

# dizzer<sup>®</sup> P

Ultrafiltration modules



# dizzer® P - Ultrafiltration modules

- Easy installation, plug-and-play operation
- Excellent quality of filtrate
- Reliable rejection of microorganisms and viruses
- Low operating costs

## 4" UF modules with Multibore® 0.9 membrane

Module data			dizzer® P 4040-6.0		dizzer® P 4021-2.5	
Part number			VK-0049		VK-0048	
Membrane area	m <sup>2</sup>	sq.ft.	6.0	65	2.5	27
Length (L)	mm	inch	960 ± 1.5	37.8	475 ± 1.5	18.7
Outer diameter module (D)	mm	inch	100	3.94	100	3.94
Inner diameter filtrate connection (d1)	mm	inch	28.4	1.12	28.4	1.12
Weight* (wet)	kg	lbs.	4.5	10	2.3	5

## 4" UF modules with Multibore® 1.5 membrane

Module data			dizzer® P 4040-4.0		dizzer® P 4021-1.8	
Part number			VK-0051		VK-0050	
Membrane area	m <sup>2</sup>	sq.ft.	4.0	43	1.8	19.4
Length (L)	mm	inch	960 ± 1.5	37.8	475 ± 1.5	18.7
Outer diameter module (D)	mm	inch	100	3.94	100	3.94
Inner diameter filtrate connection (d1)	mm	inch	28.4	1.12	28.4	1.12
Weight* (wet)	kg	lbs.	4.5	10	2.3	5

## 2.5" UF modules with Multibore® 0.9 membrane

Module data			dizzer® P 2521-1.0		dizzer® P 2514-0.5	
Part number			VK-0047		VK-0046	
Membrane area	m <sup>2</sup>	sq.ft.	1.0	11	0.5	5.4
Length (L)	mm	inch	475 ± 1.5	18.7	300 ± 1.5	11.8
Outer diameter module (D)	mm	inch	61	2.4	61	2.4
Inner diameter filtrate connection (d1)	mm	inch	17	0.67	17	0.67
Weight* (wet)	kg	lbs.	0.7	1.6	0.4	0.9

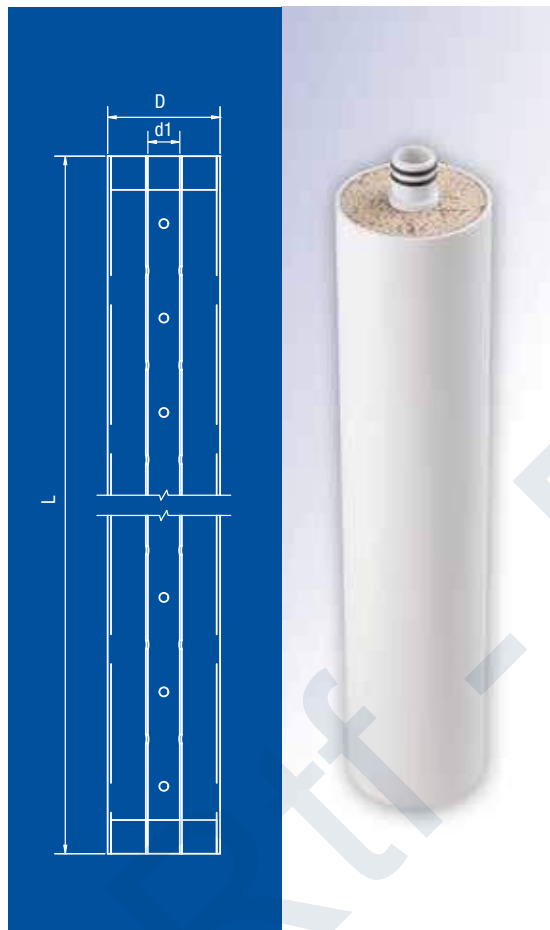
## Technical information

Material						
Housing						PVC-U, white
Filtrate tube						PVC-U, white
Filtrate connectors						PVC-U, white
Operation parameters						
Maximum transmembrane pressure**	bar	psi	3			43.5
Temperature range**	°C	°F	1 – 40			34 – 104

\* shipping weight

\*\* To avoid mechanical damage, do not subject the membrane module or element to sudden temperature changes (> 1°C/min) or water hammer.

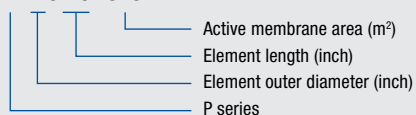
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### Modules for small scale application (e.g. Point-of-Use, Point-of-Entry)

Module designation:

**dizzer® P 4040-6.0**



# dizzer® P - Pressure housings

## Pressure housings for 4" UF modules

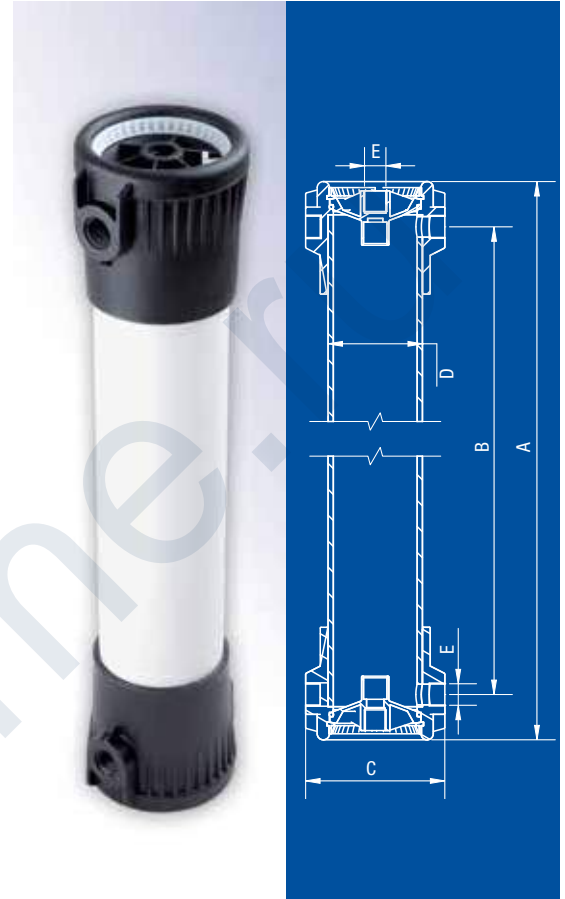
Module data			PV 4040		PV 4021	
Part number			KT-0134		KT-0133	
Length (A)	mm	inch	1130	44.5	648	25.5
Distance connections (B)	mm	inch	1019	40.12	536	21.12
Outer diameter end cap (C)	mm	inch	159	6.25	159	6.25
Outer diameter shell (D)	mm	inch	114	4.5	114	4.5
Threaded connections (E)		inch	3/4" FNPT		3/4" FNPT	

