

– weishaupt –

product

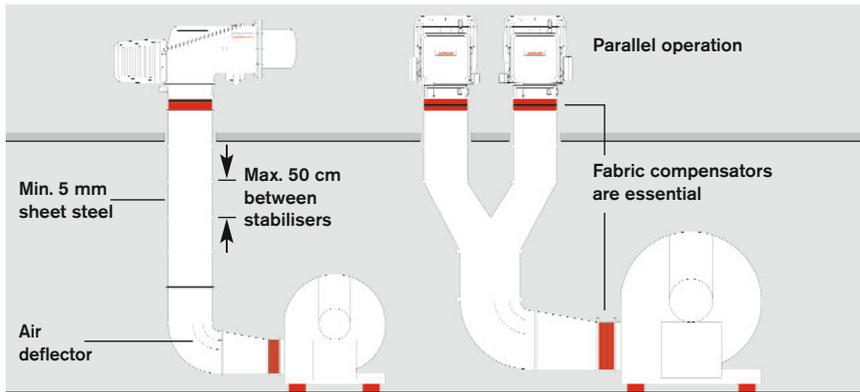
Information on WK-series burners



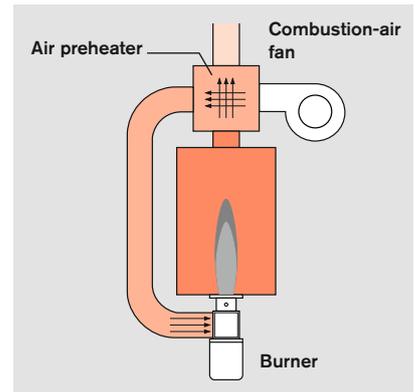
WK-series industrial burners

WK40 to WK80 burners • 300 kW to 28,000 kW

The powerful industrial burner with a modular construction



Combustion-air ducting



Combustion air temperatures up to 250 °C

Weishaupt WK-series burners have been designed especially for industrial use. The modular design of the burners, coupled with their large capacity range, makes them ideally suited to a broad spectrum of special applications.

Modular principle

Weishaupt WK-series industrial burners are of modular design. That means the fan, pump station, and preheater station are all selected independently of the burner. This concept offers a high degree of flexibility in matching to many diverse applications and installation requirements.

Digital combustion management

Digital combustion management ensures the simple and safe operation of combustion plant. Emissions are minimised and economy is maximised.

Insulated burner housing

The burner housing is fitted with internal insulation (optional extra on the ambient-air versions of the WK 40 and 50). This significantly reduces the surface temperature of the housing during operation with preheated combustion air. The insulation also provides effective noise reduction.

Heat recovery using preheated combustion air

Many industrial processes create high flue-gas temperatures due to the high

temperature of the medium used. A heat exchanger in the flue can be used to reclaim a large amount of energy from these hot flue gases, increasing efficiency by up to 10 %. Weishaupt WK-series industrial burners can be operated with preheated combustion-air temperatures of up to 250 °C.

Nozzle-head shut-off device

At burner shutdown, or when changing over to gas operation, a safety shut-off device located in the oil atomising system shuts off the oil flow directly in the nozzle orifice, preventing the escape of any oil.

Modulating operation

Within its operating range, the burner's output is matched to the current heat demand.

Reduced-capacity start

Gas-firing burners start at a reduced ignition-load capacity. In addition to this, WK(G)MS burners rated over 17.5 MW are also equipped with an ignition burner. This means that initially only a small quantity of gas flows into the combustion chamber. After the ignition phase the burner then drives to partial load.

Controlled shutdown from partial load

Controlled shutdown of the burner always takes place from the partial-load position, thus preventing impact on the gas main.

Fuels

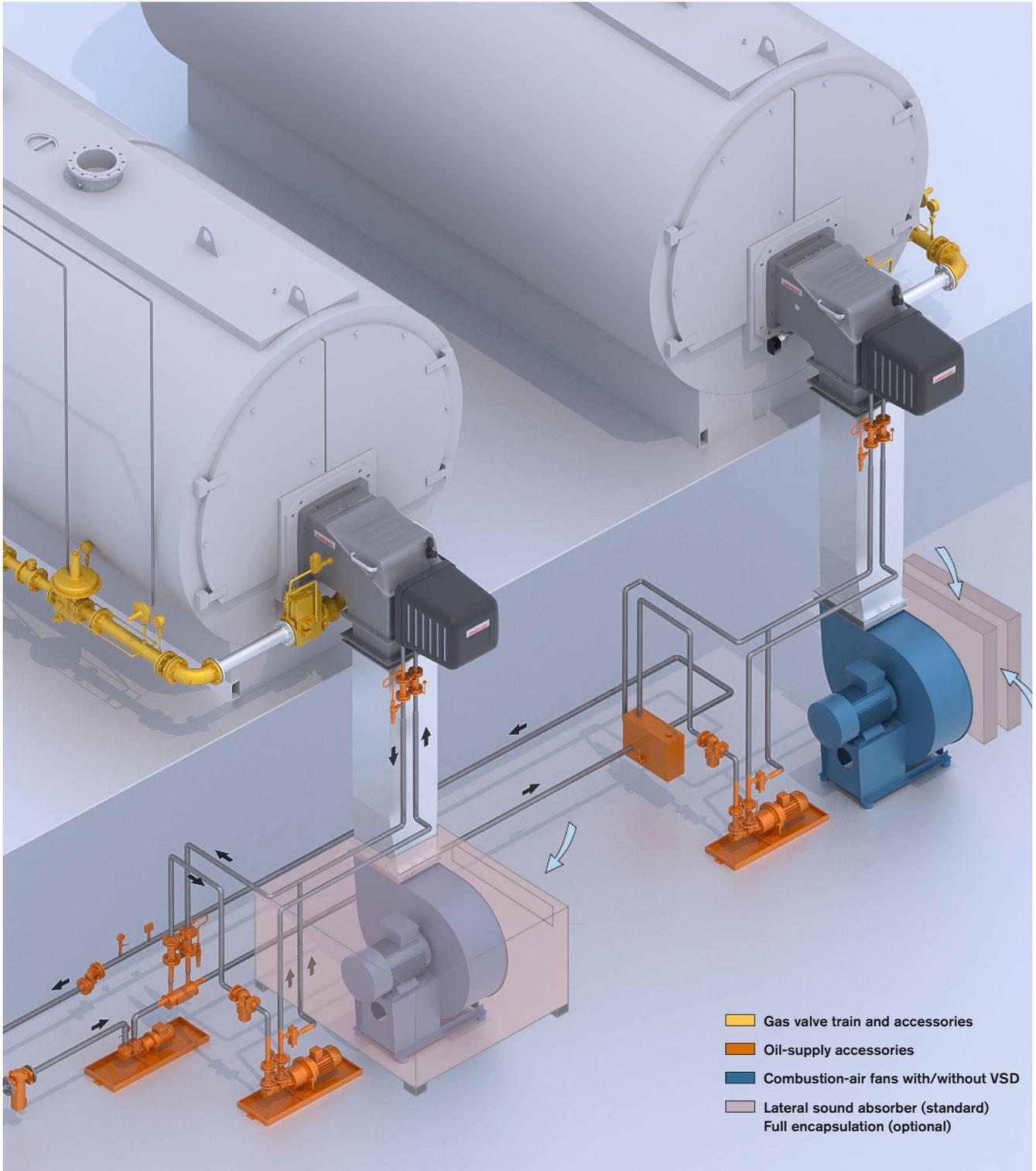
- Light oil (< 6 mm²/s at 20 °C) in accordance with DIN 51 603-1
- HFO (< 60 mm²/s at 100 °C) (< 700 mm²/s at 50 °C) in accordance with DIN 51 603-3/-5
- Natural gas
- LPG

Permissible installation conditions

- Ambient temperature during operation: -15 to +40 °C
- Humidity: max. 80 % relative humidity, no condensation
- Standard burner protection: IP 54
- Suitable for horizontal or vertical installation

Standards conformity

- EN 267 and EN 676
- Pressure Equipment Directive, 97/23/EC
- Gas Appliance Directive, 2009/142/EC
- Machinery Directive, 2006/42/EC
- Electromagnetic Compatibility Directive, 2004/108/EC
- Low Voltage Directive, 2006/95/EC
- The burners are marked with a
 - CE mark
 - CE Product ID No.
 - Type-test No.



- Gas valve train and accessories
- Oil-supply accessories
- Combustion-air fans with/without VSD
- Lateral sound absorber (standard)
Full encapsulation (optional)

A one-stop solution for reliability

Digital combustion management: Precise, simple, and reliable



Setting via the ABE control and display unit

Digital combustion management means optimal combustion figures, continuously reproducible setpoints, and ease of use.

Weishaupt WK-series burners are equipped as standard with electronic compound regulation and digital combustion management. Modern combustion technologies demand a precise and continually reproducible dosing of fuel and combustion air.

Simple operation

Setting and control of the burner is achieved using the ABE control and display unit. This is linked to the combustion manager via a bus system, enabling the user-friendly setting of the burner. The control and display unit has a clear text display with a choice of languages. A dual-screen Roman and Chinese-script version is available as an option should a Chinese-character display be desired.

Flexible communication options

The integrated interface enables all necessary data and functions to be relayed to a master control system via, for example, eBUS, Modbus RTU, Modbus TCP/IP, or Profibus-DP.

Measures for saving energy and increasing safety and reliability

Electronic compound regulation with the W-FM 100 and 200 combustion managers facilitates the extremely precise, hysteresis-free setting of the burner. The burner can be adjusted for ideal combustion figures throughout its entire capacity range. This reduces flue gas losses and saves fuel.

Variable speed drive reduces electrical consumption and facilitates a soft start of the combustion air fan. The use of VSD also reduces noise emissions by a considerable amount.

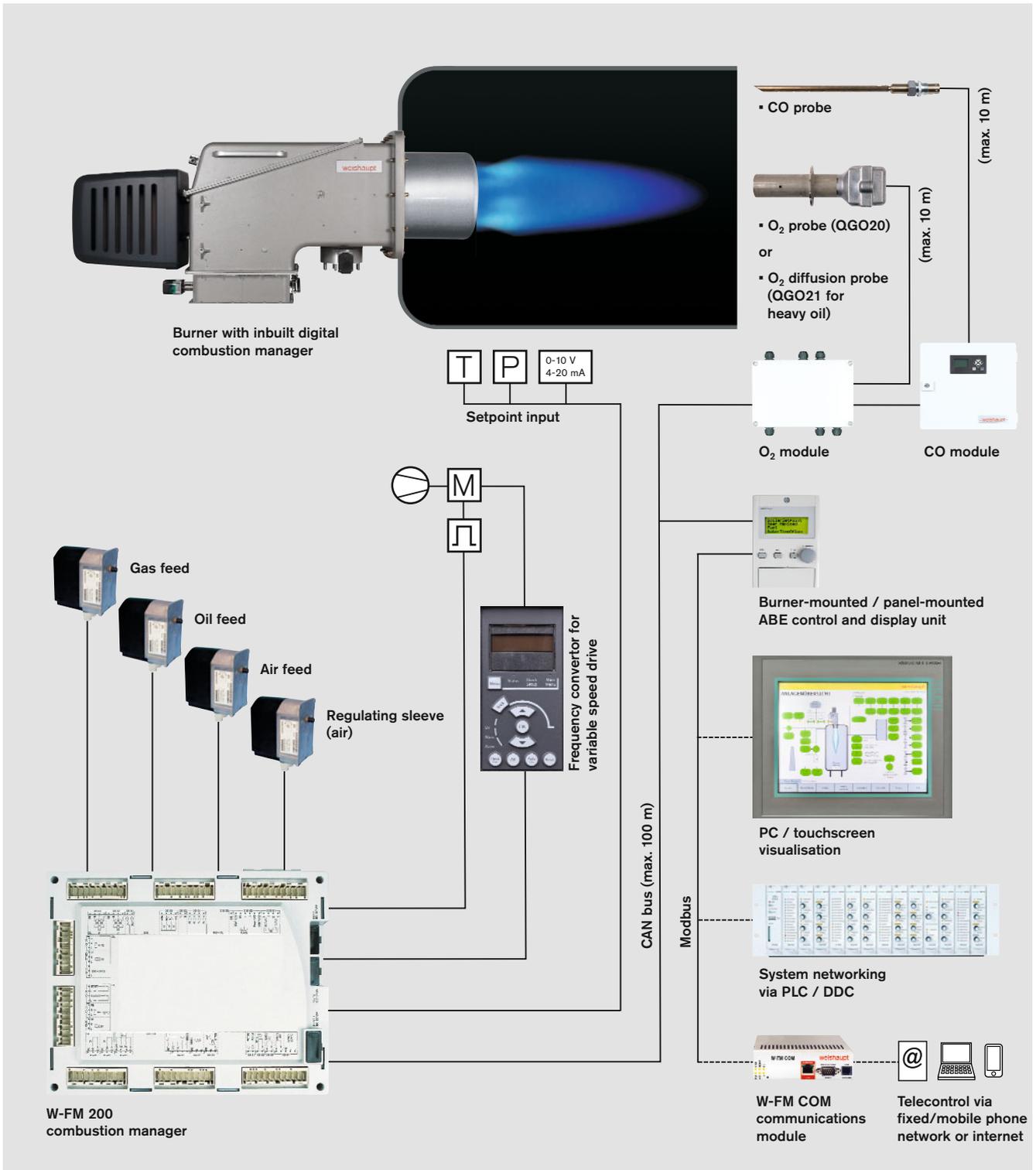
O₂ trim saves fuel through a continual and extremely efficient optimisation of the combustion air. Different O₂ probes are available, providing suitable solutions for almost all fuels in applications with flue-gas temperatures below 300 °C.

