Rinnai®
TANKLESS WATER HEATERS

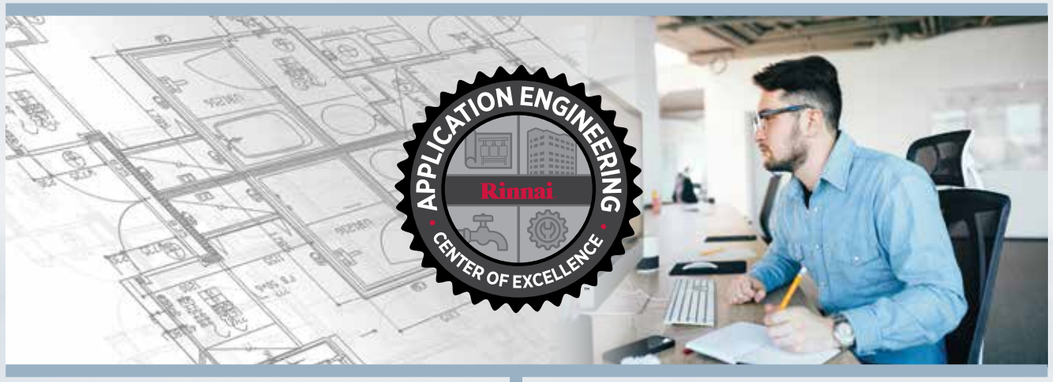
endless

commercial applications

COMMERCIAL WATER HEATING SOLUTIONS FOR DEALERS AND INSTALLERS

Application Engineering Center of Excellence

Our team of application engineers is available to provide quotes, size your system and provide designs for your specific project — all at no charge and backed by our 100% sizing guarantee. Using proven sizing methodologies, Rinnai's Application Engineering Center of Excellence is there to consult with you and provide the best total solution for your next project. Call them at 1-800-621-9419 or email engineering@rinnai.us.



- Unmatched customer support
- Quick sizing and quote turnaround
- Proven sizing methodologies
- Cost effective – value engineered designs
- Utilizing storage when necessary
- Full system drawings and BOM provided
- ROI: Running cost/savings/carbon emissions calculations

- Custom engineered water heating solutions via Made to Order (MTO) process
- 100% sizing guarantee*
- On-site review and consultation if required
- Accessible tech documents: submittals, spec sheets, CAD drawings, Revit files and more

* Sizings are guaranteed provided original fixture list and sizing parameters (e.g., temps, elevation) do not change.

Partner with Rinnai National Accounts

Rinnai National Accounts is committed to keeping businesses up and running with innovative water heating products, prompt service and the best warranty available.

Become a Rinnai Commercial Service Provider and participate in the National Accounts Program.

- Grow your business
- Pre-negotiated labor rates
- Direct payment from Rinnai
- No sales/marketing expense
- Access to on-line training
- Leads for future installs

We've got your back

Along with our national network of installers, our products are backed by commercial services that include application engineering and sizing, **24/7/365 tech support and direct preventive maintenance services, as well as an extensive warranty.** The warranty coverage includes 8 years or 12,000 hours of operation for the heat exchanger, 5 years parts, and 1 year labor. In other words, we've got you covered.

100 years of smart comfort

Through nearly 100 years of innovation, including decades of commercial water heating experience, Rinnai has enhanced the way businesses operate. With headquarters in Japan and a network of 20 subsidiaries and 86 sales offices in 13 countries, this commitment has made us the number one selling brand of tankless water heater systems. Dedicated to a smarter kind of comfort, our value-added products continue to stay in step with the demands of a changing world.

The highest standards of quality

- Rinnai employs more than 600 research and development engineers, all focused on uncompromising quality in design and manufacturing
- Advanced automation and precision assembly processes have made our manufacturing facilities an industry model for efficiency
- Every product undergoes a series of live testing before shipping
- Rinnai America is one of the few tankless water heater providers with its own state-of-the-art Canadian Standards Association (CSA) Certified Testing Laboratory, including CSA accredited lab technicians
- All products distributed in North America have been approved by the CSA and adhere to the strict standards of the American National Standards Institute (ANSI)

For complete details on commercial water heating solutions and maintenance services, call **866-383-0707** or email **commercialservices@rinnai.us.**

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Transforming the way **water is heated**

Mainstay Suites® Winnipeg | Hospitality

THE SMARTER WAY TO DO HOT WATER

For nearly six years, since it opened in 2011, the Mainstay Suites Winnipeg had relied on four leaky, inefficient 80-gallon atmospheric hot water tanks. Not that long ago, guests at the Mainstay Suites Winnipeg Hotel might face a rude awakening in their morning shower when the hot water ran out. But now, since 4 Rinnai's Demand Duo™ Hybrid units were installed in June 2017, the hotel is running at full capacity, and both guests and management are happy with the change. Combining the best of both tank and tankless design, Demand Duo delivers hot water so efficiently that the hotel's **natural gas savings have totaled more than $9,000 in the first eight months**, despite the colder-than-normal winter.

George Family Farm | Agriculture

HIGH-PERFORMANCE KEEPS HIGH TEMPERATURE

In Upstate New York, the George Family Farm runs a dairy business with more than 700 cows producing dairy products for stores across the country. One of the most energy-intensive functions on a dairy farm is heating water and this capability is directly linked to the farm's profitability. For processing milk products, water must be 160-180°F to effectively clean the lines and the farm's old water heating system only delivered 120° to 140° resulting in milk fat buildup so the farm could not produce Grade A milk. By replacing a traditional tank with Rinnai's high-performing tankless units, the Georges can maintain hot water at the desired temperature 24 hours a day and the farm's milk can now be sold as top grade, **earning them tens of thousands of dollars in additional profit per year**.

BEFORE AFTER

Countryside High School | Education

SAVINGS FROM DAY ONE

For years, the Pinellas County School System, located in the Tampa Bay area of Florida, relied on traditional tank-style water heaters that lasted typically only six to eight years, at the most. "With such a short life span, I knew there had to be a better alternative," said Ty Crawford, in charge of maintenance for the school system. Since October of 2016, when the Countryside High School installation took place, the Pinellas County School System has replaced tank-style units in another seven schools with Rinnai's Demand Duo Hybrid Water Heating Systems. "If the heat exchanger ever does fail, I can swap it out for a fraction of the cost of new water heaters." On average, Countryside High School **saves close to 20% on their monthly utility bills** since switching to the Rinnai Demand Duo units.

BEFORE

AFTER

Georgia World Congress Center | Food Service

HIGH CAPACITY NEEDS, HIGH-CAPACITY OUTPUT

Hot water is essential to the functionality of any kitchen, but it is especially necessary in commercial settings, where cleaning and the sterilization of dishes are imperative to stay open for business. Swapping two 650-gallon boilers for a Rinnai Tankless Rack System resulted in the Georgia World Congress Center achieving significant energy savings and ensuring its high-capacity kitchen has the hot water needed to serve 20,000+ people per day. The system featured two wall-mounted rack units, each containing three Rinnai C199 tankless water heaters. Since the Rinnai units' installation, the GWCC has seen its **energy expenditures drop substantially**.

Montrose County Jail & Sherriff's Office | Institutional

A NEED FOR CONFIDENCE AND REDUNDANCY

Any establishment with a shower, kitchen or laundry has a need for consistent, reliable hot water. However, an endless supply of hot water is perhaps most essential in locations that house a large number of individuals. While tankless technology is growing in popularity among hotels and university residence halls, it is also a smart choice for more niche commercial projects, like jails and prisons, which require a high volume of hot water for cooking, dishwashing, laundry and hygiene. Replacing two 3,500,000-BTU boilers and two 2,750,000-BTU water-to-water heat exchangers for an 18-unit Rinnai Tankless Rack System led this jail in Montrose, CO to **save over $550 per month**, even with a 50% population increase.

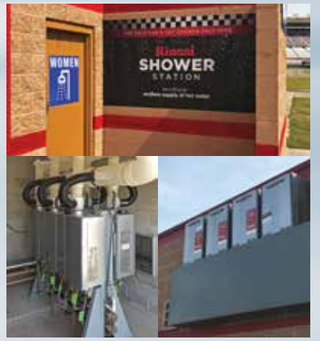
BEFORE

AFTER

Atlanta Motor Speedway | Multipurpose Event Facility

CONSISTENT HOT WATER, ONLY WHEN NEEDED

Located on 887 acres in Hampton, Ga., just 25 miles south of Atlanta, Atlanta Motor Speedway is one of the country's top sports, corporate, family and entertainment facilities. With approximately 20,000 people staying on the Speedway campgrounds, it is not surprising that the facility's 84 showers require a significant amount of hot water. In addition to Atlanta Motor Speedway's four shower stations, the track features a banquet kitchen to serve the grandstand suites along with 20 concession stands – all of which require consistent hot water but can be turned off after events. The facility saw its **utility costs decrease by over 20 percent** through March-April 2017 when compared to the same time period last year, and the staff attributes the bulk of this reduction to the new tankless system.



SENSEI™

The Next Generation in Tankless Water Heating

SENSEI offers a new, more compact and enhanced combustion design that allows for easier installation and enhanced operational performance and serviceability. All of the key components in SENSEI are designed and manufactured by Rinnai – ensuring maximum quality and reliability from the industry leader in commercial tankless water heating solutions.

- You can now vent with 2 in. PVC (NEW) up to 65 ft.*
- You can vent using 2 in. / 4 in. (NEW) or 3 in. / 5 in. concentric pipe*
- The most Common Venting options offered to meet commercial needs
- Stainless Steel Primary Heat Exchanger
- Integrated temperature up to 185° F
- Cascade Cable Assembly allows for up to 24 water heaters to be connected and function as one hot water source

*Single unit only

THE ADVANTAGES

EASY INSTALLATION

OPERATIONAL PERFORMANCE

SERVICEABILITY

NEW INTEGRATED CHECK VALVE

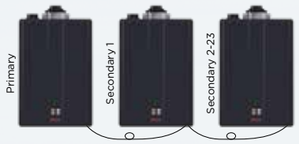
Check valve integrated between the fan assembly and combustion chamber

- A more powerful combustion fan allows the longest vent runs in the industry
- No check valve above water heater reduces cost and size of common vent
- Additional freeze protection
- Prevents backdraft of exhaust with common vent

NEW PRIMARY STAINLESS STEEL HEAT EXCHANGER

Made from 400 Series Stainless Steel, which is superior for corrosion resistance and minimizes expansion and contraction, the R-evolution provides superior thermal conductivity.

The tube design is 1mm thick (25% thicker than competitive products) and fluorine gaskets are used at the joints to provide added durability and heat resistance.



