

Modular & intelligent water filtration sub assemblies



- Up to 95% water recovery
 - Real-time remote data
- Self-adjusts to maintain output
 - Built-in redundancy
- Low energy consumption
 - Small footprint
 - Modular scalability



DRAMM **HANS**
Premium Water
Authorized Distributor

Why water?

The greatest aftereffect of climate change and population growth will be scarcity of clean water. Fortunately, the best solution is simple – fix contaminated water and convert brackish water into fresh water. Other solutions are just too cost-prohibitive.

That's why, 10 years ago, we started inventing ways to clean water for the poorest third of the world. Today we can clean the water of an entire village with a single device powered by solar cells. By adding more devices we can clean the water for entire towns, cities and countries.

Because water use involves political issues, we expect our progress will be slow. The future will probably bring regulations for industry that mandate reductions in waste water to 10% or less. That's what the products in this brochure are all about – helping industry waste far less water without hindering commerce.



Modularity changes everything

HANS® has reinvented every component used to treat water – from the redundant pump to reverse osmosis elements into intelligent, efficient, space-saving devices. They are designed to work together in modular, scalable systems to meet every need. So even if your customers have brackish water, or need de-ionized water, or use a million gallons per day, HANS components can be assembled to get the job done – quickly, easily and effectively.



All HANS Premium Water modules provide valuable data, are Wi-Fi compatible and update you via mobile app.



Mode 2: Pressure Maintenance

System sensors automatically adjust flow, as needed, to keep outlet pressure at a set value. It's ideal for facilities that require water on demand rather than a storage tank.

Low energy consumption

HANS uses only variable-speed DC motors controlled by sensors that detect water conditions. This way the motors run only as much as they have to, saving energy and extending motor life. Other water systems use motors that run only at full speed. This not only shortens the life of the motor but also causes costly energy usage spikes when it turns on.

Scalability

With HANS, your water system can change and grow as your business changes and grows. Need more output? Add more modules. Need more pressure? Add a pump module. Need cleaner water? Add more treatment modules.

Real time remote data

All HANS water solutions are WIFI compatible and provide the data your business needs – like water usage, pressure, TDS levels and filter life. All this data is on each module's data screen, and it's delivered in real time to a mobile device. Your customers will know what's going on with their water 24/7.

RO with up to 95% recovery rate

With the HANS Quad RO, your customers can realize a recovery rate of up to 95%. That means far less wasted water, and wasted money, than other systems.

Intelligent systems

HANS systems can operate in two modes:

Mode 1: Flow Maintenance

System sensors adjust the variable-speed pumps as needed to keep up with a set flow rate (volume) rather than running at full speed only, thus saving energy. It's ideal for facilities using a storage tank.

Redundancy & maintenance

HANS modules also give you redundancy and easy maintenance. If one treatment module needs maintenance, the unit is simply bypassed, taken offline, serviced, then re-attached. No need to shut down the water system. Your business doesn't miss a beat.

