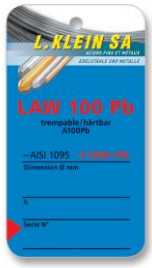

LAW 100 Pb

Free Cutting High Carbon Steel

Distinctive feature & main attribute

A temperable, unalloyed free cutting steel, with exceptionally high elasticity 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 material is specially designed for small high precision parts in the watch industry 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, discs, mover knives, harrow teeth, blades, hand tools, bushings, drills, hay rake teeth and shims.

Material No. and norms

Material No.	~ 1.1268+Pb
DIN Abbreviation	Mh 97
AFNOR	
AISI/SAE/ASTM	AISI ~ 1095
ISO	
Euro Standard EN	Mh97
IMDS	4472299

Reference analysis %

C	Si	Mn	P	S	PB	Fe
0.90	0.15	0.60	max.	0.05	0.15	balance
1.05	0.25	0.80	0.04	0.07	0.25	

Execution, delivery form, standard sizes and availability

- Execution in 3 m (2 m) round bars as well as coils
- ROHS compliant
- Standard size in stock: see Product range
- Other sizes on request

Tolerances

- Ø < 2.00 mm, cold drawn, polished; ISO h7
- Ø ≥ 2.00 mm, cold drawn, ground, polished; ISO h7 (h6)
- Coil, cold drawn; ISO fg7
- Tighter tolerances (up to +/- 0.001 mm) on request
- Surface finish for bars ≤ 0.4 (N5)
- Bar straightness max. 0.4 mm/m

Mechanical properties

At delivery status:
- Tensile strength (Rm): 700 – 925 MPa, depending on size
- Hardness after tempering: 64/66 HRC

Crack detection bars

Eddy-current crack tested DIN/EN 10277-1 detected depth error < 0.1 mm
- Ø ≥ 2.00 mm Class 4

Heat treatment

- Tempering oil Ø < 5.00 mm: 800 – 820°C
- Tempering water Ø > 5.00 mm: 780 – 800°C
- Annealing as required see charts

Cutting rates

vc ~ 50 – 70 m/min, value depending on the lubrication oil, cutting tools and shape of parts.

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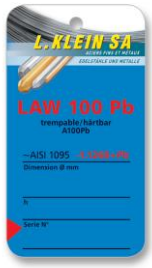
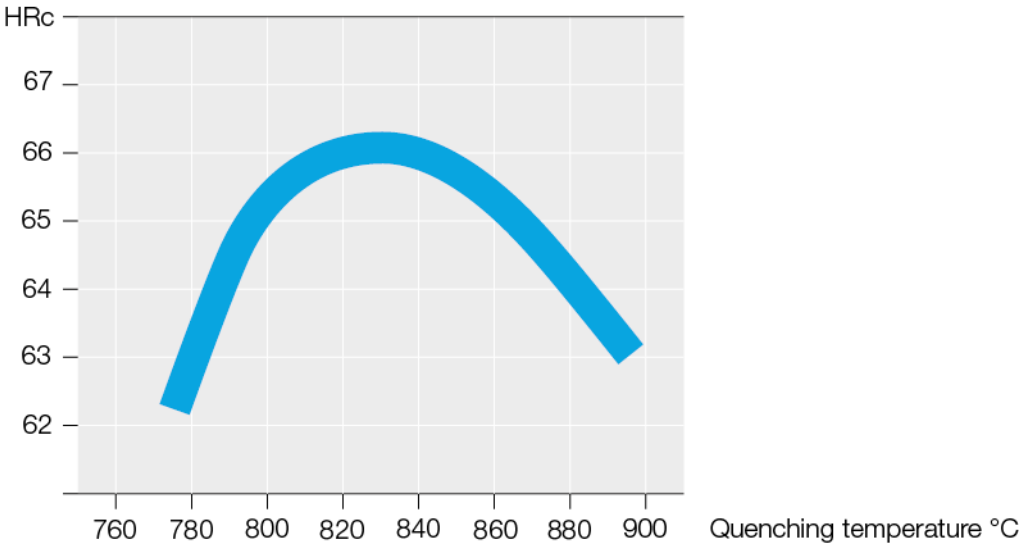


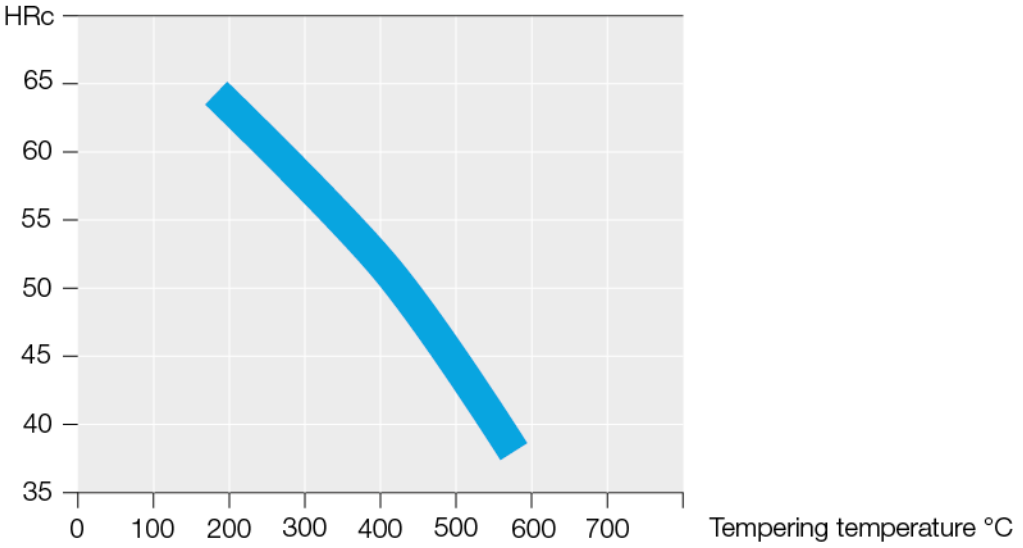
LAW 100 Pb

Free Cutting High Carbon Steel

HARDENING CURVE



ANNEALING CURVE
30 minutes



When hardening in oil, we recommend not passing over the annealing temperature of 820°C in order to avoid cracks. The water should be pre-heated to about 50°C. The above curves are limited to sizes of approximately 5 mm. The result after heat treatment can be slightly different than shown on this curves, depending on the shape and size of the part.

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