

MEMBRANE HOUSING

DETAILED OVERVIEW FOR TYPE 'MH-4-40'
MEDIUM PRESSURE - 40 BAR

FOR MF, UF, NF AND RO FILTRATION



In the food and beverage industry membrane housings are often used in systems to reduce or eliminate microbials to make products safe for consumption and to extend their shelf life. We produce membrane housings for membrane filtration in the food industry for liquid-containing products such as juice, beer, soy, whey, milk, milk powder, chocolate etc.

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Introduction

This overview is for Membrane Housings with collaring connections manufactured by Wila A/S under the category "MH" hereinafter referred to as "Membrane Housing". A Membrane Housing is a tubular pressure vessel with a single inlet (Feed) on the shell side, an unfiltered outlet (Retentate) on the shell side and a filtered outlet (Permeate) out from one of the end centers.

The membranes and ATD's, that are also required for the filtration process, are not a part of the membrane housing, but Wila's own hygienic, easy to CIP clean, stainless steel ATD's can also be supplied upon request.

The Membrane Housing is made from EN 1.4404 (AISI 316L) stainless steel with a sanitary surface finish. The inside surface roughness is $\leq 0,8 \mu\text{m}$ and the outside surface roughness is $\leq 1,6 \mu\text{m}$.

All fluid media in use with the Membrane housing must be compatible with EN 1.4404 (AISI 316L) Stainless steel.

The Membrane Housing is designed for pressures up to 40 bar and temperatures up to 70°C, but other types, sizes and pressure ratings are also available.

Regulations and Directives

The membrane housing is designed and manufactured in accordance with

- the European Commission regulation No. 2023/2006 (Good Manufacturing Practices)
- the European Parliament directive No. EN 1935/2004 (Food Contact Materials).
- the European Parliament directive No. EN 1907/2006 (Chemical Restrictions (REACH)).
- PED - Article 4.3 (SEP) in the European Parliament directive No. 2014/68/EU (Pressure Equipment Directive). The membrane housing is only designed for fluid group 2 (non-dangerous fluids).

Documentation

1. Customer drawing with description and design data table
2. Declaration of conformity
3. User Manual

As Supplement the following can be provided:

4. 3.1 material certificates according to EN 10204
5. Weld-logs with associated welding certificates according to DS/EN ISO 9601-1.

Group specifications

Group ordering codes and specifications are as listed below. A more detailed group tables with unit codes and main dimensions can be found on the following pages.

MH-4-40bar-X-element – Model _

MH	Membrane Housing with collaring connections for Feed and Retentate.	
4	The membrane housing is designed for 3.8 x 38" (3838) membranes.	
40bar	The Membrane Housing is designed for pressures up to 40 bar and temperatures up to 70°C	
X	From 1 to 6 elements	Indicates the number of elements that can be fitted.
_	Either A or C *	Indicates Feed and Retentate connection arrangement.

*Other connection arrangements are available

Unit specifications

MH-4-40-X-YY-ZZ-_

X	From 1 to 6 elements	Indicates the number of elements that can be fitted.
YY	51 - 50 - 40 - 38***	Indicates Feed and Retentate collaring connections.
ZZ	26 - 25**	Indicates Permeate end clamp ferrule connection.
_	Either A or C *	Indicates Feed and Retentate connection arrangement.

*Other connection arrangements are available

**Clamp ferrule connections sizes - Other types and sizes are available

25	translates to Ø25	in accordance with ISO 2852-2
26	translates to DN25	in accordance with DIN 32676-A

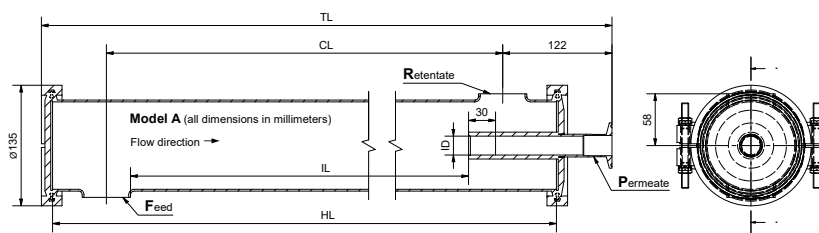
***Collaring connections sizes - Other sizes are available

51 - 38	translates respectively to Ø51 - Ø38
50 - 40	translates respectively to DN50 - DN40

