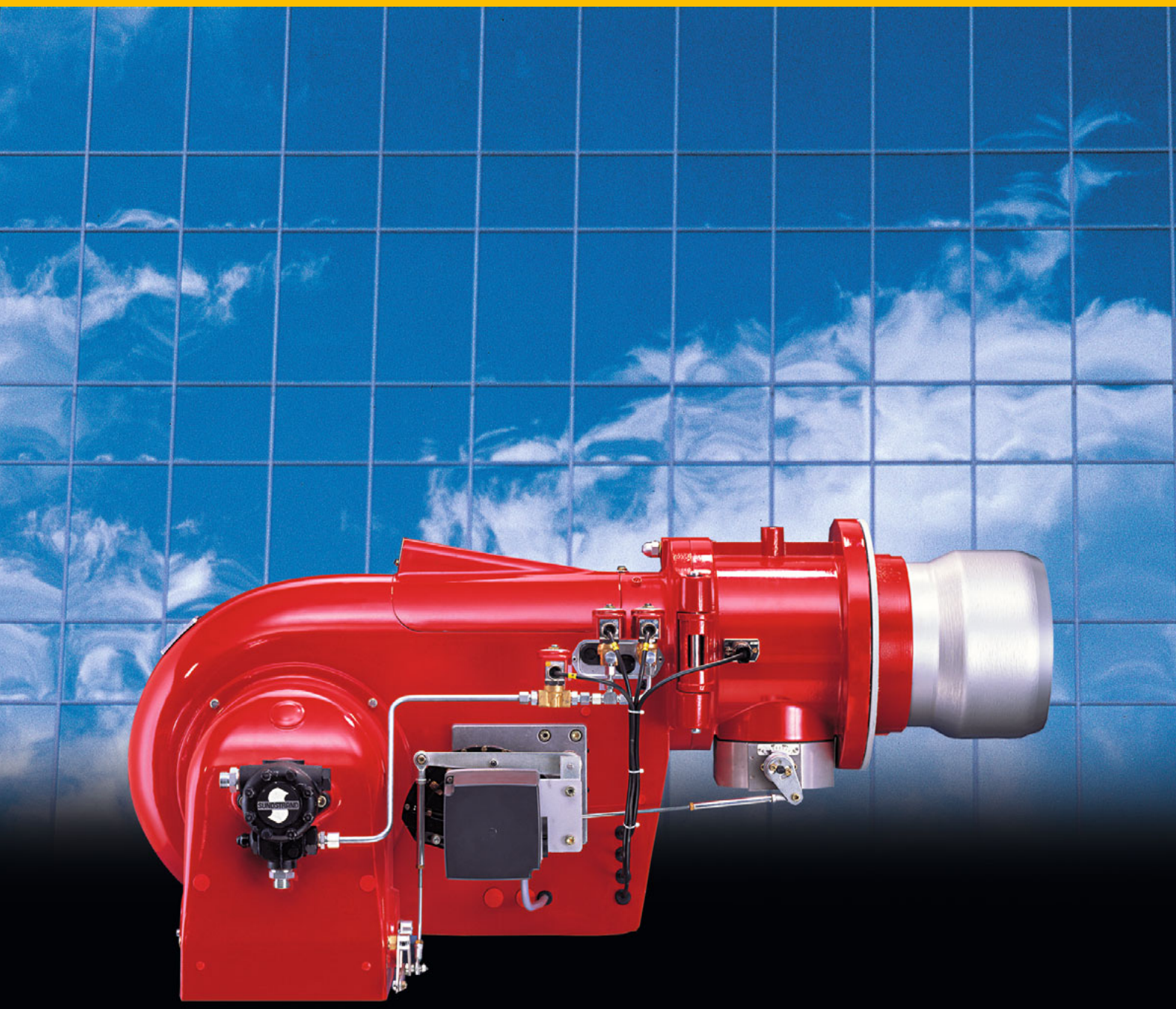
–weishaupt–

# product

Information on gas and dual-fuel burners



# Gas and dual-fuel burners, 1-11

**monarch® burners, sizes 1-11 (60 – 4750 kW) • simply reliable**

# Description

**Weishaupt G, GL and RGL burners fulfill all demands for operational safety, ease of installation and reliablilty. The burners are economical and environmentally friendly. They are CE type-tested and comply with EN 267 (oil-side), EN 676 (gas-side), and the Gas Appliance Directive (90/396/EEC).**

The burners are notable for a variety of interesting features:

- Large capacity and range of applications
- Automatic sequence of operations
- Combustion-chamber pre-purging
- Reliable flame monitoring
- Stable fan characteristics – good combustion behaviour
- Quiet operation
- Burner housing can be hinged open
- Simple installation, adjustment and maintenance thanks to readily accessible components
- Easily converted for other gas types
- Dual-fuel burners benefit from manual or automatic fuel changeover. No conversion of the burner is required
- Automatic air closure on burner shutdown

**Construction**
The burner is of monobloc construction. Its motor drives the combustion air fan and, on dual-fuel burners, the burner-mounted oil pump. All the fuel and air regulation components are clearly arranged and readily accessible. The burners can be hinged open to the left or right-hand side, simplifying work on the combustion head, diffuser, nozzles and electrodes.

**Fuels**
Natural Gas E
Natural Gas LL
LPG B/P
Fuel oil EL (<6 $mm^2/s$ at 20 °C) in accordance with DIN 51 603, part 1

**Please enquire regarding the suitability of other fuels.**

**Applications**
The burners can be used on heat exchangers such as hot water boilers, steam boilers, or air heaters, and for certain process applications. As the burners are capable of overcoming high combustion chamber resistances, they are primarily used on heavy-duty boilers.

**Regulation**
Depending on the fuel, burner size, and customer requirements, the compound regulation of air and fuel can be:

- Two-stage (Z)
- Sliding-two-stage (ZM)
- Oil-side three-stage (TM)
- Modulating (ZM); the standard sliding-two-stage burner can modulate when equipped with a 42 s servomotor and a suitable PID controller.

The servomotor on two-stage burners (Z) has an 8 s running time, effecting rapid control of burner throughput. A cam band provides for the compound regulation of the air damper and gas butterfly valve. This simultaneous control of gas and air prevents start and change-over impacts in the combustion chamber and gas line.

The servomotor on sliding-two-stage and modulating burners (ZM) has a 20 s or 42 s running time, providing for a slower change in burner throughput. A cam band provides for the compound regulation of the air damper and gas butterfly valve.

With sliding-two-stage regulation, the burner has fixed partial and full-load setpoints, and the burner moves to one position or the other depending on the heat demand. There are no rapid changes of fuel throughput.

With modulating regulation, the burner's output, within its operating range, is continuously regulated to match to the current heat demand.

**Ignition load for gas-fired burners**
Gas-fired burners start at ignition load, which ensures that only a small quantity of gas is released into the combustion chamber. After a time delay, gas is released for the main flame.

**Controlled shutdown from partial load**
The type of burner controllers used and the setting of the 2nd-stage or modulating control setpoints enable a controlled shutdown of the burner to be effected from partial load, thereby avoiding pressure surges in the gas line.

**Flame monitoring**
The inbuilt or panel-mounted burner controller automatically sequences burner operations, using its flame sensor to monitor the flame and its stability. Flame monitoring on gas burners utilises the ionisation principal, while the flame on dual-fuel burners is monitored by means of a UV cell.

**Electromagnetic clutch for dual-fuel burners** (additional cost item)
The clutch automatically disconnects the oil pump from the burner motor when the burner is firing on gas. This protects the pump from unnecessary wear and tear.

**Safe operation**
All gas-firing Weishaupt burners are equipped with gas and air-pressure switches, and with a Class-A double solenoid valve assembly. These safety devices shut off the gas supply to the burner if:

- The gas supply pressure is too low
- The combustion air supply fails
- The power supply fails
- Commanded by limiters
- Commanded by the flame sensor

**Gas valve trains**
EN 676 stipulates that gas-fired burners must be fitted with two solenoid valves. Accordingly, Weishaupt gas and dual-fuel burners are equipped as standard with a Class-A double solenoid valve assembly. Weishaupt also recommends the use of a gas valve proving system (mandatory from 1200 kW). Details on valve proving and other gas valve train components, such as filters and pressure regulators, can be found in our accessories list.

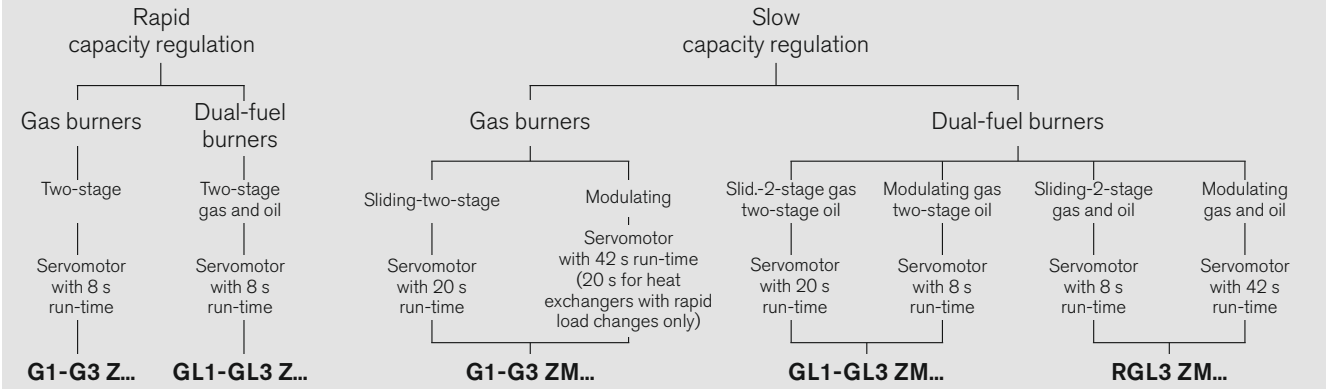
**Conversion to other gas types**
The constuction of Weishaupt LPG and natural-gas-fired burners is identical. When converting from the one gas to another, only the recommissioning of the burner is required.

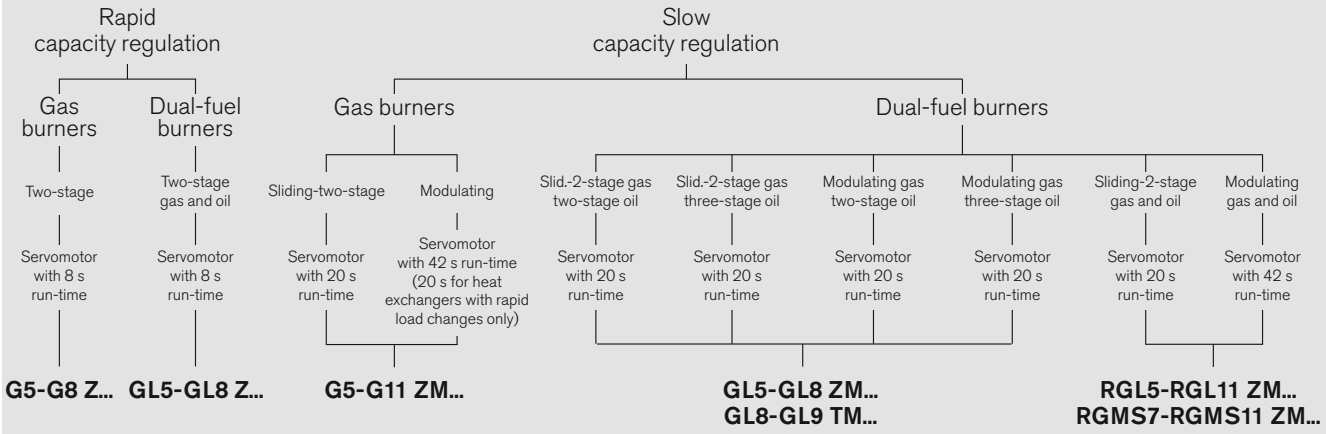
**Sound absorbers**
Weishaupt W-SH-type sound absorbers can be employed to reduce burner noise levels. For further details, please see print No. 83001302.

**Permissible ambient conditions**
- Ambient temperature during operation: -15 to +40 °C
- Humidity: max. 80 % relative humidty, no condensation
- Suitable for operation indoors only
- For plant in unheated areas, certain further measures may be required (please enquire)

# Model overview

**Weishaupt gas and dual-fuel burners**



# Model designation

## Model designation

### Gas burners

Type G 1 / 1 – E, version

- G: Fuel = Gas
- 1: Size
- 1: Capacity
- E: Mark
- Z / ZM: Regulation
  - Z = Two-stage (servomotor with 8 s run-time)
  - ZM = Sliding-two-stage or modulating (servomotor with 20 s or 42 s run-time)
- D: Electrics D = 3 ~ AC

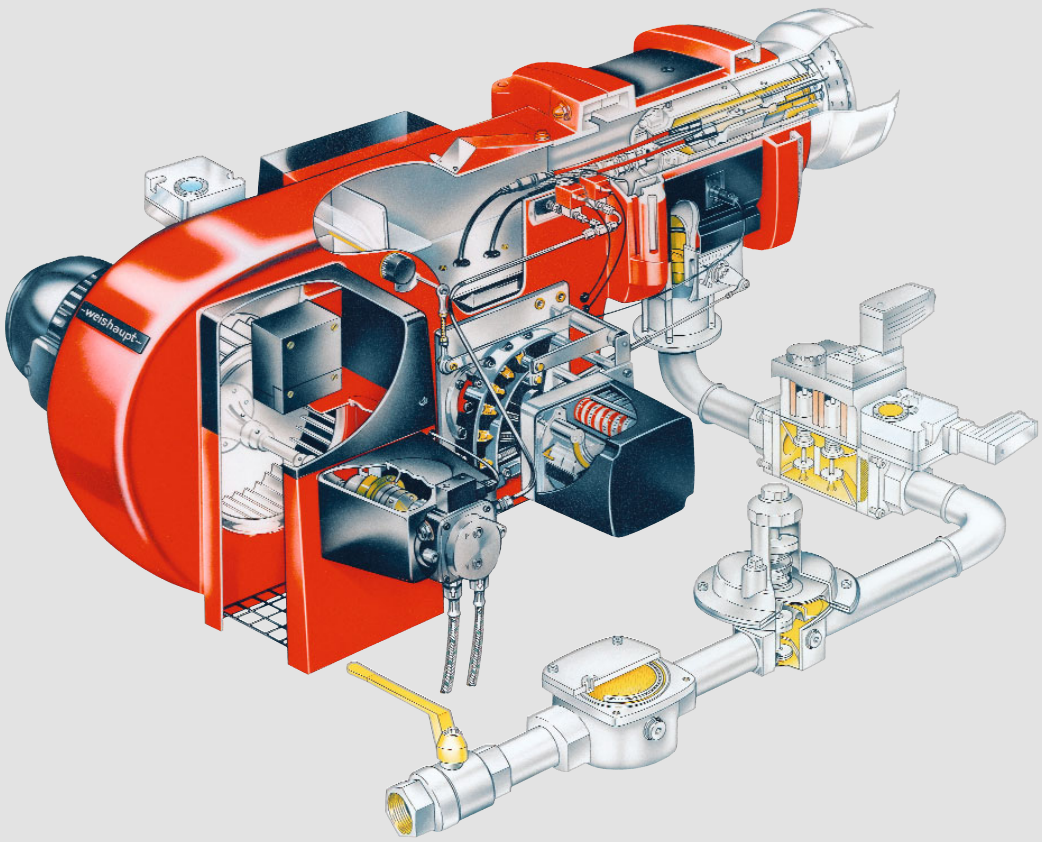
### Dual-fuel burners

Type G L 3 / 1 – E, version

- G: Fuel = Gas
- L: Fuel = Fuel oil EL
- 3: Size
- 1: Capacity
- E: Mark
- Z / ZM: Regulation
  - Z = Two-stage (gas and oil-side) (servomotor with 8 s run-time)
  - ZM = Sliding-two-stage or modulating (gas-side) Two-stage (oil-side) (servomotor with 20 s run-time)
- D: Electrics D = 3 ~ AC

Type RGL3/1-E, version ZMD

- R= Variably regulated burner
- ZM = Sliding-two-stage (servomotor with 20 s run-time) or modulating (servomotor with 42 s run-time)



# Gas-side burner regulation

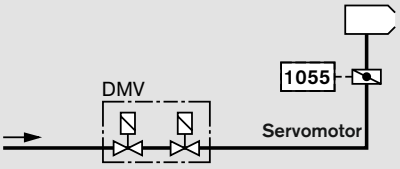
## Gas-fired operation

**Two-stage (Z)**

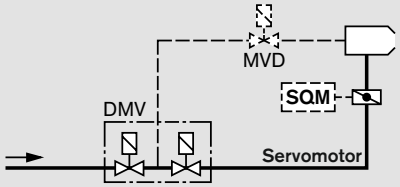
- When the burner starts, gas is released by opening the solenoid valves. The gas butterfly valve releases sufficient gas for ignition load.
- The servomotor drives the gas butterfly valve (8 s run-time) to adjust burner capacity between partial load and full load.

**Sliding-two-stage or modulating (ZM)**

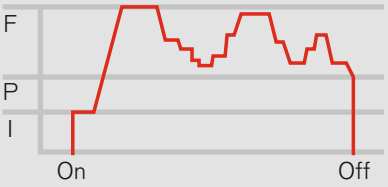
- When the burner starts, gas is released by opening the solenoid valves. The gas butterfly valve releases sufficient gas for ignition load. Burner sizes 8 to 11 have an additional pilot-line solenoid valve. When the burner starts, the pilot line solenoid valve opens. After 10 s, the main gas solenoid valve opens and the pilot-line solenoid valve closes again.
- A slow running servomotor (20 s or 42 s run-time) drives the gas butterfly valve to its full-load position.
- The servomotor drives the gas butterfly valve to adjust burner capacity between partial load and full load.
- Sliding-two-stage burners have a 20 s servomotor run-time. Modulating burners have a 42 s servomotor run-time and differing electrical controls.












Above: two-stage
Centre: sliding-two-stage
Below: modulating

F = full load, P = partial load, I = ignition load

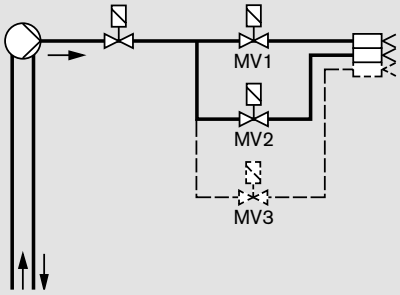
# Oil-side burner regulation

## Oil-fired operation

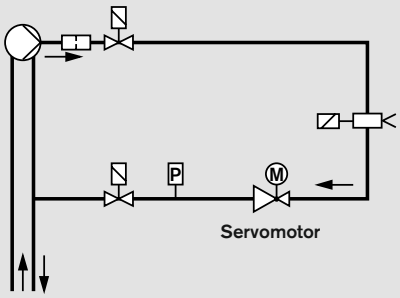
**Two-stage (Z)**
- When the burner starts, oil is released by opening solenoid valve 1. The burner fires at partial load.
- When solenoid valve 2 opens the burner fires at full load.
- Capacity is controlled by the opening and closing of solenoid valve 2.

**Three-stage (TM)**
- When the burner starts, oil is released by opening solenoid valve 1. The burner fires at partial load.
- When solenoid valve 2 opens the burner fires at intermediate load..
- When solenoid valve 3 opens the burner fires at full load.
- Capacity is controlled by the opening and closing of solenoid valve 3, or solenoid valves 2 and 3

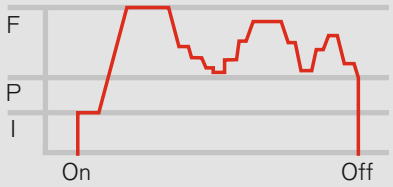
**Sliding-two-stage or modulating (ZM)**
- The oil solenoid valve (RGL5 to RGL7) / oil nozzle needle (RGL8 to RGL11) releases sufficient oil for ignition load.
- A slow running servomotor gradually drives the oil regulator to its full-load position.
- The servomotor drives the oil regulator to adjust burner capacity between partial load and full load.
- Sliding-two-stage burners have a 20 s servomotor run-time. Modulating burners have a 42 s servomotor run-time and differing electrical controls.