Combined CO monitoring and O₂ trim ensures an ultimate degree of safety. CO emissions are continually monitored and, if the defined limit is exceeded, the burner is operated with an increased amount of excess air for a short period of time before the O₂ trim returns the burner to its preset O₂ setpoint. Should external influences prevent a non-critical condition from being reached, then the burner will undergo a controlled shutdown.

| Digital combustion management overview | W-FM 100 | W-FM 200 |
|--|-----------------|-----------------|
| Continuous operation > 24 h | ● | ● |
| Capacity control for temperature or pressure | ● | ● |
| O ₂ trim with QGO20/21 O ₂ probe | | ● |
| Combined CO monitoring and O ₂ trim | | ● |
| VSD | | ● |
| Flue-gas recirculation (temperature compensated) | | ● |
| WKMS40 to 70 with LPG ignition pilot | ● | ● |
| WK(G)MS80 with LPG ignition burner | | ● |
| WKMS80 with light-oil ignition burner | ● | ● |
| SQM40/48/9... servomotors in electronic compound (max.) | x 4 | x 6 |
| W-FC 4.0 flame monitoring | ● | ● |
| W-FC 5.0/6.0 flame monitoring | | ● |
| Parallel burner firing (in conjunction with KS... controller) | ● | ● |
| Two gaseous fuels (also in conjunction with a liquid fuel) | | ● |
| Two liquid fuels | ● x 2 | ● x 2 |
| Integral valve proving (with gaseous fuels) | ● | ● |
| Burner-mounted W-FM for combustion-air temperatures up to 40 °C | ● | ● |
| W-FM supplied loose (for panel mounting) for combustion-air temperatures up to 40 °C | ● | ● |
| Burner-mounted ABE for combustion-air temperatures up to 40 °C | ● ¹⁾ | ● ¹⁾ |
| ABE supplied loose (for panel mounting) for combustion-air temperatures up to 40 °C | ● | ● |
| W-FM and ABE supplied loose (for panel mounting) for combustion-air temperatures from 40 to 250 °C | ● | ● |
| Setpoint input (0)4-20 mA / 0-10 V | ● | ● |
| Configurable analogue output (rating / drive position / flame signal / medium temperature or pressure) | | ● |
| eBUS / Modbus RTU | ● | ● |

¹⁾ Not available with dual-screen Roman and Chinese-script version

● Optional (expanded version)



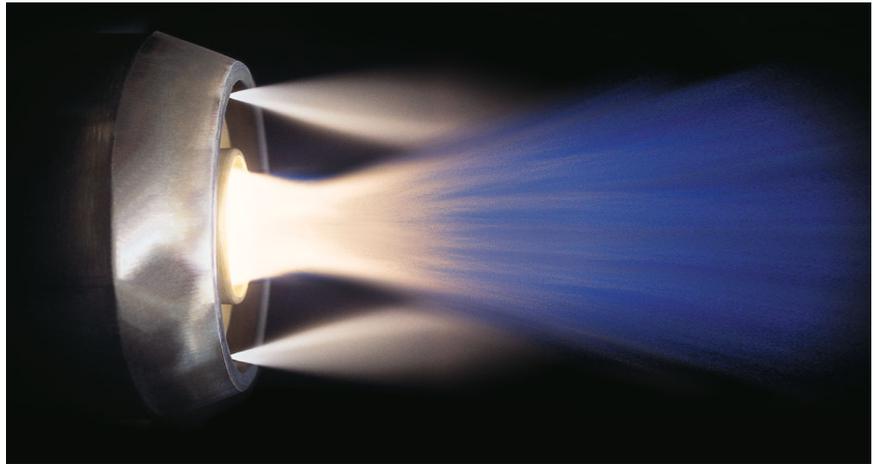
Emissions reduced by the multiflam[®] principle

Weishaupt's multiflam[®] technology was designed for gas and dual-fuel burners. By using a patented 3LN mixing head, NO_x emissions on WK-series burners can be reduced to extremely low levels

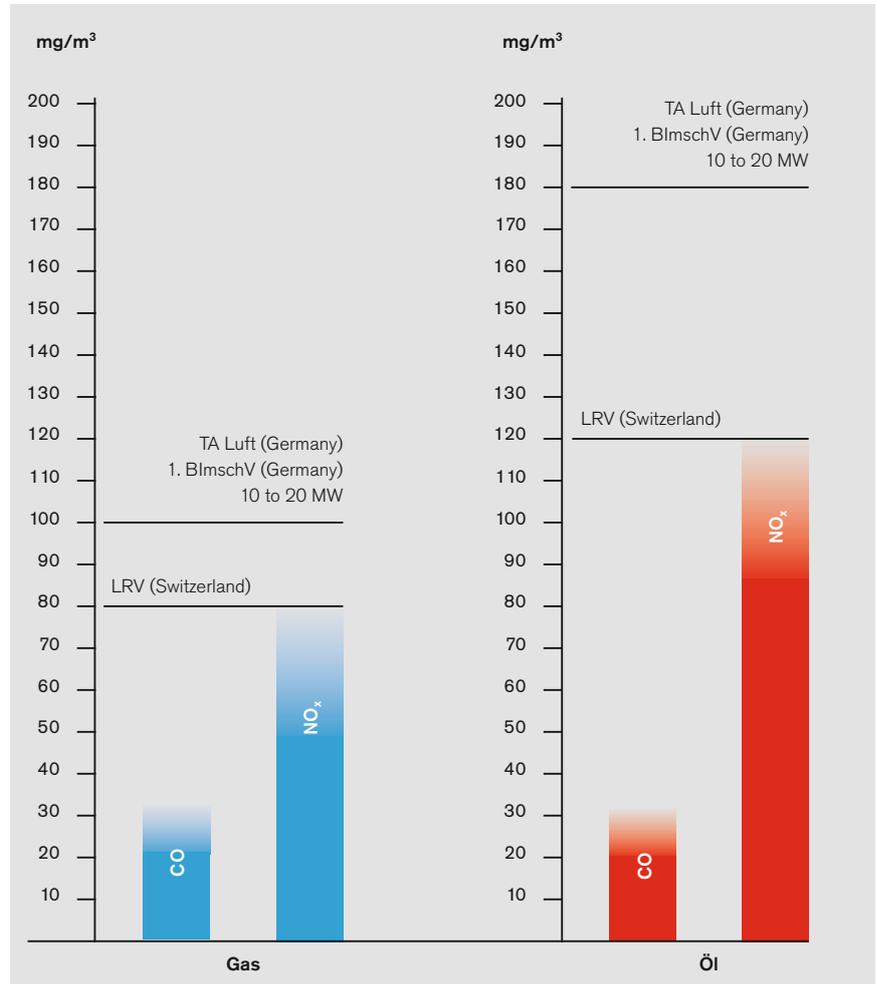
Weishaupt has set an all-new benchmark, achieving levels below 80 mg/m³ on gas and 120 mg/m³ on oil, subject to the combustion chamber geometry.

Weishaupt's multiflam[®] burners meet the world's toughest standards. In those countries with particularly stringent environmental legislation, such as Switzerland, multiflam[®] industrial burners are market-sector leaders.

At the heart of Weishaupt's multiflam[®] technology is a special mixing-assembly design which distributes the fuel among primary and secondary nozzles. This results in extremely efficient combustion thanks to recirculation of the flue gases directly at the mixing assembly.



Typical flame formation



Typical emission levels for hot-water plant

Flame monitoring for demanding safety requirements



Testing and optimisation using a software tool

Weishaupt Flame Control (W-FC) is a reliable flame monitoring system designed for demanding safety requirements.

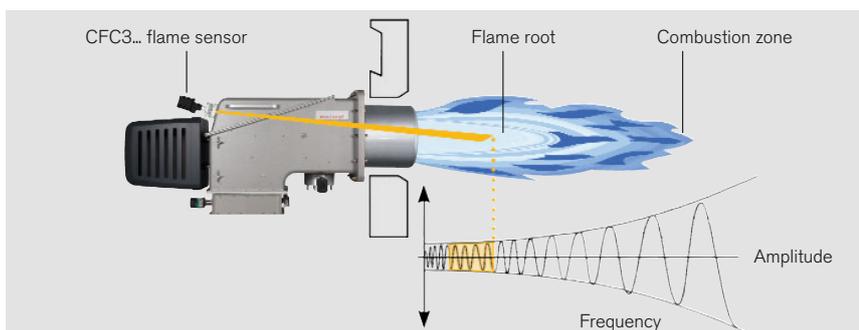
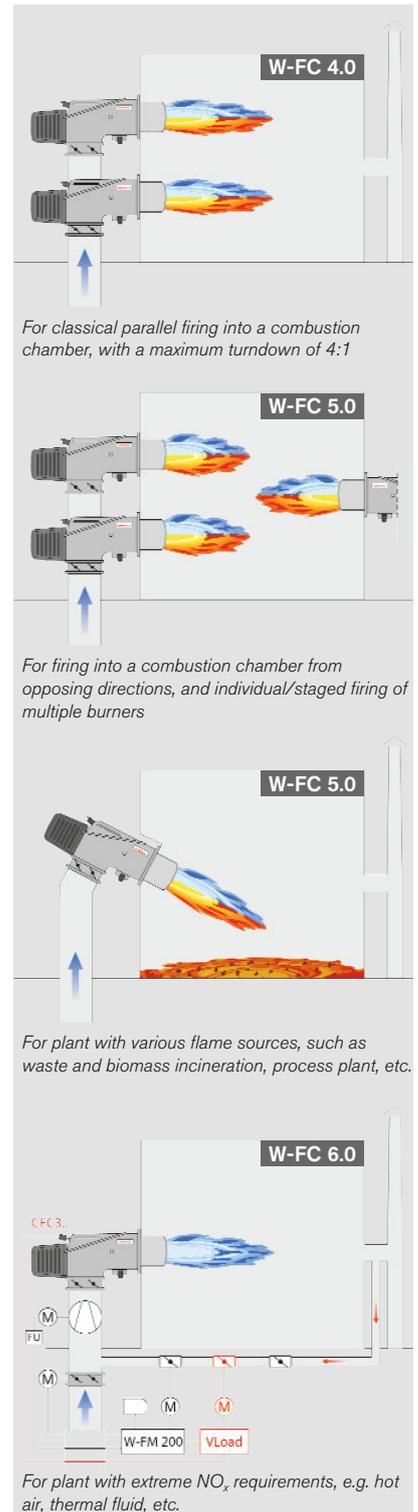
W-FC 4.0 is for plant with multiple burners firing from the same direction into a single combustion chamber. The W-FC assembly utilises flame frequency to monitor each flame separately via a load-independent on and off threshold for each fuel. The CFC3... flame sensor functions in series with the QRA73 flame sensor on the W-FM 100 or W-FM 200 combustion manager.