## Pressure housings for 2.5" UF modules

Module data			PV 2521		PV 2514	
Part number			KT-0132		KT-0131	
Length (A)	mm	inch	603	23.75	425	16.75
Distance connections (B)	mm	inch	527	20.75	349	13.75
Outer diameter end cap (C)	mm	inch	95	3.75	95	3.75
Outer diameter shell (D)	mm	inch	73	2.88	73	2.88
Threaded connections (E)		inch	3/8" FNPT		3/8" FNPT	

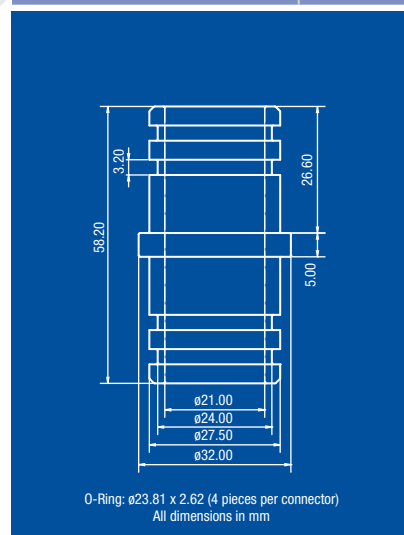
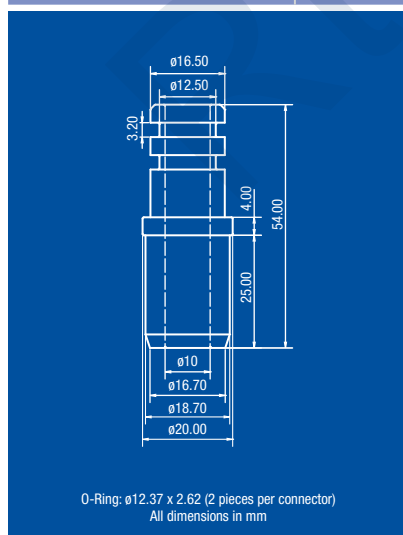
## Technical information

Material						
Housing			PVC-U, white			
Filtrate end cap			Noryl GTX			
Operation parameters						
Maximum system pressure	bar	psi	10		145	
Temperature range	°C	°F	1 – 40		34 – 104	



## Filtrate connectors for 2.5" and 4" UF modules

2.5" element filtrate connector kit	FC 25	4" element filtrate connector kit	FC 40
Part number	EP-0052	Part number	EP-0053



# Multibore® membranes

## Multibore® 0.9 membrane

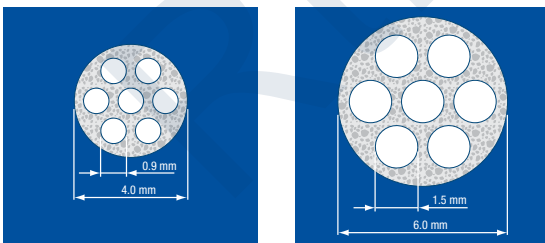
Membrane data			
Capillaries per fibre			7
Inside diameter	mm		0.9
Outside diameter	mm		4.0
Pore size	µm		approx. 0.02
Burst pressure	bar	psi	>10 >150
Material			PESM

## Multibore® 1.5 membrane

Membrane data			
Capillaries per fibre			7
Inside diameter	mm		1.5
Outside diameter	mm		6.0
Pore size	µm		approx. 0.02
Burst pressure	bar	psi	>10 >150
Material			PESM

## Technical information

Cleaning/disinfection chemicals	Multibore® 0.9 and 1.5 membrane	
Free chlorine	ppm ppm x h	max. 200 max. 200,000 (at pH ≥ 9.5)
H <sub>2</sub> O <sub>2</sub> (Hydrogenperoxide)	ppm	max. 500
Caustic Soda pH		max. 13
Acid pH		min. 1



Subject to technical modifications and errors. Modules are to be operated in accordance with the relevant inge® „Operator’s Manual” for modules and pressure housings. Customized configurations are available on request. Please contact the inge GmbH team if you require any further information.

Rtf - Primavera



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# dizzer<sup>®</sup> XL

Ultrafiltration modules



# dizzer® XL - Ultrafiltration modules

- Excellent efficiency and high output
- Easy installation, plug-and-play operation
- Compact design
- Low operating costs

## dizzer® modules with Multibore® 0.9 membrane

Module data			dizzer® XL 0.9 MB 60 W		dizzer® XL 0.9 MB 38 W	
Part number			VK-0068		VK-0070	
Membrane area	m <sup>2</sup>	sq.ft.	60	645	38	410
Length with end cap (L)	mm	inch	1680 ± 3	66 1/8	1180 ± 3	46 1/2
Length without end cap (L1)	mm	inch	1486 ± 1.5	58 1/2	986 ± 1.5	38 3/4
Distance feed connectors (L2)	mm	inch	1600 ± 3	63	1100 ± 3	43 1/2
Distance feed – module center axis (A)	mm	inch	165	6 1/2	165	6 1/2
Distance feed – filtrate connector (B)	mm	inch	190 ± 1.5	7 1/2	190 ± 1.5	7 1/2
Outer diameter end cap coupling max. (C)	mm	inch	295	11 5/8	295	11 5/8
Outer diameter module (D)	mm	inch	250	9 7/8	250	9 7/8
Connector flexible victaulic (d1)		inch			2	
Weight* (wet)	kg	lbs.	55	120	40	90

## dizzer® modules with Multibore® 1.5 membrane

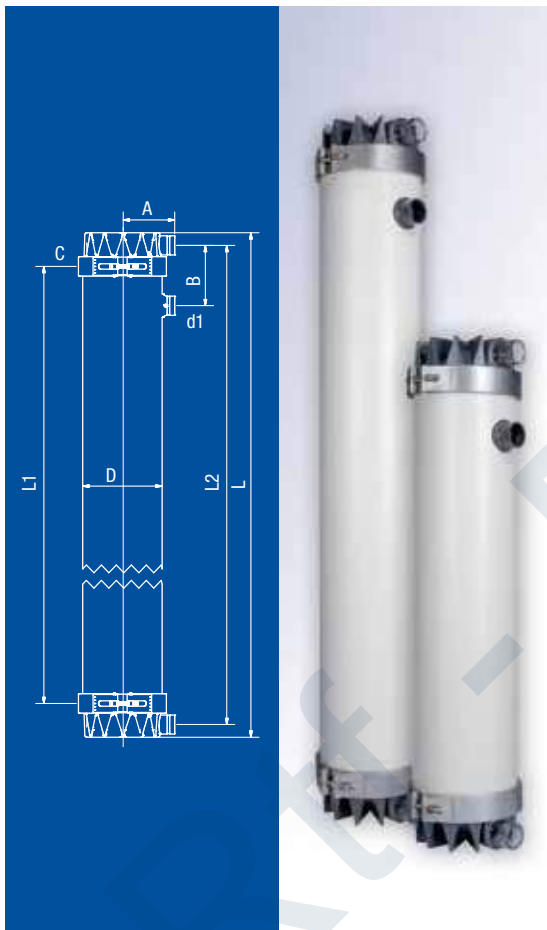
Module data			dizzer® XL 1.5 MB 40 W		dizzer® XL 1.5 MB 25 W	
Part number			VK-0069		VK-0071	
Membrane area	m <sup>2</sup>	sq.ft.	40	430	25	270
Length with end cap (L)	mm	inch	1680 ± 3	66 1/8	1180 ± 3	46 1/2
Length without end cap (L1)	mm	inch	1486 ± 1.5	58 1/2	986 ± 1.5	38 3/4
Distance feed connectors (L2)	mm	inch	1600 ± 3	63	1100 ± 3	43 1/3
Distance feed – module center axis (A)	mm	inch	165	6 1/2	165	6 1/2
Distance feed – filtrate connector (B)	mm	inch	190 ± 1.5	7 1/2	190 ± 1.5	7 1/2
Outer diameter end cap coupling max. (C)	mm	inch	295	11 5/8	295	11 5/8
Outer diameter module (D)	mm	inch	250	9 7/8	250	9 7/8
Connector flexible victaulic (d1)		inch			2	
Weight* (wet)	kg	lbs.	55	120	40	90

