



OBNINSK FILTERS

**CATALOG OF
MICROFILTRATION EQUIPMENT
EXPRESS-ECO**

en.express-eco.ru



About Us

The products known since 1991 under the brand “Express-Eco” are presently manufactured by a Group of Companies “Obninsk Filters” including LLC “Research-and-Manufacturing Enterprise Eco-Filter” and LLC “Obninsk Filters”. Continuing more than 30-year work, the companies develop and manufacture new filtering materials, utilise modern fluid and gas treatment methods, provide engineering and consulting services, and carry out scientific research in the field of microfiltration. During the last few years the companies have considerably expanded their clients base and presently work with the companies of oil and gas industry, metallurgical, chemical, nuclear, machine-building, space, pharmaceutical, food, electronic instrument making industries, and other industries. The company’s objective is the development of optimal filtration and separation process solutions for the companies of various industries

The basis of the company’s success lies on the equal symbiosis of its science division, which constantly generates scientific ideas and enables their introduction into the industry, and its manufacturing complex, which currently consists of three equally important divisions: production of filtering materials and components, metal-working shop and facility for the production of polymeric membranes.

The company’s General Director, Doctor of Chemistry Evgeny Astakhov is the leader of an emerging scientific school. Having started in 1991 from the production of depth-filtering elements based on PTFE and subsequently – on ultrahigh molecular weight polyethylene (UHMWPE), in 2004 “Express-Eco” has mastered production of film materials on their basis. In parallel, the company has equipped a manufacturing facility for corrugation of filtering materials and developed production of pleated filtering elements based on glass fibre and calendared polypropylene. Recently the company has mastered serial production of first Russian manufactured membranes based on polyethersulphone, which possess characteristics that are not inferior to the best world analogues.

Back in the mid-90s, in addition to polymer manufacturing, a newly opened metal-working shop started production of filter cassettes designed as cases for installation of filtration cartridges and, subsequently, production of filtration equipment, including automatic. Flexibility of its in-house production allows the company to take into account customers’ preferences and needs, while high steel finishing quality makes it possible to compete successfully with foreign companies.



PRODUCTS CLASSIFICATION AND MARKING

The dynamic development of demand on filter materials at home and foreign market required from the enterprise the new scientific researches. Thanks to own innovations and collaboration with a number of foreign and home firms our enterprise significantly enlarge the range of goods and the spectrum of solving problems in industrial filtration of liquids and gases.

The enlarging range of produced filters, new potentialities of their application and planned development perspectives required from the enterprise to pass to the new system of products classification. On the basis of new filter modules classification was put coding in technical marking EFP-XYZ with three digits of follow signs:

- X — the primary mechanism or principle of filtration;
- Y — the type of filter module construction or filter material;
- Z — the chemical composition of filter material with the exception of digit 5, which characterize a class of polymer microfiltration membrane on the whole.

The marking of filter modules EFP-XYZ

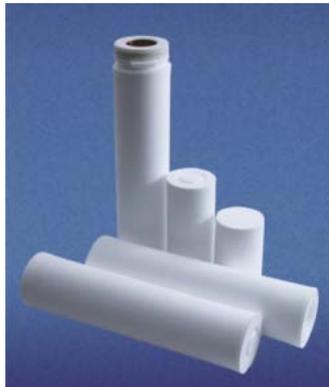
First digit X	1	2	3	4	5	6	7	8
Trade mark	Ecoplast	Ecosteel	Ecosorb	Ecoplen	Ecopor	Ecoplen-N	Ecoplen-K	Eco-VK
Filtration mechanism	Depth	Sieving	Sorption depth	Combined of depth and screening	Screening	Filtration through deposit	Filtration through deposit	Ion exchange
	Filtration through bulk porous structure	Filtration through metal or polymer mesh	Filtration through sorbent filling	Filtration through pleated porous film with wide pore distribution	Filtration through pleated membrane with narrow pore distribution	Filtration through deposit from outside to inside	Filtration through deposit from inside to outside	Filtration through ion exchange resin filling
Filters marks	EFP-100 EFP-101 EFP-103 EFP-110 EFP-111	EFP-202 EFP-222	EFP-312	EFP-400 EFP-401 EFP-403 EFP-404	EFP-515 EFP-525 EFP-535 EFP-545 EFP-555	EFP-600 EFP-601 EFP-602 EFP-603	EFP-701 EFP-702	EFP-812
Second digit Y	Construction type	Construction type	Construction type	Construction type	Membrane material	Construction type	Construction type	Construction type
Second digit interpreting	0 – standard cartridge, 1 -FEP	0 – on the polypropylene frame, 2 – all-steel construction	1 - hollow cylindrical	0 – standard, 1 – without external frame	1 – F42, 2 – PTFE, 3 – PA, 4 – AC, 5 – PES, 6 - PSU			1 – hollow cylindrical, 2 -cylindrical
Third digit Z	Mean filtering material (table 2)		Mean filling material	Mean filtering material (table 2)				Mean filling material

Table 2

Third digit Z	0	1	2	3	4	5
Filtering material	Polytetrafluoropolyethylene (mark F-4)	Ultrahighmolecular weight polyethylene (UHMPE)	Stainless steel (SS)	Polypropylene (PP)	Composite material based on glassfiber	Microfiltration membrane
Filters marks	EFP-100 EFP-110 EFP-400	EFP-110 EFP-111 EFP-401 EFP-601 EFP-701	EFP-202 EFP-222 EFP-602 EFP-702	EFP-103 EFP-403	EFP-404	EFP-515 EFP-525 EFP-535 EFP-555

DEPTH FILTER ELEMENTS OF ECOPLAST-F based on PTFE

Technical mark EFP-100-L



ECOPLAST-F is designed for removal of mechanical and colloid particles more than 0.2 μm from liquid media including highly aggressive ones in the temperature range from - 40 to +160°C.

Construction and materials

The element is made entirely of pure PTFE without any additives and fillers in the form of a double-layer hollow porous cylinder with gradient porosity 90, 125, or 250 mm high with a diameter of 50, 58, and 63 mm respectively. The basic element 250 mm high in dead-end configuration has one end part without a hole and the other with a threaded hole G3/4". The basic element 250 mm high in open-end configuration has two end parts with threaded holes G3/4". A PTFE adapter threaded on one side with standard dimensions 222 o-ring and 226 o-ring is used for mounting in the holder.

Filtering elements with various combinations of layers can be manufactured as agreed with the Customer.

General Information

High thermochemical resistance enables the use of elements Ecoplast-F for the filtration both de-ionized water and highly aggressive liquids at temperatures from -40 to + 160°C, as well as long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.

Technical characteristics of the elements 250 mm high

Rating filtration, micron	0.2; 0.5; 1.0; 3.0; 5.0; 10
Operating temperature range, °C	from -40 to +160°C
The maximum pressure drop in the forward and backward direction	0.6 MPa at + 20°C 0.2 MPa at + 160°C
pH range	1+14
Sterilization	With direct steam in line at T= +142°C within 30 minutes without limitation of sterilization cycles.

