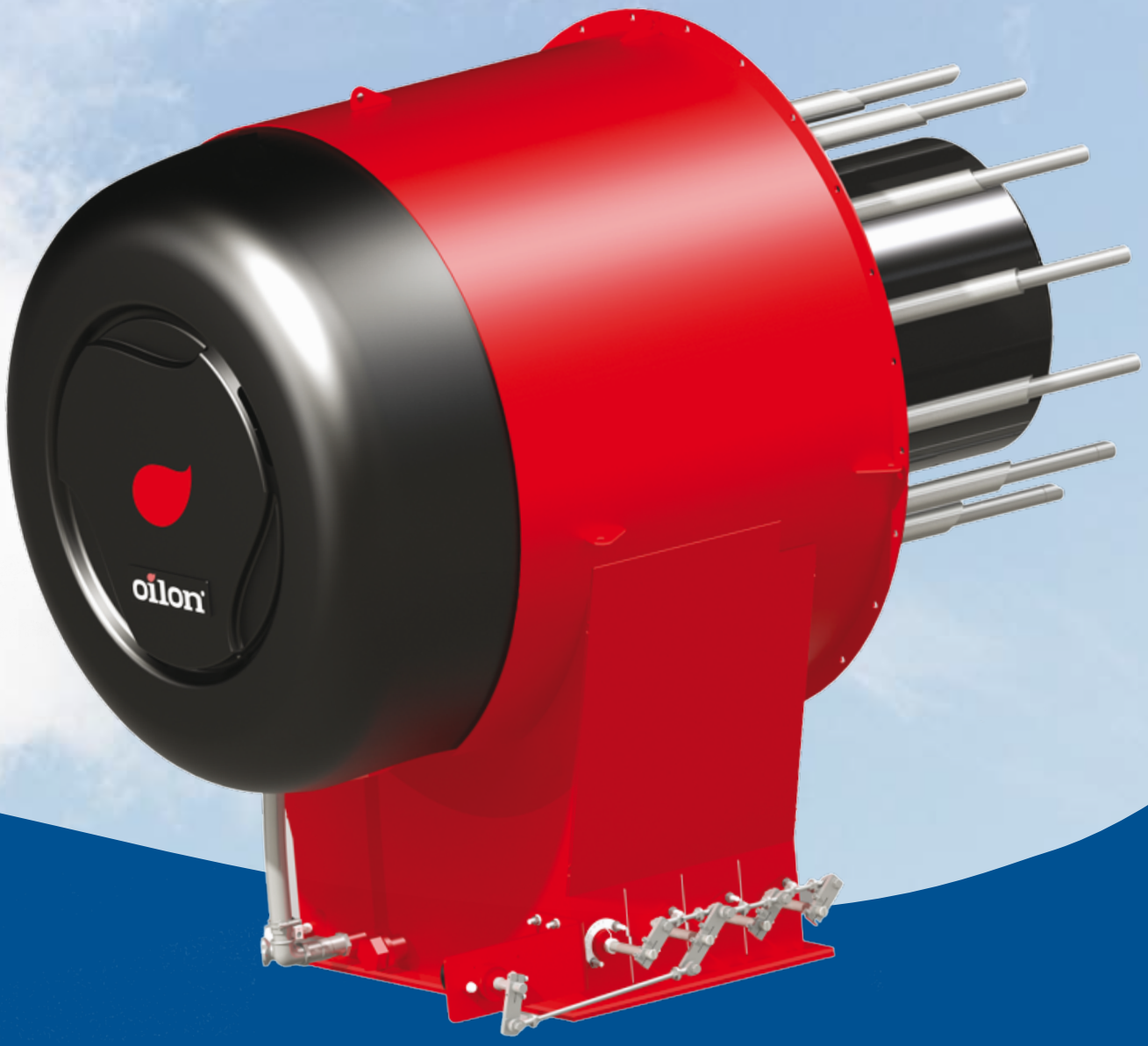
Oilon ACE

Oil, Gas and Dual Fuel Burners

Group
5-6
3,4 - 307,1
MMBtu/hr

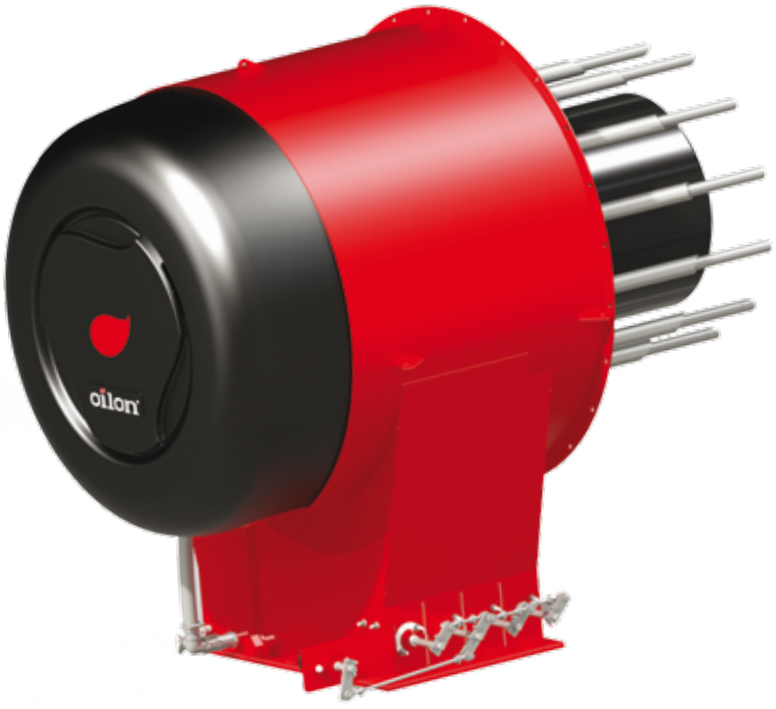


Low NOx

WD

Oilon ACE

Content



*

Oilon's Research and Development, solutions and design for sustainable development

Oilon invests approximately 6% of its annual turnover into research and development. Oilon's Research and Development Centre is equipped with a modern research laboratory and standard furnaces from 68 MBtu/hr up to 44,3 MMBtu/hr. Using various boilers that are available on the market, Oilon runs diverse combustions tests and collects accurate measurement data for both oil and gas burners. The heat pump laboratory's variable facilities allow testing of different types of pumps up to 1706 MBtu/hr.

