TORUS® WATERTUBE

CONDENSING COMMERCIAL BOILERS & WATER HEATERS

300 – 4000 MBH

HEATNET® 3.0

RBI®

RELIABLE. BOLD. INNOVATIVE.

TORUS®
WATERTUBE

Condensing Commercial Boilers & Water Heaters

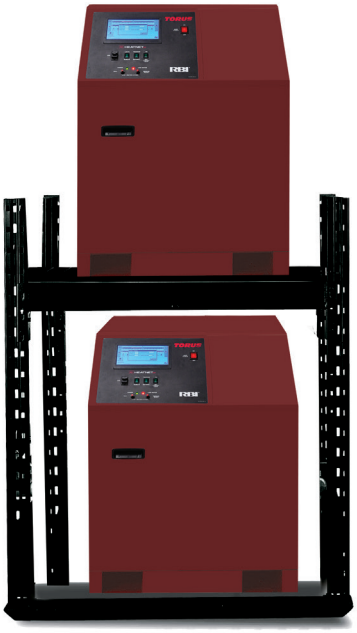
Torus® watertube boilers and water heaters bring next level performance in a small compact footprint to today's applications.

The RBI tradition of high quality, performance equipment in a user-friendly design continues with Torus.

Incorporating all industry-proven components including HeatNet 3.0 touchscreen cascade control, Tru-Flow fuel/air coupling system with 10:1 turndown and capacities to 4000 MBH Torus has the solution for all commercial installations.

The Torus uses a pressure driven mixing system with no moving parts to provide a reliable 10:1 turndown, without lowering the CO2% while avoiding nuisance ignition lockouts.

1250 – 4000 MBH



Optional Rack System (300 – 1000)

*Efficiencies and turndown vary by size.

Features and Benefits

- 300 – 4000 MBH
- +97.5 AHRI Certified*
- Energy Star Certified (Boiler Only 300 – 2000)
- Full Modulation (up to 10:1*)
- 4 Pass Double-Row Watertube Heat Exchanger (160 psi/ ASME (H & HLW) Stamp)
- 316L Stainless Steel
- Variable Volume, Full Flow and Primary/Secondary
- Sika Flow Switch (Flow Sensor Optional)
- HeatNet 3.0 Integrated Control Platform
- Touchscreen Programming and Diagnostics
- Modbus, LonWorks and BACnet BMS Integration
- Low NOx and CO
- Easy Maintenance and Installation
- Concentric Vent (Sidewall and Vertical 300 – 500 MBH)
- Category II and IV (up to 160') (100' 300 – 1000 / 160' 1250 – 4000)
- PVC/CPVC, Polypropylene and Stainless Steel Vent Approved
- Warranty (Heat Exchanger): 10-year Boiler; 5-year Water Heater
- NG/LP/Dual Fuel
- Outdoor Installation
- Top Inlet/Outlet Water Connections (Optional with Indoor Models 1250 – 4000 Only)

ENERGY STAR
Boiler Only
300 – 2000

AHRI CERTIFIED® www.ahridirectory.org

C SA® US
NSF/ANSI 372

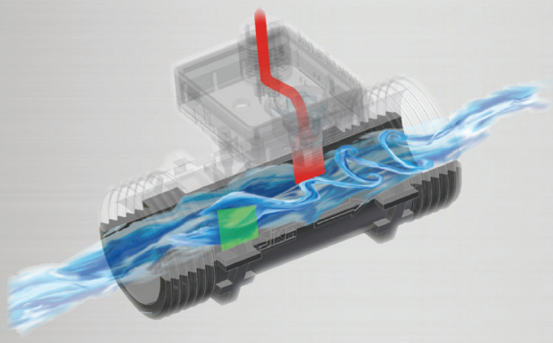
DESIGN CERTIFIED

ASME

Torus heat exchangers are designed for optimum performance and durability. Made from an industrial quality 316L stainless steel Torus heat exchangers are reliable and robust while being very resistant to both thermal shock and acidic condensate.

A unique 4-pass design works in concert with a new multi-channel manifold and increased tube diameters resulting in ultra-high efficiency with very low pressure drop.

