



MODULATING DUAL FUEL BURNERS

► **MODUBLOC MB LSE SERIES** ► **MB 4 LSE** 1070/2325 ÷ 4070 kW

► **MB 6 LSE** 1185/3630 ÷ 6000 kW

► **MB 8 LSE** 1175/3300 ÷ 8755 kW

► **MB 10 LSE** 1185/4000 ÷ 9580 kW



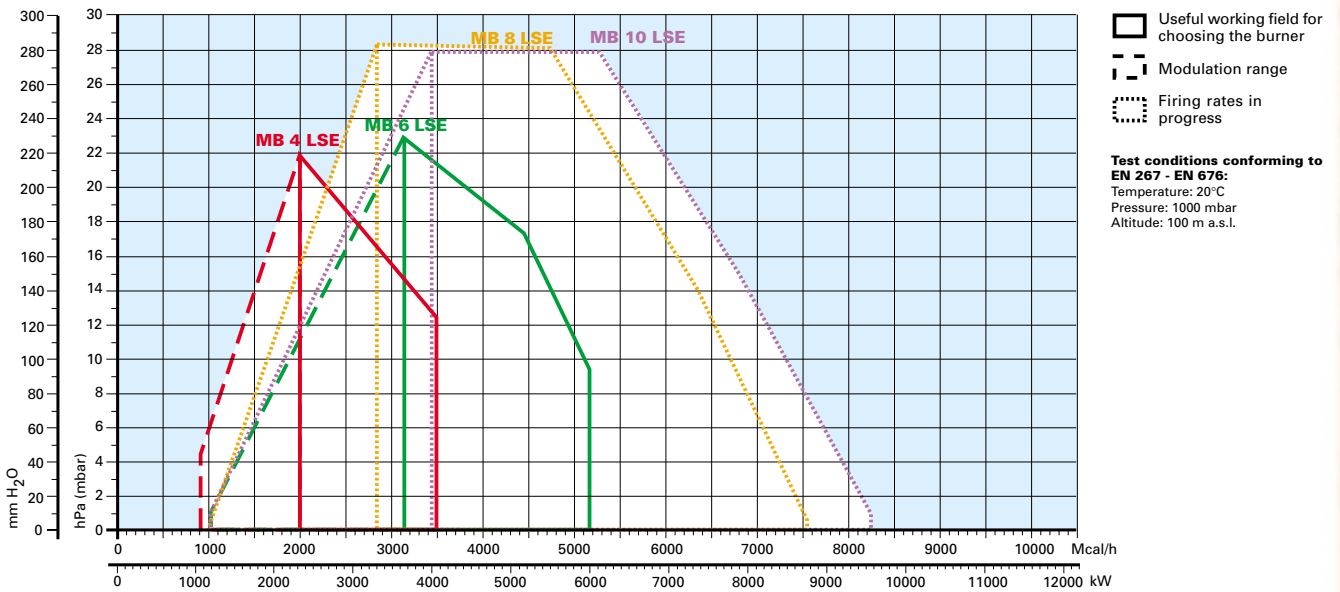
The MODUBLOC MB LSE series of burners are characterised by a monoblock structure that means all necessary components can be combined in a single unit, making installation easier and faster. The series covers a firing range from 1070 to 9580 kW, and they have been designed for use in hot water boilers or industrial steam generators. Adjustment is modulating, through an innovative electronic module, which gives control of the air/fuel ratio and PID control of the generator temperature or pressure.

The mechanisms of regulation allow to catch up a high modulation ratio on all firing rates range.

The burner can, therefore, supply with precision the demanded power, guaranteeing a high efficiency system level and the stability setting, obtaining fuel consumption and operating costs reduction.

An exclusive design, with fan unit fitted on line with the combustion head, guarantees low sound emissions, reduced dimensions, easy use and maintenance.