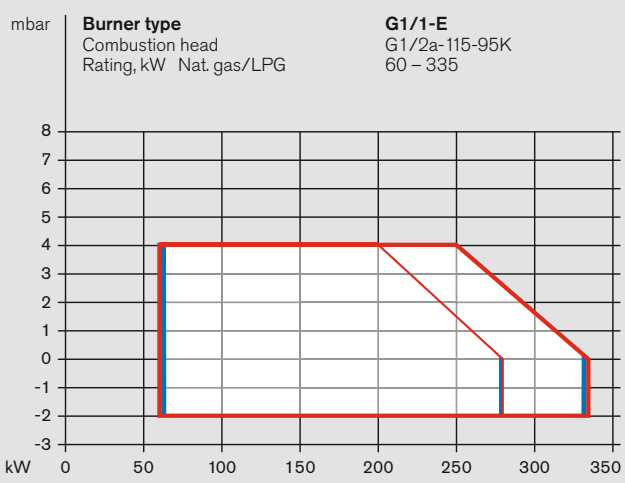


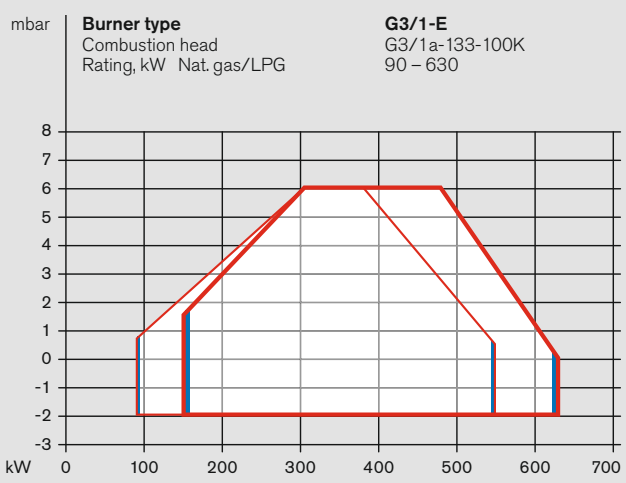


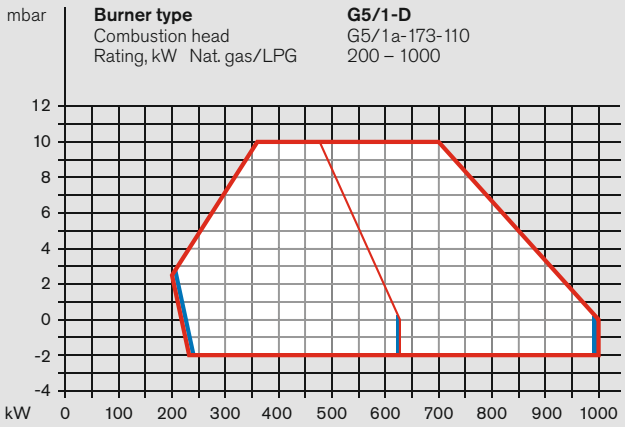

Above: two/three-stage
Centre: sliding-two-stage
Below: modulating

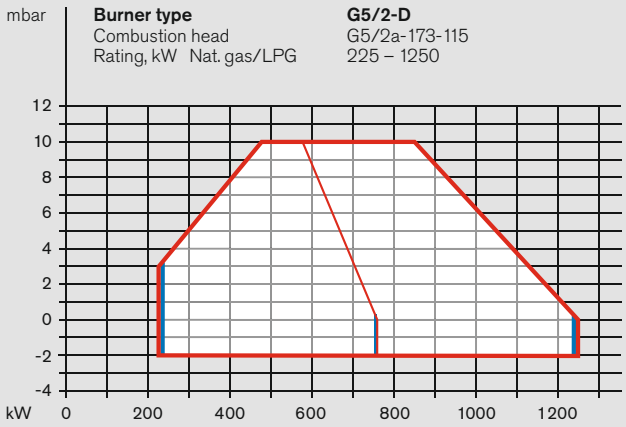
F = full load, INT = intermedite load
P = partial load, I = ignition load

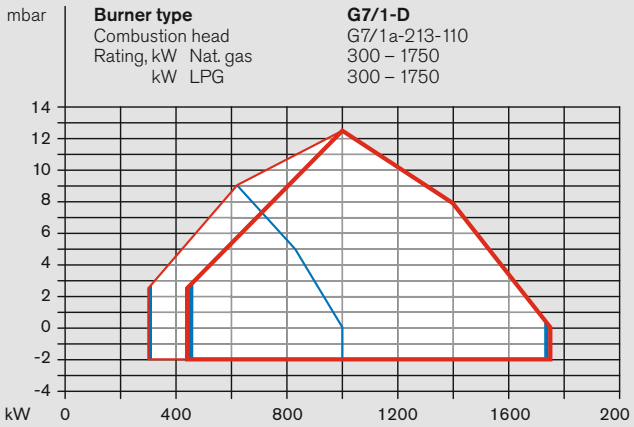
# Burner selection
# Gas burners

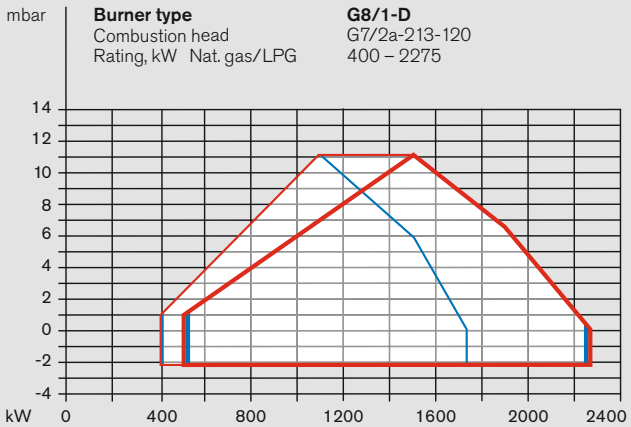


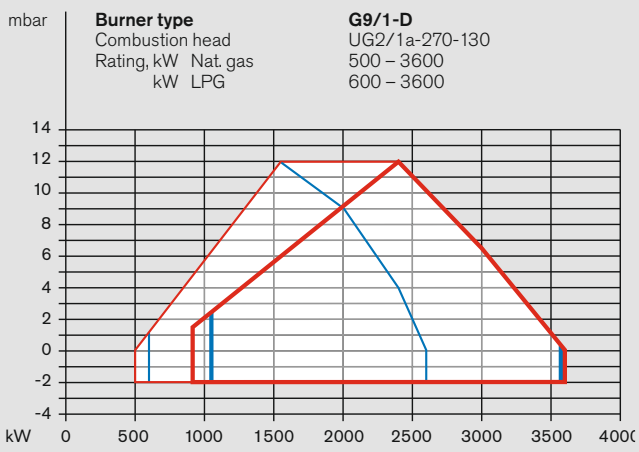



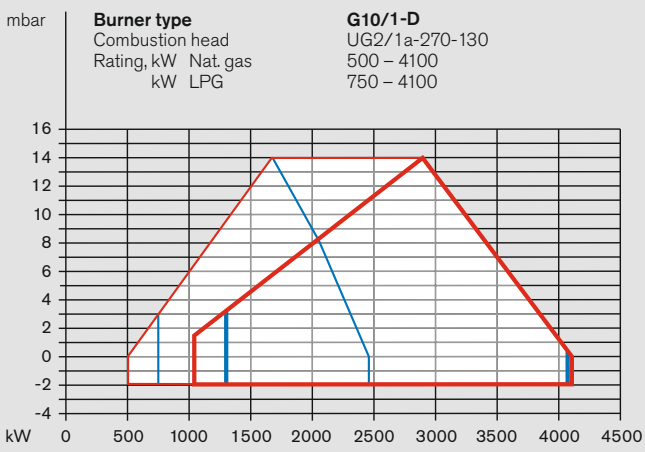



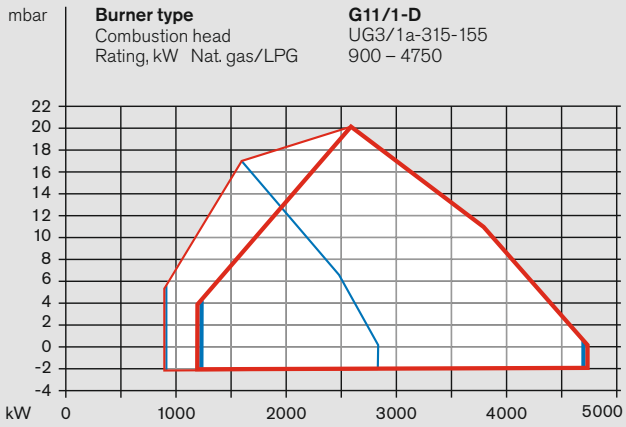






**Capacity graphs certified in accordance with EN 676.**

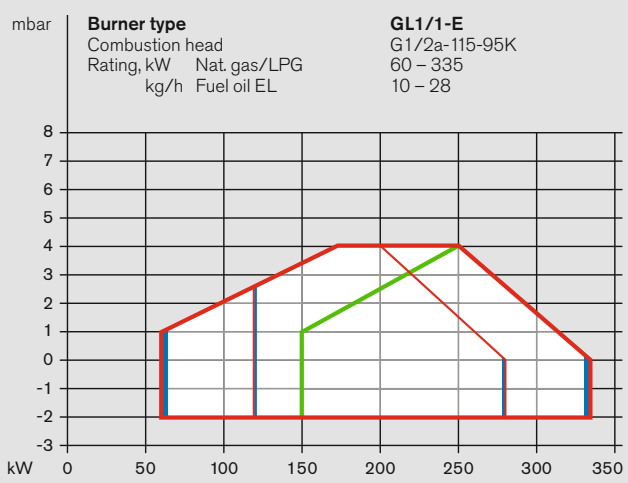
**Stated ratings are based on an installation altitude of 500 m above sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.**

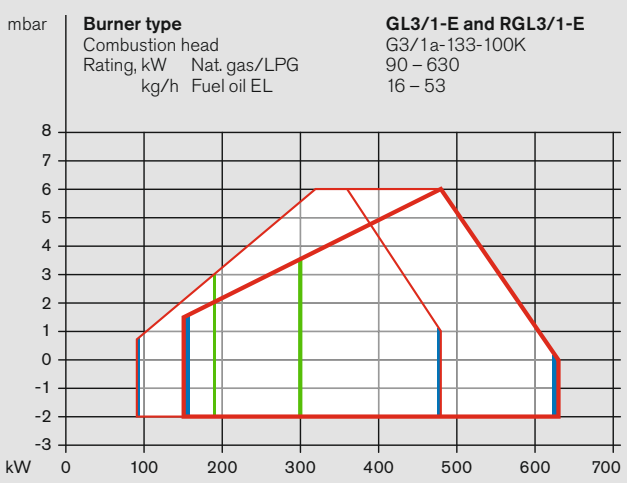
**Natural gas with combustion head**
Closed
Open

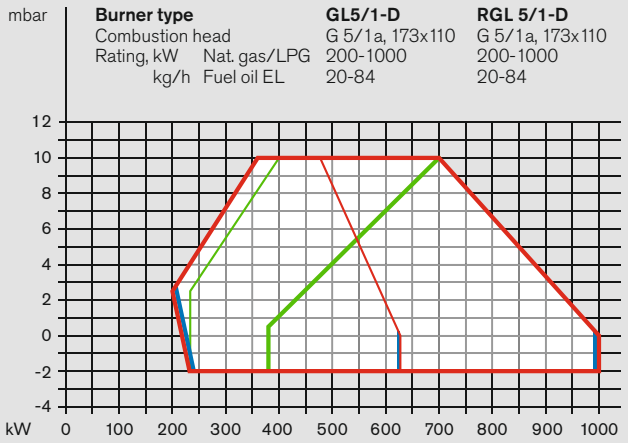
**LPG with combustion head**
Closed
Open

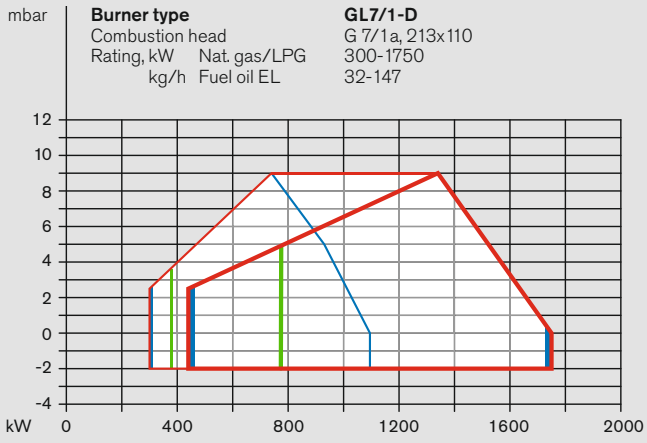
**Burner operation with town gas or sewage gas**
The plotted operational ranges should be reduced by 10 % when selecting burners for use with town gas or sewage gas.

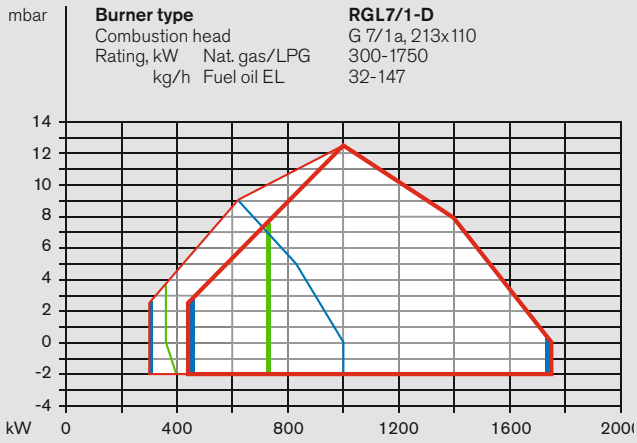
# Burner selection
# Dual-fuel burners

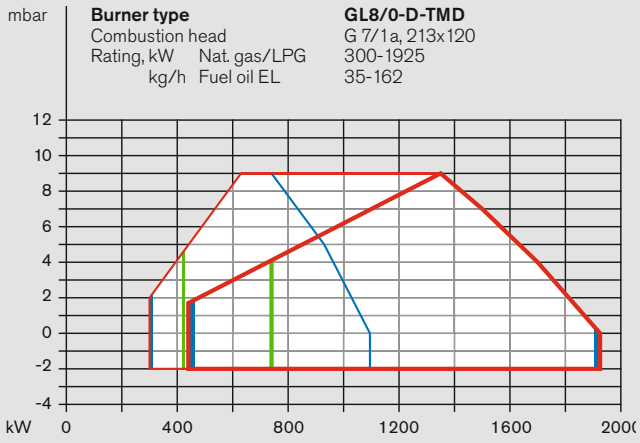


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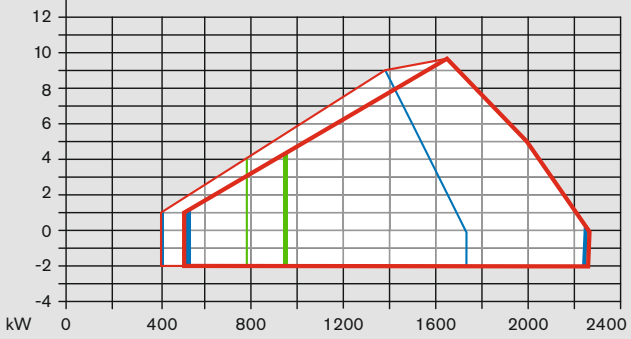
**Burner type** **GL8/1-D ZD-ZMD**
Combustion head G 7/2a, 213x120
Rating, kW Nat. gas/LPG 400-2275
kg/h Fuel oil EL 65-191

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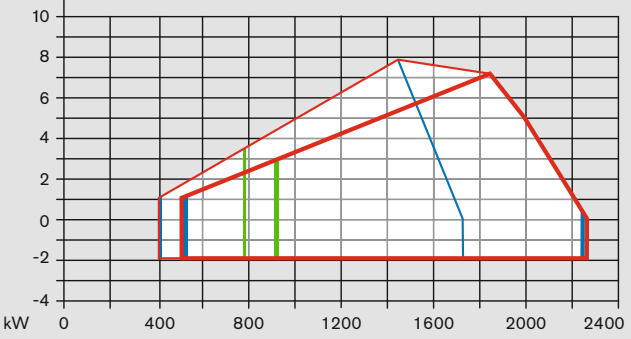
**Burner type** **GL8/1-D TMD**
Combustion head G 7/2a, 213x120
Rating, kW Nat. gas/LPG 400-2275
kg/h Fuel oil EL 65-191

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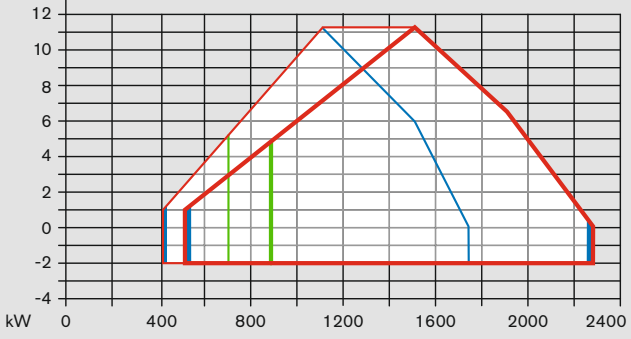
**Burner type** **RGL8/1-D**
Combustion head G 7/2a, 213x120
Rating, kW Nat. gas/LPG 400-2275
kg/h Fuel oil EL 58-191

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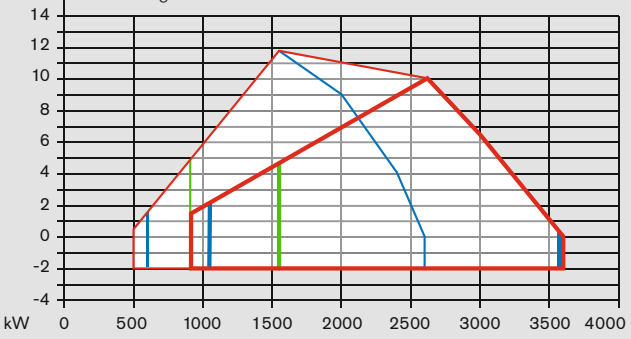
**Burner type** **GL9/1-D**
Combustion head UG 2/1a, 270x130
Rating, kW Nat. gas 500-3600
kW LPG 600-3600
kg/h Fuel oil EL 75-302

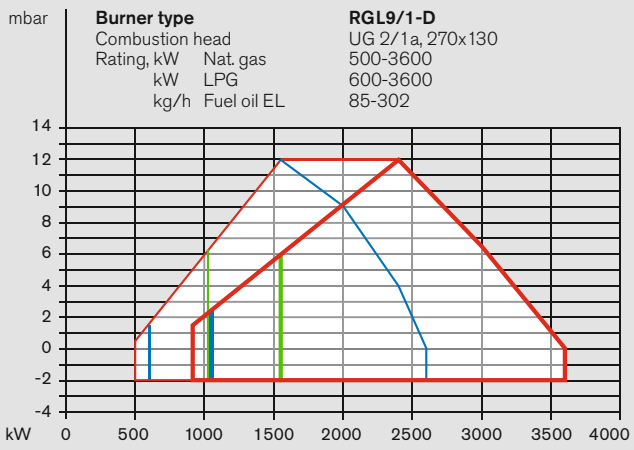


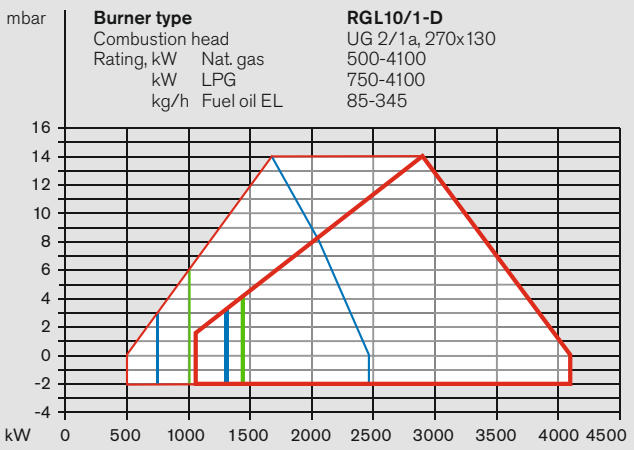

**Natural gas with combustion head**
Closed
Open

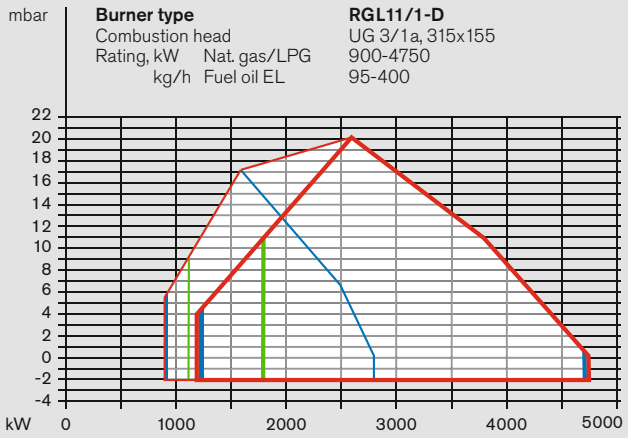
**LPG with combustion head**
Closed
Open

**Fuel oil EL with combustion head**
Closed
Open

# Burner selection
# Dual-fuel burners




**Natural gas with combustion head**
Closed
Open

**LPG with combustion head**
Closed
Open

**Fuel oil EL with combustion head**
Closed
Open

**Capacity graphs certified in accordance with EN 676.**

**Stated ratings are based on an installation altitude of 500 m above sea level. For installations at higher altitudes, a reduction in capacity of 1 % per 100 m above sea level should be taken into account.**

**Stated oil throughputs are based on a calorific value of 11.91 kWh/kg for fuel oil EL.**

**Burner operation with town gas or sewage gas**
The plotted operational ranges should be reduced by 10 % when selecting burners for use with town gas or sewage gas.

**Turndown when firing on oil**
Maximum turndown for dual-fuel burners with regulating nozzles is 3:1. It must be ensured that the minimum load point is also within the burner's operational range.

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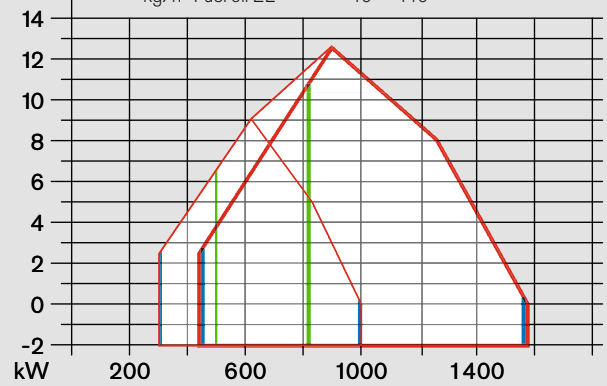
**Burner type** **RGMS7/1-D**
Combustion head G7/1a-213-50
Rating, kW Nat. gas/LPG 300 - 1575
kg/h Fuel oil EL 40 - 140

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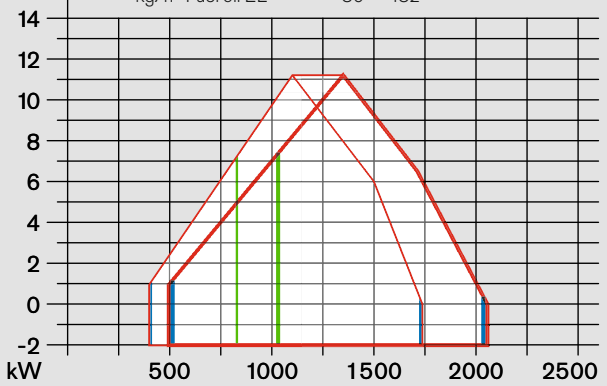
**Burner type** **RGMS8/1-D**
Combustion head G7/2a-213-50
Rating, kW Nat. gas/LPG 400 - 2050
kg/h Fuel oil EL 80 - 182

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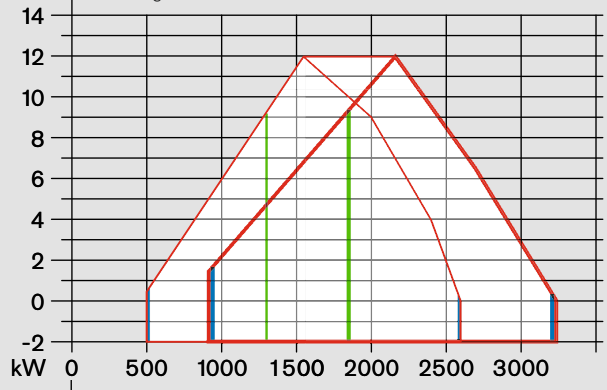
**Burner type** **RGMS9/1-D**
Combustion head UG2/1a-270-70
Rating, kW Nat. gas/LPG 500 - 3240
kg/h Fuel oil EL 110 - 288

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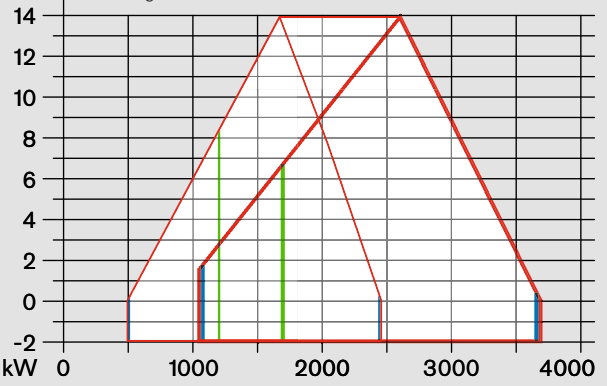
**Burner type** **RGMS10/1-D**
Combustion head UG2/1a-270-70
Rating, kW Nat. gas/LPG 500 - 3690
kg/h Fuel oil EL 105 - 328

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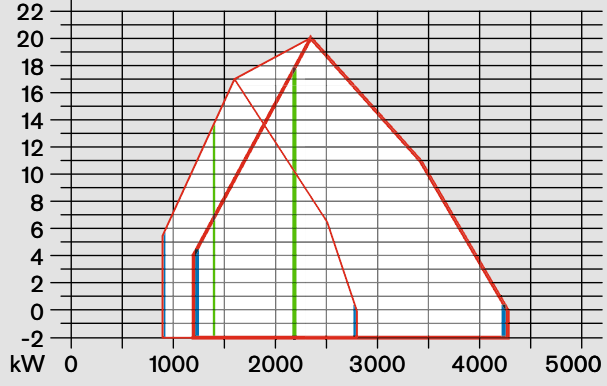
**Burner type** **RGMS11/1-D**
Combustion head UG3/1a-315-90
Rating, kW Nat. gas/LPG 900 - 4275
kg/h Fuel oil EL 120 - 380




