

11/2021



Tech up, Cost down. It's our job.

igus.eu



e-chains®...cables... smart

11/2021

news



motion plastics® ... It's our job!

Dear customers,

After 18 months, there is finally a major physical trade show with igus® exhibiting. There will be interesting new product innovations to become familiar with, over 180 of them. In addition to our April news catalogue, the following pages contain information about our fresh autumn innovations. All new products can also be introduced on our virtual, but real, trade show stand: igus.eu/imps, so even if you can't be at the physical trade show, you can still experience the new products!

We have also set ourselves goals in other important areas. Our efforts to become a CO₂-neutral company have resulted in many projects and measures over the past year. The idea that motion plastics® can – and must – play an important role in machine sustainability is surprising to some, but has guided our research for years. You can find out more about this at: igus.eu/sustainability

Have fun exploring our news catalogue and online information. If you can't find something you need, contact us. We are always looking for new solutions to customer problems!.

Sincerely,


Frank Blase



plus

Expansion

new
10/2021

News

study

Study



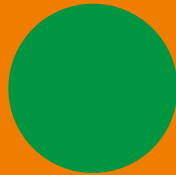
Tech up



Cost down



Proof



Sustainability

50th anniversary



Our e-chain® is turning 50!

Look back and look forward with us.
From page 90



You will find all innovations here ...

imps ... igus® motion plastics show 2021 ... igus.eu/imps



igus® cleanroom technology clean-room ...

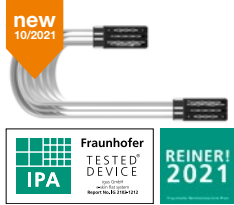
Selection matrix

Page 10 ...

Cleanroom-compatible systems at a glance with scoring system evaluation according to the requirements

e-skin® flat

Page 12 ...



Cleanroom energy supply systems ... **New:** ISO Class 1 for 3-layer e-skin® flat

e-skin flat® Pod configurator

Page 14 ...



With just a few clicks, create an e-skin® flat single pod system for your application

Corrugated tube e-skin®

Page 16 ...



Cleanroom corrugated tube energy supply system in three different models depending on requirements

...

e-skin® Interior separation

Page 18 ...



e-skin® reduces cable abrasion to a minimum and increases service life ... with smooth, round interior separation

E6.1 and E6 e-chains®

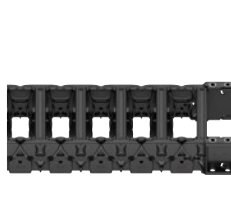
Page 20 ...



Strong on the inside, clean on the outside ... crossbars made of new tribo material promise even less particle emission

C6 e-chain®

Page 22 ...

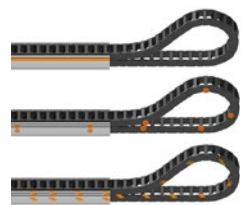


Cleanroom energy chain C6 sets standards - hardly any abrasion, high stability

Long travels ...

Long travels

Page 26 ...

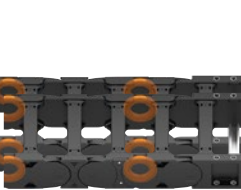


Cost-effective, max. service life, longest travels ... new modular system with glide pads, rollers and smart options

e-chain systems® for long travels ...

E4.1R rol e-chains®

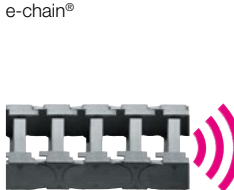
Page 28 ...



Upgrade instead of buying new ... the E4.1R extension set turns a standard E4 energy chain into a rol

E4Q and E4.1 glide pads

Page 30 ...



Extend chains service life in abrasive environmental conditions

Heavy-duty rol e-chain®

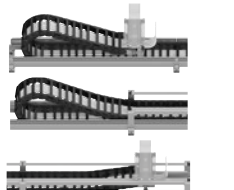
Page 32 ...



P4HD.56R rol e-chain® ... development goals: longest service life

Complete systems for „long travels“

Page 34 ...



Long gliding travels with the modular kit – cost-effective, fast, long service life ... as you wish

...

autoglide 5

Page 36 ...



The alternative to the busbar system ... quickly installed, cost-effective and now even more versatile

Dampening elements

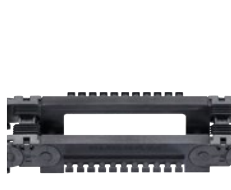
Page 38 ...



Already quiet - now even quieter ... with dampening elements for autoglide 5

Fixed end bridge

Page 39 ...



autoglide 5 fixed end bridge ... reduce cable length and save costs

e-chain® opener

Page 42 ...



Open E2.1 e-chains® 16 times faster with the new chain opener ...

Accessories ...

e-chains® accessories ...

E4Q system

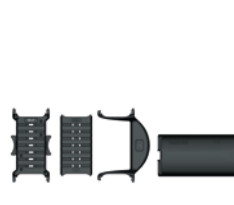
Page 44 ...



The new e-chain® standard E4Q in four sizes now also available with crossbars every 2nd link

Universal interior separation

Page 46 ...



e-chain® E4Q universal interior separation offers complete flexibility, safety and ease of installation

Pneumatic clamps CFX

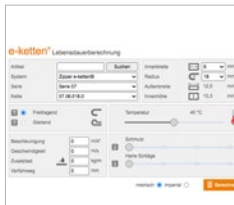
Page 48 ...



CFX pneumatic hose clamp ... clamp hoses securely without crushing them

e-chains® guarantee

Page 50 ...



Up to 36 months guarantee for your e-chain ... calculate e-chain® service life online and request guarantee certificate

Special e-chain systems® ...

e-dispenser

Page 54 ...



Shore power supply for ships ... saves costs and protects the environment ... for shore power supply, maritime, amongst others

e-drum 2.0

Page 56 ...



Slip ring-free modular system offers flexible reeling and protection of the cables ... for cranes, theatres, vertical lifts, amongst others

e-loop®

Page 58 ...



The robust and flexible alternative to the service loop ... including offshore, onshore, construction machinery

e-spool® flex 2.0 mini

Page 60 ...



Uninterrupted cable guidance for short cable lengths and small space requirements ... for office, medicine, e-charging stations, amongst others



Special e-chain systems®

guidelok slimline XXL
Page 62 ...



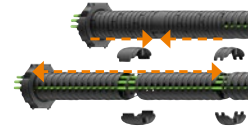
guidelok vertical with E4.42 series ... easily and quickly in XXL ... for material handling, material flow, RGB

PRM rotating energy supply
Page 64 ...



Slip ring-free rotary energy supply system PRM with modular principle ... for rotary movements of all kinds

triflex® TRX
Page 68 ...



Space-saving with up to 40% retraction length ... telescopic triflex® R TRX ... the revolution for dress packs

SCARA cable solution
Page 70 ...



safe energy supply for the SCARA robot ... with SCARA cable solution
New: the robotic equipment configurator

e-chain systems® for robots ...

triflex® R TRE.30.050.0.B
Page 72 ...



4-fold radius strength and a higher torsional stop

smart plastics ...

Study CF.D II
Page 76 ...



Concept study ... measurement of the transmission quality without intervention in the data link ... CF.D II

Complete sets
Page 78 ...



Ready-to-install solutions for predictive maintenance selected in seconds and ordered online

i.Sense CF.D
Page 80 ...



Reliable condition monitoring of bus cables at last without extra cores

smart plastics ...

i.Sense:modul II i.Sense
Page 82 ...



New smarter condition monitoring generation ... now connect up to 4 sensors with only one module

i.Cee:plus II
Page 84 ...



Enables deep integration into customer networks and numerous IoT use cases

smart long travels
Page 86 ...



Intelligent maintenance information even in difficult applications ... for the new P4.1 rol e-chain®

i.Cee:plus II & drylin® W
Page 88 ...



Keep up to date at all times ... thanks to modern condition monitoring for drylin® W profile guides

chainflex® cables ...

High End TPE cables
Page 96 ...



Avoid machine fires with high-end TPE cables ... more than 210 high-end cables with UL ...

Measuring system cable
Page 98 ...



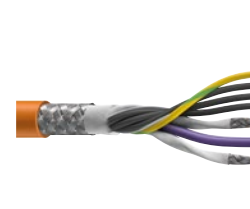
Radius down and guaranteed service life up ... CF11.D

Hybrid servo cable
Page 100 ...



Larger hybrid selection ... suitable for Siemens, Beckhoff, B&R ... CF220.UL.H

Hybrid cable
Page 102 ...



Save costs and installation space with the new hybrid cable suitable for SEW MOVILINK DDI

chainflex® cables ...

Motor cable
Page 104 ...



Small cross sections for smaller drive motors ... CF210.UL

Motor cable
Page 106 ...



...even more choice with a very cost-effective motor cable ... CF896

Servo cable
Page 108 ...



Servo cable with guaranteed service life for Fanuc drives ... precisely fitting, oil-resistant and can be used worldwide

MTW control cables
Page 110 ...



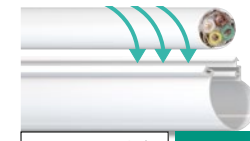
MTW cable for e-chains® and cable trays ... tested and with guarantee

chainflex® CASE
Page 112 ...



ship'n store by igus® ... 883 cables can now be ordered in the chainflex® CASE

chainflex® CFCLEAN
Page 114 ...



Light, thin and long-lasting ... made for the e-skin® flat

CF6.25.03 control cable
Page 118 ...



Quick and safe to process ... shielded control cable for the smallest installation spaces

Profinet cable
Page 120 ...



Profinet FastConnect ... quick, safe and easy to connect



To the virtual trade show

readycable® harnessed cables ...

Siemens hybrid cable OCC
Page 124 ...



The Siemens OCC hybrid cable saves weight and installation space

AIDA extensions
Page 126 ...



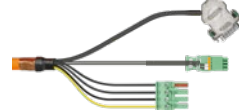
Push-pull for 50 % less assembly effort ... ready-to-connect AIDA extensions for the automation

Single Pair Ethernet
Page 128 ...



Harnessed Single Pair Ethernet cable ... 25% smaller and ready to install

EPLAN macros
Page 130 ...



EPLAN macros suitable for Bosch Rexroth ... 50% faster design

Binder plug-in connector
Page 132 ...



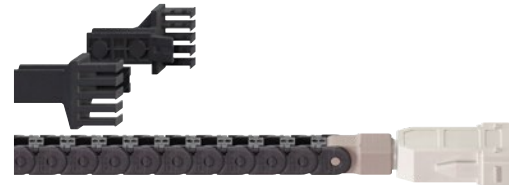
Original M8/M12 Binder plug-in connectors from stock

Plug-in e-chain®
Page 134 ...



Plug-in e-chain® ... make your energy chain pluggable

Snap-on carrier
Page 136 ...



it couldn't be simpler ... snap-on expansion

e-chains® celebrate 50 years!

Moving energy made easy since 1971

Page 90 ...

50ature

Join us to take a look into history, today's figures and the archive.

Sustainability at igus®

Sustainability in production, in use and after

Page 138 ...



Sustainability from production to application and recycling: read about what we do at igus®.

igus® motion plastics® show

Virtual trade show 2021

Page 142 ...



More than 168 new products presented in our award-winning virtual "real" trade show stand ... now with new features

Disclaimer

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Moving energy made easy ...

Cleanrooms and the semiconductor industry ... It's our job

From e-car and smartwatch to electric blenders in the kitchen: progressing electrification is leading to a strong growth of the electrical industry. Accordingly, in great demand are particle-free cleanrooms where electronic components for the semiconductor and display industry as well as microelectronics can be manufactured safely, because even the smallest particles can destroy the sensitive products. Cable guides for automation systems and robots must also meet these particle-free requirements. That's why we offer a broad portfolio of cleanroom energy supply systems in the product range that comply with the highest air purity class 1 according to ISO 14644-1 and can increase the output (YIELD) and overall equipment effectiveness (OEE) of your systems.

...new

highlight 2021↑...

...22 Cleanroom energy chain C6 sets standards - hardly any abrasion, high strength ...

new 10/2021
...12

Cleanroom energy supply system e-skin® flat ... improve overall effectiveness and achieve higher yields



...16

Cleanroom corrugated tube energy supply system in three different types depending on requirements



18

e-skin® reduces cable abrasion to a minimum and increases service life ... with smooth, round interior separation



...20

Strong on the inside, clean on the outside ... crossbars made of new tribo material for E6.1 and E6 systems promise even less particle emission ...

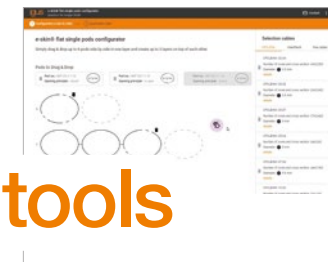


... 14 Online tools



114

In the "chainflex® cables" section: CFCLEAN stranded structure ... lightweight, thin, durable ... made for the e-skin® flat



e-skin® flat online configurator:
igus.eu/e-skin-flat

... selection:
new energy
supply systems
for cleanrooms
to increase plant
efficiency and yield ...

We have the right solution for almost every requirement in the cleanroom, the semiconductor industry or in sectors where high cleanliness is a top priority. For large unsupported lengths, smallest installation spaces, highest modularity or easy maintenance. Which parameters are the most important for you? In the overview matrix, you will find a comparison of the most important specifications of the igus® cleanroom energy supply systems.

Online you will find a quick selection guide that allows you to request your suitable cleanroom energy supply system in 30 seconds:
igus.eu/cleanroom-finder



	e-skin® flat (with CFCLEAN)	e-skin® SK	E6/E6.1 e-chain®	C6 e-chain®	Commercially available ribbon cables
<ul style="list-style-type: none"> ● Less suitable ●●●● Ideal ✓ Yes ✗ No 					
Class 1 according to DIN EN ISO 14644-1	✓	✓	✓	ISO 1 is the objective	✓
Modular design	●●●●●	●●●	●●●	●●●●	●●
Components individually interchangeable	✓	✓	✓	✓	✗
Easy filling, openable	●●●●●	●●●●●	●●●●●	Design study	✗
Fast delivery	●●●●	●●●	●●●●●	●●●●	●●
Easy maintenance	●●●	●●●●	●●●●●	Design study	●
Available from stock	✓	✓	✓	✓	✗
Individual shortening	✓	✓	✓	✓	✗
Individual widening	✓	✗	✓	✓	✗
High productivity	●●●●	●●●●●	●●●	●●●●	●●●●
No minimum order quantity	✓	✓	✓	✓	✗
Cost-effective	●●●	●●●●	●●●●●	●●●●	●●●●
Suitable for unsupported applications	●●●●	●●●	●●●●●	Design study	●●
For high dynamics	●●●	●●●	●●●●●	●●●●●	●●●●
Low clearance height	●●●●●	●●●	●●●	●●●	●●●●●
Space-saving	●●●●●	●●●	●●●●	●●●●	●●●●●
Fill weight	●●	●●●●	●●●●●	Design study	●●
Guaranteed for up to 36 months ⁶⁾	✓	✓	✓	✓	✗
Reduce resources	✓	✓	✓	✓	✗
Everything from one source (chain, cable, connector)	✓	✓	✓	✓	✓
Products also available individually	✓	✓	✓	✓	✗
ESD compatibility	in testing	in testing	✗	Design study	✓
Quiet and low vibration	●●●●●	●●●●●	●●●	●●●●	●●●●
Online service life calculation	✗	✗	✓	✗	✗
Online interior separation configurator	in preparation	✓	✓	✗	✓
Suitable for the following industries	3C industries AOI Bonding Dispensers Electrical manufacturing FPD production Semiconductor industry Medical technology Microelectronics	3C industries AOI Dispensers Electrical manufacturing FPD production Glass industry Semiconductor industry Microelectronics	Printers Electrical manufacturing FPD production Semiconductor industry Camera technology Measuring machines Microelectronics Panel robots	Electrical manufacturing FPD production Semiconductor industry Microelectronics Panel robots Packaging	3C industries Electrical manufacturing FPD production Semiconductor industry Microelectronics

... IPA cleanroom class 1.

Increase yield, increase OEE ...

Guide cables compactly and virtually particle-free in cleanrooms. Modular, flat cleanroom guide for ISO Class 1 applications.

**REINER!
2021**

Fraunhofer Reinhardttechnik-Preis

The IPA Fraunhofer Institute's REINER! Purity Technology Prize.
2nd place for igus® e-skin® flat and CFCLEAN



SKF.C – fully enclosed



SKF.O – openable with a special locking mechanism



SKF.S – support e-chain® can be combined with SKF12C

Tech up

- **New** Cleanroom-compatible according to IPA Cleanroom Class 1, now also for the three-layered e-skin® flat
- Available in 2 versions: closed and openable with a special closure system
- Modular and compact design
- Optional with support e-chain® for longer unsupported lengths; can be combined to SKF12C series
- Multi-layer model possible
- Stackable, width-variable mounting brackets

Proof

- Suitable for cleanroom according to IPA cleanroom Class 1
- **New:** ISO Class 1 for 3-layer e-skin® flat



IPA classification – Report IG2102-1212: the e-skin® flat system was tested

Cost down

- Fast, flexible exchange of the filling
- Flexible standard modular system, no special production
- chainflex® CFCLEAN cable offers high reliability thanks to its balanced braided structure
- Saving resources, as only individual elements are replaced in case of damage
- Replaces customer-specific flat ribbon cable

Sustainability

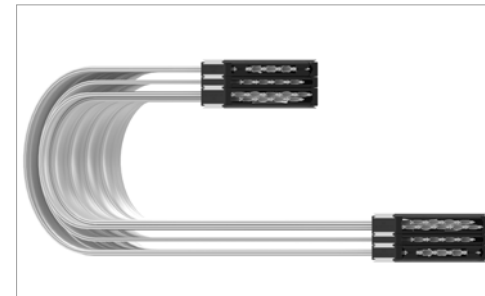
- Huge material savings possible, as you can replace a cable without having to replace the entire system
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change



New: ISO Class 1 for 3-layer e-skin® flat



Tool for closing the e-skin® energy supply system Part No. MT.SK.914.868.



The e-skin® flat mounting brackets are stackable and variable in width. The SKF is clamped in place by the mounting brackets and there is therefore no strain on the cables.



The alternative to ePTFE flat cable guides with e-skin® flat: Specifically matched chainflex® CFCLEAN braided structure. All advantages of CFCLEAN at: igus.eu/CFCLEAN.

Part No.	Type	Inner height	Number of chambers	Max. cable ø
SKF12C*	Closed	12mm	2 – 6 per layer	10mm
SKF15C	Closed	15mm	2 – 6 per layer	13mm
SKF12O	openable	12mm	2 – 6 per layer	10mm

*Support e-chain® for unsupported length and an optionally available, defined bend radius.

TIP: energy supply systems for cleanrooms – revolutionise overall effectiveness of production system and generate higher yields

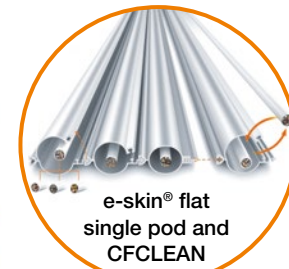
- Can increase plant effectiveness
- Generate higher yields from the production lines
- Use cleanroom energy supply systems more sustainably
- and much more ...

Download the white paper: igus.eu/cleanroom

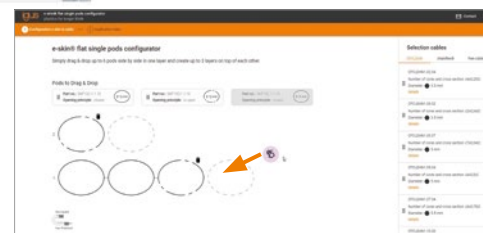


... in just a few clicks to your individual e-skin® flat ...

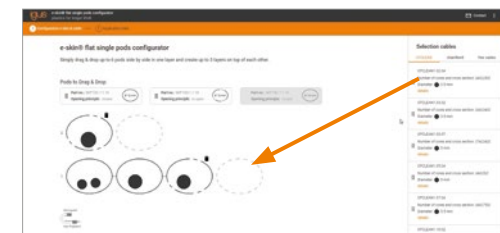
Create an e-skin® flat single pod system for your application via drag & drop. Choose from the CFCLEAN cable bundles, which were specifically developed for e-skin® flat.



igus® chainflex® CFCLEAN cable bundles specifically designed for e-skin® flat. The CFCLEAN product range offers suitable core/cross-section combinations for your data, control, bus and motor signals.



Choose your pod version and size: openable, non-openable, Ø 12mm or Ø 15mm. Drag the number of the desired pods into the provided fields.



... and add the CFCLEAN cable bundles from the cable pool.

▲ Tech up

- e-skin® flat with CFCLEAN revolutionises your overall system effectiveness
- e-skin® flat with CFCLEAN generates higher production yields
- e-skin® flat with CFCLEAN is modular and compact

▼ Cost down

- e-skin® flat with CFCLEAN replaces customer-specific flat ribbon cables
- Modular system for components available on stock reduces costs in the prototype phase
- Easily replace or add components without having to have the entire system redone

■ Proof

- e-skin® flat is IPA-classified: EN ISO class 1 according to DIN 14644-1, Report IG2102-1212
- Tested with over 50 million cycles in the igus® laboratory



New: IPA classification - Report IG2102-1212: the e-skin® flat system was tested

● Sustainability

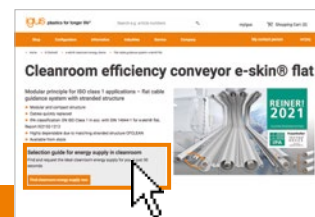
- e-skin® flat with CFCLEAN saves resources, as only individual elements are replaced in case of damage
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Supplement your information by application data and further parameters necessary for defining your application.



You will receive an individual offer for your e-skin® flat single pod system.



e-skin® flat online configurator: igus.eu/e-skin-flat



... tubes for cleanroom.

Increase yield, increase OEE ...

A hose consisting of an upper and lower shell that form a sealed tube when connected to each other. For ISO class 1 applications.



Tool for closing the e-skin® energy supply system Part No. MT.SK.914.868.



Expansion: upgrade for the e-skin® family
Further minimise abrasion of cables guided in the e-skin®. Ring-shaped, wear-resistant interior separation system made of tribo-plastic, next page.



igus® cleanroom energy supply system with virtually no wear and abrasion



can be opened and closed like a zipper



e-skin® SK - for longer unsupported lengths



e-skin® soft SKS - with more elastic material and lower clearance height



e-skin® hybrid SKY - combines the advantages of the SK and SKS series

Tech up

- Suitable for cleanroom according to IPA cleanroom class 1
- e-skin® SK for longer unsupported lengths
- e-skin® soft SKS with more elastic material and lower installation height
- e-skin® hybrid SKY combines the advantages of e-skin® SK and e-skin® soft SKF
- Interior separation system consisting of "tribo-optimised" iglidur® material

Proof

- Suitable for cleanroom according to IPA cleanroom class 1



IPA classification - Report IG 1907-1125:
The e-skin® 0.SK28.068.02.1 (prototype), SKS28.068.02.1 incl. cables and SKY28.068.02.1 were tested



Cost down

- Easy filling with "zipper" function
- Simple maintenance and inspection of the cables inside
- Cable-friendly with defined minimum bend radius

Sustainability

- Huge material savings possible, as you can replace a cable without having to replace the entire system
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change



Absolutely dust-free environment for printed-circuit-board production using the abrasion-resistant e-skin®.



Service life test in the 3,800m² large igus® laboratory in Cologne (Germany).

Part No.	Inner height	Outer height	Inner width	Outer width	Bend radius*	Unsupported
SK28	28mm	40mm	68mm	95mm	055mm	1.1m
SK40	38mm	57mm	85mm	118mm	100mm	2.0m
SKS20	20mm	25mm	33mm	50mm	055mm	0.6m
SKS28	28mm	40mm	68mm	95mm	055mm	0.7m
SKS40	38mm	57mm	85mm	118mm	100mm	1.3m
SKY28	28mm	40mm	68mm	95mm	055mm	0.9m
SKY40	38mm	57mm	85mm	118mm	100mm	1.4m

*Note: the minimum bend radius is determined by the inner side corrugated tube!

Smooth, round interior separation - corrugated tubes e-skin®

... minimum particle emission ...

Further reduce cable abrasion with low-wear interior separation systems made from the tribo-material iglidur® J for the e-skin® corrugated tube series SK, SKS, SKY.

clean-room

injection-moulded separators, optimised for wear

-77%*

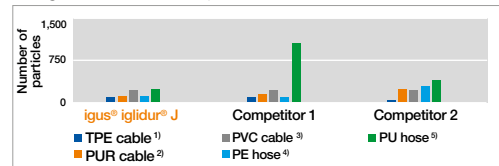
less abrasion compared to igumid G standard material

Tech up

- Further reduces the abrasion of cables in the e-skin® energy supply system
- Consists of upper and lower shells onto which separators have been moulded
- Can be combined with shelves
- Highly wear-resistant thanks to tribo-plastic from the iglidur® range of materials
- For cleanroom-compatible e-skin® SK, SKS, and SKY

Proof

- Abrasion/cable tests in the igus® laboratory. The iglidur® J material produces 77% less abrasion*



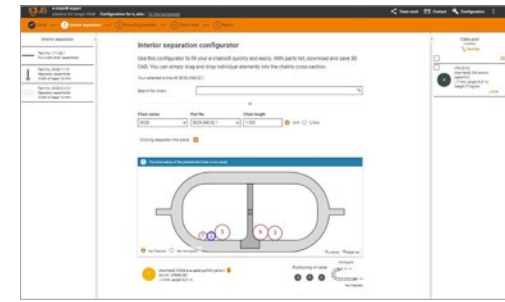
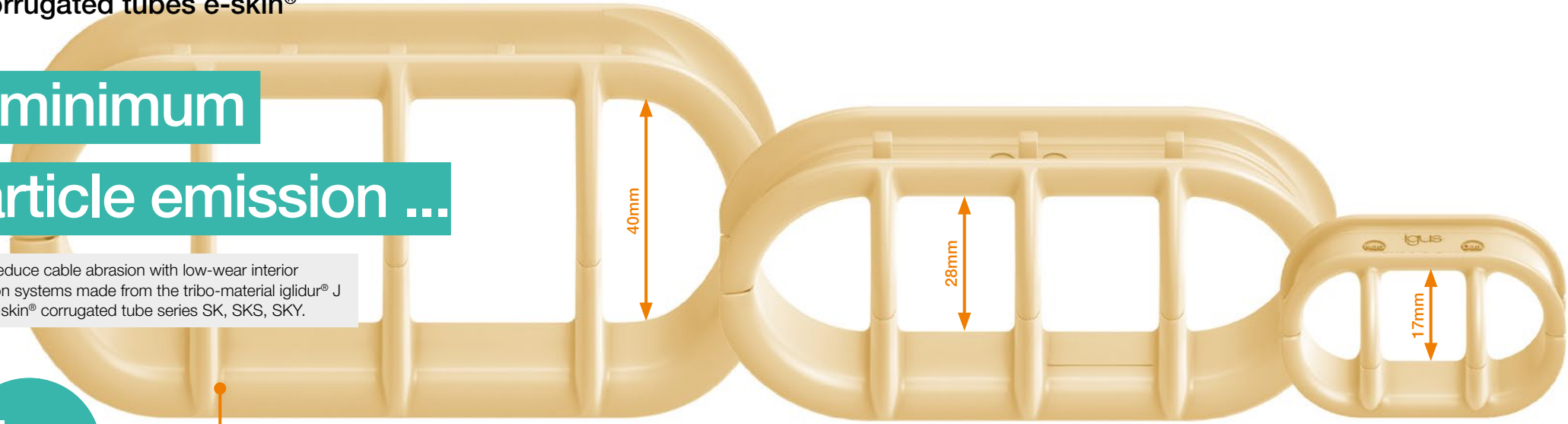
*Measured and averaged in use with five different friction partners: 1) CF340.250.01 2) CF270.U.L.350.01.D 3) CF886.350.01 4) CAPE.A.10.0 5) CAPUA.10.0 compared to the standard material igumid G

Cost down

- Longer service life of the cables due to reduced jacket abrasion
- Maintenance-friendly and easy to retrofit for greater cleanroom suitability

Sustainability

- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



e-skin® energy supply ... designed in minutes. You can see all available elements and the price, allowing you to immediately enquire or order online: igus.eu/eskin-quickfill

Wear-optimised interior separation made of igus® iglidur® J significantly reduces the abrasion of cables guided in the e-skin®: igus.eu/info/igidur-J-material-data

for series	Part No.	Inner height	Part No. Full-width shelf
SKS20	SK20.2.H.5	17mm	110.30.J
SK28/SKS28/SKY28	SK28.3.H.5	28mm	110.66.J
SK40/SKS40/SKY40	SK40.3.H.5	40mm	110.82.J

Note: the interior separation system is mounted at the connecting points of the e-skin® energy supply tube!

TIP: find the right energy supply system for cleanroom and semiconductor applications in 30 seconds!

- New online selection tools for igus® cleanroom energy supply systems
- Select the best igus® solution and enquire without obligation: igus.eu/info/e-skin-configurator

... even fewer particles. Cleanroom upgrades ...

Further reduce cable wear with new interior separation system and crossbars of the proven E6.1/E6 energy chains.

Upgrade for the E6.1/E6

Enhance the cleanroom suitability of existing E6.1/E6 applications or upgrade directly to the highest cleanroom suitability. New cleanroom-optimised crossbars and interior separation reduce the abrasion of the cables guided in the E6.1/E6 by 89%*.

clean-room

cleanroom with igus® virtually no wear or abrasion of the e-chain®



cleanroom-optimised crossbars



cleanroom-optimised interior separation

-89%*

less abrasion compared to standard material

Tech up

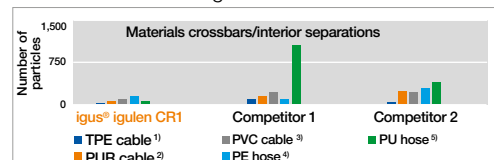
- Newly developed, cleanroom-compatible tribo-plastic made of igulen CR1 significantly reduces abrasion of the cables
- Easy to assemble and to retrofit
- Ease of assembly

Cost down

- Longer service life of the cables due to reduced jacket abrasion
- Easy to retrofit, upgrade for higher cleanroom suitability
- Reduced maintenance effort

Proof

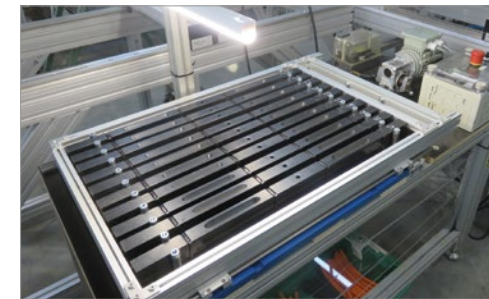
- igus® igulen CR1 material produces 89% less abrasion than the igus® standard material*



*Measured and averaged in use with five different friction partners: 1) CF340.250.01 2) CF270.U.L.350.01.D 3) CF886.350.01 4) CAPE.A.10.0 5) CAPU.A10.0

Sustainability

- Resource reduction due to long service life
- Retrofit instead of complete new purchase
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Tests in the igus® laboratory: various gliding combinations are tested and evaluated for abrasion.

Interior separation Part No.	Suitable for series	Width BBB
E6.29.1.CR1	E6.29/E61.29 separator	-
E6.35.1.CR1	E6.29/E61.35 separator	-
E6.40.1.CR1	E6.29/E61.40 separator	-
E6.52.1.CR1	E6.29/E61.52 separator	-
2300.BBB.CR1	Shelf for all E6.29-52/E61.29-52 series	030 - 300mm

Crossbar Part No.	Suitable for series	Width BBB
2105.BBB.CR1	E6.29/E61.29/E6.35/E61.35 crossbar	030 - 140mm
225.BBB.CR1	E6.40/E61.40/E6.52/E61.52 crossbar	040 - 300mm

... for the cleanroom applications of the future ...

The next generation of energy chains for the highest cleanroom suitability. igus® combines design principles for cleanrooms.

clean-room

-89%*

less abrasion compared to standard material with igulen CR1

-26%

C6.53 is 26% lighter compared to the E6.52 series (with inner width 100mm)

cleanroom with igus® virtually no wear or abrasion

Tech up

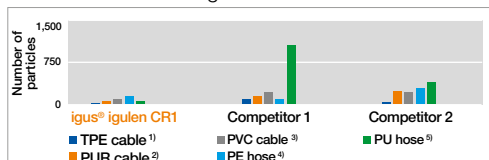
- Optimised design without any measurable abrasion
- For ISO Cleanroom Class 1 applications
- All parts that contact the cables are made of tribo-optimised igulen CR1
- High strength thanks to the bionic design
- Very quiet operation thanks to new crossbars and integrated silencer element

Cost down

- Long service life = Low life cycle costs
- Easy and therefore cost-saving installation

Proof

- igus® igulen CR1 material produces 89% less abrasion than the igus® standard material*



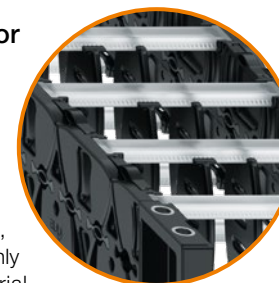
*Measured and averaged in use with five different friction partners: 1) CF340.250.01 2) CF270.U.L.350.01.D 3) CF886.350.01 4) CAPE.A.10.0 5) CAPU.A10.0

Sustainability

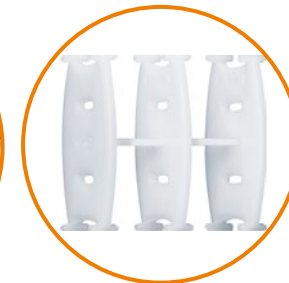
- Resource reduction due to long service life
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

The evolution of igus® e-chains® for cleanroom

Many design principles of the E6, which has been successful since 2001, the E6.1, which was further developed in 2012, and the igus® e-skin® have been incorporated into this new C6 study. Increased strength with bionic design, quiet and low-vibration operation, diverse filling options and especially the highly abrasion-resistant construction and material selection make the "C6" the cleanest room energy chain for numerous industries.



cleanroom-optimised crossbars



cleanroom-optimised interior separation

Part No.	Inner height	Outer height	Inner width	Outer width	Bend radius	Pitch
C6.53.Bi.R.0	53mm	67mm	175mm	199mm	upon request	30mm

Pilot size C6.53 - availability and other sizes upon request

Moving energy made easy ...

e-chain systems[®] for long travels ... It's our job

In order to load and unload new and larger container ships, new and larger STS cranes have to be built or existing ones converted. In addition, the demands on the availability and reliability of the cranes, and therefore on the energy supply system, are increasing. Energy supply made easy and safe, on storage and retrieval units, on indoor cranes or even on STS cranes.

...new

highlight 2021↑...

...32

P4HD.56R rol e-chain[®]
... development goal:
maximum service life ...

...28



Upgrade instead of buying new ... the E4.1R extension set turns a standard E4 energy chain into a rol e-chain[®]

30

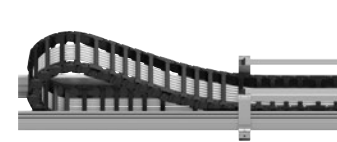


Glide pads for the E4Q/E4.1 e-chain[®]: extend chain service life in abrasive environments

...34



Gliding long travels from the modular system - cost-effective, fast, durable ... just as you need



...36



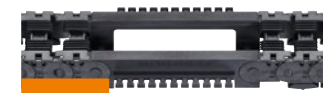
autoglide 5 - the alternative to the busbar system ... quickly installed, cost-effective and now even more versatile

38



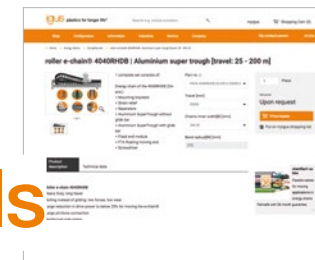
Already quiet - now even quieter ... with dampening elements for autoglide 5

39



autoglide 5 fixed end bridge ... reduce cable length and save costs

...online tools



Order long travels of up to 200m with just one part number:
igus.eu/GT200

... glide, roll, save -
the best solution for
every long travel
... It's our job



Comparison of solutions for long travels

	E4.1 gliding ...	E4.1 rolling ... with roller chain links	E4.1 gliding ... with glide pads
Max. travel distance	●●	●●●	●●
Max. speed	●●	●●●	●●
Space required	●	●●	●
Price index	●	●●●	●●
Service life	●	●●●●	●●
Highly abrasive environment	●●	●●●	●●●●

Gliding energy chains



Universal solution - the first choice for most long travel applications. igus® delivers more than 25,000 energy chain for long travels every year. Most gliding applications can be directly shipped from stock with standard parts from the igus® modular kit.

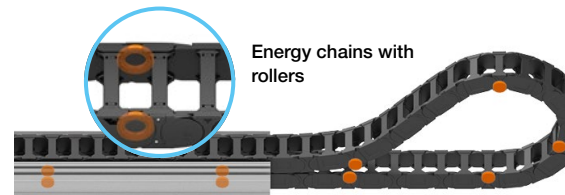
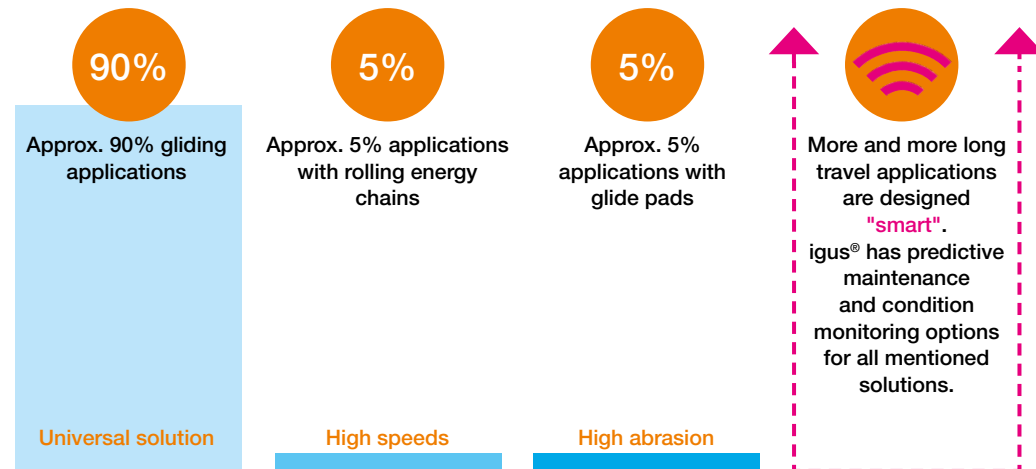
NEW: E4.1 now also self-guiding as autoglide 5, see page 36

The most cost-effective, suitable energy supply system for every long travel ... available worldwide, with up to 36 months guarantee. igus® continues to expand its proven E4.1 modular system: the new rol e-chain® links, glide pads and autoglide 5 components enable a technically and economically customised energy supply system for every application from 12m to 500m travel, such as those found in storage and retrieval units, crane systems, washing systems, gantries, shuttles and many other applications - optionally with condition monitoring and preventive maintenance sensors, offering truly smart plastics.

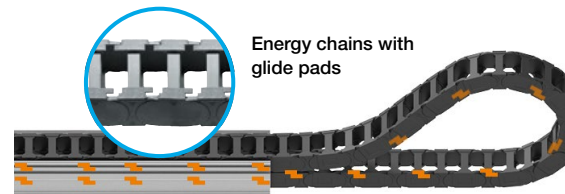
Long travels with igus®:

- Everything **smart** for more safety
- Calculate service life online
- Design and configure the system online
- Comprehensive system guarantees
- Ready assembled and harnessed
- Matched components and cables

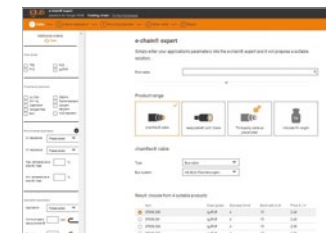
Long travels - when to use what:



High speeds - igus® has had energy chain links with integrated rollers in its product range for over 20 years. They greatly reduce the push/pull forces on long travels and the energy chains used achieve significantly longer service life. The new optimised rol e-chain® links now also offer this advantage for the E4.1 modular system.



High abrasion - in applications where extremely abrasive environmental conditions lead to excessive wear of the gliding surfaces, the new retrofittable glide pads can increase the service life of the energy supply system.



Online expert ... configure travels up to 100m online ... simply add cables and other components. You decide how many cycles of service life your application needs and so only buy what is actually required. The basis for the "most cost-effective solution that works with certainty" is the igus® test laboratory, where the company's own e-chains® complete millions of test cycles year after year.
echain-expert.igus.tools

... upgrading instead of buying new ...

For even longer travels and higher speeds on long travels - saving drive power.

E4.56R
-25%

smaller bend radii*

E4.56R
+25%

higher push-pull force*

up to
-37%

less drive power

up to
10m/s

maximum speed

Tech up

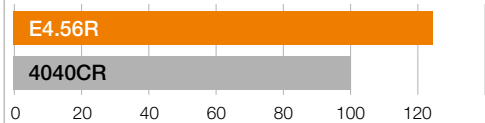
- Easy changeover from gliding to rolling e-chain®
- A roller chain link for all e-chain® radii (from 150-400mm)
- Adapter link not necessary
- Ideal for long travels
- Quiet running due to equal pitch of the e-chain® links
- Very small bend radii possible, from 150mm

Proof

- More durable: 25% more pull/push force possible

*Compared to the proven rol e-chain® 4040CR

Comparison push/pull force



Cost down

- Retrofit possible, fast assembly
- Increases the service life of the e-chain®
- Smaller minimum bend radii possible, which can reduce the cable length, installation space and steel construction if necessary
- 37% reduction of the drive power
- Predictive maintenance - optionally with the additional **i.Sense** module: igus.eu/smartplastics

Sustainability

- Resource reduction: conversion instead of replacement
- Save drive power and energy
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

Rolling instead of gliding: save up to 37% drive power.

P4/P4.1 system - better and stronger cables, rolling e-chains® -57%

E4.1 system rol e-chains® rolling instead of gliding -37%

E4.1 - stronger e-chains® -17%

chainflex® - optimised cables -17%

Standard - gliding application 100%



rol e-chain® is safe, space-saving and requires very low maintenance. Cable lengths are up to 50% less than those used in festoons.



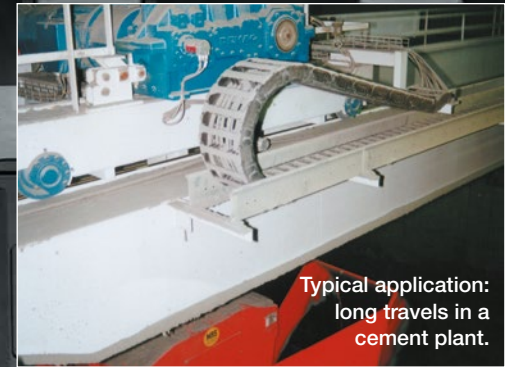
Rolling instead of gliding to save up to 37% drive power. For high speeds (up to 10 m/s) and the longest travels (up to 500 m).

Part No.	Inner height	Outer height	Inner width	Outer width	Bend radius
E4.42R*	42mm	64mm	87 - 400mm	76 - 462mm	115 - 300mm
E4.56R**	56mm	84mm	87 - 600mm	84 - 634mm	150 - 400mm

*Available upon request **Available from summer 2021

... longer service life in abrasive environments ...

Even longer service life in particularly abrasive applications on long travels.



200%

double the service life can be achieved

1-3 m/s

especially suitable for travel speeds from 1 to 3m/s



glide pads at E4Q: crossbars can still be quickly opened on both sides



glide pad in detail: here at E4.1

Tech up

- Low-friction and low-wear gliding elements increase the service life of igus® e-chains® in applications where the e-chains® slide
- Especially in an environment where abrasive media are present
- Recommended for travel speeds of 1-3m/s
- Easy to retrofit
- Crossbars remain accessible (in the case of E4Q)
- Complete package with fixed point transition

Proof



- Test in the igus® lab: 294,190 double strokes (10,003km), issue 09/04/2021

Cost down

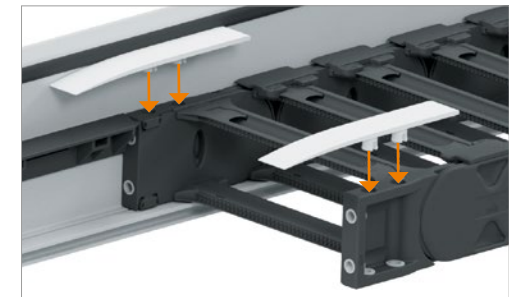
- Low cost
- No rework needed
- Predictive maintenance - optionally with the additional **i.Sense** module: igus.eu/smartplastics

Sustainability

- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



The new E4Q glide pads have the advantage that the e-chain® can still be opened when the glide pads are fitted.



Fixed end adapter clips made of tribo-optimized iglidur® I6 material are used for connecting the mounting bracket to the glide bar.

for series	Part No. Glide pad	Part No. KMA GSC adapter clip
E4Q.58	GSC.E4Q.58**	GSC.FP.56/58.SLS**
E4.56	GSC.E4.56*	GSC.FP.56/58.SLS**
E4Q.44	GSC.E4Q.44***	GSC.FP.42/44.SLS**
E4.42	GSC.E4.42*	GSC.FP.42/44.SLS**
E4Q.34	GSC.E4Q.34***	GSC.FP.32/34.SLS**
E4.32	GSC28*	GSC.FP.32/34.SLS**

*Available from stock **Available from May 2021 ***Available from autumn 2021

... maximum service life for the newest generations of cranes ...

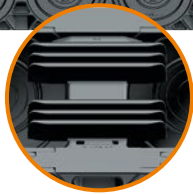
Extremely stable rol e-chains for extremely long service life, highest speeds and very long travels.



longer service life:
maintenance-free tribo-polymer plain bearings



low maintenance:
tribo-optimised plastic rollers



secure guidance:
comb style auto glide crossbars



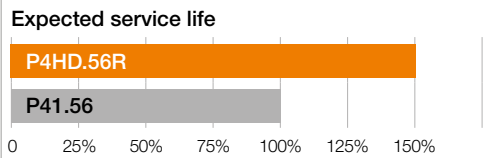
predictive maintenance with i.Sense (optional), page 80

Tech up

- Developed for the coming generation of STS cranes
- Service life extended again (compared to P41.56R) + 50%
- Everything redesigned: rolling elements, side links, joining links
- Integration of predictive maintenance sensors possible (**i.Sense**)

Proof

- 50% longer service life expectancy compared to the proven P4.1 series



Cost down

- Lower maintenance costs
- Minimised downtimes (failure always results in high costs)*
- Retrofitting easy - guide troughs remain identical
- Predictive maintenance - optionally with the additional **i.Sense** module: igus.eu/smartplastics

*When using i.Sense

Sustainability

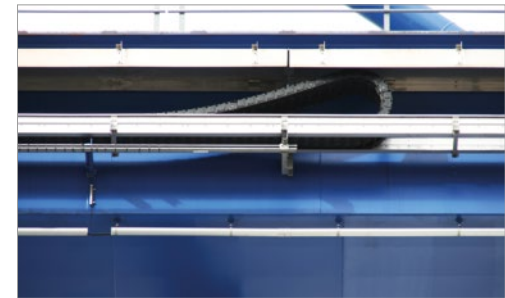
- Save 57% drive power and energy
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

"Chains for cranes®" next level:

"We want a 15-year service life for e-chain systems®" - on every STS (ship-to-shore) crane. That's what you, our customers, say and that's what it says in our specifications for the new P4.1HD series. New standards in container shipping are demanding more and more of energy chains used on STS cranes. igus®, the energy supply specialist, presents a new generation of extremely long-lasting rol e-chains® specially developed to meet these new challenges - the P4HD.56R.



Cranes in port facilities must deliver very high performance. This is exactly where igus® e-chains® and flexible cables are being used.



P4 rol e-chain® for applications with very high speeds and installations where special attention is paid to noise pollution.

Part No.	Inner height	Outer height	Inner width	Outer width	Bend radius
P4HD.56R	56mm	84mm	187 - 300mm	269.5mm - 382.5mm	250 / 300 / 350mm

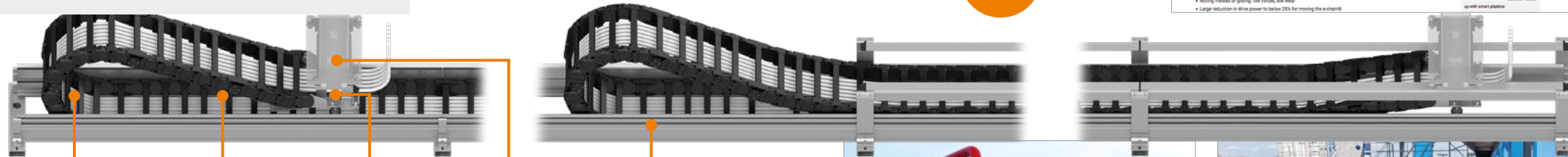
TIP: triple E-class container ships and the requirements of energy supply for STS cranes

- Cranes for triple E-class container ships
 - Requirement for availability and fail-safe operation
 - Energy and signal supply systems for crane trolleys in comparison
 - And much more ...
- Download white paper: igus.eu/cranes



... demanding engineering reduced to a few clicks ...

Order demanding long travels online with just a few clicks. Reduce throughput times and see price immediately.



rol e-chain® 4040RHDB series (2m pieces) | interior separation mounted every 2nd link included | mounting brackets and strain relief included | floating moving end (FTA) | aluminium or steel guide troughs with HD installation sets

Tech up

- Standard systems for demanding long travels up to 200m
- Order rol-energy chains online
- Up to 36 months guarantee
- Cables can be easily configured*
- System drawings available immediately*
- Parts lists already available

*Function under development

Proof

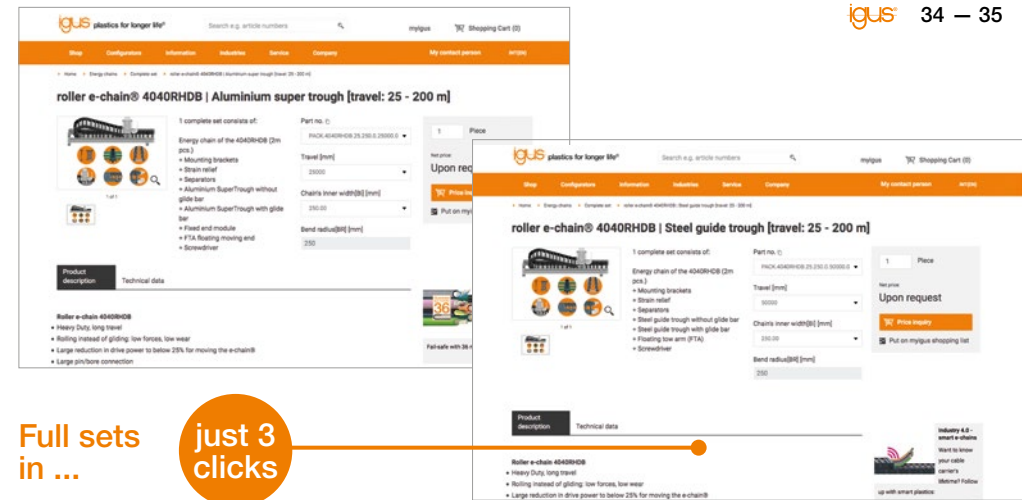
- Today, energy chain systems from igus® are in use on more than 1,000 STS cranes as well as on innumerable other crane systems all over the world
- Over 7,500 references engineered worldwide and successfully in use in the following industries: material handling, bulk handling and the crane industry (STS, RMG and RTG)

Cost down

- Reduce planning time from days to minutes
- Get the price with just a few clicks, depending on the required material or travel distance
- No project planning costs
- Cost savings through standardisation
- Easy ordering with only one part number
- Order online around the clock

Sustainability

- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability
- Fewer on-site visits and consultations



Full sets in ... just 3 clicks



Over 7,500 references engineered worldwide and successfully in use in the following industries: material handling, bulk handling and the crane industry (STS, RMG and RTG).

Example part numbers with e-chains® series 4040RHDB/4040RHDB with bend radius 250mm

Part No.	Travel distance	Inner width	Guide trough length	Chain length	Separators per e-chain® link
Super aluminium guide trough with galvanised steel components					
PACK.4040RHDB.25.250.0.50000.01	50m	250mm	52m	27.2m	7 pieces
PACK.4040RHDB.25.250.0.75000.01	75m	250mm	76m	39.9m	7 pieces
PACK.4040RHDB.30.250.0.100000.01	100m	300mm	102m	52.2m	9 pieces
Galvanised steel guide trough					
PACK.4040RHDB.25.250.0.50000.02	50m	250mm	52m	27.2m	7 pieces
PACK.4040RHDB.25.250.0.75000.02	75m	250mm	76m	39.9m	7 pieces
PACK.4040RHDB.30.250.0.100000.02	100m	300mm	102m	52.2m	9 pieces

In preparation: complete solution incl. smart monitoring

autoglide 5: gliding without guide trough



... fast assembly
and cost-effective ...



Also available for the E4.1 series and the P4 rol e-chains®.

