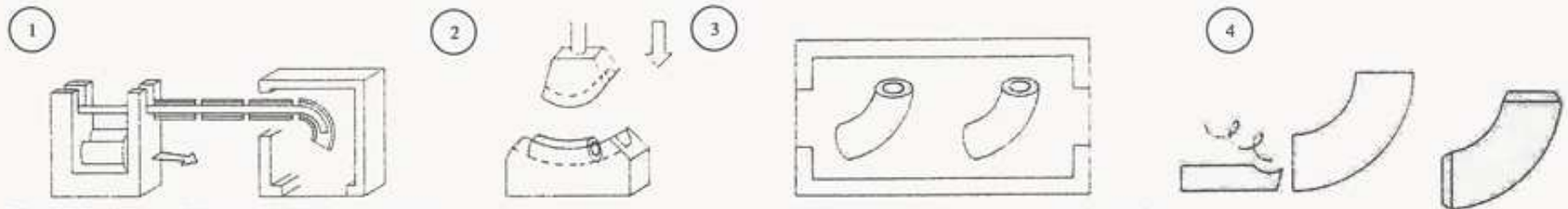


**COTURI FĂRĂ SUDURĂ LA 90° CU RAZĂ LUNGĂ (R = 1,5D)
CONF. ANSI B16.9
ELBOWS SEAMLESS TO 90° WITH LONG RADIUS
ACCORDING TO ANSI B16.9**

Cote nominale <i>Nominal shares</i>	Diametru exterior <i>Exterior Diameter OD</i>	Cote <i>Shares</i>		SCH 30		STD		SCH 40		SCH 60		XS		SCH 80	
		A	K	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight
Inch	mm	mm	mm	mm	kg	mm	kg	mm	kg	mm	kg	mm	Kg	mm	kg
1 ½"	48,3	57	83	-	-	3,68	0,38	3,68	0,38	-	-	-	-	-	-
2"	60,3	76	106	-	-	3,91	0,68	3,91	0,68	-	-	5,54	0,90	5,54	0,90
2 ½"	73,1	95	132	-	-	5,16	1,30	5,16	1,30	-	-	7,01	1,78	7,01	1,78
3"	88,9	114	159	-	-	5,49	2,08	5,49	2,08	-	-	7,62	2,78	7,62	2,78
4"	114,3	152	210	-	-	6,02	3,90	6,02	3,90	-	-	8,56	5,46	8,56	5,46
5"	141,3	190	262	-	-	6,55	6,67	6,55	6,67	-	-	9,53	9,34	9,53	9,34
6"	168,3	229	313	-	-	7,11	10,40	7,11	10,40	-	-	10,97	15,50	10,97	15,50
8"	219,1	305	414	7,04	18,5	8,18	20,90	8,18	20,90	10,30	26	12,70	31,30	12,70	31,30
10"	273	381	518	7,80	32,04	9,27	37,00	9,27	37,00	12,70	50	12,70	49,40	-	-
12"	323,8	457	619	8,38	49,12	9,53	54,00	10,31	60,07	14,30	80	12,70	71,20	-	-
14"	355,6	533	711	9,53	69,80	9,53	69,80	11,13	83,06	15,10	108	12,70	91,60	-	-
16"	406,4	607	813	9,53	91,20	9,53	91,20	12,70	120,20	16,70	155	12,70	120,20	-	-