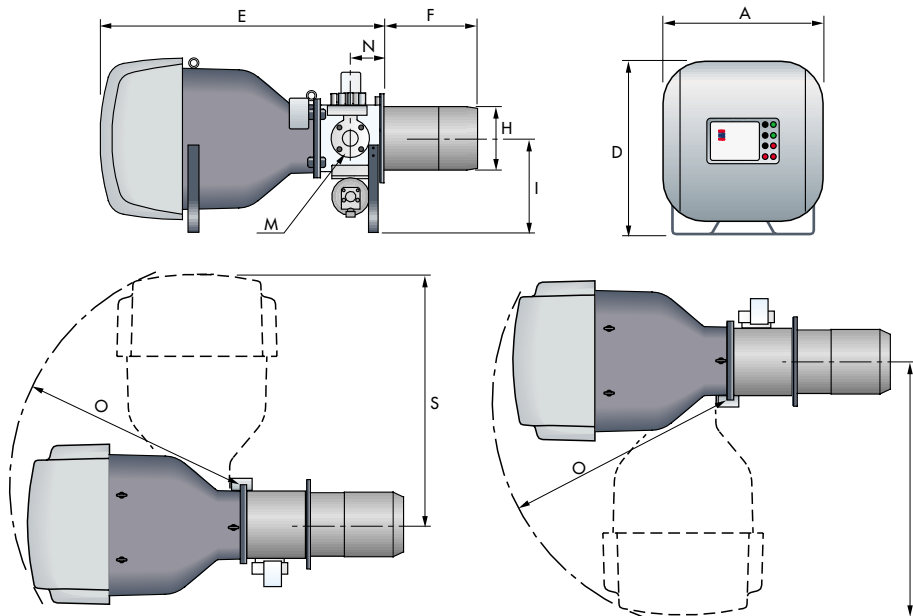
FIRING RATES



MODUBLOC MB LSE series - OVERALL DIMENSIONS (mm)

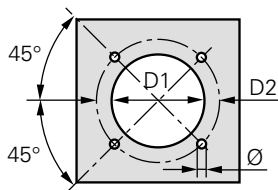
BURNER

MB 4-6-8-10 LSE



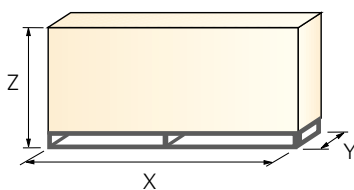
| Model | A | D | E | F | H | I | M | N | O | S |
|-------------|------|------|------|-----|-----|-----|-------|-----|------|------|
| ▶ MB 4 LSE | 840 | 910 | 1470 | 511 | 336 | 490 | DN 80 | 183 | 1205 | 1330 |
| ▶ MB 6 LSE | 840 | 910 | 1470 | 511 | 336 | 490 | DN 80 | 183 | 1205 | 1330 |
| ▶ MB 8 LSE | 1007 | 1079 | 1900 | 530 | 413 | 575 | DN 80 | 208 | 1570 | 1740 |
| ▶ MB 10 LSE | 1007 | 1079 | 1900 | 530 | 413 | 575 | DN 80 | 208 | 1570 | 1740 |

BURNER - BOILER MOUNTING FLANGE



| Model | D1 | D2 | Ø |
|-------------|-----|-----|-----|
| ▶ MB 4 LSE | 350 | 496 | M20 |
| ▶ MB 6 LSE | 350 | 496 | M20 |
| ▶ MB 8 LSE | 418 | 608 | M20 |
| ▶ MB 10 LSE | 418 | 608 | M20 |

