

# motion plastics® in automotive seating

Modern seat adjustment –  
bearing technology  
and e-chains® from  
one source



motion plastics®  
**igus®.co.uk...**  
[www.igus.co.uk/automotive-seating](http://www.igus.co.uk/automotive-seating)

Costs less. Lasts longer.  
Light weight.



Your technical innovator and cost reducer,

**Dave Spence**  
Automotive Specialist

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**Lubrication-free motion plastics® for your seat adjustment mechanisms**

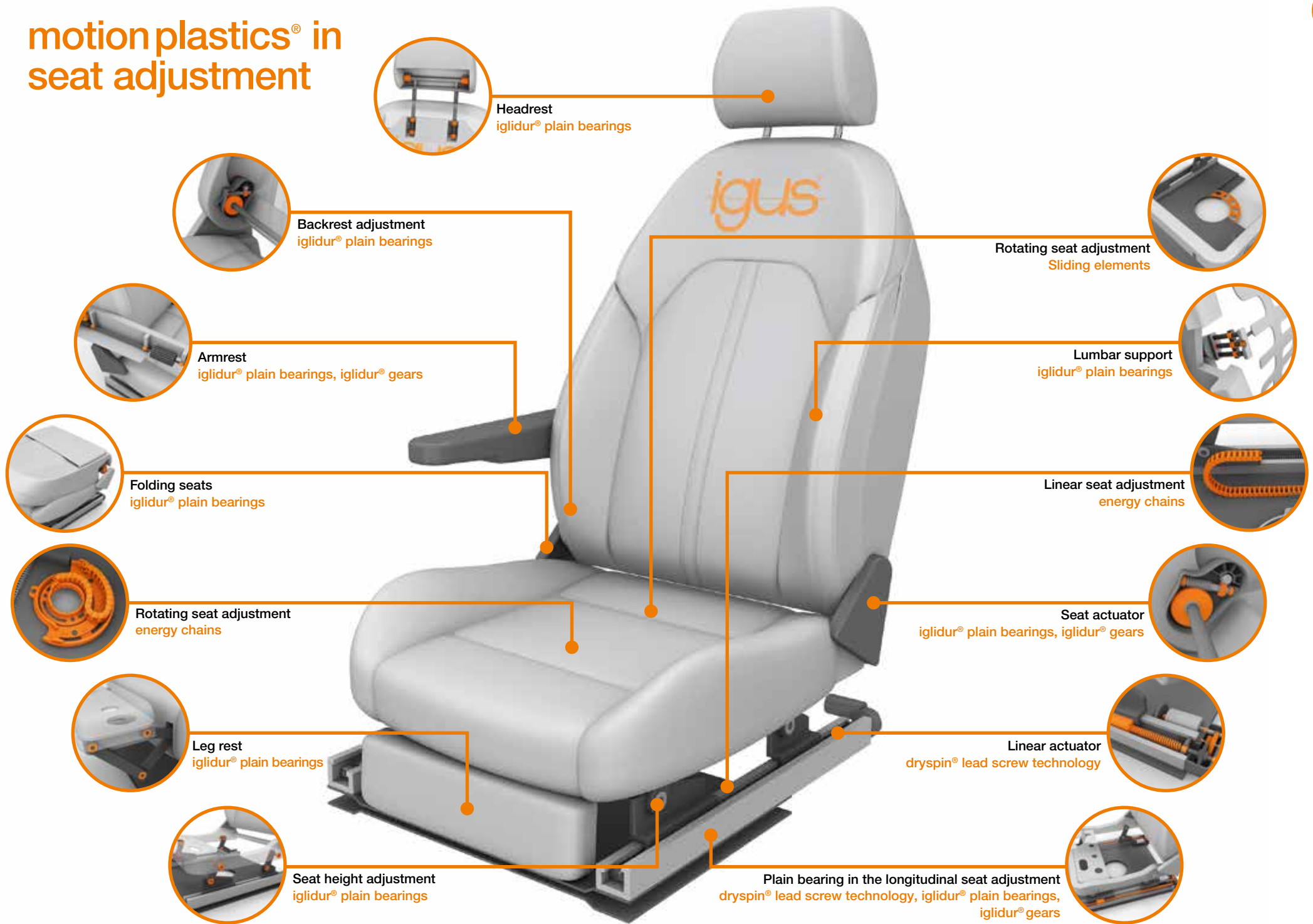
The car seat has undergone enormous technological progress in recent years. Actuators have allowed more and more electronic adjustment options to be implemented in automobile manufacturer applications. Seating adjustment systems should be quiet and lightweight with the greatest possible comfort and safety.

Since 1964, igus® has been supporting development, design, and purchasing to meet the strict requirements in the automotive industry. We will support you in your application, from material selection to design to tolerance calculation. Every year, igus® supplies over 500 million plain bearings for automotive applications worldwide.