NEW INTEGRATED CASCADE LOGIC

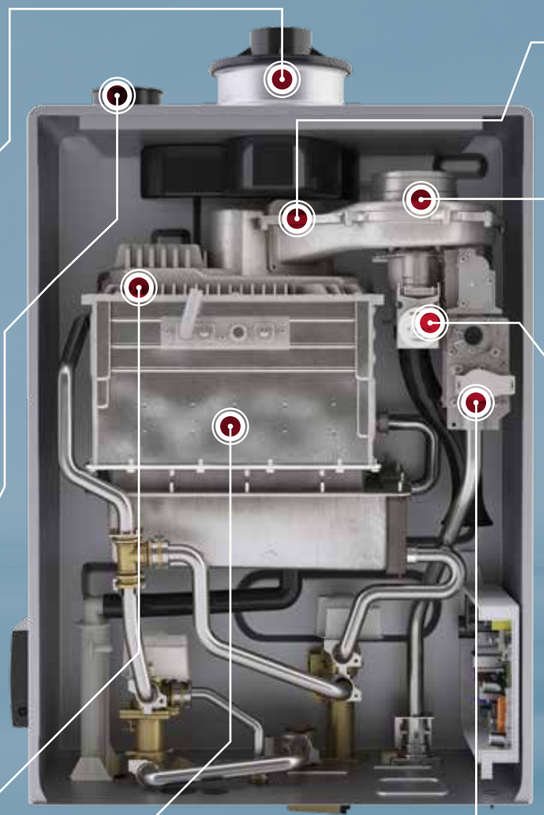
With the use of cascade cable(s) up to 24 water heaters can be electronically connected. This connection will rotate water heater operation order to ensure equal usage among the entire system and function as one hot water source.

Cascade Cable Required:

- Cable lenght 26 ft (8 m) or 10 ft (3 m)
- One cable required for each water heater
- Includes 1 cable and 2 cascade jumpers

Look Inside

All components work together harmoniously to provide the best combustion performance possible.



NEW Concentric Vent or 2-Inch Exhaust*

- Allows for easy use of concentric 2 in. / 4 in. or 3 in. / 5 in. direct vent or exhaust in 2-pipe or room-air configurations

NEW 2-Inch Intake Vent Connections

- Allows for maximum flexibility with the use of 2 in. PVC/CPVC/PP on vent runs up to 65 feet

NEW Fiber Mesh Premix Burner*

- Provides even flame distribution for optimal performance for any demand

NEW Primary Stainless Steel Heat Exchanger*

R-evolution

- Resists the corrosive nature of the condensate, which occurs early in the high-efficiency combustion process

NEW Integrated Check Valve

- Located between the turbo fan and combustion chamber
- Prevents cold air from entering the venting system and backflow of exhaust in common vent applications

NEW Turbo Fan*

- Enables longer vent runs and flexible vent options
- Up to 65 feet vent runs with 2 in. / 4 in. concentric and 2 in. PVC/CPVC/PP
- Up to 150 feet vent runs with 3 in. / 5 in. concentric and 3 in. PVC/CPVC/PP

NEW Switching Venturi*

- Provides consistent mixture of air and gas to burner for low turn-down ratios
- Self-compensates in areas with low or fluctuating gas pressures

NEW Zero Governor Gas Valve*

- Optimizes combustion performance by consistently delivering gas and air mixture

*Manufactured by Rinnai

Why choose a Rinnai system?

- **Decreased operational costs**
- **Energy savings**
- **Durability for the demands of business**
- **Space savings**
- **Redundancy of units eliminates downtime**
- **Multiple venting options**
- **Maintenance alerts**
- **Wi-Fi ready**

DEMAND DUO™ 119-GALLON
HYBRID COMMERCIAL
WATER HEATING SYSTEM

TRW03
TANKLESS RACK SYSTEM™/
WALL-MOUNTED DESIGN

Control-R™
Connect for smarter hot water.

Wi-Fi Technology

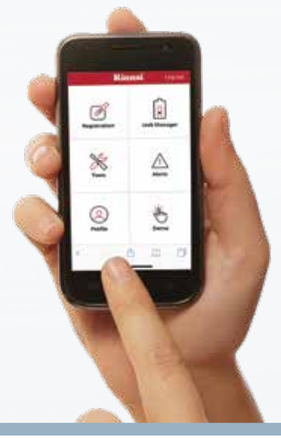
Rinnai Commercial Tankless Water Heaters can be remotely monitored and controlled via smart devices for water heating management, control and maintenance. The Control-R™ Wireless Module and App also allows Rinnai independent dealers to assist customers via remote diagnostics.

The Control-R™ Module pushes system codes and other service information automatically, enabling installers to proactively contact customers and arrive at a location with the right equipment and parts. The app also allows dealers to reference diagnostic codes, product information and step-by-step instructions, with links to manuals, training, videos and more.

Registration | **Unit Manager**

Tools | **Alerts**

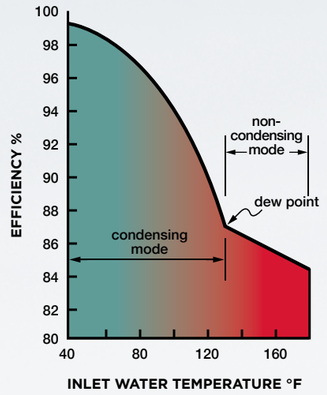
Profile | **Demo**



How condensing technology works

As illustrated in the diagram below, condensing appliances use the latent heat of exhaust to preheat incoming cold water. The colder the inlet water, the higher the efficiency and the more condensate is generated.

Effect of Incoming Water Temperature on Condensing Tankless Efficiency



How a Tankless Rack System™ works

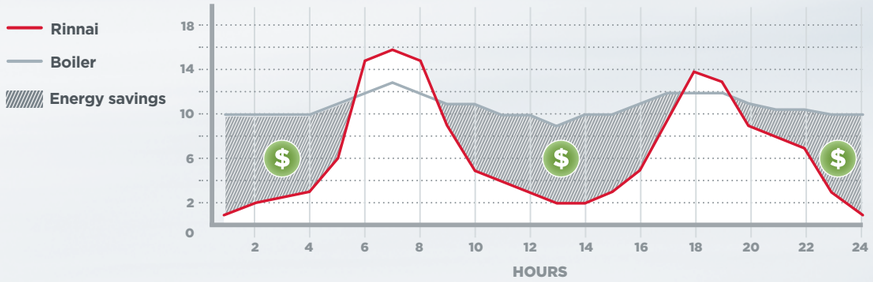
Rinnai's Tankless Rack System™ (TRS) is designed to supply a packaged water heating solution as a fully assembled system, providing an endless supply of hot water.

BENEFITS:

- Includes pre-assembled water and gas manifolds and connections under the tankless water heaters, sized to maintain optimum performance
- Provides ability to link multiple units together, allowing for redundancy and dependability
- All of the Rinnai Tankless Water Heaters in the TRS can electronically connect up to 24 water heaters using Cascade Cables
- Multi-system controls are designed so that each water heater in the TRS supplies an equal amount of hot water, ensuring uniform usage throughout the system

How modulation works

The chart below demonstrates the efficiency that a fully modulating tankless system can provide. The chart generally shows the gas usage of a traditional boiler compared to that of a Rinnai Tankless Water Heater.* Peaks represent the tankless unit meeting user demands, and valleys represent saved energy in between.



*The comparison is not based on data from a specific installation.

endless
solutions






1 CU199

FEATURES AND BENEFITS:

- Precision engineered to provide an endless supply of hot water for commercial applications
- Increased operational performance, longer warranty, easier installation, enhanced serviceability and more venting options.

2 DEMAND DUO™

FEATURES AND BENEFITS:

- Offers “best of both” system, with part tank, part tankless design
- Great for emergency replacement of standard commercial tanks

3 FREE-STANDING DESIGN SOLUTION

FEATURES AND BENEFITS:

- Great for hospitality, multi-family, industrial, schools, dorms, food processing
- Direct replacement for domestic boilers

4 WALL-MOUNTED DESIGN SOLUTION

FEATURES AND BENEFITS:

- Great for food service, hospitality kitchens, laundries, zoned systems
- Replaces medium to large, standard and HE tanks, small boilers plus storage

5 CORNER DESIGN SOLUTION

FEATURES AND BENEFITS:

- Great for food service, hospitality kitchens, laundries, zoned systems
- Replaces standard-efficiency tank water heater application when a wall unit is not applicable due to space constraints

6 CUSTOMIZED SOLUTIONS

MADE-TO-ORDER SOLUTIONS FOR ANY BUSINESS

Built for business

Rinnai CU199 and CU160 Commercial Condensing Tankless Water Heaters

The CU199 Commercial Tankless Water Heater achieves the highest standards of reliability and efficiency. This 97% thermal efficiency Tankless Water Heater comes standard on the Tankless Rack System™ (wall mount or free-standing) and is also available in individual units. With options in natural gas or propane, the CU199 is a dedicated commercial tankless model, precision engineered to produce an endless supply of hot water for even the most demanding applications.

WHY CHOOSE THE RINNAI CU199?

