



# 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.