

High performance 20 μm mesh

SEFAR **MEDIFAB**[®] 07-20/23 – Next generation arterial blood filters

Introduction

During open-heart surgery, a complex system of medical devices temporarily replaces heart and lung functions. Vital components of this extracorporeal circulation, ECC (also called cardiopulmonary bypass, CPB, or heart lung machine) include very precise filter devices integrated into the venous/cardio-reservoirs, oxygenators, blood bags, and arterial line blood filters.



Sefar's precision woven mono-filament fabrics are the industry standards in these cardiopulmonary devices and help guarantee patient safety.

High flow rates, precise mesh openings, and proven biocompatibility of Sefar filters contribute to the excellent reliability and performance of the ECC.

SEFAR MEDIFAB® 07-20/23

High Performance

Efficient removal of micro air bubbles and particulate emboli from circulating blood is the key to a successful arterial filter. SEFAR MEDIFAB 07-20/23 High Performance offers unrivalled technical benefits for modern arterial filters.

- Efficient 20 µm particle filter
- Unmatched micro air bubble removal
- Lowest pressure drop
- Minimal priming volume

One single filter for infant, pediatric and adult arterial blood filtration.

Increasing Filtration Efficiency – Surpassing ISO 15675

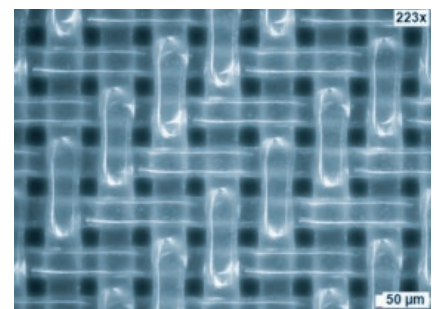
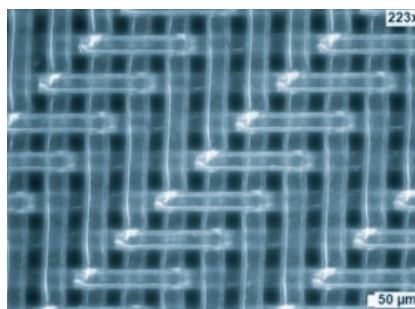
SEFAR® MEDIFAB 07-20/23 retains 100 % particles of 40 µm and above. The efficiency of 71 % of 20 µm particle reduces the exposure of the patient to dangerous particles to a minimum.

SEFAR MEDIFAB® 07-20/23

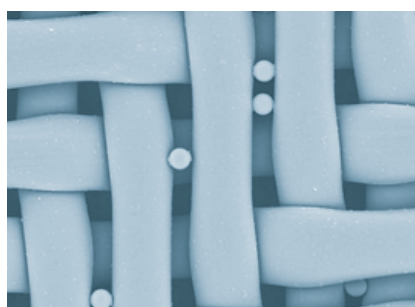
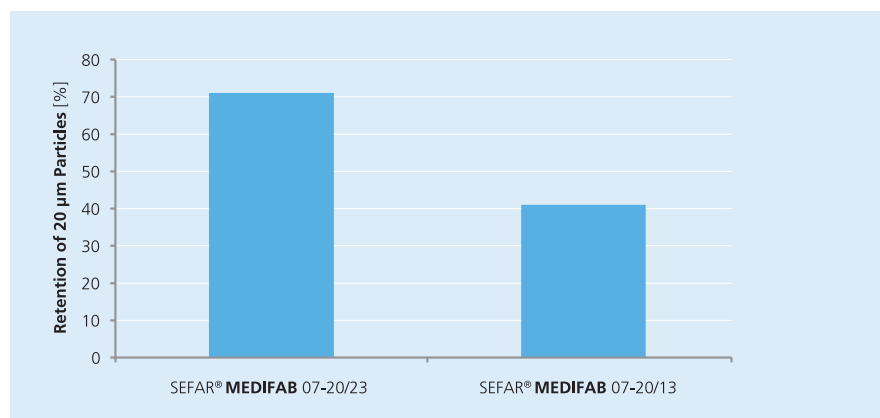
The Media for Next Generation Arterial Blood Filters

The developments in surgical technology in combination with the advances in blood handling and treatment today provide a much higher quality of blood perfused during CPB surgery. As a consequence the efficiency of all filters in the ECC can be increased without the risk of a clogging filter, i.e. the micron rating of the filters is reduced.

For the first time SEFAR MEDIFAB® 07-20/23 permits the design of 20 µm rated arterial blood filters with minimal priming volume and ultralow pressure drop. With 23 % of open area, 80 % more liquid passes the filter at a given pressure drop compared with today's standard 20 µm fabrics.

