



FILTERTECHNOLOGY

High-performance filters to reliably remove organic and inorganic contaminants from neutral and aggressive liquids.



Competence in pump and filter technologies



Excellent products

Whenever you ask specialists which filter technology they use, their answer will often be RENNER. That's something we are rightly proud of. Simple filter chambers or complex custom-designed filter installations – our products and equipment are of highest quality. So they will work reliably and impeccably in any place for a long time.

Long-standing experience

The RENNER brand stands for decades of experience and continuous development. For more than 50 years, our filters and filtering installations have been used in various industries all over the world. And we have been able to retain the technological lead to this day. Now, our technical know-how allows us to solve almost every application problem.

Quality made in Germany

Whatever dawns the RENNER name, Made in Germany quality is inside. All our products are entirely manufactured in Germany and certified according to the ISO 9001 standard. This is certainly one of the reasons why our products are of superior quality. Since we are very serious about each filter, every single one is thoroughly checked in several stages before it leaves the factory.

Reliable service

We have a network of highly qualified customer advisors. Whatever challenge of fluid filtering you face, the job will be done best by a RENNER filter. Just try us.

Much more than standard issue

As standard models are often not adequate for a specific application, we have been prepared, from the beginning, to manufacture customized designs. Tell us your specific type of problem. Once we know your problem in detail, we will be able to help you solve it in no time. This is also what RENNER stands for.

TABLE OF CONTENTS



Operating principles	4 – 5
Filter elements and cartridges	6 – 7
Housing sizes / Type designation code	8
Combinations of pumps and filters/Pressure drop graphs	9
Filter housing type 1	10 – 11
Filter housing type 4	12 – 13
Filter housing type 8	14 – 15
Filter housing type 15	16 – 17
Filter housing type 32	18 – 19
Quick-change filters SF	20 – 21
Pre-coated filters	22 – 23
Inclined-bed belt filters	24

Individually adjustable filter sizes

RENNER filters are available as universal filter housings of types 1 to 32. This means, that they can take filter elements including 1 to 32 filter cartridges.

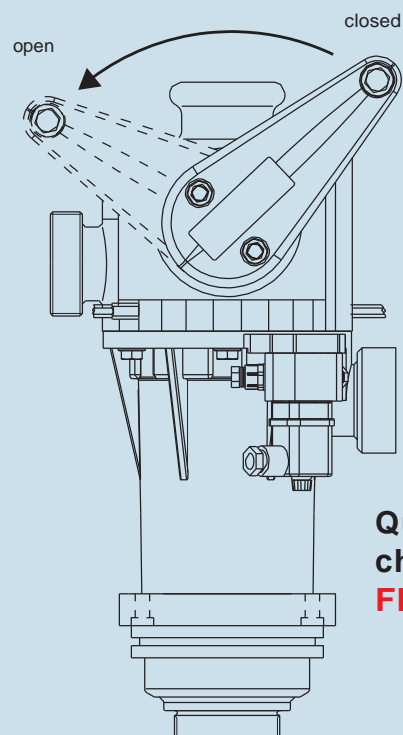
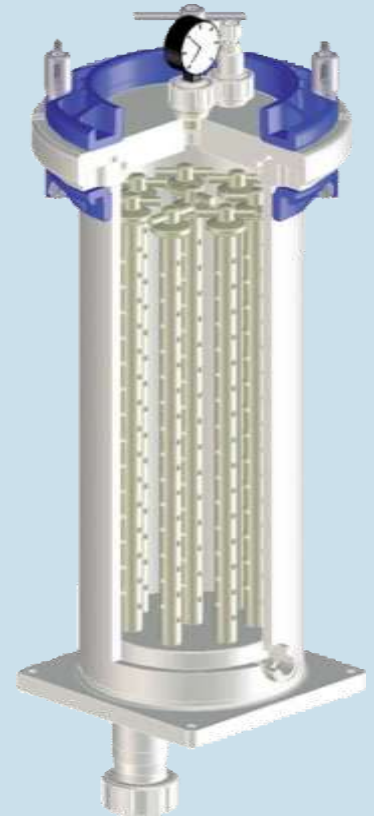
RENNER's quick-change filters excel by their compact design and easy handling. Double safety fastening of the covering cap ensures reliable operation.

In basic design, both filter housings are made entirely of plastic. Depending on the tasks to be accomplished, the filter housings are also available in other materials.

Advantages of RENNER filter housings are:

- ❖ Vast choice of sizes and filter elements.
- ❖ All-purpose filter chambers can take a wide range of various filter elements.
- ❖ Easy to operate.
- ❖ All filters may be combined with the entire range of RENNER pumps.
- ❖ Splash-guard built into the filter cap.
- ❖ Extremely easy handling of the quick-change filter type, thanks to its quick-release fastener.

Universal filter housing **F100**



Quick change filter **FISF**

Materials		Temperature range	
All components in contact with the fluid	PP	polypropylene	0° to +80°C
	PVDF	polyvinylidene fluoride	-20° to +95°C
	Plexiglas		-10° to +50°C
	Jenaer Glas®		-20° to +95°C
	Stainless steel	1,4305 1,4571	-20° to +100°C
	Titanium	3,7035	-20° to +100°C
Gaskets			
EPDM	ethylene-propylene-diene rubber		
FKM	fluorinated rubber		
FEP coated	fluorinated rubber/FEP coated		
NBR	nitrile-butadiene rubber		

Solid housings for best resistance against aggressive fluids

As they are entirely made of plastic, our filter housings are especially suited to filter aggressive fluids, such as:

- ◆ acids, bases and mixtures;
- ◆ solvents;
- ◆ alkaline degreasing baths;
- ◆ electroplating baths;
- ◆ photo chemicals;
- ◆ radioactive, aseptic and precious liquids;
- ◆ any other thin fluids.

Highly effective filters

The following filter elements can be inserted into our filter housings:

- ◆ Filter cartridges;
- ◆ Filter plates;
- ◆ Filter bags;
- ◆ Activated carbon.

Apart from standard filters that can be combined with any RENNER pump, we also develop and produce, in close cooperation with our clients, customized functional modules ready to be installed. For example, this

filtering installation with a filter of type 32

and a filtration rate of up to 72,000l/h.



The filter elements

Wound cartridges

The microscopic structure of the filter material is one of the most deciding factors of filtration efficiency and service life of the filter.

- ◆ Depth filter for multiple use.
- ◆ Direction of filtration from outside in.
- ◆ Easy handling.
- ◆ High loading capacity grants for a long service life.

Metal filter cartridges

Metal filter cartridges are surface filters. They are best used for processes running at high temperatures or pressures.

Filter bags and filter cloth

Both filter bags and filter cloth are surface filters.

- ◆ The cake is contained within the filter bag instead of falling off into the bath.
- ◆ Direction of filtration from inside out.
- ◆ Easy handling.
- ◆ Easy washing of the filter cloth.
- ◆ Frequent change of filter is required.

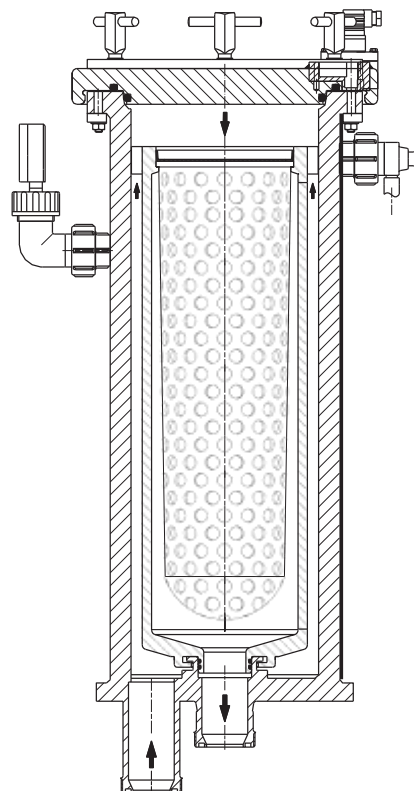
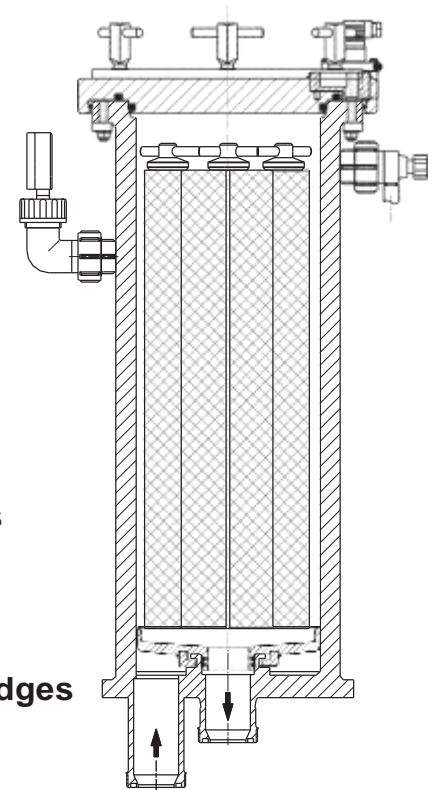


