



Service Counts

ABOUT COMPRESSOR TECHNIQUE SERVICE (DIVISION)

Compressor Technique Service (CTS) is a division within Atlas Copco's Compressor Technique business area. The division focuses on spare parts supply, professional service, air monitoring and connectivity solutions. With 9 Regional Sales & Service offices and more than 70 dealerships strategically located throughout the country, nobody is better positioned than Atlas Copco to meet your needs. Nationwide, Atlas Copco has a team of over 180 highly trained direct engineers and over 500 trained distributor engineers with vast experience of working on all models of compressed air equipment.

This book guides you through the solutions offered by Atlas Copco
to reduce the cost of ownership and improve productivity.





SERVICE COUNTS

(A Guide to reduce the cost of ownership and improve productivity)



Atlas Copco Compressor Technique

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ATLAS COPCO INDIA SERVICE NETWORK

- Atlas Copco's service network is strategically located to meet your service needs, with:
 - 9 regional sales and services offices
 - More than 70 dealerships with over 500 trained distributor engineers
 - More than 300 Atlas Copco employees in service, including
 - Over 50 competent sales engineers
 - Over 180 trained service engineers
 - 6 technical support engineers & trainers
 - 2 energy consultants





OUR STRENGTH

Training center

- Introduction:
 - March 2013
- Location:
 - Dapodi, Pune - 411 012
- Area:
 - 3000 sq.ft.
- Facility:
 - Maximum 30 participants
 - Two class rooms
 - 2000 sq.ft. practical session area
- Participants:
 - Customers
 - Atlas Copco sales and service engineers
 - Dealer sales and service engineers
- Training types:
 - Theoretical operation & maintenance training
 - Hands on training & practical sessions
 - Dedicated training
 - Troubleshooting





OUR STRENGTH

Service Engineers

- Competent service engineers hired for attitude
- Fully equipped service engineers with:
 - Touch screen laptops
 - Professional service report with digital signature
 - Company car
 - Professional toolbox including special tools
 - Personal Protection Equipments
 - Lock Out Tag Out



Visit Report
page 1 of 2

Customer Details
Company: _____
Address: _____

Engineer
Name: _____
Phone: _____
Email: _____

Job Description

Work Done

Measurement Points

Point	Current Value	Unit	Ref
Pressure	100	psi	1.1
Temperature	100	°C	1.2
Flow Rate	100	l/min	1.3
Leak Rate	100	l/h	1.4
Efficiency	100	%	1.5
Power	100	W	1.6
Current	100	A	1.7
Voltage	100	V	1.8
Frequency	100	Hz	1.9
Speed	100	rpm	2.0
Acceleration	100	m/s²	2.1
Displacement	100	mm	2.2
Force	100	N	2.3
Stress	100	MPa	2.4
Strain	100	µε	2.5
Deflection	100	mm	2.6
Rotation	100	°	2.7
Angular Velocity	100	°/s	2.8
Angular Acceleration	100	°/s²	2.9
Twist	100	°	3.0

Notes

Signature

Company Logo



OUR STRENGTH

Energy Consultancy

- Two Energy consultants & dedicated service engineers in all regions
- Calibrated instruments
- ESCO grading by Bureau of Energy Efficiency as Grade 1

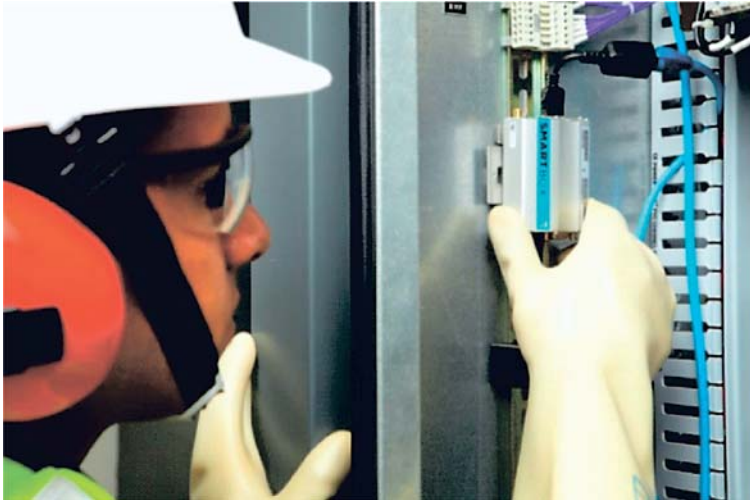




OUR STRENGTH

Monitoring room

- Monitoring room team can guide about the warnings &/or shutdown happening on compressors remotely.





OUR STRENGTH

OriginAir

- OriginAir program is to sell pre-owned machines refurbished at Atlas Copco CTS workshop.
- The OriginAir program is based on Atlas Copco 4 principles :
 - **Quality Conscious:** reliability at an affordable price
 - **Customer Conscious:** tailored to customer needs
 - **Budget Conscious:** an affordable investment for customer
 - **Environmental Conscious:** re-use, reduce, recycle

<http://www.atlascopco.com/usedequipmentus/industrialequipment/searchforproducts>

The screenshot shows the Atlas Copco website's search results for industrial equipment. The page features a navigation menu with 'Construction Equipment', 'Industrial Equipment', and 'Contact us'. The main content area is titled 'Search for Products' and displays a table of search results. The table includes columns for brand/model, year, hours, working pressure, compressor output, and location. The search results are filtered by 'OriginAir India'.

Brand / model	Year	Hours	Working pressure	Compressor output	Location
Atlas Copco GR00-7.5 bar A/C P. SIEMENS LT MOTOR	2014		7.5 bar	592 l/s / 35 m3/min	OriginAir India
Atlas Copco GR00-7.5 bar P. SIEMENS LT MOTOR	2014		7.5 bar	592 l/s / 35 m3/min	OriginAir India
Atlas Copco GR00-7.5 bar A/C P. SIEMENS LT MOTOR	2014		7.5 bar	592 l/s / 35 m3/min	OriginAir India
Atlas Copco GA 132 FF - 8.5 BAR	2011		8.5 BAR 123 PSI	381 l/s 22.9	OriginAir India



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1. WHY SERVICE COUNTS

Sustainable economic performance reduced energy costs and improved profitability are important in every industry, for which the service (maintenance) plays a vital role.

The main purpose of regular maintenance is to ensure that all equipment required for production is operating at 100% efficiency at all the times. Through short daily inspections, cleaning, lubricating, replacement of parts, system optimization and remote monitoring and making the minor adjustments, minor problems can be detected and corrected before they become a major problem that can shut down a production line.

Compressed air is simply indispensable in the life cycle cost & many processes today. The energy cost for running compressed air systems and the breakdown cost of the compressor are high. Purpose of this book is to guide you about the ideal solutions for worry-free compressed air systems, optimize the energy consumption, boost availability and safeguard the reliability and efficient operation of the compressed air system.

Why does equipment need servicing?

- Ensure it stays in peak condition
- Make sure about optimum performance and endurance from all components.

What happens if it's not serviced regularly?

- Reliability and efficiency is affected.
- Problems may go unnoticed, resulting in high repair costs.

What do we do?

