FERGUSON WATERWORKS

R-TANK®
STORMWATER STORAGE SYSTEM



R TANK®

DESIGN CONSIDERATIONS

Many factors will influence the design of the R-Tank system. While this list is not intended to be all-inclusive, the following design considerations are worth highlighting:

CONSTRUCTION LOADS
Construction loads are often the heaviest loads the system will experience. Care must be taken during backfilling and compaction, and post-installation construction traffic should be routed around the system.

BACKFILL MATERIALS
Backfill materials should be angular stone (<1.5" in diameter) or soil (GW, GP, SW or SP per the Unified Soil Classification System). Material must be free from lumps, debris and sharp objects that could cut the geotextile. See the R-Tank narrative specification for additional information.

PRE-TREATMENT
Removing pollutants from runoff before they enter an underground detention system is the smart way to design and build a system. Be sure the system you select will remove heavy sediments, gross pollutants (trash) and biodegradable debris.

LATERAL LOADS
As systems get deeper, the loads acting on the sides of the tank will increase. While vertical loads often control the design, lateral loads should also be considered.

LOAD MODELING
A safety factor of >1.75 is required when designing an R-Tank System using the AASHTO LRFD Bridge Design Specifications. It is also necessary to run your own loading model with site-specific requirements.

R-TANK MODULES
Selecting the right module for your application is critical. See page 3 for an introduction to our solutions. Our team is also here to help you choose what's best for your project.

RUNOFF REDUCTION
Most designs incorporate an outlet to drain the system at a controlled rate and/or an overflow to prevent flooding in extreme events. Any infiltration that can be achieved on the site should also be taken advantage of. Consider raising the invert of your outlet or creating a sump to capture and infiltrate the water quality volume whenever possible.

WATER TABLE
While installing R-Tank below the water table is manageable, a stable base must be created to support the system. A liner can be used to prevent groundwater from entering the system if measures are taken to prevent the system from floating.

R-TANK SPECIFICATIONS

SPECIFICATIONS					
		HD	SD	MD	UD
Item	**Description**	**Value**	**Value**	**Value**	**Value**
Minimum Height	Shortest unit height	17.32"	9.45"	16.93"	14.17"
Maximum Height	Tallest combined height	83.46"	87.48"	79.92"	80.30"
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Area Void	% of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412/ASTM F 2318	33.0 psi	42.0 psi	65.0 psi	134.0 psi
Lateral Compressive Strength	ASTM D 2412/ASTM F 2318	20.0 psi	22.0 psi	35.0 psi	19.0 psi
Unit Weight	Weight of plastic per cubic foot of tank	3.62 lbs/cf	3.96 lbs/cf	3.53 lbs/cf	4.33 lbs/cf
Service Temperature	Safe temperature range for use	-14 to 167° F	-14 to 167° F	-14 to 167° F	-14 to 167° F
Recycled Content	Use of recycled polypropylene	100%	100%	100%	100%
Minimum Cover	Cover required for HS-20 loading	20"	18"	15"	12"
Minimum Cover	Cover required for HS-25 loading	24"	21"	18"	15"
Maximum Cover	Maximum allowable cover depth	6.99'	9.99'	9.99'	6.99'

R-TANK

BENEFITS

HIGH CAPACITY AND STRENGTH
- 95% internal void
- Supports traffic loading
- Module options for HS-20 and HS-25 rating with cover depths from 12" to 10'

DESIGN AND CONSTRUCTION VERSATILITY
- Modules can be combined into various shapes to use space efficiently and effectively
- Module heights vary from 9" to 7'

INCREASED INFILTRATION AND EXFILTRATION
- 90% surface open area to promote infiltration
- Increases groundwater recharge, reducing post-construction discharge volumes

EASY TO TRANSPORT
- Can be supplied preassembled or unassembled to reduce delivery costs

LIGHTWEIGHT AND QUICK TO INSTALL
- Installed by hand; no cranes required
- Reduces site access delays

