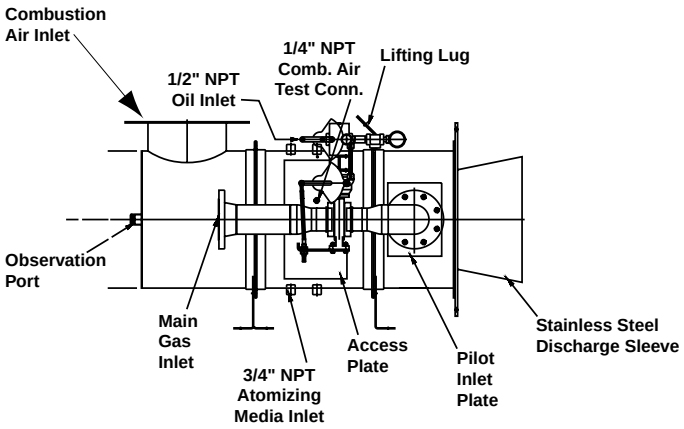
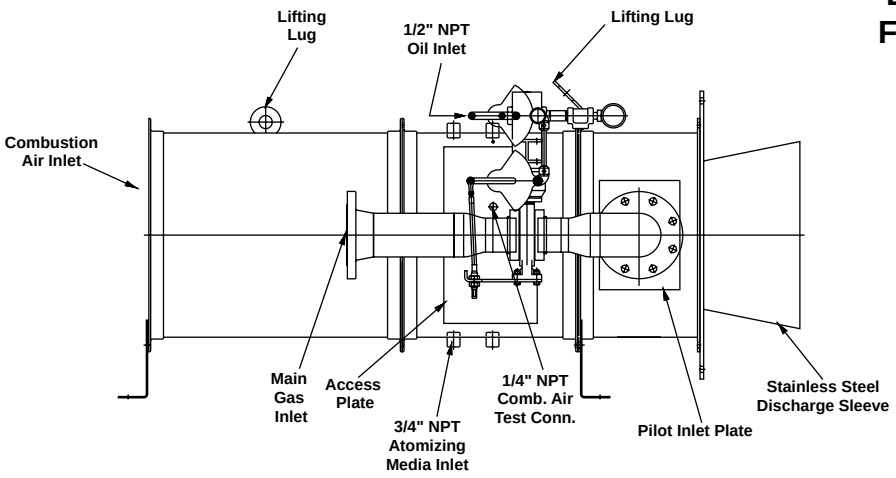
Performance and Selection Data

Packaged Internal Construction

"EB" External Blower version

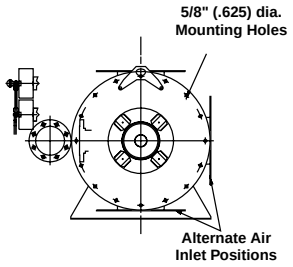


"IB" In-Line Blower version

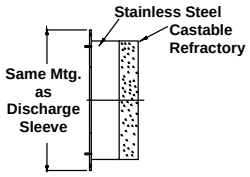


Basic MEGAFIRE® Burners include an air control shutter, fuel nozzles, mixing cone, pilot and provision for UV scanner in one compact package.

Combustion air is provided by either an integral centaxial (IB) in-line blower or via an (EB) external blower. A differential air pressure (see page 2604) must be provided for cataloged capacities. IB version is used for negative to balanced combustion chamber pressures. For back pressure or over-fire applications, use EB version and external blower.



End View Into Face of Burner



Optional Block/Seal & Support Assembly

Flame discharge is through a stainless steel combustion sleeve **(1100°F (593°C) maximum chamber temperature)** or a refractory block **(1600°F (870°C) maximum chamber temperature)** complete with seal and support housing.

Piloting is by an independent, spark-ignited, raw gas pilot.

Burner mounting uses an integral mounting flange, but additional support MUST be provided.

Combustion air control is accomplished with a built-in air shutter, connected via control cable, to a fuel control valve (Maxon MICRO-RATIO® Valve). The "XC" version utilizing external control of air and fuel is also available.

Suitable fuels include natural gas, propane, or #2 oil at 50 SSU viscosity or less. Atomizing steam or air is required at 60 PSIG for oil firing. Simultaneous gas and oil firing is possible, up to the total rated capacity of a MEGAFIRE® Burner.

A complete system utilizing MEGAFIRE® Burners also includes gas, oil, and atomizing media pipe trains and a control panel.

Performance and Selection Data

MEGAFIRE® Burners		15M	30M	45M
Maximum Capacity (Btu/hr)	Natural Gas, Propane, or #2 Oil	15,000,000	30,000,000	45,000,000
Turndown Ratios	Natural Gas or Propane	15 to 1	15 to 1	15 to 1
	#2 Oil	10 to 1	10 to 1	10 to 1
Fuel Pressures required at burner inlet	Natural Gas	22" wc	26" wc	38" wc
	#2 Oil	70 psig	70 psig	60 psig
	Propane	8.8" wc	10.4" wc	15.2" wc
Pilot Gas Inlet Pressure	(range) 100k – 300 kBtu/hr	0.5 – 5" wc		
Combustion Air	(SCFM) [1]	2750	6000	9500
Combustion Air Differential Pressure (IB and EB versions)	@ test connection upstream of air shutter	2.9" wc	2.9" wc	3.3" wc
Total Combustion Air Pressure Required (EB version only)	@ EB transition inlet	4.4" wc	5.1" wc	9.9" wc
Atomizing Media (for oil firing option)	SCFM Air @ 60 psig	20	37	72
	lbs/hr Steam @ 60 psig	58	109	207
IB Blower Horsepower	Direct Drive 230/460/3/60	3	5	10
Approximate Flame Dimension	Length (in feet)	9	15	21
	Diameter (in feet)	3.5	4	4
Force (pounds) required to open air shutter with combustion air on (refer to Bulletin 7000-Control Valves for torque required to operate control valve set		40 lbs.	50 lbs.	60 lbs.
Noise Levels (IB burner only) [2]	dBA	87	88	89

[1]The SCFM shown is based on the IB fan curves at the known differential through the burner with the air shutter fully open. For both IB and EB versions, combustion air must be provided at differential pressure (burner over combustion chamber) for cataloged burner capacities.
[2] Silencers are available to reduce noise levels to below 80 dBA

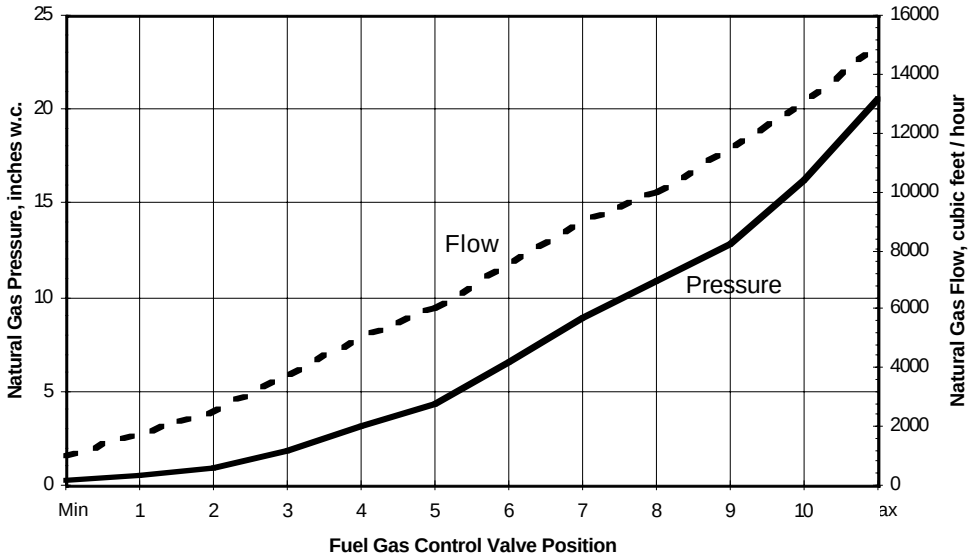
To select your MEGAFIRE® Burner, specify:

1. **Quantity**
2. **Size**
   – 15M = 15,000,000 Btu/hr (maximum)
   – 30M = 30,000,000 Btu/hr (maximum)
   – 45M = 45,000,000 Btu/hr (maximum)
3. **Fuel and atomizing media**
   – Gas: *If other than natural or propane gas, provide:*
   Specific fuel and/or analysis;
   Specific gravity, calorific value, and available pressure
   – Oil: *If other than #2 oil, provide:*
   Specific fluid and/or analysis;
   Specific gravity, calorific value, viscosity, temperature and available pressure
   – Atomizing media:
   Air – Volume and pressure
   Steam – Volume, temperature and pressure
4. **Combustion chamber static pressure condition**
5. **In-Line (IB) or External (EB) Blower version**
   – For “IB” version:
   – Electrical specification for motor
   – For “EB” version:
   – Electrical specification for motor
   – Blower discharge position
   – Blower volume and pressure
   – For “XC” version (EB only):
   – Verify that control of combustion air/fuel gas and/or fuel oil is specified
6. **Discharge options**
   – #310 stainless steel discharge sleeve, or
   – Refractory block with seal and support housing
7. **Control valve options**
   – Standard cam version
   – Packaged control valve arrangement:
   Right-hand assembly, or
   Left-hand assembly
8. **Assembly arrangement options**
   – Gas inlet position (Note: pilot/scanner always opposite side from gas inlet)
   – Air inlet position
9. **Accessory options**
   – Connecting base & linkage for specific automatic control motor
   – Atomizing air train
   – Atomizing steam train
   – Light oil train
   – Gas train
   – Shut-off valve(s)
   – Control panel

