



CS CLEAN
SOLUTIONS

Product Information and Specifications

CLEANSORB® Stand-Alone Series

Models: CS025SA, CS070SA



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CLEANSORB® Stand-Alone Series

For small-scale research work, stand-alone absorber columns can be used to remove remaining gas concentrations downstream of the experimental chamber. Also, it is common practice for customers to integrate a CLEANSORB® column into the enclosure of a plasma etch, CVD, ALD or similar R&D tool.

In keeping with good safety practice, CLEANSORB® columns should always be operated from within an air-extracted enclosure and protected against inadvertent blockage or pressure build-up. Several accessories are available to allow installation of a Stand-Alone column in accordance with the local safety and health regulations. These include an air-extractable housing cabinet, a safety pressure switch, a pressure monitoring unit, and a stand-alone gas detection unit. Customers seeking an R&D-scale solution which comprises the above safeguards in an integrated unit with electronic controls should also consider the CLEANSORB® LABLINE series.

The ability to passively chemisorb hazardous gases at ambient temperature is a particular advantage for sporadic laboratory work since the space-saving absorber is permanently on ready and does not have to be heated up or otherwise activated each time a new experiment is to be run.

CLEANSORB® Service and Support

- High quality refillable stainless steel absorber columns, UN-approved transport vessels
- Worldwide network of local service partners for column refill and associated logistics
- Service contracts for annual preventive and general on-site maintenance

CLEANSORB® Dry Bed Chemisorber Technology

- Safe conversion of hazardous gases to stable solids at ambient temperature
- Unsurpassed gas removal to ppm levels and below
- Passive operating principle, does not require electricity, heating, etc.
- Low facilities requirement, inexpensive installation, simple to operate
- No hidden costs for 3ph power, fuel lines, D.I. water or acid drain
- Low maintenance requirement
- Gas bound in dry, compact form: not transferred to waste water

Important!

Our products are configured and specified on the basis of the process data provided in written form by you. These process details are taken to be accurate and complete. Future alterations to these process details must first be clarified with CS CLEAN SOLUTIONS AG prior to further operation of the products.

Before requesting a system recommendation or quotation, please ask your authorized CS CLEAN SOLUTIONS sales and service partner to provide you with a Process Definition sheet so that we can recommend a model and configuration which is optimized for your process.

Unless otherwise agreed upon in writing, the warranty on newly-manufactured products is for a period of 12 months following shipment. It does not extend to consumables, parts which are subject to wear or adverse climatic conditions, or components exposed to corrosive media.



Available Models	Column Size
CLEANSORB® Stand-Alone Column CS025SA	25 liter
CLEANSORB® Stand-Alone Column CS070SA	70 liter

Basic System Configuration

Absorber Column	<p>Refillable absorber column and ADR-authorized transport vessel with UN code number. Constructed from corrosion-resistant 316L stainless steel. Ø 250mm, incorporating:</p> <ul style="list-style-type: none"> - Integrated ball valves at column inlet and outlet, ISO-KF flanges, DN40mm - Hand lever tool for opening and closing of ball valves - Swagelok® Quick Connect port, Ø 3mm, for gas sampling at column outlet. <p>Model CS025SA: Mounted on cylindrical socket (without castor wheels) Model CS070SA: Mounted on detachable castor wheels</p>
Documentation	Operating manual in English or German language with customer-specific specifications.

Available Options

**Cabinet without electronics**

(Refer to drawings below for CS025SA and CS070SA column sizes).

Powder-coated steel cabinet as air-extractable enclosure for the absorber column. Key-lockable front-side door. Header connection and air intake vent for cabinet extraction. Bolt-holes for anchoring. Rear-wall mounted bracket with strap to secure column. Including internal stainless steel pipework to connect column to cabinet inlet and outlet. Inlet/outlet connection to cabinet via external flanges (model CS025SA: DN25 ISO-KF; model CS070SA: DN40 ISO-KF). Does not include monitoring devices or protection against over-pressure!

**External Color Indicator, DN40**

Cylindrical inspection glass for mounting at the outlet or downstream of CLEANSORB columns. Filled with a gas-specific color indicator granulate. Allows routine visual inspection to check for breakthrough of reactive gas.

Dimensions: O.D. 90 mm x H 160 mm

**Stand-Alone Endpoint Detector**

Bionics Observer gas detection unit, suitable for wall-mounting in the vicinity of CLEANSORB column, or on roof of CLEANSORB cabinet. Electrochemical gas sensor to indicate when the column has reached its capacity endpoint based on detection of gas breakthrough at column outlet. Integrated pump for gas sampling and suction draw to gas sensor.

Dimensions: 209 mmH x 110 mmW x 179 mmD

**Safety Pressure Switch**

(As stand-alone device with T-connector or mounted within cabinet)

Maximum pressure limiting switch with adjustable switch-point. Sensor is specified at safety reliability level SIL2 for prevention of dangerous pressure build-up.

