

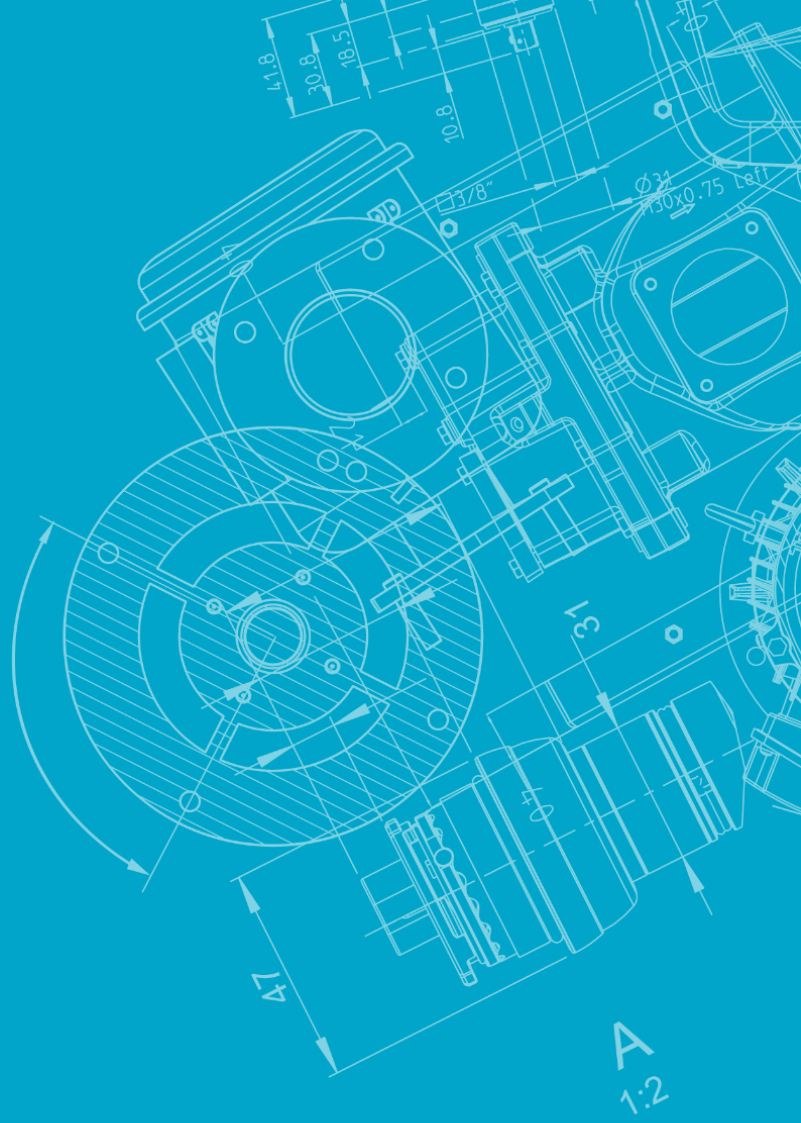
Atlas Copco



The technical drawing is a detailed cross-sectional view of a rotary tooth compressor. It shows two meshing rotors within a housing. Key dimensions are labeled with leader lines and circles: 1360 (144-51) for the rotor diameter, 1630 (164-21) for the housing diameter, and 20 (19-24) for a specific radial clearance. Other dimensions include 470, 272, 72, 10.5, 16.5, 30.8, and 41.8, representing various internal and external measurements. A label 'C-C (1.3)' indicates a specific section or component.

# Dual-speed oil-free rotary tooth compressor

ZR/ZT 30-55 FLX



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# Introducing the dual-speed compressor

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Meet with Atlas Copco's newest powerhouse: the dual-speed rotary compressor ZR/ZT FLX. Engineered to deliver significant energy savings beyond the capabilities of traditional fixed-speed compressors, ZR/ZT FLX ensures optimal air delivery at every pressure set point for superior performance and unparalleled flexibility. ZR/ZT FLX is ready to take your operations to the next level while enhancing efficiency and profitability.





### High-quality air

100% oil-free air to safeguard your production



### Efficiency

State-of-the-art technologies to save time and costs



### Complete solution

Plug & Play package for simplified installation and ownership



### Reliability & expertise

Optimized components and easy maintenance



### Superb operator experience

- 68 dBA (low noise levels)
- Compact design



### Energy Recovery

Turn your compressor into an energy source with our Energy Recovery control unit. Achieve hot water temperatures up to 90°C.





