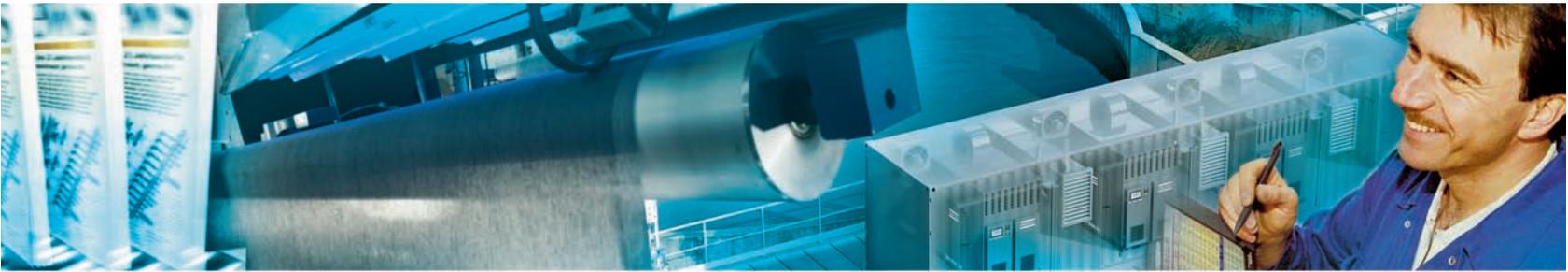


# Atlas Copco

Variable speed direct drive centrifugal air compressors



**ZB 100-160 VSD**  
134-215HP (100-160 kW)





## Total capability, total responsibility

Right at the heart of your business, Atlas Copco delivers quality compressed air for superior operational capacity. From compressed air generation to point of use, you can choose from our wide range of products to create a complete compressed air system that's tailored to your specific needs. All Atlas Copco products are engineered to integrate seamlessly, ensuring the highest level of reliability and energy efficiency. In addition, our Aftermarket portfolio is designed to provide maximum value by guaranteeing optimum availability and reliability of your compressed air equipment.

Atlas Copco has been setting the industry standard in compressed air technology for more than a century. Our dedication to offering the best products and services is not limited to plant air solutions, but extends to low pressure air applications, meeting the exact needs of the specific process. Around the clock and around the globe, the ZB centrifugal air compressor series is proving to be a trusted partner for the low pressure air process.

***We are committed to your superior productivity through interaction and innovation.***



# Reliable, quality air



## LOW-PRESSURE, OIL-FREE AIR IS VITAL FOR YOUR PROCESS

Low-pressure compressed air is a cornerstone of many production processes. A constant delivery is essential to keep your production running smoothly, but the air should also be of impeccable quality. Applications like waste water aeration, general printing, air separation, fermentation and non-woven do not tolerate the slightest level of product contamination.

