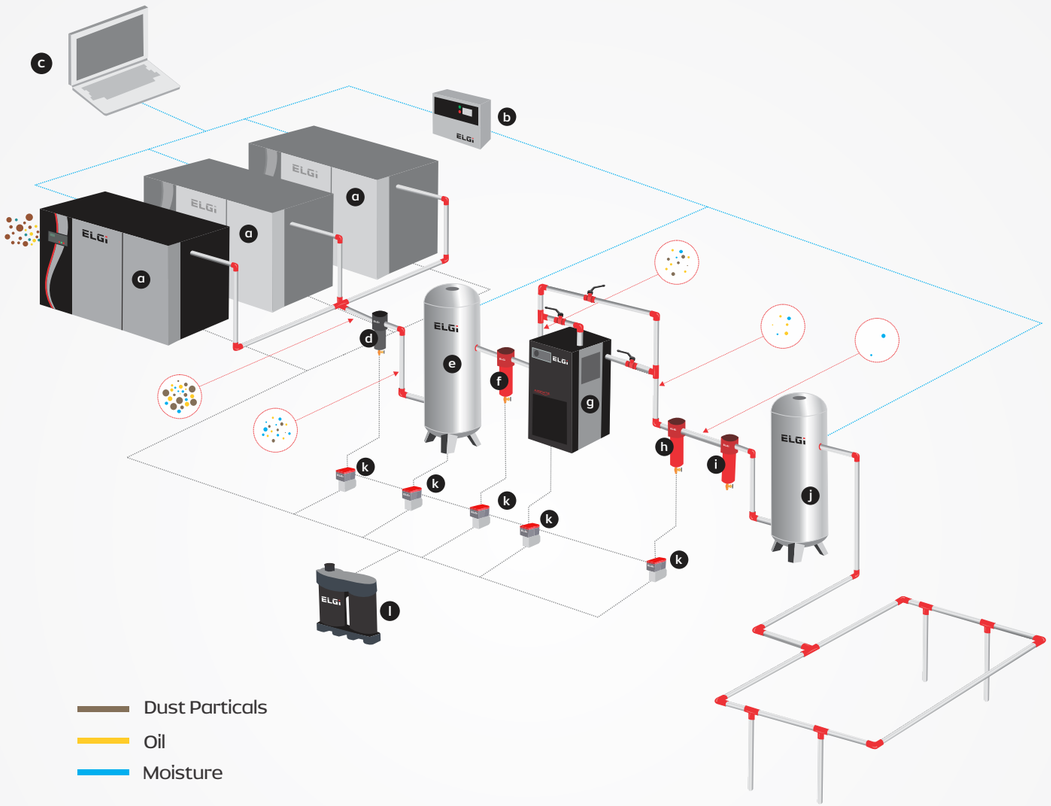
TYPICAL COMPRESSED AIR SUPPLY SYSTEM



- Dust Particals
- Oil
- Moisture

a	EG Series Compressor	g	EGRD Refrigerant Dryer
b	UPTIME Manager	h	EFFP - Filter
c	Remote-central control	i	ECFP - Filter
d	Moisture Separator	j	Airmate Receiver - Dry
e	Airmate Receiver - wet	k	Drain Valve
f	EPFP - Filter	l	Oil/water Separator (OWS)

AIRMATE

ELGi Compressors USA, Inc.: 1500-N Continental Blvd, Charlotte, NC 28273 | T: +1-704-943-7966 | W: www.elgi.us

ELGi Airmate Air Accessories

Total Compressed Air Solutions

ELGi
Always Better.

www.elgi.com

Air Quality and Energy Saving

Robust Infrastructure

Compressed Air Solutions for all Sustainable Air Needs

Oil-Free Series Screw
90 - 450 kW / 572 -2450 cfm

EG Series Rotary Screw
11 - 250 kW / 47 - 1612 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

AIRMATE

Real life problem 1
Unwanted Abrasive Sludge

Real life problem 2
Corrosion of Piping

Real life problem 3
Damaged Pneumatic Tools

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 psi will generate approximately 10.5 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.

