



Atlas Copco

Oil-Free Rotary Screw Air Compressor

ZT 15-22 (VSD)
ZR/ZT 30-45
ZR/ZT 30-55 VSD
ZT 30-50 VSD+



The background is a dark gray, almost black, surface. A thin vertical line runs down the center. There are three circular fasteners or screws: two near the top, one on each side of the vertical line, and one near the bottom, centered on the vertical line.

Economical, High-Quality Oil-Free Air

Clean, oil-free compressed air is essential for the continuous operation of production processes and for maintaining product quality. Over the past decades, Atlas Copco has been dedicated to the development of oil-free rotary screw compressor technology, introducing a wide range of highly reliable oil-free compressors to provide customers with clean air. The ZR/ZT series offers a completely new experience through an integrated unit, meeting your need for pure, oil-free air and protecting your production applications.

ZT55VSD

Atlas Copco

Ensure Uninterrupted Production

Pharmaceutical manufacturing, food processing, critical electronics, and other demanding industries require high-quality air to safeguard both the production process and the end product. When designing rotary screw air compressors, Atlas Copco always takes your specific application needs into account. These compressors effectively eliminate the risk of oil contamination—preventing product defects, damage to brand reputation, and costly delivery delays. To consistently generate 100% oil-free air, it is essential to prevent oil from entering the compression process. The ZR/ZT series has been certified by the renowned TÜV Association to meet ISO 8573-1 Class 0 standards, ensuring not only safe air for your applications but also reduced operating and maintenance costs.

Reduce Energy Costs

Over 70% of a compressor's life cycle cost (LCC) comes from energy consumption, highlighting its critical importance. A cost-effective compressed air solution optimizes pressure, flow, and air treatment equipment for every production process. Atlas Copco's ZR/ZT compressors are delivered as fully integrated units, helping to cut your electricity bills. With the addition of the ZT 18 VSD, ZT 30 VSD, and ZT 45 VSD models to our VSD range, we can offer energy savings whether your needs call for low- or high-capacity compressors.

Peace of Mind

For over sixty years, Atlas Copco has been at the forefront of oil-free compressed air technology, combining vast experience with continuous innovation. We are your trusted partner: every product undergoes rigorous testing and certification in line with the highest quality standards. With our extensive expertise in delivering reliable, premium air solutions, Atlas Copco is a compressor manufacturer capable of meeting your specific needs through a wide range of technologies. That means you can always find the right solution for your unique application.



Certified Oil-Free Air

Atlas Copco is widely recognized in the design and manufacturing of oil-free rotary screw compressors, and the ZR/ZT series is built on this strong tradition. The ZR/ZT combines high reliability and safety with low energy costs.



Pharmaceutical Industry

- Oil-free air is essential to prevent contamination of production processes (e.g., fermentation, aeration, tablet coating, packaging and bottling, automated production lines).
- CLASS O certification eliminates all risks, ensuring consistent product quality and protecting your professional brand reputation.

Food and Beverage Industry

- Pure, clean oil-free air is ideal for a wide range of applications (such as fermentation, packaging, aeration, conveying, filling and capping, cleaning, and instrument air).
- Certified according to ISO 8573-1 CLASS O (2010), it safeguards product purity and guarantees zero risk of contamination.

Electronics Industry

- Producing clean, dry, high-quality air with maximum energy efficiency is critical.
- Applications include removing microscopic debris from computer chips and motherboards.

Healthcare

- A smart choice for hospitals, dental clinics, veterinary laboratories, or clinical environments where high reliability is essential.
- Clean air ensures the successful completion of clinical work and keeps your equipment running efficiently.

CLASS 0: Industry Standard

Oil-free air is essential in industries where air quality is critical to both the final product and the production process. Typical applications include food and beverage processing, pharmaceuticals, chemical and petrochemical processing, fermentation, wastewater treatment, pneumatic conveying, and nonwoven fabric manufacturing.

Pioneer in Oil-Free Air Technology

For more than 60 years, Atlas Copco has been dedicated to developing oil-free air technology, producing a complete range of oil-free air compressors and blowers. Through continuous innovation, Atlas Copco achieved a new milestone by becoming the first air compressor manufacturer to be certified for ISO 8573-1 CLASS 0.

Reducing Risk

To meet the most stringent customer requirements, Atlas Copco engaged the renowned TÜV testing organization to certify its oil-free compressors and blowers. Using rigorous testing methods across a wide range of temperatures and pressures, TÜV analyzed all possible forms of oil contamination—and confirmed that no traces of oil were detected in the output air stream.

