MEMBRANE HITEC

Division of TITANIUM EQUIPMENT AND ANODE MANUFACTURING COMPANY LTD.

Single Bore / Multi Bore Hollow Fibre Ultra filtration Membranes

TEAM

ULTRA FILTRATION MEMBRANE DATA SHEET

SPECIFICATION	UNIT	200MM DIA	200MM DIA
UF MEMBRANE DATA			
Model No		RDMT-EM-35XVI-MBM-10/100KD	RDMT-EM-41XVI-MBM-10/100KD
Housing OD	mm	200	200
Housing Length	mm	1530 ± 1.0	1530 ± 1.0
Length with End Block	mm	1790 ± 5.0	1790 ± 5.0
Housing Material		UPVC	UPVC
End Cap Material		PPGF	PPGF
Feed / Permeate - Port size	inch	1½" Vitaulic	1½" Vitaulic
Backwash In / Out - Port size	inch	1½" Vitaulic	1½" Vitaulic
Empty Weight with End Block	kg	29	29
UF MEMBRANE TYPE			
Material		Modified Polyether Sulphone	Modified Polyether Sulphone
Type		Multibore	Multibore
		IN to OUT	IN to OUT
Capillary per fibre	nos	7 (Multibore)	7 (Multibore)
Fibre OD	mm	4	4
Capillary bore OD	mm	0.8	0.8
MWCO	KD	10/100	10/100
Active Surface Area	m^2	35	41
UF OPERATIONAL DATA			
Operating Temperature	°C	15 - 45	15 - 45
Mode of operation		Dead end / Cross Flow	Dead end / Cross Flow
Operating Flux *	lmh	30 - 120	30 - 120
Feed pressure** max	bar	2.0	2.0
Transmembrane pressure max	bar	1.0	1.0
pH range during operation		4 - 10	4 - 10
pH during chemical cleaning		2 - 14	2 - 14
UF MEMBRANE REGENERATION CYCLES			
Backwash pressure** min/max	bar	1.5 - 2.5	1.5 - 2.5
Backwash Flux *	lmh	170 - 240	170 - 240
Backwash frequency	min	30 - 60	30 - 60
Backwash duration	sec	30 - 60	30 - 60
Forward flush duration	sec	15 - 45	15 - 45
Forward flush flux	lmh	as feed flux	as feed flux
UF DISINFECTION & CHEMICAL CLEANING			
DISINFECTION CHEMICALS			
Sodium hypo chlorite (NaOCl)	ppm	25 - 200	25 - 200
CLEANING CHEMICALS		Hypo, Caustic soda, HCl	Hypo, Caustic soda, HCl
HCl	pH	3 - 4	3 - 4
NaOH	pH	12 - 13	12 - 13
Chemical cleaning duration	min	30 - 60	30 - 60
Chemical cleaning frequency		Weekly once or Depends on feed quality & pathogens load	
FILTRATE QUALITY			
TSS *	ppm	< 1.0	< 1.0
Turbidity *	NTU	< 0.5	< 0.5
Micro-organism, Bacteria, Psuedomonas diminuta, E.coli, etc*	log reduction	> 4	> 4
SDI *		< 3	< 3

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ULTRA FILTRATION MEMBRANE DATA SHEET

SPECIFICATION	UNIT	225 MM DIA	225 MM DIA
UF MEMBRANE DATA			
Model No		RDMT-EM-50 XVI-SBM-100KD	RDMT-EM-65 XVI-SBM-100KD
Housing OD	mm	225	225
Housing Length	mm	1500 ± 2.0	1830 ± 2.0
Length with End Block	mm	1705 ± 5.0	2035 ± 5.0
Housing Material		UPVC	UPVC
End Cap Material		PPGF	PPGF
Feed / Permeate - Port size	inch	2" Vitaulic	2" Vitaulic
Backwash In / Out - Port size	inch	2" Vitaulic	2" Vitaulic
Empty Weight with End Block	kg	32	40
UF MEMBRANE TYPE			
Material		Modified Polyether Sulphone	Modified Polyether Sulphone
Type		Singlebore	Singlebore
		IN to OUT	IN to OUT
Capillary per fibre	nos	1	1
Fibre OD	mm	1.5	1.5
Capillary bore ID	mm	0.9	0.9
MWCO	KD	100	100
Active Surface Area	m^2	50	65
UF OPERATIONAL DATA			
Operating Temperature	°C	15 - 45	15 - 45
Mode of operation		Dead end / Cross Flow	Dead end / Cross Flow
Operating Flux *	lmh	30 - 120	30 - 120
Feed pressure** max	bar	2.0	2.0
Transmembrane pressure max	bar	1.0	1.0
pH range during operation		4 - 10	4 - 10
pH during chemical cleaning		2 - 14	2 - 14
UF MEMBRANE REGENERATION CYCLES			
Backwash pressure** min/max	bar	1.5 - 2.5	1.5 - 2.5
Backwash Flux *	lmh	170 - 240	170 - 240
Backwash frequency	min	30 - 60	30 - 60
Backwash duration	sec	30 - 60	30 - 60
Forward flush duration	sec	15 - 45	15 - 45
Forward flush flux	lmh	as feed flux	as feed flux
UF DISINFECTION & CHEMICAL CLEANING			
DISINFECTION CHEMICALS			
Sodium hypo chlorite (NaOCl)	ppm	25 - 200	25 - 200
CLEANING CHEMICALS		Hypo, Caustic soda, HCl	Hypo, Caustic soda, HCl
HCl	pH	3 - 4	3 - 4
NaOH	pH	12 - 13	12 - 13
Chemical cleaning duration	min	30 - 60	30 - 60
Chemical cleaning frequency		Weekly once or Depends on feed quality & pathogens load	
FILTRATE QUALITY			
TSS *	ppm	< 1.0	< 1.0
Turbidity *	NTU	< 0.5	< 0.5
Micro-organism, Bacteria, Psuedomonas diminuta, E.coli, etc*	log reduction	> 4	> 4
SDI *		< 3	< 3

