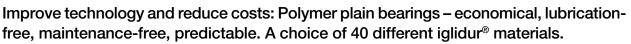
### **iglidur**<sup>®</sup> Polymer Plain Bearings



▶ page 31

# Additional iglidur<sup>®</sup> products

igubal®

Spherical Bearings

Whether as a rod end, pivot or flange bearing – lubrication- and maintenance-free igubal spherical bearings suits all requirements and are more economical and lighter than conventional spherical bearings.

### xiros®

Polymer Ball Bearings

Lubrication-free groove ball bearings and other ball bearing types made from igus<sup>®</sup> tribo polymers, for maximum service life and reduce coefficient of friction.

page 747

# drylin®

linear guidance systems

Lubrication- and maintenance-free plastic linear bearings for nearly all types of application. From miniature to self-adjusting, from round to angular.

page 779

drylin<sup>®</sup>



Lubrication-free leadscrew modules with different material- and shaft combinations, linear guide units for easy adjustments and tooth-belt axis for quick positioning.

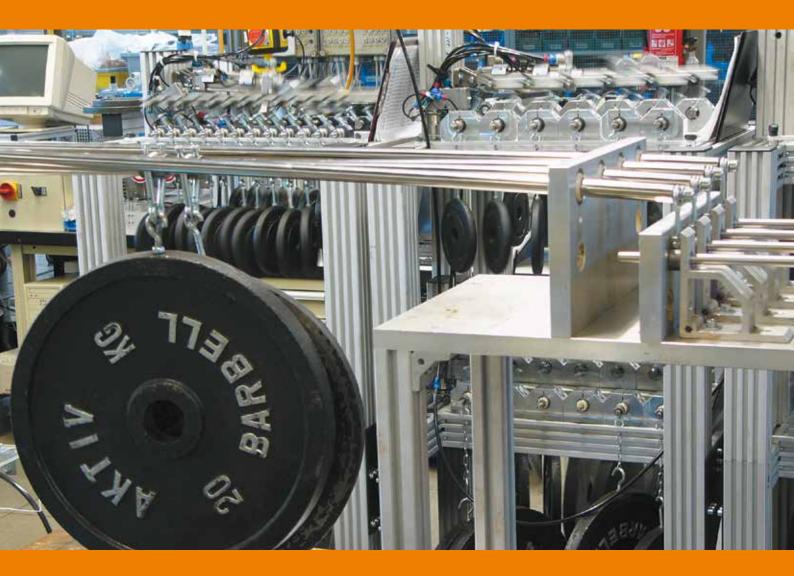
page 1007

# Plastics for longer life<sup>®</sup> – make your machines more durable with plastics

No lubrication, less maintenance, lower costs, longer life cycles, always available ex stock – these key principles formulated by us apply to all igus<sup>®</sup> products, systems and services.

Tried and tested in terms of durability, friction properties and stability, igus<sup>®</sup> plastics are the technological core of the igus<sup>®</sup> range. This catalog lists more than 10,200 Polymer Bearing products available ex stock.

We are looking forward to your phone call or e-mail.



### Improve technology and reduce costs

For years the igus<sup>®</sup> motto has been "plastics for longer life". By this we mean the production of innovative plastic products which reduce maintenance work, achieve technical improvements, at the same time as reducing costs and increasing service life, everything delivered immediately from stock.



### From stock. Delivery time 24h or today or on request\*.

\* Delivery time means time until shipping of goods.



### No minimum order value! No surchages!

You can find our prices online at **www.igus.co.uk** 



### "8 to 8 plus saturday" service

Monday till Friday 8:00 am to 8:00 pm and Saturday from 8:00 am to 12:00 pm



### Hotline

Phone (01604)677240 Fax (01604)677245



### Onlineshop

Go to **www.igus.co.uk** and find online catalogs, useful online tools and many more. Order around-the-clock!

