



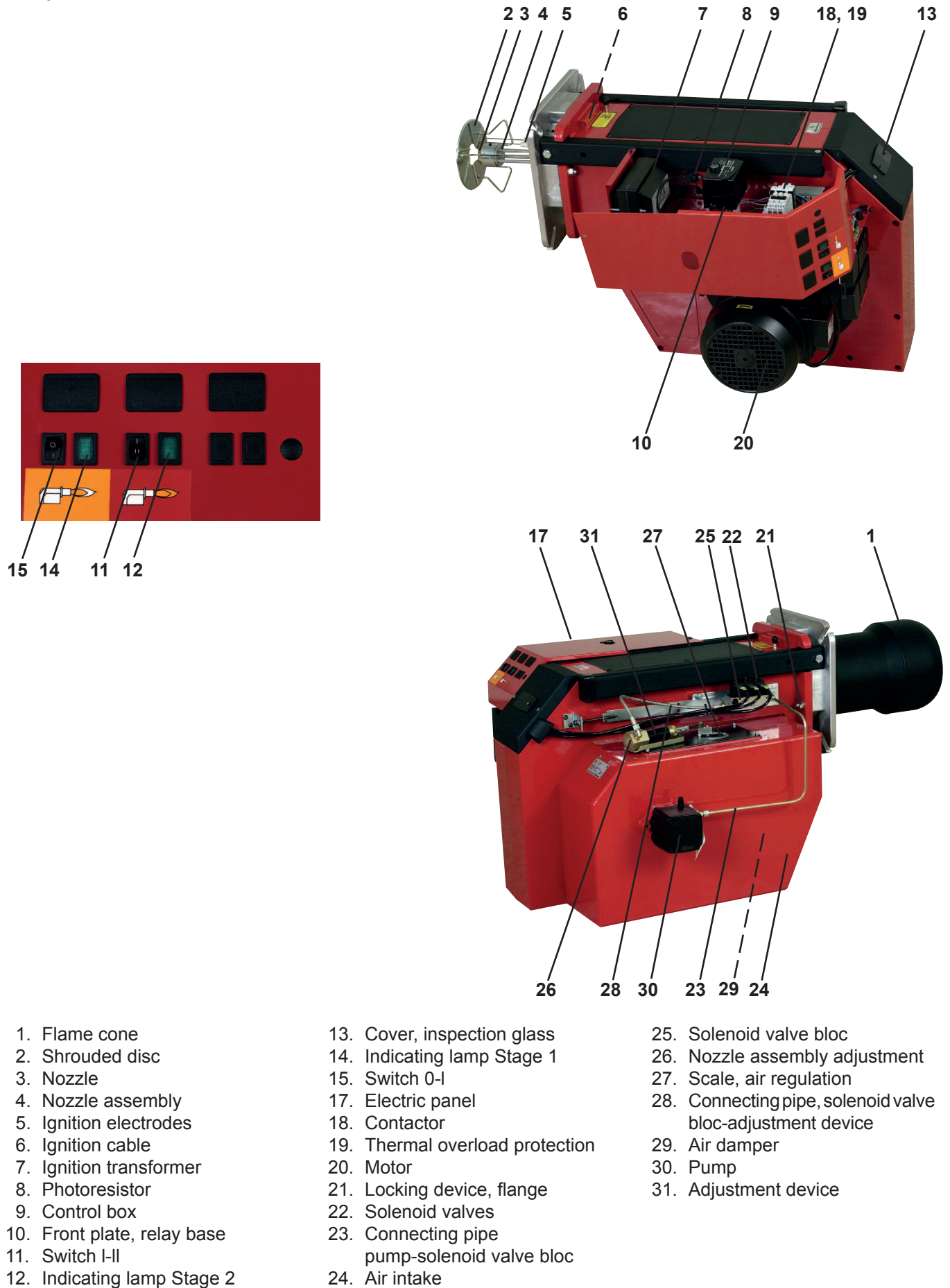
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Installation- and maintenance instruction

B70-2.3H

DISCRIPTION

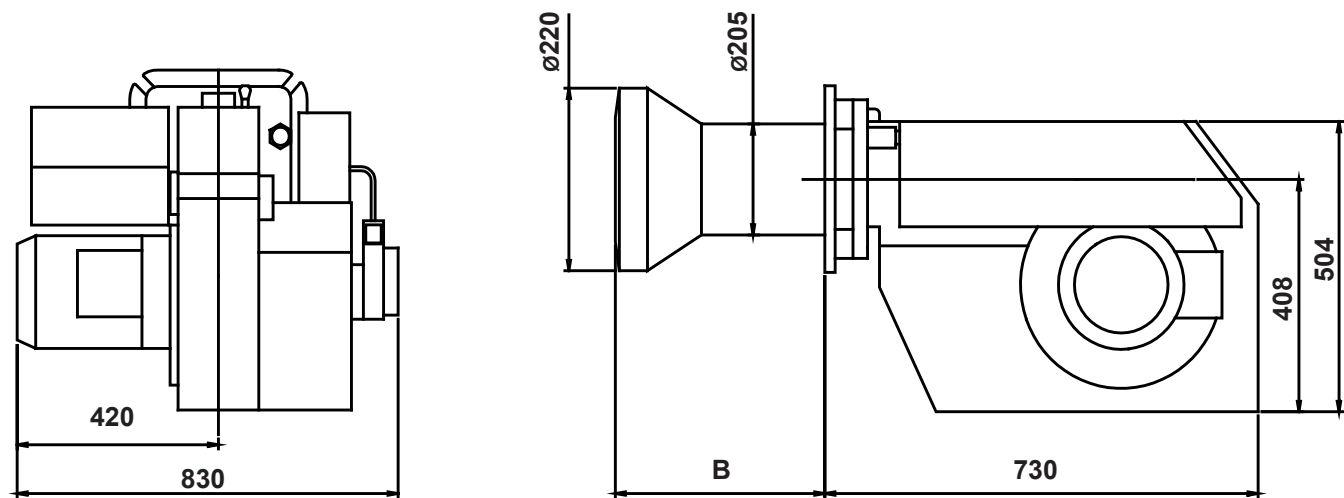
Components



TECHNICAL DATA

Type designation B 70-2.3H

Dimensions



| Burner tube | Length of burner tube | Flange measure B |
|-------------------------|-----------------------|---------------------|
| Burner head Standard | 364 | 324 |
| Burner head Long design | 664 | 624 |

Output range and nozzles recommended

| | Oil capacity | | Output | | Recommended Nozzle | | Recommended Pump pressure |
|-------------|--------------|----------|----------|----------|-----------------------|---------|------------------------------|
| | kg/h | kW | Mcal/h | Angle | Danfoss | Monarch | Bar |
| Burner head | 41-139 | 486-1648 | 418-1417 | 45°, 60° | B | PLP | 14 |

The net calorific value of 11,86 kWh/kg for light oil has been used.

