

WATER SOFTENING, REVERSE OSMOSIS, & DECHLORINATION

Water Treatment Systems

- *Delivers softened and/or reverse osmosis water for a wide variety of applications and processes*
- *Stand-alone or complementary system to DriSteem® humidifiers and evaporative cooling products*
- *Low maintenance*
- *Flexible and customizable menu options*
- *Industry-leading controller*
- *Designed with hygiene in mind (auto flush)*

Hydrotrue® 400 series reverse osmosis system

HIGH PURITY WATER FOR A WIDE VARIETY OF APPLICATIONS

DriSteem's Hydrotrue® water treatment systems are designed to work as a stand-alone solution for a wide variety of processes and applications that need high purity water.

This product can also team up with DriSteem's leading humidification and evaporative cooling systems delivering an all-in-one solution that meets clean steam or humidification requirements.

Industrial quality design provides high purity water with over 98% of all dissolved solids removed.

LOW MAINTENANCE WATER TREATMENT, NO MAINTENANCE HUMIDIFICATION

Built with proven components, DriSteem's reverse osmosis (RO) systems operate for years with only simple filter changes. It significantly reduces and eliminates maintenance of connected process equipment.

The industry's only innovative front-only maintenance allows easy access to the system. Quickly replace membranes by simply sliding the racks which eliminates the need to wrestle within tight spaces or work around other equipment.

COMPLETE WATER TREATMENT SYSTEMS FROM DRISTEEM

The 400 series RO system comes complete with dechlorinator, duplex water softeners, and a brine tank. With proper membrane flow and water management, achieve the longest membrane life possible.

A range of options are available, including various capacities and sizes to accommodate smaller and larger capacities, skid mounting, UV treatment, and single or duplex softeners.

DriSteem offers the most advanced controller, Vapor-logic®, available for 400 series RO systems, delivering improved communications and comprehensive management.

Alarms quickly inform the users of issues or changes for easy monitoring facilitating corrective action of the system.

Building on DriSteem's tradition of innovations, Vapor-logic makes these RO systems the first interoperable systems available using BACnet, Modbus, and LonTalk. It also provides web access allowing users to easily make changes from a PC. The Vapor-logic firmware can be easily updated using just a USB/ memory stick.

400 SERIES REVERSE OSMOSIS SYSTEM



VAPOR-LOGIC CONTROLLER (400 SERIES ONLY)



200 SERIES REVERSE OSMOSIS SYSTEM

Designed specifically for DriSteem equipment, but also perfect for stand-alone operation, the 200 series compact reverse osmosis system fits in small spaces and produces high purity water from tap or well water.

The system employs high-efficiency, low-energy membranes that remove over 98% of dissolved solids and use little energy to generate pure water.

The 200 series is designed to reduce required maintenance and uses cost-effective replacement parts that result in a low total cost of ownership.

Conservatively engineered for reliable long-term performance, the 200 series reverse osmosis system is packaged and ready to operate right out of the box.

It includes a pressurized storage tank and an easy to exchange cartridge dechlorinator and sediment filter.

200 SERIES REVERSE OSMOSIS SYSTEM



DI CARTRIDGE FILTER SYSTEM

Two cartridges in series to provide DI water (removal of impurities such as TDS and CO₂) with a capacity of 1.25 gpm recommended flow rate.

It includes optional interface for change-out indication and ease of maintenance with cartridge replacement.

DI CARTRIDGE FILTER SYSTEM



WATER SOFTENING

The easiest and most cost-effective way to maintain humidification capacity and to reduce maintenance requirements is to install DriSteem's water softener.

Operating with softened water reduces or eliminates hard water scale on equipment surfaces, thereby significantly reducing humidifier maintenance requirements.

Reduce humidifier maintenance frequency by at least three times more with a water softener alone.

WATER SOFTENER AND DECHLORINATOR

DECHLORINATION

Protect reverse osmosis membranes from chlorine damage with DriSteem's dechlorination systems.

Wall mount cartridge filters are available for low flow requirements and electronically metered tank systems are available for high flows.



Hydrotrue water treatment features

Feature	Reverse Osmosis	Water Softening
Complete, stand-alone water treatment solution	Complete stand-alone solution suitable for applications and processes that require mineral-free water including manufacturing/industrial, food processing, healthcare, pharmaceutical, biotech, research labs and more.	
Application versatility	Fits a wide variety of applications and processes.	
Complementary to humidifiers and evaporative cooling	Teams up with DriSteem brand humidifiers and evaporative cooling systems to create an-all-in-one humidification or evaporative cooling solution for clean water requirements.	
	Ultra-pure water eliminates white dust fallout and minimizes bacteria/virus proliferation that can occur when using potable water.	Exchanges hard water minerals for sodium which is easily drained away. Maintenance intervals are extended at least three fold.
Low maintenance	Robust design and programming extends membrane life.	Automatic metering heads regenerate softener media automatically.
	Membrane replacement is quick and simple using sliding racks.	Keeping salt in the softener brine tank is the only routine maintenance required.
	With easy front access, maintenance staff can quickly replace membranes and filters.	
Flexible and customizable offering	Choose only the components you need.	
	Pressurized or atmospheric water storage.	Optional skid mounting provides all outer connecting piping and requires only single point water inlet, power, and drain.
	Capacities at 50 °F (10 °C)*: 200 series: 12-36 gph or 288-864 gpd (100-300 lbs/hr) 400 series: 30-660 gph or 720-15,840 gpd (250-5500 lbs/hr)	Single or duplex water softener
Advanced system control (400 series only)	Hygienic sequences and quality control.	
	Set up, view, and adjust system functions with intuitive keypad/display or Web interface.	
	Integrates into any building automation system via Modbus and optional BACnet or LonTalk communication protocols.	

* Capacities at 77 °F (25 °C):

200 series: 22 - 65 gph or 543 - 1,630 gpd (189 - 567 lbs/hr)

400 series: 74 - 790 gph or 1,776 - 18,960 gpd (620 - 6,600 lbs/hr)

REVERSE OSMOSIS STATION

The reverse-osmosis (RO) station is floor-mounted and removes approximately 98% of total dissolved solids.

