

The Atlas Copco logo is displayed in white text on a blue rectangular background in the top right corner of the image.

ZL 2 VSD

Atlas Copco

A technical drawing of a lobe blower is overlaid on a blue diagonal banner in the bottom left corner. The drawing shows a top-down view of the blower's internal components, including the lobes and housing, with various dimensions and labels such as '12.001.0001', '16.001.0001', '17.001.0001', '18.001.0001', '19.001.0001', '20.001.0001', '21.001.0001', '22.001.0001', '23.001.0001', '24.001.0001', '25.001.0001', '26.001.0001', '27.001.0001', '28.001.0001', '29.001.0001', '30.001.0001', '31.001.0001', '32.001.0001', '33.001.0001', '34.001.0001', '35.001.0001', '36.001.0001', '37.001.0001', '38.001.0001', '39.001.0001', '40.001.0001', '41.001.0001', '42.001.0001', '43.001.0001', '44.001.0001', '45.001.0001', '46.001.0001', '47.001.0001', '48.001.0001', '49.001.0001', '50.001.0001', '51.001.0001', '52.001.0001', '53.001.0001', '54.001.0001', '55.001.0001', '56.001.0001', '57.001.0001', '58.001.0001', '59.001.0001', '60.001.0001', '61.001.0001', '62.001.0001', '63.001.0001', '64.001.0001', '65.001.0001', '66.001.0001', '67.001.0001', '68.001.0001', '69.001.0001', '70.001.0001', '71.001.0001', '72.001.0001', '73.001.0001', '74.001.0001', '75.001.0001', '76.001.0001', '77.001.0001', '78.001.0001', '79.001.0001', '80.001.0001', '81.001.0001', '82.001.0001', '83.001.0001', '84.001.0001', '85.001.0001', '86.001.0001', '87.001.0001', '88.001.0001', '89.001.0001', '90.001.0001', '91.001.0001', '92.001.0001', '93.001.0001', '94.001.0001', '95.001.0001', '96.001.0001', '97.001.0001', '98.001.0001', '99.001.0001', '100.001.0001'.

## Oil-free lobe blowers

ZL 1-4 & ZL 1-4 VSD (2.2-90 kW / 3-120 hp)

0.3-1 bar(g) / 4.4-14.5 psig

30-3958 m<sup>3</sup>/hr / 18-2330 cfm



## ***High process uptime at low capital costs***

When starting-up your air blower application, capital costs, maintenance costs and reliability are very important. The simplicity and proven design of our lobe blowers make them the perfect match for installations in harsh environments all over the world with limited need for supervision. By providing just the right amount of air requested by your application, the VSD units with integrated controller contribute to your smooth and cost effective operation.

## Durable and reliable source of oil-free air

Operation in high-ambient temperature environment or at high-altitude is not an issue for ZL blowers. The cooling system and integrated safety and start-up valve contribute to trouble-free operation during the lifetime of the blower.

## User friendly operation - closely monitored

The integrated VSD controller with Elektronikon<sup>®</sup> Mk5 panel provides user-friendly operation and total observance of blower condition.



# The right product for a wide range of low pressure applications

The positive displacement principle with fix characteristics makes the product suitable for tons of applications. Whether it is pneumatic transport of granulates, fluidization of silos, aeration process in waste water treatment plants or process air in chemical plants; the ZL blowers bring reliable, uninterrupted operation around the clock.



## Wastewater treatment plants

### Source of reliable compressed air where you need it

The reliable design of ZL blowers makes it possible to install them where you need them, i.e. close to the technology, even outdoors. No need for a dedicated blower room, the ZL blower drives the capital costs for the whole WWTP down. Easy maintenance in regular intervals gives you ease-of-mind for the total plants' lifetime.