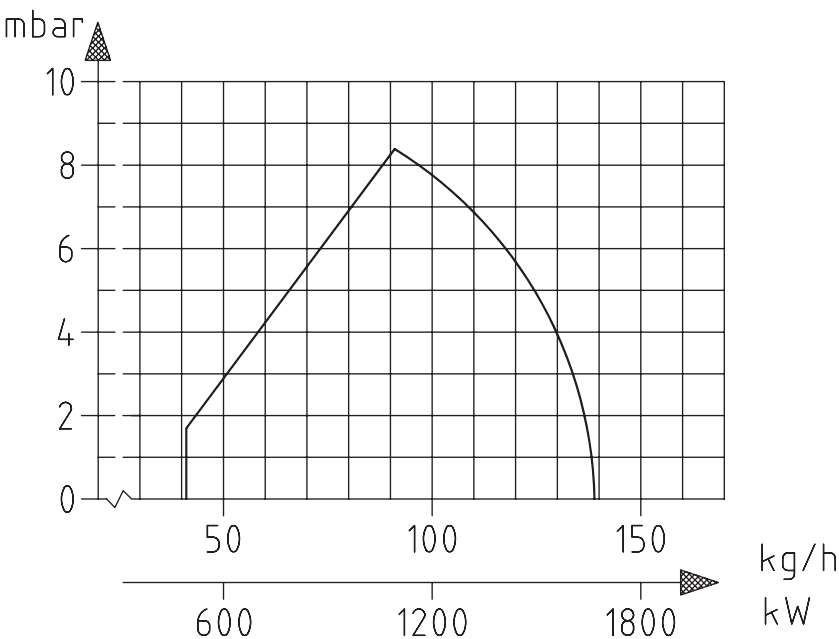
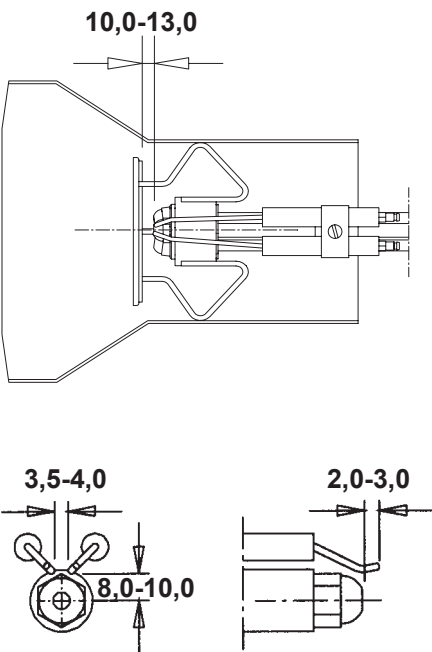
Recommended nozzle

Because of different boiler types existing on the market, with varying combustion chamber designs, it is

not possible to state a definite spray angle or spray pattern.

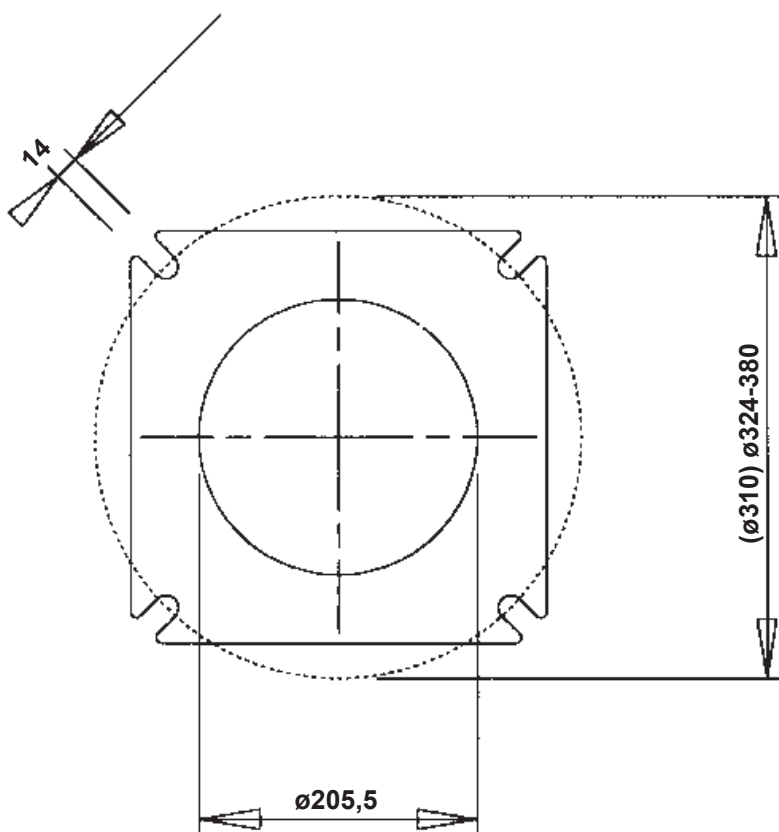
Note that the spray angle and the spray pattern change with the pump pressure.

Burner head



TECHNICAL DATA

Dimensions of flange



GENERAL INSTRUCTIONS

General rules

The installation of an oil burner should be carried out in accordance with local regulations. The installer of the burner must therefore be aware of all regulations relating to oil and combustion. Only oil suitable for the burner should be used and then in combination with a suitable oil filter before the oil pump of the burner.

If the burner is replacing an existing burner make sure that the oil filter is replaced or cleaned. The installation must only be undertaken by experienced personnel. Care should be taken by the installer to ensure that no electrical cables or fuel/gas pipes are trapped or damaged during installation or service/maintenance.

Installation instructions

General installation instructions accompany the burner and should be left in a prominent place adjacent to the burner.

Adjustment of burner

The burner is from the factory pre-set to an average value that must then be adjusted to the boiler in question. All burner adjustments must be made in accordance with the boiler manufacturer's instructions. These must include the checking of flue gas temperatures, average water temperature and CO₂ or O₂ concentration. To adjust the combustion device, start by increasing the air volume and the nozzle assembly somewhat. When the burner starts it is burning with excess air and smoke number 0. Reduce the nozzle assembly adjustment until soot occurs, and then increase the adjustment to make the soot disappear again. Then the volume of air is reduced until soot occurs and increased again to reach a combustion free of soot.

By this procedure an optimum adjustment is obtained. If larger nozzles are used the preadjustment of both the air volume and the nozzle assembly must be increased.

A whistling sound may be heard which can be eliminated or reduced as follows: Increase the nozzle assembly adjustment somewhat. The CO₂-content and consequently the air volume will then be reduced.

Condensation in chimney

A modern burner works with less excess air and often also with smaller nozzles than older models. This increases the efficiency but also the risk of condensation in the chimney. The risk increases if the area of the chimney flue is too large. The temperature of the flue gases should exceed 60°C measured 0,5 metres from the chimney top.

Measures to raise the temperature:

Insulate the chimney in cold attics

Install a tube in the chimney

Install a draught regulator (dilutes the flue gases during operation and dries them up during standstill)

Increase the oil quantity

Raise the flue gas temperature by removing turbulators, if any, in the boiler.

Pump adjustment

See separate description.

Maintenance

The boiler/burner should be examined regularly for any signs of malfunction or oil leakage.

Oil supply

The oil line should be dimensioned in accordance with the pump manufacturer's instruction. In the suction line to the burner a filter should be mounted to prevent any particles in the oil from reaching the burner. If the installation consists of several burners each one should have its own suction line from the tank or a circulation system should be used.

