



Innovation in Filtration

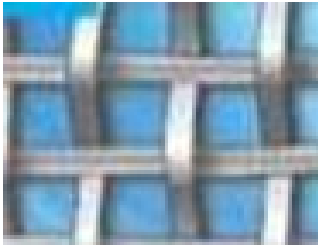
# EXAPOR<sup>®</sup> MAX3

New standards in filtration performance

# EXAPOR®MAX 3

## Innovation in Filtration

Increased machine availability, longer maintenance intervals and lower operating costs - always on the safe side with EXAPOR®MAX 3 filter elements from ARGO-HYTOS.



**Filter finenesses**

5 µm (c)  $\overline{\beta}_{5(c)} = 200$   
 10 µm (c)  $\overline{\beta}_{10(c)} = 200$   
 16 µm (c)  $\overline{\beta}_{16(c)} = 200$

**Benefit:**

Reliable oil cleanliness and permanent protection of sensitive components over the entire operating life.



**Low pressure drop**

Improvement of up to 20% compared to EXAPOR®MAX 2.

**Benefit:**

Good cold start performance, i.e. closed bypass valve even at low temperatures. Lower energy consumption results in lower operating costs and conserves resources.

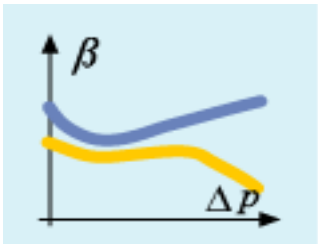


**High dirt holding capacity**

Improvement of up to 15% compared to EXAPOR®MAX 2.

**Benefit:**

Longer maintenance intervals and thus improved productivity and economic efficiency.

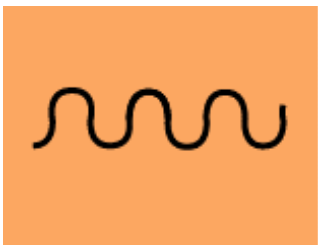


**Excellent differential pressure stability**

Return filters: > 10 bar  
 Pressure filters: > 20 bar

**Benefit:**

Ensuring filtration stability by avoiding damage to the filter bellows.



**High flow fatigue strength**

EXAPOR®MAX 3 filter elements withstand the flow fatigue tests (ISO 23181) with the following parameters without being damaged:  
 0 ... 5 bar > 10<sup>5</sup> load cycles; 0 ... 2 bar > 10<sup>6</sup> load cycles

**Benefit:**

Guarantee of oil cleanliness even with strongly alternating flow loads.

**Application examples**

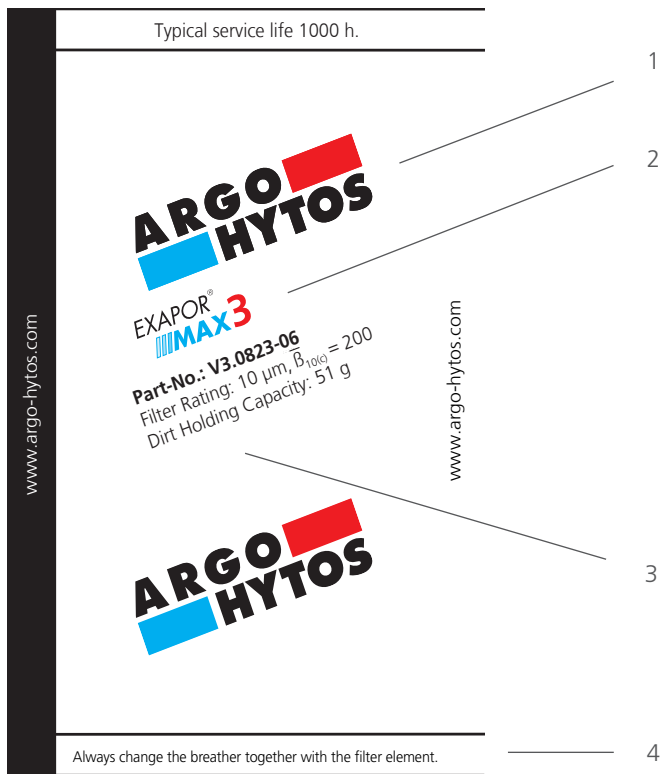


# EXAPOR®MAX 3

## Innovation in Filtration

The nonwoven sleeve used for the EXAPOR®MAX 3 filter elements is flexibly and individually printable, which significantly increases the recognition value.

