



Exploration & Production

GENERAL SPECIFICATION

PIPING VALVES VESSELS

GS PVV 109

**Allowable loads on static equipment
(flanges and nozzles)**

01	10/03	Change of Group name and logo
00	02/01	First issue
Rev.	Date	Notes



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1. Scope

This specification defines the maximum allowable loads to be exerted to a given equipment nozzle flange by its connecting piping.

The Engineering Company shall use this specification as the design basis for externally applied loads.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the EFFECTIVE DATE of the CONTRACT.

Standards

Reference	Title
Not applicable	

Professional Documents

Reference	Title
WRC 107	Welding Research Council Bulletin 107

Regulations

Reference	Title
Not applicable	

Codes

Reference	Title
PD 5500	Unfired Fusion Welded Pressure Vessels

Other documents

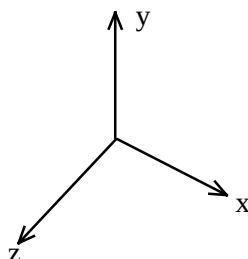
Reference	Title
Not applicable	

Total General Specifications

Reference	Title
Not applicable	

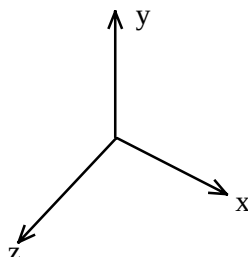
3. Flange loads

3.1 Allowable loads on flanges up to and including 600 lbs rating



Nozzle Nominal Diameter		Direct Loads (kN)			Moment Loads (kN.m)		
(Inches)	(mm)	F_x	F_y	F_z	M_x	M_y	M_z
2	50	1.0	1.4	1.0	0.4	0.5	0.4
3	80	1.4	1.8	1.4	0.7	0.9	0.7
4	100	1.8	2.2	1.8	0.7	1.1	0.7
6	150	2.2	3.1	2.2	1.8	2.7	1.8
8	200	3.5	4.4	3.5	3.6	5.4	3.6
10	250	4.9	6.7	4.9	4.5	6.8	4.5
12	300	5.3	7.1	5.3	5.4	8.1	5.4
14	350	5.3	8.0	5.3	6.4	9.5	6.4
16	400	5.8	8.4	5.8	7.2	10.8	7.2
18	450	6.7	8.9	6.7	8.1	12.2	8.1
20	500	6.7	8.9	6.7	9.1	13.5	9.1
24	600	8.9	11.1	8.9	9.1	13.5	9.1

3.2 Allowable loads on flanges 900 lbs and above rating



Nozzle Nominal Diameter		Direct Loads (kN)			Moment Loads (kN.m)		
(Inches)	(mm)	F_x	F_y	F_z	M_x	M_y	M_z
2	50	1.0	1.4	1.0	0.4	0.5	0.4
3	80	1.4	1.8	1.4	0.7	0.9	0.7
4	100	2.7	3.3	2.7	1.1	1.7	1.1
6	150	3.3	4.7	3.3	2.7	4.0	2.7
8	200	5.3	6.7	5.3	5.4	8.1	5.4
10	250	7.4	10.1	7.4	6.8	10.2	6.8
12	300	8.0	10.7	8.0	8.1	12.2	8.1
14	350	8.0	12.0	8.0	9.6	14.3	9.6
16	400	8.7	12.7	8.7	10.8	16.2	10.8
18	450	10.1	13.4	10.1	12.2	18.3	12.2
20	500	10.1	13.4	10.1	13.7	20.2	13.7
24	600	13.4	16.7	13.4	13.7	20.2	13.7

3.3 General notes

- The design of nozzles shall be based on the loads specified above. Loads shall be analysed using the [PD 5500](#) Code or the [Welding Research Council Bulletin 107](#). These loads are applicable only to process flow connections, and not to nozzles such as manways or instrument connections.
- All of the tabulated loads act at the equipment shell/nozzle interface.
- The Manufacturer of the related equipment shall provide sufficient local reinforcement if and where necessary to maintain local stresses within the limits specified by the design code for this equipment. For this purpose, stresses shall be calculated for applied nozzle loads plus intensified pressure stresses at the nozzle in accordance with the relevant code (Note that reinforcement may be necessary for thin wall equipment).