM	AISI ~ 12L13
ISO	~ 11SMnPb28
Euro Standard EN	11SMnPb30
Others	JIS ~ SUM 22L / JIS ~ SUM 23L / JIS ~ SUM 24L

Reference analysis %

C	Si	Mn	P	S	PB	Fe
max.	max.	0.90	max.	0.27	0.20	balance
0.14	0.05	1.30	0.11	0.33	0.35	

Execution, delivery form, standard sizes and availability

- Execution in 3 m round or square & hexagonal bars, on request also in coils for Escomatic
- Standard size in stock: [see Product range](#)
- Other sizes on request

Tolerances

- $\varnothing < 12.00$ mm, cold drawn h8, on request also tighter tolerances available
- $\varnothing > 12.10$ mm, cold drawn h9
- Out of roundness standard: $\frac{1}{2}$ 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.

Cutting rates

vc ~ 90 – 120 m/min, value depending on the lubrication oil, cutting tools and shape of parts.