Clamping System Cuts Service Time; Zinc Cuts Production Cost

Unscrewing conventional threaded air prep components like filters, regulators and lubricators for periodic maintenance is a time-consuming, two-handed job. Modular systems with clamps have put the wrenches to rest, but most leave the worker with a handful of clamp segments, spacers, O-rings and fasteners which invariably find their way to the floor.

To put an end to this loose-parts problem, IMI Norgren, of Littleton, Colorado, has developed the die-cast zinc Quikclamp™ system which unites all the clamp components in a single assembly. Now, by backing off a captive socket-head screw in the hinged Quikclamp face plate on each side of a filter, regulator or lubricator, the maintenance worker can easily pull the component out and service or replace it—with nothing to drop but the allen wrench.

The major components of the Quikclamp (as well as the bodies, bowls and accessory parts of the filters, regulators and lubricators in Norgren's new 1/4-in. Excelon[®] Series air line equipment) are all pressure die cast from Zamak 3 zinc alloy.

Norgren products feature modular installation using the patented Quikclamp system. Producing the intricate contours of the Quikclamp assembly with its required strength and durability (the system must withstand 250 psig) would have been nearly impossible with the two material alternatives– plastic and aluminum.

As an integrated producer of air prep systems, Norgren operates its own extensive die casting (zinc and aluminum) and injection molding (plastic) facility which gives it the option to choose the best process for the product. While plastic molding could have produced the small-diameter passages and grooves, pressures would have been limited to the 150 psig range. And die-cast aluminum would have required extensive post-machining, with die life less than one-half that of zinc die-cast dies. The one-piece zinc Quickclamp eliminates loose parts and requires only an allen wrench for maintenance.

36.6 mm

Other critical factors which favor die-cast zinc include its ability to maintain required dimensional tolerances of ± 0.015 in., as well as its ability to produce the as-cast flatness necessary to enable air-tight seals between the air component flanges and the cast grooves in the clamp. Also, for pressure-tight, thin-wall vessels like filter bowls, low porosity is very important, and die-cast zinc alloy meets these requirements without the adjustments to the casting process aluminum would require.

Surface treatment, both inside and out, is another feature which favors zinc alloy over aluminum. Corrosion-resistance protection is easily applied to protect interior surfaces. And since Norgren takes pride in producing an eye-appealing product, the smooth as-cast die-cast zinc surfaces are a plus. No further surface conditioning is required prior to the application of a satin-black powder coating.

Use of zinc gave Norgren the freedom to generate a highly functional design in terms of performance and serviceability. And it is able to produce that design without compromises or extensive machining operations which would have prevented the Excelon 1/4-in. series from being a competitively priced product.

The Quikclamp components are cast in-house by IMI Norgren, Littleton, Colorado.