ICAUNAISE DES MÉTAUX

Documentation technique – LES INOX

Documentation technique – INOX – Les nuances

ASTM	EN		C	Si	Mn	Cr	Mo	Ni	Autres	ÉTAT RECUIT (valeurs typiques)			
TYPE	N°	EN 10088-2								Rm N/mm²	Re 0.2 N/mm²	A %	Dureté HV
410	1.4006	X12Cr13	0.11	0.35	0.33	12.30				530	320	28	160
420	1.4021	X20Cr13	0.21	0.35	0.35	13.30				600	380	23	170
420	1.4028	X30Cr13	0.32	0.20	0.30	13.70				660	430	21	185
420	1.4034	X46Cr13	0.46	1 Max	1 Max	13		1 Max	P = 0,04 Max ; S = 0,03 Max				
409	1.4512	X2CrTi12	0.01	0.45	0.20	11.30			Ti=0,19	450	280	30	130
410S	1.4000	X6Cr13	0.05	0.35	0.33	12.70				530	315	28	155
430	1.4016	X6Cr17	0.04	0.27	0.30	16.15				510	350	26	160
434	1.4113	X6CrMo17-1	0.05	0.35	0.40	16.15	1.00			540	400	26	175
436	1.4526	X6CrMoNb17-1	0.04	0.40	0.30	17.30	1.25		Nb=0,55	520	370	28	170
430Ti	1.4510	X3CrTi17	0.02	0.35	0.30	16.15			Ti=0,40	460	310	30	150
441	1.4509	X2CrTiNb18	0.02	0.60	0.25	17.80			Ti=0,16 Nb=0,48	520	340	27	170
444	1.4521	X2CrTiNb18-2	0.015	0.40	0.30	17.70	1.85		Ti=0,17 Nb=0,28	560	370	25	170
301	1.4310	X10CrNi18-8	0.10	0.60	0.85	16.80		6.55		770	350	45	180
301 Mo	1.4310	X10CrNi18-8	0.10	1.15	1.20	16.65	0.70	6.55		830	360	45	200
304	1.4301	X5CrNi18-10	0.05	0.42	1.10	18.15		8.05		670	310	50	170
304L	1.4307	X2CrNi1810	0.03 Max	0.42	1.10	18.15		8.05		670	310	50	170
304 Emboutissage profond	1.4301	X5CrNi18-10	0.04	0.40	1.10	18.15		9.06		640	280	55	155
305	1.4303	X4CrNi18-12	0.025	0.42	1.32	18.40		12.55		600	270	55	150
304L	1.4306	X2CrNi19-11	0.02	0.42	1.32	18.15		10.06		600	270	55	150
321	1.4561	X6CrNiTi18-10	0.025	0.42	1.10	17.15		9.06	Ti=0,30	640	280	50	155
316L	1.4404	X2CrnNiMo17-12-2	0.025	0.42	1.35	16.85	2.05	10.05		630	310	50	155
316L	1.4435	X2CrNiMo18-14-3	0.02	0.42	1.35	17.25	2.55	12.67		610	310	50	155
316Ti	1.4571	X6CrNiMoTi17-12-2	0.035	0.42	1.10	16.65	2.05	10.60	Ti=0,34	630	300	50	155
309	1.4828	X15CrNiSi20-12	0.05	1.60	1.32	19.15		11.40		660	330	50	160
310S	1.4845	X8CrNi25-21	0.05	0.50	1.00	25.20		19.70		650	330	50	160

