METALLURGICA VENETA
ACCIAI SPECIALI

Certified Company

1.2714

Quality	55NiCrMoV7	Supply conditions:
According to standards	UNI EN ISO 4957: 2002	Annealed / Normalized
Number	**1.2714**	or Quenched and Tempered

Chemical composition

C%	Si%	Mn%	P% max	S% max	Cr%	Mo%	Ni%	V%
0,50-0,60	0,10-0,40	0,60-0,90	0,030	0,020	0,80-1,20	0,35-0,55	1,50-1,80	0,05-0,15
± 0.02	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.05	± 0.04	± 0.07	± 0.02

Product deviations are allowed

Temperature °C

Hot-forming	Quenching	Tempering see table	Stress-relieving	Stress-relieving must be done after machining and before quenching
1050-850	heating up to 700, pause, then 870 oil 40 °C, polymer or forced air	immediately after quenching minimum **2 cycles**	650 furnace cooling to 350, then air	

Soft annealing	Isothermal annealing	Pre-heating welding	Stress-relieving after welding
680-700 furn. cooling to 150, then air (HB max 248)	800 furnace cooling to 660, pause, then furnace cooling to 620, then air	350	650 furnace cooling

Ac1	Ac3	Ms	Mf
710	770	250	10

Mechanical properties

Tempering table

HB	634	615	595	577	243	512	482	468	442	409	390		quenching at 860 °C in oil
HRC	59	58	57	56	54	52	50	49	47	44	42		"
N/mm²	2420	2330	2240	2160	2010	1880	1760	1700	1580	1430	1340		"
HB	560		512		482		442	421	400	371	336	301	quenching at 860 °C in air
HRC	55		52		50		47	45	43	40	36	32	"
N/mm²	2070		1880		1760		1580	1480	1390	1250	1110	1010	"
Tempering to **°C**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**	**650**	

Depending on the depth of machining, the following hardness values are recommended	depth **mm**	20	50	100
	HRC	40-43	38-41	34-38

Thermal expansion	$10^{-6} \cdot K^{-1}$		12.5	13.1	13.4	13.9	14.0	14.3	14.5
Modulus of elasticity	long.	GPa	215			198	176	165	
Modulus of elasticity	tang.	GPa	82			76	68	63	
R hardened and tempered for		N/mm²	**1600**		1350	1200	1000	600	
Rp 0.2		N/mm²	1450		1150	1000	750	350	
R hardened and tempered for		N/mm²	**1200**		1100	950	700	300	
Rp 0.2		N/mm²	1040		820	700	500	200	
Testing at		**°C**	**20**	**100**	**200**	**300**	**400**	**500**	**600**	**700**

Testing at **°C**	Specific heat capacity J/(Kg•K)	Density Kg/dm³	Thermal conductivity W/(m•K)	Specific electric resist. Ohm•mm²/m	Electrical conductivity Siemens•m/mm²
20	460	7.80	25.5	0.30	3.33
500	550	7.64	25.0	0.71	1.41
600	590	7.60	24.6	0.84	1.19

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Tool steel for high-working temperatures

- good resistance to thermal shock and heat cracking
- good mechanical characteristics and toughness in hot and cold conditions, high micro-purity level, high structural homogeneity, good suitability for polishing and photo-engraving
- applications: *large-sized die blocks, moulds subject to low pressure, chill moulds for gravity casting, plastic moulds, containers and dies for extrusion, bolsters and injection moulds*