## Technical information

Material					
Housing					PVC-U, white
End cap					PVC-U, grey
End cap coupling					SS (sealing EPDM)
Operation parameters					
Pressure max.	bar	psi	5		73
Temperature range	°C	°F	1 – 40		34 – 104

\* shipping weight

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### Modules for large scale application

Module designation:

**dizzer® XL 0.9 MB 60 W**

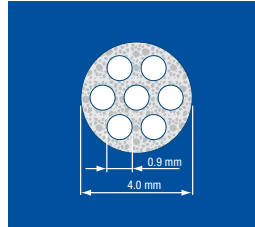
- Active membrane area
- Multibore® membrane
- Capillary diameter
- Modules for large scale application



# Multibore® 0.9 and 1.5 membranes

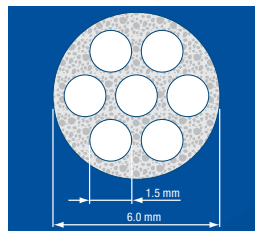
## Multibore® 0.9 membrane

Membrane data		
Capillaries per fibre		7
Inner diameter	mm	0.9
Outer diameter	mm	4.0
Pore size	µm	approx. 0.02
Material		PESM



## Multibore® 1.5 membrane

Membrane data		
Capillaries per fibre		7
Inner diameter	mm	1.5
Outer diameter	mm	6.0
Pore size	µm	approx. 0.02
Material		PESM



## Technical information

Cleaning/disinfection chemicals		Multibore® 0.9 and 1.5 membrane	
Free chlorine	ppm ppm x h	max. 200 max. 200,000 (at pH ≥ 9.5)	
H <sub>2</sub> O <sub>2</sub> (Hydrogenperoxide)	ppm	max. 500	
Caustic Soda pH		max. 13	
Acid pH		min. 1	
Flux rate			
Filtration*	l/(m <sup>2</sup> h)	gfd	60 – 180                      35 – 105
Backwash standard	l/(m <sup>2</sup> h)	gfd	230                                      135
Backwash range	l/(m <sup>2</sup> h)	gfd	230 – 300                      135 – 175
Transmembrane pressure (TMP)			
Filtration*	bar	psi	0.1 – 1.5                      1.5 – 20
Backwash standard*	bar	psi	0.3 – 3.0                      5 – 40
Burst pressure membrane	bar	psi	> 10                                      > 150

\* Specifications apply to common operating conditions.



Subject to technical modifications and errors. Modules are to be operated in accordance with the relevant inge® „Operator's Manual“. Customized configurations are available on request. Please contact the inge GmbH team if you require any further information.

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# T-Rack<sup>®</sup> 3.0

Innovative rack solutions for ultrafiltration



## T-Rack® 3.0 – state-of-the-art ultrafiltration solutions

- Suitable for direct feed – high pressure operability
- Optimized for sea water – high corrosion resistance
- Small footprint – high treatment capacity
- Plug-and-play installation – easy to assemble
- Easy to add more modules – great flexibility

We carefully tailor our product development to the **needs of the market** and our customers' requirements. That's why we've decided to address the specific requirements of larger-scale filtration systems (e.g. those used for pretreatment in sea water desalination or waste water reuse) by launching the **next generation** of our ultra-compact racks – **the T-Rack® 3.0**.

**Robust:** Two of the most important requirements for an ultrafiltration rack – particularly for the pretreatment stage of sea water desalination – are **corrosion resistance** and **high pressure operability**, especially at high temperatures. The new T-Rack® 3.0 meets both these requirements thanks to the direct welding of the T-pieces to the module body, connection of the individual modules to the headers using 6" flexible pipe couplings and the elimination of all adhesive connections. As a result, the design pressure\* of our new T-Rack® 3.0 is 5 bar at 40°C with a 10 year service life\*\*.

**Compact:** Integrating the header pipes in the module end caps enables us to position the modules closer together in the rack. This **space-saving design** gives the T-Rack® 3.0 a footprint that is up to 60 percent smaller than conventional rack designs. By using standardized components, we have made our new rack into a fully scalable solution.

**High capacity:** To increase the output of our UF systems, we have provided the dizzer® XL module with a 70 m<sup>2</sup> (754 ft<sup>2</sup>) membrane area for the variant with a Multibore® 0.9 membrane. That means our new rack design offers **more capacity than ever**. The maximum rack size of 136 modules provides up to 9520 m<sup>2</sup> (102.480 ft<sup>2</sup>) of membrane area. Assuming a flux rate of 80 LMH (47 gfd), that corresponds to a water treatment capacity of approx. 760 m<sup>3</sup>/h (4.8 MGD). The membrane area for the version with the Multibore® 1.5 is 50 m<sup>2</sup> (538 ft<sup>2</sup>) per module, which corresponds to a treatment capacity of approx. 540 m<sup>3</sup>/h (3.4 MGD) for the maximum rack size.

**Expandable:** The standardized components and the modular design of the rack make it quick and easy to expand capacity to reflect changing needs. **Additional individual modules** can simply be added to the end of the rack.

\* The design pressure corresponds to the maximum permitted operating pressure in continuous operation at the specified design temperature. Higher operating pressures than 5 bar at 40°C may be possible in certain cases. However, this must first be verified and approved by inge®.

\*\* Use DIN ISO 9080 and/or ASTM D 2837 to calculate the design pressure for different temperatures and service lives. For example, the design pressure of 5 bar at 40°C with a service life of 10 years corresponds to a design pressure of 8.2 bar at 20°C. Once again, however, this must first be verified and approved by inge®.

