

Pressure Vessels Data Sheet

Procedure

This Standard replaces and cancels its previous revision.

The CONTEC - Authoring Subcommittee provides guidance on the interpretation of this Standard when questions arise regarding its contents. The Department of PETROBRAS that uses this Standard is responsible for adopting and applying the sections, subsections and enumerates thereof.

Technical Requirement: A provision established as the most adequate and which shall be used strictly in accordance with this Standard. If a decision is taken not to follow the requirement ("non-conformity" to this Standard) it shall be based on well-founded economic and management reasons, and be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by imperative nature.

Recommended Practice: A provision that may be adopted under the conditions of this Standard, but which admits (and draws attention to) the possibility of there being a more adequate alternative (not written in this Standard) to the particular application. The alternative adopted shall be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by verbs of a nonmandatory nature. It is indicated by the expression: **[Recommended Practice]**.

Copies of the registered "non-conformities" to this Standard that may contribute to the improvement thereof shall be submitted to the CONTEC - Authoring Subcommittee.

Proposed revisions to this Standard shall be submitted to the CONTEC - Authoring Subcommittee, indicating the alphanumeric identification and revision of the Standard, the section, subsection and enumerate to be revised, the proposed text, and technical/economic justification for revision. The proposals are evaluated during the work for alteration of this Standard.

"The present Standard is the exclusive property of PETRÓLEO BRASILEIRO S.A. - PETROBRAS, for internal use in the Company, and any reproduction for external use or disclosure, without previous and express authorization from the owner, will imply an unlawful act pursuant to the relevant legislation through which the applicable responsibilities shall be imputed. External circulation shall be regulated by a specific clause of Secrecy and Confidentiality pursuant to the terms of intellectual and industrial property law."

CONTEC

Comissão de Normalização
Técnica

SC -02

Tanks and Vessels

Introduction

PETROBRAS Technical Standards are prepared by Working Groups - WG (consisting specialized of Technical Collaborators from Company and its Subsidiaries), are commented by Company Units and its Subsidiaries, are approved by the Authoring Subcommittees - SCs (consisting of technicians from the same specialty, representing the various Company Units and its Subsidiaries), and ratified by the Executive Nucleus (consisting of representatives of the Company Units and its Subsidiaries). A PETROBRAS Technical Standard is subject to revision at any time by its Authoring Subcommittee and shall be reviewed every 5 years to be revalidated, revised or cancelled. PETROBRAS Technical Standards are prepared in accordance with PETROBRAS Technical Standard [N-1](#). For complete information about PETROBRAS Technical Standards see PETROBRAS Technical Standards Catalog.

Foreword

This Standard is the English version (issued in 12/2012) of PETROBRAS N-1500 REV. E 10/2010. In case of doubt, the Portuguese version, which is the valid document for all intents and purposes, shall be used.

1 Scope

1.1 This document standardizes two Data Sheet forms on the A and B Appendices for pressure vessels to be used on designs for PETROBRAS.

1.2 This Standard is applicable for designs started as of its date of issuance.

1.3 This Standard contains only Technical Requirements.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document applies.

Portaria nº 3214 de 8/6/78 - Norma Regulamentadora nº 13 ([NR-13](#)) - Caldeiras e Vasos de Pressão;

PETROBRAS [N-253](#) - Projeto de Vaso de Pressão;

PETROBRAS [N-381](#) - Execução de Desenhos e Outros Documentos Técnicos em Geral;

PETROBRAS [N-1521](#) - Identificação de Equipamentos Industriais.

NOTE For documents referred in this Standard and for which only the Portuguese version is available, the PETROBRAS department that uses this Standard should be consulted for any information required for the specific application.

3 General Conditions

3.1 The Data Sheets in the A and B Appendices are used to record the purchaser's requirements and the supplier's design details and, after being completed, they shall be permanent documents of the equipment.

3.2 The Data Sheets forms in the A and B Appendices are standardized in A4 size as in:

- a) Appendix A: form with units of the Engineering System;
- b) Appendix B: form with units of the International System of Units - SI.

