

# HFUG-2020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

The HFUG-2020AN module is Toray's latest UF innovation that features hollow fibers with a smaller diameter but with improved membrane durability and performance. The result is an increased surface area per module for more production output.

Membrane Characteris	stics	Unit	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Surf	ace Area (module)	m <sup>2</sup> (ft <sup>2</sup> )	90 (969)
Operating Parameters		Unit	Value
Maximum Feed water	/ Filtrate Flow	m³/h (gpm)	15 (66)
Maximum Backwash F	low	m³/h (gpm)	16.8 (74)
Maximum Air Flow		Nm³/h (scfm)	9.0 (5.3)
Maximum Inlet Pressu	re	kPa (psi)	300 (43.5)
Maximum Backwash F	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	ns-membrane Pressure	kPa (psi)	0-200 (0-29)
Operating Temperatur	re Range	°C (°F)	0-40 (32-104)
	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Product Certifications & Compliances**

- NSF/ANSI 61 for drinking water applications
- NSF/ANSI 419 to comply with the U.S. EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), which allows membrane manufacturers to prove Cryptosporidium reduction.
- Association of Membrane Separation Technology of Japan

### **Applications**





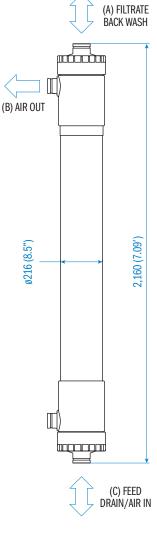


# HFUG-2020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions and W	/eight	Unit	Value
Diameter		mm (in)	216 (8.5)
Length		mm (ft)	2,160 (7.087)
Waight	Full of Water	kg (lbs)	92 (203)
Weight	After Draining	kg (lbs)	59 (131)
Connections			Value
(A) Filtrate Outlet			80A
(B) Air Outlet			65A
(C) Feed Water / A	ir Inlet		80A
Material Specificat	ions		
Description		Ν	<b>I</b> aterial
Casing			uPVC
Сар			uPVC
Potting		Ep	oxy resin
O-ring			EPDM

Please contact Toray for more detailed drawing and dimensions.



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# HFU-2020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Toray's PVDF membrane construction is highly resistant to chlorine and strong acids, which allows for better cleaning and optimization of filtration flux rates after cleaning. The hollow fiber modules effectively remove suspended solids, viruses, and bacteria and are certified for drinking water applications.

Membrane Character	istics	Unit	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Sur	face Area	m <sup>2</sup> (ft <sup>2</sup> )	72 (775)
Operating Parameter	s	Unit	Value
Maximum Feed wate	r / Filtrate Flow	m³/h (gpm)	12 (53)
Maximum Backwash	Flow	m³/h (gpm)	13.5 (59)
Maximum Air Flow		Nm³/h (scfm)	9.0 (5.3)
Maximum Inlet Press	ure	kPa (psi)	300 (43.5)
Maximum Backwash	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	ansmembrane Pressure	kPa (psi)	0-200 (0-29)
Operating Temperatu	re Range	°C (°F)	0-40 (32-104)
n II Dongo	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Product Certifications and Compliances**

- NSF/ANSI 61 for drinking water applications
- NSF/ANSI 419 to comply with the U.S. EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), which allows membrane manufacturers to prove Cryptosporidium reduction.
- Association of Membrane Separation Technology of Japan

## **Applications**





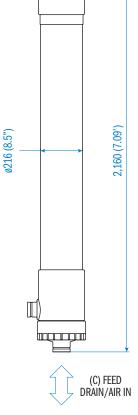
(B) AIR OUT

(A) FILTRATE BACK WASH

# HFU-2020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions an	id Weight	Unit	Value		
Diameter		mm (in)	216 (8.5)		
Length		mm (ft)	2,160 (7.087)		
W/oight	Full of Water	kg (lbs)	92 (203)		
Weight	After Draining	kg (lbs)	59 (131)		
Connections			Value		
(A) Filtrate Out	let		80A		
(B) Air Outlet			65A		
(C) Feed Wate	r / Air Inlet		80A		
Material Specif	ications				
Description		Ν	laterial		
Casing			uPVC		
Сар	Cap uPVC		uPVC		
Potting		Epo	oxy resin		
O-ring			EPDM		



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# HFU-2020HN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Toray's hollow fiber PVDF UF membrane module effectively removes suspended solids and microorganisms such as pathogens when used for various types of water treatment. The HFU-2020HN module is a high-pressure resistant UF membrane module ideal for direct coupling to a RO system.

