



EDELSTAHL GMBH J.P. SCHUMACHER

SPECIAL STEEL * BARS * BLOCKS * FORGINGS



W.1.2344 VICTORY ESR

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Electro-slag-remelting (ESR)

GENERAL

- Uniform and high level of machinability and polishability
- High level of toughness and ductility
- Good resistance to abrasion at both low and high temperatures
- Excellent through-hardening properties
- Good high-temperature strength and resistance to thermal fatigue
- Very limited distortion during hardening.
- isotropic properties compared to conventionally produced steelgrades
- Excellent toughness and ductility in all directions

APPLICATIONS

Moulds for:

- tools for die casting (dies, fixed inserts, cores, nozzles, nitrided ejector pins, nitrided shot-sleeves)
- tools for extrusion (dies, dieholders, liners, dummy blocks)
- tools for hot pressing (Aluminium, Magnesium, Copper Alloys)
- moulds for plastics (injection moulds)
- parts for severe cold punching, scrap shears, hot shearing, shrink rings, wear resisting parts

CHEMICAL ANALYSIS %

C	Si	Mn	P	S	Cr	Mo	V
0,38 - 0,42	0,8 - 1,2	0,3 - 0,5	≤ 0,025	≤ 0,005	4,8 - 5,5	1,2 - 1,5	0,9 - 1,1

PHYSICAL PROPERTIES :

Coefficient of thermal expansion [10 ⁻⁶ m/(m x K)]	20-100° C	20-200° C	20-300° C	20-400° C	20-500° C	20-600° C	20-700° C
	10.9	11.9	12.3	12.7	13.0	13.3	13.5
Thermal conductivity [W/(m x K)]	20° C		350° C		700° C		
	20.0		23.0		26.2		

HEAT TREATMENT :

<i>Hot forming</i>	<i>Soft annealing</i>	<i>Hardening</i>	<i>Tempering</i>
1100 - 900° C	820 - 840° C	1020 - 1050° C	520 - 700° C



WARE HOUSE: PLOT NO 1442, ROAD NO 16,
 KALAMBOLI WAREHOUSING COMPLEX, KALAMBOLI, NAVI MUMBAI 410218.
 TEL: +91-22-2742 3998, 5590 3711 FAX: +91-22 5590 3712 EMAIL:ANAND_STEEL@VSNL.COM



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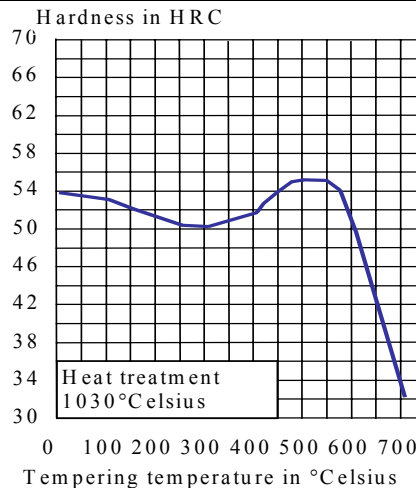


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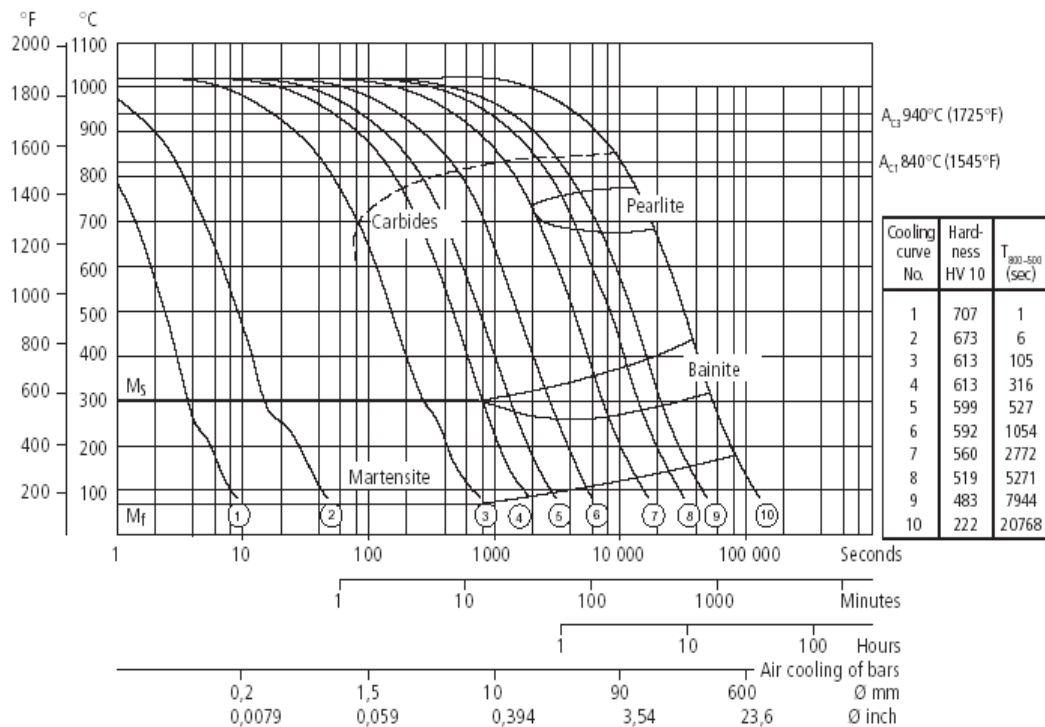
Electro-slag-remelting (ESR)

TEMPERING DIAGRAM:



CCT GRAPH :

Austenitizing temperature 1020°C (1870°F). Holding time 30 minutes.





