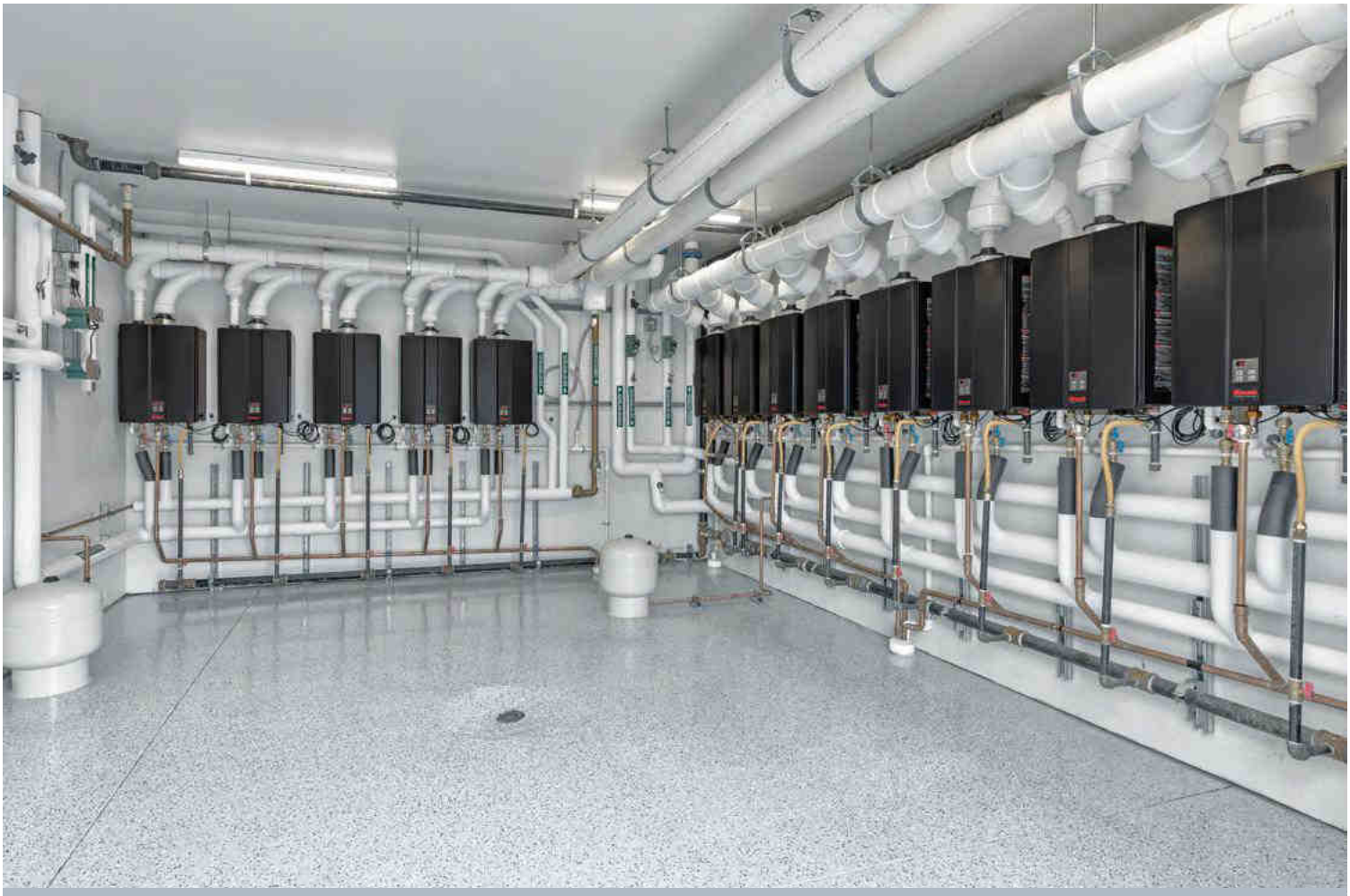
Rinnai®

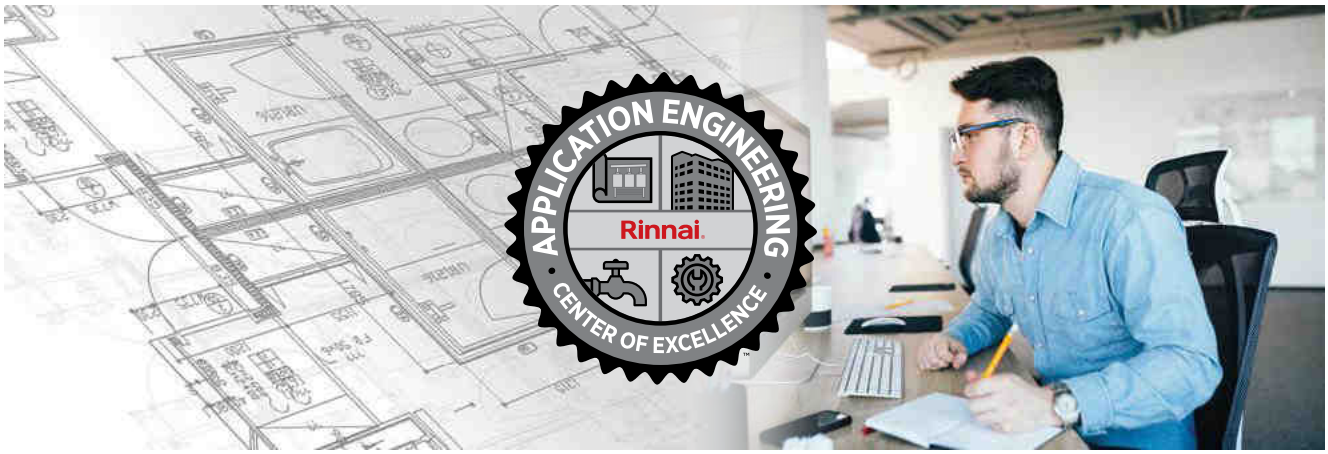


Commercial Water Heating Solutions

For Trade Professionals

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 at **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.

Rinnai® National Accounts

No matter the size of your company, Rinnai's National Accounts Program makes it easy and affordable to stay in hot water.

Nationwide Support and Coverage

- Factory trained commercial service providers on call and in your markets
- Immediate replacement, installation and preventive maintenance with just one call
- Water heating solutions that save money, last longer and save space

24/7/365 Emergency Rapid Response

- Dedicated toll-free number
- On site within 2 hours; repair within 4 hours; replace within 8 hours of approval
- Continuing updates to facilities managers

New Construction or Planned Replacement

- 100% Sizing Guarantee from Rinnai Applications Engineering
- Existing equipment audit to prevent failures and unexpected repairs
- Turnkey delivery and installation

Contact the Rinnai National Accounts Team today to sign up or learn more: **844-348-4714** or **NCA@rinnai.us**.

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.

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)

First Major Tankless Brand to Manufacture Tankless in North America

Rinnai started manufacturing tankless gas water heaters and assembling all commercial water heating products at its Griffin, Georgia factory in 2018. In addition to creating jobs and contributing to the local economy, the manufacturing facility solidifies the industry leader position Rinnai holds and further demonstrates its commitment to innovate and drive category growth in North America.