Membrane Character	istics	Unit	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Sur	face Area	m <sup>2</sup> (ft <sup>2</sup> )	72 (775)
Operating Parameters	5	Unit	Value
Maximum Feed wate	r / Filtrate Flow	m³/h (gpm)	12 (53)
Maximum Backwash	Flow	m³/h (gpm)	13.5 (59)
Maximum Air Flow		Nm³/h (scfm)	9.0 (5.3)
Maximum Inlet Press	lre	kPa (psi)	600 (87.0)
Maximum Backwash	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	nsmembrane Pressure	kPa (psi)	0-200 (0-29)
Operating Temperatu	re Range	°C (°F)	0-40 (32-104)
nH Dongo	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Applications**



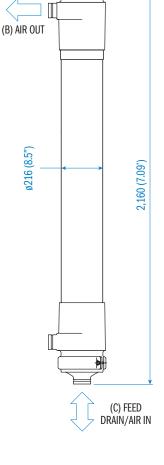
(A) FILTRATE BACK WASH

# HFU-2020HN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions and Weight Unit		
	Value	
Diameter mm (in)	216 (8.5)	
Length mm (ft)	2,160 (7.087)	
Full of Water kg (lbs)	110 (243)	
Weight After Draining kg (Ibs)	67 (148)	
Connections	Value	
(A) Filtrate Outlet	80A	
(B) Air Outlet	65A	
(C) Feed Water / Air Inlet	80A	
Material Specifications		
Description N	Naterial	
Casing	uPVC	
Cap	uPVC	
Potting Ep	Epoxy resin	
O-ring	EPDM	

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# HFU-1020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Toray's hollow fiber PVDF UF membrane module effectively removes suspended solids and microorganisms such as pathogens when used for various types of water treatment. The flux rates of HFU-1020AN modules are ideal for smaller commercial systems.

Membrane Character	istics	Unit	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Sur	face Area	m <sup>2</sup> (ft <sup>2</sup> )	29 (312)
Operating Parameters	s	Unit	Value
Maximum Feed wate	r / Filtrate Flow	m³/h (gpm)	4.8 (21)
Maximum Backwash	Flow	m³/h (gpm)	5.4 (23)
Maximum Air Flow		Nm³/h (scfm)	9.0 (5.3)
Maximum Inlet Press	ure	kPa (psi)	300 (43.5)
Maximum Backwash	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	insmembrane Pressure	kPa (psi)	0–200 (0–29)
Operating Temperatu	re Range	°C (°F)	0-40 (32-104)
	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Product Certifications & Compliances**

- NSF/ANSI 61 for drinking water applications
- NSF/ANSI 419 to comply with the U.S. EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), which allows membrane manufacturers to prove Cryptosporidium reduction.
- Association of Membrane Separation Technology of Japan

## **Applications**

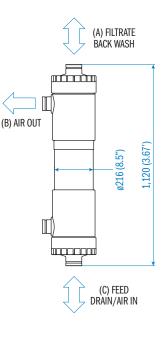




# HFU-1020AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions an	nd Weight	Unit	Value
Diameter		mm (in)	216 (8.5)
Length		mm (ft)	1,120 (3.675)
Woight	Full of Water	kg (lbs)	51 (112)
Weight	After Draining	kg (lbs)	32 (71)
Connections			Value
(A) Filtrate Out	let		80A
(B) Air Outlet			65A
(C) Feed Wate	r / Air Inlet		80A
Material Specif	ications		
Description		Ν	aterial
Casing			uPVC
Сар	uPVC		uPVC
Potting		Epo	oxy resin
O-ring		I	EPDM



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# **HFU-1010N**

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Toray's PVDF membrane construction is highly resistant to chlorine and strong acids, which allows for better cleaning and optimization of filtration flux rates after cleaning. The hollow fiber modules effectively remove suspended solids, viruses, and bacteria and are certified for drinking water applications. The HFU-1010N model is ideal for small capacity equipment.

