oilon®

Capacity
0,5 - 90 MW

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 Centre, 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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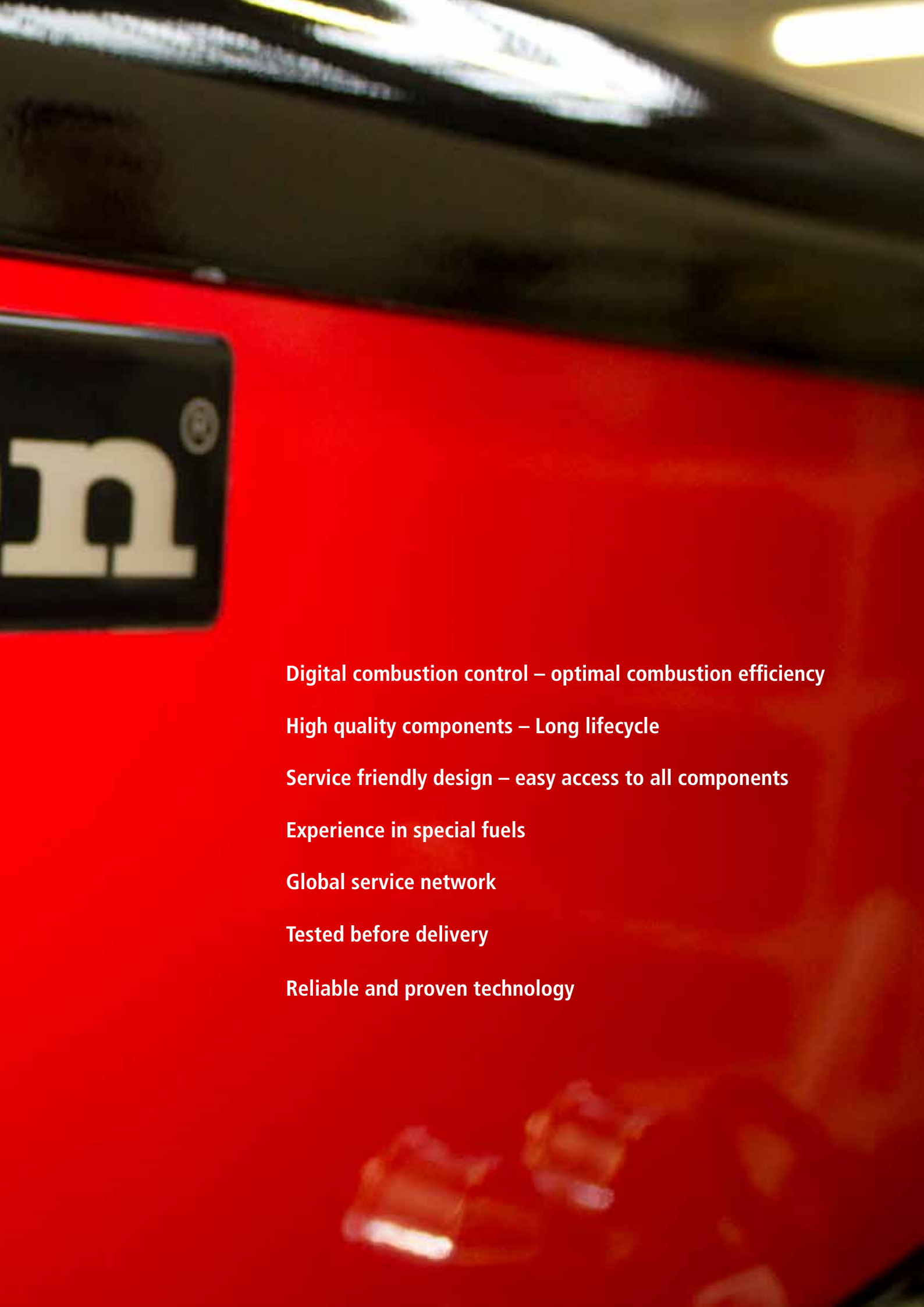


Digital combustion control – optimal combustion efficiency

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, bio gases, 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!

We reserve the right to make technical alterations.

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.

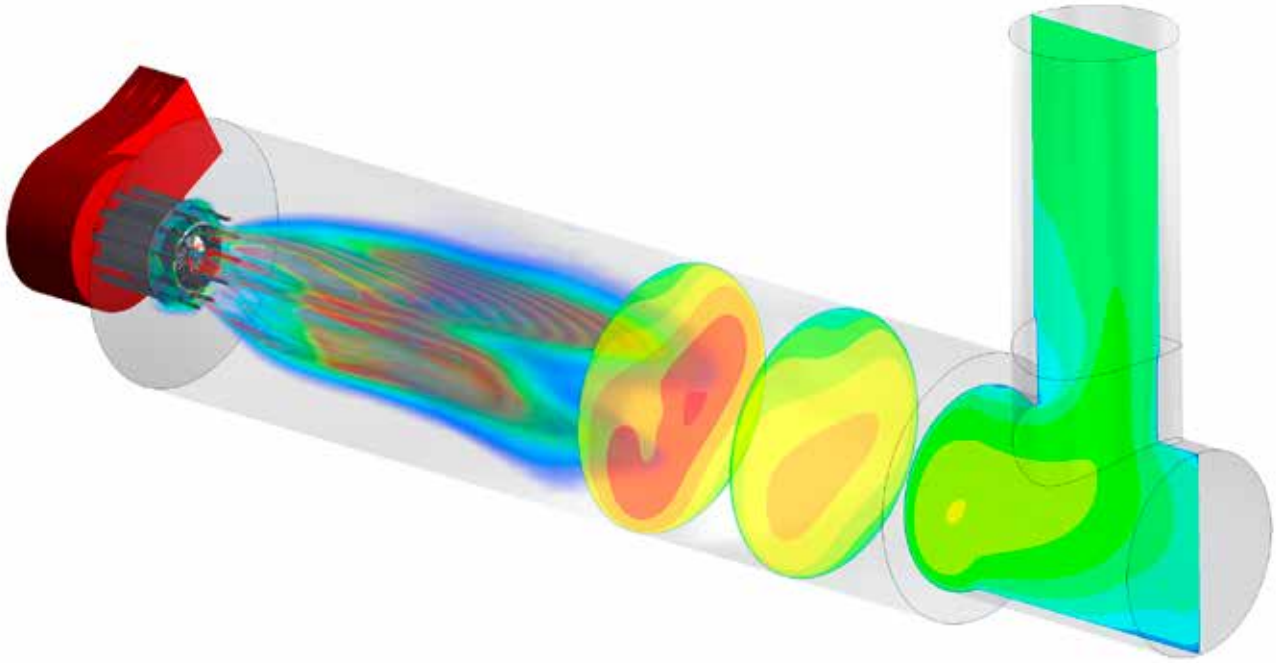
We are especially committed to reducing nitrous oxide (NOx) and particulate emissions. It is one of the most important objectives in our R&D processes.

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 mg/Nm³, ref. 3%, O_2
ME	120 - 140
Oilon ACE with FGR	25 - 35
Oilon ACE without FGR	55 - 65
Litex	100 - 120

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



Flue Gas Recirculation (FGR)

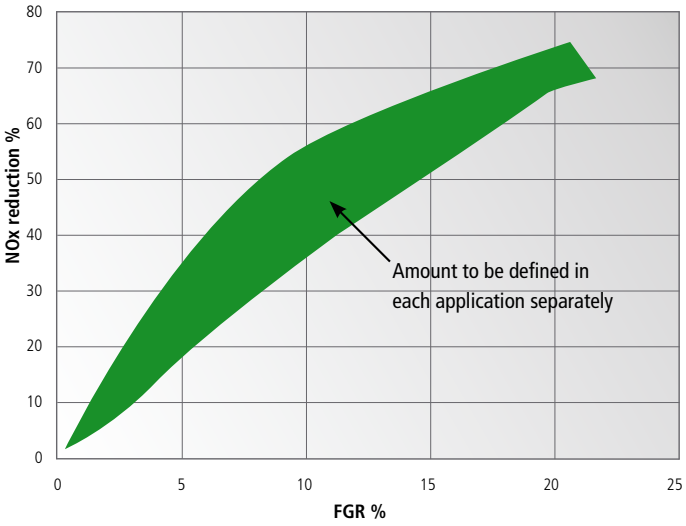
Flue Gas Recirculation (FGR), is an effective low cost solution to achieve very low NOx emissions with various fuels.

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

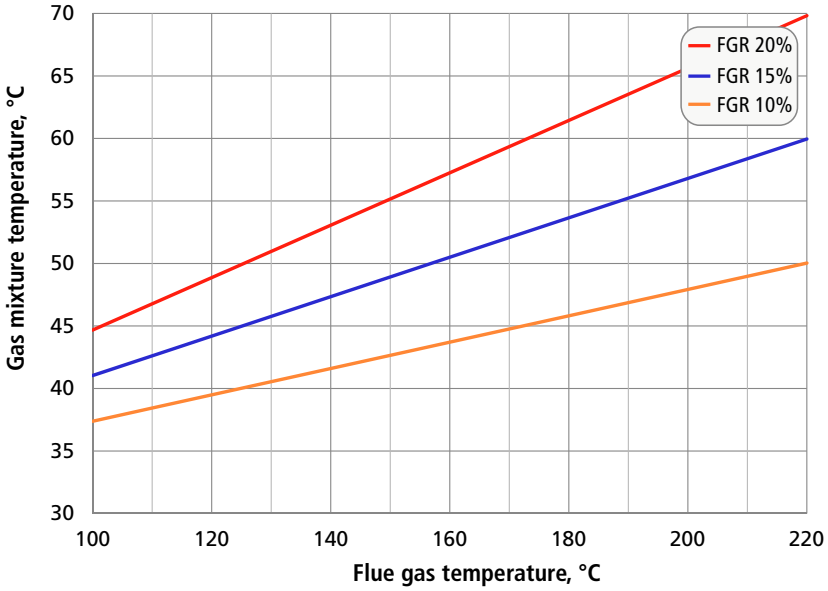
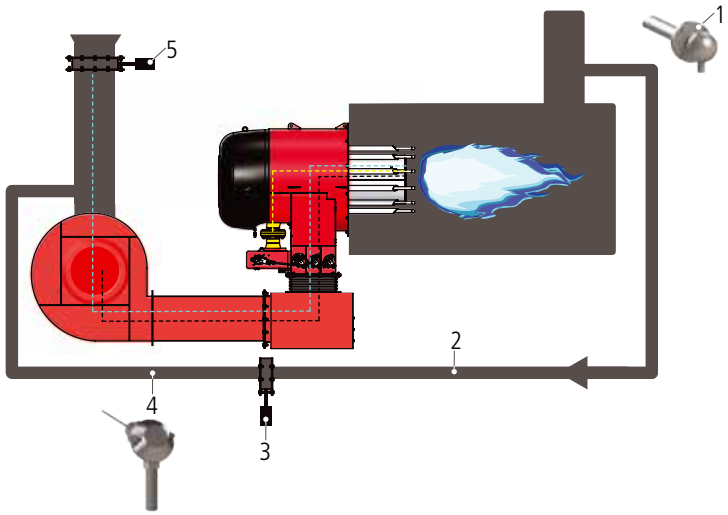


Diagram valid for 30 °C combustion air

Oilon burner FGR application

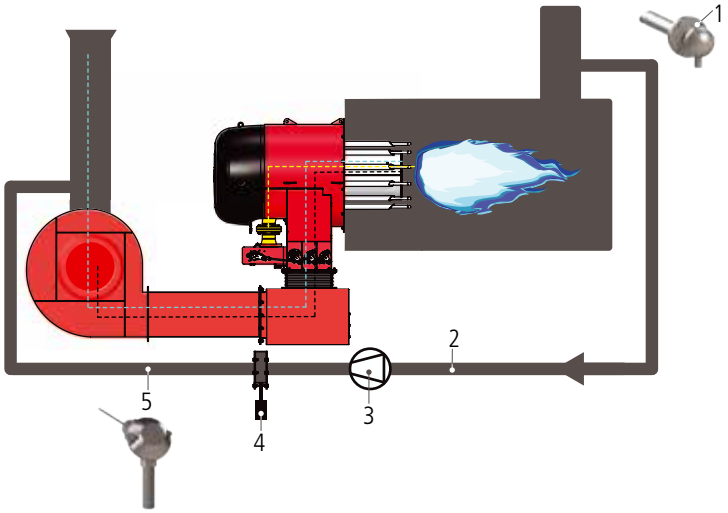
1. FGR with valve



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

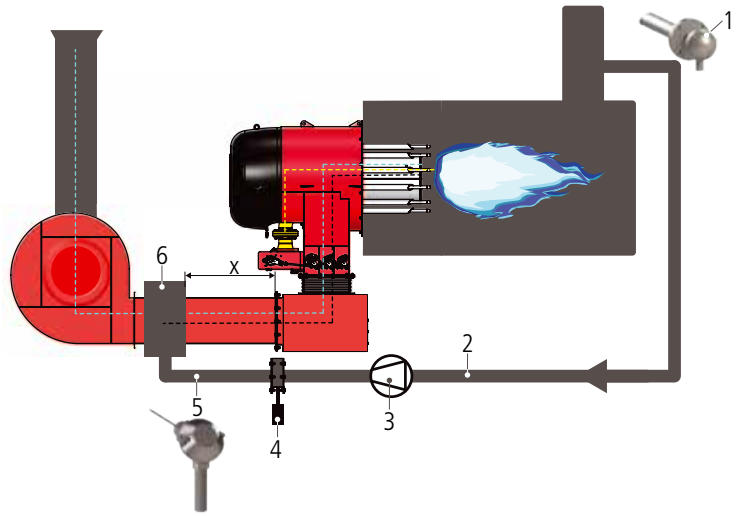
2. FGR with FGR fan, suction side feeding



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

- 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.

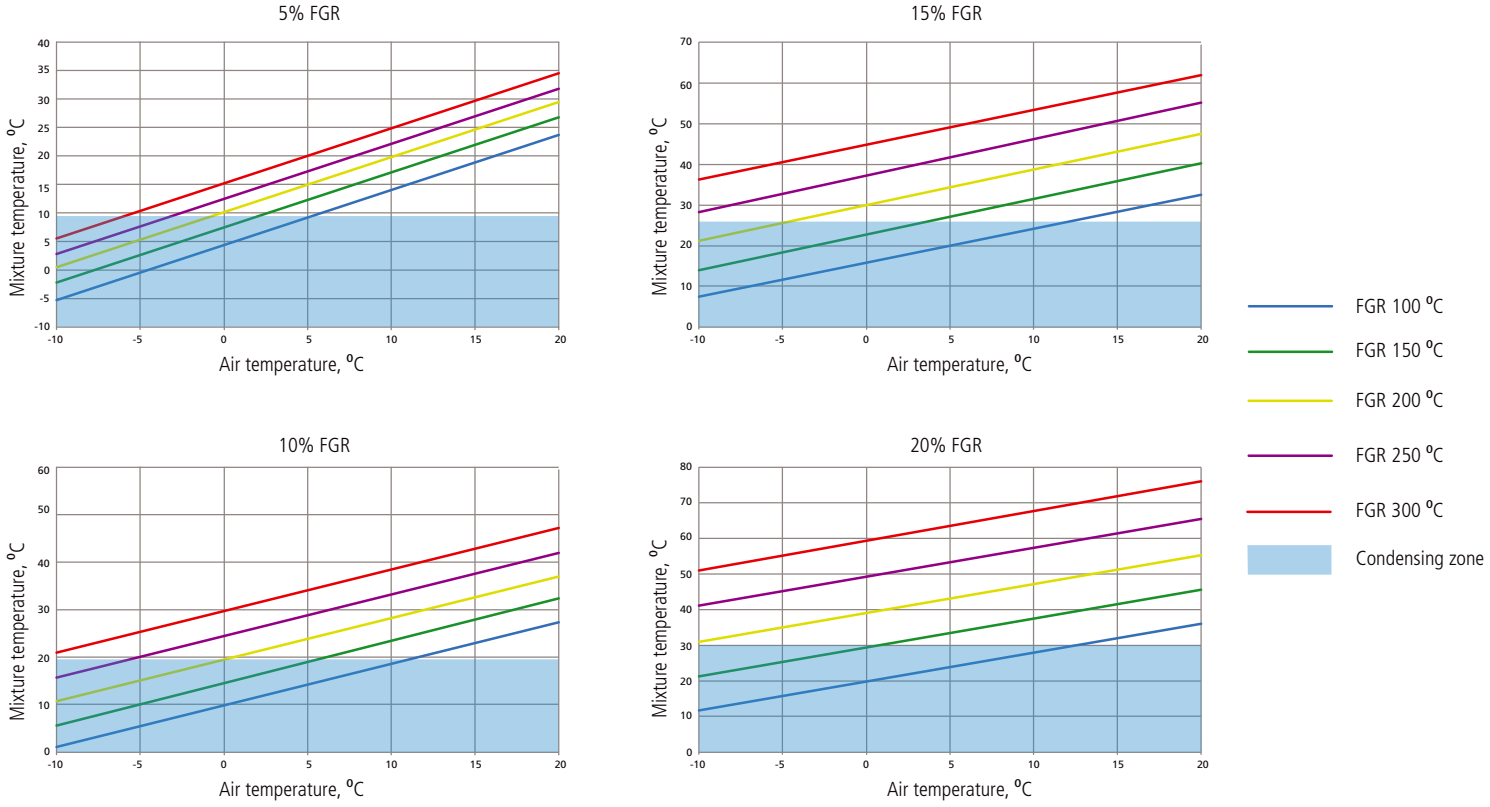
3. FGR with FGR fan, pressure side feeding



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

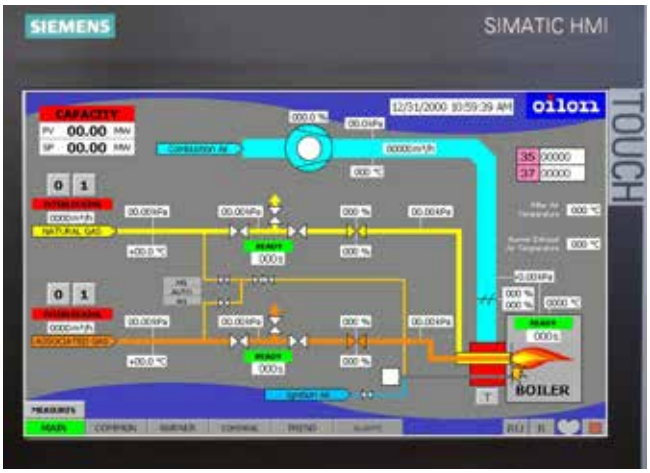
- FGR is fed to pressure side of combustion air fan
- Solution is preferred in retrofit cases when existing air fan capacity is not enough for additional FGR.
- In this solution moisture condensation to the combustion air fan can be avoided if combustion air is very cold and air is not preheated.
- Mixing 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 / Flow 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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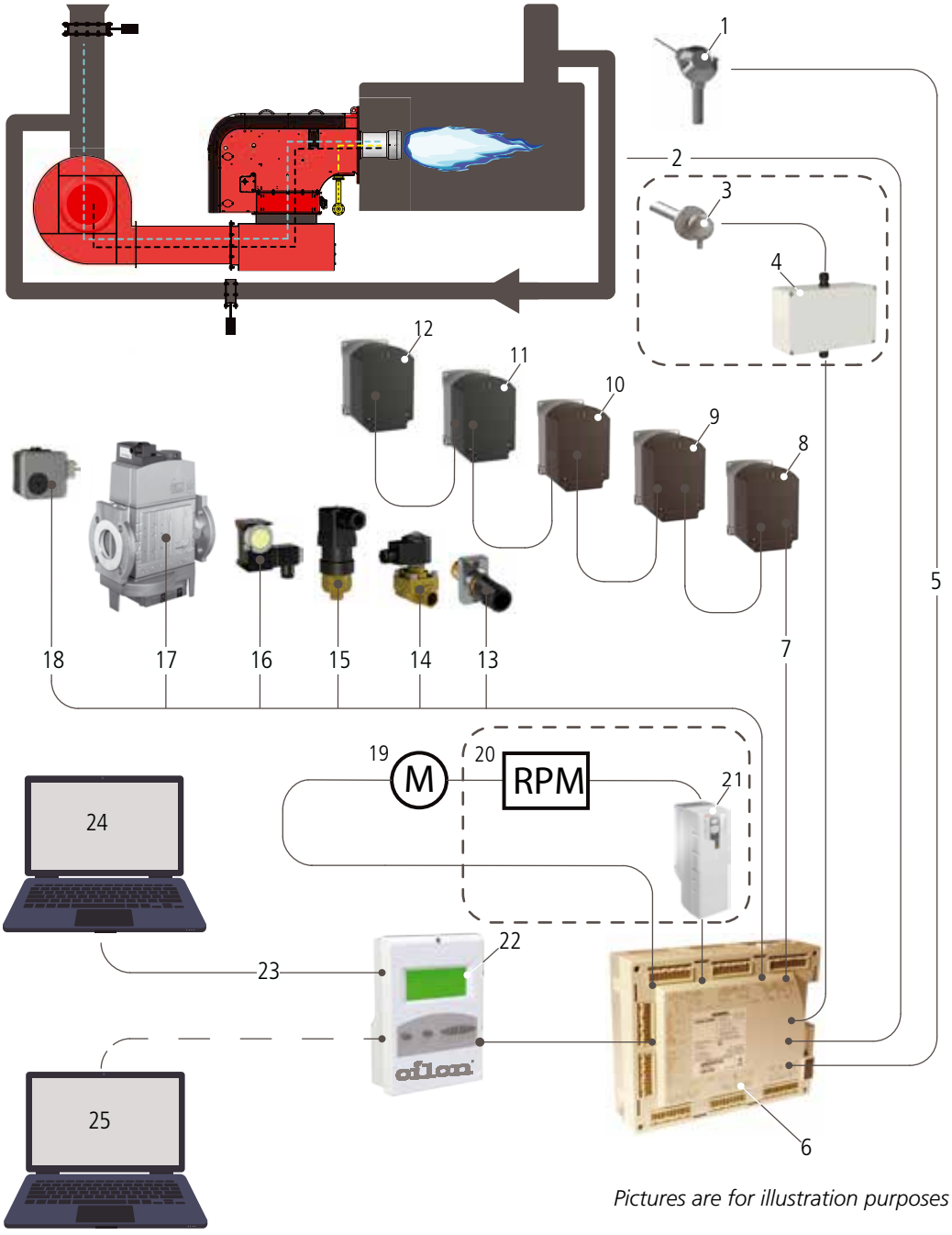
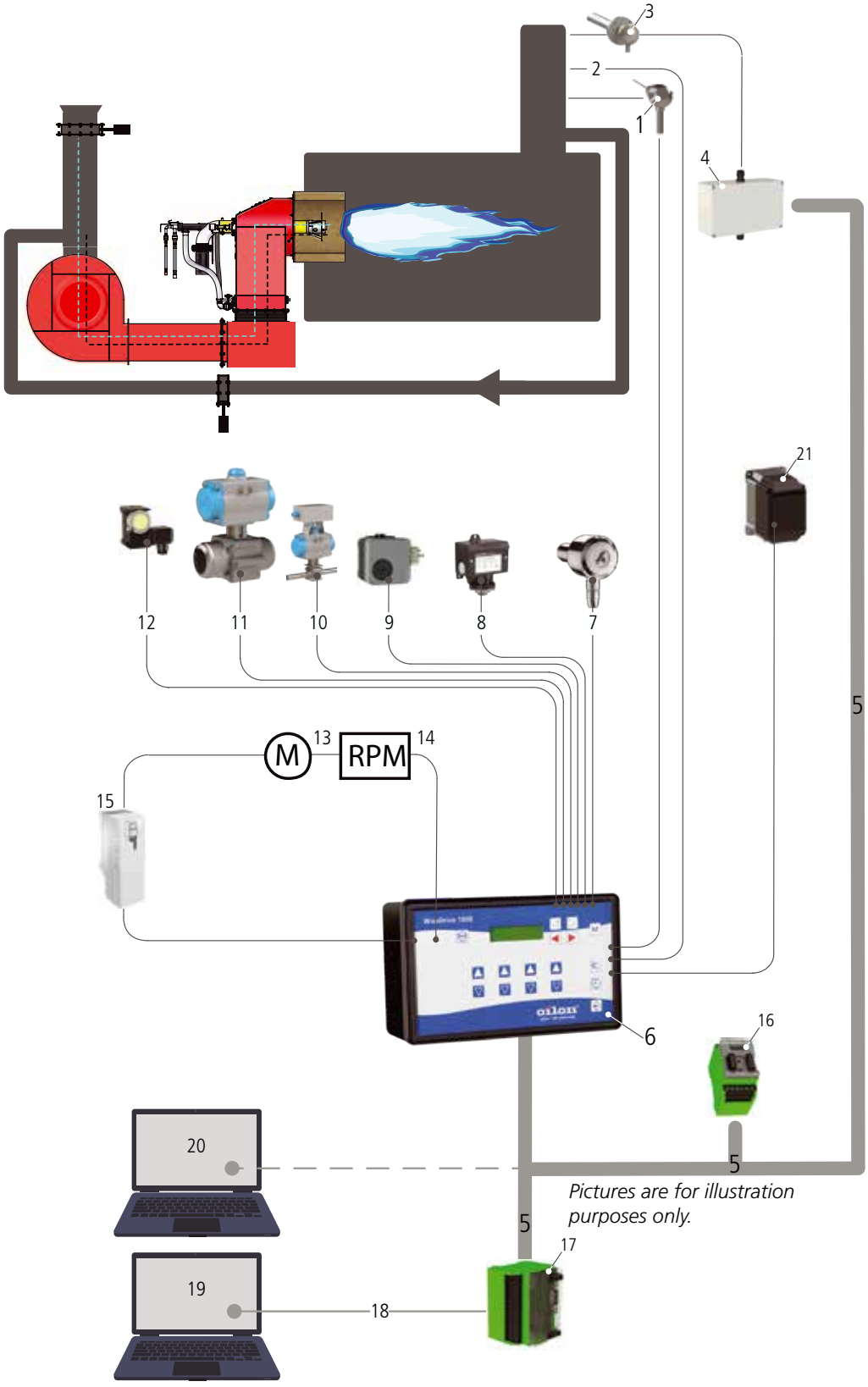
Example of Oilon WiseDrive WD100/WD200