### Structure of the ARGO-HYTOS printing layout



Pos.	Designation
1	ARGO-HYTOS logo or customer logo
2	EXAPOR®MAX 3 logo
3	Performance data field: Part-No.: xx Filter fineness: xx µm Dirt holding capacity: xx g
4	Note field with 3 print options - Always change the breather together with the filter element - www.argo-hytos.com - Replacement after 1000 operating hours

The printed sleeve consists of a resource-saving nonwoven material which does not affect the pressure loss. It remains on the filter element for its entire service life. No further measures are required for disposal.

### Examples for customized labels



Individual printing according to customer requirements is possible as follows:

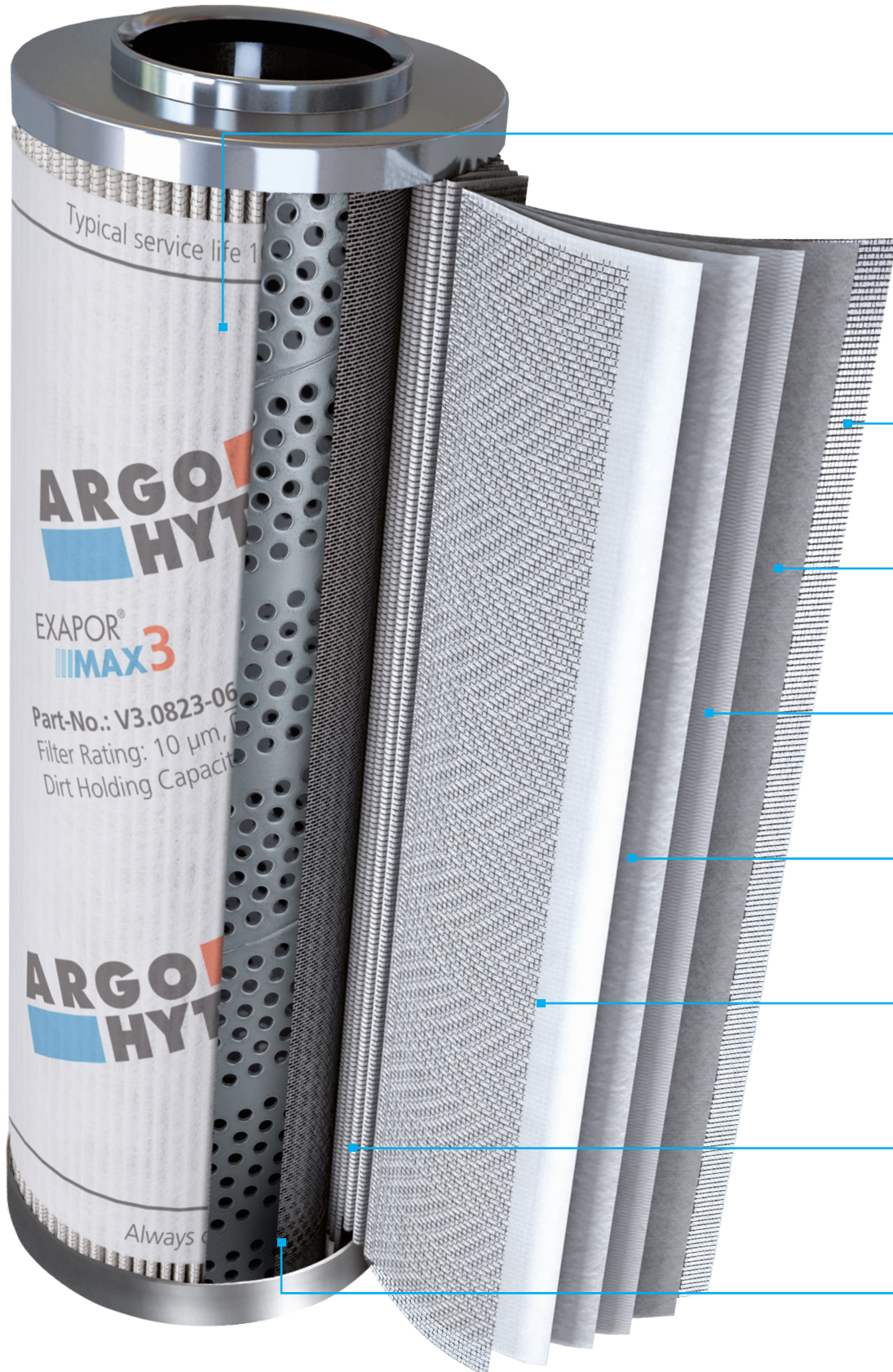
- › in color
- › ARGO-HYTOS logo or customer logo
- › rotary printing
- › adjustment of print content depending on filter element size