Table 5-1:
400 series RO station specifications

Model	401*	402*	403**	404**	406**	408**	412**
Permeate flow rate, GPD (LPD) 50 °F (10 °C) or lbs/hr (kg/hr) (see Note 4)	1,429 (5,409) 498 (226)	2,381 (9,013) 829 (376)	4,127 (15,622) 1,436 (651)	5,159 (19,528) 1,795 (814)	7,937 (30,044) 2,762 (1,253)	10,317 (39,054) 3,590 (1,628)	15,808 (59,840) 5,500 (2,495)
Permeate flow rate, GPD (LPD) 77 °F (25 °C) or lbs/hr (kg/hr) (see Note 4)	1,800 (6,810) 620 (280)	3,000 (11,350) 1,040 (470)	5,170 (19,570) 1,800 (821)	6,500 (24,600) 2,250 (1,020)	10,000 (37,850) 3,475 (1,580)	13,000 (49,200) 4,510 (2,050)	19,000 (71,910) 6,600 (3,000)
System voltage/phase, Amp draw with RO components (see Note 1)	480/3, 2.5 220-240 /1, 10.0 120/1, 19.2	480/3, 2.5 220-240 /1, 10.0 120/1, 19.2	480/3, 6.0 208-240 /1, 15.4	480/3, 6.0 208-240 /1, 15.4	480/3, 6.0 208-240 /1, 15.4	480/3, 6.0 208-240 /1, 15.4	480/3, 6.0 208-240 /1, 15.4
Fuse size with RO components (see Note 2)	480/3, 15 220/1, 15 120/1, 25	480/3, 15 220/1, 15 120/1, 25	480/3, 15 220/1, 20	480/3, 15 220/1, 20	480/3, 15 220/1, 20	480/3, 15 220/1, 20	480/3, 15 220/1, 20
Dimensions (W/D/H), inches (mm)	28/26/63 (711/660/1600)				37/26/63 (940/660/1600)		46/26/63 (1181/660/1600)
Shipping weight, lbs (kg)	440 (200)	470 (213)	510 (231)	540 (245)	645 (293)	705 (320)	870 (395)
Operating weight, lbs (kg) (see Note 5)	460 (209)	510 (231)	570 (259)	620 (281)	775 (352)	875 (397)	1100 (499)
Supply water connection dia., inches (see Note 3)	¾" FNPT						
Notes: 1. 220V/1-phase systems can also operate on 208V/1-phase and 240V/1-phase power. 2. Wiring and branch circuit protection (Type RK1, J, or T fusing) to be provided by installer in accordance with NEC requirements. 3. 40 psi (280 kPa) minimum supply water pressure. 4. Extra low energy membranes. 5. Without tank weight * RO-401 and 402 220V/1-phase systems can also operate on 240V/1-phase power. ** RO-403 thru RO-412 220V/1-phase systems can also operate on 208V/1-phase and 240V-1phase power.							

400 series specifications

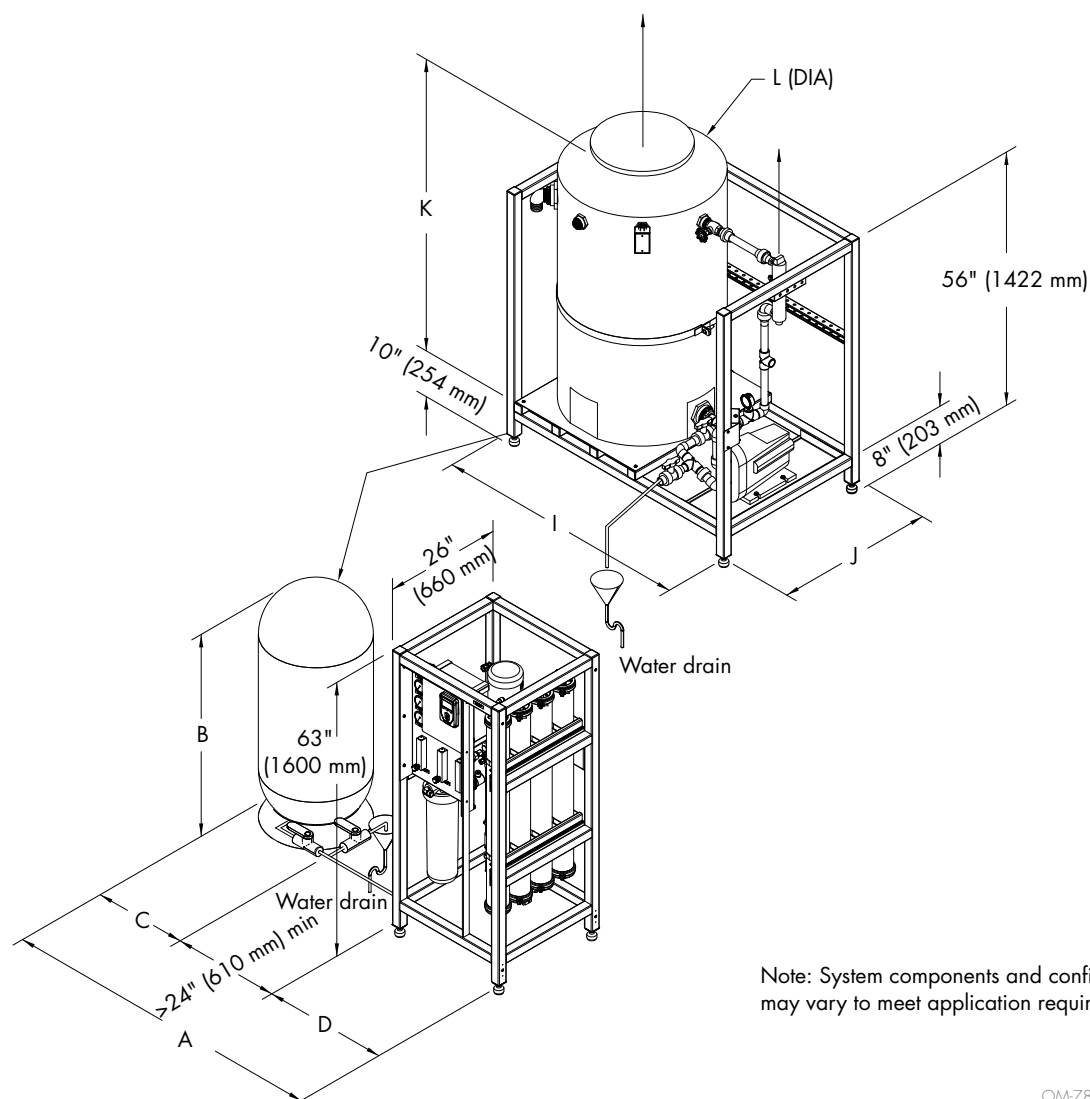
Table 6-1:
400 series RO station specifications (Continued)

Model	401*	402*	403**	404**	406**	408**	412**
RO system permeate water outlet connection dia., inches	¾" FNPT						
Connection to pressurized RO storage tank dia., inches	1						
Common drain outlet connection dia., inches	1" FNPT						
5-micron RO prefilter diameter x height, inches (mm)	4 x 20 (102 x 508)						
RO pump motor power, hp (kW)	1 (0.75)		3 (2.2)				
Qty. of RO membranes	1	2	3	4	6	8	12
RO membrane diameter x height, inches (mm)	4 x 40 (102 x 1016)						

Notes:

1. 220V/1-phase systems can also operate on 208V/1-phase and 240V/1-phase power.
2. Wiring and branch circuit protection (Type RK1, J, or T fusing) to be provided by installer in accordance with NEC requirements.
3. 40 psi (280 kPa) minimum supply water pressure.
4. Extra low energy membranes.
5. Without tank weight
- * RO-401 and 402 220V/1-phase systems can also operate on 240V/1-phase power.
- ** RO-403 thru RO-412 220V/1-phase systems can also operate on 208V/1-phase and 240V-1 phase power.

