

# MPO-<sup>TM</sup>IQ



**87%  
AFUE**

**Oil-Fired,  
High Efficiency,  
3-Pass Water Boiler**



## **IQ** control system

- Features Burnham IQ Control System™
  - True Plug & Play Controls Utilizing Burnham IQ Option Cards;
    - Outdoor Reset (with Domestic Hot Water Priority)
    - Auxiliary High Limit
    - Low Water Cut-off
    - Optional LCD Touch Screen Display
  - Improved Boiler Operation
- 
- 87% AFUE
  - 3-pass Cast Iron Sectional Design
  - Built-in Protection for Low Return Water Temperatures
  - Natural Draft Oil Boiler
    - Five Sizes Available, 0.60-1.65 GPH
  - Direct Vent Option Kit
    - Three Sizes Available, 1.05-1.65 GPH
  - Easy Installation and Servicing
  - Multiple Burner Options
  - A Consumers Digest "Best Buy"

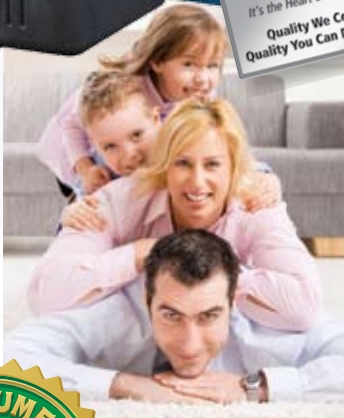


**Limited  
Lifetime  
Warranty!**

**GREATER ENERGY SAVINGS**

**Burnham**  
by  
**U.S. Boiler Company**

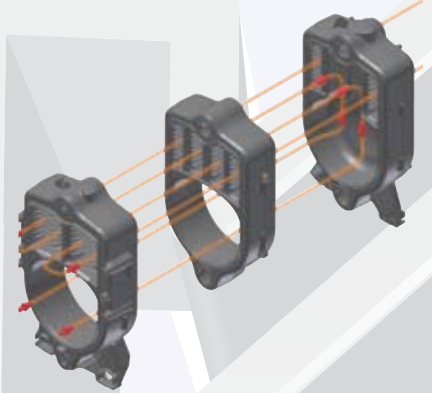
# Get to Know the New MPO-IQ



The new Burnham MPO-IQ high efficiency oil-fired heating boiler marks the crossroads of innovation and everyday practicality. Rated among the highest efficiency of cast-iron heating boilers since its introduction, the newly designed MPO-IQ, thanks to the Burnham IQ Oil Boiler Control System, again leads the field in efficiency, versatility, ease of maintenance, and installation.

## Heart & Soul

The heart of the MPO-IQ, and the primary reason for its ENERGY-STAR-rated 87% efficiency rating is a precision cast iron 3-pass heat exchanger. This component has been designed to extract every BTU possible from the combustion process. Instead of merely transferring heat from a single combustion chamber, the MPO-IQ also uses heat from exiting flue gases as they are recirculated through passageways in the heat exchanger prior to venting. Individual cast iron sections for this heat exchanger are manufactured using some of the most advanced foundry equipment and techniques available at Burnham Foundry, LLC in Ohio. Computerized machining centers capable of accuracies within one one-thousandth of an inch are used in the finishing process of the MPO's heat exchanger, insuring a perfect, uniform fit and quality of casting.



## Peace of Mind

U.S. Boiler Company goes the extra mile by extending a limited lifetime warranty on the MPO-IQ's heat exchanger. Additional coverage is available by purchasing the U.S. Boiler Extended Warranty Plan, which provides blanket protection on parts and labor for 5 or 10 years from the date of installation.

## IQ Control System: Simple Yet Powerful



If the heat exchanger is the heart of the MPO-IQ, then the IQ Oil Boiler Control System is the brain. This control system wasn't just designed to improve heating system comfort and efficiency, it goes the extra step by delivering unmatched capability and simplicity. This proven control system is easy to use, yet offers impressive standard features which will help your heating system operate at optimum efficiency. The IQ system also has self-diagnostic capabilities which enable it to convey status and error codes in a simple, easy to understand fashion. This feature can cut service times significantly and reduce service costs over the life of the boiler.

