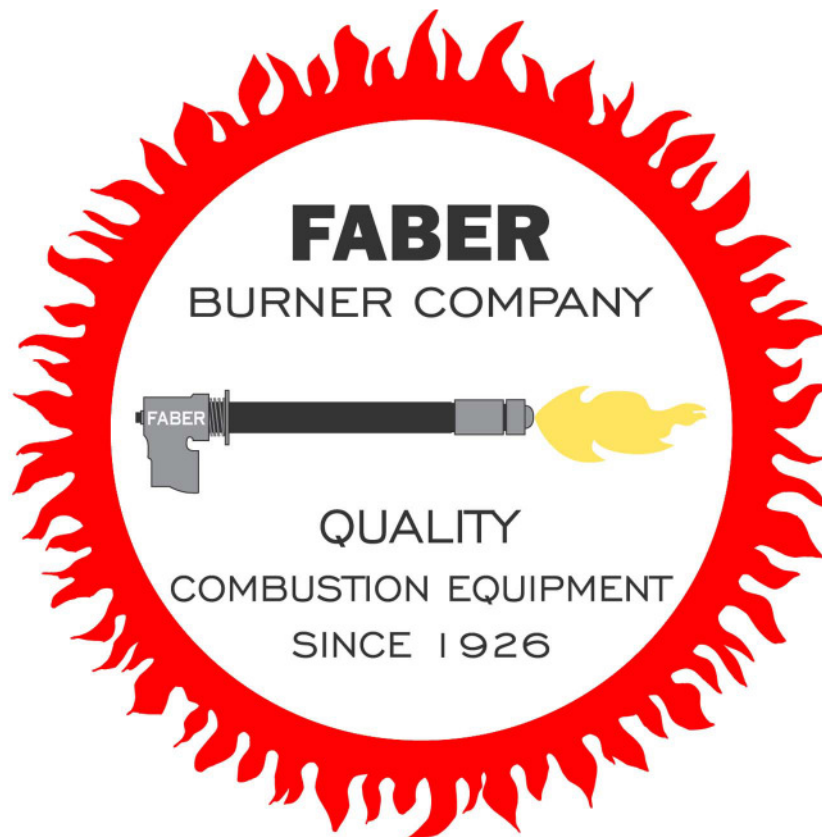


FABER

Burner Company

OIL GUNS



Bulletin OG-1A

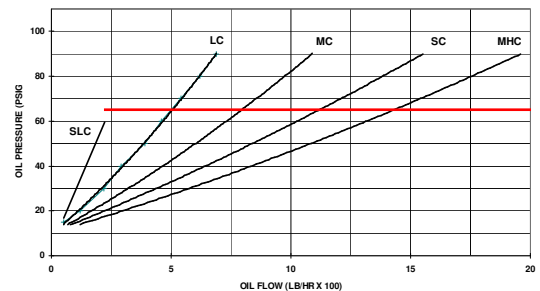
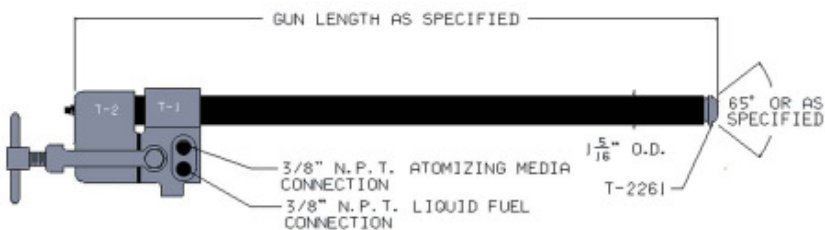
FABER OIL GUNS

Faber Burner Company has a complete line of oil guns, ranging from 2.1 to 200 MMBTU/hr. heat input. Any liquid fuel may be burned with either steam, air, or mechanical atomization. All steam and air atomized oil guns have a high turndown ratio, typically greater than 8:1. Gun model, length, and atomizer size and type are selected based on your application.

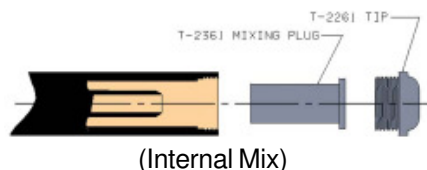
High Pressure Steam Or Air Atomized Oil Guns

Faber's high pressure steam or air atomized oil guns fire light or heavy oils with either atomizing media with no combustion performance compromise. Although plant air is typically used for a cold start-up when no atomizing steam is available, it can also be used for continuous operation. Less costly steam atomization is typically used at all times when it is available. Atomization media pressure requirements at full capacity range from 75 to 125 psig.