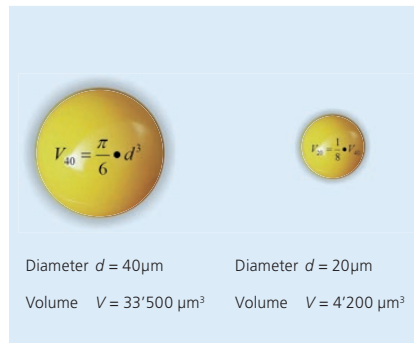


Microscopic illustration of the 80 % open area increase of SEFAR MEDIFAB® 07-20/23 (left) in comparison with SEFAR MEDIFAB® 07-20/13.



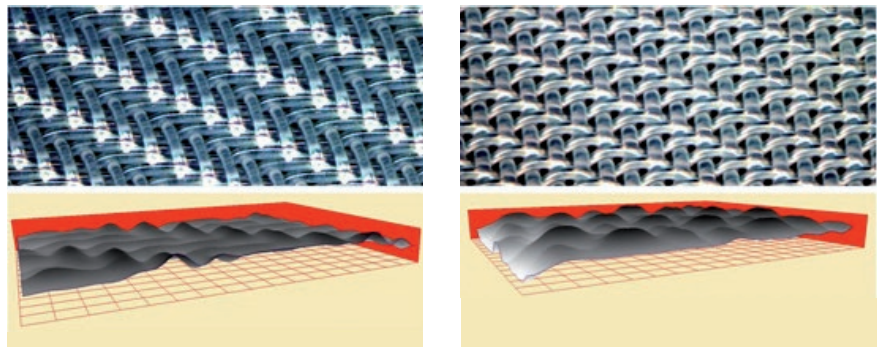
Minimizing Particulate and Air Volume

The volume of a spherical particle is in cubic relation with its diameter; reducing its diameter by half cuts its volume by a factor of eight. The total volume of critical contamination is significantly reduced.



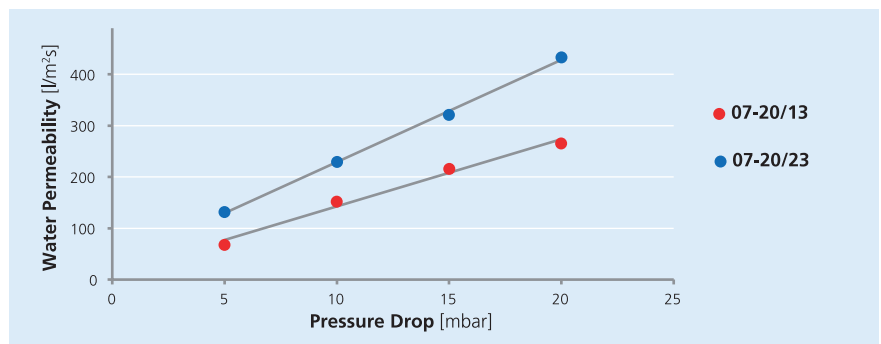
Optimizing Air Escape

A topological comparison of SEFAR MEDIFAB® 07-20/23 with SEFAR MEDIFAB® 07-20/13 illustrates that the finer yarns in combination with a smooth weave type result in a flatter surface. Air escape from the filter surface is enhanced.



Reducing Pressure Drop and Priming Volume

The increase in open area of SEFAR MEDIFAB® 07-20/23 reduces the pressure drop across the filter by 44 % compared to SEFAR MEDIFAB® 07-20/13. Alternatively, the priming volume may be reduced by reducing the filter surface without increase in pressure drop.



Eliminating Volume Build-up and Hydrohead

Sefar offers a biocompatible, permanent hydrophilic coating specifically for monofilament media used in the filtration of drugs and body fluids. Volume build-up and initial liquid breakthrough pressure are eliminated.



General Information on SEFAR MEDIFAB®

- All polyester (PET) and polyamide (PA) materials are FDA compliant according to 21CFR177
- SEFAR MEDIFAB® fabrics are bio-compatible according to USP Class VI
- SEFAR MEDIFAB® fabrics comply with ISO 10993
- SEFAR MEDIFAB® fabrics are
- Non-pyrogenic
- Non-hemolytic
- Non-cytotoxic
- SEFAR MEDIFAB® fabrics show low extractables
- Fabrication is in a class 7 clean room
- Quality systems ISO 13458:2003, ISO 9001:2008, ISO 14001:2004

Summary

SEFAR MEDIFAB® 07-20/23 holds the opportunity to optimize infant and pediatric arterial blood filters. In addition, it is the first opportunity to design next generation adult arterial filters. Model calculations taking into account the 20 µm efficiency result in a priming volume of less than 80 ml, and a pressure drop below 20 mmHg at 7 l/min.

Creator
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