Wound cartridges

Length: 4" – 40"
Particle retention:
0.5 – 500µm

Metal filter cartridges

Length: 10"
Particle retention:
approx. 50µm – 200µm



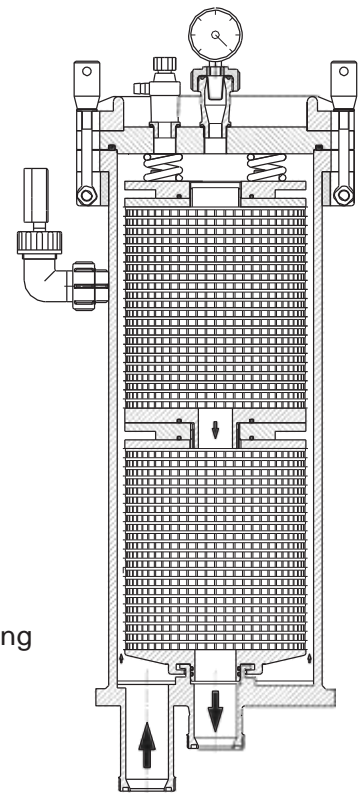
Filter bags

Length: 10" – 40"
Particle retention:
approx. 1µm – 100µm

Filter plates

Filter plates covered with filtering paper for surface filtration

- ◆ The cake forms on the top of each filter paper, i.e. between the filter plates.
- ◆ Medium loading capacity.
- ◆ Only small volume of waste.
- ◆ Low-priced consumables.



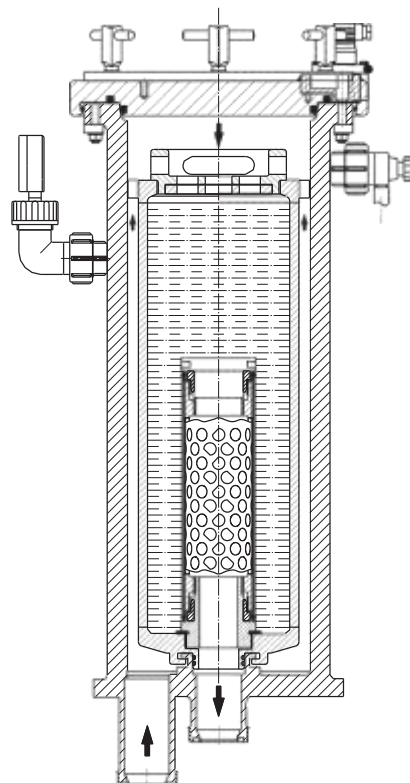
Filter plates

Length: acc. to the size of the housing
Particle retention:
 $1\mu\text{m} - 100\mu\text{m}$

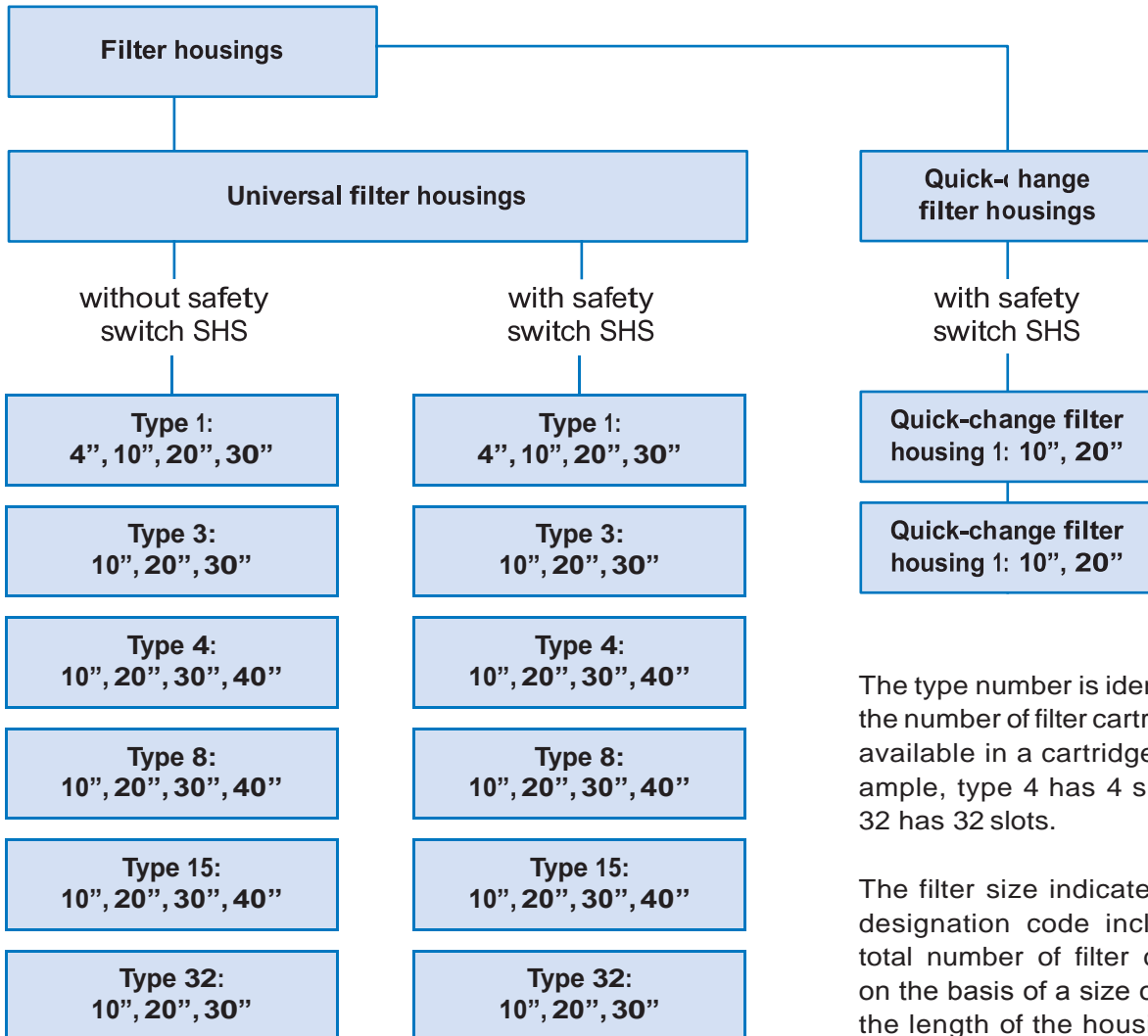
Canister to take activated carbon granules

Activated carbon is pure and highly porous carbon with a large surface area (of up to 300 m^2 per gram). Activated carbon is used to absorb organic substances as well as odorous and flavoring substances.

- ◆ The canister element allows easy and clean use of activated carbon.
- ◆ Low flow rates inside the canister result in long contact times that further increase the effectiveness of the filter.
- ◆ A filter cartridge used as retention element prevents the activated carbon from being flushed out.



HOUSING SIZES / TYPE DESIGNATION CODE



The type number is identical with the number of filter cartridge slots available in a cartridge. For example, type 4 has 4 slots, type 32 has 32 slots.

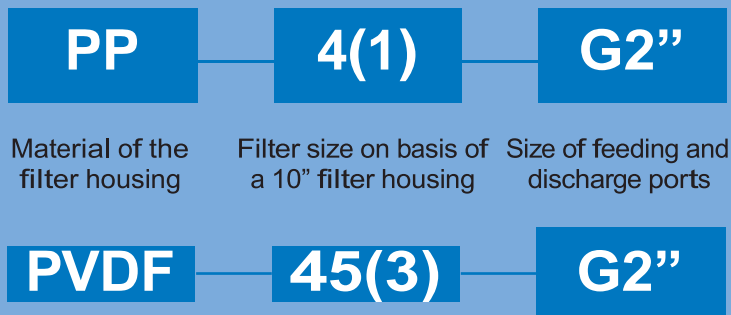
The filter size indicated by the designation code includes the total number of filter cartridges on the basis of a size of 10" and the length of the housing. This means, the first number of the filter size designation 1(1) indicates the number of filter cartridges of size 10" - i.e. here 1 candle -, the second number in brackets indicates the length of the housing.

This allows you to quickly and easily find the filter size required.

