

**QUADROX-i** Small Adult and Adult  
Choose maximum safety.

**MAQUET**  
GETINGE GROUP





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# Pioneers of the **QUADROX-i family.**

## Where integration meets innovation.

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### **A benchmark in modern perfusion technology:**

As a leading worldwide supplier of oxygenators and advanced products for extracorporeal circulation and life support systems, Maquet Cardiovascular is known and respected not only for its state-of-the-art technology, but also for its ongoing innovations. With solutions that are finely tuned to the requirements of increasingly complex perfusion technology, Maquet is ideally positioned to support tomorrow's challenging operating techniques.

**The QUADROX-i family is growing:** With QUADROX-i, Maquet offers a complete oxygenator family for each patient size, beginning with the QUADROX-i Neonatal and Pediatric up to the QUADROX-i Small Adult and Adult versions. They range from the smallest neonate to the tallest adult patient.

### **The QUADROX-i family is a clear step ahead with many features:**

- integrated arterial filter
- Isoflurane and Sevoflurane compatibility
- customer-specific product selection

### **QUADROX-i Adult and Small Adult stand for:<sup>1</sup>**

- extremely low pressure drop<sup>2</sup>, also with integrated filter
- low priming volume
- only 1.8 m<sup>2</sup> gas fiber surface area
- good O<sub>2</sub> and CO<sub>2</sub> transfer
- highly efficient heat exchanger
- optimized surface refinement with SOFTLINE Coating
- BIOLINE Coating optionally available
- easy handling and an easy priming procedure

Maquet | The Gold Standard



<sup>1</sup> Data on file

<sup>2</sup> Guan et al. Evaluation of Membrane Oxygenators and Reservoirs in Terms of Capturing Gaseous Microemboli and Pressure Drops. *Artif. Organs* 2009; Vol.33; No.11: 1042

# Small patients – big challenges.

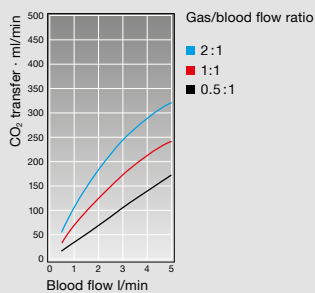
## QUADROX-i Small Adult



**QUADROX-i Small Adult is designed for small adult patients** and offers large reserve capacity plus a significant reduction in priming volume. Based on the well-known and well established QUADROX technology, the QUADROX-i oxygenators are available both with and without an integrated arterial filter.

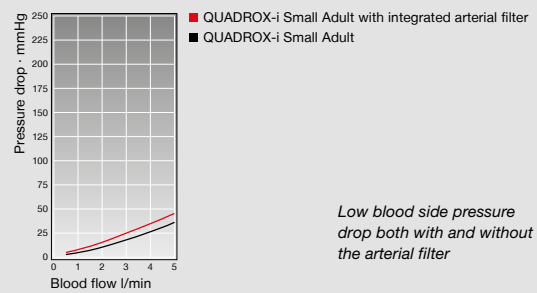
The ease of priming, very high gas and heat exchange, and very low pressure drop<sup>2</sup> characteristics of all QUADROX-i oxygenators make them an ideal choice for adult and smaller patients.

### Carbon Dioxide Transfer



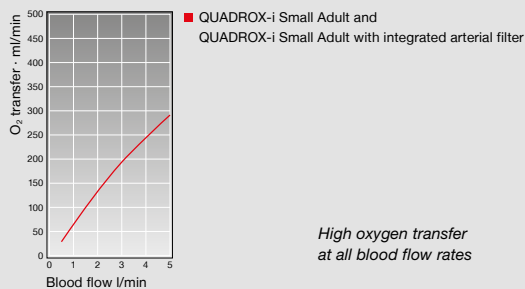
*Effective and easily controllable removal of CO<sub>2</sub>*