Performance and Selection Data

Performance Curves

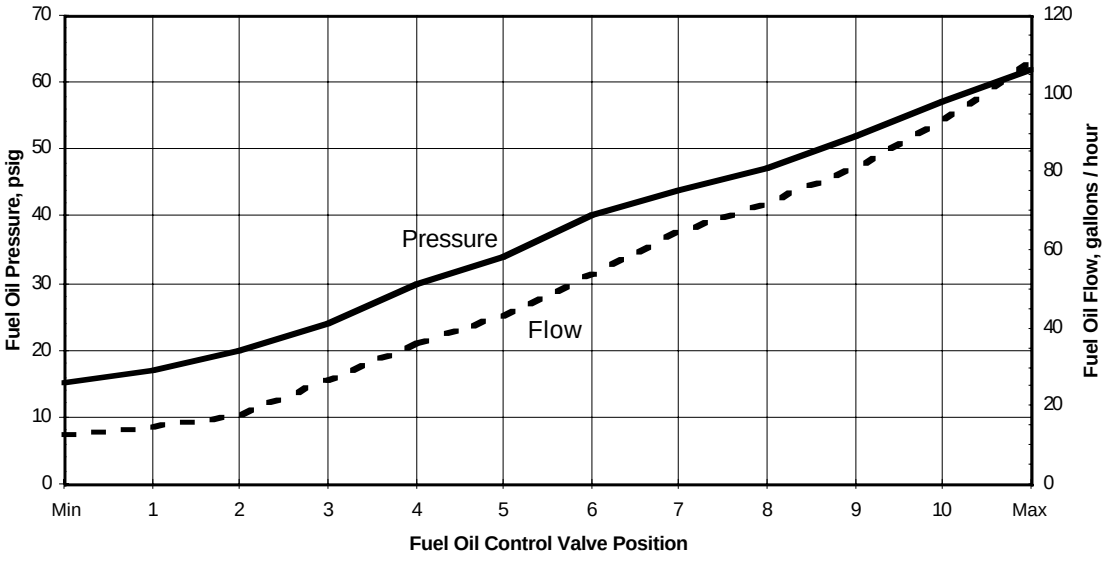
15M MEGAFIRE® – Natural Gas



NOTE: The fuel gas pressures shown are measured at the fuel gas test connection downstream of the control valve at the gas manifold inlet flange.

NOTE: The fuel gas control valve, represented on the x-axis of the above graph is a Maxon 3 inch "-M" style control valve. This valve is supplied in the 15M, 30M and 45M MEGAFIRE® pre-assembled control valve/pipe train package.

15M MEGAFIRE® – #2 Fuel Oil

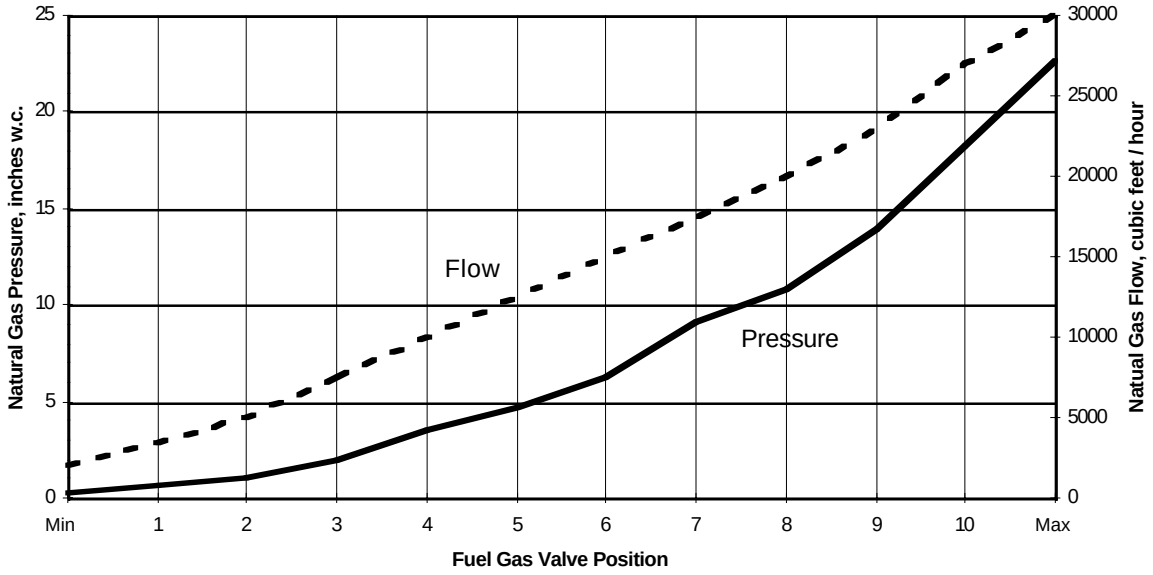


NOTE: The fuel oil control valve, represented on the x-axis of the above graph is a Maxon 1/2" – O – 100 SYNCHRO oil valve. This valve is supplied in the 15M MEGAFIRE® pre-assembled control valve/pipe train package.

Performance and Selection Data

Performance Curves

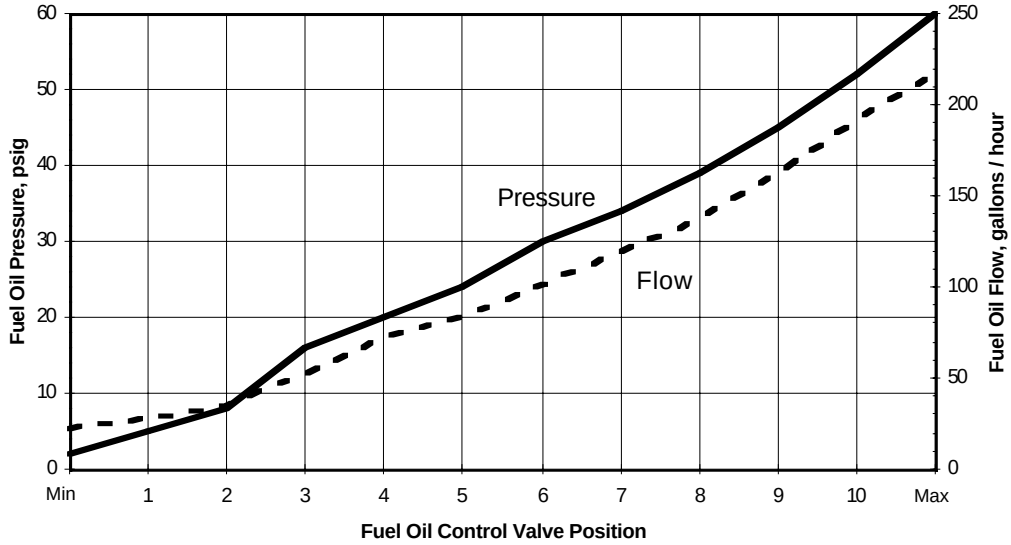
30M MEGAFIRE® – Natural Gas



NOTE: The fuel gas pressures shown are measured at the fuel gas test connection downstream of the control valve at the gas manifold inlet flange.

NOTE: The fuel gas control valve, represented on the x-axis of the above graphs is a Maxon 3 inch "-M" style control valve. This valve is supplied in the 15M, 30M and 45M MEGAFIRE® pre-assembled control valve/pipe train package.

