

# PRO-AP Series 50 Hz

## Reverse Osmosis Machines; 11-102 m<sup>3</sup>/hr

### Features

- GE Fanuc Quick Panel 6"; 6-inch display; Primarily text operating screens; Touchscreen controls
- GE Fanuc Micro VersaMax; Communication: RS232/DH485; Analog output: 2 points
- 4-20 mA instrument display on instrument center

### Instrumentation

Flow Meters.....	Permeate, concentrate
Conductivity.....	Permeate
pH.....	Feed
Pressure	Pre-filter, post-filter, primary, final, permeate, concentrate, pump discharge
Pressure Switch.....	Feed, permeate, concentrate
ORP.....	Feed
Instrument Center.....	Thornton 770 Max

### Materials of Construction

High-pressure piping.....	Stainless Steel, Sch. 10
Low-pressure piping.....	Sch. 80, PVC
Frame.....	Painted blue carbon steel
Enclosure.....	NEMA 12 (painted blue)



### Options Available

- PRO Multi-Media filters
- PRO Clean-in-Place units
- PRO chemical feed systems
- Transfer pumps and storage tanks
- Allen Bradley or Siemens control package

### Documentation Included

- Operation and maintenance manual
- Drawings: piping and instrumentation, electrical and general dimension

### Operating Parameters

Recovery.....	65-85%
Design temp.....	16°C
Operating range.....	1.6 to 29.4°C
Nominal rejection.....	97-99%
Minimal inlet pressure.....	2.1 bar

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## Membrane Elements and Housings

Membrane Model .....OSMO PRO 365  
 Style .....Spiral-wound elements  
 Manufacturer ..... GE  
 Membrane type.....TFC (Polyamide)  
 Average membrane flux..... 28-29 l/mh (16-18 gfd)  
 Membrane rejection .....99.5%  
 Manufacturer ..... GE  
 Housing material..... FRP  
 Design TDS Basis ..... 2500 ppm

## Cartridge Filtration

Housing model..... 7 Rounds, 102cm (40")  
 Housing material .....316 Stainless Steel  
 Cartridge filter ..... 1-micron nominal, ROsave.Z\*s

## PRO Models

MODEL	PRO-11-AP-50	PRO-23-AP-50	PRO-34-AP-50	PRO-45-AP-50	PRO-68-AP-50	PRO-102-AP-50
Permeate rate:	11.4 m <sup>3</sup> /hr	22.7 m <sup>3</sup> /hr	34 m <sup>3</sup> /hr	45.4 m <sup>3</sup> /hr	68.1 m <sup>3</sup> /hr	102.2m <sup>3</sup> /hr
Concentrate Rate:	3.8 m <sup>3</sup> /hr	7.5 m <sup>3</sup> /hr	11.4 m <sup>3</sup> /hr	15.2 m <sup>3</sup> /hr	22.7 m <sup>3</sup> /hr	34 m <sup>3</sup> /hr
Feed Rate:	15.2 m <sup>3</sup> /hr	30.2 m <sup>3</sup> /hr	45.4 m <sup>3</sup> /hr	60.6 m <sup>3</sup> /hr	90.0 m <sup>3</sup> /hr	136.3 m <sup>3</sup> /hr
<b>Pumps and Motors</b>						
Manufacturer:	Tonkafllo	Tonkafllo	Tonkafllo	Tonkafllo	Tonkafllo	Tonkafllo
Model	SS8520KZC	SS24013KZE	SS24016KZE	AS40415KTF	SS24016KZE	AS40415KTF
Quantity:	1	1	1	1	2	2
Motor HP and type:	14.9KW (20HP) TEFC	37.3 kW (50 Hp) TEFC	45 kW (60 Hp) TEFC	56 kW (75 Hp) TEFC	45 kW (60 Hp) TEFC	56 kW (75 Hp) TEFC
Design Flow Rate:	18.2 m <sup>3</sup> /hr	34 m <sup>3</sup> /hr	45.4 m <sup>3</sup> /hr	68.1 m <sup>3</sup> /hr	45.4 m <sup>3</sup> /hr	68.1m <sup>3</sup> /hr
Design boost pressure:	20.0 Bar	19.3 Bar	20.0 Bar	16.5 Bar	20 Bar	22 Bar
<b>Membrane Elements and Housings</b>						
Membranes quantity:	12	24	36	48	72	108
Memb. housing style:	4 element long, 4 port	4 element long, 4 port	6 element long, 4 port	4 element long, 4 port	6 element long, 4 port	6 element long, 4 port
Banking Arrangement:	1→1→1	3→2→1	3→2→1	6→4→2	6→4→2	9→6→3
<b>Cartridge Filtration</b>						
Cartridge Filter:	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK
Filter Length:	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")
Filter Quantity:	7 per housing 7/change out	7 per housing 7/change out	7 per housing 14/change out	7 per housing 14/change out	7 per housing 21/change out	7 per housing 28/change out
<b>Installation and Utility Requirements</b>						
Inlet:	2" ANSI flange	3" ANSI flange	3" ANSI flange	4" ANSI flange	4" ANSI flange	6" ANSI flange
Permeate:	1.5" ANSI flange	3" ANSI flange	3" ANSI flange	3" ANSI flange	4" ANSI flange	4" ANSI flange
Concentrate:	1" ANSI flange	1.5" ANSI flange	1.5" ANSI flange	2" ANSI flange	2" ANSI flange	3" ANSI flange
Inlet Water Pressure:	2.1 bar min.	2.1 bar min.	2.1 bar min.	2.1 bar min.	2.1 bar min.	2.1 bar min.
Air Pressure:	6.9 bar, oil-free	6.9 bar, oil-free	6.2 bar, oil-free	6.2 bar, oil-free	6.9 bar, oil-free	6.9 bar, oil-free
Drain to be Sized for:	15.2 m <sup>3</sup> /hr	30.2 m <sup>3</sup> /hr	45.4 m <sup>3</sup> /hr	60.6 m <sup>3</sup> /hr	90.8 m <sup>3</sup> /hr	136.3 m <sup>3</sup> /hr
Power:	230/460 VAC, 3-phase, 50Hz	230/460 VAC, 3-phase,50Hz	230/460 VAC, 3-phase, 50Hz	230/460 VAC, 3-phase, 50Hz	230/460 VAC, 3-phase,50Hz	230/460 VAC, 3-phase, 50Hz
Control Circuit:	120 VAC, 1-phase, 50Hz	120 VAC, 1-phase, 50Hz	120 VAC, 1-phase, 50Hz	120 VAC, 1-phase, 50Hz	120 VAC, 1-phase, 50Hz	120 VAC, 1-phase, 50Hz
<b>Skid</b>						
Approx.Height:	193 cm	193 cm	193 cm	193 cm	193 cm	251 cm
Approx. Width:	117 cm	117 cm	117 cm	203 cm	203 cm	203 cm
Approx.Depth:	493 cm	493 cm	696 cm	493 cm	696 cm	696 cm
Approx. Shipping Weight :	1542 kg	2040 kg	2720 kg	3175 kg	4305 kg	6350 kg