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

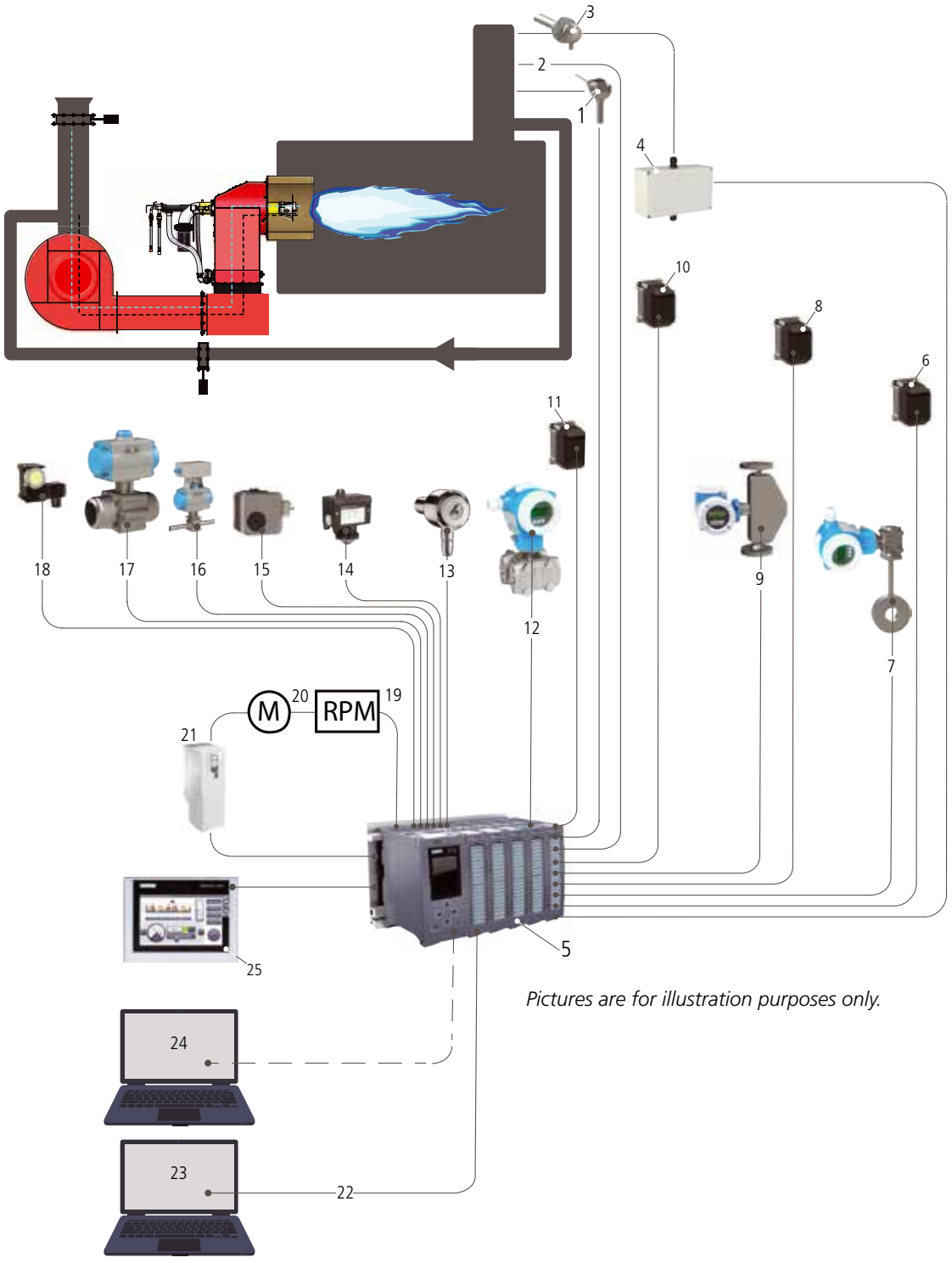
Example of Oilon WiseDrive WD1000



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

1,2 - 22,5 MW

ME burner is a duo block type burner and can be used for various boiler and process heater applications. High turn-down ratio especially on gas firing gives extra flexibility on steam boiler use. Burner can also be used for hot combustion air (+250°C). 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...2500

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* MW	1,2 - 5,0	1,7 - 6,8	1,9 - 9,5	2,0 - 12,0	2,8 - 14,0	3,3 - 16,5	4,5 - 22,5
Connections - gas	DN50 - 100	DN50 - 100	DN65 - 125	DN65 - 125	DN80 - 125	DN100 - 125	DN100 - 125
Pilot burner - fuel	NG						
Control unit	WD100/WD200						
Weight kg	360	370	430	460	460	620	620

*) Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	GKP-400 ME	GKP-600 ME	GKP-800 ME	GKP-1000 ME	GKP-1200 ME	GKP-1600 ME	GKP-2000 ME
Capacity * - gas MW - oil MW kg/h	1,2 - 5,0 1,2 - 5,0 100 - 420	1,7 - 6,8 1,7 - 6,8 143 - 573	1,9 - 9,5 2,4 - 9,5 200 - 800	2,0 - 12,0 3,0 - 12,0 250 - 1000	2,8 - 14,0 3,5 - 14,0 300 - 1200	3,3 - 16,5 4,2 - 16,5 350 - 1400	4,5 - 22,5 5,6 - 22,5 470 - 1900
Connections - gas - oil	DN50 - 100 2 x Ø 22	DN50 -100 2 x Ø 22	DN65 - 125 2 x Ø 22	DN65 - 125 2 x Ø 22	DN80 - 125 2 x Ø 22	DN100 - 125 2 x Ø 22	DN100 - 125 2 x Ø 22
Pilot burner - fuel	NG		NG LFO or optionally LPG (connection size Ø 22)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight kg	390	400	480	490	490	690	690

*) Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	KP-400 ME	KP-600 ME	KP-800 ME	KP-1000 ME	KP-1200 ME	KP-1600 ME	KP-2000 ME
Capacity* MW kg/h	1,2 - 5,0 100 - 420	1,7 - 6,8 143 - 573	2,4 - 9,5 200 - 800	3,0 - 12,0 250 - 1000	3,5 - 14,0 300 - 1200	4,2 - 16,5 350 - 1400	5,6 - 22,5 470 - 1900
Connections - oil	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22
Pilot burner - fuel	-	-	LFO or optionally LPG (connection size Ø 22)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight kg	370	380	460	470	470	670	670

*) Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	RP-400 ME	RP-600 ME	RP-800 ME	RP-1000 ME	RP-1200 ME	RP-1600 ME	RP-2000 ME
Capacity* MW kg/h	1,2 - 4,7 106 - 417	1,7 - 6,8 150 - 600	2,2 - 9,0 200 - 800	2,8 - 11,0 250 - 1000	3,4 - 13,0 300 - 1200	3,9 - 15,5 350 - 1400	5,3 - 21,0 470 - 1900
Connections - oil	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22	2 x Ø 22
Pilot burner - fuel	-	LPG (connection size Ø 18)	LPG (connection size Ø 22) or optionally LFO (connection size Ø 8)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight kg	380	390	470	480	480	680	680

*) Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

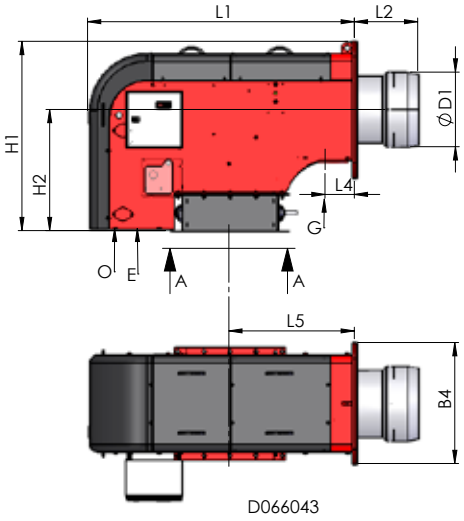
BURNER	GRP-400 ME	GRP-600 ME	GRP-800 ME	GRP-1000 ME	GRP-1200 ME	GRP-1600 ME	GRP-2000 ME
Capacity - gas MW - oil MW kg/h	1,2 - 5,0 1,2 - 4,7 106 - 417	1,7 - 6,8 1,7 - 6,8 150 - 600	1,9 - 9,5 2,2 - 9,0 200 - 800	2,0 - 12,0 2,8 - 11,0 250 - 1000	2,8 - 14,0 3,4 - 13,0 300 - 1200	3,3 - 16,5 3,9 - 15,5 350 - 1400	4,5 - 22,5 5,3 - 21,0 470 - 1900
Connections - gas - oil	DN50 - 100 2 x Ø 22	DN50 -100 2 x Ø 22	DN65 - 125 2 x Ø 22	DN65 - 125 2 x Ø 22	DN80 - 125 2 x Ø 22	DN100 - 125 2 x Ø 22	DN100 - 125 2 x Ø 22
Pilot burner - fuel	NG LPG (connection size Ø 18)		NG LPG (connection size Ø 22) or optionally LFO (connection size Ø 8)				
Atomizing type	Pressure atomization						
Control unit	WD100/WD200						
Weight kg	400	410	490	500	500	700	700

*) Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

Light fuel oil: 1 kg/h ≅ 11,86 kW
1 kW ≅ 860 kcal/h
Heavy fuel oil: 1 kg/h ≅ 11,22 kW
1 kW ≅ 860 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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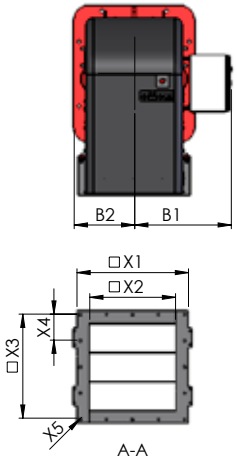
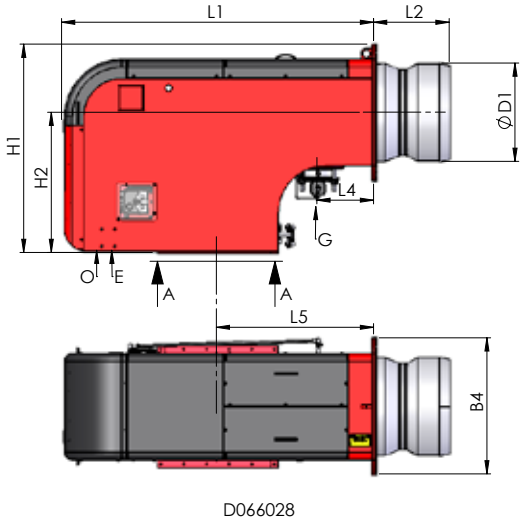


G = Gas inlet
O = Oil inlet/return
E = Electrical connection

BURNER	L1	L2	L4	L5	H1	H2
400 ME	1410	325	155	664	1000	640
600 ME	1410	335	155	664	1000	640

BURNER	B1	B2	B4	ø D1	□X1	□X2	□X3	X4	X5
400 ME	511	320	640	370	590	454	550	4 x137,5	16 x ø12
600 ME	511	320	640	395	590	454	550	4 x137,5	16 x ø12



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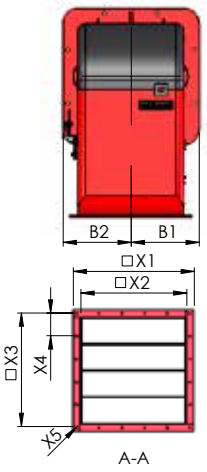


G = Gas inlet
O = Oil inlet/return
E = Electrical connection

BURNER	L1	L2	L4	L5	H1	H2
800 ME	1650	360	300	832	1100	742
1000 ME	1650	390	300	832	1100	742
1200 ME	1650	400	300	832	1100	742
1600 ME	1917	450	385	1007	1330	852
2000 ME	1917	450	385	1007	1330	852

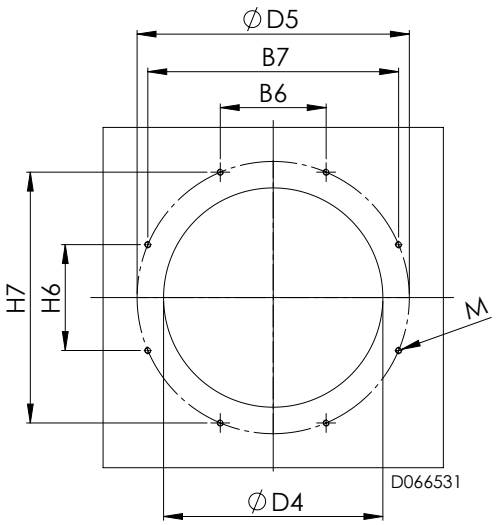
BURNER	B1	B2	B4	ø D1	□X1	□X2	□X3	X4	X5
800 ME	360	360	720	422	640	560	600	5 x 120	20 x ø12
1000 ME	360	360	720	496	640	560	600	5 x 120	20 x ø12
1200 ME	360	360	720	520	640	560	600	5 x 120	20 x ø12
1600 ME	480	480	960	594	800	720	750	6 x 125	24 x ø12
2000 ME	480	480	960	650	800	720	750	6 x 125	24 x ø12

Dimensions in mm.

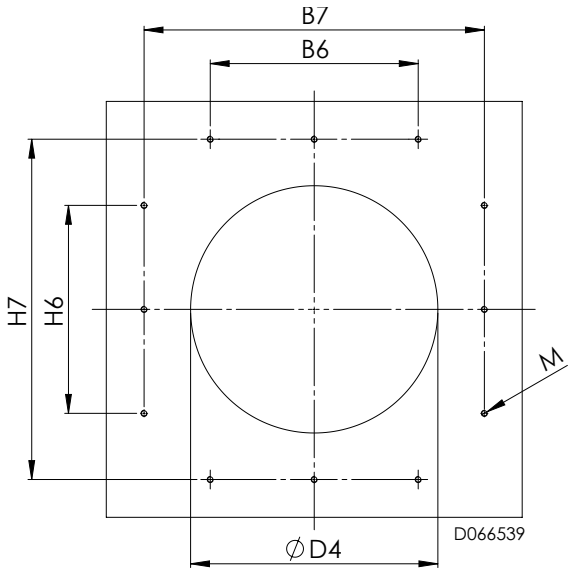
Combustion head and masonry dimensions

Mounting plate

GP/GKP/KP/RP/GRP-400…1200 ME

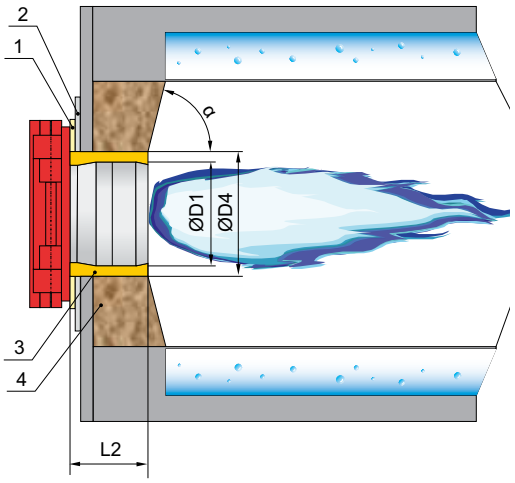


GP/GKP/KP/RP/GRP-1600…2000 ME



BURNER	B6	B7	H6	H7	ØD4	ØD5	M
400 ME	340	580	340	600	430	-	8xM16
600 ME	340	580	340	600	455	-	8xM16
800 ME	280	-	280	-	482	720	8xM16
1000 ME	280	-	280	-	556	720	8xM16
1200 ME	280	-	280	-	580	720	8xM16
1600 ME	550	900	550	900	654	-	12xM16
2000 ME	550	900	550	900	710	-	12xM16

Burner mounting

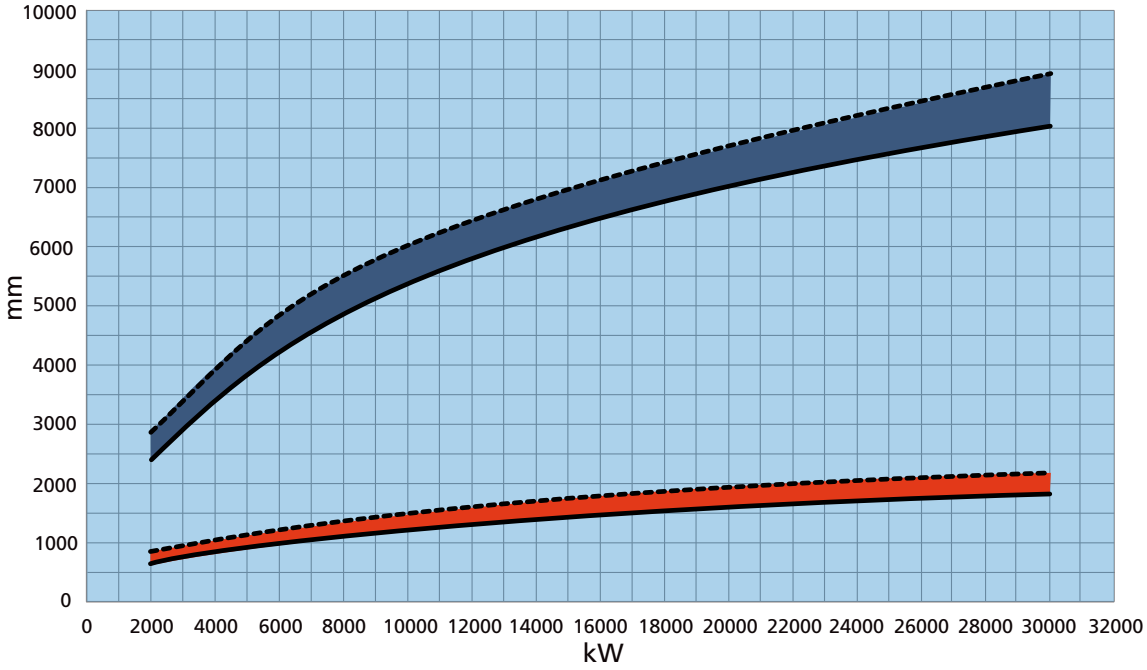


1. Gasket, thickness 8 mm
2. Mounting plate
3. Ceramic wool or equivalent
4. Masonry

BURNER	L2	ØD1	ØD4	α
400 ME	325	370	430	60° - 90°
600 ME	335	395	455	60° - 90°
800 ME	360	422	482	60° - 90°
1000 ME	390	496	556	60° - 90°
1200 ME	400	520	580	60° - 90°
1600 ME	450	594	654	60° - 90°
2000 ME	450	650	710	60° - 90°

Dimensions in mm.

Flame dimensions



Flame length

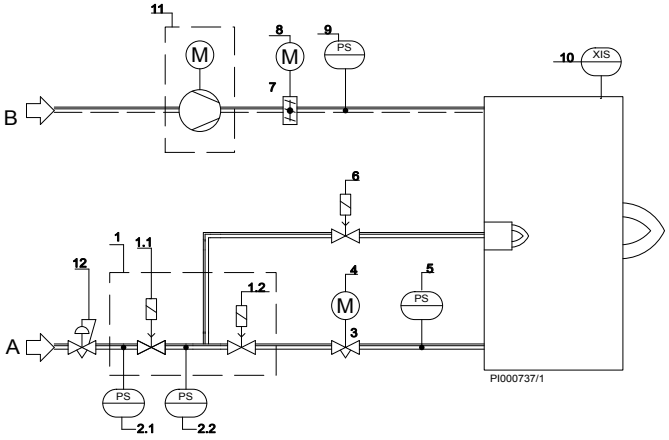
Flame diameter

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

Flame dimensions ME burners

PI Diagrams

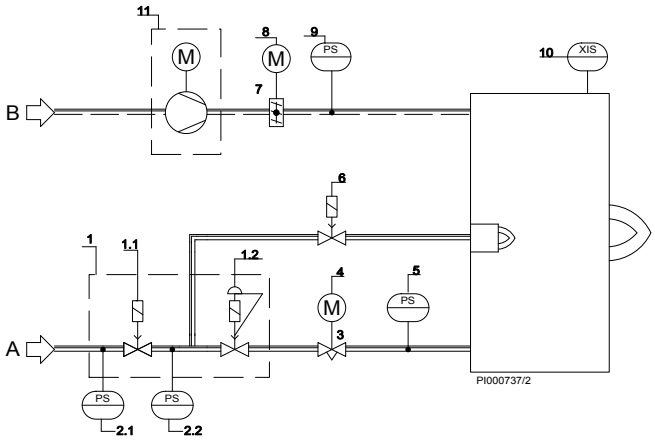
GAS, DMV VALVE, ME BURNERS



1. Double solenoid valve
   1.1 Safety shut-off valve
   1.2 Safety shut-off valve
2. Pressure switch
   2.1 Pressure switch, low
   2.2 Pressure switch
3. Gas control valve
4. Actuator
5. Pressure switch, high
6. Solenoid valve, ignition gas
7. Air damper
8. Actuator
9. Air pressure switch
10. Flame detector
11. Separate combustion air fan, optional
12. Pressure regulator (EN88-1), optional

A = Gas supply
B = Air supply

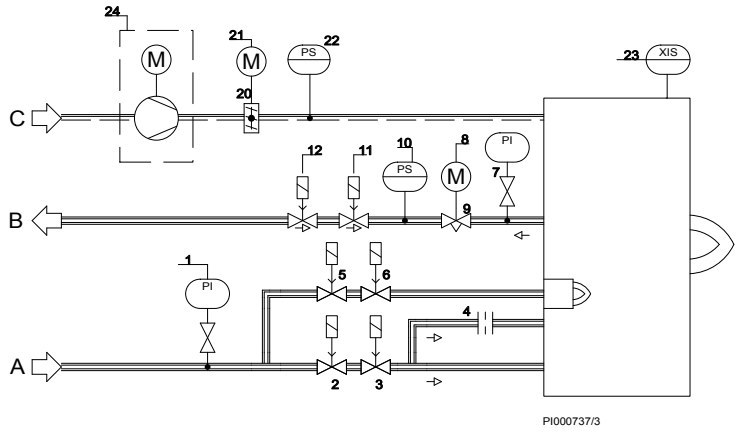
GAS, VGD VALVE, ME BURNERS



1. Double solenoid valve
   1.1 Safety shut-off valve
   1.2 Safety shut-off valve
2. Pressure switch
   2.1 Pressure switch, low
   2.2 Pressure switch
3. Gas control valve
4. Servomotor
5. Pressure switch, high
6. Solenoid valve, ignition gas
7. Air damper
8. Servomotor
9. Air pressure switch
10. Flame detector
11. Separate combustion air fan, optional

A = Gas supply
B = Air supply

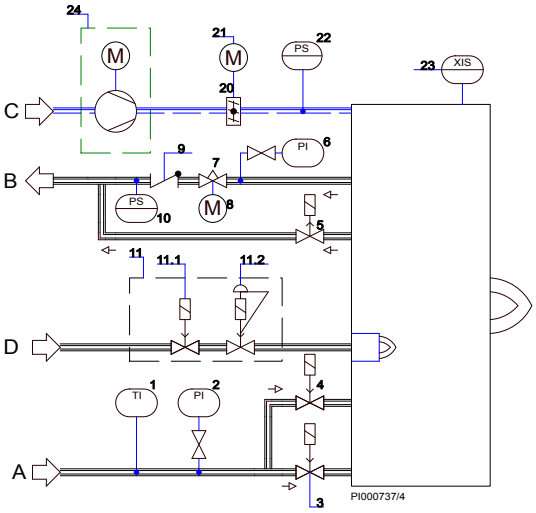
LIGHT FUEL OIL, ME BURNERS



1. Pressure gauge
2. Safety shut-off valve (115V)
3. Safety shut-off valve (115V)
4. Throttle plug
5. Solenoid valve, ignition oil, NC
6. Solenoid valve, ignition oil , NC
7. Pressure gauge
8. Actuator
9. Oil control valve
10. Pressure switch
11. Solenoid valve, NC (115V)
12. Solenoid valve, NC (115V)
20. Air damper
21. Actuator
22. Air pressure switch
23. Flame detector
24. Separate combustion air fan, optional