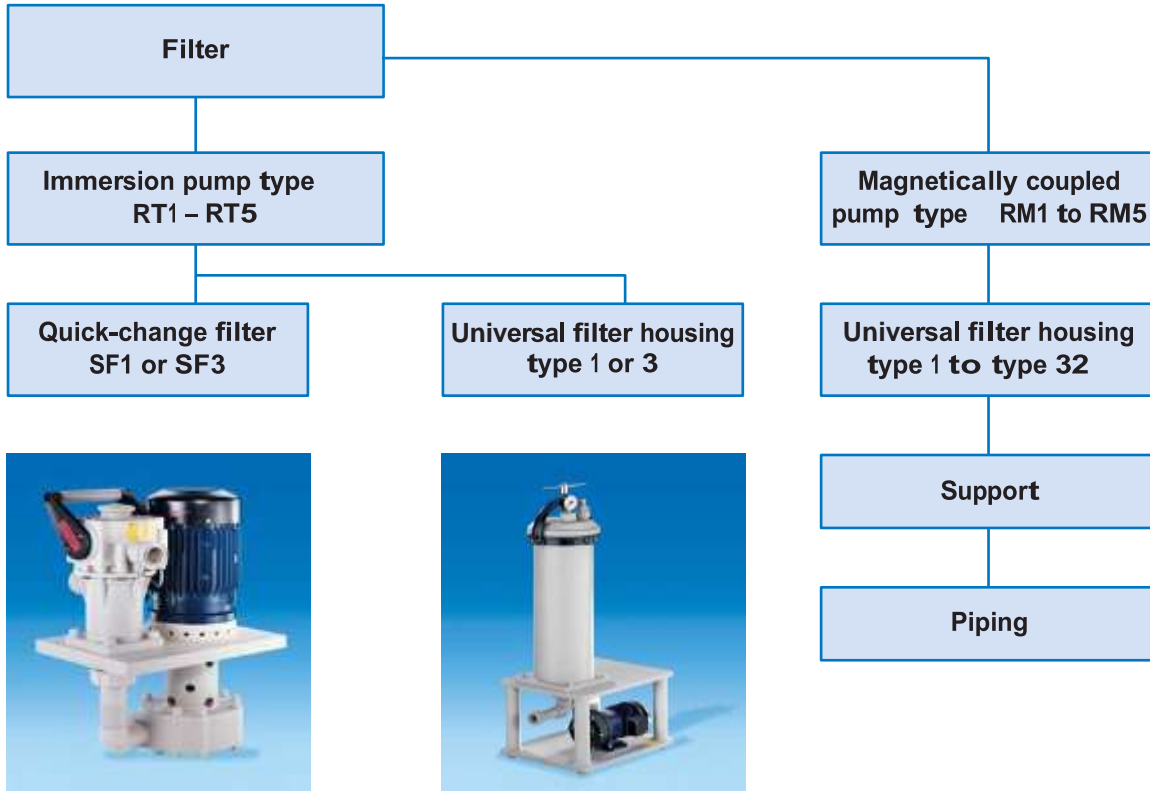
For example:

- 4(1) Filter housing of type 4 with a length of 10"
- 8(2) Filter housing of type 4 with a length of 20"
- 45(3) Filter housing of type 15 with a length of 30"

Designation code of RENNER filters



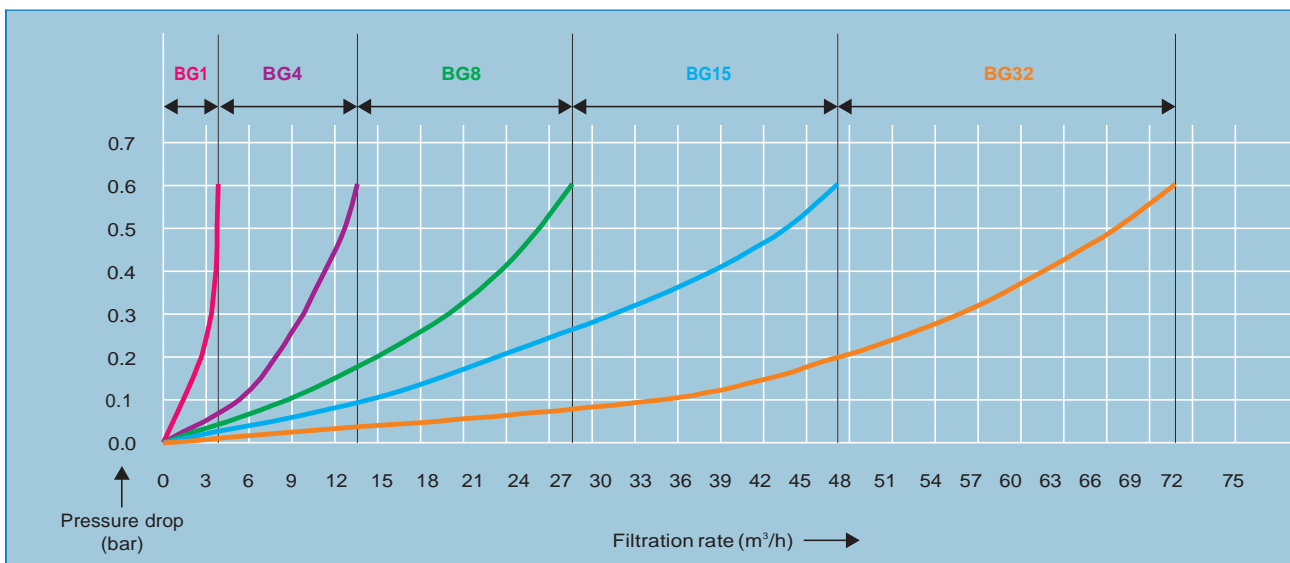
COMBINATION OF PUMPS AND FILTERS / PRESSURE DROP GRAPHS



To combine a filter with an immersion pump, the filter is integrated into the mounting flange of the pump.

Pump and filter are installed onto a support and make, together with the piping, a compact installation.

Pressure drop graphs to determine the adequate filter chamber



Specification of filter housings of type 1

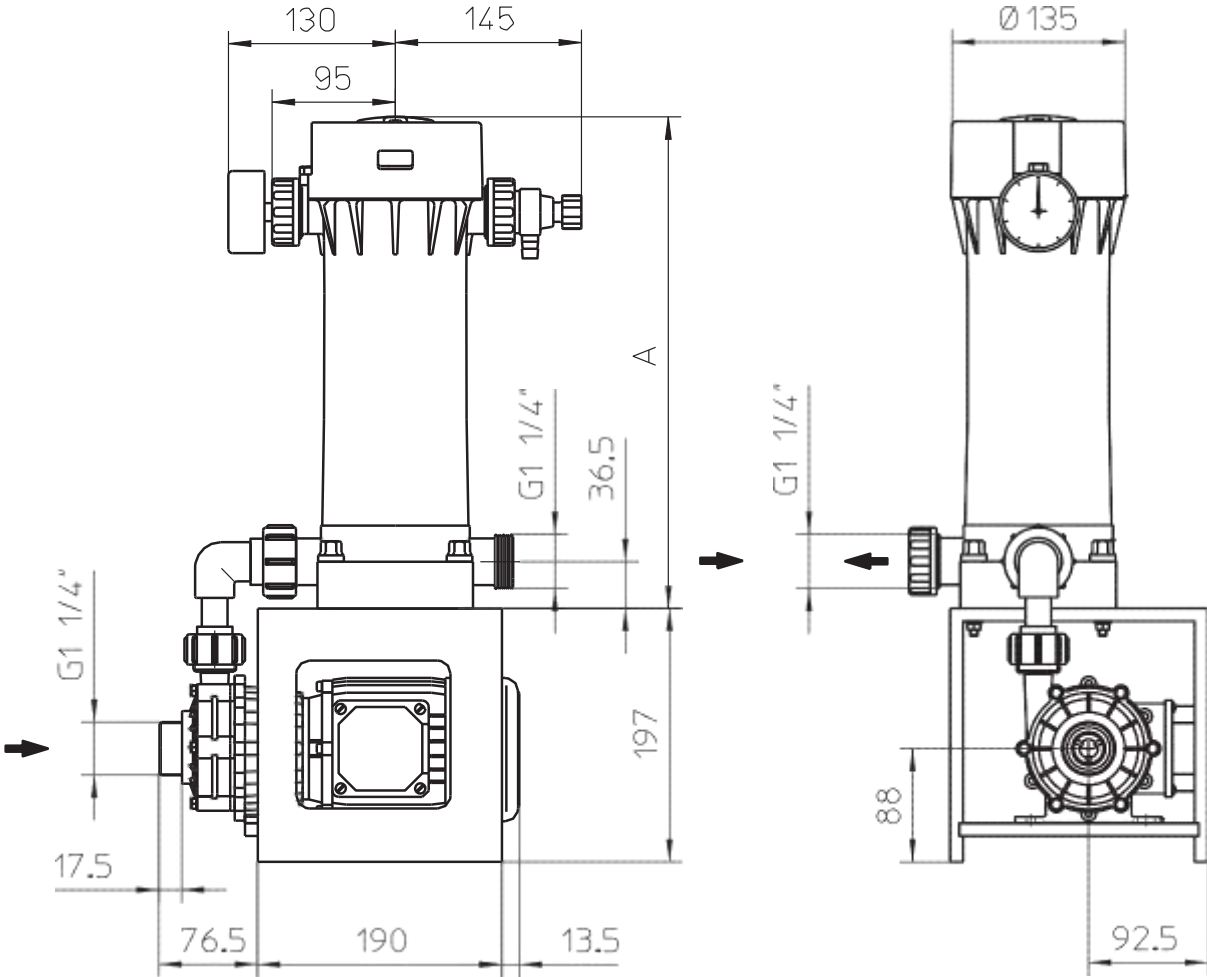
Materials	PP, PVDF, Plexiglas, Jenaer Glas[®], stainless steel, titanium			
Gaskets	EPDM, FKM, NBR, FEP coated			
Filter elements	Filter cartridges, plates, bags, activated carbon			
Housing length	4"	10"	20"	30"
Number of cartridges	1 x 4"	1 x 10"	1 x 20"	1 x 30"
Filter plates*	0.032m ²	0.148m ²	0.316m ²	0.429m ²
Paper dia = 0.2mm				
Felt dia = 1.8mm	0.024m ²	0.104m ²	0.196m ²	0.348m ²
Fill weight (act. carb.)	-	0.525kg	1.0kg	1.6kg
Act. carbon canister	-	1.5dm ³	3.0dm ³	4.5dm ³
Housing volume (without filter elements)	1.07dm ³	2.2dm ³	4.1dm ³	6.0dm ³
Dimension A (mm)	240	390	641	898