The alternative to busbar systems. Guide energy, data and media safely in one system.



central guidance element for safe setting down



a clip-on glide wing for safe alignment



self-guiding with autoglide crossbars



fixed-end module for safe assembly

Tech up

- Bringing energy, data, air and liquids in one system
- Self-guiding e-chain® - travels safely on a PVC-jacketed steel cable
- Large gliding surfaces for long service life
- Up to 4m/s speed and up to 80m long travel
- No guide trough required

Proof

- Tested in the igus® laboratory and assembled by our customer, Beewen GmbH



Cost down

- Assembly time up to 88% less¹⁾
- Available as readychain® harnessed system
- Reduced maintenance and cleaning effort compared to busbar systems
- Predictive maintenance - optionally with the additional **i.Sense** module: igus.eu/smartplastics

Sustainability

- 64% less energy consumption during production²⁾
- Reduced material in production
- High flexibility: can still be used after conversions, etc.
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change

autoglide 5 vs. busbar systems



Installed in one hour - 88% shorter assembly time compared to aluminium guide trough¹⁾.



autoglide 5 - the alternative to busbars. Power and data transmission in small spaces.

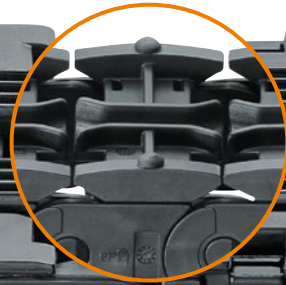
Part No.	Inner height	Inner width	Bend radius***
E2/000 e-chains®			
2400.05AG5*	25mm	57mm	075 / 100 / 125 / 150mm
2400.07AG5*	25mm	77mm	075 / 100 / 125 / 150mm
2600.07AG5*	35mm	75mm	075 / 100 / 125 / 150mm
2600.10AG5*	35mm	100mm	075 / 100 / 125 / 150mm
E4.1 e-chains®			
E4.32. ...AG5**	32mm	112 - 262mm	100/125/150/175/200mm
E4.42. ...AG5**	42mm	112 - 262mm	125/150/160/175/200mm
P4 rol e-chain®			
P4.32R. ...AG5**	32mm	100 - 200mm	150mm / 200mm
P4.42R. ...AG5**	42mm	100 - 200mm	100 / 125 / 150 / 200mm

*Available from stock **Available from autumn 2021 *** Larger bend radii upon request

1) Compared to conventional standard solutions with guide trough, tested installation of approx. 40m travel
2) Compared to an energy chain with aluminium trough on 50m travel

... even quieter ...

Further reduce rolling noise with noise dampers in the outer radius.



-3dB(A)



rolling noise reduced by -3dB(A)*

Tech up

- Rolling noise reduced by 3dB(A) at 1m/s
- Quieter operation
- Simply insert into the track holder
- Also for retrofitting of existing E2/000 autoglide systems

Proof

- *Noise measurements in the igus® laboratory
- *Noise reduction through dampers approx. 3db(A), test at 1m/s

Cost down

- Time-saving retrofit
- No additional dampening profile required

Sustainability

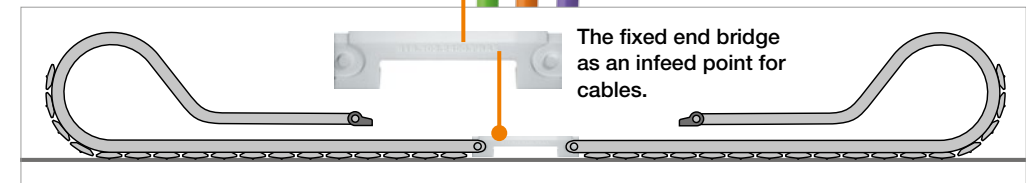
- Noise reduction is health protection ("noise is annoying")
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

... opposing ...

Halve cable length. Realise opposing e-chains®.



Fixed end bridge autoglide 5 in detail



The fixed end bridge is mounted in the middle of the travel, as an infeed point for the cables, between the moving and stationary e-chain®. With the new fixed end bridge, the user can halve the cable length of the autoglide 5 and allows e-chains® moving in opposite directions to each other.

Tech up

- Centre infeed/opposing energy supply possible
- Optimal for opposing applications

Proof

- The alternative to the busbar system on long travels up to 60 metres gliding, installed at the company MLOG



Cost down

- Shorter cable lengths
- Only one guide rope required for opposing system

Sustainability

- The fixed end bridge allows cable lengths to be reduced and only one cable guide is required for reverse applications.
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change

Moving energy made easy ...

Reduce assembly times, guarantee service life ... It's our job

Machines must work reliably and without failures. If there are unplanned down times, it is important that servicing is done quickly. New solutions make assembly easier for you and significantly saves assembly time. A guarantee of up to 36 months on energy chains and cables gives you even more security. Guaranteed energy supply made easy.

...new

highlight 2021↑...

...44

The new e-chain® standard E4Q in four sizes now also available with crossbars every 2nd link

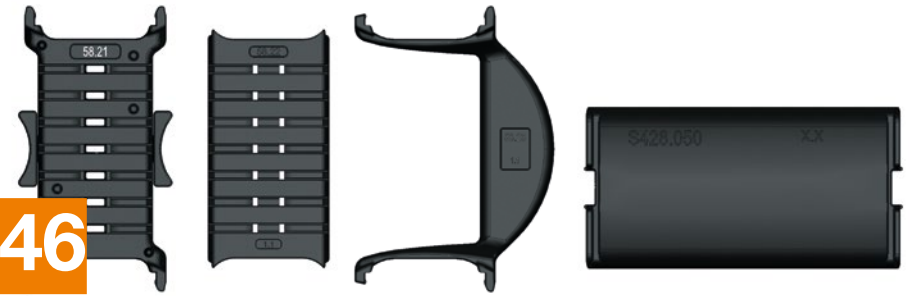


...42



Open E2.1 e-chains® 16 times faster with the new chain opener ...

...46



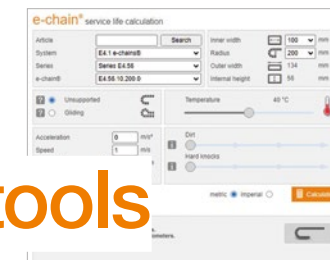
e-chain® E4Q universal interior separation offers complete flexibility, safety and ease of installation

...48



CFX pneumatic clamps ... securely clamp hoses without crushing them

...50 online tools



Up to 36 months guarantee for your e-chain ... calculate e-chain® service life online and request guarantee certificate igus.eu/quicklife

... open e-chains® in one go ...

Open a one-metre e-chain® within two seconds, now also for the E.21 e-chain® series

-94%

fast
assembly time

Tech up

- Opening of longer e-chain® sections in one go
- Avoiding damaging the crossbar
- Ergonomic handle

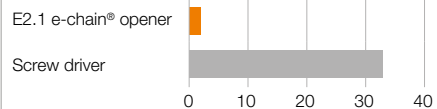
Cost down

- The time for opening a one-metre part of an e-chain® is reduced from 33 to 2 seconds

Proof

- Reduction of assembly time by 94%

Time to open 1m of e-chain® in seconds



Sustainability

- Lightweight thanks to plastic housing
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



With the new e-chain® opener, E2.1 e-chains® can be opened very quickly by hand. This tool is a must-have for anyone who purchases and uses the E2.1 e-chain® as a product by the metre: the e-chain® opener reduces the time needed to open the chain by a factor of 16.

For e-chains® series	Part No. e-chain® opener
E2.17 / E2i.17	EO2.17/21 **
E2.21 / E2i.21	EO2.17/21**
E2.26 / E2i.26	EO2.26*
E2.38 / E2i.38	EO2.38**
E2.38 / E2i.38	EO2.48**

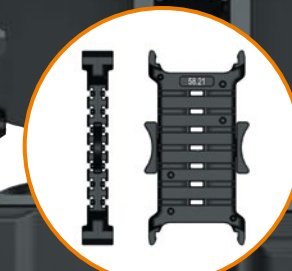
*Available from June 2021 **Available from October 2021

... faster assembly, also with crossbars every 2nd link ...

The best e-chain® in the igus® product range for very fast assembly and high stability.

H4Q crossbars every 2nd link

E4Q crossbars every link



Developed further: new universal interior separation, next page

Award-winning design:



+15%

higher pull-out strength of the crossbars

-10%

less weight

-40%

less installation time

-17 dB(A)

optional noise dampeners for quieter operation

Tech up

- Tool-free opening and closing
- Short crossbar holder for easy filling with open e-chain®¹⁾
- 15% higher pull-out strength of the crossbars¹⁾
- 10% less weight due to material removal¹⁾
- Also available 17dB(A) quieter due to noise dampening parts made of noise-reducing material¹⁾

Cost down

- 40% less installation time¹⁾
- Up to 35% saving possible¹⁾
- 36-month e-chain® guarantee: igus.eu/ECS-service-life
- Predictive maintenance - optionally with the additional **i.Sense** module: igus.eu/smartplastics

Proof

- Sustainability proof - 10% less material means 10% less energy consumption during production¹⁾
- Proof of noise: 17dB(A) less than 4040C²⁾
- Appealing design, awarded the German Design Award 2021

Sustainability

- 10% less material = 10% less energy consumption during production
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

1) Compared to E4.1 system
2) Compared to 4040C series



More strength with less weight. Tested in the igus® lab.



Crossbars with fastening clips for tool-free opening and closing.

Part No.	Inner height	Outer height	Inner width	Outer width	Bend radius	Unsupported
E4Q.34* / H4Q.34**	34mm	54mm	075 - 250mm	98 - 273mm	063 - 300mm	3.60m
E4Q.44* / H4Q.44**	44mm	64mm	075 - 250mm	101 - 276mm	075 - 350mm	4.00m
E4Q.58* / H4Q.58*	58mm	84mm	100 - 362mm	134 - 397mm	135 - 500mm	5.00m
E4Q.82* / H4Q.82*	82mm	108mm	100 - 362mm	150 - 413mm	150 - 1,000mm	6.20m

*Available from stock **Available from spring 2021

... flexible, safe,
easy to install ...

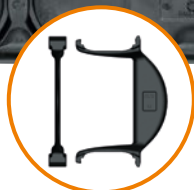
Very assembly-friendly and secure interior separation for the already very assembly-friendly e-chain® E4Q.



universal middle plates with sliding bolt on both sides



universal side plates



universal separators



shelves, lockable

Tech up

- For safety and maximum ease of assembly
- Cable-friendly interior separation
- Positive locking of the shelves via integrated slider
- Virtually force-free assembly thanks to positive locking
- Locking is simple and fast but the shelves are strongly captivated

Proof

- Tests in the igus® laboratory

Cost down

- Easy filling for the E4Q series, significantly saves assembly time
- Extremely easy and quick access to the inserted cables and hoses
- Easy to assemble: filling can be carried out from any side

Sustainability

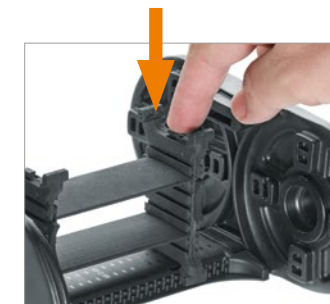
- Have your energy chain recycled at the end of its life cycle with the igus® chainge recycling program. Irrespective of the manufacturer: igus.eu/chainge
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Opening the universal interior separation lock via the slide integrated on both sides.



Shelf can be used in several layers and securely locked.



When the crossbar is inserted, the lock is automatically activated.

For series	Part No. universal middle plates	Part No. universal side plates	Part No. for universal separator	Part no.: snap-in, shelf ¹⁾
E4Q.34 / H4Q.34***	34.21	34.22	34.23	S428.XXX
E4Q.44 / H4Q.44***	44.21	44.22	44.23	S428.XXX
E4Q.58 / H4Q.58*	58.21	58.22	58.23	S428.XXX
E4Q.82 / H4Q.82**	82.21	82.22	82.23	S428.XXX

1) XXX = width in mm

The interior separation elements shown on the left are exemplary and the number of slots depends on the inner height of the series!

*Available from spring 2021 **Available from summer 2021 ***Available from autumn 2021

... securely clamp hoses without crushing them ...

Safe guidance of pneumatic hoses without crushing them or reducing the cross-section.



easy assembly of the new CFX clamps by tightening to the block

high holding force due to all-round grip

no squeezing of the hoses due to raised side panels



The new CFX clamp for pneumatic hoses holds the hoses reliably without crushing them and reducing the cross section.



Tech up

- High holding force due to "all-round grip" design
- The cross section of pneumatic hoses is fully retained
- No crushing of the hoses, and therefore no loss of hose length
- Coloured identification markings (inserts are blue)

Cost down

- Good price-performance ratio
- Fast assembly without checking the tightening torque
- Protection of the pneumatic hoses against crushing and damage

Proof

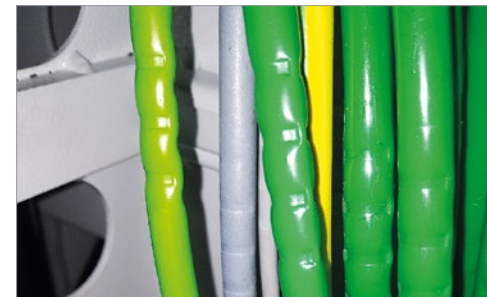
- Tests performed at our customer Schwäbische Werkzeugmaschinen



Sustainability

- Resource reduction: conversion instead of replacement

Tests performed at our customer Schwäbische Werkzeugmaschinen:



Crushing of hoses with standard clamps.

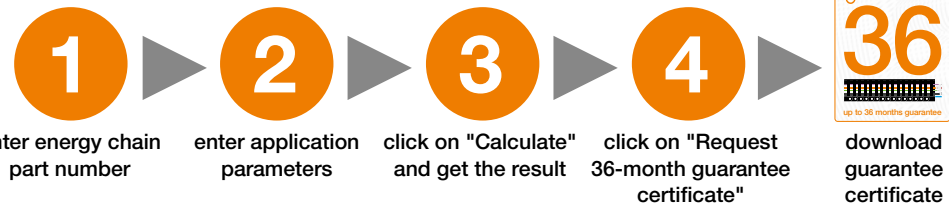


No crushing of hoses with CFX clamps equipped with pneumatic inserts.

... 36-month e-chain® guarantee ...

To ensure that users are always on the safe side. Energy chains with a 36-month guarantee*.

*Guarantee information: the igus® e-chain® guarantee of up to 36 months is valid for the number of double strokes calculated according to the online service life calculator: igus.eu/quicklife. The guarantee conditions available at igus.eu/e-chain-guarantee apply.



- Tech up**
- With up to 36-month guarantee on all e-chain® components that fail due to wear and tear*
 - Guarantee matches your exact application
 - Generate a guarantee certificate with the e-chain® service life calculator
 - Online tool calculates the lifetime of the e-chains® in double strokes

- Cost down**
- Always choose the most cost-effective e-chain® that works reliably
 - Free replacement parts for e-chains® that fail due to wear and tear
 - Receive guarantee certificate via e-mail

- Proof**
- Using the data from the test laboratory, the e-chain® service life calculator determines the service life of igus® standard e-chains® in specific applications
 - Data from over 10 billion e-chains® test cycles per year feed into the e-chains® service life calculator
 - Calculate e-chains® service life and request certificate: igus.eu/ECS-service-life

- Sustainability**
- Have your energy chain recycled at the end of its life cycle with the igus® chainge recycling program. Irrespective of the manufacturer: igus.eu/chainge
 - igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

e-chain® service life calculation

Article: Search

System: Inner width: mm

Series: Radius: mm

e-chain®: Outer width: mm

Internal height: mm

Temperature: °C

Acceleration: m/s²

Speed: m/s

Fill weight: kg/m

Length of travel: mm

Dirt: Hard knocks:

metric imperial **Calculate**

Result

The application is self-supporting straight. The service life is 40,000,000 double strokes. This corresponds to a total distance of 0 kilometers.

Catalog page of the selected series **Request a 36 month guarantee certificate**

Save as PDF file

Comparison of the selected e-chain® with similar variants

Part No.	Internal height	Inner width	Radius	Service life (double strokes)	Price (EUR/m)
E4.56.10.200.0	56	100	200	40,000,000	101.10
E6.52.100.200.0	52	100	200	250,000,000	102.67
R6.52.100.200.0	52	100	200	250,000,000	128.33
E6.62.10.200.0	62	100	200	250,000,000	126.80

Service life calculation

Complete product range of the E4Q series now integrated. Service life comparison and display of alternative igus® series

Service life calculation - after entering fill weight, travel, speed and acceleration, the service life of the e-chain® is calculated. The guaranteed service life is specified in double strokes and kilometres. Have your certificate sent to you by e-mail by clicking "Request a 36-month guarantee certificate".

Moving energy made easy ...

Moving in all directions. Solutions for special industries ... It's our job

Different industries need different solutions. Whether in mechanical engineering, motor vehicle manufacturing, intralogistics, in cleanrooms or 3D printing - we offer customised support for special applications. We have many years of experience in many industrial sectors. Moving energy made easy - also for your industry.

...new

highlight 2021...

...58 e-loop® 430 ... the tough and flexible alternative to the service loop ... including offshore, onshore and construction machinery

...54



Shore power supply for ships with e-dispenser ... saves costs and protects the environment ... **for shore power supply, maritime, and more**

56



Slip ring-free modular system of the e-drum offers flexible reeling and protection of the cables ... **for cranes, theatres, vertical lifts, and more**

...60



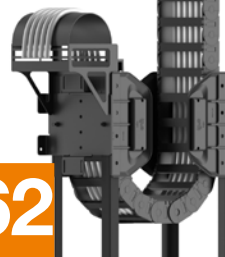
Uninterrupted cable guidance for short cable lengths and very limited space requirements ... no problem with e-spool® flex 2.0 mini ... **for office, medicine, e-charging stations, and more**

...64



Slip ring-free rotary energy supply system PRM with modular design ... **for rotary movements of all kinds**

62



XXL version of the guidelok slimline: guidelok vertical with E4.42 ... easily and quickly in XXL ... **for intralogistics, material flow, SRU, and more**

...online tools



Tech up,
cost down ...
solutions for all industries
igus.eu/industries

... saves money and is environment-friendly

Complete solution for partially automated shore power supply. Environment-friendly solution for partly automated shore power supply.

12m

extension of
12 metres



Tech up

- Ready-to-install energy guide unit including cables and connectors; optional: drive; optional: other steel structure
- Flexible in terms of extension length and installation options
- Fail-safe thanks to cable protection with triflex® R energy chain TRC.125*
- Defined minimum bend radius*

Proof



- Test set-up at igus®

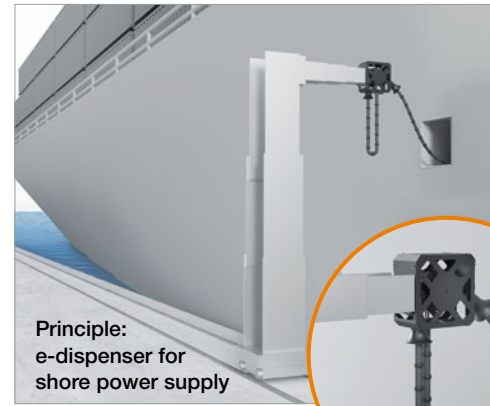
*Compared to commercially available systems with an open multi-core cable

Cost down

- Single cores are more cost-effective than multi-core cables
- Space-saving due to the use of single cores (due to smaller minimum bending radius*)
- In the event of damage to a single cable, the entire cable package does not need to be replaced*
- Standard components instead of project-specific special solutions

Sustainability

- Power supply by means of shore power, ship's diesel engine does not have to be used for power generation
- No exhaust gases and no local noise
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change



Principle:
e-dispenser for
shore power supply



-57%*

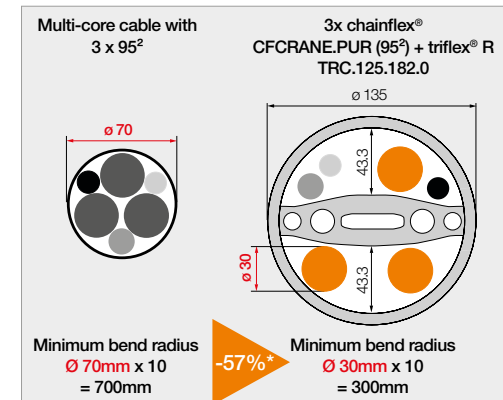
*minimum bend radius
falls from 700 mm to
300 mm (57%)

The complete "e-chain® dispenser" solution becomes the standardised "e-dispenser" energy supply unit

In 2017, igus® introduced a complete solution for a partially automated shore power supply. In this case, it was a project-specific special solution, which had to be (at least partly) redesigned for every new application in the port. Based on this idea and the experiences in the area of shore power supply, igus® redesigned the e-dispenser. The goal is to provide modular energy supply solutions for different shore applications for medium and low-voltage connections.

The e-dispenser module can be used flexibly in combination with various systems (e.g. cranes, structures, mobile transfer systems). The e-dispenser module is delivered as a ready-to-install plug-and-play solution: conveyor unit with triflex® R energy chain, chainflex® cables, connector, junction box, harnessing - everything tested and with a guarantee of up to 36 months.

With this, igus® offers a standard energy supply unit that is individually adapted to the situation on site and the respective customer requirements, developed and constructed as a complete solution. The e-dispenser module also constitutes an interesting energy supply solution for other industrial areas, such as mechanical engineering, robotics and welding. In all cases, users benefit from standardised (and hence tried, tested, and cost-effective) energy supply components.



... flexible
cable reeling,
cables
are protected ...

Safely guide data, energy, air without interruptions up to 21m.



Possible application of the igus® e-drum 2.0: on cranes for vertical movement up to 21m.

Tech up

- Uninterrupted energy supply without slip ring
- Even for data, fluids and air
- Constant cable tension
- Space-saving
- Extension lengths up to 21m
- Cable diameters up to 24mm

Cost down

- Protection of the cables with closed e-chain®
- Long service life
- Cost-effective in case of repair
- Simple exchange of cables
- Two versions, adaptable to the respective customer requirements

Proof

- Test set-up at igus®



Sustainability

- No additional copper components in the system (apart from cable copper)
- Less raw material required thanks to the option of partial repair instead of complete replacement
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change



Suitable for many industries and applications:

- Theatre and stage technology
- Indoor cranes
- Mobile radio or satellite masts
- Lifting platforms
- Work platforms

e-loop® - protect cables from failure
in the harshest environments

... durable alternative
to the service loop ...

Safe cable guidance for hanging applications.
igus® e-loop® as an alternative to the service loop.



safe cable
guidance
for hanging
applications



high-strength
plastic fibre rope
absorbs the
tensile force



tough hook
mounting brackets,
optionally with
flange



robust PU
outer body:
protects against
impact

▲ Tech up

- Modular system, easy to open
- No loose parts with optional screw lock
- Maximum cable/hose outer diameter up to 108mm and 625mm bend radius
- Protects against impact due to robust PU outer body
- Resistant to dirt

■ Proof

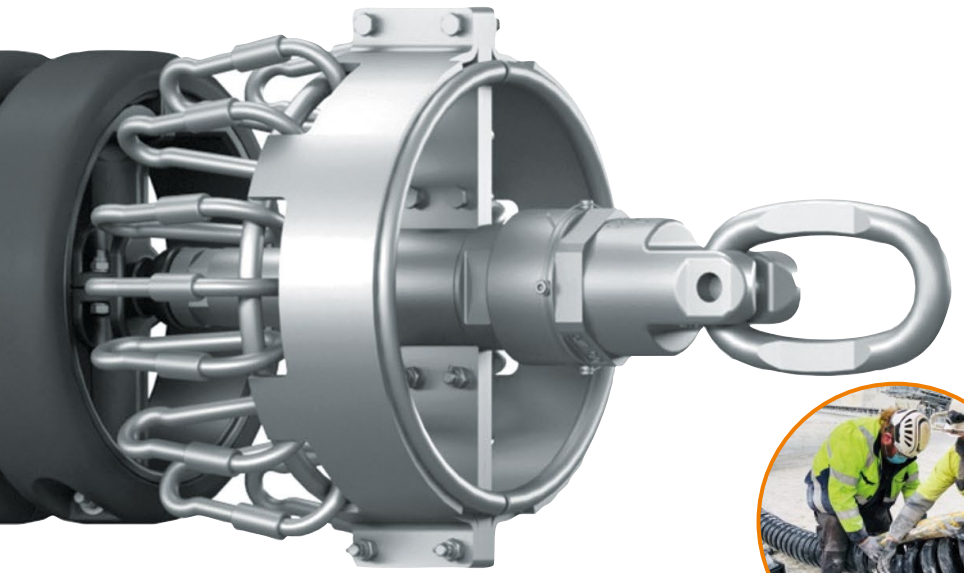
- Resistant to vibration and weather, proven in laboratory tests
- Shock-resistant and shatter-proof
- Structure of the e-loop® is "drop safe" due to double screw locking of the parts
- Protects against impact due to robust PU outer body

▼ Cost down

- Easy maintenance, long service life
- Mounting brackets for easy and fast assembly
- All components are individually replaceable
- Cable-friendly multi-chamber design
- Fail-safe cables with up to 36-month guarantee

● Sustainability

- Long service life
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: [igus.eu/change](https://www.igus.eu/change)
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: [igus.eu/sustainability](https://www.igus.eu/sustainability)



The e-loop® is used for cable guidance on the top drive of a drilling rig. It is a compact system that bundles all cables and hydraulic hoses, and still allows easy replacement of individual cables.



The e-loop® is used in the bucket wheel excavator of the company Holcim (Germany) GmbH. The modular system made of high-performance polymer always enables a defined bend radius and easily copes with vibration and impact.

Part No.	Design	Inner width	Outer width	Bend radius	Max. cable ø	Total mass*
ELP.220.01.D*	Crossbars every link, dynamic	150mm	220mm	380mm	38mm	≤ 4t
ELP.300.01.D*	Crossbars every link, dynamic	230mm	300mm	500mm	75mm	≤ 7t
ELP.430.01.D**	Crossbars every link, dynamic	360mm	430mm	625mm	108mm	≤ 11t
ELP.220.01.S*	Crossbars every 2 nd link, static	150mm	220mm	175mm	38mm	≤ 4t
ELP.300.01.S*	Crossbars every 2 nd link, static	230mm	300mm	210mm	75mm	≤ 7t

*Note: with standard mounting brackets; higher loads possible with special solutions.

*Available from stock **Available from June 2021



... uninterrupted mini cable guidance ...

The igus® version of a cable drum without a slip ring with compact dimensions.



smallest dimensions
160mm x 160mm x 70mm

+100%

higher extension length of the e-spool® flex mini compared to the competitive product

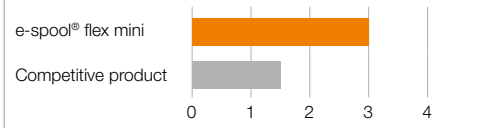
Tech up

- The e-spool® flex can be equipped with any type of cable
- Constant tension on the cable
- Locking mechanism
- Lightweight and space-saving
- Resistant to water splashes due to uninterrupted guide

Proof

- Comparison of extension length e-spool® flex mini and competitor product: 100% higher extension length

Extension length in metres



Cost down

- No slip ring
- Cost-effective in case of repair (replacement of individual components is possible)
- Adaptable to technological development due to simple replacement of the cable used
- Two versions, adaptable to the respective customer requirements
- Easy to open

Sustainability

- No additional copper components in the system (apart from cable copper)
- Parts are reusable
- Lightweight thanks to plastic housing
- Less raw material required thanks to the option of partial repair instead of complete replacement

Further application areas for e-spool® flex ...



... e-bike charging stations.



... medical technology.



... robots.



... workshops.



... theatre.



... cleanrooms.



... machine tools.



... intralogistics.

Part No.	Options	Max. cable ø	Extension length
SFP.120.07.01.H	A hand crank	5 - 7mm	≤ 3m
SFP.120.07.01.SP	With spring	5 - 7mm	≤ 3m

Version: H = Hand (hand crank) / version: SP = spring with position hold

Please consider VDE 0298 part 5 (current carrying capacity and conversion factors for coiled cables) when selecting your cables and using e-spool® flex.

... lightweight,
fast, great
stroke height ...

Guide energy, data and media safely upwards while saving costs and weight.

100m

stroke height

▲ Tech up

- Vertical energy supply with minimum complication
- Low weight, quiet and low-vibration operation
- Swinging of the e-chain® is avoided
- For cable cross-sections up to 38mm
- Ideal for longer vertical stroke lengths up to 100m.

An increase of 100% compared to the previous igus® guidelok GLSL.P.2700*

*Comparison of maximum vertical travels of 2700 and E4.42 series

■ Proof

- E4.42 e-chain® series extensively tested in the igus® laboratory

▼ Cost down

- Considerably more cost-effective than an e-chain® completely enclosed in a housing
- Fast on-site installation
- Minimised transport costs

● Sustainability

- Resource reduction: conversion instead of replacement
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



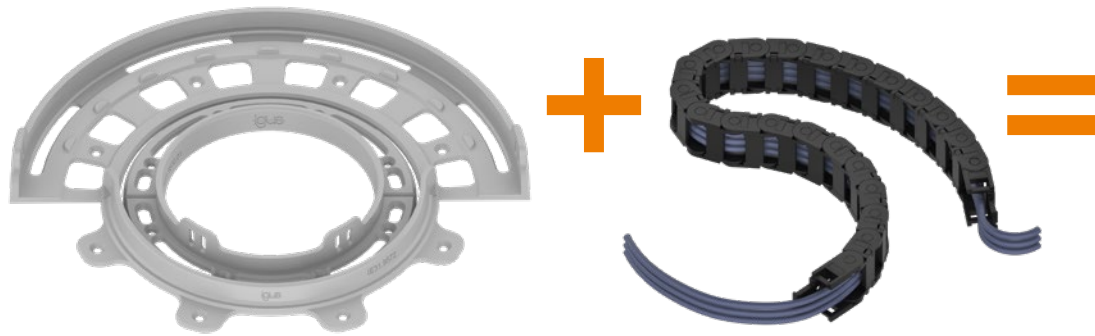
Suitable for many industries and applications:

- Elevators
- Inclined lifts
- Storage and retrieval units
- Material handling equipment
- Lifts
- Hoists
- Automatic mini-load system



... rotary module, delivered as a complete set ...

Completely modular kit for rotary movements of up to 360°. Delivered in just a few days.



Tech up

- No slip ring, all media in a single system
- 85% weight reduction
- Simple assembly with less components
- Complete system, including e-chain®, mounting brackets, interior separation, moving end connection and integrated strain relief
- Protected against corrosion

Proof

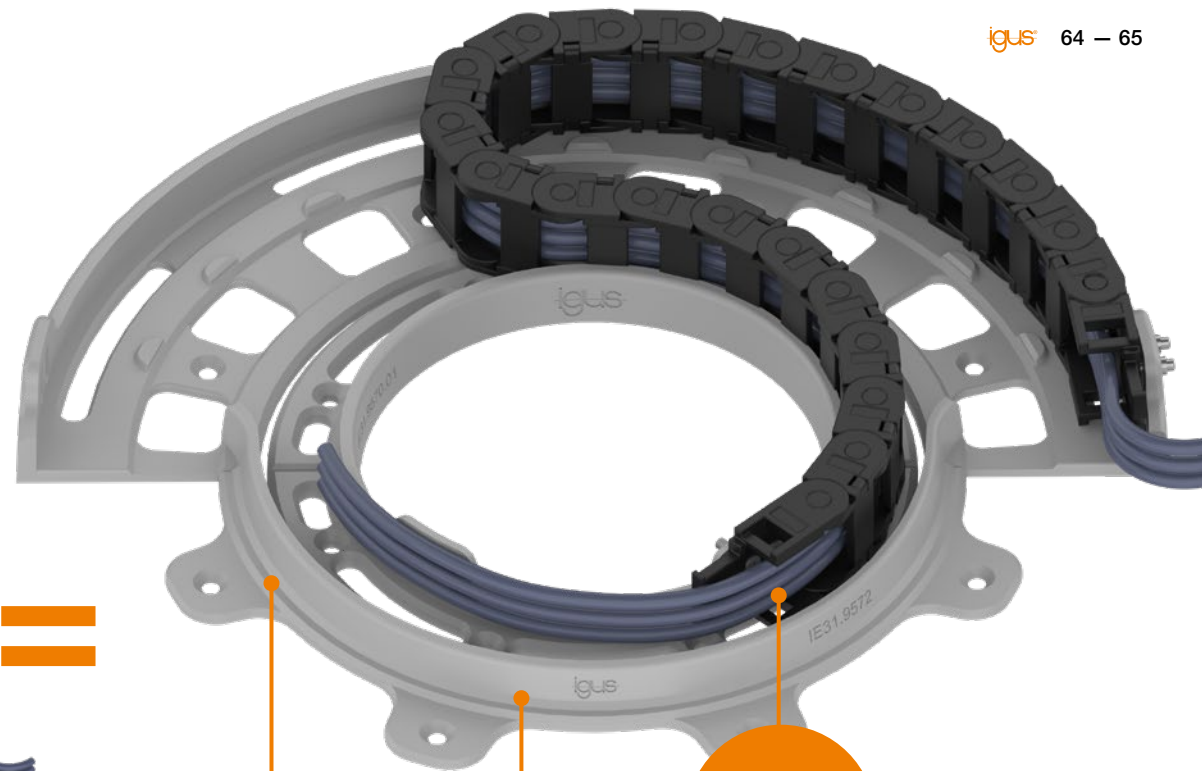
- >2 million rotations tested in the igus® laboratory

Cost down

- Complete system - only one part number for e-chain®, trough and attachments
- No project planning costs
- 70% more cost-effective than a steel guide trough
- 85% less weight than a Steel guide trough
- No minimum order quantity - cost-effective system price with no minimum order quantity
- Can be delivered pre-assembled

Sustainability

- Simplified guide trough manufacturing process. Production at only one location via 3D printer
- No need for sheet metal cutting, rolling, welding or galvanising/passivating
- Local production
- Wear-resistant parts reduced - no sliding contacts
- Can be produced from recycling material



-85%

weight reduction compared to steel guide trough

-70%

more cost-effective than a comparable steel guide trough

Delivery time 14 days

rotary module, quickly delivered

The scope of delivery for the PRM rotary energy supply systems includes the suitable e-chain®, mounting brackets, separators, strain relief and guide trough.

Part No.	Separators per e-chain® link	Max. angle of rotation	Outer width	Inner width	Chain length	Overall height
PACK.PRM200.10.0001	0 pieces	360°	65mm	200mm	280mm	22mm
PACK.PRM200.20.0001	1 piece	360°	65mm	200mm	280mm	32mm
PACK.PRM200.40.0001	3 pieces	360°	65mm	200mm	280mm	52mm
PACK.PRM300.10.0001	0 pieces	360°	115mm	300mm	400mm	22mm
PACK.PRM300.20.0001	1 piece	360°	115mm	300mm	400mm	32mm
PACK.PRM300.40.0001	3 pieces	360°	115mm	300mm	400mm	52mm
PACK.PRM300.50.0001	4 pieces	360°	115mm	300mm	400mm	62mm
PACK.PRM400.13.0001	0 pieces	360°	125mm	400mm	500mm	29mm
PACK.PRM400.20.0001	1 piece	360°	125mm	400mm	500mm	37mm
PACK.PRM400.40.0001	3 pieces	360°	125mm	400mm	500mm	57mm
PACK.PRM400.50.0001	4 pieces	360°	125mm	400mm	500mm	67mm
PACK.PRM500.60.0001	1 piece	360°	200mm	500mm	702mm	60mm
PACK.PRM500.80.0001	2 pieces	360°	200mm	500mm	702mm	80mm

Moving energy made easy ...

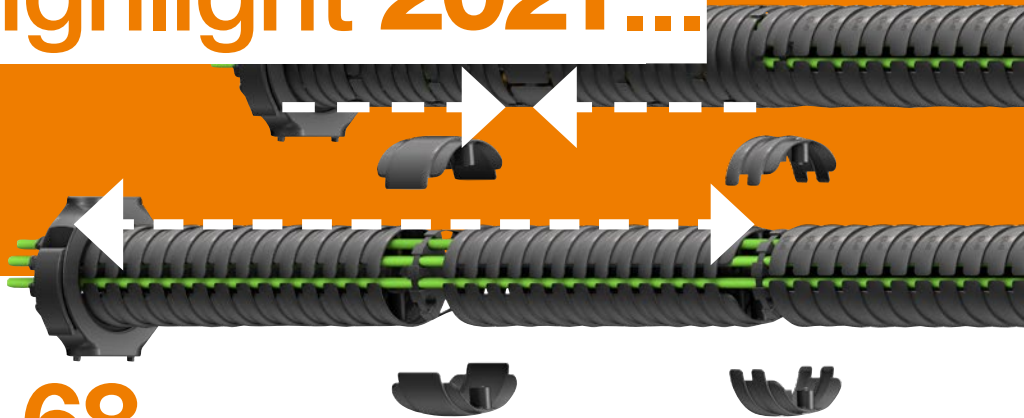
Energy chains for robots ... It's our job

In 3D applications, rotating and pivoting movements are part of everyday life. Energy chains are required here, which safely guide and protect robot cables. High tensile force absorption, high flexibility and less weight are some key words here.

You can now select the right connection options for your SCARA robot quickly and easily using the robot equipment configurator; with exploded views and parts lists and orders with specific prices.

...new

highlight 2021↑...



...68

Space-saving with 40% retraction length: telescopic triflex® R TRX ... revolution for "Dress Packs"



new
10/2021
70

Safe energy supply for the SCARA robot ... with SCARA cable solution ... **New:** e-chain® robot equipment configurator



72

4-fold radius strength and a higher torsional stop ... triflex® TRE.30.050.0.B



Robot modular system ... configure the right energy supply system for your robot online

...Online-Tool

... TRX is revolutionising 3D movement ...



The combination of telescoping and 3D movement ensures a space-saving installation with a retraction length of up to 40%.

Up to 40%

length compensation

83%

less weight compared to an RSP retraction system

100%

compatible with the triflex® TRE series

Tech up

- Up to 40% length compensation possible
- 83 % less weight compared to an RSP retraction system
- Minimises loop formation
- Space-saving design
- Compatible with the TRE series triflex® R range
- Easy to retrofit

Proof

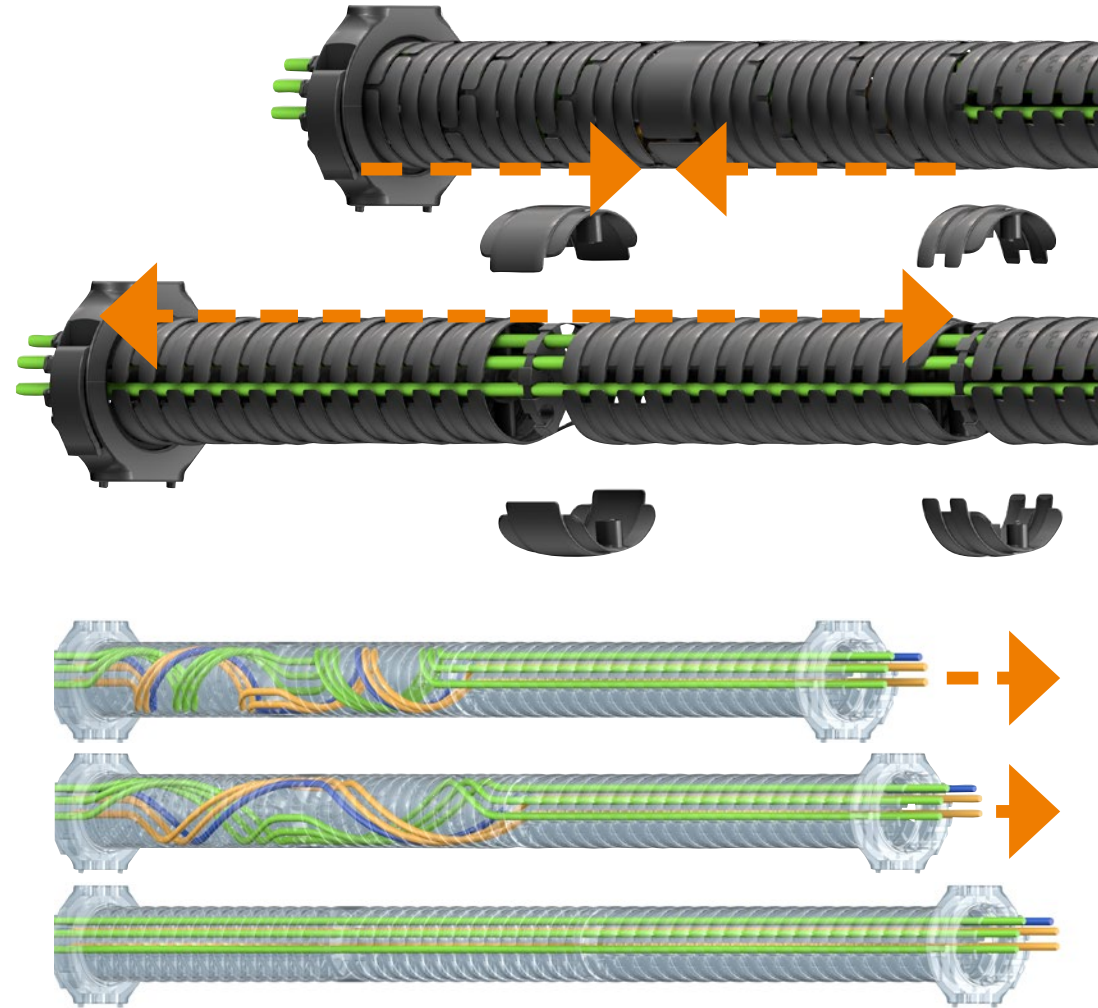
- The telescopic TRX is currently being tested in the igus® laboratory for different characteristics

Cost down

- Minimises purchased parts
- Shorter cable lengths
- All components are individually replaceable
- Minimises assembly times with "easy" design

Sustainability

- It requires considerably less material and fewer parts than do conventional retraction systems, so it reduces resources used
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change



The cables are laid in a spiral shape in the interior of the telescoping part of the chain. If tension is exerted on the chain, it can extend by up to 40% thanks to rotating chain links that are held together with an elastic cord.



Tested in the igus® test laboratory.

... reliable energy supply for SCARA robots ...

Reinforces existing corrugated tubes for high-speed SCARA applications. **New:** SCARA robots now also configurable online with the robot equipment configurator

3

different connection options

100%

modular design

Tech up

- Increased rigidity for high speeds
- Modular system, easy to retrofit
- Can be delivered as harnessed system
- Design for easy adjustment to different SCARA types
- Safe guidance of cables and hoses

Proof

- Since 2016, 50 EPSON SCARA robots have been in continuous operation at a German motor vehicle manufacturer
- More than 3,500,000 cycles have been tested in the igus® lab between August 20th, 2020 and August 31st, 2021

Cost down

- Easy maintenance
- High running performance
- All components are individually replaceable
- Less downtime

Sustainability

- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change

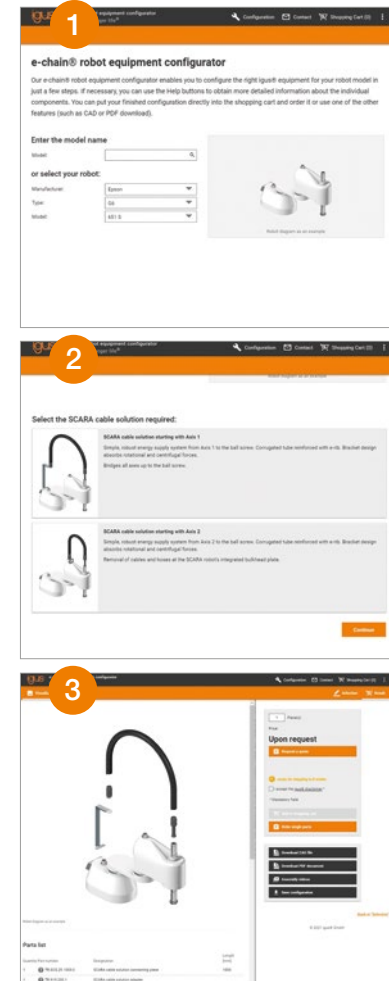


e-rib® from igus® provides additional stability

Tested for Epson G6-553S

Complete SCARA Cable Solution

The SCARA Cable Solution (SCS) are new, custom cable guidance systems for SCARA robots. The energy supply solutions are available harnessed or as an empty tube and are specially tailored to the respective SCARA model. Due to the integrated ball bearings, the solution moves freely and is resistant. The e-rib® series with nominal width of 29 also stabilises the SCS and prevents the corrugated tube from colliding with other objects or kinking because the tube is gripped between the ribs.



New: e-chain® robot equipment configurator

1. Select your SCARA robot using the drop-down menu or quick search
2. ... and determine your application's fixed end.
3. We will send you an exploded view and a parts list that you can order directly, or you can just request an individual offer.

igus.eu/quickrobot



... only 35mm outer diameter, but four times the radius strength ...

Cable supply for 3D movements in compact dimensions and with high radius strength.



Easy filling ... press in the cables and remove them - harnessed cables possible.

4x

the radius strength

Tech up

- 4x the radius strength
- Good accommodation of torsional forces
- Assemble and disassemble without tools
- Compatible with all triflex® R TR.30 products
- Easy to retrofit/extend

Cost down

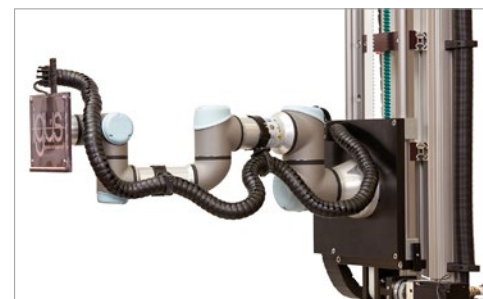
- Longer service life
- All components are individually replaceable
- Cable-friendly two-chamber interior separation system

Proof

- Since 2007, the standard version of the energy chain has been in use successfully in several customer applications
- 4,931km of the standard version have been sold so far

Sustainability

- Have your energy chain recycled at the end of its life cycle with the igus® chainge recycling program. Irrespective of the manufacturer: igus.eu/chainge

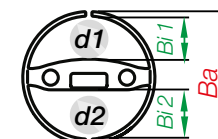


Universal Robot with triflex® R TRE



Delta robot with triflex® R TRE series

Part No.	Bi 1	Bi 2	Ba	Radius	d1	d2	Pitch	Links	Weight
TRE.30.050.0.B	12mm	10mm	34.5mm	050mm	10mm	8mm	11.3mm	89/m	~0.26kg/m



Moving energy made smart ...

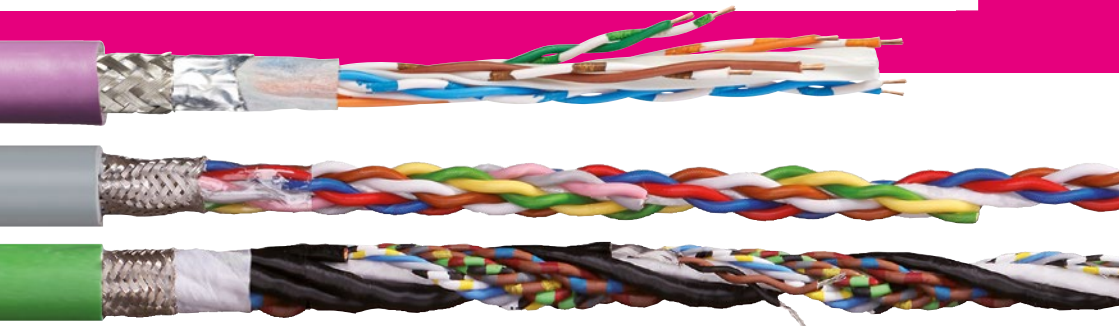
Avoid system failures, increase safety ... It's our job

System failure or unplanned machine downtime are among industry's most significant cost burdens. A study by FM Global - one of the world's largest industrial property insurers - shows that in 2018, the insurer counted 232 major losses, each with a loss value of more than \$3 million.

In 28% of the cases, it was due to system failures. Therefore, more and more condition monitoring systems and solutions for predictive maintenance are called for, which make maintenance predictable and prevent failures in good time. Moving energy made safe.

... new

highlight 11/2021...



...76

Concept study: CF.D II ... the transmission quality is measured without any interference in, or quality reduction of the data



... 78

Ready-to-install solutions for predictive maintenance. Select in seconds and order online



80

i.Sense CF.D for bus cables ... reliable condition monitoring of cables at last without extra cores



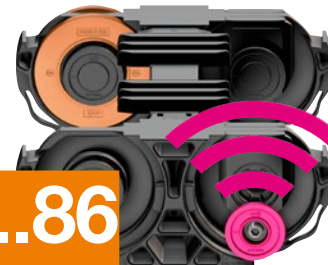
...82

New generation of the i.Sense module for smart condition monitoring ... now connect up to 4 sensors with only one module



84

Predictive maintenance with i.Cee:plus II ... easy integration into customer networks and other exciting IoT applications



...86

Intelligent maintenance information even in difficult applications ... now with i.Cee:plus II & EC.I for the new P4.1 rol e-chain®



88

Keep up to date at all times ... thanks to modern condition monitoring for drylin® W profile guides



Choose for yourself which smart solution suits you best ... with the smart plastics online selection guide igus.eu/smart-selection-guide

...online tools

... the transmission quality
is measured without any
interference in, or quality
reduction of the data ...

chainflex® bus cable

chainflex® data cable

chainflex® measuring system cable

Concept study proves that cable characteristics of bus, measuring system and data cables can also be monitored without contact

Tech up

- The transmission quality is measured during operation by connector sensor technology
- i.Cee;plus II module connected for predictive maintenance information
- Smart monitoring of all moving cables

Cost down

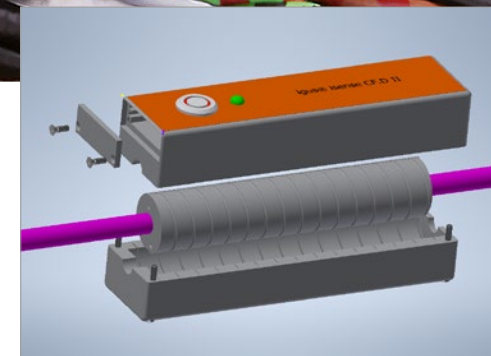
- Fast assembly significantly reduces setup costs
- Without intervening with the data path eliminates unnecessary calibration
- Saves on additional measuring cores
- Indicator for timely cable replacement – prevent unplanned plant shutdowns

Proof

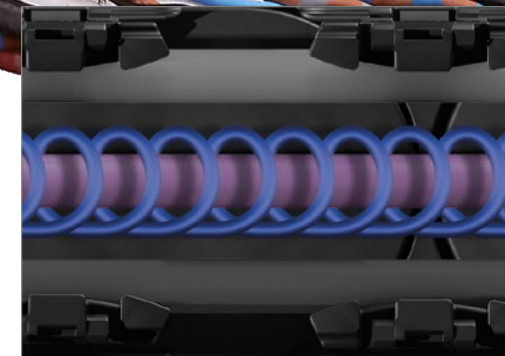
- Ongoing test series in the industry's largest test laboratory for dynamic power transmission systems
- Try it out in your own application in order to see for yourself; igus® is offering free samples in the beta test phase

Sustainability

- No extra cores needed
- Predictable service intervals save resource-intensive emergency operations



Design image of the concept study i.Sense CF.D II



Winding of the antenna cable for contactless condition monitoring

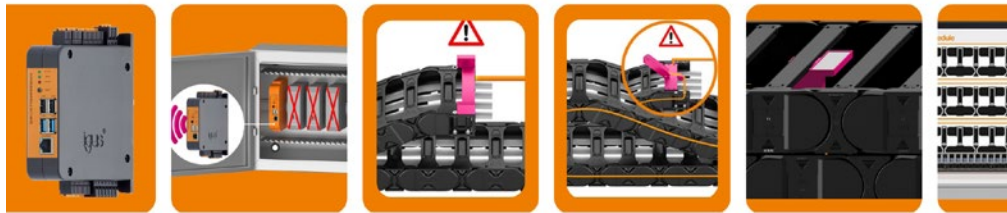


You can find more information about Industry 4.0 in our free-to-download "smart plastics" brochure. igus.eu/smartplastics



... knowledge at the touch of a button ...