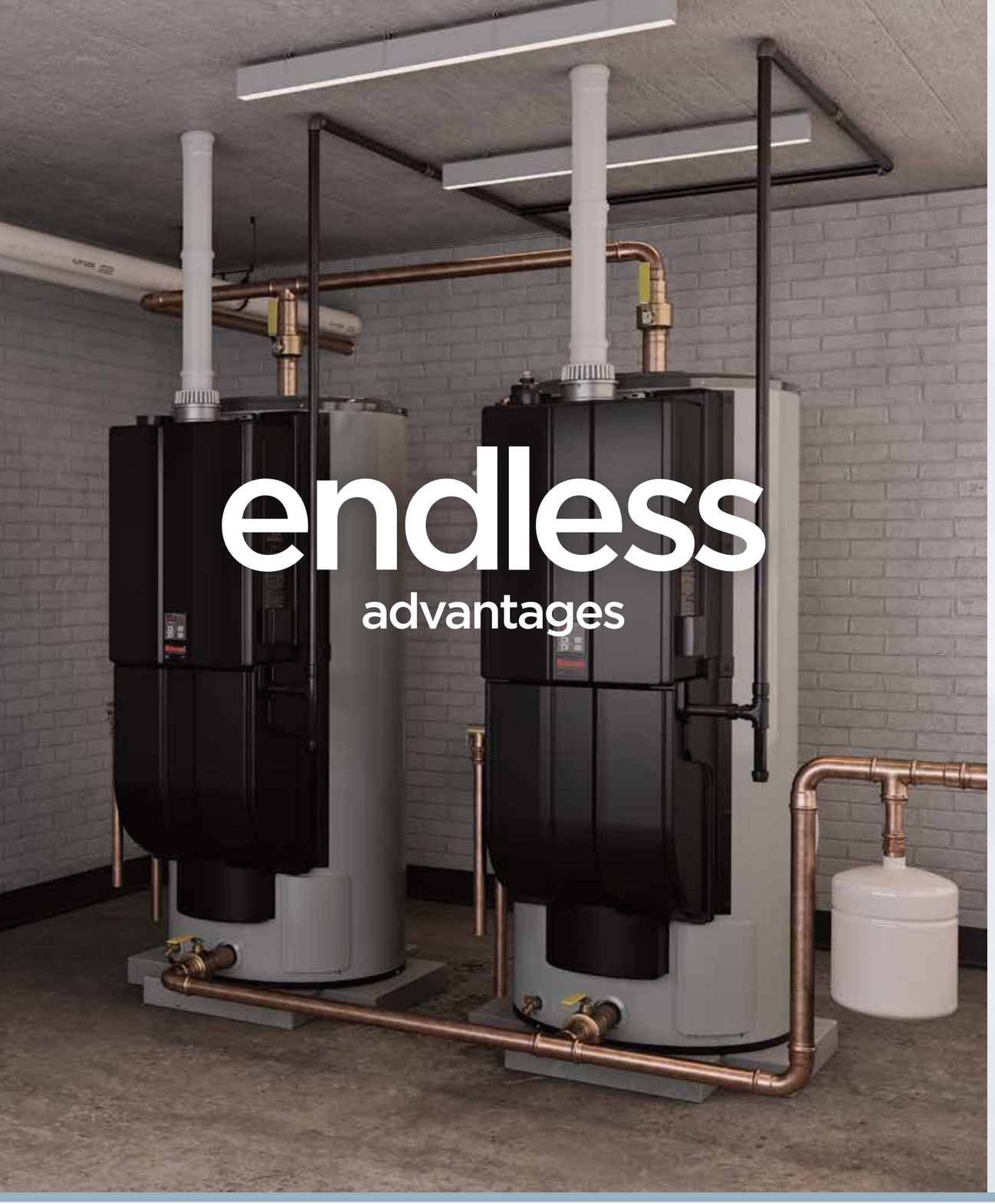
- **Increase savings with Commercial ENERGY STAR® certified Tankless Water Heaters that operate more efficiently on demand to provide an endless supply of hot water**
- **Heat exchanger designed for the demands of businesses helps maximize the life of the product**
- **Free up space with compact designs that can be installed indoors or out**
- **Safety and security through built-in redundancy (multiple units and reliability to keep your business on line)**
- **Maintenance alerts to keep equipment operating at optimal efficiency and performance**
- **Multiple venting options offer installation flexibility**
- **Wi-Fi ready**
- **Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr***

*For complete information and details regarding Rinnai's warranty, visit rinnai.us.

LEARN MORE AT energystar.gov

CU199 and CU160 Features:

- 97% thermal efficiency, Commercial ENERGY STAR® certified
- 199,000 BTU
- Ultra Low NOx compliant
- Approved for high altitude up to 10,200 ft (3,109 m)
- Indoor and outdoor models
- Integrated temperature controller that provides 98°F to 185°F, no external controller required
- Commercial warranty*:
  Heat Exchanger - 8 yrs or 12,000 operation hours, whichever occurs first, All other parts - 5 yrs, Reasonable Labor - 1 yr
- Fuel conversion kits available
- Isolation valves included



Get the best of both

Part tank

- Durable, energy-efficient 119-gallon storage tank
- Ideal for emergency replacement situations
- Offers more water-heating capacity than a traditional tank
- A direct replacement solution with connections similar to most high-efficiency tanks
- Efficient tank recovery methods deliver consistent hot water even during reheat cycles

Part tankless

- Fueled by either natural gas or propane
- Keeps pace with demand, from brief, high-spike draws to a supply that's ready to go the distance, day in and day out
- Commercial ENERGY STAR® certified with 97% thermal efficiency (CU199)
- As the heat source, the Rinnai CU199 tankless unit eliminates thermal stress on the tank – lengthening the life of the unit and its ability to consistently output hot water
- Easy, cost-effective maintenance with readily available parts

100%
Satisfaction Guarantee*

* Rinnai guarantees that its Demand Duo™ will perform to specification. If within the first 30 days after installation you find it does not perform as stated and you are not 100% satisfied with the Demand Duo™, Rinnai will refund you the cost of the product, and installation labor. Rinnai reserves the right to verify correct installation prior to refund.

"With the Rinnai Demand Duo we get **reliability, savings and redundancy**, all in one package!"

– **TY CRAWFORD,** JOURNEYMAN BOILER MECHANIC, PINELLAS SCHOOL DISTRICT, TAMPA, FL

The end of emergency replacement hassles

When you need to replace a standard tank quickly, Rinnai's Demand Duo™ Hybrid Water Heating System is the smart choice. In no time at all, you'll experience the "best of both" — an upgrade that delivers an on-demand and continuous supply of hot water.

- Choose 80-gallon or 119-gallon storage tank
- 199,000 BTU commercial tankless water heater
- 119-gallon unit with CU199 features 97% thermal efficiency
- 80-gallon unit with RL94 offers 82% RE/.81 UEF

Why choose Rinnai® Demand Duo™?

- **Longer life vs. traditional tank**
- **2X the warranty**–** 5-year heat exchanger on 80-gallon system; 8-year heat exchanger on 119-gallon system; 6-year tank, 5-year parts, 1-year labor on all systems
- **Saves money with less energy cost vs. standard-efficiency water heater**
- **Performs better by combining the best of tank and tankless technologies**
- **Easy and cost-effective maintenance –** readily available, field-replaceable parts
- **100% satisfaction –** We're so sure your customers will be happy with their purchase, we offer a No-Risk Satisfaction Guarantee*

* Rinnai guarantees that its Demand Duo™ will perform to specification. If within the first 30 days after installation you find it does not perform as stated and you are not 100% satisfied with the Demand Duo™, Rinnai will refund you the cost of the product, and installation labor. (100% satisfaction guarantee applies only to the following product numbers: CHS199100iN, CHS199199iP, CHS19980HEiP, CHS19980HEiN, CHS19980HEXiN). Rinnai reserves the right to verify correct installation prior to refund.

Wi-Fi Ready

CONNECTION LOCATIONS:

1. **Electrical**
2. **Gas**
3. **Cold Supply**
4. **Hot Supply**
5. **Concentric Vent Intake/Exhaust**
6. **Two Pipe Combustion Air Intake**

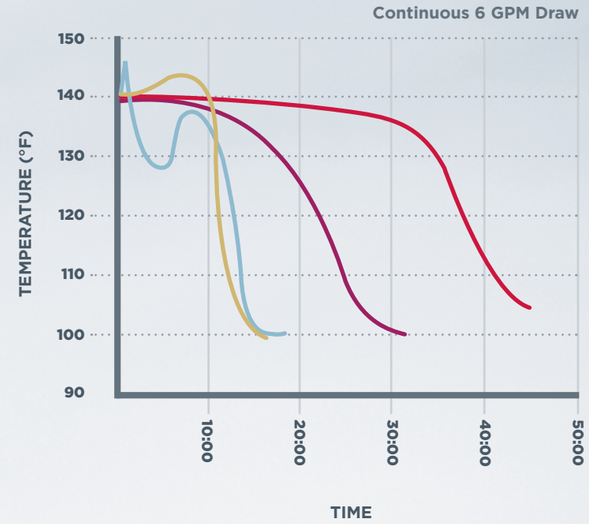
Performance vs. traditional tanks

Internal tests were conducted to show temperature ranges and volume of hot water at a specific Gallons Per Minute (GPM) draw.

Based on a continuous draw at **6 GPM, the Rinnai® Demand Duo™ provides more stable temperatures as well as more hot water** than both standard- and high-efficiency tanks.

- **High-Efficiency Tank (100 Gallon)**
- **Standard-Efficiency Tank (80 Gallon)**
- **Rinnai Demand Duo™ (119 Gallon)**
- **Rinnai Demand Duo™ (80 Gallon)**

Note: All tests were conducted with a fully charged tank set at 140°F. This was a draw only test with supply water temperature at 40°F.



COMMERCIAL HYBRID WATER HEATING SYSTEM SPECIFICATIONS

Model	DEMAND DUO™ 119 GAL	DEMAND DUO™ 80 GAL
Part Number	CHS199100CUiN/CHS199100CUiP	CHS19980HEiP/CHS19980HEiN/CHS19980HEXiN
Dimensions – w x h x d Inches (mm)	28.2 x 67.3 x 39.1 (358 x 1709 x 993)	24.25 x 62.69 x 34.05 (615.9 x 1592.3 x 864.9)
Product Weight (lbs/kg)	428/194	290/132
Installation Type	Indoor	Indoor
Storage Tank	119 Gallons	80 Gallons
Min/Max BTU	15,200/199,000	10,300/199,000
Thermal Efficiency (TE)/UEF / Recovery Efficiency (RE)/UEF	97% (TE)/.93 UEF	82% (RE)/.81 UEF
Temperature Range	98°-185°F/37°-85°C	98°-185°F/37°-85°C
Hot Water Capacity*	First Hour Delivery–315 gph	First Hour Delivery–259 gph**
Controller (standard)	MCC-91-2US	MCC-91-2US
Ultra Low NOx	Yes	Available (CHS19980HEXiN)
Warranty (Commercial)***	Heat Exchanger: 8-year or 12,000 operation hours, whichever occurs first; 6-year tank, All other parts: 5-year, Reasonable Labor: 1-year	Heat Exchanger and all other parts: 5-year, 6-year tank, Reasonable Labor: 1 year
High Altitude Approved	Yes	Yes
Certification	CU199 - AHRI and CSA	RL94 - AHRI and CSA
Venting Material	Available in Concentric, Dual Pipe or Common Vent Polypropylene (US and Canada) PVC/CPVC (US only)	Concentric polypropylene/aluminum
Venting Options	Direct vent with side wall intake/vertical exhaust for U.S. and Canada (exhaust must terminate vertically), room air common vent for the U.S.	Direct Vent vertical or horizontal terminations (concentric venting)
ENERGY STAR® Certified	Yes	No
1/2" Gas Line Compatible****	Yes	Yes
Wi-Fi Ready	Yes	Yes

* Per test results from Rinnai testing lab based on storage volume and 70 percent usable hot water.
** First Hour Delivery of 251 gph with CHS19980HEXiN.
*** For complete information and details regarding Rinnai's warranty, visit rinnai.us.
**** For complete information on gas sizing for Rinnai Tankless Water Heaters, consult the Operation and Installation Manual.

Rinnai Tankless **Rack Systems**

A one-stop shop for the water heating solutions of the future

Make reliability, redundancy and flexibility key features in your customers' water heating solutions.

With Rinnai Tankless Rack Systems, your customers can harness all the benefits of tankless water heating technology, pre-assembled and ready to replace their existing water heating systems. Built with superior quality and reliability, Rinnai's Tankless Rack System™ (TRS) offers the perfect BTU upgrade for older domestic boiler units that require reheating storage tanks.

