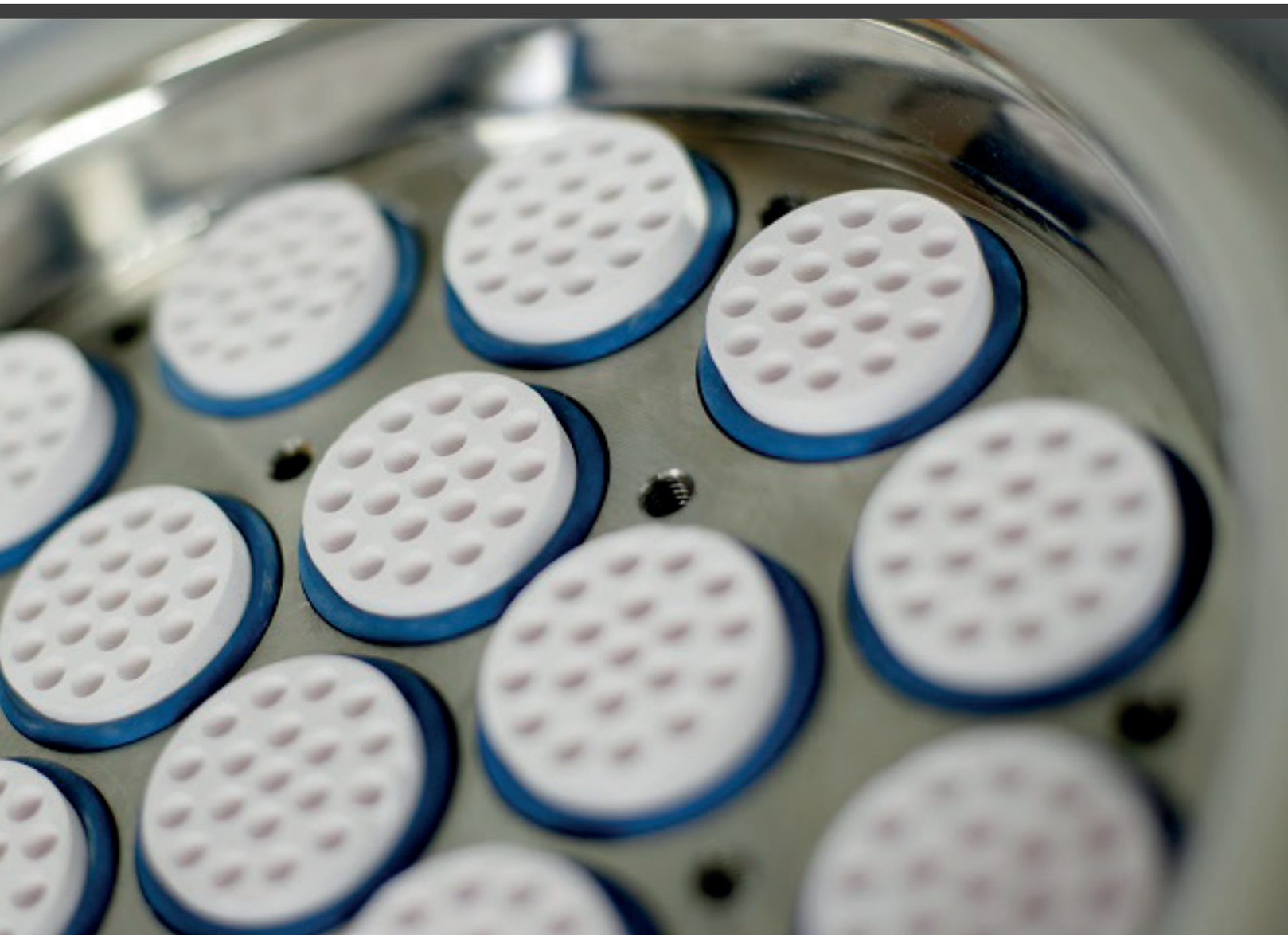
atech
innovations
gmbh

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 m² per module											
25.4 mm	7/6	1000	NW 25	0.13	NW 25	0.40	NW 50	0.92		–		–	NW 150	2.51
		1200		0.16		0.48		1.11		–		–		3.01
	19/3.5	1000		0.21		0.63		1.46		–		–		3.97
		1200		0.25		0.75		1.75		–		–		4.76
	61/2	1000		0.38		1.14		2.66		–		–		7.22
		1200		0.46		1.38		3.22		–		–		8.74
41 mm	19/6	1200	NW 32	0.43	NW 125	1.29	NW 150	3.01		–	NW 200	5.16	NW 250	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	NW 40	0.57	NW 125	1.71		–	NW 200	4.56	NW 250	6.84	NW 300	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

