

Fitch Fuel Catalyst for burners Installation and adjustment instructions

Please read the installation instruction below very carefully, as it is recommended that you use a licensed Mechanic or Boiler Technician to perform the installation of the Fitch Fuel Catalyst.

Before commencing the installation please ensure that you have no open flames nearby and that the equipment/ machinery are isolated. Finally please ensure that you consult your manufactures guidelines for relieving fuel system pressures prior to commissioning commencement of the product.

Efficiency – Before installing the Fitch Fuel Catalyst please ensure that the Furnace or Boiler is in good electrical and mechanical condition as the Fitch Fuel Catalyst will not compensate for existing faults or problems. Optimum fuel efficiency will be achieved once the connected equipment has been totally flushed with the new high performance fuel achieved through the installation of the Fitch Fuel Catalyst. Therefore, it is possible that higher fuel consumption and emission readings may be recorded during the initial installation period however will subside after approximately 48 hours of operation.

1. Measure the exhaust gas composition before mounting a Fitch Fuel Catalyst. The following values are of importance:
 - O₂ Should be as low as possible
 - Exhaust gas temperature depends of the fuel quantity and also how clean the boiler compartment is. Normally boiler producers recommend a minimum temperature of 110 C and a max. temperature at 160 C. otherwise you are not only heating the house but also the environment.
 - CO Should be as low as possible. If the CO is more than 50 ppm then the flame will produce soot
 - CO₂ The higher the better.
 - Efficiency figure in % of the burner (or loss in %)
 - Soot, should be zero on a white test paper
 - Measure oil consumption at 100 % performance

Before any test is performed the above values should be correctly set according the standards for the burner type.

Installations - Switch off the Equipment and isolate it electrically and mechanically ensuring that the fuel lines are also completely isolated. Locate a suitable location in the fuel line close to the suction pump and injector but after the filter. Commence to install a mounting bracket (supplied by others) and bolt the rubber insulated mounting rings (supplied) to the mounting bracket. Please ensure that the Fitch Fuel Catalyst is only installed VERTICALLY and that the fuel flow directional arrow is pointing in the correct direction. The Fitch Fuel Catalyst is designed to be installed in the supply fuel line only and should never be installed in applications whereby a fuel pressure greater then 600 PSI is expected.

2. Mount the Fitch Fuel Catalyst into the fuel supply line after the oil filter. For commercial boilers if a Water Separator/ Filter is not already installed it is highly recommended that one is installed before the Fitch Fuel Catalyst and that the filter elements are cleaned more frequently during the initial stages of the Fitch Fuel Catalysts installation. When used with heavy oil it is recommended that you flush the Fitch Fuel Catalyst with warm soapy water every 1,000 hours to ensure that maximum fuel efficiency is maintained throughout the products lifespan
3. Let the burner run at **peak performance** for approx. 30-60 minutes and take new exhaust gas measurement as per (1) and then you can make the following corrections:

A: O2 higher	<p>Reduce O2 to the minimum until CO starts going up and soot is produced. Adjust until no soot is produced and CO is lower than 80 ppm, best is CO = 0 and soot = 0</p> <p>Fitch Fuel Catalyst allows running the burner with – up to 50 % less O2 surplus – w/o producing soot or CO.</p> <p>The lower the O2 supply the slower the airflow in the boiler compartment. This allows the heat wave the enter the water in the boiler better = more heat for less fuel.</p> <p>It happens often that the O2 lowers because the combustion becomes more complete and needs more oxygen. In such case there is no need for any adjustment of O2.</p>
B: exhaust gas temperature is higher than before	<p>Reduce fuel supply either by inserting smaller fuel injector nozzle or by reducing the pump pressure until the exhaust gas temperature is at old level again.</p> <p>Normally the oil supply to the burner can be reduced by 10 – 15 % after reduction of oil supply the O2 value is going up again and can be reduced once more as per (A). Measure the new fuel volume per hour and compare it with the initial volume.</p>
note: For Multi stage Boilers	<p>The regulation after the mounting of the Fitch Fuel Catalyst has to be done separately for each stage/ level of the burner.</p> <p>In case of a modulating burner we recommend to make adjustments of O2 and fuel volume at</p> <ul style="list-style-type: none"> - 40 % level - 70 % level - 100 % level

4. Take finale exhaust gas measurement and consumption at 100 % performance. Saving achieved is usually approx. **5 – 15 %**.

2 - 4 weeks later: Typical for commercial boiler applications

5. Take a new exhaust gas measurement as per point 1. In many cases you will find the following changes which will allow you to make a new adjustment of O2 surplus or fuel volume:
 - a. O2 goes normally slightly up (can be reduced again)
 - b. Exhaust gas temperature can go down considerably because the boiler flame compartment gets cleaner. Make sure that it does not fall beyond the condensation point (approx. 100 C) eventually increase fuel volume.
 - c. Exhaust gas temperature can go up again = Reduce fuel volume once more in order to reduce the temperature to the initial level again.