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

Cover and Tankless Photos by Rick Brazil Photography

TABLE OF CONTENTS

CASE STUDIES.....2
SENSEI™.....4
WHY CHOOSE RINNAI.....6
CU199 AND CU160.....10
DEMAND DUO®.....12
DEMAND DUO® H-SERIES.....14
DEMAND DUO® R-SERIES.....16
TANKLESS RACK SYSTEMS.....18
SPECIFICATIONS.....24
VENTING.....30
ACCESSORIES.....36

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

Gouverneur Hospital | Healthcare

HIGH CAPACITY NEEDS, HIGH-CAPACITY OUTPUT

Part of the St. Lawrence Health System, Gouverneur Hospital had a hot water system comprised of two aging boilers and a 6,000 gallon storage tank. The system was unable to keep up with demand and had become increasingly unreliable so Rinnai was brought in to size the job. It was determined that four (4) TRS04CUiN Freestanding Tankless Racks with 6" Polypropylene venting could supply 3.184M BTU and eliminate the need for storage and the reserve boiler. Rinnai won the project and the hospital expects to realize **$18,000 a year in energy, maintenance and repair savings.**

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**.

Riverbend At Lansdowne Wood | Multifamily

BIG DEMAND, BIG SAVINGS.

Located 25 miles from Washington, D.C., this active adult community situated on 45 acres is comprised of seven (7) low and mid-rise buildings with over 1,200 living units. The Riverbend Building had four (4) 750K BTU Domestic gas boilers installed that were 20 years old and in need of frequent repair. After reviewing various replacement options, the Building Manager determined that Rinnai's 2.4m BTU system of two (2) TRS06 Freestanding Racks with six (6) SENSEI CU199 tankless units pre-installed was the best solution. Since installation in spring 2019, the property has **reduced its domestic hot water operating costs by $10,000**.

BEFORE **AFTER**

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

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

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) 444 Stainless Steel and fluorine gaskets are used at the joints to provide added durability and heat resistance.

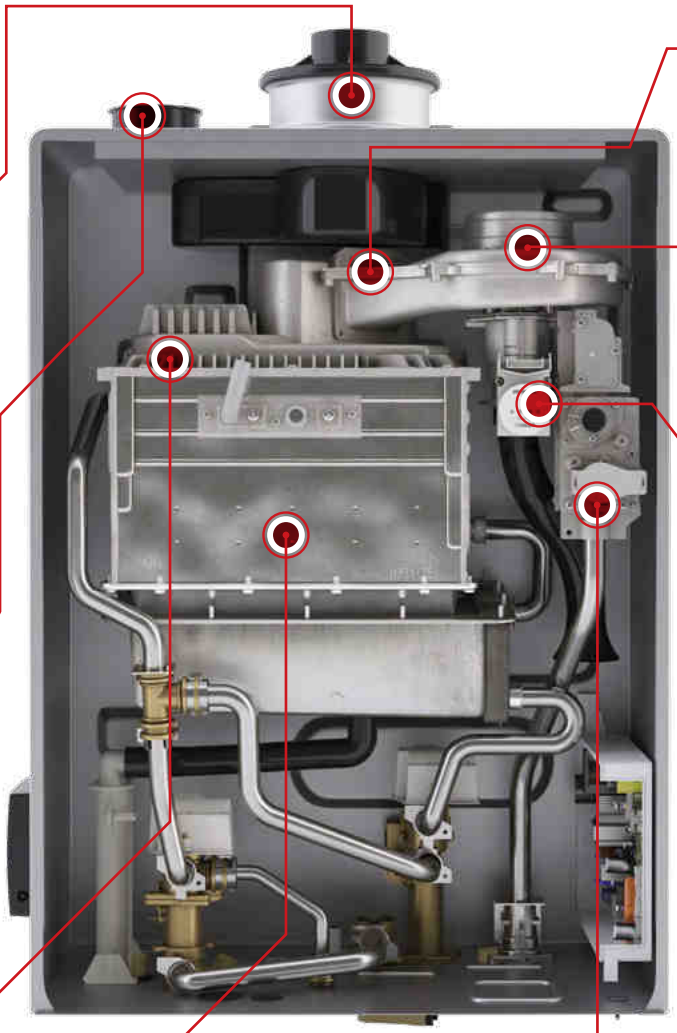
INTEGRATED CASCADE LOGIC

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.



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

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

Fiber Mesh Premix Burner*

- Provides even flame distribution for optimal performance for any demand

Primary Stainless Steel Heat Exchanger*

R-evolution

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

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

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

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

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 capable**

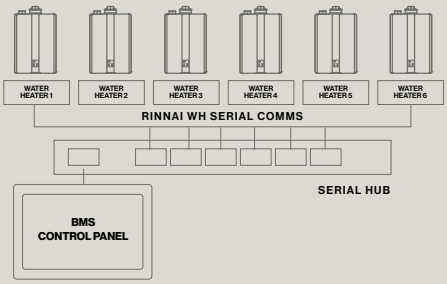
DEMAND DUO® H-SERIES
119-GALLON HYBRID COMMERCIAL
WATER HEATING SYSTEM

TRW03
TANKLESS RACK SYSTEM™/
WALL-MOUNTED DESIGN

Building Management System Gateway

Remotely monitor and control up to 24 Rinnai Commercial Water Heaters. Turn tankless water heaters on or off, adjust water temperature, monitor status, and more.

- Pair up to 6 Rinnai Commercial Condensing Water Heaters per Gateway, up to 4 Gateways per Network
- Works with the Rinnai CU199, CU160 models
- Stand alone operation with optional Touch Screen User Interface
- Integration with BACnet, Modbus and LonWorks® communication protocols
- System of UL Certified and Recognized Components

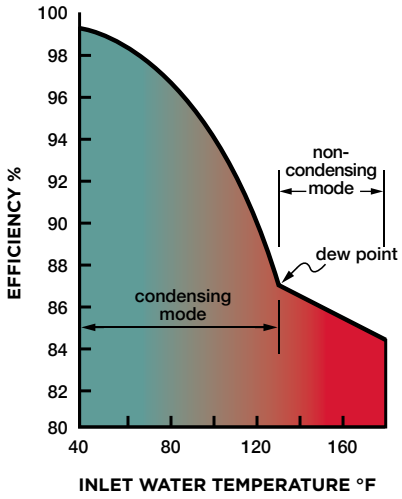


Rinnai® Learn more at **rinnai.us**

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

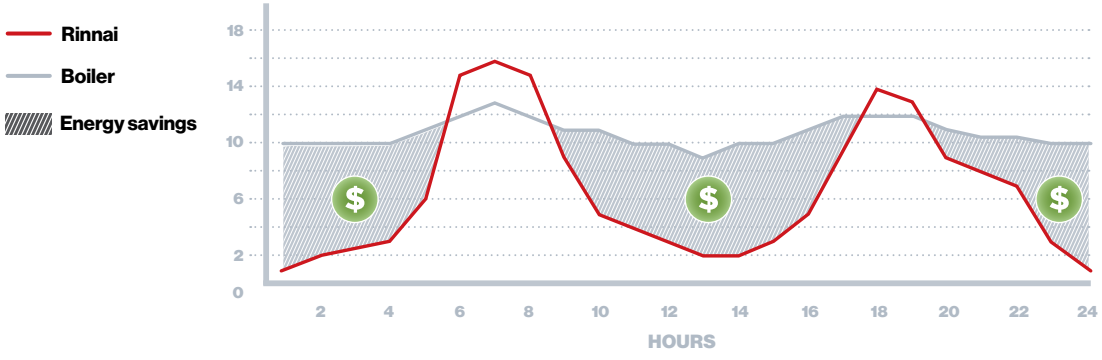
Rinnai's Tankless Rack System™ (TRS) is designed to supply a packaged water heating solution as a fully assembled system, providing an endless supply of hot water.