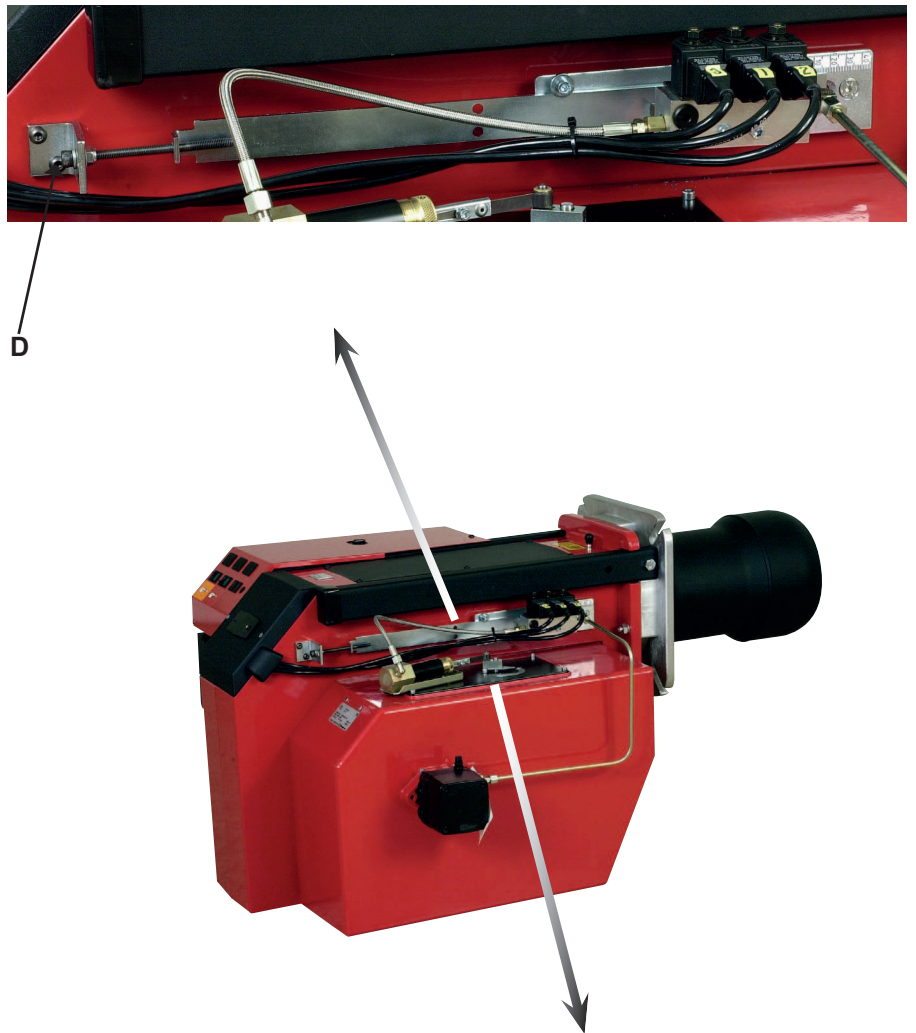
The temperature in the oil line should be kept as constant as possible. Avoid exposing the line to excessive cold which may cause blockages of paraffin deposits.

The oil pipe and electric cable should be fitted so that the burner can be placed on the floor for inspection of the combustion device.

GENERAL INSTRUCTIONS

Adjustment of nozzle assembly

Adjust the nozzle assembly with the adjustment screw D to the desired position.



Air adjustment

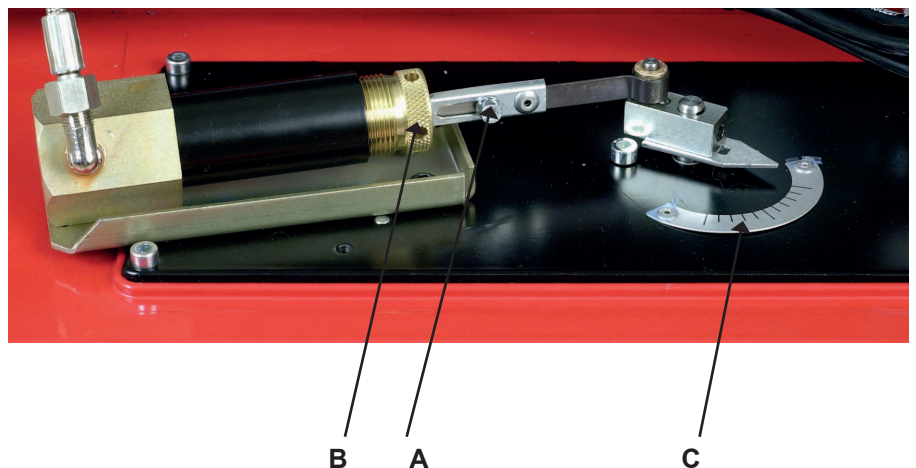
First stage:

Set the operating switch (S2) on low capacity (I). Loosen the screw (A) and turn the damper to the position wanted. Tighten the screw (A) again.

Second stage:

Set the operating switch (S2) on high capacity (II). Screw the knurled ring (B) in (reduce) or out (increase). The position of the damper can be read on the damper scale (C).

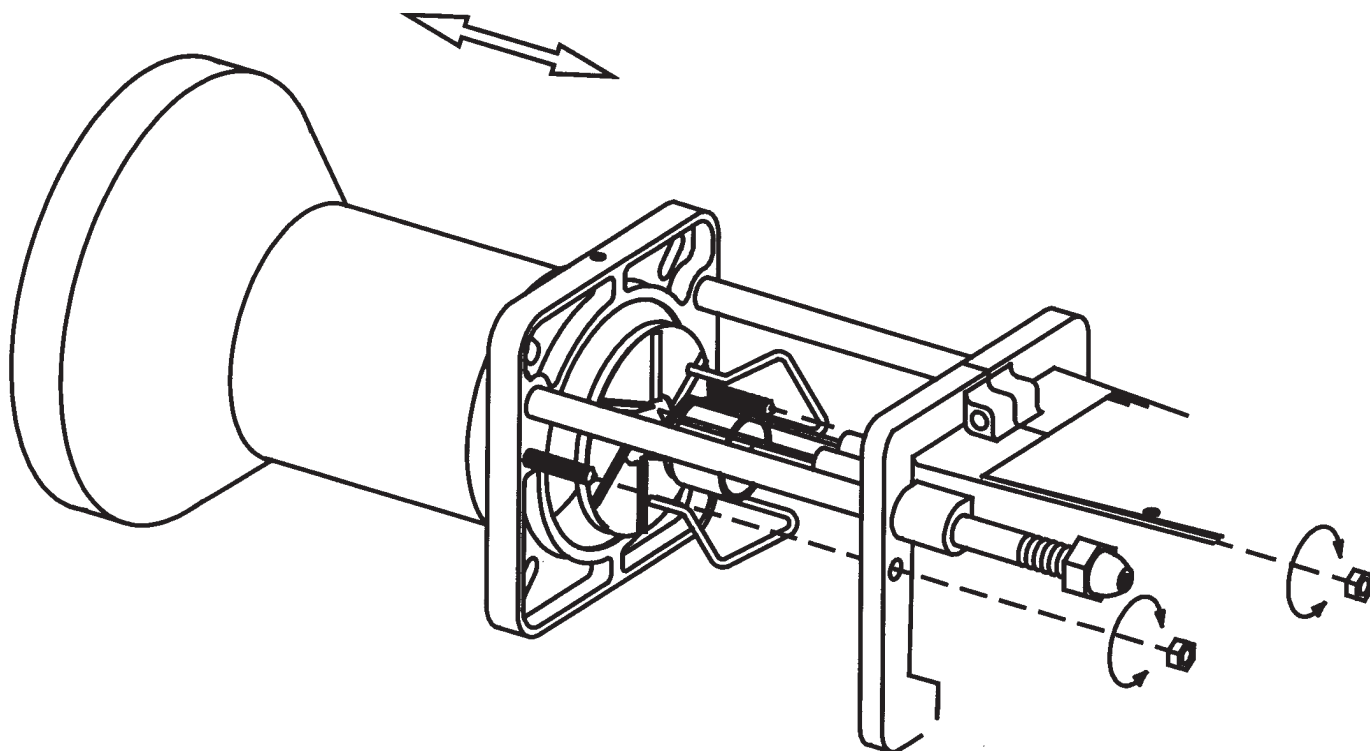
Check the air adjustment by making a flue gas analysis.



