

Oil-free air centrifugal compressors

ZH355(+) – 1120(+)
ZH630(+) – 2000(+)

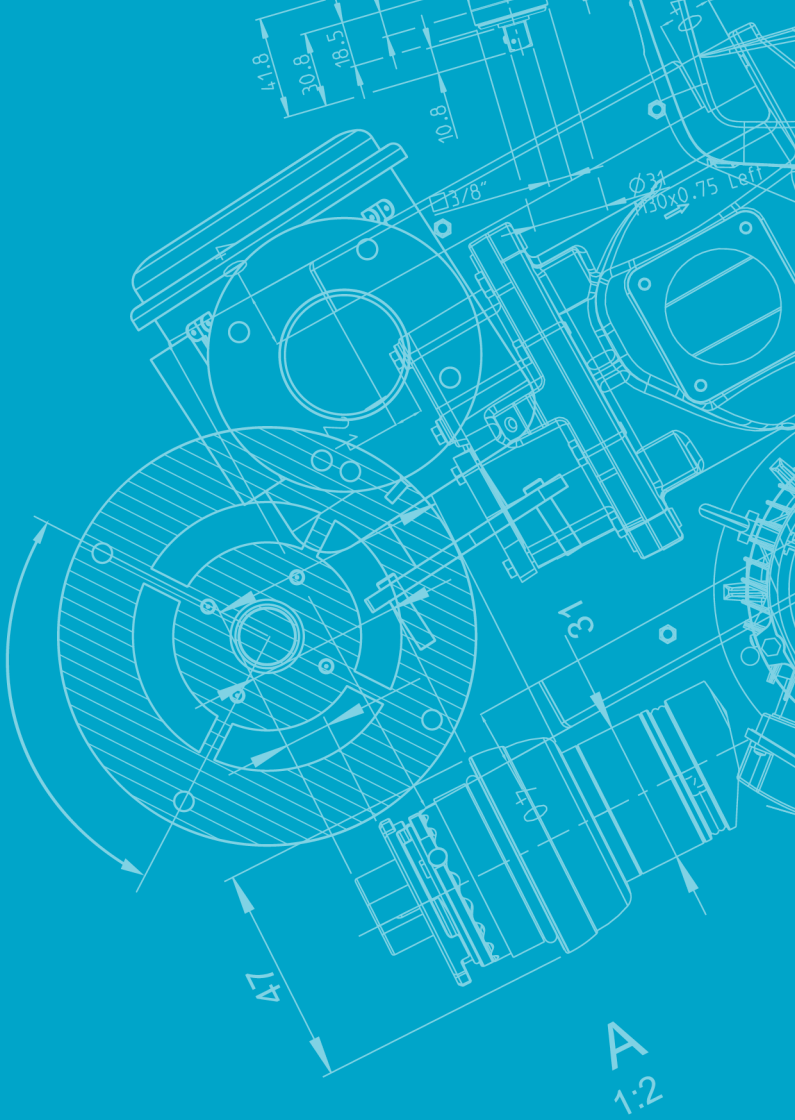


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The best of all worlds

The shortest route to superior productivity is to minimize operational cost while maintaining an uninterrupted supply of the right quality of air. The Atlas Copco ZH/ZH+ compressor series is focused on effectively saving energy, ensuring product safety and guaranteeing the utmost reliability around the clock.



Highest reliability

For over 60 years, Atlas Copco has pioneered the development of oil-free air technology resulting in the largest range of air compressors and blowers within our industry.

100% oil-free compressed air

The ZH/ZH+ offers you 100% pure, clean air that complies with ISO8573-1 Class 0 (2010) certification.

Maximum energy efficiency

The ZH/ZH+ 's superior oil-free TURBO elements provide the optimum combination of high Free Air Delivery (FAD) with the lowest energy consumption.

The most complete package

With the ZH/ZH+ compressor, Atlas Copco provides a totally integrated, ready-to-use package including internal piping, coolers, motor, lubrication and control system.

Global presence – local service

Our aftermarket product portfolio adds maximum value by ensuring optimum availability and reliability of compressed air equipment with the lowest possible operating costs.

SMARTLINK

Monitor your compressed air installation with SMARTLINK. Knowing the status of your compressed air equipment at all times is the surest way to achieve optimal efficiency and maximum availability.



Optimum air quality

By using our compressors and air treatment equipment, you will avoid dust, water or oil in your process. It's important to have the right air quality to maximize your efficiency. If the air quality is too low, you will reduce the reliability of production equipment or processes. If the air quality is too high, you're wasting energy. Therefore, it's crucial to have the right air quality for your needs.





The perfect installation for your requirements

You have to avoid 3 things: water, dust & oil contaminants.

Water
Water in compressed air creates corrosion, rust and can damage your end product. We have twin, desiccant and rotary drum dryers to remove any level of water in your air.

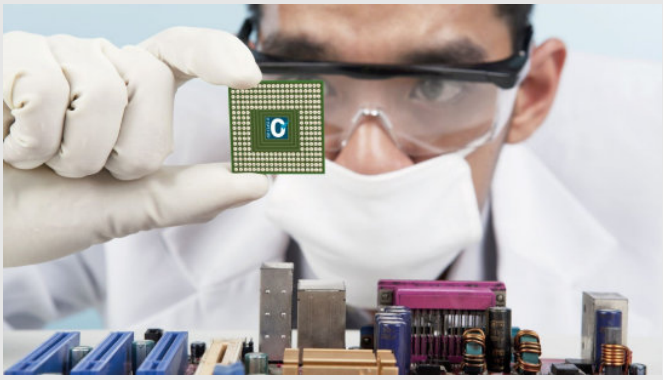
Dust
Dust in your compressed air creates extra friction, which leads to extra wear & tear in e.g. pneumatics. Our wide range of filtration solutions can remove all levels of dust in your system.

Oil
Oil particles entering the compressed air system can create product contamination and damage your end products. With our oil-free products and filtration solutions we can deliver Class-0 air for industries like food & beverage, medical & health care, textiles, and chemical.

