

ECOSOFT INOX 8" REVERSE OSMOSIS SYSTEM MO9 WITH SIEMENS S7-1200 CONTROLLER & HMI KTP700

KEY FEATURES:

- Integration into Building Engineering Management (BEM) via SCADA/BMS
- Industrial automation standard
- Touchscreen operator panel with intuitive interface for monitoring and control
- High energy efficiency, precise pressure control, low noise level, smooth start-up

APPLICATIONS:

Process water, rinse water, steam boilers, heating and cooling circuits, agriculture, desalination, food and beverage industry, utility water treatment.

- Grundfos® CR 15-9 high pressure pump.....1 pcs
- 8040-3 pressure vessels3 pcs
- BB20 sediment prefilter.....5 pcs
- Motorized ball valves.....2 pcs
(Feed water, forward flushing)
- Balancing valves.....2 pcs
(concentrate, concentrate recycle)
- Controller Siemens S7-1200 & HMI KTP700 1 set
- Frequency control of the high-pressure pump1 set
- Set of instruments.....1 set
- AISI 316 Stainless steel high pressure line 1 set
- AISI 304 Stainless steel frame1 set
- Frame mounted1 set

OPTIONS:

- Filmtec™ XLE-440 / ECO PRO-440 or Ecosoft ELP-8040 membranes
- Dosing pump for antiscalant or other RO chemicals
- Permeate inlet for membrane flushing
- Raw water mixing line

CONNECTION PORT SIZES:

Feed water	G 2"
Permeate.....	G 1½"
Concentrate.....	G 2"
CIP inlet.....	G 1½"
CIP return.....	G 1½"
CIP permeate.....	G 1"
Antiscalant dosing port.....	G ½"



Ecosoft reserves the right to amend the system design without prior notice, provided that functionality and performance are not adversely affected

EQUIPMENT OF SIEMENS CONTROLLER :

- Electrical panel equipped controller Siemens S7-1200 1 set
- Basic Panel Siemens KTP700 Basic 1 set

SIEMENS CONTROLLER MONITORING OF:

- Operating modes: service, stop, alarm, standby
- Motorized ball valves: feed water, forward flush, permeate flush (option)
- Permeate and concentrate flow rates
- Permeate temperature
- Feed water TDS, permeate TDS
- Feed pressure, pressure after sediment filter, pump discharge pressure, pressure after membranes
- Permeate tank level control (4–20 mA sensor, not included)
- Frequency control of the high-pressure pump based on pump discharge pressure

PHYSICAL PARAMETERS:

Approximate dimensions (bare).....	3.90 × 1.20 × 1.95 m (Width × Depth × Height, ±5%)
Approximate dimensions (crated).....	4.10 × 1.37 × 2.24 m (Width × Depth × Height, ±5%)
Approximate weight (bare).....	600 kg
Approximate weight (crated).....	920 kg

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Code	Product	Flow capacity, m³/h (GPH)	Membranes**
MO9TISIEM	ECOSOFT INOX 8" RO SYSTEM MO9 with Siemens S7 1200 & HMI KTP700	9–12 (2 400–3 200)	9/80 x 40