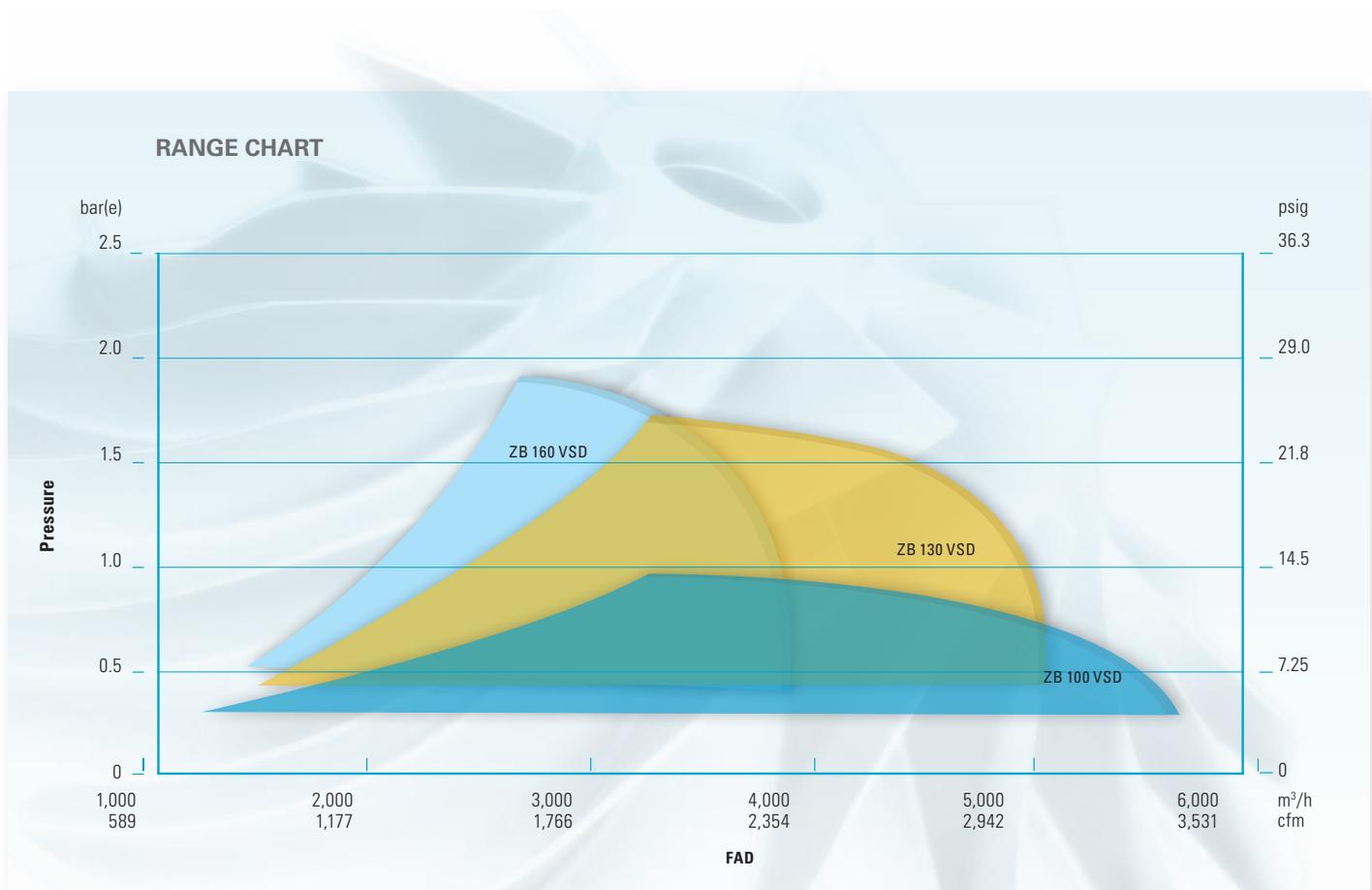
Atlas Copco's ZB range is the ideal choice to meet the high demands these processes impose on your compressor. It comes standard as a complete "all-in" package, fully equipped with all components perfectly tuned to each other.



## THE RIGHT COMPRESSOR FOR THE JOB, AND BEYOND...

The right compressor for the job not only performs well, it does so with as little noise inconvenience as possible. After all, your business is not only about efficient machines, but also about the comfort people need to focus on their job.

Atlas Copco services go beyond offering the right compressor for the job. Our extensive range of aftermarket services assure your compressor remains as productive as on its first day. By keeping in touch with you and your needs, Atlas Copco is driven to continuously improve and innovate its compressed air solutions...and help your production benefit.



# Innovation

The Atlas Copco ZB VSD (Variable Speed Drive) centrifugal air compressor is a completely innovative approach to low pressure compressed air applications. Because of the

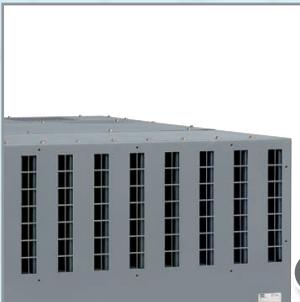
combination of revolutionary technologies, the ZBVSD offers a range of features and benefits that were previously impossible to combine into one machine.



