

Mechanical properties of stainless steel

GRADES	Designation		Product form (1)	Thickness max [mm]	Heat Treatment (5) (13)	Hardnes		Proof strength Rp0,2 [MPa] min. (14) (15) (transverse)	Tensile strength Rm [MPa]	Elongation after fracture		Impact energy(ISO-V) KV [J] min th>10mm	
	EN [N°]	AISI/ASTM				HRB max	HB or HV max			A80mm [%] min (2) th<3mm (tr. And long)	A [%] min(3) th≥3mm (r. And long.)	(longitudinal)	(transverse)
1.4372 (0)	201	C	8	AT	90(90)	241 (42)	350	from 750 up to 950	45	45	100	60	
		H	13,5				330						
		P(4)	75				330						
1.4373 (0)	202	C	8	AT	90(90)	241 (42)	340	from 680 up to 880	45	45	100	60	
		H	13,5				320						
		P(4)	75				320						
1.4371 (0)		C	8	AT			300	from 650 up to 850	45	45	100	60	
		H	13,5				280						
		P(4)	75				280						
1.4597(0)		C	8	AT			300	from 580 up to 780	40	40	100	60	
		H	13,5				300						
1.4369 (0)		C	4	AT			340	from 750 up to 950	35	35			
1.4310 (0)	301	C	8	AT	85 (19)	217 (42)	250	from 600 up to 950	40	40			
	301 L (45)			AT	100	241	220 *	min 550		45 *			
1.4319 (I)		C	3	AT			230	from 550 up to 750	45	45			
		H	6				230						
		C	8				350						
1.4318 (0)	301 LN	H	13,5	AT	100 (42)	241 (42)	330	from 650 up to 850	35	40	90	60	
		P(4)	75				330						
							330						
	302(35)			AT	85 (30)	241 (42)	276 * (30)	621		50 * (30)		108 (31)	
					80 (31)		241 * (31)			60 * (31)			
1.4305 (0)	303	P(4)	75	AT			190	from 500 up to 700	35	35			
1.4301 (0)	304	C	8	AT	80 (19)		230	from 540 up to 750	45 (16)	45 (16)	100	60	
		H	13,5				210						
		P(4)	75				210						
1.4311 (0)	304 LN	C	8	AT	95 (42)	217 (42)	290	from 550 up to 750	40	40	100	60	
		H	13,5				270						
		P(4)	75				270						
1.4948 (0)	304 H	C	6	AT	92 (42)	201 (42)	230	from 530 up to 740	45 (16)	45 (16)	100	60	
		H	12				210						
		P	75				190						
1.4307 (0)	304 L	C	8	AT	79 (19)		220	from 520 up to 700	45	45	100	60	
		H	13,5				200						
		P(4)	75				200						
						143 (21)	200	from 500 up to 700					

