

TP201	S20100	0.15	5.5–7.5	0.06	0.03	1.0	3.5–5.5	16.0–18.0	...	...	...	...	N 0.25
TP201LN	S20153	0.03	6.4–7.5	0.045	0.015	0.75	4.0–5.0	16.0–17.5	...	...	...	...	N 0.10–0.25, Cu 1.00
TP304	S30400	0.08	2.0	0.045	0.03	1.00 max	8.0–11.0	18.0–20.0	...	...	...	...	...
TP304L	S30403	0.035	2.0	0.045	0.03	1.00 max	8.0–12.0	18.0–20.0	...	...	...	...	...
TP309Cb	S30940	0.08	2.0	0.045	0.03	1.00 max	12.0–16.0	22.0–24.0	...	...	...	...	Cb 10×C min, 1.10 max
TP309S	S30908	0.08	2.0	0.045	0.03	1.00 max	12.0–15.0	22.0–24.0	...	...	...	...	...
TP310Cb	S31040	0.08	2.0	0.045	0.03	1.00 max	19.0–22.0	24.0–26.0	...	...	...	...	Cb 10×C min, 1.10 max
TP310S	S31008	0.08	2.0	0.045	0.03	1.00 max	19.0–22.0	24.0–26.0	...	...	...	...	...
TP316	S31600	0.08	2.0	0.045	0.03	1.00 max	10.0–14.0	16.0–18.0	2.0–3.0	...	...	...	...
TP316L	S31603	0.035	2.0	0.045	0.03	1.00 max	10.0–14.0	16.0–18.0	2.0–3.0	...	...	...	...
TP317	S31700	0.08	2.0	0.045	0.03	1.00 max	11.0–15.0	18.0–20.0	3.0–4.0	...	...	...	...
...	S31727	0.03	1.0	0.03	0.03	1.00 max	14.5–16.5	17.5–19.0	3.8–4.5	...	...	...	N 0.15–0.21 Cu 2.8–4.0
...	S32053	0.03	1.0	0.03	0.01	1.00 max	24.0–26.0	22.0–24.0	5.0–6.0	...	...	...	N 0.17–0.22
TP321	S32100	0.08	2.0	0.045	0.03	1.00 max	9.00–12.0	17.0–20.0	...	B	...	...	...
TP347	S34700	0.08	2.0	0.045	0.03	1.00 max	9.00–12.0	17.0–19.0	...	...	C	...	...
TP348	S34800	0.08	2.0	0.045	0.03	1.00 max	9.00–12.0	17.0–19.0	...	...	D	...	...
...	S31254	0.02	1.0	0.03	0.01	0.80 max	17.5–18.5	19.5–19.5	6.0–6.5	...	...	...	Cu 0.50–1.00 N 0.18–0.25
...	S30815	0.05–0.10	0.8	0.04	0.03	1.40–2.00	10.0–12.0	20.0–22.0	...	...	...	0.03–0.08	N 0.14–0.20
...	S31725	0.03	2.0	0.045	0.03	1.00 max	13.5–17.5	18.0–20.0	4.0–5.0	...	...	...	N 0.020 max
...	S31726	0.03	2.0	0.045	0.03	1.00 max	14.5–17.5	17.0–20.0	4.0–5.0	...	...	...	N 0.10–0.20
...	S34565	0.03	5.0–7.0	0.03	0.01	1.00 max	16.0–18.0	23.0–25.0	4.0–5.0	...	0.1 max	...	N 0.40–0.60

...	N08367	0.03	2.0	0.04	0.03	1.00 max	23.5–25.5	20.0–22.0	6.0–7.0	...	...	...	Cu 0.75 max Ni 0.18–0.25
...	S20400	0.03	7.0–9.0	0.45	0.03	1.00 max	1.50–3.00	15.0–17.0	...	...	...	...	N 0.15–0.30
...	S31266	0.03	2.0–4.0	0.035	0.02	1.00 max	21.0–24.0	23.0–25.0	5.2–6.2	...	...	...	Cu 1.00–2.50 W 1.50–2.50 N 0.35–0.60

^A New designation established in accordance with ASTM E527 and SAE J1086.

^B The titanium content shall be not less than 5 times the carbon content and not more than 0.70 %.

^C The columbium plus tantalum content shall be not less than 10 times the carbon content and not more than 1.10 %.

^D The columbium plus tantalum content shall be not less than 10 times the carbon content and not more than 1.10 %. The tantalum content shall be 0.10 % maximum, Co 0.20 % maximum.

D. Tensile Requirements :-

The tensile properties of the plate or sheet used in making the pipe shall conform to the requirements prescribed in Table 2.

Table 2

Grade	UNS Designation	Tensile Strength, min, ksi [MPa]	Yield Strength, min, ksi [MPa]
TP201	S20100	75 [515]	38 [260]
TP201LN	S20153	95 [655]	45 [310]
TP304	S30400	75 [515]	30 [205]
TP304L	S30403	70 [485]	25 [170]
TP309Cb	S30940	75 [515]	30 [205]
TP309S	S30908	75 [515]	30 [205]
TP310Cb	S31040	75 [515]	30 [205]
TP310S	S31008	75 [515]	30 [205]
TP316	S31600	75 [515]	30 [205]
TP316L	S31603	70 [485]	25 [170]
TP317	S31700	75 [515]	30 [205]

...	S31727	80 [550]	36 [245]
...	S32053	93 [640]	43 [295]
TP321	S32100	75 [515]	30 [205]
TP347	S34700	75 [515]	30 [205]
TP348	S34800	75 [515]	30 [205]
...	S31254	94 [650]	44 [300]
...	S30815	87 [600]	45 [310]
...	S31725	75 [515]	30 [205]
...	S31726	80 [550]	35 [240]
...	S34565	115 [795]	60 [415]
...	S20400	95 [655]	48 [330]
...	N08367		
	$t \leq 0.187$	100 [690]	44 [310]
	$t > 0.187$	95 [655]	45 [310]
...	S31266	109 [750]	61 [420]

E. Mechanical Tests :- 1.

Tension Test.

2. Transverse Guided-Bend Weld Test.
3. Pressure Tests :- Where hydrostatic test equipment is not available, the pipe may be air or gas pressure tested with an internal pressure of 100 psi [700 kPa]. The weld and weld area shall be inspected with the use of soap solution or any other prepared solution which will detect the leakage of air or gas from the inside.
4. Non-destructive Electric Test :- Instead of a pressure test, when mutually agreed upon between the purchaser and manufacturer, the entire weld area of each pipe, including circumferential welds, may be tested by non-destructive testing methods. These methods shall be capable of detecting both surface and subsurface defects.

NPS Designator	Wall Thickness			
	Schedule 5S		Schedule 10S	
	in.	mm	in.	mm

F. Lengths :-

1. Unless otherwise pipe of NPS 22

14	0.156	3.96	0.188	4.78
16	0.165	4.19	0.188	4.78

specified in the purchase order, or less will be furnished in

random lengths of 9 to 12 ft. For outside diameters of over NPS 22, the minimum length will be 5 ft.

NOTE —This value(s) applies when the inch-pound designation of this specification is the basis of purchase. The corresponding metric value(s) shall be agreed upon between the manufacturer and the purchaser.

G. Supplementary Test :-

1. Radiographic Examination.
2. Intergranular Corrosion Test.

Table X1

18	0.165	4.19	0.188	4.78
20	0.188	4.78	0.218	5.54
22	0.188	4.78	0.218	5.54
24	0.218	5.54	0.25	6.35
30	0.25	6.35	0.312	7.92

Keyword

- astm a409 specification
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