30M MEGAFIRE® – #2 Fuel Oil

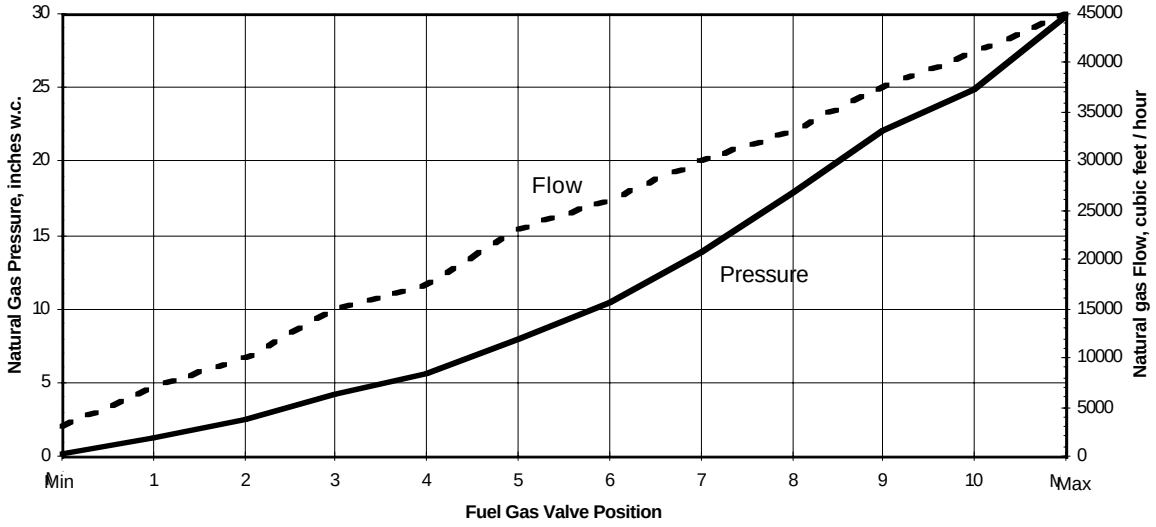


NOTE: The fuel oil control valve, represented on the x-axis of the above graph is a Maxon 3/4" – O – 200 SYNCHRO oil valve. This valve is supplied in the 30M MEGAFIRE® pre-assembled control valve/pipe train package.

Performance and Selection Data

Performance Curves

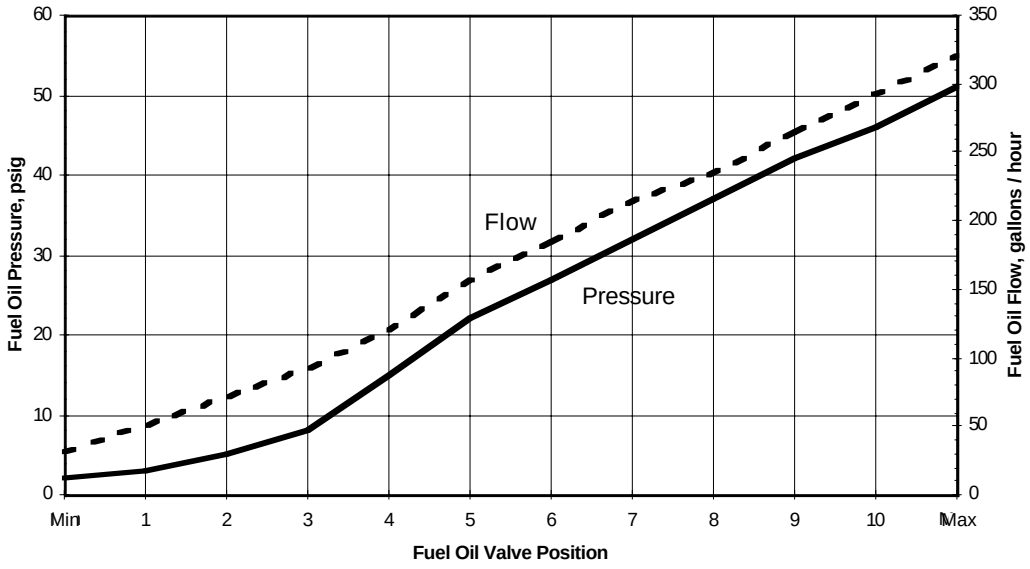
45M MEGAFIRE® – Gas



NOTE: The fuel gas pressures shown are measured at the fuel gas test connection downstream of the control valve at the gas manifold inlet flange.

NOTE: The fuel gas control valve, represented on the x-axis of the above graphs is a Maxon 3 inch "-M" style control valve. This valve is supplied in the 15M, 30M and 45M MEGAFIRE® pre-assembled control valve/pipe train package.

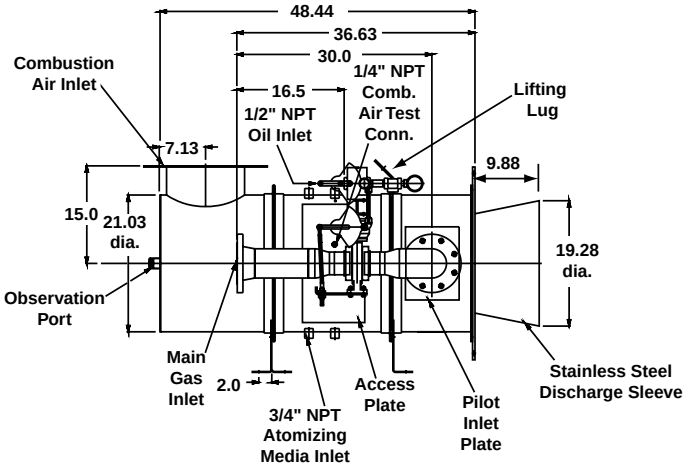
45M MEGAFIRE® – Oil

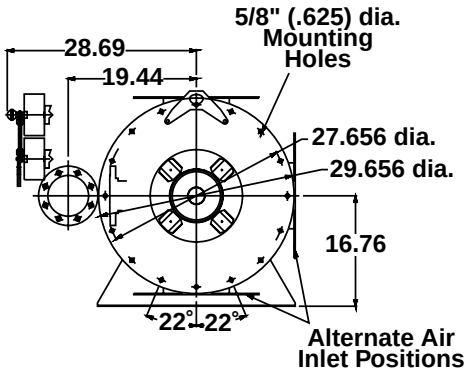


NOTE: The fuel oil control valve, represented on the x-axis of the above graph is a Maxon 1" – O – 400 SYNCHRO oil valve. This valve is supplied in the 45M MEGAFIRE® pre-assembled control valve/pipe train package.

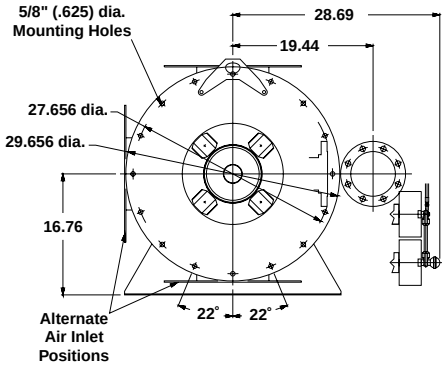
Dimensions

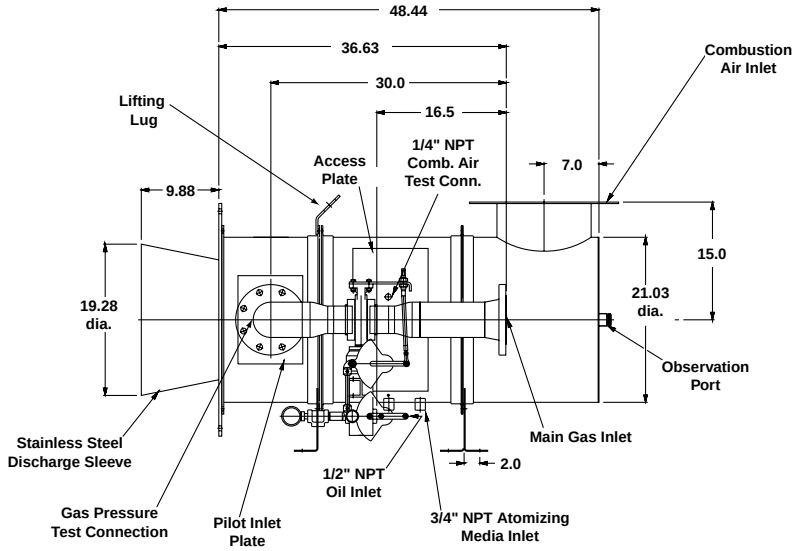
15M EB MEGAFIRE® Combination Burners – Right Hand Arrangement

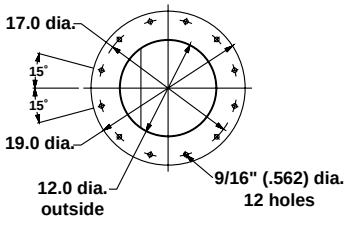




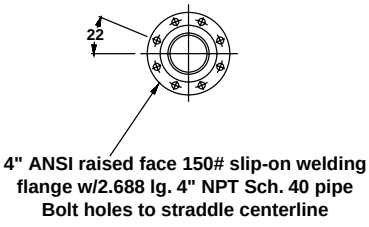
15M EB MEGAFIRE® Combination Burners – Left Hand Arrangement







