



8" Membrane Housings – Side Entry CodeLine Model – 80H Series

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8" Membrane Housings - Side Entry 80H Series

Models: 80H15, 80H30, 80H45, 80H60, 80H100 & 80H120

- ✓ Side Entry Design
- ✓ Available in pressure rating of 150psi, 300psi, 450psi, 600psi, 1000psi & 1200psi
- ✓ Can accommodate any standard make of 8" Membrane Element

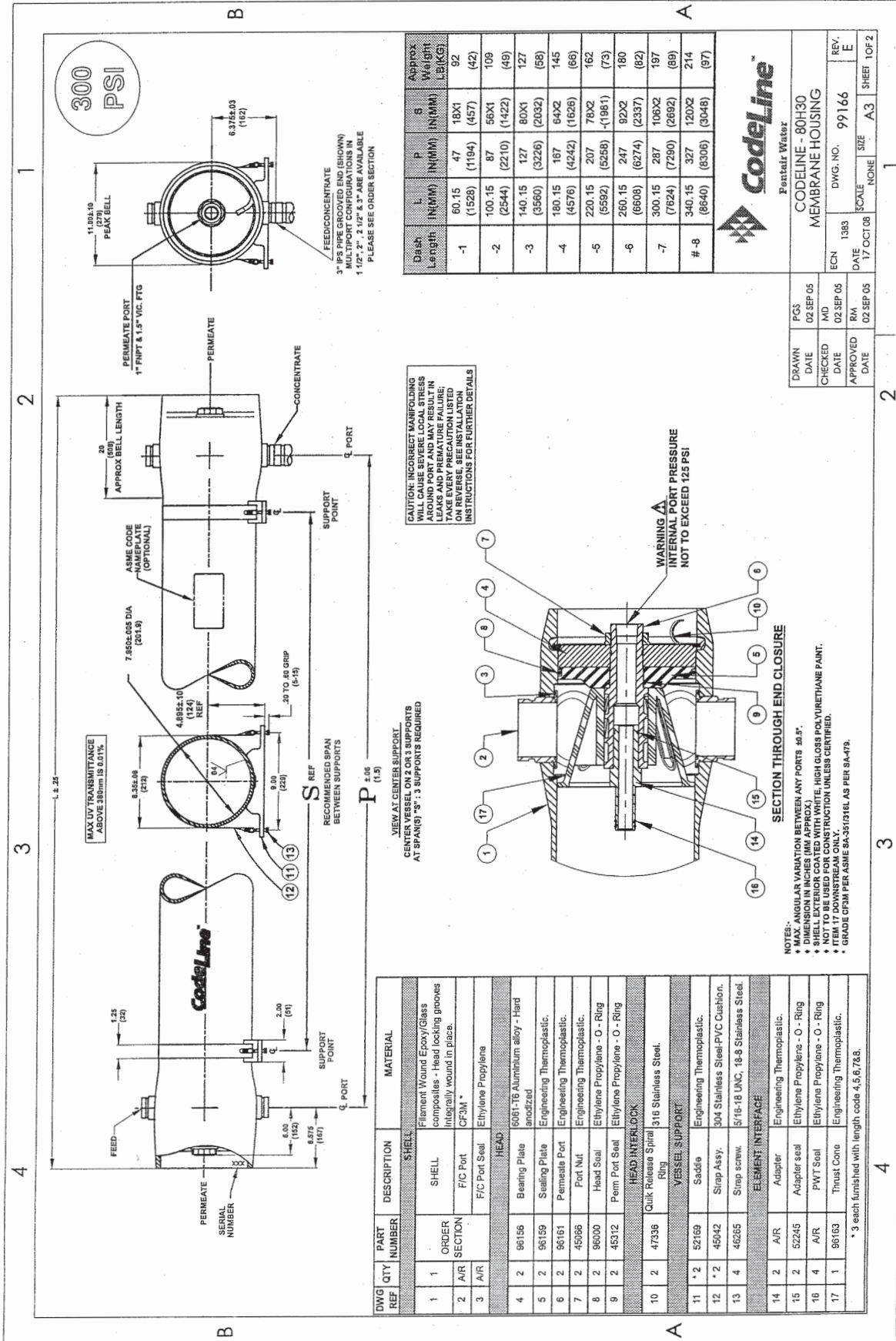
Key Features

- Mirror finish I.D for easy & quick loading & unloading of membranes.
- Multi-porting option for connecting vessels to each other.
- High operating temperature upto 190°F.
- Quick lock head retention system for quick access to membranes.
- Exteriors coated with high gloss polyurethane paint for UV resistance.
- ASME compliant & CE marking.
- Octagonal shape provides flat surface for superior and reliable sealing of side ports.
- Threaded side ports for quick and easy onsite maintenance/serviceability.
- 80H Series comes with a side-port option of 3.0" for high flow rates, further cutting down investment on manifolds.