Another significant component of the control system is the IQ Option Panel. This feature enables the easy addition of additional boiler functions, such as temperature limit controls, low water cutoff controls, and outdoor temperature-sensing capabilities. For most boilers, adding these features would be an expensive, time consuming procedure, but the MPO-IQ is different. By plugging an IQ Option Card into the IQ Option Panel, a qualified technician can add these features to an MPO-IQ in a matter of minutes..or SECONDS!



**Rated as a  
Consumers Digest  
Best Buy**

The performance and value of the MPO-IQ has been recognized by Consumers Digest Magazine. Recently, it achieved a Consumers Digest "Best Buy" rating:

*"The new MPO-IQ still has the elements that made the previous version a Best Buy pick in 2008 - the best combination of efficiency and quality of any model that is in this price range. But now it incorporates a plug-and-play control system that lets you add optional features, such as outdoor reset, quickly at a later date..."*

## IQ Option Cards & What They Do for You...

### IQ Outdoor Reset Card

This is a weather sensitive control that adjusts the boiler temperature up or down based on the outdoor air temperature. It's a simple concept, the colder the day, the more heat a building will lose through doors, walls & windows, thus requiring more heat to remain at a comfortable temperature. Under these circumstances, a sensor on the outside of the building (connected to the outdoor reset card) will instruct the boiler to adjust the temperature of the water in the heating system upward. On warmer days when a building loses less heat, the boiler would be instructed to fire less.

Adjusting boiler temperature to actual weather conditions maximizes the comfort of the heating system, allowing the boiler to run for longer cycles at a steady temperature. Outdoor reset also allows the heating system to operate at a lower temperature much of the time, which enhances efficiency and delivers savings of 15%-20% depending on the type of heating system.

### IQ Low Water Cut-Off (LWCO) Option Card

The LWCO Option Card senses the water level inside the heating system. If a low water level is sensed, the boiler is shut off to protect the boiler and heating system from damage due to a low water level or "dry fire" condition.

### IQ Auxiliary High Limit Option Card

The High Limit Option Card adds a second, adjustable temperature limit to the boiler, and will shut the boiler down if temperature exceeds the setting of the card. High Limit Option Cards also offer additional protection for low temperature heating systems such as in-floor radiant zones, and systems containing radiators situated within the living areas of the building. Boilers are sometimes required to be equipped with Auxiliary High Limits by local building codes.

For additional information on IQ option cards, please see page 7

## Make the Most of your MPO-IQ with a Burnham Alliance SL!

Want more energy savings? How about a virtually limitless supply of hot water? Get both with an Alliance SL indirect fired water heater! Unlike direct fired water heaters which use an additional fuel source, the Alliance SL uses the heat from your MPO-IQ to generate hot water. The Alliance SL is designed to produce an abundant supply of domestic hot water, and will work in conjunction with the IQ control system, which is programmed to adjust boiler output to meet hot water demand. It also offers a higher recovery rate than direct-fired water heaters or tankless coils. Hot water is stored inside the Alliance SL and surrounded by an energy-saving layer of R-16 high-density insulation, which reduces standby losses to less than 1° per hour. The Alliance SL features a hydrostone-lined steel tank which is designed to offer superior corrosion protection in all water conditions. A 10/2/1 warranty is standard (10 years on the tank, 2 years on labor, 1 year on parts). A limited lifetime warranty is also available.



Up to  
**30%**  
Savings!

over direct-fired  
water heaters



# MPO-IQ... The Inside Story



## 3-Pass Cast Iron Heat Exchanger

Flue gases are recirculated through the heat exchanger, extracting the maximum BTUs possible from the combustion process.

## Large, Geometric Combustion Chamber

Without a target wall or blanket, increases heat transfer and reduces maintenance and repair costs.

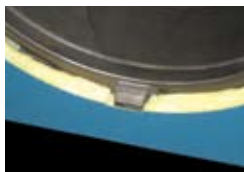
## Reversible Swing-Away Burner Door

Offers easy access to combustion chamber for cleaning. Can be reversed for installations in corners or next to walls.



## Removable Flueway Baffles

Maximize fuel efficiency and allow the MPO to be installed in a variety of chimney applications and permit easy cleaning



## Integrated Boiler Door Support

Holds weight of boiler swing door while in closed position, reducing stress & wear on hinges.

