EG Series
Screw Air Compressors

Life source of industries

ELGi
Always Better.

CIN: L29120TZ1960PLC000351

www.elgi.com

90 - 160 kW / 125 - 200 HP (50Hz)

ELGi
Always Better.

ELGi, established in 1960, designs and manufactures a wide range of air compressors. The company has gained its reputation for design and manufacture of screw compressors through strategic partnerships and continuous research and development. Over the years, it has emerged as a multi-product, multi-market enterprise providing total compressed air solutions in all segments. ELGi's design capabilities translated into a wide range of products ranging from oil-lubricated and oil-free rotary screw compressors, reciprocating compressors and centrifugal compressors. ELGi has its own manufacturing operations in India, Italy and USA with subsidiaries in Australia, Brazil, UAE and Indonesia. The company is fast expanding its global footprint attracting distributors and customers with its latest generation products.

Screw Compressor elements are manufactured in-house using state-of-the-art machining centres for rotor grinding and machining castings of various sizes. ELGi's own η-V profile rotors ensure energy-efficient compressed air supply for all demanding applications. ELGi is one of the few companies capable of manufacturing wide range of airends and compressor packages in the world. ELGi's patent portfolio is a testament to the company's continuous research and innovation capability

AIR UP.

www.elgi.com

Ease of maintenance -
Removable panels for ease of access to components

Two-Stage Air Filtration
Increased life of consumables

High Volumetric Efficiency
Low energy cost per m^3/min

Advanced Neuron III Controller (Remote management of compressor operations)
Ready for SCADA/DCS

Highly Efficient Motor
Energy cost savings

Option of "In-built VFD"
Compact and saves floor area

Enclosure Designed to Industrial Standards
Silent, aesthetic package

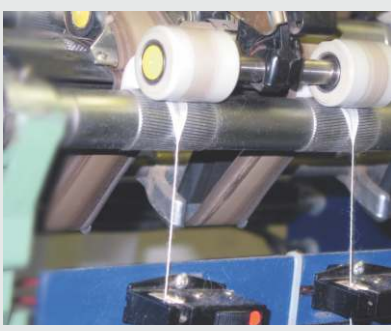
Superior Technology Airend
Gearless* and reduced sound

Robust Cooling System
Reduced air outlet temperature

Safety Compliant package

Excellent Oil Separation - OSBIC

EG Series - The Technology Edge



*for selected models only

All images shown are for illustration purposes only. Actual product may vary, due to product enhancement.

The EG Series compressors represent a giant leap in design and performance with each component designed for reliability and ease of maintenance. The compressor is manufactured in compliance with applicable international standards (UL, ASME, CE and others) and designed as per the international quality standards. These new generation compressors significantly reduce operating costs and provide cost savings with fast return on investment .

