

MODU-FIRE® Forced Draft Boiler

A compact solution that you can depend on



Tradition,
Knowledge and
Innovation are the
three pillars that
support all we do at
Harsco Industrial
Patterson-Kelley.



HARSCO
 INDUSTRIAL
 Patterson-Kelley

Tradition

Building on more than 130 years of company history, Harsco Industrial Patterson-Kelley stands as one of the world's most respected and admired manufacturers of heat transfer equipment.

Knowledge

Throughout our history, we have had our finger on the pulse of our industry. We continue to build our knowledge and experience today by constantly learning about our customers' needs and turning that insight into products and services that help improve their lives.

Innovation

We are committed to continuous improvement and finding innovative ways to solve our customers' challenges on a daily basis. Our dedication to innovation has resulted in many firsts throughout the years.

Meet the MODU-FIRE® Forced Draft Boiler

A perfect part load performer

The MODU-FIRE® Forced Draft boiler is a full modulation design that changes both fuel and air at a constant ratio to match boiler output to actual heat demand. With a constant fuel to air ratio and smooth 5:1 turndown that can track varying loads down to 20% of rated capacity, efficient and clean combustion can be achieved across the entire firing range of the boiler.

Believe it or not, the efficiency of the MODU-FIRE® Forced Draft boiler increases as the firing rate decreases. You achieve maximum efficiency when the load is small, exactly when you need it most!

An optional FD Outdoor Kit gives you additional flexibility.

Product Highlights

- Copper Finned Tube Heat Exchanger
- Compact, Space-Saving Design
- Meets Low NOx Standard
- Integrated ENVI® Control System
- Up To 88% Efficiency
- Optional FD Outdoor Kit



MODU-FIRE® Forced Draft boilers are low NOx, without changing a burner.



MODU-FIRE® Forced Draft
Multiple Boiler Configuration

Available Models



N750/N1000
(750,000 BTU / 1,000,000 BTU)



N1500/N2000
(1,500,000 BTU/2,000,000 BTU)



N2500/N3000
(2,500,000 BTU/3,000,000 BTU)

Durable and Built to Last

Designed with quality materials to outlast and outperform



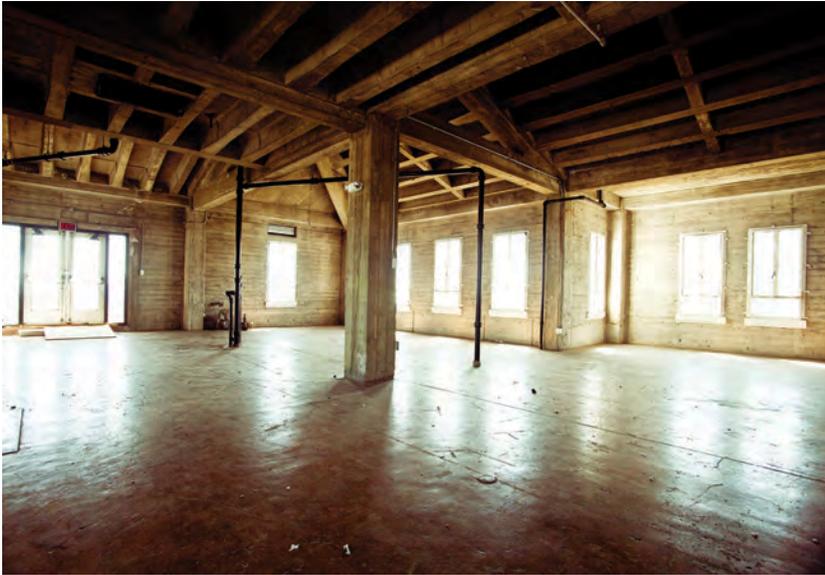
Extreme climate conditions can have your boiler working overtime. Why risk purchasing a product of inferior quality that will fail in dire situations? The MODU-FIRE® Forced Draft boiler is yet another quality product from Harsco Industrial Patterson-Kelley that is durable and built to last.

Mini Case Study

The total replacement of the antiquated oil-fired steam boiler plant, inefficient water heater and temperature control systems for the Adams-Cheshire Regional School District in Adams, MA was designed by Hesnor Engineering Company of Adams, Massachusetts. HEC specified Harsco Industrial Patterson-Kelley's MODU-FIRE® Forced Draft boilers with ultra low NOx emissions for the project. The installation of a high-efficiency boiler plant at C.T. Plunkett elementary school resulted in the school district receiving a \$27,000 rebate from the local natural gas provider, allowing the school district to recoup over 1/3 of the cost associated with the boilers. A six month energy analysis of the boiler plant revealed a fuel cost savings of over \$73,000.

Suitable for Retrofits and New Construction

Small footprint and compact Through The Door™ design



Approximately 44,000 commercial buildings are demolished each year in the United States, according to research compiled by the EPA. The building-related debris generated from demolitions, in particular, account for about 48% of the 160 million tons of all building-related construction and demolition debris generated each year. Renovating, instead of demolishing, buildings is one small way to reduce debris, but that's not to say it comes without challenges.

