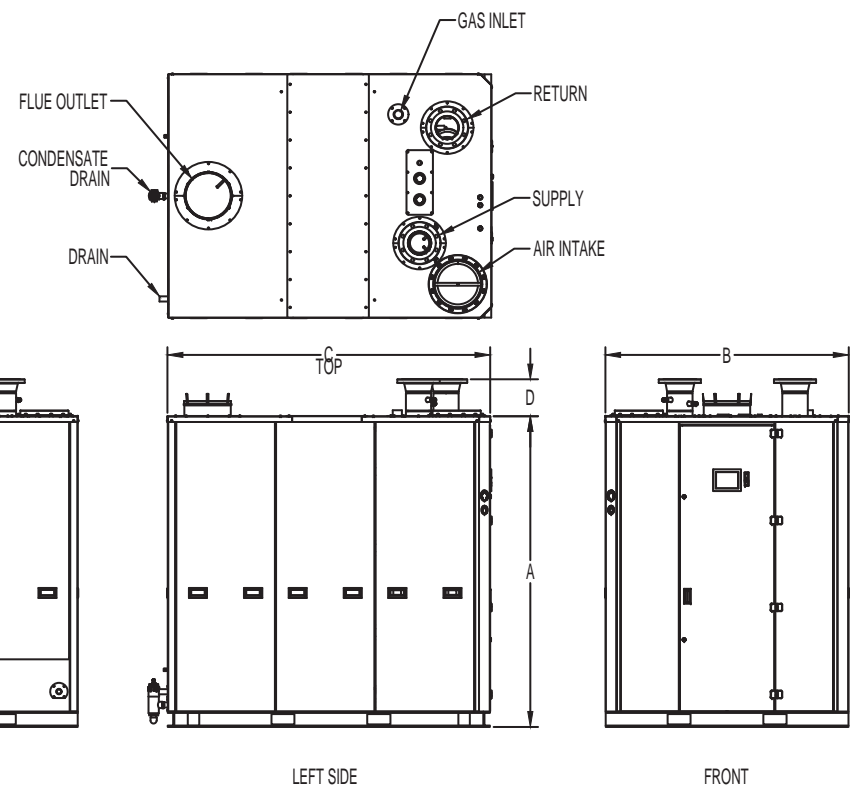


# Bryan Free Flex Ultra High Efficiency Commercial Condensing Boilers



## Specifications, Dimensions, & Ratings

MODEL	RATINGS		THERM EFF. %	"A" HEIGHT (IN.)	"B" WIDTH (IN.)	"C" LENGTH (IN.)	"D" CONN. HEIGHT (IN.)	SUPPLY/ RETURN CONN. (IN.)	AIR INTAKE/ VENT DIA. (IN.)	CONDENSATE & BOILER DRAIN CONN. (IN.)	GAS CONN. (IN.)	APPROX. SHIPPING WEIGHT (LBS)
	MAX INPUT (MBH)	GROSS OUTPUT (MBH)										
FF-3500	3500	3325	95.0	81	64	84	10	6 Flange	12	1	2	4500
FF-4000	4000	3800	95.0	81	64	84	10	6 Flange	12	1	2	4500
FF-4500	4500	4275	95.0	81	64	102	10	6 Flange	14	1	2	5400
FF-5000	5000	4750	95.0	81	64	102	10	6 Flange	14	1	2	5400
FF-5500	5500	5225	95.0	81	64	102	10	6 Flange	14	1	2	5400
FF-6000	6000	5700	95.0	81	64	102	10	6 Flange	14	1	2	5400

### PRESSURE VESSEL DESIGN

ASME certified stainless steel heat exchanger  
ASME Section IV-certified, "H" Stamp  
MAWP 160 PSIG & max temp 210°F  
Ten Year limited heat exchanger warranty  
Lifetime thermal shock warranty

### COMBUSTION DESIGN

Stainless steel mesh pre-mix burner  
Low NOx emissions  
Full modulation, up to 20:1 turndown  
Natural gas (consult factory on LP gas)  
7" wc to 14" wc inlet gas pressure  
Supervised ignition system/UV scanner  
High & Low Gas Pressure Switches, Manual Reset  
Variable speed combustion blower  
Air proving switch

### BOILER EQUIPMENT

Siemens LMV3 control system  
High limit w/ manual reset safety temperature control  
Low water cutoff, manual reset  
Water flow switch  
Supply & return water temperature sensors  
Flue gas temperature sensor  
Air vent valve  
Condensate trap  
Blocked condensate switch  
Blocked vent air switch  
Pressure & temperature gauge  
ASME safety relief valve (30, 50, 60, 75, 100, 125, or 150 psig)

### VENTING

Air Intake - Ducted or Room Air  
Category IV Individual Venting  
Category II Common Venting with Engineered Vent System

### ELECTRICAL DESIGN

24 VAC low voltage control power supply  
208-240-460 VAC / 60 Hertz / 3 phase power supply (FFC3500-4000)  
460 VAC / 60 Hertz / 3 phase power supply (FF4500+)

