

bike.

**Solutions for the bicycle industry
40% less costs, 80% less weight,
100% less maintenance**



plastics for longer life®
igus.com...
www.igus.com/bike



Change your bearings now!
40% less costs,
80% less weight
and 100% less maintenance

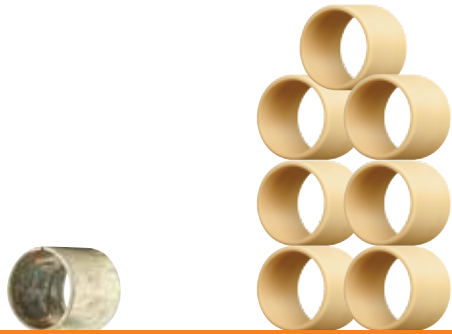
Your technical innovator and cost reducer,

Nicole Lang

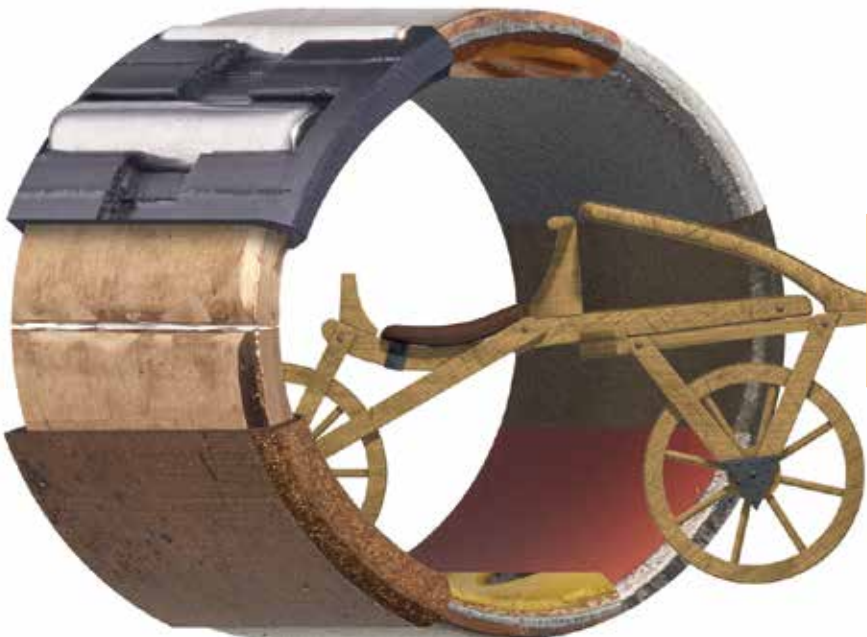
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www.igus.com/bike



One DU bearing weighs
the same as seven
iglide® bearings.



What began with the Draisian running machine with oiled brass bushings in 1817 advanced over the years into a weight-optimized lifestyle object. "Ebikes" and "bikes as a vehicles" are some of the trends that are of great importance in today's bicycle world. With these advancements, there are many new potential uses for bicycles in our everyday lives.

This also changes the demands of the components installed on the bike: impact and shock loads are exerted on the bearings used in the components while riding mountain bikes across uneven ground, whereas the e-bike is designed to cover the greatest possible range with one battery charge. Therefore, the bike must be as light as possible, although the higher mileage will result in a greater stress on the separate bicycle components compared to the conventional bike.

Decrease weight, increase service life and minimize maintenance intervals with igus®. Self-lubricating iglide® plain bearings made of high-performance plastics are lightweight, extremely wear-resistant and characterized by very low friction values. They defy shocks and bumps, and are more resistant than metallic bearings - especially in extreme environmental conditions. Thus, dirt, temperature, detergents and humidity will not be setbacks anymore. By eliminating external lubricants, maintenance is also minimized. Overall, iglide® plain bearings provide savings in weight, maintenance, and price.



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igus® motion plastics: Plastics that drive

It all started with an idea. When Günter Blase founded igus® in his garage in Cologne in 1964, the company consisted of no more than a small injection molding machine and the belief in the future of plastic material. Tribologically optimized polymers, according to the fundamental igus® vision, was the key to solving the universal problems of moving applications. The traditional solution, lubricating with oil or grease, has negative consequences, such as high maintenance, environmental pollution and machine failure. The Tribo-optimized (friction-optimized) high-performance plastics offered by igus® in the form of self-lubricating and cost-effective components help to solve this problem. igus® has 3,180 employees working in 35 countries to implement the idea of manufacturing machine components from plastic, which creates a tangible technological and economic value and thus a competitive advantage for more than 200,000 igus® customers worldwide.