# Redefining efficiency and flexibility

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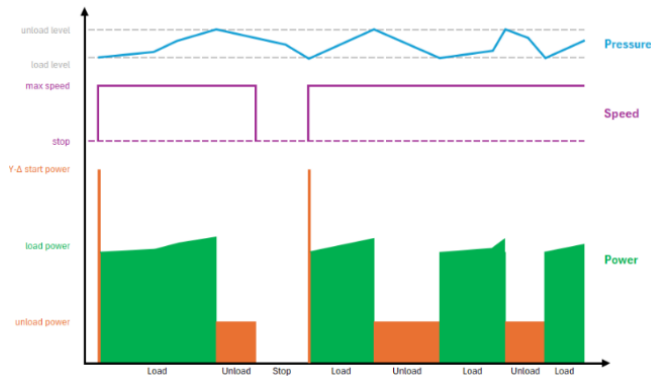
The basics of air compression remain constant, making Atlas Copco's introduction of the dual-speed compressor a significant advancement in reducing operating costs. Unlike traditional fixed-speed compressors, the dual-speed unit can reduce its motor speed to a minimum during unload. Additionally, ZR/ZT 30-55 FLX delivers optimal flow at any pressure setting for unmatched versatility.



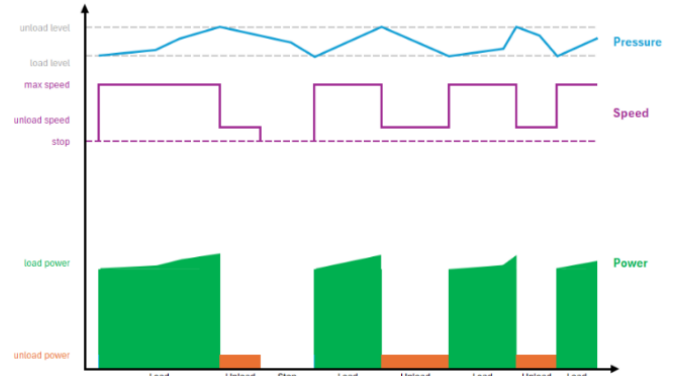
## What is a Dual-speed compressor?

Traditional fixed-speed compressors run at a single motor speed to deliver maximum airflow. However, when air demand is lower than the compressor's maximum capacity, this fixed speed results in significant energy waste.

A **dual-speed compressor**, on the other hand, operates at two speeds: one for maximum capacity and another at a minimum speed during the unload state to reduce energy consumption. This makes it far more efficient than traditional fixed-speed compressors. Additionally, dual-speed compressors eliminate concerns about high starting current peaks.



Fixed-speed compressor



Dual-speed compressor

The **Dual-Speed concept** offers **three key benefits** over traditional fixed-speed compressors:

- Efficiency during loaded state with independent drive trains and optimized airflow
- Reduced unload power as motors run at minimum speed, not maximum
- No starting current peaks

These advantages of the Dual-Speed FLX Compressor significantly reduce your energy costs

## Maximize Efficiency with a VSD Upgrade

If your air demand fluctuates and you want to enhance your energy savings, convert your ZR/ZT FLX into a VSD machine. This upgrade eliminates unload losses, further reducing operating costs. Monitor your energy consumption with Elektronikon to see potential savings from switching to VSD based on your current ZR/ZT FLX operation. Decide if it's time to upgrade by simply acquiring a VSD license, with no physical changes to your installation required.



# Engineered to enhance your profits

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To ensure the success of your business, you need to guarantee consistent quality while minimizing your overheads. A ZR/ZT 30-55 FLX compressor keeps you on track by delivering a reliable supply of clean, dry air with the lowest possible energy consumption for your operation. To cut running costs even further, every component is optimized for long life and easy servicing.