* The number of paper discs required and thus the filtering surface depend on the thickness of the paper used.

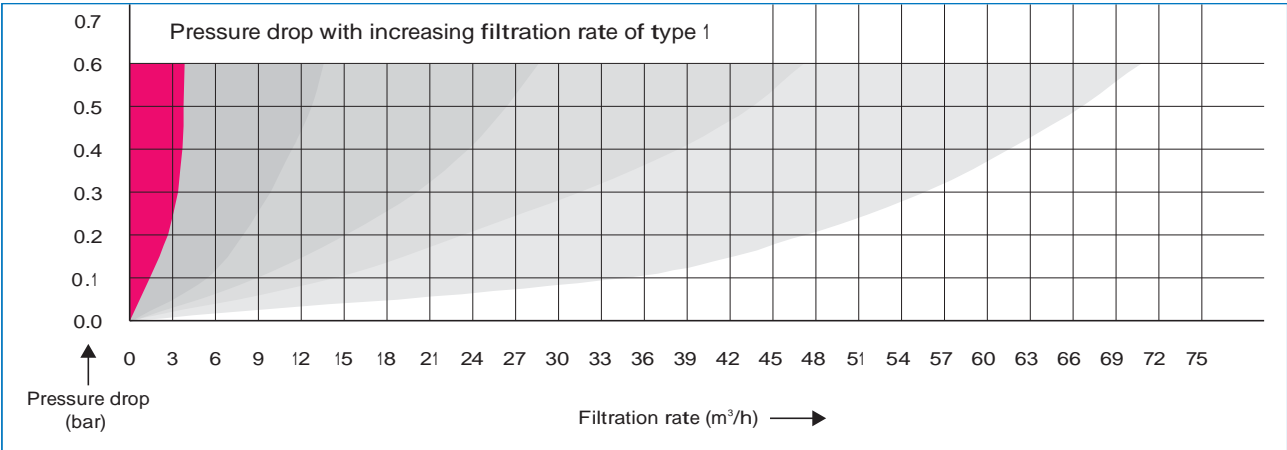
Filter housing type 1 for one filter cartridges. The central locking screw facilitates change of filter element. Inlet and outlet ports are placed at the side.



FILTER HOUSINGS TYPE 1



The dimensioned drawing shows a filter combined with a pump type 1.5. Other combinations may have different dimensions.



Specification of filter housings type 4

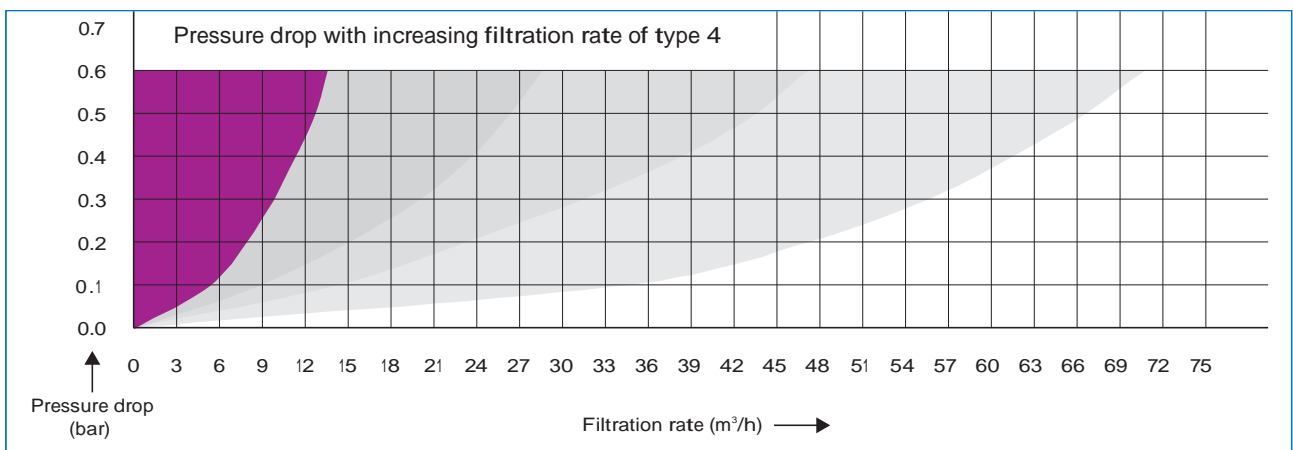
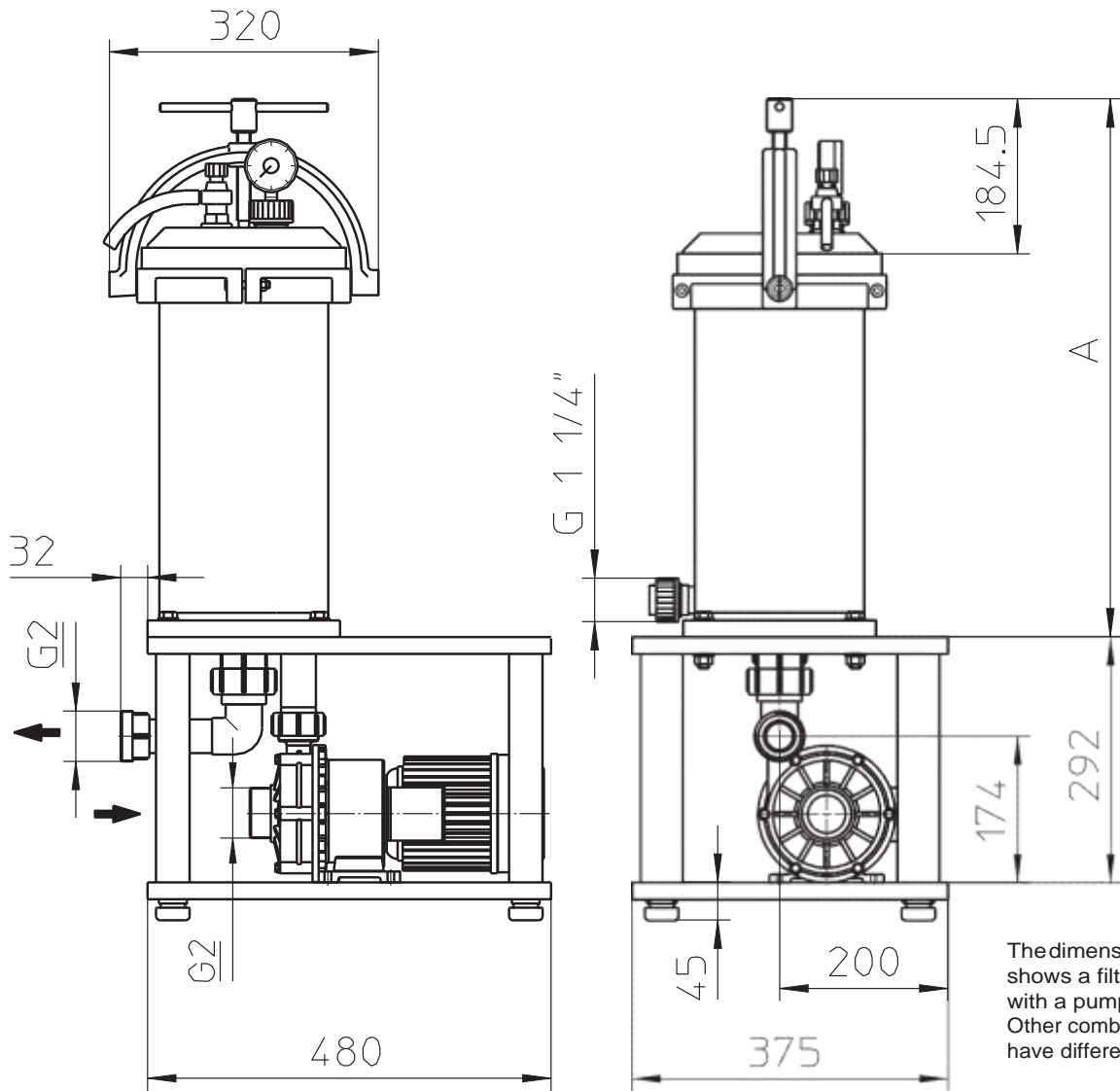
Materials	PP, PVDF, stainless steel, titanium			
Gaskets	EPDM, FKM, NBR, FEP coated			
Filter elements	Filter cartridges, plates, bags, activated carbon			
Housing length	10"	20"	30"	40"
Number of cartridges	4 x 10"	4 x 20"	4 x 30"	4 x 40"
Number of filterplates	26	51	70	89
Paper discs	25	50	69	88
Filteringsurfaceof paper*	0.45m ²	0.9m ²	1.242m ²	1.584m ²
Fill weight (act. carb.)	1.75kg	3.35kg	5.2kg	-
Act. carbon canister	5dm ³	9.5dm ³	14dm ³	-
Housing volume (without filter elements)	8dm ³	14dm ³	20dm ³	26dm ³
Dimension A (mm)	596	850	1104	1358