The igus® solar system with the customer at the center.

igus® receives its most important product development requests from the customer. Our mission is therefore to always provide each customer with the best individual solution, which also increases service life and reduces costs.

No limits for plastics for longer life®

Constant creation of products, as well as regular customer requests, have led to the development of consistently new applications and customer relationships. The second generation of our family-owned company has therefore become a globally leading producer of energy chain systems® and plastic plain bearings. Altogether, our products' positive material properties, specifically their wear and abrasion resistance, drastically reduce maintenance and downtime.

Research in the igus® laboratory for better products and guaranteed service life

igus® operates the largest research and test laboratory in the industry on a 29,600 square foot property. By conducting research on new materials, we are continually improving products. Today, for instance, more than 50 different iglide® materials are offered every year with different material properties for demanding applications, as well as more than one hundred new products and extensions. The igus® R & D investments (clearly above the average in mechanical engineering with a research rate of 5% of sales per year) serve a dual-purpose of achieving and maintaining the highest quality in the process, as well as providing the customer with a durable, process-safe machine part.



The 1965 idea:
"Show me the plastic part that gives you problem. I'll provide you with a solution!"

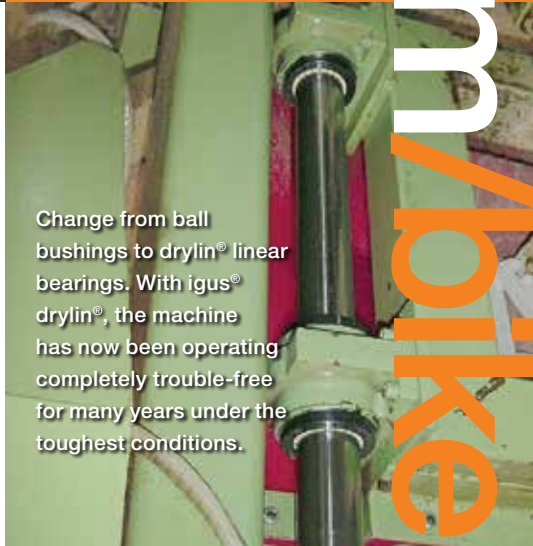
igus® research and test laboratory on a floor area of 29,600 square feet.



Conversion of festoon to energy chain system® at MVA Weisweiler. It has been running 24/7 for more than six years.



Change from ball bushings to drylin® linear bearings. With igus® drylin®, the machine has now been operating completely trouble-free for many years under the toughest conditions.



www.igus.com/boike

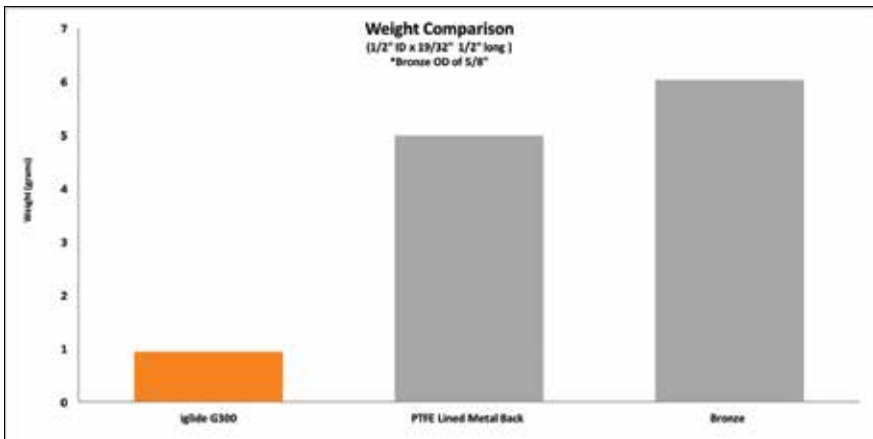
igus® plain bearings for bikes. Plastic beats metal even on the bike

Light and durable plain bearings for shocks, edge loads, dirt.