With four different tankless rack solutions, Rinnai offers customers the variety they need to achieve the perfect rack system for their needs.

1. **Free-standing Design Solution**
   The perfect fit for hospitality, multi-family, industrial, schools, dorms and more.

2. **Wall-mounted Design Solution**
   Created for food service, hospitality kitchens, laundries and zoned systems, this option can replace medium to large boilers.

3. **Corner Design Solution**
   Perfect for food service, zoned systems and hospitality kitchens, the corner design replaces a wall unit when space is tight.

4. **Custom Design Solution**
   No matter your customer's needs, we can work with them and their business to craft the perfect rack system.

Rinnai Tankless Free-standing Rack

High performance and reliability come standard.

The Rinnai Tankless Free-standing Rack is the perfect replacement for domestic boilers.

The benefits of a Tankless Free-standing Rack:

- Provides built-in redundancy by banking individual Tankless Water Heaters to ensure your customer's hot water supply keeps flowing even if a unit is down
- Comes standard with the condensing CU199 Tankless Water Heater that boasts 97% thermal efficiency and a heat exchanger built for the demands of commercial applications
- Built with unsurpassed quality and comes with top-of-the-line technical support
- Wi-Fi ready
- Flexible installation
  - Fits through standard 32" doorways
  - Has various venting options, including PVC and the Rinnai Common Vent system
  - Can be mounted indoors or outdoors using natural gas or propane

Rinnai Tankless Wall-hanging Rack

A higher level of efficiency

Shipped fully assembled in a variety of configurations, new Rinnai Tankless Wall-Hanging Rack (TRW) arrives ready to install, and ready to impress.

A complete and fully modular solution, the TRW features a sturdy, pre-assembled rack with multiple Rinnai Tankless Water Heaters already mounted and connected to each other. Together, the units have enough capacity to suit commercial water heating requirements, replacing tank-style water heaters or domestic boilers with one simple, energy-efficient solution.

- TRW racks are stocked by distribution, making them perfect for emergency replacement
- Quick and easy installation with included wall-hanging bracket
- Lightweight steel box frames
- TRW racks come with two to three tankless water heaters per rack, which can be combined with up to 25 models and provide up to 4.9 million BTU
- Indoor or outdoor installations
- Fits, fully assembled, through standard 32-inch doorways and on elevators
- Modulation technology with turn-down ratios of up to 327:1 to ensure hot water delivery and efficiency
- Use with or without storage tank and/or recirculation loop
- No ASME inspection required

Rinnai Corner-Hanging Rack System

Save your customers space, time and money

The Rinnai Corner Tankless Rack System is designed to take the place of a traditional tank, while continuing Rinnai's tradition of engineering streamlined solutions for commercial water heating.

Product highlights:

- Two CU199 Condensing Tankless Water Heaters with 97% thermal efficiency (398k BTU system)
- Commercial ENERGY STAR® certified
- Direct replacement for single-tank water heaters
- Indoor wall-mount installations
- Multiple venting options (PVC/CPVC, Polypropylene, concentric, etc.)
- Available factory-direct preventive maintenance
- Can be made to order with HE+ Series, SE Series and SE+ Series models

The benefits of a Corner Tankless Rack System:

- Ideal replacement for medium-to-large, standard and high-efficiency tank water heaters
- Decreases footprint when space is limited (zero floor footprint)
- Vertical manifold design allows plumbers to pipe into existing plumbing
- Saves time and materials on quick replacements with wall-hanging bracket
- Provides needed redundancy when compared to a single tank

Rinnai Customized solution

Get Rinnai tankless technology your way

Rinnai is the industry leader in creating custom-engineered water heating solutions built around the needs of their customers. Using proven sizing methodologies, Rinnai's Application Engineering Center of Excellence is there to consult with you and provide the best total solution for your customer's next project. Call them at **1-800-621-9419** or email at **engineering@rinnai.us**.

Rinnai Tankless
Rack System benefits

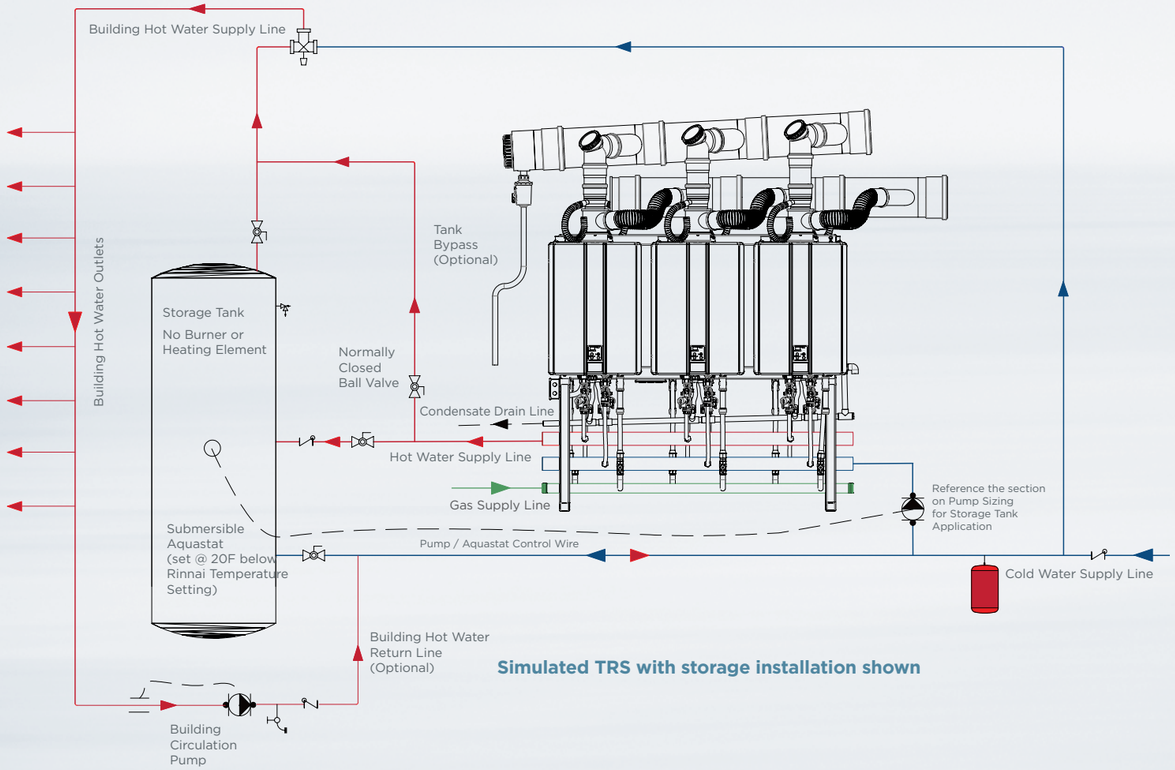
Now you can harness all the benefits of tankless water heating technology, pre-assembled and ready to replace the boiler in your existing or planned boiler and storage tank domestic water heating system.

Built with superior quality and reliability, Rinnai's Tankless Rack System™ (TRS) offers the perfect BTU upgrade of an old-style domestic water boiler that is reheating storage tanks. On retro-fit applications, oftentimes you can keep your existing tank and pump and simply replace with the lower-cost and better-performing TRS.

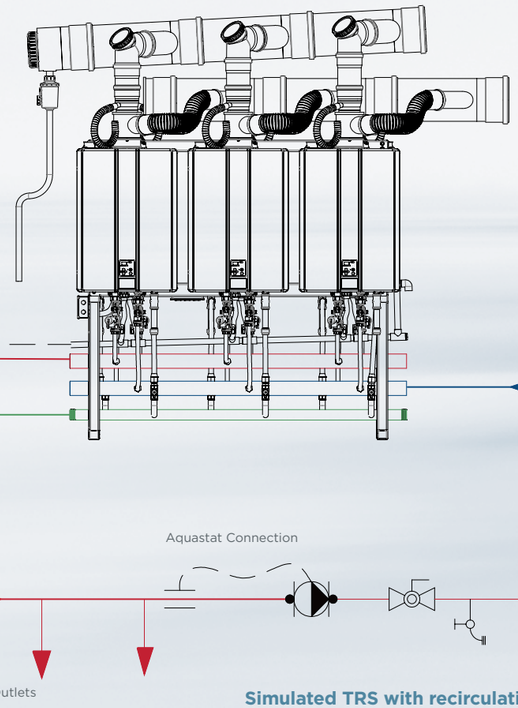
The TRS installs in place of an old-style boiler and provides built-in redundancy by banking individual Tankless Water Heaters to ensure your hot water supply keeps flowing even if a unit is down. The TRS comes standard with our new condensing CU199 Tankless Water Heater that boasts 97% thermal efficiency and a heat exchanger built for the demands of commercial applications.

Flexible installation is another TRS strong suit. It fits through a standard 32" doorway, has various venting options including PVC and the Rinnai Common Vent system, and can be mounted indoors or outdoors, either floor-standing or wall-mount.

By offering a significantly lower upfront capital investment and reduced annual maintenance costs, the overall cost of ownership can be lower vs. the same BTU boiler. Couple that with the Rinnai reputation for unsurpassed quality and technical support — plus the added benefit of having the Rinnai Commercial Solutions Team help with free sizing and application engineering — and the TRS is the business-friendly replacement for even the largest boilers.