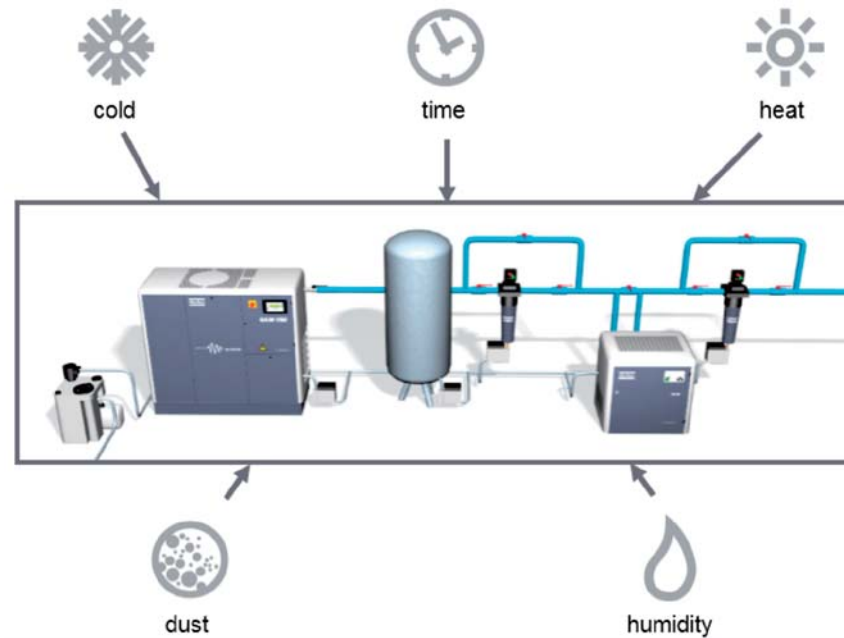
- Atlas Copco trained service engineer, using special tools and technology, carry out the recommended service, tailored to your compressor.
- Scheduled in time supply of consumables/parts.
- Remote monitoring of compressors.
- Air audits
- Overhaul and many more...



2. FACTS

2.1 Influencing parameters

A compressed air installation is under influence of different parameters





Influence of different parameters

■ Ambient temperature will influence :

- Air inlet temperature
- Oil cooling
- Compressed Air cooling
- Outlet temperature of compression element
- Oil fluidity

■ Humidity :

- Will create corrosion
- Change air filter resistance
- May create short circuit in electrical devices
- Will increase probability of condensation inside oil receiver

■ Dust will :

- Clog air inlet filters
- Clog air and oil coolers
- Clog Motor blades
- Worn shafts seals
- May create short circuit in electrical devices

■ Time :

- Consumable parts will reach end of their life time
- Oil will be oxidized
- Bearing will be worn
- Electrical protection will decrease

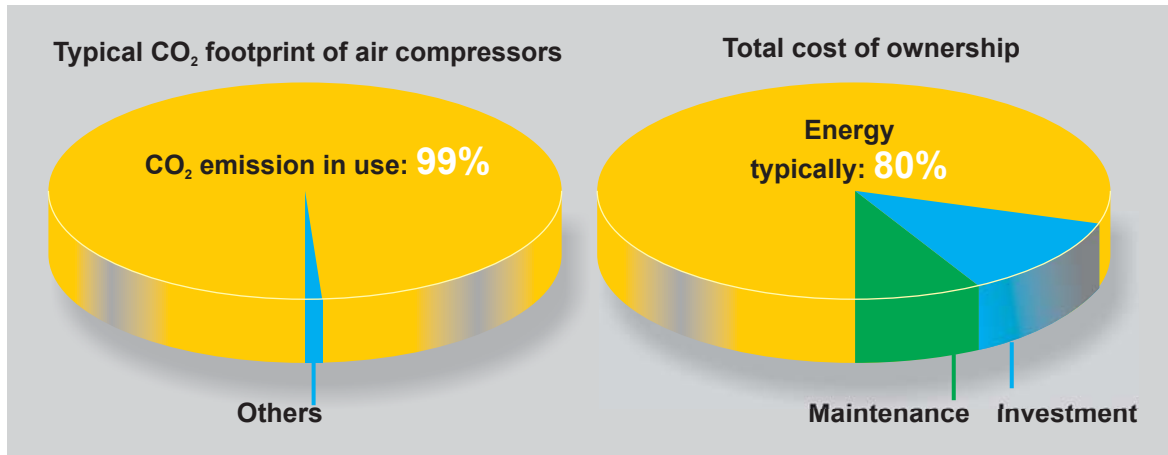


2.2 Energy Facts

Energy saving on compressed air benefit your bottom line and the planet.

Atlas Copco seeks to reduce the CO₂ footprint at every stage of a compressor's life time from 'cradle to grave'. From the design phase right through to the equipment's manufacture, distribution, consumer use, and disposal and recycling.

Though when looking at the typical carbon footprint of an air compressor, the energy consumed in its use accounts for 99% of CO₂ emissions. As energy consumption also typically represents over 80% of a compressor's lifecycle cost, energy savings in compressed air systems will have a significant impact towards preserving not only the environment but also your bottom line.





- Total facility energy consumption: Compressors will typically represent between 2% and 40%.
- Compressor life cycle cost: 80% of total compressor lifecycle costs is related to energy.
- 1 x kW of compressed air = 8 x kW of electricity.
- 1 bar lower in pressure, reduces energy by 7%.
- Air leakages: Leakages in the pipe can take up to 20% of the total air consumption.
- Typically, after 5 years leakages take 20% of the total air consumption.
- Fluctuating air demand: In general, even at no demand, compressors will consume up to 20% of the nominal power.
- Service: Proper maintenance reduces energy consumption.



3. *ATLAS COPCO OFFERING - TOTAL CUSTOMER CARE*

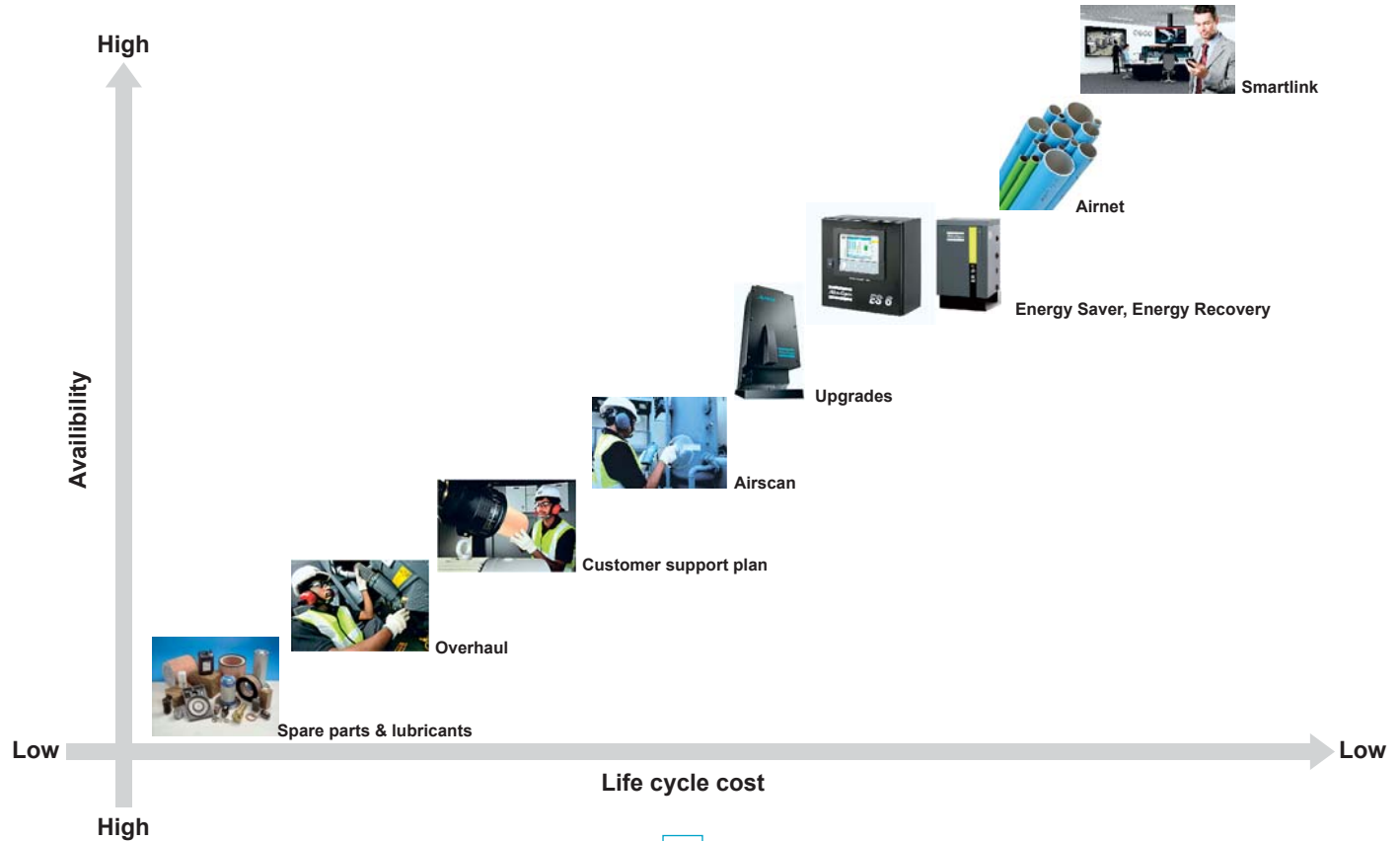
Your bottom line, maximum availability of our equipment at minimum total operating cost, is the top priority for all of us at Atlas Copco. Our way of achieving that builds on interaction, on long-term relationships and involvement in your processes, needs and objectives.