** Membranes are not included

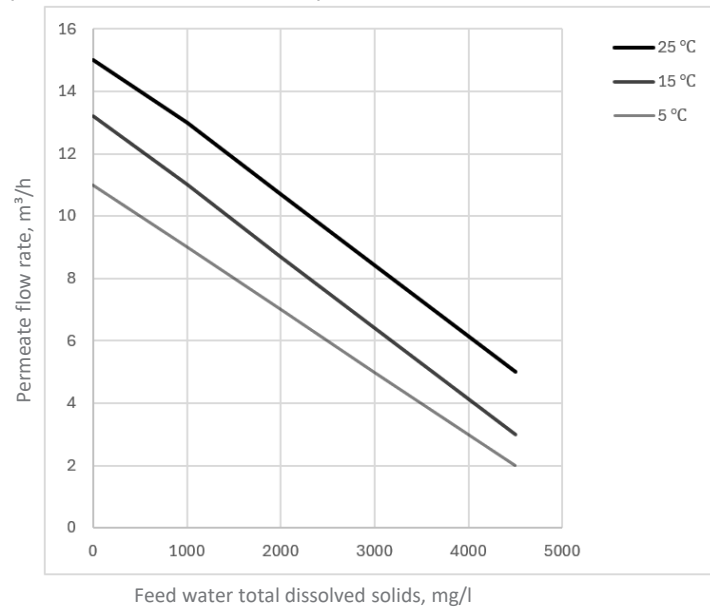
TECHNICAL SPECIFICATION

Permeate capacity ¹	9 m ³ /h
Permeate recovery ²	75%
Maximum feed water TDS	4500 mg/L
Feed water flow demand	12...16 m ³ /h (service) 20 m ³ /h (rinse)
Operating pressure	8...12 bar
Maximum pressure	14 bar
Electrical requirements	380–400 V, 50 Hz, 3-phase
Electrical power	7.5 kW
Pre-filter rating	5 µm

¹ depends on feed water TDS, temperature, and permeate recovery — see graph on the right