A = Oil supply
B = Oil return
C = Air supply

HEAVY FUEL OIL, ME BURNERS



1. Thermometer
2. Pressure gauge
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Solenoid valve, NO
6. Pressure qauge
7. Oil control valve
8. Actuator
9. Non-return valve, throttle plug ø1,2mm
10. Pressure switch, max.
11. Double solenoid valve
    11.1 Safety shut-off valve
    11.2 Safety shut-off valve
12. Solenoid valve, NC
20. Air damper
21. Actuator
22. Pressure switch, air
23. Flame detector
24. Separate combustion air fan, optional

A = Oil supply
B = Oil return
C = Air supply
D = LPG supply

Gas valves

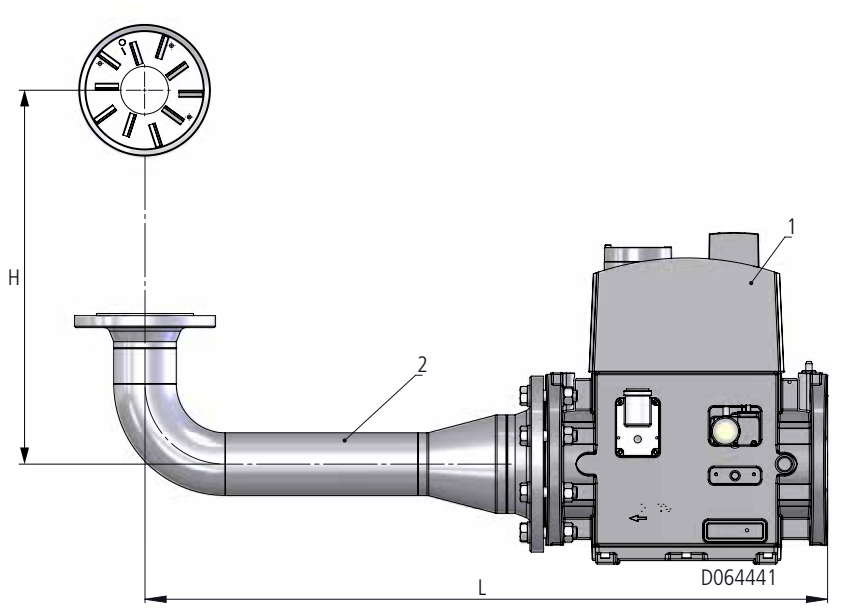
BURNER	GAS VALVE SIZE DN	TYPE *)	BURNER MAX. CAPACITY kW **) GAS INLET PRESSURE mbar 100	150	200	250
GP/GKP/GRP-400 ME	50	DMV-D5050/11	3100	3900	4600	5000
	65	DMV-5065/11	4700	5000	5000	5000
GP/GKP/GRP-600 ME	65	DMV-5065/11	4700	5900	6800	6800
	80	DMV-5080/11	6800	6800	6800	6800
GP/GKP/GRP-800 ME	80	DMV-5080/11	7400	9200	9500	9500
	100	DMV-5100/11	9500	9500	9500	9500
GP/GKP/GRP-1000 ME	80	DMV-5080/11	7800	9700	11400	12000
	100	DMV-5100/11	10300	12000	12000	12000
	125	DMV-5125/11	12000	12000	12000	12000
GP/GKP/GRP-1200 ME	100	DMV-5100/11	10300	12900	14000	14000
	125	DMV-5125/11	14000	14000	14000	14000
GP/GKP/GRP-1600 ME	100	DMV-5100/11	9300	11600	13700	15600
	125	DMV-5125/11	12200	15300	16500	16500
GP/GKP/GRP-2000 ME	125	DMV-5125/11	11900	14900	17500	20000
GP/GKP/GRP-400 ME	50	VGD40.050	3800	4800	5000	5000
	65	VGD40.065	5000	5000	5000	5000
GP/GKP/GRP-600 ME	65	VGD40.065	5900	6800	6800	6800
	80	VGD40.080	6800	6800	6800	6800
GP/GKP/GRP-800 ME	65	VGD40.065	6200	7700	9100	9500
	80	VGD40.080	8500	9500	9500	9500
	100	VGD40.100	9500	9500	9500	9500
GP/GKP/GRP-1000 ME	80	VGD40.080	9200	11500	12000	12000
	100	VGD40.100	12000	12000	12000	12000
	125	VGD40.125	12000	12000	12000	12000
GP/GKP/GRP-1200 ME	80	VGD40.080	9200	11500	13500	14000
	100	VGD40.100	12800	14000	14000	14000
	125	VGD40.125	14000	14000	14000	14000
GP/GKP/GRP-1600 ME	100	VGD40.100	11100	13800	16200	16500
	125	VGD40.125	13100	16400	16500	16500
GP/GKP/GRP-2000 ME	125	VGD40.125	12700	15900	18700	21300
	150	VGD40.150	13500	16800	20000	22500

NOTE! The max. capacities shown in the table are achieved when the boiler back pressure is 0.
Natural gas 1m³ n/h ≅ 10 kW

*) or corresponding type

**) Gas inlet pressure (Pmax) at burner
- max. 500 mbar when using DMV-(D) valve

Gas elbow



1. Gas valve
2. Gas elbow

	GAS ELBOW DIMENSIONS WITH DIFFERENT VALVES					
		DN50	DN65	DN80	DN100	DN125
	H	L	L	L	L	L
GP/GKP/GRP-400/600 ME	535	635	690	710	750	-
GP/GKP/GRP-800 ME	663	-	805	730	772	825
GP/GKP/GRP-1000…1200 ME	620	-	805	730	772	825
GP/GKP/GRP-1600...2000 ME	700	-	-	-	772	825

Other dimensions available on request.

Dimensions in mm.

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

0,8 - 90 MW

Oilon ACE presents the latest low emission technology. The typical NOx emissions are less than 60 mg/nm^3, ref. 3% O_2 and less than 30 mg/nm^3 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 MW*	0,8 - 6,5	1,0 - 8,0	1,3 - 10,0	1,6 - 13,0	2,0 - 16,0	2,4 - 19,0	2,9 - 23,0
Connections - gas, burner	DN65	DN80	DN80	DN100	DN100	DN125	DN125
Pilot burner	NG						
Control unit	WD200						
Weight kg	330	340	490	510	680	710	1150

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	GT-28A	GT-35A	GT-42A	GT-50A	GT-70A	GT-90A
Capacity MW *	3,5 - 28,0	4,4 - 35,0	5,3 - 42,0	6,3 - 50,0	8,8 - 70,0	11,3 - 90,0
Connections - gas, burner	DN150+DN80	DN150+DN80	DN200+DN100	DN200+DN100	DN250+DN125	DN250+DN125
Pilot burner	GPB20					
Control unit	WD200 **					
Weight kg	1090	1140	2110	2200	2360	2510

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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 MW* - gas - oil	0,8 - 6,5 2,6 - 6,5	1,0 - 8,0 3,2 - 8,0	1,3 - 10,0 4,0 - 10,0	1,6 - 13,0 5,2 - 13,0	2,0 - 16,0 6,4 - 16,0	2,4 - 19,0 7,6 - 19,0	2,9 - 23,0 9,2 - 23,0
Connections - gas, burner - oil, burner	DN65 R3/4"	DN80 R3/4"	DN80 R3/4"	DN100 R3/4"	DN100 R3/4"	DN125 R3/4"	DN125 R3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Pressure atomizing						
Control unit	WD200						
Weight kg	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 +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	GKT-28A	GKT-35A	GKT-42A	GKT-50A	GKT-70A	GKT-90A
Capacity MW* - gas - oil	3,5 - 28,0 5,6 - 28,0	4,4 - 35,0 7,0 - 35,0	5,3 - 42,0 8,4 - 42,0	6,3 - 50,0 10,0 - 50,0	8,8 - 70,0 ***	11,3 - 90,0 ***
Connections - gas, burner - oil, burner	DN150+DN80 G1"	DN150+DN80 G1"	DN200+DN100 G1"	DN200+DN100 G1"	DN250+DN125 G1"	DN250+DN125 G1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight kg	1110	1160	2130	2230	2390	2550

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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 MW*	2,6 - 6,5	3,2 - 8,0	4,0 - 10,0	5,2 - 13,0	6,4 - 16,0	7,6 - 19,0	9,2 - 23,0
Connections - oil	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"	R3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Pressure atomizing						
Control unit	WD200						
Weight kg	280	290	440	450	610	640	1050

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.

BURNER	KT-28A	KT-35A	KT-42A	KT-50A	KT-70A	KT-90A
Capacity MW*	5,6 - 28,0	7,0 - 35,0	8,4 - 42,0	10,0 - 50,0	***	***
Connections - oil	G1"	G1"	G1"	G1"	G1"	G1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight kg	820	860	1750	1850	1990	2150

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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 MW* - gas - oil	 0,8 - 6,5 1,3 - 6,5	 1,0 - 8,0 1,6 - 8,0	 1,3 - 10,0 2,0 - 10,0	 1,6 - 13,0 2,6 - 13,0	 2,0 - 16,0 3,2 - 16,0	 2,4 - 19,0 3,8 - 19,0	 2,9 - 23,0 4,6 - 23,0
Connections - gas, burner - oil, burner	 DN65 R3/4"	 DN80 R3/4"	 DN80 R3/4"	 DN100 R3/4"	 DN100 R3/4"	 DN125 R3/4"	 DN125 R3/4"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000***						
Weight kg	420	430	580	610	780	810	1250

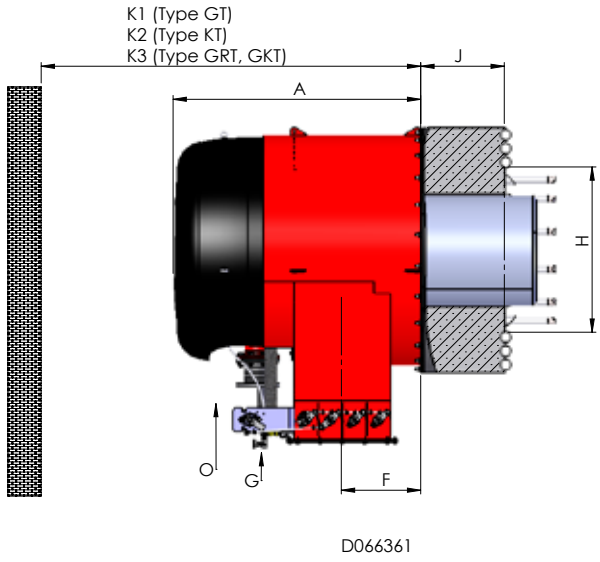
***) Can be delivered also with WD2000

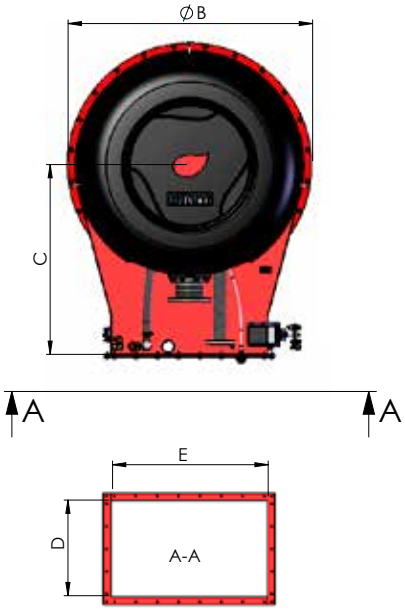
BURNER	GRT-28A	GRT-35A	GRT-42A	GRT-50A	GRT-70A	GRT-90A
Capacity MW* - gas - oil	 3,5 - 28,0 5,6 - 28,0	 4,4 - 35,0 7,0 - 35,0	 5,3 - 42,0 8,4 - 42,0	 6,3 - 50,0 ****	 8,8 - 70,0 ****	 11,3 - 90,0 ****
Connections - gas, burner - oil, burner	 DN150+DN80 G1"	 DN150+DN80 G1"	 DN200+DN100 G1"	 DN200+DN100 G1"	 DN250+DN125 G1"	 DN250+DN125 G1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000***					
Weight kg	1110	1160	2130	2230	2390	2550

***) Can be delivered also with WD2000
****) Confirm the capacity from Oilon Selection Tool

*) Gas capacity range with VSD, without VSD turndown ratio is 1:5
Valid, when combustion air temperature is +35 °C, λ = 1,17 and ambient air pressure 1,013 bar a.

Dimensions, Oilon ACE





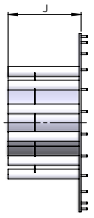
G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	D	E	F	J	H	K1	K2	K3
GT/KT/GRT/GKT-6A	1055	860	780	310	500	285	310	502	1900	2600	2600
GT/KT/GRT/GKT-8A	1055	860	780	310	500	285	340	591	1900	2600	2600
GT/KT/GRT/GKT-10A	1250	1020	856	395	625	317	360	613	2100	2800	2800
GT/KT/GRT/GKT-13A	1250	1020	856	395	625	317	400	685	2100	2800	2800
GT/KT/GRT/GKT-16A	1410	1210	990	470	750	386	420	765	2400	3100	3100
GT/KT/GRT/GKT-19A	1410	1210	990	470	750	386	440	823	2400	3100	3100
GT/KT/GRT/GKT-23A	1630	1610	1250	630	1025	525	475	907	3000	3700	3700
GT/KT/GRT/GKT-28A	1630	1610	1250	630	1025	525	500	988	3000	3700	3700
GT/KT/GRT/GKT-35A	1630	1610	1250	630	1025	525	550	1089	3000	3700	3700
GT/KT/GRT/GKT-42A	2170	2235	1660	950	1450	755	600	1206	4000	4900	4900
GT/KT/GRT/GKT-50A	2170	2235	1660	950	1450	755	700	1302	4000	4900	4900
GT/KT/GRT/GKT-70A	2170	2235	1660	950	1450	755	750	1512	4000	4900	4900
GT/KT/GRT/GKT-90A	2170	2235	1660	950	1450	755	750	1700	4000	4900	4900

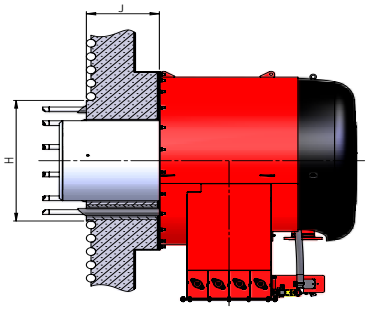
Dimensions in mm.

Boiler wall masonry, burner mounting Oilon ACE

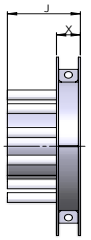
Alternative A



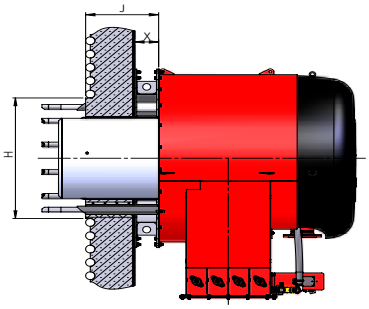
Masonry mold including boiler flange for burner mounting



Alternative B



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

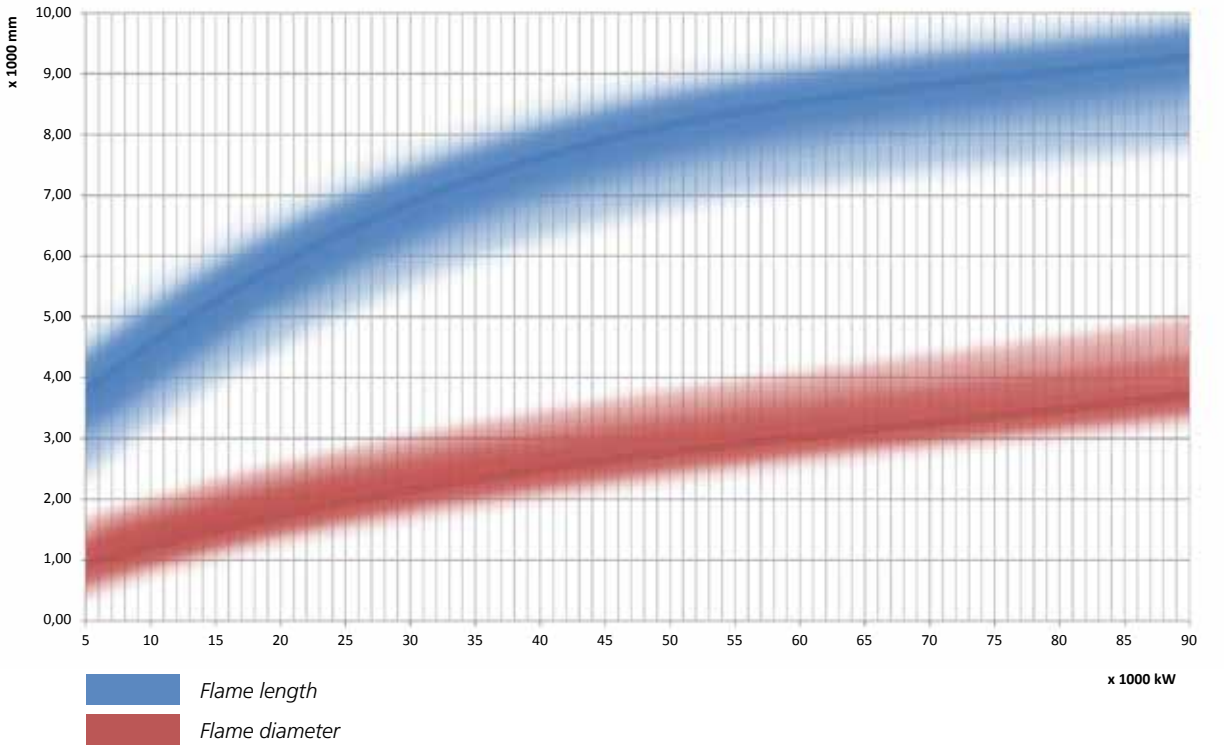


The drawing of selected masonry mold alternative will be provided by Oilon.

The mold itself is an optional part.

Flame dimensions, Oilon ACE

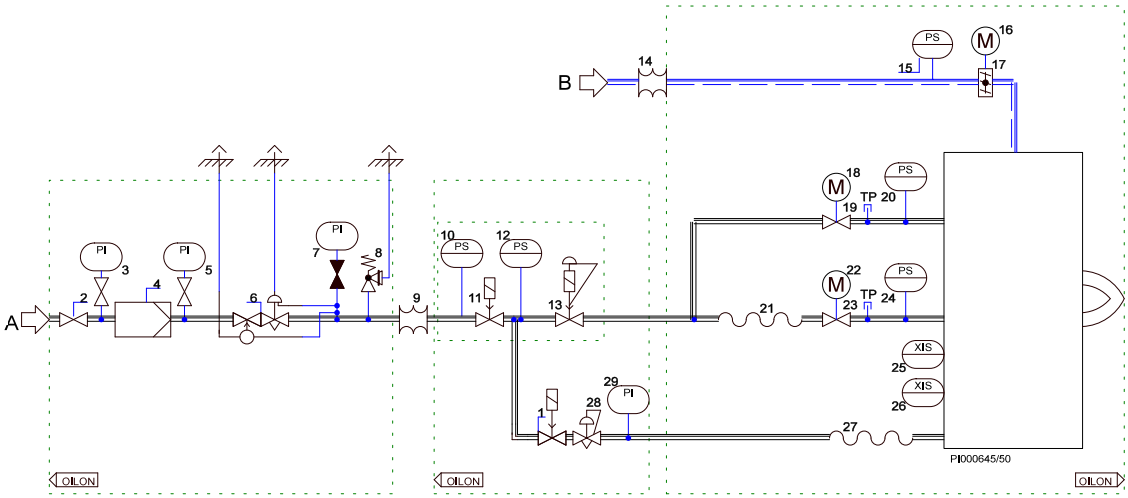
Estimated flame dimensions for NG, LFO and HFO



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

PI Diagrams, Oilon ACE

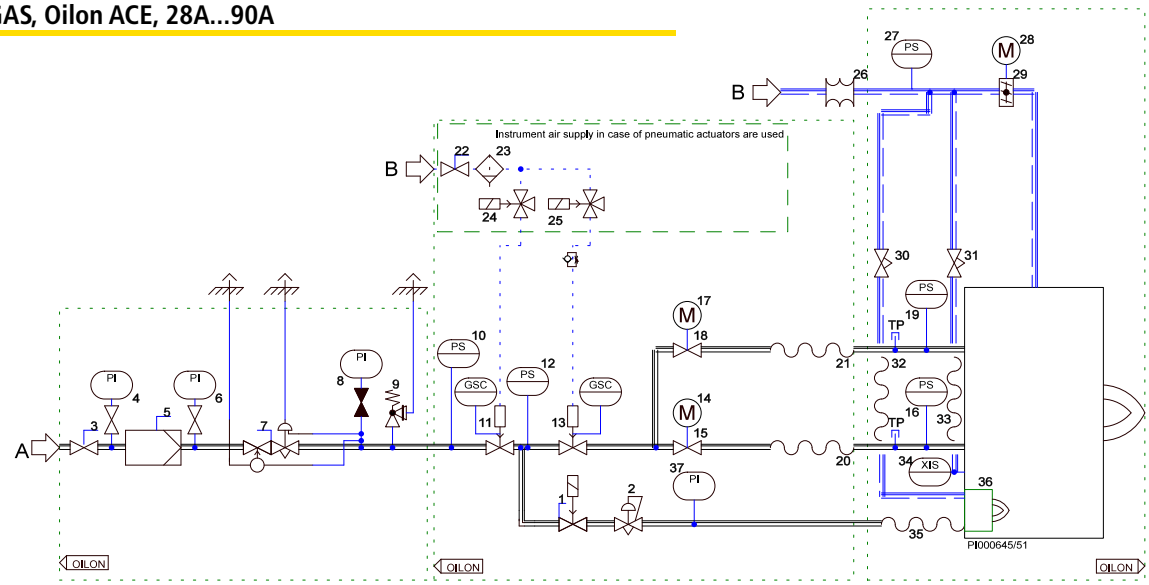
GAS, Oilon ACE, 6A...23A



1. Solenoid valve, NC
2. Manual shut-off valve
3. Pressure gauge
4. Gas filter
5. Pressure gauge
6. Pressure regulator with safety shut-off
7. Pressure gauge
8. Safety relief valve
9. Bellow
10. Pressure switch / low
11. Solenoid valve, NC
12. Pressure switch / low & high
13. Pressure regulation valve, NC
14. Bellow, not in Oilon delivery
15. Pressure switch / low
16. Actuator
17. Combustion air damper
18. Actuator
19. Gas control valve
20. Pressure switch / high
21. Flexible hose
22. Actuator
23. Gas control valve
24. Pressure switch / high
25. Flame detector
26. Flame detector
27. Flexible hose
28. Pressure regulator
29. Pressure gauge