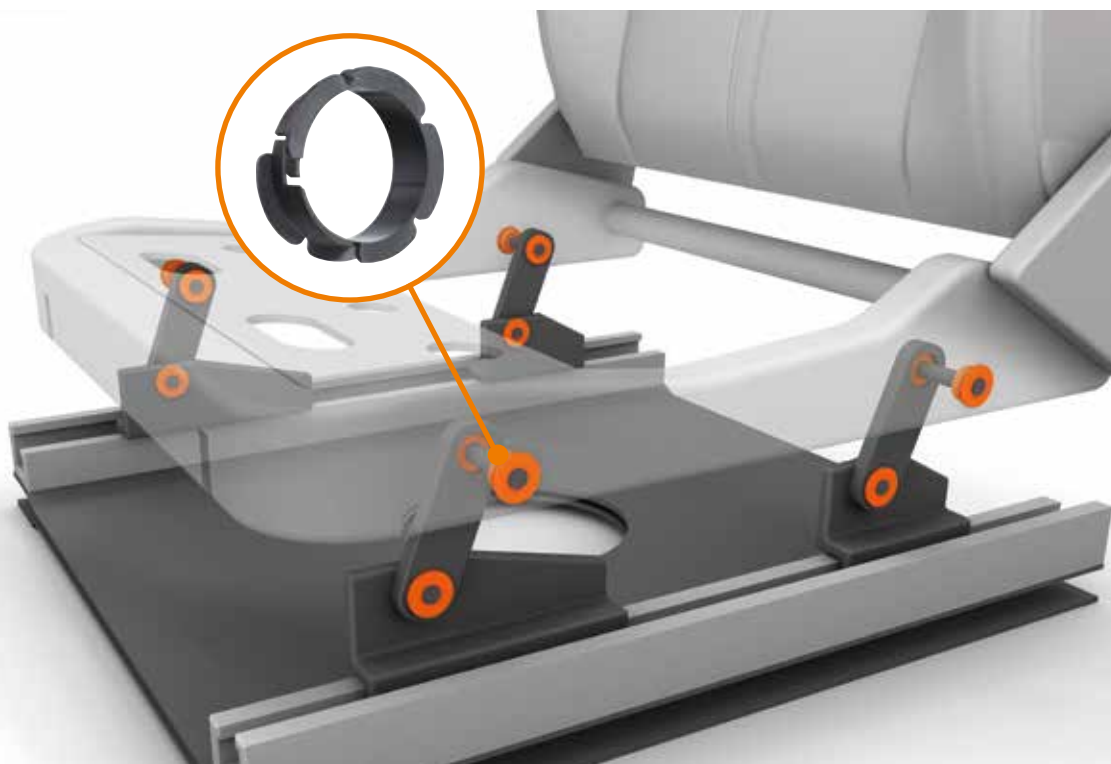
Do you have a specific application or project that needs support? We will be happy to advise you personally by phone, chat, remote meeting, or in person at your premises: You can find all contact persons here starting on page 26 or at [igus.co.uk/automotive](http://igus.co.uk/automotive)



# motion plastics® in seat adjustment



## Seat height adjustment with iglidur® double flange bearing



**What is needed:** A plain bearing solution for adjusting seat height.

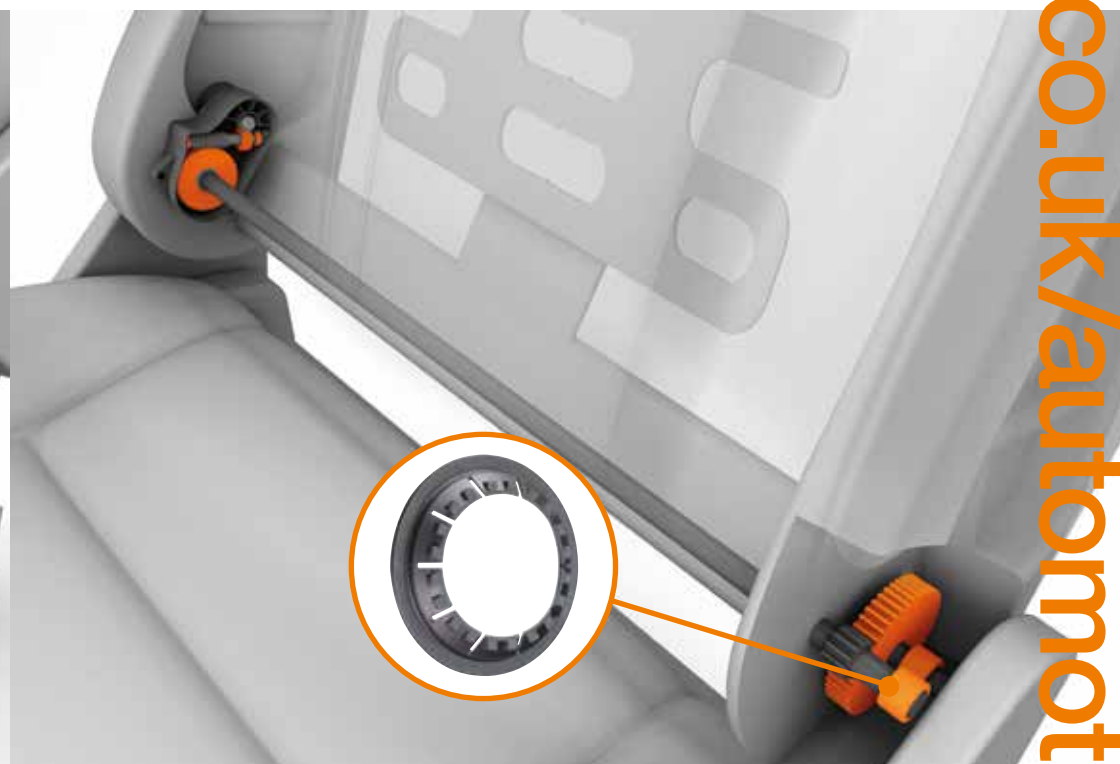
**Requirements:** Noise reduction, smooth operation, low fogging, high load capacity, low weight, low coefficient of friction, tolerance compensation, uses must include e-coating at high drying temperatures, freedom from corrosion.

**Suitable products:** Clip bearings made of flexible iglidur®M250 and iglidur®K230, plain bearings made of iglidur®GLW and iglidur®G for higher loads.

**Success for the customer:** The tribologically optimised plain bearings are lightweight, have a long service life, and guarantee quiet adjustment over the long term. Special designs such as our clip bearings also reduce installation times. Costs are reduced through the parts prices and shorter assembly process. There is no need for recalibration or flanging.

