



LABOR

Free Cutting High Carbon Steel

Material No.	DIN Abbreviation	AFNOR	AISI/SAE/ASTM	ISO	Euro Standard EN	Others
1.0729 (1.0759) A 60	70S20 (70S20K)				70S20 (70S20K)	

Distinctive feature & main attribute: an unalloyed free cutting mild steel, added with lead and sulphur, showing an excellent machinability.

Use & application range: this quality is specially designed for the production of parts of delicate use such as automotive, watch and micro-motor industries, mechanical constructions, jig construction or settings.

REFERENCE ANALYSIS %	C	Si	Mn	P	S	Fe
		0.65 0.75	0.10 0.40	0.50 0.90	max. 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

TOLERANCES	
	<ul style="list-style-type: none"> • $\varnothing < 2.00$ mm, cold drawn, polished; ISO h8 • $\varnothing \geq 2.00$ mm, cold drawn, ground, polished; ISO h8; surface finish N5/N6

MECHANICAL PROPERTIES	
	At delivery status: <ul style="list-style-type: none"> • Tensile strength (R_m): 650 – 900 MPa • Hardness after tempering: 63/65 HRC

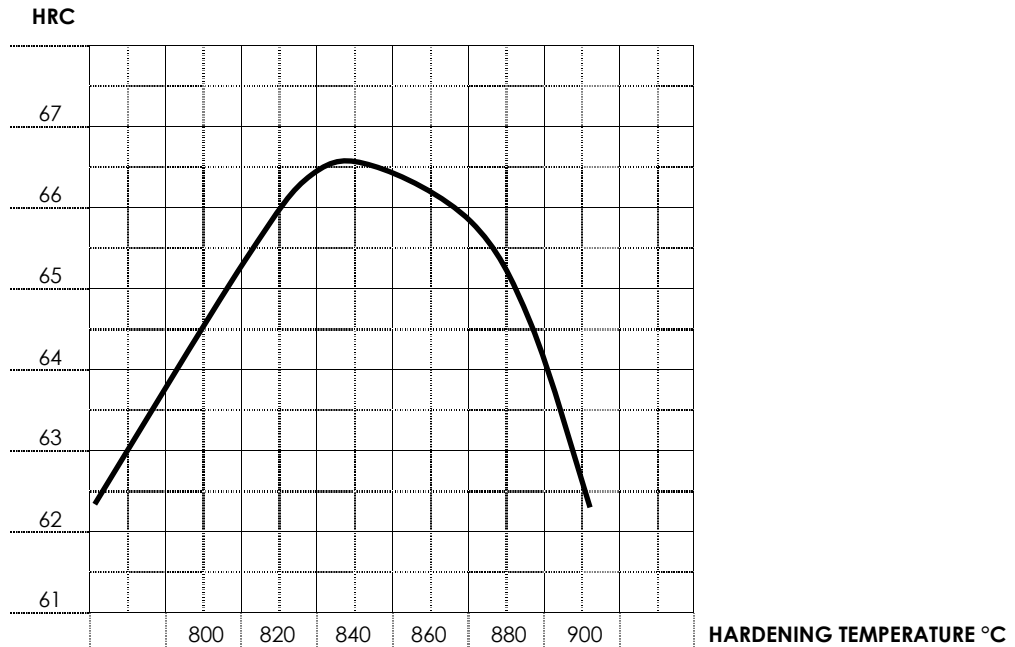
HEAT TREATMENT	
	<ul style="list-style-type: none"> • Tempering in: <ul style="list-style-type: none"> a) oil at $\varnothing < 5.00$ mm: 810 – 830 °C b) water at $\varnothing > 5.00$ mm: 790 – 810 °C • Soft annealing: 660 – 700 °C, to achieve $R_m \sim 600$ MPa/mm² (Annealing as required see charts)

CUTTING RATES	
	$v_c \sim 20 - 50$ m/min, value depending on the lubrication oil, cutting tools and shape of parts. <ul style="list-style-type: none"> • Cutting oil: e.g. INOX of Motorex

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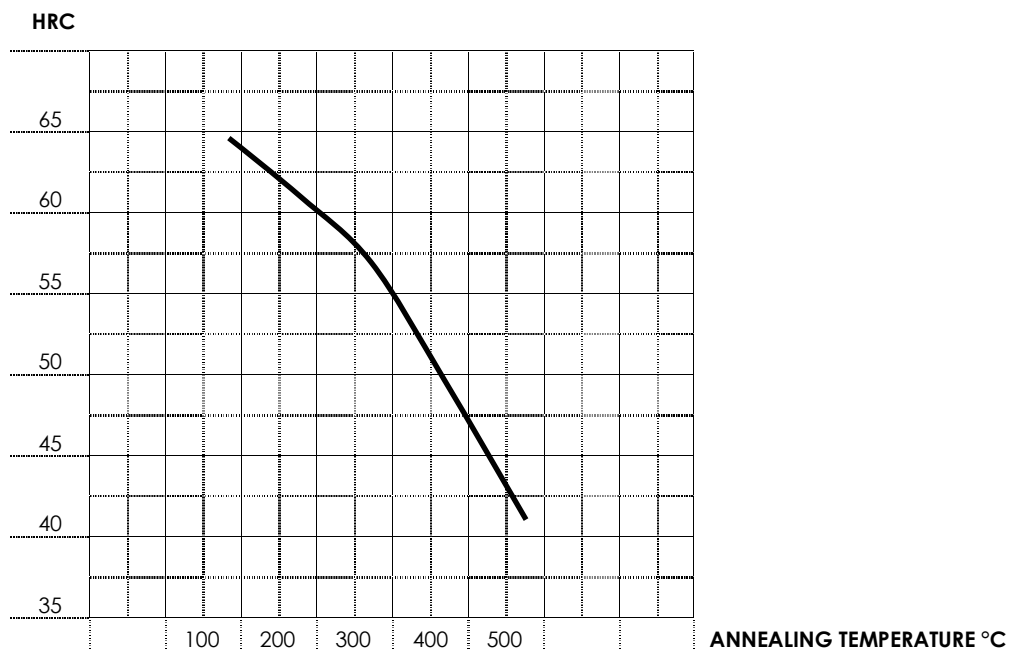
1.0729
(1.0759)

HARDENING CURVE



ANNEALING CURVE

½ hour



If your 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.

Modifications will not be adjusted automatically

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