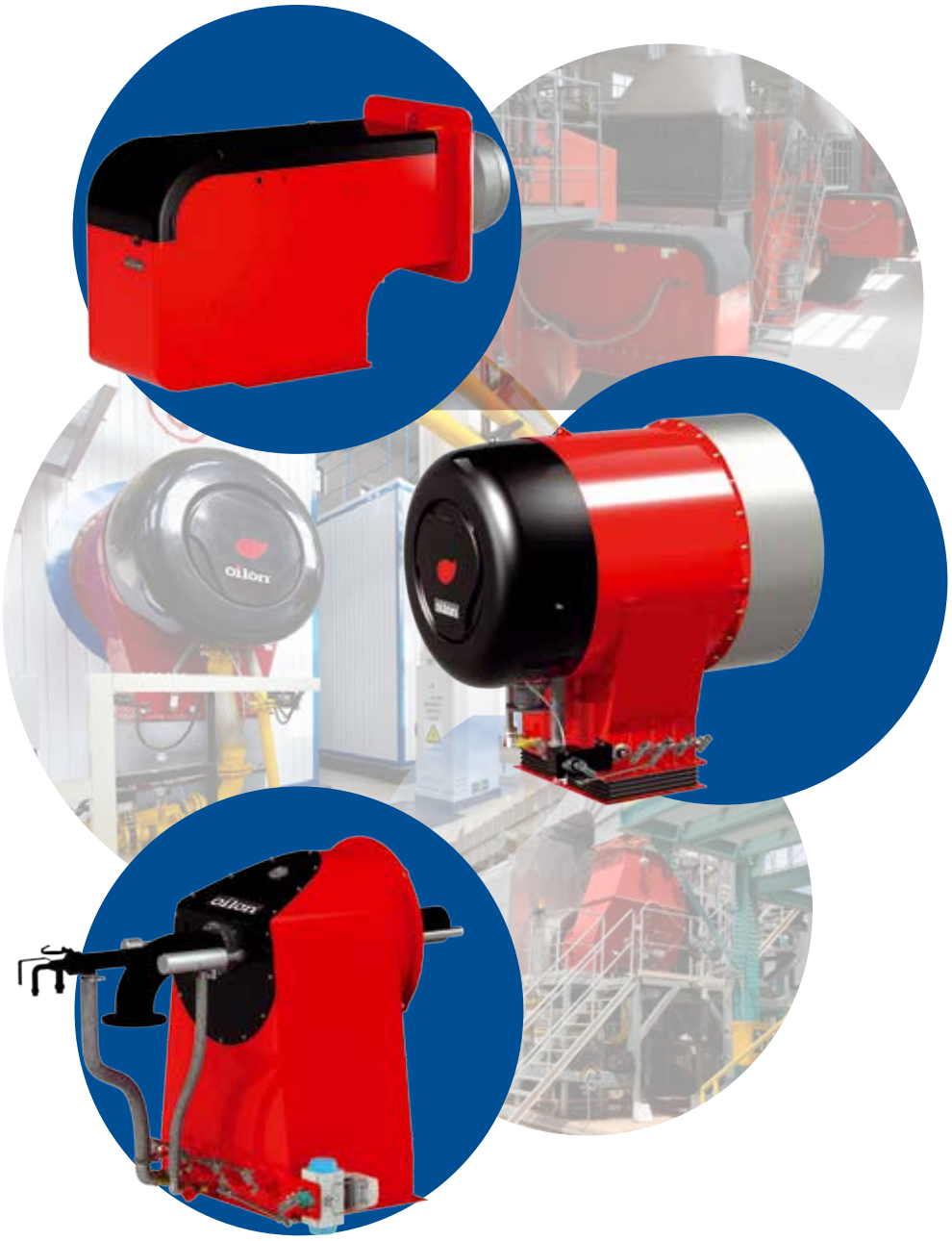
oilon®

Capacity
1.9 - 340.8
MMBtu/h

Duoblock Burners for Liquid and Gaseous Fuels



Low Emission Combustion Technology

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For over half a century, we have developed and produced environmentally friendly and energy efficient combustion solutions for our customers.

During this time, the customer has always been at the center of our business. Perhaps this is the reason why we are known for our company slogan "Oilon-the warm way".

We are a family-owned technology company, founded in 1961. We are known for our combustion systems, industrial heat pumps and cooling units and ground source heat pumps.

We are a global company, with offices, production facilities and distributors around the world. Our head-quarters is located in Lahti, Finland.

A modern Research and Development Center, located in Lahti Finland, is equipped with the latest technology for running diverse combustion tests and collecting data. In addition to testing, we use computer modelling of combustion processes, using computational fluid dynamics (CFD).

We are especially committed to reducing nitrogen oxides (NOx) and particulate emissions.


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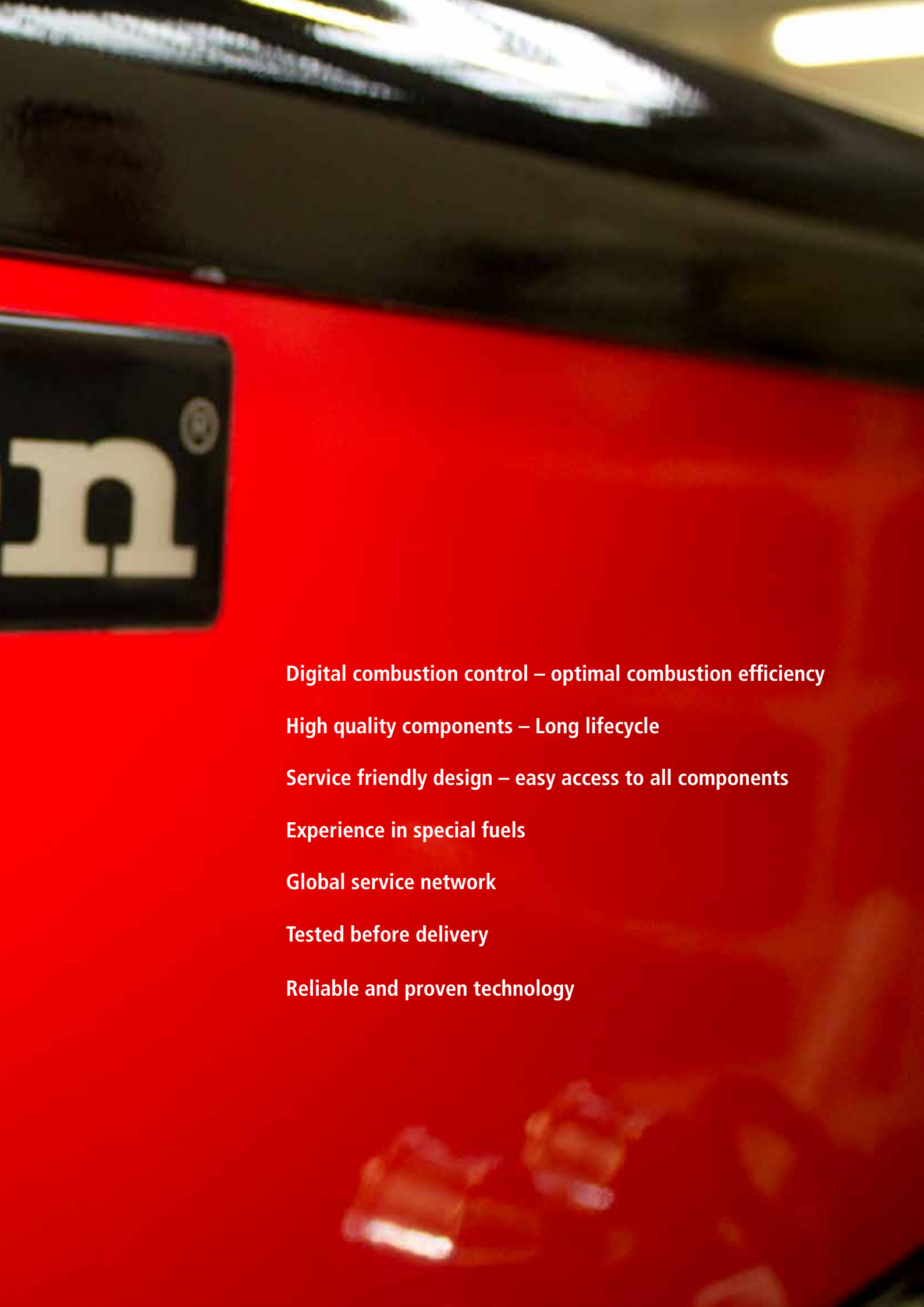


Digital combustion control – optimal combustion efficiency

High quality components – Long lifecycle

Service friendly design – easy access to all components

Experience in special fuels

Global service network

Tested before delivery

Reliable and proven technology

Oilon Burners

Oilon burners for liquid and gaseous fuels are fully automatic, safe, and reliable. The burners are equipped with the latest digital technology.

Design

Oilon burners are designed for easy operation and maintenance without forgetting environmental aspects and safety.

Applications

Oilon burners are suitable for various applications, such as hot water boilers, steam boilers, air heaters and different process applications, for example fluidized bed boilers, grate boilers and hot air generators.

Fuels

Oilon burners are suitable for various liquid and gaseous fuels such as light fuel oil, heavy fuel oil, bio oils, natural gas, LPG, biogases, hydrogen and various process gases. Burners using other fuels are available on request.

Connectivity

Digital combustion management enables communication with external systems. Remote monitoring and diagnostics optimize operational efficiency.

Standards and legislation

Local legislation and standards, such as EN and NFPA are observed and followed. Burners complying with marine classification society requirements are also available.

Oilon burner is the right choice!

NOx emissions

Nitrogen oxides (NOx) are compounds of nitrogen and oxygen, the most important of which are NO and NO2. Small amounts of nitrogen oxides also occur in nature, but the majority of them originate from human actions, mainly from traffic and energy production.

Nitrogen oxides form during all combustion processes, when the nitrogen present in the combustion air and/or fuel and the oxygen present in the combustion air, react at high temperatures.

Nitrogen oxides are harmful to humans and the environment in many ways. They are toxic and harmful to the respiratory system. Nitrogen oxides cause acidification and eutrophication of the environment, form ground-level ozone and harmful particulate emissions.

Increasingly stringent emission limits are being imposed all over the world to mitigate the adverse effects of nitrogen oxide emissions. The reduction of nitrogen oxides is the key priority in lowering emissions from traffic and energy production.

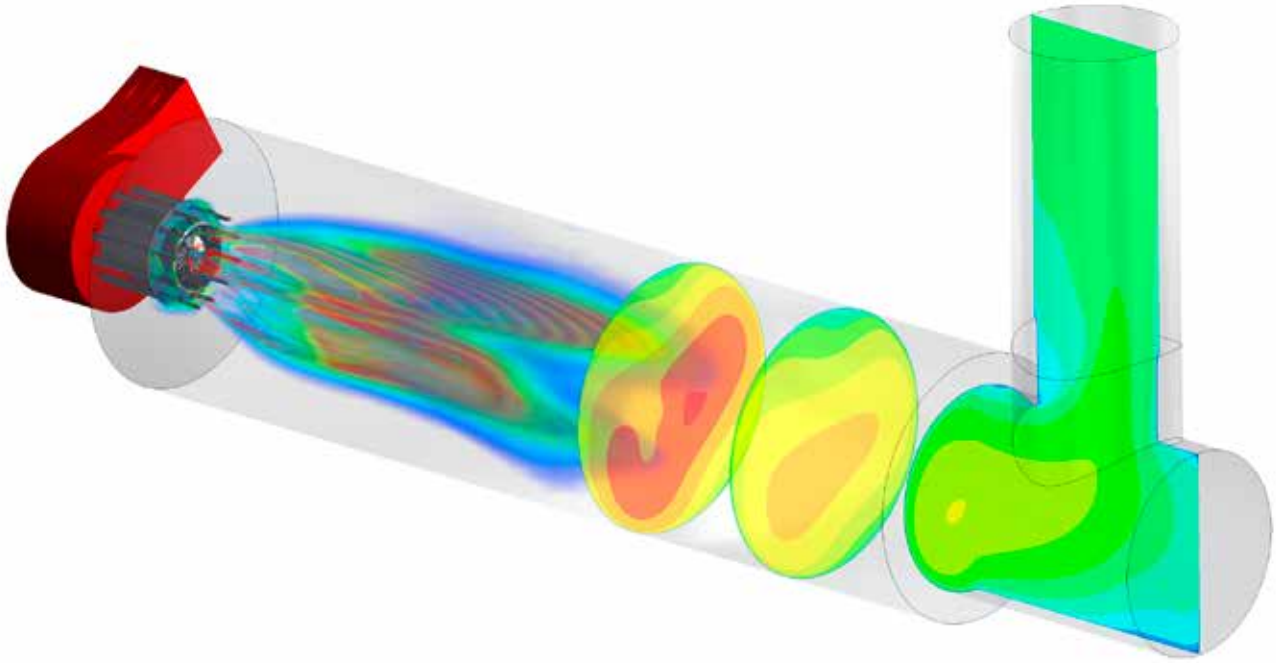
We are especially committed to reducing nitrous oxide (NOx) and particulate emissions. It is one of the most important objectives in our R&D processes.

Low NOx emissions are achieved by innovative gas and air distribution and staging in the combustion head.

NOx emissions are also reduced with the use of internal/external FGR in order to reduce flame peak temperatures and combustion reaction speed. Emission values depend on the furnace geometry, the furnace load and the temperature of the boiler heat transfer medium.

BURNER	NG emissions NOx ppm, ref. 3%, O_2
ME	60 - 70
Oilon ACE with FGR	12.5 - 17.5
Oilon ACE without FGR	27.5 - 32.5
Litex	50 - 60

Suitable burner type to various emission levels and requirements can be found in Oilon product portfolio.



Flue Gas Recirculation (FGR)

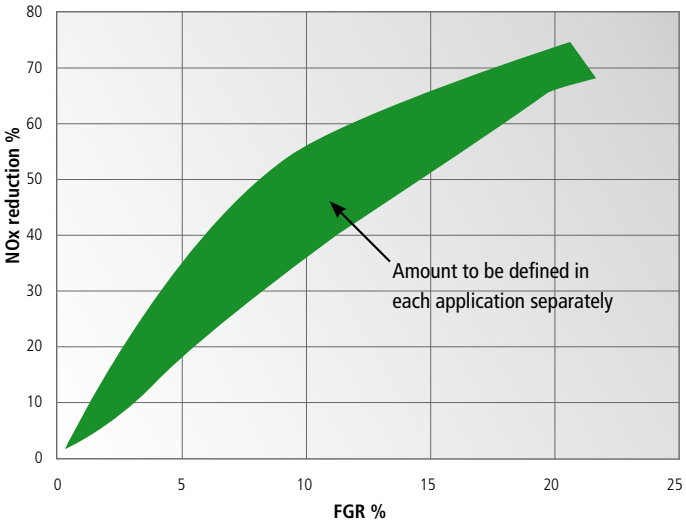
Flue Gas Recirculation (FGR), is an effective low cost solution to achieve very low NOx emissions with various fuels.

In external FGR a certain proportion of flue gas is led back to the furnace through the burner. This causes the flame peak temperatures to drop and combustion reactions to slow down, which reduces NOx emissions.

Achievable reduction depends on many factors including burner type, boiler, combustion air temperature and the amount of recirculated flue gas, (see relevant curve). When designing the assembly, it is important to notice the reduction of the burner maximum output caused by flue gas recirculation, depending on the FGR rate and flue gas temperature.

FGR is available for a variety of new burners and in many cases, as a retrofit to an existing burner.

The effect of FGR in natural gas combustion



Example of gas mixture temperature in FGR application

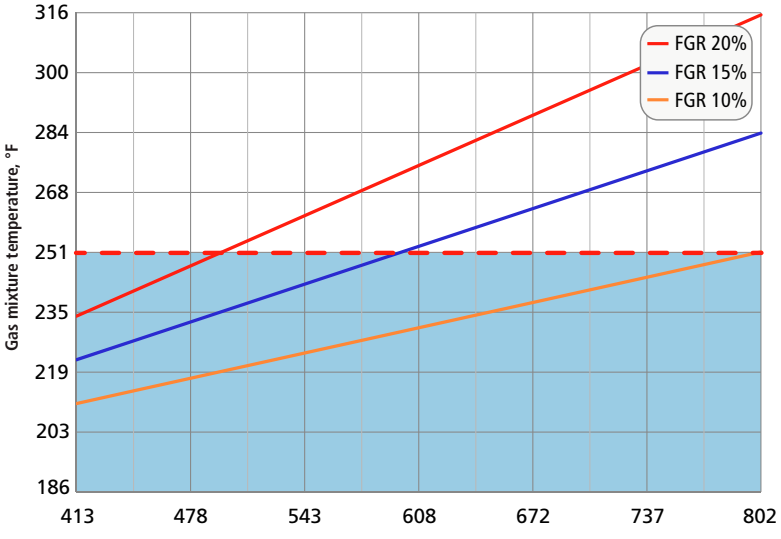
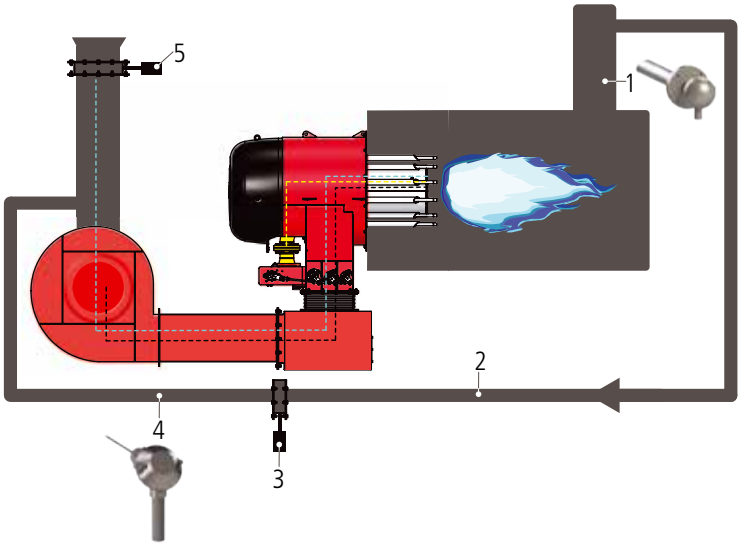


Diagram valid for 86 °F combustion air

Oilon burner FGR application

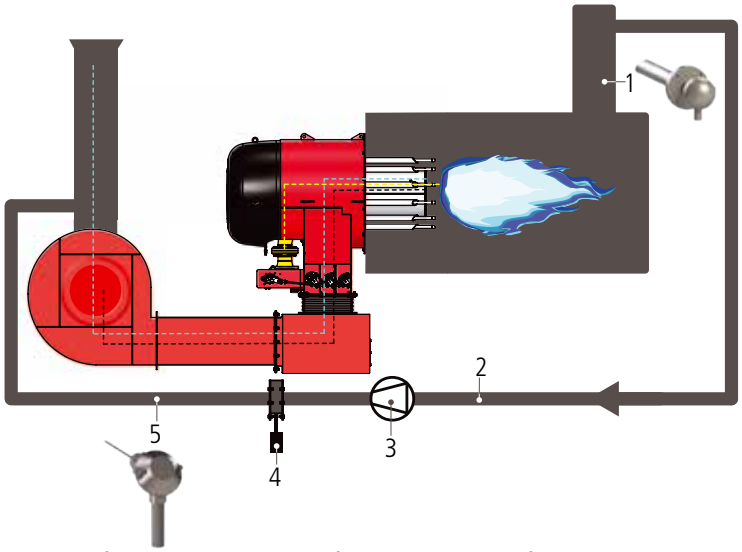
1. FGR with valve



1. O_2 sensor (option)
2. Recirculation pipe
3. Flue gas valve
4. Temperature sensor (option)
5. Throttle damper

- FGR feeding to suction side of combustion air fan.
- Solution is preferred when amount of recirculated flue gas is low.
- With air throttle valve sufficient FGR flow can be ensured in all load points and if flue gas duct pressure is lower than air pressure before the fan.
- In case of very cold combustion air, air preheater is recommended in order to avoid condensation when mixing flue gas and air.

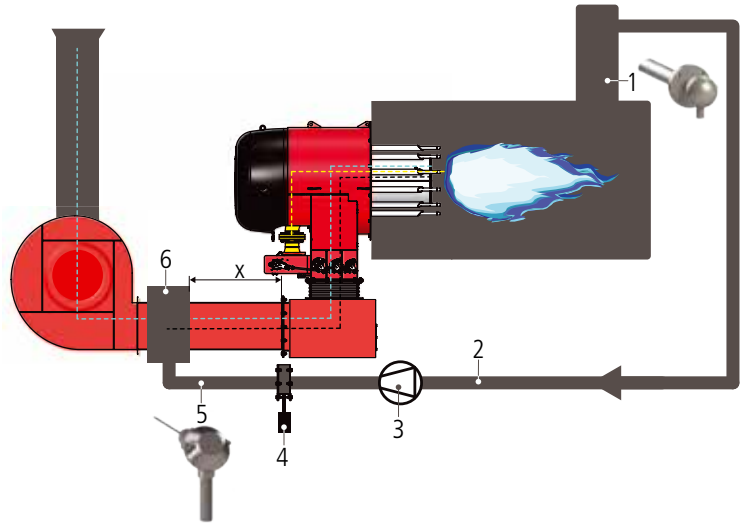
2. FGR with FGR fan, suction side feeding



1. O_2 sensor (option)
2. Recirculation pipe
3. Flue gas fan
4. Flue gas valve
5. Temperature sensor (option)

- FGR is fed to suction side of combustion air fan.
- Solution is preferred when recirculated flue gas amount is high.
- In case of very cold combustion air, air preheater is recommended in order to avoid condensation when mixing flue gas and air.

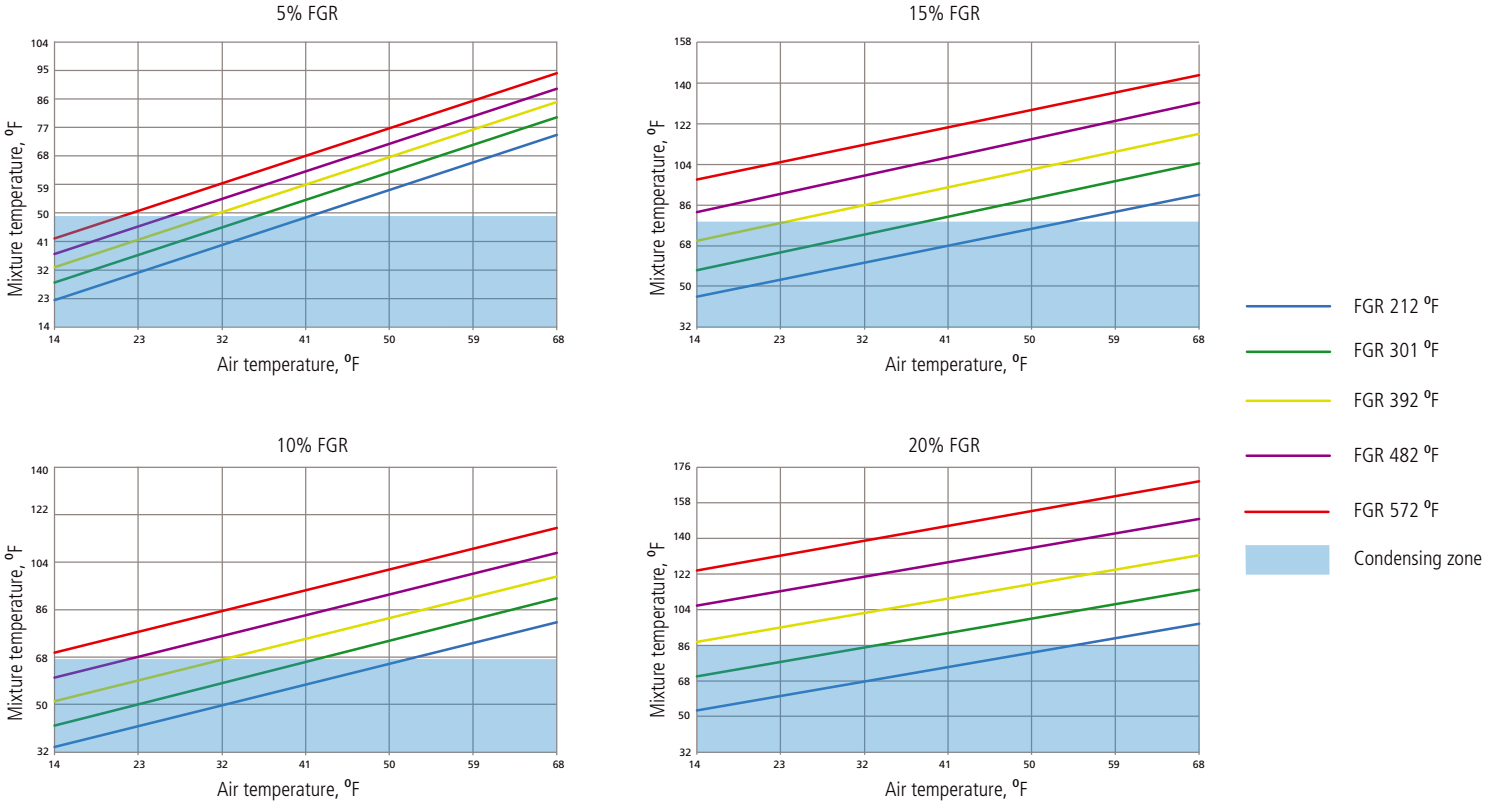
3. FGR with FGR fan, pressure side feeding



1. O_2 sensor (option)
2. Recirculation pipe
3. Flue gas fan
4. Flue gas valve
5. Temperature sensor (option)
6. Mixing chamber

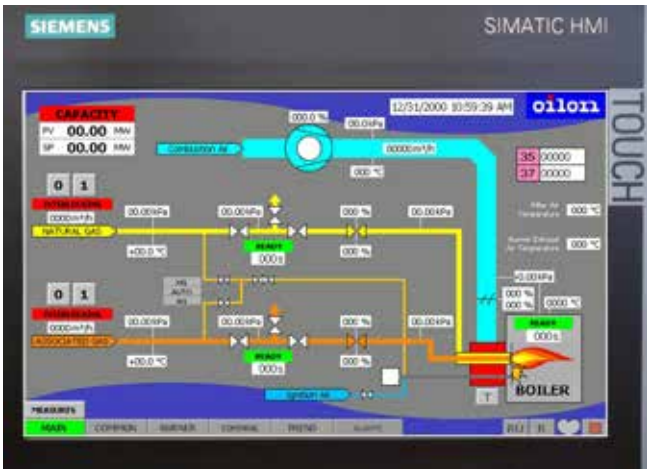
- FGR is fed to pressure side of combustion air fan
- Solution is preferred in retrofit cases when existing air fan capacity is not enough for additional FGR.
- In this solution moisture condensation to the combustion air fan can be avoided if combustion air is very cold and air is not preheated.
- Mixing of air and FGR has to be performed by Oilon approved solution.
- FGR fan has to be equipped with frequency converter or vane controller

FGR condensing zones



Oilon WiseDrive - High efficiency with advanced automation

Oilon WiseDrive is an electronic burner management system. In the WiseDrive system separate actuators are installed for combustion air dampers and control valves. The ratio between fuel control valve and combustion air flow is adjusted electronically. The WiseDrive system takes care of burner control and safety functions, along with many other possibilities.



High efficiency

Oilon WiseDrive control improves combustion efficiency and lowers emissions. In dual and multi fuel burners the combustion of both the main and reserve fuels can be adjusted optimally and the O_2 control can be utilized. Significant energy savings can also be achieved by using variable speed drive (VSD) in the combustion air fan.

A versatile system

Oilon WiseDrive system can be connected to external systems via fieldbus connection. Data regarding burner status and combustion process can be read remotely. Also remote control (start, stop, reset) and settings (capacity controller, fuel selection) can be performed via fieldbus.