## Multiple Burner Options

Offers a choice of burners from industry-leading manufacturers for the MPO-IQ. This selection of burners is available for all MPO-IQ sizes.

NOTE: Direct Vent boilers require the use of dedicated direct-vent compatible burners, such as the Beckett NX.

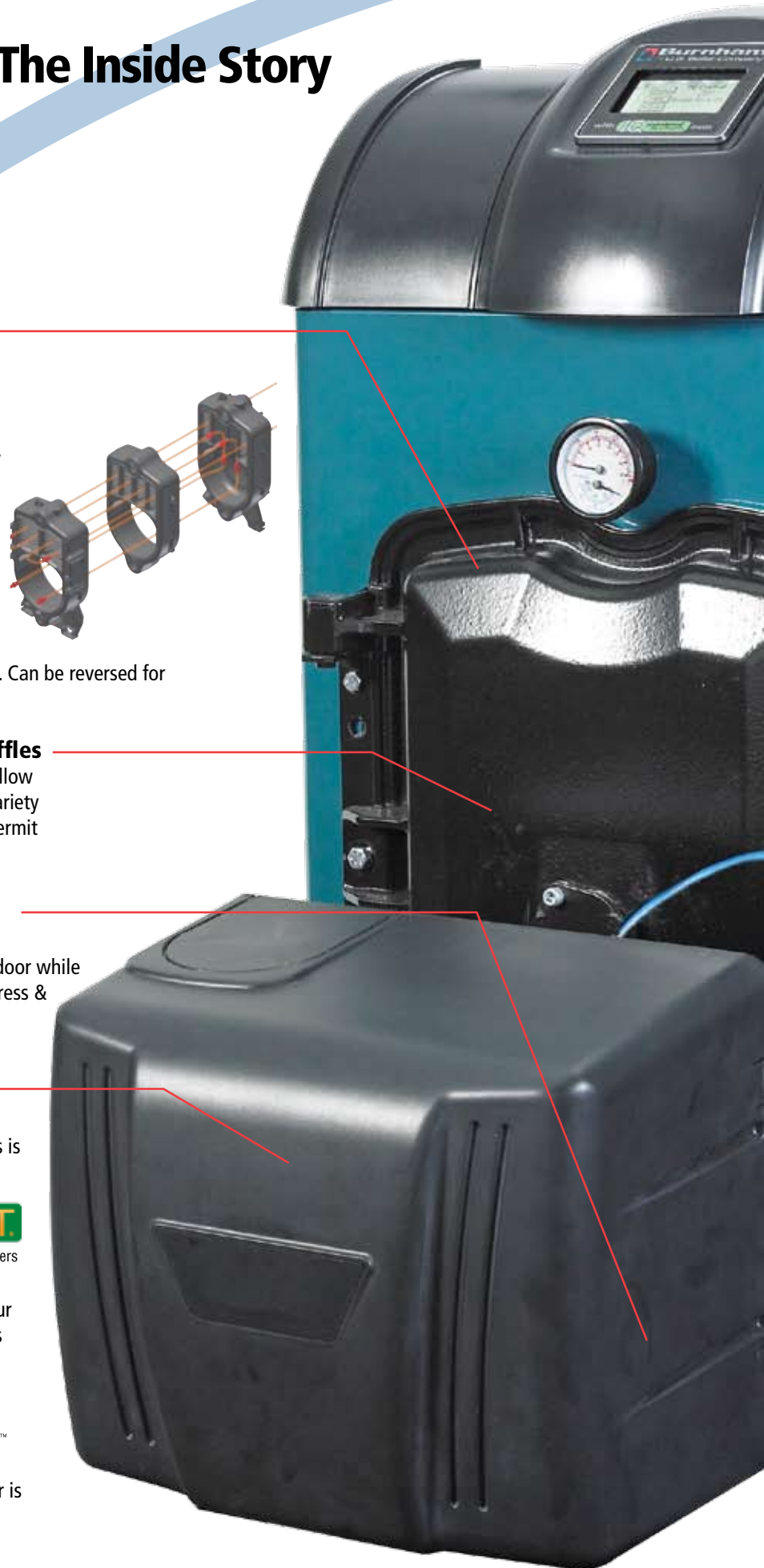
Additional burners may be available. Please contact your supplier of Burnham brand boilers for additional details



B5 approved for Beckett burners

## Attractive, Modern, Powder Coated Steel Jacket

Tough powder coated steel jacket designed for durability and great appearance. The Boiler is wrapped with 3" of energy saving insulation.