A = Gas supply
B = Air supply

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

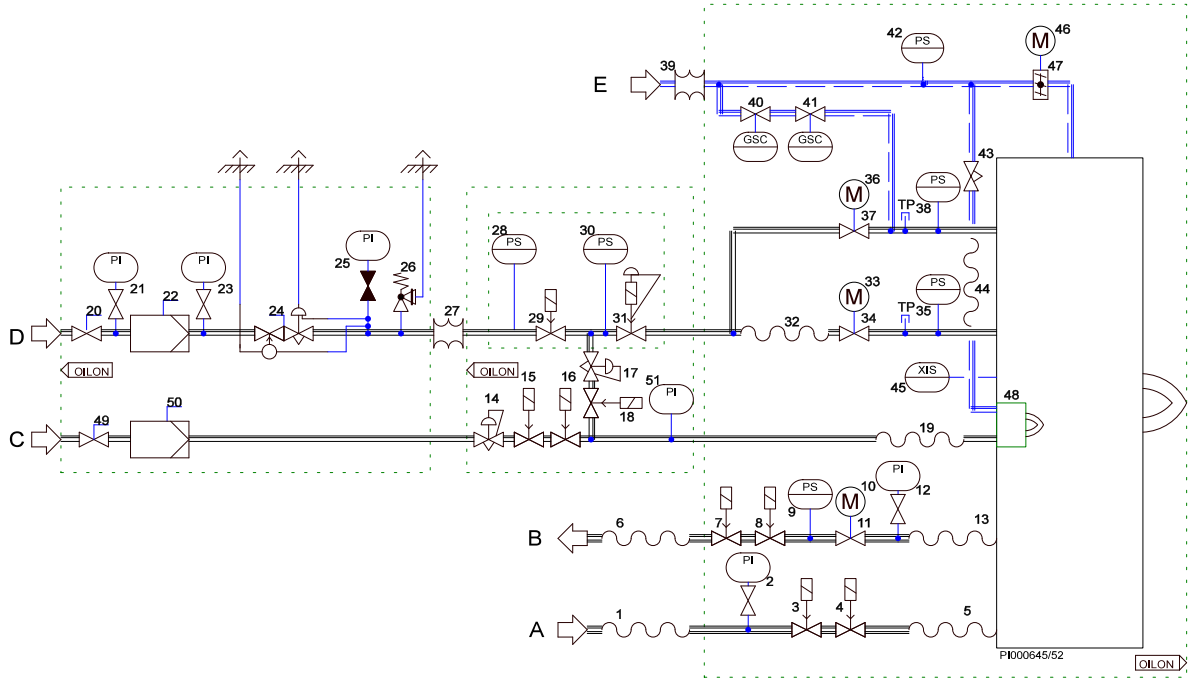


1. Solenoid valve, NC
2. Pressure regulator
3. Manual shut-off valve
4. Pressure gauge
5. Gas filter
6. Pressure gauge
7. Pressure regulator with safety shut-off
8. Pressure gauge
9. Safety relief valve
10. Pressure switch / low
11. Solenoid valve, NC
12. Pressure switch / low & high
13. Pressure regulation valve, NC
14. Actuator
15. Gas control valve
16. Pressure switch / high
17. Actuator
18. Gas control valve
19. Pressure switch / high
20. Flexible hose, not in Oilon delivery
21. Flexible hose, not in Oilon delivery
22. Manual shut-off valve*
23. Air filter*
24. Solenoid valve*
25. Solenoid valve*
26. Bellow, not in Oilon delivery
27. Pressure switch / low
28. Actuator
29. Combustion air damper
30. Needle valve
31. Needle valve
32. Flexible hose
33. Flexible hose
34. Flame detector
35. Flexible hose
36. Pilot burner with flame detector
37. Pressure gauge

A = Gas supply
B = Air supply

* Instrument air components in case of pneumatic actuators are used

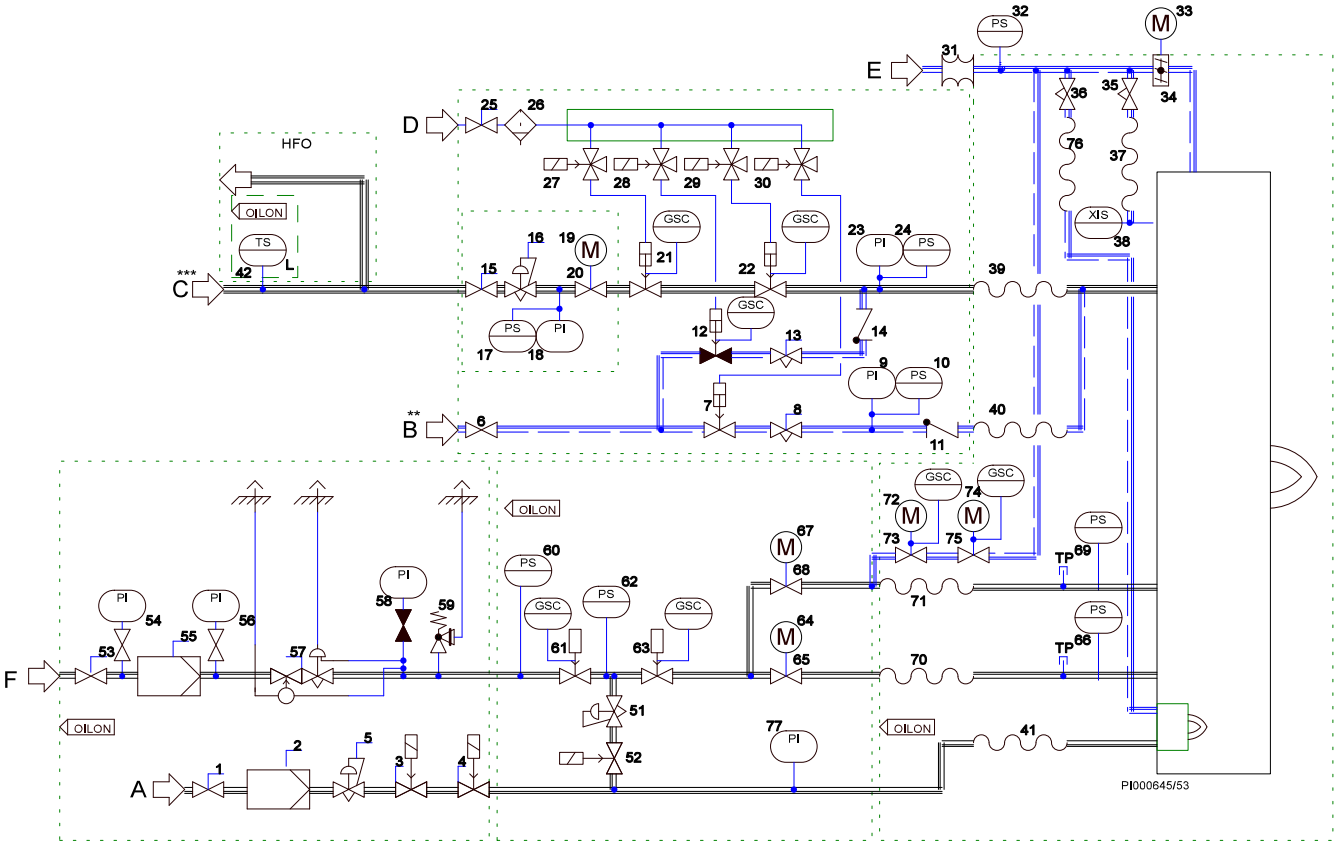
GAS/LIGHT OIL, Oilon ACE 6A...23A



1. Flexible hose, not in Oilon delivery
2. Pressure gauge
3. Safety shut-off valve (115V)
4. Safety shut-off valve (115V)
5. Flexible hose
6. Flexible hose, not in Oilon delivery
7. Solenoid valve (115V)
8. Solenoid valve (115V)
9. Pressure switch / high
10. Actuator
11. Oil control valve
12. Pressure gauge
13. Flexible hose
14. Pressure regulation valve
15. Solenoid valve, NC
16. Solenoid valve, NC
17. Pressure regulation valve
18. Solenoid valve, NC
19. Flexible hose
20. Manual shut-off valve
21. Pressure gauge
22. Gas filter
23. Pressure gauge
24. Pressure regulator with safety shut-off
25. Pressure gauge
26. Safety relief valve
27. Bellow, not in Oilon delivery
28. Pressure switch / low
29. Safety shut-off valve
30. Pressure switch / low and high
31. Safety shut-off valve
32. Flexible hose
33. Actuator
34. Gas control valve
35. Pressure switch / high
36. Actuator
37. Gas control valve
38. Pressure switch / high
39. Bellow, not in Oilon delivery
40. Cooling air valve
41. Cooling air valve
42. Pressure switch / low
43. Needle valve
44. Flexible hose
45. Flame detector
46. Actuator
47. Combustion air damper
48. Pilot burner with flame detector
49. Manual shut-off valve, optional
50. Gas filter, optional
51. Pressure gauge

A = Oil supply
B = Oil return
C = LPG
D = Natural gas
E = Air supply

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



1. Manual shut-off valve
2. Gas filter
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Pressure regulator
6. Manual shut-off valve
7. Shut-off valve, NC
8. Manual control valve
9. Pressure gauge
10. Pressure switch / low
11. Non-return valve
12. Shutt-off valve, NC
13. Manual control valve
14. Non-return valve
15. Manual shut-off valve
16. Pressure regulator
17. Pressure switch / high
18. Pressure gauge
19. Actuator
20. Oil control valve
21. Safety shut-off valve
22. Safety shut-off valve
23. Pressure gauge
24. Pressure switch / high
25. Manual shut-off valve
26. Air filter
27. Solenoid valve
28. Solenoid valve
39. Solenoid valve
30. Solenoid valve
31. Bellow, not in Oilon delivery
32. Pressure switch / low
33. Actuator
34. Combustion air damper
35. Needle valve
36. Needle valve
37. Flexible hose
38. Flame detector
39. Flexible hose
40. Flexible hose
41. Flexible hose
42. Temperature transmitter / low
43. Thermometer
44. Pressure gauge
48. Temperature switch / low, loose delivery
51. Pressure regulator
52. Solenoid valve, NC
53. Manual shut-off valve
54. Pressure gauge
55. Gas filter
56. Pressure gauge
57. Pressure regulator with safety shut-off
58. Pressure gauge
59. Safety relief valve
60. Pressure switch / low
61. Safety shut-off valve
62. Pressure switch / low & high
63. Safety shut-off valve
64. Actuator
65. Gas control valve
66. Pressure switch / high
67. Actuator
68. Gas control valve
69. Pressure switch / high
70. Flexible hose, not in Oilon delivery
71. Flexible hose, not in Oilon delivery
72. Actuator
73. Cooling air valve
74. Actuator
75. Cooling air valve
76. Flexible hose
77. Pressure gauge

A = Ignition gas
B = Atomizing medium
C = Heavy fuel oil
D = Instrument air
E = Combustion air
F = Gas

** = Insulation of atomizing steam line. Not in Oilon delivery.
*** = Trace heating and insulation of oil line. Not in Oilon delivery.

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 < 50°C
**) in liquid fuel burners
***) Check separate control panel (WDx00) price from accessories section

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

	GT/ GKT	KT
FGR: *		
DN200	o	o
DN250	o	o
DN300	o	o
DN350	o	o
DN400	o	o
DN500	o	o
DN600	o	o
Steel hose, main gas:		
DN80	o	-
DN100	o	-
DN125	o	-
DN150	o	-

o Option
*) The scope of FGR kit, loose delivery:
- flue gas control with servomotor
- extra air damper with servomotor for controlling combustion air vs. flue 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	•	•	•	•

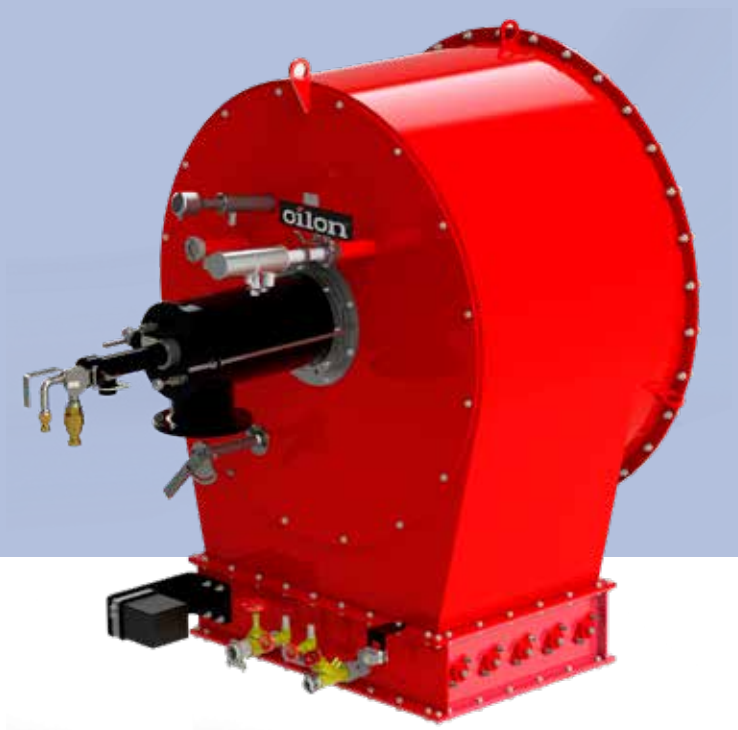
• Standard

* in liquid fuel burners
** possible, when combustion air temperature is < 50 °C

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

0,9 - 63 MW

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* MW	0,8 - 3,9	1,2 - 6,1	2,0 - 10,0	3,0 - 15,0	4,4 - 22,0	5,8 - 29,0	8,4 - 42,0	12,6 - 63,0
Connections - gas, burner	DN65	DN80	DN100	DN125	DN150	DN150	DN200	DN200
Pilot burner	GPB20							
Control unit	WD200**							
Weight kg	280	360	480	600	940	1450	1700	2150

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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* MW	0,8 - 3,9	1,2 - 6,1	2,0 - 10,0	3,0 - 15,0	4,4 - 22,0	5,8 - 29,0	8,4 - 42,0	12,6 - 63,0
Connections - gas, burner - oil, burner	DN65 G1/2"	DN80 G1/2"	DN100 G1/2"	DN125 G3/4"	DN150 G3/4"	DN150 G1"	DN200 G1"	DN200 G1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Air atomizing							
Control unit	WD1000**							
Weight kg	300	410	500	620	960	1480	1730	2180

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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* MW	0,9 - 4,4	1,3 - 6,6	2,2 - 11,0	3,2 - 16,0	4,6 - 23,0	6,2 - 31,0	8,6 - 43,0	12,8 - 64,0
Connections - oil, burner	G1/2"	G1/2"	G1/2"	G3/4"	G3/4"	G1"	G1"	G1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Air atomizing							
Control unit	WD1000**							
Weight kg	280	350	470	580	870	1370	1610	2070

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

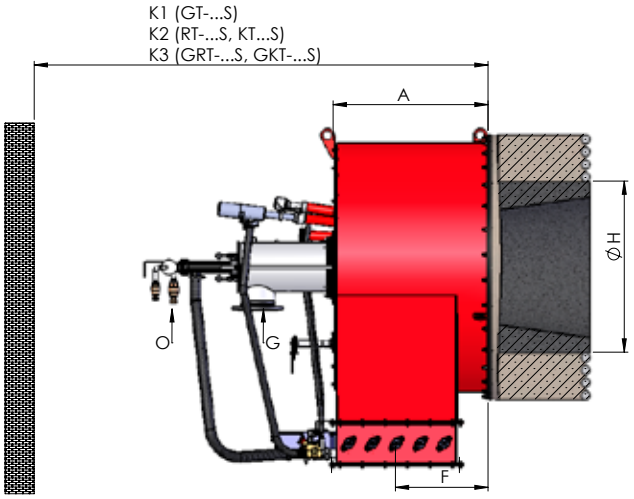
BURNER	RT-5S	RT-8S	RT-12S	RT-18S	RT-25S	RT-35S	RT-50S	RT-70S
Capacity* MW	0,9 - 4,4	1,3 - 6,6	2,2 - 11,0	3,2 - 16,0	4,6 - 23,0	6,2 - 31,0	8,6 - 43,0	12,8 - 64,0
Connections - oil, burner	G1/2"	G1/2"	G1/2"	G3/4"	G3/4"	G1"	G1"	G1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Steam/air atomizing							
Control unit	WD1000**							
Weight kg	280	350	470	580	870	1370	1610	2070

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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* MW	0,8 - 3,9	1,2 - 6,1	2,0 - 10,0	3,0 - 15,0	4,4 - 22,0	5,8 - 29,0	8,4 - 42,0	12,6 - 63,0
Connections - gas, burner - oil, burner	DN65 G1/2"	DN80 G1/2"	DN100 G1/2"	DN125 G3/4"	DN150 G3/4"	DN150 G1"	DN200 G1"	DN200 G1"
Pilot burner	GPB20							
Atomizing type Liquid fuel	Steam/air atomizing							
Control unit	WD1000**							
Weight kg	300	410	500	620	960	1480	1730	2180

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

Dimensions, S-Burners



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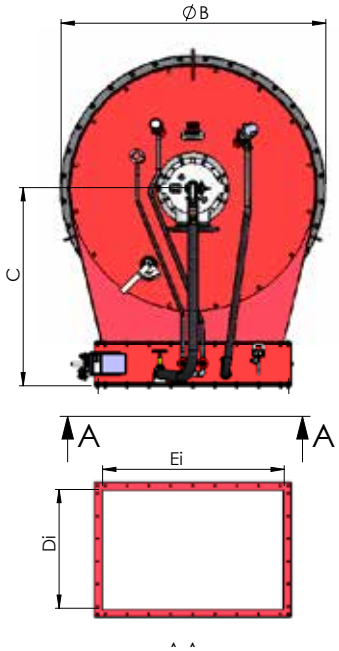
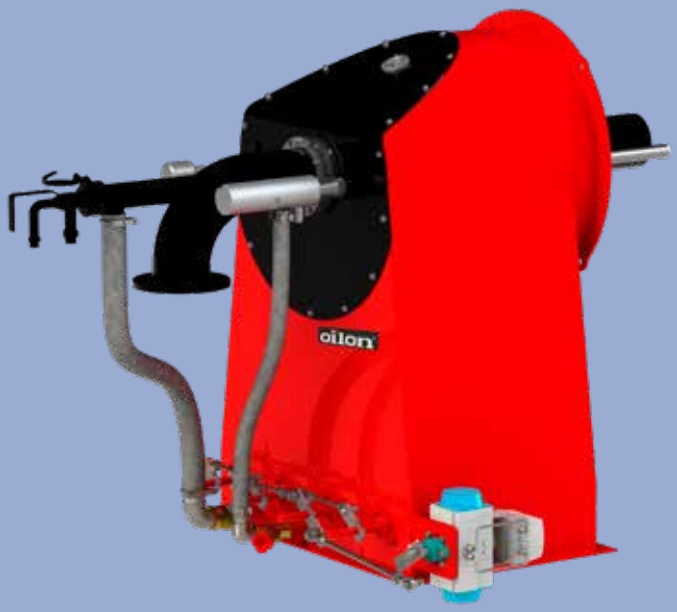


G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	F	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-5S	390	735	740	260	425	244	520	1700	2100	2700
GT/RT/KT/GRT/GKT-8S	460	865	795	310	500	289	600	1900	2300	2900
GT/RT/KT/GRT/GKT-12S	540	995	865	395	625	327	710	2100	2500	3300
GT/RT/KT/GRT/GKT-18S	586	1155	980	470	750	335	820	2500	2900	3500
GT/RT/KT/GRT/GKT-25S	739	1315	1100	530	900	454	940	2600	2900	4000
GT/RT/KT/GRT/GKT-35S	853	1610	1250	630	1025	530	1030	2900	3500	4300
GT/RT/KT/GRT/GKT-50S	1024	1750	1300	785	1200	610	1220	3250	3500	4650
GT/RT/KT/GRT/GKT-70S	1212	2100	1500	1050	1550	713	1410	3500	4100	4700

Dimensions in mm.

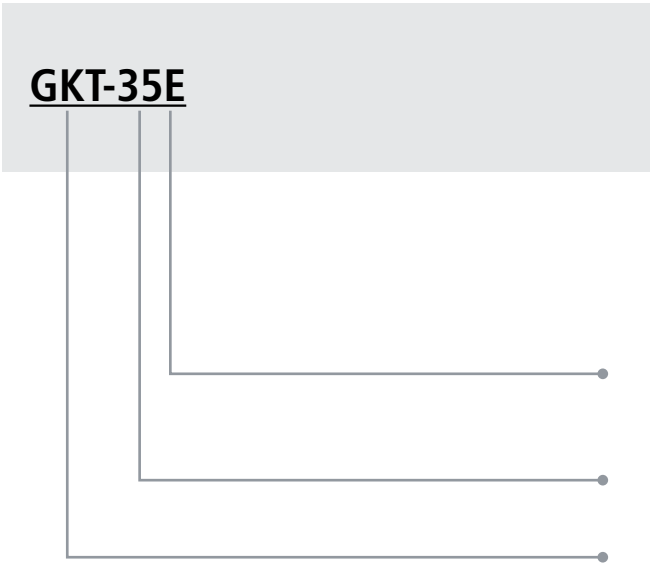


LITEX Burners

5 - 45 MW

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* MW	5 - 35	6,5 - 45
Connections - gas, burner	DN150	DN150
Pilot burner	GPB20	
Control unit	WD200**	
Weight kg	420	610

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKT-35E	GKT-45E
Capacity* MW - gas - oil	5 - 35 7 - 35	6,5 - 45 9 - 45
Connections - gas, burner - oil, burner	DN150 1"	DN150 1"
- gas, gas valve	DN150	DN150
Pilot burner	GPB20	
Atomizing type Liquid fuel	Air atomizing	
Control unit	WD1000***	
Weight kg	470	770

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
***) Can be delivered with WD2000 as well.

BURNER	KT-35E	KT-45E
Capacity* MW	7 - 35	9 - 45
Connections - oil, burner	1"	1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Air atomizing	
Control unit	WD1000***	
Weight kg	400	590

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
***) Can be delivered with WD2000 as well.

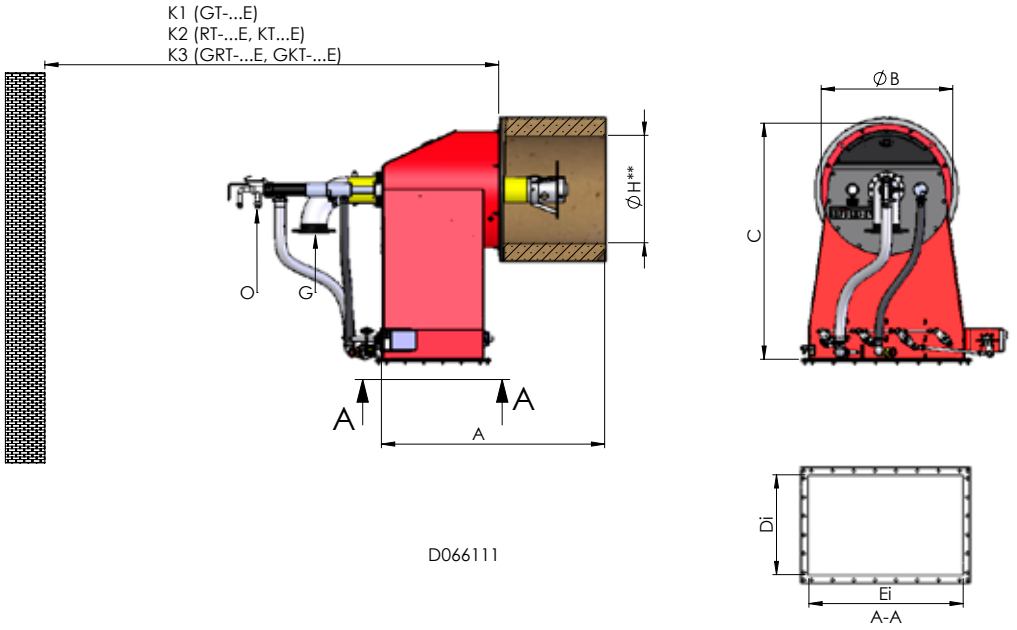
BURNER	RT-35E	RT-45E
Capacity* MW	7 - 35	9 - 45
Connections - oil, burner	1"	1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Steam/air atomizing	
Control unit	WD1000***	
Weight kg	400	590

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
***) Can be delivered with WD2000 as well.

BURNER	GRT-35E	GRT-45E
Capacity* MW - gas - oil	5 - 35 7 - 35	6,5 - 45 9 - 45
Connections - gas, burner - oil, burner	DN150 1"	DN150 1"
Pilot burner	GPB20	
Atomizing type Liquid fuel	Steam/air atomizing	
Control unit	WD1000***	
Weight kg	470	800

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
***) Can be delivered with WD2000 as well.

Dimensions, LITEX Burners

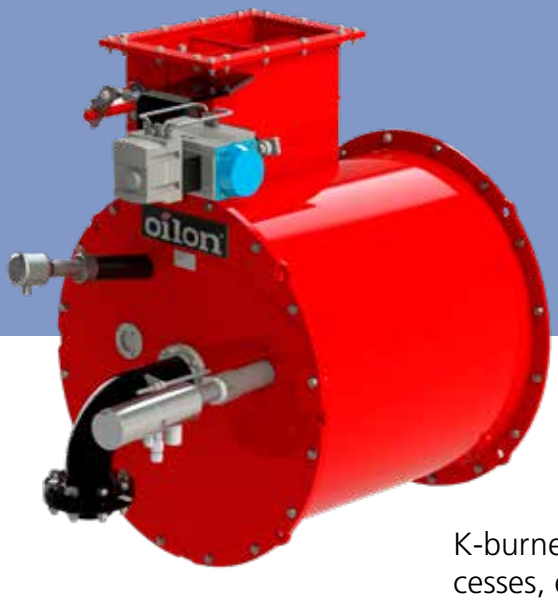


G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-35E	1470	870	1560	660	1020	710	2700	3300	4100
GT/RT/KT/GRT/GKT-45E	1830	990	1895	830	1250	830	3450	4050	4850

**) ØH = Combustion head inner diameter

Dimensions in mm.