**Natural gas with combustion head**
Closed
Open

**LPG with combustion head**
Closed
Open

**Fuel oil EL with combustion head**
Closed
Open

# Gas valve train sizing
# Burner sizes 1 to 7

**Burner size 1**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Nominal valve-train diameter** | | | | | **Nominal valve-train diameter** | | | | |
| | **¾"** | **1"** | **1½"** | **2"** | **65** | **¾"** | **1"** | **1½"** | **2"** | **65** |
| | Nominal diameter of gas butterfly | | | | | Nominal diameter of gas butterfly | | | | |
| | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | | | | | | | | | |
| 150 | 14 | – | – | – | – | 7 | – | – | – | – |
| 200 | 21 | 10 | – | – | – | 11 | – | – | – | – |
| 220 | 25 | 11 | – | – | – | 13 | – | – | – | – |
| 250 | 31 | 13 | 8 | – | – | 16 | 6 | – | – | – |
| 280 | 37 | 15 | 9 | 8 | – | 20 | 7 | 5 | 5 | – |
| 300 | 42 | 17 | 10 | 9 | – | 23 | 7 | 6 | 6 | 5 |
| 320 | 47 | 18 | 11 | 9 | 8 | 25 | 8 | 6 | 6 | 5 |
| 340 | 52 | 20 | 12 | 10 | 9 | 28 | 9 | 7 | 6 | 6 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | | | | | | | | | |
| 150 | 18 | 9 | – | – | – | 9 | – | – | – | – |
| 200 | 28 | 12 | – | – | – | 15 | 5 | – | – | – |
| 220 | 33 | 14 | 9 | – | – | 18 | 6 | – | – | – |
| 250 | 42 | 16 | 10 | 8 | – | 22 | 7 | 5 | 5 | – |
| 280 | 51 | 19 | 11 | 9 | 8 | 27 | 8 | 6 | 6 | 5 |
| 300 | 58 | 22 | 12 | 10 | 9 | 31 | 9 | 7 | 6 | 6 |
| 320 | 65 | 24 | 13 | 10 | 9 | 35 | 10 | 7 | 7 | 6 |
| 340 | 73 | 26 | 14 | 11 | 9 | 39 | 11 | 8 | 7 | 6 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | | | | | | | | | |
| 150 | – | – | – | – | – | – | – | – | – | – |
| 200 | 11 | – | – | – | – | 6 | – | – | – | – |
| 220 | 13 | – | – | – | – | 7 | – | – | – | – |
| 250 | 16 | 8 | – | – | – | 8 | – | – | – | – |
| 280 | 18 | 9 | – | – | – | 10 | – | – | – | – |
| 300 | 20 | 10 | – | – | – | 11 | – | – | – | – |
| 320 | 23 | 11 | – | – | – | 12 | 5 | – | – | – |
| 340 | 25 | 12 | 8 | – | – | 14 | 6 | – | – | – |

**Burner size 3**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar | | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Nominal valve-train diameter** | | | | | | **Nominal valve-train diameter** | | | | | |
| | **¾"** | **1"** | **1½"** | **2"** | **65** | **80** | **¾"** | **1"** | **1½"** | **2"** | **65** | **80** |
| | Nominal diameter of gas butterfly | | | | | | Nominal diameter of gas butterfly | | | | | |
| | 25 | 25 | 40 | 40 | 40 | 40 | 25 | 25 | 40 | 40 | 40 | 40 |
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | | | | | | | | | | | |
| 300 | 41 | 16 | 9 | – | – | – | 22 | 6 | – | – | – | – |
| 350 | 54 | 20 | 10 | 8 | – | – | 29 | 8 | 5 | – | – | – |
| 400 | 69 | 25 | 12 | 9 | – | – | 37 | 10 | 6 | 6 | – | – |
| 450 | 86 | 30 | 14 | 11 | 9 | – | 46 | 12 | 7 | 7 | 6 | 5 |
| 500 | 105 | 36 | 16 | 12 | 9 | 9 | 56 | 14 | 8 | 8 | 6 | 6 |
| 550 | 126 | 42 | 18 | 13 | 10 | 9 | 68 | 17 | 9 | 9 | 7 | 6 |
| 600 | 149 | 49 | 21 | 15 | 11 | 10 | 80 | 19 | 10 | 10 | 8 | 7 |
| 650 | 174 | 56 | 23 | 16 | 12 | 11 | 93 | 22 | 11 | 11 | 9 | 8 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | | | | | | | | | | | |
| 300 | 57 | 21 | 10 | 8 | – | – | 30 | 8 | – | – | – | – |
| 350 | 76 | 26 | 12 | 10 | – | – | 40 | 10 | 6 | 6 | – | – |
| 400 | 98 | 33 | 15 | 11 | 9 | – | 52 | 13 | 7 | 7 | 6 | 5 |
| 450 | 123 | 40 | 18 | 13 | 10 | 9 | 65 | 16 | 8 | 8 | 6 | 6 |
| 500 | 150 | 49 | 20 | 14 | 11 | 9 | 80 | 19 | 10 | 9 | 7 | 6 |
| 550 | 181 | 58 | 23 | 16 | 12 | 10 | 96 | 22 | 11 | 10 | 8 | 7 |
| 600 | 214 | 68 | 27 | 18 | 13 | 11 | 114 | 26 | 13 | 12 | 9 | 8 |
| 650 | 250 | 78 | 30 | 20 | 14 | 12 | 133 | 29 | 14 | 13 | 10 | 9 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | | | | | | | | | | | |
| 300 | 19 | 9 | – | – | – | – | 10 | – | – | – | – | – |
| 350 | 25 | 11 | – | – | – | – | 13 | – | – | – | – | – |
| 400 | 32 | 13 | 8 | – | – | – | 17 | 6 | – | – | – | – |
| 450 | 39 | 16 | 9 | – | – | – | 21 | 7 | – | – | – | – |
| 500 | 47 | 19 | 11 | 9 | – | – | 26 | 8 | 6 | 6 | 5 | – |
| 550 | 56 | 21 | 12 | 10 | 8 | 8 | 30 | 10 | 6 | 6 | 6 | 5 |
| 600 | 66 | 25 | 13 | 11 | 9 | 9 | 36 | 11 | 7 | 7 | 6 | 6 |
| 650 | 76 | 28 | 14 | 12 | 10 | 9 | 42 | 12 | 8 | 8 | 7 | 7 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure determined from the sizing chart.**

**For burners firing town gas, please enquire.**

**For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low pressure installations is 300 mbar.**

**For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.**

**Refer to the burner's rating plate for the maximum connection pressure.**

**Burner size 5**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar<br>**Nominal valve-train diameter**<br>**1" 1½" 2" 65 80 100**<br>Nominal diameter of gas butterfly<br>25 40 50 50 50 50 | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve<br>**Nominal valve-train diameter**<br>**1" 1½" 2" 65 80 100**<br>Nominal diameter of gas butterfly<br>25 40 50 50 50 50 |
|---|---|---|
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | |
| 500 | 35 16 11 9 – – | 14 8 7 5 – – |
| 600 | 49 20 14 10 9 8 | 19 10 9 7 6 6 |
| 700 | 64 26 17 12 10 9 | 25 12 11 8 7 7 |
| 800 | 82 32 20 14 11 10 | 31 15 13 10 8 8 |
| 900 | 102 39 24 16 13 12 | 38 18 15 11 9 9 |
| 1000 | 124 46 28 18 14 13 | 46 21 18 13 10 10 |
| 1125 | 155 56 32 20 15 13 | 56 25 21 14 11 10 |
| 1250 | 188 67 37 22 16 14 | 68 29 24 15 12 11 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | |
| 500 | 48 20 13 10 8 – | 18 9 8 6 5 5 |
| 600 | 67 27 17 12 10 9 | 25 12 11 8 7 6 |
| 700 | 90 34 21 14 11 10 | 33 16 13 10 8 7 |
| 800 | 115 43 25 16 13 12 | 43 19 16 11 9 9 |
| 900 | 144 52 30 19 15 13 | 53 23 20 13 11 10 |
| 1000 | 176 63 36 22 16 14 | 64 28 23 15 12 11 |
| 1125 | 220 77 43 25 18 15 | 79 33 27 17 13 12 |
| 1250 | 270 93 50 28 20 16 | 95 39 31 19 14 12 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | |
| 500 | 18 10 – – – – | 7 – – – – – |
| 600 | 23 12 9 – – – | 10 6 6 – – – |
| 700 | 30 15 11 9 8 – | 13 8 7 6 5 5 |
| 800 | 38 17 13 10 9 9 | 16 9 8 7 6 6 |
| 900 | 46 21 14 11 10 9 | 19 11 9 8 7 7 |
| 1000 | 56 24 16 12 11 10 | 22 12 11 9 8 7 |
| 1125 | 69 28 18 13 11 11 | 27 14 12 9 8 8 |
| 1250 | 83 33 21 15 12 11 | 32 16 14 10 9 8 |

**Burner size 7**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar<br>**Nominal valve-train diameter**<br>**1" 1½" 2" 65 80 100 125**<br>Nominal diameter of gas butterfly<br>40 40 50 65 65 65 65 | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve<br>**Nominal valve-train diameter**<br>**1" 1½" 2" 65 80 100 125**<br>Nominal diameter of gas butterfly<br>40 40 50 65 65 65 65 |
|---|---|---|
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | |
| 800 | 74 31 15 10 9 8 – | 23 18 8 6 6 5 5 |
| 900 | 92 38 17 12 10 9 9 | 29 22 10 7 6 6 6 |
| 1000 | 113 45 20 13 11 10 9 | 35 26 11 8 7 7 6 |
| 1100 | 135 54 23 15 12 10 10 | 41 31 13 9 8 7 7 |
| 1200 | 160 63 26 16 13 11 11 | 48 36 15 10 9 8 8 |
| 1400 | 215 83 33 20 15 13 12 | 64 47 18 12 10 9 9 |
| 1600 | 279 106 41 24 18 15 14 | 82 60 23 14 12 11 10 |
| 1750 | – 126 47 27 20 16 15 | 98 71 26 16 14 12 11 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | |
| 800 | 105 42 18 12 10 9 8 | 32 24 10 7 6 6 6 |
| 900 | 131 52 22 14 11 10 9 | 39 29 12 8 7 7 6 |
| 1000 | 160 63 25 16 12 11 10 | 48 35 14 9 8 7 7 |
| 1100 | 193 75 29 18 14 12 11 | 57 42 16 11 9 8 8 |
| 1200 | 228 87 34 20 15 12 12 | 67 49 18 12 10 9 9 |
| 1400 | – 117 44 25 18 14 13 | 90 65 24 14 12 11 10 |
| 1600 | – 150 55 30 21 17 15 | 116 84 29 17 14 12 12 |
| 1750 | – 178 64 34 24 18 16 | 138 99 34 19 16 13 13 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | |
| 800 | 34 16 9 – – – – | 11 9 5 – – – – |
| 900 | 42 19 11 8 – – – | 14 11 6 5 – – – |
| 1000 | 50 23 12 9 8 – – | 17 13 7 6 5 5 5 |
| 1100 | 60 26 13 10 9 8 8 | 20 15 8 6 6 6 6 |
| 1200 | 70 30 15 11 10 9 9 | 23 18 9 7 6 6 6 |
| 1400 | 93 39 18 13 11 10 10 | 30 23 11 8 8 7 7 |
| 1600 | 120 49 22 15 13 11 11 | 38 29 13 10 9 8 8 |
| 1750 | 142 57 25 17 14 12 12 | 44 33 15 11 10 9 9 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure determined from the sizing chart.**

**For burners firing town gas, please enquire.**

**For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low pressure installations is 300 mbar.**

**For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.**

**Refer to the burner's rating plate for the maximum connection pressure.**

# Gas valve train sizing
# Burner sizes 8 to 11

**Burner size 8**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar | | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Nominal valve-train diameter** | | | | | | **Nominal valve-train diameter** | | | | | |
| | **1½"** | **2"** | **65** | **80** | **100** | **125** | **1½"** | **2"** | **65** | **80** | **100** | **125** |
| | Nominal diameter of gas butterfly | | | | | | Nominal diameter of gas butterfly | | | | | |
| | 40 | 50 | 65 | 65 | 65 | 65 | 40 | 50 | 65 | 65 | 65 | 65 |
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | | | | | | | | | | | |
| 1100 | 53 | 22 | 14 | 11 | 9 | 9 | 29 | 12 | 8 | 7 | 6 | 6 |
| 1200 | 62 | 25 | 15 | 12 | 10 | 9 | 34 | 13 | 9 | 7 | 7 | 6 |
| 1300 | 71 | 28 | 17 | 13 | 11 | 10 | 40 | 15 | 10 | 8 | 7 | 7 |
| 1400 | 82 | 31 | 18 | 14 | 11 | 11 | 46 | 17 | 11 | 9 | 8 | 8 |
| 1600 | 105 | 39 | 22 | 16 | 13 | 12 | 58 | 21 | 13 | 11 | 9 | 9 |
| 1800 | 131 | 48 | 26 | 19 | 14 | 13 | 73 | 25 | 15 | 12 | 10 | 10 |
| 2000 | 160 | 57 | 31 | 21 | 16 | 15 | 89 | 30 | 17 | 14 | 12 | 11 |
| 2250 | 200 | 70 | 37 | 25 | 18 | 16 | 111 | 36 | 20 | 16 | 13 | 12 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | | | | | | | | | | | |
| 1100 | 73 | 28 | 17 | 12 | 10 | 9 | 41 | 15 | 9 | 8 | 7 | 7 |
| 1200 | 86 | 32 | 19 | 14 | 11 | 10 | 48 | 17 | 10 | 9 | 7 | 7 |
| 1300 | 100 | 37 | 21 | 15 | 12 | 11 | 56 | 19 | 11 | 10 | 8 | 8 |
| 1400 | 115 | 42 | 23 | 16 | 13 | 12 | 64 | 22 | 13 | 10 | 9 | 8 |
| 1600 | 148 | 53 | 28 | 19 | 15 | 13 | 82 | 27 | 15 | 12 | 10 | 10 |
| 1800 | 185 | 65 | 34 | 23 | 17 | 15 | 103 | 33 | 18 | 14 | 12 | 11 |
| 2000 | 227 | 78 | 40 | 26 | 19 | 16 | 125 | 40 | 21 | 16 | 13 | 12 |
| 2250 | 285 | 96 | 48 | 31 | 21 | 18 | – | 49 | 25 | 19 | 15 | 14 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | | | | | | | | | | | |
| 1100 | 25 | 13 | 9 | 8 | – | – | 14 | 7 | 5 | 5 | – | – |
| 1200 | 29 | 14 | 10 | 9 | 8 | – | 17 | 8 | 6 | 6 | 5 | 5 |
| 1300 | 33 | 16 | 11 | 9 | 9 | 8 | 19 | 9 | 7 | 6 | 6 | 6 |
| 1400 | 38 | 17 | 12 | 10 | 9 | 9 | 22 | 10 | 7 | 7 | 6 | 6 |
| 1600 | 48 | 21 | 14 | 11 | 10 | 10 | 27 | 12 | 8 | 8 | 7 | 7 |
| 1800 | 59 | 25 | 16 | 13 | 11 | 11 | 34 | 14 | 10 | 9 | 8 | 8 |
| 2000 | 71 | 29 | 18 | 14 | 12 | 12 | 41 | 16 | 11 | 10 | 9 | 9 |
| 2250 | 88 | 35 | 21 | 16 | 14 | 13 | 50 | 20 | 13 | 11 | 10 | 10 |

**Burner size 9**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar | | | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Nominal valve-train diameter** | | | | | | | **Nominal valve-train diameter** | | | | | | |
| | **1½"** | **2"** | **65** | **80** | **100** | **125** | **150** | **1½"** | **2"** | **65** | **80** | **100** | **125** | **150** |
| | Nominal diameter of gas butterfly | | | | | | | Nominal diameter of gas butterfly | | | | | | |
| | 50 | 50 | 65 | 80 | 80 | 80 | 80 | 50 | 50 | 65 | 80 | 80 | 80 | 80 |
| **Natural gas E**, $H_i$ = 37.26 MJ/mn³ (10.35 kWh/mn³), d = 0.606, $W_i$ = 47.84 MJ/mn³ | | | | | | | | | | | | | | |
| 1600 | 99 | 38 | 21 | 15 | 12 | 11 | 10 | 53 | 20 | 12 | 10 | 8 | 8 | 8 |
| 1800 | 124 | 47 | 25 | 18 | 13 | 12 | 11 | 66 | 24 | 14 | 11 | 9 | 9 | 9 |
| 2000 | 151 | 56 | 30 | 20 | 15 | 13 | 13 | 81 | 29 | 16 | 13 | 10 | 10 | 10 |
| 2200 | 182 | 66 | 35 | 23 | 17 | 15 | 14 | 97 | 34 | 19 | 14 | 12 | 11 | 11 |
| 2400 | 215 | 78 | 40 | 26 | 18 | 16 | 15 | 114 | 40 | 21 | 16 | 13 | 12 | 12 |
| 2800 | 289 | 103 | 51 | 32 | 22 | 19 | 17 | – | 52 | 27 | 20 | 15 | 14 | 14 |
| 3200 | – | 131 | 64 | 38 | 26 | 21 | 19 | – | 66 | 33 | 23 | 18 | 16 | 16 |
| 3500 | – | 155 | 74 | 44 | 29 | 24 | 21 | – | 77 | 38 | 27 | 20 | 18 | 17 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/mn³ (8.83 kWh/mn³), d = 0.641, $W_i$ = 39.67 MJ/mn³ | | | | | | | | | | | | | | |
| 1600 | 140 | 52 | 27 | 18 | 14 | 12 | 11 | 75 | 26 | 15 | 11 | 9 | 9 | 8 |
| 1800 | 176 | 64 | 33 | 21 | 15 | 13 | 13 | 93 | 32 | 17 | 13 | 10 | 10 | 9 |
| 2000 | 216 | 77 | 39 | 25 | 17 | 15 | 14 | 114 | 39 | 20 | 15 | 12 | 11 | 11 |
| 2200 | 259 | 92 | 45 | 28 | 19 | 16 | 15 | 137 | 46 | 23 | 17 | 13 | 12 | 12 |
| 2400 | – | 108 | 52 | 32 | 21 | 18 | 16 | – | 54 | 27 | 19 | 15 | 13 | 13 |
| 2800 | – | 143 | 68 | 40 | 26 | 21 | 19 | – | 71 | 34 | 24 | 1 | 16 | 15 |
| 3200 | – | 184 | 86 | 49 | 31 | 25 | 22 | – | 90 | 42 | 29 | 20 | 18 | 17 |
| 3500 | – | 218 | 101 | 57 | 34 | 27 | 24 | – | 106 | 49 | 33 | 23 | 20 | 19 |
| **LPG B/P**, $H_i$ = 93.20 MJ/mn³ (25.89 kWh/mn³), d = 1.555, $W_i$ = 74.73 MJ/mn³ | | | | | | | | | | | | | | |
| 1600 | 45 | 20 | 13 | 11 | 9 | 9 | 9 | 25 | 11 | 8 | 7 | 6 | 6 | 6 |
| 1800 | 56 | 24 | 15 | 12 | 10 | 10 | 9 | 30 | 13 | 9 | 8 | 7 | 7 | 7 |
| 2000 | 67 | 28 | 17 | 13 | 11 | 11 | 10 | 37 | 16 | 10 | 9 | 8 | 8 | 8 |
| 2200 | 80 | 33 | 20 | 15 | 12 | 11 | 11 | 44 | 18 | 12 | 10 | 9 | 8 | 8 |
| 2400 | 94 | 38 | 22 | 16 | 13 | 12 | 12 | 51 | 21 | 13 | 11 | 10 | 9 | 9 |
| 2800 | 125 | 49 | 27 | 20 | 15 | 14 | 14 | 68 | 26 | 16 | 13 | 11 | 11 | 11 |
| 3200 | 161 | 61 | 33 | 23 | 18 | 16 | 15 | 87 | 33 | 19 | 15 | 13 | 12 | 12 |
| 3500 | 191 | 71 | 38 | 26 | 20 | 17 | 17 | 103 | 38 | 22 | 17 | 14 | 14 | 13 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure determined from the sizing chart.**

**For burners firing town gas, please enquire.**

**For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low pressure installations is 300 mbar.**

**For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.**

**Refer to the burner's rating plate for the maximum connection pressure.**

**Burner size 10**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar<br>**Nominal valve-train diameter**<br>**1½"** **2"** **65** **80** **100** **125** **150**<br>Nominal diameter of gas butterfly | | | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve<br>**Nominal valve-train diameter**<br>**1½"** **2"** **65** **80** **100** **125** **150**<br>Nominal diameter of gas butterfly | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 50 | 65 | 80 | 80 | 80 | 80 | 50 | 50 | 65 | 80 | 80 | 80 | 80 |
| **Natural gas E,** $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606, $W_i$ = 47.84 MJ/m³ | | | | | | | | | | | | | | |
| 2000 | 151 | 55 | 29 | 19 | 14 | 13 | 12 | 80 | 28 | 16 | 12 | 10 | 9 | 9 |
| 2200 | 181 | 66 | 34 | 22 | 16 | 14 | 13 | 96 | 33 | 18 | 13 | 11 | 10 | 10 |
| 2400 | 214 | 77 | 39 | 25 | 17 | 15 | 14 | 113 | 39 | 20 | 15 | 12 | 11 | 11 |
| 2600 | 250 | 89 | 44 | 28 | 19 | 16 | 15 | 132 | 45 | 23 | 17 | 13 | 12 | 12 |
| 2800 | 288 | 102 | 50 | 31 | 21 | 18 | 16 | – | 51 | 26 | 19 | 14 | 13 | 13 |
| 3200 | – | 130 | 63 | 37 | 24 | 20 | 18 | – | 65 | 32 | 22 | 17 | 15 | 15 |
| 3600 | – | 162 | 77 | 45 | 28 | 23 | 21 | – | 80 | 38 | 26 | 19 | 17 | 17 |
| 3950 | – | 193 | 90 | 52 | 32 | 26 | 23 | – | 94 | 44 | 30 | 21 | 19 | 18 |
| **Natural gas LL,** $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641, $W_i$ = 39.67 MJ/m³ | | | | | | | | | | | | | | |
| 2000 | 215 | 76 | 38 | 24 | 17 | 14 | 13 | 113 | 38 | 20 | 14 | 11 | 10 | 10 |
| 2200 | 259 | 91 | 45 | 27 | 18 | 16 | 14 | 136 | 45 | 23 | 16 | 12 | 11 | 11 |
| 2400 | – | 107 | 52 | 31 | 20 | 17 | 16 | – | 53 | 26 | 18 | 14 | 12 | 12 |
| 2600 | – | 124 | 59 | 35 | 23 | 19 | 17 | – | 61 | 30 | 21 | 15 | 14 | 13 |
| 2800 | – | 142 | 67 | 39 | 25 | 20 | 18 | – | 70 | 33 | 23 | 16 | 15 | 14 |
| 3200 | – | 183 | 85 | 48 | 29 | 24 | 21 | – | 89 | 41 | 28 | 19 | 17 | 16 |
| 3600 | – | 229 | 105 | 58 | 35 | 27 | 23 | – | 110 | 50 | 33 | 22 | 20 | 19 |
| 3950 | – | 273 | 124 | 68 | 39 | 30 | 26 | – | 131 | 59 | 38 | 25 | 22 | 21 |
| **LPG B/P,** $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555, $W_i$ = 74.73 MJ/m³ | | | | | | | | | | | | | | |
| 2000 | 67 | 28 | 17 | 13 | 11 | 10 | 10 | 36 | 15 | 10 | 8 | 7 | 7 | 7 |
| 2200 | 79 | 32 | 19 | 14 | 12 | 11 | 10 | 43 | 17 | 11 | 9 | 8 | 8 | 8 |
| 2400 | 93 | 37 | 21 | 16 | 13 | 12 | 11 | 50 | 20 | 12 | 10 | 9 | 9 | 8 |
| 2600 | 108 | 42 | 24 | 17 | 14 | 12 | 12 | 58 | 23 | 14 | 11 | 10 | 9 | 9 |
| 2800 | 124 | 48 | 27 | 19 | 15 | 13 | 13 | 67 | 26 | 15 | 12 | 10 | 10 | 10 |
| 3200 | 160 | 60 | 32 | 22 | 17 | 15 | 14 | 86 | 32 | 18 | 14 | 12 | 12 | 11 |
| 3600 | 200 | 74 | 39 | 26 | 19 | 17 | 16 | 107 | 39 | 22 | 17 | 14 | 13 | 13 |
| 3950 | 240 | 87 | 45 | 29 | 21 | 19 | 17 | 128 | 45 | 25 | 19 | 15 | 14 | 14 |

