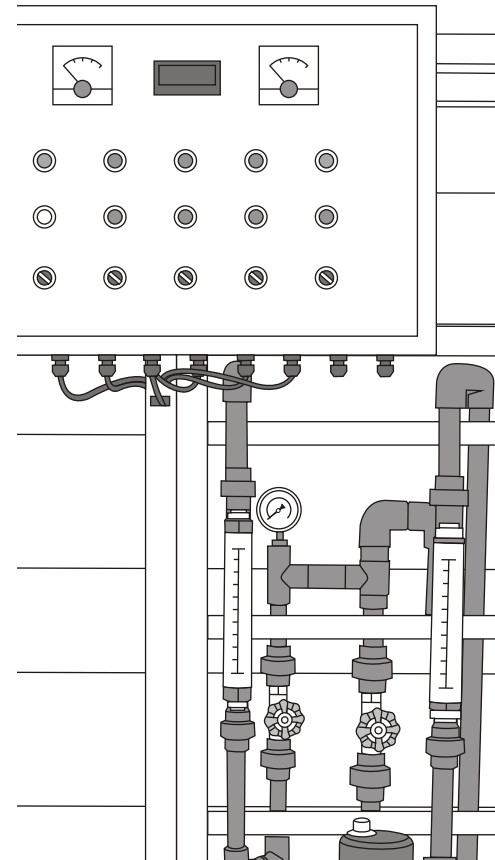


REVERSE OSMOSIS SYSTEM



RO24000
Industrial
RO System

- 01 Feed water quality requirement
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Thank you very much for selecting Pure-Pro Water Corp.
In order to bring the best use of your system, please read the user's manual carefully before installation and follow the regulations.

■ Feed Water Quality Requirement

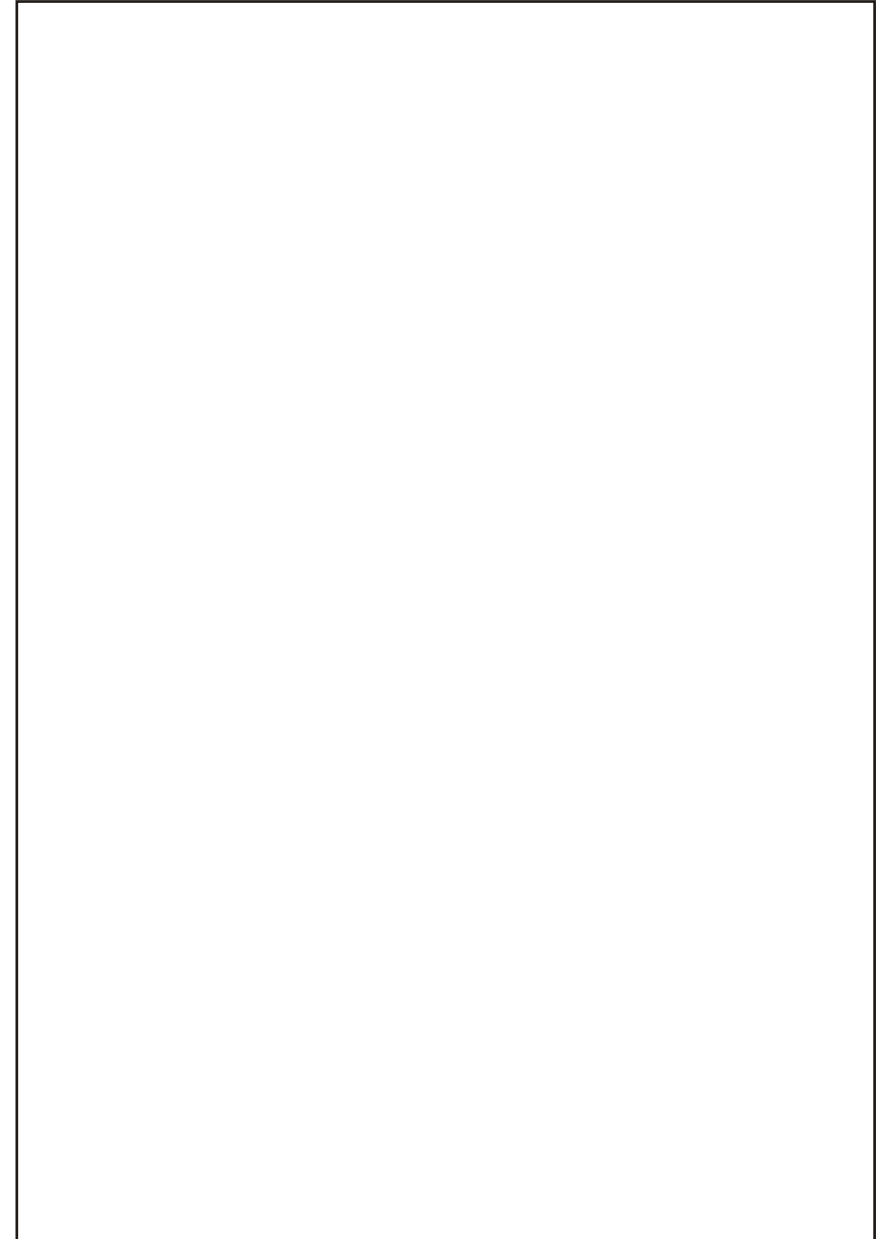
| | |
|---------------------|---|
| Feed water pressure | 2KG / cm ² ~ 4KG / cm ² |
| Hardness | <50 PPM (AT CaCO3) |
| Cl | < 0.1 PPM |
| Turbidity | < 1 NTU |
| Feed Water TDS | < 1500 PPM |

