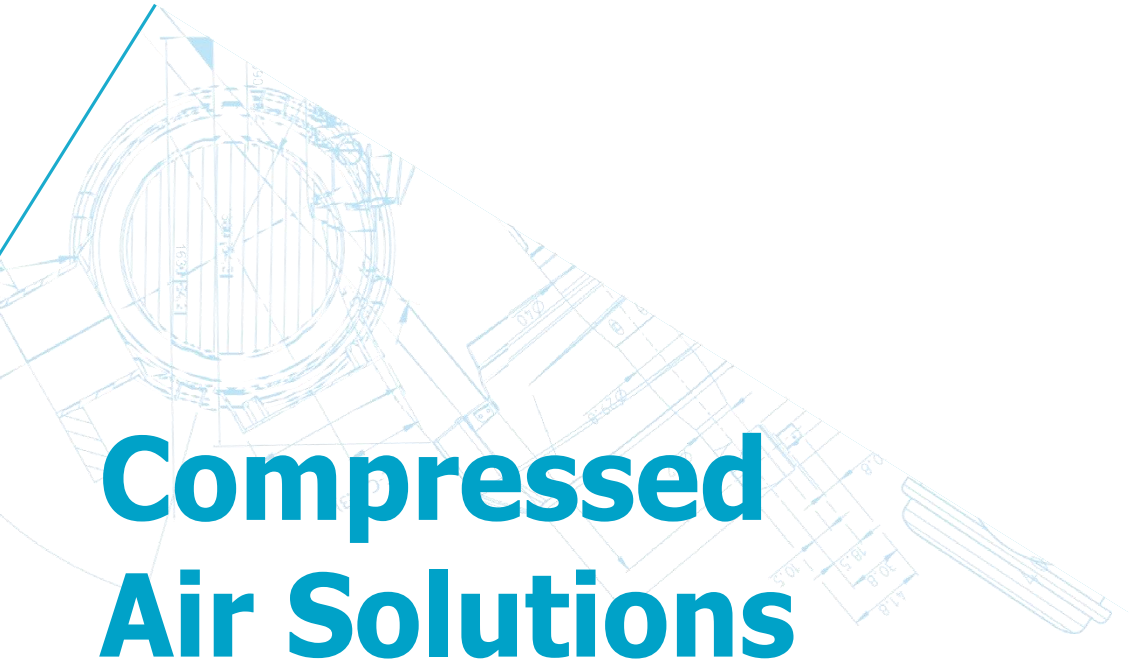


Compressed Air Solutions For EV Industry

The global automotive industry has undergone a significant transformation. Current automated assembly systems include world-class air compressors and state-of-the-art computing technologies. As a result, we have the safest, most fuel-efficient, and most reliable vehicles on the market.
The introduction of compressed air technology in the automotive industry has resulted not only in increased worker safety but also in an overall improvement in plant efficiency.

Growth of EV in India

The importance of reducing carbon emissions is a worldwide concern. Because of this, electric vehicles (EVs) have become essential components of global decarbonization plans. Despite the worldwide impact of COVID-19, the electric vehicle market has grown significantly. EVs are gaining attention across the world as they help to reduce emissions and depletion of natural resources.