1

## AIR INLET FILTER

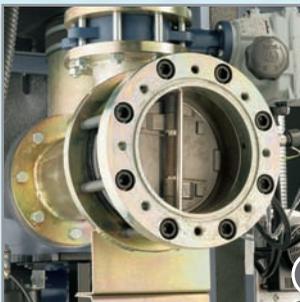
Generous design for minimal restriction and low pressure drop.



2

## LOW NOISE

All six sides completely enclosed. Baffled air intake and dampened air outlet piping.



3

## HIGH QUALITY CHECK VALVE

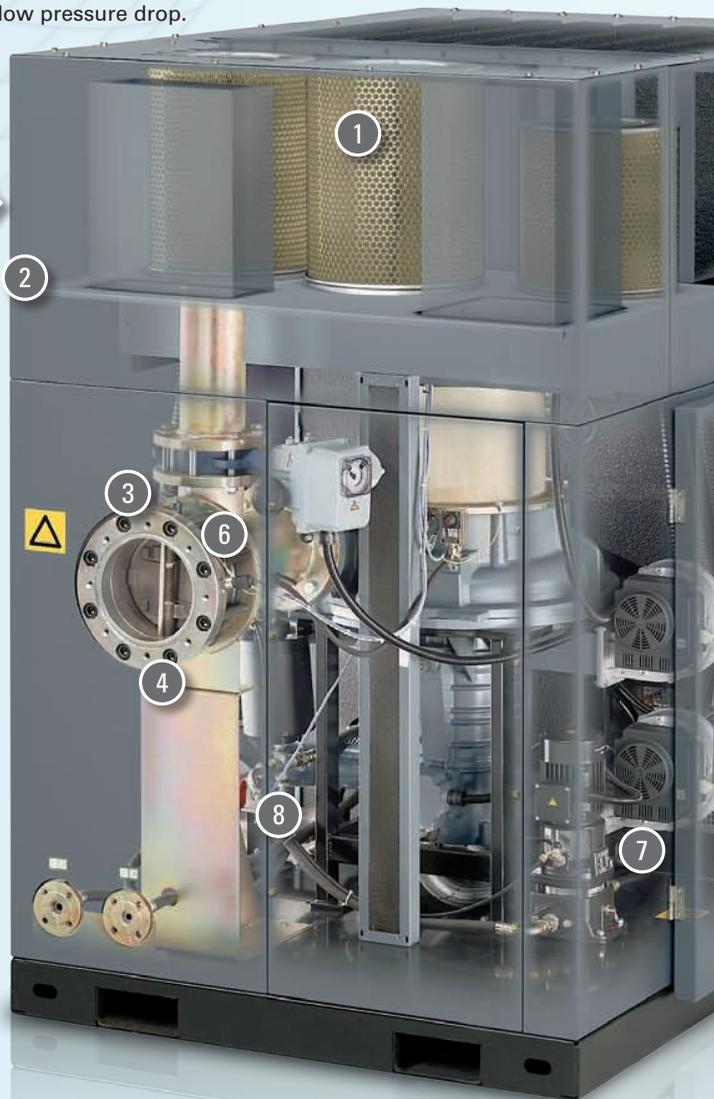
Mounted stainless steel construction, requiring minimal site work.



4

## AIR OUTLET

Packaged solution. All piping, wiring and control included for minimal site work.



1

2

3

6

4

8

7



5

#### ELEKTRONIKON® MK IV

The industry proven and reliable central controller.



6

#### MAGNETIC BEARINGS

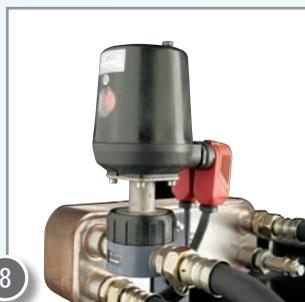
Vibration-free performance at all flows and pressures.



7

#### CLOSED WATER CIRCUIT

Designed for low maintenance and high reliability.



8

#### COOLING WATER THERMOSTATIC VALVE

Adequate cooling in all conditions.