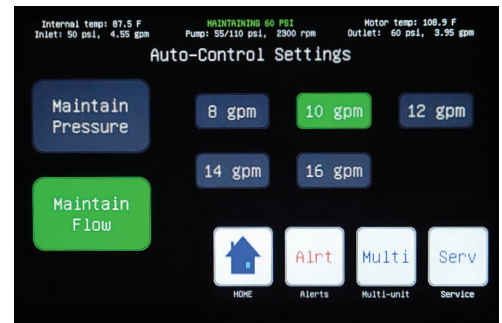
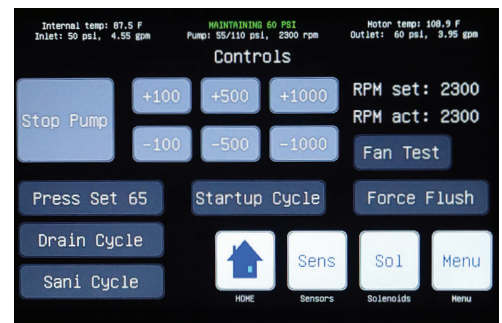
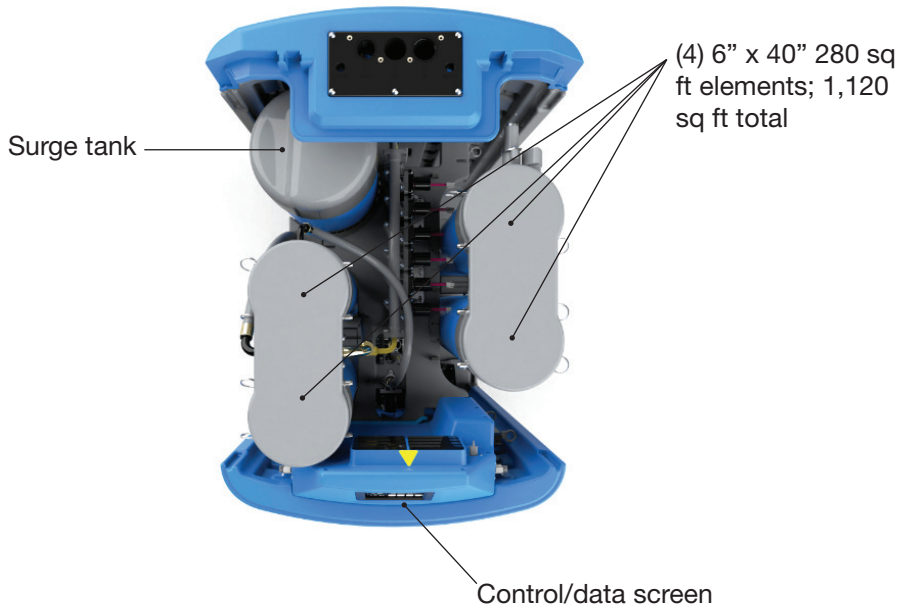


HANS Premium Water modules have a footprint less than 8 sq ft.

RO with up to 95% recovery rate

The HANS® Quad RO device is the biggest disruption in water treatment in 50 years. It uses internal recirculation technology and parallel water feed to save water and money. Its modular design makes it easy to service without shutting down the whole system. The chart below shows how the HANS Quad RO stacks up against other makes.

RO System Comparison	HANS Quad RO	Competitors
Waste Water	Recirculation technology allows for recovery rates as high as 95% and waste water rates as low as 5%.	50% maximum water recovery.
Energy Consumption	DC drive, load-following pump along with high-efficiency elements allow for minimal energy use at all times.	Single-speed AC pumps use up to 50% more power.
Redundancy	Modularity makes redundancy a designed-in feature.	Complete duplication of equipment required for redundancy.
Wi-Fi	System monitored on-line with status and alerts sent to mobile device. Software updates are done with the push of a button.	Usually optional with limited capabilities.
Fully Automated Controls	Automated control of reject flow, outlet pressure, and outlet flow without turning knobs.	Most operations and settings require manual setup and maintenance.
Automatic Pressure or Flow Control	Variable-speed pump allows system to maintain set pressure or to maintain set flow rate.	Single-speed pump that is either on or off with no settings.
Recirculation	Automated internal recirculation standard on each unit.	Manually adjusted external recirculation can only be set as high as the last element in the series can handle.
Architecture	System elements run in parallel. This means that all elements treat the same water quality, allowing for higher recovery rates.	Elements run in series. This means that the first element in the series gets dirtier faster.
Service	Modularity allows a unit to be taken offline for service while the others continue to run.	Service requires entire system to be shut down.
Integration/compatibility of components	Fully engineered modular components are designed to integrate easily and work together seamlessly including pre-treatment, post-treatment and pump units.	A hodgepodge of suppliers that are not designed to work together and require complex plumbing. Even minor service issues require shut down of entire system.



