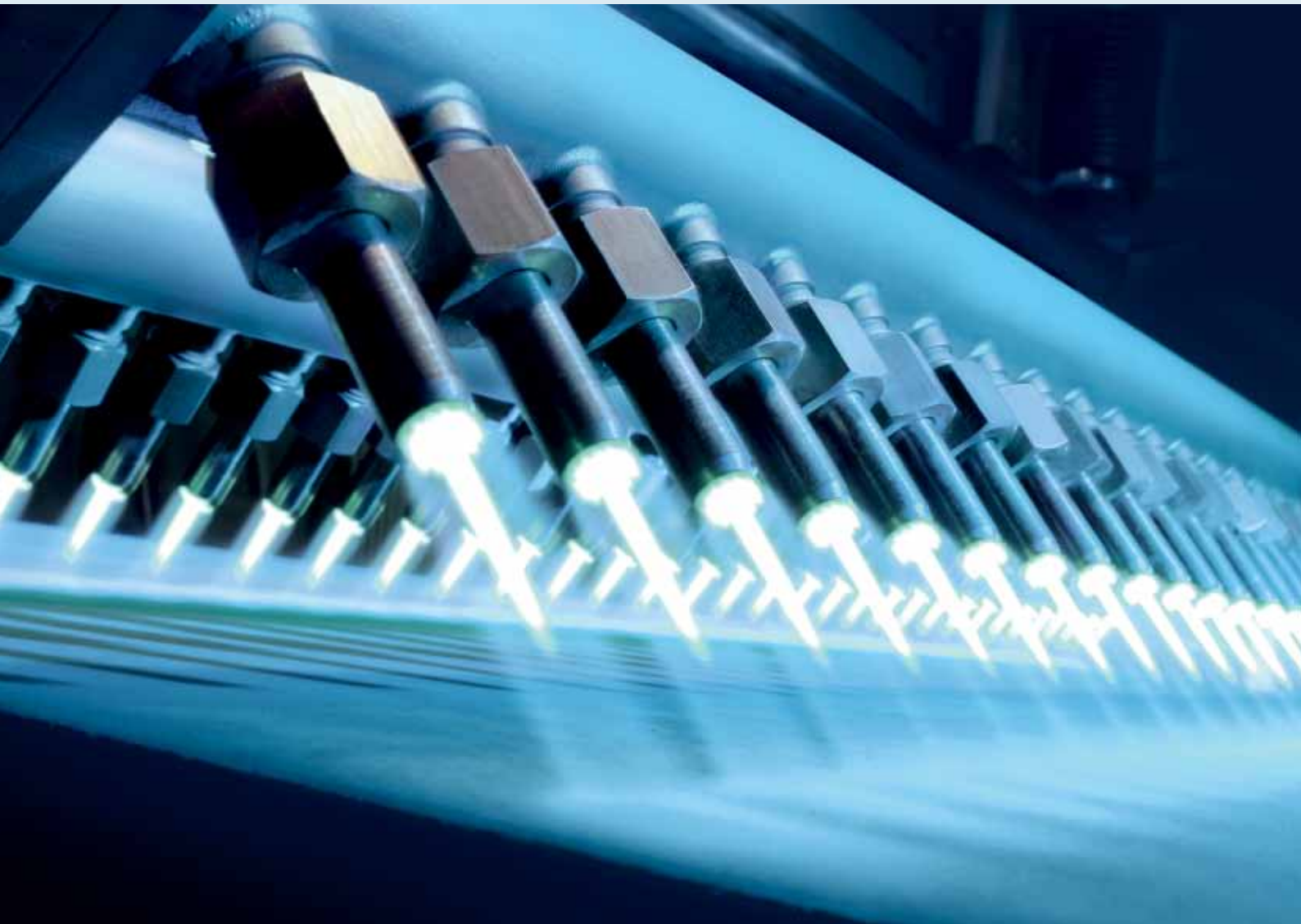
THE LINDE GROUP

Linde

# LINDOFLAMM® thermal engineering.

## Tailored solutions for every heating application.



# Contents.

# All-round offering.

Linde's range of LINDOFLAMM special burners has the perfect fit for every heating application.

Our all-round heating solutions for semi- and fully-automated heating processes are tailored to customer requirements and deliver outstanding results. At the heart of each heating installation is the LINDOFLAMM burner. Further components and services – from automatic ignition to monitoring, temperature control and documentation – put the perfect finish on our offering.