Energy efficient

Extended life of air compressor

Eco-friendly

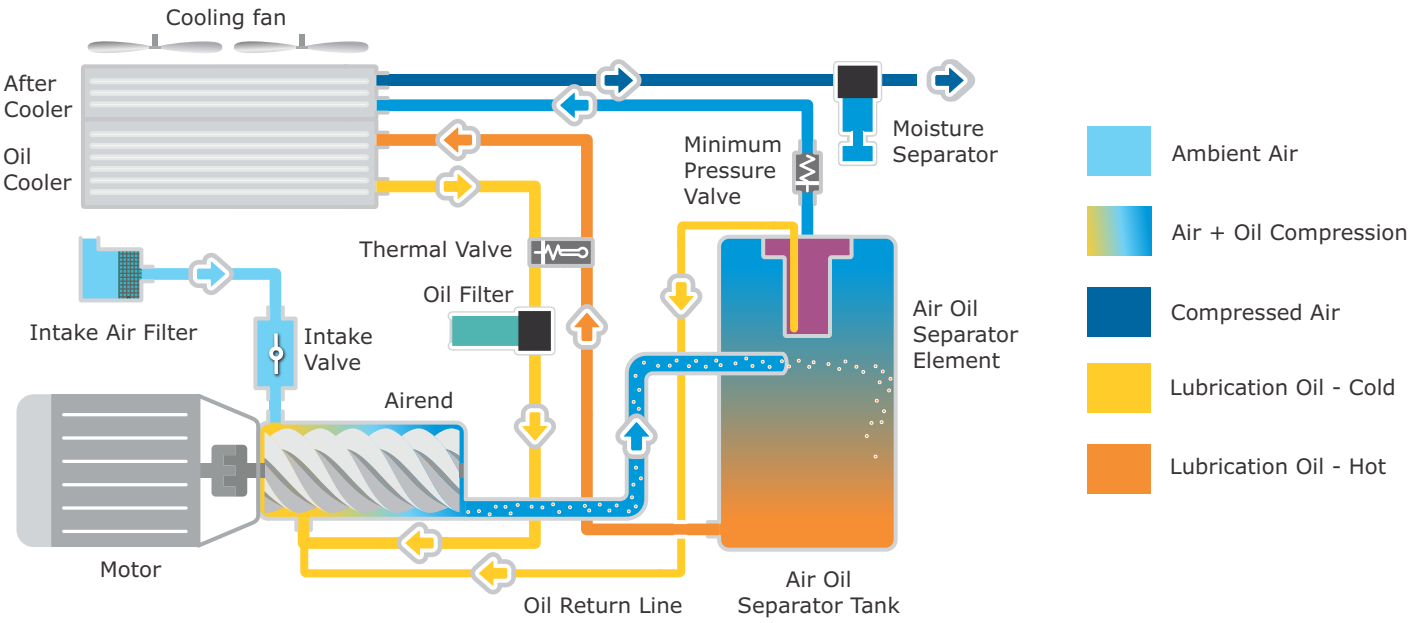
High operator safety

Robust construction with reliability built on every component

Compact, aesthetically appealing and easy to install at assembly area

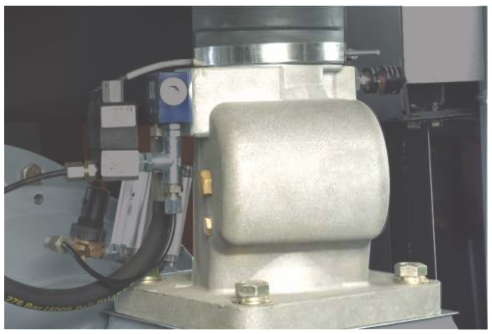
Low lifecycle cost

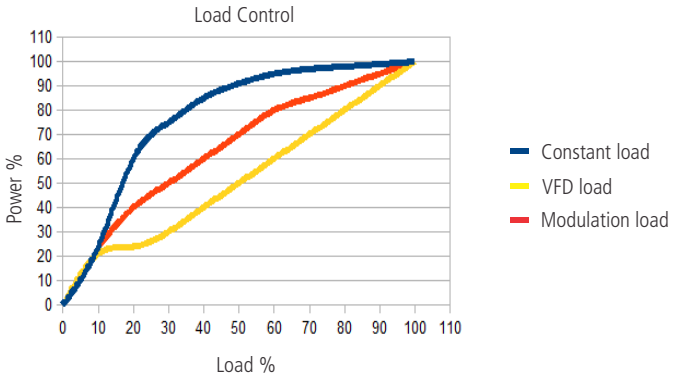
EG Series - Schematic Diagram



EG Series Compressors provide high-quality compressed air in the harshest environmental conditions. Incorporating the next generation technology of ELGi's oil-injected screw element provides a long and trouble-free life at the lowest possible operating cost.

These compressors are designed, manufactured and tested in accordance with **ISO 1217**, which comes with an in-built Variable frequency drive that significantly reduces energy consumption and cost.

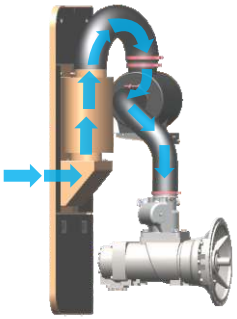




MAXIMUM Energy efficiency

Optimal flow control

- The new generation intake valve with integrated blow down unit, solenoid switch and actuator is designed for low losses
- The intake valve is optimized for dual mode operations
- Optimum size of the intake valve minimizes pressure drop and suction losses
- Modulation unit ensures effective control of inlet air flow and maximizes power savings
- Auto dual control operates on modulation mode from 100-60% in loading and in load-unload mode for loads below 60%
- Constant pressure due to gradual opening or closing of suction valve with respect to demand (multi-point) control
- Option for selecting load-unload/modulation auto dual mode for all large screw compressor models as a standard feature
- Smooth operation by modulation ensures longer life of airend, valves and all mechanical components. It also ensures no sudden spikes or drop in line pressure
- Lowest power consumption in its class of compressor controls, even with fluctuating loads



Efficient air filter system

- Use of pre-filters ensure clean air suction unit and enhances air filter life cycle
- Heavy duty dry type air filter ensure two ways of filtration by centrifugal action and by paper filter cartridge with 99.9% efficiency
- Optimally sized high efficiency filter provides maximum filter life and clean intake air
- Air filter with visual condition indicator for easy maintenance of the system
- Automatic cleaning of air filter for every cycle of upload operations