Ready-to-install solutions for predictive maintenance. Select in seconds and order online



- Tech up**
 - i.Sense condition monitoring configuration and sensor data download over many channels (USB, LAN, WLAN, Bluetooth, etc.) and various terminal devices
 - SMS/e-mail alarm
 - Increased connectivity for absolute transparency for predictive maintenance – "anytime, anywhere, anyhow" (network connections: dashboard on local intranet, connection to PLC and system monitor, ...)
- Proof**
 - Ongoing test series in the industry's largest test laboratory for dynamic power transmission systems
 - In use in Poland since January 2021 for an application with a 440m travel

- Cost down**
 - No project planning costs
 - No minimum order quantity - cost-effective system price with no minimum order quantity
 - Connection of all sensors for condition monitoring to just one i.Sense module in the switch cabinet
 - Use predictive service management to avoid unplanned plant downtimes and the resultant costs
- Sustainability**
 - Reduce physical travelling costs with remote connection
 - Unplanned service deployments can be prevented - eliminating 100km of travel saves about 3.6kg of CO²

Complete sets in ... **only 3 clicks**

Example part numbers for e-chain® series E4.28 with inner widths up to 300mm

Part No.	Source product	e-chain® length	Switch cabinet position	Cable projection
PACK.IS.SET.001.E4.28.10000.MN.5000.0	E4.28	10,000mm	Moving end side	5,000mm
PACK.IS.SET.001.E4.28.10000.MN.10000.0	E4.28	10,000mm	Moving end side	10,000mm
PACK.IS.SET.001.E4.28.10000.MN.15000.0	E4.28	10,000mm	Moving end side	15,000mm
PACK.IS.SET.001.E4.28.10000.MN.20000.0	E4.28	10,000mm	Moving end side	20,000mm
PACK.IS.SET.001.E4.28.10000.MN.25000.0	E4.28	10,000mm	Moving end side	25,000mm
PACK.IS.SET.001.E4.28.20000.MN.5000.0	E4.28	20,000mm	Moving end side	5,000mm
PACK.IS.SET.001.E4.28.20000.MN.10000.0	E4.28	20,000mm	Moving end side	10,000mm
PACK.IS.SET.001.E4.28.20000.MN.15000.0	E4.28	20,000mm	Moving end side	15,000mm
PACK.IS.SET.001.E4.28.20000.MN.20000.0	E4.28	20,000mm	Moving end side	20,000mm
PACK.IS.SET.001.E4.28.20000.MN.25000.0	E4.28	20,000mm	Moving end side	25,000mm
PACK.IS.SET.001.E4.28.10000.FP.5000.0	E4.28	10,000mm	Fixed end side	5,000mm
PACK.IS.SET.001.E4.28.10000.FP.10000.0	E4.28	10,000mm	Fixed end side	10,000mm
PACK.IS.SET.001.E4.28.10000.FP.15000.0	E4.28	10,000mm	Fixed end side	15,000mm
PACK.IS.SET.001.E4.28.10000.FP.20000.0	E4.28	10,000mm	Fixed end side	20,000mm
PACK.IS.SET.001.E4.28.10000.FP.25000.0	E4.28	10,000mm	Fixed end side	25,000mm

More versions available in the online shop

... reliable condition monitoring of cables without extra cores ...



Using protocol-independent measurement methods, the transmission properties are measured during operation



CF.D installed in one of our exhibition machines

Tech up

- The transmission properties are measured during operation using protocol-independent measurement methods
- Small feed-through adapters are looped into the cable to be monitored at both ends
- i.Cee;plus II module connected via USB for predictive maintenance information
- Smart monitoring of all moving cables, including plug-in connectors

Cost down

- Saves on additional measuring cores
- Small type enables quick retrofitting in case of cable replacement
- Indicator for timely cable replacement – prevent unplanned plant shutdowns

Proof

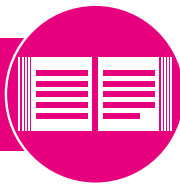
- Ongoing test series in the test laboratory for dynamic power transmission systems
- Try it out in your application to see for yourself; igus® is offering free samples in the beta test phase

Sustainability

- No extra cores needed
- Predictable service intervals save resource-intensive emergency operations



You can find the digital manual online to download: igus.eu/cf-d-manual



Possible application areas

- Gate systems
- Sliding doors with igus® micro flizz
- Packaging machines
- Image processing systems

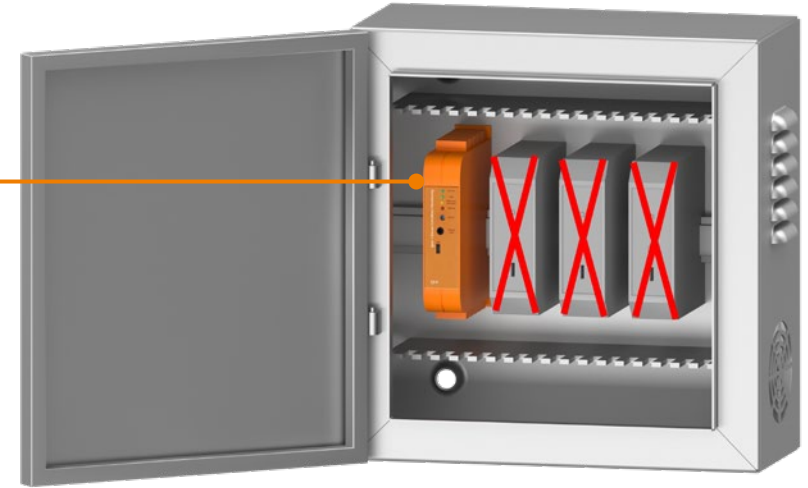
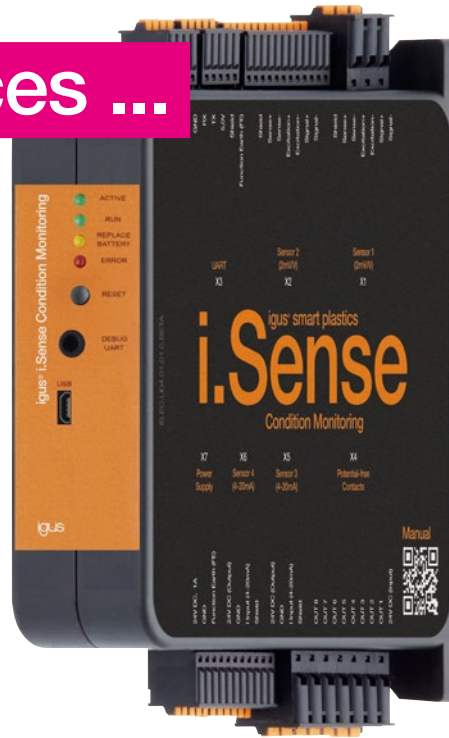
Part No.

IS.CF.D.SU.ETHER01.T.01.0.BETA	Ethernet cable-monitoring transmitter
IS.CF.D.SU.ETHER01.R.01.0.BETA	Ethernet cable-monitoring receiver

...3 fewer devices ...

... 4 in 1 ...

Saves 3 devices and a lot of space ...
Now 4 sensors in one switch cabinet module.



4

50%

condition monitoring sensors in a single module

Cost savings

Tech up

- Configuration and sensor data download over many channels (USB, LAN, WLAN, Bluetooth, etc.) and various terminal devices
- Extension with remote sensor box with up to 4 additional sensors
- SMS/e-mail alarm
- Position-dependent force limit determination via GPS (optional)
- Remote reset via LAN/WiFi/SMS (with i.Cee connection)

Proof

- Ongoing test series in the test laboratory for dynamic power transmission systems

Cost down

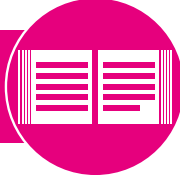
- Up to four sensors for condition monitoring in one module (instead of one module for each sensor)
- Only one additional cable in the e-chain®
- SD card is eliminated completely

Sustainability

- Unplanned service deployments can be prevented – eliminating 100km of travelling costs saves about 3.6kg of CO₂ .



You can find the digital manual online to download igus.eu/isense-manual



Condition monitoring for gliding applications



Immediate emergency shutdown by i.Sense prevents total failure

Part No.
IS.EC.U04.01.01.0.BETA

... a whole lot of Industry 4.0 in one device ...

Enables deep integration into customer networks and numerous IoT use cases.



4x

greater connectivity

28%

space savings in the switch cabinet

Tech up

- Many modern connections for optimal sensor data management (IoT integration, third-party cloud solutions, etc.)
- Increased connectivity for absolute transparency – "anytime, anywhere, anyhow" (network connections: dashboard on local intranet, connection to PLC and plant monitor, communication with local third-party software via JSON/MQTT/REST/.CSV/.TXT, optional connection to cloud solutions)

Proof

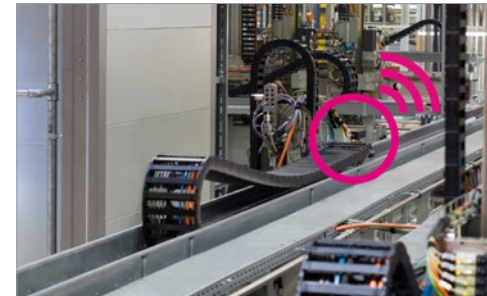
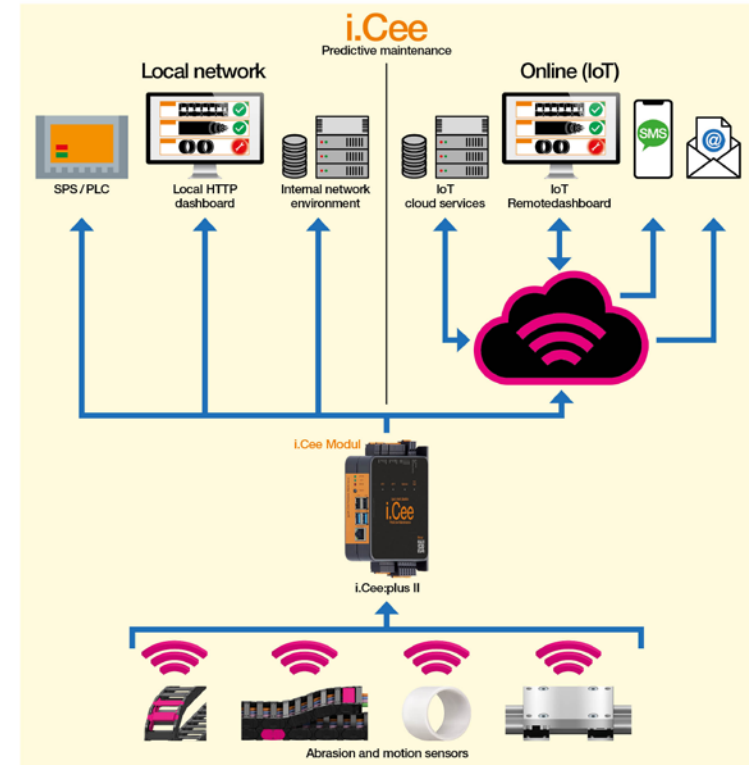
- Ongoing test series in the test laboratory for dynamic power transmission systems
- In use in Poland since January 2021 on a 400m travel application

Cost down

- Maximise product service life through efficient retrofit management
- Use predictive service management to avoid unplanned plant downtimes and the resultant costs

Sustainability

- Savings on physical travelling costs with remote connection
- Unplanned service deployments can be prevented - eliminating 100km of travel saves about 3.6kg of CO₂.



i.Cee in an automobile factory

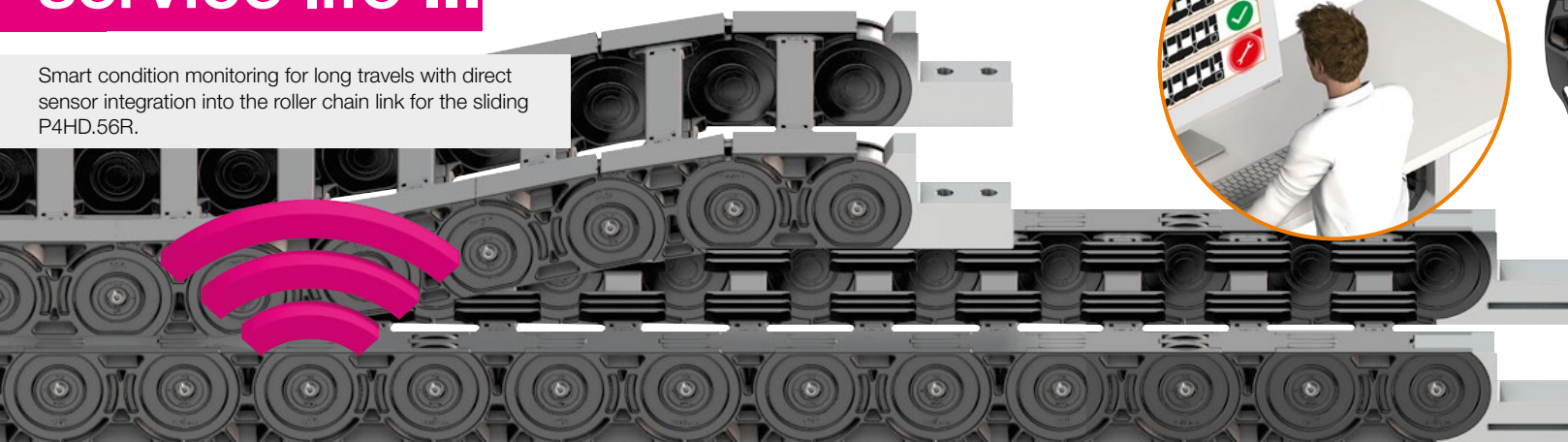


Avoid unplanned downtime through intelligent energy chain monitoring

Part No.
IS.PLUS.01.01.0.BETA

... maximum roller service life ...

Smart condition monitoring for long travels with direct sensor integration into the roller chain link for the sliding P4HD.56R.



The roller chain link transmits data with the LoRa radio standard directly to the i.Cee:plus module

▲ Tech up

- Integration of condition sensor, including electronics, into the roller chain link
- Monitoring abrasion at the pin/bore connection
- No restriction of the usable inner width
- Use of all predictive maintenance options with i.Cee:plus

▼ Cost down

- Saves external energy supply with inductive "energy harvesting"
- No additional cable in the chain due to connection via LoRa radio standard

■ Proof

- Ongoing test series in the test laboratory for dynamic power transmission systems

● Sustainability

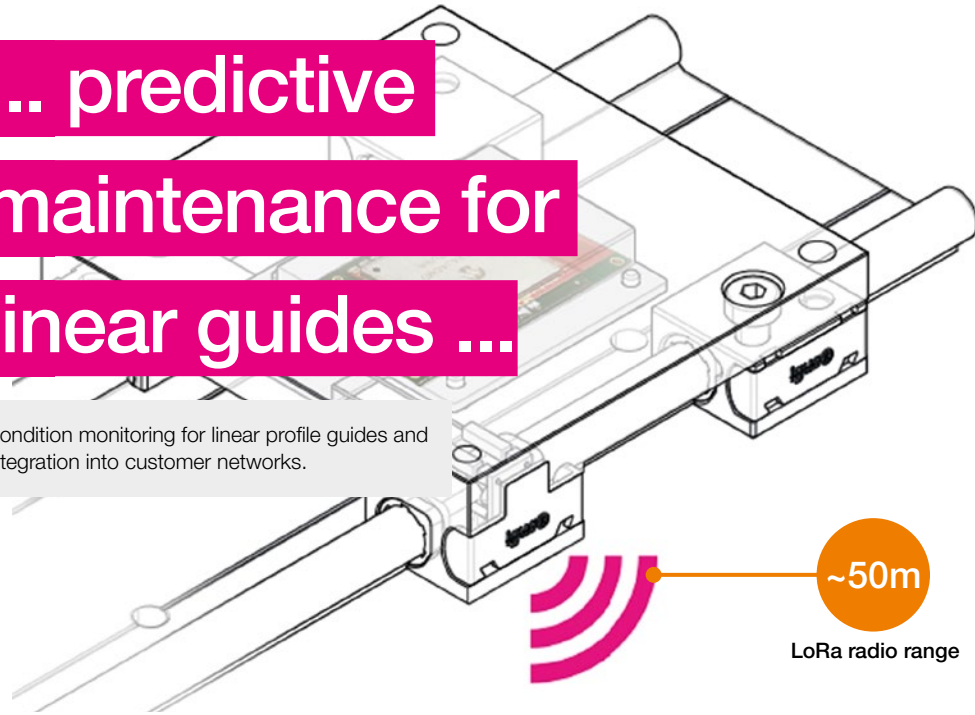
- Energy harvesting avoids unnecessary resource consumption
- Have your energy chain recycled at the end of its life cycle with the igus® change recycling program. Irrespective of the manufacturer: igus.eu/change

Free white paper to download:
"The energy supply system in the overall assessment of machine availability: increasing plant availability and ensuring process conformity with smart plastics"



... predictive maintenance for linear guides ...

Condition monitoring for linear profile guides and integration into customer networks.



Tech up

- Measuring and LoRa data transmission unit integrated in the carrier plate of the drylin® carriage
- LoRa radio range: approx. 50m
- Integrated 24V DC power supply with LiPo accumulator
- Information output on current sensor status, time until next predicted maintenance, and battery status
- Connection to customer network and Industry 4.0 applications

Proof

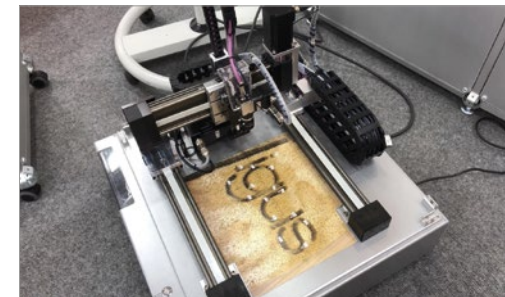
- Function test in measuring system successfully passed
- Try it out in your own application in order to see for yourself; igus® is offering free samples in the beta test phase

Cost down

- Use without special accessories thanks to charging via standard USB socket
- Space-saving receiver and computing unit for external installation

Sustainability

- Predictable service intervals save resource-intensive emergency operations



Our measuring machine demonstrates the intelligent team consisting of i.Cee:plus module II and drylin® W profile guide.

Moving energy made easy ...

igus® e-chains® since 1971 ...

The umbilical cord for automation ...

Energy chains protect cables in motion from failure and wear, and supply machines with everything vital - energy, data, liquids, air, gases, light. They are constantly moving and their field of application is universal; from machine tools, wood and sheet metal working machines to applications in clean rooms and storage and retrieval machines.


















When igus® was founded in 1964 in a garage in Cologne, no one in the mechanical engineering sector could have imagined energy chains made of plastic. Chains made of steel have been around since the 1950s. In 1971, we delivered the first energy chain made of plastic.

Since then, more and more customers are recognising the advantages of polymer chains: they are lighter, more cost-effective, gliding, corrosion-resistant, can be "smart" and are often sustainable. Combined with lower construction costs, they are above all maintenance-free as they do not need to be lubricated.

Under the slogan "Moving energy made easy", igus® configures, produces and assembles the right energy chain system for your requirements - all over the world.



Over the past 50 years and with your help, we have reinvented our energy chain time and again. It celebrates its birthday this year and is up-to-date, digital and clean („Reiner!“ IPA Cleanroom Award).

																
1971	1979	1985	1986	1989	1991	1995	2003	2008	2012	2013	2015	2016	2017	2018	2019	2020
First igus® e-chain®	First e-chain® catalogue	e-chain® E4	Openable e-tube	chainflex® cables	xigus® 1.0 electronic catalogue	readychain®, with the slogan "Chain-Cable-Guarantee"	Energy chains for robots	E4.350: largest plastic e-chain®	e-spool® modular kit	Plug & Play energy chains	Rotary modules	Smart energy chain	e-skin® cleanroom	Best E4Q e-chain®	Up to 36-month e-chain® guarantee	autoglide 5

			
50 test machines in our energy chain lab	5mm The smallest e-chain® in the world	350mm The largest e-chain® in the world	More than 50 million € invested in R&D and digitalisation in 2020
			
250 simultaneous tests for e-chains® & cables in our lab	35 subsidiaries worldwide	50 Sales partners in	50 countries worldwide
			
More than 15,000 tests performed annually	almost 1,500 patents and 250 registered designs	4,150 people work for igus® worldwide	
			
More than 50 e-chain® series	Almost 250,000 customers worldwide from 50 branches of industry	750 work as sales representatives for igus®	
More than 235,000 products			
from stock: energy chains, cables, plain bearings, linear technology, bar stock, 3D printing and Low Cost Automation			
			
3.5 billion test cycles for e-chains® alone			
			
10 billion e-chain® cycles per year in the e-chains® and chainflex® laboratory			

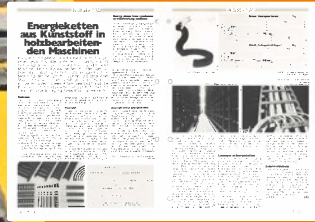
2022



Moving energy made easy since 1971 ...

A glimpse into the archive ...

Chains for ever ...



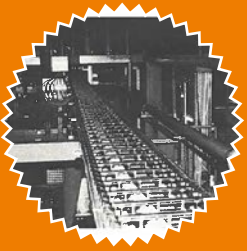
1990

"[...] During energy chain selection, 'simple' is often 'good'. The more robust the energy chain machine element is and the fewer individual parts and complex mechanisms it has, the longer it will last." We are the only energy chain manufacturer to offer a guarantee for up to 36 months - because we are sure of our products.



1991

"[...] Energy chains are the backbone of expensive machines and are responsible for their function or failure." That's "Tech up, Cost down".



1991

"Special cables prevent 'corkscrews'" Up to 36-month guarantee for all chainflex® cables since 2014



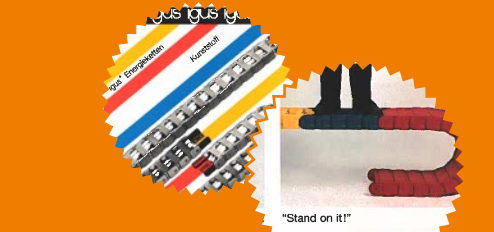
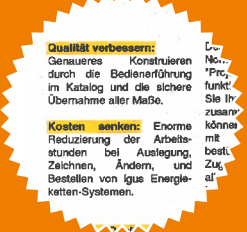
1991

"Chains for ever" Fifteen years of service life on cranes under the most adverse of conditions, given 24/7 use, is not a fiction.



1993

"Our task is to improve quality while reducing costs." Tech up, Cost down. It's our job. Then as now.



1991

"Just as you can mix all the other colours using just the three primary colours, you can use the igus E4 system to implement all energy supply solutions for machine tools and automation." The igus® E4 modular kit is still the standard for e-chains® in mechanical engineering

1991

"Silent innovation" Silent operation was as big an issue then as it is now. igus® E6.1 e-chains® generate only 32 dB(A) during movement in the igus® laboratory

A perusal of our archives confirms that what drives us today also drove us in the past. We have remained true to our "Tech up, Cost down" goal for decades. Marketing formulas and advertising channels may have developed and changed, but our message - our promise to our customers in a wide variety of industries - has remained the same. We want the most cost-effective energy chain that can be relied on to do its job for you and your application. That has been our task since 1971.

Moving energy made easy ...

chainflex® cables ... with a guarantee of up to 36 months ... It's our job

The highest cable quality now with UL for international use. New hybrid and servo cables supplement our drive technology product range, and the CF150.UL/CF160.UL control cables can be used in static cable tray - directly after the energy chain - thanks to "UL-Listed" approval. CFCLEAN in combination with the e-skin® flat is the revolution for cleanroom applications. And CFCASE makes shipping, storage, and re-ordering for 883 chainflex® cable types simple and smart.

... new

highlight 11/2021...

chainflex®

... 96

Prevent machine fires with high-end TPE cables ... over 210 cables of highest quality with UL ...



new
11/2021

...98

Radius down and guaranteed service life up ... CF11.D



new
11/2021

100

Bigger hybrid selection ... suitable for Siemens, Beckhoff, B&R ... CF220.UL.H



new
11/2021

104

Small cross sections for smaller drive motors ... CF210.UL



new
11/2021


...106

Even more choice with a very cost-effective motor cable ... CF896



108

Servo cable with guaranteed service life for Fanuc drives ... precise fit, oil-resistant, and usable worldwide



110

MTW cables for e-chain® and cable tray ... tested and with guarantee



...112

ship'n store by igus® ... 883 cables can now be ordered in the chainflex® CASE



REINER!
2021

IPA
Fraunhofer IZEP
SERVICE

114

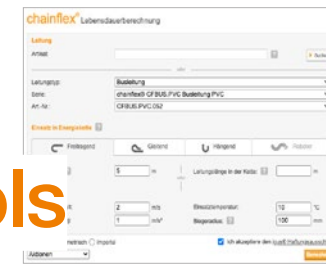
chainflex® CFCLEAN ... lightweight, thin, durable ... made for the e-skin® flat



120

Profinet FastConnect ... connect quickly, safely and easily

By entering the application parameters (travel, bend radius, acceleration and temperature values), you can calculate exactly the expected service life of chainflex® cables online.



... online tools

... more than 210 high-end cables with UL ...

... cold ...



... hot ...



... long ...



... small ...



Guarantee
igus chainflex

36

up to 36 months guarantee



chainflex®

Tech up

- Very high load capacity in combination with UL AWM Style for over 210 cables
- Service life guarantee increased by 25% to 12.5 million double strokes

Proof

- Test 5560 (cold test at -40°C): TPE lasts 13 times longer than PUR
- Calculate service life of the cable online:
igus.eu/chainflexlife

Cost down

- Unplanned downtime costs reduced thanks to longer service life
- Costs for duplicated stock avoided and time-consuming additional documentation eliminated
- Time-consuming normative individual approvals become superfluous

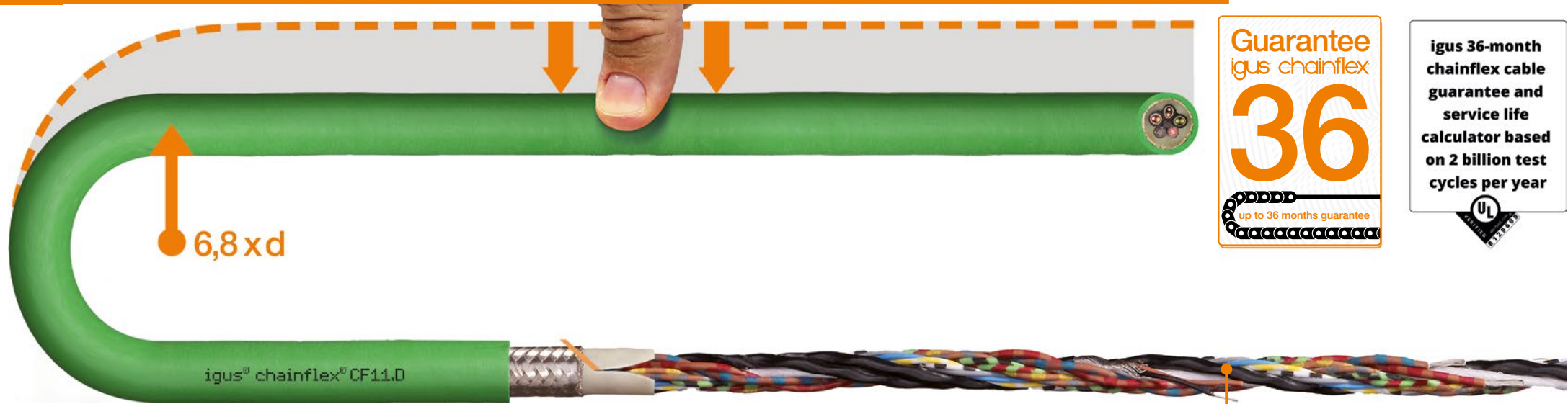
Sustainability

- Plastic abrasion reduced by switching from previously necessary PUR material to much more abrasion-resistant TPE compound
- Cable material waste reduced thanks to increased service life (24.4% longer than a 12G1.0 cable)
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
igus.eu/sustainability

Series	R min. e-chain®	Guaranteed service life [Specified in double strokes]
Control cables		
CF9	5 x d	12.5 million
CF10	5 x d	12.5 million
Data cables		
CF11	6.8 x d	12.5 million
CF12	10 x d	12.5 million
Bus cables		
CFBUS.LB	7.5 x d	12.5 million
Measuring system cables		
CF11.D	6.8 x d	12.5 million

Series	R min. e-chain®	Guaranteed service life [Specified in double strokes]
Servo cables		
CF29.D	6.8 x d	12.5 million
Motor cables		
CF37.D	7.5 x d	12.5 million
CF38	7.5 x d	12.5 million
Single cores		
CF330	7.5 x d	12.5 million
CF340	7.5 x d	12.5 million

... radius down and guaranteed service life up ...



Guarantee
igus chainflex

36

up to 36 months guarantee

igus 36-month
chainflex cable
guarantee and
service life
calculator based
on 2 billion test
cycles per year

Tech up

- Bending radius reduced by 10%
- Service life guarantee increased by 25% to 12.5 million double strokes

Cost down

- Unplanned downtime costs reduced thanks to longer service life
- Costs for duplicated stock avoided and time-consuming additional documentation eliminated
- Time-consuming normative individual approvals become superfluous

Proof

- Test No. 3479: CF11.D with 66 million strokes (at 7.1xd)
- Calculate service life of the cable online:
igus.eu/chainflexlife

Sustainability

- Waste from cable material reduced thanks to service life increase of 197% in a radius of 75mm (CF11.D to 113.D service life comparison with bend factor of 6.8xd)
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
igus.eu/sustainability

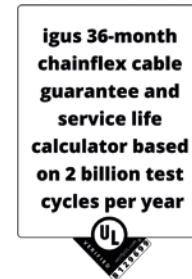
Only one of more than 115 chainflex® measuring system cables
Suitable for 24 manufacturers, in 7 cable qualities. Up to 36-month guarantee, available with no minimum order quantity, no cutting charges and numerous approvals & standards.



To the DriveTech website "igus® solutions for drive technology":
igus.eu/info/drive-tech-cables-and-harnessed-cables



... bigger hybrid selection ... suitable for Siemens, Beckhoff, B&R ...



chainflex® CF220.UL.H

- Tech up**
- More selection for proven hybrid core/cross section combinations
 - Optimised abrasion behaviour. Especially well suited to the woodworking industry and the material handling and packaging sectors

- Cost down**
- Selecting PVC as the outer jacket material ensures 15.3% savings
 - Costs reduced thanks to single cable solution with half the installation effort because the encoder system has been eliminated

- Proof**
- Calculate service life of the cable online: igus.eu/chainflexlife

- Sustainability**
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

Part No.	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
SEW				
CF220.UL.H203.15.04	(4G1.5+(3x1.0)C)C	11.5	133	219
Siemens (SINAMICS S210)				
CF220.UL.H300.03.04	(4Gx0.34+(2x0.34)C+(4xAWG26)C)C	10.0	78	139
CF220.UL.H301.07.04	(4Gx0.75+(2x0.5)C+(4xAWG26)C)C	11.0	100	168
B&R				
CF220.UL.H501.15.04	(4G1.5+(2x0.75)C+(2x2x0.14+2x0.25)C)C	13.5	170	239



To the DriveTech website "igus® solutions for drive technology": igus.eu/info/drive-tech-cables-and-harnessed-cables



Hybrid cable* CF280.UL.H.207.D

* Just one cable for power and data! Expansion of the hybrid range to include SEW's MOVILINK DDI technology

... hybrid cables that suitable for SEW MOVILINK DDI ...

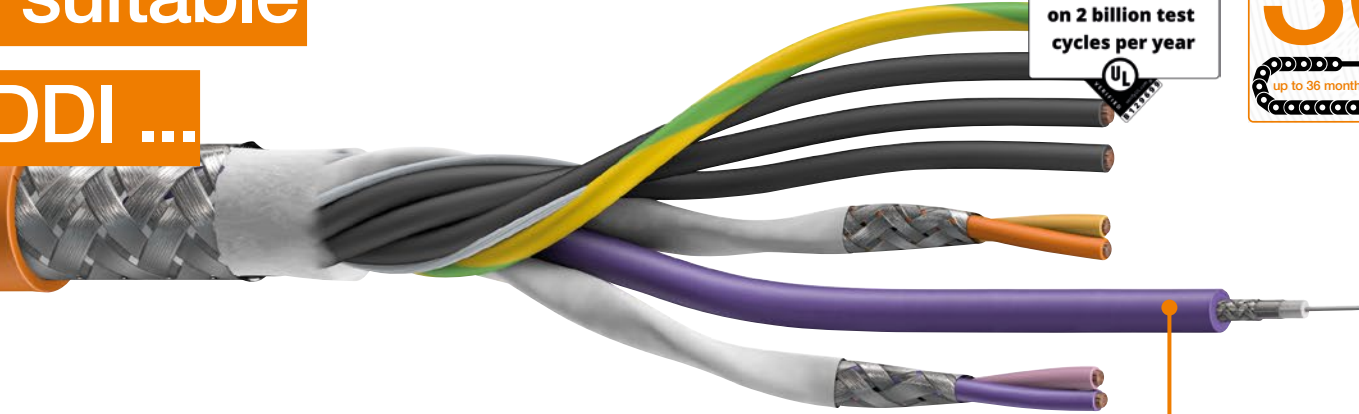
igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Guarantee igus chainflex

36

up to 36 months guarantee

CF280.UL.H207.D



40%

Installation space saved

50%

less cables needed



Service life calculated online

Just 1 of 25 chainflex® CF280.UL.H hybrid cables SEW technology in the form of MOVILINK DDI, a combination of power and data transmission, is being added to the hybrid portfolio. The special feature: System data is transmitted in this cable via a heavy-duty coaxial element. Bend factor of up to 15xd, used in a wide range of industries such as machine tools, material handling, and the automotive industry. Guaranteed for up to 36 months, no minimum order quantity, no cutting charges, numerous approvals and standards.

Tech up

- Reduction of the cables used by 50%
- Secure data exchange between motor and encoder system
- Guaranteed service life for hybrid cable suitable for SEW MOVILINK DDI drives

Cost down

- Save around 40% installation space in the chain
- Reduction of the installation space for the connector technology

Proof

- Test: CF280.UL.H.D with bus element in smallest bend radius in series application successfully in use for over 4 years
- Calculate service life of the cable online: igus.eu/chainflexlife

Sustainability

- Reduction of 43% in material weight (plastic + Cu) compared to cable with single coaxial element

Part No.	R min. e-chain®	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF280.UL.H207.15.04.D	15 x d	(4G1.5+2x(2x1.0)C+HF50-0.9/2.95)C	15.5	191	303
CF280.UL.H207.25.04.D	15 x d	(4G2.5+2x(2x1.0)C+HF50-0.9/2.95)C	16.5	232	351

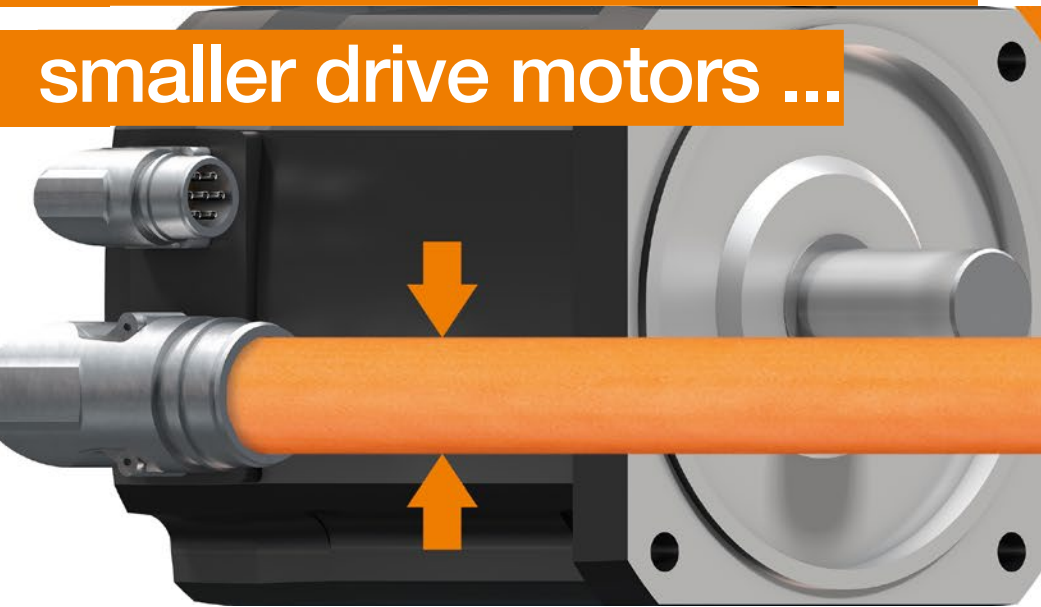
The entire CF280.UL.H product range can be found in the current chainflex® catalogue and online: igus.eu/CF280ULH



To the DriveTech website "igus® solutions for drive technology": igus.eu/info/drive-tech-cables-and-harnessed-cables



... small cross sections for smaller drive motors ...



igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Guarantee
igus chainflex
36
up to 36 months guarantee

Tech up

- Predictable service life for PVC motor cable
- Weighs 20.3% less than the alternative solution

Cost down

- Costs up to 47% less than the CF35.UL with inner jacket
- No cable cross section oversizing for motors because, despite the small cross section, the nominal voltage of 600/1,000V is retained for new drives

Proof

- Calculate service life of the cable online:
igus.eu/chainflexlife

Sustainability

- Lower weight reduces traversing system drive power
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
igus.eu/sustainability

Part No.	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF210.UL.05.04	(4G0.5)C	7.0	34	63
CF210.UL.15.04	(4G1.5)C	10.0	86	140
CF210.UL.25.04	(4G2.5)C	11.5	146	209
CF210.UL.40.04	(4G4.0)C	13.0	195	288

... even bigger selection with a very cost-effective motor cable ...



Guarantee
igus chainflex

36

up to 36 months guarantee

chainflex® CF896

Tech up

- Installation space reduced by 16.7% thanks to smaller outer diameter
- UL/CSA certification for the US and Canada
- Oil resistance thanks to iguPUR outer jacket

Cost down

- Costs up to 33% less than cables with PUR outer jacket
- No cable cross section oversizing for motors because, despite the small cross section, the nominal voltage of 600/1,000V is retained for new drives

Proof

- 36-month chainflex® guarantee: UL certified
- In test 5042, the iguPUR cable reached almost 15 million strokes
- Calculate service life of the cable online:
igus.eu/chainflexlife

Sustainability

- Smaller cross sections conserve resources because they use less copper and require less production energy
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
igus.eu/sustainability

Part No.	Number of cores / conductor nominal cross section [mm ²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF896.07.04	(4G0.75)C	7.5	52	79
CF896.15.04	(4G1.5)C	9.0	82	122
CF896.25.04	(4G2.5)C	10.5	132	173
CF896.40.04	(4G4.0)C	12.0	204	257
CF896.60.04	(4G6.0)C	14.5	306	378
CF896.100.04	(4G10)C	18.5	458	653
CF896.160.04	(4G16)C	21.0	709	835

cost down...



...life up

Reduce cost, improve technology, now!

Do the chainflex® price check ...

igus.eu/cf-price-check

... for example: Use iguPUR instead of PUR as an outer jacket material ...



Servo cable CF270.UL.10.06.D

Expansion of the chainflex® CF270.UL.D servo cable adapted for use with Fanuc motors

... Cable with guaranteed service life suitable for Fanuc drives ...

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Guarantee igus chainflex 36
up to 36 months guarantee



Just 1 of 31 chainflex® CF270.UL.D cables
Servo cable series with PUR outer jacket for demanding movements in e-chains®. The structure was adapted for the generations of motors from Fanuc. Designed for use in machine tools and with a guarantee of up to 36 months, this cable with UL approval, Desina colouring and EAC covers all the required demands in this global market.

▲ Tech up

- Guaranteed service life
- Good long-term EMC properties
- Approval for worldwide use

▼ Cost down


- Reduction of downtimes due to clear service life statement

■ Proof

- Test 4831 CF270.UL.25.04.D 18 million strokes
- Calculate service life of the cable online: igus.eu/chainflexlife

● Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Online service life calculation

Part No.	R min e-chain®	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF270.UL.10.06.D	10 x d	(6G1.0)C	9.5	87	133

The entire CF270.UL.D product range can be found in the current chainflex® catalogue and online: igus.eu/CF270ULD



To the DriveTech website "igus® solutions for drive technology": igus.eu/info/drive-tech-cables-and-harnessed-cables



... the only MTW cables for e-chain® AND cable tray ...



10 million

Double strokes guaranteed



Service life Calculate online

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Guarantee igus chainflex 36 up to 36 months guarantee

The new chainflex® CF150.UL and CF160.UL PVC control cables can continue to be installed on the cable rack right after the cable chain thanks to the "UL-Listed" approval. This eliminates the plug-in points behind the e-chain® and the storage of different cable types for the energy chain and fixed installation sections. Optimum MTW (Machine Tool Wiring) cables. Tested in the chainflex® lab and with up to 36 month guarantee.

Tech up

- One cable for e-chain® and cable rack
- Easy usability in different systems
- Guaranteed service life of up to 10 million double strokes

Cost down

- Elimination of costly enclosures
- Avoidance of double stock-keeping of cables for the chain area and for fixed installation

Proof

- Approvals: UL MTW, UL TC-ER 90°C 600V, UL WTTCC 90°C 1000V, UL DP-1, UL AWM 90°C 600V, C(UL) CIC/TC
- Fire tests: FT4, FT1, VW1
- Service life test 5419 - 5422 up to 26 million strokes
- Calculate service life of the cable online: igus.eu/chainflexlife

Sustainability

- Reduction of downtime by avoiding cable types without chain qualification

CF150.UL (unshielded)


Part No.	Number of cores / LNQ [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF150.UL.10.03	3G1.0	8.0	30	78
CF150.UL.10.04	4G1.0	8.5	40	94
CF150.UL.10.05	5G1.0	9.0	50	112
CF150.UL.10.07	7G1.0	10.5	70	155
CF150.UL.10.12	12G1.0	15.0	119	281
CF150.UL.10.18	18G1.0	19.0	178	425
CF150.UL.15.03	3G1.5	8.5	45	98
CF150.UL.15.04	4G1.5	9.0	60	122
CF150.UL.15.05	5G1.5	10.0	75	148
CF150.UL.15.07	7G1.5	12.0	104	205
CF150.UL.15.12	12G1.5	16.5	178	365
CF150.UL.15.18	18G1.5	21.0	267	529
CF150.UL.25.03	3G2.5	9.5	75	133
CF150.UL.25.04	4G2.5	10.0	100	164
CF150.UL.25.05	5G2.5	11.0	124	200
CF150.UL.25.07	7G2.5	12.0	173	268
CF150.UL.25.12	12G2.5	18.5	297	502
CF150.UL.25.18	18G2.5	24.5	445	808

CF160.UL (shielded)

Part No.	Number of cores / LNQ [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
CF160.UL.10.03	(3G1.0)C	9.5	53	121
CF160.UL.10.04	(4G1.0)C	10.0	66	143
CF160.UL.10.05	(5G1.0)C	11.0	77	164
CF160.UL.10.07	(7G1.0)C	12.5	107	220
CF160.UL.10.12	(12G1.0)C	18.5	177	389
CF160.UL.10.18	(18G1.0)C	23.5	280	648
CF160.UL.15.03	(3G1.5)C	10.0	72	149
CF160.UL.15.04	(4G1.5)C	11.0	89	175
CF160.UL.15.05	(5G1.5)C	12.0	105	204
CF160.UL.15.07	(7G1.5)C	13.5	140	271
CF160.UL.15.12	(12G1.5)C	20.0	243	478
CF160.UL.15.18	(18G1.5)C	25.5	373	762
CF160.UL.25.03	(3G2.5)C	11.0	103	185
CF160.UL.25.04	(4G2.5)C	12.0	129	219
CF160.UL.25.05	(5G2.5)C	13.0	159	264
CF160.UL.25.07	(7G2.5)C	14.5	223	361
CF160.UL.25.12	(12G2.5)C	23.5	389	688
CF160.UL.25.18	(18G2.5)C	29.5	573	1092

... 883 cables can now be ordered in the chainflex® CASE ...

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Guarantee igus chainflex

36

up to 36 months guarantee




Cable delivery and storage made easy: with the chainflex® CASE, cables are sent and stored cost-effectively and safely

igus	igus GmbH Spicher Str. 1a 51147 Köln/Germany	chainflex
Artikel/Article:	CF880 15.03	Einfach nachbestellen/Easy to reorder:
Bezeichnung/Description:	chainflex PVC Steuer-Ltg. 3G1,5	
Länge/Length:	100m	

▲ Tech up

- 8x more choice than before
- Stack up to three boxes directly at the place of use
- Order online by scan

▼ Cost down

- Elimination of expensive storage systems
- Elimination of expensive unwinding equipment at the installation site

■ Proof

- Online price comparison freight forwarding/ shipping service provider

● Sustainability

- Manufactured from reusable materials
- Weight saving for shipping due to the use of cardboard instead of a pallet

Easy x4

1 chainflex® cable works
igus
Easy delivery

2 chainflex® cable works
Easy unreeling

3 chainflex® cable works
Easy storage

4 chainflex® cable works
Easy reordering

... powerful combination
for your cleanroom ...



Fraunhofer
TESTED®
DEVICE
igus GmbH
e-skin flat system
Report No. IG 2102-1212

igus 36-month
chainflex cable
guarantee and
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cycles per year

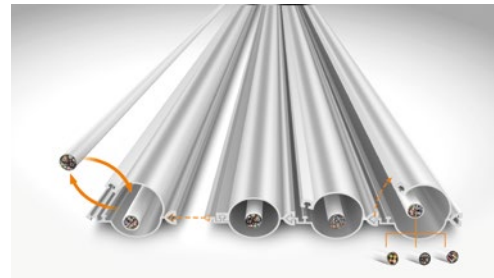
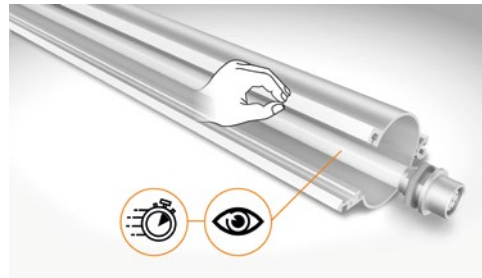
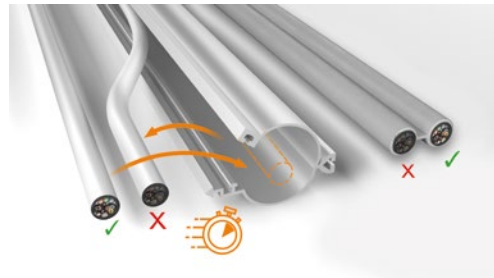
Guarantee
igus chainflex
36
up to 36 months guarantee

20
million
double strokes
guaranteed in
e-skin® flat

Reduced
space
70mm
radius

extra
light,
extra
soft

modular,
innovative,
flexible



... lighter ... smaller ... with guarantee

... abrasion-resistant ...

Revolutionary solution without outer jacket for use in the e-skin® flat in the cleanroom and far beyond

39%

Smaller diameters than jacketed cables

43%

Weight reduction*

20 million

Double strokes guaranteed

70mm

Bend radius in e-skin® flat

The revolution for the semiconductor industry - and far beyond. Extra light, extra durable, extra small bend factor. To achieve these goals, CFCLEAN was developed without an outer jacket. It may therefore be used only in combination with the e-skin® flat, which takes over the legally intended function of the outer jacket. The CFCLEAN and e-skin® flat make an unbeatable combination: The modular design allows individual chambers and stranded structures to be replaced if there is damage. Tested at 50 million strokes, bend radius of 70mm. Available from stock.



Tech up

- 39% smaller*
- 43% lighter*
- Guaranteed service life 20 million at a radius of 70mm

Cost down

- Elimination of costly prototypes that have to be planned at an early stage
- From stock, therefore small series are possible
- Fast exchange in existing production plants

Proof

- Test 5497: Interim status: 50 million strokes (test continues successfully)
- Online service life calculation in preparation

Sustainability

- Savings in weight and thus energy expenditure during acceleration
- Reduction of resources through less material
- Reduced waste, since only the defective parts have to be replaced during maintenance

CFCLEAN types

- CFCLEAN1 - control cable
- CFCLEAN2 - coax cables
- CFCLEAN3 - data cable
- CFCLEAN4 - measuring system cable

CFCLEAN types

- CFCLEAN6 - motor cable
- CFCLEAN7 - servo cable
- CFCLEAN8 - bus cable

The complete CFCLEAN product range can be found online: igus.eu/cfclean



Brochure: igus® cleanroom technology

In robots or pick-and-place applications, in semiconductor manufacturing and microelectronics, igus® offers components for any cleanroom that bring Tech Up and Cost Down ... igus.eu/cleanroom



*compared to commercially available jacketed cables

from stock ... no cutting costs ... no minimum order quantity, from 1m ...

Available from stock Ask for a free sample

igus.eu/CFCLEAN

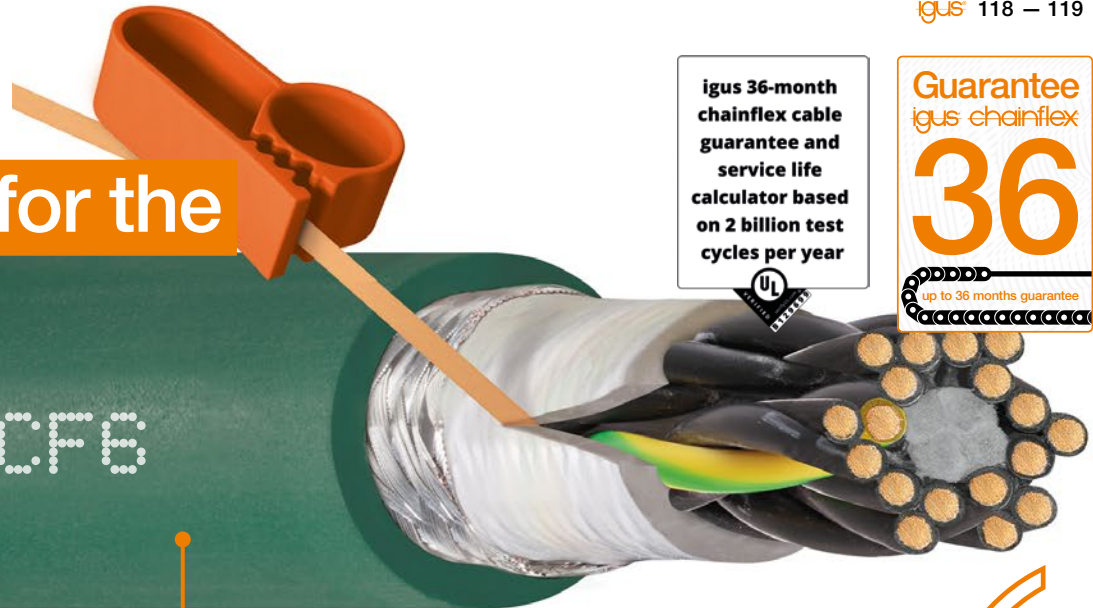
... shielded PVC control cable for the smallest installation spaces ...

Expansion of the chainflex® CF6 control cable range with new core/cross-section combination

chainflex® CF6

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Guarantee igus chainflex **36** up to 36 months guarantee



6.8 x d

Smaller bend radius for the smallest installation spaces

90%

Highest shield coverage

50%

Faster cable stripping with CFRIP®



Online service life calculation

Just 1 of 542 chainflex® cables with CFRIP®

Stripping of chainflex® cables with CFRIP® thread is faster by up to 50%. After a small cut, simply "tear open" the jacket in one step using CFRIP® thread. As simple as a zipper.



Tech up

- For the smallest installation spaces down to 6.8xd for PVC cable
- Maximum shield coverage 90%
- UL 600V for use around the world

Cost down

- Long travels without expensive PUR materials possible
- Put down quickly using CFRIP®

Proof

- Service life test 5426: CF6.03.05 currently at bending factor 5.1xd already completed 20.6 million strokes successfully (test ongoing)
- Calculate service life of the cable online: igus.eu/chainflexlife

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

Part No.	R min. e-chain®	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
...					
CF6.07.03	6.8 x d	(3G0.75)C	8.0	46	98
CF6.07.04	6.8 x d	(4G0.75)C	8.5	56	113
CF6.10.03	6.8 x d	(3G1.0)C	8.0	54	107
CF6.10.04	6.8 x d	(4G1.0)C	9.0	65	116
CF6.15.03	6.8 x d	(3G1.5)C	9.0	72	122
CF6.15.04	6.8 x d	(4G1.5)C	9.5	88	155
CF6.25.03	6.8 x d	(3G2.5)C	10.5	107	180
CF6.25.04	6.8 x d	(4G2.5)C	11.5	131	222
...					

The complete product range now comprising **34 CF6 control cables** can be found in the current chainflex® catalogue and on the web. Also available as **unshielded version CF5** in 43 core/cross-section combinations.

PROFINET FastConnect - connect quickly, safely and easily ...

New generation of PROFINET cables can be used with FastConnect to significantly reduce harnessing work.

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year



Guarantee
igus chainflex
36
up to 36 months guarantee



CF898.061.FC

46%

Faster harnessing possible

10%

Reduction of cable material due to less waste

7.8 million

Currently strokes tested (interim results)



Service life Calculate online

New technology for up to 46% faster harnessing. You can assemble the CF898.061.FC Profinet cable quickly and cost-effectively in your own production; with the appropriate stripping tool, the amount of work is significantly reduced. At the same time, you reduce cable waste due to core cuts or shield damage. Application in machines with a bending factor of 15xd and short travels. Up to 36 months guarantee and UL certification.