Other layouts on request



# EXAPOR<sup>®</sup> MAX 3

Innovation in Filtration

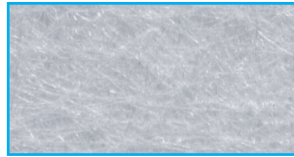




# EXAPOR<sup>®</sup> MAX 3

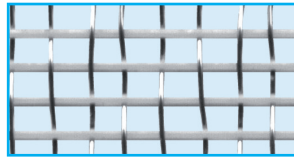
## Innovation in Filtration

### Schematic structure



#### Nonwoven sleeve **NEW**

Individually printable, handling and originality protection



#### Hybrid protective fabric (patented)

Protection of filter materials from external mechanical damage, prevents electrostatic charge, keeps the pleats open for the free flow of the hydraulic medium



#### Pre-filter layer (multilayer fleece) **NEW**

Separation of coarse particles, increase in dirt holding capacity



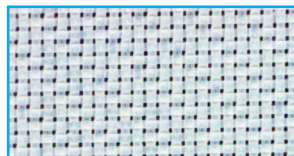
#### Fine filter layer (multilayer fleece) **NEW**

Separation of fine particles, improvement of oil cleanliness



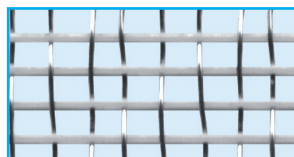
#### Protective fleece

Protection of the fine filter layer, improved differential pressure and flow fatigue stability



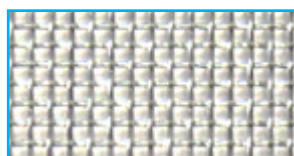
#### Safety fabric

Additional protection of the filter elements with a differential pressure stability of 160 bar (2320 psi)



#### Hybrid support fabric (patented)

Support of the filter materials, keeping the pleats open for free flow of medium. Prevents build-up of electrostatic charges, improved flow fatigue stability



#### Woven sleeve

Fine wire mesh provides additional support for the pleated filter material with filter elements having a differential pressure stability of 160 bar (2320 psi)

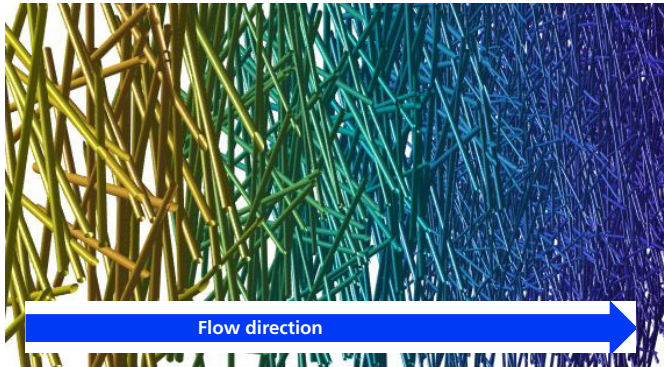


#### Perforated core **NEW**

Full surface support of the pleated filter material, ensuring collapse pressure stability

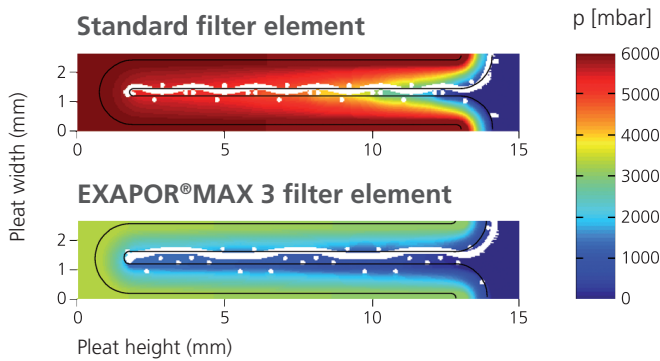
# EXAPOR<sup>®</sup>MAX 3 Innovation in Filtration

## Characteristics / special features



### Multiphase glass fiber filter media

For the first time, nonwovens with multiphase structure or so-called gradient structure are used. The precise adjustment of the individual filter materials results in particularly long maintenance intervals and low pressure losses.