Which air quality do you require?

CLASS 0 = As specified by the equipment user or supplier and more stringent than class 1
CLASS 1 = < 0.01
CLASS 2 = < 0.1
CLASS 3 = < 1
CLASS 4 = < 5

Current ISO 8573-1 (2010) classes (the five main classes and the associated maximum concentration in total oil content). Concentration total oil (aerosol, liquid, vapor) mg/m^3. Contact your local Atlas Copco representative to decide the right air quality for your application needs.



Our air treatment portfolio



Refrigerant dryer
Refrigerant dryers are the most common and consist of an air-to-air heat exchanger and an air-to-Freon heat exchanger. They are used to avoid free water and corrosion in the system. A relative humidity of below 50% is enough to achieve this. Refrigerant dryers are available in water-& air-cooled variants.

Desiccant dryer
Adsorption dryers are used when the compressed air application requires a pressure dew point below 0°C. In most cases, the dryers consist of two pressure vessels next to each other. Both vessels are filled with desiccant. When one vessel is removing moisture, the other is regenerating and vice versa.

Drum dryer
A variant on the twin tower heat of compression adsorption dryer is the rotary drum adsorption dryer. A rotary drum dryer exists of one vessel with a drum. This drum is a honeycomb structure on which the adsorption material is impregnated. ¾ of the drum is used to dry the compressed air, while the other quarter is used for regeneration. The regeneration is done with hot compressed air.

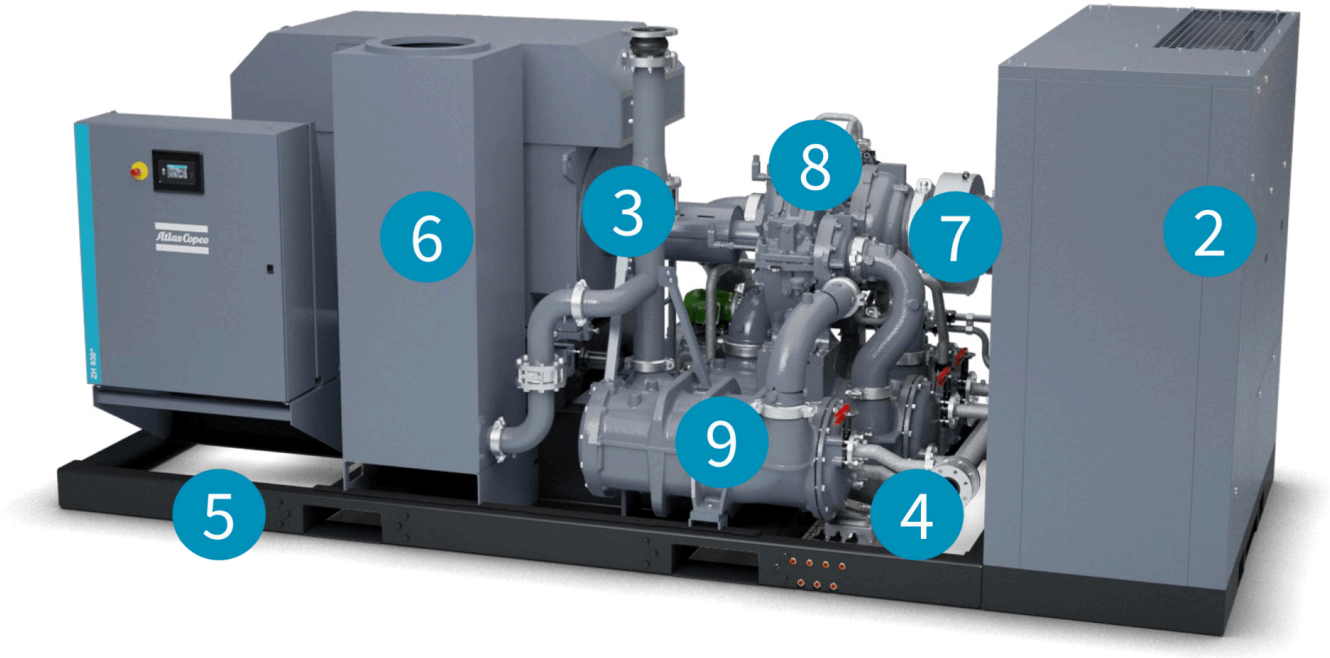
Filters
We offer a wide selection of utility and process filtration solutions for compressed air and gas with different filter types and grades to remove any dust, micro organisms or oil from your compressed air system.