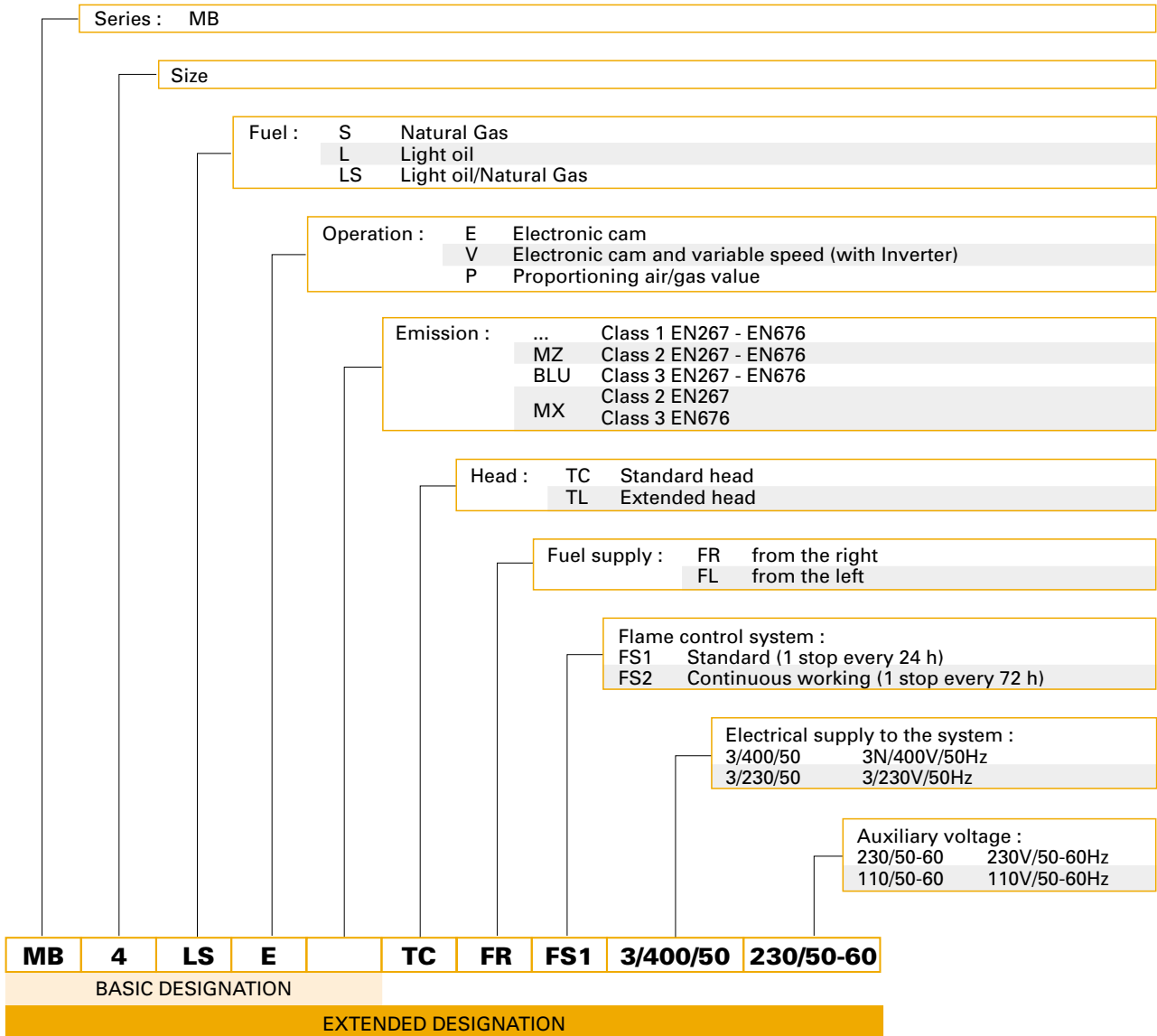
PACKAGING



| Model | X | Y | Z | kg |
|-------------|------|------|------|-----|
| ▶ MB 4 LSE | 2120 | 1005 | 1175 | 300 |
| ▶ MB 6 LSE | 2120 | 1005 | 1175 | 300 |
| ▶ MB 8 LSE | 2590 | 1170 | 1350 | 450 |
| ▶ MB 10 LSE | 2590 | 1170 | 1350 | 450 |

MODUBLOC MB LSE series - SPECIFICATION

DESIGNATION OF SERIES



► MODUBLOC MB LSE series - STATE OF SUPPLY

Monoblock forced draught dual-fuel burner modulating operation, made up of:

