

# Data sheet WM11000E-340

11000 lpd (2906 gpd)

With energy recovery system



## **AUTOMATED FEATURES:**

- User friendly interface with single button operation
- Automatically adjusts to changes in feed water temp. and salinity
- Output for start stop of feed pump
- Input for start-stop on tank level switch
- Automatic fresh water flush system (start/stop, 4 hours/24 hours)
- Shut down at high/low membrane pressure, low/high feed water pressure, high salinity product water
- Integrated timer for setting quiet intervals

## **METERS/MONITORS:**

- Custom made controller enables close monitoring
- Coloured icons giving continuous overview
- Single button gives access to lot of data:
  - Product water TDS
  - Product water flow measurement
  - Hour counter
  - Approx. cumulative production
  - Feed/flush water pressure
  - Membrane pressure

## **PARTS AND MATERIALS:**

- Danfoss APPM2 with integrated energy recovery in duplex and super duplex steel
- Saltwater wetted steel parts in duplex or super duplex steel
- Overvoltage protection
- Frame in high quality PEHD polymer

## **OPTIONS:**

- GSM based monitoring, control and alarm messaging

## Data sheet WM11000E-340

| Hydraulic Data   | 50 Hz / 60 Hz           |
|--|-------------------------|
| Nominal water production   l/day (gallon/day)                            | 11000 (2906)            |
| Nominal membrane pressure   bar (psi)                                    | 56.6 (821) / 53.9 (782) |
| Total dissolved solids, fresh water (TDS)   mg/l                         | <550                    |
| Stabilized salt rejection   %  | 99.4                    |
| Membrane pressure range   bar (psi)                                      | 20-69 (290-1001)        |
| Membrane pressure control  | Automatic               |
| Total dissolved solids range, feed water (TDS) <sup>2</sup>   mg/l       | 1500 – 45000            |
| Minimum inlet flow (feed & flush)   m <sup>3</sup> /h (gallon/h)         | 1.37 (362) / 1.64 (433) |
| Minimum flush water volume (3 x flush)   l (gallon)                      | 40 (10.6) / 48 (12.7)   |
| Minimum inlet pressure (feed & flush)   bar (psi)                        | 0.5 (7.3)               |
| Maximum inlet pressure (feed & flush)   bar (psi)                        | 5 (73)                  |
| Maximum back pressure on fresh water   bar (psi)                         | 1.0 (14.5)              |
| Nominal pump input power <sup>1</sup>   kW                               | 1.0                     |
| Specific pump energy <sup>1</sup>   kWh/m <sup>3</sup> (kWh/1000 gallon) | 2.2 (8.3)               |

| Electrical Data                            | 50 Hz/60 Hz                                 |
|--|---|
| Motor size – single phase   kW (hp)        | 1.5 (2.0) / 1.5 (2.0)                       |
| Motor size – three phase   kW (hp)         | 1.5 (2.0) / 1.8 (2.4)                       |
| Maximum consumed power – single phase   kW | 1.7 / 1.8                                   |
| Maximum consumed power – three phase   kW  | 1.5 / 1.6                                   |
| Motor voltage   V                          | 1 ph: 230, 3 ph: 230/208-280-Δ or 400/480-Y |
| Motor speed (50/60 Hz grid)   rpm          | 1440 / 1728                                 |
| Feed pump control                          | Relay output                                |
| Water level signal                         | Relay input                                 |
| Electrical ingress protection              | IP 54                                       |

| Dimensions                          |                         |
|-------------------------------------|-------------------------|
| Watermaker (LxWxH)   mm (inch)      | 1192x504x412 (47x20x16) |
| Control box (LxWxH)   mm (inch)     | 392x200x155 (12x8x6)    |
| Water inlet/outlet (OD)   mm (inch) | 22 (0.9)                |
| Weight   kg (lb)                    | 107 (235)               |

| Operating limits                              |                       |
|---|-----------------------|
| Feed water temperature <sup>2</sup>   °C (°F) | 0.5 – 45 (32.9 – 113) |
| Ambient temperature   °C (°F)                 | 0.5 – 50 (32.9 – 122) |

| Components                         |  |
|------------------------------------|--|
| Membrane type                      | DOW/AqSep seawater                                 |
| Membrane quantity                  | 4  |
| Membrane size   Inches             | 3x40   |
| High pressure pump & recovery unit | APPM2 - Duplex steel                               |
| Lubrication, coolants etc.         | Not required                                       |
| Frame                              | Plastic, 316 steel                                 |
| Saltwater exposed parts            | Duplex/316 steel, plastic                          |
| Fresh water parts                  | 316 steel, brass, plastic                          |
| Controller                         | Custom made with display (GSM interface as option) |

| Part Number <sup>3</sup>              |          |
|---------------------------------------|----------|
| WM11000E-340 1x230 V, 60 Hz, 1700 rpm | 182B0048 |
| WM11000E-340 3x208 V, 60 Hz, 1700 rpm | 182B0052 |
| WM11000E-340 3x480 V, 60 Hz, 1700 rpm | 182B0049 |
| WM11000E-340 1x230 V, 50 Hz, 1400 rpm | 182B0050 |
| WM11000E-340 3x400 V, 50 Hz, 1400 rpm | 182B0051 |