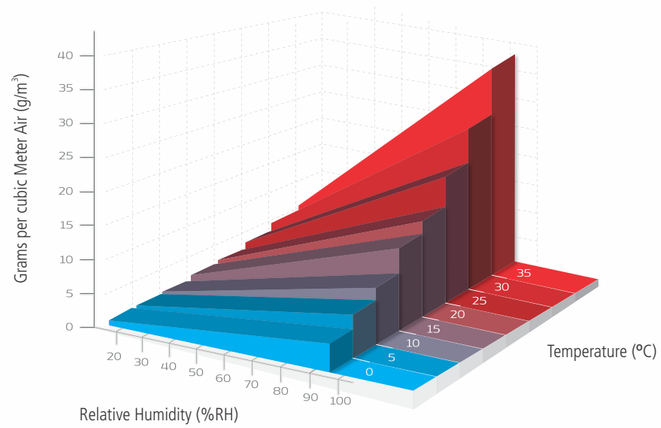
Elgi offers a reliable solution through Elgi Airmate Refrigerant Air Dryers. The dryers ensure longer life of compressed air systems through efficient removal of the condensate and contaminants .

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 wiil remove 5.0 to 5.3 gal of water/day



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 tuneable timer ensures moist free air even at high tropical conditions

Refrigerant Filter

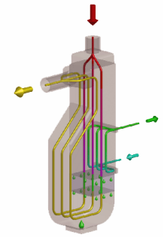
Refrigerant filter ensures the humidity that enters the refrigerant system during refrigerant replacement does not clog the system.

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 efficient 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.

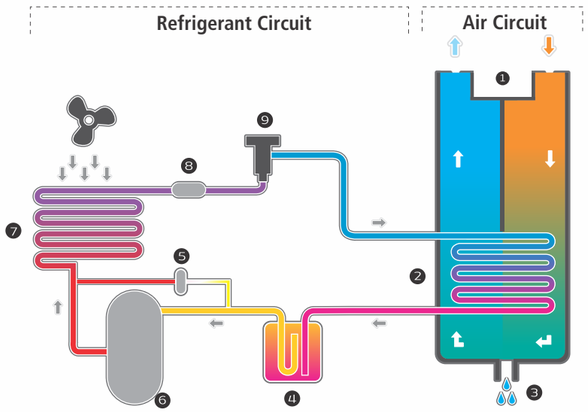
Capillary/Expansion Device

- 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



- Refrigerant gas / Liquid
- Refrigerant gas
- Hot refrigerant gas
- Cold refrigerant liquid
- Expanded refrigerant liquid
- Incoming hot wet air
- Cool wet air
- Outgoing dry air

1. Air - to heat exchanger
2. Air - to - refrigerant heat exchanger
3. Integrated water separator
4. Liquid separator
5. Regulation device
6. Refrigerant compressor
7. Refrigerant condenser
8. Refrigerant filter
9. Thermostatic expansion valve