# ZT 30-55 FLX iD FF

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## ZT 30-55 FLX FF FRONT INTERIOR ELEMENT HIGHLIGHTS



ZT 30-55 FLX FF BACK INTERIOR ELEMENT HIGHLIGHTS





## 1 Advanced Elektronikon® monitoring system

- Touch screen operating system with numerous control and monitoring features
- Embedded control algorithms enhance efficiency and reliability

## 2 Compact design

- Designed to have the smallest possible footprint
- The Pack version without integrated dryer is the most compact of all
- The Full Feature version with integrated ID refrigerant dryer and IMD rotary drum dryer saves considerable space and installation work compared to similar freestanding dryers

## 3 NEOS Next frequency converters

- In-house designed NEOS Next frequency converters ensure stable operation up to 50°C/122°F
- IP54 grade protection for reliability even in harsh conditions
- NEOS Next contains the main frequency drive for the drive motor plus an auxiliary drive for the cooling fan and dryer
- Two NEOS Next frequency converters are combined with two IE5 ultra-premium efficient permanent magnet motors to optimize load distribution at every running condition
- ZT 30-55 FLX compressors can range between 28 and 100% of their maximum capacity (turn down 72%), ensuring stable net pressures and maximum energy savings

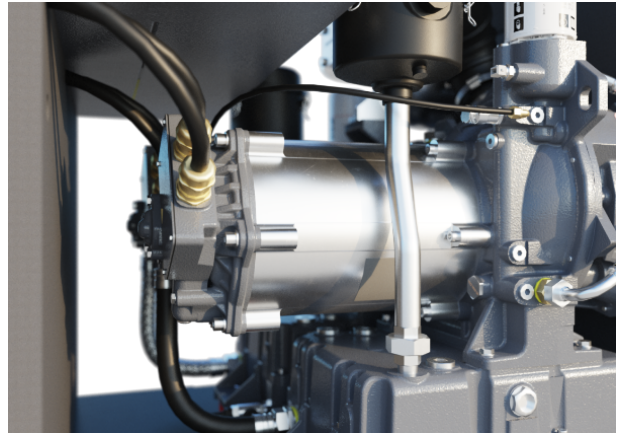


## 4 Soundproof canopy

- Sound insulation allows for installation in most working environments
- No need for a separate compressor room

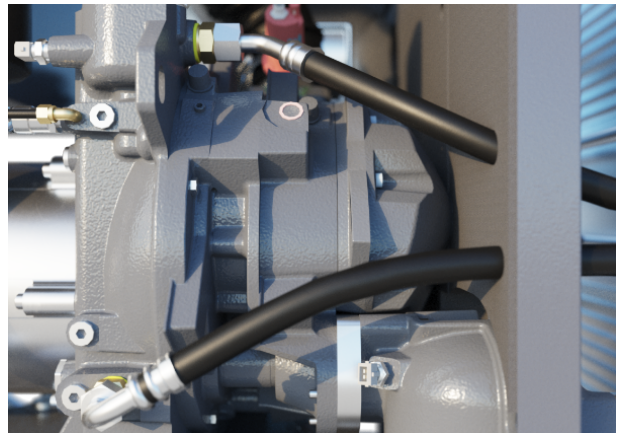
## 5 Permanent Magnet Motors

- Selection of permanent magnet motors allows ZR/ZT FLX to reduce rpms during unload state enabling significant savings.
- A proven design with a direct coupled permanent magnet drive motor for low- and high-pressure element, each with their own frequency converter
- Oil cooled permanent magnet motors with IP66 protection grade that have stood the test of time in other product ranges in real field conditions
- Optimization of intercooler pressure for the complete speed range. That is premium reliability combined with premium efficiency.



## 6 Oil-free tooth element

- Proven reliability and durability
- Most efficient element in this power range of oil-free compressors



## 7 Reliable cooling

- Available in both air-cooled and water-cooled versions
- Frequency-controlled fan optimizes cooling for all running conditions
- Oil cooling shields permanent magnet motors from the environment and makes them more robust



## 9 Integrated dryer

- With integrated dryer option, helping save on footprint and installation costs.
- Available in both Refrigerant and Heat of Compression versions,
- With Heat of Compression option providing dew point suppression of more than 30°C/86°F.



## 8 Low maintenance

- Components strategically placed for ease of access
- Oil-lubricated motor bearings do not require re-greasing





# ZT 30-55 FLX Pack

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## ZT 30-55 FLX PACK FRONT INTERIOR ELEMENT HIGHLIGHTS







## 1 Advanced Elektronik® monitoring system

- Touch screen operating system with numerous control and monitoring features
- Embedded control algorithms enhance efficiency and reliability

## 2 Compact design

- Designed to have the smallest possible footprint
- The Pack version without integrated dryer is the most compact of all
- The Full Feature version with integrated ID refrigerant dryer and IMD rotary drum dryer saves considerable space and installation work compared to similar freestanding dryers

## 3 NEOS Next frequency converters

- In-house designed NEOS powers the ZR/ZT 30-55 FLX , allowing the unit to run at minimum speed during unload, reducing the unload power consumption to minimum.
- With VSD license enabled , your FLX is able to run anywhere between maximum and 30% of its capacity , allowing unmatched flexibility.
- NEOS Next is designed to withstand temperatures up to 50°C/122°F.



