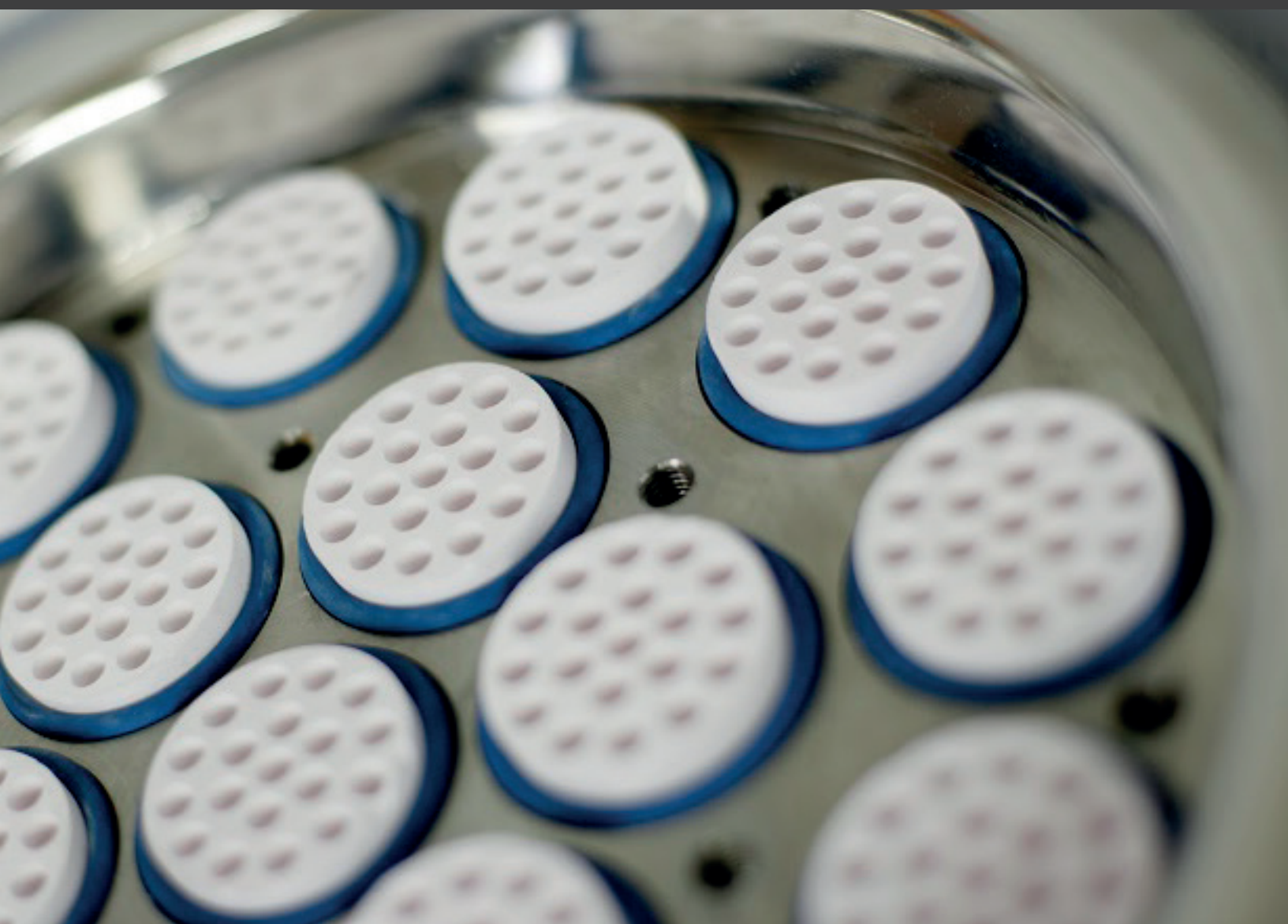


STAINLESS STEEL HOUSINGS WITH CERAMIC MEMBRANES



STAINLESS STEEL HOUSINGS WITH CERAMIC MEMBRANES
modules in industrial design

Membrane diameter	Membrane design	Membrane length (mm)	M1	M3	M7	M8	M12	M19	
			filter surface in m ² per module						
25.4 mm	7/6	1000	0.13	0.40	0.92	-	-	2.51	
		1200	0.16	0.48	1.11	-	-	3.01	
	19/3.3	1000	0.20	0.60	1.40	-	-	3.80	
		1200	0.24	0.72	1.68	-	-	4.56	
	61/2-O	1000	0.43	1.29	3.01	-	-	8.17	
		1200	0.51	1.53	3.57	-	-	9.69	
41 mm	19/6	1200	0.43	1.29	3.01	-	5.16	8.17	
		1500	0.54	1.62	3.76	-	6.45	10.21	
	37/3.8	1200	0.53	1.59	3.71	-	6.36	10.07	
		1500	0.67	2.01	4.69	-	8.04	12.73	
	61/2.5	1200	0.58	1.74	4.06	-	6.96	11.02	
		1500	0.72	2.16	5.04	-	8.64	13.68	
	91/2.4	1200	0.90	2.70	6.30	-	10.80	17.10	
		1500	1.13	3.39	7.91	-	13.56	21.47	
	208/1.5	1200	1.50	4.50	10.50	-	18.00	28.50	
		1500	1.88	5.64	13.16	-	22.56	35.72	
	52 mm	19/8	1200	0.57	1.71	-	4.56	6.84	10.83
			1500	0.72	2.15	-	5.80	8.70	13.68
37/5.7		1200	0.80	2.40	-	6.40	9.60	15.20	
		1500	1.00	3.00	-	8.00	12.00	19.00	