### OPTIONS

Condensate neutralizer  
Header sensor, direct immersion  
Header sensor, well immersion (with well)  
Outdoor air reset sensor  
Knockdown configuration  
Communication gateway  
BMS signal converter kit  
Motorized isolation valve  
Hydronic kit - boiler pump and condensate neutralizer



# FREE FLEX

Ultra-High Efficiency Commercial Condensing Boilers

## 3500 - 6000 MBH



## FREE FLEX

*Free to Move*

- Tru-O<sub>2</sub> High Turndown
- Fully Field Repairable
- Packaged or Knock-down
- Lifetime Thermal Shock Warranty



# BRYAN BOILERS

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# BRYAN BOILERS

Designed and Manufactured in the U.S.A.





# Bryan Built: Core Values Pacify Marketplace VOID of Longevity and Character

How long will your condensing boiler last? If using a Free Flex from Bryan, the answer is: a LIFETIME. With over a century designing and manufacturing boilers, our cornerstones of profound LONGEVITY, consistent RELIABILITY, and unique SERVICEABILITY are welcomed into a deprived condensing landscape. This space is littered with "me too" replicas exhibiting endless welds and unreparable or stationary tube sheets at odds with burner temperature swings. Our heat exchanger sets us apart. Only Bryan's time-tested seal provides a lifetime guarantee against thermal shock where no other competitive welded product dare go beyond 10 years. Our design also grants unequalled access for service and cleaning of the heat exchanger. This allows for an industry 1st field replacement of tubes and an optional knockdown configuration to go where no other condensing boiler can fit. All models come standard with TRU-O<sub>2</sub> high turndown system up to 20:1.

## Uncommon & Serviceability Access

Maintenance accessibility is as critical part of the overall boiler design, and the Free Flex does not disappoint. Front, left and right hand side, the jacket and flue collector doors are easily removed for full access to service and clean the heat exchanger and burner/blower/gas train assembly. Liberal heating surface throughout the pressure vessel evenly distributes heat transfer promoting longer product lifecycle. Tubes can be removed or replaced with simple hand tools in minutes.

## TRU-O<sub>2</sub> High Turndown System

With constant O<sub>2</sub> at the highest and lowest fire settings, TRU-O<sub>2</sub> maintains "condensing sweet spot of 130F" across entire firing range. Other models commonly add 50% more excess air at low fire, robbing condensing efficiency by lowering the dewpoint by 15 or more degrees. In return, temperatures of 115F or lower condense flue gasses. TRU-O<sub>2</sub> features independant ignition position, a 9 point curve for tuning and adjustment. No more gimmicks, TRU-O<sub>2</sub> is how turndown should be done.

## Variable Primary or Primary/Secondary Piping

Not only are our tubes flexible, but so are the different ways to pipe and pump Free Flex. With low water pressure drops, the Free Flex is able to operate in low flow designs, Variable-Primary, and traditional primary/secondary designs with up to 100 degree delta T at high fire.

## Knockdown Capability

Knockdown and condensing were never mentioned before in the same sentence...until now! The Free Flex is available in various knockdown configurations best suited to gain access into a building that other packaged boilers will not. Individual components will easily fit through a standard door opening and can be reassembled without requiring the services of an ASME welder. Depending on the needs, the Free Flex can be partially assembled or completely disassembled.

## Competitive Footprint

The Free Flex offers a competitive **installed** footprint. Connections are located at the top of the unit freeing the sides of cluttered piping that often get in the way of servicing the boiler. The jacket encompasses the flue outlet assembly that permits minimum clearances to the rear where other models must accomodate for venting in floor print.