## 4 Soundproof canopy

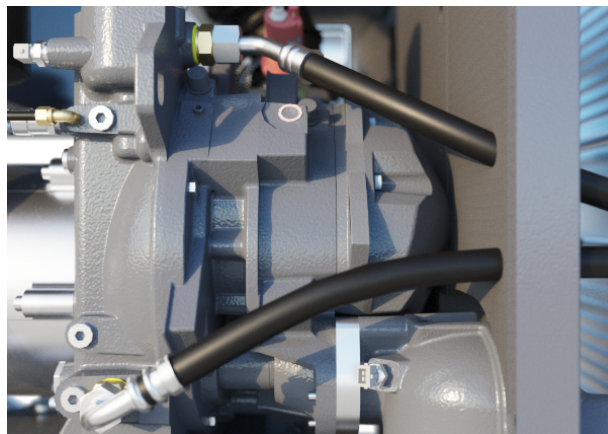
- Sound insulation allows for installation in most working environments. No need for a separate compressor room.

## 5 Permanent magnet motor

- Selection of permanent magnet motors allows ZR/ZT FLX to reduce rpms during unload state enabling significant savings.
- A proven design with a direct coupled permanent magnet drive motor for low- and high-pressure element, each with their own frequency converter
- Oil cooled permanent magnet motors with IP66 protection grade that have stood the test of time in other product ranges in real field conditions
- Optimization of intercooler pressure for the complete speed range. That is premium reliability combined with premium efficiency.

## 6 Oil-free tooth element

- Proven reliability and durability
- Most efficient element in this power range of oil-free compressors



## 7 Reliable cooling

- Air-cooled oil coolers, intercooler, and aftercooler
- Frequency-controlled fan optimizes cooling for all running conditions
- Oil cooling shields permanent magnet motors from the environment and makes them more robust



## 8 Low maintenance

- Components strategically placed for ease of access
- Oil-lubricated motor bearings do not require re-greasing

# Superior air quality with zero contamination risk

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Atlas Copco has pioneered oil-free air technology for over 60 years. Through continuous research and development, we have become the benchmark for air purity and were the first manufacturer to be awarded ISO 8573-1 Class 0 certification. Today, we offer the largest range of oil-free air compressors and blowers in the industry.

What is the contamination risk?

- Filter failure
- Oil-carry over



## Clean, dry and 100% oil-free

Untreated compressed air contains moisture and may contain dirt particles. As well as damaging your air system, any contamination can have serious implications for your product quality and your reputation in the market. The resulting costs to your business far exceed the cost of effective air treatment. We therefore provide a complete range of air treatment solutions to safeguard your investments, equipment, production processes and end products.

## Food safety approved

Atlas Copco is one of the few compressor manufacturers to have its oil-free compressors and related dryers and filters certified by Lloyds Register Quality Assurance for ISO 22000, the food safety management system.

## Enhanced durability and productivity

High-quality air reduces the risk of corrosion, prolonging the life span of production equipment. A ZR/ZT 30-55 FLX package produces clean, dry air that enhances your system's reliability, avoiding costly downtime and production delays.

# Building energy savings into your process

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Did you know that compressed air generation can amount to over **40%** of a plant's total electricity bill? And that energy consumption can account for over **80%** of a compressor's lifecycle cost? For businesses serious about increasing their profits, energy consumption is an obvious target. It was therefore one of the leading design priorities of Atlas Copco.

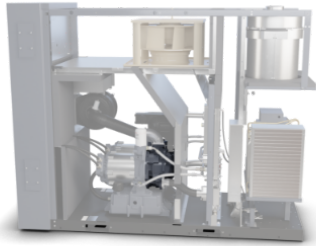






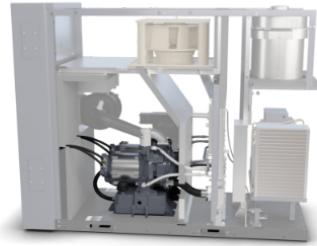
## Energy-saving components

Our engineers took every opportunity to reduce energy consumption in these machines. The patented elements are designed in-house for maximum efficiency. A superior coating on the active surfaces of the stainless steel rotors contributes to the most efficient oil-free tooth technology in this capacity range. A unique Z seal design further reduces running costs and guarantees 100% certified oil-free air for your application.



