COMPRESSORS

SERIES 9100
OILESS COMPRESSOR

Small, lightweight and reliable.

Applications

- *Aircraft potable water systems*
- *Aircraft anti/de-ice boot pressurization*
- *Pneumatically powered doors*
- *Camera stabilization platform*

Design Features and Benefits

- *Operating temperature range: -40°F to +165°F (-40°C+74°C)*
  Suitable for extreme environmental conditions
- *Environmentally qualified*
  Suitable for aircraft operation
- *Optional electrical connector and mounting configuration*
  Adaptable to customer installation constraints
- *Thermal cutoff switch*
  Increased MTBF
- *Non-articulating self-lubricating piston*
  Oil and contaminant free output
- *Self-cooling fan motor*
  Wider operating temperature envelope
- *Overhaul manuals with parts list*
  Field repairable
- *Belt driven*
  Quiet operation
- *Each unit functionally tested*
  Assured performance

CEF Industries is an Aerospace qualified full service manufacturing company including marketing/sales, customer service, design engineering, assembly and test, and customer support.

Our experience spans fifty years of designing and building electromechanical products and systems to customer specifications. Capabilities include flap, gear and utility actuation, pump/compressors for potable water and avionics cooling, gearboxes for actuation drive systems and electronic controls as well as licensed manufacturing and build to print support.

One result has been the development of high performance, low cost compressors. Beginning with the first application as the pressure source for a potable water system in a Convair 880, over the years the basic design has been the preferred choice and is currently in operation on Boeing 707, 727,747, DC10, MD-80, MD-11, L1011, Airbus A320, A330, A343, Bombardier Regional Jet and Gulfstream G, III, IV, V aircraft. The current design is the result of thirty years field experience. Our focus on continuous improvement has ensured that CEF is the low cost producer.

The 9100 is an oiless, non-articulating piston driven, dry air, AC compressor available in small and large frame configuration and tested over a range of aerospace environmental qualification limits. The small frame is capable of delivering 1.2 scfm (standard cubic feet per minute) at a back-pressure of 30 psig and the large frame is capable of delivering 2.5 scfm at a back-pressure of 30 psig. Non-articulation of the piston is achieved using a self-lubricating, Teflon filled piston cup rigidly attached to the piston arm. The self-lubricating feature ensures compressed air output is free from oil and contaminants. The cylinder wall consists of a cylinder liner or sleeve, which can be easily replaced along with the removable piston cup for long service life. Both units come with a built-in thermal protector which cuts power to the motor should temperature exceed 347°F. A variety of input and output pneumatic connectors are offered as options. Both units are field repairable and come with overhaul manuals.

PARTNERS IN CONTINUOUS IMPROVEMENT
ISO9001 Registered with conformance to AS9100

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Compressor Specifications

The following paragraphs describe the performance of our standard small and large frame compressors. Should the application require performance beyond the envelope indicated in any of the areas specified, the customer is encouraged to contact CEF Applications Engineering. CEF maintains a design engineering capability to provide customization to meet non-standard requirements.

Electric Motor Data

Three phase, 400 Hz, 115/200 VAC, 2 Amps per phase maximum (3 Amps maximum per phase for large frame), 1/2 horsepower, continuous rated duty.

Operating Voltage

The unit shall operate satisfactorily over the range of 109 to 115 volts at 380 Hz to 420 Hz.

The model 9100 has been tested over a variable frequency range from 320 Hz to 600 Hz. While the unit operates satisfactorily, a slight degradation of performance will occur at greater than 500 Hz. Consult CEF Applications Engineering for further discussion.

Operating Temperature

-40°F to 165°F (-40°C to 74°C).
No adverse affect by exposure from -80°F to 185°F (-62°C to 85°C).
Maximum intake air temperature is 300°F (150°C).

Thermal Protection

A thermal protector rated at 347°F is incorporated so that excessive overheating of the motor will not cause damage. The thermal protector will limit operation at the stall condition to 30 seconds maximum.