- Fan with reverse curve blades
- Air suction circuit lined with sound-proofing material
- Air damper for air setting controlled by a high precision servomotor
- Air pressure switch
- Fan starting motor
- Pump starting motor
- Mobile combustion head, that can be set on the basis of required output
- Gears pump for high pressure fuel supply
- Valve unit
- Automatic setting for light oil and gas delivery, controlled by a high precision servomotor
- Safety oil pressure switch
- Pressure gauge for delivery pressure
- Pressure gauge for return pressure
- Minimum oil pressure switch
- Maximum gas pressure switch
- Module for air/fuel setting and output modulation
- Flame control panel
- Photocell for flame detection
- Star/triangle starter for the fan motor
- Main electrical supply terminal board
- Pump motor starter
- Burner on/off switch
- Auxiliary voltage led signal
- Manual or automatic output increase/decrease switch
- Burner working led signal
- Contacts motor and thermal relay with release button
- Motor internal thermal protection
- Motor failure led signal
- Burner failure led signal and lighted release button
- Led signal for correct rotation direction of fan and pump motor
- Emergency button
- Coded connection plugs-sockets
- Burner opening hinge
- Lifting rings
- IP 40 protection level.

Standard equipment:

- 2 flexible pipes
- 2 gaskets for the flexible pipes
- 2 nipples for connection to the pump
- 1 flange gasket
- 8 screws for fixing the flange
- 4 screws for fixing the burner flange to the boiler
- 1 thermal screen
- Instruction handbook for installation, use and maintenance
- Spare parts catalogue.

MB LSE series - AVAILABLE BURNER MODELS

| Code | Model | Heat output | | | Total electrical power (kW) | Certification | Note | Price |
|---------|--------------------------------------|----------------|-------------|----------------------------------|-----------------------------|---------------|------|-------|
| | | (kW) | (kg/h) | Natural gas (Nm ³ /h) | | | | |
| 3486000 | MB4LSE TC FR FS1 3/400/50 230/50-60 | 1070/2325-4070 | 90/196-343 | 107/233-407 | 16 | (1) - (2) | | |
| 3486001 | MB4LSE TC FR FS1 3/230/50 230/50-60 | 1070/2325-4070 | 90/196-343 | 107/233-407 | 16 | (1) - (2) | | |
| 3486005 | MB4LSE TC FL FS1 3/400/50 230/50-60 | 1070/2325-4070 | 90/196-343 | 107/233-407 | 16 | (1) - (2) | | |
| 3486006 | MB4LSE TC FL FS1 3/230/50 230/50-60 | 1070/2325-4070 | 90/196-343 | 107/233-407 | 16 | (1) - (2) | | |
| 3486100 | MB6LSE TC FR FS1 3/400/50 230/50-60 | 1185/3630-6000 | 100/306-506 | 119/363-600 | 18 | (1) - (2) | | |
| 3486101 | MB6LSE TC FR FS1 3/230/50 230/50-60 | 1185/3630-6000 | 100/306-506 | 119/363-600 | 18 | (1) - (2) | | |
| 3486105 | MB6LSE TC FL FS1 3/400/50 230/50-60 | 1185/3630-6000 | 100/306-506 | 119/363-600 | 18 | (1) - (2) | | |
| 3486106 | MB6LSE TC FL FS1 3/230/50 230/50-60 | 1185/3630-6000 | 100/306-506 | 119/363-600 | 18 | (1) - (2) | | |
| 3486200 | MB8LSE TC FR FS1 3/400/50 230/50-60 | 1175/3300-8755 | 99/278-738 | 118/330-876 | 21,5 | (3) | | |
| 3486210 | MB8LSE TC FR FS2 3/400/50 230/50-60 | 1175/3300-8755 | 99/278-738 | 118/330-876 | 21,5 | (3) | | |
| 3486205 | MB8LSE TC FL FS1 3/400/50 230/50-60 | 1175/3300-8755 | 99/278-738 | 118/330-876 | 21,5 | (3) | | |
| 3486215 | MB8LSE TC FL FS2 3/400/50 230/50-60 | 1175/3300-8755 | 99/278-738 | 118/330-876 | 21,5 | (3) | | |
| 3486300 | MB10LSE TC FR FS1 3/400/50 230/50-60 | 1185/4000-9580 | 100/337-808 | 119/400-958 | 25,5 | (3) | | |
| 3486310 | MB10LSE TC FR FS2 3/400/50 230/50-60 | 1185/4000-9580 | 100/337-808 | 119/400-958 | 25,5 | (3) | | |
| 3486305 | MB10LSE TC FL FS1 3/400/50 230/50-60 | 1185/4000-9580 | 100/337-808 | 119/400-958 | 25,5 | (3) | | |
| 3486315 | MB10LSE TC FL FS2 3/400/50 230/50-60 | 1185/4000-9580 | 100/337-808 | 119/400-958 | 25,5 | (3) | | |

Light oil net calorific value: 11,8 kWh/kg - 10.200 kcal/kg - Viscosity at 20°C: 4-6 mm²/s (cSt).