Torus heat exchangers are manufactured with an industrial quality 316L stainless steel through a process called tube hydroforming. Tube hydroforming allows the shaping of stainless steel tubes that are not only stronger and lighter but also have a higher quality surface than competitive heat exchangers maximizing both performance and durability in a compact design.

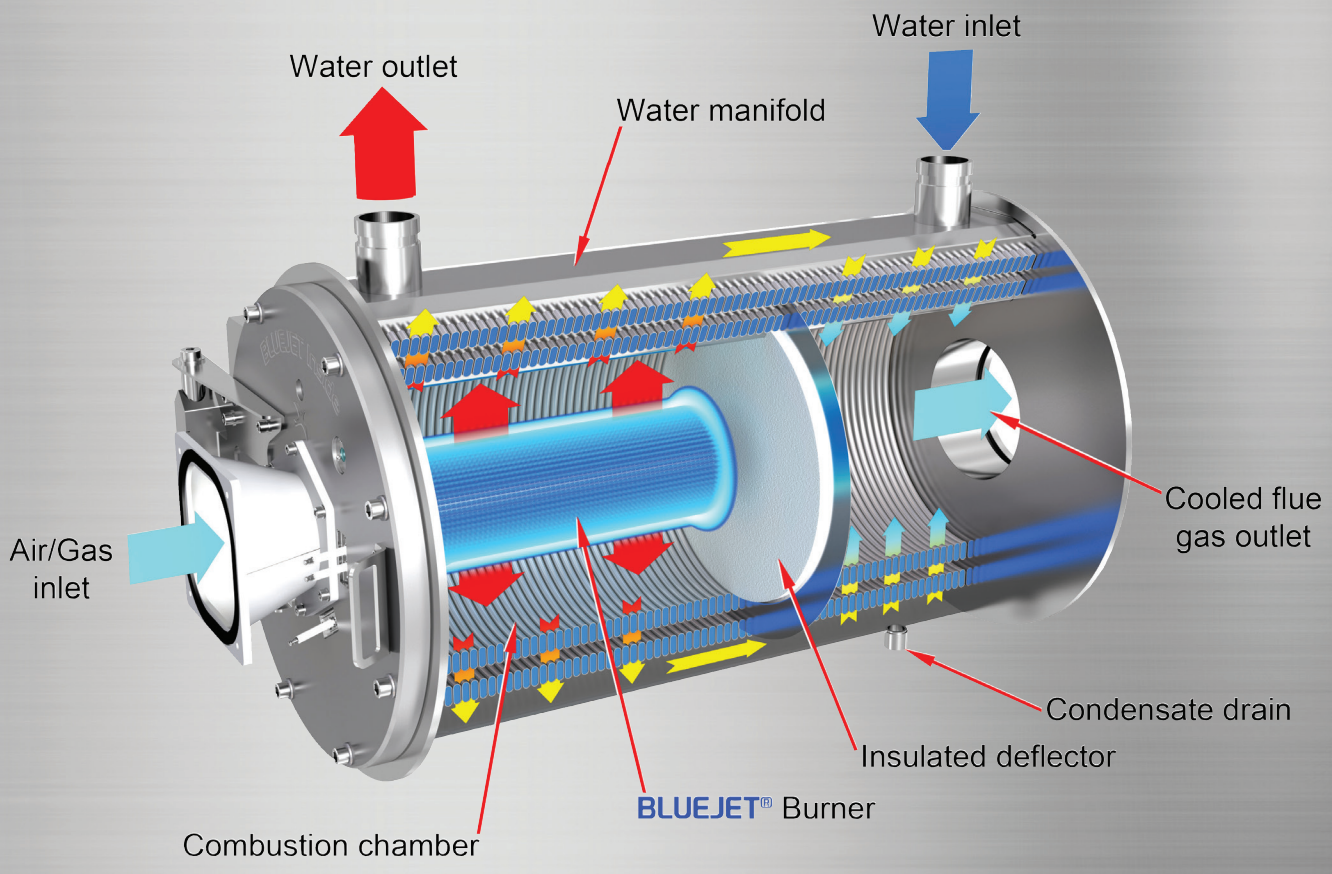


Hydroforming insures a uniform and consistent gap between the tubes facilitating consistent exhaust gas circulation and uniform heat transfer throughout the entire heat exchanger.