Specifications

Model	# of Elements*	Operating Pressure	Max. Operating Temperature	Qualification Pressure
80H15	1-8	150 psi / 10 bar	190°F / 88°C	900 psi / 62 bar
80H30	1-8	300 psi / 20 bar	190°F / 88°C	1800 psi / 124 bar
80H45	1-8	450 psi / 31 bar	190°F / 88°C	2700 psi / 186 bar
80H60	1-8	600 psi / 41 bar	190°F / 88°C	3600 psi / 248 bar
80H100	1-8	1000 psi / 68 bar	150°F / 66°C	6000 psi / 413 bar
80H120	1-8	1200 psi / 82 bar	150°F / 66°C	7200 psi / 496 bar

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Drish Length	L (IN/MM)	P (IN/MM)	S (IN/MM)	Approx Weight (LBS/KG)
-1	60.15 (1528)	47 (1194)	18X1 (457)	92 (42)
-2	100.15 (2544)	87 (2210)	56X1 (1422)	109 (49)
-3	140.15 (3560)	127 (3226)	80X1 (2032)	127 (58)
-4	180.15 (4576)	167 (4242)	84X2 (1626)	145 (66)
-5	220.15 (5592)	207 (5258)	78X2 (1981)	162 (73)
-6	260.15 (6608)	247 (6274)	92X2 (2337)	180 (82)
-7	300.15 (7624)	287 (7290)	106X2 (2692)	197 (89)
-8	340.15 (8640)	327 (8306)	120X2 (3048)	214 (97)

Codeline™
Pentair Water

CODELINE - 80H30
MEMBRANE HOUSING

ECN 1383
DATE 17 OCT 08
SCALE NONE
SIZE A3
SHEET 10F 2

DWG. NO. 99166
REV. E

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

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1		SHELL	Filament Wound Epoxy/Glass composites - Head locking grooves
2	A/R		SHELL	Integrally wound in place.
3	A/R		F/C Port	CF3M *
3	A/R		F/C Port Seal	Ethylene Propylene
4	2	96156	Bearing Plate	6061-T6 Aluminum alloy - Hard anodized
5	2	96159	Sealing Plate	Engineering Thermoplastic.
6	2	96161	Permeate Port	Engineering Thermoplastic.
7	2	45096	Port Nut	Engineering Thermoplastic.
8	2	96000	Head Seal	Ethylene Propylene - O - Ring
9	2	45312	Perm Port Seal	Ethylene Propylene - O - Ring
10	2	47338	Click Release Spiral Ring	316 Stainless Steel.
11	* 2	52169	Saddle	Engineering Thermoplastic.
12	* 2	45042	Strap Assy.	304 Stainless Steel/PVC Cushion.
13	4	45285	Strap screw.	5/16-18 UNC, 18-8 Stainless Steel.
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 furnished with length code 4.5.6.7.8.

RATING:

DESIGN PRESSURE.....300 PSIG at 190°F
 (2.1 MPa at 88°C)
 MIN. OPERATING TEMP.....20°F
 (-7°C)
 FACTORY TEST PRESSURE...CE / ASME
 450 PSIG / 330 PSIG
 (3.10 MPa) (2.27 MPa)
 QUALIFICATION PRESSURE1800 PSI
 (12.4 MPa)

INTENDED USE:

The CodeLine 80H30 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 80H30 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H30 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 Water 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 grooved-end pipe couplings, Victaulic® Style 77 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...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 restricts growth of fiberglass shell under pressure;
- *** DJA = 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 Looking 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 3-10.

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 – please check one

MODEL 80H30 □-1 □-2 □-3 □-4 □-5 □-6 □-7 □-8
 # Consult Sales Manager for Eight Element Housings.

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 currently available, but will be supplied to Pentair Water on or before the following date, ____/____/____

CERTIFICATION REQUIRED

- ASME Stamped and National Board Registered (Please consult factory for pricing)
- CE Marked
- Standard, Certified by Pentair water.

MATERIAL AND PORT CONFIGURATIONS OPTIONS – please check one

- Standard: all materials and port configurations as per drawing 99166 on the previous page
- NOTE: The options listed below will increase the vessel price. Call factory for pricing details. Option: Customer specified port configuration. Using the chart below, please indicate the customized options you require for each end of the pressure vessel (multiple options are available at each end).
- (Please consult factory as these options will affect pricing and vessel lead time)

PORT SIZE CODE
D 1½" GROOVED END
E 2" GROOVED END
F 2½" GROOVED END
G 3" GROOVED END

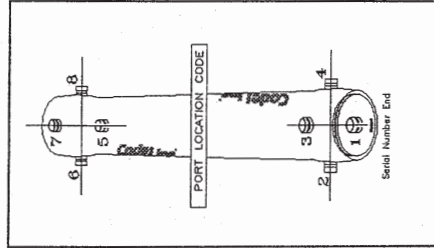
FEED PORT CONFIGURATION

- Standard – 3" IPS pipe, grooved ends, with ports in-line
- Optional – Multi-Ports™
- Using the instructions in Order Specification Sheet #99007 Please fill out your feed port configuration in the space below. List port location first, followed by port size for each choice. Ports not available in 90° configurations.