Oilon burners must meet the demands of the product legislation in North America, China, and Europe. To ensure compliance, the Research and Development Centre is also equipped with an accredited testing laboratory where most of Oilon's burners are tested.

Lowering emissions

When designing a new product, the computer modeling of combustion processes, using computational fluid dynamics (CFD), is an indispensable tool for reaching our goal of lower emission levels. In addition to CFD, we also measure and analyze test runs in our laboratory and in the field.

We are especially committed to reducing nitrous oxide (NOx) and particulate emissions. Improving the operational efficiency of our burners serves the same goal.

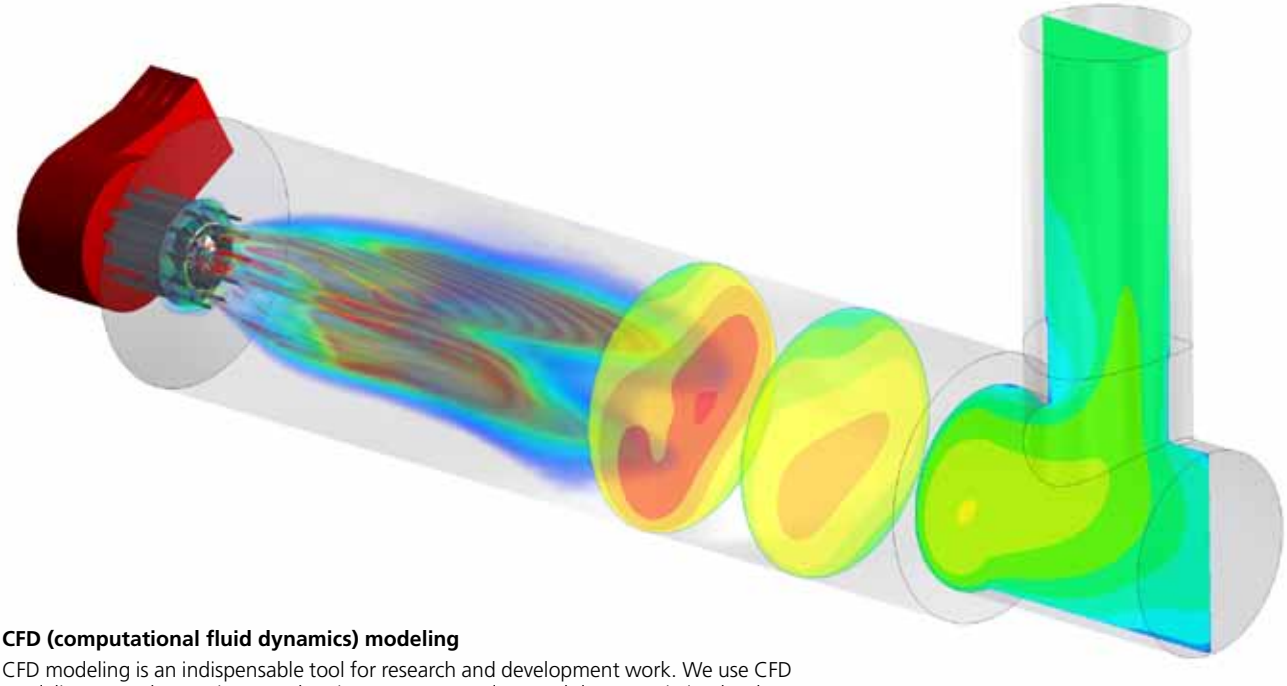
Solutions and design for sustainable development

