

Secondo gli standard:

According to:

- ASME B31.3 - PROCESS PIPING

Tee laterali

Lateral tees



Design calculation for lateral tees

According to ASME B31.3

Lateral tee 4" x 4" STD ASTM A234 WPB-W
 Lateral tee 4" x 3" STD ASTM A234 WPB-W
 Lateral tee 4" x 2" STD ASTM A234 WPB-W
 Ref. para. 304.3.3 fig. 304.3.3

1) DESIGN DATA

Design Pressure
 Design Temperature
 Design Factor
 Allowable Stress at Design Temperature
 Corrosion Allowance
 Weld joint strength reduction factor

2) MATERIAL DATA

Joint Factor
 Sin of "Smaller angle between axes of branch and run" ($\beta = 45^\circ$)

3) DIMENSIONAL DATA

Outside Diameter of the Run
 Wall Thickness at Bevel of the Run
 Outside Diameter of the Branch
 Wall Thickness at Bevel of the Branch
 Minimum Required Thickness of Run
 Minimum Required Thickness of Branch
 Inside Diameter of Welded Outlet
 Half Width of Reinforcement Zone
 Minimum Thickness of Reinforcement ring

4) CALCULATION

Minimum Required Thickness of the Run
 Minimum Required Thickness of the Branch
 Height of the Reinforcement Zone
 Required Area
 Reinforcement Area 2
 Reinforcement Area 3
 Reinforcement Area 4
 Total Reinforcement Area

			4"X 4" STD ASTM A234 WPB-W	4"X 3" STD ASTM A234 WPB-W	4"X 2" STD ASTM A234 WPB-W
P	MPa	=	0,83	0,83	0,83
T	°F	=	372	372	372
Y		=	0,4	0,4	0,4
S	N/mm ²	=	148,9	148,9	148,9
C	mm	=	1,27	1,27	1,27
W		=	1	1	1
E		=	1	1	1
sin β		=	0,707	0,707	0,707
Dh	mm	=	114,3	114,3	114,3
WT1	mm	=	6,02	6,02	6,02
Db	mm	=	114,3	88,9	60,3
WT2	mm	=	6,02	5,49	3,91
Th	mm	=	5,27	5,27	5,27
Tb	mm	=	5,27	4,80	3,42
d1	mm	=	150,35	115,76	79,20
d2	mm	=	114,3	114,3	79,20
Tr	mm	=	0	0	0
th	mm	=	0,32	0,32	0,32
tb	mm	=	0,32	0,25	0,17
L4	mm	=	10,00	8,83	5,38
A1	mm ²	=	61,793777	47,574814	32,550148
A2	mm ²	=	288,11	415,51	291,63
A3	mm ²	=	104,16	81,95	30,23
A4	mm ²	=			
TA	mm ²	=	392,28 (> A1)	497,46 (> A1)	321,86 (> A1)

t. A1 of ASME B31.3
 acc. to par. 302.3.5(e)

C included
 C included

(pad)
 = P Dh / (2*(SEW + PY))
 = P Db / (2*(SEW + PY))

= 2,5 (Tb - c) + Tr
 = Required Area
 = Reinf. Area
 = Reinf. Area
 not considered
 = A2 + A3 + A4