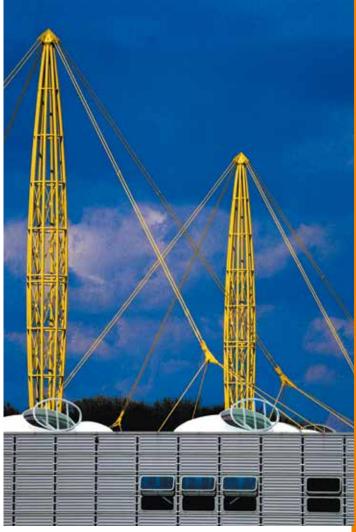


### Do you have any questions?

For questions and more informations call us or use our online productfinder at www.igus.co.uk

Orders can be places until 8:00 pm local time. Phone (01604) 677240 No minimum order quantity, no surcharges. 10,200 polymer bearings from stock. No lubrication. No maintenance. No downtime.

igus<sup>®</sup> is certified in accordance with DIN EN ISO 9001 : 2008 and ISO/TS 16949 : 2009\* in the field of energychains<sup>®</sup>\* with cables and harnessing, as well as plastic plain bearings. (\*as of Apr. 01, 2013)



igus<sup>®</sup> headquarters in Cologne – research, development and production from a single location.



# iglidur<sup>®</sup> plain bearings are listed from page 31

Excellent polymers, improved through precise additions of reinforcements and solid lubricants, testedthousands of times, and proved millions of times – that is iglidur<sup>®</sup>. Every year, igus<sup>®</sup> engineers develop more than 100 new plastic compounds and conduct more than 5,000 tests on maintenance-free plain bearings. Over the years, this has made it possible to establish a large database of polymers' tribological properties. In addition to their general properties, every iglidur<sup>®</sup> bearing material possesses a number of special features making it suitable for particular applications and requirements



### **Practical example**

#### KHS AG bottling plant

igus<sup>®</sup> bearings and linear sliding films made of iglidur<sup>®</sup> material, which meets all demands of aseptic filling, are used here. Low adhesion and attrition factors against different kinds of stainless steel, negligible moisture absorp tion, very good stability against PES-cleaners, lubricant-free, all of that means no contamination of products of the aseptic atmosphere.







Lifetime calculation online www.igus.co.uk/iglidur-expert



product finder iglidur<sup>®</sup>
 ▶ www.igus.co.uk/iglidur-productfinder

# igubal<sup>®</sup> spherical bearings are listed from page 625

igubal<sup>®</sup> spherical bearings are self-aligning components made entirely of high-performance plastics.

The igubal<sup>®</sup> series provides designers with a complete system of self aligning bearings: Rod ends, clevis joints, flange bearings, pivot bearings and pillow blocks. Selfadjusting bearings are easy to fit, adaptable to wide angular ranges and have been used to replace special housings in many cases. igubal<sup>®</sup> offers all the advantages of high-performance plastics, including dry-running capability combined with very good vibration damping. igubal<sup>®</sup> spherical bearings are insensitive to dirt, liquids, chemicals and fully corrosionproof. Bearings from the igubal<sup>®</sup> range are very light, compact and economical on two fronts:

- Low purchase price
- Low maintenance and installation costs







### Practical example

#### TRIPENDO GmbH Bicycle Manufacturing

The reclining wheel's curve inclination is realized by means of rod ends in the journal link. The high top speed and rapid acceleration are partly due to the rod ends' low weight. The bearing points do not require any elaborate sealing measures.



Lifetime calculation online www.igus.co.uk/igubal-expert



product finder igubal<sup>®</sup>
 ▶ www.igus.co.uk/igubal-productfinder

### xiros<sup>®</sup> polymer ball bearings are listed from page 747

The xiros<sup>®</sup> plastic ball bearings are single-row grooved ball bearings based on DIN 625. The lubricant-free and maintenance-free ball bearings consist of four components:

- The outer ring
- The inner ring
- The cage
- And the balls

The inner and outer rings are made of igus<sup>®</sup> tribopolymers to maximize service life and minimize coefficients of friction. In contrast to metallic ball bearings, xiros<sup>®</sup> plastic ball bearings

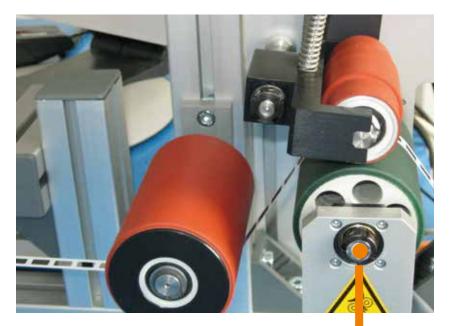
manage absolutely without lubrication. For this reason they are suited for a multitude of applications that depend not on extreme rotary speeds or loads, but just on lubricant-free application in contrast to permanently lubricated metallic ball bearings. These areas are for example food and medical industries, packaging and textile industries, or the chemical industry and cleanroom applications as well as electronics and office technology.



