

Table 5.6
Examples of Stress Classification (Cont'd)

Vessel Component	Location	Origin of Stress	Type of Stress	Classification
Nozzle (see 5.6)	Within the limits of reinforcement given by 4.5	Pressure and external loads and moments, including those attributable to restrained free end displacements of attached piping	General membrane	P_m
			Bending (other than gross structural discontinuity stresses) averaged through nozzle thickness	
	Outside the limits of reinforcement given by 4.5	Pressure and external axial, shear, and torsional loads, including those attributable to restrained free end displacements of attached piping	General membrane	P_m
		Pressure and external loads and moments, excluding those attributable to restrained free end displacements of attached piping	Membrane	P_L
			Bending	P_b
		Pressure and all external loads and moments	Membrane	P_L
			Bending	Q
			Peak	F
	Nozzle wall	Gross structural discontinuities	Membrane	P_L
			Bending	Q
			Peak	F
		Differential expansion	Membrane	Q
			Bending	
			Peak	F
Cladding	Any	Differential expansion	Membrane	F
			Bending	
Any	Any	Radial temperature distribution [Note (3)]	Equivalent linear stress [Note (4)]	Q
			Nonlinear portion of stress distribution	F
Any	Any	Any	Stress concentration (notch effect)	F

NOTES:

- (1) Consideration shall be given to the possibility of wrinkling and excessive deformation in vessels with large diameter-to-thickness ratio.
- (2) If the bending moment at the edge is required to maintain the bending stress in the center region within acceptable limits, the edge bending is classified as P_b ; otherwise, it is classified as Q .
- (3) Consider possibility of thermal stress ratchet.
- (4) Equivalent linear stress is defined as the linear stress distribution that has the same net bending moment as the actual stress distribution.