61/4		1200	1.03	3.09	-	8.24	12.36	19.57	
		1500	1.29	3.87	-	10.32	15.48	24.51	
85/3.3		1200	1.06	3.18	-	8.48	12.72	20.14	
		1500	1.32	3.97	-	10.57	15.86	25.08	
211/2		1200	1.59	4.77	-	12.72	19.08	30.21	
		1500	1.99	5.97	-	15.92	23.88	37.81	

M27	M30	M31	M32	M46	M47	M114
filter surface in m ² per module						
-	-	4.09	-	-	6.20	15.05
-	-	4.91	-	-	7.44	18.06
-	-	6.20	-	-	9.40	22.80
-	-	7.44	-	-	11.28	27.36
-	-	13.33	-	-	20.21	48.56
-	-	15.81	-	-	23.97	58.37
11.61	-	-	13.76	19.78	-	-
14.58	-	-	17.28	24.84	-	-
14.31	-	-	16.96	24.38	-	-
18.09	-	-	21.44	30.82	-	-
15.66	-	-	18.56	26.68	-	-
19.44	-	-	23.04	33.12	-	-
24.30	-	-	28.80	41.40	-	-
30.51	-	-	36.16	51.98	-	-
40.50	-	-	48.00	69.00	-	-
50.76	-	-	60.16	86.48	-	-
-	17.10	-	-	-	-	-
-	21.60	-	-	-	-	-
-	24.00	-	-	-	-	-
-	30.00	-	-	-	-	-
-	30.90	-	-	-	-	-
-	38.70	-	-	-	-	-
-	31.80	-	-	-	-	-
-	39.60	-	-	-	-	-
-	47.70	-	-	-	-	-
-	59.70	-	-	-	-	-

Filter area module

Example calculation

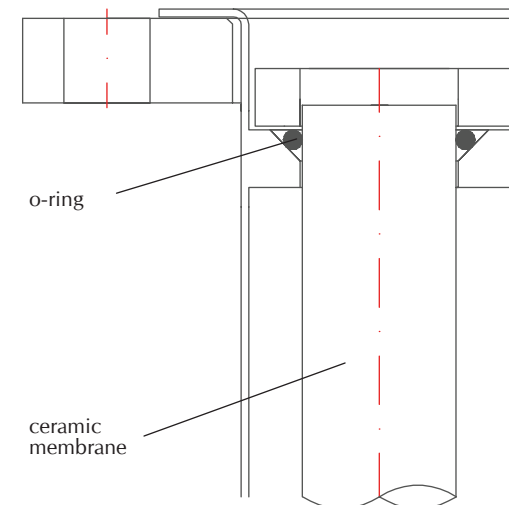
Design 19/3.3 in 1200 mm has 0.24 m² filter area

Module M7 (7 membranes in one housing):