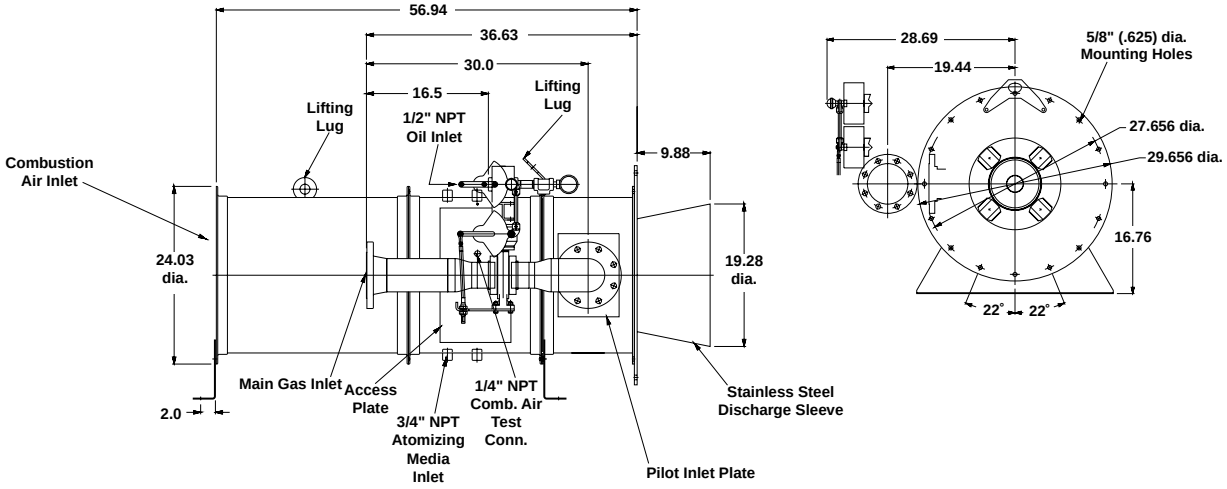
Combustion Air Inlet



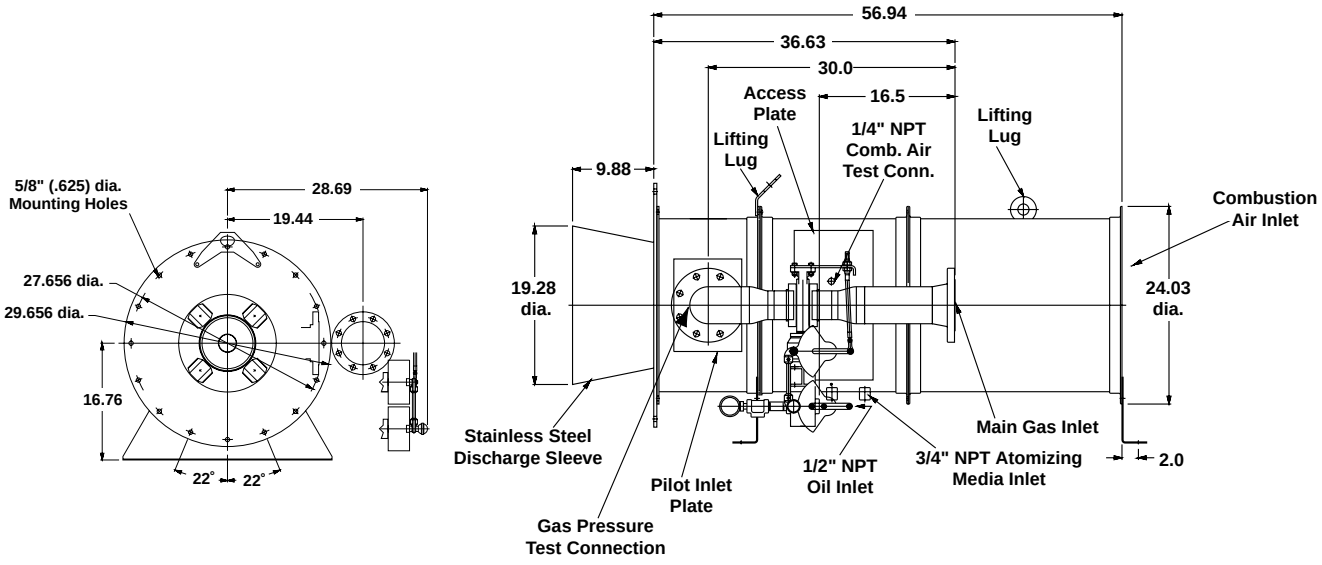
Main Gas Inlet

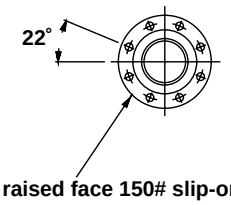
Dimensions

15M IB MEGAFIRE® Combination Burners – Right Hand Arrangement



15M IB MEGAFIRE® Combination Burners – Left Hand Arrangement



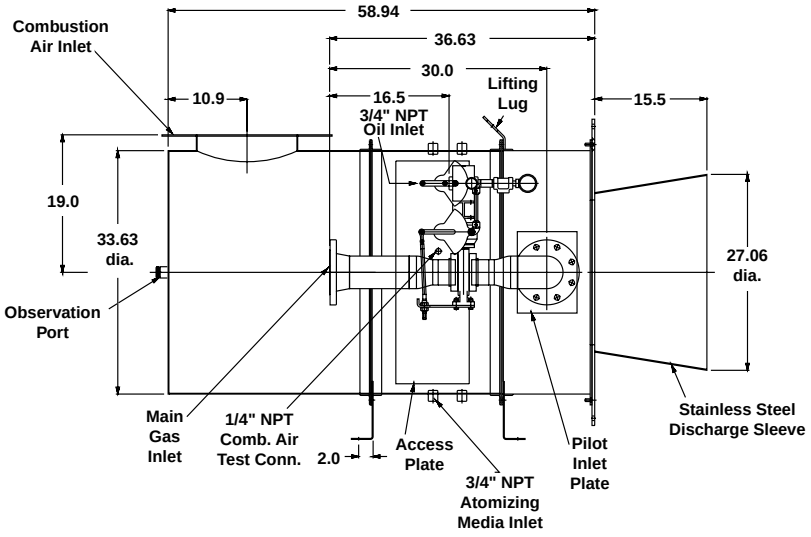


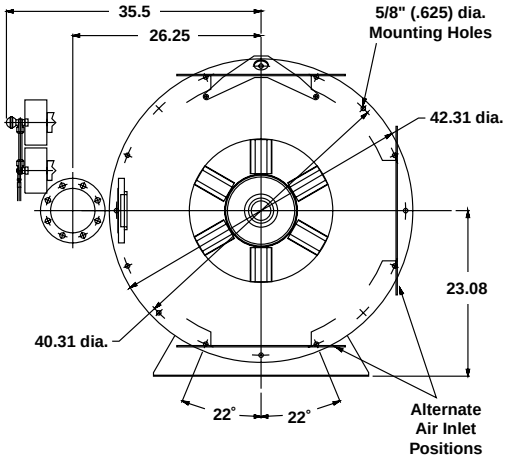
4" ANSI raised face 150# slip-on welding flange w/2.688 lg. 4" NPT Sch. 40 pipe
Bolt holes to straddle centerline

Main Gas Inlet

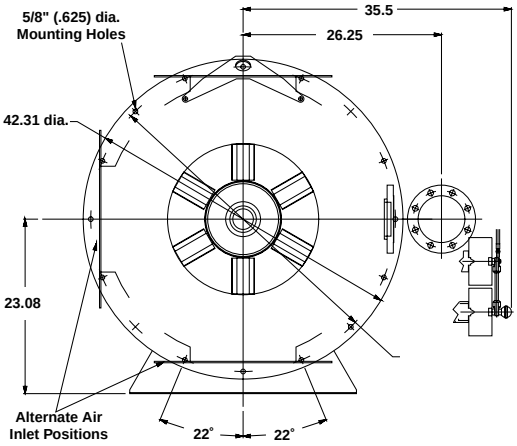
Dimensions

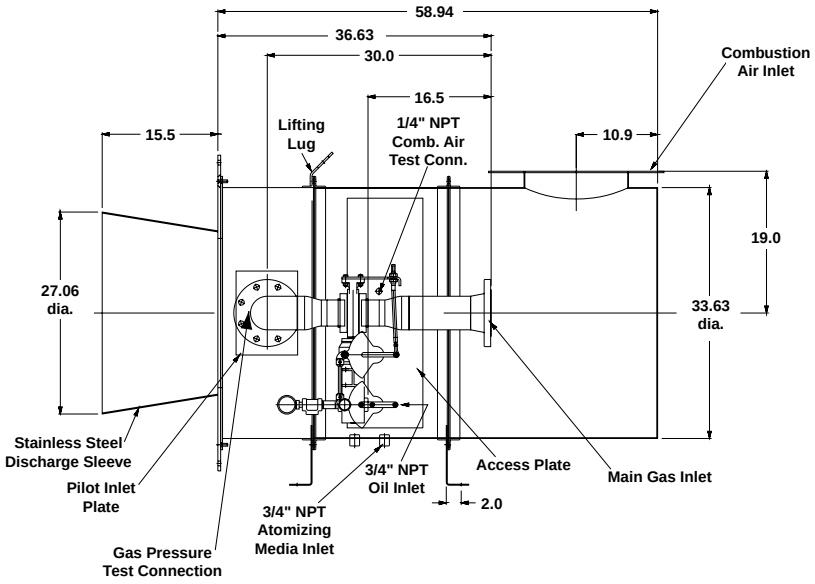
30M EB MEGAFIRE® Combination Burners – Right Hand Arrangement