### **Practical example**

#### tesa scribos GmbH

The xiros<sup>®</sup> plastic ball bearings B180 are used in coated guide rollers of different machines and provides the material guidance. The xiros<sup>®</sup> polymer ball bearings used now are 50 % lower cost and are supplied faster than the previously used bearings. Moreover, the low weight, low friction and the freedom from lubricants are congenial for the application.





Lifetime calculation online ► www.igus.co.uk/xiros-expert

Exciting applications can be viewed online www.igus.co.uk/xiros-applications

### drylin<sup>®</sup> linear plain bearings, linear slide modules and drive technology are listed from page 779

drylin<sup>®</sup> linear plain bearings are solid state, a totally different approach when compared with traditional recirculating ball bearing systems. These sliding plain bearings can basically be made of any high-performance polymer of the iglidur<sup>®</sup> series. This blends the advantages of drylin<sup>®</sup> linear technology with those of all the various iglidur<sup>®</sup> bearing materials. drylin<sup>®</sup> linear bearing systems are designed for dry-running. These systems are thus protected against exposure to greases and oils. As a result, ambient dust and abraded material cannot cling to the bearing surfaces. Unlike recirculating-ball bushings, drylin<sup>®</sup> bearings have no restrictions in terms of minimum stroke length and are almost inaudible during operation. The flat, compact Leadscrew linear table for variable formats and handling tasks is extremely rigid due to the hardanodized aluminum profile. All bearing points are fitted with dry-running iglidur<sup>®</sup> materials.



### **Practical example**

#### FESTO AG & Co. KG Electrical Servo Drives

For a wide variety of formats in printing, paper, packaging, transmission and wood processing systems, Festo demonstrates the use of the SHT drylin<sup>®</sup> Leadscrew linear table in conjunction with its electrical servo drive.



red<mark>dot</mark> design award winner 2006



drylin<sup>®</sup> expert with service life calculation ▶ www.igus.co.uk/drylin-expert



drylin<sup>®</sup> CAD configurator www.igus.co.uk/drylin-cad-expert



drylin<sup>®</sup> W product configurator: www.igus.co.uk/drylinW-configurator



drylin<sup>®</sup> product finder for drive technology : ► www.www.igus.co.uk/sht-productfinder

### Longer life cycles, lower costs

### Innovations with high-performance plastics

igus<sup>®</sup> polymer plain bearings constitute the step from a simple plastic bushing to a tested, predictable and available machine component.

Our research is essentially aimed at precise forecasts of bearing properties – especially life cycle – achieved by continuous advancements in materials.

### Predictable life cycle – no lubricant necessary

Lubrication-free operation is something every designer strives for.

igus<sup>®</sup> polymer plain bearings make this dream a reality. Decades of research now permit precise calculations of a polymer plain bearing's life cycle.

### Fit and forget – matching solutions ex stock

- Innovative, quickly assembled and economicalproducts
- Delivery ex stock lower storage costs
- Large product selection find the right solution at once
- Time-saving tools on the Internet
- We deliver customized, ready-to-fit units
- Quick reaction customer service with many local representatives in Germany and worldwide.

igus<sup>®</sup> maintenance-free polymer plain bearings help improve your products and reduce costs at the same time. KBRM

Many sample applications can be found at www.igus.co.uk



#### Resistant to dirt with igus®

Zero-maintenance and high dirt resistance are not the only advantages of drylin<sup>®</sup>. Longer life cycles – lower costs!



#### No maintenance with igus®

Various iglidur<sup>®</sup> materials for a wide variety of operating conditions. Large program of dimensions compatible with nearly all environments. Predictable life cycle!