High efficiency drive system

- Heavy duty TEFC squirrel cage induction motor with class F insulation and IP55 protection for assured operation in dusty environment
- Wide operating voltage +/- 10%
- Motor selected for high ambient of 45°C with power variants 415V/400V/380V in 50 Hz
- Motor winding temperature limited to Class B temperature rise
- Optimized ventilation system for cooler operations and reduced noise levels
- Solid base for reduced vibration levels
- Regreasable ball bearings
- Gasket for conduit box

Drive coupling

- Ensures efficient power transmission with uniform load on bearing due to permanent alignment of airend and motor
- Easy serviceability and replacement of the coupling element without dismantling the drive system

MAXIMUM PERFORMANCE

Efficient air-oil separation

OSBIC design

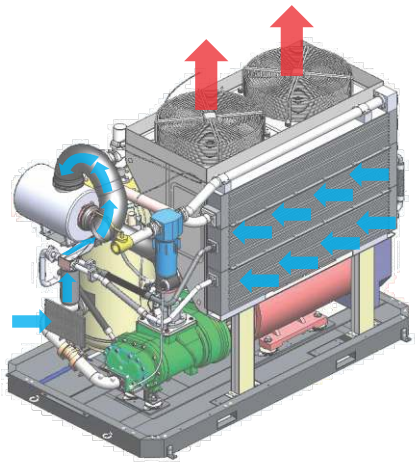
The efficient air-oil separation by OSBIC (Oil Separation By Impact and Centrifugal action) enables efficient separation of air and oil, with minimum pressure drop. The method enables separation of oil in three stages, delivering consistent oil-free air while increasing the life of separator element

Stage 1: Impact of air-oil mixture on the radial baffle plate reduces kinetic energy
Stage 2: Centrifugal action of air-oil mixture (spin down action) to shed of the oil particles
Stage 3: Air with minor traces of oil will enter the air-oil separator element placed inside the tank to purify the air (residual oil carry over level is 1ppm)

- Smaller oil volume with industry lowest refill requirements
- ASME design and CE/GB certified
- Minimum pressure drop in tank
- Leak proof flanges with O-rings ensure leak free connections

Integrated moisture separator as standard feature

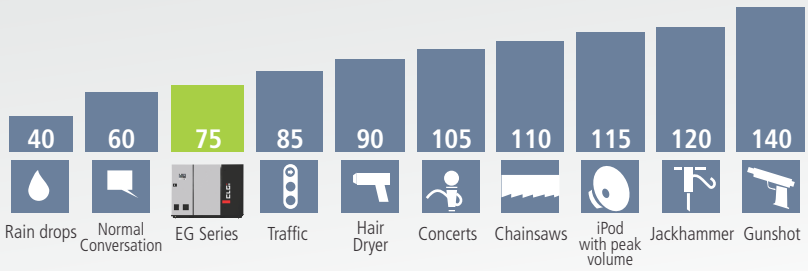
- Designed to handle high humid compressed air outlet from after-cooler
- 99% of bulk water removal by Impact and Centrifugal action with minimum pressure drop and automatic discharge of collected water particles by float mechanism



Efficient air cooling

- The compressor is designed to operate in wide temperature range from 0^0C to 45^0C with a very low after cooler approach temperature
- Sucker type, quiet and high capacity cooling fans reduce the input power while ensuring efficient cooling air flow
- Unique cooling air path for aftercooler by means of closed air duct which separates cooling system from rest of the unit
- Easy access to cooler cleaning ensures fast maintenance and improves reliability

How loud is too loud?



Performance Control System

- VFD Parameter (Power, HMR, Frequency, Ampere, Voltage)
- Read out and closed loop control
- Selectable AO (Pressure/Temperature/Dew Point) for DCS integration
- Controlled drain system

Reports

- Cumulative Report (Run hours, load hours, unload hours, stop hours, fault hours and remaining AFCT, OFCT, OSCT, OCT and RGT)
- Detail Report - Previous 15 days (Load hours, unload hours, stop hours, fault hours, and number of times machine stopped due to standby)
- Fault Report - (Previous 99 faults in chronological order with real time stamping and type of fault)

Remote Monitoring

- **DCS (MODBUS RTU/RS 485):** controller is enabled to synchronize with distributed control system - control of compressor from control panel of customer
- **SCADA :** compressor control through PC with remote monitoring by supervisory control and data acquisition process

Safety and Protection

Global Series compressors are designed and perfected to ensure highest level of safety for

- Pressure regulating valve
- High pressure
- High temperature
- Pressure relief valve
- Phase order and single phase