Features

- Flow rates up to 16 GPM*
- TDS levels up to 3000
- Recovery rates up to 90%**
- 4X large high-efficiency 6040 elements; 1120 sq ft total area
- Small footprint – 39” L x 28” W x 53” H
- Outdoor compatible – UV protection on all exterior parts
- Low energy requirements – 220v 20A
- Variable-speed DC drive pump for true on demand usage
- Does not require secondary storage tank
- Can run multiple units in parallel for higher flow applications
- Fully automated system with screen and app alerts
- OTA capable software updates

Pretreatment required



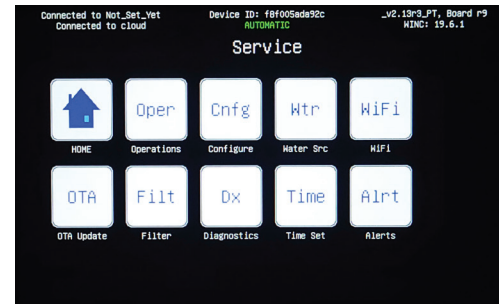
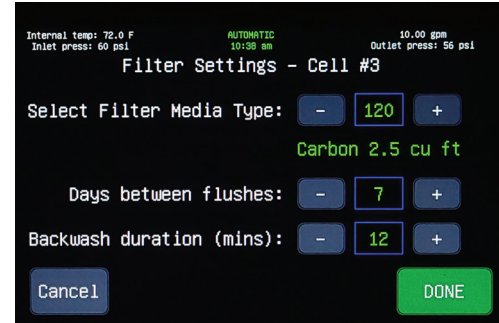
DRAMM®

HANS® 7.5 cu ft Carbon Filter



(6) 10" x 44"
media tanks
with 7.5 cu ft
catalytic carbon

Control/data screen



HANS
Premium Water
Authorized Distributor

Features

- Continuous flow up to 34 GPM
- Peak flow up to 42 GPM
- 7.5 cu ft total high capacity catalytic carbon (backwashable)
- 10.5 cu ft total high capacity catalytic carbon (non-backwashable)
- Can be back-flushed while operating with minimal flow loss (single cell regeneration)
- Small footprint – 39" L x 28" W x 53" H
- Outdoor compatible – UV protection on all exterior parts
- Can run multiple units in parallel for higher flow applications
- Fully automated system with screen and app alerts
- OTA capable software updates

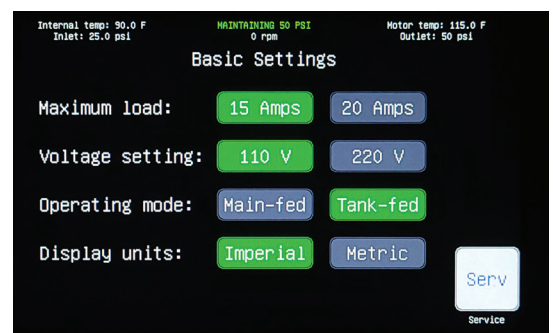
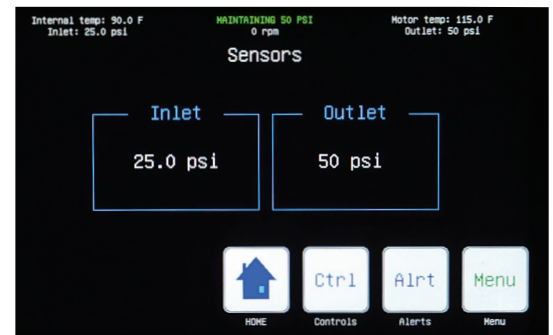
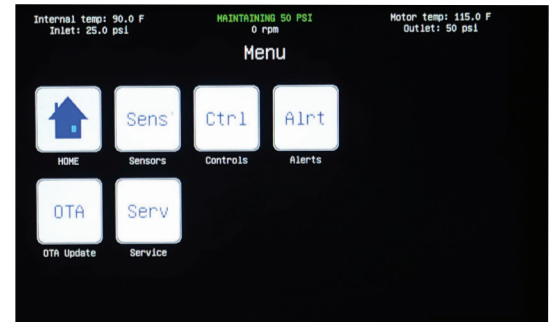
Control/data screens
for individual control
of each pump