## T-Rack® 3.0 – flexible design for maximum performance

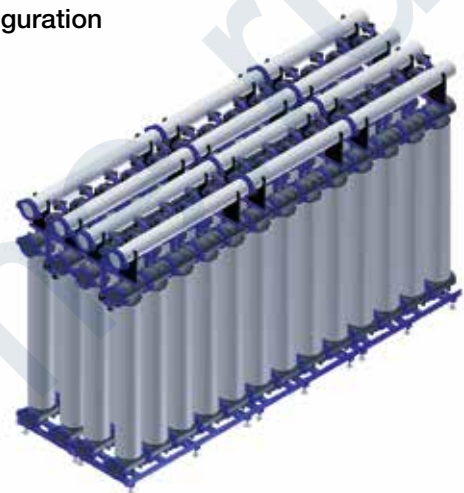
**Flexible:** The more flexibility you have to configure a system, the more you can tailor it to your exact requirements. Depending on the required system size and treatment capacity, we can supply **configurations with either two or four rows of modules**. However, the design includes separate filtrate headers, so each row can still be operated as a separate filtration line. For systems containing 72 modules or more, the racks are arranged on both sides of a manifold unit. inge® offers the option of providing the manifold unit as a T-Rack® Manifold.

### Rack configurations (examples):

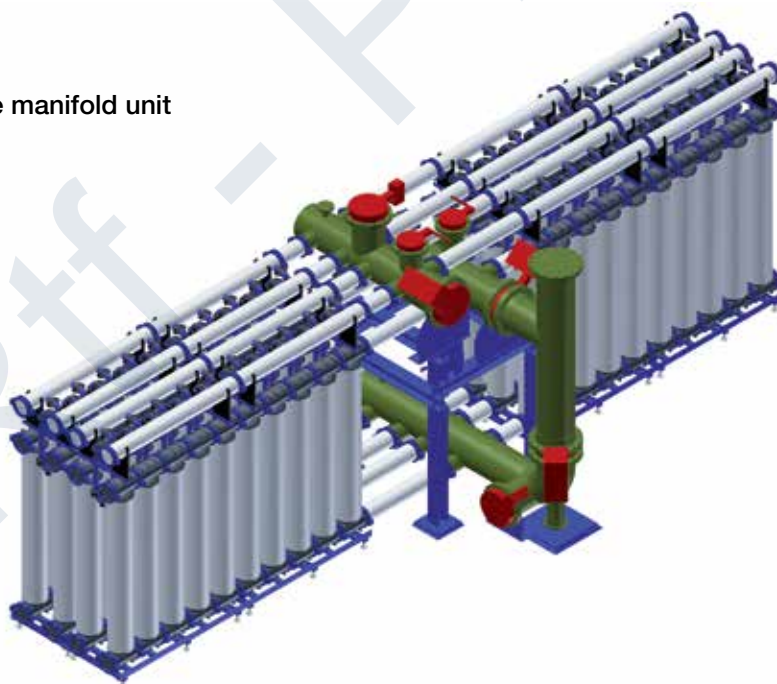
#### 2-row configuration



#### 4-row configuration

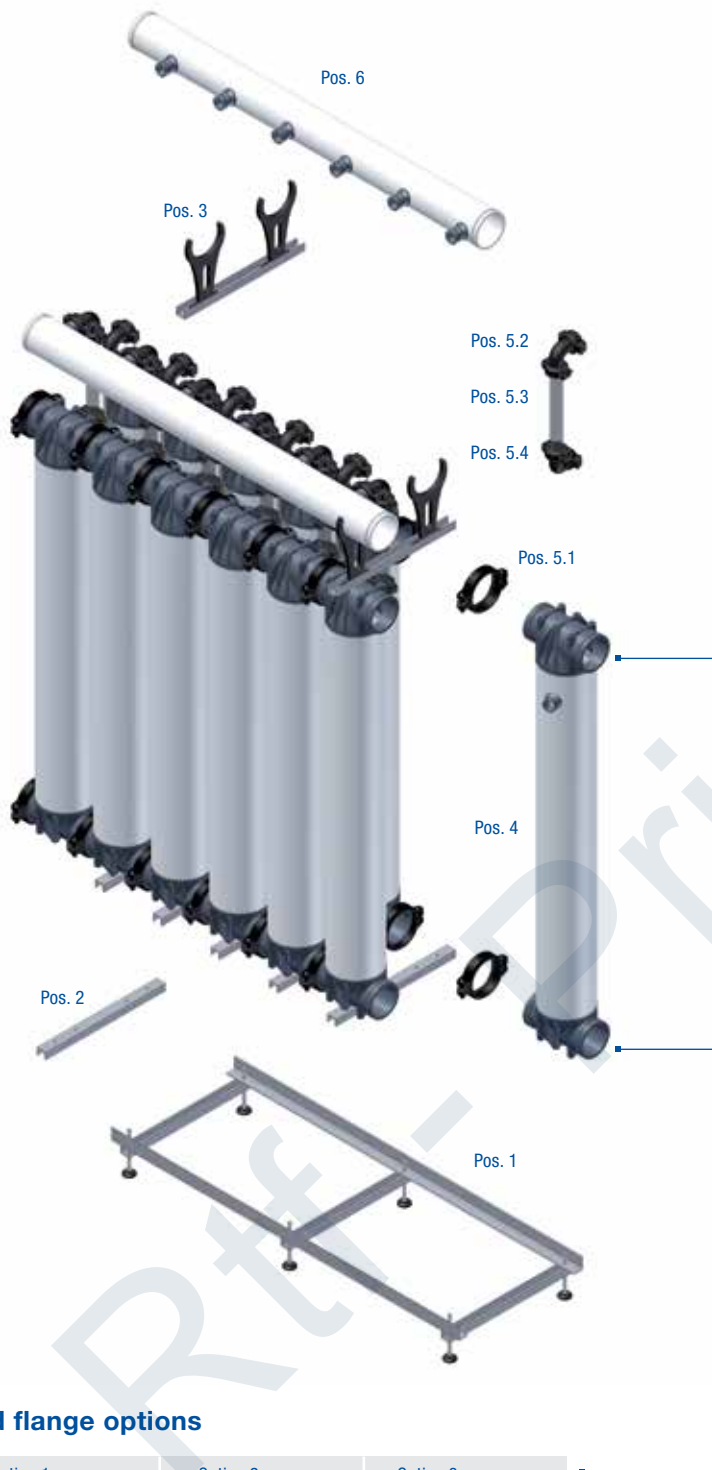


#### 4-row configuration on both sides of the manifold unit



**Optional features:** The standard version of the racks features C4-coated frame profiles. A stainless steel version is also available on request.

