

Project n° Iv-Oil&Gas : NEPA140152
 Project n° Client :
 Client : DAMEN SHIPREPAIR ROTTERDAM
 Project title : FPSO PETROJARL I
 Location/plant : ATLANTA FIELD (BR)

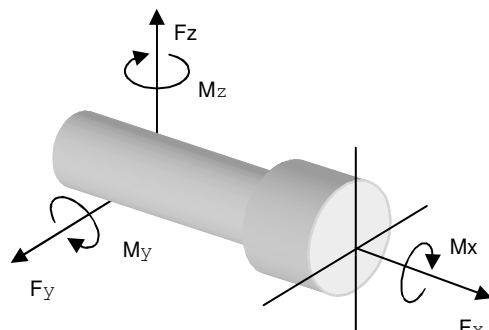
ALLOWABLE NOZZLE LOADS (for Vessels and S&T Exchangers)

Iv-Oil & Gas



Tagnumber : General
 Equipment description : Skid edge piping, Equipment, etc

Document n° : PRO. NO-21-STD-M-001
 Sheet n° : 1 of 1



Fx = Force in Radial Direction [N]
 Fy = Force in Circumferential Direction [N]
 Fz = Force in Longitudinal Direction [N]
 Mx = Torsional Moment [Nm]
 My = Longitudinal Moment [Nm]
 Mz = Circumferential Moment [Nm]

NOZZLE	FORCES [N]			MOMENTS [Nm]		
SIZE	Fx	Fy	Fz	Mx	My	Mz
2"	1500	1500	1500	330	190	190
3"	2500	1875	1875	850	570	570
4"	3500	2575	2575	1500	1040	1040
6"	5500	4125	4125	3700	2615	2615
8"	7800	5850	5850	6930	4900	4900
10"	10000	7500	7500	11670	8255	8255
12"	11900	8825	8825	16130	11410	11410
14"	13500	10125	10125	18460	13055	13055
16"	15000	11250	11250	22840	16155	16155
18"	16500	12375	12375	27090	19155	19155
20"	19000	14250	14250	31290	22130	22130
24"	20000	15000	15000	38800	27400	27400

NOTES:

- These tables are for ANSI flanges of 150 and 300 lb. rating. For ANSI flanges of 600 lb. rating and above, multiply by 1.5.
- The most stringent case caused by axial load "Fx" acting inwards and outwards shall be considered.
- All forces and moments are acting at the nozzle to shell and nozzle to head junction, and therefore should be considered in calculating shell and head thickness.
- If these loadings exceed allowable stresses, vendor shall apply additional reinforcing as follows:
 - Reinforcing ring when not required for internal pressure loading
 - Larger / thicker reinforcing ring than already required for internal pressure loading
 - Thicker shell / head section (dollar plate)

If loadings still too high, VENDOR to inform PURCHASER.
 All cost for the additional reinforcing as mentioned under a), b) and c) shall be clearly stated in VENDOR's quotation.
- The above tabulated loads are the average expected, not the maximum. The SUPPLIER will be advised of increase in loads if applicable, as they become available.
- No loadings shall be applied to manways and handholes.

REVISION INDEX

Rev.	date	name	checked	appr. Iv		Remarks
0	09-04-08	BAK	HKE	WHO		For Design