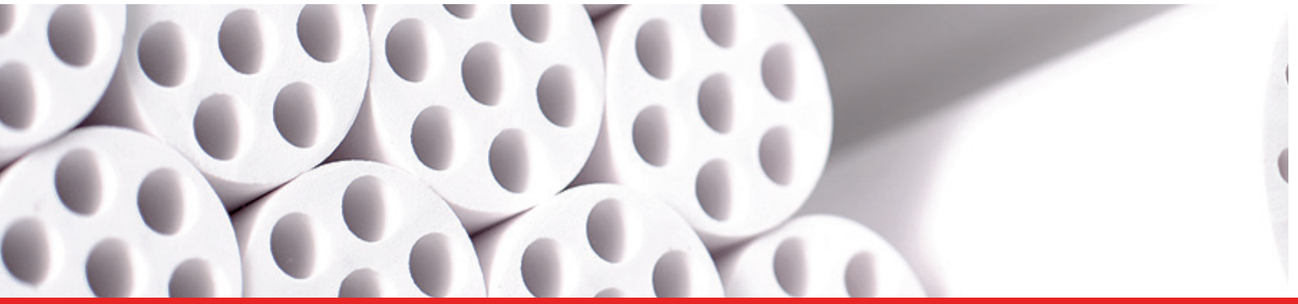
Membrane diameter	Membrane design	Membrane length (mm)	M27		M30		M31		M32		M46		M47		M114	
			filter surface in m² per module													
		1000		–		–	NW 200	4.09		–		–	NW 250	6.20	NW 400	15.05
		1200		–		–		4.91		–		–		7.44		18.06
		1000		–		–		6.48		–		–		9.82		23.82
		1200		–		–		7.77		–		–		11.78		28.58
		1000		–		–		11.78		–		–		17.86		21.62
		1200		–		–		14.26		–		–		43.32		52.44
		1200	NW 300	11.61		–		–	NW 350	13.76	NW 400	19.78		–		–
		1500		14.58		–		–		17.28		24.84		–		–
		1200		14.31		–		–		16.96		24.38		–		–
		1500		18.09		–		–		21.44		30.82		–		–
		1200		15.66		–		–		18.56		26.68		–		–
		1500		19.44		–		–		23.04		33.12		–		–
		1200		24.30		–		–		28.80		41.40		–		–
		1500		30.51		–		–		36.16		51.98		–		–
		1200		40.50		–		–		48.00		69.00		–		–
		1500		50.76		–		–		60.16		86.48		–		–
		1200		–		17.10		–		–		–		–		–
		1500		–		21.60		–		–		–		–		–
		1200		–		24.00		–		–		–		–		–
		1500		–		30.00		–		–		–		–		–
		1200		–		30.90		–		–		–		–		–
		1500		–		38.70		–		–		–		–		–
		1200		–		31.80		–		–		–		–		–
		1500		–		39.60		–		–		–		–		–
		1200		–		47.70		–		–		–		–		–
		1500		–		59.70		–		–		–		–		–

Filter area module

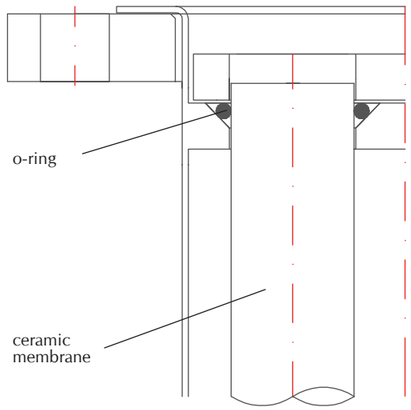
Example calculation

Design 19/3.5 in 1200 mm has 0.25 m² filter area
Module M7 (7 membranes in one housing):
7 x 0.25 m² = 1.75 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