## Cement Industry

### Reliable air supply in dusty environment

Whether you need a blower for pneumatic transport of solid fuel, for main combustion air or for lance cooling air, the ZL unit is strong enough to cope with these demands. Though the environment in cement plant is often harsh and dusty, the ZL lobe blower's proven element with sturdy frame will provide trouble-free operation.





## Food and Beverage

### Quality of product is key

In the Food and Beverage industry, it is crucial to keep the quality of the product high ensuring no contamination from foreign particles or unfit materials. The Food certificate ensures that all ZL blower parts are suitable for use in this industry.

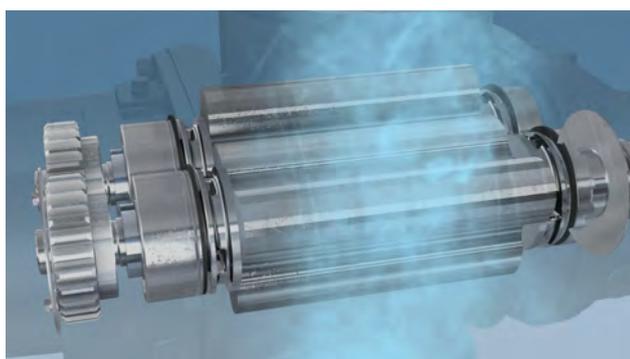
## Power

### Smooth and reliable operation 24/7

Applications in power plants such as desulphurization or combustion process require intermittent operation of the blower with variable air demand. A high number of starts can be very demanding for the bearings in element and motor and for the check valve. The start-up function of the (standard-built-in) PVO valve ensures a smooth pressure build-up and thus prolongs the lifetime of those components. The integrated VSD control of the ZL blower then provides always the right volume of air.



# ZL 1 & ZL 2: simple & reliable



## 1. Traditional design - reliable blower

Tri-lobe blower element with traditionally selected strong bearing and gear set



## 2. Cool canopy

Forced ventilation flow keeps the internal temperature of the canopy close to ambient temperature, contributing to the reliability of the unit. Option for outdoor version to use in conditions of -10 / + 55 °C

### **3. Durable outlet connection**

Integrated compensator with flange provides structural decoupling and installation alignment. Its stainless steel material brings a long lasting solution.

### **4. Immediate and understandable visual control of blower condition**

The mechanical pressure and differential pressure gauges provide easy-to-read information about the outlet pressure and air filter condition.

### **5. Perfect protection of the unit**

The safety and start-up function is integrated into our PVO valve, ensuring that pressure is always under control and that each blower start is smooth, contributing to trouble-free operation.

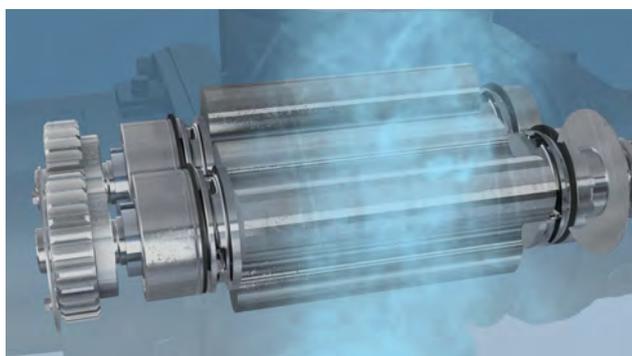
### **6. Maintenance free belt tensioning**

The automatic belt tensioning done by motor weight eliminates belt creeping and keeps the transmission efficiency high for the whole belt lifetime.

