

# Atlas Copco

Oil-free Rotary Tooth Compressors

ZT 15-22, ZR/ZT 30-45, ZR/ZT 22-37-55 VSD® (15-55 kW / 20-75 hp)



*Sustainable Productivity*

**Atlas Copco**

# Economical, high quality oil-free air

Clean, oil-free compressed air is a prerequisite for the continuity and quality of many manufacturing processes. Over the past decades, Atlas Copco has pioneered the development of oil-free rotary tooth technology, resulting in a full range of highly reliable compressors delivering 100% oil-free and clean air. Developed especially for applications demanding the highest levels of purity, Atlas Copco's ZR/ZT series compressors eliminate the risks of oil contamination as well as the resulting extra costs. By preventing oil from entering the compression process, the generation of 100% oil-free air is ensured while you benefit from lower operating and maintenance costs with a CLASS 0 certified compressor.



## 100% OIL-FREE AIR

Your activities in pharmaceutical production, food processing, critical electronics or in a similarly exacting industry demand the best air quality for a guaranteed end product and production process. Preventing oil from entering the compression process is a necessity for the generation of consistent 100% oil-free air. Designed with your specific applications in mind, Atlas Copco's rotary tooth compressors eliminate the risks of oil contamination and the accompanying product spoilage, brand damage and delays that represent extra costs. Certified ISO 8573-1 CLASS 0 by the renowned TÜV institute, the ZR/ZT compressors ensure the safety of your application and at the same time allow you to enjoy lower operating and maintenance costs.



## PROVEN PEACE OF MIND

For over sixty years, Atlas Copco has been leading the industry in oil-free compressed air technology, drawing on vast experience and continuous technological innovations. You can rest assured at all times: severe certification and testing procedures are conducted to ensure air is supplied to the highest standards of quality control. Backed by extensive know-how in the field of developing the most reliable quality air solutions, Atlas Copco is the only manufacturer that offers such a vast range of different technologies to match your exact needs. This ensures that you can always find the perfect solution for your specific application.



## REDUCED ENERGY COSTS

As energy accounts for more than 70% of a compressor's lifecycle costs (LCC), its importance is obvious. The most cost-effective compressed air solution optimizes the pressure, volume and air treatment equipment for each production process. Atlas Copco's ZR/ZT compressors provide you with the ultimate all-in-one package to decrease your electricity bill by an average of 35%. To help you save energy, regardless of whether you require a low or high-capacity compressor, our VSD range has been expanded with the ZT 22 VSD and the ZR/ZT 55 VSD.



# A reliable quality air package

At Atlas Copco we aim to provide you with compressors that fulfill and even exceed your expectations and demands. Built as the result of decades of experience in oil-free design and manufacturing, the ZR/ZT range of oil-free rotary tooth compressors brings you all of this experience and knowledge in a class leading package.



## ZR/ZT 15-45

ZR/ZT 15-45 compressors are designed as fully integrated and compact (silenced) packages with drive motor, coolers, moisture drains and filtration along with a controller to ensure optimum efficiency and reliability. The Full Feature versions include the integration of a choice of drying technologies to ensure compliance with your air requirements and make the best use of your valuable floor space.

## ZR/ZT VSD SERIES

The integrated frequency converter of the ZR/ZTVSD series varies the speed of the drive motor to exactly match the changes in your compressed air demand, thus using the minimum amount of energy and more than justifying the additional investment.



ZR 55 VSD-FF  
front view

The integrated concept, the converter-motor-compressor combination, offers various advantages:

