

THE GAS EXCHANGER **NO CORNERS OR EDGES**

FOR ALL PUMPING SYSTEMS



THE MOBYO® GAS EXCHANGER

INNOVATIVE DESIGN FOR EXCELLENT PERFORMANCE
AND SAFETY

Prevents thrombus formation by eliminating corners and edges

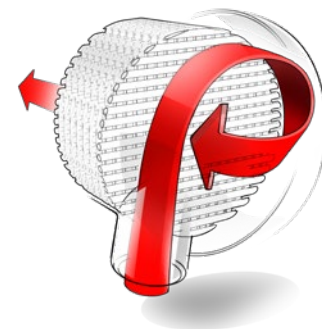
Conventional gas exchangers with stacked or wrapped membranes increase design-related recesses and corners in what are known as stagnation areas. This increases the risk of thrombus formation due to stasis of patients' blood.

Our process of circular potting while avoiding critical corners generally prevents the creation of these angles and edges. This supports natural flow behavior and practically precludes stagnation areas, nearly eliminating the risk of thrombus formation in these regions.¹

Ensuring modern medical care

The MOBYO® gas exchanger upgrades treatment with an extremely low drop in pressure – a feature of carefully considered design that reduces demands on the blood pump and thus offers more possibilities.² The user is thus free to decide which rotary pump is used in combination with the MOBYO® to implement planned ECLS therapy for adults.

Our MOBYO® gas exchanger can be supplemented with efficient tube heating, for example our Hemovent WOOMER® and forgoes high-risk and resource-intensive water-based concepts for temperature control.



Our technology eliminates stagnation areas in the gas exchanger design and thus contributes to reducing the risk of thrombus formation. Optimal blood flow ensures excellent gas exchange. Both are prerequisites for reliable function and a long sterility duration.

WHAT MAKES OUR MOBYO® GAS EXCHANGER SPECIAL:

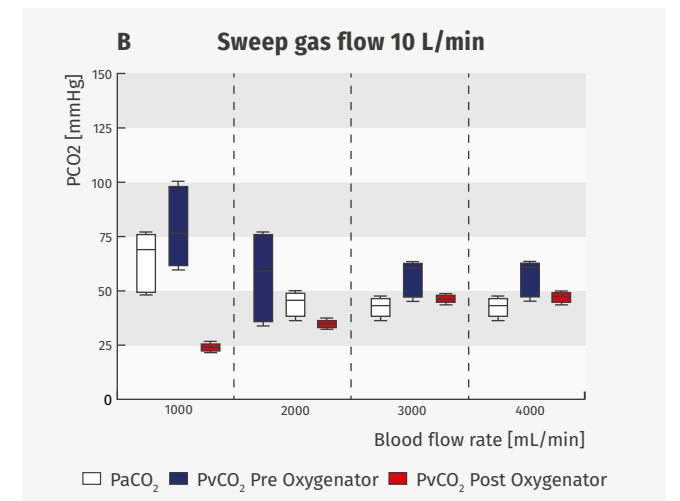
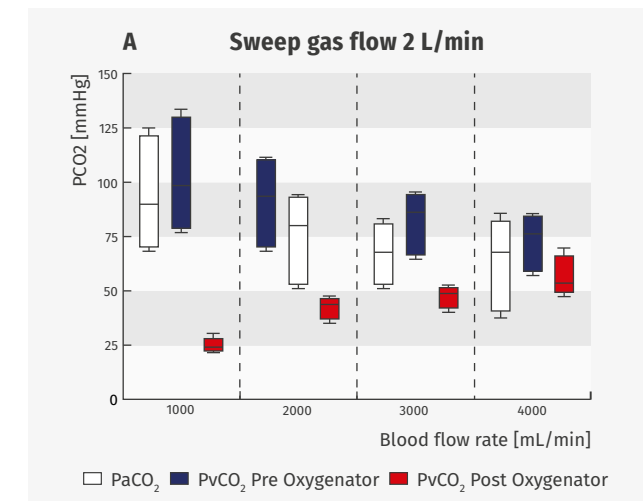
- Very low resistance (max. pressure drop of 19 mmHg at 2 L/min or 53 mmHg at 5 L/min)¹
- Highly normal CO₂ elimination rate²
- Flow path that provides gentle treatment of blood²
- Reduced risk of thrombus formation¹
- Elimination of stagnation areas by design
- Allows blood flows of up to 7 L/min¹
- Approved for 28 days



