

According to:

- ASME B31.1 - POWER PIPING
- ASME B31.3 - PROCESS PIPING
- ASME B31.4 - LIQUID & SLURRY PIPING TRANSPORTATION SYSTEM
- ASME B31.8 - GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS

**Tes con barras \***

Barred tees \*

\* Bar number and configuration to be defined before the order



# Calculation of reinforcement of straight tee and extruded outlet

According to ASME B31.8

478,6 x 14" WT 25,0 / 15,88 MSS SP-75 WPHY65  
 478,6 x 12" WT 25,0 / 15,88 MSS SP-75 WPHY65  
 14" x 12" WT 15,88 / 15,88 MSS SP-75 WPHY65  
 Ref. para. 831.6, appendix F fig. F-3

## 1) DESIGN DATA

Design Pressure  
 Design Temperature  
 Corrosion Allowance  
 Design Factor  
 Longitudinal Joint Factor  
 Temperature Derating Factor

## 2) MATERIAL DATA

Material Grade  
 Minimum Yield Stress

## 3) DIMENSIONAL DATA

Run Outside Diameter at Bevel  
 Branch Outside Diameter at Bevel  
 Minimum Required Thickness of Run  
 Minimum Required Thickness of Branch  
 Run Used Thickness

Branch Used Thickness

Half length of Tee if Less than r1  
 Branch Thickness at Height ro

## 4) VERIFICATION OF COMPENSATION

Minimum Calculated Thickness of Run  
 Minimum Calculated Thickness of Branch  
 Coefficient "K"  
 Branch Corroded Internal Diameter  
 Half Width of Reinforcement Zone  
 Height of Reinforcement Zone

Radius of Curvature of Outlet  
 Required Reinforcement Area  
 Available Reinforcement Area in Header  
 Available Reinforcement Area in Branch  
 Available Reinforcement Area in Branch Lip  
 Total Reinforcement Area  
 Efficiency Factor

			478,6 x 14" WT 25,0 / 15,88	478,6 x 12" WT 25,0 / 15,88	14" x 12" WT 15,88 / 15,88	
<b>P</b>	N/mm <sup>2</sup>	=	13,50	13,50	13,50	
<b>DT</b>	°C	=	-46/75	-46/75	-46/75	
<b>c</b>	mm	=	5,00	5,00	5,00	
<b>F</b>	F	=	0,50	0,50	0,50	from table 841.1.6-1
<b>E</b>	E	=	1,00	1,00	1,00	from table 841.1.7-1
<b>T</b>	T	=	1,00	1,00	1,00	from table 841.1.8-1
		=	WPHY 65	WPHY 65	WPHY 65	
<b>S</b>	N/mm <sup>2</sup>	=	450,00	450,00	450,00	
<b>Dh</b>	mm	=	478,60	478,60	355,60	
<b>Db</b>	mm	=	355,60	323,80	323,90	
	mm	=	25,00	25,00	15,88	for reference only
	mm	=	15,88	15,88	15,88	for reference only
<b>Th</b>	mm	=	23,00	23,00	18,00	
		+ c =	28,00	28,00	23,00	
<b>Tb</b>	mm	=	16,00	16,00	18,00	
		+ c =	21,00	21,00	23,00	
<b>C</b>	mm	=	340,00	340,00	275,00	
<b>To</b>	mm	=	33,00 = Tb	33,00 = Tb	23,00 = Tb	
<b>th</b>	mm	=	14,36	14,36	10,67	= (PDh) / 2 (STEF)
<b>tb</b>	mm	=	10,67	9,71	9,72	= (PDb) / 2 (STEF)
<b>K</b>		=	1,00	1,00	1,00	= Db / Dh > 0,6
<b>Do</b>	mm	=	323,60	291,80	287,90	= Db - (2Tb)
<b>r1</b>	mm	=	323,60	291,80	275,00	
<b>L</b>	mm	=	52,80	50,38	53,45	= 0,7 √(Db Tb)
<b>L</b>	mm	=	52,00	50,00	50,00	used for calculation
<b>ro</b>	mm	=	44,00	40,00	40,00	= 1 / 8 Db
<b>A</b>	mm <sup>2</sup>	=	4646	4190	3071	= K th Do
<b>A1</b>	mm <sup>2</sup>	=	2797	2522	1922	= (2r1 - Do) (Th - th)
<b>A2</b>	mm <sup>2</sup>	=	555	629	828	2L (Tb - tb)
<b>A3</b>	mm <sup>2</sup>	=	1496	1360	400	2ro (To - Tb)
<b>TA</b>	mm <sup>2</sup>	=	4847	4510	3150	A1 + A2 + A3
<b>f</b>		=	1,043	1,077	1,026	TA / A