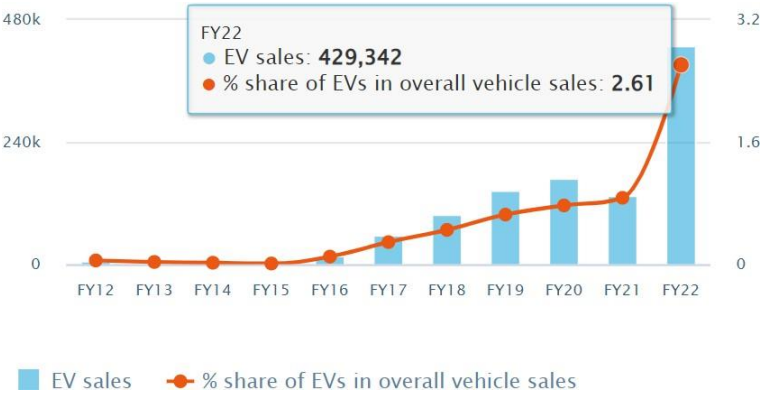


Figure 1: EV Sales in India

India's electric vehicle market is changing rapidly, with nearly 0.32 million vehicles sold in 2021. Annual EV growth is 36 percent, reaching 245 million vehicles in 2030, more than 30 times what it is today. As a matter of fact, compressed air systems are used throughout the production process for assembly, service and maintenance. It is also used in the manufacture of durable batteries for electrical vehicles (EVs). India's automotive industry is the fifth largest in the world and is set to become the third largest in 2030. Over the past three years, 0.52 million electrical vehicles have been registered.

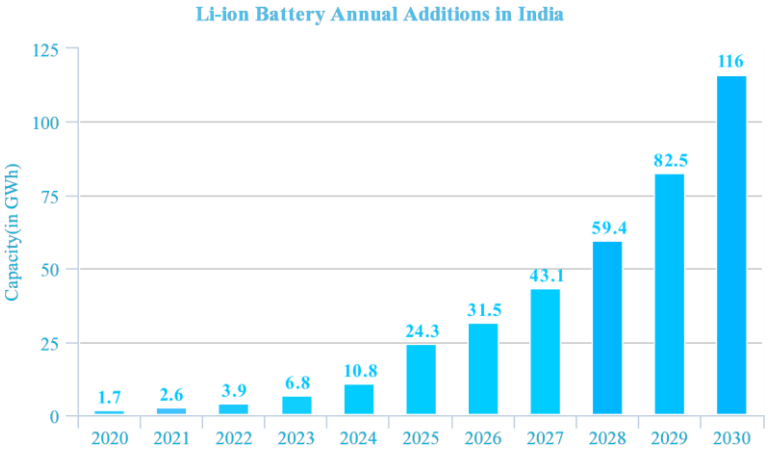
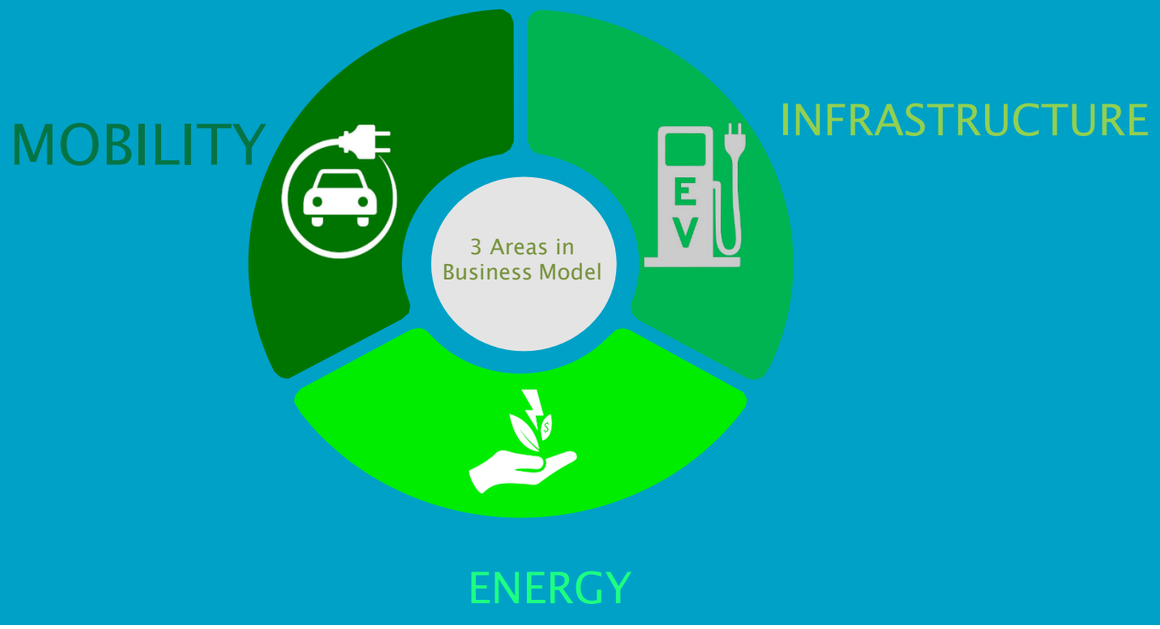
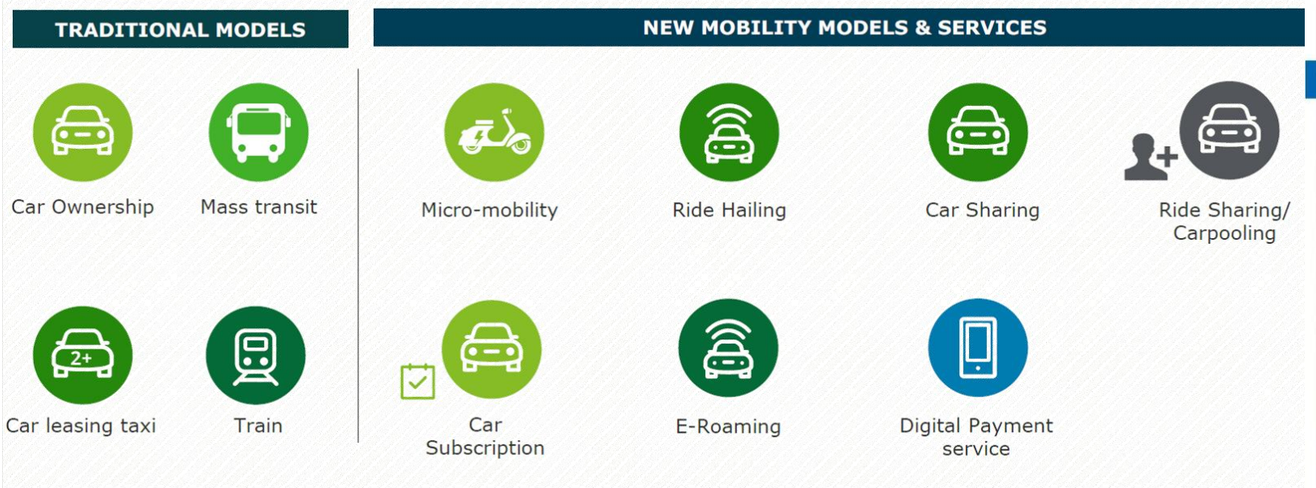