### Oil-free Tooth Element

- In-house designed.
- Maximum efficiency of the working area.
- 40% increased lifetime.
- Unique Z seal design.
- Atlas Copco superior rotor coating for high efficiency and durability.



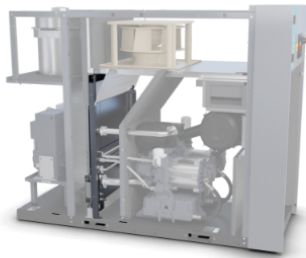
### Motor

- IP66 oil-cooled Permanent Magnet Motor with oil-lubricated bearings.
- Class-leading efficiency (IE5 - 97%) and rock-solid reliability.
- Full regulation between 30 to 100% of the maximum capacity ensuring energy savings at lower compressor air demand.



### Neos Next

- Exceptional piece of engineering, developed in-house, allowing the unit to run at minimum speed during unload, reducing the unload power consumption to minimum.
- With an IP54-rated protection from dust and dirt.
- Operates dependably in hot conditions : up to 50°C /60°C by de-rating.
- Entire electrical cubicle in one compact unit.
- With VSD license enabled, your FLX is able to run anywhere between maximum and 30% of its capacity, allowing unmatched flexibility.



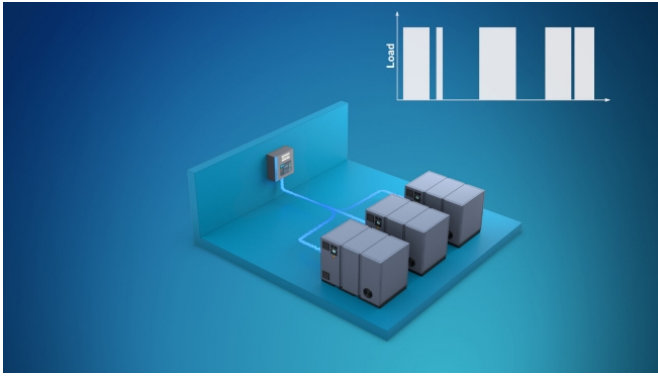
### VSD cooling fans

The completely redesigned cooling air flow supported by a VSD cooling fan ensures maximum energy savings during unload.



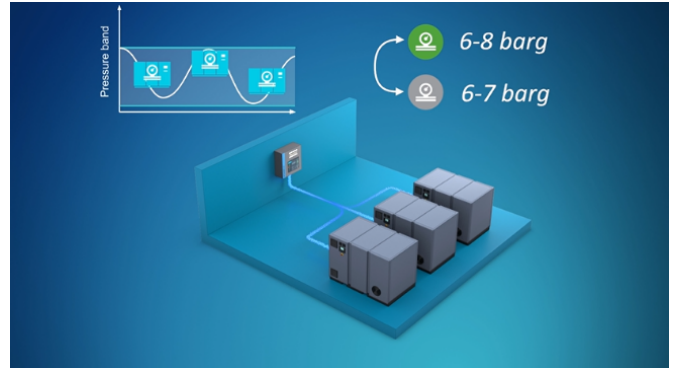
### Plug & play

- Integrated rotary drum dryer option (iMD) for moisture sensitive applications.
- The Z FLX iD integrates a refrigerant dryer inside the compressor canopy.



### Optimized air flow

The ZT 30-55 FLX brings cool, dense air into the package for optimal compression efficiency. Carefully designed coolers and strategically positioned piping and components minimize pressure drop in the package, while zero-loss drains ensure that no compressed air is wasted.



### Advanced control algorithms

Advanced algorithms control your equipment to save energy when demand is low. For example, timer functions can stop your machines at night and during the weekend if no compressed air is needed. Alternatively, a dual pressure band can be implemented with lower pressure settings for these periods.



# Smart AIR solutions

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With the ZR/ZT 30-55 FLX compressor range, Atlas Copco provides a total solution for superior performance and transparent costs. The fully integrated, ready-to-use package includes the internal piping, coolers, motor, lubrication, and control system. The Full Feature version even integrates an ID refrigerant or IMD adsorption dryer for impeccable results. Installation is fault-free, commissioning time is low, and no external instrument air is required. You simply plug and run.