Dual pumps
for built-in
redundancy

Features

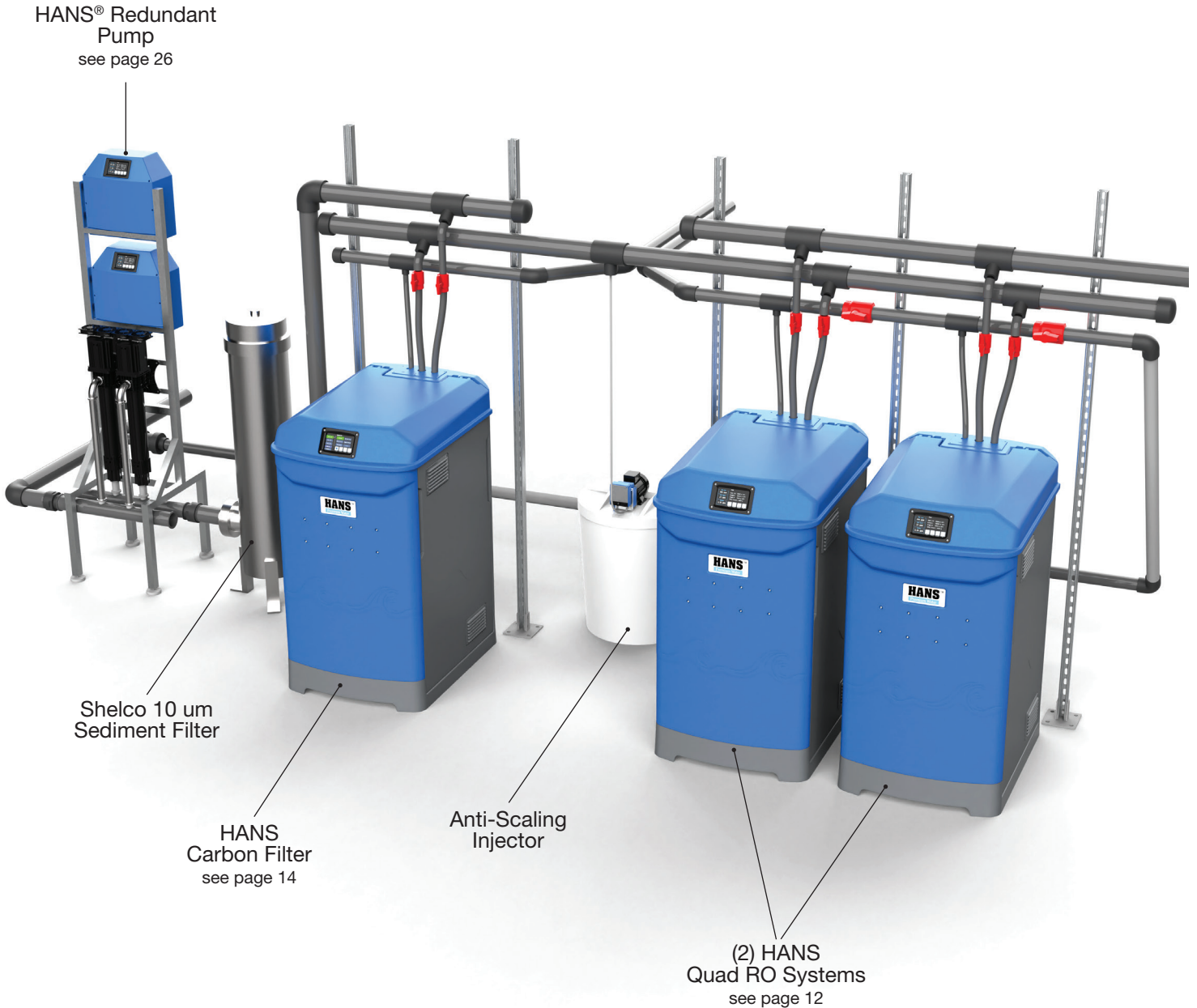
- Boosting pressure for up to 32 GPM
- Reserve pump built in
- 2" inlet and outlet
- 3" inlet and outlet available for plumbing multiple units in parallel
- Feeds tanks or mains
- True variable speed with adjustable pressure
- Can be run in series or in parallel
- High-speed (18,000 RPM) deep groove sealed bearings with high temperature grease
- Anti-cavitation protection
- Zirconia ceramic face seal
- 9 impellers





46,000 Gallons Per Day System

32 gallons per minute
with boost pump



Footprint: 19 x 4.33 ft (5.8 x 1.3 meters)
82.27 sq ft (7.6 sq meters)





