

# HI DELTA<sup>®</sup>

BOILERS AND WATER HEATERS

BUILT-IN  
**RELIABILITY**

SMARTER  
**CONTROLS**

MULTI-FUNCTIONAL  
**DESIGN**



**Raypak<sup>®</sup>**  
A Rheem<sup>®</sup> Company

# Up to 85% thermal efficiency!

## Raypak's Hi Delta

Raypak's Hi Delta is easy to install, operate and service. The Hi Delta has a patented burner with an innovative design that provides an optimized air-gas pathway for complete combustion. This makes the Hi Delta the most adaptable sealed-combustion boiler on the market today.

The touch panel display on the HI-Delta includes onboard diagnostics. In the event of any system problems, technicians can quickly review the fault history of the unit.

The Hi Delta product family covers the full spectrum of both indoor and outdoor applications including space heating, process heating, pool heating and domestic hot water heating.

When installed indoors, the Hi Delta's versatility is revealed via smaller vent diameters, direct-venting capability, and the convenience of stacking to decrease the footprint for multiple appliances.

## Key Features

- Models from 300,000 to 2,340,000 BTUH
- VERSA IC® Control
- Cascade up to 8 heaters
- Cascade in parallel or sequential modulation
- Indoor/outdoor construction of all models
- Efficiency:
  - Up to 85% Water Heaters
  - 84% Boilers
- Patented burner "security blanket" enhances staged combustion minimizes installation and start-up issues, and protects burners from metal fatigue
- 105°F minimum inlet water temp
- Copper finned-tube heat exchanger standard (85% TE); Cupronickel optional (83.1% TE)
- CSA low-lead certified (less than .25%)
- Bronze headers standard on water heaters, optional on boilers
- Glass-lined cast iron headers standard on boilers, optional on water heaters
- Reversible water connection, left hand standard
- Sidewall venting ready; No extractor needed for most applications
- Ducted combustion air ready; TruSeal® CSA-certified direct-vent available
- Status display and on-board diagnostic center, real english, no codes
- Less than 20ppm NO<sub>x</sub> (Sizes 302C-2002C pre-certified to SCAQMD rule 1146.2)
- Category I vertical venting
- Category III sidewall venting

## Key Options

- Low Gas Pressure operation CSA-certified for 4" WC supply pressure, natural gas only.
- Rear vent option available at time of order
- TruSeal direct vent air intake system
- Right hand water connection
- Multi-boiler temperature controller
- Cold water start system
- Cold water run system
- SureRack® vertical racking kit
- Flex Gas® duel-fuel
- BACnet, Metasys, Modbus gateway
- LONworks gateway

## Cold Water Start

It is commonly known that prolonged internal condensation will dramatically shorten the life of standard boilers and water heaters. While Raypak boilers and water heaters can operate without harmful condensation at lower inlet water temperatures there are still applications that require reliable protection against harmful condensation caused by frequent, extended, cold water start-ups. Raypak's **Cold Water Start** protection system is only used with closed-loop heating systems and utilizes a proportional three-way valve to bypass water from the boiler outlet to the inlet during start-up, when the system return water temperature is below the, minimum acceptable level.