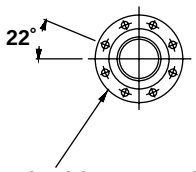




30M EB MEGAFIRE® Combination Burners – Left Hand Arrangement

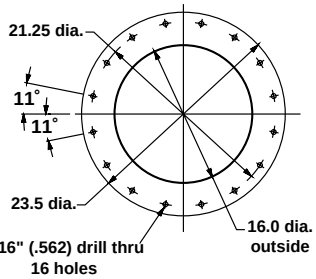






4" ANSI raised face 150# slip-on welding flange w/2.688 lg. 4" NPT Sch. 40 pipe Bolt holes to straddle centerline

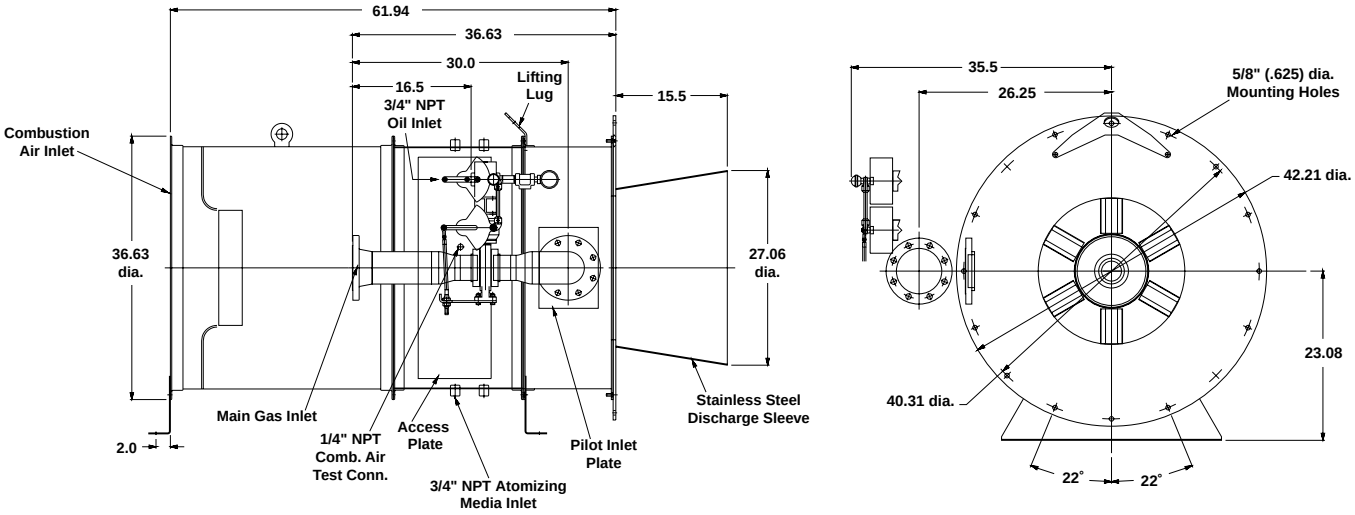
Main Gas Inlet



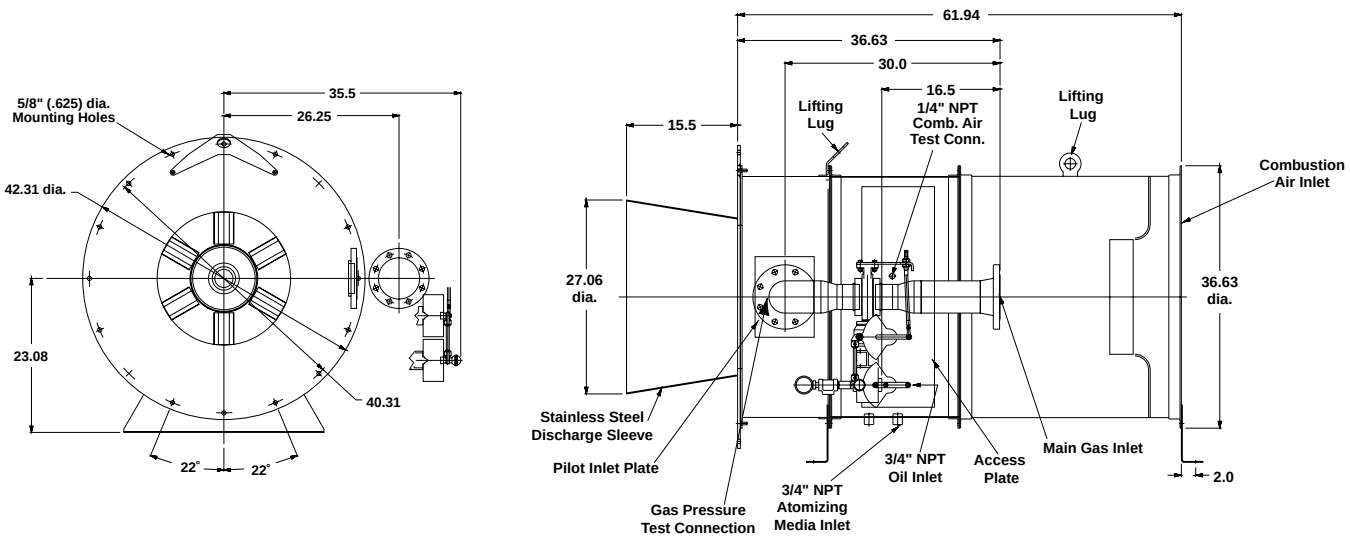
Combustion Air Inlet

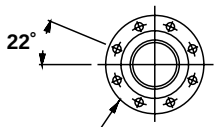
Dimensions

30M IB MEGAFIRE® Combination Burners – Right Hand Arrangement



30M IB MEGAFIRE® Combination Burners – Left Hand Arrangement



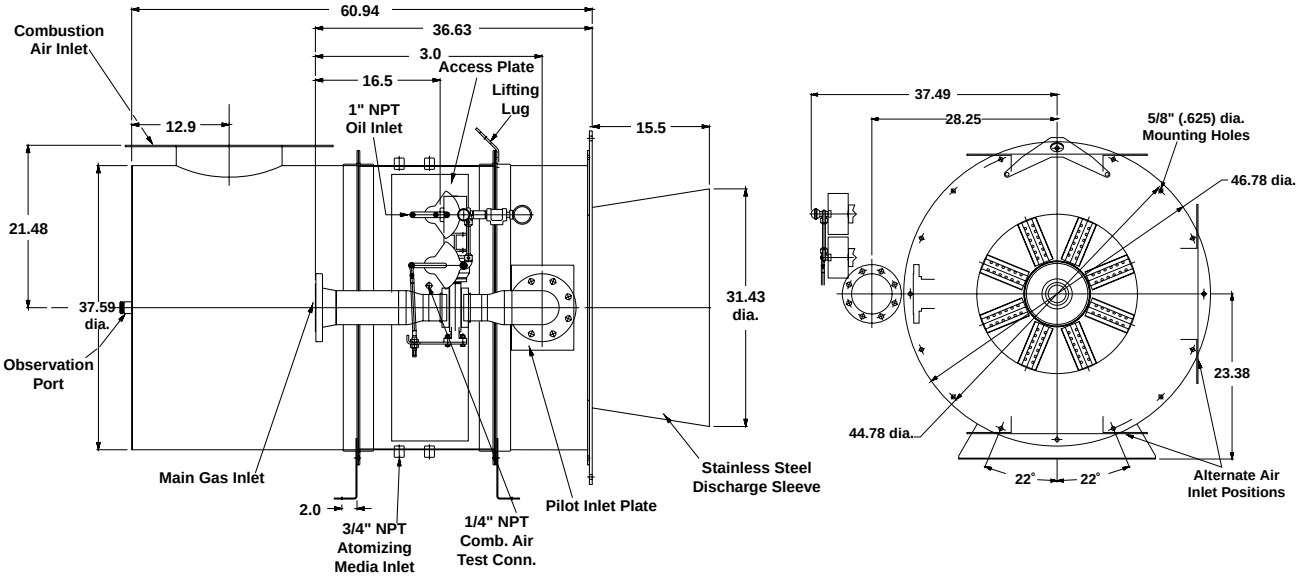


4" ANSI raised face 150# slip-on welding flange w/2.688 lg. 4" NPT Sch. 40 pipe Bolt holes to straddle centerline