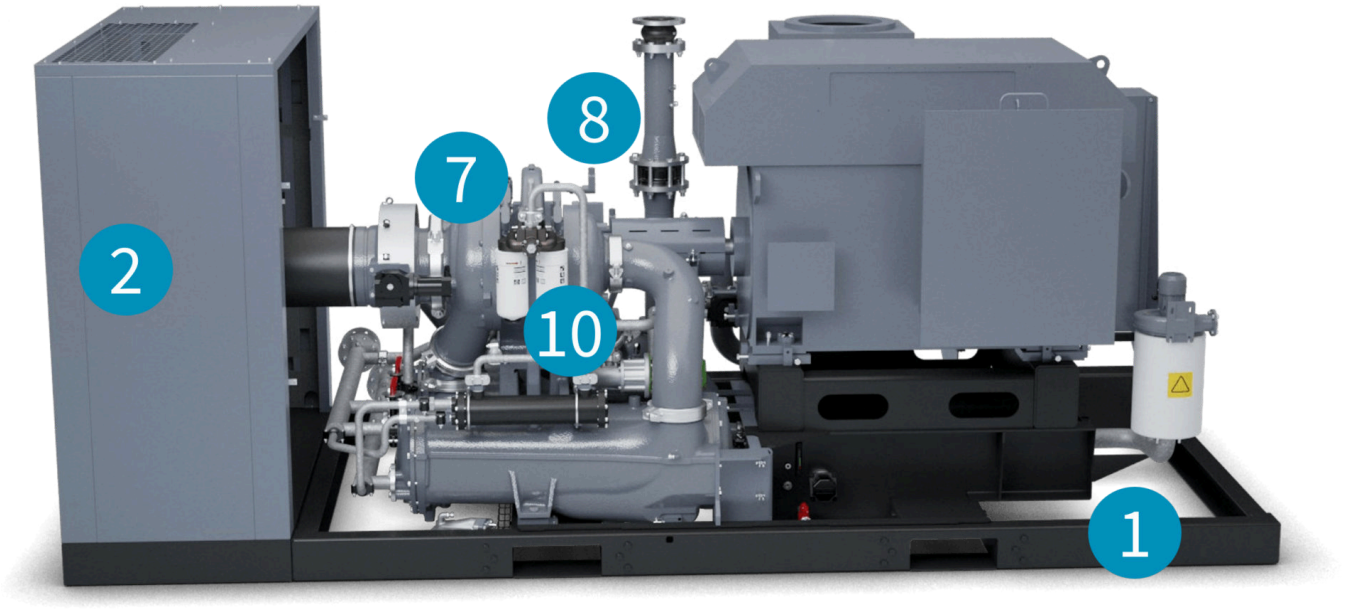
Reliability

To ensure the success of your business, you need to guarantee consistent quality while minimizing your overheads. Our ZH/ZH+ centrifugal compressors keep you on track by delivering a reliable 100% oil-free air.



ZH355(+) – 1120(+)



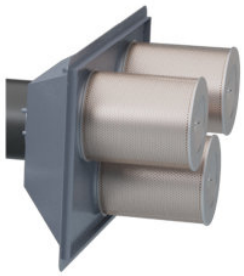


1 Complete package

• All-in-one standard package incorporating the latest technology in a built-to-last design.
• Includes internal piping, coolers, motor, lubrication, inlet guide vanes and control system.
• Installation is fault-free, and commissioning is quick.
• Optional features for customization to a specific production environment.

2 Silent compressor

• Inlet filter is combined with a silencer to reduce noise level and protect the compression stage.
• Handy pressure drop indication on the control panel.



3 Easy commissioning

• No external air, no additional piping and no additional mounting required.
• Integrated blow-off valve: Auto-dual and Constant Pressure Control modes for cost-efficient response to variable air demands.

4 Simplified cooling connections

• Cooling water distribution to intercoolers, aftercooler and oil cooler.
• Individual adjustment of flow through intercoolers and aftercooler.

5 Compact design

• Lowest footprint on the market in their range.
• Saves valuable and often expensive floor space in a facility.

6 Soundproof design

Ensures optimal working conditions for everyone in the immediate environment.

7 Optimal energy usage

• Our unique design allows a turndown of over 25% before blow-off, maximizing energy savings and minimizing operating costs.
• Standard inlet guide vanes save up to 9% more energy at reduced flows compared to competitive units.
• Our unique technology minimizes our customers' operating costs.

8 Short inspection and maintenance time

• Atlas Copco-designed horizontally split gearbox significantly reduces maintenance time, ensuring our customers optimize their production time.
• Designed for preventive maintenance, keeping your investment safe for a long operational life.
• We believe in designing our products to minimize our customers' maintenance costs.