ISO 7183

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

ELGi Model	Inlet flow capacity		Max.Working Pressure	Nominal Power Consumption (Air & water)	Compressed Air Connections	Cooling media	Dimensions			Gross Weight (Air & water)
	Scfm	M^3/min	psi	HP			Length (in)	Width (in)	Height (in)	lbs
Nominal Power Supply: 1Ph/115V/60Hz										
EGRD010	10	0.28	232	0.25 | --	3/8" NPT	Air	12.2	13.6	17.1	46 | --
EGRD015	15	0.42	232	0.27 | --	3/8" NPT	Air	12.2	13.6	17.1	55 | --
EGRD020	20	0.57	232	0.28 | --	1/2" NPT	Air	14.6	20.2	18.7	60 | --
EGRD030	35	0.99	232	0.38 | --	1/2" NPT	Air	14.6	20.2	18.7	67 | --
EGRD040	50	1.42	232	0.40 | --	1/2" NPT	Air	14.6	20.2	18.7	76 | --
EGRD050	65	1.84	232	0.44 | --	1/2" NPT	Air	14.6	20.2	18.7	84 | --
EGRD080	75	2.12	203	0.60 | --	1" NPT	Air	13.5	16.5	29.1	84 | --
EGRD100	100	2.83	203	0.93 | --	1¼" NPT	Air	13.5	17.5	29.1	95 | --
EGRD150	125	3.54	203	1.34 | --	1¼" NPT	Air	13.5	17.5	29.1	97 | --
EGRD175	150	4.25	203	1.40 | --	1¼" NPT	Air	19.0	17.9	32.4	123 | --
EGRD200	175	4.95	203	1.47 | --	1½" NPT	Air	21.8	22.8	34.8	146 | --
Nominal Power Supply: 1Ph/230V/60Hz										
EGRD150	125	3.54	203	1.40 | --	1¼" NPT	Air	13.5	17.5	29.1	97 | --
EGRD175	150	4.25	203	1.54 | --	1¼" NPT	Air	19.0	17.9	32.4	123 | --
EGRD200	175	4.95	203	1.60 | --	1½" NPT	Air	21.8	22.8	34.8	146 | --
EGRD250	220	6.23	203	1.67 | --	1½" NPT	Air	21.8	22.8	34.8	150 | --
EGRD300	300	8.49	203	2.01 | --	2" NPT	Air	21.8	24.6	38.3	234 | --
EGRD400	375	10.61	203	2.95 | --	2" NPT	Air	21.8	24.6	38.3	239 | --
EGRD500	480	13.58	203	3.08 | --	2½" NPT	Air	26.1	28.5	43.5	362 | --
Nominal Power Supply: 3Ph/460V/60Hz										
EGRD600	600	17.00	203	3.55 | 3.04	ANSI 3"#150	Air | Water	35.0	39.3	62.5	529 | 496
EGRD750	800	22.60	203	4.35 | 3.91	ANSI 3"#150	Air | Water	35.0	39.3	62.5	534 | 500
EGRD900	900	25.40	203	5.22 | 4.55	ANSI 3"#150	Air | Water	35.0	39.3	62.5	606 | 564
EGRD1100	1000	28.30	203	6.16 | 5.02	ANSI 3"#150	Air | Water	35.0	39.3	62.5	608 | 567
EGRD1254	1250	35.30	203	7.50 | 6.57	ANSI 3"#150	Air | Water	35.0	39.3	62.5	686 | 635
EGRD1552	1500	42.40	203	8.58 | 6.70	ANSI 3"#150	Air | Water	44.6	49.0	68.8	1021 | 950
EGRD1750	1750	49.50	203	10.05 | 7.91	ANSI 3"#150	Air | Water	44.6	49.0	68.8	1186 | 1098
EGRD2000	2000	56.60	203	11.50 | 9.65	ANSI 3"#150	Air | Water	44.6	49.0	68.8	1190 | 1102
EGRD2900	2500	70.70	203	13.10 | 11.26	ANSI 3"#150	Air | Water	44.6	49.0	68.8	1349 | 1239

Due to continuous improvements the specifications are subject to change without notice

Note:

- Reference Condition for Inlet flow capacity: 1. Ambient Temperature - 100°F / 2. Inlet compressed air temperature 100°F / 3. Inlet Pressure - 100 psig
- All data mentioned above is measured according to ISO 7183, with standard voltages, at 38-41° F dew point.
- High pressure dryers and high ambient temperature dryers are available on request.
- Standard scope of supply includes only electronic drain valves up to EGRD500 & zero loss drains from EGRD600

How to calculate dryer minimum nominal capacity to meet rated conditions : $\frac{\text{Actual rated capacity}}{F1 \times F2 \times F3 \times F4}$

Dryer nominal capacity need to be higher than "Actual required capacity". (exceeding dryer's nominal capacity, water carry-over could occur)

