

Sootblower - Data Sheet

Standardization

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.

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CONTEC

Comissão de Normalização
Técnica

SC - 08

Fired Heaters

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.

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Foreword

This Standard is the English version (issued in 06/2023) of PETROBRAS N-1666 REV. F 06/2023. 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 Standard standardizes three Data Sheets forms for sootblower in the Annexes A, B and C, to be used in the PETROBRAS designs.

1.2 This Standard applies to designs starting from its issue date.

1.3 The effective period for implementing this Standard in replacement of the previous revision is 180 days from the date of its publication. If the PETROBRAS unit that is applying the Standard understands that it is not possible to implement it within this period, it must register an Implementation Plan within this period defining the necessary actions and the respective deadlines.

1.4 The definition of the effective period for implementing the requirements of this standard, when it is referenced in contracts for the provision of services and acquisition of goods, is the exclusive prerogative of PETROBRAS.

1.5 This Standard only contains 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 (including any amendments) applies.

PETROBRAS [N-381](#) - Execution of Drawing and other General Technical Documents;

PETROBRAS [N-1521](#) - Identification of Industrial Equipment;

PETROBRAS [N-1671](#) - Design and Fabrication of Furnace;

ABNT [NBR 10778](#) - Forno Tubular Sujeito a Chama;

API [STD 560](#) - Fired Heaters for General Refinery Service.

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 Requirements

3.1 This Standard is founded on the ISO [13705](#) Data Sheet.

3.2 The Data Sheet forms in the Annexes A, B and C are used to record the purchaser's requirements and the design details of the supplier and, after filled out, it shall constitute a permanent document for the equipment.

3.3 The Data Sheet forms in the Annexes A, B and C are standardized in the A4 size as shown in the:

- a) Annex A: form with units in the United States Customary System of Units - USC;
- b) Annex B: form with units in the Engineering System;
- c) Annex C: form with units in the International System of Units - SI.

3.4 The requirements of PETROBRAS [N-381](#) shall be met for filling out the heading and footnote of the Data Sheet in the Annexes A and B.


3.5 The applicable Annex of PETROBRAS [N-381](#) shall be used if additional space is required for continuing any item which does not fit in the Annex A, B or C here to.


3.6 The tag number of the sootblower shall be in accordance with PETROBRAS [N-1521](#) and inserted in the heading space reserved for the title Sootblower, on the right hand corner.

3.7 PETROBRAS [N-1671](#) and ABNT [NBR 10778](#) shall be used for filling out the Data Sheet in the Annexes A, B and C.

3.8 In the filling of Data Sheet in the Annexes A and the B the following requirements shall be followed:

- a) to only fill the applicable fields, eliminating, with a horizontal trace, the not applicable fields to the specific project;
- b) in the blank lines, to add eventual complementary data of the specific project.


	DATA SHEET		No.		REV.	
	AREA:				SHEET: of	
	TITLE:					
SOOTBLOWER						
SERVICE:			LOCATION			
1	OPERATING DATA					REV.
2	FUEL OIL TYPE / SPECIFIC GRAVITY OR °API					
3	SULFUR, MASS FRACTION (%)					
4	VANADIUM, ppm					
5	NICKEL, ppm					
6	ASH, MASS FRACTION (%)					
7	BLOWER ROW LOCATION					
8	FLUE-GAS TEMPERATURE @ BLOWER, MAXIMUM °F					
9	FLUE-GAS PRESSURE @ BLOWER, MAXIMUM in H ₂ O					
10	BLOWING MEDIUM					
11	UTILITY DATA					
12	STEAM:		AIR:		ELECTRIC POWER:	
13	PRESSURE GAUGE: psi		PRESSURE GAUGE: psi		VOLTAGE: V	
14	TEMPERATURE: °F		FLOW RATE: scfm		PHASES:	
15	FLOW RATE: lb/h PER BLOWER				FREQUENCY: Hz	
16	LAYOUT DATA					
17	TUBE OUTSIDE DIAMETER, in					
18	TUBE LENGTH, ft					
19	TUBE SPACING (STAG. / IN LINE), in					
20	BANK WIDTH, ft					
21	NUMBER OF INTERMEDIATE TUBE SHEETS					
22	MINIMUM DISTANCE FROM LANCE C.L. TO TUBE C.L., in					
23	MAXIMUM CLEANING RADIUS, ft					
24	EXTENDED-SURFACE TYPE					
25	NUMBER OF EXTENDED-SURFACE TUBE ROWS					
26	LINING THICKNESS, in					
27	BLOWER DATA					
28	MANUFACTURER					
29	TYPE (RETRACTABLE / FIXED ROTARY)					
30	MODEL					
31	NUMBER REQUIRED					
32	NUMBER OF ROWS					
33	NUMBER PER ROW					
34	ARRANGEMENT (HORIZONTAL / VERTICAL)					
35	OPERATION (SEQUENTIAL / INDIVIDUAL)					
36	CONTROL (AUTOMATIC / MANUAL)					
37	CONTROL PANEL LOCATION (LOCAL / REMOTE)					
38	DRIVER TYPE (MANUAL / PNEUMATIC / ELECTRIC MOTOR)					
39	ELECTRICAL-AREA CLASSIFICATION					
40	MOTOR-STARTERS CLASSIFICATION					
41	MOTOR: CAPACITY, HP					
42	ENCLOSURE					
43	ROTATION, rpm					
44	LANCE TRAVEL SPEED					
45	HEAD: MATERIAL & RATING					
46	SEALING AIR (YES / NO)					
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48	NOTE(S):					
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THIS FORM IS PART OF PETROBRAS N-1666 REV. F ANNEX A - SHEET 02/03.						

