

Hygienic screw-driven actuators for hematology analyzers & pipetting technology

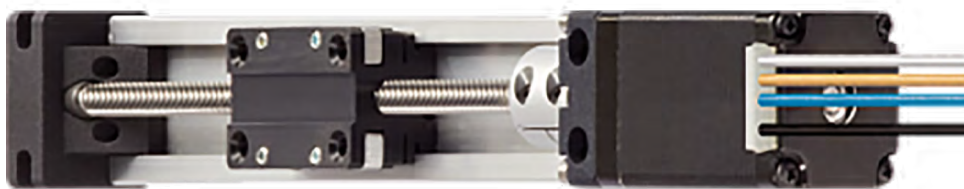
Since 2005, the global medical equipment industry has more than doubled in terms of sales revenue. This drastic increase has led manufacturers and engineers alike to look for better solutions to common medical applications such as hematology analyzers. Miniature linear actuator systems from igus® are one such solution that can improve the performance and lifetime of hematology analyzers while eliminating grease, reducing noise, and minimizing costs.



High-performance linear actuator systems

drylin® linear actuator systems from igus® typically consist of a lead screw, lead screw support, a guide rail, a carriage, and a motor. These are delivered as a complete, ready-to-install actuator system. Different variations can be configured based on specific application requirements to ensure the best possible fit at the lowest possible price.

These linear actuators are a significant improvement over alternatives such as recirculating ball bearing systems for numerous reasons. One of the most important, especially in medical and lab settings, is the lack of any external lubricants or grease. Linear actuators from igus are completely self-lubricating which ensures clean, maintenance-free operation.



Another clear advantage drylin® actuators offer is quiet operation. drylin® actuators are four times quieter than recirculating ball bearing systems due to the polymer sliding elements used in drylin® systems. These polymers also make drylin® actuators a significantly lighter solution, reducing weight by up to 75%.

Installation space is one of the key limiting factors in medical equipment applications. This is particularly true of drive technology in hematology analyzers, for example. Most actuators are simply too large to be specced successfully into these applications. igus'® miniature linear actuators solve this issue while also providing a reliable, long-lasting system.

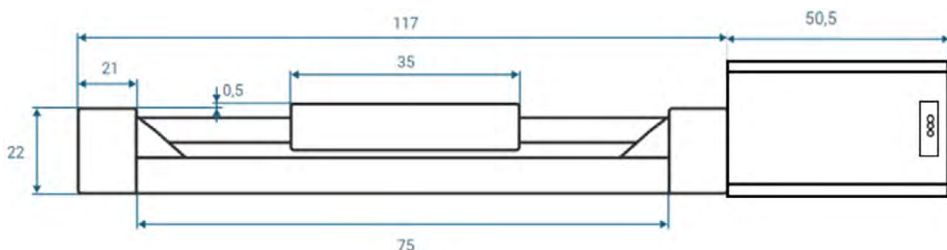
Solving difficult applications

While many engineers and designers may be skeptical of the reliability and benefits of polymer solutions, the extensive data collected in the igus® test lab backs up these claims. Take the following application, for example:

Learn more at www.igus.com/info/hematology-analyzer

A hematology analyzer requiring vertical movements of a pipetting needle. A thin membrane covering samples is pierced by the pipetting needle, which then dips into the sample to start analysis. Application parameters include a 2N axial load on the needle, a 40mm stroke, and a feed rate of 0.04m/s. The actuator solution also needs to be self-locking.

For such an application, igus® would spec a screw-driven actuator solution weighing just 0.4kg, at dimensions of 27mm x 22mm x 117mm, and able to achieve the required stroke length and feed rate. A system with these specifications from igus® would last for over 11 million double strokes at 20°C/68°F.



Dimensions: 27 x 22 x 117 mm

Total weight: ~ 0.4 kg

Configured stroke length: 40 mm

Lead screw: DS6.35x2.54

Lead screw material: Stainless steel

Max. static load: 10.00 N *

Max. tightening torque: 0.10 Nm *

Max. speed: 0.042 m/s *

Feed rate: 2.54 mm / Revolution

Self-locking: Yes

* Maximum values for one criterion each, the values are not achievable in combination

Service life at 20°C: 11,249,000 Double strokes ✓

Operating characteristics: Ok ✓

Required torque: 0.10 Nm

Required speed: 23.62 rpm

Reliable performance backed by extensive testing

The above data is a result of the extensive testing igus® performs at our 41,000-square-foot test laboratory in Cologne, Germany. Thousands of tests are performed each year, and all of the data collected is used within various online tools and configurators that provide highly accurate performance data based upon application requirements.

The benefits of igus® actuator solutions over alternatives like recirculating ball bearing systems are clear. Not only are igus® systems lighter, quieter and more hygienic, but they can last for significantly longer as well. To learn more about how igus® actuator solutions can improve your own applications, don't hesitate to [contact an expert](#) or call us directly at 1-800-521-2747.