FIGURE 7-1: DRISTEEM 400 SERIES REVERSE-OSMOSIS SYSTEM OVERVIEW (SEE TABLES 7-1 AND 7-2)



OM-7816

Table 7-1:
DriSteem 400 series RO system dimensions

Model	Dimensions							
	A		B		C*		D	
	inches	mm	inches	mm	inches	mm	inches	mm
401	55	1397	24	610	28	711	28	711
402	55	1397	24	610	28	711	28	711
403	55	610	24	610	28	711	28	711
404	55	610	24	610	28	711	28	711
406	80	2032	24	610	37	940	37	940
408	72	1829	30	762	37	940	37	940
412	90	2286	30	762	46.5	1181	46	1181

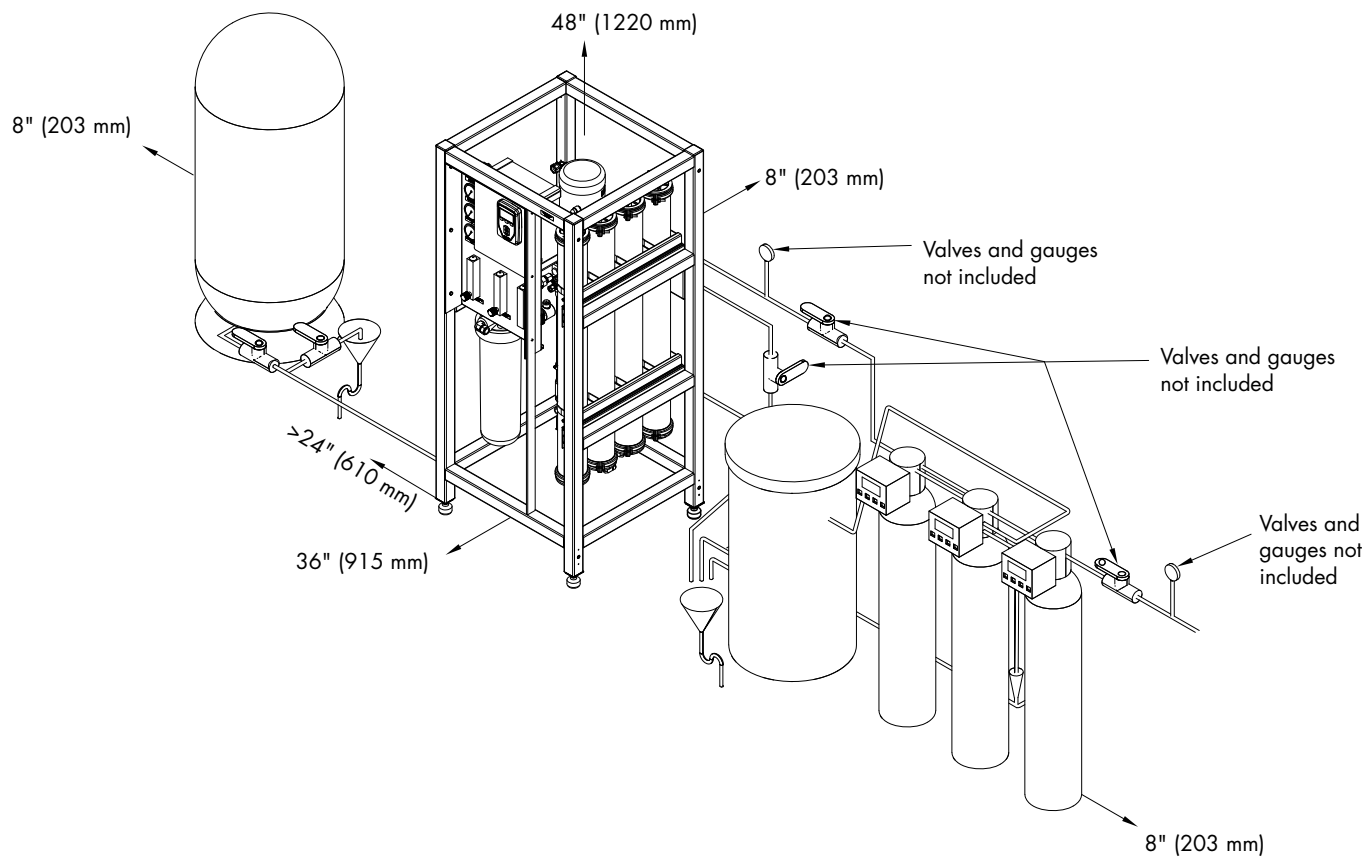
*Typical storage tank pairing. Larger tank available (See Table 20-1).

Table 7-2:
Atmospheric RO holding tank specifications

Tank model	Dimensions							
	I		J		K		L	
	inches	mm	inches	mm	inches	mm	inches	mm
AT-165	56	1422	35	889	65	1651	31	787
AT-300	61	1537	40	1003	88	2235	35.5	902

RO 400 system clearances

FIGURE 8-1: DRISTEEM 400 SERIES REVERSE-OSMOSIS SYSTEM CLEARANCES



OM-7817

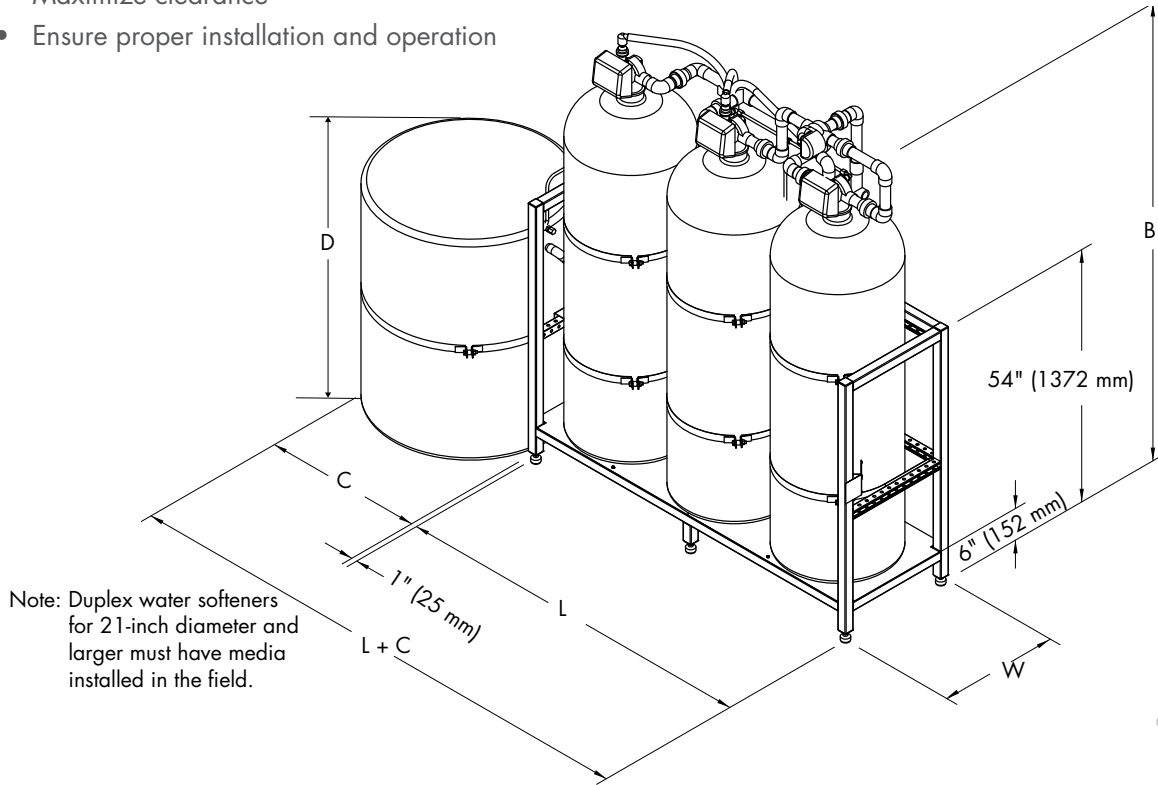
**Table 8-1:
RO membrane specification**

