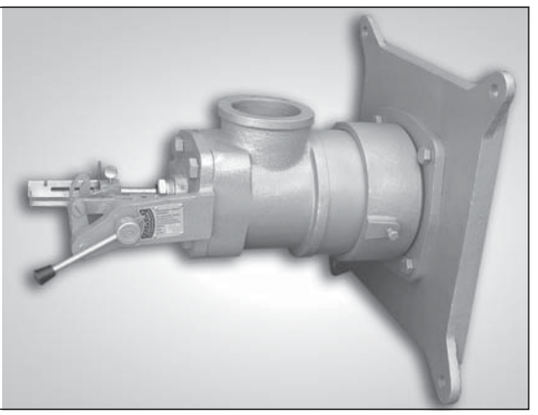
# SELF PROPORTIONING OIL BURNER

## SALIENT FEATURES

- **Considerable fuel savings compared to other conventional burners**
- **Single lever to control fuel and air flow simultaneously**
- **Internal parts easily removed for cleaning**
- **First choice of original equipment manufacturers.**



## CONTITHERM

Self Proportioning Burner operates by reducing areas by cones within cones to control the air which gives the desired feature of constant air velocities at any point within the Burner turndown. As kinetic energy is a function of velocity, squared times mass, it means that the kinetic energy/oil capacity ratio is constant throughout the Burner's turndown. Therefore the drop in atomisation on low fire normally associated with Low Pressure Air Burner is not experienced. The control of oil quantity is also by reduction of area and therefore, the control valves have the same characteristics and can, in fact are controlled by mechanical linkage to give the required proportioning feature by means of single lever.

Take for example a conventional Low Pressure Oil Burner having a maximum capacity of 500 cft.of air per minute with an available pressure 20" Wg (500 mm Wg). If this throughput is halved by throttling an external valve and using a fixed discharge orifice, the pressure will drop to 5" Wg behind the orifice which makes effective atomisation impossible. However, in Self Proportioning Burner, halving is accomplished by halving area of discharge nozzle and pressure behind the nozzle for this or any other will remain at 20" Wg.

Being low pressure air atomised, the Burner requires 25" Wg constant air pressure at the Burner inlet. Preferably the blower should be flat pressure characteristic fan, that is one which can deliver from maximum output to the required minimum without altering the air pressure. The design of the oil system is also important to the correct functioning of the Burner. It is essential that the the oil is available at the burner inlet at a selected constant pressure between 5 - 15 psi and at a viscosity 70 - 100 seconds Redwood I through RING MAIN SYSTEM.

### Highlights and star features

1. Constant air-oil ratio maintained over the entire turndown range of 5:1.
2. Single lever control to simultaneously regulate both air and oil flow.
3. With Closed Ring Main oil feed and oil Recirculation system you achieve highest combustion efficiency saving in a year's time probably more by way of reduced oil consumption than the cost of installation.
4. Excellent design features ensure easy operation, precision control and quick removal of internal parts for cleaning.

