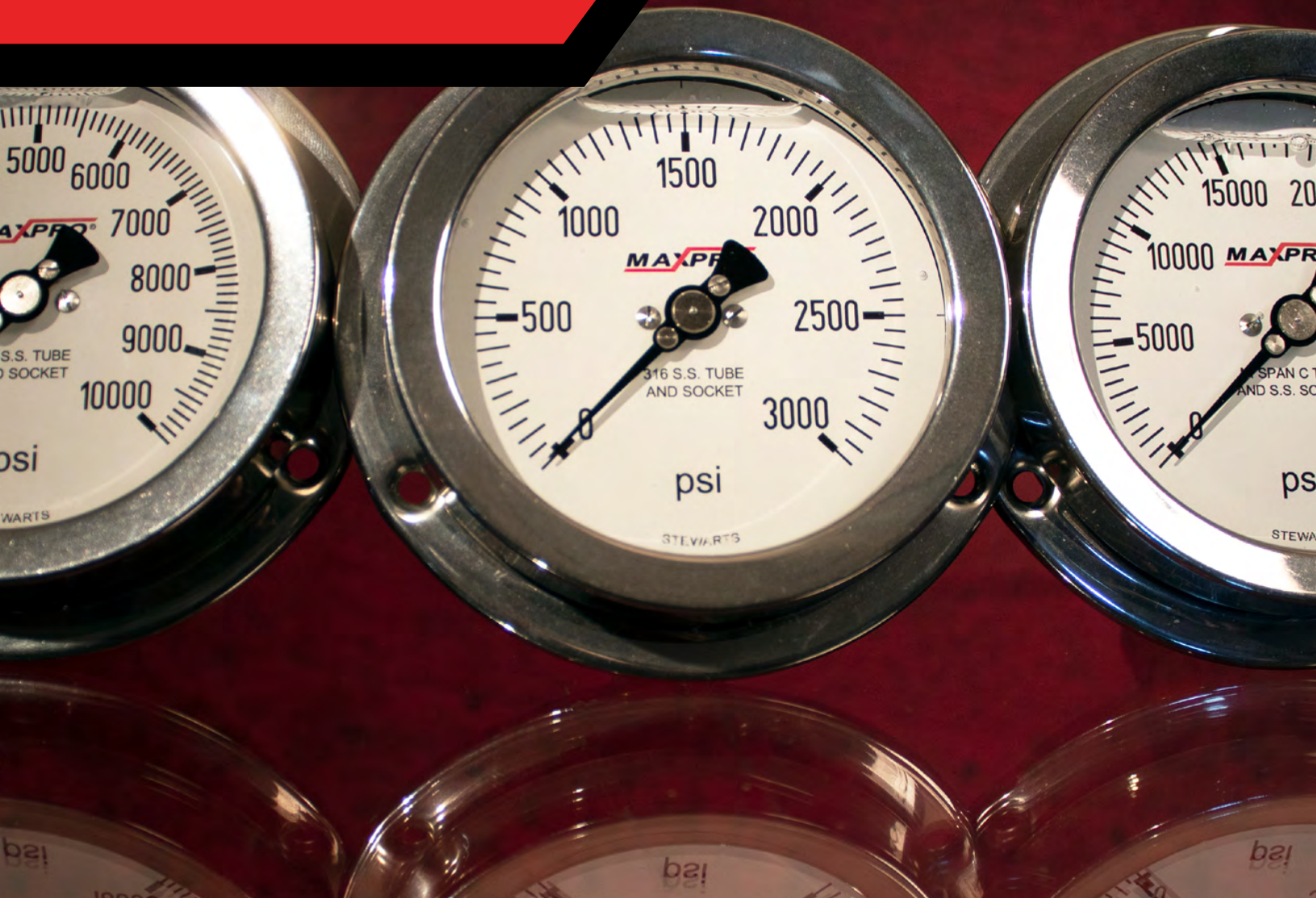


AIR AMPLIFIERS & HOW THEY WORK

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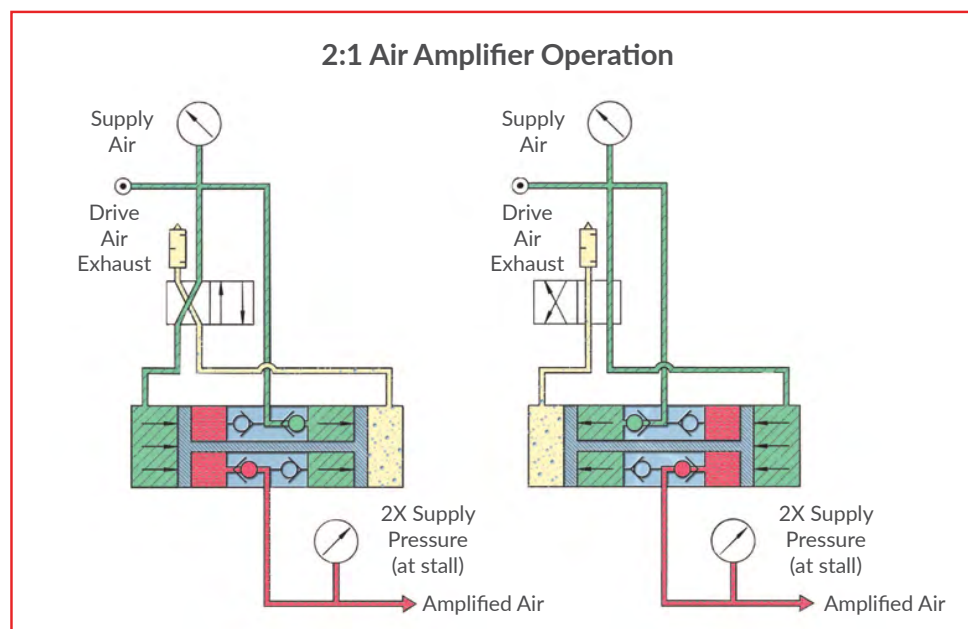
Air amplifiers provide critical support within a wide variety of industrial applications. A business can benefit from consistent air pressure in setups where pressure may otherwise be unreliable. Air amplifiers help to reliably provide increased pressure for cylinders, blow molding, pneumatic tools, clamping, and more.

What Is an Air Amplifier?

Air amplifiers are pneumatically driven devices that use shop air to provide the motive power for increasing air