Simulated TRS with storage installation shown



Simulated TRS with recirculation installation shown

Flexibility, durability and efficiency

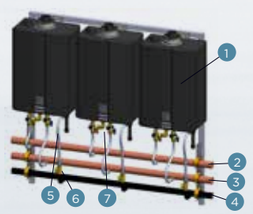
	SUPER-HIGH-EFFICIENCY SE+ SERIES (CONDENSING)									HIGH-EFFICIENCY HE+ SERIES (NON-CONDENSING)			
													
Model	CU199i / CU199e	CU160i / CU160e	Demand Duo 119 gallon / CU199i	RUR199i / RUR199e	RUR160i / RUR160e	RU199i / RU199e	RU180i / RU180e	RU160i / RU160e	RU130i / RU130e	RL94i / RL94e	RLX94i	Demand Duo 80 gallon / RL94i	RL75i / RL75e
Dimensions - w, h, d Inches (mm)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	28.2 x 67.3 x 39.1 (358 x 1709 x 993)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	18.5 x 26.4 x 11.5 (470 x 670 x 290)	14 x 23 x 9 (355.6 x 584.2 x 228.6)	14 x 23 x 9 (355.6 x 584.2 x 228.6)	24.25 x 62.69 x 34.05 (616 x 1592 x 865)	14 x 23 x 9 (355.6 x 584.2 x 228.6)
Weight (lbs / kg)	64 / 29	62 / 28	428 / 194	73 / 33	71 / 32	64 / 29	64 / 29	62 / 28	62 / 28	46 / 21	46 / 21	290 / 132	46 / 21
Installation Type	i=indoor e=outdoor	i=indoor e=outdoor	indoor only	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	indoor only	i=indoor e=outdoor
Storage Tank	No	No	Yes	No	No	No	No	No	No	No	No	Yes	No
Min./Max. BTU (NG)	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 180,000	15,000 / 160,000	15,000 / 130,000	15,000 / 199,000	10,300 / 192,000	15,000 / 199,000	15,000 / 199,000
Min./Max. BTU (LP)	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 180,000	15,000 / 160,000	15,000 / 130,000	15,000 / 199,000	N/A	15,000 / 199,000	15,000 / 199,000
Thermal Efficiency (TE) / UEF / EF (Canada Only)	97% TE / .93 UEF	97% TE / .93 UEF	97% TE / .93 UEF	0.93 UEF / .96 EF	0.92 UEF / .95i-.96e EF	0.93 UEF / .96 EF	0.92 UEF / .95i-.96e EF	0.92 UEF / .95i-.96e EF	0.91 UEF / .95 EF	0.81 UEF / .82 EF	0.81 UEF / .82 EF	0.81 UEF / .82 EF	0.81 UEF / .82 EF
Temp. Range Commercial	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C
Min. Activation Rate	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)	0.4 GPM (1.5L / MIN)
Flow Rate (70° / 100° Temp. Rise)	5.5/3.9(20.8/14.7)	4.4/3.1 (16.6/11.7)	315 GPH (1st Hour)	5.5/3.9(20.8/14.7)	4.4/3.1 (16.6/11.7)	5.5/3.9(20.8/14.7)	5.0/3.5 (18.9/13.2)	4.35/3.0 (16.4/11.3)	3.6/2.5 (13.6/9.4)	4.7/3.3 (17.8/29.2)	4.5/3.2 (17.0/24.2)	259 GPH (1st Hour)	4.3/3.0 (16.3/22.7)
Hot Water Flow Rate Range	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.8 GPM (.98-37.1) LPM	N/A	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.0 GPM (.98-34.1) LPM	0.26-8.0 GPM (.98-) LPM	0.26-6.6 GPM (.98-) LPM	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.8 GPM (.98-37.1) LPM	N/A	0.26-7.5 GPM (.98-28.4) LPM
Controller (standard)	MCC-91-2US	MCC-91-2US	MCC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US
Controllers (optional)	MC-91-2US	MC-91-2US	MC-91-2US	MC-195T-US or Control-R™	MC-195T-US or Control-R™	MC-100V-1US, BC-100V-1US, MC-195T-US, MCC-91-2US				MC-100V-1US, BC-100V-1US, MC-195T-US, MCC-91-2US			
Ultra Low NOx	Yes					Yes				Available	Yes	Available	Yes
Warranty (Commercial)*	Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr									Heat Exchanger: 5 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr			
Warranty (Residential)*	Heat Exchanger: 15 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr									Heat Exchanger: 12 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr			
Valves Shipped in Box	Yes									Yes			
High Altitude Approved	Up to 10,200 ft (3,109 M)									Up to 10,200 ft (3,109 M)			
Certifications	AHRI, ANSIZ21.10.3, CSA 4.3, and ENERGY STAR*									AHRI and CSA			
Concentric**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PVC/CPVC/PP**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Common Vent**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Room Air Common Vent**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
TRS/TRW Compatible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1/2" Gas Line Compatible	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wi-Fi Ready	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

* For complete information and details regarding Rinnai's warranty, visit rinnai.us.
** To achieve temperatures over 140° F / 60° C, an MCC-91 commercial controller must be purchased separately.
*** For complete information on gas sizing for Rinnai Tankless Water Heaters, consult the Operation and Installation Manual.
‡ Based on DOE first hour test (OCFR, Part 430). Side note: the isolation valves are on the unit.

TANKLESS RACK SYSTEM™ CONFIGURATIONS
WALL-HANGING AND WALL-MOUNT RACKS

	Wall-Hanging										Wall Mount			Corner-Hanging
	CU Series			**SE+** Series	**SE+** Series with Thermacirc360™			**HE+** Series						
														
Rack Model Number	TRW02CU	TRW23CU	TRW03CU	TRW02SE	TRW02ST	TRW03ST	TRW02HE	TRW02HEX	TRW03HE	TRW03HEX	TRS02ILWCU	TRS23ILWCU	TRS03ILWCU	TRC02CU
Tankless Model Number	CU199			RU199	RUR 199 and RU199			RL94 or RLX94i (NG)			CU199			
Thermal Efficiency (TE) / UEF / EF (Canada Only)	97% TE / .93 UEF			0.93 UEF / .96 EF				0.81 UEF / .82 EF			97% TE / .93 UEF			
Number of Tankless Units	2	2	3	2	2	3	2	2	3	3	2	2	3	2
Max Input (BTU/h)	398,000	398,000	597,000	398,000	398,000	597,000	398,000	384,000	597,000	576,000	398,000	398,000	597,000	398,000
Min Input (BTU/h)*	15,200							10,300			15,200			
Shipping Dimensions - w x h x d inches (mm)	70 x 66 x 35 (1,778 x 1,676 x 889)										70 x 66 x 35 (1,778 x 1,676 x 889)			48 x 50 x 31.5 (1,219 x 1,270 x 800)
Product Dimensions - w x h x d inches (mm)	44 x 54.8 x 14.1 (1,117 x 1,392 x 358)	65 x 58 x 14.1 (1,651 x 1,473 x 358	65 x 54.8 x 14.1 (1,651 x 1,392 x 358)	44 x 54.8 x 14.1 (1,117 x 1,392 x 358)	44 x 58 x 14.1 (1,117 x 1,473 x 358)	65 x 58 x 14.1 (1,651 x 1,473 x 358)	36.5 x 49.1 x 12.5 (927 x 1,247 x 318)	36.5 x 49.1 x 12.5 (927 x 1,247 x 318)	51.5 x 49.1 x 12.5 (1,308 x 1,247 x 318)	51.5 x 49.1 x 12.5 (1,308 x 1,247 x 318)	47 x 58 x 19.3 (1,194 x 1,473 x 490)	65 x 58 x 19.3 (1,651 x 1,473 x 490)	65 x 58 x 19.3 (1,651 x 1,473 x 490)	32.9 x 45 x 32.9 (836 x 1,143 x 836)
Shipping Weight (lbs/kg)	380/172	407/184	469/213	391/177	399/181	476/216	334/152	334/152	374/170	374/170	410/186	424/192	497/225	356/161
Fully Assembled Weight (lbs/kg)	170/77	186/84	248/112	170/77	178/81	258/117	120/54	120/54	160/72	160/72	208/94	222/101	297/135	224/102
Gas Manifold (dia.) (in./mm)	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm
Water Manifold (dia.) (in./mm)	2"/51mm	2"/51mm	2"/51mm	2"/51mm	2"/51mm	2"/51mm	1-1/2"/38mm	1-1/2"/38mm	1-1/2"/38mm	1-1/2"/38mm	2"/51mm	2"/51mm	2"/51mm	1-1/2"/38mm
Flow Rate @ 70° F ΔT (GPM/GPH)	10.8/648	10.8/648	16.2/972	10.8/648	10.8/648	16.2/972	9.5/570	9/540	14/840	13.5/810	10.8/648	10.8/648	16.2/972	10.8/648
Flow Rate @ 100° F ΔT (GPM/GPH)	7.6/456	7.6/456	11.4/684	7.6/456	7.6/456	11.4/684	6.6/396	6.3/378	9.8/588	9.4/564	7.6/456	7.6/456	11.4/684	7.6/456
Max. Current (Amperes)	8	8	12	8	8	12	8	8	8	12	8	8	12	8
Electrical Requirements	Ac 120 Volts - 60 Hz			Ac 120 Volts - 60 Hz				Ac 120 Volts - 60 Hz			Ac 120 Volts - 60 Hz			
Frame Material	14 Gauge Hot Rolled Steel-Indoor/Stainless-Exterior			14 Gauge Hot Rolled Steel-Indoor/Stainless-Exterior				14 Gauge Hot Rolled Steel-Indoor/Stainless-Exterior			Aluminum			
Water Manifold Material	Rigid Copper			Rigid Copper				Rigid Copper			Rigid Copper			
Water Branch Line (dia.)	3/4"			3/4"				3/4"			3/4"			
Gas Manifold Material	Sch 40 Steel			Sch 40 Steel				Sch 40 Steel			Sch 40 Steel			
Gas Branch Line Material	PVC over CSST			PVC over CSST				PVC over CSST			PVC over CSST			
Warranty - Commercial	Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr							Heat Exchanger: 5 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr			Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr			
Warranty - Residential	Heat Exchanger: 15 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr							Heat Exchanger: 12 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr			Heat Exchanger: 15 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr			
High Alt. Approval	Yes			Yes				Yes			Yes			
PVC/CPVC	Yes			Yes				Yes			Yes			
Common Vent (Vertical, Horizontal and Side Wall Intake Vertical Exhaust)	Yes			Yes				No			Yes			
Room Air Common Vent (Vertical Exhaust)	Yes			Yes				No			Yes			
Room Air Common Vent (Horizontal Exhaust)	Yes			Yes				No			Yes			
Commercial ENERGY STAR® Certified	Yes			No				No			Yes			
CU199 Certifications	CSA			No				No			CSA			
Wi-Fi Ready	Yes			Yes				Yes			Yes			
Pre-Wired Power Outlet & Junction Box* **	No			No				No			No	No	Yes	No

* When using cascade controller (REU-MSB)
** For complete information and details regarding Rinnai's warranty, visit rinnai.us.
*** Pre-Wired Power Outlet and Junction Box is integrated on interior units only.



WALL-HANGING RACK

NO	DESCRIPTION	NO	DESCRIPTION
1	Rinnai Tankless Indoor or Outdoor Unit	5	3/4" Dirt Leg
2	Manifold, Hot Water	6	3/4" FNPT Brass Ball Valve – Gas
3	Manifold, Cold Water	7	Pressure Relief Valve (PRV)
4	Manifold, Gas		

'GPH represents flow rate delivered as GPH, not storage GPH.
*Facing same direction.

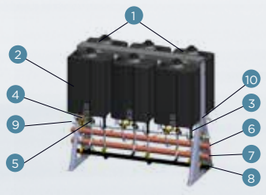
Note:
Explanation of Part Numbers—For specific model numbers, add i or e (for external / internal) water heaters and N or P (for Natural Gas or LP). Example: TRW02iN, 2-unit wall-mount rack with interior Natural Gas RU98 tankless units.

