

aquasource* Nomad

FACT SHEET

Containerized packaged units for clean water production featuring ZeeWeed* 700B



Figure 1: aquasource Nomad containerized unit

Description and use

As a pioneer of membrane technologies, Veolia leverages decades of research, development, and operational experience in developing one of the most advanced ultrafiltration technologies in the market. Veolia's aquasource systems are proven to consistently outperform conventional filtration technology while meeting or exceeding regulatory requirements, regardless of source water quality.

aquasource Nomad is the containerized stand-alone, compact and reliable in/out ultrafiltration solution, offering a clarification and disinfection process in one step.

aquasource Nomad produces up to 3,400 m³/day constant high quality -water with ZeeWeed high strength Seven-Bore* ultrafiltration membranes.

aquasource Nomad unit is able to adapt to your raw water source with its comprehensive yet easy-to-use automation.

aquasource Nomad uses a unique sequenced backwash process allows to remove backwash pump and tank (figure 2).

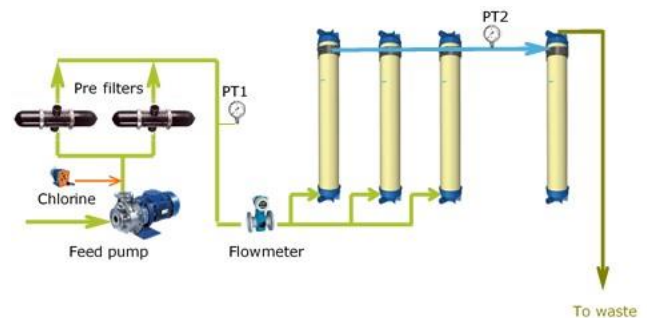


Figure 2: Sequenced backwash process (no backwash pump and tank needed)

Typical applications

aquasource Nomad is ideally suited for use in numerous municipal and industrial applications including:

- Drinking water: from small to huge communities, desalination pretreatment process
- Food & Beverage: bottled water, rinsing lines, ingredient water
- Pharma & cosmetics: pretreatment of ultrapure water production with IX resin or RO, ingredient water
- Oil & Gas: pretreatment for desulphatation and seawater prefiltration
- Power: Boiler feed water pretreatment, cooling water
- Most industries: pretreatment before RO

Product Water Quality

- Turbidity: < 0.1 NTU
- SDI < 3
- Bacteria and micro-organism removal > 6 log

General Properties

aquasource Nomad is a containerized plug & play unit, featuring ZeeWeed membrane technology:

- Daily production from 500 to 3,400 m³/d / instantaneous production from 25 to 170 m³/h ultrafiltered water
- Dead-end operation
- No backwash tank
- In/out filtration with PES ZW700B SevenBore ultrafiltration membranes
- 2 sizings:
 - 20" container with 14 UF ZeeWeed modules
 - 40" container with 32 UF ZeeWeed modules
- Fully autonomous & automatic
- Smart monitoring
- Robust, reliable and adaptable

Basic Equipment

Piping material

- Water: PVC
- Compressed air: Girair (rigid), PE (flexible)
- Sampling, instrumentation: PE (stainless steel taps)

Feed pump

- Type: Centrifugal,
- Power supply: 400 VAC – 50 Hz three phase

CIP station

- Sodium hydroxide, sulfuric acid, sodium hypochlorite
- Dosing pumps & tanks

Prefilters with automatic backwashing

- Type: Spin Klin with staked disks
- Filtering level: 130 µm

Instruments

- Backwashing pH probe and analyser
- air injection valve
 - Type: 2/2-way angle seat valve
 - Operation: Pneumatic
- pressure sensors
 - Pressure: 0-4 / 0 - 10 bar
 - Type: 4-20 mA – 2 wire
 - Power supply: 24 VCC
- temperature probe
 - Type: 4-20 mA – 2 wire
 - Power supply: 24 VCC
- electromagnetic flow meter
 - Type: Impulsion output
 - Power supply: 115-230 VAC – 50/60 Hz