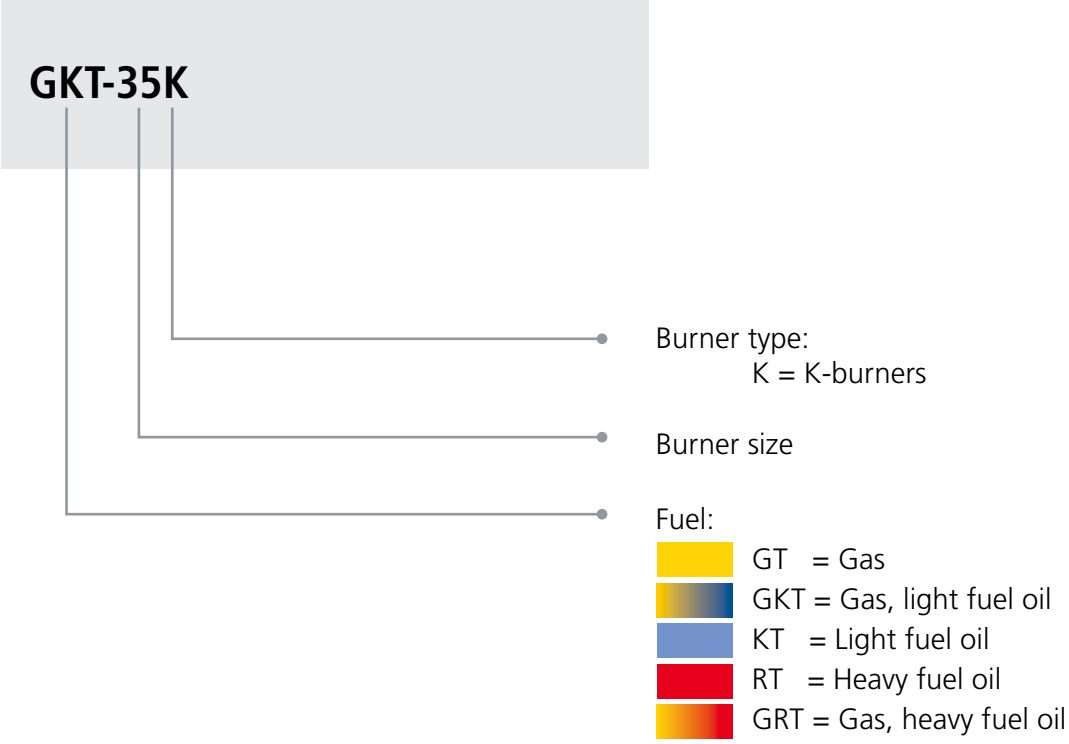


K-Burners

0,5 - 31 MW

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



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* MW	0,5 - 2,7	0,9 - 4,5	1,4 - 7,0	2,2 - 11,0	3,2 - 16,0	4,4 - 22,0	6,2 - 31,0
Connections - gas, burner	DN65	DN65	DN80	DN80	DN100	DN125	DN150
Pilot burner	GPB20						
Control unit	WD200**						
Weight kg	180	220	290	390	540	690	1020

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) 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* MW	0,5 - 2,7	0,9 - 4,5	1,4 - 7,0	2,2 - 11,0	3,2 - 16,0	4,4 - 22,0	6,2 - 31,0
Connections - gas, burner - oil, burner	DN65 1/2"	DN65 1/2"	DN80 1/2"	DN80 1/2"	DN100 3/4"	DN125 3/4"	DN150 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Air atomizing						
Control unit	WD1000**						
Weight kg	190	230	300	420	560	720	1060

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

BURNER	KT-3K	KT-5K	KT-8K	KT-12K	KT-18K	KT-25K	KT-35K
Capacity* MW	0,5 - 2,7	0,9 - 4,5	1,4 - 7,0	2,2 - 11,0	3,2 - 16,0	4,4 - 22,0	6,2 - 31,0
Connections - oil, burner	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Air atomizing						
Control unit	WD1000**						
Weight kg	180	220	290	390	530	680	990

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

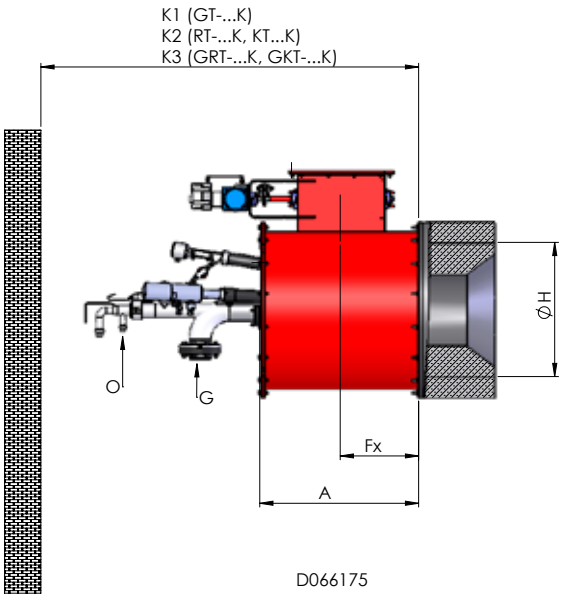
BURNER	RT-3K	RT-5K	RT-8K	RT-12K	RT-18K	RT-25K	RT-35K
Capacity* MW	0,5 - 2,7	0,9 - 4,5	1,4 - 7,0	2,2 - 11,0	3,2 - 16,0	4,4 - 22,0	6,2 - 31,0
Connections - oil, burner	1/2"	1/2"	1/2"	1/2"	3/4"	3/4"	1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000**						
Weight kg	180	220	290	390	530	680	990

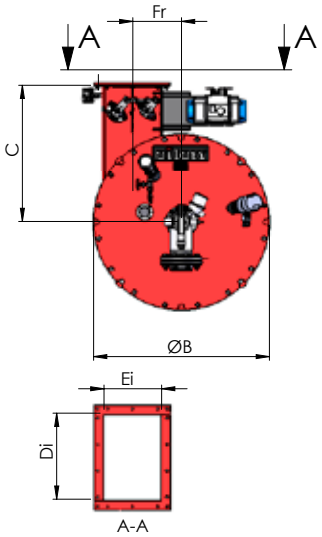
*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

BURNER	GRT-3K	GRT-5K	GRT-8K	GRT-12K	GRT-18K	GRT-25K	GRT-35K
Capacity* MW	0,5 - 2,7	0,9 - 4,5	1,4 - 7,0	2,2 - 11,0	3,2 - 16,0	4,4 - 22,0	6,2 - 31,0
Connections - gas, burner - oil, burner	DN65 1/2"	DN65 1/2"	DN80 1/2"	DN80 1/2"	DN100 3/4"	DN125 3/4"	DN150 1"
Pilot burner	GPB20						
Atomizing type Liquid fuel	Steam/air atomizing						
Control unit	WD1000**						
Weight kg	190	230	300	420	560	720	1060

*) Valid, when combustion air temperature is +35 ˚C, λ = 1,17 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

Dimensions, K-Burners

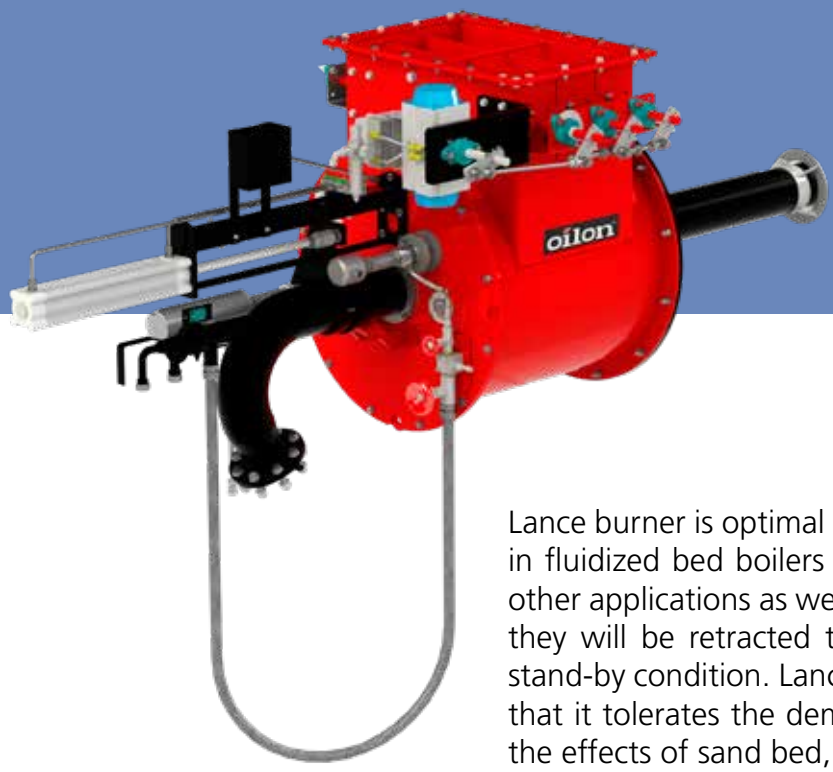




G = Gas inlet
O = Oil inlet/return

BURNER	A	ØB	C	Di	Ei	Fx	Fr	ØH	K1	K2	K3
GT/RT/KT/GRT/GKT-3K	430	520	520	230	155	210	128	500	2050	2400	2900
GT/RT/KT/GRT/GKT-5K	550	640	580	295	190	270	170	580	2150	2500	3100
GT/RT/KT/GRT/GKT-8K	690	780	710	375	250	340	210	670	2400	2700	3300
GT/RT/KT/GRT/GKT-12K	840	930	725	455	305	415	258	770	2800	2950	3550
GT/RT/KT/GRT/GKT-18K	1020	1110	815	555	370	505	215	900	3200	3500	4300
GT/RT/KT/GRT/GKT-25K	1200	1290	905	675	450	595	365	1030	3700	3900	4900
GT/RT/KT/GRT/GKT-35K	1410	1510	1050	820	540	700	430	1170	4100	4500	5500

Dimensions in mm.

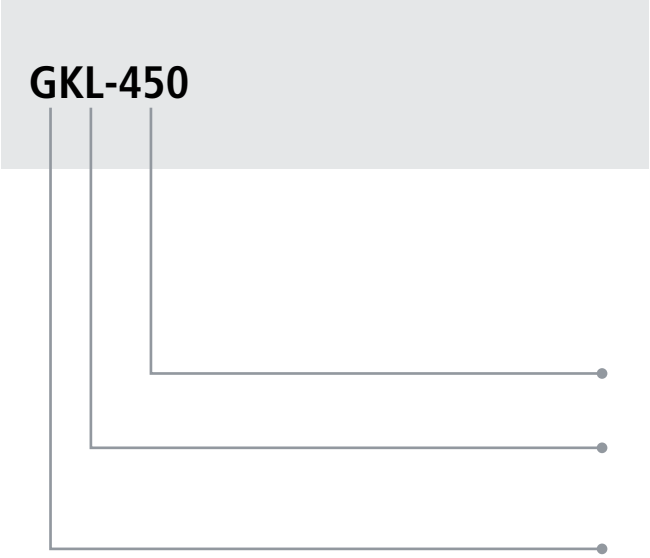


Lance Burners

1,5 - 58 MW

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 MW *	1,5 - 6,1	3,1 - 12,5	5,3 - 21,0	7,8 - 31,0	11,5 - 46,0	14,5 - 58,0
Connections - gas, burner	DN65	DN80	DN125	DN150	DN200	DN200
Pilot burner	GPB20					
Control unit	WD200**					
Weight kg	250	350	440	530	700	960

*) Valid when combustion air temperature is +35 °C, λ=0,8 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD1000 and WD2000 as well.

BURNER	GKL-250	GKL-350	GKL-450	GKL-550	GKL-650	GKL-750
Capacity MW*	1,5 - 6,1	3,1 - 12,5	5,3 - 21,0	7,8 - 31,0	11,5 - 46,0	14,5 - 58,0
Connections - gas, burner - oil, burner	DN65 R1/2"	DN80 R1/2"	DN125 R3/4"	DN150 R1"	DN200 R1"	DN200 R1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight kg	250	330	500	560	720	980

*) Valid when combustion air temperature is +35 °C, λ=0,8 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

BURNER	KL-250	KL-350	KL-450	KL-550	KL-650	KL-750
Capacity MW*	1,5 - 6,1	3,1 - 12,5	5,3 - 21,0	7,8 - 31,0	11,5 - 46,0	14,5 - 58,0
Connections - oil, burner	R1/2"	R1/2"	R3/4"	R1"	R1"	R1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Air atomizing					
Control unit	WD1000**					
Weight kg	240	320	420	500	650	900

*) Valid when combustion air temperature is +35 °C, λ=0,8 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

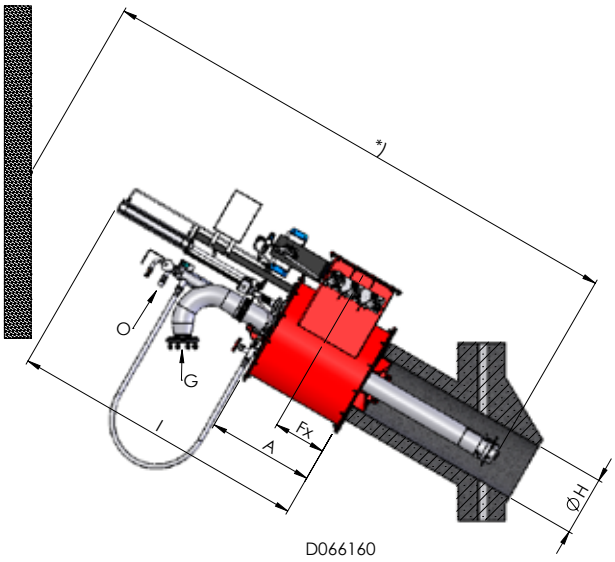
BURNER	RL-250	RL-350	RL-450	RL-550	RL-650	RL-750
Capacity MW *	1,5 - 6,1	3,1 - 12,5	5,3 - 21,0	7,8 - 31,0	11,5 - 46,0	14,5 - 58,0
Connections - oil, burner	R1/2"	R1/2"	R3/4"	R1"	R1"	R1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000**					
Weight kg	240	320	420	500	650	900

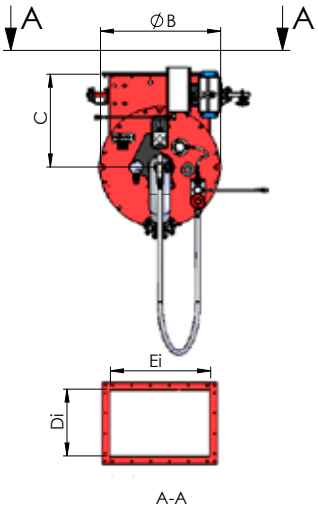
*) Valid when combustion air temperature is +35 °C, λ=0,8 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

BURNER	GRL-250	GRL-350	GRL-450	GRL-550	GRL-650	GRL-750
Capacity MW*	1,5 - 6,1	3,1 - 12,5	5,3 - 21,0	7,8 - 31,0	11,5 - 46,0	14,5 - 58,0
Connections - gas, burner - oil, burner	DN65 R1/2"	DN80 R1/2"	DN125 R3/4"	DN150 R1"	DN200 R1"	DN200 R1"
Pilot burner	GPB20					
Atomizing type Liquid fuel	Steam/air atomizing					
Control unit	WD1000**					
Weight kg	250	330	500	560	720	980

*) Valid when combustion air temperature is +35 °C, λ=0,8 and ambient air pressure 1,013 bar a.
**) Can be delivered with WD2000 as well.

Dimensions, Lance Burners





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	550	550	515	250	375	270	250	1603
GL/RL/KL/GRL/GKL-350	580	660	565	370	555	280	350	1623
GL/GKL/KL/RL/GRL-450	720	810	625	450	675	355	450	1982
GL/GKL/KL/RL/GRL-550	820	960	695	540	820	405	550	2082
GL/GKL/KL/RL/GRL-650	1005	1210	950	640	990	500	650	2282
GL/GKL/KL/RL/GRL-750	1160	1450	750	740	1180	575	750	2450

Dimensions in mm.

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 < 50 °C

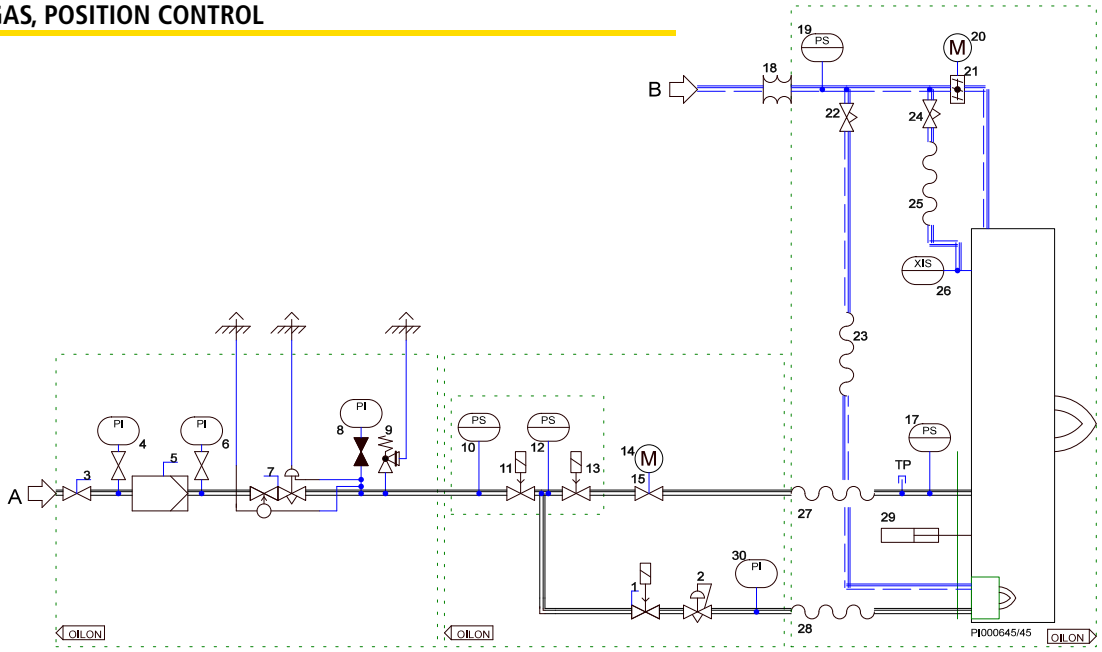
Options, S-, LITEX, K- and Lance Burners

	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

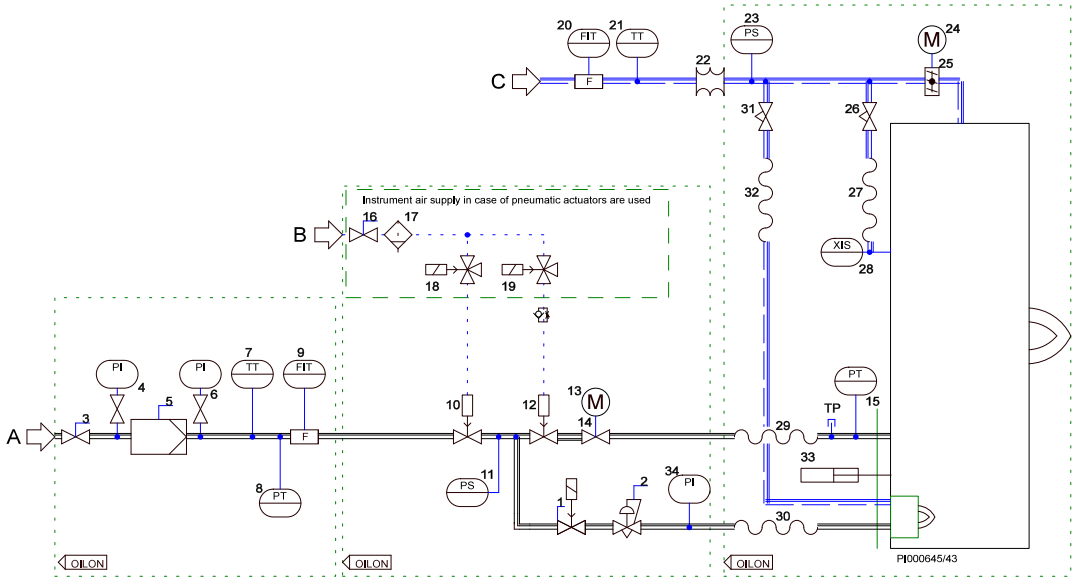
GAS, POSITION CONTROL



1. Solenoid valve, NC
2. Pressure regulator
3. Manual shut-off valve
4. Pressure gauge
5. Gas filter
6. Pressure gauge
7. Pressure regulator with safety shut-off
8. Pressure gauge
9. Safety relief valve
10. Pressure switch / low
11. Safety shut-off valve
12. Pressure switch / low & high
13. Safety shut-off valve
14. Actuator
15. Gas control valve
17. Pressure switch / high
18. Bellow, not in Oilon delivery
19. Pressure switch / low
20. Actuator
21. Combustion air damper
22. Needle valve
23. Flexible hose
24. Needle valve
25. Flexible hose
26. Flame detector
27. Flexible hose
28. Flexible hose
29. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
30. Pressure gauge

A = Gas supply
B = Air supply

GAS, FLOW CONTROL

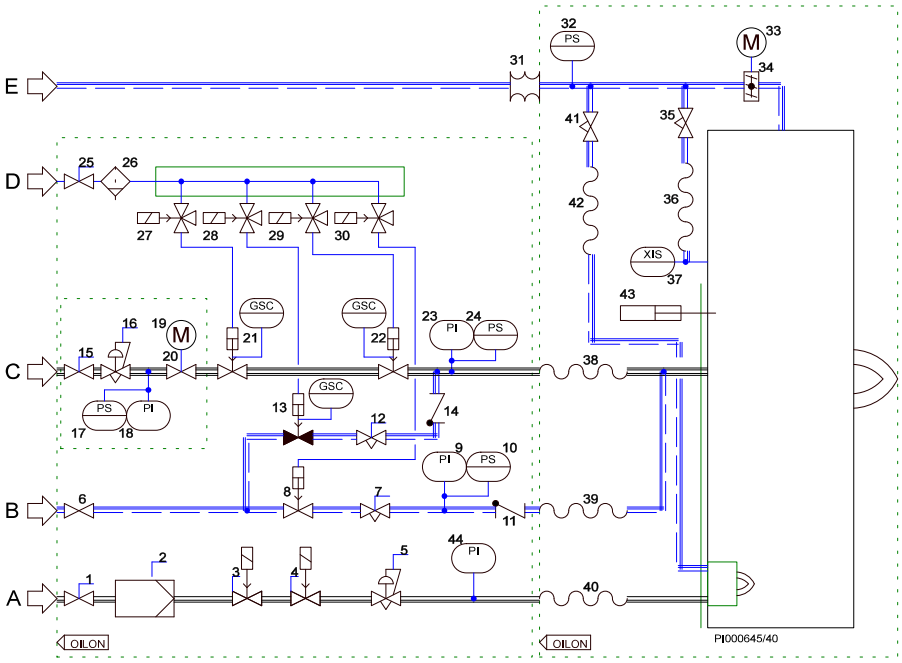


1. Solenoid valve, NC
2. Pressure regulator
3. Manual shut-off valve
4. Pressure gauge
5. Gas filter
6. Pressure gauge
7. Temperature transmitter
8. Pressure transmitter / high and low
9. Flow measurement
10. Safety shut off valve
11. Pressure switch
12. Safety shut off valve
13. Actuator
14. Gas control valve
15. Pressure transmitter / high
16. Manual shut-off valve*
17. Air filter*
18. Solenoid valve*
19. Solenoid valve*
20. Flow measurement
21. Temperature transmitter
22. Bellow, not in Oilon delivery
23. Pressure switch / low
24. Actuator
25. Combustion air damper
26. Needle valve
27. Flexible hose
28. Flame detector
29. Flexible hose
30. Flexible hose
31. Needle valve
32. Flexible hose
33. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
34. Pressure gauge

