

ENGINEERING SERVICES DEPARTMENT



BLOWER SPECIFICATION SHEET

Project	PTFE Filter Destruction	Unit Tag Number	B83130
Datasheet Document No.	ENS-FDP-SPE-24017	Revision	1
Description	Blower which provides the driving force to extract the off-gas from the wet scrubber S83123 in the PTFE Filter Destruction Facility and discharge the gas into the process ventilation system.		
Plant Location	Necsa, Pelindaba, North-West Province		
Equipment Location	PTFE Filter Destruction Facility - Inside Laboratory 131, Building V-H2		
Safety Classification	SC-2(C) and SC-3(N)		
Quality Classification	QC-2(C) and QC-3(N)		

FLUID PROPERTIES

Fluid	Off-gas mixture containing CO ₂ , HF, O ₂ and N ₂ ^{Note 4*} .		
Solids content	Trace (<0,001) ^{[3], Note 5*}		
Moisture Content	Trace (<0,001) ^{[1], Note 6*}		
Installation	<input checked="" type="checkbox"/> Outdoor <input type="checkbox"/> Indoor		
Corrosive due to	Hydrogen Fluoride (HF) gas - produced at 7.92 g/h		
PARAMETERS	UNITS	MINIMUM	MAXIMUM
Operating temperature	°C	40 ^[1]	60 ^[1]
Suction	kPa(a)	75,2 ^[4]	83,3 ^[4]
Discharge	kPa(a)		88,0
Fluid density	kg/m ³	1,20 ^[4]	1,27 (Note 1*)
Viscosity	Pa.s	1,70E-05	-
Mass flow rate	kg/h	4,6 ^{[5], Note 4*}	22,1 ^{[5], Note 4*}
Volume flow rate	m ³ /s	0,005 ^{Note 2*}	0,0055 ^{Note 2*}
Pressure differential	kPa	4,7 ^[4]	12,8 ^[4]

MECHANICAL, ELECTRICAL & GENERAL PROPERTIES

Type of fan recommended	Regenerative	Insulation	TBD Vendor	Application	Off-gas extraction		
Electrical (Y/N)	Y	Volts	TBD Vendor	Phase, Frequency	TBD, 50 Hz		
Wheel diameter	TBD Vendor		Blade Type	TBD Vendor			
Fan length	TBD Vendor		Fan width	TBD Vendor			
Shaft dimensions	TBD Vendor						
Vibration Sensor (Y/N)	TBD Vendor						
Instruments on equipment	Run (Status) Indicator ^[2] - to communicate with centralized plant monitoring system in control room						
Motor specifications	Variable speed adjustment required. Supplier to advise further.						

PROCESS CONNECTION

Pipe Suction Nozzle	Size	100NB	Rating	150#	Flange Spec.	SS, ASTM A182-F304/304L, ASME B16.5, RF
Pipe Discharge Nozzle	Size	100NB	Rating	150#	Flange Spec.	SS, ASTM A182-F304/304L, ASME B16.5, RF

MATERIAL OF CONSTRUCTION

Casing	TBD Vendor	Shaft	TBD Vendor	Shaft sleeves	TBD Vendor
Fan Impellor	TBD Vendor	Base Plate	TBD Vendor	Seal type	TBD Vendor
Hub	TBD Vendor	Belt	TBD Vendor	Helical Time gear	TBD Vendor

VENDOR DATA REQUIRED WITH TENDER

1 Fan performance curve		4 Fan dimensions	
2 Fan duty		5 Fan sound pressure level	
3 Fan efficiency		6 Fan rotational speed	

ACCESSORIES

Inlet & Outlet Silencer	To Be Included
Common Base Plate	To Be Included

REFERENCE DRAWINGS AND DOCUMENTS

[1] ENS-FDP-CLC-24015: Energy Balance Calculation for the PTFE Filter Destruction System.
[2] ENS-FDP-PID-24003: PTFE Filter Destruction Project P&ID Diagram - KOH Scrubber System 831
[3] ENS-FDP-DES-24004: PTFE Filter Destruction Process Description.
[4] ENS-FDP-CLC-24019: Pressure Balance across the PTFE Filter Destruction System
[5] ENS-FDP-CLC-24014: Mass Balance across the PTFE Filter Destruction System

NOTES

Note 1. This density is realised at the operating pressure and at the minimum temperature conditions of 40 °C that can be expected in the event that the upstream Electrical Heater H83127 is faulty.

Note 2. These volumetric flowrates are obtained by taking the product of the line velocities obtained in [4] with the cross-sectional area for a 100 NB pipe.

Note 3. Inspection and testing shall be done in supplier facility.

Note 4. Gas composition (% w/w) is 0.32% CO₂, 0.17% HF, 34.83% O₂ and 64.68% N₂ at the minimum flow rate, and 79.06% CO₂, 0.04% HF, 7.32% O₂ and 13.59% N₂ at the maximum flow rate.

Note 5. Two HEPA filters F83128A&B and F83129 are installed upstream of the blower

Note 6. A moisture trap Y83153 is installed in the suction line upstream of the blower.

Note 7. Inspection and testing shall be done in supplier facility.

	Name	Signature	Date
Compiled by	Mr M.K Nkadimeng		
Checked	Mrs M. Correia		
Mechanical	Mr M. Msane		
Mechanical	Mr S. Mngoma		
Electrical	Mr W. Van den Berg		
Instrumentation	Dr G. Manuel		
Approved by	Dr K. Moodley		