AUSTENITIC

1.4306 (0)	304 L	C	8	AT	79 (19)		220	from 520 up to 700	45	45	100	60
		H	13,5		79 (20)		200					
		P(4)	75			143 (21)	200	from 500 up to 700				
1.4315 (I)	305 N	C	8	AT	85 (20)	217 (42)	290	from 500 up to 750	40	40	100	60
		H	13,5				270					
		P(4)	75				270					
1.4303 (I)	305	C	8	AT	80 (30)	183(42)	220	from 500 up to 650	45	45		
1.4828(II)		(32)	75	AT		223 (17)	230 *	from 550 up to 750	28 (26)	30		30 (46)
1.4833(II)	309 S	(32)	75	AT	85 (30)	192 (17)	210 *	from 500 up to 700	33 (26)	35		30 (46)
1.4845(II)	310 S	(32)	75	AT	95 (42)	192 (17)	210 *	from 500 up to 700	33 (26)	35		30 (46)
1.4841(II)	314		75	AT		223 (17)	230 *	from 550 up to 750	28 (26)	30		30 (46)
1.4401 (I)	316	C	8	AT	79 (19)		240	from 530 up to 680	40	40	100	60
		H	13,5		79 (20)		220					
		P(4)	75			149 (21)	220	from 520 up to 670				
1.4436 (I)	316	C	8	AT	79 (19)		240	from 550 up to 700	40	40	100	60
		H	13,5		79 (20)		220					
		P(4)	75			149 (21)	220	from 530 up to 730				
	316 N (35)			AT	85 (20)	217 (42)	331 *	321		48 *		
	316 H (45)			AT	95	217	205 *	мин 515		40 *		
1.4404 (I)	316 L	C	8	AT	79 (19)		240	from 530 up to 680	40	40	100	60
		H	13,5		79 (20)		220					
		P(4)	75			146 (21)	220	from 520 up to 670				
1.4435 (I)	316 L	C	8	AT	79 (19)		240	from 550 up to 700	40	40	100	60
		H	13,5		79 (20)		220					
		P(4)	75			146 (21)	220	from 520 up to 670				
1.4432 (I)	316 L	C	8	AT	79 (19)		240	from 550 up to 700	40	40	100	60
		H	13,5		79 (20)		220					
		P(4)	75			146 (21)	220	from 520 up to 670				
1,4406 (I)	316 L	C	8	AT	95 (42)	217 (42)	300	from 580 up to 780	40	40	100	60
		H	13,5				280					
		P(4)	75				280					
1.4429 (I)	316 L	C	8	AT	95 (42)	217 (42)	300	from 580 up to 780	35	35	100	60
		H	13,5				280					
		P(4)	75				280					
1.4571 (I)	316 Ti	C	8	AT	95 (42)	217 (42)	240	from 540 up to 690	40	40	100	60
		H	13,5				220					
		P(4)	75				220					
1.4580 (I)	316 Cb	P(4)	75	AT	95 (42)	217 (42)	220	from 520 up to 720	40	40	100	60
			317 (35)		AT	85 (30)	160 (21)	276 *	from 586 up to 621	from 45 up to 50 *		
1.4438 (I)	317 L	C	8	AT	85 (20)	217 (42)	240	from 550 up to 700	35	35	100	60
		H	13,5				220					
		P(4)	75					80 (31)	220	from 520 up to 720		
1.4434 (I)	317 LN	C	8	AT	95(42)	217 (42)	290	from 570 up to 770	35	35	100	60
		H	13,5				270					
		P(4)	75						270	from 540 up to 740		

1.4439 (I)	317 LMN	C	8	AT	96 ⁽⁴²⁾	223 ⁽⁴²⁾	290	from 580 up to 780	35	35	100	60
		H	13,5				270					
1.4541 (I)	321	P ⁽⁴⁾	75	AT	80 ⁽¹⁹⁾	160 ⁽²¹⁾	270	from 520 up to 720	40	40	100	60
		C	8				220					
		H	13,5				200					
1.4878 (II)	321 H	P ⁽⁴⁾	75	AT	95 ⁽⁴²⁾	215 ⁽¹⁷⁾	200	from 500 up to 700	40 (26)	40	45 (46)	
		C	8				220					
1.4550 (I)	347	H	13,5	AT	85 ⁽¹⁹⁾	217 ⁽⁴²⁾	200	from 520 up to 700	40	40	100	60
		P ⁽⁴⁾	75				200					
							205 *					
1.4335 (I)	347 H (45)			AT	92	201	200	from 470 up to 670	40	40	100	60
1.4466 (I)	310 MoLN	P ⁽⁴⁾	75	AT	95 ⁽⁴²⁾	217 ⁽⁴²⁾	250	from 540 up to 740	40	40	100	60
1.4361 (I)		P ⁽⁴⁾	75	AT			220	from 530 up to 730	40	40	100	60
1.4563 (I)		P ⁽⁴⁾	75	AT	from 70 up to 90 (48)		220	from 500 up to 700	40	40	100	60
1.4537 (I)		P ⁽⁴⁾	75	AT			290	from 600 up to 800	40	40	100	60
1.4539 (I)	904 L	C	8	AT	90(42)		240	from 530 up to 730	35	35	100	60
		H	13,5				220					
		P ⁽⁴⁾	75				220					
1.4547 (I)		C	8	AT	96(42)	223 ⁽⁴²⁾	320	from 650 up to 850	35	35	100	60
		H	13,5				300					
		P ⁽⁴⁾	75				300					
1.4652(I)		C	8	AT			430	from 750 up to 1000	40	40	100	60
		H	13,5				430					
		P	75				430					
1.4659 (I)		P ⁽⁴⁾	75	AT			420	from 800 up to 1000		40	100	60
1.4529 (I)		P ⁽⁴⁾	75	AT			300	from 650 up to 850	40	40	100	60
1.4565 (I)		C	6	AT			420	from 800 up to 950	30	30	120	90
		H	10									
		P	40									
1.4864(II)	330 (35)			AT		223 ⁽¹⁷⁾	230 *	from 550 up to 750	28 (26)	30	30 (47)	
1.4835(II)		(32)	75	AT	95 ⁽⁴²⁾	210 ⁽¹⁷⁾	310 *	from 650 up to 850	37 (26)	40		
1.4876(II)		(32)		AT	86 (49) (50)	192 (17)	170 *	from 450 up to 680	28 (26)	30	30 (47)	
1.4877(II)				AT	95 (22)	223 (17)	180 *	from 500 up to 750	30 * (22)			
1.4818(II)		(32)		AT	95 (42)	210 (17)	290 *	from 600 up to 800	30 (26)	40		
1.4854(II)		(32)		AT	95 (42)	210 (17)	300 *	from 650 up to 850	40 (26)	40		
1.4462 (I)	2205	C	8	AT	31 ⁽⁴³⁾	293 ⁽⁴²⁾	500 ^{(23) (44)}	from 700 up to 950	20	20	100	60
		H	13,5				460 ^{(23) (44)}					
		P	75				460 ^{(23) (44)}					
1.4362 (I)	2304	C	8	AT	32 ⁽⁴³⁾	290 ⁽⁴²⁾	450 ^{(23) (44)}	from 650 up to 850	20	20	100	60
		H	13,5				400 ^{(23) (44)}					
		P	75				400 ^{(23) (44)}					
1.4655 (I)		C	8	AT			420 ^{(23) (44)}	from 600 up to 850	20	20	100	60
		H	13,5				400 ^{(23) (44)}					
		P	75				400 ^{(23) (44)}					
1.4410 (I)	2507	C	8	AT	32 ⁽⁴³⁾	310 ⁽⁴²⁾	550 ^{(23) (44)}	from 750 up to 1000	15	15	100	60
		H	13,5				530 ^{(23) (44)}					
		P	75				530 ^{(23) (44)}					
1.4507 (I)	255	C	8	AT	32 ⁽⁴³⁾	302 ⁽⁴²⁾	550 ^{(23) (44)}	from 750 up to 930	40	40	100	60
		H	13,5				530 ^{(23) (44)}					
		P	75				530 ^{(23) (44)}					
1.4501 (I)		P	75	AT		270 ⁽⁴²⁾	630 ^{(23) (44)}	from 750 up to 930	25	25	100	60
1.4424 (I)		C	8	AT			450 ^{(23) (44)}	from 700 up to 900	25	25	100	60
		H	13,5									
		P	75				400 ^{(23) (44)}					
1.4477 (I)		C	8	AT			650 ^{(23) (44)}	from 800 up to 1050	20	20	100	60
		H	13,5				550 ^{(23) (44)}					
		P	75				550 ^{(23) (44)}					

