

Chemical Composition of Austenitic Stainless Steel Tubes for General and Structural Applications

Standard Designation	Grade, Class, Type, Symbol or Name	Steel Number	UNS Number	Weight, %, max, Unless Otherwise Specified								
				C	Mn	Si	P	S	Cr	Ni	Mo	Others
ASTM A 269-02a	TP304	---	S30400	0.08	2	1	0.045	0.03	18.0-20.0	8.0-11.0	---	---
ASTM A 511-96	MT 304	---	---	0.08	2	1	0.04	0.03	18.0-20.0	8.0-11.0	---	---
ASTM A 554-03	MT-304	---	---	0.08	2	1	0.04	0.03	18.0-20.0	8.0-11.0	---	---
ASTM A 632-02a	TP 304	---	S30400	0.08	2	0.75	0.045	0.03	18.0-20.0	8.0-11.0	---	---
	SUS304TKA	---	---	0.08	2	1	0.04	0.03	18.00-20.00	8.00-11.00	---	---
JIS G 3446:1994	SUS304TKC	---	---	0.08	2	1	0.04	0.03	18.00-20.00	8.00-11.00	---	---
	LW 21	---	---	0.06	2	1	0.045	0.03	17.5-19.0	8.0-11.0	---	---
BS 6323-8:1982 AMD 2:1989	LWCF 21	---	---	0.06	2	1	0.045	0.03	17.5-19.0	8.0-11.0	---	---
DIN 17455:1999	X5CrNi18-10	1.4301	---	0.07	2	1	0.045	0.015	17.00-19.50	8.00-10.50	---	N 0.11
DIN 17456:1999	X5CrNi18-10	1.4301	---	0.07	2	1	0.045	0.015	17.00-19.50	8.00-10.50	---	N 0.11
AFNOR NF A 49-647:1979	TS Z 6 CN 18-09	---	---	0.07	2	1	0.04	0.03	18-20	41133	---	---
ASTM A 269-02a	TP304L	---	S30403	0.035	2	1	0.045	0.03	18.0-20.0	8.0-12.0	---	---
ASTM A 511-96	MT 304L	---	---	0.035	2	1	0.04	0.03	18.0-20.0	8.0-13.0	---	---
ASTM A 554-03	MT-304L	---	---	0.035	2	1	0.04	0.03	18.0-20.0	8.0-13.0	---	---
ASTM A 632-02a	TP 304L	---	S30403	0.03	2	0.75	0.045	0.03	18.0-20.0	8.0-13.0	---	---
ASTM A 778-01	TP 304L	---	S30403	0.03	2	1	0.045	0.03	18.0-20.0	8.0-13.0	---	N 0.10
	LW 20	---	---	0.03	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	---
BS 6323-8:1982 AMD 2:1989	LWCF 20	---	---	0.03	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	---
DIN 17455:1999	X2CrNi19-11	1.4306	---	0.03	2	1	0.045	0.015	18.00-20.00	10.00-12.00	---	N 0.11
DIN 17456:1999	X2CrNi19-11	1.4306	---	0.03	2	1	0.045	0.015	18.00-20.00	10.00-12.00	---	N 0.11
AFNOR NF A 49-317:1980	TU Z 2 CN 18-10	---	---	0.03	2	1	0.04	0.03	17-20.0	9-12.00	---	---
AFNOR NF A 49-647:1979	TS Z 2 CN 18-10	---	---	0.03	2	1	0.04	0.03	18-20	41133	---	---
ASTM A 269-02a	TP304LN	---	S30453	0.035	2	1	0.045	0.03	18.0-20.0	8.0-11.0	---	N 0.10-0.16
DIN 17455:1999	X2CrNiN18-10	1.4311	---	0.03	2	1	0.045	0.015	17.00-19.50	8.50-11.50	---	N 0.12-0.22