CONSTANT CO₂ ELIMINATION

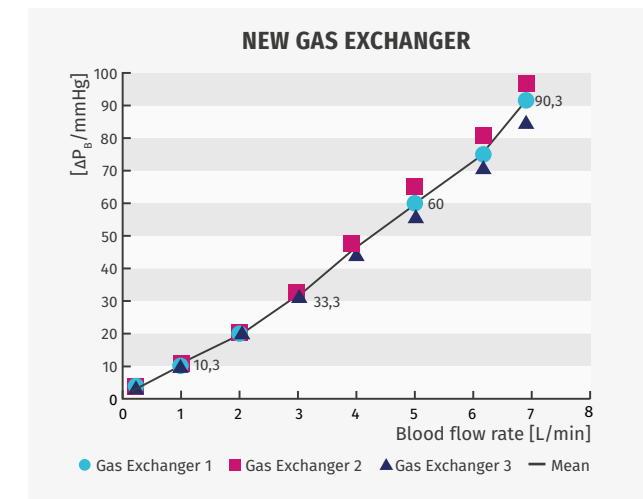
Stability and flexibility at increased blood flow rates

Our innovative technology facilitates constant CO₂ elimination that is reliable at increased blood flow rates. The graph shows how the MOBYO® continuously ensures efficient CO₂ elimination, even when blood flow varies.² This means stability and flexibility during use to meet the individual needs of your patients.

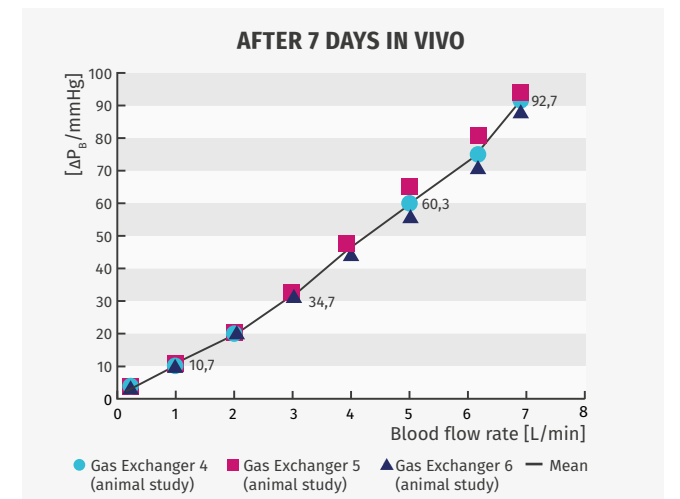


SAFE AND RELIABLE GAS EXCHANGE

Constant pressure ratios maintained over long periods without thrombus formation or protein deposits between the fibers¹



Pressure decrease on the blood side via the gas exchanger



No pressure increase after 7 days of use

MOBYBOX

Our MOBYBOX® contains the same gas exchanger and is available as an independent ECLS system with an integrated pump controlled via MOBYBOX® RUNNER (Control unit).



¹ According to data from the registration dossier for DIN EN ISO 7199
² Karagiannidis C et al. ASAIO Journal 2021 DOI: 10.1097/MAT.0000000000001190

THE MOBYO® - IN CARDIOVASCULAR PERFUSION

PRECISION AND INNOVATION

Our MOBYO® offers long-term constant performance and excellent CO₂ elimination for partial respiratory insufficiency. The MOBYO® even ensures the required oxygenation capacity in cases of global pulmonary insufficiency.



USED FOR ARDS

ARDS treatment – when invasive ventilation is not enough

Extracorporeal lung support treatment can either be done using an arteriovenous method without a pump or a venovenous method with a pump.

In the first case, CO₂ elimination³ is performed using the maximum achievable blood flow (up to around 1.2 L/min) with the patient's heart as the pump. In the latter configuration, significantly higher blood flow can be achieved with the external blood pump, usually a rotary pump, thus achieving partial or complete oxygenation in addition to CO₂ elimination. In cases of global pulmonary insufficiency in particular, as can be the case in severe ARDS⁴ for example, this is critical.

