

**Physical Properties of Austenitic Stainless Steel Tubes for General and Structural Applications**

Standard Designation	Grade, Class, Type, Symbol or Name	Steel Number	UNS Number	Product Form/Heat Treatment	Thickness		Yield Strength, min		Tensile Strength, min		Elongation, min, %	Other
					t, mm	t, in.	2	ksi min	2	ksi min		
							MPa min		MPa min			
ASTM A 269-02a	TP304	---	S30400	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 304	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 554-03	MT-304	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 304	---	S30400	HT	---	---	205	30	515	75	35	---
JIS G 3446:1994	SUS304TKA	---	---	ST	---	---	205	---	520	---	35	---
	SUS304TKC	---	---	AM	---	---	205	---	520	---	35	---
BS 6323-8:1982 AMD 2:1989	LW 21	---	---	KM	---	---	450	---	560	---	25	---
	LWCF 21	---	---	KM	---	---	450	---	560	---	25	---
DIN 17455:1999	X5CrNi18-10	1.4301	---	SA & Q	---	---	195	---	500-720	---	40 L; 35 T	---
DIN 17456:1999	X5CrNi18-10	1.4301	---	SA & Q	---	---	195	---	500-700	---	40 L; 35 T	---
AFNOR NF A 49-647:1979	TS Z 6 CN 18-09	---	---	AM	---	---	400	---	600	---	35	---
ASTM A 269-02a	TP304L	---	S30403	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 304L	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 554-03	MT-304L	---	---	A	---	---	172	25	483	70	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 304L	---	S30403	HT	---	---	170	25	485	70	35	---
ASTM A 778-01	TP 304L	---	S30403	AM	---	---	170	25	485	70	40	---
BS 6323-8:1982 AMD 2:1989	LW 20	---	---	KM	---	---	420	---	520	---	25	---
	LWCF 20	---	---	KM	---	---	420	---	520	---	25	---
DIN 17455:1999	X2CrNi19-11	1.4306	---	SA & Q	---	---	180	---	460-680	---	40 L; 35 T	---
DIN 17456:1999	X2CrNi19-11	1.4306	---	SA & Q	---	---	180	---	460-680	---	40 L; 35 T	---
AFNOR NF A 49-317:1980	TU Z 2 CN 18-10	---	---	HQ	---	---	175	---	470	---	45	---
AFNOR NF A 49-647:1979	TS Z 2 CN 18-10	---	---	AM	---	---	400	---	600	---	35	---
ASTM A 269-02a	TP304LN	---	S30453	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
DIN 17455:1999	X2CrNiN18-10	1.4311	---	SA & Q	---	---	270	---	550-760	---	35 L; 30 T	---
DIN 17456:1999	X2CrNiN18-10	1.4311	---	SA & Q	---	---	270	---	550-760	---	35 L; 30 T	---
ASTM A 269-02a	TP316	---	S31600	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 316	---	---	A	---	---	207	30	517	75	35	192 HB; 90