# T-Rack® 3.0 – modular and standardized design



## End flange options



## T-Rack® 3.0 parts list

Pos.	Article description	Material
1	Bottom frame	
1.1	Angle profile L 65 x 50 x 5 x div.*	1.0037 C4 coated
1.2	Channel section U 50 x 710 mm*	1.0037 C4 coated
1.3	Hexagon nut (DIN 934) M16	1.4401
1.4	Hexagon bolt (DIN 933) M16 x 150	1.4401
1.5	Washer (DIN 125) A17	1.4401
1.6	Adjustable feet M16	PA6 GF 30
2	Bottom connecting brace	
2.1	Channel section U 50 x 688 mm*	1.0037 C4 coated
2.2	Threaded pins (DIN 913) M10 x 50	1.4401
2.3	Washer (DIN 125) A10.5	1.4401
2.4	Hexagon nut (DIN 934) M10	1.4401
3	Top cross brace	
3.1	Channel section U 50 x 688 mm*	1.0037 C4 coated
3.2	Threaded pins (DIN 913) M10 x 50	1.4401
3.3	Washer (DIN 125) A10.5	1.4401
3.4	Hexagon nut (DIN 934) M10	1.4401
3.5	Mounting clamp PE	PE
4	dizzer® XL-WT module body	PVC-U
5	Module connecting parts	
5.1	Flexible coupling 6" / d168 incl. galvanized bolts and EPDM seal	cast iron, C4 coated
5.2	90° elbow piece PP 2"	PP
5.3	Transparent filtrate pipe 2" / 464 mm	PVC-U
5.4	Flexible coupling 2" incl. galvanized bolts and EPDM seal	PA6 GF30
6	Filtrate header 168.3 mm / 6"	PVC-U

\* Frame parts optionally available in stainless steel.

## T-Rack® 3.0 End flange options\*

Option	Part number	Article description	Description
1	KT-0162	Flange DN 150 x 6"	Connection of 6" grooved coupling system to flange with connecting dimensions according to ISO 7005 PN 10, ANSI Class 150
2	KT-0163	Blinde flange 6"	Sealing of feed and filtrate headers
3	KT-0164	Blinde flange 6" with G2"	Connection of equipment for venting, measuring, etc., G 2" internal thread according to DIN ISO 228 BSPP

\* Securing of end flange with 6" coupling (S0-0093) not included in standard package.

## dizzer® XL ultrafiltration module and Multibore® membrane

### Multibore® membrane

Membrane specifications		Multibore® 0.9	Multibore® 1.5
Capillaries per fiber		7	7
Inside diameter	mm	0.9	1.5
Outside diameter	mm	4.0	6.0
Pore size	µm	approx. 0.02	approx. 0.02
Material		PESM	PESM

### dizzer® XL in T-Rack® 3.0

Module specifications				dizzer® XL 0.9 MB 70 WT		dizzer® XL 1.5 MB 50 WT	
Part number				VK-1087		VK-1101	
Active membrane area	m <sup>2</sup>	sq.ft.	70	753	50	538	
Length (incl. T-piece)	mm	inch	2100 ± 1.5	82 2/3	2100 ± 1.5	82 2/3	
Module diameter	mm	inch	250	9 7/8	250	9 7/8	
Shipping weight	kg	lbs.	58	128	58	128	
Casing material				PVC-U, white		PVC-U, white	
Operating parameters							
Permissible temperature range	°C	°F	1 – 40	34 – 104	1 – 40	34 – 104	
Max. operating pressure T-Rack®							
20°C	bar	psi	8.2	119	8.2	119	
40°C	bar	psi	5	72	5	72	
Flux rate							
Filtration*	l/(m <sup>2</sup> h)	gfd	60 – 180	35 – 105	60 – 180	35 – 180	
Standard backwash	l/(m <sup>2</sup> h)	gfd	230	135	230	135	
Backwash range	l/(m <sup>2</sup> h)	gfd	230 – 300	135 – 175	230 – 300	135 – 175	
Transmembrane pressure (TMP)							
Filtration*	bar	psi	0.1 – 1.5	1.5 – 20	0.1 – 1.5	1.5 – 20	
Standard backwash*	bar	psi	0.3 – 3.0	5 – 40	0.3 – 3.0	5 – 40	
Burst pressure (membrane)	bar	psi	> 10	> 150	> 10	> 150	
Cleaning/disinfection chemicals							
Free chlorine	ppm	ppm x h	max. 200 max. 200,000 (at pH ≥ 9.5)		max. 200 max. 200,000 (at pH ≥ 9.5)		
H <sub>2</sub> O <sub>2</sub> (hydrogen peroxide)	ppm		max. 500		max. 500		
Caustic pH			max. 13		max. 13		
Acid pH			min. 1		min. 1		

\* Specifications apply to normal operating conditions.



## T-Rack® 3.0 – system configuration with 2 rows

### Configuration with 2 rows and Multibore® 0.9 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>4)</sup>		Weight, filled <sup>4)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
4	TR-4-2-1-3.0	TR-0004	661	2.17	280	3014	315	693	608	1341	0.12	32.7	0.21	55.5
6	TR-6-2-1-3.0	TR-0006	991	3.25	420	4521	458	1009	899	1981	0.19	49.0	0.32	83.3
8	TR-8-2-1-3.0	TR-0008	1322	4.34	560	6028	601	1325	1189	2621	0.25	65.3	0.42	111.1
10	TR-10-2-1-3.0	TR-0010	1652	5.42	700	7535	744	1641	1479	3261	0.31	81.7	0.53	138.9
12	TR-12-2-1-3.0	TR-0012	1983	6.51	840	9042	887	1956	1769	3900	0.37	98.0	0.63	166.6
14	TR-14-2-1-3.1	TR-0014	2313	7.59	980	10549	1059	2334	2087	4602	0.43	114.3	0.74	194.4
16	TR-16-2-1-3.0	TR-0016	2644	8.67	1120	12056	1202	2650	2378	5242	0.49	130.6	0.84	222.2
18	TR-18-2-1-3.0	TR-0018	2974	9.76	1260	13563	1345	2966	2668	5881	0.56	147.0	0.95	249.9
20	TR-20-2-1-3.0	TR-0020	3305	10.84	1400	15070	1488	3281	2958	6521	0.62	163.3	1.05	277.7
22	TR-22-2-1-3.0	TR-0022	3635	11.93	1540	16577	1632	3597	3248	7161	0.68	179.6	1.16	305.5
24	TR-24-2-1-3.0	TR-0024	3966	13.01	1680	18084	1775	3913	3538	7800	0.74	196.0	1.26	333.3
26	TR-26-2-1-3.0	TR-0026	4296	14.10	1820	19591	1946	4291	3856	8502	0.80	212.3	1.37	361.0
28	TR-28-2-1-3.0	TR-0028	4627	15.18	1960	21098	2089	4606	4147	9142	0.87	228.6	1.47	388.8
30	TR-30-2-1-3.0	TR-0030	4957	16.26	2100	22605	2233	4922	4437	9782	0.93	245.0	1.58	416.6
32	TR-32-2-1-3.0	TR-0032	5288	17.35	2240	24112	2376	5238	4727	10421	0.99	261.3	1.68	444.3
34	TR-34-2-1-3.0	TR-0034	5618	18.43	2380	25619	2519	5554	5017	11061	1.05	277.6	1.79	472.1