CONTROL SYSTEMS	WD100	WD200	WD1000	WD2000
OPERATIONAL PRINCIPLE	Electronic fuel/air	Electronic fuel/air	Electronic fuel/air	Electronic fuel/air
CONTROL UNIT	Siemens LMV51	Siemens LMV52	Lamtec control unit	Siemens PLC
AVAILABLE FOR FUELS	LFO HFO GAS LFO/GAS HFO/GAS	LFO HFO GAS LFO/GAS HFO/GAS	LFO HFO GAS LFO/GAS HFO/GAS	LFO HFO GAS LFO/GAS HFO/GAS
ATOMIZING TYPE	Pressure atomizing	Pressure atomizing	Air/steam atomizing	Air/steam atomizing
O_2 CONTROL	Not available	Optional	Included	Included
CO CONTROL	Not available	Not available	Optional	Not available
VSD CONTROL	Not available	Optional	Included	Included
CONTROL PANEL INTERFACE	Text display	Text display	Text display (Touch panel, option)	Touch panel
EXTERNAL COMMUNICATION	Hardwired+Modbus Profibus (optional)	Hardwired+Modbus Profibus (optional)	Hardwired (+ optional fieldbus)	Hardwired+Profibus (or optional fieldbus)
CAPACITY CONTROL	Built in. Pressure/Temperature	Built in. Pressure/Temperature	Built in. Pressure/Temperature or external reference	Built in. Pressure/Temperature or external reference
FGR	Not available	Optional	Optional	Optional
CONTROL PRINCIPLE	Position control	Position control	Position control	Position control
SIMULTANEOUS FIRING	Not available	Not available	Optional	Included
SUPPLY VOLTAGE TO BMS	110 or 240 VAC	110 or 240 VAC	110 or 240 VAC	110 or 240 VAC
HAZARDOUS AREA CLASSIFICATION FOR THE SYSTEM	Not available	Not available	Optional *	Optional *

* BMS cabinet itself isn't classified

WiseDrive (WD), Electronic burner management system – an energy-efficient and environmentally friendly solution

Oilon WiseDrive system brings the benefits of lower flue gas emissions, decreased consumption of energy and improved technical features of the burner, such as more precise regulation. WiseDrive includes electrical control sequences, fuel/air ratio and capacity control as well as all the needed functions for safe and reliable operation. The right safety level and the need for redundant system will be taken into account to meet the requirements of the process. Oilon WiseDrive systems are factory tested (FAT) to guarantee smooth and fast start-up of the combustion equipment in the plant.

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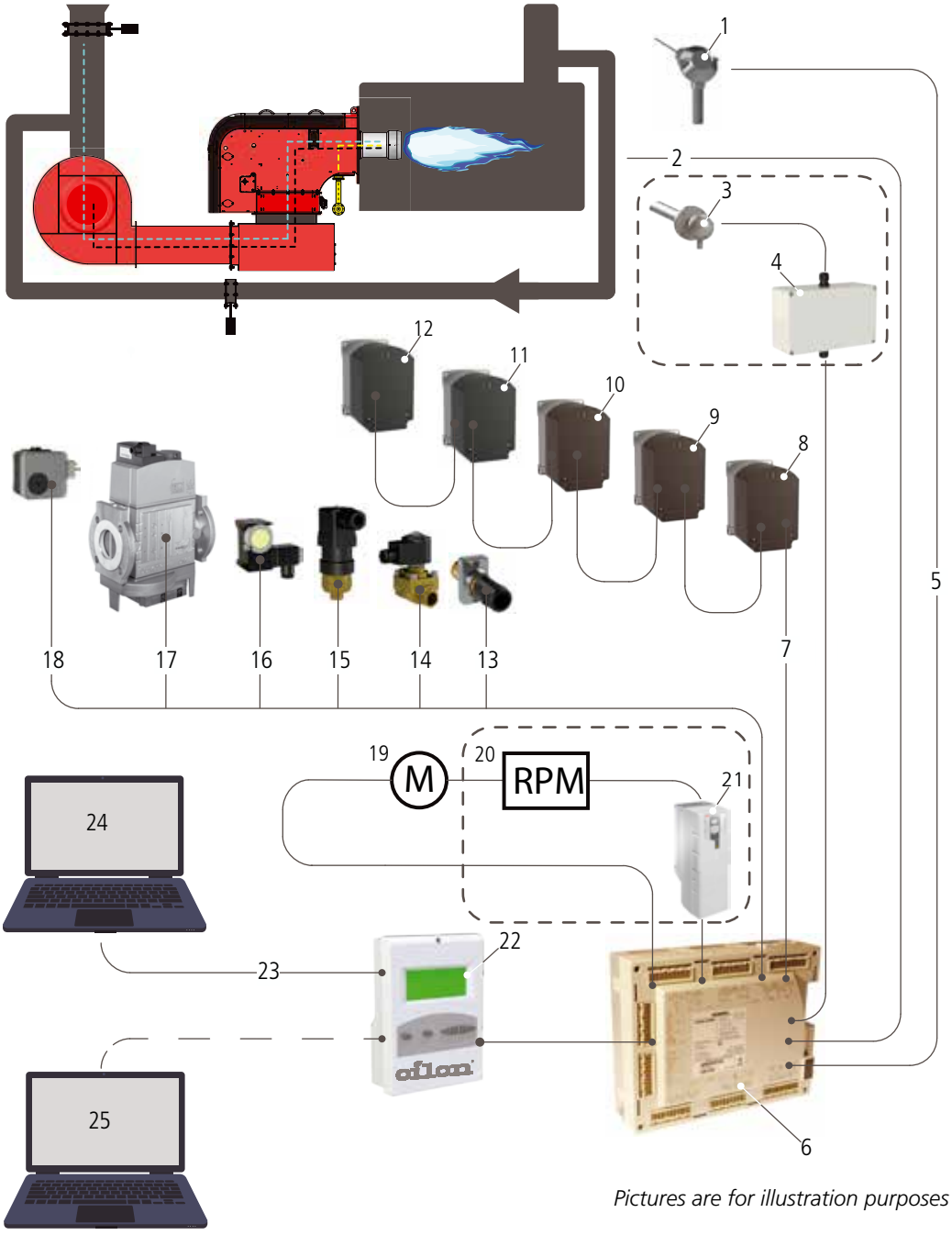
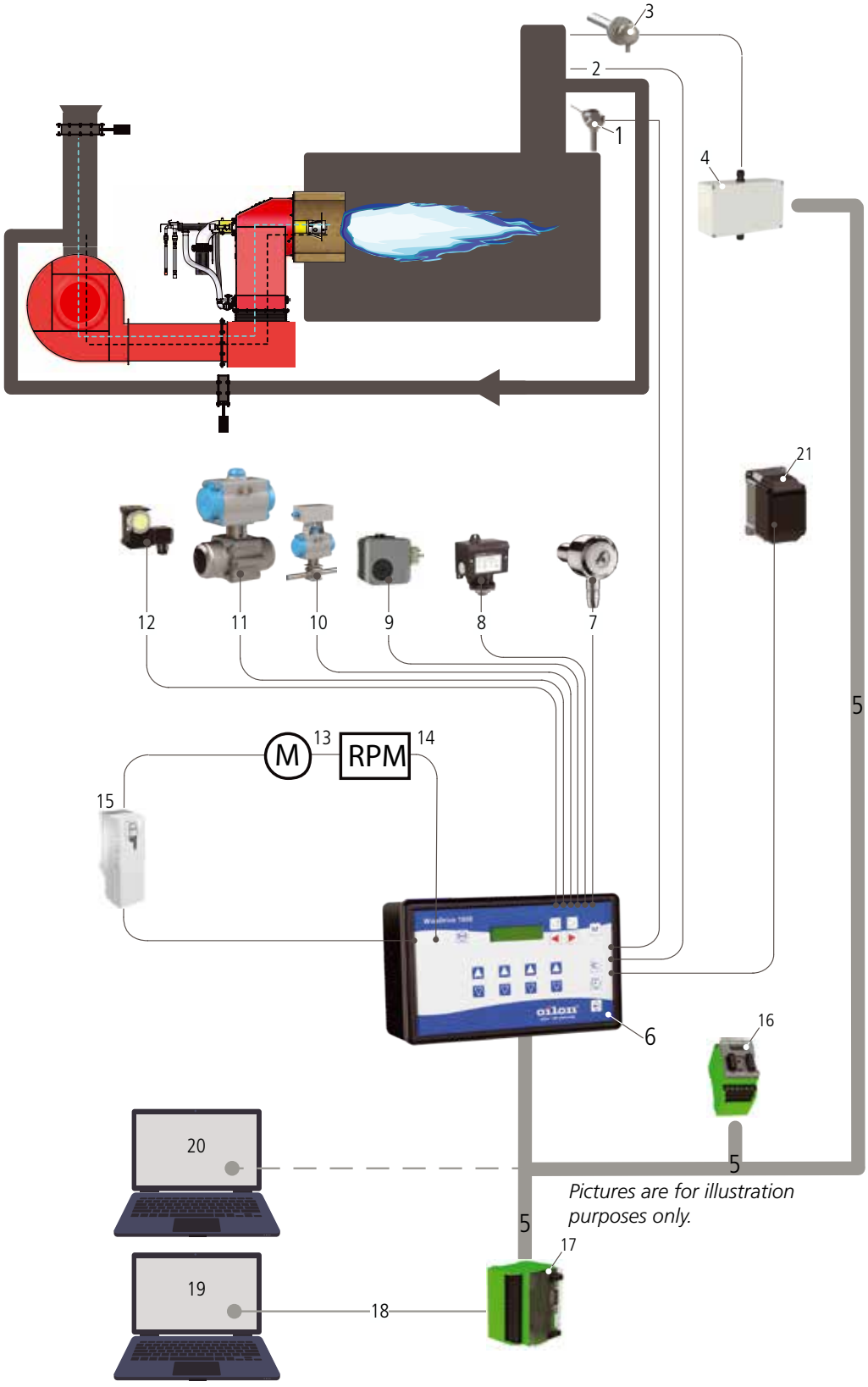
Example of Oilon WiseDrive WD100/WD200



Pictures are for illustration purposes only.

1. Boiler temperature
2. Safety devices
3. O_2 sensor (option), WD200
4. O_2 module (option), WD200
5. CAN BUS
6. Control unit
7. CAN BUS - Actuator
8. -12. Up to five actuators
13. Flame detector
14. Oil shut-off valves
15. Oil pressure switch
16. Gas pressure switch
17. Gas shut-off valves
18. Air pressure switch
19. Motor, WD200
20. RPM, (option) WD200
21. Frequency converter for variable speed drive, (option) WD200
22. User interface
23. MOD-BUS
24. Control room
25. Service computer

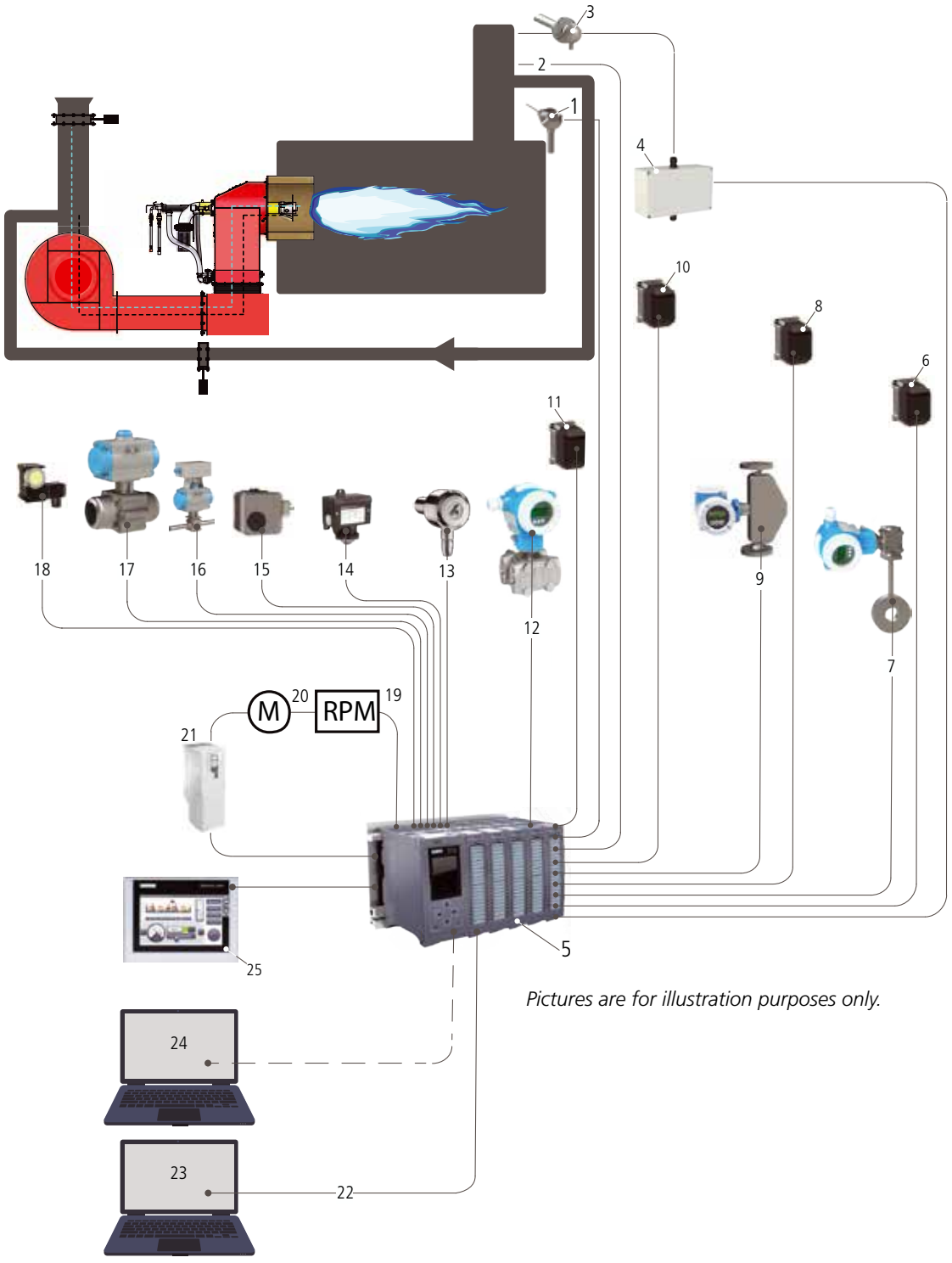
Example of Oilon WiseDrive WD1000



Pictures are for illustration purposes only.

1. Boiler pressure / boiler temperature / load signal 4-20 mA
2. Safety devices
3. O_2 Sensor
4. O_2 module
5. System BUS
6. Control Unit
7. Flame detector
8. Oil pressure switch
9. Gas pressure switch
10. Oil shut-off valve
11. Gas shut-off valve
12. Air pressure switch
13. Air fan motor
14. RPM
15. Frequency converter
16. LSB modules
17. Field bus module
18. Field bus
19. Control room
20. Service computer
21. Actuators

Example of Oilon WiseDrive WD2000 (PLC)



Pictures are for illustration purposes only.

1. Boiler pressure / boiler temperature / load signal 4-20 mA
2. Safety devices
3. O_2 Sensor
4. O_2 module
5. Control Unit
6. Gas control valve
7. Gas flow measurement*
8. Oil control valve
9. Oil flow measurement*
10. Flue gas damper
11. Air damper
12. Air flow measurement*
13. Flame detector
14. Oil pressure switch
15. Gas pressure switch
16. Oil shut-off valve
17. Gas shut-off valve
18. Air pressure switch
19. RPM
20. Air fan motor
21. Frequency converter
22. Field bus
23. Control room
24. Service computer
25. Touch panel - Option

* Will be needed in flow control alternative.

Oilon Selection Tool

Oilon Selection Tool simplifies choosing the right product and optional accessories from our extensive range of products.

You can make quick selections and advanced system calculations with the user friendly software, available in several languages. Oilon Selection Tool allows you to access an extensive range of product information, calculation results, and enables you to form detailed technical specifications.

Oilon Selection Tool is continuously updated as new products, features, functionalities and improvements will be added. Automatic software updates ensure that you always have access to the latest features and product information.

Oilon Selection Tool can be downloaded from **www.oilon.com** and can be installed locally to your Windows, Mac or Linux computer.

Boilers and applications

	Burner type					
	ME	OILON ACE	LITEX	S-BURNERS	K-BURNERS	LANCE BURNERS
Boilers/furnaces						
Gas/Oil fired boilers	O	O	O	O		
Thermal oil heaters	O	O	O	O	O	
Fluidized bed boilers		O		O		O
Recovery boilers				O	O	
Grate boilers		O		O	O	O
Rotary kilns					O	
Hot air generators	O	O		O	O	O
Process furnaces	O			O	O	O
Applications/ processes:						
District heating plants	O	O	O	O		O
Power plants	O	O	O	O	O	O
Pulp and Paper		O		O	O	O
Waste-to-Energy		O			O	O
Hazardous waste incine-ration					O	
Process industry	O			O	O	O
Chemical industry				O	O	O
Petrochemical industry		O		O	O	
Metallurgy					O	O
Marine	O	O	O	O		

Example references can be found at **www.oilon.com**

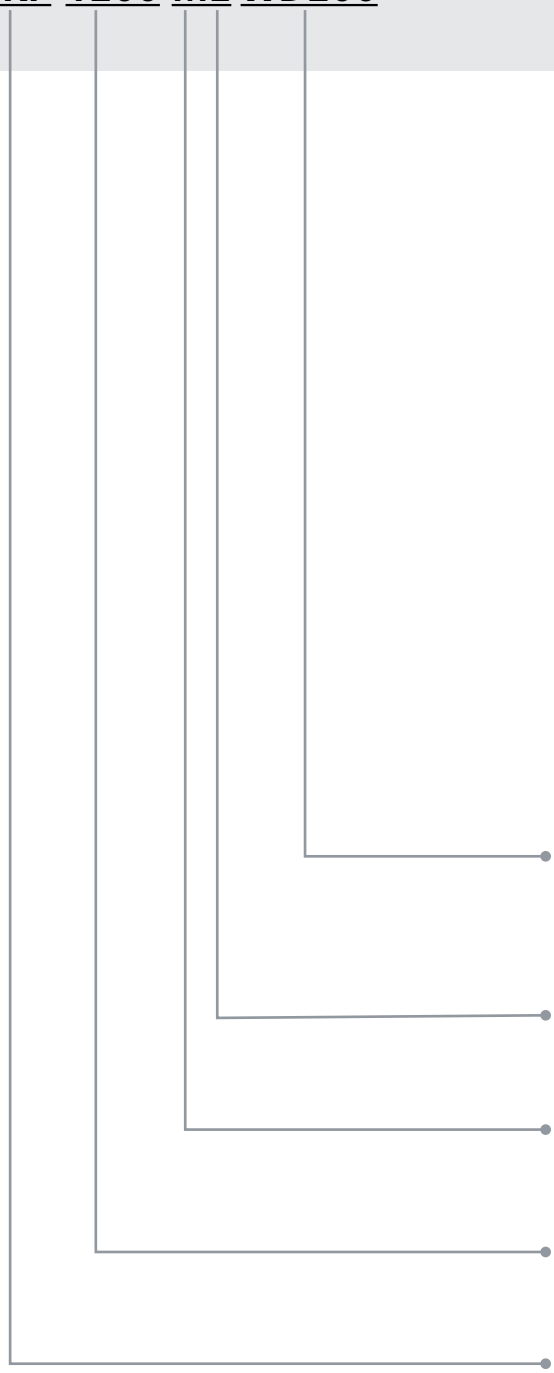
ME Burners

4.5 - 85.2 MMBtu/h

ME burner is a duo block type burner and can be used for various boiler and process heater applications. High turndown ratio especially on gas firing gives extra flexibility on steam boiler use. Burner can also be used for hot combustion air (+482°F). Due to optimized design the operation and service is easy.

Type labeling

GKP-1200 ME WD200



Control system (additional code):
WD100 = LMV51
WD200 = LMV52

Combustion air fan:
E = Separate

Method of control:
M = Modulating

Burner frame size categorization:
400...2000

Fuel:
GP = Gas
GKP = Gas, light fuel oil
KP = Light fuel oil
RP = Heavy fuel oil
GRP = Gas, heavy fuel oil

GP/GKP/KP/RP/GRP-400...-2000 ME

Technical Data

BURNER	GP-400 ME	GP-600 ME	GP-800 ME	GP-1000 ME	GP-1200 ME	GP-1600 ME	GP-2000 ME
Capacity* MMBtu/h	4.5 - 18.9	6.4 - 25.8	7.2 - 36.0	7.6 - 45.4	10.6 - 53.0	12.5 - 62.5	17.0 - 85.2
Connections - gas	NPT 2" - 3" ANSI 4" - 6"	NPT 2" - 3" ANSI 4" - 6"	NPT 2 ½" - 3" ANSI 4" - 6"	NPT 2 ½" - 3" ANSI 4" - 6"	NPT 3" ANSI 4" - 6"	ANSI 4" - 6"	ANSI 4" - 6"
Pilot burner - fuel	NG						
Control unit	WD100/WD200						
Weight lb	794	816	948	1014	1014	1367	1367

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	GKP-400 ME	GKP-600 ME	GKP-800 ME	GKP-1000 ME	GKP-1200 ME	GKP-1600 ME	GKP-2000 ME
Capacity *							
- gas MMBtu/h	4.5 - 18.9	6.4 - 25.8	7.2 - 36.0	7.6 - 45.4	10.6 - 53.0	12.5 - 62.5	17.0 - 85.2
- oil MMBtu/h	4.5 - 18.9	6.4 - 25.8	9.1 - 36.0	11.4 - 45.4	13.3 - 53.0	15.9 - 62.5	21.2 - 85.2
gal/h	33.0 - 138.7	47.2 - 189.2	66.0 - 264.2	82.6 - 330.2	99.1 - 396.3	115.6 - 462.3	155.2 - 627.4
Connections - gas	NPT 2" - 3" ANSI 4" - 6"	NPT 2" - 3" ANSI 4" - 6"	NPT 2 ½" - 3" ANSI 4" - 6"	NPT 2 ½" - 3" ANSI 4" - 6"	NPT 3" ANSI 4" - 6"	ANSI 4" - 6"	ANSI 4" - 6"
- oil	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm
Pilot burner - fuel	NG		NG LFO or optionally LPG (connection size Ø 22 mm)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight lb	860	882	1058	1080	1080	1521	1521

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	KP-400 ME	KP-600 ME	KP-800 ME	KP-1000 ME	KP-1200 ME	KP-1600 ME	KP-2000 ME
Capacity* MMBtu/h gal/h	4.5 - 18.9 31.1 - 130.5	6.4 - 25.8 44.4 - 187.1	9.1 - 36.0 62.2 - 248.6	11.4 - 45.4 77.7 - 310.8	13.3 - 53.0 93.2 - 372.9	15.9 - 62.5 108.8 - 435.1	21.2 - 85.2 146.1 - 590.5
Connections - oil	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm
Pilot burner - fuel	-	-	LFO or optionally LPG (connection size Ø 22 mm)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight lb	818	838	1014	1036	1036	1477	1477

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	RP-400 ME	RP-600 ME	RP-800 ME	RP-1000 ME	RP-1200 ME	RP-1600 ME	RP-2000 ME
Capacity* MMBtu/h gal/h	4.5 - 17.8 28.6 - 112.4	6.4 - 25.8 40.4 - 161.7	8.3 - 34.1 53.9 - 215.6	10.6 - 41.7 67.4 - 269.6	12.9 - 49.2 80.9 - 323.5	14.8 - 58.7 94.3 - 377.4	20.1 - 79.5 126.7 - 512.2
Connections - oil	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm	2 x Ø 22 mm
Pilot burner - fuel	-	LPG (connection size Ø 18 mm)	LPG (connection size Ø 22 mm) or optionally LFO (connection size Ø 8 mm)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight lb	838	860	1036	1058	1058	1499	1499

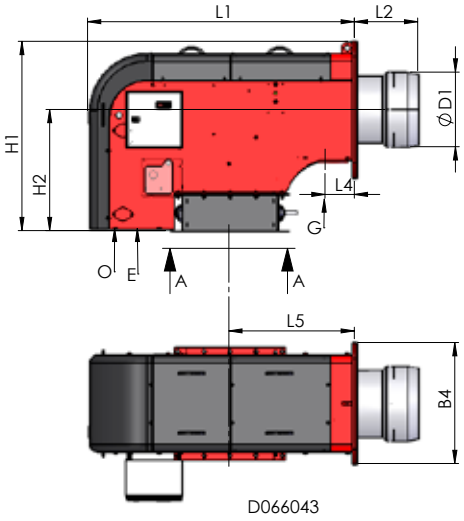
*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	GRP-400 ME	GRP-600 ME	GRP-800 ME	GRP-1000 ME	GRP-1200 ME	GRP-1600 ME	GRP-2000 ME
Capacity - gas MMBtu/h - oil MMBtu/h gal/h	4.5 - 18.9 4.5 - 17.8 28.6 - 110.2	6.4 - 25.8 6.4 - 25.8 39.6 - 158.5	7.2 - 36.0 8.3 - 34.1 52.8 - 211.3	7.6 - 45.4 10.6 - 41.7 66.0 - 264.2	10.6 - 53.0 12.9 - 49.2 79.3 - 317.0	12.5 - 62.5 14.8 - 58.7 92.5 - 369.8	17.0 - 85.2 20.1 - 79.5 124.2 - 501.9
Connections - gas - oil	NPT 2" - 3" ANSI 4" - 6" 2 x Ø 22 mm	NPT 2" - 3" ANSI 4" - 6" 2 x Ø 22 mm	NPT 2 ½" - 3" ANSI 4" - 6" 2 x Ø 22 mm	NPT 2 ½" - 3" ANSI 4" - 6" 2 x Ø 22 mm	NPT 3" ANSI 4" - 6" 2 x Ø 22 mm	ANSI 4" - 6" 2 x Ø 22 mm	ANSI 4" - 6" 2 x Ø 22 mm
Pilot burner - fuel	NG LPG (connection size Ø 18 mm)		NG LPG (connection size Ø 22 mm) or optionally LFO (connection size Ø 8 mm)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight lb	882	904	1080	1102	1102	1543	1543

Light fuel oil: 1 lb/h = 18,4 MBtu/h
1 MBtu/h ≅ 253 kcal/h
Heavy fuel oil: 1 lb/h ≅ 17,4 MBtu/h
1 MBtu/h 253 kcal/h
Natural gas: caloric value Hμ = 9,5 kWh/m³n (34,3 MJ/m³n)
density p = 0,723 kg/m³n

Regulating range:
Light fuel oil: 1:3 (100 - 33 %)
Heavy fuel oil: 1:2,5 (100 - 40 %)
Gas: 1:5 (100 - 20 % , 1:4 /400/600)

Dimensions



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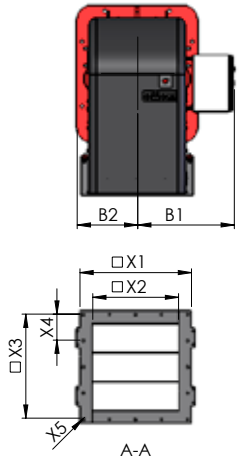
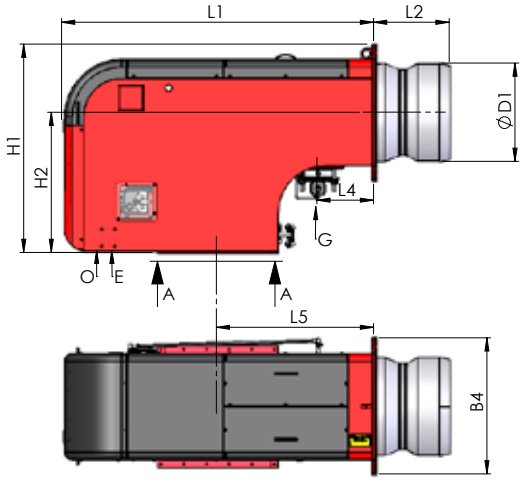


G = Gas inlet
O = Oil inlet/return
E = Electrical connection

BURNER	L1	L2	L4	L5	H1	H2
400 ME	55.51	12.80	6.10	26.14	39.37	25.20
600 ME	55.51	13.19	6.10	26.14	39.37	25.20

BURNER	B1	B2	B4	ø D1	□X1	□X2	□X3	X4	X5
400 ME	20.12	12.60	25.20	14.57	23.23	17.87	21.65	4 x 5.41	16 x ø 0.47
600 ME	20.12	12.60	25.20	15.55	23.23	17.87	21.65	4 x 5.41	16 x ø 0.47



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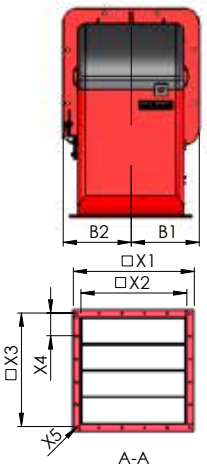


G = Gas inlet
O = Oil inlet/return
E = Electrical connection

BURNER	L1	L2	L4	L5	H1	H2
800 ME	64.96	14.17	11.81	32.76	43.31	29.21
1000 ME	64.96	15.35	11.81	32.76	43.31	29.21
1200 ME	64.96	15.75	11.81	32.76	43.31	29.21
1600 ME	75,47	17.72	15.16	39.65	52.36	33.54
2000 ME	75,47	17.72	15.16	39.65	52.36	33.54

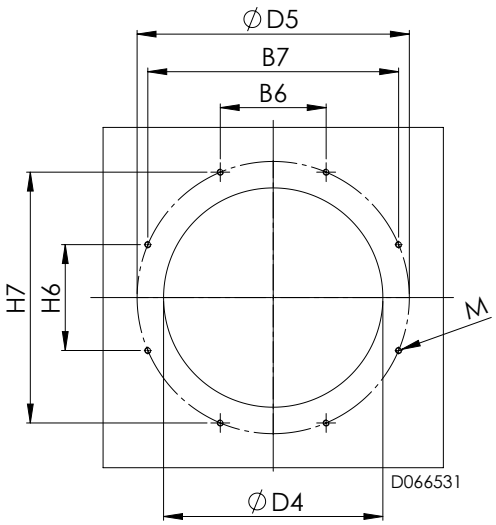
BURNER	B1	B2	B4	ø D1	□X1	□X2	□X3	X4	X5
800 ME	14.17	14.17	28.35	16.61	25.20	22.05	23.62	5 x 4.72	20 x ø 0.47
1000 ME	14.17	14.17	28.35	19.53	25.20	22.05	23.62	5 x 4.72	20 x ø 0.47
1200 ME	14.17	14.17	28.35	20.47	25.20	22.05	23.62	5 x 4.72	20 x ø 0.47
1600 ME	18.90	18.90	37.80	23.39	31.50	28.35	29.53	6 x 4.92	24 x ø 0.47
2000 ME	18.90	18.90	37.80	25.59	31.50	28.35	29.53	6 x 4.92	24 x ø 0.47

Dimensions in inches.