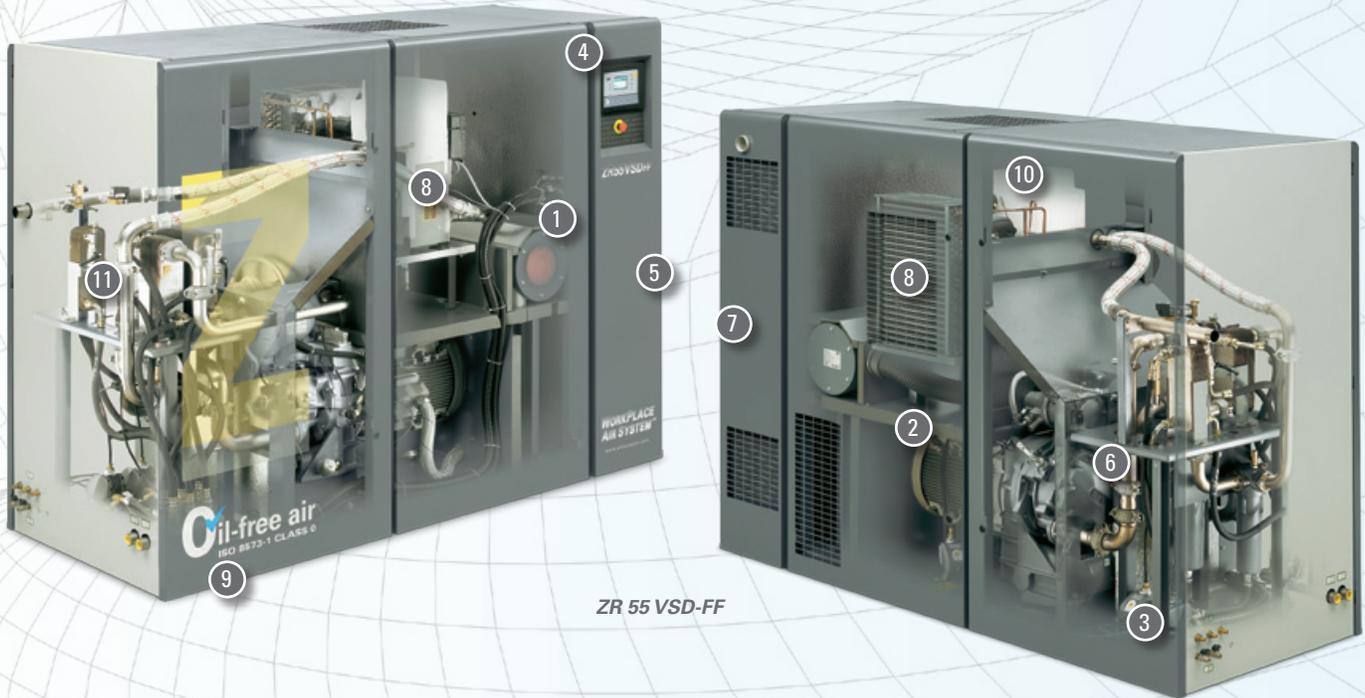
- ensured electromagnetic compatibility.
- full regulation between 30 and 100% of the maximum capacity.
- up to 25% energy savings.

In addition, Variable Speed Drive offers:

- process reliability.
- lower and constant air pressure.
- low starting torque.
- low starting currents.
- constant, high power factor throughout the speed range.

# A variety of benefits

Set to meet your specific demands and tackle your daily challenges, Atlas Copco offers you the ZR/ZT rotary tooth compressors. Immediately ready to supply high quality oil-free air, this powerful solution provides you with the exceptional reliability, efficiency and integration you are looking for.



ZR 55 VSD-FF

## ENVIRONMENTALLY FRIENDLY AND COST-EFFECTIVE

To ensure that we can meet your exacting requirements when it comes to compressed air quality, you are able to choose from either refrigerant or adsorption drying technology.

For a quality end product and reliable production process, Atlas Copco offers the unique range of MD adsorption dryers, specially designed to work with proven oil-free air Z-compressors.

Atlas Copco's MD adsorption dryers are environmentally friendly and cost-effective:

- no Freon or CFC used.
- only 0.06 kW of additional power required.
- no loss of compressed air.
- complete dryer corrosion protection.
- available in water- and air-cooled versions.
- fully automatic operation.
- continuous dryer regeneration using compression heat.
- low dewpoint.



Integrated adsorption dryer

## HIGHEST RELIABILITY



### 1. AIR FILTER

SAE fine 99.5%; SAE coarse 99.9%. The robust air inlet filter offers a long lifetime and high reliability for long service intervals and low maintenance needs. For the harshest environments, maintenance intervals are pre-calculated. To facilitate maintenance even further, the air filter is very easy to replace. As the air filter and silencer are combined, sound insulation is ensured.



### 2. INDUCTION MOTOR

An induction motor, flange-mounted for perfect alignment. Available in two versions: IP54 (TEFC) for VSD models and IP55 (TEFC) for fixed speed models. The dry motor coupling requires no lubrication, eliminating service requirements.



### 3. ELECTRONIC WATER DRAINS

Mounted vibration-free on the frame, the drains communicate with the compressor controller to ensure the constant removal of condensate. This not only improves water separation, but also extends your compressor's lifetime. A large diameter drain port removes the potential for clogging, providing trouble-free operation.

## TOTAL SUPERVISION AND MONITORING



### 4. ELEKTRONIKON®

Advanced Elektronikon® control and monitoring system, designed for integration in a (remote) process control system.

## EASY MAINTENANCE



### 5. GENERAL DESIGN

The split roof panel enables the removal of the IMD dryer's cover and drum, making maintenance easier when you have installed fan ducting. The IMD dryer is an independent module, which allows for easier replacement.

## ENERGY SAVINGS



### 6. TWO-STAGETOOTH ELEMENT

Lower energy consumption compared to single stage compression systems as no venting of the pressure is required, ensuring that the minimum power consumption of the unloaded state is reached rapidly.



### 7. INTEGRATED VSD CONVERTER

With VSD automatically adjusting the compressed air supply to the demand, you can avoid a large waste of energy due to no load operation and oil vessel blow-off losses. Additionally, the VSD is able to operate in a narrow pressure band setting which reduces the overall system working pressure.



### 8. INTEGRATED DRYER

Saver cycle technology reduces the energy consumption of the integrated air treatment in light load conditions. As the condensate separation is integrated, water separation is improved and the Pressure Dew Point (PDP) becomes more stable.

