

# ZeeWeed\* 1500 RMS

## rackless module system for SUEZ pressurized ultrafiltration (UF)

### description and use

Pressurized UF system customers want a cost-effective, worry-free solutions that meet their needs for the lifetime of their plant. These solutions are achieved through a balance of several factors including capital costs, footprint, current and future water demands, supplier experience and after sales support. By developing the modular, rackless system, SUEZ has revolutionized the way membrane systems are designed and built by eliminating the membrane rack.

The SUEZ ZW1500-RMS (Fig. 1) is a self-supported, integrated header solution that leverages SUEZ's decades of membrane development and operational experience to offer one of the most advanced and versatile ultrafiltration technologies on the market.

The ZW1500-RMS uses ZeeWeed membrane technology, a membrane that has been proven to meet or exceed regulatory requirements, regardless of source water quality.



**Figure 1: ZW1500-RMS 2x8 configuration**

### why ZW1500-RMS?

The ZW1500-RMS offers several benefits to our customers:

- **Cost** - simplified construction & installation
- **Footprint** - 50% reduction in rack footprint (Fig. 2)
- **Simplicity** - factory pre-assembled equipment (Fig. 3)
- **Reliability** - uses proven ZW1500 membrane module
- **Modularity** - simple building blocks provide plant layout versatility and easy future expansion

NOTE: ZW1500-RMS is not rated for high seismic zones. A seismic kit is available for special acceleration ratings up to 3.0g, upon request.



**Figure 2: Blue shaded area shows the reduced footprint of the ZW1500-RMS when compared to a typical pressurized UF rack.**

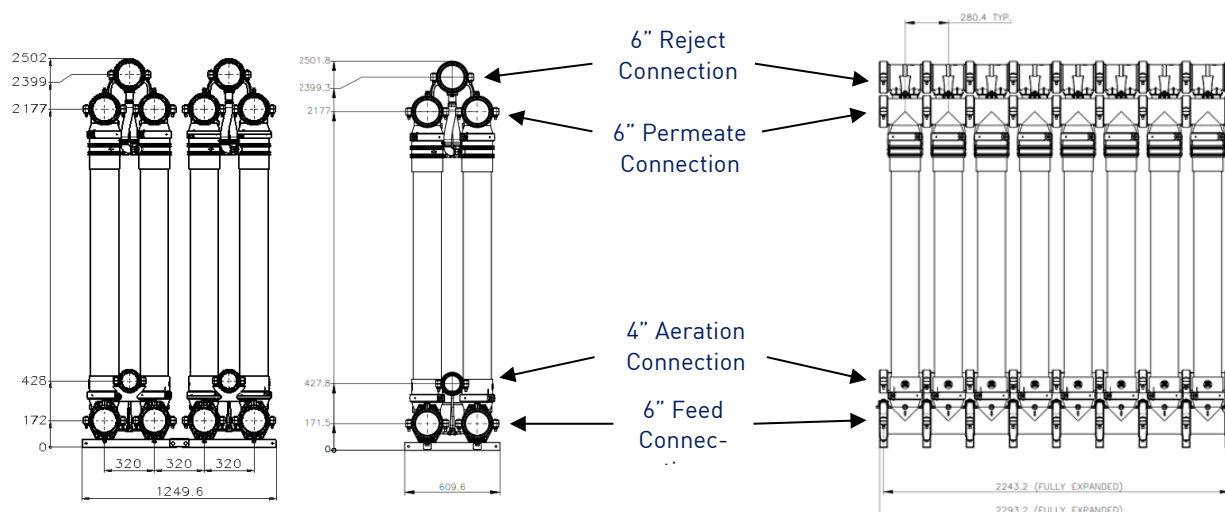


Figure 3: ZW1500-RMS dimensions and connections. 4-module wide and 2-module wide configurations, all dimension in mm.

## ZW1500-RMS configurations

Table 1: RMS with 2 rows of modules

| Rack Size |   | # of Modules | Train Length |     | Train Width |     | Footprint       |                | Surface Area    |                |
|-----------|---|--------------|--------------|-----|-------------|-----|-----------------|----------------|-----------------|----------------|
| L         | W |              | Ft           | m   | Ft          | m   | Ft <sup>2</sup> | m <sup>2</sup> | Ft <sup>2</sup> | m <sup>2</sup> |
| 8         | 2 | 16           | 7.5          | 2.3 | 2           | 0.6 | 15.1            | 1.4            | 9,600           | 892            |
| 10        | 2 | 20           | 9.4          | 2.9 | 2           | 0.6 | 18.8            | 1.7            | 12,000          | 1,115          |
| 12        | 2 | 24           | 11.2         | 3.4 | 2           | 0.6 | 22.4            | 2.1            | 14,400          | 1,338          |
| 14        | 2 | 28           | 13.1         | 4.0 | 2           | 0.6 | 26.1            | 2.4            | 16,800          | 1,561          |
| 16        | 2 | 32           | 14.9         | 4.5 | 2           | 0.6 | 29.8            | 2.8            | 19,200          | 1,784          |
| 18        | 2 | 36           | 16.7         | 5.1 | 2           | 0.6 | 33.5            | 3.1            | 21,600          | 2,007          |
| 20        | 2 | 40           | 18.6         | 5.7 | 2           | 0.6 | 37.1            | 3.5            | 24,000          | 2,230          |
| 22        | 2 | 44           | 20.4         | 6.2 | 2           | 0.6 | 40.8            | 3.8            | 26,400          | 2,453          |
| 24        | 2 | 48           | 22.3         | 6.8 | 2           | 0.6 | 44.5            | 4.1            | 28,800          | 2,676          |
| 26        | 2 | 52           | 24.1         | 7.3 | 2           | 0.6 | 48.2            | 4.5            | 31,200          | 2,899          |
| 28        | 2 | 56           | 25.9         | 7.9 | 2           | 0.6 | 51.9            | 4.8            | 33,600          | 3,122          |
| 30        | 2 | 60           | 27.8         | 8.5 | 2           | 0.6 | 55.5            | 5.2            | 36,000          | 3,345          |
| 32        | 2 | 64           | 29.6         | 9.0 | 2           | 0.6 | 59.2            | 5.5            | 38,400          | 3,567          |