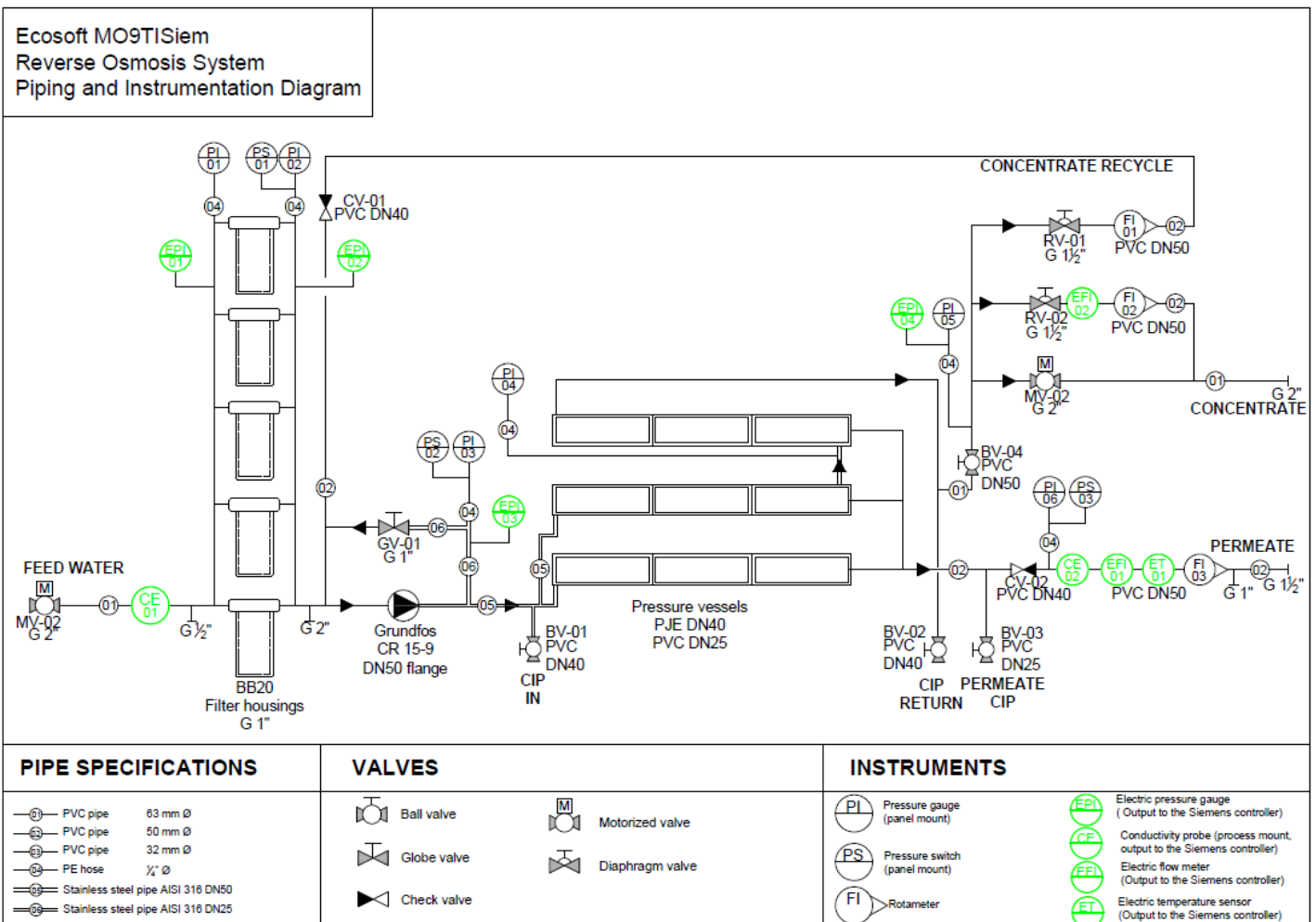
² for low scaling/fouling water

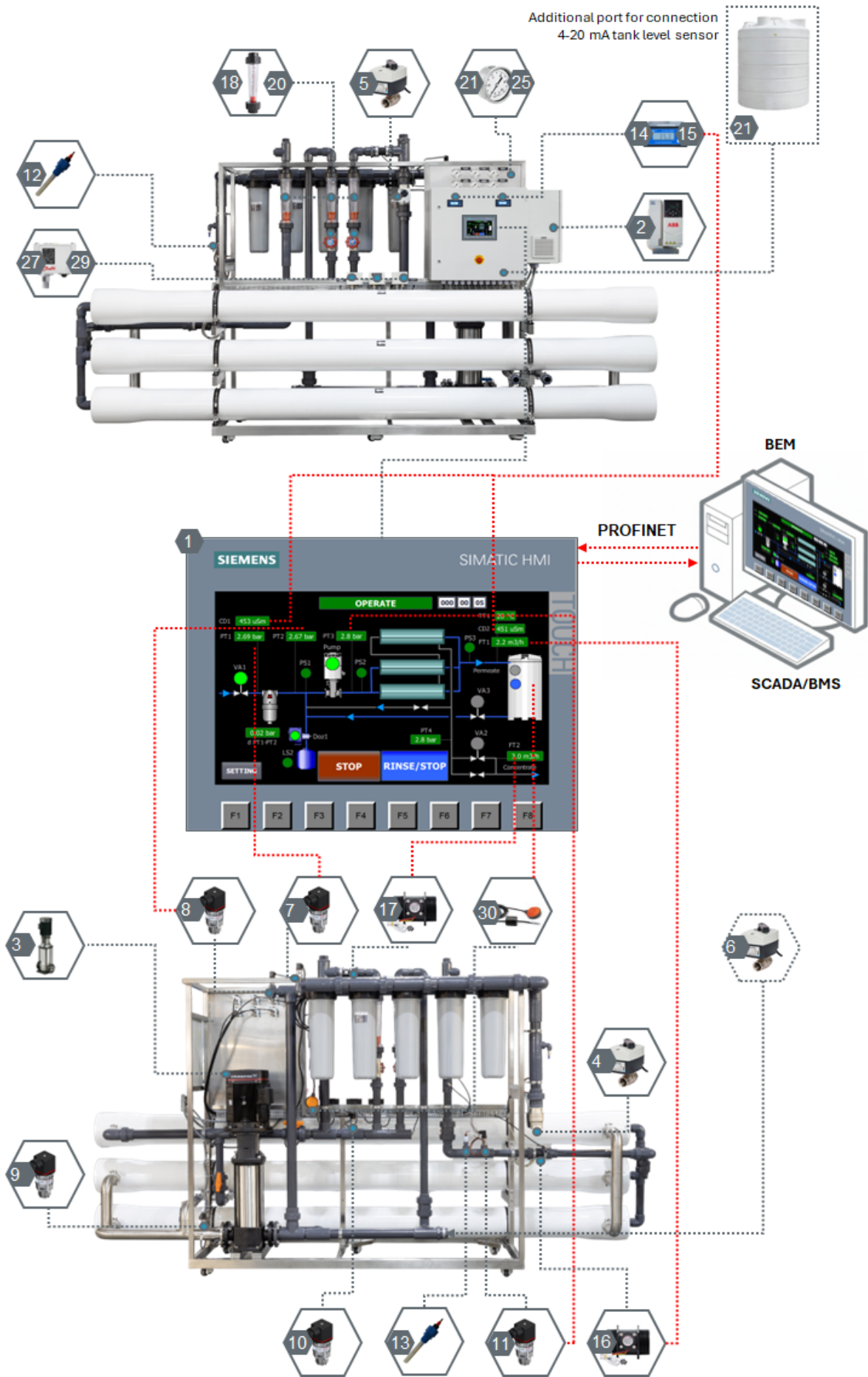
ECOSOFT MO9 RO FLOW CAPACITY GRAPH (WITH XLE-440 MEMBRANES)