TANKLESS RACK SYSTEM™ CONFIGURATIONS
FREE-STANDING RACKS

	Free-standing, Inline			Free-standing, Back-to-Back						
										
Rack Model Number	TRS02ILCU	TRS23ILCU	TRS03ILCU	TRS02CU	TRS03CU	TRS36CU	TRS04CU	TRS46CU	TRS05CU	TRS06CU
Tankless Model Number	CU199						CU199			
Thermal Efficiency (TE) / UEF / EF (Canada Only)	97% TE / .93 UEF						97% TE / .93 UEF			
Number of Tankless Units	2	2	3	2	3	3	4	4	5	6
Max Input (BTU/h)	398,000	398,000	597,000	398,000	597,000	597,000	796,000	796,000	995,000	1,194,000
Min Input (BTU/h)*	15,200						15,200			
Shipping Dimensions - w x h x d inches (mm)	70 x 66 x 35 (1,778 x 1,676 x 889)						70 x 66 x 35 (1,778 x 1,676 x 889)			
Product Dimensions - w x h x d inches (mm)	47 x 55.6 x 31.1 (1,194 x 1,412 x 790)	65 x 58 x 19.3 (1,651 x 1,473 x 490)	65 x 55.6 x 19.3 (1,651 x 1,412 x 490)	47 x 55.6 x 31.1 (1,194 x 1,412 x 790)	65 x 55.6 x 31.1 (1,651 x 1,412 x 790)	65 x 58 x 31.1 (1,651 x 1,473 x 790)	65 x 55.6 x 31.1 (1,651 x 1,412 x 790)	65 x 58 x 31.1 (1,651 x 1,473 x 790)	65 x 55.6 x 31.1 (1,651 x 1,412 x 790)	65 x 55.6 x 31.1 (1,651 x 1,412 x 790)
Shipping Weight (lbs/kg)	416/189	424/192	497/225	416/189	490/222	490/222	562/454	586/266	658/298	731/332
Fully Assembled Weight (lbs/kg)	214/97	222/101	297/135	214/97	290/132	290/132	362/164	385/174	462/209	538/244
Gas Manifold (dia.) (in./mm)	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/4"/32mm	1-1/2"/38mm	1-1/4"/32mm	1-1/2"/38mm	1-1/2"/38mm	1-1/2"/38mm
Water Manifold (dia.) (in./mm)	2"/51mm	2"/51mm	2"/51mm	2"/51mm	2"/51mm	2 1/2"/63mm	2"/51mm	2 1/2"/63mm	2 1/2"/63mm	2 1/2"/63mm
Flow Rate @ 70° F ΔT (GPM/GPH)	10.8/648	10.8/648	16.2/972	10.8/648	16.2/972	16.2/972	21.6/1,296	21.6/1,296	27/1,620	32.4/1,944
Flow Rate @ 100° F ΔT (GPM/GPH)	7.6/456	7.6/456	11.4/684	7.6/456	11.4/684	11.4/684	15.1/906	15.1/906	19/1,140	22.8/1,368
Max. Current (Amperes)	8	8	12	8	12	12	16	16	20	24
Electrical Requirements	Ac 120 Volts - 60 Hz						Ac 120 Volts - 60 Hz			
Frame Material	Aluminum						Aluminum			
Water Manifold Material	Rigid Copper						Rigid Copper			
Water Branch Line (dia.)	3/4"						3/4"			
Gas Manifold Material	Sch 40 Steel						Sch 40 Steel			
Gas Branch Line Material	PVC over CSST						PVC over CSST			
Warranty - Commercial	Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr						Heat Exchanger: 8 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr			
Warranty - Residential	Heat Exchanger: 15 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr						Heat Exchanger: 15 yrs or 12,000 operation hours, whichever occurs first, All other parts: 5 yrs, Reasonable Labor: 1 yr			
High Alt. Approval	Yes						Yes			
PVC/CPVC	Yes						Yes			
Common Vent (Vertical, Horizontal and Side Wall Intake Vertical Exhaust)	Yes						Yes			
Room Air Common Vent (Vertical Exhaust)	Yes						Yes			
Room Air Common Vent (Horizontal Exhaust)	Yes						Yes			
Commercial ENERGY STAR® Certified	Yes						Yes			
CU199 Certifications	CSA						CSA			
Wi-Fi Ready	Yes						Yes			
Pre-Wired Power Outlet & Junction Box* **	No						Yes			

* When using cascade controller (REU-MSB)
** For complete information and details regarding Rinnai's warranty, visit rinnai.us.
*** Pre-Wired Power Outlet and Junction Box is integrated on interior units only.

For Demonstration Purposes Only.



FREE-STANDING RACK

NO	DESCRIPTION	NO	DESCRIPTION
1	Lifting Eyebolt	6	Manifold, Hot Water
2	Rinnai Tankless Indoor or Outdoor Unit	7	Manifold, Cold Water
3	3/4" Dirt Leg	8	Manifold, Gas
4	3/4" FNPT Brass Ball Valve – Gas	9	Pre-Assembled Condensate Drain
5	Pressure Relief Valve (PRV)	10	Pre-Wired Power Junction Box

*When using cascade controller (REU-MSB)

PERFORMANCE CHART FOR
TANKLESS RACK SYSTEMS UTILIZING STORAGE

Recovery Capacity and First Hour Delivered @ Temperature Rise (°F) with Storage Tank												
Rack System Configurations							60° F Temperature Rise		80° F Temperature Rise		100° F Temperature Rise	
WH qty.	Model	Max BTUH Input	Tank Size (Gal.)	Recovery Pump Size		Thermal Efficiency	Recovery GPH	First Hour Delivered (Gal.)	Recovery GPH	First Hour Delivered (Gal.)	Recovery GPH	First Hour Delivered (Gal.)
				GPM	Head (ft)							
2	TRW02 / TRW23 TRS02 / TRS23	398,000	100	10	30	97%	772	842	578	648	463	533
			200					912		718		603
			300					982		788		673
3	TRW03 / TRS03 / TRS36	597,000	100	15	30	97%	1,158	1,228	867	937	695	765
			200					1,298		1,007		835
			300					1,368		1,077		905
			400					1,438		1,147		975
4	2-TRW02 / TRS04 / TRS46	796,000	100	20	30	97%	1,544	1,614	1,157	1,227	927	997
			200					1,684		1,297		1,067
			300					1,754		1,367		1,137
			400					1,824		1,437		2,207
5	TRW02 + / TRW03 / TRS05	995,000	200	25	30	97%	1,930	2,070	1,447	1,587	1,158	1,298
			300					2,140		1,657		1,368
			400					2,210		1,727		1,438
6	TRW03 + / TRW03 / TRS06	1,194,000	200	30	30	97%	2,316	2,456	1,736	1,876	1,389	1,529
			300					2,516		1,946		1,599
			400					2,596		2,016		1,669

Note: This chart should be used only when the existing or specified system is known. Select TRS model to the left. Use existing or specified storage tank with TRS selection. Reference chart above for recovery GPH performance. To calculate "First Hour Delivered" add 70% of existing or specified tank volume to recovery GPH. Multiple configurations available. Reference TRS Installation Manual. TRS models are free-standing units; TRW models are wall-mount units.

DEFINITIONS:

Tank size: capacity of water in gallons inside storage tank as stated by manufacturer

Recovery pump: pump that will circulate water from tank to TRS during recovery period

Recovery Flow Rate: flow rate in GPM at which volume inside tank is being recovered

Recovery GPH: the water heater's ability to replenish hot water as it's drawn from the tank

Recovery efficiency: the ratio of energy delivered to the water to the energy content of the fuel consumed by the water heater

First Hour Delivered (Gal): usable volume of water that can be drawn in one hour, determined using the following formula: First Hour Delivered (Gal) = Recovery GPH + tank capacity x 0.70

Temperature rise: temperature difference in °F between the TRS set point and the incoming water temperature

Cross Reference for Existing or Specified Systems		
Existing or Specified Systems BTUH	As Specified or Existing	Thermal Efficiency
400,000	As specified or existing	≥ 93%
600,000	As specified or existing	≥ 93%
800,000	As specified or existing	≥ 93%
1,000,000	As specified or existing	≥ 93%
1,200,000	As specified or existing	≥ 93%

TRS/TRW **highlights**

- 97% thermal efficiency
- Commercial ENERGY STAR® certified
- Direct replacement for domestic boilers
- Indoor/outdoor/wall/floor mount installations
- Multiple venting options
- No ASME inspection required
- Available factory-direct preventive maintenance

Product Sizing Disclaimers

- This Sizing Reference Guide and all information contained herein is based on the proper installation and use of (1) a series of Rinnai Tankless Water Heaters that are piped to a storage tank and (2) an adequate and properly sized Recovery Pump that will recover the storage tank (i.e., that will circulate water from the Rinnai Tankless Water Heaters into the storage tank) thereby allowing the Rinnai Tankless Water Heaters to properly heat the water for the storage tank.
- This Sizing Reference Guide is intended to be used as a guide only and not as a replacement for a professionally engineered project.
- For additional information, please refer to the Rinnai Tankless Rack System Manual or contact the Application Engineering Department at Rinnai America Corporation by calling (866) 383-0707.
- Multiple TRS should be installed in parallel using a secondary manifold from the building's cold and hot water supply. You should reference the particular section of the TRS installation manual for piping multiple racks.
- The building's circulation pump must be controlled by an aquastat, timer, or both.

Venting to Meet Every **Commercial Application**

The following vent options are available:

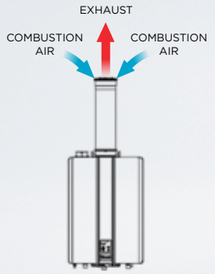
- Direct Vent with Concentric Pipe*
- Direct Vent with Twin Pipe
- Common Vent
- Room Air

Now including 2" venting up to 65' vent runs

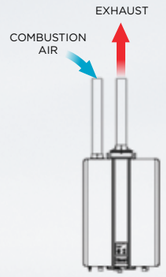
- Fewer Wall or Roof Penetrations
- Simplifies Handling and Installation
- Reduced Material Costs
- Easier Routing of Vents

1 DIRECT VENT (Concentric Pipe and Twin Pipe)

Concentric Pipe
Combustion air and exhaust vent directly through a single concentric connection. Hot exhaust exits through the interior tube, while combustion air enters through the outer layer.



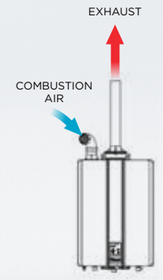
Twin Pipe
Combustion air and exhaust vent directly through separate penetrations.



CONCENTRIC		
DIAMETER	EQUIVALENT LENGTH	TERMINATION
3"/5"	150' (46 m)	VERTICAL OR HORIZONTAL
2"/4" (NEW)	65' (20 m)	VERTICAL OR HORIZONTAL

2 NON-DIRECT VENT (Room Air and External)

Room Air
Room air is used for combustion while exhaust vents to the outside.