* The number of paper discs required and thus the filtering surface depend on the thickness of the paper used.

Filter type 4 combined with a pump type RM3 for 4 filter cartridges. The central locking screw facilitates change of filter element.



FILTER HOUSINGS TYPE 4



Specifications of filter housings type 8

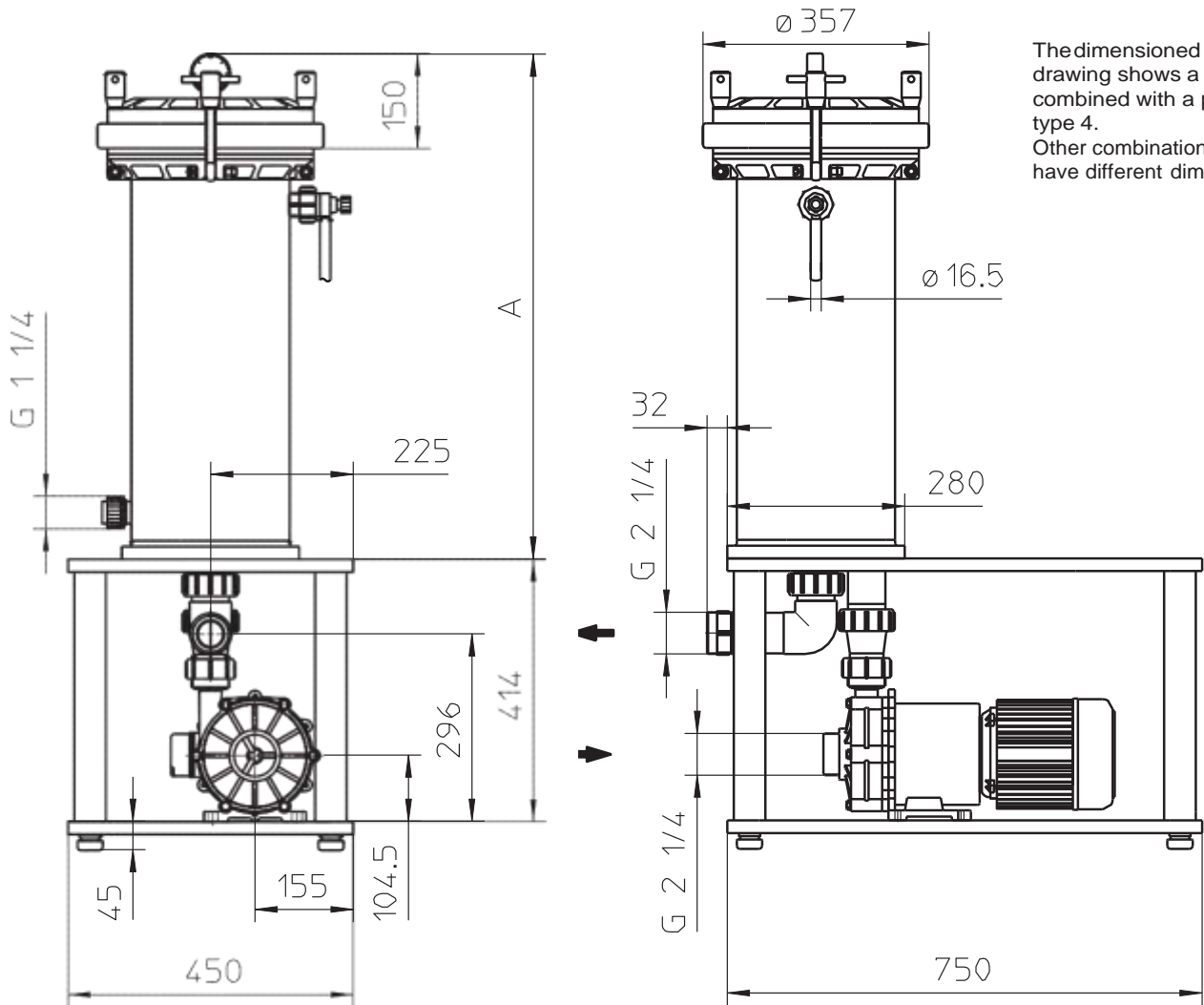
Materials	PP, PVDF, stainless steel, titanium			
Gaskets	EPDM, FKM, NBR, FEP coated			
Filter elements	Filter cartridges, plates, bags, activated carbon			
Housing length	10"	20"	30"	40"
Number of cartridges	8 x 10"	8 x 20"	8 x 30"	8 x 40"
Number of filter plates	26	51	70	89
Paper discs	25	50	69	88
Filtering surface of paper*	0.73m ²	1.45m ²	2.01m ²	2.56m ²
Act. carbon canister	9.5dm ³	15dm ³	21.5dm ³	28dm ³
Housing volume (without filter elements)	12dm ³	22dm ³	32dm ³	42dm ³
Dimension A (mm)	552	806	1060	1314

* The number of paper discs required and thus the filtering surface depend on the thickness of the paper used.

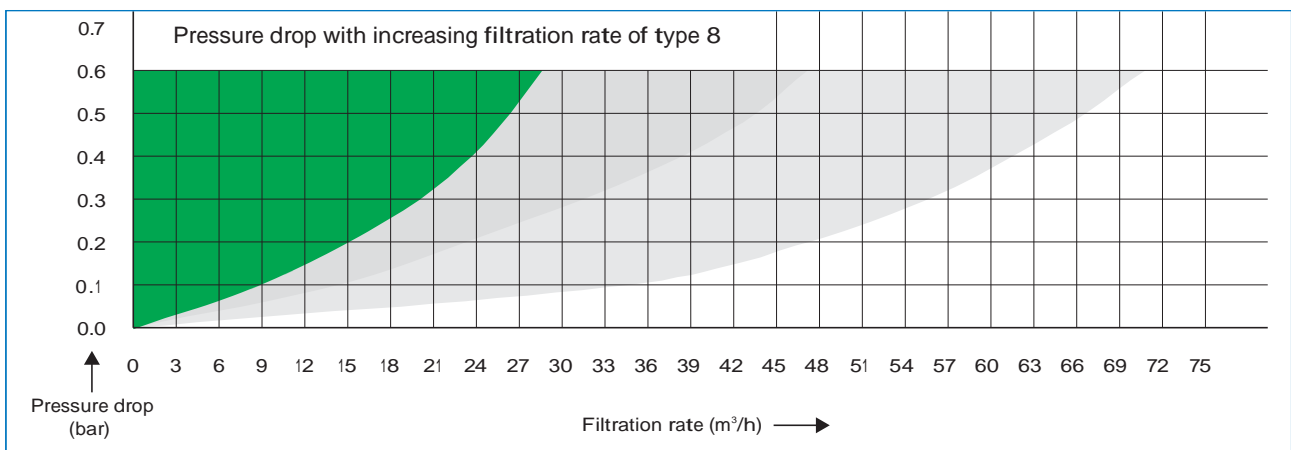
Filter type 8 for 8 filter cartridges combined with activated carbon filter type 4 and pump type RM4. Cartridge filtration with bypass filtration through activated carbon.