ASTM A 511-96	MT 316	---	---	A	---	---	207	30	517	75	35	HRB max
ASTM A 554-03	MT-316	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 316	---	S31600	HT	---	---	205	30	515	75	35	---
JIS G 3446:1994	SUS316TKA	---	---	ST	---	---	205	---	520	---	35	---
	SUS316TKC	---	---	AM	---	---	205	---	520	---	35	---
BS 6323-8:1982 AMD 2:1989	LW 23	---	---	KM	---	---	450	---	560	---	25	---
	LWCF 23	---	---	KM	---	---	450	---	560	---	25	---
DIN 17455:1999	X5CrNiMo17-12-2	1.4401	---	SA & Q	---	---	205	---	510-710	---	40 L; 35 T	---
	X3CrNiMo17-13-3	1.4436	---	SA & Q	---	---	205	---	510-710	---	40 L; 35 T	---
DIN 17456:1999	X5CrNiMo17-12-2	1.4401	---	SA & Q	---	---	205	---	510-710	---	40 L; 30 T	---
	X3CrNiMo17-13-3	1.4436	---	SA & Q	---	---	205	---	510-710	---	40 L; 30 T	---
AFNOR NF A 49-647:1979	TS Z 6 CND 17-11	---	---	AM	---	---	400	---	600	---	35	---
ASTM A 269-02a	TP316L	---	S31603	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 316L	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 554-03	MT-316L	---	---	A	---	---	172	25	483	70	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 316L	---	S31603	HT	---	---	170	25	485	70	35	---
ASTM A 778-01	TP 316L	---	S31603	AM	---	---	---	---	485	70	---	---
BS 6323-8:1982 AMD 2:1989	LW 22	---	---	KM	---	---	420	---	520	---	25	---
BS 6323-8:1982 AMD 2:1989	LWCF 22	---	---	KM	---	---	420	---	520	---	25	---
DIN 17455:1999	X2CrNiMo17-12-2	1.4404	---	SA & Q	---	---	190	---	490-690	---	40 L; 35 T	---
	X2CrNiMo18-14-3	1.4435	---	SA & Q	---	---	190	---	490-690	---	40 L; 35 T	---
DIN 17456:1999	X2CrNiMo17-12-2	1.4404	---	SA & Q	---	---	190	---	490-690	---	40 L; 30 T	---
	X2CrNiMo18-14-3	1.4435	---	SA & Q	---	---	190	---	490-690	---	40 L; 30 T	---
AFNOR NF A 49-317:1980	TU Z 2 CND 17-12	---	---	HQ	---	---	175	---	470	---	45	---
ASTM A 269-02a	TP316LN	---	S31653	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
DIN 17455:1999	X2CrNiMoN17-13-3	1.4429	---	SA & Q	---	---	295	---	580-800	---	35 L; 30 T	---
DIN 17456:1999	X2CrNiMoN17-13-3	1.4429	---	SA & Q	---	---	295	---	580-800	---	35 L; 30 T	---
ASTM A 269-02a	TP321	---	S32100	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 321	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 554-03	MT-321	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 321	---	S32100	HT	---	---	205	30	515	75	35	---

ASTM A 778-01	TP 321	---	S32100	AM	---	---	---	---	515	75	---	---
JIS G 3446:1994	SUS321TKA	---	---	ST	---	---	205	---	520	---	35	---
BS 6323-8:1982 AMD 2:1989	LW 24	---	---	KM	---	---	450	---	560	---	25	---
	LWCF 24	---	---	KM	---	---	450	---	560	---	25	---
DIN 17455:1999	X6CrNiTi18-10	1.4541	---	SA & Q	---	---	200	---	500-730	---	35 L; 30 T	---
DIN 17456:1999	X6CrNiTi18-10	1.4541	---	SA & Q	---	---	200	---	500-730	---	35 L; 30 T	---
DIN 17456:1999	X6CrNiTi18-10	1.4541	---	SA & Q (HW) see standard	---	---	180	---	460-680	---	35 L; 30 T	---
ASTM A 269-02a	TP347	---	S34700	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
ASTM A 511-96	MT 347	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 554-03	MT-347	---	---	A	---	---	207	30	517	75	35	192 HB; 90 HRB max
ASTM A 632-02a	TP 347	---	S34700	HT	---	---	205	30	515	75	35	---
ASTM A 778-01	TP 347	---	S34700	AM	---	---	---	---	515	75	---	---
JIS G 3446:1994	SUS347TKA	---	---	ST	---	---	205	---	520	---	35	---
DIN 17455:1999	X6CrNiNb18-10	1.455	---	SA & Q	---	---	205	---	510-740	---	35 L; 30 T	---
DIN 17456:1999	X6CrNiNb18-10	1.455	---	SA & Q	---	---	205	---	510-740	---	35 L; 30 T	---
ASTM A 269-02a	---	---	S31725	HT	---	---	---	---	---	---	---	192 HB; 200 HV or 90 HRB max
DIN 17455:1999	X2CrNiMoN17-13- 5	1.4439	---	SA & Q	---	---	285	---	580-800	---	35 L; 30 T	---
DIN 17456:1999	X2CrNiMoN17-13- 5	1.4439	---	SA & Q	---	---	285	---	580-800	---	35 L; 30 T	---