 [igus.co.uk/clip-bearings](https://igus.co.uk/clip-bearings)

## Backrest adjustment with iglidur® special bearings



**What is needed:** Noiseless, low-clearance bearing support for the inclination adjustment mechanism.

**Requirements:** Noise reduction, vibration dampening, low clearance, low fogging, high load capacity, low weight, no lubrication, low coefficient of friction

**Suitable products:** Various special parts made of such materials as iglidur®X, iglidur®G, and iglidur®GLW

**Success for the customer:** Our tribologically optimised materials with integrated solid lubricants ensure a low coefficient of friction, minimising noise during adjustment. The bearing design adapted by igus to the installation situation operates with low clearance and reduces the time required for development and design.

 [igus.co.uk/info/customized-parts](https://igus.co.uk/info/customized-parts)

## Lumbar support with iglidur® thrust washer in the lead screw support



**What is needed:** Thrust washers for lead screw support in the lumbar support drive.

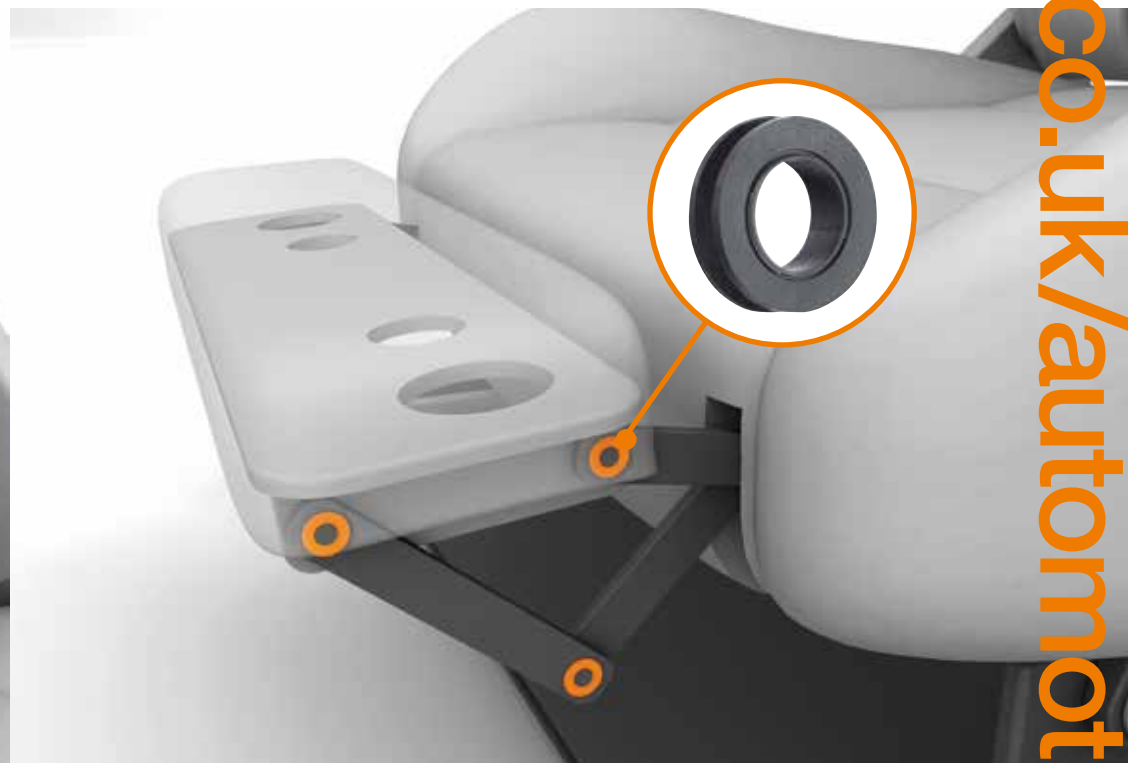
**Requirements:** Noise reduction, smooth operation, low fogging, high load capacity with high surface speed, low weight, low coefficient of friction, matched to counter partners made of POM and PP GF30.

**Suitable products:** Thrust washer and plain bearings made of iglidur®W300 and dryspin® lead screws and the matching iglidur®J nuts.

**Success for the customer:** The tribologically optimised thrust washers are a cost-effective, smooth-operating alternative to conventional thrust bearings. The plain bearing solution is also many times lighter and lower in Co2 in the manufacturing process.

 [igus.co.uk/thrust-washers](https://igus.co.uk/thrust-washers)  
[igus.co.uk/info/lead-screws](https://igus.co.uk/info/lead-screws)

## Leg support with iglidur® Clip On plain bearings



**What is needed:** A plain bearing solution inside the car for adjusting the car seat leg rest, comfort seat extension, and extended leg rest.