### COMPLETE "ALL-IN" PACKAGE

#### STANDARD

- Air inlet system (incl. filters)
- Sound enclosure
- Outlet check valve
- Blow-off valve (incl. silencer)
- Electronic controller
- Fully equipped electrical system
- VSD – Variable Speed Drive system

#### OPTIONS

- LAN or Internet control/monitoring
- Air cooled package
- Fine inlet filters 99% at 1 µm



#### INTEGRATED VSD CUBICLE

- The all-in solution saves installation time and money
- Integrated components for maximum reliability

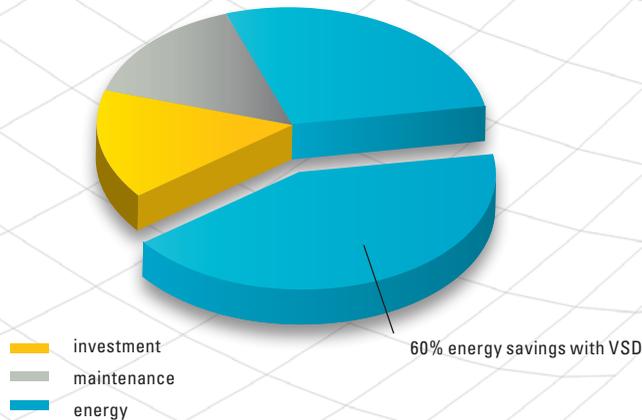
# Why Variable Speed Drive (VSD) compressors?

## DIRECT ENERGY SAVINGS OF UP TO 60%

- Less blow-off of compressed air to the atmosphere
- The precise pressure control of the VSD compressor allows for a tighter pressure band and a lower average working pressure, resulting in reduced energy consumption

## PREDICTING YOUR SAVINGS

Call upon the expertise of Atlas Copco specialists and have an assessment carried out in your factory. A detailed report will show your current operation and the achievable savings when adding a VSD solution to your compressed air system.



## INDIRECT ENERGY SAVINGS

The lower system pressure obtained by VSD results in additional yearly savings:

- lower energy consumption of (other) base load machines
- leak losses are significantly reduced: e.g. leakage at 1 bar is 5% lower than at 1.1 bar
- most compressed air applications consume less air at a reduced pressure

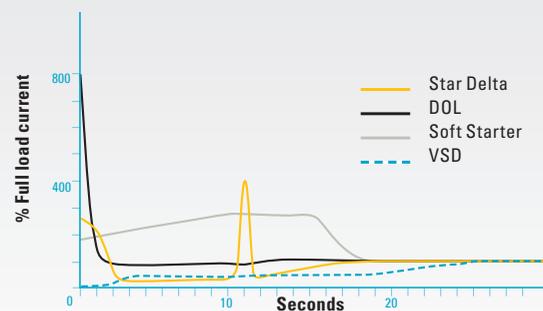
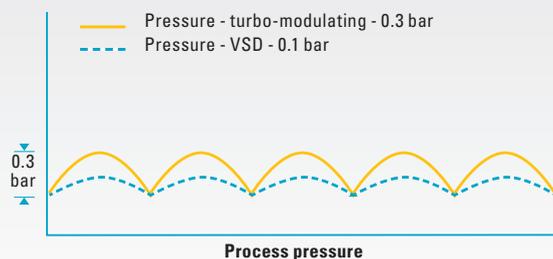
## ADDITIONAL VSD BENEFITS

**The stable system** pressure provides stability for all processes using compressed air

**Variable speed drive** instead of blow-off control

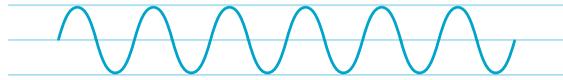
**No current peaks** during start-up

- unlimited starting and stopping
- no risk of current peak penalties upon starting



**Savings in electrical installation** — smaller breakers, fuses, transformers and cables

## THE MAGIC OF VSD



— AC input 50 or 60 Hz  
— AC output 20 to 133 kHz



The frequency of the drive motor is continuously adapted to the process changes.