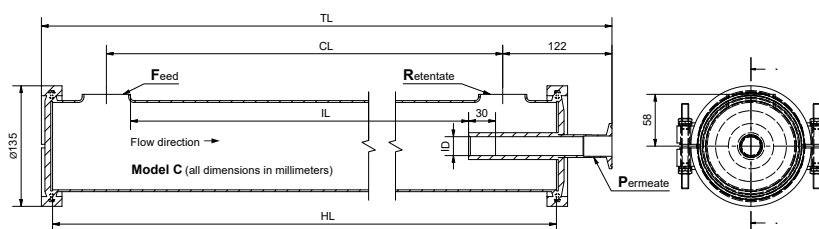
Connections

For Feed and Retentate only use weld ends with a minimum 3 mm wall thickness. For the Permeate connection an SH clamp is recommended, but always follow your fitting supplier guidelines and local legislations. The Membrane Housing should be installed with the Retentate outlet at the highest point for better air venting.

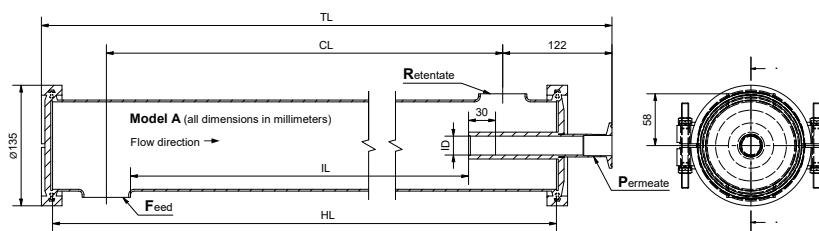
Temperature and pressure limits must be respected at all times !



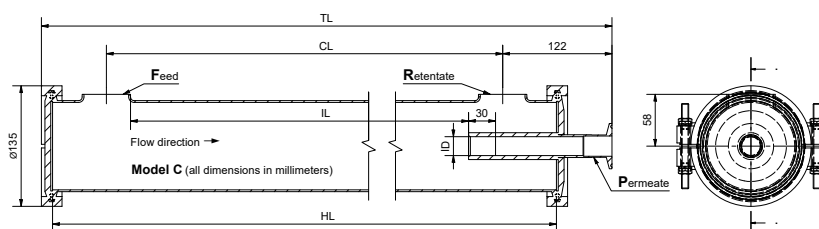
MH-4-40bar-1-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
Stock number	Drawing number	Quantity	Permeate	40 barg / 70°C		Volume 9 liters		Dry weight 10 kg	
		3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-1-51-25-A	W-024227	1 x 38"	Ø21.1	Ø51	Ø25	1270	1195	1075	1010
MH-4-40-1-38-25-A	W-024233	1 x 38"	Ø21.1	Ø38	Ø25	1270	1195	1075	1016
MH-4-40-1-50-25-A	W-024239	1 x 38"	Ø21.1	DN50	Ø25	1270	1195	1075	1009
MH-4-40-1-40-25-A	W-024245	1 x 38"	Ø21.1	DN40	Ø25	1270	1195	1075	1015
MH-4-40-1-51-26-A	W-024251	1 x 38"	Ø21.1	Ø51	DN25	1270	1195	1075	1010
MH-4-40-1-38-26-A	W-024257	1 x 38"	Ø21.1	Ø38	DN25	1270	1195	1075	1016
MH-4-40-1-50-26-A	W-024263	1 x 38"	Ø21.1	DN50	DN25	1270	1195	1075	1009
MH-4-40-1-40-26-A	W-024269	1 x 38"	Ø21.1	DN40	DN25	1270	1195	1075	1015



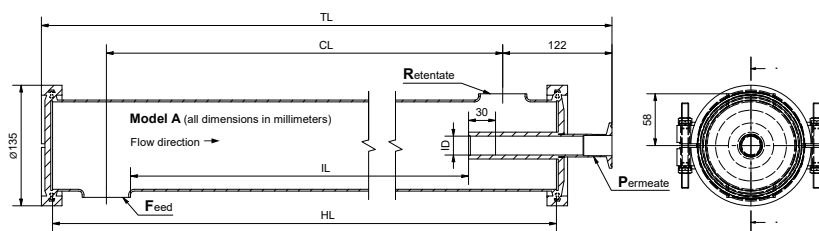
MH-4-40bar-1-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
Stock number	Drawing number	Quantity	Permeate	40 barg / 70°C		Volume 9 liters		Dry weight 10 kg	
		3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-1-51-25-C	W-024275	1 x 38"	Ø21.1	Ø51	Ø25	1270	1195	1075	1010
MH-4-40-1-38-25-C	W-024281	1 x 38"	Ø21.1	Ø38	Ø25	1270	1195	1075	1016
MH-4-40-1-50-25-C	W-024287	1 x 38"	Ø21.1	DN50	Ø25	1270	1195	1075	1009
MH-4-40-1-40-25-C	W-024293	1 x 38"	Ø21.1	DN40	Ø25	1270	1195	1075	1015
MH-4-40-1-51-26-C	W-024299	1 x 38"	Ø21.1	Ø51	DN25	1270	1195	1075	1010
MH-4-40-1-38-26-C	W-024305	1 x 38"	Ø21.1	Ø38	DN25	1270	1195	1075	1016
MH-4-40-1-50-26-C	W-024311	1 x 38"	Ø21.1	DN50	DN25	1270	1195	1075	1009
MH-4-40-1-40-26-C	W-024317	1 x 38"	Ø21.1	DN40	DN25	1270	1195	1075	1015



