SePhys

Dr. rer. nat. Reinhard Walter Serchinger

Data Sheet/Quotation
SePhys IB 11 Injection Burner
Long slender flame directed vertically upwards
Fuels: Extra light (# 2) heating oil and fatty acid methyl ester (FAME, aka biodiesel)

Oil nozzle outer diameter (hence IB 11)	11 mm
Maximum throughput (design value for standard air duct)	100 l/h
Maximum thermal power output P_{max} (design value for standard air duct)	1.0 MW
Turndown ratio (P_{max}/P_{min})	2.5 : 1
Load control	fuel-flow valve
Fuel fed into burner by	gravity
Atomizing medium	air or steam
Working pressure (constant over whole load range)	1.8 bar
Air consumption (minimum compressor intake)	695 l/min
Steam consumption	33.5 kg/h
Position	vertical
Height	170 mm
Maximum diameter	48 mm
Material	100% stainless steel
Burner lance*	EUR 5500.00 plus VAT
IB/ZB 11 Burner mount*	EUR 880.00 plus VAT
Superheater element*	EUR 1000.00 plus VAT
Standard air duct*	EUR 6500.00 plus VAT

* Quantity rebates upon request.

Emissions (# 2 heating oil)

Test boiler	2-10-0 steam locomotive # 52 8055
Use as	pilot burner (atomizing medium: steam)
Draught	natural draught (blower turned off)
Throughput	maximum throughput without smoke
Boiler pressure gain rate	from 14.0 to 14.5 bar in 240 s
CO	36 mg/m^3 (at 3 % O_2)
NO_2	163 mg/m^3 (at 3 % O_2)
$HC_{propane}$**	$\leq$ 13 mg/m^3 (at 3 % O_2)

** HC-emissions only during load changes, otherwise below the detection threshold.

Quoted prices in 2018. Certain firebox geometries preclude the use of the standard air duct. Development and manufacture of special air ducts available at extra charge.

System advantages

- For both heating oil (# 2) and FAME (liquid biofuel).
- Low fuel consumption due to excellent combustion.
- No fuel pump.
- Simple controls – NO electronics.
- 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.
- No moving parts.
- 100% stainless steel.
- Maintenance-free.
- No brick lining in firebox necessary.
- Very low emission values.
- Very good price/performance ratio.

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

Munich, January 19, 2018

Reinhard W. Serchinger