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PRESSURE VESSELS CODELINE

CODELINE PRESSURE VESSELS

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CODELINE & HYTEK: LA PARTNERSHIP CHE FONDE IL SERVIZIO ALLA QUALITA'/ CODELINE & HYTEK : THE PARTNERSHIP PUTTING SERVICE AND QUALITY TOGETHER

Pressure vessels OCTALINE, i più avanzati del mondo:
Con più di 350.000 vessels venduti nel mondo, il brand CodeLine è ormai presente da decenni nei processi industriali dove è richiesto l' utilizzo di Pressure Vessels di affidata qualità e comprovata efficienza.
Le continue innovazioni prodotte, unite ad un' affidabilità garantita nel tempo, hanno fatto di CodeLine il leder mondiale nella produzione di Pressure Vessels.
CodeLine viene utilizzato nei maggiori processi di trattamento delle acque: dalle acque municipali a quelle di mare, dalle acque per uso industriale a quelle per uso farmaceutico, fino ad arrivare alle industrie alimentari e di beverage.
HYTEK S.r.l., che opera ormai da decenni nel mercato mondiale dov' è richiesta efficienza ed innovazione, ha deciso di sposare l' obiettivo finalizzato alla ricerca di Partners di riconosciuta affidabilità, in grado di originare elevati standard produttivi a prezzi altamente competitivi.
Ed è per questo che dal 2003 HYTEK & CODELINE, rappresentano una nuova realtà del mercato globale, capace di fondere alta qualità all' eccellenza del servizio.
Oggi OctaLine è IL PRESSUR VESSELS più avanzato del mondo, ed HYTEK è pronta a divulgarne i suoi elevati standard produttivi.

Perchè OCTALINE è il migliore
OCTALINE è un prodotto derivante da un programma ambizioso di Ricerca e Sviluppo che ha portato alla realizzazione del Pressure Vessel più avanzato al mondo. Ecco il perché:

· LA SEDE OTTAGONALE con la sua superficie piana, garantisce una miglior tenuta idraulica delle porte laterali.
· LE PORTE LATERALI FILETTATE E SMONTABILI offrono un miglior allineamento idraulico in fase di installazione ed una più agevole manutenzione.
· UN UNICO SISTEMA DI CHIUSURA DELLA TESTATA che agevola il rapido accesso alle membrane.
· LA TESTATA MONOBLOCCO IN NORYL che riduce notevolmente le parti di ricambio attraverso:
1. l' utilizzo di 1 solo pezzo in Noryl al posto di 3 (solo per i Vessels fino a 600 PSI Non-ASME Coded);
2. il supporto in alluminio per la testata in Noryl: disponibile per i Vessels ASME Coded a completamento della gamma sulle diverse pressioni di esercizio;
· LE DIVERSE SOLUZIONII SUL POSIZIONAMENTO DELLE PORTE LATERALI che agevolano la predisposizione dell' impianto in fase progettuale, diminuendo altresì in maniera considerevole i costi della raccorderia;
· IL FACILE INSERIMENTO ED ESTRAZIONE delle membrane che diminuiscono i costi di gestione e manutenzione;
· L' AVER ESTESO LA PRESSIONE DI SCOPPIO a 6 volte la pressione massima di esercizio inalzando così la soglia di sicurezza e di qualità;
· LA POSSIBILITA' DI AVERE SU RICHIESTA il certificato ASME Code apposto sul Vessel che garantisce la qualità assoluta.

Che cosa fa unico OCTALINE?
Come progettare una superficie piana in un Vessel di forma circolare? Questa era la sfida da vincere nella realizzazione degli OCTALINE. La Ricerca & Sviluppo per la progettazione della superficie OCTALINE, ha mostrato che la forma ottagonale era la soluzione vincente per poter posizionare 4 porte per ciascun lato del Vessel distanziandole ciascuna di 90°.
I pressure Vessels OctaLine, sono prodotti utilizzando un unico incavo di forma ottagonale

Presure Vessels OCTALINE – the most advanced in the world
With more than 350.000 vessels sold on all over the world, CODELINE is present since more than ten years in the industrial process where it is requested the utilization of pressure vessels with good quality and efficiency.
The continuous innovation together with the high quality have led CODELINE to be the first manufacturer of pressure vessel in the world.
CODELINE is used also in the most important process of water treatment: from municipality water to seawater, from industrial water to pharmaceutical water up to food and beverage industries.
HYTEK srl, that is operating since more than ten years in the world market where it is requested efficiency and innovation, has decided to find new partners capable of the highest standard production with the most competitive prices.
For this reason, HYTEK and CODELINE represent, since 2003's, the new reality of the global market, capable to put high quality and excellent service together.
Today, the CODELINE OctaLine is the most advanced pressure vessel in the world and HYTEK is ready to spread its high standard production.

Why is the OCTALINE the best ?
Because it is a product coming from a very ambitious program of research and development leading to the realisation of the most advanced pressure vessel in the world.
Here are the reasons:

· The octagonal inside of the vessel with its flat surface grants a better hydraulic seal of the side ports;
· The side screw and demountable ports allow a better installation and maintenance;
· The only closure head system makes the access to the membranes easier and quicker;
· The integral head in Noryl reduces considerably the spare parts by:
1. Utilizing one only piece in Noryl instead of 3 (for the vessels up to 600 Psi Non ASME coded alone),
2. utilizing the aluminium support for the head in Noryl: available for the vessels ASME coded on the completion of the range on the different working pressures;
· The different solutions regarding the position of the side ports that make the plant predisposition during the design easier, by reducing also the connection costs;
· The simple mounting and removal of the membranes that reduce the management and maintenance costs;
· The extension of the water pressure up to 6 times more than the maximum working pressure, to make the safety and quality limit higher;
· The possibility to have, on request, the ASME CODE certification, whose label could be put on the vessel, that grants the absolute quality.

What does it make OCTALINE extraordinary?
How to design a flat surface in a round vessel? This was the challenge to be won by realizing the OCTALINE. The research and development for the design of the OCTALINE surface had proved the octagonal shape was the winning solution in order to put 4 ports in each side of the vessel, each one far from each other 90°.
The pressure vessels OctaLine are manufactured in an only octagonal groove.

VESSELS CODELINE 25-300 END PORT PER APPLICAZIONI COMMERCIALI / CODELINE 25-300 VESSELS END PORT FOR COMMERCIAL APPLICATION

INFORMAZIONE GENERALE
Codeline 25-300 è un è un pressure vessel per membrane con diamtero da 2,5 "e ingressi end port. Viene utilizzato per impianti RO commerciali dove la pressione massima arriva fino a 300 PSI. Sono costruiti con vetroresina e un composto epossidico per applicazioni a lungo termine. Codeline 25-300 è adattabile a qualsiasi marca di membrana a spirale avvolta con diametro nominale standard di 2.5".

CARATTERISTICHE UNICHE
- Testate realizzate in tecnopolimero per maggiore solidità ed alta resistenza chimica
- Alta resistenza agli agenti corrosivi per prestazioni di sistema migliorate.
- I particolari sistemi di bloccaggio del tappo, offrono un miglior serraggio
- Rifinitura interna a specchio per un caricamento ed un' estrazione più agevole delle membrane
- Vernice esterna lucida composta da materiale poliuretanico per resistere ai raggi UV
- L'area di tenuta della testa è formata dalla superficie del mandrino; quindi più preciso
- Design compatto per per impianti omogenei e a basso consumo energetico

GENERAL INFORMATION
Codeline Ecoline 25-300 is membrane housing of 2.5" diameter with end entry design. This is used for commercial RO applications upto a maximum operating pressure of 300 PSI. These are made up of epoxy / glass composite to meet the demands of long term and continuous use. Codeline Ecoline 25-300 can accommodate any standard make of 2.5" nominal diameter spiral-wound membrane element.

UNIQUE FEATURES
- Head assembly made of engineering thermoplastics for high strengths & superior chemical resistance
- Corrosion resistant superior quality with improved system performance
- Integrally formed locking grooves provide better locking strength
- Mirror Finish ID for easy & quick loading and unloading of membranes
- Exteriors coated with high gloss polyurethane paint for UV Resistance
- Head Seal Area is formed by mandrel surface; hence more accurate
- Compact design for use in compact and low energy water treatment units

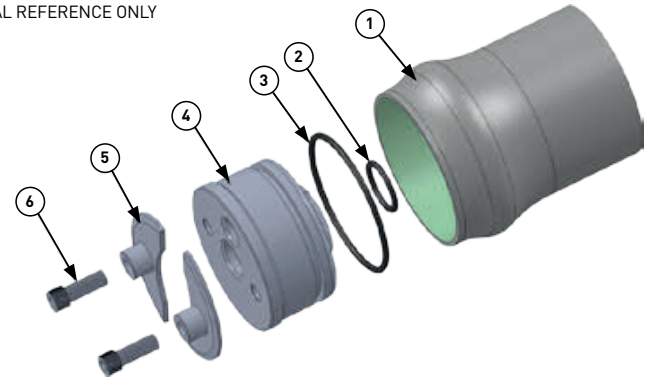
CODELINE ECOLINE 25-300 SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE ECOLINE 25-300	99359	300 PSI / 20 Bar	120 °F / 49 °C	1200 PSI / 82 Bar	- 14" (One) - 21" (One) - 40" (One)

* Specifications are subjected to change without prior notice (for more details refer to model specific engineering drawings)

EXPLODED VIEW & DETAILS

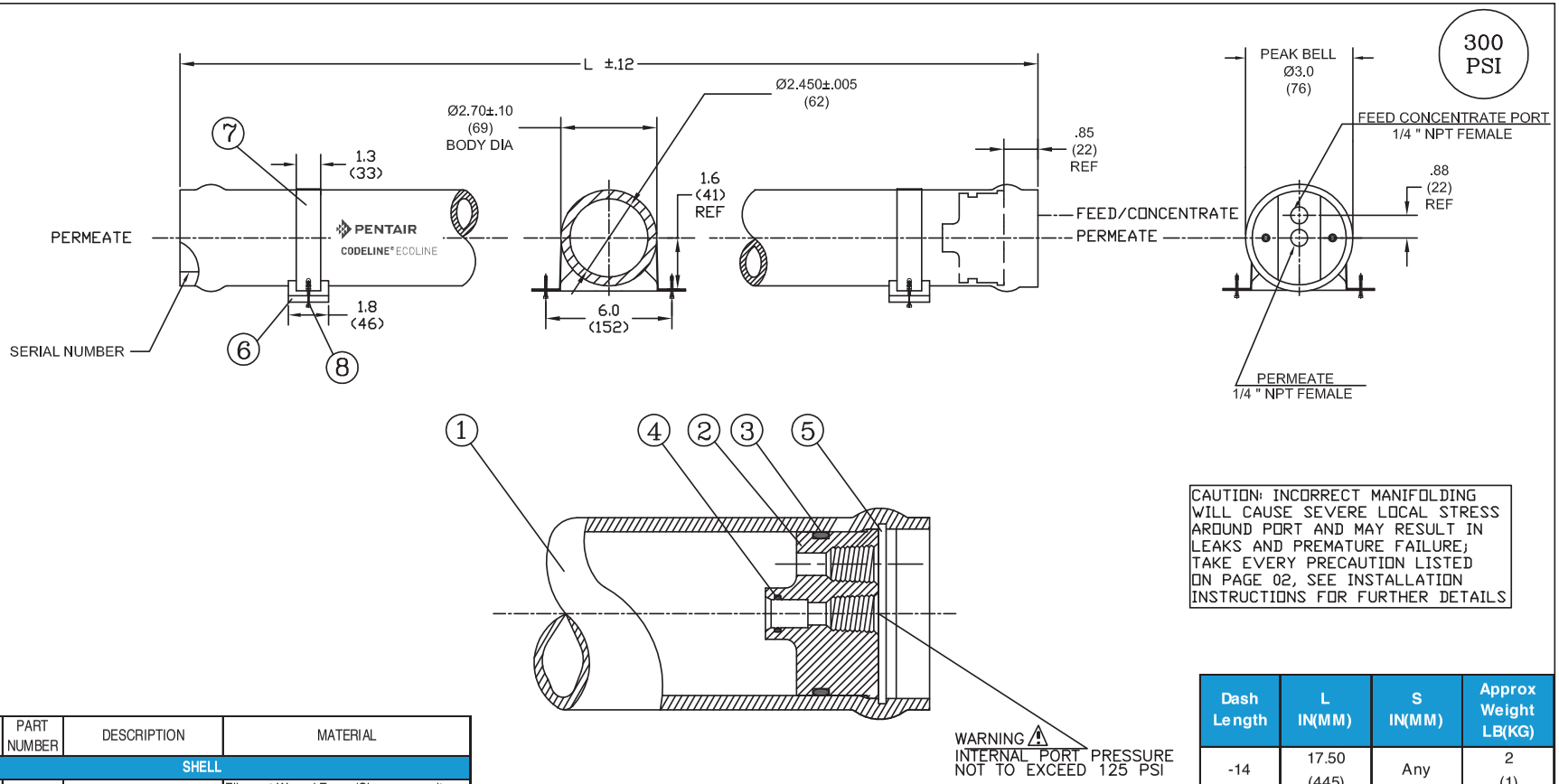
A GENERIC VIEW FOR VISUAL REFERENCE ONLY



PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	25-300 PART NUMBER
1	1	Shell	Filament Wound Expoxy / Glass composite - Head Locking grooves integrally wound in place.	Order section
2	2	PWT Seal	Ethylene Propylene - O Ring	45296
3	2	Head Seal	Ethylene Propylene - O Ring	45313
4	2	End Plug	Engineering Thermoplastic	96005
5	4	Locking Segment	316 Stainless Steel	50371
6	4	Screw	304 Stainless Steel	45232
7*	AR	Saddle - Optional	Engineering Thermoplastic	45058
8*	AR	Strap - Optional	304 Stainless Steel - PVC Cushion	RO 1057

* Not shown in the exploded view



SECTION THROUGH END CLOSURE

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON PAGE 02, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99201	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
HEAD				
2	2	96005	End plug	Engineering Thermoplastic.
3	2	45313	Head Seal	Ethylene Propylene - O - Ring
4	2	45296	PWT Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
5	2	50089	Locking Segment Sub-Assy	SS 316
VESSEL SUPPORT				
6	A/R	45058	Saddle-Optional	Engineering Thermoplastic.
7	A/R	RO-1057	Strap Assy -Optional	304 Stainless Steel-PVC Cushion.
8	A/R	97805	Strap screw-Optional	5/16-18 UNC, 2" L, 18-8 Stainless Steel.

Dash Length	L IN(MM)	S IN(MM)	Approx Weight LB(KG)
-14	17.50 (445)	Any	2 (1)
-21	24.50 (622)	Any	4 (2)
-40	43.50 (1105)	25 (635)	6 (3)

NOTES:–
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH GREY RAL 7011, HIGH GLOSS POLYURETHANE PAINT.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- DIRECT CONNECT–NO SUPPLY OF ADAPTERS.

PENTAIR
CODELINE® ECOLINE

DRAWN	FF	MODEL 25-300 LOW PRESSURE MEMBRANE HOUSING			
CHECKED	RD	DATE 20FEB17	DWG. NO. 99359		REV. G
APPROVED	RM	ECN 4280	SCALE NONE	SIZE B	SHEET 1OF 2

RATING:

DESIGN PRESSURE……300 PSI (2.07 Mpa)
MAX. OPERATING TEMP……..120°F (49°C)
MIN. OPERATING TEMP……..20°F (-7°C)
FACTORY TEST PRESSURE……450 PSIG (3.10 MPa)
BURST PRESSURE……1200 PSI (8.27 MPa)

INTENDED USE:

The Ecoline Model 25-300 Fiberglass RO/UF Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis and ultrafiltration elements in typical industrial water treatment systems at pressures up to 300 psi. Any make of 2.5 inch nominal diameter spiral-wound element with a ¾'' dia male product water tube is easily accommodated.

The Ecoline Model 25-300 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.01 in. (0.25mm) and ΔL = 0.3 in. (8mm) for a length code –40 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components.
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without element installed
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the locking segment is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 25-300 ☐ -14 ☐ -21 ☐ -40

LENGTH CODE	ELEMENT CAPACITY
-14	One 14" Direct Connect
-21	One 21" Direct Connect
-40	One 40" Direct Connect

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply end plugs for the following membrane brand and specific model
Brand_____Model_____

☐ Membrane brand and model information is not available, but will be supplied to Pentair on or before the following date _____/_____/_____

CERTIFICATION

☐ Certified by Pentair, not code stamped.

EXTERIOR FINISH

☐ Standard – Grey high-gloss RAL 7011 polyurethane coating over sanded surface.
☐ Optional – White high-gloss RAL 9003 polyurethane coating over sanded surface.

Serial number End	Opposite End	
		PERMEATE PORT CONFIGURATION
☐	☐	Standard – ¼'' NPT Female (Standard per drawing)
		FEED PORT CONFIGURATION
☐	☐	Standard – ¼'' NPT Female (Standard per drawing)

END PLUG MATERIALS

☐ Standard – PVC ¼" NPT Female FC port & ¼" NPT Female Permport connection

For complete information on proper use of the vessel
Please refer to 25-300 USER'S GUIDE - 98600

VESSELS CODELINE 40L30N END PORT PER APPLICAZIONI COMMERCIALI / CODELINE 40L30N VESSELS END PORT FOR COMMERCIAL APPLICATION

INFORMAZIONE GENERALE
Codeline 40L30N è un è un pressure vessel per membrane con diamtero da 4 "e ingressi end port. Viene utilizzato per impianti RO commerciali dove la pressione massima arriva fino a 300 PSI. Sono costruiti con vetroresina e un composto epossidico per applicazioni a lungo termine. Codeline 40L30N è adattabile a qualsiasi marca di membrana a spirale avvolta con diametro nominale standard di 4".

CARATTERISTICHE UNICHE
- Testate monoblocco realizzate in tecnopolimero termoplastico per una maggiore solidità ed una superiore resistenza chimica
- Superiore resistenza agli agenti corrosivi con conseguente aumento delle prestazioni
- I particolari sistemi di bloccaggio del tappo, offrono un miglior serraggio
- Rifinitura interna a specchio per un caricamento ed un' estrazione più agevole delle membrane
- Esterni rivestiti con vernice poliuretanica lucida per resistenza ai raggi UV
- L'area di tenuta della testa è formata dalla superficie del mandrino; quindi più preciso
- Design compatto per l'utilizzo in unità di trattamento dell'acqua compatte ea basso consumo energetico

GENERAL INFORMATION
Codeline Ecoline 40L30N is membrane housing of 4" diameter with end entry design. This is used for commercial RO applications upto a maximum operating pressure of 300 PSI. These are made up of epoxy / glass composite to meet the demands of long term and continuous use. Codeline Ecoline 40L30N can accommodate any standard make of 4" nominal diameter spiral-wound membrane element.

UNIQUE FEATURES
- Single piece head assembly manufactured by engineering thermoplastics provides high strength and superior chemical resistance
- Corrosion resistant superior quality with improved system performance
- Integrally formed locking grooves provide better locking strength
- Mirror Finish ID for easy & quick loading and unloading of membranes
- Exteriors coated with high gloss polyurethane paint for UV Resistance
- Head Seal Area is formed by mandrel surface; hence more accurate
- Compact design for use in compact and low energy water treatment units

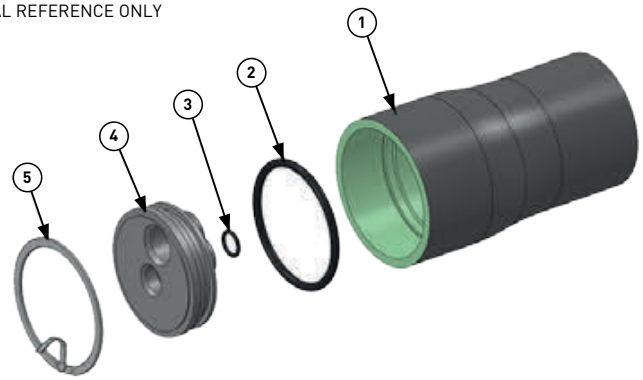
CODELINE ECOLINE 40L30N SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX OPERATING PRESSURE	MAX OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE ECOLINE 40L30N	99373	300 PSI / 20 Bar	120 °F / 49 °C	1200 PSI / 82 Bar	-b 1 (14") -C1 (21") -1**; -2; -3

Any make of 4" nominal diameter spiral-wound element with a ¾" diameter male product water tube is easily accommodated.
* Specifications are subjected to change without prior notice (for more details refer to model specific engineering drawings)
** -1 is for 40" long housing

EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY

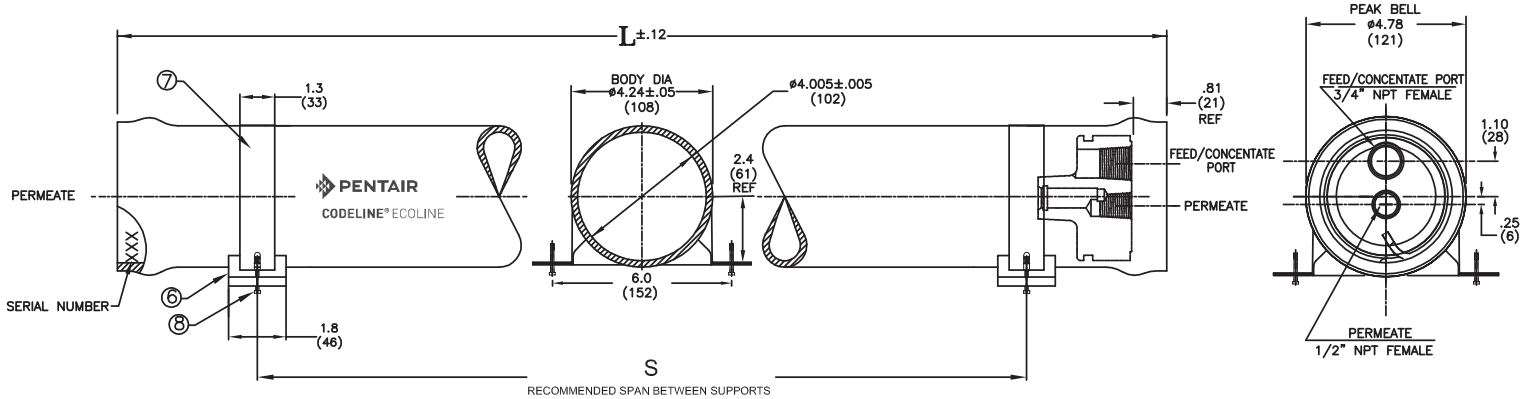


PARTS TABLE

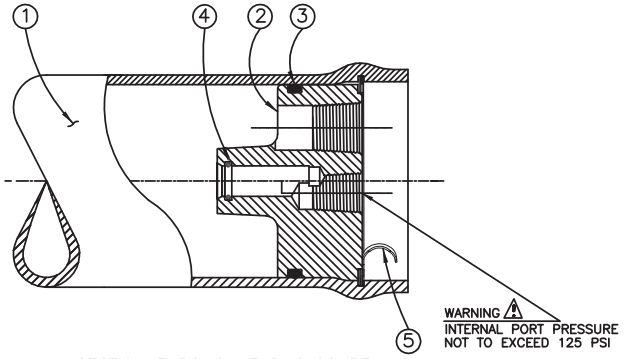
DRG REG	Qty	DESCRIPTION	MATERIAL	40L30N PART NUMBERN
1	1	Shell	Filament wound / Expoxy glass composite - Head locking grooves integrally wound in place.	Order section
2	2	Head Seal	Ethylene Propylene - O Ring	45317
3	2	PWT Seal	Ethylene Propylene - O Ring	45296
4	2	End Plug Sub Assembly	Engineering Thermoplastic	95929
5	2	Retaining Ring	316 Stainless Steel	46414
6*	2	Saddle - optional	Engineering Thermoplastic	45058
7*	2	Strap Assembly - optional	304 Stainless Steel - PVC Cushion	47459

* Not shown in the exploded view and are optional

300 PSI



CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON PAGE 02, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS



SECTION THROUGH END CLOSURE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	200016	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
HEAD				
2	2	95929	End plug Sub-assembly	Engineering Thermoplastic.
3	2	45317	Head Seal	Ethylene Propylene - O - Ring
4	2	45296	PWT Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
5	2	46414	Retaining Ring	SS 316 as per SA-479 ASME Edition 2015.
VESSEL SUPPORT				
6	2	45058	Saddle-Optional	Engineering Thermoplastic.
7	2	47459	Strap Assembly-Optional	304 Stainless Steel-PVC Cushion.
8	4	97821	Strap screw-Optional	5/16-18 UNC, 1.5" L, 18-8 Stainless Steel.

Dash Length	L IN(MM)	S IN(MM)	Approx Weight LB(KG)
-B1	18.00 (457)	Any	3 (1)
-C1	25.00 (635)	Any	4 (2)
-1	44.00 (1118)	25 (635)	9 (4)
-2	84.00 (2134)	56 (1422)	16 (7)
-3	124.00 (3150)	80 (2032)	23 (11)

NOTES:–
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- DIRECT CONNECT–NO SUPPLY OF ADAPTERS.

PENTAIR
CODELINE® ECOLINE

MODEL 40L30N
LOW PRESSURE MEMBRANE HOUSING

DRAWN DATE	SM 13AUG12		DWG. NO. 99373		REV. F	
CHECKED DATE	FF 13AUG12	DATE 20FEB17				
APPROVED DATE	SR 13AUG12	ECN 4280	SCALE NONE	SIZE B	SHEET 1OF 2	

Hydrotecnologies
hytek

RATING:

DESIGN PRESSURE……..300 PSI (2.07 Mpa)
MAX. OPERATING TEMP……..……..120°F (49°C)
MIN. OPERATING TEMP……..……..20°F (-7°C)
FACTORY TEST PRESSURE……450 PSIG (3.10 MPa)
BURST PRESSURE……..……..….1200 PSI

INTENDED USE:

The Ecoline Model 40L30N Fiberglass RO/UF Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis and ultrafiltration elements in typical industrial water treatment systems at pressures up to 300 psi. Any make of four-inch nominal diameter spiral-wound element with a ¾'' dia male product water tube is easily accommodated.

The Ecoline Model 40L30N must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

NOTE
Spiral Retaining Ring Removal Tool (50303)
Recommended to open and close vessel.

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.01 in. (0.25mm) and ΔL = 0.03 in. (0.8mm) for a length code –1 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components.
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without element installed.
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… operate outside the pH range 3-11

CAUTION
EYE PROTECTION SHOULD BE WORN WHEN REMOVING OR INSTALLING RETAINING RINGS. KEEP FINGERS CLEAR FROM RETAINING RING WHILE INSTALLING LAST OF TWO TURNS. RING MAY SNAP INTO POSITION POSSIBLY PINCHING FINGERS.

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

ECOLINE MODEL 40L30N -B1 -C1 -1 -2 -3

LENGTH CODE	ELEMENT CAPACITY
-B1	One 14" Direct Connect
-C1	One 21" Direct Connect
-1	One 40" Direct Connect
-2	Two 40" Direct Connect
-3	Three 40" Direct Connect

MEMBRANE BRAND AND MODEL – please check one and fill in information

Please supply end plugs for the following membrane brand and specific model
Brand_____Model_____

Membrane brand and model information is not available, but will be supplied to Pentair on or before the following date _____/_____/_____

CERTIFICATION – please check one

CE Marked.(Not applicable for -1 vessel)

EXTERIOR FINISH

Standard – White high-gloss RAL 9003 polyurethane coating over sanded surface.
Optional – Grey high-gloss RAL 7011 polyurethane coating over sanded surface.

Serial number End
Opposite End

PERMEATE PORT CONFIGURATION
Standard – ½'' NPT Female (Standard per drawing)
Optional - ½'' BSPT/JISPT Female

FEED PORT CONFIGURATION
Standard – ¾" NPT Female (Standard per drawing)
Optional – ¾'' BSPT/JISPT Female
Optional – ½'' NPT Female

END PLUG MATERIALS
Standard – Noryl ¾'' NPT Female FC port & ½" NPT Female Permport connection (P/N 96288)
Optional - PVC ½" NPT Female FC port & ½" NPT Female Permport connection (P/N 97592)

NOTE:- PVC end plug only with ½" NPT FC port.

For complete information on proper use of the vesse
Please refer to 40L30N USER'S GUIDE - 95207

PRESSURE VESSELS RO CODELINE 4"-600 PSI PV 40E60 END PORT

PV 40E60 CODELINE

MATERIALE DI COMPOSIZIONE:

- Vessel: _____Vetroresina
- Tappi: _____PVC
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Acciaio Nichelato

DATI TECNICI

- Pressione di progetto: _____ 41 bar a 49°C (600 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo: _____ 62 bar (900 psi)
- Pressione di scoppio: _____ 248 bar (3600 psi)
- Uscita permeato: _____ 1/2" NPT Femmina
- Uscita concentrato: _____ 3/4" NPT Femmina
- Colore Standard: _____Bianco
- Connessione con membrana:___ Tramite adapter (2 x vessel, non inclusi, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6

CERTIFICATI:

- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:

- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:

- Selle: CA45058 (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel)
- Tiranti: CA47459 (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel)
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).

TRATTAMENTO DELLE ACQUE:

- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 40E60

MATERIALS COMPOSITION:

- Shell material: _____Fiberglass
- Plugs: _____ PVC
- Retaining ring _____ 316 SST
- Bearing ring _____ Nickel-plated Alloy Steel

TECHNICAL SHEET:

- Design Pressure: _____ 41 bar a 49°C (600 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressur e _____ 62 bar (900 psi)
- Burst Pressure: _____ 248 bar (3600 psi)
- Permeate Port: _____ 1/2" NPT Female
- Concentrate Port: _____ 3/4" NPT Female
- Standard color: _____ White
- Connection membrane: _____ By Adapter (2 x vessel, not incuded, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6

CERTIFICATIONS:

- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:

- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:

- Saddles: CA45058 (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps: CA47459 (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)
- Adapter: nr. 2 x vessel (see technical documentation).

