

## Material specification sheet

### Saarstahl - 37MnSi5

Material No.:	Former brand name:	International steel grades:
1.5122	VMS 135	BS: AFNOR: SAE:

**Material group:** Alloyed heat treatable steel

Chemical composition: (Typical analysis in %)	C	Si	Mn	other
	0,37	1,25	1,25	(Pb)

**Application:** Alloyed heat treatable steel with a tensile strength range of 800 - 1500 N/mm<sup>2</sup> for wear resisting components as gearing parts, bandages, conveying equipment. Suitable for surface hardening. For crankshafts in aircraft applications and diesel engines, gear shafts and gears and for all parts with higher core tensile strength good toughness properties and medium skin hardness simultaneously.

<b>Hot forming and heat treatment:</b>	Forging:	1150 - 850°C
	Normalising:	860 - 890°C/air
	Soft annealing:	680 - 720°C/furnace
	Hardening:	820 - 850°C/water
	Hardening:	830 - 860°C/oil
	Tempering:	480 - 650°C/water (oil)
	Surface hardening:	820 - 850°C
	Stress relieving:	120 - 200°C

**Mechanical  
Properties:**

 Soft annealed, +A:  
Skin hardness:

 max. 217 HB  
52 - 58 HRC

Diameter d [mm]	< 16	>16 – 40	>40 – 100	>100 - 250
<b>0,2% proof stress R<sub>p0,2</sub> [N/mm<sup>2</sup>]</b>	min. 800	min. 650	min. 550	min. 450
<b>Tensile strength R<sub>m</sub> [N/mm<sup>2</sup>]</b>	1000 - 1200	900 - 1050	800 - 950	700 - 850
<b>Fracture elongation A<sub>s</sub> [%]</b>	min. 11	min. 12	min. 14	min. 15
<b>Reduction of area Z [%]</b>	min. 35	min. 40	min. 45	min. 50
<b>Notch impact energy ISO-V [J]</b>	min. 18	min. 25	min. 30	min. 38
<b>Notch impact energy DVM [J]</b>	min. 35	min. 42	min. 50	min. 58