FILTRATION SOLUTIONS

Filter Systems for Plastics

SEEBACH®

john crane

The individualized filtration solution for exactly your requirements

The production of plastic requires a high degree innovation among producers and equipment suppliers. Seebach products combine core polymer filtration production needs with new and innovative ideas to optimize filtration solutions.

Optimal filter configurations are determined by using our proprietary CFD software and offers products that are ahead of its time. Existing filter solutions are often replaced by our innovative solutions in order to make production more economical and to meet the ever increasing quality requirements for the plastics.

In addition to proprietary CFD software, we can support you in your melt filter process development with laboratory scale rheological solutions scaled up without any problems.

STATEMENTS OF GLOBAL MARKET LEADERS
IN HIGH QUALITY POLYMER PRODUCTION (EXCERPTS)

Free of particles and fish-eyes

"Seebach is the only supplier worldwide to meet our cleanliness requirements."

Simulation

"No other filter manufacturer in the world is able to handle CFD with non-Newtonian fluids."

Individual filter solutions

"The filter is running without interruption for far longer than planned, significantly exceeding performance expectations."

SEEBACH FILTER SYSTEMS FOR PLASTIC MANUFACTURING

Polymerization

Polymerization is the first step in plastics production. Depending on monomer, it can be carried out in bulk, in solution or in an emulsion. Monomer solutions are filtered to separate impurities before introduction into the reactor, and filtration is used after polymerization to recover monomer residues from solution/suspension.

Film Production

Filtration is an essential step for film production to pre-treat melts or polymer solutions. Depth filters retain undissolved polymers or gels from solution, which would be detectable as specks and reduce the tear resistance of the cast film. Ultra-thin film production e.g. in medical technology, is made possible by the high level purity of filtered melts and solutions.

Fiber Production

Development of micro- and nano-fiber media is made possible by means of sophisticated spinning and melt blown processes. The fine nozzles, which are essential for the production of ultra-fine fibers require melt-filters and spinning solution filtration to prevent blocking by particles and gels.

Compounding

Compounding consists of preparing plastic formulations by mixing and/or blending polymers and additives in a molten state. Compounding is usually done by extrusion. Our melt filter systems are used right after the extruder and before the compounds are granulated mainly into pellets to remove solids and soft materials to increase the purity (and value) of the polymer.

WE ARE SETTING NEW STANDARDS IN POLYMER FILTRATION
WITH FILTER SYSTEMS AND ELEMENTS

50
Years of Experience

150
Employees Global

200+
Facilities in > 50 countries

150+
New Products p.a.

300,000
Delivered Elements p.a.

10,000+
Installed Systems

Seebach JANUS - Large-area filter

The Seebach JANUS melt filter system is the latest development in polymer melt filtration. The system can be adapted to production data outcomes in a very short time frame with minimal effort (e.g., convert filter cartridges to filter discs).

Depending on the production requirements, the Seebach JANUS filter is designed as a single or double filter with change-over. The double filter ensures continuous operation when the maximum contaminant load is reached and the elements need to be changed.

Seebach JANUS filters can be installed horizontally or vertically with possible filtration areas of 1.4 m^2 to 100 m^2. Heating is variable and can be carried out electrically, with steam or with heat carrier oil.

Applications	PA, PBT, PE, LDPE, PC, PEEK, PET, BOPET, PP, BOPA, BOPP, PMMA, EVA, carbon-fiber, fiber, resin, film, sheet, etc.

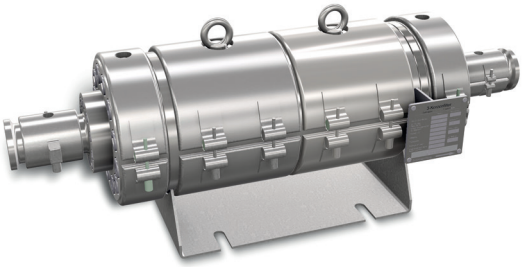
Ø (mm)	Length (mm)	Quantity Elements	Element Type	Filter Area (m^2)	Capacity kg / h *
340	790	7	Candle 10“	1,3	850
		31	Disc 7“	1,4	850
	1040	7	Candle 20“	2,9	1500
		65	Disc 7“	2,9	1500
	1290	7	Candle 30“	4,3	2250
		97	Disc 7“	4,4	2250
	1540	7	Candle 40“	5,8	3100
		130	Disc 7“	5,8	3100
520	1210	19	Candle 20“	7,8	5200
		60	Disc 12“	7,5	5200
	1460	19	Candle 30“	11,7	7500
		93	Disc 12“	11,6	7500
	1710	19	Candle 40“	15,9	9200
		125	Disc 12“	15,6	9200
	1960	19	Candle 50“	19,9	11000
		157	Disc 12“	19,6	11000
620**	1460	93	Disc 15“	15,5	19400
	1850	125	Disc 15“	20,9	26100
750	1250	37	Candle 20“	12,5	16700
		48	Disc 16“	10,1	15000
	1520	37	Candle 30“	17,4	19200
		40	Disc 16“	14,7	18000
	1770	37	Candle 40“	24,1	21500
		92	Disc 16“	19,3	19700