MAINTENANCE OF OIL BURNER

Warning: Before doing any service switch off power at the main switch and cut off the oil supply.

Service of burner head



NOTE!

For maintenance of the brake plate, nozzles, electrodes etc, when using a long design of the burner tube, you have to **remove the nozzle assembly from the connecting pipe and move the assembly backwards** in the fan housing (from the boiler).

Oil burner control: LMO24.255

Wiring diagram



Oil burner control: LMO24.255

List of components

| | | | |
|----|-------------------------------------|-----|---|
| A1 | Oil burner control | S6 | Control thermostat, high/low capacity |
| B1 | Photoresistor | S7 | Main switch |
| F1 | Operating fuse | S20 | Main switch |
| F2 | Fuse | T1 | Ignition transformer |
| F3 | Fuse | X1 | Connection terminal board |
| H1 | Lamp, low capacity | X2 | Earth terminal |
| H2 | Lamp, high capacity | X3 | Plug-in contact "Euro", burner |
| K1 | Thermal overload protection | X4 | Plug-in contact "Euro", boiler |
| M1 | Burner motor | X5 | Plug-in contact "Euro", high/low burner |
| S1 | Operating switch | X6 | Plug-in contact "Euro", high/low boiler |
| S2 | Operating switch, high/low capacity | X7 | Plug-in contact "Euro", 3-phase, burner |
| S3 | Control thermostat | X8 | Plug-in contact "Euro", 3-phase, boiler |
| S4 | Temperature limiter | Y0 | Solenoid valve start |
| S5 | Micro switch for hinged door | Y1 | Solenoid valve 1 |
| | | Y2 | Solenoid valve 2 |

Mains connection and fuse in accordance with local regulations.

Max loading K1

Connection A1,A2 / 95, 96 / 97, 98 Max 0,2A/15W

Function

1. Switch on operating switch and twin thermostat

The burner motor starts, an ignition spark is formed, the prepurge goes on till the prepurge period expires and the solenoid valve 1 opens (2).

2. Solenoid valve 1 opens

Oil mist is formed and ignited. The photocell indicates a flame.

3. The safety time expires

- If no flame is established before this time limit the control cuts out.
- If for some reasons the flame disappears after this time limit, the burner will make an attempt to re-start.

4. Full load thermostat ON

The burner is in operating position and can now change between high and low capacity.

4-5. Operating position

If the burner operation is interrupted by means of the main switch or the thermostat, a new start takes place when the conditions in accordance with point 1 are fulfilled.

The oil burner control cuts out

A red lamp in the control is lit. Press the reset button and the burner re-starts.

Technical data

| | |
|--------------------------------------|--------------------|
| Pre-ignition time: | 25 s |
| Pre-purge time: | 25 s |
| Post-ignition time: | 5 s |
| Safety lock-out time: | 5 s |
| Reaction time on flame failure: | max. 1 s |
| Ambient temperature: | from - 20 to +60°C |
| Min. current with flame established: | 30 µ A |
| Max. photo current at start: | 5,5 µ A |
| Enclosure: | IP 40 |

Control of photo current

Current through photo unit is measured with a d.c. ammeter (a moving coil instrument connected in series with the photo unit).

Colour codes LMO14/24

When the burner starts, three signal lights in the reset switch indicate the normal sequence, as well as provide indication if something abnormal is happening in accordance with the following table:

| | |
|------------------------------|---------------------|
| Preheater in operation | Solid yellow |
| Ignition switched on | Flashing yellow |
| Normal operation | Solid green |
| Operation, poor flame signal | Flashing green |
| Undervoltage | Flashing yellow-red |
| Fault, alarm | Solid red |
| False light | Flashing red-green |
| Communication mode | Fluttering red |

Fault codes LMO14/24

When the red light for a blocked relay box comes on, you can get information about what has caused the problem by pressing and holding the reset button for 3 seconds.

The number of flashes below is repeated with a pause in between.

| | |
|------------|---|
| 2 flashes | No flame signal when safety time expires |
| 4 flashes | False light during start |
| 7 flashes | 3 x Losses of flame during operation |
| 8 flashes | Time-out for preheater * |
| 10 flashes | Incorrect wiring, internal fault or simultaneous occurrence of two faults |

* In order for this fault code to occur, the preheater shall not reach its cut-off temperature within 10 mins. from switch on.

To return to normal operation: Press the reset button for 1 second.
If the reset button is instead kept pressed a second time for at least 3 seconds, you can, via an interface, obtain the corresponding information on a computer or flue gas analyser.

To return to normal operation: Press the reset button for 1 second

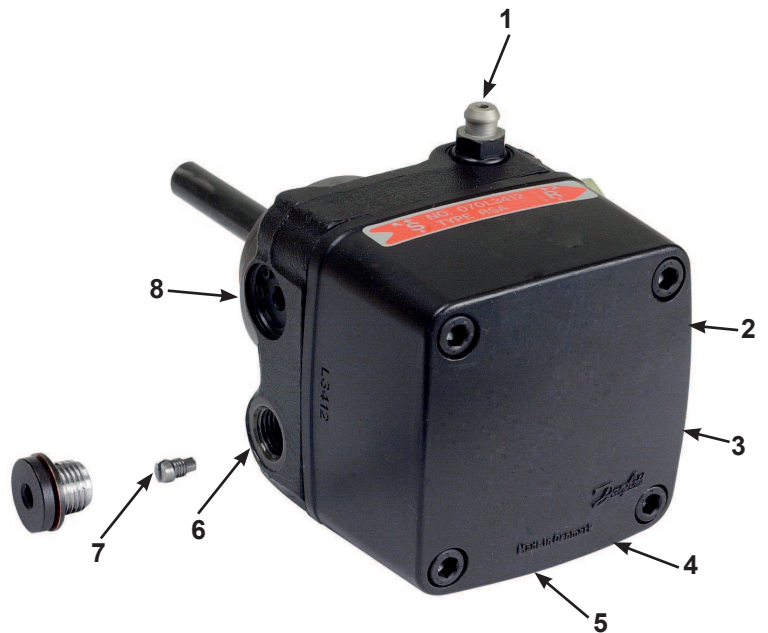
INSTRUCTIONS PUMP TYPE DANFOSS RSA 125

Technical data

Viscosity range: 1,3-18,0 mm²/s
 Pressure range: 12,0-21,0 bar
 Oil temperature: -10 to +70°C

Components

1. Pressure gauge port G 1/8"
2. Nozzle port G 1/8"
3. Suction line G 1/4"
4. Suction line G 1/4"
5. Return line G 1/4"
6. Return line R 1/4"
7. By-pass plug
8. Pressure adjustment, 5 mm allen key



Suction line tables

The suction line tables consist of theoretically calculated values where the pipe dimensions and oil velocity have been matched so that turbulences will not occur. Such turbulences will result in increased pressure losses and in acoustic noise in the pipe system. In addition to drawn copper piping a pipe system usually comprises 4 elbows, a non-return valve, a cut-off valve and an external oil filter.

The sum of these individual resistances is so insignificant that they can be disregarded. The tables do not include any lengths exceeding 100 m as experience shows that longer lengths are not needed.