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
- Declaration of Conformity TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example order: (Filter element Ecoplast-F with a rating of 1 micron 250 mm high)

EFP	100	L/1	250	R
	Material code: deep from PTFE	Numerator: L (liquid) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: R; RR;

Depth Filter Elements Ecoplast-FEP-F based on PTFE



Technical mark EFP-110-L

ECOPLAST-FEP-F is designed for removal of mechanical and colloid particles from oils, fuels, acids, alkalis, and hydraulic mortars including highly aggressive ones in the temperature range from - 40 to +150°C.

Construction and materials

The element is made entirely of pure PTFE without any additives and fillers.

The element is made entirely as a single-layer hollow porous cylinder with the following geometrical dimensions:

- outside diameter — 152 mm, inside diameter — 130 mm, height — 205 mm.
- outside diameter — 116 mm, inside diameter — 94 mm, height — 205 mm.
- outside diameter — 75 mm, inside diameter — 49 mm, height — 220 mm.

The element's filtration rating depends on the degree of dispersity of PTFE powder. The powder is thermally bound when the product is baked in the press-mold.

It is possible to make filtering elements under customer drawings.

General Information

High thermochemical resistance enables the use of elements ECOPLAST-FEP-F for the filtration both de-ionized water and highly aggressive liquids at temperatures from -40 to + 150°C, as well as long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.

Technical characteristics of the elements 205 mm high

Rating filtration, micron	1.0; 5.0; 10; 20
Operating temperature range, °C	from -40 to +150°C
The maximum pressure drop in the forward and backward direction	0.4 MPa at + 20°C 0.2 MPa at + 150°C
pH range	1÷14
Sterilization	With direct steam in line at T= +142°C within 30 minutes without limitation of sterilization cycles.

Certification

- Declaration of Conformity TR CU "On safety of machinery and equipment"

Example order: (Filter element ECOPLAST-FEP-F with a rating of 1 micron 205 mm high)

MARKING				
EFP	110	L/1	205	152/130
	Material code: deep from PTFE	Numerator: L (liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Outer and inner diameter of the element, mm

DEPTH FILTER ELEMENTS OF ECOPLAST-PE

EFP-101-L grades based on Ultra-high molecular weight polyethylene

ECOPLAST-PE is used for preliminary and final cleaning of liquids including highly aggressive ones from solid mechanical particles in the temperature range from - 60 to +100°C.

Construction and materials

The filter material is a two- or three-ply porous hollow cylinder 250 mm in height, in which the total porosity and average pore size decreases from the inner to the outer layers. The layers are formed from powders of different dispersion of ultra-high molecular weight polyethylene (UHMWPE, TU 2211-001-98386801). Thermal bonding of powders occurs during sintering product in the mold.

Elements of any height can be manufactured as a dead end form, and the straight form. Elements 500, 750 or 1000 mm was prepared by welding two, three or four elements of a height of 250 mm through a transition piece. End and transition parts of elements made monolithic from polypropylene and hermetically welded to the ends of the filter material.

Efficiency of retention of the particles - at least 99% at the stated rating and the recommended gas flow rate.

By agreement with the customer can be made single-layer filter elements or filter elements with a combination of other layers

General Information

The high thermochemical resistance enables the use of elements Ecoplast-PE for the filtration aggressive liquids at temperatures from -60 to + 100°C, as well as long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.

Technical characteristics of the elements 250 mm high

Rating filtration, micron	1,0 2,0 5,0 10 20
Operating temperature range, °C	from -60 to +100
The maximum pressure drop in the forward and backward direction	2.0 MPa at + 20°C 0.3 MPa at + 100°C
pH range	1÷14
Sterilization	Chemical sterilization and autoclaving at a temperature of + 121°C for 30 minutes. Number of cycles - at least 20.

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Example order: (Filter element Ecoplast-PE with a rating of 1 micron 250 mm high)

MARKING					
EFP	101	L/1	250	R	S
	Material code: deep from UHMWPE	Numerator: L (L-liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: R; RR; A0; A7; F0; F1	Sealing material S; E



Mini cartridges



DEPTH FILTER ELEMENTS ECOPLAST-FEP-PE

EFP-111-L grades based on Ultra-high molecular weight polyethylene

Filter elements Ecoplast-FEP-PE are designed for preliminary and final cleaning of liquids including highly aggressive ones from solid mechanical particles in the temperature range from - 60 to +100°C.



Construction and materials

The element is made entirely of ultrahigh molecular weight polyethylene (UHMWPE, TU 2211-001- 98386801) without any additives and fillers.

The element is a single layer porous hollow cylinder with the following geometric dimensions:

- External diameter - 152 mm Internal diameter - 130 mm, the height - 205 mm;
- External diameter - 116 mm, internal diameter - 94 mm, the height - 205 mm.

Rating filtering element depends on the degree of dispersion of the powder.

Thermal hardening of the powder occurs when the product is sintered in a mold.

Upon agreement with the Customer, filter elements with different dimensions can be manufactured.

General Information

The high thermochemical resistance enables the use of elements Ecoplast-PE for the filtration of highly aggressive liquids at temperatures from -60 to + 100°C, as well as long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.

Technical characteristics of the elements 205 mm high

Rating filtration, micron	5,0 10 20
Operating temperature range,	from -60 to +100
The maximum pressure drop in the forward and backward direction	0.6 MPa at +20°C 0.3 MPa at +100°C
Range pH	1÷14
Sterilization	Chemical sterilization and autoclaving at a temperature of + 121°C for 30 minutes. Number of cycles - at least 20

- Certification

Declaration of Conformity TR CU "On the safety of machinery and equipment"

Example order: (Filtering element ECOPLAST-FEP-PE with a rating of 5 microns with outer and inner diameters 152 and 130 mm high, 205 mm.)

MARKING				
EFP	111	L/5	205	152/130
	Material code: deep from UHMWPE	Numerator: L (L- liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Outer and inner diameter of the element, mm

DEPTH FILTER ELEMENTS

ECOPLAST-PP grades based on polypropylene

Technical mark EFP-103-L



Filter elements ECOPLAST-PP is generally used for preliminary cleaning of liquids including aggressive ones from solid mechanical and colloid particles in the temperature up to +50°C.

Construction and materials

The filtering material is a hollow porous cylinder 250, 500, 750, or 1000 mm high with gradient porosity manufactured under "melt blown" technology.

General Information

High chemical resistance of polypropylene allows the use of ECOPLAST-PP elements for the filtration of liquids in a wide range of pH (from 1 to 14). Gradient porous structure provides high dirt-carrying capacity of ECOPLAST-PP elements, especially in relation to colloidal particles.

Low hydrostatic resistance and high performance of the elements make it possible to use them when filtering large flows of liquid.

Affordable cost guarantees the profitability of the use of ECOPLAST-PP elements for a wide range of filtration tasks.