### **Performance Test Certificate**

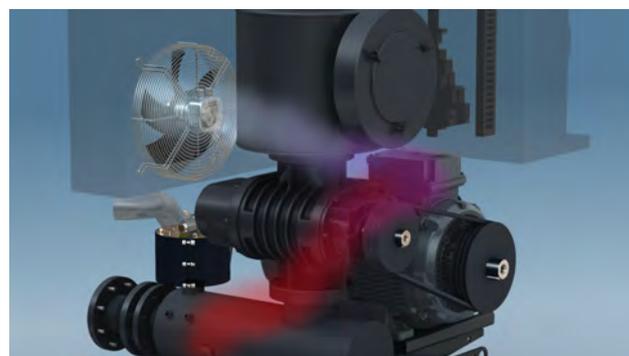
Every blower that leaves our factory is tested following the Atlas Copco standard test procedure in accordance to the ISO 1217:2009, annex "C" and "E" (4th edition). As option we can share a complete Performance Test report of your blower.

# ZL 1 & ZL 2 with controller: compact & complete



## 1. Traditional design - reliable blower

Tri-lobe blower element with traditionally selected strong bearing and gear set.



## 2. Cool canopy

Forced ventilation flow keeps the internal temperature of the canopy close to ambient temperature, contributing to the reliability of the unit. Option for outdoor version to use in conditions of -10 / + 55 °C

### **3. Durable outlet connection**

Integrated compensator with flange provides structural decoupling and installation alignment. Its stainless steel material equals long lasting solution.

### **4. User friendly operation and installation**

The VSD unit with integrated controller and frequency converter comes as plug-and-play package.

### **5. Superior protection of the unit**

Pressure and temperature are constantly monitored through installed sensors. The safety and start-up function is integrated into our PVO valve, ensuring that pressure is always under control and that each blower start is smooth, contributing to trouble-free operation.

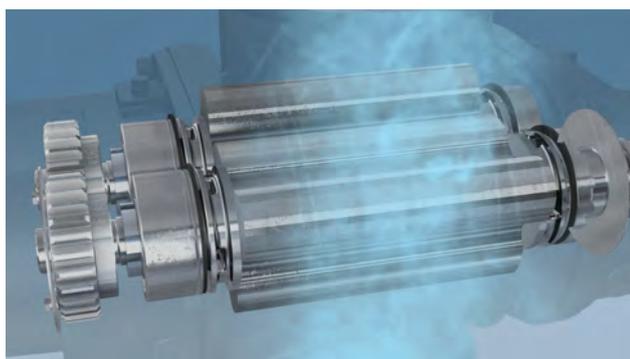
### **6. Maintenance free belt tensioning**

The automatic belt tensioning done by motor weight eliminates belt creeping and keeps the transmission efficiency high for the whole belt lifetime.

### **Performance Test Certificate**

Every blower that leaves our factory is tested following the Atlas Copco standard test procedure in accordance to the ISO 1217:2009, annex "C" and "E" (4th edition). As option we can share a complete Performance Test report of your blower.

# ZL 3-4: simple & reliable



## 1. Traditional design - reliable blower

Tri-lobe blower element with traditionally selected strong bearing and gear set



## 2. Cool canopy

Forced ventilation flow keeps the internal temperature of the canopy close to ambient temperature, contributing to the reliability of the unit. Option for outdoor version to use in conditions of -10 / + 55 °C

### **3. Durable outlet connection**

Integrated compensator with flange provides structural decoupling and installation alignment. Its stainless steel material brings a long lasting solution.

### **4. Immediate and understandable visual control of blower condition**

The mechanical pressure and differential pressure gauges provide easy-to-read information about the outlet pressure and air filter condition.

### **5. Perfect protection of the unit**

The safety and start-up function is integrated into our PVO valve, ensuring that pressure is always under control and that each blower start is smooth, contributing to trouble-free operation.

### **6. Maintenance free belt tensioning**

The automatic belt tensioning done by motor weight eliminates belt slip and keeps the transmission efficiency high for the whole lifetime of the belts.

### **7. Fork lift slots**

Fork lifts are foreseen in the base frame of the unit to further simplify installation.