Our application engineers provide expert advice and work with customers to develop the right solution every time. They also start up installations and provide training on their correct operation. In addition to these services, we can also advise on and deliver the supporting gas supply system – making Linde the preferred provider for all gas supply and heating needs.

# High-performance burner LF-H-4 to LF-H-16 (hand-operated).

| Burner type | Gases | Operating pressure bar | Consumption* $m^3/h$ | Handle | Overall length L/mm | Flame field Ø/mm | Item no. |
|---|---|---|---|---|---|---|---|
| LF-H-4 | Acetylene | 0.8 | 1.4–1.9 | LF-S-3-H | 375 | 10 | 100.004 |
| | Oxygen | 2.5–3.5 | 1.6–2.2 | | | | |
| LF-H-6 | Acetylene | 0.8 | 3.3–4.5 | | 440 | 16 | 100.006 |
| | Oxygen | 2.5–4.0 | 3.8–5.2 | | | | |
| LF-H-8 | Acetylene | 1.0 | 5.0–7.1 | | 500 | 18 | 100.008 |
| | Oxygen | 2.5–4.0 | 5.8–8.9 | | | | |
| LF-H-16 | Acetylene | 1.2 | 12.4–15.9 | LF-S-4-H | 650 | 28 | 100.016 |
| | Oxygen | 3.5–5.0 | 14.3–18.3 | | | | |

## Application

- Heating applications for large workpieces
- Flame straightening of large sheet thicknesses
- Thorough heating of heat wedges
- Fusing flame-sprayed coatings
- Heat-shaping of thick-walled plates, pipes and profiles
- Achieving high temperatures during heating

## Design

- Burner head at 45° angle with reinforcement between the mixer and feeder shaft
- Gas-cooled burner
- Injector with O-rings for internal and external tightness
- Brazed components for extra strength

## Extension options

Ball valves on handle for quick opening/closing and reproducible flame adjustment

* The consumption values, measured at the burner inlet, are related to the burner's power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
The operating instructions contain further information about operating LINDOFLAMM burners. Our specialists are always available to provide further information.

# High-performance LF-H-2D burner (hand-operated).

| Burner type | Gases | Operating pressure bar | Consumption* $m^3/h$ | Handle | Overall length L/mm | Flame field Ø/mm | Item no. |
|---|---|---|---|---|---|---|---|
| LF-H-2D | Acetylene | 0.6 | 0.8–1.7 | LF-S-2-H | 650 | 23 | 100.002 |
| | Compressed Air | 2.0–4.0 | 5.6–11.9 | | | | |

## Application

- Pre-heating components before welding and cutting
- Drying the area around a weld seam
- Maintaining interpass temperatures
- Post-heating

## Design

- Burner head at 45° angle with reinforcement between the mixer and feeder shaft
- Gas-cooled burner
- Injector with O-rings for external tightness
- Brazed components for extra strength

## Extension options

Ball valves on handle for quick opening/closing and reproducible flame adjustment

* The consumption values, measured at the burner inlet, are related to the burner's power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
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# Acetylene/compressed air round head burner.

| Burner type | Gases | Operating pressure bar | Consumption* $m^3/h$ | Number of nozzles | Connecting thread in. | Handle | Overall length mm | Item no. |
|---|---|---|---|---|---|---|---|---|
| LF-H-2D-K | Acetylene | 0.6 | 0.8–1.7 | 9 | 1/2" LH | LF-S-2-H | 218 | 200.002 |
| | Compressed Air | 2.0–4.0 | 5.6–11.9 | | | | | |

## Application

- Stationary pre-heating before welding and cutting
- Drying before welding
- Maintaining interpass temperatures
- Post-heating

## Design

- Burner head at 45° angle
- Nozzles arranged in a ring on the burner head
- Combination of several round heads available for large flame fields

## Mandatory additional equipment

- Gas mixture distributor
- Feed with mixing chamber
- Handle or machine shaft

## Extension options

- Ignition flame to start up the burner
- Ball valves or solenoid valves for reproducible results

* The consumption values, measured at the burner inlet, are related to the burner's power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
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# Lance burner.

| Burner type | Gases | Operating pressure bar | Consumption* $m^3/h$ | Number of nozzles | Machine shaft | Overall length mm | Burner height mm | Item no. |
|---|---|---|---|---|---|---|---|---|
| LF-M-16D | Acetylene | 0.8–1.0 | 1.3–2.3 | 16 | LF-S-2-M | 500 | 100 | 200.016 |
| | Compressed Air | 2.0–4.0 | 9.0–17.1 | | | | | |
| LF-M-33D | Acetylene | 0.8–1.0 | 2.4–4.4 | 33 | | 1010 | | 200.033 |
| | Compressed Air | 2.0–4.0 | 17.2–31.5 | | | | | |