pressure. They do that at the “expense” of using some of the incoming air volume as the energy to drive the amplifier. That drive air is then exhausted. Air amplifiers use a fixed ratio of inlet to outlet piston areas to achieve increased pressures. Amplifiers employ a four way spool valve to enable reciprocating motion until an outlet pressure is achieved.

How Do Air Amplifiers Work?

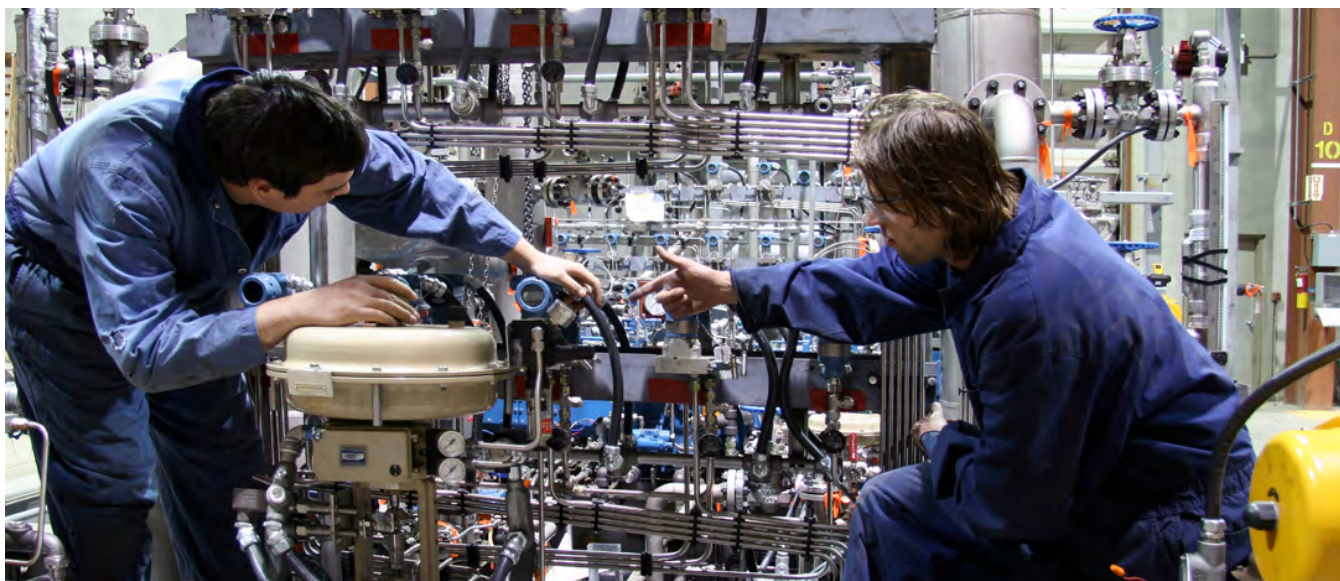
A portion of the incoming shop air (roughly half the incoming volume on 2:1 amps) is used for the driving forces to create increased pressure at the amplifier outlet. Here is an example of a 2:1 amplifier.