All Torus Series come standard with a Sika flow switch. Units are also available with an optional SIKA vortex flow sensor mounted in a by-pass configuration and mapped to indicate the boiler flow in (gpm). The SIKA flow sensor utilizes vortex technology which is then converted to an electrical signal sent directly to the HeatNet Boiler Management System for real time flow annunciation. The SIKA flow sensor is fully adjustable throughout the operating range.

Ease of Service

Torus just may be the easiest piece of equipment ever to service. A unique burner door system provides easy access to both the burner and heat exchanger tube bundle. All burner doors come with a slide and hinge mechanism that easily slides outwards offering full access to the combustion chamber for annual inspection and service.



Torus' Bluejet® burner offers industry leading modulation capacity, flame retention and combustion quality. Whether natural gas or LP gas, BlueJet's low NOx design works in perfect concert with our Tru-Flow fuel/air system providing consistent reliable operation.

4-Pass Watertube Heat Exchanger

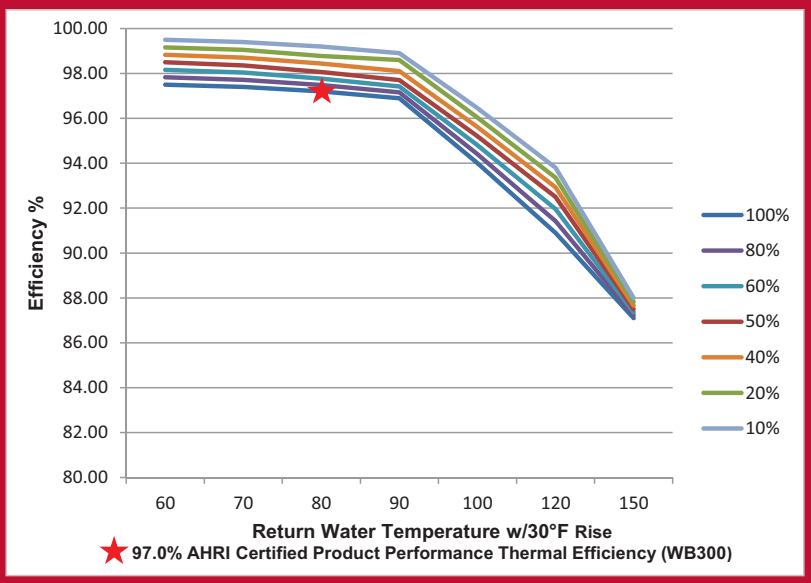
Torus heat exchangers use a 4-pass system for maximum efficiency. The unique path of water throughout the heat exchanger is designed to absorb as much heat energy as possible.

Pass 1: Return water passes through the first set of inner tubes absorbing residual heat energy.

Pass 2: Water passes through the exhaust gas chamber

Pass 3: Outer tubes of the combustion chamber

Pass 4: Supply water distribution final pass through the inner tubes of the combustion chamber

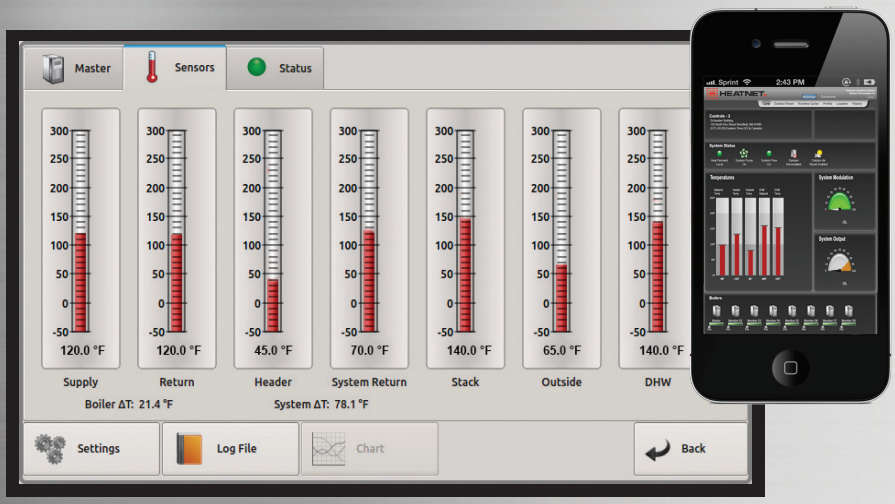


HEATNET® 3.0

HeatNet.net

Every premium efficiency boiler manufactured by the Mestek Boiler Group is integrated with HeatNet 3.0® – an innovative, digital Boiler Management System that provides consistency and feedback through digital communication. By continuously monitoring several system characteristics, HeatNet 3.0 modulates boiler firing rates to maximize turndown ratios and maintain peak efficiency – no matter the load.