One of our most important areas of research is the utilization of various renewable fuels, such as bio oils and biogas, we also use solar energy or heat energy collected from the ground, water, or air. The goal of this research is to develop hybrid heating solutions that combine various energy sources.

In line with Oilon's mission of providing its customers with environmentally friendly energy solutions, we are also researching how to improve the efficiency of our products and thereby lower their electrical power demand. We design our products to be long-lasting and easy to maintain, leading to a long product lifecycle. In addition to durability, features such as recyclability and the outward appearance of our products have become an increasingly important focus area for testing. Therefore, we work in close cooperation with industrial designers when designing any new products.

Our most important R&D goals are

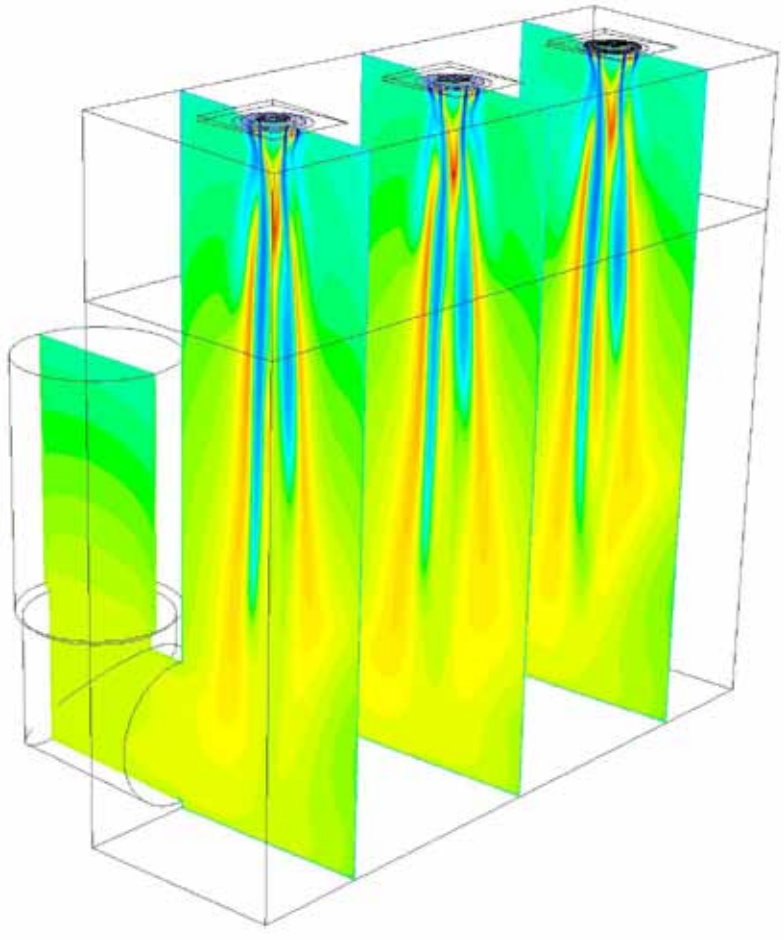
- to lower emission levels
- to improve operating efficiency
- to utilize new and renewable fuels
- to design easy serviceability
- to design a stylish appearance.