REINFORCEMENT PAD NOT REQUIRED

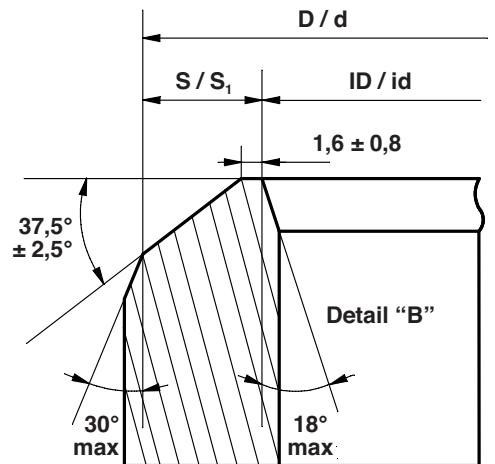
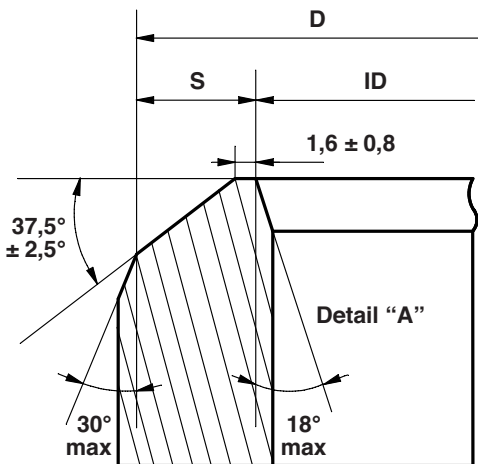
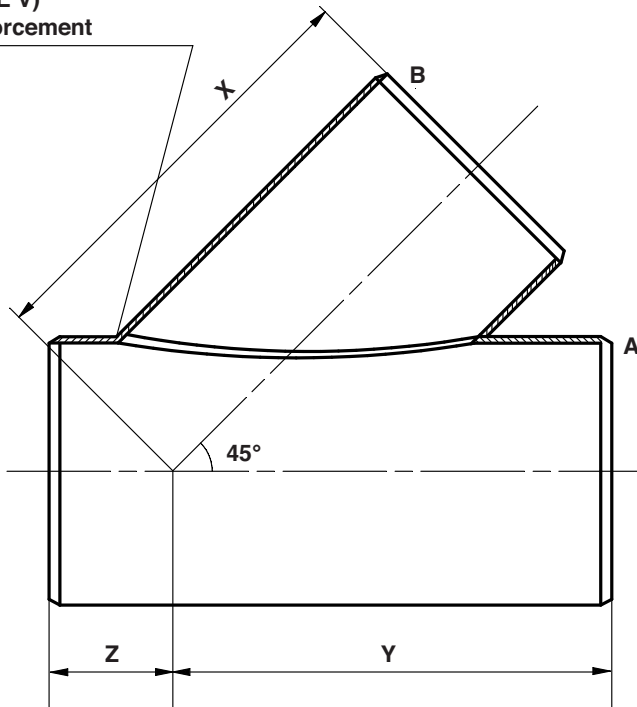
Tee laterali

Lateral tees

Item: Lateral tee 4" x 4" SCH 80 mach.ed to STD
Material: fabricated from Seamless Pipe ASTM A106 Gr.B
ASME B31.3 - 2010
Appl. Std. ANSI / ASME B16.25 - 2007