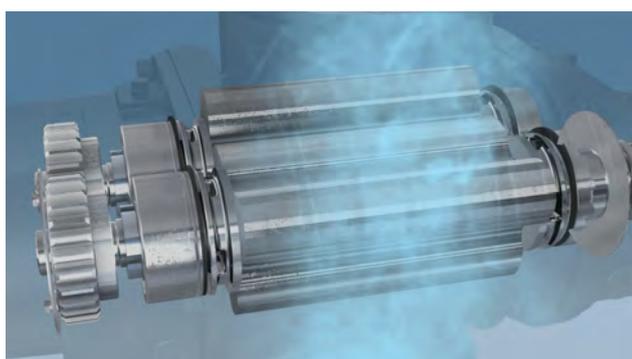
### **Door handles to easily remove panels**

The front and side panels each have two handles for easy access to the unit.

### **Performance Test Certificate**

Every blower that leaves our factory is tested following the Atlas Copco standard test procedure in accordance to the ISO 1217:2009, annex "C" and "E" (4th edition). As option we can share a complete Performance Test report of your blower.

# ZL 3-4 with controller: compact & complete



## 1. Traditional design - reliable blower

Tri-lobe blower element with traditionally selected strong bearing and gear set.



## 2. Cool canopy

Forced ventilation flow keeps the internal temperature of the canopy close to ambient temperature, contributing to the reliability of the unit. Option for outdoor version to use in conditions of -10 / + 55 °C.

### **3. Durable outlet connection**

Integrated compensator with flange provides structural decoupling and installation alignment. Its stainless steel material equals long lasting solution.

### **4. User friendly operation and installation**

The VSD unit with integrated controller and frequency converter comes as plug-and-play package.

### **5. Superior protection of the unit**

Pressure and temperature are constantly monitored through installed sensors. The safety and start-up function is integrated into our PVO valve, ensuring that pressure is always under control and that each blower start is smooth, contributing to trouble-free operation.

### **6. Maintenance free belt tensioning**

The automatic belt tensioning done by motor weight eliminates belt creeping and keeps the transmission efficiency high for the whole belt lifetime.

### **7. Fork lift slots**

Fork lift slots are foreseen on the base frame of the unit to further simplify installation.

### **Frequency converter**

Our Variable Speed Drive units have a Danfos frequency converter that ensures the motor speed is automatically adjusted to the flow demand.

### **Door handles to easily remove panels**

The front and side panels each have two handles for easy access to the unit.

### **Performance Test Certificate**

Every blower that leaves our factory is tested following the Atlas Copco standard test procedure in accordance to the ISO 1217:2009, annex "C" and "E" (4th edition). As option we can share a complete Performance Test report of your blower.

# Installation

## Avoid unexpected costs with our plug & play units

We offer you the complete package: our ZL lobe blowers are ready for operation upon arrival. Our plug & play solutions help you avoid unexpected costs as everything needed for operation is included in our offer. On top of that, a plug & play solution guarantees you a small footprint: the dimensions of the unit stated on our offer are the final dimensions of the unit.



## Save even more space: install your units outside

Our ZL lobe are suited for operation in high ambient conditions. On top of that, the optional rain protection canopy ensures our units can be installed outside, close to your process and technology.

# Configurable design

Configure the lobe blower to your needs: Variable Speed or Fixed Speed? With integrated controller or not? With or without starter? Standard or customized?

## The following Standard Options are available:

- Test Certificate
- Wooden case packing
- Outdoor canopy\*
- IT net

(\*) ZL VSD models: only available for the No Starter version

## Optional controller

Our scope of supply starts with a purely mechanical blower package; at the front panel you find mechanical gauges indicating discharge pressure and inlet filter condition. You can upgrade your package by selecting our Elektronikon<sup>®</sup> controller, providing constant monitoring of blower health, giving feedback to your process controller and enabling connectivity to e.g. an Optimizer 4.0 module managing your blower room. For units with integrated Fixed Speed or Variable Speed starter, this controller is the 'standard' scope of supply.