The tables apply to a standard fuel oil of normal commercial quality according to current standards. On commissioning with an empty tube system the oil pump should not be run without oil for more than 5 min. (a condition is that the pump is being lubricated during operation).

The tables state the total suction line length in metres at a viscosity of 6,0 mm²/s.

Purging

On 1-pipe systems it is necessary to purge the pump. On 2-pipe systems purging is automatic through the return line.

| | | | | | | | | | |
|--|----|----|-----|-----|---|----|----|-----|-----|
| <p>1-pipe system Height Pipe diameter H ø10mm ø12mm ø15mm ø20mm m m m m m</p> <p>With an overlying tank a 1-pipe-system is not recommended</p> | | | | | <p>1-pipe system Height Pipe diameter H ø10mm ø12mm ø15mm ø20mm m m m m m</p> <p>With an underlying tank a 1-pipe-system is not recommended</p> | | | | |
| <p>Two-pipe system Height Pipe diameter H ø10mm ø12mm ø15mm ø20mm m m m m m</p> | | | | | <p>Two-pipe system Height Pipe diameter H ø10mm ø12mm ø15mm ø20mm m m m m m</p> | | | | |
| 4,0 | 39 | 81 | 100 | 100 | 0 | 20 | 41 | 100 | 100 |
| 3,5 | 36 | 76 | 100 | 100 | -0,5 | 18 | 36 | 89 | 100 |
| 3,0 | 34 | 71 | 100 | 100 | -1,0 | 15 | 31 | 77 | 100 |
| 2,5 | 32 | 66 | 100 | 100 | -1,5 | 13 | 26 | 65 | 100 |
| 2,0 | 29 | 61 | 100 | 100 | -2,0 | 10 | 22 | 53 | 100 |
| 1,5 | 27 | 56 | 100 | 100 | -2,5 | 8 | 17 | 41 | 100 |
| 1,0 | 25 | 51 | 100 | 100 | -3,0 | 6 | 12 | 29 | 91 |
| 0,5 | 22 | 46 | 100 | 100 | -3,5 | 3 | 7 | 17 | 53 |
| | | | | | -4,0 | 1 | 2 | 5 | 15 |

INSTRUCTIONS PUMP TYPE DANFOSS RSA 95-125

Function DANFOSS RSA 95 - 125

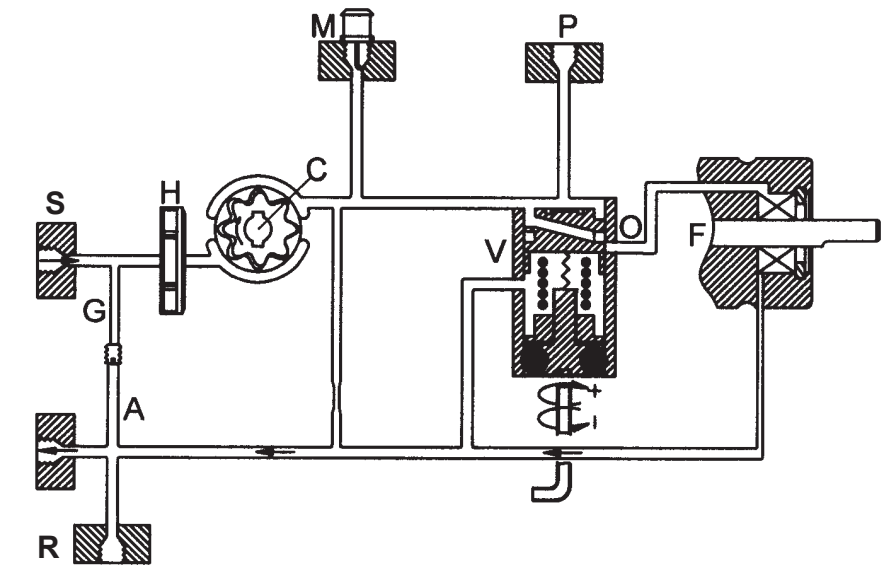
When the pump is started oil is drawn through the suction port "S" via filter "H" to the suction side of the gearwheel set "C". From here the gearwheel set pumps the oil to the pressure side and at the same time the oil becomes pressurized. The oil is led to cut-off and regulating valve "V" which opens when the set pressure is reached.

The pressure is controlled and kept constant by regulating valve "V". At the same time the gearwheel set "C" distributes the oil through nozzle port "P" and pump return side "R" via the shaft seal "F".

The quantity of oil supplied to nozzle port "P" is determined by the pressure set on regulating valve "V" and the nozzle/resistance in the nozzle line.

In 2-pipe-systems excess oil is led back to the oil tank. In 1-pipe-systems the by-pass plug "A" must be removed to give free flow back to the suction side via return line "G" with return port "R" closed.

When the pump is stopped, the pump output drops and produces a drop in the oil pressure. The spring in the regulating valve presses the



regulating piston forward until it seals in port "P". This cuts off the oil flow to the nozzle and ensures that the nozzle line is effectively shut off.

If the pump is overloaded, i.e. more oil is demanded than the gearwheel is able to pump under the given conditions, the oil pressure falls below the set value because the piston of the regulating valve moves towards its closed position and partially or wholly cuts off the return oil via port "O".

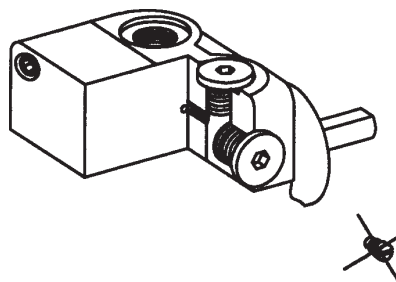
This can be remedied by

- reducing the pump pressure
- reducing the capacity, i.e. smaller nozzle or greater resistance
- changing to a pump with higher capacity

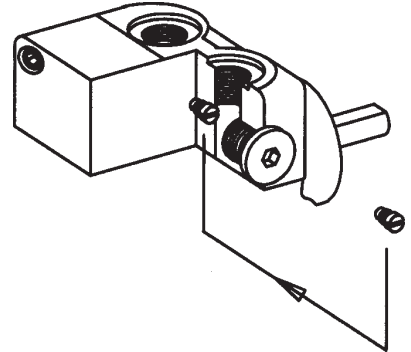
Mounting/dismounting by-pass plug

In a 2-pipe-system excess oil is led back direct to the oil tank. In a 1-pipe-system the by-pass plug must be removed so that there is a free passage back to the suction side through the return line with the return port closed.