PS: Other than water quality described above, Please contact a nearest technician for more info.

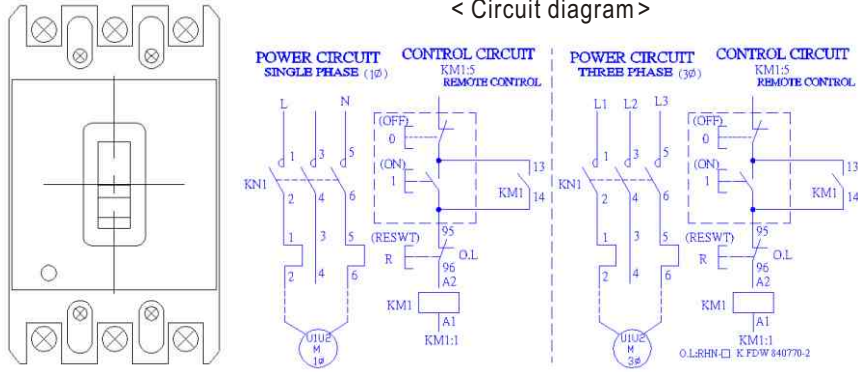
■ System specifications

| | |
|-------------------------|---------------------------------|
| Models | 24000GPD |
| Dimension (cm) | (L)73 x (W)250 x (H)150 |
| N.W | ≐ 450 KG |
| Voltage | Available in 380V, 410V, 440V |
| Hertz | Available in 50 Hz, 60Hz |
| Current | 11.7A |
| Booster pump | 4.0KW (5.5HP) |
| In / Out diameter | IN 1 1/2" / OUT 1" |
| RO membrane housing | SUS316 8080 x 2 |
| RO membrane | TFC-BW-8040 x 4 |
| Pre-filters | 20"-PP x 7 |
| Pressure gauges | Inlet / Operation |
| Water quality indicator | T.D.S. |
| Water flow indicator | Flow meter x 2 |
| Controller | Digital computer controller box |

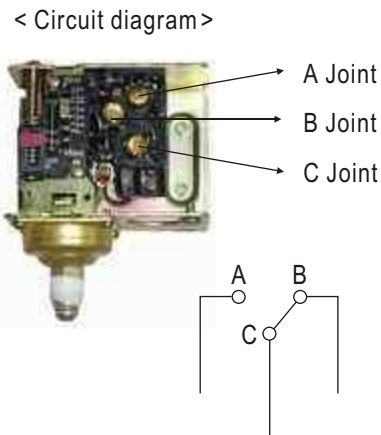
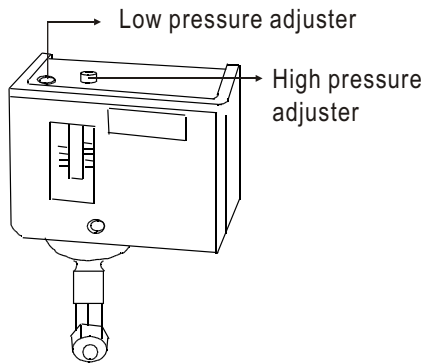
■ Note



■ Electric protective switch



Low pressure switch



1. Low pressure adjuster:
To lower pressure, turn anticlockwise and vice versa.
2. High pressure adjuster:
To rise pressure, turn anticlockwise and vice versa.