Figure 2: Li-ion Battery Demand in India

Compressed Air Solution For EV Industry

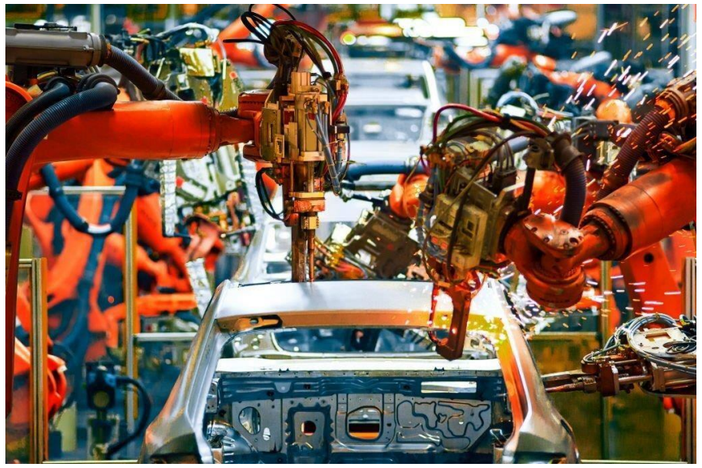
Compressed air is essential for safely and reliably operating critical applications on most commercial vehicles. However, hybrid and fully electric vehicles now require significantly more auxiliary systems than traditional diesel powertrains.