WATER TREATMENTS

- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

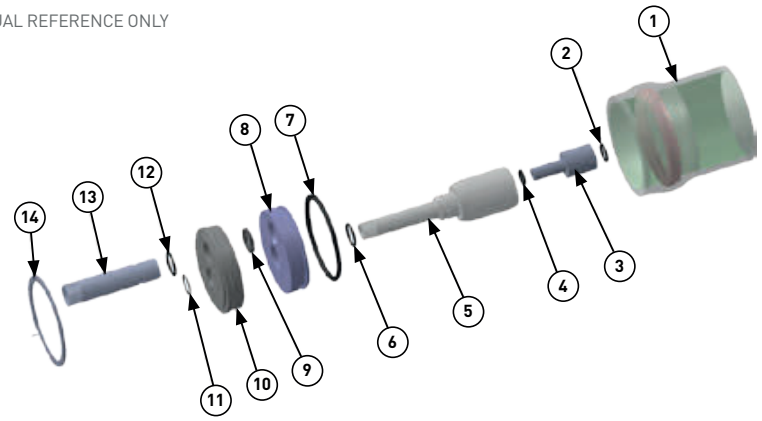
CODELINE 40E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 40E30N	518016	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-3
CODELINE 40E60	518017	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-6
CODELINE 40E100	518015	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-7

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

EXPLODED VIEW & DETAILS

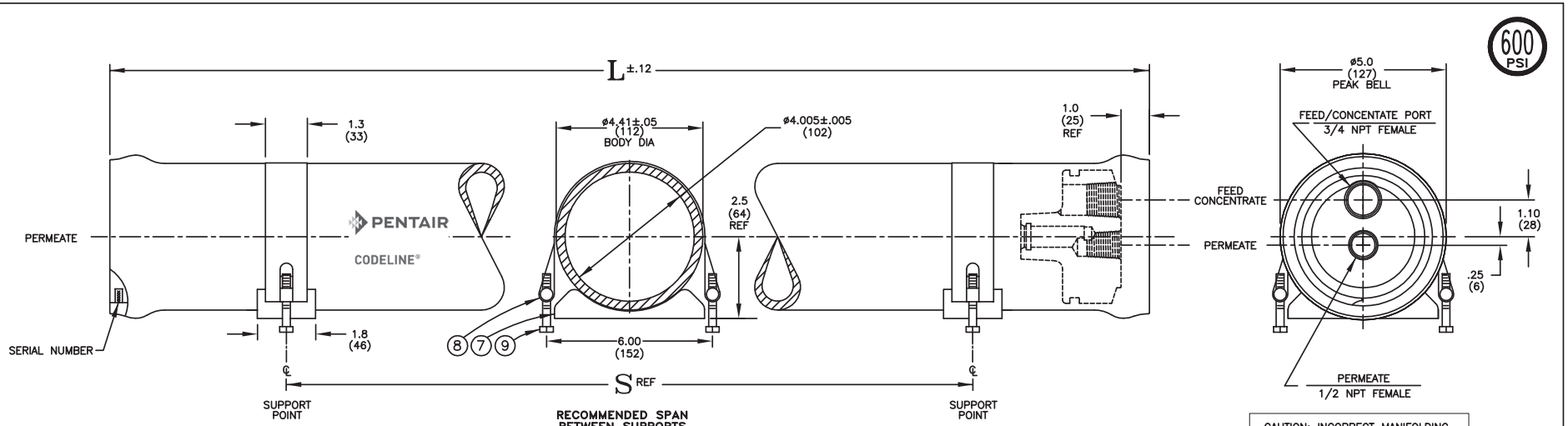
A GENERIC VIEW FOR VISUAL REFERENCE ONLY



PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	40E30N	40E60	40E100
				PART NUMBER	PART NUMBER	PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section
2	AR	PWT Seal	Ethylene Propylene – O Ring	NA	As required	As required
3	2	Adapter	Engineering Thermoplastic	NA	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	45296	45294	45294
5	2	Permeate Port	Engineering Thermoplastic	NA	NA	47469
6	2	Permeate Port Seal	Ethylene Propylene – O Ring	NA	NA	45299
7*	2	Plug Seal	Ethylene Propylene – O Ring	45317	45317	45317
8*	2	Sealing Plate	Engineering Thermoplastic	NA	NA	50481
9	2	Port Retainer Set	CF8M Cast SST, Two-Piece Set	NA	NA	50489
10	2	End Plug Sub Assembly / Bearing Plate	Engg. Thermoplastic*** / 6061-T6 hard anodized Alum. Alloy	95927***	50312***	47471
11	2	Port Retainer	PH 15-7 MO SST	NA	NA	45244
12	2	F / C Port Seal	Ethylene Propylene – O Ring	NA	NA	45299
13**	2	F / C Port	UNS32750	NA	NA	47472
14	2	Retaining Ring	316 Stainless Steel	45260	45260	45260
15*	AR	Saddle	Engineering Thermoplastic	45058	45058	45058
16*	AR	Strap Assembly	304 Stainless Steel Cushion	47459	47459	47459

* Not shown in the exploded view and optional for the 40E30N
** For 40E100 the UNS32750 material is suitable only
*** Engg. thermoplastic material

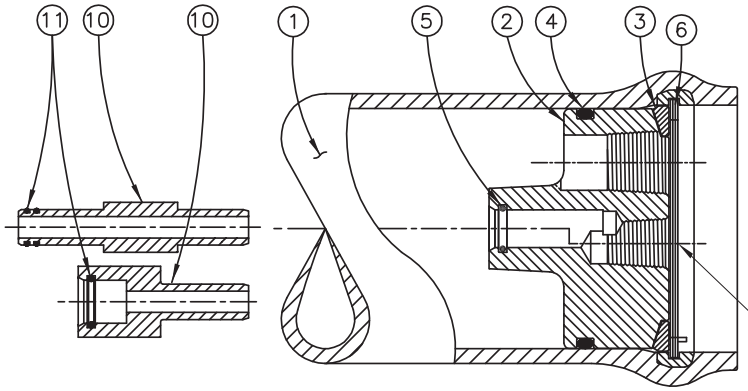


RECOMMENDED SPAN
BETWEEN SUPPORTS

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS –4 AND OVER

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON PAGE 02, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

Dash Length	L IN(MM)	S IN(MM)	Approx Weight LB(KG)
-1	49.90 (1267)	28X1 (711)	14 (6)
-2	89.90 (2283)	56X1 (1422)	22 (10)
-3	129.90 (3299)	80X1 (2032)	31 (14)
-4	169.90 (4315)	64X2 (1626)	39 (18)
-5	209.90 (5331)	78X2 (1981)	48 (22)
-6	249.90 (6347)	92X2 (2337)	56 (25)



SECTION THROUGH END CLOSURE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
1	1	418094	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
			HEAD	
2	2	50420	End plug	Engineering Thermoplastic.
3	2	50440	Bearing Ring	Nickel-plated Alloy Steel
4	2	45317	Head Seal	Ethylene Propylene - O - Ring
5	2	45294	Adapter Seal	Ethylene Propylene - O - Ring
			HEAD INTERLOCK	
6	2	45260	Retaining Ring	SS 316 as per SA-479 ASME Edition 2015.
			VESSEL SUPPORT	
7	2+	45058	Saddle	Engineering Thermoplastic.
8	2+	47459	Strap Assembly	304 Stainless Steel-PVC Cushion.
9	4++	97821	Strap screw	5/16-18 UNC, 1.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
10	2	A/R	Adapter	Engineering Thermoplastic.
11	A/R	A/R	PWT Seal	Ethylene Propylene - O - Ring

+3 each & ++6 nos. furnished with length code 4,5 & 6.

NOTES
- DIMENSIONS IN INCHES (MM APPROX).
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.

PENTAIR
CODELINE®

MODEL 40E60
BRACKISH PRESSURE
MEMBRANE HOUSING

DRW.	AXA
APPR.	RM
DATE	20FEB17

ECN	SHEET	SIZE	NUMBER	REV
4280	1 OF 2	B	518017	F

RATING:

DESIGN PRESSURE……600 PSI (4.14 Mpa)
MAX. OPERATING TEMP……..……..120°F (49°C)
MIN. OPERATING TEMP……..……..20°F (-7°C)
FACTORY TEST PRESSURE……900 PSIG (6.21 MPa)
BURST PRESSURE……..……3600 PSI (24.82 MPa)

INTENDED USE:

The Model 40E60 Fiberglass RO/UF Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis and ultrafiltration elements in typical industrial water treatment systems at pressures up to 600 psi. Any make of four-inch nominal diameter spiral-wound element is easily accommodated. The appropriate interfacing hardware for the element specified is furnished with the vessel.

The Model 40E60 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

NOTE
Spiral Retaining Ring Removal Tool (50303)
Recommended to open and close vessel

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.02 in. (0.5mm) and ΔL = 0.2 in. (5mm) for a length code –6 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components.
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware.
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… operate outside the pH range 3-11

CAUTION:
EYE PROTECTION SHOULD BE WORN WHEN REMOVING OR INSTALLING RETAINING RINGS.
KEEP FINGERS CLEAR FROM RETAINING RING WHILE INSTALLING LAST OF TWO TURNS. RING MAY SNAP INTO POSITION POSSIBLY PINCHING FINGERS.

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 40E60 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

☐ Membrane brand and model information is not available, but will be supplied to Pentair on or before the following date _____/_____/_____

CERTIFICATION – please check one

☐ CE Marked. (Not applicable for -1 vessel)

EXTERIOR FINISH

☐ Standard – White high-gloss RAL 9003 polyurethane coating over sanded surface.
☐ Optional – Optional colours are available for 50 or more vessels per order. Call factory for pricing details.

Serial number End	Opposite End	
		PERMEATE PORT CONFIGURATION
☐	☐	Standard – ½'' NPT Female
		FEED PORT CONFIGURATION
☐	☐	Standard – ¾" NPT Female
☐	☐	Optional – ½'' NPT Female

For complete information on proper use of the vessel
Please refer to 40E60 USER'S GUIDE - 526004

PRESSURE VESSELS RO CODELINE 4"-1000 PSI PV 40E100 END PORT

PV 40E100 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6

DATI TECNICI
- Pressione di progetto: _____ 69 bar a 49°C (1000 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 89,7 bar (1300 psi)
• CE 103 bar (1500 psi)
- Pressione di scoppio: _____ 414 bar (6000 psi)
- Uscita permeato: _____ 1/2" NPT Male
- Uscita concentrato: _____ 3/4" NPT Male
- Colore Standard: _____Bianco
- Connessione con membrana:___ Tramite adapter (2 x vessel, non inclusi, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Selle: CA45058 (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel)
- Tiranti: CA47459 (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel)
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 40E100

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloy

TECHNICAL SHEET:
- Design Pressure: _____ 69 bar a 49°C (1000 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 89,7 bar (1300 psi)
• CE 103 bar (1500 psi)
- Burst Pressure: _____ 414 bar (6000 psi)
-Permeate Port: _____ 1/2" NPT male
- Concentrate Port: _____ 3/4" NPT male
- Standard color: _____ White
- Connection membrane: _____ By Adapter (2 x vessel, not incuded, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Saddles: CA45058 (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps: CA47459 (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)
- Adapter: nr. 2 x vessel (see technical documentation).

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

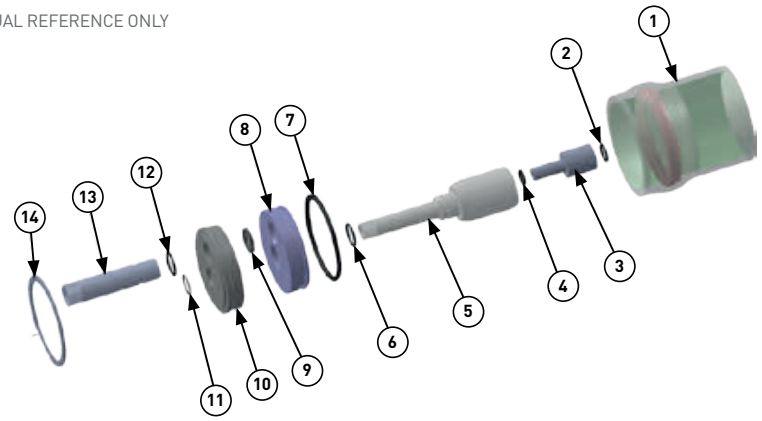
CODELINE 40E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 40E30N	518016	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-3
CODELINE 40E60	518017	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-6
CODELINE 40E100	518015	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-7

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

EXPLODED VIEW & DETAILS

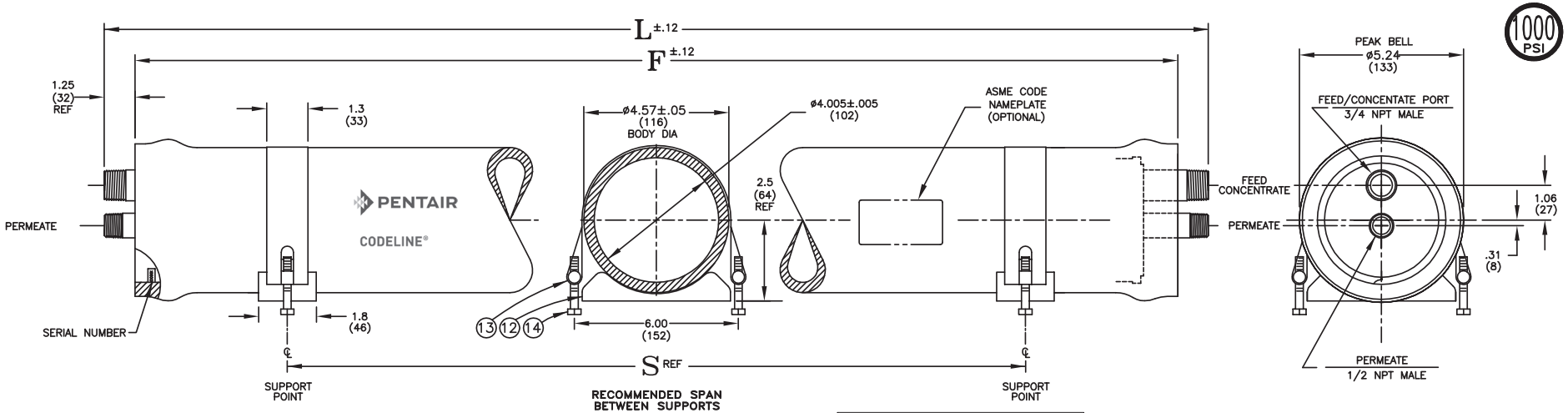
A GENERIC VIEW FOR VISUAL REFERENCE ONLY



PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	40E30N PART NUMBER	40E60 PART NUMBER	40E100 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section
2	AR	PWT Seal	Ethylene Propylene – O Ring	NA	As required	As required
3	2	Adapter	Engineering Thermoplastic	NA	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	45296	45294	45294
5	2	Permeate Port	Engineering Thermoplastic	NA	NA	47469
6	2	Permeate Port Seal	Ethylene Propylene – O Ring	NA	NA	45299
7*	2	Plug Seal	Ethylene Propylene – O Ring	45317	45317	45317
8*	2	Sealing Plate	Engineering Thermoplastic	NA	NA	50481
9	2	Port Retainer Set	CF8M Cast SST, Two-Piece Set	NA	NA	50489
10	2	End Plug Sub Assembly / Bearing Plate	Engg. Thermoplastic*** / 6061-T6 hard anodized Alum. Alloy	95927***	50312***	47471
11	2	Port Retainer	PH 15-7 MO SST	NA	NA	45244
12	2	F / C Port Seal	Ethylene Propylene – O Ring	NA	NA	45299
13**	2	F / C Port	UNS32750	NA	NA	47472
14	2	Retaining Ring	316 Stainless Steel	45260	45260	45260
15*	AR	Saddle	Engineering Thermoplastic	45058	45058	45058
16*	AR	Strap Assembly	304 Stainless Steel Cushion	47459	47459	47459

* Not shown in the exploded view and optional for the 40E30N
** For 40E100 the UNS32750 material is suitable only
*** Engg. thermoplastic material

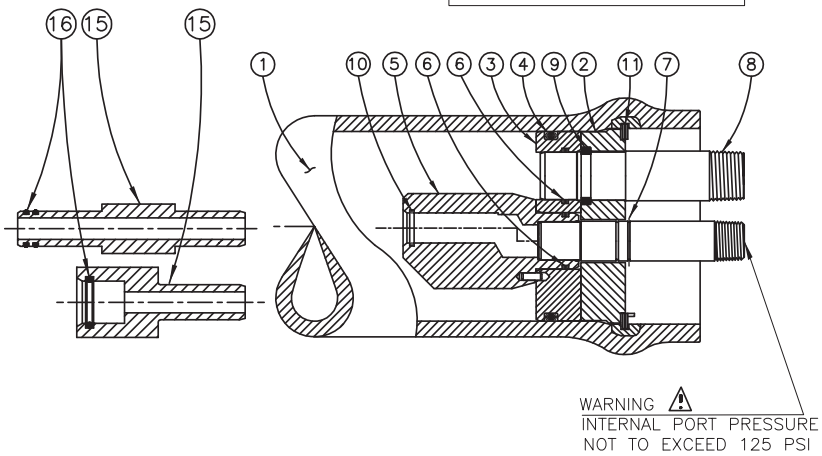


CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS –4 AND OVER

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON PAGE 02, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
1	1	418091	SHELL	Filament Wound Epoxy/Glass composites-Head locking grooves integrally wound in place.
			HEAD	
2	2	47471	Bearing Plate	Aluminium Alloy 6061-T6 as per SB-221
3	2	50481	Sealing Plate	Engineering Thermoplastic.
4	2	45317	Head Seal	Ethylene Propylene - O - Ring
5	2	47469	Permeate Port	Engineering Thermoplastic.
6	4	45299	Permeate Port Seal	Ethylene Propylene - O - Ring
7	2	45244	Port Retainer	PH 15-7 Mo Stainless Steel.
8	2	47472	Feed/Conc. Port	UNS S32750 as per SA-790
9	2	50489	Port Retainer Set	CF8M Cast SS, Two-piece set.
10	2	45294	Adapter Seal	Ethylene Propylene - O - Ring
			HEAD INTERLOCK	
11	2	45260	Retaining Ring	SS-316 as per SA-479
			VESSEL SUPPORT	
12	2*	45058	Saddle	Engineering Thermoplastic.
13	2*	47459	Strap Assy.	304 Stainless Steel - PVC cushion
14	4**	97821	Strap screw.	5/16-18 UNC,1.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
15	2	A/R	Adapter	Engineering Thermoplastic.
16	A/R	A/R	PWT Seal	Ethylene Propylene - O - Ring

*3 & **6 Each Furnished With Length Code 4, 5, 6 & 7.



SECTION THROUGH END CLOSURE

NOTES

- DIMENSIONS IN INCHES (MM APPROX).
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

Dash Length	L IN(MM)	S IN(MM)	F IN(MM)	Approx Weight LB(KG)
-1	56.60 (1438)	28X1 (711)	54.10 (1374)	21 (10)
-2	96.60 (2454)	56X1 (1422)	94.10 (2390)	31 (14)
-3	136.60 (3470)	80X1 (2032)	134.10 (3406)	41 (19)
-4	176.60 (4486)	64X2 (1626)	174.10 (4422)	51 (23)
-5	216.60 (5502)	78X2 (1981)	214.10 (5438)	62 (28)
-6	256.60 (6518)	92X2 (2337)	254.10 (6454)	71 (32)
-7	296.60 (7534)	106X2 (2692)	294.10 (7470)	81 (37)

PENTAIR

CODELINE®

DRAWN	CHECKED	APPROVED
KR	MD	SS

MODEL 40E100

HIGH PRESSURE MEMBRANE HOUSING

ECN	DATE	SHEET	SIZE	NUMBER	REV
4638	02JAN18	1 OF 2	B	518015	L

RATING:

DESIGN PRESSURE……..1000 PSI (6.90 Mpa)
MAX. OPERATING TEMP……..……..120 F (49 C)
MIN. OPERATING TEMP……..…….20 F (-7 C)
FACTORY TEST PRESSURE……CE / ASME 1500 / 1100 PSI (10.34 Mpa) / (7.58 MPa)
BURST PRESSURE……..…….6000 PSI (41.37 MPa)

INTENDED USE:

The CodeLine Model 40E100 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1000 psi. Any make of four-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model 40E100 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.

The CodeLine Model 40E100 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.02 in. (0.5mm) and ΔL = 0.2 in. (5mm) for a length code –6 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components;
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120 F (0.86 MPa @ 49 C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

For complete information on proper use of this vessel please refer to the 40E100 USER'S GUIDE Bulletin 526005.

NOTE
Spiral Retaining Ring Removal Tool (50303) Recommended to open and close vessel.

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 40E100 -1 -2 -3 -4 -5 -6 -7

MEMBRANE BRAND AND MODEL – please check one and fill in information

Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

Membrane brand and model information is not available, but will be supplied to Pentair on or before the following date _____/_____/_____

CERTIFICATION REQUIRED– please check one

ASME Stamped and National Board Registered.

In compliance with the ASME Sec. X but not Code Stamped.

CE Marked.

EXTERIOR FINISH – please check one

Standard – White high-gloss RAL 9003 polyurethane coating.
Option – Optional colors are available for 50 or more vessels per order. Call factory for pricing details.

MATERIAL AND PORT CONFIGURATIONS OPTIONS– please check one

Standard – All materials and port configurations as per drawing 518015 on the first page.

Option – Feed/Concentrate port, " IPS Grooved (P/N 47473)

CAUTION:
EYE PROTECTION SHOULD BE WORN WHEN REMOVING OR INSTALLING RETAINING RINGS. KEEP FINGERS CLEAR FROM RETAINING RING WHILE INSTALLING LAST OF TWO TURNS. RING MAY SNAP INTO POSITION POSSIBLY PINCHING FINGERS.

PRESSURE VESSELS RO CODELINE 8"-300 PSI PV 80E30 END PORT

PV 80E30 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 21 bar a 49°C (300 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
  • ASME 27 bar (390 psi)
  • CE 31 bar (450 psi)
- Pressione di scoppio: _____ 124 bar (1800 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316 connessione per giunto victaulic (giunto victaulic non incluso)
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 80E30

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloyl
- Saddles (included): _____Engineering thermoplastic ((nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 21 bar a 49°C (300 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
  • ASME 27 bar (390 psi)
  • CE 31 bar (450 psi)
- Burst Pressure: _____ 124 bar (1800 psi)
- Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316 connection for victaulic joint (victaulic joint not included)
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

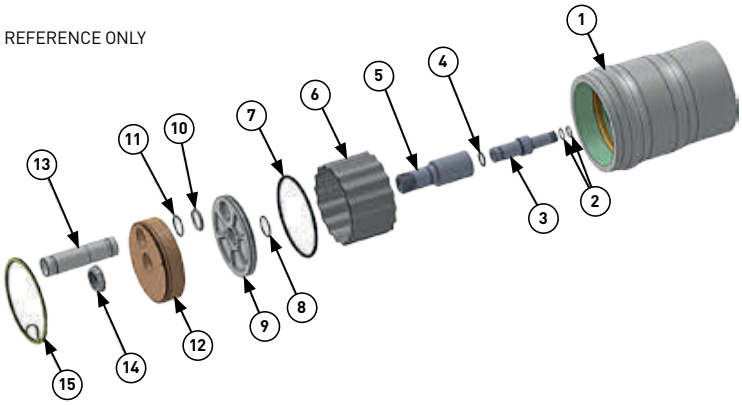
CODELINE 80E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80E30	99111	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-8
CODELINE 80E45	99112	450 PSI / 31 Bar	120 °F / 49 °C	2700 PSI / 186 Bar	1-8
CODELINE 80E60	99109	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-8
CODELINE 80E100	99108	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-8
CODELINE 80E120	99110	1200 PSI / 82 Bar	120 °F / 49 °C	7200 PSI / 496 Bar	1-8

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

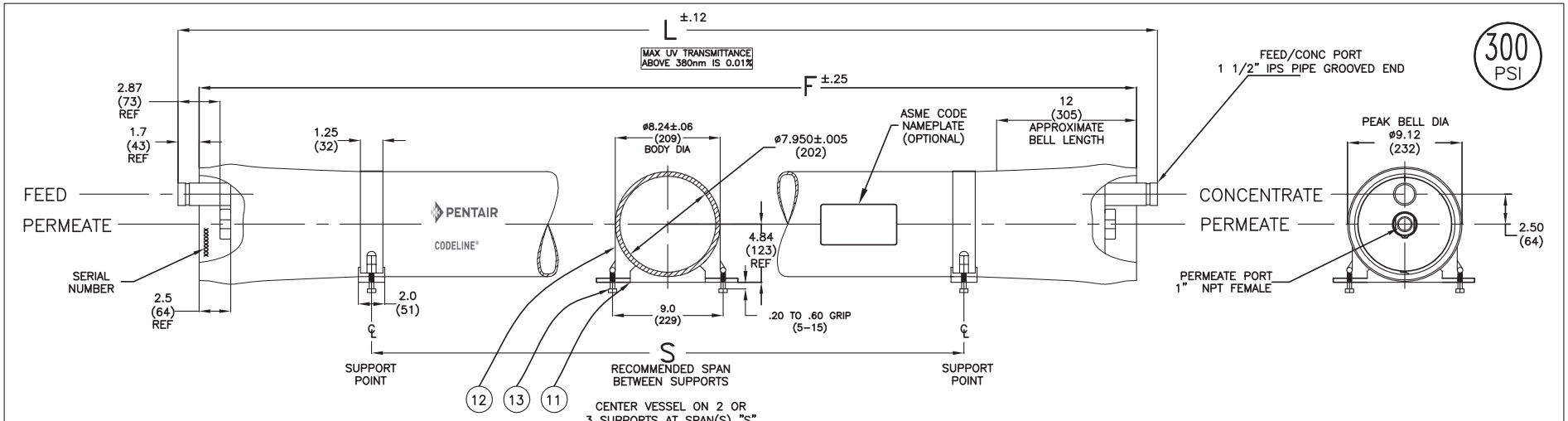
EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY



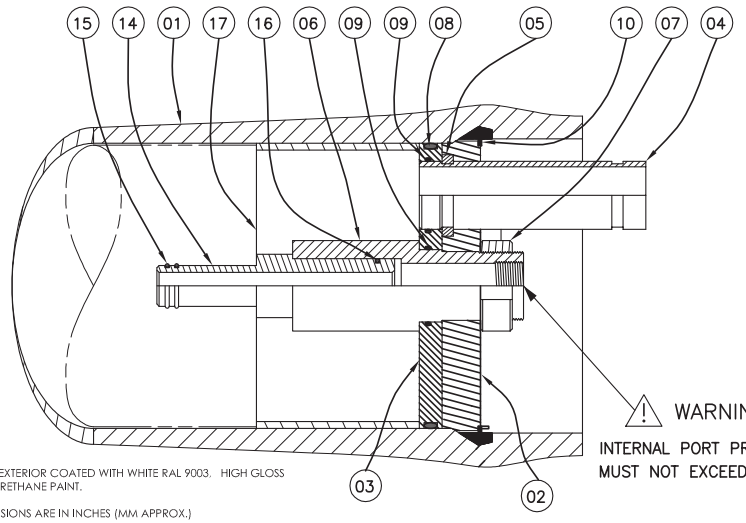
PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80E30 PART NUMBER	80E45 PART NUMBER	80E60 PART NUMBER	80E100 PART NUMBER	80E120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section
2	4	PWT Seal	Ethylene Propylene - O Ring	As required	As required	As required	As required	As required
3	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	52245	52245	52245	52245	52245
5	2	Permeate Port	Engineering Thermoplastic	50608	50569	50569	50558	50558
6	1	Thrust Ring	Engineering Thermoplastic	45069	45069	45069	45069	45069
7	2	Head Seal	Ethylene Propylene - O Ring	96000	96000	96000	96000	96000
8	2	Perm Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
9	2	Sealing Plate	Engineering Thermoplastic	96003	96003	96003	96003	96003
10	2	Port Retainer / Set	Stainless Steel / Two-piece Set	45247	45090	45090	45090	45090
11	2	FC Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	51050	51051	51052	47317	47317
13	2	Feed / Conc Port	Stainless Steel 316L** / Super Duplex Stainless Steel	50607**	50567**	50567**	50556	50556
14	2	Port Retainer / Port Nut	Stainless Steel / Engineering Thermoplastic	45247	45066	45066	45066	45066
15	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336
16*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169
17*	AR	Strap Assembly	304 Stainless Steel - PVC Cushion	45042	45042	45042	45042	45042
18*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
01	1	99301	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
			HEAD	
02	2	51050	Bearing Plate	6061-T6 as per SB-221
03	2	96003	Sealing Plate	Engineering Thermoplastic.
04	2	50607	Feed/Conc Port	SS-316L as per SA-312
05	2	45247	Port Retainer	Stainless Steel.
06	2	97980	Permeate Port	Engineering Thermoplastic.
07	2	45066	Port Nut	Engineering Thermoplastic.
08	2	96000	Head Seal	Ethylene Propylene - O Ring.
09	4	45312	Port Seal	Ethylene Propylene - O Ring.
			HEAD INTERLOCK	
10	2	47336	Retaining Ring	SS-316 as per SA-479
			VESSEL SUPPORT	
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel - PVC cushion
13	4++	46265	Strap screw.	5/16-18 UNC, 2.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
16	2	52245	Adapter seal	Ethylene Propylene - O - Ring
17	1	45069	Thrust Ring	Engineering Thermoplastic.

+3 & ++6 Each Furnished With Length code 4 & above.



SECTION THROUGH END CLOSURE

ITEM (17) DOWNSTREAM ONLY

NOTES
*SHELL EXTERIOR COATED WITH WHITE RAL 9003. HIGH GLOSS POLYURETHANE PAINT.

*DIMENSIONS ARE IN INCHES (MM APPROX.)

*NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.

*GENERAL TOLERANCES APPLY. FOR DETAILS CONTACT FACTORY.

*L.O.A REFERS TO OVERALL LENGTH OF THE VESSEL.

*FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

*EMPTY WEIGHT REFERS TO SHELL WEIGHT INCLUDING HEAD ASSEMBLIES WITHOUT MEMBRANES.

Shell Length Code	L L.O.A. IN(MM)	S Span IN(MM)	F IN(MM)	Empty Weight LB(KG)
1	61 (1549)	30 X 1 (762)	57.63 (1464)	33 (15)
2	101 (2565)	70 X 1 (1778)	97.63 (2480)	44 (20)
3	141 (3581)	110 X 1 (2794)	137.63 (3496)	55 (25)
4	181 (4597)	75 X 2 (1905)	177.63 (4512)	66 (30)
5	221 (5613)	95 X 2 (2413)	217.63 (5528)	77 (35)
6	261 (6629)	115 X 2 (2921)	257.63 (6544)	88 (40)
7	301 (7645)	135 X 2 (3429)	297.63 (7560)	99 (45)
8	341 (8661)	155 X 2 (3937)	337.63 (8576)	110 (50)

PENTAIR

CODELINE®

DRAWN DATE	KK 10APR15	ECN 4624	MODEL 80E30			
CHECKED DATE	KPS 10APR15	DATE 26DEC17	MEMBRANE HOUSING			
APPROVED DATE	MKS 10APR15	SCALE NONE	SHEET 1 OF 2	SIZE B	NUMBER 99111	REV P

Hydrotecnologies

hytek

RATING:

DESIGN PRESSURE……..……...300 PSI (2.07 MPa)
MAX. OPERATING TEMP……...……..120 F (49 C)
MIN. OPERATING TEMP……..……..20 F (-7 C)
FACTORY TEST PRESSURE……CE / ASME 450 / 330 PSI (3.1Mpa) / (2.27 MPa)
BURST PRESSURE……..…….…….1800 PSI (12.4 MPa)

INTENDED USE:

The CodeLine Model 80E30 Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 300 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model 80E30 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.

