



Data Sheet/Quotation

SePhys ZB 11–120° Internal Swirl Spray Burner

Flame shape: Upside-down vertical cone

Fuels: Extra light (# 2) heating oil and fatty acid methyl ester (FAME, aka biodiesel)

| | |
|--|----------------------|
| Oil nozzle outer diameter/full flame cone angle (hence ZB 11–120°) | 11 mm / 120° |
| Maximum throughput (standard nozzle/power nozzle)..... | 100/120 l/h |
| Maximum thermal power output P_{max} (standard nozzle/power nozzle)..... | 1.0/1.2 MW |
| Turndown ratio (P_{max}/P_{min}) | 4 : 1 |
| Load control | fuel-flow valve |
| Fuel fed into burner by | gravity |
| Atomizing medium..... | air or steam |
| Working pressure air/steam (constant over the whole load range)..... | 1.15 bar |
| Air consumption (minimum compressor intake – standard nozzle)..... | 476 l/min |
| Steam consumption (standard nozzle/power nozzle)..... | 23/26 kg/h |
| Position | vertical |
| Height..... | 232 mm |
| Maximum diameter..... | 49.8 mm |
| Material | 100% stainless steel |
| Burner lance* | CHF 8800.00 plus VAT |
| Universal ZB 11-17 burner mount* | CHF 1500.00 plus VAT |
| Universal ZB 11-17 superheater element* | CHF 1175.00 plus VAT |
| Air duct ZB 11-12 or ZB 17* | CHF 7625.00 plus VAT |

* The quoted prices are the same for all ZB burners: ZB 11–90°, ZB 11–120°, ZB 12–90°, ZB 12–120°, ZB 17–90° (see below). Quantity rebates upon request.

Quoted prices valid in 2018. - Certain firebox geometries preclude the use of the standard air duct. Special air ducts are available at extra charge.

Emissions (standard nozzle, diesel fuel, compressed air @ 1.15 bar)

| | |
|-----------------------------|--|
| CO | 0 mg/m ³ (at 3 % O ₂) |
| NO ₂ | 173 mg/m ³ (at 3 % O ₂) |
| HC _{propane} | 0 mg/m ³ (at 3 % O ₂) |

Emissions (standard nozzle, diesel fuel, steam @ 1.15 bar)

| | |
|-----------------------------|--|
| CO | 0 mg/m ³ (at 3 % O ₂) |
| NO ₂ | 163 mg/m ³ (at 3 % O ₂) |
| HC _{propane} | 0 mg/m ³ (at 3 % O ₂) |

Usual atomizing medium is steam; compressed air is only used for heating up the boiler.

System advantages

- ZB 11 models for both extra light (#2) heating oil and FAME (biodiesel).
- ZB 12 and ZB 17 models also for fuels of medium high viscosity.
- Low fuel consumption due to excellent combustion.
- No fuel pump.
- Simple controls – NO electronics necessary.
- No external steam necessary for boiler start-up – pilot burner uses compressed air until boiler is in steam.
- Identical constant working pressure for air and steam over the whole load range.
- No moving parts.
- 100% stainless steel.
- Maintenance-free.
- No brick lining in firebox necessary.
- Very low emission values.
- Absolutely odorless combustion even with FAME made from waste vegetable fat.
- Very good price/performance ratio.

Latest developments

- The ZB 11–120° version with the above data is now available off the shelf.
- If only #2 heating oil is used, air consumption (minimum compressor intake) can be reduced to 385 l/min (ZB 11 models).
- For medium heavy fuels such as used lube oil reconditioned for use as a heating oil or the better distillation residues from biodiesel production, the new ZB 12–90° and ZB 12–120° burner lances are available. The bigger nozzle with its larger cross section compensates for the higher viscosity of the fuel, thus ensuring the same thermal output power. The two medium heavy fuels mentioned above can be used without preheating down to + 15 °C although preheating greatly increases the throughput.
- A ZB 17–90° burner lance with a thermal output power of 4 MW (#2 heating oil) is now available.

Engineering support is available to offer a complete solution to any application problem (at extra charge).

Munich, January 19, 2018

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