Product Description: GA 37L-75 VSD+ Full Feature Water Cooled

ATLAS COPCO OIL INJECTED SCREW COMPRESSOR

General Description

The new revolutionary GA 37L-75 VSD+ Water Cooled is packed with innovative features that increase its efficiency, cut its energy consumption, lower its noise levels, and reduce its operating costs. On top of that, it meets or even exceeds all currently applicable standards.

With its innovative vertical design, Atlas Copco's GA 37L-75 VSD+ Water Cooled brings a game-changing revolution in the compressor industry.

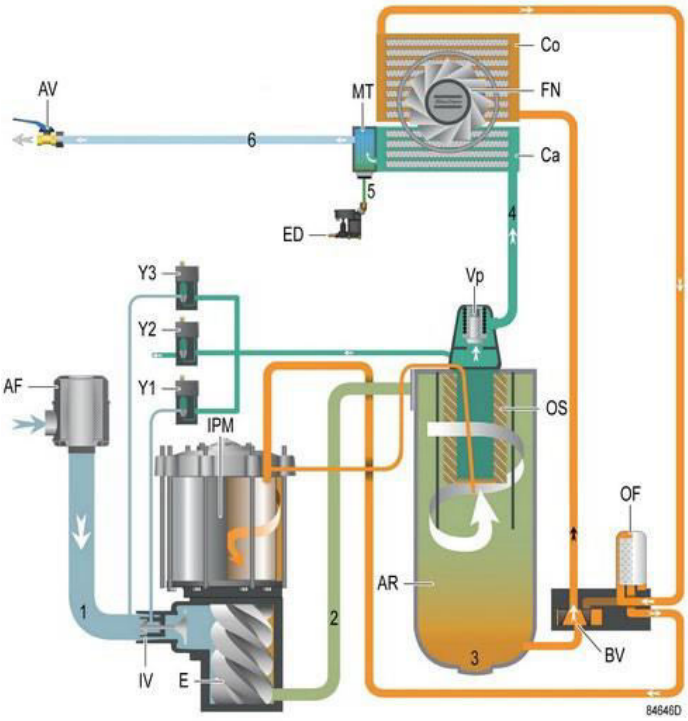
It offers Variable Speed Drive+ as standard, a compact motor and footprint thanks to its in-house design and iPM (interior Permanent Magnet) technology.

The GA 37L-75 VSD+ Water Cooled reduces energy consumption by 50% on average, with uptimes assured even in the harshest operational conditions. The GA 37L-75 VSD+ Water Cooled is the air compressor of the future, designed in-house by Atlas Copco. It will set a new standard for years to come, positioning Atlas Copco as a leader in the compressed air industry.

These compressors are equipped with the Atlas Copco Elektronikon® Touch controller, to control and monitor the compressor in the most efficient and reliable way.

The GA 37L-75 VSD+ Full Feature Water Cooled is additionally provided with an air dryer which removes moisture from the compressed air by cooling the air to near freezing point and automatically draining the condensate.

Working principle



The air system

Air comes in through filter (AF) and inlet valve (IV) and is compressed in the compressor element (E).

A mixture of compressed air and oil flows into the air receiver/oil separator (AR), where oil and air are separated.

The air flows through the minimum pressure valve (Vp), the air cooler (Ca) and the condensate trap (MT) to the outlet valve (AV).

Minimum pressure valve (Vp) prevents the receiver pressure from dropping below a minimum pressure and includes a check valve which prevents blow-back of compressed air from the net.

The oil system

The air receiver (AR) removes most of the oil from the air/oil mixture by centrifugal action. The oil collects in the lower part of the air receiver (AR) which serves as oil tank.

The oil separator (OS) removes the remaining oil.

The oil circuit has a thermostatic bypass valve (BV) that prevents that the oil flows through the oil cooler (Co) when the oil temperature is low.

Air pressure forces the oil from air receiver (AR) through the oil filter (OF).

The filtered oil flows through the cooling channels of the interior permanent magnet (IPM) motor to the compressor element (E).