Funcție de material / Depending on material



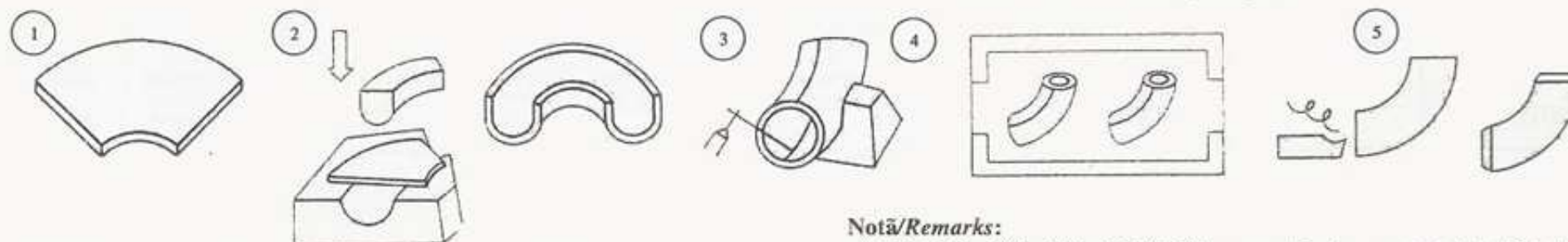
Materiale: ASTM A-234; A-403; A-420.
Materials
Executie : ANSI B16.9 ; B16.25;(la capete)
Manufacture:
Control : ASTM SA 234
Control

Marcare : ANSI B16.9
Mark:
Documentatie : ASTM, EURONORM,DIN
Documentation
Protectie si ambalare: LA CONTRACTARE
Protecting and packing: AT SIGNING OF THE CONTRACT

**COTURI CU SUDURĂ LA 90° CU RAZĂ LUNGĂ (R = 1,5D)
ELBOWS WITH WELDING TO 90° WITH LONG RADIUS
ANSI B16.9**

Cote Nominale <i>Nominal shares</i>	Diametru exterior <i>Exterior Diameter OD</i>	Cote Shares		SCH 20		SCH 30		STD		SCH 40		XS	
		A	K	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight
Inch	mm	mm	mm	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
18"	457	683	914	7,92	99,20	11,13	138,29	9,52	116,10	14,27	176,21	12,7	153,30
20"	508	762	1016	9,52	143,80	12,70	190,1	9,52	143,8	15,09	229,96	12,7	190,1
24"	609,6	914,4	1219,2	9,52	203	14,27	315,4	9,52	207,7	17,45	384,1	12,7	274,9
26"	660,4	990,6	1320,8	12,7	323,4	-	-	9,53	244,5	-	-	12,7	323,4
28"	711,2	1066,8	1422,4	12,7	385,0	15,88	478,6	9,53	308,0	-	-	12,7	385,0
30"	762	1143	1524	12,7	452,3	15,88	550,2	9,53	326,6	-	-	12,7	452,3
32"	813	1219,2	1625,6	12,7	511,0	15,88	627,0	9,53	386,0	17,45	689,0	12,7	511,0
34"	863,6	1295,4	1727,2	12,7	558,0	15,88	708,5	9,53	420,0	17,45	778	12,7	558,0
36"	914	1372	1829	12,7	626,0	15,88	795,0	9,53	472,0	19,05	951,0	12,7	626,0
40"	1016	1524	2032	-	-	-	-	9,53	590,0	-	-	12,7	794,0
42"	1066,8	1600	2129	-	-	-	-	9,53	644,0	-	-	12,7	853,0
48"	1220	1828,8	2440	-	-	-	-	9,53	907,0	-	-	12,7	1134,0

Funcție de material / Depending on material



Materiale: ASTM A-234; A-403; A-420.
Material:
Execuție: ANSI B16.9; B16.28 ;
Manufacture: B16.25 (la capete/al extremities)
Control: ASTM SA

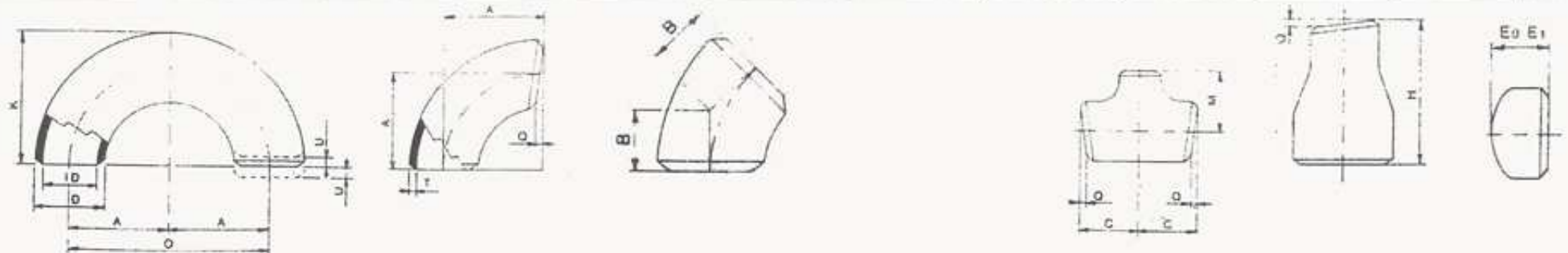
Marcare: ANSI B16.9
Mark:
Documentație: ASTM, EURONORM
Documentation:
Protecție
Si ambalare: la contractare
Portecting and: At signing of the contract
paching