CFD (computational fluid dynamics) modeling

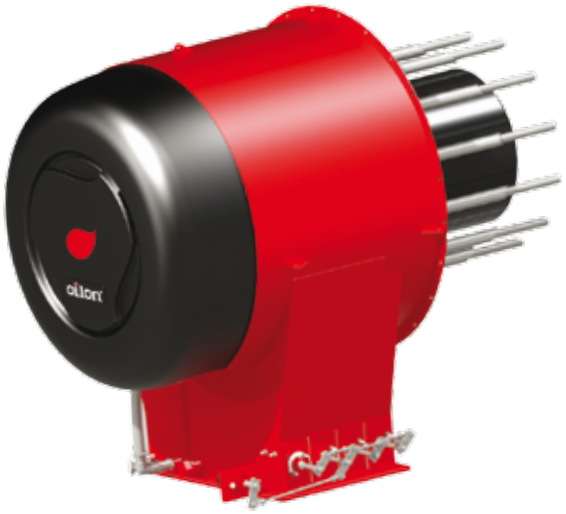
CFD modeling is an indispensable tool for research and development work. We use CFD modeling to analyze various combustion processes and to reach lower emission levels. It is also useful in ensuring the successful completion of large scale projects.

CFD has been actively utilized in the Oilon ACE burner development process. Before the first Oilon ACE prototype was ignited, we had simulated tens of improved burner generations with CFD. This thousands of hours computational work has made it possible to reach low NOx emissions in gas and oil combustion together with good flame adjustability, and compact flame geometry.



Oil, gas and dual fuel burners, basic applications

Burner series Oilon ACE



Oilon oil, gas and dual fuel burners are fully automatic, safe, and reliable. The fundamentals of the design and manufacturing of the burners are economy, safety, service and ecological sustainability.* These burner equipments can be manufactured to meet for example the requirements of UL/CSA, CSEI, NFPA, EN 676, EN 267 and EN 746-2 standards.

Construction

The burners are manufactured according to the quality standards SFS-EN ISO 14001:2004 and SFS-EN ISO 9001:2008.

The burner steel frame is robust, and designed for industrial use. Burner auxiliaries, such as ignition burner, gas nozzles, lance and flame sensors can be easily serviced and inspected without detaching the burner. The combustion head, made of fireproof steel takes temperature up to approx. 2192 °F.

The burners have versatile adjustment options to adapt the flame geometry to various combustions chamber size. Air dampers adjust the air volume according to the required capacity.

Suitable applications

The burners are suitable for hot water boilers, steam boilers, hot air generators, and various types of process heating equipment. They can also be used in large multi-burner applications and as load burners.

The burners can be equipped to be suitable for indoor and outdoor use, as well as for use in explosive environments.

Fuels

Suitable for various liquid and gaseous fuels.

Capacity regulation

All burners are modulating with electric air-fuel ratio control. The O_2 or O_2 / CO adjustments may be used to optimize the ratio control. Adjustments can also be made using flow rate measurements.

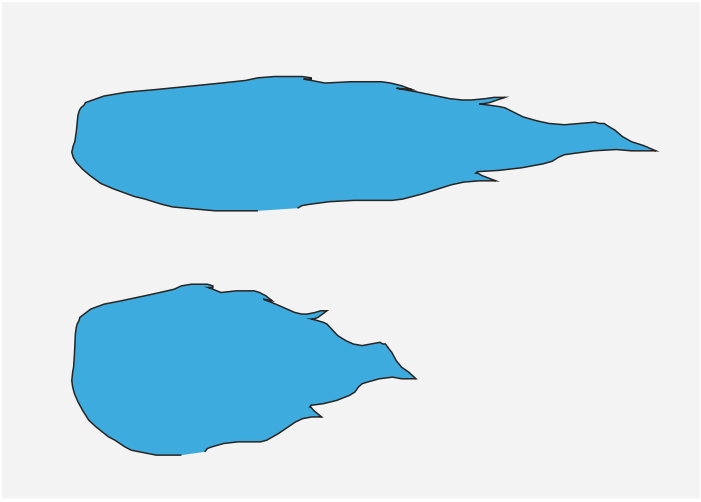
Additional features

- hot combustion air
- simultaneous firing
- FGR applications
- special applications for example with multiple flame detectors.