Older buildings are notorious for having narrow doorways and stairways, not to mention tight access logistics, all of which can make retrofit projects a challenge. Harsco Industrial Patterson-Kelley's Through the Door™ design philosophy was intended to address these challenges.



The MODU-FIRE® Forced Draft boiler is specifically designed to fit through a standard 30" doorway. A small footprint allows for a substantial savings on rigging and installation costs, while still providing the capacity and power of boilers twice its size. In fact, the N3000MFD provides 50% more capacity than the N2000MFD - but still has the same footprint!

The MODU-FIRE® Forced Draft boiler fits effortlessly Through the Door™ and where it needs to be, without taking out a wall to get it there.

Environmentally Friendly

Low NOx standard to help preserve our environment

Research collected by the Environmental Protection Agency (EPA) found that in the United States, buildings contribute to approximately 38.9% of the nation's total carbon dioxide emissions, with 18.0% coming from the commercial sector.

We believe that it is important to take care of our environment and the precious natural resources in it. This is why we are proud to say that the MODU-FIRE® Forced Draft boiler meets low NOx standard of less than 10 ppm, reducing the amount of carbon emissions sent into the atmosphere without changing burners to do so.

Preserving the environment should not be an optional feature.



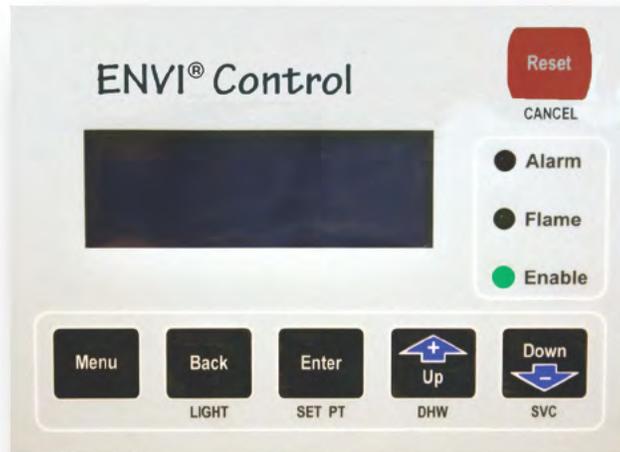
Harsco Industrial Patterson-Kelley has been a member of the USGBC since 2008.



Equipped with Our Own ENVI® Control System

Text based display tells you what you need to know

Forget about purchasing separate controls and risking incompatibility: Harsco Industrial Patterson-Kelley ENVI® control is a crucial, standard feature on the MODU-FIRE® Forced Draft boiler. ENVI® control is designed to cascade up to 16 boilers and allows both condensing and non-condensing boilers to exist in a "hybrid system" for maximum efficiency. ENVI® control is programmed to automatically turn on the boiler that is needed for the situation at hand and can communicate with building management systems, using MODBUS® protocol directly or with a basic converter.



The ENVI® control panel.



Cascade up to 16 boilers with our ENVI® control system, standard on all MODU-FIRE® Forced Draft boilers

Standard Features

See what the MODU-FIRE® Forced Draft boiler has to offer

Performance

- Up to 88% efficiency
- Full modulation with 5:1 turndown
- Meets low NOx standard of less than 10 ppm
- Sequence up to 16 boilers with ENVI® Control System

Design

- Copper finned tube heat exchanger
- Durable radial-fired mesh burner
- Category IV venting
- Ventless integrated gas train
- Dual independent gas vales with gas pressure regulator
- Natural gas or liquid propane
- Dynamic air density compensation
- Pre-mix combustion with variable speed blower
- Direct spark ignition
- High and low gas pressure switches
- Test ports and test valves

Safety

- Factory fire tested
- Blocked flue protection
- Flame safeguard controls
- Short cycling protection
- Frost protection
- Built-in seismic anchoring points

Utility

- Exhaust pressure from 0"-2" (750-2000 MBtu/h)
- Exhaust pressure from 0"-1" (2500-3000 MBtu/h)
- 209-230V, 1 Phase, 4 wire electrical connection
- Low operating electrical consumption less than 15A

Other

- May qualify for utility rebates
- Quick delivery
- Optional FD Outdoor Kit for the 1500 and 2000 series models

Certifications



ASME Code Section IV
Applies to Heating Boilers



ANSI Z21.13
CSA 4.9
Canada (Gas Appliances)
U.S. (Gas Appliances)



ASME Code Section IV
Lined Potable Water
Heaters
*Applies to D750 to
D2500 models*



SCAQMD Rule #1146.2
*Large Water Heaters
and Small Boilers*



Innovation and
attention to even
the smallest detail
has established
Harsco Industrial
Patterson-Kelley as
an industry leader.

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