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Shanghai LJ Metal Industrial Co.Ltd

Your Reliable & Professional Partner of stainless steel and high alloy

Material No.: TP309/ S30900/ 1.4828

Description

EN symbol (short)	X15CrNiSi20-12	**Density kg/dm³**	7,9
AISI	AISI 309	**Hardness HB 30**	>=223
UNS	S 30900 Grade TP 309	**Composition**	chromium nickel steel
AFNOR	Z 9 CNS 24.13	**Category**	Heat resistant steels and alloys
BS	309 S - 24- EN 10088-1 (06/2005) (GB)	**Structure**	austenitic
Registered work's label	Thermax®4828	**Additional characteristics**	forge scale temperature 1832°F

Chemical Composition

		C	Si	Mn	P	S	Cr	Ni	N
1.4828	**Min %**		1,50				19,00	11,00	
	Max %	0,20	2,50	2,00	0,045	0,015	21,00	13,00	0,11
(Key to steel 2010)									
AISI 309 S 30900	**Min %**						22,00	12,00	
	Max %	0,15	0,75	2,00	0,040	0,030	24,00	15,00	
ASTM SA 249 (S 30900) - (AISI 309)									

Physical properties

Property	**Value**
Density: kg/dm³	7,9
Hardness: HB 30	>=223
magnetizable	non

Temperature T °C/F (°C/F)	**Specific heat J / kgK (Btu / lb °F)**	**Thermal conductivity W/mK (Btu·in / ft²·h·°F)**	**Electric resistance µΩ · cm (Ω circ mill / ft)**	**Modulus of elasticity kN/mm² (10³ ksi)**	**Expansion rate from 70°F bis T 10⁻⁶ / K (10⁻⁶ / °F)**

20 / 68	500 (--)	157(--)		196/(--)	
200 / 392					16,5 (--)
400 / 752					17,5 (--)
500 / 932	500 /(--)	21/(--)			18,0 (--)
600 / 1112					18,5 (--)
800 / 1472					19,5 (--)
1000 / 1832					

Temp.	**Creep strain limit**	**Creep strain limit**	**Creep rupture strength**	**Creep rupture strength**	**Creep rupture strength**
°C/°F	**Rp 01 (10 000h)**		**10 000 h**	**100.000 h**	
°C/°F	**N/mm² /ksi**		**N/mm² /ksi**	**N/mm² ksi**	
100/ 212					
400 /752					
500 /932					
600 /1112	80 /11,6		120 /17,4	65 /9,4	
700 /1292	25 /3,6			16 / 2,3	
800 / 1472	10 /1,4		18 / 2,6	7,5 /1,0	
900	4 /0,6		5 / 0,7	3 / 0,4	

MECHANICAL PROPERTIES (20°C / 68°F)

0,2% Yield strength (Mpa)	230	
Tensile strength Rm Mpa	500-750	solution annealed
Elongation A5 (%)	>=30%	solution annealed

TEMPERATURE INFORMATION

Application area	
Operation temperature	1472 ºF to 1832 ºF
Explanation report	scaling resistance (air) up to 1832°F
Solution heat treatment	
Working temperature	1922 ºF to 2102 ºF
Explanation report	cooldown: air/water
Solution heat treatment	

Working temperature	2102 ºF to 1472 ºF
Explanation report	cooldown :air
forging	
Working temperature	2102 ºF to 1472 ºF
Explanation report	fast cooldown air/water

STANDARDS / INFORMATION

Standards	Description
ASTM A 276	Rods and cross-sections made of stainless and heat-resistant steel
DIN EN 10088-1 (09/2005)	Stainless steels Part 1: List of stainless steels
DIN EN 10095 (05/1999)	heat resistant steel and nickel alloy
DIN EN 10296-2 (02/2006)	Welded circular steel pipes for machine construction and general technical service stainless steel
SEW 310 (08/1992)	physical properties of steel
SEW 400 (1997-02)	Rolled and forged stainless steels
SEW 470 (02/1976)	heat-resisting rolled and forged steels

PROCESS INFORMATION

Chip removing process	Carbide formation may wear down cutting tools
Welding	
- Material classification acc. CEN ISO/TR 15608	**8,2**
- Type	well weldable WIG MAG solid wire manual arc welding (E) Laser welding
- Add. material	1.4829
- Hints	preheating not required

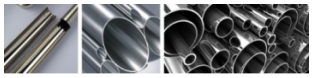
MAIN FIELDS OF APPLICATION

Details of application	higher mechanical strain in high temperatures scaling resistant in air up to approx.1832°F due to low corrosion reistance in reducing/sulfuric gases, only process material below 1202°F
Certifications	
Apparatus engineering	Apparatus in high temperatures
industral furnace	

engineering	
industrial furnace engineering	annealing hood
crude oil	

RANGE OF PRODUCTS

Product type	Product
Processing / Construction	from bar steel (turning, milling)
Plates / Sheets	plates/sheets
Fittings	welded elbows welded reductions Welded T-pieces seamless elbows seamless reductions seamless T-pieces
Flanges / Collars / Flared tube ends	Various flanges (weld neck flange,blind flange etc.)
Bumped boiler ends / caps / round blanks	from sheets
Pipes / Tubes	welded pipes/tubes seamless pipes/tubes
Bar steel	section steel round bar steel
Equipment	screws, screw nuts,shims, straight turning parts, designed components



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