3.3 Headings and footings of the Data Sheets in the A and B Appendices shall be completed in accordance with PETROBRAS [N-381](#).

3.4 If the Data Sheet requires additional pages, use the applicable models of PETROBRAS [N-381](#). The applicable models of PETROBRAS [N-381](#) shall also be used for writing the notes, additional drawing details, as well as to show the nozzles orientation.



3.5 The identification of the pressure vessel in the Data Sheets of the A and B Appendices shall be done in accordance with PETROBRAS [N-1521](#) and inserted in field "Title", beside the name of the equipment (pressure vessel). .


3.6 PETROBRAS [N-253](#) shall be adhered to in order to complete the Data Sheet in the A and B Appendices.


3.7 When completing the Data Sheets in the A and B Appendices, the following requirements shall be met:

- a) complete only the applicable fields, eliminating, with a horizontal marking, the fields which are not applicable to the specific design;
- b) on blanks, add eventual complementary data of that specific design.


3.8 The A and B Appendices to this Standard are constituted by 2 forms mentioned in item 3.2. Reproducible originals of both forms can be supplied by CONTEC. These forms are available in item "Formulários Editáveis" at the following URL: <http://nortec.engenharia.petrobras.com.br/formzip/N-1500E.zip>


[illegible]

	DATA SHEET		Nr.	REV.
			SHEET	of
	TITLE:			
	PRESSURE VESSELS			
1	IDENTIFICATION			REV.
2	ITEM			
3	QUANTITY			
4	SERVICE			
5	OPERATING DATA			
6				
7	SPECIFIC GRAVITY			
8	MAX. OPERATING PRESSURE, kgf/cm ²			
9	HIDROGEN SERVICE - PARTIAL PRESSURE, kgf/cm ²			
10	MAX. OPERATING TEMPERATURE, °C			
11	MIN. OPERATING TEMPERATURE, °C			
12				
13				
14	DESIGN DATA			
15	CODE			
16	EDITION/ ADDENDA			
17	DESIGN PRESSURE, kgf/cm ²			
18	DESIGN TEMPERATURE, °C			
19	MIN. DESIGN METAL TEMPERATURE (MDMT), °C			
20	INTERNAL DIAMETER, mm			
21	TANGENTS TO TANGENT LENGHT, mm			
22	TYPE OF HEADS			
23	SHELL JOINTS EXAMINATION			
24	HEAD JOINTS EXAMINATION			
25	SHELL JOINT EFFICIENCY			
26	HEADS JOINT EFFICIENCY			
27	CORROSION ALLOWANCE, mm			
28	VESSEL CATEGORY - NR13			
29				
30				
31				
32	MATERIALS			
33	SHELL			
34	HEADS			
35	NOZZLES - FLANGES			
36	NOZZLES - NECK			
37	NOZZLES - SLEEVES			
38	MANHOLES - FLANGES			
39	MANHOLES - NECK			
40	MANHOLES - HEADS			
41	REINFORCEMENT FOR NOZZLES AND MANHOLES			
42	PIPES - PRESSURIZED			
43	PIPES - NOT PRESSURIZED			
44	ELBOWS			
45	WELDED ATTACHEMENTS - INTERNAL			
46	WELDED ATTACHEMENTS - EXTERNAL			
47	REMOVABLE INTERNALS			
48	VALVE TRAYS (BUBBLER CAP TRAYS)			
49	BOLTS AND NUTS - EXTERNAL			
50	BOLTS AND NUTS - INTERNAL			
51	GASKETS - EXTERNAL			
52	GASKETS - INTERNAL			
53	VESSEL SUPPORTS			
54	ANCHOR BOLTS			
55				
56				
57	NOTES			
58				
59				
60				
THE INFORMATION CONTAINED HEREIN IS PETROBRAS PROPERTY, AND USE OUT OF ITS PURPOSE IS PROHIBITED.				
THIS FORM BELONGS TO PETROBRAS N-1500 REV. E ANNEX A - SHEET 02/03.				

