



Phynox<sup>©</sup>KL  
**austenitic**  
**Stainless Superalloy**  
**Cobalt-Chromium Base**

Material No.	DIN Abbreviation	AFNOR	AISI/SAE/ASTM	ISO	Euro Standard EN	Others
2.4711	K13C20N126Fe15D7	K13C20N126e15D7	ASTM F1058	5832-7		UNS R3003 UNS R3008

Distinctive feature & main attribute: a cobalt-chromium-nickel based superalloy, combining high strength and ductility, applicable for welding, non-magnetic with mechanical properties of superior strains and a phenomenal corrosion resistance in numerous environments. It can be used in a greatly large temperature range (-269 °C to +500 °C) according to ASTM F-1058 and ISO 5832-7 standard. It has also an excellent fatigue life.

Use & application range: this quality's areas include surgical springs, implants and medical devices such as artificial pacemaker electrodes, components for watches, petro-chemical application furthermore aero-space and marine engineering.

REFERENCE ANALYSIS %	C	Si	Mn	P	S	Cr	Mo	Ni	Co	Be	Fe
	max. 0.15	max. 1.20	1.50 2.50	max. 0.015	max. 0.015	19.00 21.00	6.50 7.50	15.00 18.00	39.00 41.00	max. 0.001	balance

<b>EXECUTION DELIVERY FORM STANDARD SIZES AVAILABILITY</b>	<ul style="list-style-type: none"> <li>Execution in 3 m round bars well as in coils for Escomatic</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>High precision cold drawn, polished; ISO <b>h8 (h6)</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:			
		Annealed	Strain aged at 30 %	Age hardened
	<ul style="list-style-type: none"> <li>Tensile strength (<math>R_m</math>):</li> <li>Yield strength (<math>R_e</math>):</li> <li>Elongation A (<math>\epsilon</math>)</li> </ul>	950 MPa 450 MPa 65 %	1450 MPa 1300 MPa 8 %	1650 MPa 1400 MPa 1 %

<b>HEAT TREATMENT</b>	The tensile strength rises up during the drawing process by cold work rate. An increased hardness by age hardening heat treatment at max. 520 °C/2 – 3 h is possible. The combination of cold work rate and annealing enables to regulate the requested strength of product (see chart).
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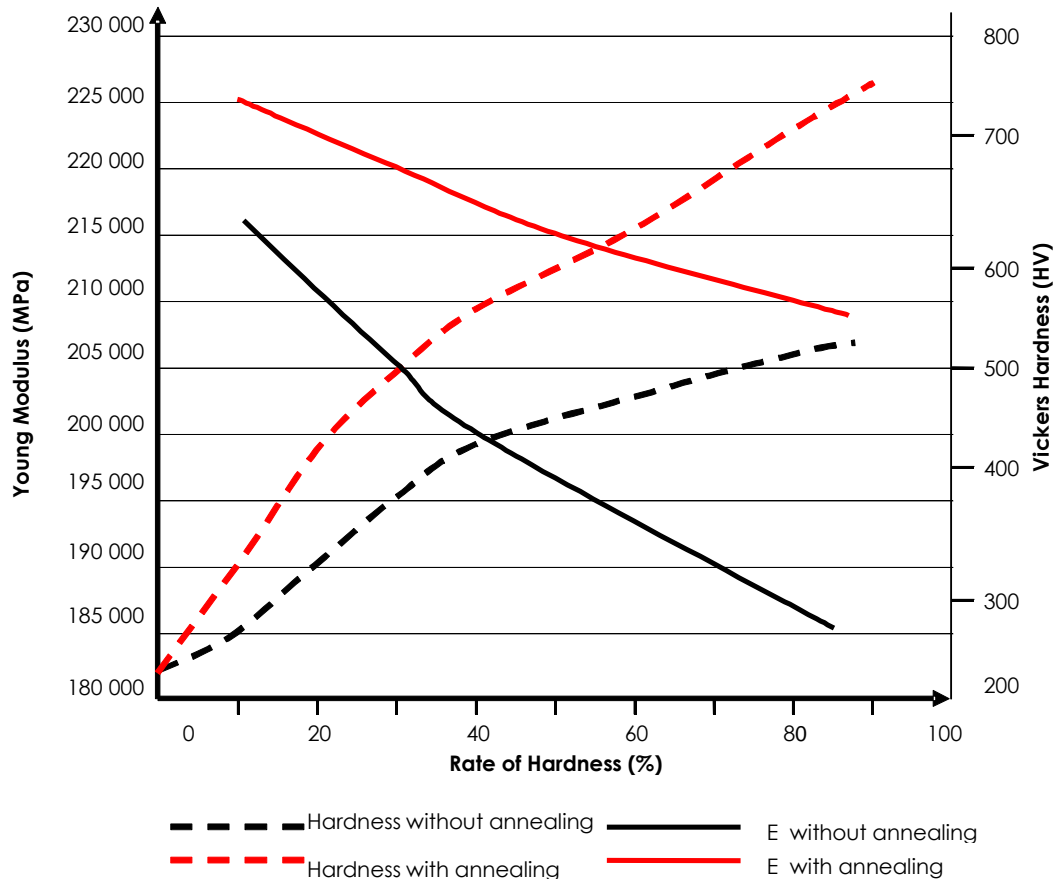
<b>CUTTING RATES</b>	<p><math>v_c \sim 20 - 25 \text{ m/min}</math>, value depending on the lubrication oil, cutting tools and shape of parts.</p> <ul style="list-style-type: none"> <li>Cutting oil: e.g. ORTHO TX of Motorex</li> </ul>
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Modifications will not be adjusted automatically

Last update 11/2011  
Volume no. 4  
Page 1/2

## CHART

## INFLUENCE DUE TO A COMBINATION OF COLD DRAWN &amp; ANNEALED PROCESS



These above curves indicate the results of determinate section of a curtain size. The result after heat treatment can be slightly different than shown on this curve, depending on the shape and size of the part.