Membrane Character	istics	Units	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Sur	face Area	m <sup>2</sup> (ft <sup>2</sup> )	7 (75)
Operating Parameters	5	Units	Value
Maximum Feed wate	r / Filtrate Flow	m³/h (gpm)	1.2 (5.1)
Maximum Backwash	Flow	m³/h (gpm)	1.3 (5.7)
Maximum Air Flow		Nm³/h (scfm)	2.2 (1.3)
Maximum Inlet Press	lre	kPa (psi)	300 (43.5)
Maximum Backwash	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	nsmembrane Pressure	kPa (psi)	0-200 (0-29)
Operating Temperatu	re Range	°C (°F)	0-40 (32-104)
	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Product Certifications & Compliances**

Association of Membrane Separation Technology of Japan

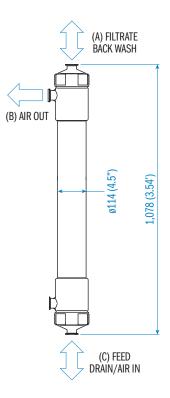
## **Applications**



# **HFU-1010N**

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions an	ıd Weight	Unit	Value
Diameter		mm (in)	114 (4.49)
Length		mm (ft)	1,078 (3.537)
Woight	Full of Water	kg (lbs)	15 (33)
Weight	After Draining	kg (lbs)	9 (20)
Connections			Value
(A) Filtrate Out	let	IDF/ISO Clamp	0 Union Fitting 1.5S
(B) Air Outlet	Air Outlet IDF/ISO Clamp Union Fitting 1.5S		0 Union Fitting 1.5S
(C) Feed Wate	) Feed Water / Air Inlet IDF/ISO Clamp Union Fitting 1.5S		0 Union Fitting 1.5S
Material Specif	ications		
Description		Μ	aterial
Casing			uPVC
Сар	Cap uPVC		uPVC
Potting	otting Epoxy		Ероху
O-ring			NBR



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# HFU-B2315AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

The HFU-B2315AN module features Toray's proven durable PVDF hollow fiber membrane with a high packing density per module resulting in a compact system design and lower capital footprint.

Membrane Character	istics	Units	Value
Membrane Material			PVDF (Polyvinylidene fluoride)
Nominal Pore Size		μm	0.01
Outer Membrane Sur	face Area	m² (ft²)	60 (646)
Operating Parameters	s	Units	Value
Maximum Feed wate	r / Filtrate Flow	m³/h (gpm)	10.0 (44)
Maximum Backwash	Flow	m³/h (gpm)	11.2 (49)
Maximum Air Flow		Nm³/h (scfm)	6.7 (3.9)
Maximum Inlet Press	ure	kPa (psi)	300 (43.5)
Maximum Backwash	Pressure	kPa (psi)	300 (43.5)
Normal Operating Tra	insmembrane Pressure	kPa (psi)	0-200 (0-29)
Operating Temperatu	re Range	°C (°F)	0-40 (32-104)
nll Dongo	During Filtration		1–10
pH Range	During Cleaning		0–12

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## **Product Certifications & Compliances**

- NSF/ANSI 61 for drinking water applications
- NSF/ANSI 419 to comply with the U.S. EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), which allows membrane manufacturers to prove Cryptosporidium reduction.

### **Applications**





(A) FILTRATE BACK WASH

2,332 (7.65')

# HFU-B2315AN

# Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions ar	nd Weight	Unit	Value	
Diameter		mm (in)	mm (in) 178 (7.01)	
Length		mm (ft)	2,332 (7.651)	
	Full of Water	kg (lbs)	65 (143)	
Veight	After Draining	kg (lbs)	35 (77)	
Connections			Value	
) Filtrate Ou	tlet		50A	
3) Air Outlet		Ф57.9	91 mm x P3	
C) Feed Wate	r / Air Inlet		50A	
aterial Speci	fications			
scription		Ν	laterial	
sing			uPVC	
ap & Sockets	· · · · · · · · · · · · · · · · · · ·	uPVC		
tting (Adhes	ive)	I	Ероху	
ring			EPDM	

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(C) FEED DRAIN/AIR IN



# HFUG-B2315AN

# High Area Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

The HFUG-B2315AN module features Toray's proven durable PVDF hollow fiber membrane with a high packing density per module resulting in a compact system design and lower capital footprint.