The igus® iglide® plain bearings combine all the advantages of processed high-performance plastics. They can be used in dry operation and have excellent vibration damping properties. They have a high stiffness and wear resistance, and are resistant to dirt and dust. Due to their high corrosion resistance, iglide® plain bearings from igus® can also be used in damp environments. Major weight reductions can be achieved by replacing metal bearings with iglide® bearings as well.

Advantages of igus® products in bicycle technology:

- Self-lubricating dry operation
- Impact and shock resistant
- Very light compared to metallic bearings
- Resistant to corrosion and chemicals
- Extremely strong and wear-resistant
- Vibration-damping property





www.igus.com/bike

25 bearing points
with **dry-tech**
high-performance
polymers - less
weight, longer
service life



Dropper seat post:
iglide®J4

Rear shock:
iglide®J3

Rear axle pivot
iglide®J

Bottom bracket:
iglide® G300

Rear derailleur:
iglide® G300

Please note: this bike is a single item and is not distributed by igus®!



Brake levers:
iglide®J

Front suspension:
iglide®J4

Pedals:
iglide®J

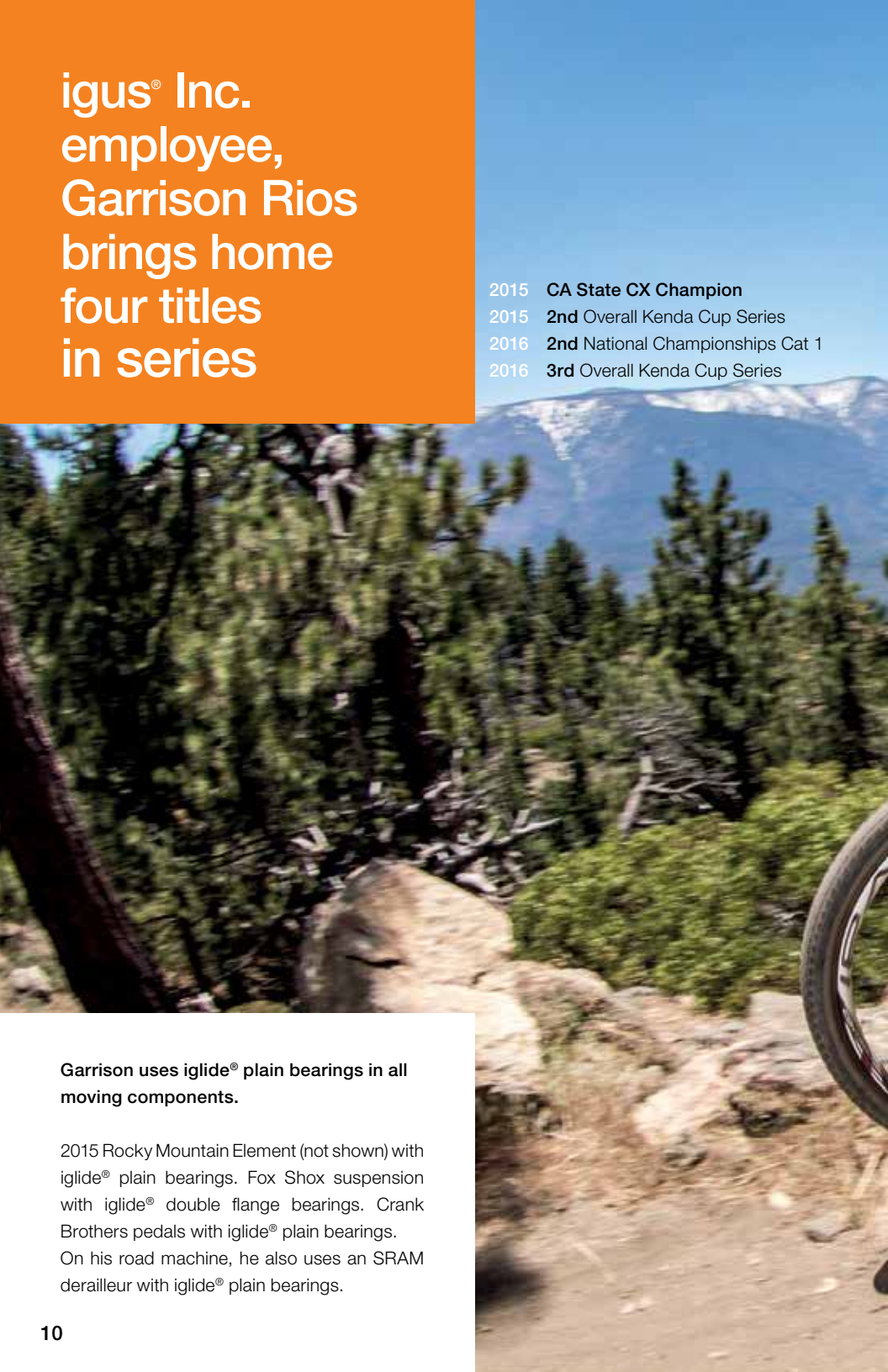
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igus® Inc. employee, Garrison Rios brings home four titles in series