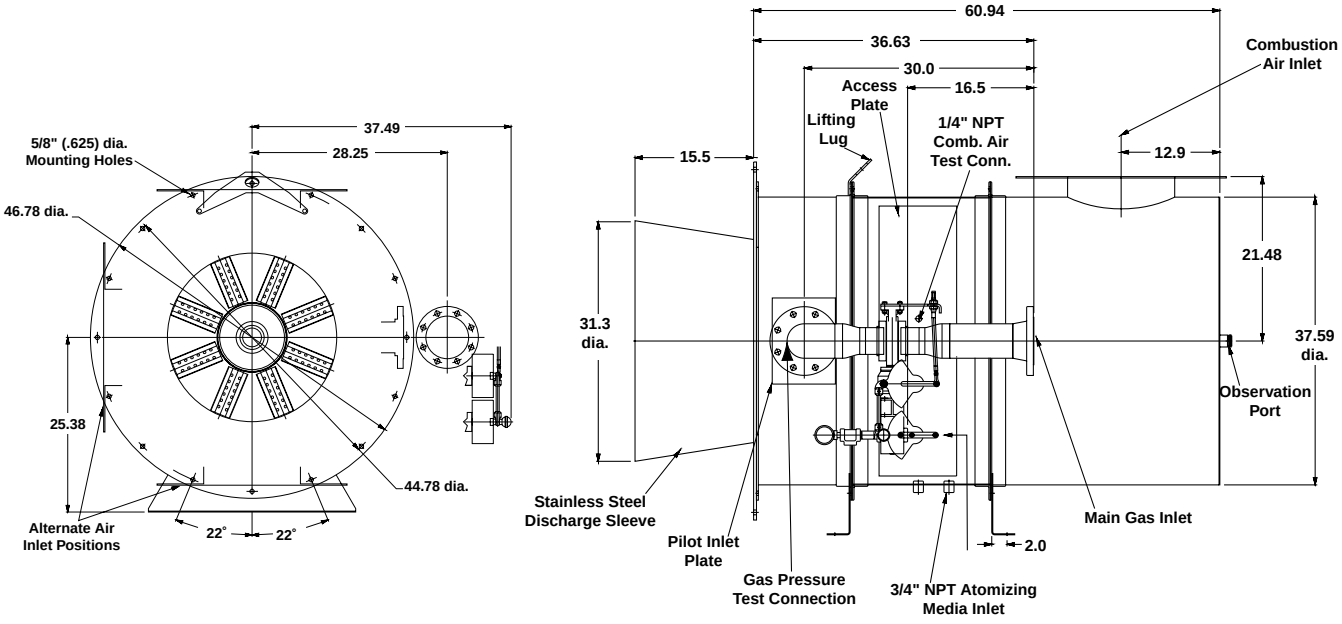
Main Gas Inlet

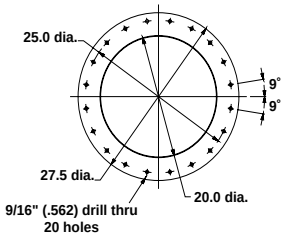
Dimensions

45M EB MEGAFIRE® Combination Burners – Right Hand Arrangement

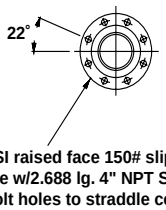


45M EB MEGAFIRE® Combination Burners – Left Hand Arrangement





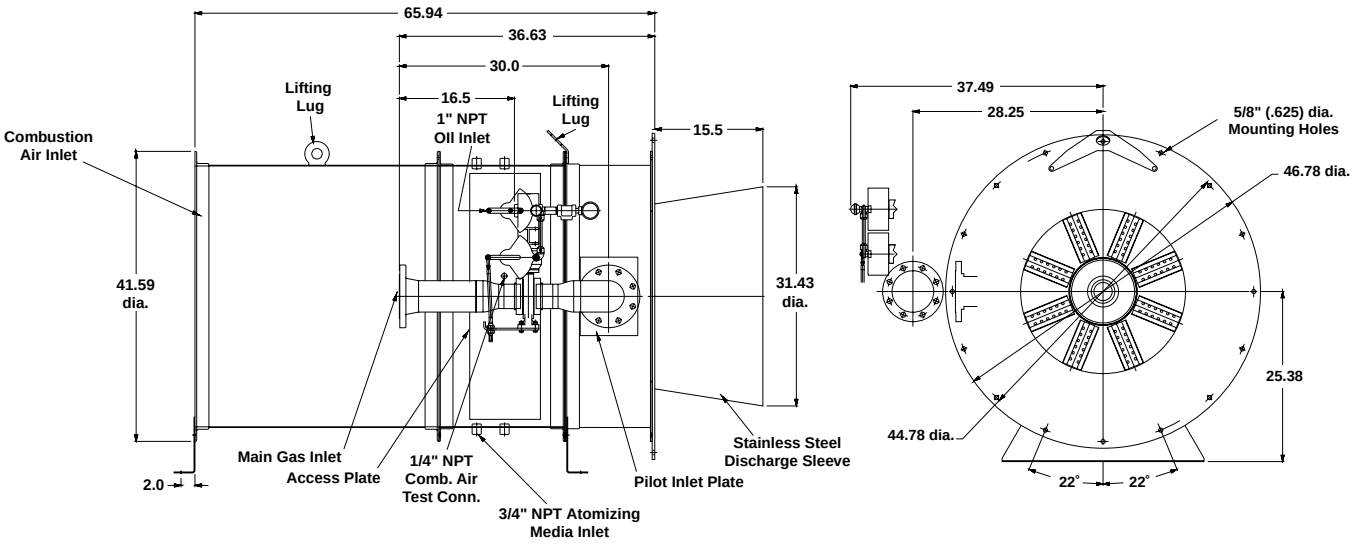
Combustion Air Inlet



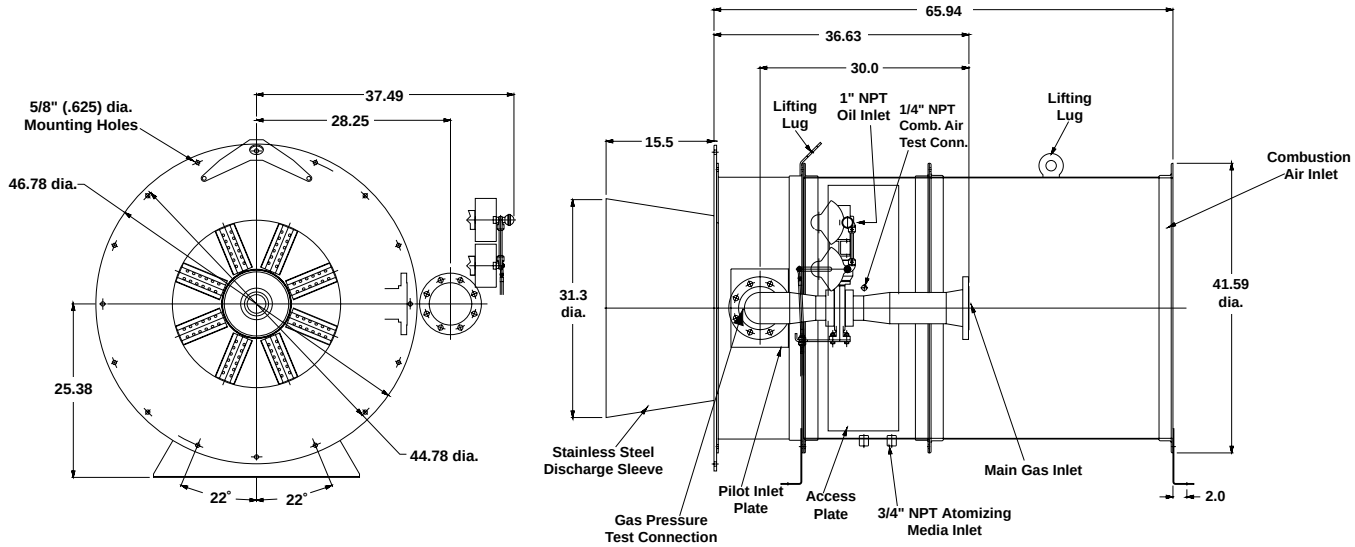
Main Gas Inlet

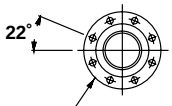
Dimensions

45M IB MEGAFIRE® Combination Burners – Right Hand Arrangement



45M IB MEGAFIRE® Combination Burners – Left Hand Arrangement