**Find out more about the Smart Air solutions**

Atlas Copco Smart AIR solutions are complete compressed air systems optimized for energy efficiency, reliability, and output quality. As well as the right compressor (or compressors) for your application, they can include dryers, filters, controllers, energy recovery systems, nitrogen or oxygen generators, air receivers, coolers, or boosters in the optimal combination to meet specific needs.

# Solid, stable, and built to last

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From robust, time-proven components to the most effective cooling technologies, ZR/ZT 30-55 FLX compressors are packed with innovations that keep your process running smoothly and continuously day after day, year after year. Along with first-class reliability to ensure uninterrupted production, we are committed to excellent service with strong local presence. Our expert teams are always on hand to answer questions, discuss solutions and take care of your servicing and maintenance needs.





## Complete solutions and Total Responsibility

Atlas Copco is much more than a compressor manufacturer. We provide complete compressed air solutions that take as much work as possible out of our customers' hands, leaving them free to focus on their core business. This includes assistance with equipment selection, purchasing, installation, adaptations, optimization, auditing, maintenance, spare parts, service plans and access to our profound and wide-ranging expertise.



## Full Feature

Our **Full Feature** concept is the ultimate solution for simplified installation, with the compressor, dryer and all the options you need built into one package. We take care of all the mechanical and electrical connections, saving you time, money, and floor space.



Pack concept



Full Feature concept

## Oil-free air compressors for clean air

For the past sixty years, Atlas Copco has been pioneering the development of oil-free air technology, resulting in a range of oil-free air compressors designed specifically for applications that can make no compromise when it comes to clean, 100% oil-free air. By maintaining and strengthening its world-leading position through continuous research and development, Atlas Copco was able to achieve a new milestone in setting the standard for air purity: it was the first manufacturer to be awarded ISO 8573-1, ed3. 2012, Class 0, for oil content.





### SMARTLINK for expert monitoring

Knowing the status of your compressed air equipment at all times is the key to efficiency and availability. SMARTLINK provides customized reports on your compressor room's energy performance as well as early warnings enabling timely component replacement. This results in more uptime and prevents production loss.

### Total Responsibility Plan

Our **Total Responsibility Plan** is a comprehensive service plan that keeps your equipment running optimally in all conditions. It covers preventive maintenance, breakdown risk reduction, quick resolution of any performance issues and, if necessary, complete overhauls.



# Options for every application

The standard ZR/ZT 30-55 FLX package can be customized with a range of optional features to tailor its performance for different production environments.

VSD license	
Anchor pads	Integrated refrigerant dryer (ID)
ANSI flanges	Integrated MD dryer (iMD) for moisture sensitive applications
High ambient variant for warm regions (50°C ambient temperature)	Dryer bypass
Flanged inlet	Silicone-free rotor (for MD) for deeper dewpoints
Main power isolator switch	Anti condensation heaters
IT variant (IEC variants only)	MD heater for deeper dewpoints
Test certificate	Fast Acting Fuse
Energy Recovery	Water shut-off valve



iMD <sup>1</sup>



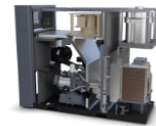
MD heater <sup>2</sup>



Silicone-free rotor <sup>3</sup>



High ambient variant <sup>4</sup>



Further customisation <sup>5</sup>

<sup>1</sup> For moisture sensitive applications you can opt for the integrated rotary drum dryer (iMD) that ensures negative pressure dew points at reference conditions and saves on footprint and installation costs.

<sup>2</sup> For deeper dewpoints you can opt for the optional MD heater that further increases the regeneration temperature to lower the pressure dew point.

<sup>3</sup> For applications like paint shops, we offer an optional silicone-free rotor to match the requirements.

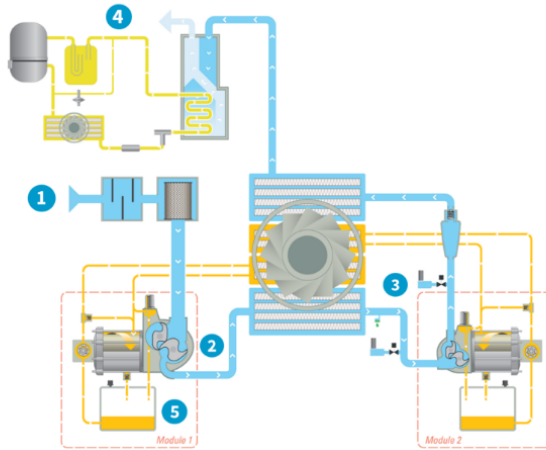
<sup>4</sup> For warm regions our VSD+ unit with high ambient version is designed to run trouble-free round the clock at a 50°C ambient temperature, with the frequency drive also designed for 50°C without any derating.