DUPLEX

FERRITIC	1.4003 (I)		C	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	320 *	from 450 up to 650	20	100 ⁽²⁷⁾	
			H	13,5				280 *		18		
			P	75								
	1.4512 (I)	409	C	8	A	75 ⁽³⁰⁾		220 *	from 380 up to 560	25		
			H	13,5								
			C	8								
	1.4516 (I)		C	8	A			320 *	from 450 up to 650	23	150 ⁽³⁴⁾	
			H	13,5			280 *	20				
			P	25 ⁽¹⁸⁾			250 *					
	1.4000 (I)	310 S	C	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	230 *	from 400 up to 600	19		
			H	13,5				230 *				
			P	25 ⁽¹⁸⁾								
	1.4002 (I)	405	C	8	A	75 ⁽²⁰⁾		230 *	from 400 up to 600	17		
			H	13,5			150 ⁽²¹⁾	230 *				
			P	25 ⁽¹⁸⁾				420 *				
	1.4589 (I)		C	8	A			380 *	from 550 up to 750	16		
			H	13,5			276 *	14				
						80	163	483		30 *		
	1.4595 (I)	429 ⁽³⁵⁾	C	8	A			220 *	from 380 up to 560	25		
	1.4016 (I)	430	C	8	A	85 ⁽³⁰⁾		280 *	from 450 up to 600	20		
			H	13,5				260 *		18		
			P	25 ⁽¹⁸⁾			160 ⁽²¹⁾	260 *		20		
	1.4520 (I)		C	8	A			200 *	from 380 up to 530	24		
	1.4511 (I)		C	8	A			240 *	from 420 up to 600	23		
	1.4017 (I)		C	8	A			350 *	from 500 up to 750	12		
	1.4113 (I)	434	C		A	83 ⁽³⁰⁾		280 *	from 450 up to 630	18		
			H									
	1.4513 (I)		C	8	A			220 *	from 400 up to 550	23		
	1.4510 (I)	439	H	8	A	89 ⁽⁴²⁾	183 ⁽⁴²⁾	240 *	from 420 up to 600	23		
			C	13,5								
1.4521 (I)	444	C	8	A	96 ⁽⁴²⁾	217 ⁽⁴²⁾	320 *	from 420 up to 640	20			
		H	13,5				300 *			from 400 up to 600		
		P	13,5				300 *			from 420 up to 620		
1.4526 (I)	436	C	8	A			300 *	from 480 up to 560	25			
1.4509 (I)		C	8	A			250 *	from 430 up to 630	18			
1.4590 (I)		C	8	A			250 *	from 400 up to 550	23			
1.4749(II)	446	(32)	12	A		212 ⁽¹⁷⁾	280 *	from 500 up to 700	13 (26)	15 (28)		
1.4713(II)		(32)	13,5	A		192 ⁽¹⁷⁾	220 *	from 420 up to 620	20 (28)			
1.4724(II)		(32)	13,5	A		192 ⁽¹⁷⁾	250 *	from 450 up to 650	13 (26)	15 (28)		
1.4762(II)		(32)		A		223 ⁽¹⁷⁾	280 *	from 520 up to 720	13 (26)	15 (28)		
1.4592 (I)		C	8	A			450 *	from 550 up to 700	20			