A = Gas supply
B = Intrument air
C = Air supply

* Instrument air components in case of pneumatic actuators are used

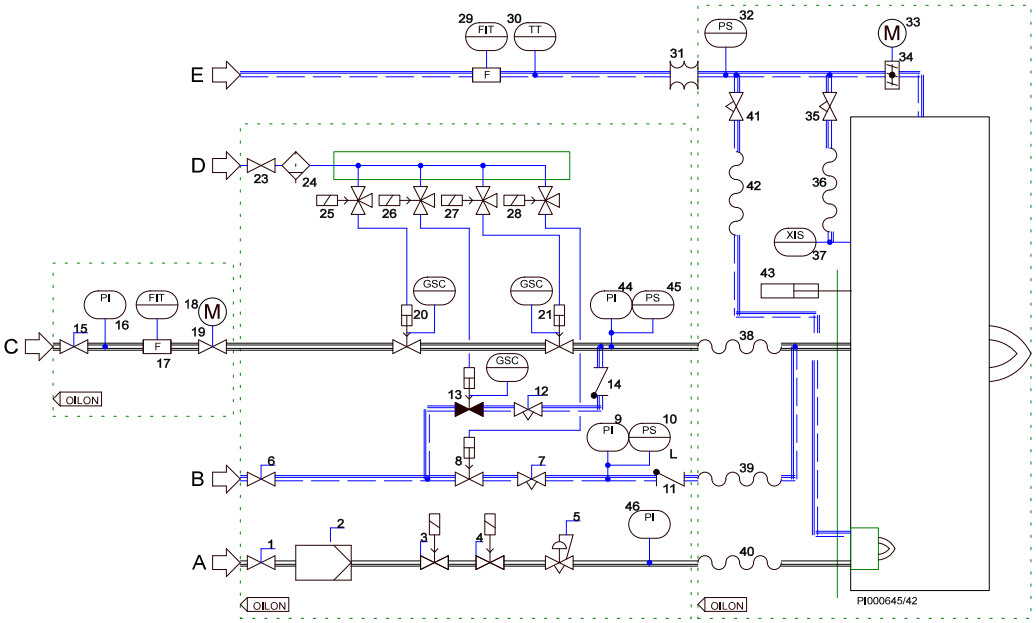
LIGHT FUEL OIL, POSITION CONTROL



1. Manual shut-off valve
2. Gas filter
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Pressure regulator
6. Manual shut-off valve
7. Manual control valve
8. Shut-off valve
9. Pressure gauge
10. Pressure switch / low
11. Non-return valve
12. Manual control valve
13. Shutt-off valve, NC
14. Non-return valve
15. Manual shut-off valve
16. Pressure regulator
17. Pressure switch / high
18. Pressure gauge
19. Actuator
20. Oil control valve
21. Safety shut-off valve
22. Safety shut-off valve
23. Pressure gauge
24. Pressure switch / high
25. Manual shut-off valve
26. Air filter
27. Solenoid valve
28. Solenoid valve
29. Solenoid valve
30. Solenoid valve
31. Bellow, not in Oilon delivery
32. Pressure switch / low
33. Actuator
34. Combustion air damper
35. Needle valve
36. Flexible hose
37. Flame detector
38. Flexible hose
39. Flexible hose
40. Flexible hose
41. Needle valve
42. Flexible hose
43. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
44. Pressure gauge

A = Ignition gas
B = Atomizing medium
C = Light fuel oil
D = Instrument air
E = Air supply

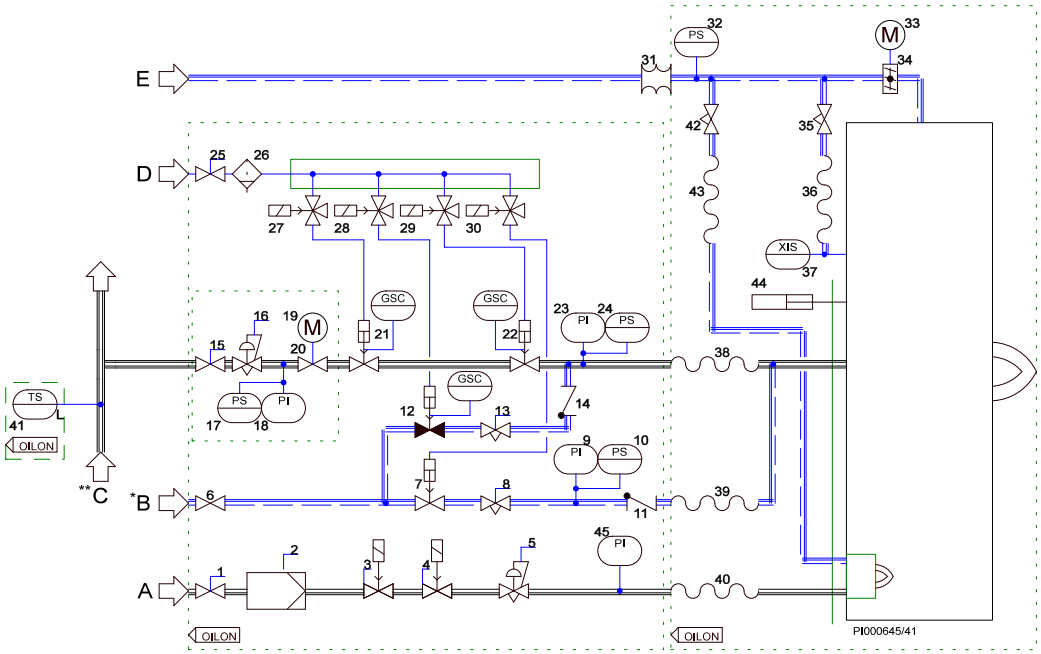
LIGHT FUEL OIL, FLOW CONTROL



1. Manual shut-off valve
2. Gas filter
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Pressure regulator
6. Manual shut-off valve
7. Manual control valve
8. Shut-off valve
9. Pressure gauge
10. Pressure switch / low
11. Non-return valve
12. Manual control valve
13. Shut-off valve, NC
14. Non-return valve
15. Manual shut-off valve
16. Pressure gauge
17. Flow measurement
18. Actuator
19. Oil Control valve
20. Safety shut-off valve
21. Safety shut-off valve
22. Pressure transmitter
23. Manual shut-off valve
24. Air filter
25. Solenoid valve
26. Solenoid valve
27. Solenoid valve
28. Solenoid valve
29. Flow measurement
30. Temperature transmitter
31. Bellow, not in Oilon delivery
32. Pressure switch / low
33. Actuator
34. Combustion air damper
35. Needle valve
36. Flexible hose
37. Flame detector
38. Flexible hose
39. Flexible hose
40. Flexible hose
41. Needle valve
42. Flexible hose
43. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
44. Pressure gauge
45. Pressure switch / low
46. Pressure gauge

A = Ignition gas
B = Atomizing medium
C = Light fuel oil
D = Instrument air
E = Air supply

HEAVY FUEL OIL, POSITION CONTROL



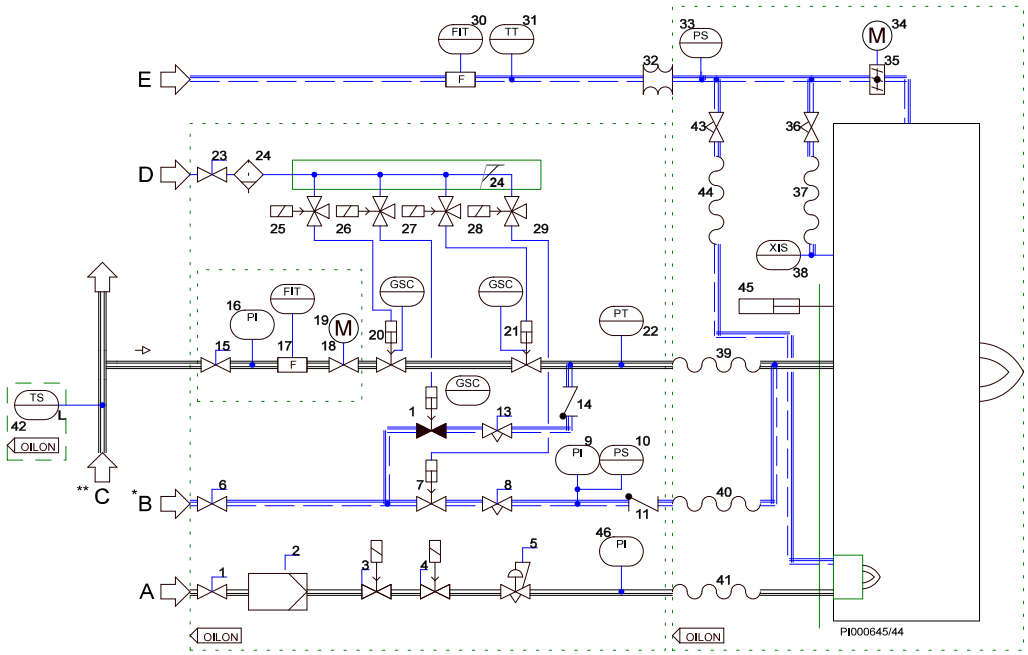
1. Manual shut-off valve
2. Gas filter
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Pressure regulator
6. Manual shut-off valve
7. Shut-off valve
8. Manual control valve
9. Pressure gauge
10. Pressure switch / low
11. Non-return valve
12. Shutt-off valve, NC
13. Manual control valve
14. Non-return valve
15. Manual shut-off valve
16. Pressure regulator
17. Pressure switch / high
18. Pressure gauge
19. Actuator
20. Oil control valve
21. Safety shut-off valve
22. Safety shut-off valve
23. Pressure gauge
24. Pressure switch / high
25. Manual shut-off valve
26. Air filter
27. Solenoid valve
28. Solenoid valve
39. Solenoid valve
30. Solenoid valve
31. Bellow, not in Oilon delivery
32. Pressure switch / low
33. Actuator
34. Combustion air damper
35. Needle valve
36. Flexible hose
37. Flame detector
38. Flexible hose
39. Flexible hose
40. Flexible hose
41. Temperature switch / low, loose delivery
42. Needle valve
43. Flexible hose
44. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
45. Pressure gauge

A = Ignition gas
B = Atomizing medium / Steam
C = Heavy fuel oil
D = Instrument air
E = Air supply

* Insulation of atomizing steam line. Not in Oilon delivery.

** Trace heating and insulation of oil line. Not in Oilon delivery.

HEAVY FUEL OIL, FLOW CONTROL



1. Manual shut-off valve
2. Gas filter
3. Solenoid valve, NC
4. Solenoid valve, NC
5. Pressure regulator
6. Manual shut-off valve
7. Shut-off valve
8. Manual control valve
9. Pressure gauge
10. Pressure switch / low
11. Non-return valve
12. Shutt-off valve, NC
13. Manual control valve
14. Non-return valve
15. Manual shut-off valve
16. Pressure gauge
17. Flow measurement
18. Oil control valve
19. Actuator
20. Safety shut-off valve
21. Safety shut-off valve
22. Pressure transmitter
23. Manual shut-off valve
24. Air filter
25. Solenoid valve
26. Solenoid valve
27. Solenoid valve
28. Solenoid valve
29. Solenoid valve
30. Flow measurement
31. Temperature transmitter
32. Bellow, not in Oilon delivery
33. Pressure switch / low
34. Actuator
35. Combustion air damper
36. Needle valve
37. Flexible hose
38. Flame detector
39. Flexible hose
40. Flexible hose
41. Flexible hose
42. Temperature transmitter / low, loose delivery
43. Needle valve
44. Flexible hose
45. Pneumatic cylinder, standard in lance burner, optional in S and K Burners
46. Pressure gauge

A = Ignition gas
B = Atomizing medium / Steam
C = Heavy fuel oil
D = Instrument air
E = Air supply

* = Insulation of atomizing steam line. Not in Oilon delivery.

** = Trace heating and insulation of oil line. Not in Oilon delivery.

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	< 1000 kg/h
20	1 000 - 2 000 kg/h
25	2 000 - 4 250 kg/h
32	4 250 - 7 500 kg/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

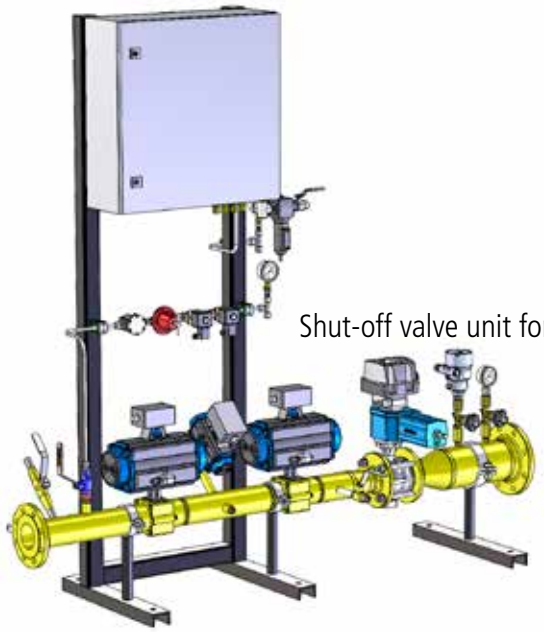
Fuel
K=light fuel oil
R=heavy fuel oil
G=natural gas

Pipe size (DN)
For light and heavy fuel oil

15	< 1000 kg/h
20	1 000 - 2 000 kg/h
25	2 000 - 4 250 kg/h
32	4 250 - 7 500 kg/h

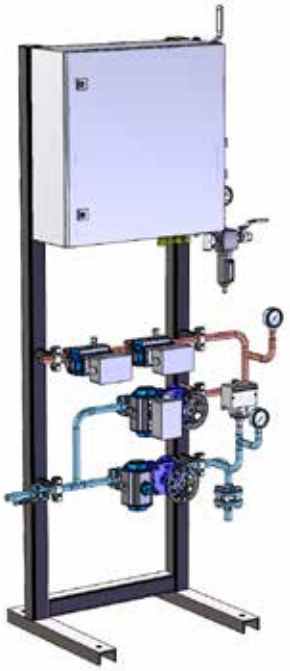
For natural gas
40, 50, 65, 80,100, 125,150
(gas amount will be
determined case by case)

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

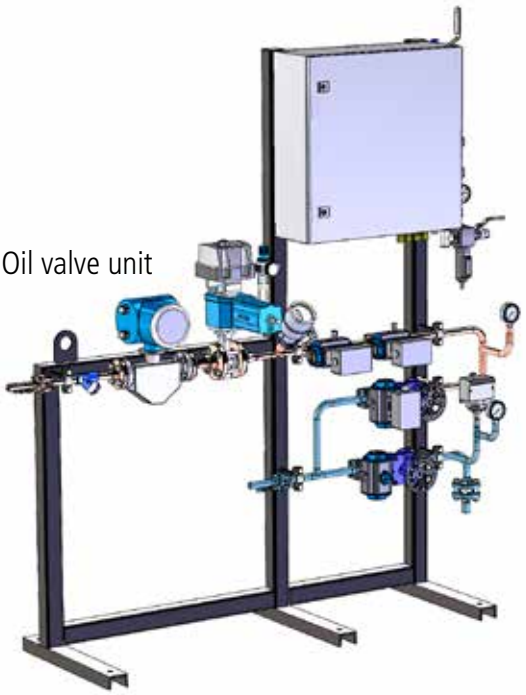
Fuel
K=light fuel oil
R=heavy fuel oil
G=natural gas

Pipe size (DN)
For light and heavy fuel oil

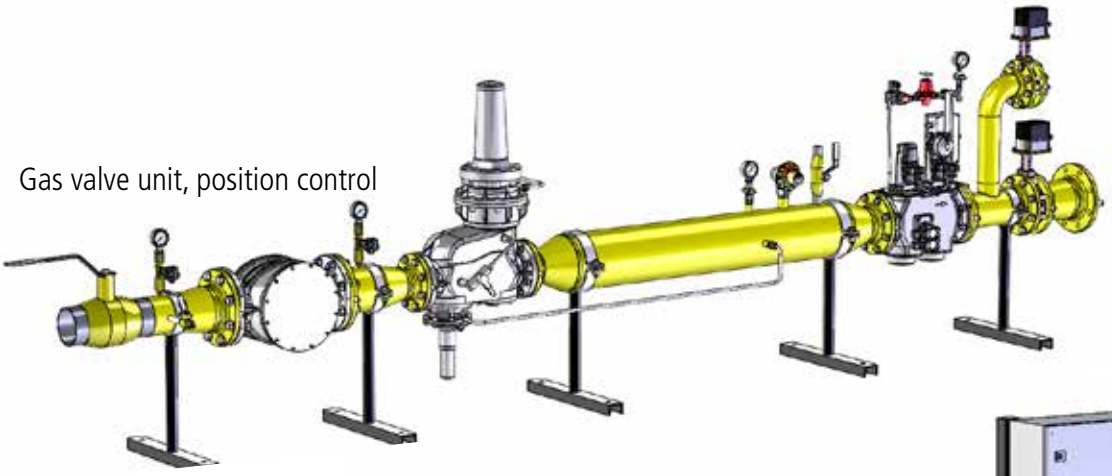
15	< 1000 kg/h
20	1 000 - 2 000 kg/h
25	2 000 - 4 250 kg/h
32	4 250 - 7 500 kg/h

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

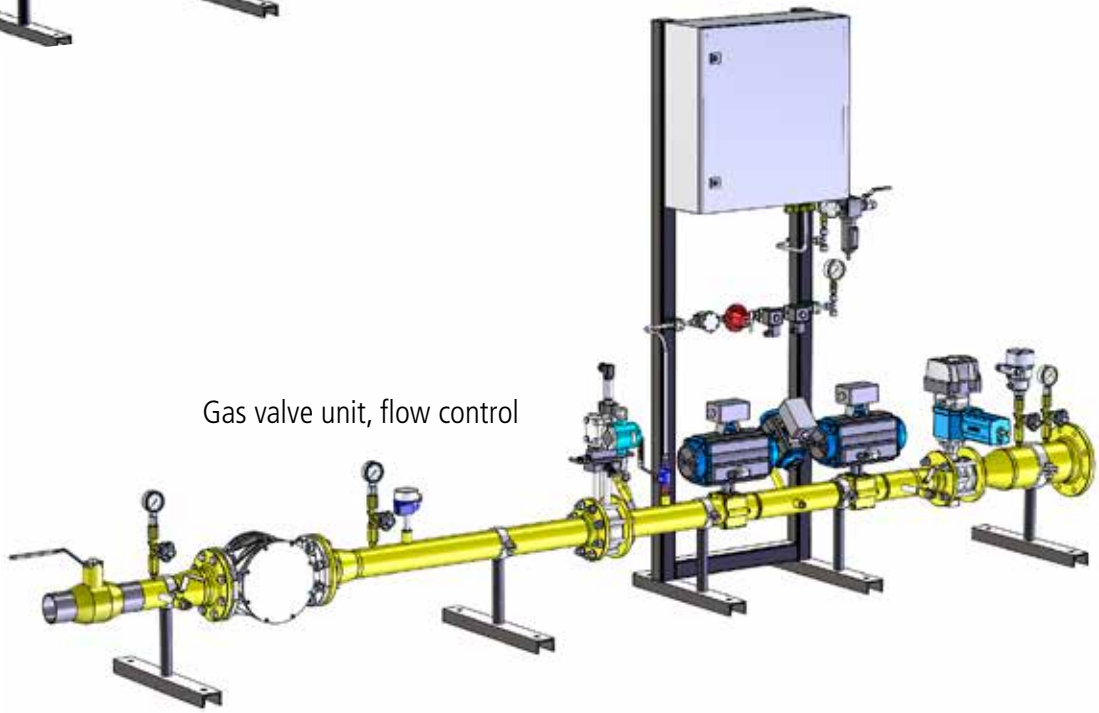
Valve unit



Oil valve unit



Gas valve unit, position control



Gas valve unit, flow control

Accessories

Accessories

Combustion air fan

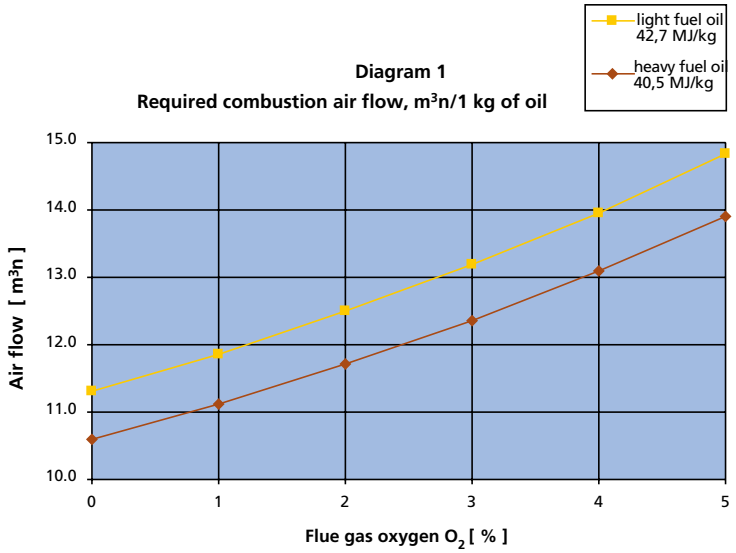
Duoblock burner requires a separate combustion air fan.

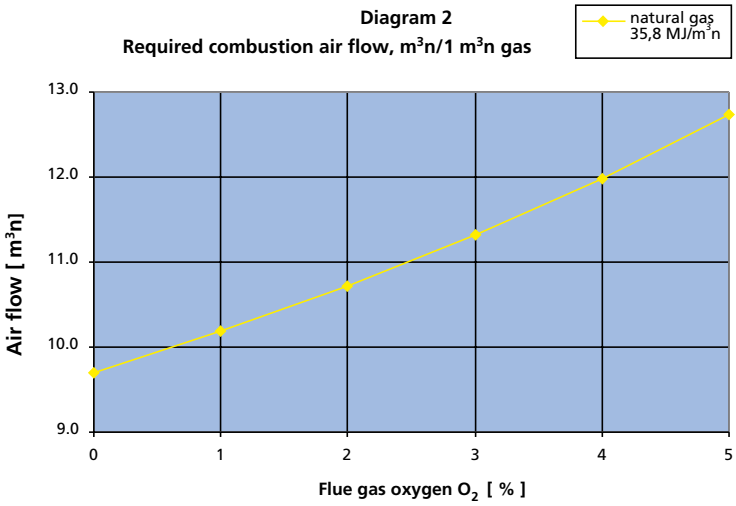
Scope of delivery:
- electric motor
- flexible connector, pressurised side
- 2 connector flanges
- vibration dampers

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.



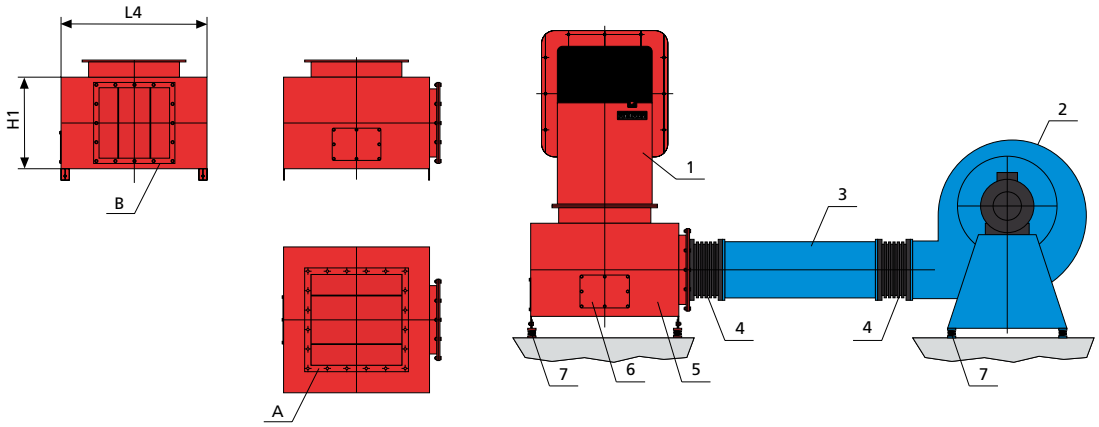


Air distribution

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	280	800
800	280	900
1000	440	900
1200	440	900
1600	550	1130
2000	550	1130

The dimensions H1 and L4 are recommended minimum values.

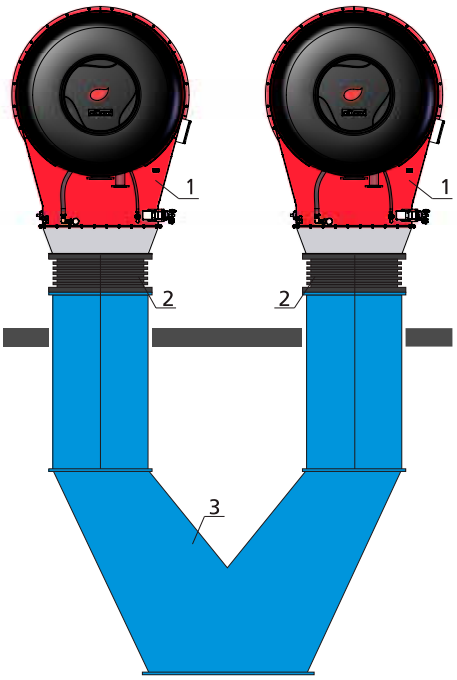
A. To be dimensioned according to the air duct of the burner.
B. To be dimensioned as ordered.

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 mm.

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.