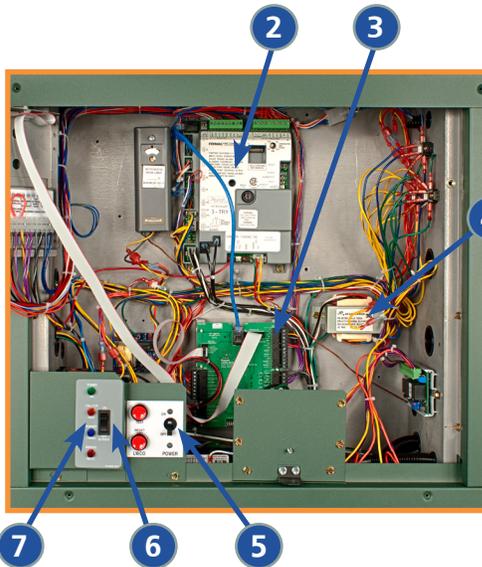
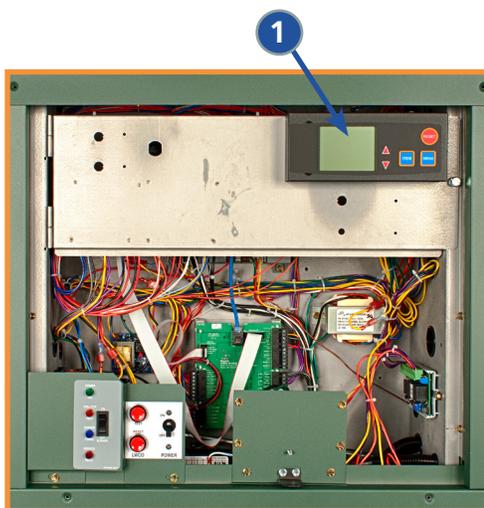
## Cold Water Run

Cold Water Run provides protection against condensation from cold inlet water on systems where the return water temperature to the boiler will always be below the acceptable minimum. Raypak's Cold Water Run system works with boilers, water heaters or pool heaters. It utilizes a variable-speed pump to inject water from the main system loop into the boiler to maintain the optimum inlet temperature. This allows the boilers full capacity to be utilized and meet the system load, while continuously maintaining the optimum inlet water temperature to prevent condensation.



## Simple Serviceability

Raypak's intuitive user interface includes on-board diagnostics and LED status lights, informing the technician all they need to know. Service components are readily accessible from the front of the unit for maximum installation flexibility .



- 1 VERSA IC user interface
- 2 Platform Ignition Module (PIM)
- 3 VERSA Board
- 4 Transformer
- 5 Main power disconnect
- 6 Standby power switch
- 7 Status lights



**Rear Vent Port**



**Vertical Venting**

### SureRack Kit

The perfect solution for today's most space challenged equipment rooms. The Hi-Delta racking system does not require the appliances to stack offset thanks to their venting capability. Saving valuable floorspace. All components (except pumps, flow switches and PRVs) are contained inside the cabinet, so there won't be any standard gas valves or fans hanging off the unit. The units remain fully serviceable even while racked.

- For models 302C thru 2342C
- No Vent Offset Required<sup>1</sup>
- Small Footprint
- Fits in Low-Ceiling Room
- Heavy-Duty Construction
- Easy Assembly
- All Hardware Included
- Allows for Complete Servicing

### Flex Gas Dual-fuel boilers and water heaters

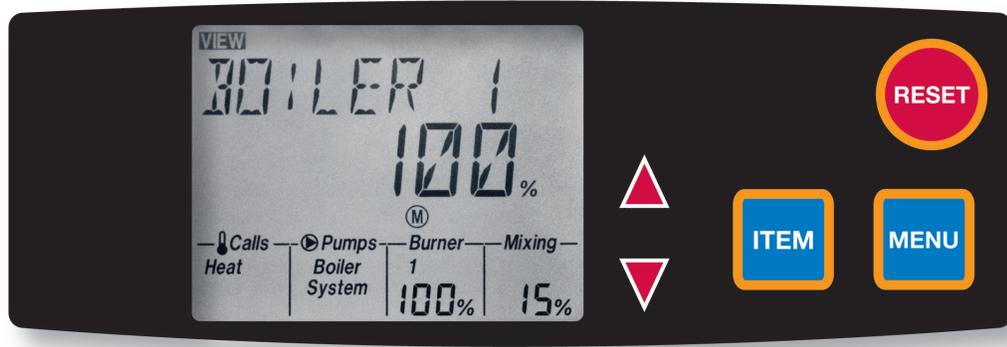
With its patented, CSA-certified rapid fuel switchover system, the Hi Delta FlexGas is an ideal solution for interruptible-fuel applications (natural/propane gas).

