

## Material specification sheet

### Saarstahl - 36Mn5

Material No.:	Former brand name:	International steel grades:
1.1167	VM135	<b>BS:</b> 150M36 <b>AFNOR:</b> 35M5, 40M5 <b>SAE:</b> 1335

**Material group:** Seamless circular tubes made from steels for hardening and tempering according to DIN 17204

Chemical composition: (Typical analysis in %)	C	Si	Mn	other
	0,36	0,25	1,35	(Pb)

**Application:** Heat treatable steel for a tensile strength range of 700 - 1000 N/mm<sup>2</sup> for general mechanical engineering components with sufficient weldability .

<b>Hot forming and heat treatment:</b>	Forging or hot rolling:	1100 - 850°C
	Normalising:	850 - 880°C/air
	Soft annealing:	650 - 700°C/furnace
	Hardening:	820 - 850°C/water
	Tempering:	480 - 650°C/water, oil

**Mechanical Properties:** Soft annealed +A: max. 217 HB

**Condition of heat treatment** Quenched and tempered

Diameter d [mm]	<40	40 - 100	100 - 250
<b>0,2% proof stress R<sub>p0,2</sub> [N/mm<sup>2</sup>]</b>	min. 600	min. 540	min. 440
<b>Tensile strength R<sub>m</sub> [N/mm<sup>2</sup>]</b>	830 - 1000	730 - 900	630 - 800
<b>Fracture elongation A<sub>5</sub> [%]</b>	min. 10	min. 12	min. 15
<b>Notch impact energy ISO-V [J]</b>	min. 25	min. 30	min. 38