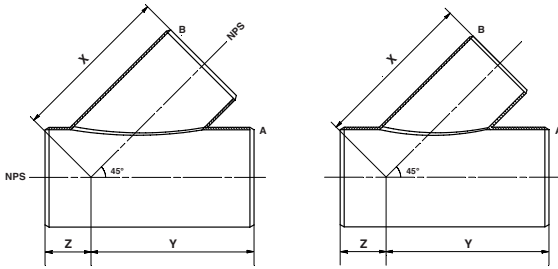


weld 100% RT (ASME V)
without added reinforcement



Tee laterali

Lateral tees



OD [mm]	XY [mm]	Z [mm]	NPS	SCH. STD	SCH. XS	SCH. 10	SCH. 20	SCH. 30	SCH. 40	SCH. 60	SCH. 80	SCH. 100	SCH. 120	SCH. 140	SCH. 160	SCH. XXS
21,3	88,9	50,8	1/2"	2,77	3,73	—	—	—	2,77	—	3,73	—	—	—	4,75	7,47
26,7	107,95	50,8	3/4"	2,87	3,91	—	—	—	2,87	—	3,91	—	—	—	5,54	7,82
33,4	133,35	50,8	1"	3,38	4,55	—	—	—	3,38	—	4,55	—	—	—	6,35	9,09
42,2	184,17	57,15	1 1/4"	3,56	4,85	—	—	—	3,56	—	4,85	—	—	—	6,35	9,70
48,3	215,9	63,5	1 1/2"	3,68	5,08	—	—	3,18	3,68	—	5,08	—	—	—	7,14	10,16
60,3	228,6	63,5	2"	3,91	5,54	—	—	3,18	3,91	—	5,54	—	—	—	8,74	11,07
73,0	266,7	63,5	2 1/2"	5,16	7,01	—	—	4,78	5,16	—	7,01	—	—	—	9,52	14,02
88,9	279,4	76,2	3"	5,49	7,62	—	—	4,78	5,49	—	7,62	—	—	—	11,12	15,24
101,6	279,4	76,2	3 1/2"	5,74	8,08	—	—	4,78	5,74	—	8,08	—	—	—	—	—
114,3	342,9	76,2	4"	6,02	8,56	—	—	4,78	6,02	—	8,56	—	11,12	—	13,49	17,12
141,3	381,0	88,9	5"	6,55	9,52	—	—	—	6,55	—	9,52	—	12,70	—	15,87	19,05
168,3	444,5	101,6	6"	7,11	10,97	—	—	—	7,11	—	10,97	—	14,27	—	18,24	21,94
219,1	520,7	127,0	8"	8,18	12,70	—	6,35	7,04	8,18	10,30	12,70	15,06	18,24	20,62	23,01	22,22
273,0	609,6	139,7	10"	9,27	12,70	—	6,35	7,80	9,27	12,70	15,06	18,24	21,41	25,40	28,57	25,40
323,8	698,5	152,4	12"	9,52	12,70	—	6,35	8,38	10,31	14,30	17,45	21,41	25,40	28,57	33,32	25,40
355,6	787,4	165,1	14"	9,52	12,70	6,35	7,92	9,52	11,12	15,10	19,05	23,80	27,76	31,75	35,71	—
406,4	876,3	177,8	16"	9,52	12,70	6,35	7,92	9,52	12,70	16,70	21,41	26,19	30,94	36,52	40,46	—
457,2	952,5	203,2	18"	9,52	12,70	6,35	7,92	11,12	14,27	19,05	23,80	29,36	34,92	39,67	45,24	—
508,0	1028,7	215,9	20"	9,52	12,70	6,35	9,52	12,70	15,06	20,60	26,19	32,54	38,10	44,45	49,99	—
558,8	1111,5	228,6	22"	9,52	12,70	6,35	9,52	12,70	—	22,23	28,58	34,93	41,28	47,63	53,98	—
609,6	1205,5	254,0	24"	9,52	12,70	6,35	9,52	14,25	17,45	24,60	30,94	38,89	46,02	52,37	59,51	—
660,4	1308,1	266,7	26"	9,52	12,70	7,92	12,70	—	—	—	—	—	—	—	—	—
711,2	1422,4	286,0	28"	9,52	12,70	7,92	12,70	15,88	—	—	—	—	—	—	—	—
762,0	1524,0	298,5	30"	9,52	12,70	7,92	12,70	15,88	—	—	—	—	—	—	—	—
812,8	1625,8	311,4	32"	9,52	12,70	7,92	12,70	15,88	17,45	—	—	—	—	—	—	—
863,6	1727,2	330,2	34"	9,52	12,70	7,92	12,70	15,88	17,45	—	—	—	—	—	—	—
914,4	1828,8	349,5	36"	9,52	12,70	7,92	12,70	15,88	19,05	—	—	—	—	—	—	—
965,2	1930,4	368,5	38"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—
1016,0	2032,0	387,5	40"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—
1066,8	2133,6	406,5	42"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—
1118,0	2235,2	425,5	44"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—
1168,4	2336,8	444,5	46"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—
1219,2	2438,4	463,5	48"	9,52	12,70	—	—	—	—	—	—	—	—	—	—	—