

# **ATLAS COPCO OIL-FREE MULTISTAGE CENTRIFUGAL PRESSURE AND VACUUM BLOWERS**

ZM 100 - 40,000 cfm / 2 - 24 psi / 5 - 3,600 hp  
3 - 1160 m<sup>3</sup>/m / 100 - 1700 mbar / 4 - 2600 kW

*Atlas Copco*





## **A ZM FOR EVERY APPLICATION**

Atlas Copco's ZM oil-free multistage centrifugal blowers are working successfully in thousands of installations around the world. These reliable blowers are ideal for applications ranging from air to gas and pressure to vacuum. The ZM can be equipped with all the necessary accessories such as motor, valves, filters and skid as well as local or networked control panels to ensure a complete working system. Ask our group to find a ZM blower system to meet your exact requirements.



### **ENVIRONMENTAL**

#### **RELIABILITY ENSURED**

From water and waste water applications to landfill gas recovery systems, Atlas Copco's years of experience, backed up by a strong global service network, ensure that ZM blowers meet all your environmental application requirements including basin aeration, digester gas, soil remediation, filter backwash systems and other processes.

### **MINING**

#### **GLOBAL SERVICE**

The ZM is a worldwide proven leader in mining applications such as reclaiming heavy metals from slurry in floatation cells, a leaching process or methane extraction. Our centrifugal blowers showcase their durability and reliability in the harshest of conditions with options to handle tough environments such as temperature, dust, high altitude, or long life with limited maintenance.

### **POWER INDUSTRY**

#### **READY-TO-USE**

These innovative centrifugal blowers are ideal for applications such as flue gas desulphurization, oxidation air, and fluidized beds. When your application absolutely requires continuous operation the ZM is your preferred choice.

### **PETROCHEMICAL INDUSTRY**

#### **TOTALLY DEPENDABLE**

Sulfur recovery, sour gas, thermal oxidation or refinery tail gas, the ZM's high reliability and low maintenance make it the perfect centrifugal blower for vital processes. ZM blowers meet the most exacting industry standards in the testing and documentation needs.

### **INDUSTRIAL**

#### **EXCEEDS YOUR EXPECTATIONS**

A wide variety manufacturing applications can be served by the ZM. Pulp and paper, carbon black, printing, or blow off systems are a few of many strong examples of ZM being the preferred technology that will out performance your expectations.

### **VACUUM APPLICATIONS**

#### **CLEAN AND DUST FREE**

Pharmaceutical, breweries, and other food production facilities need clean and oil free environments. Central vacuum systems serve a variety of applications. ZM has the power to achieve their requirements.



## **WHAT MAKES THE ZM SPECIAL?**

### **EFFICIENT**

ZM oil-free multistage centrifugal blowers were developed using the most advanced technology available. Tools including 3D Modeling, Computational Fluid Dynamics and Finite Element Analysis were used at the design stage to pinpoint areas where we make improvements. The resulting modern and innovative design allows for increased efficiency, while the wide product range and configuration options ensure we can offer the best solution possible to meet your needs.

### **RELIABLE**

The ZM blowers have earned the reputation of being “the most reliable blowers” in the industry. Even so, we still work to continually enhance the reliability of the ZM product line. In order to do this, we have made significant investments in the best people, facilities and equipment in the industry. Our commitment to Research and Development, Quality Control, and Product Testing, is driven by our desire to offer our customers the reliability they require in a variety of air and gas as well as pressure and vacuum applications.

### **LIMITED MAINTENANCE**

You won't suffer from lengthy downtimes or process interruptions when your ZM is maintained. Service intervals are reduced to a minimum and maintenance is quick and simple. Maintenance points are easily accessible and basic repairs can be conducted with a minimum of time and materials offering you a low cost of ownership.

### **GLOBAL SERVICE SUPPORT**

At Atlas Copco we place high value on outstanding customer service and are on call at all times to help with urgent situations. We pride ourselves in responding quickly to your requests for information and quotations. Contact your local Atlas Copco representative and find out how we can make a difference in your next project.

# ZM : COMPLETE PACKAGE

Atlas Copco's ZM Centrifugal Blower package is designed to give you complete peace of mind. All the components are designed to provide the highest reliability and high efficiency.