The MOBYO® gas exchanger enables excellent CO₂ elimination capacity at low blood flow rates. The cylindrical layout of the fibers ensures continual expansion of the gas exchanging areas with increasing sweep gas flow rate.²

Thanks to the MOBYO® gas exchanger's advanced technology, clinically relevant fibrous and cellular deposits are less likely when anticoagulation is adequate.^{1,2} Our gas exchanger remains free of protein deposits for up to 28 days while continuously maintaining its performance.¹

FOR POSTCARDIOTOMY SCENARIOS

Prevent organ failure

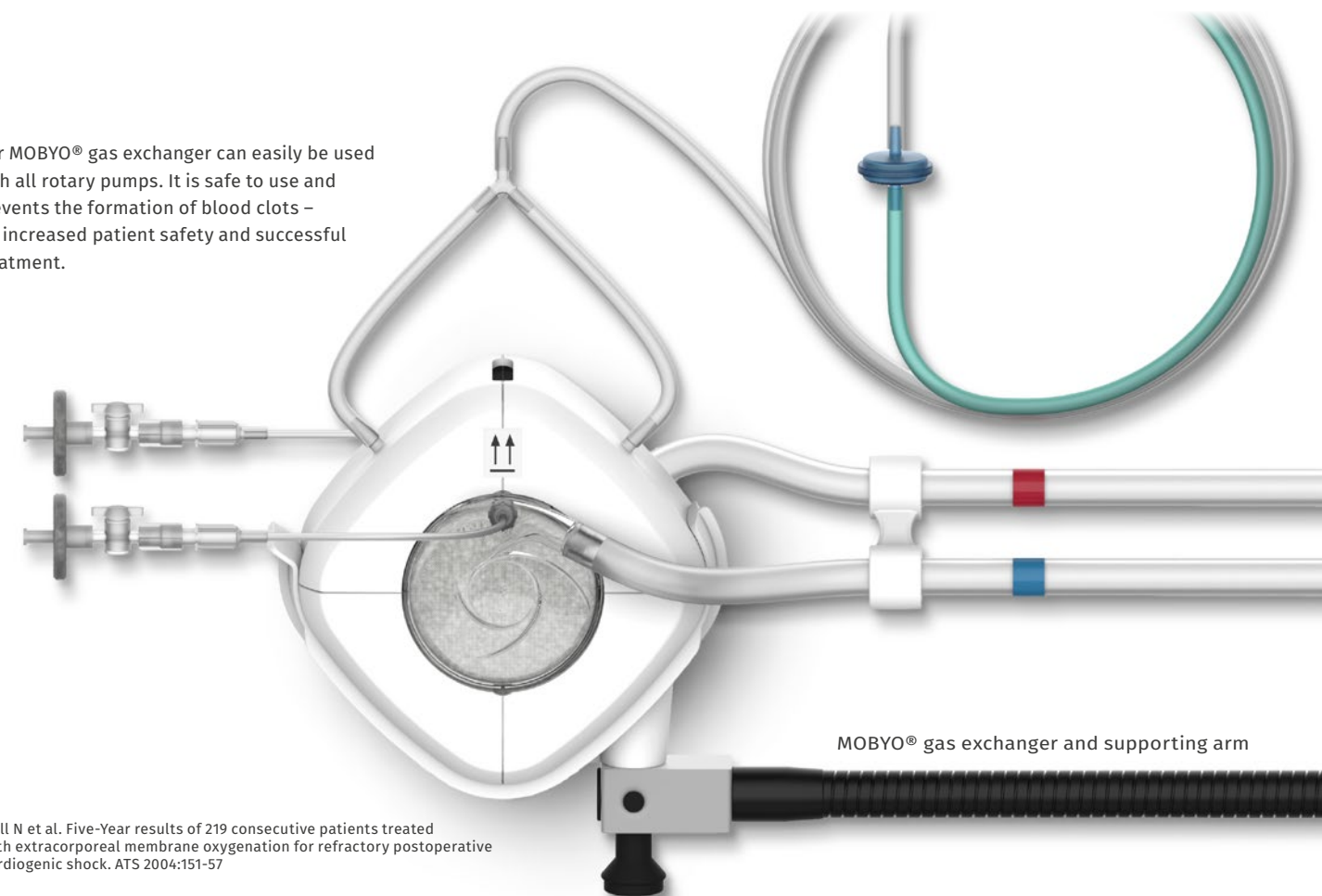
Support from ECLS systems is the preferred therapy for patients in weaning failure after cardiosurgical procedures using extracorporeal circulation.

In most cases, the underlying cardiogenic shock is due to myocardial pump failure and usually leads to a longer post-operative myocardial recovery phase, for example due to ischemia or a reperfusion injury. This process, which can generally take a few hours to a few days, is effectively supported with ECLS. That means it can impactfully prevent possible failure of further organs.⁵

Here, the proven rotary pump used in cardiothoracic perfusion can be combined with the MOBYO® gas exchanger, which facilitates reliable gas exchange during the required period. With the help of the available tube heater, inadequate thermal loss for patients can be avoided during this recovery phase.