One pipe system



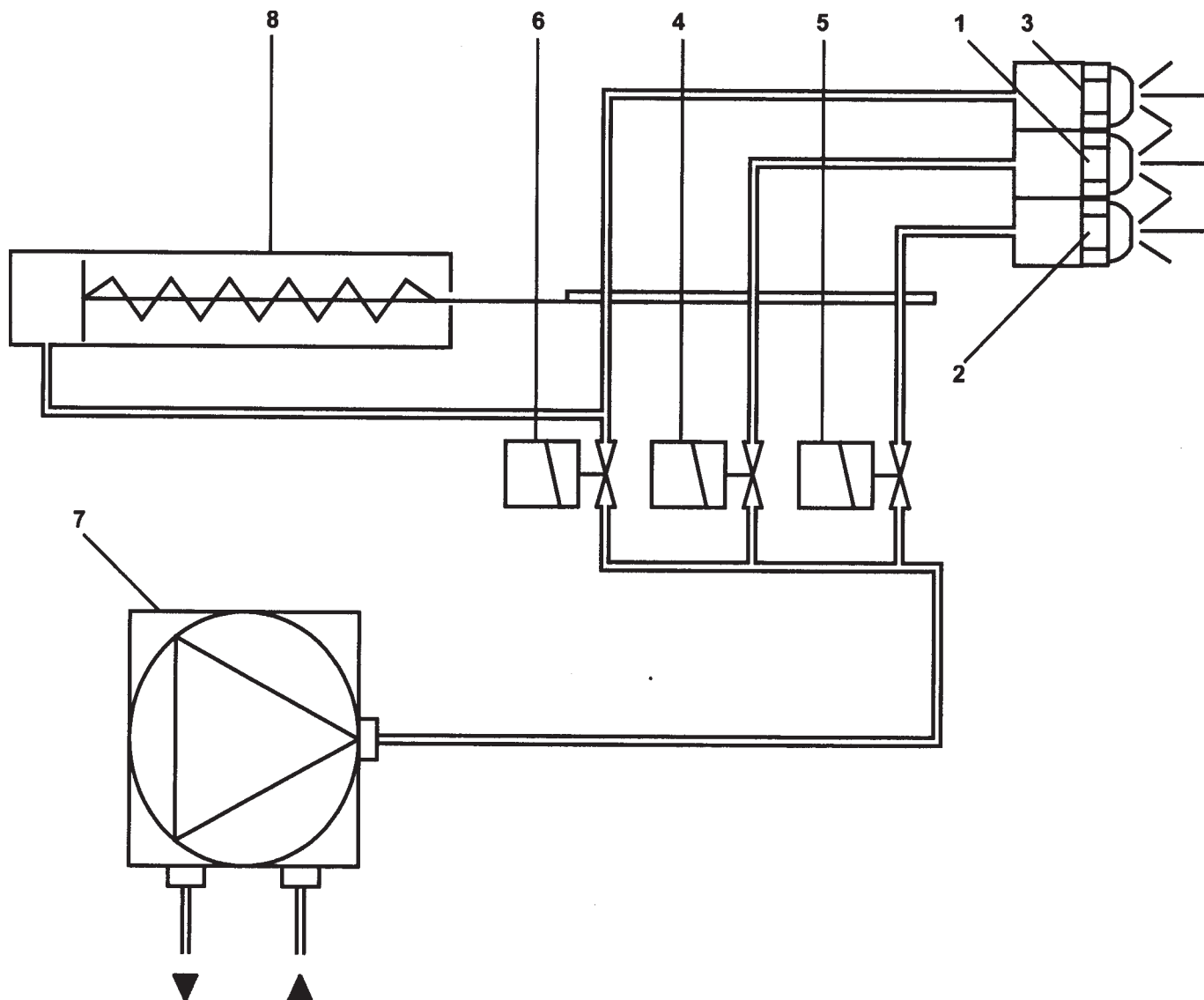
Two pipe system



Exchange of filter



FUNCTION FOR DANFOSS RSA



1. Nozzle 1
2. Nozzle 2
3. Nozzle 3
4. Solenoid valve Nozzle 1
5. Solenoid valve Nozzle 2
6. Solenoid valve Nozzle 3
and adjustment of air Stage 2
7. Oil pump
8. Air adjustment Stage 2

N.B. Nozzle 1+2 = 1st Stage
Nozzle 1+2+3= 2nd Stage

NOZZLE TABLE

Pump pressure bar

| Gph | 10 | | | 11 | | | 12 | | | 13 | | |
|-------|-------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|
| | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h |
| 1,00 | 3,72 | 44 | 38 | 3,90 | 46 | 40 | 4,08 | 48 | 42 | 4,24 | 50 | 43 |
| 1,10 | 4,09 | 48 | 42 | 4,29 | 51 | 44 | 4,48 | 53 | 46 | 4,67 | 55 | 48 |
| 1,20 | 4,47 | 53 | 46 | 4,68 | 55 | 48 | 4,89 | 58 | 50 | 5,09 | 60 | 52 |
| 1,25 | 4,65 | 55 | 47 | 4,88 | 58 | 50 | 5,10 | 60 | 52 | 5,30 | 63 | 54 |
| 1,35 | 5,02 | 59 | 51 | 5,27 | 62 | 54 | 5,50 | 65 | 56 | 5,73 | 68 | 58 |
| 1,50 | 5,58 | 66 | 57 | 5,85 | 69 | 60 | 6,11 | 72 | 62 | 6,36 | 75 | 65 |
| 1,65 | 6,14 | 73 | 63 | 6,44 | 76 | 66 | 6,73 | 80 | 69 | 7,00 | 83 | 71 |
| 1,75 | 6,51 | 77 | 66 | 6,83 | 81 | 70 | 7,14 | 85 | 73 | 7,42 | 88 | 76 |
| 2,00 | 7,45 | 88 | 76 | 7,81 | 93 | 80 | 8,16 | 97 | 83 | 8,49 | 101 | 87 |
| 2,25 | 8,38 | 99 | 85 | 8,78 | 104 | 90 | 9,18 | 109 | 94 | 9,55 | 113 | 97 |
| 2,50 | 9,31 | 110 | 95 | 9,76 | 116 | 100 | 10,19 | 121 | 104 | 10,61 | 126 | 108 |
| 2,75 | 10,24 | 121 | 104 | 10,73 | 127 | 109 | 11,21 | 133 | 114 | 11,67 | 138 | 119 |
| 3,00 | 11,16 | 132 | 114 | 11,71 | 139 | 119 | 12,23 | 145 | 125 | 12,73 | 151 | 130 |
| 3,50 | 13,03 | 154 | 133 | 13,66 | 162 | 139 | 14,27 | 169 | 146 | 14,85 | 176 | 151 |
| 4,00 | 14,89 | 176 | 152 | 15,62 | 185 | 159 | 16,31 | 193 | 166 | 16,97 | 201 | 173 |
| 4,50 | 16,75 | 199 | 171 | 17,57 | 208 | 179 | 18,35 | 218 | 187 | 19,10 | 226 | 195 |
| 5,00 | 18,62 | 220 | 190 | 19,52 | 231 | 199 | 20,39 | 242 | 208 | 21,22 | 252 | 216 |
| 5,50 | 20,48 | 243 | 209 | 21,47 | 255 | 219 | 22,43 | 266 | 229 | 23,34 | 277 | 238 |
| 6,00 | 22,34 | 265 | 228 | 23,42 | 278 | 239 | 24,47 | 290 | 250 | 24,46 | 302 | 260 |
| 6,50 | 24,20 | 287 | 247 | 25,37 | 301 | 259 | 26,51 | 314 | 270 | 27,58 | 327 | 281 |
| 7,00 | 26,06 | 309 | 266 | 27,33 | 324 | 279 | 28,55 | 339 | 291 | 29,70 | 352 | 303 |
| 7,50 | 27,92 | 331 | 285 | 29,28 | 347 | 299 | 30,59 | 363 | 312 | 31,83 | 377 | 325 |
| 8,00 | 29,79 | 353 | 304 | 31,23 | 370 | 318 | 32,63 | 387 | 333 | 33,95 | 403 | 346 |
| 8,50 | 31,65 | 375 | 323 | 33,18 | 393 | 338 | 34,66 | 411 | 353 | 36,07 | 428 | 368 |
| 9,00 | 33,59 | 398 | 343 | 35,14 | 417 | 358 | 36,71 | 435 | 374 | 38,19 | 453 | 389 |
| 9,50 | 35,37 | 419 | 361 | 37,09 | 440 | 378 | 38,74 | 459 | 395 | 40,31 | 478 | 411 |
| 10,00 | 37,23 | 441 | 380 | 39,04 | 463 | 398 | 40,78 | 484 | 416 | 42,44 | 503 | 433 |
| 11,00 | 40,96 | 486 | 418 | 42,94 | 509 | 438 | 44,86 | 532 | 457 | 46,68 | 554 | 476 |
| 12,00 | 44,68 | 530 | 456 | 46,85 | 556 | 478 | 48,94 | 580 | 499 | 50,92 | 604 | 519 |
| 14,00 | 52,12 | 618 | 531 | 54,65 | 648 | 557 | 57,10 | 677 | 582 | 59,41 | 705 | 606 |
| 16,00 | 59,57 | 706 | 607 | 62,46 | 741 | 637 | 65,26 | 774 | 666 | 67,90 | 805 | 692 |
| 18,00 | 67,02 | 795 | 683 | 70,27 | 833 | 717 | 73,41 | 871 | 749 | 76,39 | 906 | 779 |
| 20,00 | 74,47 | 883 | 759 | 78,08 | 926 | 796 | 81,57 | 967 | 832 | 84,87 | 1007 | 865 |
| 22,00 | 81,91 | 971 | 835 | 85,89 | 1019 | 876 | 89,73 | 1064 | 915 | 93,36 | 1107 | 952 |
| 24,00 | 89,36 | 1060 | 911 | 93,70 | 1111 | 956 | 97,88 | 1161 | 998 | 101,85 | 1208 | 1039 |
| 26,00 | 96,81 | 1148 | 987 | 101,50 | 1204 | 1035 | 106,04 | 1258 | 1081 | 110,33 | 1308 | 1168 |