7 x 0.24 m² = 1.68 m² filter area

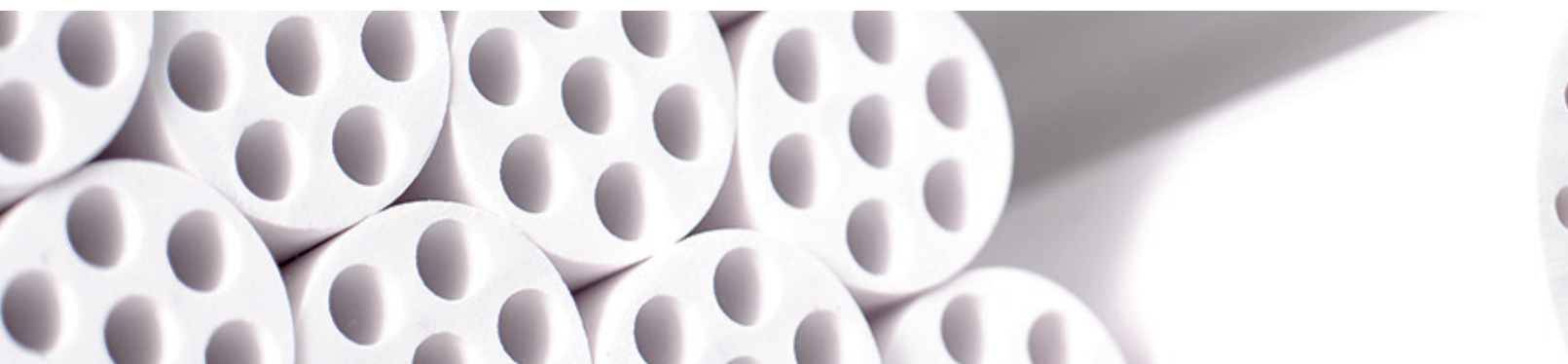
- > Further membrane lengths (up to 1.5 m)
- > other types of modules and technical drawings on request
- > drawings of housings are not to scale and are for informational purposes only

SEALING



industrial design

Reliable in operation and cost-efficient membrane-O-ring sealing system. The O-rings are available in numerous material qualities, such as Viton, EPDM, FFKM or NBR and others. Proven for decades in a large number of industrial applications.



STAINLESS STEEL HOUSINGS WITH CERAMIC MEMBRANES
modules in industrial design

Membrane diameter	Membrane design	Membrane length (mm)	M1 LM	M3 LM	M7 LM	M8 LM	M12 LM	M19 LM	
			filter surface in m ² per module						
25.4 mm	7/6	1000	0.13	0.40	0.92	-	-	-	
		1200	0.16	0.48	1.11	-	-	-	
	19/3.3	1000	0.20	0.60	1.40	-	-	-	
		1200	0.24	0.72	1.68	-	-	-	
	61/2-0	1000	0.43	1.29	3.01	-	-	-	
		1200	0.51	1.53	3.57	-	-	-	
41 mm	19/6	1200	0.43	1.29	3.01	-	5.16	8.17	
		1500	0.54	1.62	3.76	-	6.45	10.21	
	37/3.8	1200	0.53	1.59	3.71	-	6.36	10.07	
		1500	0.67	2.01	4.69	-	8.04	12.73	
	61/2.5	1200	0.58	1.74	4.06	-	6.96	11.02	
		1500	0.72	2.16	5.04	-	8.64	13.68	
	91/2.4	1200	0.90	2.70	6.30	-	10.80	17.10	
		1500	1.13	3.39	7.91	-	13.56	21.47	
	52 mm	19/8	1200	0.57	1.71	-	4.56	6.84	10.83
			1500	0.72	2.15	-	5.80	8.70	13.68
		37/5.7	1200	0.80	2.40	-	6.40	9.60	15.20
			1500	1.00	3.00	-	8.00	12.00	19.00
61/4		1200	1.03	3.09	-	8.24	12.36	19.57	
		1500	1.29	3.87	-	10.32	15.48	24.51	
85/3.3		1200	1.06	3.18	-	8.48	12.72	20.14	
		1500	1.32	3.97	-	10.57	15.86	25.08	

	M23 LM	M26 LM	M29 LM	M42 LM
	filter surface in m ² per module			
NW 200	3.03	-	-	-
	3.64	-	-	-
	4.60	-	-	-
	5.52	-	-	-
	5.35	-	-	-
	6.42	-	-	-
NW 300	-	11.18	-	18.06
	-	14.04	-	22.68
	-	13.78	-	22.26
	-	17.42	-	28.14
	-	15.08	-	24.36
	-	18.72	-	30.24
	-	23.40	-	37.80
	-	29.38	-	47.46
NW 400	-	-	16.53	-
	-	-	20.88	-
	-	-	23.20	-
	-	-	29.00	-
	-	-	29.87	-
	-	-	37.41	-
	-	-	30.74	-
	-	-	38.28	-

