

bike

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



• plastics for longer life®
igus®.eu...
www.igus.eu/bike



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

Your technical innovator and cost reducer,

Patrick Carl

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What began with the Draisian running machine with oiled brass bushes in 1817 advanced over the years into a weight-optimised lifestyle object. "Digital bike" and "bike as a vehicle" are some of the trends that are of great importance in today's bicycle world, and electrification also means new application potentials of bikes in everyday life.

This also changes the demands on the components installed on the bike: impact and shock loads are exerted on the bearings used in the components while riding the mountain bikes across uneven ground, whereas the focus of the e-bike lies on covering 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.

Save weight, increase service life and minimise maintenance intervals with igus®. Dry operating iglidur® plain bearings made of high-performance plastics are light-weight, extremely wear-resistant and characterised 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 are not challenges any more. By the elimination of external lubricants and, the maintenance is also minimised. Overall three-fold savings: in weight, in maintenance, and also in price.



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motion? plastics! – Our drive? Plastic!

motion? plastics! Tribologically optimised machine parts made of plastic for all kinds of movements.

Our slogan can be translated thus. We have been pursuing this idea passionately for more than 50 years. Plastic is light, robust, cost-effective and has low friction. Maintenance? Equal to zero, because our products are without any additional lubrication, show little wear and hardly cause downtimes. We make precise service life prediction with our online tools – simply enter the technical data of your particular application.

Ultra-smooth dry operation

It all sounds very easy but, in fact, it is the result of a great deal of intensive work. Plastics must possess some very specific properties so that they can operate smoothly without any lubrication. We created them with the help of tribology, i.e. the study of friction, analysing the wear and friction characteristics of plastics, combining different polymers with each other and then testing the resulting products for their practicability. What we ended up with were "tribo-optimised" high-performance plastics – low-friction, resilient and long-lasting materials that make your machines more reliable and efficient. In our catalogue, there are more than 50 different plastics to choose from, 16 of which we offer as part of our full range of products.

Technical design without limits

"Greater design freedom and flexibility" – what company founder Günter Blase succinctly pointed out as a fundamental ideal in the 1960s has now taken on a clear form after five decades of hard work: more than 100,000 modular and configurable products are currently supplied by igus® for technical designs without limits: energy chain systems® and matching cables, plastic, linear and spherical bearings, lead screw units, ball bearings, linear drive technology, bar stock, materials for 3D printing, liners as well as components for low-cost robotics.

Convenient. Long life. Predictable.

To make life easier for users, all igus® components can be conveniently ordered in the online shop. There is no minimum order quantity and the goods will be sent to you with a short lead time. A further service: with the igus® online calculating tools, you can calculate the service life of your chosen component in your actual application. This is based on the data that we obtain in innumerable test cycles in the igus® test laboratory.



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 2,750 square metres.



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



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



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

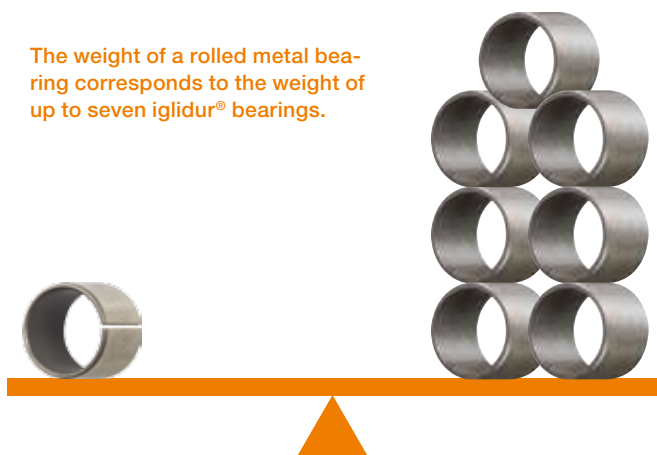
Light and robust plain bearings for shocks, edge loads, dirt.

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

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-dampening property

The weight of a rolled metal bearing corresponds to the weight of up to seven iglidur® bearings.



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



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Employees of igus® America Garrison Rios brings 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 iglidur® plain bearings in all moving components.

Rocky Mountain element with iglidur® plain bearings. Fox Shox suspension with iglidur® double flange bearings. Crank Brothers pedals with iglidur® plain bearings.

On his road machine, he also uses an SRAM derailleur with iglidur® 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 robust polymer 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 thanks to the freedom from lubrication, and are also 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® polymer plain bearings

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igidur® H in disc brakes: perfect function guaranteed

- Temperature resistant up to +200 °C
- Corrosion resistant, no seizing.
- Wear resistant, low friction



www.igus.eu/H

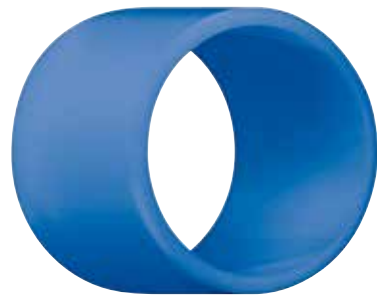


igidur® G in front derailleurs: smooth running and durable

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



www.igus.eu/G



igidur® A160 in suspension fork: ideal response

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



www.igus.eu/A160

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iglidur® J in oscillating joint: resistant to impact loads