<sup>1)</sup> Rack parts without modules   <sup>2)</sup> Tolerance to ISO 2768-1c   <sup>3)</sup> Rack equipped with 70m<sup>2</sup> (754 sq.ft.) dizzer® XL 0.9 MB 70 WT modules   <sup>4)</sup> incl. modules and frame

### Configuration with 2 rows and Multibore® 1.5 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>4)</sup>		Weight, filled <sup>4)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
4	TR-4-2-1-3.0	TR-0004	661	2.17	200	3014	320	705	617	1361	0.14	36.4	0.28	74.3
6	TR-6-2-1-3.0	TR-0006	991	3.25	300	4521	466	1027	912	2010	0.21	54.5	0.42	111.4
8	TR-8-2-1-3.0	TR-0008	1322	4.34	400	4306	612	1349	1206	2659	0.28	72.7	0.56	148.6
10	TR-10-2-1-3.0	TR-0010	1652	5.42	500	5382	758	1670	1501	3308	0.34	90.9	0.70	185.7
12	TR-12-2-1-3.0	TR-0012	1983	6.51	600	6459	903	1992	1795	3958	0.41	109.1	0.84	222.9
14	TR-14-2-1-3.0	TR-0014	2313	7.59	700	7535	1077	2375	2118	4669	0.48	127.3	0.98	260.0
16	TR-16-2-1-3.0	TR-0016	2644	8.67	800	8611	1223	2697	2412	5318	0.55	145.4	1.12	297.2
18	TR-18-2-1-3.0	TR-0018	2974	9.76	900	9688	1369	3019	2707	5968	0.62	163.6	1.27	334.3
20	TR-20-2-1-3.0	TR-0020	3305	10.84	1000	10764	1515	3340	3001	6617	0.69	181.8	1.41	371.5
22	TR-22-2-1-3.0	TR-0022	3635	11.93	1100	11841	1661	3662	3296	7266	0.76	200.0	1.55	408.6
24	TR-24-2-1-3.0	TR-0024	3966	13.01	1200	12917	1807	3984	3590	7916	0.83	218.1	1.69	445.8
26	TR-26-2-1-3.0	TR-0026	4296	14.10	1300	13994	1981	4367	3913	8627	0.89	236.3	1.83	482.9
28	TR-28-2-1-3.0	TR-0028	4627	15.18	1400	15070	2127	4689	4208	9276	0.96	254.5	1.97	520.1
30	TR-30-2-1-3.0	TR-0030	4957	16.26	1500	16146	2273	5010	4502	9925	1.03	272.7	2.11	557.2
32	TR-32-2-1-3.0	TR-0032	5288	17.35	1600	17223	2419	5332	4797	10575	1.10	290.9	2.25	594.4
34	TR-34-2-1-3.0	TR-0034	5618	18.43	1700	18299	2565	5654	5091	11224	1.17	309.0	2.39	631.5

<sup>1)</sup> Rack parts without modules   <sup>2)</sup> Tolerance to ISO 2768-1c   <sup>3)</sup> Rack equipped with 50m<sup>2</sup> (538 sq.ft.) dizzer® XL 1.5 MB 50 WT modules   <sup>4)</sup> incl. modules and frame



## T-Rack® 3.0 – system configuration with 4 rows

### Configuration with 4 rows and Multibore® 0.9 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>4)</sup>		Weight, filled <sup>4)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
36	TR-36-4-1-3.0	TR-0036	2974	9.76	2520	27126	2690	5931	5335	11763	0.99	261.3	1.68	444.3
40	TR-40-4-1-3.0	TR-0040	3305	10.84	2800	30140	2977	6563	5916	13042	1.24	326.6	2.10	555.4
44	TR-44-4-1-3.0	TR-0044	3635	11.93	3080	33154	3263	7194	6496	14321	1.36	359.3	2.31	611.0
48	TR-48-4-1-3.0	TR-0048	3966	13.01	3360	36168	3550	7826	7076	15601	1.48	391.9	2.52	666.5
52	TR-52-4-1-3.0	TR-0052	4296	14.10	3640	39182	3892	8581	7713	17004	1.61	424.6	2.73	722.1
56	TR-56-4-1-3.0	TR-0056	4627	15.18	3920	42196	4179	9213	8293	18284	1.73	457.3	2.94	777.6
60	TR-60-4-1-3.0	TR-0060	4957	16.26	4200	45210	4465	9844	8874	19563	1.85	489.9	3.15	833.1
64	TR-64-4-1-3.0	TR-0064	5288	17.35	4480	48224	4752	10476	9454	20842	1.98	522.6	3.36	888.7
68	TR-68-4-1-3.0	TR-0068	5618	18.43	4760	51238	5038	11107	10034	22122	2.10	555.2	3.57	944.2

<sup>1)</sup> Rack parts without modules   <sup>2)</sup> Tolerance to ISO 2768-1c   <sup>3)</sup> Rack equipped with 70m<sup>2</sup> (754 sq.ft.) dizzer® XL 0.9 MB 70 WT modules   <sup>4)</sup> incl. modules and frame

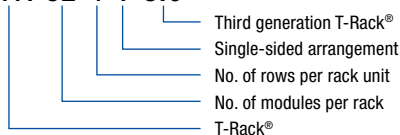
### Configuration with 4 rows and Multibore® 1.5 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>4)</sup>		Weight, filled <sup>4)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
36	TR-36-4-1-3.0	TR-0036	2974	9.76	1800	19376	2738	6037	5414	11935	1.10	290.9	2.25	594.4
40	TR-40-4-1-3.0	TR-0040	3305	10.84	2000	21529	3030	6681	6003	13234	1.38	363.6	2.81	743.0
44	TR-44-4-1-3.0	TR-0044	3635	11.93	2200	23681	3322	7324	6592	14533	1.51	399.9	3.09	817.3
48	TR-48-4-1-3.0	TR-0048	3966	13.01	2400	25834	3614	7967	7181	15831	1.65	436.3	3.37	891.6
52	TR-52-4-1-3.0	TR-0052	4296	14.10	2600	27987	3962	8734	7826	17254	1.79	472.7	3.66	965.9
56	TR-56-4-1-3.0	TR-0056	4627	15.18	2800	30140	4254	9378	8415	18552	1.93	509.0	3.94	1040.2
60	TR-60-4-1-3.0	TR-0060	4957	16.26	3000	32293	4545	10021	9004	19851	2.06	545.4	4.22	1114.5
64	TR-64-4-1-3.0	TR-0064	5288	17.35	3200	34446	4837	10664	9593	21150	2.20	581.7	4.50	1188.7
68	TR-68-4-1-3.0	TR-0068	5618	18.43	3400	36598	5129	11308	10182	22448	2.34	618.1	4.78	1263.0