46,000 GPD System Specifications

Operating Specifications

Water Temp	35-95 deg (F)
Ambient Temp	35-120 deg (F) ambient temp
Feed Pressure	30-60 PSI dynamic (system should be regulated to 60 PSI static max for best performance)
Power	220V 60Hz 15 amp dedicated GFCI
TDS	< 3000 input
Max Output Pressure	65 PSI
Max Output Flow*	> 32 GPM
Recovery**	Up to 90% (inlet water temp & TDS dependent)

Pre-Filter

Shelco 12FOS4	12 x 10 um cartridges
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HANS® Carbon Filter

Carbon Cell	(6) 10" x 44" tanks in parallel with connecting manifold
Carbon Size	7.5 cu ft total
Media	Catalytic carbon

HANS Redundant Pump

Pump	(1) HANS Redundant Pump
Rated Flow	35 GPM at 50 PSI
Power	120-240v AC single phase

Anti-Scaling Injection

Pump	Stenner ECON FP Series
Controller	HANS Control Box

HANS Quad RO (2)

Membrane Elements	(8) - 6" x 40" elements; 1680 sq ft total active area
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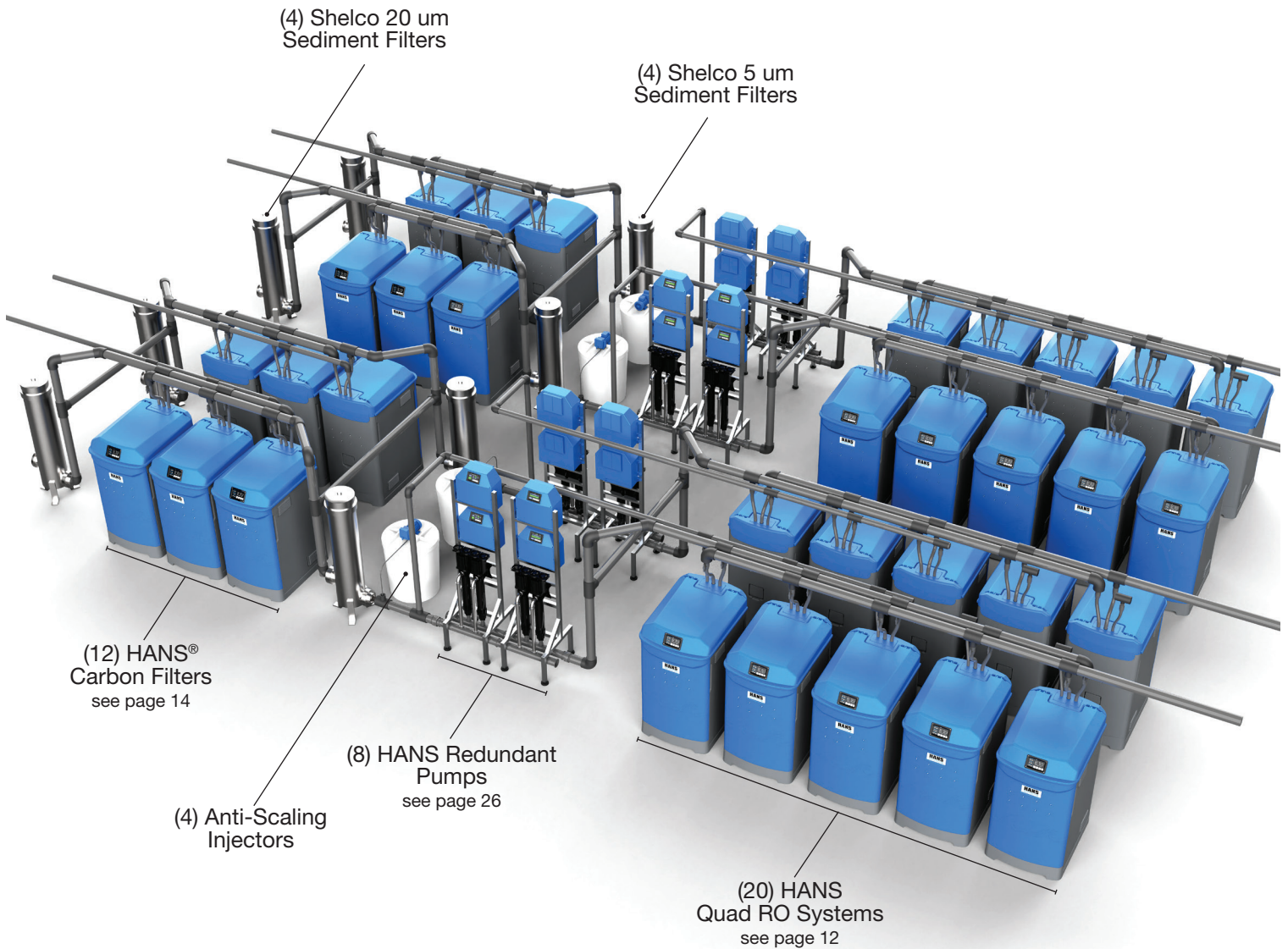
Inlet Water Requirements