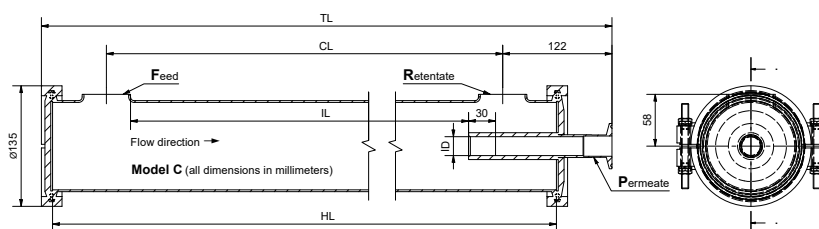
MH-4-40bar-2-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 16.5 liters		Dry weight 15 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-2-51-25-A	W-024228	2 x 38"	Ø21.1	Ø51	Ø25	2255	2180	2060	1995
MH-4-40-2-38-25-A	W-024234	2 x 38"	Ø21.1	Ø38	Ø25	2255	2180	2060	2001
MH-4-40-2-50-25-A	W-024240	2 x 38"	Ø21.1	DN50	Ø25	2255	2180	2060	1994
MH-4-40-2-40-25-A	W-024246	2 x 38"	Ø21.1	DN40	Ø25	2255	2180	2060	2000
MH-4-40-2-51-26-A	W-024252	2 x 38"	Ø21.1	Ø51	DN25	2255	2180	2060	1995
MH-4-40-2-38-26-A	W-024258	2 x 38"	Ø21.1	Ø38	DN25	2255	2180	2060	2001
MH-4-40-2-50-26-A	W-024264	2 x 38"	Ø21.1	DN50	DN25	2255	2180	2060	1994
MH-4-40-2-40-26-A	W-024270	2 x 38"	Ø21.1	DN40	DN25	2255	2180	2060	2000



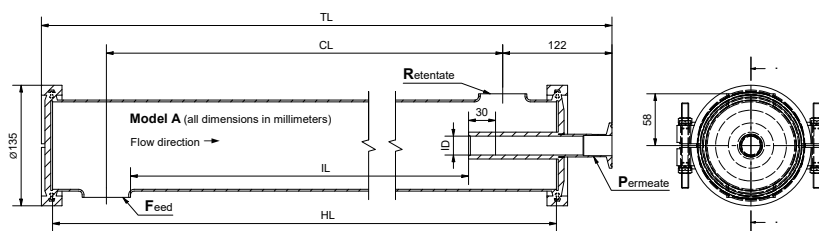
MH-4-40bar-2-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 16.5 liters		Dry weight 15 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-2-51-25-C	W-024276	2 x 38"	Ø21.1	Ø51	Ø25	2255	2180	2060	1995
MH-4-40-2-38-25-C	W-024282	2 x 38"	Ø21.1	Ø38	Ø25	2255	2180	2060	2001
MH-4-40-2-50-25-C	W-024288	2 x 38"	Ø21.1	DN50	Ø25	2255	2180	2060	1994
MH-4-40-2-40-25-C	W-024294	2 x 38"	Ø21.1	DN40	Ø25	2255	2180	2060	2000
MH-4-40-2-51-26-C	W-024300	2 x 38"	Ø21.1	Ø51	DN25	2255	2180	2060	1995
MH-4-40-2-38-26-C	W-024306	2 x 38"	Ø21.1	Ø38	DN25	2255	2180	2060	2001
MH-4-40-2-50-26-C	W-024312	2 x 38"	Ø21.1	DN50	DN25	2255	2180	2060	1994
MH-4-40-2-40-26-C	W-024318	2 x 38"	Ø21.1	DN40	DN25	2255	2180	2060	2000



