

**INTERCHANGEABLE PNEUMATIC CYLINDERS**

# **MAKE MACHINE MODIFICATIONS FAST AND EASY**



Simple Procurement and Time Savings Make Interchangeable Pneumatic Cylinders an Attractive Choice for Quick Replacements and New Builds.

**FABCO-AIR**  
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Machine builders or installers often have a difficult time replacing a pneumatic cylinder due to, for example, availability concerns, a manufacturer's distinctive design or mounting difficulties. To help alleviate these and other issues, the National Fluid Power Association (NFPA) and International Organization for Standardization (ISO) developed standards for cylinder interchangeability. Not only do interchangeable pneumatic cylinders offer dimensional compatibility across manufacturers to give machine builders clarity when a replacement or new cylinder is necessary, they also offer a number of other benefits. This article will explore some of the advantages interchangeable pneumatic cylinders provide, and it will describe some NFPA-compliant products that also offer a wide range of features to ensure high performance and reliability.

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## NFPA AND ISO INTERCHANGEABILITY STANDARDS: AN OVERVIEW

Both NFPA and ISO standards make cylinder replacements and equipment modifications in industrial machinery fast and easy. NFPA is used mainly in North America, and ISO covers global markets. Commonly specified ISO standards among pneumatic cylinders include ISO 6431, 6432 and 15552. In addition, ISO's broader use allows for more customization, if desired.

Examples of dimensional and performance criteria under NFPA or ISO include:

- Piston rod-type cylinders.
- Standard bore sizes and piston rod diameters.
- Standard cylinder strokes.
- Piston rod end thread sizes.
- All cylinder dimensions that are relevant for customer interfaces, such as length, port thread and mounting dimensions.
- Accessory dimensions, in some cases.

## INTERCHANGEABLE PNEUMATIC CYLINDER BENEFITS

The following benefits make interchangeable pneumatic cylinders ideal for many part replacement situations or new machine builds:

**Easy integration and maintenance.** Interchangeable pneumatic cylinders with standardized interfaces, dimensions and specifications make integration into equipment easy and straightforward, with no headaches.

**Versatility.** Pneumatic cylinders that are dimensionally compatible across cylinder manufacturers who comply with interchangeability standards can be used over a broad range of industrial machines and equipment across many sectors. Interchangeability also gives users the flexibility to make modifications and replacements without being limited to a single supplier's parts. And, since interchangeability standards cover a wide range of dimensions, strokes and mounting configurations, compliant cylinders can be customized to meet specific application requirements.

**Time and cost savings.** Interchangeable pneumatic cylinders are cost-effective in many ways, especially when it comes to time savings through faster procurement. They can also eliminate the need for custom fabrication or modifications that also require costly specialized tools and equipment. The result: less downtime required for equipment repairs and upgrades along with long-term cost savings — even if a standard part may have a high upfront cost.

**Durability.** Standardized cylinders from Fabco-Air are manufactured to ensure high performance and long service life in harsh industrial environments — even those with high pressures and temperatures. For example, Fabco-Air features NFPA cylinders with high-strength aluminum alloy tube with a hard (60 Rc) coated inner diameter. As pistons take a beating, these cylinders have a strong aluminum alloy piston with graphite-filled PTFE wear band to support high loads. Buna-N Nitrile seals are standard.

**Safe and reliable.** Pneumatic cylinders actuation options are safer than electric or hydraulic systems that either carry inherent electric shock or fluid leak risks. This ensures greater operational safety over a long lifetime.

**Improved inventory and space management.** Because interchangeable pneumatic cylinders free installers from a single manufacturer's product, there's less need to keep a large surplus of replacement cylinders or cylinder parts on hand, saving space for other uses while simplifying inventory control.



*Fabco-Air NFPA pneumatic cylinders combine rugged construction, versatility and a wide range of features.*

Interchangeable cylinders are not the same as non-standard “cold spec” cylinders that achieve de facto standard status after widespread market acceptance. Cold spec cylinders are often replicated by other manufacturers but can vary across brands. With interchangeable cylinders that conform to NFPA or ISO standards, OEMs and end users have the certainty of knowing their products have guaranteed dimensional compatibility across many manufacturers. Fabco-Air F-Series round and Pancake® II compact cylinders have been engineered for interchangeability with legacy North American cold spec cylinders.

## IMPORTANT INTERCHANGEABLE PNEUMATIC CYLINDER CONSIDERATIONS

As mentioned earlier, interchangeable pneumatic cylinders offer users exceptional flexibility. Although obtaining a standardized part may seemingly allow only a few choices, interchangeability standards actually cover a wide range of features and specifications. Once you have decided on an appropriate cylinder, such as a piston rod-type unit, be sure to keep these important considerations in mind to best meet your application's needs.

**What type of tube material will you require?** While a strong aluminum alloy tube is suitable for many industrial settings, some heavy-duty applications may demand steel construction. Others, such as those in food or hygienic environments, will require corrosion-resistant stainless steel.

**How will you mount your cylinder?** Interchangeable pneumatic cylinders offer a choice of bolt patterns and a variety of mounting styles. An ideal cylinder supplier will support many different mounting styles including rectangular flange, clevis, eye, angle and lug mounting, to name a few.

**What are your application's performance needs?** At Fabco-Air, our NFPA Series offers a choice of bore sizes up to 8 inches and standard strokes up to 99 inches, with a maximum operating pressure of 250 psi and temperature range of -10° to +165°F.

**Do you need other options?** Standardized, interchangeable air cylinders can be optimized in several ways, such as special rod diameter sizes, a variety of rod end types, silent seal bumpers and custom port sizes and location provisions.

Make sure you partner with your supplier early to review these and other considerations. In addition, many manufacturers also offer online tools to further assist you. Fabco-Air's Interchange Tool takes the guesswork out of selecting an interchangeable pneumatic cylinder. Accessible through our website, this convenient resource is especially attractive when a competitor's product is not readily available. When you choose a competitor and enter their part number, you'll find the Fabco equivalent without the hassle of poring through catalogs and comparing dimensions.

## INTERCHANGEABLE CYLINDERS ENSURE WORRY-FREE REPLACEMENTS EVERY TIME

Interchangeable pneumatic cylinders that comply with NFPA and ISO standards eliminate the headache of searching for a cylinder that has the same form, fit and function each time you need one. They also boast easy integration, versatility, durability, long life and, ultimately, both time and cost savings, making them an attractive choice for a wide range of industrial machines and equipment. At Fabco-Air, we have a wide selection of standard interchangeable air cylinders to meet most any need, and we also stand ready to create custom "specials" for hard-to-satisfy requirements. You can also contact us to run a quick and easy cross-reference analysis on common interchange cylinders to determine the suitable Fabco-Air products you need.

For more information, visit [www.fabco-air.com](http://www.fabco-air.com)

## Repairable NFPA Cylinders Extend Useful Life

Although standardized pneumatic cylinders are manufactured with interchangeability in mind, another feature most manufacturers offer is repairability. Repairability extends cylinder life, providing cost savings. When repairs are needed, the cylinders are typically easy to disassemble and reassemble. All these features come standard with the cost-optimized Fabco-Air FCQN Series, featuring a hard-anodized aluminum barrel and stainless-steel tie rods, plus:

- A wide range of bore sizes and strokes.
- Magnetic pistons for position sensing.
- Adjustable stainless steel air cushions on both ends.
- Anodized end caps.
- Magnalube G<sup>®</sup> Teflon-impregnated grease lubricant.
- 140 psi operating air pressure.



*OEM-NFPA pneumatic cylinders such as the FCQN Series offer the convenience of both interchangeability and repairability.*