

Medical

Plastic Bearings for Medical and Laboratory Equipment



Benefits

igus® Inc. is the leading developer of plastic bearings, including plain, self-aligning and linear bearings. Our products are used in medical-related applications worldwide to ensure maximum service life, without external lubricants or any maintenance.



iglide® sleeve, flange and thrust washer bearings



DryLin® linear bearings and guide systems



igubal® spherical, self-aligning bearings

With igus®' comprehensive bearing solutions for medical and laboratory equipment, you will enjoy:

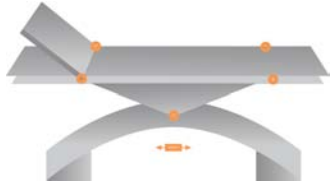
Features

- Oil-free operation
- Low noise
- Easy-to-replace, long lasting liners
- Predictable lifespan
- Constant coefficient of friction
- Chemical resistance
- Lightweight and space saving
- Performs even with soft shaft materials
- Cost effective
- No stick slip
- Clean environment

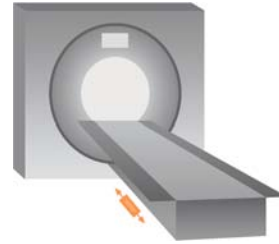
Benefits

- Clean, hygienic work space
- Serene, patient-friendly environments
- Lower maintenance costs and downtime
- Know exactly what to expect from your machine
- Smooth, consistent operation for life of the application
- Unaffected by most cleaning agents
- Smaller, lighter machines
- Eliminate expensive, hardened steel shafts
- Less expensive than older metal bearing solutions, no maintenance costs
- Smooth movement for entire lifespan
- No wet lubricants to attract dirt and dust and will not corrode

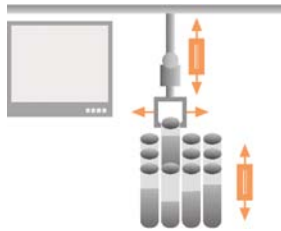
Bearing Solutions



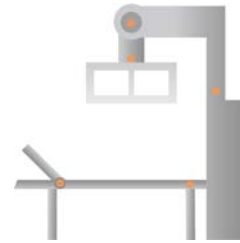
Adjustable medical beds



C-Scan and MRI machines



Laboratory equipment



Diagnostic devices



Physical therapy equipment



Prosthetics



Peripheral pivot points



Wheelchairs

How long will it last?

igus®' pioneering online predictability calculator enables users to predict the approximate lifespan and wear rates of an iglide®, igubar® or DryLin® bearing in their application.

Visit www.igus.com/predict to use the Expert System and find out which bearing will work best in your application.



What is iglide®?

iglide® Plain Bearings

Igide® bearings are available in flange, sleeve and thrust washer designs. More than 8,000 sizes and styles are available from stock. Custom-designed bearings are also available. Igide® bearings are made from engineered polymers tailored to fit specific application requirements. All igide® maintenance-free bearings deliver superior performance, even in severe environments. Because they operate oil-free, no external lubrication is necessary and costly maintenance can be eliminated.

Sleeve Bearing



Flange Bearing



Thrust Washer



iglide® R
A low-cost replacement for bronze, it eliminates any need for wet lubricants.



iglide® T500
This bearing is a high-temperature material, and has excellent chemical resistance.



iglide® J
The bearing with the lowest coefficient of friction, it is excellent for linear motion.



iglide® G300
A thin-walled bearing designed for more demanding applications.



iglide® A200
This bearing is ideal for applications requiring FDA-approved material.



Custom Bearings
Create a special shape or a distinctive polymer material unique to your application needs.

igubal® Spherical Bearings

igus® also offers a complete system of oil-free, self-aligning spherical bearings. Self-aligning bearings are easy to install, adapt to angular deviations and often replace special housings. They are available in a variety of styles including flange, pillow block and rod end.