#### No lubrication with igus®

The lubrication-free design of iglidur<sup>®</sup> also permits its use in the food and pharmaceutical industries. Don't wait any longer!



#### Corrosion-free with igus®

Low weight, corrosion resistance as well as zero maintenance and lubrication achieve solutions for nearly all types of applications. Fit and forget!

### Lubrication-free bearing with igus<sup>®</sup> – good for the environment and the wallet

#### Lubrication-free and light weight

The tribo-optimised iglidur<sup>®</sup> plastic plain bearings from igus<sup>®</sup> require neither oil nor grease. Due to continuous advanced developments the bearings specialist igus<sup>®</sup> now supplies alternatives more in line with environmental considerations for more and more applications that work with lubricated metallic plain and rolling bearings. The energy balance for the manufacture of plastics is very positive. Whereas the energy from 15 litres of oil is necessary to produce 1 litre of aluminum, and 1 litre of steel requires 11 litres of oil, the production of 1 litre of plastic only needs an average of 1.8 to 2.3 litres of oil.

Do you know, that the production of plastics only requires 4 percent of annual worldwide oil requirements?

#### Good for the environment

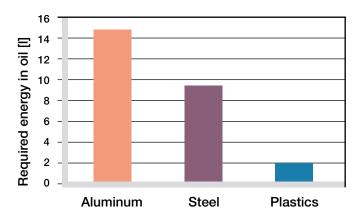
iglidur<sup>®</sup> bearings are free from lubrication, so that no contaminants escape into the environment. The lightweight bearings will also help to reduce fuel consumption and carbon dioxide output in, for example, vehicles or aircraft. Basically the reduced weight leads to lower masses and subsequently lower energy consumption.







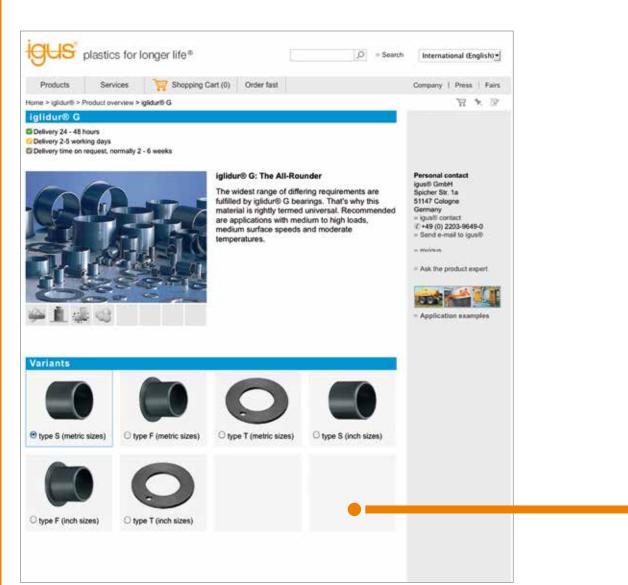
A study has found that no less than half of all machine lubricants currently used in Germany seeps into soil and waters or evaporates into the atmosphere. According to a research team of chemists, mechanical engineers and environmentalists from the RWTH in Aachen, the estimates for Germany alone consume 250,000 tonnes per year. This corresponds to the amount required to fill 8,000 tankers.



The energy required to produce one volume litre of material (converted to litres of oil). Source: Clausthal University of Technology

In contrast to metallic plain and rolling bearings, iglidur<sup>®</sup> plastic plain bearings from igus<sup>®</sup> require no oil or grease for lubrication.

# quicklink: Polymer Bearings online





### Visit www.igus.co.uk and make use of all the advantages

For every product in this catalog, there is a special quicklink or direct online pointer to further useful details, data and facts. These include:

- Online wizards for calculating service life
- 3D-CAD files
- DXF data
- PDF-data and other formats for download
- Application pictures
- Imperial dimensions
- Personal support
- Catalog, CD and sample ordering forms
- Online pricelist and Online-Shop



### Online shopping - 24h!

- iglidur<sup>®</sup> ► www.igus.co.uk/iglidurshop
- igubal<sup>®</sup> ► www.igus.co.uk/igubalshop
- xiros<sup>®</sup> ► www.igus.co.uk/xirosshop
- drylin<sup>®</sup> ► www.igus.co.uk/drylinshop



