



CHRONIFER®
M-15KL
martensitic
Hardenable Stainless Steel

Material No.	DIN Abbreviation	AFNOR	AISI/SAE/ASTM	ISO	Euro Standard EN	Others
1.4123	X40CrMoVN16-2	X40CrMoVN16.2 (alt Z 40 CDV 16.02)	AISI 420 MOD ASTM F899		X40CrMoVN16-2	NF S 94-090

Distinctive feature & main attribute: a temperable stainless chromium steel alloy added with nitrogen, precedingly refined by an electroslag remelting process (ESR), characterized by its higher corrosion resistance than 1.4112 or 1.4125 and high hardness after heat treatment (five different treatments are possible, depending on the application), with an excellent aptitude to cutting tools.

Use & application range: this alloy meets the requirement of medical instruments such as milling cutter, die, drill bit or ball bearing, knives and cutlery.

REFERENCE ANALYSIS %	C	Si	Mn	P	S	Cr	Mo	Ni	N	V	Fe
		0.37 0.45	max. 0.60	max. 0.60	max. 0.02	max. 0.005	15.00 16.00	1.50 1.90	max. 0.50	0.16 0.25	0.20 0.40

EXECUTION DELIVERY FORM STANDARD SIZES AVAILABILITY	<ul style="list-style-type: none"> • Execution in approximately 3 m round bars • Standard size in stock: see Product range • Other sizes on request
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TOLERANCES	<ul style="list-style-type: none"> • Ø < 25.00 mm; ISO h6 • Ø ≥ 25.00 mm; ISO h6 • Tighter tolerances on request
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MECHANICAL PROPERTIES	At delivery status: <ul style="list-style-type: none"> • Tensile strength (R_m): Ø ≤ 16 mm ~ 850 MPa Ø > 16 mm max. 245 HB
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HEAT TREATMENT	<ul style="list-style-type: none"> • Annealing: 840 °C, slow cooling in air • Tempering: 1010 – 1050 °C, under neutral atmosphere (Annealing as required see chart)
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CUTTING RATES	$v_c \sim 20 - 30 \text{ m/min}$, value depending on the lubrication oil, cutting tools and shape of parts. <ul style="list-style-type: none"> • Cutting oil: e.g. ORTHO NFX of Motorex
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Modifications will not be adjusted automatically

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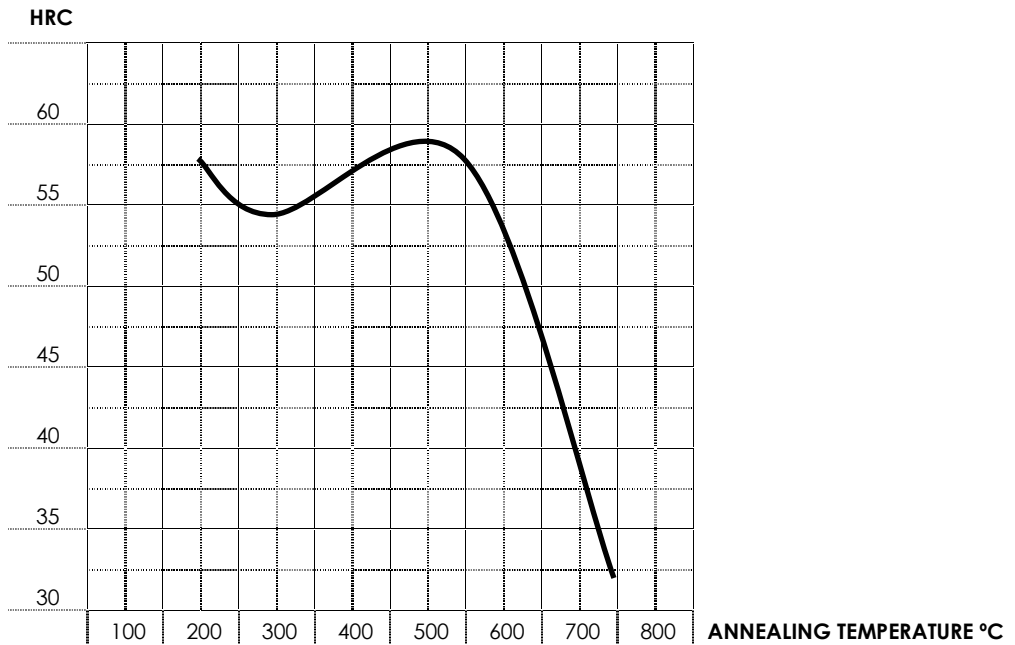
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ANNEALING CURVE

depending on the requested hardness



TEMPERATURE 1010 °C, TEMPERING IN OIL
(size approximately 10 mm)

Modifications will not be adjusted automatically

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