Correction Factors									
Inlet Air Pressure - F1	Psi	60	80	100	120	140	160	180	203
EGRD 10 - 2900		0.79	0.91	1.00	1.07	1.13	1.18	1.23	1.27
Ambient Temperature - F2	°F	<80	90	95	100	105	110	115	
EGRD 10 - 500		1.10	1.07	1.04	1.00	0.93	0.83	0.70	
EGRD 600 - 2900		1.11	1.09	1.06	1.00	0.94	0.87	0.78	0.69
Inlet Air Temperature - F3	°F	<90	100	0.80	122	130	140	150	158
EGRD 10 - 500		1.11	1.00	0.82	0.65	0.53			
EGRD 600 - 2900		1.16	1.00	1.04	0.68	0.61	0.52	0.45	0.40
Dew point factor - F4	°F	38	41	45	50				
EGRD 10 - 500		0.92	1.00	1.07	1.25				
EGRD 600 - 2900		1.00	1.08	1.20	1.36				

ELGi™ Premium Filter Series

15 – 1600 Scfm High Efficiency Filters

Only 4 - 7" clearance required for element removal

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

Delta-P Gauge (standard) Two-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 psid 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.

MOUNTING BRACKETS
Allows convenient wall mounting of single or multiple filters.

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.

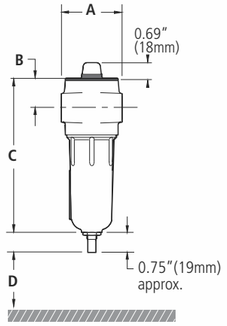
BOTTOM DRAIN ADAPTER PLATE (1000-1600 SCFM)
Removable drain adapter for ease of float drain maintenance. Easy disconnect of external drain when element is changed.

GIVE YOUR BUSINESS THE UPTIME™ ADVANTAGE

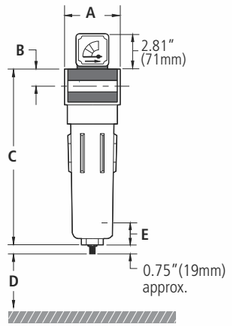
Technical Specification 15 – 1600 scfm

Filter Model	Flow Rate		Dimensions inches (mm)					NPT Connections			Weight	Replacement Filter Element
	scfm	Nm3/h	A	B	C	D	E	In/Out	Side	Bottom**	lbs	
E*FP20	15	34	2.83 (72)	1.38 (35)	7.32 (186)	2.95 (75)	N/A	1/4"	N/A	1/4"	1.4	E*FP20E
E*FP30	32	51	2.83 (72)	1.38 (35)	7.32 (186)	2.95 (75)	N/A	3/8"	N/A	1/4"	1.4	E*FP30E
E*FP65	65	110	4.33 (110)	1.50 (38)	10.75 (273)	5.98 (152)	1.30 (33)	1/2"	1/4"	1/4"	5.4	E*FP65E
E*FP75	80	128	4.33 (110)	1.50 (38)	10.75 (273)	5.98 (152)	1.30 (33)	3/4"	1/4"	1/4"	5.4	E*FP75E
E*FP100	100	170	4.33 (110)	1.50 (38)	14.09 (358)	5.98 (152)	1.30 (33)	1"	1/4"	1/4"	6.1	E*FP100E
E*FP150	150	255	4.33 (110)	1.50 (38)	14.09 (358)	5.98 (152)	1.30 (33)	1"	1/4"	1/4"	6.0	E*FP150E
E*FP225	225	382	5.75 (146)	2.01 (51)	19.06 (484)	6.50 (165)	1.65 (42)	1 1/2"	1/2"	1/4"	12.2	E*FP225E
E*FP300	300	510	5.75 (146)	2.01 (51)	19.06 (484)	6.50 (165)	1.65 (42)	1 1/2"	1/2"	1/4"	12.3	E*FP300E
E*FP450	500	765	5.75 (146)	2.01 (51)	19.06 (484)	6.50 (165)	1.65 (42)	2"	1/2"	1/4"	12.3	E*FP450E
E*FP650	650	1105	5.75 (146)	2.01 (51)	26.97 (685)	6.50 (165)	1.65 (42)	2"	1/2"	1/4"	14.8	E*FP650E
E*FP1000	1000	1700	9.06 (230)	2.68 (68)	28.43 (722)	7.01 (178)	1.65 (42)	3"	1/2"	1/4"	40.6	E*FP1000E
E*FP1250	1250	2125	9.06 (230)	2.68 (68)	33.23 (844)	7.01 (178)	1.65 (42)	3"	1/2"	1/4"	44.1	E*FP1250E
E*FP1500	1600	2550	9.06 (230)	2.68 (68)	39.06 (992)	7.01 (178)	1.65 (42)	3"	1/2"	1/4"	48.3	E*FP1500E

