

*Atlas Copco*

# Oil-injected rotary screw compressors

GA 22-37 VSD<sup>s</sup> (22-37 kW/30-50 hp)



# Innovating for a sustainable future

At Atlas Copco, we have always looked ahead. Which products and services will make our customers more successful? Your future drives the Atlas Copco team every day. It is the reason why we devote so much time and so many resources to innovation. If there are technologies that will advance your productivity, we will find them. That is what we have been doing for almost 150 years now, setting new standards in compressed air reliability, efficiency, connectivity, and sustainability.

It's that last principle that now comes first. Sustainability is no longer something we should strive for, but something we must achieve. Productivity and growth will have to be built on sustainability. Atlas Copco – our products, our services, and our people – will help you get there, as we always have.

## The technology that drives sustainability



### FASR motor

The VSD<sup>s</sup> Ferrite-Assisted Synchronous Reluctance motor is a compressor exclusive: IE5 efficiency and built without rare earth materials.



### Neos Next

The inverter that is crucial in generating up to 60% energy savings and a significantly smaller environmental footprint.



### Energy recovery

Developed in-house, the VSD<sup>s</sup> energy recovery system gives you additional energy savings by recovering and re-using up to 80% of the heat the compressor produces.



# GA 22-37 VSD<sup>s</sup>

## The compressor for a new generation

Atlas Copco's first-generation VSD compressors gave you 35% energy savings on average. Our VSD<sup>+</sup> achieved 50%.

Now, the GA VSD<sup>s</sup> raises the bar once again with energy savings of up to 60%. This is the new GA 22-37 VSD<sup>s</sup>, developed and built for a generation that wants it all.

# VSD<sup>s</sup>

### Sustainability

- Double-digit reductions in energy use lower your emissions considerably.
- Careful use of resources.
- Minimal number of components.

### Savings

- Reduced energy consumption by up to 60% (compared to fixed-speed models).
- Additional energy savings with up to 80% heat recovery.
- Advanced connectivity features maximize efficiency.

### Strong performance

- **21% Free Air Delivery (FAD) increase** compared to fixed-speed units.
- FASR motor equals **IE5** standards.
- Inverter and motor exceed IES2 (EN 50598) requirements for power drive efficiency.

### Smart features

- Smart Temperature Control System ensures optimal oil temperature and injection.
- Boost Flow Mode allows you to temporarily exceed maximum compressor capacity.
- Intelligent drains limit energy use and service intervals.

### Superior connectivity

- Advanced Elektronikon<sup>®</sup> Touch controller.
- **SMARTLINK** real-time, remote monitoring and optimization.
- EQ2i multiple compressor control.
- OPC UA available for production system integration.

### Small & silent

- Sound levels as low as 63 dB allow for placement on your production floor.
- Extremely small footprint ensures easy, flexible installation.







# VSD<sup>®</sup>

## The compressor re-invented

1

### New drive train

- Designed according to IP66.
- New high-efficiency element.
- Ferrite-Assisted Synchronous Reluctance motor equals IE5 standards.
- Oil-cooled for maximum efficiency.
- No gears or belts means no transmission losses.



2

### Neos Next inverter

- Combines the functionality of an entire electrical cubicle in one compact unit.
- IP54-protected from dust and dirt.
- Inverter and FASR motor exceed IES2 (EN 50598) requirements for power drive efficiency.

3

### VSD fan

- Variable speed.
- Low vibrations and noise.
- Reduced cooling needs.
- Meets ERP2020.



4

### Smart Thermostatic Control Valve

- Maintenance-free.
- Routes the oil via the coolers to achieve ideal injection temperature.

5

### Intelligent no-loss drain

- Ensures the automatic removal of condensate to minimize loss of compressed air.
- Tracks drain cycles and maintenance schedule.
- Detects potential issues.





6

## Elektronik® Touch controller

- High-tech controller with warning indications, compressor shutdown and maintenance scheduling.
- Easy to use and designed to perform in the toughest conditions.
- Standard **SMARTLINK** remote monitoring to maximize air system performance and energy savings.



7

## EQ2i

Multiple compressor control integrated as standard.

8

## Inlet filter

- Developed especially for VSD<sup>5</sup>.
- Enhanced filtration efficiency.
- Ensures lower pressure drop.

