



ATT 2344 (2344 ISO-B)

CHEMICAL ANALYSIS (PERCENTAGE BY MASS)

	C	Si	Mn	P	S	Cr	Mo	V
Guide analysis	0.40	1.05	0.40	0.025	0.003	5.20	1.40	1.00
Standard	0.35 - 0.42	0.80 - 1.20	0.25 - 0.50	≤ 0.030	≤ 0.020	4.80 - 5.50	1.20 - 1.50	0.85 - 1.15

CHARACTERISTICS

CrMoV alloyed hot work steel with double V content compared with grade 1.2343. Very good tempering properties, good toughness, good hardness at elevated temperatures, very good compressive strength, insensitive to thermal shock. Better wear resistance compared with grade 1.2343. Good machinability in annealed state. Can be cooled in water with limitations.

SEL	X40CrMoV5-1
DIN EN ISO 4957	X40CrMoV5-1
AFNOR	Z40CDV5
AISI	H13
BS	BH13

APPLICATION

Extrusion tools including pipe extruders: highly stressed mould inserts, dummy blocks, extrusion stems, die holders, stem heads; especially for profile dies, insert and bridge type tools for compacting light alloys, liners and line holders.

Highly stressed plastic moulds, mould inserts with abrasive stress, as occurs when processing thermosetting plastics, thermoplastics and composite materials.

Die-casting moulds and mould inserts, sliders, cores, ejectors and filling sleeves.

DELIVERED CONDITION

Annealed to max. 229 HB

Hardened and tempered to customer specification on request.

PHYSICAL PROPERTIES

Thermal Conductivity (W/m.K) at	20°C	250°C	500°C
	23.0	25.0	27.0
Thermal Expansion (µm/m) from 20°C to	100°C	250°C	500°C
	10.5	11.3	12.1
Young's modulus (GPa)	20°C	250°C	500°C
	210	195	172

HIGH TEMPERATURE YIELD STRENGTH

Hardened and tempered state	0.2 % yield strength in MPa at temperature			
	450°C	500°C	550°C	600°C
~ 1750 MPa	1040	920	740	540
~ 1370 MPa	960	820	640	440
~ 1230 MPa	810	680	520	370

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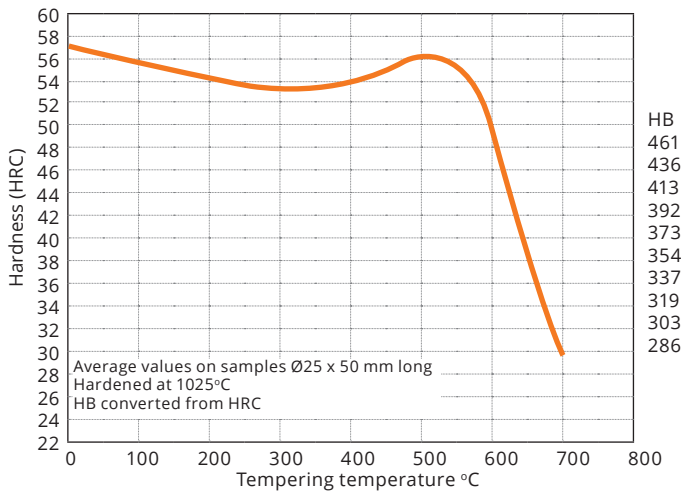


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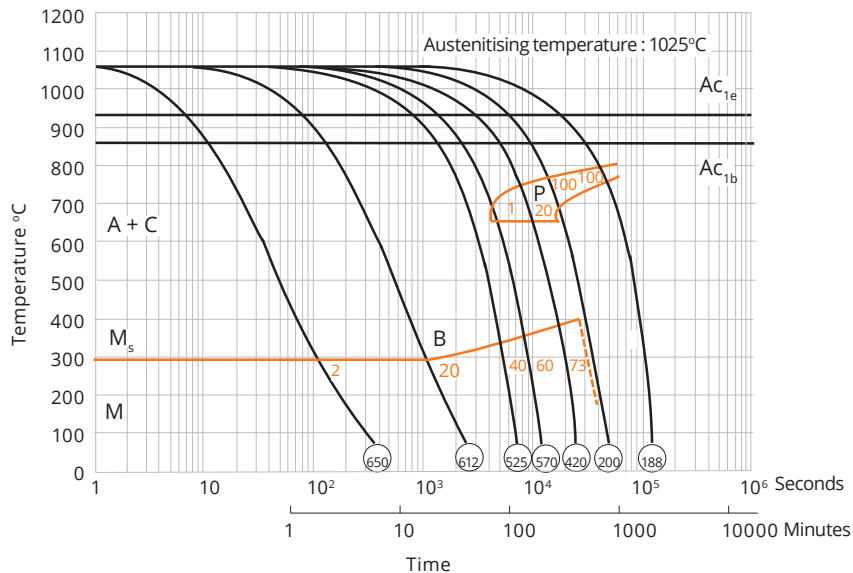
HEAT TREATMENT

Stress relieving	Temperature	Approx. 650°C in the annealed state Approx. 550°C in the hardened and tempered state
	Duration	1 hour per 50 mm wall thickness
	Cooling	Furnace
Soft annealing	Temperature	820°C
	Duration	1 hour per 25mm wall thickness
	Cooling	Furnace
Hardening	Temperature	1025°C
	Duration	30 seconds per mm wall thickness
Quenching hardness	Max. 56 HRC	in oil, hot bath or vacuum
	Temperature	See tempering curve
Tempering	Duration	1 hour per 25 mm wall thickness
	Cooling	Air
Working hardness	30-50 HRC	

Tempering curve



TTT curve (continuous)



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