Application Examples

Lab equipment



A medical device manufacturer replaced metal bearings with iglide® G300 bearings in its automatic decanting centrifuge which separates and concentrates components of a patient's blood. The metal bearings would gall, bind and create a lot of noise. The initial solution required shipping pen-size lubricating tubes to all customers which was expensive and solved one problem while creating others. The process was messy and the oil attracted dust and dirt to the axle area.

By replacing the metal bearings with iglide® G300, costs were reduced by 93% and assembly time cut by 10 minutes. Maintenance — which had to be grudgingly performed by the customer — is completely eliminated.

“The hidden cost was the biggest; the fact that we no longer had customers calling to say that their machine was making a weird noise was invaluable. Iglide® bearings are a design engineer’s dream component: They solved a problem and they cost less!”

Wheelchair



A unique, foldable electric-powered wheelchair uses igubal® spherical pillow blocks and rod ends for their lightweight and maintenance-free properties.

“No other bearing system comes close to solving this problem in such a simple, robust way. The backup from igus® was outstanding.”



What is DryLin®?

DryLin® N Low-Profile Linear Guide Systems

DryLin® N is an extremely low-profile linear guide system that is simple and easy to install. With such a compact design, tight space restrictions are handled with ease. Like all DryLin® linear guides, the carriages are equipped with lubrication-free, maintenance-free iglide® J plastic glide elements. An affordable alternative to bulky, messy, miniature ball bearings, DryLin® N is more precise and economical when compared to many custom-machined or simple plastic parts.

Key features

- Low-profile
- Easy to use and install
- Lightweight
- Preloaded version available



DryLin® W Versatile Linear Guide Systems

The DryLin® W series was developed to promote design flexibility and quick assembly. It's available in both single and double rail configurations with iglide® J plastic gliding elements or with enhanced iglide® J200 liners to reduce friction and optimize bearing life. It is an ideal solution for wash down applications.

Other options

- A pre-mounted, bolt-on system for rapid assembly which eliminates shaft alignment and carriage assembly
- Anodized aluminum carriages for chemical resistance, high shock loads and other performance benefits
- A stainless-steel version that prevents corrosion and withstands extremely high temperatures



Application Examples

Portable incubator

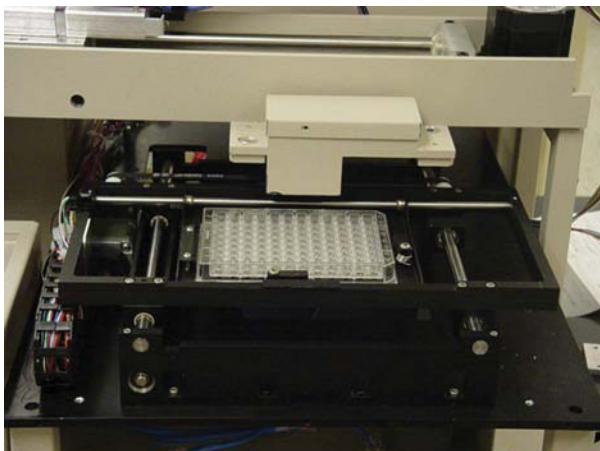


Transport incubators to move critically ill newborn babies between hospitals require smooth, reliable, quiet operation and no lubrication in order to meet critical infection control protocols.

DryLin® W linear guide systems increase bed stroke and stability and provide dry-running operation in the tight spacial constraints of the incubator.

“igus® linear rails were the key component. They helped us to solve a critically important design challenge, which will help save the lives of very sick babies.”

Lab equipment



DryLin® N linear guides and DryLin® R linear bearings are used in immuno-assay medical equipment. Repetitive motion requires precise positioning and highly reliable performance. A probe needs a lightweight and accurate cantilevered arm. Friction, high temperatures and saltwater solutions also are a factor.

“igus® products were initially considered primarily for the low-friction and lubrication-free operation, but other advantages soon became evident. The low cost and ease of implementation were two other important

factors in the ultimate selection of igus® plastic bearings.”