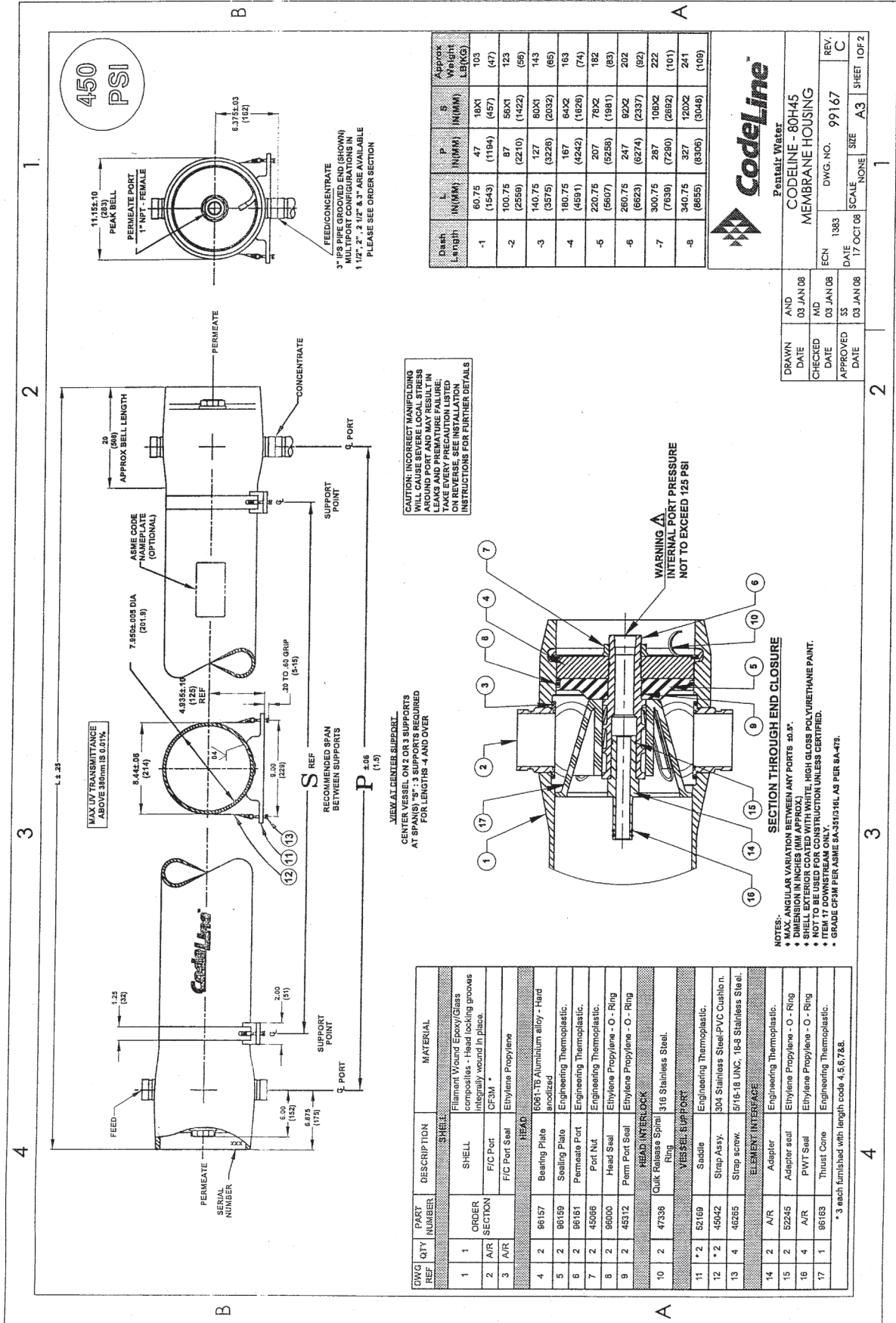
Serial number end □ □ □ □ □ □ □ □ □ □
 Opposite end □ □ □ □ □ □ □ □ □ □

PERMEATE PORT CONFIGURATION:

- Standard 1" FNPT.
- Optional – 1.25" MNPT.



For complete information on proper use of the vessel Please refer to the 80H Series USERS GUIDE 94182.



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

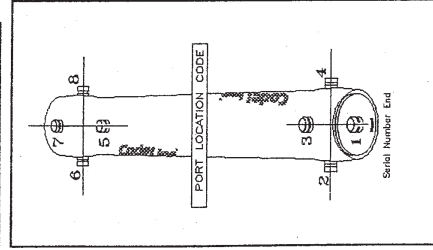
VESSEL LENGTH CODE – please check one
MODEL 80H45 □-1 □-2 □-3 □-4 □-5 □-6 □-7 □-8
Consult Sales Manager for Eight Element Housings.

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 currently available, but will be supplied to Pentair Water on or before the following date: ____ / ____ / ____

CERTIFICATION REQUIRED
□ ASME Stamped and National Board Registered (Please consult factory for pricing)
□ CE Marked
□ Standard, Certified by Pentair water.

MATERIAL AND PORT CONFIGURATIONS OPTIONS – please check one
Standard: all materials and port configurations as per drawing 99167 on the previous page
NOTE: The options listed below will increase the vessel price. Call factory for pricing details.
Option: Customer specified port configuration. Using the chart below, please indicate the customized options you require for each end of the pressure vessel (multiple options are available at each end).
(Please consult factory as these options will affect pricing and vessel lead time)

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END
G	3" GROOVED END



FEED PORT CONFIGURATION
□ Standard – 3" IPS pipe, grooved ends, with ports in-line
□ Optional – Multi-Ports™
Using the instructions in Order Specification Sheet #89007
Please fill out your feed port configuration in the space below.
List port location first, followed by port size for each choice.
Ports not available in 90° configurations.

Serial number end □ □ □ □ □ □ □ □ □ □
Opposite end □ □ □ □ □ □ □ □ □ □

PERMEATE PORT CONFIGURATION:
□ Standard 1" FNPT.
□ Optional – 1.25" MNPT.

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

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 grooved-end pipe couplings, Victaulic® Style 77 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...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;
*** 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 790°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 3-10.

RATING:
DESIGN PRESSURE.....450 PSIG at 190°F
(3.10 MPa at 88°C)
MIN. OPERATING TEMP 20°F
FACTORY TEST PRESSURE..... CE / ASME
675 PSIG / 495 PSIG (-7°C)
(4.65 MPa) (3.41 MPa)
QUALIFICATION PRESSURE2700 PSI
(18.62 MPa)

INTENDED USE:
The CodeLine 80H45 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 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.