Rated performance may vary ±15%, Nominal conditions: 25 °C seawater at 32.000 mg/l TDS

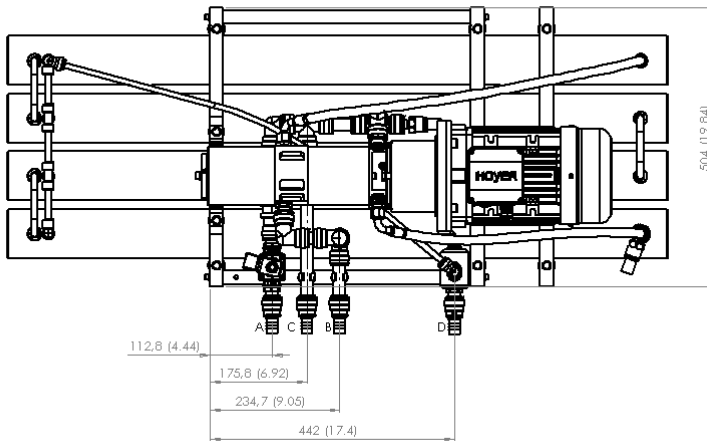
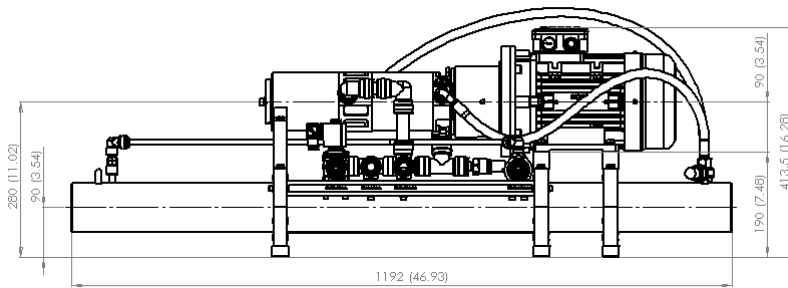
<sup>1</sup> Based on simulation in ROSA design software from Dow Water & Process Solutions

<sup>2</sup> Water production may need to be adjusted to match the specific combination of temperature and total dissolved solids in the feed water (TDS)

<sup>3</sup> Contact AqSep for alternative motor voltages/frequencies

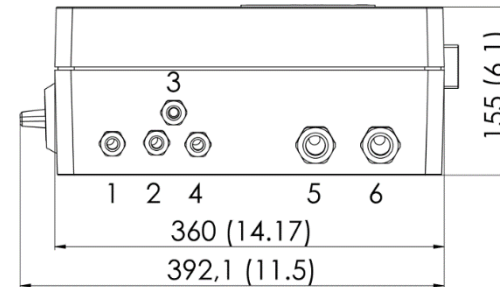
## Data sheet WM11000E-340

mm (inch)

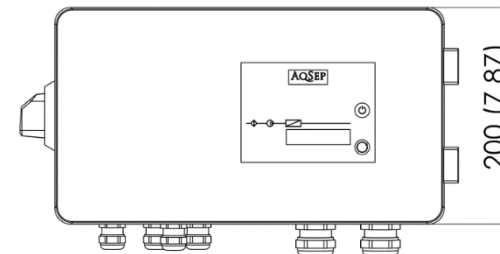


|   |                 |
|---|-----------------|
| A | Flush water IN  |
| B | Seawater OUT    |
| C | Seawater IN     |
| D | Fresh water OUT |

### Control Box



|   |                           |
|---|---------------------------|
| 1 | Power Connection          |
| 2 | Electrical motor          |
| 3 | Solenoid valve            |
| 4 | Cable tree – sensors      |
| 5 | Feed pump signal – XS1    |
| 6 | Level switch signal – XS2 |



The control box is connected to the sensors on the hydraulic unit via a cable tree of 3 m (9.9 ft.). Separate cables connects the electrical motor and valve.

Mating electrical connectors for start & stop of well pump/isolating valve as well as level switch signal are located inside the control box.

The optional GSM modem is also fitted to the control box.

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