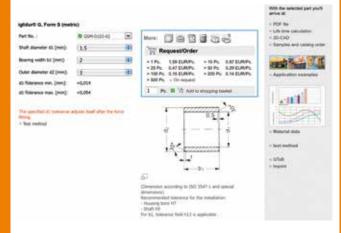


### **iglidur<sup>®</sup> product finder** Find the right bearing quickly.



#### iglidur<sup>®</sup> online catalog

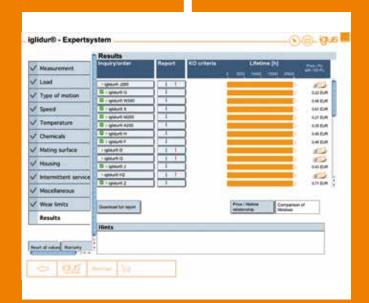
The online catalog is just a click away. See all important product details, information and tools by clicking again on the corresponding link.





#### iglidur<sup>®</sup> life cycle calculation

Simple and quick input of your application parameters, allows a precise calculation of the life cycle. Also download and save CAD data free of charge.



See for yourself > www.igus.co.uk

# Overview of Useful Online-Tools

Your requirements				C Reset							
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QuickBearing iglidur<sup>®</sup> productfinder

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#### QuickLife iglidur® expert, lifetime calculation

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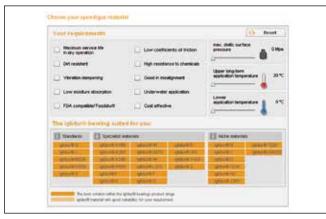
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QuickBearing.custom stock bar productfinder

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to customer request

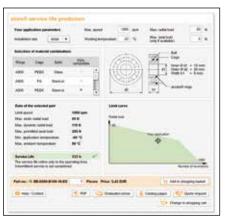
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QuickLife stock bar expert, lifetime calculation

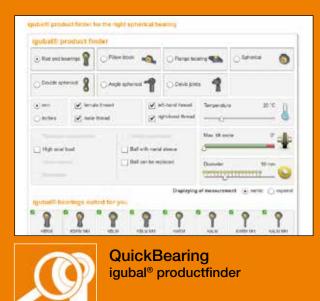
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drylin<sup>®</sup> W product configurator

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QuickFind drylin<sup>®</sup> productfinder linear drive technology

www.igus.co.uk/sht-productfinder

## Quick and reliable. igus<sup>®</sup> delivery service.



### The igus<sup>®</sup> delivery service: FROM 24h or today\*

To give you optimal security in planning, we need to somewhat adapt our delivery promise "24 hours or today\*" for the next few month.

Otherwise the following applies as always:

- no minimum order value
- no surcharges for small quantities and packaging
- no cutting costs with cables
- no fuss return

Over 80,000 products available! Order two plain bearings or 2,46 m drylin<sup>®</sup> T-rail with 2 carriages without any surcharge. Invoices and confirmations can be sent via post, fax or e-mail.

There are 1,900 employees in Germany and 28 international subsidiaries and offices, plus bases in another 33 countries to guarantee a rapid delivery worldwide.

- selivery and consultation Mon-Fri from 8am-8pm and Sat from 8am-12pm
- order tracking possible
- No fuss return

\* Delivery time means time until shipping of goods.



# 24 h 24-48 h 24-72 h 3-10 days 3-6 weeks

### Individual components

Example: iglidur<sup>®</sup> W300 plain bearings; standard igubal<sup>®</sup> ball joint or drylin<sup>®</sup> flange bearing.

### Custom made linear systems

Example: 2.46 m drylin<sup>®</sup> T rail with 2 carriages.

### Ready made modules

Example: Linear leadscrew tables made to your individual requirements and dimensions. Mechanically Initial sam machined components new tools

Example: Machined shafts made to design or machined bearings. Initial samples from new tools

Example: Injection moulding of parts made to your design.