Note: If a turndown in excess of 4:1 or single-burner operation is required, the higher specification W-FC 5.0 must be selected.

W-FC 5.0 is for plant with multiple burners firing from different directions into a single combustion chamber, and for process plant with various flame sources. The W-FC assembly monitors each flame separately via a load-dependent switching threshold for each fuel. This guarantees a distinct differentiation from extraneous sources. The CFC3... flame sensor functions in parallel with the QRA73 flame sensor on the W-FM 200 combustion manager. This convenient, load-dependent setting of the on and off thresholds rests upon the electronic VLoad module, which can be configured using software.

W-FC 6.0 is to monitor flame stability on plant with flue-gas recirculation for extreme NO_x requirements. With this version, the W-FM 200 and QRA73 flame sensor monitor the flame while the CFC3... controls the flue gas volume based on the stability of the flame to ensure safe operating conditions. In this way, reliability of operation with optimal emissions is achieved under varying conditions. The VLoad module enables a load-dependent switching threshold to be tailored to the operational situation.

All versions meet EN 298 continuous operation requirements.



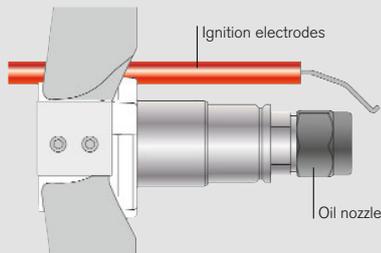
The constructive alignment of the CFC3... allows the detection range to be optimised

Ignition variants for every fuel and rating

Variant A

Standard ignition for liquid fuels on WKL/WKMS40-70 and WKL80.

Liquid fuels are ignited directly by the high-voltage ignition electrodes.



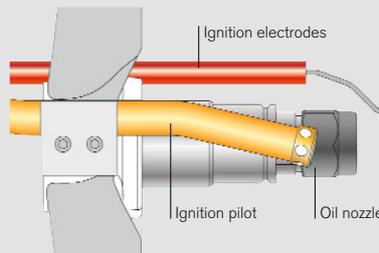
Ignition variant A

A

Variant B

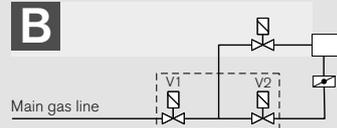
Standard ignition for gaseous fuels on WKG(L/MS)40-70 and WKG(L)80.

The pilot line feeds a controlled amount of gas to the ignition electrodes for ignition. The main gas line is released and ignited after a short delay.



Ignition variant B with ignition pilot

B

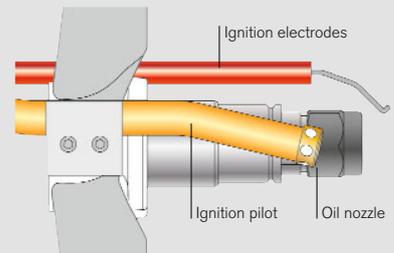


Gas valve train with ignition variant B

Variant C

Ignition option for liquid fuels on WKMS40-70.

The pilot line feeds a controlled amount of LPG to the ignition electrodes for ignition. This pilot flame ignites the main liquid fuel upon release.



Ignition variant C with ignition pilot

C



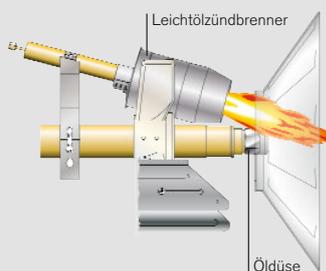
Gas valve train with ignition variant C

Weishaupt offers various ignition variants in order to ensure maximum reliability of ignition

Variant G

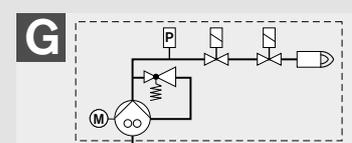
Optional light-oil ignition burner for liquid fuels on WKMS80.

A reliable solution for the ignition of high-viscosity liquid fuels when gas is not available or not permitted.



Ignition electrodes are used to ignite the oil injected by the pilot burner. The pilot burner is then used to ignite the main flame upon fuel release.

G



Ignition variant G with light-oil ignition burner

Variants D to F

Optimal ignition for high-viscosity liquid fuels on WK(G)MS80, using a high-quality ignition burner

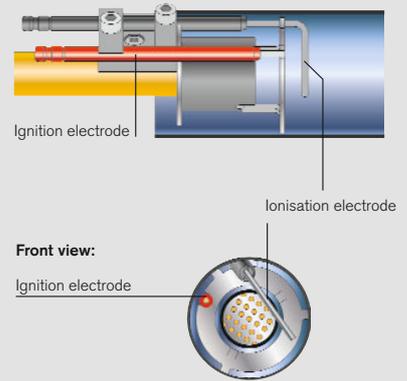
This variant facilitates reliable ignition at a considerably reduced rating.

An ignition electrode is used to ignite the pilot burner's gas mixture. The pilot burner is then used to ignite the main flame upon fuel release.

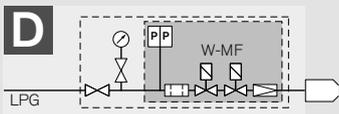
A typical LPG bottle (11/33 kg) is adequate for ensuring reliable ignition. For example, an 11 kg LPG bottle is sufficient for well over 300 ignitions.

Flame monitoring is via a separate ionisation probe, which necessitates the use of a W-FM 200 combustion manager.

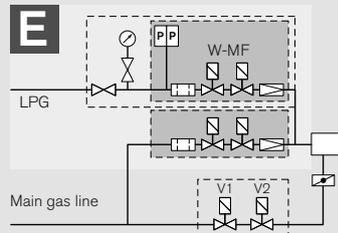
This reliable solution was developed especially for heavy and special fuel oils with widely varying characteristics. It is also suitable for extreme ignitions, such as cold-starting plant that utilises pre-heated combustion air.



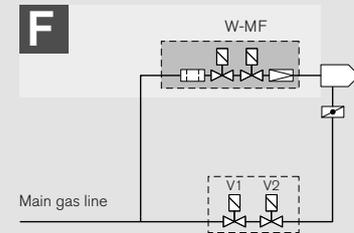
Ignition variants D to F with ignition burner



Gas valve train with ignition variant D



Gas valve train with ignition variant E



Gas valve train with ignition variant F

| | WK...40-70 | | | WK...80 | | | | |
|---|-------------|---------------------|-----------------|-----------------|-------------------|-----------------|-----------------|--------------------|
| | WKL WKMS | WKG / WKGL WKGMS | WKL | WKMS | WKMS < 17.5 MW | WKG WKGL | WKGMS | WKGMS < 17.5 MW |
| A | ● | | ● | | ● ²⁾ | | | |
| B | | ● | | | | ● | | ● ²⁾ |
| C | ● (WKMS) | | | | | | | |
| D | | | ● ¹⁾ | ● ¹⁾ | | | | |
| E | | | | | | ● ¹⁾ | ● ¹⁾ | |
| F | | | | | | ● ¹⁾ | ● ¹⁾ | |
| G | | | ● | ● | | | | |

Accessories for variants C to E

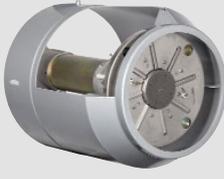


Complete set (Part No. 271 805 2601 2) comprising:

- ① Pressure regulator for 11/33 kg LPG bottle
- ② Hose-rupture protection
- ③ 3 m hose

● Standard ● Optional ¹⁾ W-FM 200 combustion manager required ²⁾ 1SF version excluded

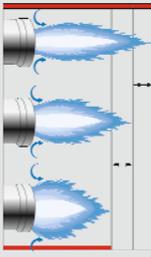
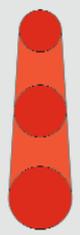
The right mixing assembly for every application

| Mixing assembly type | Flame geometry | | Burner type | Load-dependent air regulation in the M.A. ³⁾ | Fuels | | | | NO _x Class ¹⁾ | | | |
|--|----------------|----------|--|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| | Length | Diameter | | | Natural gas | LPG | Light oil | Heavy oil | Natural gas | LPG | Oil (light oil) | |
| <p>Maintenance-friendly construction: On all burner versions, the standard-length combustion head (i.e. the flame tube and mixing assembly) can be inserted and withdrawn through the service opening in the burner housing. To further assist removal, the mixing assemblies on WK80 burners are guided by rail.</p> | | | | | | | | | | | | |
| <p>ZM(H) Mixing assembly for gas, oil, and dual-fuel burners. For plant with no particular NO_x requirements.</p> <p>ZM(H)-NR Gas-side NO_x reduction compared to ZM version.</p>  | | | WK 40-50 WK 70/1 WK 80/3 WK 50 WK 70/1 WK 70/3 WK 80/3 | ● ● ● ● ● ● ● | ○ ● - ○ ● ● ● | ○ ○ - ○ ● ● ● | ○ ○ ○ ○ ○ ○ ○ | - ○ - - - - - | - 1 - 2 3 3 3 | - - - - 3 3 3 | - 1 - - 2 1 1 | |
| <p>ZM(H)-1LN Low-NO_x mixing assembly for gas and dual-fuel burners. For plant with gas and oil-side NO_x requirements.</p>  | | | WK 50 WK 70 | - - | ○ ● | ○ ● | ○ ● | - - | - 3 | - 3 | - 2 | |
| <p>ZM(H)-LN Low-NO_x mixing assembly for gas burners. Further reduction in NO_x emissions compared to 1LN-version burners.</p>  | | | WK 40 WK 70 | - - | ○ ● | ○ ○ | - - | - 3 | - - | - - | | |
| <p>(ZMH)-3LN Low-NO_x mixing assembly for gas, oil, and dual-fuel burners. For plant with extremely low NO_x limits. Lowest NO_x emissions in comparison with all other versions.</p>  | | | WK 40-50 WK 70 WK 80 | ● ● ● | ○ ● ● | ○ ● - | ○ ● ● | - - - | - 3 3 | - 3 3 | - 3 3 | |

¹⁾ Combustion-air temperatures < 40 °C

²⁾ Minimum requirements for the combustion-chamber geometry must be agreed with Weishaupt's headquarters

³⁾ Mixing assembly

| Mixing assembly type | Flame geometry | | Burner type | Load-dependent air regulation in the M.A. ³⁾ | Fuels | | | | NO _x Class ¹⁾ | | |
|--|---|---|-------------------------------|---|-------------|-------------|-------------|-------------|-------------------------------------|-------------|-----------------|
| | Length | Diameter | | | Natural gas | LPG | Light oil | Heavy oil | EN 676 | EN 267 | Oil (light oil) |
| <p>ZM(H)-1SF Mixing assembly for gas, oil, and dual-fuel burners.</p> <p>Mixing assembly for extremely short combustion chambers in water-tube boilers.</p>  |  |  | WK 40-80/3 | ● | ○ | ○ | ○ | ○ | - | - | - |
| <p>Mixing assembly for gas burners, type WKG80/4 to 80/6.</p> <p>Mixing assembly for extremely short combustion chambers (WKG80/4 and 80/5) and for elongated, D-type combustion chambers in water-tube boilers with low cross-sectional loads (WKG80/4 to WKG80/6).</p> <p>The flame geometry of the WKG80/4 and 80/5 can be optimised by internal fittings (circular blanks).²⁾</p>  |  |  | WK 80/4 WK 80/5 WK 80/6 | ● ● ● | ● ● ○ | ● - - | - - - | - - - | 3 2 - | 3 - - | - - - |

● Type tested ○ Without type approval

EN emission classes

| Fuel | Natural Gas (EN 676) | | | LPG (EN 676) | | | Light Oil (EN 267) | | |
|-------------------------------------|----------------------|-------|------|--------------|-------|-------|--------------------|-------|-------|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| NO _x emissions in mg/kWh | ≤ 170 | ≤ 120 | ≤ 80 | ≤ 230 | ≤ 180 | ≤ 140 | ≤ 250 | ≤ 185 | ≤ 120 |