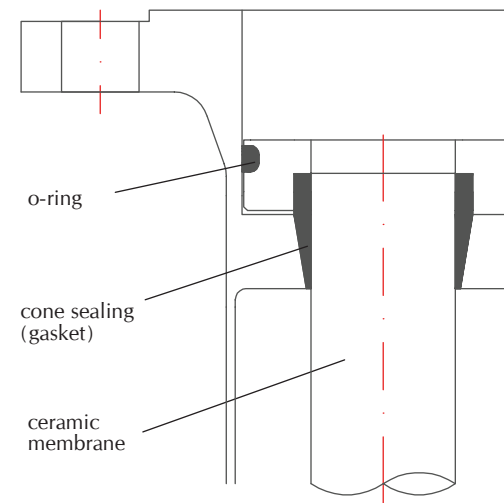
Filter area module

Example calculation

Design 19/3.3 in 1200 mm has 0.24 m² filter area
Module M7 LM (7 membranes in one housing):
7 x 0.24 m² = 1.68 m² filter area

- > Further membrane lengths (up to 1.5 m)
- > other types of modules and technical drawings on request
- > drawings of housings are not to scale and are for informational purposes only

SEALING



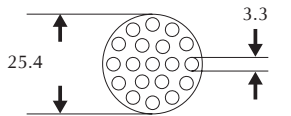
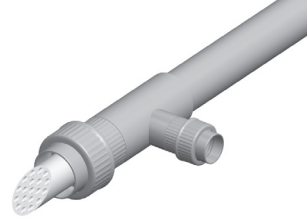
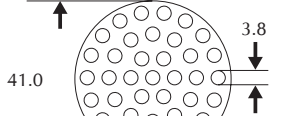
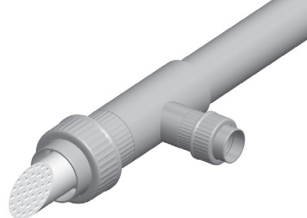
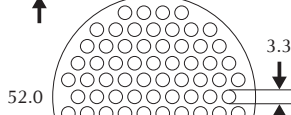
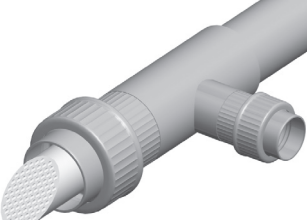
sanitary design

atech LM-modules are designed to 3-A-Sanitary- Standard and cover all sanitary aspects for their application in micro- and ultrafiltration processes in Milk and Dairy Industry, Pharmaceutical, Chemical and Food Industry.



PLASTIC HOUSINGS WITH CERAMIC MEMBRANES

technical data

Type of Module	Technical Data	Membrane Design	Available Membranes filter surface (m ²)	Illustration
M1-PVC-C 19/3.3-1200	Material: PVC-C Max. Pressure: PN 10 Max. Temperature: 80°C		1/16 (0.06) 7/6 (0.16) 19/3.3 (0.24) 37/2 (0.28)	
M1-PVC-C 37/3.8-1200	Material: PVC-C Max. Pressure: PN 10 Max. Temperature: 80°C		19/6 (0.43) 37/3.8 (0.53) 61/2.5 (0.58)	
M1-PVC-C 85/3.3-1200	Material: PVC-C Max. Pressure: PN 10 Max. Temperature: 80°C		19/8 (0.58) 85/3.3 (1.06) 211/2 (1.59)	