RECYCLED CONTENT
- Manufactured with post-industrial recycled polypropylene

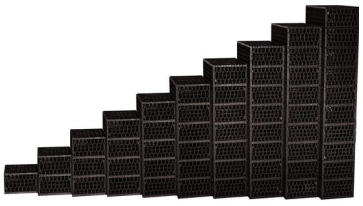


PRODUCTS

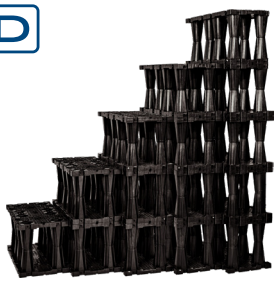
R-TANK HD
- Heavy-duty module (33 psi)
- 20" minimum cover
- 84" maximum cover
- Five internal plates
- Standard module for traffic applications



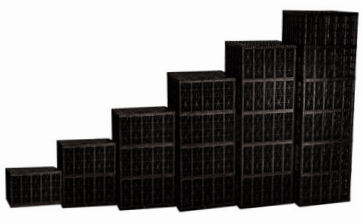
R-TANK SD
- Super-duty module (42 psi)
- Increased lateral strength (22 psi)
- 18" minimum cover
- 120" maximum cover
- Higher safety factors for loading



R-TANK MD
- Mega-duty module (65 psi)
- Exceptional lateral strength (35 psi)
- 15" minimum cover
- 120" maximum cover
- Improved vertical and lateral performance



R-TANK UD
- Ultra-duty module (134 psi)
- Superior lateral strength (19 psi)
- 12" minimum cover
- 84" maximum cover
- Unmatched load support unit



CREATIVE STORMWATER INFRASTRUCTURE APPLICATIONS











ENHANCING GREEN INFRASTRUCTURE

R-Tank is a popular option for stormwater storage in urban linear street applications, enhancing storage capacity in tight spaces. Ferguson offers a series of innovative stormwater filtration media and permeable/porous surfaces that can be strategically combined with R-Tank. This combination creates complete systems that provide water quality while maximizing the volume of runoff stored below.

PRE-TREATMENT USING FILTERS AND SCREENS

Ferguson partners with manufacturers of filtration and screening technologies to reduce the potential for trash and debris to enter underground systems like R-Tank. From including gross-sediment removal devices with R-Tank systems to specific pollutant inlet filters, Ferguson offers a complete selection of decentralized pre-treatment devices.

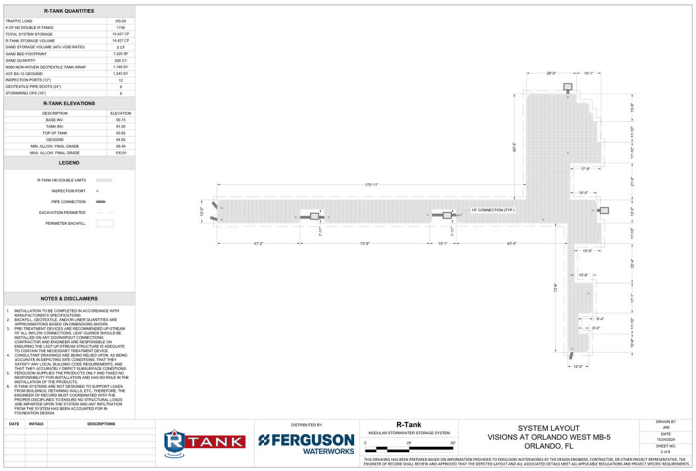
PARTNERING WITH HARVESTING SYSTEMS

Through a partnership with Greyter® Water Systems, Ferguson offers innovative stormwater harvesting solutions for greywater and irrigation applications. Combining an R-Tank system with a Greyter treatment and harvesting system allows properties to reduce their potable water demand by reusing stormwater for applications from toilets to vegetation irrigation.

R-TANK SUPPORT SERVICES

Our regional engineers and designers are experts in both local regulations and innovative urban green street applications and can help develop site-specific solutions using one or a combination of our products. Our team produces high-quality custom layouts and details to support your permitting and construction efforts. From AutoCAD to HydroCAD, we have a variety of design tools to help you move through the permitting process efficiently.

R-TANK®



Contact your local sales associate or visit **FERGUSONWATERWORKS.COM** to get started.

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