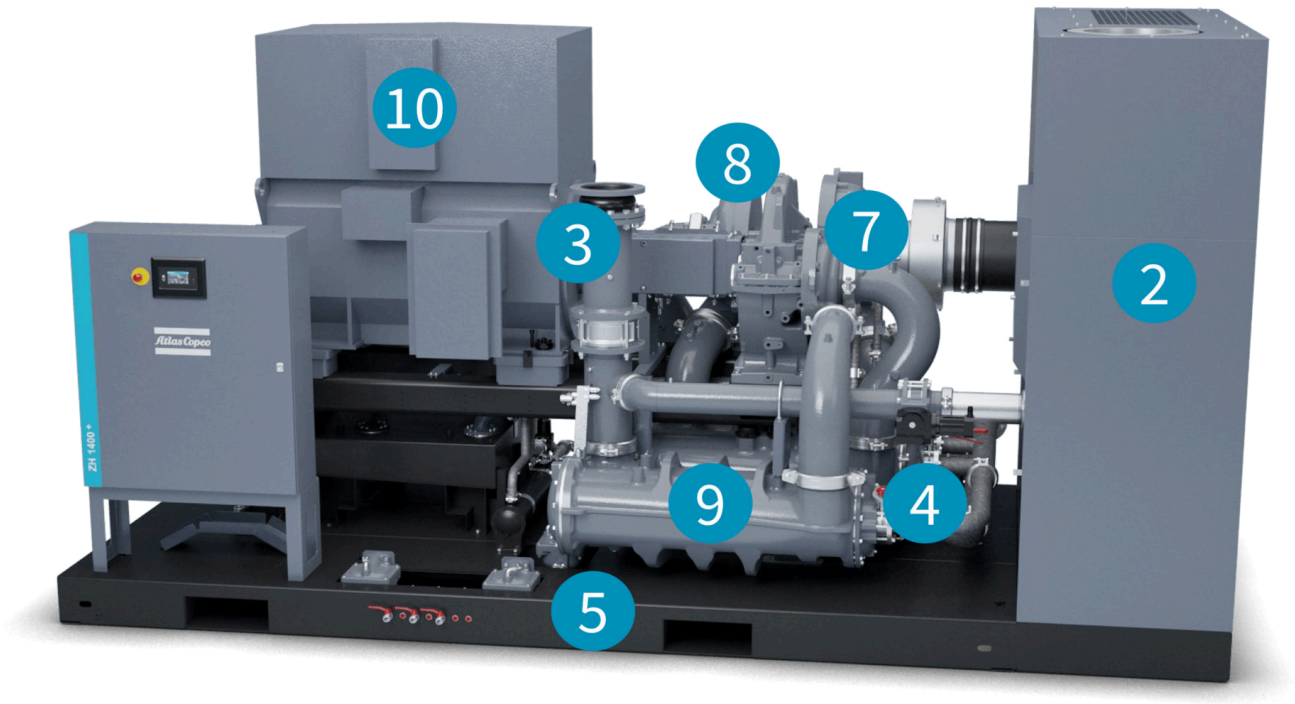
9 Energy efficient cooling

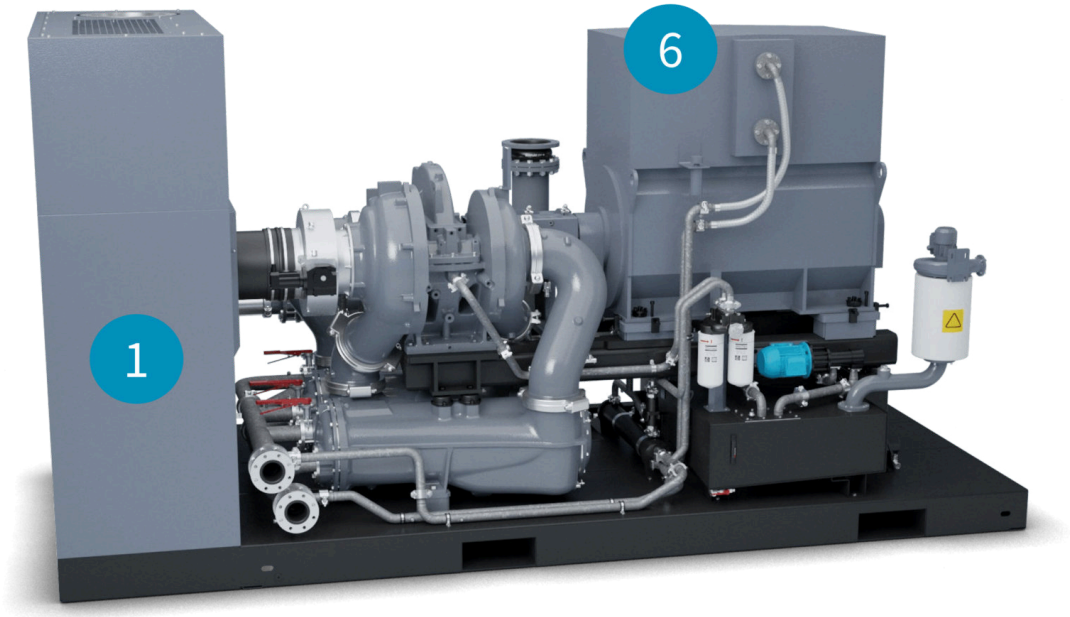
• Efficient cooling increases both reliability and energy efficiency.
• We design our own coolers based on years of experience in compressor design and maintenance.
• Designed for maximum thermal transfer and built to minimize corrosion with stainless steel cores.
• Straight tube design minimizes blockages and maximizes cleaning efficiency.

10 Reduced installation cost

• Lube oil system integrated into the ZH package to reduce space and installation costs.
• Flexible connections to minimize the potential for leakage.
• Oil temperature sensors for continuous monitoring to ensure optimal running.
• Remote monitoring for complete peace of mind.

ZH630(+) – 2000(+)



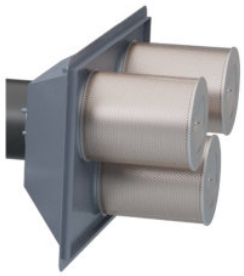


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Optimized efficiency

Over **80%** of a compressor's lifecycle cost is taken up by the energy it consumes. Moreover, the generation of compressed air can account for more than **40%** of a plant's total electricity bill. The unique and patented elements of ZH/ZH+ is not only designed for reliability, but also for efficiency.



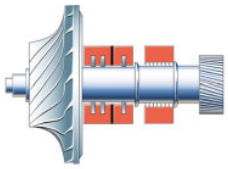
Energy saving components

Our engineers designed ZH/ZH+ with one clear goal: to maximize energy efficiency at every stage of operation. From the core design to the smallest detail, every element works together to minimize energy consumption without compromising performance.



Individually designed impellers

Optimized impeller design ensures peak performance, while its high turndown ratio cuts energy waste during low-demand periods for maximum efficiency.



Oil and air seals

Minimizes air leakage to cut energy loss and removes the need for external instrument air. Streamlining operation and ensuring Class 0 certification without extra energy input.



Horizontally split bearings

Positioned close to the first impeller to reduce aerodynamic losses and improve energy efficiency. Standard design with no extra components required for efficient flow.



Bull gears and high speed pinions

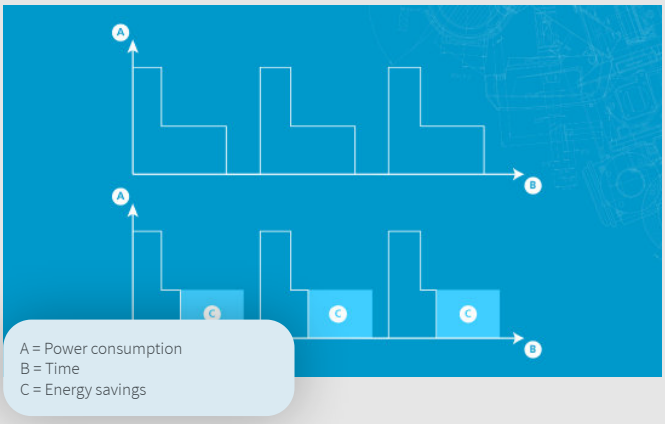
Precision AGMA Q-13 / ISO grade 4 gears minimize mechanical losses for maximum energy efficiency and smooth power transmission.

Elektronikon® Mk5s control

80% of your costs with a compressor come from energy consumption.

The Elektronikon® compressor monitoring system saves energy by using:

- **Delayed second stop** to stop the compressor whenever possible.
- **Dual pressure band** for lower pressure in the systems during weekends and nights.
- **Adapting dryer speed** according to your needs.