- For models 302C thru 2342C <sup>2</sup>
- Changeover takes less than one minute
- No mechanical components to remove or replace
- Changeover can be accomplished while firing: simply turn the key!
- Factory-installed and tested system



<sup>1</sup> Lower unit requires D-14 vent tee option.

<sup>2</sup> 2002C model excluded.



## Smarter Controls

VERSA IC merges safety, ignition, temperature control, multi-unit cascade outdoor reset, freeze protection, plus system monitoring, diagnostics, and BMS transmission all in one Integrated Control Platform. Easy front access to read, set up and trouble shoot on a 3.5"LCD screen. The entire package is CSA certified, and listed for each individual function.

Inlet and outlet sensors factory installed in boiler. Remote sensor for system included. BMS all point diagnostics transmission port. 0-10VDC set point input standard. Can drive and monitor external motorized auxiliaries such as extractors and louvers. Additional connections for auxiliary functions, indirect DHW, and dry contact remote alarm relay are provided.

## Diagnostic Information

### Control Faults

- Low 24VAC
- Control Setup
- ID Card Fail
- Device Lost
- Device Error
- PIM Error

### Ignition Control Faults

- Ignition Lockout
- False Flame
- Ignition Failure
- Low HSI Current
- Blower Speed

### Safety Faults

- Sensor Failures - 6
- Vent Block
- Manual Limit
- Auto Limit
- Water Flow
- Delta T Fault

- Low Water
- Low Gas
- High Gas
- Extra 1
- Options

## Outdoor Proven

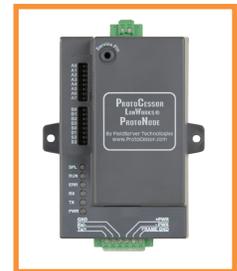
Raypak is no stranger to the outdoor environment. Our touch pad is 100% waterproof and has been proven and perfected on our pool products. No guesswork here, just one tough boiler ready to take on jobs that others have to walk away from.

## Building Management System Interface

The VERSA IC includes a Modbus communications port as standard for continuous monitoring, trending, and troubleshooting. BACnet MS/TP, BACnet IP, N2 Metasys, Modbus TCP and LONworks are available via optional gateways pre-configured from Raypak for seamless integration into a wide range of building management systems.



**BACnet®, Metasys®  
Modbus®**  
gateway module (optional)

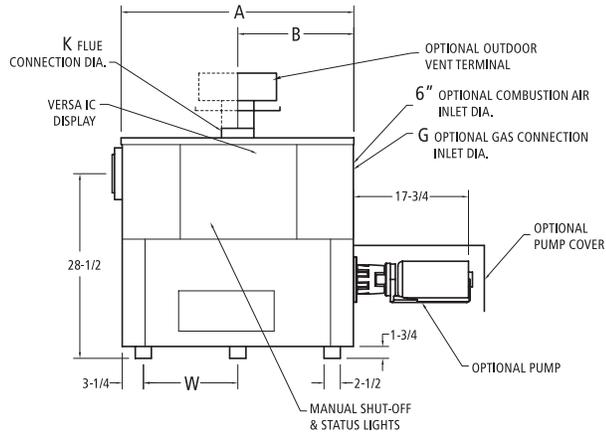
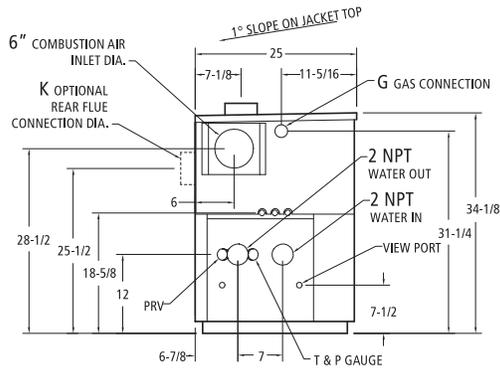