Wide flame adjustment range

Wide capacity range

Unique design in the combustion head

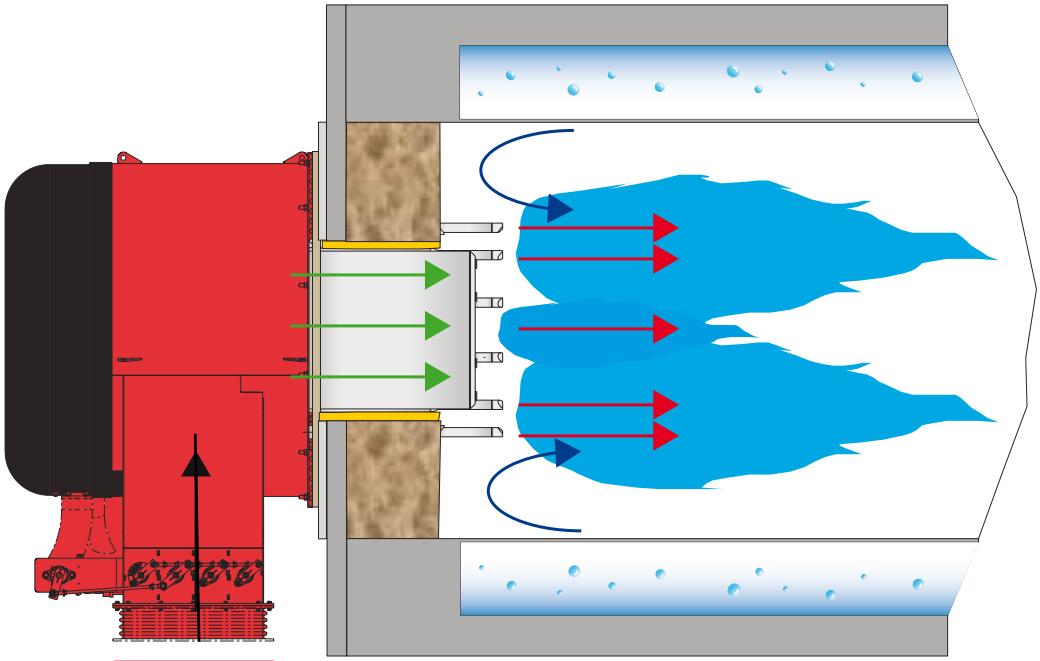


Extremely low emissions (3% ref. O_2)

With natural gas NOx level 30 ppm, without FGR
With natural gas NOx level 15 ppm, with FGR
With light oil even 50 ppm, with FGR

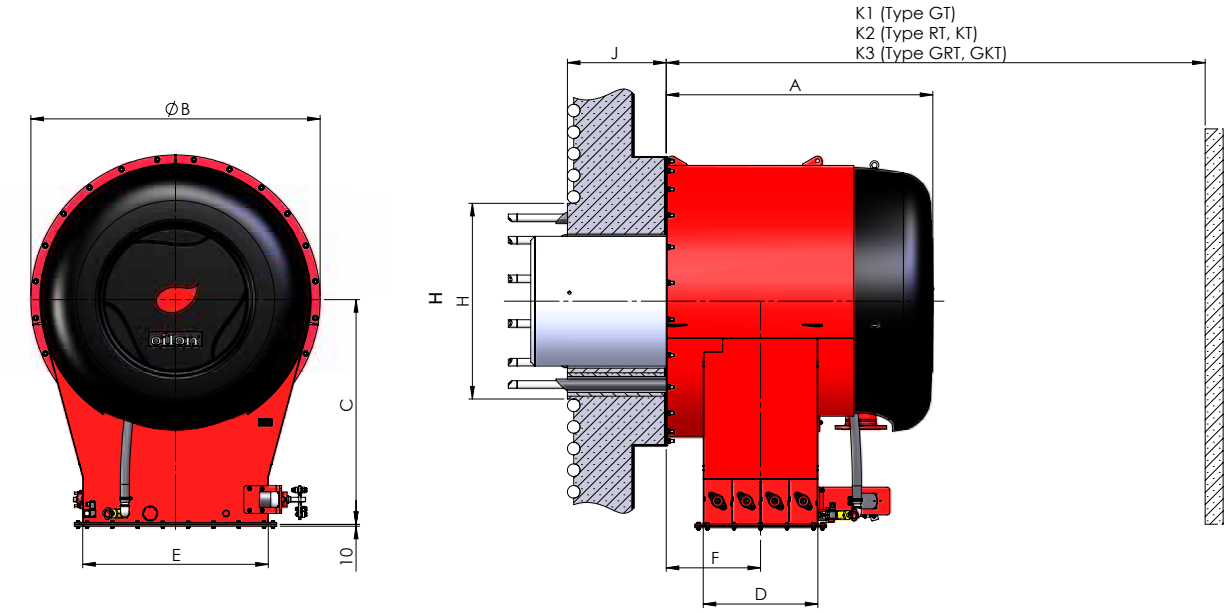
Emissions depend on circumstances, please check with Oilon representative.