Membrane Characteristics		Units	Value	
Membrane Material			PVDF (Polyvinylidene fluoride)	
Nominal Pore Size		μm	0.01	
Outer Membrane Surface Area		m <sup>2</sup> (ft <sup>2</sup> )	75 (807)	
Operating Parameters		Units	Value	
Maximum Feed water / Filtrate Flow		m³/h (gpm)	12.5 (55)	
Maximum Backwash Flow		m³/h (gpm)	14 (61)	
Maximum Air Flow		Nm³/h (scfm)	6.7 (3.9)	
Maximum Inlet Pressure		kPa (psi)	300 (43.5)	
Maximum Backwash Pressure		kPa (psi)	300 (43.5)	
Normal Operating Transmembrane Pressure		kPa (psi)	0-200 (0-29)	
Operating Temperature Range		°C (°F)	0-40 (32-104)	
pH Range	During Filtration		1–10	
	During Cleaning		0–12	

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## **Product Certifications & Compliances**

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## **Applications**





(A) FILTRATE BACK WASH

2,332 (7.65)

# HFUG-B2315AN

High Area Pressurized Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions	s and Weight	Unit	Value	
Diameter		mm (in)	178 (7.01)	
Length		mm (ft)	2,332 (7.651)	(B) AIR OUT
Weight	Full of Water	kg (lbs)	65 (143)	
	After Draining	kg (lbs)	35 (77)	
Connections			Value	
(A) Filtrate Outlet			50A	
(B) Air Outlet		Φ57.91 mm x P3		
(C) Feed Water / Air Inlet		50A		
Material Sp	ecifications			(0
Description		١	<b>I</b> aterial	ø178 (7.0")
Casing			uPVC	
Cap & Sockets			uPVC	
Potting (Adhesive)			Ероху	
O-ring			EPDM	

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(C) FEED DRAIN/AIR IN



# HSU-1515

# Submerged Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

The submerged filtration method is ideal for treating feed water with high turbidity because of effective drainage and sludge removal. No pressure casing, less piping, and fewer valves can reduce capital costs and minimizes footprint requirements.

Membrane Characteristics		Units	Value	
Membrane Material			PVDF (Polyvinylidene fluoride)	
Nominal Pore Size		μm	0.01	
Outer Membrane Surface Area		m <sup>2</sup> (ft <sup>2</sup> )	20 (215)	
Operating Parameters		Units	Value	
Maximum Feed water / Filtrate Flow		m³/h (gpm)	2.0 (8.8)	
Maximum Backwash Flow		m³/h (gpm)	3.0 (13.2)	
Maximum Air Flow		Nm³/h (scfm)	4.5 (2.6)	
Maximum Backwash Pressure		kPa (psi)	200 (29.0)	
Normal Operating Transmembrane Pressure		kPa (psi)	0-100 (0-14.5)	
Operating Temperature Range		°C (°F)	0-40 (32-104)	
pH Range	During Filtration		1–10	
	During Cleaning		0–12	

\*Please contact Toray for operating manual and preliminary design, as capacity per module is highly dependent on feed water quality.

## Applications

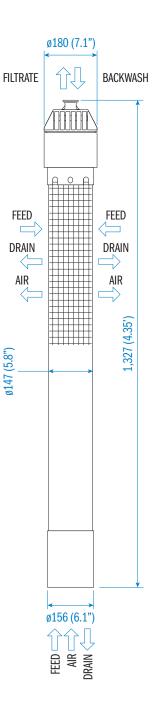




# HSU-1515

Submerged Outside to In / Dead-end Filtration Ultrafiltration (UF) Membrane Module

Dimensions & W	<b>/</b> eight	Unit	Value		
Diameter		mm (in)	147 (5.79)		
Length		mm (ft)	1,327 (4.35)		
Weight	Wet Condition	kg (lbs)	18 (40)		
Connections		,	Value		
Filtrate Outlet		IDF/ISO Clamp	IDF/ISO Clamp Union Fittings 1.5s		
Material Specifications					
Description		Μ	Material		
Cap / Protective Cylinder		A	ABS / PE		
Potting		E	Ероху		
O-ring		E	EPDM		



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