	DATA SHEET		Nr.		REV.			
	TITLE: <div>PRESSURE VESSELS</div>				SHEET of			
1	LOADS AT BASE						REV.	
2	EMPTY WEIGHT (TRANSPORT), kgf							
3	REMOVABLE INTERNALS WEIGHT, kgf							
4	ASSEMBLY WEIGHT, kgf							
5	TEST WEIGHT, kgf							
6	OPERATING WEIGHT, kgf							
7	SHUTDOWN WEIGHT, kgf							
8	EMERGENCY WEIGHT, kgf							
9	ASSEMBLY MOMENT, kgf.m							
10	MAXIMUM MOMENT, kgf.m							
11	MAXIMUM SHEAR, kgf							
12								
13								
14	MAXIMUM ALLOWABLE WORKING PRESSURE							
15	CORRODED AND HOT, kgf/cm ²							
16	LIMITED BY							
17								
18								
19	HYDROSTATIC TEST							
20	NEW - HORIZONTAL POSITION, kgf/cm ²							
21	NEW - VERTICAL POSITION, kgf/cm ²							
22	CORRODED - HORIZONTAL POSITION, kgf/cm ²							
23	CORRODED - VERTICAL POSITION, kgf/cm ²							
24								
25								
26	CONSTRUCTION							
27	POSTWELD HEAT TREATMENT							
28	REASON							
29	IMPACT TEST, J @ °C							
30	STANDARD							
31	ELECTRODES							
32	THERMAL INSULATION							
33	FIRE PROOFING							
34	PAINTING							
35	TRANSPORT <input checked="" type="checkbox"/> ONE PIECE <input type="checkbox"/> IN SECTIONS							
36	INTERNAL LINING							
37								
38	NOZZLES							
39	ITEM	DIAMETER	QUANTITY	RATING CLASS	TYPE	FACING	SCHEDULE (THK.)	SERVICE
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								
54								
55	NOTES							
56								
57								
58								
59								
60								
THE INFORMATION CONTAINED HEREIN IS PETROBRAS PROPERTY, AND USE OUT OF ITS PURPOSE IS PROHIBITED.								
THIS FORM BELONGS TO PETROBRAS N-1500 REV. E ANNEX A - SHEET 03/03.								

<div><div><div>BR</div></div><div>PETROBRAS</div></div>	DATA SHEET				Nr.						
	CLIENT:							SHEET			
	PROGRAM:							of			
	AREA:										
		TITLE:							PRESSURE VESSELS		
REVIEW INDEX											
REV.	DESCRIPTION AND/OR SHEETS CONCERNED										
	REV. 0	REV. A	REV. B	REV. C	REV. D	REV. E	REV. F	REV. G	REV. H		
DATE											
DESIGN											
EXECUTION											
CHECK											
APPROVAL											
THE INFORMATION CONTAINED HEREIN IS PETROBRAS PROPERTY, AND USE OUT OF ITS PURPOSE IS PROHIBITED.											
THIS FORM BELONGS TO PETROBRAS N-1500 REV. E ANNEX A - SHEET 01/03.											