## QUIET OPERATION



### 9. SOUND INSULATED CANOPY

No separate compressor room is required as the sound insulated canopy allows for installation in most working environments. Producing 3 dB less than previous Pack units, the Z compressors are only available in WorkPlace Air System™ versions.



### 10. RADIAL FAN

The radial fan, which ensures that the unit is cooled effectively, produces as little noise as possible.



### 11. INTERCOOLER AND AFTERCOOLER

Thanks to the vertical layout of the coolers, the noise levels from the fan, motor and element have been drastically reduced.

# ISO 8573-1 CLASS 0

## Atlas Copco sets a new industry standard



When it comes to clean, oil-free compressed air for your critical processes, you can't afford to compromise. Atlas Copco, a pioneer in oil-free air technology, is known for its range of rotary tooth compressors designed especially for applications that require oil-free air. Now Atlas Copco has achieved a new milestone: setting the standard for air purity as the first manufacturer to be certified ISO 8573-1 CLASS 0.

*The only air compressors TÜV-certified as "oil-free" (ISO 8573-1 CLASS 0)*

### WHY A NEW CLASS?

Industries such as pharmaceuticals, food and beverages, electronics and textiles must exclude any risk of contamination. Otherwise severe consequences could follow: spoiled or unsafe products, production downtime and damage to both brand and reputation. To address the needs of critical applications where air purity is essential, the ISO 8573-1 compressed air standard was revised in 2001. Along with a more comprehensive measuring methodology, a new and more stringent class was added to the five existing purity classes: ISO 8573-1 CLASS 0.

CLASS	Concentration total oil (aerosol, liquid, vapor) mg/m <sup>3</sup>
<b>0</b>	<b>As specified by the equipment user or supplier and more stringent than class 1</b>
1	< 0.01
2	< 0.1
3	< 1
4	< 5

### FIRST TO ACHIEVE ISO 8573-1 CLASS 0

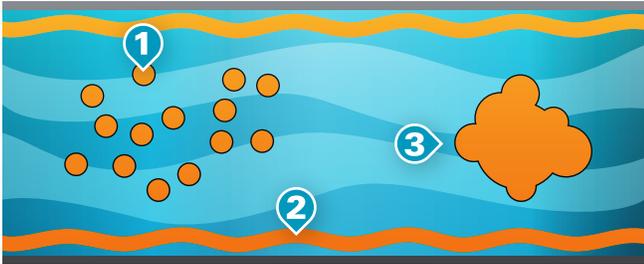
As the industry leader committed to meeting the needs of the most demanding customers, Atlas Copco requested the renowned TÜV institute to type-test its ZR/ZT range of oil-free rotary tooth compressors. Using the most rigorous testing methodologies available, all possible oil forms were measured across a range of temperatures and pressures. The TÜV found no traces of oil at all in the output air stream. Thus Atlas Copco not only became the first compressor manufacturer to receive CLASS 0 certification, but also exceeded ISO 8573-1 CLASS 0 specifications.

### ATLAS COPCO ELIMINATES ANY RISK

Only oil-free compressors deliver oil-free air. Whether your activities are in pharmaceutical production, food processing, critical electronics or a similarly exacting industry, it is essential to eliminate risk. That's why you need an Atlas Copco risk-free solution: oil-free compressors especially for applications demanding the highest levels of purity. Zero oil means zero risk. Zero risk of contamination. Zero risk of damaged or unsafe products. Zero risk of losses from operational downtime. Above all, zero oil means zero risk of ruining your hard-won reputation.



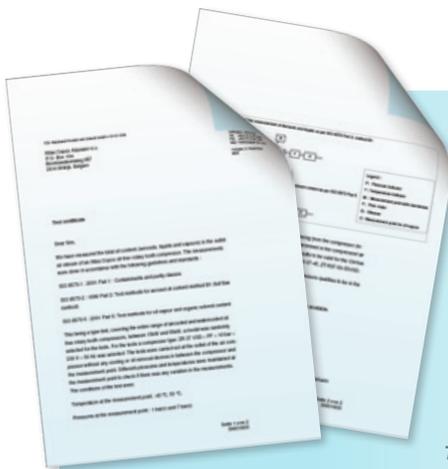
## THE MOST STRINGENT AIR PURITY TESTING AVAILABLE



Most manufacturers prefer “partial flow” testing, which targets only the center of the air flow. The Atlas Copco ZR/ZT range of oil-free rotary tooth compressors was tested using the more

- 1 Aerosols**  
Minute droplets of oil suspended in the air stream
- 2 Wall flow**  
Oil in liquid form, which creeps along the pipe wall
- 3 Vapors or oil mist**  
Vaporized oil in a cloud form

stringent “full flow” method. This examines the entire air flow to measure aerosols, vapors and wall flow. Even with such rigorous testing, no traces of oil were found in the output air stream.