- 2015 **CA State CX Champion**
- 2015 **2nd Overall Kenda Cup Series**
- 2016 **2nd National Championships Cat 1**
- 2016 **3rd Overall Kenda Cup Series**

Garrison uses iglide® plain bearings in all moving components.

2015 Rocky Mountain Element (not shown) with iglide® plain bearings. Fox Shox suspension with iglide® double flange bearings. Crank Brothers pedals with iglide® plain bearings. On his road machine, he also uses an SRAM derailleur with iglide® plain bearings.





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Easier steering with heavy loads – igubal® in the cargo bike

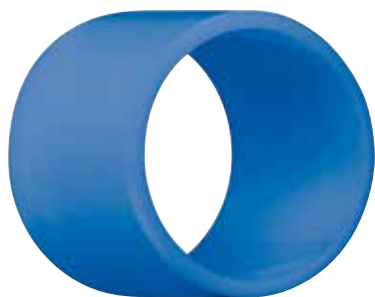


**BUTCHERS & BICYCLES Copenhagen,
Morten Mogensen, København V, Denmark.**

This cargo bike can always be steered easily. This is ensured by durable plastic bearings from igus®, which are used in the steering and tilt mechanism of the front wheels. Compared to conventional bearing solutions, they have the advantage that they are absolutely maintenance-free because they are self-lubricating and resistant to weathering. In addition, they are much more space-saving and, in small numbers, much more cost-effective than the metal solutions.



Steering and tilt mechanism
with igubal® plastic plain
bearings



iglide® H in disc brakes: Perfect function guaranteed

- Temperature resistant up to +392°F
- Corrosion resistant, no seizing.
- Wear resistant, low friction



www.igus.com/H

iglide® G300 in drive train: Smooth running and durable

- Smooth running thanks to low coefficient of friction
- Reliable, maintenance-free and dirt-resistant
- Precise and fast switching
- Resistant to impact loads



www.igus.com/G

iglide® A160 in suspension fork: Ideal response

- Extremely low coefficients of friction and breakaway torques
- Constant stability
- Extreme wear resistance



www.igus.com/A160

iglide® J in suspension linkage: Resistant to impact loads

- Resistant to high frequency shocks and vibrations
- Extreme wear resistance
- No 'stick slip'
- Lightweight



www.igus.com/J

iglide® J3 in the rear shock: Easy installation

- High impact strength, maintains shape
- Sensitive feedback from the rear shock
- Low coefficient of friction
- Dimensional stability of the bearing



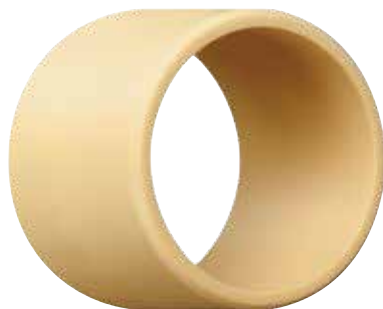
www.igus.com/J3

iglide® J in seat posts: Smooth & consistent actuation

- Wear resistant with linear motion
- Low coefficient of friction, no squeaking (stick-slip)
- Resistant to edge loads
- Vibration dampening



www.igus.com/J





igubal® in steering linkage: Self-lubricating connection

- Absorbs vibrations
- Angle and tolerance compensation
- Lightweight, self-lubricating and thus insensitive to dirt and sand