Our MOBYO® gas exchanger can easily be used with all rotary pumps. It is safe to use and prevents the formation of blood clots – for increased patient safety and successful treatment.



MOBYO® gas exchanger and supporting arm

³ <https://doi.org/10.1111/j.1365-2044.2008.05735.x>
⁴ JAMA. 2018 Dec 4;320(21):2251-2259. doi: 10.1001/jama.2018.14276.

⁵ Doll N et al. Five-Year results of 219 consecutive patients treated with extracorporeal membrane oxygenation for refractory postoperative cardiogenic shock. ATS 2004:151-57

THE MOBYO® – TECHNICAL DATA AND DETAILS



MOBYO

by hemovent

The MOBYO® is built to optimize washout, reduce pressure reduction via the gas exchanger, and increase the efficiency of the gas exchanger overall.²

While other gas exchangers have wrapped or stacked designs with corners that are prone to clot formation, our design seals the corner areas of the stacked hollow fiber membranes to create a homogeneous barrel. This supports the natural flow behavior of fluids and imitates the conditions in natural circulation to eliminate the risk of thrombus formation in these areas.

MOBYO® System
Parts number HVEU-205
Consisting of

Label
CE 0297

MOBYO® Set:
Parts number HVEU-203

- MOBYO®
- De-airing set
- Sterile drape
- Cable tie
- Clamp and scissors set

MOBYO® Supporting Arm Set:
Parts number HVEU-207

Technical Data

Duration of use	up to 28 days	Sweep gas flow	0–20.0 L/min
Shelf life	24 months	O ₂ transfer rate	100% O ₂ saturation with blood flow of 5 L/min, O ₂ : ≥ 60 mL O ₂ /min per L/min blood flow
Pressure limit of the bloodstream	1.5 bar	CO ₂ transfer rate	≥ 50 mL CO ₂ /min per L/min blood flow
Filling volume	about 170 mL	Δp gas exchanger on the blood side	45 mmHg at 5 L/min blood flow
Blood flow rate	1 to 7 L/min	Δp gas exchanger gas side	10 mmHg at 20 L/min gas flow

Material

Gas exchanger housing	Methyl methacrylate (MABS)	Gas exchanger housing	Polyurethane (PU)
Gas exchanger fibers	Polymethylpentene (PMP)	Tubing	Polyvinyl chloride (PVC)

Cannulae

All common single and double lumen cannulae suited for ECLS applications and which provide a 3/8-inch connector for the tubing can be used. Percutaneous VA- and VV-applications include femoral-femoral, femoral-jugular and double-lumen jugular configurations.

HEMOVENT WOOMER® – THE COMPANION FOR ADDITIONAL SAFETY



hemovent

WOOMER

The Hemovent WOOMER® is a tube heater that reduces heat loss. It can be used individually, on the arterial and the venous (feed) tube side.

Manufacturer: Barkey

Hemovent WOOMER®
Parts number DP-002

Label
CE 0123

Technical Data

Connection	100–240 VAC, 50/60 Hz	Operating mode	Continuous operation
Power consumption	max. 115–139 VA	Dimensions	Control unit W x L x H: 90 x 60 x 160 mm
Fuse	2.5 A slow	Weight	approx. 1.3 kg
Temperature setting	+42 °C	Protection class	I/protective grounding
Control accuracy	± 2.0 °C	Rating	BF; protected against defibrillation, external and internal use on the patient and insulated applied part
Degree of protection	+46 °C ± 1.0 °C	Air pressure	700 to 1060 hPa
Thermal fuse		Moisture protection	IP X2
Warm-up time	from +20 °C to +42 °C < 10 min		

The MOBYO® is part of our MOBYBOX® System, consisting of the MOBYBOX® RUNNER (Control unit) and the MOBYBOX® (Patient unit).

The MOBYBOX® integrates all active components: the bi-ventricular pump and the gas exchanger. The compact housing can be placed directly at the patient's bedside and facilitates every cannulae configuration. Short tubes to the cannulae limit foreign surface contact, heat loss, and priming volume.



MOBYBOX® RUNNER (Control unit)
Parts number HVCEU-005

MOBYBOX® (Patient unit)
Parts number HVEU-007

Manufacturer:

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