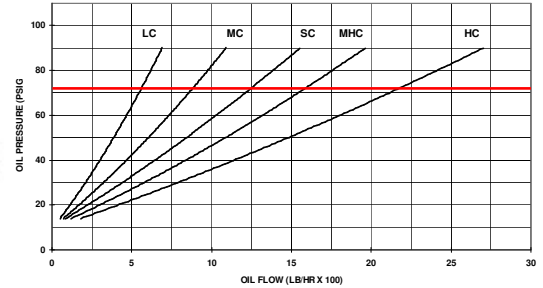
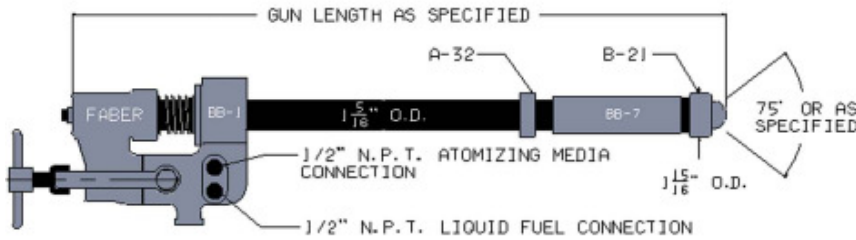
Type "T" Oil Gun



- Heat input range 2.1 to 24 MMBTU/hr.
- Used as warm up guns in large oil igniters, or to burn waste streams
- Steam or air atomized
- Designed for fuels with a viscosity of 200 SSU or less. Use orifice bushing P/N ob-70 for fuels with a viscosity of 35 to 50 SSU
- Optional clean out valve assembly P/N B5
- Requires atomizing differential pressure control. Approximately 15 psig differential for #2 Oil and 18 Psig differential for #6 oil
- Atomizer Assembly:



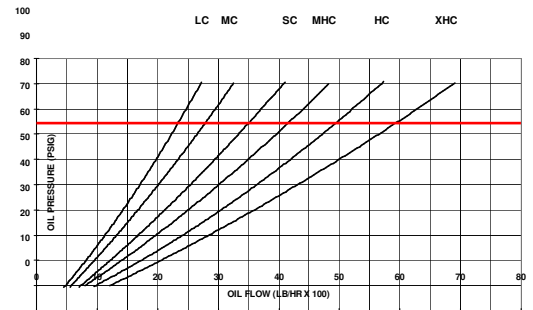
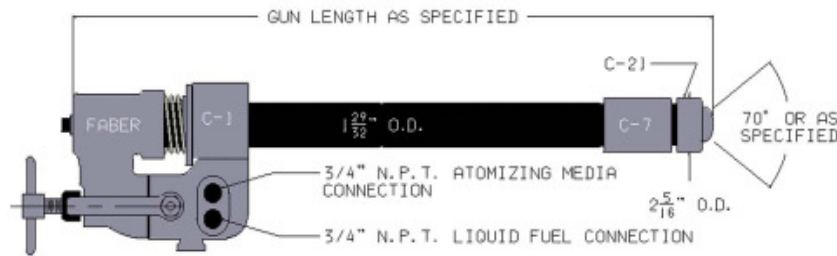
Type "BB" Oil Gun



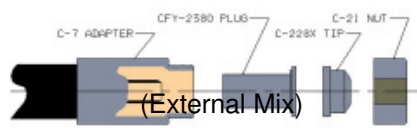
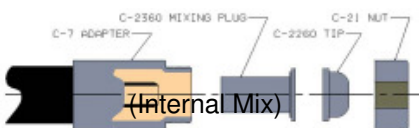
- Heat input range 5.3 to 41 MMBTU/hr.
- Used as the main burner in air registers
- An insulated oil tube is used for guns firing #2 oil with steam atomization
- Steam or air atomized
- Designed for fuels with a viscosity of 200 SSU or less. Use orifice bushing P/N ob-70 for fuels with a viscosity of 35 to 50 SSU
- Optional clean out valve assembly P/N B5
- Requires atomizing differential pressure control. Approximately 15 psig differential for #2 Oil and 20 psig differential for #6 oil
- Atomizer Assembly:



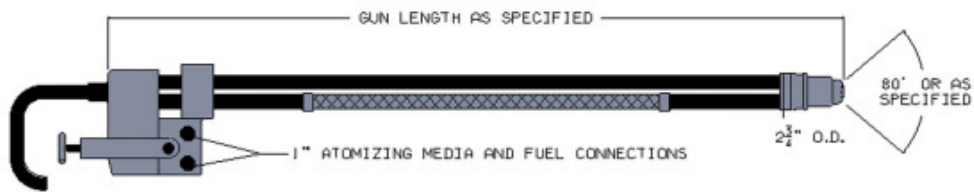
Type "C" Oil Gun



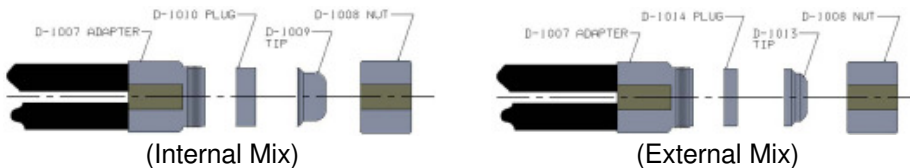
- Heat input range 40 to 150 MMBTU/hr.
- Used as the main burner in air registers
- An insulated oil tube is used for guns firing #2 oil with steam atomization
- Steam or air atomized.
- Designed for fuels with a viscosity of 200 SSU or less. Use orifice bushing P/N oc-70 for fuels with a viscosity of 35 to 50 SSU.
- Optional clean out valve assembly P/N B5
- Requires atomizing differential pressure control. Approximately 15 psig differential for #2 Oil and 20 psig differential for #6 oil.
- Atomizer Assemblies:



Type “D” Oil Gun



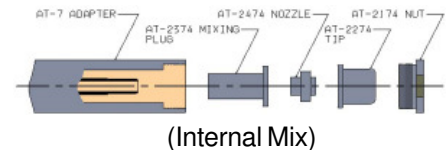
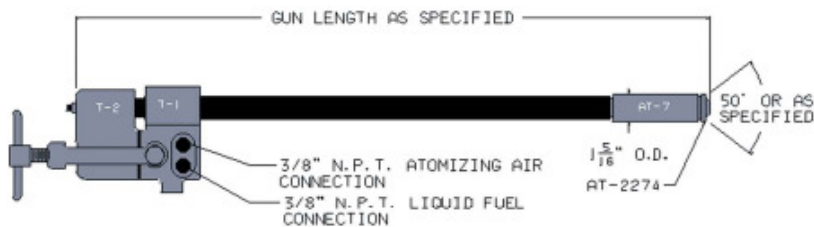
- Heat input range 120 to 200 MMBTU/hr.
- Used as the main burner in air registers
- Steam or air atomized
- Designed for fuels with a viscosity of 200 SSU or less
- Requires atomizing differential pressure control, with a 15 to 22 psig differential on #6 fuel oil, or a constant atomizing pressure of approximately 80 psig on #2 fuel oil
- Uses either internal, or external mix atomizers depending on application
- Atomizer assemblies:



Low Pressure Air Atomized Oil Guns

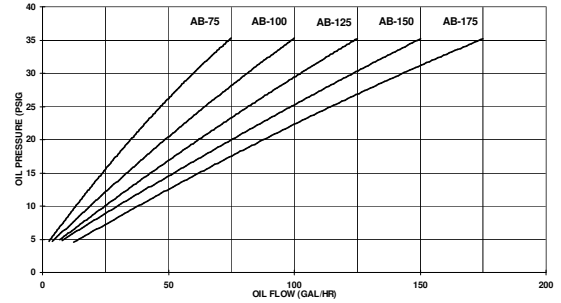
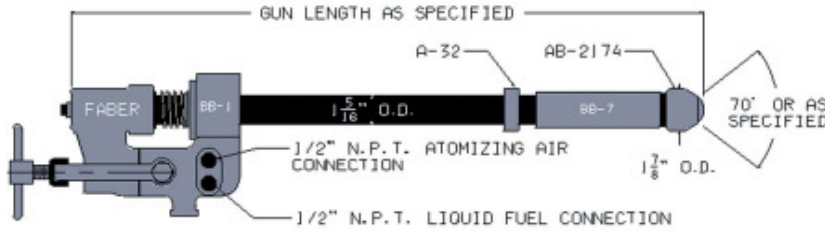
Faber’s low pressure air atomized oil guns fire light or heavy oils when no atomizing steam is available. High turndown rates are achievable with very low atomizing air flow consumption. Atomization media pressure requirements at full capacity range from 25 to 40 psig.