## Exclusive features that make a difference

### Smart Temperature Control System

Thanks to its Smart Temperature Control System, the GA VSD<sup>5</sup> is the first compressor to offer full injection control to eliminate the risk of condensation and maximize compression efficiency. An advanced algorithm in the Elektronik controller combines multiple operational parameters to calculate the optimal oil temperature, which the Neos Next implements by regulating the VSD fan and the STC valve.

### Boost Flow Mode

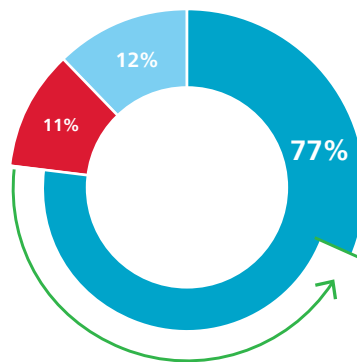
With other compressors, exceeding the maximum capacity means loss of pressure and equipment operation, and possibly a production shutdown. The GA VSD<sup>5</sup> comes with Boost Flow Mode, allowing you to temporarily stretch the limit of your compressor without negative operational or reliability consequences.

# A new generation of savings and sustainability

VSD<sup>s</sup> is the third generation of Atlas Copco's VSD technology. It continues a proud tradition of ground-breaking energy savings with 60% lower energy use on average compared to fixed-speed models. But the VSD<sup>s</sup> is more than the most energy-efficient compressor on the market today. It is a comprehensive re-invention of VSD technology that allows for true production sustainability.

## Energy matters

The true cost of owning a compressor – both financially and in terms of sustainability – lies in its energy use. After all, **energy takes up 77% of the lifetime cost of a compressor**. That makes efficiency the number one requirement to reduce your operational costs and environmental footprint in a meaningful way.



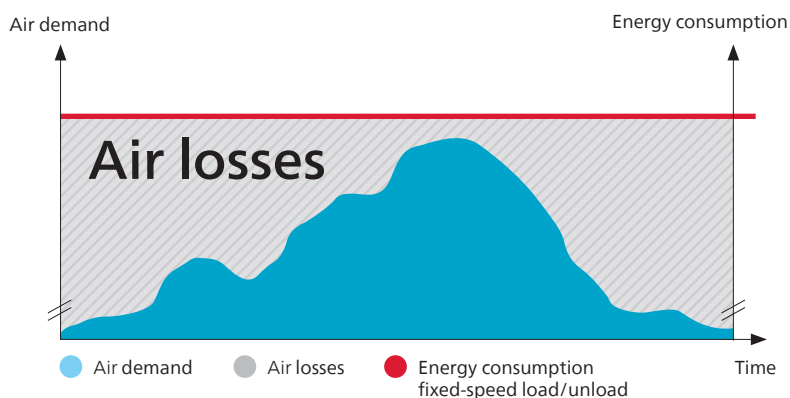
**60%**  
energy savings

### Total compressor lifecycle cost

- Energy
- Energy savings with VSD<sup>s</sup>
- Investment
- Maintenance

## Fixed-speed: unadaptable energy use

Traditional fixed-speed compressors only have one speed, 100% on. The result is a lot of wasted energy when your demand is lower.



## VSD: energy use follows fluctuating demand

Atlas Copco VSD compressors have an inverter that allows them to adjust the motor speed to match the air demand to give you unprecedented energy savings:

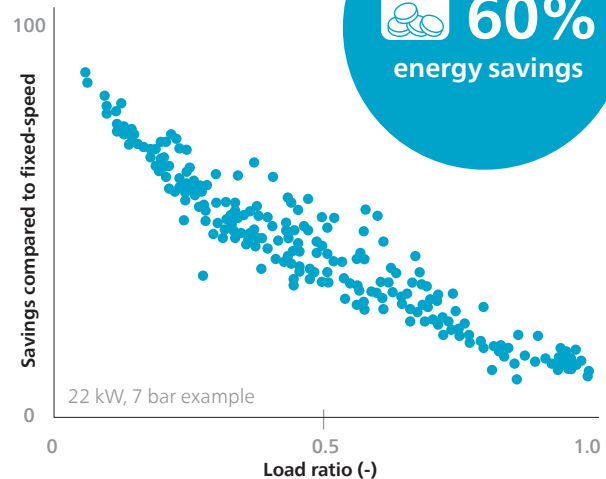
- Elektronikon® Touch controls the motor speed and high-efficiency Neos Next inverter to lower energy use.
- No wasted idling time or blow-off losses during operation.
- Compressor can start/stop under full system pressure without the need to unload.
- Eliminates peak current penalty during start-up.
- Minimizes system leakage due to a lower system pressure.
- EMC compliance to directives (2004/108/EG).