MOBILITY

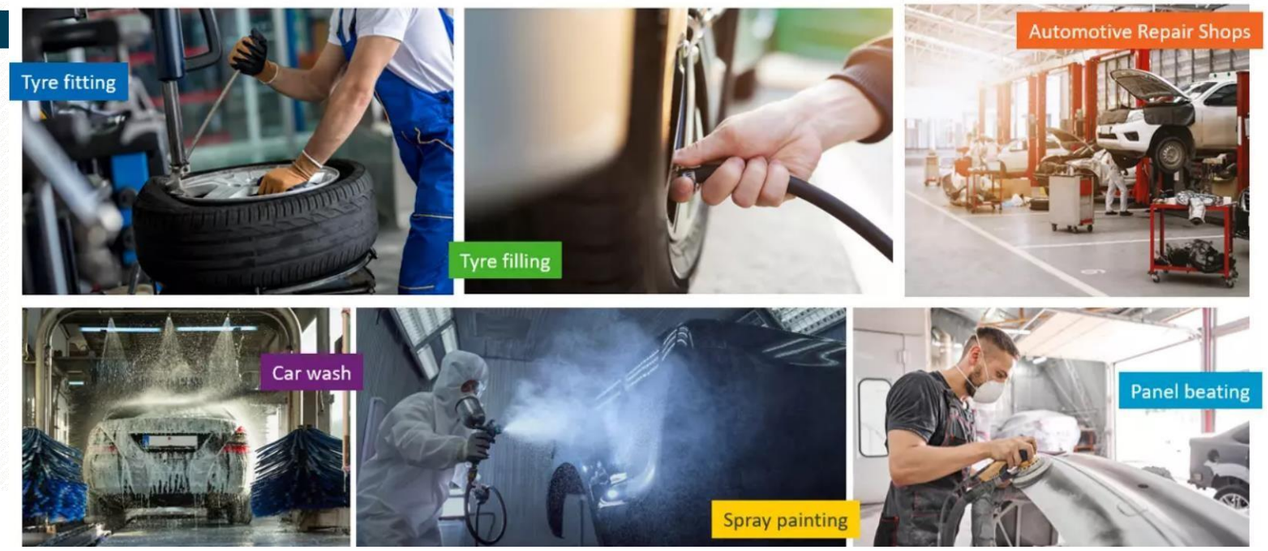
Mobility is the segment where the actual increase of electric vehicles on the road will take place. Your business in mobility will focus on business models that use electric vehicles to provide services to the customers.



The requirement of EV companies is dry and clean compressed air for a number of different operations at their plant including painting applications Atlas Copco's compressors, dryers, filters helps the EV companies in their production plants, painting plants. However, the challenge lies in the fact that demand for compressed air changes at the point of use.

Our air experts along with the company's team studies the demand pattern and recommends the right compressed air solutions, which can help them to reduce energy costs and increase the productivity of the plant. This helps EV companies enhance their operations.

Applications



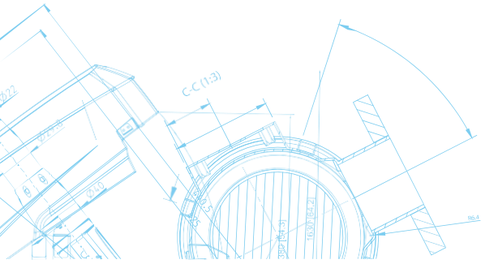
INFRASTRUCTURE

The biggest barrier to EV adoption in India was the lack of public charging infrastructure. Thus, India needs to have a robust charging infrastructure across the length and breadth of the country, taking into account traffic and population density. The infrastructure segment consists of charging infrastructures, battery exchange stations and companies using traction batteries.

The growth of electric vehicles led to the emergence of charging businesses.