**Burner size 11**

| Burner rating kW | Low-pressure supply (with FRS). Flow pressure in mbar into shut-off valve, $p_e$ max = 300 mbar<br>**Nominal valve-train diameter**<br>**1½"** **2"** **65** **80** **100** **125** **150**<br>Nominal diameter of gas butterfly | | | | | | | High-pressure supply (with HP regulator). Flow pressure in mbar into double solenoid valve<br>**Nominal valve-train diameter**<br>**1½"** **2"** **65** **80** **100** **125** **150**<br>Nominal diameter of gas butterfly | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 65 | 65 | 65 | 80 | 100 | 100 | 100 | 65 | 65 | 65 | 80 | 100 | 100 | 100 |
| **Natural gas E,** $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606, $W_i$ = 47.84 MJ/m³ | | | | | | | | | | | | | | |
| 3200 | – | 123 | 61 | 36 | 23 | 19 | 17 | – | 58 | 30 | 21 | 15 | 13 | 13 |
| 3400 | – | 138 | 68 | 40 | 24 | 20 | 18 | – | 64 | 34 | 23 | 16 | 14 | 14 |
| 3600 | – | 154 | 75 | 43 | 26 | 21 | 19 | – | 71 | 37 | 25 | 17 | 15 | 15 |
| 3800 | – | 170 | 83 | 47 | 28 | 22 | 20 | – | 79 | 40 | 27 | 18 | 16 | 15 |
| 4000 | – | 187 | 91 | 51 | 30 | 24 | 21 | – | 86 | 44 | 29 | 20 | 17 | 16 |
| 4400 | – | 225 | 107 | 60 | 34 | 27 | 23 | – | 103 | 51 | 34 | 22 | 19 | 18 |
| 4800 | – | 265 | 126 | 69 | 39 | 30 | 25 | – | 121 | 60 | 38 | 25 | 21 | 20 |
| 5100 | – | 298 | 140 | 77 | 42 | 32 | 27 | – | 135 | 66 | 42 | 27 | 23 | 21 |
| **Natural gas LL,** $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641, $W_i$ = 39.67 MJ/m³ | | | | | | | | | | | | | | |
| 3200 | – | 174 | 84 | 47 | 28 | 22 | 19 | – | 80 | 40 | 26 | 17 | 15 | 14 |
| 3400 | – | 195 | 93 | 52 | 30 | 23 | 20 | – | 89 | 44 | 29 | 19 | 16 | 15 |
| 3600 | – | 217 | 103 | 57 | 32 | 25 | 21 | – | 99 | 49 | 32 | 20 | 17 | 16 |
| 3800 | – | 241 | 114 | 62 | 35 | 26 | 23 | – | 109 | 54 | 34 | 22 | 19 | 17 |
| 4000 | – | 266 | 125 | 68 | 38 | 28 | 24 | – | 120 | 58 | 37 | 23 | 20 | 18 |
| 4400 | – | – | 149 | 80 | 43 | 32 | 27 | – | – | 69 | 43 | 26 | 22 | 21 |
| 4800 | – | – | 175 | 93 | 49 | 36 | 29 | – | – | 80 | 50 | 30 | 25 | 23 |
| 5100 | – | – | 196 | 103 | 54 | 39 | 32 | – | – | 89 | 55 | 32 | 26 | 24 |
| **LPG B/P,** $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555, $W_i$ = 74.73 MJ/m³ | | | | | | | | | | | | | | |
| 3200 | 157 | 57 | 31 | 21 | 15 | 14 | 13 | 82 | 28 | 17 | 13 | 11 | 10 | 10 |
| 3400 | 176 | 63 | 34 | 23 | 16 | 14 | 14 | 92 | 31 | 19 | 14 | 11 | 11 | 11 |
| 3600 | 196 | 70 | 37 | 24 | 17 | 15 | 14 | 103 | 34 | 20 | 15 | 12 | 11 | 11 |
| 3800 | 218 | 77 | 41 | 26 | 19 | 16 | 15 | 114 | 38 | 22 | 17 | 13 | 12 | 12 |
| 4000 | 240 | 84 | 44 | 28 | 20 | 17 | 16 | 126 | 41 | 24 | 18 | 14 | 13 | 12 |
| 4400 | 289 | 100 | 52 | 32 | 22 | 19 | 17 | – | 49 | 27 | 20 | 15 | 14 | 14 |
| 4800 | – | 117 | 60 | 37 | 24 | 21 | 19 | – | 56 | 31 | 23 | 17 | 16 | 15 |
| 5100 | – | 131 | 66 | 40 | 26 | 22 | 20 | – | 63 | 34 | 25 | 18 | 17 | 16 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure determined from the sizing chart.**

**For burners firing town gas, please enquire.**

**For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low pressure installations is 300 mbar.**

**For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.**

**Refer to the burner's rating plate for the maximum connection pressure.**

# Order numbers

## Size 1

### Gas burners

**Type G1/1-E ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 251 104 91 |
| R 1 | 251 114 91 |
| R 1 ½ | 251 114 92 |
| R 2 | 251 114 93 |
| DN 65 | 251 144 91 |
| DN 80 | 251 154 91 |

**Type G1/1-E ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 251 107 81 |
| R 1 | 251 117 81 |
| R 1 ½ | 251 117 84 |
| R 2 | 251 117 85 |
| DN 65 | 251 147 81 |
| DN 80 | 251 157 81 |

### Dual-fuel burners

**Type GL1/1-E ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 255 104 91 |
| R 1 | 255 114 91 |
| R 1 ½ | 255 114 92 |
| R 2 | 255 114 93 |
| DN 65 | 255 144 91 |
| DN 80 | 255 154 91 |

**Type GL1/1-E ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 255 107 81 |
| R 1 | 255 117 81 |
| R 1 ½ | 255 117 82 |
| R 2 | 255 117 83 |
| DN 65 | 255 147 81 |
| DN 80 | 255 157 81 |

## Size 3

### Gas burners

**Type G3/1-E ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 251 304 91 |
| R 1 | 251 314 91 |
| R 1 ½ | 251 314 92 |
| R 2 | 251 314 93 |
| DN 65 | 251 344 91 |
| DN 80 | 251 354 91 |
| DN 100 | 251 364 91 |

**Type G3/1-E ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 251 307 81 |
| R 1 | 251 317 81 |
| R 1 ½ | 251 317 84 |
| R 2 | 251 317 85 |
| DN 65 | 251 347 81 |
| DN 80 | 251 357 81 |
| DN 100 | 251 367 81 |

### Dual-fuel burners

**Type GL3/1-E ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 255 304 91 |
| R 1 | 255 314 91 |
| R 1 ½ | 255 314 92 |
| R 2 | 255 314 93 |
| DN 65 | 255 344 91 |
| DN 80 | 255 354 91 |
| DN 100 | 255 364 91 |

**Type GL3/1-E ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R ¾ | 255 307 81 |
| R 1 | 255 317 81 |
| R 1 ½ | 255 317 82 |
| R 2 | 255 317 83 |
| DN 65 | 255 347 81 |
| DN 80 | 255 357 81 |
| DN 100 | 255 367 81 |

## Size 5

### Gas burners

**Type G5/1-D ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1 | 151 514 91 |
| R 1 ½ | 151 514 92 |
| R 2 | 151 514 93 |
| DN 65 | 151 544 91 |
| DN 80 | 151 554 91 |
| DN 100 | 151 564 91 |

**Type G5/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1 | 151 517 81 |
| R 1 ½ | 151 517 84 |
| R 2 | 151 517 85 |
| DN 65 | 151 547 81 |
| DN 80 | 151 557 81 |
| DN 100 | 151 567 81 |

**Type G5/2-D ZD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1 | 151 515 91 |
| R 1 ½ | 151 515 92 |
| R 2 | 151 515 93 |
| DN 65 | 151 545 91 |
| DN 80 | 151 555 91 |
| DN 100 | 151 565 91 |

**Type G5/2-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1 | 151 518 81 |
| R 1 ½ | 151 518 84 |
| R 2 | 151 518 85 |
| DN 65 | 151 548 81 |
| DN 80 | 151 558 81 |
| DN 100 | 151 568 81 |

## Size 5

### Dual-fuel burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type GL5/1-D ZD** | |
| R 1 | 155 514 91 |
| R 1½ | 155 514 92 |
| R 2 | 155 514 93 |
| DN 65 | 155 544 91 |
| DN 80 | 155 554 91 |
| DN 100 | 155 564 91 |
| **Type GL5/1-D ZMD** | |
| R 1 | 155 517 81 |
| R 1½ | 155 517 82 |
| R 2 | 155 517 83 |
| DN 65 | 155 547 81 |
| DN 80 | 155 557 81 |
| DN 100 | 155 567 81 |
| **Type RGL5/1-D ZMD** | |
| R 1 | 656 517 81 |
| R 1½ | 656 517 82 |
| R 2 | 656 517 83 |
| DN 65 | 656 547 81 |
| DN 80 | 656 557 81 |
| DN 100 | 656 567 81 |

## Size 7

### Gas burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type G7/1-D ZD** | |
| R 1 | 151 714 91 |
| R 1½ | 151 714 92 |
| R 2 | 151 714 93 |
| DN 65 | 151 744 91 |
| DN 80 | 151 754 91 |
| DN 100 | 151 764 91 |
| DN 125 | 151 774 91 |
| **Type G7/1-D ZMD** | |
| R 1 | 151 717 81 |
| R 1½ | 151 717 82 |
| R 2 | 151 717 83 |
| DN 65 | 151 747 81 |
| DN 80 | 151 757 81 |
| DN 100 | 151 767 81 |
| DN 125 | 151 777 81 |

## Size 7

### Dual-fuel burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type GL7/1-D ZD** | |
| R 1 | 155 714 91 |
| R 1½ | 155 714 92 |
| R 2 | 155 714 93 |
| DN 65 | 155 744 91 |
| DN 80 | 155 754 91 |
| DN 100 | 155 764 91 |
| DN 125 | 155 774 91 |
| DN 125 | 155 774 91 |
| **Type GL7/1-D ZMD** | |
| R 1 | 155 717 81 |
| R 1½ | 155 717 82 |
| R 2 | 155 717 83 |
| DN 65 | 155 747 81 |
| DN 80 | 155 757 81 |
| DN 100 | 155 767 81 |
| DN 125 | 155 777 81 |
| **Type RGL7/1-D ZMD** | |
| R 1 | 656 717 81 |
| R 1½ | 656 717 82 |
| R 2 | 656 717 83 |
| DN 65 | 656 747 81 |
| DN 80 | 656 757 81 |
| DN 100 | 656 767 81 |
| DN 125 | 656 777 81 |
| **Type RGMS7/1-D ZMD** | |
| R 1½ | 658 717 83 |
| R 2 | 658 717 84 |
| DN 65 | 658 747 82 |
| DN 80 | 658 757 85 |
| DN 100 | 658 767 82 |
| DN 125 | 658 777 82 |

# Order numbers

## Size 8

### Gas burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type G8/1-D ZD** | |
| R 1½ | 151 814 92 |
| R 2 | 151 814 93 |
| DN 65 | 151 844 91 |
| DN 80 | 151 854 91 |
| DN 100 | 151 864 91 |
| DN 125 | 151 874 91 |
| **Type G8/1-D ZMD** | |
| R 1½ | 151 817 82 |
| R 2 | 151 817 83 |
| DN 65 | 151 847 81 |
| DN 80 | 151 857 81 |
| DN 100 | 151 867 81 |
| DN 125 | 151 877 81 |

## Size 8

### Dual-fuel burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type GL8/0-D TMD** | |
| R 1½ | 155 818 11 |
| R 2 | 155 818 12 |
| DN 65 | 155 848 11 |
| DN 80 | 155 858 11 |
| DN 100 | 155 868 11 |
| DN 125 | 155 878 11 |
| **Type GL8/1-D ZD** | |
| R 1½ | 155 814 92 |
| R 2 | 155 814 93 |
| DN 65 | 155 844 91 |
| DN 80 | 155 854 91 |
| DN 100 | 155 864 91 |
| DN 125 | 155 874 91 |
| **Type GL8/1-D ZMD** | |
| R 1½ | 155 817 82 |
| R 2 | 155 817 83 |
| DN 65 | 155 847 81 |
| DN 80 | 155 857 81 |
| DN 100 | 155 867 81 |
| DN 125 | 155 877 81 |
| **Type GL8/1-D TMD** | |
| R 1½ | 155 818 82 |
| R 2 | 155 818 83 |
| DN 65 | 155 848 81 |
| DN 80 | 155 858 81 |
| DN 100 | 155 868 81 |
| DN 125 | 155 878 81 |
| **Type RGL8/1-D ZMD** | |
| R 1½ | 656 817 82 |
| R 2 | 656 817 83 |
| DN 65 | 656 847 81 |
| DN 80 | 656 857 81 |
| DN 100 | 656 867 81 |
| DN 125 | 656 877 81 |
| **Type RGMS8/1-D ZMD** | |
| R 1½ | 658 817 82 |
| R 2 | 658 817 83 |
| DN 65 | 658 847 83 |
| DN 80 | 658 857 83 |
| DN 100 | 658 867 83 |
| DN 125 | 658 877 83 |

## Size 9

### Gas burners

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| **Type G9/1-D ZMD** | |
| R 1½ | 151 917 82 |
| R 2 | 151 917 83 |
| DN 65 | 151 947 81 |
| DN 80 | 151 957 81 |
| DN 100 | 151 967 81 |
| DN 125 | 151 977 81 |
| DN 150 | 151 987 81 |

### Dual-fuel burners

| | |
|---|---|
| **Type GL9/1-D ZMD*** | |
| R 1½ | 155 917 82 |
| R 2 | 155 917 83 |
| DN 65 | 155 947 81 |
| DN 80 | 155 957 81 |
| DN 100 | 155 967 81 |
| DN 125 | 155 977 81 |
| **Type GL9/1-D TMD** | |
| R 1½ | 155 918 82 |
| R 2 | 155 918 83 |
| DN 65 | 155 948 81 |
| DN 80 | 155 958 81 |
| DN 100 | 155 968 81 |
| DN 125 | 155 978 81 |
| **Type RGL9/1-D ZMD** | |
| R 1½ | 656 917 82 |
| R 2 | 656 917 83 |
| DN 65 | 656 947 81 |
| DN 80 | 656 957 81 |
| DN 100 | 656 967 81 |
| DN 125 | 656 977 81 |
| DN 150 | 656 987 81 |
| **Type RGMS9/1-D ZMD** | |
| R 1½ | 658 917 84 |
| R 2 | 658 917 85 |
| DN 65 | 658 947 83 |
| DN 80 | 658 957 83 |
| DN 100 | 658 967 83 |
| DN 125 | 658 977 83 |
| DN 150 | 658 987 83 |

## Size 10

### Gas burners

**Type G10/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 191 017 82 |
| R 2 | 191 017 83 |
| DN 65 | 191 047 81 |
| DN 80 | 191 057 81 |
| DN 100 | 191 067 81 |
| DN 125 | 191 077 81 |
| DN 150 | 191 087 81 |

### Dual-fuel burners

**Type RGL10/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 696 017 82 |
| R 2 | 696 017 83 |
| DN 65 | 696 047 81 |
| DN 80 | 696 057 81 |
| DN 100 | 696 067 81 |
| DN 125 | 696 077 81 |
| DN 150 | 696 087 81 |

**Type RGMS10/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 698 017 84 |
| R 2 | 698 017 85 |
| DN 65 | 698 047 83 |
| DN 80 | 698 057 83 |
| DN 100 | 698 067 83 |
| DN 125 | 698 077 83 |
| DN 150 | 698 087 83 |

## Size 11

### Gas burners

**Type G11/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 191 117 82 |
| R 2 | 191 117 83 |
| DN 65 | 191 147 81 |
| DN 80 | 191 157 81 |
| DN 100 | 191 167 81 |
| DN 125 | 191 177 81 |
| DN 150 | 191 187 81 |

### Dual-fuel burners

**Type RGL11/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 696 117 82 |
| R 2 | 696 117 83 |
| DN 65 | 696 147 81 |
| DN 80 | 696 157 81 |
| DN 100 | 696 167 81 |
| DN 125 | 696 177 81 |
| DN 150 | 696 187 81 |

**Type RGMS11/1-D ZMD**

| DMV Size | Gas and dual-fuel burners Order No. |
|---|---|
| R 1½ | 698 117 83 |
| R 2 | 698 117 84 |
| DN 65 | 698 147 82 |
| DN 80 | 698 157 82 |
| DN 100 | 698 167 82 |
| DN 125 | 698 177 82 |
| DN 150 | 698 187 82 |

Note
If sliding-two-stage burners (ZM) are to modulate, this should be noted on your order. Modulating burners utilise servomotors with a different run-time.

* Not approved for use in Germany.

# Special equipment

| Description | | | G1/GL1 | G3/GL3/RGL3 |
|---|---|---|---|---|
| Hinged-flange limit switch | | | standard | standard |
| Downward-firing version | | | standard | standard |
| Air-inlet flange for duct connection | | | 210 000 67 | 210 000 67 |
| 1300 mm oil hoses in lieu of 1000 mm | GL/RGL | | 210 003 00 | 210 003 00 |
| Oil pressure gauge with ball valve | GL<br>RGL | | 110 006 63<br>– | 110 006 63<br>210 000 92 |
| Vacuum gauge with ball valve | GL/RGL (oil-side) | | 110 006 64 | 110 006 64 |
| Integral oil meter | GL | | 250 000 23 | 250 002 65 |
| Combustion-head extension | G1-G3 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 001 23<br>150 001 24<br>150 002 34 | 150 001 07<br>150 001 08<br>150 002 36 |
| | GL1-GL3 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 001 25<br>150 001 26<br>150 002 35 | 150 001 12<br>150 001 13<br>150 002 37 |
| | RGL3 | by 100 mm<br>by 200 mm<br>by 300 mm | –<br>–<br>– | 150 006 29<br>150 006 30<br>150 006 31 |
| 1 burner-mounted timer, burners with inbuilt switchgear<br>2 burner-mounted timers, without electromagnetic clutch | G<br>G | | 210 000 69<br>210 000 70 | 210 000 69<br>210 000 70 |
| Electromagnetic clutch for dual-fuel burners | GL (standard on RGL) | | 250 000 10 | 250 000 11 |
| Flame sensor (UV cell) – in lieu of ionisation electrodes | G (standard on GL/RGL) | | 150 002 29 | 150 002 29 |
| Feedback potentiometer fitted to servomotor (ZM-version burners) | 220 Ω<br>1000 Ω | | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 |
| LGK 16.322 burner controller in lieu of LFL 1.322 | G<br>GL<br>RGL | | 250 000 81<br>250 000 82<br>– | 250 000 81<br>250 000 83<br>250 000 83 |
| Solenoid valve for air-pressure switch test with continuously runnung fan or post-purge | | | 250 000 54 | 250 000 54 |
| Inbuilt switchgear for burners with LFL controller | G, version ZD | | 250 000 04 | 250 000 08 |
| | G, version ZMD | | 250 001 32 | 250 001 30 |
| | GL, version ZD | | 250 000 47 | 250 000 49 |
| | GL, version ZMD | | 250 007 74 | 250 007 46 |
| Inbuilt switchgear for burners with LFL controller and electromagnetic clutch | GL, version ZD | | 250 006 39 | 250 006 42 |
| | GL, version ZMD | | – | 250 007 47 |
| Inbuilt switchgear for burners with LFL controller and high-gas-pressure switch | G, version ZD | | 250 005 92 | 250 005 99 |
| | G, version ZMD | | 250 005 93 | 250 006 01 |
| | GL, version ZD | | 250 006 38 | 250 006 25 |
| Inbuilt switchgear for burners with LFL controller, high-gas-pressure switch and electromagnetic clutch | GL, version ZD | | 250 006 40 | 250 006 44 |
| Inbuilt switchgear for burners with LGK controller | G, version ZD | | 250 000 76 | 250 000 78 |
| | G, version ZMD | | 250 001 77 | 250 005 19 |
| Inbuilt switchgear for burners with LGK controller and electromagnetic clutch | GL, version ZD<br>GL, version ZMD | | 250 007 10<br>– | 250 006 47<br>250 007 49 |
| Inbuilt switchgear for burners with LGK controller and high-gas-pressure switch | G, version ZD | | 250 005 94 | 250 006 04 |
| | G, version ZMD | | 250 005 97 | 250 006 03 |
| | GL, version ZD | | 250 007 53 | 250 006 27 |
| Inbuilt switchgear for burners with LGK controller, high-gas-pressure switch and electromagnetic clutch | GL, version ZD | | 250 007 09 | 250 006 48 |

Other voltages and frequencies are available on application (no additional cost).