Total customer care is Atlas Copco's goal at any level of service interaction with you; from standardized genuine parts over tailor made service plans to remote monitoring and optimization.

We want you to see Atlas Copco as a real performance partner that can contribute to the productivity of your processes. The best way of taking care of your interest is by taking the best care of your equipment.



ATLAS COPCO OFFERING - TO IMPROVE PRODUCTIVITY





3.1 Genuine Parts

Use genuine, Be Genuine



**Genuine Parts protect your investment.
Only original parts ensure 100% reliability**

■ **Features:**

- The highest priority of every production plant is continuity. Production stops are not only very costly but can endanger consistent product quality, just-in-time schedules and profit margins. Because uninterrupted production is paramount, so is the continuous supply of compressed air. Only genuine Atlas Copco parts and consumables can ensure this continuity.
- In-house production and testing of Atlas Copco parts offers the absolute guarantee that each new component performs equally well as the part it replaces.

■ **ROI / Relation with power saving :**

- Compressor maintenance with the use of genuine Atlas Copco parts make your compressed air installation last longer and cause minimal average pressure drop, which leads to energy savings and maximum air delivery at the lowest cost of ownership.
- If you use generic or non-genuine parts you run a higher risk of breakdowns. This sub-standard quality is coupled with a higher energy cost. So in the end, they really do not return you money.
- Purpose: designed genuine parts offer the best value. Guaranteed!



3.2 Service Kit

ALL IN ONE - All components for a service intervention in one box



■ Feature:

- To facilitate preventative maintenance, minimize down time for a service interval and to make sure that customers use only original spare parts (hence protecting their investment), Atlas Copco has developed service kits for all standard interventions. The content is based on running hours, reducing the need for inventory and saving money in the process. The kit contains everything you need for a service intervention in one box.

■ Benefits:

- Preventative maintenance – easier planning, fewer breakdowns.
- Save money – complete kits are cheaper than individual parts.
- Less production interruptions – fewer service interventions reduce maintenance cost.
- Less administration – all required parts are in one single box with one order number.
- Lower inventory – fewer consumables and parts on your shelves.



3.3 Lubricants

Premium quality lubricants for compressor performance



■ Features:

- Quality demands on compressor oil are extremely high. The oil absorbs most of the heat generated during the air compression process, while lubrication of the rotors, bearings and gear wheels is absolutely critical. The oil is also vital in ensuring the compressor element is completely sealed, filling the spaces in the compression chamber and shaft seal ends. Furthermore the oil provides corrosion protection for all internal surfaces of the compressor element.
- For your Atlas Copco compressor, Atlas Copco lubricants are the only real choice.

■ Benefits:

- The total lifecycle cost for lubricants is not limited to the price of a canister. The use of poorly performing lubricants always leads to higher service costs. Rapid lubricant aging, lower cooling efficiency, poor stability, and insufficient protective quality jeopardize the reliable operation of your compressor installation. Besides likely high damage repair costs, the use of these will cause all related internal components to require more and frequent servicing.
- Longer lubricant lifetime reduces the total service cost of oil drains because they fit in any maintenance schedule requirement.
- Best anti foaming performance minimizes oil carry-over in downstream equipment and thus reduces the need for servicing of external components.
- Atlas Copco lubricants mean well with the lifetime of the planet. Their longer effective lifetime means extended oil drain intervals, means less oil drains and means less impact on the environment.





3.4 Line Filter Cartridges

Atlas Copco's innovative line filter cartridges are engineered to cost effectively provide the best quality air and meet today's increasing quality demands. The DD/DDp+, PD/PDp+ and QD+ filters are tested and certified according to the latest international standards which efficiently reduce contaminations of oil and dust with minimal pressure drop, resulting in reduced energy consumption.

Compressed air quality need (good filtration with minimum pressure drop) can only be reached by using the original Atlas Copco Line Filter Cartridges.

We offer 4 ranges of filters:

- **DDx Range:** Coalescing filters for general purpose protection, removing liquid water and oil aerosol to 0.1 ppm and particles down to 1 micron.
- **PDx Range:** High efficiency coalescing filters, removing liquid water and oil aerosol to 0.01 and particles down to 0.01 micron.
- **PDxp range:** High effective particles filter down to 0.001 micron.
- **QDx Range:** Active carbon filter for removal of oil vapours & hydrocarbon odours with a maximum remaining oil content of 0.003 ppm should be installed after a PD filter.

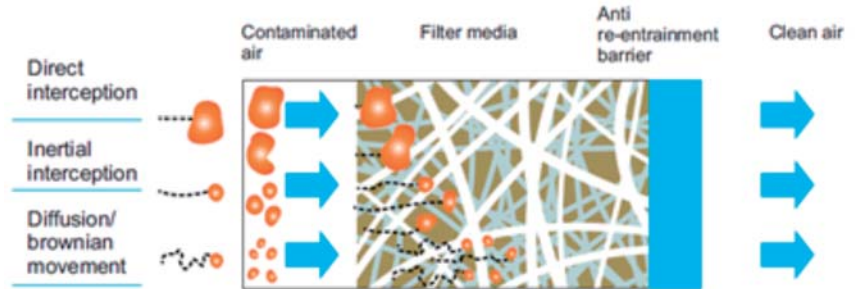
Better Life time : To guarantee high filtration capacities at the same low energy costs an annual cartridge change (or 4000 hours, whichever comes first) is essential. Cartridges with activated carbon (QD) should be replaced yearly or every 1000 hours.



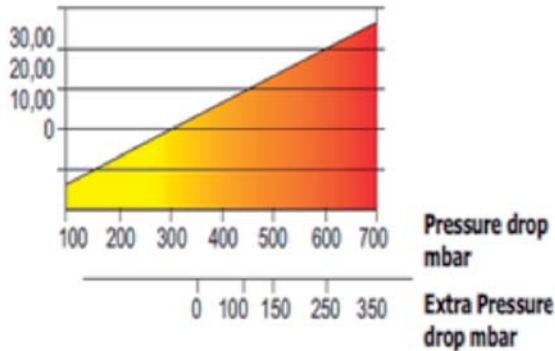
Energy cost of high pressure drop

Atlas Copco's filters are designed to combine maximum contaminated removal efficiency with minimum pressure drop, resulting in a low energy consumption in your compressed air system. Keeping in mind, that 150 mbar extra pressure drop will cost you, 10,000 Kwh extra energy per year in a 500 l/s compressed air system operating at 7 bar, 6,000 hours per year.