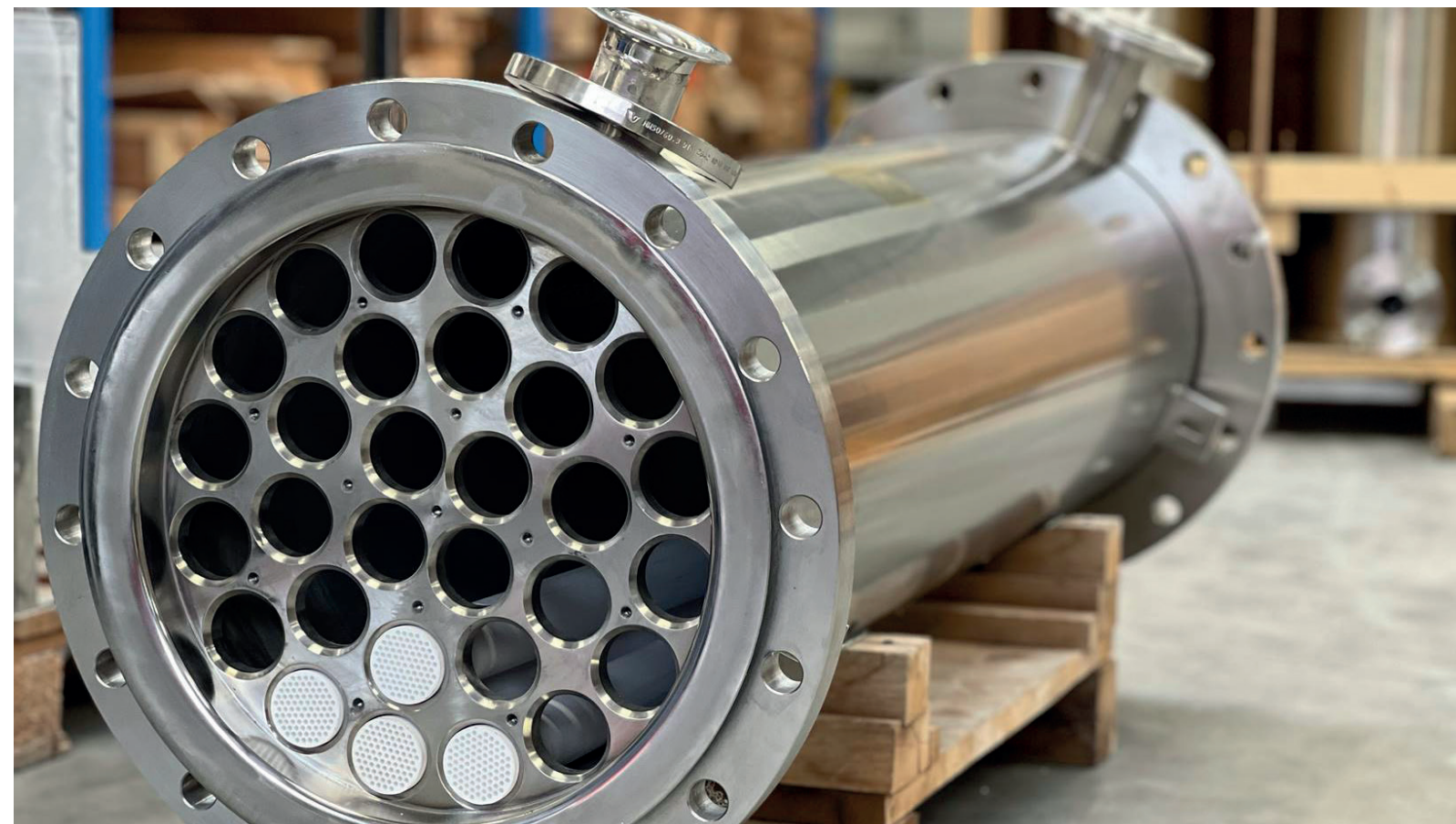
membrane lengths available up to 1.500 mm



OVERALL VIEW

Technical data of atech standard pressure vessels

Material	Various stainless steel available, 316 Ti / AISI (1.4571) and 316 L / AISI (1.4404)
Filter surfaces	From 0.05 m ² to approx. 60 m ² per vessel
Pressure rating	PN 10 @ 110°C
Overall length	Up to 1500 mm
Fittings	Dairy coupling / threaded fittings / flanges
Sealings	Sanitary design (conical sealing), industrial design (o-ring)
We will also manufacture customized vessels for your particular needs (like high pressure design).	



ENGINEERING

The scope of our activities includes planning, design, calculation and manufacturing according to different regulations and directives, such as:

AD 2000-HP 0

German regulations concerning the principles for design, manufacture and the related inspections of pressure vessels.

2014/68/EU

European Pressure Equipment Directive concerning the principles for design, manufacture and the related inspections of pressure vessels.

ASME BPVC, Section VIII

Boiler and Pressure Vessel Code according to the American Society of Mechanical Engineers concerning the principles for design, manufacture and the related inspections of pressure vessels.