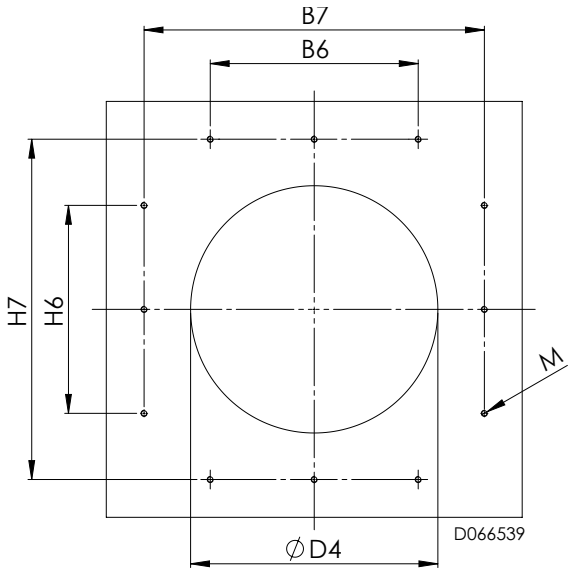
Combustion head and masonry dimensions

Mounting plate

GP/GKP/KP/RP/GRP-400…1200 ME

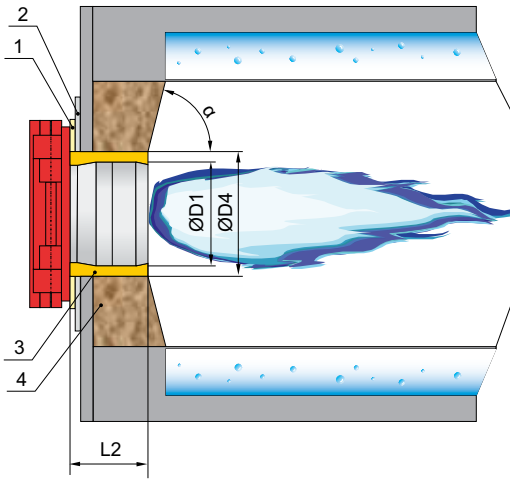


GP/GKP/KP/RP/GRP-1600…2000 ME



BURNER	B6	B7	H6	H7	ØD4	ØD5	M
400 ME	13.39	22.83	13.39	23.62	16.93	-	8xM16
600 ME	13.39	22.83	13.39	23.62	17.91	-	8xM16
800 ME	11.02	-	11.02	-	18.98	28.35	8xM16
1000 ME	11.02	-	11.02	-	21.89	28.35	8xM16
1200 ME	11.02	-	11.02	-	22.83	28.35	8xM16
1600 ME	21.65	35.43	21.65	35.43	25.75	-	12xM16
2000 ME	21.65	35.43	21.65	35.43	27.95	-	12xM16

Burner mounting

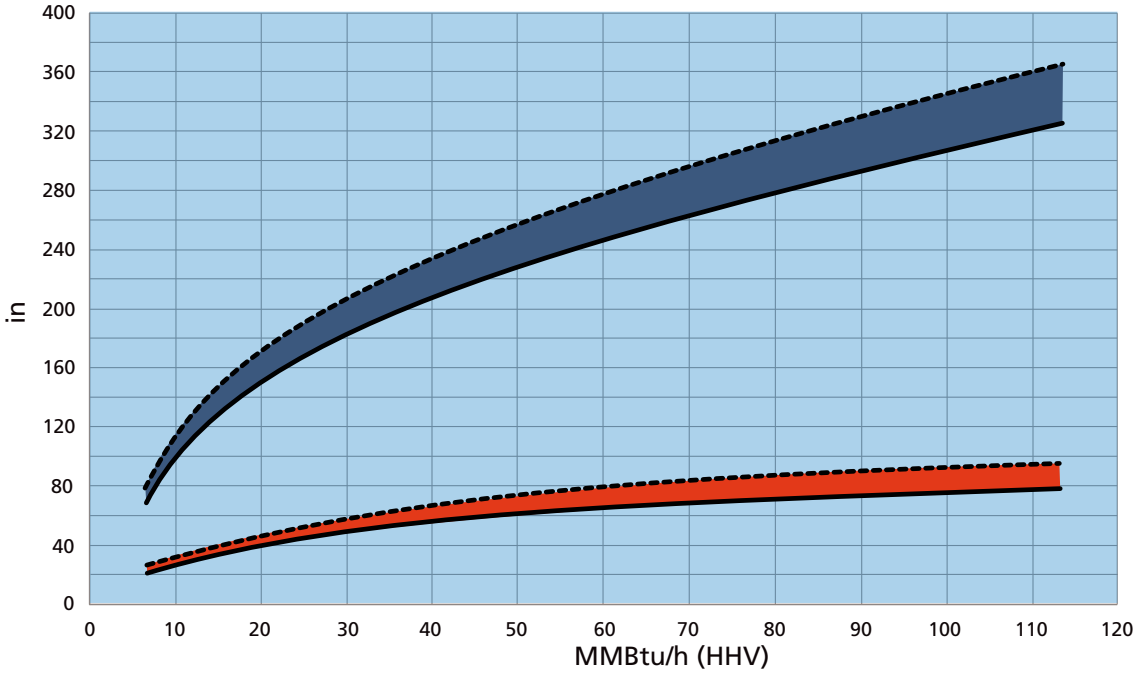


1. Gasket, thickness 0.3 inches
2. Mounting plate
3. Ceramic wool or equivalent
4. Masonry

BURNER	L2	ØD1	ØD4	α
400 ME	12.80	14.57	16.93	60° - 90°
600 ME	13.19	15.55	17.91	60° - 90°
800 ME	14.17	16.61	18.98	60° - 90°
1000 ME	15.35	19.53	21.89	60° - 90°
1200 ME	15.75	20.47	22.83	60° - 90°
1600 ME	17.72	23.39	25.75	60° - 90°
2000 ME	17.72	25.59	27.95	60° - 90°

Dimensions in inches.

Flame dimensions



Flame length

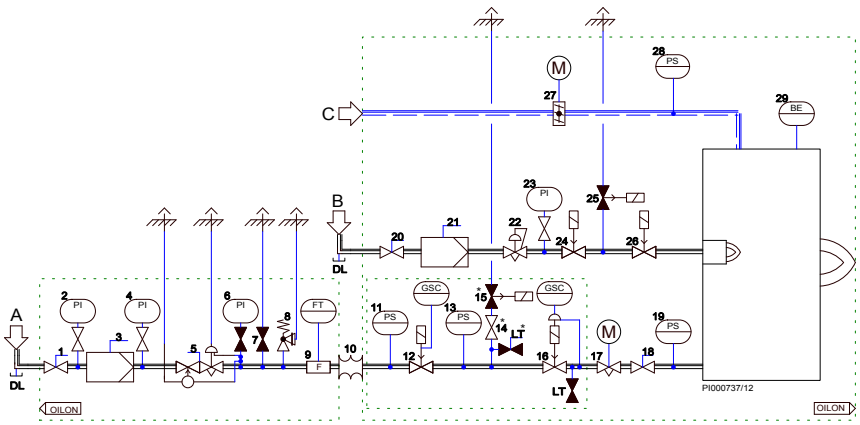
Flame diameter

_____ Lower diagrams for NG and LFO, _ _ _ _ _ upper diagrams for HFO.

Flame dimensions Duoblock burners, standard combustion head

PI Diagrams

GAS, VGD VALVE, ME BURNERS

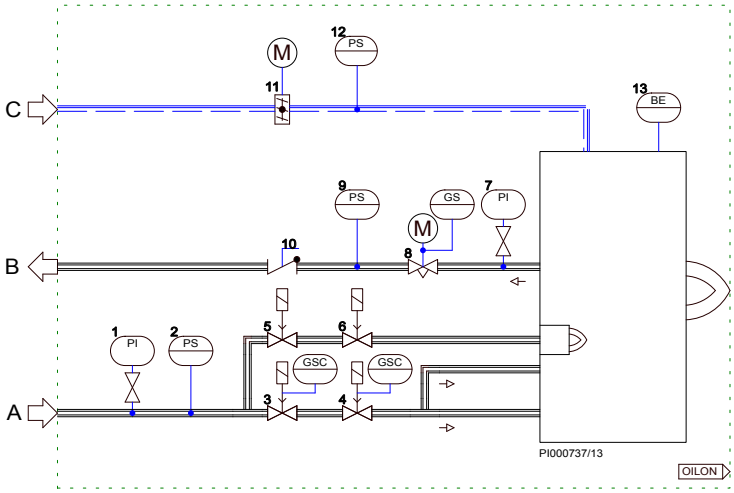


1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Bellows (not in Oilon scope of supply)
11. Pressure switch (low)
12. Safety shut-off valve (NC)
13. Pressure switch for listed automatic valve-proving system
14. Manual shut-off valve (locked or sealed open)*
15. Automatic vent valve (NO)*
16. Safety shut-off valve with pressure regulator (NC)
17. Gas control valve
18. Manual shut-off valve
19. Pressure switch (high)
20. Manual shut-off valve
21. Gas filter
22. Pressure regulator
23. Pressure gauge
24. Safety shut-off valve (NC)
25. Automatic vent valve (NO)
26. Safety shut-off valve (NC)
27. Combustion air control damper
28. Pressure switch (low)
29. Flame detector

DL = Drip leg (not in Oilon scope of supply)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

A = Natural Gas
B = Ignition Gas
C = Combustion Air

LIGHT FUEL OIL, ME BURNERS

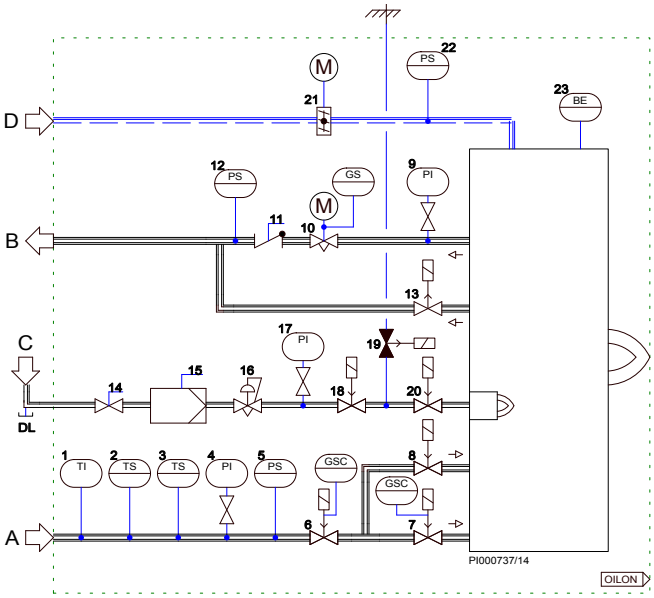


1. Pressure gauge
2. Pressure switch (low)
3. Safety shut-off valve (NC)
4. Safety shut-off valve (NC)
5. Safety shut-off valve for ignition oil (NC)
6. Safety shut-off valve for ignition oil (NC)
7. Pressure gauge
8. Oil control valve with low fire start switch
9. Pressure switch (high)
10. Non-return valve
11. Combustion air control damper
12. Pressure switch (low)
13. Flame detector

GSC = Proof of closure switch
NC = Normally closed

A = Light Fuel Oil supply
B = Light Fuel Oil return
C = Combustion Air

HEAVY FUEL OIL, ME BURNERS



1. Temperature gauge
2. Temperature switch (high)
3. Temperature switch (low)
4. Pressure qauge
5. Pressure switch (low)
6. Safety shut-off valve (NC)
7. Safety shut-off valve (NC)
8. Safety shut-off valve (NC)
9. Pressure qauge
10. Oil control valve with low fire start switch
11. Non-return valve
12. Pressure switch (high)
13. Automatic shut-off valve (NO)
14. Manual shut-off valve
15. Gas filter
16. Pressure regulator
17. Pressure gauge
18. Safety shut-off valve (NC)
19. Automatic vent valve (NO)
20. Safety shut-off valve (NC)
21. Combustion air control damper
22. Pressure switch (low)
23. Flame detector

DL = Drip leg
(not in Oilon scope of supply)
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

A = Heavy Fuel Oil supply
B = Heavy Fuel Oil return
C = Ignition Gas
D = Combustion Air

Gas valves

BURNER SERIES	Max. inlet gas pressure psi	Max. inlet gas pressure psi	Gas valve	
			Type	Size inch
GP/GKP/GRP-400 ME	3.63	7.25	VGD	2″ - 2.5″
GP/GKP/GRP-600 ME	3.63	7.25	VGD	2.5″ - 3″
GP/GKP/GRP-800 ME	3.63	7.25	VGD	2.5″ - 4″
GP/GKP/GRP-1000 ME	3.63	7.25	VGD	3″ - 6″
GP/GKP/GRP-1200 ME	3.63	7.25	VGD	3″ - 6″
GP/GKP/GRP-1600 ME	3.63	7.25	VGD	3″ - 6″
GP/GKP/GRP-2000 ME	3.63	7.25	VGD	3″ - 6″

Scope of delivery GP/GKP/KP/RP/GRP-400...-2000 ME

	GP-... ME	GKP-... ME	KP-... ME	RP-... ME	GRP-... ME
Burner flange gasket	•	•	•	•	•
Ignition transformer	•	•	•	•	•
Ignition cables and electrodes	•	•	•	•	•
Flame sensor	•	•	•	•	•
WiseDrive (electronic ratio control) * for regulating the air/gas ratio, incl.: - gas butterfly valve - actuator for gas butterfly valve - actuator for air dampers - actuator for combustion head regulation	•	-	-	-	-
WiseDrive (electronic ratio control) for regulating the air/oil/gas ratio, incl.: - oil regulator - gas butterfly valve - actuators for oil regulator and gas butterfly valve - actuator for air dampers - actuator for combustion head regulation	-	•	-	-	•
WiseDrive (electronic ratio control) for regulating the air/oil ratio, incl.: - oil regulator - actuator for oil regulator - actuator for air dampers - actuator for combustion head regulation	-	-	•	•	-
Air pressure switch	•	•	•	•	•
Gas nozzle	•	•	-	-	•
Gas pressure switch, max.	•	•	-	-	•
Gas elbow 90°	•	•	-	-	•
Double solenoid valve for gas incl.: - gas pressure switch, min. - 2 gas valves	- •	- •	- -	- -	- •
Solenoid valve for ignition gas (NG)	•	•	-	-	•
Solenoid valves for ignition gas (LPG)	-	•	•	-	-
Oil nozzle	-	•	•	•	•
Solenoid valves for oil	-	•	•	•	•
Non-return valve	-	•	•	•	•
2 pressure gauges for oil	-	•	•	•	•
Pressure switch for return oil	-	•	•	•	•
Solenoid valves for light fuel oil ignition (LFO)	-	-	-	•	•
Heating cartridge for solenoid valves	-	-	-	•	•
Thermometer	-	-	-	•	•
Operation and maintenance manual	•	•	•	•	•

• Standard

Options, GP/GKP/KP/RP/GRP-400...-2000 ME

	GP-... ME	GKP-... ME	KP-... ME	RP-... ME	GRP-... ME
FGR equipment	o	o	o	o	o
Pressure gauge for fan pressure	o	o	o	o	o
Pressure gauge for measuring the pressure in gas nozzle	o	o	-	-	o
Solenoid valves for light fuel oil ignition (LFO)	-	o	o	-	-
Solenoid valves for ignition gas (LPG)	-	-	-	o	o
Heating cartridge for oil nozzle	-	o	o	o	o
Heating cartridge for solenoid valves	-	o	o	-	-
Thermometer	-	o	o	-	-
Electric tracing cables for burner oil pipes	-	-	-	o	o

o Option

Oilon ACE

3.0 - 340.8 MMBtu/h

Oilon ACE presents the latest low emission technology. The typical NOx emissions are less than 30 ppm (60mg/kWh), ref. 3% O2 and less than 15 ppm (30mg/kWh) with external Flue Gas Recirculation (FGR). As a result of well completed combustion the CO emissions are also on a low level. Oilon ACE is mainly used in water tube and fire tube boilers, but is suitable in other applications as well.

Type labeling, Oilon ACE

GT16A-a b c d e f g

Control valves
- g = 1 (control valves on burner)
- g =2 (control valves in separate valve unit)

Voltage
- f = 1 (220-240V)
- f = 2 (110-120V)

Pilot burner type
- e = 1 (pilot burner without flame detector)
- e = 2 (pilot burner with flame detector)

Flame detector type
- d = 1 (QRI and ionization rod)
- d = 2 (selective flame detector and ionization rod)
- d = 3 (selective flame detector)

Oil lance type
- c = 0 (does not exist)
- c = 1 (medium atomized LF)
- c = 2 (pressure atomized RPL)

Primary air swirl direction
- b= 1 (counterclockwise)
- b= 2 (clockwise)

Air damper actuator type
- a = 1 (Siemens or equivalent)
- a = 2 (Electric actuator with potentiometer control)
- a = 3 (Electric actuator with mA-control)

Burner type:
- A = Oilon ACE

Burner size

Fuel:
- GT = Gas
- GKT = Gas, light fuel oil
- KT = Light fuel oil
- GRT = Gas, heavy fuel oil

GT/GKT/KT/GRT-6A...90A, Oilon ACE

Technical Data, Oilon ACE (Oilon standard solution)

BURNER	GT-6A	GT-8A	GT-10A	GT-13A	GT-16A	GT-19A	GT-23A
Capacity MMBtu/h *	3.0 - 24.6	3.8 - 30.3	4.9 - 37.8	6.1 - 49.2	7.6 - 60.6	9.1 - 72.0	11.0 - 87.1
Connections - gas, burner	NPT 2.5"	NPT 3"	NPT 3"	ANSI 4"	ANSI 4"	ANSI 6"	ANSI 6"
Pilot burner	NG						
Control unit	WD200						
Weight lb	728	750	1080	1124	1499	1565	2535

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	GT-28A	GT-35A	GT-42A	GT-50A	GT-70A	GT-90A
Capacity MMBtu/h *	13.3 - 106.0	16.7 - 132.5	20.1 - 159.0	23.9 - 189.3	33.3 - 265.1	42.8 - 340.8
Connections - gas, burner	ANSI 6"+ NPT 3"	ANSI 6"+ NPT 3"	ANSI 8"+ ANSI 4"	ANSI 8"+ ANSI 4"	ANSI 10"+ ANSI 6"	ANSI 10"+ ANSI 6"
Pilot burner	GPB20					
Control unit	WD200 **					
Weight lb	2403	2513	4652	4850	5203	5534

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with other automation as well, like WD1000 or WD2000

BURNER	GKT-6A	GKT-8A	GKT-10A	GKT-13A	GKT-16A	GKT-19A	GKT-23A
Capacity MMBtu/h * - gas - oil	3.0 - 24.6 9.8 - 24.6	3.8 - 30.3 12.1 - 30.3	4.9 - 37.9 15.1 - 37.9	6.1 - 49.2 19.7 - 49.2	7.6 - 60.6 24.2 - 60.6	9.1 - 71.9 28.8 - 71.9	11.0 - 87.1 34.8 - 87.1
Connections - gas, burner - oil, burner	NPT 2.5" NPT 3/4"	NPT 3" NPT 3/4"	NPT 3" NPT 3/4"	ANSI 4" NPT 3/4"	ANSI 4" NPT 3/4"	ANSI 6" NPT 3/4"	ANSI 6" NPT 3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Pressure atomizing						
Control unit	WD200						
Weight lb	926	948	1279	1345	1720	1786	2756

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	GKT-28A	GKT-35A	GKT-42A	GKT-50A	GKT-70A	GKT-90A
Capacity MMBtu/h * - gas - oil	 13.3 - 106.0 21.2 - 106.0	 16.7 - 132.5 26.5 - 132.5	 20.1 - 159.0 31.8 - 159.0	 23.9 - 189.3 37.9 - 189.3	 33.3 - 265.1 ***	 42.8 - 340.8 ***
Connections - gas, burner - oil, burner	 ANSI 6" + NPT 3" NPT 1"	 ANSI 6"+ NPT 3" NPT 1"	 ANSI 8"+ ANSI 4" NPT 1"	 ANSI 8"+ ANSI 4" NPT 1"	 ANSI 10" + ANSI 6" NPT 1"	 ANSI 10" + ANSI 6" NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight lb	2447	2557	4696	4916	5269	5622

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered also with WD2000
***) Confirm the capacity from Oilon Selection Tool

BURNER	KT-6A	KT-8A	KT-10A	KT-13A	KT-16A	KT-19A	KT-23A
Capacity MMBtu/h *	9.8 - 24.6	12.1 - 30.3	15.1 - 37.9	19.7 - 49.2	24.2 - 60.6	28.8 - 71.9	34.8 - 87.1
Connections - oil	NPT 3/4"	NPT 3/4"	NPT 3/4"	NPT 3/4"	NPT 3/4"	NPT 3/4"	NPT 3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Pressure atomizing						
Control unit	WD200						
Weight kg	617	639	970	992	1345	1411	2315

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.

BURNER	KT-28A	KT-35A	KT-42A	KT-50A	KT-70A	KT-90A
Capacity MMBtu/h *	21.2 - 106.0	26.5 - 132.5	31.8 - 159.0	37.9 - 189.3	***	***
Connections - oil	NPT 1"	NPT 1"	NPT 1"	NPT 1"	NPT 1"	NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight lb	1808	1896	3858	4079	4387	4740

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered also with WD2000
***) Confirm the capacity from Oilon Selection Tool

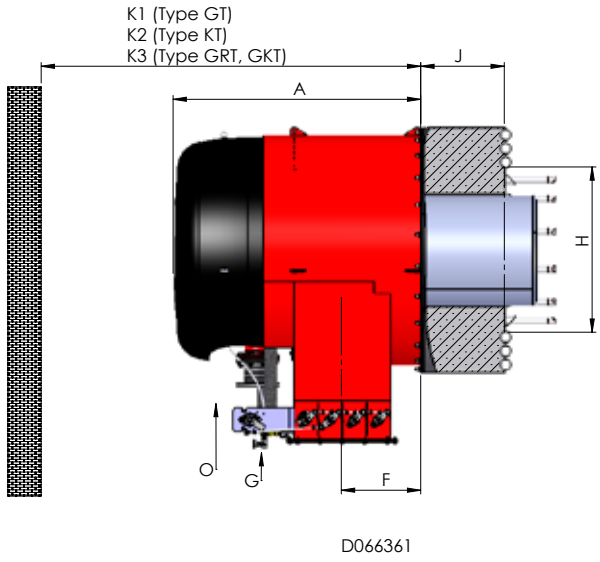
BURNER	GRT-6A	GRT-8A	GRT-10A	GRT-13A	GRT-16A	GRT-19A	GRT-23A
Capacity MMBtu/h * - gas - oil	 3.0 - 24.6 4.9 - 24.6	 3.8 - 30.3 6.1 - 30.3	 4.9 - 37.9 7.6 - 37.9	 6.1 - 49.2 9.8 - 49.2	 7.6 - 60.6 12.1 - 60.6	 9.1 - 71.9 14.4 - 71.9	 11.0 - 87.1 17.4 - 87.1
Connections - gas, burner - oil, burner	 NPT 2.5” NPT 3/4"	 NPT 3” NPT 3/4"	 NPT 3” NPT 3/4"	 ANSI 4” NPT 3/4"	 ANSI 4” NPT 3/4"	 ANSI 6” NPT 3/4"	 ANSI 6” NPT 3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000**						
Weight lb	420	430	580	610	780	810	1250

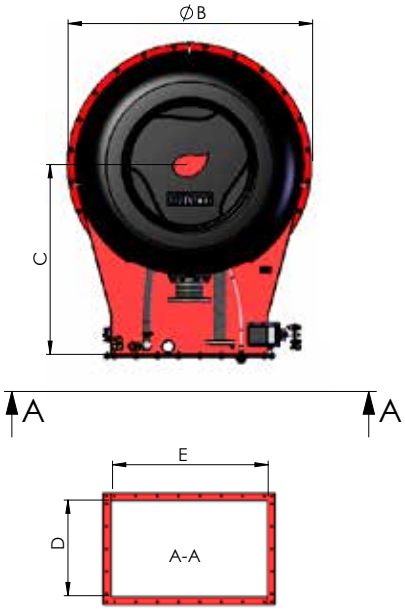
*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered also with WD2000

BURNER	GRT-28A	GRT-35A	GRT-42A	GRT-50A	GRT-70A	GRT-90A
Capacity MMBtu/h * - gas - oil	 13.3 - 106.0 21.2 - 106.0	 16.7 - 132.5 26.5 - 132.5	 20.1 - 159.0 31.8 - 159.0	 23.9 - 189.3 ***	 33.3 - 265.1 ***	 42.8 - 340.8 ***
Connections - gas, burner - oil, burner	 ANSI 6” + NPT 3” NPT 1"	 ANSI 6” + NPT 3” NPT 1”	 ANSI 8”+ ANSI 4” NPT 1”	 ANSI 8” + ANSI 4” NPT 1”	 ANSI 10” + ANSI 6” NPT 1”	 ANSI 10” + ANSI 6” NPT 1”
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000**					
Weight lb	2447.1	2557.4	4695.8	4916.3	5269.0	5621.8

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered also with WD2000
***) Confirm the capacity from Oilon Selection Tool

Dimensions, Oilon ACE





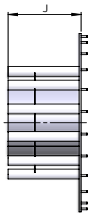
G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	D	E	F	J	H	K1	K2	K3
GT/KT/GRT/GKT-6A	41.54	33.86	30.71	12.20	19.69	11.22	12.20	19.76	74.80	102.36	102.36
GT/KT/GRT/GKT-8A	41.54	33.86	30.71	12.20	19.69	11.22	13.39	23.27	74.80	102.36	102.36
GT/KT/GRT/GKT-10A	49.21	40.16	33.70	15.55	24.61	12.48	14.17	24.13	82.68	110.24	110.24
GT/KT/GRT/GKT-13A	49.21	40.16	33.70	15.55	24.61	12.48	15.75	26.97	82.68	110.24	110.24
GT/KT/GRT/GKT-16A	55.51	47.64	38.98	18.50	29.53	15.20	16.54	30.12	94.49	122.05	122.05
GT/KT/GRT/GKT-19A	55.51	47.64	38.98	18.50	29.53	15.20	17.32	32.40	94.49	122.05	122.05
GT/KT/GRT/GKT-23A	64.17	63.39	49.21	24.80	40.35	20.67	18.70	35.71	118.11	145.67	145.67
GT/KT/GRT/GKT-28A	64.17	63.39	49.21	24.80	40.35	20.67	19.69	38.90	118.11	145.67	145.67
GT/KT/GRT/GKT-35A	64.17	63.39	49.21	24.80	40.35	20.67	21.65	42.87	118.11	145.67	145.67
GT/KT/GRT/GKT-42A	85.43	87.99	65.35	37.40	57.09	29.72	23.62	47.48	157.48	192.91	192.91
GT/KT/GRT/GKT-50A	85.43	87.99	65.35	37.40	57.09	29.72	27.56	51.26	157.48	192.91	192.91
GT/KT/GRT/GKT-70A	85.43	87.99	65.35	37.40	57.09	29.72	29.53	59.53	157.48	192.91	192.91
GT/KT/GRT/GKT-90A	85.43	87.99	65.35	37.40	57.09	29.72	29.53	66.93	157.48	192.91	192.91

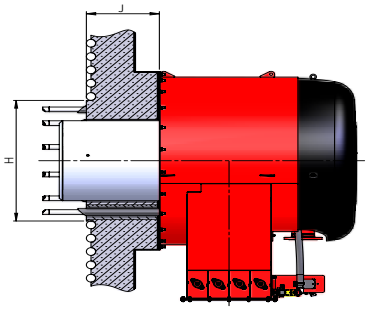
Dimensions in inches.