Natural gas net calorific value: 10 kWh/Nm³ - 8.600 kcal/Nm³ - Density: 0,71 kg/Nm³.

The burners of MB LSE series are in according to 73/23 - 89/336 - 98/37 - 90/396 EEC Directive and EN 267 - 676 Norm.

(1) CE 0085AU2360.

(2) DIN 5G033/99 M.

(3) In progress (CE ... - DIN ...).

MB LSE series - AVAILABLE GAS TRAIN MODELS

| Gas train code* | Gas train model | Natural gas | | LPG | | Note | Gas train price |
|-----------------|-----------------|---------------|------------------|---------------|------------------|------|-----------------|
| | | Burner (type) | Adapter** (code) | Burner (type) | Adapter** (code) | | |
| 3970161 | CBF 65/1 CT | MB 4 LSE | - | MB 4 LSE | - | (1) | |
| | | MB 6 LSE | 3010221 | MB 6 LSE | 3010221 | | |
| | | MB 8 LSE | 3010225 | MB 8 LSE | 3010225 | | |
| | | MB 10 LSE | - | MB 10 LSE | - | | |
| 3970162 | CBF 80/1 CT | MB 4 LSE | - | MB 4 LSE | - | (1) | |
| | | MB 6 LSE | 3010222 | MB 6 LSE | 3010222 | | |
| | | MB 8 LSE | 3010226 | MB 8 LSE | 3010226 | | |
| | | MB 10 LSE | - | MB 10 LSE | - | | |
| 3970163 | CBF 100/1 CT | MB 4 LSE | - | MB 4 LSE | - | (1) | |
| | | MB 6 LSE | 3010223 | MB 6 LSE | 3010223 | | |
| | | MB 8 LSE | 3010227 | MB 8 LSE | 3010227 | | |
| | | MB 10 LSE | - | MB 10 LSE | - | | |
| 3970196 | CBF 125/1 CT | MB 4 LSE | - | MB 4 LSE | - | (1) | |
| | | MB 6 LSE | 3010224 | MB 6 LSE | 3010224 | | |
| | | MB 8 LSE | 3010228 | MB 8 LSE | 3010228 | | |
| | | MB 10 LSE | - | MB 10 LSE | - | | |

* gas train are 230V/50Hz - 220V/60Hz electrical supply

** the adapter price is available in the "Gas train accessories" section

(1) Seal control incorporated

The following table shows the frequently matching between MB LSE burners and the gas train, referred to different inlet gas pressure.

| Burner | Reference combustion chamber pressure (mbar) | Natural gas G20 (20 mbar) | | Natural gas G20 (300 mbar) | | LPG (35 mbar) | | LPG (150 mbar) | |
|-----------|--|---------------------------|-----------------------|----------------------------|-----------------------|---------------|-----------------------|----------------|-----------------------|
| | | Gas train | Reference output (kW) | Gas train | Reference output (kW) | Gas train | Reference output (kW) | Gas train | Reference output (kW) |
| MB 4 LSE | 16 | - | - | CBF 65/1 CT | 3500 | - | - | CBF 65/1 | 3500 |
| MB 6 LSE | 17 | - | - | CBF 65/1 CT | 5200 | - | - | CBF 80/1 | 5200 |
| MB 8 LSE | 15 | - | - | CBF 80/1 CT | 6800 | - | - | CBF 80/1 | 6800 |
| MB 10 LSE | 9 | - | - | CBF 100/1 CT | 8700 | - | - | CBF 100/1 | 8700 |

MODUBLOC MB LSE series - ACCESSORIES

DTI module (Data Transfer Interface)



| Burner | Module code | Price |
|-----------------------|-------------|-------|
| MB 4 - 6 - 8 - 10 LSE | 3010234 | |

This electronic module can transfer multiple signals from different local modules to a BMS supervisor software system (Building Management System).