1

## Inlet Filter —

98% efficiency on particles 10 microns and larger

*Ensures maximum uptime of the unit*

2

## Isolation Valve —

*Easy isolation from system in case of maintenance shutdown*

3

## Check Valve —

*Ensuring reliability of the blower unit*

4

## Blow off Silencer —

*Reduced stress on people working nearby*

*Reduced operator fatigue*

5

## Blow off Valve —

Excess air is discharged to atmosphere

*Blower meets required design point in all conditions*

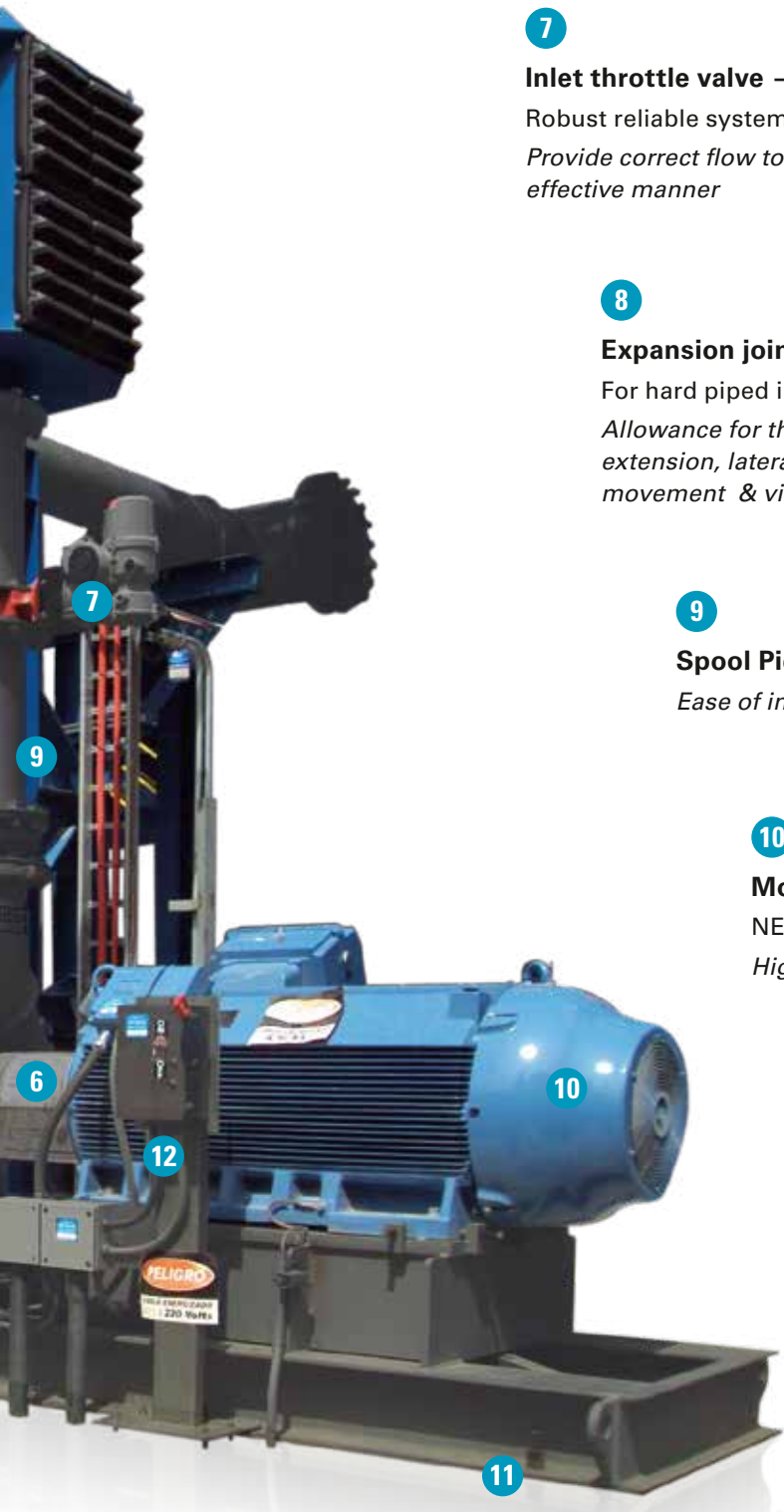
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## Coupling and Guard —

