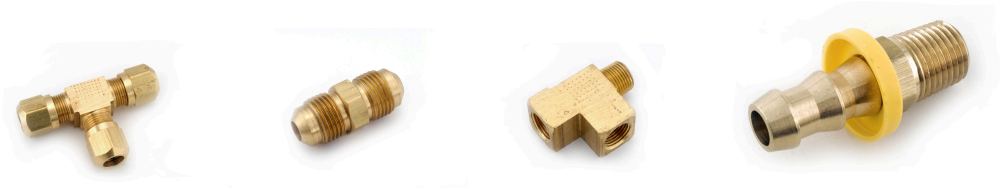
ANDERSON METALS CORP., INC.

Anderson Metals Brass Fittings White Paper

Nearly all fluid power systems or circuits use compressed air or hydraulic fluid as their operating media and include a series of fittings that connect pumps, valves, motors, actuators and other components with hose and tubing. Over time, fitting designs have advanced to improve performance and ease of installation with the overall function remaining to contain fluids and gases within the pressure systems.



Lower pressure hydraulic and pneumatic systems typically rely on brass (and steel) or composite fittings to make those connections. Why brass? It was during the early 1900's that engineers developed the industry's first standard fitting, the forty-five degree flare fitting. Today, brass fittings are offered in over 18 different families of assembly technologies, all connecting a variety of thermoplastic, copper, aluminum and steel tubings as well as low pressure hose. Brass fittings and connectors are used in the broadest range of applications – from connecting fluid lines for air, hydraulic, fuel, oil, water, vaccum and coolant systems, to refrigeration systems in stationary and mobile installations. Applications range from machine tool lubrication systems and hydraulic and pneumatic control of equipment, to air systems for heavy duty trucks, high-speed dental drills, automation, robotics, food processing, and liquid flow circuitry in beverage and water dispensers.

Brass is a metal alloy made of varying proportions of copper and zinc. For machining, the most common brass alloy used, "free cutting brass" is widely available cda360. When comparing brass vs. Steel alloys (12l14), machine production rates are much higher with lower tool costs. In addition, net raw material costs for brass can be much lower than steel due to the fact that brass turnings or scrap remain very valuable. Those turnings are always recycled to the brass mills while maintaing a high price scrap value. Steel turnings are difficult to recycle and costly to handle and dispose of. Those facts confirm that brass can cost less than steel.

Additional attributes of brass vs. Steel and composites can include:

- Durability
- Good mechanical properties and good mechanical retention with a variety of tubing materials
- Withstand stress cracking and abrasion
- Temperature range
- Resistance to over torquing
- Secure under high vibration applications
- Resistance to corrosion and chemicals
- Spark resistant for gas applications
- Availibility of shapes, (tee's, elbow's, forty-five's)

In addition, availibility of evolving brass alloys conform to current federal standards.effective January 4, 2014, all products in contact with drinking water were limited to a maximum lead content of 0.25% for all wetted components. The new rule, which mostly replicated California's regulation governing lead in drinking water, impacts virtually every component of water treatment and distribution system, as well as services and applications that provide water suitable for human ingestion (food preparation, beverage manufacturing, dishwashing, and maintaining oral hygiene.). Products excluded from the lead rule include those used exclusively for non-potable services such as manufacturing, industrial processing, and irrigation. Leaded components already in use by the January 4th deadline are grandfathered in. Repairs can be made in place, but once a leaded component is removed for any reason, it must be replaced with a lead-free component.

Another key alloy used for pipe fittings is lead-free "red brass", the most durable of all plumbing metals for marine and water pipe applications. It is resistant to dezincification and offers good mechanical strength and is also specified for underground service lines.. The lead-free chemistry conforms to federal water standards.

For over 100 years, brass fittings have been delivering connection solutions offering performance value. Solid machined brass fittings continue to be a good choice and are longer-lasting than thermoplastic and composite fitting bodies and offer superior durability.

Contact Us:

Anderson Metals Corp., Inc.
1701 Southern Road
P.O. Box 34200
Kansas City, MO
64120 USA

Toll Free: 1-877-915-3009
Tel: 877-915-3009
Fax: 816-472-8700
Email: info@AndersonMetals.com