The illustration shows incoming air pressure acting on twice the piston area as the outlet piston, providing the force to create double the pressure at the amplifier outlet. The drive air is then exhausted at the end of the stroke. The *reciprocating* action of the device is caused by the piston pressing a tappet valve at the end of each stroke, causing a four way spool valve to shift, which then directs flow to the opposite sides of the pistons. This action continues until outlet pressure equilibrium (stall) is achieved in the downstream piping or tank. In the case of a 2:1 amplifier, the outlet stall pressure would be 2x the inlet pressure. In the case of higher ratio amplifiers, the outlet will stall at higher pressures based on the pressure area ratio (inlet piston to outlet piston). Upon air usage, the amplifier automatically restarts to satisfy pressure ratio balance. No electricity is needed! This type of unit provides an easy, effective way to ensure sufficient pressure at critical production operations if sized properly.

Applicability?

Maximator air amplifiers can produce pressures up to 4,350 psi. They can be arranged in series or parallel if the application requires either a large compression ratio, or if the volume produced by one amplifier is not sufficient. Flow charts are available for all air amplifier models. All amplifiers have their scale of flow-at-pressure applicability. These units are typically intended for applications whereby the consumption will be half the maximum rated flow (on a continuous basis), or 20 minutes on/20 minutes off (intermittent air demands). They require periodic regreasing as there is no oil sump. Good quality inlet air is always best practice for long life and minimizing maintenance cycles.



How Can My Business Benefit From an Air Amplifier?

Air amplifiers offer a host of benefits for a wide variety of industries and applications. A quality Maximator air amplifier offers the following advantages.

MAXPRO Air Amplifier Package Systems can save thousands of dollars per year in compressed air costs. Using an air amplifier system to boost pressure at the point of use will all air pressure in the rest of the shop to be decreased.

Making compressed air requires energy and is an expensive proposition. Decreasing the workload on the compressor can be the key to significant energy savings and can also reduce daily wear and tear on the compressor. This lowers maintenance costs and extends compressor life and efficiency.

If a customer has one piece of equipment in the plant requiring 120-130 psi, while everything else requires 80 psi, the entire plant may have to be maintained at 120-130 psi just to operate one workstation. Keep in mind that higher line pressure exacerbates losses due to leaks!

For every 2 psi reduction of air pressure, compressor horsepower is decreased by approximately 1%. If system pressure can be reduced by 20 psi, about 10% less horsepower will be required from the compressor. Lowering shop-wide pressure by 40 psi reduces the load on the compressor by 20%. Reducing compressor load by 20% or more results in annual savings of thousands of dollars in compressed air costs.

Based on the annual cost savings, an Air Amplifier Package from MAXPRO can pay for itself in a matter of months.

- Overall reduced energy costs (lower shop pressure, higher specific machine pressure)
- Improved production efficiency and product quality
- Easy installation, only shop air is needed for operation
- Automated operation, stalls at pressure, automatically restarts upon air use
- Predictable easy maintenance
- Lower investment than traditional electrical driven compressors
- Enhanced portability, with fewer components and simple design
- Installation flexibility; wall, ceiling, under bench, or within machine mounting
- Reasonable noise levels around 80 dbA when operating, zero dbA in stall condition

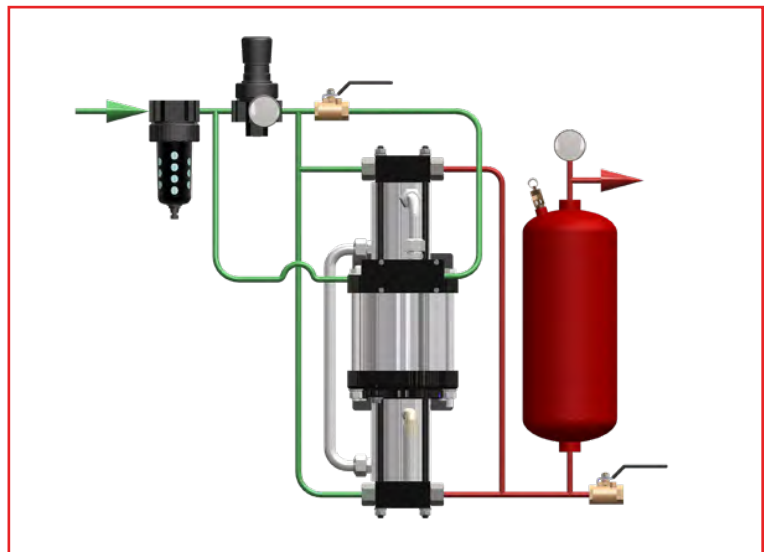
- Durable in extreme conditions for a longer service life
- User-friendly controls for adjustable pressure and flow
- MAXPRO-designed standard and custom air amplifier systems complete with all controls, gauges, valves, and storage tank, sized for your application will arrive ready to use!

