



CS CLEAN  
SOLUTIONS

## Product Information and Specifications

# CLEANSORB® LABLINE Series

Models: CS025LS, CS070LS



Controlled product information. Intended use: technical reference for quotations and similar customer projects. Not intended for general distribution or for advertising purposes.

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## CLEANSORB® LABLINE Series

The CLEANSORB® LABLINE features a small absorber column housed in a compact, air-extracted cabinet.

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

The wide selectivity of CLEANSORB® chemisorber media to a diverse list of gases and liquid precursors, ranging from corrosive or toxic species to latest-generation metalorganic complexes, offers ideal flexibility for R&D requirements. The LABLINE system is also commonly used to abate hazardous purge gases from the venturi vacuum generator exhaust lines of one or several gas supply cabinets.

A front control panel allows the user to interact with the system and displays a readout of important operating conditions such as inlet pressure and the status of the capacity endpoint detector. On power-up, the system performs a self-test routine to verify the integrity of sensors and cable connections. Volt-free contacts and a digital interface are provided for remote monitoring and interlocking of warning and alarm signals.

## 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: no specialized on-site service personnel required
- 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® LABLINE CS025LS	25 liter
CLEANSORB® LABLINE CS070LS	70 liter

**Basic System Configuration**

<b>Housing</b>	<p>Powder-coated steel cabinet as enclosure for the absorber column, system electronics and components.</p> <p>Key-lockable front-side door. Header connection and air intake vent for cabinet extraction. Bolt-holes for anchoring.</p> <p>Inlet and outlet connections: ISO-KF flanges. (CS025LS: DN 25mm; CS070LS: DN 40 mm, refer to drawings below).</p>
<b>Absorber Column</b>	<p>Refillable absorber column and ADR-authorized transport vessel with UN code number. Constructed from corrosion-resistant 316L stainless steel incorporating:</p> <ul style="list-style-type: none"> <li>- Integrated ball valves at column inlet and outlet, ISO-KF flanges</li> <li>- Hand lever tool for opening and closing of ball valves</li> <li>- Swagelok® Quick Connect port, Ø 3mm, for gas sampling at column outlet.</li> </ul> <p><b>Model CS025SA:</b> Mounted on cylindrical socket (without caster wheels)  <b>Model CS070SA:</b> Mounted on detachable caster wheels</p>

<b>Pipework and Components</b>	<p>316L stainless steel piping and flexible steel bellows. (CS025LS: DN 25 mm; CS070LS: DN 40 mm).</p> <p>Pressure transducer, -500 to +500 mbar. To monitor pressure at inlet to column.</p> <p>Two gas sampling cocks, one each at system inlet and outlet, Swagelok® Quick Connect port, Ø 6mm.</p> <p>Internal column bypass line. Opens if over-pressure set-point is exceeded, to route gas past the column.</p> <p>Inductive “Column in Place” switch.</p>
<b>Endpoint Detection</b>	<p>Electrochemical gas sensor to indicate when the column has reached its capacity endpoint. Timer-controlled piston pump for gas sampling to endpoint detector.</p> <p>Two selectable sampling points: 1. To detect endpoint prior to gas breakthrough at column outlet (typically at 90 % of column capacity); 2. At column outlet.</p> <p>The purpose of the endpoint detection sensor is to signal end of column lifetime only. It is expected that the customer installs a separate gas detection unit to independently monitor the working area for gas leaks.</p>
<b>Operating Panel and Controls</b>	<p>Stainless steel operating panel at front of system. Engraved flow chart schematic with colored LEDs to indicate status of valves. Alphanumeric display of system inlet pressure.</p> <p>Push-button activation of:</p> <ul style="list-style-type: none"> <li>- Column bypass operation</li> <li>- Gas sampling unit.</li> </ul> <p>PLC-controlled electronics with LED and buzzer status signals for:</p> <ul style="list-style-type: none"> <li>- Mains power</li> <li>- Bypass Open/Closed</li> <li>- Inlet Pressure Warning/Alarm</li> <li>- Column in Place</li> <li>- Column Capacity Endpoint.</li> </ul> <p>Remote signaling available via:</p> <ul style="list-style-type: none"> <li>- volt-free dry contacts</li> <li>- RS232</li> </ul> <p>Key switch with selection of two user authorization levels.</p>
<b>Documentation</b>	<p>Operating manual in English or German language with customer-specific specifications.</p>

