

**KAESER**  
**COMPRESSORS**®

*Built for a lifetime.*



# Compressed Air for Automotive Service

Collision repair, fleet service, tire service, general  
maintenance, racing and performance

[kaeser.com](http://kaeser.com)

# Compressed air in automotive service

## Consider all the costs in compressed air

*The purchase price of a compressor is an important consideration when comparing new equipment options, but it is only one of several cost components that affect the overall cost of owning and operating an air system. In some cases, low price options often have higher life cycle costs – not to mention lost productivity. Consider these other cost drivers when choosing equipment. In many cases, the benefits in one area outweigh the costs in another and vice versa.*

### Installation



The equipment you select directly impacts installation costs. It is common for buyers to build separate rooms or structures to isolate noisy, vibrating compressors from employees and customers for the sake of safety and comfort. Choices in piping material also impact installation time and labor.

### Energy



Your energy costs depend on the compressor size (hp), how much you run it, and your local utility rates, but even small compressors are often the largest energy user in a shop. Compressor efficiency varies widely between types and brands of compressors, so there are opportunities for significant savings. Likewise, choices in dryers and other system components impact energy usage.

### Maintenance and repair



Be sure you understand the preventive maintenance as well as periodic major maintenance requirements of equipment you are comparing. Also, system sizing and installation location impact the duty cycle and heat load on the compressor. These factors heavily influence longevity.

### Lost time and materials



Often overlooked (because they are harder to calculate) are the costs of lost productivity due to downtime as well as wasted time/materials and reduced tool life due to poor air quality or fluctuating pressure. These may be among the highest costs associated with compressed air, and they can quickly erase the savings gained during the equipment purchase.

# Reliability and performance

Today's automotive facilities have high standards, and with the rising costs of labor, tools, paints, and other materials, re-work is expensive. Dry, clean compressed air at a stable system pressure is essential for getting work done with high-quality results. Simple maintenance and easy accessibility keep costs low and reduce production downtime. A small footprint and quiet operation increase the options for where to install the equipment.

KAESER designs rotary screw compressors with the demanding needs of the automotive services industry in mind. Our packages

have a compact design with ultra low sound levels so they can be installed almost anywhere. Our *built for a lifetime™* reliability means you won't have to worry about lost profits due to downtime. Complete packages, like the AIRCENTER shown below, include a compressor, refrigerated dryer, tank, and drain for an all-in-one solution that makes installation a snap.

From providing air for rugged impact wrenches to high-end automotive finishes, KAESER is the compressed air choice for automotive professionals.








# Compressor basics

## Deciding between a rotary screw and a piston?

When comparing rotary screw compressors to pistons, it's important to keep in mind several key points. Rotaries offer 100% duty cycle and higher capacity, so they use less energy per cfm delivered and don't need to be oversized to avoid damage. Rotary compressors have an oil separator and pass minimal oil (easily removed with proper filtration), plus they operate at much lower temperatures. These features result in much cleaner, dry air. Finally, rotaries are notably quieter which often reduces installation costs.

For more information, see our white paper, *Piston Versus Rotary Screw Compressors*.

Rotary Screw	VS	Piston
100%		Limited
DUTY CYCLE		
4 - 4.5 cfm/hp		3 - 3.5 cfm/hp
CAPACITY		
1 - 7 ppm		10 ppm - no upper limit
OIL CARRY-OVER		
170 - 200°F 15 - 35°F above ambient		300 - 400°F 100°F and higher above ambient
INTERNAL OPERATING TEMP. DISCHARGE TEMP.		
65 - 75 dB(A)		80+ dB(A)
NOISE LEVELS		

### Pressure versus flow

Compressor capacity is best compared using flow (cfm) – not pressure (psig). When users don't have enough pressure at the point of use, usually the problem is not enough flow to maintain the pressure. Adjusting the pressure setting higher won't make more air. Piston compressors are often set to run between 145 and 175 psig. Most rotaries can run as high or even higher but are often set between 100 and 125 psig. Since most shop tools are rated at 90 psig and won't do a better job at higher pressures. The difference is duty cycle. Rotary compressors are thermostatically controlled so they can run whenever needed. Pistons are set to run up to higher pressures so they can periodically shut off and cool down. Keep in mind that it takes more power to reach higher pressures.

### System efficiency

Your compressor may be the biggest energy user in your shop. You can get a rough idea of your annual compressor energy costs using this formula:

Compressor power (hp x .746 kW/hp) x annual operating hours x \$/kWh (electric utility rate).

Note that the nominal hp rating of the compressor is just an approximation, and there is a wide range in efficiency among compressors of a given size. KAESER models are often much more efficient than other compressors. Even some of our small unit customers have seen significant financial payback from energy savings. You can make a more accurate comparison of energy efficiency using the Compressed Air & Gas Institute (CAGI) datasheets.

## CAGI Certified Performance

Our compressors' energy efficiency has been tested and confirmed by an independent laboratory as part of the Compressed Air and Gas Institute's **Rotary Screw Compressor**

**Performance Verification Program.** CAGI data sheets are available for screw compressors from 5 to 200 hp at [us.kaeser.com/cagi](http://us.kaeser.com/cagi)



# Piping basics

## Tips for selecting piping materials


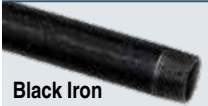


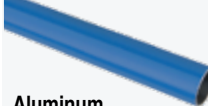
Piping selection directly affects the three key elements of every compressed air system: flow, pressure, and air quality. Poor choices in pipe materials, diameter, and layout cause flow restrictions, often resulting in significant pressure drop. Pressure drop is the main cause of increased energy consumption and under-performing air driven tools and equipment. Piping must be selected to meet the operating pressure and temperature of the compressed air system, and should not be affected by compressor oils.