**Atlas Copco was awarded ISO 8573-1 CLASS 0 certification in 2006.*

CLASS	Oil content (suspended particles, liquid and oil mist) mg/m ³
0	Specified by the device user or supplier, more stringent than Level 1
1	< 0.01
2	< 0.1
3	< 1
4	< 5

Current ISO 8573-1 (2010) grades (five main grades and their corresponding maximum concentrations of total oil).



Multiple Benefits

Atlas Copco's ZR/ZT tooth compressors are designed to meet your specific needs and help you meet everyday challenges, providing high-quality, oil-free air at all times.

This powerful solution offers exceptional reliability, efficiency, and integration.



Radial fan

- Ensures efficient cooling of equipment
- Low noise

1 Intercooler and Aftercooler

The coolers are arranged vertically, which significantly reduces the noise generated by the fan, motor, and rotors.

2 Two-Stage Screw Rotors

- No need to vent the pressure vessel, resulting in lower energy consumption compared with single-stage compression systems.
- Capable of quickly reaching low energy consumption in unloaded condition.

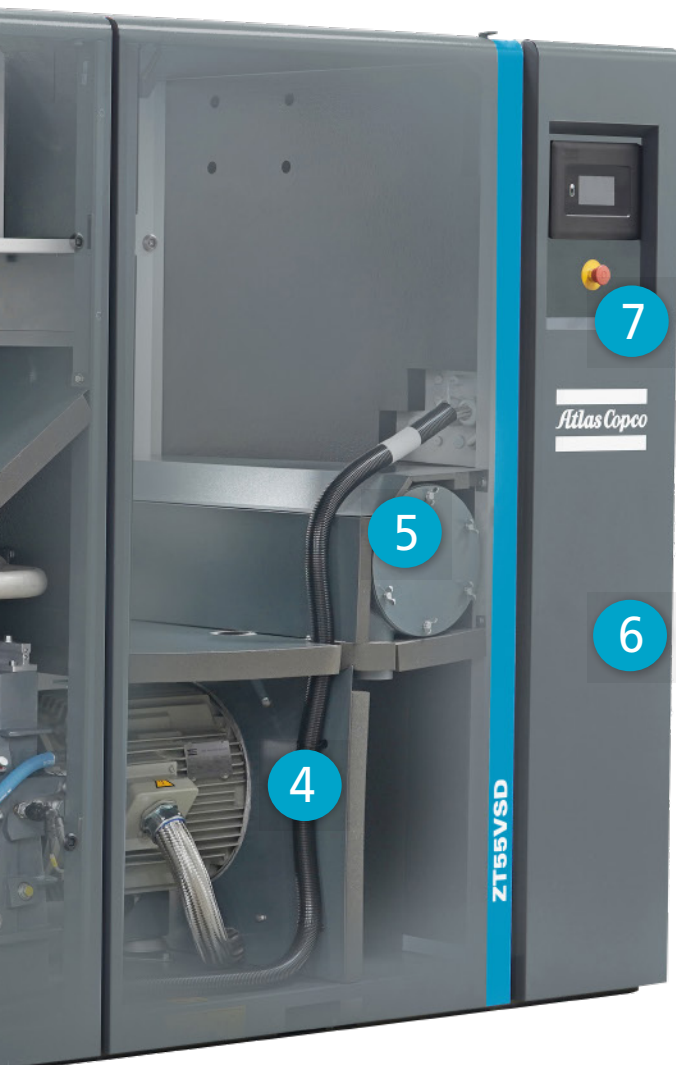
3 Soundproof Enclosure

- No separate compressor room required.
- Applicable only for WorkPlace Air System™ models.

4 Induction Motor

- Flange-mounted for precise positioning.
- Two types available: IP55 type for VSD models; IE3 type for fixed-speed models.
- Dry motor coupling requires no lubrication, eliminating maintenance needs.