The CodeLine Model 80E30 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.015 in. (0.4mm) and ΔL = 0.2 in. (5mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any wa
y to support other components; branch connection piping may be simply supported between the header and port; maximum weight of branch piping; feed/concentrate – 16 lbs (7.3 kg); permeate – 8 lbs (3.6 kg)
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120 F (0.86 MPa @ 49 C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11.

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 80E30 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL – please check one and fill in information

Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

CERTIFICATION REQUIRED

ASME Stamped and National Board Registered (please consult factory for pricing)

(ASME Section X)

CE Marked

Standard, Certified by Pentair.

EXTERIOR FINISH – please check one

Standard – white high-gloss RAL 9003 polyurethane coating.
Option – optional colors are available for 50 or more vessels per order.
Call factory for pricing details.

MATERIAL OPTIONS

Standard – All materials as per drawing 99111 on the first page.

Customer specified materials: -
(Please consult the factory, as these options will affect pricing and vessel lead-time.)

For complete information on proper use of this vessel please refer to the 80E series USER'S GUIDE Bulletin 523004.

PRESSURE VESSELS RO CODELINE 8"-450 PSI PV 80E45 END PORT

PV 80E45 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 31 bar a 49°C (450 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
  • ASME 40 bar (585 psi)
  • CE 46 bar (675 psi)
- Pressione di scoppio: _____ 186 bar (2700 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316 connessione per giunto victaulic (giunto victaulic non incluso)
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 80E45

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloyl
- Saddles (included): _____Engineering thermoplastic ((nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 31 bar a 49°C (450 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
  • ASME 40 bar (585 psi)
  • CE 46 bar (675 psi)
- Burst Pressure: _____ 186 bar (2700 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316 connection for victaulic joint (victaulic joint not included)
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

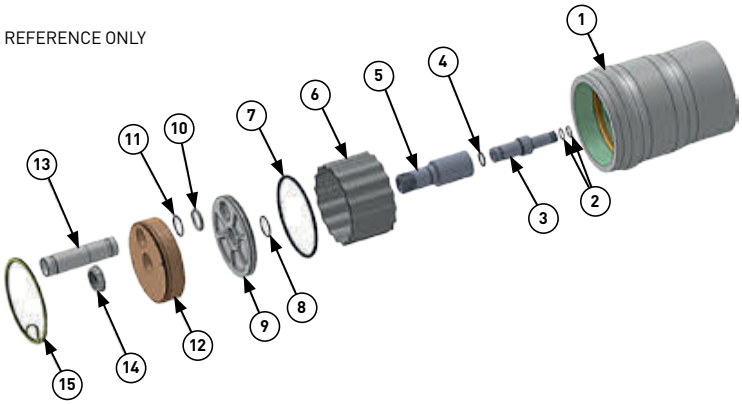
CODELINE 80E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80E30	99111	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-8
CODELINE 80E45	99112	450 PSI / 31 Bar	120 °F / 49 °C	2700 PSI / 186 Bar	1-8
CODELINE 80E60	99109	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-8
CODELINE 80E100	99108	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-8
CODELINE 80E120	99110	1200 PSI / 82 Bar	120 °F / 49 °C	7200 PSI / 496 Bar	1-8

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

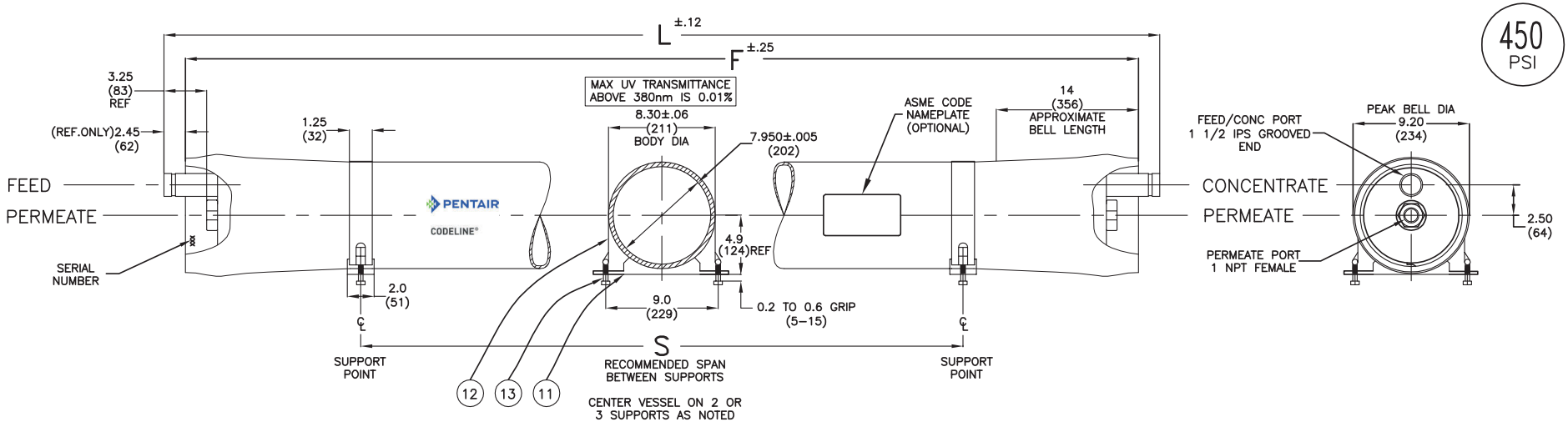
EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY



PARTS TABLE

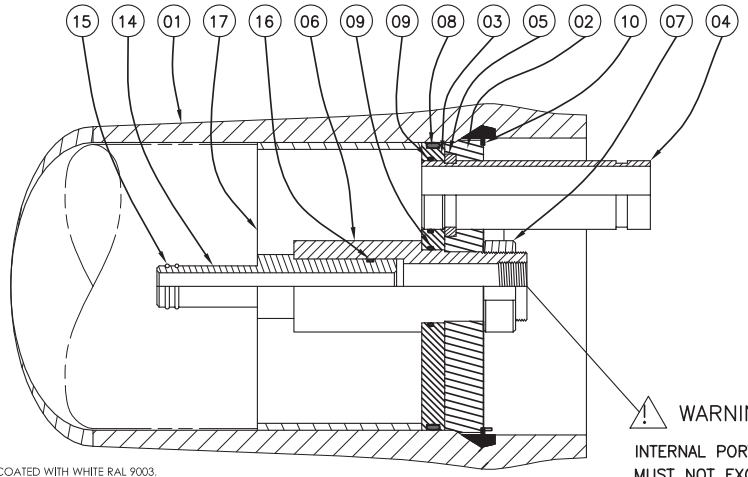
DRG REG	QTY	DESCRIPTION	MATERIAL	80E30 PART NUMBER	80E45 PART NUMBER	80E60 PART NUMBER	80E100 PART NUMBER	80E120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section
2	4	PWT Seal	Ethylene Propylene - O Ring	As required	As required	As required	As required	As required
3	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	52245	52245	52245	52245	52245
5	2	Permeate Port	Engineering Thermoplastic	50608	50569	50569	50558	50558
6	1	Thrust Ring	Engineering Thermoplastic	45069	45069	45069	45069	45069
7	2	Head Seal	Ethylene Propylene - O Ring	96000	96000	96000	96000	96000
8	2	Perm Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
9	2	Sealing Plate	Engineering Thermoplastic	96003	96003	96003	96003	96003
10	2	Port Retainer / Set	Stainless Steel / Two-piece Set	45247	45090	45090	45090	45090
11	2	FC Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	51050	51051	51052	47317	47317
13	2	Feed / Conc Port	Stainless Steel 316L** / Super Duplex Stainless Steel	50607**	50567**	50567**	50556	50556
14	2	Port Retainer / Port Nut	Stainless Steel / Engineering Thermoplastic	45247	45066	45066	45066	45066
15	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336
16*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169
17*	AR	Strap Assembly	304 Stainless Steel - PVC Cushion	45042	45042	45042	45042	45042
18*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265



450 PSI

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
01	1	99302	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
			HEAD	
02	2	51051	Bearing Plate	6061-T6 As per SB-221
03	2	96003	Sealing Plate	Engineering Thermoplastic.
04	2	50567	Feed/Conc Port	SS-316L As per SA-312
05	2	45090	Port Retainer Set	CF8M Cast SS,Two-piece set
06	2	50569	Permeate Port	Engineering Thermoplastic.
07	2	45066	Port Nut	Engineering Thermoplastic.
08	2	96000	Head Seal	Ethylene Propylene - O Ring.
09	4	45312	Port Seal	Ethylene Propylene - O Ring.
			HEAD INTERLOCK	
10	2	47336	Retaining Ring	SS-316 As per SA-479
			VESSEL SUPPORT	
11	2*	52169	Saddle	Engineering Thermoplastic.
12	2*	45042	Strap Assy.	304 Stainless Steel - PVC cushion
13	4**	46265	Strap screw.	5/16-18 UNC,2.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
16	2	52245	Adapter seal	Ethylene Propylene - O - Ring
17	1	45069	Thrust Ring	Engineering Thermoplastic.

*3 & **6 Each Furnished With Length code 4, 5, 6 & 7.



SECTION THROUGH END CLOSURE

ITEM (17) DOWNSTREAM ONLY

⚠ WARNING !

INTERNAL PORT PRESSURE MUST NOT EXCEED 125 PSI

NOTES
*SHELL EXTERIOR COATED WITH WHITE RAL 9003. HIGH GLOSS POLYURETHANE PAINT.

*DIMENSION IN INCHES (MM APPROX.)

*NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED

*GENERAL TOLERANCES APPLY. FOR DETAILS CONTACT FACTORY

*L.O.A REFERS TO OVERALL LENGTH OF THE VESSEL

*FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

*EMPTY WEIGHT REFERS TO SHELL WEIGHT INCLUDING HEAD ASSEMBLIES WITHOUT MEMBRANES.

Shell Length Code	L L.O.A. IN(MM)	S Span IN(MM)	F IN(MM)	Empty Weight LB(KG)
1	63 (1600)	30 X 1 (762)	58.13 (1477)	32 (15)
2	103 (2616)	70 X 1 (1778)	98.13 (2493)	47 (21)
3	143 (3632)	110 X 1 (2794)	138.13 (3509)	61 (28)
4	183 (4648)	75 X 2 (1905)	178.13 (4525)	76 (34)
5	223 (5664)	95 X 2 (2413)	218.13 (5541)	90 (41)
6	263 (6680)	115 X 2 (2921)	258.13 (6557)	105 (48)
7	303 (7696)	135 X 2 (3429)	298.13 (7573)	119 (54)
8	343 (8712)	155 X 2 (3937)	338.13 (8589)	134 (61)

PENTAIR
CODELINE®

DRAWN DATE	KK 10APR15	ECN 4624	MODEL 80E45
CHECKED DATE	KPS 10APR15	DATE 26DEC17	MEMBRANE HOUSING
APPROVED DATE	MKS 10APR15	SCALE NONE	SHEET 1 OF 2 / SIZE B / NUMBER 99112 / REV T

RATING:

DESIGN PRESSURE……450 PSI (3.1 MPa)
MAX. OPERATING TEMP……...……...120°F (49°C)
MIN. OPERATING TEMP……...……..20°F (-7°C)
FACTORY TEST PRESSURE…….CE / ASME 675 PSI / 495 PSI (4.65Mpa) / (3.41 MPa)
BURST PRESSURE……..……2700 PSI (18.62 MPa)

INTENDED USE:

The CodeLine Model 80E45 Fiberglass RO Pressure Vessel is designed for continuous, long-term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 450 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.
The CodeLine Model 80E45 must be installed operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.
The CodeLine Model 80E45 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.
The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free from corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.02 in. (0.5mm) and ΔL = 0.2 in. (5mm) for a length code –6 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components; branch connection piping may be simply supported between the header and port; maximum weight of branch piping; feed/concentrate – 16 lbs (7 kg); permeate – 8 lbs (4 kg)
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 80E45 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

CERTIFICATION REQUIRED

☐ ASME Stamped and National Board Registered (please consult factory for pricing) (ASME Section X)
☐ CE Marked
☐ Standard, Certified by Pentair.

EXTERIOR FINISH – please check one

☐ Standard – white high-gloss polyurethane coating.
☐ Option – optional colors are available for 50 or more vessels per order. Call factory for pricing details.

MATERIAL OPTIONS

☐ Standard – All materials as per drawing 99112 on the first page.
☐ Customer specified materials: -
(Please consult the factory, as these options will affect pricing and vessel lead-time.)

For complete information on proper use of this vessel please refer to the 80E series USER'S GUIDE Bulletin 523004.

PRESSURE VESSELS RO CODELINE 8"-600 PSI PV 80E60 END PORT

PV 80E60 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 41 bar a 49°C (600 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
  - ASME 53 bar (780 psi)
  - CE 62 bar (900 psi)
- Pressione di scoppio: _____ 248 bar (3600 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316 connessione per giunto victaulic (giunto victaulic non incluso)
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 80E60

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloyl
- Saddles (included): _____Engineering thermoplastic ((nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 41 bar a 49°C (600 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
  - ASME 40 bar (585 psi)
  - CE 46 bar (675 psi)
- Burst Pressure: _____ 248 bar (3600 psi)
- -Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316 connection for victaulic joint (victaulic joint not included)
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

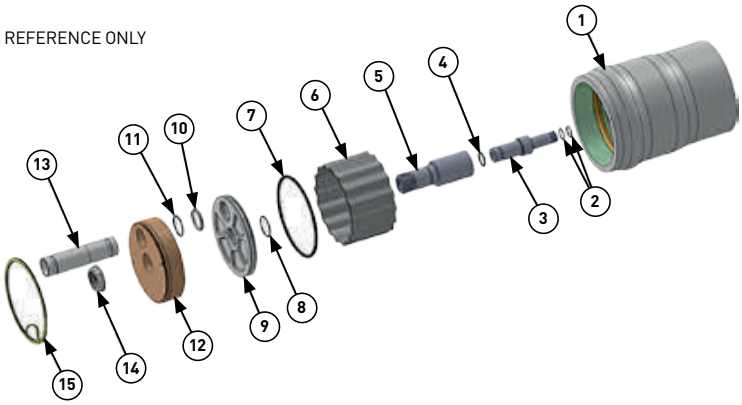
CODELINE 80E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80E30	99111	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-8
CODELINE 80E45	99112	450 PSI / 31 Bar	120 °F / 49 °C	2700 PSI / 186 Bar	1-8
CODELINE 80E60	99109	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-8
CODELINE 80E100	99108	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-8
CODELINE 80E120	99110	1200 PSI / 82 Bar	120 °F / 49 °C	7200 PSI / 496 Bar	1-8

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

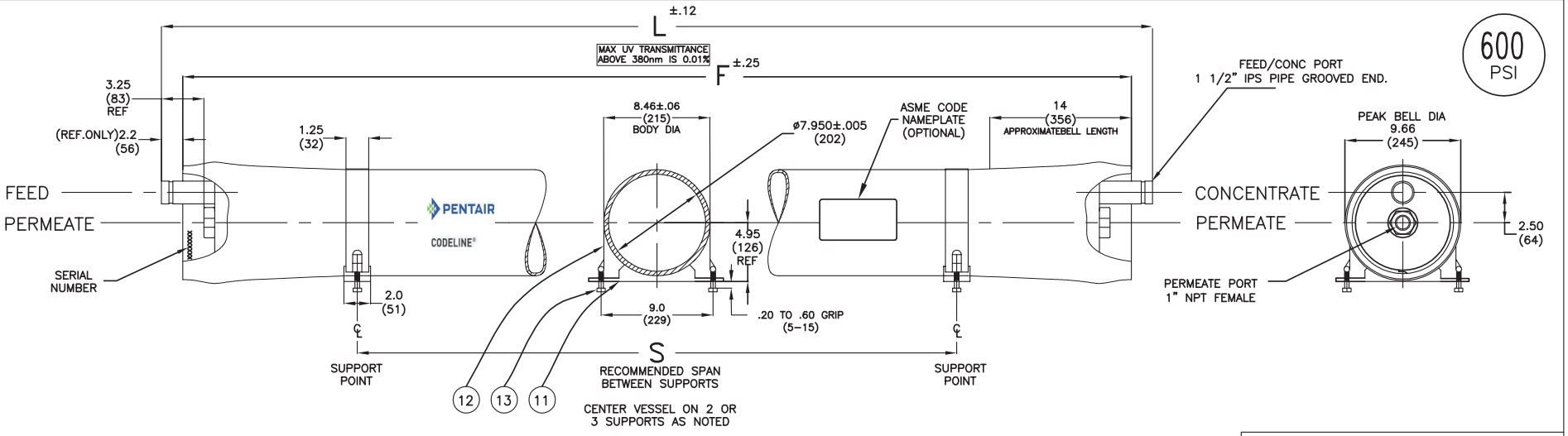
EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY



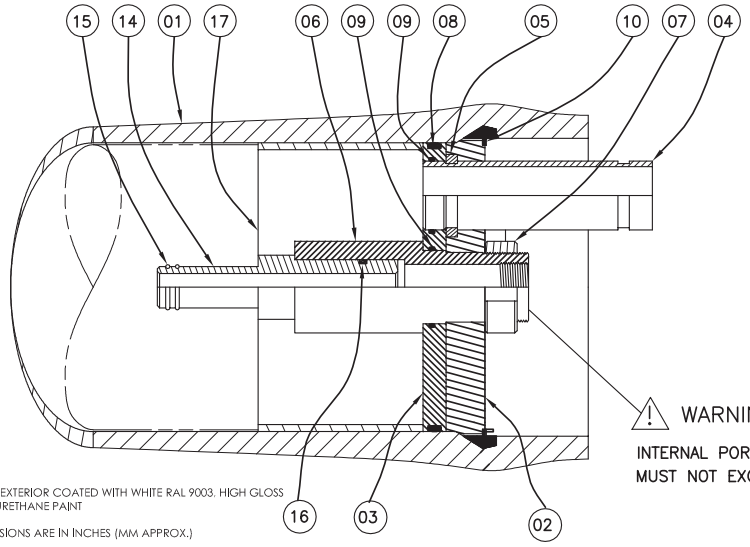
PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80E30 PART NUMBER	80E45 PART NUMBER	80E60 PART NUMBER	80E100 PART NUMBER	80E120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section
2	4	PWT Seal	Ethylene Propylene - O Ring	As required	As required	As required	As required	As required
3	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	52245	52245	52245	52245	52245
5	2	Permeate Port	Engineering Thermoplastic	50608	50569	50569	50558	50558
6	1	Thrust Ring	Engineering Thermoplastic	45069	45069	45069	45069	45069
7	2	Head Seal	Ethylene Propylene - O Ring	96000	96000	96000	96000	96000
8	2	Perm Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
9	2	Sealing Plate	Engineering Thermoplastic	96003	96003	96003	96003	96003
10	2	Port Retainer / Set	Stainless Steel / Two-piece Set	45247	45090	45090	45090	45090
11	2	FC Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	51050	51051	51052	47317	47317
13	2	Feed / Conc Port	Stainless Steel 316L** / Super Duplex Stainless Steel	50607**	50567**	50567**	50556	50556
14	2	Port Retainer / Port Nut	Stainless Steel / Engineering Thermoplastic	45247	45066	45066	45066	45066
15	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336
16*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169
17*	AR	Strap Assembly	304 Stainless Steel - PVC Cushion	45042	45042	45042	45042	45042
18*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
01	1	99303	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
			HEAD	
02	2	51052	Bearing Plate	6061-T6 As per SB-221
03	2	96003	Sealing Plate	Engineering Thermoplastic.
04	2	50567	Feed/Conc Port	SS-316L As per SA-312
05	2	45090	Port Retainer Set	CF8M Cast SS, Two-piece set.
06	2	50569	Permeate Port	Engineering Thermoplastic.
07	2	45066	Port Nut	Engineering Thermoplastic.
08	2	96000	Head Seal	Ethylene Propylene - O Ring.
09	4	45312	Port Seal	Ethylene Propylene - O Ring.
			HEAD INTERLOCK	
10	2	47336	Retaining Ring	SS-316 As per SA-479
			VESSEL SUPPORT	
11	2*	52169	Saddle	Engineering Thermoplastic.
12	2*	45042	Strap Assy.	304 Stainless Steel - PVC cushion
13	4**	46265	Strap screw.	5/16-18 UNC,2.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
16	2	52245	Adapter seal	Ethylene Propylene - O - Ring
17	1	45069	Thrust Ring	Engineering Thermoplastic.

*3 & **6 Each Furnished With Length Code 4, 5, 6 & 7.



SECTION THROUGH END CLOSURE

ITEM 17 DOWNSTREAM ONLY

WARNING!

INTERNAL PORT PRESSURE MUST NOT EXCEED 125 PSI

NOTES
* SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT

*DIMENSIONS ARE IN INCHES (MM APPROX.)

*NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED

*GENERAL TOLERANCES APPLY. FOR DETAILS CONTACT FACTORY

*L.O.A REFERS TO OVERALL LENGTH OF THE VESSEL.

*FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

*EMPTY WEIGHT REFERS TO SHELL WEIGHT INCLUDING HEAD ASSEMBLIES WITHOUT MEMBRANES.

Shell Length Code	L L.O.A. IN(MM)	S Span IN(MM)	F IN(MM)	Empty Weight LB(KG)
1	63 (1600)	30 X 1 (762)	58.63 (1489)	50 (23)
2	103 (2616)	70 X 1 (1778)	98.63 (2505)	70 (32)
3	143 (3632)	110 X 1 (2794)	138.63 (3521)	90 (41)
4	183 (4648)	75 X 2 (1905)	178.63 (4537)	110 (50)
5	223 (5664)	95 X 2 (2413)	218.63 (5553)	130 (59)
6	263 (6680)	115 X 2 (2921)	258.63 (6569)	150 (68)
7	303 (7696)	135 X 2 (3429)	298.63 (7585)	170 (77)
8	343 (8712)	155 X 2 (3937)	338.63 (8601)	190 (86)

PENTAIR
CODELINE®

DRAWN DATE	KK 10APR15	ECN 4624	MODEL 80E60 MEMBRANE HOUSING
CHECKED DATE	KPS 10APR15	DATE 26DEC17	
APPROVED DATE	MKS 10APR15	SCALE NONE	SHEET 1 OF2 / SIZE B / NUMBER 99109 / REV P

Hydrotecnologies
hytek

RATING:

DESIGN PRESSURE……600 PSIG (4.14 Mpa)
MAX. OPERATING TEMP……..……120°F (49°C)
MIN. OPERATING TEMP……..……20°F (-7°C)
FACTORY TEST PRESSURE……..…..CE / ASME 900 PSI / 660 PSI (6.20Mpa) / (4.55 MPa)
BURST PRESSURE……..……3600 PSI (24.8 MPa)

INTENDED USE:

The CodeLine Model 80E60 Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 600 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model 80E60 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.

The CodeLine Model 80E60 must be installed operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion.

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.015 in. (0.4mm) and ΔL = 0.2 in. (5mm) for a length code –7vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components; branch connection piping may be simply supported between the header and port; maximum weight of branch piping; feed/concentrate – 16 lbs (7.3 kg); permeate – 8 lbs (3.6 kg)
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 80E60 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

CERTIFICATION REQUIRED

❑ ASME Stamped and National Board Registered (please consult factory for pricing)
ASME Section X
❑ CE Marked
❑ Standard, Certified by Pentair.

EXTERIOR FINISH – please check one

☐ Standard – white high-gloss polyurethane coating.
☐ Option – optional colors are available for 50 or more vessels per order. Call factory for pricing details.

MATERIAL OPTIONS

❑ Standard – All materials as per drawing 99109 on the first page.
❑ Customer specified materials: -
(Please consult the factory, as these options will affect pricing and vessel lead-time.)

For complete information on proper use of this vessel please refer to the 80E series USER'S GUIDE Bulletin 523004.

PRESSURE VESSELS RO CODELINE 8"-1000 PSI PV 80E100 END PORT

PV 80E100 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 69 bar a 49°C (1000 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 90 bar (1300 psi)
• CE 103 bar (1500 psi)
- Pressione di scoppio: _____ 414 bar (6000 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316 connessione per giunto victaulic (giunto victaulic non incluso)
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 80E100

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloyl
- Saddles (included): _____Engineering thermoplastic ((nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 69 bar a 49°C (1000 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 90 bar (1300 psi)
• CE 103 bar (1500 psi)
- Burst Pressure: _____ 414 bar (6000 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316 connection for victaulic joint (victaulic joint not included)
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

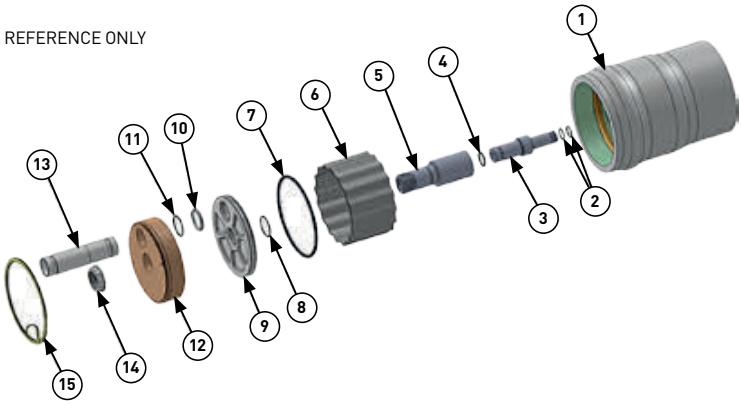
CODELINE 80E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80E30	99111	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-8
CODELINE 80E45	99112	450 PSI / 31 Bar	120 °F / 49 °C	2700 PSI / 186 Bar	1-8
CODELINE 80E60	99109	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-8
CODELINE 80E100	99108	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-8
CODELINE 80E120	99110	1200 PSI / 82 Bar	120 °F / 49 °C	7200 PSI / 496 Bar	1-8

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

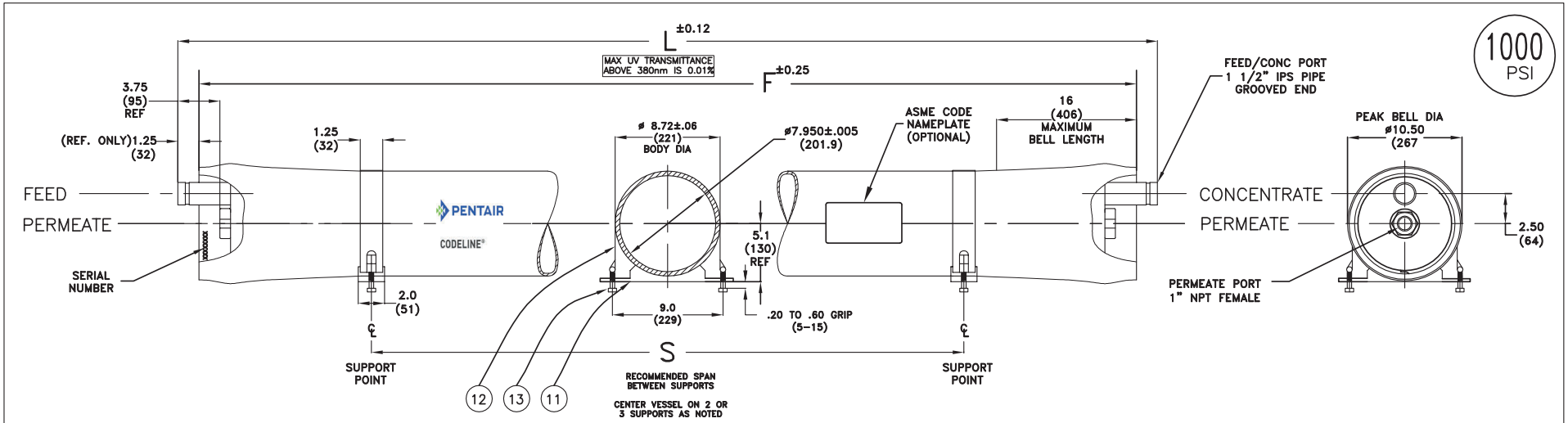
EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY



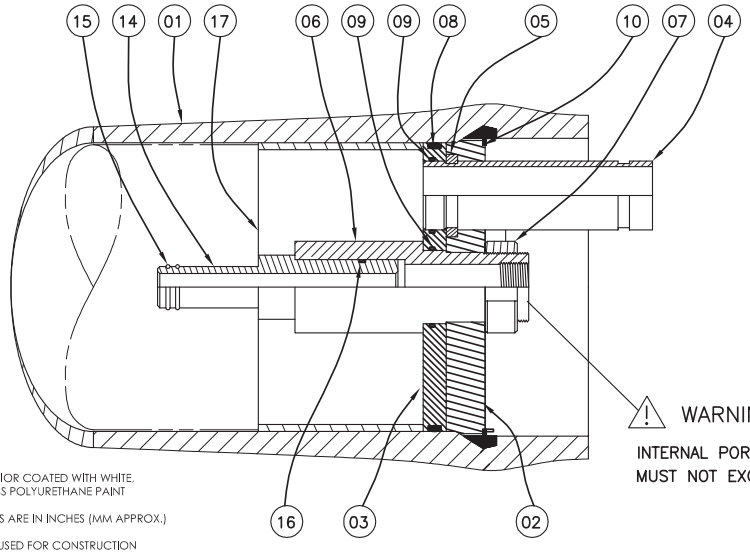
PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80E30 PART NUMBER	80E45 PART NUMBER	80E60 PART NUMBER	80E100 PART NUMBER	80E120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section
2	4	PWT Seal	Ethylene Propylene - O Ring	As required	As required	As required	As required	As required
3	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	52245	52245	52245	52245	52245
5	2	Permeate Port	Engineering Thermoplastic	50608	50569	50569	50558	50558
6	1	Thrust Ring	Engineering Thermoplastic	45069	45069	45069	45069	45069
7	2	Head Seal	Ethylene Propylene - O Ring	96000	96000	96000	96000	96000
8	2	Perm Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
9	2	Sealing Plate	Engineering Thermoplastic	96003	96003	96003	96003	96003
10	2	Port Retainer / Set	Stainless Steel / Two-piece Set	45247	45090	45090	45090	45090
11	2	FC Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	51050	51051	51052	47317	47317
13	2	Feed / Conc Port	Stainless Steel 316L** / Super Duplex Stainless Steel	50607**	50567**	50567**	50556	50556
14	2	Port Retainer / Port Nut	Stainless Steel / Engineering Thermoplastic	45247	45066	45066	45066	45066
15	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336
16*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169
17*	AR	Strap Assembly	304 Stainless Steel - PVC Cushion	45042	45042	45042	45042	45042
18*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
01	1	99304	SHELL	Filament Wound Epoxy/Glass composites-Head locking grooves integrally wound in place.
			HEAD	
02	2	47317	Bearing Plate	6061-T6 As per SB-221
03	2	96003	Sealing Plate	Engineering Thermoplastic.
04	2	50556	Feed/Conc Port	UNS S32750 As per SA-790
05	2	45090	Port Retainer Set	CF8M Cast SS, Two-piece set.
06	2	50558	Permeate Port	Engineering Thermoplastic.
07	2	45066	Port Nut	Engineering Thermoplastic.
08	2	96000	Head Seal	Ethylene Propylene - O Ring.
09	4	45312	Port Seal	Ethylene Propylene - O Ring.
			HEAD INTERLOCK	
10	2	47336	Retaining Ring	SS-316 As per SA-479
			VESSEL SUPPORT	
11	2*	52169	Saddle	Engineering Thermoplastic.
12	2*	45042	Strap Assy.	304 Stainless Steel - PVC cushion
13	4**	46265	Strap screw.	5/16-18 UNC, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
16	2	52245	Adapter seal	Ethylene Propylene - O - Ring
17	1	45069	Thrust Ring	Engineering Thermoplastic.