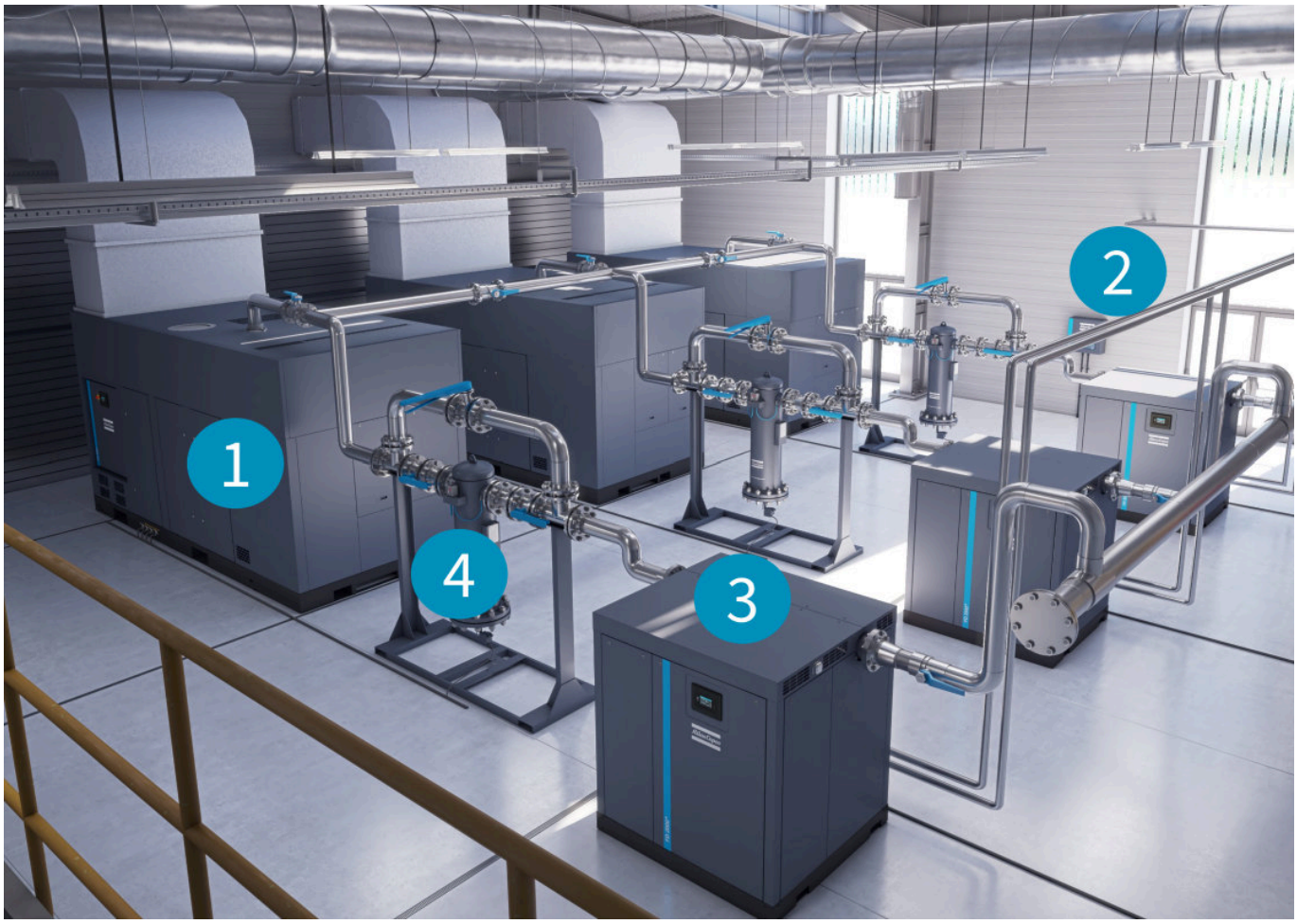


SMARTLINK

- **Monitor your compressed air installation with SMARTLINK:** Knowing the status of your compressed air equipment at all times is the surest way to achieve optimal efficiency and maximum availability.
- **Go for energy efficiency:** customized reports on the energy efficiency of your compressor room.
- **Increase uptime:** all components are replaced on time, ensuring maximum uptime.
- **Save money:** early warnings avoid breakdowns and production loss.

Class-leading compressed air products

As a compressor is only one component in a compressed air system, true efficiency can only be achieved by looking at the bigger picture. Atlas Copco smart AIR solutions are complete systems optimized for energy performance, reliability, and output quality. They are based on a range of class-leading compressed air products, fully optimized to work better together for the most efficient and reliable combination of a compressor with our air and gas equipment.



1 Compressors

The ZH/ZH+ compressor comes as an all-in-one package with advanced technology, including internal piping, coolers, motor, lubrication, guide vanes, and controls. It ensures quick, fault-free installation and offers optional features for customization to your production environment.

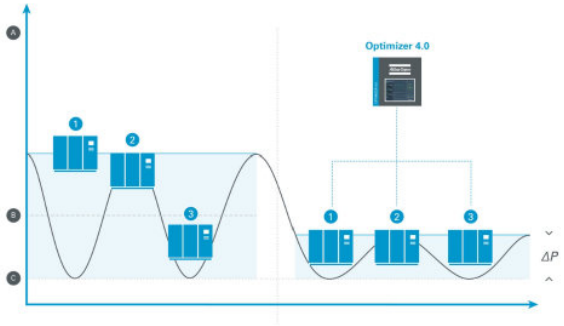


2 Central controller

Having a central controller reduces the average pressure band.It also reduces the operating pressure of your machines.

- By reducing the pressure by 1 bar (or 14.5 psi), your energy usage lowers by 7%.
- By reducing the pressure by 1 bar (or 14.5 psi) decreases air leakages by 13%.

Multiple embedded functions in the Optimizer 4.0 in which pressure, capacity and speed can be regulated.