Tech up

- Use of cable with guaranteed service life with FastConnect technology
- No core cuts/shield damage due to incorrect tools

Cost down

- 46% faster processing
- No project planning with length specifications necessary
- Quick repair on site possible

Proof

- Test 5526 Interim status: 7.8 million strokes (test continues successfully)
- Calculate service life of the cable online: igus.eu/chainflexlife

Sustainability

- Reduction of 10% of the cable material due to elimination of waste

Jacket	Part No.	R min. e-chain®	Number of cores / conductor nominal cross section [mm²]	Outer Ø approx. [mm]	Copper index [kg/km]	Weight [kg/km]
PVC	CF888.060	15 x d	(4x0.34)C	7.0	25	59
PVC oil-resistant	CFBUS.PVC.060	12.5 x d	(4x0.38)C	7.0	33	67
iguPUR	CF898.060	15 x d	(4x0.34)C	7.0	25	58
iguPUR	CF898.061.FC	15 x d	(4x0.34)C	7.0	25	72
PUR	CFBUS.PUR.060	12.5 x d	(4x0.38)C	7.0	33	64
TPE	CFBUS.060	10 x d	(4x0.38)C	7.5	39	74
TPE	CFBUS.LB.060	7.5 x d	(4x0.38)C	7.5	39	67
PUR	CFSPECIAL.182.060	10 x d	(4x0.38)C	8.5	37	125



Click here for the PROFINET WEBSITE
igus.eu/profinet-cable



Ethernet catalogue online



Moving energy made easy ...

readycable® harnessed cables ... It's our job

Pre-harnessed, ready-to-connect cables, precisely manufactured for your requirements. Just-in-time delivery, 100% tested for digital continuity and logic. The 25% thinner Single-Pair Ethernet and the hybrid cables greatly reduce installation space and weight requirements. The EPLAN macros for Bosch Rexroth drive cables save you half of your design time during electrical planning in CAE alone. And our solutions for the plug-in e-chain® allow a complete energy chain to be expanded very quickly and easily (snap-on).

... new

highlight 2021↑ ...

...128 Harnessed Single Pair Ethernet
... 25% thinner and ready to connect

...124

The Siemens OCC hybrid cable saves weight and installation space

126

Ready-to-connect AIDA extensions for automation

...130

EPLAN macros suitable for Bosch Rexroth ... 50% faster design

132

Original M8/M12 Binder connectors directly from stock

...134

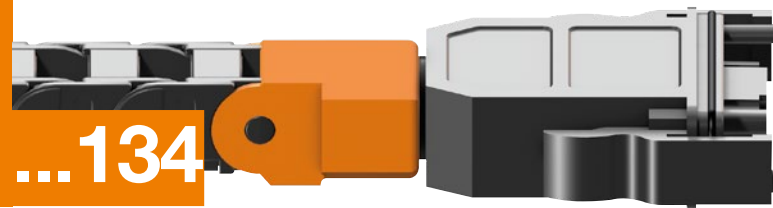
Plug-in e-chain® ... make your energy chain pluggable

136

It couldn't be easier ... Snap-on expansion

... online-tool

Online finder ... 4,600 drive cables ... find your product and calculate its service life in eight seconds



... new ready-to-connect hybrid cable suitable for Siemens drives with OCC ...

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Guarantee igus chainflex **36** months up to 36 months guarantee



50%

less cable used

100%

tested: digital continuity and logic tests

8

cable types available



Configure online and calculate service life

Tech up

- Save installation space and weight: only one cable for power and data
- Automatic generation of cable plan, parts list and further design documents in CAE system
- Can be ordered online with up to 36-month guarantee

Proof

- 100% testing (Seal and protocol of approval)
- Tested in the largest test laboratory (3,800m²) of its kind for cables in moving applications
- More than 12,000 digitally tested harnessed cables per week

Cost down

- Order online with manufacturer number
- Reduced stock-keeping: available in 24 hrs from stock for just-in-time delivery
- Reduce design time by 50% with ready-to-use EPLAN macros

Sustainability

- Long-lasting cable materials + high-quality plug-in connectors + machining = guaranteed reliability and value retention of the components
- Individual Service life calculation, thereby without over-dimensioning

Manufacturer Part number	igus® Part No.	Jacket	Number of cores / conductor nominal cross section [mm ²]	Outer Ø approx. [mm]	R min. e-chain®
Siemens hybrid servo cables (basic cables)					
6FX_002-8QN04	MAT98515147	PUR	(4G0,34+(2x0,34)C)+(4xAWG26)C)C	10,0	10 x d
6FX_002-8QN08	MAT98515148	PUR	(4G0,75+(2x0,5)C)+(4xAWG26)C)C	11,0	10 x d
6FX_002-8QN11	MAT98515153	PUR	(4G1,5+(2x1,5)C)+(4xAWG26)C)C	13,0	10 x d
6FX_002-8QN21	MAT98515154	PUR	(4G2,5+(2x1,5)C)+(4xAWG26)C)C	14,5	10 x d
Siemens hybrid servo cables (extension cables)					
6FX_002-8QE04	MAT98515149	PUR	(4G0,34+(2x0,34)C)+(4xAWG26)C)C	10,0	10 x d
6FX_002-8QE08	MAT98515150	PUR	(4G0,75+(2x0,5)C)+(4xAWG26)C)C	11,0	10 x d
6FX_002-8QE11	MAT98515155	PUR	(4G1,5+(2x1,5)C)+(4xAWG26)C)C	13,0	10 x d
6FX_002-8QE21	MAT98515156	PUR	(4G2,5+(2x1,5)C)+(4xAWG26)C)C	14,5	10 x d

4,600 ready-to-connect drive cables ... find online ... in just eight seconds ... Calculate the service life



- Find drive cables suitable for 24 manufacturer standards quickly and easily online
- Price for different cable lengths and batch sizes available instantly
- Search by manufacturer or igus® part number
- Important information such as jacket material, oil resistance or bend radius at a glance
- Submit an enquiry or order with just one click

igus.eu/readycable-finder



Available from stock



Ask for a free sample



igus.eu/rca-hybrid-occ

... extend AIDA directly ... without additional interface ...

50%

reduced assembly effort

100%

tested: digital continuity and logic tests

IP67

protection class

36

guaranteed for up to 36 months

▲ Tech up

- Push-pull technology for fast, easy and safe connecting
- Existing robot systems and interfaces can be extended flexibly with the proven cable extensions
- Ready for immediate use and harnessed ready for connection

▼ Cost down

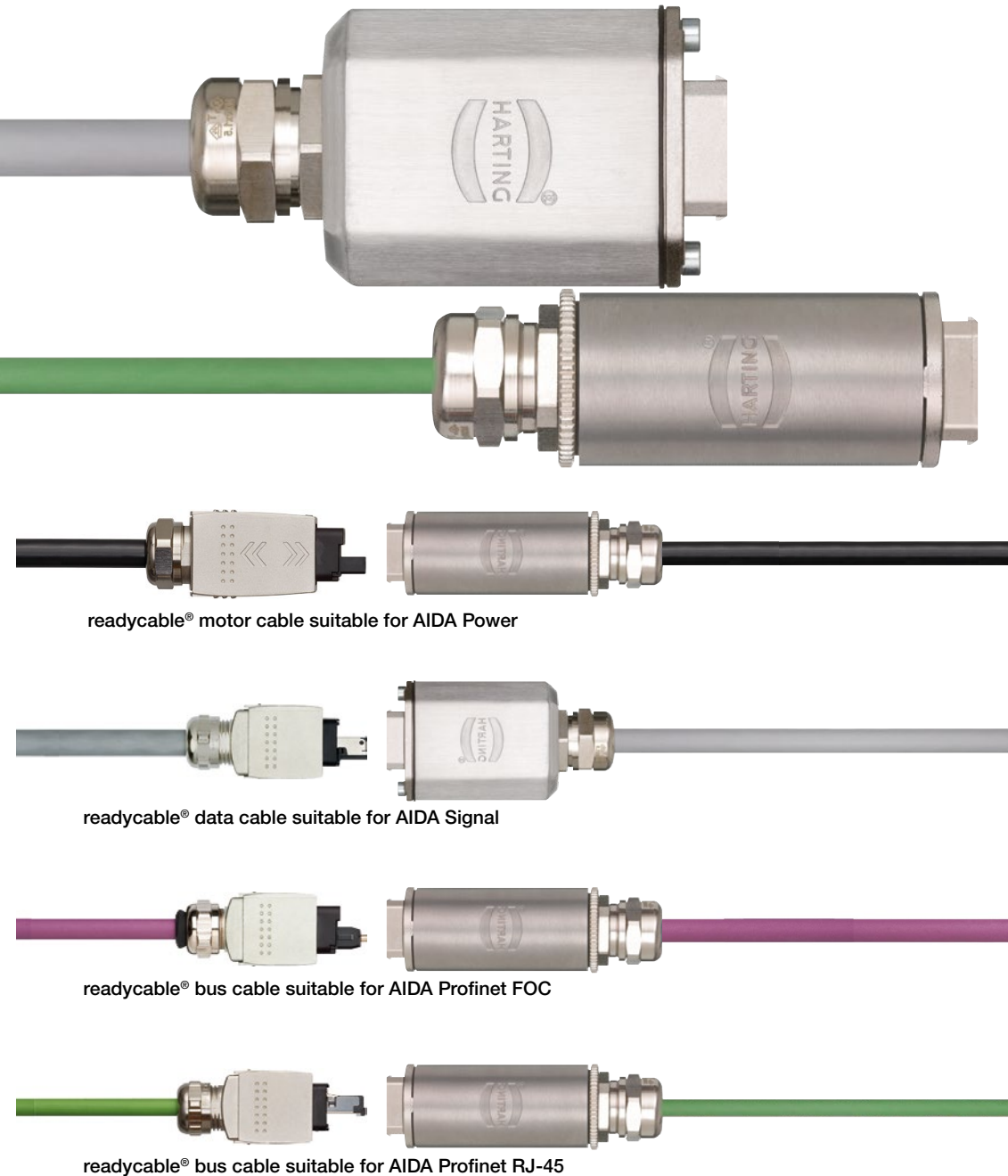
- Cost saving as the usual terminal boxes (female/female coupler) can be omitted
- Various cable qualities and price categories: you choose the cable with the best price/performance ratio for your robot application

■ Proof

- All components meet protection class IP67
- 100% tested
- Tested in the largest test laboratory (3,800m²) of its kind for cables in moving applications

● Sustainability

- Guaranteed service life in all igus® e-chains® – up to 36-month guarantee
- Equip robot applications with durable extension cables and longer maintenance intervals



Harnessed Single Pair Ethernet cable

Continuous industrial Ethernet communication in machines and systems with only one pair of cores for transmitting data



... 25% thinner. Ready-to-connect.

With guarantee. ...



25%

smaller bend radius than CAT5e

20%

cost reduction

100%

tested: digital continuity and logic tests



Configure online and calculate service life



Part No.	R min e-chain®	Number of cores / conductor nominal cross section [mm ²]	Outer Ø approx. [mm]
CAT9471001	12.5xd	(2x0.15)C	5.5

Tech up

- Energy chain-compatible Ethernet communication for the entire plant
- 25% thinner than CAT5e, with the same data transmission rate

Cost down

- 25% smaller bend radius compared to CFBUS.PUR.045
- Costs are 20% lower than those of a CAT5e cable (CFBUS.PUR.045)
- With up to 36 months guarantee

Proof

- 100% digital and logic test incl. transmission speed (test seal and protocol)
- Tested in the largest test laboratory (3,800m²) of its kind for cables in moving applications
- Member of the SPE Network

Sustainability

- Future-proof data communication
- Calculate guaranteed service life of the cable online

Ethernet catalogue "cables up to CAT7"

Cable solutions for modern data communication with Ethernet and Profinet. Sold by the metre as chainflex® or harnessed and ready to connect as readycable®. With up to 36 months guarantee.

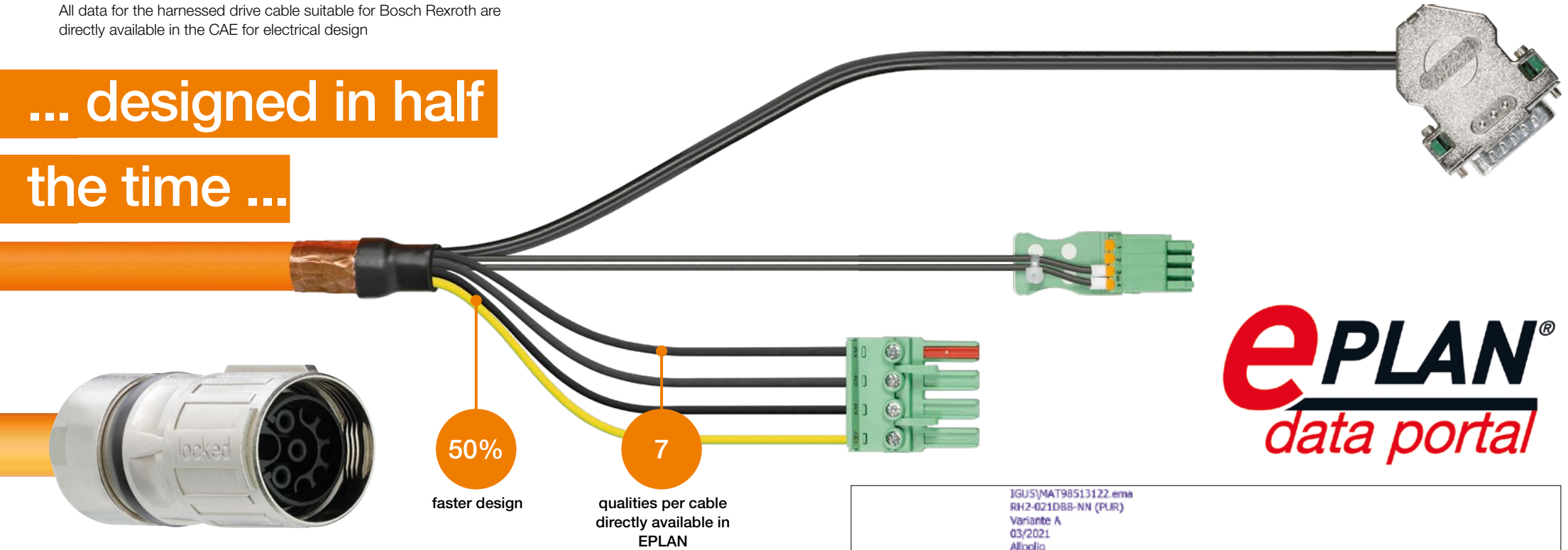
More information and catalogue online: igus.eu/ethernet



EPLAN macros that can be used with Bosch Rexroth

All data for the harnessed drive cable suitable for Bosch Rexroth are directly available in the CAE for electrical design

... designed in half
the time ...



ePLAN
data portal

Tech up

- Automatic generation of cable plan, parts list and more in CAE system
- 7 qualities per cable directly available in EPLAN

Cost down

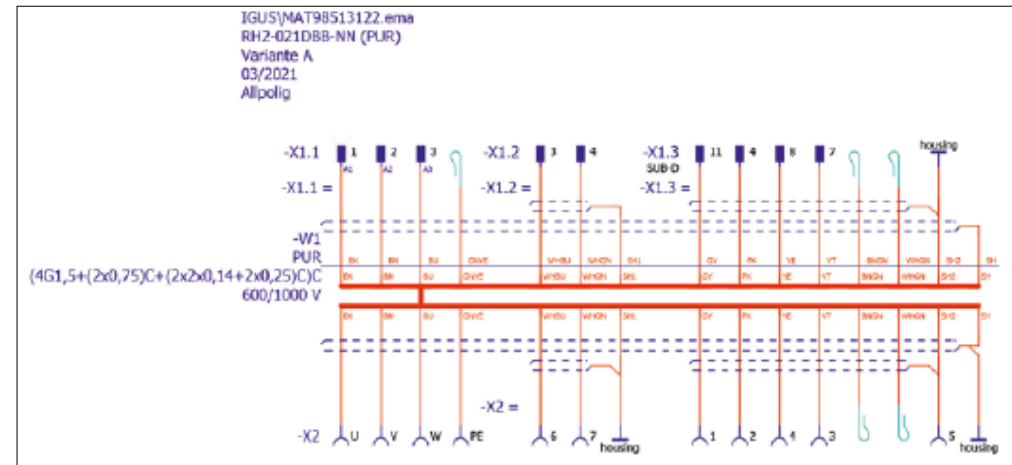
- Reduce design time by 50% with ready-to-use EPLAN macros
- Designed digitally & can be ordered online immediately

Proof

- Prefabricated modules or macros can be used directly in EPLAN
- Tested in the largest test laboratory (3,800m²) of its kind for cables in moving applications

Sustainability

- All harnessed cables are supplied with a perfect fit
- Long-lasting cable materials + high-quality connectors + machining = guaranteed reliability



... original M8/M12 Binder connectors
directly from stock ...



1

no minimum order quantity

24hrs

available from stock

100%

tested: digital continuity and logic tests

IP67

protection class

In addition to brands such as Harting, TE Intercontec and Molex FCT, we now offer an extensive catalogue programme from Franz Binder GmbH. This complements our selection in an important industrial area and completes our connector range in the direction of M8 and M12, in order to be able to offer our customers even more service. With the order-picked service packs from stock, which contain all individual parts, you can quickly and easily carry out your work directly in your facility. And igus® is also happy to offer fully harnessed cables for moving applications according to customer requirements.

▲ Tech up

- Reliable connection technology
- Excellent strain relief
- Large-area shield connection
- Simple assembly in tough industrial quality

▼ Cost down

- No minimum order charges or minimum order quantity
- Reduction in number of suppliers

■ Proof

- All components meet IP67 certification
- Harnessed by igus® = 100% tested

● Sustainability

- Developed and produced according to strict compliance specifications on environmental protection, quality and safety

M8 A-coded
non-shieldable: 5 types
shieldable: 8 types

7/8"
4 types

M12 A-coded
non-shieldable: 8 types
shieldable: 10 types

M12 D-coded
2 types

M12 A-coded
Angular sockets
shieldable: 4 types

M12 X-coded
2 types

... small energy supplies ready to plug in ...

Readily configured interface solutions for the easiest and secure connection of the energy supply

80 %

reduced assembly time

100 %

tailored to your application

0

faults with "plug-in safety"

1

connector for everything

▲ Tech up

- Simplest attachment to your application
- Integrated strain relief and seal

▼ Cost down

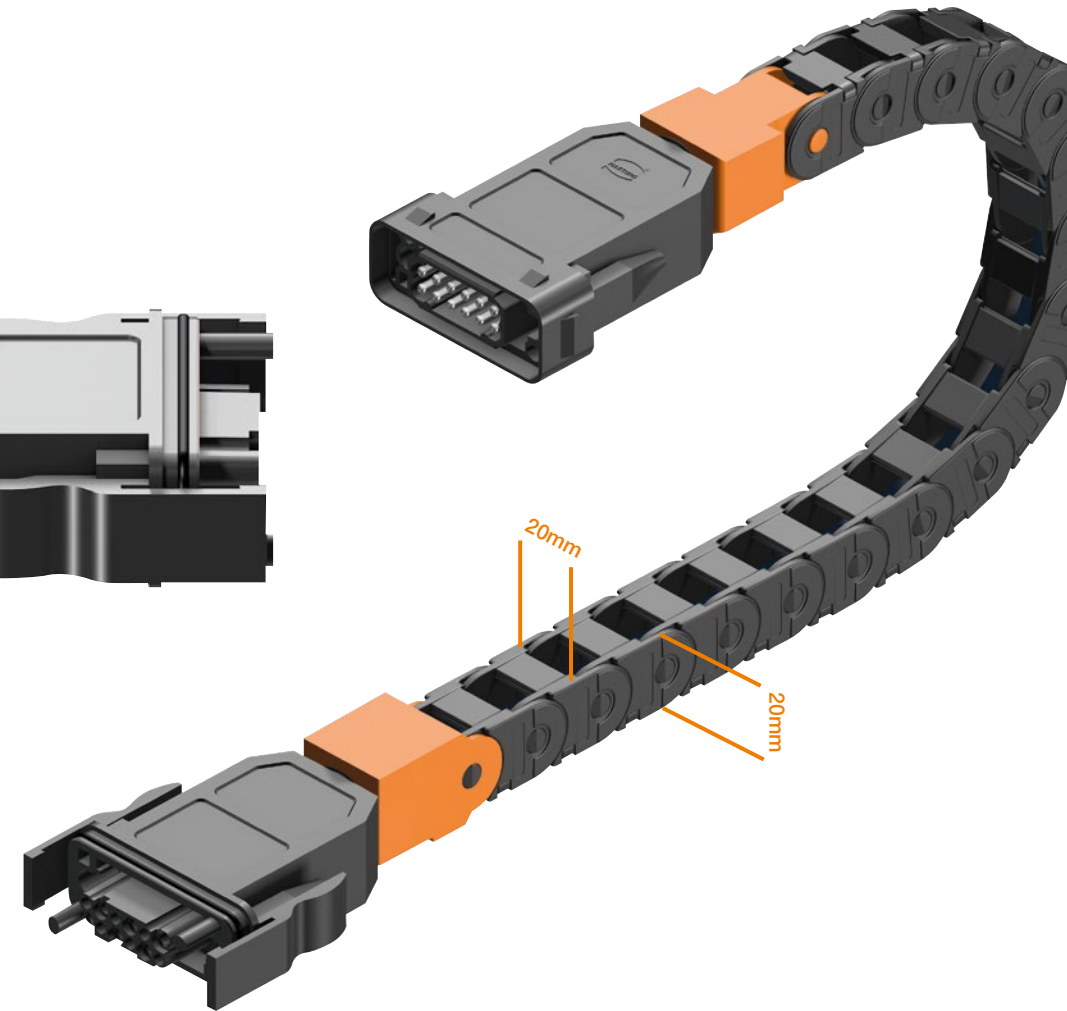
- Save 80% assembly time
- Optimised ready-to-install assemblies
- For service: unplug it, plug it back in, done

■ Proof

- Cost-effective interface solution: one connector instead of many individual connectors
- Almost infinite combinations
- Absolute plug-in safety

● Sustainability

- Existing igus® energy supply systems can be integrated with individual configurations



Plug-in e-chain®: make your energy chain pluggable

With a plug-in e-chain® from readychain®, the installation of your energy supply system is child's play. The connectors fixed in the mounting bracket of the chain ensure easy and quick attachment in the application. With these ready-to-install assemblies, up to 80% assembly time can be saved; also because cases of error are ruled out through absolute "plug-in safety".

The required connectors, housings and connections can be planned individually, making each plug-in e-chain® a customised product. You receive an interface solution that is 100% tailored to your application and replaces the previous configuration of different individual parts. Feel free to challenge us with your most complicated connection, because challenges give rise to innovations; such as the readychain® micro-speed shown above.



Available from stock



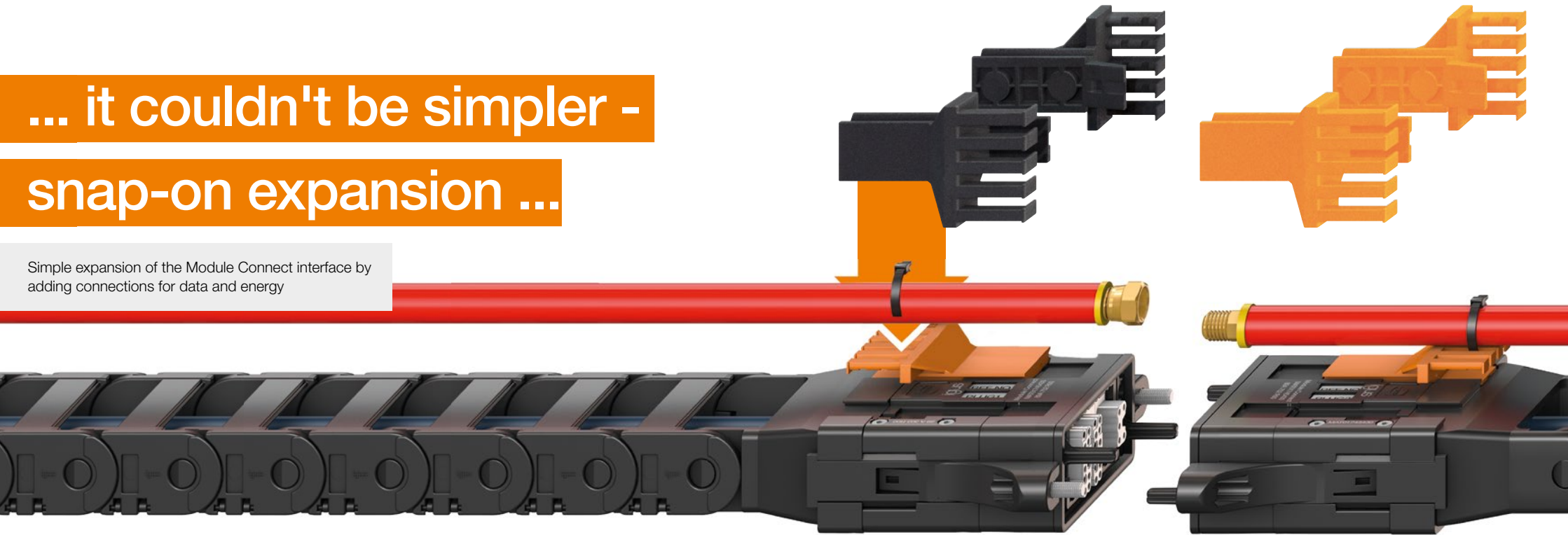
Ask for a free sample



igus.eu/micro-speed

... it couldn't be simpler - snap-on expansion ...

Simple expansion of the Module Connect interface by adding connections for data and energy



Tech up

- Simply attach other plug-in points on the interface
- All transfer products in one central location

Cost down

- Click and hold
- Tool-free installation

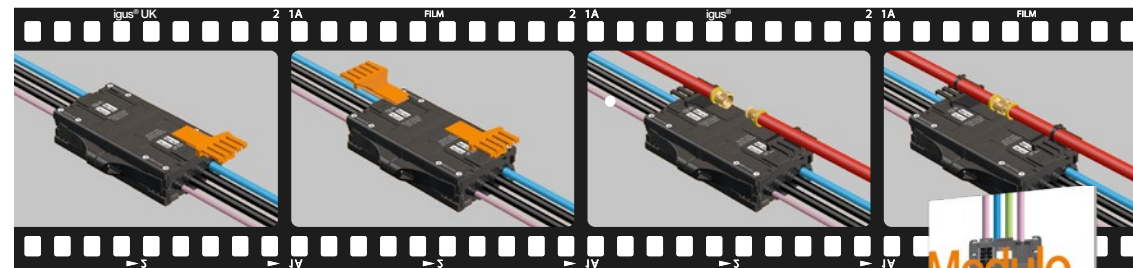
Proof

- Click onto free fixing slots as required
- Secure additional plug-in points with cable tiewraps

Sustainability

- Simply add to existing igus® Module Connect solutions
- No separate transfer points

Video: Module Connect ... Made to measure ... easy and flexible ...



The new snap-on carrier makes the Module Connect system more flexible. You can find out how it works and the opportunities it offers in the brochure and here: igus.eu/moduleconnect



Available from stock



Ask for a free sample



igus.eu/plug-in

Sustainability in production, in use and after igus® facts and initiatives ...

How sustainable are motion plastics?

Plastic is a much-discussed material. We know that high-performance plastics can make a contribution to the protection of resources and to the environment, and have made this the focus of our corporate activities. We look at plastics in three phases: during their production, in use and at the end of the product's life. Here we show you our answers to the question of sustainability on these pages, both in terms of our products and in everyday life at igus®. Not everything has been answered yet and for some things, especially with regard to sustainable production, we are still working on answers and solutions.

Before
Production of plastics and parts

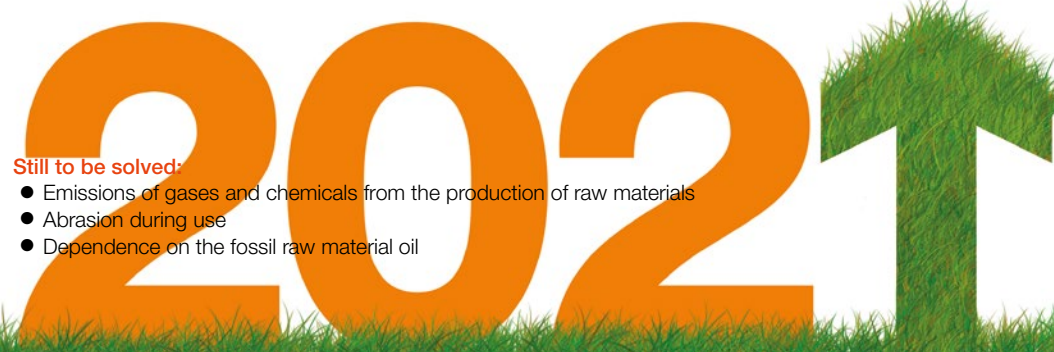


In use
Plastics in use

After
Plastics after their use

Still to be solved:

- Emissions of gases and chemicals from the production of raw materials
- Abrasion during use
- Dependence on the fossil raw material oil



Before ...



99% recycled

99% of our rejects in injection moulding production (sprues, defective parts) are recycled and returned to the manufacturing process.



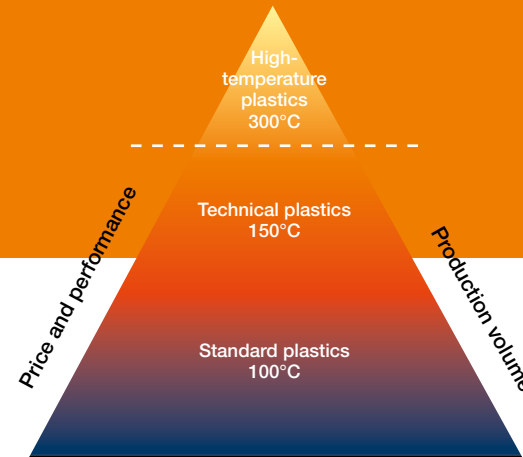
Power consumption

We are reducing the power of our machines and systems. We acquire injection moulding machines that are 40% more energy efficient. Our goal is to reduce the energy demand by 15% in 2021, while increasing the production.



Oil consumption

The production of high-performance plastics accounts for just 0.5% of global oil consumption.



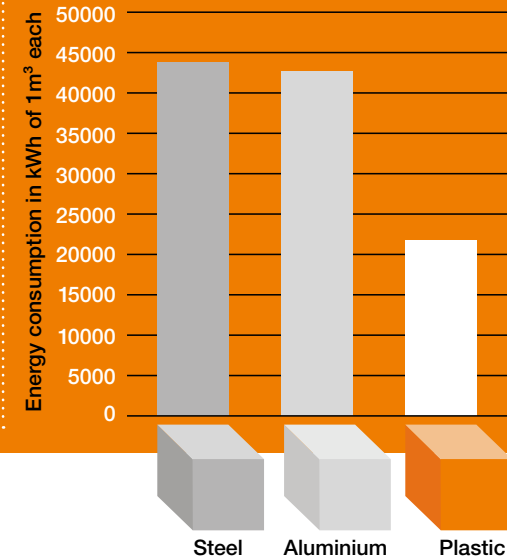
clean igus® program

Mechanical measures such as magnetic foils, fixed conveyor belts and guide plates prevent parts from ending up falling out of the machines in the production process and eventually becoming waste. The goal in 2021 is to reduce this waste by 80%.



Energy balance

The production of 1m³ of plastic requires around 50% less energy than that of 1m³ of steel or aluminium.



Goals:
By 2025, we want our buildings and production to be CO₂ neutral.

In use ...



Lubrication-free

27 million tonnes of grease pollute the worldwide environment every year. Our plastics do not require lubrication.



Service life

Our plastics are optimised for wear. They do not corrode and do not get dirty from grease and dirt. They last longer. We can say exactly how long.



Lightweight

A plastic plain bearing weighs on average 1g, the comparable steel bearing 5g. With 200,000,000 plain bearings supplied to the automotive industry, this amounts to 800t of weight saved. Less weight = less energy/fuel to move the car.



Energy saving

Our plastics are tribologically optimised and have low friction. Together with the lower weight, this ensures that less drive energy has to be used to move a machine part in an application.

After ...



Recycling

change recycling program

We have launched the energy chain recycling program "change" for energy chains in 2019. Used energy chains can be sent to us, whether from igus® or another manufacturer. You receive a value voucher, we separate by type and use the components ourselves or supply them to recycling partners.



HydroPRS recycling

We have invested 5 million euros in the company Mura Technology, which uses a new technology to convert unsorted plastic waste into crude oil within 20 minutes. Conserving resources with pressure, temperature and water. Construction of the first large-scale plant started in April 2021.



50%

of all lubricants sold worldwide end up in the environment.*



1/3 of the total fuel consumption of a passenger car is used to overcome friction in the engine, transmission, tyres and brakes.***



Global demand for lubricants will increase by 2% annually, according to forecasts = 45.4 million tonnes in 2019.****

M. P. Schneider, 2006; Saskatchewan Association for Resource Recovery Corp., 2008; K. Holmberg, P. Andersson, A. Erdemir, 2012; **** The Freedonia Group, 2016

4 measures



1. reduce. reguse. recycle

Our trainees have joined forces to form a project: reguse. They refurbish worn-out electrical equipment such as laptops and printers and offer them for sale igus® internally for a small price. The proceeds are donated to sustainable projects.



2. Waste is already separated in the offices and on the production floors.



4. ISO 14001 since 2019

In order to make our environmental policy transparent and comprehensible, and also to commit ourselves to it, we are certified according to ISO standard 14001, an international basis for environmental management systems. This helps us on our way towards a CO₂neutral factory.

Virtual trade show 2021

igus® motion plastics® show ...

iF Design Award winner 2021

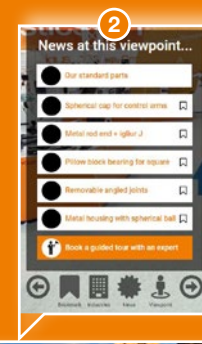
... discover new products virtually ...

Your benefits:

- 1 Browse through our trade show stand & get more information without leaving the website.
- 2 Clear listing of new products in the menu.
- 3 Book a guided news presentation with an igus® expert LIVE at the trade show at any time.
- 4 Use our watch list function - add news products to your watch list and receive more information via e-mail.



... igus.eu/imps



Electrically discharging and extremely robust iglur AX500 - new food contact material in the high-temperature range

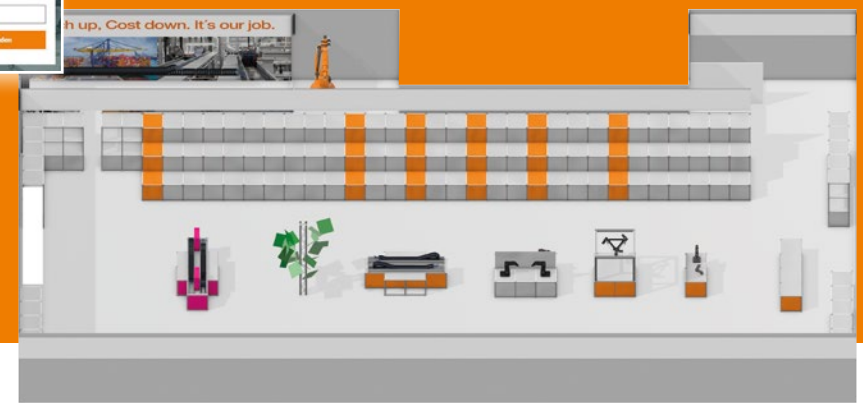
iglur AX500 is a further development of iglur AX300, which was able to operate continuously for a long time. What is special about AX500 is that it is a conductive material. In addition, AX500 has an even lower coefficient of wear than its predecessor. The material was specially developed for the food industry and can therefore be used in contact with food products.



Discover new products via video or "live" like the telescopic triflex®TRX - space-saving installation with a retraction length of up to 40% ...



... or smart 3D printed, wear-resistant parts.

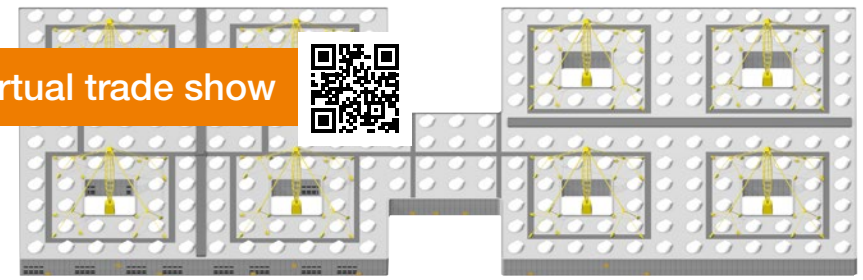


Trade show stand

To the virtual trade show



Factory





11/2021

Tech up, Cost down. It's our job.

igus.eu

dry-tech® bearing technology ...

11/2021

news

motion plastics® ... It's our job!

plus
Expansion
new
10/2021
News
study
Study

Dear customers,

After 18 months, there is finally a major physical trade show with igus® exhibiting. There will be interesting new product innovations to become familiar with, over 180 of them. In addition to our April news catalogue, the following pages contain information about our fresh autumn innovations. All new products can also be introduced on our virtual, but real, trade show stand: igus.eu/imps, so even if you can't be at the physical trade show, you can still experience the new products!

We have also set ourselves goals in other important areas. Our efforts to become a CO₂-neutral company have resulted in many projects and measures over the past year. The idea that motion plastics® can – and must – play an important role in machine sustainability is surprising to some, but has guided our research for years. You can find out more about this at: igus.eu/sustainability

Have fun exploring our news catalogue and online information. If you can't find something you need, contact us. We are always looking for new solutions to customer problems!.

Sincerely,

Frank Blase
Frank Blase



Tech up



Cost down



Proof



Sustainability



Sustainability at igus®

Sustainability from production to application and recycling.

From page 14



You will find all innovations here ...

**imps ... igus® motion plastics®
show 2021 ... igus.eu/imps**

From page 288



Sustainability at igus®

Sustainability in production, in use and after

Page 14 ...



Sustainability from production to application and recycling: read how we at igus® are achieving it

iglidur® polymer plain bearings ...

iglidur® P UV

Page 20 ...



The new iglidur® material for bearings in solar plants

iglidur® F300

Page 22 ...



Particularly resistant for e-coated assemblies

Thick walls

Page 24 ...



The new dimensional range makes it even easier for you to replace metal plain bearings with thick walls

iglidur® M210

Page 26 ...



For average loads - wear-resistant in pivoting movements

iglidur® polymer plain bearings ...

iglidur® M260

Page 28 ...



Particularly robust and wear-resistant with St37 shafts

iglidur® TX2 bearings

Page 30 ...



Fabric bearings with extreme load capacity at low cost

iglidur® Z4 bearings

Page 32 ...



Plain bearings with good coefficients of wear and friction, suitable for high volumes

iglidur® i.Sense

Page 34 ...



New installation size ... i.Sense plain bearings indicate their wear status in good time

iglidur® TX2 with felt seal

Page 36 ...



The new iglidur® TX2 heavy duty plain bearing with integrated seal against dirt and dust

iglidur® SG03 with felt seal

Page 38 ...



New installation sizes ... clean bearings despite dirt and dust

iglidur® PRT for cleanroom

Page 40 ...



Sliding elements made of iglidur® J for the lowest particle emissions

iglidur® PRT black edition

Page 42 ...



Elegant but subtle, for use as a visible part in furniture or applications where reflections should be avoided

iglidur® polymer plain bearings ...

Sliding element replacement kits

Page 44 ...



Increase PRT slewing ring bearing service life while protecting the environment

Locking system

Page 46 ...



Precise slewing ring bearing adjustment, even under heavy load

Stop motion slewing ring

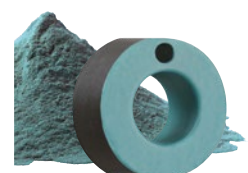
Page 48 ...



Stop motion slewing ring with defined latching points for precise adjustment

iglidur® IC-07 coating

Page 50 ...



Coating material for tribological component optimisation

iglidur® GFK shafts

Page 52 ...



Coating materials for component corrosion protection

FastLine service

Page 54 ...



FastLine service in the iglidur® designer: individual plain bearings, configured in seconds, injection-moulded and delivered in 7 days



iglidur® bar stock ...

iglidur® H3 round bar

Page 58 ...



Considerably more robust than comparable materials and with a longer service life than iglidur® H1

iglidur® E round bar

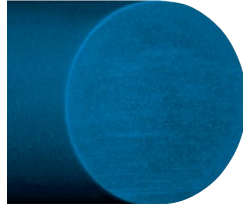
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Round bars made of iglidur® E perform especially well in linear and pivoting movements

iglidur® A250 round bar

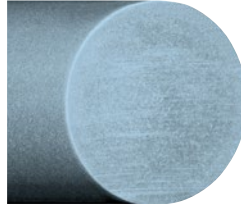
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Wear-resistant guidance for the food industry

iglidur® AC500 round bar

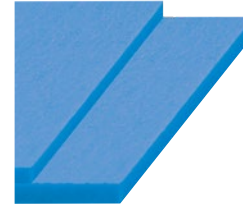
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For high temperatures (up to +250°C)

iglidur® AD500 plate strips

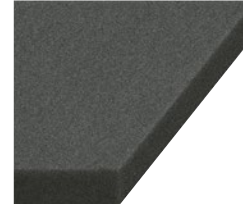
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Optically detectable version of the A500 with FDA conformity

iglidur® JB plate strips

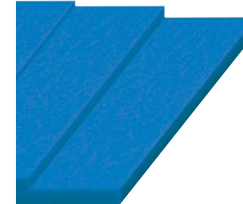
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Low coefficient of friction during dry operation

iglidur® A160 sheets

Page 70 ...



For large-area lining of areas subject to wear

speedicut

Page 72 ...

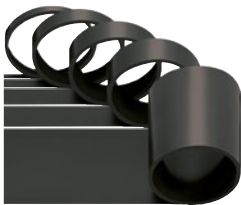


CNC machining service for machined parts made of iglidur® bar stock

iglidur® gears ...

iglidur® ESD tribo-tape

Page 74 ...



Electrostatically dissipative

iguform S270 bevel gears

Page 78 ...



iguform S270 bevel gears convince with a low coefficient of friction and low moisture absorption

igutek P360 bevel gears

Page 80 ...



igutek P360 bevel gears convince with an increased wear resistance and high toughness

Angled gearbox

Page 82 ...



Fully assembled angled gearboxes made of iguform 270 and igutek P360

iguform S270 gears

Page 84 ...



Choose from over 300 dimensions ... such as gears and gear racks made of iguform S270

igutek P360 gears

Page 86 ...



Choose from over 300 dimensions ... such as gears and racks made of igutek P360

iglidur® A500 gears

Page 88 ...



Gears made of iglidur® A500 for the food industry

iglidur® 3D printing ...

High components

Page 92 ...



Abrasion-resistant components with a size of up to 3m in 3D printing

4K multi-material printing

Page 94 ...



4K multi-material printing ... abrasion-resistant, intelligent and strong ... in one component

iglidur® I10 SLS material

Page 96 ...



Chemical-resistant laser sintering material

iglidur® I16 SLS material

Page 98 ...



Food-compliant thanks to laser sintering

iglidur® I151

Page 100 ...



The blue all-rounder filament for food contact

CAD configurator

Page 102 ...



CAD configurator for belt pulleys, T and AT profiles

CAD configurator

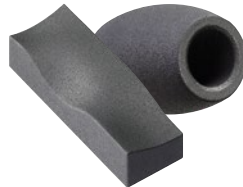
Page 104 ...



CAD configurator for gears with low number of teeth

I8-ESD & service life calculator

Page 106 ...



iglidur® I8-ESD with online service life calculation



igubal® spherical bearings ...

igubal® spherical insert bearings

Page 110 ...



Save **LOTS** now ... information about our lubrication-free igubal® spherical bearing inserts

Page 112 ...



new 10/2021
Quick, cost-effective assembly with spherical insert bearings. Now also food compliant, made of iglidur® A350, and for imperial shafts

Plastic housing

Page 114 ...



Robust polymer housing for spherical insert bearings, pillow blocks, 2 and 4-hole fixed flange bearings

igubal® 4.0 study

Page 116 ...



Study ... igubal® 4.0 with sensor in the spherical insert bearing

...

igubal® WDGM coupling joint

Page 118 ...



new 10/2021
End pieces sealed against dirt with a stainless steel middle section of variable length

igubal® TDGM

Page 120 ...



Crimped thread inserts ... precisely adjustable, individual pitch

igubal® KARM/KCRM Food

Page 122 ...



Snap-on connection made of metallic housing with food-compliant inner ring

igubal® ESTM-FC

Page 124 ...

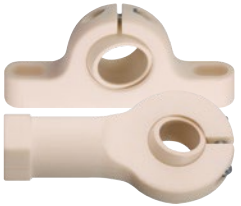


igubal® ESTM-xx-FC pillow block bearing for food applications

igubal® spherical bearings ...

Study adjustable

Page 126 ...



Study ... adjustable bearings

igubal® ESQM

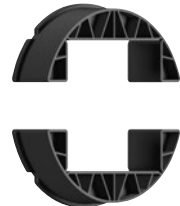
Page 128 ...



igubal® ESQM ... solar pillow block bearings for square tubes

Solar materials

Page 130 ...



Cost-effective and UV-resistant ... iglidur® P UV for the solar industry

xiros® polymer ball bearings ...

Non-stick guide roller

Page 134 ...



new 10/2021
Non-stick coated aluminium guide roller ... no adhesion of adhesive labels

Stainless steel guide roller

Page 136 ...



new 10/2021
Guide roller with fixed flanged ball bearing made of the company's own xirodure® F180 material

Sandblasted guide roller

Page 138 ...



Aluminium guide rollers with 30% more grip thanks to sandblasted surface

ES guide roller

Page 140 ...

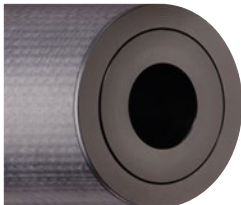


Stainless steel guide roller with xirodure® A500 ball bearings ... for temperatures up to 150°C

xiros® polymer ball bearings ...

Carbon guide roller

Page 142 ...



Antistatic and lightweight ... carbon guide rollers Ø30 with xirodure® F180 bearings

Polymer ball transfer unit

Page 144 ...



new 10/2021
Polymer ball transfer units made from xirodure® B180 material now also available in installation sizes 508 and 512

Ball transfer unit, G version

Page 146 ...



new 10/2021
Ball bearing with insert made of iglidur® J3 material ensures high wear resistance

Ball bearings "DIN"

Page 148 ...



new 10/2021
Extension of our largest standard product range - now also in installation size 6024

...

xirodure® K180 ball bearings

Page 150 ...



Ball bearing made of xirodure® K180 ... no outgassing in vacuum

xiros® laboratory

Page 152 ...



xiros® test laboratory ... extensive tests on the impact of the cage material on ball bearing wear



drylin® linear technology ...

Housing bearing WJ200UMS

Page 158 ...

new
10/2021



Bearing housings in sizes 10 and 16. The system width is reduced by 20%

Tandem housings

Page 160 ...

new
10/2021



Compact design with double length for easy installation without alignment. Can be used with single and double rails

Slim linear carriages

Page 162 ...

new
10/2021



Mounting hole offset to the inside of the rail reduces linear side width by up to 25%

drylin® W linear system

Page 164 ...



drylin® W modular system expansion ... rail sizes from 16 up to 120

drylin® W linear system

Page 166 ...



drylin® W modular system extension ... carriage sizes from 16 up to 120

Solid plastic linear bearings

Page 168 ...



Polymer linear bearing drylin® WJBMP-01-10 ... lightweight and durable

Hybrid roller bearings

Page 170 ...



Hybrid roller bearing in tandem design

Wear measurement

Page 172 ...

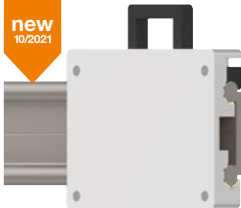


Function and wear testing at the touch of a button. No integration into IT environments, no interface issues

Clip-type linear carriages

Page 174 ...

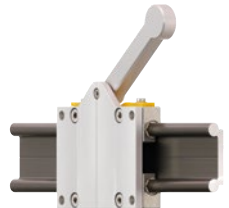
new
10/2021



The linear carriage can be installed or removed on the rail by means of a clip mechanism

WW-HXK clamp system

Page 176 ...



Further additions to the drylin® W modular system ... clamp system

Stainless steel exchange bearing

Page 178 ...



Further additions to the drylin® W modular system ... exchange bearing

End caps

Page 180 ...



Further additions to the drylin® W modular system ... end caps

Miniature guides, pre-loaded

Page 182 ...

new
10/2021



New linear carriages with selectable spring pre-load, defined displacement forces and quiet operation

Pre-loaded carriages

Page 184 ...



Catalogue product range expansion ... wider drylin® N carriage with preload

Prism telescopic guide

Page 186 ...



Telescopic rails based on the pre-load prism slide

Telescopic guide

Page 188 ...

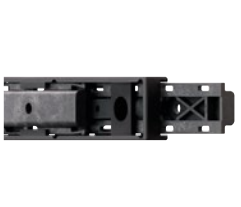


Telescopic slides ... in black

drylin® drive technology ...

Solid plastic telescopic guide

Page 190 ...



Even more telescopic rails ... made of polymer NTP-27-125

Round shaft bearings

Page 192 ...



Round shaft bearing drylin® RW360CM ... precise and rigid

Split linear housing

Page 194 ...



drylin® RJUMP ... solid plastic linear housing

Linear bearings

Page 196 ...



Food-compliant linear bearing made of iglidur® A180

drylin® lead screw technology ...

dryspin® lead screws

Page 200 ...

new
10/2021



Higher efficiency and longer service life than conventional lead screws

dryspin® lead screw nuts

Page 202 ...

new
10/2021



Up to 82% higher efficiency and up to 30% longer service life

Injection-moulded

Page 204 ...

new
10/2021



dryspin® injection-moulded nuts with flange with machined thread

Lead screw nut EN45545

Page 206 ...

new
10/2021

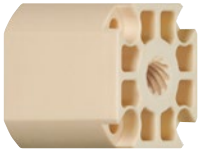


Tested according to requirement set R24, for components weighing up to 500 grams



drylin® drive technology ...

JGRM lead screw nut
Page 208 ...



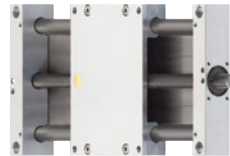
dryspin® JGRM lead screw nut ... robust and with the same connection as common ball screws

Narrow linear module
Page 212 ...



Compact design, with ball bearing lead screw for precise manual and dynamic electrical adjustments in limited installation spaces

Wide linear module
Page 214 ...



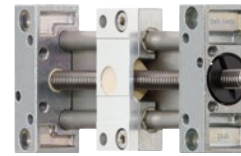
Durable and low-profile ... drylin® SLW linear module in additional widths

Tandem linear module
Page 216 ...



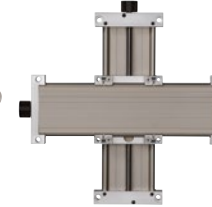
Double power for drylin® SLW linear module ... double lead screw and dual carriage, wide design

drylin® SLWC
Page 218 ...



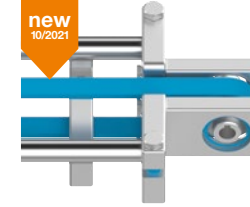
Linear module with short carriage with plain bearing or ball bearing lead screw

XY table
Page 220 ...



Ready-to-install for surfaces ... drylin® SLW XY tables with new installation sizes

Hygienic Design
Page 222 ...



FDA-compliant toothed belt axis made of resistant stainless steel

Linear axis
Page 224 ...



Transparent, lightweight design made of plastic and aluminium

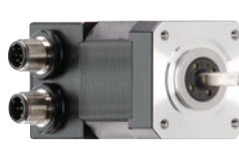
drylin® drive technology ...

Online product-finders
Page 226 ...



Product finder for linear modules

Motors with shaft seal
Page 228 ...



drylin® E motor shop ... stepper motors with shaft seal

Motors with brake
Page 230 ...



drylin® E motor shop ... stepper motors with brake

Motors with Hall
Page 232 ...



drylin® E motor shop ... DC motors with Hall for powerful drive

Motor control systems
Page 234 ...



With the new dryve D1/D2 firmware, commissioning is now even faster. Ready-made sample programs online

Motor power amplifiers
Page 238 ...



drylin® E step direction controller ... compatible with industrial control systems

Motor control system D2
Page 240 ...



Space-saving and lightweight

Low Cost Automation ...

ReBel® strain wave gear
Page 244 ...



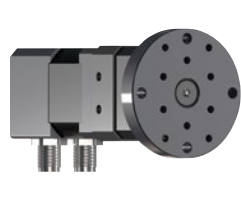
ReBel® modular gearbox for cobots ... build or buy

ReBel® robot kinematics
Page 248 ...



Build your own robot kinematics with fully integrated individual joints

Strain wave gear
Page 250 ...



New generation of strain wave gears ... lightweight and efficient

Planetary gearbox
Page 252 ...



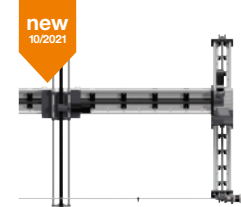
Maintenance-free drygear® RL-P planetary gearbox in installation size 17 ... compact and lightweight design

Delta 2-axis kinematics
Page 254 ...