<sup>5</sup> With a dedicated customization team, we can further tailor our units to your requirements.

\*Please note that the availability of the option depends on the chosen configuration.



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



## ZT 30-55 FLX FF Flowchart Legend:

1. Inlet & filtration
2. First compression & cooling
3. Second compression & cooling
4. Integrated dryer
5. Oil flow

## Inlet & filtration

The air (represented by the light blue flow) is drawn into the compressor through the inlet filter, where it is cleaned. Then it passes through the throttle valve with its integrated blow off valve which takes care of the load unload regulation. The air then continues to the compression stage.

## First compression & cooling

The air pressure is raised to an intermediate pressure, after which the air is cooled down in the intercooler. Next it passes through a moisture separation system before entering the high pressure stage.

## Second compression & cooling

In the high pressure stage, the pressure is brought to the final pressure. The air at the outlet of the high pressure stage passes via the pulsation damper with integrated check valve to the aftercooler. Here it is cooled down and moisture is separated and evacuated. The compressed air leaves the compressor through the outlet connection flange.

## Integrated dryer

The cooled wet compressed air is mixed with 40% of the cooled regeneration air and enters the dryer. The dry compressed air with guaranteed dew point is now ready for use in your application.

## Oil flow

The oil path within the compressor is represented by the yellow flow. The oil pump sucks oil from the oil sump and pumps it through the oil cooler and the high efficiency filter. This delivers cool, clean oil to the bearings and gears. Note that oil never comes into contact with the air. This ensures completely oil-free air for your process.

# Specifications 8.6 bar version

## Specifications ZR/ZT 30-55 FLX 8.6 bar (Metric)

TYPE	Working Pressure		FAD		Power Rating	Noise Level
		bar(e)	l/s	m <sup>3</sup> /min	kW	dB(A)
ZT30FLX – 8.6	Min	4	89.69	5,38	30	67
ZT30FLX – 8.6	effective	7	88.33	5,30	30	67
ZT30FLX – 8.6	Max	8.6	73.41	4,40	30	67
ZT37FLX – 8.6	Min	4	104.56	6,27	37	68
ZT37FLX – 8.6	effective	7	102.82	6,17	37	68
ZT37FLX – 8.6	Max	8.6	93.76	5,63	37	68
ZT45FLX – 8.6	Min	4	123.58	7,41	45	68
ZT45FLX – 8.6	effective	7	121.70	7,30	45	68
ZT45FLX – 8.6	Max	8.6	111.80	6,71	45	68
ZT55FLX – 8.6	Min	4	140.13	8,41	55	68
ZT55FLX – 8.6	effective	7	139.03	8,34	55	68
ZT55FLX – 8.6	Max	8.6	137.53	8,25	55	68

## Specifications ZR/ZT 30-55 FLX 8.6 bar (Imperial)

TYPE	Working Pressure		FAD		Power Rating	Noise Level
		psig	l/s	cfm	Hp	dB(A)
ZT30FLX – 8.6	Min	58	89.69	190,04	40	67
ZT30FLX – 8.6	effective	102	88.33	187,15	40	67
ZT30FLX – 8.6	Max	125	73.41	155,54	40	67
ZT37FLX – 8.6	Min	58	104.56	221,54	50	68
ZT37FLX – 8.6	effective	102	102.82	217,86	50	68
ZT37FLX – 8.6	Max	125	93.76	198,66	50	68
ZT45FLX – 8.6	Min	58	123.58	261,84	60	68
ZT45FLX – 8.6	effective	102	121.70	257,86	60	68
ZT45FLX – 8.6	Max	125	111.80	236,88	60	68
ZT55FLX – 8.6	Min	58	140.13	296,91	74	68
ZT55FLX – 8.6	effective	102	139.03	294,58	74	68
ZT55FLX – 8.6	Max	125	137.53	291,40	74	68

## Weight ZR/ZT 30-55 FLX 8.6 bar (Metric)

TYPE	Weight (kg)		
	Pack	Full Feature (iMD)	Full Feature (iD)
ZR/ZT 30 FLX	1350	1610	1504
ZR/ZT 37 FLX			
ZR/ZT 45 FLX	1373	1646	1531
ZR/ZT 50 FLX			