How they work?



High pressure drop cost



Internal Parts





■ **Features:**

- Top quality filtration media with large filter surface Synthetic foam
- Push on element
- Unique design to work in harmony with the filter housing
- Double O-rings
- Strong metal core

■ **Benefits:**

- The best filtration performance in the market
- Drainage of oil droplets for the coalescing filter and dust filtration for the bigger particles
- Easy service, shorter down time
- Reduced pressure drop contributing to low running costs
- Proper sealing reduces leakage risks and as a consequence increases energy savings
- Prevents element implosion and corrosion

■ **ISO Certification:**

The Atlas Copco Line Filters Cartridges are ISO certified:

- Compressed air - part1: contaminants and purity classes : ISO 8753-1: 2010
- Compressed air - part2: test methods for oil aerosol content : ISO 8573-2: 2007
- Filters for compressed air - test methods - part1: Oil aerosols : ISO 12500-1: 2007
- Filters for compressed air - test methods - part3: Particulates : ISO 12500-3: 2009



3.5 Service plan



3.5.1 What is Service plan

Service Plan covers all regular maintenance by certified and trained Atlas Copco service engineers and / or supply of genuine parts and lubricants as per the original manufacturer recommendations in a pro-active manner as it should be. This is the best way to lower the risk of unexpected problems allowing you to optimize your production process. Our specialized advisors will visit your production facilities and assess your specific needs. This allows us to propose the most cost effective Service Plan for your maintenance needs.

3.5.2 Why Service plan?

- Improved energy saving opportunity by minimizing average pressure drop.
- Improved operational efficiency and reduced life cycle cost.
- Installation last longer.
- Improved equipment reliability with genuine parts, lubricants and expert technicians.
- Stable costs up front help to balance the maintenance budget.
- Minimum inventory.
- Reduced administration work.
- Fixed prices during the complete contract duration.
- Comprehensive diagnostics report.



3.5.3 Ways to ease your mind

Preventive Maintenance Plan *	Preventive Maintenance Plan * (Labour only)	Parts Only Plan
<p>Includes :</p> <ul style="list-style-type: none">• All planned maintenance• Genuine parts & oil• SPM monitoring• Detailed report• Remote monitoring	<p>Includes :</p> <ul style="list-style-type: none">• All planned maintenance• SPM monitoring• Detailed report• Remote monitoring	<p>Includes :</p> <ul style="list-style-type: none">• All genuine parts• Remote monitoring

* Can be combined with additional 2 breakdown visits

3.5.4 Preventive maintenance plan benefits:

- One negotiated price at the beginning of the contract. Budget is fix.
- Atlas Copco schedules for you. No need to keep inventory.
- Less PO for the parts and no negotiations for every PO, less admin.
- Well maintained equipment by experts.
- Reduced Life cycle cost and energy consumption.
- Comprehensive diagnostic report per service visit.
- Free monitoring device i.e. SMARTLink, which maintain the running hour data, event information & next service interventions timeline. Interruptions are reduced to a minimum by immediately reacting to alarms, thereby preventing shutdowns.
- Includes 2 breakdown visits - labour (optional).



3.6 AIRScan (Energy Audit)

3.6.1 System Assessment / Walk through Audit



How:

Easy way to improve compressed air system. With system assessment, we can show the potential savings without real measurements. These potential savings can come from doing service at correct service intervals, replacement of parts, piping layout recommendations, receiver sizing, choked filters etc.

1 Pre-assessment

To estimate savings potentials.

2 AIRScan energy assessments/audits

To identify savings potentials through measurement and simulations.

3 Recommendations

To prepare your system for the optimization by exchanging the latest, most efficient components.

4 Optimize

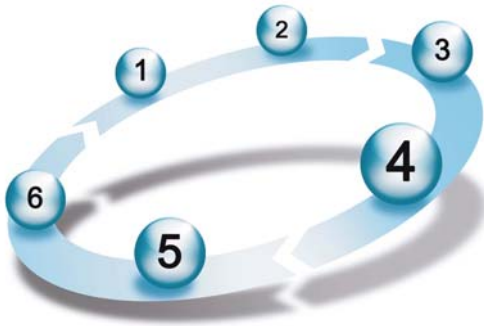
To achieve the savings by implementation of energy saving accessories and solutions.

5 Online monitoring

To ensure the solution implemented is delivering the savings as prescribed.

6 Regular AIRScan energy assessments/audits

To validate after the improvements and find further saving potentials.





3.6.2 AIRScan (Energy Audit)

In order to understand the energy saving possibilities & right operating balance inside the compressed air system plant, a survey of the system dynamics is required.

Airscan / Energy audit includes plant survey, logging and analysing various parameters of airnet like flow check, leak check, power check, air quality check, team of our dedicated energy consultants analyses the logged data and can provide detailed report about the findings and also suggest improvements of the compressed air system and energy saving solutions, which can lower your operational cost.

AIRScan is not only an accurate compressed air system diagnostics package, it's very flexible as well. It allows you to select the depth of audit.

Basic Energy Audit	Full Energy Audit	Leak Detection Audit
<ul style="list-style-type: none">• Power Flow• Pressure• Dew point measurement• General compressed air assessment• Includes leak detection	<ul style="list-style-type: none">• Basic audit plus...• Quality air check (oil, water vapour, CO₂, dew point, etc.)• Leakage detection• Recommendations for system improvements for energy saving	<ul style="list-style-type: none">• Leak detection and its detailed report



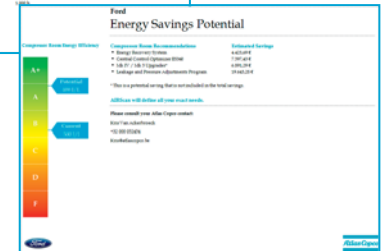
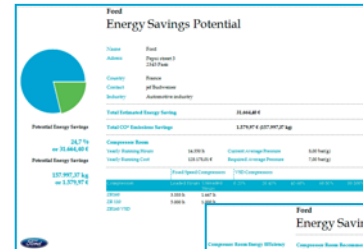
3.6.3 “Did you know”?

Atlas Copco's AIRScan assessment method follows the ISO 11011 standard.

Related to ISO 50001 (a standard on Energy Management Systems), ISO 11011 sets a new, worldwide standard for energy audits on compressed air installations.

Before ISO 11011, energy surveys, air audits and data logging of compressed air usage could be provided by anybody. With no recognized standard, no wonder that results and findings varied widely.

Now, the energy audit process is standardised with guidelines that not only address the assessment of compressed air leaks, but also the competencies and the methodologies of the assessor.





3.7 Energy Saver

Atlas Copco can support you to continuously reduce production costs without jeopardizing the availability of compressed air. Moreover, environmental awareness calls upon industrial facilities to limit CO₂ emissions by reducing your energy consumption. Compressed air installations, with your significant power needs, are an important area for improvement.

Our range of ES Central Controllers will enable you to link all compressors and dryers, to lower your overall pressure band, to eliminate the need for higher working pressure and to optimize the compressor mix at all the times and in turn save energy.

Furthermore ES automatically shuts down machines during “non-production” times such as nights, weekends and holidays, running hours and service costs are further reduced. 1 bar working pressure reduction results in 7% energy saving and further 3% through leak reduction.