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.

Rinnai Commercial Water Heating Solutions
To Meet Any Demand

SINGLE UNIT

TANK-TANKLESS HYBRID WATER HEATING SOLUTIONS

1 CU199 Tankless Water Heater

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® H-Series

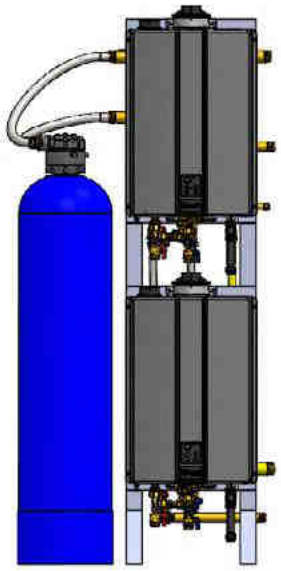
FEATURES AND BENEFITS:

- DuoSmart® Digital controller for integrated system recirculation
- Heats Water in Tankless – Zero Thermal Stress on Tank
- Demand Duo® 2V saves space and delivers 551 gallons First Hour @ 100F Delta T

3 Demand Duo® R-Series

FEATURES AND BENEFITS:

- Connects to 6" B-vent for Easy Installation
- Replacement option for any regular-efficiency atmospheric tank
- Pre-assembled gas swivel flex lines



RINNAI TANKLESS RACK SYSTEMS

CUSTOMIZED SOLUTIONS

4 Free-Standing Design

FEATURES AND BENEFITS:

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

5 Wall-Mounted Design

FEATURES AND BENEFITS:

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

6 FEATURES AND BENEFITS:

- Made-to-Order solutions assembled in Griffin, GA Rinnai America Manufacturing Facility

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 Tankless Water Heaters that operate more efficiently on demand to provide an unlimited 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 capable**
- **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.

CU199 and CU160 Features:

- 97% thermal efficiency
- 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

LEARN MORE AT energystar.gov

DemandDuo™
H-SERIES

Rinnai® Learn more at **rinnai.us**

The Time is Right to Switch to Demand Duo®.

Easy installation, superior performance and longer life mean there has never been a better time to switch from traditional tanks to the consistency and efficiency of Demand Duo® H- and R-Series solutions.

"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

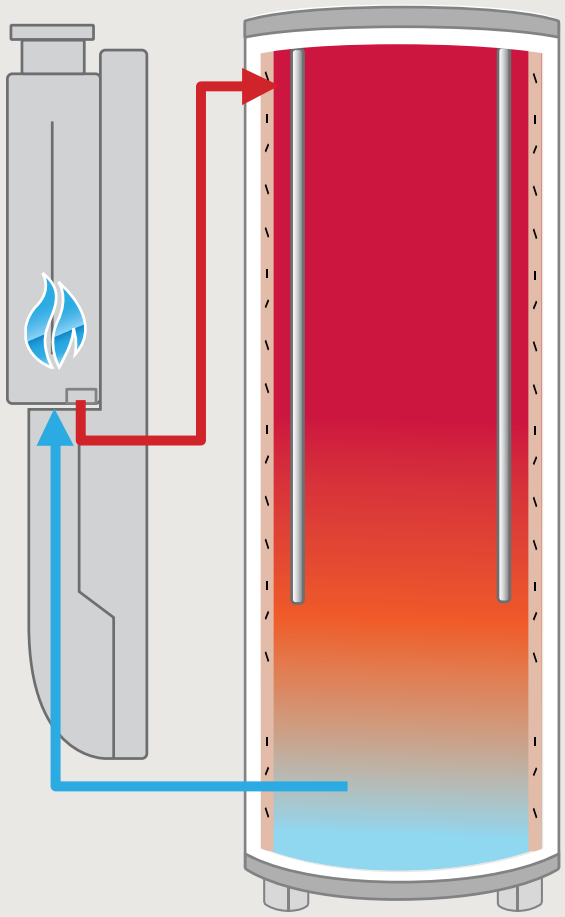
Maximum Performance that Lasts Longer

- Unsurpassed 1st-hour delivery and efficient tank recovery keep pace with demand
- Saves money with lower energy costs
- Longer warranty – up to 2X longer than traditional tanks

How Demand Duo® Works

Water heats in the tankless unit rather than inside the tank, providing:

- Zero thermal stress on the tank
- More hot water capacity, since tank only holds two magnesium anode rods
- Easy, cost-effective tankless maintenance versus replacing an entire tank every few years
- Ideal for emergency replacement; installs like a tank but up to 20% lighter



DemandDuo™
H-SERIES

Performance. Reliability. Peace of Mind.
High-Efficiency Hybrid Technology.

Venting Options

H-SERIES VENTING OPTIONS

Available in:
Single Vent: Two Pipe PVC/CPVC, Concentric Polypropylene (PP)
Common Vent: PP and PVC/CPVC
Common venting means significantly fewer wall or roof cuts, less labor, and longer vent lengths with single-unit venting.*

Installation Ease

1. **New Multiple Venting Options, Easy to Install**
2. **New Pre-assembled Gas Connection**
3. **New Pre-assembled Electrical Connection**

Optimized Performance

4. **New High Flow Recovery Pump**
5. **New Digital Controller**
6. **New Multiple Tankless Options**

Multiple Sizes

7. **New 80 or 119-Gallon Tank Options**

WHERE SMART PERFORMANCE MEETS QUICK INSTALLATION

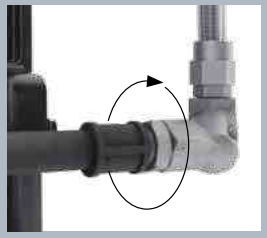
DuoSmart® TANK TECHNOLOGY

- Optimized pump design for increased flow and faster recovery
- DuoSmart® Digital Controller for precise temperature control and integrated recirculation – no aquastat needed
- Free system sizing with 100% guarantee
- Gas swivel flex line rotates 360° for 36", 180° radius connection to gas line
- Factory installed gas dirt leg
- Factory installed electrical access
- Lighter weight for easier handling
- Pre-assembled condensate drain

Pre-installed Electrical

DuoSmart® Digital Controller

High Flow Recovery Pump


Two-way Gas Line Rotation for Easy Installation

SAVE TIME WITH FACTORY INSTALLED COMPONENTS

$250
EST. SAVINGS WITH FACTORY INSTALLED COMPONENTS

551
UP TO 551 GALLONS FIRST HOUR DELIVERY @100°F Δ *

33-46%
SMALLER FOOTPRINT, UP TO 46% SPACE SAVINGS**

When maximum performance and high efficiency are critical, the Rinnai Demand Duo® H-Series Condensing Commercial Hybrid Water Heating System delivers. Customers never miss a beat with hot water, whether it's brief, high-spike draws or continuous, heavy use, day-in and day-out.