<sup>1)</sup> Rack parts without modules   <sup>2)</sup> Tolerance to ISO 2768-1c   <sup>3)</sup> Rack equipped with 50m<sup>2</sup> (538 sq.ft.) dizzer® XL 1.5 MB 50 WT modules   <sup>4)</sup> incl. modules and frame

### T-Rack® designation:

**TR-52-4-1-3.0**



## T-Rack® 3.0 – system configuration with 4 rows on both sides of the manifold

### Configuration with 4 rows double-sided and Multibore® 0.9 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>5)</sup>		Weight, filled <sup>5)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
72	TR-72-4-2-3.0	TR-0072	5949	19.52	5040	54251.9	5381	11863	10671	23525	1.98	522.6	3.36	888.7
76	TR-76-4-2-3.0 <sup>4)</sup>	TR-0076	6279	20.60	5320	57265.9	5667	12494	11251	24805	2.23	587.9	3.78	999.8
80	TR-80-4-2-3.0	TR-0080	6610	21.69	5600	60279.9	5954	13126	11832	26084	2.47	653.2	4.21	1110.8
84	TR-84-4-2-3.0 <sup>4)</sup>	TR-0084	6940	22.77	5880	63293.9	6240	13757	12412	27363	2.60	685.9	4.42	1166.4
88	TR-88-4-2-3.0	TR-0088	7271	23.85	6160	66307.9	6527	14389	12992	28643	2.72	718.6	4.63	1221.9
92	TR-92-4-2-3.0 <sup>4)</sup>	TR-0092	7601	24.94	6440	69321.9	6813	15020	13573	29922	2.84	751.2	4.84	1277.5
96	TR-96-4-2-3.0	TR-0096	7932	26.02	6720	72335.8	7100	15652	14153	31202	2.97	783.9	5.05	1333.0
100	TR-100-4-2-3.0 <sup>4)</sup>	TR-0100	8262	27.11	7000	75349.8	7442	16407	14789	32605	3.09	816.5	5.26	1388.6
104	TR-104-4-2-3.0	TR-0104	8593	28.19	7280	78363.8	7785	17163	15426	34008	3.21	849.2	5.47	1444.1
108	TR-108-4-2-3.0 <sup>4)</sup>	TR-0108	8923	29.27	7560	81377.8	8071	17794	16006	35288	3.34	881.9	5.68	1499.6
112	TR-112-4-2-3.0	TR-0112	9254	30.36	7840	84391.8	8358	18426	16587	36567	3.46	914.5	5.89	1555.2
116	TR-116-4-2-3.0 <sup>4)</sup>	TR-0116	9584	31.44	8120	87405.8	8644	19057	17167	37847	3.59	947.2	6.10	1610.7
120	TR-120-4-2-3.0	TR-0120	9915	32.53	8400	90419.8	8931	19689	17747	39126	3.71	979.9	6.31	1666.3
124	TR-124-4-2-3.0 <sup>4)</sup>	TR-0124	10245	33.61	8680	93433.8	9217	20320	18328	40406	3.83	1012.5	6.52	1721.8
128	TR-128-4-2-3.0	TR-0128	10576	34.70	8960	96447.8	9504	20952	18908	41685	3.96	1045.2	6.73	1777.4
132	TR-132-4-2-3.0 <sup>4)</sup>	TR-0132	10906	35.78	9240	99461.8	9790	21583	19488	42964	4.08	1077.8	6.94	1832.9
136	TR-136-4-2-3.0	TR-0136	11237	36.87	9520	102476	10076	22215	20069	44244	4.20	1110.5	7.15	1888.4

<sup>1)</sup> Rack parts without modules    <sup>2)</sup> Length = length rack 1 + rack 2, excl. central header pipe, Tolerance to ISO 2768-1c  
<sup>3)</sup> Rack equipped with 70m<sup>2</sup> (754 sq.ft.) dizzer® XL 0.9 MB 70 WT modules    <sup>4)</sup> Asymmetric module arrangement    <sup>5)</sup> incl. modules and frame

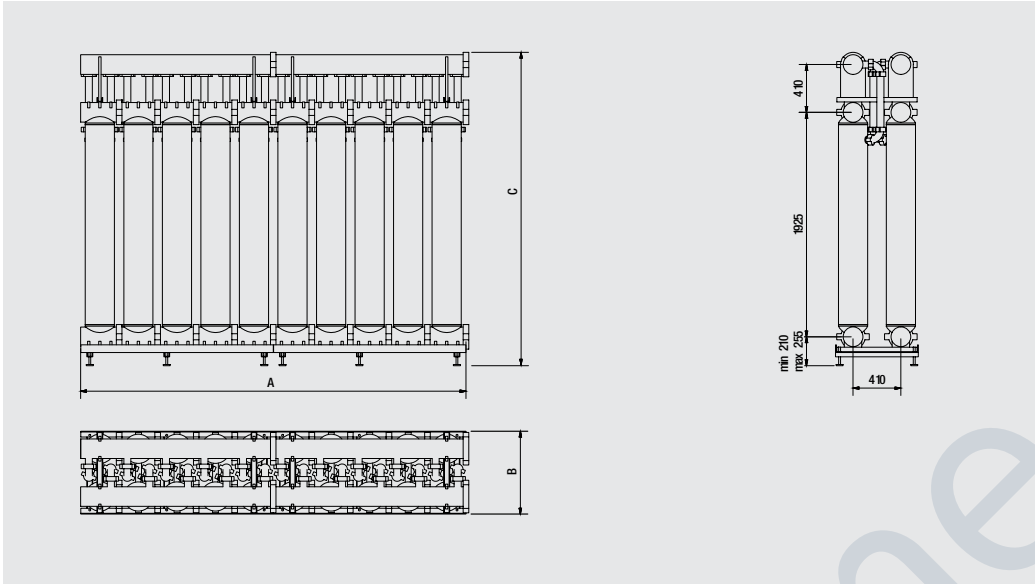
### Configuration with 4 rows double-sided and Multibore® 1.5 membrane