Electronic Drain

- Vibration-free frame mounting
- Continuously drains condensate for improved water separation and extended compressor life

5 Air Filter

- SAE fine particle removal efficiency: 99.5%; SAE coarse particle removal efficiency: 99.9%
- Long service life, high reliability, and extended maintenance intervals
- Combination air filter and silencer ensures effective noise reduction

6 Integrated VSD Inverter

- No loaded running, no blow-off losses from the oil separator tank, leading to higher energy efficiency
- Operates within a narrower pressure band, reducing the overall working pressure of the system

7 Elektronik

- Advanced Elektronik control and monitoring system, designed for integration with (remote) process control systems

Integrated Dryer

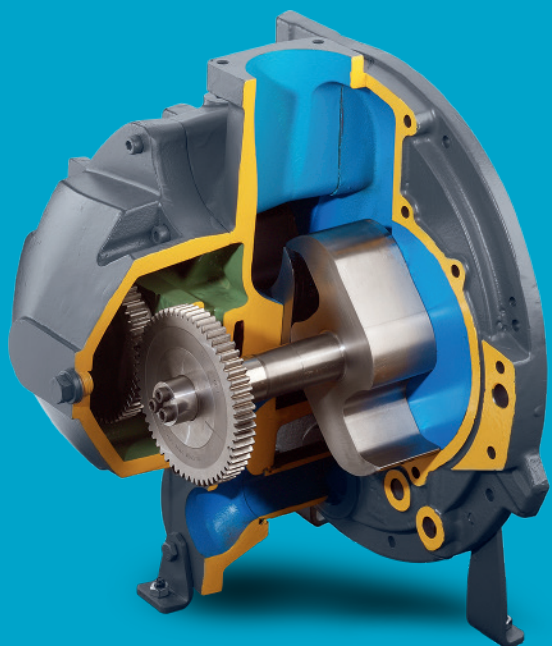
- Energy-saving cycling technology reduces energy consumption of the integrated air treatment equipment under low load conditions
- Built-in condensate separation improves water removal efficiency, while the pressure dew point (PDP) becomes more stable



Proven Technology, High Efficiency

To ensure high-quality, oil-free air, Atlas Copco's ZR/ZT series compressors utilize several advanced technologies. The unique tooth compressor utilizes two-stage compression to enhance efficiency.

The rotors eliminate the need for pressure relief, resulting in significantly lower energy consumption than single-stage compression systems. This dual-tooth rotor features a symmetrical, dynamically balanced design, increasing airflow while maintaining consistent performance over time.



Rotor

The stainless-steel symmetric rotors ensure optimal dynamic balance and lower bearing loads, resulting in a long service life.

Axial Inlet and Outlet

A straight rotor design with opposing axial inlet and outlet prevents axial loads on the core components, thereby extending rotor lifespan.

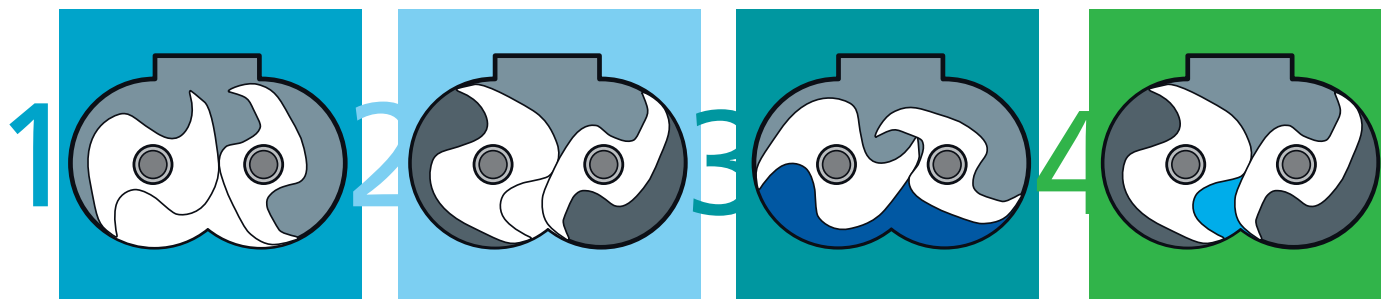
Air Cooling Design

Cast iron gears provide efficient heat dissipation without the need for a complex water-cooling system, ensuring higher reliability.

Sealing

Two independent floating oil seals and gas seals, separated by a neutral buffer zone, protect the compression chamber and prevent lubricant leakage.

Working principle of rotary gear



1 Ambient air is drawn into the compression chamber through the inlet port by the rotation of the toothed rotors.

2 The air is then delivered between the teeth of the male and female rotors.

3 Compression begins. As the male and female rotors rotate toward each other, the free space decreases, causing pressure to rise.