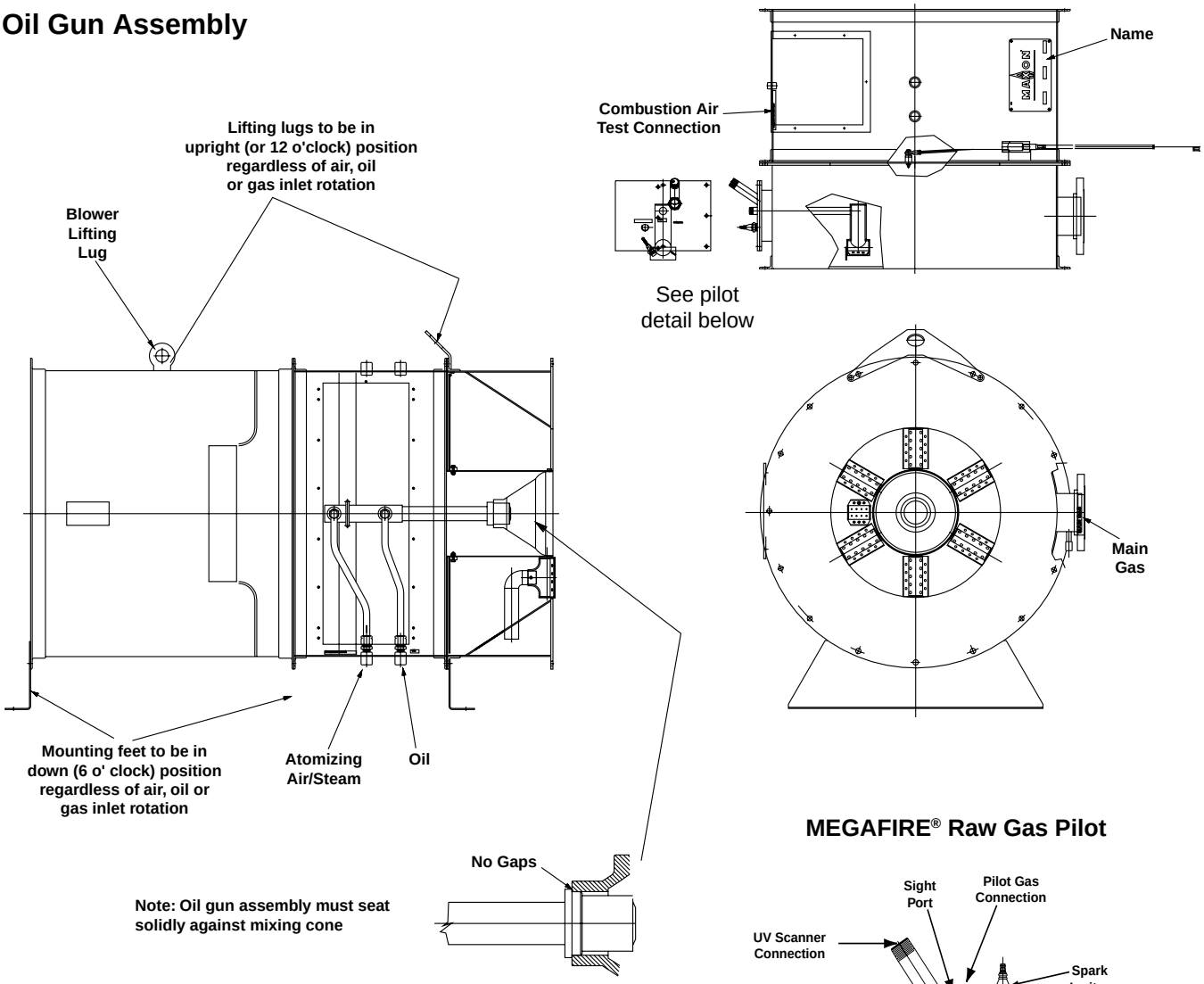


4" ANSI raised face 150# slip-on welding flange w/2.688 lg. 4" NPT Sch. 40 pipe Bold holes to straddle centerline

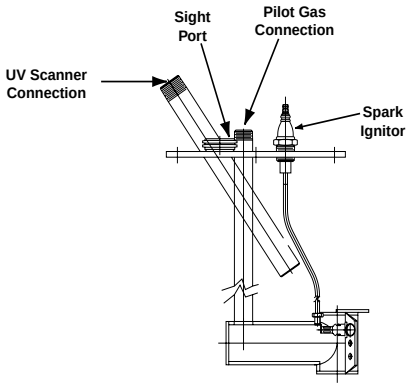
Main Gas Inlet

Dimensions

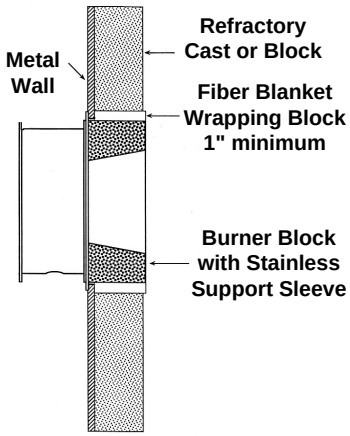
Oil Gun Assembly



MEGAFIRE® Raw Gas Pilot



Suggested Block Mounting for Seal & Support Blocks

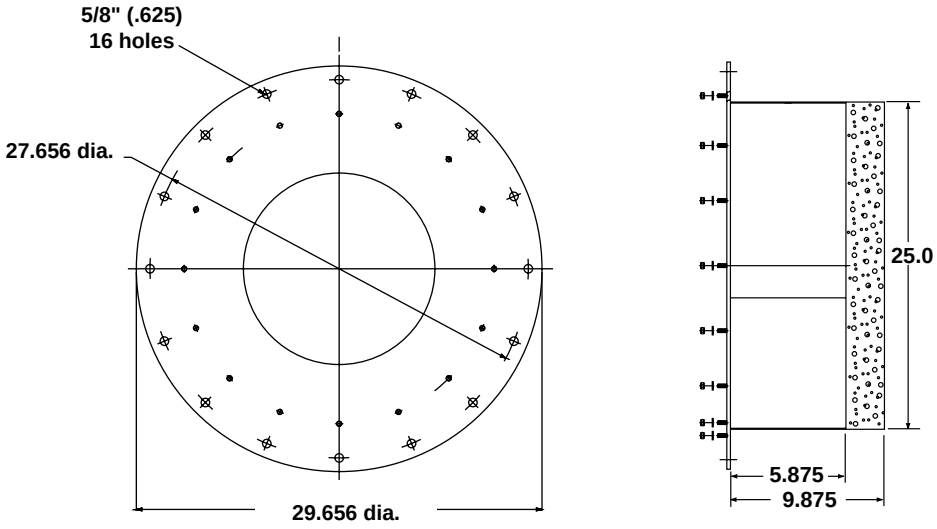


Maximum chamber temperature ratings for discharge options:
SS discharge sleeve – 1100°F (593°C)
Refractory block discharge – 1600°F (870°C)