Maximum turndown

| Burner | Version | Natural Gas/LPG | Light Oil | HFO |
|---------------|---|-----------------|-----------|---------|
| WK 40 / WK 50 | ZM... | 4 : 1 | 3 : 1 | 3 : 1 |
| WK 70 / WK 80 | ZM(H) / ZM(H)-NR / ZM(H)-1LN / ZM(H)-LN / (ZMH)-3LN / ZM(H)-VSF | 8 : 1 | 5 : 1 | 3.5 : 1 |
| WK 70 / WK 80 | ZM(H)-1SF | 8 : 1 | 4 : 1 | 3 : 1 |

Basic conditions:

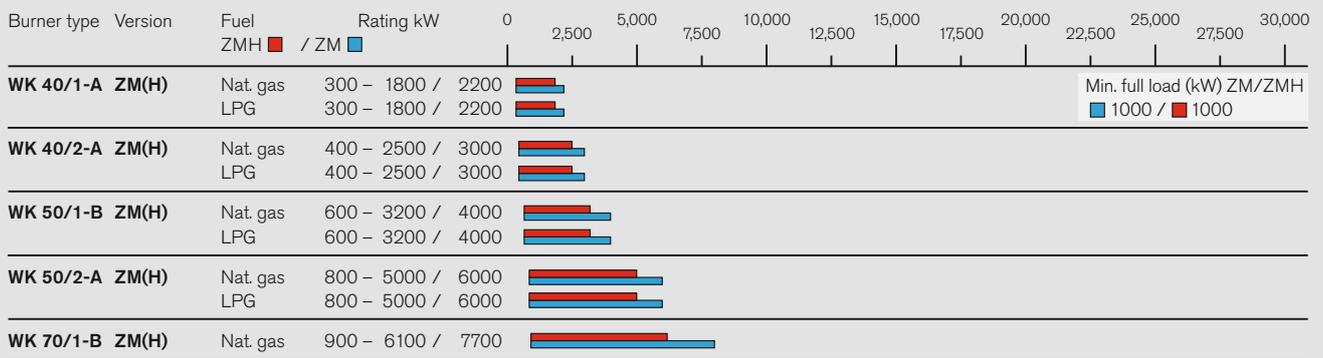
Without excess air limitations. Combustion values not guaranteed throughout the entire turndown range. All operational points must lie within the burner's capacity chart. Higher turndowns may be achievable in certain cases (subject to agreement with Weishaupt's headquarters).

Overview of capacities

Gas burners

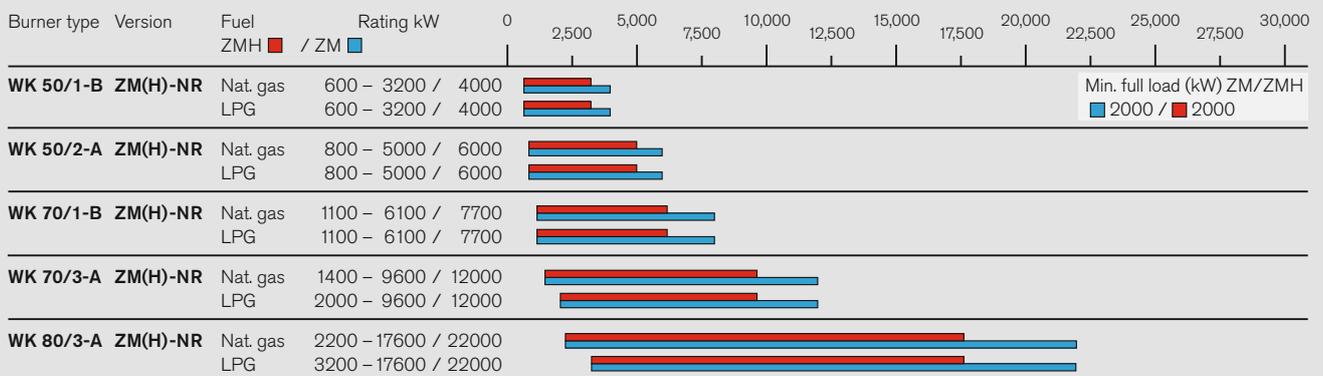
Version ZM

WKG natural-gas and LPG burners



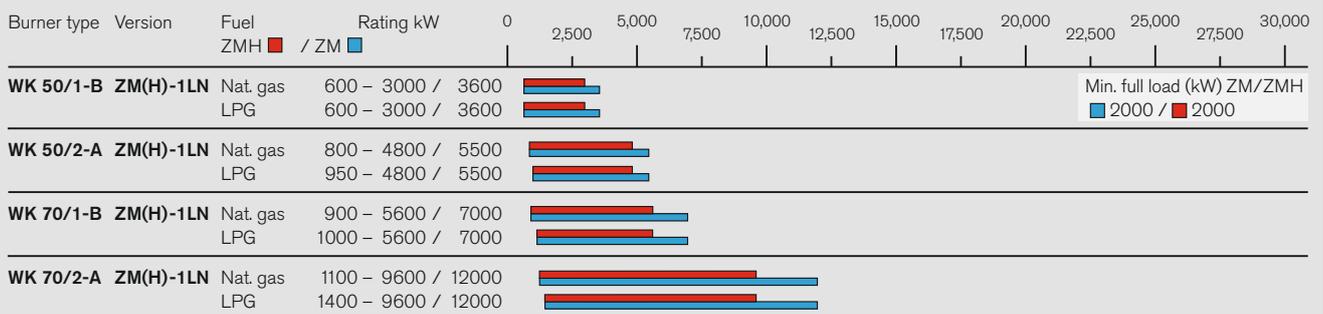
Version NR

WKG natural-gas and LPG burners



Version 1LN

WKG natural-gas and LPG burners

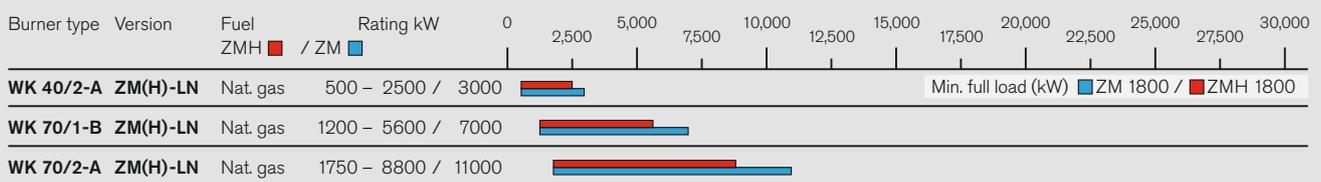


Burner-selection criterion:

The minimum full-load rating within a burner's capacity range corresponds to the maximum rating of the next smallest size of the same version burner.

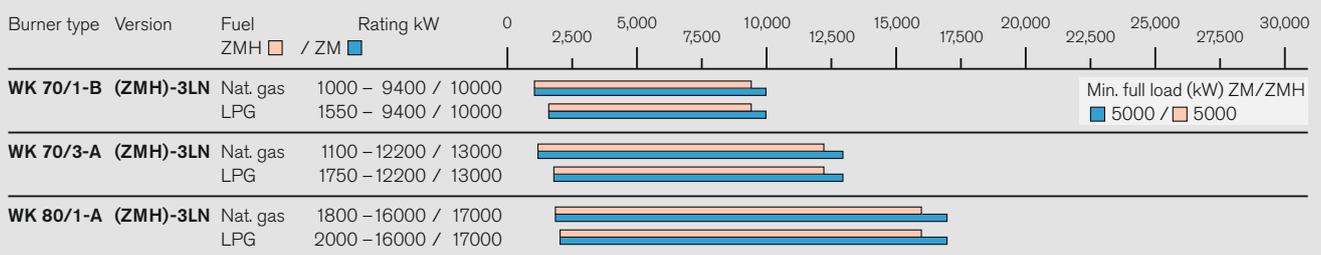
Version LN

WKG natural-gas burners



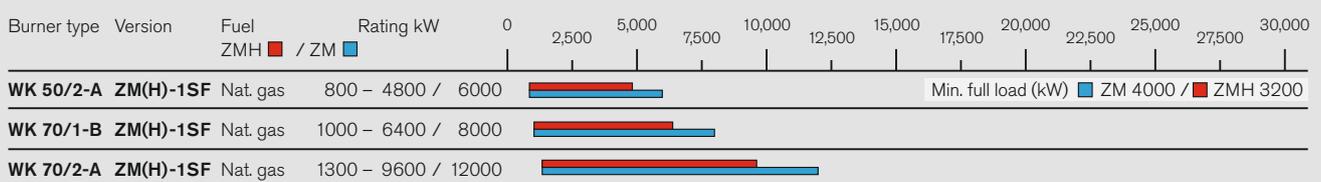
Version 3LN multiflam®

WKG natural-gas burners



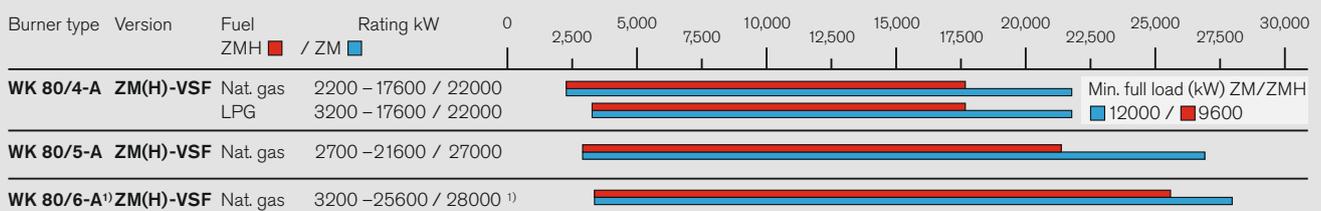
Version 1SF

WKG natural-gas and LPG burners



Version VSF

WKG natural-gas and LPG burners



- Version ZM: Combustion-air temperatures up to 40 °C
- Version ZMH: Combustion-air temperatures up to 100 °C
- Version ZMH: Combustion-air temperatures up to 250 °C

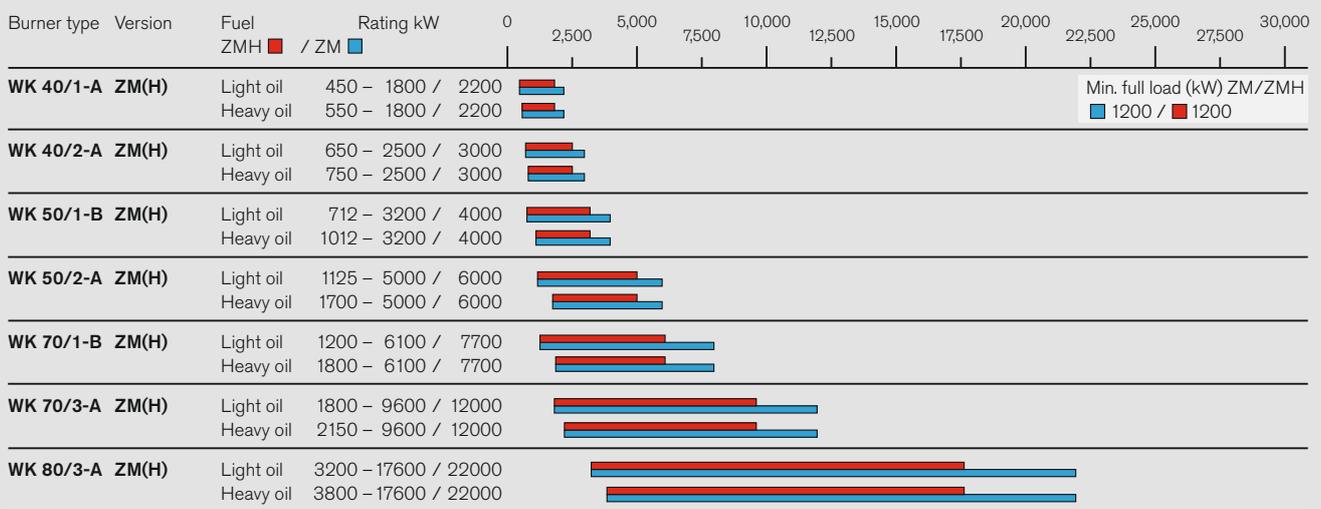
See the planning and installation handbook for fan selection and arrangement, gas valve trains, special equipment, technical data, and dimensions.