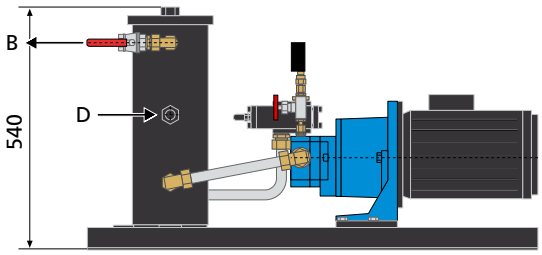
Example of the air duct to two burners

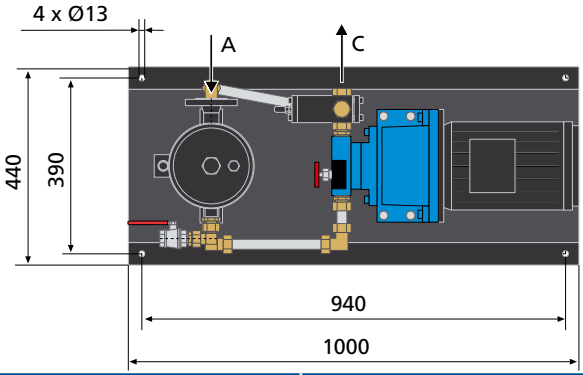


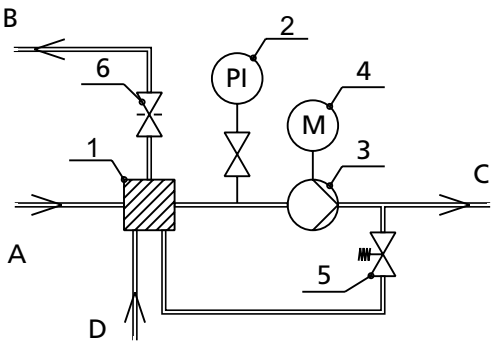
1. Burner
2. Bellows (not necessary at both ends)
3. Air duct

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

The booster unit lends itself for pumping light fuel oil with viscosity of 4...12 mm²/s, +20 °C. The oil coming to the booster unit must be filtered, max. filtration degree = 400 µm.







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

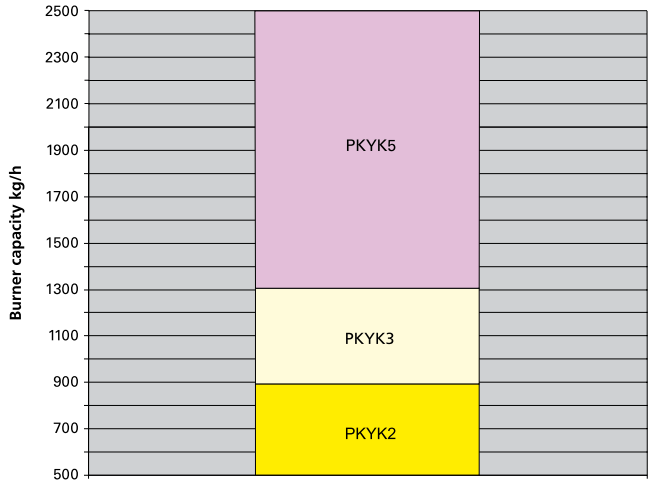
A. Inlet to the booster unit DN25, 1...5 bar 4...12 mm²/s
B. Return from the booster unit R 1/2"
C. Inlet to the burner Ø 22
D. Return from the burner Ø 22

BOOSTER UNIT	MOTOR 400 V/50 HZ KW	R/MIN	OIL PUMP TYPE	PUMP OUTPUT 12 mm²/S 25 BAR KG/H
PKYK 2	4	3000	T4 C	1980
PKYK 3	4	3000	T5 C	2900
PKYK 5	5,5	3000	AFI40R54	5500

The output has been calculated using a density of 850 kg/m³ for the light fuel oil.

Diagram 3

Selection of the booster unit for light fuel oil

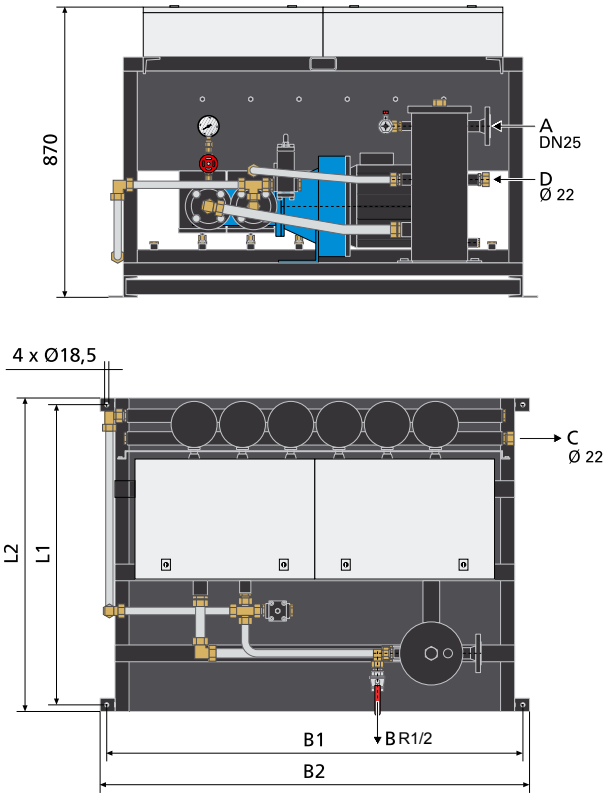


Only valid for spill back nozzle.

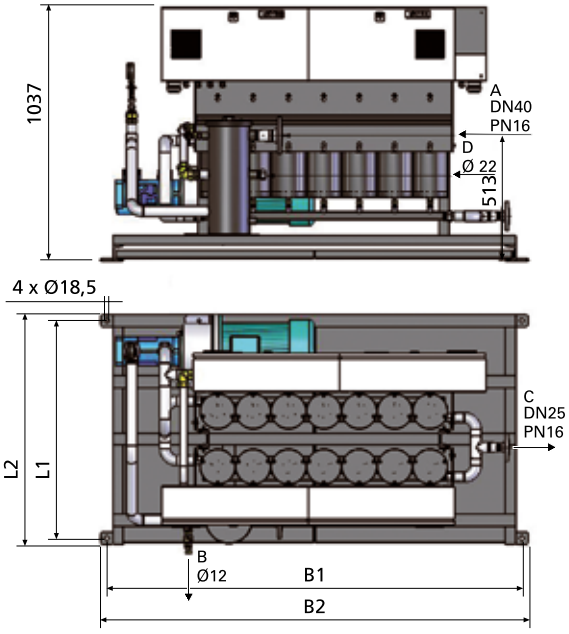
PKYK booster units may be selected using the diagram 3.

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

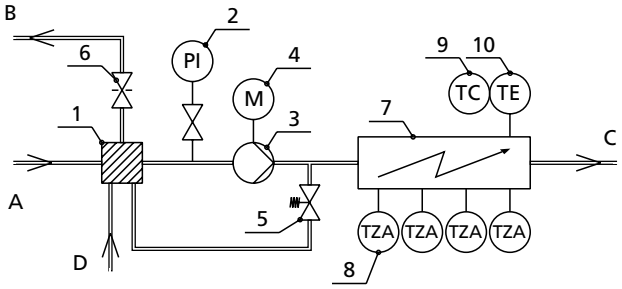
The booster unit lends itself for pumping and heating heavy fuel oil with a maximum viscosity of 650 mm²/s, +50 °C. The oil coming to the booster unit must be filtered, max. filtration degree = 400 µm.



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

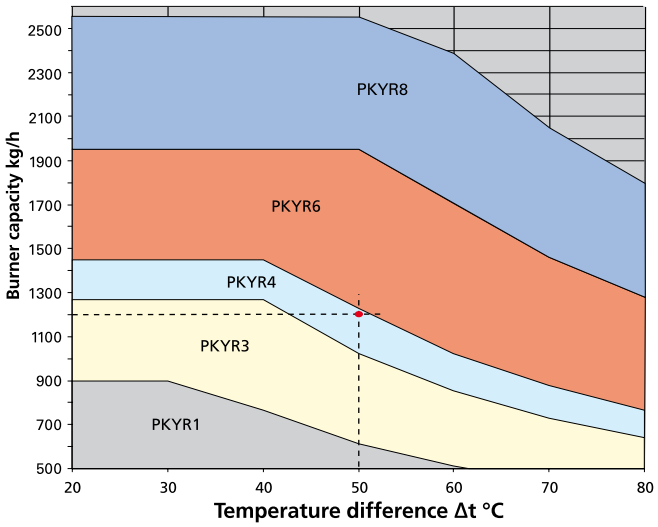
A. Inlet to the booster unit 3...5 bar 4...70 mm²/s
B. Return from the booster unit
C. Inlet to the burner
D. Return from the burner

Booster unit	L1	L2	B1	B2
PKYR 1	840	880	815	855
PKYR 3	840	880	815	855
PKYR 4	900	940	1250	1290
PKYR 6	900	940	1540	1580
PKYR 8	890	940	1700	1750

Dimensions in mm.

Diagram 4

Selection of the booster unit for heavy fuel oil



Only valid for spill back nozzle.

Booster unit	Heat exchanger 400 V/50 Hz kW	Motor 400 V/50 Hz kW	r/min	Oil pump Type	Pump output 12 mm²/s 25 bar kg/h
PKYR 1	18	3	3000	AFI20R46	2030
PKYR 3	30	4	3000	AFI20R56	2880
PKYR 4	36	5,5	3000	AFI40R38	3280
PKYR 6	60	5,5	3000	AFI40R46	4430
PKYR 8	84	7,5	3000	AFI40R54	5500

The output has been calculated using a density of 980 kg/m³ for the heavy fuel oil.

PKYR booster units may be selected using the diagram 4.

Scope of delivery

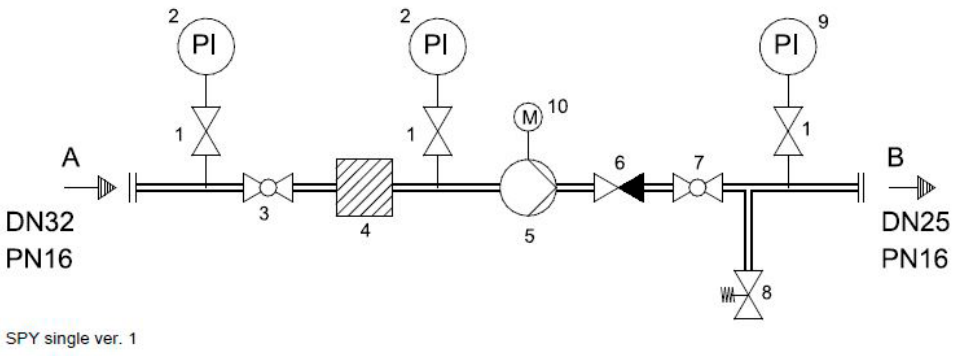
Booster units include following equipment:

	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

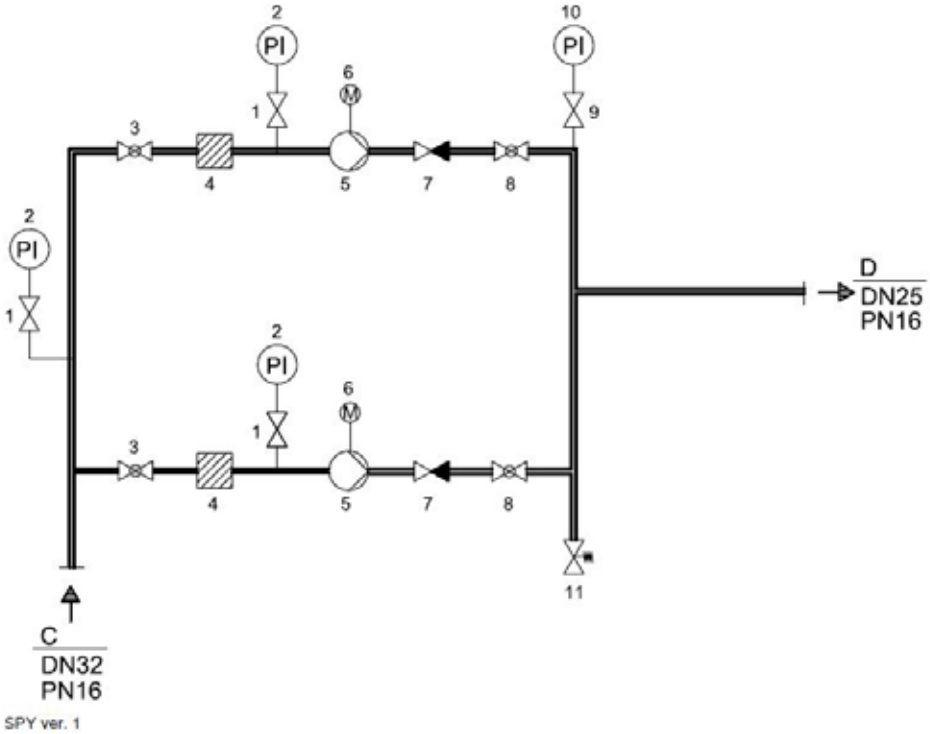


SPY single ver. 1

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 dual pump unit for light fuel oil



SPY ver. 1

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 kg/h at 4 bar 6 mm²/s / 20°C
TYPE	**TYPE**	
SPY-500-I	SPY-500	670
SPY-800-I	SPY-800	940
SPY-1350-I	SPY-1350	1460
SPY-2000-I	SPY-2000	2120
SPY-2500-I	SPY-2500	2680
SPY-3000-I	SPY-3000	3250

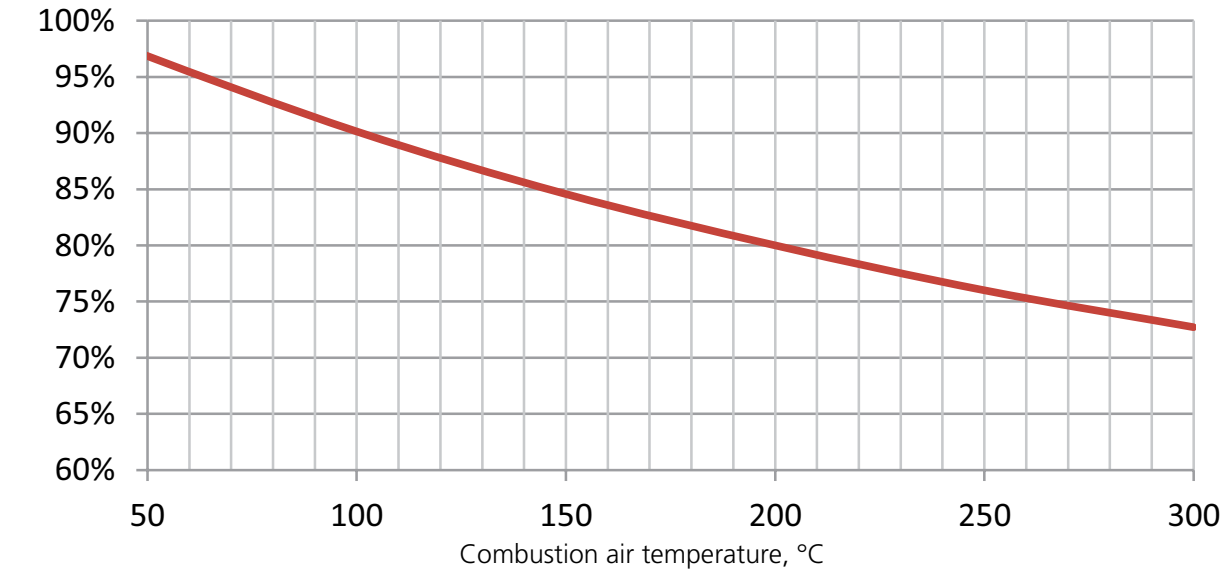
Pumping unit for light oil with separate overflow valve

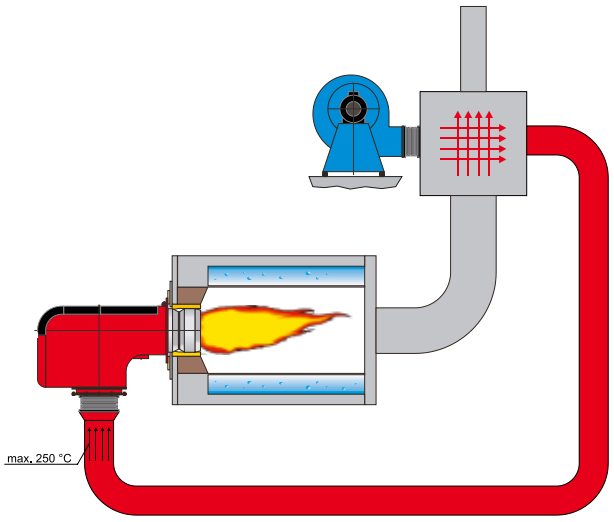
Burners for preheated combustion air

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 +300 °C (ME burner 250 °C). 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 +50 °C without modification.

Combustion air temperature effect on burner capacity



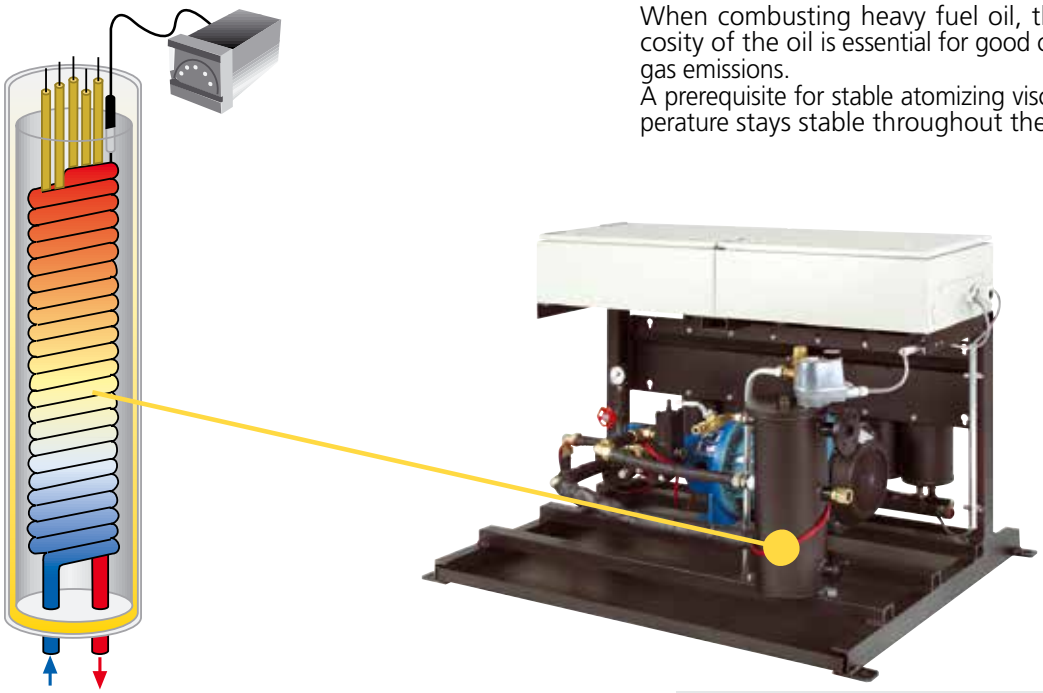


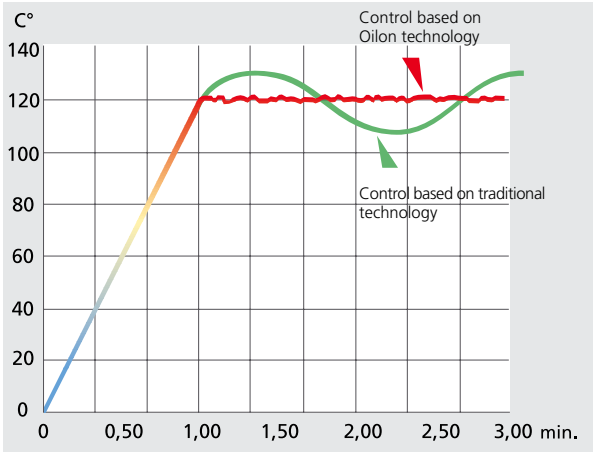
Schematic drawing of the principle of a plant using preheated combustion air.

Oil preheater

Accurate temperature control guarantees good combustion

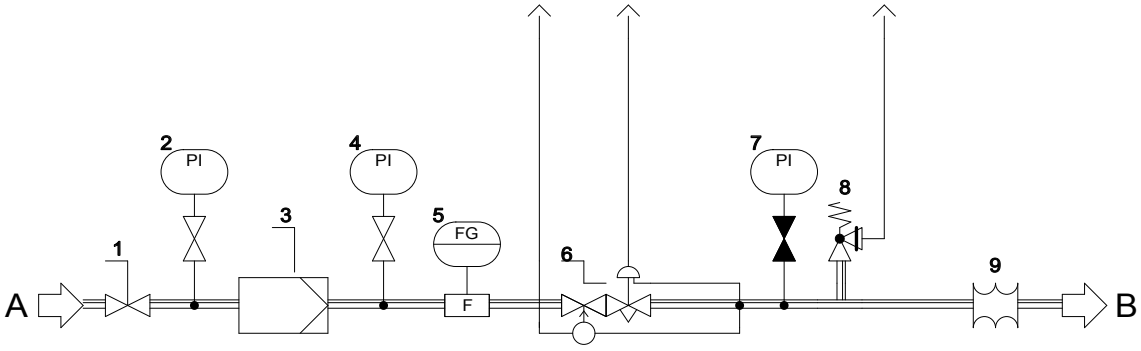
When combusting heavy fuel oil, the right atomizing viscosity of the oil is essential for good combustion and low flue gas emissions.
A prerequisite for stable atomizing viscosity is that the oil temperature stays stable throughout the firing rate.





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 6-kW heaters equipped 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.

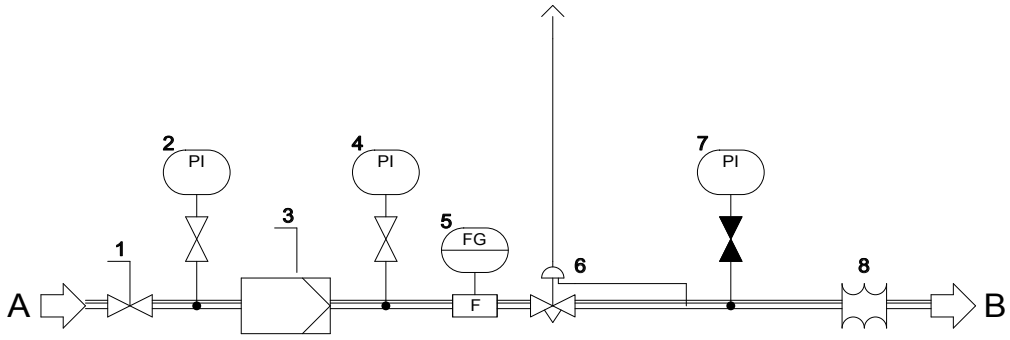
Gas pressure control assembly



PI000645/20

1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Flow measurement
6. Pressure regulator
7. Pressure gauge
8. Safety relief valve
9. Gas bellow

A = Gas inlet
B = Gas outlet



PI000645/21

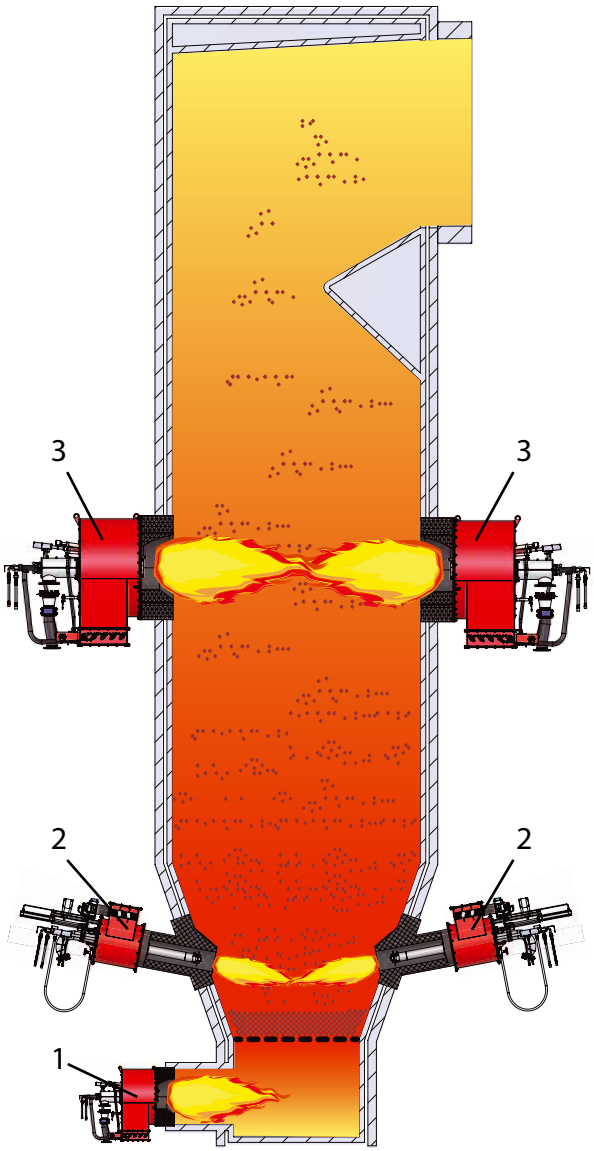
1. Manual shut-off valve
2. Pressure gauge
3. Gas filter
4. Pressure gauge
5. Flow measurement
6. Pressure regulator
7. Pressure gauge
8. Gas bellow

A = Gas inlet
B = Gas outlet

Customized Products and Solutions

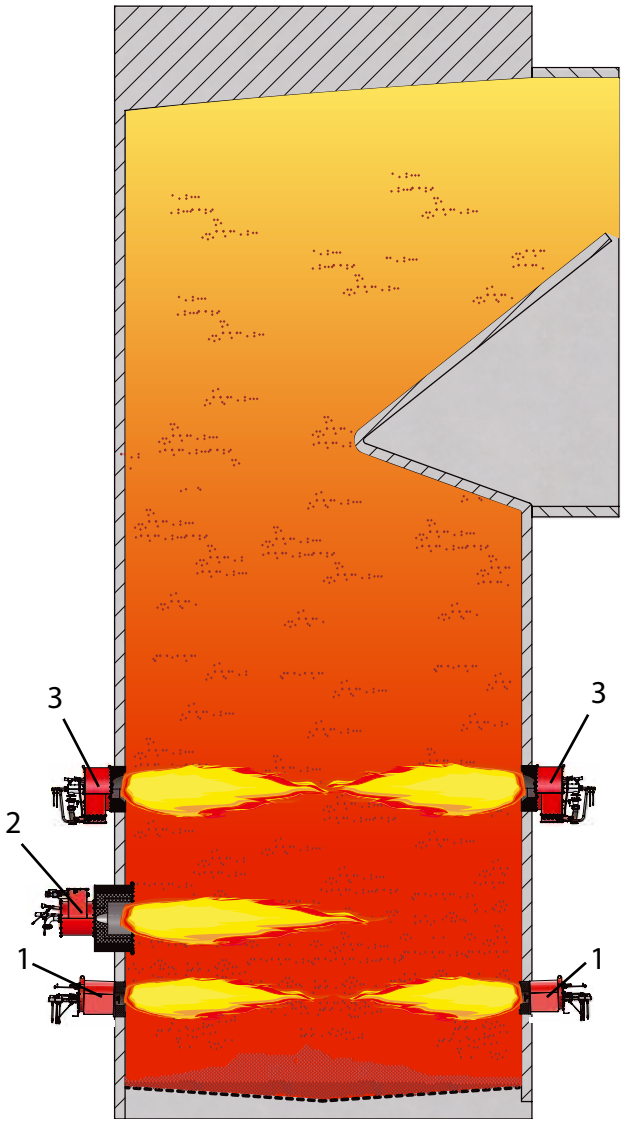
Applications

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.



