



## ReFlex™ Reverse Osmosis

Industrial water treatment doesn't have to be difficult. Gone are the days of 75% water recovery (that means 25% waste!) and finicky systems that require lengthy, frequent cleanings. Desalitech's ReFlex Reverse Osmosis systems can be used for all of the same applications as traditional reverse osmosis and much more. Built with our patented Closed Circuit Reverse Osmosis™ (CCRO) technology, all Desalitech systems can reach up to 98% water recovery, guaranteed, and are only limited by water chemistry.

ReFlex systems use only premium, off the shelf membranes and components, configured in a smart new way that gives the operator direct control of recovery rate, cross flow and flux.

With ReFlex systems, your facility will also enjoy a high resistance to scaling and fouling, which greatly improve uptime and therefore the reliability of your water treatment operations.

This simple yet revolutionary change in design even allows operators to easily and automatically cope with variations in feed water and operational requirements, optimize process performance, reduce energy use and minimize costs on a day-to-day basis.

### Standard Features

- Maximum Recovery - Guaranteed.
- Patented high recovery, low fouling/scaling, low energy performance.
- Adjustable recovery – up to 98%.
- Automatic response to feed variations.
- Premium brackish water RO membranes.
- Programmable logic controller with remote monitoring and control functionality.
- Chemical dosing systems.
- NSF-certified components.

### Optional Features

- Ultra-filtration or multi-media filtration.
- Clean-in-Place (CIP) and flushing systems.
- Mixed-bed permeate polishing.
- Transfer pumps, storage tanks.

### Operating Parameters

- Adjustable Recovery: 75-98%
- Rejection: 95.0-99.5%
- Adjustable Flux: 6-25 gfd (10-42 l/mh)
- Feed TDS 0-10,000 mg/L
- Temperature: 36-113F (2-45C)
- Max Pressure: 450 psi (31 bar)
- Inlet Pressure: 10-60 psi (0.8-4.0 bar)

### Materials

- High-pressure piping - 316SS Sch.10
- Low-pressure piping - PVC Sch.80
- Frame - Epoxy painted carbon steel
- Enclosure - Nema 4
- Clamps/Braces - Galvanized steel
- Membrane Elements - TFC

### Membrane Options

- 440 ft<sup>2</sup> (std), 400 ft<sup>2</sup> or 365 ft<sup>2</sup>
- 28 mil feed spacer (std) or 34 mil
- Low energy or high rejection
- Housings FRP, 316SS ports