### Pressure Drop



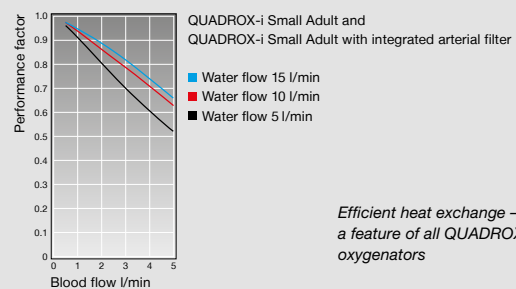
*Low blood side pressure drop both with and without the arterial filter*

### Oxygen Transfer



*High oxygen transfer at all blood flow rates*

### Heat Exchange Performance



*Efficient heat exchange – a feature of all QUADROX-i oxygenators*

Technical Data	QUADROX-i Small Adult	QUADROX-i Small Adult (with integrated arterial filter)
Recommended blood flow rating	0.5–5 l/min	0.5–5 l/min
Priming volume	175 ml	295 ml
Effective gas exchange surface area	1.3 m <sup>2</sup>	1.3 m <sup>2</sup>
Effective heat exchange surface area	0.3 m <sup>2</sup>	0.3 m <sup>2</sup>
Material of gas exchange fiber	Polypropylene (PP)	Polypropylene (PP)
Material of heat exchange fiber	Polyurethane (TPU)	Polyurethane (TPU)
Arterial filter pore size	–	40 μm
Arterial filter surface area	–	430 cm <sup>2</sup>

# Integration at its best.

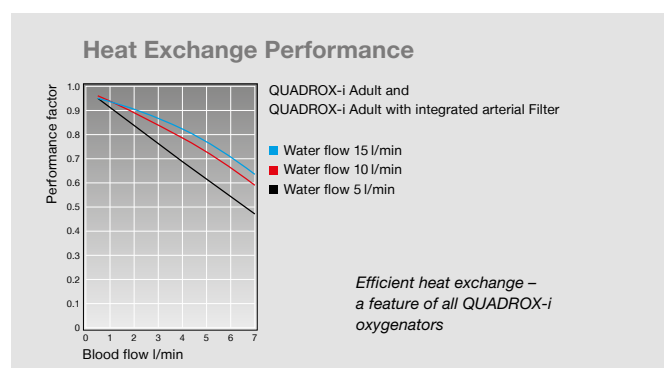
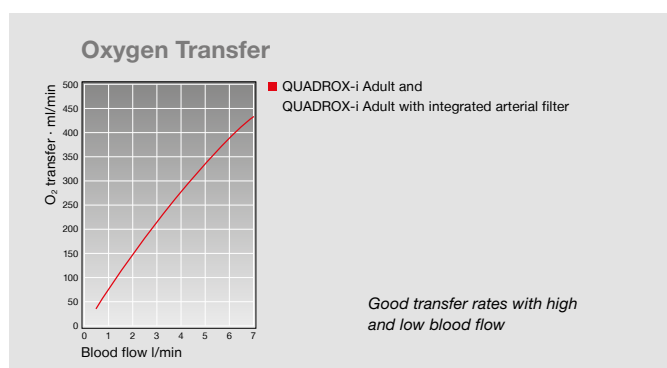
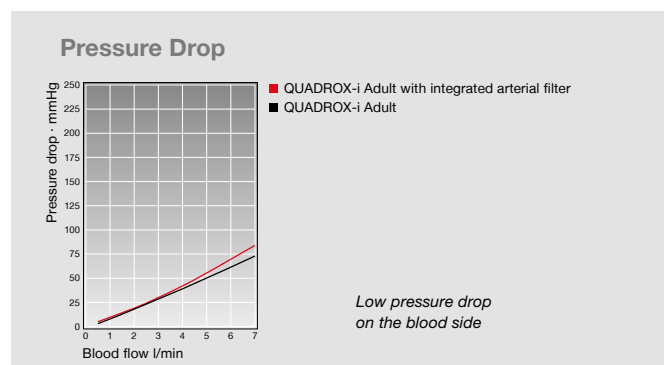
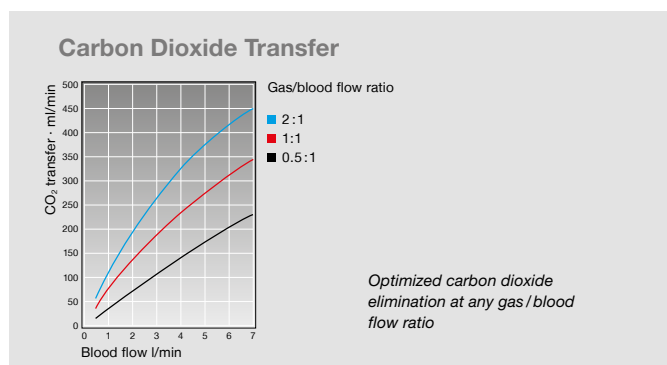
## QUADROX-i Adult