Inverter

Rectifier

RFI filter

Line reactor

## INTEGRATED VSD – THE ONLY WAY



### ELEKTRONIKON® CONTROLS COMPRESSOR AND INVERTER

- maximum machine safety
- reliable networking

### EMC TESTED AND CERTIFIED

- maximum operating range
- no influence of external sources
- no emissions to other equipment
- permanent magnet synchronous motor

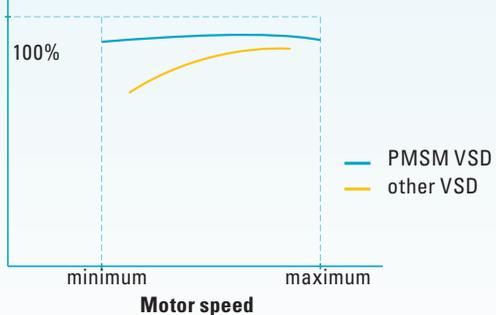
### MOTOR SPECIFICALLY DESIGNED FOR VSD

- motor and converter perfectly tuned to obtain best efficiency over entire speed range
- optimized cooling

### TESTED OVER COMPLETE SPEED RANGE

- elimination of "speed windows"; ensuring stable pressure and consistent energy savings

### Combined motor/converter efficiency



# Efficiency

## DIRECT DRIVE TECHNOLOGY

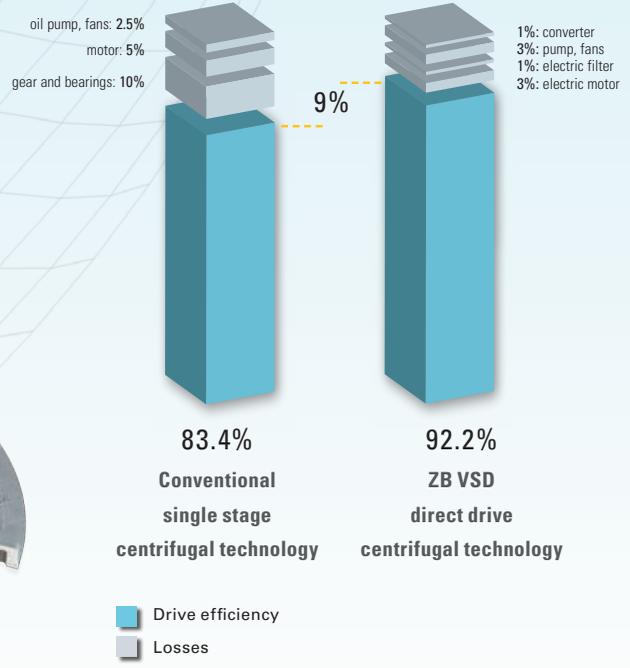
The ZB VSD is directly driven by a permanent magnet synchronous motor, which is vastly superior to conventional types. It reduces energy losses and cooling requirements and offers a higher speed in a more compact design.

A consistently high motor efficiency with low rotor losses is maintained across the entire speed range...both at full load and part load.

Whereas conventional motors need power to induce a magnetic field in the rotor, the ZBVSD motor does not, thanks to the permanent magnets in the rotor.