pH	5 to 9
TDS	< 3000 PPM
PFOA/PFOS	< PFOA (8000 PPT) < PSOS (16000 PPT)
Lead	< 150 PPB
Iron	< 6 PPM (Note - each PPM iron reduces grain capacity by 5)
Arsenic	< 50 PPB
Nitrate	< 30 PPM
Nitrite	< 3 PPM
Hardness	< 15 GPG
Chromium 6	< 300 PPB
Chromium Total	< 300 PPB
Barium	< 10 PPM
Radium	< 25 pCi/L
Fluoride	< 7.8 mg/L
Chlorine	< 4 PPM
Chloramine	< 4 PPM
VOCs (detailed list available)	-
Turbidity	1 NTU
Water Flow & Pressure	35-50 GPM @ 10 PSI min (inlet flow rates dependent on inlet TDS)

* > 32 GPM based on the following conditions: 77 deg F water temp; < 500 TDS; 50 PSI inlet; 35 PSI outlet

** Up to 90% recovery based on inlet TDS < 350





Footprint: 39 x 23 ft (12 x 7 meters)
897 sq ft (83.3 sq meters)



460,000 GPD System Specifications

Operating Specifications

Water Temp	35-95 deg (F)
Ambient Temp	35-120 deg (F) ambient temp
Feed Pressure	30-60 PSI dynamic (system should be regulated to 60 PSI static max for best performance)
Power	220V 60Hz 15 amp dedicated GFCI
TDS	< 3000 input
Max Output Pressure	65 PSI
Max Output Flow*	> 320 GPM
Recovery**	Up to 90% (inlet water temp & TDS dependent)

Pre-Filters (8)

(4) Shelco 12FOS4	12 x 20 um cartridges
(4) Shelco 12FOS4	12 x 5 um cartridges

HANS® Carbon Filters (12)

Carbon Cell	(72) 10" x 44" tanks in parallel with connecting manifold
Carbon Size	90 cu ft total
Media	Catalytic carbon

HANS Redundant Pumps (8)

Rated Flow	35 GPM at 50 PSI
Power	120-240v AC single phase

Anti-Scaling Injectors (4)

Pump	(4) Stenner ECON FP Series
Controller	(4) HANS Control Box

HANS Quad Reverse Osmosis (20)

Membrane Elements	(80) - 6" x 40" elements; 22,400 sq ft total active area
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Inlet Water Requirements

pH	5 to 9
TDS	< 3000 PPM
PFOA/PFOS	< PFOA (8000 PPT) < PSOS (16000 PPT)
Lead	< 150 PPB
Iron	< 6 PPM (Note - each PPM iron reduces grain capacity by 5)
Arsenic	< 50 PPB
Nitrate	< 30 PPM
Nitrite	< 3 PPM
Hardness	< 15 GPG
Chromium 6	< 300 PPB
Chromium Total	< 300 PPB
Barium	< 10 PPM
Radium	< 25 pCi/L
Fluoride	< 7.8 mg/L
Chlorine	< 4 PPM
Chloramine	< 4 PPM
VOCs (detailed list available)	-
Turbidity	1 NTU
Water Flow & Pressure	90-120 GPM @ 45 PSI min (inlet flow rates dependent on inlet TDS)

* > 320 GPM based on the following conditions: 77 deg F water temp; < 500 TDS; 50 PSI inlet; 35 PSI outlet
 ** Up to 90% recovery based on inlet TDS < 350