**TA > A - REINFORCED AREA IS SUFFICIENT**

# Tes con barras

## Barred tees

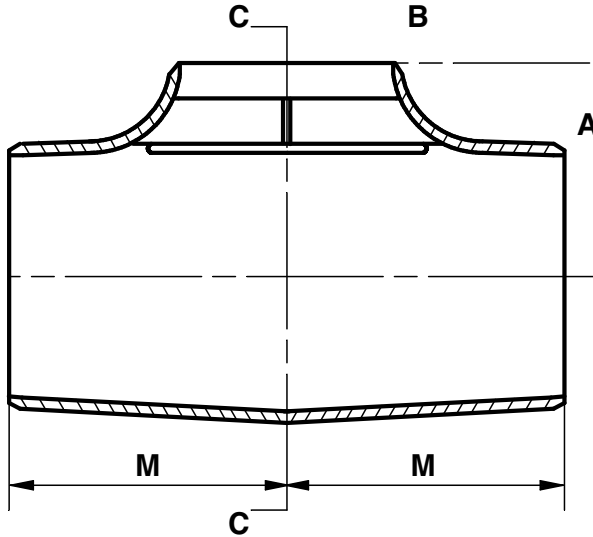
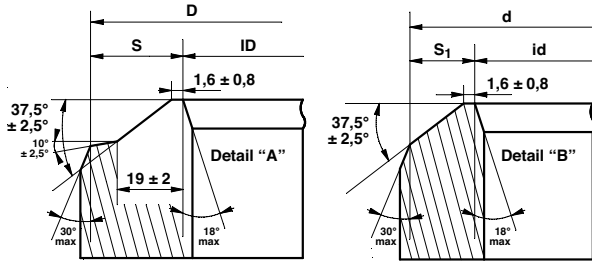
Item: BAR. TEE 478,6 x 14" WT. 25 / 15,88

Material: MSS SP-75 WPHY 65

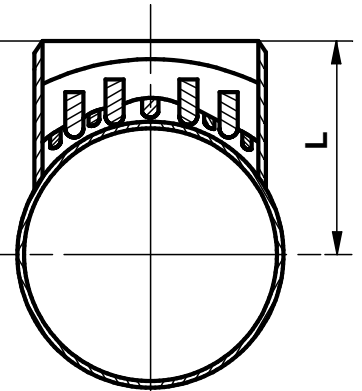
Appl. Std. MSS Sp-75 / PTS 31.40.21.30

Bars Material: ASTM A516 gr.70 or equivalent

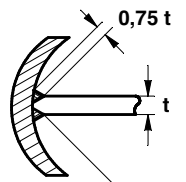
t = 12mm h = 50 mm



### Sect. C:C



### Det. F



full penetration

### Sect. E:E

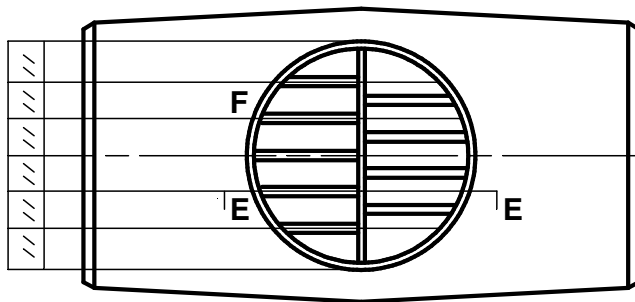
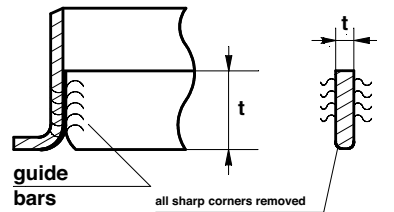


Fig. Passage: 97% Nominal Int. Diam.