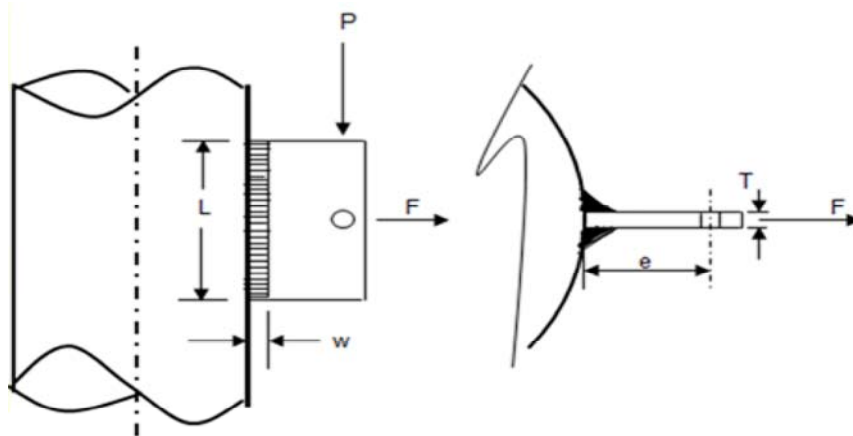


PIPING ENGINEERING

PIPE SUPPORT CLIP STRESS EVALUATION

INPUT DATA PGM RUN V1.0 / Pgm By C.M.Ryu/P.E

* Item Name	E-1004	* Description	NODE-320
* Pipe Allowable Stress, Sa	1054	kgf/cm ²	* Material
			A106-B
* Clip Dimensions, L	20	cm	* Pipe Size
			12
			in
* Clip Dimensions, T	0.8	cm	* Weld Dimensions, w
			0.6
			cm
* Clip Dimensions, e	7	cm	* Force in Vertical Direction, P
			8000
			Kgf
* Weld Joint Efficiency, E	0.5		* Force in Horizontal, F
			4000
			Kgf



RESULT OF CALCULATION

Reference: Pressure Vessel Design Handbook, Henry H. Bednar

1. Critical weld area, A=L*W		12.00	cm ²
2. Weld section modulus, Z=w*L ² /3		80.00	cm ³
3. Stress from force of P			
1) Bending S1=P*e/Z		700	Kgf/cm ²
2) Direct shear S2=P/W*L		667	Kgf/cm ²
3) Maximum Stress S=(S1 ² +S2 ²) ^{0.5}		967	Kgf/cm ²
4. Stress from force of F			
1) Shear Stress S3=F/(W*L)		333	Kgf/cm ²
5.. Max. combined Stress from P and F			
1) Max. Stress, Smax	{(S1+S3) ² +S2 ² } ^{0.5}	1,230	Kgf/cm ²
Result of stress check		Check !	

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