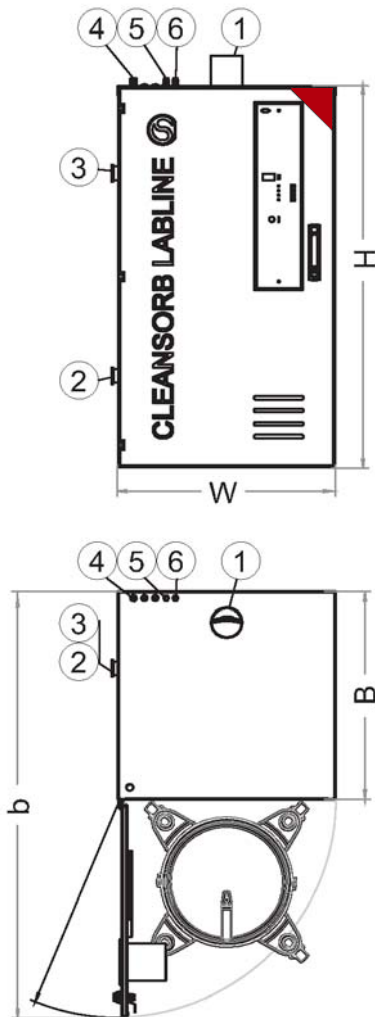
## Available Options

<b>Column Bypass Option</b>	<b>Mini-Absorber Cartridge</b> Integrated into bypass line, for short-term containment of gas release during bypass operation.
<b>Ex-compliant components</b>	Gas wetted components and sensors ex-compliant.
<b>Power Supply</b>	<b>120 VAC/ 60 Hz/ 1-Phase (UL)</b> . Cables and components compliant with UL standards. (Single phase, grounded midpoint, 3 wire). <b>230 VAC/ 50 Hz/ 1-Phase (CE)</b> ; (Single phase, L, N, PE). <b>120 VAC/ 60 Hz/ 1-Phase (CE)</b> ; (Single phase, L, N, PE). <b>230 VAC/ 50 Hz/ 1-Phase (UL)</b> ; (Single phase, grounded midpoint, 3 wire).
<b>Signal Tower Options</b>	<b>Signal Tower – Local</b> Signal tower for indication of system status, warning and alarm states. Light stack with green, amber and red LEDs. Roof-mounted on cabinet. <b>Signal Tower - Remote</b> Signal tower for indication of system status, warning and alarm states. Light stack with green, amber and red LEDs. Supplied with 30 m cable for remote installation. The remote signal tower is connected via the volt-free contacts, making these unavailable for further use. If the remote signal tower is connected, the RS232 serial interface should be used for external communication.
<b>Facilities Connections (N2, CDA)</b>	Select either Metric (mm), or Imperial (inch).
<b>Gas Inlet and Outlet Connections</b>	(As viewed from front of cabinet), select either: Inlet and outlet on <b>left</b> side Inlet and outlet on <b>right</b> side
<b>Units on operating panel</b>	Pressure displayed in either: mbar, hPa or psi. (select one).

**System Specifications**

Series **CLEANSORB® LABLINE**

Models **CS025LS, CS070LS**



**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 provide an extraction rate of 100 m3/h(58 cfm)

**2 System inlet connection**

DN25 ISO-KF (CS025LS), DN40 ISO-KF (CS070LS)  
 total vol. flowrate, incl. inert carrier/pump/dilution gases:  
 < 70 slm (CS025LS), < 150 slm (CS070LS)  
 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 manufacturer.