# VSD<sup>®</sup>

## Real-life savings

How much can you save with VSD<sup>®</sup>? We took real-life customer data and compared the energy use of their gear-driven fixed-speed models with the performance a VSD<sup>®</sup> could give them:

- Up to 60% energy savings.
- 80% of fixed-speed customers can achieve energy savings of at least 25% with the VSD<sup>®</sup>.
- Top energy savings of +75%.



$\frac{\text{loaded hours}}{\text{total run time}}$

## What is your load ratio?

The load ratio used in this graph reflects how much, out of its total time running, the compressor is actually producing air at full speed. If you have a fixed-speed compressor, a low load ratio indicates significant energy waste: the machine spends a lot of time using energy without producing air at maximum capacity. As a result, customers operating a fixed-speed unit with a lower load ratio can save even more on energy costs with a VSD<sup>®</sup>.



# VSD<sup>®</sup>

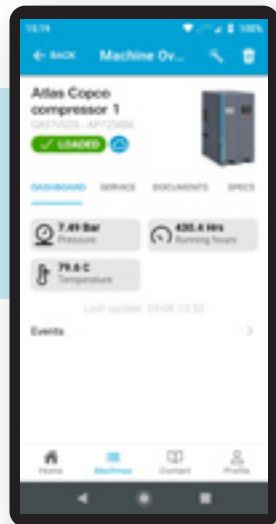
## Revolutionary design

Designing the VSD<sup>®</sup>, the Atlas Copco R&D team looked at every single component to figure out how they could make the best compressor even better. At the center of the marvel of engineering that is the VSD<sup>®</sup>: an all-new drive train, controlled by the Neos Next inverter and the Elektronikon controller.

- Thanks to its optimized rotor profiles, the VSD<sup>®</sup> element delivers efficiency that another air end could never achieve.
- For the first time ever in a compressor, the GA VSD<sup>®</sup> features a Ferrite-Assisted Synchronous Reluctance motor. Its rotor does not contain rare earth materials to help preserve precious resources.
- The all-in-one Neos Next inverter manages the motor and the VSD fan, as well as the STC valve and the intelligent drains.

# As connected as you will be

When it comes to connectivity, manufacturing equipment has long stayed behind. Not Atlas Copco. Our compressed air systems helped pave the way for Industry 4.0. We never stopped developing innovative features and introducing new options to help our customers meet their operational goals.



## Connect

### SMARTLINK

- Real-time monitoring of your compressor's operational parameters on your computer or mobile device.
- Performance data and insights identify opportunities for optimization.
- Service timeline.
- Maintenance and service alerts.
- Online resource center with manuals, documentation and technical information.



## Control

### Elektronikon® Touch

The Elektronikon® Touch features a 4.3-inch user-friendly, multilingual display with clear pictograms and a service indicator. The operating system offers a host of control and monitoring options and smart algorithms to optimize your compressor performance. Customized timers and efficiency controls are just a few examples.