Ready for connection with stepper motors for dryve D1 motor control system or as plug & play with the igus® Robot Control

XXL linear robots
Page 256 ...



Extra-large for palletising applications with up to 10kg of lift weight

drygear® Apiro® iDeas
Page 258 ...



Apiro® modular gearbox system now with even more combinations for your application

Apiro® connection
Page 260 ...



drygear® Apiro® ... connection to drylin® threads and linear modules



To the virtual trade show

Low Cost Automation ...

Apiro® Hygienic Design
Page 262 ...



drygear® Apiro® ... Hygienic Design study

SCARA robot
Page 264 ...



Ideal for simple robotics and assembly tasks ...
drylin® SCARA robot

igus® Robot Control
Page 266 ...



igus® Robot Control now even more flexible to use thanks to new PLC interfaces

Customer Testing Area
Page 268 ...



Test before invest ... your free application review in the Customer Testing Area

MiR AGVs
Page 270 ...



Integration kit: articulated robots for MiR AGVs

drylin® axis 7
Page 272...



7th axis for all robots – expand workspace for common robots in no time

EPSON
Page 274 ...



Integration kit: 7th axis for EPSON robots

Universal Robots
Page 276 ...



More flexibility for robots ... with the external rotary axis for Universal Robots

Low Cost Automation ...

Linear robot configurator
Page 278 ...



Configure individual linear robot in five minutes

2 years rbtX.com
Page 280 ...



New partners, new manufacturers and new applications

Live video consultation
Page 282 ...



Your RBTXpert: remote integration with fixed price and free video consultation as 1st step

Plug-and-play integration
Page 286 ...



More automation options thanks to mobility ... plug-and-play integration of AGV and robolink® DP



You will find all innovations here ...

imps ... igus® motion plastics® show 2021 ... igus.eu/imps

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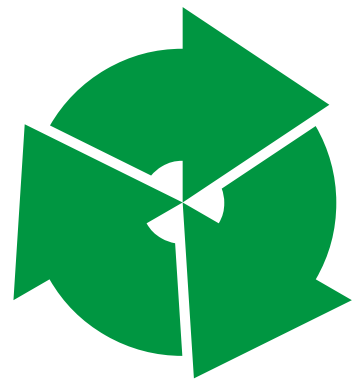
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Sustainability in production, in use and after igus® facts and initiatives ...

How sustainable are motion plastics?

Plastic is a much-discussed material. We know that high-performance plastics can contribute to protecting resources and the environment, and we have made this the focus of our corporate activities. We look at plastics in three phases: during production, in use and at the end of the product's life. We will give you our answers to sustainability questions for both our products and everyday life at igus®. Much remains unanswered, and for some things, especially with regard to sustainable production, we are still working on answers and solutions.

Before
Production of plastics and parts



During
Plastics in use

After
Plastics after their use



- Still to be solved:**
- Emissions of gases and chemicals during raw materials production
 - Abrasion during use
 - Dependence on oil, a fossil fuel

Before ...



99% recycled

99% of our rejects in injection-moulding production (sprues, defective parts) are recycled and returned to the manufacturing process.



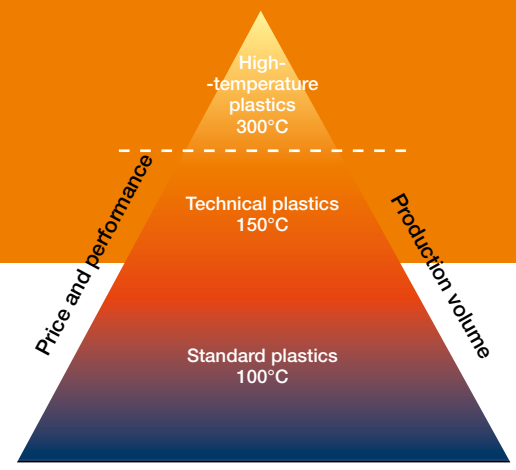
Power consumption

We are reducing the power of our machines and systems. We acquire injection-moulding machines that are 40% more energy efficient. Our goal is to reduce the energy demand by 15% in 2021, while increasing production.



Oil consumption

The production of high-performance plastics accounts for just 0.5% of global oil consumption.



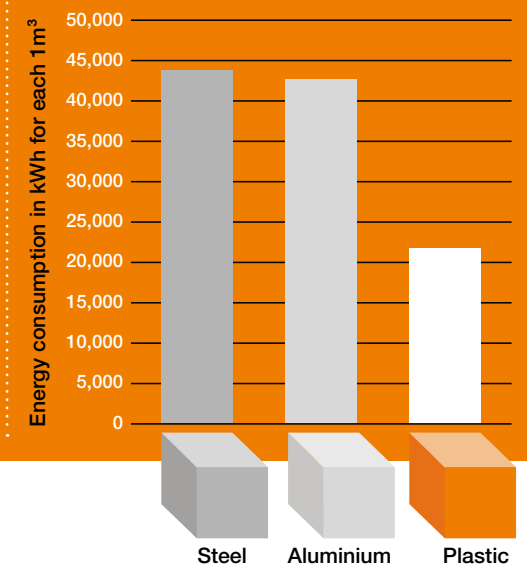
clean igus® product range

Mechanical measures such as magnetic foils, fixed conveyor belts and guide plates prevent parts from falling out of the machines in the production process and becoming waste. The goal in 2021 is to reduce waste from this source by 80%.



Energy balance

Producing 1m³ of plastic requires around 50% less energy than producing 1m³ of steel or aluminium.



Goals:
By 2025, we want our buildings and production to be CO₂ neutral.

In use ...



Lubrication-free

Globally, 27 million tonnes of grease pollute the environment every year. Our plastics require no lubrication.



Service life

Our plastics are optimised for wear. They do not corrode or become soiled with grease and dirt. They last longer. We can say exactly how long.



Lightweight

A plastic plain bearing weighs an average of 1g, while a comparable steel bearing weighs 5g. The 200,000,000 plain bearings supplied to the automotive industry thus represent 800 tonnes of weight saved. Less weight = less energy/fuel to move the car.



Energy savings

Our polymers are tribologically optimised and have low friction. Together with the lower weight, this ensures that less drive energy has to be used to move a machine part in an application.

50%

of all lubricants sold worldwide end up in the environment.*



One third of a passenger car's total fuel consumption is used to overcome friction in the engine, transmission, tyres, and brakes.***



Global demand for lubricants is predicted to increase by 2% annually = 45.4 million tonnes in 2019.****

* M. P. Schneider, 2006; Saskatchewan Association for Resource Recovery Corp., 2008;
 ** K. Holmberg, P. Andersson, A. Erdemir, 2012;
 *** The Freedonia Group, 2016

After ...



Reusability

change Recycling Programme

We launched the "change" energy chain recycling programme in 2019. You can send used energy chains, from igus® or another manufacturer, to us. You receive a value voucher, and we separate components by type and use them ourselves or supply them to recycling partners.



HydroPRS recycling

We have invested five million euros in Mura Technologie, a company that uses a new technology, HydroPRS (Hydro Plastic Recycling Solution), to convert unsorted plastic waste into crude oil within 20 minutes. Conserving resources with pressure, temperature and water. Construction of the first large-scale plant started in April 2021.



Four measures



1. Reduce. reguse. recycle
 Our trainees have joined forces to implement a project: reguse. They refurbish worn-out electrical equipment such as laptops and printers and offer them for sale internally at igus® at low prices. The proceeds are donated to sustainable projects.

3. It started as a Christmas gift for customers and now there are several campaigns, not only in Germany, but also in such countries as Turkey and India: we plant tens of thousands of trees every year.



4. ISO 14001 since 2019
 In order to make our environmental policy transparent and comprehensible, and also to commit ourselves to it, we are certified according to ISO 14001, an international foundation for environmental management systems. This helps us towards having a CO₂ neutral factory.



2. Waste is already separated in the offices and on the production floors.



Lubrication-free made easy ...

iglidur® polymer plain bearings ... for high loads ... lubrication-free anywhere ... It's our job

The large iglidur® product range is supplemented by new materials and products for special applications. Especially in the agricultural industry, the dry-operating plain bearings score high points for very high loads. Due to the omission of lubricants, no dirt can accumulate in the bearing position. Sealing systems and bearings with integrated wear measurement for predictive maintenance complete the agricultural range.

... new

highlight 10/2021...

...24... iglidur® M260 and iglidur® M210 ... new materials and more wall thickness options... vibration-dampening and high strength



...20...

Special materials ... iglidur® P UV for environmental influences and iglidur® F300 for e-coating



30

iglidur® TX2 fabric bearings ... extreme load capacity at low cost



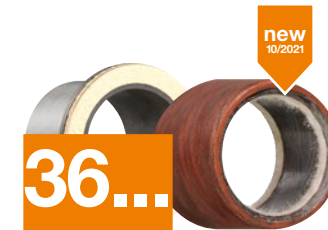
32

iglidur® Z4 plain bearing ... good coefficient of friction and wear, suitable for high volume production



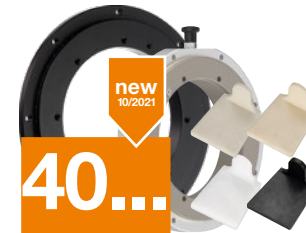
...34

New installation size ... iglidur® i.Sense plain bearings indicate their wear status in good time



36...

iglidur® with felt seal ... clean bearing despite dirt and dust ... **New:** Also as sleeve bearing with iglidur® TX2



40...

PRT-04 modular system: black for visible parts, with locking system and sliding element replacement kit



...50...

Coating materials for tribological optimisation or corrosion protection of components



54

FastLine service in the iglidur® designer: individual plain bearings, configured in seconds, injection-moulded and delivered in 7 days

...online tools



iglidur® expert ... simple, fast product selection and service life calculation

... UV-resistant ...

The new iglidur® material for bearings in solar plants



Ideal for the solar industry



UV-resistant

Tech up

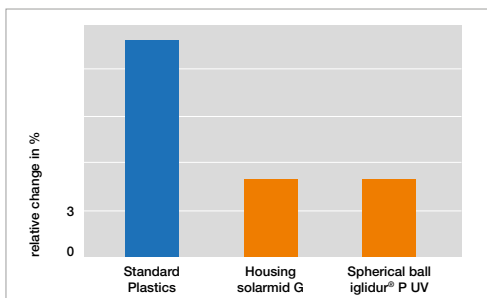
- Particularly resistant to environmental influences such as e. g. UV radiation

Cost down

- Maintenance-free
- Low coefficient of friction and wear
- Cost-effective due to injection moulding

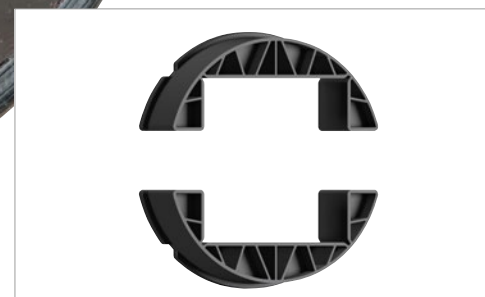
Proof

- Relative change in bending property after UV test



Sustainability

- No lubricating greases or oils
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Also suitable for special parts.



iglidur® P UV in the solar industry

... conductive in the e-coat process ...

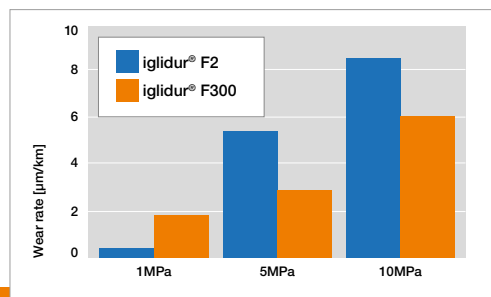
Particularly resistant for e-coat assemblies

Tech up

- Wear-resistant and conductive material for the e-coat

Proof

- Wear comparison iglidur® F2 and iglidur® F300 at 23°C, 0.01m/s against St37 shafts.



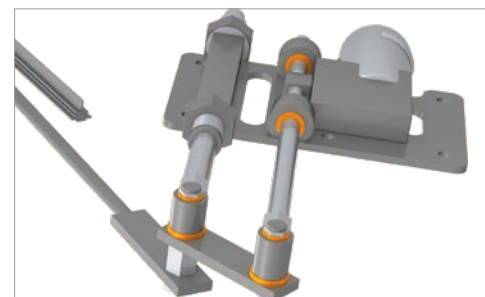
Cost down

- Maintenance-free
- Low coefficient of friction and wear
- Cost-effective due to injection moulding

Sustainability

- No lubricating greases or oils
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:

igus.eu/sustainability



iglidur® F300 ideal for the application in e-coating processes e. g. in the automotive industry

General properties

Density	1.44g/cm ³
Colour	grey
Max. moisture absorption at +23°C and 50% r.h.	0.9% weight
Max. moisture absorption	3.9% weight

Mechanical properties

Flexural modulus	5.900MPa
Flexural strength	150MPa
Max. recommended surface pressure	45MPa
Shore D hardness	79

Thermal properties ^{1), 2)}

Max. continuous operating temperature	+90°C
Max. short-term operating temperature	+170°C

Min. application temperature	-40°C
------------------------------	-------

Electrical properties

Specific transitional resistance ³⁾	10 ⁴ – 10 ⁶ Ωcm ⁴⁾
Surface resistance ³⁾	10 ⁴ – 10 ⁶ Ω ⁴⁾

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

³⁾ The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact components

⁴⁾ Depending on the geometry

Dimensional range for thick walls

... thick-walled plain bearings ...

The new thick-walled dimensional range makes it even easier for you to replace metal plain bearings with thick walls.



Thick walls

Tech up

- Vibration-dampening and high strength

Cost down

- Variety of standard dimensions in stock
- Simple replacement of bushings of the same dimensions
- Cost-effective due to injection moulding

Proof

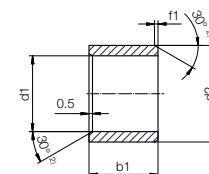
- 5 dimensions compatible according to DIN1850

Sustainability

- No lubricating greases or oils
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: [igus.eu/sustainability](https://www.igus.eu/sustainability)



igidur® M210 in agriculture



Part No.	d1	d1 tolerance*	d2	b1 h13
□SM-2024-25	20	+0.040 +0.124	24	25
□SM-2028-20	20	+0.040 +0.124	28	20
□SM-3036-30	30	+0.040 +0.124	36	30
□SM-4050-40	40	+0.050 +0.150	50	40
□SM-6070-60	60	+0.060 +0.180	70	60

□ Available materials are iglidur® M210 and iglidur® M260

* After the installation of the bearing in a mounting with nominal dimension, the inner diameter of the bearing adjusts with E10 tolerance.

... thick-walled ... for medium-sized loads ...

Particularly suitable for medium loads and highly wear-resistant in pivoting movements



thick walls

Tech up

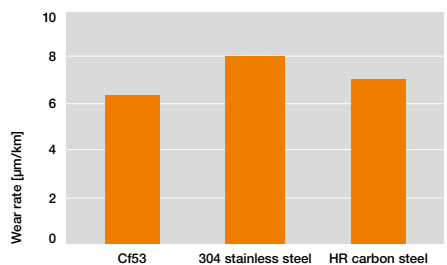
- Good wear results in pivoting applications in combination with medium loads (10MPa)
- Low moisture absorption

Cost down

- Maintenance-free
- Low coefficient of friction and wear
- Cost-effective due to injection moulding
- Lower maintenance costs

Proof

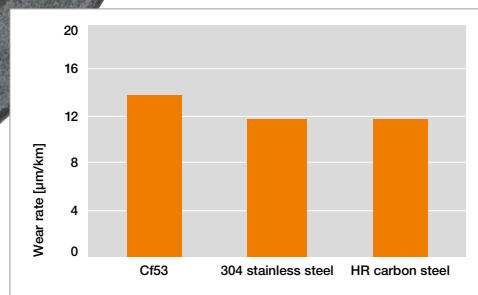
- Wear iglidur® M210 at 23°C, 10MPa and 0.1m/s, pivoting.



Sustainability

- No lubricating greases or oils
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:

igus.eu/sustainability



Wear iglidur® M210 at 23°C, 20MPa and 0.1m/s, pivoting

General properties

Density	1.40g/cm ³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	0.3% weight
Max. moisture absorption	0.5% weight

Mechanical properties

Flexural modulus	2,200MPa
Flexural strength	65MPa
Max. recommended surface pressure	50MPa
Shore D hardness	75



iglidur® M210 in a heavy-duty application

Thermal properties ^{1), 2)}

Max. continuous operating temperature +100°C

Max. short-term operating temperature +160°C

Min. application temperature -40°C

Electrical properties

Specific transitional resistance	>10 ¹¹ Ωcm
Surface resistance	>10 ¹¹ Ω

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

... thick-walled for harsh environments ...

Particularly robust and wear-resistant with St37 shafts



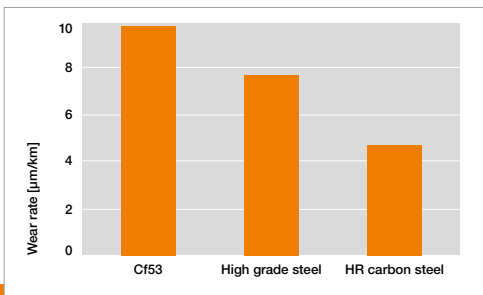
thick walls

Tech up

- Good wear results in pivoting applications at medium loads (10MPa) especially in combination with shafts made of St37
- Low moisture absorption

Proof

- Wear iglidur® M260 at 23°C, 10MPa and 0.1m/s, pivoting



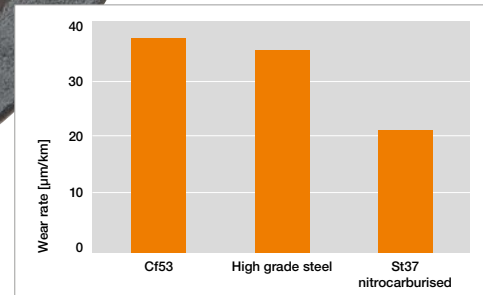
Cost down

- Maintenance-free
- Low coefficient of friction and wear
- Cost-effective due to injection moulding
- Lower maintenance costs

Sustainability

- No lubricating greases or oils
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:

igus.eu/sustainability



Wear iglidur® M260 at 23°C, 20MPa and 0.1m/s, pivoting

General properties

Density	1.35g/cm³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	0.2% weight
Max. moisture absorption	0.4% weight
Mechanical properties	
Flexural modulus	2,200MPa
Flexural strength	60MPa
Max. recommended surface pressure	40MPa
Shore D hardness	77



iglidur® M260 in a heavy-duty application

Thermal properties ^{1), 2)}

Max. continuous operating temperature +120°C

Max. short-term operating temperature +140°C

Min. application temperature -100°C

Electrical properties

Specific transitional resistance >10¹⁰Ωcm

Surface resistance >10¹⁰Ω

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

... high loads ... without lubrication ... cost-effective ...

The high-strength wound structure with incorporated solid lubricants ensures low-friction and maintenance-free operation - without any externally added lubrication.



Tech up

- Exceptionally low wear in the high load range
- Up to three and a half times more wear-resistant than iglidur® TX1
- Service life calculation in preparation

Proof

- Tested on the front loader test bench and in the igus® test laboratory: 50° pivoting movement, shaft Cf53 hard-chrome, $p = 100\text{N/mm}^2$, $v = 0.01\text{m/s}$



Cost down

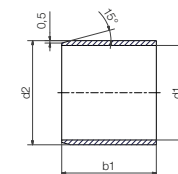
- Maintenance-free
- Cost-effective even in large dimensions and small quantities

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life in high load applications



igidur® TX2 in agriculture



Part No.	d1	d1 tolerance*	d2	b1	h13
TX2SM-2025-20	20	+0.020 +0.150	25	20	
TX2SM-2025-30	20	+0.020 +0.150	25	30	
TX2SM-2025-40	20	+0.020 +0.150	25	40	
TX2SM-2030-30	20	+0.020 +0.150	30	30	
TX2SM-2530-20	25	+0.020 +0.150	30	20	
TX2SM-2530-30	25	+0.020 +0.150	30	30	
TX2SM-2530-40	25	+0.020 +0.150	30	40	
TX2SM-3035-30	30	+0.020 +0.150	35	30	
TX2SM-3035-40	30	+0.020 +0.150	35	40	
TX2SM-3040-40	30	+0.020 +0.150	40	40	

Part No.	d1	d1 tolerance*	d2	b1	h13
TX2SM-4045-40	40	+0.020 +0.150	45	40	
TX2SM-4050-50	40	+0.025 +0.175	50	50	
TX2SM-5055-50	50	+0.025 +0.175	55	50	
TX2SM-5060-60	50	+0.025 +0.175	60	60	
TX2SM-6065-60	60	+0.025 +0.175	65	60	
TX2SM-6070-80	60	+0.025 +0.175	70	80	
TX2SM-7075-60	70	+0.025 +0.175	75	60	
TX2SM-7080-100	70	+0.050 +0.200	80	100	
TX2SM-8085-100	80	+0.050 +0.200	85	100	
TX2SM-8090-100	80	+0.050 +0.200	90	100	

* After press-fit of the bearing in a housing with nominal dimension, the inner diameter of the bearing adjusts itself to a E10 tolerance.

... high performance for large series ...

Extremely high compressive strength coupled with high elasticity enables iglidur® Z4 bearings to attain their prominent features in association with soft shafts, edge loads and impacts.



particularly suitable for anodised aluminium shafts

Tech up

- Good wear results in pivoting applications with medium loads
- Particularly suitable for use on aluminium HC and V2A shafts

Proof

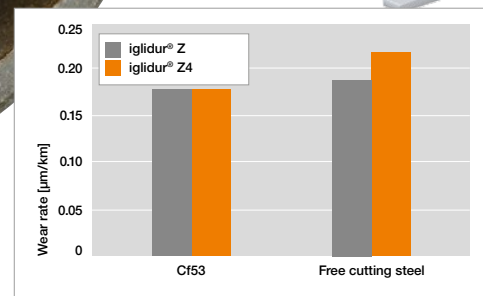
- Comparative price for dimension *SM-2023-20: iglidur® Z €1.22/pc, iglidur® Z4 €1.00/pc
- Service life can be calculated online

Cost down

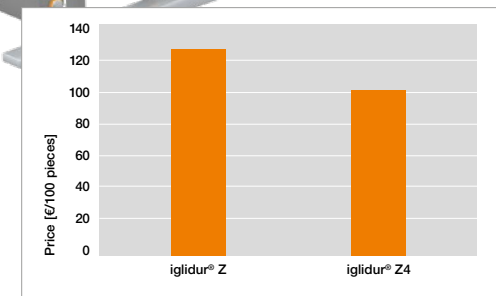
- Maintenance-free properties reduce costs for lubrication and maintenance
- Low coefficient of friction and wear
- Cost-effective due to injection moulding

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life



igidur® Z and iglidur® Z4 comparison
1MPa, 0.3m/s



igidur® Z and iglidur® Z4 price comparison
Price in € per 100 pieces for a quantity of 2,500 pieces - dimension □SM-2023-20

General properties	
Density	1.4g/cm3
Colour	dark brown
Max. moisture absorption at +23°C and 50% r.h.	0.3% weight
Max. total moisture absorption	1.1% weight
Mechanical properties	
Flexural modulus	2,300MPa
Flexural strength	90MPa
Max. recommended surface pressure	140MPa
Shore D hardness	80

Thermal properties	
Max. continuous operating temperature	+250°C
Max. short-term operating temperature	+310°C
Min. application temperature	-100°C
Electrical properties	
Specific contact resistance	>10 ¹¹ Ωcm
Surface resistance	>10 ¹¹ Ω

... predictive maintenance ... from stock ...

iglidur® i.Sense plain bearings indicate their wear status in good time. If a bearing needs to be changed, the system is informed about it.

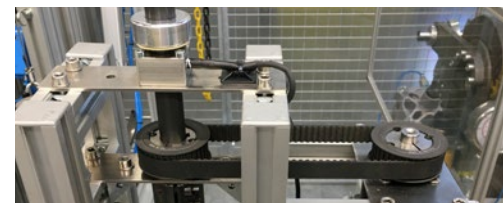


i The integrated sensor sends a warning signal and enables timely replacement

- Tech up**
- The first wear-detecting plain bearing - now also with a large diameter
 - If a wear limit defined by you is reached during operation, the integrated sensor sends a warning signal and enables timely replacement

- Cost down**
- Standard range
 - No unplanned machine downtime
 - Early information about wear of bearings protects the shaft from damage

- Proof**
- Tested in our own test rigs inside and outside

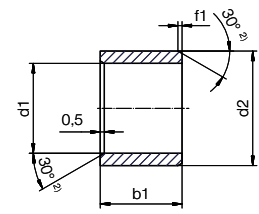


- Sustainability**
- Never change the bearing unless necessary
 - No replacement of the shaft due to damage from a worn plain bearing
 - igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

General properties	Unit	iglidur®				
		G	P210	J	A180	Q2E
Density	g/cm³	1.46	1.40	1.49	1.46	1.46 - 1.69
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.7	0.3	0.3	0.2	1.5
Max. total moisture absorption	% weight	4.0	0.5	1.3	1.3	5.0
Mechanical properties						
Flexural modulus	MPa	7,800	2,500	2,400	2,300	n.s.
Flexural strength	MPa	210	70	73	88	235
Max. recommended surface pressure	MPa	80	50	35	28	135
Shore D hardness		81	75	74	76	80
Thermal properties						
Max. long-term application temperature	°C	+130	+100	+90	+90	+100
Max. short-term application temperature	°C	+220	+160	+120	+110	+140
Min. application temperature	°C	-40	-40	-50	-50	-30
Electrical properties						
Specific contact resistance	Ωcm	10 ¹³	10 ¹²	10 ¹³	10 ¹²	> 10 ¹²
Surface resistance	Ω	10 ¹¹	10 ¹¹	10 ¹²	10 ¹¹	> 10 ¹²

Installation size for Q2E

Part No.	d1	d2	b1 h13	Wear limit
Q2ESM-8085-50-IG.W-040	80	85	50	0.4
Part No.	d1	d2	b1 h13	Wear limit
□ SM-2025-20-IG.W-020	20	25	20	0.2
□ SM-3035-30-IG.W-030	30	35	30	0.3
□ SM-4045-40-IG.W-040	40	45	40	0.4



□ = iglidur® material - iglidur® G, iglidur® P210, iglidur® J, iglidur® A180, iglidur® Q2E
Further materials and dimensions upon request

Available from stock

igus.eu/iglidur-i.Sense

... seal for ...
heavy duty ...

The new iglidur® TX2 heavy duty plain bearing with integrated seal against dirt and dust.



Suitable for heavy-duty applications



Resistant to dirt

▲ Tech up

- Highly efficient sealing against dirt and dust for heavy-duty applications

▼ Cost down

- Ready-to-install solution with felt seal
- Cost-effective even for large dimensions and low volumes

■ Proof

- Tested in the igus® test laboratory in indoor and outdoor use
- In laboratory tests, a service life up to 50 times higher was achieved

● Sustainability

- Reduced downtime and thus lower material consumption
- No lubricating greases or oils
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:

igus.eu/sustainability



iglidur® TX2 in agriculture

General properties

Density	1.77g/cm³
Colour sliding layer/supporting layer	black/reddish brown
Max. moisture absorption at +23°C and 50% r.h.	<1.0% weight
Max. moisture absorption	1.3% weight

Mechanical properties

Compressive strength	180MPa
Max. recommended surface pressure	180MPa
Shore D hardness	91

Thermal properties ^{1), 2)}

Max. continuous operating temperature +130°C

Max. short-term operating temperature +140°C

Min. application temperature -20°C

Electrical properties

Specific transitional resistance	insulating
Surface resistance	insulating

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

... prevent ingress of dirt

... from stock ...

The felt seal of the iglidur® SG03 plain bearing prevents the ingress of dirt and dust into the bearing point and thus protects the bearing itself and the shaft against wear and premature failure.



dirt-resistant

50x

longer service life than the same material combination without felt seal



For thrust washers (part number: GTM-2036-025-SG03-050) and flanged bearing (part number: GFM-2026-20-SG03-050)

Part No.	d1	d2	d3	b2	b1
With flange					
□FM-2026-20-SG03-050	20	26	32	1.5	20
□FM-2528-25-SG03-050	25	28	40	2.5	25
□FM-3034-30-SG03-050	30	34	45	2.5	30
□FM-3539-35-SG03-050	35	39	50	2.5	35
□FM-4044-40-SG03-050	40	44	55	2.5	40
Thrust washers					
	d1	d2			b1
□TM-2036-025-SG03-050	20	36	-	-	2.5
□TM-2540-025-SG03-050	25	40	-	-	2.5
□TM-3045-025-SG03-050	30	45	-	-	2.5
□TM-3550-025-SG03-050	35	50	-	-	2.5
□TM-4055-025-SG03-050	40	55	-	-	2.5

□ = iglidur® material
 | iglidur® G
 | iglidur® P210
 | iglidur® Q2

Tech up

- Clean bearings even with dirt and dust
- Maintenance-free
- Ready-to-install solution with 30 models in the standard product range from stock

Cost down

- Cost-effective
- Maintenance-free
- High running performance
- The shafts are protected against wear even more effectively as dirt cannot enter the bearing point
- 5 dimensions each in 3 materials from stock

Proof

- Tested in our own test rigs inside and outside
- Tested: up to 50x longer service life than the same material combination without felt seal

Sustainability

- No unnecessary bearing change any more
- No replacement of the shaft due to worn plain bearing
- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:

igus.eu/sustainability



Available from stock

igus.eu/sg03-bearings

... for cleanrooms ...

Sliding elements made of iglidur® J ensure the lowest possible particle emissions and enable lubrication-free operation without externally added lubrication.



Particle emission test in IAF-compliant cleanroom laboratory

cleanroom

Tech up

- **New:** Due to the low outgassing of the iglidur® J sliding elements, slewing rings are suitable for the application in vacuum
- Reduced particle emissions and low outgassing are ideal for cleanroom applications

Proof

- **New:** The outgassing of the sliding elements has been tested and confirmed in accordance with ASTM E 595
- The particle emission was investigated in tests in the Fraunhofer IAF compliant test laboratory


Cost down

- **New:** Sliding elements available as replacement kit
- Cost-effective, pre-assembled solution
- Available from stock


Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability





Test Report
iglidur® J
ASTM E595



PACIFIC TESTING LABORATORIES, INC.
24050 Avenue 100th, Valencia, CA 91355-3426 USA • TEL: (651) 251-1437 • FAX: (651) 251-2011

TEST REPORT		
In Accordance With IGUS GMBH Spiker Str. 1A D-51147, Köln Germany	Date September 16, 2021	Page 1 of 2 Pages
Att: David Sopotar	W.O. Number 71449	Test Report Number TR71449
	P.O. No. 5080050/SPoll-7305391	Received 08-23-2021

IDENTIFICATION: Our (1) sample material was submitted for Outgas Testing in accordance with ASTM E595. The test sample was identified as follows:
1) iglidur® J

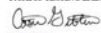
SPECIFICATION: ASTM E595.

REFERENCE: Purchase Order Number 5080050/SPoll-7305391.

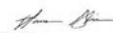
TESTING: Outgas Testing.

SUMMARY: The test results, reported herein, are submitted for customer evaluation.

Respectfully submitted,
PACIFIC TESTING LABORATORIES, INC.

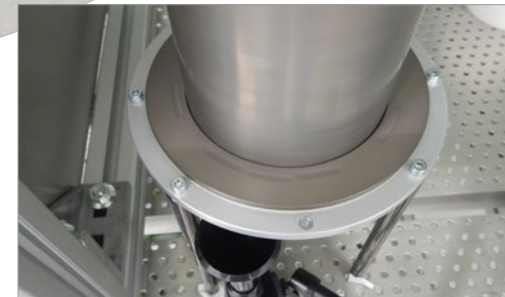

Case Gilpin
Materials Engineer

Reviewed by,


Han Shin
Laboratory Director


This report applies only to the samples tested and is not necessarily indicative of the quality or condition of equipment identical or similar products. As a manufacturer we verify the process and facility testing capabilities, etc., the report is certified and analyzed for the exclusive use of the client to whom it is addressed and upon the condition that it will be used in whole or in part, in any quantity or directly under contract or other authorization from Pacific Testing Laboratories, Inc.

TESTING - ENGINEERING - RESEARCH & DEVELOPMENT



Particle emission test in IAF-compliant cleanroom laboratory

Confirmation of outgassing

 Available from stock

 igus.eu/prt-cleanroom

... anti-
reflection ...

Elegant and at the same time inconspicuous appearance. Ideal for use as a visible part in furniture or in applications where light reflection should be avoided.



Tech up

- Black coating anti-reflection
- Elegant and discreet black design

Cost down

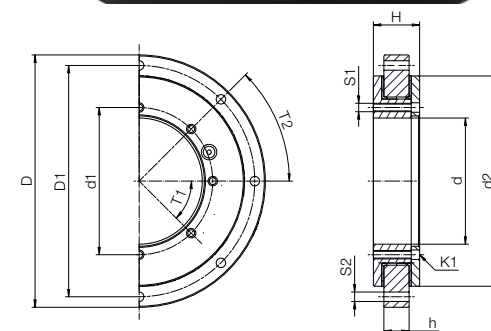
- Ready-to-install solution
- Available off the shelf
- Freely available 3D data for your design

Proof

- In the igus® test laboratory, the new black edition displayed the same performance as our PRT-04 series

Sustainability

- Compact design saves 60% weight
- No lubricating greases or oils
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Part No.	D	D1	d1	d	d2	H	h	T1	T2	S1	S2	K1 for screw
PRT-04-20-BE	80	70	30	20	60	16	6	8x45°	8x45°	M4	Ø4.5	Ø4.5
PRT-04-30-BE	90	80	40	30	70	16	6	8x45°	8x45°	M4	Ø4.5	Ø4.5
PRT-04-50-BE	110	100	60	50	90	16	6	8x45°	8x45°	M4	Ø4.5	Ø4.5
PRT-04-60-BE	120	110	70	60	100	16	6	8x45°	8x45°	M4	Ø4.5	Ø4.5
PRT-04-100-BE	160	150	110	100	140	16	6	8x45°	8x45°	M4	Ø4.5	Ø4.5
PRT-04-150-BE	210	200	160	150	190	16	6	16x22.5°	16x22.5°	M4	Ø4.5	Ø4.5
PRT-04-200-BE	260	250	210	200	240	16	6	16x22.5°	16x22.5°	M4	Ø4.5	Ø4.5
PRT-04-300-BE	360	350	310	300	340	16	6	16x22.5°	16x22.5°	M4	Ø4.5	Ø4.5

... simply replace wear-resistant parts ...

The PRT Sliding Element Replacement KIT for the PRT-01 and PRT-04 series allows you to replace worn sliding elements with new ones. Extend the service life of your PRT slewing ring bearings and protect the environment.



Tech up

- Ready-to-install sliding element set for your PRT slewing ring, for replacing worn sliding elements

Cost down

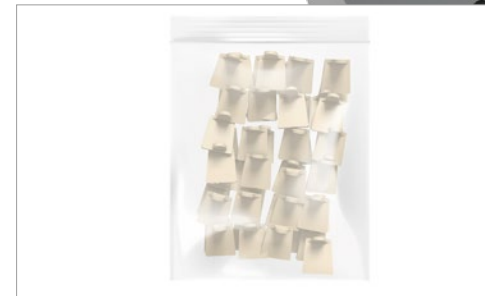
- Replaceable wear parts extend the service life of the module

Proof

- Predictable and reliable performance, determined and tested in the igus® test laboratory

Sustainability

- Environmentally friendly, as worn sliding elements can be replaced, thus avoiding the need to replace the entire component
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: [igus.eu/sustainability](https://www.igus.eu/sustainability)



Ready-to-install sliding element set for your PRT slewing ring, available for all four materials



Simply replace worn sliding elements



igidur® A180

- Complies with Food and Drug Administration (FDA) regulations for contact with food



igidur® F2

- ESD-compliant
- Electrically conductive



igidur® H1

- High resistance to temperature and chemicals
- Well suited to pivoting movements



igidur® J

- Low coefficient of friction during dry operation
- Low moisture absorption
- Low particle emission

... adjust precisely with defined latching points ...

The PRT-04 locking system enables precise adjustment of the slewing ring bearing, even under heavy load. The locking system can be released and adjusted quickly and easily by hand.



▲ Tech up

- Repeatable defined location points
- Easy and quick release by hand

▼ Cost down

- Ready-to-install solution
- Available off the shelf
- Freely available 3D data for your design

■ Proof

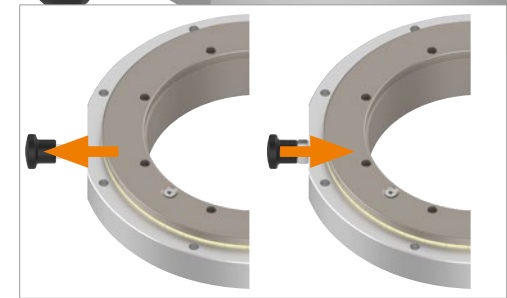
- Load capacity of the locking system tested in the igus® test laboratory

● Sustainability

- No lubricating greases or oils
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Load capacity of the locking system tested in the igus® test laboratory



Easy and quick release by hand.

... precise
adjustment ...

Our new stop motion PRT in installation size 04 enables a defined latching at individually predefined positions.

20%

more
cost-effective
than PRT-01

60%

lighter
than PRT-01

Tech up

- Repeatable defined location points
- Also use with the optional T-slot plate, e.g. for your assembly table

Proof

- Latching forces tested in the igus® laboratory for service life
- Already in use by different customers prior to the official roll-out

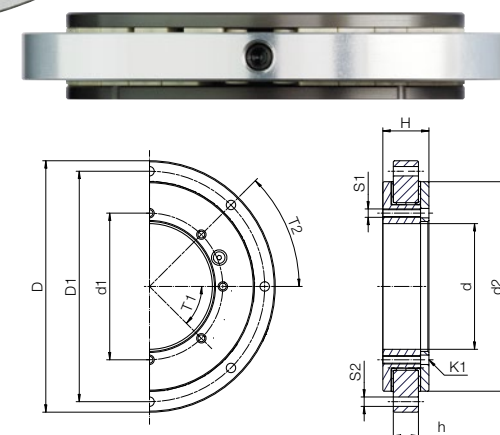
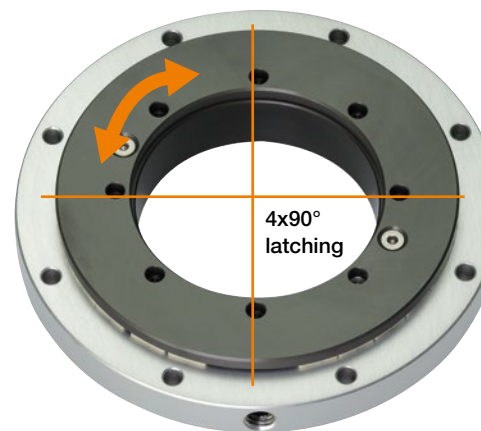
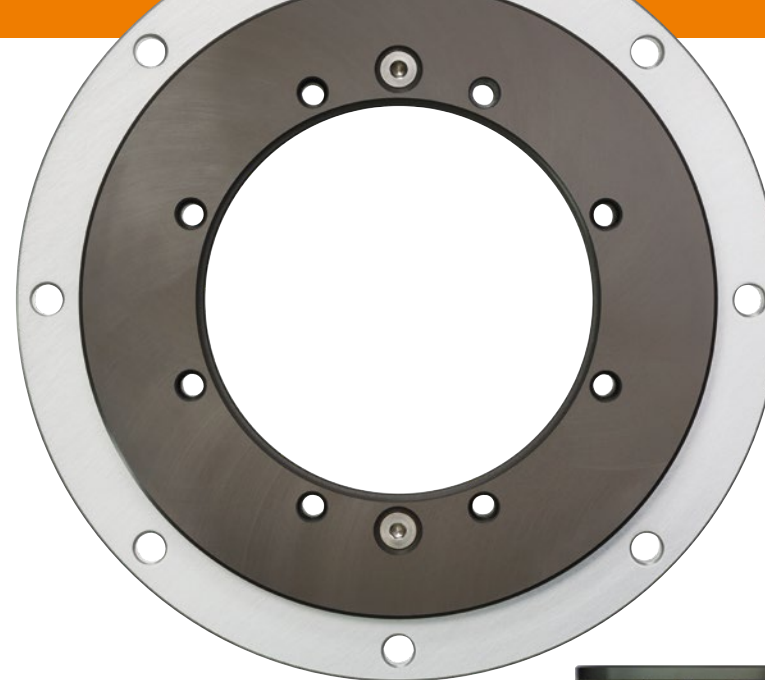


Cost down

- Around 20% more cost-effective than PRT-01 series
- Ready-to-install solution, no need to build it yourself
- 3D construction data available for free

Sustainability

- Compact design means 60% less weight compared to the PRT-01 series
- Environmentally friendly due to the absence of lubricants
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Part No.	D	D1	d1	d	d2	H	h	S1	S2	T1	T2	K1
PRT-04-20-R	80	70	30	20	60	22	12	M4	Ø4.5	8x45°	8x45°	M4
PRT-04-30-R	90	80	40	30	70	22	12	M4	Ø4.5	8x45°	8x45°	M4
PRT-04-50-R	110	100	60	50	90	22	12	M4	Ø4.5	8x45°	8x45°	M4
PRT-04-60-R	120	110	70	60	100	22	12	M4	Ø4.5	8x45°	8x45°	M4
PRT-04-100-R	160	150	110	100	140	22	12	M4	Ø4.5	8x45°	8x45°	M4
PRT-04-150-R	210	200	160	150	190	22	12	M4	Ø4.5	16x22.5°	16x22.5°	4.5
PRT-04-200-R	260	250	210	200	240	22	12	M4	Ø4.5	16x22.5°	16x22.5°	4.5
PRT-04-300-R	360	350	310	300	340	22	12	M4	Ø4.5	16x22.5°	16x22.5°	4.5

... chemical-resistant ...

The new coating formulation iglidur® IC-07 was optimised in particular regarding its chemical resistance, and protects metal surfaces not only against friction and wear, but also against aggressive chemicals.



media-resistant



Tech up

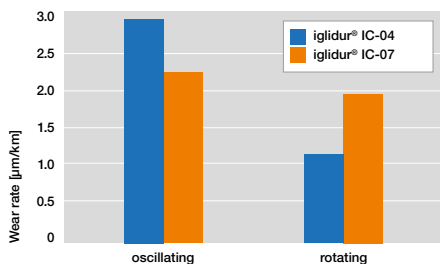
- Low coefficient of friction
- High chemical resistance
- Wear-resistant

Cost down

- Easy coating of metallic components
- Available as powder from stock

Proof

- Comparison iglidur® IC-04/igidur® IC-07 0.01m/s against 304 stainless steel



Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



We will coat your component for you



Coat your component yourself. All iglidur® coating materials also available for self coating in 1kg, 2kg and 10kg bags.

igidur®	IC-01	IC-02	IC-03	IC-04	IC-05	IC-06	IC-07
Colour	white	black	yellow	grey	blue	cream	turquoise
Max. application temperature [°C]	90	90	140	300	80	140	90
Part No.	IC-01-□	IC-02-□	IC-03-□	IC-04-□	IC-05-□	IC-06-□	IC-07-□

□ = Available packaging sizes, 1kg, 2kg, 10kg
 Order example: IC-01-10KG - high-performance polymer iglidur® IC-01 in a 10kg bag

... cost-effective protection against corrosion ...

Specially developed for outdoor use in combination with iglidur® plain bearings, protected against corrosion and optimised for even longer service life.

i As an alternative to galvanised or chromed shafts, GKF shafts offer a special protection against corrosion and wear

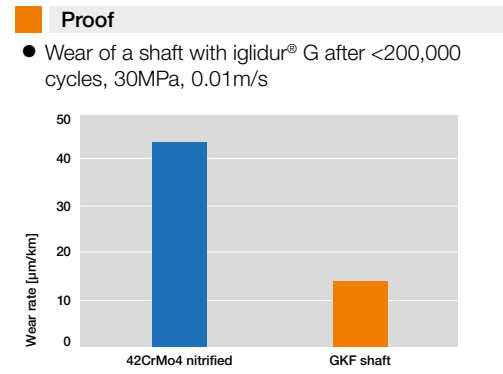


▲ Tech up

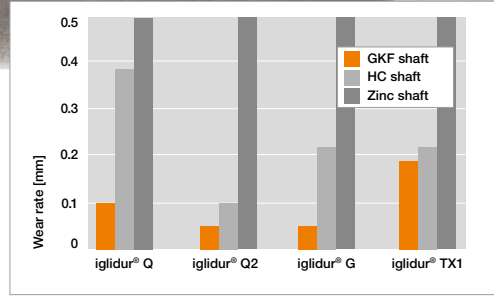
- Specifically developed for the application with dry-operating iglidur® plain bearings
- 100% corrosion protection and longer service life

▼ Cost down

- Cost-effective coating technology enables the use of cost-effective shaft steels
- A surface specially optimised for high running performance and durability extends service life and thus saves costs



- The corrosion-protected surface means that no additional lubricants are required
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Wear, oscillating, 200,000 cycles, 30MPa, 0.01m/s, 30° pivoting

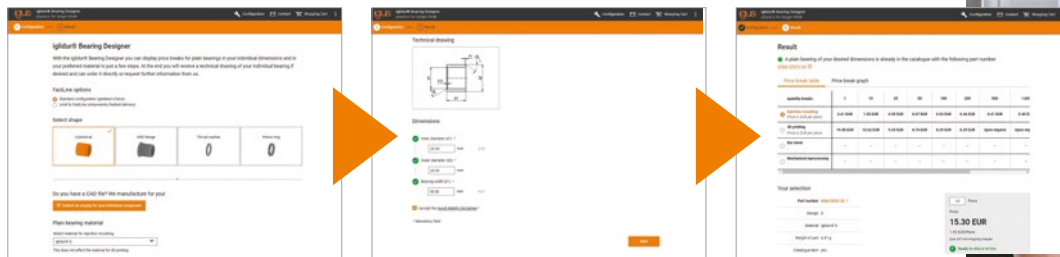


Tested in the igus® test laboratory



Request service life and coating

... configured in seconds,
injection-moulded in 7 days ...



Select the design

Enter the dimensions

Order



Tech up

- Injection-moulded plain bearings with special dimensions received in maximum 7 days
- Everything from one source: from the injection mould to the completed plain bearing

Cost down

- Maximum price transparency: overview of all igus® manufacturing procedures (injection moulding, machining, 3D printing) and comparison with standard product range

Proof

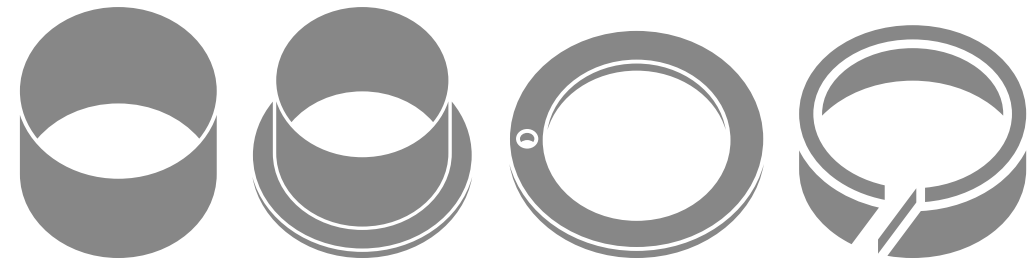
"Six weeks for a regular mould was too late for us, and turning bearings from bar stock all the time was too time-consuming and too expensive", explains Dominik Huber, developer at ergoline GmbH. "That's why we were very happy about the igus® FastLine Service. It took just four days from order to delivery. And the price is three times more favourable than expected."

- Try it now igus.eu/fastline

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

With the igus® FastLine service, you receive customised injection-moulded plain bearings and thrust washers in a maximum of seven days. In addition to immediate pricing, the iglidur® plain bearing designer also shows you the manufacturing costs of our other production processes. Should your desired plain bearings already be available in our standard product range, they will be included in the price comparison as well. That way, you can always keep an eye on the best price.



Now available: sleeve bearings, flanged bearings, thrust washers and piston rings

Available from June: clip bearings and rollers

Lubrication-free made easy ...

Design special parts yourself ... iglidur® bar stock ... It's our job

Many new materials, shapes and dimensions have been added this year. In addition to materials for the food industry, a new material for ESD increasing safety in potentially explosive areas is also part of the programme. With our CNC machining service speedicut, you can configure and order machined parts quickly and easily.

... new

highlight 2021↑...



...72 speedicut ... CNC machining service for parts made of iglidur® bar stock



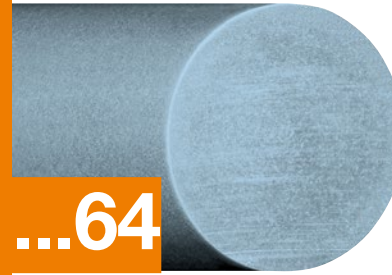
Considerably more robust than comparable materials and with a longer service life than iglidur® H1 ... iglidur® H3



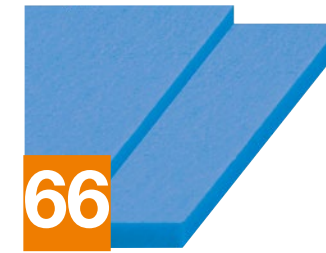
High wear resistance in linear and pivoting applications ... iglidur® E



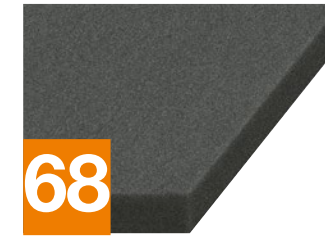
igidur® A250 round bar ... wear-resistant for use in the food industry



igidur® AC500 round bar for high temperatures up to +250°C



Optically detectable version of the A500 with FDA conformity ... iglidur® AD500 plate strip



Low coefficient of friction in dry operation ... iglidur® JB plate strips



igidur® A160 sheets ... for large-area lining of areas subject to wear



igidur® ESD tribo-tape ... electrostatic dissipative tribo-tape for applications in which ESD properties are essential



Online bar stock finder ... you will find the right material of polymer round bars for almost every requirement here

... the service life can also be calculated online

...online tools

... tough, wear-resistant, durable ...

Considerably more robust than comparable materials and with a longer service life than iglidur® H1 ... iglidur® H3



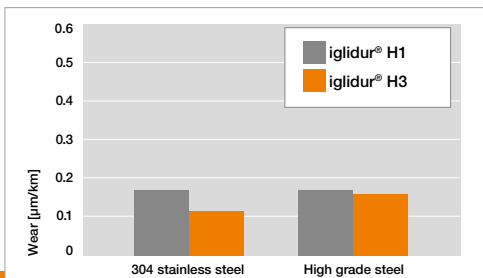
i iglidur® H3 is also available as plain bearing material

Tech up

- More wear-resistant than iglidur® H1
- Low moisture absorption
- Resistant to many chemicals

Proof

- Rotating wear, $p=1\text{MPa}$; $v=0.3\text{m/s}$



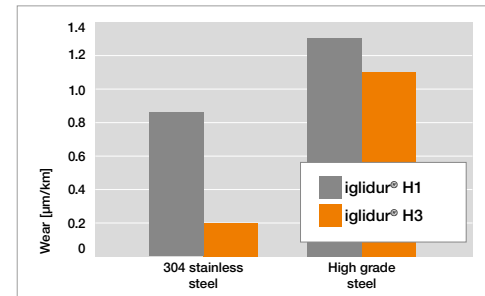
max. +200°C
min. -40°C

Cost down

- Maintenance-free properties reduce costs for lubrication and maintenance
- iglidur® H3 achieves a higher running performance in many applications than iglidur® H1
- More cost-effective than comparable metallic bearings

Sustainability

- Good coefficient of wear and therefore a long service life
- Environmentally friendly as no additional lubricants needed
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Wear, $p=2\text{MPa}$, $v=0.3\text{m/s}$

General properties

Density	1.41g/cm ³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	0.2% weight
Max. moisture absorption	0.5% weight

Electrical properties

Specific transitional resistance	>10 ¹² Ωcm
Surface resistance	>10 ¹² Ω

Mechanical properties

Shore D hardness	75
Max. recommended surface pressure	40MPa

Thermal properties

Max. continuous operating temperature	+200°C
Max. short-term operating temperature	+240°C
Min. application temperature	-40°C

Part No.	Outer Ø	Inner Ø
SFRH3-3000-□	30	0
SFRH3-8000-□	80	0

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized.

... extremely wear-resistant ...