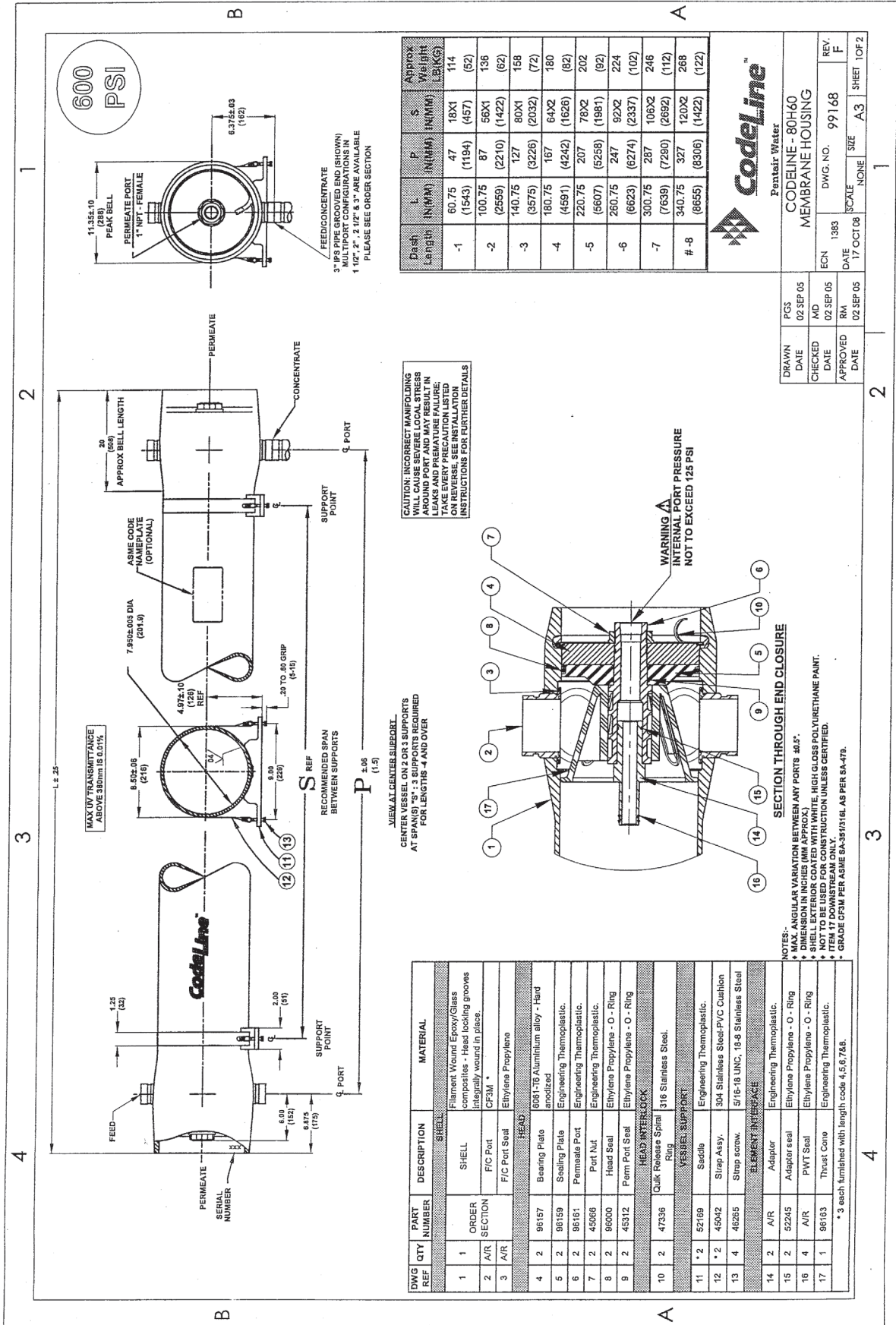
The CodeLine 80H45 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H45 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 Water 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



RATING:

DESIGN PRESSURE.....600 PSIG at 190°F
 (4.14 MPa at 88°C)
 MIN. OPERATING TEMP.....20°F
 (7°C)
 FACTORY TEST PRESSURE..... CE / ASME
 900 PSIG / 660 PSIG
 (6.21 MPa) (4.55 MPa)
 QUALIFICATION PRESSURE.....3600 PSI
 (24.82 MPa)

INTENDED USE:

The CodeLine 80H60 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 80H60 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H60 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 Water 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 grooved-end pipe couplings, Victaulic® Style 77 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 ...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;
- *** 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°C).
- DO NOT...tolerate leaks or allow end closures to be routinely wetted in any way
- DO NOT...operate outside the pH range 3-10.

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 - please check one

MODEL 80H60 □-1 □-2 □-3 □-4 □-5 □-6 □-7 □-8
 # Consult Sales Manager for Eight Element Housings.

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 currently available, but will be supplied to Pentair Water on or before the following date. ____ / ____ / ____

CERTIFICATION REQUIRED

- ASME Stamped and National Board Registered (Please consult factory for pricing)
- CE Marked
- Standard, Certified by Pentair water.

MATERIAL AND PORT CONFIGURATIONS OPTIONS - please check one

- Standard: all materials and port configurations as per drawing 99168 on the previous page
- NOTE: The options listed below will increase the vessel price. Call factory for pricing details.
- Option: Customer specified port configuration. Using the chart below, please indicate the customized options you require for each end of the pressure vessel (multiple options are available at each end).

(Please consult factory as these options will affect pricing and vessel lead time)

FEED PORT CONFIGURATION

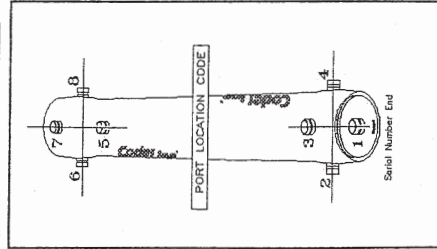
- Standard - 3" IPS pipe, grooved ends, with ports in-line
 - Optional - Multi-Ports™
- Using the instructions in Order Specification Sheet #99007
 Please fill out your feed port configuration in the space below.
 List port location first, followed by port size for each choice.
 Ports not available in 90° configurations.