3.7.1 Models available



ES 4i/6i	ES 6	ES 16	ES 360
Sequencer integrated in local controller	Sequencer wall mounted controller	Advanced energy optimizer for 1 airnet	Advanced energy optimizer for 3 airnets
4/6 small compressors	6 compressors	16 compressors	60 compressors / dryers
1 VSD	Up to 6 small VSD	16 VSD / turbos	Up to 30 VSD/Turbos
No turbo	No Turbo	Ancillaries control	Ancillaries control
Only AC compressors	Non-AC compressors	Non-AC compressors	Non-AC compressors



3.7.2 ES Benefits

- 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 and/or Turbo compressors are used in their most efficient performance zones when working together.
- Shutdown scheduling to avoid costs during non-working hours.
- Reliability – Stability and uptime.
- Optimized pressure stability reduces problems with air operated equipment.
- Workload equalization avoids overloads on individual machine.
- Reduced maintenance cost of equipment's.
- Comprehensive, flexible machine sequence control ensures the installed machines are able to work in groups. ES guarantees that the running hours of the system are equal across all machines in the same group.



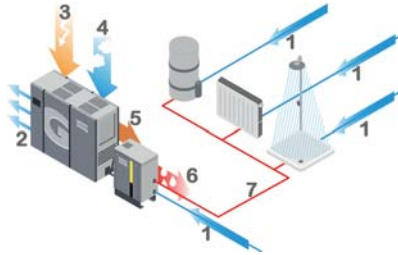
3.8 Energy Recovery

3.8.1 What is energy recovery

Compressed air is one of the most important utilities for the industry. It is also one of the largest consumers of energy. Therefore, any savings made in compressed air systems have a significant impact on costs and on the environment.

Up to 94% of the electrical energy is converted into compression heat. With Energy Recovery, energy is recovered from wasted / compression heat from the compressor and reused in the production cycle. Energy recovered, can be used for sanitary purposes, space heating and is particularly suitable for process applications.

Using the hot water as boiler pre-feed or directly in processes requiring 70-90°C hot water can save costly energy sources such as natural gas and heating oil.



- 1) Cold water
- 2) Compressed air
- 3) Electric power
- 4) Air
- 5) Oil circuit
- 6) Energy recovery
- 7) Warm water

Energy Recovery	Compatible with compressor models
ER S1	GA, GA+ & GAVSD 11+-30 (SS PHE)
ER S2	GA, GA+ & GAVSD 30+-55 (SS PHE)
ER S3	GA, GA+ & GAVSD 55+-90 (SS PHE)
ER S4	GA, GA+ & GAVSD 90+-180 (SS PHE)
ER S5	GA, GA+ & GAVSD 200-315 (SS PHE)

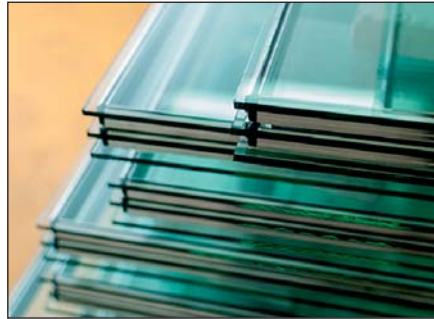
Energy Recovery	Compatible with compressor models
ER 90	90 kW
ER 275	90 kW - 275 kW
ER 425	275 kW - 425 kW
ER 650	425 kW - 650 kW
ER 900	650 kW - 900 kW



3.8.2 Energy Recovery Applications



Automobile



Glass Industry



Textile - dyeing



Textile yarn and fibre treatment



Dairy



Wood pulp and paper industry

and many more ...



3.8.3 Features and benefits

- By reducing the need for external fuel input for the processes and associated ancillaries (fans, pumps) you save energy.
- Atlas Copco's Energy Recovery Unit has the smallest footprint allowing for easy installation. As the unit is fully pre-assembled, it is easy to connect.
- Plug, play and display: the retrofit BTU meter exactly shows the energy savings, making it possible to communicate this with your back office.

3.8.4 Example

Consider a ZR132 kW compressor and an energy recovery of 132 kW

Heat equivalent = 132 kJ/s

When using heating oil/ furnace oil:

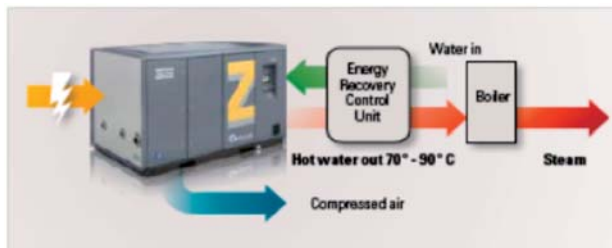
Calorific value = 9650 kcal /Kg=9650x4.18 KJ/Kg

Boiler efficiency = 70% without recovery and 90% with recovery

Minimum fuel saved = $132 \times 3600 / (9650 \times 4.18 \times 0.9) = 13.089 \text{ Kg/h}$

Cost of fuel = INR 26/Kg x 13.089 Kg/h = INR 341 /h

Yearly savings = 341 x 8000 h/y = INR 27,28,000 per year





3.9 Upgrades

Our upgrade kits are the result of continuous engineering work to make the latest technology available for your existing equipment range. This will inevitably improve the key performance features such as energy consumption and reliability. Intelligent use and the sustained health of core parts are the basic requirements for the lifelong optimum availability of your equipment.

3.9.1 Elektronikon controller upgrade

Upgrades take advantage of the most recent computer technology and of the progress in sophisticated compressor control software. These upgrades increase the reliability and availability of your equipment. Furthermore, upgrading your compressor system will result in substantial energy savings, while the cost will in most cases be equivalent to or even less than a replacement of older control systems.

■ Customer Benefits

- Optimized performance - With the portfolio of upgrades your machines will be equipped with the latest available options, allowing you to make substantial energy savings.
- Enhanced reliability - Upgrade kits focus on reliable performance of critical components and increased reliability will allow your equipment to reach a longer lifetime.
- Increased availability - With upgrades, availability is increased thanks to automated control and preventive replacement of all essential components. This means that the continuity of your process is not jeopardized by unnecessary downtime.





3.9.2 Motor

Energy consumption is the major cost in the total life cycle cost of any compressor. Under this the latest high efficiency motors are used to replace old less efficient motors or failed motors that require rewinding.

Because all motors are stocked, the response time is minimal, and the continuity of the customer's process will not be jeopardized by unnecessary downtime.

Moreover, the high efficiency full option motors will always exceed the specifications of the original motor.

These new motors come complete with adaptation components making the exchange a quick exercise. The energy savings with the new motors are guaranteed.

3.9.3 Element

The overhaul is arranged in advance based on the expected life of the compressor element and SPM condition monitoring. This proactive planning ensures that, there is a reduced risk of failure and prevents production loss. The combination of Atlas Copco genuine parts and skilled expertise by Atlas Copco engineers ensures that overhauled elements are restored to their original highly performance levels, increasing your profitability.

3.9.4 Converter

This is a one step replacement solution to upgrade Atlas Copco VSD compressors with new variable speed drives. The lifecycle of a variable speed drive progresses from active phase to the obsolete phase in just a few years. Towards the obsolete phase the converters become difficult and expensive to repair.

The Converter replacement ensures that the customer's equipment is back in operation after a minimal intervention period.



3.9.2 Neos Xchange kit

Replace old convertors with new generation of convertors: Need for Speed. Need for cost Saving



■ Drive Introduction

- Atlas Copco designed Neos Xchange kit is premium product. Neos Xchange kits offer the perfect replacement solution for all GA37-90 kW third party drives in the field proactively or in case of repair in optimum price and offering extra warranty.
- NEOS drive is robust, reliable having protection degree IP 5x instead of IP 2x.

■ Features and Benefits

- Premium product offering with Neos drive: robust, reliable, IP 5x instead of IP 2x to withstand harshest conditions (Classic brands – IP2X).
- Drives according the latest VSD technology, availability of spare parts secured.
- Includes integrated Mk5 Upgrade that brings extra benefits. Parameters need not to be download, all pushed from Mk5.
- It includes separate cooling fan for a more reliable product (offering).
- Competitively priced.
- Simplicity, user-friendliness having limited spare parts, no options, no control panel, completely integrated.
- Integration with Elektronikon (No parameter download, all pushed from Mk5).