Means to achieve lower emissions



1 Fuel staging
2 Air staging
3 Internal flue gas circulation
4 External flue gas circulation

Technical data



Burner	Nominal capacity*	A	B	C	D inner	E inner	F	J	H min.	K1	K2	K3
	MMBtu/hr	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
GT/RT/KT/GRT/GKT-6A	2.7 - 22.2	42.1	33.9	30.7	12.2	19.7	11.2	12.2	19.8	74.8	102.4	102.4
GT/RT/KT/GRT/GKT-8A	3.4 - 27.3	42.1	33.9	30.7	12.2	19.7	11.2	13.4	23.3	74.8	102.4	102.4
GT/RT/KT/GRT/GKT-10A	4.4 - 34.1	44.9	40.2	33.7	15.6	24.6	12.5	14.2	24.1	82.7	110.2	110.2
GT/RT/KT/GRT/GKT-13A	5.5 - 44.4	44.9	40.2	33.7	15.6	24.6	12.5	15.7	27.0	82.7	110.2	110.2
GT/RT/KT/GRT/GKT-16A	6.8 - 54.6	49.6	47.6	39.0	18.5	29.5	15.2	16.5	30.1	94.5	122.0	122.0
GT/RT/KT/GRT/GKT-19A	8.2 - 64.8	49.6	47.6	39.0	18.5	29.5	15.2	17.3	32.4	94.5	122.0	122.0
GT/RT/KT/GRT/GKT-23A	9.9 - 78.5	58.5	63.4	49.2	24.8	40.4	20.7	18.7	35.7	118.1	145.7	145.7
GT/RT/KT/GRT/GKT-28A	12.0 - 95.5	58.5	63.4	49.2	24.8	40.4	20.7	19.7	38.9	118.1	145.7	145.7
GT/RT/KT/GRT/GKT-35A	15.0 - 119.4	58.5	63.4	49.2	24.8	40.4	20.7	21.7	42.9	118.1	145.7	145.7
GT/RT/KT/GRT/GKT-42A	18.1 - 143.3	85.4	88.0	65.4	37.4	57.1	29.7	23.6	47.5	157.5	193.0	193.0
GT/RT/KT/GRT/GKT-50A	21.5 - 170.6	85.4	88.0	65.4	37.4	57.1	29.7	27.6	51.3	157.5	193.0	193.0
GT/RT/KT/GRT/GKT-70A	30.0 - 238.8	85.4	88.0	65.4	37.4	57.1	29.7	29.5	59.2	157.5	193.0	193.0
GT/RT/KT/GRT/GKT-90A	38.6 - 307.1	85.4	88.0	65.4	37.4	57.1	29.7	29.5	59.2	157.5	193.0	193.0

Note! Capacities can be increased by 8% to reach HHV.

Maximum pressure loss ≤ 12 "WC.*

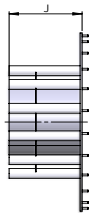
* Valid, when combustion air temperature is +95 ˚F, λ = 1,17 and ambient air pressure 14,7 psi.

Burner maximum turn-down ratio:
Natural gas:
1:5 without frequency converter
1:8 with frequency converter

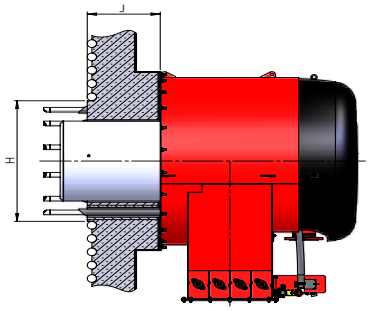
Light fuel oil, heavy fuel oil:
1:2,5 with pressure atomizing
1:5 steam/air atomized

Boiler wall masonry, burner mounting

Alternative A



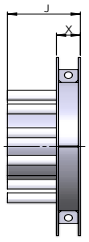
Masonry mold including boiler flange for burner mounting



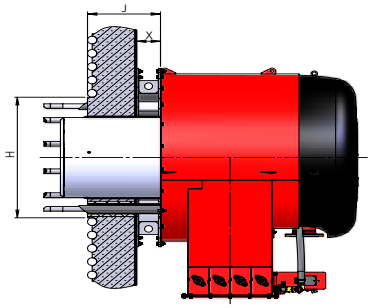
The drawing of selected masonry mold alternative will be provided by Oilon.

The mold itself is an optional part.