**QUADROX-i Adult oxygenators are designed with versatility and customization in mind:** The QuadroX-i system is modularly built to enable simple, customer-specific adjustment – for perfectly customized perfusion solutions. All QUADROX-i oxygenators are equipped with a microporous membrane. Thanks to this modularity, Maquet offers the best solution, performance, safety, and reliability.

**The integrated filter benefits perfusionists and patients in several respects:**

- Minimal priming volume
- Minimal contact of blood with foreign surfaces
- Easy access to all ports and connectors



Technical Data	QUADROX-i Adult	QUADROX-i Adult (with integrated arterial filter)
Recommended blood flow rating	0.5 – 7 l/min	0.5 – 7 l/min
Priming volume	215 ml	335 ml
Effective gas exchange surface area	1.8 m <sup>2</sup>	1.8 m <sup>2</sup>
Effective heat exchange surface area	0.4 m <sup>2</sup>	0.4 m <sup>2</sup>
Material of gas exchange fiber	Polypropylene (PP)	Polypropylene (PP)
Material of heat exchange fiber	Polyurethane (TPU)	Polyurethane (TPU)
Arterial filter pore size	–	40 µm
Arterial filter surface area	–	430 cm <sup>2</sup>

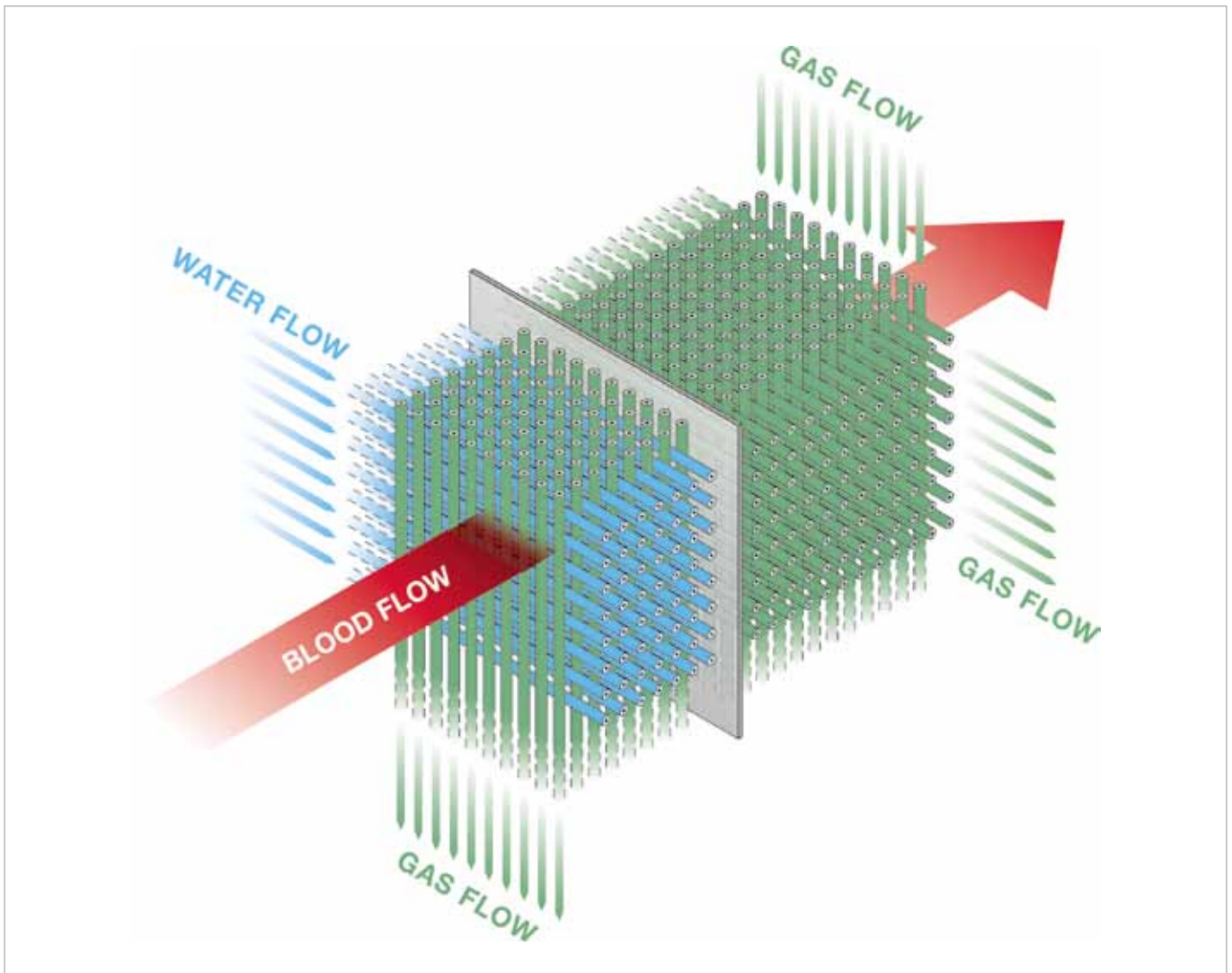
# Quadrox-i structure. Designed for advanced efficiency.