### CAN OIL-INJECTED COMPRESSORS WITH OIL REMOVAL FILTERS DELIVER OIL-FREE AIR?

Often referred to as “technically oil-free air”, this system relies on air cooling devices and several stages of oil removal with multiple components. A failure of any of these components or inadequate maintenance can result in oil contamination of a process. Therefore, with oil-injected compressors there will always be a risk of contamination and the possibility of severe consequences for your business.

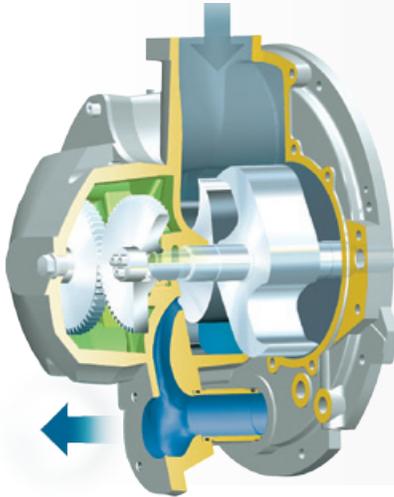
*TÜV (Technische Überwachungsverein/Technical Monitoring Association) reporting on the Atlas Copco ZR/ZT range of oil-free rotary tooth compressors.*



Move up to a risk-free standard.  
Visit [www.classzero.com](http://www.classzero.com)

# Proven technology, maximized efficiency

To provide you with top-quality, 100% oil-free air, Atlas Copco's ZR/ZT series incorporates a range of advanced technologies. The unique rotary tooth element increases efficiency thanks to two-stage compression. As no venting of the pressure element is required, the energy consumption is considerably lower compared to single stage compression systems. With its symmetrical and dynamically balanced design, the double tooth element ensures an increased free air delivery and delivers consistent performance over time.



## ROTORS

Stainless steel symmetrical rotors ensure perfect dynamic balancing and minimum bearing load to guarantee a long life span.

## AXIAL IN AND OUTLET PORT

The straight rotor design and the opposing axial in and outlet port avoid axial load on element components, increasing element lifetime.

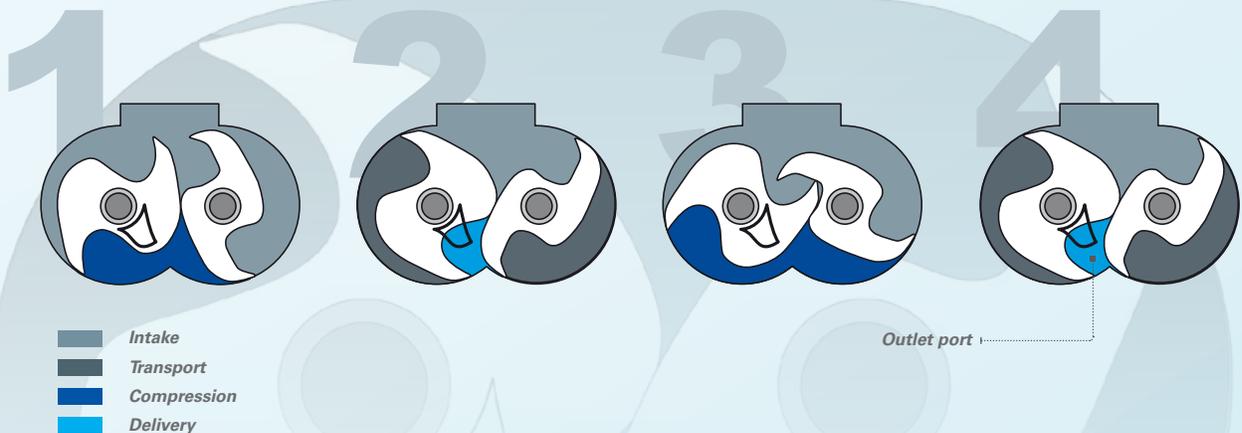
## AIR-COOLED DESIGN

Cast teeth allow for efficient heat dissipation, eliminating the need for a complex cooling water system and ensuring greater reliability.

## SEALS

Two independent floating oil and air seals, separated by a neutral buffer area, safeguard the compression chamber from oil penetration.

## THE ROTARY TOOTH WORKING PRINCIPLE



- 1.** Atmospheric air is drawn through the inlet port into the compression chamber as a result of the rotational action of the tooth rotors.
- 2.** Air is trapped between the teeth of the male and female rotors.
- 3.** Compression takes place. The male and female rotor turn towards each other, decreasing the free space, resulting in an increase in pressure.
- 4.** The female rotor exposes the outlet port and the compressed air is delivered to the system.