## No-starter variant

You have the freedom to select a no-starter variant if you feel more comfortable with your own starter cubicle or if you prefer to have it installed in a separate room.

## Special requests – custom design!

Our standard scope of supply may be just ‘too’ standard for you; you may have particular needs or preferences. Our Systems-department can bend the rules! Do you just require our unit in a different color? Or do you want us to start from scratch and build a blower to your specs? We can do it all!



# Monitoring and control: how to get the best out of your installation?

The Elektronikon<sup>®</sup> unit controller is specially designed to maximize the performance of your blowers under a variety of conditions. Optimizer 4.0 takes charge of the management of your full blower room. Key benefits are increased energy-efficiency by lowering energy consumption, reduced maintenance times and less stress... less stress for both you and your entire air system.



## Elektronikon<sup>®</sup> MK5 - Intelligence is part of the package

The full color display gives you an easy-to-understand readout of the equipment's running conditions.

- Clear icons and intuitive navigation provides you fast access to all of the important settings and data.
- Monitoring of the equipment running conditions and maintenance status; bringing this information to your attention when needed.
- Operation of the equipment to deliver specifically and reliably to your compressed air needs.
- Built-in remote control- and notification functions provided as standard, including simple to use integrated webpage.
- Support for 31 different languages, including character based languages.

## Connectivity, with SMARTLINK

Monitor your machines over the ethernet with the Elektronikon<sup>®</sup> unit controller and the **SMARTLINK** service. Monitoring features include warning indications, blower shut-down, sensor trending and maintenance scheduling. Go for energy efficiency: customized reports will be generated on the energy efficiency of your blower room, in compliance with ISO 50001.



## Sit back and relax, Optimizer 4.0 has it under control

A properly managed compressed air network will save energy, reduce maintenance, decrease downtime, increase production and improve product quality. Atlas Copco's Optimizer 4.0 monitors and controls multiple blowers simultaneously; it is one central point of control for the whole compressed air network, ensuring all blowers provide optimum performance for your process. The result is a completely autonomous and energy-efficient network, giving you peace of mind and keeping your costs minimized.



# Maximize your resources with a Service Plan

Properly caring for your air compressor helps you lower your operating costs and minimises the risk for unplanned breakdowns or production stops. Atlas Copco offers energy efficiency checks, service, repairs, spare parts and maintenance plans for all air compressors.

Entrust your servicing to our expert professionals and ensure your business continues to run efficiently. Our plans cover repairs, preventative maintenance, spare parts, and more.

## Reduce your total cost of ownership and benefit from optimal performance

Genuine Parts, designed and produced to the exact specifications of your blower, delivered right where and when you need them.

- All parts, one package - Always have the needed part for your service intervention at hand.
- Save money - A Service Kit costs less than the sum of its components if ordered separately.
- Less administration - Every Service Kit has a single part number, allowing you to create a simple purchase order that is easy to follow up.



## Fixed Price Services: best blower parts & maintenance

Avoid financial surprises. Our Fixed Price Services combine the expertise of factory-trained technicians with the quality of our genuine blower parts.

- The best blower parts - The unrivalled quality of our genuine parts results in optimal uptime, energy consumption and reliability.
- An expert maintenance plan - Rely on the expertise of factory-trained Atlas Copco technicians.
- Clear and easy - Tailored to your installation, site conditions, and production planning, every Fixed Price Service has a clear scope and price.