Boiler wall masonry, burner mounting Oilon ACE

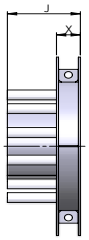
Alternative A



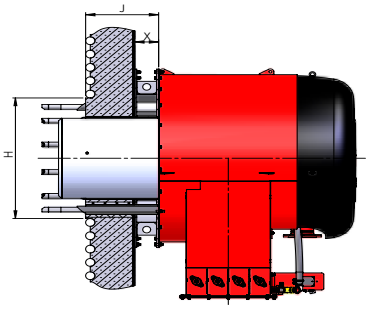
Masonry mold including boiler flange for burner mounting



Alternative B



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

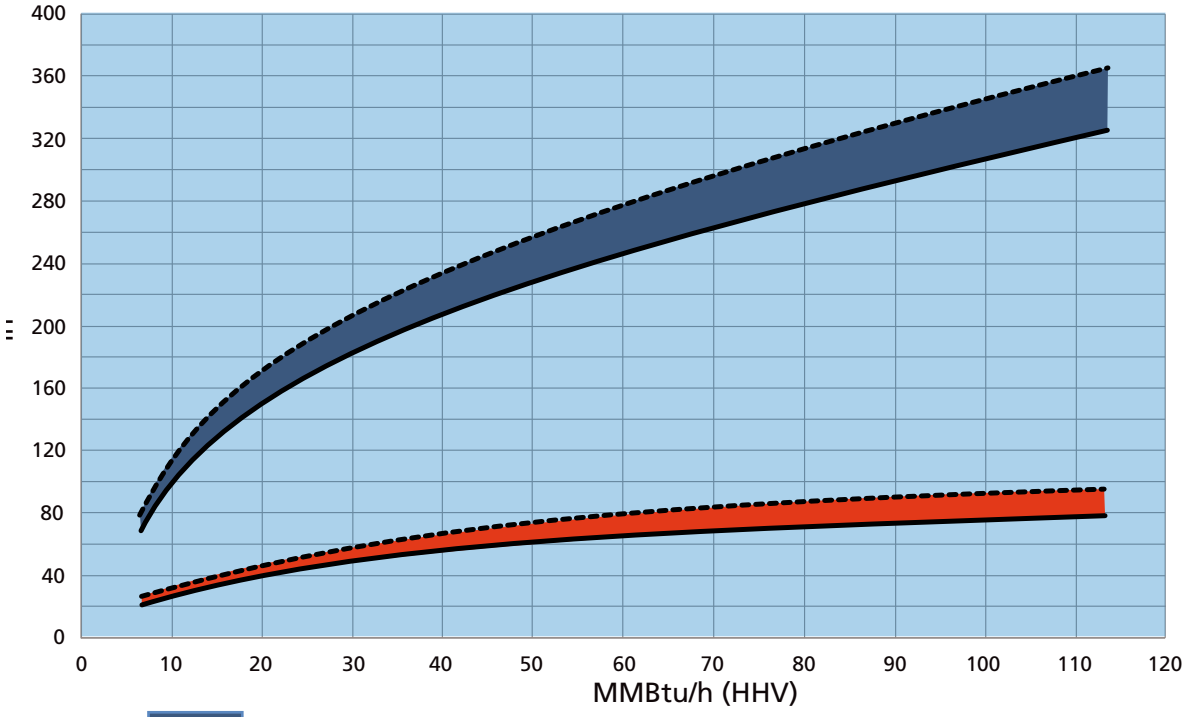


The drawing of selected masonry mold alternative will be provided by Oilon.

The mold itself is an optional part.

Flame dimensions, Oilon ACE

Estimated flame dimensions for NG, LFO and HFO

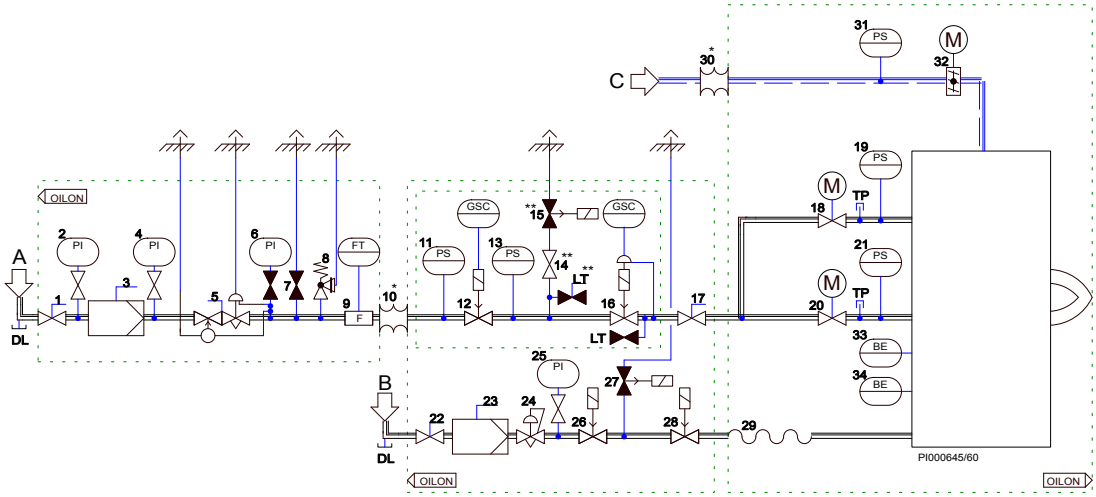


Flame dimensions Duoblock burners, standard combustion head

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

PI Diagrams, Oilon ACE

GAS, Oilon ACE, 6A...23A



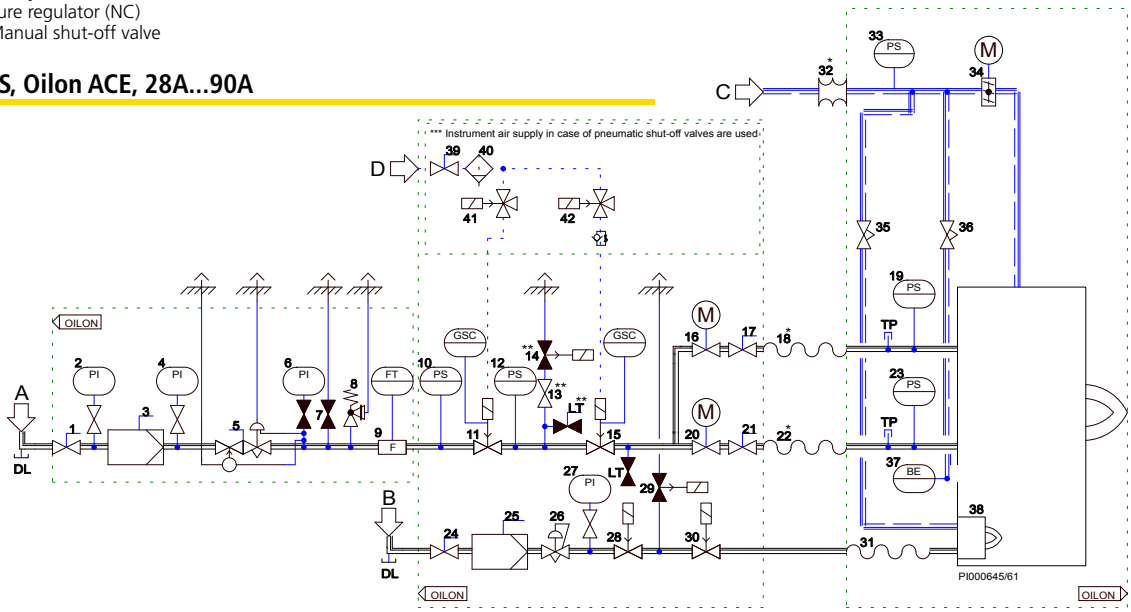
1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Bellows*
11. Pressure switch (low)
12. Safety shut-off valve (NC)
13. Pressure switch for listed automatic valve-proving system
14. Manual shut-off valve (locked or sealed open)**
15. Automatic vent valve (NO)**
16. Safety shut-off valve with pressure regulator (NC)
17. Manual shut-off valve
18. Gas control valve
19. Pressure switch (high)
20. Gas control valve
21. Pressure switch (high)
22. Manual shut-off valve
23. Gas filter
24. Pressure regulator
25. Pressure gauge
26. Safety shut-off valve (NC)
27. Automatic vent valve (NO)
28. Safety shut-off valve (NC)
29. Flexible hose
30. Bellows*
31. Pressure switch (low)
32. Combustion air control damper
33. Flame detector
34. Flame detector

DL = Drip leg
(not in Oilon scope of supply)
TP = Test point
(In standard solution integrated to pressure switch)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

* = The part is necessary. Not in Oilon scope of supply
** = Optional for valve proving system

A = Natural Gas
B = Ignition Gas
C = Combustion Air

GAS, Oilon ACE, 28A...90A



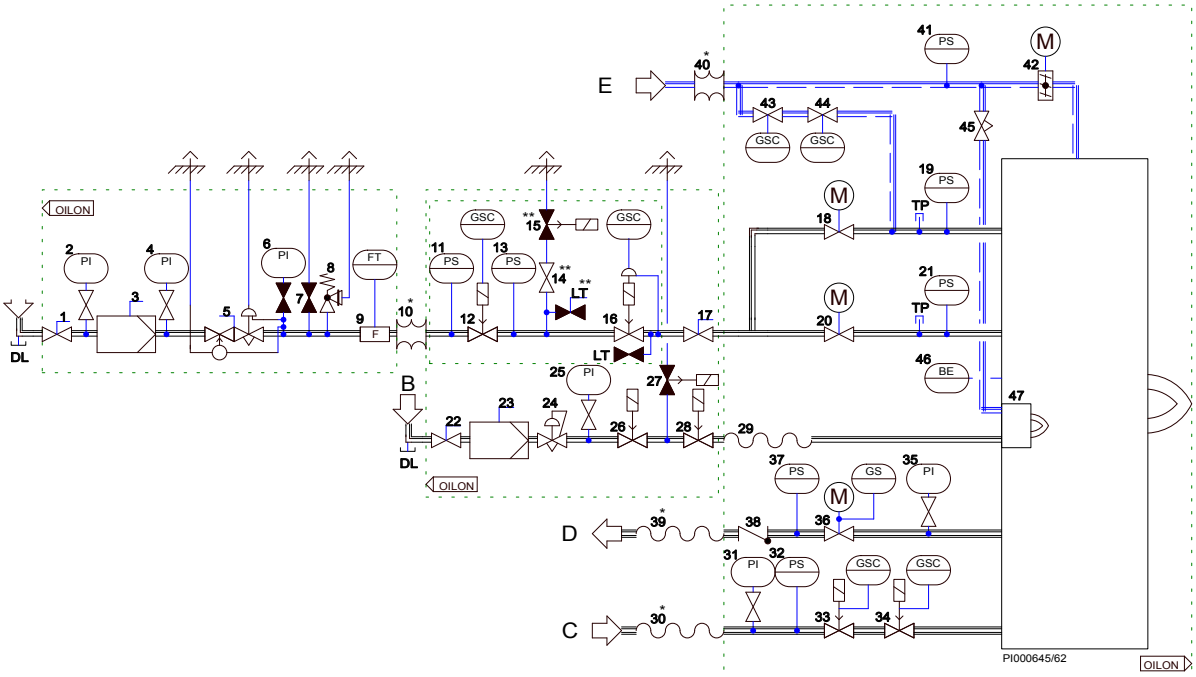
1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Pressure switch (low)
11. Safety shut-off valve (NC)
12. Pressure switch for listed automatic valve-proving system
13. Manual shut-off valve (locked or sealed open)**
14. Automatic vent valve (NO)**
15. Safety shut-off valve (NC)
16. Gas control valve
17. Manual shut-off valve
18. Flexible hose*
19. Pressure switch (high)
20. Gas control valve
21. Manual shut-off valve
22. Flexible hose*
23. Pressure switch (high)
24. Manual shut-off valve
25. Gas filter
26. Pressure regulator
27. Pressure gauge
28. Safety shut-off valve (NC)
29. Automatic vent valve (NO)
30. Safety shut-off valve (NC)
31. Flexible hose
32. Bellows*
33. Pressure switch (low)
34. Combustion air control damper
35. Manual control valve
36. Manual control valve
37. Flame detector
38. Pilot burner with flame detector
39. Manual shut-off valve***
40. Air filter***
41. Solenoid valve***
42. Solenoid valve***

DL = Drip leg
(not in Oilon scope of supply)
TP = Test point
(In standard solution integrated to pressure switch)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

* = The part is necessary. Not in Oilon scope of supply
** = Optional for valve proving system
*** = Instrument air components in case of pneumatic shut-off valves are used

A = Natural Gas
B = Ignition Gas
C = Combustion Air
D = Instrument Air

GAS/LIGHT OIL, Oilon ACE 6A...23A



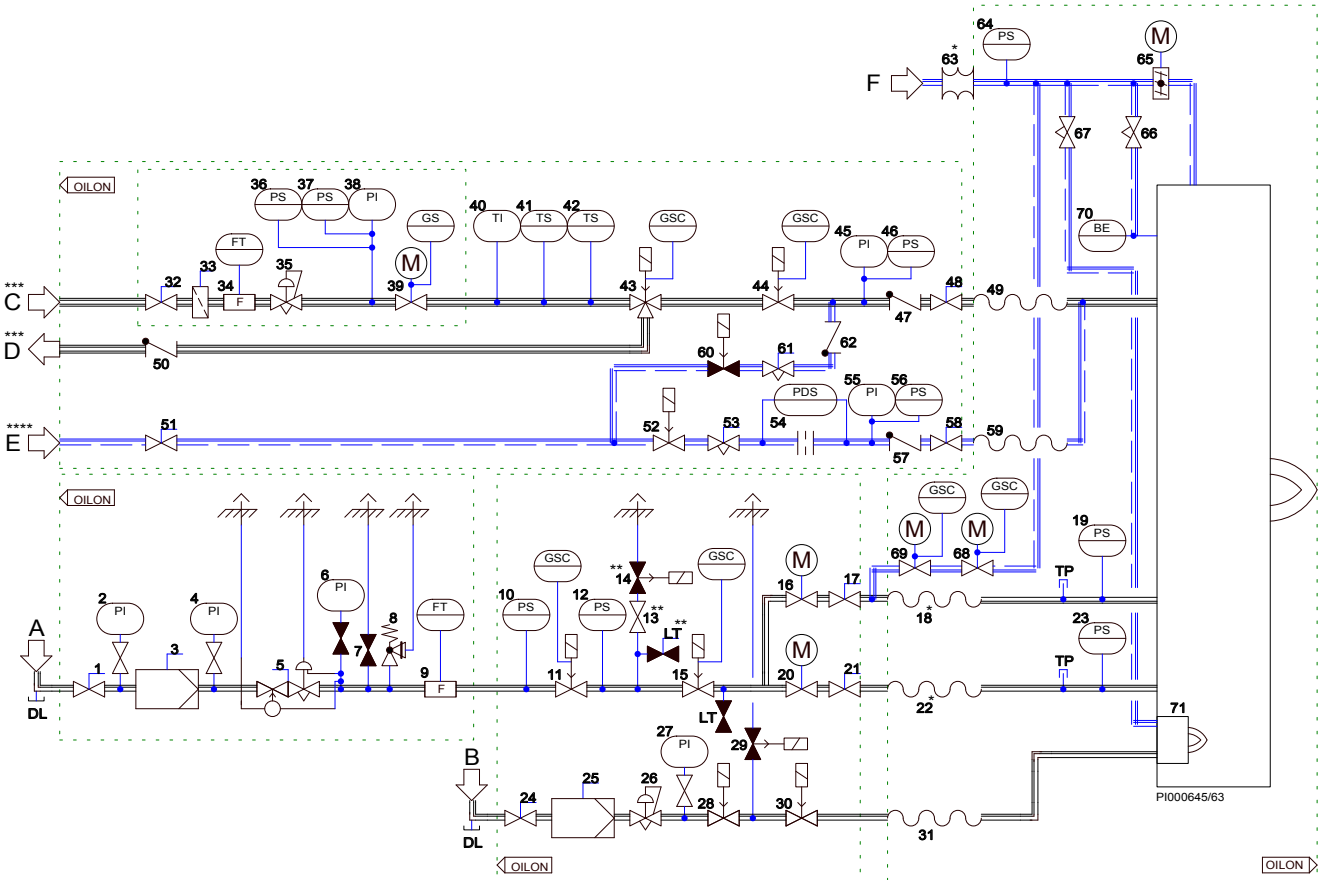
1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Bellows*
11. Pressure switch (low)
12. Safety shut-off valve (NC)
13. Pressure switch for listed automatic valve-proving system
14. Manual shut-off valve (locked or sealed open)**
15. Automatic vent valve (NO)**
16. Safety shut-off valve with pressure regulator (NC)
17. Manual shut-off valve
18. Gas control valve
19. Pressure switch (high)
20. Gas control valve
21. Pressure switch (high)
22. Manual shut-off valve
23. Gas filter
24. Pressure regulator
25. Pressure gauge
26. Safety shut-off valve (NC)
27. Automatic vent valve (NO)
28. Safety shut-off valve (NC)
29. Flexible hose
30. Flexible hose*
31. Pressure gauge
32. Pressure switch (low)
33. Safety shut-off valve (NC)
34. Safety shut-off valve (NC)
35. Pressure gauge
36. Oil control valve with low fire start switch
37. Pressure switch (high)
38. Non-return valve
39. Flexible hose*
40. Bellows*
41. Pressure switch (low)
42. Combustion air control damper
43. Cooling air valve
44. Cooling air valve
45. Manual control valve
46. Flame detector
47. Pilot burner with flame detector

A = Natural Gas
B = Ignition Gas
C = Light Fuel Oil supply
D = Light Fuel Oil return
E = Combustion Air

DL = Drip leg
(not in Oilon scope of supply)
TP = Test point
(In standard solution integrated to pressure switch)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

* = The part is necessary. Not in Oilon scope of supply
** = Optional for valve proving system

GAS/LIGHT OIL, Oilon ACE 28A...90A
GAS/HEAVY OIL, Oilon ACE 6A...90A



1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Pressure switch (low)
11. Safety shut-off valve (NC)
12. Pressure switch for listed automatic valve-proving system
13. Manual shut-off valve (locked or sealed open)**
14. Automatic vent valve (NO)**
15. Safety shut-off valve (NC)
16. Gas control valve
17. Manual shut-off valve
18. Flexible hose*
19. Pressure switch (high)
20. Gas control valve
21. Manual shut-off valve
22. Flexible hose*
23. Pressure switch (high)
24. Manual shut-off valve
25. Gas filter
26. Pressure regulator
27. Pressure gauge
28. Safety shut-off valve (NC)
29. Automatic vent valve (NO)
30. Safety shut-off valve (NC)
31. Flexible hose
32. Manual shut-off valve
33. Oil strainer
34. Flow meter (optional)
35. Pressure regulator
36. Pressure switch (low)
37. Pressure switch (high)
38. Pressure gauge
39. Oil control valve with low fire start switch
40. Temperature gauge
41. Temperature switch (high)
42. Temperature switch (low)
43. Safety shut-off valve (NC) with oil recirculation
44. Safety shut-off valve (NC)
45. Pressure gauge
46. Pressure switch (high)
47. Non-return valve
48. Manual shut-off valve
49. Flexible hose
50. Non-return valve
51. Manual shut-off valve
52. Safety shut-off valve (NC)
53. Manual control valve
54. Differential pressure switch (low)
55. Pressure gauge
56. Pressure switch (low)
57. Non-return valve
58. Manual shut-off valve
59. Flexible hose
60. Shutt-off valve, NC
61. Manual control valve
62. Non-return valve
63. Bellows*
64. Pressure switch (low)
65. Combustion air control damper
66. Manual control valve
67. Manual control valve
68. Cooling air valve
69. Cooling air valve
70. Flame detector
71. Pilot burner with flame detector

DL = Drip leg (not in Oilon scope of supply)
TP = Test point (In standard solution integrated to pressure switch)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

A = Natural Gas
B = Ignition Gas
C = Heavy Fuel Oil supply
D = Heavy Fuel Oil return
E = Atomizing Medium (Constant pressure required)
F = Combustion Air

* = The part is necessary. Not in Oilon scope of supply
** = Optional for valve proving system
*** = Trace heating and insulation of oil line. Not in Oilon scope of supply
**** = Insulation of atomizing steam line. Not in Oilon scope of supply

Scope of delivery Oilon ACE GT-6A...90 A, GKT/KT-6A...23A

	GT	GKT	KT
WiseDrive (electronic ratio control) *** for regulating the air/oil/gas ratio, incl.: - oil regulator+actuator - gas butterfly valve+actuator - air dampers+actuator	 - • •	 • • •	 • - •
Pressure switch, combustion air	•	•	•
Main flame detector, self checking	•	•	•
Gas pilot burner with integrated transformer	•	•	-
Sight glass	•	•	•
Air duct counter flange	•	•	•
Gasket, boiler/burner connection	•	•	•
Gasket, air duct/burner connection	•	•	•
Integrated cooling air supply for components *	•	•	•
Steel hose, ignition gas	•	•	-
Steel hose, liquid fuel **	-	•	•
Pressure switch for return oil	-	•	•
Operation and maintenance manual	•	•	•

• Standard

*) possible, when combustion air temperature is < 122°F
**) in liquid fuel burners
***) Check separate control panel (WDx00) price from accessories section

Options, Oilon ACE GT-6A...90 A, GKT/KT-6A...23A

- FGR kit (loose delivery):
  - flue gas control with servomotor
  - extra air damper with servomotor for controlling combustion air vs. flue gas
- Steel hose main and primary gas

Scope of delivery Oilon ACE GKT/KT-28A...90A, GRT-6A...90A

	GT	GKT	KT	GRT
Electric actuator, combustion air damper	•	•	•	•
Pressure switch, combustion air	•	•	•	•
Main flame detector, self checking	•	•	•	•
Gas pilot burner with integrated transformer	•	•	•	•
Flame detector integrated in gas pilot burner	•	•	•	•
Limit switch, liquid lance coupled*	-	•	•	•
Steel hose, liquid fuel*	-	•	•	•
Steel hose, atomizing medium*	-	•	•	•
Steel hose, ignition gas	•	•	-	•
Steel hose, ignition air	•	•	•	•
Sight glass	•	•	•	•
Air duct counter flange	•	•	•	•
Gasket, boiler/burner connection	•	•	•	•
Gasket, air duct/burner connection	•	•	•	•
Integrated cooling air supply for components**	•	•	•	•
Operation and maintenance manual	•	•	•	•

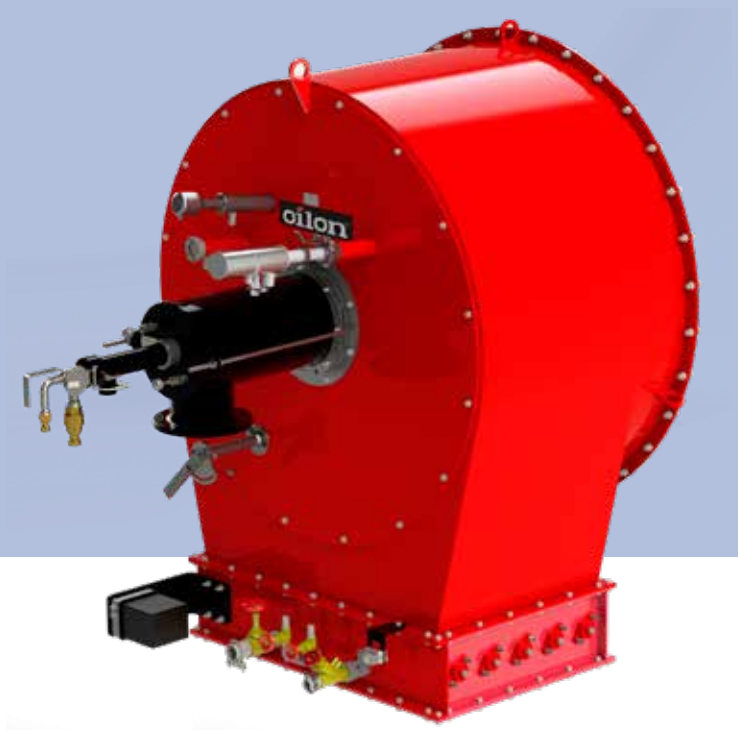
• Standard

* in liquid fuel burners
** possible, when combustion air temperature is < 122°F

Options, Oilon ACE GKT/KT-28A...90A, GRT-6A...90A

	GT	GKT	KT	GRT
Pneumatic actuator, combustion air damper	•	•	•	•
Light fuel oil pilot burner	•	•	•	•
Electric igniter, incl. own retraction and limit switches	•	•	•	•
Steel hose, main gas*	•	•	•	•
Steel hose, primary gas*	•	•	•	•
Boiler flange	•	•	•	•
Cooling air from instrument/plant air	•	•	•	•
Dual liquid fuel lance	•	•	•	•
Simultaneous combustion	•	•	•	•
Hazardous area classification	•	•	•	•
SIL 2 components	•	•	•	•
SIL 3 components	•	•	•	•
FGR	•	•	•	•

* in gas burners



S-Burners

3.0 -242.4 MMBtu/h

S-burner is typically used in water tube and fire tube boilers, but is suitable for various other kinds of boilers as well. It can be utilized also for special fuels and in process industry. The flame shape adjusting possibilities are wide for optimizing the flame geometry in various furnace dimensions.