Element Configuration	Spiral wound, FRP wrapping
Typical Ionic Rejection (Nominal)	99.40%
Membrane Type	Thin film composite
Membrane material	Polyamide (PA)
Effective Membrane Area	85 ft ²
Permeate flow rate	2,400 GPD
Membrane length	40"
Membrane Diameter	3.9"
Maximum operating pressure	600 psig
Maximum feed flow rate	18 gpm ⁽¹⁾
Test conditions: 2,000 ppm NaCl at 225 psig applied pressure, 15% recovery, 77°F, pH 6.5-7.0, permeate flow rate for each element may vary +25%/-15%	
⁽¹⁾ Per membrane manufacturer specification, not total system specification.	

SELECT PRETREATMENT SKID MOUNTING FOR EASE OF INSTALLATION

Reduce installation cost and time by having pretreatment components come pre-assembled with the Hydrotrue advantage. The DriSteem water softener(s), brine tank, and dechlorinator have a single point water inlet, water outlet, and power for all components.

- Save time and cost on installation
- Maximize clearance
- Ensure proper installation and operation



QM-7819a

Table 9-1:
Voltages

AC adapter	U.S.
Supply voltage	120 VAC
Supply frequency	60 Hz
Output voltage	12 VAC
Output current	500 mA

Skidded single water softener and dechlorinator specifications

Table 10-1:
Skidded single water softener and dechlorinator

Skid size* (outside dimensions) L x W x H	Tank quantity on skid	Media tank diameter (A) x height (B) (per tank)	Connections, in/out	Backwash flow***	Brine tank diameter (C) x height (D)	Shipping weight	Operating weight
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	7" x 44" (178 x 1118 mm)	1"	1.35 gpm (4.9 L/m)	18" x 33" (457 x 838 mm)	370 lbs (167.8 kg)	830 lbs (376.5 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	8" x 44" (203 x 1118 mm)	1"	1.70 gpm (6.4 L/m)	18" x 40" (457 x 1016 mm)	400 lbs (181.4 kg)	965 lbs (437.7 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	9" x 48" (229 x 1016 mm)	1"	2.2 gpm (8.3 L/m)	18" x 40" (457 x 1016 mm)	420 lbs (190.5 kg)	1000 lbs (453.6 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	10" x 54" (254 x 1372 mm)	1"	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	470 lbs (213.2 kg)	1045 lbs (474.0 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	12" x 52" (305 x 1321 mm)	1"	3.2 gpm (12.1 L/m)	18" x 40" (457 x 1016 mm)	530 lbs (240.4 kg)	1100 lbs (498.9 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	13" x 54" (330 x 1372 mm)	1"	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	620 lbs (281.2 kg)	1200 lbs (544.3 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	3	14" x 65" (356 x 1651 mm)	1"	5.3 gpm (20.1 L/m)	24" x 41" (610 x 1041 mm)	860 lbs (390.1 kg)	1905 lbs (864.1 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	3	16" x 65" (406 x 1651 mm)	1"	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	910 lbs (412.8 kg)	1980 lbs (898.1 kg)
100"x 34" x 54" (2540 x 864 x 1372 mm)	3	21" x 62" (533 x 1575 mm)	1.5"	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	1540 lbs (698.5 kg)	3290 lbs (1492.3 kg)
66"x 28" x 54" ** (1676 x 711 x 1372 mm)	2	24" x 72" (610 x 1829 mm)	1.5"	15.0 gpm (56.8 L/m)	39" x 48" (991 x 1219 mm)	2090 lbs (948.0 kg)	5380 lbs (2440.3 kg)
82"x 28" x 54" ** (2083 x 711 x 1372 mm)	2	30" x 72" (762 x 1829 mm)	2"	25.0 gpm (94.6 L/m)	39" x 48" (991 x 1219 mm)	3280 lbs (1487.8 kg)	6750 lbs (3061.7 kg)
* Non-skidded pre-treatment dimensions are 4" (102 mm) less. ** Skid does not include brine tank. The brine tank is floor mounted. *** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.							

Skidded duplex water softener and dechlorinator specifications

Table 11-1:
Skidded duplex water softener and dechlorinator

Skid size (outside dimensions) L x W x H	Tank quantity on skid	Media tank diameter (A) x height (B) (per tank)	Connections, in/out	Backwash flow***	Brine tank diameter (C) x height (D)	Shipping weight	Operating weight
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	7" x 44" (178 x 1118 mm)	1"	1.35 gpm (4.9 L/m)	18" x 33" (457 x 838 mm)	490 lbs (222.3 kg)	950 lbs (430.9 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	8" x 44" (203 x 1118 mm)	1"	1.7 gpm (6.4 L/m)	18" x 40" (457 x 1016 mm)	545 lbs (247.2 kg)	1110 lbs (503.5 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	9" x 48" (229 x 1016 mm)	1"	2.2 gpm (8.3 L/m)	18" x 40" (457 x 1016 mm)	575 lbs (260.8 kg)	1175 lbs (532.9 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	10" x 54" (254 x 1372 mm)	1"	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	640 lbs (290.3 kg)	1255 lbs (569.3 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	12" x 52" (305 x 1321 mm)	1"	3.2 gpm (12.1 L/m)	18" x 40" (457 x 1016 mm)	760 lbs (344.7 kg)	1340 lbs (607.8 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	4	13" x 54" (330 x 1372 mm)	1"	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	865 lbs (392.4 kg)	1470 lbs (666.8 kg)
82"x 28" x 54" (2083 x 711 x 1372 mm)	4	14" x 65" (356 x 1651 mm)	1"	5.3 gpm (20.1 L/m)	24" x 41" (610 x 1041 mm)	1215 lbs (551.1 kg)	2275 lbs (1031.9 kg)
82"x 28" x 54" (2083 x 711 x 1372 mm)	4	16" x 65" (406 x 1651 mm)	1"	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	1363 lbs (618.2 kg)	2500 lbs (1133.9 kg)
82"x 28" x 54" ** (2083 x 711 x 1372 mm)	3	21" x 62" (533 x 1575 mm)	1.5"	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	2145 lbs (972.9 kg)	4000 lbs (1814.4 kg)
82"x 28" x 54" ** (2083 x 711 x 1372 mm)	3	24" x 72" (610 x 1829 mm)	1.5"	15.0 gpm (56.8 L/m)	39" x 48" (991 x 1219 mm)	3060 lbs (1387.9 kg)	6500 lbs (2948.4 kg)
100"x 34" x 54" ** (2540 x 864 x 1372 mm)	3	30" x 72" (762 x 1829 mm)	2"	25.0 gpm (94.6 L/m)	39" x 48" (991 x 1219 mm)	4855 lbs (2202.2 kg)	8590 lbs (3896.4 kg)

* Non-skidded pre-treatment dimensions are 4" (102 mm) less.

