TYPICAL COMPRESSED AIR SUPPLY SYSTEM

1. EG Series Compressor
2. UPTIME Manager
3. Moisture Separator
4. Airmate Receiver - Wet
5. EPFP - Filter
6. EGRD Refrigerant Dryer
7. EFFP - Filter
8. ECP - Filter
9. Airmate Receiver - Dry
10. Drain Valve
11. Oil - Water Separator (OWS)

ELGi Airmate Air Accessories
Total Compressed Air Solutions

www.elgi.com
Air Quality and Energy Saving
WITH THE CONSERVE ENERGY SAVING ACCESSORIES AND AIRMATE DOWNSTREAM ACCESSORIES, ELGI IS STRIVING FOR A CLEAN, GREENER AND SUSTAINABLE FUTURE

Compressed Air Solutions for all Sustainable Air Needs

- Oil Free Series Screw: 40 - 450 kW / 190 - 2600 cfm
- EG Series Rotary Screw: 11 - 250 kW / 45 - 1540 cfm
- EN Series Rotary Screw: 2.2 - 37 kW / 8.0 - 249 cfm
- Piston compressor: 5.0 - 30 HP / 15 - 98 cfm

Prevent Real Life Problems with ELGi Airmate Refrigeration Air Dryers and Filters

Why do we need to dry the air?
When atmospheric air cools down, as happens following a compressor compression process, water vapour precipitates as condensate. This is the form of water that is naturally present in the air we breathe. Under average conditions, a compressor with a capacity of 106 cfm at 108 psig will generate approximately 10.3 gal of water per day. This condensate needs to be removed from the compressed air system to prevent corrosion and damage to transmission piping and end use machines. Compressed air drying is hence essential and is an important part of air treatment process.

Compressed air will also contain water, dirt, wear particles, bacteria and even degraded lubricating oil. All these impurities mix together to form an abrasive sludge. This sludge is often acidic and accelerates wear and tear of tools, pneumatic machinery, block valves and orifices. This results in costly air leaks and high maintenance. It also corrodes pipes and can bring production process to a standstill.

Only compressed air that is totally clean and dry will ensure reliable working of compressed air systems and maximum savings. The favoured method of drying the compressed air is through refrigeration dryers.

Elgi offers a reliable solution through Elgi Airmate Refrigerant Air Dryers. The dryers ensure longer life of compressed air systems through efficient removal of the condensate and contaminants.

Total Air Cure Solutions for clean and dry air

1. Ambient air of 106 cfm at 95°F with 60% RH contains 21.6 gal of water / day
2. Compression ratio 1:10 working volume of 10.5 cfm at 113°F will precipitate 16.1 gal of water/day & get removed by the moisture separator
3. Elgi Airmate Refrigerant Dryer and Filter will remove 5.0 to 5.3 gal of water/day

Ambient Air Temperature (°C)

Ambient Air Relative Humidity (%RH)

Grams per cubic meter (g/m³)

Robust Infrastructure
**EGRD Refrigerant Dryer**

**Controller**
- Microprocessor based controller for high-performance of the dryer and visual indication of dew point using LED ensures online monitoring.
- Visual indication for temperature probe failure and cooling fan for easy fault identification.
- Setting options available for controlling the automatic drain valves and condenser fan cut-off* in selected models only.

**Condensate Drain**
- Automatic condensate drain removes maximum condensate from the system.
- Microprocessor based controller for controlling the drain solenoid valve timings. User tunable timer ensures moist free air even at high tropical conditions.

**Refrigerant Filter**
Refrigerant filter ensures the humidity that enters the refrigerant system during refrigerant replacement does not clog the system.

**Refrigeration Compressor**
- Hermetically sealed and highly energy efficient rotary compressor for low noise.

**Heat Exchanger/ALU Dryer Module**
- High efficiency Aluminum plate type heat exchanger with Inbuilt ALU coalescence filter for compactness and robustness.
- The Compact “ALU Dry” module encompasses both air to air heat exchanger called pre-cooler and air to refrigerant air heat exchanger.
- Design ensures cross flow between coolant and hot air thus minimizing pressure drop and maximizing thermal efficiency.
- Heat exchanger insulated with Eco-friendly material for high degree of insulation and efficiency with minimum impact on the environment.

**Condenser**
High efficiency copper tubed Aluminum finned condenser. The hot high pressure refrigerant enters into the condenser in gaseous state and gets cooled through the forced circulation of cold air using a fan and flows to the expansion valve in liquid state.

