THICKNESS UNDER INTERNAL PRESSURE

(NOZZLE REINFORCING PAD)

1. DESIGN CONDITION

- NOZZLE NUMBER	No	=	M1	
- USED REINFORCEMENT TH'K	Tp	=	8.00	mm
- PAD OUTSIDE DIAMETER	Dp	=	500.00	mm
- REINF.PAD MATERIAL	Mat	=	SPV355	
- NOZZLE ALLOWABLE STRESS	S1	=	192.50	Kgf/cm^2

L =	USED NOZZLE NECK LENGTH	:	160.00	mm
ho =	OUTWARD NOZZLE PROJECTION	:	70.00	mm
hi =	INWARD NOZZLE PROJECTION	:	61.00	mm
Di =	INSIDE DIAMETER OF SHELL (Corroded	:	2702.00	mm
Da =	OUTSIDE DIAMETER OF SHELL	:	2758.00	mm
di =	INSIDE DIAMETER OF NOZZLE (Corroded)	:	402.00	mm
da =	OUTSIDE DIAMETER OF NOZZLE	:	458.00	mm
Ts =	USED THICKNESS OF SHELL	:	29.00	mm
Tn =	USED THICKNESS OF NOZZLE	:	29.00	mm
c =	CORROSION ALLOWANCE	:	1.00	mm

[A] SUPPORTING LENGTH FOR THE PARENT COMPONENT

b = [(Di + Ts - c) x (Ts - c)] ^ 0.5

= [(2702.00 + 29.0 - 1.00) x (29.0 x 1.00) = 276.48 mm^2

[B] OUTWARD SUPPORTING LENGTH OF BRANCH (NOZZLE NECK)

ls = 1.25 x [(di + Tn - c) x (Tn - c)] ^ 0.5

= 1.25 x [(402.00 + 29.00 - 1.00) x (29.00 - 1.00) ^ 0.5

= 137.16 mm^2

Therefore, outward supporting length = smaller of (ho, ls) = 70.00 mm^2

[C] INWARD SUPPORTING LENGTH OF BRANCH (NOZZLE NECK)

ls' = 0.5 x ls = 68.58 mm^2

Therefore, inward supporting length = smaller of (ho, ls') = 61.00 mm^2

[D] TOTAL EFFECTIVE SUPPORTING LENGTH OF BRANCH (NOZZLE NECK)

L = ls + ls' + (Ts - c)

= 70.00 + 61.00 + (29.00 - 1.00) = 159.00 mm^2