### Contoured Hood, Optional Display

Durable contrasting polyethylene hood which protects the controls and can be fitted with optional LCD touch screen display. See page 6 for additional information.

## IQ control system

### IQ Oil Boiler Control

Integrates Aquastat, and circulator relays into a single module. Communicates directly with Beckett burners when equipped with Honeywell controls, providing valuable operating and diagnostic information.



### IQ Option Panel

Accepts optional IQ Option Cards for simple "plug & play" installation of Outdoor Reset, Low Water Cutoff and Auxiliary High Limit (Aquastat)

### Built-In Return Water Boiler Protection

Equipped with a unique return water blending manifold that automatically mixes hot boiler water with cool return water. This device also aids in keeping temperatures consistent within the boiler which provides greater operational efficiencies and allow the boiler to operate with virtually any type of hot water system without condensing.



### Built-In Junction Box

Enables simple field wiring to 2nd zone, DHW inputs, and circulators.

### Rear Clean-Out Plates

Provide additional access for easy front-to-back boiler cleaning through flue passages.

### Direct Vent Kit

Includes a stainless steel sidewall concentric vent/air intake termination. To connect the boiler flue connects to this piece, a flexible stainless steel, double wall, insulated pipe is also available in 5, 10, 15, and 20 foot lengths. Intake air for combustion connects directly from the burner housing to the vent terminal with a 4" galvanized single wall pipe.



### Additional Venting Options

For installations where there is little clearance behind the boiler, optional stainless steel "starter tees" are now available. These tees fit directly to the rear of the boiler and allow for the pipe to be connected vertically. This saves space and dramatically reduces the footprint of the boiler installation, by allowing the MPO to be installed closer to a wall. Featuring welded stainless steel construction, the tees are equipped with a convenient, handle-operated, removable bottom clean-out plate.



# Controls like no other...



## IQ Oil Boiler Control System

The MPO-IQ's Oil Boiler Control System is truly a revolution in oil boiler control technology. Consisting of the IQ Oil Boiler Control and the IQ Option Panel, the system represents the most comprehensive and flexible control system ever installed as standard equipment in an oil boiler. The end result is an oil boiler which will deliver optimum system efficiency and also is able to offer an impressive amount of self-diagnostic capabilities, saving time and money for both the homeowner and the installer. Communicating with the system can be achieved by using a combination of inputs from three buttons located directly on the IQ Control Panel.

## IQ Boiler Control Features

- 3-Digit LED Readout Displays Boiler Status, Settings, and Error Codes for Easy Set-Up and Troubleshooting
- Operating Control with Adjustable High Limit and Differential
- 120V Input for Indirect Water Heater or 2nd Heating Zone
- 120V Output for Indirect or 2nd Zone Circulator
- Selectable, Adjustable Circulator Pre-Purge & Post-Purge Cycles
- Displays Diagnostic and Status Info from Primary Control (when equipped with Beckett AFG Burner)
- Boiler Freeze Protection



Additional functionality can be added to the MPO-IQ by installing IQ Option Cards into the IQ Option Panel. Installation of IQ Option Cards couldn't be simpler; just push the card into the panel, and connect to the sensors. No more splicing or complex wiring! Once installed, the system automatically recognizes the card and adds its functionality to the system. No additional set up or complicated programming is required!

## IQ Option Panel Features

- Accepts Plug & Play IQ Option Cards for Simple Installation of Outdoor Reset, Low Water Cut-off, & Auxiliary High Limit IQ Option Cards
- 3-Digit Display & Adjustment Buttons for Option Card Settings, Status, and Diagnostics



**NOTE: IQ Option Cards are ONLY to be installed by qualified technicians. Improper installation may affect control system performance and/or boiler functionality**

## Optional 2-Color Touch Screen Display (available fall 2010)

- Displays All Boiler & Option Card Settings, Status, & Troubleshooting Information in Full Text on Backlit Screen
- Red Screen Indicates Lock-Out & Alarms for Clear Visual Indication of Issues
- Blinking Buttons Guide User to Lock-Out or Alarm Issue, Explaining Causes & Possible Remedies in Full Text, Greatly Simplifying Diagnostics & Troubleshooting
- Active Buttons and Menu's Guide User Through Control Options and Settings With Ease
- "I" Button Explains Each Feature & Setting in Full Detail Using Common Terms and Full Sentences
- Displays Lock-Out History For Improved Diagnostics
- Displays Service Contact Info
- Boiler Settings Are Password Protected
- Simple, Single Molex Plug-In Connection To Boiler