*3 & **6 Each Furnished With Length Code 4, 5, 6, 7 & 8.



SECTION THROUGH END CLOSURE

ITEM (17) DOWNSTREAM ONLY

⚠ WARNING !

INTERNAL PORT PRESSURE MUST NOT EXCEED 125 PSI

NOTES
*SHELL EXTERIOR COATED WITH WHITE, HIGH GLOSS POLYURETHANE PAINT
*DIMENSIONS ARE IN INCHES (MM APPROX.)
*NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED
*GENERAL TOLERANCES APPLY, FOR DETAILS CONTACT FACTORY
*L.O.A REFERS TO OVERALL LENGTH OF THE VESSEL.
*FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.
*EMPTY WEIGHT REFERS TO SHELL WEIGHT INCLUDING HEAD ASSEMBLIES WITHOUT MEMBRANES.

Shell Length Code	L L.O.A. IN(MM)	S Span IN(MM)	F IN(MM)	Empty Weight LB(KG)
1	65.125 (1654)	30 X 1 (762)	62.63 (1591)	75 (34)
2	105.125 (2670)	70 X 1 (1778)	102.63 (2607)	105 (48)
3	145.125 (3686)	110 X 1 (2794)	142.63 (3623)	135 (61)
4	185.125 (4702)	75 X 2 (1905)	182.63 (4639)	165 (75)
5	225.125 (5718)	95 X 2 (2413)	222.63 (5655)	195 (89)
6	265.125 (6734)	115 X 2 (2921)	262.63 (6671)	226 (103)
7	305.125 (7750)	135 X 2 (3429)	302.63 (7687)	256 (116)
8	345.125 (8766)	155 X 2 (3937)	342.63 (8703)	286 (130)

PENTAIR
CODELINE®

DRAWN DATE	SK 27DEC16	ECN 4624	MODEL 80E100 MEMBRANE HOUSING
CHECKED DATE	KPS 27DEC16	DATE 26DEC17	
APPROVED DATE	MKS 27DEC16	SCALE NONE	SHEET 1 OF 2 / SIZE B / NUMBER 99108 / REV W

RATING:

DESIGN PRESSURE……......1000 PSI (6.90 Mpa)
MAX.OPERATING TEMP…..……..120°F (49°C)
MIN.OPERATING TEMP……...……..20°F (-7°C)
FACTORY TEST PRESSURE……CE / ASME 1500 / 1100 PSI (10.34Mpa) / (7.58 MPa)
BURST PRESSURE……...……6000 PSI (41.4 MPa)

INTENDED USE:

The CodeLine Model 80E100 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1000 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model 80E100 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.

The CodeLine Model 80E100 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.015 in. (0.4mm) and ΔL = 0.2 in. (5mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components; branch connection piping may be simply supported between the header and port; maximum weight of branch piping; feed/concentrate – 16 lbs (7.3 kg); permeate – 8 lbs (3.6 kg)
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 80E100 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

CERTIFICATION REQUIRED

❑ ASME Stamped and National Board Registered (please consult factory for pricing)
ASME Section X
❑ CE Marked
❑ Standard, Certified by Pentair.

EXTERIOR FINISH – please check one

☐ Standard – white high-gloss polyurethane coating.
☐ Option – optional colors are available for 50 or more vessels per order. Call factory for pricing details.

MATERIAL OPTIONS

❑ Standard – All materials as per drawing 99108 on the first page.
❑ Customer specified materials: -
(Please consult the factory, as these options will affect pricing and vessel lead-time.)

For complete information on proper use of this vessel please refer to the 80E series USER'S GUIDE Bulletin 523004.

PRESSURE VESSELS RO CODELINE 8"-1200 PSI PV 80E120 END PORT

PV 80E120 CODELINE

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ Lega di alluminio 6061-T6
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 83 bar a 49°C (1200 psi a 120°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
  - ASME 107 bar (1560 psi)
  - CE 124 bar (1800 psi)
- Pressione di scoppio: _____ 497 bar (7200 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316 connessione per giunto victaulic (giunto victaulic non incluso)
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

CODELINE PV 80E120

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ 6061-T6 Hard anodized Alum. alloy
- Saddles (included): _____Engineering thermoplastic ((nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 83 bar a 49°C (1200 psi at 120°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
  - ASME 90 bar (1300 psi)
  - CE 103 bar (1500 psi)
- Burst Pressure: _____ 497 bar (7200 psi)
- Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316 connection for victaulic joint (victaulic joint not included)
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

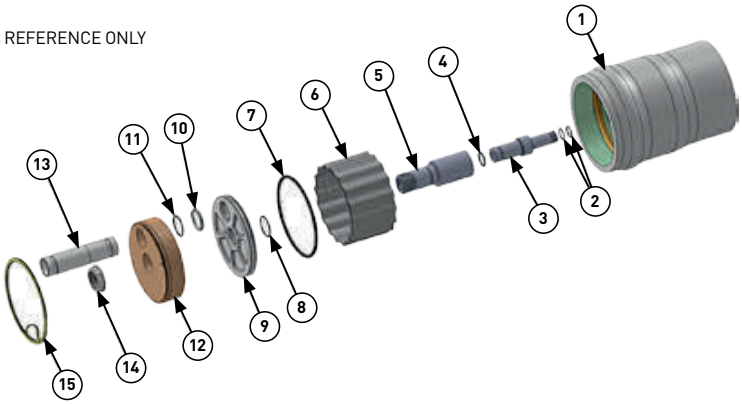
CODELINE 80E SERIES SPECIFICATION*

MODEL NUMBER	DRAWING NUMBER	MAX. OPERATING PRESSURE	MAX. OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80E30	99111	300 PSI / 20 Bar	120 °F / 49 °C	1800 PSI / 124 Bar	1-8
CODELINE 80E45	99112	450 PSI / 31 Bar	120 °F / 49 °C	2700 PSI / 186 Bar	1-8
CODELINE 80E60	99109	600 PSI / 41 Bar	120 °F / 49 °C	3600 PSI / 248 Bar	1-8
CODELINE 80E100	99108	1000 PSI / 68 Bar	120 °F / 49 °C	6000 PSI / 413 Bar	1-8
CODELINE 80E120	99110	1200 PSI / 82 Bar	120 °F / 49 °C	7200 PSI / 496 Bar	1-8

* Specifications are subjected to change without prior notice (for more details refer model specific engineering drawings)

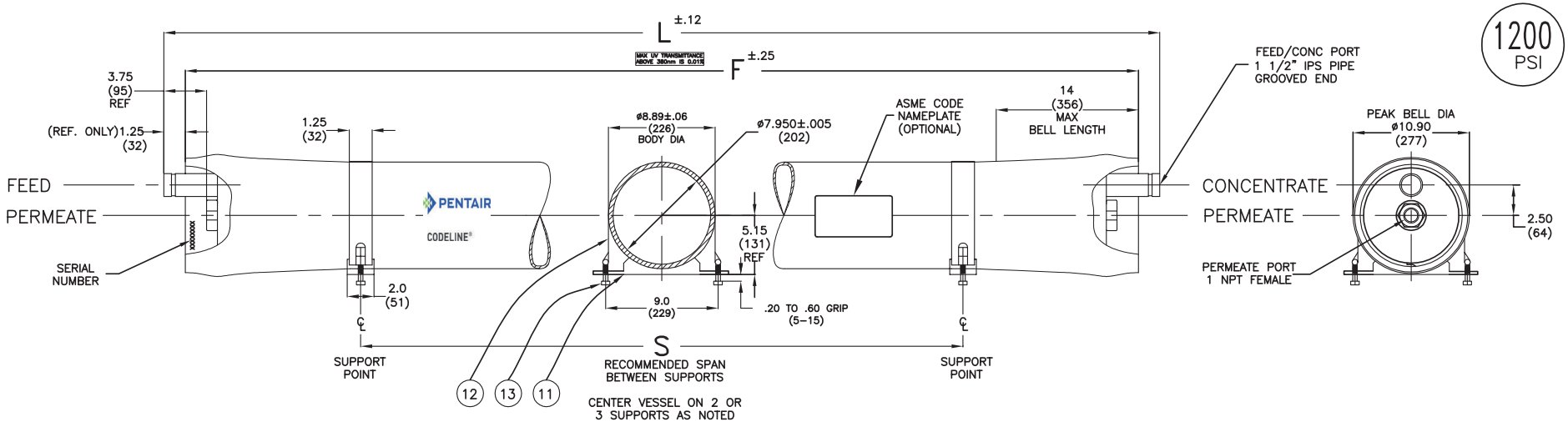
EXPLODED VIEW & DETAILS

A GENERIC VIEW FOR VISUAL REFERENCE ONLY



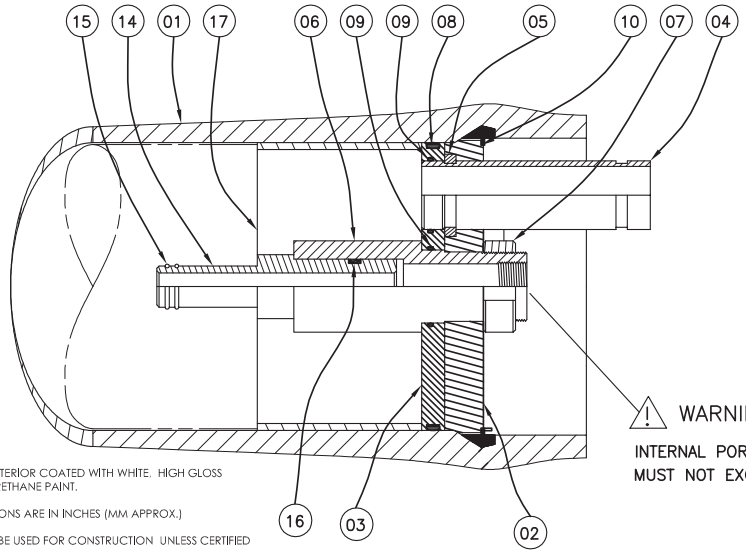
PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80E30 PART NUMBER	80E45 PART NUMBER	80E60 PART NUMBER	80E100 PART NUMBER	80E120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section
2	4	PWT Seal	Ethylene Propylene - O Ring	As required	As required	As required	As required	As required
3	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required
4	2	Adapter Seal	Ethylene Propylene – O Ring	52245	52245	52245	52245	52245
5	2	Permeate Port	Engineering Thermoplastic	50608	50569	50569	50558	50558
6	1	Thrust Ring	Engineering Thermoplastic	45069	45069	45069	45069	45069
7	2	Head Seal	Ethylene Propylene - O Ring	96000	96000	96000	96000	96000
8	2	Perm Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
9	2	Sealing Plate	Engineering Thermoplastic	96003	96003	96003	96003	96003
10	2	Port Retainer / Set	Stainless Steel / Two-piece Set	45247	45090	45090	45090	45090
11	2	FC Port Seal	Ethylene Propylene - O Ring	45312	45312	45312	45312	45312
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	51050	51051	51052	47317	47317
13	2	Feed / Conc Port	Stainless Steel 316L** / Super Duplex Stainless Steel	50607**	50567**	50567**	50556	50556
14	2	Port Retainer / Port Nut	Stainless Steel / Engineering Thermoplastic	45247	45066	45066	45066	45066
15	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336
16*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169
17*	AR	Strap Assembly	304 Stainless Steel - PVC Cushion	45042	45042	45042	45042	45042
18*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
01	1	99305	SHELL	Filament Wound Epoxy/Glass composite-Head locking grooves integrally wound in place.
			HEAD	
02	2	47317	Bearing Plate	6061-T6 As per SB-221
03	2	96003	Sealing Plate	Engineering Thermoplastic.
04	2	50556	Feed/Conc Port	UNS S32750 As per SA-790
05	2	45090	Port Retainer Set	CF8M Cast SS, Two-piece set.
06	2	50558	Permeate Port	Engineering Thermoplastic.
07	2	45066	Port Nut	Engineering Thermoplastic.
08	2	96000	Head Seal	Ethylene Propylene - O Ring.
09	4	45312	Port Seal	Ethylene Propylene - O Ring.
			HEAD INTERLOCK	
10	2	47336	Retaining Ring	SS-316 As per SA-479
			VESSEL SUPPORT	
11	2*	52169	Saddle	Engineering Thermoplastic.
12	2*	45042	Strap Assy.	304 Stainless Steel - PVC cushion
13	4**	46265	Strap screw.	5/16-18 UNC,2.5" L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
16	2	52245	Adapter seal	Ethylene Propylene - O - Ring
17	1	45069	Thrust Ring	Engineering Thermoplastic.

*3 & **6 Each Furnished With Length Code 4, 5, 6 & 7.



SECTION THROUGH END CLOSURE

ITEM (17) DOWNSTREAM ONLY

⚠ WARNING !

INTERNAL PORT PRESSURE MUST NOT EXCEED 125 PSI

NOTES
*SHELL EXTERIOR COATED WITH WHITE, HIGH GLOSS POLYURETHANE PAINT.
*DIMENSIONS ARE IN INCHES (MM APPROX.)
*NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED
*GENERAL TOLERANCES APPLY, FOR DETAILS CONTACT FACTORY
*L.O.A REFERS TO OVERALL LENGTH OF THE VESSEL.
*FC PORT, BEARING PLATE & RETAINING RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.
*EMPTY WEIGHT REFERS TO SHELL WEIGHT INCLUDING HEAD ASSEMBLIES WITHOUT MEMBRANES.

Shell Length Code	L L.O.A. IN (MM)	S Span IN (MM)	F IN(MM)	Empty Weight LB (KG)
1	65.12 (1654)	30 X 1 (762)	62.63 (1591)	92 (42)
2	105.12 (2670)	70 X 1 (1778)	102.63 (2607)	132 (60)
3	145.12 (3686)	110 X 1 (2794)	142.63 (3623)	172 (78)
4	185.12 (4702)	75 X 2 (1905)	182.63 (4639)	212 (96)
5	225.12 (5718)	95 X 2 (2413)	222.63 (5655)	252 (114)
6	265.12 (6734)	115 X 2 (2921)	262.63 (6671)	292 (132)
7	305.12 (7750)	135 X 2 (3429)	302.63 (7687)	331 (150)
8	345.12 (8766)	155 X 2 (3937)	342.63 (8703)	371 (168)

PENTAIR
CODELINE®

DRAWN DATE	SK 13DEC16	ECN 4624	MODEL 80E120 MEMBRANE HOUSING			
CHECKED DATE	KPS 13DEC16	DATE 26DEC17				
APPROVED DATE	MKS 13DEC16	SCALE NONE	SHEET 1 OF 2	SIZE B	NUMBER 99110	REV V

RATING:

DESIGN PRESSURE……1200 PSI (8.27 Mpa)
MAX.OPERATING TEMP……..……120°F (49°C)
MIN.OPERATING TEMP……..……..20°F (-7°C)
FACTORY TEST PRESSURE……CE / ASME 1800 PSI / 1320 PSI (12.41Mpa) / (9.10 MPa)
BURST PRESSURE……..……7200 PSI (49.64 MPa)

INTENDED USE:

The CodeLine Model 80E120 Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1200 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine Model 80E120 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME Code) Section X. At small additional cost, vessels can be inspected during construction by an ASME Authorized inspector and ASME Code stamped.

The CodeLine Model 80E120 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance reinforced plastic shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

The end closures, incorporating close-fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the heads.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using complaint vessel supports furnished; tighten hold down straps just snug
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT… make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ΔDIA = 0.015 in. (0.4mm) and ΔL = 0.2 in. (5mm) for a length code –7 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components; branch connection piping may be simply supported between the header and port; maximum weight of branch piping; feed/concentrate – 16 lbs (7.3 kg); permeate – 8 lbs (3.6 kg)
DO NOT… operate vessel at pressures and temperatures in excess of its rating
DO NOT… operate vessel without permeate ports internally connected with a complete set of elements and interconnecting hardware
DO NOT… operate vessel with permeate pressure in excess of 125 psi at 120°F (0.86 MPa @ 49°C)
DO NOT… overtighten the connection to the permeate port (hand-tighten plus one-quarter turn, check for leaks)
DO NOT… tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT… pressurize vessel until double-checking to verify that the retaining ring is completely inside the groove
DO NOT… work on any component until first verifying that pressure is relieved from vessel
DO NOT… operate outside the pH range 3-11

ORDERING:

Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for expedited processing.
For optional materials and/or features not listed below, please consult factory for pricing and availability.

Please note that we require your membrane brand and model number when ordering. If this information is not initially available, you may provide it at a later date by checking the appropriate box below.

VESSEL LENGTH CODE – please check one

MODEL 80E120 ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL – please check one and fill in information

☐ Please supply adapters for the following membrane brand and specific model
Brand_____Model_____

CERTIFICATION REQUIRED

❑ ASME Stamped and National Board Registered (please consult factory for pricing)
ASME Section X
❑ CE Marked
❑ Standard, Certified by Pentair.

EXTERIOR FINISH – please check one

☐ Standard – white high-gloss polyurethane coating.
☐ Option – optional colors are available for 50 or more vessels per order. Call factory for pricing details.

MATERIAL OPTIONS

❑ Standard – All materials as per drawing 99110 on the first page.
❑ Customer specified materials: -
(Please consult the factory, as these options will affect pricing and vessel lead-time.)

For complete information on proper use of this vessel please refer to the 80E series USER'S GUIDE Bulletin 523004.

OCTALINE 80S SERIES - SIDE PORT "CODED" AND "NOCODED" CONFIGURATION

GENERAL INFORMATION

Codeline OCTA 80S Series is membrane housing of 8" diameter with side entry design with OCTA Technology. This is used for commercial, municipal and industrial RO applications. Vessel models are available upto a maximum operating pressure of 150 PSI, 300 PSI, 450 PSI, 600 PSI, 1000 PSI & 1200 PSI with multiport connectivity. These are made up of epoxy / glass composite to meet the demands of long term and continuous use in RO processes. Codeline OCTA 80S Series vessels can accommodate any standard* 8" membrane element.

* Standard element length = 40 " long

CERTIFICATIONS

- Codeline 80S non-coded: CE certified NSF certified
- Codeline 80S coded: ASME code compliant, CE certified, NSF certified
- Contact us for DWI certified products

THE OCTA TECHNOLOGY - AN OVERVIEW

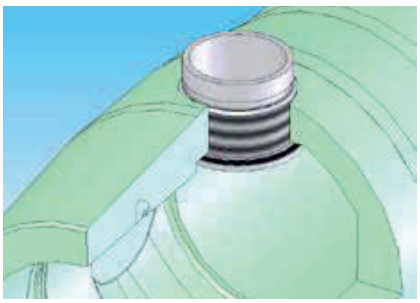
The Background: The conventional internal shape for a membrane housing is considered as a round shape, but use of a round shape with multiple side ports provides a higher probability of side port leakage. Hence, the research background was that how to fit a flat surface in a circular membrane housing with multiple side ports.

The Research: Research with various possibilities proved that an OCTAGON is the best shape to solve the problem of fitting of flat surface in a circular membrane housing. Hence, the technology named after OCTAGON as OCTA Technology.

The Theory & Explanation: Inside of industrial membrane housing made up of OCTAGONAL SHAPE can accommodate multiple side ports with the best fit surface. The reasons are explained as shown on the pictures.

The Conclusion: Successful execution showed that an Octagon, besides providing the best fit, would also allow for multiple sealing surfaces, each at certain intervals along with side port mounting. Apart from the above it will also provide the benefits like easy on-site service & maintenance with quick locking mechanism along with improved head sealing and integrally wound locking groove. Thus, OCTA Technology sets a benchmark for manufacturing a membrane housings series using the unique "Octagonal Groove Forming Technique" and applicable for 8" membrane housings only.

Flat surface formed in the vessel shell - reduces counter boring



Seal seated against a flat surface

Threaded side port; seal seating on side port

CARATTERISTICHE GENERALI / GENERAL FEATURES

UNIQUE BENEFITS

- Minimized Leakage: The octagonal shape which is integrally formed provides a flat sealing surface for superior and reliable sealing of side ports
- ServiceEasy & Maintenance: The threaded side ports are easy to mount and allows quick & easy onsite maintenance and replacements reducing downtime
- LockingQuick Mechanism: The user friendly Quick Lock System eliminates the requirement of special tools for removal and lets easy access the membrane quickly
- HeadImproved Sealing: Head seal which is captured in the head / sealing plate gives better sealing and avoids head seal to roll eliminating head leak defect
- Wound Integrally Locking Groove: Integrally wound locking groove gives enhanced end margin strength for better performance
- Flexibility in permeate piping: Standard permeate ports can be customised as special requirements
- Reduced system cost: Availability of Multiple Side port options for high flow rate cuts down the investments on expensive manifolds
- Ultrapure / Sanitary Applications: 80S Serie can accommodate optionally a special designed sanitary connection for the coded models

UNIQUE FEATURES

- Mirror Finish ID for easy & quick loading and unloading of membranes

Multi-porting options available with 1.5", 2.0" & 2.5" diameter for connecting vessels to each other

- Quick lock head retention system for quick access to membranes
- Exteriors coated with high gloss polyurethane paint for UV resistance

Head seal is captured, hence doesn't roll during head assembly fitment

- Compatible for using in all water type application
- Available in ASME certified & CE marked models
- Available in ASME code compliant and non-coded models

CODELINE 80S SERIES SPECIFICATION*

Code Compliant

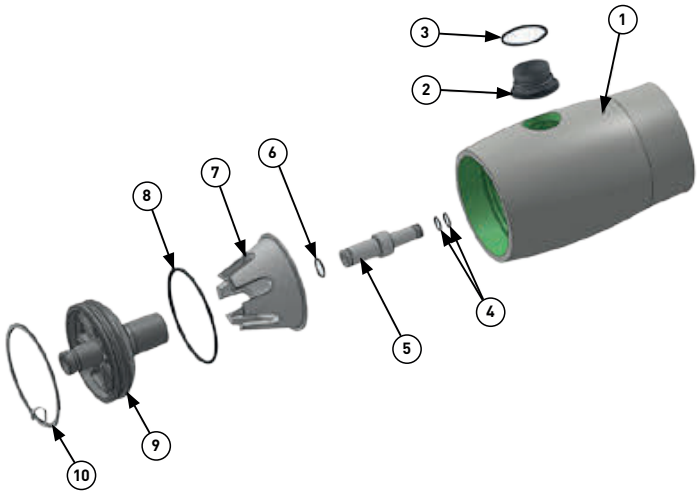
MODEL NUMBER	DRAWING NUMBER	MAX OPERATING PRESSURE	MAX OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80S15	99159	150 PSI / 10 Bar	190 °F / 88 °C	900 PSI / 62 Bar	1-8
CODELINE 80S30	99160	300 PSI / 20 Bar	190 °F / 88 °C	1800 PSI / 124 Bar	1-8
CODELINE 80S45	99161	450 PSI / 31 Bar	190 °F / 88 °C	2700 PSI / 186 Bar	1-8
CODELINE 80S60	99162	600 PSI / 41 Bar	190 °F / 88 °C	3600 PSI / 248 Bar	1-8
CODELINE 80S100	99163	1000 PSI / 68 Bar	150 °F / 66 °C	6000 PSI / 413 Bar	1-8
CODELINE 80S120	99164	1200 PSI / 82 Bar	150 °F / 66 °C	7200 PSI / 496 Bar	1-8

Non-coded**

MODEL NUMBER	DRAWING NUMBER	MAX OPERATING PRESSURE	MAX OPERATING TEMPERATURE	QUALIFICATION PRESSURE	ELEMENT LENGTH
CODELINE 80S15 NC	99171	150 PSI / 10 Bar	190 °F / 88 °C	900 PSI / 62 Bar	1-8
CODELINE 80S30 NC	99172	300 PSI / 20 Bar	190 °F / 88 °C	1800 PSI / 124 Bar	1-8

OCTALINE MODELLI NO CODE / NO CODE OCTALINE MODELS

EXPLODED VIEW & DETAILS (NON-CODED MODELS)



PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80S15 NC PART NUMBER	80S30 NC PART NUMBER	80S45 NC PART NUMBER	80S60 NC PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section
2	AR	F / C Port	CF3M	As required	As required	As required	As required
3	AR	F / C Port Seal	Ethylene Propylene	As required	As required	As required	As required
4	4	pWT Seal	Ethylene propylene - oRing	As required	As required	As required	As required
5	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required
6	2	Adapter Seal	Ethylene propylene - oRing	52245	52245	52245	52245
7	1	Thrust Cone	Engineering Thermoplastic	97014	97014	97014	97014
8	2	Head Seal	Ethylene propylene o Ring	96000	96000	96000	96000
9	2	Elliptical Head Sub Assembly	Engineering Thermoplastic	96247	96243	96248	96244
10	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336
11*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169
12*	AR	Strap Assembly	304 Stainless Steel - VC Cushion	45042	45042	45042	45042
13*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265

* Not shown in the exploded view

PRESSURE VESSELS CODELINE 8"-150 PSI PV 80S15NC "NO CODED" SIDE PORT

PV 80S15NC CODELINE "NO CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____ materiale termoplastico
- Anello rapido di chiusura tappo:_____ 316 SST
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 10 bar a 88°C (150 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo: _____ 15 bar (225 psi)
- Pressione di scoppio: _____ 62 bar (900 psi)
- Uscita permeato: ___ 1" NPT femmina & 1 1/2" in PVC connessione per giunto victaulic (giunto victaulic non incluso)
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Marcatura CE (su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"NO CODED" CODELINE PV 80S15NC

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ Engineering thermoplastic
- Retaining ring _____ 316 SST
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

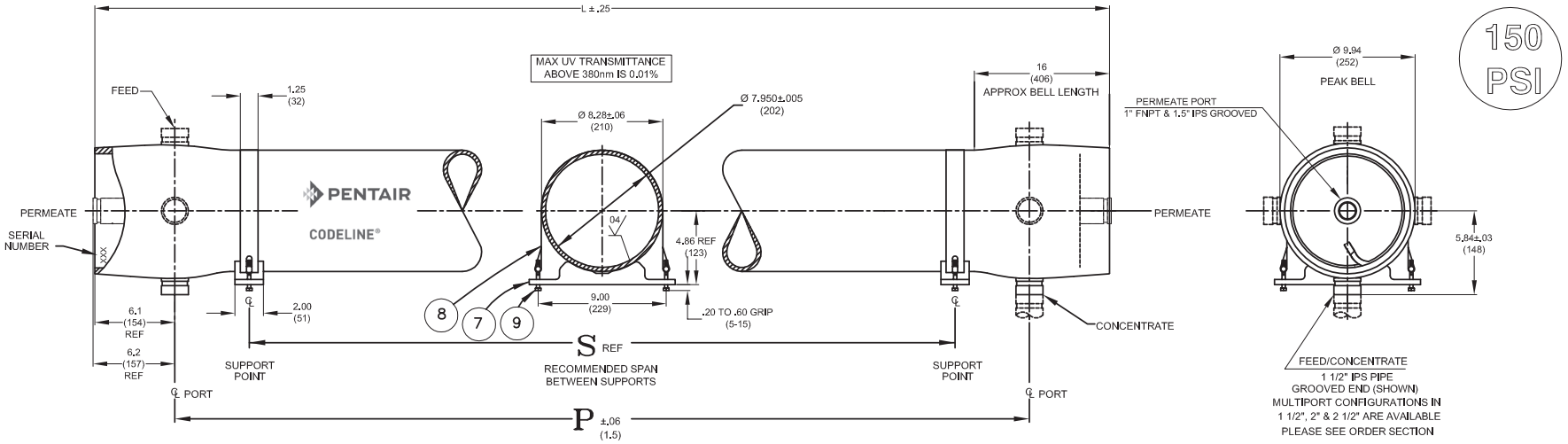
TECHNICAL SHEET:
- Design Pressure: _____ 10 bar a 88°C (150 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure: _____ 15 bar (225 psi)
- Burst Pressure: _____ 62 bar (900 psi)
-Permeate Port: ____ 1" NPT female & 1 1/2" in PVC connection for victaulic joint (victaulic joint not included)
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____ Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

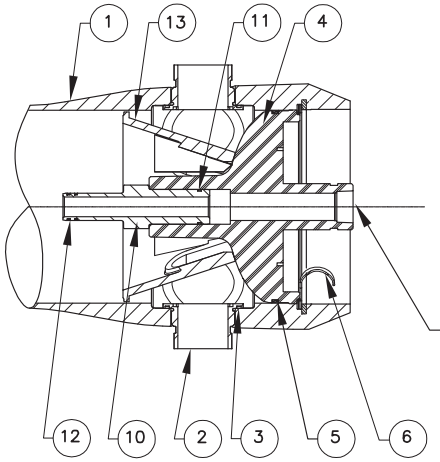
WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
1	1	99230	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
2	A/R	A/R	F/C Port	Grade CF3M as per SA-351 ASME Edition 2015
3	A/R	A/R	F/C Port Seal	Ethylene Propylene .
			HEAD - NON CODED	
4	2	96247	Elliptical Head Assy.	Engineering Thermoplastic.
5	2	96000	Head Seal	Ethylene Propylene - O - Ring
			HEAD INTERLOCK	
6	2	47336	Quick Release Spiral Ring	SS-316 as per SA-479 ASME Edition .
			VESSEL SUPPORT	
7	2+	52169	Saddle	Engineering Thermoplastic.
8	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
9	4	46265	Strap screw.	5/16-18 UNC, 2.5"L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
10	2	A/R	Adapter	Engineering Thermoplastic.
11	2	52245	Adapter seal	Ethylene Propylene - O - Ring
12	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
13	1	97014	Thrust Cone	Engineering Thermoplastic.
+ 3 each furnished with length code 4,5,6,7 & 8.				

VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND OVER



SECTION THROUGH END CLOSURE

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

WARNING ⚠
INTERNAL PORT PRESSURE NOT TO EXCEED 125 PSI.

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.15 (1502)	47 (1194)	23X1 (584)	49 (22)
-2	99.15 (2518)	87 (2210)	56X1 (1422)	57 (26)
-3	139.15 (3534)	127 (3226)	80X1 (2032)	66 (30)
-4	179.15 (4550)	167 (4242)	64X2 (1626)	75 (34)
-5	219.15 (5566)	207 (5258)	78X2 (1981)	84 (38)
-6	259.15 (6582)	247 (6274)	92X2 (2337)	93 (42)
-7	299.15 (7598)	287 (7290)	106X2 (2692)	101 (46)
-8	339.15 (8614)	327 (8306)	120X2 (3048)	110 (50)

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ITEM 13 DOWNSTREAM ONLY.

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

PENTAIR
CODELINE®

DRAWN DATE	KR 05 NOV 07	MODEL - 80S15(NON-CODED) MEMBRANE HOUSING
CHECKED DATE	MD 05 NOV 07	
APPROVED DATE	RM 05 NOV 07	ECN 4339 · DWG. NO. 99171 · REV. L · DATE 02 FEB17 · SCALE NONE · SIZE A3 · SHEET 1OF 2

RATING:

DESIGN PRESSURE……..150 PSIG (1.0 MPa)
MAX. OPERATING TEMP…… …190°F (88°C)
MIN. OPERATING TEMP……..……..20°F (-7°C)
FACTORY TEST PRESSURE…..……..…225 PSIG (1.6MPa)

QUALIFICATION PRESSURE……... 900 PSI (6.2 MPa)

INTENDED USE:

The CodeLine 80S15 Non Coded Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 150 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The Shell of CodeLine 80S15 Non Coded vessels is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X Edition 2015.

The CodeLine 80S15 Non Coded must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
***ΔDIA = 0.015 in. (0.4mm) and
***ΔL = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190°F (0.86 MPa at 88°C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range of 3-11.

For complete information on proper use of the vessel Please refer to the 80S Series USER'S GUIDE 94182.

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S15 Non Coded ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL

❑ Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

❑ CE Marked Standard.
❑ Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT CONFIGURATION:

❑ Standard. 1" FNPT & 1.5" IPS GROOVED NORYL HEAD.
❑ Optional .1" BSP F/JIS F Parallel Thread & 1.5" IPS GROOVED NORYL HEAD.

STRAP ASSEMBLY

☐ **Standard SS304** ☐ Optional SS316 ☐ Optional SS316L

FEED/CONCENTRATE PORT SELECTION

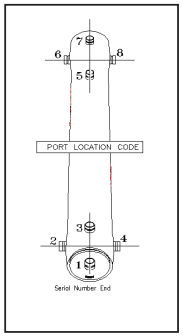
Material of Construction ☐ **Standard CF3M** ☐ Optional Duplex SS (CD3MN)
☐ Optional Super Duplex SS (CD3MWCuN)

Configuration ☐ **Standard - CF3M 1D5D**

☐ Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)

Serial number end ☐☐☐☐☐☐☐☐
Opposite end ☐☐☐☐☐☐☐☐

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END



CODELINE BODY LABELS ARE PLACED AT 90° TO SERIAL NUMBER END AND AT 270° ON THE OPPOSITE SIDE END

hytek Hydrotecnologies

PRESSURE VESSELS CODELINE 8"-300 PSI PV 80S30NC "NO CODED" SIDE PORT

PV 80S30NC CODELINE "NO CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____ materiale termoplastico
- Anello rapido di chiusura tappo:_____ 316 SST
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 21 bar a 88°C (300 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo: _____ 31 bar (450 psi)
- Pressione di scoppio: _____ 124 bar (1800 psi)
- Uscita permeato: ___ 1" NPT femmina & 1 1/2" in PVC connessione per giunto victaulic (giunto victaulic non incluso)
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Marcatura CE (su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"NO CODED" CODELINE PV 80S30NC

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ Engineering thermoplastic
- Retaining ring _____ 316 SST
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

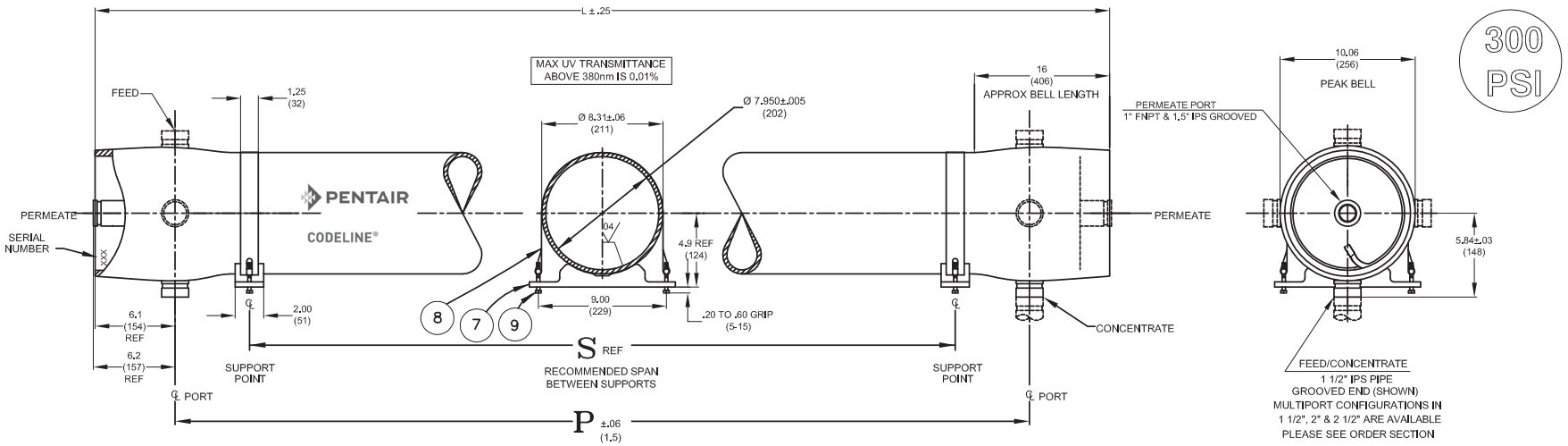
TECHNICAL SHEET:
- Design Pressure: _____ 21 bar a 88°C (300 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure: _____ 31 bar (450 psi)
- Burst Pressure: _____ 124 bar (1800 psi)
-Permeate Port: ____ 1" NPT female & 1 1/2" in PVC connection for victaulic joint (victaulic joint not included)
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____ Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

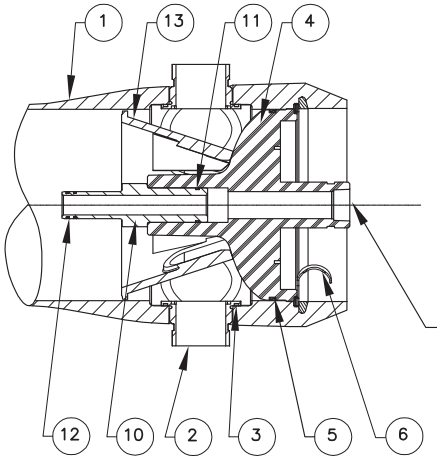
WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99218	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
2	A/R	A/R	F/C Port	CF3M *
3	A/R	A/R	F/C Port Seal	Ethylene Propylene .
HEAD - NON CODED				
4	2	96243	Elliptical Head Assy.	Engineering Thermoplastic.
5	2	96000	Head Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
6	2	47336	Quick Release Spiral Ring	316 Stainless Steel.
VESSEL SUPPORT				
7	2+	52169	Saddle	Engineering Thermoplastic.
8	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
9	4	46265	Strap screw.	5/16-18 UNC, 2.5" L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
10	2	A/R	Adapter	Engineering Thermoplastic.
11	2	52245	Adapter seal	Ethylene Propylene - O - Ring
12	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
13	1	97014	Thrust Cone	Engineering Thermoplastic.
+ 3 each furnished with length code 4,5,6,7 & 8.				

VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND OVER



SECTION THROUGH END CLOSURE

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

WARNING ⚠ INTERNAL PORT PRESSURE NOT TO EXCEED 125 PSI.

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.15 (1502)	47 (1194)	23X1 (584)	56 (25)
-2	99.15 (2518)	87 (2210)	56X1 (1422)	69 (31)
-3	139.15 (3534)	127 (3226)	80X1 (2032)	81 (37)
-4	179.15 (4550)	167 (4242)	64X2 (1626)	94 (43)
-5	219.15 (5566)	207 (5258)	78X2 (1981)	106 (48)
-6	259.15 (6582)	247 (6274)	92X2 (2337)	119 (54)
-7	299.15 (7598)	287 (7290)	106X2 (2692)	130 (59)
-8	339.15 (8614)	327 (8306)	120X2 (3048)	142 (64)

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ITEM 13 DOWNSTREAM ONLY.

* GRADE CF3M PER ASME SA-351.

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

PENTAIR
CODELINE®

MODEL - 80S30(NON-CODED) MEMBRANE HOUSING

DRAWN DATE	KR 05 NOV 07	ECN 4440	DWG. NO. 99172		REV. Q
CHECKED DATE	MD 05 NOV 07	DATE 19MAY17	SCALE NONE	SIZE A3	SHEET 1OF 2
APPROVED DATE	RM 05 NOV 07				

RATING:

DESIGN PRESSURE……..300 PSIG (2.1MPa)
MAX OPERATING TEMP……..190°F (88°C)
MIN. OPERATING TEMP……20°F (-7°C)
FACTORY TEST PRESSURE……..450 PSIG (3.1 MPa)

QUALIFICATION PRESSURE ……1800 PSI (12.4 MPa)

INTENDED USE:
The CodeLine 80S30 Non Coded Fiberglass RO Pressure Vessel is designed for continuous, long term use as a housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 300 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The Shell of CodeLine 80S30 Non Coded vessel is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. ASME Edition 2015.

The CodeLine 80S30 Non Coded vessel must be installed operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:
DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
***ΔDIA = 0.015 in. (0.4mm) and
***ΔL = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190°F (0.86 Mpa at 88^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S30 Non Coded ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL

❑ Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

❑ CE Marked Standard.
❑ Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT CONFIGURATION:

❑ Standard. 1" FNPT & 1.5" IPS GROOVED NORYL HEAD.
❑ Optional .1" BSP F/JIS F Parallel Thread & 1.5" IPS GROOVED NORYL HEAD.

STRAP ASSEMBLY

☐ **Standard SS304** ☐ Optional SS316 ☐ Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction ☐ **Standard CF3M** ☐ Optional Duplex SS (CD3MN)
☐ Optional Super Duplex SS (CD3MWCuN)

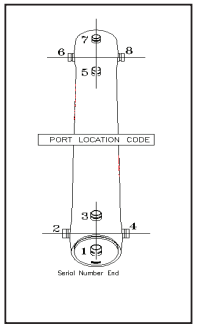
Configuration ☐ **Standard - CF3M 1D5D**
☐ Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)

Serial number end ☐☐☐☐☐☐☐☐
Opposite end ☐☐☐☐☐☐☐☐

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

For complete information on proper use of the vessel
Please refer to the 80S Series USER'S GUIDE 94182.

CODELINE BODY LABELS ARE PLACED AT 90° TO SERIAL NUMBER END AND AT 270° ON THE OPPOSITE SIDE END



PRESSURE VESSELS CODELINE 8"-450 PSI PV 80S45NC "NO CODED" SIDE PORT

PV 80S45NC CODELINE "NO CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____ materiale termoplastico
- Anello rapido di chiusura tappo:_____ 316 SST
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 31 bar a 88°C (450 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo: _____ 46 bar (675 psi)
- Pressione di scoppio: _____ 186 bar (2700 psi)
- Uscita permeato: ___ 1" NPT femmina & 1 1/2" in PVC connessione per giunto victaulic (giunto victaulic non incluso)
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Marcatura CE (su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"NO CODED" CODELINE PV 80S45NC

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ Engineering thermoplastic
- Retaining ring _____ 316 SST
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

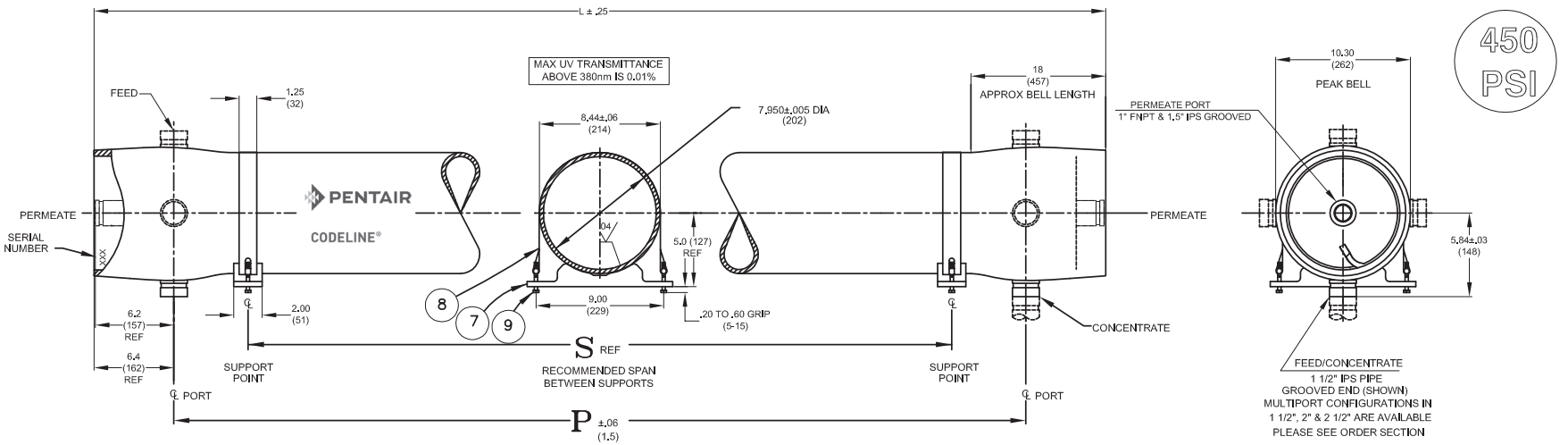
TECHNICAL SHEET:
- Design Pressure: _____ 31 bar a 88°C (450 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure: _____ 46 bar (675 psi)
- Burst Pressure: _____ 124 bar (2700 psi)
-Permeate Port: ____ 1" NPT female & 1 1/2" in PVC connection for victaulic joint (victaulic joint not included)
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____ Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

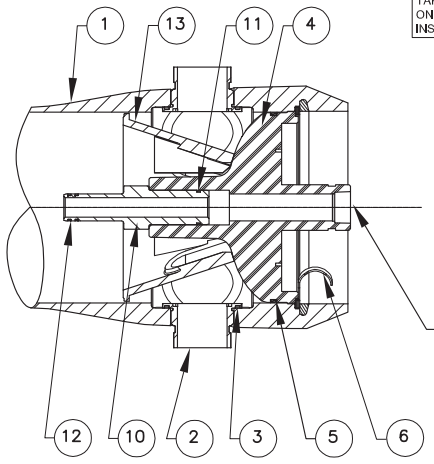


VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND OVER

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99231	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
2	A/R	A/R	F/C Port	CF3M*
3	A/R	A/R	F/C Port Seal	Ethylene Propylene .
HEAD - NON CODED				
4	2	96248	Elliptical Head Assy.	Engineering Thermoplastic.
5	2	96000	Head Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
6	2	47336	Quick Release Spiral Ring	316 Stainless Steel.
VESSEL SUPPORT				
7	2+	52169	Saddle	Engineering Thermoplastic.
8	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
9	4	46265	Strap screw.	5/16-18 UNC,2.5" L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
10	2	A/R	Adapter	Engineering Thermoplastic.
11	2	52245	Adapter seal	Ethylene Propylene - O - Ring
12	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
13	1	97014	Thrust Cone	Engineering Thermoplastic.
+ 3 each furnished with length code 4,5,6,7 & 8.				



SECTION THROUGH END CLOSURE

WARNING ⚠
INTERNAL PORT PRESSURE NOT TO EXCEED 125 PSI.

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.75 (1518)	47 (1194)	20X1 (508)	66 (30)
-2	99.75 (2534)	87 (2210)	56X1 (1422)	86 (39)
-3	139.75 (3550)	127 (3226)	80X1 (2032)	106 (48)
-4	179.75 (4566)	167 (4242)	64X2 (1626)	128 (58)
-5	219.75 (5582)	207 (5258)	78X2 (1981)	152 (69)
-6	259.75 (6598)	247 (6274)	92X2 (2337)	172 (78)
-7	299.75 (7614)	287 (7290)	106X2 (2692)	192 (87)
-8	339.75 (8630)	327 (8306)	120X2 (3048)	214 (97)

NOTES:-
- ♦ MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- ♦ DIMENSION IN INCHES (MM APPROX.)
- ♦ SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ♦ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ♦ ITEM 13 DOWNSTREAM ONLY.
- * GRADE CF3M PER ASME SA-351.
- ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

PENTAIR
CODELINE®

DRAWN DATE	KR 27 DEC 07	MODEL - 80S45(NON-CODED) MEMBRANE HOUSING
CHECKED DATE	MD 27 DEC 07	
APPROVED DATE	SS 27 DEC 07	

ECN 4440	DWG. NO. 99173		REV. M
DATE 19MAY17	SCALE NONE	SIZE A3	SHEET 1OF 2

RATING:

DESIGN PRESSURE……..450 PSIG (3.1 MPa)
MAX. OPERATING TEMP ……190°F (88°C)
MIN. OPERATING TEMP……..……20°F (-7°C)
FACTORY TEST PRESSURE……..……675 PSIG (4.65 MPa)

QUALIFICATION PRESSURE……..…..2700 PSI (18.62 MPa)

INTENDED USE:

The CodeLine 80S45 Non Coded Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 450 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The Shell of CodeLine 80S45 Non Coded vessel is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. ASME Edition 2015.

The CodeLine 80S45 Non Coded vessel must be installed operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ***ΔDIA = 0.015 in. (0.4mm) and ***ΔL = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190°F (0.86 MPa at 88^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel
Please refer to the 80S Series USER'S GUIDE 94182.

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S45 Non Coded ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL

❑ Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

❑ CE Marked Standard
❑ Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT CONFIGURATION:

❑ Standard. 1" FNPT & 1.5" IPS GROOVED NORYL HEAD.
❑ Optional .1" BSP F/JIS F Parallel Thread & 1.5" IPS GROOVED NORYL HEAD.

STRAP ASSEMBLY

☐ **Standard SS304** ☐ Optional SS316 ☐ Optional SS316L

FEED/CONCENTRATE PORT SELECTION

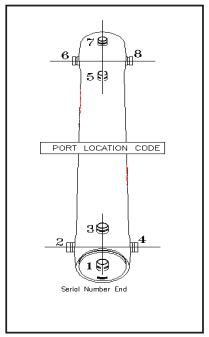
Material of Construction ☐ **Standard CF3M** ☐ Optional Duplex SS (CD3MN)
☐ Optional Super Duplex SS (CD3MWCuN)

Configuration ☐ **Standard - CF3M 1D5D**

☐ Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)
2.5" Ports not available in 90° Configuration.

Serial number end ☐☐☐☐☐☐☐☐
Opposite end ☐☐☐☐☐☐☐☐

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END



CODELINE BODY LABELS ARE PLACED AT 90° TO SERIAL NUMBER END AND AT 270° ON THE OPPOSITE SIDE END

hytek Hydrotecnologies

PRESSURE VESSELS CODELINE 8"-600 PSI PV 80S60NC "NO CODED" SIDE PORT

PV 80S60NC CODELINE "NO CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____ materiale termoplastico
- Anello rapido di chiusura tappo:_____ 316 SST
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 41 bar a 88°C (600 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo: _____ 62 bar (900 psi)
- Pressione di scoppio: _____ 248 bar (3600 psi)
- Uscita permeato: ___ 1" NPT femmina & 1 1/2" in PVC connessione per giunto victaulic (giunto victaulic non incluso)
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Marcatura CE (su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"NO CODED" CODELINE PV 80S60NC

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ Engineering thermoplastic
- Retaining ring _____ 316 SST
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

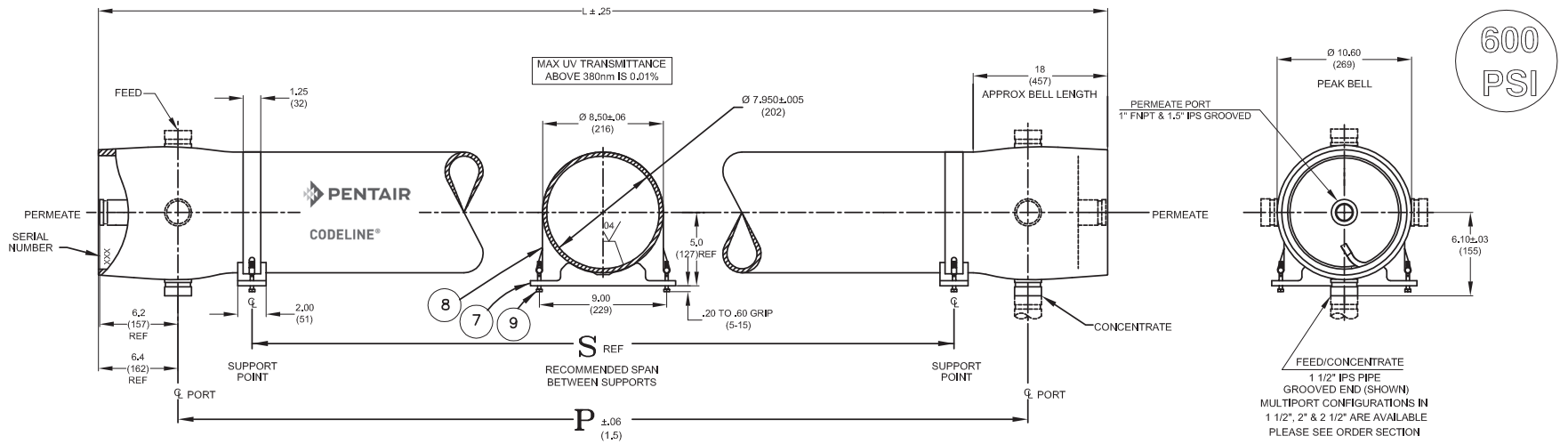
TECHNICAL SHEET:
- Design Pressure: _____ 41 bar a 88°C (600 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure: _____ 62 bar (900 psi)
- Burst Pressure: _____ 248 bar (3600 psi)
-Permeate Port: ____ 1" NPT female & 1 1/2" in PVC connection for victaulic joint (victaulic joint not included)
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____ Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

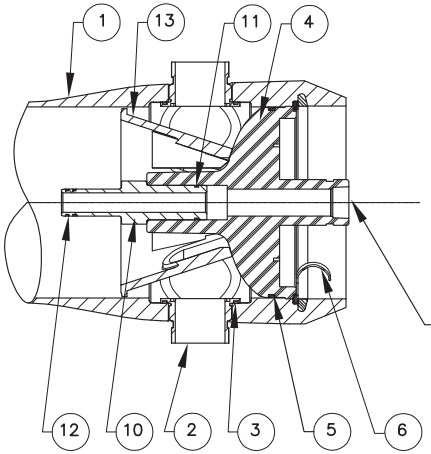
WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99219	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
2	A/R	A/R	F/C Port	CF3M*
3	A/R	A/R	F/C Port Seal	Ethylene Propylene .
HEAD - NON CODED				
4	2	96244	Elliptical Head Assy.	Engineering Thermoplastic.
5	2	96000	Head Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
6	2	47336	Quick Release Spiral Ring	316 Stainless Steel.
VESSEL SUPPORT				
7	2+	52169	Saddle	Engineering Thermoplastic.
8	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
9	4	46265	Strap screw.	5/16-18 UNC,2.5" L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
10	2	A/R	Adapter	Engineering Thermoplastic.
11	2	52245	Adapter seal	Ethylene Propylene - O - Ring
12	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
13	1	97014	Thrust Cone	Engineering Thermoplastic.
+ 3 each furnished with length code 4,5,6,7 & 8.				

VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND OVER



SECTION THROUGH END CLOSURE

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.75 (1518)	47 (1194)	20X1 (508)	77 (35)
-2	99.75 (2534)	87 (2210)	56X1 (1422)	101 (46)
-3	139.75 (3550)	127 (3226)	80X1 (2032)	126 (57)
-4	179.75 (4566)	167 (4242)	64X2 (1626)	151 (68)
-5	219.75 (5582)	207 (5258)	78X2 (1981)	174 (79)
-6	259.75 (6598)	247 (6274)	92X2 (2337)	199 (90)
-7	299.75 (7614)	287 (7290)	106X2 (2692)	221 (100)
-8	339.75 (8630)	327 (8306)	120X2 (3048)	246 (112)

NOTES:-
- ♦ MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- ♦ DIMENSION IN INCHES (MM APPROX.)
- ♦ SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ♦ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ♦ ITEM 13 DOWNSTREAM ONLY.
- * GRADE CF3M PER ASME SA-351.
- ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

DRAWN	KR	05 NOV 07
CHECKED	MD	05 NOV 07
APPROVED	SS	05 NOV 07

PENTAIR
CODELINE®

MODEL - 80S60(NON-CODED)
MEMBRANE HOUSING

ECN	DWG. NO.	REV.
4308	99174	M
DATE 05JAN17	SCALE NONE / SIZE A3	SHEET 1OF 2

RATING:

DESIGN PRESSURE……..…...600 PSIG (4.14MPa)
MAX. OPERATING TEMP……..…..190°F (88°C)
MIN. OPERATING TEMP……...…….....20°F (-7°C)
FACTORY TEST PRESSURE……..……..900 PSIG (6.2 MPa)

QUALIFICATION PRESSURE…….....3600 PSI (24.8 MPa)

INTENDED USE:

The CodeLine 80S60 Non Coded Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 600 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The Shell of CodeLine 80S60 Non Coded vessel is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. ASME Edition 2015.

The CodeLine 80S60 Non Coded vessel must be installed operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure; ***ΔDIA = 0.015 in. (0.4mm) and ***ΔL = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190°F (0.86 MPa at 88^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel
Please refer to the 80S Series USER'S GUIDE 94182

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S60 Non Coded ☐ -1 ☐ -2 ☐ -3 ☐ -4 ☐ -5 ☐ -6 ☐ -7 ☐ -8

MEMBRANE BRAND AND MODEL

❑ Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

❑ CE Marked Standard.
❑ Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT CONFIGURATION:

❑ Standard. 1" FNPT & 1.5" IPS GROOVED NORYL HEAD.
❑ Optional .1" BSP F/JIS F Parallel Thread & 1.5" IPS GROOVED NORYL HEAD.

STRAP ASSEMBLY

☐ **Standard SS304** ☐ Optional SS316 ☐ Optional SS316L

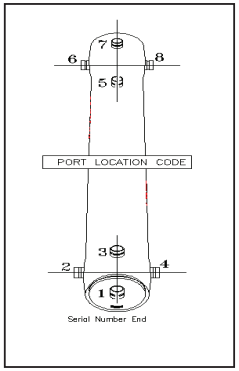
FEED/CONCENTRATE PORT SELECTION

Material of Construction ☐ **Standard CF3M** ☐ Optional Duplex SS (CD3MN) ☐ Optional Super Duplex SS (CD3MWCuN)

Configuration ☐ **Standard - CF3M 1D5D** ☐ Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection) 2.5" Ports not available in 90° Configuration.