3 Air dryers

Air dryers remove moisture from the air. Each dryer system-desiccant dryer, refrigerated dryer, and membrane dryer, uses its own technique. The measurement of dry compressed air after processing is known as its 'dew point'. The lower the temperature of the dew point, the less amount of water vapor in the air.

4 Air treatment portfolio

Atlas Copco has a wide air treatment portfolio that matches your needs. Our portfolio ranges from removing water, oil and dust from your compressed air to generating Oxygen and Nitrogen on site.



Optimize your system

With the ZH/ZH+, we provide an all-in-one solution incorporating the latest technology in a built-to-last design. To further optimize your ZH or ZH+'s performance or to simply tailor it to your specific production environment, optional features are available.

Standard scope of supply

ZH355(+) – 1120(+)
ZH630(+) – 2000(+)

Standard scope of supply		ZH+	ZH
Air circuit	EZ Air inlet filter	√	•
	Inlet Guide Vanes	√	√
	Fully coated air path	√	√
	Stainless Steel Coolers (Inter Cooler 1 & 2 & After Cooler	√	√
	Check valve	√	√
	Air outlet compensator	√	√
	Integrated blow-off valve	√	√
	Integrated blow-off silencer	√	•
Cooling Circuit	Drain traps on all coolers	√	√
	Cooling water manifold	√	•
	Water in- and outlet compensator	√	•
	Electronic condensate drain	•	•
	Water shut-off valve	•	•
	Prepared for MD/ND	•	•
	Hot air / XD	•	•
	Energy Recovery	•	•
Oil circuit	Fully integrated lubrification system	√	√
	Stainless Steel oil cooler	•	•
	Duplex filter	•	•
General	Motor	√	√
	Elektronikon® control module	√	√
	Canopy	√	–

✓ *: Standard*
• *: Option*
– *: Not available*

*Water shut-off valve is only available for ZH355 (+) – 1120(+).

Engineered solutions

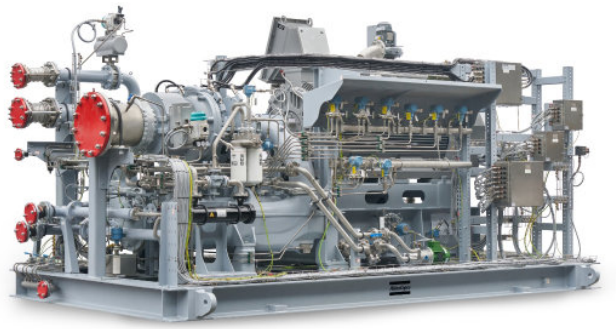
We efficiently combine our proven technologies with build flexibility to comply with the standards and specifications applied by major projects for equipment purchases. Strategically located departments within the Atlas Copco Group manage the design and manufacturing of customized and engineered equipment to operate under extreme environments and comply to demanding project requirements.

Customized equipment

Innovative technology
Atlas Copco equipment is covered by our manufacturer warranty. The reliability, longevity and performance of our equipment will not be compromised. A global aftermarket operation in 160 countries ensures reliable maintenance.

Innovative systems
Project management can be complex. We use cloud-based proposals, contracts, and design management tools to give a transparent view of technical requirements, design models, data and drawings allowing our global team to easily contribute to project success.

Innovative engineering
Our Modular Platform initiative combines our proven IGC compression technology with the requirements laid out in API672 and JIP33/IOGP S-612 into a set of flexible, pre-engineered designs. The result is faster technical alignment starting in early project phases.





It’s all about efficiency, reliability and connectivity



Energy management system

Our central controllers can efficiently regulate all connected machines to reduce energy consumption as much as possible while keeping the pressure stable.

- Knowing all machine operating points in real-time
- VSD machines operate in their sweet spots and fixed speed machines have the lowest possible unload time, resulting in the highest possible efficiency and uptime of the entire installation.
- A much smaller pressure band can be achieved, which brings with it a very high energy-saving potential.
- Ensuring that the most energy efficient machine constellation is always running
- Optimizer 4.0 and Equalizer 4.0 PRO

An ISO50001 complaint Energy Management System will lower your production cost significantly and achieve the lowest Total Cost of Ownership!

Get connected for the future

All machines and equipment are interconnected and continuously sending their data to a centralized SCADA, DCS or Cloud platform via a secure LAN network.

Maximized reliability

- Central controllers reduce the load/unload and start/stop cycles as much as possible, resulting in a long-lasting and reliable machine
- The overall running hours of the compressors, blowers and dryers are reduced as much as possible
- The equalization of the running hours allows the machines to age together and share the load

The EXTENDER +

This device is used along with an Atlas Copco central controller, allowing to maximize the Optimization in the Utility Room.

Characteristics:

- Allows the dynamic control of dryers, gas generators, valves and cooling systems.
- Add- on module for the Optimizer 4.0 or Equalizer 4.0 PRO
- Reduce the energy consumption & CO2 footprint
- Minimizes the running hours and maintenance cost
- Redundant machine setup
- Enables smart controls for the complete utility room



Top quality services

Properly caring for your air compressor helps you lower your operating costs and minimizes the risk for unplanned breakdowns or production stops. Atlas Copco offers energy efficiency checks, service, repairs, spare parts and maintenance plans for all air compressors. Entrust your servicing to our expert professionals and ensure your business continues to run efficiently. Our plans cover repairs, preventative maintenance, spare parts, and more.



Total Responsibility Plan

Complete compressor care with our Total Responsibility Plan
We take care of all your compressor maintenance, upgrades, repairs and even breakdowns for an all-inclusive price.

Complete compressor care
On-time maintenance by expert service engineers, genuine parts, proactive upgrades and compressor overhauls.

Total risk coverage
This means we take care of all your compressor repairs and even breakdowns, without extra charges.

Ultimate efficiency
Fitting the latest drive line components gives you as-new levels of compressor efficiency and reliability.





TotalCare Plan

Energy efficiency
Energy consumption is the biggest part of the total cost of ownership for compressed air equipment. Without proper maintenance, pressure drops may occur, decreasing the system's efficiency. With TotalCare Plan, all consumables are replaced on time using genuine parts.