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



www.igus.eu/J

iglidur® J3 in the rear shock: easy installation

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



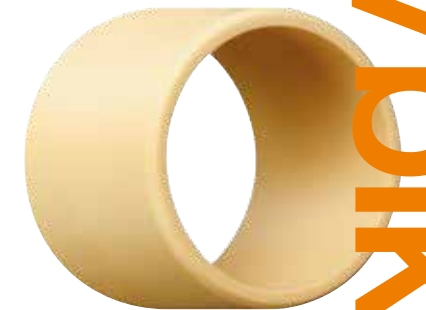
www.igus.eu/J3

iglidur® J in seat posts: very easy to adjust

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



www.igus.eu/J



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igubal® in track rods: lubrication-free connection

- Absorbs vibrations
- Angle and tolerance compensation
- Lightweight, lubrication-free and thus insensitive to dirt and sand

 www.igus.eu/igubal



igidur® J3 in freewheels: no seals required

- Extreme wear resistance
- Dirt resistant
- Lightweight

 www.igus.eu/J3



igidur® G in rim brakes: ideal against dirt and dust

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

 www.igus.eu/G

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iglidur® G in spicycle tricycle: quickly into the corner

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



iglidur® J in hand bike: safe and easy in open country

- Dust and moisture resistant
- Lightweight
- Vibration dampening



iglidur® J3 in pedals: dirt-resistant and lightweight

- Extremely wear-resistance
- Resistant to corrosion, high pressure cleaners and cleaning agents
- Lightweight, lubrication and maintenance-free



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

Saddle suspension

ABS

Suspension fork

Wheel hub

Derailleur

E-motor

Pedals

Bicycle stand

When it is all about the bike - igus® catalogue parts, special parts, bar stock and 3D printed solutions



We can also go your way: customised 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 customised special designs. Structural and material special solutions such as plain bearings for multiple-edge shafts, bearings with reduced clearance or anti-rotation feature, special lead screw support blocks and glide pads, and so on, are specially adapted to your requirements. Starting from medium quantities we make almost everything possible.



www.igus.eu/speedigus



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

In two simple steps to the 3D-printed component - with instant price We print your individual component, using lubrication-free, abrasion-resistant iglidur® high-performance plastics. Upload your drawing in the STEP (STP) format, check the 360° view and select a filament. We ship your desired product - depending on the complexity - from 24hours.



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Tested ...



- Test: Pivoting wear rate
- Load per bearing point: 25 N to 300 N
- Surface speed: 0.01 m/s



Extensive test database

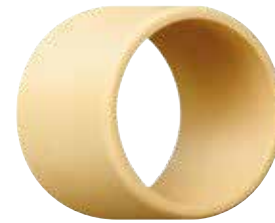


Tested ...

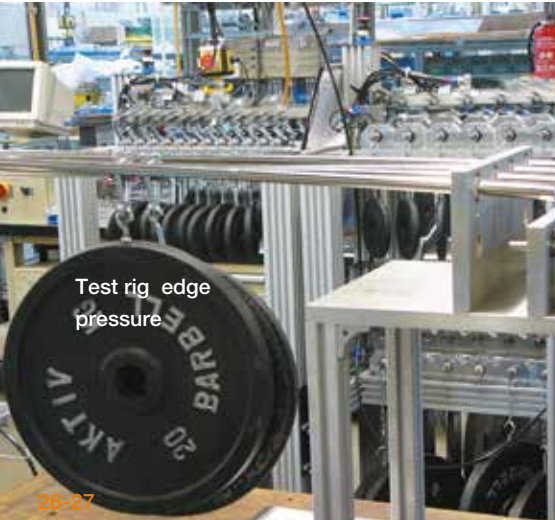


- Simulation of continuous load
- Tested with impact.
- In suspended parallelogram seatpost

Tested ...



- Test: Rotating coefficient of friction
- Load per bearing point: 10 N to 1,000 N
- Surface speed: 200 to 2,000 rpm



Tested ...



- Test: Linear wear rate
- Load per bearing point: 10 N to 200 N
- Surface speed: 0.1 m/s up to 0.3 m/s



From more than 15,000 tests per year was created, what is probably the world's largest test database. This database gives us the ability to select always the right product for your specific application. Individual tests for your branch of industry are also possible.

 www.igus.eu/test

www.igus.eu/bike

igus®.eu/24

Buy online – 24h!

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® delivers from stock in 24-48 hours!

The screenshot shows the igus website interface. At the top, there is a search bar and navigation tabs for 'Products', 'Industry Solutions', 'Service', and 'Company'. Below the navigation, there is a large orange banner with a bicycle image and the text 'igus® products in Bicycle Technology Performance meets comfort'. The main content area features the heading 'Bicycle technology - plastics instead of metal' and a video player showing a close-up of a bicycle bearing. To the right, there is a 'Your Contact' section with a profile picture of Patrick Carl, his phone number, and a 'Your requirements?' link. Below that, there is a 'Calendar' section with dates and a 'Make an Appointment' link. At the bottom, there is a list of advantages for lubrication-free bearings and a note about wear-resistant bearings for road and mountain bikes.

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.

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