Technical characteristics of the elements 250 mm high

Rating filtration, micron	1,0 5,0 10 20 50
Operating temperature range, °C	from -20 to +50
The maximum pressure drop in the forward direction	0.4 MPa at +20°C
Range pH	1÷12
Sterilization	The filtering element shall not be regenerated and sterilized

- Certification

Declaration of Conformity TR CU "On the safety of machinery and equipment"

Example order: (Filtering element ECOPLAST-PP with a rating of 5 microns with height of 250 mm)

MARKING					
EFP	103	L/5	250	R	S
	Material code: deep from polypropylene	Numerator: L (L- liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: R; RR; A0; A7; F0; F1	Sealing material S; E

MESH (RETICULATE) FILTER ELEMENTS ECOSTEEL-L



Brand EFP-202-L, EFP-222-L
based on Stainless steel mesh

The filter elements of ECOSTEEL are designed to remove particles larger than 2 µm from liquids media at temperatures up to -60 to + 300°C.

General Information

Low hydraulic resistance of the elements of ECOSTEEL ensures high productivity and is limited by the capacity of the filter holder.

The high thermochemical resistance of the ECOSTEEL elements makes it possible to use the ECOSTEEL-L elements for rough preliminary filtration of liquids and gases, including aggressive ones, extraction of solid phase, filtration of viscous liquids and solutions with high content of solid phase. It also allows for multiple in-line steaming and chemical recovery, which significantly increases the service life of elements.

The mechanical strength of the elements allows filtration at high pressure drops - up to 20 atm in the direction of filtration. The protection of the working layer by the support grids allows to work in any direction and to carry out blowing back steam or gas.

Design and technical characteristics of the filter elements

	Marking	EFP-202-L	EFP-222-L
CONSTRUCTION FEATURES	Composition of the filter package	Drainage mesh - Filtering-grid - Drainage-grid of stainless steel	
	Characteristic of the filter material	Stainless steel grade AISI 304 filtering mesh is made of twill weave meshes with filtration ratings 5, 10, 20, 40 µm or plain weave meshes with filtration ratings 70, 100, 150, 200, 300, 500, and 1000 µm.	
	Geometry of the filter package	Non-corrugated filter package - in the form of a sleeve.	
	Welding	Polypropylene melt	Laser welding of seams
	Geometry of the filter package	Outer diameter - 65 mm, height - up to 1 m	Outer diameter - 65 mm or 150 mm, height - unlimited, upon agreement it is possible to manufacture filter elements according to the drawings of the Customer
	Filtering area, m ²	0.05 (for an element with a height of 250 mm)	0.05 (for an element 250 mm high and 65 mm external diameter) 0.12 (for an element of 250 mm height and an outer diameter of 150 mm)
	Perforated frames	One internal casting frame made of polypropylene reinforced with a twisted frame of stainless steel	One inner frame of perforated stainless steel sheet with internal stiffeners
	End parts	Both injection molded from polypropylene	Both of stainless steel
SPECIFICATIONS	Operating temperature range, °C	-40 to +100	-70 to +300°C (in oxygen atmosphere) -70 to +800°C (in inert gas)
	Maximum direct pressure drop, MPa	0,6 at +40°C 0,2 at +100°C	2,0 at +40°C 0,6 at +150°C
	Maximum reverse differential pressure, MPa	0,2	0,2
	Regeneration	Rinsing with direct and reverse current with hot clean water, steam, detergent solutions or filtrate. Elements survive CIP-washing at temperatures up to +100°C	The same as for an EFP-202 brand element. Burned in an oven at a temperature of Up to + 300-500°C.
	Sterilization	Sharp steam in the line at T = + 135°C Within 30 minutes without restriction of sterilization cycles	
	Recommended liquid flow rate (at 20°C), m ³ /h	0.5	

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
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- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Order example (Filter element ECOSTEEL-L with a rating of 5 µm height of 250 mm).

MARKING					
EFP	202	G/5	250	A0	S
	Material code: stainless steel mesh	Numerator: L (liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

SORPTION FILTERING ELEMENTS ECOSORB

Brand EFP-312-L/S based on activated carbon



ECOSORB-G filter elements are designed for sorption cleaning and deodorization of liquids, including aggressive ones, at temperatures from -20 to + 135°C.

Construction and materials

Elements consist of columns with a height of 250 mm, which are arranged in analogy with classical bulk columns and consist of a cylindrical tube, porous separation partitions and end parts. The pipe is a polypropylene (PP) perforated frame lined with a transparent monolithic PP film inside. Separating partitions are made of non-woven polypropylene material. End parts with drainage channels are made of PP and painted black. All parts are sealed together by thermal welding.

The inner cylindrical space is filled with granulated coal with a particle size of 0.6-1.7 mm (12 * 30 mesh). The liquid passes through the drainage channels of the inlet end piece and through the septum from the stainless mesh falls into the coal load. After interaction with the sorbent, the liquid passes through the outlet wall and flows through the drainage channels of the end piece into the outlet pipeline.

On the basis of columns with a height of 250 mm, composite columns with a height of 500, 750 and 1000 mm can be made by welding 2, 3 or 4 columns with a height of 250 mm through the transition parts made of polypropylene and having drainage channels. The sorption capacity of a composite column is multiplied by the number of columns with a height of 250 mm.

General information

Elements of Ecosorb has high sorption capacity for active chlorine, organic and inorganic dissolved impurities, and can be used for improvement of organoleptic properties of water and beverages, cleaning and decolouration of pharmaceutical liquids and chemical agents..

The possibility of using active coals of various grades and granulometric composition allows you to choose the optimal solution for different tasks. The change in the liquid flow rate through the ECOSORB-L brand element determines the efficiency of sorption processes.

Silver, introduced into the composition of activated carbon, has a bactericidal action and prevents the development of microflora.



Technical characteristics of elements with a height of 250 mm

Technical Brand	EFP-312-L/S0	EFP-312-L/S1	EFP-312-L/S2
Commercial Brand	ECOSORB-S0	ECOSORB-S1	ECOSORB-S2
Technical grade of active coal *	607C	607AGC (Ag 0.05% of mass.)	607AGC (Ag 0.4% of mass.)
Producer of active coal *	Chemviron Carbon		
Size of active carbon particles *	0.6-1.7 mm (12 * 30 mesh)		
Weight of coal in the element, g	350		
Filter rating of partition walls, µm	10		
Max. Operating temperature, °C	+135°C		
The maximum pressure drop in the forward direction	0.6 MPa at +20°C 0.2 MPa at + 135°C		
Recommended flow rate	It is selected by the Customer		

* - active coals of other manufacturers and with other technical characteristics can be used.

Certification

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- Expert conclusion of the Rospotrebnadzor
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- ISO 9001-2011 (ISO 9001:2008)

Example of order: (ECOSORB filter element with a silver content of 0.05% by weight, 250 mm in height)

MARKING					
EFP	312	L/S1	250	A7	S
	Material code: activated carbon	Numerator: L (liquid) Denominator: S1 - silver content 0.05% by weight.	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1; R	Sieling material: S; E

PLEATED FILTRATION ELEMENTS ECOPLN-F

EFP-400-L grades based on a porous film
from PTFE



Mini cartridges



Sheets, rolls, discs



Ecoplen-F is used for preliminary and final cleaning of liquids including highly aggressive ones from solid mechanical and colloid particles more than 0.5 μm in the temperature range from - 20 to +135°C.

