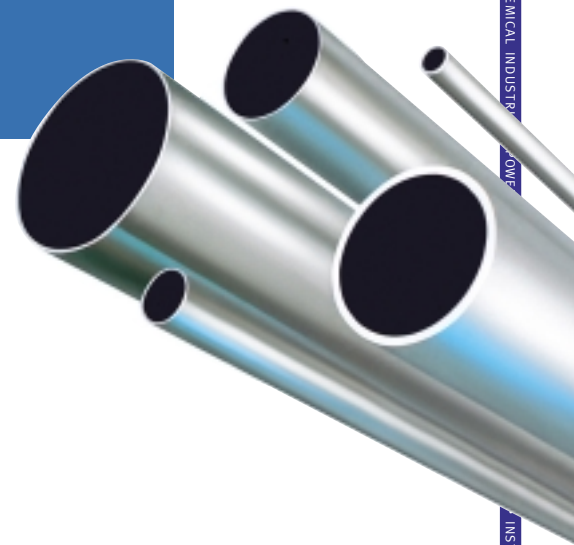


Stainless Steel SBS A 700



**SCHOELLER
BLECKMANN
EDELSTAHLROHR**
SEAMLESS·STAINLESS
NAHTLOS ZUM ERFOLG

Physical properties

Density at 20°C	7.90	g/cm ³
Modulus of elasticity at 20°C	200.000	N/mm ²
Thermal conductivity at 20°C	15.0	W/(m.K)
Specific heat at 20°C	0.5	J/(g.K)
Electric resistivity at 20°C	0.73	Ohm.mm ² /m
Magnetic properties	non magnetic	
Thermal expansion between:		
20 - 100°C	16.0	10 ⁻⁶ m/(m.K)
20 - 200°C	17.0	
20 - 300°C	17.0	
20 - 400°C	18.0	
20 - 500°C	18.0	

This leaflet contains various data which are typical of average values and are given for the purpose of illustration only. They are not intended as warranties.



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Description

SBS A 700 is an austenitic stainless, heat and creep resistant chromium-nickel steel with Ti-stabilization. This steel grade is characterized by:

- Good elevated high temperature strength
- Good resistance against general corrosion.
- High resistance against intergranular corrosion.
- Good weldability.

Chemical composition (Typical) %

C	Si	Mn	Cr	Ni	Ti
0.06	0.5	1.7	17,5	11,0	mind. 5x%C

Standards and specifications for seamless pipes and tubes

DIN	ASTM	ASME	GOST
DIN 17459, 17456, 17458	A312, A213, A269	SA-312, SA-213	~12Ch18N10T
W.Nr. 1.4941/X8 CrNiTi 18 10	TP 321H	TP 321H	
1.4878/X12 CrNiTi 18 9	TP 321	TP 321H	
1.4541/X6 CrNiTi 18 10	UNS S 32100	UNS S 32109	

Heat treatment

Solution annealing: 1050-1150°C/water, air (up to 2 mm thickness)
Structure as solution annealed: austenite

Surface condition

For optimum corrosion resistance: pickled, heat treated free from scale or machined.

Welding

Weldability is good.
Argon arc process for thickness from 0.7 to 4 mm, electric arc process for thickness from 1.5 mm upwards.
No post-weld heat treatment is required.

Filler metals

Electric arc welding: Böhler Fox SAS 2
Böhler Fox SAS 2-A
TIG-welding: Böhler SAS 2-IG
MAG-welding: Böhler SAS 2-IG (Si)
Sub arc welding: Böhler SAS 2-UP
flux BB202

Applications

SBS A 700 is successfully used for corrosion resistant components of elevated high temperature strength, e.g. for steam vessels, pressure vessels and parts for technological equipment.

Mechanical properties at room temperature

condition	hardness ¹⁾ HB	0.2 % yield strength N/mm ² min.	1 % yield strength N/mm ² min	tensile strength N/mm ²	elongation (Lo=5do) % min.	impact ²⁾ strength J min.
solution annealed	120-190	180	215	460-680	35	85 ³⁾
		200	235	500-730	35	85 ⁴⁾
		205		min. 515	35	85 ⁵⁾

Mechanical properties at elevated temperatures

Temperature °C	100	200	300	400	500	550
0.2 % yield strength N/mm ² , min.	176	157	136	125	119	118 ⁴⁾
	147	118	100	89	81	80 ³⁾
1 % yield strength N/mm ² , min.	208	185	167	156	149	147 ⁴⁾
	180	147	127	116	109	106 ³⁾

¹⁾ not valid for inspection purposes ²⁾ Charpy-V-notch, longitudinal ³⁾ for hot formed tubes

⁴⁾ for cold formed tubes ⁵⁾ for ASTM

Long Time High-Temperature strength

Temperature °C	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690	700
Creep rupture strength 10.000 h N/mm ² ¹⁾	230	220	210	190	170	160	140	130	120	110	100	90	82	74	66	60
Creep rupture strength 100.000 h N/mm ² ¹⁾	170	150	140	120	110	100	92	84	76	68	62	56	50	44	39	35
Creep rupture strength 200.000 h N/mm ² ¹⁾	150	130	120	110	100	90	82	74	66	60	54	48	43	40	38	29

¹⁾ Mean values, lower limit appr. 20% under mean values