**EN 676 stipulates that gas filters and gas pressure regulators form part of the burner supply (see Weishaupt accessories list).**

# Special equipment

| Description | | | G5/GL5/RGL5 | G7/GL7/RGL7 | G8/GL8/RGL8 |
|---|---|---|---|---|---|
| Hinged-flange limit switch | | | standard | standard | standard |
| Downward-firing version | | | standard | standard | standard |
| Air-inlet flange for duct connection | | | 110 001 05 | 110 001 06 | 110 001 06 |
| Oil pump | TA2 in lieu of J7 | GL only | – | – | – |
| 1300 mm oil hoses inlieu of 1000 mm | GL<br>RGL | | 150 000 47<br>150 000 47 | 150 000 47<br>150 000 44 | 150 000 47<br>150 000 44 |
| Oil-pressure gauge with ball valve | GL<br>RGL | | 110 000 79<br>110 008 82 | 110 000 79<br>110 002 82 | 110 000 79<br>110 002 82 |
| Oil-pressure gauge with ball valve (in return) | RGL | | – | – | 110 010 78 |
| Vacuum gauge with ball valve | GL/RGL (oil-side) | | 110 005 69 | 110 005 69 | 110 005 69 |
| Integral oil meter | GL | | 150 012 38 | 150 012 39 | 150 012 41 |
| Combustion-head extension | G5–G10<br>G5–G11<br>G5–G11 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 003 09<br>150 001 09<br>150 002 38 | 150 003 11<br>150 001 10<br>150 001 11 | 150 007 60<br>150 007 61<br>150 007 62 |
| | GL5–GL9<br>GL5–GL9<br>GL5–GL9 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 003 10<br>150 001 14<br>150 002 39 | 150 003 12<br>150 001 15<br>150 001 16 | 150 007 68<br>150 007 69<br>150 007 70 |
| | GL8T+GL9T<br>GL8T+GL9T<br>GL8T+GL9T | by 100 mm<br>by 200 mm<br>by 300 mm | –<br>–<br>– | –<br>–<br>– | 150 007 76<br>150 007 77<br>150 007 78 |
| | RGL5–RGL10<br>RGL5–RGL11<br>RGL5–RGL11 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 006 32<br>150 006 33<br>150 006 34 | 150 006 35<br>150 006 36<br>150 006 37 | 150 007 84<br>150 007 85<br>150 007 86 |
| Inbuilt switchgear for dual-fuel burners with electromagnetic clutch (w/o high-gas-press. switch) | GL, version ZD<br>GL, version ZMD | | 150 014 63<br>150 014 62 | 150 017 32<br>150 017 34 | 150 017 40<br>– |
| Inbuilt switchgear for dual-fuel burners without electromagnetic clutch | GL, version ZD<br>GL, version ZMD | | 150 010 83<br>150 014 61 | 150 010 84<br>150 017 33 | –<br>– |
| Inbuilt switchgear for gas burners | G, version ZD<br>G, version ZMD | | 150 006 54<br>150 010 22 | 150 006 56<br>150 010 93 | 150 007 37<br>150 010 94 |
| Inbuilt switchgear for gas burners with high-gas-pressure switch | G, version ZD<br>G, version ZMD | | 150 016 21<br>150 016 22 | 150 016 23<br>150 016 24 | 150 016 25<br>150 016 26 |
| Electromagnetic clutch for dual-fuel burners | GL (standard on RGL) | | 150 002 74 | 150 001 84 | 150 001 84 |
| ORA2 flame sensor (UV cell) – in lieu of ionisation electrodes | G (standard on GL/RGL) | | 150 002 29 | 150 002 29 | 150 002 29 |
| Feedback potentiometer fitted to servomotor (ZM and TM-version burners) | 220 Ω<br>1000 Ω | | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 |
| LGK16.333 controller in lieu of LFL 1.333 | G<br>GL<br>RGL | | 250 000 81<br>150 009 75<br>150 009 75 | 250 000 81<br>150 009 75<br>150 009 75 | 250 000 81<br>150 009 75<br>150 009 75 |
| Solenoid valve for air-pressure switch test with continuously runnung fan or post-purge | | | 150 010 07 | 150 010 07 | 150 010 07 |

Other voltages and frequencies are available on application (no additional cost).

**EN 676 stipulates that gas filters and gas pressure regulators form part of the burner supply (see Weishaupt accessories list).**

# Special equipment

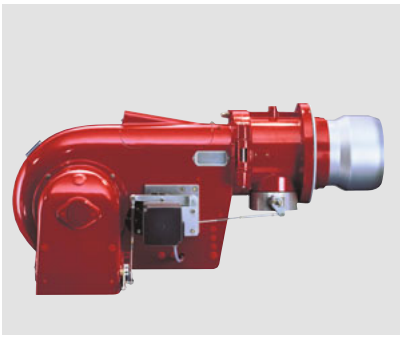
| Description | | | G9/GL9/RGL9 | G10/RGL10 | G11/RGL11 |
|---|---|---|---|---|---|
| Hinged-flange limit switch | | | standard | standard | standard |
| Downward-firing version | | | standard | standard | standard |
| Air-inlet flange for duct connection | | | 110 002 77 | 110 002 77 | 110 002 77 |
| Oil pump | TA2 in lieu of J7 | GL only | 150 005 15 | – | – |
| 1300 mm oil hoses inlieu of 1000 mm | GL<br>RGL | | 150 000 47<br>150 000 44 | –<br>150 000 44 | –<br>standard |
| Oil-pressure gauge with ball valve | GL<br>RGL | | 110 000 79<br>110 002 82 | –<br>110 002 82 | –<br>110 002 82 |
| Oil-pressure gauge with ball valve (in return) | RGL | | 110 010 78 | 110 010 78 | 110 010 78 |
| Vacuum gauge with ball valve | GL/RGL (oil-side) | | 110 005 69 | 110 005 69 | 110 005 69 |
| Integral oil meter | GL | | 150 012 42 | – | – |
| Combustion-head extension | G5 to G10<br>G5 to G11<br>G5 to G11 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 002 44<br>150 002 45<br>150 001 27 | 150 002 44<br>150 002 45<br>150 001 27 | –<br>190 000 14<br>190 000 15 |
| | GL5 to GL9<br>GL5 to GL9<br>GL5 to GL9 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 002 50<br>150 002 51<br>150 001 28 | –<br>–<br>– | –<br>–<br>– |
| | GL8T and GL9T<br>GL8T and GL9T<br>GL8T and GL9T | by 100 mm<br>by 200 mm<br>by 300 mm | 150 006 97<br>150 006 89<br>150 006 90 | –<br>–<br>– | –<br>–<br>– |
| | RGL5 to RGL10<br>RGL5 to RGL11<br>RGL5 to RGL11 | by 100 mm<br>by 200 mm<br>by 300 mm | 150 002 56<br>150 002 57<br>150 001 29 | 150 002 56<br>150 002 57<br>150 001 29 | –<br>190 000 16<br>190 000 17 |
| Inbuilt switchgear for gas burners with high-gas-pressure switch | G, version ZD<br>G, version ZMD | | –<br>150 016 89 | –<br>150 017 67 | –<br>– |
| Inbuilt switchgear for gas burners | G, version ZD<br>G, version ZMD | | –<br>150 017 01 | –<br>150 017 99 | –<br>– |
| Electromagnetic clutch for dual-fuel burners | GL/RGL | | standard | standard | standard |
| ORA2 flame sensor (UV cell) – in lieu of ionisation electrodes | G (standard on GL/RGL) | | 150 002 29 | 150 002 29 | 150 002 29 |
| Feedback potentiometer fitted to servomotor (ZM and TM-version burners) | 220 Ω<br>1000 Ω | | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 |
| LGK16.333 controller in lieu of LFL 1.333 | G<br>GL<br>RGL | | 250 000 81<br>150 009 75<br>150 009 75 | 250 000 81<br>–<br>150 009 75 | 250 000 81<br>–<br>150 009 75 |
| Solenoid valve for air-pressure switch test with continuously runnung fan or post-purge | | | 150 010 07 | 150 010 07 | 150 010 07 |

Other voltages and frequencies are available on application (no additional cost).

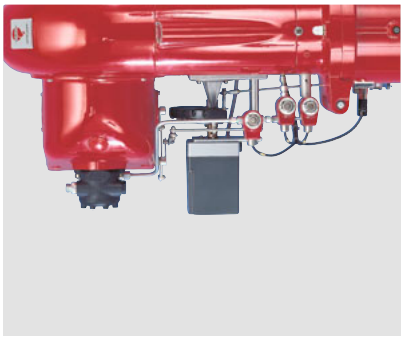
**EN 676 stipulates that gas filters and gas pressure regulators form part of the burner supply (see Weishaupt accessories list).**

# Scope of delivery

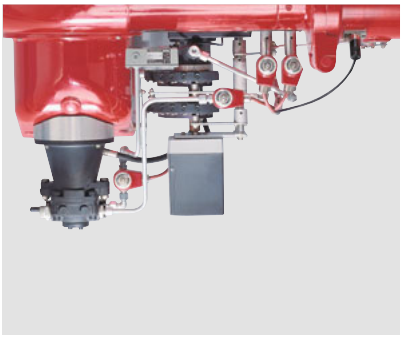
*Two-stage gas burner (G... ZD)*



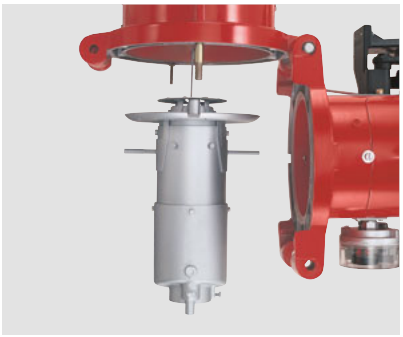
*Slidig-two-stage/modulating gas burner (G... ZMD)*



*Regulating assembly, sliding-two-stage gas / two-stage oil burner (GL... ZMD)*

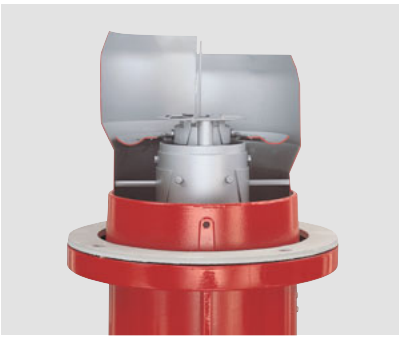


*Regulating assembly, sliding-two-stage gas and oil burner (RGL... ZMD)*

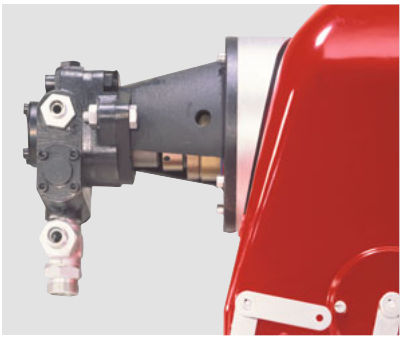


*Hinged flange for servicing-friendly combustion head access*

*Gas burner with inbuilt switchgear*



*Flame tube can be adjusted to suit heat exchanger*



*Electromagnetic clutch*

*Pressure-side air regulation*

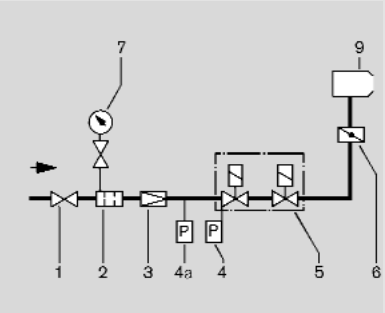
**Burners with integral switchgear (extra cost)**
The necessary electrical components are fitted to the burner (control and motor fuses by others). Burner-mounted hours counters are also available.

**Scope of delivery:**
1 first-stage switch with “Burner On” lamp
1 second-stage switch
1 contactor
1 overload relay
1 auxillary contactor
1 terminal strip

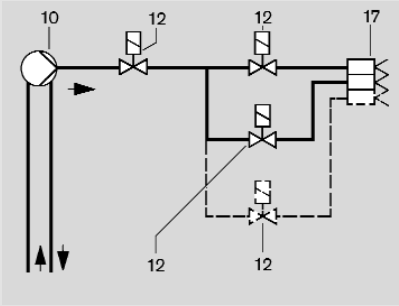
**Burners without integral switchgear**
The burner is equipped with a terminal strip. All electrical components have to be mounted in a separate control panel.

**Scope of delivery:**
1 terminal strip

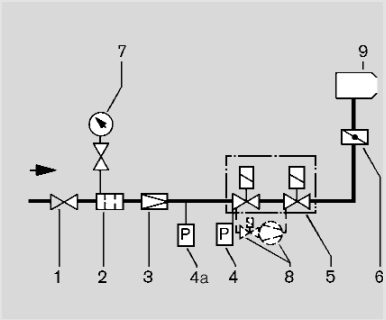
# Fuel systems

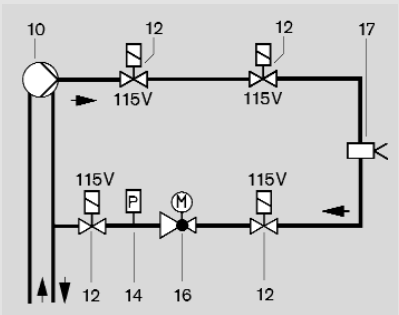



Burner sizes 5 to 7 (gas-side) **with DMV solenoid valves**

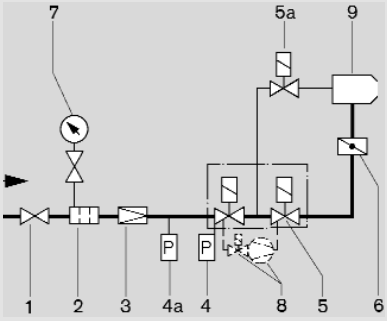



GL5 to GL8 dual fuel burners (two-stage oil-side )
GL8 to GL9 dual fuel burners (three-stage oil-side)

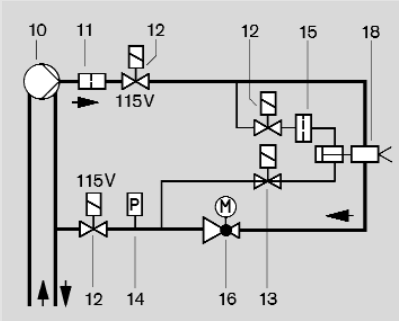



RGL5 to RGL7 dual-fuel burners
(sliding-two-stage/modulating oil-side)




Burner sizes 8 to 11 (gas-side) **with DMV solenoid valves** and VPS valve proving



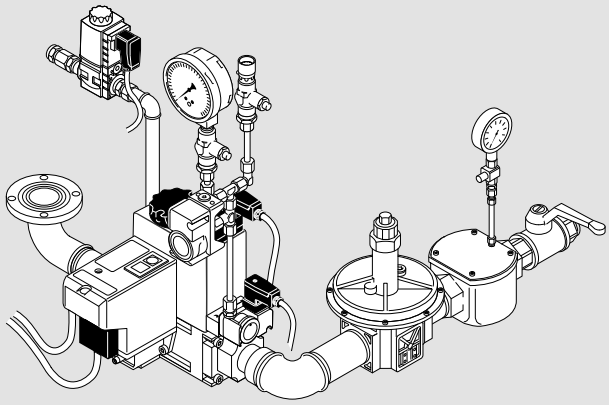

RGL8 to RGL11 dual-fuel burners
(sliding-two-stage/modulating oil-side)

**Legend**

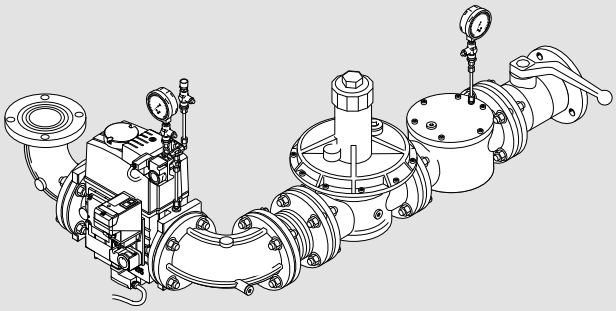
| | |
|---|---|
| 1 | Ball valve * |
| 2 | Gas filter * |
| 3 | Pressure regulator (LP) * |
| 4 | Low-gas-pressure switch |
| 4a | High-gas-pressure switch (for TRD) * |
| 5 | Double solenoid valve (DMV) |
| 5a | Pilot-line solenoid valve |
| 6 | Gas butterfly valve |
| 7 | Pressure gauge with push-button valve * |
| 8 | VPS valve proving * |
| 9 | Burner |
| 10 | Oil pump |
| 11 | Strainer |
| 12 | Oil solenoid valve, normally closed |
| 13 | Oil solenoid valve, normally open |
| 14 | Oil-pressure switch |
| 15 | Restricting orifice |
| 16 | Oil regulator |
| 17 | Nozzles for stage 1, 2, or 3 depending on regulation |
| 18 | Nozzle assembly with shut-off device |

* Not included in burner price

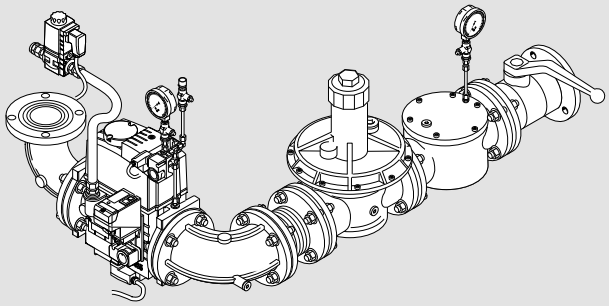
# Installation examples



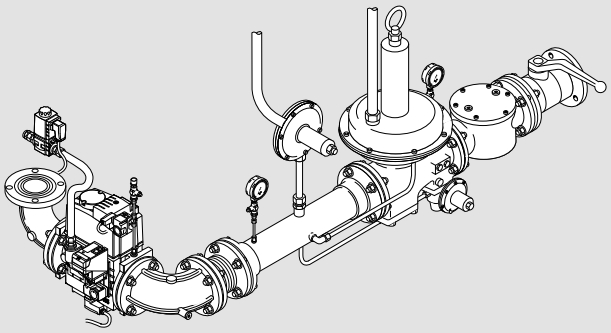
*Low-pressure supply – Screwed valve train with DMV solenoid valve assembly and pilot line**



*Low-pressure supply – Flanged valve train with DMV solenoid valve assembly, no pilot line**



*Low-pressure supply – Flanged valve train with DMV solenoid valve assembly and pilot line**



*High-pressure supply – Flanged valve train with DMV solenoid valve assembly and pilot line**

The installation examples above show typical arrangements of basic gas valve trains, i.e. with DMV solenoid valves and other gas-valve-train components.

**Layout of the valve train**
On boilers with hinged doors, the valve train must be mounted on the opposite side to the boiler-door hinges. The pilot-line solenoid valve can be connected to either side of the burner.

**Compensator**
To enable a tension free mounting of the valve train, the fitting of a compensator is recommended.

**Break points in the valve train**
Break points in the valve train should be provided to enable the door of the heat exchanger to be swung open. The main gas line is best separated at the compensator.

**Support of the valve train**
The valve train should be properly supported in accordance with the site conditions. See the Weishaupt accessories list for various valve-train-support components.

**Gas meter**
A gas meter must be installed to measure gas consumption during commissioning.

* Pilot lines on burner sizes 8 to 11 only.

# Technical data
# Sizes 1 to 3

| Description | | | G1/GL1 | G3/GL3/RGL3 |
|---|---|---|---|---|
| 230/400 V, 3 ~ burner motor | | Type | W-D90/90-2/1K0 | W-D90/90-2/1K0 |
| Nominal rating | | kW | 0.9 | 0.9 |
| Current draw at 230/400 V | | A | 3.8/2.2 | 3.8/2.2 |
| Motor prefusing | | A | 6 | 6 |
| Speed | | rpm | 2820 | 2880 |
| Fan wheel | | | galvanised | galvanised |
| Ignition unit | | Type | W-ZG 02/2 | W-ZG 02/2 |
| Burner controller for G, GL and RGL-type burners | | Type | LFL 1.333 | LFL 1.333 |
| Servomotor | | | | |
| – Single and two-stage (Z) | (8 s run time) | Type | -w- 1055/80 | -w- 1055/80 |
| – Sliding-two-stage (ZM) | (20 s run time.) | Type | SQM 10.15562 | SQM 10.15562 |
| – Modulating (ZM) | (42 s run time) | Type | SQM 10.16562 | SQM 10.16562 |
| Integral oil pump | GL | Type | AE67C | AE97C |
| (dual-fuel burners) | RGL | Type | – | AJ6CE |
| Oil solenoid valve ⅛" | GL (x 3) | Type | 7121ZBG1 KRTO | 7121ZBG1 KRTO |
| 115 V ⅛" | RGL (x 4) | Type | – | 121 K 2423 |
| Resticting orifice on oil solenoid valve 2 | | ø mm | 1.2 | 1.2 |
| Oil-pressure switch, 1 - 10 bar | | Type | – | 900.2378 |
| Oil hoses DN / length | | DN / mm | 8 / 1000 | 8 / 1000 |
| Weight | | | | |
| Gas burner (excluding DMV and fittings) | | kg (approx.) | 39 | 43 |
| Dual-fuel burner (excluding DMV and fittings) | | kg (approx.) | 42 | 47 |

# Technical data
# Sizes 5 to 8

| Description | | | | G5/GL5/RGL5 | G7/GL7/RGL7/RGMS7 | G8/GL8/RGL8/RGMS8 |
|---|---|---|---|---|---|---|
| 230/400 V, 3 ~ burner motor | | | Type | W-D90/90-2/1K5 | W-D112/110-2/3K0 | – |
| 400 V, 3 ~ burner motor | | | Type | – | – | W-D112/140-2/5K0 |
| Nominal rating | | | Type | 1.5 | 3 | 4.8 |
| Current draw at 230/400 V | | | A | 6.0/3.5 | 10.5/6 | – |
| Current draw at 400 V | | | A | – | – | 9.5 |
| Motor prefusing | | | A | 10 | 16 | 25 (20) [1] |
| Speed | | | rpm | 2800 | 2900 | 2900 |
| Fan wheel | | | | galvanised | galvanised | galvanised |
| Ignition unit | | | Type | W-ZG02/2 | W-ZG02/2 | W-ZG02/2 |
| Burner controller for G, GL, and RGL-type burners | | | Type | LFL 1.333 | LFL 1.333 | LFL 1.333 |
| Servomotor | | | | | | |
| – Two-stage (Z) | | (8 s run time) | Type | -w- 1055/80 | -w- 1055/80 | -w- 1055/80 |
| – Sliding-two-stage (ZM) | | (20 s run time) | Type | SQM 10.15562 | SQM 10.15562 | SQM 10.15562 |
| – Modulating (ZM) | | (42 s run time) | Type | SQM 10.16562 | SQM 10.16562 | SQM 10.16562 |
| Integral oil pump | | GL | Type | J6 | J6 | J6 |
| (dual-fuel burners) | | RGL, RGMS | Type | J6 | TA2 | TA3 |
| Oil solenoid valves | 230 V, ⅛" | GL | Type | 121 K 2423 | 121 K 2423 | 121 K 6220 |
| | 230 V, ⅛" | | Type | 7121 ZBG1 KRT0 | 7121ZBG KRT0 | 7121ZBG1KRT0 |
| | 115 V, ¼" | RGL | Type | 121 K 6220 | 121 K 6220 | – |
| | 115 V, ⅛" | | Type | 121 K 2423 | 121 K 2423 | – |
| | 115 V, ⅜" (supply) | | Type | – | – | 321 H 2322 |
| | 115 V, ⅜" (return) | | Type | – | – | 121 G 2320 |
| | 230 V, ⅛" | | Type | – | – | 121 K 2423 |
| | 230 V, ⅛" | | Type | – | – | 122 K 9321 |
| Oil-pressure switch, 1 - 10 bar | | RGL | Type | 900.2378 or DSA 46 F001 | 900.2378 or DSA 46 F001 | 900.2378 or DSA 46 F001 |
| Oil hoses | DN / length | | DN / mm | 13 / 1000 | 13 / 1000 (GL)<br>20 / 1000 (RGL)<br>20 / 1300 (RGMS) | 13 / 1000 (GL)<br>20 / 1000 (RGL)<br>20 / 1000 (RGMS) |
| Weight | | | | | | |
| Gas burner (excluding DMV and fittings) | | | kg (approx.) | 55 | 76 | 85 |
| Dual-fuel burner (excluding DMV and fittings) | | | kg (approx.) | 55 | 82 | 91 |

[1] With star-delta start.