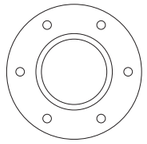
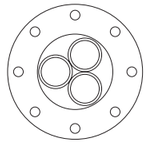
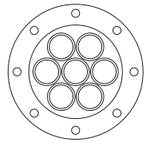
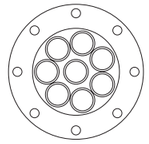
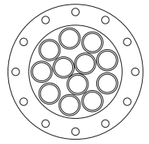
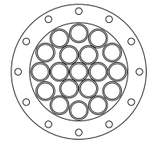


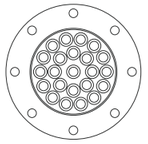
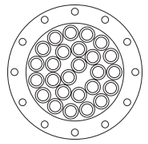
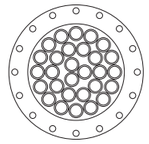
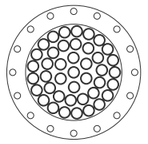
industrial design

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 according to 3-A Sanitary-Standards

Membrane diameter	Membrane design	Membrane length (mm)	M1 LM	M3 LM	M7 LM	M8 LM	M12 LM	M19 LM
								
			filter surface in m² per module					
25.4 mm	7/6	1000	NW 25: 0.13	NW 80: 0.40	NW 100: 0.92	–	–	NW 200: –
		1200	0.16	0.48	1.11	–	–	–
	19/3.5	1000	0.21	0.63	1.46	–	–	–
		1200	0.25	0.75	1.76	–	–	–
	61/2	1000	0.38	1.14	2.66	–	–	7.22
		1200	0.46	1.38	3.22	–	–	8.74
41 mm	19/6	1200	NW 32: 0.43	NW 125: 1.29	NW 150: 3.01	–	NW 200: 5.16	NW 250: 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	NW 40: 0.57	NW 150: 1.71	–	NW 200: 4.56	NW 250: 6.84	NW 300: 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

Membrane diameter	Membrane design	Membrane length (mm)	M23 LM	M26 LM	M29 LM	M42 LM
						
			filter surface in m² per module			
NW 200		1000	3.03	–	–	–
		1200	3.64	–	–	–
		1000	4.81	–	–	–
		1200	5.77	–	–	–
		1000	8.74	–	–	–
		1200	10.58	–	–	–
		1200	–	NW 300: 11.18	–	NW 400: 18.06
		1500	–	14.04	–	22.68
		1200	–	13.78	–	22.26
		1500	–	17.42	–	28.14
		1200	–	15.08	–	24.36
		1500	–	18.72	–	30.24
		1200	–	23.40	–	37.80
		1500	–	29.38	–	47.46
		1200	–	–	NW 400: 16.53	–
		1500	–	–	20.88	–
		1200	–	–	23.20	–
		1500	–	–	29.00	–
		1200	–	–	29.87	–
		1500	–	–	37.41	–
		1200	–	–	30.74	–
		1500	–	–	38.28	–

Filter area module

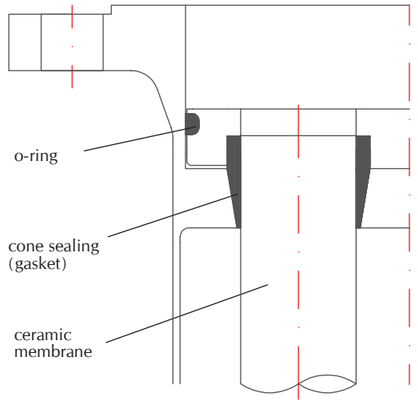
Example calculation

Design 19/3.5 in 1200 mm has 0.25 m² filter area
Module M7 LM (7 membranes in one housing):
7 x 0.25 m² = 1.75 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

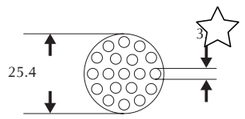
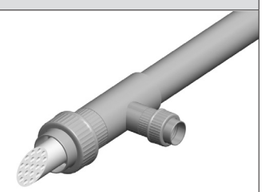
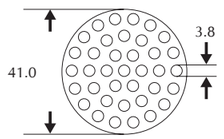
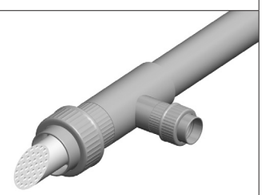
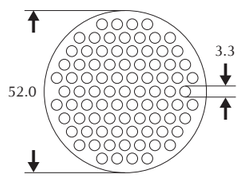
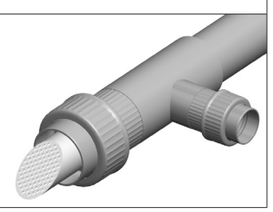


sanitary design

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 19/3.5-1200	Material: PVC-C Max. Pressure: PN 10 Max. Temperature: 80°C		1/16 (0.06) 7/6 (0.16) 19/3.5 (0.25) 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 avaiable 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

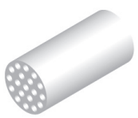
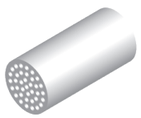
Problem-free replacement/smooth substitution of competitors' membranes – irrespective of which manufacturer they are from. Due to a huge variety of adapters/gaskets we will enable you to continue with your existing pressure vessel equipped with new membranes.