I/O digital module



| Burner | Module code | Price |
|-----------------------|-------------|-------|
| MB 4 - 6 - 8 - 10 LSE | 3010233 | |

Digital modules I/O transfer in-coming and out-going information from the system in general to a remote supervisor system.

I/O analogic module



| Burner | Module code | Price |
|-----------------------|-------------|-------|
| MB 4 - 6 - 8 - 10 LSE | 3010232 | |

I/O Analog modules transfer in-coming and out-going information to a remote supervisor system.

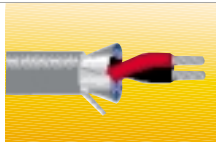
EGA module (Exhaust Gas Analyser)



| Burner | Analysed gas | Module code | Price |
|-----------------------|--|-------------|-------|
| MB 4 - 6 - 8 - 10 LSE | CO, CO ₂ , O ₂ | 3010235 | |
| MB 4 - 6 - 8 - 10 LSE | CO, CO ₂ , O ₂ , NO | 3010236 | |
| MB 4 - 6 - 8 - 10 LSE | CO, CO ₂ , O ₂ , SO ₂ | 3010237 | |
| MB 4 - 6 - 8 - 10 LSE | CO, CO ₂ , O ₂ , NO, SO ₂ | 3010238 | |

Four different EGA modules are available to measure some of the exhaust gas substances and their temperature.

Belden 9501 type leads



| Burner | Lead code | Price |
|-----------------------|-----------|-------|
| MB 4 - 6 - 8 - 10 LSE | 3010239 | |

All the connections for the above modules must be done using a BELDEN 9501 type lead (available in coils of 50 m).

Accessories for modulating operation



Main management module allows a modulating operation with use of probes chosen on the basis of the application.

| Burner | Probe type | Range (°C) (bar) | Code | Price |
|-----------------------|-------------|------------------|---------|-------|
| MB 4 - 6 - 8 - 10 LSE | Temperature | 0 ÷ 400°C | 3010187 | |
| MB 4 - 6 - 8 - 10 LSE | Pressure | 0 ÷ 3 bar | 3010246 | |
| MB 4 - 6 - 8 - 10 LSE | Pressure | 0 ÷ 18 bar | 3010186 | |
| MB 4 - 6 - 8 - 10 LSE | Pressure | 0 ÷ 30 bar | 3010188 | |

Return nozzles with needle cut-off type B5 45°

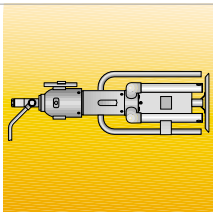


The following list shows the features and codes on the basis of the maximum required fuel output.

NOTE: each burner needs N° 1 nozzle.

| Burner | Rated delivery (kg/h) | Nozzle code | Price | Burner | Rated delivery (kg/h) | Nozzle code | Price |
|----------|-----------------------|-------------|-------|-----------|-----------------------|-------------|-------|
| MB 4 LSE | 200 | 3009800 | | MB 8 LSE | 525 | 3009813 | |
| | 225 | 3009801 | | | 550 | 3009814 | |
| | 250 | 3009802 | | | 575 | 3009815 | |
| | 275 | 3009803 | | | 600 | 3009816 | |
| | 300 | 3009804 | | | 650 | 3009817 | |
| | 325 | 3009805 | | | 700 | 3009818 | |
| MB 6 LSE | 350 | 3009806 | | MB 10 LSE | 400 | 3009808 | |
| | 375 | 3009807 | | | 425 | 3009809 | |
| | 400 | 3009808 | | | 450 | 3009810 | |
| | 425 | 3009809 | | | 475 | 3009811 | |
| | 450 | 3009810 | | | 500 | 3009812 | |
| | 475 | 3009811 | | | 525 | 3009813 | |
| MB 8 LSE | 500 | 3009812 | | 550 | 3009814 | | |
| | 300 | 3009804 | | 575 | 3009815 | | |
| | 325 | 3009805 | | 600 | 3009816 | | |
| | 350 | 3009806 | | 650 | 3009817 | | |
| | 375 | 3009807 | | 700 | 3009818 | | |
| | 400 | 3009808 | | 750 | 3009819 | | |
| | 425 | 3009809 | | 800 | 3009820 | | |
| | 450 | 3009810 | | 850 | 3009821 | | |
| 475 | 3009811 | | 900 | 3009822 | | | |
| 500 | 3009812 | | | | | | |