¹⁾ Ratings up to 32 MW on request (subject to approval)

Overview of capacities Oil burners

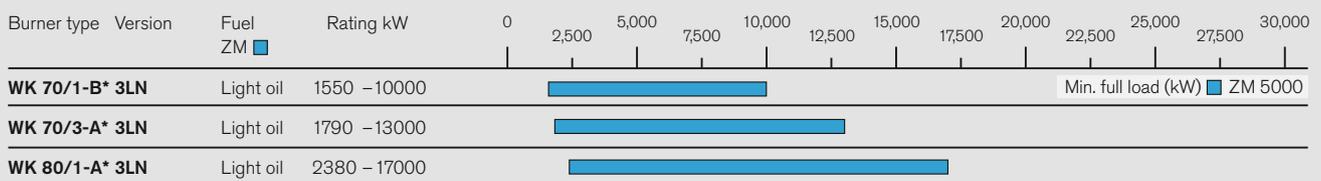
Version ZM

WKL and WKMS light and heavy-oil burners



Version 3LN multiflam®

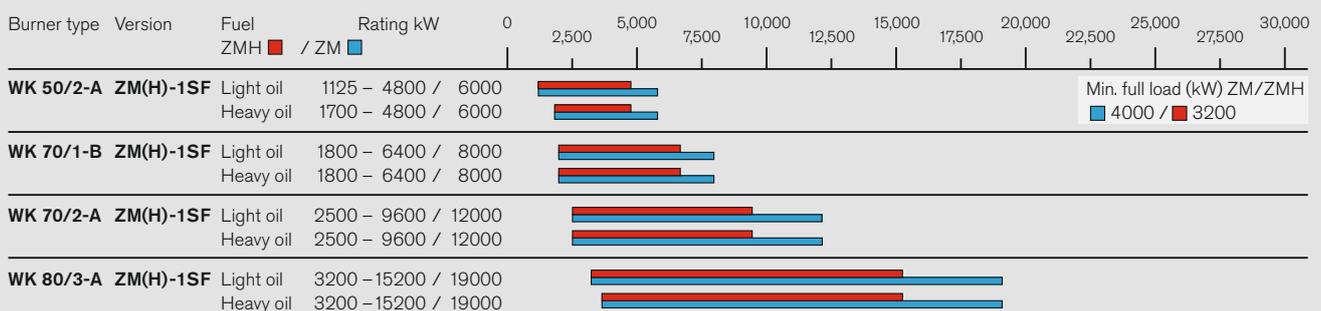
WKGL light-oil burners *



* 3LN-version WK 70 and WK 80 burners are not available as single-fuel oil burners. However, the WKGL dual-fuel burners are available in a special "oil only" execution without gas-side components. Refer to the price list for the appropriate price reduction.

Version 1SF

WKL and WKMS light and heavy-oil burners



Overview of capacities Dual-fuel burners

Version ZM

WKGL and WKGMS dual-fuel burners



Burner-selection criterion:

The minimum full-load rating within a burner's capacity range corresponds to the maximum rating of the next smallest size of the same version burner.

- Version ZM: Combustion air temperatures up to 240 °C
- Version ZMH: Combustion air temperatures up to 2250 °C

See the planning and installation handbook for fan selection and arrangement, gas valve trains, special equipment, technical data, and dimensions.

Overview of capacities

Dual-fuel burners

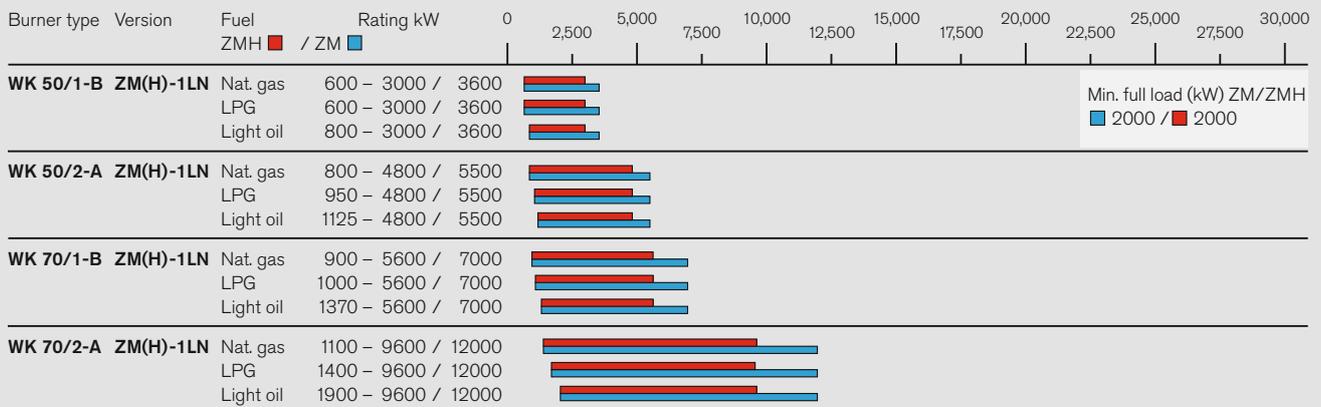
Version NR

WKGL and WKGMS dual-fuel burners



Version 1LN

WKGL dual-fuel burners

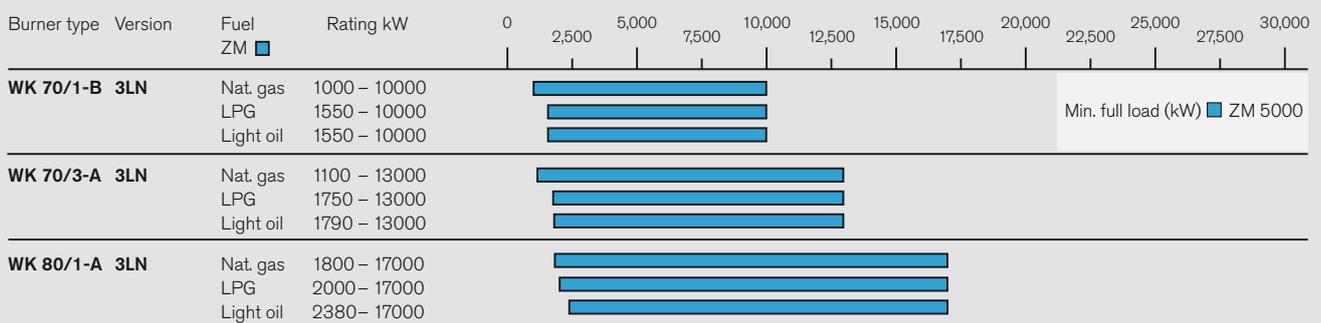


Burner-selection criterion:

The minimum full-load rating within a burner's capacity range corresponds to the maximum rating of the next smallest size of the same version burner.

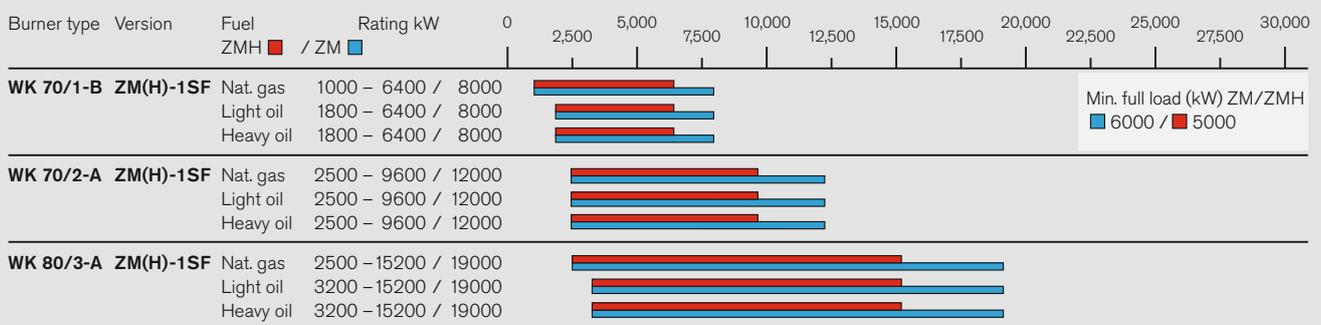
Version 3LN multiflam®

WKGL dual-fuel burners



Version 1SF

WKGL and WKGMS dual-fuel burners

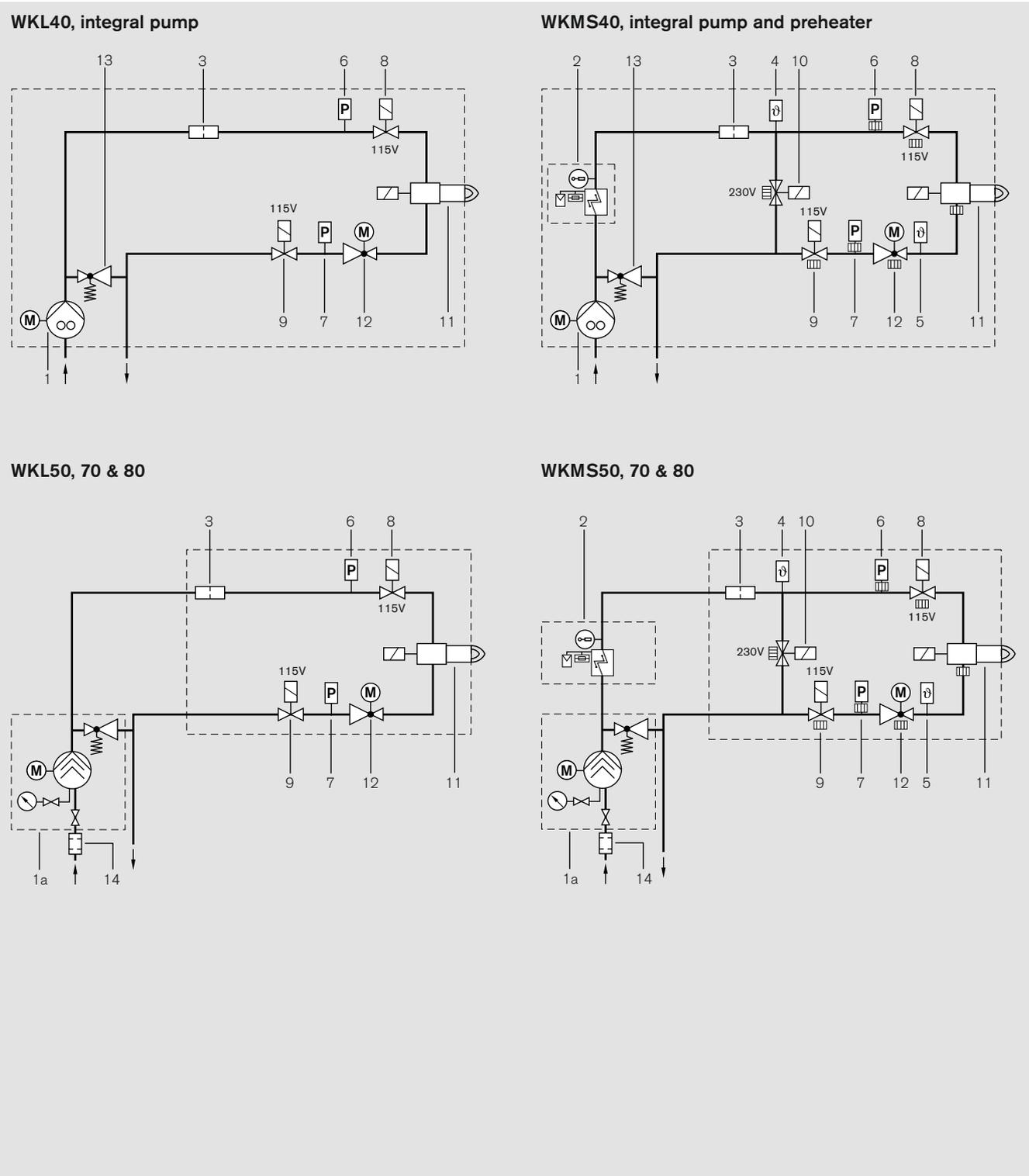


■ Version ZM: Combustion air temperatures up to 40 °C
■ Version ZMH: Combustion air temperatures up to 250 °C

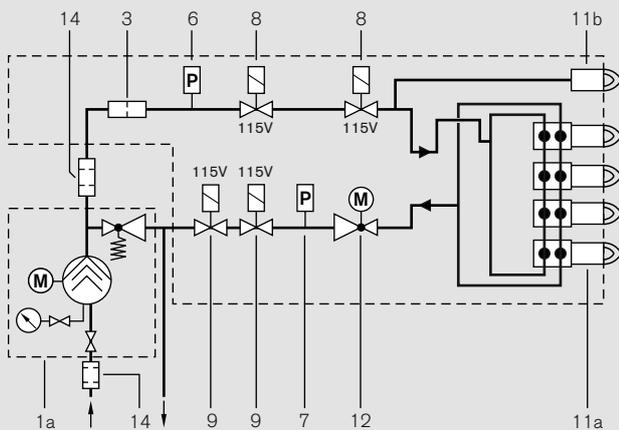
See the planning and installation handbook for fan selection and arrangement, gas valve trains, special equipment, technical data, and dimensions.

