Quality	**30MnB5**	**Quenching and Tempering Steel**	*Technical card*
According to standard	**ISO 683-2: 2018**		***Lucefin Group***
Number	**1.5531**		*rev. 2018*

Chemical composition

C%	**Si%** max	**Mn%**	**P%** max	**S%** max	**Cr%**	**Cu%** max	**B%**	
0,27-0,33	0,40	1,15-1,45	0,025	0,035	-	0,40	0,0008-0,005	Product deviations are allowed
± 0.02	± 0.03	± 0.06	+ 0.005	± 0.005	-	+ 0.05	± 0.0003	

Temperature °C

Hot-forming	**Normalizing +N**	**Quenching +Q**	**Tempering +T**	**Stress-relieving +SR**
1150-900	860-900 air	860-900 polymer, water	400-600 air	50 under the temperature of tempering or 180-200

Soft annealing +A	**Natural state +AR**	**Full annealing**	**End quench hardenability test**	**Pre-heating welding**		**Stress-relieving after welding**	
600-680 air		860-880 furnace	880 water	100-130		slow cooling	
				Ac_1	**Ac_3**	**Ms**	**Mf**
(HB 170 max)	(HB max 190)	(HB max 162)		720	810	370	160

Mechanical properties

30MnB5 1.5531 **Hot-rolled** mechanical properties in **quenched and tempered** condition ISO 683-2: 2018

diameter mm		tickness mm		Testing at room temperature (longitudinal)					
				R	**Re** [a]	**A%**	**Z%**	**Kv_2**	***HBW***
from	to	from	to	N/mm²	N/mm² min	min	min	J min	*for information*
	16		8	950-1150	800	13	50	-	*286-347*
16	40	8	20	800-950	650	13	50	60	*240-286*

[a] Re upper yield strength or, if no yield phenomenon occurs, $Rp_{0.2}$ has to be considered

Hot-rolled, typical mechanical properties

diameter mm		supply condition	Testing at room temperature (longitudinal)					
			R	**Re**	**A%**	**Z%**	**Kv_2**	**HBW**
from	to		N/mm²	N/mm²	min	min	J min	
	40	natural +AR	700	510	20	-	-	210 min
	40	annealing +A	550	410	21	-	-	170 max

Table of tempering values obtained at room temperature on rounds of Ø 11 after quenching at 870 °C in water

HB		442	442	432	421	400	373	327	315	286	258	237
HRC		47	47	46	45	43	40.5	35	33.5	30	26	22
R	N/mm²	1580	1580	1520	1480	1390	1270	1080	1040	950	860	790
$Rp_{0.2}$	N/mm²	-	-	1290	1230	1180	1080	940	900	810	740	670
A	%	-	-	9	9	9	10	12	14	16	18	20
C	%	-	-	42	46	51	55	58	62	66	68	68
Kv	J	-	-	28	28	28	30	36	60	80	100	110
Temper.	**°C**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**	**600**

Avoid long permanences at temperatures from 200 to 400 °C because they can cause embrittlement

ISO 683-2: 2018 **Jominy test HRC**

mm distance from quenched end

mm	**1.5**	**3**	**5**	**7**	**9**	**11**	**13**	**15**	**20**	**25**	**30**	**H**
min	47	46	45	44	42	39	36	31	22			
max	56	55	55	54	53	51	50	47	40	37	33	

Maximum diameter at a certain core hardness. Reference values

Quenching °C	Quenching water Ø mm	Quenching oil Ø mm	Core hardness HRC	Structure
880	38	30	40	80% martensite

EUROPE EN	**ITALY** UNI	**CHINA** GB	**GERMANY** DIN	**FRANCE** AFNOR	**U.K.** B.S.	**RUSSIA** GOST	**USA** AISI/SAE
30MnB5	30MnB5		23MnB4	30MB5			