DIN EN ISO 3834-3

German quality requirements for fusion welding for metallic material

RETROFIT

Upgrading existing membranes for more competitiveness

Problem-free replacement/smooth substitution of competitors' membranes – irrespective of which manufacturer they are from. Due to a huge variety of adapters/gaskets we will enable you to continue with your existing pressure vessel equipped with new membranes.

A fundamental refurbishment with a low cost basis! We ensure that our membranes again deliver best possible filtration results for your process.

SURVEY

Technical data of atech Al₂O₃- membranes

Support material	α-Al ₂ O ₃	
Membrane material	MF: α-Al ₂ O ₃ ; ZrO ₂ ; TiO ₂	UF: TiO ₂ ; ZrO ₂ ; Al ₂ O ₃
Pore diameter / Molecular Weight Cut Off	1.2; 0.8; 0.4; 0.2; 0.1 μm	0.05 μm; 150kD; 100kD; 25kD; 15kD; 5kD; 1kD
Overall length	up to 1500 mm	
pH- stability	0 to 14	
All membrane designs are suitable for steam sterilisation ≥ 121°C / approx 250° F.		

Type	Design (mm)	Amount of channels	Length (mm)	Filter surface per element (m ²)	Illustration	Module size
1/6		1	1000	approx. 0.019		M1
			1200	approx. 0.023		
7/6		7	1000	approx. 0.13		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.16		
19/3.3		19	1000	approx. 0.20		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.24		
61/2.0		61	1000	approx. 0.426		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.512		
19/4		19	1000	approx. 0.24		on request
			1200	approx. 0.29		
37/3		37	1000	approx. 0.35		on request
			1200	approx. 0.42		

Filter area module

Example calculation:

Design 19/3.3 in 1200 mm has 0.24 m² filter area

Module M7 (7 membranes in one housing): 7 x 0.24 m² = 1.68 m² filter area

GENERAL INFORMATION

atech tubular ceramic membranes meet regulatory requirements for food contact according European Regulation no. 1935/2004 and FDA requirements 21 CFR, 170-199. atech crossflow membranes modules are authorized to bear the 3-A symbol for complying fully with the 3-A Sanitary Standard (certificate no. 3674)



Type	Design (mm)	Amount of channels	Standard length (mm)*	Filter surface per element (m ²)	Illustrationv	Module size
19/6		19	1200	approx. 0.43		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M12/ M12 LM/ M19/ M19 LM/ M26 LM/ M27/ M32/ M42 LM/ M46
			1500	approx. 0.54		
37/3.8		37	1200	approx. 0.53		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M12/ M12 LM/ M19/ M19 LM/ M26 LM/ M27/ M32/ M42 LM/ M46
			1500	approx. 0.67		
61/2.5		61	1200	approx. 0.58		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M12/ M12 LM/ M19/ M19 LM/ M26 LM/ M27/ M32/ M42 LM/ M46
			1500	approx. 0.72		
91/2.4		91	1200	approx. 0.90		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M12/ M12 LM/ M19/ M19 LM/ M26 LM/ M27/ M32/ M42 LM/ M46
			1500	approx. 1.13		
208/1.5		208	1200	approx. 1.03		M1/ M3/ M7/ M12/ M19/ M27/ M32/ M46
			1500	approx. 1.29		

* other lengths on request

SURVEY

Technical data of atech Al₂O₃- membranes

Support material	α-Al ₂ O ₃	
Membrane material	MF: α-Al ₂ O ₃ ; ZrO ₂ ; TiO ₂	UF: TiO ₂ ; ZrO ₂ ; Al ₂ O ₃
Pore diameter / Molecular Weight Cut Off	1.2; 0.8; 0.4; 0.2; 0.1 μm	0.05 μm; 150kD; 100kD; 25kD; 15kD; 5kD; 1kD
Overall length	up to 1500 mm	
pH- stability	0 to 14	
All membrane designs are suitable for steam sterilisation ≥ 121°C / approx 250° F.		