Construction and materials

The filter material is a porous film of PTFE without any additives or fillers. The filter material, together with the external and internal drainage layers of thermally bonded polypropylene, is laid in the form of a hollow cylindrical pleated package between the outer and inner perforated frames of polypropylene. Elements of height 500, 750 or 1000 mm are obtained by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a deadlock and in the passageway. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the corrugated package.

The particle retention efficiency is not less than 99.9% with the declared filtration rating and the recommended gas flow rate.

General Information

Elements provide effective removal of bacteria and various mechanical and colloidal inclusions. Pure PTFE allows the use of ECOPLN-F-L elements for filtering practically all liquid products in the temperature range from -20 to +135°C.

The efficiency of particle retention at the level of 99.9% makes it possible to achieve a very high quality of purification. It making these filters a unique solution for high-quality clarifying and fine treatment of liquids.

The large area of the filter surface of the ECOPLN-F-L elements and their ability to undergo regeneration with the help of various chemical reagents provide a high mud capacity and a long service life.

Technical characteristics of elements with a height of 250 mm

Filter rating, μm	0,5 1,0 2,0
Recommended flow rate, m^3	Up to 0.3
Filtrating area, m^2	0,7
Operating temperature range, °C	from -20 to +135
Maximum differential pressure in the forward and reverse direction	0.6 MPa at +20°C 0.2 MPa at +135°C
Steam sterilization in the line	At + 142°C for 30 minutes without limiting the number of sterilizations

Certification

- Registration certificate of Roszdravnadzor (Ministry of Health)
- Declaration of Conformity of the TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example order (filter element ECOPLN-F-L with a rating of 0.5 micron height 250 mm)

MARKING					
EFP	400	L/0,5	250	A0	S
Cartridge filter element	Material code: Corrugated porous film based on polytetrafluoroethylene	Numerator: L (liquid) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

PLEATED FILTRATION ELEMENTS ECOPLN-PE

Grade EFP-401 based on a porous film

From ultra-high molecular weight polyethylene



Ecoplen-PE filter elements are designed for preliminary and final cleaning of liquids including highly aggressive ones from solid mechanical particles more than 5 µm in the temperature range from - 20 to +100°C.

Construction and materials

The filtering material is a porous film 1-1.5 mm thick manufactured by sintering of UHMWPE powders of different dispersity. The thickness of the filtering film is 1-1.5 mm, what enables retaining of impurities both on the surface of the filtering layer and inside of it. The film has a shaped surface providing draining. As distinguished from other corrugated elements, these elements have no drain or other layers. High thermochemical resistance of UHMWPE, which is close to the one of PTFE, enables to use the elements for filtration of practically all liquid products in pH range from 1 to 14 at normal and high temperatures. The absence of drain materials ensures the purity of the filtering material and guarantees the absence of emissions to the filtrate.

Mini cartridges



General information

The high thermochemical resistance of ultrahigh molecular weight polyethylene (UHMWPE), approximate to the resistance of PTFE, allows the use of the ECOPLN-PE elements to filter virtually all gaseous media in the pH range from 1 to 14 at normal and elevated temperatures

The absence of drainage materials ensures the purity of the filter material and ensures that no precipitations are present in the medium to be filtered. The relatively large area of the filter surface and the high productivity of the elements make it possible to use them when filtering large flows of gases.

Sheets, rolls, discs



The high mechanical strength of the ECOPLN-PE elements allows filtration at high pressure drops, as well as washing, blowing and washing with hot water in the direction opposite to the direction of filtration.

Design and technical characteristics of filter elements

	TECHNICAL BRANCH	EFP-401
CONSTRUCTION FEATURES	Composition of the filter package	One porous UHMWPE film with one profiled surface providing drainage
	Characteristic of the filter material	A 1 mm thick porous film made by sintering powders of ultra-high molecular weight polyethylene (UHMWPE) with different dispersities. It has filtration ratings of 2, 5, 10 µm.
	Geometry of the filter package	Pleated filter package
	Filtering area, m ²	0,3 (For an element with a height of 250 mm)
	Perforated frames	External and internal casting frames made of polypropylene (PP)
SPECIFICATIONS	End caps, core and cage	Both molded PP
	Operating temperature range, °C	-40 ÷ +100
	Maximum direct pressure drop, MPa	0,6 at +40°C 0,2 at +100°C
	Maximum reverse differential pressure, MPa	0,6 at +40°C

Certification

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- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

- **Example order** (Filter element ECOPLN-PE with a rating of 5 µm height of 250 mm).

MARKING					
EFP	401	L/5	250	A7	S
	Material Code: corrugated porous film of UHMWPE	Numerator: L (liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

PLEATED FILTRATION ELEMENTS ECOPLN-PP



Grade EFP-403 based on porous film made of thermally bonded polypropylene

All-polypropylene filter elements Ecoplen-PP are designed for preliminary and final cleaning of liquids from solid and colloidal particles more than 0.5 μm in the temperature range from - 20 to +80°C.

Construction and materials

The filtering material is a porous film made of thermally bonded fibrous polypropylene. The filter material, together with the external and internal drainage layers of thermally bonded polypropylene, is laid in the form of a hollow cylindrical corrugated package between the outer and inner perforated frames of polypropylene. Elements of height 500, 750 or 1000 mm are obtained by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a deadlock and in the passageway. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the pleated package.

The particle retention efficiency is not less than 99 % with the declared filtration rating and the recommended flow rate.

General information

High surface area ensures high dirt-capacity of ECOPLN-PP elements especially with regards to colloid particles. Low hydrostatic resistance and high performance of ECOPLN-PP elements make it possible to use them for filtration of high liquid flows at pre-filtering stages when it is necessary to remove a lot of mechanical and colloid impurities. High porosity ensures long service life without regeneration and affordable price guarantees economic efficiency in a wide range of filtration tasks.

Mini cartridges



Sheets, rolls, discs



Design and technical characteristics of filter elements

TECHNICAL BRANCH	EFP-403
Filtration rating, μm	0.5; 1.0; 2.0; 5.0; 10.0; 20.0; 40.0
Filtering area, m^2	0,5 (For an element with a height of 250 mm)
End caps, core and cage	Both molded PP
Operating temperature range, °C	-20 ÷ +80
Maximum direct pressure drop, MPa	0,6 at +40°C 0,2 at +80°C
Sterilization	Chemical sterilization, steam sterilization in situ and autoclaving at up to + 134°C for 30 minutes. Number of cycles - at least 20.

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
- Declaration of Conformity TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example order (Filter element ECOPLN-PP with a rating of 5 μm height of 250 mm).

EFP	403	L/5	250	A7	S
	Material Code: pleated porous polypropylene film	Numerator: L (liquid) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

PLEATED CARTRIDGE FILTER ELEMENTS ECOSTEK

Grade EFP-404 made of composite material based on borosilicate fiberglass

Filter elements ECOSTEK are designed for removal of particles larger than 0.5 µm in liquids at operating temperature from -20 to + 90°C.