**Standard burner motor: Insulation Class F, IP 54 protection**

**Note:** If the oil supply pressure is greater than 2.0 bar, pump type E6 must be used in lieu of type J6.

# Technical data
# Sizes 9 to 11

| Description | | | | G9/GL9/RGL9/RGMS9 | G10/RGL10/RGMS10 | G11/RGL11/RGMS11 |
|---|---|---|---|---|---|---|
| 400 V, 3 ~ burner motor | | | Type | W-D132/120-2/6K5 | W-D132/170-2/10K0 | W-D132/210-2/12K0 |
| Nominal rating | | | kW | 6.5 | 10 | 12 |
| Current draw at 400 V | | | A | 13.5 | 19 | 23 |
| Motor prefusing | | | A | 35 (25) [1] | 50 (35) [1] | 63 (35) [1] |
| Speed | | | rpm | 2900 | 2850 | 2850 |
| Fan wheel | | | | green | blue | blue |
| Ignition unit | | | Type | W-ZG02/2 | W-ZG02/2 | W-ZG02/2 |
| Burner controller for G, GL, and RGL-type burners | | | Type | LFL 1.333 | LFL 1.333 | LFL 1.333 |
| Servomotor | | | | | | |
| – Sliding-two-stage (ZM) | | (20 s run time.) | Type | SQM 10.15562 | SQM 10.15562 | SQM 10.15562 |
| – Modulating (ZM) | | (42 s run time) | Type | SQM 10.16562 | SQM 10.16562 | SQM 10.16562 |
| Integral oil pump | | GL | Type | J6/J7/TA2 [2] | – | – |
| (dual-fuel burners) | | RGL, RGMS | Type | TA3 | TA3 | TA4 |
| Oil solenoid valves | 230 V 1/8" | GL | Type | 121 K 6220 | – | – |
| | 230 V 1/8" | | Type | 121 K 2423 | – | – |
| | 115 V 3/8" (supply) | RGL, RGMS | Type | 321 H 2322 | 321 H 2322 | 321 H 2322 |
| | 115 V 3/8" (return) | | Type | 121 G 2320 | 121 G 2320 | 121 G 2320 |
| | 230 V 1/8" | | Type | 121 K 2423 | 121 K 2423 | 121 K 2423 |
| | 230 V 1/8" | | Type | 122 K 9321 | 122 K 9321 | 122 K 9321 |
| Oil-pressure switch, 1 - 10 bar | | RGL, RGMS | Type | 900.2378 or DSA 46 F001 | 900.2378 or DSA 46 F001 | 900.2378 or DSA 46 F001 |
| Oil hoses | DN / length | GL | DN / mm | 13 / 1000 | | |
| | | RGL | | 20 / 1000 | 20 / 1000 | 25 / 1300 |
| | | RGMS (supply, return) | | 20 / 1300, 20 / 1000 | 20 / 1300, 20 / 1000 | 25 / 1500, 25 / 1300 |
| Weight | | | | | | |
| Gas burner (excluding DMV and fittings) | | | kg (approx.) | 130 | 131 | 157 |
| Dual-fuel burner (excluding DMV and fittings) | | | kg (approx.) | 136 | 137 | 167 |

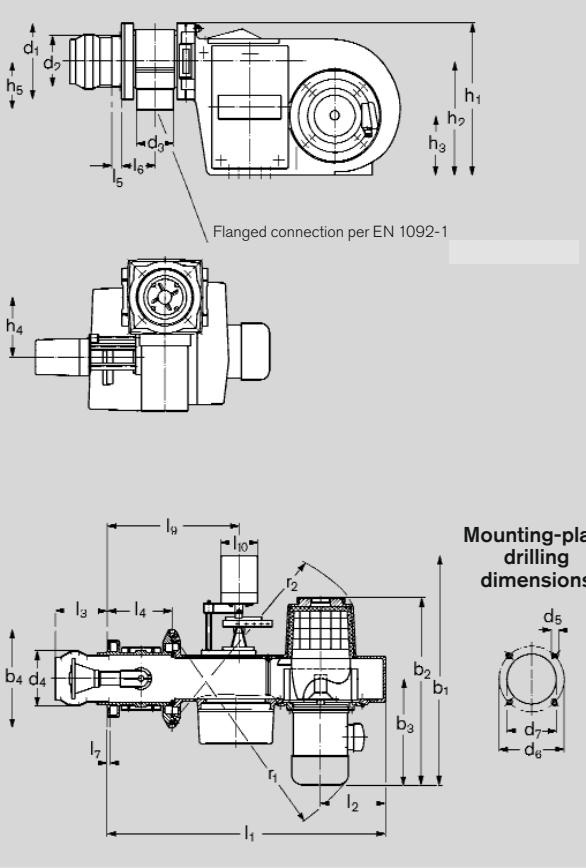
[1] With star-delta start.
[2] J7 pump suitable for capacities up to 250 kg/h. Capacities above 250 kg/h require a TA2 pump (additional cost item)

**Standard burner motor: Insulation Class F, IP 54 protection**

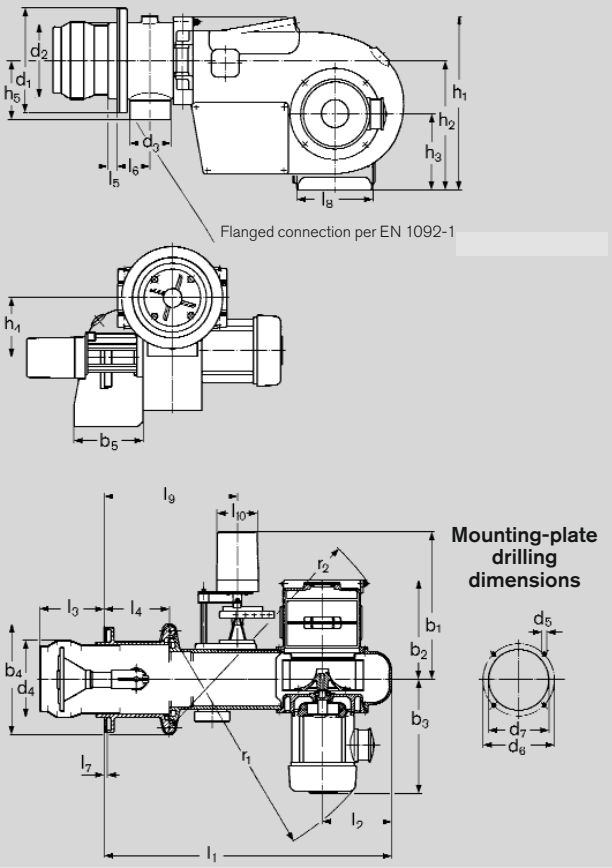
**Note:** IIf the oil supply pressure is greater than 2.0 bar, pump types E6 and E7 must be used in lieu of types J6 and J7.

# Dimensions

**Sizes 1 and 3**




**Sizes 5 to 11**



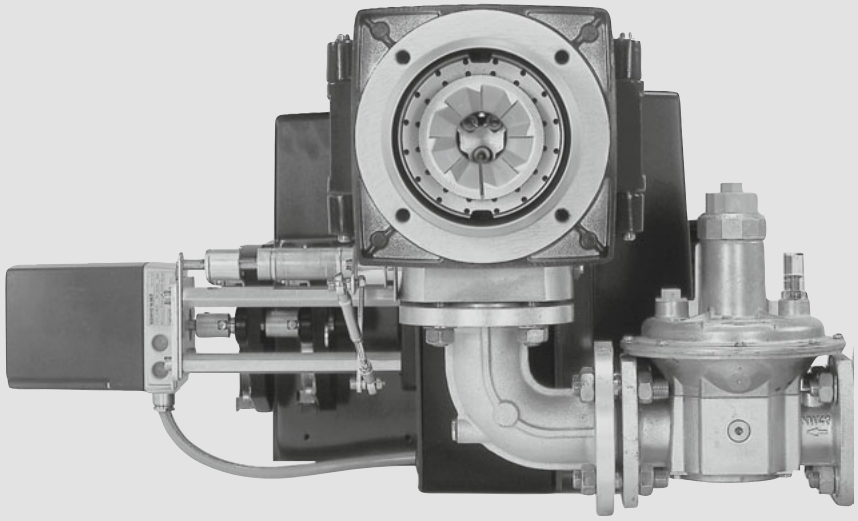

| Burner size | Dimensions in mm $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $l_6$ | $l_7$ | $l_8$ | $l_9$ ① | $l_9$ ② | $l_{10}$ ① | $l_{10}$ ② | $b_1$ ①③ | $b_1$ ② | $b_2$ | $b_3$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 685 | 168 | 129 | 168 | 35 | 88 | 8 | – | 312 | 342 | 110 | 120 | 543 | 653 | 501 | 275 |
| 3 | 805 | 188 | 132 | 188 | 28 | 98 | 8 | – | 392 | 382 | 110 | 120 | 570 | 680 | 529 | 295 |
| 5 | 868 | 200 | 177 | 208 | 42 | 108 | 8 | 238 | 451 | 421 | 110 | 120 | 275 | 390 | 275 | 305 |
| 7 | 965 | 225 | 257 | 228 | 52 | 118 | 8 | 251 | 514 | 484 | 110 | 120 | 305 | 415 | 326 | 330 |
| 8 | 965 | 225 | 230 | 228 | 52 | 118 | 8 | 251 | 484 | 514 | 110 | 120 | 229 | – | 326 | 370 |
| 9 | 1158 | 300 | 233 | 248 | 62 | 128 | 8 | 391 | – | 523 | – | 120 | 515 | – | 357 | 425 |
| 10 | 1158 | 300 | 233 | 248 | 62 | 128 | 8 | 391 | – | 523 | – | 120 | 553 | – | 395 | 464 |
| 11 | 1198 | 300 | 271 | 288 | 82 | 148 | 8 | 391 | – | 563 | – | 120 | 545 | – | 385 | 484 |

| | $b_4$ | $b_5$ | $h_1$ | $h_2$ | $h_3$ | $h_4$ | $h_5$ | $d_1$ | $d_2$ | $d_3$ | $d_4$ | $d_5$ | $d_6$ ④ | $d_7$ | $r_1$ | $r_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 248 | – | 388 | 290 | 150 | 175 | 130 | 195 | 129 | DN25 | 127 | M8 | 160-170 | 135 | 550 | 590 |
| 3 | 280 | – | 430 | 325 | 170 | 175 | 140 | 220 | 154 | DN40 | 160 | M10 | 186 | 165 | 650 | 670 |
| 5 | 312 | 200 | 494 | 373 | 220 | 195 | 162 | 260 | 195 | DN50 | 200 | M10 | 235 | 210 | 680 | 725 |
| 7 | 355 | 229 | 560 | 415 | 245 | 195 | 182 | 330 | 235 | DN65 | 250 | M12 | 298 | 270 | 720 | 800 |
| 8 | 355 | 229 | 560 | 415 | 245 | 195 | 182 | 330 | 235 | DN65 | 265 | M12 | 298 | 270 | 740 | 840 |
| 9 | 490 | 229 | 675 | 482 | 260 | 200 | 212 | 380 | 300 | DN80 | 325 | M12 | 330 | 305 | 960 | 1065 |
| 10 | 490 | 229 | 675 | 482 | 260 | 200 | 212 | 380 | 300 | DN80 | 325 | M12 | 330 | 305 | 960 | 1065 |
| 11 | 490 | 229 | 675 | 482 | 260 | 200 | 272 | 450 | 340 | DN100 | 380 | M12 | 400 | 385/360 ⑤ | 990 | 1065 |

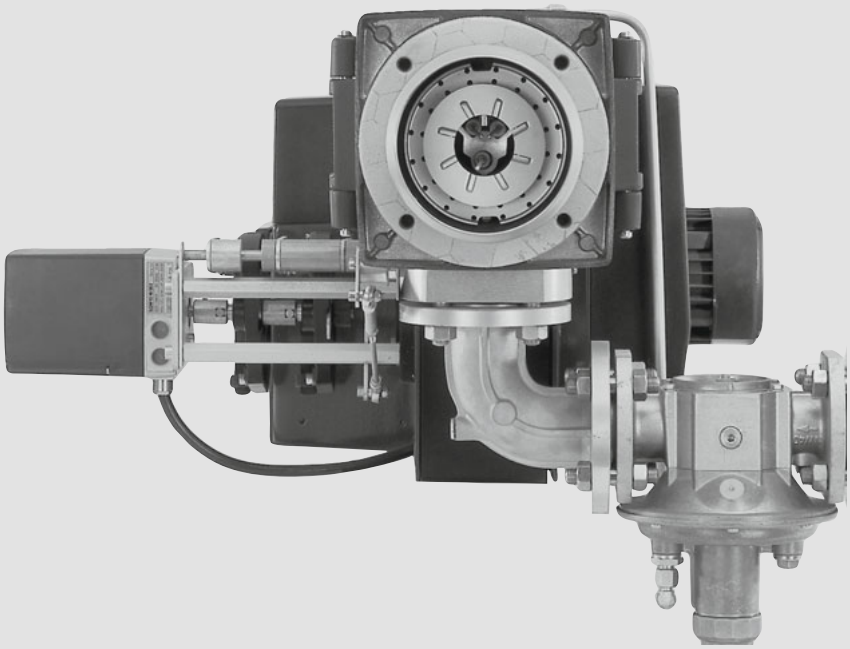
① Z-version burners
② ZM-version burners
③ Dimension applies to RGL-type burners – It should be reduced by 70 mm (ZM-version) or 180 mm (Z-version) on G and GL-type burners.
④ EN 226 revised standard bolier/burner connection dimensions. Boilers rated from 72 – 150 kW now have a PCD of 170 mm.
⑤ Burner head can only be removed with boiler mounting plate.

# High-turndown gas burners
# Sizes 1 to 7, versions ZMA and ZMI

**ZMA-version burner**



**ZMI-version burner (no CE-PIN)**



# Description

**ZMA and ZMI version Weishaupt gas burners were developed especially with industrial applications in mind. These burners, with their large turn-down ranges, are designed for use on process plant.**

The burners are notable for a variety of interesting features:

- Large capacity and range of applications
- Automatic sequence of operations
- Combustion-chamber pre-purging
- Reliable flame monitoring
- Stable fan characteristics – good combustion behaviour
- Quiet operation
- Burner housing can be hinged open
- Simple installation, adjustment and maintenance thanks to readily accessible components

**Fuels**

| Burner version | Gas type |
|---|---|
| ZMA | Natural gas E, LL |
| ZMI | Natural gas E, LL<br>LPG B/P |

**Regulation**
Depending on the fuel, burner size, and customer requirements, the compound regulation of air and fuel can be:

- Sliding-two-stage
- Modulating; the standard sliding-two-stage burner can modulate when equipped with a 45 s servomotor and a suitable PID controller)

The servomotor on sliding-two-stage and modulating burners has a maximum running time of 45 s, providing for a slower change in burner throughput. A cam-band provides for the compound regulation of the air damper and gas butterfly valve.

With sliding two stage regulation, the burner has fixed partial and full-load setpoints, and the burner moves to one position or the other depending on the heat demand. There are no rapid changes of fuel throughput.

With modulating regulation, the burner's output, within its operating range, is continuously regulated to match to the current heat demand.

**Zero governor**
The ZMI versions of Weishaupt gas burners are additionally equipped with a zero governor, which is fitted as close to the burner head as possible in order to eliminate the effect of any valve train pressure losses.

The zero governor is connected to the burner's airflow upstream of the fan by an impulse line.

A higher pressure from the burner's fan results in a higher gas pressure at the outlet of the zero governor. A lower fan pressure results in a lower gas pressure at the outlet of the zero governor.

ZMA-version burners are not additionally equipped with a zero governor; rather the usual governor is fitted as close to the burner head as possible. When connected to a high-pressure gas supply, the low-pressure governor is required in addition to a high-pressure regulator set.

**Air regulation**
The special air damper on ZMA and ZMI-version gas burners is almost tight in the closed position. This makes the large turndown possible.

**Permissible ambient conditions**
- Suitable for operation indoors only
- For plant in unheated areas, certain further measures may be required (please enquire)

**Notes on operation**
ZMA and ZMI-version burners are only suitable for use on process plant if the following fundamental conditions are met:
- The flame must not be impeded in the combustion chamber by process-specific flue-gas recirculation or by secondary air.
- A flue-gas sampling point must be available prior to dilution by any other sources.
- A flame viewing port must be available.
- A gas-flow meter/throughput indicator is essential for setting the burner.

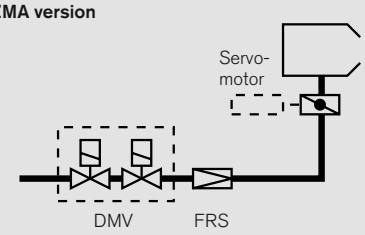
# Gas-side burner regulation

**Gas-fired operation**

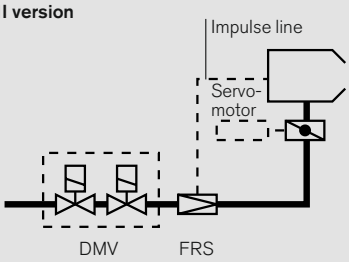
**Sliding-two-stage or modulating**

- When the burner starts, gas is released by opening the solenoid valves. The gas butterfly valve releases sufficient gas for ignition load.
- A slow-running servomotor (42 s run-time) drives the gas butterfly valve to its full-load position.
- The servomotor drives the gas butterfly valve to adjust burner capacity between partial load and full load. The zero governor or FRS pressure regulator is immediately upstream of the gas butterfly valve
- Sliding-two-stage burners and modulating burners have differing electrical controls.

**ZMA version**




**ZMI version**






Above: sliding-two-stage
Below: modulating

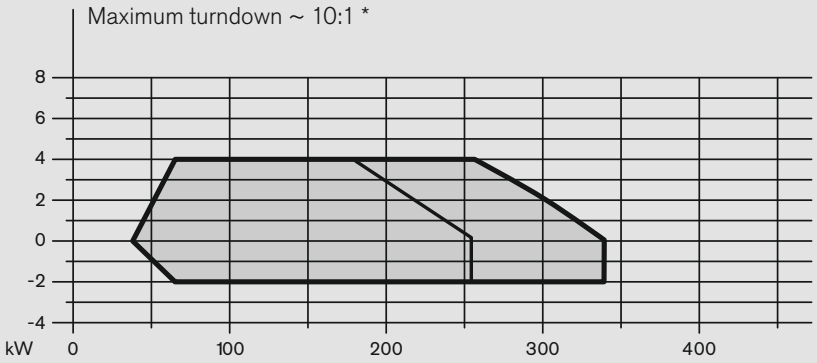
F = full load, P = partial load, I = ignition load

# Burner selection
# Gas burners, version ZMA

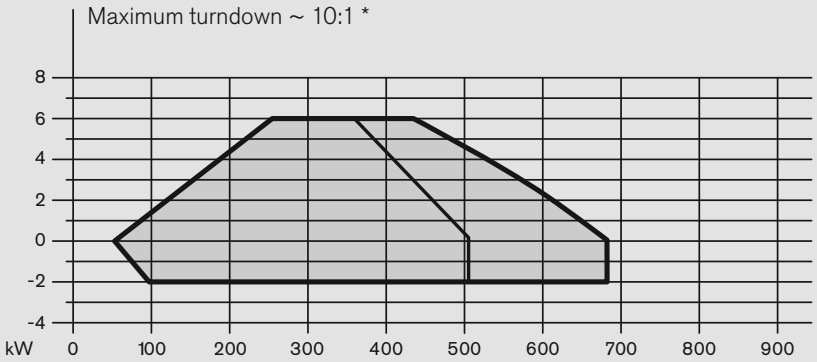
Burner type _____ G1/1–E
Version _____ ZMA
Combustion head _____ G1/2a–115–90
Rating, kW _____ 35–335
CE-PIN _____ CE-0085AP0518

**Plotted operational ranges represent maximal values measured on idealised flame tubes in accordance with EN 676.**

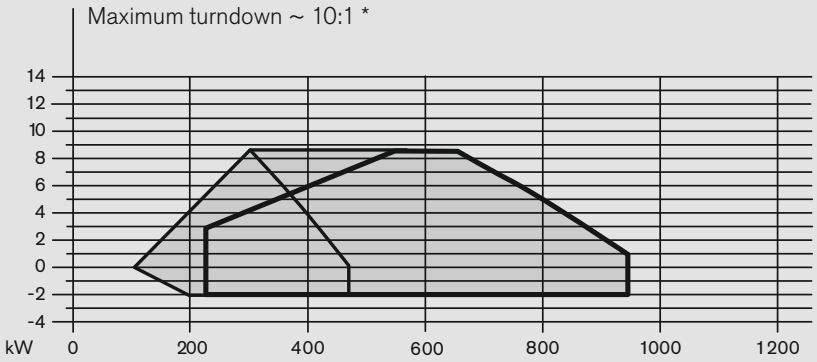
**Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level.**



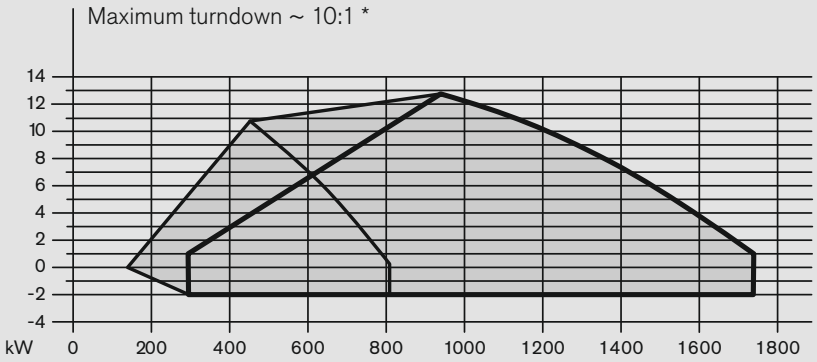

Burner type _____ G3/1–E
Version _____ ZMA
Combustion head _____ G3/1a–133–100
Rating, kW _____ 50–630
CE-PIN _____ CE-0085AP0520




Burner type _____ G5/1–D
Version _____ ZMA
Combustion head _____ G5/1a–173–100
Rating, kW _____ 100–940
CE-PIN _____ CE-0085AP0523




Burner type _____ G7/1–D
Version _____ ZMA
Combustion head _____ G7/1a–213–110
Rating, kW _____ 150–1750
CE-PIN _____ CE-0085AP0385

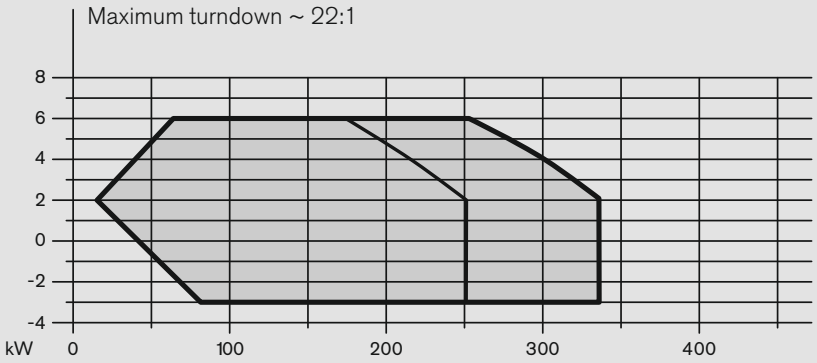



* The turndown ratio depends on the plant's full and partial load points, and is usually not more than 7:1.