Table 2: RMS with 4 rows of modules

| Rack Size |   | # of Modules | Train Length |     | Train Width |     | Footprint       |                | Surface Area    |                |
|-----------|---|--------------|--------------|-----|-------------|-----|-----------------|----------------|-----------------|----------------|
| L         | W |              | Ft           | m   | Ft          | m   | Ft <sup>2</sup> | m <sup>2</sup> | Ft <sup>2</sup> | m <sup>2</sup> |
| 8         | 4 | 32           | 7.5          | 2.3 | 4           | 1.2 | 30.9            | 2.9            | 19,200          | 1,784          |
| 10        | 4 | 40           | 9.4          | 2.9 | 4           | 1.2 | 38.4            | 3.6            | 24,000          | 2,230          |
| 12        | 4 | 48           | 11.2         | 3.4 | 4           | 1.2 | 46.0            | 4.3            | 28,800          | 2,676          |
| 14        | 4 | 56           | 13.1         | 4.0 | 4           | 1.2 | 53.5            | 5.0            | 33,600          | 3,122          |
| 16        | 4 | 64           | 14.9         | 4.5 | 4           | 1.2 | 61.1            | 5.7            | 38,400          | 3,567          |
| 18        | 4 | 72           | 16.7         | 5.1 | 4           | 1.2 | 68.6            | 6.4            | 43,200          | 4,013          |
| 20        | 4 | 80           | 18.6         | 5.7 | 4           | 1.2 | 76.2            | 7.1            | 48,000          | 4,459          |
| 22        | 4 | 88           | 20.4         | 6.2 | 4           | 1.2 | 83.7            | 7.8            | 52,800          | 4,905          |
| 24        | 4 | 96           | 22.3         | 6.8 | 4           | 1.2 | 91.2            | 8.5            | 57,600          | 5,351          |
| 26        | 4 | 104          | 24.1         | 7.3 | 4           | 1.2 | 98.8            | 9.2            | 62,400          | 5,797          |
| 28        | 4 | 112          | 25.9         | 7.9 | 4           | 1.2 | 106.3           | 9.9            | 67,200          | 6,243          |
| 30        | 4 | 120          | 27.8         | 8.5 | 4           | 1.2 | 113.9           | 10.6           | 72,000          | 6,689          |
| 32        | 4 | 128          | 29.6         | 9.0 | 4           | 1.2 | 121.4           | 11.3           | 76,800          | 7,135          |



## model ZW1500-RMS

### membrane module specifications

| Model                                  | ZeeWeed 1500                               |
|----------------------------------------|--------------------------------------------|
| <b>Nominal membrane surface area</b>   | 55.7 m <sup>2</sup> (600 ft <sup>2</sup> ) |
| <b>Max shipping weight<sup>1</sup></b> | 33.5 kg (72 lb)                            |
| <b>Lifting weight<sup>2</sup></b>      | 27 – 43 kg (57 – 92 lb)                    |
| <b>Membrane material</b>               | PVDF                                       |
| <b>Nominal pore size</b>               | 0.02 micron                                |
| <b>Nominal fiber diameter</b>          | OD: 1.2 mm, ID: 0.66 mm                    |
| <b>Flow path</b>                       | Outside-In                                 |
| <b>Housing material</b>                | PVC housing                                |

<sup>1</sup> Packaged, single module

<sup>2</sup> Varies with solids accumulation, single module

| Module Dimensions & Connections |                       |
|---------------------------------|-----------------------|
| <b>Diameter</b>                 | 180 mm (7")           |
| <b>Feed &amp; Permeate</b>      | RMS flange clamp      |
| <b>Reject</b>                   | 1 ½" (DN40) Victaulic |
| <b>System Integration</b>       | SUEZ RMS              |

### storage and handling

Modules may be stored in the original factory packaging for up to 1 year prior to installation. Modules must be stored between 5°C and 35°C (41°F to 95°F). Do not expose the membrane module to sources of heat, ignition, or direct sunlight (UV light).

### operating parameters

|                                   |                                              |
|-----------------------------------|----------------------------------------------|
| <b>Performance</b>                |                                              |
| <b>Flow range</b>                 | 45 – 180 m <sup>3</sup> /day<br>(8 – 33 gpm) |
| <b>Operating conditions</b>       |                                              |
| <b>Max inlet pressure</b>         | 379 kPa (55 psi)                             |
| <b>TMP range</b>                  | 0 – 276 kPa (0 – 40 psi)                     |
| <b>Max temperature</b>            | 40°C (104°F)                                 |
| <b>Operating pH</b>               | 5.0 – 10.0                                   |
| <b>Air scour flow</b>             | 5.1 m <sup>3</sup> /h (3 dcfm)               |
| <b>Backwash flow</b>              | 1.8 m <sup>3</sup> /hr (8 gpm)               |
| <b>Cleaning</b>                   |                                              |
| <b>Cleaning pH range</b>          | 2.0 – 12.0                                   |
| <b>Max chlorine concentration</b> | 1,000 mg/L (as NaOCl) <sup>3</sup>           |

<sup>3</sup> Higher concentrations are possible depending on feedwater and pH