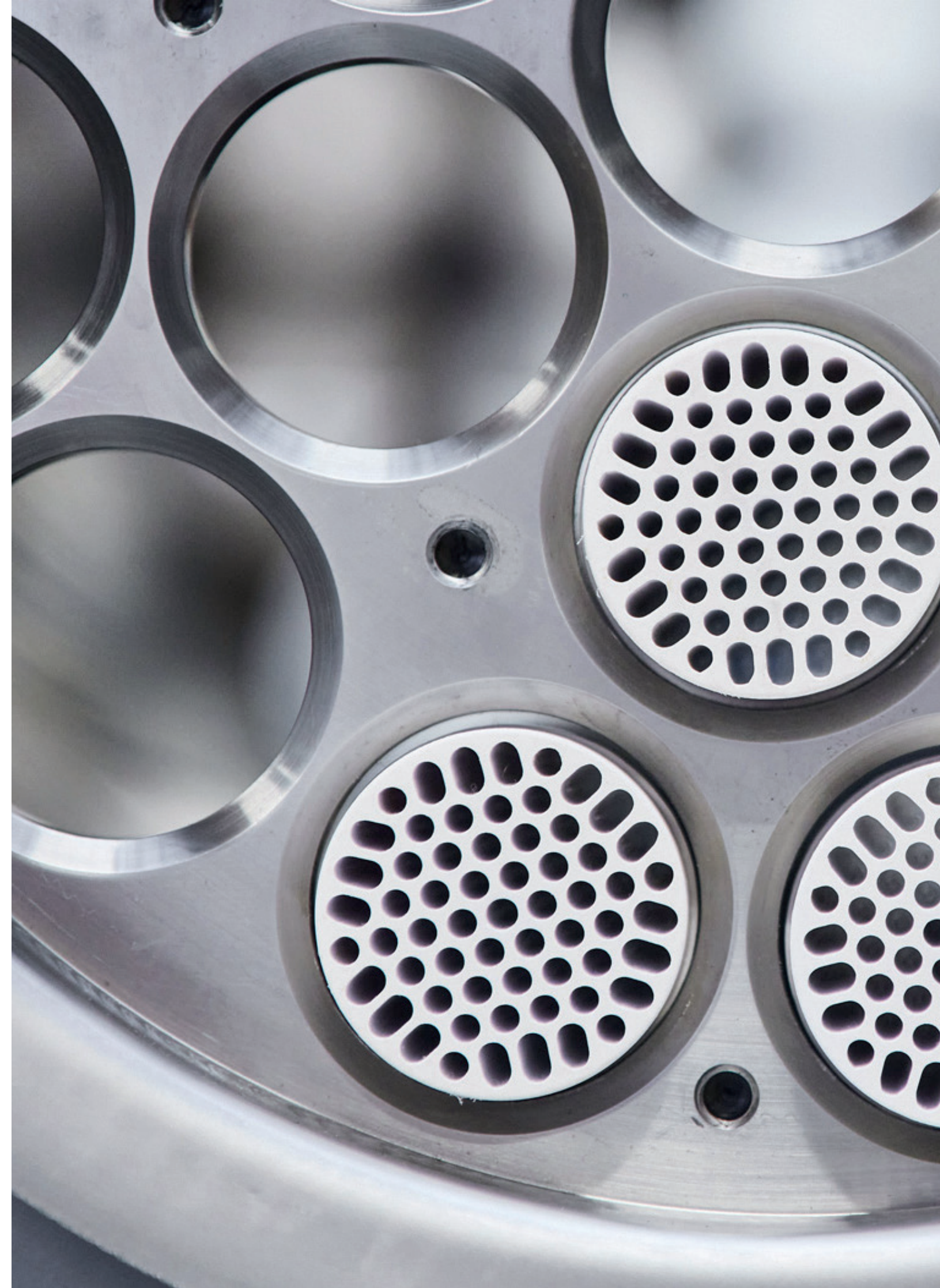
Type	Design (mm)	Amount of channels	Length (mm)	Filter surface per element (m ²)	Illustration	Module size
19/8		19	1200	approx. 0.57		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ M19/ M19 LM/ M29 LM/ M30
			1500	approx. 0.72		
37/5.7		37	1200	approx. 0.80		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ M19/ M19 LM/ M29 LM/ M30
			1500	approx. 1.00		
61/4		61	1200	approx. 1.03		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ M19/ M19 LM/ M29 LM/ M30
			1500	approx. 1.29		
85/3.3		85	1200	approx. 1.06		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ M19/ M19 LM/ M29 LM/ M30
			1500	approx. 1.32		
211/2		211	1200	approx. 1.59		M1/ M3/ M8/ M12/ M19/ M30
			1500	approx. 1.99		