ELGi Airmate Accessories

Airmate Particulate Filter

Air Flow : 1 - 90 m^3/min
Working Pressure : 100 - 190 psig (7 - 13 bar g)
Filtration Range : 1 - 0.003 microns

Airmate Air Receiver

Capacity : 250 - 10000 ltrs
Working Pressure : 100 - 190 psi g (7 - 13 bar g)
Code of Construction: ASME sec. VIII Div.I or IS 2825, according to PED

Drain Valves

Timer controlled and zero loss
Capacity : 1.42 - 56.63 m^3/min
Working Pressure : 100 - 190 psig (7 - 13 bar g)

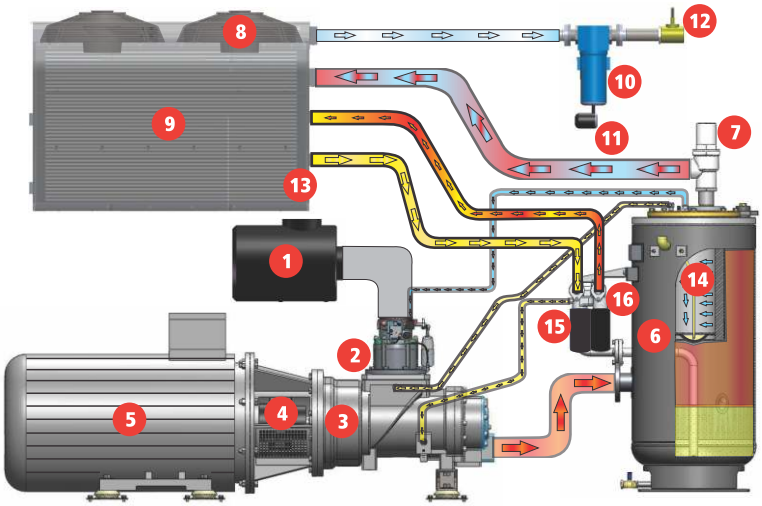
Cooler Pre-filter

Available for all the models as an optional accessory

Heat Recovery System

ELGi's HRS helps companies recover approximately 96 % of the heat generated during the compression process which can then be utilized for heating of air and water. This in turn eliminates additional equipment requirements to heat water or air, thereby reducing CO2 emissions.

Air/Oil Flow Diagram



1. Air Intake Filter
2. Suction Control Valve
3. Airend
4. Drive Coupling
5. Electric Motor
6. Air-Oil Separator Tank
7. Minimum Pressure Valve
8. Cooling Fan
9. After Cooler
10. Moisture Separator
11. Automatic Drain
12. Outlet Valve
13. Oil Cooler
14. Air-Oil Separator
15. Oil Filter (spin-on)
16. Thermal Valve Unit

COOLED AIR
HOT AIR
COOLED OIL
HOT OIL
HOT AIR/OIL MIXTURE

Energy Saving - The CONSERVE Way

In-Built ELGi CONSERVE™ ENERGY EFFICIENCY Variable Frequency Drives (VFD)

Matches compressor output with demand by varying motor speed. The power consumption reduces in line with the reduction in demand. This Helps in eliminating the frequent load-unload cycle and also the wasted power from the energy bill.

A fixed speed compressor operates on a load unload band of at least 10 psi (0.68 barg) around the working pressure whereas with ELGi VFD, the compressor can be operated within a band of 2 psi (0.14 barg).
Since the compressor is not operated under higher than working pressure requirements, there is substantial energy savings. For every 2 psi (0.14 barg) reduction in operating pressure, there is 1% power saving.

In a fixed speed compressor with Star-Delta starter, the starting current is as high as three times the full load current (FLC). With the ELGi VFD starting, the starting current is less than the FLC. This helps to avoid using heavy rated components like fuses, MCCB, cable size, generator rating, isolators etc.

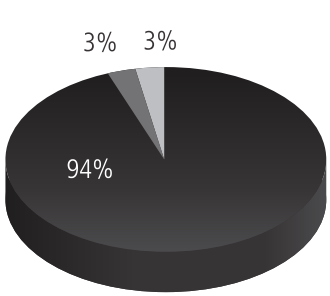
For compressed air systems with fluctuating demand pattern, giving a fast return on investment .