The round bars made of iglidur® E work especially well in linear and pivoting movements, where they exhibit high wear resistance and low coefficients of friction.



i iglidur® E is also available as plain bearing material



max. +90°C
min. -50°C

Tech up

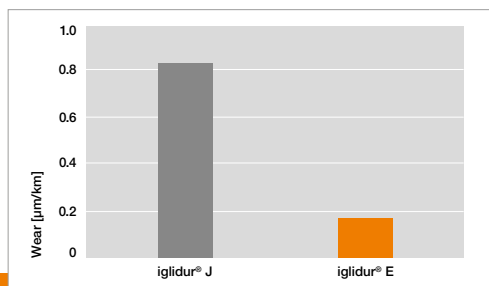
- Low coefficients of friction
- Wear-resistant material for continuous operation
- Vibration-dampening

Cost down

- Cost-effective
- Maintenance-free
- Higher running performance than iglidur® J

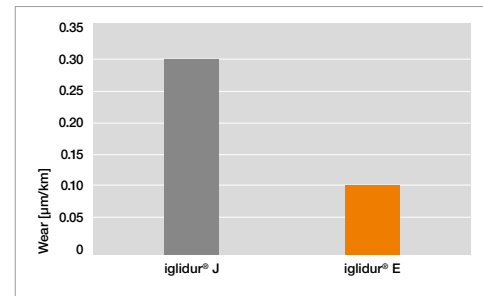
Proof

- Wear at 23°C, 1MPa and 0.1m/s on aluminium HC.



Sustainability

- Environmentally friendly as no additional lubricants needed
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Rotating wear, iglidur® J and iglidur® E at 23°C, 1MPa and 0.3m/s against aluminium HC.

General properties

Density	1.50g/cm ³
Colour	beige
Max. moisture absorption at +23°C and 50% r.h.	<0.2% weight
Max. moisture absorption	1.7% weight

Electrical properties

Specific transitional resistance	>10 ¹² Ωcm
Surface resistance	>10 ¹² Ω

Mechanical properties

Shore D hardness	78
Max. recommended surface pressure	37MPa

Thermal properties

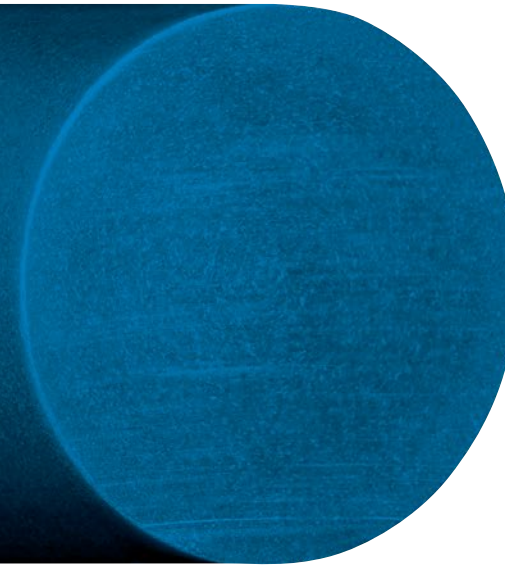
Max. continuous operating temperature	+90°C
Max. short-term operating temperature	+120°C
Min. application temperature	-50°C

Part No.	Outer Ø	Inner Ø
SFRE-3000-□	30	0
SFRE-5000-□	50	0

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized.

... wear-resistant in the food industry ...

The iglidur® A250 material is made for practically all loads in food and packaging machinery.



FDA compliant



max. +90°C
min. -40°C

Tech up

- Wear-resistant
- FDA and EU10/2011 compliant
- Low drive power required when used for rollers
- Lubrication-free deflection of belts

Cost down

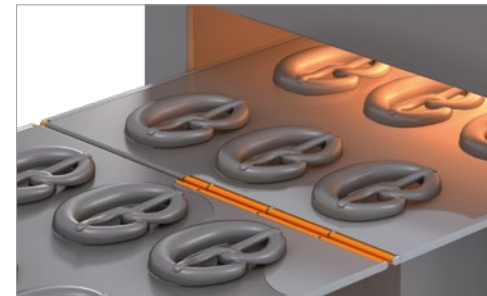
- Higher running performance
- Maintenance-free
- Buy only what you really need: cut to the millimetre parts (between 100 and 1,000mm)

Proof

- This material has been successfully used by many customers for years
- Tested many times at igus® on specially developed test rigs
- Online service life calculation in preparation

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



This material has been successfully used by many customers for years

General properties

Density	1.34g/cm ³
Colour	blue
Max. moisture absorption at +23°C and 50% r.h.	0.7% weight
Max. total moisture absorption	4.2% weight

Electrical properties

Specific contact resistance	> 10 ¹¹ Ωcm
Surface resistance	> 10 ¹¹ Ω

Mechanical properties

Shore D hardness	74
Max. recommended surface pressure	34MPa

Thermal properties

Max. long-term application temperature	+90°C
Max. short-term operating temperature	+180°C
Min. application temperature	-40°C

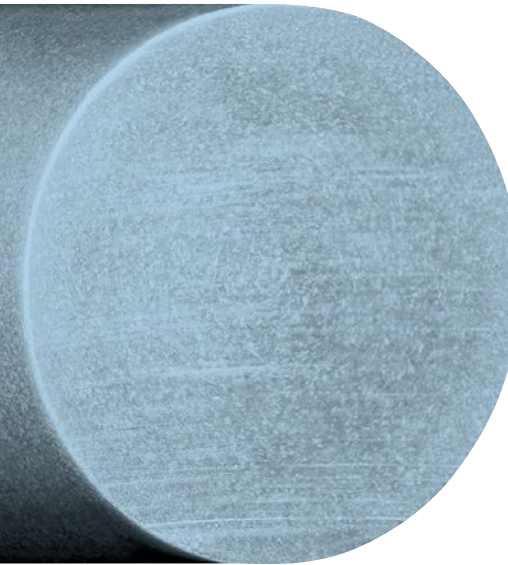
Part No.	Outer Ø	Inner Ø
SFRA250-2000-□	20	0
SFRA250-3000-□	30	0
SFRA250-8000-□	80	0

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized.

... for high temperatures

up to +250°C ...

iglidur® AC500 is a further development of the iglidur® A500 material, which is detectable and has an optimised service life.



FDA compliant



max. +250°C
min. -100°C

Tech up

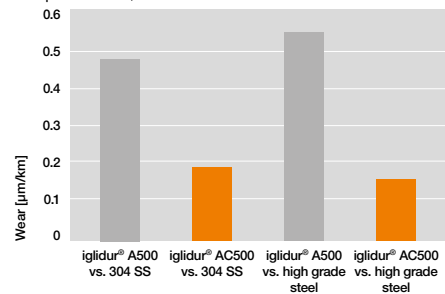
- Wear-resistant material for the food area
- Suitable for high operating temperatures up to +250°C
- FDA and EU10/2011 compliant
- Visually detectable

Cost down

- Maintenance-free properties reduce costs for lubrication and maintenance
- Higher running performance
- Buy only what you really need: cut to the millimetre parts (between 100 and 1,000mm)

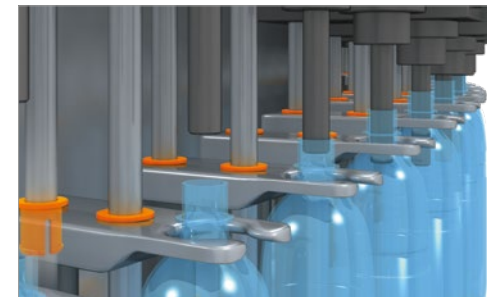
Proof

- Wear of iglidur® A500 and iglidur® AC500, rotating p= 1MPa, v= 0.3m/s.



Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Special parts for the food and packaging industries

General properties

Density	1.38g/cm³
Colour	blue
Max. moisture absorption at +23°C and 50% r.h.	0.1% weight
Max. total moisture absorption	0.4% weight

Electrical properties

Specific contact resistance	> 10 ¹² Ωcm
Surface resistance	> 10 ¹² Ω

Mechanical properties

Shore D hardness	85
Max. recommended surface pressure	45MPa

Thermal properties

Max. long-term application temperature	+250°C
Max. short-term operating temperature	+300°C
Min. application temperature	-100°C

Part No.	Outer Ø	Inner Ø
SFRAC500-3000-□	30	0

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized.

... visually detectable with FDA compliance ...

Optically detectable version of our iglidur® A500 especially for food applications.

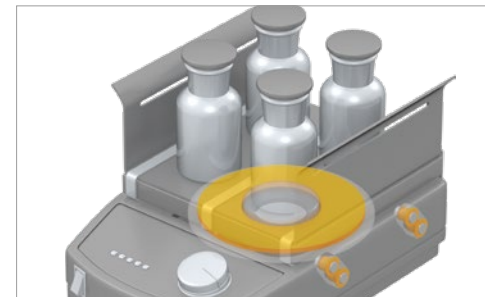
160mm



FDA compliant



max. +250°C
min. -100°C



Special parts for the medical industry

General properties

Density	n.s.
Colour	blue
Max. moisture absorption at +23°C and 50% r.h.	0.3% weight
Max. total moisture absorption	0.5% weight

Electrical properties

Specific contact resistance	> 10 ¹⁴ Ωcm
Surface resistance	> 10 ¹³ Ω

Mechanical properties

Shore D hardness	n.s.
Max. recommended surface pressure	n.s.

Thermal properties

Max. long-term application temperature	+250°C
Max. short-term operating temperature	+300°C
Min. application temperature	-100°C

Tech up

- High-temperature material for the food area, up to +250°C
- FDA compliant
- Visually detectable

Cost down

- Maintenance-free properties reduce costs for lubrication and maintenance
- Buy only what you really need: cut to the millimetre parts (between 100 and 1,000mm)

Proof

- Successfully used in various applications by many customers

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

Part No.	Material thickness	Width (W)
SFPAD500-06-160-□	06	160
SFPAD500-10-160-□	10	160

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized

... extremely wear-resistant in black ...

One main advantage of iglidur® JB plate strips is the combination of a low coefficient of friction in dry operation and the low stick-slip tendency.

6mm



max. +90°C
min. -50°C

Tech up

- Low wear
- Low coefficient of sliding friction (0.06-0.18μ), dynamic, against steel
- Low moisture absorption (0.3% weight)
- Good media resistance

Cost down

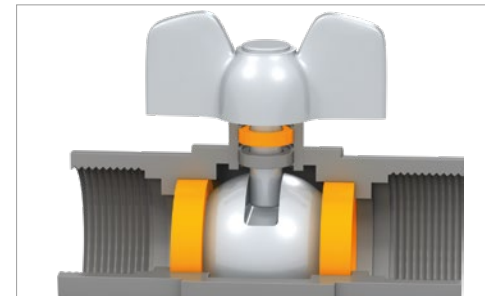
- Buy only what you really need: cut to the millimetre parts (between 100 and 1,000mm)
- Maintenance-free

Proof

- This material has been successfully used by many customers for years
- Tested many times at igus® on specially developed test rigs

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Easy production of special parts

General properties

Density	1.49g/cm³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	0.3% weight
Max. total moisture absorption	1.3% weight

Electrical properties

Specific contact resistance	> 10 ¹³ Ωcm
Surface resistance	> 10 ¹² Ω

Mechanical properties

Shore D hardness	74
Max. recommended surface pressure	35MPa

Thermal properties

Max. long-term application temperature	+90°C
Max. short-term operating temperature	+120°C
Min. application temperature	-50°C

Part No.	Material thickness	Width (W)
SFPJB-06-160-□	06	160

□ = In your required length, freely selectable between 100mm and 1,000mm. Cut-to-size parts are delivered oversized

... sheets ...

... larger is better ...

Our proven iglidur® A160 material is now also available as a sheet. The material iglidur® A160 convinces due to its media resistance and compliance with FDA and EU10/2011 regulations.

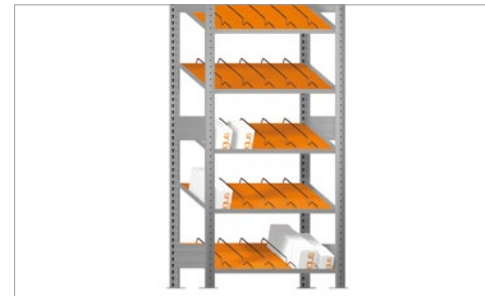
1,000mm



FDA compliant



max. +90°C
min. -50°C



Large-scale lining of sensitive areas

General properties

Density	1.0g/cm³
Colour	blue
Max. moisture absorption at +23°C and 50% r.h.	0.1% weight
Max. total moisture absorption	0.1% weight

Electrical properties

Specific contact resistance	> 10 ¹² Ωcm
Surface resistance	> 10 ¹² Ω

Thermal properties

Max. long-term application temperature	+90°C
Max. short-term operating temperature	+100°C
Min. application temperature	-50°C

Tech up

- For large-area lining of areas subject to wear
- FDA and EU10/2011 compliant for chemicals and food
- High media resistance

Cost down

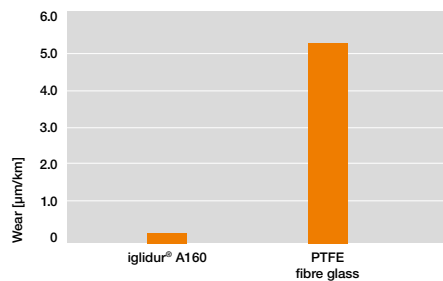
- Best possible coefficient of friction at a cost-effective price
- Save costs and choose from many dimensions and thicknesses
- Maintenance-free properties reduce costs for lubrication and maintenance

Sustainability

- No lubrication necessary
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

Proof

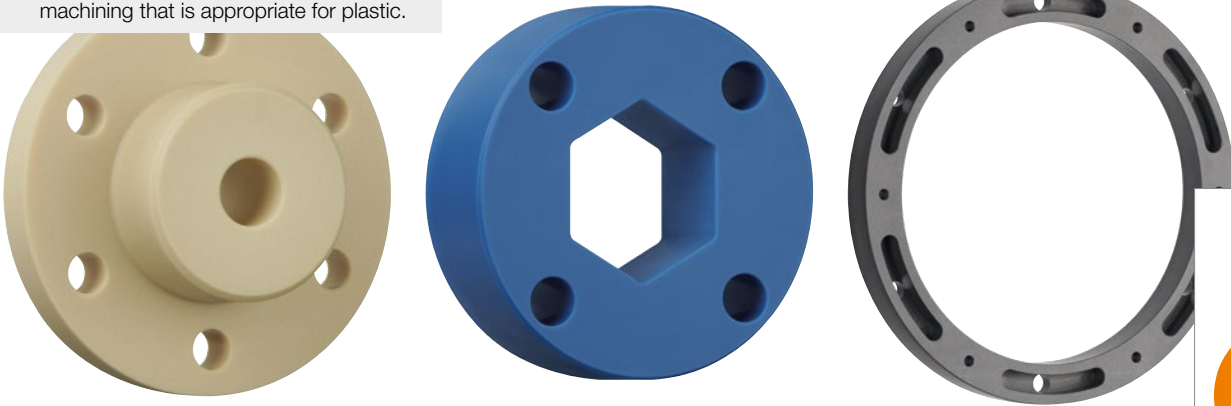
- Linear wear with 1.4305 material at 0.16m/s; 1MPa; 23°C



Part No.	Material thickness	Width (W)	Length
SFPA160-02-1000-1000	02	1,000	1,000
SFPA160-03-1000-1000	03	1,000	1,000
SFPA160-04-1000-1000	04	1,000	1,000
SFPA160-05-1000-1000	05	1,000	1,000
SFPA160-06-1000-1000	06	1,000	1,000

... now even faster to your bespoke components ...

Our manufacturing standards for iglidur® turned and milled parts ensure CNC machining that is appropriate for plastic.



Tech up

- Get prices within seconds
- Easy to use
- Transparency over the entire ordering process
- speedicut: 3-day express service for machined parts
- speedicut: standard plastics in the product range: PE UHMW, POM, PA, PA 6 C, PET
- Express option, up to 500 standard bushes ready to ship in five days

Proof

"We wanted to make efficient use of a short maintenance interval to replace existing PA bearings with custom-made bearings made of iglidur®. The very fast quotation calculation and express shipping from the igus® online CNC service enabled us to procure the CNC parts in just a few days and get the production line up and running again on time."
Tom Oldach, Project Engineer at Dr. Quendt GmbH & Co. KG

Cost down

- Decisions can be made faster thanks to instant pricing
- Delivery times are greatly reduced by the express service
- Waiting times and associated costs can be easily saved

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

1 Hochladen 2 Preis 3 Warenkorb 4 Lieferung 5 Zusammenfassung

DD0084241.STEP (1 von 1 fertig, 1 gesehen)

Technologie

- Drehen** Teile mit rotationssymmetrischer Kontur
- Fräsen/ Drehfräsen (einfach)** 2D- und 2,5D-Teile - einfache Drehfräseile - ohne Umspannen
- Fräsen/ Drehfräsen (komplex)** 3D-Teile - Drehfräseile - Umspannen nötig

Material

iglidur® A180 (Rundstab) €818

Preis

Menge 1
 Preis pro Stück €81.16
 in Nachbearbeitung €0.00
 Priorität in der Produktion €80.96
 Rustkosten €0.00

Zwischensumme €182.12
 Mehrwertsteuer (16.00%) €25.94
Gesamt €188.06

ZUM KORB HINZUFÜGEN

UNSICHER BEI DER MATERIALWAHL? Unser Produktfinder hilft Ihnen bei der Auswahl eines geeigneten Iglidur®-Materials. → [Link: Produktfinder für Iglidur®-Halbzeuge](#)

Toleranz

ALLE Längentoleranzen gem. ISO 2768-m

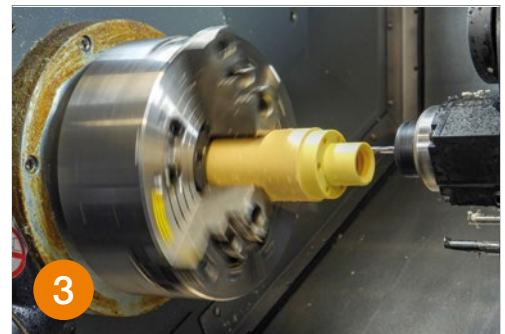
Eigenschaften

Eigenschaften	Ans.	Ans.	Ans.	Gewinde	Passung
Bohrung/Loch (basis)	5	2	4	4	Bohrung / Loch
Bohrung/Loch (basis)	23	1	1	1	Bohrung / Loch
Absetz	55	1	1	1	einfacher Absetz

Priorität

EXPRESS/ Durchlaufzeit: 3 Werkzeuge €50.96

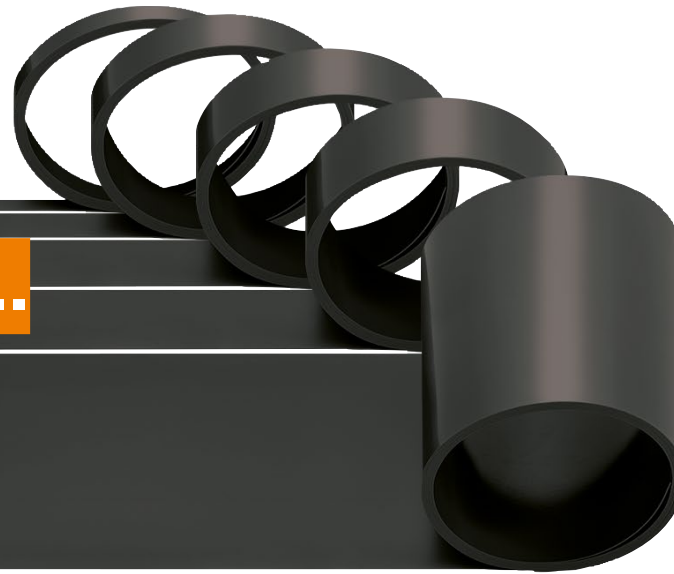
Zeitraum von Bestellung bis Versand, max. Stückzahl: 10



- See how easily speedicut works
1. Upload 3D model
 2. Specify requirements, get price and order component
 3. We machine your component according to your specifications
 4. You receive your product

More information at igus.eu/speedicut

... increase safety in potentially explosive areas ...



Our electrostatic dissipative tribo-tape is ideal for applications where ESD specifications are essential.



Tech up

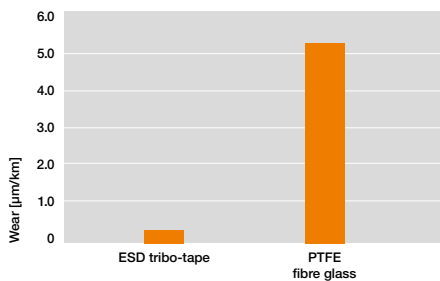
- Tribo-tape now also with ESD - for electrostatic dissipation
- Low coefficient of friction
- Optimised transport
- Protection of products

Cost down

- Avoid damage to or destruction of components

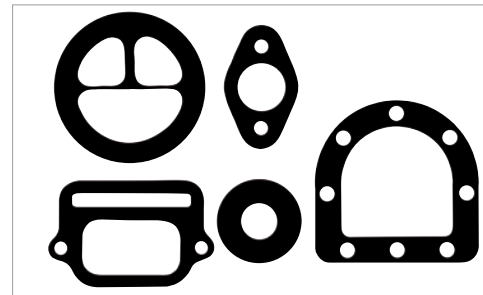
Proof

- Linear wear with 1.4305 material at 0.16m/s; 1MPa; 23°C



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Tribo-tape cutting service:
igus.eu/tape-cut-to-size

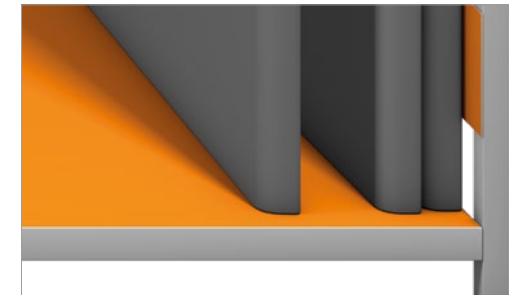
General properties

Density	1.08g/cm³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	< 0.1% weight
Max. total moisture absorption	0.03% weight

Electrical properties³⁾

Specific contact resistance	10 ⁶ - 10 ⁸ Ωcm
Surface resistance	10 ⁶ - 10 ⁹ Ω

Part No.	Width	Material thickness
ESD-T-005-0100	100	0.50
Part No. with adhesive back	Material thickness - with adhesive back	
ESD-T-005-0100-G	100	0.71



Lining of sensitive surfaces for electronic components

Thermal properties^{1), 2)}

Max. long-term application temperature	+90°C
Max. short-term operating temperature	+100°C
Min. application temperature	-50°C

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

³⁾ Depending on the geometry

Lubrication-free made easy ...

iglidur® bevel gears printed, machined and now also injection-moulded ... It's our job ...

The catalogue product range for gears grows by another design: bevel gears made of the materials iguform S270 and igutek P360 are now available in six different transmission ratios. In addition, we offer you the matching angular gears in various modules.

... new

highlight 10/2021...

...78... Choose from six different gear ratios to suit your needs. Bevel gears made of iguform S270 and igutek P360



82

Gear angular gearbox



84

Choose from over 300 dimensions ... gears and gear racks made of iguform S270



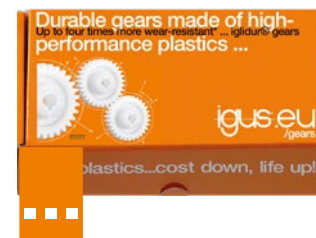
86

Choose from over 300 dimensions ... gears and gear racks made of igutek P360

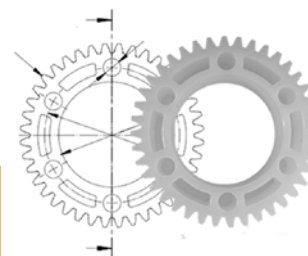


88

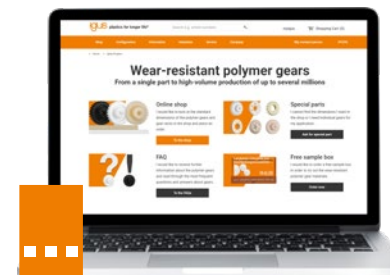
Gears made of iglidur® A500



Sample box ... igus.eu/gear-sample-box



Special part ... igus.eu/gear-special-parts



Info page ... igus.eu/gears

Gear project checklist igus

Enter the application parameters you know here and receive your free consultation.

Customer data
 Name: _____ E-mail: _____
 Company: _____ Phone: _____
 Project name: _____

1. Gear type
 Spur gear Bevel gear Plane bevel gear Inner ring Worm wheel

Module: _____ Number of teeth: _____
 Spiral toothing
 Right-hand thread

iglidur® designer for your individually manufactured component, now with more features in the service life calculator

...gears check list

new
10/2021

iguform S270 bevel gears

... 6 gear ratios ...

iguform S270 bevel gears convince with a low coefficient of friction and low moisture absorption



max. +90°C
min. -40°C

Tech up

- Low coefficient of friction
- Low moisture absorption
- Quiet
- Mechanical rework possible

Proof

- Successfully used in various applications

Cost down

- Economic high-volume production through injection moulding
- Maintenance-free properties reduce costs for lubrication and maintenance
- No minimum order quantity, available from stock

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

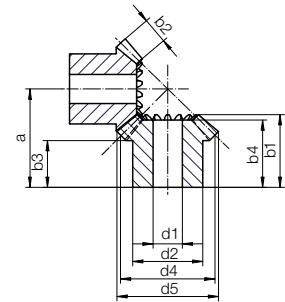


Transmission 1:1

Transmission 1:5

General properties	iguform S270
Density	1.41g/cm ³
Colour	white
Max. moisture absorption at +23°C and 50% r.h.	0.2% weight
Max. moisture absorption	0.65% weight
Electrical properties	
Specific transitional resistance	>10 ¹² Ωcm
Surface resistance	>10 ¹⁴ Ω
Mechanical properties	
Flexural modulus	2,400MPa
Flexural strength	65MPa

Thermal properties		
Max. long-term application		+90°C
Max. short-term application		+100°C
Minimum temperature		-40°C



Example of a suitable combination (transmission ratio: 1:3)

Part No.	Module	Number of teeth	Transmission	Helix angle [°]	b2	d1	d4	d5	d2	b1	b4	b3	a
S270GM-BG-200-010-00-060-R-30	2	10	1:3	0	12.2	6	20	23.6	15.5	25	-	12	43.3
S270GM-BG-200-030-00-120-R-30	2	30	1:3	0	12.5	12	60	61.7	30.3	22.5	19.8	11.8	28

Order example: [S270GM-BG-100-016-00-050-R-10](#)

Material iguform S270, GM gear metrical, BG bevel gear, -100 module, -016 number of teeth 16, -00 helix angle 0°, -050 bore diameter 5mm, -R bore diameter round, -10 gear ratio 1:1

Delivery from stock: module 0.5 - 3.5, gear ratio: 1:1 - 1:5

Ask for a free sample

igus.eu/bevel-gears-s270

new
10/2021

igutek P360 bevel gears

... 6 gear ratios ...

igutek P360 bevel gears convince with an increased wear resistance and high toughness.



max. +110°C
min. -30°C

Tech up

- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads
- Mechanical rework possible

Proof

- Successfully used in various applications

Cost down

- Economic high-volume production through injection moulding
- Maintenance-free properties reduce costs for lubrication and maintenance
- No minimum order quantity, available from stock

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

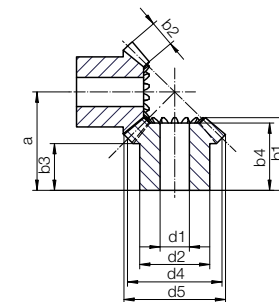


Transmission 1:1

Transmission 1:5

General properties	igutek P360
Density	1.24g/cm ³
Colour	light beige
Max. moisture absorption at +23°C and 50% r.h.	0.5% weight
Max. moisture absorption	2.1% weight
Electrical properties	
Specific transitional resistance	>10 ¹³ Ωcm
Surface resistance	>10 ¹³ Ω
Mechanical properties	
Flexural modulus	1,300MPa
Flexural strength	50MPa

Thermal properties	
Max. long-term application	+110°C
Max. short-term application	+130°C
Minimum temperature	-30°C



Example of a suitable combination (transmission ratio: 1:3)

Part No.	Module	Number of teeth	Transmission	Helix angle [°]	b2	d1	d4	d5	d2	b1	b4	b3	a
P360GM-BG-200-010-00-060-R-30	2	10	1:3	0	12.2	6	20	23.6	15.5	25	-	12	43.3
P360GM-BG-200-030-00-120-R-30	2	30	1:3	0	12.5	12	60	61.7	30.3	22.5	19.8	11.8	28

Order example: P360GM-BG-100-016-00-050-R-10

Material igutek P360, GM gear metrical, BG bevel gear, -100 module, -016 number of teeth 16, -00 helix angle 0°, -050 bore diameter 5mm, -R bore diameter round, -10 gear ratio 1:1

Delivery from stock: module 0.5 - 3.5, gear ratio: 1:1 - 1:5

Ask for a free sample

igus.eu/bevel-gears-p360

... fully assembled gear wheels ...

The iguform 270 and igutek P360 angular gears are fully assembled and available with the shaft materials steel (C45) and stainless steel (1.4301).

Shaft: available in C45 and 1.4301 materials

Housing: zinc die-cast with self-lubricating bearing

Tech up

- Bevel gears pinned and interchangeable iguform S270:
- Low coefficient of friction
- Low moisture absorption
- Quiet igutek P360:
- Increased wear resistance
- Good tribological specifications
- Tough

Proof

- Successfully used in various applications

Cost down

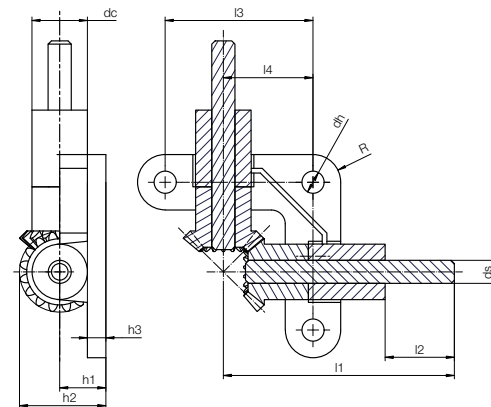
- Economic high-volume production through injection moulding
- Maintenance-free properties reduce costs for lubrication and maintenance
- No minimum order quantity, available from stock

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



General properties	iguform S270	igutek P360
Density	1.41g/cm ³	1.24g/cm ³
Colour	white	light beige
Max. moisture absorption at +23°C and 50% r.h.	0.2% weight	0.5% weight
Max. moisture absorption	0.65% weight	2.1% weight
Electrical properties		
Specific transitional resistance	>10 ¹² Ωcm	>10 ¹³ Ωcm
Surface resistance	>10 ¹⁴ Ω	>10 ¹³ Ω
Mechanical properties		
Flexural modulus	2,400MPa	1,300MPa
Flexural strength	65MPa	50MPa
Thermal properties		
Max. long-term application	+90°C	+110°C
Max. short-term temperature	+100°C	+130°C
Minimum	-40°C	-30°C



Order examples – dimensions [mm]

Bevel gear made of iguform S270, shaft made of steel C45

Part No.	Module	ds	I1	I2	I3	I4	DH	R	h1	h2	h3	dc
S270GM-AG-100-00-R-10-STL	1	5h9	50	15	32	19.4	4.8	6	10	18.8	4	12
iguform S270 shaft made of stainless steel 1.4301												
S270GM-AG-150-00-R-10-SSL	1.5	8h9	70	20	45	28.4	5.8	9	15	28.2	5	18

Bevel gear made of igutek P360, shaft made of steel C45

Part No.	Module	ds	I1	I2	I3	I4	DH	R	h1	h2	h3	dc
P360GM-AG-200-00-R-10-STL	2	10h8	90	30	55	35	7	11	20	37.5	6	22
igutek P360 shaft made of stainless steel 1.4301												
P360GM-AG-300-00-R-10-SSL	3	15h8	120	40	75	47.5	9	15	30	56.2	8	30

Order example: [S270GM-AG-100-00-R-10-STL](#)

Material iguform S270, GM gear metrical, -AG angular gear, -100 module 1, -00 helix angle 0, -R bore diameter round, -10 gear ratio 1:1, -STL steel

... over 300 sizes

available from stock ...

iguform S270 gears are characterised by favourable abrasion behaviour and good friction values in combination with low moisture absorption.



different designs available from stock



max. +90°C
min. -40°C

Tech up

- Low coefficient of friction
- Low moisture absorption
- Quiet operation
- Racks available to match the module of the gears

Proof

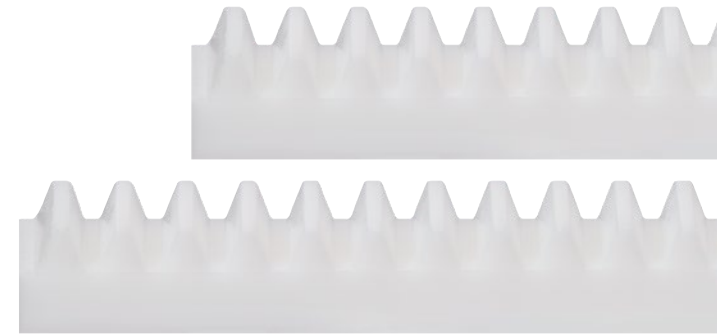
- Successfully used in various applications

Cost down

- Economic high-volume production with injection moulding
- Maintenance-free properties reduce costs for lubrication and maintenance
- Available from stock and with no minimum order quantity

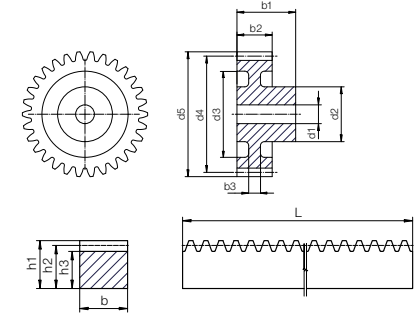
Sustainability

- Environmentally friendly as no additional lubricants needed
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



General properties	iguform S270
Density	1.41g/cm ³
Colour	white
Max. moisture absorption at +23°C/50% r.h.	0.2% weight
Max. total moisture absorption	0.65% weight
Electrical properties	
Specific contact resistance	>10 ¹² Ωcm
Surface resistance	>10 ¹⁴ Ω
Mechanical properties	
Flexural modulus	2,400
Flexural strength	65MPa

Thermal properties	
Upper long-term application temperature	+90°C
Upper short-term application temperature	+100°C
Minimum	-40°C



Order examples - dimensions [mm]

Part No.	Module	Number of teeth	Helix angle	Hub design	d1	d5	b2	d4	b1	d2	b3	d3
S270GM-ST-050-012-00-020-R	0.5	12	0	Round	2	7	3	6	7	4	3	-
S270GM-ST-150-150-00-200-R	1.5	150	0	Round	20	228	19	225	34	40	8	208
S270GM-ST-300-075-00-200-R	3.0	75	0	Round	20	231	19	225	34	40	8	208

Order example: S270GM-ST-050-012-00-020-R

iguform S270 material, G gear, M metric, -ST spur gear, -050 module 0.5, -012 tooth count 12, -00 helix angle 0°, -020 hole diameter Ø2 mm, -R hub design round

Over 300 variants of iguform S270 are available and can be adapted as you need

Part No.	Module	Helix angle [°]	h1	h2	h3	b	L
Rack							
S270GM-GR-125-00-250-100-110	1.25	0	11	9.75	8.3	10	250

Order example: S270GM-GR-125-00-250-100-110

Material iguform S270, G gear, M metric, -GR gear rack, -125 module 1.25, -00 helix angle 0°, -250 length 250mm, -100 width 10.0mm, -110 height 11.0mm

... over 300 sizes

available from stock ...

The igutek P360 gears convince with high wear resistance and good tribological properties. They also have a high degree of toughness.



different designs available from stock



max. +110°C
min. -30°C

Tech up

- Increased wear resistance
- Good tribological properties
- Very tough
- Racks available to match the module of the gears

Cost down

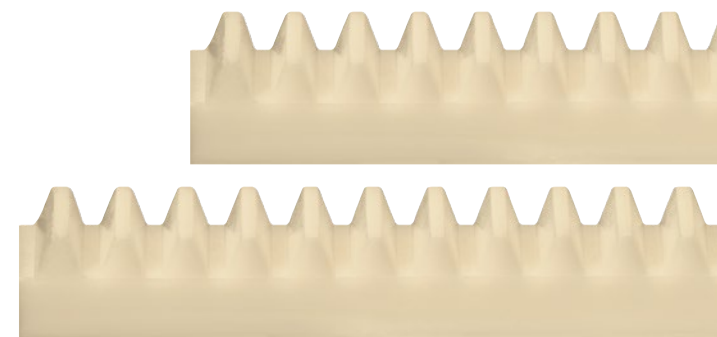
- Economic high-volume production with injection moulding
- Maintenance-free properties reduce costs for lubrication and maintenance
- Available from stock and with no minimum order quantity

Proof

- Successfully used in various applications

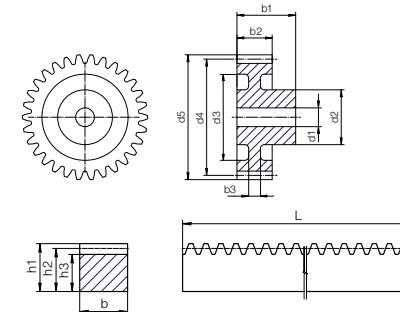
Sustainability

- Environmentally friendly as no additional lubricants needed
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



General properties	igutek P360
Density	1.24g/cm³
Colour	light beige
Max. moisture absorption at +23°C/50% r.h.	0.5% weight
Max. total moisture absorption	2.1% weight
Electrical properties	
Specific contact resistance	>10 ¹³ Ωcm
Surface resistance	>10 ¹³ Ω
Mechanical properties	
Flexural modulus	1,300MPa
Flexural strength	50MPa

Thermal properties	
Upper long-term application temperature	+110°C
Upper short-term application temperature	+130°C
Minimum	-30°C



Order examples - dimensions [mm]

Part No.	Module	Number of teeth	Helix angle	Hub design	d1	d5	b2	d4	b1	d2	b3	d3
Gear wheel			[°]									
P360GM-ST-050-012-00-020-R	0.5	12	0	Round	2	7	3	6	7	4	3	-
P360GM-ST-150-150-00-200-R	1.5	150	0	Round	8	52	9	50	18	18	4.6	36.5
P360GM-ST-300-075-00-200-R	3.0	75	0	Round	20	231	19	225	34	40	8	208

Order example: P360GM-ST-050-012-00-020-R

igutek P360 material, G gear, M metric, -ST spur gear, -050 module 0.5, -12 tooth count 12, -00 helix angle 0°, -020 hole diameter Ø2 mm, -R hub design round

Over 300 variants of igutek P360 are available and can be adapted as you need

Part No.	Module	Helix angle [°]	h1	h2	h3	b	L
Rack							
P360GM-GR-070-00-250-060-067	0.7	0	6.7	6	5.1	6	250

Order example: P360GM-GR-070-00-250-060-067

Material igutek P360, G gear, M metric, -GR gear rack, -070 module 0.7, -00 helix angle 0°, -250 length 250mm, -060 width 6mm, -067 height 6.7mm

... chemically resistant with high temperature range ...

Gears made of iglidur® A500 have been certified for use in direct contact with food. iglidur® A500 is a very dimensionally stable material with excellent wear resistance even at high temperatures.



FDA compliant



max. +250°C
min. -100°C

Tech up

- Compliant with Regulation (EU) No. 10/2011
- Resistant to chemicals
- FDA-compliant
- Temperature resistant from -100°C to +250°C
- Resistance to radiation
- No external lubrication necessary

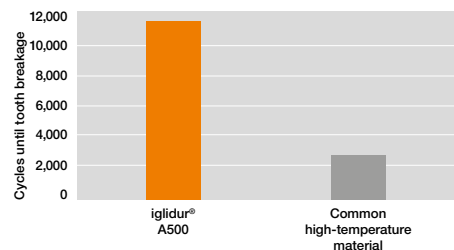
Cost down

- Higher running performance
- Reduce downtimes in production
- Maintenance-free properties reduce costs for lubrication and maintenance
- Economic high-volume production with injection moulding

Sustainability

- Environmentally friendly as no additional lubricants needed
- Good coefficient of wear and therefore a long service life
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

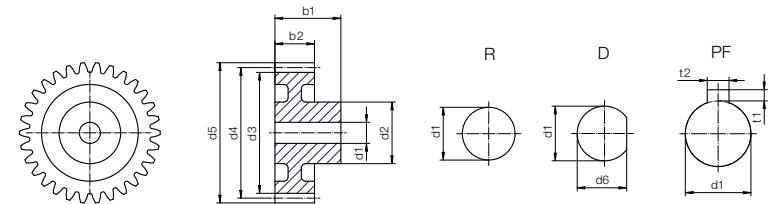
Proof



General properties	iglidur® A500
Density	1.28g/cm ³
Colour	brown
Max. moisture absorption at +23°C/50% r.h.	0.3% weight ¹⁾
Max. total moisture absorption	0.5% weight
Electrical properties	
Specific contact resistance	10 ¹⁴ Ωcm ²⁾
Surface resistance	10 ¹³ Ω ³⁾

Mechanical properties	
Flexural modulus	3,600MPa
Flexural strength	140MPa
Shore D hardness	83
Thermal properties	
Upper long-term application temperature	+250°C
Upper short-term application temperature	+300°C
Minimum	-100°C

¹⁾ DIN 53495 testing method ²⁾ DIN IEC 93 testing method ³⁾ DIN 53482 testing method



Part No.	Module	Number of teeth	Helix angle [°]	Hub design	d1	d5	b1	b2
A500GM-ST-1-20-00-048R	1	20	0	Round	4.8	22	15	9
A500GM-ST-1-30-00-048R	1	30	0	Round	4.8	32	15	9
A500GM-ST-1-40-00-048R	1	40	0	Round	4.8	42	15	9

Lubrication-free made easy ...

iglidur® 3D printing ... food-compliant ... wear-resistant parts for all applications ... It's our job

The easy-to-process tribofilament® iglidur® I150 can now also be processed for large components up to 3m. The food-grade filament is also suitable for printing smart wear-resistant parts and complements multi-material components with excellent wear resistance. The new tribofilament® iglidur® I151 with blue colour relevant for the food industry is also easy to process.

... new

highlight 2021↑...



...92



Abrasion-resistant components with a size of up to 3m in 3D printing

96



Chemical-resistant laser sintering material

...98



Food-compliant by means of laser sintering ... iglidur® I6

100



iglidur® I151 ... the blue all-rounder filament for food contact

...102



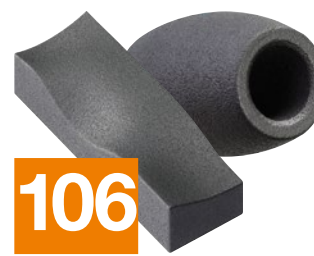
CAD configurator for pulleys, T and AT profiles

104



CAD configurator for gears with coarse teeth

106

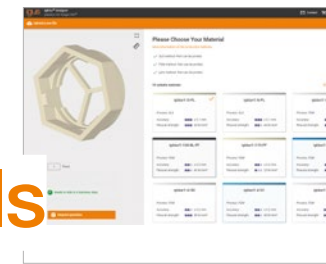


I8-ESD with online service life calculation

...94

4K multi-material printing ... abrasion-resistant, intelligent, highly rigid and insulating ... in one component

...online tools



iglidur® designer for your individually manufactured component, now with more features in the service life calculator

... large 3D printed components ...

iglidur® I150 and I151, which are especially wear-resistant, make it easy to use large-format components in large-scale mechanical engineering.

80%

up to 80% more cost-effective than machined parts

85%

up to 85% lighter than machined parts

50x

up to 50x more abrasion-resistant than PLA, PET, ABS ...

€0

no tooling costs

Tech up

- For large-scale mechanical engineering
- Huge components up to 3 metres made of iglidur® I150 and iglidur® I151 in a 3D printing process
- Long service life - up to 50x more abrasion-resistant than ABS, PETG and PLA in 3D printing
- Lubrication-free and maintenance-free
- Local rework for good precision
- Food compatible

Proof

- iglidur® I150 wear test results igus.eu/I150-abrasion-test
- Video of the abrasion test: igus.eu/3d-abrasion-test
- 3D printing put to the test: igus.eu/info/3d-print-tribology-test

Cost down

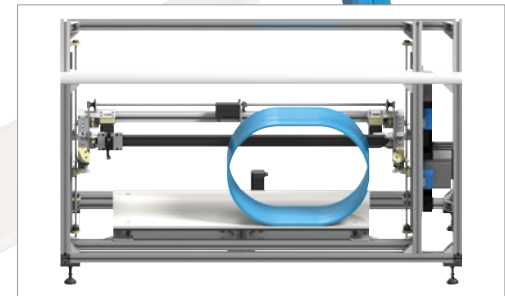
- Up to 85% reduction in material requirements compared to machining
- Further cost reduction through lightweight design
- No tool costs - cost-effective, no minimum order quantity
- Available with the 3D printing service from 5 days igus.eu/3d-printing-request

Sustainability

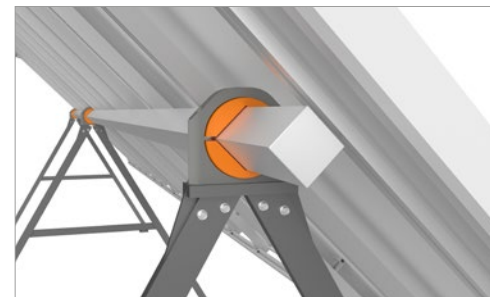
- Up to 85% material savings through 3D printing
- Long service life
- No lubrication necessary
- Recyclable



up to 3 metres



Huge components up to 3 metres made of iglidur® I150 and iglidur® I151 in a 3D printing process



Application example renewable energy



Send us your request: igus.eu/3d-printing-request

... abrasion resistant, smart with structure ...

One possible combination would be intelligent bearings for predictive maintenance: with a fibre-reinforced housing, tribo filament® at stress points, and integrated conductor tracks to warn of bearing overload.



4

materials
in a single component

5GPa

flexural
modulus

50x

more abrasion-
resistant than PLA,
PET, ABS ...

Tech up

- Versatile component properties with the use of four polymers
- Lubrication-free and maintenance-free
- Service life up to 50x longer than regular 3D printing materials
- Fibre-reinforced areas with extremely high strength and stiffness (flexural modulus: 4.7GPa, flexural strength: 87MPa)
- Integrated sensor as required for predictive maintenance and overload warning

Cost down

- No minimum order quantity with no tool costs
- Finished in one step: no post-processing
- Reduced material requirement due to higher strength and stiffness
- Available via the 3D printing service from 5 working days
igus.eu/3d-printing-request

Proof

- Intelligent wear-resistant parts:
igus.eu/3d-isense
- Video of the abrasion test:
igus.eu/3d-abrasion-test
- 3D printing put to the test:
igus.eu/info/3d-print-tribology-test

Sustainability

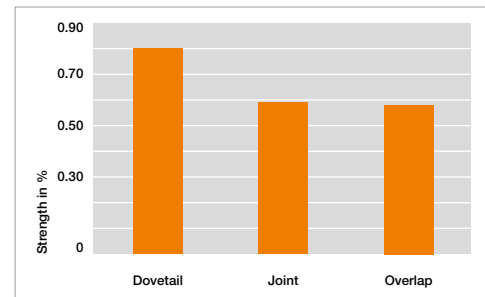
- No lubrication necessary
- Ideal for lightweight construction
- 3D printing: low material requirements, since there is no waste or sprue



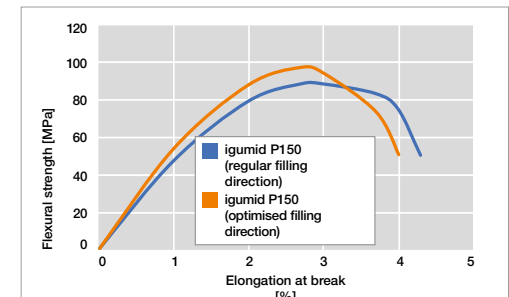
Combination of wear resistance and rigidity



Combination of wear resistance and intelligence



Multi-material composition strength



High flexural strength of igumid P150

... chemical-resistant SLS material ...

Chemical-resistant and food-compatible special parts printed in 1 to 3 days.



food compatible



chemical-resistant



no tooling costs

Tech up

- High chemical resistance
- Food compatible
- Lubrication-free and maintenance-free
- Very tough

Cost down

- No tool costs; cost-effective, no minimum order quantity
- Available with the 3D printing service from 5 days igus.eu/3d-printing-request

Proof

- Ideal for electroplating industries: high chemical resistance
- Ideal for the food industry: resistant to cleaning agents and food compatible
- Beta test possible, contact us if you would like to test individual chemical-resistant components via additive manufacturing.

igus.eu/3d-printing-request

Sustainability

- No lubrication necessary
- Recyclable
- 3D printing: low material requirements, since there is no waste or sprue
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:

igus.eu/sustainability



3D print for the food industry



3D printing for electroplating

General properties

Density	approx. 0.85g/cm ³
Colour	off white
Max. moisture absorption at +23°C and 50% r.h.	1.0% weight
Max. total moisture absorption	1.0% weight

Mechanical properties ³⁾

Flexural modulus	800/750MPa ⁴⁾
Flexural strength	20MPa ⁴⁾
Holding force	21/20MPa ⁴⁾
Max. recommended surface pressure	20MPa
Shore D hardness	n.s.

Thermal properties

Max. continuous operating temperature	+80°C ¹⁾
Max. short-term operating temperature	+100°C ^{1) 2)}
Min. application temperature	-20°C

Electrical properties

Specific contact resistance	>10 ¹² Ωcm
Surface resistance	>10 ¹¹ Ω

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

³⁾ Depending on the printing parameters and building direction

⁴⁾ Sintered flat/upright

... FDA compliant by means of laser sintering ...

The laser sintering material iglidur® I6 complies with the food-specific regulations of the FDA and of EU 10/2011 and can therefore be used in numerous applications in the food and beverage industry.



FDA and EU10/2011 compliant



9x more abrasion-resistant than POM



60 seconds online price calculation

Tech up

- Food contact in accordance with EU10/2011 regulations
- FDA-compliant, lubrication and maintenance-free
- Extremely abrasion-resistant: at least 9x more abrasion-resistant than PA12 (SLS) in rotation test
- Extremely abrasion-resistant: longer service life in worm gear test than if machined with POM
- Max. application temperature: +80°C
- Can be processed on regular laser sintering systems

Proof

- iglidur® I6 food contact quality seals igus.eu/I6
- Worm wheel test: igus.eu/worm-gear-test
- 3D printing put to the test: igus.eu/info/3d-print-tribology-test

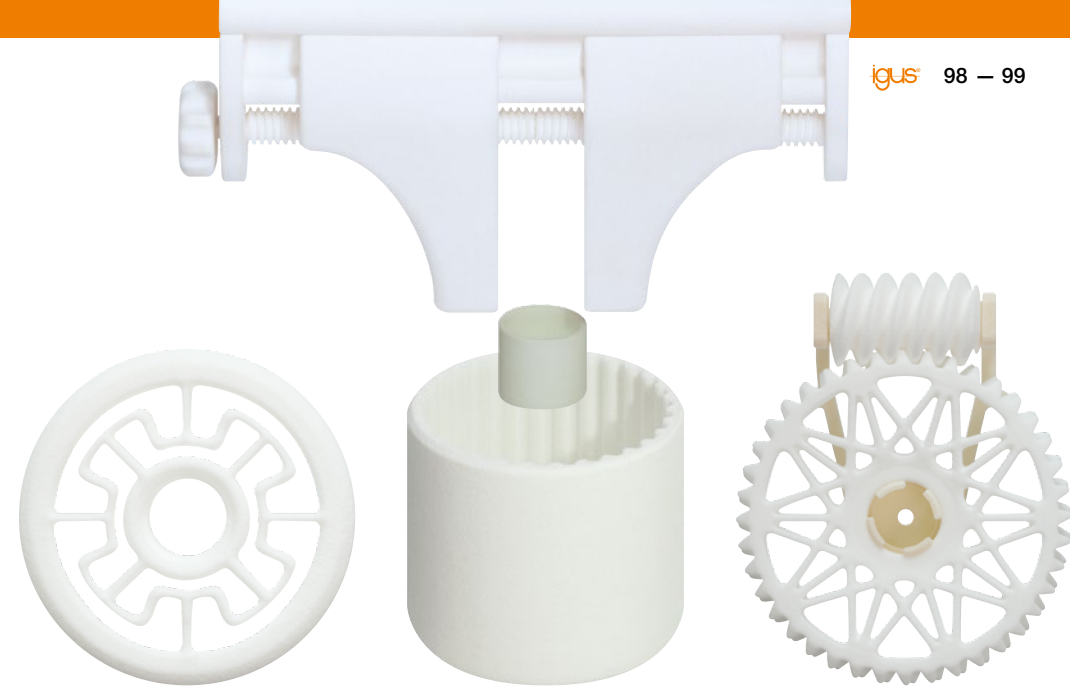
Cost down

- No minimum order quantity, no tool costs
- Online price calculation in 60 seconds

igus.eu/idd

Sustainability

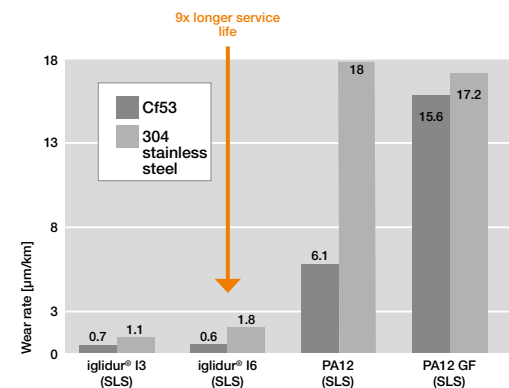
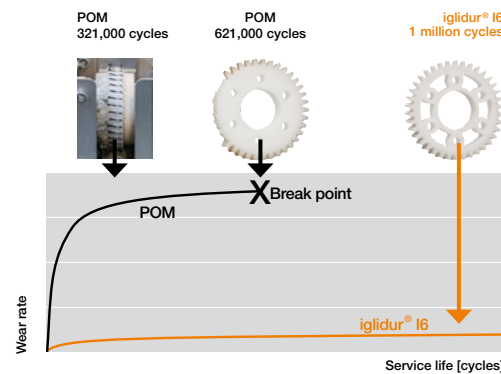
- No lubrication necessary
- Refresh rate: 75% new material
- Recyclable
- 3D printing: low material requirements, since there is no waste or sprue
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



General properties	igidur® I6
Density	1.06g/cm³
Colour	white
Max. moisture absorption at +23°C and 50% r.h.	0.8% weight
Max. total moisture absorption	1.9% weight
Electrical properties	igidur® I6
Specific contact resistance	10 ¹² Ωcm
Surface resistance	10 ¹¹ Ω

Mechanical properties	igidur® I6
Flexural modulus	1,100MPa
Flexural strength *	49/38MPa
Shore D hardness	67
Thermal properties	igidur® I6
Upper long-term application temperature	+80°C
Lower short-term application temperature	+140°C
Min. application temperature	-40°C

* Printed flat/upright



... filament for contact with food ...