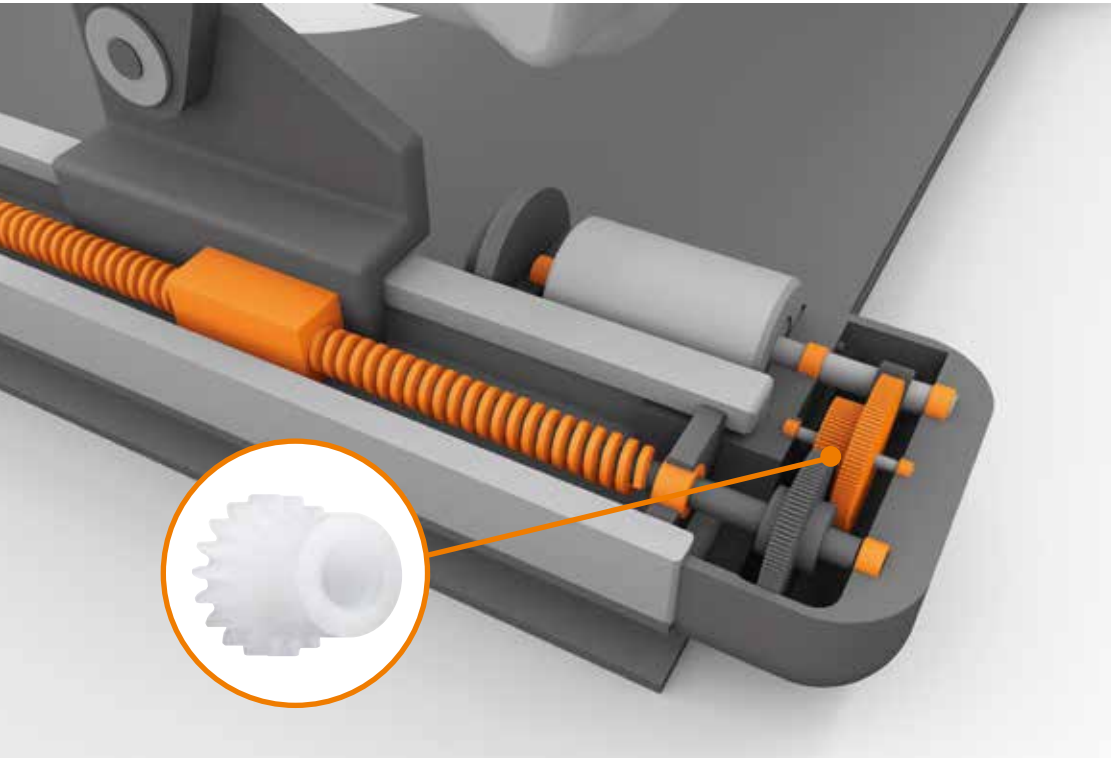
**Requirements:** Smooth operation, low coefficient of friction, high load capacity, low weight, low fogging, noise reduction.

**Suitable products:** Standard plain bearings made of iglidur®M250 and iglidur®G.

**Success for the customer:** iglidur® plain bearings allow quiet adjustment by preventing disturbing BSR and NVH noise in the seat hinges. Made of tribologically optimised polymers, they weigh as little as one-seventh as much as metal bearings.

 [igus.co.uk/clip-bearings](https://igus.co.uk/clip-bearings)

## Compact motors with iglidur® plain bearings and gears



**What is needed:** A plain bearing solution and wear-resistant gears in compact motors for electric seat adjustment mechanisms.

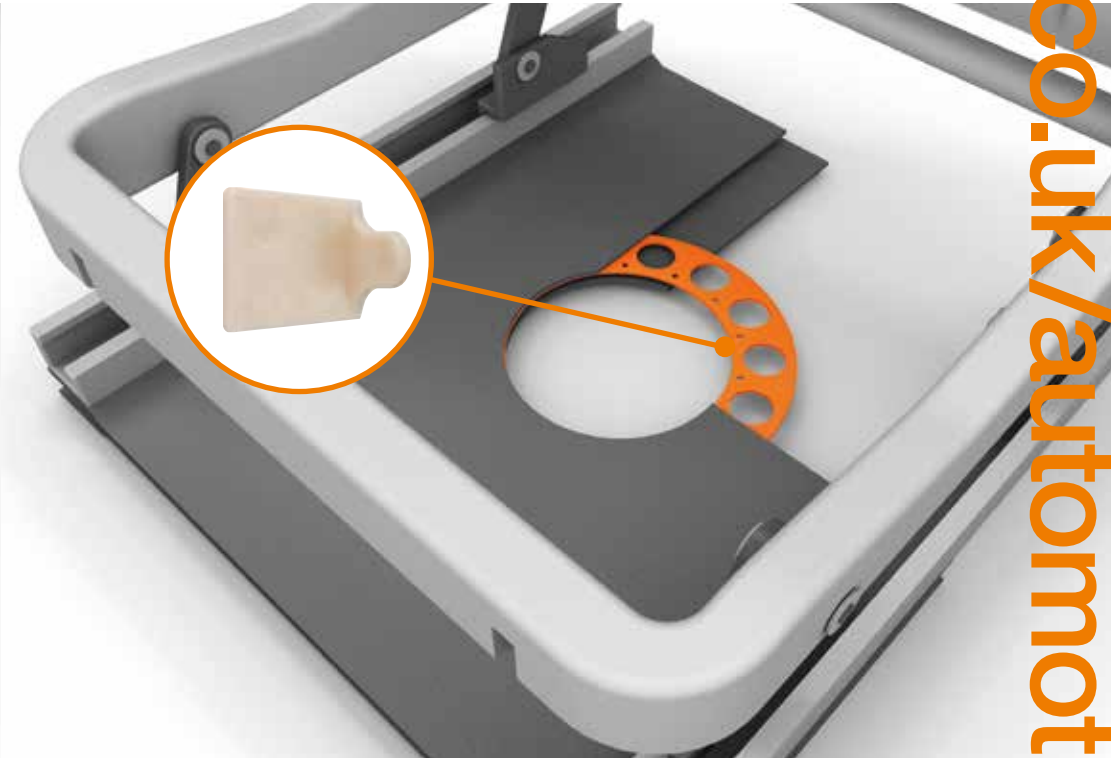
**Requirements:** High speeds, little installation space, low coefficient of friction, quiet operation, high load capacity, smooth operation, lightweight, no maintenance, no external lubrication.

**Suitable products:** Plain bearings made of highly wear-resistant iglidur®J and iglidur®H1 at higher temperatures, gears made of iguform S270 and igutek P360.

**Success for the customer:** Noise reduction (NVH and BSR), high performance at low and high speeds, low coefficients of friction, long service life, no external lubrication required, cost savings, and weight reduction.