FILTER HOUSINGS TYPE 8



The dimensioned drawing shows a filter combined with a pump type 4. Other combinations may have different dimensions.



Specifications of filter housings type 15

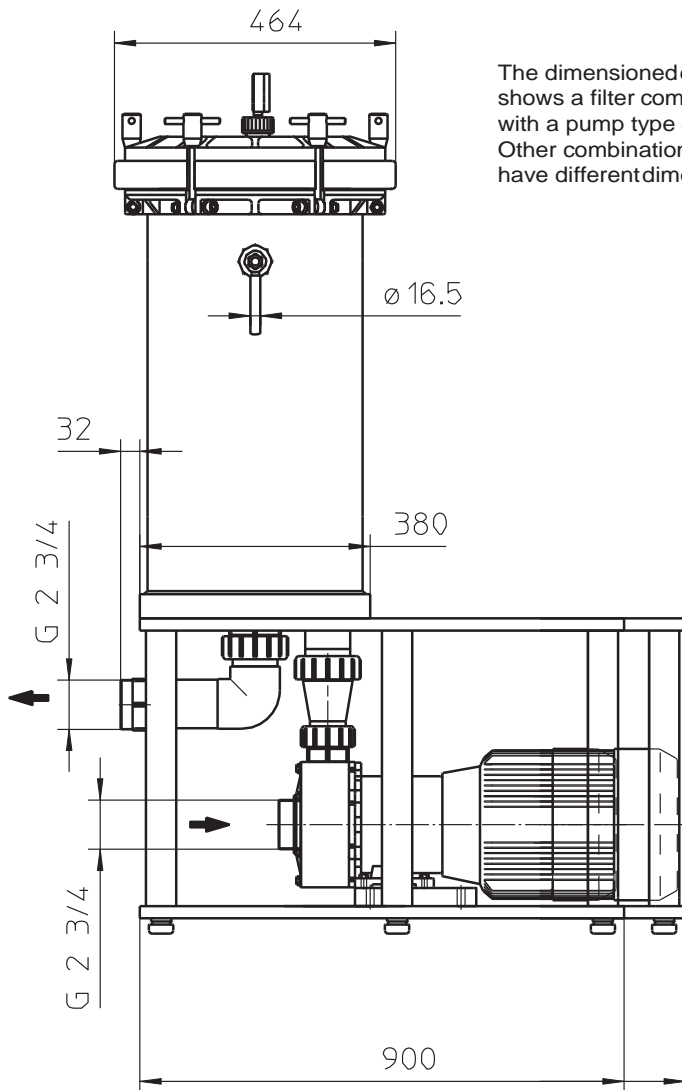
Materials	PP, PVDF, stainless steel, titanium			
Gaskets	EPDM, FKM, NBR, FEP coated			
Filter elements	Filter cartridges, plates, bags, activated carbon			
Housing length	10"	20"	30"	40"
Number of cartridges	15 x 10"	15 x 20"	15 x 30"	15 x 40"
Number of filter plates	24	44	66	88
Paper discs	23	43	65	87
Filtering surface of paper*	1.4m ²	2.6m ²	3.85m ²	5.2m ²
Act. carbon canister	15dm ³	29dm ³	43dm ³	-
Housing volume (without filter elements)	26dm ³	46dm ³	66dm ³	86dm ³
Dimension A (mm)	630	884	1138	1392

* The number of paper discs required and thus the filtering surface depend on the thickness of the paper used.

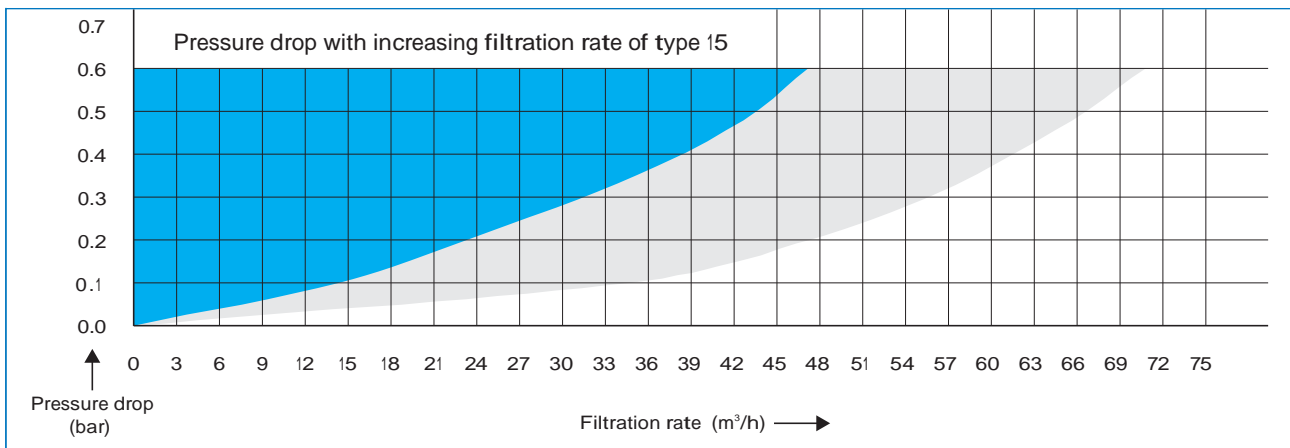
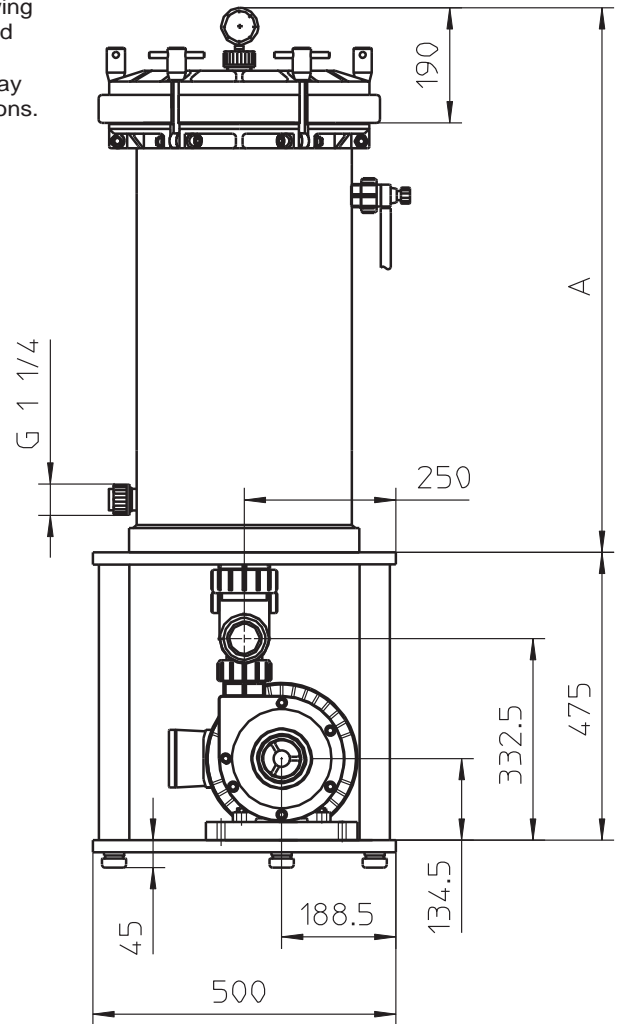
Filter type 15 for 15 filter cartridges combined with activated carbon filter type 4 and pump type RM4. Wound cartridge filtration with bypass filtration through activated carbon.



FILTER HOUSINGS TYPE 15



The dimensioned drawing shows a filter combined with a pump type 4.5. Other combinations may have different dimensions.