**3 System outlet connection**

DN25 ISO-KF (CS025LS), DN40 ISO-KF (CS070LS)  
 total volumetric flowrate:  
 < 70 slm (CS025LS), < 150 slm (CS070LS)  
 5...70 °C (41...158 °F)  
 ~ -500 Pa (-0.07 psi) relative to pressure at system inlet required

**4 Power**

Single phase, 120 VAC or 230 VAC available (configured according to local requirements), 50/60 Hz, 110 W

**5 Purge gas supply (Nitrogen)**

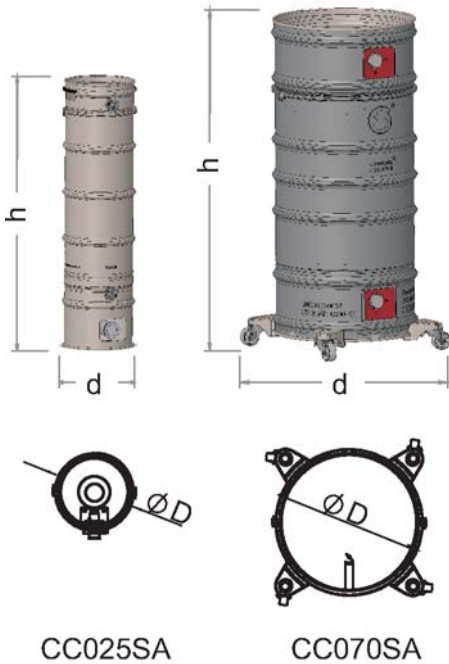
Swagelok® 6 mm or ¼"; 6...7 bar = 0,6...0,7 MPa (85...100 psi)

**6 Pneumatic supply (Nitrogen)**

Swagelok® 6 mm or ¼"; 6...7 bar = 0,6...0,7 MPa (85...100 psi)

Model	H	W	B	b
CS025LS	1250 mm (49.2 in)	560 mm (27,6 in)	560 mm (27,6 in)	1130 mm (55.6 in)
CS070LS	1250 mm (49.2 in)	700 mm (27.6 in)	700 mm (27.6 in)	1412 mm (55.6 in)

Gross weight (incl. cabinet) 85 kg (187.4 lb) for CS025LS  
 115 kg (253.5 lb) for CS070LS



Column	h	d	D	weight
CC025SA for CS025LS	955 mm (37.6 in)	260 mm (10.2 in)	240 mm (9.4 in)	max. 68 kg (150 lb)
CC070SA for CS070LS	1100 mm (43.3 in)	650 mm (25.6 in)	400 mm (15.7 in)	max. 135 kg (297 lb)

Pressure drop at max. volumetric flow  
 max. 500 Pa (0.07 psi)

Gas sampling point  
 Sampling at 90 % or 100 % of absorber bed height

**Computer Interfaces**

Interface type  
 RS232 (3-wire), alternatively RS422 (4-wire);  
 ASCII protocol

External port  
 D-SUB 9-pin miniature female connector

Internal port  
 port for coded flat cable;  
 use shielded 4-pin twisted-pair-cabel

Usage  
 on-site maintenance/system diagnosis  
 download of software/system parameters  
 interface to central monitoring unit

**Volt-free Contacts for External Evaluation**

Outlets  
 external evaluation is possible for up to 6 signals via relais  
 outlets KO1...KO6;  
 KO1: PRESSURE WARNING  
 KO2: PRESSURE ALARM  
 KO3: BYPASS OPEN  
 KO4: ENDPOINT DETECTED  
 KO5: not active  
 KO6: not active  
 during error status contacts are open

Specification  
 24 VDC max., 0.4 A max.


Usage  
 signals for central monitoring unit, signal tower or  
 remote display

### 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 (~ 1/2 in)
Washer	outer $\varnothing$ 70 mm (~ 2 3/4 in); thickness 6 mm (~ 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 Environmental Conditions for 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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