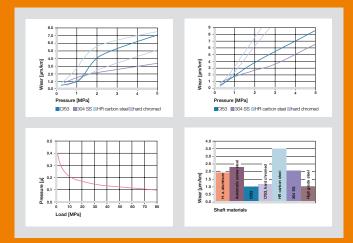




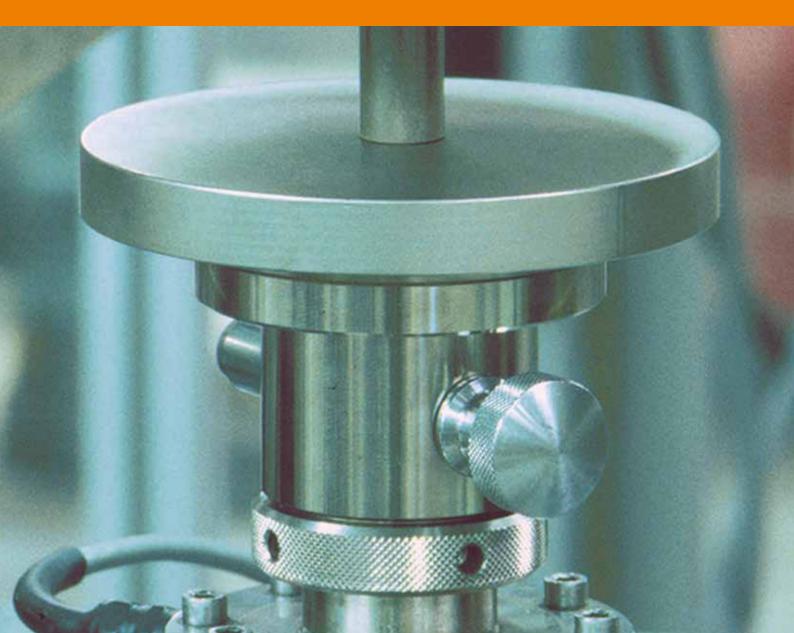




### Quality from the igus<sup>®</sup> laboratory: Tested thousands of times, proven millions of times.



The results of more than 7,000 tests are fed to our database annually.



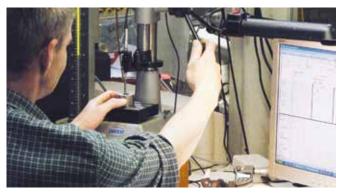
### igus® test laboratory

Applications involving high cycle counts, speeds and accelerations or demanding environmental conditions require proven systems providing durable and reliable operation, especially when it comes to energy chains, cables, polymer plain bearings and linear systems.

igus<sup>®</sup> regularly conducts tests at its own laboratory under realistic conditions. Every year, we conduct more than 4,300 tests on e-chains<sup>®</sup> and cables, and over 7,490 tests on plain bearings. These tests focus on push-/pull forces, friction values, wear rates, drive forces and abrasion under all possible conditions at diverse speeds. Influential factors like soiling, weathering, cold and impact are examined.

Tests are also performed on electric cables, media as well as hydraulic and pneumatic hoses of all kinds.

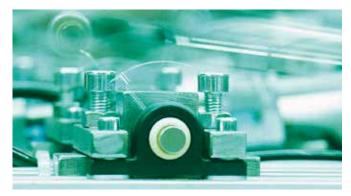
Our laboratory is at your disposal. Should we happen to lack a ready solution for your special problems, we will gladly conduct tests according to your requirements.



igus® quality assurance



Friction and abrasion measurement in the rotation test



Determination of the max. running speed of an igubal<sup>®</sup> pillow block bearing



Test bench for loads up to 150 MPa and temperatures up to +250 °C

All products are tested and available from a single source. Examples of test certificates and quality seals for igus<sup>®</sup> products:

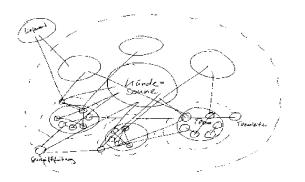


# The flexible igus<sup>®</sup> factory

The environment at igus<sup>®</sup> is fully open – anyone can contact anyone else directly, everyone works at identical desks, has the same work equipment, the same choice of meals at the cafeteria and the same bathroom facilities.