Primarily used for the removal of colloidal impurities, removal of opalescence, clarifying and finishing filtration of liquids in various industries.

Construction and materials

The filter material is a fibrous composite film based on submicron glass fibers of different diameters. The filter material, together with the external and internal drainage layers of thermally bonded polypropylene, is laid in the form of a hollow cylindrical corrugated package between the outer and inner perforated frames of polypropylene.

Elements of height 500, 750 or 1000 mm are obtained by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a deadlock and in the passageway. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the corrugated package.

The particle retention efficiency is not less than 99.9% with the declared filtration rating and the recommended flow rate.

General Information

High specific surface area of composite filtering material based on ultra and micro fiberglass makes ECOSTEK allows to remove colloidal contaminations of various natures and almost completely to remove yeast and bacterial cells. ECOSTEK elements guarantee high quality of bioburden reduction and protecting sterilization membranes.

The large surface area and high hydrophilicity of the elements make it possible to use them with minimal pressure drops.

High mechanical strength and thermal stability allow filtration with pressure drops up to 3 atm, and also wash and regenerate with hot water or detergent solutions.

Technical characteristics of the elements 250 mm high

Rating filtration, micron	0,5 0,8 1 5
Operating temperature range, °C	from -20 to +90
The maximum pressure drop in the forward and backward direction	0.3 MPa at +20°C 0.2 MPa at +90°C
pH range	3÷12
Sterilization	Chemical sterilization, steam sterilization in situ and autoclaving at up to + 134°C for 30 minutes. Number of cycles - at least 20.
Regeneration	Washing with hot clean water, detergent solutions or filtrate in the direction of filtration. CIP-washing at temperatures up to + 90°C.
Filtering area, m ²	0,4

Certification

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- ISO 9001-2011 (ISO 9001:2008)

Example order: (Filter element ECOSTEK with a rating of 1 micron 250 mm high)

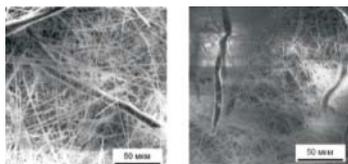
MARKING					
EFP	404	L/1	250	A0	S
	Material code: composite filtering material based on ultra and micro fiberglass	Numerator: L (liquid) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E



Mini cartridges



Sheets, discs



PLEATED MEMBRANE FILTER ELEMENTS

ECOPOR-PES

Grade EFP-555-L

based on polyethersulfone



Filter elements ECOPOR-PES are designed for removal of particles larger than 0.2 μm from liquids at operating temperature from -5 to +90°C.

The filters are primarily used for fine, lightening and sterile filtration of liquids including aggressive ones in different industries.

Construction and materials

Filter material is hydrophilic porous membrane from polyethersulfone. The filter material with external and internal drainage layers made from thermosintering polypropylene is laid in a form hollow cylindrical pleated package with height 250 mm and is set between outer and inner perforated frames from polypropylene.

Elements of height 500, 750 or 1000 mm are produced by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a dead end and in the passage way. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the pleated package.

The particle retention efficiency is not less than 99.996% with at the recommended liquid flow rate.

General Information

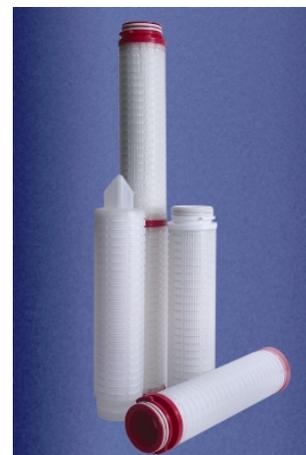
High polyethersulfone membrane selectivity caused by narrow pore size distribution ensures high filtration efficiency and allows to carry out sterile filtration of pharmaceutical and dairy liquids.

High hydrophilicity and porosity of polyethersulfone membrane ensure low resistance and high flow rate of ECOPOR-PES elements.

High filtration area ensures long service life.

High retention capacity to colloid particles of different nature allows to effectively lighten liquids and to use ECOPOR-PES elements for opalescence removal.

High thermochemical resistance of polyethersulfone membrane allows to use ECOPOR-PES elements for filtration of large spectrum of liquids at normal and elevated temperatures and also to carry out chemical regenerations.



Technical characteristics of elements with a height of 250 mm

Pore size, μm	0,2	0,45	0,65
Water Bubble Point, MPa	0.40±0.04	0.25±0.02	0.16±0.02
Filtration area, m ²	0,7		
Operating temperature range, °C	from -5 to +90		
Maximum direct pressure difference, MPa	0.4 at +20°C; 0.2 at 95°C		
Number of sterilization cycles by autoclaving at $\Delta P=0,11$ MPa and $t = 121^\circ\text{C}$ during 30-45 min	At least 30		
Regeneration	Washing by filtered deionized water at $T \leq 95^\circ\text{C}$ in forward direction of filtration. The elements sustain CIP-washing at temperatures up to +95°C.		
Recommended pH range	1÷14		
Recommended liquid flow rate, l/h	Up to 300		

Certification

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- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Order example: (Filter element ECOPOR-PES with pore size 0.45 micron 250 mm high)

Marking					
EFP	555	L/0.45	250	A7	S
	Material code: polyethersulfone membrane	Numerator: L (liquid) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

Depth Filter Elements Ecoplast-FEP-F-G based on PTFE



Filter elements Ecoplast-FEP-F are designed for fine and sterile cleaning of compressed air, carbon dioxide, water vapor, corrosive gases (including Cl, NH, etc.). Operating temperature -40 to + 150°C.

- Construction and materials

The element is made entirely of PTFE without any additives and fillers. The element is a single layer porous hollow cylinder with the following geometric dimensions:

- External diameter - 152 mm Internal diameter - 130 mm, the height - 205 mm;
- External diameter - 116 mm, internal diameter - 94 mm, the height - 205 mm;
- External diameter - 75 mm, internal diameter - 49 mm, the height - 220 mm.

Rating of filtration element depends on the PTFE powder dispersion thermal bonding occurs during sintering the product in the mold.

Setting element in the filter housing is carried out by sealing the ends.

By agreement with the customer can be manufactured filter elements with different dimensions..

General Information

Filter elements made from a unique hydrophobic PTFE are indispensable for filtering gases containing the aerosol particles of water. Water drops whose size exceeds filtration rating accumulate on the outer surface of the elements become larger and goes to drain.

Maximum thermochemical resistance makes it possible to use elements ECOPLAST-FEP-F for the filtration of aggressive and highly aggressive gases, at temperatures from -40 to + 160°C.

The elements used for filtering steam (at a temperature of up to + 160°C). The ability of elements Ecoplast-FEP-F accept any methods of sanitary-chemical treatment, sterilization and regeneration and provide a long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction significantly increases the service life of the elements by washing with hot water or air or steam stripping in a direction opposite to the direction of filtration, which is especially important for the insoluble impurities.