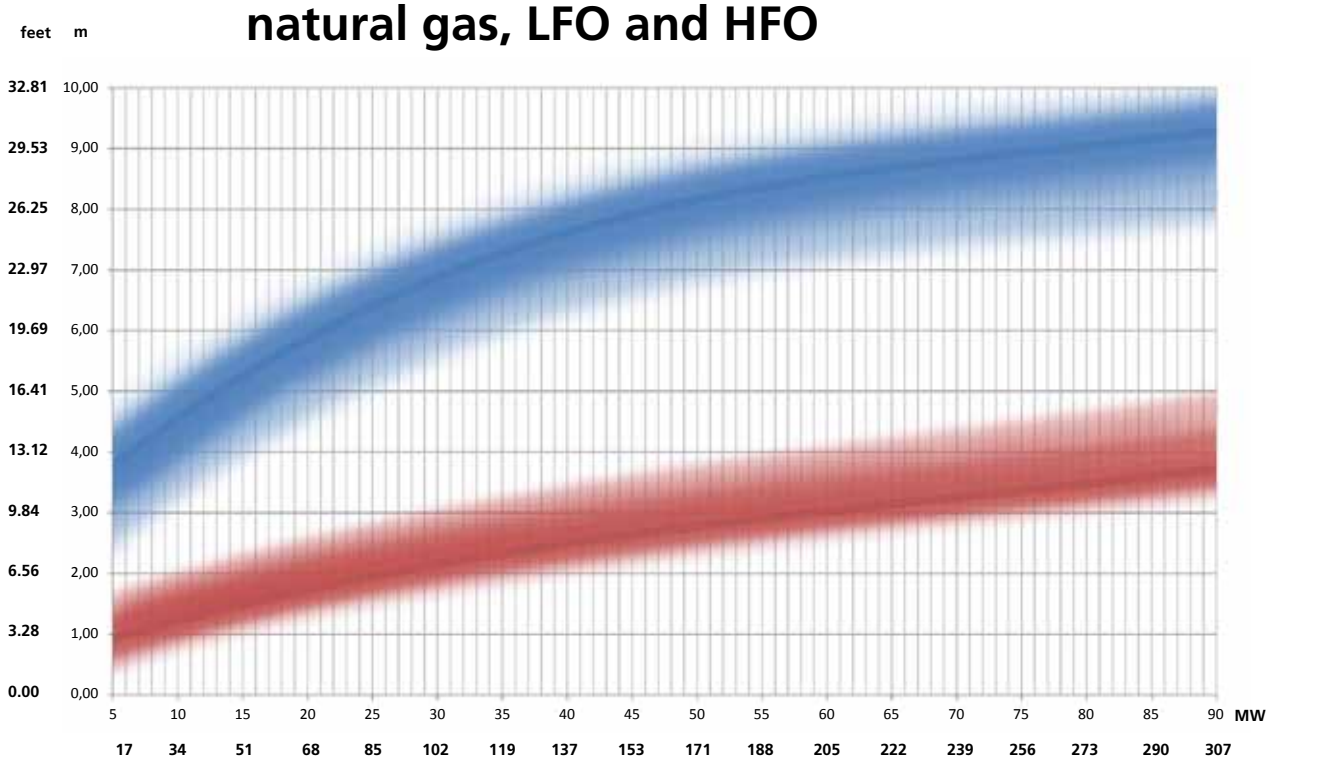
Alternative B



Masonry mold including boiler flange for burner mounting
Dimension X is dependent on boiler wall thickness: X = J – boiler wall thickness