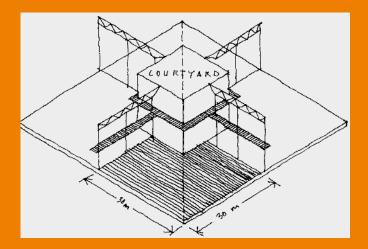


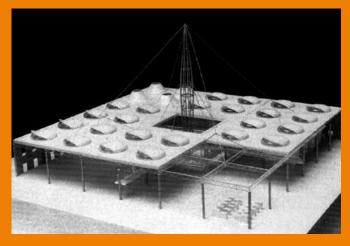
For us, customers have the same significance as the sun to life on earth. The sun gives light, warmth and energy; our customers give us ideas, work and money.



igus<sup>®</sup> is now producing, testing and researching in Cologne on a floor area covering 36,000 m<sup>2</sup>. The factory area has been extended to 29,000 m<sup>2</sup>, added to which are 7,000 m<sup>2</sup> of surrounding buildings for additional fabrication, technical training and a large logistics center. In the course of factory extension, together with consistent lean management we have closely examined all departments: from marketing and administration to research and development, tool design and production throught to warehousing and distribution.







#### Excerpt of architect's briefing

"In October 1988, igus<sup>®</sup> acquired a plot sized about 40,000 m2 in the Porz-Lind district of Cologne.

This will be the future site of development, production, sales, administration and planning. As the centre of all activities, this location will serve as the new igus<sup>®</sup> headquarters. igus<sup>®</sup> has made preparations for fast growth, fast change and flexible response in all areas.

Offering the necessary facilities and technology, the new "igus<sup>®</sup> premises" will also be designed to promote staff performance.

The interior and exterior will be designed to reflect the enterprise's products and key philosophy: innovation – service – reliability, the customer being comparable to a solar system's centre orbited by all igus<sup>®</sup> staff and igus<sup>®</sup> entities dedicated toward solving the customer's problems."



## The igus<sup>®</sup> story from 1964 till today.

#### Innovation with plastics

The igus<sup>®</sup> story begins on October 15th, 1964 with Günter Blase in a double garage in Cologne-Mülheim. In its first 20 years, igus<sup>®</sup> operated as a supplier of intricate technical plastic components. In 1983, son Frank Blase started to concentrate on full products like e-chainsystems<sup>®</sup> and Polymer Bearings and established a separate marketing department. Between 1985 and today, igus<sup>®</sup> expanded from 40 over 1,900 staff members distributed all over the world. igus<sup>®</sup> will continue to invest in expansion in the coming years. Modern materials have opened up further opportunities for innovative products.



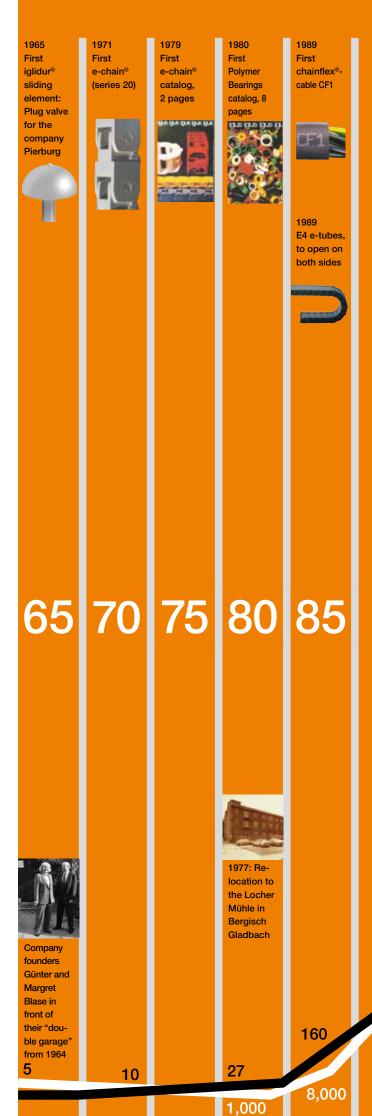
igus<sup>®</sup> Sales & Marketing, from left: Tobias Vogel, Head of Sales&Marketing Polymer Bearings, Harald Nehring, authorized signatory, e-chainsystems<sup>®</sup> and chainflex<sup>®</sup>, Gerhard Baus, authorized signatory Polymer Bearings, Michael Blaß, Head of Sales&Marketing e-chainsystems<sup>®</sup> and chainflex<sup>®</sup>, Frank Blase, CEO.