- Joint points:
1. No joint on A
 2. B and C joints are connected with green wire to Control box

■ Part List



| Item | Parts | Specification |
|------|--|---------------------|
| 01 | Voltmeter | 600V (max.) |
| 02 | Pure water TDSmeter | W32D |
| 03 | Electric current meter | 30A (max.) |
| 04 | Feed water Low-pressure-switch alarm | 24V-YL |
| 05 | Feed water pump overload warning | 24V-RL |
| 06 | High pressure pump overload warning | 24V-RL |
| 07 | Electric valve off indicator | 24V-RL |
| 08 | Flush indicator | 24V-YL |
| 09 | Power | 220V-WL |
| 10 | Feed water functioning indicator | 24V-GL |
| 11 | High pressure pump functioning indicator | 24V-GL |
| 12 | Electric valve on indicator | 24V-GL |
| 13 | Water full indicator | 24V-GL |
| 14 | Power control switch | OFF / ON |
| 15 | Feed water Pumpswitch | MANUAL / OFF / AUTO |
| 16 | High pressure pumpswitch | MANUAL / OFF / AUTO |
| 17 | Electric valve switches | MANUAL / AUTO |
| 18 | Flush switch | OFF / ON |



Industrial RO System

| Problems | Possible causes | Solution |
|--|---|--|
| RO system is not functioning | 1. Wrong setting for computer controller. | 1. Check the setting. |
| | 2. The pressure of feed water isn't high enough. (should be higher than 1.5kg / cm ²) | 2. Check water-in pressure and if pre-filter clogged. |
| | 3. The location difference between RO system and feed water tank. | 3. Change the control method of RO system and adjust low pressure switch. |
| | 4. The power for RO system is abnormal. | 4. Check power supply and also adjust voltage. Tolerance to be within the $\pm 5\%$ is considered as normal. |
| RO system can't work after flushing | 1. Control box in condition of high water level. | 1. Check pure water tank and circuit of high water level. |
| | 2. Control box in condition of low water level. | 2. Check feed water and pre-filters and pump. |
| | 3. Control box is malfunctioned. | 3. Change computer box. |
| Insufficient water output of RO membrane | 1. Flush solenoid valve is malfunctioned. | 1. Change flush solenoid. |
| | 2. Restrictive valve is not fully open. | 2. Adjust the restrictive valve. |
| | 3. Pressure needle valve is malfunctioned. | 3. Adjust pressure needle valve and check if needle valve is normal. |
| | 4. Insufficient inlet water pressure. | 4. Pump head is worn out thus cause insufficient pressure. |