Estimated flame dimensions for natural gas, LFO and HFO

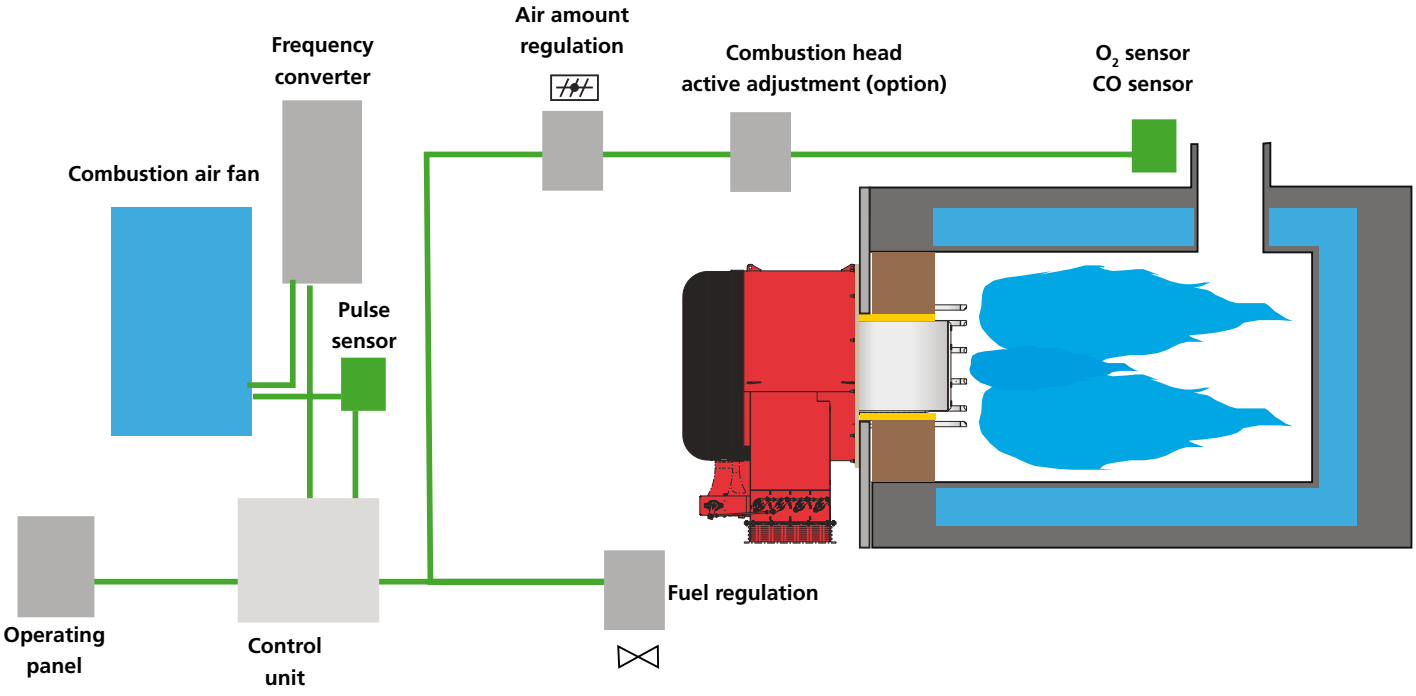


Note: flame dimensions are dependent on the furnace dimensions and burner adjustments.

Oilon WiseDrive

WiseDrive (WD), an electronic regulator for controlling the fuel-air ratio – an energy-efficient and environmentally friendly solution

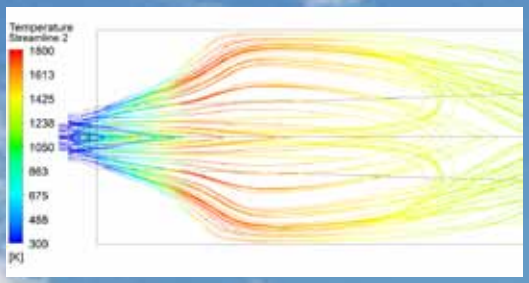
The burner electronic fuel-air ratio control brings the benefits of lower flue gas emissions, decreased energy consumption, and improved burner characteristics, such as more accurate regulation.



CONTROL SYSTEMS	WD100-WD200	WD1000	PLC
Operation principle	Electronic fuel-air	Electronic fuel-air	Electronic fuel-air
Control unit	Siemens LMV 51/52	-	Siemens & Allen Bradley PLC
Available for fuels	LFO (KT) HFO (RT) GAS (GT) GAS/LFO (GKT) GAS/HFO (GRT)	LFO (KT) HFO (RT) GAS (GT) GAS/LFO (GKT) GAS/HFO (GRT)	LFO (KT) HFO (RT) GAS (GT) GAS/LFO (GKT) GAS/HFO (GRT)
Liquid fuel	Pressure atomization	Steam/air atomizing	Steam/air atomizing
O_2 control	Available	Available	Available
CO control	Not available	Available	Not available
VSD control	Available	Available	Available
External communication	Hardwired + Modbus	Hardwired (standard) + bus (optional)	Hardwired (standard) + bus (optional)
Capacity control	Built in LMV51/LMV52 4…20 mA signal	Built in FMS/Etamatic 4…20 mA signal	Built in 4…20 mA signal
Flue gas recirculation	Available	Available	Available
Simultaneous firing	Not available	Available	Available
Pre-heated combustion air	Available	Available	Available

US5-6/5.00/042017

Oilon invests over 5% of its turnover in research and product development. A modern product development center meeting all European standards enables efficient combustion development with both liquid and gaseous fuels.



Computational fluid dynamics (CFD) is an essential part of our research and product development. CFD enables faster development of new products, and ensures critical factors in more extensive projects (combustion air channels, burner positioning, furnace temperatures, etc.). It is also used for the phenomenon of combustion in order to develop new applications.

Our production capacity enables the implementation of even larger orders and a short delivery cycle. Our products are comprehensively tested at the factory (FAT), which ensures the smooth commissioning of the burner system at the plant.

oilon®
www.oilon.com

OILON US INC.
P.O.Box 1041
Thomasville, Georgia, USA
Tel. +1 229 2366546

info.northamerica@oilon.com
www.oilon.com