What is DryLin®?

DryLin® T Profile Guide Systems

DryLin® T linear guides are ideal for highly corrosive environments. They are dimensionally interchangeable with many re-circulating ball guides, but are more compact and eliminate high cost and messy maintenance.

Styles

- Adjustable series with fully adjustable clearance
- Clamping series with a unique hand clamp for multiple position applications
- Low-cost miniature series, an ideal slide for tight design constraints



DryLin® Linear Slide Tables

DryLin® linear slide tables are an ideal off-the-shelf solution for low-speed motor or hand-powered applications and are built to your required stroke length. These slides have a low coefficient of friction, are corrosion-resistant, wear-resistant and have excellent vibration dampening properties.

Slide table types

- SLW - rigid and low-profile, a fully supported rail that resists twisting and deflection
- HTS/HTSC - tough, clean and adaptable, it's also available in a compact carriage
- HTSP - cost-effective, all-polymer and lightweight choice for low-weight applications especially in corrosive environments
- ZLW - a belt-drive system for high-speed applications and quiet performance
- HTS-XY and SLW-XY, all the benefits these slide tables offer in a double table combination for multi-axis movement



Application Examples

Ambulance cot

Iglide® bearings are used in an ambulance cot designed to reduce the amount of manual lifting required by the care giver. A hydraulic cylinder with iglide® Q flange bearings raises and lowers the cot.

The iglide® Q bearings are used for their high strength and ability to endure heavy loads. The cots often are exposed to blood, other fluids, harsh cleaners and bleaching agents so the plastic bearings will not corrode when exposed to these caustic substances.

“We’re planning to switch over to iglide® bearings in a number of applications because of the consistent, reliable, high quality performance. The iglide® material maintains its properties over time, so we know it will perform the same way each and every time. A standard machined bearing would be destroyed in this application. A self-lubricating bearing like iglide®, that deposits dry lubricant on the shaft, is exactly what we need.”



Medical device



A global medical equipment company that develops and manufactures medical products with emphasis on innovative technologies and non-invasive treatments, uses various DryLin® linear guide systems on some of its equipment.

One machine performs noninvasive treatment of chronic heel pain (plantar fasciitis) and other inflammatory bone and tendon conditions. Accuracy, space limitations and longevity of components were all taken into consideration when designing it. DryLin® N and T linear guide systems and DryLin® R linear bearings were the only solutions that met all of the company’s requirements.

What is DryLin®?

DryLin® R Linear Plain Bearings

Clean, reliable and design-friendly DryLin® R linear bearings are dimensionally interchangeable with ball bearings and specifically formulated for long life and consistently low friction.

Configurations

- Standard, anodized aluminum housings with plastic liners
- Pillow block assemblies
- Flexible, space-saving, replaceable liners
- Low-cost, lightweight, all-polymer version
- Unique split-bearing version

DryLin® R is ideally paired with DryLin® S aluminum shafting, but it also may be used on other shaft materials.



DryLin® S Shafting

The DryLin® S line of shafting is available in hard-anodized aluminum, steel, stainless steel and chrome-plated materials. The anodized-aluminum shafting is developed as the optimal sliding surface for DryLin® R and the iglide® J material. This combination is lightweight, achieves the lowest frictional properties and reduces wear by as much as 50% versus steel shafting, while maintaining an extremely affordable price.

Styles

- Inch sizes between .25" and 2.00" OD
- Metric sizes between 6 mm and 50 mm
- Fully supported shafting in inch sizes
.50" to 1.50"
- Fully supported shafting in metric sizes from 12 mm to 40 mm



Application Examples

Lab equipment



A laboratory device that mixes various chemicals performed both a rocking and shaking motion to agitate the substances. Originally a metal link arm with two bronze sintered bearings linked the motor drive and the moving platform. This was expensive, required precise positioning and was difficult to align during assembly.