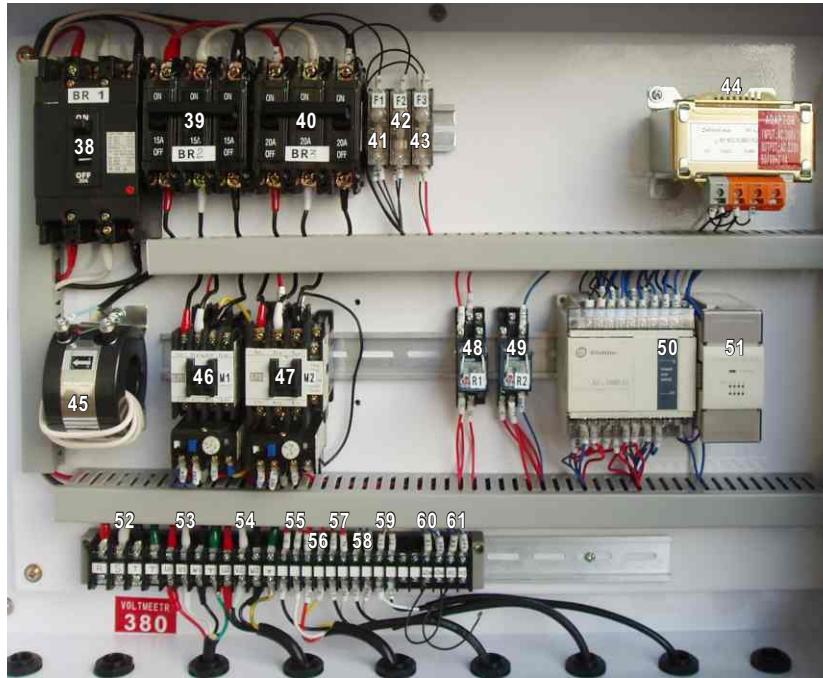
Industrial RO System

| Problems | Possible causes | Solution |
|------------------|---|--|
| Membrane clogged | 1. There isn't sufficient softened water supplied to the RO system. | 1. Check the water softening process and also calculate if softening quantity can supply the RO system to purify. |
| | 2. Drain valve or tubing clogged. | 2. Check drain valve and tubing. |
| | 3. The rate of drain and pure water shows abnormal. | 3. Adjust the rate to/or above 1:1. |
| | 4. The TDS of feed water (or the recovery TDS) is too high. | 4. Check feed water source and also decrease the recovering rate. The consistence of recovery must be less than TDS 1500 PPM |
| | 5. Colloid suspension is too much. | 5. Install UF or 0.45u minus filter on pre-filters. |
| | 6. Feed water quality is too poor. | 6. Improve the feed water quality or increase pre-filters. |
| | 7. Contained too much Iron. | 7. Expose to air or add medicament for re-filtration. |

Industrial RO System

| Item | Parts | Specification |
|------|-------------------------------------|---------------|
| 19 | Feed water connection | 1 1/2" |
| 20 | Feed water check valve | SCH-80-1 1/2" |
| 21 | Feed water deliver valve | SCH-80-1 1/2" |
| 22 | Sediment filtration tank valve | SUS3/4" |
| 23 | Sediment filtration tank | TK7-20 |
| 24 | Feed water gauge | 10KG |
| 25 | Feed water pressure switch | HS-506 |
| 26 | Flush electronic solenoid valve | MD-25 |
| 27 | Main pump | CR10-12 |
| 28 | Pump water restrictor | SUS 1 1/2" |
| 29 | *Anti-scalant valve | SCH-80-1" |
| 30 | RO membrane housing pressure gauge | 25KG |
| 31 | 1st. RO membrane housing | SUS#316-8080 |
| 32 | RO membrane housing pressure gauge | 25KG |
| 33 | 2nd. RO membrane housing | SUS#316-8080 |
| 34 | Flush electronic solenoid valve | MD-25 |
| 35 | Operation pressure adjustable valve | SUS1" |
| 36 | Drainage meter | 30GPD |
| 37 | Pure water flow meter | 30GPD |

Industrial RO System



■ Trouble shooting

| Problems | Possible causes | Solution |
|-------------------|---|---|
| Pump doesn't work | 1. Wrong power in. | 1. Check power phases. |
| | 2. Electrical solenoid switch is malfunctioned. | 2. Check the coil and joint points (use a multimeter RX1 to see if it's connected.) |
| | 3. Electrical solenoid switch is overload, protective switch shuts down. | 3. Measure the operation current with clamp meter, and also set the measurement to be 1.25% more. (Press the stick back) |
| | 4. Control box is on the condition of lower water pressure. | 4. Check the pressure difference between water-in and pre-filter, also if the joint point to low pressure switch is connected. (use a multimeter RX1) |
| | 5. Tank shut-off switch is malfunctioned / The joint point for post carbon and sand filter isn't connected. | 5. Check the joint between with multi-meter RX1, and test if AB point is correct. |
| | 6. Control box is malfunctioned. | 6. Check if there is electric current output to electrical solenoid switch from the brown wiring of computer box. Also check if the power supply is normal. |
| | 7. Axle center of pump is clogged with rust | 7. Check if noise appears when pump works. If so please change the pump. |
| | 8. Pump head is stuck | 8. Please remove pump head. Check if the manual pump head can work. If not please change the pump head. |

Shut off Process:

- A. Switch the high pressure pump to OFF.
- B. Switch feed water pump to OFF.
- C. Switch power control to OFF.
- D. Switch power supply fuse to OFF.
- E. Switch water outlet check valve to OFF.