# Exceptional versatility

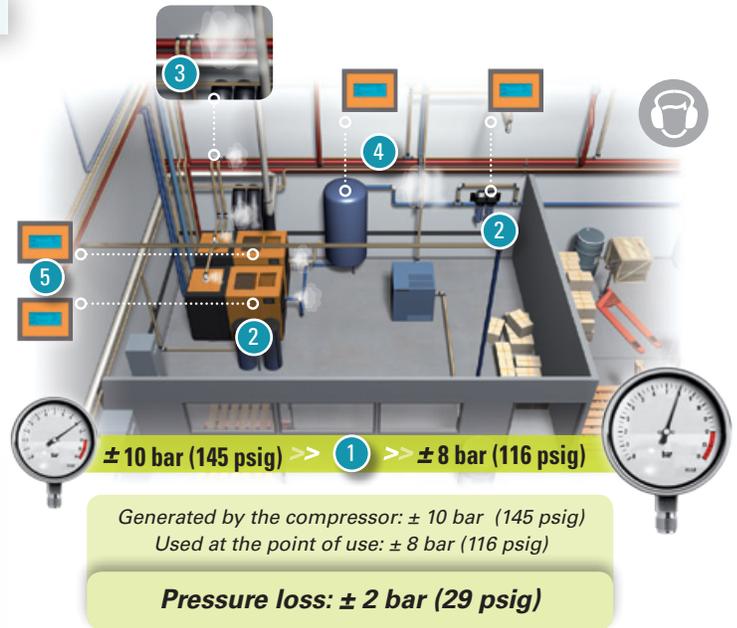
Contrary to traditional compressor installations, Atlas Copco's ZR/ZT *WorkPlace Air System*™ compressors effortlessly fit onto your work floor. With their compact footprint and integration of air treatment equipment, ZR/ZT compressors ensure optimum efficiency and reliability. Thanks to the vertical layout of the coolers, the noise levels from the fan, motor and element have been drastically reduced. Designed to give the most versatile source of compressed air, they provide you with an all-in-one package that will have your production running smoothly for years to come.

## TRADITIONAL COMPRESSOR SET-UP

- 1 HIGH PRESSURE DROP ACROSS THE SYSTEM
- 2 EXTERNAL FILTRATION EQUIPMENT/DRYER
- 3 ELABORATE AND COSTLY PIPING SYSTEM
- 4 MULTIPLE CONNECTIONS AND AIR LEAKS
- 5 MULTIPLE MONITORING POINTS

### HIGH NOISE OPERATION

- SEPARATE COMPRESSOR ROOM
- RAISED INSTALLATION & ENERGY COSTS AS A RESULT OF HIGH PRESSURE DROP

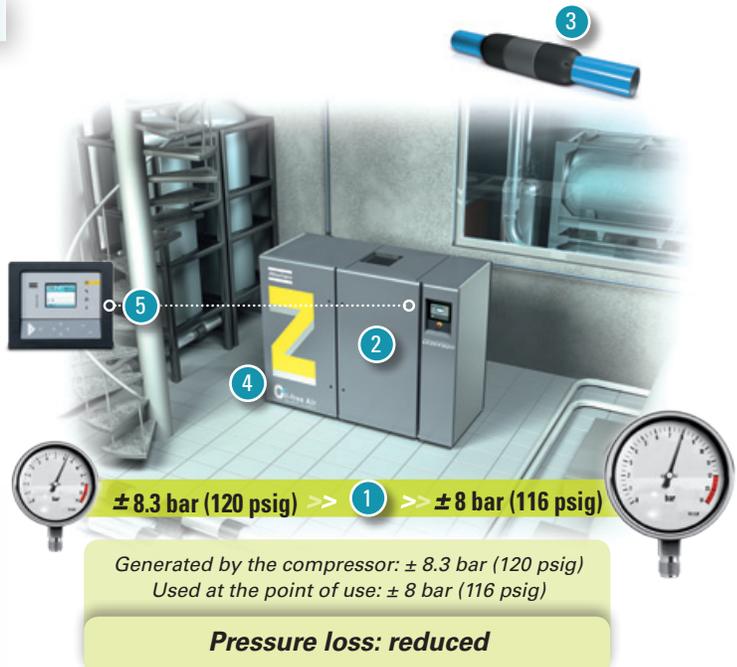


## WORKPLACE AIR SYSTEM™

- 1 LIMITED INTERNAL SYSTEM PRESSURE DROP
- 2 INTEGRATED AIR AND CONDENSATE TREATMENT EQUIPMENT
- 3 REDUCED PIPING COSTS
- 4 SINGLE POINT CONNECTIONS
- 5 SINGLE POINT MONITORING