Fuel systems

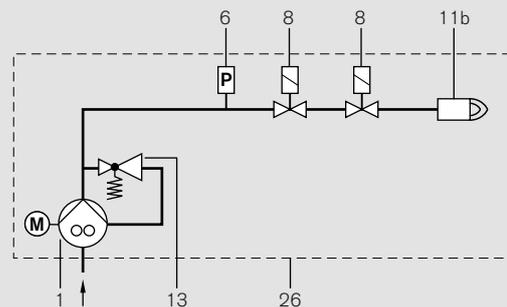
Oil burners



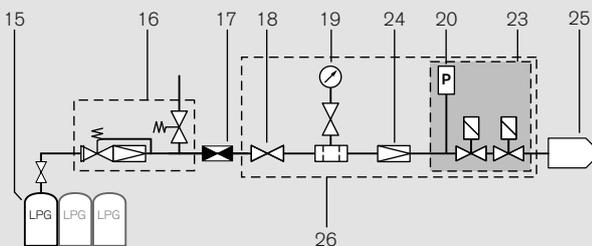
WKL multiflam®



Light-oil ignition burner, WKMS 80

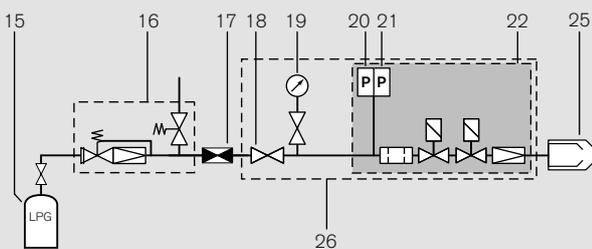


LPG ignition pilot, WKMS 40 to 70



Oil-firing burner with gas ignition

LPG ignition burner, WKMS 80



Oil-firing burner with gas ignition

- 1 Oil pump
- 1a External pump station with pressure maintenance
- 2 Oil preheater
- 3 Strainer
- 4 Temperature sensor in supply
- 5 Temperature sensor in return
- 6 Low-pressure switch
- 7 High-pressure switch
- 8 Solenoid valve in supply (fitted in the direction of flow)
- 9 Solenoid valve in return (fitted against the direction of flow)
- 10 Bypass solenoid valve (normally open)
- 11 Solenoid valve assembly
- 11a Nozzle head with secondary nozzles
- 11b Nozzle head with primary nozzle
- 12 Oil regulator
- 13 Pressure regulating valve
- 14 Filter
- 15 LPG bottle (supplied by others)
- 16 LPG pressure regulator (accessory)
- 17 Hose rupture protection (accessory)
- 18 Ball valve
- 19 Pressure gauge with push-button valve
- 20 Low-gas-pressure switch
- 21 High-gas-pressure switch
- 22 W-MF multi-function assembly
- 23 DMV gas solenoid valve assembly
- 24 FRS gas pressure regulator
- 25 Burner
- 26 Sub-assembly fitted to burner at works

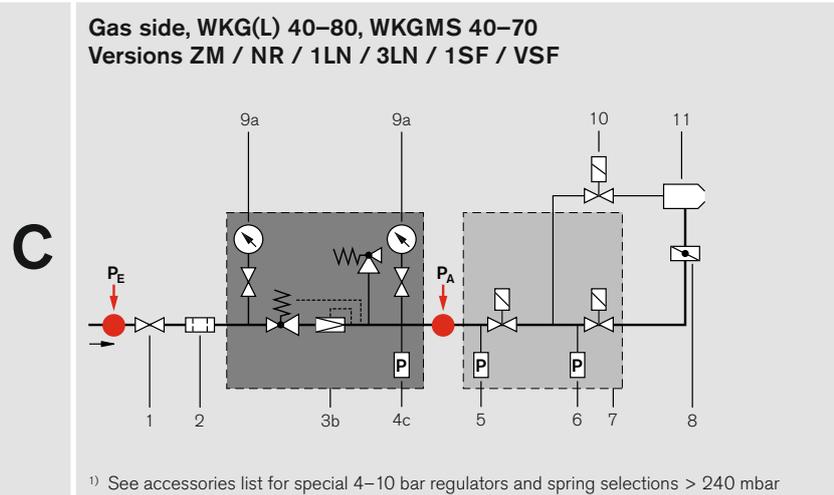
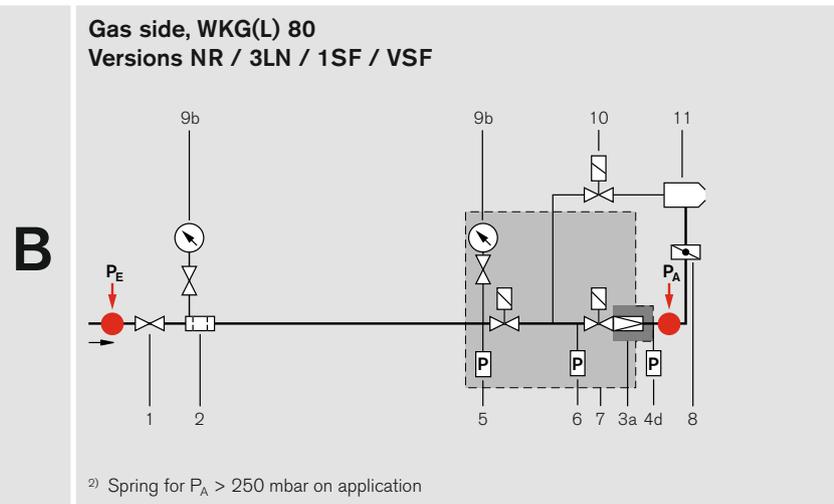
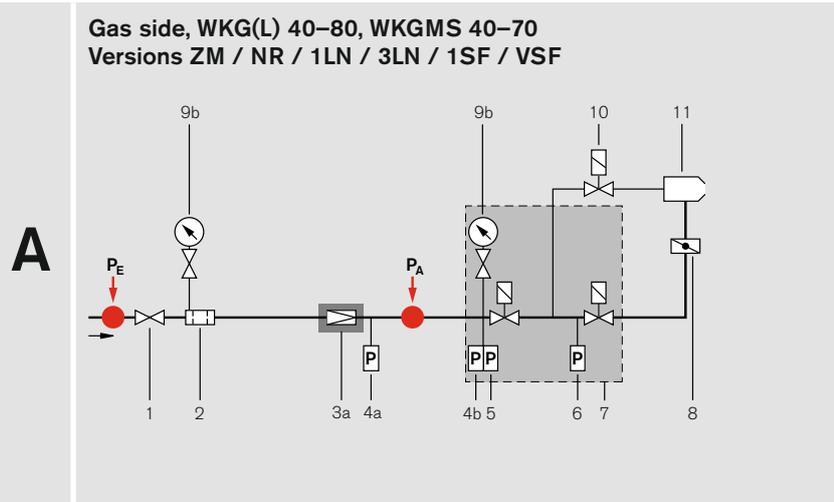
Fuel systems

Gas and dual-fuel burners

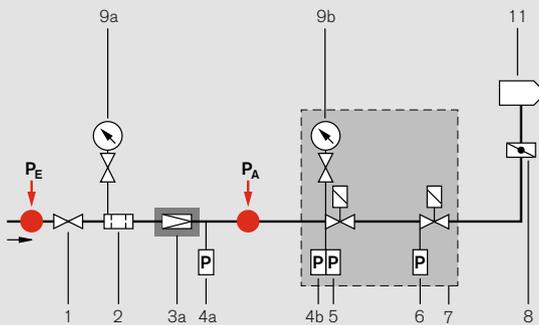
| WK burner size | | | | Nominal valve train size | Gas valve assembly type | A | B | C |
|----------------|----|----|----|--------------------------|-------------------------|---------------------------------------|--|---|
| 40 | 50 | 70 | 80 | | | Low-pressure supply with FRS governor | Low-pressure supply with SKP regulator on VGD assembly | High-pressure supply with High-pressure regulator |
| | | | | | | $P_E \leq 300$ mbar | $P_E \leq 300$ mbar | $P_E 300-4000$ mbar ¹⁾ |
| | | | | | | $P_A \leq 200$ mbar | $P_A \leq 250$ mbar ²⁾ | $P_A \leq 210 / 240$ mbar ¹⁾ |
| | | | | 1 1/2" | W-MF 512 | ● | | ● |
| | | | | 2" | DMV 525/12 | ● | | ● |
| | | | | DN 65 | DMV 5065/12 | ● | | ● |
| | | | | DN 80 | DMV 5080/12 | ● | | ● |
| | | | | DN 100 | DMV 5100/12 | ● | | ● |
| | | | | DN 125 | VDG 40.125 | ● | ● | ● |
| | | | | DN 150 | VDG 40.150 | ● | ● | ● |

P_E = Pressure before ball valve P_A = Regulated pressure

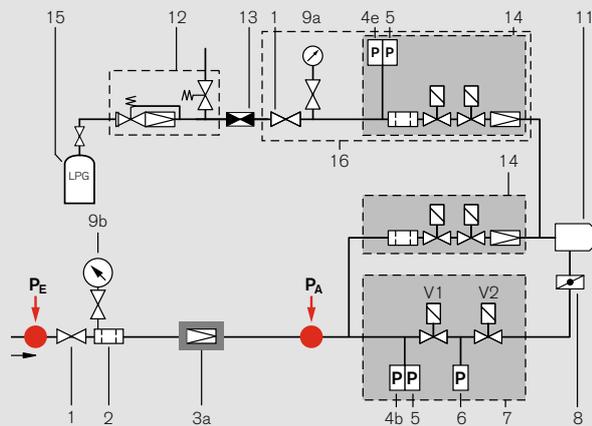
● Standard
 ● Optional SKP25 regulator for burner type WK 80, including stabilisation section (suitable for horizontal burner installations only)



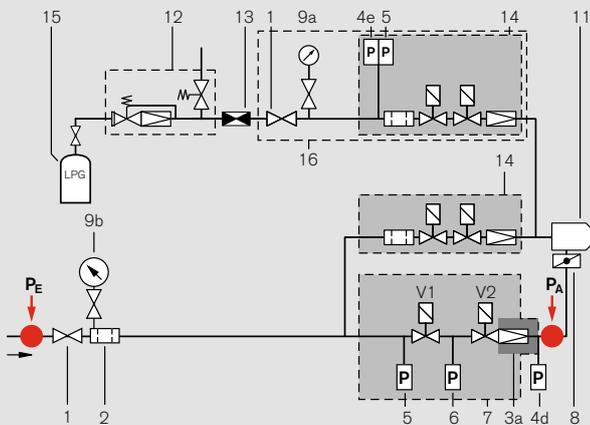
Gas side, WKG 40 – 70
version LN



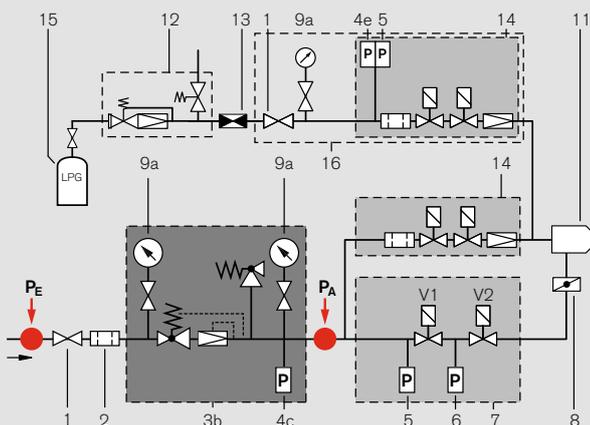
Gas side, WKGMS 80³⁾ versions ZM / NR / 1SF



Gas side, WKGMS 80³⁾ versions ZM / NR / 1SF



Gas side, WKGMS 80³⁾ versions ZM / NR / 1SF



- 1 Ball valve
- 2 Gas filter
- 3a Low-pressure regulator
- 3b High-pressure regulator incl. SAV / SBV
- 4a High-gas-pressure switch on screwed valve trains (mounted immediately after the low-pressure regulator)
- 4b High-gas-pressure switch on flanged valve trains (mounted on the inlet of the DMV assembly)
- 4c High-gas-pressure switch on screwed and flanged valve trains (mounted on the outlet-side of the high-pressure regulator assembly)
- 4d High-gas-pressure switch on flanged valve trains (mounted on the outlet of the VGD assembly)
- 4e High-gas-pressure switch (mounted on the LPG ignition-burner assembly)
- 5 Low-gas-pressure switch
- 6 Valve-proving pressure switch
- 7 Double shut-off valve assembly
- 8 Gas butterfly valve
- 9a Pressure gauge with push-button valve (standard)
- 9b Pressure gauge with push-button valve (accessory)
- 10 Pilot-line solenoid valve
- 11 Burner
- 12 LPG pressure regulator (accessory)
- 13 Hose rupture protection (accessory)
- 14 W-MF multi-function assembly
- 15 LPG tank (by others)
- 16 Sub-assembly fitted to burner at works

Layout of the valve train (vertical burner installation)

The "offset gas butterfly and solenoid valves" option is strongly recommended because of the increased heat radiation due to the vertical boiler design and the high temperatures of media such as thermal fluid.