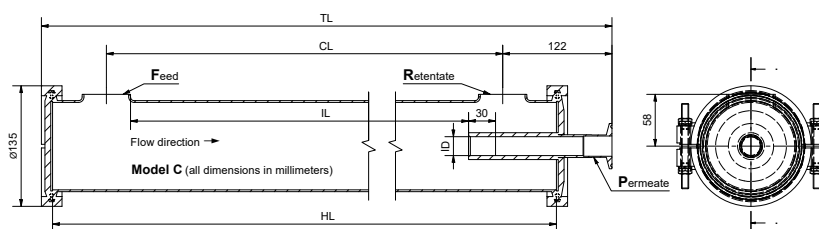
MH-4-40bar-3-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 24 liters		Dry weight 20 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-3-51-25-A	W-024229	3 x 38"	Ø21.1	Ø51	Ø25	3235	3160	3040	2975
MH-4-40-3-38-25-A	W-024235	3 x 38"	Ø21.1	Ø38	Ø25	3235	3160	3040	2981
MH-4-40-3-50-25-A	W-024241	3 x 38"	Ø21.1	DN50	Ø25	3235	3160	3040	2974
MH-4-40-3-40-25-A	W-024247	3 x 38"	Ø21.1	DN40	Ø25	3235	3160	3040	2980
MH-4-40-3-51-26-A	W-024253	3 x 38"	Ø21.1	Ø51	DN25	3235	3160	3040	2975
MH-4-40-3-38-26-A	W-024259	3 x 38"	Ø21.1	Ø38	DN25	3235	3160	3040	2981
MH-4-40-3-50-26-A	W-024265	3 x 38"	Ø21.1	DN50	DN25	3235	3160	3040	2974
MH-4-40-3-40-26-A	W-024271	3 x 38"	Ø21.1	DN40	DN25	3235	3160	3040	2980



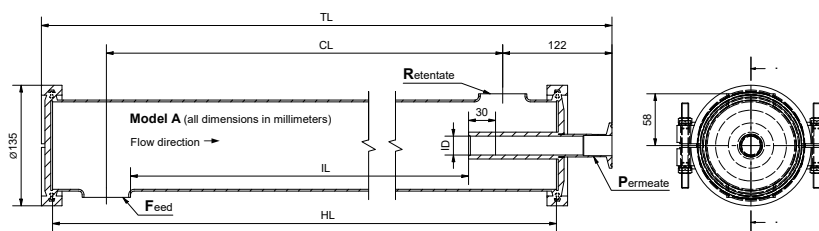
MH-4-40bar-3-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 24 liters		Dry weight 20 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-3-51-25-C	W-024277	3 x 38"	Ø21.1	Ø51	Ø25	3235	3160	3040	2975
MH-4-40-3-38-25-C	W-024283	3 x 38"	Ø21.1	Ø38	Ø25	3235	3160	3040	2981
MH-4-40-3-50-25-C	W-024289	3 x 38"	Ø21.1	DN50	Ø25	3235	3160	3040	2974
MH-4-40-3-40-25-C	W-024295	3 x 38"	Ø21.1	DN40	Ø25	3235	3160	3040	2980
MH-4-40-3-51-26-C	W-024301	3 x 38"	Ø21.1	Ø51	DN25	3235	3160	3040	2975
MH-4-40-3-38-26-C	W-024307	3 x 38"	Ø21.1	Ø38	DN25	3235	3160	3040	2981
MH-4-40-3-50-26-C	W-024313	3 x 38"	Ø21.1	DN50	DN25	3235	3160	3040	2974
MH-4-40-3-40-26-C	W-024319	3 x 38"	Ø21.1	DN40	DN25	3235	3160	3040	2980