www.igus.com/igubal

iglide® J3 in freewheel hubs: No seals required

- Extreme wear resistance
- Dirt resistant
- Lightweight
- Low coefficient of friction



www.igus.com/J3

iglide® G300 in rim brakes: Ideal against dirt and dust

- Resistant to dirt and dust
- Wear-resistant
- Maintenance-free



www.igus.com/G

iglide® G300 in tricycle: Quickly into the corner

- High wear resistance
- Resistance to dust and dirt
- Cost-effective



www.igus.com/G

iglide® J in recumbant bike: Safe and easy in open terrain

- Dust and moisture resistant
- Lightweight
- Vibration dampening



www.igus.com/J

iglide® J3 in pedals: Dirt-resistant and lightweight

- Extremely wear-resistant
- Resistant to corrosion, high pressure cleaners and cleaning agents
- Lightweight, self-lubricating and maintenance-free.



www.igus.com/J3



iglide® plain bearings on e-bike:
Lightweight construction and service life.

Saddle suspension



Hubs



Derailleur



E-motor



Pedals



www.igus.com/bike



Brakes

Suspension fork

Bicycle stand

When it is all about the bike – igus® catalog parts, custom parts, bar stock and 3D printed solutions



We can also go your way: customized solutions, special designs and special materials - (virtually) everything is possible.

The standard is not the right solution for everyone. Therefore, igus® also manufactures a number of customized special designs. Structural and material special solutions such as plain bearings for multiple-edge shafts, bearings with reduced clearance or an anti-rotation feature, special lead screw support blocks and glide pads, and so on, are specially adapted to your requirements. We make almost everything possible.



www.igus.com/speedigus



3D printing service – for individual parts made of high-performance plastics

To obtain the 3D-printed component, we print your individual component using self-lubricating, abrasion-resistant iglide® high-performance plastics. Upload your drawing in the STEP (STP) format, check the 360° view, select a filament and see prices instantly. We ship your desired product - depending on the complexity - within 24 hours.



www.igus.com/3Dprintservice

Test rig permanent load



Tested ...



- Test: Pivoting wear rate
- Load per bearing point: 5.6 lb to 67 lb
- Surface speed: 1.97 fpm

Tested ...



- Simulation of continuous load
- Tested with impact.
- In suspended parallelogram seatpost



Test rig seatpost

Tested ...



- Test: Linear wear rate
- Load per bearing point: 12.25 lb to 45 lb
- Surface speed: 19.7 fpm up to 59 fpm



Test rig edge pressure



Test rig pivoting wear

Extensive test database

Tested ...



- Test: Rotating coefficient of friction
- Load per bearing point: 2.25 lb to 225 lb
- Surface speed: 200 to 2000 RPM.



Test rig coefficient of friction

Test rig linear wear (short stroke)



More than 15,000 tests per year have been conducted and recorded in what is probably the world's largest database. This database gives us the ability to always select the right product for your specific application. Individual tests for your branch of industry are also possible.



www.igus.com/test

Buy online – 24 hours!

Visit our industry web pages for more information, products, application examples and useful online tools.

Quickly find and configure products and calculate service life – all online. With the help of our product finders, you can quickly find the right article and obtain an exact prediction of service life. All online tools also enable you to reduce process costs. igus® shipped from stock in as little as 24 hours!

The screenshot shows the igus website interface. At the top, there is a navigation bar with 'Products', 'Industry Solutions', 'Resources', and 'Company'. A search bar is located on the right. Below the navigation bar, there is a main content area with a large orange banner featuring a bicycle and the text 'igus® products in Bicycle Technology Performance meets comfort'. Below the banner, the heading 'Bicycle design - performance meets comfort' is followed by a sub-heading 'Light and robust plain bearings for impacts, edge loads and dirt'. A video player is embedded in the center, showing a close-up of a bearing. To the right of the video, there is a sidebar with contact information, including a phone number (800) 631-2747 and an email address. The sidebar also includes a 'Subscribe to e-newsletter' button and a 'Make an Appointment' button. At the bottom of the page, there is a footer with the text 'More than 1.000.000 products'.

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www.igus.com

Always the right solution for the bike industry.
igus® is certified in accordance with ISO 9001:2008 and ISO/TS 16949:2009 in the field of energy supply systems, cables and harnessing, as well as plastic plain bearings.