Filter elements made from a unique hydrophobic PTFE are indispensable for filtering gases containing the aerosol particles of water. Water drops whose size exceeds filtration rating accumulate on the outer surface of the elements become larger and goes to drain

Technical characteristics of the elements 205 mm high

Rating filtration, micron	5 10 20
Flux through the air (t = + 20°C)	At least 30 m ³ / (h kPa)
Operating temperature range	From -40 to +150°C
The maximum pressure drop in the forward and backward direction	0.4 MPa at +20°C 0.2MPa at +150°C
pH range	1÷14
Regeneration	Flushing reverse current of hot clean water, cleaning solutions or filtrate. Stripping the purified gas or vapor

Certification

- Declaration of Conformity of the TR CU “On safety of machinery and equipment”

Example order: (filter element ECOPLAST-F-G with a rating of 0.5 micron height of **205 mm**

Marking				
EFP	110	G/5	205	152/130
	Material Code: depth of PTFE-4	Numerator: G (gas-gas) Denominator: Filtration rating, µm	Height of the working part of the element, mm	Outer and inner diameter of the element, mm

DEPTH FILTER ELEMENTS OF ECOPLAST-PE

EFP-101-G grades based on Ultra-high molecular weight polyethylene

Filter elements Ecoplast-PE intended for removal of gaseous media particles larger than 1 micron and aerosols at temperatures from -60 to + 100°C.

Construction and materials

The filter material is a two- or three-ply porous hollow cylinder 250 mm in height, in which the total porosity and average pore size decreases from the inner to the outer layers. The layers are formed from powders of different dispersion of ultra-high molecular weight polyethylene (UHMWPE, TU 2211-001-98386801). Thermal bonding of powders occurs during sintering product in the mold.

Elements of any height can be manufactured as a dead end form, and the straight form. Elements 500, 750 or 1000 mm was prepared by welding two, three or four elements of a height of 250 mm through a transition piece. End and transition parts of elements made monolithic from polypropylene and hermetically welded to the ends of the filter material.

Efficiency of retention of the particles - at least 99% at the stated rating and the recommended gas flow rate.

By agreement with the customer can be made single-layer filter elements or filter elements with a combination of other layers

General Information

Filter elements from hydrophobic porous ultra-high molecular weight polyethylene are used to filter gases containing aerosol particles of liquid and mechanical inclusions

The high thermochemical resistance enables the use of elements Ecoplast-PE for the filtration of corrosive gases at temperatures from -60 to + 100°C, as well as long service life due to the possibility of chemical recovery

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.

Technical characteristics of the elements 250 mm high

Rating filtration, micron	1,0 2,0 5,0 10 20
Recommended gas flow rate, m ³	To limit the maximum pressure drop
Filtering area, m ²	0,05
Filtering area, m ²	from -60 to +100
The maximum pressure drop in the forward and backward direction	2.0 MPa at + 20°C .3 MPa at + 100°C
pH range	1÷14
Sterilization	Chemical sterilization and autoclaving at a temperature of + 121°C for 30 minutes. Number of cycles - at least 20.

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
- Declaration of Conformity TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

- **Example order:** (Filter element Ecoplast-PE with a rating of 1 micron 250 mm high)

MARKING					
EFP	101	G/1	250	R	S
	Material code: deep from UHMWPE	Numerator: G (gas-gas) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: R; RR; A0; A7; F0; F1	Sealing material S; E



Mini cartridges



DEPTH FILTER ELEMENTS ECOPLAST-FEP-PE

EFP-111-G grades based on
Ultra-high molecular weight polyethylene



Filter elements Ecoplast-PE-FEP are designed to remove from the gas atmospheres different particles that size is greater than 5 microns at temperatures ranging from -60 to + 100°C.

- Construction and materials

The element is made entirely of ultrahigh molecular weight polyethylene (UHMWPE, TU 2211-001-98386801) without any additives and fillers.

The element is a single layer porous hollow cylinder with the following geometric dimensions:

- External diameter - 152 mm Internal diameter - 130 mm, the height - 205 mm;
- External diameter - 116 mm, internal diameter - 94 mm, the height - 205 mm.

Rating filtering element depends on the degree of dispersion of the powder.

Thermal hardening of the powder occurs when the product is sintered in a mold.

Upon agreement with the Customer, filter elements with different dimensions can be manufactured.

General Information

Filter elements of a hydrophobic ultrahigh molecular weight polyethylene is used for filtering gases containing liquid aerosol particles, and also provide efficient removal of solid impurities

The high thermochemical resistance enables the use of elements Ecoplast-PE for the filtration of corrosive gases at temperatures from -60 to + 100°C, as well as long service life due to the possibility of chemical recovery.

High mechanical strength to withstand high pressure differences in the forward and backward direction, significantly increases the service life of the elements by washing with hot water or purified stripping gas in a direction opposite to the direction of filtration, which is especially important to remove insoluble impurities.



Technical characteristics of the elements 205 mm high

Rating filtration, micron	5,0 10 20
Recommended gas flow rate	To limit the maximum pressure drop
Operating temperature range,	from -60 to +100
The maximum pressure drop in the forward and backward direction	0.6 MPa at +20°C 0.3 MPa at +100°C
Range pH	1÷14
Sterilization	Chemical sterilization and autoclaving at a temperature of + 121°C for 30 minutes. Number of cycles - at least 20

- Certification

Declaration of Conformity TR CU "On the safety of machinery and equipment"

Example order: (Filtering element ECOPLAST-FEP-PE with a rating of 5 microns with outer and inner diameters 152 and 130 mm high, 205 mm.).

MARKING				
EFP	111	G/5	205	152/130
	Material code: deep from UHMWPE	Numerator: G (gas-gas) Denominator: Filter rating, µm	Height of the working part of the element, mm	Outer and inner diameter of the element, mm

MESH (RETICULATE) FILTER ELEMENTS ECOSTEEL-G

Brand EFP-202-G, EFP-222-G based on Stainless steel mesh



The filter elements of ECOSTEEL are designed to remove particles larger than 5 µm from gaseous media at temperatures up to -60 to + 150°C.

General Information

Low hydraulic resistance of the elements of ECOSTEEL ensures high productivity and is limited by the capacity of the filter holder.

The high thermochemical resistance of the ECOSTEEL elements makes it possible to use the ECOSTEEL-G elements for steam cleaning, as well as to carry out multiple steaming in the line and chemical regeneration, which significantly increases the service life of the elements.

The mechanical strength of the elements allows filtration at high pressure drops - up to 20 atm in the direction of filtration. The protection of the working layer by the support grids allows to work in any direction and to carry out blowing back steam or gas.