DIN 17456:1999	X2CrNiN18-10	1.4311	---	0.03	2	1	0.045	0.015	17.00-19.50	8.50-11.50	---	N 0.12-0.22
ASTM A 269-02a	TP316	---	S31600	0.08	2	1	0.045	0.03	16.0-18.0	10.0-14.0	2.00-3.00	---
ASTM A 511-96	MT 316	---	---	0.08	2	1	0.04	0.03	16.0-18.0	11.0-14.0	2.0-3.0	---
ASTM A 554-03	MT-316	---	---	0.08	2	1	0.04	0.03	16.0-18.0	10.0-14.0	2.0-3.0	---
ASTM A 632-02a	TP 316	---	S31600	0.08	2	0.75	0.045	0.03	16.0-18.0	11.0-14.0	2.00-3.00	---

	SUS316TKA	---	---	0.08	2	1	0.04	0.03	16.00-18.00	10.00-14.00	2.00-3.00	---
JIS G 3446:1994	SUS316TKC	---	---	0.08	2	1	0.04	0.03	16.00-18.00	10.00-14.00	2.00-3.00	---
	LW 23	---	---	0.07	2	1	0.045	0.03	16.5-18.5	11.0-14.0	2.5-3.0	---
BS 6323-8:1982 AMD 2:1989	LWCF 23	---	---	0.07	2	1	0.045	0.03	16.5-18.5	11.0-14.0	2.5-3.0	---
	X5CrNiMo17-12-2	1.4401	---	0.07	2	1	0.045	0.015	16.50-18.50	10.00-13.00	2.00-2.50	N 0.11
DIN 17455:1999	X3CrNiMo17-13-3	1.4436	---	0.05	2	1	0.045	0.015	16.50-18.50	10.50-13.00	2.50-3.00	N 0.11
	X5CrNiMo17-12-2	1.4401	---	0.07	2	1	0.045	0.015	16.50-18.50	10.00-13.00	2.00-2.50	N 0.11
DIN 17456:1999	X3CrNiMo17-13-3	1.4436	---	0.05	2	1	0.045	0.015	16.50-18.50	10.50-13.00	2.50-3.00	N 0.11
AFNOR NF A 49-647:1979	TS Z 6 CND 17-11	---	---	0.08	2	1	0.04	0.03	16-18	10-12.5	2-2.5	---
ASTM A 269-02a	TP316L	---	S31603	0.035	2	1	0.045	0.03	16.0-18.0	10.0-15.0	2.00-3.00	---
ASTM A 511-96	MT 316L	---	---	0.035	2	1	0.04	0.03	16.0-18.0	10.0-15.0	2.0-3.0	---
ASTM A 554-03	MT-316L	---	---	0.035	2	1	0.04	0.03	16.0-18.0	10.0-15.0	2.0-3.0	---
ASTM A 632-02a	TP 316L	---	S31603	0.03	2	0.75	0.045	0.03	16.0-18.0	10.0-15.0	2.00-3.00	---
ASTM A 778-01	TP 316L	---	S31603	0.03	2	1	0.045	0.03	16.0-18.0	10.0-14.0	2.00-3.00	N 0.10
	LW 22	---	---	0.03	2	1	0.045	0.03	16.5-18.5	11.5-14.5	2.5-3.0	---
BS 6323-8:1982 AMD 2:1989	LWCF 22	---	---	0.03	2	1	0.045	0.03	16.5-18.5	11.5-14.5	2.5-3.0	---
	X2CrNiMo17-12-2	1.4404	---	0.03	2	1	0.045	0.015	16.50-18.50	10.00-13.00	2.00-2.50	N 0.11
DIN 17455:1999	X2CrNiMo18-14-3	1.4435	---	0.03	2	1	0.045	0.015	17.00-19.00	12.50-15.00	2.50-3.00	N 0.11
	X2CrNiMo17-12-2	1.4404	---	0.03	2	1	0.045	0.015	16.50-18.50	10.00-13.00	2.00-2.50	N 0.11
DIN 17456:1999	X2CrNiMo18-14-3	1.4435	---	0.03	2	1	0.045	0.015	17.00-19.00	12.50-15.00	2.50-3.00	N 0.11
AFNOR NF A 49-317:1980	TU Z 2 CND 17-12	---	---	0.03	2	1	0.04	0.03	16-18.0	10.5-13.00	2.00-2.40	---
ASTM A 269-02a	TP316LN	---	S31653	0.035	2	1	0.045	0.03	16.0-18.0	10.0-13.0	2.00-3.00	N 0.10-0.16