Type “AT” Oil Gun

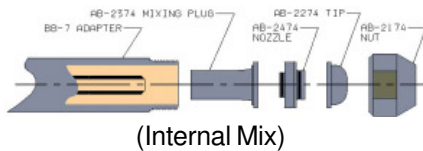


- Heat input range 0.5 to 2.0 MMBTU/hr.
- Used as our low capacity oil igniters, or for waste fuel combustion
- air atomized
- Designed for fuels with a viscosity of 35 to 50 SSU
- Optional clean out valve assembly P/N B5
- 20 psig oil pressure at 15 gph #2 oil flow, 15 to 20 psig atomizing air pressure supplied at a constant pressure
- Atomizer assembly shown above

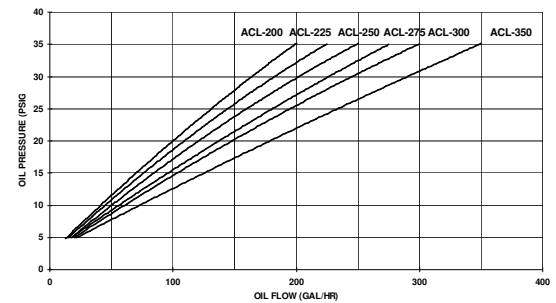
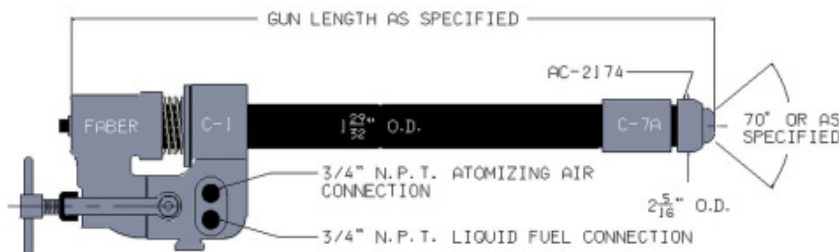
Type "AB" Oil Gun



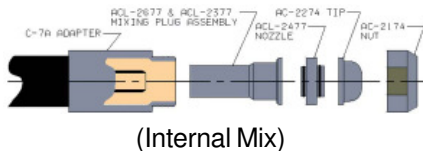
- Heat input range 10 to 25 MMBTU/hr.
- Used as the main burner in air registers
- Air atomized
- Designed for fuels with a viscosity of 200 SSU or less
- Optional clean out valve assembly P/N B5
- Requires a constant atomizing pressure of 30 to 40 psig
- Capacity chart shown above is for #2 oil. Multiply gph by 0.8 to obtain #6 oil flow rates
- Atomizer Assembly:



Type "ACL" Oil Gun

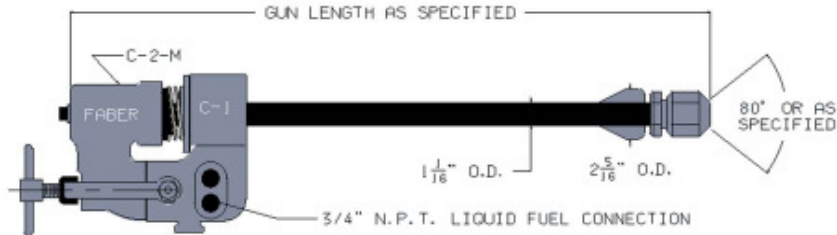


- Heat input range 25 to 50 MMBTU/hr.
- Used as the main burner in air registers
- Air atomized
- Designed for fuels with a viscosity of 200 SSU or less
- Optional clean out valve assembly P/N B5
- Requires a constant atomizing pressure of 30 to 40 psig
- Capacity chart shown above is for #2 oil. Multiply gph by 0.8 to obtain #6 oil flow rates
- Atomizer assembly:



Mechanically Atomized “Cold Start” Oil Guns

Faber’s mechanically atomized type “M” “Cold Start” oil guns are used to light off and warm up a “cold” boiler on light oil when no atomizing air or steam is available. After the boiler is warmed up to operating pressure, this oil gun is removed and replaced with a type “C” or “BB” steam atomized oil gun.