Type labeling S-Burners

GKT-35S

Burner type:
S = S-burner

Burner size

Fuel:
GT = Gas
GKT = Gas, light fuel oil
KT = Light fuel oil
RT = Heavy fuel oil
GRT = Gas, heavy fuel oil

GT/GKT/KT/RT/GRT-5S...70S S-Burners

Technical Data, S-Burners

BURNER	GT-5S	GT-8S	GT-12S	GT-18S	GT-25S	GT-35S	GT-50S	GT-70S
Capacity* MMBtu/h	3.0 - 14.8	4.5 - 23.1	7.6 - 37.9	11.4 - 56.8	16.7 - 83.3	22.0 - 109.8	31.8 - 42.0	47.7 - 238.6
Connections - gas, burner	NPT 2.5"	NPT 3"	ANSI 4"	ANSI 6"	ANSI 6"	ANSI 6"	ANSI 8"	ANSI 8"
Pilot burner	GPB20							
Control unit	WD200**							
Weight lb	617	794	1058	1323	2072	3197	3748	4740

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKT-5S	GKT-8S	GKT-12S	GKT-18S	GKT-25S	GKT-35S	GKT-50S	GKT-70S
Capacity* MMBtu/h	3.0 - 14.8	4.5 - 23.1	7.6 - 37.9	11.4 - 56.8	16.7 - 83.3	22.0 - 109.8	31.8 - 159.0	47.7 - 238.6
Connections - gas, burner - oil, burner	NPT 2.5" NPT 1/2"	NPT 3" NPT 1/2"	ANSI 4" NPT 1/2"	ANSI 6" NPT 3/4"	ANSI 6" NPT 3/4"	ANSI 6" NPT 1"	ANSI 8" NPT 1"	ANSI 8" NPT 1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Air atomizing							
Control unit	WD1000**							
Weight lb	661	904	1102	1367	2116	3263	3814	4806

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	KT-5S	KT-8S	KT-12S	KT-18S	KT-25S	KT-35S	KT-50S	KT-70S
Capacity* MMBtu/h	3.4 - 16.7	4.9 - 25.0	8.3 - 41.7	12.1 - 60.6	17.4 - 87.1	23.5 - 117.4	32.6 - 162.8	48.5 - 242.4
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 3/4"	NPT 1"	NPT 1"	NPT 1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Air atomizing							
Control unit	WD1000**							
Weight lb	617	772	1036	1279	1918	3020	3549	4564

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

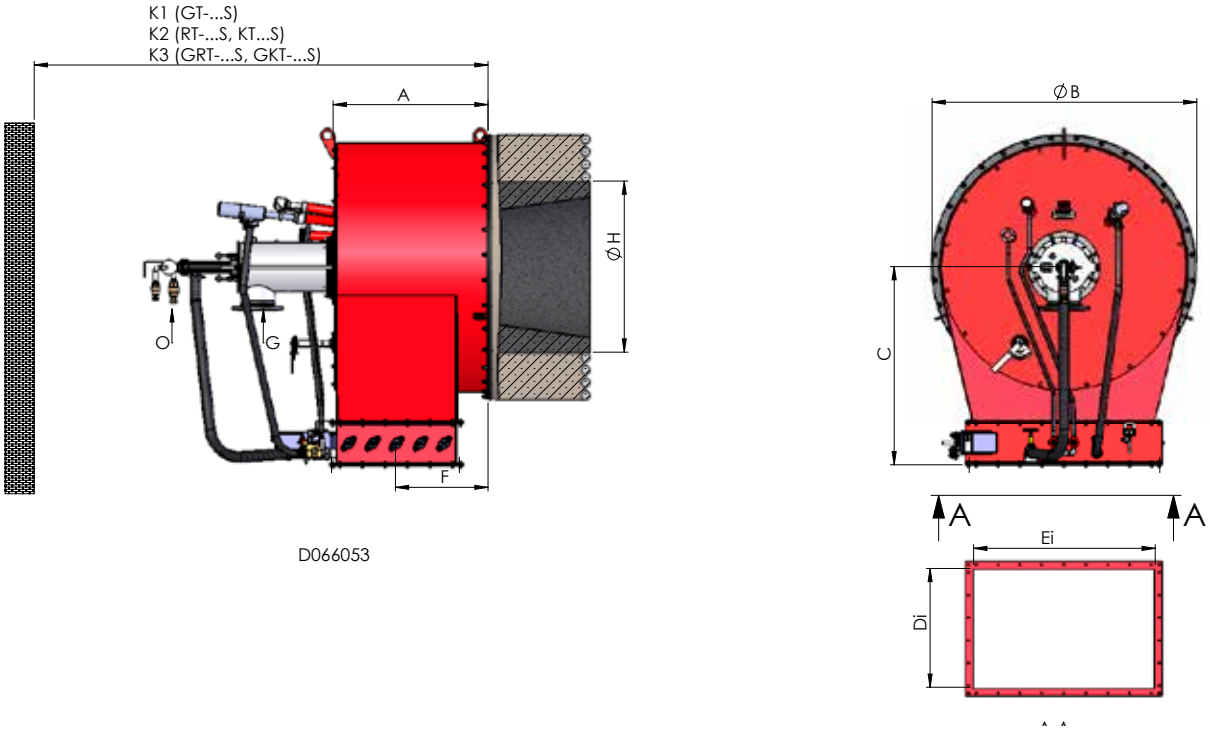
BURNER	RT-5S	RT-8S	RT-12S	RT-18S	RT-25S	RT-35S	RT-50S	RT-70S
Capacity* MMBtu/h	3.41 - 16.7	4.9 - 25.0	8.3 - 41.7	12.1 - 60.6	17.4 - 87.1	23.5 - 117.4	32.6 - 162.8	48.5 242.4
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 3/4"	NPT 1"	NPT 1"	NPT 1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Steam/air atomizing							
Control unit	WD1000**							
Weight lb	617	772	1036	1279	1918	3020	3549	4564

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	GRT-5S	GRT-8S	GRT-12S	GRT-18S	GRT-25S	GRT-35S	GRT-50S	GRT-70S
Capacity* MMBtu/h	3.0 - 14.8	4.5 - 23.1	7.6 - 37.9	11.4 - 56.8	16.7 - 83.3	22.0 - 109.8	31.8 - 159.0	47.7 - 238.6
Connections - gas, burner - oil, burner	NPT 2.5" NPT 1/2"	NPT 3" NPT 1/2"	ANSI 4" NPT 1/2"	ANSI 6" NPT 3/4"	ANSI 6" NPT 3/4"	ANSI 6" NPT 1"	ANSI 8" NPT 1"	ANSI 8" NPT 1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Steam/air atomizing							
Control unit	WD1000**							
Weight lb	661	904	1102	1367	2116	3263	3814	4806

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

Dimensions, S-Burners

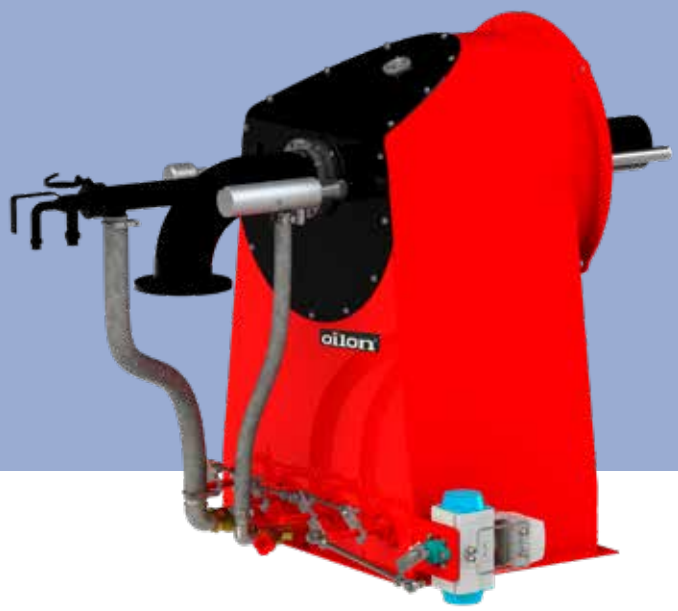


D066053

G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	F	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-5S	15.35	28.94	29.13	10.24	16.73	9.61	20.47	66.93	82.68	106.30
GT/RT/KT/GRT/GKT-8S	18.11	34.06	31.30	12.20	19.69	11.38	23.62	74.80	90.55	114.17
GT/RT/KT/GRT/GKT-12S	21.26	39.17	34.06	15.55	24.61	12.87	27.95	82.68	98.43	129.92
GT/RT/KT/GRT/GKT-18S	23.07	45.47	38.58	18.50	29.53	13.19	32.28	98.43	114.17	137.80
GT/RT/KT/GRT/GKT-25S	29.09	51.77	43.31	20.87	35.43	17.87	37.01	102.36	114.17	157.48
GT/RT/KT/GRT/GKT-35S	33.58	63.39	49.21	24.80	40.35	20.87	40.55	114.17	137.80	169.29
GT/RT/KT/GRT/GKT-50S	40.31	68.90	51.18	30.91	47.24	24.02	48.03	127.95	137.80	183.07
GT/RT/KT/GRT/GKT-70S	47.72	82.68	59.06	41.34	61.02	28.07	55.51	137.80	161.42	185.04

Dimensions in inches.

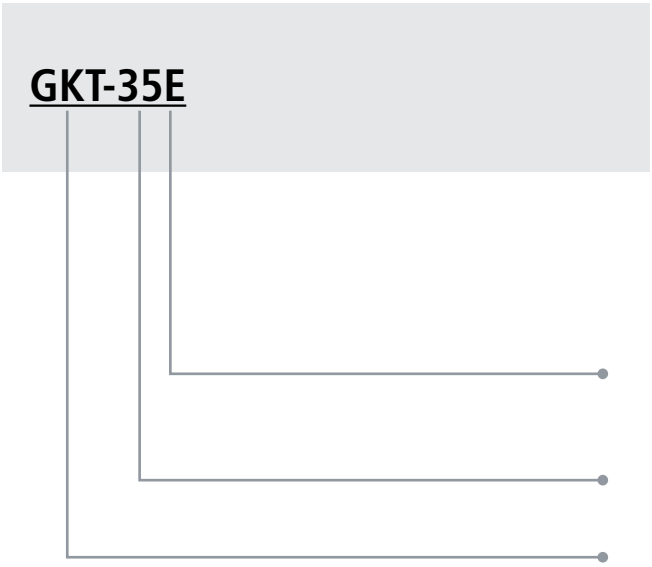


LITEX Burners

18.9 - 170.4 MMBtu/h

Unique design and optimized combustion air flows are combined in the shapes of Litex windbox. Litex is small and extremely light for it`s burner capacity. The combustion head refractory is a standard solution, steel combustion head is available as an option. Litex is primarily meant for water tube and fire tube boilers.

Type labeling, LITEX Burners



Burner type:
E = LITEX burner

Burner size

Fuel:
GT = Gas
GKT = Gas, light fuel oil
KT = Light fuel oil
RT = Heavy fuel oil
GRT = Gas, heavy fuel oil

GT/GKT/KT/RT/GRT-35E/45E, LITEX Burners

Technical Data, LITEX Burners

BURNER	GT-35E	GT-45E
Capacity* MMBtu/h	18.9 - 132.5	24.6 - 170.4
Connections - gas, burner	ANSI 6"	ANSI 6"
Pilot burner	GPB20	
Control unit	WD200**	
Weight lb	926	1345

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKT-35E	GKT-45E
Capacity* MMBtu/h - gas - oil	18.9 - 132.5 26.5 - 132.5	24.6 - 170.4 34.1 - 132.5
Connections - gas, burner - oil, burner	ANSI 6" NPT 1"	ANSI 6" NPT 1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Air atomizing	
Control unit	WD1000***	
Weight lb	1036	1698

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
***) Can be delivered with WD2000 as well.

BURNER	KT-35E	KT-45E
Capacity* MMBtu/h	26.5 - 132.5	34.1 - 132.5
Connections - oil, burner	NPT 1"	NPT 1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Air atomizing	
Control unit	WD1000***	
Weight lb	882	1301

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
***) Can be delivered with WD2000 as well.

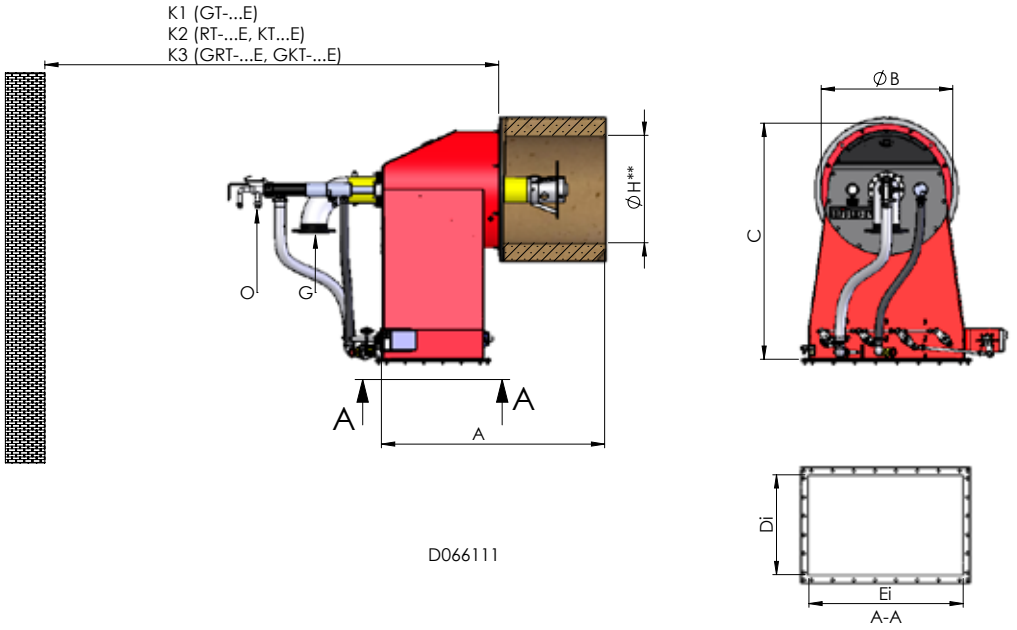
BURNER	RT-35E	RT-45E
Capacity* MMBtu/h	26.5 - 132.5	34.1 - 132.5
Connections - oil, burner	NPT 1"	NPT 1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Steam/air atomizing	
Control unit	WD1000***	
Weight lb	882	1301

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
***) Can be delivered with WD2000 as well.

BURNER	GRT-35E	GRT-45E
Capacity* MMBtu/h - gas - oil	18.9 - 132.5 26.5 - 132.5	24.6 - 170.4 34.1 - 132.5
Connections - gas, burner - oil, burner	ANSI 6" NPT 1"	ANSI 6" NPT 1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Steam/air atomizing	
Control unit	WD1000***	
Weight lb	1036	1764

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
***) Can be delivered with WD2000 as well.

Dimensions, LITEX Burners

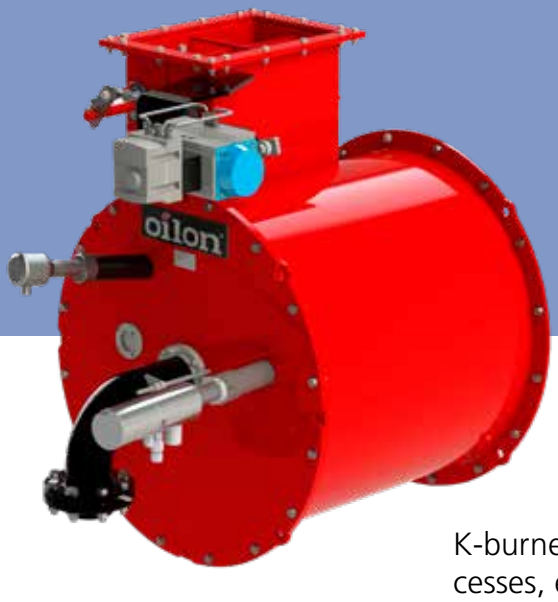


G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-35E	57.87	34.25	61.42	25.98	40.16	27.95	106.30	129.92	161.42
GT/RT/KT/GRT/GKT-45E	72.05	38.98	74.61	32.68	49.21	32.68	135.83	159.45	190.94

**) ØH = Combustion head inner diameter

Dimensions in inches.



K-Burners

1.9 - 117.4 MMBtu/h

K-burner is the right choice for many demanding industrial processes, e.g. for hazardous waste incineration. Despite of possible large fluctuations in furnace pressure and process conditions, the flame remains very stable resulting from tangential combustion air feeding and the optimized air registers. The burner construction is designed for heavy duty operation to guarantee high availability in extreme conditions.

Type labeling, K-Burners

GKT-35K

Burner type:
K = K-burners

Burner size

Fuel:
GT = Gas
GKT = Gas, light fuel oil
KT = Light fuel oil
RT = Heavy fuel oil
GRT = Gas, heavy fuel oil

GT/GKT/KT/RT/GRT-3K...35K, K-Burners

Technical Data, K-Burners

BURNER	GT-3K	GT-5K	GT-8K	GT-12K	GT-18K	GT-25K	GT-35K
Capacity* MMBtu/h	1.9 - 10.2	3.4 - 17.0	5.3 - 26.5	26.5 - 41.7	12.1 - 60.6	16.7 - 83.3	23.5 - 117.4
Connections - gas, burner	NPT 2.5"	NPT 2.5"	NPT 3"	NPT 3"	ANSI 4"	ANSI 6"	ANSI 6"
Pilot burner	GPB20						
Control unit	WD200**						
Weight lb	397	485	639	860	1191	1521	2249

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKT-3K	GKT-5K	GKT-8K	GKT-12K	GKT-18K	GKT-25K	GKT-35K
Capacity* MMBtu/h	1.9 - 10.2	3.4 - 17.0	5.3 - 26.5	8.3 - 41.7	12.1 - 60.6	16.7 - 83.3	23.5 - 117.4
Connections - gas, burner - oil, burner	NPT 2.5" NPT 1/2"	NPT 2.5" NPT 1/2"	NPT 3" NPT 1/2"	NPT 3" NPT 1/2"	ANSI 4" NPT 3/4"	ANSI 6" NPT 3/4"	ANSI 6" NPT 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Air atomizing						
Control unit	WD1000**						
Weight lb	419	507	661	926	1235	1587	2337

*) Valid, when combustion air temperature is +95 °F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	KT-3K	KT-5K	KT-8K	KT-12K	KT-18K	KT-25K	KT-35K
Capacity* MMBtu/h	1.9 - 10.1	3.4 - 17.0	5.3 - 26.5	8.3 - 41.7	12.1 - 60.6	16.7 - 83.3	23.5 - 117.4
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 3/4"	NPT 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Air atomizing						
Control unit	WD1000**						
Weight lb	397	485	639	860	1168	1499	2183

*) Valid, when combustion air temperature is +95 ˚F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

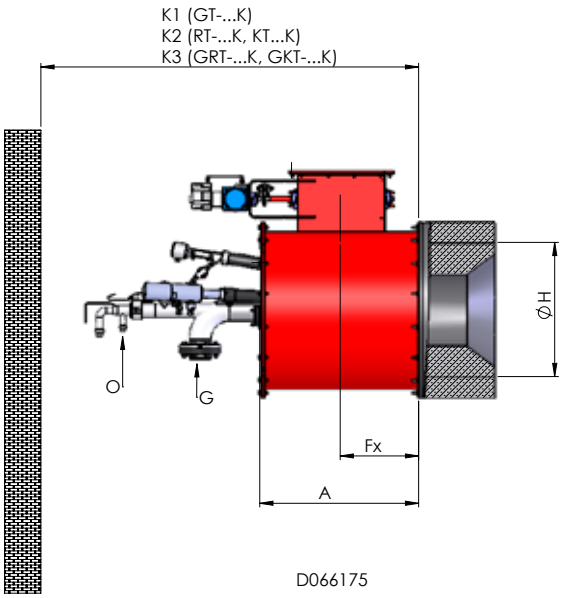
BURNER	RT-3K	RT-5K	RT-8K	RT-12K	RT-18K	RT-25K	RT-35K
Capacity* MMBtu/h	1.9 - 10.2	3.4 - 17.0	5.3 - 26.5	8.3 41.7	12.1 - 60.6	16.7 - 83.3	23.5 - 117.4
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 3/4"	NPT 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000**						
Weight lb	397	485	639	860	1168	1499	2183

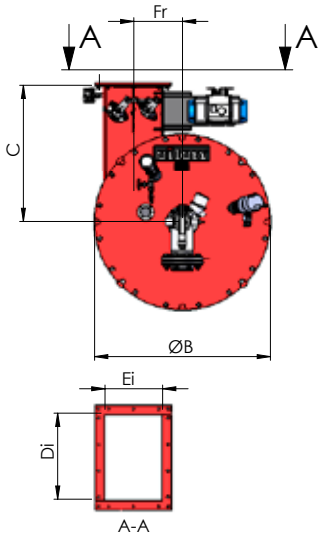
*) Valid, when combustion air temperature is +95 ˚F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	GRT-3K	GRT-5K	GRT-8K	GRT-12K	GRT-18K	GRT-25K	GRT-35K
Capacity* MMBtu/h	1.9 - 10.2	3.4 - 17.0	5.3 - 26.5	8.3 - 41.7	12.1 - 60.6	16.7 - 83.3	23.5 - 117.4
Connections - gas, burner - oil, burner	NPT 2.5" NPT 1/2"	NPT 2.5" NPT 1/2"	NPT 3" NPT 1/2"	NPT 3" NPT 1/2"	ANSI 4" NPT 3/4"	ANSI 6" NPT 3/4"	ANSI 6" NPT 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000**						
Weight lb	419	507	661	926	1235	1587	2337

*) Valid, when combustion air temperature is +95 ˚F, λ = 1,17 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

Dimensions, K-Burners

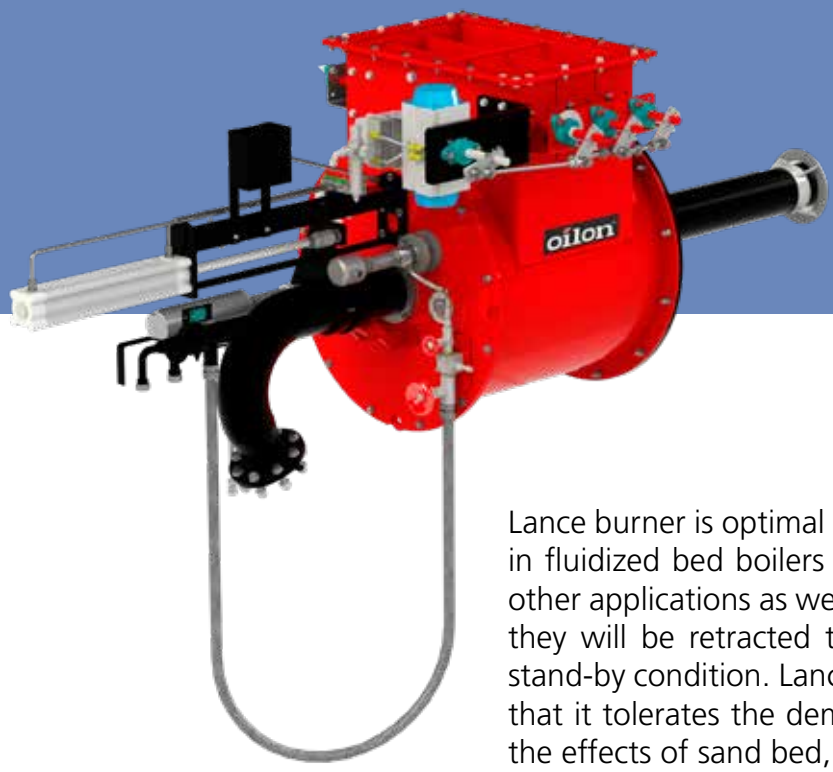




G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	Fx	Fr	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-3K	16.93	20.47	20.47	9.06	6.10	8.27	5.04	19.69	80.71	94.49	114.17
GT/RT/KT/GRT/GKT-5K	21.65	25.20	22.83	11.61	7.48	10.63	6.69	22.83	84.65	98.43	122.05
GT/RT/KT/GRT/GKT-8K	27.17	30.71	27.95	14.76	9.84	13.39	8.27	26.38	94.49	106.30	129.92
GT/RT/KT/GRT/GKT-12K	33.07	36.61	28.54	17.91	12.01	16.34	10.16	30.31	110.24	116.14	139.76
GT/RT/KT/GRT/GKT-18K	40.16	43.70	32.09	21.85	14.57	19.88	8.46	35.43	125.98	137.80	169.29
GT/RT/KT/GRT/GKT-25K	47.24	50.79	35.63	26.57	17.72	23.43	14.37	40.55	145.67	153.54	192.91
GT/RT/KT/GRT/GKT-35K	55.51	59.45	41.34	32.28	21.26	27.56	16.93	46.06	161.42	177.17	216.54

Dimensions in inches.

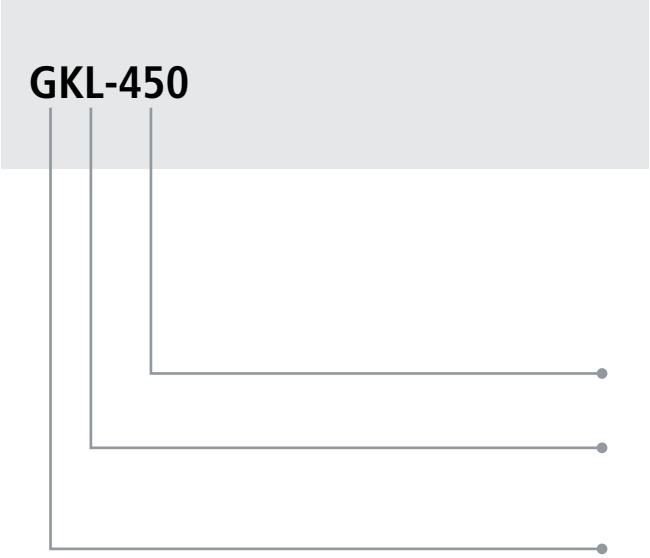


Lance Burners

5.7 - 219.6 MMBtu/h

Lance burner is optimal solution as a start-up and support burner in fluidized bed boilers and grate boilers, but can be utilized in other applications as well. For protecting the critical burner parts, they will be retracted to back position, when the burner is in stand-by condition. Lance burner is designed and constructed so, that it tolerates the demanding furnace conditions, for example the effects of sand bed, ash and particles.