 PETROBRAS	DATA SHEET		No.	REV.
	AREA:		SHEET: of	
	TITLE:			
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	DATA SHEET		No.		REV.	
	AREA:				SHEET: of	
	TITLE:					
SOOTBLOWER						
SERVICE:			LOCATION			
1	OPERATING DATA					REV.
2	FUEL OIL TYPE / SPECIFIC GRAVITY OR °API					
3	SULFUR, MASS FRACTION (%)					
4	VANADIUM, ppm					
5	NICKEL, ppm					
6	ASH, MASS FRACTION (%)					
7	BLOWER ROW LOCATION					
8	FLUE-GAS TEMPERATURE @ BLOWER, MAXIMUM °C					
9	FLUE-GAS PRESSURE @ BLOWER, MAXIMUM mm H ₂ O					
10	BLOWING MEDIUM					
11	UTILITY DATA					
12	STEAM:		AIR:		ELECTRIC POWER:	
13	PRESSURE GAUGE: kgf/cm ²		PRESSURE GAUGE: kgf/cm ²		VOLTAGE: V	
14	TEMPERATURE: °C		FLOW RATE: Nm ³ /h		PHASES:	
15	FLOW RATE: kg/s @ BLOWER				FREQUENCY: Hz	
16	LAYOUT DATA					
17	TUBE OUTSIDE DIAMETER, mm					
18	TUBE LENGTH, m					
19	TUBE SPACING (STAG. / IN LINE), mm					
20	BANK WIDTH, m					
21	NUMBER OF INTERMEDIATE TUBE SHEETS					
22	MINIMUM DISTANCE FROM LANCE C.L. TO TUBE C.L., mm					
23	MAXIMUM CLEANING RADIUS, m					
24	EXTENDED-SURFACE TYPE					
25	NUMBER OF EXTENDED-SURFACE TUBE ROWS					
26	LINING THICKNESS, mm					
27	BLOWER DATA					
28	MANUFACTURER					
29	TYPE (RETRACTABLE / FIXED ROTARY)					
30	MODEL					
31	NUMBER REQUIRED					
32	NUMBER OF ROWS					
33	NUMBER PER ROW					
34	ARRANGEMENT (HORIZONTAL / VERTICAL)					
35	OPERATION (SEQUENTIAL / INDIVIDUAL)					
36	CONTROL (AUTOMATIC / MANUAL)					
37	CONTROL PANEL LOCATION (LOCAL / REMOTE)					
38	DRIVER TYPE (MANUAL / PNEUMATIC / ELECTRIC MOTOR)					
39	ELECTRICAL-AREA CLASSIFICATION					
40	MOTOR-STARTERS CLASSIFICATION					
41	MOTOR: CAPACITY, CV					
42	ENCLOSURE					
43	ROTATION, rpm					
44	LANCE TRAVEL SPEED					
45	HEAD: MATERIAL & RATING					
46	SEALING AIR (YES / NO)					
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48	NOTE(S):					
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THIS FORM IS PART OF PETROBRAS N-1666 REV. F ANNEX B - SHEET 02/03.

