

Atlas Copco Control Solutions



ES

Cutting-edge central control capability



Atlas Copco

Total capability, total responsibility

Right at the heart of your business, Atlas Copco delivers quality compressed air for superior operational capacity. From compressed air generation to point of use, you can choose from our wide range of products to create a complete compressed air system tailored to your specific needs. All Atlas Copco products are engineered to integrate seamlessly, ensuring the highest level of reliability and energy efficiency. As a result, Atlas Copco can take full responsibility for your compressed air infrastructure with a guarantee of best-in-class quality. With a global presence in over 150 countries, we can provide an unrivalled service to maintain and continually improve your compressed air system performance.

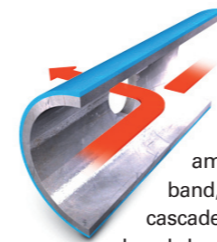
Backed by 100 years at the forefront of compressed air, Atlas Copco products offer the finest quality and efficiency. Our goal is to be First in Mind—First in Choice®. That is why Atlas Copco's pursuit of innovation never ceases, driven by the dedication to meet and exceed your demands. Always working with you, we are committed to providing the customized air solution that is the driving force behind your business.

We are committed to your superior productivity through interaction and innovation.

The value of compressed air

As energy can represent over 70% of a compressor's lifecycle costs (LCC), optimizing energy consumption is essential. In fact, considering that the generation of compressed air can account for more than 40% of a plant's total electricity bill,

it is even crucial. With ES, Atlas Copco's entirely new range of central control solutions, we provide you with a partner on the road to unrivalled cost savings.



GET THE MOST OUT OF YOUR COMPRESSED AIR

Two key elements influencing your system running costs are operating pressure and air leakage. Reducing either can save you considerable amounts of money. Because of the wide pressure band, multiple machine installations operating in a cascade are particularly inefficient. Leaks, on the other hand, have been estimated to waste as much as 30% of

a compressor system's output and energy usage. Most compressed air systems older than five years have a leakage rate of around 20% of the total volume consumed. Even when your industrial facility is not operational, leakage continues and each 3 mm (0.12") leak is estimated to represent nearly 42,000 kWh of wasted energy per year.

LIMIT ENERGY COSTS FOR THE BEST RETURN ON INVESTMENT

Conduct an efficient energy reduction strategy and drastically reduce your energy costs. Through its state-of-the-art range of ES controllers, Atlas Copco provides you with the tools to obtain the highest return on investment. With four customized solutions to choose from, your production environment obtains the tools to keep a firm grip on costs. From the integrated central control solution ES 4i for up to four compressors, to the ultimate ES 130 for all sizes and types of machines: Atlas Copco matches your precise needs to minimize costs.



ES 4i



THE INTEGRATED SOLUTION

Simple, central control to reduce system pressure and energy consumption in installations of up to 4 compressors, including one Variable Speed Drive (VSD) machine – that is what ES 4i stands for. The added bonus? No need to install a separate box on the wall of the compressor room as ES 4i can be integrated into the Elektronikon® compressor control system.

FUNDAMENTAL CENTRAL CONTROL

- Complete integration with the compressor controller for reduced physical installation cost and complexity.
- CAN wiring between compressors: more straightforward and robust than traditional control wiring and usable for multiple applications including remote monitoring.
- Flexible pressure measurement via machine sensor or using a separate transducer in the air net: reduced installation complexity and cost without limiting functionality.

ES 6



FLEXIBLE CONTROL FOR MIXED INSTALLATIONS

Wall-mounted and capable of controlling machines without an Elektronikon controller, ES 6 is the ideal enhanced solution for mixed installations of up to 6 machines, any number of which can be VSDs. Offering the extra benefit of flexible connectivity, this monitoring capability instantly guarantees substantial cost savings.

ENHANCED CENTRAL CONTROL

- Wall-mounted system: independent from machines and machine power supply.
- Flexible connectivity via CAN network or digital I/O CAN network offers a simple and robust solution, digital I/O extends flexibility.
- Remote pressure measurement: exceptionally accurate pressure control, increasing system stability and maximizing energy reductions.

ES 8



CLOSER CONTROL THROUGH ADVANCED TECHNOLOGY

Providing the comprehensive control features required in larger installations of mixed sized machines, ES 8 is able to closely manage a maximum of 8 machines, any number of which can be VSDs. This totally flexible controller works with almost any machine regardless of the type or manufacturer, providing significant cost savings through energy reduction and maintenance optimization.

