METALLURGICA VENETA
ACCIAI SPECIALI

C30E

Quality	C30E
According to standards	**EN 10083-1: 1998**
Number	**1.1178**

Chemical composition

C%	Si% max	Mn%	P% max	S% max	Cr% max	Mo% max	Ni% max	Deviations allowed for analysis product
0,27-0,34	0,40	0,50-0,80	0,035	0,035	0,40	0,10	0,40	
± 0.02	+ 0.03	± 0.04	+ 0.005	+ 0.005				

Cr+Mo+Ni max 0.63%
For C30R n° 1.1179, S% 0.020-0.040 product deviations ± 0.005

Temperature °C

Hot-forming	Normalizing	Quenching	Quenching	Tempering	Stress-relieving
1150-850	880 air	860 water	890 oil or polymer	550-660 air	50° under the temperature of tempering

Soft annealing	Isothermal annealing	Natural state	Hardening on specimen Ø 25 mm	Pre-heating welding		Stress-relieving after welding	
700 air (HB max 190)	880 furnace cooling to 650, then air (HB 140-180)	(HB max 210)	860 water (HRC ~ 50)	100		slow cooling	
				Ac1	**Ac3**	**Ms**	**Mf**
				730	810	400	180

Mechanical and physical properties

Hot-rolled mechanical properties in **normalized** condition C30 1.0528 EN 10083-2: 1998. Use only as reference

size d / *t* mm		Testing at room temperature (longitudinal)					
		R	**Re** [a]	**A%**	**C%**	**Kv**	***HB***
from	to	N/mm² min	N/mm² min.	min.	min.	J min.	*min*
	16/*16*	510	280	20			*154*
16/*16*	100/*100*	480	250	21			*146*
100/*100*	250/*250*	460	230	21			*139*

d = diameter *t* = *thickness*

Hot-rolled mechanical properties in **quenched and tempered** condition C30 1.0528 EN 10083-2: 1998. Use only as reference

size d / *t* mm		Testing at room temperature (longitudinal)					
		R	**Re** [a]	**A%**	**C%**	**Kv**	***HB***
from	to	N/mm²	N/mm² min	min.	min.	J min	*for information*
	16/*8*	600-750	400	18	40		*178-225*
16/*8*	40/*20*	550-700	350	20	45		*159-213*
40/*20*	63/*35*	500-650	300	21	50		*152-200*

[a] Re upper yield strength or, if no yield phenomenon occurs, $Rp_{0.2}$ has to be considered
d = diameter *t* = *thickness*

Table of tempering values obtained at room temperature on rounds of Ø 10 mm after quenching at 860 °C in water

HB	454	441	409	343	263	225
HRC	48	47	44	37	27	20
R N/mm²	1640	1580	1430	1140	880	750
Tempering at **°C**	**100**	**200**	**300**	**400**	**500**	**600**

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Certified Company

C30E

Cold-drawn +C (080M30) BS 970 pt.3: 1991. Use only as reference

Values valid also for +C+SL

size		Testing at room temperature (longitudinal)			
mm		**R**	**Rp** 0.2	**A**%	***HB***
from	to	N/mm² min	N/mm² min	min	*min*
6	13	620	460	9	*190*
13	16	600	450	10	*178*
16	40	570	400	11	*169*
40	63	560	345	12	*162*
63	76	530	320	12	*156*

Forged normalized EN 10250-2: 2001

size		Testing at room temperature (longitudinal)							
mm		**R**	**Re** a)	**A**% L	**A**% T	**A**% Q	**Kv**L	**Kv** T	***HB***
from	to	N/mm² min	N/mm² min	min	min	min	J min	J min	*min*
	1100	480	250	21					*146*
100	250	460	230	21					*139*

a) Re upper yield strength or, if no yield phenomenon occurs, Rp 0.2 has to be considered

d = diameter *t* = *thickness*

Jominy test HRC

mm distance from quenched extremity

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**13**	**15**	**20**	**25**	**30**
min	No indications from reference standards															
max																

Temperature	**Mod. of elasticity** GPa		**Thermal expansion**					
	E long.	**G** tang.	$10^{-6} \cdot K^{-1}$					
Testing at **20** °C	210	80	11.1	12.1	12.9	13.5	13.9	14.1
			100 °C	**200** °C	**300** °C	**400** °C	**500** °C	**600** °C

EUROPE EN	**ITALY** UNI	**CHINA** GB	**GERMANY** DIN	**FRANCE** AFNOR	**U.K.** B.S.	**RUSSIA** GOST	**USA** AISI/SAE
C30E	C30	30	Ck30	XC32	080M30	30	1030