

ADVANCED WATER SCREENING TECHNOLOGY

WASTE WATER
TREATMENT
TECHNOLOGY

WATER
INTAKE
TECHNOLOGY

SPECIALIST
SYSTEMS

FILTRATION &
CONDENSER
CLEANING
SYSTEMS

SERVICES

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BRIEDEN FILTERS



Brieden filters, developed and manufactured by Brackett Green, provide a comprehensive range of industrial automatic filters for many diverse applications guaranteeing a pure and reliable source of screened water. Applications include the automotive and pharmaceutical industries, plastics and paper processing, waste water treatment plants, nuclear and thermal powerstations, and offshore production platforms. Brieden filters offer a fully automatic, completely self-cleaning cycle of operation, that continuously separates impurities from water and other liquid media.

Filter elements are available with either Brackett Green’s patented design of ‘breathing element’ manufactured from polypropylene wafers or fixed wedge wire, ‘V’-Gap elements. Bodies can be manufactured from carbon steel with rubber or glass flake lining, stainless steel, duplex or super duplex stainless steel. Because different process applications require different filtration techniques, Brackett Green has produced separate guides for breathing and V-Gap element filters. Breathing elements are generally more suited to processes demanding a finer degree of filtration, and where fibrous or sticky media would be difficult to backflush from wedge wire elements.

All Brieden filters are manufactured to the highest quality and are rigorously tested. This is particularly important when filters are installed in difficult locations such as offshore platforms and remote refineries. Accordingly, all Brieden filters comply with both BSI 9001 and ASME regulations. Filter body designs are generally based on PD5500 guidelines for pressure vessels. However, they can be adapted from these standards to incorporate specific applications requiring other design codes. Similarly, although filters for standard duty are usually manufactured from carbon steel or stainless steel with an epoxy, rubber or glass lining, alternative materials such as duplex, super duplex or titanium can be specified.

Brackett Green’s range of Brieden filters are simple to maintain and operate. Built to last, and to deliver a consistent performance even within aggressive operating conditions, all filters feature access to elements via a strategically positioned port on the top of the filter body. This allows replacement of single elements quickly and easily – and eliminates the need for disassembly of the filter body and consequent loss of valuable operating time. ■



PRINCIPAL OF OPERATION

The fluid to be filtered flows through the inlet connection into the lower half of the filter body, upwards through the turntable into the inside of the filter elements. Flowing from the inside to the outside of the filter elements, the solids are retained on the inside of the filter candles. The clean fluid then leaves the filter body through the upper outlet connection.

The requirement to backflush is initiated by a timer or rising differential. When the signal to backflush is given, one complete backflush cycle would be performed fully automatically.

Backflushing is achieved without interruption to the flow through the filter. The drive rotates the turntable and the backflush valve is opened. Each element in turn moves across the backflush outlet pipe.

The difference in pressure between the inside of the filter body and atmospheric pressure produces a reverse flow through the filter elements thereby removing the retained debris. After one revolution of the turntable the backwash cycle is completed. The backflush valve closes and the drive motor stops.

Brieden filters can vary the number of candles in each filter to present the maximum filtering area to the flow. This enables Brieden filters to be applied with the minimum headloss possible across the strainer. ■