### LOW NOISE OPERATION

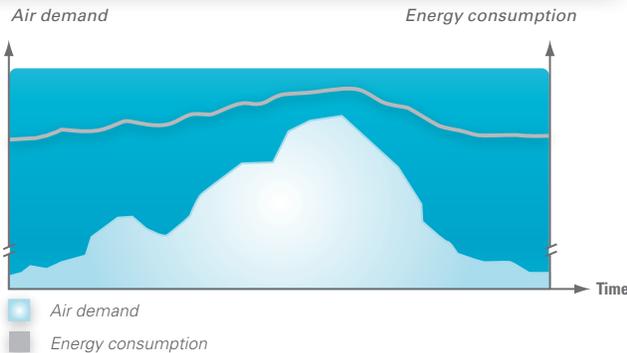
- NO NEED FOR DEDICATED COMPRESSOR ROOM
- MINIMIZED INSTALLATION COSTS



# VSD: driving down energy costs

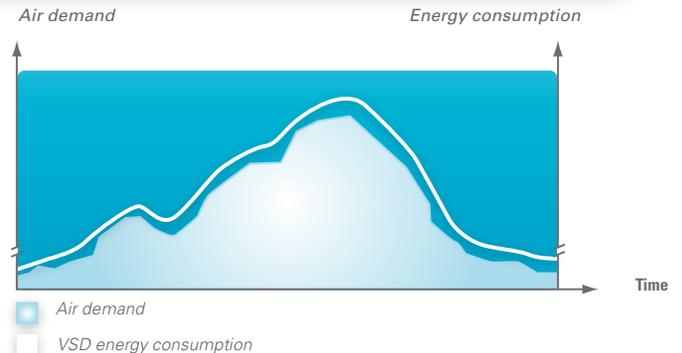
Energy typically represents over 80% of a compressor's life cycle cost. Looking continuously to innovate and reduce customer costs, Atlas Copco pioneered the Variable Speed Drive technology (VSD) in 1994. VSD stands for major energy savings, while protecting the environment for future generations. Due to our ongoing investments in R&D, Atlas Copco offers the widest range of integrated VSD compressors on the market.

## THE HIGH PRICE OF FLUCTUATING DEMAND

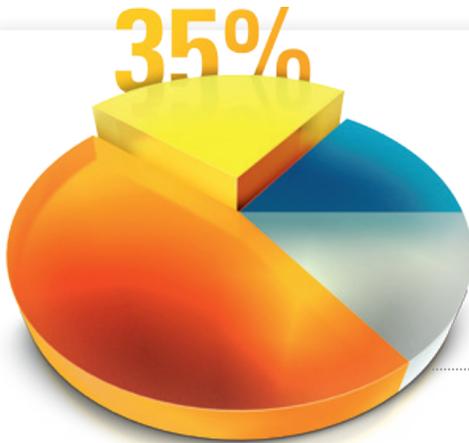


Traditional compressors working with a full load, no load control operate between two set pressure points. When maximum pressure is reached the compressor goes off load. During periods of medium to low air demand, the no load power consumption can be excessive – wasting large amounts of energy.

## VSD: VARIABLE VOLUME, CONTROLLED COSTS



Because there is no unnecessary power generated, the Z VSD can reduce energy costs by 35% or more. Life cycle costs (LCC) of the compressor can be reduced by an average of 22%. In general, the extra cost of a VSD compressor compared to a fixed speed one can be earned back after just one to two years.



### ENERGY SAVINGS OF UP TO 35%

Atlas Copco's VSD technology closely follows the air demand by automatically adjusting the motor speed. This results in large energy savings of up to 35%. The life cycle cost of a compressor can be cut by an average of 22%. In addition, lowered system pressure with VSD minimizes energy use across your production dramatically.

### TOTAL COMPRESSOR LIFE CYCLE COST



## ADVANCED ELEKTRONIKON® GRAPHIC CONTROLLER

- Improved user-friendliness: 3.5-inch high-definition color display with clear pictograms and extra 4th LED indicator for service.
- Optional 5.7 inch display available.
- Internet-based compressor visualization using a simple Ethernet connection.
- Increased reliability: new, user-friendly, multilingual user interface and durable keyboard.
- Automatic restart after voltage failure.
- Graphical indication Serviceplan.
- Remote control and connectivity functions.



# Peace of mind

With the ZR/ZT range, Atlas Copco does not just offer the most reliable and efficient compressors. From filter kits to a complete piping installation, Atlas Copco can take responsibility for your entire compressed air system to provide you with best-in-class air.

Choose from a wide range of Atlas Copco after sales products and services that will have your ZR/ZT performing at its best for years to come. Qualified Atlas Copco support is available in over 150 countries.



*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.*

## GENUINE PARTS

Don't compromise your investment in quality by buying parts that are not manufactured according to Atlas Copco's standards of excellence. Only Atlas Copco genuine parts can deliver our well-known quality, durability and low energy.

## AIRConnect™

Monitor the performance of your ZR/ZT at any time from your desk, or let your local Atlas Copco center do it for you. With AIRConnect™, you check your compressed air system online, immediately receiving warning indications and even remotely taking preventive action to avoid downtime.

## SERVICEPLAN

Choose a Total Responsibility, Preventative Maintenance or Inspection Plan to get the scheduled maintenance to keep your compressor operating trouble free. Rest assured that Atlas Copco can offer its 24/7 backup to keep your production running.