Notă/Remarks:

* 26" ; 28" ; 30" ; 32" ; 34" SI 36" se execută si cu grosimi de la 19 la 25 mm
26" ; 28" ; 30" ; 32" ; 34" SI 36" execute with thickness from 19 to 25 mm
** curbe cu sudură la 90° cu rază scurtă (R = D- ANSI B16.28)
curves with welding to 90° with short radius
16" ; 20" ; 28" ; 30" ; 32" ; 36" – STD; XS se execută si cu grosimi de la 16 la 20 mm
16" ; 20" ; 28" ; 30" ; 32" ; 36" – STD; XS and thickness from 16 at 20 mm

TOLERANTE CONFORM ANSI B16.9 SI ANSI B16.28
THE TOLERANCES OF FITTINGS ACCORDING TO ANSI B16.9 AND ANSI B16.28

Diametrul nominal <i>Nominal diameter</i>	Diametru exterior <i>Exterior diameter</i>	Diametru interior <i>Interior diameter</i>	Grosime <i>Thickness</i>	Abateră de la centru la extremitate <i>Deviation from center to extremity</i>	Lungimea totală (reducții) <i>Total length (reducers)</i>	Lungimea totală (teuri) <i>Total length (tees)</i>	Abateră unghiulară <i>Angular deviation</i>	Abateră de la planitate <i>Deviation to planity</i>	Agaterea între axe <i>Deviation between axis</i>	Înălțime <i>Height</i>	Aliniamentu capetelor <i>Extremities alignment</i>			
NPS - DE	O.D.	ID	t	A-B-C-M	H	E	Q	P	O	K	U			
Inch mm	Inch mm	Inch mm	%	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm	Inch mm			
½" + 3 ½"	+0,06" -0,03"	± 0,03"	-12,5%	± 0,06" ± 1,52 mm	± 0,06" ± 1,52 mm	± 0,12" ± 3,05mm	± 0,03" ± 0,76mm	± 0,06" ± 1,52mm	± 0,25" ± 6,35mm	± 0,25" ± 6,35 mm	± 0,03" ± 0,76mm			
21,3 + 73 mm	+1,52 mm -0,76 mm	± 0,76mm												
3" + 3 ½"	± 0,06"	± 0,06"												
88,9 + 101,6mm														
4"	± 1,52 mm	± 1,52 mm												
114,3mm														
5" + 8"	+0,09" -0,06"									± 0,06" ± 1,52mm	± 0,12" ± 3,05mm			
141,3" + 219,1 mm	+2,38 mm -1,52 mm													
10" + 12"	+0,16" -0,12"	± 0,12"									± 0,19" ± 4,82mm			
273 + 323,8 mm														
14" + 16"	+4,06mm -3,05 mm	± 3,05 mm									± 0,25" ± 6,35"			
355,6 + 406,4 mm														
18 + 457 mm														
20" + 24"								± 0,12" ± 3,05 mm						
508 + 610 mm									± 0,38" ± 9,65 mm					
26" + 30"	+0,25" -0,19"	± 0,19"												
660 + 762 mm														
32" + 42"	+6,35 mm -4,82 mm	± 4,82 mm												
813 + 1067 mm														
44" + 48"														
1118 + 1219 mm														
				± 0,09" ± 2,29 mm	± 0,09" ± 2,29 mm	± 0,25" ± 6,35 mm								
				± 0,12" ± 3,05 mm										
				± 0,19" ± 4,82mm	± 0,19" ± 4,82mm	± 0,38" ± 9,65mm								
							0,19" ± 4,82mm							
								± 0,50" ± 12,7 mm						
								± 0,75" ± 19,05 mm						