Greater uptime
Compressed air is a vital part of your production process. A small disturbance could lead to a production stop, lost business, wasted materials, product contamination… As a TotalCare Plan customer, you are given top priority for urgent repairs.

Fixed budget
In 7 years, maintenance costs may fluctuate considerably. If an expensive repair comes up, this could seriously disrupt your budget. TotalCare Plan covers all repairs and comes with a fixed annual cost.

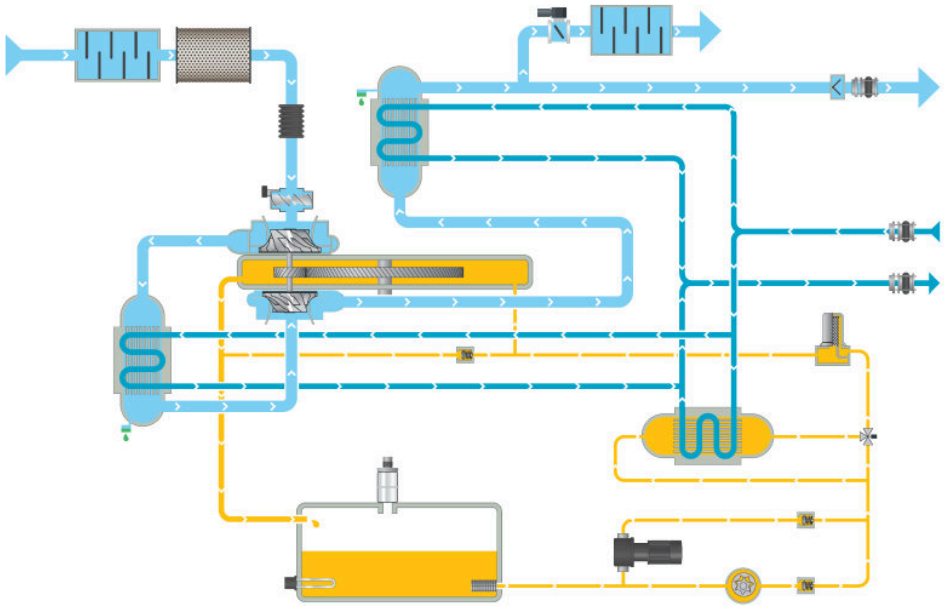
AIRScan

As an energy conscious buyer, you have bought the most energy efficient equipment in the market. But in time, how sure are you that your equipment is still running in the most optimal and energy efficient conditions? If that is the case, it is time to ask Atlas Copco to audit your installation.

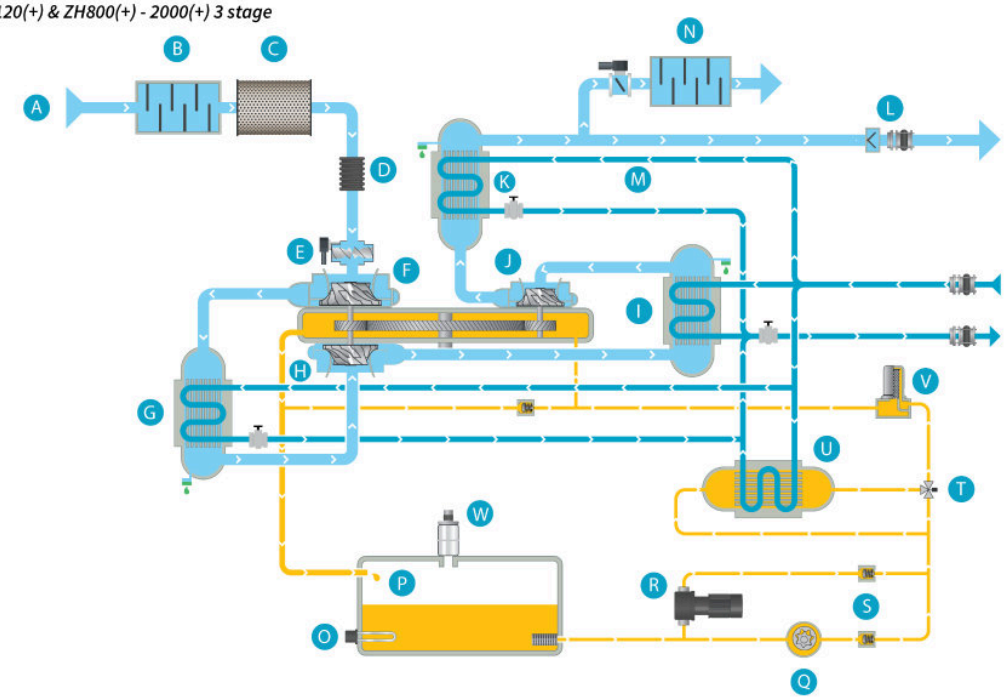


Oil and air flows: your step-by-step guide

ZH355(+) - 800 (+) & ZH630(+) - 1400(+) 2 stage



ZH400(+) - 1120(+) & ZH800(+) - 2000(+) 3 stage



Legend for 3 stage:

A- Air in
B- Inlet baffles
C- Inlet filler
D- Flexible connection
E- Inlet guide vanes
F- 1st stage impeller
G- Intercooler 1
H- 2nd stage impeller
I- Intercooler 2
J- 3rd stage impeller
K- Aftercooler
L- Check Valve
M- Modulating blow off valve
N- Blow off silencer
O- Oil Tank
P- Oil Heater
Q- Integrated main oil pump
R- Auxiliary oil pump
S- Check valve
T- Thermostatic valve
U- Oil cooler
V- Oil filter
W- Oil demister fan

Filtration

Air enters the compressor through the inlet filter, where it is cleaned before proceeding further.

IGV and 1st stage compression

Next, the air passes through the Inlet Guide Vanes (IGV) and moves into the first compression stage.

Cooling – 1st stage

The compressed air flows through Intercooler 1. After cooling, it passes through a moisture separation system equipped with automatic drains to remove condensate before entering the second stage.

