

Quality	38MnVS6	Steel for Chromium Plating	<i>Technical card</i>
According to standard	EN 10267: 1998		Lucefin Group
Number	1.1303		<i>rev. 2018</i>

Chemical composition

C%	Si%	Mn%	P% max	S%	Cr% max	Mo max	N%	V%
0,34-0,41	0,15- 0,80	1,20-1,60	0,025	0,020-0,060	0,30	0,08	0,010-0,020	0,08-0,20
+ 0.03	+ 0.05	+ 0.06	+ 0.005	+ 0.005	+ 0.05	+ 0.02	+ 0.002	+ 0.02

Product deviations are allowed

The steel must be killed

Temperature °C

Hot-forming	Thermomechanical hardening	Quenching +Q	Tempering +T	Stress-relieving +SR				
1200-1000	forced air from 1000 to 500 °C	860-890 oil or polymer	540-650 air	50° under the temperature of tempering (max 600 °C)				
Soft annealing +A	Annealing +S	Full annealing	Pre-heating welding	Stress-relieving after welding				
680-700 air	slow cooling 20-40 °C/h after hot forming (HB max 255)	880-895 furnace cooling to 660 after air	not allowed	not allowed				
			Ac1	Ac3	Ms	Mf		
			-	-	-	-		

Mechanical properties

Hot-rolled, precipitation hardening +P EN 10267: 1998 (for products in bars intended for the mechanical processing)

size mm		Testing at room temperature (longitudinal)							
from	to	R	Rp 0.2	A%	Z%	Kv +20 °C	Kv 0 °C	Kv -20 °C	HB
		N/mm ²	N/mm ² min.	min.	min.	J min.	J min.	J min.	
30	120	800-950	520	12	25	-	-	-	240-286

Forged, precipitation hardening +P EN 10267: 1998 (for hot-forged products after precipitation hardening)

size mm		Testing at room temperature (longitudinal)							
from	to	R	Rp 0.2	A%	Z%	Kv +20 °C	Kv 0 °C	Kv -20 °C	HB
		N/mm ² min.	N/mm ² min	min.	min.	J min.	J min.	J min.	min.
		800-1000	520	12	25	-	-	-	240-300

Table of tempering

HB	421	421	409	409	400	390	622	344	319	286	258	247	237
HRC	45	45	44	44	43	42	39	37	34	30	26	24	22
R N/mm²	1480	1480	1430	1430	1390	1340	1220	1140	1050	950	860	820	790
Tempering °C	50	100	150	200	250	300	350	400	450	500	550	600	650

Hardenability test, for information

mm	1,5	3	5	7	9	11	13	15	Distance from quenched end
HRC	52	46	39	38	34	28	24	22	Hardness

Thermal Expansion	10 ⁻⁶ • K ⁻¹	▶	11.1	12.1	12.8	13.5
Mod. of Elasticity	longitudinal GPa		202			
Poisson number	ν		0.28			
Specific Electric Resistivity	$\Omega \cdot \text{mm}^2/\text{m}$		0.19			
Electrical Conductivity	Siemens • m/mm ²		5.26			
Specific Heat Capacity	J/(Kg • K)		470			
Density	Kg/dm ³		7.67			
Thermal Conductivity	W/(m • K)		42.6			
°C		20	100	200	300	400

The symbol ▶ indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C ...

EUROPE	ITALY	SPAIN	GERMANY	FRANCE	U.K.	SWEDEN	USA
EN	UNI	UNE	DIN	AFNOR	B.S.	SS	AISI/SAE
38MnVS6	38MnVS6	38MnVS6	1.1303	38MnVS6	38MnVS6	38MnVS6	1132