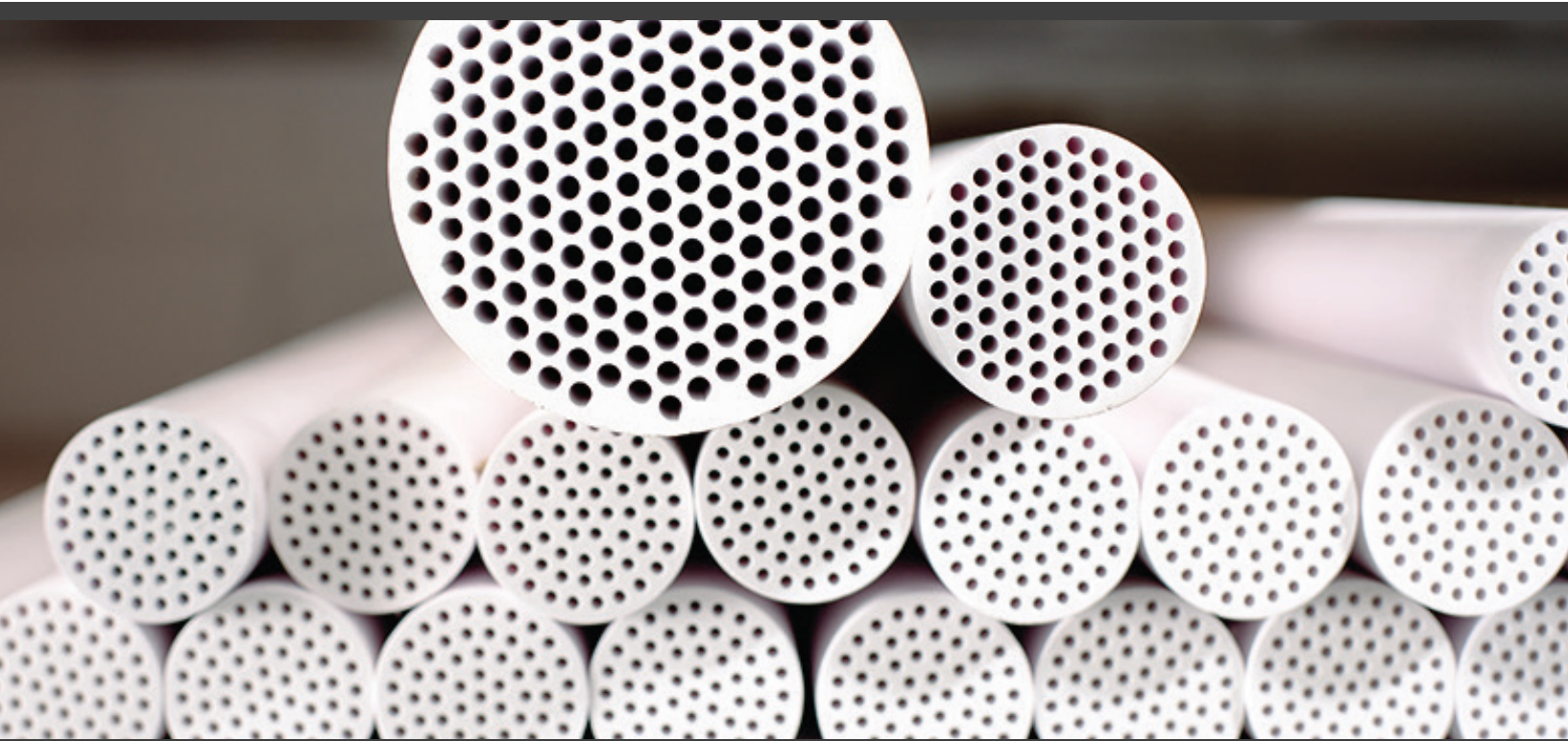
Filter area module

Example calculation:

Design 19/3.3 in 1200 mm has 0.24 m² filter area
 Module M7 (7 membranes in one housing): 7 x 0.24 m² = 1.68 m² filter area

* other lengths on request





■ **SERVICE**
please contact us for further information

atech innovations gmbh
Am Wiesenbusch 26
45966 Gladbeck · Germany

Telephone: +49 (0) 20 43 / 94 34 - 0
Fax: +49 (0) 20 43 / 94 34 - 34
email: info@atech-innovations.com
www.atech-innovations.com