- Key
- 1

Filter Body
- 2

Filter Elements (candles)
- 3

Pressure Gauge
- 4

Differential Pressure Switch
- 5

Drive
- 6

Revolving Turntable
- 7

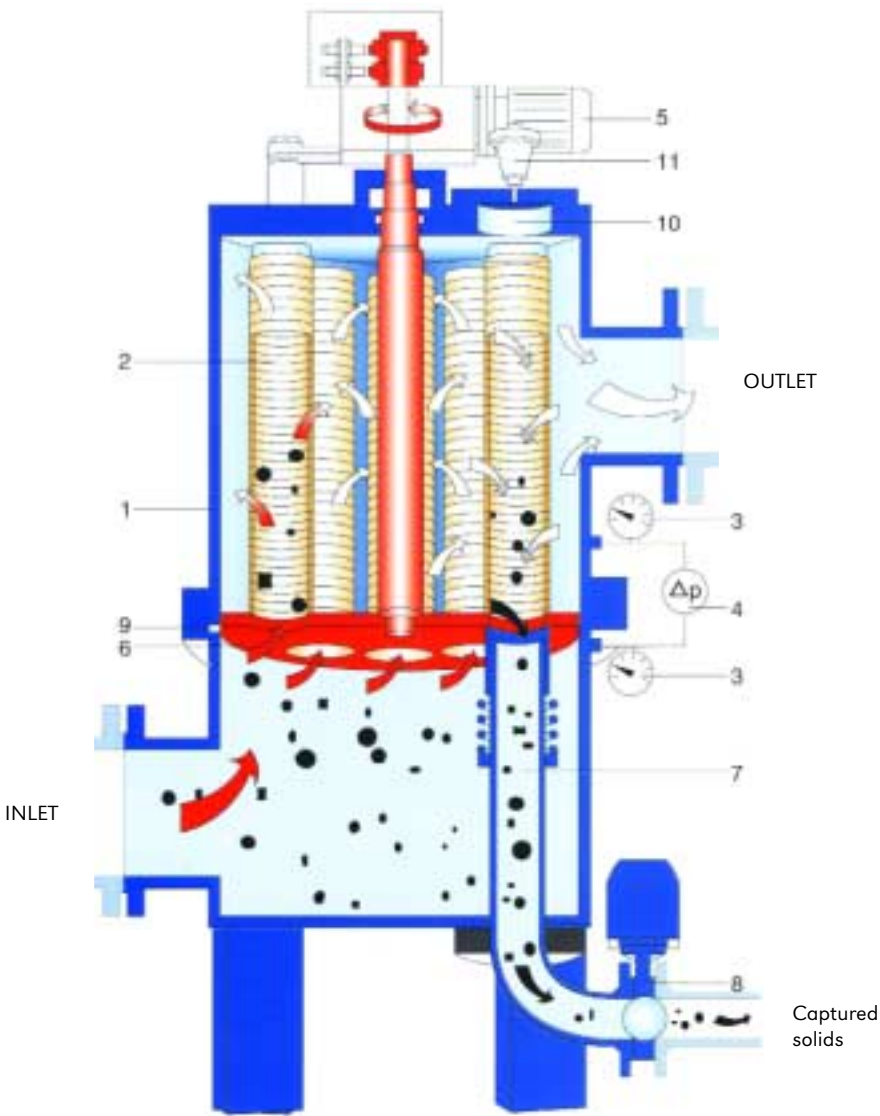
Backflush Pipe
- 8

Backflush Valve
- 9

Turntable Seal
- 10

Access Cover
- 11

Automatic Vent



A Brackett Brieden strainer during backflushing operation

Captured solids

BREATHING FILTERS GUIDE

Brackett Green recommends ‘breathing’ elements for applications where difficult filtration problems are expected. Extensive research and development into non-metallic elements by Brackett Green has resulted in a patented design for polypropylene elements that have revolutionised filtration techniques.

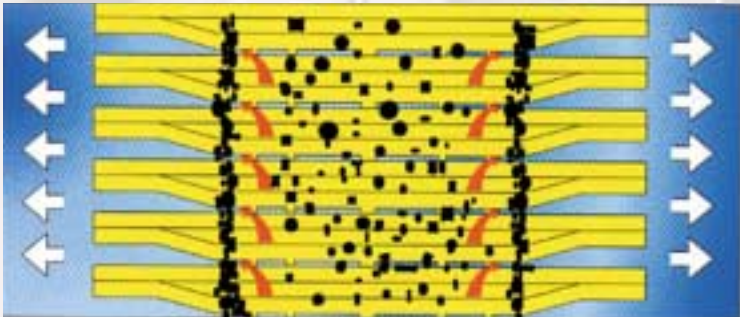
As suggested by their name, breathing elements have the ability to widen during the backflushing process, and because of this feature, avoid becoming blocked by stubborn waste matter. Solids retained in the filtration process are deposited inside the elements (diagram 1).

When backflushing commences, the flow direction is reversed, with media travelling through the elements from outside, to inside. Backflushing widens the filter gaps for a very short time – the ‘breathing’ effect – allowing even the most persistent waste particles to be flushed out (diagram 2).

Breathing elements are available with apertures ranging from 50µm to 1000µm and are renowned for their operational longevity – some elements having been in use in filters for over 20 years.

