

<b>Quality</b>	<b>20MnB4</b> (19MnB4)	<b>Quenching and Tempering Steel</b>	<i>Technical card Lucefin Group rev. 2018</i>
According to standard	<b>EN 10269: 2013</b>		
Number	<b>1.5525</b>		

### Chemical composition

C%	Si% max	Mn%	P% max	S% max	Al% min	B%	
0,18-0,23	0,30	0,90-1,20	0,025	0,025	0,020	0,0008-0,0050	Product deviations are allowed
± 0.02	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.05	± 0.0005	

### Temperature °C

Hot-forming	Normalizing +N	Quenching +Q	Tempering +T	Stress-relieving +SR	Stress-relieving annealing		
1150-850	880-920 air	900-920 polymer, water	450-650 air	50 under the temperature of tempering	200 air		
Soft annealing +A	Isothermal annealing +I	Spheroidizing +AC	End quench hardenableity test	Pre-heating welding	Stress-relieving after welding		
650-700 Air (HB max 235)	880-900 cooling to 690 then air	680-700 air (HB ~ 160)	900 water	160-200	slow cooling		
				<b>Ac1</b>	<b>Ac3</b>	<b>Ms</b>	<b>Mf</b>
				723	805	417	200

### Mechanical properties

**20MnB4 1.5525** Hot-rolled mechanical properties in **quenched and tempered** condition EN 10269: 2013

size mm		Tensile strength and impact (longitudinal)							
from	to	R	Rp 0.2	A%	Z%	Kv +20 °C	Kv 0 °C	Kv -20 °C	Kv -60 °C
		N/mm <sup>2</sup>	N/mm <sup>2</sup> min.	min.	min.	J min.	J min.	J min.	J min.
	16	800-950	640	14	52	40	40	40	27

**State of supply** EN 10263-4: 2001

size mm		Untreated +U or +PE peeled		Spheroidizing +AC or +AC+PE peeled		Untreated, cold- drawn +U+C		Untreated, cold-drawn and spheroidized +U+C+AC		Spheroidized and cold-drawn +AC+C	
from	to	R max	Z min	R max	Z min	R max	Z min	R max	Z min	R max	Z min
		N/mm <sup>2</sup>	%	N/mm <sup>2</sup>	%	N/mm <sup>2</sup>	%	N/mm <sup>2</sup>	%	N/mm <sup>2</sup>	%
2	5	-	-	-	-	-	-	490	68	-	-
5	10	580	60	500	66	680	55	480	68	600	61
10	25	580	60	500	66	670	55	480	68	590	61

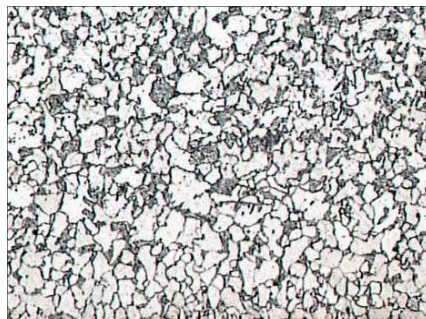
Hardenability values **Jominy in HRC** for information

distance from quenched end

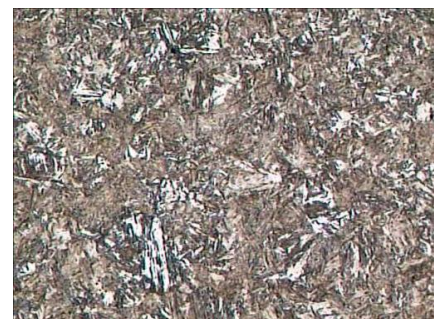
mm	1.5	3	5	7	9	10	11	12
<b>min</b>	41	40	38	30	20	-		
<b>max</b>	48	48	47	46	44	39		



Untreated material  
Structure: ferrite, sorbite and bainite x200



Spheroidized material  
Structure: ferrite and perlite x200



Quenched material  
Structure: martensite and bainite x200

EUROPE	ITALY	CHINA	GERMANY	FRANCE	UK	RUSSIA	USA
EN	UNI	GB	DIN	AFNOR	B.S.	GOST	AISI/SAE
20MnB4	19MnB4	ML20MnB	19MnB4	19MnB4	170H20	20G2R	15B21 H