**Weight ZR/ZT 30-50 VSD+ 8.6 bar (Imperial)**

TYPE	Weight (lbs)		
	Pack	Full Feature (iMD)	Full Feature (iD)
ZR/ZT 30 FLX	2976	3549	3316
ZR/ZT 37 FLX			
ZR/ZT 45 FLX	3027	3629	3375
ZR/ZT 55 FLX			

**Dimensions ZR/ZT 30-55 FLX 8.6 bar (Metric)**

TYPE	Length	Width	Height
	mm		
ZR/ZT 30-55 FLX	2005	1022	1909
ZR/ZT 30-55 FLX (FF)	2440		

**Dimensions ZR/ZT 30-55 FLX 8.6 bar (Imperial)**

TYPE	Length	Width	Height
	inch		
ZR/ZT 30-55 FLX	79	40	75
ZR/ZT 30-55 FLX (FF)	88		

Data may vary for other operating modes, versions and conditions. Consult Atlas Copco for details.

Data and specifications are subject to change without prior notice.

# Specifications 10 bar version

## Specifications ZR/ZT 30-55 FLX 10 bar (Metric)

TYPE	Working Pressure		FAD		Power Rating	Noise Level
		bar (e)	l/s	m <sup>3</sup> /min	kW	dB(A)
ZT30FLX – 10	Min	4	89.69	5,38	30	67
ZT30FLX – 10	effective	9	71.12	4,27	30	67
ZT30FLX – 10	Max	10	63.53	3,81	30	67
ZT37FLX – 10	Min	4	104.56	6,27	37	68
ZT37FLX – 10	effective	9	90.99	5,46	37	68
ZT37FLX – 10	Max	10	83.49	5,01	37	68
ZT45FLX – 10	Min	4	123.58	7,41	45	68
ZT45FLX – 10	effective	9	107.15	6,43	45	68
ZT45FLX – 10	Max	10	95.20	5,71	45	68
ZT55FLX – 10	Min	4	140.13	8,41	55	68
ZT55FLX – 10	effective	9	135.08	8,10	55	68
ZT55FLX – 10	Max	10	129.69	7,78	55	68

## Specifications ZR/ZT 30-55 FLX 10 bar (Imperial)

TYPE	Working Pressure		FAD		Power Rating	Noise Level
		psig	l/s	cfm	Hp	dB(A)
ZT30FLX – 10	Min	58	89.69	190,04	40	67
ZT30FLX – 10	effective	130	71.12	150,69	40	67
ZT30FLX – 10	Max	150	63.53	134,61	40	67
ZT37FLX – 10	Min	58	104.56	221,54	50	68
ZT37FLX – 10	effective	130	90.99	192,79	50	68
ZT37FLX – 10	Max	150	83.49	176,90	50	68
ZT45FLX – 10	Min	58	123.58	261,84		68
ZT45FLX – 10	effective	130	107.15	227,03		68
ZT45FLX – 10	Max	150	95.20	201,71		68
ZT55FLX – 10	Min	58	140.13	296,91	74	68
ZT55FLX – 10	effective	130	135.08	286,21	74	68
ZT55FLX – 10	Max	150	129.69	274,79	74	68

## Weight ZR/ZT 30-55 FLX 10 bar (Metric)

TYPE	Weight (kg)		
	Pack	Full Feature (iMD)	Full Feature (iD)
ZR/ZT 30 FLX	1350	1610	1504
ZR/ZT 37 FLX			
ZR/ZT 45 FLX	1373	1646	1531
ZR/ZT 50 FLX			



**Weight ZR/ZT 30-55 FLX 10 bar (Imperial)**

TYPE	Weight (lbs)		
	Pack	Full Feature (iMD)	Full Feature (iD)
ZR/ZT 30 FLX	2976	3549	3316
ZR/ZT 37 FLX			
ZR/ZT 45 FLX	3027	3629	3375
ZR/ZT 55 FLX			

**Dimensions ZR/ZT 30-55 FLX 10 bar (Metric)**

TYPE	Length	Width	Height
	mm		
ZR/ZT 30-55 FLX	2005	1022	1909
ZR/ZT 30-55 FLX (FF)	2440		

**Dimensions ZR/ZT 30-50 VSD+ 10 bar (Imperial)**

TYPE	Length	Width	Height
	inch		
ZR/ZT 30-55 FLX	79	40	75
ZR/ZT 30-55 FLX (FF)	88		



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