

Centrifugal Fan - 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.

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CONTEC

Comissão de Normalização
Técnica

SC - 11

Machines

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-2916 REV. A 12/2012. 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 rules the Data Sheet for Centrifugal Fans used in the projects for PETROBRAS.

1.2 This Standard is applicable to procedures started as from the date of its edition.

1.3 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 applies.

ISO [13705](#) - Petroleum, Petrochemical and Natural Gas Industries Fired Heaters for General Refinery Service;

API [STD 614](#) - Lubrication, Shaft-sealing and Oil-control Systems and Auxiliaries;

API [STD 670](#) - Machinery Protection Systems;

API [STD 673](#) - Centrifugal Fans for Petroleum, Chemical and Gas for Industry Services;

API [STD 676](#) - Positive Displacement Pumps - Rotary;

API [STD 677](#) - General-Purpose Gear Units for Petroleum, Chemical and Gas Industry Services.

ASME [B16.5](#) - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard;

ASME [B16.47](#) - Large Diameter Steel Flanges NPS 26 Through NPS 60 Metric/Inch Standard.

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 For acquisition of fans, the Data Sheet, after completed, shall be attached to a Material Requisition (RM) for constituting a purchasing document.

3.2 The Data Sheet after completed by the designer and complemented by the manufacturer, whenever the case, shall constitute a permanent document for the equipment.

3.3 The blank field on the right of the page number shall be eventually completed by the issuer in order to allow some internal reference.

	DATA SHEET		No. _____		REV. _____	
					SHEET	02 of 10
	TITLE: CENTRIFUGAL FAN					

1	APPLICABLE TO ☐ PROPOSAL	UNIT ☐ PURCHASE	AS BUILT ☐
2	FOR _____	SERVICE _____	
3	SITE _____	MANUFACTURER N° _____	
4	N° REQ'D _____	TYPE/ARRANGEMENT _____ SERIAL N° _____	
5	FAN MFR _____ SIZE _____	RATED POWER, kW _____ SPEED, rpm _____	
6	DRIVER MFR _____ DRIVER TYPE _____	PER SPECIFICATION _____	
7	FURNISHED BY _____ MOUNTED BY _____	FAN ROTATION, FROM DRIVEN END ☐ CW ☐ CCW	
8	DRIVE SYSTEM _____	APPLIC. ☐ API STD 673 ☐ ISO 13705 ANNEX. E ☐ OTHER _____	
9	☐ DIRECT COUPLED ☐ OTHER _____		

OPERATING CONDITIONS						
(ALL DATA ON PER UNIT BASIS)				NORMAL	RATED	OTHER CONDITIONS
☐ OPERATING CONDITIONS/CASE						
☐ GAS HANDLED						
☐ DENSITY, kg/m³						
☐ Nm³ /h (1,033 kgf/cm² a & 0 °C) ☐ WET ☐ DRY						
☐ WEIGHT FLOW, kg/h ☐ WET ☐ DRY						
INLET CONDITIONS:						
☐ TEMPERATURE, °C						
☐ RELATIVE HUMIDITY, %						
☐ MOLECULAR WEIGHT						
☐ INLET VOLUME, m³/s ☐ WET ☐ DRY						
☐ C _p /C _v ☐ K ₁ ☐ K _{avg}						
☐ COMPRESSIBILITY ☐ Z ₁ ☐ Z _{avg}						
☐ STATIC PRESSURE @ SOUND TRUNK, mmH ₂ O						
☐ PRESSURE LOSS ACROSS SOUND TRUNK, mmH ₂ O						
☐ STATIC PRESSURE @ INLET DAMPERS, mmH ₂ O						
☐ STATIC PRESSURE @ FAN INLET, mmH ₂ O						
DISCHARGE CONDITIONS:						
☐ STATIC PRESSURE @ FAN OUTLET, mmH ₂ O						
☐ STATIC PRESS. @ DISCHARGE DAMPER, mmH ₂ O						
☐ ΔP ACROSS DISCHARGE DAMPER, mmH ₂ O						
☐ ΔP ACROSS EVASE, mmH ₂ O						
☐ STATIC PRESSURE @ EVASE OUTLET, mmH ₂ O						
PERFORMANCE:						
☐ RATED POWER @ TEMP. (ALL LOSSES INCLUDED) kW						
☐ FAN SPEED, rpm						
☐ GUARANTEE POINT						
☐ PERFORMANCE CURVE N°.						
☐ STATIC ΔP ACROSS FAN, mmH ₂ O						
☐ INLET DAMPER / VANE POSITION						
☐ DISCHARGE DAMPER POSITION						
☐ FAN STATIC EFFICIENCY, %						

FAN CONTROL:			
☐ AIR SUPPLY _____		☐ FAN CONTROL FURNISHED BY _____	
☐ CONTROL SIGNAL TYPE _____	SOURCE _____	SENSITIVITY _____	RANGE _____
☐ ARRANGEMENT DRWG N° _____		CONTROL SIGNAL FAILURE MODE ☐ CLOSE ☐ OPEN ☐ AUTOLOCK	
METHOD:			
☐ INLET DAMPER		☐ AUTOMATIC ☐ MANUAL	
☐ OUTLET DAMPER		☐ AUTOMATIC ☐ MANUAL	
☐ INLET GUIDE VANES		☐ AUTOMATIC ☐ MANUAL	
☐ SPEED VARIATION		☐ AUTOMATIC ☐ MANUAL	
☐ _____		☐ AUTOMATIC ☐ MANUAL	
☐ STARTING CONDITIONS _____		STARTING METHOD _____	
☐ START & STOP RESTRICTIONS _____			
☐ VENDOR REVIEW OF CONTROL SYSTEM REQUIRED		☐ OTHER _____	