- Demand Duo® 2V stacks tankless engines vertically – saves valuable commercial space
- Available in a wide range of Btu outputs and tank sizes
- ASME-certified tank (optional) list models
- Install without removing lower cover

Info at a Glance

- Warranty: heat exchanger – 5 years; tank – 6 years; parts – 5 years; labor – 1 year
- High altitude approved to 10,200 ft.
- Wi-Fi capable

Before

After / Demand Duo 2V

DEMAND DUO® H-SERIES SPECIFICATIONS | CONDENSING MODELS

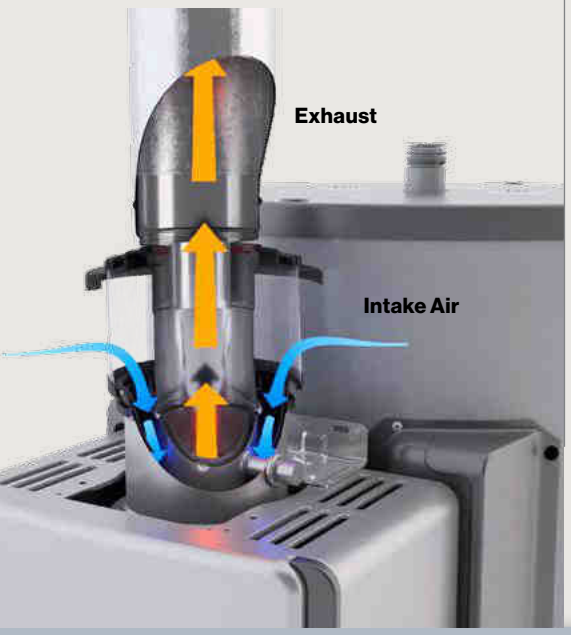
MODELS	Demand Duo® 2 / 119 GAL				Demand Duo® 119 GAL		Demand Duo® 80 GAL		
Model	CHS398100H	CHS398100HV	CHS398100HVA****	CHS320100HV	CHS199100H	CHS160100H	CHS19980H	CHS16080H	CHS13080H
Part Number	CHS398100HiN/ CHS398100HiP	CHS398100HViN/ CHS398100HViP	CHS398100HVAiN/ CHS398100HVAiP	CHS320100HiN/ CHS320100HiP	CHS199100HiN/ CHS199100HiP	CHS160100HiN/ CHS160100HiP	CHS19980HiN/ CHS19980HiP	CHS16080HiN/ CHS16080HiP	"CHS13080HiN/ CHS13080HiP
Dimensions - w x h x d Inches (mm)	38.8 x 69.6 x 40.9 (986 x 1,769 x 1,040)	32.4 x 78.8 x 40.2 (823 x 2,001 x 1,021)			34.7 x 71.1 x 40.2 (883 x 1,805 x 1,021)		31.8 x 64.7 x 36 (809 x 1,643 x 914)		
Product Weight (lbs/kg)	530 / 240	530 / 240	530 / 240	530 / 240	431 / 195	429/195	307 / 139	305 / 138	305/138
Installation Type	Indoor				Indoor				
Storage Tank	119 Gallons				119 Gallons		80 Gallons		
Min/Max Input (1,000 Btu/h)	15 / 398	15 / 398	15 / 398	15 / 320	15 / 199	15 / 160	15 / 199	15 / 160	15 / 130
Thermal Efficiency (TE)†	97%				97%				
Temperature Range	98°–185°F /37– 85°C				98°–185°F /37– 85°C				98°–140°F / 37– 60°C
First Hour Delivery @ 100 °F ΔT*** (gph/lph)	551 / 2086	551 / 2086	551 / 2086	460 / 1741	317 / 1199	271 / 1025	290 / 1097	244 / 923	209 / 791
Recovery @ 100 °F ΔT (gph/lph)	459 / 1738	459 / 1738	459 / 1738	376 / 1423	234 / 885	188 / 711	234 / 885	188 / 711	153 / 579

* Demand Duo 2 and 2V
** Demand Duo 2V vs. two 200 Btu tanks in cubic ft.
*** Per test results from Rinnai testing lab based on storage volume and 70 percent usable hot water.
**** ASME Tank ©2020 Rinnai America
† Rating not certified by AHRI.

DemandDuo™
R-SERIES

Standard Efficiency Hybrid Technology
Connects to 6" B-Vent. Simply Better.

The Demand Duo® R-Series easily vents through existing 6" B-Vent, so you save installation time and costs. What's more, our patented technology delivers reliable performance, longer service life and lower total cost of ownership when compared to traditional atmospheric tanks.



Installation Ease

1. **New 6" B-Vent Exhaust Connector**
2. **New Pre-assembled Gas Connection**
3. **New Pre-assembled Electrical Connection**

Optimized Performance

4. **New Digital Controller**
5. **New Certified Hybrid System Technology**

Multiple Sizes

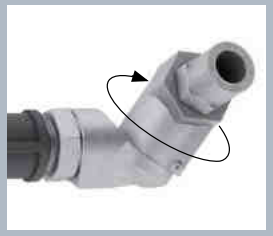
6. **New 80 or 119-Gallon Tank Options**

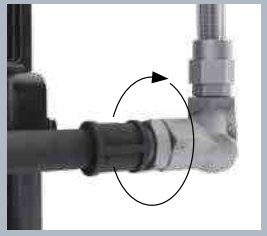
DuoSmart® TANK TECHNOLOGY

Intake Filter Exhaust Connector

Pre-installed Electrical

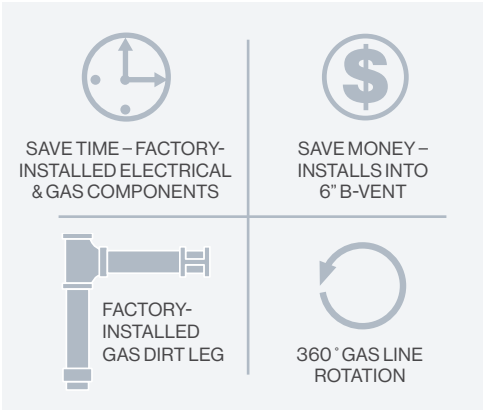
DuoSmart® Digital Controller





Two-way Gas Line Rotation for Easy Installation

Cost-Saving Reliability
That Installs Easily.



When you need a quick, simple replacement for a traditional atmospheric tank, Rinnai's Demand Duo R-Series Commercial Hybrid Water Heating System produces consistent, reliable hot water in a cost-saving package.

