

WinNozl

Local Stress Analysis at Nozzle/Vessel Junctions

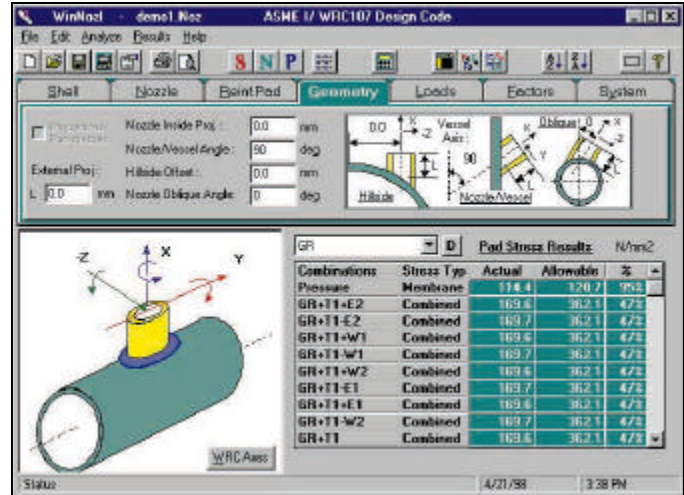
WinNozl is a native Windows based software program for calculation of local stresses at nozzle/vessel junctions, trunnion attachment points, clip connections, and lug attachments on the shell. Based on well known engineering design standards, WinNozl helps engineers and designers quickly determine whether or not the wall of a pressure vessel, exchanger, or tank can withstand piping loads on the nozzle or withstand loads at clip and lug connections.

WinNozl offers four Modules

1. Welding Research Council (WRC) Bulletin 107, including WRC 368 and ASME VIII, Div. 1 & 2 automatic load combinations and stress allowables
2. WRC Bulletin 297, including WRC 368 and ASME VIII, Div. 1 & 2 automatic load combinations and stress allowables
3. British Standard 5500, Appendix G
4. American Petroleum Institute design code 650, App. P

WinNozl provides a Number of Unique Capabilities

- Automatic import of piping forces and moments from AutoPIPE®
- Automatic creation of load combinations per selected design code
- Material database with built-in code dependent stress allowables including most recent ASME Section VIII code case changes
- Reinforcement pad calculations
- Option to calculate beyond design curves
- Hillside nozzle options
- Shell options for cylinders, spheres, cones, semi-ellipses, and torispheres
- Nozzle and lug connections for hollow cylinder, solid cylinder, hollow rectangle, and solid rectangle
- Automatic comparison of calculated stresses versus code allowables with option to sort stresses
- Incorporation of WRC 368 pressure design as part of WRC 107 and WRC 297



Engineers involved with design and analysis using Welding Research Council Bulletins 107 or 297 may note that WinNozl incorporates WRC 368 for pressure design as recommended by the Pressure Vessel Research Council (more info on PVRC can be found at <http://www.forengineers.org/>). Many piping and pressure vessel analysis methods overlook this important pressure design consideration when calculating local membrane stress, and membrane and bending stress intensity.

Stresses in	psi			Nozzle	Shell	Shell Pad			
Int. Pressure	Material	Vessel Type	Nozzle Type	ro (in)	Rm (in)	T (in)	dR	TR	
10 psi	A36-PS	Cylinder	Cyl-Hol	15.004	601.232	4.465	80.0	113	1
Combination	Max.Membrane	2334	Loads	(lb)			Moments (ft-lb)		
GR-T1	Max.Combined	7198	Long.VL	Circ.VC	Circ.MC	Long.ML	Tors.MT		
	Fig Value	Lambda	36595	19955	25255	42923	20824	34389	
			Au	AL	Bu	BL	Cu	CL	
F(Ne)	0.475	0.410	871	871	871	871	871	871	
F(Me)	0.270		2970	-2970	2970	-2970	2970	-2970	
MC(Ne)	0.093		0	0	0	0	89	89	
MC(Me)	0.373		0	0	0	0	1928	-1928	
ML(Ne)	0.271	0.410	-112	-113	113	113	0	0	
ML(Me)	0.358		-897	897	897	-897	0	0	
Pressure	Stress		1348	1348	1348	1348	1348	1348	
Circ.Membrane	Sum Stress		2106	2106	2332	2332	2299	2299	2299
			4173	33	6199	-1536	7198	-2600	
F(Ne)	0.028	0.410	69	69	69	69	69	69	
F(Me)	0.028		206	-206	206	-206	206	-206	
MC(Ne)	0.041		0	0	0	0	35	35	
MC(Me)	0.033		0	0	0	0	171	-171	
ML(Ne)	0.041	0.410	-17	-17	17	17	0	0	
ML(Me)	0.034		-85	85	85	-85	0	0	
Pressure	Stress		669	669	669	669	669	669	
				669	669	669	669	669	669

Experience this exciting new software application first hand. Call (925) 933 2525 for a free demonstration copy of WinNozl, or visit our Web site at <http://www.rebis.com/products/cae/winnozl>.



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