LPG kit



For burning LPG gas, a special kit is available.

| Burner | Kit code | Price |
|-----------|-------------|-------|
| MB 4 LSE | 3010189 | |
| MB 6 LSE | 3010190 | |
| MB 8 LSE | In progress | |
| MB 10 LSE | 3010296 | |

Burner support

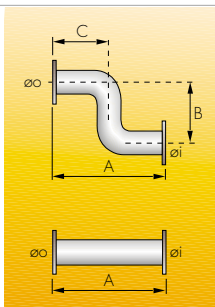


For easier maintenance, a mobile burner support has been designed, which means the burner can be dismantled without the need for forklift trucks.

| Burner | Support code | Price |
|---------------|--------------|-------|
| MB 4 - 6 LSE | In progress | |
| MB 8 - 10 LSE | In progress | |

MODUBLOC MB LSE series - GAS TRAIN ACCESSORIES

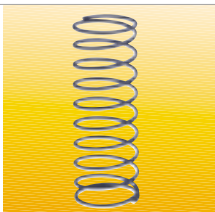
Adapters



When the diameter of the gas train is different from the set diameter of the burners, an adapter must be fitted between the gas train and the burner.

| Burner | Gas train | Adapter type | Dimensions | | | Adapter code | Price | | |
|-----------------|--------------|--------------|------------|-------|------|--------------|-------|---------|------|
| | | | Øi DN | Øo DN | A mm | | | B mm | C mm |
| MB 4-6-8-10 LSE | CBF 65/1 CT | I | 65 | 80 | 320 | -- | -- | 3010221 | |
| MB 4-6-8-10 LSE | CBF 80/1 CT | I | 80 | 80 | 320 | -- | -- | 3010222 | |
| MB 4-6-8-10 LSE | CBF 100/1 CT | I | 100 | 80 | 320 | -- | -- | 3010223 | |
| MB 4-6-8-10 LSE | CBF 125/1 CT | I | 125 | 80 | 320 | -- | -- | 3010224 | |
| MB 4-6-8-10 LSE | CBF 65/1 CT | Z | 65 | 80 | 400 | 480 | 225 | 3010225 | |
| MB 4-6-8-10 LSE | CBF 80/1 CT | Z | 80 | 80 | 400 | 480 | 225 | 3010226 | |
| MB 4-6-8-10 LSE | CBF 100/1 CT | Z | 100 | 80 | 400 | 480 | 225 | 3010227 | |
| MB 4-6-8-10 LSE | CBF 125/1 CT | Z | 125 | 80 | 500 | 480 | 300 | 3010228 | |

Stabiliser spring



Accessory springs are available to vary the pressure range of the gas train stabilisers.

| Gas train | Spring | Code | Price |
|-----------------------|---------------------------|---------|-------|
| CBF 65/1 CT - 80/1 CT | Red from 25 to 55 mbar | 3010133 | |
| CBF 100/1 CT | Red from 25 to 55 mbar | 3010134 | |
| CBF 125/1 CT | Red from 25 to 55 mbar | 3010315 | |
| CBF 125/1 CT | Yellow from 30 to 70 mbar | 3010316 | |
| CBF 65/1 CT - 80/1 CT | Black from 60 to 110 mbar | 3010135 | |
| CBF 100/1 CT | Black from 60 to 110 mbar | 3010136 | |
| CBF 125/1 CT | Black from 60 to 110 mbar | 3010317 | |
| CBF 65/1 CT - 80/1 CT | Pink from 100 to 150 mbar | 3090456 | |
| CBF 100/1 CT | Pink from 100 to 150 mbar | 3090489 | |
| CBF 125/1 CT | Pink from 100 to 150 mbar | 3010318 | |