*IQ Outdoor Reset Option Components*

### **IQ Outdoor Reset Option Card Details**

- Adjusts Boiler Temperature Based on Outdoor Temperature to Maximize Heating System Efficiency
- Reduces fuel usage by up to 20%
- Adjustable Outdoor Reset Temperature Boost - Ensures Efficiency And Comfort for Building Occupants
- Selectable Domestic Hot Water (DHW) Priority
  - Maximizes DHW Production
- Adjustable DHW Priority Protection
  - Provides Space Heating During Extended DHW Demands
- Adjustable Minimum Boiler Temperature Setting provides Additional Low Boiler Temperature Protection
- Simple Adjustment Through Option Control Panel
- Settings & Diagnostic Codes Displayed on Option Panel LED Read-Out Displays for Simple Set-Up and Diagnostics
- Additional Reset Functions in "Sleep" and "Leave" Modes when Used with Honeywell® EnviraCom® Thermostats

Outdoor Reset IQ Option Card – Part # 10273-01



*IQ Low Water Cut-Off (LWCO) Option Components*

### **IQ Low Water Cut-Off (LWCO) Option Card Features**

- Protects boiler from damage due to low water conditions
- UL 353, and CSA22.2 Certified for CSD-1 Code Compliance (manual reset model)
- Designed by U.S. Boiler Co. for Use with the IQ Control System
- Simple Plug and Play Installation – Saves Time and Simplifies Field Wiring
- Includes ¾" NPT Probe for Remote Mounting in Supply Piping
- 1-Wire Connection to Option Card (includes 36" lead)
- "Test" & "Reset" Feature
- LED Indicators for "Power", "Service Indicator" & "Lock-Out" on Card
- Probe Signal Strength & Diagnostic Codes Displayed on Option Panel LED Read-Out Displays for Simple Set-Up and Troubleshooting

Manual Reset Low Water Cutoff IQ Option Card – Part # 102714-01

Auto Reset Low Water Cutoff IQ Option Card – Part # 102711-01



*IQ High Limit (Aquastat) Option Components*

### **IQ High Limit (Aquastat) Option Card Features**

- Protect Boiler & Heating System From Damage Due to High Water Temperatures
- Limit Rated Control
- UL 353, and CSA22.2 Certified for CSD-1 Code Compliance (manual reset model)
- Ideal for Heating Systems with Plastic PEX Tubing, and Low Temperature Radiation
- Adjustable Set Point and Differential
- Designed U.S. Boiler Co. for Use with the IQ Control System
- Simple Plug and Play Installation – Saves Time and Simplifies Field Wiring
- Includes ½" Thermo Well & Probe w/36" Lead for Remote Mounting in Supply Piping
- Single Plug-In Molex Connection to Option Card
- Settings, Status & Diagnostic Codes Displayed on Option Panel LED Read-Out Displays for Simple Set-Up and Troubleshooting