As compared to belt drive no efficiency loss over time from maximum efficiency

*Energy saving as practically no drive loss*





7

**Inlet throttle valve —**

Robust reliable system providing variable flow

*Provide correct flow to customer process in a cost effective manner*

8

**Expansion joints —**

For hard piped inlet and discharge installations

*Allowance for thermal expansion, Axial compression/extension, lateral deflection, angular movement , torsional movement & vibrations*

9

**Spool Pieces —**

*Ease of installation*

10

**Motor —**

NEMA Premium motors

*Higher "Wire to Air" efficiency*

11

**Blower base —**

Supplied with resilient mounting pads

*Greater reliability*

12

**Disconnect or blower starter —**

*Easy integration into customer system*

# ZM CENTRIFUGAL BLOWERS: DURABILITY AND PERFORMANCE

Atlas Copco's ZM centrifugal blowers are built to last. Solidly constructed out of premium components, they will run and run, with minimum maintenance requirements and unbeatable cost-effectiveness.

1

## Casing —

Cast iron, ductile iron available  
*For low vibration*

2

## Guide Vanes —

Stainless steel guide vanes  
*Improve efficiency*

3

## Seals —

Gas or Air Seals  
*To protect the environment*

4

## Bearings —

10 year L10 minimum life  
*Less maintenance*

5

## Shaft —

Carbon or stainless steel  
*Greater reliability is achieved with subcritical speed operations*

6

## Lubrication —

Self lubricated oil, grease, or mist connections  
*Low preventative maintenance*