Lithium-ion batteries for electric cars

The annual lithium-ion battery demand for automotive applications in India to increase from 2.3 GWh in FY2020-21 to 104 GWh by FY2029-30 on the back of favorable government policies including Faster Adoption and Manufacturing of Hybrid & EV (FAME) and various state-level EV policies. Each electric or hybrid vehicle needs large volumes of lithium-ion battery cells. The Government of India's target of 30% of new vehicle sales to be electric by 2030 and 34 GW/136 GWh of battery storage needed to add 450GW of renewables in India by 2030. These Li-ion battery cells are assembled into a battery and incorporated into electric vehicles.
Each battery contains multiple parts like anode, cathode and electrolyte. Our equipment is designed to help build these parts. From the extraction of raw materials to the preparation of those materials to be used in the battery cell. Combine air and gas compressors with the right dryers, filters, and gas generators. At the lowest life cycle cost, our installation provides a constant quality of dry and clean air.



Onsite nitrogen generation for battery production

Nitrogen has several applications in EV battery cellular production. it is used in each the producing of battery additives and inside the meeting of the battery cellular. The inert and pure properties of nitrogen prevent any infection of the raw substances.

Some examples of use:

- mix raw materials
- cool materials
- to inject electrolytes
- and for the pressing of materials by creating an inert environment.

On-site generation of industrial gases allows the production of the exact amount and purity of gas required for the application. On-site generation ensures the availability of industrial gases at a fixed low cost and reduces CO2 emissions drastically. External suppliers do not require to deliver liquefied gases by trucks anymore.

Benefits of Atlas Copco's Onsite Nitrogen Generation

- Onsite Nitrogen Production
- Continuous Availability
- Cost Savings
- High Purity Nitrogen Supply
- Advanced monitoring, control & connectivity

ENERGY

Research shows that a private vehicle stands idle for an estimated 95% of its lifetime. This very fact builds the premise for energy as a value area. Batteries in electric vehicles store electricity. When not in use for commuting, electric vehicle owners can trade/ sell/ utilize the stored power and earn additional revenues.

Reduce petroleum imports and thus increase national energy security

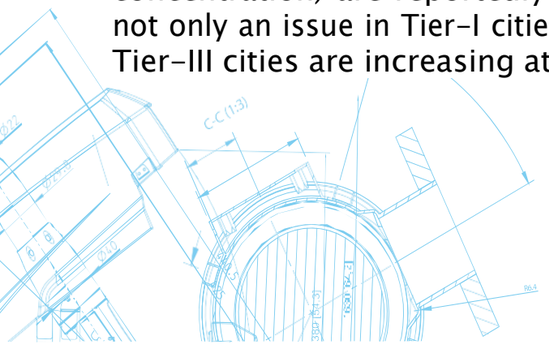
Import of crude oil accounts for about 85% of India's petroleum supply. Reduction of oil imports will also help decrease the country's Current Account Deficit (CAD).

Reduce India's carbon footprint by leveraging higher efficiency of EVs over ICE vehicles and enabling effective renewable energy off-take

EVs are almost 5 times more efficient than similar ICE vehicles (NITI Aayog & World Energy Council, 2018). The total greenhouse gas (GHG) emission reduction potential from the vehicles supported under the second phase of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME) is estimated to be about 7.4 million tonnes of carbon dioxide emissions over the deployed vehicles' lifetime (NITI Aayog & RMI, 2019). Furthermore, India's renewable energy generation capacity (including hydro) has reached more than 129 gigawatts (GW), equivalent to about 35% of the total power generation capacity (CEA, 2019). Thanks to strong policies to increase the share of non-fossil fuel-based electricity, the emission intensity of grid electricity in India can be further reduced. Not to mention the potential application of EVs for energy storage could help ensure grid stability as dependence on variable renewable energy sources increases.

Reduce vehicular emissions of particulate matter (PM) and other pollutants and GHGs

Twenty-two of the 30 most polluted cities (in terms of PM2.5 concentration) are reportedly in India (IQAir, 2018). This is not only an issue in Tier-I cities; pollution levels in Tier-II and Tier-III cities are increasing at alarming rates.