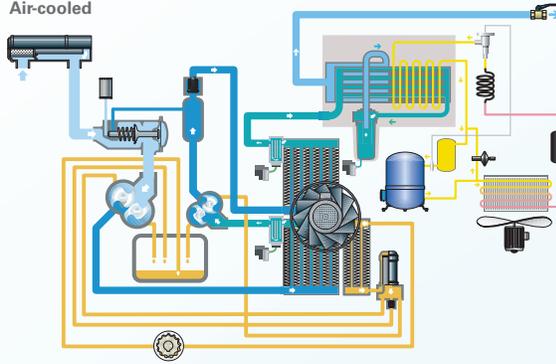
## AIRNET

Expect the highest efficiency from your ZR/ZT, and the piping built around it. AIRnet™ safely delivers high-quality compressed air from point of generation to point of use. Separate workplaces are effortlessly connected. Fixed to walls or ceilings, AIRnet's range of fittings lets you custom-build a compressed air system specific to your production needs.



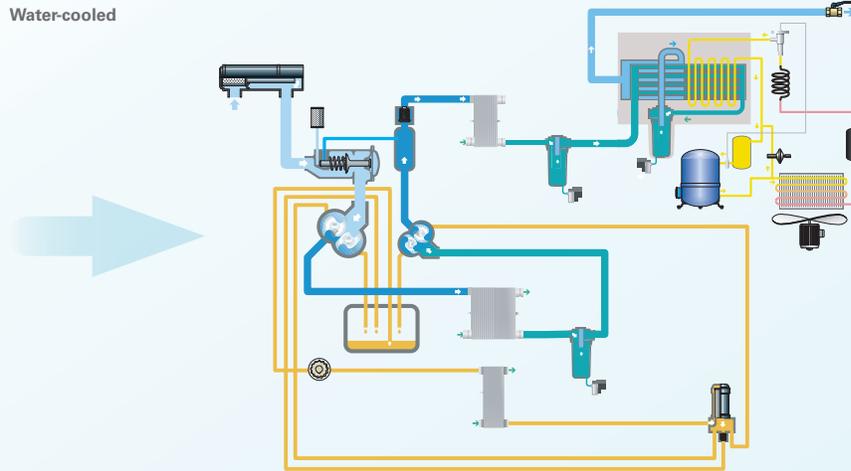
AIR/OIL FLOW ZT/ID

Air-cooled



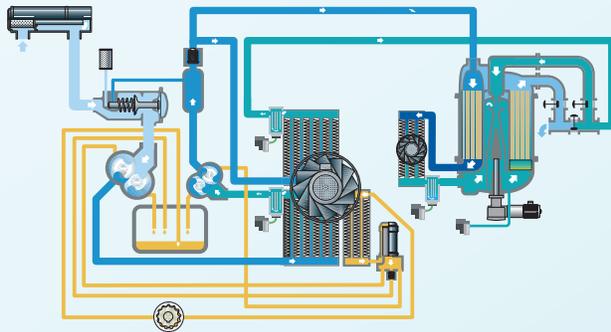
- Incoming air
- Hot unsaturated air
- Cooled saturated air
- Dry compressed air
- Oil
- Refrigerant gas
- Refrigerant liquid
- Insulation
- Condensate

Water-cooled



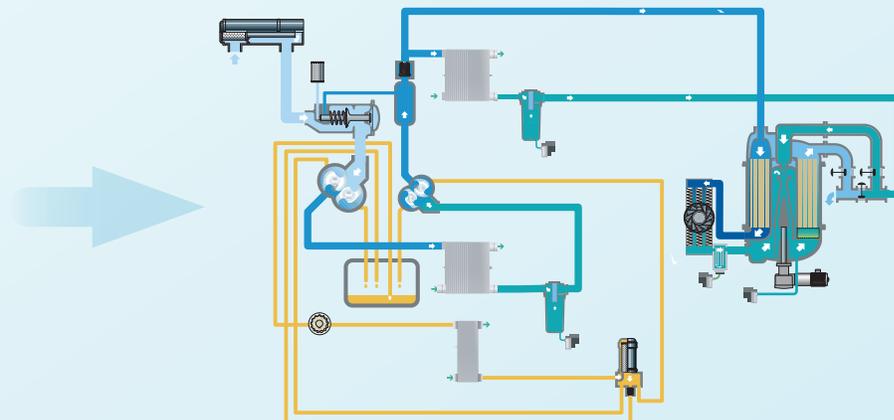
AIR/OIL FLOW ZT/IMD

Air-cooled



- Incoming air
- Hot unsaturated air
- Cooled saturated air
- Hot saturated air
- Dry compressed air
- Cooling water
- Condensate
- Insulation
- Oil

Water-cooled



# Optimize your system

Some applications may need or may benefit from additional options and more refined control and air treatment systems. To meet these needs, Atlas Copco has developed options

and easily integrated compatible equipment providing the lowest cost compressed air.