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 Al_2O_3- membranes

Support material	α-Al_2O_3	
Membrane material	MF: α-Al_2O_3; ZrO_2; TiO_2	UF: TiO_2; ZrO_2; Al_2O_3
Pore diameter / Molecular Weight Cut Off	1.2; 0.8; 0.4; 0.2; 0.1 µm	0.05 µm; 150 kD; 100 kD; 25 kD; 15 kD; 5 kD; 1 kD
Overall length	up to 1500 mm	
pH- stability	0 to 14	
All membrane designs are suitable for steam sterilisation ≥ 121°C / approx 250° F.		

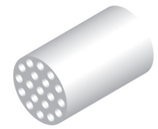
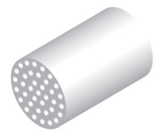
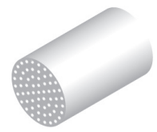
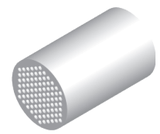
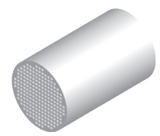
Type	Design (mm)	Amount of channels	Length (mm)	Filter surface per element (m²)	Illustration	Module size
1/6	10.0 / 6.0	1	1000	approx. 0.019		M1
			1200	approx. 0.023		
7/6	25.4 / 6.0	7	1000	approx. 0.13		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.16		
19/3.5	25.4 / 3	19	1000	approx. 0.21		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.25		
61/2	25.0 / 2.0	61	1000	approx. 0.38		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M19/ M19 LM/ M23 LM/ M31/ M47/ M114
			1200	approx. 0.46		
19/4	31.0 / 4.0	19	1000	approx. 0.24		on request
			1200	approx. 0.29		
37/3	31.0 / 3.0	37	1000	approx. 0.35		on request
			1200	approx. 0.42		

Filter area module
Example calculation:

Design 19/3.5 in 1200 mm has 0.25 m² filter area
Module M7 (7 membranes in one housing): 7 x 0.25 m² = 1.75 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)

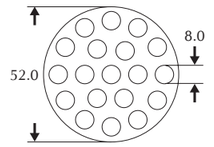
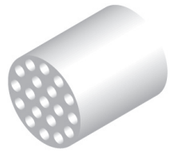
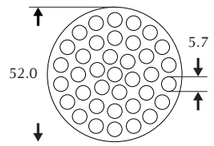
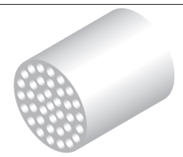
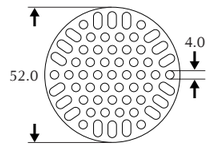
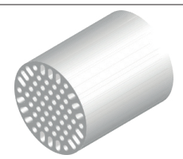
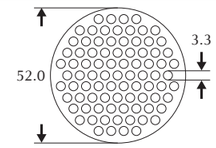
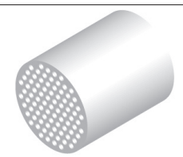
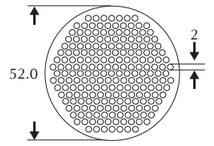
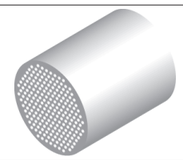
Type	Design (mm)	Amount of channels	Standard length (mm)*	Filter surface per element (m²)	Illustrationv	Module size
19/6	41.0 / 6.0	19	1200	approx. 0.43		M1/ M1 LM/ M3/ M3 LM/ M7/ M7 LM/ M12/ M12 LM/ M19/ M19 LM/ M26 LM/ M27/ M32/ M42 LM/ M46
			1500	approx. 0.54		
37/3.8	41.0 / 3.8	37	1200	approx. 0.53		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	41.0 / 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	41.0 / 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	41.0 / 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 Al_2O_3- membranes