* Capacity based on: PET, 800 Pas, 285°C, 1,12 kg/dm^3, 30µm filter rating
** Only filter disc

Seebach melt filter systems

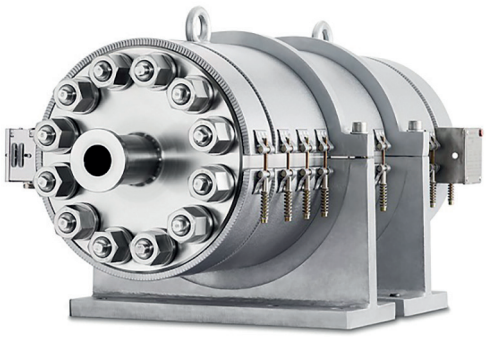
SEEBACH SINGLE-CANDLE FILTER

Applications	Pilot filters, co-extrusion (e.g., film/fiber production)
Max. operating pressure	250 bar
Max. operating temp.	350°C
Capacity	10 to 250 kg/h*
Viscosity	50 to 10.000 Pas
Filter elements	Filter candles



SEEBACH 3-CANDLE FILTER

Applications	Main-extrusion, co-extrusion (e.g., film/fiber production, polymerization)
Max. operating pressure	250 bar
Max. operating temp.	350°C
Capacity	100 to 1000 kg/h*
Viscosity	50 to 10.000 Pas
Filter elements	Filter candles



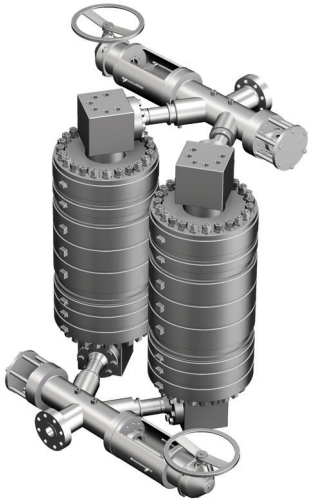
SEEBACH JANUS SINGLE FILTER

Applications	Main-extrusion, co-extrusion (e.g., film/fiber production, polymerization)
Max. operating pressure	250 bar
Max. operating temp.	350°C
Viscosity	50 to 10.000 Pas
Filter elements	Filter candles 10“ to 40“ Filter discs 7“, 12“, 15“, 16“

**Capacity based on: PET, 800 Pas, 285°C, 1,12 kg/dm^3, 30µm filter rating*

SEEBACH JANUS DOUBLE FILTER

Application	Polymerization
Max. operating pressure	250 bar
Max. operating temp.	350°C
Viscosity	50 to 10.000 Pas
Filter elements	Filter discs 7“, 12“, 15“ (e.g., PET, PC, polyamide)



SEEBACH JANUS DOUBLE FILTER SWITCHABLE

Application	Polymerization
Max. operating pressure	250 bar
Max. operating temp.	350°C
Viscosity	50 to 10.000 Pas
Filter elements	Filter candles 20“, 30“, 40“ Filter discs 7“, 12“, 15“ (e.g., PET, PC, polyamide)

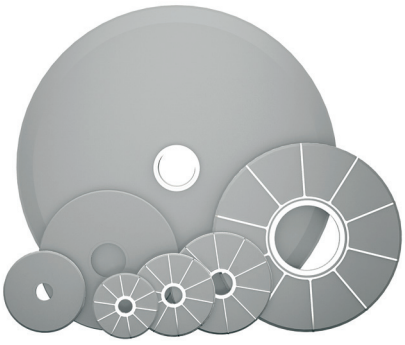
SEEBACH PRE-POLYMER FILTER

Application	Pre-polymer
Max. operating pressure	16 bar
Max. operating temp.	350°C
Viscosity	Low viscosity
Filter elements	Filter candles

Seebach filter discs / spin packs

Seebach filter discs demonstrate improvements to all kinds of filter systems. All products are exclusively produced at Seebach.

Applications	PA, PBT, PE, LDPE, PC, PEEK, PET, BOPET, PP, BOPA, BOPP, PMMA, EVA, carbon-fiber, fiber, resin, film, sheet, etc.
Used in	Large-area filters Screen changers (all brands)
Design	Ultra strong disc Hard hub Semi hard hub Soft hub
Filter media	Mesh, metal fiber fleece
Filter rating	2µm, 3µm, 5µm, 10µm, 15µm, 20µm, 30µm, 40µm, etc.
Size	5,5“, 7“, 8,5“, 12“, 15“, 16“ and spin packs



Seebach filter candles

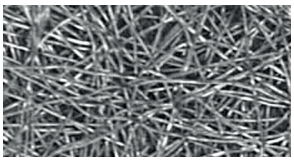
Seebach filter candles demonstrate improvements to all kinds of filter systems. All products are exclusively produced at Seebach.

