METALLURGICA VENETA
ACCIAI SPECIALI

1.2343

Quality	X37CrMoV5-1	Supply conditions:
According to standards	UNI EN ISO 4957: 2002	Annealed or
Number	**1.2343**	Quenched and Tempered

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	V%
0,33-0,41	0,80-1,20	0,25-0,50	0,030	0,020	4,80-5,50	1,10-1,50	0,30-0,50
± 0.02	± 0.05	± 0.04	+ 0.005	+ 0.005	± 0.10	± 0.05	± 0.04

Product deviations are allowed

Temperature °C

Hot-forming	Quenching	Tempering see table	Stress-relieving	Stress-relieving must be done after machining and before quenching
1050-900	heating up to 800, pause, then 1000-1040 oil, polymer, s.b.	immediately after quenching minimum **2 cycles**	600-650 furnace cooling to 350 after, air	

Soft annealing	Stress-relieving [1]	Pre-heating welding	Stress-relieving after welding
800-810 furnace cooling max 25°/h to 600, then air (HB max 229)	50° under the temperature of tempering	350	[1]

Ac1	Ac3	Ms	Mf
830	890	310	80

s.b. = salt bath (450-500 °C)

Mechanical properties

Tempering table after quenching at 1020 °C in oil. Values on test Ø 20 mm

HB	543	525	518	512	512	518	534	550	568	577	512	432	362	286
HRC	54	53	52.5	52	52	52.5	53.5	54.5	55.5	56	52	46	39	30
R N/mm²	2010	1950	1915	1880	1880	1915	1980	2040	2115	2160	1880	1520	1220	950
Tempering at **°C**	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**650**	**700**

Thermal expansion	$10^{-6} \bullet K^{-1}$			11.5	12.0	12.2	12.5	12.9	13.0		13.2
Modulus of elasticity	long.	GPa	215				183	176	165		
Modulus of elasticity	tang.	GPa	82				70	68	63		
R hardened and tempered for		N/mm²	**1600**			1400	1300	1100	800	600	
Rp 0.2		N/mm²	1450			1200	1100	900	600	400	
R hardened and tempered for		N/mm²	**1200**			1120	1000	850	580	400	
Rp 0.2		N/mm²	1060			900	800	650	420	250	
Testing at		**°C**	**20**	**100**	**200**	**300**	**400**	**500**	**600**	**650**	**700**

Testing at **C**	Specific heat capacity	Density	Thermal conductivity	Specific electric resist.	Electrical conductivity
	J/(Kg•K)	Kg/dm³	W/(m•K)	Ohm•mm²/m	Siemens•m/mm²
20	460	7.80	25.0	0.52	1.92
500	550	7.64	28.5	0.86	1.16
600	590	7.60	29.3	0.96	1.04

Chrome-molybdenum-vanadium alloyed tool steel (designed for matrix, moulds and punches for high-working temperatures)
- high resistance to thermal shock and to hot cracking
- good mechanical characteristics and toughness in hot condition
- good resistance to tempering
- very low segregation and excellent machinability
- applications: *dies for aluminium die-casting, dies subject to low pressure, chill moulds for gravity casting, containers and dies for extrusion, dies for aluminium extrusion, extrusion press blocks, injection moulds*