Documentation technique – INOX – Tolérance sur épaisseur

Épaisseur (e)	Tolérances en (mm) sur épaisseurs conformes à la norme EN ISO 9445													
	l < 125			125 < l < 250			250 < l < 600			600 < l < 1000			1000 < l < 1300	
	Normale	Fine	Précision	Normale	Fine	Précision	Normale	Fine	Précision	Normale	Spéciale	Précision	Normale	Fine
0.05 < e < 0.10	±0.10 x e	±0.06 x e	±0.04 x e	±0.12 x e	±0.10 x e	±0.08 x e	±0.15 x e	±0.10 x e	±0.08 x e	±0.20	±0.15	±0.10		
0.10 < e < 0.15	±0.010	±0.008	±0.006	±0.015	±0.012	±0.008	±0.020	±0.015	±0.010	±0.025	±0.018	±0.012		
0.15 < e < 0.20	±0.015	±0.010	±0.008	±0.020	±0.012	±0.010	±0.025	±0.015	±0.012	±0.030	±0.020	±0.012		
0.20 < e < 0.25	±0.015	±0.012	±0.008	±0.020	±0.015	±0.010	±0.025	±0.020	±0.012	±0.030	±0.020	±0.015		
0.25 < e < 0.30	±0.017	±0.012	±0.009	±0.025	±0.015	±0.012	±0.030	±0.020	±0.015	±0.030	±0.020	±0.015		
0.30 < e < 0.40	±0.020	±0.015	±0.010	±0.025	±0.020	±0.012	±0.030	±0.025	±0.015	±0.040	±0.025	±0.015	±0.040	±0.030
0.40 < e < 0.50	±0.025	±0.020	±0.012	±0.030	±0.020	±0.015	±0.035	±0.025	±0.018	±0.040	±0.025		±0.040	±0.030
0.50 < e < 0.60	±0.030	±0.020	±0.014	±0.030	±0.025	±0.015	±0.040	±0.030	±0.020	±0.045	±0.030		±0.050	±0.030
0.60 < e < 0.80	±0.030	±0.025	±0.015	±0.035	±0.030	±0.018	±0.040	±0.035	±0.025	±0.050	±0.035		±0.050	±0.040
0.80 < e < 1.00	±0.030	±0.025	±0.018	±0.040	±0.030	±0.020	±0.050	±0.035	±0.025	±0.055	±0.035		±0.060	±0.040
1.00 < e < 1.20	±0.035	±0.030	±0.020	±0.045	±0.035	±0.025	±0.050	±0.040	±0.030	±0.060	±0.040		±0.070	±0.040
1.20 < e < 1.50	±0.040	±0.030	±0.020	±0.050	±0.035	±0.025	±0.060	±0.045	±0.030	±0.070	±0.045		±0.080	±0.050
1.50 < e < 2.00	±0.050	±0.035	±0.025	±0.060	±0.040	±0.030	±0.070	±0.050	±0.035	±0.080	±0.050		±0.090	
2.00 < e < 2.50	±0.050	±0.035	±0.025	±0.070	±0.045	±0.030	±0.080	±0.060	±0.040	±0.090	±0.060		±0.010	

Documentation technique – INOX – Tolérance sur largeur

Épaisseur (e)	Tolérances en (mm) sur largeurs conformes à la norme EN ISO 9445													
	l < 40			40 < l < 125			125 < l < 250			250 < l < 690			690 < l < 1000	
	Normale	Fine	Précision	Normale	Fine	Précision	Normale	Fine	Précision	Normale	Spéciale	Précision	Normale	Fine
e <0.25	+0.170	+0.130	+0.100	+0.200	+0.150	+0.120	+0.250	+0.200	+0.150	+0.500	+0.500	+0.400	+1.500	+0.600
0.25 < e < 0.50	+0.200	+0.150	+0.120	+0.250	+0.200	+0.150	+0.300	+0.220	+0.170	+0.600	+0.500	+0.400	+1.500	+0.600
0.50 < e < 1.00	+0.250	+0.220	+0.150	+0.250	+0.220	+0.170	+0.400	+0.250	+0.200	+0.700	+0.600	+0.500	+1.500	
1.00 < e < 1.50	+0.250	+0.220	+0.150	+0.300	+0.250	+0.170	+0.500	+0.300	+0.220	+1.000	+0.700	+0.600	+1.500	
1.50 < e < 2.50				+0.400	+0.250	+0.200	+0.600	+0.400	+0.250	+1.000	+0.800	+0.600	+2.000	

Documentation technique – INOX – Tolérance de cintre sur chant

	5 < l < 8	8 < l < 10	10 < l < 25	25 < l < 40	40 < l < 125	125 < l < 600	600 < l < 1300
Normale	< 6 mm/m	< 5 mm/m	< 4 mm/m	< 3 mm/m	< 2 mm/m	< 1.5 mm/m	< 1.0 mm/m
Réduite	< 4 mm/m	< 2.5 mm/m	< 1.5 mm/m	< 1.25 mm/m	< 1.0 mm/m	< 0.75 mm/m	

Documentation technique – INOX – Tolérance de planéité

	Ondulation		CINTRE D'ENROULEMENT	TUILE		
	Recuits	Ecrouis < 1.5 mm	Cintre mm EN 10151	l < 10	10 < l < 150	150 < l < 720
Normale	< 3 %	< 2 %	< 20 mm	0.02	0.01	0.80 %
Réduite	< 2 %	< 1 %	< 10 mm			
Précision	< 1 %	< 0,75 %	< 6 mm	0.01	0.50 %	0.50 %