Type labeling, Lance Burners



Burner size

Burner type:
L = Lance burner

Fuel:
GL = Gas
GKL = Gas, light fuel oil
KL = Light fuel oil
RL = Heavy fuel oil
GRL = Gas, heavy fuel oil

GL/GKL/KL/RL/GRL-250...750, Lance Burners

Technical Data, Lance Burners

BURNER	GL-250	GL-350	GL-450	GL-550	GL-650	GL-750
Capacity MMBtu/h *	5.7 - 23.1	11.7 - 47.3	20.1 - 79.5	29.5 - 117.4	43.5 - 174.2	54.9 - 219.6
Connections - gas, burner	NPT 2.5”	NPT 3”	ANSI 6”	ANSI 6”	ANSI 8”	ANSI 8”
Pilot burner	GPB20					
Control unit	WD200**					
Weight lb	551	772	970	1168	1543	2116

*) Valid when combustion air temperature is +95 °F, λ=0.8 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKL-250	GKL-350	GKL-450	GKL-550	GKL-650	GKL-750
Capacity MMBtu/h *	5.7 - 23.1	11.7 - 47.3	20.1 - 79.5	29.5 - 117.4	43.5 - 174.2	54.9 - 219.6
Connections - gas, burner - oil, burner	NPT 2.5” NPT 1/2"	NPT 3” NPT 1/2"	ANSI 6” NPT 3/4"	ANSI 6” NPT 1"	ANSI 8” NPT 1"	ANSI 8” NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight lb	551	728	1102	1235	1587	2161

*) Valid when combustion air temperature is +95 °F, λ=0.8 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	KL-250	KL-350	KL-450	KL-550	KL-650	KL-750
Capacity MMBtu/h *	5.7 - 23.1	11.7 - 47.3	20.1 - 79.5	29.5 - 117.4	43.5 - 174.2	54.9 - 219.6
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 1"	NPT 1"	NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight lb	529	706	926	1102	1433	1984

*) Valid when combustion air temperature is +95 °F, λ=0.8 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

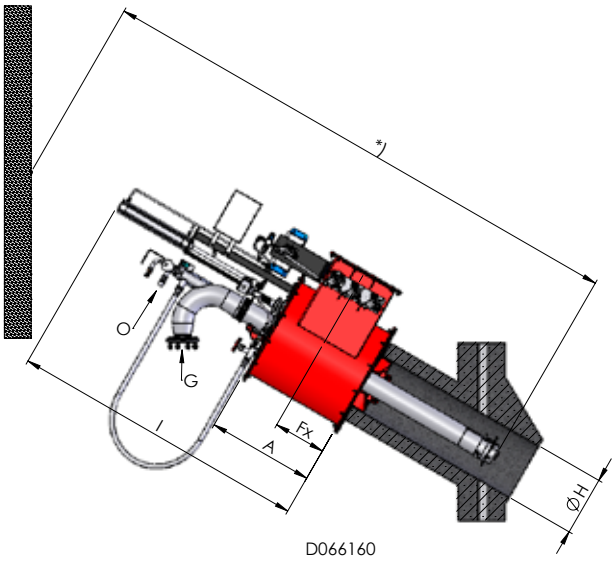
BURNER	RL-250	RL-350	RL-450	RL-550	RL-650	RL-750
Capacity MMBtu/h *	5.7 - 23.1	11.7 - 47.3	20.1 - 79.5	29.5 - 117.4	43.5 - 174.2	54.9 - 219.6
Connections - oil, burner	NPT 1/2"	NPT 1/2"	NPT 3/4"	NPT 1"	NPT 1"	NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000**					
Weight lb	529	706	926	1102	1433	1984

*) Valid when combustion air temperature is +95 °F, λ=0.8 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

BURNER	GRL-250	GRL-350	GRL-450	GRL-550	GRL-650	GRL-750
Capacity MMBtu/h *	5.7 - 23.1	11.7 - 47.3	20.1 - 79.5	29.5 - 117.4	43.5 - 174.2	54.9 - 219.6
Connections - gas, burner - oil, burner	NPT 2.5" NPT 1/2"	NPT 3" NPT 1/2"	ANSI 6" NPT 3/4"	ANSI 6" NPT 1"	ANSI 8" NPT 1"	ANSI 8" NPT 1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000**					
Weight lb	551	728	1102	1235	1587	2161

*) Valid when combustion air temperature is +95 °F, λ=0.8 and ambient air pressure 14.7 PSI.
**) Can be delivered with WD2000 as well.

Dimensions, Lance Burners



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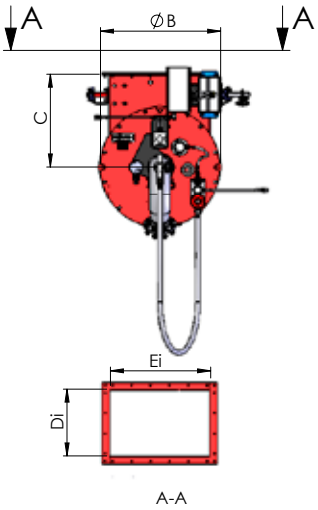


A-A

G = Gas inlet
O = Oil inlet/return
* = Service space case by case

BURNER	A	ØB	C	Di	Ei	Fx	ØH	I
GL/GKL/KL/RL/GRL-250	21.65	21.65	20.28	9.84	14.76	10.63	9.84	63.11
GL/RL/KL/GRL/GKL-350	22.83	25.98	22.24	14.57	21.85	11.02	13.78	63.90
GL/GKL/KL/RL/GRL-450	28.35	31.89	24.61	17.72	26.57	13.98	17.72	78.03
GL/GKL/KL/RL/GRL-550	32.28	37.80	27.36	21.26	32.28	15.94	21.65	81.97
GL/GKL/KL/RL/GRL-650	39.57	47.64	37.40	25.20	38.98	19.69	25.59	89.84
GL/GKL/KL/RL/GRL-750	45.67	57.09	29.53	29.13	46.46	22.64	29.53	96.46

Dimensions in inches.

Scope of delivery S-, LITEX, K- and Lance Burners

	S	K	LITEX	LANCE
Electric actuator, combustion air damper	•	•	•	•
Pressure switch, combustion air	•	•	•	•
Main flame detector, self checking	•	•	•	•
Gas pilot burner with integrated transformer	•	•	•	•
Flame detector integrated in gas pilot burner	•	•	•	•
Retraction of pilot burner, incl. limit switches	-	-	-	•
Limit switch, liquid lance coupled*	•	•	•	•
Steel hose, liquid fuel*	•	•	•	•
Steel hose, atomizing medium*	•	•	•	•
Steel hose, ignition gas	•	•	•	•
Steel hose, ignition air	•	•	•	•
Sight glass	•	•	•	•
Air duct counter flange	•	•	•	•
Gasket, boiler/burner connection	•	•	•	•
Gasket, air duct/burner connection	•	•	•	•
Integrated cooling air supply for components***	•	•	•	•
Operation and maintenance manual	•	•	•	•

• Standard o Option

* in liquid fuel burners
** in gas burners
*** possible, when combustion air temperature is < 122°F

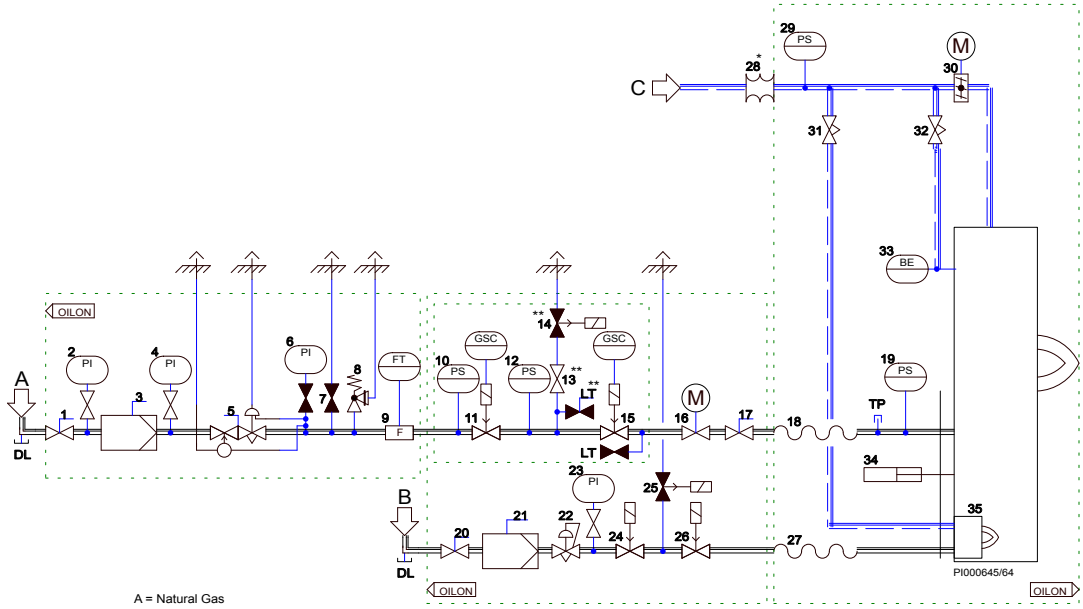
Options, S-, LITEX, K- and Lance Burners

	S	K	LITEX	LANCE
Pneumatic actuator, combustion air damper	o	o	o	o
Light fuel oil pilot burner	o	o	o	o
Retraction of pilot burner, incl. limit switches	o	o	-	-
Electric igniter, incl. own retraction and limit switches	o	o	o	o
Steel hose, main gas**	o	o	o	o
Boiler flange	o	o	o	o
Cooling air from instrument/plant air	o	o	o	o
Gas ring	o	o	-	-
Dual / Triple gas lance	o	o	-	o
Dual liquid fuel lance	o	o	o	o
Simultaneous combustion	o	o	o	o
Hazardous area classification	o	o	o	o
SIL 2 components	o	o	o	o
SIL 3 components	o	o	o	o
FGR	o	o	o	o

• Standard o Option
** in gas burners

PI Diagrams, S-, LITEX, K- and Lance Burners

GAS, POSITION CONTROL



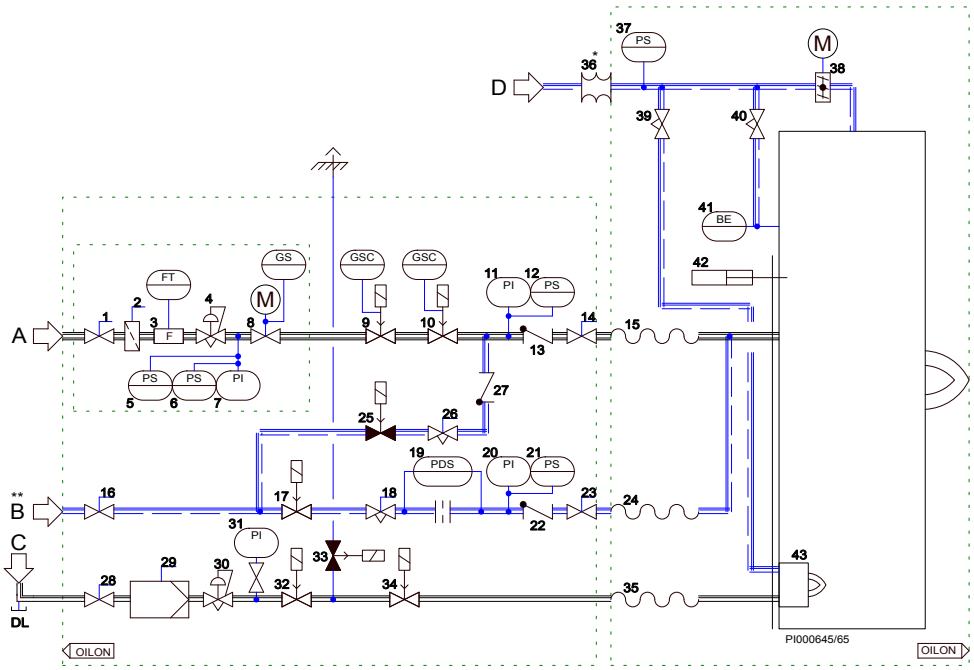
1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Pressure regulator with safety shut-off valve
6. Pressure gauge
7. Manual vent valve
8. Safety relief valve
9. Flow meter (optional)
10. Pressure switch (low)
11. Safety shut-off valve (NC)
12. Pressure switch for listed automatic valve-proving system
13. Manual shut-off valve (locked or sealed open)**
14. Automatic vent valve (NO)**
15. Safety shut-off valve (NC)
16. Gas control valve
17. Manual shut-off valve
18. Flexible hose
19. Pressure switch (high)
20. Manual shut-off valve
21. Gas filter
22. Pressure regulator
23. Pressure gauge
24. Safety shut-off valve (NC)
25. Automatic vent valve (NO)
26. Safety shut-off valve (NC)
27. Flexible hose
28. Bellows*
29. Pressure switch (low)
30. Combustion air control damper
31. Manual control valve
32. Manual control valve
33. Flame detector
34. Retraction (optional for oil lance and pilot burner, instrument air needed for pneumatic cylinder)
35. Pilot burner with flame detector

DL = Drip leg (not in Oilon scope of supply)
TP = Test point (In standard solution integrated to pressure switch)
LT = Leakage test connection
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

* = The part is necessary. Not in Oilon scope of supply
** = Optional for valve proving system

A = Natural Gas
B = Ignition Gas
C = Combustion Air

LIGHT FUEL OIL, POSITION CONTROL



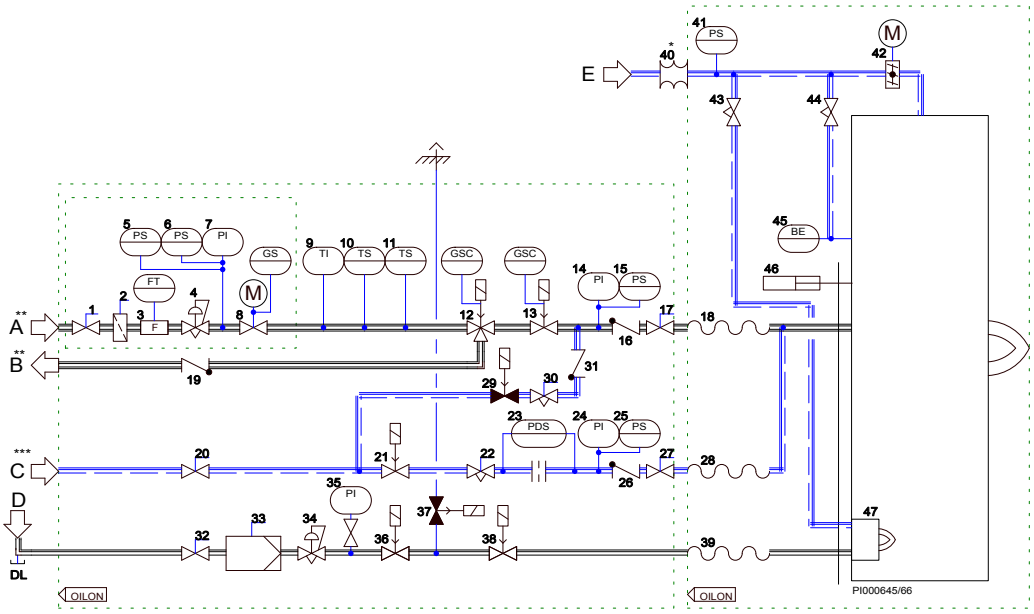
1. Manual shut-off valve
2. Oil strainer
3. Flow meter (optional)
4. Pressure regulator
5. Pressure switch (low)
6. Pressure switch (high)
7. Pressure gauge
8. Oil control valve with low fire start switch
9. Safety shut-off valve (NC)
10. Safety shut-off valve (NC)
11. Pressure gauge
12. Pressure switch (high)
13. Non-return valve
14. Manual shut-off valve
15. Flexible hose
16. Manual shut-off valve
17. Safety shut-off valve (NC)
18. Manual control valve
19. Differential pressure switch (low)
20. Pressure gauge
21. Pressure switch (low)
22. Non-return valve
23. Manual shut-off valve
24. Flexible hose
25. Safety shut-off valve (NC)
26. Manual control valve
27. Non-return valve
28. Manual shut-off valve
29. Gas filter
30. Pressure regulator
31. Pressure gauge
32. Safety shut-off valve (NC)
33. Automatic vent valve (NO)
34. Safety shut-off valve (NC)
35. Flexible hose
36. Bellows*
37. Pressure switch (low)
38. Combustion air control damper
39. Manual control valve
40. Manual control valve
41. Flame detector
42. Retraction (optional for oil lance
and pilot burner, instrument air needed
for pneumatic cylinder)
43. Pilot burner with flame detector

DL = Drip leg
(not in Oilon scope of supply)
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

A = Light Fuel Oil
B = Atomizing Medium (Constant pressure required)
C = Ignition Gas
D = Combustion Air

* = The part is necessary. Not in Oilon scope of supply
** = Insulation of atomizing steam line. Not in Oilon scope of supply

HEAVY FUEL OIL, POSITION CONTROL



1. Manual shut-off valve
2. Oil strainer
3. Flow meter (optional)
4. Pressure regulator
5. Pressure switch (low)
6. Pressure switch (high)
7. Pressure gauge
8. Oil control valve with low fire start switch
9. Temperature gauge
10. Temperature switch (high)
11. Temperature switch (low)
12. Safety shut-off valve (NC) with oil recirculation
13. Safety shut-off valve (NC)
14. Pressure gauge
15. Pressure switch (high)
16. Non-return valve
17. Manual shut-off valve
18. Flexible hose
19. Non-return valve
20. Manual shut-off valve
21. Safety shut-off valve (NC)
22. Manual control valve
23. Differential pressure switch (low)
24. Pressure gauge
25. Pressure switch (low)
26. Non-return valve
27. Manual shut-off valve
28. Flexible hose
29. Shutt-off valve, NC
30. Manual control valve
31. Non-return valve
32. Manual shut-off valve
33. Gas filter
34. Pressure regulator
35. Pressure gauge
36. Safety shut-off valve (NC)
37. Automatic vent valve (NO)
38. Safety shut-off valve (NC)
39. Flexible hose
40. Bellows*
41. Pressure switch (low)
42. Combustion air control damper
43. Manual control valve
44. Manual control valve
45. Flame detector
46. Retraction (optional for oil lance and pilot burner, instrument air needed for pneumatic cylinder)
47. Pilot burner with flame detector

DL = Drip leg (not in Oilon scope of supply)
GSC = Proof of closure switch
NO = Normally open
NC = Normally closed

* = The part is necessary. Not in Oilon scope of sup
** = Trace heating
of oil line. Not in Oilon scope of supply
*** = Insulation of atomizing steam line. Not in Oilon scope of supply

A = Heavy Fuel Oil supply
B = Heavy Fuel Oil return
C = Atomizing Medium (Constant pressure required)
D = Ignition Gas
E = Combustion Air

Valve units for S-, LITEX, K- and Lance Burners

Type labeling, Control valve units

YXXCVU

Fuel
K=light fuel oil
R=heavy fuel oil
G=natural gas

Pipe size (DN)
For light and heavy fuel oil

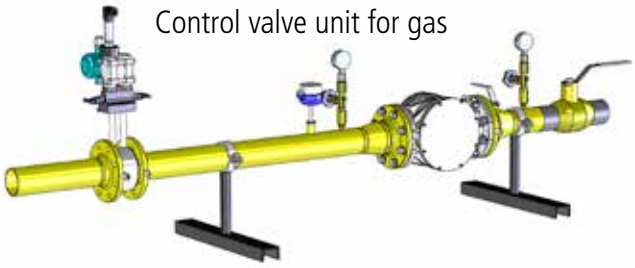
15	< 264.2 gal/h
20	264.2 - 528.3 gal/h
25	528.3 - 1122.7 gal/h
32	1122.7 - 1981.3 gal/h

For natural gas
40, 50, 65, 80,100, 125,150
(gas amount will be
determined case by case)

Control valve unit

Control valve unit for oil

Control valve unit for gas



Type labeling, Shut-off valve units

YXXSVU

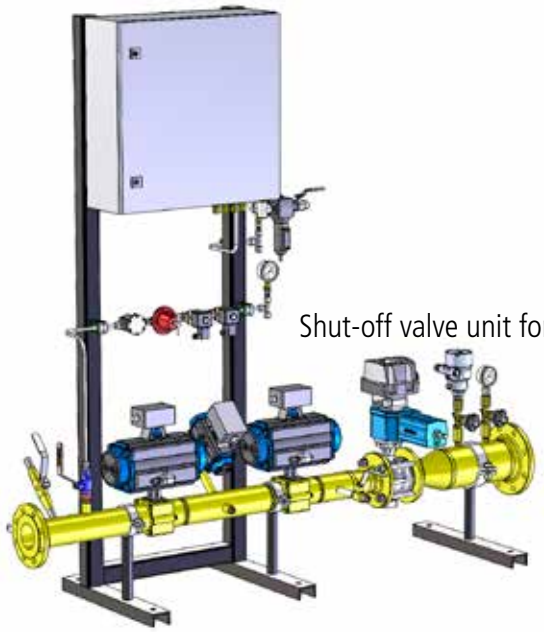
Fuel
K=light fuel oil
R=heavy fuel oil
G=natural gas

Pipe size (DN)
For light and heavy fuel oil

15	< 264.2 gal/h
20	264.2 - 528.3 gal/h
25	528.3 - 1122.7 gal/h
32	1122.7 - 1981.3 gal/h

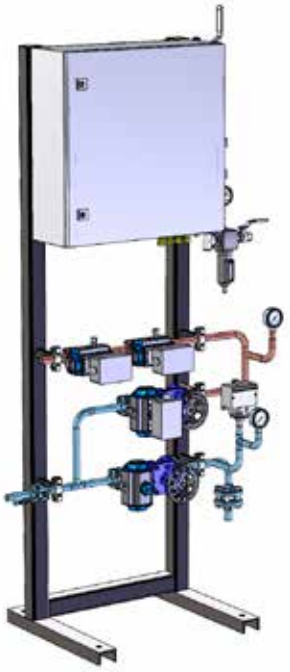
For natural gas
40, 50, 65, 80,100, 125,150
(gas amount will be
determined case by case)

Shut-off valve unit



Shut-off valve unit for gas

Shut-off valve unit
for oil



Type labeling, valve units

Control and shut-off valve units are integrated as one unit

YXXVU

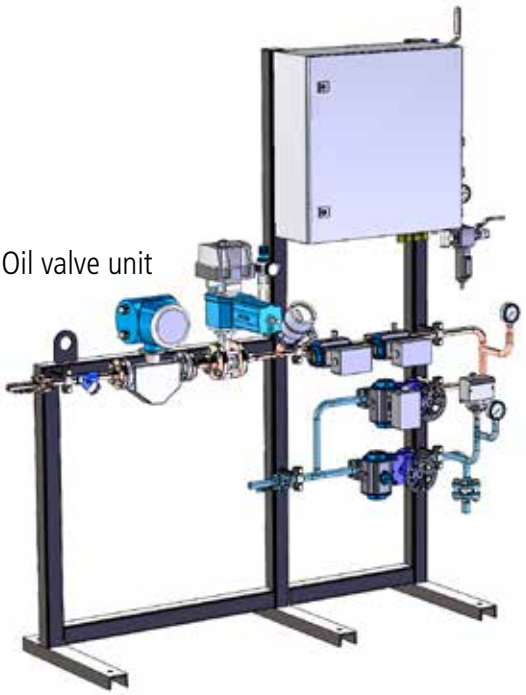
Fuel
K=light fuel oil
R=heavy fuel oil
G=natural gas

Pipe size (DN)
For light and heavy fuel oil

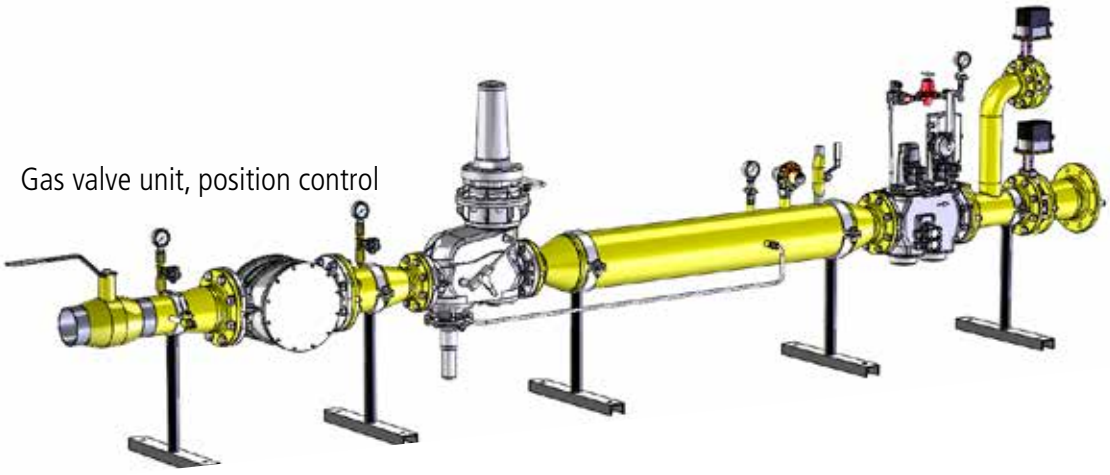
15	< 264.2 gal/h
20	264.2 - 528.3 gal/h
25	528.3 - 1122.7 gal/h
32	1122.7 - 1981.3 gal/h

For natural gas
40, 50, 65, 80,100, 125,150
(gas amount will be determined case by case)

Valve unit



Oil valve unit



Gas valve unit, position control

Accessories

Accessories

Combustion air fan

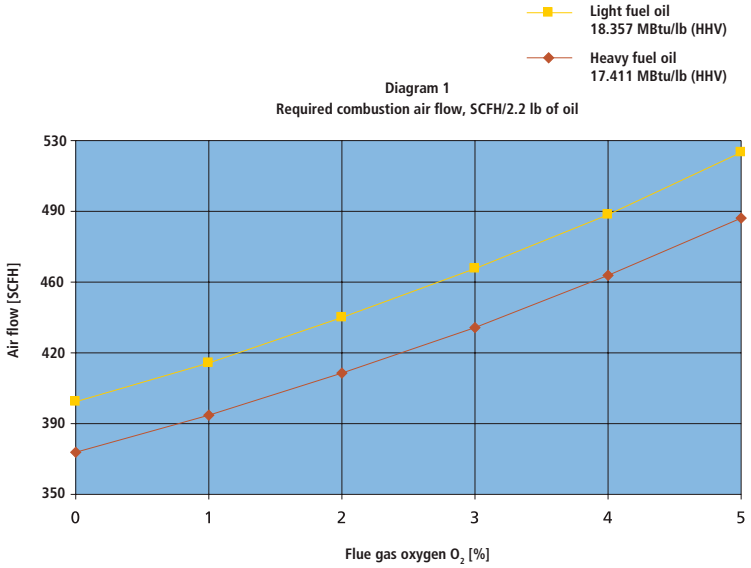
Duoblock burner requires a separate combustion air fan.

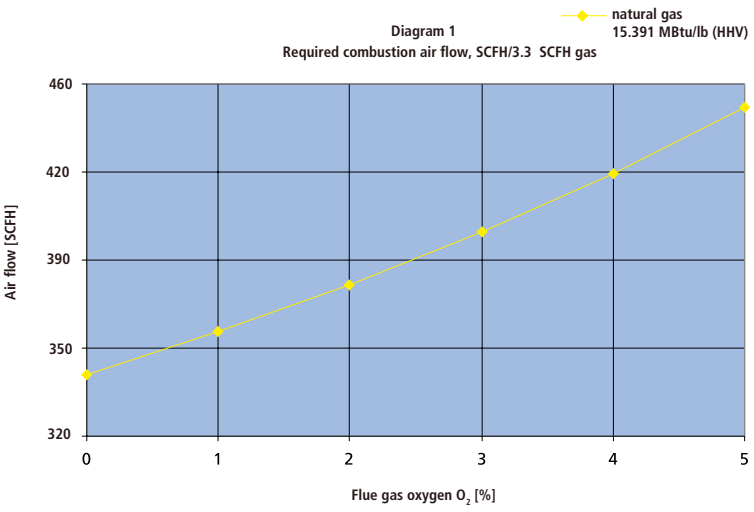
Scope of delivery:
- electric motor
- flexible connector, pressurized side
- 2 connector flanges
- vibration dampers

Optional:
- suction and pressure side noise silencer
- silencer for the entire fan
- temperature and pressure sensor

Required combustion air flow

Diagrams 1 and 2 indicate the required combustion air flow for each kilogram of oil or nominal cubic meter of natural gas.



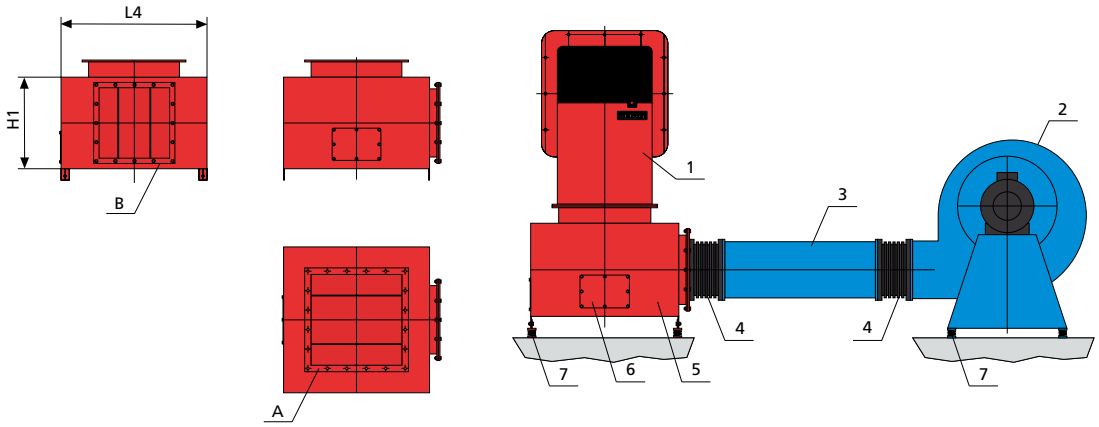


Air distribution

The air duct to be connected with the burner should run directly from below the burner, and it should be straight for a distance of no less than 5 times channel characteristic diameter before the burner.

