

Abbreviation	EN Norm	ASTM / AISI	AFNOR	DIN Abbreviation	ISO	Other
11SMnPb37	1.0737		S 300 Pb	1.0737		

## 1.0737 Wire

Chemical analysis by european Norm EN 10088-1 in mass percent.

C	Si	Mn	P	S	Pb
≤ 0.15	≤ 0.05	1.00-1.50	0.11	0.34-0.40	0.15-0.35

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**Diameter** 0.02 – 4.00 mm

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### Use and Application

1.0737 is categorized as a carbon or machining steel, which are generally not or only sparsely alloyed. Larger amounts of phosphorus, sulfur, and sometimes lead, cause short shavings during machining, which in turn reduces tool wear. Furthermore, shorter shavings don't get tangled as easily, which means that the machining can be automated. Like all materials in the group, 1.0737 is excellent for machining and processing.

Once there is a percentage of 0.15 to .35 of lead, the material is referred to as lead-alloyed. The additional lead drastically reduces processing time and optimizes tool life. With enough lead, the cutting speed can almost be doubled, while still acutely lengthening tool life, almost by a factor of two. 1.0737 is well suited for high-precision parts with small diameters and stringent tolerances. At a maximum of 0.35% lead, 1.0737 meets the RoHS guidelines.

### Resistance to Corrosion

Carbon and machining steels have a reduced acidic and corrosive resistance, even with low sulfur content. Present air humidity instantly starts corrosion.

### Thermal Treatment

1.0737 cannot be hardened but it can be annealed at 900°C in inert shielding gas. Depending on wire dimensions, the ultimate tensile strength can be elevated to 800 N/mm<sup>2</sup> through cold forming.

### Weldability

Machining steels do not weld well.

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### Surface Finish

Drawn	Chemically purged	0.020 – 3.499 mm
Surface ground	Chemically purged	3.500 – 4.000 mm

### Delivery Condition

As a ring  
On assorted spools  
Straightened  
Axles

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### Diameter Tolerances

Diameter (mm)	Tolerance (%)	Tolerance ( $\mu$ )
0.020 – 0.249		$\pm 1.0$
0.250 – 0.399		$\pm 1.5$
0.400 – 1.500		$\pm 2.0$
1.500 – 4.000		$\pm 2.5$

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### Mechanical Properties

Condition at delivery (mm)	Ultimate tensile strength (N/mm <sup>2</sup> )
0.005 – 0.019	
0.020 – 0.199	
0.200 – 0.499	390 - 800 (Increased danger of crack formation above 800 N/mm <sup>2</sup> )
0.500 – 0.999	
1.000 – 1.999	
2.000 – 4.000	

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### Physical Properties

Density		7.80 g/cm <sup>3</sup>
Coefficient of thermal expansion	20 °C – 200 °C	11.00 10 <sup>-6</sup> /K
Specific heat capacity	20 °C	460.00 J/kgK
Coefficient of thermal conductivity	20 °C	55.00 W/mK
Specific electric resistance	20 °C	0.12 $\Omega$ mm <sup>2</sup> /m
Young's Modulus	20 °C	210.00 GPa

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