3.10 AIRnet Piping System



AIRNET is Atlas Copco's modular air piping system. It is made from robust, light weight, powder-coated Aluminum tube and designed for easy, low-cost installation with a large selection of engineered polymer fittings. No special tools are required. Acting as the vascular system of your manufacturing site, your compressed air system plays a vital role in your production processes. Delivering quality air exactly where you need it, at the right pressure and at the lowest possible cost, Atlas Copco's innovative AIRnet compressed air piping system complements your compressed air projects. It consists of high quality elements only and distinguishes itself through flexibility and ease of installation, meeting all of your design and production requirements. Thanks to its wide range of durable products, AIRnet is a complete solution from source to production.

■ Benefits

- Reduced energy cost :

AIRnet significantly reduces your operating costs by providing more air flow with less pressure drop thanks to its smooth inner aluminium surface.

AIRnet's corrosion-free pipes and fittings minimize the risk of leakage and maintain the pressure drop constant over time, reducing energy waste.

An integrated o-ring ensures an airtight fit.

- Facts

A pressure drop reduction of 1 bar results in 7% energy savings of your total compressor installed power.



- Low pressure drop

The design with full diameter and inside fin guides eliminates air flow restriction and guarantees the lowest possible pressure drop.

- Leakage-free

AIRnet fittings ensure a leakage-free installation and eliminate energy waste.

- Time saving

An AIRnet system can be built in one-third the time of a conventional one, no specialized tools needed. Network maintenance is equally fast.

As all components are easily adjustable and reusable, AIRnet evolves right along with your production setting.

AIRnet is compatible with any existing pipe work and equipment.

To minimize downtime, your installation can be pressurized immediately upon completion.

- Built to last

The AIRnet piping system is resistant to corrosion, mechanical shocks, fire, thermal variations and outdoor weather conditions. Thanks to consistent clean quality air, the AIRnet range ensures longer longevity of your equipment and increases the life time of the filtration elements.

In line with the high quality performance of our AIRnet product range, we are granting you with a 10 year warranty on our AIRnet fittings and aluminium pipes against any damages resulting from material defect.

- Fully customizable

Fixed to walls or ceilings, AIRnet's range of fittings lets you custom-build a compressed air system to your specific production needs.



- Maximum flexibility

Quick drops can be added at any time to create extra drop tapplings. As the connection is made from front face, the risk of condensate pollutant is eliminated. Also AIRnet complete range being modular permits for any kind modifications with ease thus reducing production down time.

- Constant air quality

AIRnet delivers constant quality air from point of generation to the various points of use, protecting downstream equipment and manufacturing processes.

- Future-minded

As all components are easily adjustable and reusable, AIRnet facilitates future network extensions.

- Easy identification

In compliance with most industrial standards, AIRnet pipes are standard painted blue or green for simple network identification.

- **Setting new standards**

A galvanized steel compressed air piping system has been the industry standard for many years. With AIRnet, Atlas Copco raises the bar in compressed air piping systems, using only highly durable materials like aluminium and polymer. AIRnet is suitable for compressed air as well as vacuum and inert gases.

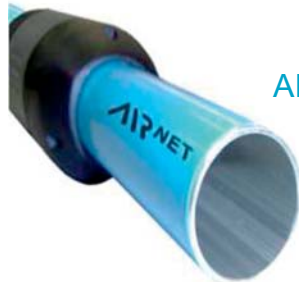


High cost saving potential

AIRnet	GI / MS
Smooth internal surface.	Rough surface.
Constant, low friction factor, resulting in an unrestricted air flow.	Friction factor is almost double of an aluminium pipe, restricting the air flow. Due to corrosion, the friction factor increases over time.
Low initial pressure drop. (E.g. In a system with an air demand of 110 l/s, designed as a 400 m long ring of Ø50 mm (2") pipes with P = 7 bar, the pressure drop (ΔP) equals 0.2 bar.)	High initial pressure drop. (E.g. In a system with an air demand of 110 l/s, designed as a 400 m long ring of Ø50 mm (2") pipes with P = 7 bar, the pressure drop (P) equals 0.46 bar.)
System is leak free. Just fit & forget. (Eg. If compressor is generating 7 bar & there is 1 mm hole in compressed air pipe line, it vents out approx.50 cfm in 1 shift.)	Leakages develop after couple of years. Needs periodical maintenance to arrest losses.
Requires lower loading pressure at the compressor and lower power consumption.	Requires higher loading pressure at the compressor and higher power consumption.
Standard painted blue (compressed air) or green (inert gases) for easy network identification.	Pipes need to be painted in the appropriate colour, adding to the total cost.



Contamination issues

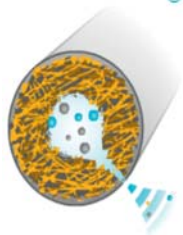


AIRnet always clean, as from day one

- As aluminium and polymer will guarantee air quality, they are becoming often used as raw material in critical environments, e.g. food industries, medical applications...



①



②



③



- + Rust
- + Internal contamination
- + Product spoilage
- + Thickness reduction
- + Leakages
- + Higher friction factor
- + Δp Increase
- + High maintenance cost
- + Shorter lifetime of the hole system





Longer lifetime

AIRnet	GI / MS
AIRnet's aluminium pipes and polymer fittings do not corrode. Their smooth inner surface keeps air clean, now and in the years to come.	Corrosion protection depends on the quality of the galvanization.
No risk of corrosion when cutting the aluminium.	When the pipe is cut, the galvanization is removed, resulting in a high risk of corrosion.
Very low risk of leakage, which is not related to corrosion.	The connection poses a high risk of corrosion at low level points where water can stagnate, resulting in a high risk of leakage.

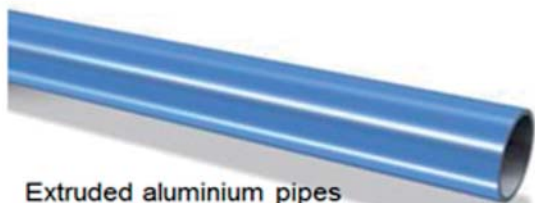
Easier Installation

AIRnet	GI / MS
Lightweight pipes: a standard Ø50 mm (2") pipe weighs less than 5 kg (11 lbs).	Heavy pipes: a standard Ø50 mm (2") pipe weighs more than 25 kg (55 lbs).
Short manual cutting time.	Very long manual cutting time. Requires an electrical cutter which may generate some metallic dust, polluting the air.
Fast deburring of the pipe. Pipes can be simply pushed into the fitting.	Threading the pipe requires a certain level of experience to avoid future leakage.
In addition to offering a single assembly method for all fittings, the fittings can be tightened by hand and secured with a spanner.	The galvanized fittings need to be tightened using sealing material. The risk of leakage depends on the quality of the thread.
Modifying the network is easy and fast: the fittings and pipes can be simply disassembled and reused.	Modifying the network is difficult and time-consuming: the pipes have to be cut, changed, threaded and reassembled.