4 The female rotor is connected to the exhaust port, and the compressed air is delivered to the compression system.

● Intake ● Delivery ● Compression ● Exhaust

Excellent Versatility

Compared to traditional compressor installations, Atlas Copco's ZR/ZT WorkPlace Air system compressors integrate effortlessly into your workshop. The ZR/ZT's compact footprint and integrated air handling system ensure high efficiency and reliability. The vertical arrangement of the cooler significantly reduces noise generated by the fan, motor, and compressor. This integrated package provides a compressed air source that keeps your production running smoothly for many years to come.



Installing a traditional compressor

- 1 High pressure drop across the entire system.
- 2 External filtration equipment/dryer.
- 3 Complex and expensive piping system.
- 4 Multiple connections and leaks.
- 5 Multiple monitoring points.

High operating noise level

- ↳ Separate compressor room
- ↳ High pressure drop leads to higher installation and energy costs

WorkPlace Air System™

- 1 Limited internal system pressure drop.
- 2 Integrated air and condensate handling equipment.
- 3 Low piping costs.
- 4 Single point connection.
- 5 Single point monitoring.

Low operating noise level

- ↳ No dedicated compressor room required
- ↳ Reduced installation costs

VSD variable frequency drive Reduces energy costs



Energy costs account for over 80% of a compressor's lifecycle costs (calculated at 0.8 yuan per kWh, 8,000 operating hours per year, and a 10-year operating cycle). To reduce energy costs, Atlas Copco uses variable speed drive (VSD) technology. VSD not only saves significant energy but also protects the environment for future generations. Thanks to continued investment in this technology, Atlas Copco offers a comprehensive range of integrated VSD compressors.

Highly Efficient and Energy-Saving

Atlas Copco's variable speed drive technology automatically adjusts motor speed to meet fluctuating gas demand, saving energy and reducing the compressor's lifecycle costs.

In addition, variable speed drives reduce system pressure, further saving energy and reducing consumption throughout the production process.



The unique features of Atlas Copco's integrated VSD

- 1 The "Elektronikon" simultaneously controls the compressor and integrated inverter, ensuring the machine operates within safe limits.
- 2 The VSD has 4-10 Flexible pressure selection with 100 bar reduces electricity costs.
- 3 The custom-designed VSD and motor (with protected bearings) deliver high efficiency across the entire speed range.
- 4 The motor is designed specifically for low-speed operation, taking into account the cooling requirements of both the motor and the compressor at low speeds.
- 5 All Atlas Copco VSD compressors are EMC-tested and certified. Compressor operation does not affect external equipment, and vice versa.
- 6 Reinforced mechanical components ensure that the operating speed range of major components remains below critical vibration levels.
- 7 The high-efficiency VSD, integrated into the electrical control cabinet, ensures stable operation in ambient temperatures up to 50°C/122°F (standard operating temperature up to 40°C/104°F).
- 8 Without a "speed window" that increases energy consumption and affects net pressure stability, the compressor offers a wide flow rate adjustment range, down to 25%.
- 9 Network pressure fluctuations are maintained within 0.10 bar (1.5 psi).

Monitoring: Low Investment, High Return

Elektronikon® unit controllers are designed to optimize the performance of compressors and air handling equipment under various conditions. Key benefits of our solutions include improved energy efficiency, reduced energy consumption, reduced maintenance time, and reduced stress on the entire air system.

Intelligent Compressor Unit

- A high-resolution color display makes it easy to read and understand the unit's operating status.
- Clear icons and intuitive navigation allow quick access to all important settings and data.
- Monitor the unit's operating and maintenance status, alerting you to critical information when needed.
- Ensure reliable operation to meet your specific compressed air needs.
- Remote control and notification capabilities are standard, including easy-to-use Ethernet-based communication.
- Supports 31 different languages, including character-based languages.



Online and Mobile Monitoring

The new Elektronikon® controller allows you to monitor your compressor via Ethernet, including warnings, shutdowns, and maintenance schedules. The Atlas Copco Online Monitoring app, available for iPhone/Android phones and iPad/Android tablets, lets you monitor your compressed air system securely over the internet.



SMARTLINK: Data Monitoring Program

- This remote monitoring system helps optimize your compressed air system, saving energy and costs.
- It provides comprehensive visibility into your compressed air network, predicting and providing early warning of potential problems.