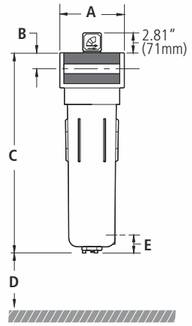
Notes: *Fill in element grade (P, F, C) to appropriate model number. ** With internal float drain removed.



E*FP20 and E*FP30



E*FP65 to E*FP650



E*FP1000 to E*FP1500

	Coalescing Filters		Vapor Filter
Grade	P	F	C
Particle removal	1.0 micron	0.01 micron	0.01 micron
Maximum carryover at 68°F / 20°C	0.1 ppm	0.01 ppm	0.003 ppm
Recommended temperature	100°F / 38°C	100°F / 38°C	77°F / 25°C
Maximum temperature	248°F / 121°C	248°F / 121°C	122°F / 50°C
Pressure drop (clean and dry)	1.0 psid / 70 mbar	1.5 psid / 100 mbar	1.0 psid / 70 mbar
Pressure drop (saturated)	2 psid / 140 mbar	3.0 psid / 210 mbar	N/A
Pressure drop (change element)	6.0 psid / 400 mbar	6.0 psid / 400 mbar	see note
Element media	Borosilicate Glass Microfiber		Carbon impregnated paper
Maximum working pressure	232 psig / 16 barg (300 psig / 20 barg without auto float drain)		
Housing material	High quality aluminum		

Note: Activated charcoal filters must not operate in oil saturated conditions and will not remove certain types of gases including carbon monoxideand carbon dioxide. Change interval depends on application.

Correction Factors

For maximum flow rate, multiply model flow rate shown in the speciation chart by the correction factor corresponding to the working pressure. See specifications for maximum pressure. Note: To reduce pressure drop by 50%, reduce flow rate by 30%.

Operating Pressure (psig)	10	20	30	40	50	60	70	80	90	100	110	125	150	175	200	225	250	275	300
Correction Factor	0.32	0.45	0.55	0.64	0.71	0.78	0.84	0.90	0.95	1.00	1.05	1.12	1.22	1.32	1.41	1.49	1.58	1.65	1.73

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.

Technical Specifications

Capacity : 0 - 3500 cfm
Working pressure : 16 bar g max
Media : Condensate

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.

- The 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 (or) 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 releasing it to the environment, this condensate can make detrimental effects of environment. Regulatory bodies for effluent 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 10ppm 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.

Technical Specifications

Model	Maximum Compressor Capacity	Maximum Oil adsorption capacity	No. of Inlet ports	Inlet & Output port sizes	Package (LxBxH)	Gross Weight
	cfm	Litres	Nos	Inch	Inch	lbs
EOS - 7	70	2	1	1/2" x 1/2"	10x9x9.4	7
EOS - 13	125	3	1	1/2" x 1/2"	15.5x8.3x15.1	17.6
EOS - 18	175	5	2	1/2" x 1"	22.8x7.5x24	22.5
EOS - 35	350	10	2	1/2" x 1"	25.5x9.4x29.5	41
EOS - 70	700	15	2	1/2" x 1"	31x12x35.4	70.5
EOS - 110	1060	25	2	1/2" x 1"	38.1x15x35.4	99

UPTiME™ Manager

In multiple compressor installations, it is difficult to choose the correct combination of compressors manually. This results in wastage of 20 - 60% of power. To cut such operating costs, we bring in the Uptime Manager Supply Side Controller.