Manual Reset High Temperature Limit IQ Option Card  
– Part # 102720-01

Auto Reset High Temperature Limit Option Card  
– Part # 102717-01



# Ratings



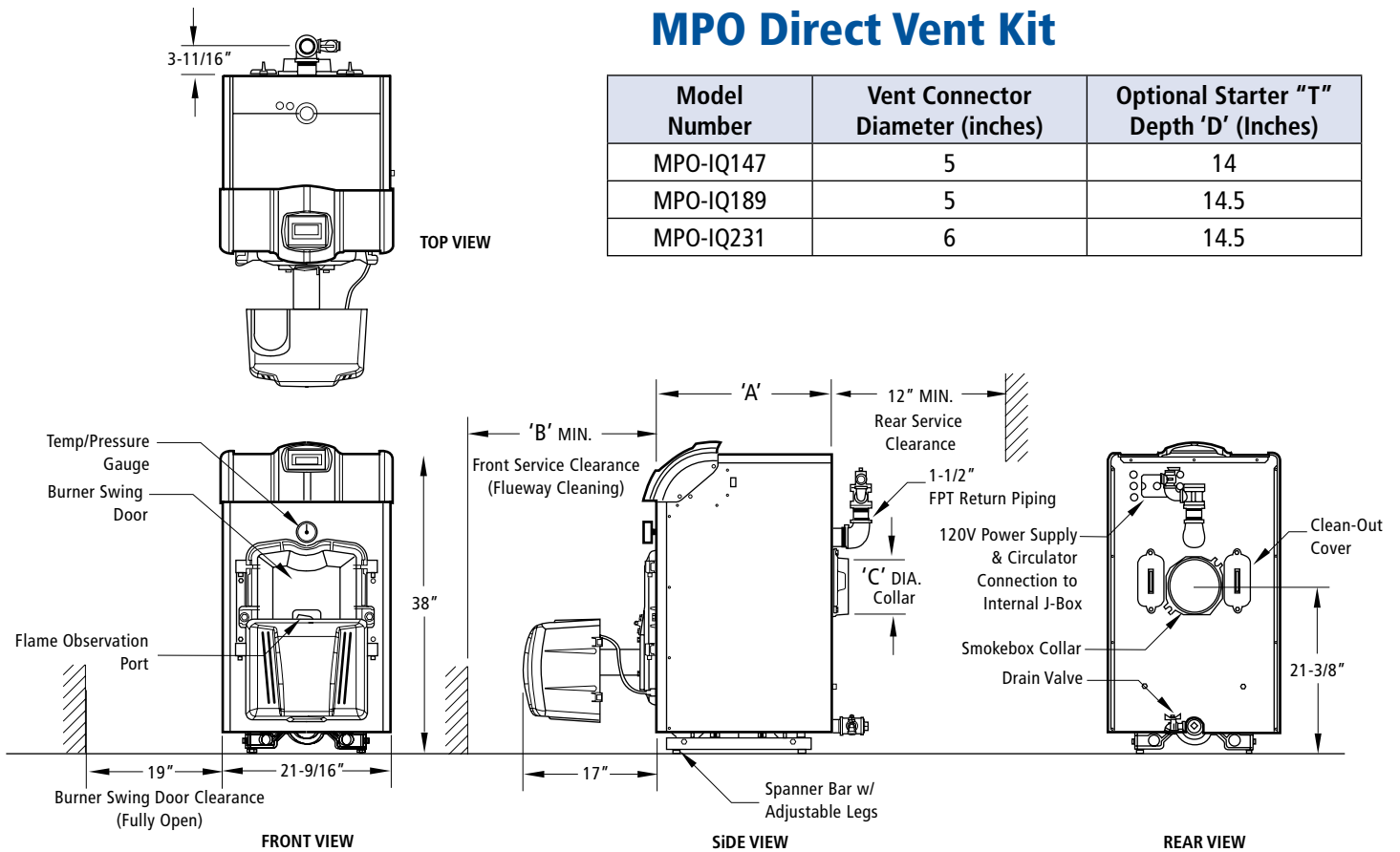
Model Number	Burner Capacity (GPH)	DOE Heating Capacity (MBH)	I=B=R Water Ratings	ENERGY STAR AFUE%
MPO-IQ84	.60	74	64	87
MPO-IQ115	.80	98	85	87
MPO-IQ147	1.05	129	112	87
MPO-IQ189	1.35	167	145	87
MPO-IQ231	1.65	203	177	87

# Specifications

Model Number	Dimensions (inches)			Water Content (gal.)	Approximate Shipping Weight (lbs.)	Direct Vent Approximate Shipping Weight (lbs.)
	'A'	'B'	'C'			
MPO-IQ84	16-5/8	24	5	7.70	475	N/A
MPO-IQ115	16-5/8	24	5	7.70	475	N/A
MPO-IQ147	22-5/8	24	6	11.08	567	579
MPO-IQ189	28-5/8	30	6	14.46	659	692
MPO-IQ231	34-5/8	30	7	17.84	751	807

## MPO Direct Vent Kit

Model Number	Vent Connector Diameter (inches)	Optional Starter "T" Depth 'D' (Inches)
MPO-IQ147	5	14
MPO-IQ189	5	14.5
MPO-IQ231	6	14.5



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