## Preventive Maintenance Plan for optimal blower uptime

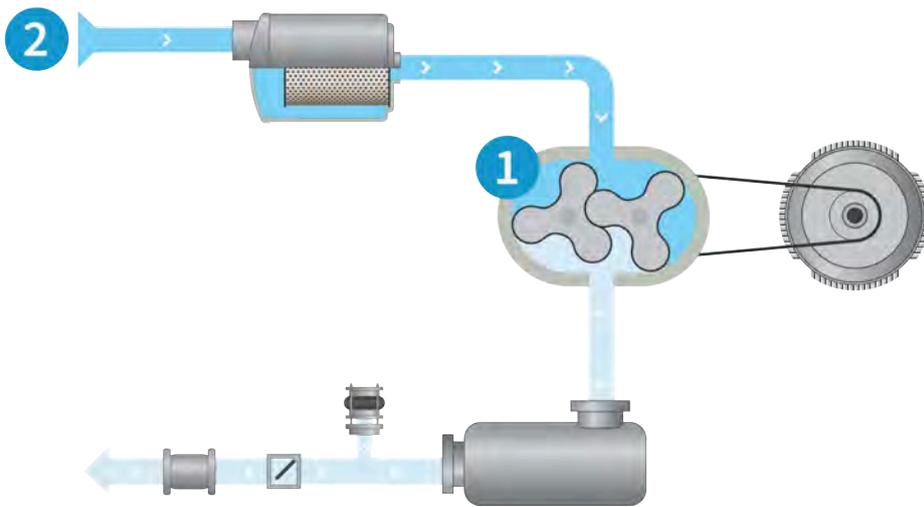
Rely on trained Atlas Copco technicians and the unrivalled quality of our genuine parts.

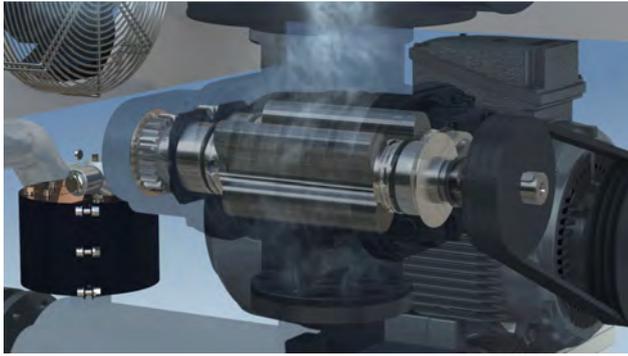
- Service reports - We help you achieve maximum energy efficiency by keeping you up to date of the status of your system.
- Prevent breakdown - If our technicians spot an additional developing problem, they will propose a solution.
- op-priority emergency call out system - If an urgent repair is needed, you get priority assistance.



# Flowchart

Process flow and cooling flow - step by step.





## 1. Process flow

- A fan forces fresh process and ventilation air in the canopy, through a noise attenuating baffle system.
- Air is filtered prior to entering the lobe blower element. The filter housing reduces the inlet pulsations.
- The lobe blower element moves air from inlet to outlet.
- Discharge silencer reduces the pressure pulsation levels to the minimum.
- At start-up, the blow-off valve is 'open' for smooth unit start-up. That valve closes itself, pushed by the increased air pressure.
- As soon as the blow-off valve is closed, air pressure increases further, resulting in enough force to push the check-valve open.
- Air delivery to the system.



## 2. Cooling flow

- A fan forces fresh process and ventilation air in the canopy, through a noise attenuating baffle system.
- Cubicle ventilation air is mixed with the canopy ventilation air.
- The motor cooling fan circulates this fresh canopy air over the motor housing, The motor fan-cowl ensures that air flowing over the motor cooling fins.
- The forced ventilation flow through the canopy removes the heat radiated by the blower core.
- The hot canopy air can leave the canopy through a grating at the side panel.
- The hot air blown out by the startup and safety valve is ducted straight out of the canopy to avoid canopy heating.