Flow Rate

Flow rates vs. output pressures are indicated in Chart 1.

Current Draw

Small Frame – 2 Amps Maximum
Large Frame – 3 Amps Maximum

Pressure Relief Valve

The small frame does not incorporate a relief valve. The large frame compressor incorporates a standard pressure relief valve that limits operating pressure to 37-45 psig. To change this setting, please consult CEF Applications Engineering.

Weight

Small frame weight is 6.0 pounds.
Large frame weight is 9.8 pounds.

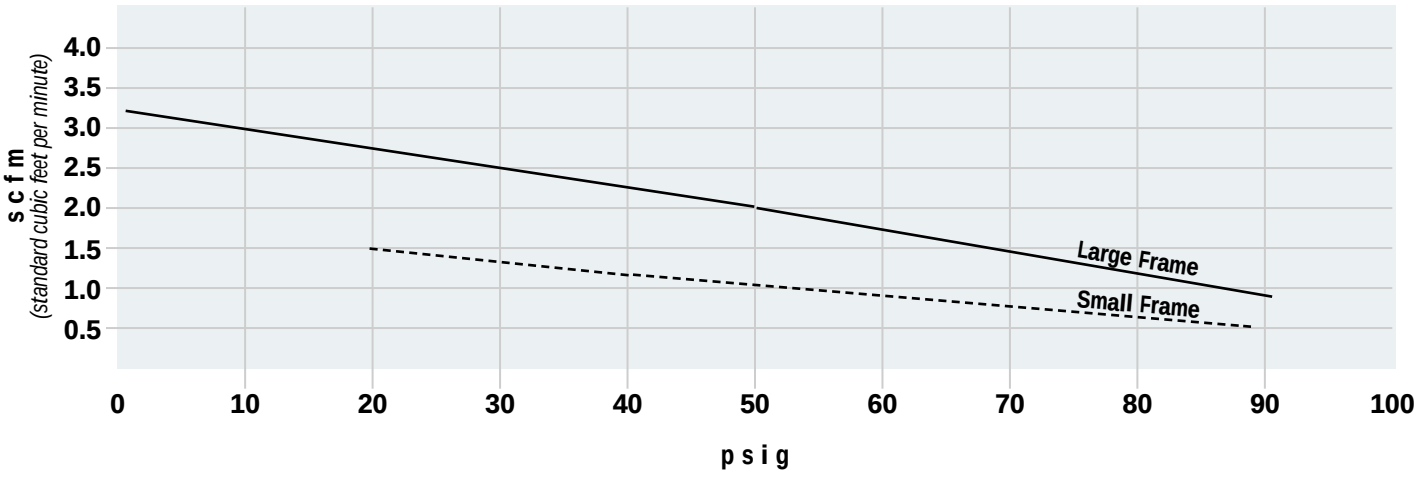
Environmental Qualifications – Small and Large Frame

- Temperature/Altitude
  Per RTCA-DO-160D, Section 4, Category A3
- Shock
  Per RTCA-DO-160D, Section 7, Category A, B
  (Both units tested to operational shocks at 6 g's, 11 msec and crash safety to 15 g's)
- Vibration
  Per RTCA-DO-160D, Section 8, Curve C (4.12 grms)
- Lightening Induced Transient Susceptibility
  Per RTCA-DO-160D, Category B3, D3
- RF Susceptibility (radiated and conducted)
  Per RTCA-DO-160D, Category U
- Insulation Resistance
  Insulation resistance shall not be less than 100 mega ohm
- Humidity/Condensation
  Per RTCA-DO-160D, Section 6, Category B

Repairability

All CEF compressors are field repairable. Overhaul manuals with parts list are available for repair instructions and procedures. Parts can be ordered by contacting Customer Service.