2nd stage compression

The air is then compressed in the second stage.

Cooling – 2nd stage

Compressed air flows through Intercooler 2, where free water is evacuated.

3rd stage compression

After passing through Intercooler 2, the air is compressed in the third stage to reach the final pressure.

Cooling – 3rd stage

The compressed air flows through the aftercooler, and free water is evacuated. Finally, the high-pressure air passes through a check valve.

Blow-off valve

If back pressure rises rapidly, the blow-off valve opens fully to protect the unit. The compressed air is released through a blow-off silencer to reduce pressure.

Oil System

The oil pump draws oil from the sump, circulates it through a thermostatic valve and cooler for temperature control, then filters it for clean lubrication of gears and bearings. After use, oil returns to the sump. Bypass valves protect components and maintain proper pressure. The sump includes:

- Oil Heater: Preheats oil to the required temperature before startup.
- Demister Fan: Maintains negative pressure without external air supply.

*The configuration of the machine is not limited to the examples shown above. Explore the full range by contacting an Atlas Copco representative.

Technical specs ZH355(+) – 1120(+)

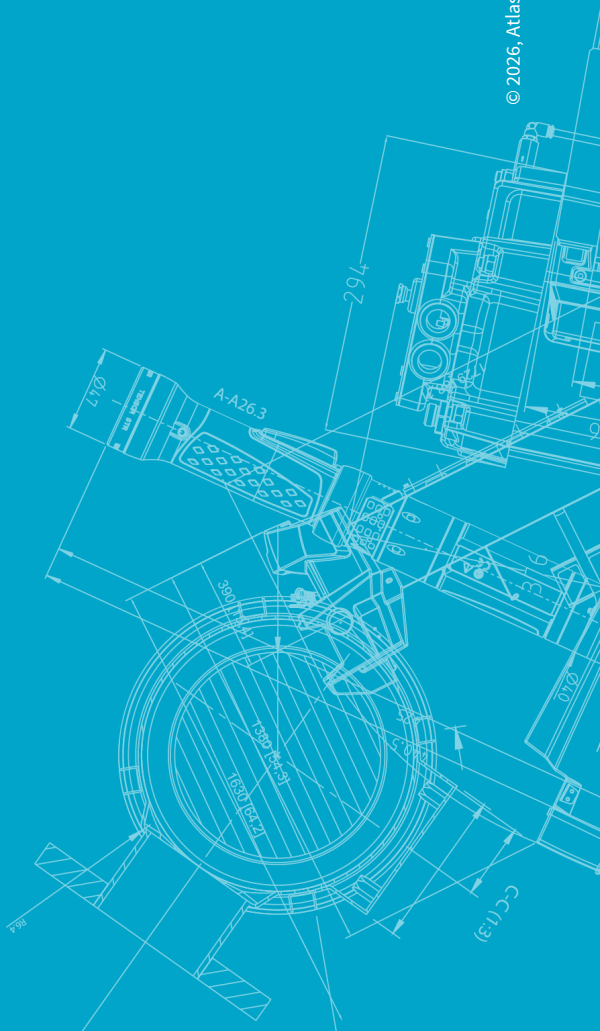
Model		Stage	Working Pressure	Installed motor power	Noise Level (basic)	Dimension (basic)	Weight (basic)	Noise Level (plus)	Dimension (plus)	Weight (plus)
			bar(g)/(PSI)	kW	dB(A)	L x W x H mm/(inches)	kg/(lbs)	dB(A)	L x W x H mm/(inches)	kg/(lbs)
ZH 355-800	ZH 355	2	2.5-5.5 (35-80)	355	84	3834x2215x2414 (150.9×87.2×95.0)	7500 (16535)	68	5268x2230x2414 (207x88x95)	8646 (19061)
	ZH 400			400						
	ZH 450			450						
	ZH 500			500						
	ZH 560			560						
	ZH 630			630		3834x2215x2436 (150.9×87.2×95.9)	8800 (19400)		5268x2230x2436 (207x88x96)	9540 (21032)
	ZH 710			710						
	ZH 800			800						
ZH 400-1120	ZH 400	3	6-13 (84-190)	400	84	3834x2215x2291 (151x87x87)	8754 (19299)	68	5268x2230x2403 (207x88x95)	9900 (21826)
	ZH 450			450						
	ZH 500			500						
	ZH 560			560						
	ZH 630			630						
	ZH 710			710						
	ZH 800			800						
	ZH 900			900		3834x2215x2408 (151x87x95)	9635 (21242)		5268x2230x2408 (207x88x95)	10375 (22873)
	ZH 1000			1000						
	ZH 1120			1120						

Technical specs ZH630(+) – 2000(+)

Model		Stage	Working Pressure	Installed motor power	Noise Level (basic)	Dimension (basic)	Weight (basic)	Noise Level (plus)	Dimension (plus)	Weight (plus)
			bar(g)/(PSI)	kW	dB(A)	L x W x H mm/(inches)	kg/(lbs)	dB(A)	L x W x H mm/(inches)	kg/(lbs)
ZH 630-1400	ZH 630	2	2.5-5.5 (35-80)	630	85	4473x2350x2700 (176x93x106)	10010 (22068)	71	5220x2350x3035 (206x93x119)	12284 (27082)
	ZH 710			710						
	ZH 800			800						
	ZH 900			900						
	ZH 1000			1000						
	ZH 1120			1120						
	ZH 1250			1250						
	ZH 1400			1400						
ZH 800-2000	ZH 800	3	6-13 (85-190)	800	85	4473x2350x2700 (176x93x106)	11644 (25671)	71	5220x2350x3035 (206x93x119)	13004 (28669)
	ZH 900			900						
	ZH 1000			1000						
	ZH 1120			1120						
	ZH 1250			1250						
	ZH 1400			1400						
	ZH 1600			1600						
	ZH 1800			1800						
	ZH 2000			2000						

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Read all safety instructions in the manual before usage.

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