# Scope of supply

## ZL 1-2 (VSD)

Standard scope of supply		ZL 1 VSD	ZL 1	ZL 2 VSD	ZL 2
Air circuit	Air inlet filter	✓	✓	✓	✓
	Inlet pulsation damper	✓	✓	✓	✓
	Oil-free lobe element	✓	✓	✓	✓
	Start-up valve	-	-	✓*	✓*
	Safety valve	✓	✓	✓	✓
	Check valve	✓	✓	✓	✓
	Discharge pulsation damper	✓	✓	✓	✓
	Outlet compensator (Stainless Steel)	✓	✓	✓	✓
	Outlet air flange DIN or ANSI	✓	✓	✓	✓
Oil circuit	Supplied oil-filled	✓	✓	✓	✓
	Splash lubricated element bearings & gears	✓	✓	✓	✓
Motor	IE3 induction motor, TEFC IP55	✓	✓	✓	✓
Mechanical	Pulley & Belt	✓	✓	✓	✓
	Automatic belt tensioning system	✓	✓	✓	✓
Bodywork	Sound attenuating canopy	✓	✓	✓	✓
	Package vibration isolators	✓	✓	✓	✓
	Base frame with forklift slots	-	-	-	-

Standard scope of supply		ZL 1 VSD		ZL 1		ZL 2 VSD		ZL 2	
Choice between:		Mechanical	Elektronikon®	Mechanical	Elektronikon®	Mechanical	Elektronikon®	Mechanical	Elektronikon®
Monitoring and control	Pressure gauge and filter indicator	✓	-	✓	-	✓	-	✓	-
	VSD inverter, EMC- and RFI filter, TT/TN net	-	✓	-	-	-	✓	-	-
	Y/D starter	-	-	-	✓	-	-	-	✓
	Sensors discharge pressure & temperature	-	✓	-	✓	-	✓	-	✓
	SMARTLINK	-	✓	-	✓	-	✓	-	✓
	Flow control via 4 - 20 mA (external source)	-	✓	-	-	-	✓	-	-
	LAN or Internet control/monitoring	-	✓	-	✓	-	✓	-	✓

# Scope of supply

## ZL 3-4 (VSD)

Standard scope of supply		ZL 3 VSD	ZL 3	ZL 4 VSD	ZL 4
Standard scope of supply	Air inlet filter	✓	✓	✓	✓
	Inlet pulsation damper	✓	✓	✓	✓
	Oil-free lobe element	✓	✓	✓	✓
	Start-up valve	✓	✓	✓	✓
	Safety valve	✓	✓	✓	✓
	Check valve	✓	✓	✓	✓
	Discharge pulsation damper	✓	✓	✓	✓
	Outlet compensator (Stainless Steel)	✓	✓	✓	✓
Oil circuit	Outlet air flange DIN or ANSI	✓	✓	✓	✓
	Supplied oil-filled	✓	✓	✓	✓
Motor	Splash lubricated element bearings & gears	✓	✓	✓	✓
	IE3 induction motor, TEFC IP55	✓	✓	✓	✓
Mechanical	Pulley & Belt	✓	✓	✓	✓
	Automatic belt tensioning system	✓	✓	✓	✓
Bodywork	Automatic belt tensioning system	✓	✓	✓	✓
	Package vibration isolators	✓	✓	✓	✓
	Base frame with forklift slots	✓	✓	✓	✓

Standard scope of supply		ZL 3 VSD		ZL 3		ZL 4 VSD		ZL 4	
Choice between:		Mechanical	Elektronikon®	Mechanical	Elektronikon®	Mechanical	Elektronikon®	Mechanical	Elektronikon®
Monitoring and control	Pressure gauge and filter indicator	✓	-	✓	-	✓	-	✓	-
	VSD inverter, EMC- and RFI filter, TT/TN net	-	✓	-	-	-	✓	-	-
	Y/D starter	-	-	-	✓	-	-	-	✓
	Sensors discharge pressure & temperature	-	✓	-	✓	-	✓	-	✓
	SMARTLINK	-	✓	-	✓	-	✓	-	✓
	Flow control via 4 - 20 mA (external source)	-	✓	-	-	-	✓	-	-
	LAN or Internet control/monitoring	-	✓	-	✓	-	✓	-	✓

✓: Standard option

- : Not available

✓\*: Standard option on certain frame sizes