**Structure of QUADROX-i:** The hollow fibers in the QUADROX-i oxygenators are not wound in the conventional way, but arranged in mats and accurately woven with extremely fine threads in a more complicated procedure. The fiber mats are all set at an angle of 90° to one another and stacked in a pile, reducing the amount of overlap to a minimum and thereby optimizing the use of the available fiber surface.

**Gas exchange in QUADROX-i:** The QUADROX-i oxygenators contain two chambers. In the first chamber, gas fiber mats made of microporous polypropylene are alternated with heat exchange mats made of polyurethane. The blood

is temperature-adjusted, oxygenated and de-carboxylized. The second chamber contains only gas fiber mats which are similarly arranged at an angle of 90° to one another. The number and arrangement of the mats are determined by the blood flow widths of the particular model, so guaranteeing optimal performance, foreign surface and priming volume. As it passes through the mats, the blood is gently circulated, using the available surface more efficiently than a conventional oxygenator with a wound fiber bundle.

**Result:** The design of the QUADROX-i oxygenator combines effective use of the transfer surface with optimum hydrodynamic properties, as indicated by the low pressure drop.



# Venous Hardshell Cardiotomy Reservoirs

## VHK 70000 and VHK 71000

### For optimized perfusion outcomes

#### Unique functions enabled by revolutionary design:

- Special conical shape combines optimal flow dynamics with superb interior visibility.
- New filter concept – with filter cartridge. Outstanding elimination of microbubbles thanks to unique flow control in the bottom filter cartridge.
- Low hemodilution due to reduced hold-up volume.
- Low minimum operating volume – even even down to 150 ml in combination with QUADROX-i Small Adult oxygenator.
- Turbulence minimized by conical reservoir shape.
- Use of the new VHK 70000/71000 together with the tried-and-tested QUADROX-i oxygenator for excellent perfusion outcomes.