Serial number end ☐☐☐☐☐☐☐☐
Opposite end ☐☐☐☐☐☐☐☐

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

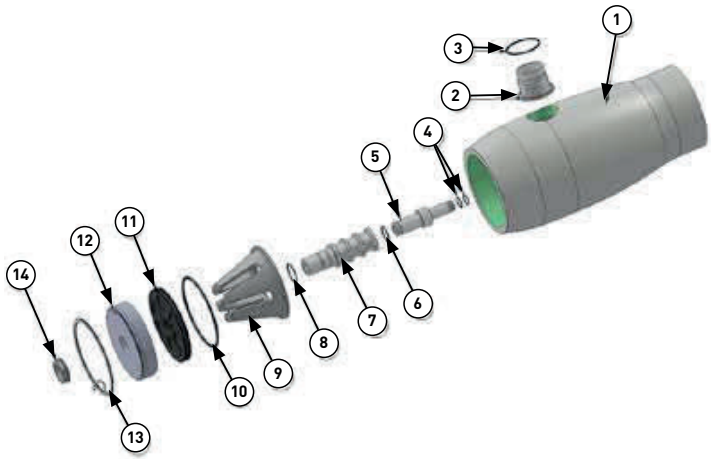


CODELINE BODY LABELS ARE PLACED AT 90° TO SERIAL NUMBER END AND AT 270° ON THE OPPOSITE SIDE END

Hydrotecnologies
hytek

OCTALINE MODELLI CODED/ CODED OCTALINE MODELS

EXPLODED VIEW & DETAILS (CODED MODELS)



PARTS TABLE

DRG REG	QTY	DESCRIPTION	MATERIAL	80S15 PART NUMBER	80S30 PART NUMBER	80S45 PART NUMBER	80S60 PART NUMBER	80S100 PART NUMBER	80S120 PART NUMBER
1	1	Shell	Filament Wound Epoxy / Glass composites. Head Locking grooves integrally wound in place.	Order section	Order section	Order section	Order section	Order section	Order section
2	AR	F / C Port	CF3M / CD3MWCuN	CF3M	CF3M	CF3M	CF3M	CD3MWCuN	CD3MWCuN
3	AR	F / C Port Seal	Ethylene Propylene	As required	As required	As required	As required	As required	As required
4	4	pWT Seal	Ethylene Propylene o-Ring	As required	As required	As required	As required	As required	As required
5	2	Adapter	Engineering Thermoplastic	As required	As required	As required	As required	As required	As required
6	2	Adapter Seal	Ethylene Propylene o-Ring	52245	52245	52245	52245	52245	52245
7	2	Permeate Port	Engineering Thermoplastic	96162	96162	96162	96162	96162	96162
8	2	Permeate Port Seal	Ethylene Propylene o-Ring	45312	45312	45312	45312	45312	45312
9	1	Thrust Cone	Engineering Thermoplastic	96163	96163	96163	96163	96163	96163
10	2	Head Seal	Ethylene Propylene o-Ring	96000	96000	96000	96000	96000	96000
11	2	Sealing Plate	Engineering Thermoplastic	96160	96160	96160	96160	96160	96160
12	2	Bearing Plate	6061-T6 Aluminum Alloy - Hard Anodized	96156	96156	96157	96157	96158	96158
13	2	Retaining Ring	316 Stainless Steel	47336	47336	47336	47336	47336	47336
14	2	Port Nut	Engineering Thermoplastic	45066	45066	45066	45066	45066	45066
15*	AR	Saddle	Engineering Thermoplastic	52169	52169	52169	52169	52169	52169
16*	AR	Strap Assembly	304 Stainless Steel - VC Cushion	45042	45042	45042	45042	45042	45042
17*	AR	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265	46265	46265	46265	46265	46265

* Not shown in the exploded view

PRESSURE VESSELS CODELINE 8"-150 PSI PV 80S15 "CODED" SIDE PORT

PV 80S15 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 10 bar a 88°C (150 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 13 bar (195 psi)
• CE 15 bar (225 psi)
- Pressione di scoppio: _____ 62 bar (900 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S15

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

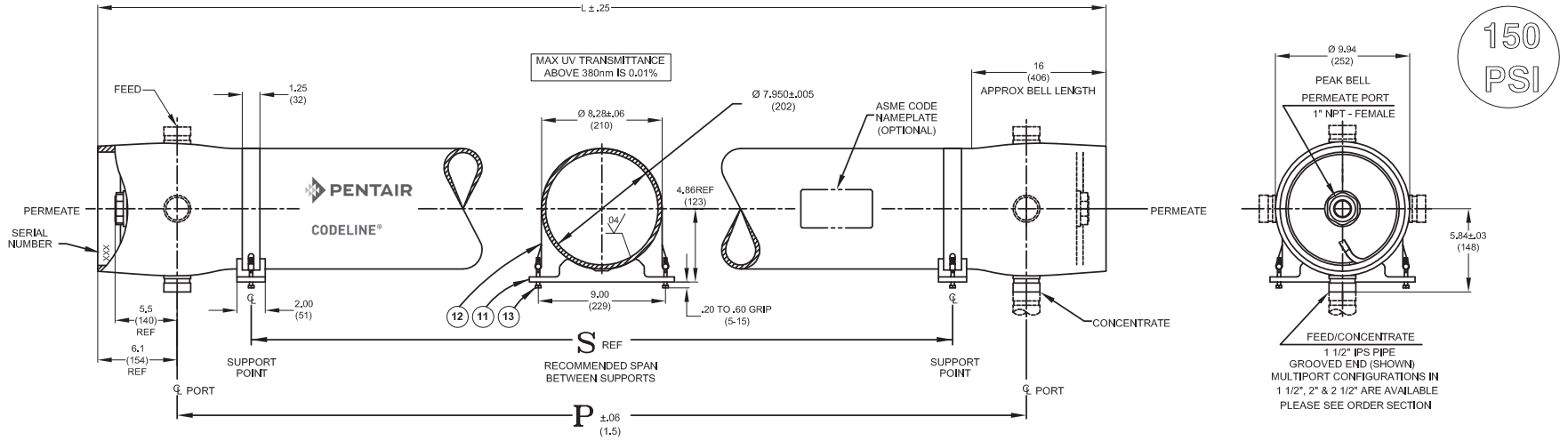
TECHNICAL SHEET:
- Design Pressure: _____ 10 bar a 88°C (150 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 13 bar (195 psi)
• CE 15 bar (225 psi)
- Burst Pressure: _____ 62 bar (900 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____ Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

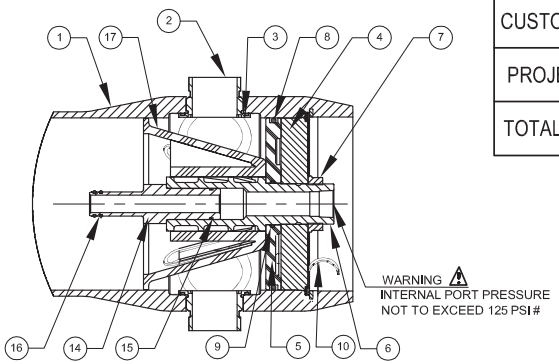


VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" ; 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND ABOVE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
			SHELL	
1	1	99230	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CF3M as per SA-351
3	A/R		F/C Port Seal	Ethylene Propylene.
			HEAD	
4	2	96156	Bearing Plate	6061-T6 as per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
			HEAD INTERLOCK	
10	2	47336	Quick Release Spiral Ring	SS-316 as per SA-479
			VESSEL SUPPORT	
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4++	46265	Strap screw.	5/16-18 UNC,2.5"-L, 18-8 Stainless Steel.
			ELEMENT INTERFACE	
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.

++3 & ++6 each furnished with length code 4,5,6,7 & 8.



SECTION THROUGH END CLOSURE

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ITEM 17 DOWNSTREAM ONLY.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- FOR OPTIONAL PART NUMBERS. REFER PAGE 3.
- F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

150 PSI FOR METALLIC PERMPORTS

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

DRAWN	DATE	PGS 17 MAR 07
CHECKED	DATE	MD 17 MAR 07
APPROVED	DATE	RM 17 MAR 07

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.15 (1502)	47 (1194)	23X1 (584)	55 (25)
-2	99.15 (2518)	87 (2210)	56X1 (1422)	64 (29)
-3	139.15 (3534)	127 (3226)	80X1 (2032)	73 (33)
-4	179.15 (4550)	167 (4242)	64X2 (1626)	82 (37)
-5	219.15 (5566)	207 (5258)	78X2 (1981)	90 (41)
-6	259.15 (6582)	247 (6274)	92X2 (2337)	99 (45)
-7	299.15 (7598)	287 (7290)	106X2 (2692)	108 (49)
-8	339.15 (8614)	327 (8306)	120X2 (3048)	117 (53)

PENTAIR
CODELINE®

MODEL - 80S15
MEMBRANE HOUSING

ECN	DWG. NO.	REV.
4624	99159	Q
DATE 11DEC17	SCALE NONE / SIZE A3	SHEET 1OF 3

RATING:

DESIGN PRESSURE……..150 PSIG (1.0 MPa)
MAX. OPERATING TEMP……..190 F (88 C)
MIN. OPERATING TEMP……..20 F (-7 C)
FACTORY TEST PRESSURE…….. CE /ASME 225 PSIG /165 PSIG (1.6 MPa)(1.13 MPa)
QUALIFICATION PRESSURE ……..900 PSI (6.2 MPa)

INTENDED USE:

The CodeLine 80S15 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 150 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S15 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S15 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190 F (0.86 Mpa at 88 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel Please refer to the 80S Series USER'S GUIDE 94182.

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S15 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped.

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:

- Standard offering is 1.0" FNPT in Noryl.
- 1.25"& 1.5" BSPTF, 1.25" & 1.5" FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **Standard CF3M** Optional Duplex SS (CD3MN)
Optional Super Duplex SS (CD3MWCuN)

Configuration **Standard - CF3M 1D5D**
Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminum

Optional – Stainless Steel 316L

Note: Please refer to 99321 for sanitary details and refer page-3 for optional Part numbers.

PRESSURE VESSELS CODELINE 8"-300 PSI PV 80S30 "CODED" SIDE PORT

PV 80S30 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 21 bar a 88°C (300 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
  • ASME 27 bar (390 psi)
  • CE 31 bar (450 psi)
- Pressione di scoppio: _____ 124 bar (1800 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S30

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

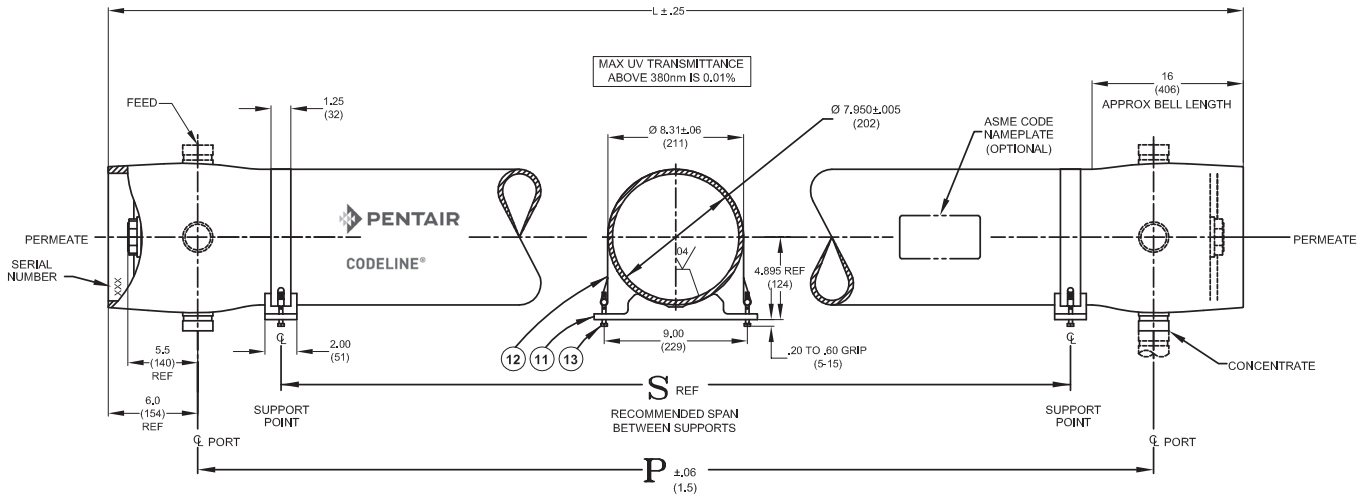
TECHNICAL SHEET:
- Design Pressure: _____ 21 bar a 88°C (300 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
  • ASME 27 bar (390 psi)
  • CE 31 bar (450 psi)
- Burst Pressure: _____ 124 bar (1800 psi)
- Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

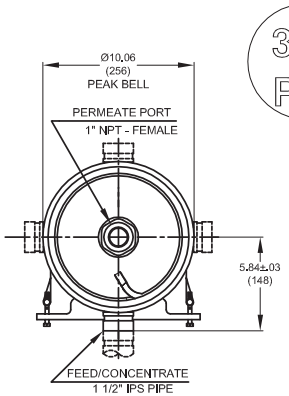
CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

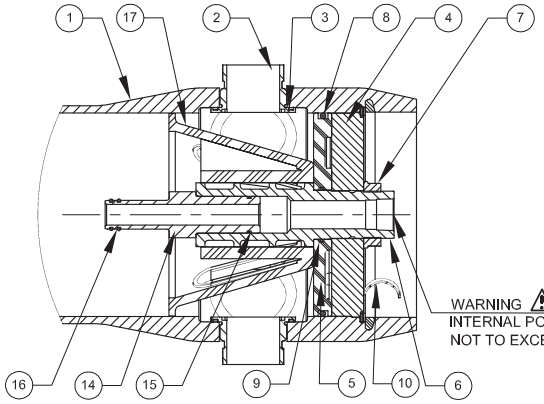




300 PSI

VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" ; 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND ABOVE



SECTION THROUGH END CLOSURE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99218	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CF3M as per SA-351
3	A/R		F/C Port Seal	Ethylene Propylene.
HEAD				
4	2	96156	Bearing Plate	6061-T6 as per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
10	2	47336	Quick Release Spiral Ring	SS-316 as per SA-479
VESSEL SUPPORT				
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4++	46265	Strap screw.	5/16-18 UNC, 2.5"-L,18-8 Stainless Steel.
ELEMENT INTERFACE				
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.

+3 & ++6 each furnished with length code 4,5,6,7 & 8.

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ITEM 17 DOWNSTREAM ONLY.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

300 PSI FOR METALLIC PERMPORT FOR OPTIONAL PART NUMBERS. REFER PAGE 3.

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.15 (1502)	47 (1194)	23X1 (584)	62 (28)
-2	99.15 (2518)	87 (2210)	56X1 (1422)	75 (34)
-3	139.15 (3534)	127 (3226)	80X1 (2032)	87 (39)
-4	179.15 (4550)	167 (4242)	64X2 (1626)	100 (45)
-5	219.15 (5566)	207 (5258)	78X2 (1981)	112 (51)
-6	259.15 (6582)	247 (6274)	92X2 (2337)	125 (57)
-7	299.15 (7598)	287 (7290)	106X2 (2692)	136 (62)
-8	339.15 (8614)	327 (8306)	120X2 (3048)	148 (67)

PENTAIR
CODELINE®

MODEL - 80S30
MEMBRANE HOUSING

DRAWN DATE	KR 17JAN 08	ECN 4624	DWG. NO. 99160 REV. V
CHECKED DATE	MD 17JAN 08	DATE 13DEC17	SCALE NONE SIZE A3 SHEET 1 OF 3
APPROVED DATE	RM 17JAN 08		

RATING:

DESIGN PRESSURE……..…….....300 PSIG (2.07 MPa)
MAX. OPERATING TEMP……...……..…..190 F (88 C)
MIN. OPERATING TEMP……...……..…..…20 F (-7 C)
FACTORY TEST PRESSURE…...……..….CE / ASME 450 PSIG /330 PSIG (3.1 MPa)/(2.27 MPa)
QUALIFICATION PRESSURE ……..…….....1800 PSI (12.4 MPa)

INTENDED USE:
The CodeLine 80S30 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 300 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S30 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S30 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:
DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190 F (0.86 Mpa at 88 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel
Please refer to the 80S Series USER'S GUIDE 94182.

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S30 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped.

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:
- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF,1.25" & 1.5" FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **Standard CF3M** Optional Duplex SS (CD3MN)
Optional Super Duplex SS (CD3MWCuN)

Configuration **Standard - CF3M 1D5D**
Optional – Multi ports :(Refer SPEC.SHEET/PM/1.5"-3"for Multi port selection)

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminium

Optional – Stainless Steel 316L

Note: Please refer to 99321 for sanitary details and refer page-3 for optional Part numbers.

PRESSURE VESSELS CODELINE 8"-450 PSI PV 80S45 "CODED" SIDE PORT

PV 80S45 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 31 bar a 88°C (450 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 40 bar (585 psi)
• CE 46 bar (675 psi)
- Pressione di scoppio: _____ 186 bar (2700 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S45

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

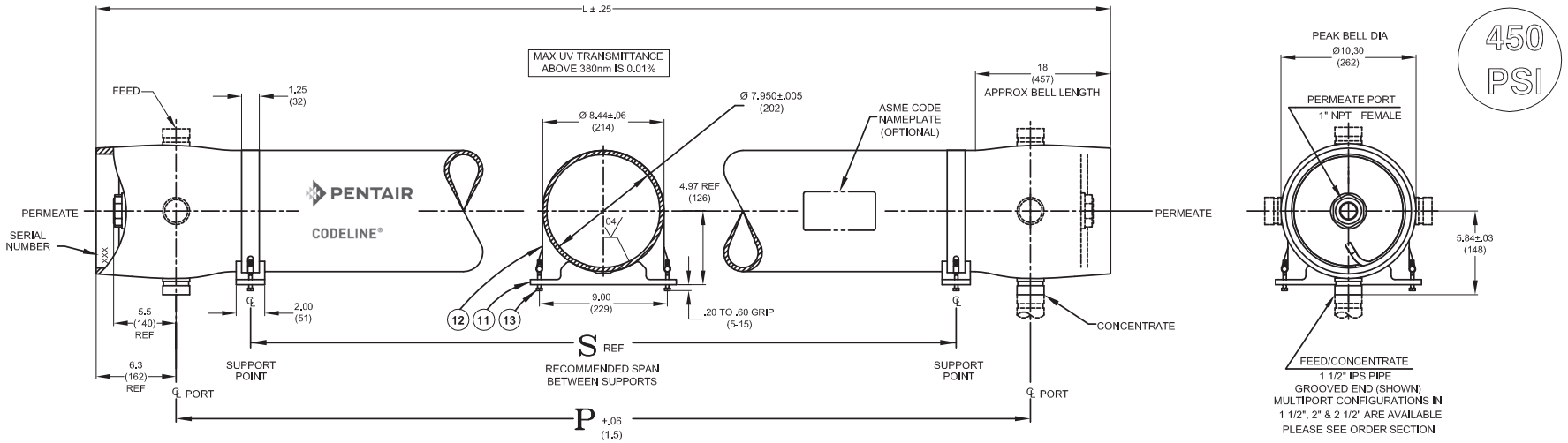
TECHNICAL SHEET:
- Design Pressure: _____ 31 bar a 88°C (450 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 40 bar (585 psi)
• CE 46 bar (675 psi)
- Burst Pressure: _____ 186 bar (2700 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

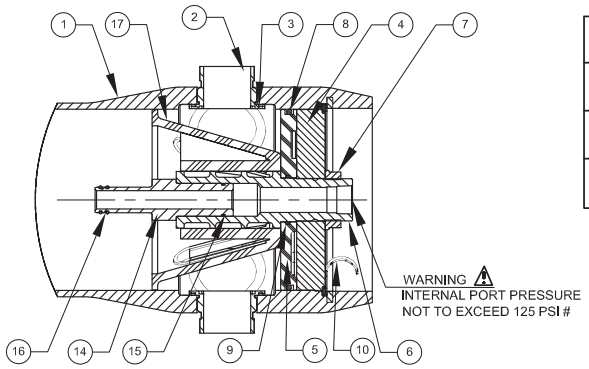
ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND ABOVE



SECTION THROUGH END CLOSURE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99231	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CF3M as per SA-351
3	A/R		F/C Port Seal	Ethylene Propylene.
HEAD				
4	2	96157	Bearing Plate	6061-T6 as per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
10	2	47336	Quick Release Spiral Ring	SS-316 as per SA-479
VESSEL SUPPORT				
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4++	46265	Strap screw.	5/16-18 UNC,2.5"-L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.

+3 each & ++6 nos. furnished with length code 4,5,6,7 & 8.

NOTES:-
- ♦ MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- ♦ DIMENSION IN INCHES (MM APPROX.)
- ♦ SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ♦ ITEM 17 DOWNSTREAM ONLY
- ♦ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ♦ F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.
- ♦ FOR OPTIONAL PART NUMBERS REFER PAGE 3

450 PSI FOR METALLIC PERMPORTS

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.75 (1518)	47 (1194)	20X1 (508)	75 (34)
-2	99.75 (2534)	87 (2210)	56X1 (1422)	95 (43)
-3	139.75 (3550)	127 (3226)	80X1 (2032)	115 (52)
-4	179.75 (4566)	167 (4242)	64X2 (1626)	137 (62)
-5	219.75 (5582)	207 (5258)	78X2 (1981)	161 (73)
-6	259.75 (6598)	247 (6274)	92X2 (2337)	181 (82)
-7	299.75 (7614)	287 (7290)	106X2 (2692)	201 (91)
-8	339.75 (8630)	327 (8306)	120X2 (3048)	223 (101)

PENTAIR
CODELINE®

MODEL - 80S45
MEMBRANE HOUSING

DRAWN DATE	PGS 14 NOV 06	ECN 4624	DWG. NO. 99161 REV. S
CHECKED DATE	MD 14 NOV 06	DATE 14DEC17	SCALE NONE SIZE A3 SHEET 1OF 3
APPROVED DATE	PSC 14 NOV 06		

RATING:

DESIGN PRESSURE……..…..450 PSIG (3.1MPa)
MAX. OPERATING TEMP ……...…...……190 F (88 C)
MIN. OPERATING TEMP……...……20 F (-7 C)
FACTORY TEST PRESSURE…..……..CE / ASME 675 PSIG/ 495 PSIG (4.65 MPa)/(3.41 MPa)

QUALIFICATION PRESSURE ……..…...2700 PSI (18.62 MPa)

INTENDED USE:
The CodeLine 80S45 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 450 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S45 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S45 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:
DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190 F (0.86 Mpa at 88 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel
Please refer to the 80S Series USER'S GUIDE 94182.

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S45 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped.

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:
- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5" FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **Standard CF3M** Optional Duplex SS (CD3MN)
Optional Super Duplex SS (CD3MWCuN)

Configuration **Standard - CF3M 1D5D**
Optional –Multi port: (Refer SPEC.SHEET/PM/1.5"-3" for Multi ports selection).
2.5" Ports not available in 90° Configuration.

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminium

Optional – Stainless Steel 316L

PRESSURE VESSELS CODELINE 8"-600 PSI PV 80S60 "CODED" SIDE PORT

PV 80S60 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 41 bar a 88°C (600 psi a 190°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 54 bar (780 psi)
• CE 62 bar (900 psi)
- Pressione di scoppio: _____ 248 bar (3600 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in AISI 316L connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S60

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

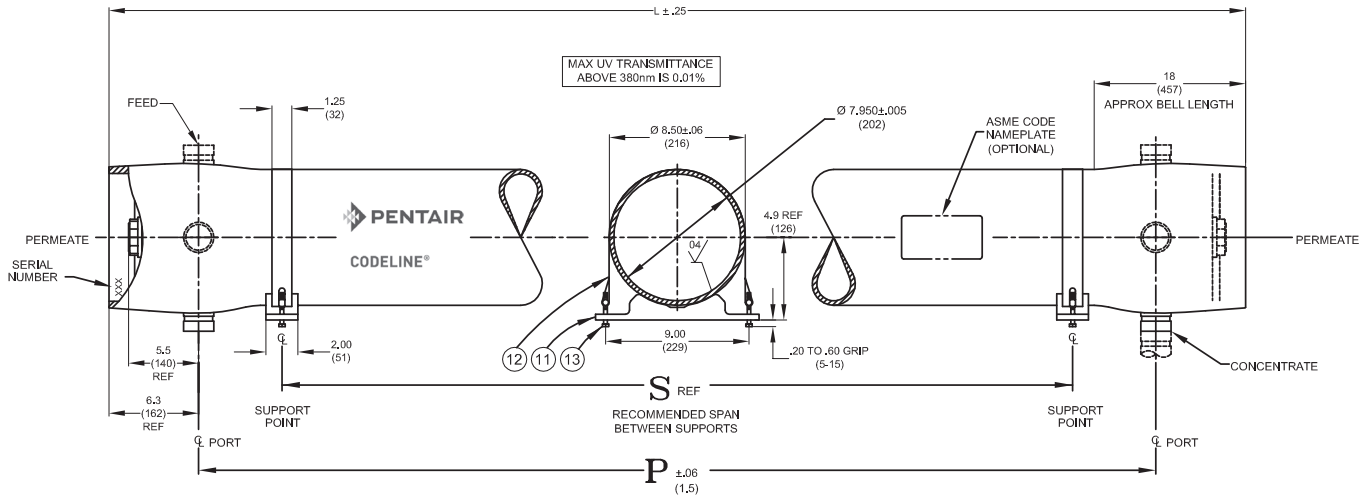
TECHNICAL SHEET:
- Design Pressure: _____ 41 bar a 88°C (600 psi at 190°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 54 bar (780 psi)
• CE 62 bar (900 psi)
- Burst Pressure: _____ 248 bar (3600 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in AISI 316L connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



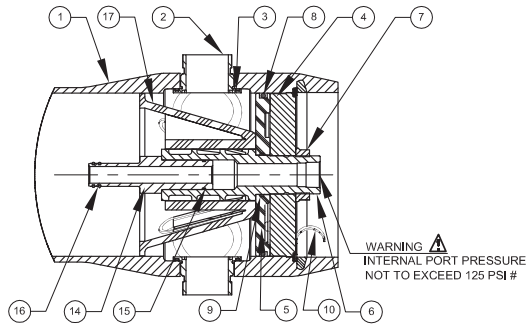
VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS
AT SPAN(S) "S" : 3 SUPPORTS REQUIRED
FOR LENGTHS -4 AND ABOVE

600 PSI

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99219	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CF3M as per SA-351
3	A/R		F/C Port Seal	Ethylene Propylene
HEAD				
4	2	96157	Bearing Plate	6061-T6 as per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
10	2	47336	Quick Release Spiral Ring	SS-316 as per SA-479
VESSEL SUPPORT				
11	2*	52169	Saddle	Engineering Thermoplastic.
12	2*	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4**	46265	Strap screw.	5/16-18 UNC, 2.5"-L,18-8 Stainless Steel.
ELEMENT INTERFACE				
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.

*3 & **6 each furnished with length code 4,5,6,7 & 8.



SECTION THROUGH END CLOSURE

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ITEM 17 DOWNSTREAM ONLY.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- F/C PORT, BEARING PLATE, PERMPORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION. # 600 PSI FOR METALLIC PERMPORT FOR OPTIONAL PART NUMBERS REFER PAGE 3
** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

DRAWN	DATE	PGS 02 SEP 08
CHECKED	DATE	MD 02 SEP 08
APPROVED	DATE	RM 02 SEP 08

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	59.75 (1518)	47 (1194)	20X1 (508)	86 (39)
-2	99.75 (2534)	87 (2210)	56X1 (1422)	110 (50)
-3	139.75 (3550)	127 (3226)	80X1 (2032)	135 (61)
-4	179.75 (4566)	167 (4242)	64X2 (1626)	160 (73)
-5	219.75 (5582)	207 (5258)	78X2 (1981)	183 (83)
-6	259.75 (6598)	247 (6274)	92X2 (2337)	208 (94)
-7	299.75 (7614)	287 (7290)	106X2 (2692)	230 (104)
-8	339.75 (8630)	327 (8306)	120X2 (3048)	255 (116)

PENTAIR
CODELINE®

MODEL - 80S60
MEMBRANE HOUSING

ECN	DWG. NO.	REV.
4624	99162	S
DATE 14DEC17	SCALE NONE / SIZE A3	SHEET 1OF 3

Hydrotecnologies
hytek

RATING:

DESIGN PRESSURE……..600 PSIG (4.14 MPa)
MAX. OPERATING TEMP……...……190 F (88 C)
MIN. OPERATING TEMP……..……20 F (-7 C)
FACTORY TEST PRESSURE…….CE / ASME 900 PSIG/660 PSIG (6.20 MPa)/(4.55 MPa)
QUALIFICATION PRESSURE ……..…….. 3600 PSI (24.8 MPa)

INTENDED USE:

The CodeLine 80S60 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical brackish waters at pressures up to 600 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S60 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S60 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 190 F (0.86 Mpa at 88 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel please refer to the 80S Series USER'S GUIDE 94182

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S60 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped.

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:

- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5 FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **Standard CF3M** Optional Duplex SS (CD3MN)
Optional Super Duplex SS (CD3MWCuN)

Configuration **Standard - CF3M 1D5D**
Optional –Multi port: (Refer SPEC.SHEET/PM/1.5"-3" for Multi ports selection).
2.5" Ports not available in 90° Configuration.

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminium

Optional – Stainless Steel 316L

Note: Please refer to 99321 for sanitary details and refer page-3 for optional Part numbers.

PRESSURE VESSELS CODELINE 8"-1000 PSI PV 80S100 "CODED" SIDE PORT

PV 80S100 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 69 bar a 66°C (1000 psi a 150°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 89 bar (1300 psi)
• CE 103 bar (1500 psi)
- Pressione di scoppio: _____ 414 bar (6000 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in Acciaio Super Duplex connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S100

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

TECHNICAL SHEET:
- Design Pressure: _____ 69 bar a 66°C (1000 psi at 150°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 89 bar (1300 psi)
• CE 103 bar (1500 psi)
- Burst Pressure: _____ 414 bar (6000 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in Super Duplex Stainless Steel connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

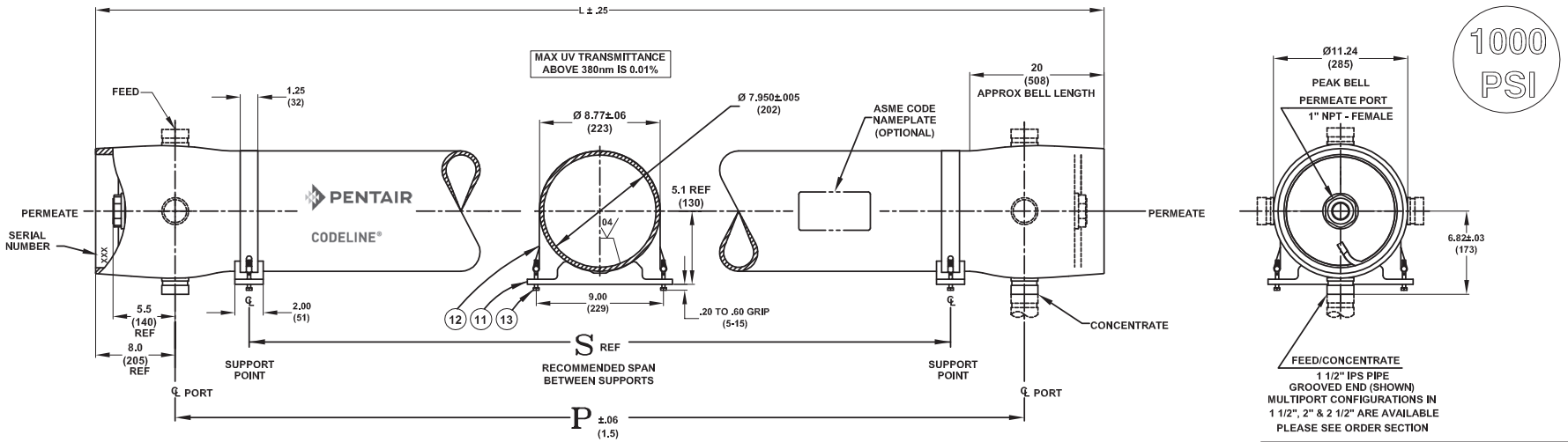
CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

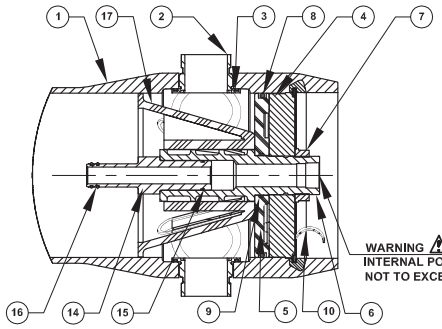
WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary

1000 PSI



VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND ABOVE



SECTION THROUGH END CLOSURE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99220	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CD3MWCuN as per SA-995 (J93380)
3	A/R		F/C Port Seal	Ethylene Propylene
HEAD				
4	2	96158	Bearing Plate	6061-T6 As per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
10	2	47336	Quick Release Spiral Ring	SS- 316 As per SA-479
VESSEL SUPPORT				
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4++	46265	Strap screw.	5/16-18 UNC,2.5"- L,18-8 Stainless Steel.
ELEMENT INTERFACE				
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.

+3 & ++6 each furnished with length code 4,5,6,7 & 8.

NOTES:-
- MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- DIMENSION IN INCHES (MM APPROX.)
- SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ITEM 17 DOWNSTREAM ONLY.
- NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- # 600 PSI FOR METALLIC PERMPORTS
- FOR OPTIONAL PART NUMBERS REFER PAGE 3
- F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.

** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS

PORT CONFIG	VESSEL QUANTITY

DRAWN	DATE	PGS	02 SEP 05
CHECKED	DATE	MD	02 SEP 05
APPROVED	DATE	RM	02 SEP 05

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	63.15 (1604)	47 (1194)	19X1 (483)	127 (58)
-2	103.15 (2620)	87 (2210)	56X1 (1422)	160 (73)
-3	143.15 (3636)	127 (3226)	80X1 (2032)	192 (87)
-4	183.15 (4652)	167 (4242)	64X2 (1626)	226 (103)
-5	223.15 (5668)	207 (5258)	78X2 (1981)	259 (117)
-6	263.15 (6684)	247 (6274)	92X2 (2337)	286 (130)
-7	303.15 (7700)	287 (7290)	106X2 (2692)	319 (145)
-8	343.15 (8716)	327 (8306)	120X2 (3048)	350 (159)

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MODEL - 80S100
MEMBRANE HOUSING

ECN	DWG. NO.	REV.
4624	99163	T
DATE 14DEC17	SCALE NONE / SIZE A3	SHEET 1OF 3

RATING:

DESIGN PRESSURE……..1000 PSIG (6.90 MPa)
MAX. OPERATING TEMP……..……150 F (66 C)
MIN. OPERATING TEMP……..……20 F (-7 C)
FACTORY TEST PRESSURE…..CE / ASME 1500 PSIG/1100 PSIG (10.34 MPa)/ (7.58 MPa)
QUALIFICATION PRESSURE ……...6000 PSI (41.37 MPa)

INTENDED USE:

The CodeLine 80S100 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1000 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S100 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S100 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 150 F (0.86 Mpa at 66 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel please refer to the 80S Series USER'S GUIDE 94182

ORDERING:

Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S100 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:

- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5" FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **STD - Super Duplex SS (CD3MWCuN)**
Optional - CE3MN* (Cannot be offered for ASME Stamped vessels)

Configuration **Standard – CD3MWCuN 1D5D**
Optional –Multi port: (Refer SPEC.SHEET/PM/1.5"-3" for Multi ports selection).
1.5", 2", 2.5" Ports not available in 90^0 configurations

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminium

Optional – Stainless Steel 316L

Note: Please refer to 99376 for sanitary details and refer page-3 for optional Part numbers.

PRESSURE VESSELS CODELINE 8"-1200 PSI PV 80S120 "CODED" SIDE PORT

PV 80S120 CODELINE "CODED"

MATERIALE DI COMPOSIZIONE:
- Vessel: _____Vetroresina
- Tappi: _____Lega di alluminio 6061-T6
- Anello di chiusura tappo:_____ 316 SST
- Basamento tappo: _____ materiale termoplastico
- Selle (incluse): _____ materiale termoplastico (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).
- Tiranti (inclusi):_____in AISI 304 e cuscini in PVC (nr. 2 per vessel fino al 3 elementi, dal 4 elementi fino al 6 elementi nr. 3 per vessel).

DATI TECNICI
- Pressione di progetto: _____ 83 bar a 66°C (1200 psi a 150°F)
- Temperatura minima di esercizio: _____ -7°C (20°F)
- Pressione di collaudo:
• ASME 107 bar (1560 psi)
• CE 124 bar (1800 psi)
- Pressione di scoppio: _____ 496 bar (7200 psi)
- Uscita permeato: _____ 1" NPT femmina
- Uscita concentrato: _____ 1 1/2" in Acciaio Super Duplex connessione per giunto victaulic (giunto victaulic non incluso)
- Posizione porte laterali: _____ Standard a squadro
- Colore Standard: _____Bianco
- Connettori per membrana (non inclusi):___ Tramite adapter (2 x vessel, vedi documentazione tecnica)
- Nr. di elementi disponibili: _____1-2-3-4-5-6-7

CERTIFICATI:
- Ispezione e marcatura ASME CODE (quotazione su richiesta)
- Marcatura CE (quotazione su richiesta)
- Direttiva 97/23/CE (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICAZIONI:
- Osmosi inversa;
- Ultrafiltrazione.

ACCESSORI DA ORDINARE A PARTE:
- Adapter: nr. 2 x vessel (vedi documentazione tecnica).
- Giunti Victaulic 1 1/2" VIC0001
- Sample Pro Valve (prelievo permeato): _____ CA0001

TRATTAMENTO DELLE ACQUE:
- Domestiche
- Industriali
- Municipali
- Reflue (conntattare l' Ufficio tecnico Hytek)
- di mare
- Farmaceutiche
- Alimentari

"CODED" CODELINE PV 80S120

MATERIALS COMPOSITION:
- Shell material: _____Fiberglass
- Plugs: _____ 6061-T6 Hard anodized Alum. alloy
- Retaining ring _____ 316 SST
- Bearing ring _____ Engineering thermoplastic
- Saddles (included): _____Engineering thermoplastic (nr. 2 supports required up to 3 elements, 3 supports required for length 4 and over)
- Straps (included): _____AISI 304 and cushion in PVC (nr. 2 straps required up to 3 elements, 3 supports required for length 4 and over)

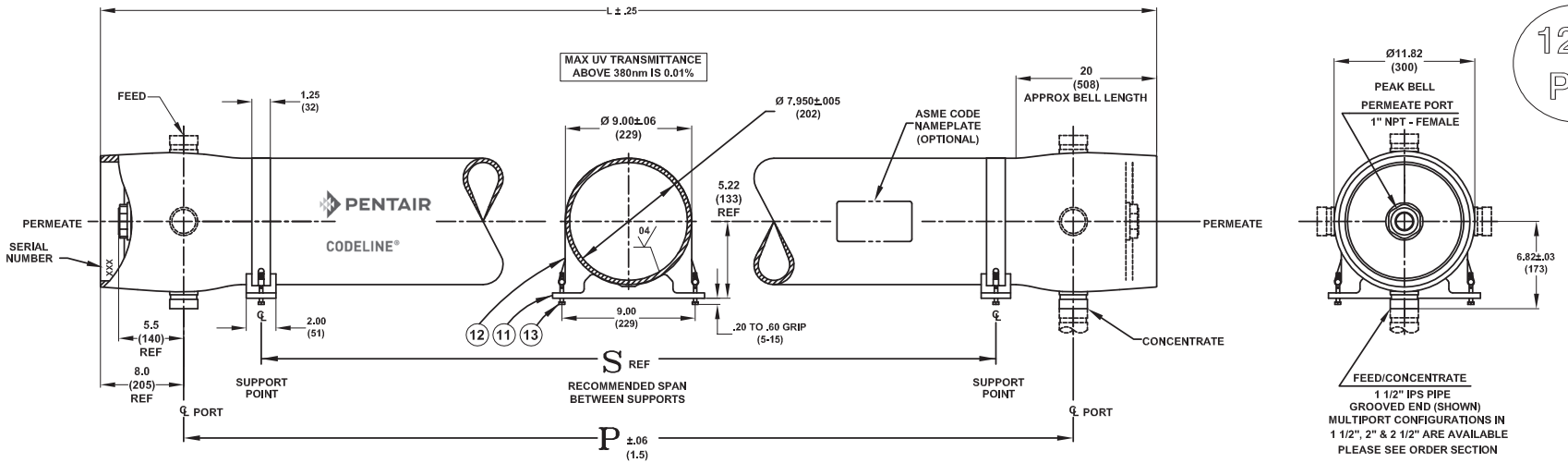
TECHNICAL SHEET:
- Design Pressure: _____ 83 bar a 66°C (1200 psi at 150°F)
- Min. Operating temperature: _____ -7°C (20°F)
- Factory Test Pressure:
• ASME 107 bar (1560 psi)
• CE 124 bar (1800 psi)
- Burst Pressure: _____ 496 bar (7200 psi)
-Permeate Port: _____ 1" NPT female
- Concentrate Port: _____1 1/2" in Super Duplex Stainless Steel connection for victaulic joint (victaulic joint not included)
- Side Port Position: _____Standard square
- Standard color: _____ White
- Connection for membrane (not included): _____ By Adapter (2 x vessel, see technical documentation)
- Nr. elements available: _____1-2-3-4-5-6-7

CERTIFICATIONS:
- Inspection and ASME CODE stamped (quotation on request)
- CE mark stamped (quotation on request)
- 97/23/CE Directive (PED)
- NSF/ANSI 61
- ISO 9001:2000

APPLICATIONS:
- Reverse Osmose
- Ultrafiltration.

ACCESSORIES TO BE ORDERED SEPARATELY:
- Adapter: 2 x vessel, see technical documentation
- Victaulic Joints 1 1/2" VIC0001
- Sample Pro Valve (permeate stream): _____ CA0001

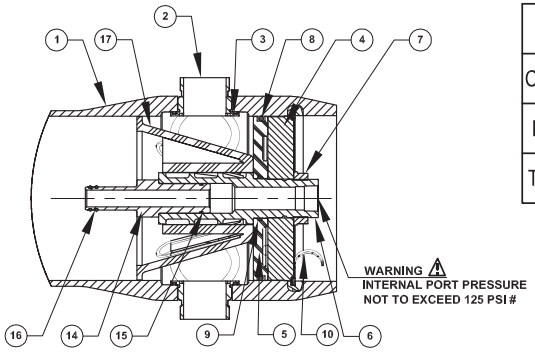
WATER TREATMENTS
- Domestics
- Industrials
- Municipals
- Drains (contact Hytek Technical Office)
- Sea
- Farmaceutics
- Alimentary



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	99221	SHELL	Filament Wound Epoxy/Glass composite - Head locking grooves integrally wound in place.
2	A/R		F/C Port	CD3MWCuN As per SA-995 (J93380)
3	A/R		F/C Port Seal	Ethylene Propylene
HEAD				
4	2	96158	Bearing Plate	6061-T6 As per SB-221
5	2	96160	Sealing Plate	Engineering Thermoplastic.
6	2	96162	Permeate Port	Engineering Thermoplastic.
7	2	45066	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
HEAD INTERLOCK				
10	2	47336	Quick Release Spiral Ring	SS-316 As per SA-479
VESSEL SUPPORT				
11	2+	52169	Saddle	Engineering Thermoplastic.
12	2+	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
13	4++	46265	Strap screw.	5/16-18 UNC,2.5"-L, 18-8 Stainless Steel.
ELEMENT INTERFACE				
14	2	A/R	Adapter	Engineering Thermoplastic.
15	2	52245	Adapter seal	Ethylene Propylene - O - Ring
16	4	A/R	PWT Seal	Ethylene Propylene - O - Ring
17	1	96163	Thrust Cone	Engineering Thermoplastic.
+3 & ++6 each furnished with length code 4,5,6,7 & 8.				

VIEW AT CENTER SUPPORT

CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S" : 3 SUPPORTS REQUIRED FOR LENGTHS -4 AND ABOVE



SECTION THROUGH END CLOSURE

NOTES:-
- ♦MAX. ANGULAR VARIATION BETWEEN ANY PORTS ±0.5°.
- ♦DIMENSION IN INCHES (MM APPROX.)
- ♦SHELL EXTERIOR COATED WITH WHITE RAL 9003, HIGH GLOSS POLYURETHANE PAINT.
- ♦ITEM 17 DOWNSTREAM ONLY.
- ♦NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
- ♦F/C PORT, BEARING PLATE, PERMEATE PORT & QUICK RELEASE SPIRAL RING MATERIALS ARE AS PER STAMPED APPLICABLE ASME EDITION.
- # 600 PSI FOR METALLIC PERMPORTS FOR OPTIONAL PART NUMBERS REFER PAGE 3
- ** WEIGHTS GIVEN IN THE TABLE ARE FOR HIGHEST CONFIGURATION AND WILL VARY WITH CHANGE IN CONFIGURATION.

CAUTION: INCORRECT MANIFOLDING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; TAKE EVERY PRECAUTION LISTED ON REVERSE, SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PO NUMBER	
CUSTOMER NAME	
PROJECT NAME	
TOTAL QUANTITY	

PORT CONFIGURATION DETAILS	
PORT CONFIG	VESSEL QUANTITY

Dash Length	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)**
-1	63.15 (1604)	47 (1194)	19X1 (483)	146 (66)
-2	103.15 (2620)	87 (2210)	56X1 (1422)	190 (86)
-3	143.15 (3636)	127 (3226)	80X1 (2032)	234 (106)
-4	183.15 (4652)	167 (4242)	64X2 (1626)	278 (126)
-5	223.15 (5668)	207 (5258)	78X2 (1981)	320 (145)
-6	263.15 (6684)	247 (6274)	92X2 (2337)	366 (166)
-7	303.15 (7700)	287 (7290)	106X2 (2692)	408 (185)
-8	343.15 (8716)	327 (8306)	120X2 (3048)	453 (205)

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DRAWN DATE	PGS 27 JAN 06	MODEL - 80S120 MEMBRANE HOUSING
CHECKED DATE	MD 27 JAN 06	
APPROVED DATE	RM 27 JAN 06	

ECN 4624	DWG. NO. 99164		REV. S
DATE 14DEC17	SCALE NONE	SIZE A3	SHEET 1OF 3

RATING:

DESIGN PRESSURE……1200 PSIG (8.27 MPa)
MAX. OPERATING TEMP……150 F (66 C)
MIN. OPERATING TEMP…… 20 F (-7 C)
FACTORY TEST PRESSURE……..CE / ASME 1800 PSIG / 1320 PSIG (12.41 MPa)/(9.10 MPa)
QUALIFICATION PRESSURE ……...7200 PSI (49.64 MPa)

INTENDED USE:
The CodeLine 80S120 Fiberglass RO Pressure Vessel is designed for continuous, long term use as housing for reverse osmosis membrane elements to desalt typical sea waters at pressures up to 1200 psi. Any make of eight-inch nominal diameter spiral-wound element is easily accommodated; the appropriate interfacing hardware for the element specified is furnished with the vessel.

The CodeLine 80S120 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) as per Section X. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80S120 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:
DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure
DO…mount the shell on horizontal members at span "S" using compliant vessel supports furnished; Shim saddles if required. Tighten hold down straps just snug
DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header
DO…use flexible type IPS grooved-end pipe couplings, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.
DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.
DO…provide overpressure protection for vessel set at not more than 105% of design pressure
DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion
DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO NOT…work on any component until first verifying that pressure is relieved from vessel
DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;
*** DIA = 0.015 in. (0.4mm) and
*** L = 0.2 in. (6mm) for a length code –8 vessel
DO NOT… hang piping manifolds from ports or use vessel in any way to support other components
DO NOT…tighten Permeate Port connection more than one turn past hand tight
DO NOT… operate vessel without connecting both Permeate Ports internally to complete set of elements or otherwise plug ports internally so that external piping connection is not subjected to feed pressure
DO NOT…install Spacer on downstream end of vessel
DO NOT…operate vessel without Thrust Cone installed downstream
DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.
DO NOT…operate vessel at pressure and temperature in excess of its rating.
DO NOT…operate vessel with permeate pressure in excess of 125 psi at 150 F (0.86 Mpa at 66 ^{0}C).
DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way
DO NOT…operate outside the pH range 3-11.

For complete information on proper use of the vessel please refer to the 80S Series USER'S GUIDE 94182

ORDERING:
Using the chart below, please check the features you require

VESSEL LENGTH CODE – please check one

MODEL 80S120 -1 -2 -3 -4 -5 -6 -7 -8

MEMBRANE BRAND AND MODEL

Please supply adapters for the following membrane brand and specific model
Brand_____ Model_____

CERTIFICATION REQUIRED

Hydro testing at 1.1 times the design pressure.
ASME Stamped and National Board Registered.
In compliance with the ASME Sec X but not Code Stamped.

Hydro testing at 1.5 times the design pressure.
CE Marked Standard.
Certified by Pentair.

ADAPTER KITS	
UP STREAM	**DOWN STREAM**

PERMEATE PORT SELECTION

Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Non Serial Number End

Size of the Permeate Port	**1"**	1.25"	1.5"			
Type of Connection	**FNPT**	MNPT	BSPTM	BSPTF	IPS GROOVED	SANITARY
Material of Construction	**Noryl**	SS316L	Zeron 100			

Note:
- Standard offering is 1.0" FNPT in Noryl.
- 1.25" & 1.5" BSPTF, 1.25" & 1.5" FNPT and 1.25" SANITARY connections cannot be offered
- Sanitary permeate port cannot be offered in Noryl

STRAP ASSEMBLY

Standard SS304 Optional SS316 Optional SS316L

FEED/CONCENTRATE PORT SELECTION

Material of Construction **STD Super Duplex SS (CD3MWCuN)**
Optional - CE3MN * (Cannot be offered for ASME Stamped vessels)

Configuration **Standard – CD3MWCuN 1D5D**
Optional –Multi port: (Refer SPEC.SHEET/PM/1.5"-3" for Multi ports selection).
1.5", 2", 2.5" Ports not available in 90^0 configurations.

Serial number end

Opposite end

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END

BEARING PLATE MATERIAL

Standard – 6061 T6 Aluminium

Optional – Stainless Steel 316L

Note: Please refer to 99376 for sanitary details and refer page-3 for optional Part numbers.

CODELINE MULTI-PORT™ HIGHT FLOW MEMBRANE HOUSINGS

Your Path to Reducing System Cost by Using Multi-port™

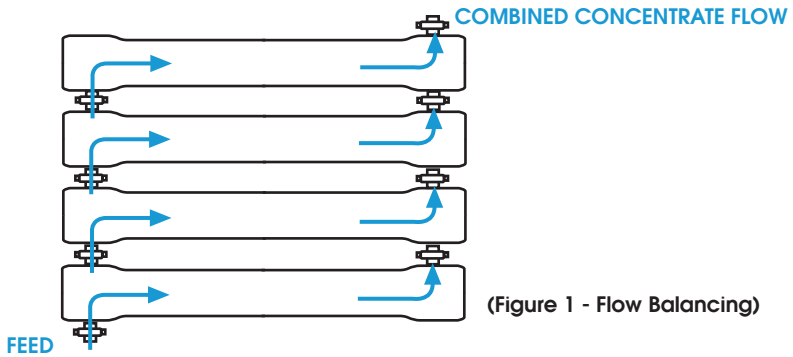
By now most end users, designers and builders of membrane separation systems are familiar with CodeLineTM side-ported FRP housings. With over100,000 units in service, we have leaded the industry in helping reduce the cost of membrane systems around the world.
As CodeLine TM has continued to advance side-porting technology, we have focused on developing products that help further reduce systemcost. With this being the case, CodeLine TM is proud to announce Multi-portTM Membrane Housings with 3· Port.

What can it do for your system?
Multi-porting is a term used to describe membrane housing that feature more than one feed or concentrate port per end. For example, two or three ports in the feed end of a membrane housing. Multi-porting allows vessels to be directly linked together. This powerful feature offers the opportunity to eliminate traditional manifolds resulting in potential system cost savings. While the cost reduction aspect of this technology is enticing, system performance must be carefully evaluated to assure that improper port sizing does not compromise long-term system performance.
While using High Flow-ported housing is not difficult, there are many variables that need to be properly addressed before vessels can be specified. To help ensure the performance of your system, please carefully consider the guidelines and pressure drop data on the following pages when attempting to eliminate external manifolds.

Detailed Guidelines for Using Multi-portTM High Flow

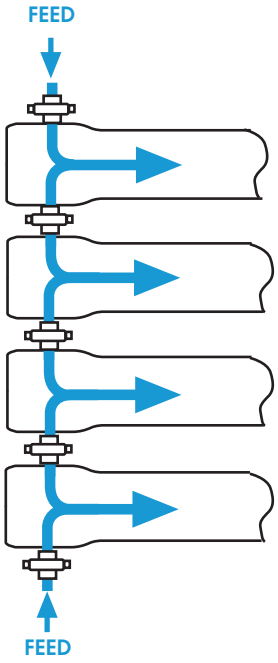
Membrane Housings to Eliminate Manifolds
CAUTION: - The following are Guidelines only. They are intended to aid thePurchaser when using the Multi-portTM feature to eliminate manifolds. It is the system designer's responsibility to evaluate the specific applicationand carefully consider these guidelines when sizing ports.
Improper port sizing could lead to poor system performance and/or damage to membrane elements. Please contact Hytek Technical officeif clarification of these Guidelines is required.

Evaluate the pressure drop across each vessel plenum as this will affect the permeate and concentrate flows in each vessel. Typically, the feed and concentrate manifolds connecting to a number of vessels are designed to minimize variations in flow through the vessels. This is accomplished by assuring that the pressure through out a manifold is nearly equal. The greater the differential across a particular manifold, or set of manifolds, the greater the potential for variations in the average feed pressure as well as the differential pressure across the different vessels in a pass. These factors will affect the flow of the product as well as the flow through the vessels.
The same considerations apply when attempting to eliminate manifolds by linking vessels directly together using Multi-portTM vessels. In this case, the pressure drop across the vessel plenum, as well as the entrance and exit losses through the side ports, must be considered. To simplify this process, we have provided calculated test data, which quantifies the total pressure, drop versus the flow ratefor various size ports.
Flow balance the system by taking the combined concentrate flow from the last vessel in a particular pass. This practice is commonly used when multiple filters are connected in parallel. If the feed comes in the first vessel, the combined concentrate should exit the last vessel.
The feed pressure to the last vessel will always be less than the feed pressure to the first vessel. By flow balancing, the concentrate pressure of the last vessel will also be the lowest of any vessel. This tends to keep the pressure drop across all vessels to be as close as possible. The flow pattern is shown in Figure1.



(Figure 1 - Flow Balancing)

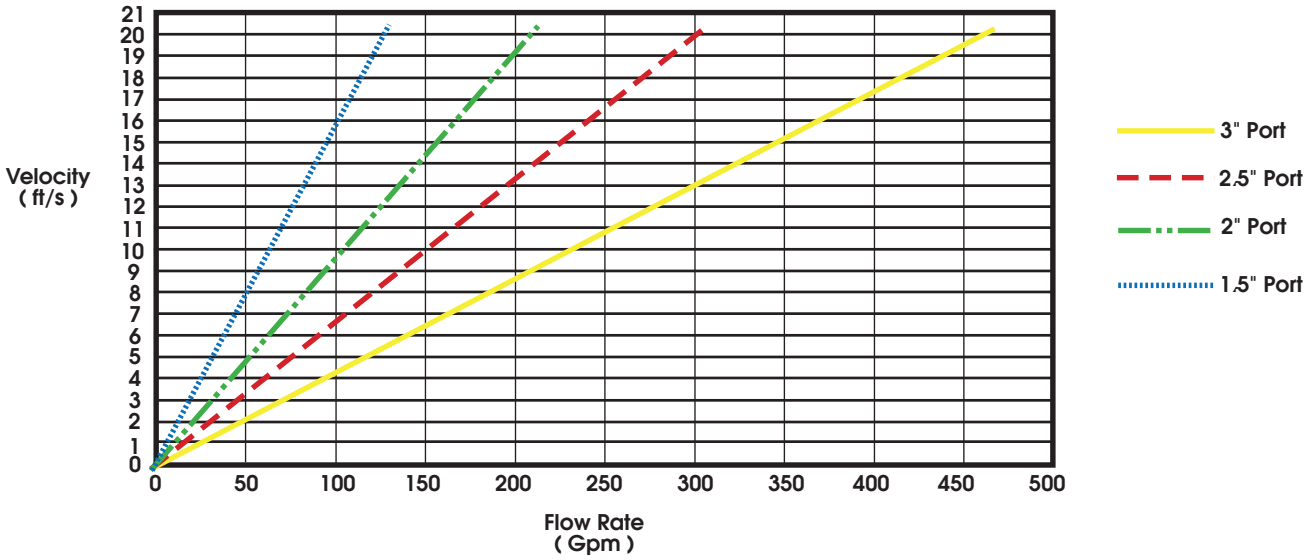
The down side of this arrangement is that it will cause the average feed flow pressure between the first and last vessel to be the at a maximum value, thus affecting permeate flow in the last vessel..
For simplicity of piping, some customers may desire to take combined concentrate flow from the first vessel in a particular pass. This will result in alower differential pressure and thus a lower concentrate flow in the last vessel.
While this practice is less conservative than flow balancing, it has been successfully used in some systems. In any event, the performance of the membranes in each vessel should be checked to confirm that all are within the membrane manufacturer„s guidelines.
Consider feeding from both sides or the center of a pass if the differential pressure when feeding from one side would be excessive. By splitting the feed flow the velocity will be reduced by one half and the pressure drop by an even greater amount since the pressure drop is proportional to the square of the flow.
Feeding from both sides may be most economically feasible where the pressure is low enough to use plastic pipe. This option is shown inFigure 2.

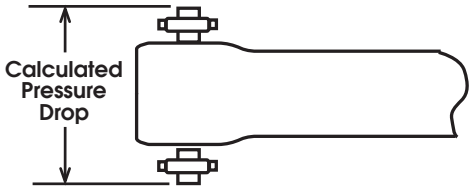


(Figure 2 - Both Sides)

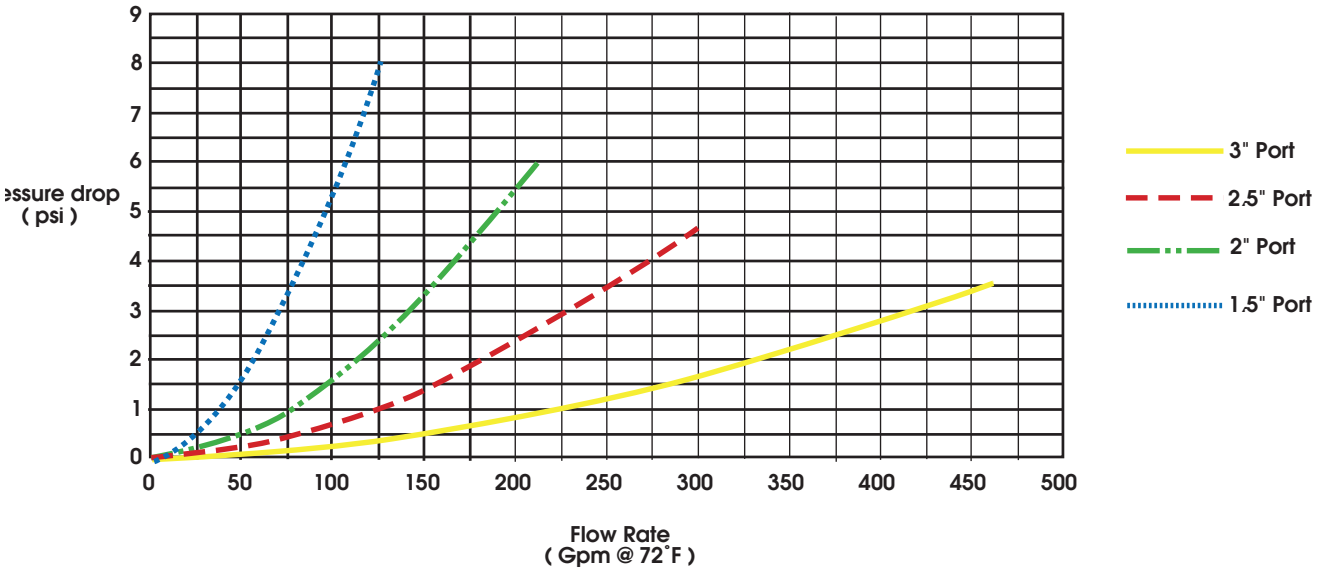
Check with your membrane supplier for evaluation of membrane performance of your proposed system. When properly sized, use of Multi-portTM vessels to eliminate external manifolds will have little if any affect on over all system performance.
However, as pressure drops are increased, systems that are already being operated close to the edge of recommended conditions may experience problems within one or more vessels.
It is therefore recommended that worst case conditions be evaluated carefully in conjunction with your membrane supplier. Consider the effects of higher velocities that may occur during special situations such as flushing or cleaning. It is sometimes advantageous to flush or clean systems at velocities higher than normal.
These situations must be carefully considered when selecting portsizes.
Pressure drops may be considerably increased under such conditions.
Pressure drops across the plenum of a vessel will always be greater than through an equal length of straight pipe of the same size as the port. For this reason you should always select ports at least equal to, and possibly greater than, the size of pipe you would use if manifolds were external.
Do not reduce the size of the feed/concentrate ports in a particular pass, unless you have carefully evaluated the affect on system performance of such reductions. (For brackish water desalination at the recovery above 65% the brine discharge connection size may be reduced as compared to the feed connection size.) Unlike with external manifolds, it is easy to reduce the size of ports of vessels, which are linked together.
The feed port may be one size and the port directly opposite it can be specified a smaller size.
This however could lead to excessive pressure drops. Again, evaluate the affects of such a design carefully. Do not exceed traditional flow velocities.
Even though the pressure drop across each vessel may be acceptable, the velocity of the water through each port must also be evaluated.
It is suggested that the water velocity throughout the entire system be checked for proper velocity, however, the first connection fromthe feed source is typically where problems can occur. While the length of each feed port is very short, velocities in excess of 11 Ft. per second should be avoided to help ensure proper system performance. For your convenience, we have included the published velocities for schedule 40 pipe in this bulletin.
Do not assume, because a set of vessels can be manifolded together, that CodeLine TM recommends or endorses such use in your particular application.
Used properly, multi-porting with 3· ports opens up a whole New World of potential cost savings. With this opportunity comes a responsibility to carefully evaluate projected membrane performance.
CodeLine TM recommends that you work directly with you membrane supplier to obtain approval of your proposed

Flow Rate V/s Velocity Schedule 40 pipe





Flow rate V/s Pressure Drop



OCTA Series ☐

MODEL

15
30
45
△1 60
100
120

LOCATION ☐
SIZE ☐
LOCATION ☐
SIZE ☐
LOCATION ☐
SIZE ☐

LOCATION ☐
SIZE ☐
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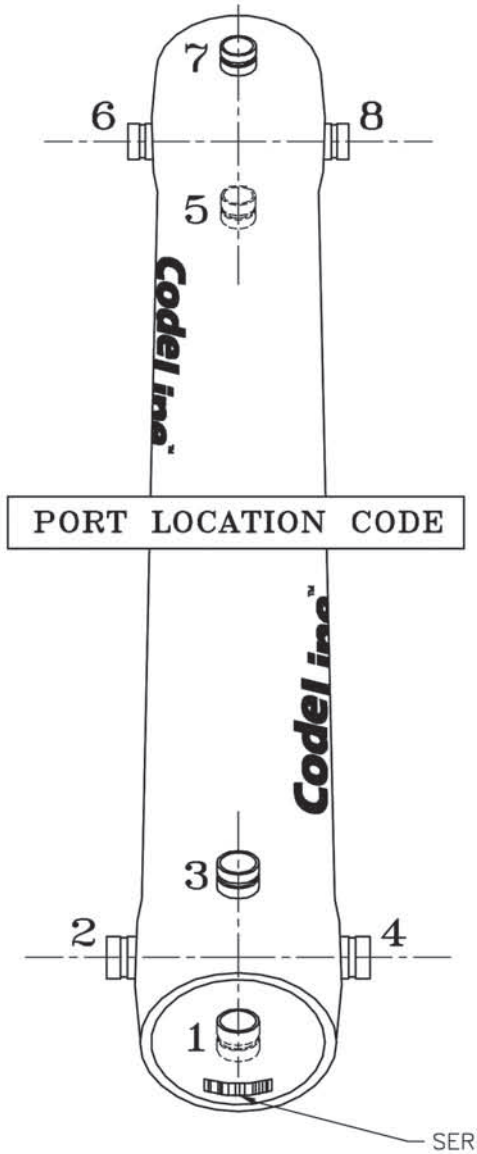
SIZE ☐



PORT SIZE CODE	
D	1 1/2" GROOVED END
E	2" GROOVED END
F	2 1/2" GROOVED END △1
G	3" GROOVED END △2

△1 2-1/2" & 3.0" PORTS ARE NOT ALLOWED 90 DEGREES FROM ANY PORT

△2 CONSULT YOUR SALES MANAGER ABOUT SPECIFICATIONS ON 3" PORTS.