The table applies to oil with a viscosity of 4,4 mm²/s (cSt) with density 830 kg/m³.

NOZZLE TABLE

Pump pressure bar

| Gph | 14 | | | 15 | | | 16 | | | 17 | | |
|-------|--------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|
| | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h | kg/h | kW | Mcal/h |
| 1,00 | 4,40 | 52 | 45 | 4,56 | 54 | 46 | 4,71 | 56 | 48 | 4,85 | 57 | 49 |
| 1,10 | 4,84 | 57 | 49 | 5,01 | 59 | 51 | 5,18 | 61 | 53 | 5,34 | 63 | 54 |
| 1,20 | 5,29 | 63 | 54 | 5,47 | 65 | 56 | 5,65 | 67 | 58 | 5,82 | 69 | 59 |
| 1,25 | 5,51 | 65 | 56 | 5,70 | 68 | 58 | 5,89 | 70 | 60 | 6,07 | 72 | 62 |
| 1,35 | 5,95 | 70 | 61 | 6,15 | 73 | 63 | 6,36 | 75 | 65 | 6,55 | 78 | 67 |
| 1,50 | 6,60 | 78 | 67 | 6,83 | 81 | 70 | 7,06 | 84 | 72 | 7,27 | 86 | 74 |
| 1,65 | 7,27 | 86 | 74 | 7,52 | 89 | 77 | 7,77 | 92 | 79 | 8,01 | 95 | 82 |
| 1,75 | 7,71 | 91 | 79 | 7,97 | 95 | 81 | 8,24 | 98 | 84 | 8,49 | 101 | 87 |
| 2,00 | 8,81 | 104 | 90 | 9,12 | 108 | 93 | 9,42 | 112 | 96 | 9,71 | 115 | 99 |
| 2,25 | 9,91 | 118 | 101 | 10,26 | 122 | 105 | 10,60 | 126 | 108 | 10,92 | 130 | 111 |
| 2,50 | 11,01 | 131 | 112 | 11,39 | 135 | 116 | 11,77 | 140 | 120 | 12,13 | 144 | 124 |
| 2,75 | 12,11 | 144 | 123 | 12,53 | 149 | 128 | 12,95 | 154 | 132 | 13,35 | 158 | 136 |
| 3,00 | 13,21 | 157 | 135 | 13,67 | 162 | 139 | 14,13 | 168 | 144 | 14,56 | 173 | 148 |
| 3,50 | 15,42 | 183 | 157 | 15,95 | 189 | 163 | 16,49 | 196 | 168 | 16,99 | 201 | 173 |
| 4,00 | 17,62 | 209 | 180 | 18,23 | 216 | 186 | 18,84 | 223 | 192 | 19,42 | 230 | 198 |
| 4,50 | 19,82 | 235 | 202 | 20,51 | 243 | 209 | 21,20 | 251 | 216 | 21,84 | 259 | 223 |
| 5,00 | 22,03 | 261 | 225 | 22,79 | 270 | 232 | 23,55 | 279 | 240 | 24,27 | 288 | 247 |
| 5,50 | 24,23 | 287 | 247 | 25,07 | 297 | 256 | 25,91 | 307 | 264 | 26,70 | 317 | 272 |
| 6,00 | 26,43 | 313 | 270 | 27,49 | 326 | 280 | 28,27 | 335 | 288 | 29,13 | 345 | 297 |
| 6,50 | 28,63 | 340 | 292 | 29,63 | 351 | 302 | 30,62 | 363 | 312 | 31,55 | 374 | 322 |
| 7,00 | 30,84 | 366 | 314 | 31,91 | 378 | 325 | 32,98 | 391 | 336 | 33,98 | 403 | 374 |
| 7,50 | 33,04 | 392 | 337 | 34,19 | 405 | 349 | 35,33 | 419 | 360 | 36,41 | 432 | 371 |
| 8,00 | 35,25 | 418 | 359 | 36,47 | 433 | 372 | 37,69 | 447 | 384 | 38,80 | 460 | 396 |
| 8,50 | 37,45 | 444 | 382 | 38,74 | 459 | 395 | 40,04 | 475 | 408 | 41,26 | 489 | 421 |
| 9,00 | 39,65 | 470 | 404 | 41,02 | 486 | 418 | 42,40 | 503 | 432 | 43,69 | 518 | 446 |
| 9,50 | 41,85 | 496 | 427 | 43,30 | 514 | 442 | 44,75 | 531 | 456 | 46,11 | 547 | 470 |
| 10,00 | 44,06 | 523 | 449 | 45,58 | 541 | 465 | 47,11 | 559 | 480 | 47,11 | 559 | 480 |
| 11,00 | 48,46 | 575 | 494 | 50,14 | 595 | 511 | 51,82 | 615 | 528 | 53,40 | 633 | 545 |
| 12,00 | 52,87 | 627 | 539 | 54,70 | 648 | 558 | 56,53 | 670 | 576 | 58,25 | 691 | 594 |
| 14,00 | 62,68 | 732 | 629 | 63,81 | 757 | 651 | 65,95 | 778 | 669 | 67,96 | 806 | 693 |
| 16,00 | 70,49 | 836 | 719 | 72,93 | 865 | 744 | 75,38 | 894 | 769 | 77,67 | 921 | 792 |
| 18,00 | 79,30 | 940 | 809 | 82,05 | 973 | 837 | 84,80 | 1006 | 865 | 87,38 | 1036 | 891 |
| 20,00 | 88,11 | 1045 | 899 | 91,17 | 1081 | 930 | 94,22 | 1117 | 961 | 97,09 | 1151 | 990 |
| 22,00 | 96,92 | 1149 | 988 | 100,28 | 1189 | 1023 | 103,64 | 1229 | 1057 | 106,79 | 1267 | 1089 |
| 24,00 | 105,74 | 1254 | 1078 | 109,40 | 1297 | 1116 | 113,06 | 1341 | 1153 | 116,50 | 1382 | 1188 |
| 26,00 | 114,55 | 1359 | 1168 | 118,52 | 1406 | 1209 | 122,49 | 1453 | 1249 | 126,21 | 1497 | 1287 |

The table applies to oil with a viscosity of 4,4 mm²/s (cSt) with density 830 kg/m³.