■ Maintenance**Maintenance:**

1. Pre-treatment Filter: According to the water quality, service life can last for 1~3 months.
2. Check the actual fluid of permeate for concentrate water. Make a record. Once the permeate water production is down to 10~15% of the normal production for, an acid washing for the RO membranes is required.
3. Check inlet water and operation pressure.

| Item | Parts | Specification |
|------|---|-----------------------|
| 38 | Power supply fuse switch | 3P 30A |
| 39 | Feed water pump fuse switch | 3P 15A |
| 40 | High pressure pump fuse | 3P20A |
| 41 | Main electric circuit fuse R | 2A |
| 42 | Main electric circuit fuse T | 2A |
| 43 | Electric circuit control fuse | 2A |
| 44 | Transformer | 380V~220V 2A |
| 45 | Electric current signal converter | 5:1 |
| 46 | Feed water pump | MSP11-1HP |
| 47 | High pressure pump solenoid valve | MSP16-5.5HP |
| 48 | Electric control valve signal converter | R1(MY2NJ) |
| 49 | Electric recycling valve signal converter | R2(MY4NJ) |
| 50 | Programmer controller | AX1N-24MJ |
| 51 | Backup programmer controller | 8EY |
| 52 | Main power input | R.S.T.G |
| 53 | Feed water pump output | U1.V1.W1. |
| 54 | High pressure pump output | U2.V2.W2 |
| 55 | Electronic solenoid valve connecting points | 5(on), 6(off), N(COM) |
| 56 | Waster water recycling connecting points | 4, N |
| 57 | Flush solenoid valve output | Y4, N |
| 58 | Internal pressure protector | X2, 24V |
| 59 | TDS detecting pints | 11, 12 |
| 60 | Low-pressure switch connecting points | X1, 24V |
| 61 | Tank shut-off switch connecting points | X3, 24V |

■ Installation

1. Connect PVE tubing to 1 1/4" water-in and ball valve pipe.
2. Connect 1" tubing to "drainage" as indicated.
3. Connect 1" tubing to "pure water" as indicated. (or to water storage tank, if)
4. Connect earth link wire (green) from the control box to the floating ball switch on the tank in order to control full water leverage.
5. Connect power supply. (Note: voltage)

NOTE:

1. Please confirm the power supply applied to the system.
2. Please confirm the connection of pure and drain water tubing to be correct.
3. Please confirm the inner diameter of main power wire no less than 3.5mm²
4. Wires connected to full water switch and floating switch shall not be used for other purposes.
5. When with connection to water softener, please set up the reverse flush switch function to prevent the main RO system from sucking in the resin and salt water. (the main RO system should stop operating when reverse flush starts)
6. Please clean pre-filters every week in order to receive sufficient water-in supply.

■ Operation process & Maintenance

Attention Before Operation:

- A. Feed water pressure exceeds 2.0Kg/cm²
- B. Supply the same electrical current in accord with the voltage of the main system. Supplied electrical current is better within $\pm 5\%$ in compare to the main system voltage.
- C. Connection for pure / drainage is completed.
- D. Valves are switched to the correction direction. (feed water check valve: SCH-80-1 1/2", anti-scalant valve: SCH-80-1", anti-scalant flush valve (close-end) SCH-80-1" should be OFF; feed water deliver valve SCH-80-1 1/2", pump water restrictor: SUS 1 1/2", operation pressure adjustable valve: SUS1", anti-scalant flush valve (open-end) SCH-80-1", should be ON).
- E. Switches for the panel controller turned to the correct direction.

Operating Process: (Pre-operating have been checked)

- A. Switch on power supply.
- B. Swift the switch for feed water pump to AUTO; check the feed water pressure (24) to ensure the pressure is between 2~4Kg.
- C. Swift the switch for High pressure pump to AUTO.
- D. Swift Electric valve switches to AUTO.
- E. Swift Flush switch to OFF.
- F. RO system begins auto checking for 5 seconds. (low-pressure switch, tank shut off switch, feed water pump, feed water solenoid valve)
- G. Check if the electric current is working within the indicated pump range.
- H. Adjust the ratio and pressure of permeate water and concentrate water:
 - a. First adjust the operation pressure adjustable valve SUS1 and recycled water flow meter valve SUS3/4", to decide the proportion among pure water, drainage and recycled water. (25GPM : 20GPM : 5GOM). the worst the water quality is, the bigger the proportion to be made.
 - b. Adjust restrictor flow on high pressure pump to the same amount of pure water production.
- I. During production of water, system starts auto-flush every hour.
- J. When water storage is tank, system shuts off automatically.
Water storage tank is an optional item.