Note: This variant is not available with the SKP25 pressure regulator due to the need for a stabilisation section.

Compensator

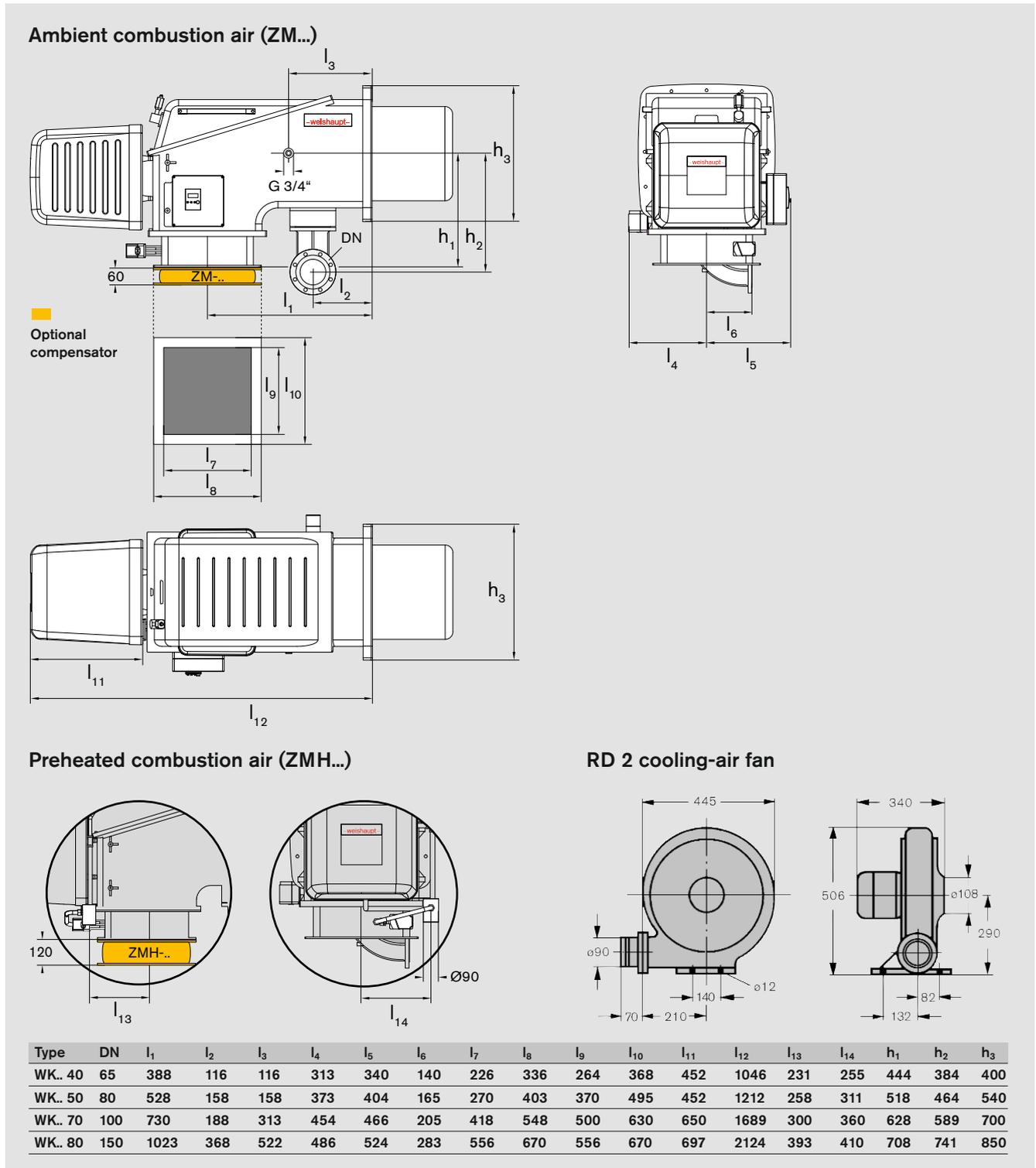
To enable a tension free mounting of the valve train, the fitting of a compensator is recommended.

Optional thermal shut off (when required by local regulations)

Integrated into the ball valve on screwed valve trains. A separate component with HTB seals fitted before the ball valve on flanged valve trains.

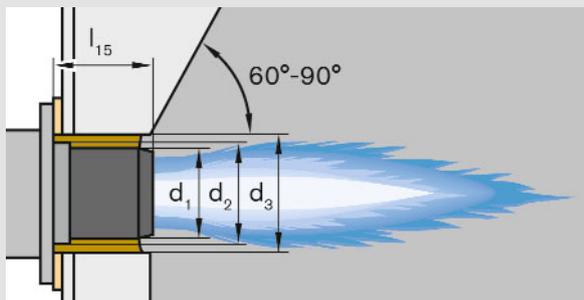
³⁾ LPG or natural gas pilot line as required (see page 16 for options).

Key dimensions at a glance



Weishaupt reserve the right to make changes in light of future developments. Additional burner dimensions and oil-side connection details are available on request.

Heat-exchanger mounting



■ The space between the combustion head and the refractory should be filled with a resilient, non-solid insulating material, such as Cerafelt.

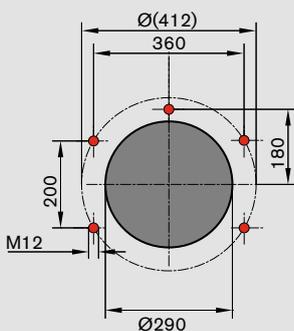
Maintenance-friendly combustion head:

On all burner versions, the standard-length combustion head can be inserted and withdrawn through the service opening in the burner housing.

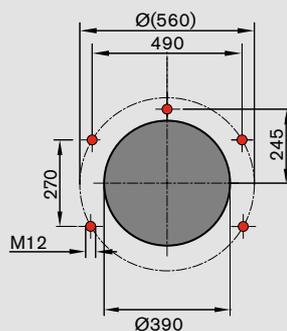
| Type | Version | d ₁ | d ₂ | d ₃ | l ₁₅ ¹⁾ |
|--------------|--------------------|----------------|----------------|----------------|-------------------------------|
| WK.. 40/1 | ZM(H) | 250 | 280 | 290 | 260 |
| WK.. 40/2 | ZM(H) | 261 | 280 | 290 | 260 |
| WK.. 40/2 | ZM(H)-LN | 296 | 280 | 290 | 424 |
| WK.. 50/1 | ZM(H)-NR/ZM(H)-1LN | 290 | 380 | 390 | 307 |
| WK.. 50/2 | ZM(H)-NR | 350 | 380 | 390 | 337 |
| WKG(L) 50/2 | ZM(H)-1LN | 350 | 380 | 390 | 452 |
| WKL(MS) 50/1 | ZM(H) | 290 | 380 | 390 | 337 |
| WKL(MS) 50/2 | ZM(H) | 350 | 380 | 390 | 392 |
| WK.. 50/2 | ZM(H)-1SF | 350 | 380 | 390 | 337 |
| WK.. 70/1 | ZM(H)-NR | 400 | 518 | 530 | 347 |
| WK.. 70/2 | ZM(H)-NR | 480 | 518 | 530 | 362 |
| WK.. 70/3 | ZM(H)-NR | 480 | 518 | 530 | 462 |
| WKG 70/1 | ZM(H)-LN | 406 | 518 | 530 | 457 |
| WKG(L) 70/1 | ZM(H)-1LN | 406 | 518 | 530 | 439 |
| WKG(L) 70/2 | ZM(H)-LN/ZM(H)-1LN | 480 | 518 | 530 | 477 |
| WKG(L) 70/1 | (ZMH)-3LN | 444 | 518 | 530 | 475 |
| WKG(L) 70/2 | (ZMH)-3LN | 480 | 518 | 530 | 475 |
| WK.. 70/1 | ZM(H)-1SF | 400 | 518 | 530 | 347 |
| WK.. 70/2 | ZM(H)-1SF | 480 | 518 | 530 | 362 |
| WKL(MS) 70/1 | ZM(H) | 400 | 518 | 530 | 417 |
| WKL(MS) 70/2 | ZM(H) | 480 | 518 | 530 | 422 |
| WK.. 80/3 | ZM(H)-NR | 590 | 590 | 640 | 500 |
| WKG(L) 80/1 | (ZMH)-3LN | 540 | 558 | 640 | 510 |
| WK.. 80/3 | ZM(H)-1SF | 600 | 600 | 640 | 480 |
| WKG 80/4-5 | ZM(H)-VSF | 590 | 590 | 640 | 500 |
| WKG 80/6 | ZM(H)-VSF | 618 | 618 | 650 | 500 |

¹⁾ Combustion head extension on application.