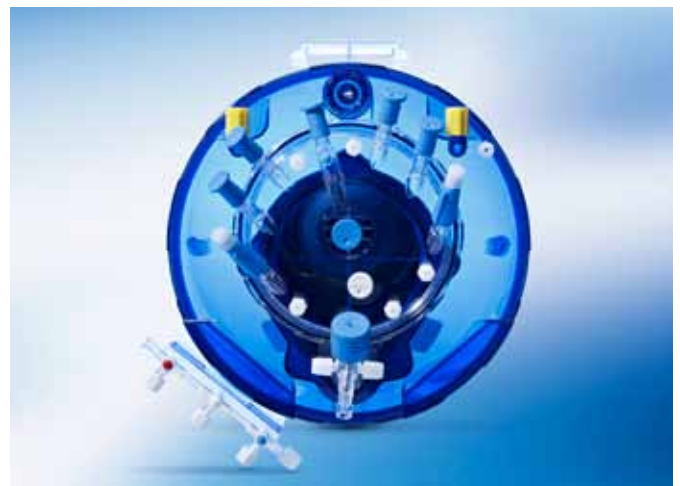
#### Excellent, safe handling due to optimized ergonomics:

- Rotatable suction connector module allows individual positioning of ports.
- Curved venous inlet connector.
- Reservoir holder with lightweight design – easy to use and securely fixed.
- Additional fixation for the QUADROX-i oxygenator for more stability.



VKMO 71000 on holder HKH 7000

Technical data	
Max. volume capacity	4.2 l
Maximum blood flow rates:	
- Venous filter	7 l/min
- Cardiotomy filter	5 l/min
- Combined	7 l/min
Minimum operating volume:	
- At adult blood flow rate of 7 l/min	200 ml
- At small adult blood flow rate of 5 l/min	150 ml
Cardiotomy filter pore size	40 µm
Venous filter pore size	68 µm
Material of defoamer	Polyurethane (PU)
Material of filter	Polyester (PET), Polypropylene (PP)
Material of housing	Polycarbonate (PC)



Reservoir lid

# Order information

## Integrated and versatile product range



Holder arm 016061 with holder HKH 7000



HKH 1100



Holder 016062 for single QUADROX-i



Detail HKH 7000



HKH 3050

QUADROX-i Adult Oxygenator	Type	Quantity
QUADROX-i Adult	HMO 70000	4 units/box
QUADROX-i Adult with integrated arterial filter	HMO 71000	4 units/box
HMO 70000 + VHK 71000	VKMO 70000	1 unit/box
HMO 71000 + VHK 71000	VKMO 71000	1 unit/box

QUADROX-i Small Adult Oxygenator	Type	Quantity
QUADROX-i Small Adult	HMO 50000	4 units/box
QUADROX-i Small Adult with integrated arterial filter	HMO 51000	4 units/box
HMO 50000 + VHK 71000	VKMO 50000	1 unit/box
HMO 51000 + VHK 71000	VKMO 51000	1 unit/box

Holder for separate oxygenator fixation	Type	Quantity
Holder for QUADROX-i Adult and Small Adult oxygenators	016062	1 unit/box

VHK and Holder	Type	Quantity
Venous hardshell cardiotomy reservoir 4.2 l, standard	VHK 70000	1 unit/box
Venous hardshell cardiotomy reservoir 4.2 l, vacuum-sealed	VHK 71000	1 unit/box
Holder for adult and small adult venous hardshell cardiotomy reservoirs (VHK 70000, VHK 71000, VKMO 70000, VKMO 71000, VKMO 78000, VKMO 50000, VKMO 51000), to be used with HKH 3050 or 016061 or HKH 1100	HKH 7000	1 unit/box
Holder arm (for HKH 7000), 2-joint	HKH 3050	1 unit/box
Holder arm (for HKH 7000)	016061	1 unit/box
Short holder for holder HKH 7000 for Intensive Care Unit	HKH 1100	1 unit/box





MAQUET

QUADROX-1  
ADULT

Hollow Fiber Oxygenator  
Microporous Membrane

SOFTLINE COATING

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This brochure contains information about products which may be pending regulatory approval to be marketed in your country.

**Contact your local Maquet representative for more information.**

See instructions for use for full prescribing information, including indications, contraindications, warnings, precautions and adverse events.

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**MAQUET**  
GETINGE GROUP

Maquet Cardiopulmonary GmbH  
Kehler Str. 31  
76437 Rastatt, Germany  
Phone: +49 7222 932-0  
Fax: +49 7222 932-1888  
info.cp@maquet.com

[www.maquet.com](http://www.maquet.com)

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