Design and technical characteristics of the filter elements by the reverse flow of steam or gas

	Marking	EFP-202-G	EFP-222-G
CONSTRUCTION FEATURES	Composition of the filter package	Drainage mesh - Filtering-grid - Drainage-grid of stainless steel	
	Characteristic of the filter material	Stainless steel grade AISI 304 filtering mesh is made of twill weave meshes with filtration ratings 5, 10, 20, 40 µm or plain weave meshes with filtration ratings 70, 100, 150, 200, 300, 500, and 1000 µm.	
	Geometry of the filter package	Non-corrugated filter package - in the form of a sleeve.	
	Welding	Polypropylene melt	Laser welding of seams
	Geometry of the filter package	Outer diameter - 65 mm, height - up to 1 m	Outer diameter - 65 mm or 150 mm, height - unlimited, upon agreement it is possible to manufacture filter elements according to the drawings of the Customer
	Filtering area, m ²	0.05 (for an element with a height of 250 mm)	0.05 (for an element 250 mm high and 65 mm external diameter) 0.12 (for an element of 250 mm height and an outer diameter of 150 mm)
	Perforated frames	One internal casting frame made of polypropylene reinforced with a twisted frame of stainless steel	One inner frame of perforated stainless steel sheet with internal stiffeners
	End parts	Both injection molded from polypropylene	Both of stainless steel
SPECIFICATIONS	Operating temperature range, °C	-40 to +100	-70 to +300°C (in oxygen atmosphere) -70 to +800°C (in inert gas)
	Maximum direct pressure drop, MPa	0,6 at +40°C 0,2 at +100°C	2,0 at +40°C 0,6at +150°C
	Maximum reverse differential pressure, MPa	0,2	0,2
	Regeneration	Rinsing with direct and reverse current with hot clean water, steam, detergent solutions or filtrate. Elements survive CIP-washing at temperatures up to +100°C	The same as for an EFP-202 brand element. Burned in an oven at a temperature of Up to + 300-500°C.
	Sterilization	Sharp steam in the line at T = + 135°C Within 30 minutes without restriction of sterilization cycles	
	Recommended gas flow rate (at 20°C), m ³ /h	Up to 100 (for air)	

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
- Declaration of Conformity TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Order example (Filter element ECOSTEEL-G with a rating of 5 µm height of 250 mm).

MARKING					
EFP	202	G/5	250	A0	S
	Material code: stainless steel mesh	Numerator: G (gas-gas) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

SORPTION FILTERING ELEMENTS ECOSORB

Brand EFP-312-G / S based on activated carbon



ECOSORB-G filter elements are designed for sorption cleaning and deodorization of compressed air and gases, including aggressive ones, at temperatures from -20 to + 135°C.

Construction and materials

Elements consist of columns with a height of 250 mm, which are arranged in analogy with classical bulk columns and consist of a cylindrical tube, porous separation partitions and end parts. The pipe is a polypropylene (PP) perforated frame lined with a transparent monolithic PP film inside. Separating partitions are made of non-woven polypropylene material. End parts with drainage channels are made of PP and painted black. All parts are sealed together by thermal welding. The inner cylindrical space is filled with granulated coal with a particle size of 0.6-1.7 mm (12 * 30 mesh). The gas flow passes through the drainage channels of the inlet end piece and through the septum from the stainless mesh falls into the coal load. After interaction with the sorbent, the liquid passes through the outlet wall and flows through the drainage channels of the end piece into the outlet pipeline.

On the basis of columns with a height of 250 mm, composite columns with a height of 500, 750 and 1000 mm can be made by welding 2, 3 or 4 columns with a height of 250 mm through the transition parts made of polypropylene and having drainage channels. The sorption capacity of a composite column is multiplied by the number of columns with a height of 250 mm.



General information

Elements of ECOSORB-G have a high sorption capacity with respect to gaseous impurities contained in compressed air, carbon dioxide and other gases, including aggressive gases.

The possibility of using active coals of various grades and granulometric composition allows you to choose the optimal solution for different tasks. The change in the gas flow rate through the ECOSORB-G brand element determines the efficiency of sorption processes.

Silver, introduced into the composition of activated carbon, has a bactericidal action and prevents the development of microflora.

Technical characteristics of elements with a height of 250 mm

Technical Brand	EFP-312-G/S0	EFP-312-G/S1	EFP-312-G/S2
Commercial Brand	ECOSORB-S0	ECOSORB-S1	ECOSORB-S2
Technical grade of active coal *	607C	607AGC (Ag 0.05% of	607AGC (Ag 0.4% of
Producer of active coal *	Chemviron Carbon		
Size of active carbon particles *	0.6-1.7 mm (12 * 30 mesh)		
Weight of coal in the element, g	350		
Filter rating of partition walls, µm	10		
Max. Operating temperature, °C	+135°C		
The maximum pressure drop in the forward direction	0.6 MPa at +20°C 0.2 MPa at + 135°C		
Recommended gas flow rate	It is selected by the Customer		
Specific productivity by air Specific productivity by air (t = 20 °C), m ³ / (hKaPa), no less than	0,5		

* - active coals of other manufacturers and with other technical characteristics can be used.

Certification

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- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example of order: (ECOSORB filter element with a silver content of 0.05% by weight, 250 mm in height).

MARKING					
EFP	312	G/S1	250	A7	S
	Material code: activated carbon	Numerator: G (gas-gas) Denominator: S1 - silver content 0.05% by weight.	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1; R	Sealing material: S; E



PLEATED FILTRATION ELEMENTS ECOPLLEN-F-G

EFP-400-G grades based on a porous film from PTFE



Mini cartridges



Sheets, rolls, discs



The ECOPLLEN-F-G filter elements are designed to remove particles of more than 0.2 μm in size from -20°C to +150°C from gaseous media.

Primarily used for dehumidification and final filtration of compressed air, nitrogen, carbon dioxide, highly aggressive media at normal and elevated temperatures, process steam used for processing equipment and also as respiratory filters.

Construction and materials

The filter material is a porous film of PTFE without any additives or fillers. The filter material together with the external and internal drainage layers of thermally bonded polypropylene is laid in the form of a hollow cylindrical pleated package between the outer and inner perforated frames from polypropylene.

Elements of height 500, 750 or 1000 mm are produced by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a dead end and in the passage way. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the pleated package.

The particle retention efficiency is not less than 99.99% with the declared filtration rating and the recommended gas flow rate.

General Information

Filtering elements from the unique of hydrophobicity porous polytetrafluoroethylene are indispensable for filtering gases containing aerosol water particles. Elements provide effective removal of bacteria and various mechanical and colloidal inclusions.

High thermochemical resistance of PTFE allows the use of ECOPLLEN-F-G elements for filtering practically all gaseous products in the temperature range from -20 to +150°C. Elements are used for filtration of hot steam (with a temperature up to 150°C).

The efficiency of particle retention at the level of 99.99% makes it possible to achieve a very high quality of gas purification.

The large area of the filter surface of the ECOPLLEN-F-G elements and their ability to undergo regeneration with the help of various chemical reagents provide a high dirt capacity and a long service life.

Technical characteristics of elements with a height of 250 mm

Filter rating, μm	0,2 0,5 1,0 2,0
Recommended flow rate, m^3	up 40
Filtration area, m^2	0,7
Operating temperature range, °C	from -20 to +150
Maximum differential pressure in the forward and reverse direction	0.6 MPa at +20°C 0.2 MPa at +150°C
Steam sterilization in the line	At +142°C for 30 minutes without limiting the number of sterilizations
Regeneration	Blowing with return flow of clean compressed air or steam with preliminary chemical treatment

Certification

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- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example order (filter element ECOPLLEN-F-G with a rating of 0.2 micron height 250 mm)

MARKING					
EFP	400	G/0,2	250	A0	S
	Material Code: Pleated porous film based on PTFE	Numerator: G (gas) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E



FILTER ELEMENTS ECOPLEN-PE-G

Grade EFP-401-G based on a porous film
From ultra-high molecular weight polyethylene

The ECOPLEN-PE-G filter elements are designed to remove particles larger than 5 µm from gaseous media at temperatures up to + 100 ° C. The primary application is the preliminary and final filtration of a wide range of weakly and highly aggressive gases in various industries.