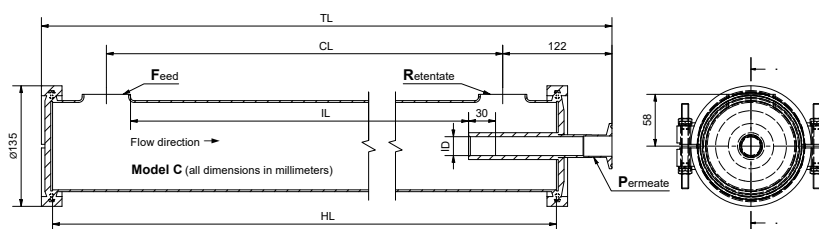
MH-4-40bar-4-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 31 liters		Dry weight 25 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-4-51-25-A	W-024230	4 x 38"	Ø21.1	Ø51	Ø25	4215	4140	4020	3955
MH-4-40-4-38-25-A	W-024236	4 x 38"	Ø21.1	Ø38	Ø25	4215	4140	4020	3961
MH-4-40-4-50-25-A	W-024242	4 x 38"	Ø21.1	DN50	Ø25	4215	4140	4020	3954
MH-4-40-4-40-25-A	W-024248	4 x 38"	Ø21.1	DN40	Ø25	4215	4140	4020	3960
MH-4-40-4-51-26-A	W-024254	4 x 38"	Ø21.1	Ø51	DN25	4215	4140	4020	3955
MH-4-40-4-38-26-A	W-024260	4 x 38"	Ø21.1	Ø38	DN25	4215	4140	4020	3961
MH-4-40-4-50-26-A	W-024266	4 x 38"	Ø21.1	DN50	DN25	4215	4140	4020	3954
MH-4-40-4-40-26-A	W-024272	4 x 38"	Ø21.1	DN40	DN25	4215	4140	4020	3960



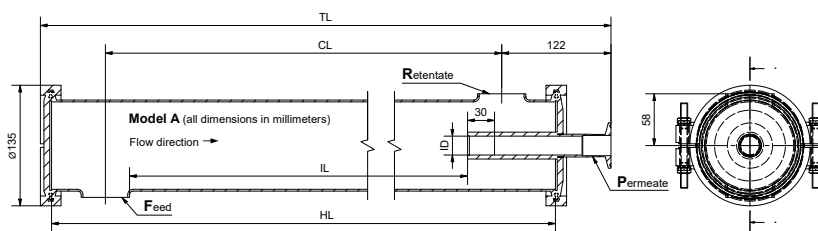
MH-4-40bar-4-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 31 liters		Dry weight 25 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-4-51-25-C	W-024278	4 x 38"	Ø21.1	Ø51	Ø25	4215	4140	4020	3955
MH-4-40-4-38-25-C	W-024284	4 x 38"	Ø21.1	Ø38	Ø25	4215	4140	4020	3961
MH-4-40-4-50-25-C	W-024290	4 x 38"	Ø21.1	DN50	Ø25	4215	4140	4020	3954
MH-4-40-4-40-25-C	W-024296	4 x 38"	Ø21.1	DN40	Ø25	4215	4140	4020	3960
MH-4-40-4-51-26-C	W-024302	4 x 38"	Ø21.1	Ø51	DN25	4215	4140	4020	3955
MH-4-40-4-38-26-C	W-024308	4 x 38"	Ø21.1	Ø38	DN25	4215	4140	4020	3961
MH-4-40-4-50-26-C	W-024314	4 x 38"	Ø21.1	DN50	DN25	4215	4140	4020	3954
MH-4-40-4-40-26-C	W-024320	4 x 38"	Ø21.1	DN40	DN25	4215	4140	4020	3960



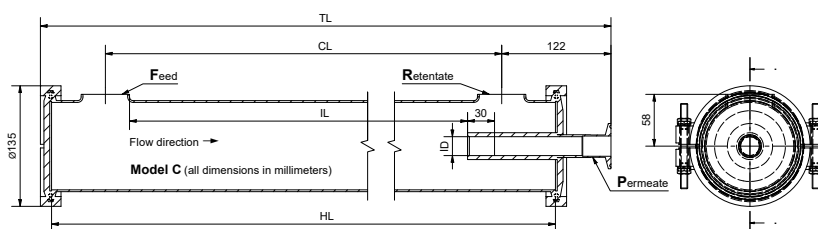
MH-4-40bar-5-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 38.5 liters		Dry weight 29 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-5-51-25-A	W-024231	5 x 38"	Ø21.1	Ø51	Ø25	5195	5120	5000	4935
MH-4-40-5-38-25-A	W-024237	5 x 38"	Ø21.1	Ø38	Ø25	5195	5120	5000	4941
MH-4-40-5-50-25-A	W-024243	5 x 38"	Ø21.1	DN50	Ø25	5195	5120	5000	4934
MH-4-40-5-40-25-A	W-024249	5 x 38"	Ø21.1	DN40	Ø25	5195	5120	5000	4940
MH-4-40-5-51-26-A	W-024255	5 x 38"	Ø21.1	Ø51	DN25	5195	5120	5000	4935
MH-4-40-5-38-26-A	W-024261	5 x 38"	Ø21.1	Ø38	DN25	5195	5120	5000	4941
MH-4-40-5-50-26-A	W-024267	5 x 38"	Ø21.1	DN50	DN25	5195	5120	5000	4934
MH-4-40-5-40-26-A	W-024273	5 x 38"	Ø21.1	DN40	DN25	5195	5120	5000	4940