FAULT LOCATION

Burner fails to start

| Situation | Possible causes | Remedies |
|-------------------|----------------------------|--|
| Motor runs | Flame instability | Check nozzle to burner head dimension and electrode position |
| Burner pre-purges | Incorrect head settings | Check oil pressure |
| | Low oil pressure | Adjust air damper |
| Flame occurs | Excess air | Check that photocell is clean and unobstructed |
| Burner locks out | Photocell not seeing light | Confirm with new photocell |
| | Photocell failed | Confirm with new control. (NB. it is advisable to change the photocell if also changing control) |
| | Control faulty | Check that photocell is not seeing ambient light |
| Motor runs | False light | Check that H.T. leads are sound and are not arcing other than at electrode gap |
| Burner pre-purges | | Check oil supply to burner - check that pump is not airlocked |
| No flame occurs | | Check operation of magnetic valve |
| Burner locks out | No spark | |
| | No oil | |

Burner fails to start after normal operation

| | | |
|------------------------|--|---|
| Burner fails to start | Fuse has blown | Check or replace fuse if necessary. Check reason for failure |
| | Appliance thermostat has not reset | Adjust thermostat |
| Lamp not lit | Appliance overheat device has operated | Reset overheat device. Find reason for its operation and rectify |
| | Control relay or photocell defective | Check by replacement |
| | No oil being delivered | Check that tank, oil lines, fire valve, pump and nozzle are all in good order |
| Motor runs | Excessive flue draught is preventing flame establishment | Rectify condition |
| Burner runs to lockout | No spark | Check ignition transformer. Check electrode gap and porcelain |

Delayed ignition, burners starts violently

| | | |
|--|-----------------------------|---|
| Burner pulsates on start-up only with hot flue | Excessive draught | Adjust the burner |
| Burner pulsates on start-up | Nozzle partly blocked | Replace nozzle |
| | Oil pressure too low | Check and adjust |
| | Flue blocked or damaged | Check and rectify |
| | Fan slipping on shaft | Check and retighten |
| | Pump coupling loose or worn | Check and replace |
| Burner starts violently | Delayed ignition | Check the electrode adjustment, see diagram |
| | | Check electrodes for damage |
| | | Check H.T. leads for damage and disconnection |

Försäkran om överensstämmelse
Declaration of conformity
Konformitätserklärung
Déclaration de conformité



Brännare, Burner, Ölbrenner, Brûleur

Certifikat TÜV Süddeutschland

| Certifikat nr. | Typ, Type: | Certifikat nr. | Typ, Type: |
|----------------|--|----------------|------------------------|
| 08128915006 | BF 1 | 02119815003 | B 20, B 30, B 40, B 45 |
| 0111110535004 | B 1 | 02119815004 | B 50, B 60, B 70, B 80 |
| 0207110535005 | B 2 | 040588622001 | B 55 |
| 02119815001 | ST 97, ST 108, ST 120, ST 133, ST 146 | 040588622002 | B 65 |
| 02119815002 | B 9, B 10, B 11 | 13129815007 | B 45 MF, B 45-2 MF |

Enertech AB försäkrar under eget ansvar att ovannämnda produkter är i överensstämmelse med följande standarder eller andra regelgivande dokument och uppfyller tillämpliga delar i EU direktiv.

Enertech AB declares under sole responsibility that the above mentioned product is in conformity with the following standards or other normative documents and follows the provisions of applicable parts in the following EU Directives.

Enertech AB erklärt in eigener Verantwortung, dass obenstehende Produkte mit folgenden Normen oder anderen normativen Dokumenten und anwendbare Teile in EU-Direktiven in Übereinstimmung stehen

Enertech AB déclare sous sa seule responsabilité que les produits désignés ci-dessus sont conformes aux normes et aux documents normatifs suivants et satisfont aux critères applicables des directives CE suivantes:

Dokument: EN 267
EN 60335

EU direktiv. EU Directives, EU-Direktiven, CE suivantes:

| | |
|-------------|---|
| 2004/108/EC | Elektromagnetisk kompatibilitet, Electromagnetic compatibility EC-Richtlinie, Compatibilité électromagnétique |
| 2006/95/EC | Lågspänningsdirektivet, Low-voltage directive, Niederspannungs-Richtlinie, Directive sur les basses tensions |
| 2006/42/EC | Maskindirektivet, Machinery directive, Maschinen-Richtlinie, Directive sur les machines |
| 92/42/EEC | Verkningsgradsdirektivet, Efficiency directive, Wirkungsgrad-Richtlinie, Directive sur les exigences de rendement |

Genom att brännaren uppfyller ovannämnda standarder och direktiv erhåller brännaren CE - märkningen.

In that the burner conforms to the above mentioned standards it is awarded the CE mark.

Indem der Brenner die obengenannten Normen und Richtlinien erfüllt, erhält der Brenner die CE-Kennzeichnung.

Du fait de leur conformité aux directives mentionnées ci-dessus, les brûleurs Bentone bénéficient du marquage CE.

Enertech AB, Bentone Division/
är kvalitetscertifierat enligt/
is quality certified according to/
ist nach dem Qualitätsmanagement /
est certifiée à la norme de qualité
SS-EN ISO 9001:2008

Ljungby, Sweden, 150227 (27/02/15)

ENERTECH AB Bentone Division

Box 309
SE-341 26 Ljungby Sweden

Håkan Lennartsson

OIL BURNERS MAINTENANCE INSTRUCTIONS

General information

Keep the boiler room clean. Ensure that the boiler room has permanent fresh air intake. Switch off before dismantling the oil burner.

At hinged mounting, make sure that an automatic safety switch is fitted, so that the burner cannot start when the swing door is open.

Don't use the oil fired boiler to burn paper or rubbish, unless the boiler is especially fitted with a hinged door to make this possible.

Don't fill tank while burner is working.

Starting precautions

Make sure that the oil tank is not empty

Make sure that the valves on oil and water supply pipes are open.

Make sure that the boiler flue damper is open.

Make sure that the boiler thermostat is set at the correct temperature.

Switch on the current. Most relay systems have a delayed action so that the burner will not start for perhaps 20 seconds.

With heavy oil the delay will be longer as the burner will not start until the oil in the preheater reaches the required temperature.

If the burner will not start

Press the reset button on the relay. Check that the thermostats are correctly adjusted.

Don't forget the room thermostat, check that any fuses are intact and main switch is on.

Installed by:

.....

Tel:

If the burner starts but does not ignite

Make an attempt to start the burner.

Never make close repeated start attempts.

Don't restart the burner until the boiler is free from oil gases.

If the burner still does not ignite send for the service engineer.

When switching off during summer

Always use the main switch to cut out the burner even when adjusting the burner or cutting off the heating for a short time. For longer periods of shut down, close all valves and the oil supply stop-cock.

Clean the filter and nozzle by washing in petrol or paraffin.

Make sure the filter medium is not damaged or defective.

Protect electrical gear from damp.

Warning

Never stand too near or put your face to the inspection or fire door, when the burner is about to start.

Never use a naked flame to ignite oil if the electrical ignition fails.

Always wait for about 10 minutes for the unburnt gases to disperse before restarting the oil burner if it has failed to ignite previously.

