



Clear³ Design Advantages

- Pre-fabricated modular facilities
- Rapid deployment
- Compact footprint
- Scalable
- Operator-friendly
- High-quality effluent
- No odor
- More discharge options
- Sound attenuation
- Reuse-ready effluent



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clean water. modular solutions. simple.

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MBR.ST-105

Pre-Engineered MBR Sewage Treatment System

The Clear³ MBR.ST-105 is a pre-engineered stand-alone decentralized modular treatment plant capable of treating sewage and waste water from residential, recreational, institutional and commercial developments up to **27,700 gallons per day**. The rugged, self-contained system is housed in a single modular building enclosure, built to meet local **weather conditions from extreme heat to extreme cold**. The Clear³ MBR.ST-105 is built on Newterra's years of membrane bioreactor experience and utilizes world class proven ZeeWeed[®] membranes for exceptional permeate quality that meets the **most stringent regulatory requirements** for reuse applications or discharge to sensitive receptors.

Influent & Effluent Limits

Designed for a range of wastewater strengths and the ability to meet the most stringent discharge and reuse requirements.

Flow Parameter	Influent From...	Effluent Limits
Biological Oxygen Demand (BOD ₅)	200 to 400 mg/L	5 mg/L
Total Suspended Solids (TSS)	150 to 350 mg/L	5 mg/L
Total Kjeldhal Nitrogen (TKN)	35 to 70 mg/L	-
Total Ammania Nitrogen (TAN)	25 to 50 mg/L	1 mg/L
Total Nitrogen (TN)	-	5 mg/L *
Total Phosphorous (TP)	5 to 10 mg/L	0.1 mg/L *
Fat, Oil, and Grease (FOG)	Less than 30 mg/L	-
Fecal Coliform	-	2.2 MPN/100 mL**
Water Temperature	10 to 25°C	-
Turbidity	-	0.5 mg/L

*With nutrient reduction option(s) selected
**With disinfection option(s) selected

Efficient Modular Design

- 40' long x 8' wide x 9.5' high
- Fully functional building including, but not limited to insulation, heating, ventilation, lighting, operator work space, and eyewash station
- Optional exterior finishings (color, siding, and/or roofing)



Design Flow Parameters

With robust biology and a broad turn-down capability the Clear³ MBR.ST-105 is designed around the following flow conditions.

Flow Parameter	Up To...
Average Daily Flow (ADF)	27,700 gal/day
Maximum Monthly Flow (MMF)	33,200 gal/day
Maximum Daily Flow (MDF)	55,400 gal/day

“ Newterra is leading the way with decentralized wastewater solutions that help reduce project costs with a sustainable treatment approach ”

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Base Unit Features

- Pre-treatment
- Flow equalization
- Aerobic biological treatment
- Membrane filtration with industry leading ZeeWeed® 500S membranes
- Sludge storage and thickening
- Advanced telemetry for remote control, monitoring & diagnostics
- Equipment or treatment train redundancy
- Low power, sludge production, and chemical consumption
- Pre-engineered for fast delivery
- Quality controlled factory assembled and tested
- MET/MET certified

Adders & Options

- ❑ Customized process design, tankage and equipment sizing
- ❑ Biological nutrient reduction, MLE process for denitrification
- ❑ Biological nutrient reduction, 4-stage bardenpho process for denitrification
- ❑ Coagulant dosing for phosphorous reduction
- ❑ UV disinfection
- ❑ Chlorine disinfection
- ❑ Critical spare parts package
- ❑ Turbidity monitoring
- ❑ Increased chemical storage
- ❑ Building exterior finish (selection of colors, siding, roofing)
- ❑ Annual newtN™ service agreement

Flexible Tankage

The Clear³ MBR.ST-105 is designed for use with a variety of in-ground tank configurations. This flexibility allows the benefits of a pre-engineered product, while using the best available tank configuration based on project specific site conditions and availability of labour and materials.



Basin	Required Volume
Trash Trap	16,700 gal
Equalization	12,000 gal
Aerobic	16,800 gal
Sludge Holding (30 days)	16,300 gal

Fiberglass

- 10' diameter FRP tanks provided by Newterra
- All in-tank components are factory installed prior to delivery
- Minimal mechanical and electrical site-work

Pre-Cast Concrete

- Pre-cast concrete tanks provided by Newterra or supplied locally
- Some mechanical and electrical site work
- All in-tank components are shipped loose for installation at site

Poured Concrete

- Poured in place concrete tanks supplied locally
- Smallest footprint of the tankage options
- More civil engineering and on-site civil, mechanical, and electrical work required
- All in-tank components are shipped loose for installation at site



newtN™ Advanced Remote Monitoring & Control

- Advanced cloud-based data acquisition and control
- Bank level security
- A real-time link to the treatment system familiar HMI screen
- Email/text out upon alarm and a daily system status report
- Operating data is collected and available for download from the customer portal or locally at the HMI
- The customer portal also includes other useful information at your fingertips including manuals, troubleshooting guides, parts lists, etc.