General information

The high thermochemical resistance of ultrahigh molecular weight polyethylene (UHMWPE), similar to the polytetrafluoroethylene resistance, allows the use of the ECOPLEN-PE-G elements to filter almost all gaseous media in the pH range from 1 to 14 at normal and elevated temperatures.

The absence of drainage materials ensures the purity of the filter material and ensures that no release are present in the filtrate. The relatively high filter surface area and high permeability allow to use this filters for filtration of large flux of gases.

The high mechanical strength of the ECOPLEN-PE-G elements allows filtration at high pressure drops as well as washing, blowing and washing with hot water in the direction opposite to the direction of filtration.

Design and technical characteristics of filter elements

	TECHNICAL BRANCH	EFP-401-G
CONSTRUCTION FEATURES	Composition of the filter package	One porous UHMWPE film with one profiled surface providing drainage
	Characteristic of the filter material	A 1 mm thick porous film made by sintering powders of ultra-high molecular weight polyethylene (UHMWPE) with different dispersivity. It has filtration ratings of 2, 5, 10, 20 µm.
	Geometry of the filter package	Pleated filter package
	Filtrating area, m ²	0,3 (For the element with a height of 250 mm)
	Perforated frames	External and internal casting frames made of polypropylene (PP)
SPECIFICATIONS	End pieces	Both molded PP
	Operating temperature range, °C	From -40 to +100
	Maximum direct pressure drop, MPa	0,6 at +40°C 0,2 at +100°C
	Maximum reverse differential pressure, MPa	0,6 at +40°C 0,2 at +100°C

Certification

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- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

Example order (Filter element ECOPLEN-PE-G with a rating of 5 µm height of 250 mm)

MARKING					
EFP	401	G/5	250	A7	S
	Material code: pleated porous film from UHMWPE	Numerator: G (gas) Denominator: Filter rating, µm	Height of the working part of the element, mm	Adapter code: A0; A7; F0; F1	Sealing material S; E

PLEATED FILTRATION ELEMENTS ECOPOR-F-G-M

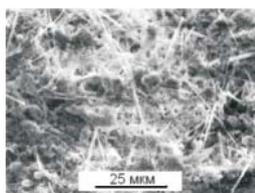
Brand EFP-525-G-M based on Membranes of PTFE



Mini cartridges



Sheets, rolls, discs



Filtering elements ECOPOR-F-G are designed to remove bacteria and other particles larger than 0.2 μm from gaseous media at temperatures from -5 to +100 °C. Primarily used for filtration of compressed gases, including aggressive gases, and also as respiratory filters on tanks.

Construction and materials

The filter material is a hydrophobic porous membrane made of PTFE.

The filter material in the form of a hollow cylindrical corrugated package with a height of 250 mm is placed between the outer and inner perforated frames made of polypropylene.

Elements of height 500, 750 or 1000 mm are obtained by welding 2, 3 or 4 elements with a height of 250 mm through the transition parts. Elements of any height can be manufactured both in a deadlock and in the passageway. The end and transition parts, outer and inner perforated frames of the elements are made of monolithic polypropylene and hermetically welded to the ends of the corrugated package. The particle retention efficiency is not less than 99.9996% with the recommended gas flow rate.

General information

The hydrophobicity of the material ensures effective removal of aerosol moisture.

The high porosity of the PTFE membrane ensures low resistance and high efficiency of the ECOPOR-F elements. A large filtration area provides a high service life.

The high thermochemical resistance of PTFE allows the use of ECOPOR-F elements to filter a wide range of gases at normal and elevated temperatures, and also conduct chemical regeneration.

Technical characteristics of elements with a height of 250 mm

Filter rating, μm	0,2
Recommended gas flow rate, m^3/h	Up to 60
Filtering area, m^2	0,7
Operating temperature range, °C	from -20 to +100
Maximum direct pressure drop, MPa	0.6 MPa at +20°C 0.2 MPa at +100°C
The minimum value of the bubble breakthrough point for a mixture of isopropanol and water in the ratio 70:30,	0,105
Water Expansion Pressure (WIT), MPa	Not less than 0,32
Number of sterilization cycles with hot steam in the line at $t = +142^\circ\text{C}$ for 30-45	Not less than 100
Recommended Range pH	1÷14

Certification

- Certificate of registration Roszdravnadzor (Ministry of Health)
- Declaration of Conformity TR CU "On safety of machinery and equipment"
- Expert conclusion of the Rospotrebnadzor
- Conclusion on toxicological, sanitary-chemical and biological tests
- ISO 9001-2011 (ISO 9001:2008)

- **Example order** (Filter element ECOPOR-F-G-M with a rating of 0,2 μm height of 250 mm).

Marking						
EFP	525	G/0,2	250	A7	M	S
	Material Code: Hydrophobic membrane From polytetrafluoro ethylene	Numerator: r: G (gas-gas) Denominator: Filter rating, μm	Height of the working part of the element, mm	Adapter code: : A0; A7; F0; F1	M - medical (pharmacological) performance	Sealing material S; E



Filter housings for liquids

Single-cartridge housings for liquids are designed for mounting of one filtering element from 130 to 1000 mm high and for filtration of liquids up to 2 m³/h (for water).

The single-cartridge holders are made of:

- polypropylene,
- PTFE,
- stainless steel AISI 304 or AISI 316L.

The holders consist of a cap and a base connected with a clamp.

The filter holder is connected to line by TRI-CLAMP or with a hose using mating fittings for the required diameter.

The standard equipment of filter holders includes an air release tap and a manometer. A drain tap is installed on the input fitting.

Multiple-cartridge housings for liquids contains from 3 to 24 mounting seats for filtering elements from 500 to 1000 mm high and for filtration of liquids up to 100 m³/h (for water).

The Multiple -cartridge holders are made of:

- low-pressure polyethylene
- stainless steel AISI 304 or AISI 316L.





Filter housings for gases

Single-cartridge housings for gases are designed for mounting of one filtering element from 130 to 1000 mm high and for filtration of gases up to 200 m³/h.

The single-cartridge holders are made of:

- stainless steel AISI 304 or AISI 316L.

The holders consist of a cap and a base connected with a clamp.

The filter holder is connected to line by TRI-CLAMP or with a hose using mating fittings for the required diameter.

The standard equipment of filter holders includes an air release tap and a manometer. A drain tap is installed on the input fitting.



Multiple-cartridge housings for gases contains from 3 to 6 mounting seats for filtering elements from 250 to 500 mm high and for filtration of gases up to 200 m³/h.

The Multiple -cartridge housings are made of:

- stainless steel AISI 304 or AISI 316L.