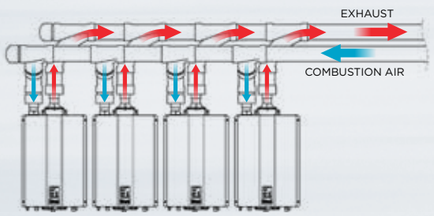


External (Outdoor)
Exterior models - no venting required.

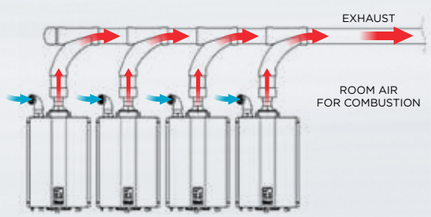
TWIN PIPE AND ROOM AIR			
DIAMETER	MATERIAL	EQUIVALENT LENGTH	TERMINATION
3"	PP, PVC, CPVC	150' (46 m)	VERTICAL OR HORIZONTAL
2" (NEW)	PP, PVC, CPVC	65' (20 m)	VERTICAL OR HORIZONTAL

3 COMMON VENT (Indoor Units Only. Direct Vent and Non-Direct / Room Air Vent)

Direct Vent
Multiple water heaters sharing a combustion air header and a separate exhaust header that vents directly through separate penetrations to the outside.



Non-Direct (Room Air) Vent
Multiple water heaters using room air for combustion while sharing an exhaust header that vents directly to the outside.



*HE+ Series tankless water heaters must use concentric venting with a metal exhaust pipe. Refer to the Installation and Operation Manual supplied with the HE+ Tankless Water Heater for venting options

VENT OPTIONS FOR CU SERIES, SE SERIES AND SE+ SERIES TANKLESS WATER HEATERS

VENT OPTIONS	VENT MATERIAL		DIAMETER		MAX UNITS	MAXIMUM VENT LENGTH
	Exhaust	Intake	Header	Vent		
Concentric Pipe	Polypropylene	Schedule 40 PVC		5"	1	150 ft
				4"		65 ft
Twin Pipe	Polypropylene* or Schedule 40 PVC/CPVC	Schedule 40 PVC/CPVC		3"	1	150 ft
				2"		65 ft
Common Vent	Polypropylene or Schedule 40 PVC/CPVC	Polypropylene or Schedule 40 PVC/CPVC	3"		2	65 ft
			4"		4	1-3 Units: 150ft 4 Units: 65 ft
			4"	6"	7	1-6 Units: 150ft 7 Units: 70 ft
			6"		8	150 ft

*Twin Pipe Polypropylene venting is provided by Centrotherm through their own distribution network.

DIRECT VENT VERTICAL

DIRECT VENT HORIZONTAL

ROOM AIR WITH HORIZONTAL EXHAUST (NEW)

SIDE WALL INTAKE VERTICAL EXHAUST CU199 ONLY

ROOM AIR COMMON VENT CONFIGURATION VERTICAL EXHAUST CU199 ONLY

ROOM AIR COMMON VENT CONFIGURATION VERTICAL EXHAUST DEMAND DUO™

Common Venting | **Direct Vent - Polypropylene**

3"

INLINE and CORNER
(P/N: 790130)

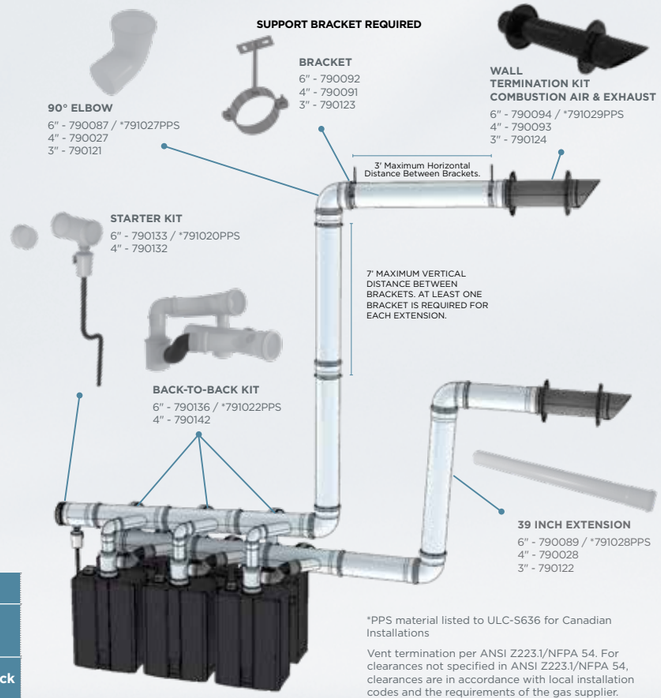
4"

4" INLINE		4" BACK-TO-BACK	
4" ADD-ON (P/N: 790134)	4" STARTER (P/N: 790132)	4" ADD-ON (P/N: 790142)	4" STARTER (P/N: 790132)

6"

6" INLINE		6" BACK-TO-BACK	
6" ADD-ON (P/N: 790135)	6" STARTER (P/N: 790133)	6" ADD-ON (P/N: 790136)	6" STARTER (P/N: 790133)

SAMPLE HORIZONTAL TERMINATION ASSEMBLY - DIRECT VENT



*PPS material listed to ULC-S636 for Canadian Installations

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

VENTING HEADER KIT MATRIX

			TRW/TRSIL MODELS	TRS MODELS	
Qty of Tankless Units	Min. Vent Size	Qty of Starter Kits Needed	In Line Kits	In-Line Kits	Back-to-Back Kits
2	3"	1	2	0	1
3	4"	1	3	1	1
4	4"	1	4	0	2
5	6"	1	5	1	2
6	6"	1	6	0	3
7	6"	1	7	1	3
8	6"	1	8	0	4

Common Venting | **Room Air - Polypropylene**

3"

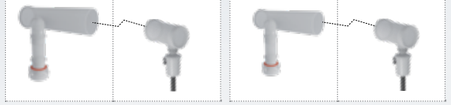
INLINE and CORNER
(P/N: 790131)

4"

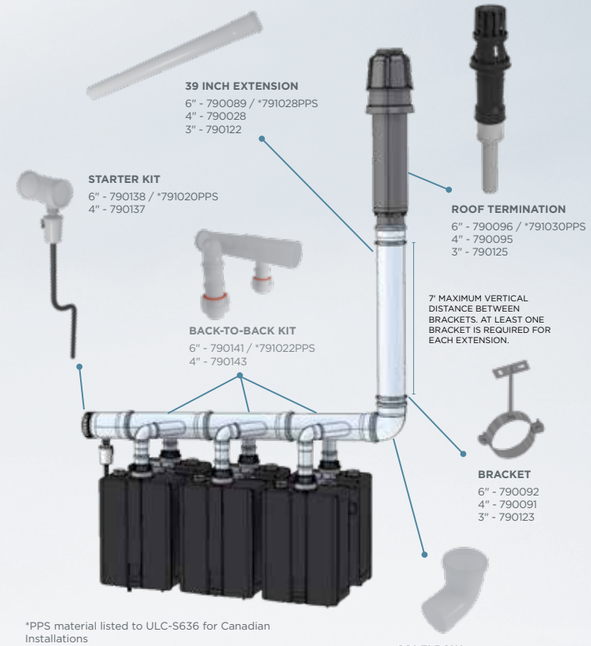
4" INLINE		4" BACK-TO-BACK	
4" ADD-ON (P/N: 790139)	4" STARTER (P/N: 790137)	4" ADD-ON (P/N: 790143)	4" STARTER (P/N: 790137)

6"

6" INLINE		6" BACK-TO-BACK	
6" ADD-ON (P/N: 790140)	6" STARTER (P/N: 790138)	6" ADD-ON (P/N: 790141)	6" STARTER (P/N: 790138)



SAMPLE VERTICAL TERMINATION ASSEMBLY - ROOM AIR



*PPS material listed to ULC-S636 for Canadian Installations

Vent termination per ANSI Z223.1/NFPA 54. For clearances not specified in ANSI Z223.1/NFPA 54, clearances are in accordance with local installation codes and the requirements of the gas supplier.

COMMON VENT MAXIMUM EQUIVALENT VENT LENGTHS

For the table below:

- Header is the main vent pipe into which several vents connect.
- Vent length is the distance from the end of the header to the vent termination.
- Maximum vent length starts at the end of the header system.
- Use 10 ft (3 m) as equivalent vent length for 90˚ elbows.
- For use with CU160i and CU199i (indoor) tankless water heaters only.

Common venting
The epitome of streamlined installation

Use the Rinnai Common Venting System which uses Polypropylene PP – a more reliable venting material for the job and able to withstand exhaust temperatures up to 230° F.

- Clean, easy, cost effective installations that require less labor
- Fewer wall or roof penetrations
- Vent lengths up to 150' with 8 TWH units
- Easy push fit joints – no cement or glue required
- In-line or back-to-back installations; horizontal or vertical termination
- More venting options than ever before for indoor installations

Images are for illustrative purposes only. Refer to Installation Instructions for Polypropylene (PP) Common Venting for detailed instructions.

COMMON VENT MAXIMUM EQUIVALENT VENT LENGTH RINNAI COMMON VENT SYSTEM OR SCHEDULE 40 PVC / CPVC

Water Heater Model	# Water Heaters	Max System BTU/HR	Header Diameter			
			3"	4"		6"
			3" Vent Diameter	4" Vent Diameter	6" Vent Diameter	6" Vent Diameter
CU199i (REU-N3237FFC-US)	2	398,000	65 ft	150 ft	150 ft	150 ft
	3	597,000				
	4	769,000		65 ft		
	5	995,000				
	6	1,194,000				
	7	1,393,000			70 ft	
	8	1,592,000				
CU160i (REU-N2530FFC-US)	2	320,000	90 ft	150 ft	150 ft	150 ft
	3	480,000		100 ft		
	4	640,000		65 ft		

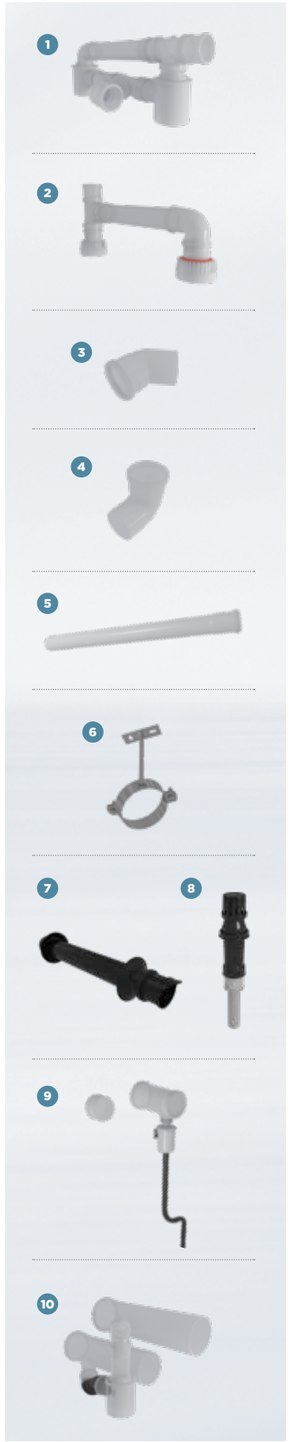
COMMERCIAL COMMON VENTING COMPONENTS

3 in. COMMERCIAL COMMON VENTING COMPONENTS (POLYPROPYLENE)