### Adjustment

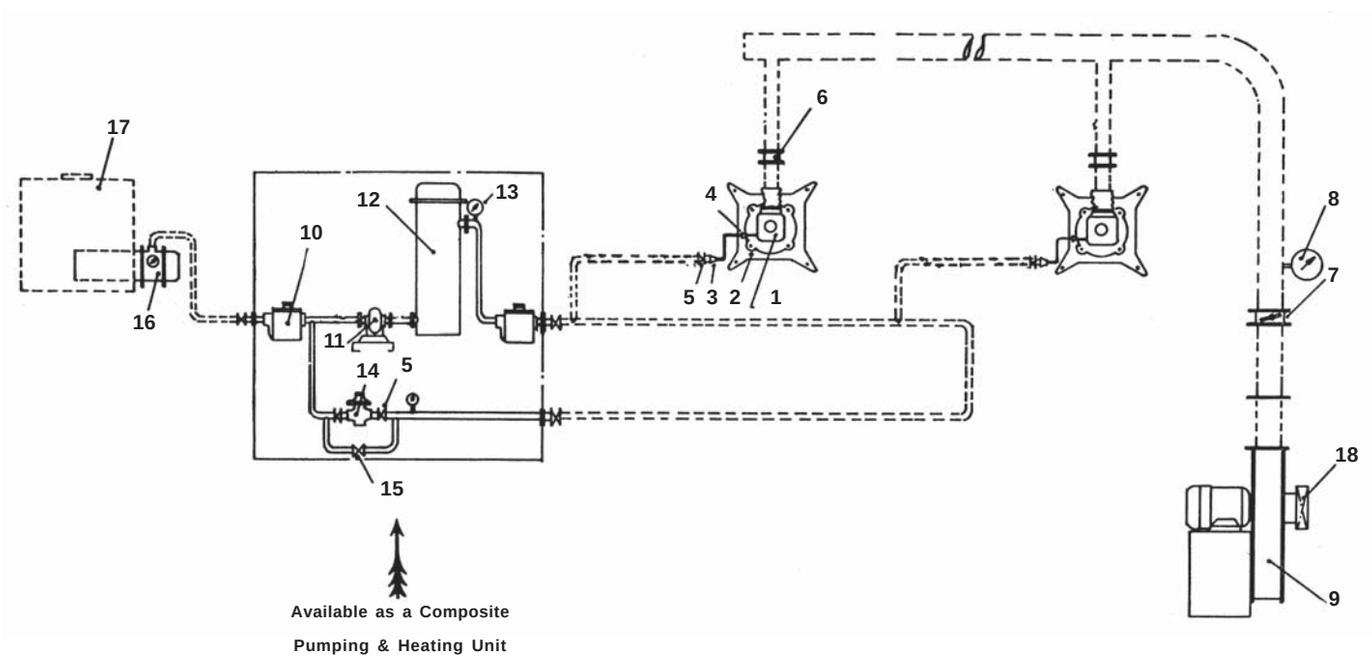
The method of adjusting the oil valve to suit your conditions is as follows:

1. Place operating lever for maximum flow, loosen thumbscrew on cross head and move oil valve by hand until the desired flame or furnace atmosphere is obtained.
2. Move operating lever to minimum position. Again adjust oil valve, but this time by moving pin in the curved slot until the desired flame or furnace atmosphere is obtained for minimum flow.

This latter adjustment will not affect the adjustment already made for maximum flow. The burner will now proportion correctly over the whole range of five to one.

## SIZES AND CAPACITIES

| AIR PRESSURE IN MM WG. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BURNER SIZE | 375 | | 500 | | 625 | | 750 | | 875 | | 1000 | |
| | OIL IN LITRES / Hr. | | | | | | | | | | | |
| | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. |
| 2 | 6.3 | 1.3 | 7.2 | 1.3 | 8.1 | 1.8 | 9 | 1.8 | 9.5 | 1.8 | 10.5 | 2.2 |
| 3 | 11.3 | 2.7 | 12.7 | 2.7 | 14.5 | 3.1 | 15.8 | 3.1 | 17.2 | 3.6 | 18 | 3.6 |
| 3A | 17.7 | 3.6 | 20.4 | 4.5 | 22 | 4.5 | 25 | 5 | 26.7 | 5.5 | 28.6 | 5.9 |
| 4 | 23.6 | 5 | 27.2 | 5.5 | 30.4 | 6.35 | 34 | 6.8 | 36.3 | 7.2 | 38.6 | 7.7 |
| 4A | 38.5 | 7.7 | 45.4 | 9 | 50 | 10 | 55 | 10.9 | 59 | 11.8 | 63.5 | 12.7 |
| 5 | 47.6 | 9.5 | 54.5 | 10.9 | 63.5 | 12.7 | 68 | 13.6 | 72.6 | 14.5 | 77 | 15.5 |
| 5A | 72 | 14.5 | 83.5 | 16.8 | 93.5 | 18.6 | 102 | 20 | 110 | 21.8 | 118 | 23.6 |




1. BURNER
2. FRONT PLATE
3. FLEXIBLE OIL PIPE
4. REDUCING NIPPLE
5. OIL ISOLATING VALVE
6. BUTTERFLY VALVE FOR AIR
7. MAIN BUTTERFLY AIR ISOLATION VALVE
8. AIR PRESSURE GAUGE
9. BLOWER
10. OIL FILTER
11. MOTORISED OIL PUMP
12. ELECTRIC PREHEATER
13. OIL THERMOMETER
14. OIL PRESSURE REGULATING VALVE
15. BYPASS VALVE
16. OUTFLOW HEATER
17. SERVICE TANK
18. INLET AIR FILTER


RAY ENTERPRISES

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