Deionization Recirculating Systems (DIRS)

General description

Xylem Water Technologies Deionization Recirculating Systems (DIRS) are economical, pre-packaged, water purification systems producing high purity water. Depending on water quality specifications, systems are designed to permit several different field configurations to accommodate specific requirements. For ease and flexibility of operation, the systems are controlled by a Programmable Logic Controller (PLC) integral to the skid. Systems requiring higher flow rates and/or alternate plumbing options are available and have little or no impact on delivery or cost.

Standard DIRS features

The following features have been incorporated into the standard offering of the DIRS product line:

- Integrated control panel with Programmable Logic Controller (PLC) permitting safe operation of the system
- Water quality readout incorporated into control panel
- Compact, skid-mounted, footprint to converse valuable floor space
- Powder coated steel frame providing maximum support while allowing for ease of maintenance and operation
- Fully assembled system wired and hydrostatically tested prior to shipment
- Complete documentation (non-validation level) package including: installation procedures, startup and operation procedures, Process & Instrumentation Diagram (P&ID), electrical schematic, and quality assurance data reports
- PLC controls allow for multiple field configurations without altering the control system hardware
- All systems equipped with appropriately sized ultraviolet unit

Standard DIRS options

- Choice of schedule 80 PVC or pigmented polypropylene socket-fusion product piping
- DIRS Remote Installation Package (RIP): includes all necessary piping, fittings, pretreatment equipment, Deionization (DI) interconnect, Reverse Osmosis (RO) unit, and storage tank pre-assembled and tested. Complete system is then disassembled and packaged for shipment ready for on-site reassembly. Minimizes installation time requirements and permits the system to be installed and ready for operation in a minimal amount of time.
- Dependent upon the size of system, units are offered as single or three phase

DIRS system benefits

- Fast delivery with pre-manufactured systems
- Quick installation and startup with typically less than one day needed for system operation
- Seismic zone 4 compliant to meet regional permitting regulations
- Following bottle installation and leak check, the system is protected from pressurized catastrophic line failure as the system automatically shuts down
- Three system installation configurations are possible without the need for any control alterations:
- **Configuration 1:** straight service carbon with service DI including DI final polish and UV sterilization in the polish loop without storage tank
- **Configuration 2:** straight service carbon with service DI including DI final polish and UV sterilization in the polish loop with storage tank (storage tank supplied separately)
- **Configuration 3:** softener, service carbon, and reverse osmosis makeiup feed to storage tank including DI final polish and UV sterilization in the polish loop (softener, RO, and storage tank supplied separately)

Specifications

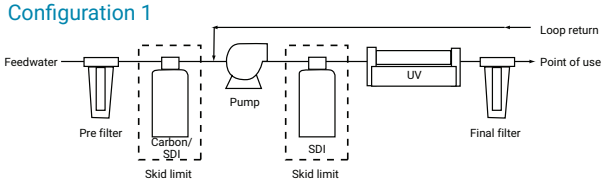
Parameter	DIRS05	DIRS10	DIRS20	DIRS30	DIRS40	DIRS50
Loop flow rate : gpm (lpm)	5 (18)	10 (37)	20 (75)	30 (113)	40 (151)	50 (189)
Min. feed pressure	50 psi (3.4 bar)					
Max. feed pressure	100 psi (6.8 bar)					
Min. feed temperature	33˚ F (.5˚ C)					
Max. feed temperature	90˚ F (32˚ C)					
General control spec.	Programmable Logic Controller (PLC)					
Piping material	S-80 PVC pretreatment with S-90 PVC product or, optional S-80 pretreatment with socket-fusion polypro product					
Process valves	Pretreatment ball valves / product: diaphragm valves					
Sample valves	Polypropylene					
Pressure gauges	0 - 100 psi (0 – 6.8 bar)					
Flow indicators: gpm (lpm)	0 - 10 (0 - 37)	2 - 20 (7 - 75)	2 - 20 (7 - 75)	10 - 50 (37 - 189)	10 - 50 (37 - 189)	10 - 50 (37 - 189)
Water quality	Resistivity monitor with probe					
Electrical requirement	Single phase	Single phase	Three phase	Three phase	Three phase	Three phase
Feedwater requirement	Potable water					
Feedwater inlet connection	1/2" flange	3/4" flange	1" flange	1 1/4" flange	1 1/2" flange	2" flange
Product water connections: (Supply and return)	3/4" flange	1" flange	1 1/4" flange	1 1/2" flange	2" flange	2" flange

Physical dimension data

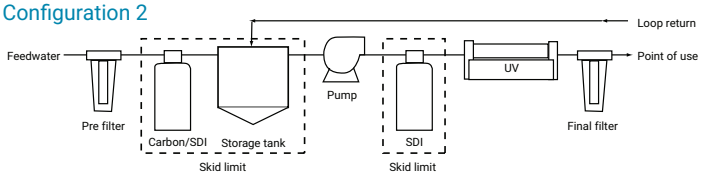
Parameter	DIRS05	DIRS10	DIRS20	DIRS30	DIRS40	DIRS50
Length	41" (104 cm)	41" (104 cm)	41" (104 cm)	60" (152 cm)	60" (152 cm)	72" (183 cm)
Width	32" (81 cm)	32" (81 cm)	32" (81 cm)	32" (81 cm)	32" (81 cm)	36" (91 cm)
Height	74" (188 cm)	74" (188 cm)	74" (188 cm)	74" (188 cm)	74" (188 cm)	74" (188 cm)
Operating weight	200 lbs (91 kg)	240 lbs (109 kg)	280 lbs (127 kg)	350 lbs (159 kg)	420 lbs (191 kg)	550 lbs (250 kg)
UV bulb service clearance	24" (61 cm) Vertical	36" (91 cm) Vertical	36" (91 cm) Left	48" (122 cm) Left	48" (122 cm) Left	48" (122 cm) Left

Installation configurations

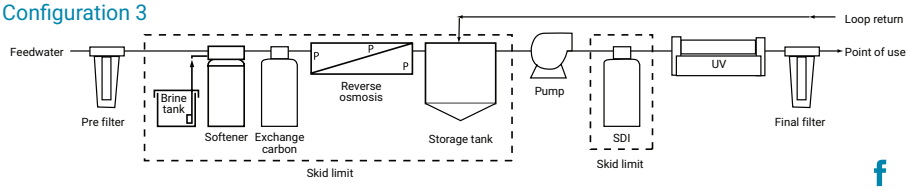
Configuration 1



Configuration 2



Configuration 3



xylem.com Tel +1 866.926.8420 (toll-free)

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