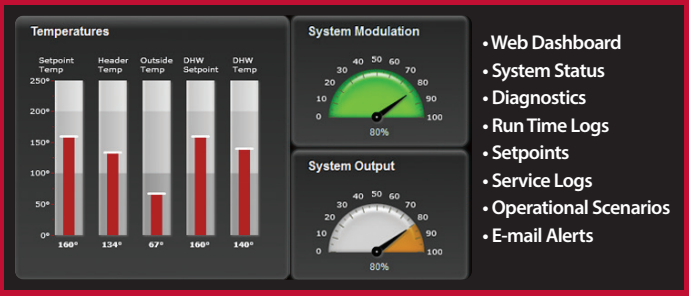
HeatNet 3.0 doesn't just benefit stand-alone boilers; it is a valuable and cost-saving tool in operating a multi-boiler Master/Member network of up to 16 boilers, including mixed-size units. By functioning as a boiler management system, HeatNet 3.0 can incorporate a mixture of condensing boilers and non-condensing boilers to eliminate costly third-party, wall-mounted boiler control platforms.



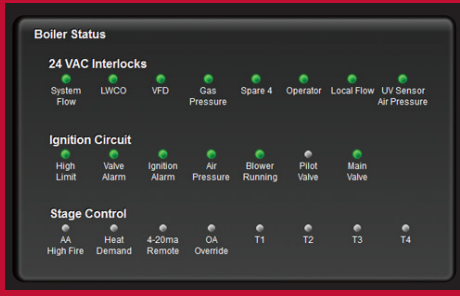
- Digital Touch Screen Programming
- Lead/Lag Cascade (16 Units)
- Mixed-Size Unit Communication
- Adaptive Modulation
- Circular Pump/VFD/Valve Control
- BMS Integration
- Freeze Protection & Delta T Monitoring
- Hybrid/base Load Capability
- Priority Boiler Control
- Domestic Hot Water Communication
- Web-Based Remote Monitoring/Dashboard
- Diagnostics and Troubleshooting
- Set Points
- Exclusive Remote Monitoring Capability with HeatNet Online

HeatNet Online:
Remote Monitoring, Boiler Performance Control & System Protection

HeatNet Online allows for real-time remote monitoring of boiler temperatures, limit circuit inputs, diagnostics and overall system performance.



- Web Dashboard
- System Status
- Diagnostics
- Run Time Logs
- Setpoints
- Service Logs
- Operational Scenarios
- E-mail Alerts



Troubleshoot From Anywhere

Building Dashboard
- Supports Multiple Systems
- "Live" Data Updated Every 60 Seconds
- Setpoint, Header, DHW Set, DHW (if enabled) Stack (if detected)
- System Modulation, System Output
- Visual Cues for Firing Boilers

System History
- Visual Trending
  - Header Temp
  - Modulation
  - DHW Temp
  - Setpoints (Operating, DHW)
- "Zoom" Charting Scales from Hour to Minute Interval
- Log Entries
  - Full Log Event
    - Event Description
    - System Detail
  - No 1000 Log Limit

Service Log History
- Individual Entries Can Be Stand Alone or Attached to Warnings, Faults
- File Upload
  - Allows Technicians to Upload Pictures From Phone
- Dynamic Link
  - Links to Product Specific Support Literature