** Skid does not include brine tank. The brine tank is floor mounted.

*** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

Skidded duplex water softener specifications

Table 12-1:
Skidded duplex water softener

Skid size (outside dimensions) L x W x H	Tank quantity on skid	Media tank diameter (A) x height (B) (per tank)	Connections, in/out	Backwash flow***	Brine tank diameter (C) x height (D)	Shipping weight	Operating weight
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	7" x 44" (178 x 1118 mm)	1"	1.35 gpm (4.9 L/m)	18" x 33" (457 x 838 mm)	370 lbs (167.8 kg)	810 lbs (367.4 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	8" x 44" (203 x 1118 mm)	1"	1.7 gpm (6.4 L/m)	18" x 40" (457 x 1016 mm)	410 lbs (185.9 kg)	960 lbs (435.4 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	9" x 48" (229 x 1016 mm)	1"	2.2 gpm (8.3 L/m)	18" x 40" (457 x 1016 mm)	430 lbs (195.0 kg)	1010 lbs (458.1 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	10" x 54" (254 x 1372 mm)	1"	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	470 lbs (213.2 kg)	1060 lbs (480.8 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	12" x 52" (305 x 1321 mm)	1"	3.2 gpm (12.1 L/m)	18" x 40" (457 x 1016 mm)	550 lbs (249.5 kg)	1110 lbs (503.5 kg)
52"x 26" x 54" (1321 x 660 x 1372 mm)	3	13" x 54" (330 x 1372 mm)	1"	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	620 lbs (281.2 kg)	1210 lbs (548.8 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	3	14" x 65" (356 x 1651 mm)	1"	5.3 gpm (20.1 L/m)	24" x 41" (610 x 1041 mm)	860 lbs (390.1 kg)	1880 lbs (852.8 kg)
66"x 28" x 54" (1676 x 711 x 1372 mm)	3	16" x 65" (406 x 1651 mm)	1"	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	958 lbs (434.5 kg)	2030 lbs (920.8 kg)
100"x 34" x 54" (2540 x 864 x 1372 mm)	3	21" x 62" (533 x 1575 mm)	1.5"	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	1540 lbs (698.5 kg)	3290 lbs (1492.3 kg)
66"x 28" x 54" ** (1676 x 711 x 1372 mm)	2	24" x 72" (610 x 1829 mm)	1.5"	15.0 gpm (56.8 L/m)	39" x 48" (991 x 1219 mm)	2090 lbs (948.0 kg)	5280 lbs (2394.9 kg)
82"x 28" x 54" ** (2083 x 711 x 1372 mm)	2	30" x 72" (762 x 1829 mm)	2"	25.0 gpm (94.6 L/m)	39" x 48" (991 x 1219 mm)	3280 lbs (1487.8 kg)	6700 lbs (3039.1 kg)

* Non-skidded pre-treatment dimensions are 4" (102 mm) less.

** Skid does not include brine tank. The brine tank is floor mounted.

*** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

400 series water treatment sequence of operation and performance

A COMPLETE WATER TREATMENT SYSTEM

- 1 Water enters system from municipal water supply
- 2 Dechlorinator (wall-mounted on smaller models) removes chlorine to protect reverse osmosis membranes
- 3 Duplex water softener exchanges sodium for calcium and magnesium for easy-to-flush minerals
- 4 RO station with particulate filter and RO membranes removes over 98% of all dissolved solids
- 5 Pressurized RO holding tank holds reverse osmosis between 30 and 50 psi (207 and 345 kPa)



WATER TREATMENT PERFORMANCE

- Membranes remove at least 98% of Total Dissolved Solids (TDS)
- Extra-low-energy membranes produce higher volumes of permeate (clean water) rated at lower temperatures 50°F (10°C) than the industry standard 77°F (25°C)
- High storage tank draw-down capacity ensures that RO water remains available to meet demand regardless of flush time
- System flush frequency is adjustable and can be used to mitigate bacterial fouling of system during long periods of nonuse
- System design optimizes water usage and extends membrane life
- System has permeate divert function for diversion of water not meeting setpoint

200 series RO features

DriSteem 200 series reverse osmosis systems are designed to produce low-dissolved-solids water from tap or well water. These systems employ high-efficiency, low-energy membranes and run at high recovery rates with low maintenance and operating costs. Carbon filters for chlorine removal and prefilter cartridges for sediment removal, are upstream from the RO membrane. The systems are mounted, packaged, and ready to operate right out of the box.

SYSTEM FEATURES

- Compact, heavy-duty, powder-coated carbon steel frame
- Proven components used throughout the system
- Conservatively engineered for reliable long-term performance
- Factory tested to ensure trouble-free operation
- Thin film composite membranes in stainless steel vessels
- Carbon block and 5-micron sediment prefilters in housings
- Automatic inlet feed solenoid valve
- System and recycle control valves
- Low-pressure pump protection
- High-pressure RO pump
- Four pressure gauges: system, concentrate, filter in, and filter out
- Three panel-mounted flow meters: permeate, concentrate, and recycle flow

CONTROLLER FEATURES

Monitors and controls:

- Inlet valve
- Low-pressure sensor
- Pretreatment backwash/lockout
- System On-off according to tank level

Indicator lights:

- Low-pressure shutdown, auto restart
- Power on, pretreatment lockout
- Storage tank full, system flush



Table 15-1:
200 Series RO Systems

Model	Capacity at 50 °F (10 °C) supply water inlet temperature		Capacity at 77 °F (25 °C) supply water inlet temperature		Number of RO membranes	Operating weight (with bladder tank weight)		Approximate shipping weight		Approximate dimensions (L x W x H)		Volts/amps (1 phase 60 Hz)
	lbs/hr	kg/h	lbs/hr	kg/h		lbs	kg	lbs	kg	Inches	mm	
RO-201	100	45	189	86	1	155	70	118	54	24 x 20 x 37	610 x 508 x 940	110-120V/5.5A or 208-240V/2.8A
RO-202	200	90	378	171	2	180	82	124	56			
RO-203	300	135	567	257	3	190	86	130	59			

Components:

- 10" sediment and carbon filter
- 5-micron sediment filter
- 2.5" diameter x 21" length thin film membranes in stainless steel housings
- 115V or 230V single phase must be ordered specifically
- Pressurized RO holding tank:
11" diameter by 15" tall, 4.5 gallons with 3.2 gallons usable, keeps water pressure between 30 and 50 psi
(280 mm diameter by 380 mm tall, 17 liters with 12 liters usable, keeps water pressure between 210 and 345 kPa)

