

Presses

get more versatile



Polaris Industries Inc., Osceola, Wis., uses a straightside Aida press to produce a range of stampings from high-volume, thick progressive die parts to larger, lower-volume, highly cosmetic pieces.

Lube-less, preloaded roller slide guides on straightside presses offer advantages in many manufacturing applications

When stampers first began to ask for a press that could produce a mix of conventional and highly cosmetic parts without the contamination sometimes associated with oil film slide guides, the technology didn't exist. Lube-less roller slide guides were not a design feature of straight-side presses, which are the primary choice for this type of multi-purpose work. Historically, lube-less roller slide guide technology and the advantages it offers have belonged exclusively to high-speed presses, which are designed to meet a different process requirement.

There is no lubrication required, so press lube can't contaminate the die space. Also, there are no catch troughs for press lube, so splashing die lube can't contaminate the press oil. Cosmetic parts can be produced worry free.

High-speed presses are used largely to run thin materials where the press is required to control small punch-to-die clearances. Lube-less roller slide guides provide zero clearance to guide the press slide accurately and minimize the amount of punch and die chipping that occurs during production. Though more expensive to produce than a standard oil film slide guide, it seemed to make sense to take a system used for slide guide requirements in the high-speed world and adapt it for other uses.

Following nearly 24 months of research and development and after talking with stampers about production needs, Aida-America designed and built a tie-rod straightside press with lube-less, preloaded roller slide guides as a standard feature. As the only mechanical press manufacturer to use lube-less, preloaded roller slide guides on press equipment other than high-speed units, Aida initially developed this technology to address growing requirements in the appliance industry.

Need for clean surfaces

The press addresses another trend for appliance stampers with the development of a dry slide guide that is different from high-speed standard slide guide technology. It employs a proprietary roller bearing mount with the ability to swivel, which helps the roller maintain contact with the guide surface on the column during off-center load situations.

Increases in operations such as in-die tapping and hardware insertion in the die have led to use of larger dies and more transfer die applications. With zero clearance, the dry slide guide improves slide guiding, and its preloaded characteristic provides immediate resistance to any lateral slide movement caused by

off-center loads. Standard oil film bearings typically allow some degree of lateral movement, depending on the amount of clearance.

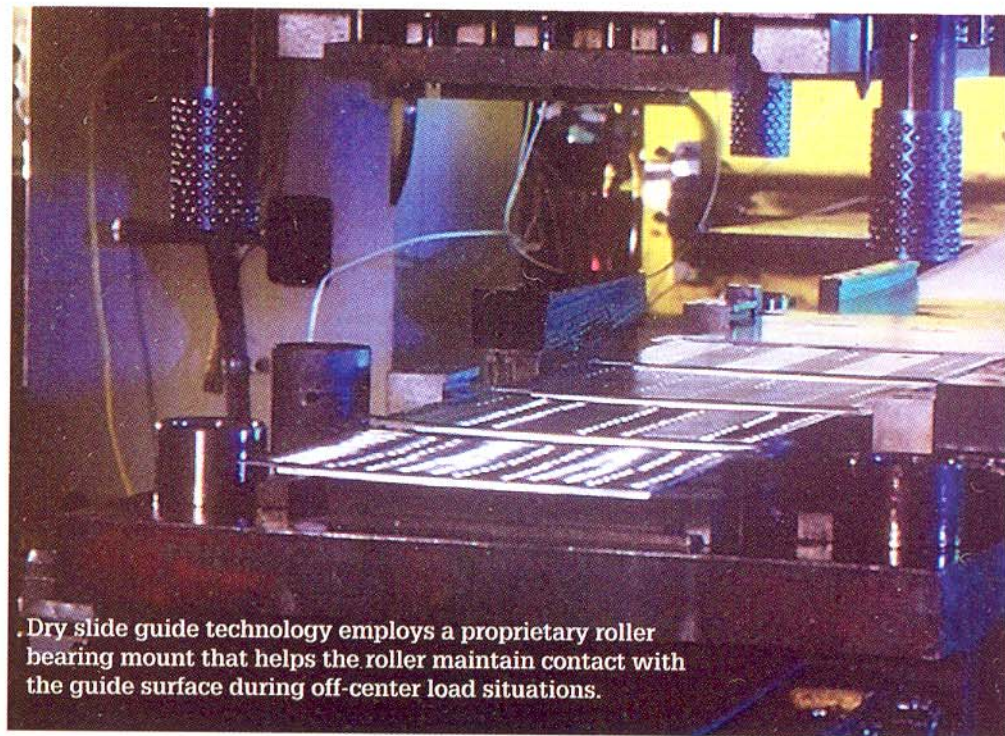
Since its introduction four years ago, the tie-rod straightside press with its lube-less, preloaded roller slide guides has established itself in the appliance industry. The press has also found acceptance in a number of other markets including automotive, lighting, HVAC, furniture, hardware, and farm and garden machinery. Yet for a large number of conventional press purchasers, the advantages of these lube-less, preloaded roller slide guides are still unfamiliar.