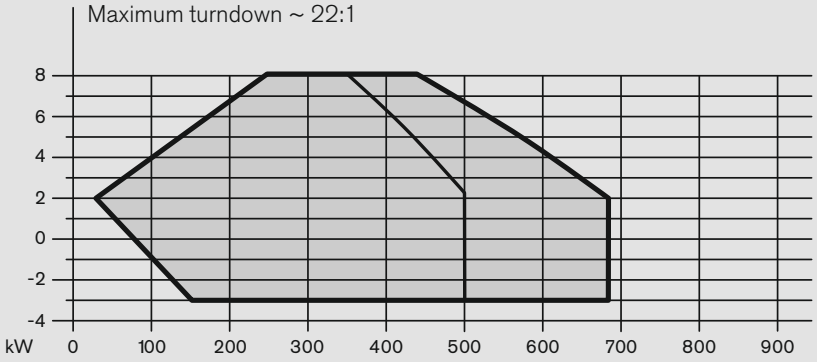
—— Combustion head "open"
—— Combustion head "closed"

# Burner selection
# Gas burners, version ZMI

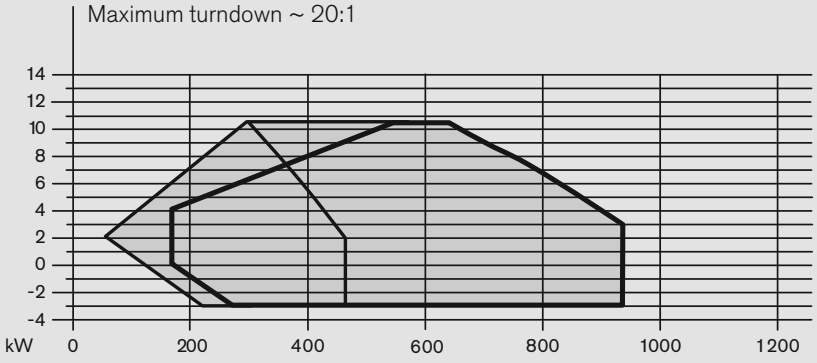
Burner type _____ G1/1–E
Version _____ ZMI
Combustion head _____ G1/2a–115–90
Rating, kW _____ 15–335
No CE-PIN



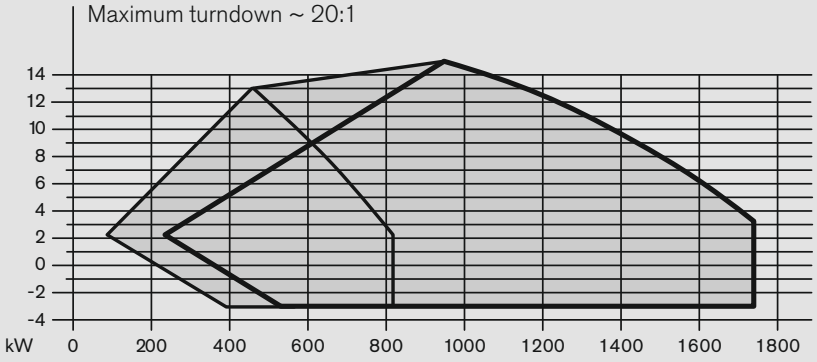

Burner type _____ G3/1–E
Version _____ ZMI
Combustion head _____ G3/1a–133–100
Rating, kW _____ 30–630
No CE-PIN




Burner type _____ G5/1–D
Version _____ ZMI
Combustion head _____ G5/1a–173–100
Rating, kW _____ 50–940
No CE-PIN




Burner type _____ G7/1–D
Version _____ ZMI
Combustion head _____ G7/1a–213–110
Rating, kW _____ 90–1750
No CE-PIN




**Plotted operational ranges represent maximal values measured on idealised flame tubes in accordance with EN 676.**

**Stated ratings are based on an air temperature of 20 °C and an installation altitude of 500 m above sea level.**

—— Combustion head "open"
—— Combustion head "closed"

# Gas valve train sizing
# Burner sizes 1 and 3, version ZMA

**Burner size 1**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_e$, max = 300 mbar) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter ¾" | 1" | 1½" | 2" |
|---|---|---|---|---|---|---|---|---|---|
| | | Nominal diameter of gas butterfly 25 | 25 | 25 | 25 | Nominal diameter of gas butterfly 25 | 25 | 25 | 25 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | |
| 150 | 2 | 12 | – | – | – | 10 | 7 | 6 | 5 |
| 200 | 3 | 18 | 10 | – | – | 15 | 9 | 7 | 6 |
| 220 | 3 | 21 | 11 | – | – | 18 | 10 | 7 | 7 |
| 250 | 4 | 26 | 13 | 8 | – | 22 | 11 | 8 | 7 |
| 280 | 4 | 31 | 15 | 9 | 8 | 26 | 13 | 9 | 8 |
| 300 | 5 | 35 | 17 | 10 | 9 | 29 | 14 | 10 | 9 |
| 320 | 5 | 39 | 18 | 11 | 9 | 32 | 15 | 10 | 9 |
| 340 | 5 | 43 | 20 | 12 | 10 | 36 | 17 | 11 | 10 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | |
| 150 | 3 | 15 | 9 | – | – | 13 | 8 | 6 | 6 |
| 200 | 3 | 24 | 12 | – | – | 20 | 10 | 8 | 7 |
| 220 | 4 | 28 | 14 | 9 | – | 23 | 12 | 8 | 7 |
| 250 | 4 | 35 | 16 | 10 | 8 | 29 | 14 | 9 | 8 |
| 280 | 5 | 42 | 19 | 11 | 9 | 35 | 16 | 11 | 9 |
| 300 | 5 | 48 | 22 | 12 | 10 | 40 | 18 | 11 | 10 |
| 320 | 6 | 54 | 24 | 13 | 10 | 44 | 19 | 12 | 10 |
| 340 | 6 | 60 | 26 | 14 | 11 | 49 | 21 | 13 | 11 |

**Burner size 3**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_e$, max = 300 mbar) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal diameter of gas butterfly 40 | 40 | 40 | 40 | 40 | 40 | Nominal diameter of gas butterfly 40 | 40 | 40 | 40 | 40 | 40 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | | | | | |
| 300 | 3 | 30 | 12 | 9 | – | – | – | 25 | 10 | 8 | 7 | 6 | 6 |
| 350 | 4 | 40 | 15 | 10 | 8 | – | – | 32 | 12 | 10 | 8 | 7 | 7 |
| 400 | 4 | 51 | 19 | 12 | 9 | – | – | 41 | 14 | 11 | 9 | 8 | 7 |
| 450 | 5 | 63 | 22 | 14 | 11 | 9 | – | 50 | 16 | 13 | 10 | 8 | 8 |
| 500 | 5 | 76 | 26 | 16 | 12 | 9 | 9 | 61 | 19 | 15 | 11 | 9 | 8 |
| 550 | 6 | 91 | 31 | 18 | 13 | 10 | 9 | 72 | 21 | 17 | 13 | 10 | 9 |
| 600 | 6 | 107 | 36 | 21 | 15 | 11 | 10 | 85 | 25 | 19 | 14 | 11 | 10 |
| 650 | 7 | 125 | 41 | 23 | 16 | 12 | 11 | 99 | 28 | 22 | 16 | 12 | 10 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | | | | | |
| 300 | 4 | 42 | 16 | 10 | 8 | – | – | 34 | 12 | 10 | 8 | 7 | 6 |
| 350 | 4 | 55 | 20 | 12 | 10 | – | – | 44 | 14 | 12 | 9 | 8 | 7 |
| 400 | 5 | 71 | 24 | 15 | 11 | 9 | – | 56 | 17 | 14 | 11 | 8 | 8 |
| 450 | 5 | 88 | 30 | 18 | 13 | 10 | 9 | 70 | 21 | 16 | 12 | 9 | 8 |
| 500 | 6 | 108 | 35 | 20 | 14 | 11 | 9 | 85 | 24 | 19 | 14 | 10 | 9 |
| 550 | 6 | 129 | 42 | 23 | 16 | 12 | 10 | 102 | 28 | 22 | 15 | 11 | 10 |
| 600 | 7 | 153 | 48 | 27 | 18 | 13 | 11 | 120 | 32 | 25 | 17 | 12 | 11 |
| 650 | 8 | 178 | 56 | 30 | 20 | 14 | 12 | – | 37 | 28 | 19 | 13 | 11 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 46).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

# Gas valve train sizing
# Burner sizes 5 and 7, version ZMA

**Burner size 5**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_e$, max = 300 mbar) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 | 100 | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal diameter of gas butterfly 50 | 50 | 50 | 50 | 50 | 50 | 50 | Nominal diameter of gas butterfly 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | | | | | | | |
| 500 | 5 | 74 | 24 | 12 | 11 | 9 | – | – | 58 | 16 | 11 | 11 | 8 | 8 | 7 |
| 550 | 5 | 88 | 28 | 13 | 12 | 9 | 8 | – | 69 | 18 | 12 | 12 | 9 | 8 | 8 |
| 600 | 5 | 104 | 32 | 15 | 14 | 10 | 9 | 8 | 81 | 21 | 14 | 13 | 10 | 9 | 8 |
| 650 | 6 | 121 | 36 | 17 | 15 | 11 | 9 | 9 | 95 | 23 | 15 | 14 | 10 | 9 | 9 |
| 700 | 6 | 139 | 41 | 19 | 17 | 12 | 10 | 9 | 109 | 26 | 17 | 16 | 11 | 10 | 9 |
| 800 | 7 | 180 | 52 | 22 | 20 | 14 | 11 | 10 | – | 33 | 20 | 19 | 13 | 11 | 10 |
| 900 | 8 | 226 | 64 | 27 | 24 | 16 | 13 | 12 | – | 40 | 23 | 22 | 15 | 12 | 11 |
| 940 | 8 | 246 | 70 | 29 | 25 | 17 | 13 | 12 | – | 43 | 25 | 24 | 15 | 13 | 12 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | | | | | | | |
| 500 | 5 | 104 | 32 | 15 | 13 | 10 | 8 | – | 82 | 20 | 13 | 13 | 9 | 8 | 8 |
| 550 | 5 | 125 | 37 | 17 | 15 | 11 | 9 | 8 | 98 | 24 | 15 | 14 | 10 | 9 | 8 |
| 600 | 6 | 148 | 43 | 19 | 17 | 12 | 10 | 9 | 115 | 27 | 17 | 16 | 11 | 10 | 9 |
| 650 | 6 | 172 | 50 | 21 | 19 | 13 | 11 | 10 | 134 | 31 | 19 | 18 | 12 | 10 | 9 |
| 700 | 7 | 199 | 57 | 24 | 21 | 14 | 11 | 10 | – | 35 | 21 | 20 | 13 | 11 | 10 |
| 800 | 8 | 258 | 72 | 29 | 25 | 16 | 13 | 12 | – | 44 | 25 | 24 | 15 | 12 | 11 |
| 900 | 9 | – | 90 | 35 | 30 | 19 | 15 | 13 | – | 53 | 30 | 28 | 17 | 14 | 12 |
| 940 | 9 | – | 97 | 37 | 33 | 20 | 15 | 13 | – | 58 | 32 | 30 | 18 | 14 | 13 |

**Burner size 7**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_e$, max = 300 mbar) Nominal valve-train diameter 1" | 1½" | 2" | 65 | 80 | 100 | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter 1" | 1½" | 2" | 65 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal diameter of gas butterfly 65 | 65 | 65 | 65 | 65 | 65 | Nominal diameter of gas butterfly 65 | 65 | 65 | 65 | 65 | 65 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | | | | | |
| 800 | 5 | 47 | 24 | 14 | 10 | 9 | 8 | 27 | 21 | 13 | 9 | 8 | 8 |
| 900 | 6 | 58 | 29 | 17 | 12 | 10 | 9 | 33 | 26 | 15 | 11 | 9 | 9 |
| 1000 | 6 | 70 | 35 | 19 | 13 | 11 | 10 | 39 | 30 | 17 | 12 | 10 | 9 |
| 1100 | 7 | 83 | 41 | 22 | 15 | 12 | 10 | 46 | 36 | 20 | 13 | 11 | 10 |
| 1200 | 8 | 98 | 47 | 25 | 16 | 13 | 11 | 54 | 41 | 23 | 14 | 12 | 11 |
| 1400 | 9 | 131 | 62 | 32 | 20 | 15 | 13 | 71 | 54 | 28 | 17 | 14 | 12 |
| 1600 | 10 | 169 | 78 | 39 | 24 | 18 | 15 | 90 | 68 | 35 | 20 | 16 | 14 |
| 1750 | 11 | 201 | 92 | 46 | 27 | 20 | 16 | 106 | 80 | 40 | 23 | 18 | 15 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | | | | | |
| 800 | 6 | 65 | 32 | 18 | 12 | 10 | 9 | 36 | 28 | 16 | 11 | 9 | 9 |
| 900 | 6 | 81 | 39 | 21 | 14 | 11 | 10 | 44 | 34 | 19 | 12 | 10 | 9 |
| 1000 | 7 | 98 | 47 | 25 | 16 | 12 | 11 | 53 | 41 | 22 | 14 | 11 | 10 |
| 1100 | 8 | 118 | 55 | 29 | 18 | 14 | 12 | 63 | 48 | 25 | 15 | 13 | 11 |
| 1200 | 8 | 139 | 65 | 33 | 20 | 15 | 12 | 74 | 56 | 29 | 17 | 14 | 12 |
| 1400 | 10 | 186 | 85 | 42 | 25 | 18 | 14 | 98 | 74 | 37 | 21 | 16 | 14 |
| 1600 | 11 | 241 | 109 | 53 | 30 | 21 | 17 | 126 | 94 | 46 | 25 | 19 | 16 |
| 1750 | 12 | 286 | 129 | 61 | 34 | 24 | 18 | – | 111 | 53 | 28 | 21 | 17 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 46).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

# Gas valve train sizing
# Burner size 1, version ZMI

**Burner size 1**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_{e,}$ max = 300 mbar) **Nominal valve-train diameter** ¾" 1" 1½" Nominal diameter of gas butterfly 25 25 25 | | | High pressure supply (Flow pressure in mbar into double solenoid valve) **Nominal valve-train diameter** ¾" 1" 1½" Nominal diameter of gas butterfly 25 25 25 | | |
|---|---|---|---|---|---|---|---|
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | |
| 150 | 2 | 15 | 8 | – | 10 | 7 | 6 |
| 200 | 3 | 23 | 12 | – | 15 | 9 | 7 |
| 220 | 3 | 27 | 13 | 8 | 18 | 10 | 7 |
| 250 | 4 | 33 | 16 | 10 | 22 | 11 | 8 |
| 280 | 4 | 41 | 19 | 11 | 26 | 13 | 9 |
| 300 | 5 | 46 | 21 | 12 | 29 | 14 | 10 |
| 320 | 5 | 52 | 23 | 13 | 32 | 15 | 10 |
| 340 | 5 | 58 | 25 | 14 | 36 | 17 | 11 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | |
| 150 | 3 | 19 | 10 | – | 13 | 8 | 6 |
| 200 | 3 | 31 | 15 | 9 | 20 | 10 | 8 |
| 220 | 4 | 37 | 17 | 10 | 23 | 12 | 8 |
| 250 | 4 | 46 | 21 | 11 | 29 | 14 | 9 |
| 280 | 5 | 56 | 25 | 13 | 35 | 16 | 11 |
| 300 | 5 | 64 | 27 | 14 | 40 | 18 | 11 |
| 320 | 6 | 72 | 30 | 16 | 44 | 19 | 12 |
| 340 | 6 | 81 | 34 | 17 | 49 | 21 | 13 |
| **LPG B/P**, $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555 | | | | | | | |
| 150 | 2 | – | – | – | – | – | – |
| 200 | 3 | 11 | – | – | 6 | – | – |
| 220 | 3 | 13 | – | – | 7 | – | – |
| 250 | 3 | 16 | – | – | 8 | – | – |
| 280 | 4 | 18 | – | – | 10 | – | – |
| 300 | 4 | 20 | – | – | 11 | – | – |
| 320 | 4 | 23 | – | – | 12 | – | – |
| 340 | 4 | 25 | – | – | 14 | – | – |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 47).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

# Gas valve train sizing
# Burner sizes 3 and 5, version ZMI

**Burner size 3**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_{e,}$ max = 300 mbar) **Nominal valve-train diameter** **¾"** **1"** **1½"** **2"** Nominal diameter of gas butterfly 40 40 40 40 | | | | High pressure supply (Flow pressure in mbar into double solenoid valve) **Nominal valve-train diameter** **¾"** **1"** **1½"** **2"** Nominal diameter of gas butterfly 40 40 40 40 | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | |
| 300 | 3 | 42 | 16 | 10 | – | 25 | 10 | 8 | 7 |
| 350 | 4 | 55 | 21 | 13 | 9 | 32 | 12 | 10 | 8 |
| 400 | 4 | 71 | 26 | 15 | 10 | 41 | 14 | 11 | 9 |
| 450 | 5 | 88 | 31 | 18 | 12 | 50 | 16 | 13 | 10 |
| 500 | 5 | 107 | 38 | 21 | 13 | 61 | 19 | 15 | 11 |
| 550 | 6 | 129 | 44 | 24 | 15 | 72 | 21 | 17 | 13 |
| 600 | 6 | 152 | 52 | 27 | 17 | 85 | 25 | 19 | 14 |
| 650 | 7 | 178 | 60 | 31 | 19 | 99 | 28 | 22 | 16 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | |
| 300 | 4 | 58 | 22 | 13 | 9 | 34 | 12 | 10 | 8 |
| 350 | 4 | 78 | 28 | 16 | 10 | 44 | 14 | 12 | 9 |
| 400 | 5 | 100 | 35 | 19 | 12 | 56 | 17 | 14 | 11 |
| 450 | 5 | 125 | 43 | 23 | 14 | 70 | 21 | 16 | 12 |
| 500 | 6 | 153 | 52 | 27 | 16 | 85 | 24 | 19 | 14 |
| 550 | 6 | 184 | 61 | 32 | 18 | 102 | 28 | 22 | 15 |
| 600 | 7 | 218 | 72 | 36 | 21 | 120 | 32 | 25 | 17 |
| 650 | 8 | 255 | 83 | 42 | 23 | – | 37 | 28 | 19 |
| **LPG B/P**, $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555 | | | | | | | | | |
| 300 | 2 | 19 | 9 | – | – | 10 | – | – | – |
| 350 | 3 | 25 | 11 | – | – | 13 | – | – | – |
| 400 | 4 | 31 | 13 | – | – | 17 | 6 | – | – |
| 450 | 4 | 39 | 15 | – | – | 21 | 7 | – | – |
| 500 | 5 | 47 | 18 | – | – | 25 | 8 | – | – |
| 550 | 5 | 55 | 21 | – | – | 30 | 9 | – | – |
| 600 | 6 | 65 | 24 | – | – | 35 | 10 | – | – |
| 650 | 6 | 76 | 27 | – | – | 41 | 12 | – | – |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 47).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

**Burner size 5**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_{e,}$ max = 300 mbar) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 | 100 | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter ¾" | 1" | 1½" | 2" | 65 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Nominal diameter of gas butterfly 50 | 50 | 50 | 50 | 50 | 50 | 50 | Nominal diameter of gas butterfly 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | | | | | | | |
| 500 | 5 | 105 | 35 | 17 | 12 | 9 | – | – | 58 | 16 | 11 | 11 | 8 | 8 | 7 |
| 550 | 5 | 126 | 41 | 19 | 14 | 10 | 8 | – | 69 | 18 | 12 | 12 | 9 | 8 | 8 |
| 600 | 5 | 149 | 48 | 22 | 16 | 11 | 9 | 8 | 81 | 21 | 14 | 13 | 10 | 9 | 8 |
| 650 | 6 | 173 | 55 | 25 | 17 | 12 | 10 | 9 | 95 | 23 | 15 | 14 | 10 | 9 | 9 |
| 700 | 6 | 200 | 63 | 28 | 19 | 13 | 10 | 9 | 109 | 26 | 17 | 16 | 11 | 10 | 9 |
| 800 | 7 | 260 | 81 | 34 | 24 | 15 | 12 | 11 | – | 33 | 20 | 19 | 13 | 11 | 10 |
| 900 | 8 | – | 101 | 42 | 28 | 17 | 13 | 12 | – | 40 | 23 | 22 | 15 | 12 | 11 |
| 940 | 8 | – | 109 | 45 | 30 | 18 | 14 | 12 | – | 43 | 25 | 24 | 15 | 13 | 12 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | | | | | | | |
| 500 | 5 | 149 | 48 | 21 | 15 | 10 | 9 | – | 82 | 20 | 13 | 13 | 9 | 8 | 8 |
| 550 | 5 | 180 | 57 | 25 | 17 | 11 | 9 | 9 | 98 | 24 | 15 | 14 | 10 | 9 | 8 |
| 600 | 6 | 213 | 67 | 29 | 20 | 13 | 10 | 9 | 115 | 27 | 17 | 16 | 11 | 10 | 9 |
| 650 | 6 | 249 | 77 | 33 | 22 | 14 | 11 | 10 | 134 | 31 | 19 | 18 | 12 | 10 | 9 |
| 700 | 7 | 288 | 89 | 37 | 25 | 15 | 12 | 10 | – | 35 | 21 | 20 | 13 | 11 | 10 |
| 800 | 8 | – | 114 | 46 | 30 | 18 | 13 | 12 | – | 44 | 25 | 24 | 15 | 12 | 11 |
| 900 | 9 | – | 142 | 57 | 37 | 21 | 15 | 13 | – | 53 | 30 | 28 | 17 | 14 | 12 |
| 940 | 9 | – | 155 | 61 | 40 | 22 | 16 | 14 | – | 58 | 32 | 30 | 18 | 14 | 13 |
| **LPG B/P**, $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555 | | | | | | | | | | | | | | | |
| 500 | 4 | 46 | 17 | 9 | – | – | – | – | 24 | 7 | – | – | – | – | – |
| 550 | 4 | 54 | 20 | 11 | – | – | – | – | 29 | 8 | 5 | – | – | – | – |
| 600 | 4 | 64 | 22 | 12 | – | – | – | – | 34 | 9 | 6 | – | – | – | – |
| 650 | 5 | 74 | 26 | 13 | – | – | – | – | 39 | 10 | 6 | – | – | – | – |
| 700 | 5 | 85 | 29 | 14 | – | – | – | – | 45 | 11 | 7 | – | – | – | – |
| 800 | 6 | 109 | 36 | 17 | – | – | – | – | 58 | 14 | 9 | – | – | – | – |
| 900 | 6 | 137 | 44 | 20 | – | – | – | – | 72 | 17 | 10 | – | – | – | – |
| 940 | 7 | 149 | 48 | 21 | – | – | – | – | 79 | 18 | 11 | – | – | – | – |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 47).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