- Vents into existing 6" B-Vent
- Eliminates new vent runs
- Cuts cost of additional venting material
- No new ceiling, roof or wall penetrations
- Easy to install, lighter than tanks

Info at a Glance

- Warranty: heat exchanger – 5 years; tank – 6 years; parts – 5 years; labor – 1 year
- High altitude approved to 5,400 ft.
- Certification System: AHRI, ANSI, CSA
- Wi-Fi capable

Before

After

DEMAND DUO® R-SERIES SPECIFICATIONS | NON-CONDENSING MODELS

	Demand Duo® 100 GAL	Demand Duo® 80 GAL
Model	**CHS199100R**	**CHS19980R**
Part Number	CHS199100RiN / CHS199100RiP	CHS19980RiN / CHS19980RiP
Dimensions - w x h x d Inches (mm)	32.9 x 71.3 x 38.1 (835.6 x 1811 x 967.7)	27.8 x 64.7 x 34.1 (706.1 x 1643.4 x 866.1)
Product Weight (lbs/kg)	455 / 208	320 / 145
Installation Type	Indoor	Indoor
Storage Tank	119 / 450	80 / 303
Min/Max Input (1,000 Btu/h)	22 / 199	22 / 199
Thermal Efficiency (TE)*	80%	80%
Temperature Range	120°–180°F / 49°–82°C	120°–180°F / 49°–82°C
First Hour Delivery @ 100 °F ΔT* (gph/lph)	276 / 1045	249 / 942
Recovery @ 100 °F ΔT (gph/lph)	193 / 730	193 / 730

* Rating not certified by AHRI.

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-Mounted 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 Capable
- Flexible installation
  - Fits through standard 32" doorways and service elevator
  - 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.

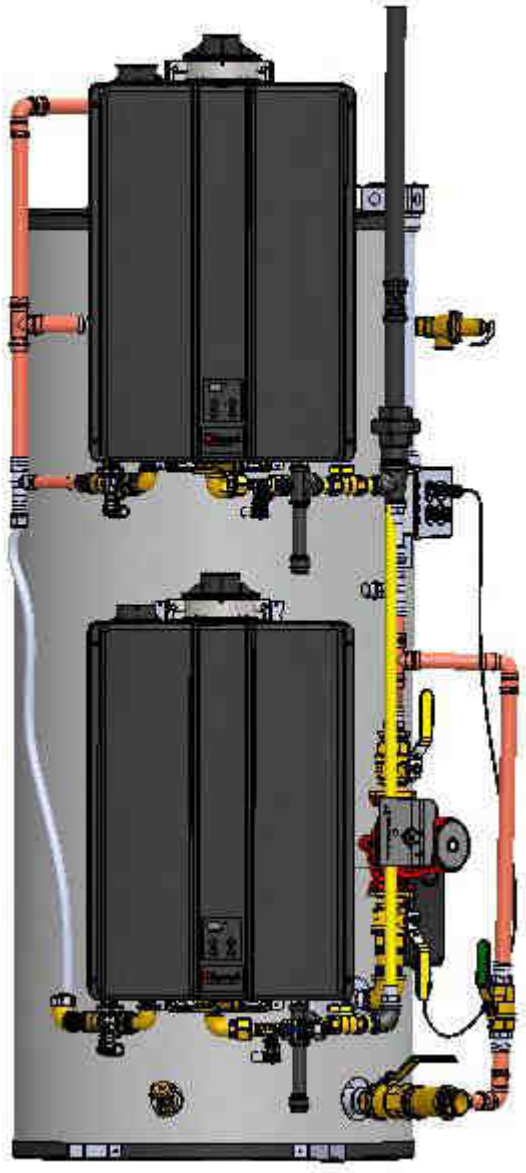
A complete and fully modular solution, the TRW features a sturdy, pre-assembled rack with multiple Rinnai Tankless Water Heaters already mounted and connected to each other. Together, the units have enough capacity to suit commercial water heating requirements, replacing tank-style water heaters or domestic 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 24 units and provide up to 4.8 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 312:1 to ensure hot water delivery and efficiency
- Use with or without storage tank and/or recirculation loop
- No ASME inspection required

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 next project. Call them at **1-800-621-9419** or email at **engineering@rinnai.us**.

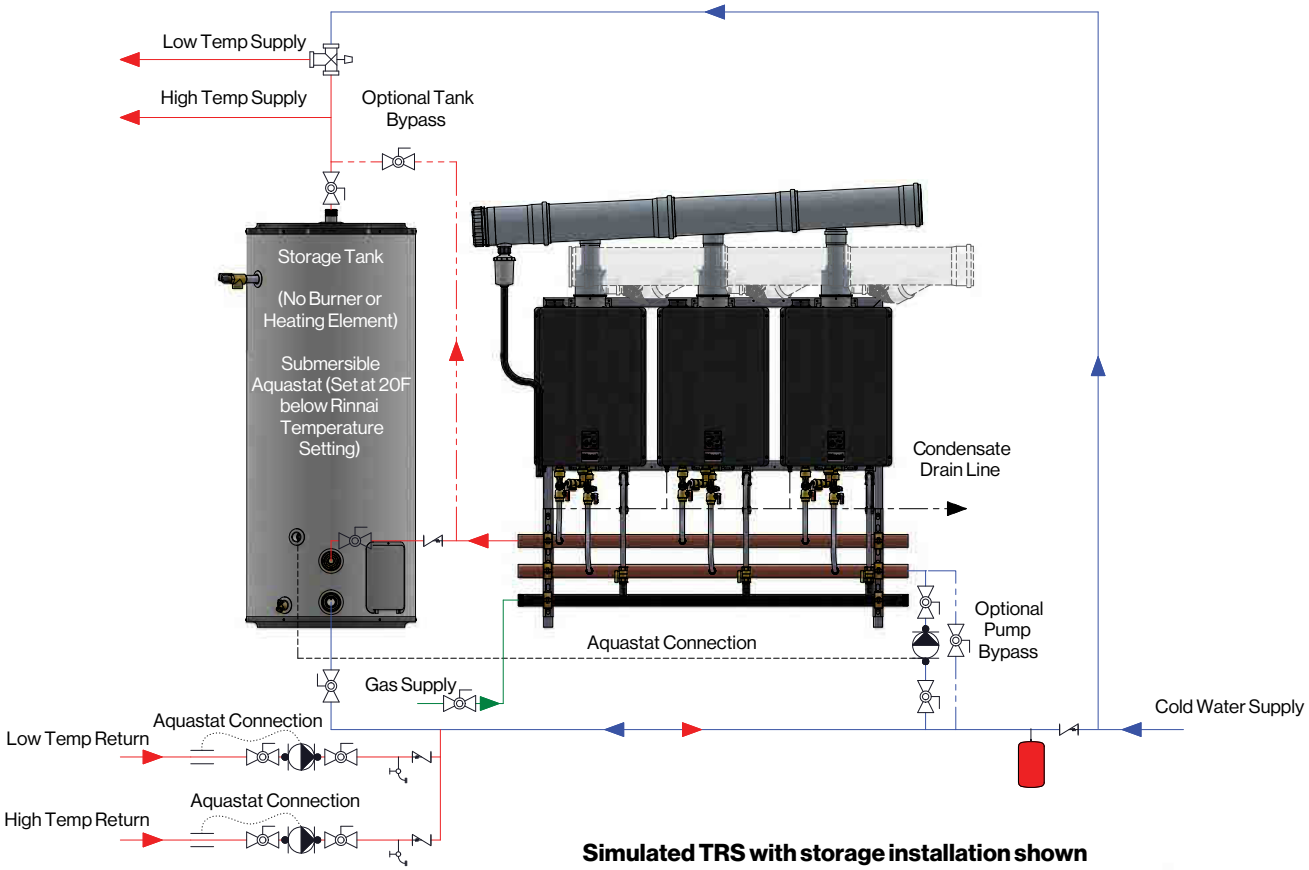


Rinnai Tankless
Rack System™ Benefits

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.

