



# SPIRA-CEL® OX Industry

## UP Series

SPIRA-CEL® OX modules have an outstandingly high stability against temperature and pH. They may be used to clean caustic solutions and may be used in biotechnological applications where extreme cleaning conditions are required. NADIR® UP polyethersulfone (PES) membranes offers consistent flux and rejection in process applications.

### MEMBRANE CHARACTERISTICS

| Membrane              | NADIR® UP005 | NADIR® UP010 | NADIR® UP020 | NADIR® UP150 |
|-----------------------|--------------|--------------|--------------|--------------|
| Nominal M.W.C.O. (Da) | 5,000        | 10,000       | 20,000       | 150,000      |

### DESIGN INFORMATION

| Model                     | Membrane Area<br>m <sup>2</sup> (ft <sup>2</sup> ) | Feed Spacer<br>Thickness (mil) <sup>a</sup> |
|---------------------------|--|---|
| SPIRA-CEL® OX UP005 2440D | 1.8 (19)   | 47  |
| SPIRA-CEL® OX UP005 4040C | 6.0 (65)   | 46  |
| SPIRA-CEL® OX UP005 4040D | 6.0 (65)   | 47  |
| SPIRA-CEL® OX UP005 8040B | 32.0 (344)   | 31  |
| SPIRA-CEL® OX UP005 8040C | 25.0 (269)   | 46  |
| SPIRA-CEL® OX UP010 4040C | 6.0 (65)   | 46  |
| SPIRA-CEL® OX UP010 4040D | 6.0 (65)   | 47  |
| SPIRA-CEL® OX UP010 8040B | 32.0 (344)   | 31  |
| SPIRA-CEL® OX UP010 8040C | 25.0 (269)   | 46  |
| SPIRA-CEL® OX UP020 4040C | 6.0 (65)   | 46  |
| SPIRA-CEL® OX UP020 4040D | 6.0 (65)   | 47  |
| SPIRA-CEL® OX UP020 8040B | 32.0 (344)   | 31  |
| SPIRA-CEL® OX UP020 8040C | 25.0 (269)   | 46  |
| SPIRA-CEL® OX UP150 4040C | 6.0 (65)   | 46  |
| SPIRA-CEL® OX UP150 4040D | 6.0 (65)   | 47  |
| SPIRA-CEL® OX UP150 8040B | 32.0 (344)   | 31  |
| SPIRA-CEL® OX UP150 8040C | 25.0 (269)   | 46  |

<sup>a</sup> All models on this sheet have fiberglass outer wrap and one brine seal. Models ending in "D" have parallel feed spacers; all other models have diamond shaped feed spacers. All models on this sheet include anti-telescoping devices (ATDs) attached to the ends of the element as default. ATDs can instead be provided loose in the box on request.

### OPERATING PARAMETERS

|                                |   |
|--------------------------------|---|
| Maximum Operating Pressure     | 10 bar (145 psi)  |
| Maximum Operating Temperature  | 80°C (176°F)  |
| Operating pH Range             | 3.0 – 14.0  |
| Cleaning pH Range <sup>1</sup> | 2.0 – 14.0  |
| Maximum Pressure Drop          | 2 bar (29.0 psi) @ 5 – 50°C per element<br>1.3 bar (18.9 psi) @ 50 – 65°C per element<br>0.5 bar (7.3 psi) @ 65 – 80°C per element<br>2 bar (29.0 psi) @ 80°C per housing |

<sup>1</sup> Refer to temperature and pH limits in Membrane Cleaning Guide - Water Application Elements (TSG-C001).

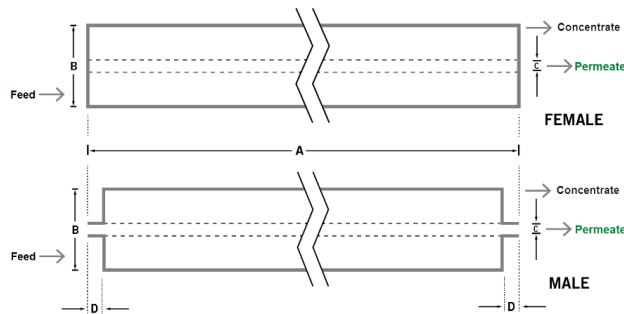
**PHYSICAL DIMENSIONS**

| Model                     | Element Weight<br>kg (lb) <sup>b</sup> | Dim. A<br>mm (inches) | Dim. B<br>mm (inches) | Dim. C <sup>c</sup><br>mm (inches) | Permeate<br>Tube <sup>d</sup> |
|---------------------------|--|-----------------------|-----------------------|------------------------------------|-------------------------------|
| SPIRA-CEL® OX UP005 2440D | 3 (7)                                  | 1,016 (40.0)          | 64 (2.5)              | 19.1 (0.75)                        | Male                          |
| SPIRA-CEL® OX UP005 4040C | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP005 4040D | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP005 8040B | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP005 8040C | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP010 4040C | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP010 4040D | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP010 8040B | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP010 8040C | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP020 4040C | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP020 4040D | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP020 8040B | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP020 8040C | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP150 4040C | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP150 4040D | 4 (9)                                  | 1,016 (40.0)          | 101.5 (4.0)           | 16.0 (0.63)                        | Female                        |
| SPIRA-CEL® OX UP150 8040B | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |
| SPIRA-CEL® OX UP150 8040C | 16 (36)                                | 1,016 (40.0)          | 200.5 (7.9)           | 30.15 (1.187)                      | Female                        |

<sup>b</sup> Shipping weight is dependent on packaging material and quantity shipped.

<sup>c</sup> Diameters for Dimension "C" are as follows. For Female elements, "C" is the Inner Diameter. For Male elements, "C" is the Outer Diameter.

<sup>d</sup> Male elements have a protruding permeate tube, indicated as "D" in the diagram. Dimension "D" is 25.4 mm (1.0 in).



**IMPORTANT INFORMATION**

**Start-up:** MANN+HUMMEL Water & Fluid Solutions recommends flushing elements for 30 minutes at low pressure and discarding permeate during the flush prior to operation. For a more detailed start-up procedure, please see Element Start-Up Guide – System Start-Up (TSG-O-005).

**Cleaning:** TRISEP® membrane elements must be cleaned periodically to ensure proper operation and to prevent membrane damage. Please see Membrane Cleaning Guide – Water Application Elements (TSG-C001).

**Storage:** TRISEP membrane elements must be stored appropriately to ensure proper operation and to prevent membrane damage. Please see Element Storage Guides (TSG-O-009 & TSG-O-010).

**CUSTOMIZABLE SPECIALTY ELEMENTS**

MANN+HUMMEL Water & Fluid Solutions offers a full range of membranes and element designs for challenging water and process applications. Technologies include low-fouling RO, submerged UF, continuous high temperature, ultra-high pressure, unique sanitary designs and more. Contact us to customize a product that satisfies your specific requirements.

**Contact**

**Europe**  
 Germany: +49 611 962 6001  
 Italy: +39 0721 1796201  
 info@microdyn-nadir.com

**Americas**  
 USA: +1 805 964 8003  
 sales.mnus@microdyn-nadir.com

**Asia**  
 Singapore: +65 6457 7533  
 China: +86 10 8413 9860  
 waterchina@mann-hummel.com