**COMPOZITIA CHIMICĂ SI CARACTERISTICILE MECANICE ALE MATERIALELOR
PENTRU FITINGURI – ASTM A.234
CHEMICAL AND PHYSICAL REQUIREMENTS MATERIALS FOR
FITTINGS MATERIALS – ASTM A.234**

Tipul Type	ASTM Grade Grade	Materiale/ Materials	Specif. ASTM Specif. ASTM		Caracteristici chimice / Chemical requirements							Caracteristici mecanice / Physical requirements		
			Nr. No.	Gradul Grade	C%	MN%	SI%	P Max%	S Max%	Cr%	Mo%	R min Kg/mm ²	S min Kg/mm ²	A su2 ⁺ min%
Carbon steels	WP A	Teavă/ Pipe	A 106	A	0,25Max	0,37-0,93	0,10Min	0,048	0,058			34	21	35
		Tablă/ Plate	A285	B	0,35Max	0,80Max		0,040	0,050			35/42	18,9	29
			A285	C	0,35Max	0,80Max		0,040	0,050			37,5/45,5	21	28
		Forjate/ Forging	A181	1	0,35Max	0,80Max	0,35Max	0,050	0,050			42	21	25
	WP B	Teavă/ Pipe	A106	B	0,30Max	0,29-1,06	0,10Min	0,048	0,058			42	24,5	30
		Tablă/ Plate	A515	65	0,28-0,33	0,90Max	0,13-0,33	0,040	0,050			45,5/55	24,5	23
			70	0,31-0,35	0,90Max	0,13-0,33	0,040	0,050			49/59,5	26,6	21	
	Forjate/ Forging	A505		0,35Max	0,90Max	0,35Max	0,050	0,050			49	25,2	22	
Alloy steels	WP1	Teavă/ Pipe	A305	P1	0,10-0,20	0,30-0,80	0,10-0,50	0,045	0,045		0,44-0,65	37,5	21	30
		Tablă/ Plate	A204	B	0,20-0,27	0,90Max	0,13-0,32	0,040	0,050		0,41-0,64	49/59,5	28	22
		Forjate/ Forging	A182	F1	0,30Max	0,50-0,85	0,15-0,35	0,045	0,045		0,44-0,65	49	28	25
	WP12	Teavă/ Pipe	A335	P12	0,15Max	0,30-0,61	0,50Max	0,045	0,045	0,80-0,65	0,44-0,65	42	21	30
		Tablă/ Plate	A387	12	0,17Max	0,36-0,69	0,13-0,32	0,040	0,050	0,40-0,70	0,40-0,70	42/57,4	24,5	23
		Forjate/ Forging	A182	F12	0,10-0,20	0,30-0,80	0,10-0,60	0,040	0,040	0,44-0,65	0,44-0,65	49	28	20
	WP11	Teavă/ Pipe	A335	P11	0,15Max	0,30-0,60	0,50-1,00	0,030	0,030	0,44-0,65	0,44-0,65	42	21	30
		Tablă/ Plate	A387	11	0,17Max	0,36-0,69	0,48-1,02	0,040	0,050	0,40-0,70	0,40-0,70	42/59,5	24,5	23
		Forjate/ Forging	A182	F11	0,10-0,20	0,30-0,80	0,50-1,00	0,040	0,040	0,44-0,65	0,44-0,65	49	28	20
	WP22	Teavă/ Pipe	A335	P22	0,15Max	0,30-0,60	0,50Max	0,030	0,030	0,87-1,13	0,87-1,13	42	21	30
		Tablă/ Plate	A387	22	0,15Max	0,27-0,63	0,50Max	0,035	0,035	0,85-1,15	0,85-1,15	42/59,5	21	20
		Forjate/ Forging	A182	F22	0,15Max	0,30-0,60	0,50Max	0,040	0,040	0,87-1,13	0,87-1,13	49	28	20
WP1	WP5	Teavă/ Pipe	A335	P5	0,15Max	0,30-0,60	0,50Max	0,030	0,030	0,45-0,65	0,45-0,65	42	21	30
		Tablă/ Plate	A387	5	0,15Max	0,30-0,60	0,50Max	0,040	0,030	0,45-0,65	0,45-0,65	42/56	21	20
		Forjate/ Forging	A182	F5	0,15Max	0,30-0,60	0,50Max	0,030	0,030	0,44-0,65	0,44-0,65	42	21	22