AIRnet range

Fulfill large air demand



Extruded aluminium pipes

Fittings:

Polymer

Ø 20 - 25 - 40 - 50 mm

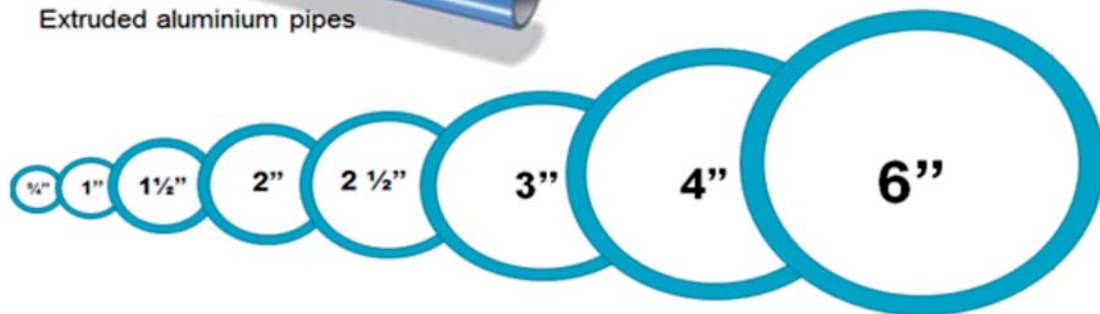
Ø ¾" - 1" - 1 ½" - 2"



Aluminium

Ø 63 - 80 - 108 - 158 mm

Ø 2 ½" - 3" - 4" - 6"

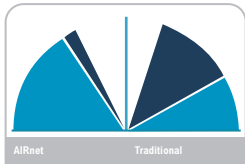




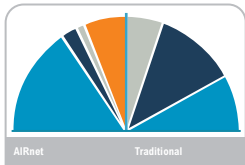
The bottom line



If you look at the total cost of ownership of a piping system, AIRnet proves to be the most cost-effective solution. Let's do the math.



AIRnet is installed up to 85% faster and by one single technician, reducing the labor cost. All system extensions and modifications can be done equally fast.



In a compressor installation, a 1 bar pressure drop leads to 7% more energy consumption. AIRnet offers minimal pressure drop and thus more savings. The leak-resistant and corrosion-free pipes and fittings prevent downtime and ensure high efficiency.

■ Material Cost ■ Labor ■ Leaks and Pressure Drop ■ SAVINGS

fast

Thanks to a smart design and low weight materials, AIRnet can be installed up to 85% faster than conventional systems.

easy

AIRnet pipes and fittings are assembled in just a few steps by a single installer, without the need of heavy machinery.

reliable

The durable, corrosion-free AIRnet pipes and fittings come with a 10 year warranty. Low friction and seamless connections minimize pressure drop.



3.11 SMARTLINK

Monitoring equipment at all times is the best way to prevent production loss due to a breakdown. An inside view on operation allows you to plan for maintenance pro-actively. Compressed air plays a vital part in almost all modern manufacturing processes. In today's competitive production environments, being able to reduce costs, increase efficiency and guarantee maximum uptime is high on everyone's priority list.

That's exactly what Atlas Copco's SMARTLINK is all about: an easy-to-install, efficient-to-monitor, easily tailored compressor monitoring program.

It offers your company a complete insight of your compressed air production. It helps to predict potential service, uptime problems – and thus anticipate them; it shows how and where the production can be optimized and energy can be saved.

SMARTLINK gathers, compares and analyses data through GPRS. When needed, it sends out warnings in time, allowing you to carefully plan and prepare service interventions. As a result, service efficiency increases, precious time is gained and money is saved.

Knowing exactly how your system is running also makes identifying ways for improvement much easier. SMARTLINK provides you with the transparency, you need to intelligently assess system performance. Based on the results, you can then easily determine a course of action to improve system usage and limit energy consumption costs.





Functionalities

Features	SMARTLINK Service	SMARTLINK Uptime	SMARTLINK Energy
Website view of equipment service information	✓	✓	✓
Monthly service overview email	✓	✓	✓
Website service logging tool	✓	✓	✓
Quote request via website	✓	✓	✓
Web portal event overview of last month	Service and failure events	Service, failure and warning events	Service, failure and warning events
SMS/email event notification	Not applicable	✓	✓
Trend graph – status bar	Not applicable	Not applicable	✓
Dashboards & reports	Service & Events	Service, Events & Availability	Service, Events, Availability, Usage, Central control, Volume & Efficiency



4. TRAINING

The right training will make all the difference.

Atlas Copco Compressor Technique service offers courses for customer's operation team. The courses can be delivered in-house or at your site.

Having trained operators and technical staff is key to optimise your operations. Trained personnel perform better, work smarter and safer and will have a positive impact on your productivity. With this in mind, Atlas Copco offers extensive training programs which gives the operator the ability to know all the features and technologies of the compressor, dryer & accessories. The result is in more competent operators which provide the ability to use compressors to its full capacity, providing increased productivity as well as a safer operation.

The training can be tailored to your operations need and will provide maximum benefits for your circumstances.

Benefits of operators training:

- Correct & in time service
- Increased uptime
- Less energy consumption
- Less wear on machine
- Optimum usage of all features

Contact Atlas Copco today to find out more about our training offers and how your organisation could increase productivity by training your staff to get the most out of your Atlas Copco equipment.

ATLAS COPCO TRAINING CENTER

Location: Dapodi, Pune-12

Area: 3000 sqft

Facility : Maximum 30 participants, Two class room in split facility, 2000 sq ft practical session area

Equipments for hands on training:

- Compressors (fixed speed, Variable speed drive)
- Dryers
- Nitrogen generator
- Energy Recovery
- Energy Saver
- Vacuum pump
- AIRnet piping



TRAINING HIGHLIGHTS

- The calendar for the technical training for dealers & customers are published on Atlas Copco website.
- Participants can register through the same website.

The screenshot shows the Atlas Copco India website. The main navigation bar includes 'In India', 'Products', 'Service', 'Media', 'Careers', 'The Group', and 'Contact us'. A search bar and 'Select country' dropdown are also present. The 'Media' section is active, displaying a list of news items. The selected item is 'Technical Training Course - West & South Zone Dealer Engineers - 2015: Oil injected screw compressors GA/GX (<90kW) and quality air FD/FX/CDX'. The details provided are:

- Training Program:** Oil injected screw compressors GA/GX (<90kW) and quality air FD/FX/CDX
- Date:** 01.06.15 to 05.06.15
- Location:** Atlas Copco (India) Ltd., CTS Competence Center, Sveanagar, Dapodi, Pune - 411 012
- Email:** kj.wani@atascopco.com

A detailed program PDF is available for download (TS8 (82kB, Pdf document) - Download). Below the announcement, there is a registration form titled 'Oil injected screw compressors GA/GX (<90kW) and quality air FD/FX/CDX (1st June)'. The form details are as follows:

Company Name:	Suriya Marketing
Address:	Old No.95, New No.149, Shankar Nagar, Salem- 636 007
Compressor models installed:	244
Country:	IN
Participant Name:	Gowtham
Designation:	Service Junior Engineer
Years of Experience:	2
Email:	service@ibtsuriya.com
Mobile No.:	09597827973



TRAINING CENTRE





SUMMARY

GENUINE PARTS : USE GENUINE, BE GENUINE

Atlas Copco genuine parts are manufactured to exactly the same standards as your compressor. They have passed the same endurance test and proven to be the best protection for your investment. It is designed to give your equipment the best protection at the lowest pressure drop. This pressure drop has a big impact on the energy consumption and compressor output. The use of only Genuine Parts on the equipment contributes to the customer's peace of mind. You have bought the best why compromise on future performance?

SERVICE PLAN

Service Plan covers all regular maintenance by certified and trained Atlas Copco service engineers and / or supply of genuine parts and lubricants as per the original manufacturer recommendations in a pro-active manner as it should be. This is the best way to lower the risk of unexpected problems allowing you to optimize your production process.

ENERGY SAVER

ES Central Controllers will enable you to link all compressors and dryers, to lower your overall pressure band, to eliminate the need for higher working pressure and to optimize the compressor mix at all times and in turn save energy. 1 bar working pressure reduction results in 7% energy saving and further 3% through leak reduction.

ENERGY RECOVERY

With ER, energy is recovered from wasted heat from the compressor and reused in production cycle. Energy 70 – 90% of motor KW can be recovered and used to heat industrial application water.

