More Knowledge More Experience More Solutions

LM76 Linear Bearings

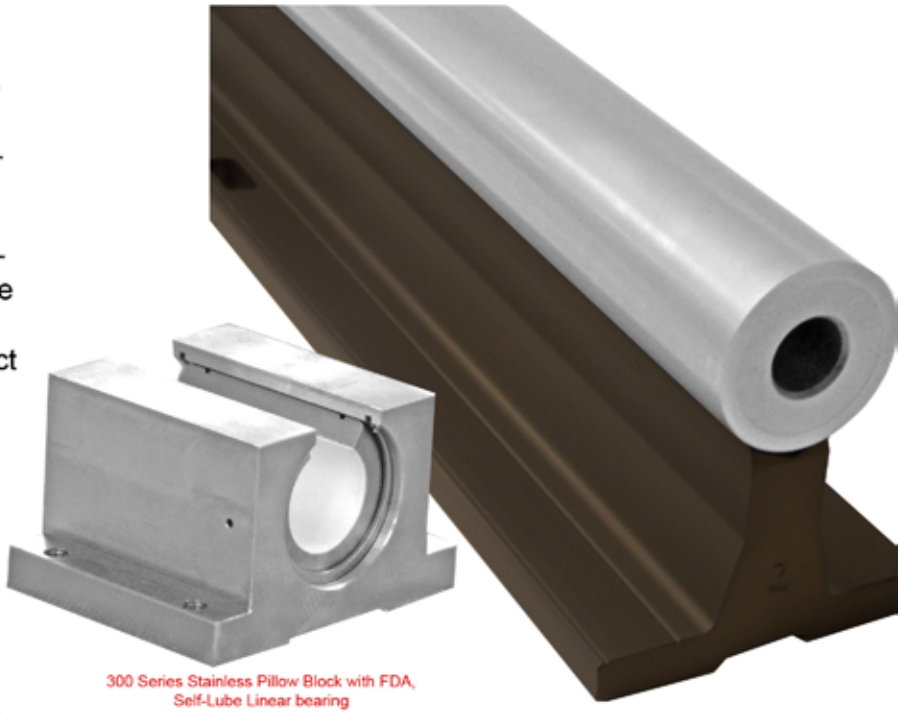
NEWS

2.1.14

FDA/Washdown System Excels with Special Linear Shaft Assembly from *LM76*

Dairy machinery manufacturers are under intense scrutiny by FDA inspectors when it comes to FDA material and caustic washdown compliance. Recently, LM76 was called by a large US dairy packaging company to review a problematic portion of their filling line. After each shift, the filling line is washed-down, has a caustic foaming agent applied to kill bacteria and then is final rinsed. The caustic foaming agent was destroying - literally eating - the aluminum shaft supports while shafting exhibited pitting and showed signs of minor corrosion. Additionally, there were areas where product got trapped - included - and these locations were havens for bacterial growth. Because this system was in-place and our customer was the end-user, LM76 engineers had to use direct drop-in replacement components. What to do?

First, we decided to forgo the original bearing system that used 440c stainless linear ball bearings running on 440c hardened shafting. After reviewing loads and speeds we determined that our stainless FDA Compliant, self-lubricating linear bearings would do the job. By choosing sliding friction bearings, we were able to switch the less corrosion resistant 440c with a better 316 stainless shafting while eliminating greasing of the linear ball bearings. To increase shaft hardness, corrosion resistance and decrease “Stick/Slip” of the sliding bearings, we applied an Armoloy coating. This coating raises the shaft hardness from Rb25 to Rc78. Additionally, both the 316 stainless and the coating are FDA compliant. Along with enhanced hardness, corrosion resistance and FDA compliance, this coating has an inherent lubricity that aids in lowering “Stick/Slip”. “Stick/Slip” is a condition inherent in sliding linear bearings. It takes a greater force to move a sleeve bearing linear system from static position than it does to maintain dynamic motion. Thus any assistance in lowering this value is meaningful. Now that we had the correct shafting, we turned our attention to the aluminum shaft support. Here we made 2 design decisions:



300 Series Stainless Pillow Block with FDA, Self-Lube Linear bearing

1. We applied a ceramic coating to the aluminum “T” support. This coating is FDA compliant, is file hard (resists scratching) and is highly corrosion resistant.

2. To enhance system flushing to remove trapped product that could produce harmful bacteria, we segmented the support system to allow for proper evacuation of all washdown solutions and debris.

At LM76, we don’t offer a standard catalog product for your special application. We study and isolate the issues, then we design a proper solution. If you have a special application that requires a special touch, call Mike Quinn at LM76 1-800-513-3163 or email: mquinn@lm76.com.

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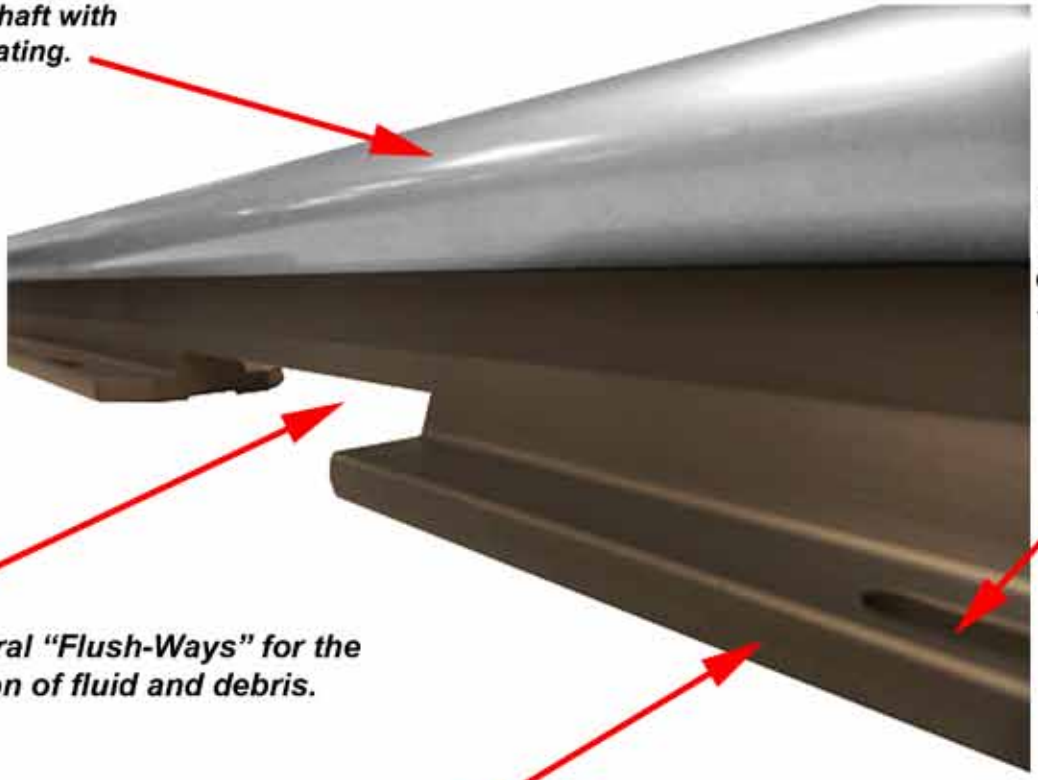
316 Stainless Shaft with Armoloy Coating.



Easy adjust mounting slots have protective covers to prevent fluid well-points and debris traps.

One of several "Flush-Ways" for the evacuation of fluid and debris.

Ceramic Coated Aluminum Shaft Support for corrosion resistance