

LAW 100 Pb

Free Cutting High Carbon Steel

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

Distinctive feature & main attribute: a temperable, unalloyed free cutting steel, singling out by one of the highest elastic limit and fatigue values, offering maximum surface hardness with high strength and wear resistance. It is particularly suitable for high quality intricate shapes that cannot be formed by pre-tempered steel. Generally used where hardening and tempering after forming is requested, but fatigue values and elastic limits are not critical.

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 edge tools, wear-resistant parts, high-stress flat or hot coiled springs, plow beams and shares, scraper blades, disc, mover knives, harrow teeth, blades, hand tools, bushings, drills, hay rake teeth and shims.

REFERENCE ANALYSIS %	C	Si	Mn	P	S	Pb	Fe
		0.90 1.05	0.15 0.25	0.60 0.80	max. 0.04	0.05 0.07	0.15 0.25

EXECUTION DELIVERY FORM STANDARD SIZES AVAILABILITY	<ul style="list-style-type: none"> • Execution in 3 m (2 m) round bars as well as in coils • Standard size in stock: see Product range • Other sizes on request
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TOLERANCES	<ul style="list-style-type: none"> • $\varnothing < 2.00$ mm, cold drawn, polished; ISO h7 • $\varnothing \geq 2.00$ mm, cold drawn, ground, polished; ISO h7; surface finish Ra 0.4 (N5/N6) • Coil; ISO fg7 • Tighter tolerances (up to +/- 0.002 mm) on request
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MECHANICAL PROPERTIES	At delivery status: <ul style="list-style-type: none"> • Tensile strength (R_m): 650 – 900 MPa, size depending • Hardness after tempering: 64/66 HRC
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HEAT TREATMENT	<ul style="list-style-type: none"> • Tempering in: <ul style="list-style-type: none"> a) oil at $\varnothing < 5.00$ mm: 800 – 820 °C b) water at $\varnothing > 5.00$ mm: 780 – 800 °C (Annealing as required see charts)
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CUTTING RATES	<ul style="list-style-type: none"> • $v_c \sim 50 - 70$ m/min, value depending on the lubrication oil, cutting tools and shape of parts. • Cutting oil: e.g. SX15 of Motorex
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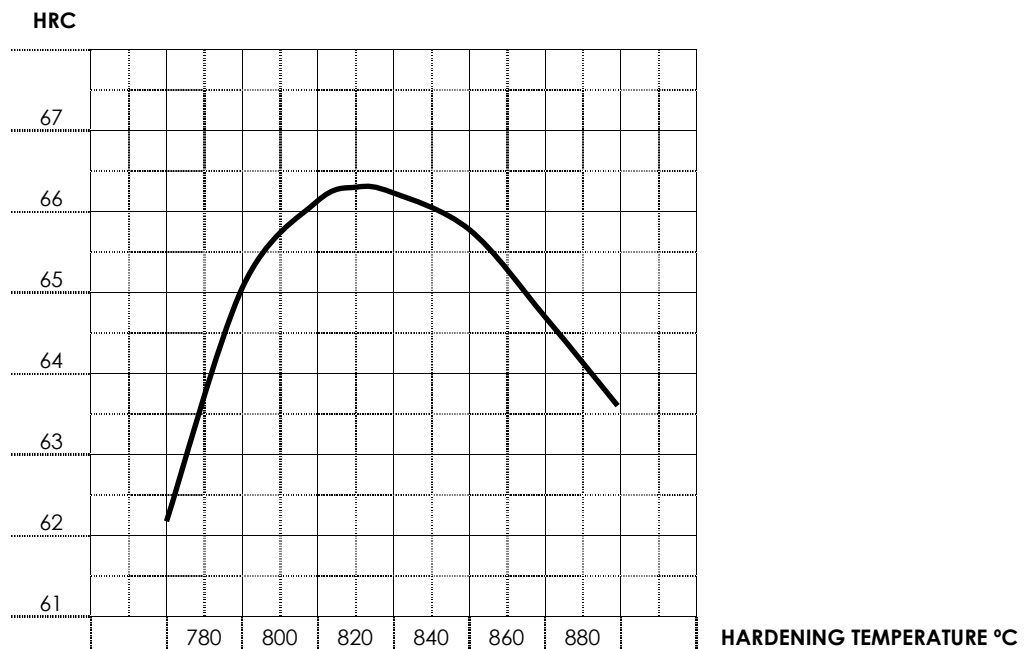
Modifications will not be adjusted automatically

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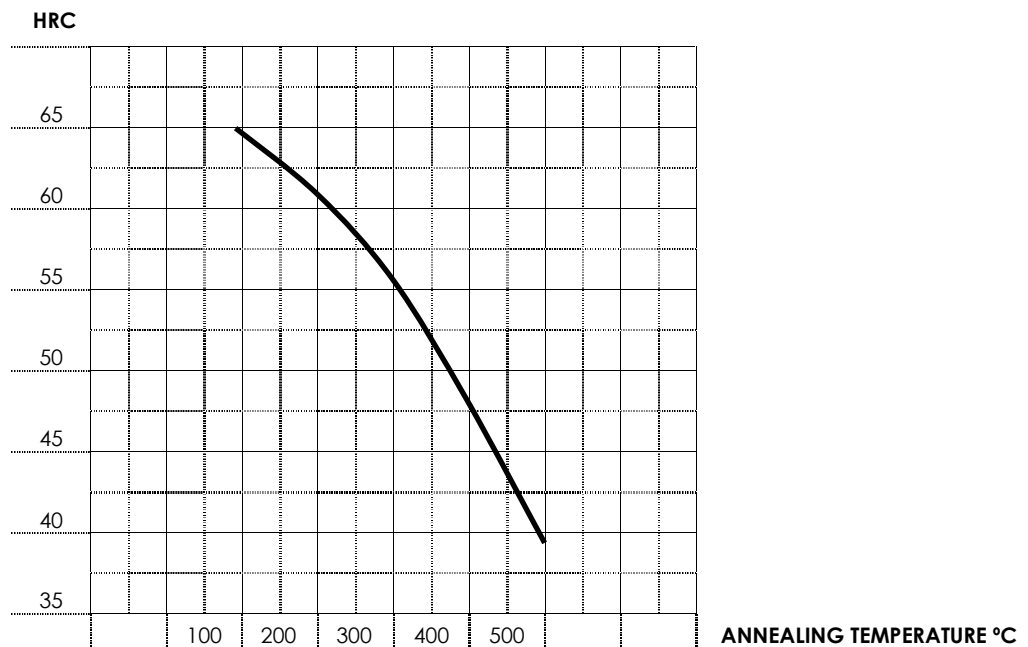
~ 1.1268

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 curtain 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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