Electrical cabinet

- PLC controlling operation and malfunctions
 - Brand: SCHNEIDER - Series: M340
 - Power supply: 100-240 VAC – 50/60Hz
 - Incorporated communication (Ethernet / Modbus)
- 1 touchscreen colour operator control console displaying the operating modes, malfunctions and to operate pumps and automatic valves
 - Brand: SCHNEIDER - Series: Magelis (24 VCC)
- Terminal board power supply
 - Type: 400 VAC ± 5% TRI + Neutral + Earth
 - Power rating: 25 kW
 - Mode: TN or TT, other neutral points available as an option.

Configurable Options Available

- Remote control (Modem 3/4G)
- Other requests: Contact Veolia

Materials of Construction

- Frame: aluminium
- Piping: water (PVC), compressed air (PE)
- Sample panel (Stainless steel)
- CIP tank (PE)

Membrane Elements and Housings

All aquasource Nomad machines feature the following ultra-filtration modules:

- Serie: ZW700B-10060
- Material: Modified PES
- SevenBore technology
- Surface area: 60m²
- Pore size: 0.02 µm
- MWCO: 100 – 150 KD
- Fiber OD/ID: 4.0 – 0.9 mm



Figure 3: aquasource Nomad 20' top view 1

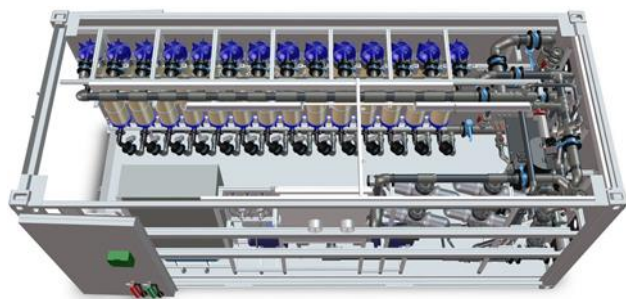


Figure 4: aquasource Nomad 20' top view 2

Product Specifications

Parameters	aquasource Nomad	
Size	20' container	40' container
Filtration Flow Path	Inside-out	
Flow rate	25 – 80 m ³ /h	80 – 170 m ³ /h
Driving Force	Pressure	
Modules	ZW700B - 10060	
Operation	Dead end filtration	
Number of modules	14	32
Piping	PVC	
Frequency	50/60 Hz	

aquasource Nomad range	aquasource Nomad / 20'	aquasource Nomad / 40'
average production ¹ m ³ /day	1400	3400
max flow rate ¹ m ³ /hour	80	170
Number of UF modules	14	32
piping mm	100	150
installed power kW	15	21

Dimensions and Weight

aquasource Nomad range	aquasource Nomad / 20'	aquasource Nomad / 40'
Dimensions, m	6.06 x 2.44 x 2.59	12.2 x 2.44 x 2.59
Weight, Kg (with water)	8,500	17,500
Weight, Kg (empty)	7,100	14,200

Operating Parameters

Parameters	Values ²
Typical flux ¹	50 to 120 LMH
Production Cycle Duration	30 - 120 minutes
Typical Recoveries	85 – 95% ¹
Typical TMP	0.1 to 0.9 bar (1.5 to 13.1 psi)
Maximum System Pressure	5 bar (72 psi)
Operating pH	2 – 11
Cleaning pH	1 – 13
Max Operating temperature	40° C / 104° F
Filtration mode	Dead end filtration
Max inlet pressure	0.5 bar

Raw Water Specifications

Specifications	Values ²
Total organic carbon (TOC)	< 10 mg C/L
Continuous turbidity	<50 NTU
Peak turbidity (short duration)	<300 NTU
Total Suspended solids	<100 mg/L
SUVA (UV/COD)	<4
Algae	< 5000 algae/mL

¹Based on influent water quality and water temperature

²Values for information only – contact us for your project sizing