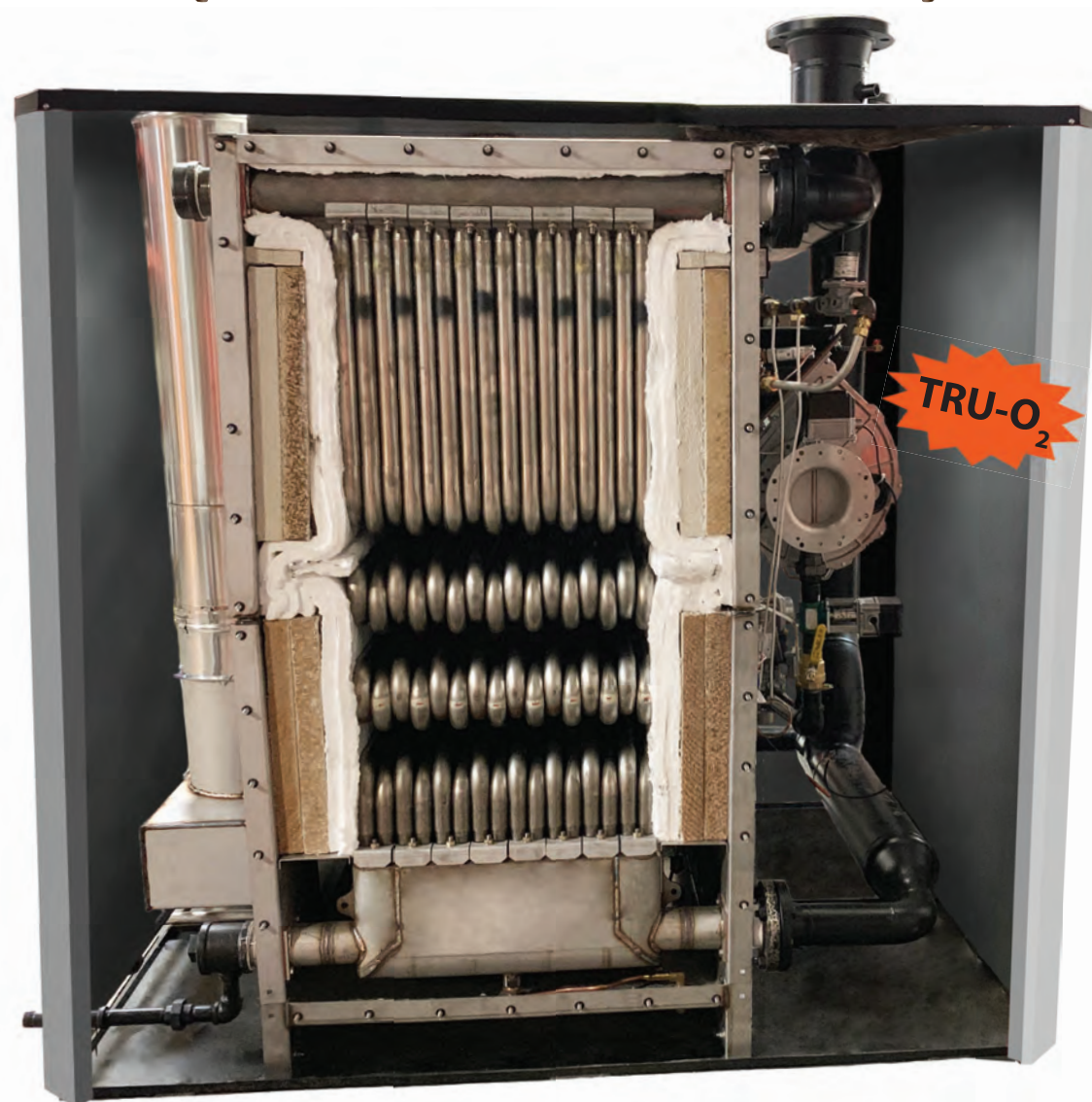
## Venting Category II and IV

Common venting with engineered vent systems.

## HEAT EXCHANGER – FREE TO MOVE!

At the heart of every Bryan Boiler design beats our exclusive flexible watertube. Objects expand and contract when exposed to temperature differentials and boilers are no exception. With combustion temperatures approaching 2000°F and drastically cooling during off cycles, only Bryan accounts for this natural thermal expansion by design. Competitive models unwisely rely on welds to hold back this movement

stressing material and seals. Our inclined flex tubes also provide natural internal circulation, mixing of hot water, and lower velocity through the tubes to optimize heat transfer and separation of solids.



## Lifetime Thermal Shock Guarantee

A swaged mechanical fit, free of welds, seals the tube to header allowing for simple and quick tube replacement should repairs ever be required. Not only is Free Flex the only repairable condensing boiler on the market, it is also backed by Bryan's Thermal Shock Lifetime Seal Guarantee. Only Bryan can provide this assurance because we know our seal has worked for a century.



## State-Of-The-Art Control System

Whether it be stand-alone, sequencing multiple boilers and/or communicating with a building management system, the Concert™ Boiler Control "checks all the boxes" for today's needed control features and functions:

- Large 7" color touch screen display
- 20:1 Turndown
- Two (2) temperature demand inputs
- Three (3) pump control
- Up to 8 unit boiler sequencing
- BMS interface
  - 4-20mA standard / 0-10v optional
  - Modbus standard
  - BacNET, Lonworks & other optional protocols
- USB data sharing port
- Energy efficiency enrichment technology
- Built-in diagnostics
- Huge archive database
- Time/date stamp on alarms and lockouts
- Domestic water priority
- Factory default settings
- Three level password security
- Frost protection
- Boiler sensor monitoring and control
- Low water flow safety control and indication
- Proportion integral derivative (PID) parameters
- Brown-out protection



## Harmonizing Boilers with Systems

Optional control panel integrates all makes of boilers (water or steam) for seamless, single-point connection with EMS. Improves efficiency and operation of condensing, non-condensing, hybrid or steam systems up to 8 units. "Smart Ops" select boiler type (condensing or non-condensing) based on load requirements and inputs of boilers of any size. Selectable Unison and/or Sequential modulation with base load ensures peak efficiency and maximum run time for all types of boiler technologies.