Chart 1 – Approximate Compressor Capacity Without Filter (sea level, room temperature conditions)



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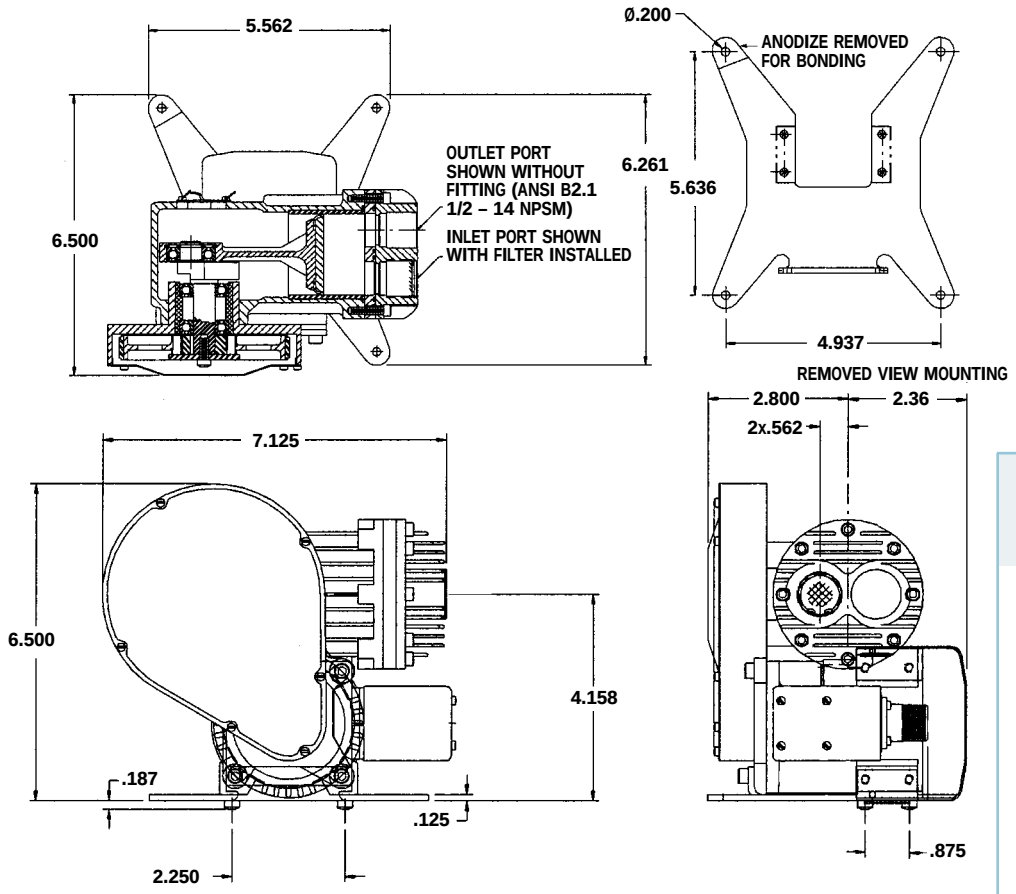
SERIES 9100 OILESS COMPRESSOR

Standard configuration shown, all dimensions in inches typical both frames.

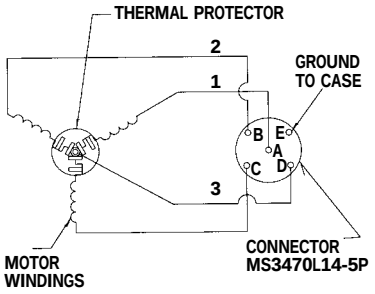
NOTE: All dimensions are subject to change. Consult CEF Industries for certified engineering drawings.