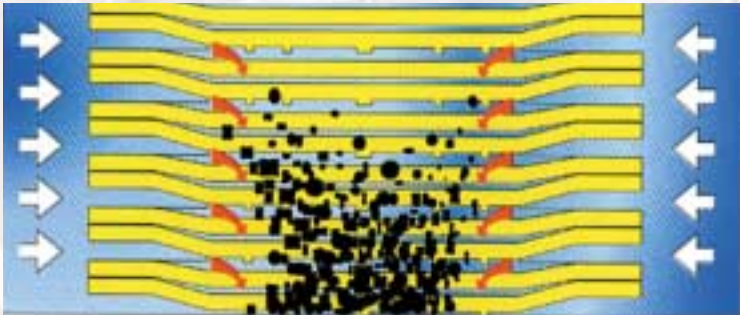
Filter selection should be based upon specific site operating conditions and plant requirements. Ensuring the fundamental components of a filtration system are properly in place. This table provides a guide to filter specification, based upon filtration of media measured in m³/per hour at Δp approximately .15 bar. ■

Diagram 1



The medium which is to be filtered flows through the “breathing filter element” from the inside to the outside. All impurities with size greater than that of the selected grade of filtration are deposited inside the filter elements. The size of the gap is precisely fixed by appropriate spacers.

Diagram 2



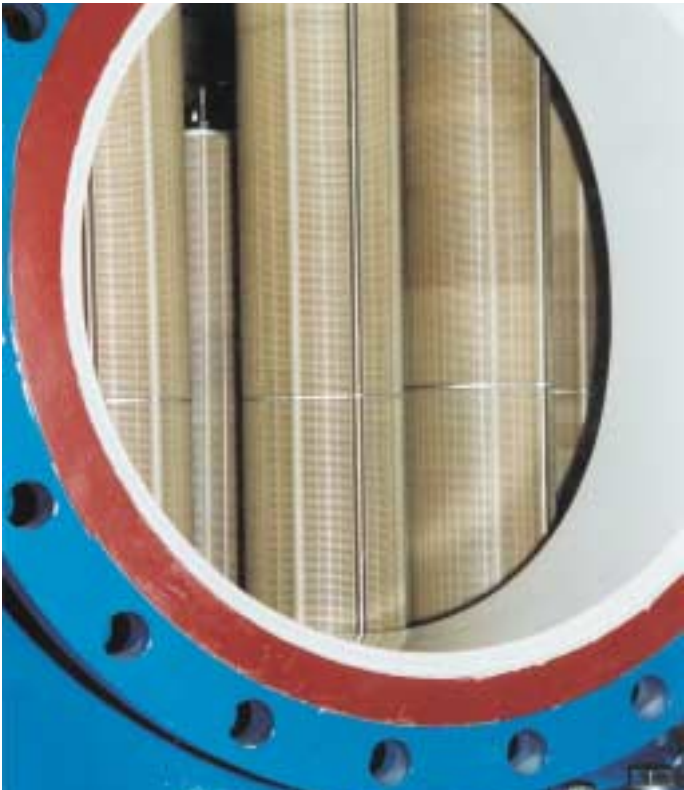
The filtered medium flows through the “breathing filter element” from the outside to the inside. The effect of this backflushing is to widen the filter gap, suddenly and for a brief period, (this is the “breathing effect”). Even the most persistent of impurities can be backflushed and will not block the filter cartridge.

BREATHING FILTERS GUIDE

Breathing Element Maximum Flow Capacities m³/hr

Filter Designation	Flange DN Max	50µm	75µm	100µm	150µm	200µm	≥300µm
BRF-50-3	80	10	19	31	50	54	54
BRF-50-4	100	17	32	52	85	85	85
BRF-50-5	125	22	41	65	108	132	132
BRF-50-7	150	31	57	92	151	190	190
BRF-50-9	175	39	73	118	194	254	254
BRF-50-11	175	48	89	144	237	259	259
BRF-80-6	200	58	108	174	286	339	339
BRF-80-7	250	68	125	203	334	482	482
BRF-80-9	250	87	161	260	429	529	529
BRF-80-12	300	116	215	347	572	762	762
BRF-80-15	350	145	269	434	715	1032	1032
BRF-115-9	350	168	312	503	828	1037	1037
BRF-115-12	400	223	415	670	1104	1354	1354
BRF-115-15	500	279	519	838	1380	1999	2116
BRF-165-12	600	376	698	1128	1857	2690	3048
BRF-165-18	700	564	1048	1691	2786	4035	4148
BRF-165-24	900	752	1397	2255	3714	5380	6857
BRF-165-30	1000	939	1746	2819	4643	6725	8465

For flows greater than 9000m³/hr refer to Brackett Greens range of Debris filters. See B6WSA Debris Filter catalogue



Brackett Brieden breathing element candles



Breathing filter element



Wedge wire filter element

V-GAP GUIDE

Brackett Green has fine-tuned the traditional wedge wire filter element to produce stainless steel, duplex or super duplex ‘V-Gap’ elements. V-Gap elements are capable of effectively filtering less clinging impurities, or where coarser filtration is acceptable.