Serial number end □ □ □ □ □ □ □ □ □ □
 Opposite end □ □ □ □ □ □ □ □ □ □

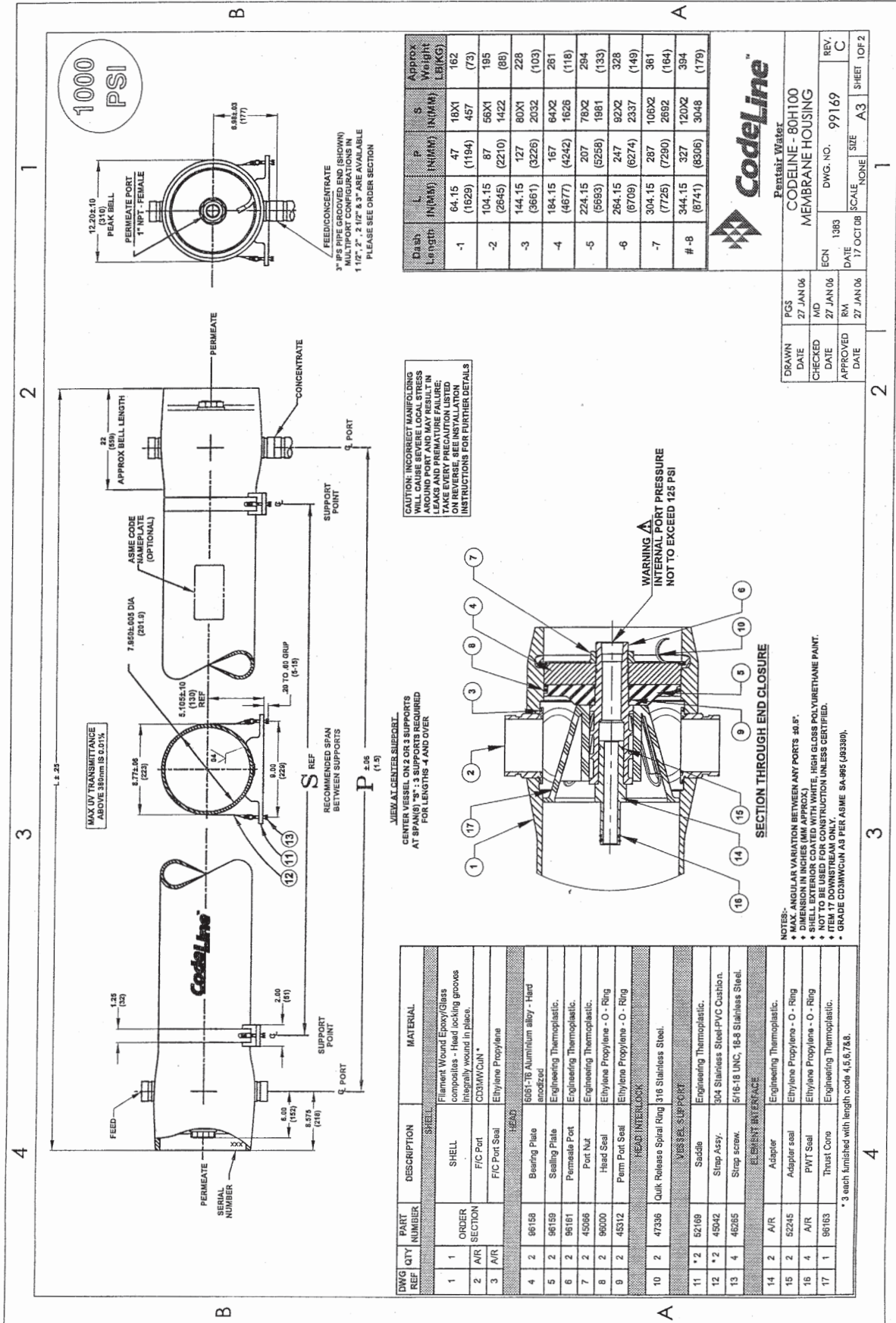
PERMEATE PORT CONFIGURATION:

- Standard 1" FNPT.
- Optional - 1.25" MNPT.

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



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



Dash	L Length (IN/1418)	P (IN/1418)	S (IN/1418)	Approx Weight (LBS/KG)
-1	64.15 (1629)	47 (873)	18X1 (457)	162 (73)
-2	104.15 (2645)	87 (219)	56X1 (1422)	195 (88)
-3	144.15 (3661)	127 (3226)	80X1 (2032)	228 (103)
-4	184.15 (4677)	167 (4242)	64X2 (1628)	281 (127)
-5	224.15 (5693)	207 (5258)	78X2 (1981)	284 (129)
-6	264.15 (6709)	247 (6274)	92X2 (2337)	328 (149)
-7	304.15 (7725)	287 (7290)	106X2 (2692)	361 (164)
#-8	344.15 (8741)	327 (8306)	120X2 (3048)	394 (179)

Codeline™
Pentair Water
CODELINE - 80H100
MEMBRANE HOUSING

ECN 1383
DATE 17 OCT 08
SCALE NONE
SIZE A3
SHEET 1 OF 2

APPROVED DATE 27 JAN 06
CHECKED DATE 27 JAN 06
DRAWN DATE 27 JAN 06
REV. DWG. NO. 99169

RATING:

DESIGN PRESSURE.....1000 PSIG at 150°F
 (6.895 MPa at 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 PRESSURE6000 PSI
 (41.37 MPa)

INTENDED USE:

The CodeLine 80H100 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 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 80H100 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H100 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 Water 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 grooved-end pipe couplings, Victaulic® Style 77 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...not 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;
 - *** DJA = 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°C).
- DO NOT...tolerate leaks or allow end closures to be routinely wetted in any way
- DO NOT...operate outside the pH range 3-10.