**Capillary/Expansion Device**
- Capillary refrigerant expander ensures refrigerant flow into the evaporator in liquid state.
- High quality copper for optimum heat transfer efficiency between compressed air and refrigerant and ensures minimum dew point.

**Cycle Controller / Hot gas by pass valve**
- The pressure operated 100% modulating mechanical type cycle controller ensures quicker and reliable response to changes in inlet air temperature to maintain optimum dew point under wide operating temperature.
- Prevents freezing phenomenon in the evaporator and ensures smoother and reliable operation due to complete mechanical system.

**ELGi Refrigeration Air dryer Schematic diagram**

**Ozone-friendly refrigerant**
ELGi thinks long run to make the earth and the environment a safer and a better place to live. As per international protocol, ELGi uses ozone-friendly R 134 A and R 407 C gas as the refrigerant which has zero ozone-depletion potential.
### Technical Specification

**How to calculate dryer minimum nominal capacity to meet rated conditions:**

Nominal dryer capacity is needed to be higher than "Actual required capacity" (according to dryer's nominal capacity, water condensate or condensate).

**Reference Condition for Inlet flow capacity:**
- Ambient Temperature - 100°F / 2. Inlet compressed air temperature 100°F / 3. Inlet Pressure - 100 psig

<table>
<thead>
<tr>
<th>EGRD10</th>
<th>EGRD15</th>
<th>EGRD20</th>
<th>EGRD30</th>
<th>EGRD40</th>
<th>EGRD50</th>
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<td>1/2” NPT</td>
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<td>1 1/4” NPT</td>
<td>1 1/2” NPT</td>
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</table>

| Actual rated capacity | 11.3 x 12.3 x 13.3 x F4 |

### ELGi Premium Filter Series

**15 – 1600 Scfm High Efficiency Filters**

High Quality Aluminum Construction: Castings. 100% leak-tested, 300 psi pressure (without auto float drain) and 248°F temperature ratings

Delta-P Gauge (standard): Thin-sided DP gauge face is not pressurized. Unique magnetic sensor ensures reliability.

Modular NPT Connections: option to bolt up to three filters together with High Nitrile O-ring connection to save space, offer ease with installation and eliminate leaks

Captive Piston Type O-Ring Annular Seal: between head and bowl to prevent leaks

Flat Spot: to aid bowl removal

External Ribs: for easy service / bowl removal

Internal Ribs: To secure element in-place and form a quiet-air zone to prevent condensate re-entrainment

Large Capacity Condensate Sump: with space to install internal float drain

Automatic Internal Float Drain: as standard

Hexagon on Bottom: for easy bowl removal

Threaded Side and Bottom Drain Port: for external auto or manual drain

**Pop-up DP Indicators (optional):** Nylon pop-up is available.

**Remote Contact DP Alarm (optional):** Dry contacts close at 6 psi to send a notification signal to a bell, light, or control panel. Can be field installed.

### RING SPANNER

Easy bowl removal.

### CONNECTING KITS

Available for models: 15-1600 scfm.

### MANUAL DRAIN VALVES

Available for all models.

### PORT PLATES

Allows for easy change from standard port size to match larger pipe size and reduce pipe fittings. Prevents costly over sizing of filters to pipe size.

### SIDE PORT (65-1600 SCFM)

Side mounting of external auto drain for low clearance applications. Can be used as a separate manual drain or as a vent line connection to an external demand drain mounted to bottom connection.

### BOTTOM DRAIN ADAPTER PLATE (1000-1600 SCFM)

Removable drain adapter for ease of floor drain maintenance. Easy disconnect of external drain when element is changed.
### Airmate Drain Valves

**“Zero loss advantage”**

Compressed air condenses moisture in dryers, after-coolers and air receivers. This condensate needs to be removed frequently. This process is done by the drain valves. In ordinary drains, there is always loss of compressed air. Most of the condensate drains have a 4 mm orifice. This 4 mm orifice bleeds about 34 cfm, which is the equivalent of 6.5 kw of power. Elgi Airmate drains work on the principle of zero air loss and do not bleed your compressed air, consequently saving energy.

### EZL Drain Valve

The condensate sensing type automatic drain valve is the latest advancement in drain valve technology. Instead of operating through cycle timer, these valves sense the condensate level for activation, ensuring absolutely no loss of compressed air and hence enormous energy saving. These drain valves are highly efficient and reliable. They can be fitted directly on the equipment simply by replacing the manual drains.

- Electronic level control ensures proper draining of condensate and avoids unnecessary loss of air.
- All the functions of the valve are accurately indicated by the LED display.
- Test switch (on) manual drain allows function test at anytime.