Applications	PA, PBT, PE, LDPE, PC, PEEK, PET, BOPET, PP, BOPA, BOPP, PMMA, EVA, carbon-fiber, fiber, resin, film, sheet, etc.
Used in	Single-candle filters Multi-candle filters Large-area filters Screen changers (all brands)
Design	Pleated Plain Optional with removable mesh pack
Filter media	Mesh, metal fiber fleece
Filter rating	2µm, 3µm, 5µm, 10µm, 15µm, 20µm, 30µm, 40µm, etc.
Length	Up to 1600 mm

Seebach filter media

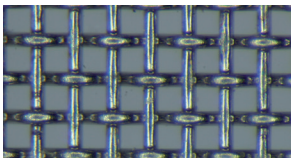
Filter media are selected according to the specific project requirements (particle retention, gel separation, contaminant absorption, filtration performance, ability to clean, etc.). In order to ensure the full performance of a chosen medium the manufacturing is of crucial importance.

For this purpose, Seebach manufactures filter media on specially designed and proprietary machines as well as in clean rooms.



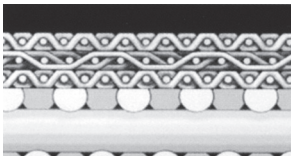
METAL FIBER FLEECE

Used as a classical deep filtration made of metal fiber fleece sintered and consolidated in multiple layers. This is suitable for the filtration of polymer melts and other fluids.



WIRE MESH

Typically two kinds of wire mesh are used, woven wire mesh (square) or dutch weave. Wire mesh (square) is generally made of warp and weft wires of the same thickness. The dutch weave wire is manufactured by using warp and weft wire of different diameters. Usually the warp wire diameter is the larger of the two. The smaller weft wire is woven over and under the larger warp wire, forming a triangular open area.



WIRE MESH LAMINATE

Manufactured by sintering (welding) together from 2 to 5 layers of stainless mesh. The laminated media is very versatile, easily cleanable and well-suited for heavy-duty applications.

Seebach Fluid Dynamics Analysis

Modern flow simulations are increasingly used to identify the root cause of filtration problems and in the development of the filtration solutions for custom applications. The main challenges addressed by Seebach’s modern flow simulation relate to the scientific characteristics of the fluids to be filtered and the filter media to be used. The foundation of the Seebach approach is our extensive knowledge and experience in the filtration of non-Newtonian fluids which change their viscosity with applied shear.

Seebach has extensive experience in the simulation of fluid and media flow characteristics. Utilizing the simulation process we can optimize existing systems or design new systems optimized for specific applications.

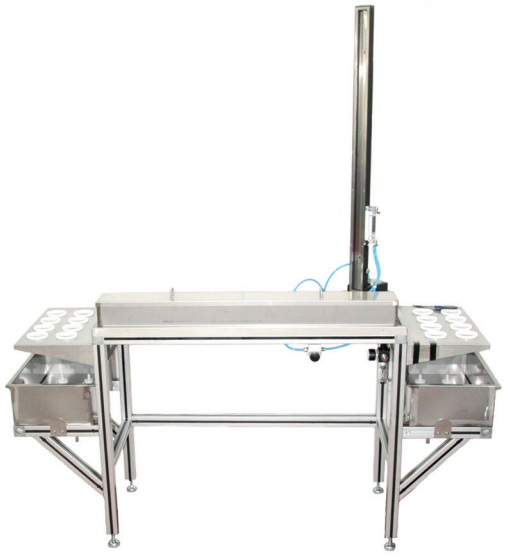
Seebach has developed the possibility to describe the dynamics for classical fluids such as gases and liquids, and also for non-classical fluids such as polymers and resins.

As a result, we are able to provide the following data:

- Expected start pressure loss
- Velocity profile within the filter
- Hear stress and viscosity profiles
- In case of a temperature-dependent simulation: temperature gradient

Bubble point test stand

Bubble point test stands are used to assess the quality of cleaning of filter elements. The bubble point test is an important test in the assessment of industrial filter elements.



For more information please contact us at

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SEEBACH

The Seebach name is renowned for filtration solutions that utilize leading edge application knowledge and precision manufacturing expertise. John Crane acquired Seebach GmbH in 2018 to complement its existing filtration business, further enhancing its technology leadership and providing new capabilities to reduce innovation cycles and grow into mission-critical process industries.

www.seebach.com

john crane

Global Service Network

- Over 200 facilities in more than 50 countries
- Close proximity to customers' operations
- Local service and expert global support
- Seebach is a leader in filtration since 1970.

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