The abrasion-resistant iglidur® I151 filament can be used on any 3D printer, complies with EU 10/2011 and FDA food requirements, and is ideal for applications in the food and packaging industry.



food compatible

50x

more abrasion-resistant than PLA, PET, ABS ...

0hrs

no downtime due to quickly available spare parts

▲ Tech up

- 3D printed components with FDA and EU10/2011 conformity
- High visibility with its blue colour
- Can be processed easily on any commercially available 3D printers
- Long service life - up to 50x more abrasion-resistant than ABS, PETG and PLA in 3D printing
- Lubrication-free and maintenance-free

■ Proof

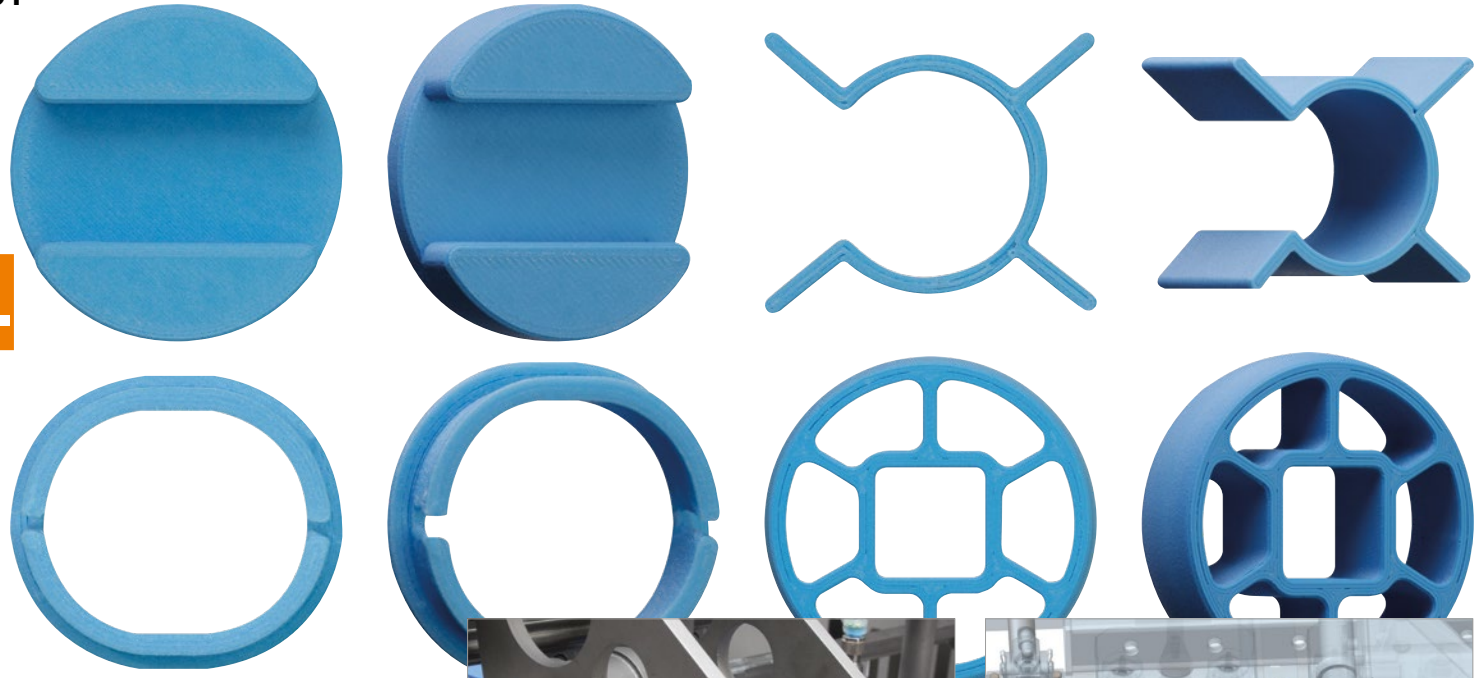
- Food conformity in acc. with FDA and EU10/2011 igus.eu/igliidur-I151
- Same mechanical properties as the proven classic iglidur® I150 igus.eu/igliidur-I151
- 3D printing put to the test: igus.eu/info/3d-print-tribology-test

▼ Cost down

- No minimum order quantity, no tool costs for special parts
- Reduce downtime through quickly available spare parts
- Less waste, ease of processing
- Available for the 3D printing service igus.eu/3d-printing-request

● Sustainability

- 3D printing - low material requirements, since there is no waste or sprue
- Long service life
- No lubrication necessary
- Recyclable



Print special parts for the food industry



Printing special parts for the beverage industry

General properties

Density	1.42g/cm ³
Colour	Light blue
Max. moisture absorption at +23°C and 50% r.h.	n.s.
Max. total moisture absorption	0.3% weight

Mechanical properties

Flexural modulus	1,400MPa ³⁾
Flexural strength	43MPa ^{3) 4)}
Modulus of elasticity	950MPa ³⁾
Holding force	28MPa ^{3) 4)}
Max. recommended surface pressure	n.s.
Shore D hardness	69

Thermal properties

Max. continuous operating temperature	+65°C ¹⁾
Max. short-term operating temperature	+75°C ^{1) 2)}
Min. application temperature	-30°C

Electrical properties

Specific contact resistance	n.s.
Surface resistance	n.s.

¹⁾ Relaxation not excluded

²⁾ No fill weight; no sliding movement

³⁾ Depending on the printing parameters

⁴⁾ Printed flat

⁵⁾ Printed upright

... configure in
60 seconds ...

Configure toothed belt wheels individually online and delivered in 3 days.

60

seconds
online price
calculation



igidur® I6:
food compatible

Tech up

- Individual dimensions fast configured
- For T and AT profiles
- With flanged pulleys as a single piece
- Lubrication-free and maintenance-free
- Long service life - up to 50x more abrasion-resistant than standard 3D printing materials

Proof

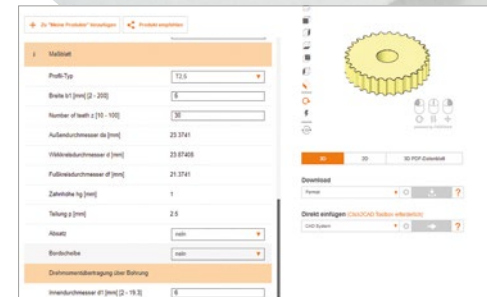
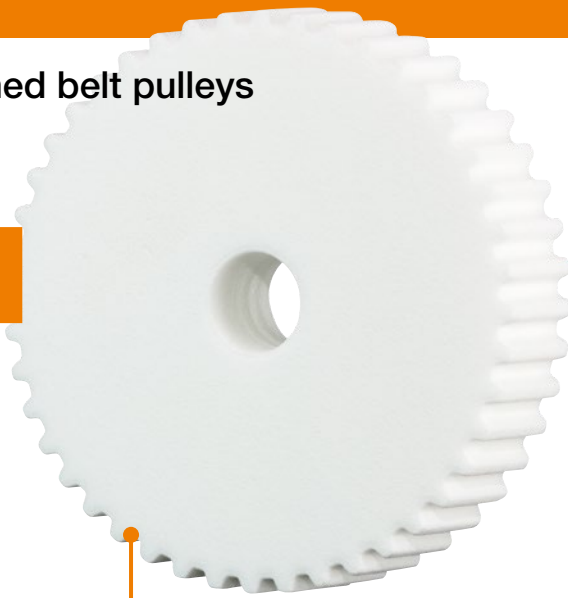
- Further configurators for gears, racks, plain bearings, sliding plates, lead screw nuts and rollers igus.eu/cad-configurators
- 3D printing put to the test: igus.eu/info/3d-print-tribology-test

Cost down

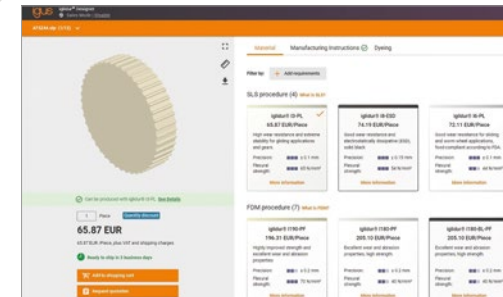
- No time-consuming design work
- No CAD software or knowledge required
- Efficient, no minimum order quantity
- Free online tool
- igus.eu/belt-pulley
- Online prices immediately, 3D printed in 3 days: igus.eu/idd

Sustainability

- No lubrication necessary
- No warehousing required, any geometry in three days
- 3D printing: low material requirements, since there is no waste or sprue



CAD configurator:
igus.eu/toothed-belt-disc



Online price calculation in 60 seconds:
igus.eu/idd



Application in linear technology



Toothed belt wheel in iglidur® polymer linear guide

... gear configurator

online ...

Online gear configurator for gears from 8 teeth. Design in less than 60 seconds and print immediately. Longer service life due to tooth root geometry optimised for 3D printing.

5x
longer service life than POM

60
seconds online price calculation

Tech up

- Now also configure from 8 teeth
- Download free customised gear CAD templates
- Longer service life of the gear due to optimised tooth root geometry
- For single and double gears
- Long service life - up to 5x more abrasion-resistant than machined gears made of POM

Proof

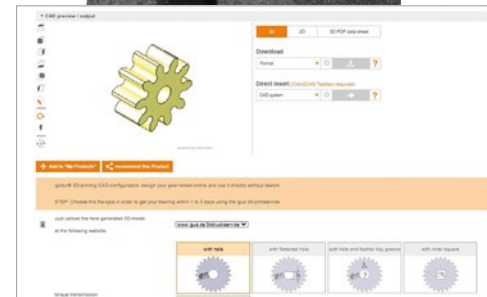
- 3D printed gear in a water cannon igus.eu/fire-brigade
- Test results: 5x longer service life compared to POM gears igus.eu/gear
- Online service life calculation: igus.eu/gear-expert

Cost down

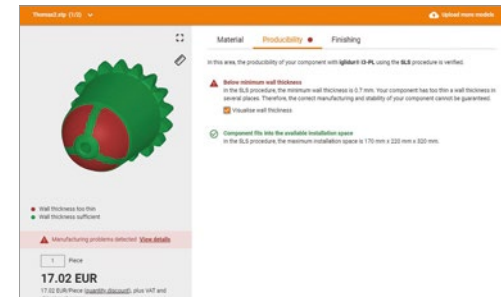
- No time-consuming design work
- No CAD software or knowledge required
- Efficient, no minimum order quantity
- Free online tool igus.eu/gear-configurator
- Online prices immediately, 3D printed in 3 days: igus.eu/idd

Sustainability

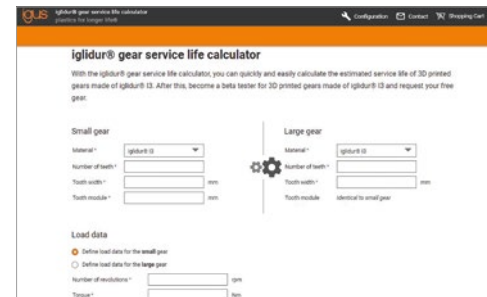
- Lubrication-free and maintenance-free
- No warehousing required, any geometry in three days
- 3D printing: low material requirements, since there is no waste or sprue



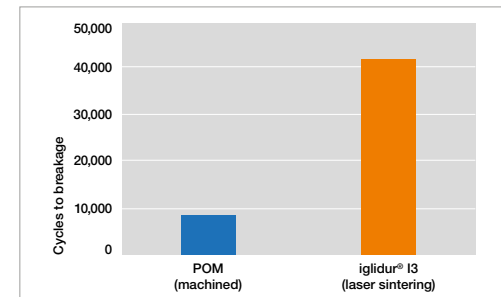
CAD configurator igus.eu/gear-configurator



Online price calculation in 60 seconds: igus.eu/idd



Online service life calculation: igus.eu/gear-expert



Cycles until tooth breakage - Pivoting 1440°: n=64rpm, M=2.25Nm, z=30, m=1, b=6.5mm

... ESD properties ...
predictable online ...

New: the gear service life calculation is now available for iglidur® I8-ESD. Simply enter the application parameters to determine the expected service life.



Tech up

- Service life can be calculated online igus.eu/gear-expert
- Electrostatically dissipative (ESD) and black
- Excellent service life - for example, a pivoting abrasion resistance factor of 2 compared to PA 12, can be calculated online
- Can be processed on regular and low-cost laser sintering systems
- Can be delivered even faster

Proof

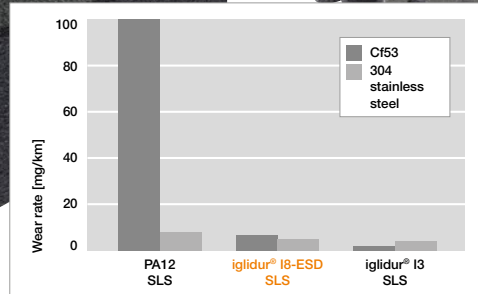
- ESD properties are essential, particularly in the electronics industry, for avoiding damage to electronic components.
- Also interesting for all other industries where it is important to avoid electrostatic charges
- Laboratory report ESD properties: igus.eu/I8-ESD-test

Cost down

- No minimum order quantity, no tool costs
- Delivery time three days outbound: igus.eu/3d-printing-request

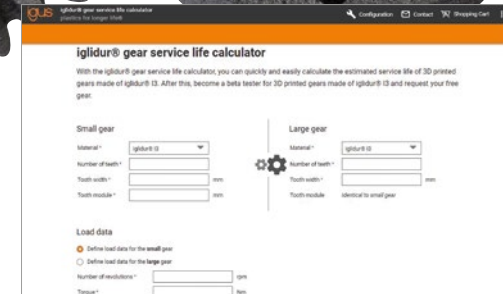
Sustainability

- No lubrication necessary
- Can be recycled
- 3D printing: low material requirements, since there is no waste or sprue
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Linear wear: $p = 1 \text{ MPa}$; $v = 0.01 \text{ m/s}$

General properties	igidur® I8-ESD
Density	1.03g/cm³
Colour	black
Max. moisture absorption at +23°C and 50% r.h.	0.8% weight
Max. total moisture absorption	1.9% weight
Electrical properties	
Specific contact resistance	$2.8 \times 10^7 \Omega \text{cm}$
Surface resistance	$3.6 \times 10^7 \Omega$



Calculate service life online: igus.eu/gear-expert

Mechanical properties	igidur® I8-ESD
Flexural modulus	2,200MPa
Flexural strength *	63MPa
Shore D hardness	35MPa
Thermal properties	
Upper long-term application temperature	+80°C
Lower short-term application temperature	+140°C
Min. application temperature	-40°C

Lubrication-free made easy ...

igubal® spherical bearings ... easy to replace ... without lubrication ... It's our job

Replace metal ball bearings quickly and easily with igubal® spherical insert bearings. In cost-effective sheet metal housings, solid cast iron housings or light polymer housings, igubal® pillow block and fixed flange bearings prove themselves through the elimination of lubricants with clean operation.

... new

highlight 10/2021↑...

...114

Robust polymer housing for spherical insert bearings, pillow blocks, 2 and 4-hole fixed flange bearings

116

Study ... igubal 4.0 with sensor in the spherical insert bearing

...118...



Predictable online: crimped threaded inserts and dirt-resistant end pieces with extreme undercut

122



Snap-on connection made of metallic housing with various inner rings

124



igubal® ESTM-xx-FC pillow block bearing for food applications

...126



Study ... adjustable bearing

128



igubal® ESQM ... solar pillow block bearing for square tubes

130

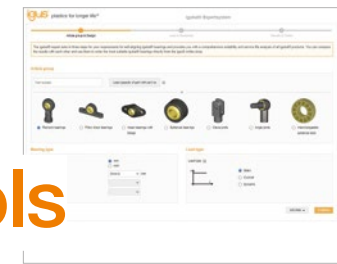


Cost-effective and UV-resistant ... iglidur® P UV for the solar industry

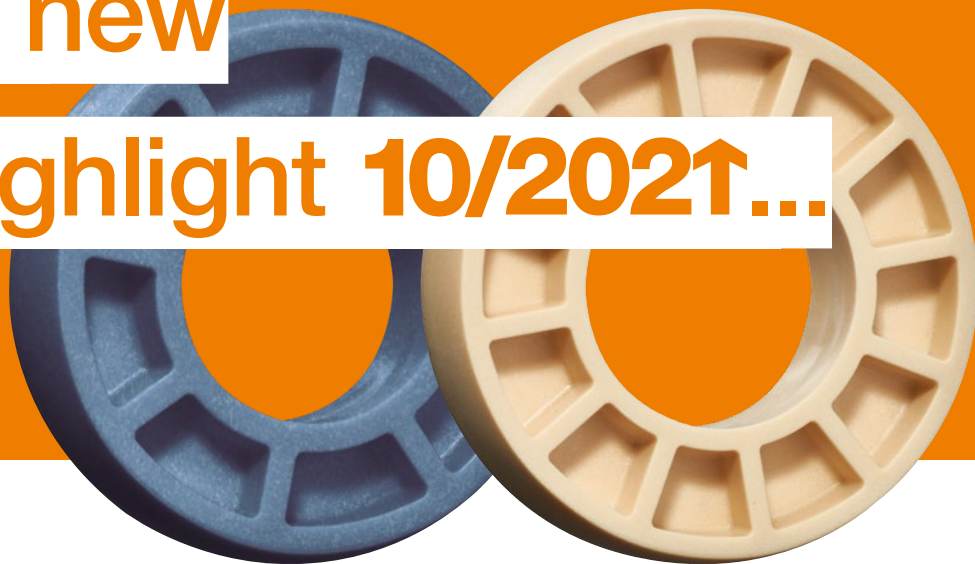
...112

Spherical insert bearings resistant to dirt and media (iglidur® A350) and for imperial shafts (iglidur® J)

... online tools



igubal® online expert ... you can find the best solution for your application with the output of the expected service life



igubal® spherical insert bearings

Make HUGE savings now ...

... The lowest-cost lubrication method

is the one you don't need at all.

... It's our job

igubal® spherical insert bearings function without lubricant, are cost-effective and can be easily installed. Thanks to their corrosion resistance and insensitivity to dirt and dust, igubal® spherical insert bearings for metal pillow block and fixed flange bearings can increase the operating time of your applications: the service life is up to 8 times longer than with ball bearings, especially in dirty environments.

Spherical insert bearings ...



Injection-moulded spherical insert bearings

Available for UC/P metal housings with dimensions 203-210. Also available at even more cost-effective prices as a low-cost material.



Machined spherical insert bearings

For even higher loads with much less sensitivity to dirt. Also available as an FDA-compliant version.

Spherical insert bearings with housing ...



Cast iron housing with spherical insert bearing

Solid, maintenance-free cast steel housing in sizes UC204-206, UC208 and UC210. Also available as two-hole and four-hole fixed flange bearing.



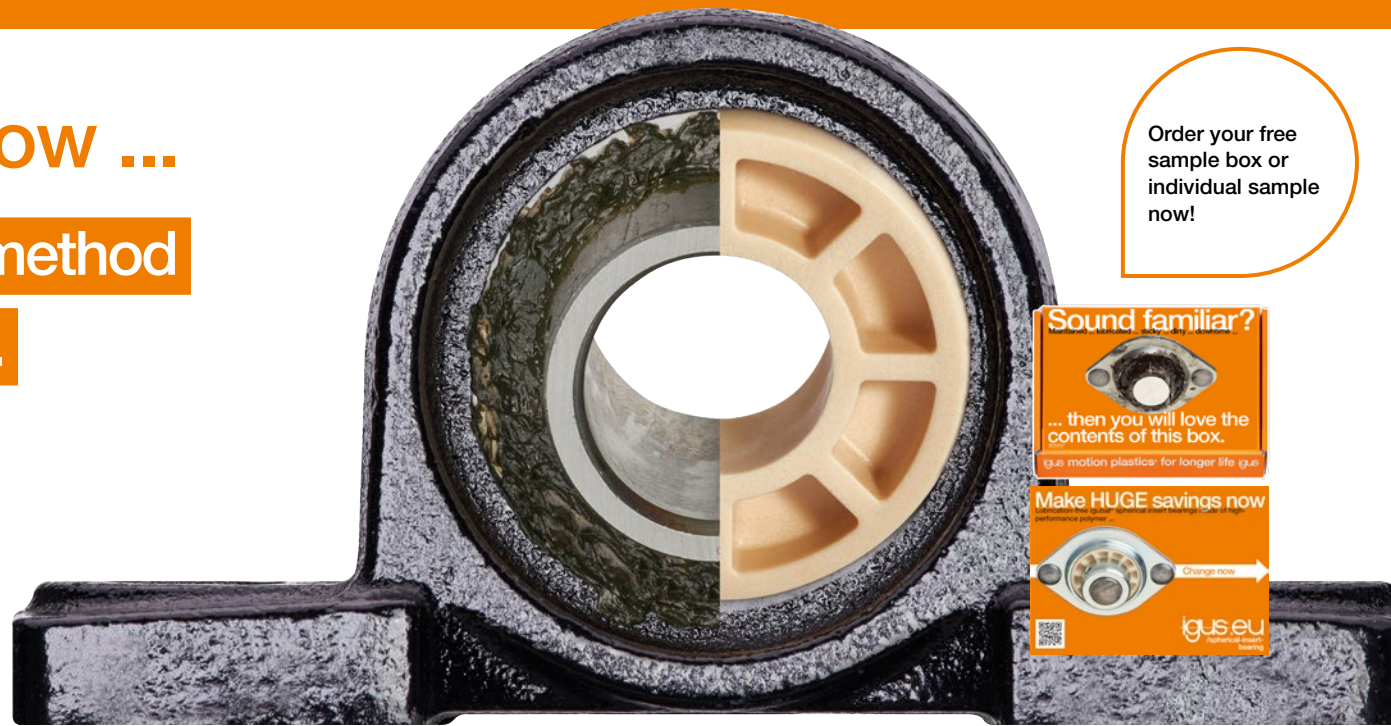
Sheet metal pillow block with spherical insert bearing

Cost-effective sheet metal housing bearing in sizes P204-208. Also available as two-hole fixed flange bearing.



Plastic pillow block with spherical insert bearing

Available as pillow block bearings, 2 and 4-hole fixed flange bearings.



Advantages at a glance:


- Maintenance-free ... no lubrication required! The self-lubricating spherical insert bearings ensure a maintenance-free dry operation
- Sealed against dirt ... protects the bearing against wear
- Corrosion-resistant ... unlike metal, polymer spherical insert bearings do not corrode and are suitable for use in water and media
- Lightweight ... the polymer spherical insert bearings have up to 80% weight advantage over metal bearings
- Cost-effective ... up to 13 times more cost-effective acquisition costs per year as well as 100% savings on lubricants and the associated maintenance costs
- Easy assembly ... the spherical insert bearings can be replaced within seconds without removing the existing metal housings



igubal® spherical insert bearing in injection-moulded design in a composting plant



Polymer housing with injection-moulded igubal® spherical insert bearing in a conveyor belt for foodstuffs

 Available from stock

 igus.eu/spherical-insert-bearing

... food grade ...
for imperial shafts ...

Quick, cost-effective assembly with spherical insert bearings. Now also food compliant, made of iglidur® A350, and for imperial shafts.



Spherical insert bearing made of iglidur® J in imperial dimensions



Imperial product range

Spherical insert bearing made of iglidur® A350



Food grade spherical insert bearings

▲ Tech up

- Dirt and media-resistant
- Now also for 1, 1½ and 2 inch shafts
- In combination with plastic housings, 100% corrosion-free
- High static load capacity

■ Proof

- Compressive force test in the igus® test laboratory



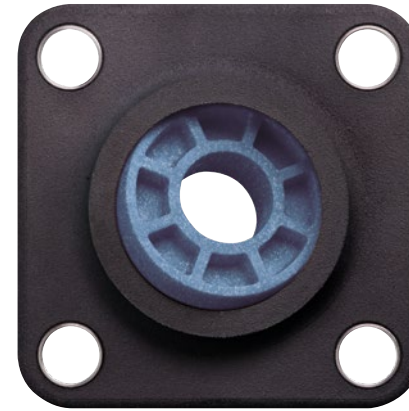
▼ Cost down

- No lubrication necessary
- Reduced maintenance and downtime
- Food grade iglidur® A350 spherical insert bearings now available in a significantly more cost-effective injection-moulded version

● Sustainability

- No lubricants to washout
- Low energy requirement when polymer spherical balls are produced as injection moulded parts
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:

igus.eu/sustainability

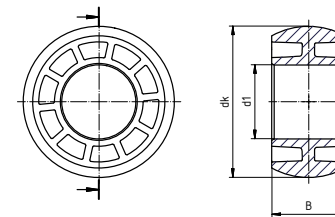


Polymer spherical balls instead of metal ball bearings – increase runtime through the use of cost-effective igubal® spherical insert bearings - here in a brick plant



Dimensions [mm]						
Part No.	Housing No.	d1 E10	dk	B	Max. static compressive force	
					radial [N]	axial [N]
A350EM-20-17-SP	204	20	47	17	9,000	4,500

Dimensions [inch]						
Part No.	Housing No.	d1 E10	dk	B	Max. static compressive force	
					radial [N]	axial [N]
JEI-16-17-SP	205	1	52	17	9,000	3,500
JEI-24-21-SP	208	1 1/2	80	21	21,000	6,000
JEI-32-25-SP	211	2	100	25	25,000	5,500



Available from stock

igus.eu/igubal-a350em /igus.eu/igubal-jei

... plastic housings ...

no rust ...

Polymer bearing housing for maintenance-free spherical insert bearings. Housing for two and four-hole fixed flange bearings and pillow block bearing housing.

Tech up

- Dimensionally interchangeable with cast iron housings
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads

Cost down

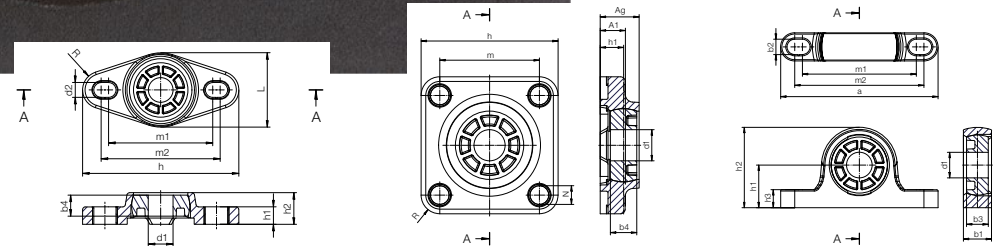
- Reduced maintenance and downtime
- Quick spherical insert bearing assembly and disassembly

Proof

- Tensile test with 20mm diameter
FL204 = 6,000N
F204 = 7,000N
P204 = 6,500N

Sustainability

- No lubrication necessary
- Extreme weight reduction thanks to the plastic-friendly design



Part No.	d1	d2	L	h	h1	h2	R	a	b4	m1	m2
2-hole fixed flange bearings											
FL204-KS-JEM-20-17-SP	20	12	60	126	14.1	25.5	15	-	17	84	96
FL206-KS-JEM-30-19-SP	30	16	75	159	17.1	29.5	19	-	19	113	121
FL208-KS-JEM-40-21-SP	40	16	93	186	17.1	33.5	19	-	21	140	148
4-hole fixed flange bearings											
F204-KS-JEM-20-17-SP	d1	a	h	m	A1	Ag	N	b4	h1	R	-
F206-KS-JEM-30-19-SP	20	5	88	64	16.2	25	12	17	15	12	-
F208-KS-JEM-40-21-SP	30	-	107	83	16.2	29	12	19	18	12	-
F208-KS-JEM-40-21-SP	40	-	130	102	21.2	33	16	21	21	14	-
Pillow block bearings											
P204-KS-JEM-20-17-SP	d1	b1	b2	b3	h1	a	h2	h3	m1	m2	-
P204-KS-JEM-20-17-SP	20	22	12	17	33.3	123	62.8	14.1	89	101	-
P205-KS-JEM-25-17-SP	25	22	12	17	36.5	133	68.5	14.1	99	111	-
P206-KS-JEM-30-19-SP	30	26	16	19	42.9	151	79.9	17.1	117	125	-

... igubal® 4.0 sensor ...

igubal® spherical insert bearing with built-in sensor to avoid downtime. Maintenance intervals can be calculated and planned by means of the sensor.

▲ Tech up

- Reduce downtime and failures with predictable maintenance intervals
- Bearing points can be tested in a targeted manner
- Can be adapted to series products such as pillow block bearings and fixed flange bearings with igubal® spherical insert bearings

■ Proof

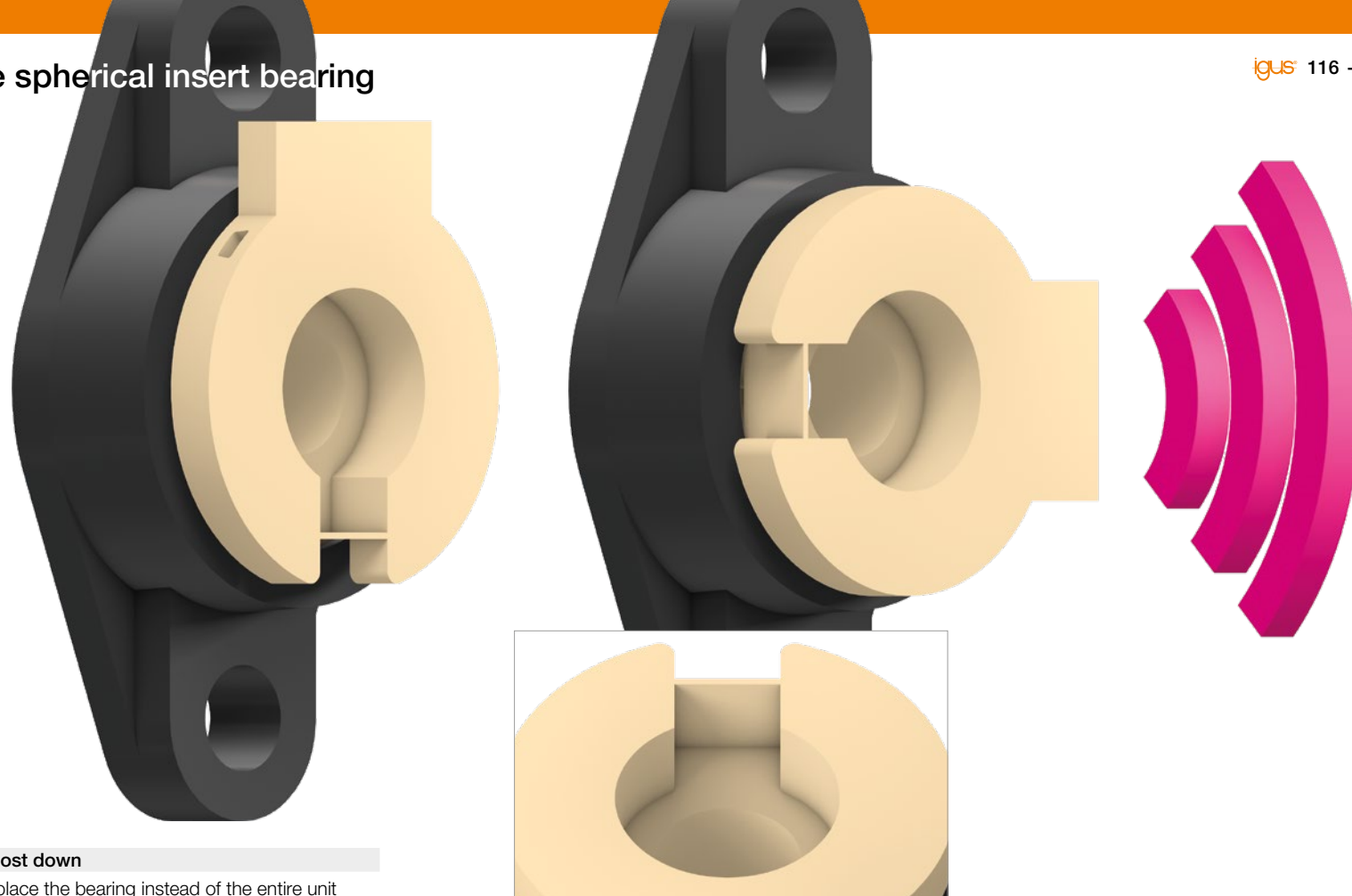
- Developed in response to customer needs. Comprehensive tests are now under way. Please contact us!

▼ Cost down

- Replace the bearing instead of the entire unit
- Can be adapted to all bearing types and diameters

● Sustainability

- With charging socket for rechargeable batteries
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:
igus.eu/sustainability



Can be adapted to series products such as pillow block bearings and fixed flange bearings with igubal® spherical insert bearings

... sealed

against dirt ...

End pieces sealed against dirt with a stainless steel middle section of variable length.

25%

More elastic than igumid G

20x

More abrasion-resistant than polyamid

▲ Tech up

- Shore D hardness 58: 25% more elastic than igumid G
- 20 times more abrasion-resistant against metallic ball studs than polyamide
- Very easy to assemble

▼ Cost down

- No minimum order quantity
- Customised lengths
- **New:** Prices can be calculated online

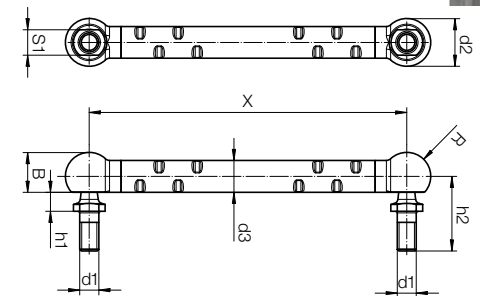
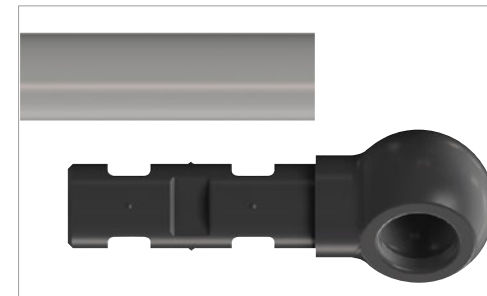
■ Proof

- Tested: Tensile strain 150N short-term, 75N long-term



● Sustainability

- No lubrication necessary
- Optimisation of material requirements



Very easy to assemble – plug and crimp

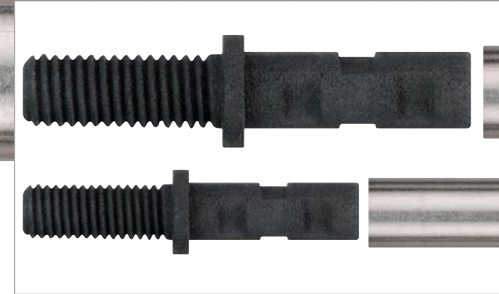
Part No.	d1	d2	d3	X	B	h1	h2	S1	R	Max. pivot angle
WDGM-05-A-ER-SZ-FX-□	M5	13	10	min. 70	11.5	4	19.2	7	6.5	13°
WDGM-06-A-ER-SZ-FX-□	M6	15	10	min. 70	12.5	6	23.5	8	7.5	13°
WDGM-08-A-ER-SZ-FX-□	M8	18	12	min. 82	15	7	29.5	11	9	13°
WDGM-10-A-ER-SZ-FX-□	M10	18	12	min. 82	15	7	29.5	11	9	13°

□ = Please add the required centre distance in mm

... crimped

threaded inserts ...

Threaded units for crimping to create adjustable coupling joints combination of clevis joints and rod end bearings as well as angled and in-line ball and socket joint possible.



Various thread sizes and diameters possible

Tech up

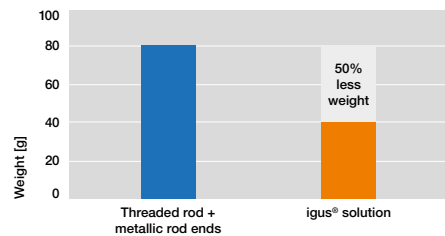
- Individual centre distance
- Can be adjusted using left and right-hand threads
- Many combination options: clevis joints, rod ends, as well as angled/in-line ball and socket joints
- Various thread sizes and diameters possible
- Less weight than solutions with threaded rods

Cost down

- Implement prototypes quickly and cost-effectively
- No minimum order quantity, no tool costs

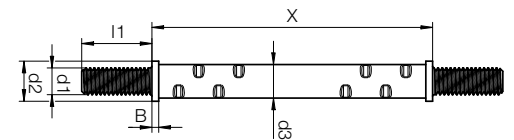
Proof

- Coupling joint of 200mm centre distance with rod ends



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Part No.	d1	d2	d3	X	B	l1
TDGM-06-RG/LG-□	M6	10	8	min. 45	1.5	18
TDGM-08-RG/LG-□	M8	12	10	min. 50	2	21

□ = Please add the required centre distance in mm

... igubal® 2.0

food compatible ...

Metal housing with self-lubricating bearing shell made of FDA-compliant materials and stainless steel spherical ball open up further applications in the food sector.

FDA

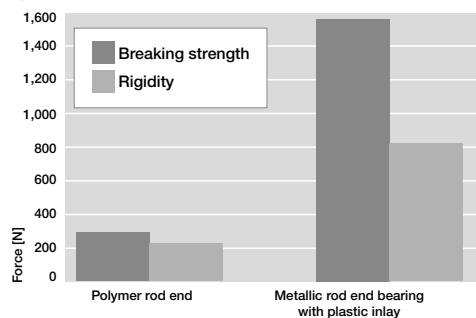
FDA-compliant inner ring

▲ Tech up

- Metallic housing: 5x higher breaking strength than igumid G
- 10x more abrasion-resistant against metallic spherical balls than polyamide
- Inner race made of FDA-compliant materials

■ Proof

- Greater breaking force and stiffness than that of plastic rod end and metal rod end



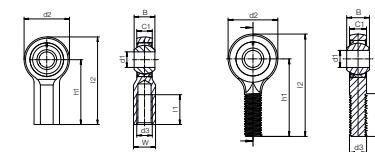
▼ Cost down

- No minimum order quantity, no tool costs for igus® standard dimensions
- Short delivery time

● Sustainability

- No lubrication necessary
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:

igus.eu/sustainability



Part No.	d1	d2	d3	h1	l1	l2	B	C1	W*
K□□M-ES-06-A160-EK	6	22.0	M06	36.0	21	47.00	9	7.0	10
K□□M-ES-08-A160-EK	8	26.5	M08	42.0	24	55.25	12	9.0	13
K□□M-ES-10-A160-EK	10	31.0	M10	48.0	27	63.50	14	10.5	15
K□□M-ES-12-A160-EK	12	35.0	M12	54.5	30	72.00	16	12.0	17
K□□M-ES-16-A160-EK	16	45.0	M16	66.0	34	88.50	21	15.0	20
K□□M-ES-20-A160-EK	20	53.0	M20	78.0	40	104.50	25	18.0	24

□ = Optional right-hand (K..RM) or left-hand thread (K..LM)

□ = Optional female (KC..M) or male thread (KA..M)

* Spanner flat (W) for female threads only

... food-compatible,
detectable ...

The popular igubal® ESTM pillow block bearings are now also available as food compatible, detectable models.



Tech up

- Solid plastic solution: corrosion-free, lightweight and still detectable
- Lubrication-free: no lubricants to washout
- Food compatible: made of FDA and EU10/2011-compliant materials

Proof

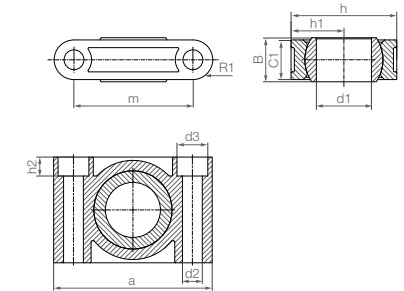
- Visually and magnetically detectable materials
- Even the smallest fragments of 0.0139g (iglidur® FC180) or 0.0157g (igumid FC) could still be identified on a conveyor belt when passing through the metal detector INTUITY
igus.eu/fc180-proof

Cost down

- Costs up to 60% less to procure than conventional stainless steel solutions
- No costs for maintenance/lubrication

Sustainability

- No lubrication necessary
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:
igus.eu/sustainability



Tested in the igus® test laboratory

Part No.	Max. radial tensile force		Max. radial compressive strength		Max. axial strength		Max. tightening torque fixing holes [Nm]	Weight [g]
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term		
ESTM-10-FC	2,600	1,300	3,400	1,700	460	230	1.5	7.5
ESTM-20-FC	6,800	3,400	8,000	4000	1,800	900	3.5	31.0

Part No.	d1	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
ESTM-10-FC	10	5.5	-	22	11	-	36	26	10	9	5	22°
ESTM-20-FC	20	9	14	40	20	8.6	62	46	16	16	8	22°

... adjustable housings ...

The spherical ball movement can be easily adjusted with a screw and nut, up to the fixing of the ball stud.



Tech up

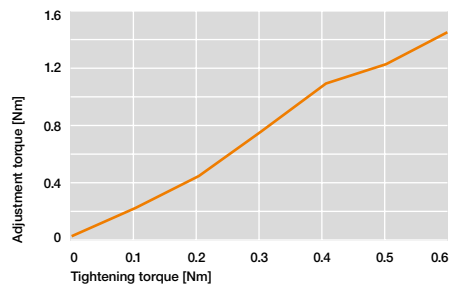
- Adjustable spherical ball mobility, including fixing in place
- Can be individually adjusted

Cost down

- Can be quickly and easily adjusted
- Optimised standard as a fixed bearing
- Can be used with any diameter

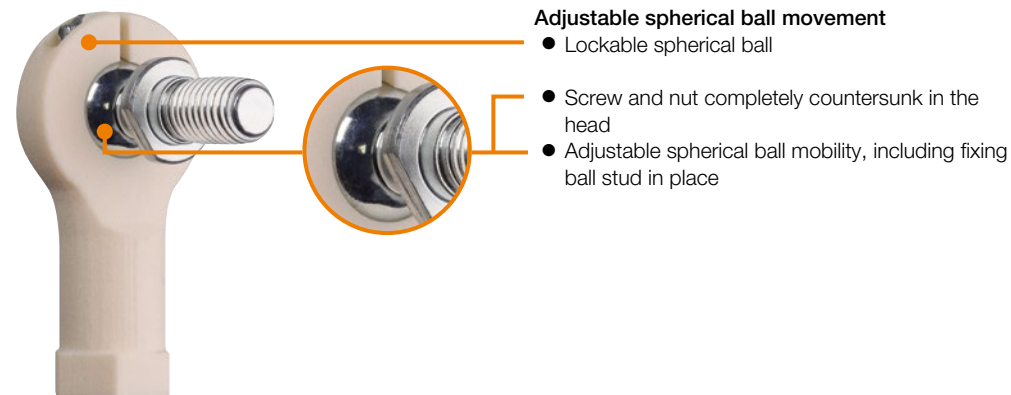
Proof

- Adjustment torque as a function of the tightening torque



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Adjustable spherical ball movement

- Lockable spherical ball
- Screw and nut completely countersunk in the head
- Adjustable spherical ball mobility, including fixing ball stud in place

... strong for square profile ...

Now available for further edge lengths. Dimensional range addition of proven igubal® ESQM pillow blocks bearings.



Tech up

- Absorption of high static (wind) loads (up to 50kN)
- Angular compensation with spherical bearing (up to 9°)

Cost down

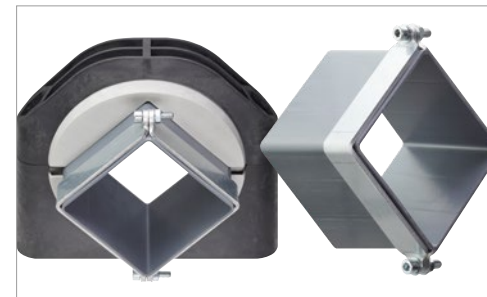
- Lubrication-free, therefore no maintenance required
- Simple and quick assembly

Proof

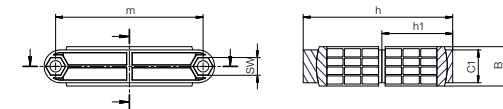
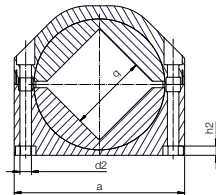
- Guaranteed service life of 25 years (72 years almost wear-free, simulated in the igus® laboratory at 1.5 tonnes)
- Static radial load:
at 0° angular compensation = 50kN
at 9° angular compensation = 25kN

Sustainability

- No environmental pollution from lubricants
- Energy-efficient production because construction is entirely made of injection-moulded polymer parts
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Matching - collars (galvanised steel)



Part No.	q	SW	d2	h	h1	h2	a	m	B	C1	Weight [g]
ESQM-100	100.5	24	17.5	228	108	13.6	260	225	60	50	1,295
ESQM-110	110.5	24	17.5	228	108	13.6	260	225	60	50	1,255
ESQM-120	120	24	17.5	228	108	13.6	260	225	60	50	1,210
ESQM-140	140.5	24	17.5	266	130	15.0	307	269	60	50	1,670
ESQM-150	150.5	24	17.5	266	-	15.0	307	268	60	50	1,640

... cost-effective
and UV-resistant ...

The new iglidur® P UV materials have been developed specifically for bearing requirements in solar installations. It is remarkable for its especially good UV resistance and durability. It is cost-effective, so it is well-suited to high-volume components.



UV-resistant

Tech up

- Greater UV stability is confirmed by internal laboratory tests
- Housing and bearing material harmonised with each other
- Individual customer parts can be manufactured

Cost down

- Longer service life thanks to greater material stability
- No maintenance

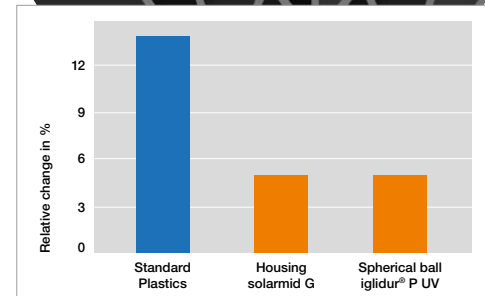
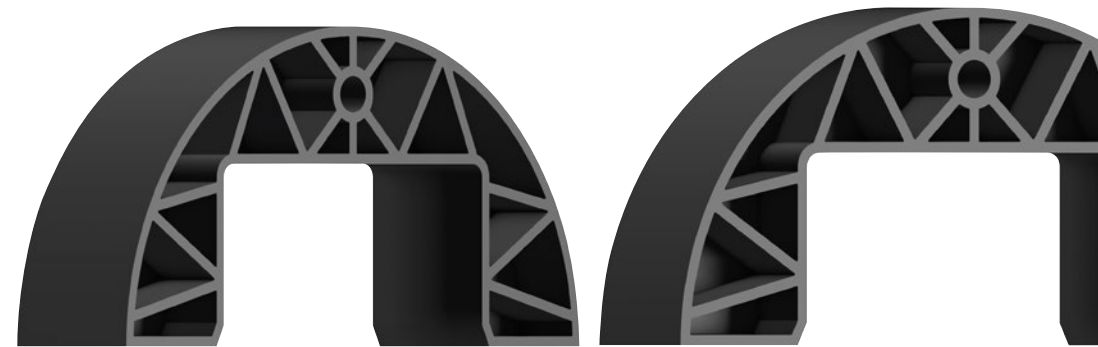
Proof

- Alternating test conditions during 2,000hrs
- Conditions 1: UVA-340 exposure, irradiance 1.55W/m² at 70°C for 8 hours
- Conditions 2: weathering at 50°C for 4 hours

Sustainability

- Lubrication-free applications
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:

igus.eu/sustainability



Relative change in bending property after UV test



Special part in a solar plant

Tech up & cost down
motion plastics for renewable energy

Maintenance-free and reliable solutions for long-term energy generation

Generating energy, especially from renewable energy sources, requires reliable and durable technological solutions. In the process, the different systems are often exposed to extreme environmental conditions, such as UV radiation, fluctuations in temperature, strong winds, dirt and dust, and have to withstand these for years.

Tailored to the specific system, we offer you special solutions made of high-performance polymers, which can help you improve your technology, optimise

Your benefits at a glance:

- Maintenance-free and lubrication-free
- UV-resistant
- Inertive to dirt and dust
- Weather-resistant
- Corrosion-free
- Long predictable service life
- Customised solutions

Extensive information on renewable energies online igus.eu/renewable-energy

Lubrication-free made easy ...

xiros[®] polymerball bearings ... longer service life ... It's our job

At high speeds, the cage in the bearing is subjected to extreme levels of mechanical stress. In case of failure, the wear of the bearing increases. This is where our know-how in materials development comes into play. With our tests, we have determined the most suitable iglidur[®] material to increase the service life

... new

highlight 10/2021...

... 134 Non-stick coated aluminium guide roller
... no adhesion of adhesive labels



... 136

No more static build up due to fixed flanged ball bearings made of xirodur[®] F180 material



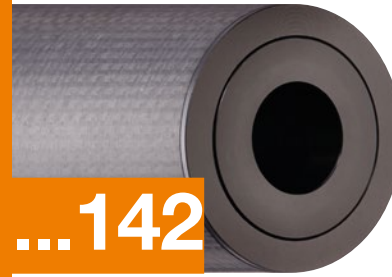
138

Aluminium guide rollers with 30% more grip thanks to sandblasted surface



140

xiros[®] stainless steel guide roller with xirodur[®] A500 ball bearings ... for temperatures up to 150°C



... 142

Antistatic and lightweight ... carbon guide rollers Ø30 with xirodur[®] F180 bearings



144

Polymer ball transfer units made from xirodur[®] B180 material now also available in installation sizes 508 and 512



146

Ball bearing with insert made of iglidur[®] J3 material ensures high wear resistance



... 148

Extension of our largest standard product range - now also in installation size 6024



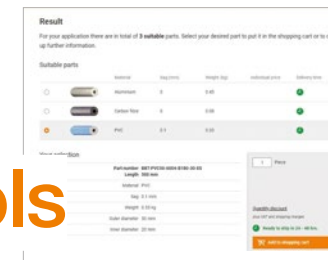
150

Ball bearing made of xirodur[®] K180 ... no outgassing in vacuum



152

xiros[®] test laboratory ... extensive tests on the impact of the cage material on ball bearing wear

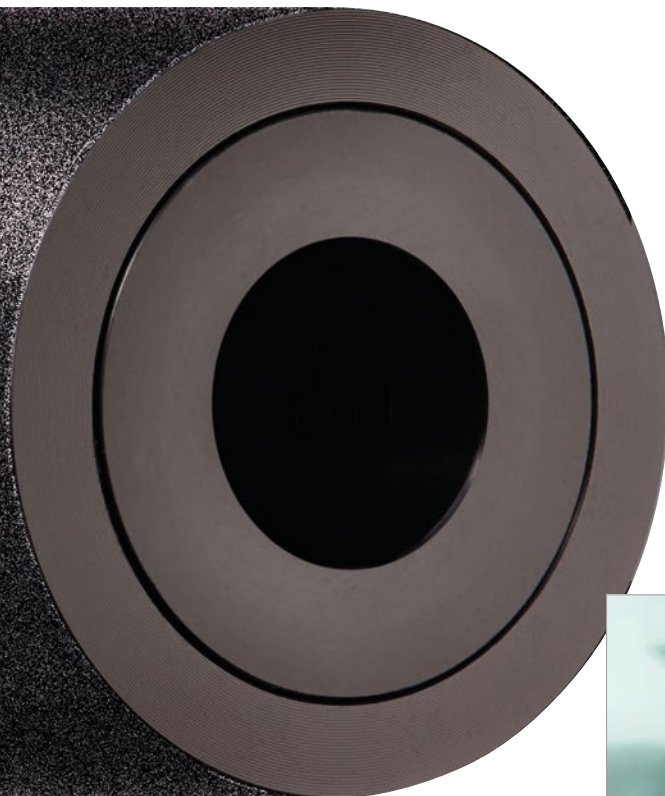


xiros[®] online expert ... find the right guide roller quickly and easily and calculate service life

... online tools

... no
sticking ...