 [igus.co.uk/3D-gears](https://igus.co.uk/3D-gears)

## Pivoting brackets with iglidur® slide rings



**What is needed:** Rotating bearing support for the front seats.

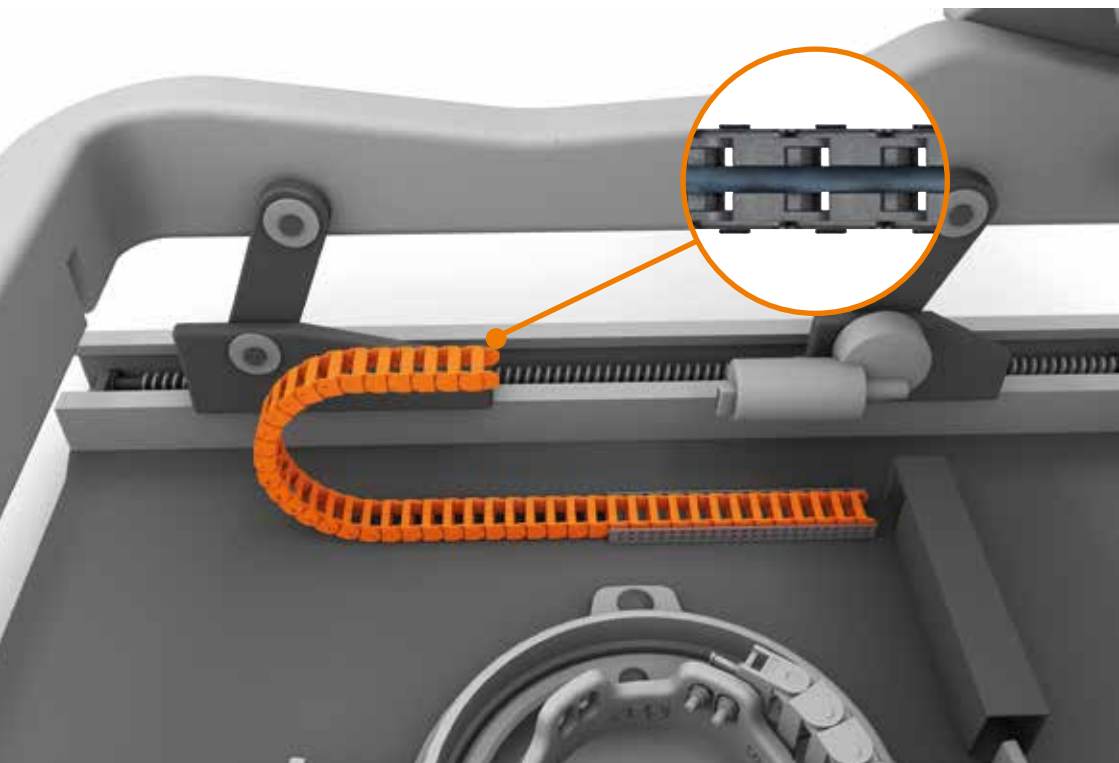
**Requirements:** Noise reduction, low coefficient of friction, high load capacity, low weight, no lubrication, high wear resistance, low fogging.

**Suitable products:** Sliding ring made of such materials as iglidur®J or iglidur®RN293, available as slewing ring bearing or special part.

**Success for the customer:** The tribologically optimised material with integrated solid lubricants ensures a low coefficient of friction, minimising noise and force during the adjustment process. The bearing design adapted by igus® to the installation situation operates with low clearance, reduces development and design time, and offers an enormous cost and weight advantage over rolling bearing alternatives.

 [igus.co.uk/PRT-bearings](https://igus.co.uk/PRT-bearings)

## Dynamic cable protection in seat linear and height adjustment



**What is needed:** Dynamic cable protection for seat linear and height adjustment.

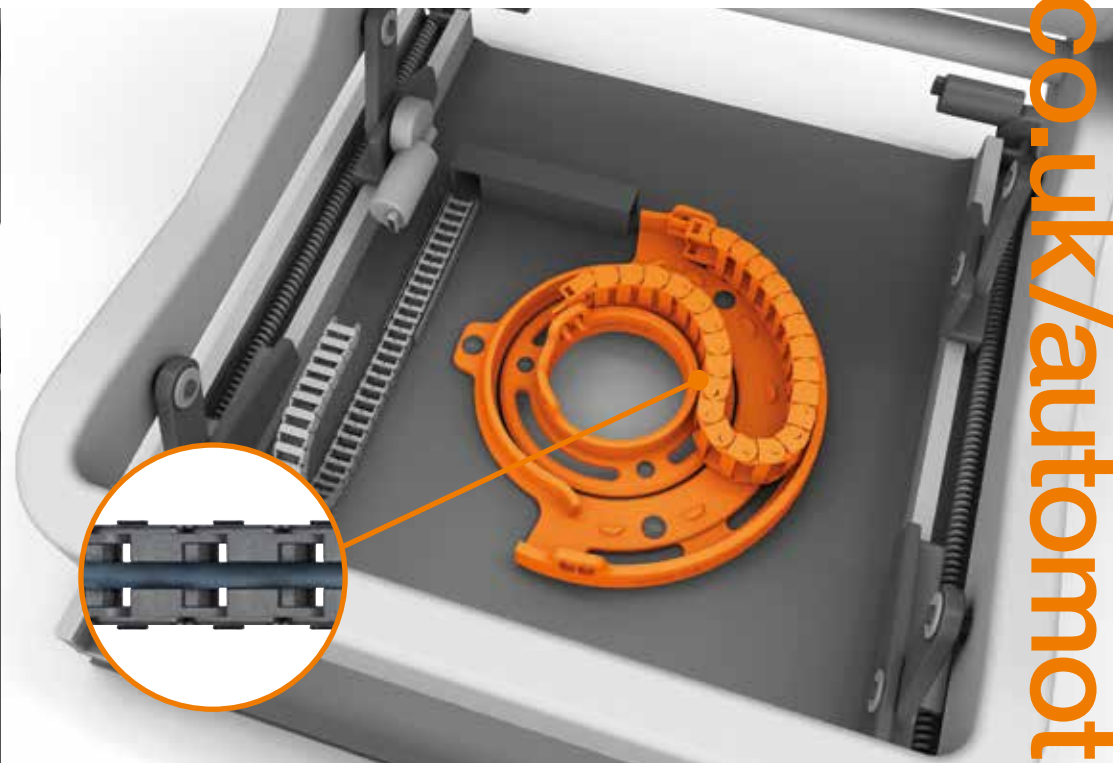
**Requirements:** Cable radius protection, smooth operation, cable bundle in tight installation spaces, easy installation and installation time reduction, harnessed cables fitted with connectors.