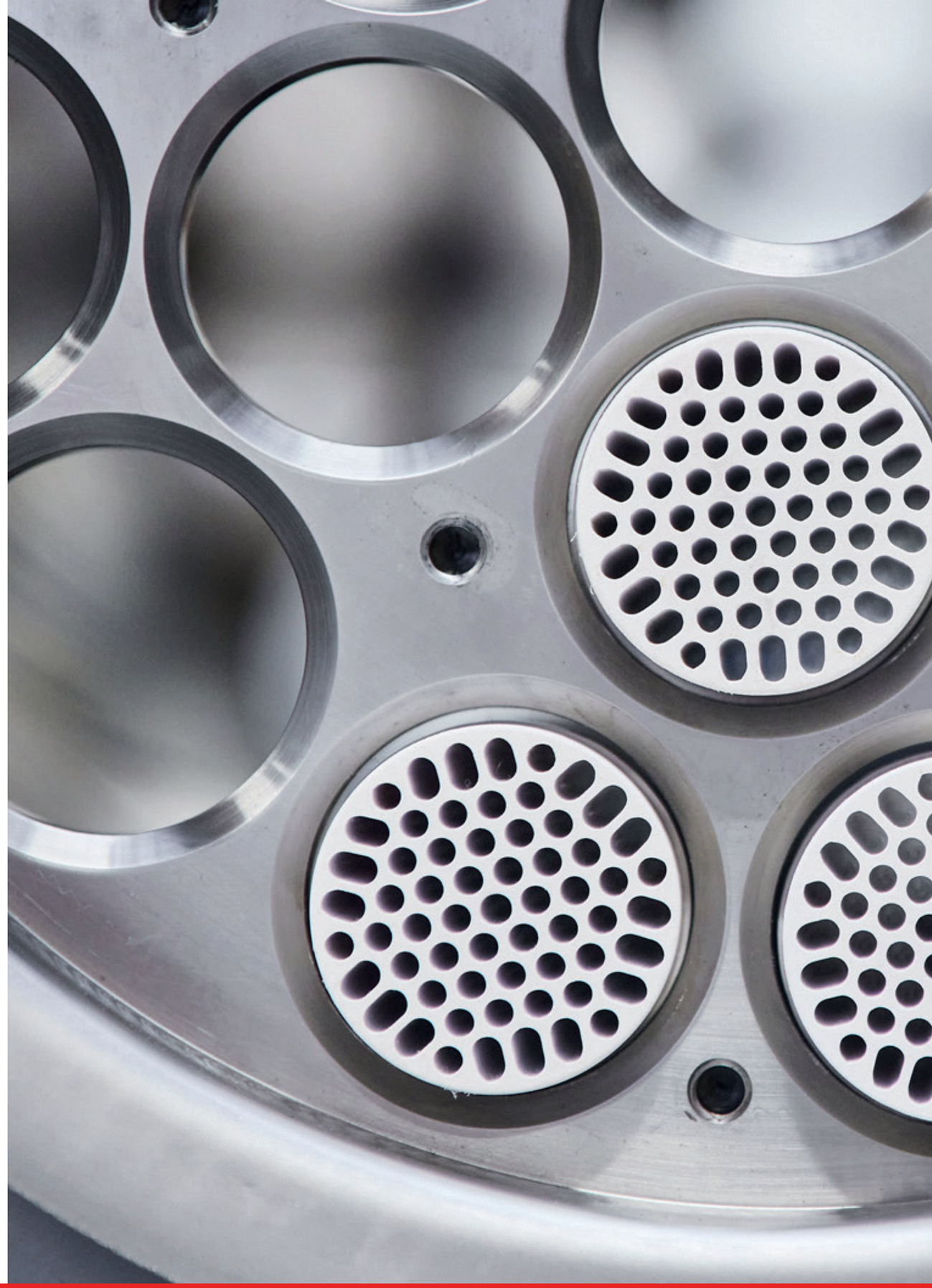
Support material	α-Al_2O_3	
Membrane material	MF: α-Al_2O_3 ; ZrO_2; TiO_2	UF: TiO_2; ZrO_2; Al_2O_3
Pore diameter / Molecular Weight Cut Off	1.2; 0.8; 0.4; 0.2; 0.1 µm	0.05 µm; 150 kD; 100 kD; 25 kD; 15 kD; 5 kD; 1 kD
Overall length	up to 1500 mm	
pH- stability	0 to 14	
All membrane designs are suitable for steam sterilisation ≥ 121°C / approx 250° F.		