Drive efficiency at 100% power supply



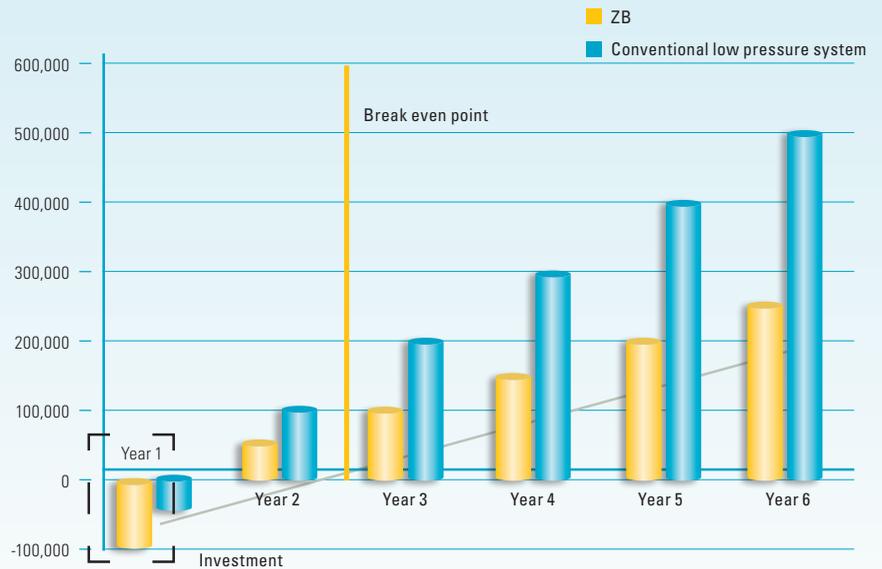
## LIFE CYCLE COST

The ZB compressor solution provides the lowest energy consumption in the industry.

Coupled with long lifetime components and high reliability packaging, the compressor provides the lowest life cycle costs.

Assumptions:

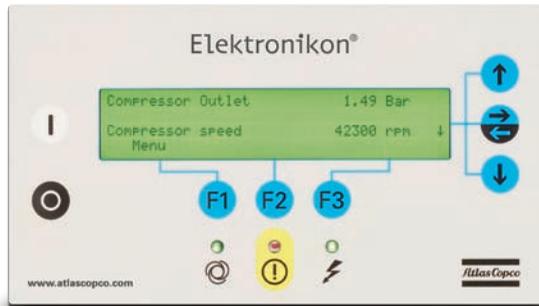
- 0.08 \$/kWh
- 6,500 h/year
- 0.75 bar



## ADVANCED ELEKTRONIKON® MONITORING & CONTROL

### OPERATING MODES:

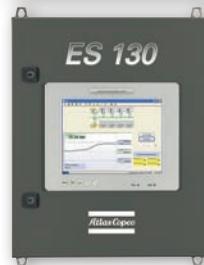
- constant pressure mode (flow range: 50 - 100%)
- constant flow mode
- remote 4-20 mA input (flow or pressure)



### FUNCTIONS:

- control
  - speed regulation
  - surge control
  - blow-off regulation
- safety
- monitoring
  - self diagnosis
- communication
  - internal, with frequency converter and magnetic bearing controller
  - external (Modbus, Profibus)

## ES CONTROL



Central control is the brain in your compressor room. It “directs traffic” to help you save energy, increase reliability through data exports, and maximize uptime.

## LOW NOISE, HIGH WORKING COMFORT

Noise is something you never get used to. Even if you experience it as less bothersome, your hearing will still be affected by prolonged exposure.

Unfortunately, compressors are not noise-free and your employees have to work near them day in, day out. Though the operating sounds cannot be eliminated totally, Atlas Copco has succeeded in substantially reducing the noise level on the ZB range.

The employee working close to a ZB compressor will be able to tell the difference. And an employee who is feeling more comfortable, can focus better on the job.

## HIGHEST EFFICIENCY IMPELLER

The unique stainless-steel backward lean impeller is a proprietary Atlas Copco design with integrated labyrinth seals for highest efficiency with minimal air leakage.

## OIL-FREE, WORRY-FREE

Because there is no gear box and the impeller is directly mounted onto the motor shaft, the ZB VSD is totally oil-free. Traditional oil-system losses are excluded.