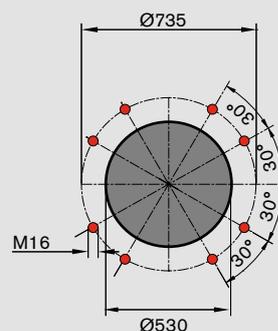
Mounting-plate drilling dimensions



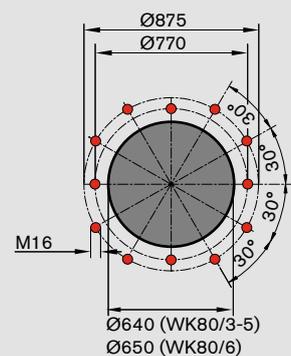
WK 40



WK 50



WK 70

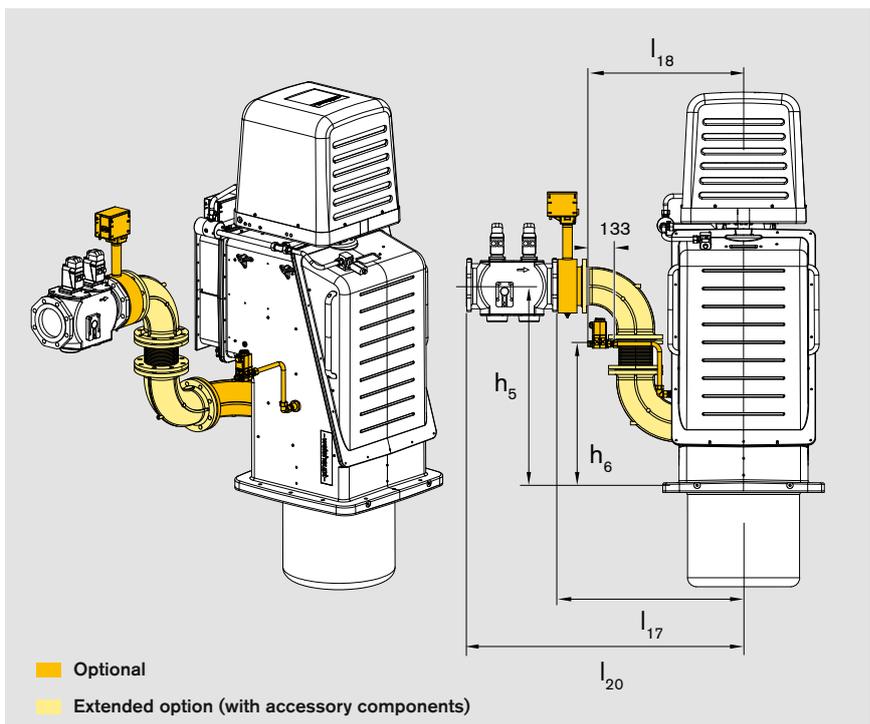
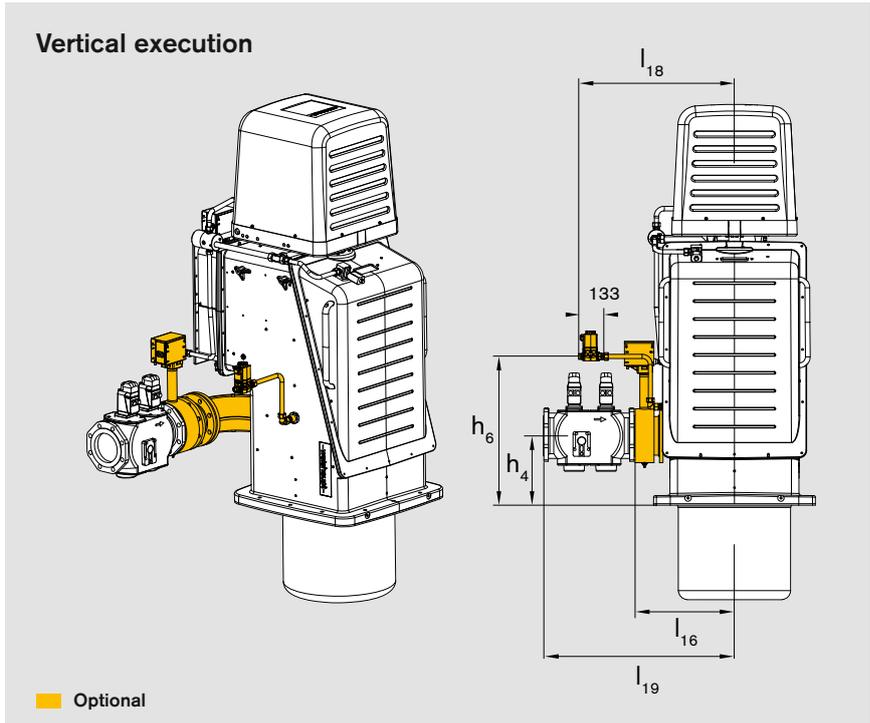


WK 80

Overview of options, installation positions, and weights

Vertically firing Weishaupt burners (based on ZMH models) have been especially designed for use on vertical plant, such as steam boilers, thermal fluid heaters, and process applications.

Reliable operation: Safety-critical components such as the gas butterfly valve, stepping motor, gas shut-off valves, and gas pressure switches, are securely located away from high-temperature zones to ensure their reliable operation. The offset position of the gas pilot valve protects it from high levels of radiant heat from the heat exchanger.



Vertical-execution dimensions

| | Burner flange to butterfly valve outlet DN | Gas valve assembly DN | Vertical-execution dimensions | | | | | | | |
|---------|--|-----------------------|-------------------------------|----------|----------|--------------------|--------------------|-------|-------|-------|
| | | | $l_{16}^{1)}$ | l_{17} | l_{18} | $l_{19}^{1)}$ | l_{20} | h_4 | h_5 | h_6 |
| WK.. 40 | 65 | 1 1/2" | 492 | 686 | 641 | 841 ²⁾ | 1035 ²⁾ | 116 | 502 | 382 |
| | | 2" | 492 | 686 | 641 | 881 ²⁾ | 1075 ²⁾ | 116 | 502 | 382 |
| | | 65 | 492 | 686 | 641 | 784 | 978 | 116 | 502 | 382 |
| | | 80 | 492 | 686 | 641 | 991 ²⁾ | 1185 ²⁾ | 124 | 510 | 382 |
| | | 100 | - | 686 | 641 | - | 1237 ²⁾ | - | 521 | 382 |
| | | 125 | - | 686 | 641 | - | 1317 ²⁾ | - | 533 | 382 |
| WK.. 50 | 80 | 2" | 469 | 801 | 697 | 858 ²⁾ | 1190 ²⁾ | 158 | 594 | 424 |
| | | 65 | 469 | 801 | 697 | 948 ²⁾ | 1280 ²⁾ | 165 | 601 | 424 |
| | | 80 | 469 | 801 | 697 | 781 | 1113 | 158 | 594 | 424 |
| | | 100 | 469 | 801 | 697 | 1030 ²⁾ | 1362 ²⁾ | 169 | 605 | 424 |
| | | 125 | 469 | 801 | 697 | 1105 ²⁾ | 1437 ²⁾ | 181 | 617 | 424 |
| WK.. 70 | 100 | 65 | 589 | 1001 | 760 | 1080 ²⁾ | 1492 ²⁾ | 207 | 723 | 579 |
| | | 80 | 589 | 1001 | 760 | 1110 ²⁾ | 1522 ²⁾ | 199 | 715 | 579 |
| | | 100 | 589 | 1001 | 760 | 941 | 1353 | 188 | 704 | 579 |
| | | 125 | 589 | 1001 | 760 | 1227 ²⁾ | 1639 ²⁾ | 201 | 717 | 579 |
| | | 150 | 589 | 1001 | 760 | 1320 ²⁾ | 1732 ²⁾ | 215 | 731 | 579 |
| WK.. 80 | 150 | 100 | 522 | 976 | 815 | 1123 ²⁾ | 1577 ²⁾ | 395 | 1121 | 788 |
| | | 125 | 522 | 976 | 815 | 1176 ²⁾ | 1630 ²⁾ | 382 | 1108 | 788 |
| | | 150 | 522 | 976 | 815 | 1004 | 1458 | 368 | 1094 | 788 |

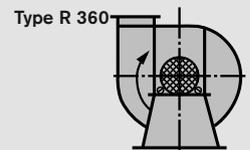
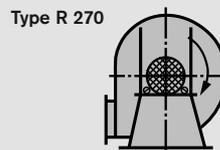
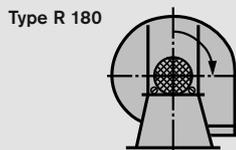
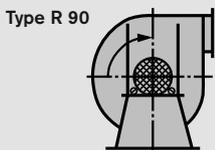
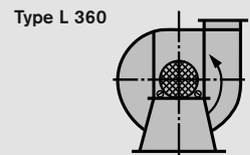
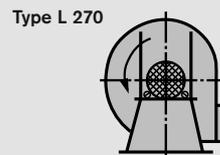
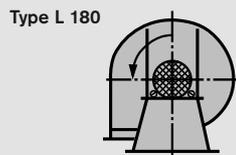
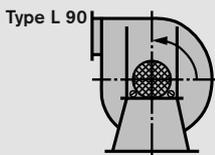
¹⁾ Including horizontal intermediate flange (not shown) ²⁾ Including concentric reducer (not shown)

Burner weights (kg)

| | WKG | WKL | WKMS | WKGL | WKGMS |
|---------|-----|---------------------------------------|---|---------------------------------------|---|
| WK.. 40 | 120 | 140 ³⁾ / 125 ⁵⁾ | 165 ^{3,4)} / 130 ^{5,6)} | 150 ³⁾ / 135 ⁵⁾ | 170 ^{3,4)} / 140 ^{5,6)} |
| WK.. 50 | 165 | 160 | 165 | 165 | 170 |
| WK.. 70 | 290 | 290 | 300 | 310 | 320 |
| WK.. 80 | 440 | 420 | 430 | 460 | 470 |

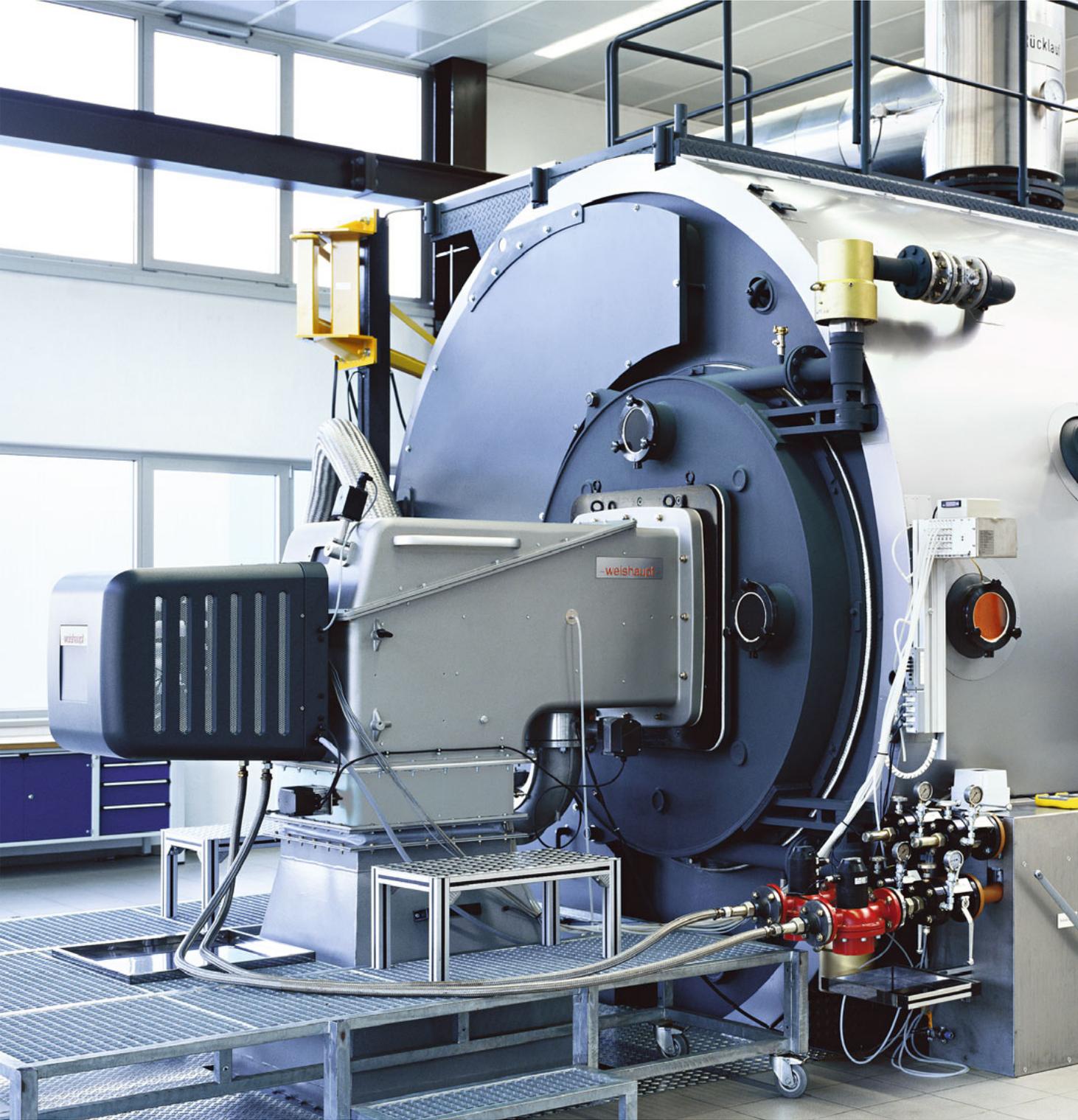
³⁾ Burner-mounted oil pump ⁴⁾ Burner-mounted oil preheater ⁵⁾ Separate oil pump ⁶⁾ Separate oil preheater

Combustion-air fan: housing arrangement



Viewed from the drive-side of the fan.

Combustion test chamber at the Schwendi Research & Development Institute





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