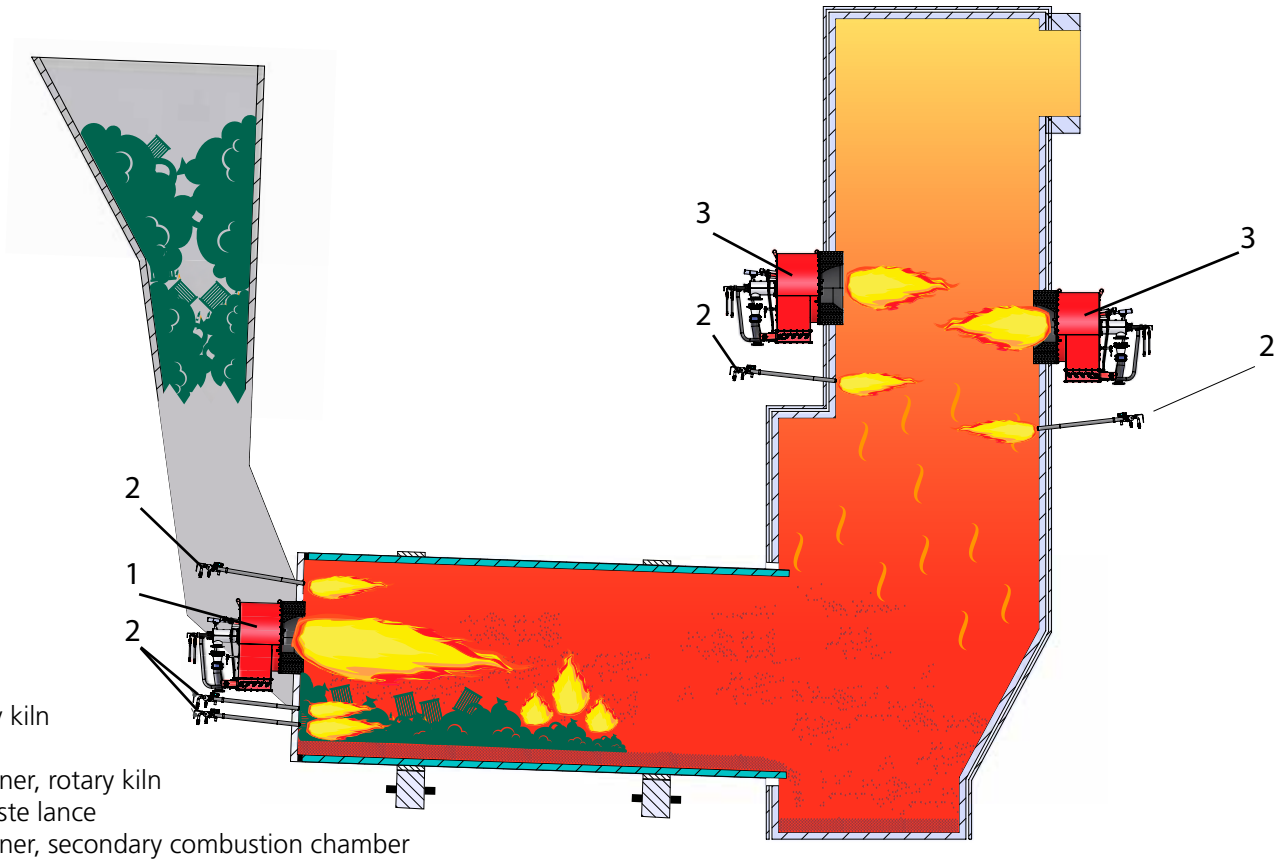
Fluidized bed boiler

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



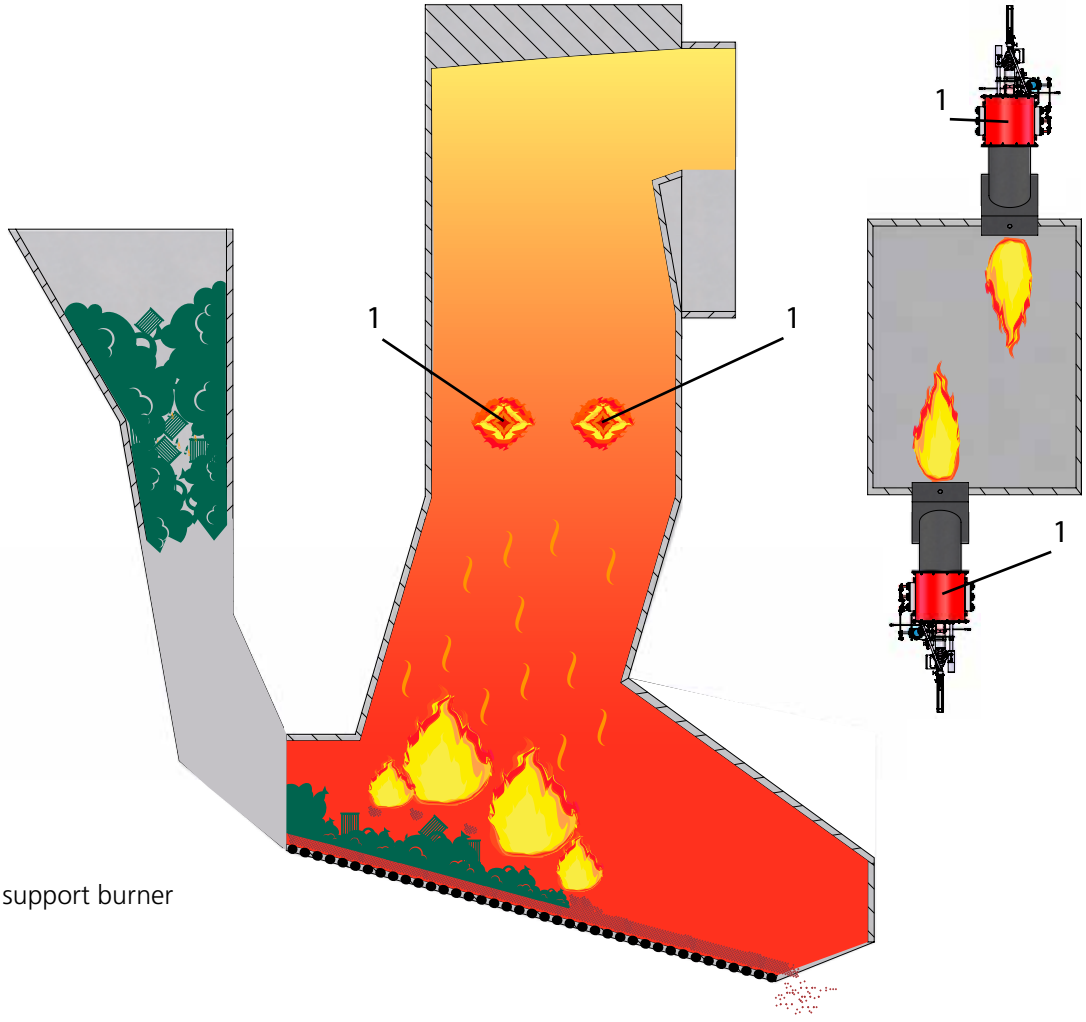
Recovery boiler

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

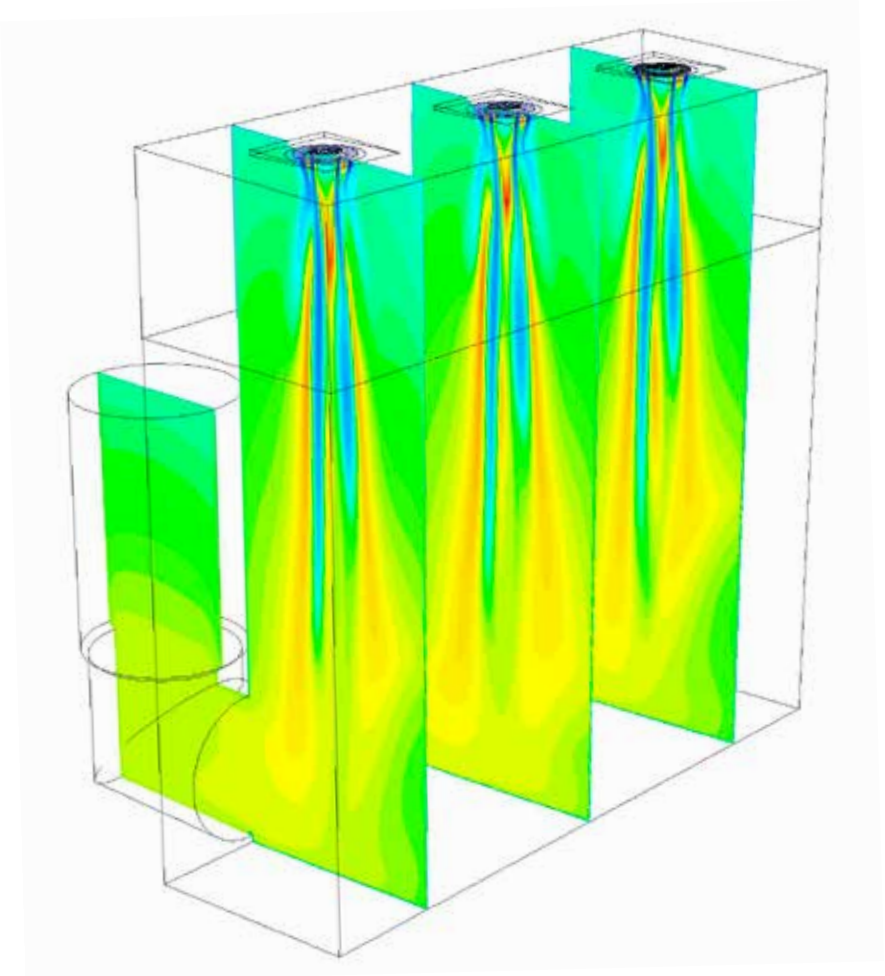
In addition to standard, commercially available liquid and gaseous fuels, Oilon has the know-how and experience of large range of other fuels, from low-heating-value gases to fuels with very intensive combustion. In our multi-fuel burners fuels can be combusted either separately or simultaneously. Below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

Gaseous fuels:

- natural gas
- propane
- butane
- town gas
- bio gases
- 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.

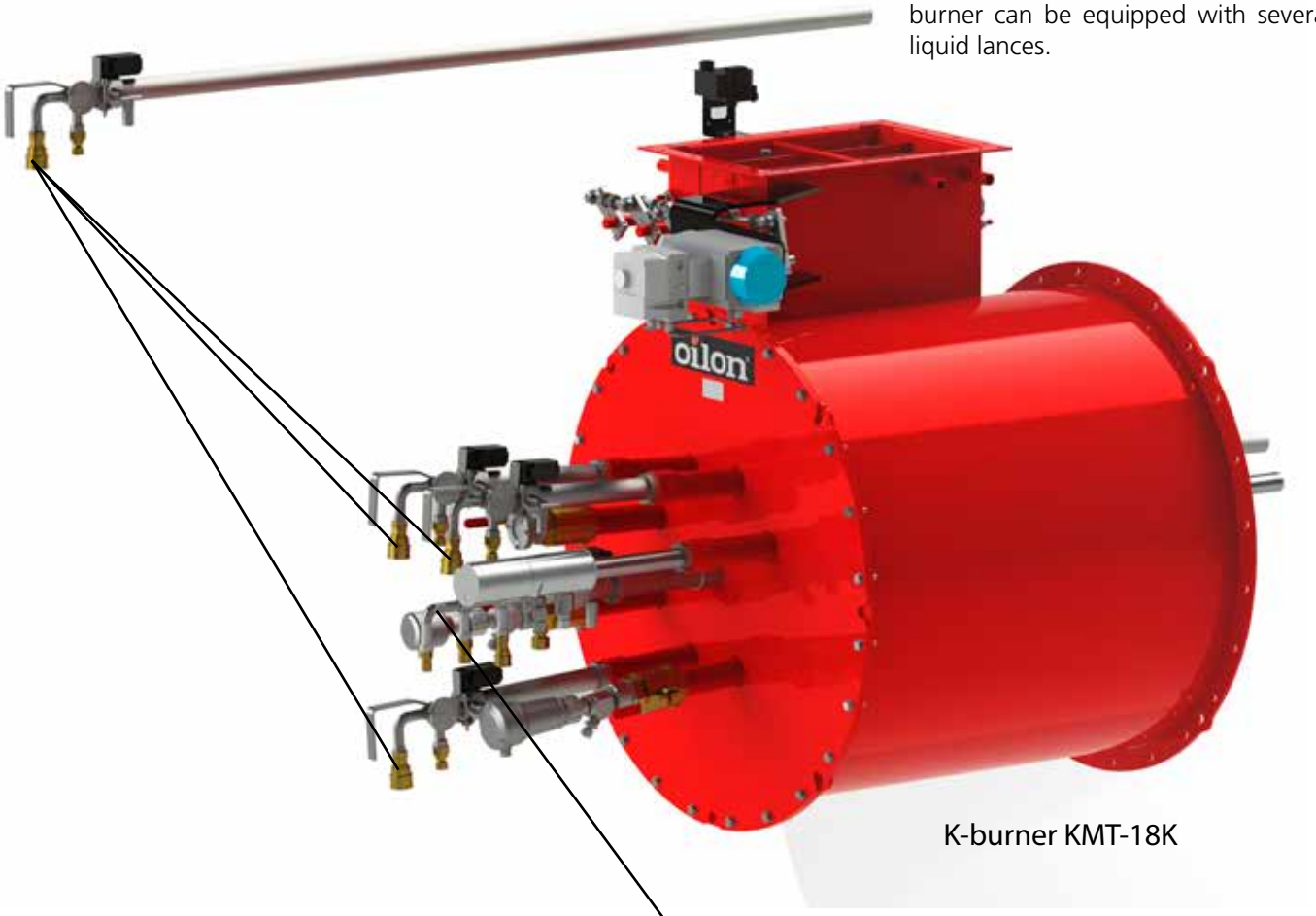


Customized burner features

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

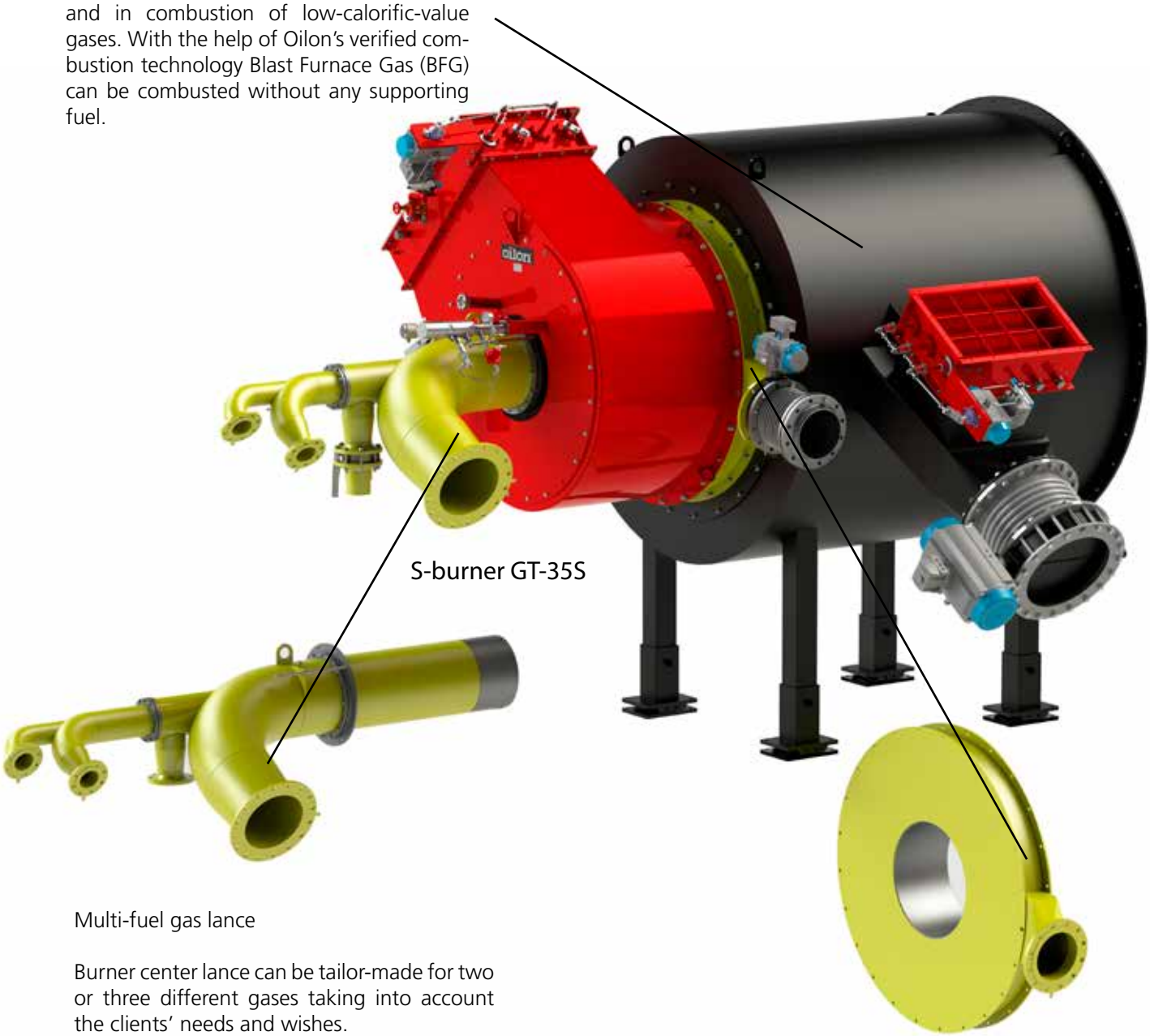
Dual-fuel liquid lance

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

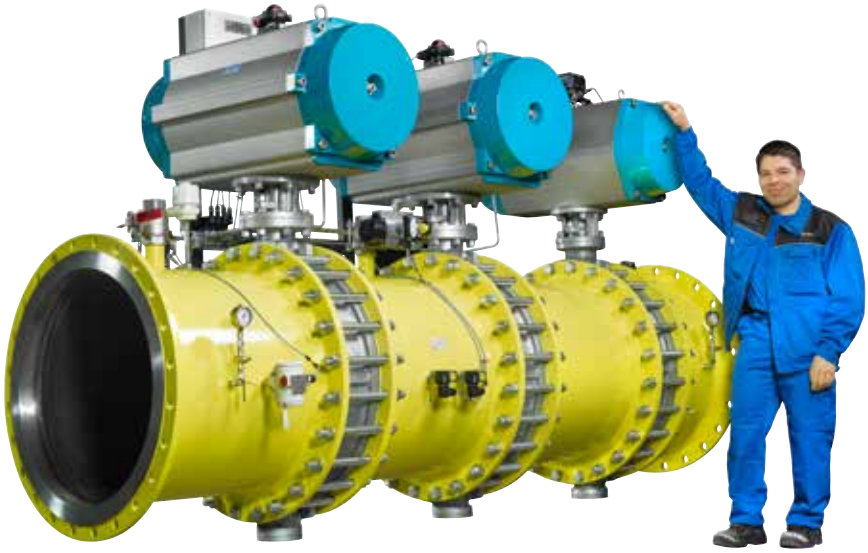
The pilot burner and fuel lances can be retracted to back position by pneumatic cylinder, when the burner isn't in operation. The front and back positions are equipped with limit switches.

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

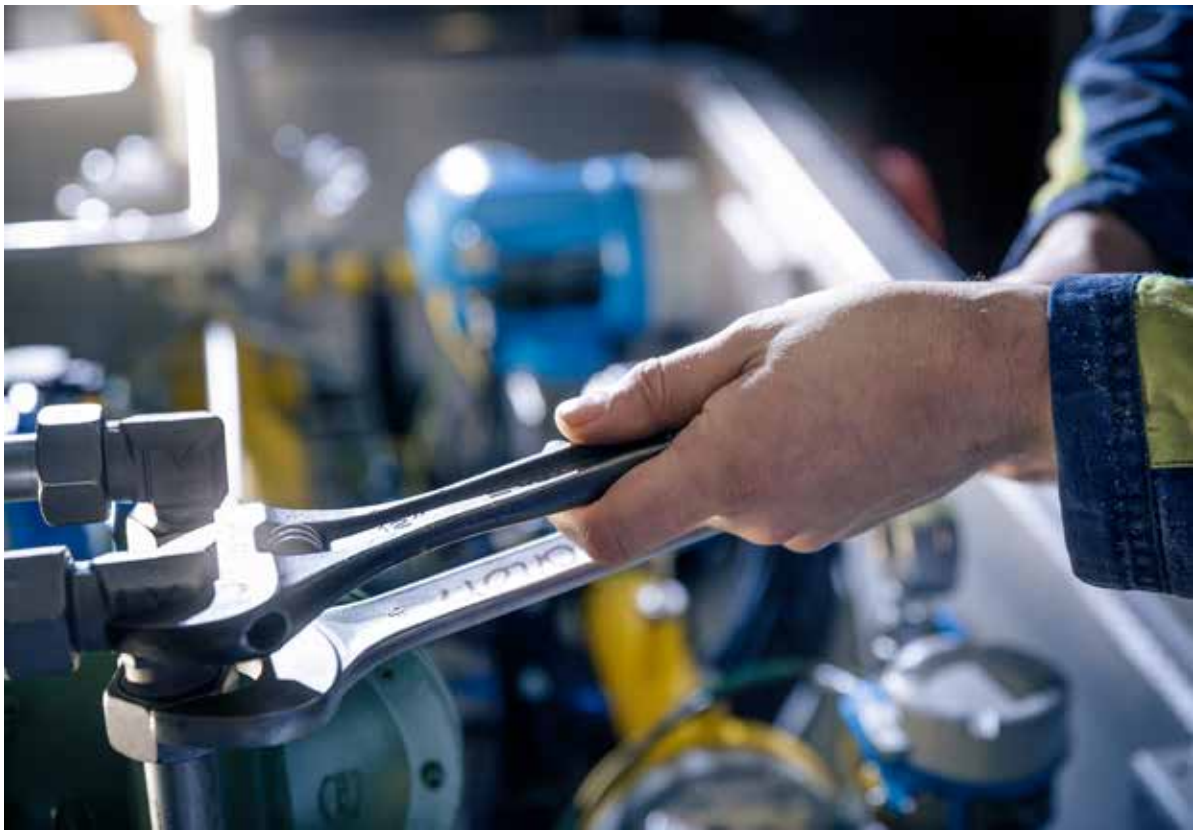


The nature and amount of gases may vary considerably depending on the fuel source in question. Corrosive gases, demanding conditions and surroundings etc. are taken into account.

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

ORIGINAL SPARE PARTS FROM OILON

Energon - modern training facility

Energon, which opened in spring 2010, is a state-of-the-art research centre located in Metsä-Pietilä, Lahti.

Energon focuses on research regarding renewable energy and energy efficiency.

At Energon 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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