TORUS® WATERTUBE

Product Specification
WB/WW 300 - 1000

	300	350	400	500	650	800	1000
Ratings and Capacities							
Input BTU/HR - (WB/WW)	300,000	349,000	399,000	500,000	650,000	800,000	999,000
Output BTU/HR - Boiler - (WB)	291,000	337,483	385,035	482,000	625,950	768,800	959,040
AHRI Thermal Efficiency - Boiler (%)	97	96.7	96.5	96.4	96.3	96.1	96
Water Heater Hourly Recovery Capacity (GPH @ 60 deg f)	588	677	782	960	1262	1553	1939
Water Heater Hourly Recovery Capacity (GPH @ 100 deg f)	353	406	469	576	757	932	1163
Water Heater Hourly Recovery Capacity (GPH @ 140 deg f)	252	290	335	412	541	665	831
Turn Down (NG)	8:1	9:1	10:1	10:1	10:1	10:1	10:1
Turn Down (LP)	8:1	8:1	8:1	8:1	8:1	8:1	8:1
HP - Boiler	8.69	10.08	11.50	14.40	18.70	22.97	28.65
Fuel Type	NG/LP/Dual Fuel	NG/LP/Dual Fuel	NG/LP/Dual Fuel	NG/LP/Dual Fuel	NG/LP/Dual Fuel	NG/LP/Dual Fuel	NG/LP/Dual Fuel
Category	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV
Water Volume (gal)	3.8	3.8	3.8	4.2	5.6	6.6	8.1
Design Data - (Max working Press - psig)	160	160	160	160	160	160	160
Min water pressure (psi)	20	20	20	20	20	20	20
ASME Sect IV Fireside Htg Surface (sq-ft)	34.8	34.8	34.8	39.1	52.2	60.9	75.4
ASME Sect IV Waterside Htg Surface (sq-ft)	31.5	31.5	31.5	35.44	47.25	55.12	68.24
Electrical (Standard)	120V-1ph	120V-1ph	120V-1ph	120V-1ph	120V-1ph	120V - 1ph	120V - 1ph
FLA (amps)	12	12	12	12	12	12	12
Min. Gas Pressure (w.c.) N/G	4	4	4	4	4	4	4
Min. Gas Pressure (w.c.) LP	4	4	4	4	4	4	4
Max. Gas Pressure (w.c.)	14	14	14	14	14	14	14
Max Vent (Equiv. ft)	100	100	100	100	100	100	100
Max Combustion Air (Equiv. ft)	100	100	100	100	100	100	100
Trim							
Number of Relief Valves	1	1	1	1	1	1	1
Relief Valve Pressure Rating (PSI) (WB/WW)	50/125	50/125	50/125	50/125	50/125	50/125	50/125
Inlet Water Connection (in)	2.0	2.0	2.0	2.0	2.0	2.0	2.5
Outlet Water Connection (in)	2.0	2.0	2.0	2.0	2.0	2.0	2.5
Gas Connection - NG (in)	1"	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"
Gas Connection - LP (in)	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Vent Outlet Connection (in)	4	4	4	4	6	6	6
Standard Vent Material	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC
Optional Non Metallic Vent Material	SS/PP	SS/PP	SS/PP	SS/PP	SS/PP	SS/PP	SS/PP
Combustion Air Connection	5	5	5	5	5	5	5
Dimensions							
Height (in)	40.94	40.94	40.94	40.94	40.94	40.94	41.69
Width (in)	25.09	25.09	25.09	25.09	25.09	25.09	25.36
Depth (in)	40.25	40.25	40.25	41.75	49.25	52.12	56.89
Operating Weight (lbs.)	407	407	407	426	486	524	607
Shipping Weight (lbs.)	519	519	519	537	598	635	746
Clearance Service/Combustible							
Front (in)	36/6	36/6	36/6	36/6	36/6	36/6	36/6
Rear (in)	24/6	24/6	24/6	24/6	24/6	24/6	24/6
Right Side (in)	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Left Side (in)	1/1	1/1	1/1	1/1	1/1	1/1	1/1
Top (in)	30/6	30/6	30/6	30/6	30/6	30/6	30/6