Number of modules	T-Rack® 3.0 unit	Part number <sup>1)</sup>	Length (A) <sup>2)</sup>		Membrane area <sup>3)</sup>		Shipping weight <sup>5)</sup>		Weight, filled <sup>5)</sup>		Hold-up volume, feed side		Hold-up volume, filtrate side	
			mm	ft.	m <sup>2</sup>	sq.ft.	kg	lbs.	kg	lbs.	m <sup>3</sup>	US. gal	m <sup>3</sup>	US. gal
72	TR-72-4-2-3.0	TR-0072	5949	19.52	3600	38751.3	5477	12075	10828	23871	2.20	581.7	4.50	1188.7
76	TR-76-4-2-3.0 <sup>4)</sup>	TR-0076	6279	20.60	3800	40904.2	5769	12718	11417	25169	2.48	654.4	5.06	1337.3
80	TR-80-4-2-3.0	TR-0080	6610	21.69	4000	43057.1	6061	13361	12006	26468	2.75	727.2	5.62	1485.9
84	TR-84-4-2-3.0 <sup>4)</sup>	TR-0084	6940	22.77	4200	45209.9	6352	14005	12595	27767	2.89	763.5	5.91	1560.2
88	TR-88-4-2-3.0	TR-0088	7271	23.85	4400	47362.8	6644	14648	13184	29065	3.03	799.9	6.19	1634.5
92	TR-92-4-2-3.0 <sup>4)</sup>	TR-0092	7601	24.94	4600	49515.6	6936	15291	13773	30364	3.17	836.2	6.47	1708.8
96	TR-96-4-2-3.0	TR-0096	7932	26.02	4800	51668.5	7228	15934	14362	31662	3.30	872.6	6.75	1783.1
100	TR-100-4-2-3.0 <sup>4)</sup>	TR-0100	8262	27.11	5000	53821.3	7576	16702	15007	33085	3.44	908.9	7.03	1857.4
104	TR-104-4-2-3.0	TR-0104	8593	28.19	5200	55974.2	7924	17469	15652	34507	3.58	945.3	7.31	1931.7
108	TR-108-4-2-3.0 <sup>4)</sup>	TR-0108	8923	29.27	5400	58127	8215	18112	16241	35806	3.72	981.7	7.59	2006.0
112	TR-112-4-2-3.0	TR-0112	9254	30.36	5600	60279.9	8507	18755	16830	37105	3.85	1018.0	7.87	2080.3
116	TR-116-4-2-3.0 <sup>4)</sup>	TR-0116	9584	31.44	5800	62432.7	8799	19399	17419	38403	3.99	1054.4	8.16	2154.6
120	TR-120-4-2-3.0	TR-0120	9915	32.53	6000	64585.6	9091	20042	18008	39702	4.13	1090.7	8.44	2228.9
124	TR-124-4-2-3.0 <sup>4)</sup>	TR-0124	10245	33.61	6200	66738.4	9383	20685	18597	41000	4.27	1127.1	8.72	2303.2
128	TR-128-4-2-3.0	TR-0128	10576	34.70	6400	68891.3	9674	21328	19187	42299	4.40	1163.5	9.00	2377.5
132	TR-132-4-2-3.0 <sup>4)</sup>	TR-0132	10906	35.78	6600	71044.1	9966	21972	19776	43598	4.54	1199.8	9.28	2451.8
136	TR-136-4-2-3.0	TR-0136	11237	36.87	6800	73196	10258	22615	20365	44896	4.68	1236.2	9.56	2526.1

<sup>1)</sup> Rack parts without modules    <sup>2)</sup> Length = length rack 1 + rack 2, excl. central header pipe, Tolerance to ISO 2768-1c  
<sup>3)</sup> Rack equipped with 50m<sup>2</sup> (538 sq.ft.) dizzer® XL 1.5 MB 50 WT modules    <sup>4)</sup> Asymmetric module arrangement    <sup>5)</sup> incl. modules and frame

## T-Rack® 3.0 – sample configuration

### TR-20-2-1-3.0



Header feed / drain  
 $d_i = 142 \text{ mm (5.59 inch)}$   
 $d_o = 168 \text{ mm (6.61 inch)}$

Header filtrate  
 $d_i = 152 \text{ mm (5.98 inch)}$   
 $d_o = 168 \text{ mm (6.61 inch)}$

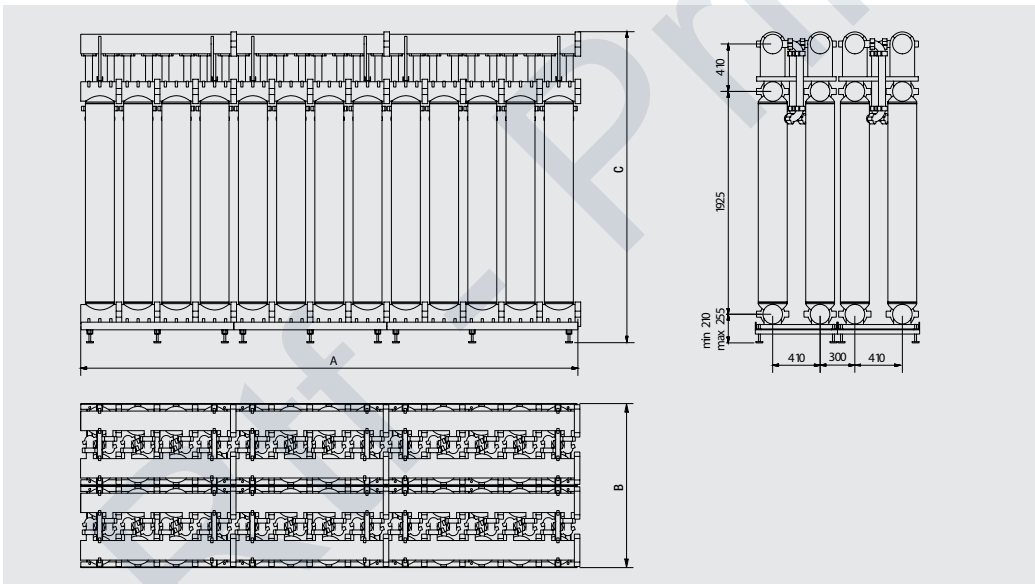
Height (C)\*  
 min = 2650 mm (8.70 ft.)  
 max = 2695 mm (8.85 ft.)

Width (B)\*  
 $B = 710 \text{ mm (2.33 ft.)}$

\* Tolerance to ISO 2768-1c

Connection for 6" grooved pipe coupling  
 Manifold ends equipped with 6" couplings  
 on one side as standard

### TR-52-4-1-3.0



Header feed / drain  
 $d_i = 142 \text{ mm (5.59 inch)}$   
 $d_o = 168 \text{ mm (6.61 inch)}$

Header filtrate  
 $d_i = 152 \text{ mm (5.98 inch)}$   
 $d_o = 168 \text{ mm (6.61 inch)}$

Height (C)\*  
 min = 2650 mm (8.70 ft.)  
 max = 2695 mm (8.85 ft.)

Width (B)\*  
 $B = 1420 \text{ mm (4.66 ft.)}$

\* Tolerance to ISO 2768-1c

Connection for 6" grooved pipe coupling  
 Manifold ends equipped with 6" couplings  
 on one side as standard

### **Note**

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Technical Specifications T-Rack 3.0 3.2(2015-01) E inge

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