If the duct cannot be installed as instructed above, an air distribution box should be used.

Air distribution box for ME burners



BURNER	H1	L4
400/600	11.02	31.50
800	11.02	35.43
1000	17.32	35.43
1200	17.32	35.43
1600	21.65	44.49
2000	21.65	44.49

The dimensions H1 and L4 are recommended minimum values.

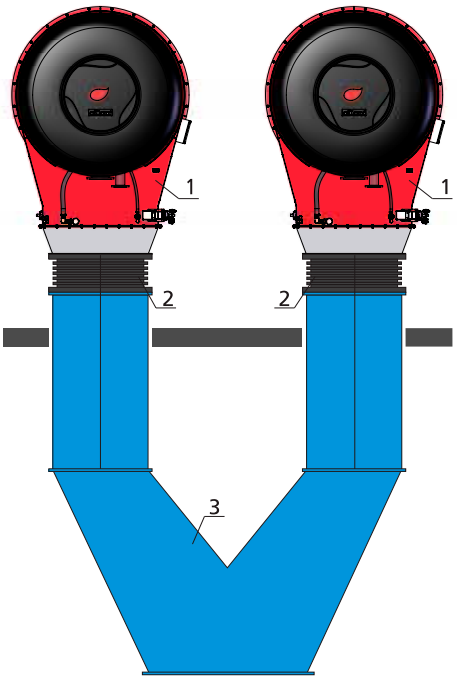
A. To be dimensioned according to the air duct of the burner.
B. To be dimensioned as ordered.

1. Burner
2. Fan
3. Air duct
4. Bellows (not necessary at both ends)
5. Air distribution box
6. Maintenance hatch
7. Vibration damper

Dimensions in inches.

Maximum allowed combustion air flow profile difference is +/- 10 % in the burner inlet connection flange. Extreme care should be followed in multiburner configurations, where it is crucial to confirm that every burner is able to have same air amount.

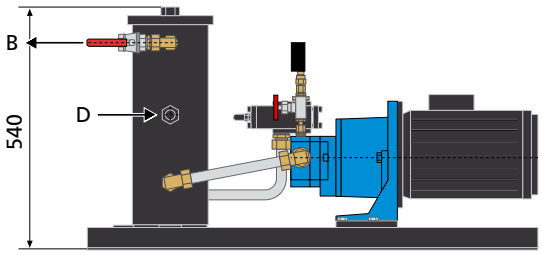
Example of the air duct to two burners

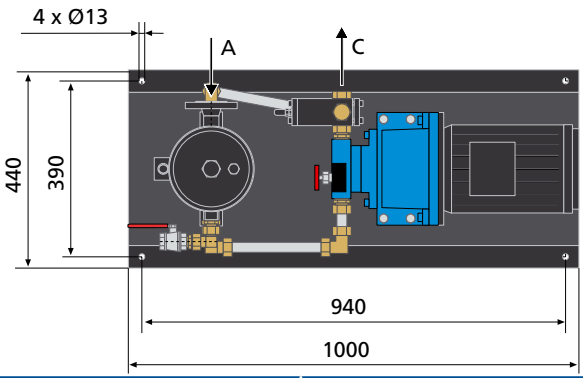


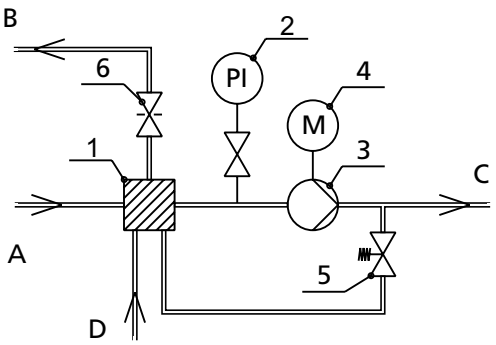
1. Burner
2. Bellows (not necessary at both ends)
3. Air duct

Booster unit PKYK 2...5 for light fuel oil

The booster unit lends itself for pumping light fuel oil with viscosity of 0.0062...0.0186 in²/s, 68 °F. The oil coming to the booster unit must be filtered, max. filtratio degree = 400 µm.







1. Oil filter
2. Pressure gauge
3. Oil pump
4. Electric motor
5. Pressure regulating valve
6. Drilled ball valve

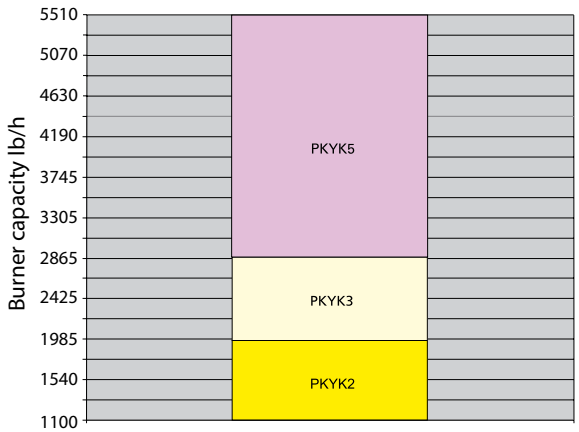
A. Inlet to the booster unit DN25, 14,50...72.5189 PSI 0.0062...0.0186 in²/s
B. Return from the booster unit R 1/2"
C. Inlet to the burner Ø 0.866
D. Return from the burner Ø 0.866

BOOSTER UNIT	Motor 400 V/60 Hz MMBtu/h	r/min	Oil pump Type	Pump output 0.019 in²/s 363 PSI gal/h
PKYK 2	15.15	3000	T4 C	615.4
PKYK 3	15.15	3000	T5 C	901.3
PKYK 5	20.83	3000	AFI40R54	1709.3

The output has been calculated using a density of 200,7 lb/ft² for the heavy fuel oil.

Diagram 3

Selection of the booster unit for light fuel oil

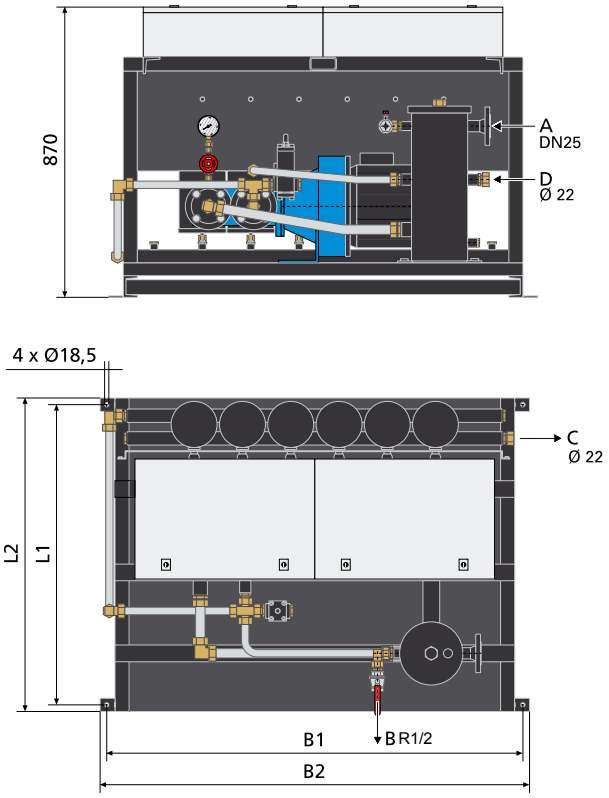


Only valid for spill back nozzle.

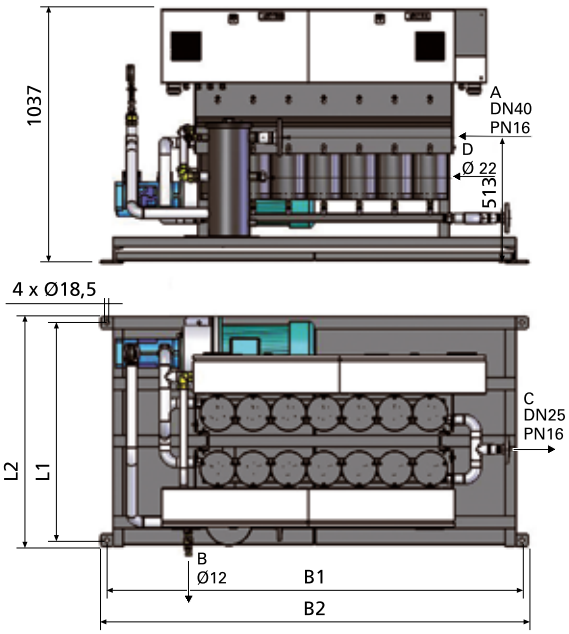
PKYK booster units may be selected using the diagram 3.

Booster unit PKYR 1...8 for heavy fuel oil

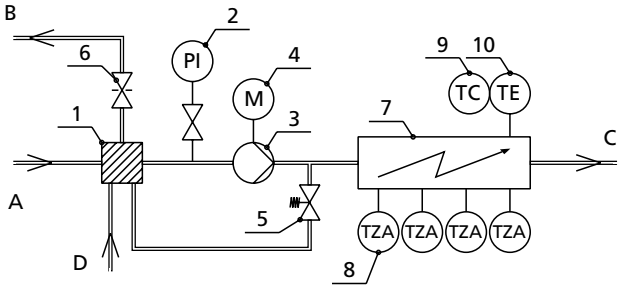
The booster unit lends itself for pumping and heating heavy fuel oil with a maximum viscosity of 1 in²/s, 122 °F. The oil coming to the booster unit must be filtered, max. filtration degree = 400 µm.



PKYR 1...6



PKYR 7...8



1. Oil filter
2. Pressure gauge
3. Oil pump
4. Electric motor
5. Pressure regulating valve
6. Drilled ball valve
7. Preheater
8. Limit thermostat
9. Temperature regulator and lower limit thermostat
10. Temperature sensor

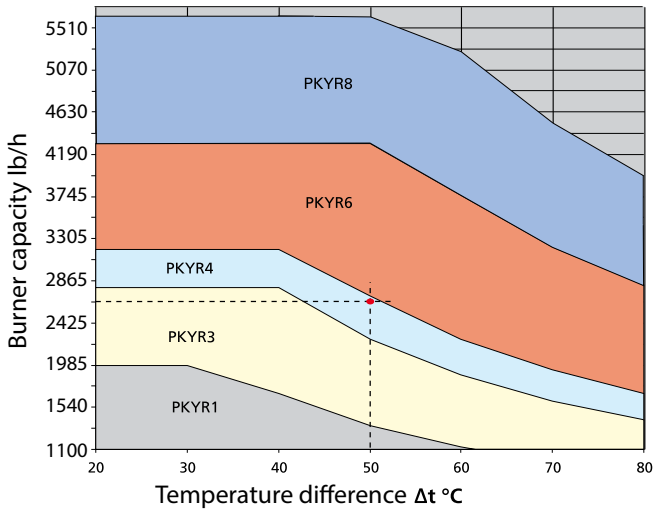
A. Inlet to the booster unit 43.50 …72.50 PSI 0.0062...0.1085 in²/s
B. Return from the booster unit
C. Inlet to the burner
D. Return from the burner

Booster unit	L1	L2	B1	B2
PKYR 1	33.07	34.65	32.09	33.66
PKYR 3	33.07	34.65	32.09	33.66
PKYR 4	35.43	37.01	49.21	50.79
PKYR 6	35.43	37.01	60.63	62.20
PKYR 8	35.04	37.01	66.93	68.90

Dimensions in inches.

Diagram 4

Selection of the booster unit for light fuel oil



Only valid for spill back nozzle.

Booster unit	Heat exchanger 400 V/60 Hz MMBtu/h	Motor 400 V/60 Hz MMBtu/h	r/min	Oil pump Type	Pump output 0.019 in2/s 10046 "WC gal/h
PKYR 1	68.18	11.36	3000	AFI20R46	547.2
PKYR 3	113.60	15.15	3000	AFI20R56	776.3
PKYR 4	136.32	20.83	3000	AFI40R38	884.2
PKYR 6	227.21	20.83	3000	AFI40R46	1194.2
PKYR 8	318.09	28.40	3000	AFI40R54	1482.6

The output has been calculated using a density of 200,7 lb/ft^2 for the heavy fuel oil.

PKYR booster units may be selected using the diagram 4.

Scope of delivery

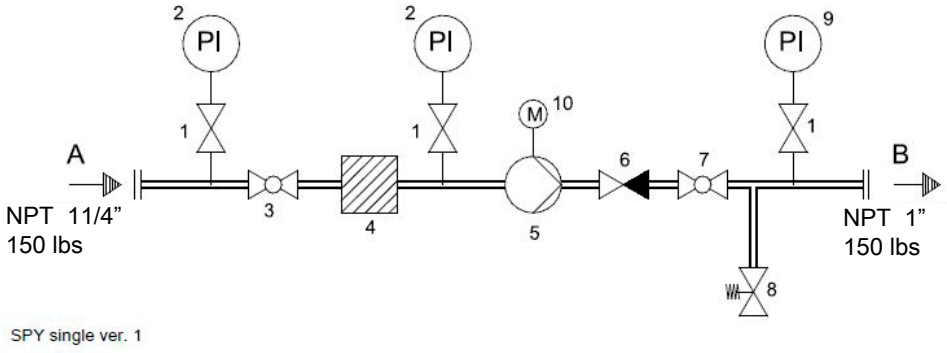
Booster units include following equipment:

	PKYK	PKYR
Oil filter	•	•
Pressure gauge	•	•
Oil pump	•	•
Electric motor	•	•
Pressure regulating valve	•	•
Drilled ball valve	•	•
Preheater		•
Limiter thermostats		•
Temperature regulator and lower limit thermostat		•
Temperature sensor		•
Trace heating of the piping		o
Pressure gauge for monitoring oil inlet pressure	o	o
Pressure switch	o	o
Operation and maintenance manual	•	•

• standard delivery o optional

Transfer pump unit SPY

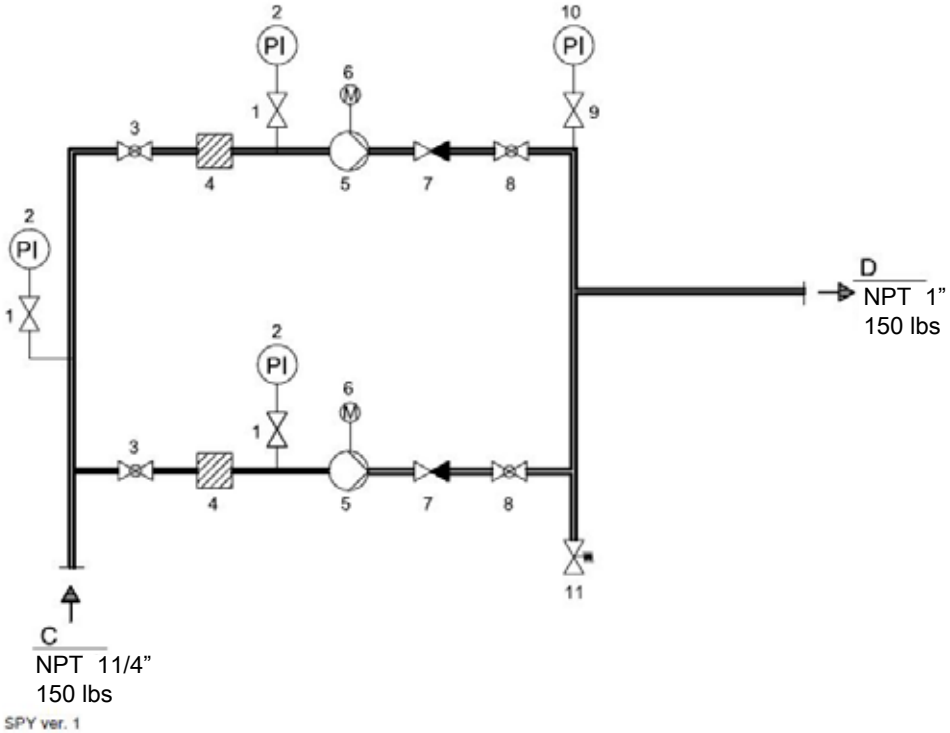
SPY-500-I...3000-I single pump unit for light fuel oil



1. Ball valve
2. Pressure gauge
3. Ball valve
4. Filter
5. Oil pump
6. Non-return valve
7. Ball valve
8. Control valve
9. Pressure gauge
10. Electric motor

A Oil suction
B Oil to burner

SPY-500...3000-II dual pump unit for light fuel oil



1. Ball valve
2. Pressure gauge
3. Ball valve
4. Filter
5. Oil pump
6. Electric motor
7. Non-return valve
8. Ball valve
9. Ball valve
10. Pressure gauge
11. Control valve

C Oil suction
D Oil to burner

SPY delivery includes:

- oil filter
- oil pump « Allweiler » with electric motor
- pressure gauge
- separate overflow valve

Single pump unit	Dual pump unit	Pump capacity gal/h at 58 psi 0.0095 in2/s / 38°F
TYPE	**TYPE**	
SPY-500-I	SPY-500-II	208.2
SPY-800-I	SPY-800-II	292.1
SPY-1350-I	SPY-1350-II	453.8
SPY-2000-I	SPY-2000-II	658.9
SPY-2500-I	SPY-2500-II	832.9
SPY-3000-I	SPY-3000-II	1010.1

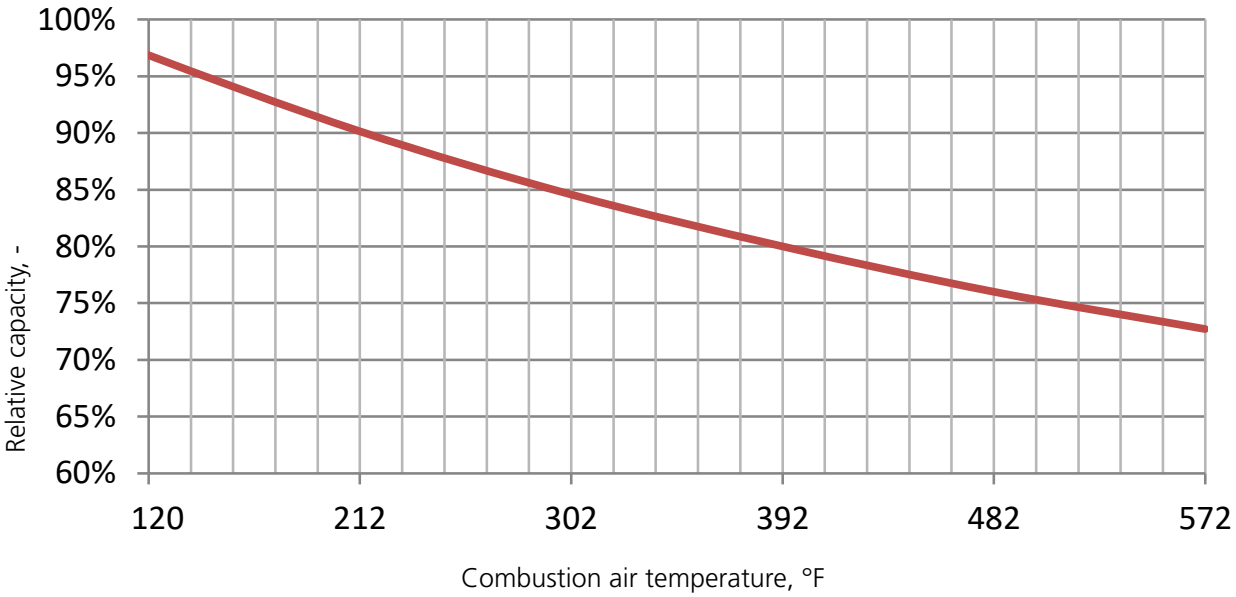
Pumping unit for light oil with separate overflow valve

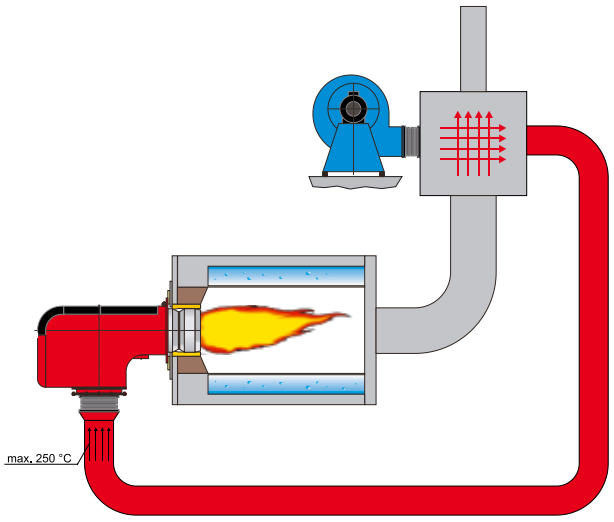
Burners for preheated combustion air

By using preheated combustion air, the overall efficiency rate of the plant improves remarkably. Preheated combustion air can be used up to the temperature of +572 °F (ME burner 482 °F).

When a burner is built to use preheated combustion air, its electric and mechanical parts are to be protected from heat. The burners may use combustion air of up to 122 °F without modification.

Combustion air temperature effect on burner capacity



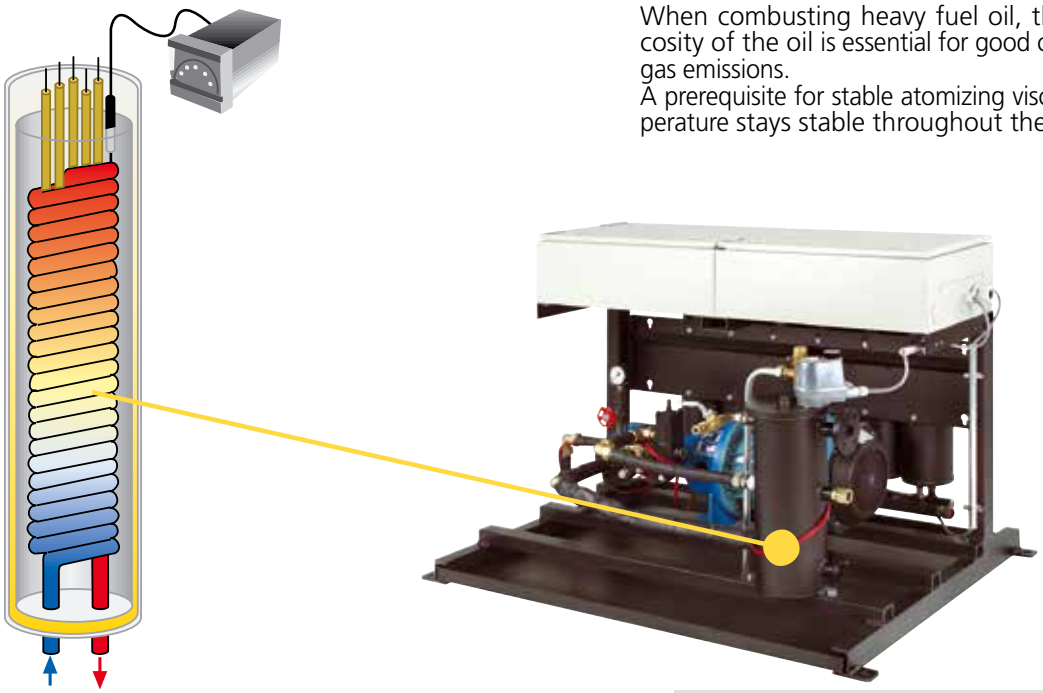


Schematic drawing of the principle of a plant using preheated combustion air.

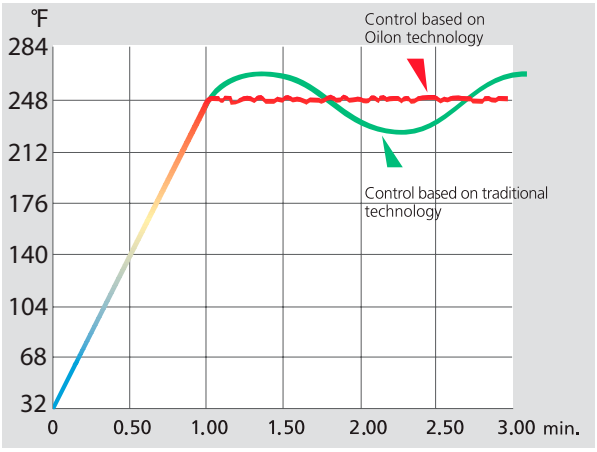
Oil preheater

Accurate temperature control guarantees good combustion

When combusting heavy fuel oil, the right atomizing viscosity of the oil is essential for good combustion and low flue gas emissions.
A prerequisite for stable atomizing viscosity is that the oil temperature stays stable throughout the firing rate.



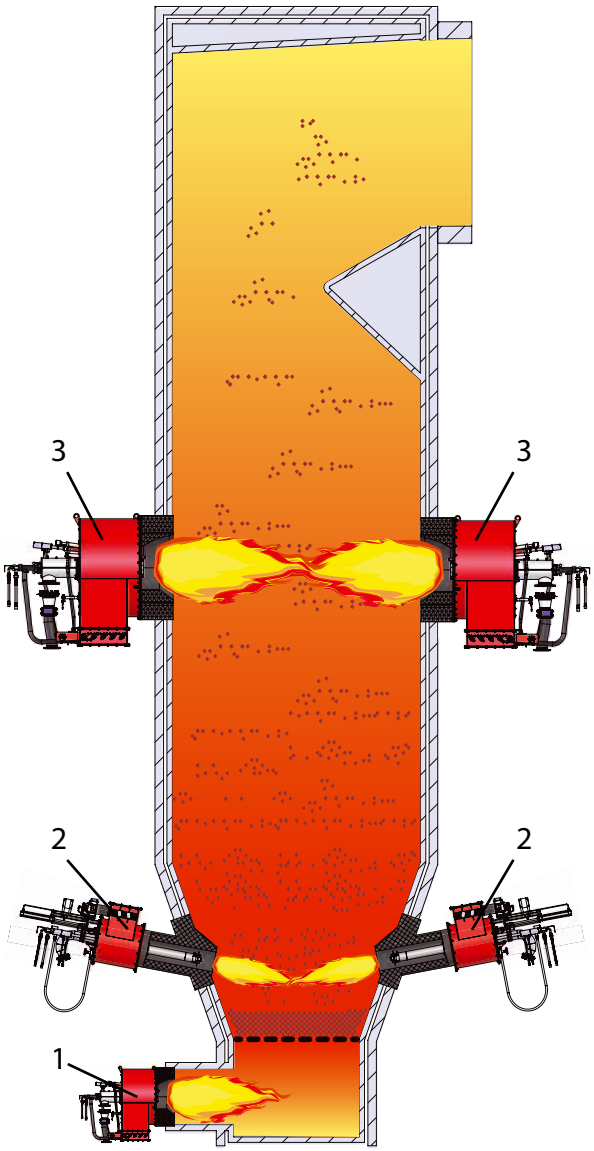
Oilon ML mass preheater keeps the oil temperature stable even if the incoming temperature fluctuates. On account of the construction and the electronic regulator, the temperature of the oil flowing to the nozzle remains stable. The burner may, depending on the capacity and model, have one or more with a safety device to guard against overheating. The electronic regulator has an integrated minimum temperature limiter as well; this prevents the burner from starting if the oil is too cold.