Their advanced aperture shape helps to deter media from causing blockages that would result from using more orthodox wedge wire elements, and they are particularly recommended for use when very high differential pressure is present.

Internal dimensions of V-Gap elements are correlated to the required filtration aperture and open out in the direction of the flow. This design (diagram 1) means that solids and media requiring separation are received in front of the apertures.

Backflushing is performed by reversing the flow and using the filtered fluid to clean the elements (diagram 2).

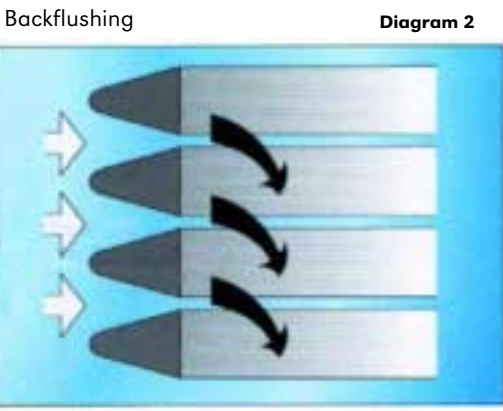
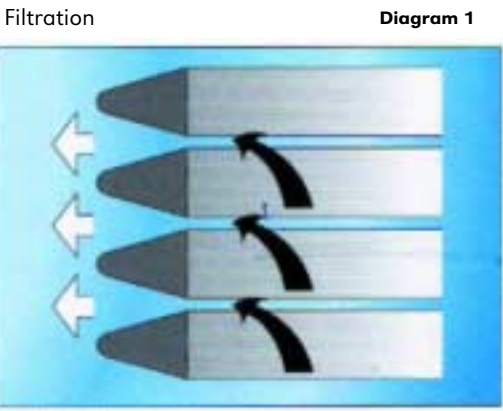
Filter selection should be based upon specific site operating conditions and plant requirements. Ensuring the fundamental components of a filtration system are properly in place first, and then progressing to application specialist features, such as flow rate, volume of solids, system pressure, etc, is the key to selecting the most suitable filter. The table below provides a guide to filter specification, based upon filtration of media measured in m³/per hour at a Δp of approximately .15 bar.

Selecting the correct filter

The choice of filter is dependent on site operating conditions and the filtration requirements of the system. The following factors should be taken into consideration.

- Type of fluid to be filtered
- Flow rate
- Level of filtration
- Volume of solids present (if known)
- System pressure

For larger capacity filters, other applications, filtering systems with a high solids loading or for further information on any of our strainers please consult Brackett Green



Filter Elements

The V-Gap filter elements are manufactured from wedge wire and have ‘V’ shaped filtration apertures. The internal dimension corresponds to the required filtration aperture, and opens out in the direction of the flow. For this reason solids to be separated are received in front of the filtration apertures. The V-Gap shape minimises solids becoming lodged within the filter aperture, thus preventing blockages.

Backflushing is carried out by reversing the flow using the filtered fluid, to clean the filter elements. V-Gap filter elements have excellent filtration properties and are suitable for high differential pressures. For special requirements, fine filtration and difficult applications such as sewage which has fibrous or waxy solids we would recommend our “breathing filter elements”.

V-GAP GUIDE

Filter Designation	Flange DN Max	50um	75um	100um	150um	200um	>=300um
BRF-S-3304	80	12	23	33	47	58	58
BRF-S-3307	125	25	44	64	92	118	120
BRF-S-3310	150	40	66	97	139	178	190
BRF-S-3313	175	51	89	116	167	213	228
BRF-S-3316	200	81	134	174	250	320	342
BRF-S-3319	250	110	167	218	313	400	482
BRF-S-3322	300	176	273	356	511	653	811
BRF-S-3325	350	220	351	458	657	839	1042
BRF-S-3328	400	297	468	610	875	1119	1390
BRF-S-3331	400	374	585	763	1094	1398	1445
BRF-S-3337	500	385	656	854	1226	1566	2169
BRF-S-3340	600	540	1000	1650	2500	3300	3600
BRF-S-3343	700	750	1300	2500	3300	4200	4350
BRF-S-3346	800	980	1750	2730	4410	5670	6000
BRF-S-3349	900	1200	2100	3300	5300	6800	7200
BRF-S-3355	1000	1600	2500	3900	6360	8160	8640

Wedge Wire Maximum Flow Capacities



Close up of wedgewire filter elements in a Brackett Brieden backflushing filter



Offshore re-injection coarse strainers before final assembly