Advantages:

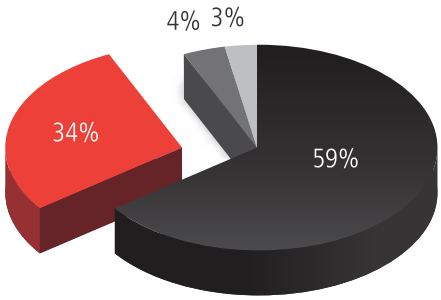
Electrical:
- Low starting current
- High efficiency
- Improved power factor
- Reduced maximum demand

Mechanical:
- Minimum maintenance
- Smooth start
- Smooth control

10 Year Life-Cycle Cost



Compressor without VFD



Compressor with CONSERVE™ ENERGY EFFICIENCY

Electricity Cost
Equipment Cost
VFD Saving
Maintenance Cost

Technical Specification

Model	Motor Power		Working Pressure		Maximum Pressure		Free Air Delivery		Weight*	Noise Level
50 Hz	kW	HP	bar g	psi g	bar g	psi g	m^3/min	cfm	Kg	dB(A)
Dimensional Data L(Length) x W(Width) x H(Height) in mm 2830 x 1640 x 2125										
EG 90	90	125	7.0	102	8.0	116.0	16.6	585	2700	75
EG 90	90	125	8.0	116	9.0	130.5	15.2	538	2700	75
EG 90	90	125	10.0	145	11.0	159.5	13.3	470	2700	75
EG 90	90	125	4.5	65	5.5	80.0	19.9	706	3100	75
EG 110	110	150	7.0	102	8.0	116.0	19.8	706	3100	75
EG 110	110	150	8.0	116	9.0	130.5	18.4	649	3100	75
EG 110	110	150	10.0	145	11.0	159.5	16.4	580	3100	75
EG 110	110	150	4.5	65	5.5	80.0	24.3	858	3400	75
EG 132	132	175	7.0	102	8.0	116.0	24.2	855	3400	75
EG 132	132	175	8.0	116	9.0	130.5	22.4	791	3400	75
EG 132	132	175	10.0	145	11.0	159.5	20.1	710	3400	75
EG 132	132	175	4.5	65	5.5	80.0	29.1	1030	3700	75
EG 160	160	200	7.0	102	8.0	116.0	29.1	1026	3700	75
EG 160	160	200	8.0	116	9.0	130.5	27.0	954	3700	75
EG 160	160	200	10.0	145	11.0	159.5	24.05	850	3700	75

Technical Specification (VFD model)

Model	Motor Power		Working Pressure		Maximum Pressure		Free Air Delivery		Weight*	Noise Level
50 Hz	kW	HP	bar g	psi g	bar g	psi g	m^3/min	cfm	Kg	dB(A)
EG 90	90	125	7	102	7.5	108.5	6.65 ~ 16.7	235 ~ 590	2765	75
EG 90	90	125	8	116	8.5	125.0	6.59 ~ 15.2	233 ~ 538	2765	75
EG 90	90	125	10	145	10.5	152.5	6.31 ~ 13.3	223 ~ 470	2765	75
EG 110	110	150	7	102	7.5	108.5	7.87 ~ 19.9	278 ~ 701	3165	75
EG 110	110	150	8	116	8.5	125.0	7.75 ~ 18.4	274 ~ 649	3165	75
EG 110	110	150	10	145	10.5	152.5	7.75 ~ 16.4	274 ~ 580	3165	75
EG 132	132	175	7	102	7.5	108.5	10.00 ~ 24.2	353 ~ 855	3465	75
EG 132	132	175	8	116	8.5	125.0	9.85 ~ 22.4	348 ~ 791	3465	75
EG 132	132	175	10	145	10.5	152.5	9.65 ~ 20.1	341 ~ 710	3465	75
EG 160	160	200	7	102	7.5	108.5	11.60 ~ 29.1	411 ~ 1026	3820	75
EG 160	160	200	8	116	8.5	125.0	11.75 ~ 26.5	415 ~ 935	3820	75
EG 160	160	200	10	145	10.5	152.5	11.55 ~ 24.05	408 ~ 850	3820	75

Note:

- Free Air Delivery(FAD) is tested as per ISO 1217 : 2009 Annexure C Edition: 4
- All models are available in air-cooled and water-cooled variants
- Max pressure or unload pressure of all standard models is 1 bar above the working pressure
- Max pressure or unload pressure of all VFD models is 0.5 bar above the working pressure
- FAD indicated is for the full package measured at the outlet after moisture separator
- Sound level measured as per ISO 2151, Second Edition at 1m distance in field conditions, +/-3dB(A)
- Due to continuous engineering improvements, the specifications are subject to change without prior notice

Compressed air solutions for all sustainable air needs

Oil free series screw
45 - 450 kW / 5.38 - 73.65 m^3/min

EG series rotary screw
11 - 250 kW / 1.39- 43.61 m^3/min

EN series rotary screw
2.2 - 45 kW / 0.26 - 6.85 m^3/min

Portable Compressor

Genuine Spares

For enhancing performance and productivity

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