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XPM VICTORY ESR

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Electro-slag-remelting (ESR)

GENERAL:

- uniform hardness across the cross-section
- very high purity level
- best homogeneity
- high gloss polishing
- good machinability
- good able to nitride
- very good chrome plating
- good wear resistance
- greatly increased thermal conductivity
- improve weldability in comparison to 1.2738
- good toughness

APPLICATIONS:

- die steel for plastic moulds with very high requirements on the surface
- Headlamps, rearview mirror, lamps, trims
- moulds for TV housings and rear walls, copier housings

CHEMICAL ANALYSIS: %

C	Si	Mn	P	S	Cr	Mo	Ni	special elements
0,23 - 0,29	≤ 0,40	1,40 - 1,70	≤ 0,015	≤ 0,002	1,20 - 1,80	0,30 - 0,70	0,90 – 1,20	added

PHYSICAL PROPERTIES:

Coefficient of thermal expansion	20-100 °C [10 ⁻⁶ m/(m x K)]	20-200 °C [10 ⁻⁶ m/(m x K)]	20-300 °C [10 ⁻⁶ m/(m x K)]	20-400 °C [10 ⁻⁶ m/(m x K)]	20-500 °C [10 ⁻⁶ m/(m x K)]
	11,8	12,5	13,1	13,5	14,8
Thermal conductivity	20 °C [W/(m x K)]	250 °C [W/(m x K)]	500 °C [W/(m x K)]		
	37,2	41,0	39,2		

ULTRASONIC:

ASTM A388 - FBH max. 3 mm (1/8 inch) or SEP 1921 – test group 3 – class E, e

CLEANLINESS:

ASTM E45- Method A with type A ≤ 0,5 ,B; C and D each ≤ 1,0 or
DIN 50602– K1 ≤ 10 or acc. to your request

DELIVERY CONDITION:

hardened and tempered

SERVICE HARDNESS:

38 – 42 HRC or acc. to your request

STRUCTURE:

fine bainitic structure



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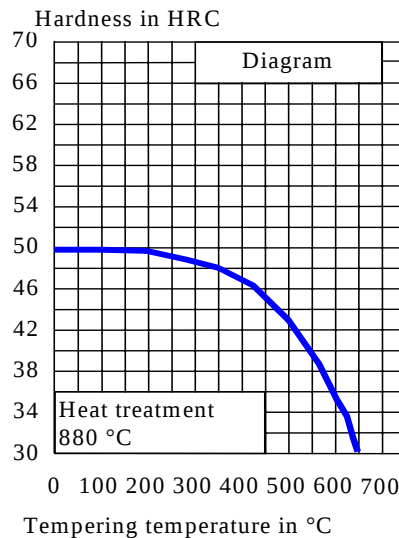
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HEAT TREATMENT:

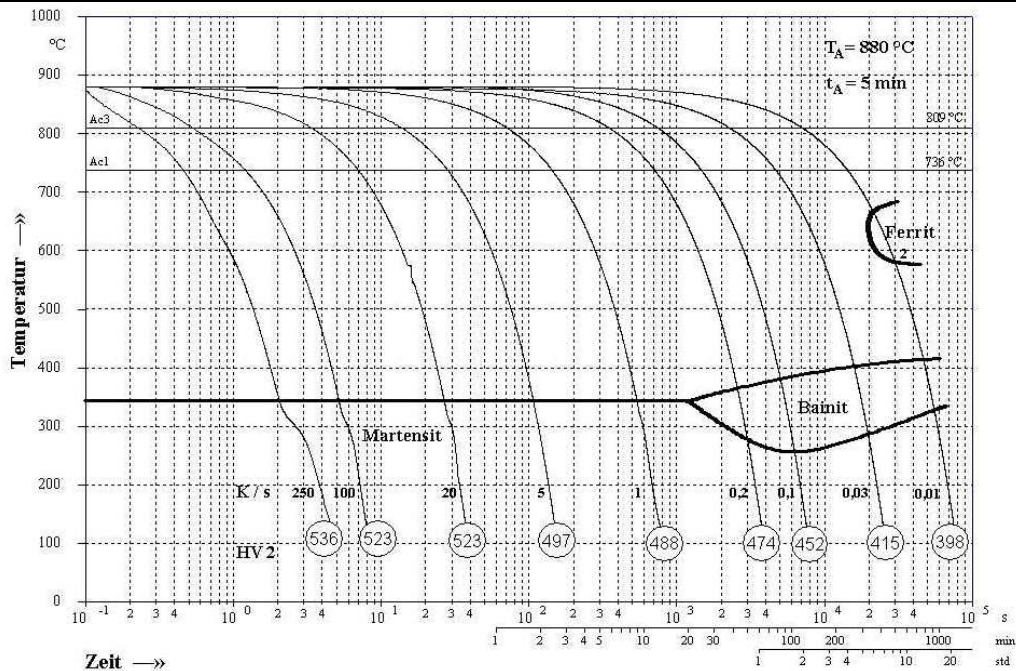
Hot forming	Soft annealing	Hardening	Tempering
1100 - 850°C	710 - 740°C	870 - 890°C	540 – 650°C #

TEMPERING DIAGRAMM:

values in HRC
tested on samples dia. 25 x 50 mm long
hardened at 880 °C in oil



CCT GRAPH:



DELIVERY SIZES:

Blocks – up to 1000 mm thickness



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Cutting values - scrub-, face milling

Mentioned values: V_c in m/min.

			1.2738	XPM	
			hardened and tempered	hardened and tempered	
			30-34 HRC	32-36 HRC	36-40 HRC
scrub milling ¹	HSS	+	*	*	
		-	*	*	
	hard metal Uncoated	P25 +	** (100)	** (120)	105
		P35 -	** (85)	** (100)	85
	hard metal Coated	P25 +	150	180	160
		P35 -	120	140	120

face milling ²	HSS (1.3234) fz = max. 0,1 mm		+	20	20	20
			-	12	12	12
	hard metal Uncoated	P25	+	** (160)	** (210)	170
		P35	-	** (130)	** (170)	120
	hard metal Coated	K15	+	220	270	230
		P25	-	220	260	220
	hard metal Cerment	P15	+	270	320	270
			-	*	*	

Legend:

* not to recommend

** The application of coated hartmetal will be recommended. If not, the mentioned values are valid.

¹ advance per cog (fz) = 0,1 - 0,3 mm and relation of milling width to tool diameter < 3/4

² advance per cog (fz) = 0,03 - 0,3 mm and relation of milling width to tool diameter = 1/10

Hint:

At tool diameter > 70 mm the cutting speed has to be reduced by factor 0,7!