Maintenance and Troubleshooting

Quality air amplifier systems from MAXPRO Technologies are competitively priced and also built for the long haul. Performing regularly scheduled maintenance can ensure long service life while helping to avoid the high repair cost of replacing metal parts. Cleanliness and lubrication are key to trouble-free operation. Supply air should be filtered and void of excessive moisture. Regreasing the basic moving parts and seals is important at reasonable intervals. High cyclic rate, building up high temperatures, and dirty moisture laden air are the enemy. MAXPRO offers repair services by factory trained technicians using only the highest quality replacement parts. Our service technicians will also provide assistance over the phone.

MAXPRO® Air Amplifier System: A Turnkey Solution

MAXPRO air amplifier systems are perfect for turnkey workstations and machinery that requires a reliable, controlled source of higher plant air pressure for tools, pneumatic clamps, cylinders, and other air-based operations. MAXPRO designs and manufactures complete amplifier systems engineered to meet the application. Let us put our collective many years of high pressure experience to work for you.



Basic Air Amplifier System Design

Quality Air Amplifier Systems by MAXPRO Technologies

Since 1995, MAXPRO® Technologies has been the exclusive North American distributor of Maximator® air amplifiers and Maxpro air amplifier systems. As a globally recognized provider of high-pressure technology, MAXPRO is pleased to offer state-of-the-art air amplifiers in a variety of standard configurations, as well as custom designs tailored to your particular volume and pressure requirements. To learn more about how MAXPRO's air amplifier systems can enhance your operations, [contact our experts today](#).



Other Quality Products & Services from Maxpro Technologies ®

- Maxpro stocks tubing:
 - 1/4", 3/8", 9/16", 3/4" 1" & 1-1/2" Medium Pressure Stainless Tubing up to 22,500 psi
 - 1/4", 3/8" & 9/16" High Pressure Stainless Tubing up to 65,000 psi
 - 1/4", 3/8" & 9/16" Ultra High Pressure HP160 Tubing up to 101,000 psi
 - 5/16" Ultra High Pressure Stainless Tubing up to 152,000 psi
- Maxpro stocks an assortment of valves and fittings for Medium, High and Ultra High Pressure ranges.
- Air Amplifiers & Systems - Maximator® Air Amplifiers are designed to boost plant air pressure or increase the supply pressure when the available working pressure is insufficient. Maxpro® stocks a full line of air amplifiers for pressures from 30 to 4350 psi. We also offer a selection of stock and custom-designed systems to meet your specific requirements.
- Gas Boosters & Systems - Maximator® Gas Boosters are an excellent alternative to high pressure stationary compressors. They are compact, light weight and do not use electricity. Maxpro® offers a full line of gas boosters for pressures up to 36,000 psi for most gases and up to 5,000 psi for oxygen. We also carry stock and custom-designed systems to meet your specific requirements.
- Maximator high efficiency liquid pumps from 60 to 101,000 psi are available for oil or oil/water service, water or oil service and chemical service. Maxpro also offers selection of standard and custom-designed power packs, test carts, pump skids and test benches to meet your specific requirements.



About Us

MAXPRO® Technologies Inc. was founded in December of 1995 to serve as the exclusive North American distributor for quality Maximator® high-pressure air driven liquid pumps, gas boosters and air amplifiers. In 2007, high-pressure valves, fittings and tubing were introduced, thus expanding our core product line. As we moved forward, standard and custom-designed system packages and test benches were added to our product offering. Our mission is to provide competitively priced, high-quality products backed by excellent customer service.

Our employees are our greatest asset. With more than 250 years of collective experience in high pressure, our employees are passionate about finding the best solution for your high-pressure requirements.

We stock a full range of standard high-pressure air driven liquid pumps, air amplifiers, gas boosters, and valves, fittings, and tubing for quick shipment.

If we do not have a standard product or system to meet your requirements, our talented engineers will gladly design a custom solution. We have extensive experience taking your ideas and making them reality utilizing quality power products from Maximator® GmbH.

To better serve our customers, we recently completed an extensive addition to our Fairview, PA location. Our MAXPRO® South locations in Humble, TX, and Lafayette, LA stand ready to serve customers in Texas and Louisiana.

Please contact us today to discuss your high-pressure requirements.

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