



Air Tool Productivity Advantages

By CAGI Pneumatic Tool Section

Compressed air is often referred to as industry's fourth utility because of its prevalence and because of the enhanced manufacturing productivity, end product quality, and safety of operation that it enables. The tools driven by compressed air systems offer unique solutions to the manufacturing, mining and service sectors around the world, providing significant advantages over competing tools powered by energy sources other than compressed air.

Wide Range of Applications that Benefit from Air Tool Advantages:

The manufacturers of air tools have worked closely with end-users to design and develop a broad range of products that vary in terms of breadth of applicability. Some tools can be used in a wide variety of settings and applications, while others are customized to suit a single task for a specific customer. Regardless of the application, tool users demand solutions that are cost effective, reliable, and dependable while providing a safe means of accomplishing work. In most instances only air tools meet all of these needs. Following are some specific examples of the advantages of air tools when applied in various situations:

Electromagnetic Interference

The process of producing some products, such as computer chips and components, electrical systems components, airframes, telecommunications gear, etc., require controlled assembly areas to eliminate or reduce possible interference from electric power sources. Naturally, air tools are the best choice for these applications.

Continuous Use

Air tool mechanisms are generally more reliable in continuous use applications than tools powered by alternative sources. Consequently, air tools are more cost effective over time. As a result, fabrication and assembly operations of all types use air tools for fastening, drilling, grinding and sanding applications.

Ruggedness and Durability

Impact damage from operator abuse or difficult job site conditions can limit tool life and degrade performance. Air tools are generally more ruggedly constructed than electric and cordless tool alternatives and can withstand impact damage to a much greater degree. This ruggedness explains the widespread use of air tools in mining, construction, demolition, and repair and maintenance applications.

High Torque / High Energy

For many applications that require high torque impact wrenches, high power grinders, powerful metal and rock drills and heavy-duty hammers, air tools often are the only option. Assembly and maintenance of airframes, automobiles, and heavy machinery are some key applications with these demands.

Adaptability / Sensitivity

Air tool performance can be controlled to a degree by adjusting input air pressure levels or by incorporating controls into the tools. Air tool manufacturers often work with their customers to customize tools so they provide the required level of adjustment to maintain consistent quality and productivity.

Sensitivity to the potential harm that can be done to internal components is another advantage of air tools. Pneumatic tools can be reversed instantly without harming internal components, which is essential in applications such as thread tapping, and these tools can stall under full load before without harming components. Electric tools can burn the armature or brushes under similar conditions. This sensitivity and ability to adapt is another cost controlling advantage of air tools.

Safety Advantages:

The design of air tools offers increased operator safety as a major benefit, particularly with respect to weight. Air tool designs have also been improved over time to be more ergonomically adapted; thereby reducing the risks of user fatigue and potential injury. Air tools typically have a higher power to weight ratio than either electric or cordless tools. A widely accepted rule of thumb holds that every additional pound of hand-held weight can result in a productivity loss of up to 7%.

There is an air tool for just about any application, and the manufacturers of air tools have a history of working with end users to design tools that meet their needs. Air tools build on the advantages of compressed air, adding their own advantages to help end users achieve quality operations and quality products consistently, reliably, and cost effectively.

CAGI, an Information Source:

For more information on air tool use and applications refer to the Compressed Air and Gas Institute at www.cagi.org. CAGI's Pneumatic Tool Section consists of manufacturers of pneumatic tools, pneumatic hoists and rock drills. Pneumatic tools are portable or fixed type, powered by turbine, rotary vane, piston or percussion motors. They include pneumatic drills, including rock drills and hand-held sinker drills, screwdrivers, nut drivers, impact wrenches, abrasive tools and percussion tools, such as rammers, riveters, chippers, scalers and paving breakers, as well as their repair parts and accessories. Pneumatic hoists, for material handling needs of 200 pounds to 10 tons are also included in the scope of this section. Links to member websites are provided at the CAGI web site. CAGI Pneumatic Tool Section members include:

- Apex Tool Group, LLC
- Chicago Pneumatic Tool Co.
- Florida Pneumatic Manufacturing Corp.
- Ingersoll Rand Industrial Technologies
- Stanley Assembly Technologies
- T.C. Service Co.



Impulse Wrench



2 Angle Nutsetters



Impact Wrench



Pistol-grip Drill



Angle Grinder



Angle Nutsetter