Permeate flow rates are calculated under the following conditions:
 • 2 bar influent water pressure
 • 0 bar backpressure in the permeate line
 • fresh membranes
 • XLE-440 membrane

PIPES AND INSTRUMENTS DIAGRAM





MO9TISIEM system specification sheet and levels of monitoring and operating

Level 1 - monitoring and operating in place near the unit

Level 2 - monitoring and operating in place near the unit on HMI monitor

Level 3 - monitoring and operating by BEM (SCADA or BMS)

#	Item Name	Qty	Level 1	Level 2	Level 3	Brand	Specifications
1	Simatic S7-1200 controller & PLS	1	yes	yes	yes	Siemens	S7-1200 & KTP700
2	Frequency control	1	yes	yes	yes	ABB	7,5 kW
3	Pump	1	yes	yes	yes	Grundfos	CR 15-09
Motorized Ball Valve:							
4	Inlet	1	yes	yes	yes	Danfoss	2"
5	Forward Flush	1	yes	yes	yes	Danfoss	2"
6	Permeate Flush (option)	1	yes	yes	yes	Danfoss	2"
Pressure sensor:							
7	Inlet	1	-	yes	yes	Danfoss	0 - 6 bar
8	After sediment filter	1	-	yes	yes	Danfoss	0 - 6 bar
9	High pressure	1	-	yes	yes	Danfoss	0 - 16 bar
10	Concentrate	1	-	yes	yes	Danfoss	0 - 16 bar
11	Temperature sensor	1	-	yes	yes	Danfoss	0-100 °C
Conductivity cell:							
12	Inlet	1	-	yes	yes	Create	0-2000 mg/l
13	Permeate	1	-	yes	yes	Create	0-2000 mg/l
Conductivity controller:							
14	Inlet	1	-	yes	yes	Create	0-2000 mg/l
15	Permeate	1	-	yes	yes	Create	0-2000 mg/l
Flow sensor:							
16	Permeate	1	-	yes	yes	Sea	0 - 12 m ³ /h
17	Concentrate	1	-	yes	yes	Sea	0 - 12 m ³ /h
Rotameter:							
18	Permeate	1	yes	-	-	KingTai	1,6 - 16 m ³ /h
19	Concentrate	1	yes	-	-	KingTai	1,0 - 10,0 m ³ /h
20	Recirculation	1	yes	-	-	KingTai	1,0 - 10,0 m ³ /h
Pressure gauge:							
21	Inlet	1	yes	-	-	Wika	0 - 10 bar
22	After sediment filter	1	yes	-	-	Wika	0 - 10 bar
26	Permeate	1	yes	-	-	Wika	0 - 10 bar
23	High pressure	1	yes	-	-	Wika	0 - 16 bar
24	After first stage membranes	1	yes	-	-	Wika	0 - 16 bar
25	After second stage membranes	1	yes	-	-	Wika	0 - 16 bar
Pressure switch:							
27	Low	1	yes	-	-	Danfoss	0 - 8 bar
28	High	1	yes	-	-	Danfoss	8 - 28 bar
29	Permeate	1	yes	-	-	Danfoss	0 - 8 bar
30	Level switch	1	yes	-	-	Pedrollo	ON/OFF