Material	
316L	
CN3MN	

Date	
Customer	
Project Name / Number	
P.O. Number	
Ship to Address	
ASME	
Membrane	
Heads	
Sanitary ports	
Others	

For Internal Use Only	
S.O. Number	
Ship Date	

Approved by CUSTOMER: _____

PLEASE FAX THIS SHEET WITH YOUR ORDER TO: CODELINE CUSTOMER SERVICE DEPT.

www.codeline.com

CodeLine™
Pentair Water

ORDER SPECIFICATION SHEET CODELINE OCTA SERIES

SIZE AND LOCATION OF PORTS

APPLICAZIONI VALVOLE SAMPLE PRO /SAMPLE PRO VALVES APPLICATIONS

VALVOLE SAMPLE PRO CA0001

Introduzione SamplePro™, valvola di prelievo permeato:

- Drastica riduzione dei tempi di campionamento;
- Risoluzione rapida dei problemi;
- Analisi del permeato in pochissimo tempo;
- Campionamento senza il disagio di bagnarsi.

SamplePro™valves riduce i costi dell' impianto e della sua manutenzione semplificando installazione e campionamento

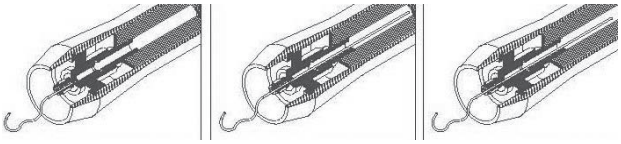
Qualunque esperto del settore trattamento acque, sa che l' analisi del permeato è il metodo più diffuso ed efficace per prevenire e risolvere eventuali problemi di un impianto. E ancor di più sa che una campionatura rapida ed agevole del permeato, può determinare se la membrana è viziata o meno. Ma i metodi di rilevamento tradizionali, spesso non agevolano questa importante operazione. Le valvole SamplePro fi prodotte in esclusiva da CodeLine e rivendute da Hytek come suo distributore esclusivo, sono collegabili direttamente su qualsiasi tappo CodeLine da 8", semplicemente avvitandole.

Benefici

- Riduzione dei tempi d' installazione per valvolame o connessioni, con rapido accesso all' analisi del permeato.
- Riduzione dei tempi di manutenzione e campionamento, con conseguente risparmio sui costi di gestione.
- Miglioramento delle performance dell' impianto con immediata prevenzione di eventuali anomalie.
- Grazie alla loro praticità e semplicità, le valvole SamplePro migliorano la capacità preventiva di manutenzione,
- Il funzionale design delle valvole SamplePro, è stato studiato per intervenire senza l' ausilio di ulteriori valvole.
- Grazie alla loro struttura compatta e robusta, le valvole SamplePro, garantiscono performances e durata nel tempo.

Le valvole SamplePro, sono garantite per un anno e rappresentano un' applicazione facile e veloce per la campionatura di routine del permeato.

Esempio della facilità di installazione delle valvole SamplePro:



Inserire un tubo da 1/4·dentro alla SamplePro fino a raggiungere il 1°O-R.

Ruotare la valvola a disco e spingere il tubo fino alla fine del vessel.

Trascinare il tubo nella posizione di test e ripetere le prove sulla lunghezza del vessel.

SAMPLE PRO VALVES CA0001

Intr

- Dramatically reduce sampling time;
- Isolate problems quickly;
- Sample the permeate stream without down time;
- Stay dry when sampling.

SamplePro™valves cut costs and maintain system performance by taking the hassle out of permeate sampling.

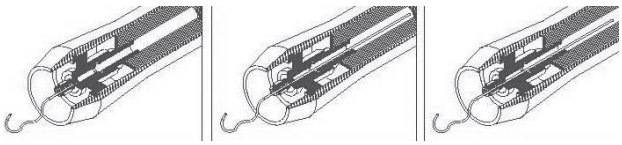
Water system experts know that permeate sampling is the single most useful method for troubleshooting existing or potential system problems. And, more and more, probing is a requirement for making membrane warranty claims. But traditional methods have always been time consuming and messy. SamplePro valves fi exclusively from Codeline and Hytek distribution let you enjoy the benefits of routine sampling by providing a direct connection to the permeate stream of 8" membrane housings. Simply screw SamplePro valves into your current system. Or spec your new CodeLine housings with them.

Benefits:

- Reduced system downtimefiPermanent connection allows immediate access to the permeate stream.
- Reduced labor costsfi Faster access to the permeate stream saves time and money.
- Improved system performancefiQuickly identify and isolate problems before they cripple your system.
- Improved preventive maintenancefi With SampleProvalves, sampling is easier. Thus simplifying water-quality profiles.
- Integrated designfi SamplePro„s compact design streamlines yoursystem. No make-shift valving to get in the way.
- Long lastingfi SamplePro valves are designed for years of reliable service.

SamplePro valves are warranted for a full year, and are a fast, cost-effective way to enjoy thebenefits of routine permeate sampling.

Here's how easy it is with SamplePro valves:



Insert 1/4· tubing into SamplePro valve until captured by first seal.

Rotate valve disk and push tubing until it reaches the end of the vessel.

Pull tubing out to next test position and repeat until housing profile is complete.

FILTRO A CARTUCCIA AQUALINE 80CF (NON CODED) PER ALTI FLUSSI / CARTRIDGE FILTER HOUSING FOR HIGH FLOW APPLICATIONS

CARTRIDGE FILTER HOUSING DATASHEET

ARTICLE CODE : 80CF15-60 (Non coded)

GENERAL INFORMATION

AquaLine 80CF15 is a cartridge filter housing of standard 8" diameter designed to meet the demands of cost effective, continuous long term use as a housing for cartridge filtration. Manufactured by CodeLine using corrosion resistant epoxy / glass composite & designed to operate at 150 psi pressure. AquaLine housing can accommodate single AquaLine cartridge of 60" long. AquaLine housings meet the demanding needs of Sea Water applications.

CERTIFICATION

- CE Certified

UNIQUE BENEFITS

- Quick Opening Closure Mechanism : The user friendly Quick opening closure mechanism eliminates the requirement of special tools allowing access to elements in seconds. Change-outs are very quick, saving labor time & downtime
- Corrosion Resistant FRP : Manufactured using FRP technology, AquaLine housings are hassle free & cost effective alternative to metallic housings
- Stackable Design: AquaLine housings can be mounted horizontally in a skid or RO rack, saving valuable floor space. Flexibility to install vertically too
- Modular & Scalable : AquaLine housings are modular in design and can be scaled up to higher capacities as per demand

UNIQUE FEATURES

- Super Duplex FC ports for Sea water compatibility
- 3" IPS Grooved Multi-porting option for connecting vessels to each other
- Drain port for flushing out residual water
- Air vent port for purging out air
- Mirror Finish ID for easy & quick loading & unloading of elements
- Housing exterior coated with High Gloss Polyurethane UV resistant paint

SPECIFICATION*

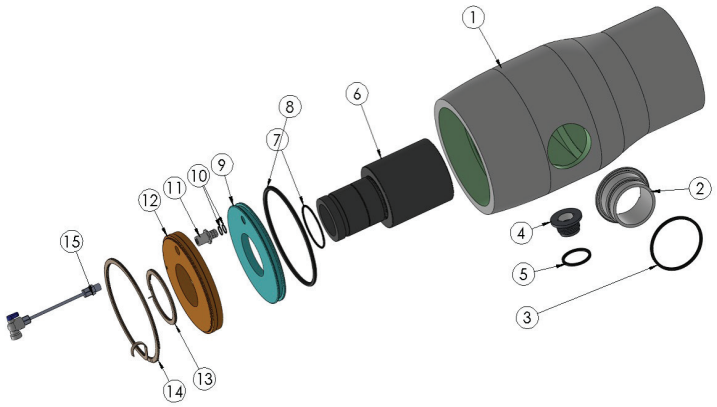
Model No.	Drawing No.	Design/Operating Pressure	Max. Operating Temperature	Qualification Pressure	Element Length
AQUALINE 80CF15-60(NC)	17028	150 PSI/10 Bar	140°F/60°C	900 PSI/62 Bar	60"

* Specifications subject to change without notice (for more details refer to model specific engineering drawings)

FILTRO A CARTUCCIA AQUALINE 80CF ESPLOSO (LATO INGRESSO) / CARTRIDGE FILTER HOUSING EXPLODED (FEED SIDE)

EXPLODED VIEW & DETAILS- FEED/ PRODUCT END

A GENERIC VIEW FOR VISUAL REFERENCE ONLY

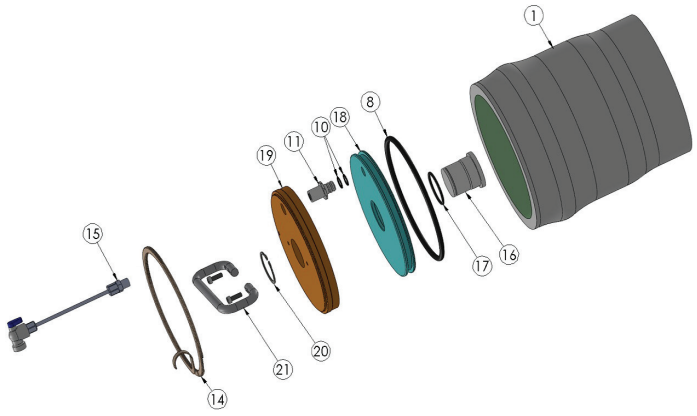


DRG REG	QTY	Description	Material	80CF15-60 Non Coded Part number
1	1	SHELL	Filament Wound Epoxy/Glass composites. Head Locking grooves integrally wound in place	ORDER SECTION
2	A/R	3" F/C Port	CD3MWCuN	96327
3	A/R	3" F/C Port Seal	Ethylene Propylene	96119
4	1	1" FNPT Drain Port	CD3MWCuN	17180
5	1	1" Drain Port seal	Ethylene Propylene	45340
6	1	3"Product Port	Engineering Thermoplastic	17187
7	1	Product Port seal	Ethylene Propylene – O Ring	17128
8	1	Head Seal	Ethylene Propylene – O Ring	96000
9	1	Sealing plate –Product Side	Engineering Thermoplastic	17175
10	2	1/4" Air Vent Port Seal	Ethylene Propylene – O Ring	45286
11	1	1/4" Air Vent Port	Engineering Thermoplastic	17174
12	1	Bearing plate –Product Side	6061-T6 Aluminum Alloy – Hard Anodized	17176
13	1	3" Port Retainer Ring	316 Stainless Steel.	17127
14	1	Retaining Ring	316 Stainless Steel	47336
15	1	Air vent Assembly	Engineering Thermoplastic Assembly	17185

FILTRO A CARTUCCIA AQUALINE 80CF ESPLOSO (LATO USCITA) / CARTRIDGE FILTER HOUSING EXPLODED (DEAD END SIDE)

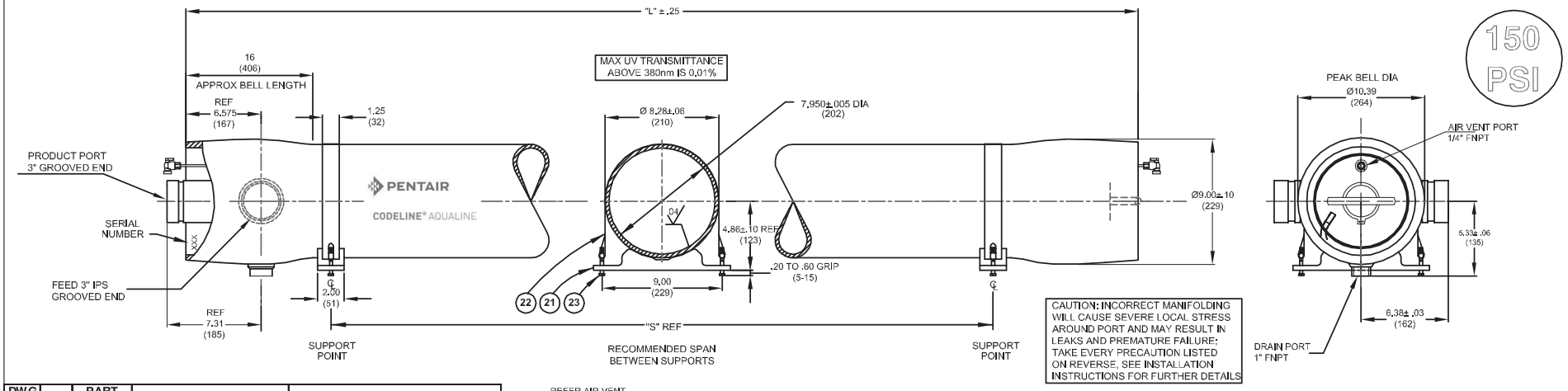
EXPLODED VIEW & DETAILS- DEAD END

A GENERIC VIEW FOR VISUAL REFERENCE ONLY

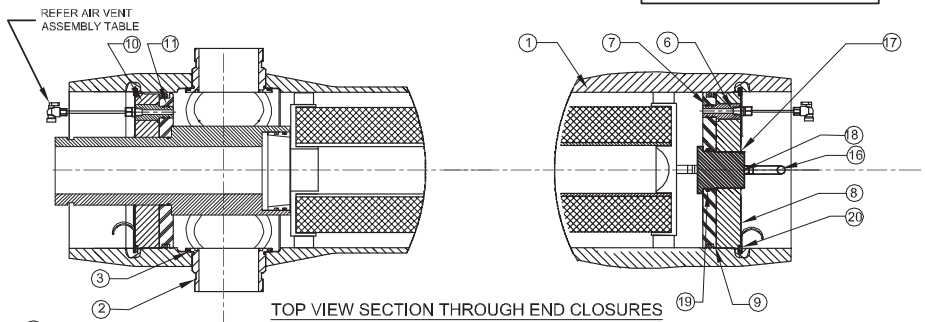


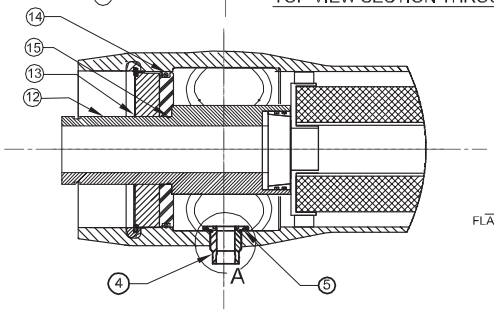
DRG REG	QTY	Description	Material	80CF15-60 Non Coded Part number
1	1	SHELL	Filament Wound Epoxy/Glass composites. Head Locking grooves integrally wound in place	ORDER SECTION
8	1	Head Seal	Ethylene Propylene – O Ring	96000
10	2	1/4" Air Vent Port Seal	Ethylene Propylene – O Ring	45286
11	1	1/4" Air Vent Port	Engineering Thermoplastic	17174
14	1	Retaining Ring	316 Stainless Steel	47336
15	1	Air vent Assembly	Engineering Thermoplastic Assembly	17185
16	1	Plug	Engineering Thermoplastic	17132
17	1	Plug Seal	Ethylene Propylene – O Ring	45312
18	1	Sealing plate –Handle Side	Engineering Thermoplastic	17178
19	1	Bearing plate – Handle Side	6061-T6 Aluminum Alloy – Hard Anodized	17179
20	1	Plug Retainer Ring	316L Stainless Steel	45247
21	1	Handle Assembly	316 Stainless Steel	17104
22*	2	Saddle	Engineering Thermoplastic	52169
23*	2	Strap Assembly	304 Stainless Steel – PVC Cushion	45042
24*	4	Strap Screw	5/16-18 UNC, 18-8 Stainless Steel	46265

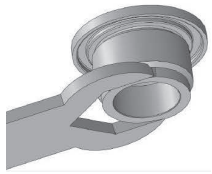
* Not shown in the above exploded view



DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
SHELL				
1	1	ORDER SECTION	SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves integrally wound in place.
2	A/R	96327	3" Feed Port	CD3MWCuN*
3	A/R	96119	3" Port Seal	Sq. Seal - EPDM
4	1	17180	1" FNPT Drain Port	CD3MWCuN*
5	1	45340	1" Drain Port Seal	Sq. Seal - EPDM
HEAD COMPONENTS FOR 140'F APPLICATION				
6	2	17174	1/4" FNPT Air Vent Port	Engineering Thermoplastic-PVC+
7	4	45286	1/4" Air Vent Port Seal	O - Ring - EPDM
8	1	17179	Bearing Plate Handle end	6061-T6 Aluminium alloy - Hard anodized
9	1	17178	Sealing Plate Handle end	Engineering Thermoplastic-PVC+
10	1	17176	Bearing Plate Product end	6061-T6 Aluminium alloy - Hard anodized
11	1	17175	Sealing Plate Product end	Engineering Thermoplastic-PVC+
12	1	17187	3" Product Port	Engineering Thermoplastic-PVC Spiral Ring
13	1	17127	3" Port Retainer Ring	316 Stainless Steel.
14	2	96000	Head Seal	O - Ring - EPDM
15	1	17128	Product Port Seal	O - Ring - EPDM
16	1	17104	Handle Assembly	316 Stainless Steel.
17	1	45247	Plug Retainer Ring	316L Stainless Steel
18	1	17132	Plug	Engineering Thermoplastic-PVC+
19	1	45312	Plug seal	O - Ring - EPDM
HEAD INTERLOCK				
20	2	47336	QuickRelease Spiral Ring	316 Stainless Steel.
VESSEL SUPPORT				
21	2	52169	Saddle	Engineering Thermoplastic
22	2	45042	Strap Assy.	304 Stainless Steel-PVC Cushion.
23	4	46265	Strap screw.	5/16-18 UNC, 18-8 Stainless Steel.







DRAIN PORT DETAIL A

CAUTION!: HOLD DRAIN PORT IN THE FLAT AREA AS SHOWN IN DETAIL A WHILE CONNECTING/DISCONNECTING DRAIN LINE TO THE VESSEL . NOT FOLLOWING THE ABOVE MAY RESULT IN LEAKAGE BETWEEN PORT AND LAMINATE

AIR VENT ASSEMBLY:-17185

ITEM	QUANTITY	PART NO.	DESCRIPTION
1	6" Long	RRS-01027	Tubing Blue
2	1	RRS-010013	Male Connector, Pipe 1/4" Tube 1/4"
3	2	RRS-01047	Compression nut 1/4"
4	1	RRS-01039	Ball Valve 1/4"
5	1	17194	Blind Plug 1/4"

Element	"L" IN(MM)	"S" IN(MM)	Approx Weight LB(KG)	Approx Weight With Filter LB(KG)
60	74.62 (1896)	42X1 (1067)	60(27)	73(33)

NOTES:-
+ DIMENSION IN INCHES (MM APPROX.)
+ SHELL EXTERIOR COATED WITH WHITE, HIGH GLOSS POLYURETHANE PAINT.
+ NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
* UNS J93380 (AS PER ASME SPEC. A-995) CAST EQUIVALENT OF ZERON 100 (UNS S32760)
+ OPTIONAL MATERIAL SELECTION AVAILABLE FOR 180'F APPLICATION ON SECOND PAGE

PENTAIR
CODELINE® AQUALINE

DRAWN	AND 20MAY09	MODEL-80CF15-60(NON CODED) SINGLE CATRIDGE HOUSING			
CHECKED	KR 20MAY09	DATE 10APR15	DWG. NO. 17028		REV. K
APPROVED	FF 20MAY09	ECN 3452	SCALE NONE	SIZE A3	SHEET 1OF 2

RATING:

	PVC / PET
DESIGN PRESSURE…….150 PSIG at 140°F / 180°F	(1.0 MPa at 60°C / 82°C)
MIN. OPERATING TEMP……..…...……..20°F	(-7°C)
FACTORY TEST PRESSURE…..… …… 225 PSIG	(1.55 MPa)
QUALIFICATION PRESSURE…… 900 PSI	(6.2 MPa)

INTENDED USE:

The AquaLine 80CF15 Fiberglass Pressure Vessel is designed for continuous, long term use as housing for AquaLine range of micro filtration elements.

The Shell of AquaLine 80CF15 Non Coded is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code.

The AquaLine 80CF15 must be installed, operated and maintained in accordance with the listed precautions and good industrial practice to assure safe operation over a long service life.

The high performance Filament wound FRP shell must be allowed to expand under pressure; undue restraint at support points or piping connections can cause leaks to develop in the shell. This side-ported vessel requires special precautions in mounting and connection to piping so that the vessel will not be subjected to excessive stress due to bending moments acting at the side openings in the fiberglass shell. The end closure, incorporating close fitting, interlocking metal components, must be kept dry and free of corrosion; deterioration can lead to catastrophic mechanical failure of the head.

Pentair will assist the purchaser in determining the suitability of this standard vessel for their specific operating conditions. The final determination however, including evaluation of the standard material of construction for compatibility with the specific corrosive environment, shall be the responsibility of the purchaser. Alternate materials with enhanced corrosion resistance are available on special order.

Specifications are subject to change without notice.

PRECAUTIONS:

DO…read, understand and follow all instructions; failure to take every precaution will void warranty and may result in vessel failure

DO…mount the shell on horizontal/vertical members at span “S” using compliant vessel supports furnished; for mounting vessels vertically provide proper bottom support; tighten hold down straps just snug.

DO…align and center side ports with the manifold header. Correct, causes of misalignment in a row of vessels connected to the same header

DO…use flexible type IPS grooved-end pipe couplings, or equal, at side ports; allow full, 0.125 inch gap between port and piping, and position piping to maximize flexibility of connection.

DO…provide flexibility in, and support for piping manifolds so that vessel can grow in length under pressure without undue restraint; provide additional flexible joints in large pipes leading to manifold header.

DO… Lubricate seals sparingly, using nonpetroleum Based lubricants, i.e. Parker Super O-lube®, Glycerin or suitable silicone based lubricants.

DO…provide overpressure protection for vessel set at not more than 105% of design pressure

DO…inspect end closures regularly; replace components that have deteriorated and correct causes of corrosion

DO NOT…work on any component until first verifying that pressure is relieved from vessel

DO NOT…make rigid piping connections to ports or clamp vessel in any way that resists growth of fiberglass shell under pressure;

DO NOT…pressurize vessel until double-checking to verify that the Locking Ring is in place and fully seated.

DO NOT…operate vessel at pressure and temperature in excess of its rating.

DO NOT…tolerate leaks or allow end closures to be routinely wetted in any way

DO NOT…operate outside the pH range of 3-11.

ORDERING:
Using the chart below, please check the features you require and fax them with your purchase order to our customer service department for further processing.
For optional materials and / or feature not listed below, please consult the factory for pricing and availability

VESSEL LENGTH CODE

MODEL: AquaLine 80CF15-60

CERTIFICATION REQUIRED

☐ Standard, Certified by Pentair.

☐ CE Marked Standard.

HEAD ASSEMBLY MATERIAL SELECTION

❑ Standard: For 140’F application, Engineering Thermoplastic components in PVC as per drawing 17028 on First page.

❑ Option: For 180’F application, Engineering Thermoplastic components in PET as given below. (Please consult factory as these options will affect pricing and vessel lead time)

HEAD COMPONENTS FOR 180'F APPLICATION				
DWG REF	QTY		DESCRIPTION	MATERIAL
6	2	17403	1/4" FNPT Air Vent Port	Engineering Thermoplastic-PET
7	4	45286	1/4" Air Vent Port Seal	O-RING -EPDM
8	1	17179	Bearing Plate Handle end	6061-T6 Aluminium alloy - Hard anodized
9	1	17404	Sealing Plate Handle end	Engineering Thermoplastic-PET
10	1	17176	Bearing Plate Product end	6061-T6 Aluminium alloy - Hard anodized
11	1	17405	Sealing Plate Prodcut end	Engineering Thermoplastic-PET
12	1	17406	3" Product Port	Engineering Thermoplastic-PET
13	1	17127	3" Port Retainer Ring	316 Stainless Steel.
14	2	96000	Head Seal	O-RING -EPDM
15	1	17128	Product Port Seal	O-RING -EPDM
16	1	17104	Handle Assembly	316 Stainless Steel.
17	1	45247	Plug Retainer Ring	316L Stainless Steel
18	1	17407	Plug	Engineering Thermoplastic-PET
19	1	45312	Plug seal	O-RING -EPDM

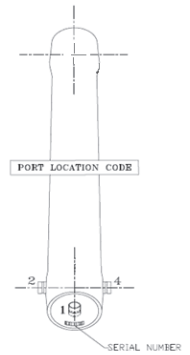
FEED PORT CONFIGURATION
Please fill out quantity for each configuration

PORT SIZE CODE	
A	1” FNPT END
G	3” GROOVED END

☐ 1 A 4 G (Standard)

☐ 1 A 2G (Optional)

☐ 1A2G4G (Optional)



For complete information on proper use of the vessel
Please refer to the AquaLine User Guide No 96893.

CARTUCCIA FILTRANTE PER ALTI FLUSSI / CARTRIDGE FILTER FOR HIGH FLOW APPLICATIONS

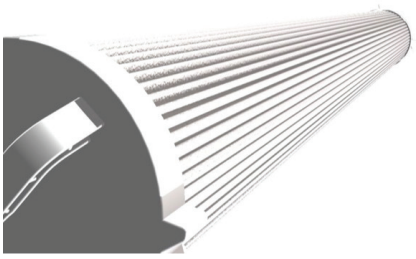
ARTICLE CODE : ALN05-60B

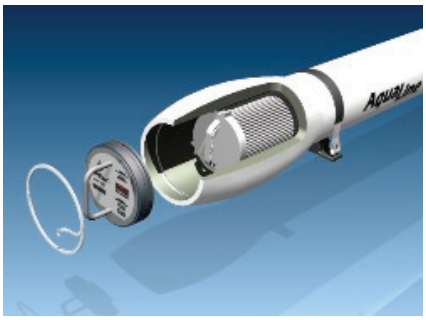
GENERAL INFORMATION

Compared to conventional cartridge filters, AquaLine saves money by lowering capital cost and operating costs. When comparing filters with the same efficiencies or Beta ratings, nothing outperforms the cost/performance value achieved with AquaLine. Whether it is for process water, waste water, food & beverage, pharmaceutical, or other fluids for pre-filtration, guard filtration or final filtration, AquaLine is the right choice.
The AquaLine system utilizes proven CodeLine corrosion resistant FRP pressure vessels which can provide considerable reduction in capital expenditure over metallic offerings. The housings make use of a quick opening closure that does not require tools allowing access to the element in seconds. Additionally, each housing accepts a single element providing both efficient and convenient change-outs.

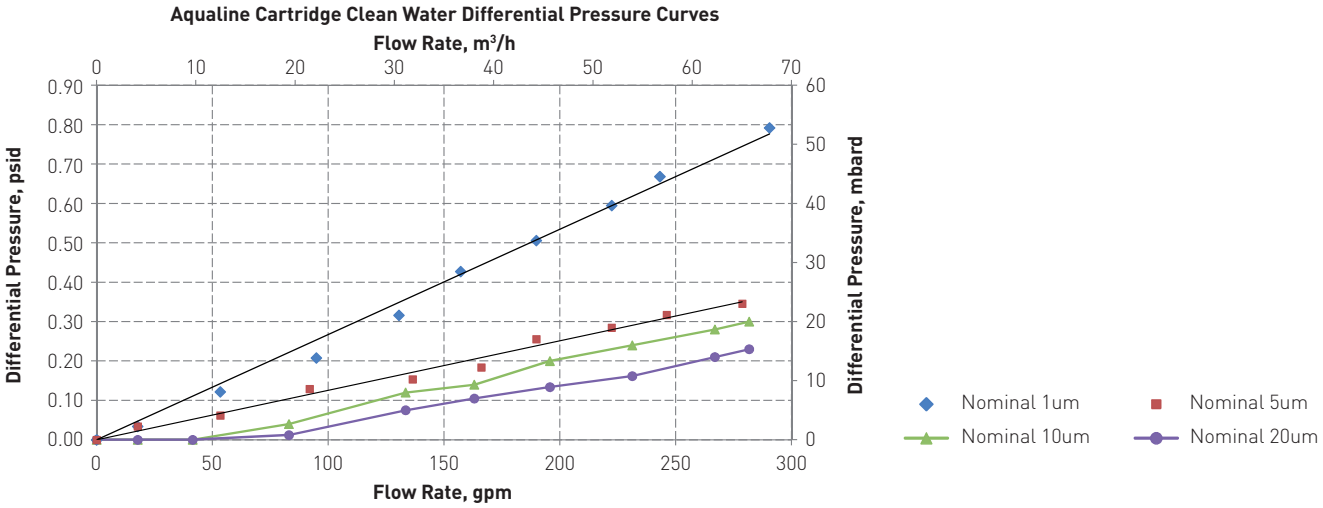
This innovative element design allows for the elimination of the many additional components (caps, springs, guide posts, etc) required to seal and secure conventional filters in housings. The simplified design affords significantly easier element change-outs while assuring effective sealing and high efficiency particle removal. The elements provide an integral molded handle further easing access and removal.
AquaLine filters are available with a broad range of media types and micron ratings to match requirements of the application. For temperatures above 130°F (54.4°C) up to 180°F (82.2°C) please contact Pentair.

Unlike conventional housings, AquaLine Systems are modular to offer configurations for flow rates ranging from 50 gpm to 10,000 gpm. AquaLine systems can also be connected to pump, multi-media bed, adsorption, neutralization and membrane modules to provide you with multiple process solutions.





PRESSURE CURVE



SPECIFICATIONS

ELEMENT TYPE	AQUALINE Fluid Process element
SEPARATION MEDIA	Proprietary PolyForm media formulation comprised of 100% polypropylene micro-fibers cross-linked into a Locked Pore Structure specifically designed to separate particulate from high flow liquid streams
MEDIA EFFICIENCY	5 micron (Nominal)
END CAPS	Nylon
SEALS	Buna-N O-Rings
COMPONENTS	PVC core
CONFIGURATION	Single Open End; Outside-in Flowing
DIMENSIONS	Nominal Length: 60" (152.4cm) Nominal O. D.: 6.75" (17.15cm)
RATINGS	Recommended change out 25-30 PSID (based on process limits) Maximum Operating Temperature is 130°F. (54.4°C)