Small Frame Dimensional Drawings

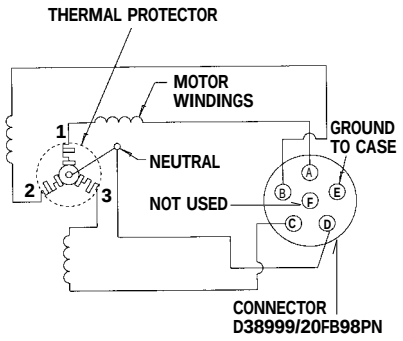


MOTOR WIRING DIAGRAMS

Motor Rotation shall be correct with input power phase rotation 1-2-3

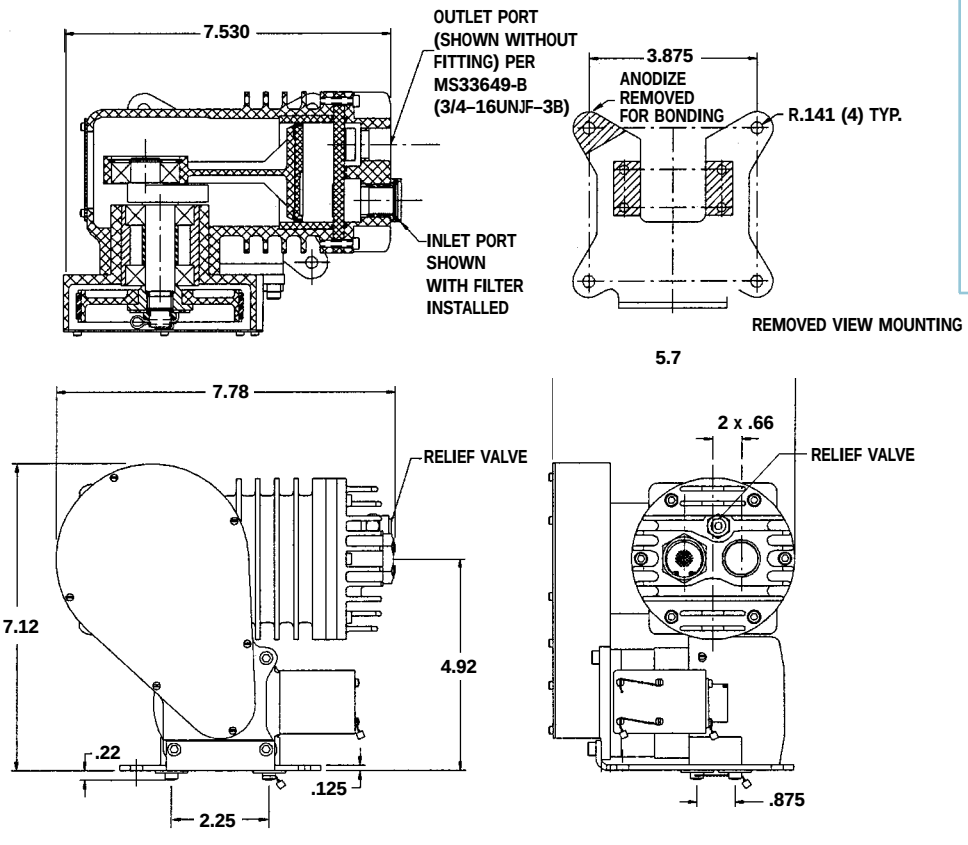


OPTION A



OPTION B

Large Frame Dimensional Drawings



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Model Number Selection Chart

Base	Capacity	Inlet Fitting	Outlet Fitting	Electrical Connector
9100	L	B	1	B

S Small Frame
L Large Frame

Inlet Fitting
A Without Filter
B Sintered Bronze Grade F40 Filter
C Stainless Steel #40 Mesh Wire Filter

Outlet Fitting
1 None
2 Flareless Tube Fitting Per MS33514E6

Electrical Connector
A MS3470L14-5P
B D38999/20FB98PN

Ordering Information

Now that you have familiarized yourself with 9100 small and large frame compressors, we have developed an easy way for you to order. The Model Number Selection Chart takes advantage of the modular design to guide you through the process of "building" a model number.

Example:
Building a model number for the following 9100 Compressor

Base: Model 9100 Compressor – Enter 9100
Capacity – Enter L for Large
Inlet Fitting – Enter B for Sintered Bronze Grade F40 Filter
Outlet Fitting – Enter 1 for None
Electrical Connector – Enter B for D38999/20FB98PN

9100 L B 1 B

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