**Please contact your local sales engineer for details.*

Dryer Solutions for a Variety of Needs

Untreated compressed air contains moisture and dust particles, which can damage your air system and contaminate your end product. The resulting maintenance costs can far exceed the cost of compressed air treatment. Atlas Copco believes this problem is preventable and offers a complete range of air treatment solutions to protect your investment, equipment, production processes, and end products.

Blower Heat Regeneration Adsorption Dryer

BD/BD⁺

-70°C/-40°C/-20°C

-94°F/-40°F/-4°F

- Regenerates adsorbent by heating ambient air, reducing energy consumption
- Low pressure drop
- Zero and low air consumption options available
- Dew point monitoring and control

Heatless Regeneration Adsorption Dryer

CD/CD⁺

-70°C/-40°C

-94°F/-40°F

- Utilizes high-performance activated alumina or silica gel adsorbent · Robust design
- High overall reliability

Refrigerated Dryer

F/FX

+3°C/+10°C

+37°F/+50°F

- Cools compressed air using refrigeration principles
- Pressure dew point as low as 3°C
- Highly efficient and environmentally friendly refrigerant

Built-in Heat of Compression Rotary Drum Dryer

IND

-40°C/-20°C

-40°F/-4°F

IMD

-40°C/-10°C

-40°F/+14°F

- Regeneration using heat of compression
- Extremely low operating energy consumption
- Constant pressure dew point output
- Integrated design, compact footprint



Full-Performance Packages

Atlas Copco's full-performance compressor concept represents a compact, all-in-one, high-quality air solution. Variable Speed Drive (VSD) models with integrated IND/IMD dryers produce high-quality compressed air at a low cost.

Protect Your Compressed Air System

A dry compressed air system is essential for maintaining process reliability and end-product quality. Untreated air can lead to corrosion within piping, premature failure of pneumatic equipment, and contamination of the end product.

IMD Desiccant Dryers

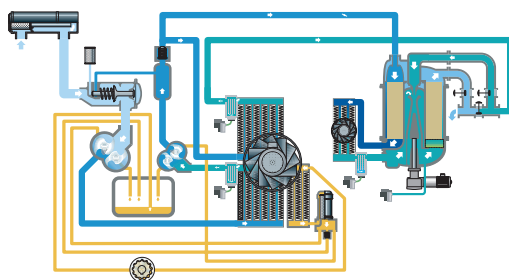
IMD desiccant dryers remove moisture before it enters the air distribution network, ensuring reliable processes and flawless end products. Drying the air eliminates the need for external energy, significantly saving costs, and further reducing operating costs by reducing pressure drop.



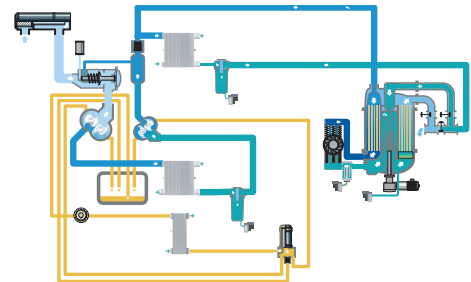
IMD Drying Principle

- 1 High-Temperature Unsaturated Air
- 2 High-Temperature Saturated Air
- 3 Low-Temperature Saturated Air
- 4 Dry Air
- 5 Drying Area

Z Tooth + IMD (Adsorption dryer)



Air cooling



Water cooling

- Intake air
- Hot unsaturated air
- Cooled saturated air
- Dry compressed air
- Engine oil
- Insulation