## Application

- Stationary pre-heating before welding and cutting
- Drying before welding
- Maintaining interpass temperatures
- Post-heating

## Design

- Elongated construction with exchangeable nozzles
- Nozzles arranged in a row
- Bolted flange connections enable several burner elements to be connected (max. length 2m)
- Parallel operation via distributors and bridges (max. number of nozzles: 66)

## Mandatory additional equipment

- Flange
- Feed with mixing chamber
- Machine shaft

## Extension options

- Optional automation using pilot flame and monitoring elements (flame monitoring, temperature monitoring, data capture systems, etc.)
- Ball valves or solenoid valves for reproducible results
- Gas mixture distributor

* The consumption values, measured at the burner inlet, are related to the burner's power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
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# Short lance burner.

| Burner type | Gases | Operating pressure bar | Consumption* $m^3/h$ | Number of nozzles | Connecting thread in. | Machine shaft | Overall length mm | Burner height mm | Item no. |
|---|---|---|---|---|---|---|---|---|---|
| LF-M-8D | Acetylene | 0.8–1.0 | 0.7–1.3 | 8 | 1/2“ LH | LF-S-2-M | 240 | 110 | 200.008 |
| | Compressed Air | 2.0–4.0 | 5.3–9.4 | | | | | | |
| LF-M-12D | Acetylene | 0.8–1.0 | 1.0–1.9 | 12 | 1/2“ LH | | 360 | 110 | 200.012 |
| | Compressed Air | 2.0–4.0 | 7.5–13.8 | | | | | | |

## Application

- Stationary pre-heating before welding and cutting
- Drying before welding
- Maintaining interpass temperatures
- Post-heating

## Design

- Lightweight construction with exchangeable nozzles
- Nozzles arranged in a row
- Combination of several short lances available to cover a large flame field
- Heat shield made of heat-resistant steel

## Mandatory additional equipment

- Feed with mixing chamber
- Machine shaft

## Extension options

- Optional automation using pilot flame, ignition electrode and monitoring elements (flame monitoring, temperature monitoring, data capture systems, etc.)
- Ball valves or solenoid valves for reproducible results
- Gas mixture distributor

* The consumption values, measured at the burner inlet, are related to the burner’s power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
The operating instructions contain further information about operating LINDOFLAMM burners. Our specialists are always available to provide further information.

# Handles.


| Handle with connection for: | Connecting thread in. | Inner Ø of hose mm (ISO 3821) | Special burner | Item no. |
|---|---|---|---|---|
| LF-S-2-H | 3/8" LH | 9.5 | LF-H-2D | 300.002 |
| | 3/8" RH | 9.5 | | |
| LF-S-3-H | 3/8" LH | 9.5 | LF-H-4, LF-H-6, LF-H-8 | 300.003 |
| | 1/4" RH | 6.3 | | |
| LF-S-4-H | 1/2" LH | 12.5 | LF-H-16 | 300.004 |
| | 3/8" RH | 9.5 | | |

## Application

- To adjust the consumption of acetylene-oxygen/ compressed air series LF-H burners

## Design

- Ergonomic design ensures ease of use as well as comfortable, fatigue-free operation
- Furthermore the Sturdy construction ensures that the handles have a long life
- The self-tightening radial seals at the inserts guarantee a quick and secure seal

## Extension options

Ball valves on handle for quick opening/closing and a reproducible flame

* The consumption values, measured at the burner inlet, are related to the burner's power range. By altering the gas flow rate, the power in the specified range can be adjusted to the corresponding tasks. The consumption data should be noted when constructing the gas supply.
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# Machine shafts.

| Machine shaft for use with: | Connecting thread in. | Inner Ø of hose mm (ISO 3821) | Special burner | Area of application (number of nozzles) | Item no. |
|---|---|---|---|---|---|
| LF-S-2-M | 3/8" LH | 9.5 | LF-M-8D, LF-M-12D, LF-M-16D, LF-M-33D | 8–66 | 400.002 |
| | 3/8" RH | 9.5 | | | |

## Application

- Adjusting the consumption of LF-M series acetylene-compressed air burners with 8–66 nozzles

## Design

- Brass machine shaft with integrated compressed air manometer, adjusting valves and ball valves
- The self-tightening radial seals at the inserts guarantee a quick, secure seal

## Extension options

Solenoid valves can be used instead of ball valves for automated heating applications.