VSD Compressor

The Variable Speed Drive (VSD) air compressor is the ideal solution for the fluctuating demand with almost 50% energy saving over fixed-speed air compressors.

Variable Speed Drive reduces the overall load on the power grid and minimizes sudden spikes in demand that can overload the grid and cause an outage. As a result, governments and power companies may provide incentives for manufacturers to upgrade to energy-saving systems such as a VSD air compressor. These incentives can significantly offset the costs of upgrading to a new VSD air compressor and accelerate the payback period.

The optimal design of a compressed air system will reflect the specific needs of your processes, your facility and your approach to capital projects. To learn more about how Variable Speed Drive can address your needs, talk to an air system professional.

ZT: Reliability and robustness at low operational cost

For the painting plant, Atlas Copco's, oil-free rotary screw air compressor is best, which is highly energy efficient and provides clean 100% oil-free compressed air to avoid any contamination during the painting application. Oil-free screw air compressors are best for the assembly and testing applications as well. Oil-free screw air compressor ZT VSD with BD desiccant air dryer is an optimal solution for the painting plant, where air quality is of utmost.

Specifications

Motor Power	90 kW – 160 kW
Working Pressure	7.5 bar(e) – 10 bar(e)
Capacity FAD	762 m³/h – 1542 m³/h

GA VSD/VSD+: **Innovative, smart, reliable solution for energy saving**

Atlas Copco oil-injected VSD rotary air compressor in combination with refrigerant air dryer is best solution for the production plant. Atlas Copco's GA Variable Speed Drive+ (VSD+) technology closely matches the air demand by automatically adjusting the motor speed. Combined with the innovative design of the iPM (Permanent Magnet) motor, this results in average energy savings of 50% and an average cut of 37% in the lifecycle cost of a compressor.

Specifications

Motor Power	7.5 kW – 75 kW
Working Pressure	5.5 bar(e) – 13 bar(e)
Capacity FAD	25.9 m³/h – 814 m³/h

BD Desiccant Dryer: Reliability and robustness at low operational cost

Atlas Copco's desiccant air dryer has a robust and compact design that ensures the reliability of production processes and the quality of customer's end products by providing moisture-free air.

Specifications

Avg. Power Consumption	8.4 kW – 35.3 kW
Inlet Flow FAD	1296 m³/h – 5760 m³/h

Elektronikon®: intelligent control and monitoring

The blowers are integrated with Elektronikon® controller system, using "Internet of Things" technology to enable remote monitoring and energy conservation. To ensure maximum machine safety and easy networking, the Elektronikon® system controls both the blower and the integrated converter. The advanced control system maximizes the reliability of your blower installation. Monitors overall system performance with service indications, malfunction alarms and safety shutdowns.

Smart AIR solutions that suit all your need

To guarantee the quality of your cement products, you keep a check on every aspect of your production process. So why would you leave the performance of your compressor room to chance?

Optimizer 4.0 central controller

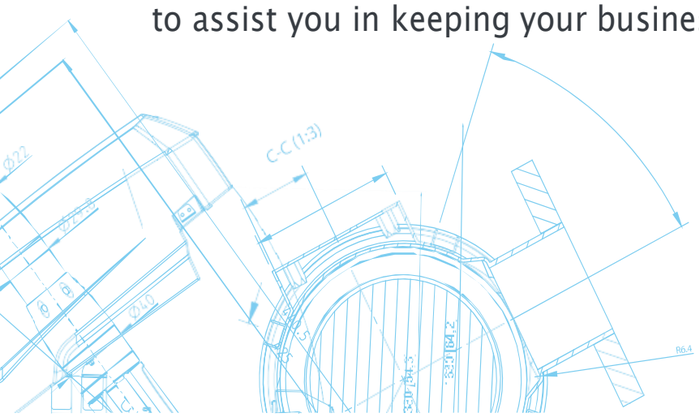
Operating multiple compressed air equipment calls for the best management in order to reduce the energy consumption and the best utilization of all the equipment. Optimizer 4.0 provides the continuous connectivity and control for multiple compressors and blowers supported by the latest connectivity standard “Internet of Things 4.0“ that can provide full performance monitoring from the plant central control room.

