

PRO MINI Series

Reverse Osmosis Machines from 8 to 112 m³/h



Features

- Configurable skid mounted RO system for industrial brackish water demineralization
- Control Cabinet with Siemens S7- 1200 PLC and TP 277 touchscreen
- Ethernet Communication
- Motor starter mounted and wired
- 4-20 mA Instruments displayed locally on instruments and/or on touchscreen
- 100% permeate flush on shut down using CIP tank
- High pressure pump & cartridge filter housings mounted on skid

Instrumentation

Flow Meters transmitters	Permeate, Concentrate
Conductivity transmitters	Feed, Permeate
Temperature transmitter	Permeate
Pressure transmitters	After HPPump throttling valve Prior to concentrate valve
pH/ORP control system (optional)	Feed
Pressure indicator/switches:	Pre & Post Cartridge Filter HPPump discharge, post HPPump throttling valve, Pre/post concentrate orifice, permeate line, Interstage

Configurations

- Controls configuration:
 - PLC and HMI
 - I/O box
- Membrane Options:
 - Low Energy Elements
 - Standard brackish water elements
 - High rejection Elements
- Banking configuration:
 - 2-Banks (high rejection design)
 - 3 banks (high recovery design)
- High pressure pump motor control options:
 - Motor Starter
 - Variable Frequency Drive
- Optional pH/ORP meter (feed)

PRO MINI Accessories

- PRO Multi-Media filters
- PRO Activated Carbon and Softeners
- PRO Clean-in-Place units
- PRO Chemical Feed Systems
- Transfer Pumps and Storage Tanks

Operating Parameters

Design Recovery ¹	70%-85%
Design Temperature	15°C
Operating Temperature Range	5-30 °C
Nominal rejection	97-99%
System Inlet Pressure	2-4 bar

¹ Recovery Rate can vary +/- 5%

Materials of Construction

High-pressure piping	316 Stainless Steel PN 25
Low-pressure piping	PVC PN 10/16
Frame	Painted blue carbon steel
Enclosure	IP 55
Clamps/fittings	Zinc-plated

Membrane Elements and Housings

Membrane Model	AK8040F-400, AG8040F-400 AK-400 or AG-400
Style	Spiral-wound elements
Manufacturer	GE
Membrane type	TFC (Polyamide)

Membrane Elements and Housings continued

Average membrane flux	18-28 l/m ² /hr
Membrane rejection	99.0-99.5 %
Manufacturer	GE
Housing material	FRP
Housing Pressure Rating	20 or 30 Bar

Cartridge Filtration

Housing model	GE HX-0740-80-V316
Housing material	316 Stainless Steel
Cartridge filter	1-micron nominal, ROsave.Z*s

PRO MINI Models

MODEL	PRO-11-MINI	PRO-23-MINI	PRO-34-MINI	PRO-45-MINI	PRO-68-MINI	PRO-102-MINI
Permeate Rate ¹ :	8-12 m ³ /hr	17-25 m ³ /hr	25-37 m ³ /hr	34-49 m ³ /hr	51-75 m ³ /hr	76-112 m ³ /hr
Concentrate Rate:	1-5 m ³ /hr	3-11 m ³ /hr	4-15 m ³ /hr	6-21 m ³ /hr	9-32 m ³ /hr	7-48 m ³ /hr
Concentrate Recycle:	3 m ³ /hr	3 m ³ /hr	NA	4-6 m ³ /hr	NA	NA
Feed Rate:	9-17 m ³ /hr	20-36 m ³ /hr	29-52 m ³ /hr	40-70 m ³ /hr	60-107 m ³ /hr	89-160 m ³ /hr
Pumps and Motors						
Manufacturer:	Grundfos	Grundfos	Grundfos	Grundfos	Grundfos	Grundfos
Quantity:	1	1	1	1	2	2
Motor Power and type:	11 kW-15KW; IP55	15KW-22 kW; IP55	22KW-30KW; IP55	30KW -45 kW; IP55	22KW-30 kW; IP55	30KW-45 kW; IP55
Design boost pressure:	10-16 bar	10-16 bar	10-16 bar	10-16 bar	10-16 bar	10-16 bar
Membrane Elements and Housings						
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:	2→1 or 1→1→1	4→2 or 3→2→1	4→2 or 3→2→1	8→4 or 6→4→2	8→4 or 6→4→2	12→6 or 9→6→3
Cartridge Filtration						
Housing Model:	HX-0740-80-V-316	HX-0740-80-V-316	HX-0740-80-V-316	HX-0740-80-V-316	HX-0740-80-V-316	HX-0740-30-V-316
Housing Quantity:	1	1	2	2	3	4
Cartridge Filter Model:	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK	ROZs01-40XK
Cartridge Filter Length:	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")	102 cm (40")
Cartridge Filter Qty:	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
Installation and Utility Requirements						
Inlet:	DN 50 flange	DN 80 flange	DN 80 flange	DN 100 flange	DN 150 flange	DIN 150 flange
Permeate:	DN 40 flange	DN 80 flange	DN 80 flange	DN 80 flange	DN 100 flange	DIN 150 flange
Concentrate:	DN 25 flange	DN 40 flange	DN 40 flange	DN 50 flange	DN 65 flange	DIN 80 flange
Inlet Water Pressure:	2 bar, min.	2 bar, min.	2 bar, min.	2 bar, min.	2 bar, min.	2 bar, min.
Air Pressure:	6 bar, oil-free	6 bar, oil-free	6 bar, oil-free	6 bar, oil-free	6 bar, oil-free	6 bar, oil-free
Drain to be Sized for:	18 m ³ /hr	31 m ³ /hr	31 m ³ /hr	60 m ³ /hr	91 m ³ /hr	136 m ³ /hr
Power:	400 VAC, 3-phase, 50Hz	400 VAC, 3-phase, 50Hz	400 VAC, 3-phase, 50Hz	400 VAC, 3-phase, 50Hz	400 VAC, 3-phase, 50Hz	400 VAC, 3-phase, 50Hz
Control Circuit	230 VAC, 1-phase, 50Hz	230 VAC, 1-phase, 50Hz	230 VAC, 1-phase, 50Hz	230 VAC, 1-phase, 50Hz	230 VAC, 1-phase, 50Hz	230 VAC, 1-phase, 50Hz
Skid						
Height:	201 cm	240 cm	242 cm	245 cm	247 cm	247 cm
Width:	500 cm	500 cm	700 cm	500 cm	710 cm	710 cm
Depth:	95 cm	95 cm	95 cm	140 cm	140 cm	170 cm
Weight estimates:						
Operating:	1870 kg	3355 kg	4420 kg	5255 kg	8110kg	11430 kg
Shipping:	1550 kg	2350 kg	3005 kg	3405 kg	4960 kg	6740 kg

¹ At design temperature