Characteristics Of Typical Fuel Oils

Grade of Fuel Oil	#2 Oil	#4 Light Oil	#4 Heavy Oil	#6 Oil
Sulphur (% wt)	0.05 to 1.0	0.2 to 2.0	0.2 to 2.0	0.7 to 3.5
Hydrogen (% wt)	11.8 to 13.9	10.6 to 13.0	10.6 to 13.0	9.5 to 12
Carbon (% wt)	86.1 to 88.2	86.5 to 89.2	86.5 to 89.2	86.5 to 90.2
Nitrogen (% wt)	0.0 to 0.1	-	-	0.0 to 0.5
Oxygen (% wt)	-	-	-	0.0 to 1.5
Ash (% wt)	-	0.0 to 0.1	0.0 to 0.1	0.0 to 0.5
Gravity				
Degrees API	30 to 40	25 to 30	20 to 28	8 to 15
Specific Gravity @ 60 °F	0.887 to 0.825	.904 to .876	.934 to 887	1.014 to .9659
lb/gal @ 60 °F	7.39 to 6.87	7.529 to 7.296	7.778 to 7.387	8.448 to 8.043
Pour Point, °F	0 to -40	-10 to +30	-10 to +50	+15 to +85
Viscosity				
Centistokes at 104 °F	1.9 to 3.4	1.9 to 5.5	5.0 to 24.0	260 to 750
SSU @ 100 °F	32.6 to 37.9	32.6 to 45.0	45 to 125	900 to 9000
SSU @ 122 °F	-	-	-	45 to 300
BS&W (% Vol)	0.0 to 0.1	0.01 to 1.0	0.01 to 1.0	0.05 to 2.0
HHV,Max (Btu/Gal)	141,800	145,000	148,100	155,900
HHV,Min (Btu/Gal)	135,800	143,100	145,000	151,300

CONVERSION OF FABER BURNERS FROM BURNING NO.6 FUEL OIL TO BURNING NO.2 FUEL OIL

The conversion of an existing Faber Burner that presently fires No.6 fuel oil to fire No.2 fuel oil is relatively straightforward and simple. No.6 fuel oil requires preheating of the oil due to its higher viscosity, and it also offers some lubricating properties for the fuel oil pumps. No.2 fuel oil does not require any preheating and is fired at an ambient temperature. NOTE: (If the No.2 fuel is stored above ground in a cold climate, some heating may be required in order to keep the fuel oil from becoming a gel at very cold temperatures).

The following items are necessary to accomplish the conversion from No.6 fuel oil firing to No.2 fuel oil firing:

- 1) Ensure that the fuel oil pumps, in the system are satisfactory for pumping No.2 fuel oil and, if so, verify the pumps capacity and pressure output when pumping No.2 fuel oil. NOTE: (Normally, a pump designed specifically for No.6 fuel oil cannot be utilized for No.2 fuel oil due to the lack of lubricating properties of No. 2 fuel oil. Some pumps are designed for either fuel; however, the pumping capacity while on No.2 fuel oil will be reduced as compared to No.6 fuel oil).
- 2) The strainer baskets in the fuel oil pump set should be 1/16" diameter holes. NOTE:(Due to the cleaning properties of No. 2 fuel oil, any deposits left over from the No.6 fuel oil will very likely be cleaned away from the tank and piping wall. Therefore, it is advisable to circulate the No.2 fuel oil through the strainers and back to the tanks for a time period as determined by how dirty the strainers become).
- 3) Since the No.2 fuel oil does not require preheating to burn, the temperature limit switches on the burner assembly must be either removed and a wire connected between the two terminals or the switches can be left in place and a jumper wire put between the two terminals to bypass the switches.
- 4) A new oil gun assembly with insulated inner-barrel is required. New tips and plugs for the oil gun are not specifically required. However, if the existing tips and plugs have any wear, it is advisable to buy a completely new insulated oil gun with new tip and plug.
- 5) A new orifice bushing for insertion in the burner assembly insert is required. This orifice bushing screws into the existing insert.
- 6) Tune the burner assembly after the switch-over to No.2 fuel oil to ensure optimum performance and efficiency from the burner. A burner service engineer is available from the Faber Burner factory in Lock Haven, Pennsylvania, to accomplish this tuning.

In order to maintain optimum performance and efficiency from the burner/boiler assembly, yearly tune-ups are recommended.

Your Local **FABER** Representative:

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1000 East Bald Eagle Street
Lock Haven, PA 17745

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(888-322-3711)

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