Customized Products and Solutions

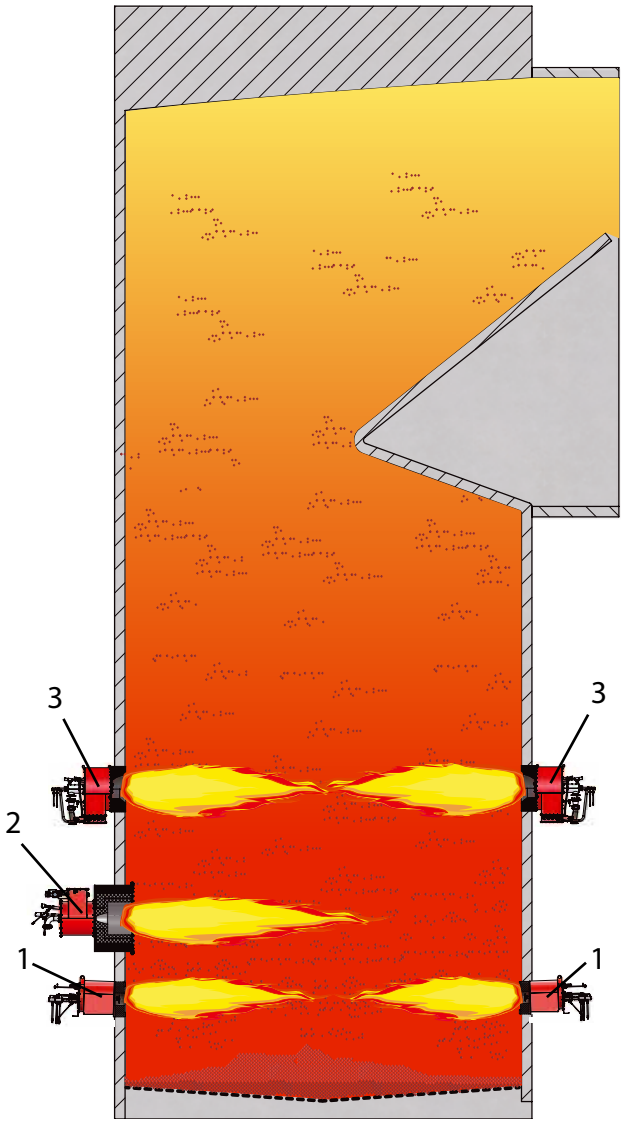
Applications

Oilon`s combustion technology can be utilized in various industrial processes and applications. Based on our long time experience we know the specific requirements and circumstances in different kind of boilers and plants. We have the expertise to provide burner solutions with advanced performance and high availability by selecting the optimal combustion technology, components and materials for each application. Our specialists are able to support you in making decisions concerning combustion systems. Here are presented some of the typical applications we can offer you.



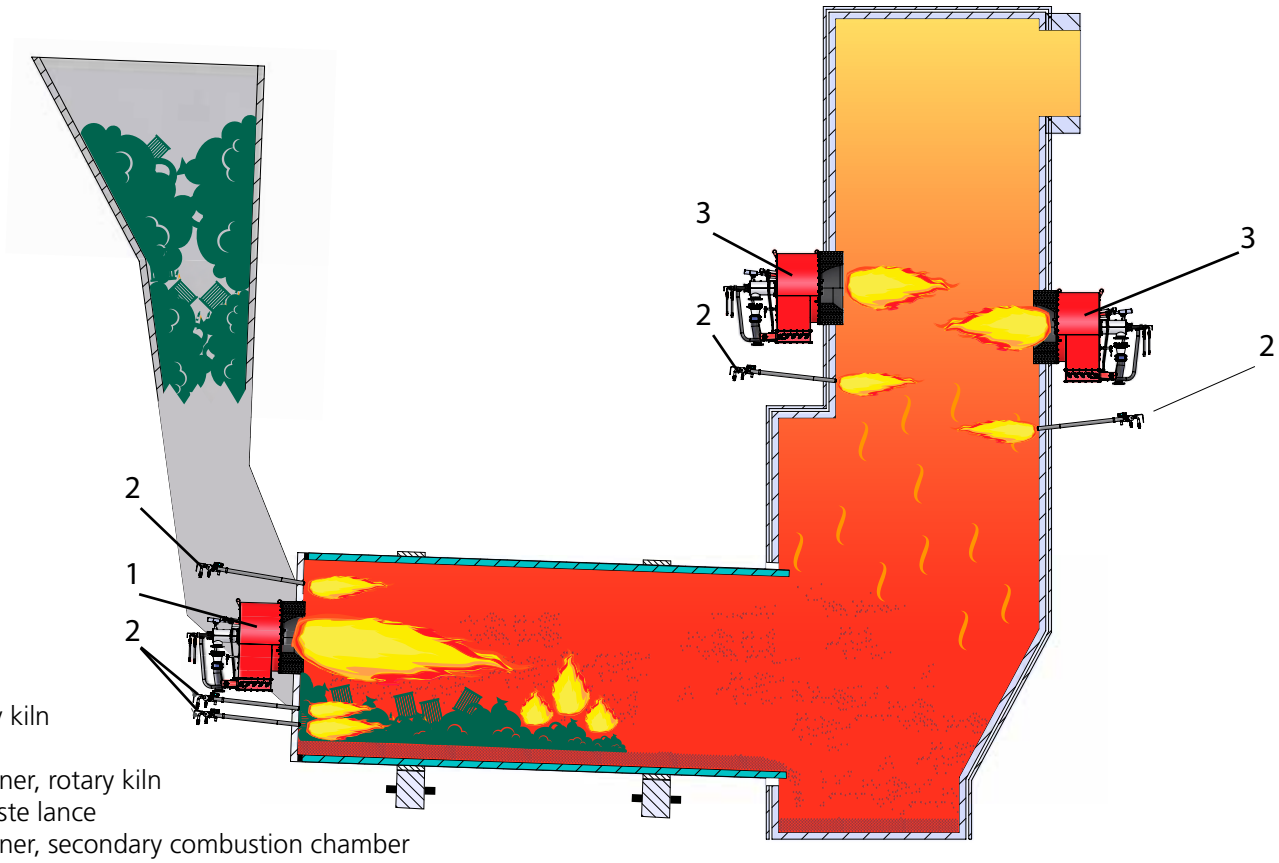
Fluidized bed boiler

1. Underbed start-up burner
2. Overbed start-up burner
3. Load burner



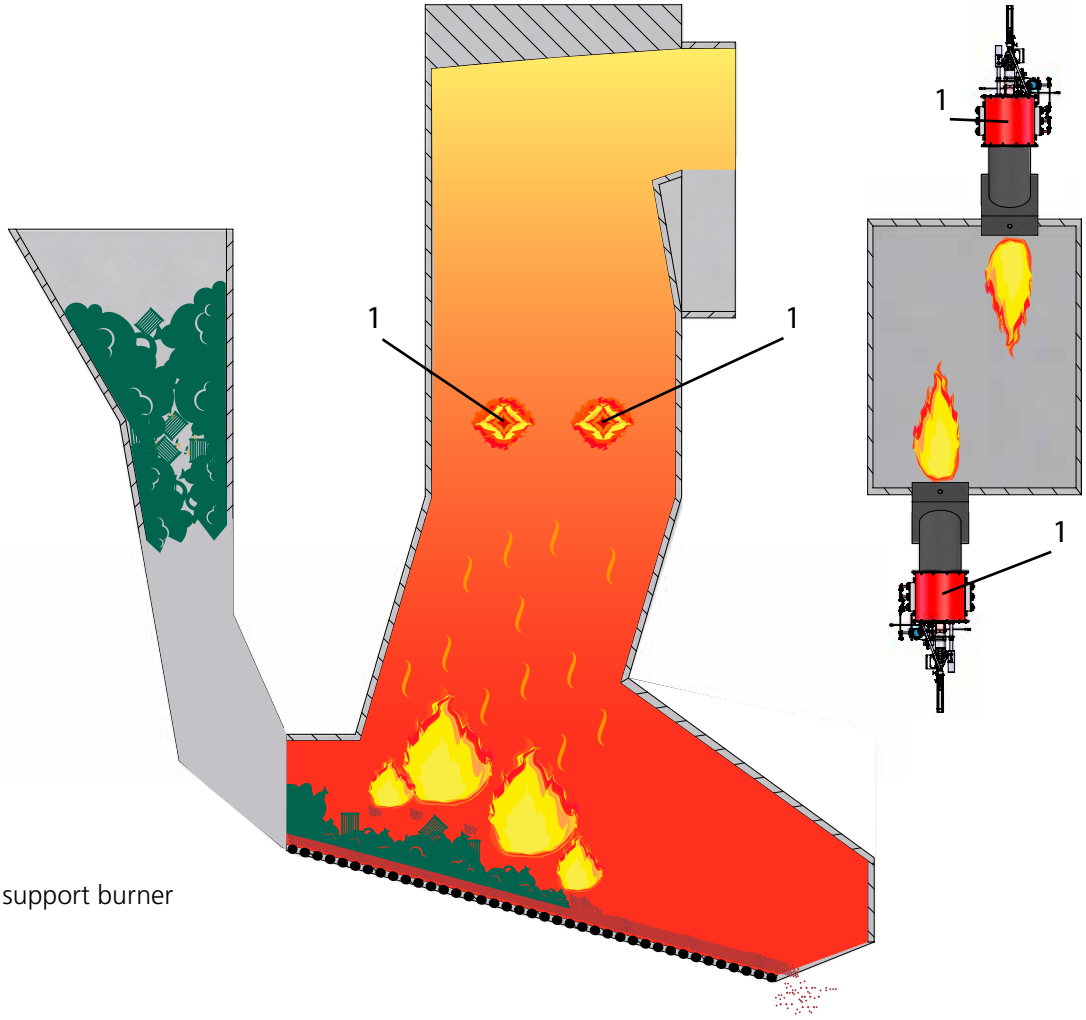
Recovery boiler

1. Start-up burner
2. Odorous gas burner
3. Load burner



Rotary kiln

1. Burner, rotary kiln
2. Waste lance
3. Burner, secondary combustion chamber



Grate boiler

1. Start-up and support burner

Fuels

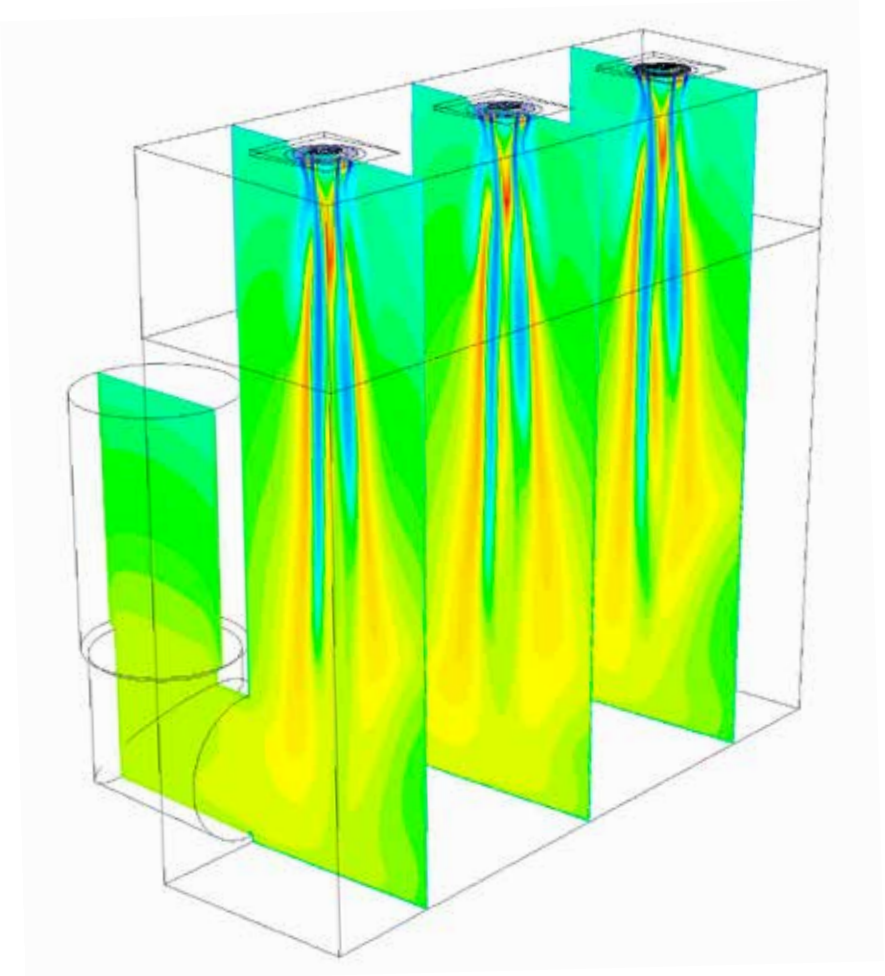
In addition to standard, commercially available liquid and gaseous fuels, Oilon has the know-how and experience of large range of other fuels, from low-heating-value gases to fuels with very intensive combustion. In our multi-fuel burners fuels can be combusted either separately or simultaneously. Below are listed some examples in which we have proven and reliable combustion technology.

Gaseous fuels:

- natural gas
- propane
- butane
- town gas
- biogases
- carbon monoxide
- coke oven gas (COG)
- blast furnace gas (BFG)
- coal gas
- hydrogen
- process gases
- refinery gases
- etc.

Liquid fuels:

- light fuel oil
- heavy fuel oil
- methanol
- tall oil
- pyrolysis oil
- butadiene
- turpentine
- waste oils
- hydraulic oils
- etc.

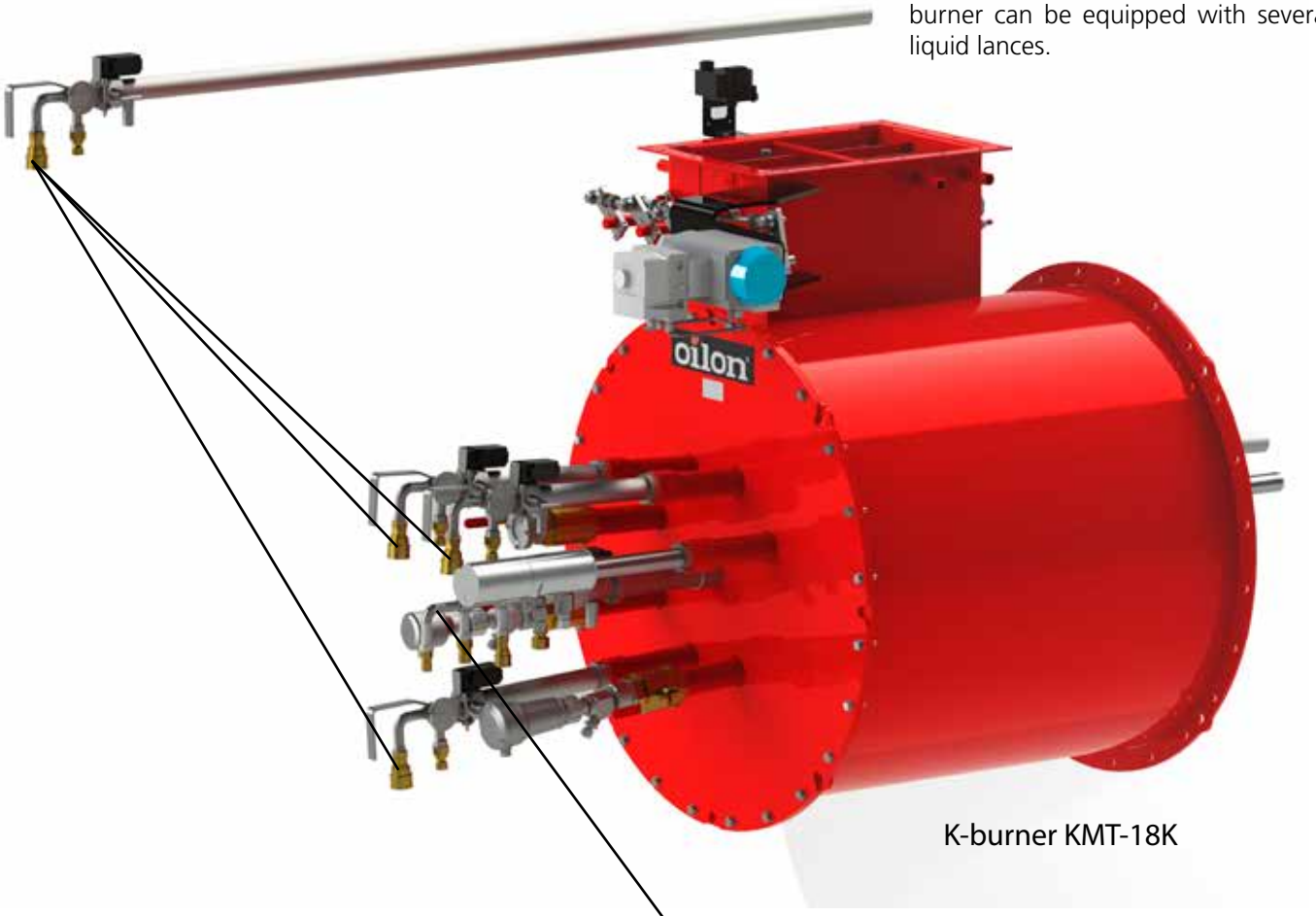


Customized burner features

The following features can be integrated to several of our burner types.

Waste lance

Fuels including large particles and/or causing corrosion and erosion can be fed through liquid waste lances. The materials and fuel atomizing technology are selected case-by-case to meet the demanding circumstances. The burner can be equipped with several liquid lances.



K-burner KMT-18K

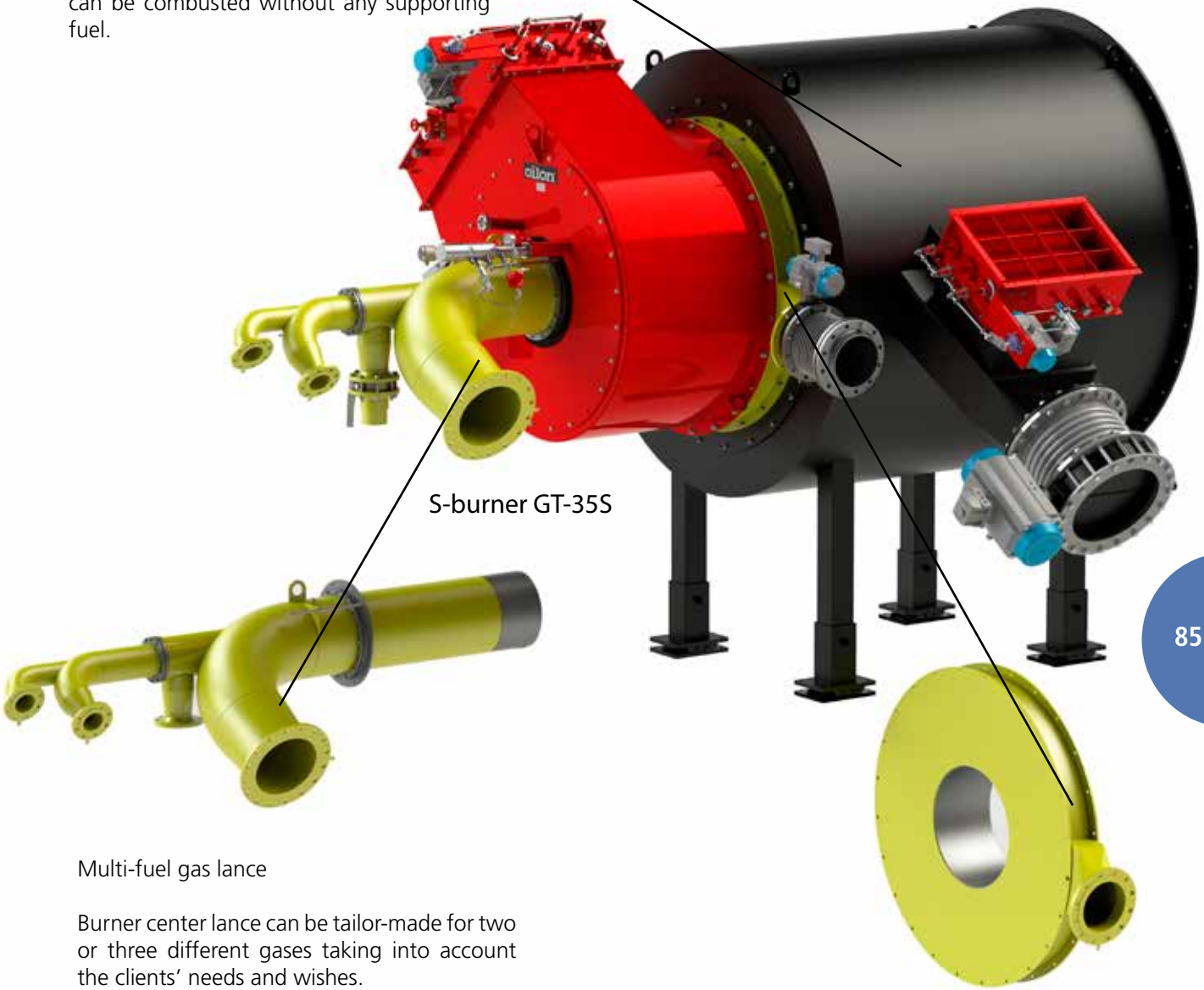
Dual-fuel liquid lance

Dual-fuel liquid lances can combine for example a liquid fuel coming from plant process (side stream) and a commercially available fuel. The dual fuel lances are tailored to take into account the available fuels and clients' needs.

The various liquid fuels can be combusted either individually or simultaneously.

Combustion chamber

Refractory lined combustion chamber can be utilized for example in hot air generators and in combustion of low-calorific-value gases. With the help of Oilon's verified combustion technology Blast Furnace Gas (BFG) can be combusted without any supporting fuel.



Multi-fuel gas lance

Burner center lance can be tailor-made for two or three different gases taking into account the clients' needs and wishes.

Gas ring

Typically with some low calorific-value gases, when the amount of gas is too large to be handled only by center lance, gas feeding can be arranged partly through gas ring.

The engineering of gas lance, ring and combustion chamber is based on our long-term R&D activities, Computational Fluid Dynamics (CFD) and vast practical experience. The gas and air flows will be optimized case-by-case to guarantee the needed performance. The various gases can be combusted either individually or simultaneously.

Retraction mechanism

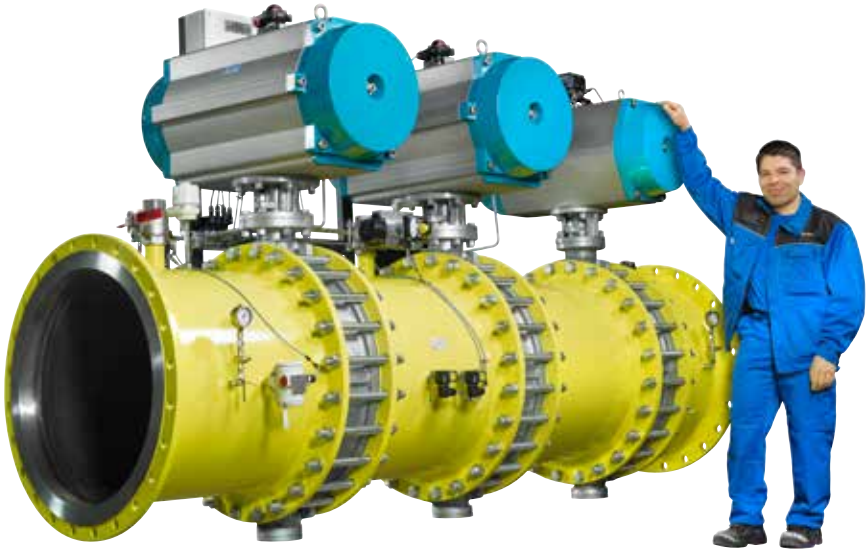
The pilot burner and fuel lances can be retracted to back position by pneumatic cylinder, when the burner isn't in operation. The front and back positions are equipped with limit switches.

Lance burner KL-650

Closing hatch

If, for example cooling air flow is not wished to enter the furnace, when burner is on stand-by, the burner throat opening can be blocked by the closing hatch (knife gate). It will close automatically, when the burner is stopped.

Customized valve units

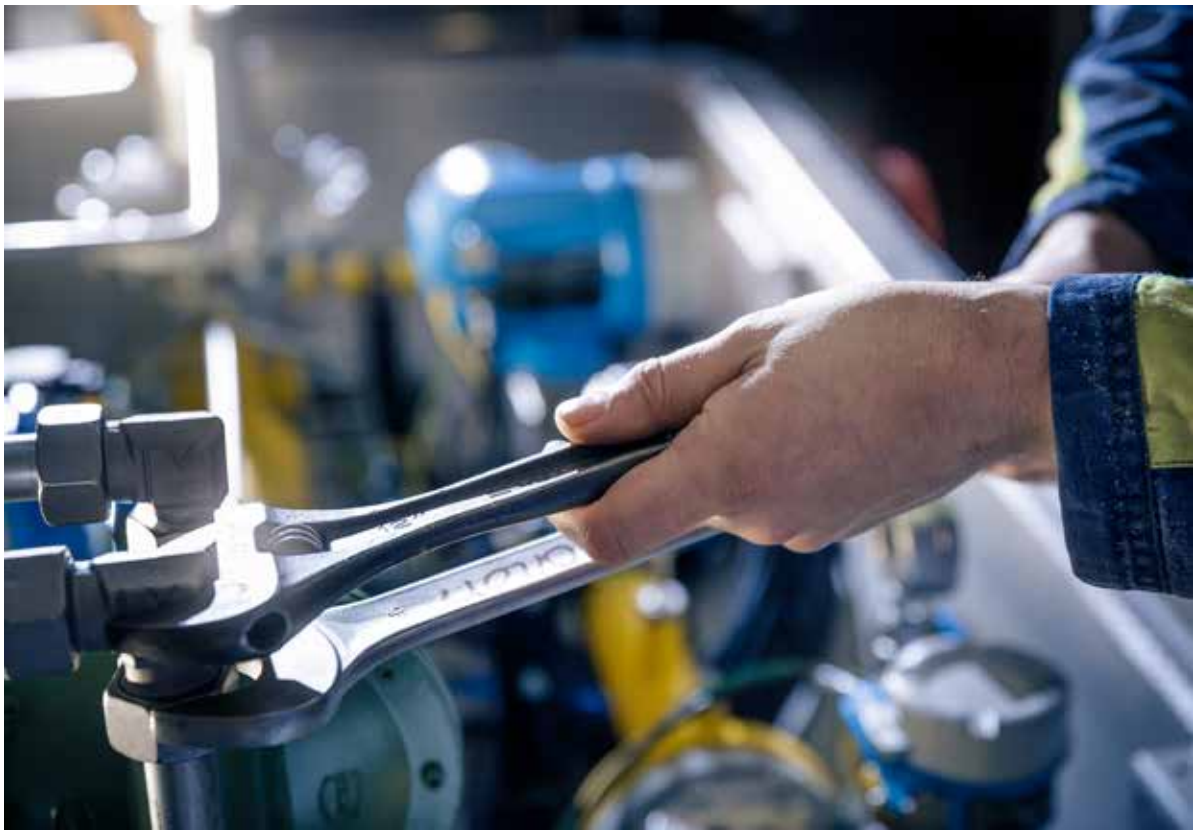


The nature and amount of gases may vary considerably depending on the fuel source in question. Corrosive gases, demanding conditions and surroundings etc. are taken into account.

Shut-off valve units for several burners can be assembled into one common rack. It is also possible to combine several different fuels into one unit.

Multi-burner installations can be implemented by a common control unit for all burners or burner groups.

Oilon customer service and webshop



Commissioning and maintenance services

We have extensive expertise in burner technology and processes. We offer reliable commissioning, maintenance, and training services for all needs. With the help of our services, you can design a system that will meet environmental legislation and operate at optimal efficiency.

Technical support

The technical support service is for retailers, maintenance companies, and end clients. You can contact us with any questions about technical problems or warranty issues. We also design and implement updates for your burner systems with full expertise.

Spare part services

Our spare part services provide our clients with support throughout the equipment's lifecycle.

- spare part recommendations for both new and old systems
- spare parts for servicing and maintenance

Spare parts store

Maintenance companies and retailers can easily obtain spare parts directly from our online store. Contact our spare parts sales service and we will provide you with a password to access our spare parts store.

Please visit our spare parts store
http://webshop.oilon.com

ORIGINAL SPARE PARTS FROM OILON
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ORIGINAL SPARE PARTS FROM OILON

Modern training facilities

We provide high level training on our products, and the goal of our product training is to improve the professional skills of installation and maintenance companies.

On theory lessons we provide important facts on the burner's operating environment and components. Practical exercises include burner adjustment and fault diagnostics, among many other things. We also underline the importance of low emission values for the environment.

Our Sales and Service Network

During our extensive years of operation, we have evolved from a small traditional burner manufacturer into a global well-known energy and environmental technology company.

Our strong commitment to research and development has resulted in growing staff know-how and a rapid increase in the product range.

We have production facilities and sales offices in Finland, USA, Russia, Brazil and China and resellers all over the world.

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