METALLURGICA VENETA
ACCIAI SPECIALI

Certified Company

S235J2

Quality	S235J2 (Fe 360 D)
According to standard	EN 10025-2: 2004
Number	1.0117

Chemical composition

C% max	Si%	Mn% max	P% max	S% max	N% max	Cu% max	
0,17 a)		1,40	0,025	0,025		0,40	**Cast** analysis
0,19 a)		1,50	0,035	0,035		0,45	**Product** analysis

FN deoxidation method -N rimming steel not admitted
a) for nominal thickness > 100 mm, C content to be agreed

Temperature °C

Hot-forming	Supply state	Soft annealing	Isothermal annealing
1200-850	natural state	690 air	

Temperature values are valid for analysis close to:

C%	Mn%	Si%
~ 0.10	~ 0.50	~ 0.20

In some cases, the piece can be normalized and tempered or quenched and tempered

Normalizing and tempering	Quenching and Tempering	Stress-relieving	End quench hardenability
920 air 540-650 air	920 water 540-665 air	50° under the temperature of tempering	

Pre-heating welding: not required

Stress-relieving after welding: slow cooling

Ac1	Ac3	Ms	Mf
725	880	480	260

Mechanical properties

Hot-rolled EN 10025-2: 2004 **S235J2**

Testing at room temperature, impact testing at – 20 °C

size mm from	size mm to	R N/mm²	size mm over	size mm to	R_{eH} N/mm² min	size mm over	size mm to	A% L min	A% T min	*HB*
	3	360-510		16	235	3	40	26	24	*104-154*
3	100	360-510	16	40	225	40	63	25	23	*104-154*
100	150	350-500	40	63	215	63	100	24	22	*103-152*
150	250	340-490	63	80	215	100	150	22	22	*100-149*
250	400	330-480	80	100	215	150	250	21	21	*94 -146*
			100	150	195	250	400	21	21	
			150	200	185	over	to	**Kv** – 20 °C J min a)		
			200	250	175		150	27		
			250	400	165	150	250	27		
						250	400	27		

a) values to be agreed for thickness > 100 mm (**normalization** treatment is suggested)

Cold-drawn

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

Hot-rolled – Peeled- Reeled

Testing at room temperature (longitudinal) R N/mm²	Rp 0.2 N/mm² min	A% min	HB

No indications are shown in the reference standards,
(please refer to the same values of quality S235JRC EN 10277-2)

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Forged normalized EN 10250-2: 2001 **S235J2G3** n° 1.0116 (Fe 360 D)

Tensile testing at room temperature, Kv testing at - 20 °C (normalizing treatment is suggested)

size		**R**	**Re**	**A**% L	**A**% T	**Kv** L - 20 °C	**Kv** T - 20 °C	***HB***
from	*to*	N/mm^2 min	N/mm^2 min	min	min	J min	J min	*min*
	100	340	215	24		35		*100*
100	*250*	340	175	23	17	30	20	*100*
250	*500*	340	165	23	17	27	15	*100*

EUROPE EN	**ITALY** UNI	**CHINA** GB	**GERMANY** DIN	**FRANCE** AFNOR	**U.K.** B.S.	**RUSSIA** GOST	**USA** AISI/SAE
S235J2	appr. Fe 360 D	Q235A	appr. St 37- 3 U	appr. E 24 - 4	appr. 40 D	St3ps-5	appr. A 515