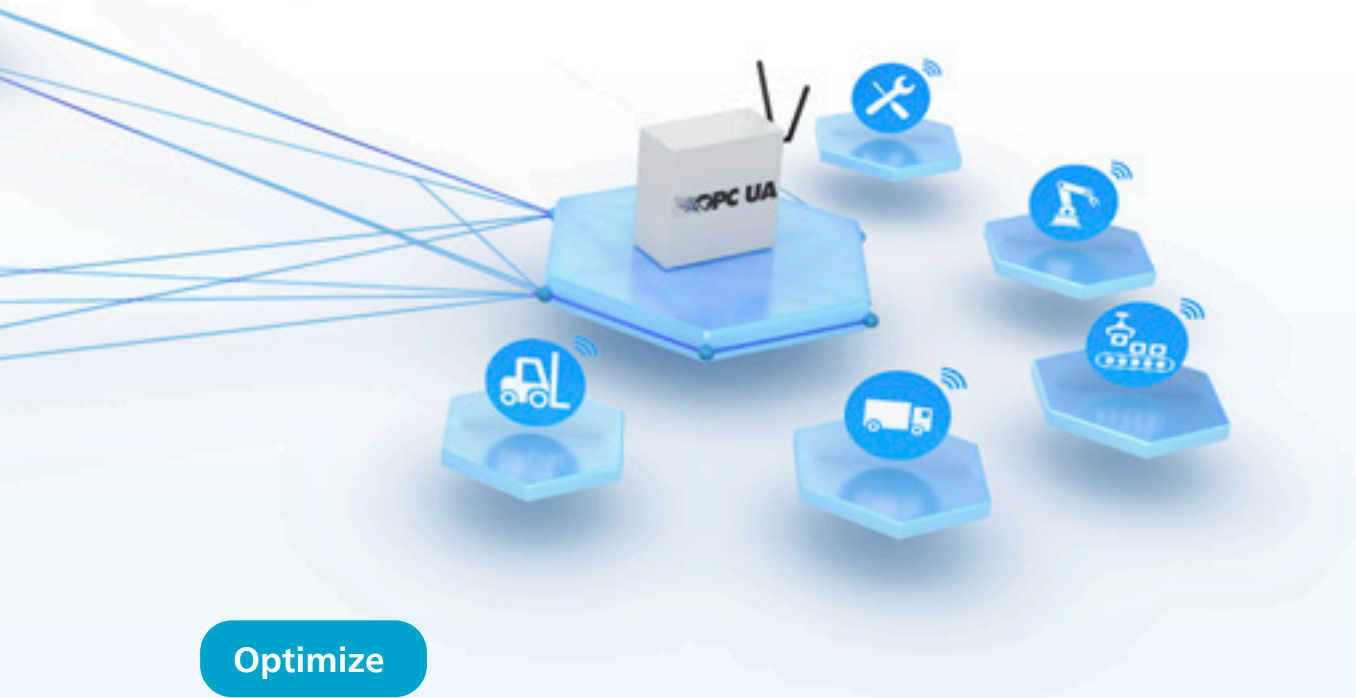
## Manage



### Equalizer 4.0

Manage up to 6 compressors in one air network with the Equalizer 4.0 (integrated in your compressor or as a standalone unit):

- **Reduced pressure band:** Create a narrow, predefined pressure band to save energy.
- **Optimal system performance:** Program all compressors to have equal running hours to reduce service intervals.
- **Improve reliability and efficiency:** With actionable performance reports, service warnings, and energy efficiency data.
- **Standard multiple compressor control:** VSD<sup>s</sup> units come as standard with a built-in EQ2i, allowing the control of a second compressor.



## Optimize

### OPC UA

Atlas Copco was the first compressor manufacturer to offer OPC UA, the machine-to-machine communication protocol that was developed especially for industrial automation. That means you can integrate your Atlas Copco compressor seamlessly in your production network:

- Standardization of production equipment communication.
- Insight into production system performance and optimization options.
- Network security thanks to various encryption levels, authentication, auditing, and user control to ensure security.

# Built-in quality air

Untreated compressed air contains moisture and aerosols that increase the risk of corrosion and compressed air system leaks. This can result in a damaged air system and contaminated end products. The GA 22-37 VSD<sup>s</sup> comes in a Full Feature version with a built-in refrigerant dryer. It provides the clean, dry air that improves your system's reliability, avoids costly downtime, and safeguards the quality of your products.

- Pressure dewpoint of 3°C/37.4°F (100% relative humidity at 20°C/68°F).
- Heat exchanger cross-flow technology with low pressure drop.
- Zero waste of compressed air thanks to no-loss condensate drain.
- Zero ozone depletion.
- Global warming potential has been lowered by an average of 50% by reducing the amount of refrigerant.



The GA 22-37 VSD<sup>s</sup> with built-in dryer and UD<sup>+</sup> filter meets ISO 8573-1 Quality Class 1.4.2.

| Purity class | Solid particles   |                    |                    | Water             |        | Total oil*        |
|--------------|---|--------------------|--------------------|-------------------|--------|-------------------|
|              | Number of particles per m <sup>3</sup>  |                    |                    | Pressure dewpoint |        | Concentration     |
|              | 0.1 < d ≤ 0.5 μm**  | 0.5 < d ≤ 1.0 μm** | 1.0 < d ≤ 5.0 μm** | °C                | °F     | mg/m <sup>3</sup> |
| 0            | As specified by the equipment user or supplier and more stringent than Class 1. |                    |                    |                   |        |                   |
| 1            | ≤ 20000   | ≤ 400              | ≤ 10               | ≤ -70             | ≤ -94  | ≤ 0.01            |
| 2            | ≤ 400000  | ≤ 6000             | ≤ 100              | ≤ -40             | ≤ -40  | ≤ 0.1             |
| 3            | -   | ≤ 90000            | ≤ 1000             | ≤ -20             | ≤ -4   | ≤ 1               |
| 4            | -   | -                  | ≤ 10000            | ≤ 3               | ≤ 37.4 | ≤ 5               |
| 5            | -   | -                  | ≤ 100000           | ≤ 7               | ≤ 44.6 | -                 |
| 6            | ≤ 5 mg/m <sup>3</sup>   |                    |                    | ≤ 10              | ≤ 50   | -                 |

\* Liquid, aerosol and vapor.