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 – please check one

MODEL 80H100 □-1 □-2 □-3 □-4 □-5 □-6 □-7 □-8
 # Consult Sales Manager for Eight Element Housings.

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 currently available, but will be supplied to Pentair Water on or before the following date, ___ / ___ / ___

CERTIFICATION REQUIRED

- ASME Stamped and National Board Registered (Please consult factory for pricing)
- CE Marked
- Standard, Certified by Pentair water.

MATERIAL AND PORT CONFIGURATIONS OPTIONS – please check one

- Standard: all materials and port configurations as per drawing 99169 on the previous page
 NOTE: The options listed below will increase the vessel price. Call factory for pricing details.
- Option: Customer specified port configuration. Using the chart below, please indicate the customized options you require for each end of the pressure vessel (multiple options are available at each end).
 (Please consult factory as these options will affect pricing and vessel lead time)

PORT SIZE CODE	
D	1½" GROOVED END
E	2" GROOVED END
F	2½" GROOVED END
G	3" GROOVED END

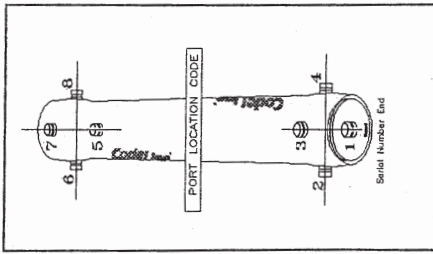
FEED PORT CONFIGURATION

- Standard – 3" IPS pipe, grooved ends, with ports in-line
- Optional – Multi-Ports™
 Using the instructions in Order Specification Sheet #99007
 Please fill out your feed port configuration in the space below.
 List port location first, followed by port size for each choice.
 Ports not available in 90° configurations.

Serial number end □ □ □ □ □ □ □ □ □ □
 Opposite end □ □ □ □ □ □ □ □ □ □

PERMEATE PORT CONFIGURATION:

- Standard 1" FNPT.
- Optional – 1.25" MNPT.



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

1200 PSI

3" IPS GROOVED END (SHOWN) IS AVAILABLE. OTHER GROOVED ENDS AVAILABLE IN 1 1/2", 2", 2 1/2" & 3" ARE AVAILABLE. PLEASE SEE ORDER SECTION.

FEED/CONCENTRATE

PERMEATE

CONCENTRATE

SUPPORT POINT

Q PORT

APPROX BELL LENGTH

ASME CODE COMPLIANT (OPTIONAL)

7.8925.006 DIA (201.9)

8.212 ±.10 (132) SEE

8.00 ±.06 (203)

20 TO 60 GRIP (5-15)

MAXIMUM TRANSMITTANCE ABOVE 300nm IS 0.1%

1.25 (32)

8.00 (152)

8.575 (218)

SERIAL NUMBER

PERMEATE

FEED

PERMEATE PORT 1" FNPT FEMALE

15.28 ±.10 (330) PEAK BELL

6.882 ±.03 (177)

DA91 L-PORTS	L IN(MM)	P IN(MM)	S IN(MM)	Approx Weight LB(KG)
-1	64.15 (1629)	47 (1194)	18X1 (457)	195 (88)
-2	104.15 (2645)	87 (2210)	14X2 (354)	239 (108)
-3	144.15 (3651)	127 (3228)	80X1 (2032)	283 (128)
-4	184.15 (4677)	167 (4242)	64X2 (1626)	328 (149)
-5	224.15 (5693)	207 (5258)	78X2 (1981)	372 (169)
-6	264.15 (6709)	247 (6274)	92X2 (2337)	416 (189)
-7	304.15 (7725)	287 (7290)	106X2 (2692)	460 (209)
-8	344.15 (8741)	327 (8306)	120X2 (3048)	509 (231)

CAUTION: INCORRECT HANDLING WILL CAUSE SEVERE LOCAL STRESS AROUND PORT AND MAY RESULT IN LEAKS AND PREMATURE FAILURE; PORTS ARE NOT TO BE USED ON REVERSE. SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

WARNING: INTERNAL PORT PRESSURE NOT TO EXCEED 125 PSI

SECTION THROUGH END CLOSURE

NOTES:
 • MAXIMUM VARIATION BETWEEN ANY PORTS 50.8"
 • DIMENSIONS SHOWN IN PARENTHESIS ARE IN MILLIMETERS
 • SHELL EXTERIOR COATED WITH WHITE, HIGH GLOSS POLYURETHANE PAINT.
 • NOT TO BE USED FOR CONSTRUCTION UNLESS CERTIFIED.
 • ITEM 17 DOWNSTREAM ONLY.
 • GROOVE DIMENSION AS PER ASME SA-985 (JF3589).

VIEW AT CENTER SUPPORT
 CENTER VESSEL ON 2 OR 3 SUPPORTS AT SPAN(S) "S"; 3 SUPPORTS REQUIRED FOR LENGTHS "4" AND OVER

RECOMMENDED SPAN BETWEEN SUPPORTS

HEAD INTERLOCK
 Quik Release Spiral Ring 316 Stainless Steel.

VESSEL SUPPORT

ELEMENT INTERFACE

DWG REF	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1	ORDER SECTION	Shell	Filament Wound Epoxy/Glass composite - Heat locking grooves integrally wound in place.
2	A/R	F/C Port	F/C Port Seal	CD-3MVCIN*
3	A/R	F/C Port Seal	F/C Port Seal	Ethylene Propylene
4	2	96156	Bearing Plate	6061-T6 Aluminum alloy - Heat anodized
5	2	96159	Sealing Plate	Engineering Thermoplastic.
6	2	96161	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
10	2	47336	Quik Release Spiral Ring	316 Stainless Steel.
11	* 2	52169	Saddle	Engineering Thermoplastic.
12	* 2	45042	Strip Atsny.	304 Stainless Steel-PVC Cushion.
13	4	46265	Strip screw.	5/16"-18 UNC. 18-8 Stainless Steel.
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 furnished with length code 4,5,6,7&8.