Control system

To control these compressors, they are as standard equipped with a control cubicle containing:

- Motor Frequency converter
- Transformers
- Plexiglas's screen protection (in case copper bars are exposed)
- Start-stop button and isolator switch
- Elektronikon® Touch control, regulation, safety and indication panel
- All wiring
- Integrated smartbox

Scope of supply

Designed for extreme running conditions

The GA VSD$^+$ has been designed to operate continuously in the extreme running conditions. All rotating components are totally enclosed and protected against contamination to ensure long and reliable operation. The compressor cooling system is sized to run perfectly in ambient temperatures up to 46°C/115°F and high ambient versions up to 50°C/131°F.

Superior efficiency ensuring lowest operating costs

The GA 37L-75 VSD$^+$ Water Cooled has a Specific Energy Requirement (SER) which is on average significantly lower than the current GA VSD models.

The environmentally friendly VSD$^+$ consumes on average only 50% of the energy the current GA fixed speed models do. In fact, it even consumes less energy than the GA$^+$ compressor range at its optimal working point! On top of that, the GA VSD$^+$ delivers up to

8% more FAD (Free Air Delivery) over the range. This tremendous improvement could be achieved thanks to the major components mentioned below:

- Main (iPM) motor with highest motor efficiency up to 96,9%, outperforming IE4 efficiency levels
- A newly Atlas Copco in-house designed state-of-the-art compressor element, outperforming its predecessor with 3%

Heavy-duty oil filtration system

The high efficiency 2-step air-oil-separator system for reduced oil consumption ensures low maintenance costs and a good oil separation result in between two service intervals. The oil filter cleans the oil continuously from particles bigger than 25 micron with 99% efficiency in order to protect the lubrication quality and health of the rotating components.

Neos for iPM motor control

The GA 37L-75 VSD^{+} Water Cooled is equipped with our very own Neos drive. This drive is developed specifically for compressors.

Dust is one of the main enemies of electronic equipment. The Neos drive is completely enclosed and thus protected against dust and harsh environments.

Neos ensures ultimate peace of mind.

Cooling of electrical cubicle

The heatsink of the frequency drive is located outside the cubicle. No forced cooling through cooling fans is required for the cubicle. The electronics parts is completely enclosed, no dust can enter the cubicle maximizing uptime and reliability.

The Drive Train consists of the two main components in our compressor.

The interior Permanent Magnet (iPM) Motor

This motor, with its extremely high efficiency (96.9%), exceeds the IE4 efficiency threshold. It is designed in-house in Belgium. It has a design making it very compact with an oil-cooling circuit making the need of cooling airflow obsolete. The oil will also lubricate the bearings, so, no (re)grease(ing) is needed.

This motor is optimized for higher speeds, and has an IP rating of 66, instead of the standard IP55.

The element is the famous Atlas Copco designed and manufactured compression element featuring asymmetric profile male and female rotors designed for the optimal combination of maximized free air delivery with low power consumption. The design of this element has been optimized to increase its performance in this application.

Direct Drive

The motor drives the male rotor of the element directly making gears or belts and shaft seal redundant. This allows a pressure tight drive train through which the oil flows from the motor to the element. Its vertical setup reduces the footprint by 60%, making it a very compact machine.

Drive Train Cooling

By using oil, a more efficient cooling medium, on the drive train, no motor cooling fan is needed. This in combination with an already more efficient (less cooling needed) motor allows us to save an extra amount of energy on the cooling needs of the unit which again contributes to an extra saving on the SER!

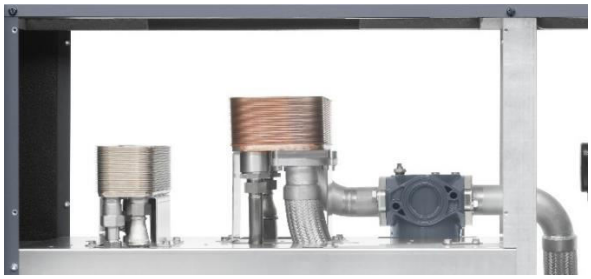
Heavy-duty air inlet filter

The heatsink of the frequency drive is located outside the cubicle. No forced cooling through cooling fans is required for the cubicle. The electronics parts is completely enclosed, no dust can enter the cubicle maximizing uptime and reliability.