7

**Turning Vanes —**

Cast intermediate sections

*Improved performance*

8

**Impellers —**

Aluminum or stainless

*Suitable for your application*

9

**Balance drum —**

*Improves bearing life*

10

**External coating —**

Standard 2 coat epoxy

Custom available

*Long life*

11

**Case Drains —**

Optional

*For harsh environments*

12

**Tie rods —**

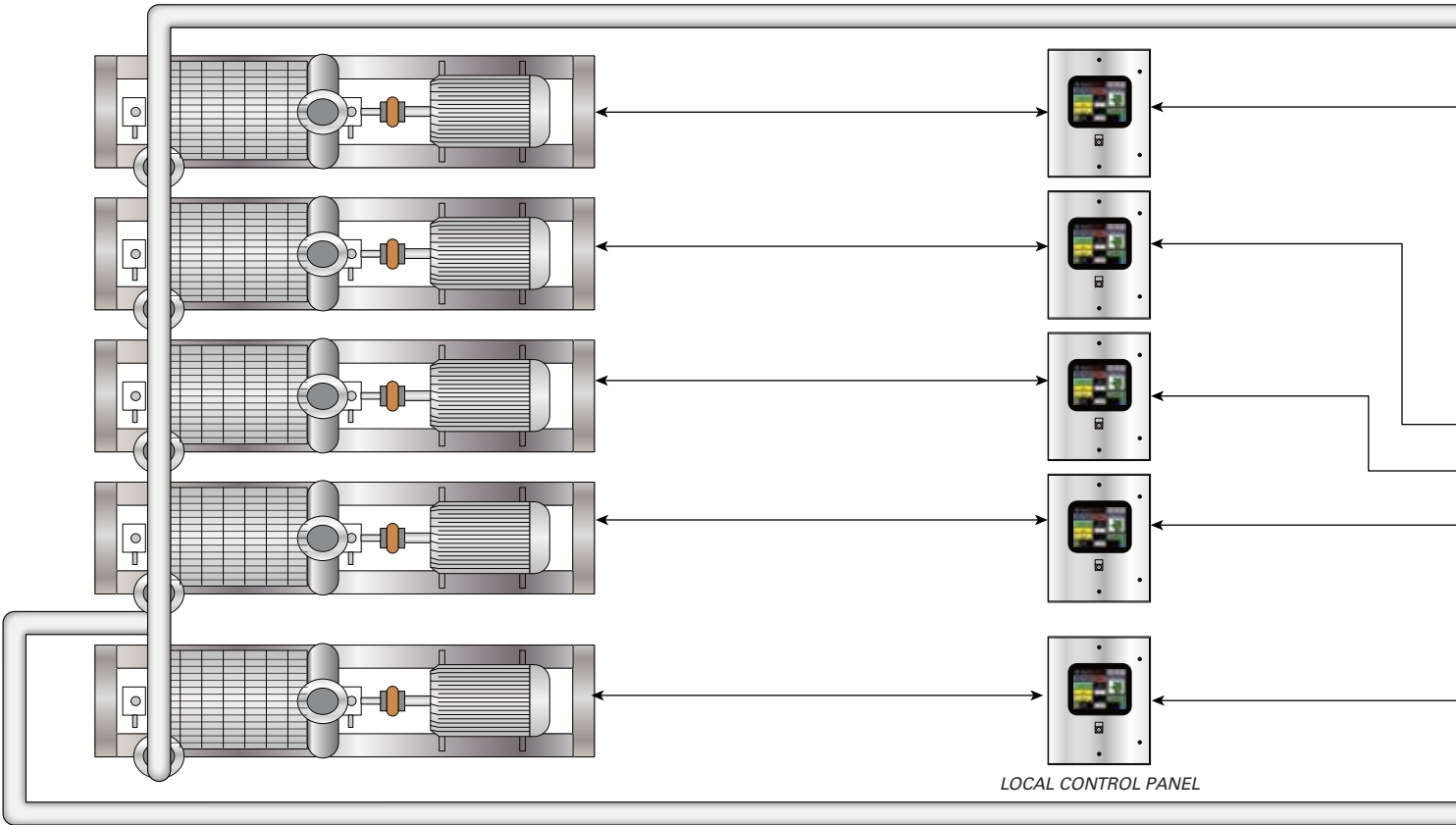
High strength steel

# OVERVIEW OF CONTROL PANELS

Atlas Copco understands that every application is different, which is why we offer controls that are easy to customize to your specific installation.



MODEL	ZM-IB 11	ZM-IB 21	ZM-IB 31	ES 4100	ES 5100
Usage	Local Control Panel	Local Control Panel	Local Control Panel	Process Control Panel	Process Control Panel
Type	Basic controller with on/off function and sensor readings and alarms for blower protection	Full fledged machine controller for fixed speed machines with blow off valves or inlet valve and blow off valve combination	Full fledged machine controller designed for VSD machines	Blower sequencer panel for controlling multiple blowers for optimizing efficiencies	Process control and blower sequencer panel with direct process control of automated valves , flow meters etc