**Suitable products:** E2 micro e-chains®, E06 easy chain series.

**Success for the customer:** The reduced installation time is one of the main features of easy chain energy chains. Their robust, elastic material, igumid NB, also offers a UL94-V2 classification.

 [igus.co.uk/e-chain](https://igus.co.uk/e-chain)

## Dynamic cable protection for rotating seats



**What is needed:** Dynamic cable protection for rotating and pivoting applications in seating systems.

**Requirements:** Cable radius protection at a pivoting angle of 200°.

**Suitable products:** E2 micro e-chain® specifically the E2C.15 series.

**Success for the customer:** Cable protection and continuous current supply to the seat component via an energy chain with reverse bend radii (RBR).

 [igus.co.uk/e-chain](https://igus.co.uk/e-chain)



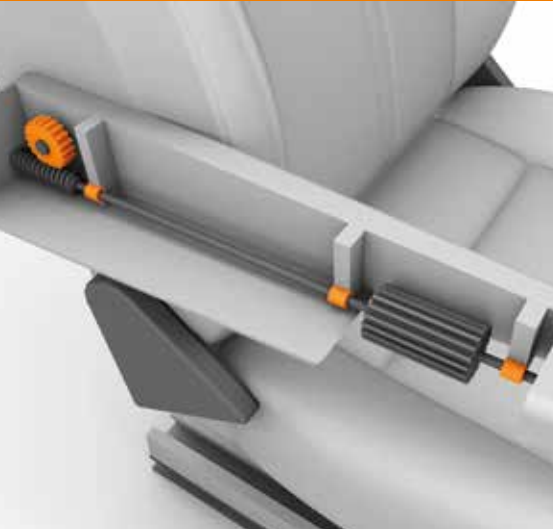
## Movable headrest

**What is needed:** Plain bearings for linear and pivoting movements.

**Requirements:** Quiet operation, high static load.

**Suitable products:** Plain bearings made of iglidur® G or P210

 [igus.co.uk/plain-bearings](https://igus.co.uk/plain-bearings)



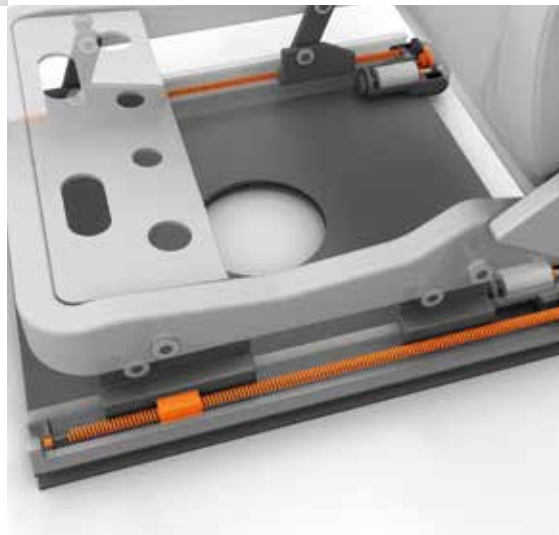
## Movable armrests

**What is needed:** Plain bearings for pivoting and rotary movements.

**Requirements:** Quiet operation, high static load.

**Suitable products:** Plain bearings made of iglidur® P210 or RN293

 [igus.co.uk/plain-bearings](https://igus.co.uk/plain-bearings)



## Linear adjustment mechanisms

**What is needed:** Lead screws and, as applicable, lead screw nuts for linear adjustment.

**Requirements:** Quiet operation, high static load.

**Suitable products:** dryspin® lead screw technology, lead screw nuts, and lead screws

 [igus.co.uk/info/lead-screws](https://igus.co.uk/info/lead-screws)

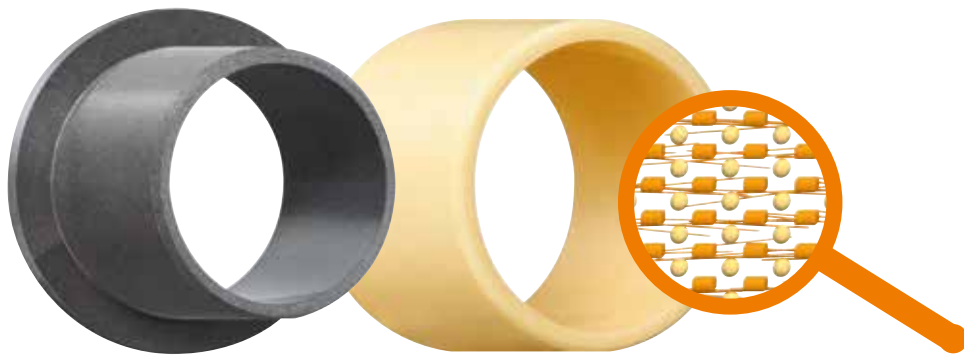
# iglidur® – what is it?

## What is iglidur®, and what can it do?

Polymers improved by precisely measured additives consisting of reinforcing components and solid lubricants, tested thousands of times and proven millions of times – that is iglidur®. The individual components are not applied in layers, but homogeneously mixed together. There is thus no sliding film that can be pushed away under loads, as is the case with traditional "hard shell - soft coating" solutions.