PART NUMBER	IMAGE	DESCRIPTION
790130	1	3 in. KIT DIRECT VENT FOR CORNER RACK AND IN-LINE
790131	2	3 in. KIT ROOM AIR FOR CORNER RACK AND IN-LINE
790120	3	ELBOW 3 in. 45 (2X)
790121	4	ELBOW 3 in. 90
790122	5	EXTENSION 3 in.-39 in.
790123	6	BRACKET 3 in. METAL
790124	7	WALL TERMINAL 3 in. PLASTIC
790125	8	ROOF TERMINAL 3 in. PLASTIC

4 in. COMMERCIAL COMMON VENTING COMPONENTS (POLYPROPYLENE)

PART NUMBER	IMAGE	DESCRIPTION
790132	9	4 in. COMMON VENT STARTER KIT DV
790134	10	4 in. COMMON VENT IN-LINE 6 in. DV NEW VALVE
790137	11	4 in. COMMON VENT STARTER KIT ROOM AIR
790142	12	4 in. COMMON VENT B2B DV ADD ON KITS
790143	13	4 in. COMMON VENT B2B ROOM AIR ADD ON KITS
790139	14	4 in. COMMON VENT IN-LINE ROOM AIR NEW VALVE
790026	3	ELBOW 4 in. 45 (2X)
790027	4	ELBOW 4 in. 90
790028	5	EXTENSION 4 in.-39 in.
790088	5	EXTENSION 4 in.-78 in.
790091	6	BRACKET 4 in. METAL
790093	15	WALL TERMINAL 4 in. PLASTIC
790095	16	ROOF TERMINAL 4 in. PLASTIC
790097	17	RAIN CAP FLUE TERMINAL 4 in.
780060	18	RAIN CAP AIR TERMINAL 4 in.
790099	-	4 in. AND 6 in. FLASHING 25-45 SHINGLE + SPEC. ADAPTER
790101	19	4 in. AND 6 in. FLAT ROOF FLASHING
790102	-	4 in. EXTENSION ROOF TERMINAL KIT PLASTIC
790085	-	ADAPTER 6 in. - 4 in. AIR INTAKE AND EXHAUST
790104	-	ADAPTER 4 in. - 6 in. AIR INTAKE AND EXHAUST



COMMERCIAL COMMON VENTING COMPONENTS

6 in. COMMERCIAL COMMON VENTING COMPONENTS (POLYPROPYLENE)

PART NUMBER	IMAGE	DESCRIPTION
790133	9	6 in. COMMON VENT STARTER KIT DV
790135	10	6 in. COMMON VENT IN-LINE 6" DV NEW VALVE
790136	20	6 in. COMMON VENT B2B 6" DV NEW VALVE
790138	11	6 in. COMMON VENT STARTER KIT 6" ROOM AIR
790140	14	6 in. COMMON VENT IN-LINE 6" ROOM AIR NEW VALVE
790141	13	6 in. COMMON VENT B2B 6 in. ROOM AIR NEW VALVE
790086	3	ELBOW 6 in. -45 (2X)
790087	4	ELBOW 6 in. - 87
790089	5	EXTENSION 6 in. - 39 in.
790090	5	EXTENSION 6 in. - 78 in.
790092	6	BRACKET 6 in. METAL
790094	15	WALL TERMINAL 6 in. PLASTIC
790096	16	ROOF TERMINAL 6 in. PLASTIC
790098	17	RAIN CAP FLUE TERMINAL 6 in.
780061	18	RAIN CAP AIR TERMINAL 6 in.
790103	-	6 in. EXTENSION ROOF TERMINAL KIT METAL
790099	-	4 in. AND 6 in. FLASHING 25-45 SHINGLE + SPEC. ADAPTER
790101	-	4 in. AND 6 in. FLASHING 25-45 SHINGLE + SPEC. ADAPTER
790104	-	ADAPTER 4 in.-6 in. AIR INTAKE AND EXHAUST
790085	-	ADAPTER 6 in.-4 in. AIR INTAKE AND EXHAUST
FOR USE IN CANADA		
791020PPS	-	6 in. COM. VENT START KIT DV PPS
791021PPS	-	6 in. COMMON VENT IN-LINE DV PPS
791022PPS	-	6 in. COMMON VENT B2B DV PPS
791023PPS	-	6 in. COM VENT START KIT ROOM AIR
791024PPS	-	6 in. COM. VENT IN-LINE ROOM AIR
791025PPS	-	6 in. COM. VENT B2B ROOM AIR PPS
791026PPS	-	ELBOW 6 in. - 45 (2X) PPS
791027PPS	-	ELBOW 6 in.-87 in. PPS
791028PPS	-	EXTENSION 6 in.-39 in. PPS
791029PPS	-	WALL TERMINAL 6 in. PLASTIC PPS
791030PPS	-	ROOF TERMINAL 6 in. PLASTIC PPS

ACCESSORIES

CONTROLLER

PART NUMBER	IMAGE	DESCRIPTION	TEMP RANGE	COLOR
MCC-91-2W	1	TEMPERATURE CONTROLLER COMMERCIAL WHITE	>140°F / 60°C	WHITE

ACCESSORIES FOR DEMAND RECIRCULATION

PART NUMBER	IMAGE	DESCRIPTION	
RWM101	2	CONTROL-R™ WI-FI MODULE	ATTACHES EASILY TO THE RINNAI TANKLESS WATER HEATER BY A TWO-WIRE INTERFACE. ALL MODELS.
RWMPB01*	3	CONTROL-R™ WI-FI PUSH BUTTON	MOUNTED NEAR THE POINT OF USE, LIKE A KITCHEN FAUCET OR BATHROOM SINK, AND OPERATES LIKE A RECIRCULATION SYSTEM.
RWMMS01	4	CONTROL-R™ WI-FI MOTION SENSOR	ALL MODELS
GTK15	5	PUMP TIMER KIT FOR CIRC-LOGIC W/FLANGE (SE+/HE+)	GRUNDFOS® PUMP FOR RINNAI CIRC-LOGIC™ ENABLED TANKLESS WATER HEATERS.

DEMAND RECIRCULATION KITS FOR SE+ SERIES FEATURING THERMACIRC360

PART NUMBER	IMAGE	DESCRIPTION
RWMKT01	-	CONTROL-R™ WIRELESS DEMAND RECIRCULATION KIT
RWMKT03	-	CONTROL-R™ WIRELESS DEMAND RECIRCULATION (1PB, 1TS)

DEMAND RECIRCULATION KITS FOR HE+ AND SE+ SERIES

PART NUMBER	IMAGE	DESCRIPTION
RWMKT01P	-	CONTROL-R™ WIRELESS DEMAND RECIRCULATION 1PB W/PUMP KIT
RWMKT03P	-	CONTROL-R™ WIRELESS DEMAND RECIRCULATION 1PB / 1TS, PUMP KIT

OTHER

PART NUMBER	IMAGE	DESCRIPTION
804000074	6	CONDENSATE NEUTRALIZER KIT (SE SERIES)
104000059	-	FREEZE PROTECTION SOLENOID VALVE KIT FOR OUTDOOR UNITS IN COLD REGIONS
105000195	7	FREEZE PROTECTION SURGE PROTECTOR KIT
809000114	8	REFILL, CONDENSATE NEUTRALIZER (ALL MODELS)
107000376	9	GRUNDFOS UPS 26-99 (S)F CIRCULATION PUMP
107000377	10	GRUNDFOS UPS 26-150 (S)F CIRCULATION PUMP
107000378	11	GRUNDFOS UPS 40-160 FB CIRCULATION PUMP
109000733	12	TACO 265-3 DIGITAL TIMER CONTROLLER
109000734	13	HONEYWELL L6006C AQUASTAT CONTROLLER
109000735	14	HONEYWELL L6006A AQUASTAT CONTROLLER
109000736	15	1" NC SOLENOID
109000737	16	1-1/2" NC SOLENOID
103000067	17	COMMERCIAL NEUTRALIZATION TANK W/ MEDIA
103000068	-	COMMERCIAL NEUTRALIZATION REPLACEMENT MEDIA (40 LBS)
REU-PVA-4	-	PRESSURE ACTIVATED VALVE
MIVK-T-LW	-	PLUMBING ISOLATION VALVE KIT, COMPACT DESIGN, EASE IN FLUSHING

*Additional push button and motion sensors can be purchased separately to customize a recirculation system.

ACCESSORIES

CONNECTION CABLES

PART NUMBER	IMAGE	DESCRIPTION
REU-MSB-C1	18	CABLE CONNECT VA, VB, CONDENSING, EXCLUDING V53/R63 (SE SERIES / HE+ SERIES)
REU-MSB-C2	19	CABLE FOR CONNECTING MSB-M CONTROL UNITS (SE SERIES / HE+ SERIES)
REU-MSB-M	20	MULTI-UNIT CONTROL (SE SERIES / HE+ SERIES)
REU-EZC-2	-	EZCONNECT™ CABLE
REU-OPU3	-	BMS/AIR HANDLER (REPLACES 103000037)
103000037	-	DOMESTIC PRIORITY SWITCH FOR HYDRONIC AIR HANDLER / MAINTENANCE INDICATION SWITCH
REU-CSA-C1	21	CASCADE HARNESS 3M
REU-CSA-C2	21	CASCADE HARNESS 8M

PIPE ENCLOSURES

PART NUMBER	IMAGE	DESCRIPTION
PCD07-IB	22	PIPE COVER (COMMERCIAL)
PCD07-IB-BP	23	PIPE COVER BOTTOM PLATE (COMMERCIAL)

2 in. VENTING COMPONENTS FOR USE WITH CU199

PART NUMBER	IMAGE	DESCRIPTION
184470NPP	24	2 in. CONDENSING FLEX TERMINATION KIT
222720NPP	25	2 in. FLEX CONNECTOR
222721NPP	26	2 in. FLEX ROLL (41.5 FT)

OTHER ACCESSORIES

PART NUMBER	IMAGE	DESCRIPTION
ST119	-	GRAY 119 GALLON STORAGE TANK

Learn more about Rinnai high-performance Commercial and Residential Tankless Water Heaters, Hybrid Tank-Tankless Water Heaters, Boilers, Vent-Free Fan Convectors and EnergySaver® Direct Vent Wall Furnaces at:

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