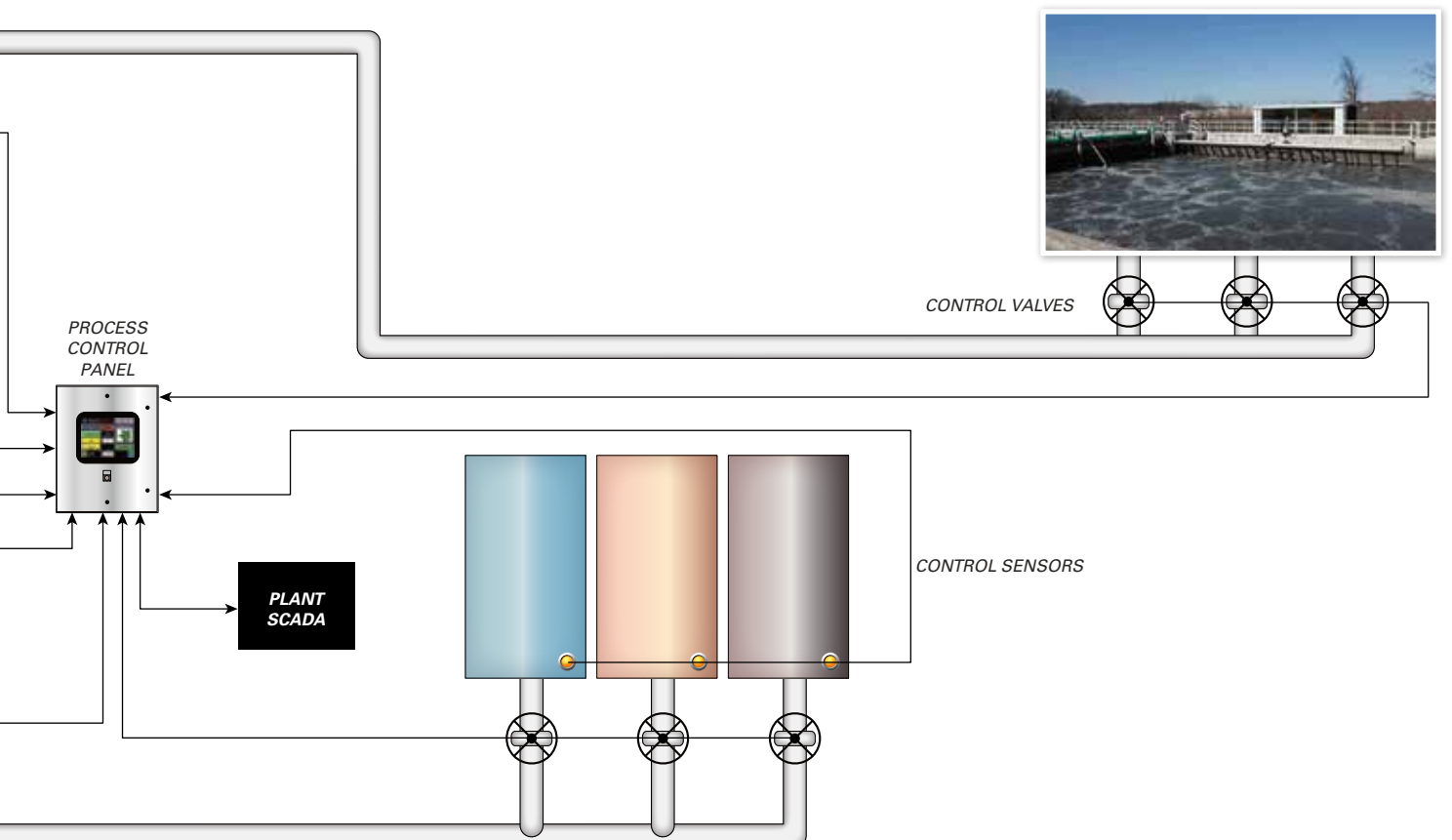


Complete control system to manage entire processes



MODEL	ZM-IB 11	ZM-IB 21	ZM-IB 31
Features	<ul style="list-style-type: none"> <li>- The ZM IB 11 control panel offers reliable blower protection, alarm and shut-down due to               <ul style="list-style-type: none"> <li>· Blower surge</li> <li>· Blower bearing vibration</li> <li>· Blower bearing temperature</li> <li>· Motor Amp overload</li> <li>· Motor thermal protection</li> </ul> </li> <li>- Remote alarm and status connections</li> </ul>	<ul style="list-style-type: none"> <li>- For Fixed Speed machines</li> <li>- Modulated Inlet Valve-PID Controlled</li> <li>- Controls Soft Start / Motor Starter</li> <li>- New and Improved Surge/Overload Protections</li> <li>- Current Overload Protection</li> <li>- 4 Front Panel Indicators               <ul style="list-style-type: none"> <li>· General Warning</li> <li>· Surge Shutdown</li> <li>· Overload Shutdown</li> <li>· General Shutdown</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- For VSD Machines</li> <li>- VSD-PID Controlled</li> <li>- Interfaces with VSD</li> <li>- New and Improved Surge/Overload Protections</li> <li>- Current Overload Protection</li> <li>- 4 Front Panel Indicators               <ul style="list-style-type: none"> <li>· General Warning</li> <li>· Surge Shutdown</li> <li>· Overload Shutdown</li> <li>· General Shutdown</li> </ul> </li> </ul>
Advantage	Ensures blower only operates in a safe condition	Protection cum control	Protection cum control
Benefits	Blower will not be damaged even if unforeseen events occur in the process ensuring high reliability	Improved Efficiency	Higher Improved Efficiency