## What does iglidur® do in automobiles?

- Weight reduction
- Excellent price/service life ratio for your application
- Customised materials and solutions
- Bearings with optimised clearance, precisely matched to your housing and shaft tolerance
- Bearings can be calibrated for tolerance adjustment
- Vibration-damping bearings reduce noise generation (NVH)
- Special designs reduce assembly time and thus costs
- Absolutely no lubricants in the vehicle interior
- All from a single source: research and development, application consulting, production and worldwide logistics



## Advantages of iglidur® materials

- 100% lubrication-free and maintenance-free
- 100% corrosion-resistant
- Weighs 80% less than metal
- Precisely predictable service life
- Tested in the industry's largest test laboratory under realistic application conditions

# Research and development: over 15,000 tests annually in the igus® laboratory

## Better products for less – a key building block: The largest test laboratory in the industry. A 3,800m² lab with over 15,000 tests and two billion test strokes a year.

In the industry's largest test laboratory, more than two billion test cycles are performed each year at 107 test stations. Extensive test databases are created, and customer-specific tests are possible.

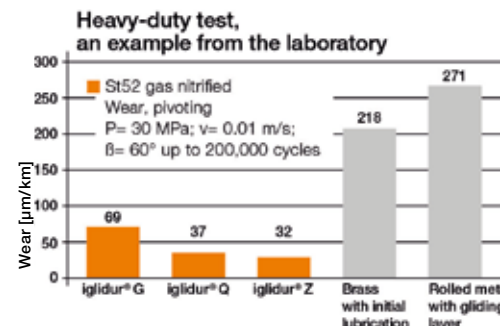
The igus® GmbH quality policy is based on the objective of identifying and meeting customer needs and always being a professional partner and reliable supplier. igus® has therefore committed itself to manufacturing products of the highest possible standard of quality and to consistently developing innovative solutions.

One vision has been driving us for more than 50 years – **motion plastics®**: Innovative moving parts made of plastic that move machines. Our core technology is based on tribo-polymers – high-performance plastics whose friction and wear properties we optimise. This technology has made us a global leader in developing and manufacturing energy supply systems and plain bearings.

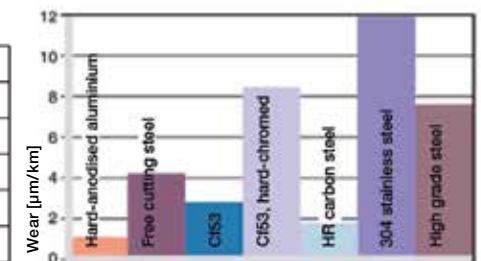
## Precisely predictable material properties

iglidur® plain bearings mean the step from the plastic bearing to the tested and predictable bearing element. Probably the world's largest database for polymer plain bearings helps to select the right material for your application.

### The most wear-resistant igus® material



### The ideal bearing for your shaft



Wear iglidur® G with various shaft materials (rotating 0.3m/s, 1.0MPa). With low loads, it is often possible to work with inexpensive shaft materials.

# Product examples



## Sleeve bearings

- For radial bearing support
- Over 60 iglidur® high-performance plastics for various requirements
- Standard from the catalogue or with custom tolerances



## Flanged bearings

- For both radial and axial bearing support
- Over 60 iglidur® high-performance plastics for various requirements
- Standard from the catalogue or with custom tolerances



## Clip bearings

- Cost savings thanks to reduced assembly times
- No flanging necessary
- Quiet adjustment in the long term



## Special plain bearings

- Free form determination in plastic injection moulding
- Fast samples in 3D printing or with machining



## Polysorb disc spring

- Compensation for axial clearance and manufacturing tolerances
- Standard from the catalogue or with custom tolerances



## Thrust washers

- For axial bearing support
- Over 60 iglidur® high-performance plastics for various requirements
- Standard from the catalogue or with custom tolerances



## Gears

- Wear-resistant plastic gears for force transmission
- Bevel gears, spur gears, racks, and special gearing parts



## Lead screw drives

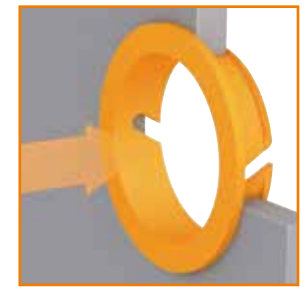
- Harmonised design
- Lubricant-free drive solutions
- Efficiency of up to 82%



## e-chain®

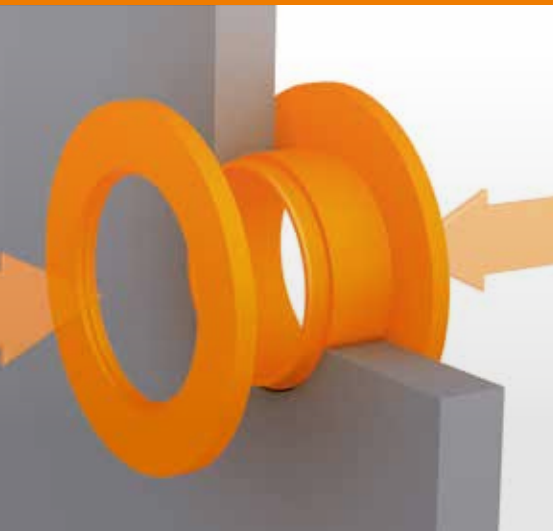
- Cable protection and continuous power supply to the seat component via an energy chain with reverse bend radii

# Solutions for stamped sheet metal



## igidur® easyclip

- Easy installation
- Can be automated
- Axial securing by 2nd flange
- 1-sided approach



