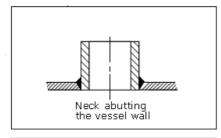
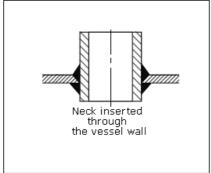
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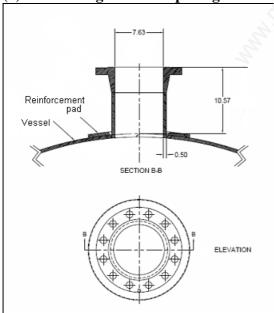
## Drawing – 3 Nozzle opening, Reinforcements, and Manhole with support

## (a) Attachment of Nozzle to a vessel





(b) Reinforcing a Nozzle opening



Nozzle pipe size (NPS): 8 inch Nozzle pipe schdule: 80 Nozzle ID: 7.625 inch

OD of reinforcement: 15.5 inch

Reinforcement plate thickness: 0.5 inch

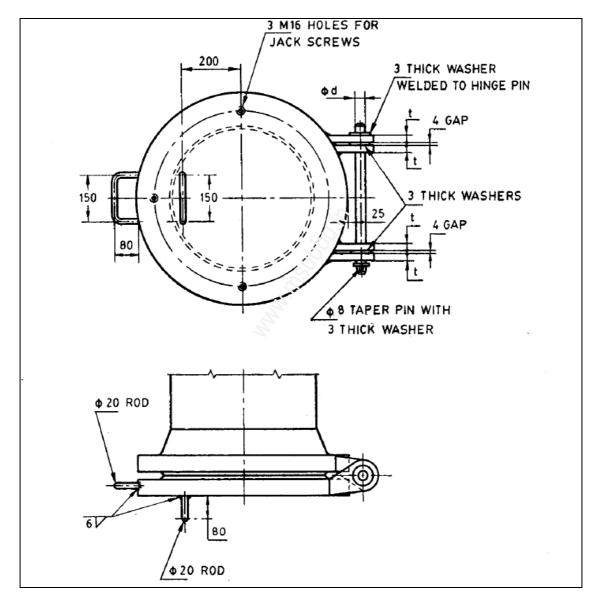
Vessel thickness: 0.5 inch

Nom Pipe Size	О	Т	$T_{ m J}$	R	X	#/Dia of Holes <sup>a</sup>	Bolt Circle Dia	В	B <sub>2</sub> <sup>b</sup>	В <sub>3</sub>	Н	L	$L_2$	L <sub>3</sub> <sup>c</sup>	r	D	Thr
24	32.00	1.81	1.88	27.25	26.12	20-1.38	29.50	24.25	23.25	24.25	24.00	3.19	5.94	4.38	0.50	2.50	3.25
8	13.50	1.06	1.12	10.62	9.69	8-0.88	11.75	8.72	7.98	8.75	8.63	1.69	3.94	1.75	0.50	1.25	1.75

Dimensions are in inches.

Dimensions of ANSI B16.5 class 150 psi flanges

(c) Draw to scale the sectional elevation and plan of a manhole (of OD 24inch) opening and the support arrangements for its cover. The manhole is at the side of a pressure vessel.



Details of Flange: (ANSI B 16.5 class 150 psi)

Welding neck flange is attached to the vessel manhole, which is closed by a blind flange.