To protect the compressor components from wear, even in the harshest environments, a heavy-duty air inlet filter is integrated in the package, ensuring. Long lifetime of internal components. Two steps of dust removal. Premium filtration of particles > 3µm with an efficiency of 99.9%. Long service intervals. Equipped with differential pressure service indicator as standard

Protecting your production process

The integrated high efficient cooling system with air/oil separator ensures a low residual oil content in the, free of liquid condensate, compressed air. Separate oil- and after cooler, to optimize the cooling for both media, resulting in low air outlet temperatures and less oil carry-over. Electronic no-loss drain with feedback control, installed as standard to remove condensate (no corrosion due to free condensate) effectively without wasting compressed air.



Minimized installation work

The compressor packages are completely pre-wired and assembled to minimize the installation work onsite. Integrated refrigerant dryer (Full Feature compressors), mechanically and electrically connected (no extra power supply)

ELEKTRONIKON

Elektronikon® Touch controller

Elektronikon® Touch with compressor visualization:

The next-generation Elektronikon® Touch controller provides you with an intuitive easy to use touch screen controller. The Elektronikon® Touch controller additionally offers a great variety of control and monitoring features that allow you to increase your compressor's efficiency and reliability thanks to the many embedded advanced control algorithms.

Elektronikon® Touch regulator module

The regulating system includes the Elektronikon® Touch controller to regulate, control and monitor compressor operation. All Elektronikon® Touch control modules display and monitor the following:

1. Compressor Status Indication
   - Voltage on
   - Automatic operation
   - Service timer
   - Compressor speed
2. Temperature, numerical readouts
   - Element outlet
3. Pressure, numerical readouts
   - Delivery air

4. Compressor Control
    - Start / Stop
    - Reset / Test
5. Hour meters
    - Total running hours
    - Total loading hours (in different speed zones)
6. Timers
    - Programming compressor time-based start/stop commands
7. Service requirement indications
    - Air filter
8. Compressor safety - warning indications
    - High element outlet temperature.
    - Electronic drain operation
    - Sensor error
    - High dew point
    - Cooling water inlet temp (for water cooled versions)
    - Cooling water outlet temp (for water cooled versions)
    - Pressure drop over PD/DD filters (optionally)
9. Compressor safety - shutdown indications
    - High element outlet temperature.
    - Drive motor/fan motor overload
    - Emergency stop
10. Digital output relays for remote monitoring (voltage free)
    - Automatic operation / Manual operation
    - General warning
    - General shutdown
11. SMARTBOX for SMARTLINK*: Data Monitoring Program
    - Remote monitoring system that helps you optimize your compressed air system and save energy and costs.
    - Provides a complete insight in your compressed air network.
    - Anticipates on potential problems by warning you up-front.

Features & Benefits

Energy Savings

Variable Speed Drive Compressor

- Saves up to 50% in your energy cost

Energy efficient and state of the Art compression element

- Low energy required per compressed air flow Elektronikon® operating system

Controller to ensure optimum efficiency, saver cycle, pressure regulation

Ease of installation

Fully integrated & extremely compact design that saves on installation cost

- Integrated Dryer and Filters
- Ensures compliance with your air requirements and makes the best use of your

valuable floor space.
- Rigid base frame with forklift slots
- Allows for easy installation in most working environments.

Highest reliability

Robust Air Filter

- Offers long lifetime and high reliability for long service intervals and low maintenance needs. Air filter is very easy to replace.

Optimum cooling module for environments up to 46 C/ 115 F

- Ultimate reliability in the most extreme operating conditions, guaranteeing extended lifetime

High efficient permanent magnet main drive motor.

- Totally enclosed oil cooled motor insures reliability and optimal efficiency

Quite operation

Sound insulated canopy

- Low noise level
- No separate compressor room required.