**LONworks®**  
gateway module (optional)

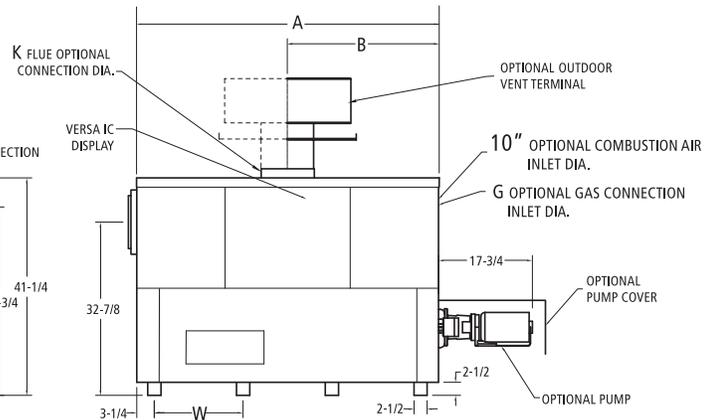
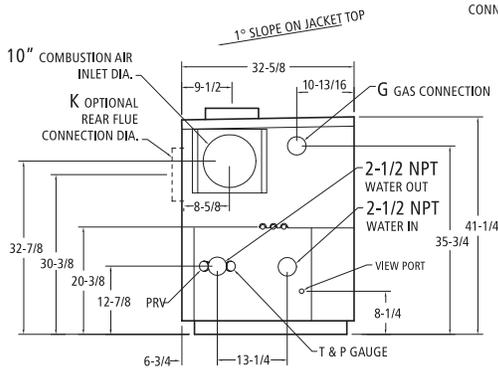


# Hi Delta Boilers and Water Heaters Models 302C - 2342C

## For Models 302C - 902C



## For Models 992C - 2342C



Model	MBTUH Input <sup>1</sup>	MBTUH Output <sup>1</sup>		Dimensions in.					Operating Weight (lbs.)	Amps <sup>3</sup>
		Type H 84%	Type WH 85% <sup>2</sup>	A Width	B	G	K Flue ø	W		
302C	300	252	255	36	18	3/4	5	14-3/4	380	6
402C	399	335	339	43	21-1/2	3/4	6	18-1/2	445	6
502C	500	420	425	50	25	1-1/4	6	22	545	6
652C	650	546	553	60-1/2	30-1/4	1-1/4	8	27-1/4	590	6
752C	750	630	638	67-1/2	33-3/4	1-1/4	8	30-3/4	675	6
902C	900	756	765	78	39	1-1/4	8	36	740	7
992C	990	832	842	57-1/8	28-9/16	2	10	16-13/16	900	<12
1262C	1260	1058	1071	68-1/2	34-1/4	2	12	20-9/16	1010	<12
1532C	1530	1285	1301	79-7/8	39-15/16	2	12	24-3/8	1225	<12
1802C	1800	1512	1530	91-1/8	45-9/16	2	14	28-1/8	1350	<12
2002C <sup>4</sup>	1999	1679	1699	102-1/2	51-1/4	2	14	31-15/16	1450	<12
2072C	2070	1739	1760	102-1/2	51-1/4	2	14	31-15/16	1450	<12
2342C	2340	1966	1989	113-7/8	56-15/16	2	16	35-11/16	1520	<12

Boiler Side	Indoor		Outdoor	
	Minimum	Service	Minimum	Service
Floor*	0"	0"	0"	0"
Rear	1"	6"	12"	6"
Water side	12"	24"	36"	36"
Other side	1"	24"	36"	36"
Top	1"	6"	Unobstructed	36"
Front	Open	24"	Open	24"
Vent	2"	2"	N/A	N/A

\* Do not install on carpeting.

<sup>1</sup> Ratings for models 302C-2342C for natural or propane gas and for elevations up to 4,500 ft. above sea level. For higher elevations, consult the factory.  
<sup>2</sup> These efficiencies are for a copper heat exchanger. See product submittal for Cu/Ni efficiency data.  
<sup>3</sup> Current draw is for heater only. (Supply breaker must have a delayed trip.)  
<sup>4</sup> Natural gas only. Not available for propane.



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