DIN 17455:1999	X2CrNiMoN17-13-3	1.4429	---	0.03	2	1	0.045	0.015	16.50-18.50	11.00-14.00	2.50-3.00	N 0.12-0.22
DIN 17456:1999	X2CrNiMoN17-13-3	1.4429	---	0.03	2	1	0.045	0.015	16.50-18.50	11.00-14.00	2.50-3.00	N 0.12-0.22
ASTM A 269-02a	TP321	---	S32100	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Ti 5 x (C+N) to 0.70
ASTM A 511-96	MT 321	---	---	0.08	2	1	0.04	0.03	17.0-20.0	9.0-13.0	---	Ti 5 x C to 0.60
ASTM A 554-03	MT-321	---	---	0.08	2	1	0.04	0.03	17.0-20.0	9.0-13.0	---	Ti 5 x C to 0.60
ASTM A 632-02a	TP 321	---	S32100	0.08	2	0.75	0.045	0.03	17.0-20.0	9.0-13.0	---	Ti 5 x C to 0.60
ASTM A 778-01	TP 321	---	S32100	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Ti 5 x C to 0.70
JIS G 3446:1994	SUS321TKA	---	---	0.08	2	1	0.04	0.03	17.00-19.00	9.00-13.00	---	Ti 5 x C min
	LW 24	---	---	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Ti 5 x C to 0.80

BS 6323-8:1982 AMD 2:1989	LWCF 24	---	---	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Ti 5 x C to 0.80
DIN 17455:1999	X6CrNiTi18-10	1.4541	---	0.08	2	1	0.045	0.015	17.00-19.00	9.00-12.00	---	Ti 5 x C to 0.70
DIN 17456:1999	X6CrNiTi18-10	1.4541	---	0.08	2	1	0.045	0.015	17.00-19.00	9.00-12.00	---	Ti 5 x C to 0.70
ASTM A 269-02a	TP347	---	S34700	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Cb 10 x C min to 1.10
ASTM A 511-96	MT 347	---	---	0.08	2	1	0.04	0.03	17.0-20.0	9.0-13.0	---	Cb+Ta 10 x C to 1.00
ASTM A 554-03	MT-347	---	---	0.08	2	1	0.04	0.03	17.0-20.0	9.0-13.0	---	Cb+Ta 10 x C to 1.00
ASTM A 632-02a	TP 347	---	S34700	0.08	2	0.75	0.045	0.03	17.0-20.0	9.0-13.0	---	Cb+Ta 10 x C to 1.0
ASTM A 778-01	TP 347	---	S34700	0.08	2	1	0.045	0.03	17.0-19.0	9.0-12.0	---	Cb+Ta 10 x C to 1.10
JIS G 3446:1994	SUS347TKA	---	---	0.08	2	1	0.04	0.03	17.00-19.00	9.00-13.00	---	Nb 10 x C min
DIN 17455:1999	X6CrNiNb18-10	1.455	---	0.08	2	1	0.045	0.015	17.00-19.00	9.00-12.00	---	Nb 10 x C to 1.00
DIN 17456:1999	X6CrNiNb18-10	1.455	---	0.08	2	1	0.045	0.015	17.00-19.00	9.00-12.00	---	Nb 10 x C to 1.00
ASTM A 269-02a	---	---	S31725	0.035	2	1	0.045	0.03	18.0-20.0	13.5-17.5	4.0-5.0	N 0.20 max
DIN 17455:1999	X2CrNiMoN17-13-5	1.4439	---	0.03	2	1	0.045	0.015	16.50-18.50	12.40-14.50	4.00-5.00	N 0.12-0.22
DIN 17456:1999	X2CrNiMoN17-13-5	1.4439	---	0.03	2	1	0.045	0.015	16.50-18.50	12.50-14.50	4.00-5.00	N 0.12-0.22