METALLURGICA VENETA
ACCIAI SPECIALI

30CrNiMo8

Certified Company

Quality	30CrNiMo8
According to standards	EN 10083-3: 2006
Number	1.6580

Chemical composition

C%	Si% max	Mn%	P% max	S% max	Cr%	Mo%	Ni%
0,26-0,34	0,40	0,50-0,80	0,025	0,035	1,80-2,20	0,30-0,50	1,80-2,20
± 0.02	± 0.03	± 0.04	+ 0.005	+ 0.005	± 0.05	± 0.04	± 0.07

Deviations allowed for analysis product

Temperature °C

Hot-forming	Normalizing	Quenching	Quenching	Tempering	Stress-relieving
1050-880	870-880 air	830-860 oil or polymer	850 water	540-660 air	50° under the temperature of tempering

Soft annealing	+AR natural state	End quench hardenability test	Pre-heating welding		Stress-relieving after welding	
650-700 cooling 10 °C/h to 600, then air (HB max 248)	(HB max 370)	850 water	300		550 furnace cooling	
			Ac1	Ac3	Ms	Mf
			720	770	310	100

Mechanical and physical properties

Hot-rolled mechanical properties in **quenched and tempered** condition EN 10083-3: 2006/AC: 2008

size d / *t* mm		Testing at room temperature (longitudinal)					
		R	Rp 0.2	A%	C%	Kv +20 °C	*HB*
from	to	N/mm²	N/mm² min.	min.	min.	J min.	*for information*
	16/*8*	1250-1450	1050	9	40		*370-415*
16/*8*	40/*20*	1250-1450	1050	9	40	30	*370-415*
40/*20*	100/*60*	1100-1300	900	10	45	35	*331-380*
100/*60*	160/*100*	1000-1200	800	11	50	45	*298-359*
160/*100*	250/*160*	900-1100	700	12	50	45	*271-331*

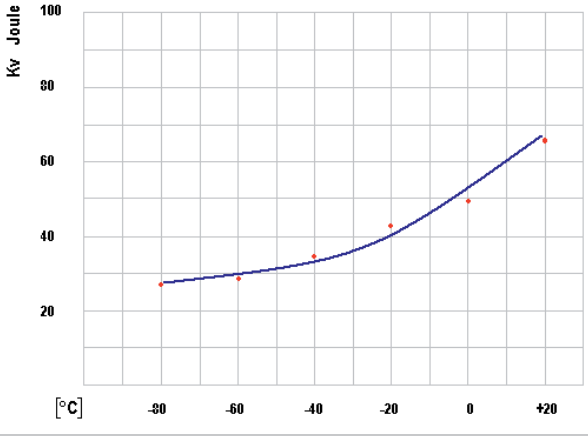
d = diameter *t* = *thickness*

Table of tempering values obtained at room temperature on rounds of Ø 10 mm after quenching at 850 °C in oil

HB		426	404	381	347	275	240
HRC		45	43	41	37	28	23
R	N/mm²	1500	1400	1290	1150	920	800
Rp 0.2	N/mm²	1350	1250	1090	960	780	640
A	%	10.0	10.0	11.0	14.0	16.0	18.0
C	%	42	45	48	50	52	52
Kv	J	20	50	60	75	80	92
Tempering at **°C**		**450**	**500**	**550**	**600**	**650**	**700**

Transition-curve;
Kv values obtained on hot-rolled **32** mm round
Quenched and tempered (induction) R **1260** N/mm²
Rp 0.2 **1110** N/mm² – A% **11,8** – C% **59**

		average		
°C	J	J	Lat. Exp. mm	Shear %
+20	58 – 72 - 68	66	0,62	50
0	53 – 46 - 49	49	0,42	40
-20	44 – 44 - 45	42	0,34	20
-40	31 – 32 - 35	33	0,27	10
-60	28 – 28 - 27	28	0,25	10
-80	28 – 26 - 26	27	0,16	10



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Hot-rolled, quenched and tempered, **cold-drawn** +QT +C

size mm		Testing at room temperature (longitudinal)			
		R	**Rp** 0.2	**A**%	**HB**
from	to	N/mm²	N/mm² min	min	max

No indications from reference standards

Cold-drawn

size mm		Testing at room temperature (longitudinal)			
		R	**Rp** 0.2	**A**%	**HB**
from	to	N/mm²	N/mm² min	min	

Cold-drawn obtained from hot-rolled annealed

size mm

Cold-drawn annealed or annealed + peeled-reeled

max **HB**

No indications from reference standards

Forged quenched and tempered UNI EN 10250-3: 2001

size d / *t* mm		Testing at room temperature								
		R	**Rp** 0.2	**A**% L	**A**% T	**A**% Q	**Kv** L	**Kv** T	**Kv** Q	***HB*** *min.*
from	to	N/mm²	N/mm² min	min	min	min	J min	J min	J min	*for inform.*
	250/*160*	900	700	12	8		45	22		*271*
250/*160*	500/*330*	850	630	12	8		45	22		*253*
500/*330*	990/*660*	800	590	12	8		40	20		*240*

L = longitudinal T = tangential Q = radial
d = diameter *t* = *thickness*

EN 10083-3: 2006 **Jominy test HRC** grain size 5 min.

mm distance from quenched extremity

	1.5	**3**	**5**	**7**	**9**	**11**	**13**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	symbol
min	48	48	48	48	47	47	47	46	46	45	45	44	44	43	43	**H**
max	56	56	56	56	55	55	55	55	55	54	54	54	54	54	54	
min	51	51	51	51	50	50	50	49	49	48	48	47	47	47	47	**HH**
max	56	56	56	56	55	55	55	55	55	54	54	54	54	54	54	
min	48	48	48	48	47	47	47	46	46	45	45	44	44	43	43	**HL**
max	53	53	53	53	52	52	52	52	52	51	51	51	51	50	50	

Temperature	**Mod. of elasticity E** long.	**Thermal expansion**	**Specific heat capacity**	**Specific electric resistivity**	**Thermal conductivity**
Testing at **°C**	GPa	$10^{-6} \bullet K^{-1}$	J/(Kg•K)	Ohm•mm²/m	W/(m•K)
-100	217	10.5	423		
0	213	11.4	456		
20	212	11.5	461	0.309	33.7
100	207	12.1	479	0.354	36.2
200	199	12.7	499	0.418	37.8
300	192	13.2	517	0.505	37.2
400	184	13.6	536	0.609	35.7
500	175	14.0	558	0.727	34.0
600	164	14.4	587	0.867	32.0

Density +20 °C
Kg/dm³
7.80

Physical properties according to DIN SEW 310 (08/1992) standard

EUROPE EN	**ITALY** UNI	**CHINA** GB	**GERMANY** DIN	**FRANCE** AFNOR	**U.K.** B.S.	**RUSSIA** GOST	**USA** AISI/SAE
30CrNiMo8	30CrNiMo8		30CrNiMo8	30NCD8	823M30		A320L43