

**COTURI FABRICATE PE DORN CU PLECARE DIN TEAVA FARA SUDURA CONFORM STAS 8804**

**ELBOWS MANUFACTURED BY PULLING ON FISHING TAP WITH STARTING UP ON TUBES SEAMLESS ACCORDING TO STAS 8804**

Cotes - Masse						Coloana 2 - Columns 2		Coloana 3 - Columns 3		Coloana 4 - Columns 4		Coloana 5 - Columns 5	
Cote nominal Nomina Shares	Diametru Exterior diameter OD	Tipul unghiului Angle's type	A	K	2K	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight	Grosime Thickness S	Greutate Weight
DN	mm	°	mm	mm	mm	mm	kg	mm	Kg	mm	kg	mm	kg
40	48,3	900	57	82	164	-	-	2,6	0,26	4,0	0,39	5,0	0,48
	51	900	63,5	88	176	-	-	2,6	0,31	-	-	-	-
	57	900	72	100	200	-	-	2,9	0,44	-	-	-	-
50	60,3	900	76	106	212	-	-	2,9	0,49	4,5	0,74	5,6	0,90
65	76,1	900	95	133	266	-	-	-	-	5,0	1,31	7,1	1,81
80	88,9	900	114	159	318	-	-	-	-	5,6	2,07	8,0	2,87
100	114,3	900	152	210	420	-	-	-	-	6,3	4,02	8,8	5,50
125	139,7	900	190	260	520	-	-	-	-	6,3	6,20	10,0	9,6
150	159	900	216	294	588	-	-	-	-	7,1	10,1	11	15,3
	168,3	900	229	313	626	-	-	-	-	7,1	10,1	11	15,3
200	219,1	900	305	414	828	-	-	-	-	8,0	20,0	12,5	30,5
250	273	900	381	518	1036	-	-	-	-	8,8	34,3	-	-
300	323,9	900	457	619	1238	-	-	-	-	10,0	55,6	-	-
350	355,6	900	533	711	1422	-	-	-	-	11,0	78,3	-	-
400	406,4	900	610	813	1626	-	-	-	-	12,5	116,0	-	-

Materiale: EURONORM

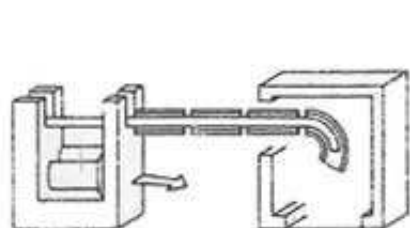
Executie : STAS 8804

Control : STAS 8804

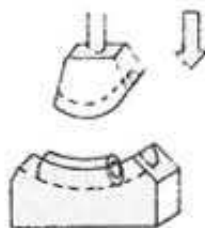
Marcare : STAS 8804

Documentatie : EURONORM

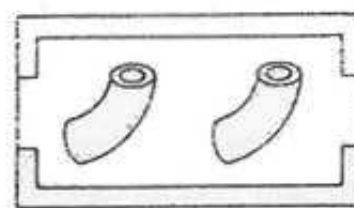
Protectie si ambalare: LA CONTRACTARE



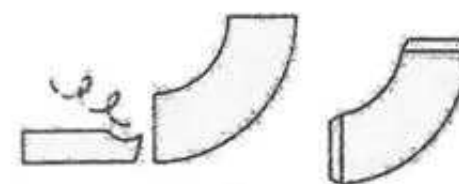
1



2



3

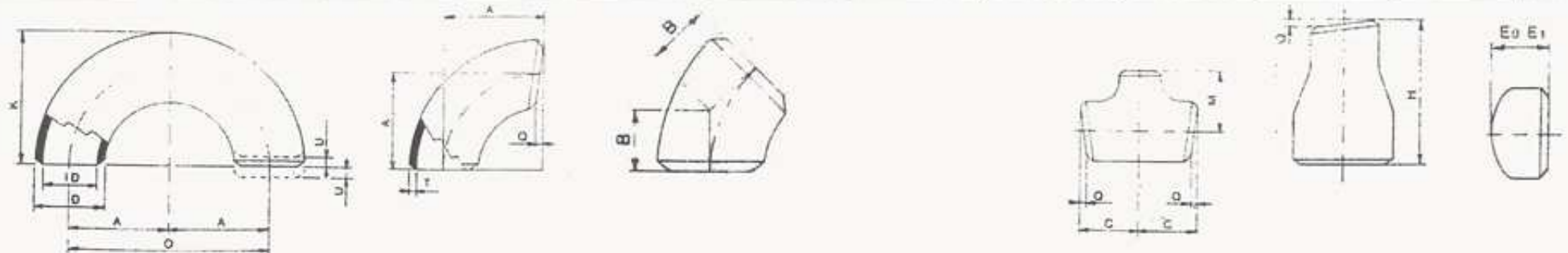


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Functie de material / Depending on material

**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 <sup>2</sup>	S min Kg/mm <sup>2</sup>	A su2 <sup>+</sup> 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	I	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 <sup>2</sup>	S min Kg/m <sup>2</sup>	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 <sup>2</sup>	S Kg/mm <sup>2</sup>	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							