\*\* d= diameter of the particle.



## Built-in energy recovery

As much as 90% of the electrical energy used by a compressed air system is converted into heat. Why let that heat go to waste? A specifically developed energy recovery system can be built into your GA VSD<sup>s</sup>, allowing you to recover up to 80% of that power input as hot air or hot water (e.g.: changing room showers). Through efficient use of the recovered energy, you generate important energy cost savings and a high return on investment without compromising your compressor's performance.

# Technical specifications GA 22-37 VSD<sup>s</sup>

| Compressor type        | Max. working pressure |      | Capacity FAD* min-max |                   |            | Installed motor power |    | Noise level** | Weight (kg) |              |
|------------------------|-----------------------|------|-----------------------|-------------------|------------|-----------------------|----|---------------|-------------|--------------|
|                        | bar(e)                | psig | l/s                   | m <sup>3</sup> /h | cfm        | kW                    | hp | dB(A)         | Pack        | Full Feature |
| GA 22 VSD <sup>s</sup> | 4                     | 58   | 15.9-84.5             | 57.2-304.2        | 33.7-179   | 22                    | 30 | 63            | 458         | 587          |
|                        | 7                     | 102  | 16.2-83.3             | 58.3-299.9        | 34.3-176.5 | 22                    | 30 | 63            | 458         | 587          |
|                        | 10                    | 147  | 16.2-65.9             | 58.3-237.2        | 34.3-139.6 | 22                    | 30 | 63            | 458         | 587          |
|                        | 13                    | 191  | 14.2-55.4             | 51.1-199.4        | 30.1-117.4 | 22                    | 30 | 63            | 458         | 587          |
| GA 26 VSD <sup>s</sup> | 4                     | 58   | 15.9-98.1             | 57.2-353.1        | 33.7-207.8 | 26                    | 35 | 66            | 463         | 604          |
|                        | 7                     | 102  | 16.2-96.8             | 58.3-348.6        | 34.3-205.2 | 26                    | 35 | 66            | 463         | 604          |
|                        | 10                    | 147  | 16.2-81.3             | 58.3-292.6        | 34.3-172.2 | 26                    | 35 | 66            | 463         | 604          |
|                        | 13                    | 191  | 14.2-66.9             | 51.1-240.8        | 30.1-141.8 | 26                    | 35 | 66            | 463         | 604          |
| GA 30 VSD <sup>s</sup> | 4                     | 58   | 15.9-110.5            | 57.2-397.7        | 33.7-234.1 | 30                    | 40 | 67            | 476         | 616          |
|                        | 7                     | 102  | 16.2-109.2            | 58.3-393.1        | 34.3-231.4 | 30                    | 40 | 67            | 476         | 616          |
|                        | 10                    | 147  | 16.2-88.07            | 58.3-317.1        | 34.3-186.6 | 30                    | 40 | 67            | 476         | 616          |
|                        | 13                    | 191  | 14.2-73.5             | 51.1-264.6        | 30.1-155.7 | 30                    | 40 | 67            | 476         | 616          |
| GA 37 VSD <sup>s</sup> | 4                     | 58   | 16.7-130.8            | 60.1-470.7        | 35.4-277   | 37                    | 50 | 71            | 480         | 621          |
|                        | 7                     | 102  | 15.7-129.4            | 56.4-465.7        | 33.2-274.1 | 37                    | 50 | 71            | 480         | 621          |
|                        | 10                    | 147  | 15.7-110.8            | 56.4-398.8        | 33.2-234.8 | 37                    | 50 | 71            | 480         | 621          |
|                        | 13                    | 191  | 14.2-92.7             | 51.1-333.7        | 30.1-196.4 | 37                    | 50 | 71            | 480         | 621          |

\* Unit performance measured according ISO 1217 ed. 4 2009, annex E, latest edition.