Expanded press capabilities

Lube-less, preloaded roller slide guides made it possible for Polaris Industries Inc., Osceola, Wis., to use a straightside press to produce a variety of stampings from high-volume, thick progressive die parts to larger, lower-volume, highly cosmetic pieces.

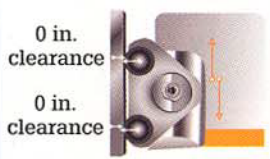
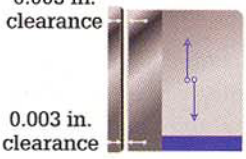
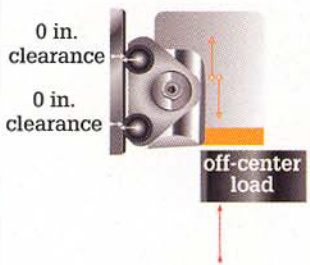
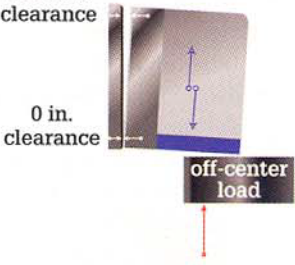


In addition to off-center loads, Polaris runs jobs that use highly cosmetic aluminum. "It wasn't uncommon for us to experience parts rejection due to gib oil contamination," says Jason Nelson, manufacturing engineer for Polaris. "Because Aida's slide guides are lube free, there's no chance of oil contaminating parts."



Dry slide guide technology employs a proprietary roller bearing mount that helps the roller maintain contact with the guide surface during off-center load situations.

Presses

NST		vs.	Conventional	
 <p>0 in. clearance 0 in. clearance</p> <p>with no load</p>			 <p>0.003 in. clearance 0.003 in. clearance</p>	
 <p>0 in. clearance 0 in. clearance</p> <p>off-center load</p>			 <p>0.006 in. clearance 0 in. clearance</p> <p>off-center load</p>	

(Left) A dry slide guide employs a proprietary roller bearing mount with the ability to swivel. This capability helps the roller maintain contact with the guide surface on the column during off-center load situations. With zero clearance, the dry slide guide improves slide guiding and its preloaded characteristic provides immediate resistance to any lateral slide movement caused by off-center loads.

(Right) Standard oil film bearings typically allow some degree of lateral movement, depending on how much clearance there is.

As a stand-alone work center, the straightside press was used to produce parts for Polaris snowmobiles and all-

terrain vehicles. Materials range from cosmetic aluminum to high-strength steel. Material can run as wide as 60 in.

with thicknesses ranging from 0.060 in. to 0.187 in. "We ran a lead test and were somewhat surprised by the results," says Nelson.

The press was loaded with a die, and a lead wire was placed in a groove on all four stop blocks of the die. After cycling the press, the thickness of the lead wire was measured on all four corners to determine the amount of slide tilting. "We found that out of the 30 presses we own, nine of which are also straight-sides, Aida's tie-rod straightside, loaded or unloaded, was the only press to consistently deliver the exact same measurement on all four stop blocks," says Nelson.

The straightside's preloaded, roller slide guide system, which keeps the slide parallel throughout a loaded condition, contributed to the positive test results Polaris experienced. Testing is being conducted to provide quantitative results comparing the lube-less preloaded, roller slide guide system to standard oil film systems. **FFJ**

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