

# HISEP

## DIRO SYSTEM

Our DIRO System continuously produces DI water for Industrial purposes without regularly recharging the filter element with acidic/basic chemicals.

The RO module clogging can be flushed in-system in the event of clogging. The RO Module is expected to last around 5 years with normal usage.

### PolyTechs RO System Features

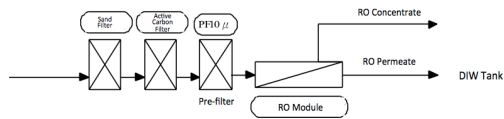


2000L/H



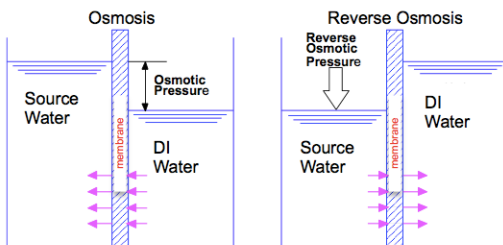
500L/H

- The standard configuration includes automated active carbon filtration and the source water tank. For operation, simply connect the water supply inlet, the RO concentrate and RO permeate outlets.



- The RO concentrate can be used for other processes since chemicals are not used for pre-processing. \*This depends on the source water characteristics.
- The system is designed with in-system RO module flushing capability. Even in the event of module clogging, the flushing mechanism will remove the scale to sustain stable permeate production.
- The simple touch panel interface achieves intuitive and easy system operation. The operation records and system status can be easily accessed and monitored.
- Ease of maintenance is given high priority in the system designing process.
- The DIRO system can be used as a pre-filtering system for ion exchange resin purification systems.
- The source water is tested in the lab prior to and during the system design to ensure expected operation of the DIRO system.

### How RO Works

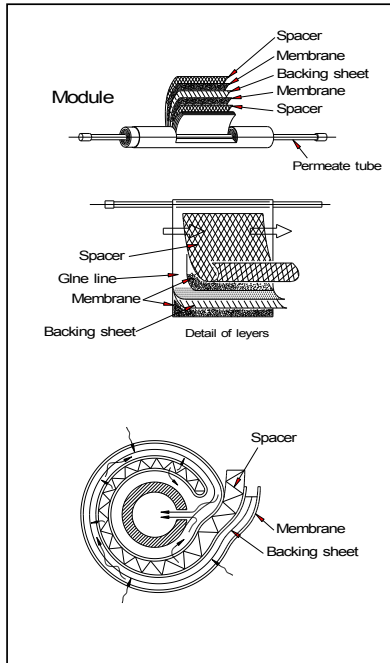


In the natural osmotic process, the solvent moves from an area of low solute concentration to an area of high solute concentration via a semipermeable membrane. This happens as the pure solvent is driven to reduce the free energy of the system by equalizing solute concentrations on each side of a membrane, generating osmotic pressure.

Reverse osmosis, reverses this process. By applying high pressure on the high solute concentration side, it reverses the natural flow of the solvent resulting in the solvent moving from the high solute concentration to the low concentration.



## RO Module



RO membrane has  $0.0001\mu\text{m}$  pores which helps to filter the permeate and concentrate.

In most cases at least 5 years of sustained permeate production in both volume and quality is expected under normal use. \*This depends on the source water quality.

In cases of poor source water quality, appropriate pre-filtering systems can improve the source water to be compatible with the RO module.

Category	Specification
RO Inlet Pressure	0.7~2.5MPa
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Module Type	Spiral Type
Membrane Area	7.0m <sup>2</sup> /module (4 Inch)
	37m <sup>2</sup> /module (8 Inch)
Operating Temperature	10~25°C
Permeate Production	2.5-5.0L/min per module (4 Inch)
	10-20L/min per module (8 Inch)
Membrane Material	PA,PVDF
Chlorine Removal Rate	Above 99%
Electrical Conductivity	1/20 of the source water
Recycle Rate	50-75%

## RO System Specification

Category	PRO-1-4040 DI	PRO-2-4040DI	PRO-1-8040 DI	PRO-2-8040DI
RO permeate production	150-250L/hr	300-500L/hr	800-1200L/hr	1500-2400L/hr
Module Size	4"×1 module	4"×2 modules	8"×1 module	8"×2 modules
Power Req.	1.5kW	1.5kW	3.0kW	3.0kW
Source Water Quantity	*Recycle Rate 50% : RO permeate x 2			
Source Water Pressure	0.2-0.35MPa *If pressure does not meet requirement levels a special source water supply unit is necessary			
Operating Pressure	0.7-1.5MPa			
RO Pressure Pump	30L/min×120m		60L/min×150m	
Pre-filter	Cartridge Type 10μm×500mm ×1unit		Bag filter Type element 10μm×1unit	
Active Carbon Filter	30% Auto Flushing	60% Auto Flushing	90% Auto Flushing	150% Auto Flushing
Materials	Frame : SS Pump • Plumbing : SUS304 • SCS13 • PVC			
System Dimensions	W650×L1400×H1800	W650×L1400×H1800	W1100×L1800×H1800	W1100×L1800×H1800