Specifications of filter housings type 32

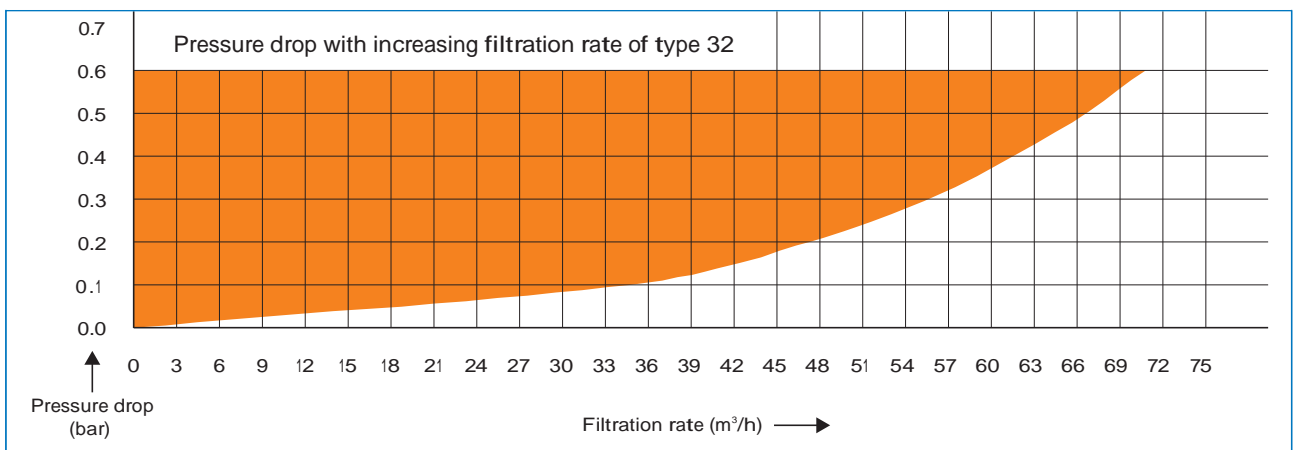
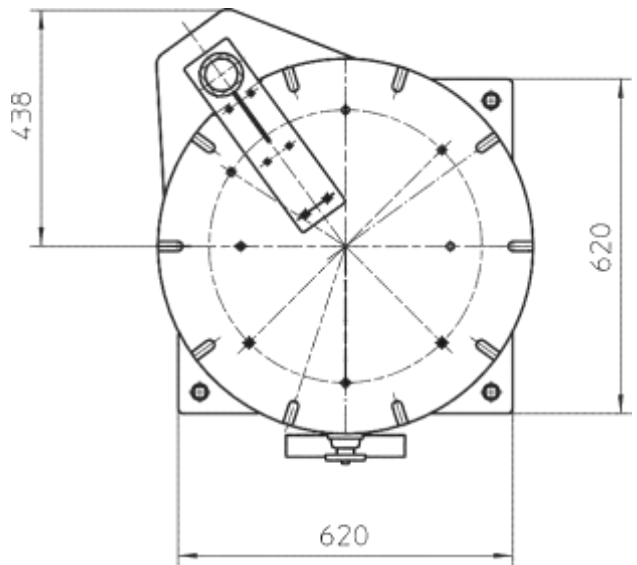
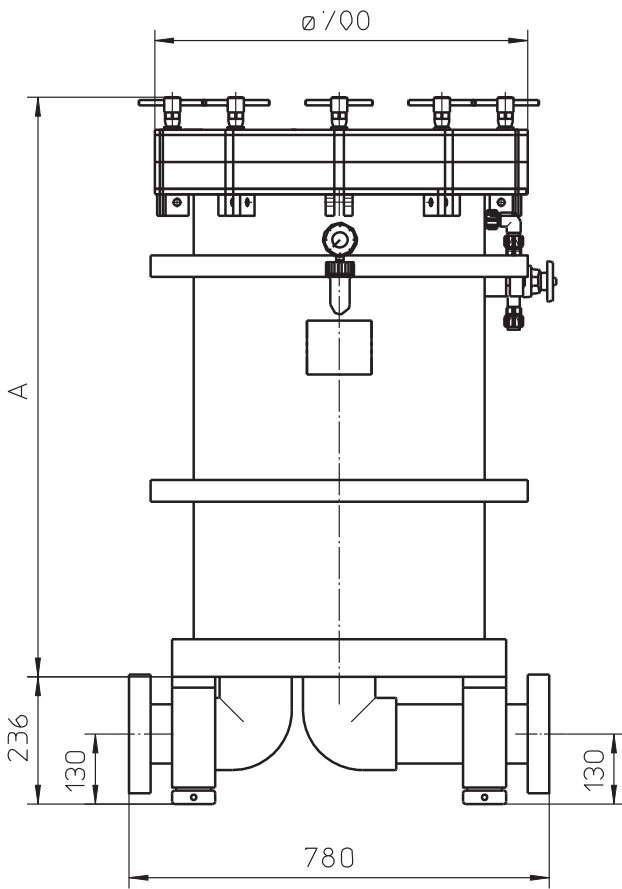
Materials	PP, PVDF, stainless steel, titanium			
Gaskets	EPDM, FKM, NBR, FEP coated			
Filter elements	Filter cartridges, bags, activated carbon (filter plates available upon request)			
Housing length	10"	20"	30"	40"
Number of cartridges	32 x 10"	32 x 20"	32 x 30"	32 x 40"
Number of filter plates	-	-	-	-
Paper discs	-	-	-	-
Filtering surface of paper*	-	-	-	-
Act. carbon canister	40.4dm ³	76.9dm ³	113.4dm ³	149.9dm ³
Housing volume (without filter elements)	73dm ³	129dm ³	185dm ³	241dm ³
Dimension A (mm)	640	894	1148	1402

* The number of paper discs required and thus the filtering surface depend on the thickness of the paper used.

Filter housing type 32 for 32 filter cartridges with maximum filtration rate of 72m²/h. Special lifting equipment for the cover cap facilitates change of filter element.



FILTER HOUSINGS TYPE 32



Quick-change filters

Quick-change filters use filter-medium or surface filtration to remove organic contaminants from neutral and aggressive liquids.

The filters are designed to take filter elements of 10", 20" or 30" in length to absorb contaminants of various particle sizes. The liquid to be filtered passes over the filter element and then flows to the outlet.

The special locking mechanism allows the user to quickly and smoothly change the filter elements. This will not only increase the availability of the filter, but also reduce downtime in case of maintenance work.

To prevent accidents, two safety switches control both the filter elements and the locking of the filter.

Advantages of the RENNER quick-change filter:

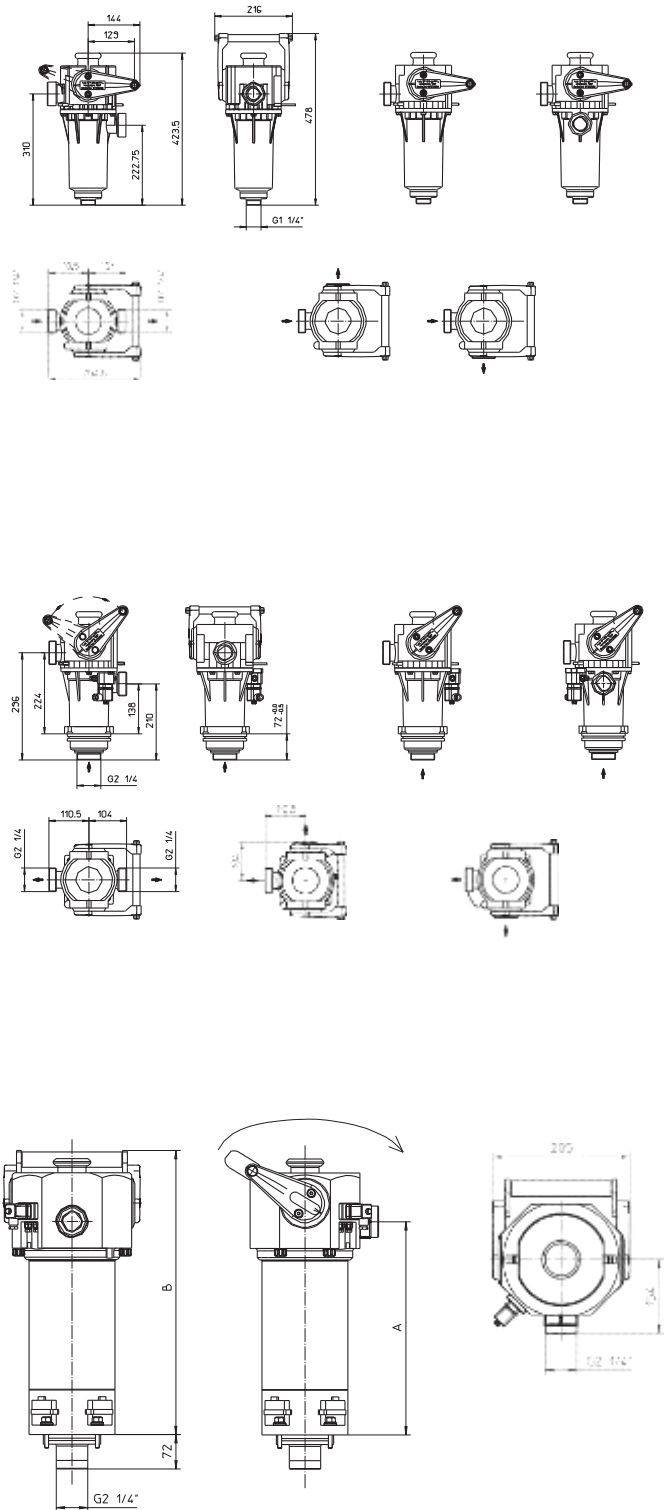
- ◆ Compact design.
- ◆ Easy and quick handling.
- ◆ Double safety fastening of the covering cap.