ReFlex MODEL	R2	R3	R5	R8	R10	R15	R20	R30	R36
Average Permeate Flow	72,000 gpd	108,000 gpd	180,000 gpd	288,000 gpd	360,000 gpd	540,000 gpd	720,000 gpd	1,080,000 gpd	1,296,000 gpd
16.4 GFD (5 gpm per 440 ft <sup>2</sup> mem.)	50 gpm	75 gpm	125 gpm	200 gpm	250 gpm	375 gpm	500 gpm	750 gpm	900 gpm
28.4 LMH (1.1 m <sup>3</sup> /h per 40.9 m <sup>2</sup> mem.)	11 m <sup>3</sup> /hr	17 m <sup>3</sup> /hr	28 m <sup>3</sup> /hr	45 m <sup>3</sup> /hr	57 m <sup>3</sup> /hr	85 m <sup>3</sup> /hr	114 m <sup>3</sup> /hr	170 m <sup>3</sup> /hr	205 m <sup>3</sup> /hr
<b>High Pressure Pump (HPP)</b>									
Design Flow Rate	56 gpm	84 gpm	140 gpm	223 gpm	279 gpm	418 gpm	557 gpm	835 gpm	1,002 gpm
Design Flow Rate	13 m <sup>3</sup> /hr	19 m <sup>3</sup> /hr	32 m <sup>3</sup> /hr	51 m <sup>3</sup> /hr	64 m <sup>3</sup> /hr	95 m <sup>3</sup> /hr	127 m <sup>3</sup> /hr	190 m <sup>3</sup> /hr	228 m <sup>3</sup> /hr
Design Boost Pressure (base)	175 PSI (12.1 bar)	185 PSI (12.8 bar)	185 PSI (12.8 bar)	185 PSI (12.8 bar)	175 PSI (12.1 bar)	165 PSI (11.4 bar)	150 PSI (10.3 bar)	165 PSI (11.4 bar)	160 PSI (11 bar)
Design Boost Pressure (step 1)	250 PSI (17.2 bar)	275 PSI (19 bar)	260 PSI (17.9 bar)	250 PSI (17.2 bar)	230 PSI (15.9 bar)	240 PSI (16.6 bar)	190 PSI (13.1 bar)	240 PSI (16.6 bar)	200 PSI (13.8 bar)
Design Boost Pressure (step 2)	325 PSI (22.4 bar)	385 PSI (26.6 bar)	360 PSI (24.8 bar)	385 PSI (26.6 bar)	385 PSI (26.6 bar)	385 PSI (26.6 bar)	385 PSI (26.6 bar)	385 PSI (26.6 bar)	385 PSI (26.6 bar)
Motor (TEFC) base	15 HP	20 HP	25 HP	40 HP	40 HP	75 HP	100 HP	150 HP	200 HP
Motor (TEFC) step 1	20 HP	25 HP	30 HP	60 HP	60 HP	100 HP	100 HP	200 HP	200 HP
Motor (TEFC) step 2	25 HP	15+25 HP	50 HP	40+60 HP	50+60 HP	60+100 HP	100+100 HP	-	-
<b>Circulation Pump (CP)</b>									
Design Flow Rate (40 PSI)	68 gpm	102 gpm	170 gpm	272 gpm	340 gpm	510 gpm	680 gpm	1,020 gpm	1,224 gpm
Design Flow Rate (2.8 bar)	16 m <sup>3</sup> /hr	23 m <sup>3</sup> /hr	39 m <sup>3</sup> /hr	62 m <sup>3</sup> /hr	77 m <sup>3</sup> /hr	116 m <sup>3</sup> /hr	155 m <sup>3</sup> /hr	232 m <sup>3</sup> /hr	278 m <sup>3</sup> /hr
Motor (TEFC)	5 HP	5 HP	7.5 HP	7.5 HP	15 HP	20 HP	25 HP	20+20 HP	20+20 HP
<b>Membrane Elements and Housings</b>									
Element Quantity	10	15	25	40	50	75	100	150	180
Element Area (8" dia.)	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>	440 ft <sup>2</sup>
Housing Quantity (PV's)	2	3	5	8	10	15	20	30	36
Elements per Housing (6M long)	5	5	5	5	5	5	5	5	5
<b>Cartridge Filtration</b>									
Housing Quantity	One (1)	One (1)	One (1)	One (1)	One (1)	One (1)	One (1)	One (1)	One (1)
Cartridge Filter Length (2.5" dia.)	40"	40"	40"	40"	40"	40"	40"	40"	40"
Cartridge Filter Qty	3	5	7	12	15	25	32	52	60
<b>Installation and Utility Requirements</b>									
Inlet (flooded suction)	2" (3") 150 Flange	2.5" (3") 150 Flange	3" (4") 150 Flange	4" (6") 150 Flange	6" (6") 150 Flange	6" (8") 150 Flange	6" (8") 150 Flange	8" (10") 150 Flange	8" (10") 150 Flange
Permeate	2" 150 Flange	2.5" 150 Flange	3" 150 Flange	4" 150 Flange	4" 150 Flange	6" 150 Flange	6" 150 Flange	6" 150 Flange	6" 150 Flange
Brine	2" 300 Flange	2.5" 300 Flange	3" 300 Flange	4" 300 Flange	4" 300 Flange	6" 300 Flange	6" 300 Flange	8" 300 Flange	8" 300 Flange
Inlet Water Pressure	20 - 90 PSI	20 - 75 PSI	20 - 90 PSI	20 - 75 PSI	20 - 75 PSI	20 - 75 PSI	20 - 75 PSI	20 - 75 PSI	20 - 75 PSI
Design Drain Flow Rate	53 gpm (12 m <sup>3</sup> /h)	80 gpm (18 m <sup>3</sup> /h)	134 gpm (30 m <sup>3</sup> /h)	214 gpm (49 m <sup>3</sup> /h)	267 gpm (61 m <sup>3</sup> /h)	401 gpm (91 m <sup>3</sup> /h)	535 gpm (121 m <sup>3</sup> /h)	801 gpm (182 m <sup>3</sup> /h)	962 gpm (219 m <sup>3</sup> /h)
FLA (base / step 1 / step 2)	25 / 31 / 36	31 / 36 / 53	38 / 43 / 65	54 / 77 / 121	61 / 84 / 139	106 / 131 / 198	136 / 136 / 244	209 / 262 / -	478 / 478 / -
<b>Footprint and Weight</b>									
Length	272" (690 cm)	272" (690 cm)	278" (705 cm)	268" (679 cm)	268" (679 cm)	340" (837 cm)	349" (884 cm)	303" (768 cm)	275" (884 cm)
Width	42" (107 cm)	42" (107 cm)	60" (152 cm)	72" (183 cm)	72" (183 cm)	88" (224 cm)	87" (222 cm)	168" (427 cm)	174" (442 cm)
Height	85" (216 cm)	85" (216 cm)	93" (236 cm)	93" (236 cm)	90" (229 cm)	90" (229 cm)	106" (269 cm)	116" (295 cm)	172" (437 cm)
Weight w/o Membranes	4,000 lb (1,800 kg)	4,000 lb (1,800 kg)	5,000 lb (2,300 kg)	7,500 lb (3,400 kg)	9,000 lb (4,000 kg)	10,500 lb (4,700 kg)	14,600 lb (6600 kg)	24,300 lb (11,000 kg)	29,800 lb (13,500 kg)
Weight of Membranes	500 lb (250 kg)	500 lb (250 kg)	700 lb (300 kg)	1,200 lb (550 kg)	1,500 lb (700 kg)	2,200 lb (1,000 kg)	3,386 lb (1,536 kg)	4,230 lb (1,920 kg)	6,770 lb (3,072 kg)
Wet Weight	5,000 lb (2,300 kg)	5,000 lb (2,300 kg)	7,000 lb (3,200 kg)	10,500 lb (4,700 kg)	12,800 lb (5,800 kg)	16,500 lb (7,500 kg)	26,000 lb (11,800 kg)	42,500 lb (19,300 kg)	58,000 lb (26,300 kg)