CODELINE
 Pentair Water
 CODELINE - 80H120
 MEMBRANE HOUSING

ECN 1383 DATE 27 JAN 06 SCALE NONE SIZE A3 SHEET 1 OF 2

DWG. NO. 99170 REV. C

DATE 27 JAN 06

APPROVED: [Signature]

CHECKED: [Signature]

DATE 27 JAN 06

DATE 27 JAN 06

RATING:

DESIGN PRESSURE.....1200 PSIG at 150°F
 (8.27 MPa at 66°C)
 MIN. OPERATING TEMP20°F
 (-7°C)
 FACTORY TEST PRESSURE..... CE / ASME
 1800 PSIG / 1320 PSIG
 (12.41 MPa) (9.10 MPa)
 QUALIFICATION PRESSURE7200 PSI
 (49.64 MPa)

INTENDED USE:

The CodeLine 80H120 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 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 80H120 is designed in accordance with the engineering standards of the Boiler and Pressure Vessel Code of the American Society of Mechanical Engineers (ASME) Code. At small additional cost vessels can be inspected during construction by an ASME Authorized Inspector and ASME Code stamped.

The CodeLine 80H120 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 Water 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 grooved-end pipe couplings, Victaulic® Style 77 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...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;
- *** 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°C).
- DO NOT...tolerate leaks or allow end closures to be routinely wetted in any way
- DO NOT...operate outside the pH range 3-10.

PAGE 2 OF 2.

DWG. NO. 99710 - REV.-C, © Pentair Water

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 - please check one

MODEL 80H120 □-1 □-2 □-3 □-4 □-5 □-6 □-7 □-8
 # Consult Sales Manager for Eight Element Housings.

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 currently available, but will be supplied to Pentair Water on or before the following date, ____ / ____ / ____

CERTIFICATION REQUIRED

- ASME Stamped and National Board Registered (Please consult factory for pricing)
- CE Marked
- Standard, Certified by Pentair water.

MATERIAL AND PORT CONFIGURATIONS OPTIONS - please check one

- Standard: all materials and port configurations as per drawing 99170 on the previous page
 NOTE: The options listed below will increase the vessel price. Call factory for pricing details.
- Option: Customer specified port configuration. Using the chart below, please indicate the customized options you require for each end of the pressure vessel (multiple options are available at each end).

(Please consult factory as these options will affect pricing and vessel lead time)

FEED PORT CONFIGURATION

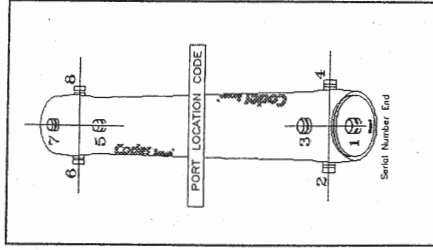
- Standard - 3" IPS pipe, grooved ends, with ports in-line
- Optional - Multi-PortsSM
 Using the instructions in Order Specification Sheet #99007
 Please fill out your feed port configuration in the space below.
 List port location first, followed by port size for each choice.
 Ports not available in 90° configurations.

Serial number end
 Opposite end

PERMEATE PORT CONFIGURATION:

- Standard 1" FNPT.
- Optional - 1.25" MNPT.

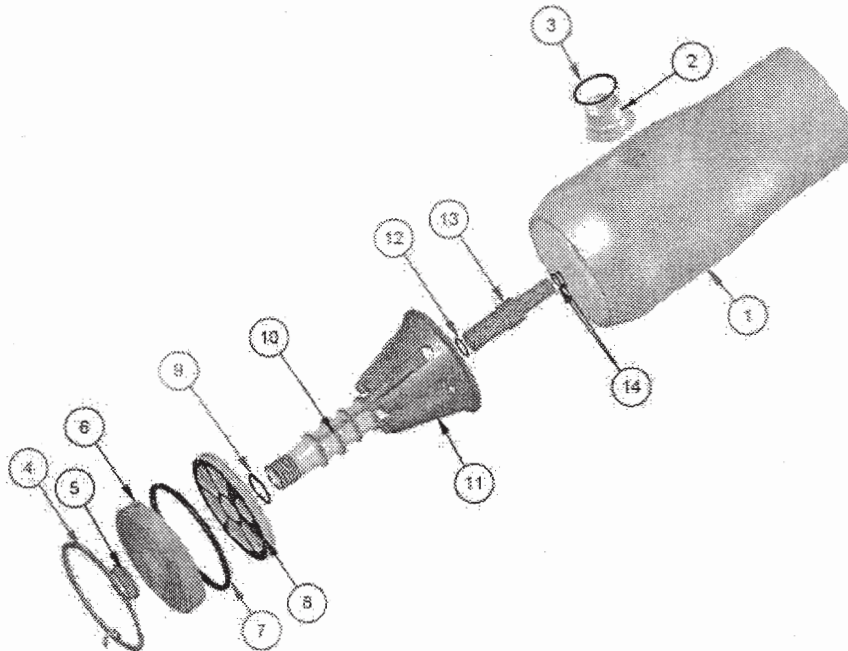
PORT SIZE CODE
D 1 1/2" GROOVED END
E 2" GROOVED END
F 2 1/2" GROOVED END
G 3" GROOVED END