# Feed with mixing chamber and injector.

| Feed | Connecting thread in. | Length mm | External Ø mm | Area of application (number of nozzles) | Item no. |
|---|---|---|---|---|---|
| LF-S-2 –F1 | 1/2" LH | 300 | 16 | 8–12 | 400.021 |
| LF-S-2 –F2 | 1/2" LH | 500 | 16 | 8–12 | 400.022 |
| LF-S-2 –F3 | 1/2" LH | 300 | 16 | 13–24 | 400.023 |
| LF-S-2 –F4 | 1/2" LH | 500 | 16 | 13–24 | 400.024 |
| LF-S-2 –F5 | 1/2" LH | 300 | 16 | 25–41 | 400.025 |
| LF-S-2 –F6 | 1/2" LH | 500 | 16 | 25–41 | 400.026 |
| LF-S-2 –F7 | 1/2" LH | 300 | 16 | 41–57 | 400.027 |
| LF-S-2 –F8 | 1/2" LH | 500 | 16 | 41–57 | 400.028 |
| LF-S-2 –F9 | 1/2" LH | 300 | 16 | 58–66 | 400.029 |
| LF-S-2 –F10 | 1/2" LH | 500 | 16 | 58–66 | 400.030 |

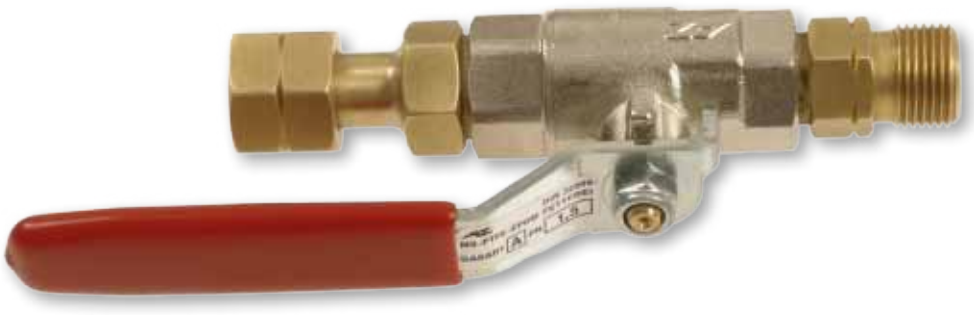
## Application

- Using an injector to mix acetylene and compressed air
- Feeding the acetylene-compressed air mixture to the round head, lance or short lance burner

## Design

- Injector with O-rings for external tightness
- Brazed component joints

# Ball valves.



| Gases | Connecting thread in. | Nominal size | Handle/machine shaft | Item no. |
|---|---|---|---|---|
| Acetylene | 3/8" LH | DN 6 | LF-S-2-H, LF-S-3-H, LF-S-5-H, LF-S-6-H | 500.001 |
| Acetylene | 3/8" LH | DN 10 | LF-S-2-M | 500.002 |
| Acetylene | 1/2" LH | DN 10 | LF-S-4-H | 500.003 |
| Compressed air | 3/8" RH | DN 6 | LF-S-2-H | 500.004 |
| Compressed air | 3/8" RH | DN 10 | LF-S-2-M | 500.005 |
| Oxygen | 1/4" RH | DN 6 | LF-S-3-H, LF-S-5-H | 500.006 |
| Oxygen | 3/8" RH | DN 10 | LF-S-4-H, LF-S-6-H | 500.007 |

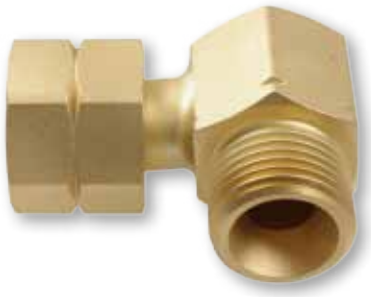
## Application

- For the quick shutting off of acetylene, oxygen and compressed air
- Reproducible flame adjustment

## Design

The ball valves are made of chrome-plated brass and are equipped with double threaded connections in accordance with EN 560.

# Elbow joints.



| Connecting thread in. | Item no. |
|---|---|
| 3/8“ RH | 501.001 |
| 3/8“ LH | 501.002 |
| 1/2“ RH | 501.003 |
| 1/2“ LH | 501.004 |

## Application

Connecting feeds with burners, tubes with machine shafts or feeds with distributors

## Design

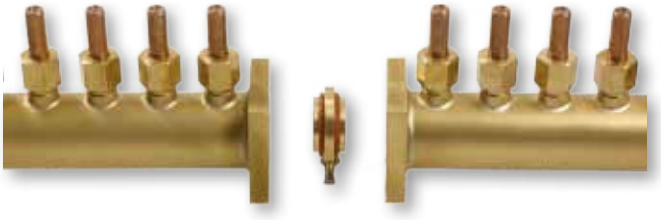
The elbow joints are made of brass in accordance with EN 560.