ENHANCED COMPREHENSIVE CONTROL

- Wall-mounted system: independent from machines and machine power supply.
- Flexible connectivity via CAN network or digital I/O: CAN network offers a simple and robust solution, digital I/O extends flexibility.
- Remote pressure measurement: exceptionally accurate pressure control, increasing system stability and maximizing energy reductions.
- Color touch screen display: intuitive user interface provides maximum user convenience.

ES 130



THE ULTIMATE IN CONTROL TECHNOLOGY

The ES 130 is the central controller for all machine sizes and types, including centrifugals. With unlimited control capacity and artificial intelligence processing, the ES 130 anticipates system behavior to ensure the most optimum machines are used. By sampling, storing and analyzing system performance, the ES 130 makes the correct decision at all times, guaranteeing total system stability and cost savings.

HIGH END CENTRAL CONTROL

- Wall-mounted system: independent from machines and machine power supply.
- Flexible connectivity via CAN network or digital I/O: CAN network offers a simple and robust solution, digital I/O extends flexibility.
- Dual remote pressure measurement for increased accuracy, better system behavior anticipation and stability.
- Huge graphical color touch screen display: intuitive user interface for maximum user convenience, instant graphical analysis of system behavior and performance.

Feature	Benefit	ES			
		ES 4i	ES 6	ES 8	ES 130
Pressure band optimization	Avoids cascading and reduces energy consumption.	ES 4i	ES 6	ES 8	ES 130
Time based system shutdown and restart	Eliminates energy consumption during non-working hours.	ES 4i	ES 6	ES 8	ES 130
Dual pressure band, timer controlled	Facilitates further energy reductions.	ES 4i	ES 6		
Multiple pressure band selection, timer controlled				ES 8	ES 130
Standby machine activation for temporary period	Prevents mechanical seizure.		ES 6	ES 8	ES 130
Equalization of running hours across selected machines	Reduces maintenance costs and maximizes reliability.	ES 4i	ES 6	ES 8	ES 130

Feature	Benefit	ES			
		ES 4i	ES 6	ES 8	ES 130
Simple sequence selection, timer controlled	Improves match between expected demand and machine priority, reducing energy costs.		ES 6		
Comprehensive sequence and priority management, timer controlled	Ensures best fit between machines and average demand, reducing energy costs.			ES 8	
Intelligent selection of machine mix, based on demand					ES 130
Use of VSD to match flow fluctuations	Further optimizes total energy consumption.	ES 4i	ES 6	ES 8	ES 130
VSD "zone" control	Ensures VSD machines run in their most energy efficient speed zone.			ES 8	ES 130
Turbo "zone" control	Ensures centrifugal machines run in their most energy efficient speed zone.				ES 130

Limiting costs through tight control

Technical Data

A properly managed compressed air system can save energy, reduce maintenance, decrease downtime, increase production throughput and improve product quality. With Atlas Copco's ES, those benefits are at your fingertips. As each 1 bar (14.5 psi)

reduction in working pressure results in 7% direct energy savings and a further 3% is saved through leak reduction, the importance of accurate control and management is obvious.



MAXIMIZED ENERGY SAVINGS

- Regulation of the system pressure within a predefined and narrow pressure band to optimize energy efficiency.
- Prioritized use of the most economic machines over older, less effective versions.
- Continuous usage of VSD machines, the most energy efficient machines for variable load.
- Assurance that multiple VSD compressors are used in their most efficient performance zones when working together.
- Shutdown scheduling to avoid costs during non-working hours.