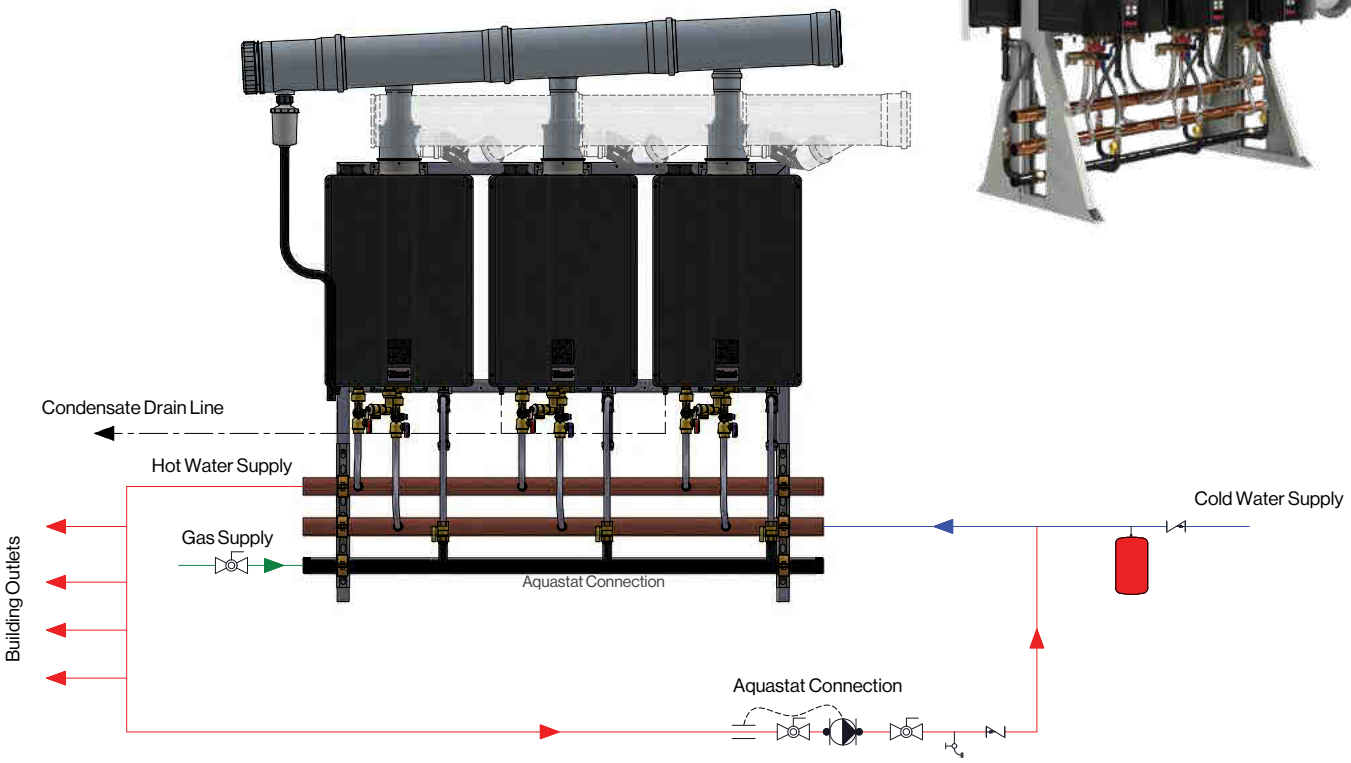
The TRS installs in place of an old-style boiler and provides built-in redundancy by banking individual Tankless Water Heaters to ensure your hot water supply keeps flowing even if a unit is down. The TRS comes standard with our new condensing CU199 Tankless Water Heater that boasts 97% thermal efficiency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



Simulated TRS with storage installation shown

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 recirculation installation shown

Flexibility, durability and efficiency

SUPER-HIGH-EFFICIENCY SE+ SERIES (CONDENSING)

Model	CU199i / CU199e	CU160i / CU160e	RUR199i / RUR199e	RUR160i / RUR160e	RU199i / RU199e
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)	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)
Weight (lbs / kg)	64 / 29	62 / 28	73 / 33	71 / 32	64 / 29
Installation Type	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor
Storage Tank	No	No	No	No	No
Min./Max. BTU (NG)	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000
Min./Max. BTU (LP)	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000	15,000 / 160,000	15,000 / 199,000
Thermal Efficiency (TE) Ratings not certified by AHRI / Uniform Energy Factor (UEF) AHRI Certified	97% TE / .93 UEF	97% TE / .93 UEF	0.93 UEF	0.92 UEF	0.93 UEF
Temp. Range Commercial	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)
Flow Rate (70° / 100° Temp. Rise)	5.5/3.9(20.8/14.7)	4.4/3.1 (16.6/11.7)	5.5/3.9(20.8/14.7)	4.4/3.1 (16.6/11.7)	5.5/3.9(20.8/14.7)
Hot Water Flow Rate Range	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	0.26-9.8 GPM (.98-37.1) LPM	0.26-9.8 GPM (.98-37.1) LPM
Controller (standard)	MCC-91-2US	MCC-91-2US	MC-91-2US Control-R	MC-91-2US Control-R	MC-91-2US
Controllers (optional)	MC-91-2US	MC-91-2US	MC-195T-US or Control-R™	MC-195T-US or Control-R™	
Ultra Low NOx	Yes				
Warranty (Commercial)*	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				
Valves Shipped in Box	Yes				
High Altitude Approved	Up to 10,200 ft (3,109 M)				
Certifications	AHRI, ANSIZ21.10.3, CSA 4.3, and ENERGY STAR®				
Concentric	Yes	Yes	Yes	Yes	Yes
PVC/CPVC/PP	Yes	Yes	Yes	Yes	Yes
Common Vent	Yes	Yes	Yes	Yes	Yes
Room Air Common Vent	Yes	Yes	Yes	Yes	Yes
TRS/TRW Compatible	Yes	Yes	Yes	Yes	Yes
1/2" Gas Line Compatible***	Yes	Yes	Yes	Yes	Yes
Wi-Fi Capable	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.

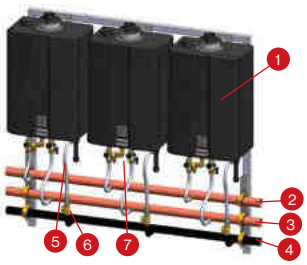
HIGH-EFFICIENCY HE+ SERIES (NON-CONDENSING)

RU180i / RU180e	RU160i / RU160e	RU130i / RU130e	RL94i / RL94e	RLX94i	RL75i / RL75e
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)	14 x 23 x 9 (355.6 x 584.2 x 228.6)
64 / 29	62 / 28	62 / 28	46 / 21	46 / 21	46 / 21
i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor	i=indoor e=outdoor
No	No	No	No	No	No
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 / 180,000	15,000 / 160,000	15,000 / 130,000	15,000 / 199,000	N/A	15,000 / 199,000
0.92 UEF	0.92 UEF	0.91 UEF	0.81 UEF	0.81 UEF	0.81 UEF
98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C	98F-185F / 37C-85C
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)
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)	4.3/3.0 (16.3/22.7)
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	0.26-7.5 GPM (.98-28.4) LPM
MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US	MC-91-2US
MC-100V-1US, BC-100V-1US, MC-195T-US, MCC-91-2US**			MC-100V-1US, BC-100V-1US, MC-195T-US, MCC-91-2US**		
			Available	Yes	Yes
			Heat Exchanger: 5 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr		
			Heat Exchanger: 12 yrs, All other parts: 5 yrs, Reasonable Labor: 1 yr		
			Yes		
			Up to 10,200 ft (3,109 M)		
			AHRI and CSA		
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	No	No	No
Yes	Yes	Yes	No	No	No
Yes	Yes	Yes	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes

TANKLESS RACK SYSTEM™ CONFIGURATIONS
WALL-HANGING

	WALL-HANGING			
	CU Series		**SE+** Series with ThermaCirc360®	
Rack Model Number	TRW02CU	TRW03CU	TRW02ST	TRW03ST
Tankless Model Number	CU199		RUR 199 and RU199	
Thermal Efficiency (TE) Ratings not certified by AHRI / Uniform Energy Factor (UEF) AHRI Certified	97% TE / .93 UEF		0.93 UEF	
Number of Tankless Units	2	3	2	3
Max Input (BTU/h)	398,000	597,000	398,000	597,000
Min Input (BTU/h)*	15,200			
Shipping Dimensions - w x h x d inches (mm)	70 x 66 x 35 (1,778 x 1,676 x 889)			
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 54.8 x 14.1 (1,651 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)
Shipping Weight (lbs/kg)	380/172	469/213	399/181	476/216
Fully Assembled Weight (lbs/kg)	170/77	248/112	178/81	258/117
Gas Manifold (dia.) (in./mm)	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
Flow Rate @ 70° F ΔT (GPM/GPH)†	10.8/648	16.2/972	10.8/648	16.2/972
Flow Rate @ 100° F ΔT (GPM/GPH)†	7.6/456	11.4/684	7.6/456	11.4/684
Max. Current (Amperes)	8	12	8	12
Electrical Requirements	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/ Stailess-Exterior	
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			
Warranty - Residential**	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	
CU199 Certifications	CSA		No	
Wi-Fi Capable	Yes		Yes	
Pre-Wired Power Outlet & Junction Box***	No		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.
† GPH represents flow rate delivered as GPH, not storage GPH.



WALL-HANGING RACK

NO	DESCRIPTION	NO	DESCRIPTION
1	Rinnai Tankless Indoor or Outdoor Unit	5	¾" 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		

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

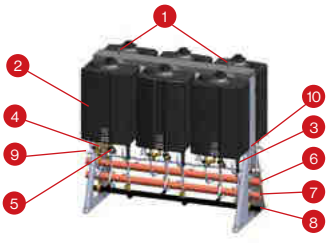
	FREE-STANDING, INLINE		FREE-STANDING, BACK TO BACK			
Rack Model Number	TRS02ILCU	TRS03ILCU	TRS03CU	TRS04CU	TRS05CU	TRS06CU
Tankless Model Number	CU199					
Thermal Efficiency (TE) Ratings not certified by AHRI / Uniform Energy Factor (UEF) AHRI Certified	97% TE / .93 UEF					
Number of Tankless Units	2	3	3	4	5	6
Max Input (BTU/h)	398,000	597,000	597,000	796,000	995,000	1,194,000
Min Input (BTU/h)*	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 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)	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 55.6 x 31.1 (1,651 x 1,412 x 790)
Shipping Weight (lbs/kg)	416/189	497/225	490/222	562/454	658/298	731/332
Fully Assembled Weight (lbs/kg)	214/97	297/135	290/132	362/164	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	1-1/2"/38mm	1-1/2"/38mm
Water Manifold (dia.) (in./mm)	2"/51mm	2"/51mm	2"/51mm	2"/51mm	2 1/2"/63mm	2 1/2"/63mm
Flow Rate @ 70° F ΔT (GPM/GPH)†	10.8/648	16.2/972	16.2/972	21.6/1,296	27/1,620	32.4/1,944
Flow Rate @ 100° F ΔT (GPM/GPH)†	7.6/456	11.4/684	11.4/684	15.1/906	19/1,140	22.8/1,368
Max. Current (Amperes)	8	12	12	16	20	24
Electrical Requirements	Ac 120 Volts - 60 Hz					
Frame Material	Aluminum					
Water Manifold Material	Rigid Copper					
Water Branch Line (dia.)	3/4"					
Gas Manifold Material	Sch 40 Steel					
Gas Branch Line Material	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					
Warranty - Residential**	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					
PVC/CPVC	Yes					
Common Vent (Vertical, Horizontal and Side Wall Intake Vertical Exhaust)	Yes					
Room Air Common Vent (Vertical Exhaust)	Yes					
Room Air Common Vent (Horizontal Exhaust)	Yes					
CU199 Certifications	CSA					
Wi-Fi Capable	Yes					
Pre-Wired Power Outlet & Junction Box***	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.

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

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
- 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 Center of Excellence at Rinnai America Corporation by calling 1 (800) 621-9419.
- 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

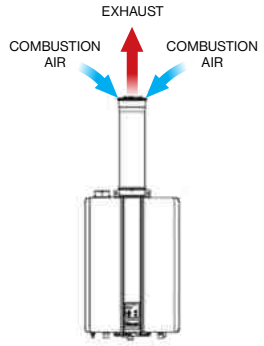
Now Including 2" Venting up to 65' Vent Runs

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

1 DIRECT VENT (Concentric Pipe and Twin Pipe)

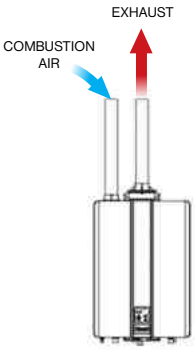
Concentric Pipe

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.

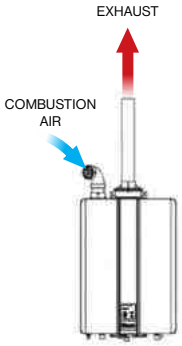


CONCENTRIC		
Diameter	**Equivalent Length**	**Termination**
3"/5"	150' (46 m)	Vertical or Horizontal
2"/4" (New)	65' (20 m)	Vertical or Horizontal

2 NON-DIRECT VENT (ROOM AIR AND EXTERNAL)

Room Air

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



External (Outdoor)

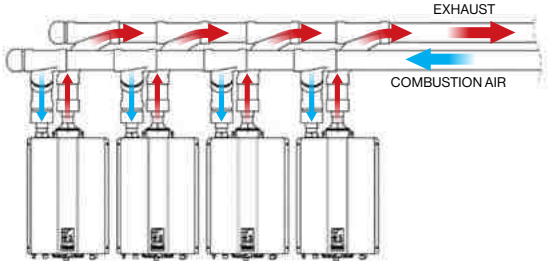
Exterior models - no venting required.