MODEL	ES 4100	ES 5100
Features	<ul style="list-style-type: none"> <li>- One blower used as a trim blower to adjust to the required flow . Other blowers flows are fixed at optimum efficiency flow point</li> <li>- Flow or pressure Requirements are determined by the processes' input variable</li> <li>- Optimizes Efficiencies</li> <li>- Auto Sequencing</li> <li>- System Integration</li> <li>- SCADA Interface</li> <li>- Blowers are stopped and started as needed</li> </ul>	<ul style="list-style-type: none"> <li>- Complete Control System to manage entire process</li> <li>- Flow matched to process requirements</li> <li>- Auxiliary equipment control</li> <li>- Flow is adjusted to minimize valve movement</li> <li>- System Pressure is minimized</li> </ul>
Advantage	Overall power consumption of the blower system is reduced	Simpler system control and service & Reduced power consumption of the blowers
Benefits	Highest energy efficiency and avoiding lost production	Optimal efficiency of entire system & Single point responsibility



# ZM DESIGN AND STANDARDS

At Atlas Copco we have made a commitment to be the technical leader in our industry. We have achieved our strong position in this area through continued investment in engineering personnel, the latest design tools, advanced inspection and testing technology, and ongoing R&D projects.



## ENGINEERED SOLUTIONS EXPERIENCE COUNTS

With a global competency center focused on research and development of centrifugal blower technology we are able to provide custom engineered solutions for the ZM product for the most demanding applications. This often includes special materials and testing to accomplish the toughest tasks.