SMARTLINK

SMARTLINK is our 24/7 remote monitoring system that connects your compressor & blower Room. room to Atlas Copco service experts, to give you complete insight into your compressed air network. SMARTLINK warns you of potential problems upfront to avoid production interruptions, and helps you to save energy and prevent unexpected costs. Additionally, SMARTLINK can provide you with data allowing you to benchmark the compressed air usage of multiple plants in relation to their productivity.

Service

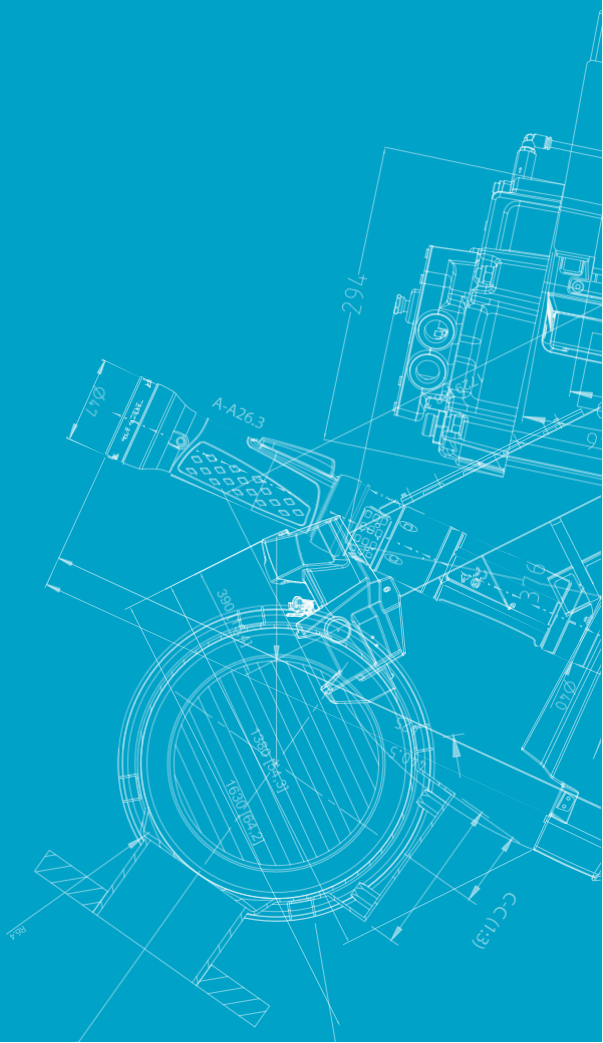
Total customer care is our ultimate goal. From spares to proactive monitoring and control, to auditing and optimization, we have the aftermarket service that suits your needs. Our dedicated service experts are available to assist you in keeping your businesss up and running in the most efficient way.



Conclusion

Atlas Copco is committed to providing the right compressed air solutions to the Electric Vehicle Industry for a greener and sustainable world. This commitment is also becoming stronger with the same vision and goals related to carbon reduction and CO2 emission. With our global experience, presence and green compressed air systems, electric vehicle companies can improve their productivity with the best setup of compressor room and thus reduce the overall cost.

Atlas Copco have all the product offerings such as oil-free screw air compressor, oil-injected air compressor, refrigerant & desiccants type dryers with required line filters suitable to achieve air quality and support the emerging electric vehicle (EV) industry. To maximize efficiency and reduce your carbon footprint, Atlas Copco offers not only energy recovery units, which use the waste heat generated by the compression process offered on both technologies, but also energy audits of existing equipment as well as control solutions for central plant and remote systems.



Compressor Technique

Atlas Copco (India) Limited

Call: 1800 120 110030

Email: info.compressors@atlascopco.com

Whatsapp: +91 77680 80901

Website: https://www.atlascopco.com/en-in/compressors