NOTES

- Optional pre-treatment equipment available from DriSteem:
 - Water softener: Removes hardness and extends membrane life
 - Multimedia filter: If feed water exceeds <1 NTU turbidity or silt density index (SDI) of 3, media filter pretreatment is recommended
- Systems rated at 50 °F (10 °C) using 1000 ppm sodium chloride solution operating at approximately 200 psi (13.8 bar). Capacity Basis: 24 hours/day
- Minimum supply water inlet pressure to RO System: 40 psi (275 kPa).
- Recommended minimum clearances: 6" (152 mm) left, right and rear and 24" (610 mm) front

200 SERIES REVERSE OSMOSIS SYSTEM DIMENSIONS

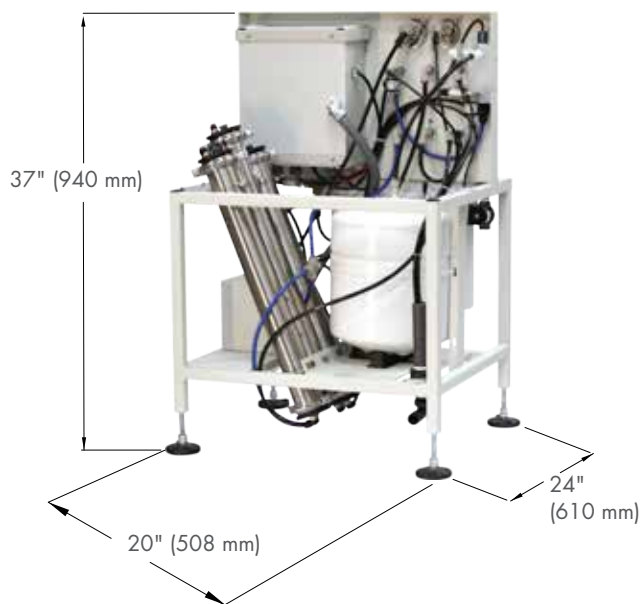


Table 15-2:
Connections

Model	Inlet	Concentrate	Permeate
RO-201	1/2" Female NPT	1" Hose barb	3/8" OD tube
RO-202			
RO-203			

Dechlorinator specifications

DECHLORINATOR

The dechlorinator removes chlorine from the water that degrades the reverse osmosis membranes.

120V, single-phase, 60 Hz, 5A electrical service is required for all dechlorinator models, except for the DC-CB dechlorinator (requires no electrical service).

FIGURE 16-2: WALL MOUNT DECHLORINATOR



FIGURE 16-1: DECHLORINATOR



Table 16-1:
Dechlorinator specifications

Dechlorinator model*	Media volume	Dimensions, diameter x height	Connections, in /out	Drain connection	Backwash flow**	Operating weight	Shipping weight***
DC-CB	Carbon black filter	4" x 20" (102 x 508 mm)	1" Female NPT	—	—	—	—
DC-744	0.5 ft ³ (0.014 m ³)	7" x 44" (178 x 1118 mm)	1" Brass SWT	¾" Male NPT	2.7 gpm (10.2 L/m)	120 lbs (54.4 kg)	100 lbs (45.4 kg)
DC-844	0.75 ft ³ (0.021 m ³)	8" x 44" (203 x 1118 mm)	1" Brass SWT	¾" Male NPT	3.2 gpm (12.1 L/m)	130 lbs (59.0 kg)	115 lbs (52.2 kg)
DC-948	1.00 ft ³ (0.028 m ³)	9" x 48" (229 x 1219 mm)	1" Brass SWT	¾" Male NPT	4.2 gpm (15.9 L/m)	150 lbs (68.0 kg)	130 lbs (59.0 kg)
DC-1054	1.50 ft ³ (0.042 m ³)	10" x 54" (254 x 1372 mm)	1" Brass SWT	¾" Male NPT	5.3 gpm (20.1 L/m)	175 lbs (79.4 kg)	150 lbs (68.0 kg)
DC-1252	2.00 ft ³ (0.050 m ³)	12" x 52" (305 x 1321 mm)	1" Brass SWT	¾" Male NPT	7.5 gpm (28.4 L/m)	210 lbs (95.3 kg)	190 lbs (86.2 kg)
DC-1354	2.50 ft ³ (0.071 m ³)	13" x 54" (330 x 1372 mm)	1" Brass SWT	¾" Male NPT	10.0 gpm (37.9 L/m)	240 lbs (108.9 kg)	225 lbs (102.1 kg)
DC-1465	3.00 ft ³ (0.085 m ³)	14" x 65" (356 x 1651 mm)	1" Brass SWT	1" Male NPT	12.0 gpm (45.4 L/m)	375 lbs (170.1 kg)	335 lbs (152.0 kg)
DC-1665	4.00 ft ³ (0.113 m ³)	16" x 65" (406 x 1651 mm)	1" Brass SWT	1" Male NPT	15.0 gpm (56.8 L/m)	450 lbs (204.1 kg)	385 lbs (174.6 kg)
DC-2162	6.00 ft ³ (0.170 m ³)	21" x 62" (533 x 1575 mm)	1.5" Female NPT	1" Male NPT	25.0 gpm (94.6 L/m)	750 lbs (340.2 kg)	645 lbs (292.6 kg)
DC-2472	8.00 ft ³ (0.227 m ³)	24" x 72" (610 x 1829 mm)	1.5" Female NPT	1" Female NPT	33.0 gpm (124.9 L/m)	1200 lbs (544.3 kg)	950 lbs (430.9 kg)
DC-3072	12.50 ft ³ (0.354 m ³)	30" x 72" (762 x 1829 mm)	2" Female NPT	1" Female NPT	50.0 gpm (189.3 L/m)	1850 lbs (839.1 kg)	1535 lbs (696.3 kg)

* DC-CB is wall mounted; all other models are floor mounted.

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

*** DC-2162, DC-2472, and DC-3072 media shipped separate, but included in shipping weight total.

Single water softener specifications

WATER SOFTENER AND BRINE TANK

The water softener and brine tank are floor-mounted and exchange water hardness for sodium.

120V, single-phase, 60 Hz, 5A electrical service is required for all water softener models.