Zone category: Ex II 2G Ex d e IIC T6 Gb

Protection Class: IP65

Compliant with IEC 61508-2, SIL2

Range: 0.2...2.5 bar (Switching setpoint 0.3 bar)

Pressure connection: G1/2 external thread

Ambient temperature: -25...+60 °C

(max. gas temperature: 60 °C)

**Inlet Pressure Monitoring with Display Unit**

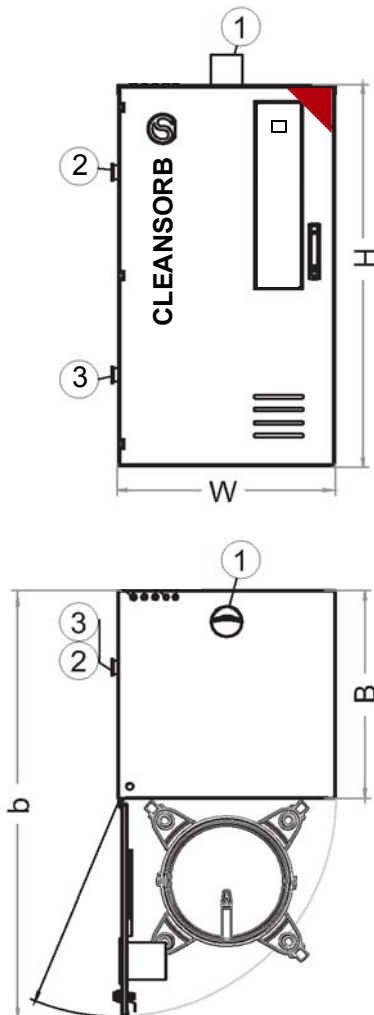
(as stand-alone component or fitted to cabinet door)

Pressure transducer, -500...+500 mbar, Ex-proof, mounted at inlet to column. Alphanumeric display of column inlet pressure, either as stand-alone display box, or on front side of cabinet door. Two volt-free contacts for remote connection of pressure Warning and Alarm signals.

System Specifications

Series **CLEANSORB Stand-Alone**

Models **CS025SA, CS070SA**



1 Cabinet Air Extraction
 Connection: Ø100 mm

To be set in accordance with local fire codes or other applicable state, country, factory or industry standards.
 Minimum -0.1 mbar (-0.04 " wc) to ensure 100 m3/h (58cfm).

2 System inlet connection

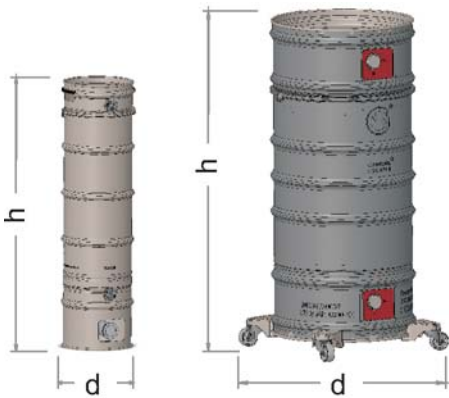
DN25 ISO-KF (CS025SA), DN40 ISO-KF (CS070SA);
 total volumetric flowrate:
 < 70 slm (CS025SA), < 150 slm (CS070SA);
 5...70 °C (41...158 °F);
 ~ -500 Pa (-0.07 psi) relative to pressure at system inlet required

3 System outlet connection

DN25 ISO-KF (CS025SA), DN40 ISO-KF (CS070SA);
 total vol. flowrate, incl. inert carrier/pump/dilution gases:
 < 70 slm (CS025SA), < 150 slm (CS070SA);
 concentration of treated gases (corrosive/toxic/pyrophoric) < 2 %,
 further permitted gases: dry inert gas, no moisture, no ambient air!;
 -100 hPa...+100 hPa; 5...40 °C (41...104 °F);
 Process conditions outside of these specifications need to be clarified
 in advance with the manufacturer.

Cabinet for:	H	W	B	b
CS025SA	1250 mm (49.2 in)	560 mm (22.0 in)	560mm (22.0 in)	1130 mm (44.5 in)
CS070SA	1250 mm (49.2 in)	700 mm (27.6 in)	700mm (27.6 in)	1412 mm (55.6 in)

Gross weight (incl. cabinet)) 85 kg (187.4 lb) for CS025SA
 115 kg (253.5 lb) for CS070SA



Column	h	d	D	weight
CC025SA for CS025SA	955 mm (37.6 in)	260 mm (10.2 in)	240 mm (9.4 in)	max. 68 kg (150 lb)
CC070SA for CS070SA	1100 mm (43.3 in)	650 mm (25.8 in)	400 mm (15.7 in)	max. 135 kg (297 lb)



CC025SA



CC070SA

Pressure drop at max. volumetric flow


Max. 500 Pa (0.07 psi)

Anchoring of Cabinet

Location of anchoring points	bolts can be set in at the four corners, bottom of cabinet
Heavy load dowels	tractive force \geq 270 kg (595 lb) per dowel
Bolts	max. \varnothing 12 mm (\sim 1/2 in)
Washer	outer \varnothing 70 mm (\sim 2 3/4 in); thickness 6 mm (\sim 1/4 in)


Transport and Storage Conditions of Absorber

- temperature range 5...25 °C (41...77 °F)
- max. 80 % rel. humidity (non-condensing)
- under clean, dry conditions,
- protected from uni-directional heating and sunlight
- in upright position,
- protected from unauthorized access.

 Contact the manufacturer CS CLEAN SOLUTIONS AG, if a different specification is required.

On-site Conditions for System Operation

Temperature range	5 ... 35 °C (41 ... 95 °F)
Humidity	80 % relative humidity (non-condensing!)
Installation site	indoors; illumination > 270 lux, mechanical ventilation
Altitude	max. 2000 m (6600 ft) above mean sea level
Floor space	absolutely level; according to DIN 18202

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