Additional Options:

- Cartridge type ion exchange filtration unit : less than  $1\mu/\text{cm}$

	IRM-25	IRM-50	IRM-75
Resin quantity	25L	50L	75L
RO Permeate Needed	25-50m <sup>3</sup>	50-100m <sup>3</sup>	75-150m <sup>3</sup>

- Auto Sand Filtration



## Simple Operation & Maintenance

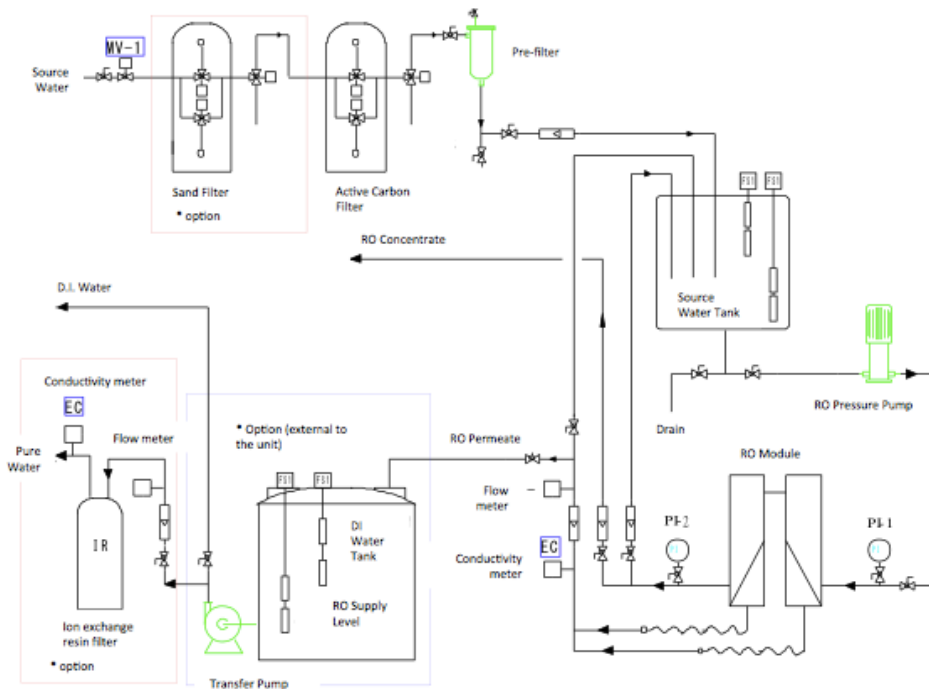
The control panel displays the following information and controls:

- MONITOR** buttons for: CURRENT STATUS, RUN, MANUAL OPERATOR, CUMULATIVE TIME/FLOW, MGN/AUTO, OPERATING TIME/FLOW, ALARM DISPLAY, OPERATING HISTORY, POLY.
- STATUS DISPLAYS:** TOTAL RUNNING TIME, TOTAL FLOW, RO RUNNING (0 Hr), REST, NOT USE (0 Hr), REST, A.C. FILTER (0 Hr), REST.
- CONTROL BUTTONS:** SUPPLY VALVE, RAW WATER, RAW.W P. ON, SAND Norm., A.C-Norm. OP, SAND FLUSH, A.C. FLUSH, RO PERM., COND. ERROR, RO PUMP, RO MODULE, RO CONCENTRATE, CHANGE SAND, CHANGE CARBON, RO PERM., COND. ERROR, RO PUMP, RO MODULE, RO CONCENTRATE.
- SETTINGS MENU (14/09/25 09:40):**

FLUSHING TIME	ACTIVE CARBON FILTER
MON OFF	MON OFF
TUE OFF	TUE OFF
WED OFF	WED OFF
THU OFF	THU OFF
FRI OFF	FRI OFF
SAT OFF	SAT OFF
SUN OFF	SUN OFF
- OTHER SETTINGS:** RSE, FLUSH CYCLES, CARBON SETTING, REVERSE FLUSH, PROC TIME, FLUSH, REP TIME.

- Clearly indicates the operation status
- Provides easy maintenance of the pre-filtering systems via the auto flushing mode
- Logs operation hours and informs when maintenance is recommended
- Controls operation on the panel with a single touch

## System Flow Diagram



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