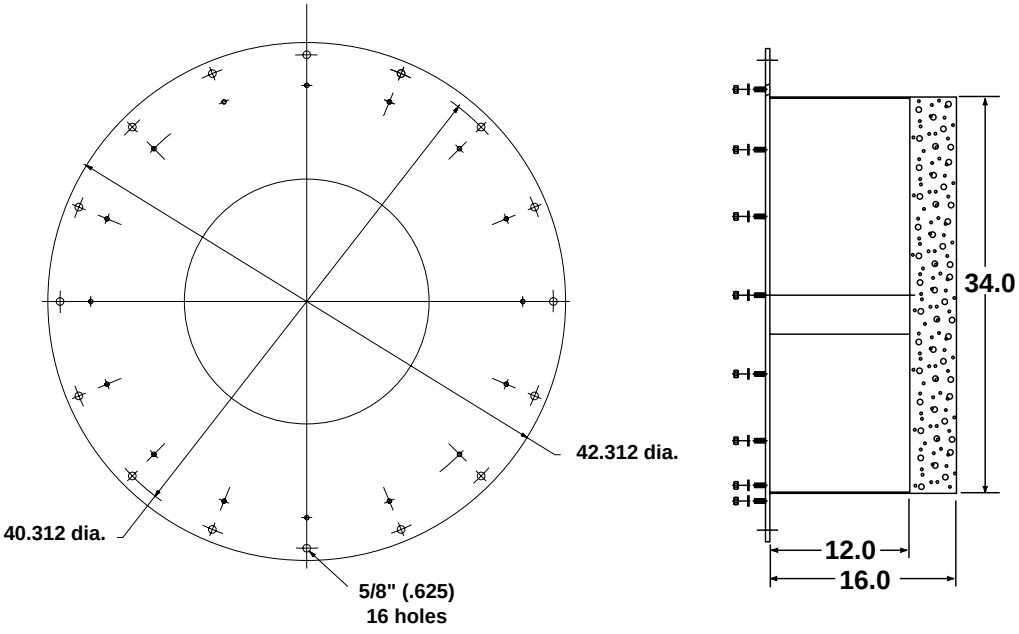
Dimensions

Refractory Block/Seal & Support Assembly

15M MEGAFIRE® Burner



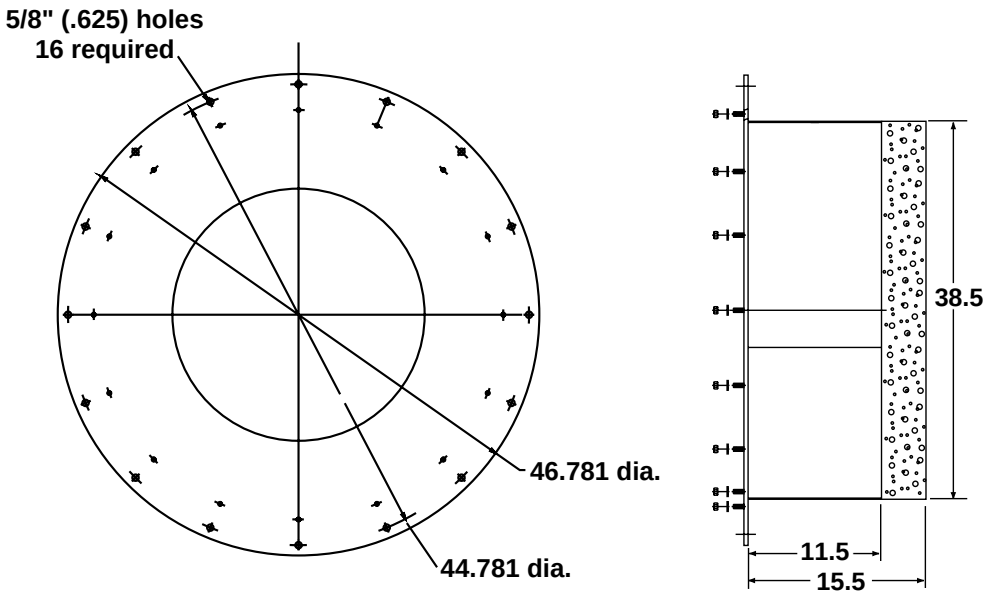
30M MEGAFIRE® Burner



Dimensions

Refractory Block/Seal & Support Assembly

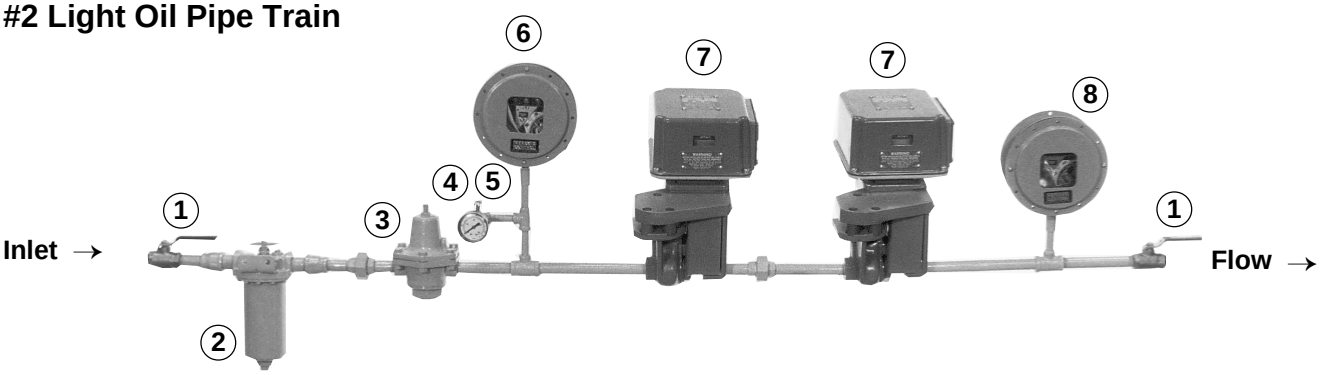
45M MEGAFIRE® Burner



MEGAFIRE® Burner Accessories

(Dimensions in Inches)

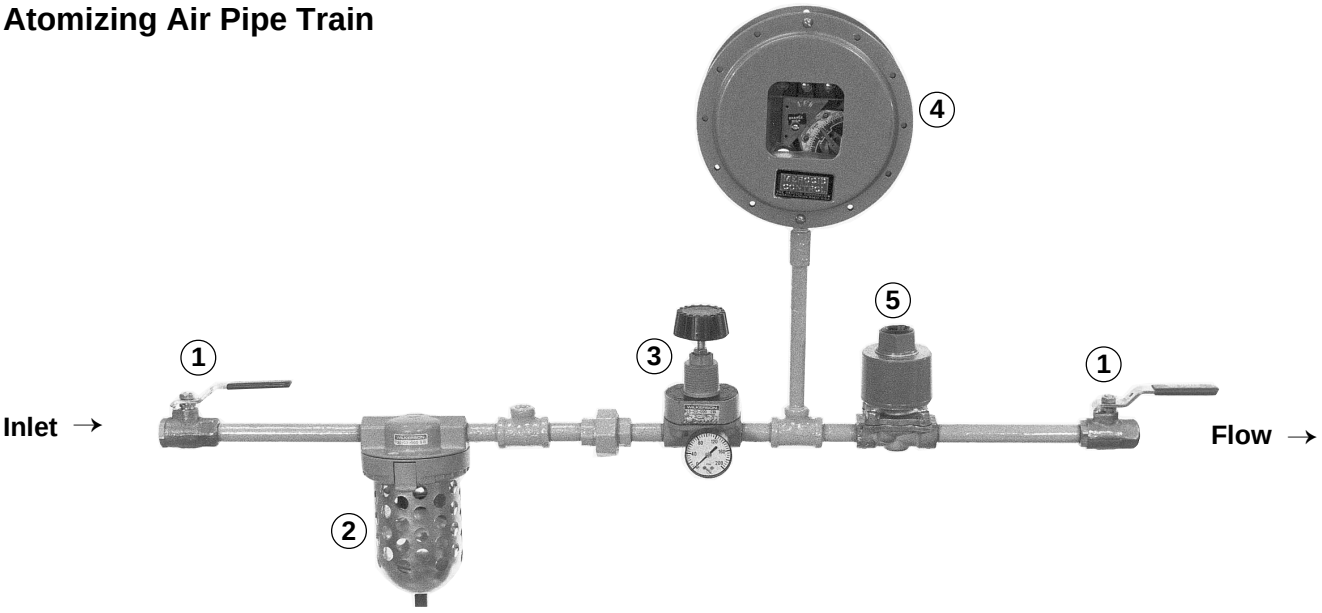
#2 Light Oil Pipe Train



Assembly includes:

① 3/4" ball valves
② 1" filter
③ 3/4" oil pressure regulator
④ 1/4" needle valve
⑤ Oil pressure gauge (0-160 PSIG)
⑥ Low pressure switch (5-150 PSIG)
⑦ 3/4" Series 8730 shut-off valves (ordered separately; assembled into pipe train as shown)
⑧ High pressure switch (5-150 PSIG)

Atomizing Air Pipe Train



Assembly includes:

① 3/4" ball valves
② 3/4" air filter
③ 3/4" air regulator with (0-160 PSIG) gauge
④ Low pressure switch (5-150 PSIG)
⑤ 3/4" solenoid valve

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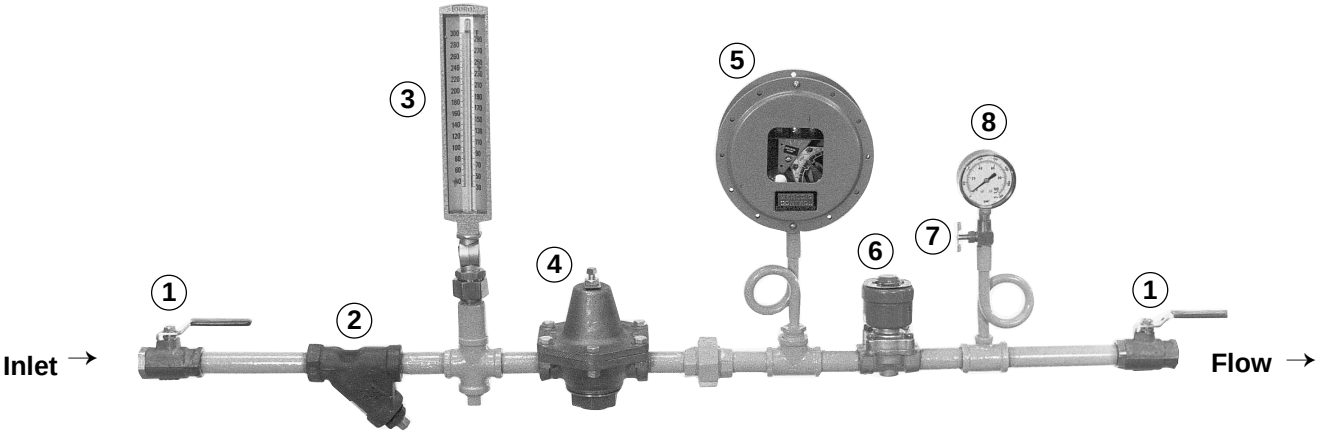
MEGAFIRE® Burner Accessories

(Dimensions in Inches)

Atomizing Steam Pipe Trains (maximum temperature 300°F)

Note: Field site insulation will be required.



Assembly includes:

① 1" ball valves
② 1" strainer
③ Thermometer (30-300°F)
④ 1" pressure regulator
⑤ Low pressure switch (50-150 PSIG)
⑥ 1" solenoid valve
⑦ 1/4" needle valve
⑧ Steam pressure gauge (0-100 PSIG)

Pipe Train	Size	Length	Height	Depth	Minimum Inlet Pressure	Maximum Inlet Pressure
#2 Light Oil	3/4"	76"	23"	13"	75 PSIG	150 PSIG
Atomizing Steam	1"	56"	22"	8"	100 PSIG	
Atomizing Air	3/8"	38"	22"	5"	75 PSIG	