**COMPOZITIA CHIMICĂ SI CARACTERISTICILE MECANICE ALE
MATERIALELOR PENTRU FITINGURI – ASTM A.403
CHEMICAL AND PHYSICAL REQUIREMENTS MATERIALS FOR
FITTINGS MATERIALS – ASTM A.403**

Tipul Type	ASTM Grade Grade	Materiale/ Materials	Specif. ASTM Specif. ASTM		Caracteristici chimice / Chemical requirements									Caracteristici mecanice / Physical requirements		
			Nr. No.	Gradul Grade	C Max %	Mn Max %	SI Max %	P Max %	S Max %	Cr Max %	Ni Max %	Mo Max %	Stab. Stab.	R Min Kg/m ²	S min Kg/m ²	A Su2" Min%
WP304	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312	TP304	0,08	2,00	0,75	0,040	0,030	18,0-20,0	8,0-11,0			53	21	35	
		A240	304	0,08	2,00	1,00	0,045	0,030	18,0-20,0	8,0-12,0			53	21	40	
		A182	F304	0,08	2,00	1,00	0,040	0,030	18,0-20,0	8,0-11,0			53	21	45	
WP 304L	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312	TP304L	0,035	2,00	0,75	0,040	0,030	18,0-20,0	8,0-13,0			49	17,5	35	
		A240	304L	0,030	2,00	1,00	0,045	0,030	18,0-20,0	8,0-12,0			49	17,5	40	
		A5	F304L	0,035	2,00	1,00	0,040	0,030	18,0-20,0	8,0-13,0			49	17,5	30	
WP309	Teavă/Pipe Tablă/Plate Forjate/Forjng	A305	TP309	0,15	2,00	0,75	0,040	0,030	22,0-24,0	12,0-15,0			53	21	35	
		A204	309S	0,08	2,00	1,00	0,045	0,030	22,0-24,0	12,0-15,0			53	21	40	
		A182	309S	0,08	2,00	1,00	0,045	0,030	22,0-24,0	12,0-15,0			53	21	40	
WP310	Teavă/Pipe Tablă/Plate Forjate/Forjng	A335	TP310	0,15	2,00	0,75	0,040	0,030	24,0-26,0	19,0-22,0			53	21	35	
		A387	310S	0,08	2,00	1,50	0,045	0,030	24,0-26,0	19,0-22,0			53	21	40	
		A182	TF310	0,15	2,00	1,00	0,040	0,030	24,0-26,0	19,0-22,0			53	21	35	
WP347	Teavă/Pipe Tablă/Plate Forjate/Forjng	A335	TP347	0,08	2,00	0,75	0,040	0,030	17,0-20,0	9,0-13,0		a)	53	21	35	
		A387	347	0,08	2,00	1,00	0,045	0,030	17,0-20,0	9,0-13,0		a)	53	21	40	
		A182	F347	0,080	2,00	1,00	0,030	0,030	17,0-20,0	9,0-13,0		a)	53	21	45	
WP316	Teavă/Pipe Tablă/Plate Forjate/Forjng	A335	TP316	0,08	2,00	0,75	0,040	0,030	16,0-18,0	11,0-14,0	2,00-3,00		53	21	35	
		A387	316	0,08	2,00	1,00	0,045	0,030	16,0-18,0	10,0-14,0	2,00-3,00		53	21	40	
		A182	F316	0,08	2,00	1,00	0,040	0,030	16,0-18,0	10,0-14,0	2,00-3,00		53	21	45	
WP316L	Teavă/Pipe Tablă/Plate Forjate/Forjng	A335	TP316L	0,035	2,00	0,75	0,040	0,030	16,0-18,0	10,0-15,0	2,00-3,00		49	17,5	35	
		A387	316L	0,030	2,00	1,00	0,045	0,030	16,0-18,0	10,0-15,0	2,00-3,00		45,5	17,5	40	
		A182	F316L	0,035	2,00	1,00	0,040	0,030	16,0-18,0	10,0-15,0	2,00-3,00		45,5	17,5	30	
WP317	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312	TP317	0,08	2,00	0,75	0,040	0,030	18,0-20,0	11,0-14,0	3,00-4,00		53	21	35	
		A240	317	0,08	2,00	1,00	0,045	0,030	18,0-20,0	11,0-15,0	3,00-4,00		53	21	35	
		A182	F317	0,08	2,00	1,00	0,045	0,030	18,0-20,0	10,0-14,0	3,00-4,00		53	21	40	
WP321	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312	TP321	0,08	2,00	0,75	0,040	0,030	17,0-20,0	9,0-13,0		b)	53	21	35	
		A240	321	0,08	2,00	1,00	0,045	0,030	17,0-19,0	9,0-13,0		b)	53	21	40	
		A182	F321	0,08	2,00	0,85	0,035	0,030	17,0Min	9,0 Min		b)	53	21	45	
WP348	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312	TP348	0,08	2,00	0,75	0,040	0,030	17,0-20,0	9,0-13,0		a)	53	21	35	
		A240	348	0,08	2,00	1,00	0,045	0,030	17,0-19,0	9,0-13,3		a)	53	21	40	
		A182	F348	0,08	2,00	1,00	0,030	0,030	17,0-20,0	9,0-13,0		a)	53	21	45	

