

## Material specification sheet

### Saarstahl - 80MnS5

Material No.:

German standard:

International steel grades:

**Material group:** Non-alloyed constructional steel

**Chemical composition:**

(typical analysis at Saarstahl in %)

C	Si	Mn	P	S	Cr	V	N
0,74	0,72	1,30	< 0,015	0,069	0,50	0,09	0,013

Deviation in chemical composition on request

**Application:**

V-alloyed steel for forged and air-cooled fracture splittable connecting rods with higher strength (without final heat treatment)

**Hot forming and heat treatment::**

Forging or hot rolling: 1150 - 1250°C  
 Annealing for cold shearability: 740°C/furnace  
 (max. 255 HB)

**Mechanical properties:**

on the forged connecting rod after air cooling

Sample position	car connecting rod			truck connecting rod
	big end	rod		rod
0,2% Proof stress $R_{p0,2}$ [N/mm <sup>2</sup> ]	780 - 825	840 - 870		770 - 790
Tensile strength $R_m$ [N/mm <sup>2</sup> ]	1230 - 1260	1270 - 1295		1200 - 1220
Fracture elongation $A_5$ [%]	10 - 12	7 - 11		9 - 10
Reduction of area $Z$ [%]	25 - 35	22 - 31		20 - 25
Surface hardness HB30	350 - 370	350 - 375		350 - 370

**Microstructure**

(state: forged and air-cooled)

100 % fine lamellar pearlite  
 ASTM-Grain size: 7 and smaller