MARTENSITIC	1.4006 (I)	410	C	8	A	90 ⁽⁶⁾	200 ⁽⁶⁾	205 * ⁽⁴¹⁾	max 600	20		
			H	13,5							QT550	400 *
			P ⁽⁴⁾⁽⁷⁾	75	QT650	450 *	from 650 up to 850	12	agreement			
	1.4024 (I)		C	8	A	90 ⁽⁶⁾	200 ⁽⁶⁾		max 650	20		
			H	13,5								max 650
			P	75					upon			
			P	75	QT550	400 *	from 550 up to 750	15	agreement			
	1.4021 (I)	420	P	75	QT650	450 *	from 650 up to 850	12				
			C	3	QT	from 44 up to 50	from 440 up to 530					
			C	8	A	90 ⁽⁶⁾	225 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 700	15		
	1.4028 (I)	420	H	13,5	QT650	450 *	from 650 up to 850	12				
			P ⁽⁴⁾⁽⁷⁾	75	QT750	550 *	from 750 up to 950	10	upon			
			C	3	QT	from 45 up to 51 (24)	from 450 up to 550 (25)					
	1.4031 (I)	420	C	8	A	97 ⁽⁶⁾	235 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 740	15		
			H	13,5	QT800	600 *	from 800 up to 1000	10				
			P ⁽⁴⁾⁽⁷⁾	75								
	1.4034 (I)	420	C	3	QT	from 47 up to 53 (24)	from 480 up to 580 (25)					
			C	8	A	98 ⁽⁶⁾	240 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 760	12		
	1.4116 (I)		H	13,5	A	99 ⁽⁶⁾	245 ⁽⁶⁾	345 * ⁽¹⁹⁾	max 780	12		
			C	8	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 850	12		
1.4110 (I)		H	13,5	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 850	12			
		P	75									
1.4419 (I)		C	3	QT	from 46 up to 52 (24)	from 450 up to 560 (25)						
		C	4	A	97 ⁽⁶⁾	235 ⁽⁶⁾		max 760	15			
1.4122 (I)		H	6,5									
		C	3	QT	from 47 up to 53 (24)	from 480 up to 580 (25)						
1.4313 (I)		C	8	A	100 ⁽⁶⁾	280 ⁽⁶⁾		max 900	12			
		H	13,5									
1.4313 (I)		P ⁽⁴⁾	75	QT780	630 *	from 780 up to 980	15			70		
1.4418 (I)		P ⁽⁴⁾	75	QT900	800 *	from 900 up to 1100	11					
		P ⁽⁴⁾	75	QT840	660 *	from 840 up to 1100	14				55	
1.4422 (I)		H	13,5	A	100 ⁽⁶⁾	300 ⁽⁶⁾	550 *	from 750 up to 950	15		100	
		P	75	QT650	max 300 ⁽²⁵⁾	300 ⁽⁶⁾						
1.4423 (I)		H	13,5	A	100 ⁽⁶⁾	300 ⁽⁶⁾	550 *	from 750 up to 950	15		100	
		P	75	QT650	max 300 ⁽²⁵⁾	300 ⁽⁶⁾						