- less complex configuration: lower maintenance costs
- no pumping losses
- no contact, so no wear
- no environmental risk



# Custom*Design*

## THE ANSWER TO EVERY NON-STANDARD QUESTION

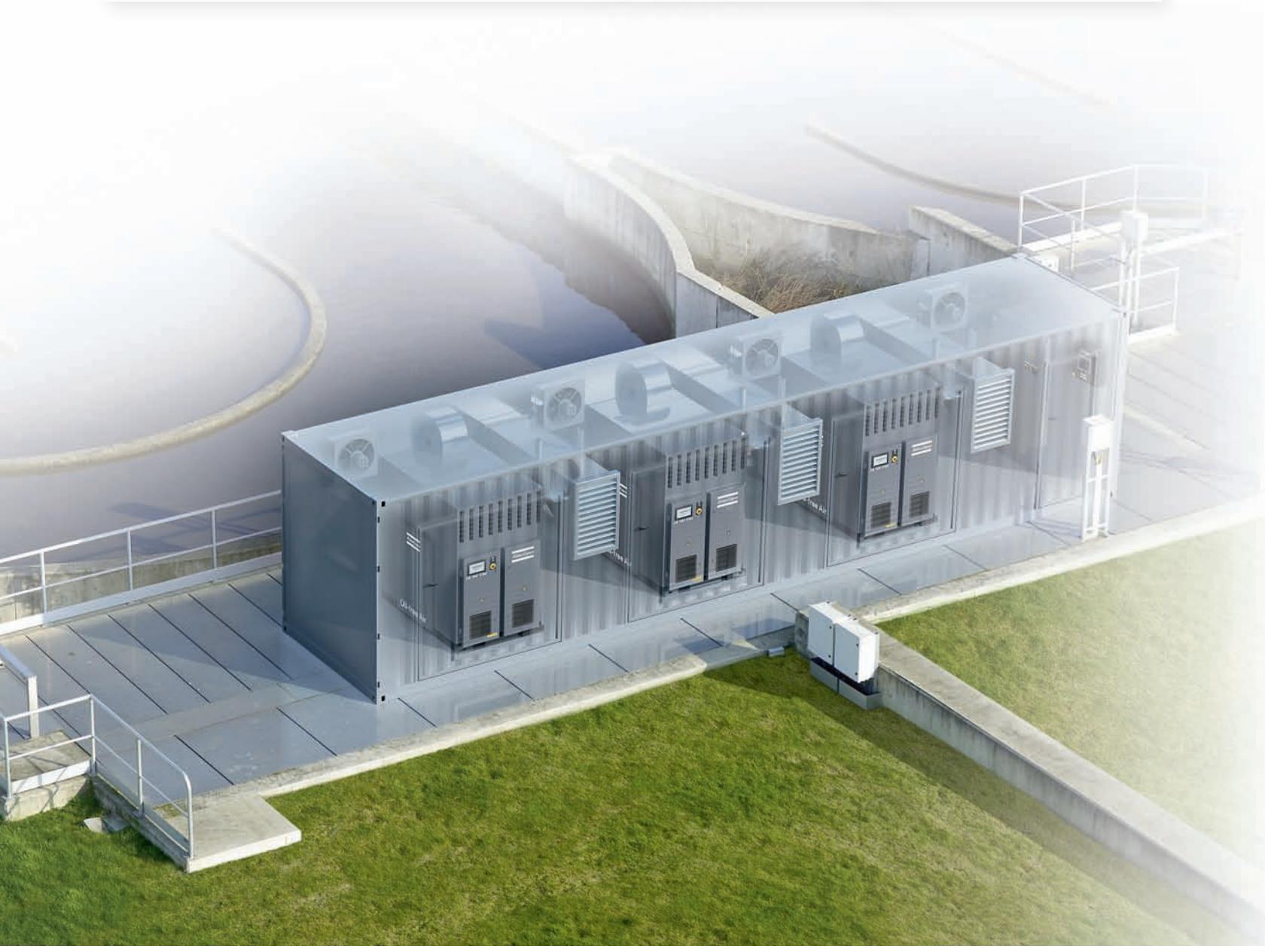
The ZB compressor is designed as standard to perform in a wide range of operating and site conditions.

However, some environments call for additional measures. For all those special requests Atlas Copco's Custom*Design* department offers a solution.

- **Customizing** the standard products to fit your local plant standards. Meeting these standards on electrical voltage, color coatings, explosion proof zones, documentation, test and inspection requirements...
- **Designing** products to secure operation in harsh environments. Allow outdoor installation in sub-zero temperatures, increase corrosion resistance for windy coastal and off-shore applications or ensure performance in hot, moist or dusty environments...