	DATA SHEET		Nr.	REV.
			SHEET	of
	TITLE:			
	PRESSURE VESSELS			
1	IDENTIFICATION			REV.
2	ITEM			
3	QUANTITY			
4	SERVICE			
5	OPERATING DATA			
6				
7	SPECIFIC GRAVITY			
8	MAX. OPERATING PRESSURE, MPa			
9	HIDROGEN SERVICE - PARTIAL PRESSURE, MPa			
10	MAX. OPERATING TEMPERATURE, °C			
11	MIN. OPERATING TEMPERATURE, °C			
12				
13				
14	DESIGN DATA			
15	CODE			
16	EDITION / ADDENDA			
17	DESIGN PRESSURE, MPa			
18	DESIGN TEMPERATURE, °C			
19	MIN. DESIGN METAL TEMPERATURE (MDMT), °C			
20	INTERNAL DIAMETER, mm			
21	TANGENTS TO TANGENT LENGHT, mm			
22	TYPE OF HEADS			
23	SHELL JOINTS EXAMINATION			
24	HEAD JOINTS EXAMINATION			
25	SHELL JOINT EFFICIENCY			
26	HEADS JOINT EFFICIENCY			
27	CORROSION ALLOWANCE, mm			
28	VESSEL CATEGORY - NR13			
29				
30				
31				
32	MATERIALS			
33	SHELL			
34	HEADS			
35	NOZZLES - FLANGES			
36	NOZZLES - NECK			
37	NOZZLES - SLEEVES			
38	MANHOLES - FLANGES			
39	MANHOLES - NECK			
40	MANHOLES - HEADS			
41	REINFORCEMENT FOR NOZZLES AND MANHOLES			
42	PIPES - PRESSURIZED			
43	PIPES - NOT PRESSURIZED			
44	ELBOWS			
45	WELDED ATTACHEMENTS - INTERNAL			
46	WELDED ATTACHEMENTS - EXTERNAL			
47	REMOVABLE INTERNALS			
48	VALVE TRAYS (BUBBLER CAP TRAYS)			
49	BOLTS AND NUTS - EXTERNAL			
50	BOLTS AND NUTS - INTERNAL			
51	GASKETS - EXTERNAL			
52	GASKETS - INTERNAL			
53	VESSEL SUPPORTS			
54	ANCHOR BOLTS			
55				
56				
57	NOTES			
58				
59				
60				
THE INFORMATION CONTAINED HEREIN IS PETROBRAS PROPERTY, AND USE OUT OF ITS PURPOSE IS PROHIBITED.				
THIS FORM BELONGS TO PETROBRAS N-1500 REV. E ANNEX A - SHEET 02/03.				

		DATA SHEET				Nr.		REV.	
		TITLE: PRESSURE VESSELS						SHEET of	
1	LOADS AT BASE								REV.
2	EMPTY WEIGHT (TRANSPORT) , N								
3	REMOVABLE INTERNALS WEIGHT, N								
4	ASSEMBLY WEIGHT, N								
5	TEST WEIGHT, N								
6	OPERATION WEIGHT, N								
7	SHUTDOWN WEIGHT, N								
8	EMERGENCY WEIGHT, N								
9	ASSEMBLY MOMENT, N.m								
10	MAXIMUM MOMENT, N.m								
11	MAXIMUM SHEAR, N								
12									
13									
14	MAXIMUM ALLOWABLE WORKING PRESSURE								
15	CORRODED AND HOT, MPa								
16	LIMITED BY								
17									
18									
19	HYDROSTATIC TEST								
20	NEW - HORIZONTAL POSITION, MPa								
21	NEW - VERTICAL POSITION, MPa								
22	CORRODED - HORIZONTAL POSITION, MPa								
23	CORRODED - VERTICAL POSITION, MPa								
24									
25									
26	CONSTRUCTION								
27	POSTWELD HEAT TREATMENT								
28	REASON								
29	IMPACT TEST, J @ °C								
30	STANDARD								
31	ELECTRODES								
32	THERMAL INSULATION								
33	FIRE PROOFING								
34	PAINTING								
35	TRANSPORT <input type="checkbox"/> ONE PIECE <input type="checkbox"/> IN SECTION								
36	INTERNAL LINING								
37									
38	NOZZLES								
39	ITEM	DIAMETER	QUANTITY	RATING CLASS	TYPE	FACING	SCHEDULE (THK.)	SERVICE	
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55	NOTES								
56									
57									
58									
59									
60									
THE INFORMATION CONTAINED HEREIN IS PETROBRAS PROPERTY, AND USE OUT OF ITS PURPOSE IS PROHIBITED.									
THIS FORM BELONGS TO PETROBRAS N-1500 REV. E ANNEX A - SHEET 03/03.									

INDEX OF REVISIONS

REV. A, B and C

There is no index of revisions.

REV. D

Affected Parts	Description of Alteration
	Revalidacion

REV. E

[illegible]