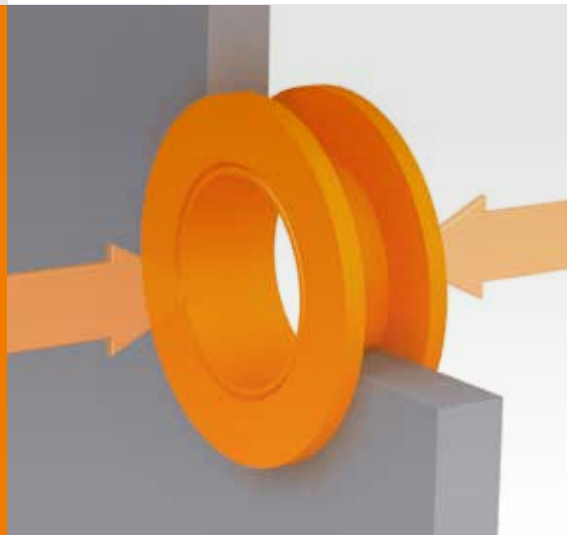
## igidur® Clip On

- Disc is clipped onto the flange bearing with undercut
- Compensation of axial clearance
- Recalibration/tolerance compensation for e-coating
- Captive for assembly handling



## igidur® MKM flanged bearing

- Both sides "appropriate" axial thrust surface
- Simple flanging with screws or rivets
- Tolerance compensation through axial pre-load



## igidur® MDM double flange bearing

- Press together and insert
- Loose and safe assembly
- Both sides "appropriate" axial thrust surface
- No flanging necessary

# Solution for e-coating processes

## Low-clearance iglidur® plain bearings thanks to recalibration in conjunction with e-coating

Bolts in multi-joint hinges and seat and hood systems are often cost-effective stamped mounts and simple cold-extruded parts with rough tolerances. A bearing should have as little clearance as possible in order to reliably avoid noise.

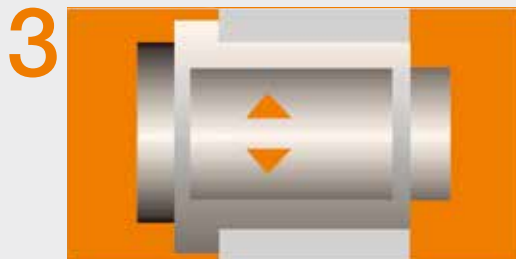
Here is our solution approach: For calibration, iglidur® plain bearings use the high temperatures arising during drying after the e-coating.



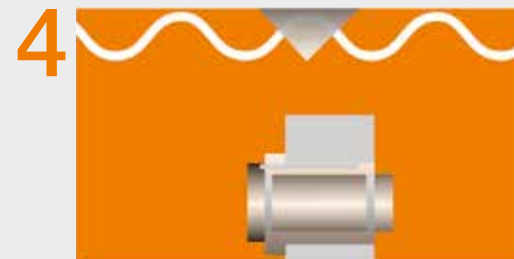
1 Rough punched hole/collared groove



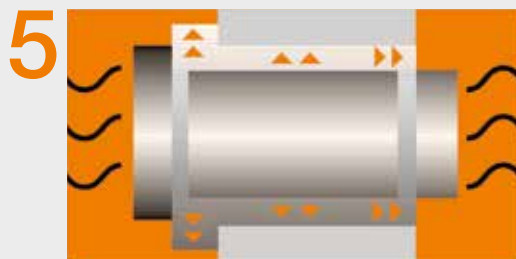
2 Assembly iglidur® plain bearing with sliding fit



3 Assembly rivet/pin with cap



4 E-coating (cathodic dip painting)



5 Automatic recalibration during drying (max. 60min. at up to 220°C)



6 Result: low clearance bearing despite "inaccurate" hole/pin

# From prototypes and small numbers up to small volumes and large-scale production



With igus® special bearings, your ideas can take any shape you like

 [igus.co.uk/info/customized-parts](https://igus.co.uk/info/customized-parts)



## 3D printing/Laser sintering

For prototypes and small quantities made from tribo-filaments or with laser sintering

Extremely wear-resistant materials for 3D printing and the laser sintering method – print parts yourself or have igus® print them for you.

- Up to 50 times more abrasion-resistant than common 3D printing materials
- Various iglidur® materials available for FDM/FFF, iglidur® I3, iglidur® (filament) and laser sintering (powder)
- No tool costs, cost-effective, no minimum order quantity

## Milled / Turned

For small quantities made of iglidur® bar stock

Design freedom: Bar stock to produce your own parts, or have them supplied, machine-finished, in the shapes you need.

- As round bar in Ø10-100mm
- As plate material in 2-40mm thicknesses
- Lengths 100-1,000mm

## Printed tools

For small quantities made from iglidur® granules 3D-printed injection moulds. Wear-resistant parts with simple geometry can be manufactured from most iglidur® materials.

- Customised from 72hrs
- Up to 80% more cost-effective than conventional injection moulding tools
- For prototypes and small volumes

## Injection moulding

For high-volume production made of iglidur® granules

Modern injection moulding systems allow controlled, cost-effective production of standard and special parts.

- Online orders and calculations
- 100,000 products from stock
- Proven millions of times
- Own toolmaking
- FastLine service - special dimensions received in maximum 7 days

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# Close to you all over the world

# /9001:2015 /16949:2016

igus® is certified in accordance with ISO 9001:2015 and ISO/TS 16949:2016 in energy supply systems, cables, harnessing, and plastic plain bearings.

# /14001:2015

igus® is certified according to ISO 14001:2015. This recognized basis for environmental management systems supports us as we become a CO<sup>2</sup>-neutral factory.

# /newsletter

Get more information on motion plastics®  
News and trends: exciting applications, videos, test results, webinars and much more.  
Compact and free of charge. Register now at [www.igus.co.uk/newsletter](http://www.igus.co.uk/newsletter)

# /online

You can find out more about automobiles at [www.igus.co.uk/automotive](http://www.igus.co.uk/automotive)



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\*\* The igus® e-chain® guarantee of up to 36 months applies to the number of double strokes calculated by the online service life calculator [www.igus.co.uk/ECS-service-life](http://www.igus.co.uk/ECS-service-life). The guarantee conditions available at [www.igus.co.uk/guarantee](http://www.igus.co.uk/guarantee) apply.