The controller can manage any number of positive displacement compressors – including compressors of different capacities, different types (fixed speed, variable speed and variable capacity), and in any combination or configuration. Through advanced control functionality and universal connectivity the Uptime Manager will work with your existing compressors, from Elgi or any manufacturer, to improve operating efficiency and reduce energy costs. Here's how the Uptime Manager controller delivers a unique combination of efficiency and reliability:

- Operate compressors only as needed, bringing standby compressors on-line incrementally during periods of increased demand
- Dynamically match the most energy efficient compressor or combination of compressors with compressed air demand
- Manage the compressed air system at your minimum required pressure without compromising the reliability of your compressed air supply

Uptime Manager brings Energy Efficiency

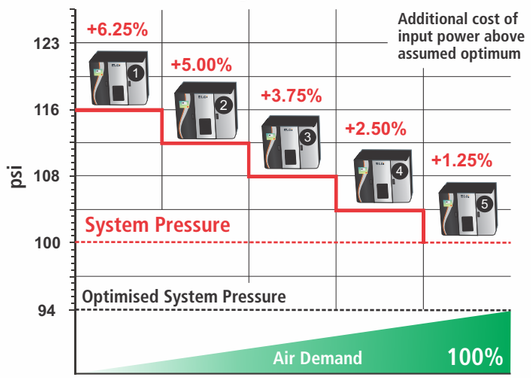
Running a compressor in standby mode (unloaded), to ensure maximum capacity when needed, uses approximately 25% or more of the energy required to run that same compressor fully loaded. Systems with multiple compressors of varying sizes, types and configurations further complicate the task of manually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

Additional Energy Consumption

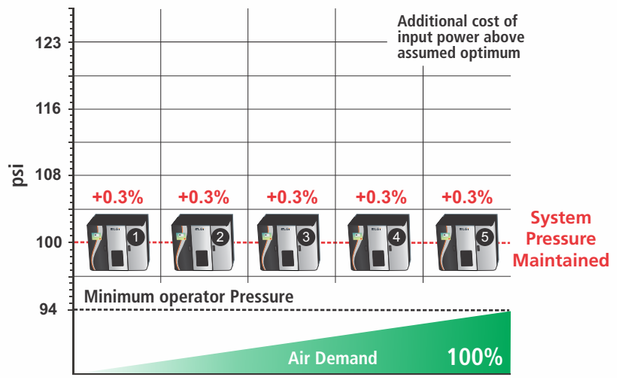
Conventional Cascade

- Large Pressure band



Pressure Optimization using UM

- Minimised Pressure band



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**

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 compressors, 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.

UPTIME Manager	UM4	UM12	UM24
Maximum number of Compressor:			
4 no.	✓	✓	✓
12 no.		✓	✓
24 no.			✓
Type of Compressor regulation:			
Fixed Speed Compressor	✓	✓	✓
Variable Frequency Compressor		✓	✓
Variable Displacement Compressor		✓	✓
Operating Mode:			
Timer Rotation	✓	✓	✓
Equal Running Hours	✓	✓	✓
FIFO	✓		
Energy Control		✓	✓
UPTIME Manager Functions:			
Priority Selection	✓	✓	✓
System Pre-fill	✓	✓	✓
Pressure Balancing (for multiple Compressor rooms)			✓
Zone Control (for multiple compressor rooms)			✓
Inbuilt Real Time Clock:			
Schedule to Start/Stop System	✓	✓	✓
Pressure Band Change (through table technology)	✓	✓	✓
Compressor Priority Change (through table technology)	✓	✓	✓
Operating Mode Change (through table technology)	✓	✓	✓

Note: For helping you understand the right solution for your compressor house contact sales.