# Gas valve train sizing
# Burner size 7, version ZMI

**Burner size 7**

| Burner rating [kW] | Setting press. at gas butterfly [mbar] | Low pressure supply (Flow pressure in mbar into shut-off valve, $p_{e,}$ max = 300 mbar) Nominal valve-train diameter | | | | | High pressure supply (Flow pressure in mbar into double solenoid valve) Nominal valve-train diameter | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **1½"** | **2"** | **65** | **80** | **100** | **1½"** | **2"** | **65** | **80** | **100** |
| | | Nominal diameter of gas butterfly | | | | | Nominal diameter of gas butterfly | | | | |
| | | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 |
| **Natural gas E**, $H_i$ = 37.26 MJ/m³ (10.35 kWh/m³), d = 0.606 | | | | | | | | | | | |
| 800 | 5 | 32 | 17 | 11 | 9 | 8 | 21 | 13 | 9 | 8 | 8 |
| 900 | 6 | 39 | 20 | 13 | 10 | 9 | 26 | 15 | 11 | 9 | 9 |
| 1000 | 6 | 47 | 24 | 15 | 11 | 10 | 30 | 17 | 12 | 10 | 9 |
| 1100 | 7 | 56 | 27 | 16 | 13 | 11 | 36 | 20 | 13 | 11 | 10 |
| 1200 | 8 | 66 | 31 | 18 | 14 | 12 | 41 | 23 | 14 | 12 | 11 |
| 1400 | 9 | 87 | 40 | 23 | 17 | 13 | 54 | 28 | 17 | 14 | 12 |
| 1600 | 10 | 112 | 51 | 27 | 19 | 15 | 68 | 35 | 20 | 16 | 14 |
| 1750 | 11 | 132 | 59 | 31 | 22 | 17 | 80 | 40 | 23 | 18 | 15 |
| **Natural gas LL**, $H_i$ = 31.79 MJ/m³ (8.83 kWh/m³), d = 0.641 | | | | | | | | | | | |
| 800 | 6 | 44 | 22 | 13 | 10 | 9 | 28 | 16 | 11 | 9 | 9 |
| 900 | 6 | 54 | 26 | 16 | 12 | 10 | 34 | 19 | 12 | 10 | 9 |
| 1000 | 7 | 66 | 31 | 18 | 13 | 11 | 41 | 22 | 14 | 11 | 10 |
| 1100 | 8 | 78 | 36 | 20 | 15 | 12 | 48 | 25 | 15 | 13 | 11 |
| 1200 | 8 | 92 | 42 | 23 | 16 | 13 | 56 | 29 | 17 | 14 | 12 |
| 1400 | 10 | 122 | 54 | 29 | 20 | 15 | 74 | 37 | 21 | 16 | 14 |
| 1600 | 11 | 157 | 69 | 35 | 23 | 18 | 94 | 46 | 25 | 19 | 16 |
| 1750 | 12 | 187 | 81 | 40 | 26 | 19 | 111 | 53 | 28 | 21 | 17 |
| **LPG B/P**, $H_i$ = 93.20 MJ/m³ (25.89 kWh/m³), d = 1.555 | | | | | | | | | | | |
| 800 | 4 | 17 | 10 | 8 | – | – | 12 | 9 | 7 | 7 | 7 |
| 900 | 4 | 20 | 12 | 9 | – | – | 14 | 10 | 8 | 7 | 7 |
| 1000 | 5 | 23 | 14 | 10 | 9 | – | 16 | 11 | 9 | 8 | 8 |
| 1100 | 5 | 27 | 15 | 11 | 9 | 9 | 19 | 12 | 10 | 9 | 8 |
| 1200 | 6 | 31 | 17 | 12 | 10 | 9 | 21 | 14 | 10 | 9 | 9 |
| 1400 | 7 | 41 | 21 | 14 | 12 | 10 | 27 | 16 | 12 | 11 | 10 |
| 1600 | 8 | 51 | 26 | 17 | 13 | 12 | 33 | 20 | 14 | 12 | 11 |
| 1750 | 9 | 60 | 30 | 19 | 15 | 13 | 38 | 22 | 15 | 13 | 12 |

**The combustion chamber pressure in mbar must be added to the minimum gas pressure / setting pressure determined from the above chart.**

Stated nett calorific values ($H_i$) are based on 0 °C and 1013.25 mbar.

For low-pressure supplies, EN 88-compliant governors with safety diaphragms are used. The maximum permissible supply pressure into the shut-off valve for low-pressure installations is 300 mbar.

For high-pressure supplies, EN 334-compliant high-pressure regulators should be selected from the brochure "Pressure regulators with safety devices for Weishaupt gas and dual-fuel burners". This brochure details high-gas-pressure sets suitable for supply pressures of up to 4 bar.

**Valve trains**
It should be noted that, depending on the burner and valve train size, the governor may foul against the front of the heat exchanger (see dimension I7, page 47).

The setting pressure with screwed valve trains can only be measured at full load at the gas butterfly valve.

With flanged valve trains, the setting pressure can also be measured at the flanged bend.

# Order numbers
# Scope of delivery

## Order numbers

### Size 1

| DMV Size | Gas burners Order No. |
|---|---|
| **Type G1/1-E ZMAD** | |
| 1" | 251 117 83 |
| 1 ½" | 251 117 86 |
| 2" | 251 117 87 |
| **Type G1/1-E ZMID** ① | |
| 1" | 251 117 82 |
| 1 ½" | 251 117 88 |

### Size 3

| DMV Size | Gas burners Order No. |
|---|---|
| **Type G3/1-E ZMAD** | |
| 1" | 251 317 83 |
| 1 ½" | 251 317 86 |
| 2" | 251 317 87 |
| **Type G3/1-E ZMID** ① | |
| 1" | 251 317 82 |
| 1 ½" | 251 317 88 |
| 2" | 251 317 89 |

### Size 5

| DMV Size | Gas burners Order No. |
|---|---|
| **Type G5/1-D ZMAD** | |
| 1" | 151 517 83 |
| 1 ½" | 151 517 86 |
| 2" | 151 517 87 |
| 65 | 151 547 83 |
| **Type G5/2-D ZMAD** | |
| 1" | 151 518 83 |
| 1 ½"" | 151 518 86 |
| 2" | 151 518 87 |
| 65 | 151 548 83 |
| 80 | 151 558 83 |
| **Type G5/1-D ZMID** ① | |
| 1" | 151 517 82 |
| 1 ½" | 151 517 88 |
| 2" | 151 517 89 |
| 65 | 151 547 82 |
| **Type G5/2-D ZMID** ① | |
| 1" | 151 518 82 |
| 1 ½" | 151 518 88 |
| 2" | 151 518 89 |
| 65 | 151 548 82 |

### Size 7

| DMV Size | Gas burners Order No. |
|---|---|
| **Type G7/1-D ZMAD** | |
| 1" | 151 717 84 |
| 1 ½" | 151 717 85 |
| 2" | 151 717 86 |
| 65 | 151 747 83 |
| 80 | 151 757 83 |
| 100 | 151 767 83 |
| **Type G7/1-D ZMID** ① | |
| 1 ½" | 151 717 88 |
| 2" | 151 717 89 |
| 65 | 151 747 82 |
| 80 | 151 757 82 |
| 100 | 151 767 82 |

① ZMI-version burners are not type-tested.

The burners' safety equipment meets the requirements of EN 676. If a CE-PIN is required, the plant operator should arrange an inspection with the appropriate body.

## Scope of delivery

| Burner type | G1 | G3 | G5 | G7 |
|---|---|---|---|---|
| Number of gas solenoid valves | 2 | 2 | 2 | 2 |
| Burner housing, hinged flange, sight-glass cover, Weishaupt burner motor, air regulator housing, fan wheel, air pressure switch servomotor, gas/air compound regulation, combustion head, ignition unit, ignition cable, ignition electrodes, terminal rail, flange gasket, fixing | ● | ● | ● | ● |
| Special air damper | ● | ● | ● | ● |
| Special gas butterfly valve | ● | ● | ● | ● |
| Air-regulating cam | ● | ● | ● | ● |
| Gas-regulating cam | ● | ● | ● | ● |
| Hinged-flange limit switch | ● | ● | ● | ● |
| Burner controller with flame sensor (ionisation) Supplied loose for incluision in a control panel | ● | ● | ● | ● |
| Double gas solenoid valve, Class A | ● | ● | ● | ● |
| Low-gas-pressure switch | ● | ● | ● | ● |
| Zero governor with impulse line (ZMI version only) | ● | ● | ● | ● |
| Gas pressure regulator adjacent to combustion head (ZMA version only) | ● | ● | ● | ● |
| Regulator connection piece | ● | ● | ● | ● |

**EN 676 stipulates that gas filters and gas pressure regulators form part of the burner supply (see Weishaupt accessories list).**

# Special equipment
# Technical data

## Special equipment

| Description | | G1 | G3 | G5 | G7 |
|---|---|---|---|---|---|
| Downward-firing version | ZMA<br>ZMI | standard<br>on application | standard<br>on application | standard<br>on application | standard<br>on application |
| Air-inlet flange for duct connection | | 210 000 67 | 210 000 67 | 110 001 05 | 110 001 06 |
| Combustion-head extension | by 100 mm<br>by 200 mm<br>by 300 mm | 150 001 23<br>150 001 24<br>150 002 34 | 150 001 07<br>150 001 08<br>150 002 36 | 150 003 09<br>150 001 09<br>150 002 38 | 150 003 11<br>150 001 10<br>150 001 11 |
| Integral switchgear | versions ZMAD and ZMID | 250 001 32 | 250 001 30 | 150 010 22 | 150 010 93 |
| Feedback potentiometer fitted to servomotor | | | | | |
| | – 220 Ω<br>– 1000 Ω | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 | 110 002 86<br>110 003 03 |
| Solenoid valve for air-pressure switch test with continuously running fan or post purge | | 250 000 54 | 250 000 54 | 150 010 07 | 150 010 07 |

**Please refer to print No. 863 for TRD 604 24/72h execution.**

**Accessories:**
Refer to broschure for scope.
Refer to accessories list for prices.

## Technical data

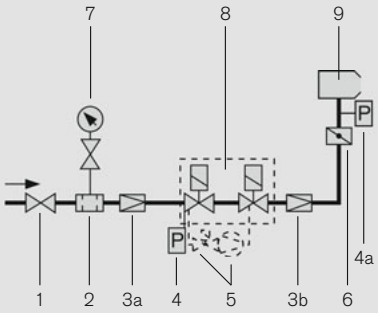
| Description | | G1 | G3 | G5 | G7 |
|---|---|---|---|---|---|
| 230/400 V, 3~ burner motor | Type | W-D90/90-2/0K5 | W-D90/90-2/1K0 | W-D90/90-2/1K5 | W-D112/110-2/3K0 |
| Nominal rating | kW | 0.5 | 0.9 | 1.5 | 3.0 |
| Current draw at 230/400 V | A | 2.6/1.5 | 3.8/2.2 | 5.5/3.2 | 10.4/6.0 |
| Motor pre-fusing | A | 6 | 6 | 10 | 16 |
| Speed | rpm | 2900 | 2900 | 2880 | 2900 |
| Fan wheel | | galvanised | galvanised | galvanised | non-coloured |
| Ignition unit | V | 2 x 5.000 | 2 x 5.000 | 2 x 5.000 | 2 x 5.000 |
| Burner controller | Type | LFL 1.322 | LFL 1.322 | LFL 1.322 | LFL 1.322 |
| Servomotor<br>– modulating (42 s.) | Type | SQM 10.16562 | SQM 10.16562 | SQM 10.16562 | SQM 10.16562 |
| Weight, excl. valve train | kg (approx.) | 39 | 43 | 55 | 76 |
| with valve train* | kg (approx.) | 25<br>11–20 | 40<br>18–31 | 50<br>20–33 | 65 80<br>40–48 54–60 |

* The large differences in weight are due to the different reducing flanges and connection parts.

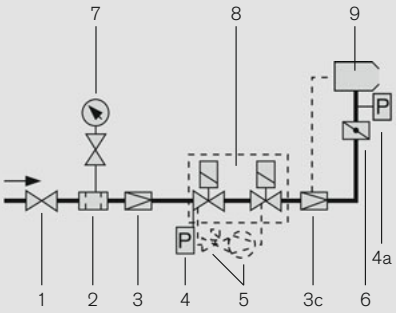
**Standard burner motor: Insulation Class $B_{trop.}$, IP 44 protection**

# Fuel system

## Layout of the valve train




ZMA-version burners **with DMV solenoid valves** and VPS valve proving




ZMI-version burners **with DMV solenoid valves** and VPS valve proving

**Legend**

1 Ball valve *
2 Gas filter *
3 Pressure regulator, (LP) * or (HP) *
3a Pressure regulator (HP only)
3b Pressure regulator (LP)
3c Zero governor with impulse line
4 Low-gas-pressure switch.
4a High-gas-pressure switch (for TRD)
5 VPS valve proving *
6 Gas butterfly valve
7 Pressure gauge with push-button valve *
8 Double solenoid valve (DMV)
9 Burner

* Not included in burner price

**Valve trains with DMV**
EN 676 stipulates that gas-fired burners must be fitted with two solenoid valves. Accordingly, Weishaupt gas and dual-fuel burners are equipped as standard with a Class-A double solenoid valve assembly.

**Valve trains with DMV and VPS**
Weishaupt also recommends the use of a gas valve proving system (mandatory from 1200 kW). Details on valve proving and other gas valve train components, such as filters and pressure regulators, can be found in our accessories list.

Following a set program, the VPS valve proving system checks the tightness of the DMV valves before the burner starts. Further information can be found in the Weishaupt accessories list.

## Installation examples

The installation examples above show the optimal arrangement of screwed and flanged gas valve trains.

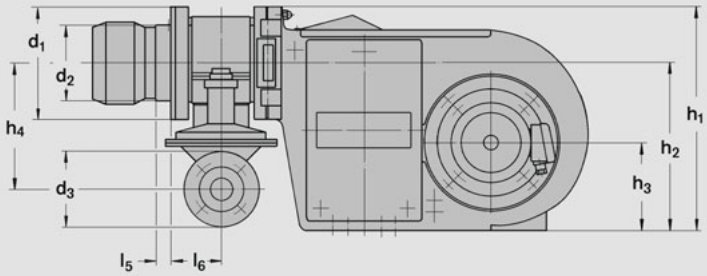
**Layout of the valve train**
On boilers with hinged doors, the valve train must be mounted on the opposite side to the boiler-door hinges. The pilot-line solenoid valve can be connected to either side of the burner.

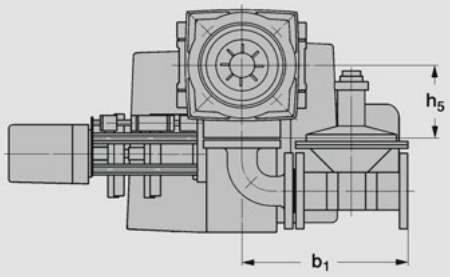
**Break points in the valve train**
Break points in the valve train should be provided to enable the door of the heat exchanger to be swung open. The main gas line is best separated at the compensator.

**Support of the valve train**
The valve train should be properly supported in accordance with the site conditions. See the Weishaupt accessories list for various valve-train-support components.

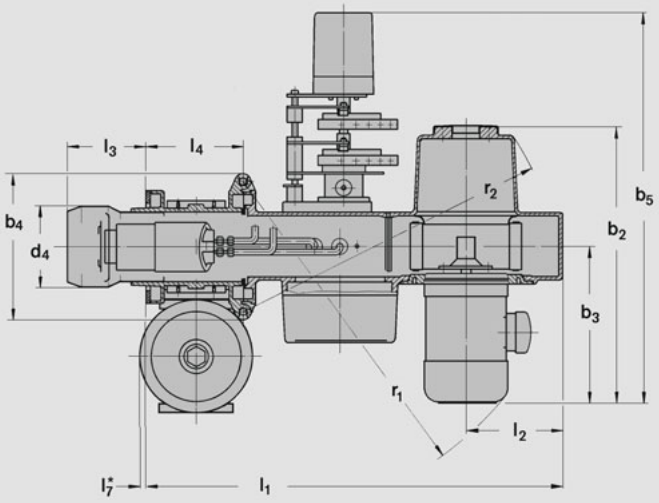
**Gas meter**
A gas meter must be installed to measure gas consumption during commissioning.

# Dimensions

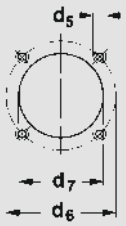



Measurements from "Gas connection dimensions", print No. 1121



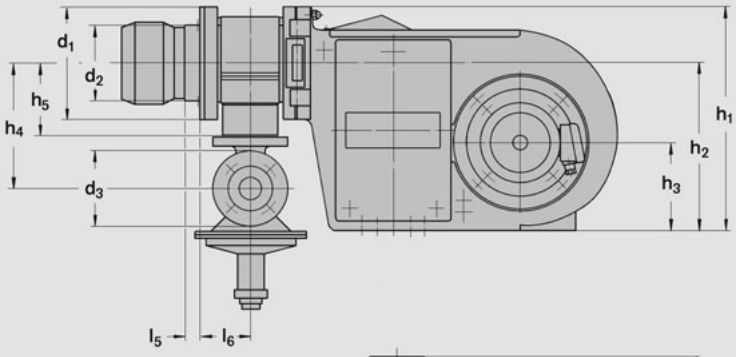

**Mounting-plate drilling dimensions**

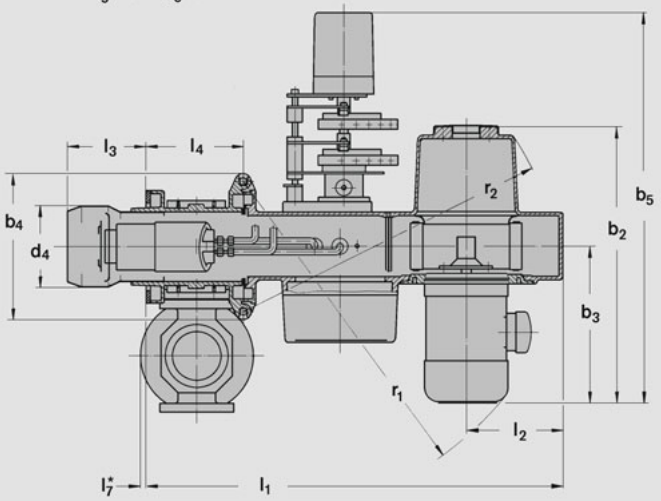


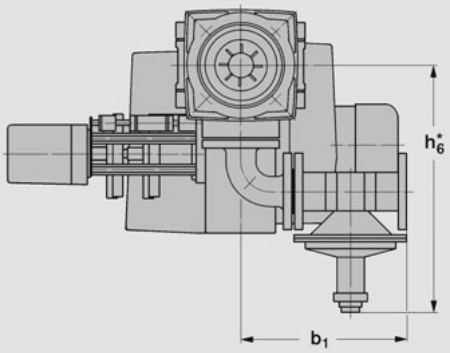

* If the protrusion of the zero governor may foul the appliance mounting plate, then a spacer ring must be interposed between the plate and the burner flange (see accessories list). It should be noted that combustion head dimension $l_3$ is thereby reduced by the depth of the spacer ring.

| Burner size | Dimensions in mm $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $l_6$ | $l_7$* with DN 1" | 1½" | 2" | 65 | 80 | 100 | $h_1$ | $h_2$ | $h_3$ | $h_4$ | $h_5$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 687 | 169 | 112 | 168 | 36 | 88 | – | 10 | 37 | 55 | 55 | 87 | 388 | 290 | 150 | 220 | 130 |
| 3 | 807 | 189 | 158 | 188 | 28 | 98 | – | – | 27 | 45 | 45 | 77 | 435 | 325 | 170 | 250 | 140 |
| 5 | 868 | 200 | 199 | 208 | 42 | 108 | – | – | 17 | 35 | 35 | 67 | 494 | 373 | 220 | 285 | 162 |
| 7 | 964 | 225 | 231 | 228 | 57 | 118 | – | – | 7 | 25 | 25 | 57 | 561 | 420 | 250 | 325 | 182 |
| | $b_2$ | $b_3$ | $b_4$ | $b_5$ | $r_1$ | $r_2$ | $d_1$ | $d_2$ | $d_3$ | $d_4$ | $d_5$ | $d_6$ | $d_7$ | | | | |
| 1 | 491 | 281 | 250 | 728 | 566 | 604 | 195 | 129 | DN25 | 130 | M8 | 160-170 | 135 | | | | |
| 3 | 531 | 313 | 280 | 767 | 657 | 645 | 220 | 154 | DN40 | 160 | M10 | 186 | 165 | | | | |
| 5 | 546 | 266 | 312 | 728 | 664 | 709 | 260 | 192 | DN50 | 200 | M12 | 235 | 210 | | | | |
| 7 | 664 | 336 | 355 | 819 | 796 | 795 | 330 | 232 | DN65 | 250 | M14 | 298 | 275 | | | | |

All dimensions are approximate. Weishaupt reserve the right to make changes in light of future developments

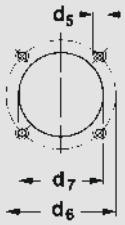



Measurements from "Gas connection dimensions", print No. 1121

### Mounting-plate drilling dimensions




* If the protrusion of the zero governor may foul the appliance mounting plate, then a spacer ring must be interposed between the plate and the burner flange (see accessories list). It should be noted that combustion head dimension $l_3$ is thereby reduced by the depth of the spacer ring.

| Burner size | Dimensions in mm $l_1$ | $l_2$ | $l_3$ | $l_4$ | $l_5$ | $l_6$ | $l_7$* with DN 1" | 1½" | 2" | 65 | 80 | 100 | $h_1$ | $h_2$ | $h_3$ | $h_4$ | $h_5$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 687 | 169 | 112 | 168 | 36 | 88 | – | 10 | 37 | 55 | 55 | 87 | 388 | 290 | 150 | 220 | 130 |
| 3 | 807 | 189 | 158 | 188 | 28 | 98 | – | – | 27 | 45 | 45 | 77 | 435 | 325 | 170 | 250 | 140 |
| 5 | 868 | 200 | 199 | 208 | 42 | 108 | – | – | 17 | 35 | 35 | 67 | 494 | 373 | 220 | 285 | 162 |
| 7 | 964 | 225 | 231 | 228 | 57 | 118 | – | – | 7 | 25 | 25 | 57 | 561 | 420 | 250 | 325 | 182 |

| | $l_6$* bei DN 1" | 1½" | 2" | 65 | 80 | $b_2$ | $b_3$ | $b_4$ | $b_5$ | $r_1$ | $r_2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 377 | 421 | 483 | 530 | 530 | 491 | 281 | 250 | 728 | 566 | 604 |
| 3 | 407 | 461 | 513 | 560 | 560 | 531 | 313 | 280 | 767 | 657 | 645 |
| 5 | 442 | 496 | 548 | 595 | 595 | 546 | 266 | 312 | 728 | 664 | 709 |
| 7 | 482 | 536 | 588 | 635 | 635 | 664 | 336 | 355 | 819 | 796 | 795 |

| | $d_1$ | $d_2$ | $d_3$ | $d_4$ | $d_5$ | $d_6$ | $d_7$ |
|---|---|---|---|---|---|---|---|
| 1 | 195 | 129 | DN25 | 130 | M8 | 160-170 | 135 |
| 3 | 220 | 154 | DN40 | 160 | M10 | 186 | 165 |
| 5 | 260 | 192 | DN50 | 200 | M10 | 235 | 210 |
| 7 | 330 | 232 | DN65 | 250 | M12 | 298 | 275 |

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