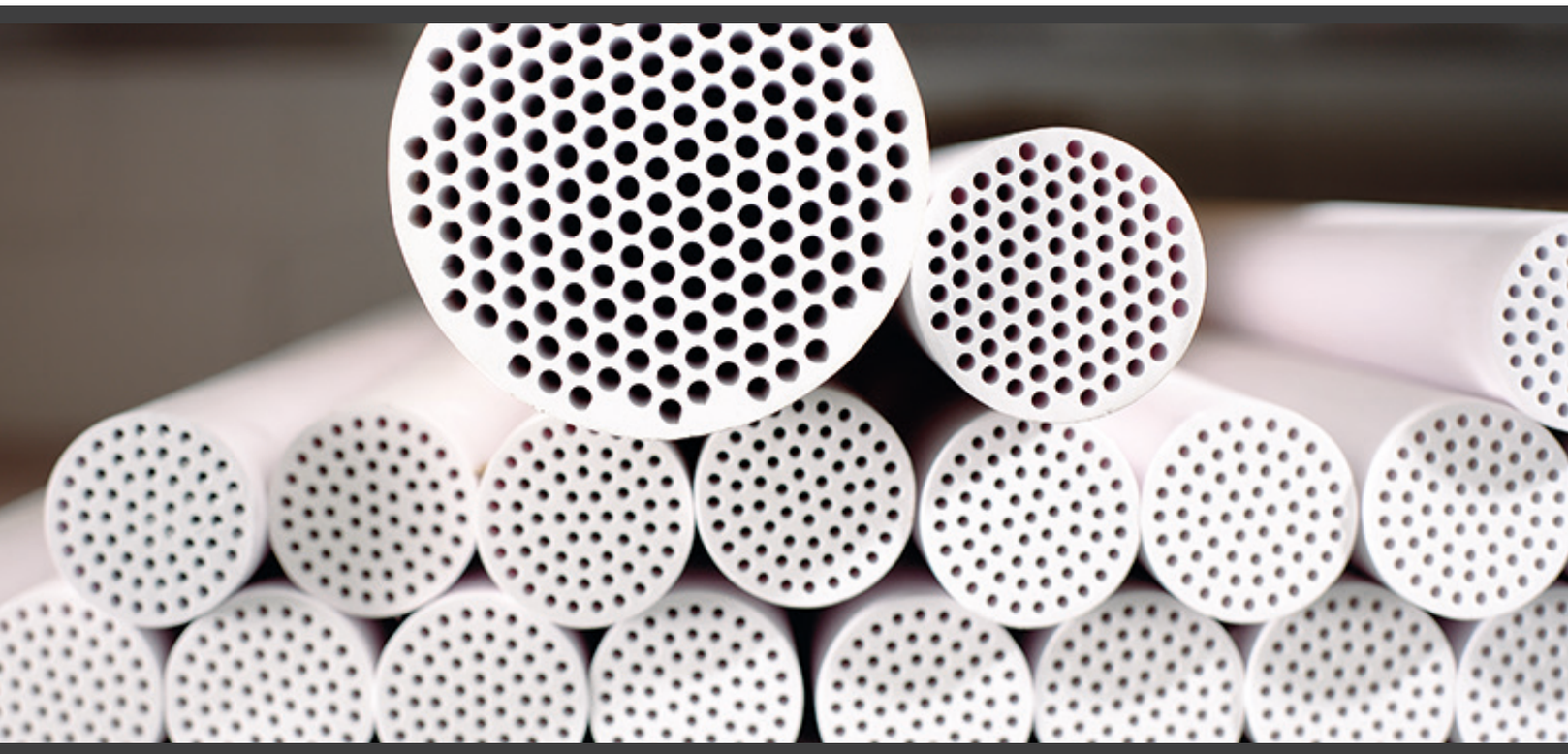
Type	Design (mm)	Amount of channels	Length (mm)	Filter surface per element (m²)	Illustration	Module size
19/8		19	1200	approx. 0.57		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ M19/ M19 LM/ M29 LM/ M30
			1500	approx. 0.72		
37/5.7		37	1200	approx. 0.80		M1/ M1 LM/ M3/ M3 LM/ M8/ M8 LM/ M12/ M12 LM/ 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		

* other lengths on request

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





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

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