### Hybrid support or hybrid protective fabric

The hybrid support fabric used consists of plastic wires to improve the flow fatigue stability and stainless steel wires to support and keep open the pleats for an optimal inflow. The special weaving technique creates an excellent pleat channel formation to reduce the pressure loss.



### Longitudinal seam bonding

The complete embedding of the cut edges in the bond increases the mechanical stability and guarantees that the ends of the filter bellows are 100% tightly connected to each other. Loose threads, fibers or leaks are thus avoided.



### Laser-welded perforated cores

The tubes are welded edge to edge. In contrast to wrapfolded perforated cores, no dirt can be deposited on this connection. In addition, the spiral-shaped welded seam increases the stability. This allows the sheet thickness to be reduced and the installation space to be better utilized.

## EXAPOR® MAX 3 Innovation in Filtration

EXAPOR® *Light*

EXAPOR®  
*Spark Protect*

EXAPOR®  
*AQUA*

PAPER +  
SCREEN

POLYESTER

ReFit

### Other filter element types

#### EXAPOR®LIGHT is suitable for:

- › simple applications such as mini excavators, lifting platforms
- › applications with short / sporadic operating time
- › price-sensitive applications / industries
- › repair in line with current market value (i.e. older machines out of warranty)

#### EXAPOR®SPARK PROTECT is suitable:

- › for hydraulic oils with low electrical conductivity (< 500 pS/m at 20 °C)
- › for avoiding electrical discharges in the filter element

#### EXAPOR®AQUA is suitable for:

- › filtration combined with dewatering for temporary use in off-line or in suction and return filters

#### Paper elements are suitable for:

- › applications in simple hydraulic and lubrication circuits / applications with low requirements

#### Screen elements are suitable for:

- › applications in which only very low pressure losses are permissible, e.g. in suction lines, mining applications or in protective filters

#### Polyester elements are suitable:

- › e.g. for applications with very long service life and frequent volume flow fluctuations
- › where high safety reserves are necessary, e.g. when the prescribed maintenance intervals are exceeded

#### ReFit elements are suitable for:

- › simple and direct replacement of external filter elements
- › high-value spare parts requirements
- › if technically tested comparability with the original element from other manufacturers is required



On request, all series are also available as Copy Protect version!



## Know-how, Quality and Service Your Benefits at a Glance



### Did you know that ...

- › if the operating pressure is increased by only 50%, the number of dirt particles in the oil must be reduced by a factor of 3 to avoid a deterioration in the lifetime of the components?
- › even a filtration quotient of  $\beta = 200$  corresponds to filtration efficiency of 99.5% for all dirt particles that are larger than the specified size, and an  $\beta$ -value of only 10 still corresponds to 90% efficiency?
- › even oil sample bottles declared as “clean” can contain considerably more dirt particles than the examined oil, if it comes from hydraulic systems with good filtration?
- › a lifetime of 1000 service hours for a hydraulic filter corresponds to a mileage of about 60000 km / 37280 miles of a passenger car?



### Quality, safety and experience

ARGO-HYTOS operates testing rigs that are equipped with ultra-modern technology, enabling fast test sequences, extended testing procedures and accurate documentation of all the parameters:

- › Multi-Pass test rig
- › Collapse / burst pressure test rig
- › Test rig to determine the pressure drop
- › Test rig to prove the flow-fatigue resistance characteristics
- › Pressure pulse test rig to confirm fatigue strength

ARGO-HYTOS therefore offers tested quality and safety from A-Z.



### Global presence - Our services for you

The focus of the company philosophy of ARGO-HYTOS is a holistic support of our customers – beginning with the design of practically-oriented solutions over product development and manufacturing to comprehensive after-sales service.

ARGO-HYTOS is internationally represented with numerous own sales companies. In addition, we co-operate in all important key core markets with a large network of competent sales and service partners and thus ensure customer proximity and local presence. Through our specialists all around the world you always have a reliable contact person at your side.