FIGURE 17-1: SINGLE WATER SOFTENER AND BRINE TANK

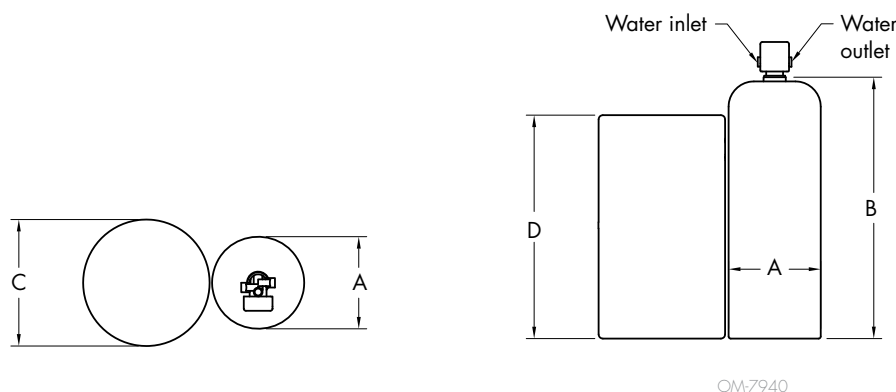


Table 17-1:
Single softener and brine tank specifications

Softener model	Media volume per tank	Resin tank diameter (A) x height (B) (per tank)	Connections, in /out	Drain connection	Brine connection	Backwash flow**	Brine tank diameter (C) x height (D)	Operating weight	Shipping weight***
WS-744	0.5 ft ³ (0.014 m ³)	7" x 44" (178 x 1118 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	1.35 gpm (4.9 L/m)	18" x 33" (457 x 838 mm)	550 lbs (249.5 kg)	110 lbs (49.9 kg)
WS-844	0.75 ft ³ (0.021 m ³)	8" x 44" (203 x 1118 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	1.70 gpm (6.4 L/m)	18" x 40" (457 x 1016 mm)	675 lbs (306.2 kg)	125 lbs (56.7 kg)
WS-948	1.00 ft ³ (0.028 m ³)	9" x 48" (229 x 1219 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	2.2 gpm (8.3 L/m)	18" x 40" (457 x 1016 mm)	700 lbs (317.5 kg)	140 lbs (63.5 kg)
WS-1054	1.50 ft ³ (0.042 m ³)	10" x 54" (254 x 1372 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	710 lbs (322.1 kg)	160 lbs (72.6 kg)
WS-1252	2.00 ft ³ (0.050 m ³)	12" x 52" (305 x 1321 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	3.2 gpm (12.1 L/m)	18" x 40" (457 x 1016 mm)	750 lbs (340.2 kg)	200 lbs (90.7 kg)
WS-1354	2.50 ft ³ (0.071 m ³)	13" x 54" (330 x 1372 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	800 lbs (362.9 kg)	235 lbs (106.6 kg)
WS-1465	3.00 ft ³ (0.085 m ³)	14" x 65" (356 x 1651 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	5.3 gpm (20.1 L/m)	24" x 41" (610 x 1041 mm)	1350 lbs (612.3 kg)	345 lbs (156.5 kg)
WS-1665	4.00 ft ³ (0.113 m ³)	16" x 65" (406 x 1651 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	1400 lbs (635.0 kg)	395 lbs (179.2 kg)
WS-2162	6.00 ft ³ (0.170 m ³)	21" x 62" (533 x 1575 mm)	1.5" Female NPT	1" Male NPT	½" OD tube	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	2300 lbs (1043.3 kg)	655 lbs (297.1 kg)
WS-2472	8.00 ft ³ (0.227 m ³)	24" x 72" (610 x 1829 mm)	1.5" Female NPT	1" Male NPT	½" OD tube	15.0 gpm (56.8 L/m)	39" x 48" (991 x 1219 mm)	4000 lbs (1814.4 kg)	960 lbs (435.4 kg)
WS-3072	12.50 ft ³ (0.354 m ³)	30" x 72" (762 x 1829 mm)	2" Female NPT	1" Male NPT	½" OD tube	25.0 gpm (94.6 L/m)	39" x 48" (991 x 1219 mm)	4700 lbs (2131.9 kg)	1545 lbs (701.0 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

*** WS-2162, WS-2472, and WS-3072 media shipped separate, but included in shipping weight total.

Duplex water softener specifications

WATER SOFTENER AND BRINE TANK

The water softener and brine tank are floor-mounted and exchange water hardness for sodium.

120V, single-phase, 60 Hz, 5A electrical service is required for all water softener models.

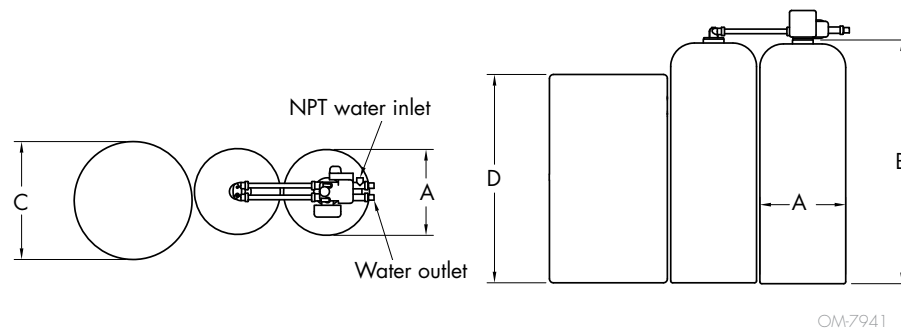


FIGURE 18-1: DUPLEX WATER SOFTENER AND BRINE TANK



Table 18-1:
Duplex softener and brine tank specifications

Softener model*	Media volume per tank	Resin tank diameter (A) x height (B) (per tank)	Connections, in /out	Drain connection	Brine connection	Backwash flow **	Brine tank diameter (C) x height (D)	Operating weight	Shipping weight
WD-744	0.5 ft ³ (0.014 m ³)	7" x 44" (178 x 1118 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	1.35 gpm (4.9 L/m)	18" x 33" (457 x 838 mm)	650 lbs (294.8 kg)	210 lbs (95.3 kg)
WD-844	0.75 ft ³ (0.021 m ³)	8" x 44" (203 x 1118 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	1.7 gpm (6.4 L/m)	18" x 40" (457 x 1016 mm)	800 lbs (362.9 kg)	250 lbs (113.4 kg)
WD-948	1.00 ft ³ (0.028 m ³)	9" x 48" (229 x 1219 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	2.2 gpm (8.3 L/m)	18" x 40" (457 x 1016 mm)	850 lbs (385.6 kg)	270 lbs (122.5 kg)
WD-1054	1.50 ft ³ (0.042 m ³)	10" x 54" (254 x 1372 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	2.7 gpm (10.2 L/m)	18" x 40" (457 x 1016 mm)	900 lbs (408.2 kg)	310 lbs (140.6 kg)
WD-1252	2.00 ft ³ (0.050 m ³)	12" x 52" (305 x 1321 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	3.2 gpm (12.1 L/m)	18" x 40" (457 x 1016 mm)	950 lbs (430.9 kg)	390 lbs (176.9 kg)
WD-1354	2.50 ft ³ (0.071 m ³)	13" x 54" (330 x 1372 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	4.2 gpm (15.9 L/m)	18" x 40" (457 x 1016 mm)	1050 lbs (476.3 kg)	460 lbs (208.7 kg)
WD-1465	3.00 ft ³ (0.085 m ³)	14" x 65" (356 x 1651 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	5.3 gpm (20.1 L/m)	24" x 41" (610 x 1041 mm)	1700 lbs (771.1 kg)	680 lbs (308.4 kg)
WD-1665	4.00 ft ³ (0.113 m ³)	16" x 65" (406 x 1651 mm)	1" Brass SWT	¾" Male NPT	3/8" OD tube	6.5 gpm (24.6 L/m)	24" x 41" (610 x 1041 mm)	1850 lbs (839.1 kg)	778 lbs (352.9 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