**Intelligent Controller detects valve probe failure and acts accordingly.**

- Noise free, as air is not discharged.

### Oil - Water Separator

When the air is compressed through compressor, it results in condensate along with compressed air. Condensate—A mix of water, oil & dust particles. If not treated properly and released into the environment, this condensate can make detrimental effects of environment. Regulatory bodies for efficient treatment recommend that these condensate should be cleansed before releasing it to the sewage disposal.

ELGi EOS series is specifically designed to maintain less than 10 ppm of oil in the condensate before allowing the fluid to pass on to the environment. Thanks to the multi-Level separation process with both super efficient fiber adsorbent and Activated carbon, which ensures the contaminant levels are kept well within the statutory requirements.

Large compressor systems might require two or more oil/water separators to be installed to match the total compressor capacity of an installation. To connect the oil/water separators together and to ensure an even distribution of condensate in the oil/water separators, you require the Distributor.

The Distributor has two 1” condensate inlets and six 1/2” outlets with integrated ball valves, allowing you to connect two and up to six oil/water separators.

### Technical Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Maximum Compressor Capacity</th>
<th>Maximum Oil adsorption capacity</th>
<th>No. of Inlet ports</th>
<th>Inlet &amp; Output port sizes</th>
<th>Package (LxBxH)</th>
<th>Gross Weight</th>
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</thead>
<tbody>
<tr>
<td>EOS - 7</td>
<td>70</td>
<td>0.5</td>
<td>1</td>
<td>1/2&quot; x 1/2&quot;</td>
<td>10x9x9.4</td>
<td>7</td>
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<tr>
<td>EOS - 13</td>
<td>130</td>
<td>1.3</td>
<td>2</td>
<td>1/2&quot; x 1&quot;</td>
<td>15.5x8.3x15.1</td>
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<tr>
<td>EOS - 18</td>
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<td>2</td>
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<td>22.8x7.5x24</td>
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<td>25.5x9.4x29.5</td>
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<tr>
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<tr>
<td>EOS - 210</td>
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<td>2</td>
<td>1/2&quot; x 1&quot;</td>
<td>46x18x41</td>
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</table>
Uptime Manager brings Energy Efficiency

Running a compressor in standby mode (unloaded), to ensure maximum capacity when needed, uses approximately 25% or more of the energy required to run that same compressor fully loaded. Systems with multiple compressors of varying sizes, types and configurations further complicate the task of manually coordinating and maintaining the correct compressor settings. The larger the system, the more unloaded of unproductive energy will cost!

The Uptime Manager eliminates the complexity of compressor control coordination and increases energy efficiency. Only the specific compressors operate at a given time. Other compressors used for normal operations with manual control will be kept offline and shall be available during emergency requirements or during primary equipment breakdown. This ability to tap existing resources to maintain system operation even in emergency situations makes the system more reliable. In addition to optimizing the energy usage, efficient compressor utilization reduces costs due to less downtime.

Connectivity, Communication and Control at The Heart of Your Air System

ELGi’s Uptime Manager is one air system control solution that quickly pays for itself, without compromising any of your previous compressor or air system capital investments.

Single-point Control
Manage multiple compressors to one optimal control band or target. Single controller with programmable logic to control all compressor in a compressor house or common header.

Priority Compressor Selection
Minimize energy use by programming units or groups for optimum utilization and/or operations planning – including equalized usage. For example you can now prioritize more efficient compressors as lead compressor, or prioritize VFD-driven compressors for trim requirements.

Real-time System Scheduling
Configure control features including system standby and system prefill based on a real-time schedule.

Controlled Operations
Fully-adjustable time parameters help implement smooth, controlled schedule changes from one target pressure level to another.

System Prefill
Will prevent all compressor starting simultaneously after the system has been shut down for a while.

Manage Your Battery of Air Compressors Efficiently

The primary functions of Energy Control Mode in Uptime Manager are:
- Match compressed air supply to compressed air demand, dynamically
- Utilize the most energy-efficient combination of air compressors to satisfy demand
- Manage multiple compressors at minimum required pressure band

Pressure Optimization using UM

<table>
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<th>System Pressure</th>
<th>Optimum System Pressure</th>
<th>Maintained Pressure</th>
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<tbody>
<tr>
<td>123 psi</td>
<td>116 psi</td>
<td>108 psi</td>
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<tr>
<td>116 psi</td>
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<tr>
<td>100 psi</td>
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Note: For helping you understand the right solution for your compressor house contact sales.