MH-4-40bar-5-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
		Quantity	Permeate	40 barg / 70°C		Volume 38.5 liters		Dry weight 29 kg	
Stock number	Drawing number	3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-5-51-25-C	W-024279	5 x 38"	Ø21.1	Ø51	Ø25	5195	5120	5000	4935
MH-4-40-5-38-25-C	W-024285	5 x 38"	Ø21.1	Ø38	Ø25	5195	5120	5000	4941
MH-4-40-5-50-25-C	W-024291	5 x 38"	Ø21.1	DN50	Ø25	5195	5120	5000	4934
MH-4-40-5-40-25-C	W-024297	5 x 38"	Ø21.1	DN40	Ø25	5195	5120	5000	4940
MH-4-40-5-51-26-C	W-024303	5 x 38"	Ø21.1	Ø51	DN25	5195	5120	5000	4935
MH-4-40-5-38-26-C	W-024309	5 x 38"	Ø21.1	Ø38	DN25	5195	5120	5000	4941
MH-4-40-5-50-26-C	W-024315	5 x 38"	Ø21.1	DN50	DN25	5195	5120	5000	4934
MH-4-40-5-40-26-C	W-024321	5 x 38"	Ø21.1	DN40	DN25	5195	5120	5000	4940



MH-4-40bar-6-element - Model A		Element type 3838		Maximum pressure / Maximum temperature					
Stock number	Drawing number	Quantity	Permeate	40 barg / 70°C		Volume 46 liters		Dry weight 34 kg	
		3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-6-51-25-A	W-024232	6 x 38"	Ø21.1	Ø51	Ø25	6175	6100	5980	5915
MH-4-40-6-38-25-A	W-024238	6 x 38"	Ø21.1	Ø38	Ø25	6175	6100	5980	5921
MH-4-40-6-50-25-A	W-024244	6 x 38"	Ø21.1	DN50	Ø25	6175	6100	5980	5914
MH-4-40-6-40-25-A	W-024250	6 x 38"	Ø21.1	DN40	Ø25	6175	6100	5980	5920
MH-4-40-6-51-26-A	W-024256	6 x 38"	Ø21.1	Ø51	DN25	6175	6100	5980	5915
MH-4-40-6-38-26-A	W-024262	6 x 38"	Ø21.1	Ø38	DN25	6175	6100	5980	5921
MH-4-40-6-50-26-A	W-024268	6 x 38"	Ø21.1	DN50	DN25	6175	6100	5980	5914
MH-4-40-6-40-26-A	W-024274	6 x 38"	Ø21.1	DN40	DN25	6175	6100	5980	5920



MH-4-40bar-6-element - Model C		Element type 3838		Maximum pressure / Maximum temperature					
Stock number	Drawing number	Quantity	Permeate	40 barg / 70°C		Volume 46 liters		Dry weight 34 kg	
		3.8" dia.	ID	F&R	P	TL	HL	CL	IL
MH-4-40-6-51-25-C	W-024280	6 x 38"	Ø21.1	Ø51	Ø25	6175	6100	5980	5915
MH-4-40-6-38-25-C	W-024286	6 x 38"	Ø21.1	Ø38	Ø25	6175	6100	5980	5921
MH-4-40-6-50-25-C	W-024292	6 x 38"	Ø21.1	DN50	Ø25	6175	6100	5980	5914
MH-4-40-6-40-25-C	W-024298	6 x 38"	Ø21.1	DN40	Ø25	6175	6100	5980	5920
MH-4-40-6-51-26-C	W-024304	6 x 38"	Ø21.1	Ø51	DN25	6175	6100	5980	5915
MH-4-40-6-38-26-C	W-024310	6 x 38"	Ø21.1	Ø38	DN25	6175	6100	5980	5921
MH-4-40-6-50-26-C	W-024316	6 x 38"	Ø21.1	DN50	DN25	6175	6100	5980	5914
MH-4-40-6-40-26-C	W-024322	6 x 38"	Ø21.1	DN40	DN25	6175	6100	5980	5920