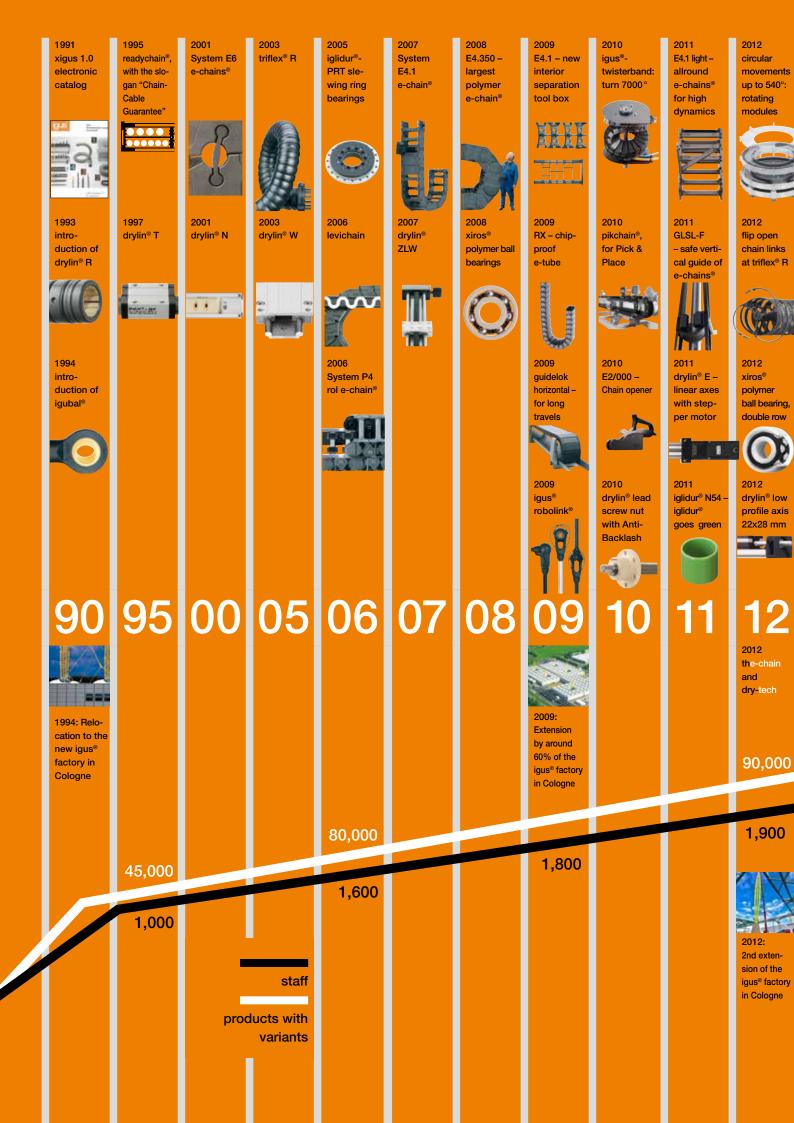


Today: Automated plastic production



Today: Large tool development and production facility





## Individual consultation by igus<sup>®</sup> – via phone or on your premises

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67

12

A large network of sales engineers is at your disposal in Germany and worldwide.

We gladly provide consultation on your premises, supply assembly instructions and aids to installation sites, as well as measure installation spaces and register ambient conditions on location.

This has the following benefits for you:

- We are wherever you need us
- Numerous e-chain<sup>®</sup> and Polymer Bearing consultants remain at your disposal at all times
- Rapid delivery is guaranteed worldwide
- Spare parts are delivered ex stock in the shortest possible time





Cologne

Tokyo





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- 9 Canada
- 10 Chile
- 11 China
- **12** Colombia
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- 14 Croatia
- 20 France 21 Greece 22 Hong Kong 23 Hungary 24 India 25 Indonesia
- 26 Ireland
- 27 Israel
- 28 Italy
- 29 Japan

- 34 Macedonia,
- Albania, Kosovo
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All addresses on last page.