

## LAW 100

### Free Cutting High Carbon Steel

Material No.	DIN Abbreviation	AFNOR	AISI/SAE/ASTM	ISO	Euro Standard EN	Others
1.1268 A 100	Mh 97		AISI ~ 1095		Mh97	

Distinctive feature & main attribute: a temperable, unalloyed free cutting steel of particular importance because of its unique combination of strength and toughness after heat treatment, thus for wear-resistant parts. A good economical material choice where corrosion is not expected to be a problem and well suited for abrasion resistant applications.

Use & application range: this quality is specially designed for small high precision parts in the watch industries due to its microstructure but also for other applications such as washers, shim stock or striker plates.

REFERENCE ANALYSIS	C	Si	Mn	P	S	Fe
%	<b>0.90</b>	<b>0.15</b>	<b>0.30</b>	<b>max.</b>	<b>0.06</b>	<b>balance</b>
	<b>1.05</b>	<b>0.25</b>	<b>0.50</b>	<b>0.035</b>	<b>0.07</b>	

<b>EXECUTION DELIVERY FORM STANDARD SIZES AVAILABILITY</b>	<ul style="list-style-type: none"> <li>Execution in 3 m (2 m) round bars as well as in coils</li> <li>Standard size in stock: see <a href="#">Product range</a></li> <li>Other sizes on request</li> </ul>
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<b>TOLERANCES</b>	<ul style="list-style-type: none"> <li><math>\varnothing &lt; 2.00</math> mm, cold drawn, polished; ISO <b>h7</b></li> <li><math>\varnothing \geq 2.00</math> mm, cold drawn, ground, polished; ISO <b>h7</b>; surface finish N5/N6</li> <li>Coil; ISO <b>fg7</b></li> <li>Tighter tolerances (up to +/- 0.002 mm) on request</li> </ul>
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<b>MECHANICAL PROPERTIES</b>	At delivery status: <ul style="list-style-type: none"> <li>Tensile strength (<math>R_m</math>): <b>650 – 900 MPa</b>, size depending</li> <li>Hardness after tempering: <b>64/66 HRC</b></li> </ul>
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<b>HEAT TREATMENT</b>	<ul style="list-style-type: none"> <li>Tempering in:               <ul style="list-style-type: none"> <li>a) oil at <math>\varnothing &lt; 5.00</math> mm: 800 – 820 °C</li> <li>b) water at <math>\varnothing &gt; 5.00</math> mm: 780 – 800 °C</li> </ul> </li> </ul> (Annealing as required see charts)
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<b>CUTTING RATES</b>	<b><math>v_c \sim 20 - 40</math> m/min</b> , value depending on the lubrication oil, cutting tools and shape of parts <ul style="list-style-type: none"> <li>Cutting oil: e.g. SX15 of Motorex</li> </ul>
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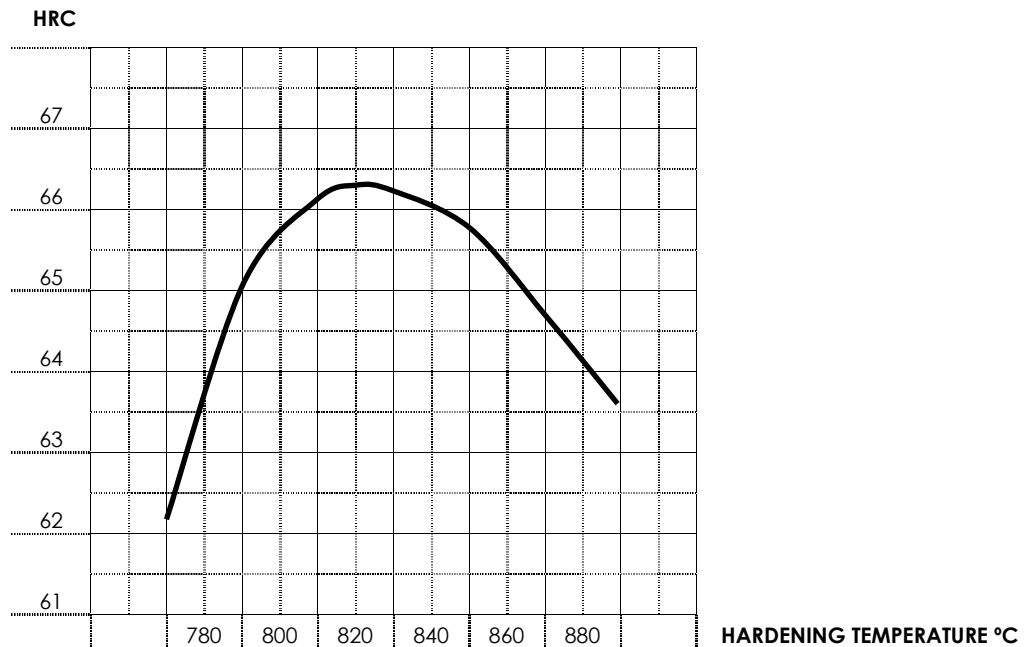
Modifications will not be adjusted automatically

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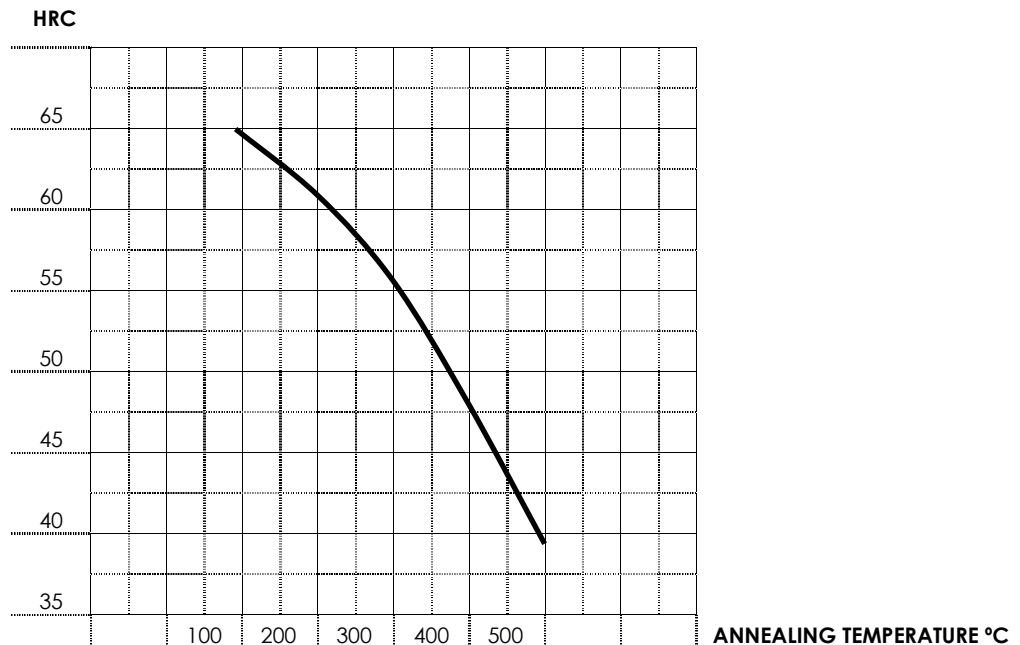
1.1268

## HARDENING CURVE



## ANNEALING CURVE

1/2 hour



If you harden in oil, we recommend to not pass over the annealing temperature of 820 °C to avoid cracks. The water should be pre-heated at about 50 °C. The above curves indicate the results of determinate section of a certain size of 5 mm. The result after heat treatment can be slightly different than shown on this curve, depending on the shape and size of the part.

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