All this, while retaining the high standards of energy, safety and reliability, inherent to all Atlas Copco products.

With dedicated teams in both Product Companies and Regional Engineering Centers, Custom*Design* offers close-to-home solutions fitting your applications worldwide.



# Global presence – local service



Our Aftermarket product portfolio is designed to add maximum value for our customers by ensuring the optimum availability and reliability of their compressed air equipment with the lowest possible operating costs.

We deliver this complete service guarantee through our extensive Aftermarket organization, maintaining our position as the leader in compressed air.

## FULL RANGE OF AVAILABLE AFTERMARKET PRODUCTS

ACTIVITY	PRODUCT*
Genuine parts	Atlas Copco Service kits & oils
Extended warranties	AIRXtend
Service contracts	ServicePlan
System audits	AIRScan™
Remote monitoring	AIRConnect™
Energy saving	AIROptimizer™
Product improvements	Upgrade programs

\* More information is available from your local Atlas Copco customer center.

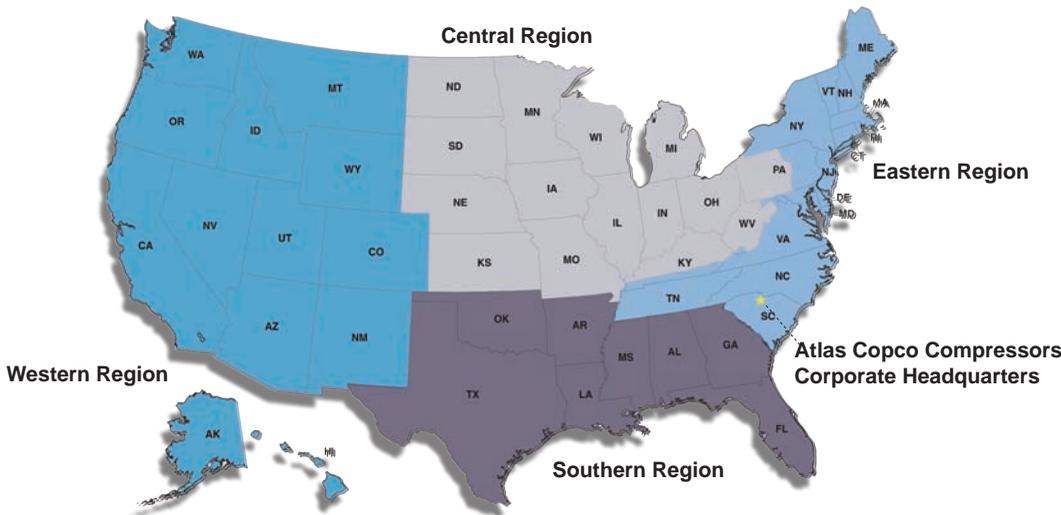


Atlas Copco has a focus on exceeding customer needs with a culture built on ongoing interaction, long-term relationships, and a commitment to understanding each customer's process and objectives. As a result, every compressed air solution we create helps a customer operate with greater efficiency, economy, and productivity.

To better serve our customers, we have operations where our customers do business. Our Eastern, Central, Southern and Western regions each have their own direct Atlas Copco sales and service team, plus we have a nationwide network of Atlas Copco customer centers and authorized contracted independent distributors. We have four manufacturing facilities in the USA, including one in Wisconsin, two in Texas, and our state of the art manufacturing facility, distribution center, parts warehouse, and corporate offices in Rock Hill, South Carolina.

Satisfying customer needs with ground-breaking integrated compressed air technology, quality air accessories and 24/7 service support enhanced with remote monitoring tools positions Atlas Copco as a leading global compressor manufacturer. Our unwavering commitment is to be First in Mind – First in Choice® for all your compressed air requirements.

**We are committed to your superior productivity through interaction and innovation.**



[www.atlascopco.us](http://www.atlascopco.us)  
**866-344-4887**