 PETROBRAS	DATA SHEET		No.	REV.
	AREA:		SHEET: of	
	TITLE:			
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	DATA SHEET		No.		REV.	
	AREA:				SHEET: of	
	TITLE:					
SOOTBLOWER						
SERVICE:			LOCATION			
1	OPERATING DATA					REV.
2	FUEL OIL TYPE / SPECIFIC GRAVITY OR °API					
3	SULFUR, MASS FRACTION (%)					
4	VANADIUM, ppm					
5	NICKEL, ppm					
6	ASH, MASS FRACTION (%)					
7	BLOWER ROW LOCATION					
8	FLUE-GAS TEMPERATURE @ BLOWER, MAXIMUM °C					
9	FLUE-GAS PRESSURE @ BLOWER, MAXIMUM Pa					
10	BLOWING MEDIUM					
11	UTILITY DATA					
12	STEAM:		AIR:		ELECTRIC POWER:	
13	PRESSURE GAUGE: kPa		PRESSURE GAUGE: kPa		VOLTAGE: V	
14	TEMPERATURE: °C		FLOW RATE: Nm ³ /h		PHASES:	
15	FLOW RATE: kg/s @ BLOWER				FREQUENCY: Hz	
16	LAYOUT DATA					
17	TUBE OUTSIDE DIAMETER, mm					
18	TUBE LENGTH, m					
19	TUBE SPACING (STAG. / IN LINE), mm					
20	BANK WIDTH, m					
21	NUMBER OF INTERMEDIATE TUBE SHEETS					
22	MINIMUM DISTANCE FROM LANCE C.L. TO TUBE C.L., mm					
23	MAXIMUM CLEANING RADIUS, m					
24	EXTENDED-SURFACE TYPE					
25	NUMBER OF EXTENDED-SURFACE TUBE ROWS					
26	LINING THICKNESS, mm					
27	BLOWER DATA					
28	MANUFACTURER					
29	TYPE (RETRACTABLE / FIXED ROTARY)					
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32	NUMBER OF ROWS					
33	NUMBER PER ROW					
34	ARRANGEMENT (HORIZONTAL / VERTICAL)					
35	OPERATION (SEQUENTIAL / INDIVIDUAL)					
36	CONTROL (AUTOMATIC / MANUAL)					
37	CONTROL PANEL LOCATION (LOCAL / REMOTE)					
38	DRIVER TYPE (MANUAL / PNEUMATIC / ELECTRIC MOTOR)					
39	ELECTRICAL-AREA CLASSIFICATION					
40	MOTOR-STARTERS CLASSIFICATION					
41	MOTOR: CAPACITY, kW					
42	ENCLOSURE					
43	ROTATION, rpm					
44	LANCE TRAVEL SPEED					
45	HEAD: MATERIAL & RATING					
46	SEALING AIR (YES / NO)					
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THIS FORM IS PART OF PETROBRAS N-1666 REV. F ANNEX C - SHEET 02/03.

 PETROBRAS	DATA SHEET		No.	REV.
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INDEX OF REVISIONS	
REV. A, B and C	
There is no index of revisions.	
REV. D	
Affected Parts	Description of Alteration
	Revalidation
REV. E	
Affected Parts	Description of Alteration
All	Revision
Forms	Adapted to ISO 13705
REV. F	
Affected Parts	Description of Alteration
Section 1	Added paragraphs referring to deadlines for implementation of this revision of the Standard
Section 2	ISO 13705 standard replaced by API STD 560 standard
Subsection 3.1	ISO 13705 standard replaced by API STD 560 standard
Subsection 3.3	<p>Wording changed as follows:</p> <p>“The Data Sheet forms in the Annexes A, B and C are standardized in the A4 size as shown in the:</p> <p>a) Annex A: form with units in the United States Customary System of Units - USC; b) Annex B: form with units in the Engineering System; c) Annex C: form with units in the International System of Units - SI.”</p>
Subsection 3.4	<p>Wording changed as follows:</p> <p>“The requirements of PETROBRAS N-381 shall be met for filling out the heading and footnote of the Data Sheet in the Annexes A, B and C.”</p>
Subsection 3.8	<p>Wording changed as follows:</p> <p>“In the filling of Data Sheet in the Annexes A, B and C...”</p>
Subsection 3.9	Deleted because the access link to the forms is no longer necessary, as the Excel files with them are already attached to the PDF file of the Standard.
Forms	<p>Adapted to API STD 560 in three annexes:</p> <p>a) Annex A: form with units in the United States Customary System of Units - USC; b) Annex B: form with units in the Engineering System; c) Annex C: form with units in the International System of Units - SI.</p>