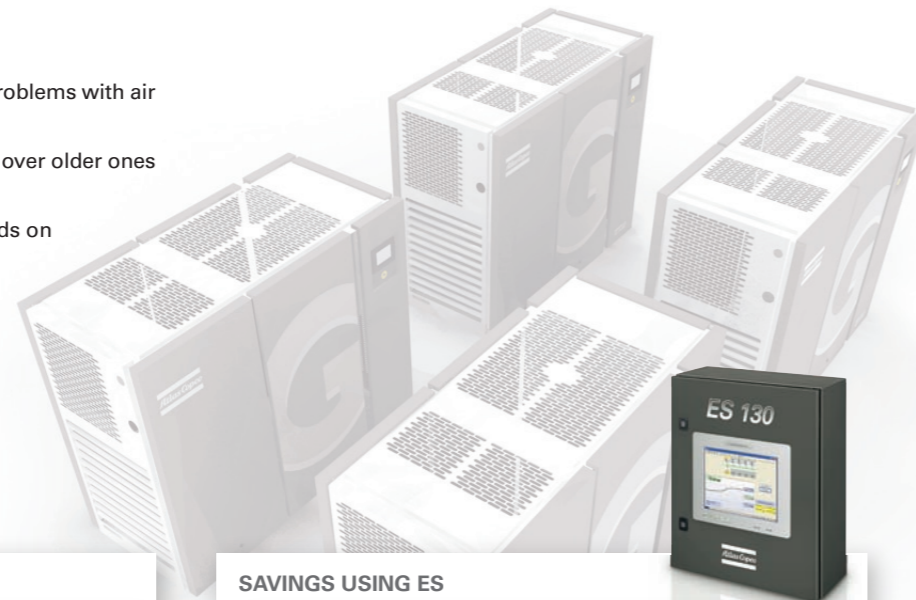
REDUCED MAINTENANCE COSTS

Comprehensive, flexible machine sequence control ensures the installed machines are able to work in groups. ES guarantees that system running hours are equal across all machines in the same group. The result? Fewer service visits and reduced costs as all machines can be serviced at the same time. As ES automatically shuts down machines during 'non-production' times such as nights, weekends and holidays, running hours and service costs are further reduced.



INCREASED SYSTEM RELIABILITY

- Optimized pressure stability reduces problems with air operated equipment.
- Use of newer, more modern machines over older ones reduces downtime.
- Workload equalization avoids overloads on individual machines.



RUNNING COSTS WITHOUT ES

4 x 90 kW oil lubricated machines, 80% loaded, running in a cascade. 10 working hours a day, 5 days a week, 47 weeks a year. Machines are not shut down at the end of working shifts.

Typical pressure band (cascade):	2 bar/29 psi
Energy cost:	€ 0.1/kWh
Leakage loss:	20%

Daytime running cost per day:	€ 309
Nighttime running cost per day:	€ 94

Total running cost per year:	€ 94,705
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SAVINGS USING ES

Typical pressure band using ES:	0.5 bar/7 psi
Daytime cost savings	
Pressure band reduction:	5.25%
Leakage reduction:	2%
Nighttime cost savings	
Automatic system shutdown/restart:	100%

Daytime savings per day:	€ 22.4
Nighttime savings per day:	€ 94

Total savings per year:	€ 27,354
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	ES 4i	ES 6	ES 8	ES 130
General				
Description	Sequence controller	Sequence controller	Advanced sequence controller	Ultimate controller
Type	Integrated	Wall-mounted	Wall-mounted	Wall-mounted
Controller capacity				
Maximum number of connected machines	4	6	8	30
Load/unload	4	6	8	30
VSD	1	6	8	30
Turbo	0	0	0	30
Connectivity				
Maximum number of machines via CAN	4	6	8	30
Maximum number of machines via digital I/O	0	5	6 (Optional)	Not available
Remote system on/off	Not available	Standard	Optional	Not available
Additional analog inputs	0	3	1	4
Hardware				
Display	B/W text - 4 lines	B/W text - 4 lines	Color touch screen	10.4" color touch screen
Pressure sensing	1 local, optionally 1 in net	1 in net	1 in net	2 in net
Cubicle protection	IP54	IP54	IP54	IP54
Dimensions depth x width x height (mm)	Not applicable	150 x 300 x 400	210 x 400 x 400	105 x 432 x 336
Functions				
Pressure band optimization	•	•	•	•
Time based system shutdown and restart	•	•	•	•
Dual pressure band, timer controlled	•	•		
Multiple pressure band, timer controlled			•	•
Standby machine activation for temporary period		•	•	•
Equalization of running hours across selected machines	•	•	•	•
Simple sequence selection, timer controlled		•		
Comprehensive sequence and priority management, timer controlled			•	
Intelligent selection of machine mix, based on demand				•
Use of VSD to match flow fluctuations	•	•	•	•
VSD "zone" control			•	•
Turbo "zone" control				•



In order to be First in Mind—First in Choice® for all your compressed air needs, Atlas Copco delivers the products and services that help increase your business' efficiency and profitability.

Atlas Copco's pursuit of innovation never ceases, driven by your need for reliability and efficiency. Always working with you, we are committed to providing you the customized quality air solution that is the driving force behind your business.



The specific monetary amounts mentioned in this brochure are the result of example situations and may vary depending on factors such as type of environment and level of expertise.

Never use compressed air as breathing air without prior purification in accordance with local legislation and standards.