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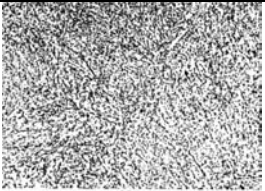
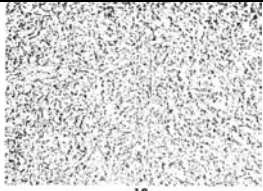
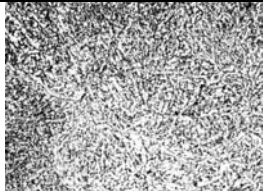
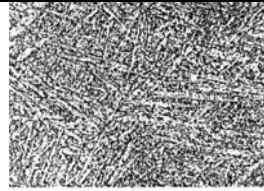
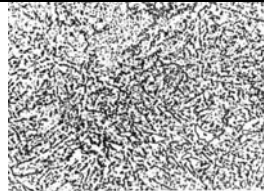

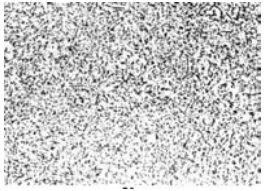
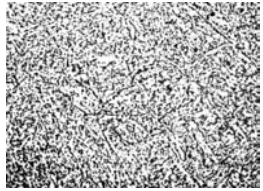
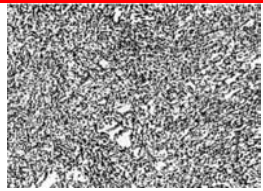
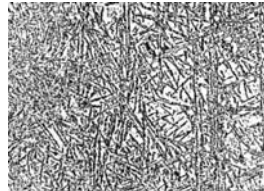
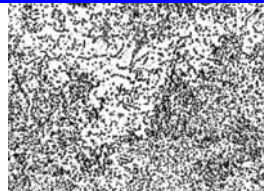
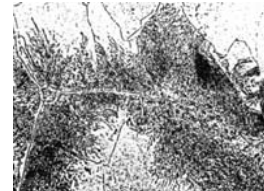

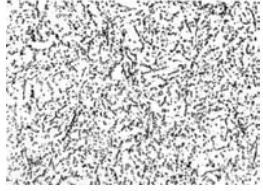




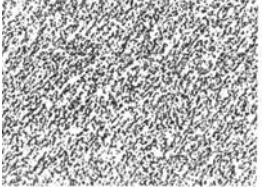



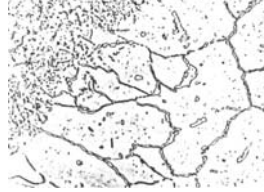


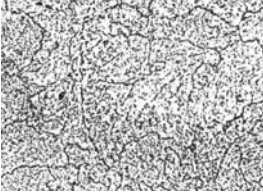



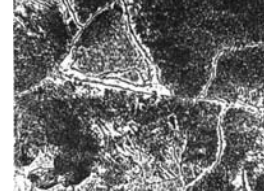


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DELIVERY CONDITION :
Soft annealed with a hardness of a maximum of 229HB or hardened and tempered acc. to your request
SERVICE STRENGTH:
30 - 55 HRC
IMPACT STRENGTH:
Unnotched test sample 10x7x55 [mm] VDG M82 Ed.02/1993 or SEP 1614 400 J/cm ² or acc. to your request
ULTRASONIC:
ASTM A388 - FBH max. 3 mm (1/8 inch) or SEP 1921 – test group 3 – class E , e or acc. to your request
CLEANLINESS:
ASTM E45- Method A with type A ≤ 0,5 , B; C and D each ≤ 1 or DIN 50602– K1 ≤ 10 or acc. to your request
STRUCTURE:
fine uniform annealed structure see next page
DELIVERY SIZES:
Rounds – up to 600 mm Blocks – up to 400 mm thickness other sizes acc. request

Rating Chart for the Evaluation of Microstructure of Annealed Hot-Work Tool Steel

	GA	GB	GC	GD	GE	GF
1	 GA1	 GB1	 GC1	 GD1	 GE1	 GF1
2	 GA2	 GB2	 GC2	 GD2	 GE2	 GF2
3	 GA3	 GB3	 GC3	 GD3	 GE3	 GF3
4	 GA4	 GB4	 GC4	 GD4	 GE4	 GF4
5	 GA5	 GB5	 GC5	 GD5	 GE5	 GF5
	EFS gegläht / EFS annealed		ESU bis 400 mm / ESR up to 400 mm		ESU bis 250 mm / ESR up to 250 mm	