Key features:

Filtering surfaces of 0.053m² to 0.2m²

Filtering volume of 2.375m³ to 13.5dm³

Filter lengths of 10" to 30"



QUICK-CHANGE FILTERS SF



Quick-change filters SF1

Double safety switch for covering cap; lever-operated quick-release. The quick-change filter is available in two variants: Feeding from bottom ("EU") and feeding from top ("EO").



Materials	PP, PVDF	
Gaskets	EPDM, FKM, NBR	
Filter elements	Strainers, wound cartridges	
Particle retention	25µm – 80µm (strainers) 0.3µm – 100µm (wounded cartridges)	
Housing length	10"	20"
Number of cartridges	1 x 10"	1 x 10"
Filtering surface	0.053m ²	0.11m ²
Housing volume	2375dm ³	4.25dm ³



Quick-change filters SF3

Double safety switch for covering cap; lever-operated quick-release.

Materials	PP, PVDF	
Gaskets	EPDM, FKM, NBR	
Filter elements	Wound cartridges, filter bags, activated carbon	
Particle retention	0.3 – 100µm (wounded cartridges)	
Housing length	10"	20"
Number of cartridges	3 x 10"	3 x 20"
Filtering surface (bag)		0.2m ²
Housing volume (without filter elements)	8.42dm ³	13.5dm ³
Fill weight (activated carbon)		2.250kg
Act. carbon canister		65dm ³

Pre-coated filters

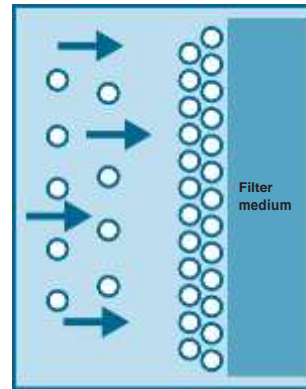
With pre-coated filtration, filter aids are used as a pre-coat to the actual filter medium. The filter medium can be a filter plate or a filter cartridge with filter fabric.

The pre-coated filter aid forms a cake on the filter medium where the actual particle precipitation takes place. The cake acts as a depth filter and considerably increases the loading capacity of the actual surface filter.

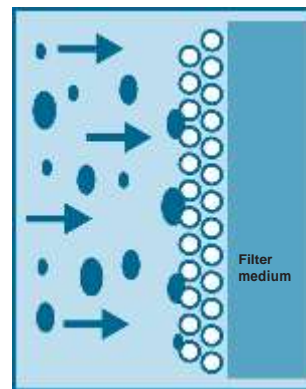
Pre-coated filters are also suited for the preparation of baths or for filtration with activated carbon. The filters are specifically designed to perfectly adapt to our customers' specifications and applications.

Advantages of pre-coated filters are:

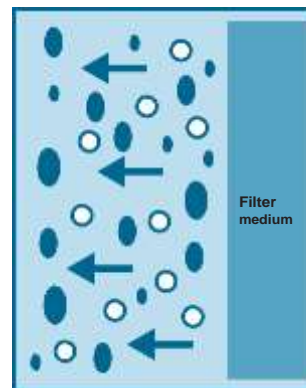
- ◆ Easily adjustable to any application because of various filter aids available.
- ◆ Longer service life of surface filters.
- ◆ Backwashing is partly possible.



Precoating



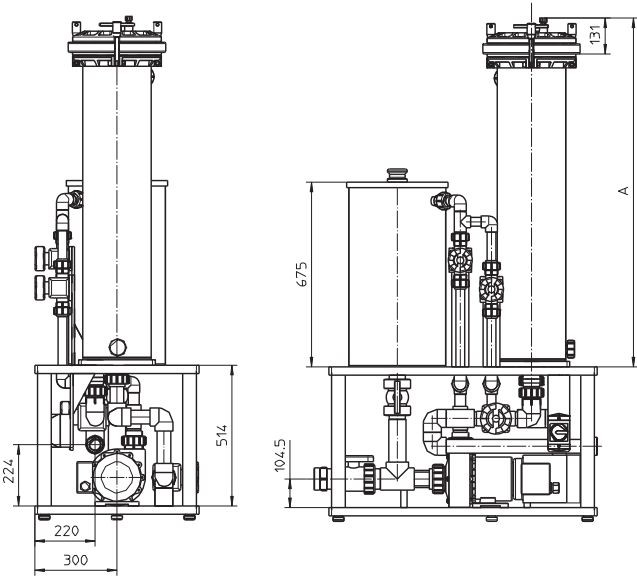
Filtering



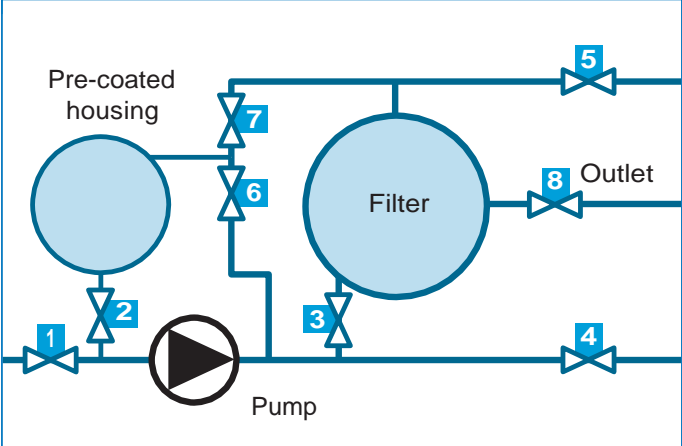
Backwashing



Filter type 8 with a pre-coated housing, combined with pump type RM4.5 to reach a filtration rate of 30m³/h.



type	dimension A
8R10	552
16120	806
24130	1060
32140	1314



Operating mode	Valve position								
	Valve no.	1	2	3	4	5	6	7	8
Large circuit including filter		•	•	•	•	•	•	•	•
Large circuit without filter		•	•	•	•	•	•	•	•
Small circuit including Pre-coated housing pump and filter		•	•	•	•	•	•	•	•
Small circuit including Pre-coated housing and pump		•	•	•	•	•	•	•	•
Filter chamber discharge		•	•	•	•	•	•	•	•

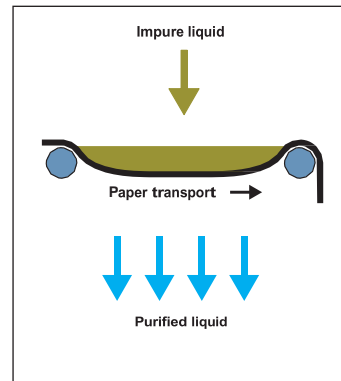
• = closed, ◦ = open

INCLINED-BED BELT FILTER



Inclined-bed belt filter

The inclined-bed belt filter complements the wide range of RENNER filters. This filter is especially suitable for aggressive fluids with high contamination levels. Main fields of application include electroplating, etching and cleaning plants, sewage and water treatment installations as well as solar, textile and food industries.



Operating principle of the inclined-bed belt filter

Advantages at a glance:

- ◆ All components in contact with the fluid are made of plastic.
- ◆ Variable-speed drive.
- ◆ Compact and portable housing.

Materials

Temperature range

All components in contact with the fluid	PP	polypropylene	0° to	+80°C
	PVDF	polyvinylidene fluoride	-20° to	+95°C
	PPS	Ryton®	-20° to	+100°C
	Stainless steel	1.4305, 1.4571	-20° to	+100°C
	Oxide ceramic	aluminium oxide 99,7%	-20° to	+100°C
	PTFE graphite	PTFE graphite	-20° to	+100°C

Gaskets

EPDM	ethylene-propylene-diene rubber
FKM	fluorinated rubber
FEP coated	perfluorethylene/propylene copolymer
NBR	nitrile-butadiene rubber



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