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



COMPONENT IDENTIFICATION
80H15, 80H30, 80H45, 80H60, 80H100, 80H120 - Coded

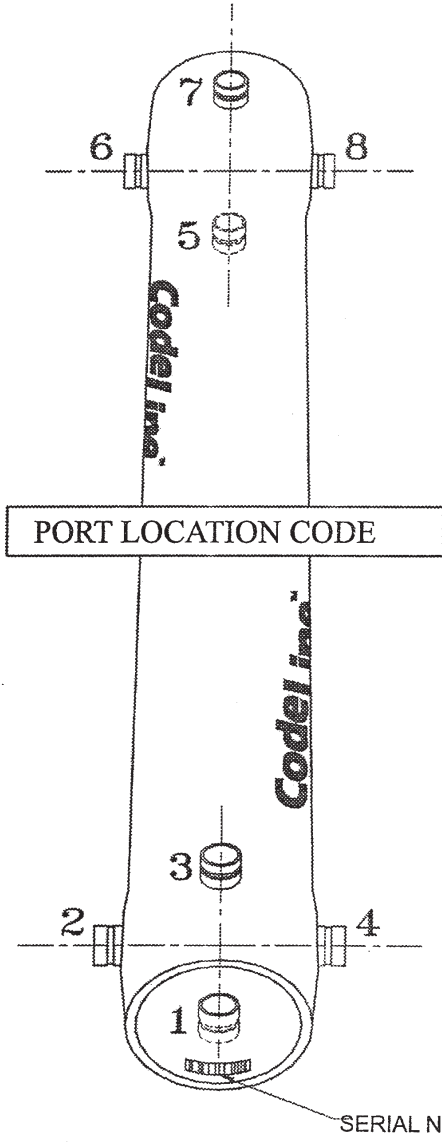
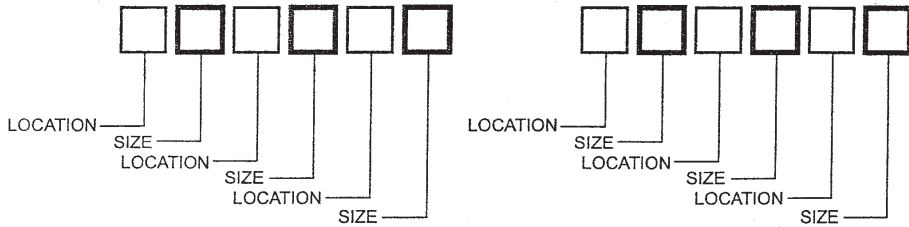


DWG REF	QTY	DESCRIPTION	MATERIAL	80H15/30	80H45/60	80H100/120
				PART NUMBER	PART NUMBER	PART NUMBER
1	1	SHELL	Filament Wound Epoxy/Glass composites Locking grooves integrally wound in place.	ORDER SECTION	ORDER SECTION	ORDER SECTION
2	A/R	F/C Port	80H15 / 30 / 45 / 60: CF3M# 80H100 / 120: CD3MWCuN##			
3	A/R	F/C Port Seal	Ethylene Propylene			
4	2	Spiral Ring	316 SST	47336	47336	47336
5	2	Port Nut	Engineering Thermoplastic	45066	45066	45066
6	2	Bearing Plate	6061-T6 Aluminum Alloy – Hard anodized	96156	96157	96158
7	2	Head Seal	Ethylene Propylene – O – Ring	96000	96000	96000
8	2	Sealing Plate	Engineering Thermoplastic	96160	96160	96160
9	2	Perm Port Seal	Ethylene Propylene – O – Ring	45312	45312	45312
10	2	Permeate Port	Engineering Thermoplastic	96162	96162	96162
11	1	Thrust Cone	Engineering Thermoplastic	96163	96163	96163
12	2	Adapter Seal	Ethylene Propylene – O – Ring	52245	52245	52245
13	2	Adapter	Engineering Thermoplastic	A/R	A/R	A/R
14	4	PWT Seal	Ethylene Propylene – O – Ring	A/R	A/R	A/R
15*	3**	Strap Assy.	304 Stainless Steel – PVC Cushion	45042	45042	45042
16*	3**	Universal Saddle	Engineering Thermoplastic	52169	52169	52169
17*	6	Strap Screw	5/ 16-18 UNC, 18-8 Stainless Steel	46265	46265	46265

*Grade CF3M per ASME SA-351 / 316L as per SA-479. ## Grade CD3MWCuN as per ASME SA-995 (J93380)
 * Not shown in above cross section view. ** 2 each furnished with length code 1, 2 & 3.

OCTA Series

- MODEL 05 _____
 15 _____
 30 _____
 45 _____
 60 _____
 100 _____
 120 _____



PORT LOCATION CODE

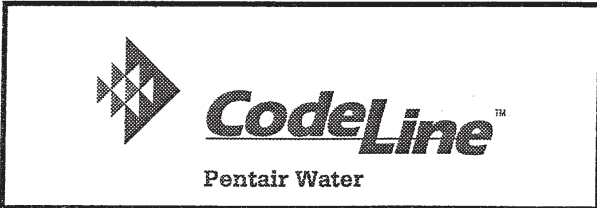
PORT SIZE CODE	
D	1 1/2" GROOVED END
E	2" GROOVED END
F	2 1/2" GROOVED END ¹
G	3" GROOVED END ²

Material
CF3M (Austenitic SS)
CD3MCuN (Super Duplex SS)

- 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.

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	



ORDER SPECIFICATION SHEET
CODELINE OCTA SERIES
 SIZE AND LOCATION OF PORTS

SPEC.SHEET/PM/1.5"-3.0"	REV - A
-------------------------	---------

Approved by _____
 CUSTOMER:

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

www.codeline.com