\*\* Mean noise level measured at a distance of 1 m at max. working pressure according to ISO 2151: 2004 using ISO 9614/2 (sound intensity method); tolerance 3 dB(A).

**FAD is measured at the following effective working pressures:**

4 bar(e), 7 bar(e), 10 bar(e), 13 bar(e)

**Maximum working pressure:**

10 bar(e) (147 psig) or 13 bar(e) (191 psig)

**Reference conditions:**

- Absolute inlet pressure 1 bar (14.5 psi).
- Intake air temperature 20°C/68°F.

## Dimensions

| Pack                   | Dimensions (A x B x C) |                       |
|------------------------|------------------------|-----------------------|
|                        | mm                     | in                    |
| GA 22 VSD <sup>s</sup> | 870 x 854 x 1725       | 34.25 x 33.22 x 67.91 |
| GA 26 VSD <sup>s</sup> | 870 x 854 x 1725       | 34.25 x 33.22 x 67.91 |
| GA 30 VSD <sup>s</sup> | 870 x 854 x 1725       | 34.25 x 33.22 x 67.91 |
| GA 37 VSD <sup>s</sup> | 870 x 854 x 1725       | 34.25 x 33.22 x 67.91 |

| Full Feature              | Dimensions (A x B x C) |                       |
|---------------------------|------------------------|-----------------------|
|                           | mm                     | in                    |
| GA 22 VSD <sup>s</sup> FF | 870 x 1330 x 1725      | 34.25 x 52.36 x 67.91 |
| GA 26 VSD <sup>s</sup> FF | 870 x 1330 x 1725      | 34.25 x 52.36 x 67.91 |
| GA 30 VSD <sup>s</sup> FF | 870 x 1330 x 1725      | 34.25 x 52.36 x 67.91 |
| GA 37 VSD <sup>s</sup> FF | 870 x 1330 x 1725      | 34.25 x 52.36 x 67.91 |

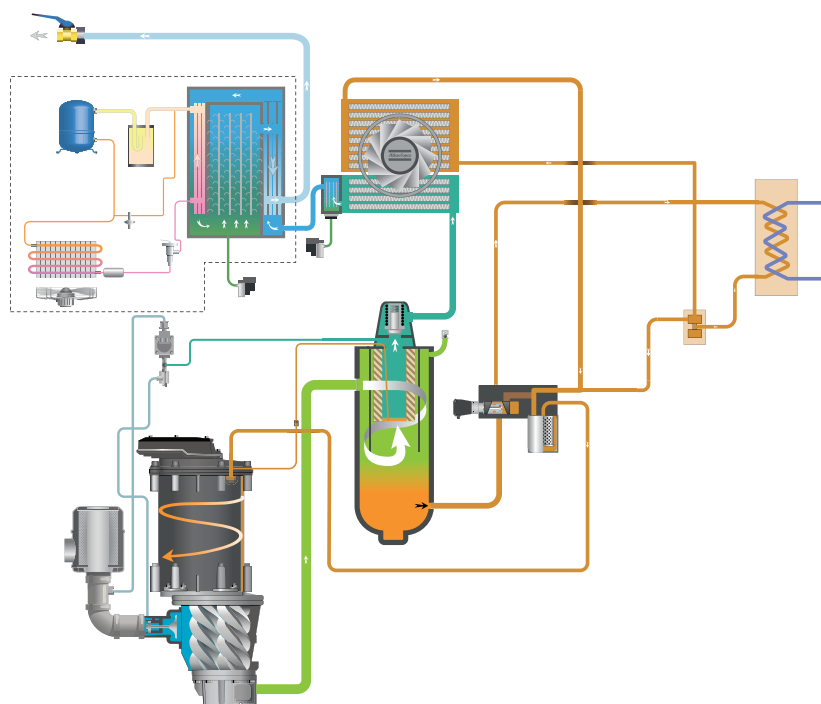
A= Width, B= Depth, C= Height



## Options

- Energy recovery
- Dryer bypass
- Main switch
- Freeze protection
- Heavy duty inlet filter
- Pre-filter
- IT ancillaries
- DD filter
- FoodGrade oil
- UD+ filter
- Roto Synthetic Xtend oil
- EQ4i, EQ6i
- OPC UA gateway
- Power duct fan
- High ambient version

## Flow chart



- Compressed air without free water
- Wet compressed air
- Condensate
- Dry compressed air
- Intake air
- Air/oil mixture
- Oil