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)

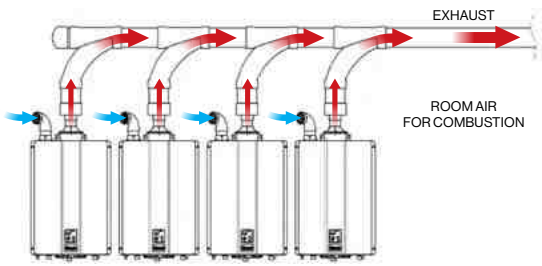
Direct Vent

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	2-3 Units: 150ft 4 Units: 65 ft
			4"	6"	7	5-6 Units: 150ft 7 Units: 70 ft
			6"		8	2 - 8 units: 150 ft.
			6”		12	9-10 units: 90 ft 11-12 units: 41 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®

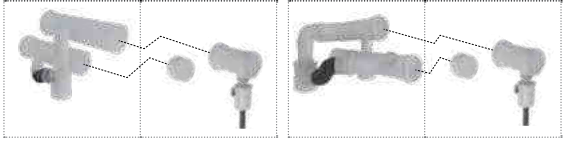
Common Venting | **Direct Vent - Polypropylene**

3"

INLINE and CORNER
(P/N: 790130)

4"

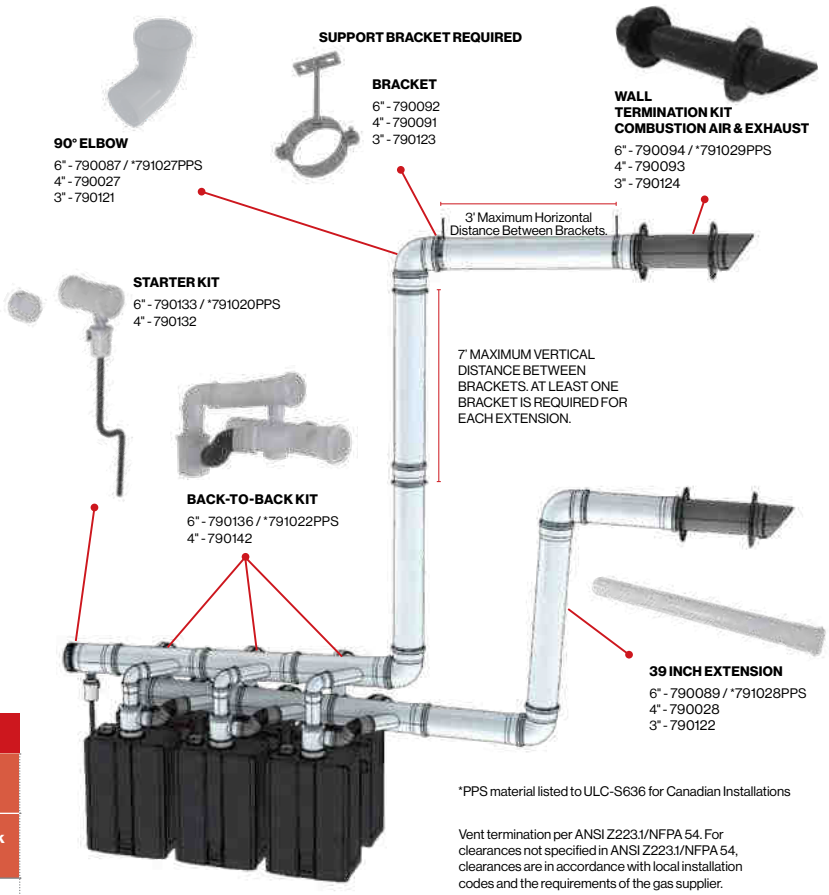
4" INLINE		4" BACK-TO-BACK	
4" ADD-ON (P/N: 790134)	**4" STARTER** (P/N: 790132)	**4" ADD-ON** (P/N: 790142)	**4" STARTER** (P/N: 790132)



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
9	**6"**	1	9	1	4
10	**6"**	1	10	0	5
11	**6"**	1	11	1	5
12	**6"**	1	12	0	6

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 of 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 Venting | **Room Air - Polypropylene**

3"

INLINE and CORNER
(P/N: 790131)

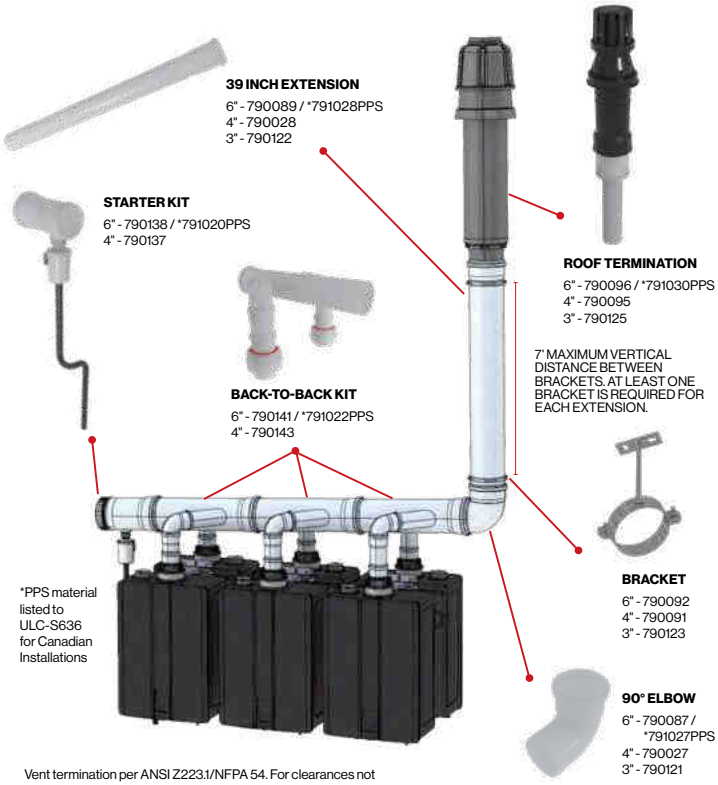
4"

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



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 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				
	9	1,791,000				90 ft
	10	1,990,000				
	11	2,189,000				41 ft
	12	2,388,000				
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		
	5	800,000				
	6	960,000				

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
R-UPS350A	-	Battery Backup System 350A
R-BMS100	27	BMS Gateway for Tankless and Indoor Usage
R-BMS-DD	27	BMS Gateway for Demand Duo® Interface
R-BMS-100-OE	27	BMS Gateway for Outdoor Usage
R-BMS101	28	Remote Tablet Interface for BMS
107000470	-	Grundfos® UPS 26-99(S) F Circulation Pump with Check Valve and 3/4 in. Flange

100 Years of Smart Comfort

Through 100 years of innovation, including decades of commercial water heating experience, Rinnai has enhanced the way businesses operate, while creating a healthier way of living for their customers. 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.

Water Heating Solutions

Home Heating Solutions

Commercial Water Heating Solutions

Creating a Healthier Way of Living®

Learn more about Rinnai high-performance Tankless Water Heaters, Hybrid Water Heating Systems, Boilers, Vent-Free Fan Convectors, EnergySaver® Direct Vent Wall Furnaces and Hydronic Air Handlers.

rinnai.us | rinnai.ca

Rinnai®

Rinnai America Corporation
103 International Drive | Peachtree City, GA 30269
1-800-621-9419 | rinnai.us | rinnai.ca

PROUD SPONSOR

FOLDS of HONOR

R-TR-CWH-E-01-r6

Copyright 2021 Rinnai America Corporation. Rinnai® and Creating a Healthier Way of Living® are registered trademarks of Rinnai Corporation used under license by Rinnai America Corporation. Rinnai America Corporation continually updates materials, and as such, content is subject to change without notice.

02/2021