



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

| | |
|--------------------------------------|---|
| Maximum Operating Pressure..... | 10 bar (145 psi) |
| Maximum Operating Temperature..... | 80°C (167°F) |
| Operating pH Range..... | 3.0 – 14.0 |
| Cleaning pH Range ¹ | 2.0 – 14.0 |
| Maximum Pressure Drop..... | 2 bar (29.0 psi) @ 5 – 50°C per element 1.3 bar (18.9 psi) @ 50 – 65°C per element 0.5 bar (7.3 psi) @ 65 – 80°C per element 2 bar (29.0 psi) @ 80°C per housing |

¹ Refer to temperature and pH limits in *Membrane Cleaning Guide – Water Application Elements (TSG-C001)*.

Design Information

MICRODYN-NADIR has the versatility to customize elements to meet customers' specific needs. Please contact MICRODYN-NADIR for information on customized solutions.

| Model | Membrane Area m ² (ft ²) | Feed Spacer Thickness (mil) ^a |
|---------------------------|--|---|
| SPIRA-CEL® OX UP005 4040C | 6.0 (65) | 46 |
| SPIRA-CEL® OX UP005 4040D | 6.0 (65) | 46 |
| 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) | 46 |
| 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) | 46 |
| 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) | 46 |
| SPIRA-CEL® OX UP150 8040B | 32.0 (344) | 31 |
| SPIRA-CEL® OX UP150 8040C | 25.0 (269) | 46 |

^a All models on this sheet have fiberglass outer wrap and ATDs attached. Models ending in "D" have parallel feed spacers; all other models have diamond shaped feed spacers.



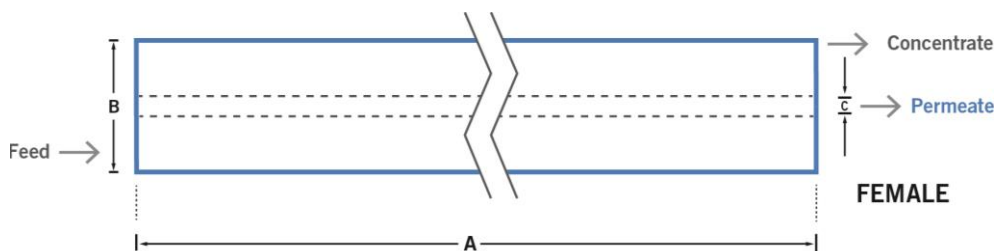
Product Specification (continued)

Physical Dimensions

| Model | Element Weight kg (lbs) ^b | Dimensions, mm (inches) | | | Permeate Tube |
|---------------------------------------|---|-------------------------|-------------|----------------|------------------|
| | | A | B | C ^c | |
| 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 |

^b Shipping weight is dependent on packaging material and quantity shipped.

^c Dimension "C" is the Inner Diameter.



Important Information

Start-up: MICRODYN-NADIR 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: SPIRA-CEL[®] 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: SPIRA-CEL 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

MICRODYN-NADIR 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 MICRODYN-NADIR to customize a product that satisfies your specific requirements.

Solving Unmet Needs with Customized Products



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