# Flanges.

End flange

Output flange

Input flange



Lance burners with connector

| Flange | Connecting thread in. | Item no. |
|---|---|---|
| Input flange | 1/2" LH | 502.001 |
| Output flange | 1/2" LH | 502.002 |
| End flange | | 502.003 |
| Connector | | 502.004 |

## Application

Joining, closing and connecting lance burners

## Design

The flanges are made of brass and equipped with O-rings

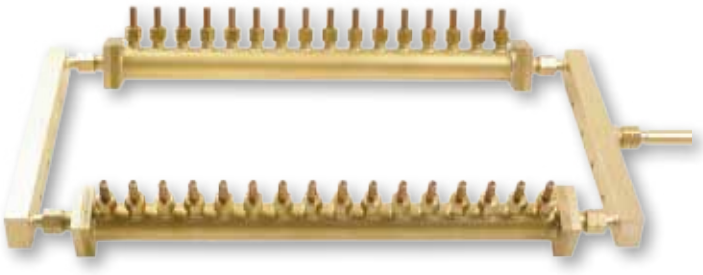
# Distributor.

150mm bridge

100mm input distributor

150mm input distributor

| Connection distance | Input connecting thread in. | Output connecting thread in. | Number of output connectors | Item no. |
|---|---|---|---|---|
| 150mm input distributor | 1/2" LH | 1/2" LH | 2 | 503.001 |
| 150mm bridge | | 1/2" LH | 2 | 503.002 |
| 100mm input distributor | 1/2" LH | 1/2" LH | 3 | 503.003 |



Lance burners with 150mm input distributor and 150mm bridge

## Application

Operating round head, lance or short lance burners in parallel

## Design

Brass distributor with or without input connector

# Adjusting valves.

Acetylene valve

Compressed air valve

| Gases | Connecting thread in. | Nominal size | Max. operating pressure bar | Item no. |
|---|---|---|---|---|
| Acetylene | 3/8“ LH | DN 9 | 1.5 | 504.001 |
| Compressed air | 3/8“ RH | DN 9 | 40 | 504.002 |

## Application

Adjusting valve located on the machine shaft for regulating the flow of acetylene and compressed air

## Design

- Adjusting valve with vertical hand wheel and vertical valve cone
- Labelling
  - Acetylene: red
  - Compressed air: black

# Ignition flame.

| Length of ignition flame (with hook, nozzle and adjusting valve) | Connecting thread in. | Item no. |
|---|---|---|
| 600mm | 3/8“ LH | 505.001 |

## Application

Safely igniting hand-operated and stationary burners

## Design

- Two-part brass ignition flame with adjusting valve
- Mixing principle: Acetylene with aspirated air
- With a brazed hook

# Spare parts.

| | Acetylene/ compressed air replacement nozzle | Coupling nut M16x1.5 | O-ring for lance burner flange | Socket spanners for nozzle assembly | Item no. |
|---|---|---|---|---|---|
| Replacement nozzle with cutting ring | 1 | | | | 506.001 |
| Coupling nut for acetylene/ compressed air nozzle | | 1 | | | 506.002 |
| Service package 1 | 10 | 5 | 2 | 1 | 506.003 |
| Service package 2 | 20 | 10 | 4 | 1 | 506.004 |

Repairs to LINDOFLAMM special burners must only be carried by competent personnel, authorised by Linde AG. Linde AG is not liable for any damage resulting from unauthorised repairs or alterations carried out by the user or third parties without its approval.

# All-round support. First-class services for LINDOFLAMM special burner applications.

LINDOFLAMM special burner applications can be easily incorporated into customer production processes. Our all-round service package delivers a wide range of benefits for easy installation and operation.

This extensive package comprises a wide range of services including:

- Integration management
- Installation service
- Burner optimisation
- Burner maintenance and service
- Targeted support

Further information about LINDOFLAMM can be obtained by writing to lindoflamm@linde.com or by contacting a regional Linde office.

Linde AG
Gases Division, Carl-von-Linde-Strasse 25, 85716 Unterschleissheim, Germany
Phone +49.89.31001-5583, lindoflamm@linde-gas.com, www.linde-gas.com

1112 – nf