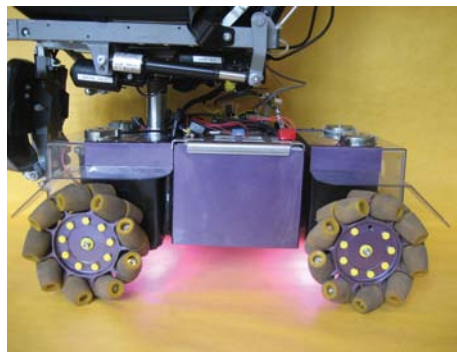
“igus® bearings were a godsend. Not only were they cheaper to purchase than the metal links, but they were self-aligning on assembly, which eliminated labor cost. The production operators are much happier. The cost has been significantly reduced, without affecting quality.”

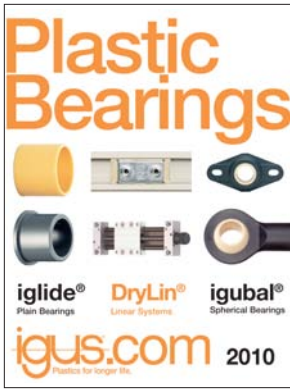
Wheelchair



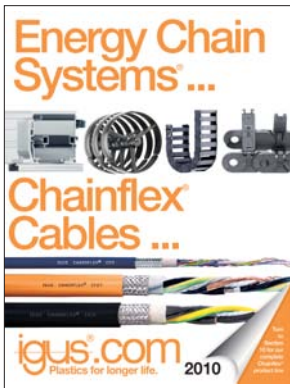
Students from Upper Darby High School developed an omni-directional wheelchair after the team won a grant sponsored by the Lemelson-MIT InvenTeams Program, a group that inspires creative thinking and innovation among high-school students by providing the resources for a real-world invention experience.

The chair's unique mecanum wheel system is dual-layered and omni-directional. The technology of a leading omni-directional product developer is combined with 54 iglide® Z bearings and multiple pieces of DryLin® S shafting to create each wheel. This enables the wheelchair to have full holonomic movement and the user to drive in any direction. Iglide® Z also is not compromised by heavy weights and high surface speeds, both of which may be encountered by the wheelchair.

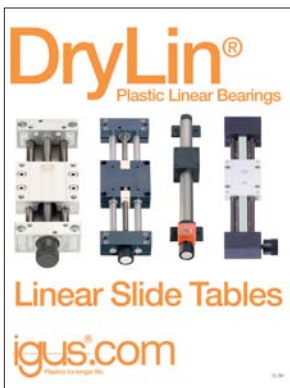




The iglide® catalog showcases more than 12 standard polymer material blends (additional blends available for custom orders). These engineered plastics are used throughout the plain, spherical and linear bearing product lines, as well as in the gliding elements of all DryLin® linear guide systems. All iglide® bearings and materials are self-lubricating and maintenance-free. More than 8,000 sizes and styles are available from stock.



The Energy Chain Systems® catalog provides comprehensive technical data and design information about hundreds of cable carriers and cable products. The new catalog has been revamped for ease of use and simplicity to quickly locate what you need. All products are backed by a complete system warranty. Various on-site services and harnessing solutions are available.



The new DryLin® linear slide table brochure provides customers with a complete range of slide table options for their packaging, medical and cleanroom applications. Six varieties are available in multiple sizes to meet a range of application requirements. Customizable solutions also are available.



The Y.E.S. (Young Engineers Support) Program offers free product donations to students and educators for use in design competitions, school projects and engineering curriculums. Through Y.E.S., igus fosters the mechanical design aspirations of young engineers and educates them about the merits and benefits of plastic components. igus is a product supplier for competitions such as FIRST® Robotics, BEST™ Robotics and the SAE Collegiate Design Series. To learn more or to become a member of the Y.E.S. Program, visit www.igus.com/yesprogram.

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