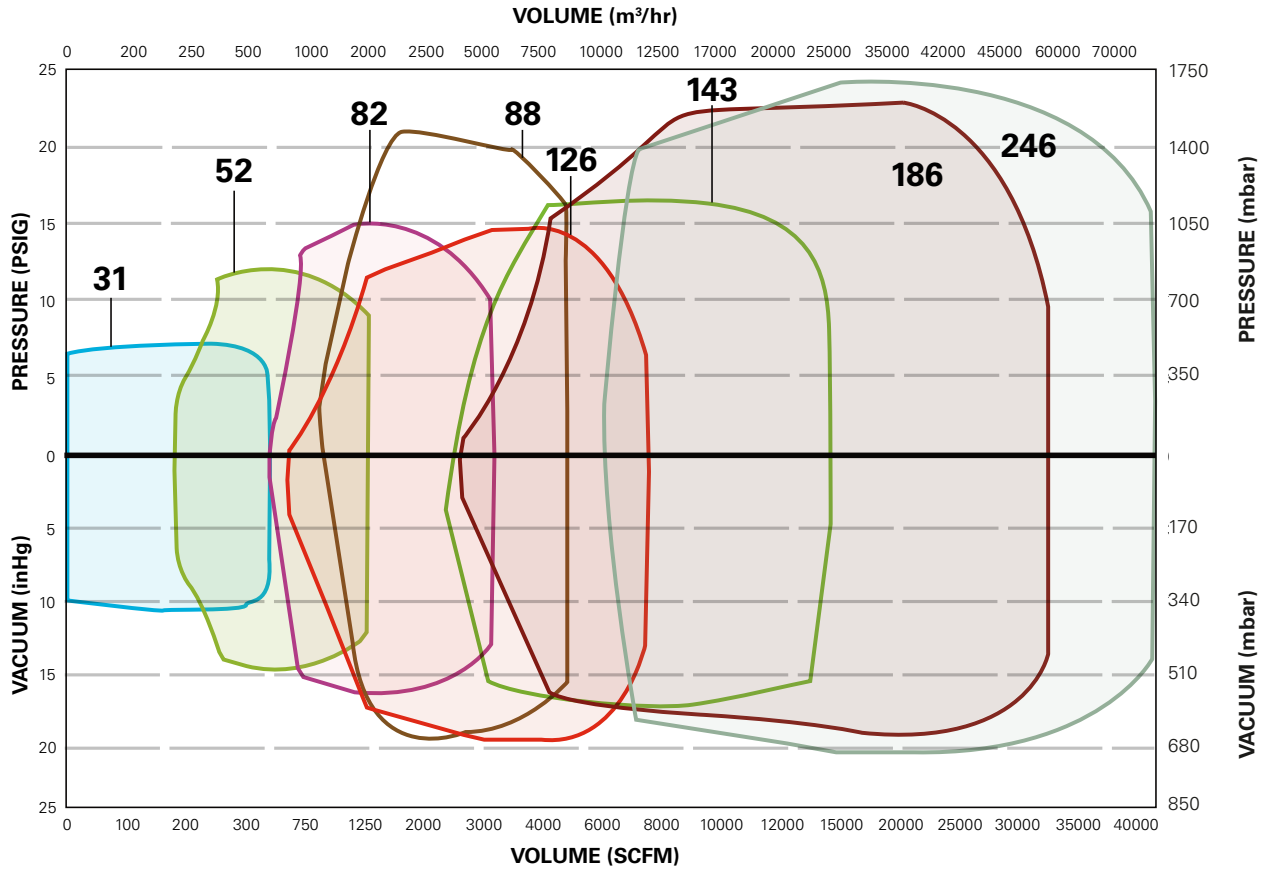
## TESTING PROVING GROUNDS

With a world class test facility, we are able to offer comprehensive testing according to industry and customer standards. Every ZM is tested to ensure quality and to make way for a successful start up. We are able to simulate site conditions to ensure that the complete system is tested and ready to go.

## PROJECT MANAGEMENT TEAMWORK

People make the difference. A project management staff is assigned to larger capital projects that require detailed documentation and testing to ensure the entire project goes smoothly and on time.

# ZM LINE OF CENTRIFUGAL BLOWERS AND EXHAUSTERS



MODEL	NUMBER OF STAGES	INLET FLANGE	DISCHARGE FLANGE	FLOW RANGE	MAXIMUM PRESSURE	MAXIMUM VACUUM	MOTOR POWER
ZM 31	1 to 11	DN80 / 3"	DN80 / 3"	0 – 300 cfm (0 – 510 m³/hr)	7 psi (480 mbar)	10" hg (339 mbar)	1 – 20 (1 – 15kW)
ZM 52	1 to 10	DN175 / 6"	DN175 / 5"	300-1,300 cfm (510 – 2209 m³/hr)	12 psi (830 mbar)	11" hg (372 mbar)	5-100 (4 – 75 kW)
ZM 82	1 to 9	DN200 / 8"	DN200 / 8"	750-3,500 cfm (1274 – 5,946 m³/hr)	15 psi (1030 mbar)	19" hg (644 mbar)	5-250 (4 – 186 kW)
ZM 88	1 to 12	DN250 / 10"	DN250 / 8"	500-4,500 cfm (849 – 7,645 m³/hr)	21psi (1450 mbar)	18" hg (609 mbar)	10-400 (7 – 298 kW)
ZM 126	1 to 9	DN300 / 12"	DN300 / 12"	1,000 - 8,250 cfm (1,699 – 14,017 m³/hr)	14 psi (970 mbar)	14" hg (475 mbar)	25-500 (19 – 373 kW)
ZM 143	1 to 8	DN450 / 18"	DN450 / 14"	3,500- 13,500 cfm (5,946 – 22,936 m³/hr)	20 psi (1380 mbar)	17" hg (576 mbar)	40 – 700 (30 – 522 kW)
ZM 186	1 to 6	DN600 / 24"	DN600 / 18"	2,500-30,000 cfm (4,247 – 50,970 m³/hr)	21psi (1450 mbar)	17" hg (576 mbar)	200 - 2,500 (149 – 1,864 kW)
ZM 246	1 to 6	DN800 / 30"	DN800 / 24"	3,000-40,000 cfm (5,097 – 67,960 m³/hr)	24 psi (1650 mbar)	19" hg (644 mbar)	250-3,000 (186 – 2,237 kW)

## ***COMMITTED TO SUSTAINABLE PRODUCTIVITY***

We stand by our responsibilities towards our customers,  
towards the environment and the people around us.  
We make performance stand the test of time.  
This is what we call — Sustainable Productivity.

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

