

Quality	20MnVS6	<i>Technical card</i>
According to standard	Werkstoff	<i>Lucefin Group</i>
Number	(appr. 1.5217)	

Chemical composition

C%	Si%	Mn%	P% max	S%	Cr% max	Mo% max	Ni% max	Al%	V%
0,16-0,22	0,15- 0,45	1,30-1,70	0,025	0,020-0,040	0,50	0,15	0,30	0,020-0,050	0,10-0,20

Temperature °C

Hot-forming	Normalizing	Quenching	Quenching	Tempering	Stress-relieving		
1100-850	900 air	880-930 oil or polymer	870-920 water	550-650 air	50° under the temperature of tempering		
Carbonitriding	Carburizing	Core hardening	Induction hardening		Nitriding		
870-880 gas tempering 150-200 (HRC 60)	760-780	870-880 water immediate tempering at 150-200 air	870-925 oil or water to 150-200, then air (HRC 45-52)		490-530 (HRC 55)		
Soft annealing	Isothermal annealing	Carburizing		Pre-heating welding	Stress-relieving after welding		
690 air (HB max 210)	800 furnace cooling to 670, then air	880-920 (HRC 63)		not required	slow cooling		
				Ac1 720	Ac3 815	Ms 400	Mf 180

Mechanical properties

Hot-rolled untreated state +U

size mm		Testing (longitudinal)							
from	to	R	Rp 0.2	A%	C%	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
	25	580	450	16					172
25	80	550	420	16					159
80		530	380	16					156

Hot-rolled normalized +N

size mm		Testing (longitudinal)							
from	to	R	Rp 0.2	A%	C%	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
	25	580	450	18		40	35	27	172
25	80	550	430	18		40	35	27	159
80		530	390	18		40	35	27	156

Hot-rolled quenched and tempered +QT

size mm		Testing (longitudinal)							
from	to	R	Rp 0.2	A%	C%	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
	25	700	620	16		40	35	27	213
25	80	650	570	16		40	35	27	200
80		600	520	16		40	35	27	178

Cold-drawn untreated +C

size mm		Testing (longitudinal)							
from	to	R	Rp 0.2	A%	C%	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	for information
	32	700	620	10					213-260

Grain size ASTM E 112 Inclusions content DIN 50602 Corrosion resistance – chromium plating

5-8	K4 < 30	Chrome thickness 0,05 mm	hardness HV > 800
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EUROPE EN	ITALY UNI	CHINA GB	GERMANY DIN	FRANCE AFNOR	U.K. B.S.	RUSSIA GOST	USA AISI/SAE
	20MnVS6	20MV	appr. 1.5217 (1.8915 StE 460)	20MnVS6	GR 55C		A381

20MnVS6*Lucefin Group*

parameters		rough turning	fine turning	threading
fn	feed mm/rev	0.3 – 0.6	0.05 – 0.3	
ap	cut depth mm	2 - 5	0.2 – 2.0	
Vc	speed m/min	280 - 350	350 - 400	200 - 230
ISO	coated tool	P15 – P30	P10 – P15	P20 – P30

Specific machining recommendations of the products in steel 20MnVS6

This is generally used in the normalized or quenched and tempered conditions, and it provides good mechanical values, due partly to the presence of vanadium (micro-alloy) which gives it excellent impact strength.

Applications: *bushings, cylinders, belts conveyer, drilled-shafts, hollow-bodies, ring, pneumatic control, slip bars*