Choices in piping also directly impact installation costs. Heavier materials cause fatigue and slow work, especially in overhead installations. The types of fittings used must also be considered. Some connection types cause pressure drop, need special tools, and take more time to install.



## Pipe Material Selection

The chart below offers a quick comparison between common piping materials.

MATERIAL	ADVANTAGES	DISADVANTAGES
 <b>PVC</b>	<ul style="list-style-type: none"> <li>» Lightweight</li> <li>» Inexpensive</li> </ul>	<ul style="list-style-type: none"> <li>- NOT RECOMMENDED FOR COMPRESSED AIR</li> <li>- Lower safety</li> <li>- In certain areas, not compliant with code</li> <li>- Carries static charge</li> <li>- Subject to bursting</li> <li>- Adhesives not compatible with some compressor oils</li> </ul>
 <b>Black Iron</b>	<ul style="list-style-type: none"> <li>» Moderate material costs</li> <li>» Readily available in multiple sizes</li> </ul>	<ul style="list-style-type: none"> <li>- Labor intensive installation</li> <li>- May rust and leak</li> <li>- Rough inside promotes contaminant build up and creates pressure drop</li> </ul>
 <b>Galvanized Iron</b>	<ul style="list-style-type: none"> <li>» Moderate material costs</li> <li>» Readily available in multiple sizes</li> <li>» Some rust protection</li> </ul>	<ul style="list-style-type: none"> <li>- Often only exterior is coated</li> <li>- Labor intensive installation</li> <li>- Rough inside promotes contaminant build up and creates pressure drop</li> <li>- May rust at joints and leak</li> </ul>
 <b>Copper</b>	<ul style="list-style-type: none"> <li>» No rust, good air quality</li> <li>» Smooth interior - low pressure drop</li> </ul>	<ul style="list-style-type: none"> <li>- Requires quality brazing to prevent leaks</li> <li>- Susceptible to thermal cycling</li> <li>- Installation requires open flame</li> </ul>
 <b>Aluminum</b>	<ul style="list-style-type: none"> <li>» No rust, good air quality</li> <li>» Lightweight and easy to install</li> <li>» Low pressure drop</li> <li>» Reconfigurable</li> </ul>	<ul style="list-style-type: none"> <li>- Limited pressure ratings</li> <li>- Material costs</li> </ul>



*For the best in air quality, maintenance, and installation, KAESER offers SmartPipe+™. This modular, aluminum piping doesn't rust or corrode and has no rough surfaces or interior restrictions that can accumulate contaminants.*

# Complete compressed air systems

## Everything you need for a complete, high-quality air system



### Rotary screw compressors

Rotary screw air compressors are ideal for today's modern automotive service and repair facilities. More efficient than commercial grade piston units, screw compressors run cooler, quieter, and deliver better quality air.



### Compressed air dryers

Compressed air must be dry in order to prevent condensation downstream. Air dryers are essential for producing air suitable for air tools, tire service, and paint spraying applications. KAESER offers a variety of refrigerated, desiccant, and membrane dryers. Many compressors are available with integral refrigerated dryers.



### Compressed air filtration

High quality filters are critical for removing contaminants such as dirt, rust, and oils common in compressed air. To reduce tool wear, promote quality paint finishes, and reduce maintenance costs, KAESER offers a complete line of industrial filters to remove these contaminants before they reach your tools and vehicles.



### Air receivers

Receiver tanks are important components in any compressed air system. They reduce compressor cycling and provide storage to meet peaks in demand without an excessive drop in system pressure. They also accumulate compressed air condensate and should always have condensate drains in order to efficiently remove contaminants from your system. KAESER offers tanks in many sizes.



### Condensate drains

All compressed air contains water, particles, and other contaminants. To keep these out of your tools and paints, KAESER offers several energy-saving automatic condensate drains to remove these contaminants from your tank, dryer, and filters without wasting costly compressed air.



### Condensate management

The KAESER Condensate Filter automatically removes lubricant from compressor condensate. This allows for easy and economical disposal of compressed air condensate in an environmentally responsible way. The low-maintenance system requires no electricity for operation.

# Paint and compressed air

*The best collision and automotive finishing shops in America choose KAESER COMPRESSORS for compressed air equipment. Our customers don't want to compromise finish quality or waste time and materials re-doing paint jobs. They understand the value of a well-designed and reliable compressed air system and know the benefits of clean, dry air.*



*KC's Paint Shop in the Fort Worth Texas area, does complete restorations of American classics under the watchful eye of KC Mathieu. KC is also known for his paint and body work at Gas Monkey Garage, in Dallas.*



*Charley Hutton restores and builds classic hotrods at Charley Hutton's Color Studio in Nampa, Idaho. His work has been featured on American Hotrod and Overhauledin'.*



*Kelly & Son the Crazy Painters are truly out-of-the-ordinary custom painters from Southern California. Their work has been featured on Overhauledin' and are regular favorites at SEMA.*

# The world is our home

As one of the world's largest compressed air systems providers and compressor manufacturers, KAESER COMPRESSORS is represented throughout the world by a comprehensive network of branches, subsidiary companies and factory trained partners.

With innovative products and services, KAESER COMPRESSORS' experienced consultants and engineers help customers to enhance their competitive edge by working in close partnership to develop progressive system concepts that continuously push the boundaries of performance and compressed air efficiency. Every KAESER customer benefits from the decades of knowledge and experience gained from hundreds of thousands of installations worldwide and over ten thousand formal compressed air system audits.

These advantages, coupled with KAESER's worldwide service organization, ensure that our compressed air products and systems deliver superior performance with maximum uptime.



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