



# PROCARB HORIZONTAL DEEP BED (HDB) BIOGAS

INDUSTRIAL MOLECULAR FILTRATION SOLUTIONS



Clean Air Solutions

# PROCARB HORIZONTAL DEEP BED BIOGAS FILTER

## VERSATILE AND LOW-MAINTENANCE

ProCarb Horizontal Deep Bed (HDB) Biogas filters are robust molecular filtration scrubbers for the biogas industry. This product is designed for the highest level of performance for process gas that may be heavily contaminated by hydrogen sulfide (H<sub>2</sub>S), siloxanes, ammonia (NH<sub>3</sub>) and other volatile organic compounds (VOCs).

ProCarb HDB Biogas filters provide extremely high removal efficiency and long lifetime. Seven standard sizes are available with airflow capacities ranging from 595 to 3395 cfm (350 to 2000 m<sup>3</sup>/h).

The units are entirely passive in operation, require minimal routine maintenance, and can be filled with one or more types of molecular filtration media to target a wide range of contaminants.

## DESIGNED FOR BIOGAS PROCESS DEMANDS

ProCarb HDB Biogas filters are configured for vertical airflow and allow a single deep bed of media to cover the entire filter surface area. The design enables inherently leak-free performance, ensuring no gas stream bypass.

The filters are designed and constructed to withstand typical biogas process system pressures of up to 7.1 psig (0.49 barg). The cylindrical shell and dished ends are constructed of 316 stainless steel. The flanged inlet and outlet connections and instrumentation bosses meet recognized standards.

ProCarb HDB Biogas filters are designed to ensure ease of installation and servicing. Depending on the contaminants, a wide range of molecular medias may be used in the filters.



FEATURES	BENEFITS
Very long contact time to optimize media usage and lifetime	Confidence in high purification level of biogas
Convenient gravity removal of depleted media, easy-to-regulate media flow	No requirement for expensive vacuum equipment to change media
Inherently leak-free design	Highly reliable performance
Constructed of 316 stainless steel	Corrosion resistant
Compact, cylindrical footprint	Minimum requirement for concrete or steel foundation
Designed for maximum pressure of 7.1 psig (0.49 barg)	Reliable performance for biogas processes

Model <sup>1</sup>	Nominal Flow (m <sup>3</sup> /h)	Nominal Flow (cfm)	Max. Flow (m <sup>3</sup> /h)	Max. Flow (cfm)	Diam. (mm)	Diam. (in)	Height (mm)	Height (in)	Media Volume (m <sup>3</sup> )	Media Volume (ft <sup>3</sup> )	Max. Weight <sup>2</sup> (kg)	Max Weight <sup>2</sup> (lb)	Pressure Drop (Pa)	Pressure Drop ("wg)
HDB 350	350	206	450	265	1890	74	3121	122	3.8	134	6080	13376	60	0.2
HDB 600	600	353	800	471	1890	74	4101	160	6.6	233	10560	23232	200	0.8
HDB 850	850	500	1100	647	1890	74	5101	199	9.3	328	14880	32736	400	1.6
HDB 950	950	559	1250	736	2410	94	4199	164	10.6	374	16960	37312	200	0.8
HDB 1300	1300	765	1700	1001	2410	94	5039	197	14.4	509	23040	50688	350	1.4
HDB 1550	1550	912	2000	1177	2410	94	5679	221	17.3	611	27680	60896	550	2.2
HDB 2000	2000	1177	2500	1472	2750	107	6000	234	22.7	802	36320	79904	550	2.2

<sup>1</sup> Standard sizes achieve 40 seconds contact time at rated flow.

<sup>2</sup> For locations with high wind or earthquake risk, additional reinforcement is recommended and will increase unit weight. Seismic load: 0.2 g horizontal and 0.1 g vertical. Wind load: 58 mph (26 m/s) fundamental basic wind velocity according to EN 1991-1-4. 112 mph (50 m/s) design wind speed according to IBC2015.

## SPECIALIZED SOFTWARE

The lifetime of a ProCarb HDB Biogas system can be simulated using the unique Molecular Contamination Control Lifetime Determination (MCCLD) software. The MCCLD software provides optimal performance estimates for molecular filtration products under selectable conditions that simulate real-world applications.

The software can model the performance of a system running under various conditions including gas, concentration, type of adsorbent media, contact time, relative humidity and temperature.

The proprietary MCCLD program has been developed using adsorption theory, many years of application knowledge, field measurements and results of extensive product testing in Camfil's unique ISO 10121 molecular filtration test laboratory

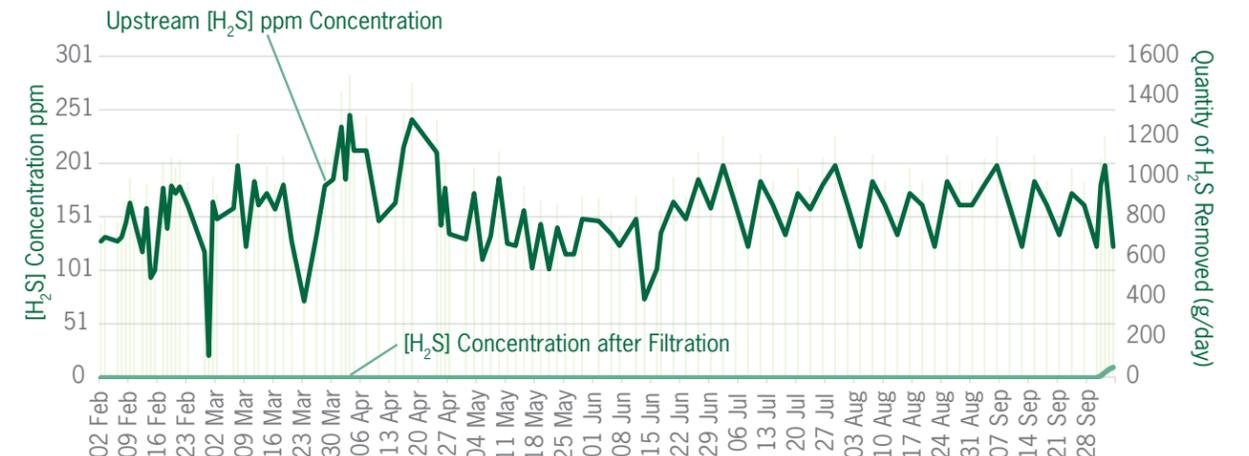
## SERVICING

After commissioning, the filters are completely passive in operation and require minimal routine maintenance.

Once exhausted, the molecular filtration media can be easily removed via the port located on the side of the unit, and new media can be gravity-fed through the top port.



## Hydrogen Sulfide (H<sub>2</sub>S) Removal by ProCarb HDB Biogas Filter with CamPure 32 Adsorbent Media



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For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air and gas filtration and pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment.

We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus, we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 30 manufacturing sites, six R&D centers, local sales offices in 35+ countries, and about 5,600 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world.

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