FIGURE 19-1: DUPLEX WATER SOFTENER AND BRINE TANK



Table 19-1:
Duplex softener and brine tank specifications

Softener model*	Media volume per tank	Resin tank diameter (A) x height (B) (per tank)	Connections, in /out	Drain connection	Brine connection	Backwash flow**	Brine tank diameter (C) x height (D)	Operating weight	Shipping weight***
WD-2162	6.00 ft ³ (0.170 m ³)	21" x 62" (533 x 1575 mm)	1.5" Female NPT	1" Male NPT	½" OD tube	12.0 gpm (45.4 L/m)	30" x 48" (762 x 1219 mm)	3050 lbs (1383.5 kg)	1300 lbs (589.7 kg)
WD-2472	8.00 ft ³ (0.227 m ³)	24" x 72" (610 x 1829 mm)	1.5" Female NPT	1" Male NPT	½" OD tube	15.0 gpm (56.8 L/m)	39" x 48" (991 x 1219 mm)	5100 lbs (2313.3 kg)	1910 lbs (866.4 kg)
WD-3072	12.50 ft ³ (0.354 m ³)	30" x 72" (762 x 1829 mm)	2" Female NPT	1" Male NPT	½" OD tube	25.0 gpm (94.6 L/m)	39" x 48" (991 x 1219 mm)	6500 lbs (2948.4 kg)	3080 lbs (1397.1 kg)

** Based on 60 to 90 psi (415 to 620 kPa) inlet pressure.

*** WD-2162, WD-2472, and WD-3072 media shipped separate, but included in shipping weight total.

RO storage specifications

PRESSURIZED RO HOLDING TANK

The pressurized RO holding tank holds RO water in reserve to be available for high-pressure pumping when there is a demand.

FIGURE 20-1: 200 SERIES
PRESSURIZED RO HOLDING TANK



FIGURE 20-2: 400 SERIES
PRESSURIZED RO HOLDING TANK



Table 20-1: Pressurized RO holding tank total capacity							
Tank Capacity	Active Capacity ⁽¹⁾	Dimensions		Weight		Connections	
		Diameter	Height	Empty	Full		
80 gal (303 L)	23.6 gal (89 L)	24" (610 mm)	55.5" (1410 mm)	58 lbs (26 kg)	295 lbs (134 kg)	1 ¼" male NPT	FRP with rubber bladder
120 gal (454 L)	35.4 gal (134 L)	24" (610 mm)	66 (1676 mm)	335 lbs (152 kg)	1235 lbs (560 kg)	2" female NPT	Painted steel with rubber bladder
158 gal (598 L)	46.6 gal (176 L)	30" (762 mm)	58 (1473 mm)	435 lbs (197 kg)	1620 lbs (735 kg)	2" female NPT	
211 gal (799 L)	62.2 gal (235 L)	30" (762 mm)	76 (1930 mm)	515 lbs (234 kg)	2100 lbs (953 kg)	2" female NPT	
Notes:							
<ul style="list-style-type: none">There is a possibility that the tank becomes much heavier if the air balloon is emptied or if precharge is different than 28 psi (195 kPa).Listed water volumes and weights are at an operating pressure of 30 to 50 psi (210 to 345 kPa) with a precharge of 28 psi (195 kPa).							
⁽¹⁾ Based on 30 to 50 psi (210 to 345 kPa) water set point and 28 psi (195 kPa) air precharge.							

Atmospheric RO holding tank specifications

ATMOSPHERIC RO HOLDING TANK

The atmospheric RO hold tank holds a large amount of RO water for large jobs or when additional runtime needs to be guaranteed. System includes a recirculation/booster pump and an UV sterilization system to ensure water purity and supply 30-50 psi (207-345 kPa) water to downstream equipment.

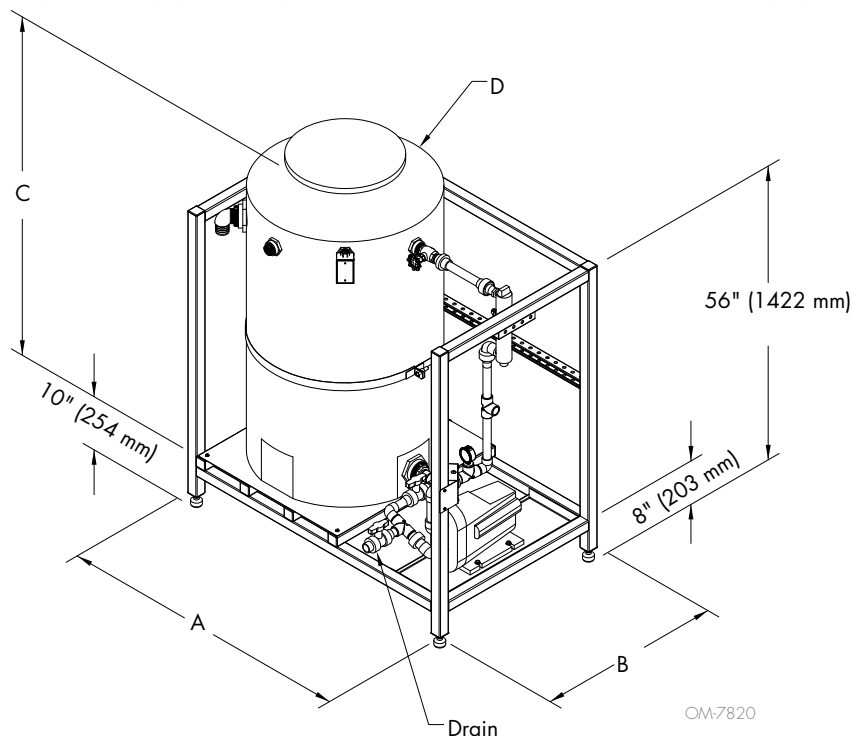


FIGURE 21-1: ATMOSPHERIC RO HOLDING TANK



Table 21-1:
Atmospheric RO holding tank specifications

RO station model	Description	A	B	C	D	Weight		Connections
						Shipping	Operating	
AT-165	165 gal (567 L)	56" (1422 mm)	35" (889 mm)	65" (1651 mm)	31" (787 mm)	320 lbs (145.15 kg)	1695 lbs (768.84 kg)	1" (25 mm) PVC, In: Female NPT Out: Socket
AT-300	300 gal (1135 L)	60.5" (1536.7 mm)	39.5" (1003 mm)	88" (2235.2 mm)	35.5" (901.7 mm)	360 lbs (163.3 kg)	2860 lbs (1297.27 kg)	1" (25 mm) PVC In: Female NPT Out: Socket

Table 21-2:
Pumps and disinfection

	Make	Model	Voltage	Phase	Frequency	Running Amps	Noise level dB(A)
UV system	Viqua	VT4	120V	single	60 Hz	0.28A	-
Forwarding pump	Grundfos	Scala2	120V	single	60 Hz	2.8A	<47

DRI-STEEM Corporation

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