Technical Specifications

ZT15-22、ZR/ZT30-45

Model	Maximum exhaust pressure	Flow rate FAD		Motor power	Noise level	Standard model weight	Integrated dryer available
	bar	l/s	m³/min	kW	dB(A)	kg	
Air cooling							
ZT15 - 7.5	7.5	40.1	2.4	15	69	1031	ID / IMD
ZT15 - 8.6	8.6	36.7	2.2				
ZT15 - 10	10	31.1	1.9				
ZT18 - 7.5	7.5	50.5	3.0	18.5	69	1047	ID / IMD
ZT18 - 8.6	8.6	47.7	2.9				
ZT18 - 10	10	38.4	2.3				
ZT22 - 7.5	7.5	61.1	3.7	22	69	1062	ID / IMD
ZT22 - 8.6	8.6	55.4	3.3				
ZT22 - 10	10	49.4	3.0				
ZT30 - 7.5	7.5	79.7	4.8	30	69	1280	ID / IMD
ZT30 - 8.6	8.6	73.7	4.4				
ZT30 - 10	10	62.5	3.8				
ZT37 - 7.5	7.5	97.3	5.8	37	71	1355	ID / IMD
ZT37 - 8.6	8.6	92.9	5.6				
ZT37 - 10	10	80.1	4.8				
ZT45 - 7.5	7.5	114.8	6.9	45	73	1385	ID / IMD
ZT45 - 8.6	8.6	109.4	6.6				
ZT45 - 10	10	95.0	5.7				
水冷							
ZR30 - 7.5	7.5	80.4	4.8	30	70	1200	ID / IMD
ZR30 - 8.6	8.6	75.2	4.5				
ZR37 - 7.5	7.5	98.6	5.9	37	70	1250	ID / IMD
ZR37 - 8.6	8.6	94.1	5.7				
ZR45 - 7.5	7.5	116.7	7.0	45	70	1272	ID / IMD
ZR45 - 8.6	8.6	111.1	6.7				

(1) Unit performance reference operating conditions measured according to ISO1217 Appendix C, 4th edition (2009):
 - Relative humidity: 0%
 - Absolute inlet pressure: 1 bar
 - Inlet temperature: 20°C

FAD measurements are performed at the following operating pressures:
 Constant speed models:
 - 7.5 bar models: 7 bar.
 - 8.6 bar models: 8 bar.
 - 10 bar models: 9.5 bar.

(2) A-weighted emission sound pressure level (LpWSAd) measured at the workstation. Measured using ISO 9614/2 (sound intensity sweep method) in accordance with ISO 2151:2004. The added correction factor is the fully uncertain value (KpAd) in accordance with the test code.
 (3) Integrated dryers have an added weight.

ZT18-22 VSD、ZR/ZT37-55 VSD

Model	Operating Pressure		Flow Rate (FAD)		Motor Power	Noise Level	Standard Model Weight	Integrated Dryer Available
		bar	l/s	m³/min	kW	dB(A)	kg	
Air cooling								
ZT18VSD-10	Minimum	4	24.9 - 43.0	1.5 - 2.6	18	69	1120	IMD
	Effective	7	23.6 - 41.9	1.4 - 2.5				
	Maximum	10	22.2 - 39.7	1.3 - 2.4				
ZT22VSD-10	Minimum	4	24.9 - 60.1	1.5 - 3.6	22	69	1120	ID / IMD
	Effective	7	23.6 - 58.8	1.4 - 3.5				
	Maximum	10	22.2 - 48.8	1.3 - 2.9				
ZT30VSD-8.6	Minimum	4	42.4 - 81.1	2.5 - 4.9	30	76	1400	IMD
	Effective	7	41.3 - 79.8	2.5 - 4.8				
	Maximum	8.6	41.2 - 76.1	2.5 - 4.6				
ZT37VSD-8.6	Minimum	4	42.4 - 102.3	2.5 - 6.1	37	76	1400	ID / IMD
	Effective	7	41.3 - 101.6	2.5 - 6.1				
	Maximum	8.6	41.2 - 95.1	2.5 - 5.7				
ZT37VSD-10	Minimum	4	34.9 - 97.9	2.1 - 5.9	37	76	1400	ID
	Effective	9	33.0 - 89.2	2.0 - 5.4				
	Maximum	10	32.5 - 80.5	2.0 - 4.8				
ZT45VSD-8.6	Minimum	4	42.4 - 119.8	2.5 - 7.2	45	78.5	1481	IMD
	Effective	7	41.3 - 118.4	2.5 - 7.1				
	Maximum	8.6	41.1 - 112.7	2.5 - 6.8				
ZT55VSD-8.6	Minimum	4	42.4 - 143.7	2.5 - 8.6	55	78.5	1481	ID / IMD
	Effective	7	41.3 - 143.0	2.5 - 8.6				
	Maximum	8.6	41.1 - 138.8	2.5 - 8.3				
ZT55VSD-10	Minimum	4	34.8 - 139.1	2.1 - 8.4	55	78.5	1481	ID
	Effective	9	32.9 - 131.7	2.0 - 7.9				
	Maximum	10	32.3 - 122.0	2.0 - 7.3				
Water cooling								
ZR37VSD-8.6	Minimum	4	42.5 - 102.3	2.6 - 6.1	37	70	1372	ID / IMD
	Effective	7	41.3 - 101.2	2.5 - 6.1				
	Maximum	8.6	41.0 - 94.8	2.5 - 5.7				
ZR55VSD-8.6	Minimum	4	42.5 - 138.3	2.5 - 8.3	55	70	1410	ID / IMD
	Effective	7	41.3 - 137.1	2.5 - 8.2				
	Maximum	8.6	41.0 - 134.6	2.5 - 8.1				