AIRNET : FAST EASY RELIABLE

AIRnet is easy and fast to install, corrosion-free, leak proof piping system which reduces cost of ownership for the compressed air piping network.



AIRnet pipes are standard pre- painted. AIRnet is adaptable to any existing pipe work. Future extensions can simply be plugged in.

AIRScan

Dedicated Energy consultants carry out complete AIRScan activity consisting of flow check, leak check, power check, air quality check, maintenance assessment and provide a detailed report including cost analysis, graphs and a list of recommendations for system performance improvement.

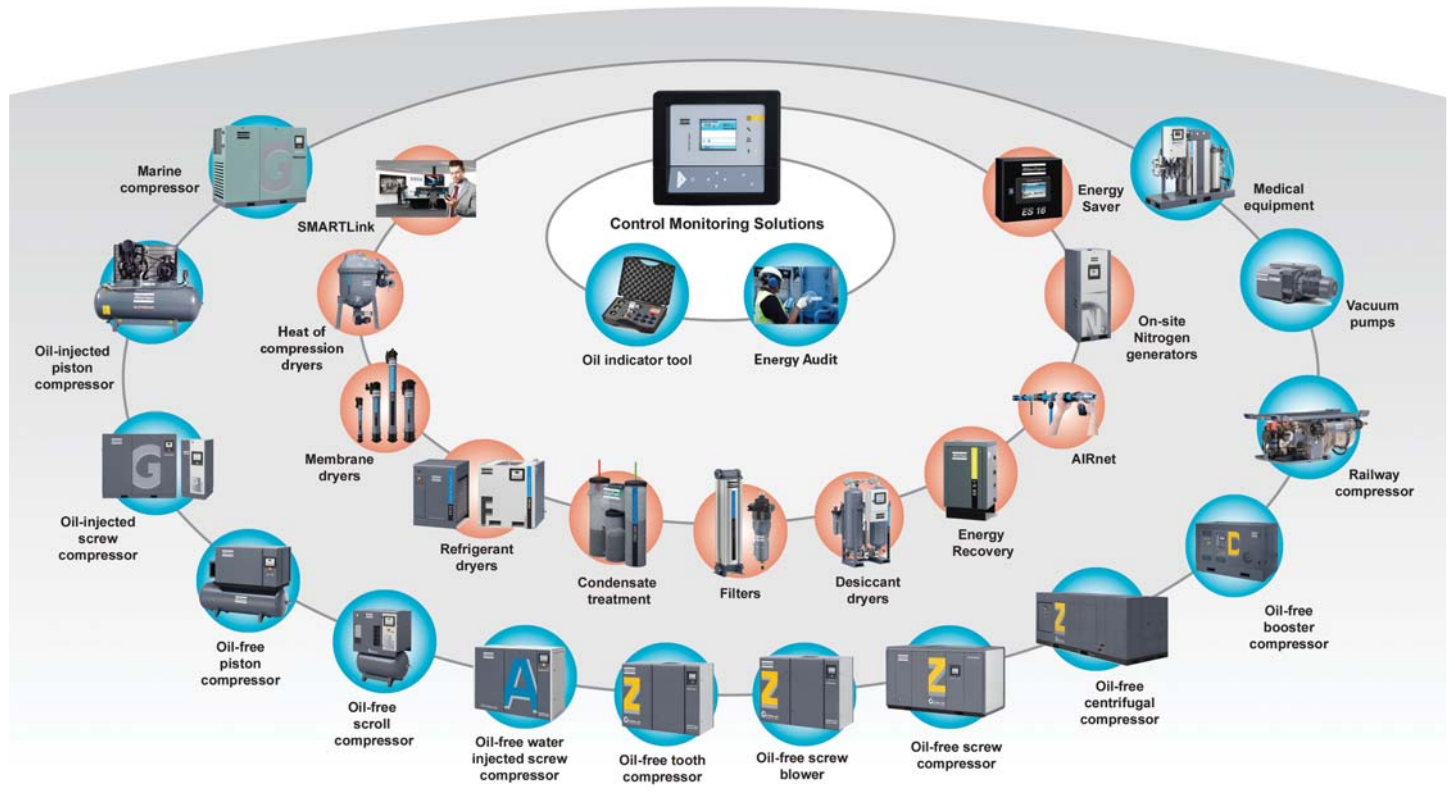
SMARTLink

SMARTLink gathers, compares and analyses data through GPRS connectivity. This allows you to carefully plan and prepare for service interventions. When needed, it sends out warnings in time. An additional, energy monitoring option can be obtained. As a result, service efficiency increases, precious time is gained and money is saved.



A UNIVERSE OF SOLUTIONS

Compressed air and gas technologies





OIL FREE AIR COMPRESSORS



ZS/VS VSD
18 - 355 kW,
17 - 2600 l/s



ZE/ZA
22 - 500 kW,
85 - 2100 l/s



ZB VSD / ZM
75 - 2600 kW,
50 - 20000 l/s



ZR / ZT
15 - 900 kW,
30 - 2460 l/s



ZH / ZH+ VSD
350 - 2750 kW,
700 - 7500 l/s



SF 1-22
1.5 - 22 kW,
2 - 40 l/s



LZ
5.5 to 7.5 kW,
12 to 18.2 l/s



AQ 15-55 VSD
15 - 55 kW,
22 - 155 l/s



ZD
155 - 815 kW,
220 - 1141 l/s



DX/DN
37 - 815 kW,
35 - 5278 l/s



OIL INJECTED AIR COMPRESSORS

INDUSTRIAL GAS GENERATION

SPECIAL SEGMENTS



Automan
4 - 11 kW,
9 - 24 l/s



NGM / NGM+
7.6 to 243 Nm³/hr



GAR 5-37
5 - 37 kW,
8.5 - 69 l/s



GX / G / GA / GA+ / GA
VSD / VSD+ / GR
2 - 500 kW,
4 - 1400 l/s



NGP/NGP+
0.7 to 2645.1 Nm³/hr



OGP
1.5 to 203.8 Nm³/hr



MAS + G/GA VSD 5-355
5 - 355 kW,
4.2 - 776 l/s



AIR TREATMENT EQUIPMENT - AIR DRYERS

AIR TREATMENT EQUIPMENT - FILTERS



AD/AD+
330 - 3000 l/s,
-40°C



BD/BD+
100 - 3000 l/s,
-40 to -70°C



CDX/CD/CD+
1 - 1400 l/s,
-40°C



DD / PD/ QD and DDp / PDp
12 to 690 l/s
Upto 0.003 mg/m3 and 0.01 Micron



FD/FX/FXe
6 - 4000 l/s,
upto 3°C



MD/ND
88 - 2500 l/s,
+3 to -45°C



XD/XD+
1400 - 7000 l/s,
-40 to -70°C



UD+
9 l/s to 8000l/s
Upto 0.0009 mg/m3 and 0.1 Micron



VACUUM SOLUTIONS



GHS VSD⁺
350 - 1900 m³/h



GVS 20-300
20-365 m³/h, 12 cfm



GHS 630-4800
557 - 5734 m³/h
328 - 3377 cfm



GVD
0.7 - 275 m³/hr

MEDICAL GAS SOLUTIONS



MED / MED⁺
7 - 196 l/s



mVAC
4.2 - 153 l/s



AGS Systems



Manifold Room



COMPRESSOR TECHNIQUE SERVICE



Genuine parts



Service



Airscan



Energy Saver



Energy Recovery



Upgrade



Neos drive



Airnet Piping & PF Fittings



SMARTLink



Training



REACH US @ 1800 200 0030

Atlas Copco Compressor Technique

Sveanagar, Dapodi, Pune 411 012. Maharashtra, India.

Sales: info.compressor@in.atlascopco.com

Service: ct.service@in.atlascopco.com

Website: www.atlascopco.in



Atlas Copco