Notă:

Remarks: a) The columbium plus tantalum shall be not less than ten times the carbon and not more than 1% b) The titanium content shall be not less than five times the carbon content and not more than 0,60%

**COMPOZITIA CHIMICĂ SI CARACTERISTICILE MECANICE ALE
MATERIALELOR PENTRU FITINGURI – ASTM A.420
CHEMICAL AND PHYSICAL REQUIREMENTS MATERIALS FOR
FITTINGS MATERIALS – ASTM A.420**

Material/ Material	Grade/ Grade	Materiale/ Materials	Specif. ASTM Specif. ASTM		Caracteristici chimice / Chemical requirements									
			Nr. No.	Gradul Grade	C%	Mn%	SI%	P Max%	S Max%	Cr Max %	Ni %	Cu%	Al%	
Carbon steel	WP304	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312 A240 A182											
31,2% Ni 31,2% Ni Steel	WP 304L	Teavă/Pipe Tablă/Plate Forjate/Forjng	A312 A240 A5											
Caracteristici mecanice / Physical requirements										Impact tests				
ASTM Grade/ Grade	Materiale/ Materials	Specif. ASTM Specif. ASTM		R Kg/mm ²	S Kg/mm ²	A Su2" min90%	Temperatura Temperature °C	Spec.sizes mm x mm	Val.min. impact admisă Min. impact value permit					
		Nr. No.	Gradul Grade											
WPL6	Teavă/Pipe Tablă/Plate Forjate/Forjng	A333	0	39	21	35	-46	10x10	2,10	1,38				
		A201	A	39 -45,5	21	28	-46							
		A201	B	42- 50,4	22,4	25	-46							
		A350	LF1	42	21	25	-46							
WPL3	Teavă/Pipe Tablă/Plate Forjate/Forjng	A333	3	45,5	24,5	30	-101	10x7,5	1,73	1,18				
		A203	D	45,5-54	26	24	-101							
		A203	E	49 -59,5	28	22	-101							
		A350	LF3	49	28	25	-101							