(1) Unit performance reference operating conditions measured according to ISO 1217 Appendix C, 4th edition (2009)

- Relative humidity: 0%
 - Absolute inlet pressure: 1 bar
 - Inlet temperature: 20°C

(2) A-weighted emission sound pressure level measured at the workstation (LpWSAd). Measured according to ISO 2151:2004 using ISO 9614/2 (sound intensity sweep method). The added correction factor is the fully uncertain value (KpAd) in accordance with the test code.

(3) Integrated dryers have an added weight.

Technical Specifications

ZT30-50 VSD+

Model	Operating Pressure		Flow Rate (FAD)		Motor Power	Noise Level	Standard Model Weight	Integrated Dryer Available
		bar	l/s	m³/min	kW	dB(A)	kg	
Air cooling								
ZT30VSD+-8.6	Minimum	4	40.4 – 95.5	2.4 – 5.7	30	66	1350	ID / IMD
	Effective	7	39.9 – 93.6	2.4 – 5.6				
	Maximum	8.6	37.9 – 74.8	2.3 – 4.5				
ZT30VSD+-10	Minimum	4	40.4 – 95.5	2.4 – 5.7	30	66	1350	ID / IMD
	Effective	9	37.7 – 71.7	2.3 – 4.3				
	Maximum	10	36.9 – 64.8	2.2 – 3.9				
ZT37VSD+-8.6	Minimum	4	40.4 – 112.6	2.4 – 6.8	37	69	1350	ID / IMD
	Effective	7	39.9 – 110.1	2.4 – 6.6				
	Maximum	8.6	37.9 – 95.6	2.3 – 5.7				
ZT37VSD+-10	Minimum	4	40.4 – 112.6	2.4 – 6.8	37	69	1350	ID / IMD
	Effective	9	37.7 – 92.5	2.3 – 5.6				
	Maximum	10	36.9 – 84.9	2.2 – 5.1				
ZT45VSD+-8.6	Minimum	4	40.4 – 135.8	2.4 – 8.2	45	68	1373	ID / IMD
	Effective	7	39.3 – 132.3	2.4 – 7.9				
	Maximum	8.6	37.9 – 118.2	2.3 – 7.1				
ZT45VSD+-10	Minimum	4	40.4 – 135.8	2.4 – 8.2	45	68	1373	ID / IMD
	Effective	9	37.7 – 112.5	2.3 – 6.8				
	Maximum	10	36.9 – 96.9	2.2 – 5.8				
ZT50VSD+-8.6	Minimum	4	40.4 – 153.7	2.4 – 9.2	50	70	1373	ID / IMD
	Effective	7	39.3 – 147.0	2.4 – 8.8				
	Maximum	8.6	47.2 – 144.5	2.8 – 8.7				
ZT50VSD+-10	Minimum	4	40.4 – 153.7	2.4 – 9.2	50	70	1373	ID / IMD
	Effective	9	37.7 – 141.0	2.3 – 8.5				
	Maximum	10	36.9 – 130.5	2.2 – 7.8				

(1) Unit performance reference operating conditions measured according to ISO 1217 Appendix C, 4th edition (2009)
 - Relative humidity: 0%
 - Absolute inlet pressure: 1 bar
 - Inlet temperature: 20°C

(2) A-weighted emission sound pressure level (LpWSAd) measured at the workstation. Measured in accordance with ISO 2151:2004 using ISO 9614/2 (sound intensity sweep method). The added correction factor is the full uncertainty value (KpAd) in accordance with the test code.
 (3) Integrated dryers have an added weight.

Dimensions

Model	A	B	C
	length	width	height
	mm	mm	mm
Air cooling			
ZT 15-22	1761	1017	1620
ZT 18-22 VSD	2195	1016	1621
ZT 30-45	2006	1016	1880
ZT 30-55 VSD	2440	1016	1880
ZT 30-50 VSD+	2005	1022	1909
Water cooling			
ZR 30-45	2006	1016	1880
ZR 37-55 VSD	2440	1016	1880