Options	
Main switch	Special paint
Automatic cooling water shut-off valve	Anchor pads
Outdoor operation (weather-proof)	ANSI flanges
High ambient versions: make sure the compressor performs even in the toughest environments of up to 50°C (122°F).	Graphic display
Monitoring and control options	5% input chokes
Integrated dryer	IT variant
Integrated dryer bypass	Marine Air
Integrated MD dryer	Air contact

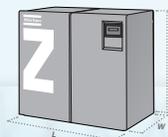
## Technical specifications

COMPRESSOR TYPE	Max. working pressure		Capacity FAD*			Installed motor power		Noise level**	Weight without dryer***		Integrated dryer available
	bar(e)	psig	l/s	m <sup>3</sup> /min	cfm	kW	hp	dB(A)	kg	lbs	
<b>AIR-COOLED ONLY</b>											
ZT 15	7.5	109	37.6	2.3	80	15	20	65	1060	2337	ID
	8.6	125	34.9	2.1	74						
	10	145	29.9	1.8	63						
ZT 18	7.5	109	48.0	2.9	102	18	25	67	1080	2381	ID/IMD
	8.6	125	45.7	2.7	97						
	10	145	37.2	2.2	79						
ZT 22	7.5	109	59.0	3.5	125	22	30	69	1086	2394	ID/IMD
	8.6	125	53.2	3.2	113						
	10	145	45.0	2.7	95						
<b>AIR- (ZT) AND WATER-COOLED (ZR)</b>											
ZR/ZT 30	7.5	109	78.7	4.7	167	30	40	63	1432	3157	ID/IMD
	8.6	125	73.7	4.4	156						
ZR/ZT 37	7.5	109	96.5	5.8	204	37	50	65	1432	3157	ID/IMD
	8.6	125	92.1	5.5	195						
ZR/ZT 45	7.5	109	114.4	6.9	243	45	60	67	1432	3157	ID/IMD
	8.6	125	108.9	6.5	231						
ZT 22 VSD	7.5	109	20.6-55.3	1.3-3.4	43.8-117.6	22	30	69	1120	2469	ID
	8.6	125	20.1-51.0	1.2-3.1	42.7-108.5						
	10	145	19.7-47.0	1.2-2.8	41.9-100						
ZR/ZT 37 VSD	7.5	109	41.3-101.2	2.5-6.2	87.8-215.2	37	50	68	1432	3157	ID/IMD
	8.6	125	41.2-97.3	2.5-5.9	87.6-206.9						
ZR/ZT 55 VSD	7.5	109	41.3-142.5	2.5-8.7	87.6-303.1	55	75	68	1432	3157	ID/IMD
	8.6	125	41.2-138.8	2.5-8.4	87.6-295.2						

\* Unit performance measured according to ISO 1217, Ed 3, Annex C-1996  
Reference conditions:  
- absolute inlet pressure 1 bar (14.5 psi)  
- intake air temperature 20°C (68°F)  
\*\* Noise level measured according to Pneurol/Cagi PN8NTC2, tolerance: 3 dB(A).  
\*\*\* Integrated dryers will increase the weight.  
\*\*\*\* For ZT air-cooled units: +3 dB(A).

FAD is measured at the following working pressure:

- 7.5 bar (109 psig) versions at 7 bar (101 psig).
- 8.6 bar (125 psig) versions at 8 bar (116 psig).
- 10 bar (145 psig) versions at 9.75 bar (141 psig).



	Dimensions (mm/inch)		
	Length	Width	Height
ZT 15-22	1760 / 69.3"	1026 / 40.4"	1621 / 63.8"
ZR/ZT 30-45	2005 / 78.9"	1026 / 40.4"	1880 / 74.0"
ZT 22 VSD	2195 / 86.4"	1026 / 40.4"	1621 / 63.8"
ZR/ZT 37-55 VSD	2440 / 96.1"	1026 / 40.4"	1880 / 74.0"



### Driven by innovation

With almost 140 years of innovation and experience, Atlas Copco delivers the products and services to help maximize your company's efficiency and productivity. As a global industry leader, we are dedicated to offering high air quality at the lowest possible cost of ownership. Through continuous advancements, we strive to safeguard your bottom line and bring you peace of mind.



### Local interaction

Atlas Copco Compressors LLC is headquartered in Rock Hill, SC. Our 187,000 sq. ft. manufacturing plant is one of several Atlas Copco production units across the U.S., including a custom design facility in Houston, TX and a refurbishing center in Charlotte, NC. We take the best possible care of our customers through four regional customer centers and appointed authorized distributors, supported by a 131,000 sq. ft. distribution center and a network of field based personnel throughout the country. Across all of our different business types and brands, Atlas Copco employs approximately 4,000 people in the U.S.



### Committed to sustainability

In 2012, Atlas Copco AB was named one of the Top 100 Sustainable Companies in the World for the sixth year, and since 2011 has been recognized by Forbes, Thomson-Reuters and Newsweek, among others, for our commitment to innovation and sustainability. All Atlas Copco Compressors facilities in the United States are triple certified to ISO 14001, ISO 9001 and OHSAS 18001; a set of standards to protect the environment, ensure product quality, and promote our employees' health and occupational safety.

[www.atlascopco.us](http://www.atlascopco.us)

866-344-4887