* Actual depends upon feed stream quality & Mode of operation

** Pressure requirement is at the inlet of skid header Alterations reserved

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ULTRA FILTRATION MEMBRANE DATA SHEET

SPECIFICATION	UNIT	280MM DIA	400MM DIA
UF MEMBRANE DATA			
Model No		RDMT-EM-81XVI-SBM-100KD	RDMT-EM-100XVI-MBM-10/100 KD
Housing OD	mm	280	400
Housing Length	mm	1830 ± 1.0	1530 ± 1.0
Length with End Block	mm	2127 ± 5.0	1880 ± 5.0
Housing Material		UPVC	UPVC
End Cap Material		PPGF/SS304	PPGF/SS304
Feed / Permeate - Port size	inch	2" Vitaulic	2½" Vitaulic
Backwash In / Out - Port size	inch	2" Vitaulic	2½" Vitaulic
Empty Weight with End Block	kg	65	99
UF MEMBRANE TYPE			
Material		Modified Polyether Sulphone	Modified Polyether Sulphone
Type		Singlebore IN to OUT	Multibore IN to OUT
Capillary per fibre	nos	1	7 (Multibore)
Fibre OD	mm	1.5	4
Capillary bore ID	mm	0.9	0.8
MWCO	KD	100	10/100
Active Surface Area	m^2	81	100
UF OPERATIONAL DATA			
Operating Temperature	°C	15 - 45	15 - 45
Mode of operation		Dead end / Cross Flow	Dead end / Cross Flow
Operating Flux *	lmh	30 - 120	30 - 120
Feed pressure** max	bar	2.0	2.0
Transmembrane pressure max	bar	1.0	1.0
pH range during operation		4 - 10	4 - 10
pH during chemical cleaning		2 - 14	2 - 14
UF MEMBRANE REGENERATION CYCLES			
Backwash pressure** min/max	bar	1.5 - 2.5	1.5 - 2.5
Backwash Flux *	lmh	170 - 240	170 - 240
Backwash frequency	min	30 - 60	30 - 60
Backwash duration	sec	30 - 60	30 - 60
Forward flush duration	sec	15 - 45	15 - 45
Forward flush flux	lmh	as feed flux	as feed flux
UF DISINFECTION & CHEMICAL CLEANING			
DISINFECTION CHEMICALS			
Sodium hypo chlorite (NaOCl)	ppm	25 - 200	25 - 200
CLEANING CHEMICALS		Hypo, Caustic soda, HCl	Hypo, Caustic soda, HCl
HCl	pH	3 - 4	3 - 4
NaOH	pH	12 - 13	12 - 13
Chemical cleaning duration	min	30 - 60	30 - 60
Chemical cleaning frequency		Weekly once or Depends on feed quality & pathogens load	
FILTRATE QUALITY			
TSS *	ppm	< 1.0	< 1.0
Turbidity *	NTU	< 0.5	< 0.5
Micro-organism, Bacteria, Psuedomonas diminuta, E.coli, etc*	log reduction	> 4	> 4
SDI *		< 3	< 3

MEMBRANE HITEC

An ISO 9001- 2008 Certified Company

Ultra Filtration Technology

Membrane Hitec (MHT), member Dr. Rao Holdings Pte Ltd., Singapore, is the pioneering manufacturer of Capillary Ultrafiltration Membranes in India. The technology was developed by Membrane Research Technology Singapore and transferred to its Indian Regional Manufacturing Company. The Intellectual Property Rights have been registered in Singapore.

UF Applications

Boiler Feed Water - Colloidal Silica Removal
Pre - Treatment to R/O - Reduction of SDI
Drinking Water - Removal of Pathogens
Pre treatment to Desalination - SDI Reduction
Cooling Tower - Removal of Suspended Solids / Microbes
Treated Sewage - TSS / Turbidity / SDI Reduction
Brine Clarification - Chlor - Alkali - TSS / Turbidity Reduction
Process Effluent Recycling - TSS / Turbidity / SDI Reduction

Advantages - MHT UF Membranes

Low Operating Pressure (0.5 to 0.8 Bar)
High Performance Anti Fouling Characteristics
Operating in Dead end / Cross Flow
MWCO Range 10 KD to 100 KD
Same UF Feed Pump used for forward Flush A & B
Reduces Foot print with 100 m^2 unique membrane design
Elimination of pre - coat filters
Lower Power Consumption

Raw Water Treatment Plant

Post DM

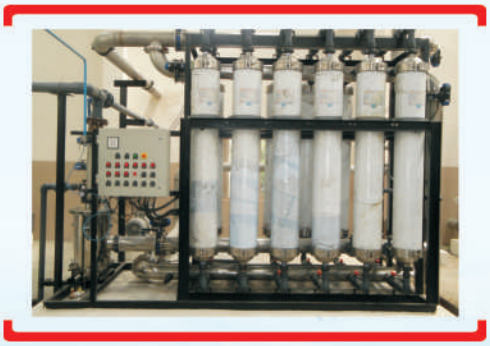
Effluent Treatment Plant

Post DM

Cogen Power Plant

Post DM

Effluent Treatment Plant



Cooling Tower Blow-Down

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BS EN ISO 9001:2008