TORUS® WATERTUBE Product Specification WB/WW 1250 - 4000

	1250	1500	2000	2500	3000	4000
Ratings and Capacities						
Input BTU/HR - (WB/WW)	1,250,000	1,500,000	1,999,000	2,500,000	3,000,000	4,000,000
Output BTU/HR - Boiler - (WB)	1,206,250	1,447,500	1,929,035	2,437,500	2,925,000	3,900,000
AHRI Thermal Efficiency - Boiler (%)	96.5	96.5	96.5	97.5	97.5	97.5
Water Heater Hourly Recovery Capacity (GPH @ 60 deg f)	2426	2911	3880	4852	5882	7843
Water Heater Hourly Recovery Capacity (GPH @ 100 deg f)	1456	1747	2328	2911	3529	4706
Water Heater Hourly Recovery Capacity (GPH @ 140 deg f)	1040	1248	1663	2079	2521	3361
Turn Down (Boiler) (WB), NG*	10:1	10:1	10:1	8:1	10:1	9:1
Turn Down (Water Heater) (WW), NG*	10:1	10:1	10:1	8:1	10:1	9:1
HP - Boiler	36.04	43.25	57.66	72.45	87.39	116.52
Fuel Type	NG/LP	NG/LP	NG/LP	NG/LP	NG/LP	NG/LP
Category	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV	CAT II/IV
Water Volume (gal)	11	13	16.9	24.9	24.9	41.3
Design Data - (Max working Press - psig)	160	160	160	160	160	160
Min water pressure (psi)	20	20	20	20	20	20
ASME Sect IV Fireside Htg Surface (sq-ft)	100.17	119.8	153.19	300.69	300.69	402.93
ASME Sect IV Waterside Htg Surface (sq-ft)	92.93	111.08	141.93	277.23	277.23	371.25
Electrical (Standard)	120V-1ph	120V-1ph	230V-1ph	230V-3ph	230V-3ph	230V-3ph
Electrical (Optional - 3ph)	N/A	N/A	208-575V-3ph	208-575V-3ph	208-575V-3ph	208-575V-3ph
FLA (amps)	17.14	21.0	25.6	15.05	15.05	19.9
Min. Gas Pressure (w.c.), NG	4	4	4	4	4	4
Min. Gas Pressure (w.c.), LP	8	8	8	8	8	8
Max. Gas Pressure (w.c.)	14	14	14	14	14	14
Max Vent (Equiv. ft)	80/160	80/160	160	160	160	160
Max Combustion Air (Equiv. ft)	80/160	80/160	160	160	160	160
Trim						
Number of Relief Valves	1	1	1	1	1	1
Relief Valve Pressure Rating (PSI) (WB/WW)	50/125	50/125	50/125	50/125	50/125	50/125
Inlet Water Connection (in)	2 1/2	2 1/2	2 1/2	4	4	4
Outlet Water Connection (in)	2 1/2	2 1/2	2 1/2	4	4	4
Gas Connection (in), NG	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	2
Gas Connection (in), LP	1	1	1	1 1/2	1 1/2	1 1/2
Vent Outlet Connection (in)	6/8	6/8	8	10	10	12
Standard Vent Material	SS	SS	SS	SS	SS	SS
Optional Non Metallic Vent Material	PVC/CPVC/PP	PVC/CPVC/PP	PVC/CPVC/PP	PVC/CPVC/PP	PVC/CPVC/PP	PVC/CPVC/PP
Combustion Air Connection	8	8	8	10	10	12
Dimensions						
Height (in)	63 5/16	63 5/16	63 3/8	77 27/32	77 27/32	77 27/32
Width (in)	32 9/16	32 9/16	32 9/16	44 1/16	44 1/16	44 1/16
Depth (in)	63 3/8	68	76	87 7/32	87 7/32	96
Operating Weight (lbs.)	1084	1183	1388	2311	2311	2866
Shipping Weight (lbs.)	1112	1220	1406	2460	2460	2983
Clearance Service/Combustible						
Front (in)	36/6	36/6	36/6	36/6	36/6	36/6
Rear (in)	24/6	24/6	24/6	24/6	24/6	24/6
Right Side (in)	24/6	24/6	24/6	24/6	24/6	24/6
Left Side (in)	24/6	24/6	24/6	24/6	24/6	24/6
Top (in)	30/6	30/6	30/6	30/6	30/6	30/6

* (8:1, LP)

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260 North Elm Street, Westfield, MA 01085
Tel. (833) 265-5371
7555 Tranmere Drive, Mississauga, Ontario L5S 1L4
Tel. (905) 670-5888
www.rbiwaterheaters.com

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