Our aluminium guide rollers are getting a new addition in the form of a non-stick coated version. No sticking of adhesive labels.



Tech up

- Up to 100% less adhesion of sticking labels

Cost down

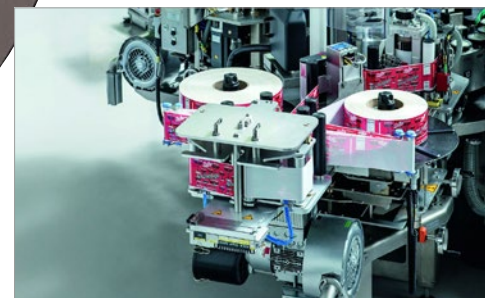
- Ready-to-install system eliminates expensive in-house production

Proof

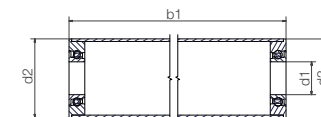
- Online configuration for guide rollers igus.eu/guide-roller-expert
- xiros® ball bearings are thoroughly tested igus.eu/xiros-test-lab

Sustainability

- No lubrication necessary, so no environmental pollution
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Aluminium guide roller with non-stick coating in use in a label printer



Part No.	Inner Ø	Outer Ø	Flange Ø	Length	
	d1	d2	h1	from	up to
BBT-AH30-6000-S180-XXX	10	30	30	100	1,000
BBT-AH38-6000-S180-XXX	10	38	38	100	1,000

... stainless steel antistatic ...

With this guide roller, there is no more static build up due to the fixed flanged ball bearings made of the company's own xirodur® F180 material.



Tech up

- Stainless steel tube with xirodur® F180 ball bearings for electrical contact resistance <math><10^{11}</math>

Cost down

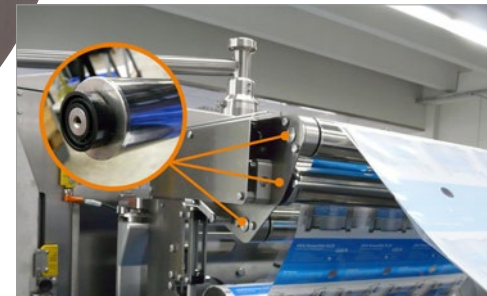
- Cost-effective precision extruded roller
- Ready-to-install system eliminates expensive in-house production

Proof

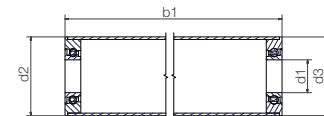
- Online configuration for guide rollers www.igus.eu/guide-roller-expert
- xiros® ball bearings are thoroughly tested igus.eu/xiros-test-lab

Sustainability

- No lubrication necessary, so no environmental pollution
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



xiros® stainless steel guide roller with xirodur® F180 ball bearings in use in a film deflection system



Part No.	Inner Ø	Outer Ø	Flange Ø	Length	
	d1	d2	h1	from	up to
BBT-ES30-608-F180-10-ES	8	30	30	100	1,000
BBT-ES30-6000-F180-10-ES	10	30	30	100	1,000
BBT-ES30-6001-F180-10-ES	12	30	30	100	1,000

... for more grip ...

The main advantage of this roll variant lies in the sandblasted surface, which means that air cannot get under the film and a greater grip is achieved compared to a smooth aluminium surface.



50%

less air under the film than a smooth aluminium surface

30%

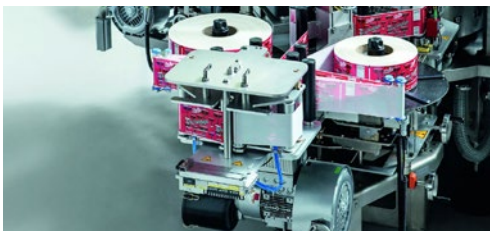
more grip than a smooth aluminium surface

Tech up

- Up to 50% less air under the film than a smooth aluminium surface
- Up to 30% more grip than a smooth aluminium surface

Proof

- Guide rollers have been successfully in operation (labeller at KHS) for years

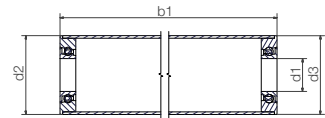


Cost down

- Ready-to-install system eliminates expensive in-house production

Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



Part No.	Inner Ø	Outer Ø	Flange Ø	Length	
	d1	d2	h1	from	up to
BBT-SAC20-606-B180-30-ES	6	20	20	100	1,000
BBT-SAC20-608-B180-30-ES	8	20	20	100	1,000
BBT-SAC30-608-B180-10-ES	8	30	30	100	1,000
BBT-SAC30-6000-B180-10-ES	10	30	30	100	1,000
BBT-SAC30-6001-B180-10-ES	12	30	30	100	1,000
BBT-SAC38-6000-B180-10-ES	10	38	38	100	1,000
BBT-SAC38-6001-B180-10-ES	12	38	38	100	1,000
BBT-SAC38-6002-B180-10-ES	15	38	38	100	1,000
BBT-SAC38-6003-B180-10-ES	17	38	38	100	1,000
BBT-SAC50-6004-B180-30-ES	20	50	50	100	1,000
BBT-SAC60-6004-B180-30-ES	20	60	60	100	1,000

Order example:

BBT-SAC20-606-B180-30-ES, L=200mm ... Aluminium guide roller, sandblasted, installation size 606 with xirodur® B180 fixed flange ball bearing, xirodur® B180 cage, and stainless steel balls 200mm long

BBT-SAC20-608-B180-10-ES, L=100mm ... Aluminium guide roller, sandblasted, installation size 608 with xirodur® B180 fixed flange ball bearing, PA cage, and stainless steel balls 100mm long

... for chemicals and heat ...

These stainless steel guide rollers can be used without any reservation in environments where temperatures are consistently as high as 150°C.

40%

lower costs than metallic bearings



max. +150°C

Tech up

- Operating temperature up to +150°C
- With FDA-compliant components
- Resistant to a wide range of chemicals

Cost down

- Up to 40% lower costs than metallic, lubricated bearings due to longer service life

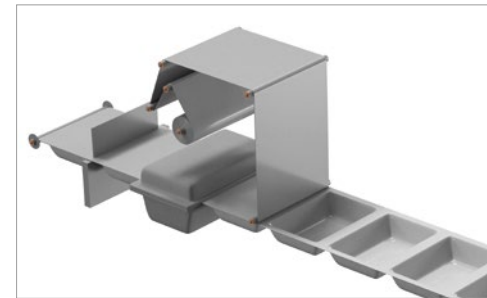
Proof

- Guide rollers have been successfully in operation (labeller at KRONES) for years



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

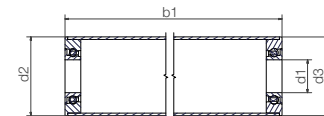


xiros® in use at high temperatures (thermoforming).

Chemical resistance of xirodur® A500

Medium	+
Alcohols	+
Greases, oils without additives	+
Hydrocarbons	+
Fuels	+
Strong alkali	+
Strong acid	+
UV radiation	+
Diluted base	+
Diluted acid	+

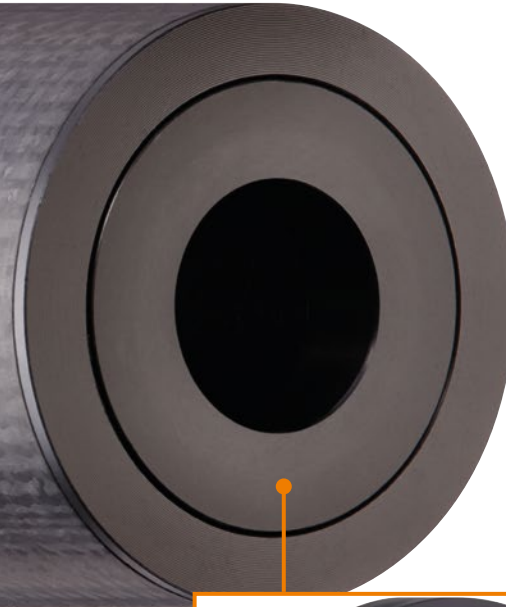
+ resistant 0 limited resistance - non-resistant



Part No.	Inner Ø	Outer Ø	Flange Ø	Length	
	d1	d2	h1	from	up to
BBT-ES30-608-A500-70-ES	8	30	30	100	1,500
BBT-ES30-6000-A500-70-ES	10	30	30	100	1,500
BBT-ES30-6001-A500-70-ES	12	30	30	100	1,500

... lightweight and antistatic ...

The xiros® F180 ball bearing used makes the carbon roller antistatic and, amongst other things, ensures low static film charge for especially thin film lengths.



10^{12}

surface resistance

41%

lighter than aluminium

Tech up

- Electrostatically dissipative with a surface resistance of less than $10^{12}\Omega\text{cm}$
- Up to 41% less weight than an aluminium roller
- Reduces static film charge during transport

Cost down

- No expensive ionisation necessary

Proof

- igus® aluminium guide roller = 254g // igus® carbon guide roller = 153g given the same dimensions and a roll length of 1,000mm

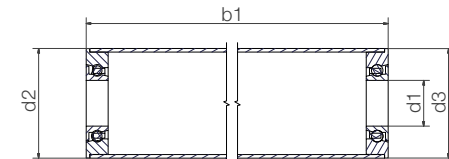


Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



F180 ball bearing with stainless steel balls



Part No.	Inner Ø	Outer Ø	Flange Ø	Length	
	d1	d2	h1	from	up to
BBT-CF30-6000-F180-10-ES	10	30	30	100	1,000
BBT-CF30-6001-F180-10-ES	12	30	30	100	1,000

... move

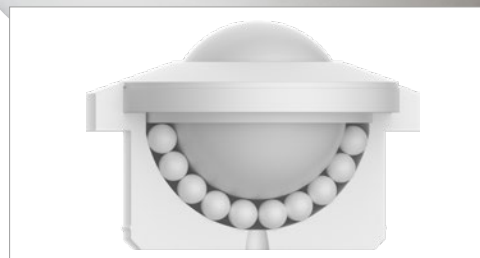
loads easily ...

Polymer ball transfer units made from xirodur® B180 material now also available in installation sizes 508 and 512.

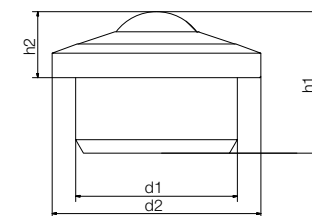


50%

More cost-effective than stainless steel



A polymer ball transfer unit with ball bearings enables lubrication-free and easy movement of loads



Tech up

- Extremely smooth operation and lubrication-free

Cost down

- Up to 50% more cost-effective than stainless steel alternatives

Proof

- xiros® ball bearings are thoroughly tested igus.eu/xiros-test-lab

Sustainability

- No lubrication necessary, so no environmental pollution
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Part No.	Inner Ø			Height	
	d1	d2	h1	h2	
BB-508-B180-POM	12.6	17	11.2	4.8	
BB-512-B180-POM	18	23	15.4	7.4	

... gliding

load bearing ...

An mechanically manufactured glide insert made of iglidur® J3 material provides the necessary wear resistance.



▲ Tech up

- High load bearing capacity with lower friction than the ball bearing option

▼ Cost down

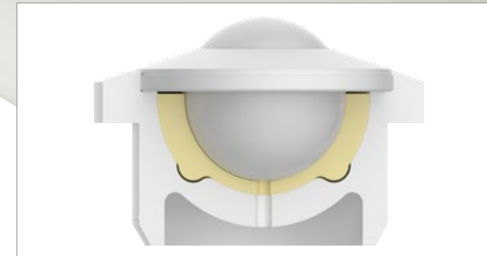
- Higher load possible

■ Proof

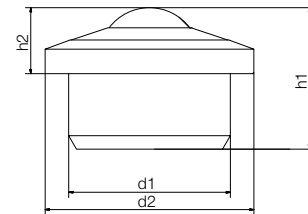
- xiros® ball bearings are thoroughly tested
[igus.eu/xiros-test-lab](https://www.igus.eu/xiros-test-lab)

● Sustainability

- No lubrication necessary, so no environmental pollution
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
[igus.eu/sustainability](https://www.igus.eu/sustainability)



A polymer ball transfer unit with glide insert enables lubrication-free and easy movement of loads up to 1,470N

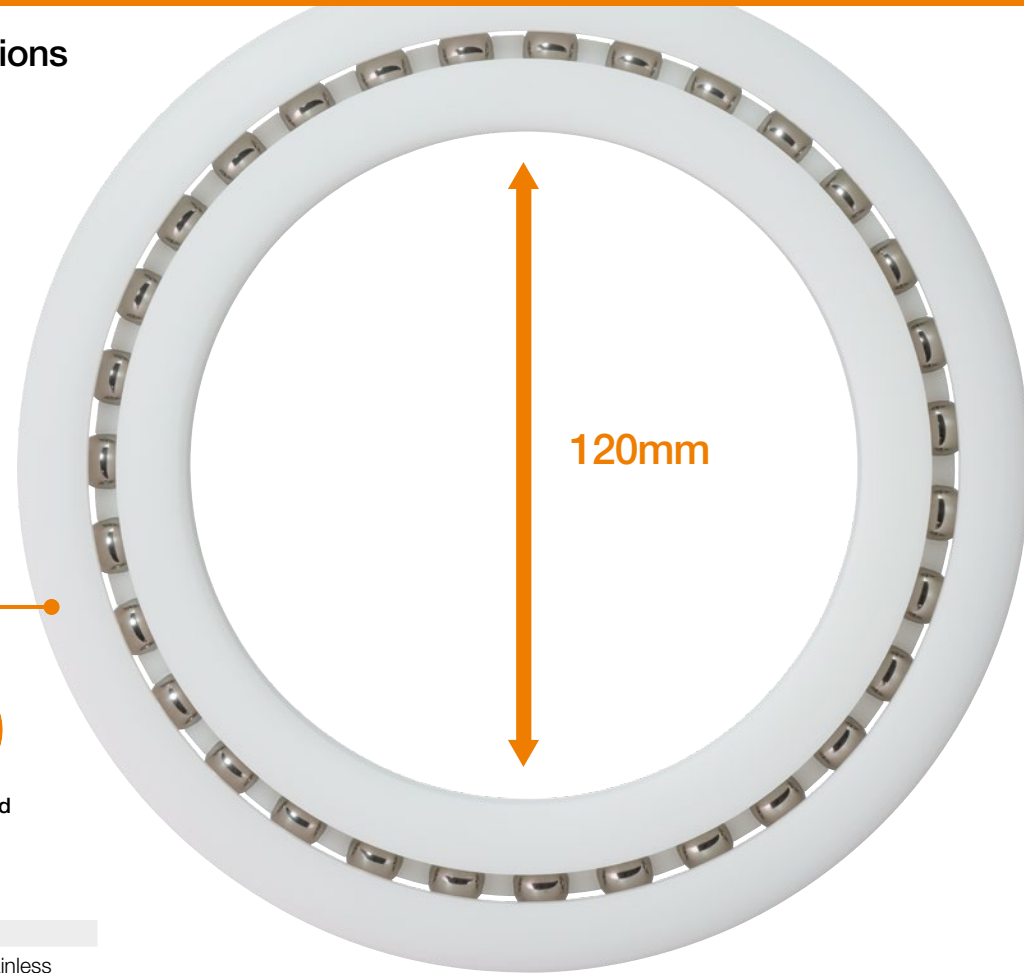


Part No.	Inner Ø		Height		Weight [g]	Max. stat. load capacity axial [N]
	d1	d2	h1	h2		
BB-515G-B180-ES	24	31	21	9.8	23.02	700
BB-522G-B180-ES	36	45	30	9.8	69.43	1,470

... DIN standard

installation size 6024 ...

Extension of our largest standard product range - now also in installation size 6024



Tech up

- Lubrication-free and up to 75% lighter

Cost down

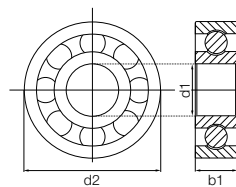
- Up to 48% more cost-effective than stainless steel solutions

Proof

- Conventional metal ball bearing = 2.1kg
- xiros® polymer ball bearing = 0.58kg

Sustainability

- No lubrication necessary, so no environmental pollution
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Part No.	d1	d2	b1	Weight [g]	Radial load capacity		Limit speed [RPM]
					stat.	dyn.	
BB-6024-B180-30-ES	120	180	28	578.8	2,300	2,350	250

... no outgassing in vacuum ...

The new xirodur® K180 material is especially well-suited to autoclaving and coating applications, and its service life is longer than that of comparable xirodur® materials.

60%

more cost-effective than comparable materials

Tech up

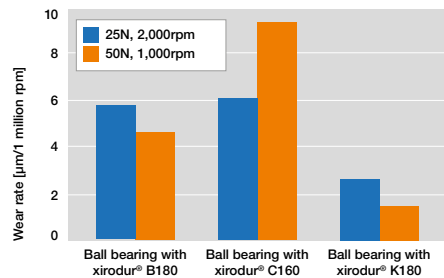
- Maximum water absorption: 0.4% weight
- No outgassing in vacuum
- Longer service life than comparable xirodur® materials

Cost down

- 60% more cost-effective than comparable materials for applications in vacuum

Proof

- Ball bearing wear rates for various xirodur® materials over a period of seven days



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



xirodur® K180 ball bearings in autoclaves

Part No.	d1	d2	b1	perm. load	Speed	Weight	
				[N]	rpm	ES [g]	glass [g]
BB-6000-K180-90-ES/GL	10	26	8	100	2,200	5.6	3.5

... xiros® test lab ...

21x longer service life ...

iglidur® cage materials contain enhanced additives that improve stability and sliding properties. This results in longer service life and less downtime.



Tech up

- Longer service life than the current standard range
- Wear reduction
- New areas of application

Cost down

- Lower maintenance costs due to longer service life
- Less downtime
- Reduce operating costs due to less frequent replacement

Proof

- Cage material effect on the ball bearing wear rate [25N, 2,000rpm, seven days]

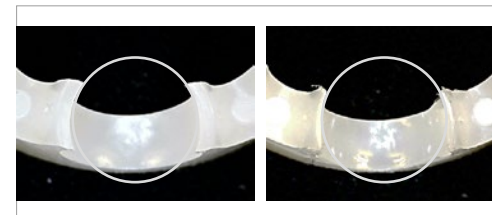


Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

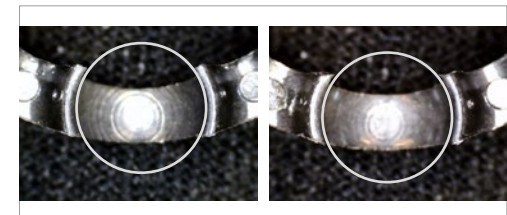
The effect of cage materials on ball bearing wear

Parameters: 25N, 2,000rpm, operating time 7 days
Stainless steel balls have been used for the test.



Picture on the left: unreinforced material, before the test

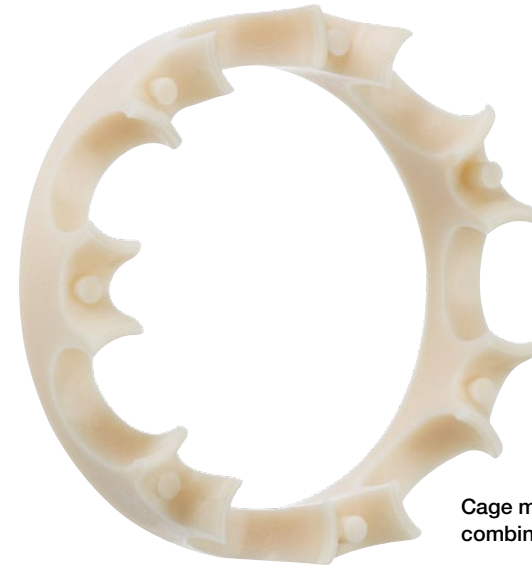
Picture on the right: unreinforced material, after the test



Picture on the left: reinforced iglidur® material, before the test

Picture on the right: reinforced iglidur® material, after the test

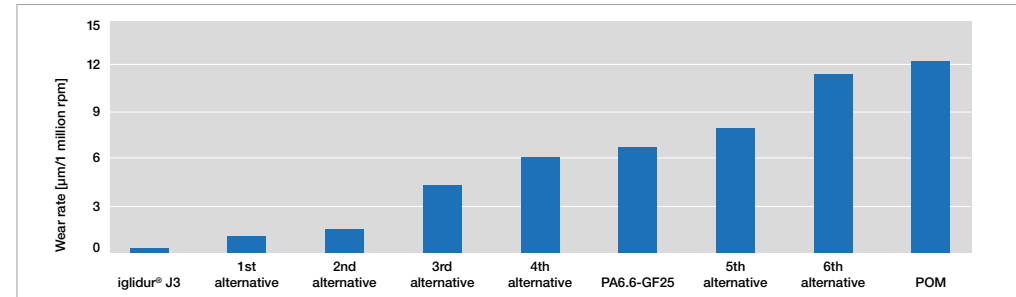
... 21x longer service life ...



Cage made from iglidur® J3 for the best combination with lowest wear

Successful experiments with iglidur® cage materials

High speeds lead to high centrifugal forces in the bearing. This accelerates the balls outwards. The cage material requires a certain stability, cage pockets would otherwise expand, giving the balls more clearance and freedom of movement. Since the balls can no longer maintain the correct position, there is more wear and the bearing fails sooner than expected. We use reinforcement materials to increase cage material stability, and there is sliding friction between the balls and the cage. Solid lubricants improve sliding performance. That is why we use iglidur® materials for cages. They contain additives that improve stability and sliding properties (see proof).



Part No.	d1	d2	b1	Max. radial load capacity		Max. speed rpm
				stat. [N]	dyn. [N]	
BB-608-B180-35-ES	8	22	7	80	94	2,400
BB-6000-B180-35-ES	10	26	8	110	130	2,200
BB-6001-B180-35-ES	12	28	8	138	147	2,000

35 = cage made from iglidur® J3, lower wear at higher speeds and lower loads

Lubrication-free made easy ...

drylin® linear technology ... lightweight, compact and versatile ... It's our job

drylin® linear technology adapts ideally to all applications thanks to the modular principle. With its wide availability of dimensions and materials is ideal for new solutions. There are also replaceable, wear-resistant liners for almost all environments. The replacement of existing systems is also easy to implement: drylin® linear technology is dimensionally identical to many recirculating ball bearing guides and is lightweight, quiet and maintenance-free.

... new

highlight 2021↑...

... 192

Round shaft bearing
drylin® RW360CM ... precise
and rigid



... 158 ...

drylin® W modular system extension ... rails and carriages in installation sizes from 16 to 120
New: Housing and carriage for narrow designs

... 172

New sizes ... i.Sense linear carriages with LED display ... wear check at the touch of a button

... 186 ...

Even more telescopic rails ... based on the pre-load prism slide, made of polymer or in black optics

168

Polymer linear bearing drylin® WJBMP-01-10 ... lightweight and durable

174 ...

drylin® W modular system extension ... clamping, compact carriage, exchange bearing **New:** Clip-type linear carriage

194

FDA compliant linear bearing made of iglidur® A180

170

Hybrid roller bearing in tandem design

182 ...

Catalogue product range expansion with pretension ... wide drylin® N carriages and **New:** drylin® TW miniature guide

196

drylin® RJUMP ... solid plastic linear housing

... online tools



drylin® linear guide expert ... configure an individual linear guide for your application in just a few steps

... the service life can also be calculated online

... compact
for small installation spaces ...

The new WJ200UMS bearing housing in installation sizes 10 and 16 are more compact than ever. The system width is reduced by 20%.



6

Choice of 6 materials

20%

Reduced width

Tech up

- Narrow system width
- No linear carriage run-offs
- Choice of six liners
- Internal mounting holes
- Flush alignment

Cost down

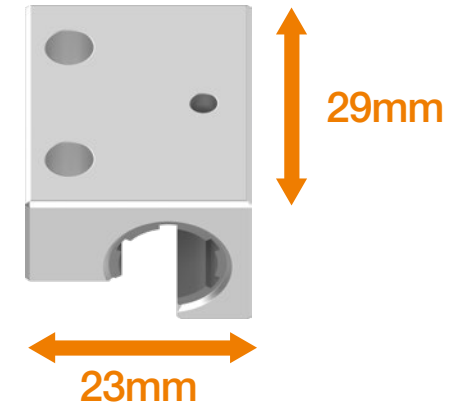
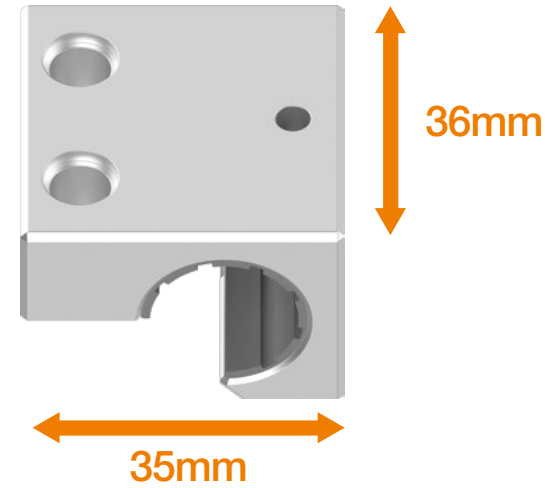
- Corrosion-resistant, anodised aluminium
- Suitable for round drylin® W single or double rails

Proof

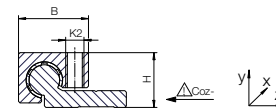
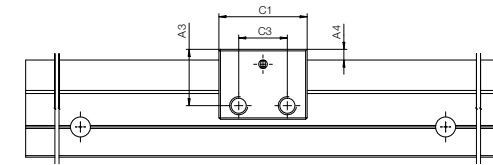
- System widths compared:
Previous combination bearing/single rail:
WJ200UM-01-16-AL with rail WS-16:
52mm
Narrow bearing combination bearing/single rail:
WJ200UMS-01-16-AL with rail WS-16:
42mm
- Savings in installation space up to 20%

Sustainability

- Re-usable linear housings
- 100% lubrication-free operation
- Maintenance-free due to self-lubricating high-performance polymers from igus®
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:
igus.eu/sustainability



20% smaller width due to internal mounting holes



Part No.	Weight	B	C1	C3	A3	A4	K2	H
	[g]							+0.25
WJ200UMS-01-10-AL	16	23	29	16	18.5	3.5	M6	18
WJ200UMS-01-16-AL	40.5	35	36	18	28.5	5	M8	27

... tandem bearings save installation space and assembly time ...

Compact design combined with double length for easy installation without alignment. Suitable for use with single and double rails.

20%

Save installation space

Tech up

- Twice the guide length
- Screw connection on the inside of the rail
- Choice of six liners
- Corrosion-resistant through anodised aluminium

Cost down

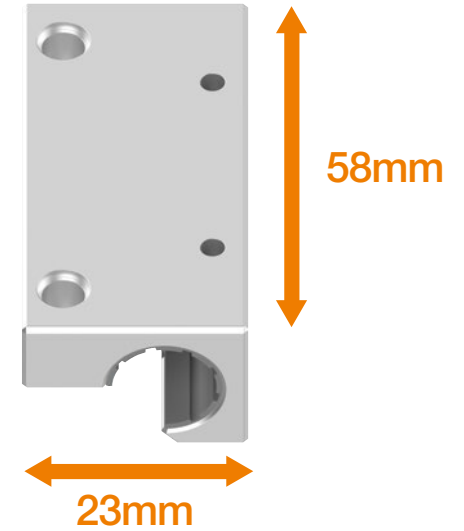
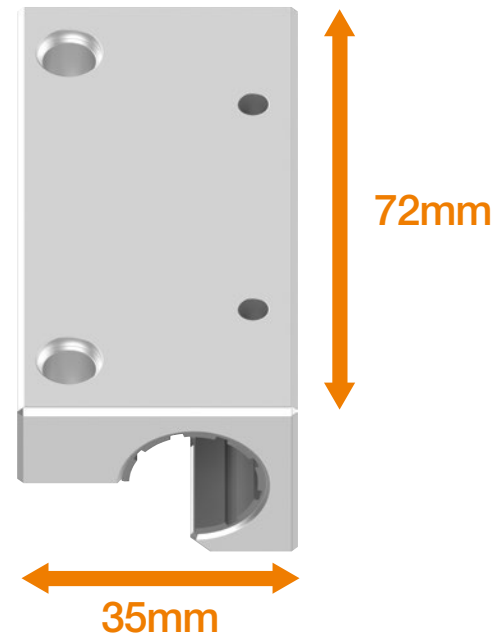
- No alignment of the bearings
- Quick assembly

Proof

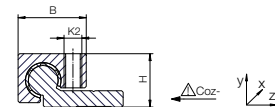
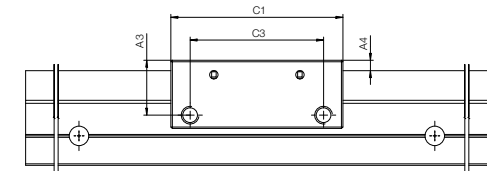
- System widths compared:
Previous combination bearing/single rail:
WJ200UM-01-16-AL with rail WS-16:
52mm
Narrow bearing combination bearing/single rail:
WJ200UMS-01-16-AL with rail WS-16:
42mm
- Savings in installation space up to 20%

Sustainability

- A reusable housing for two liners
- 100% clean linear guide
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:
igus.eu/sustainability



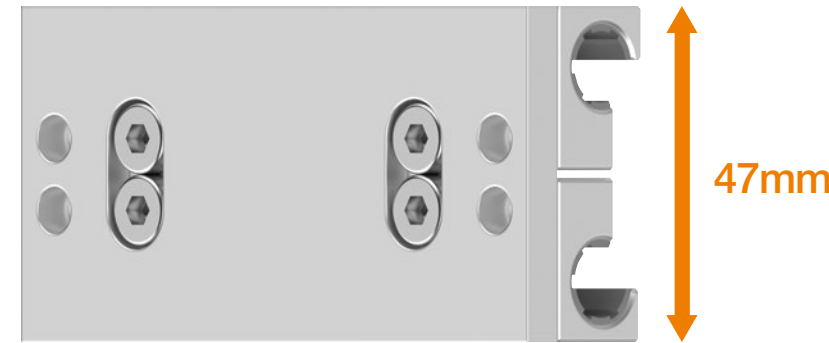
Suitable for round drylin® W single or double rails



Part No.	Weight	B	C1	C3	A3	A4	K2	H
	[g]							+0.25
WJ200UMTS-01-10-AL	33	23	58	45	18.5	3.5	M6	18
WJ200UMTS-01-16-AL	84	35	72	54	28.5	5	M8	27

... narrow series linear carriage ...

The offset of the mounting holes to the inside of the rail reduces the width of the linear carriages by up to 24%.



24%

Narrower than comparable system

56%

Lighter than comparable system

Tech up

- Pre-assembled linear carriages
- Up to 24% narrower design
- Up to 56% lighter
- Liner made of iglidur® J200 for longest service life on aluminium rails
- Elegant design

Cost down

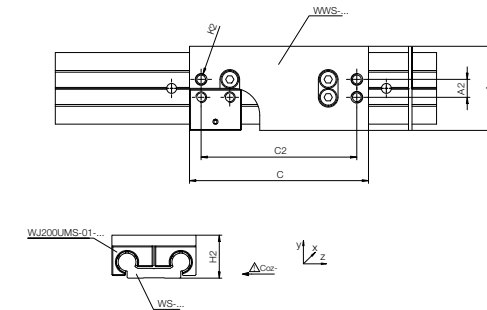
- Suitable for drylin® W standard rail profiles WS-10-30 and WS-16-60
- Usable immediately
- No set-up times

Proof

- System widths in comparison:
Previous combination slide/double rail:
WW-10-30-10 with rail WS-10-30: 63mm
Combination narrow slide/double rail:
WWS-10-30-10 with rail WS-10-30: 48mm
- Savings in installation space up to 24%

Sustainability

- Whisper-quiet gliding through igus® polymers
- All liners can be retrofitted
- All metallic components can be reused
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:
igus.eu/sustainability



Suitable drylin® W profile rails:
WS-10-30-CA/WS-10-30 and
WS-16-60-CA/WS-16-60

System comparison

System	System width	Weight	System	System width	Weight
WW-10-30-10	63mm	280g	WW-16-60-15	104mm	840g
WWS-10-30-10	48mm	150 g	WWS-16-60-15	84mm	450g
	24% smaller installation space	56% lighter		20% smaller installation space	56% lighter

Part No.	Weight [kg]	A Width	C Length	A2	C2	K2	H2 +0.25
WWS-10-30-10	0.15	47	100	10	87	M6	24
WWS-16-60-15	0.450	84	150	27	132	M8	35

... even wider ...

installation size 16 ...

Due to the 120mm profile, the linear guide offers a 60% larger support surface than the previous 60 size width.

3x

higher torque resistance (compared to the 60mm width)

5.75x

higher geometrical moment of inertia

66%

weight saving through use of aluminium instead of steel

Tech up

- More than 3x higher torque resistance (compared to the 60mm width)
- Up to 5.75 higher geometrical torque of inertia
- Corrosion-resistant hard anodised surfaces
- Rail profiles without holes for individual adjustments

Cost down

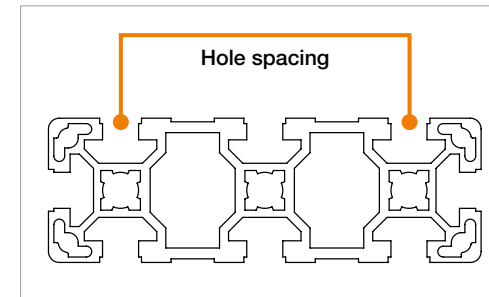
- Fast assembly with double-shaft profile and standard hole pattern
- Parallelism of the shafts saves alignment of individual shafts
- Cut to the nearest centimetre up to 4,000mm
- Connection size 80 suitable for standard design profiles

Proof

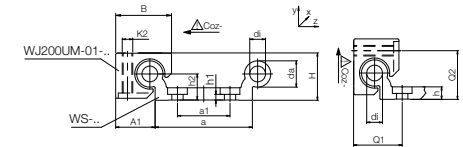
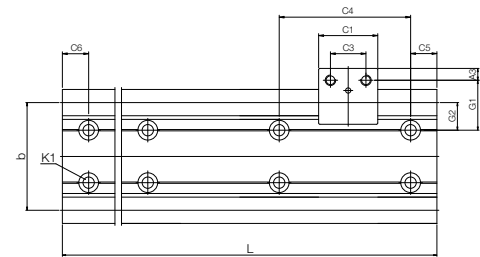
- Hard anodised, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117
- Geometrical moment of inertia I_y 2,114,000mm⁴, I_z 33,200mm⁴
- Moment of resistance W_{by} 31,100mm³, W_{bz} 2,150mm³

Sustainability

- Less waste due to millimetre-precise cutting
- 66% weight saving compared to steel
- Lubrication-free use also in emission-critical environments (e.g. cleanroom)



80mm hole spacing suitable for construction profiles



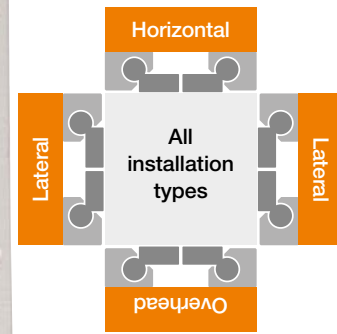
Part No.	Weight [kg]	H	da	di	L max.	a	A1	b	h	h1	h2	G1	G2	a1	Q1	Q2
WS-16-120	3.14	±0.25	-0.1	8	4,000	-0.4	25	120	7.5	3.5	14	34	20	80	33	28

Part No.	C4		C5		C6		K1	Geometrical moment of inertia		Moment of for resistance	
	Min.	Max.	Min.	Max.	Min.	Max.		I_y [mm ⁴]	I_z [mm ⁴]	W_{by} [mm ³]	W_{bz} [mm ³]
WS-16-120	120	20	79.5	20	79.5	79.5	M8 for screw DIN912	2,114,000	33,200	31,100	2,150

... wide and low profile ...

installation size 16 ...

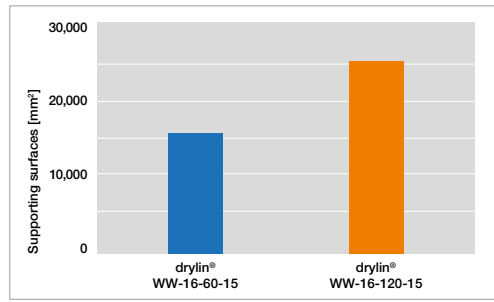
As with the other installation sizes, linear carriages in 3 lengths are available for the new rail profile WS-16-120. With clearance adjustment, pre-tension or manual clamps upon request.



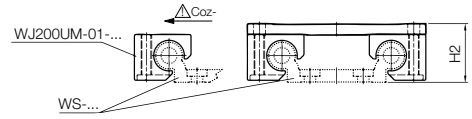
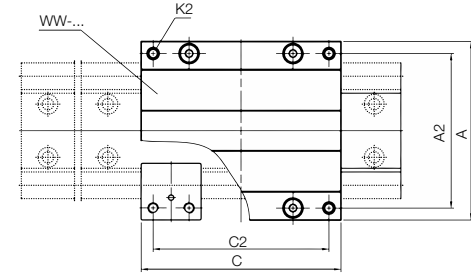
35mm

60%

larger load-bearing surfaces (compared to the 60mm width)



60 % larger contact surface in comparison with carriages (carriage length of 150mm)



Tech up

- 60% larger load-bearing surfaces (compared to the 60mm width)
- Three carriage lengths: 150mm, 200mm and 250mm
- All bearings options available, e.g. clearance adjustment and pretension
- Manual clamping possible in 2 variants for different holding forces directly on the carriage

Cost down

- Ready for immediate use as a complete carriage due to pre-assembled components
- Fast assembly onto WS-16-120 double-shaft profile
- Option: Fast bearing replacement without disassembly with drylin® W exchange bearing

Proof

- Predictable service life at igus.eu/drylin-expert
- Tested: Centric load 75N, acceleration 1.5m/s², running distance until bearing replacement 12,500km
- Bearing change on the linear carriage in under 30 seconds

Sustainability

- 100% lubrication-free operation
- All metallic parts completely reusable
- No contamination in the application environment

Part No.	Weight [kg]	A Width	C Length	A2	C2	K2	H2 +0.25	Static load capacity				
								Coy [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]
WW-16-120-15	1.0	166	150	148	132	M8	35	8,400	4,200	504	480	480
WW-16-120-20	1.17	166	200	148	182	M8	35	8,400	4,200	504	690	690
WW-16-120-25	1.35	166	250	148	232	M8	35	8,400	4,200	504	900	900

The following versions are available
 With adjustable bearing clearance: WWE-16-120, with exchange bearings: WWA-16-120, with manual clamp: WW-16-120-HK

... lightweight and low cost ...

The first drylin® W linear bearing completely made of polymer. The reduction in dead weight makes the end product lighter.

6x lighter than steel

4x lighter than zinc die-casting

2x lighter than aluminium

max. +60°C min. 0°C

Tech up

- Lightweight design for higher productivity and energy-efficient applications
- 4x lighter than the standard made of zinc die-casting
- 2x lighter than aluminium
- 6x lighter than stainless steel

Proof

- Predictable service life at igus.eu/drylin-expert
- Tested: Application range of iglidur® JB min. 0°C to max. +60°C long-term
- Tested: Linear carriage with zinc die cast bearing 290g, linear carriage with polymer bearing 166g, 42.8% savings

Cost down

- Manufacturing with the injection-moulding method
- Simple and quick assembly on the rail
- Liner and linear bearing housing in one component
- Easy support due to one-piece design
- Fail-safe with emergency running properties

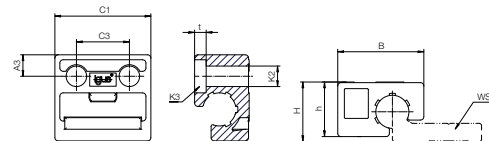
Sustainability

- 100% lubrication-free operation
- Metal-free linear bearing
- Lightweight, emission-optimised design
- No contamination in the application environment

General properties	igidur® JB
Density [g/cm³]	1.49
Colour	black
Max. moisture absorption at +23°C and 50% r.h. [% weight]	0.3
Max. total moisture absorption [% weight]	1.3
Electrical properties	
Specific volume resistance [Ωcm]	> 10 ¹³
Surface resistance [Ω]	> 10 ¹²
Mechanical properties	
Flexural modulus [MPa]	2,400
Flexural strength [MPa]	73
Shore D hardness	74



Liner and linear bearing housing in one component



Part No.	Weight [g]	B	C1	C3	A3	K2	H	h	t	K3 Hexagonal design for M6 hexagon nut (ISO 4035)	Static load capacity	
											Coy ± [N]	Coz ± [N]
WJBMP-01-10	10	26	29	16	6.5	Ø6.2	18	16.5	3.5	10	25	15

Hybrid roller bearing with two rollers | drylin® WJRM-51

... move loads easier ...

Compared to the hybrid roller bearing with single roller, the new tandem roller bearing accommodates double the load. The integrated pendulum mounting ensures that the rollers absorb the load evenly.

50%

lighter than two single bearings

4x

quieter than metal bearings

Tech up

- 2x higher load capacity (compared to single roller bearings)
- Uniform load distribution due to the system of guide rollers with pivoting bearing
- Up to 50% lighter than using two individual bearings
- Ready-to-fit tandem bearings suitable for drylin® W rail profiles WS-10 and WS-20

Proof

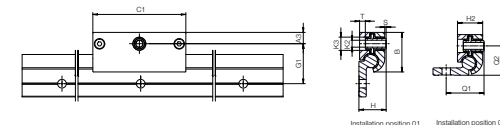
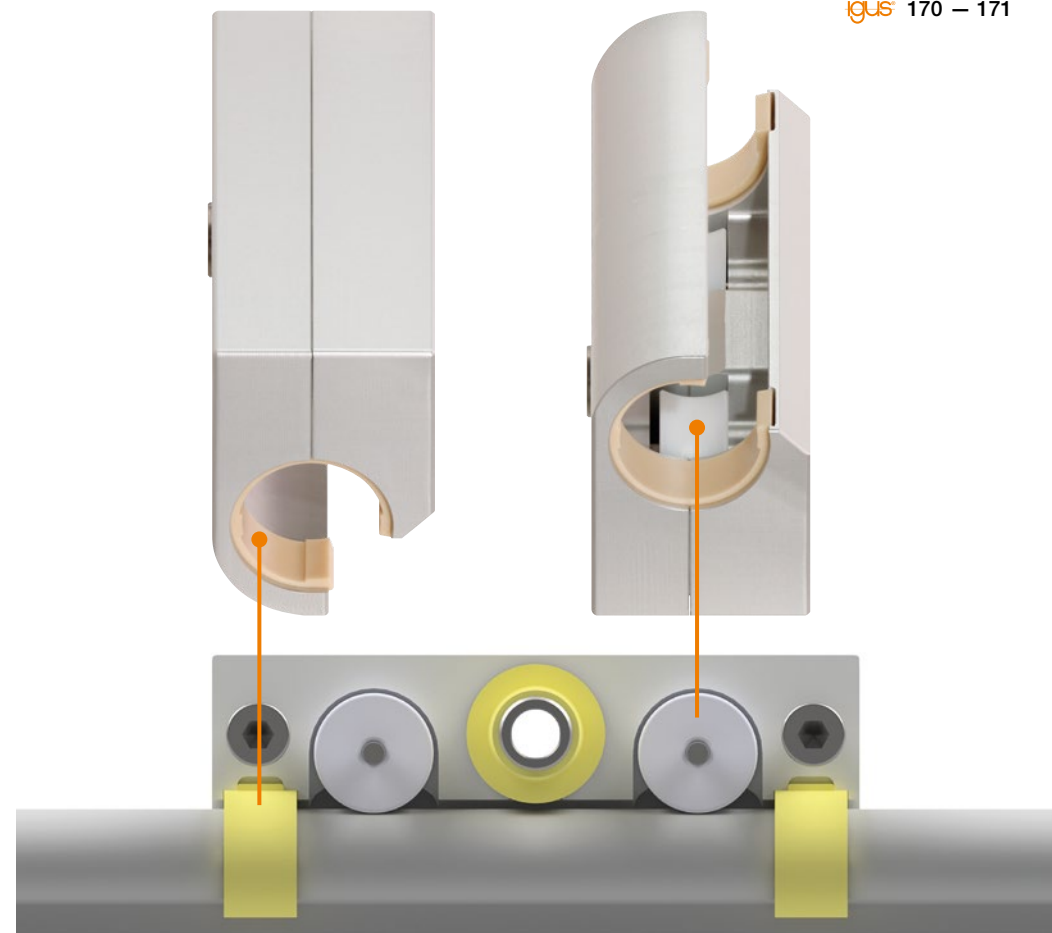
- Tested: weight of 2 single bearings 464g, tandem bearing 215g, 54% savings
- Up to 4x quieter than metal bearings in operation

Cost down

- Fast assembly: one component instead of two
- No alignment: tandem design instead of two single bearings
- Flexible: two installation positions possible

Sustainability

- 100% lubrication-free operation
- No contamination in the application environment
- Maintenance-free due to self-lubricating high-performance polymers from igus®



Part No.	Weight [g]	A3	B	C1	G1	S	H	H2	Q1	Q2	T	K2 Ø	K3 Ø
WJRM-51-10-AL	70	8.5	29.8	70	30.1	1	20.5	19	28.5	22.1	4.3	5.2	10
WJRM-51-16-AL*	123	9.5	39.5	85	37.5	1	27.5	25	31.5	32.5	7	6.2	12
WJRM-51-20-AL	215	11	48.5	100	42	1	36	34.5	37	41	14	8.2	17

Part No.	Coefficient of friction		Static load capacity [N]	Dyn. load capacity Cz+ at total running distance			F * v Max. [N * m/s]
	in y-direction [μ]			10km [N]	100km [N]	200km [N]	
WJRM-51-10-AL	<0.1		500	500	180	100	50
WJRM-51-16-AL*	<0.1		800	800	280	140	80
WJRM-51-20-AL	<0.1		1,100	1,100	400	200	80

* Data is provisional. Expected delivery July 2021

... planned maintenance ...

wear check ...

Function and wear test is easily carried out at the push of a button. No integration in IT environments, no interface issues. When green flashes, everything is in order and the linear carriage can continue operation.

Simple bearing liner replacement
Also possible with condition monitoring online.
Further information:
igus.eu/smart-plastics

Tech up

- **New:** Further installation sizes 10-80 and carriagelength 150mm
- **New:** WW-10-40-10-IS.LED-02 with wear measurement diagonally at two bearing points
- Condition check at the touch of a button directly on the linear carriage
- Wear sensor directly integrated in the liner
- Predictable maintenance signal when the wear limit is reached
- Suitable for drylin® W linear systems, drylin® ZLW toothed belt axes and 7th axis

Proof

- Function tested in the igus® laboratory in continuous wear test: i.Sense size 10 in toothed belt axis ZLW-1040/stroke 3,000mm, load 100N, speed 3.5m/s, acceleration 8m/s²
igus.eu/drylin-expert
- Clear indicators: green-> ok, red -> bearing replacement recommended

Cost down

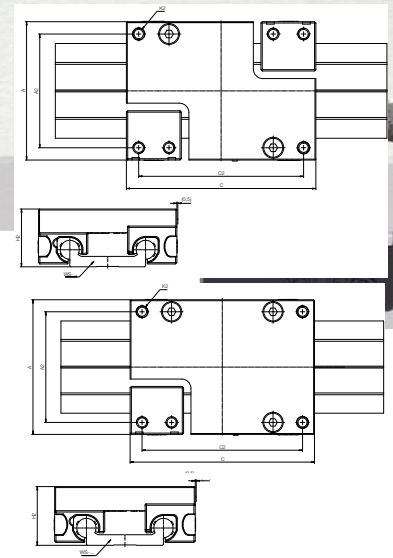
- Direct use without integration into IT system
- Liners for bearing replacement can be ordered as a set
- Quick bearing replacement of drylin® W exchange bearings within seconds
- Reduced downtime since bearings can be changed without dismantling the linear unit

Sustainability

- Long service life thanks to linear liners made of iglidur® J200
- All metallic components can be reused when replacing bearings
- 100% lubrication-free operation

Condition check at the touch of a button via LED display

- Push button for status report
- Green LED indicates "OK"
- Red LED indicates replacement necessary



Part No.	A	C	A2	C2	K2	H2	Weight
Offline – condition check at the touch of a button via LED display							
WW-10-40-10-IS.LED	73	100	60	87	M6	30.5	0.3
WW-10-40-10-IS.LED-02	73	100	60	87	M6	30.5	0.3
WW-10-40-15-IS.LED	73	150	60	137	M6	30.5	0.4
WW-10-80-10-IS.LED	107	100	94	87	M6	30.5	0.4
WW-16-60-15-IS.LED	104	150	86	132	M8	39.5	0.7
WW-20-80-15-IS.LED	134	150	116	132	M8	48.5	1.0
Part No.	static load capacity						
	Coy [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]		
WW-10-40-10-IS.LED	4,800	2,400	96	170	170		
WW-10-40-10-IS.LED-02	4,800	2,400	96	170	170		
WW-10-40-15-IS.LED	4,800	2,400	96	290	290		
WW-10-80-10-IS.LED	4,800	2,400	178	170	170		
WW-16-60-15-IS.LED	8,400	4,200	240	480	480		
WW-20-80-15-IS.LED	12,800	6,400	525	670	670		

Available from November

... linear carriage

to go ...

The linear carriage can be installed or removed on the rail by means of a clip mechanism.



▲ Tech up

- On-the-spot assembly
- Quick unlocking and removal
- Machined aluminium monoblock
- Unlocking/clipping mechanism
- Liners made of iglidur® J200

▼ Cost down

- No installation space required for assembly
- Installation on the spot, no more fitting necessary
- Installed elements, such as control panels, can be easily taken along with the carriage

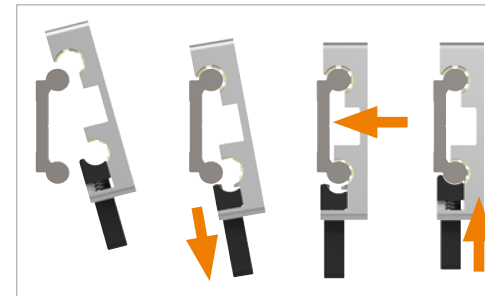
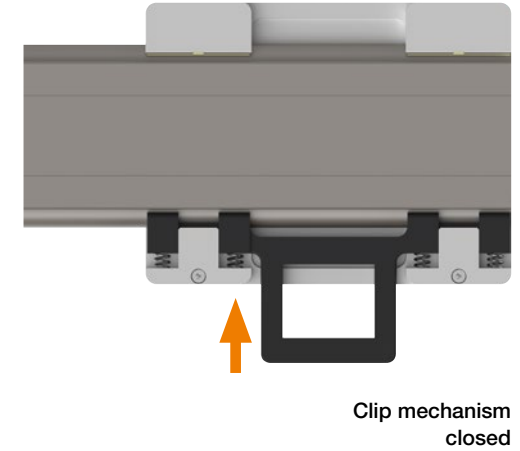
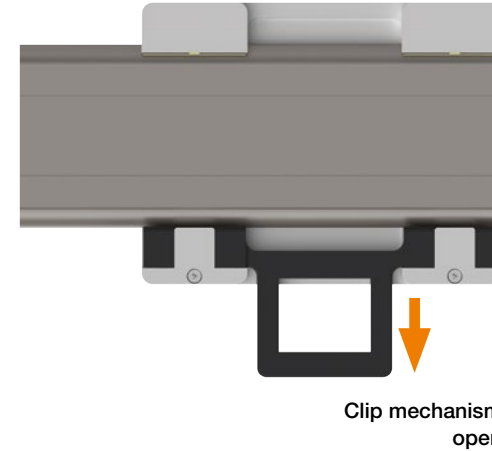
■ Proof

- Assembly and disassembly in seconds
- Linear carriage "To go": Pull lever, pivot carriage out of rail, take carriage with you
- Linear carriage "To clip-on": Place carriage on upper rail shaft, clip onto lower shaft

● Sustainability

- All components are recyclable
- 100% clean and hygienic
- Simple handling
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:

[igus.eu/sustainability](https://www.igus.eu/sustainability)



Install and remove the linear carriage at the desired position. Put the carriage on, pull the lever down and clip it in place.

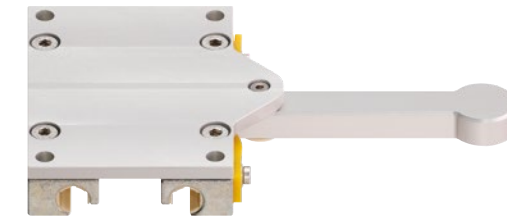
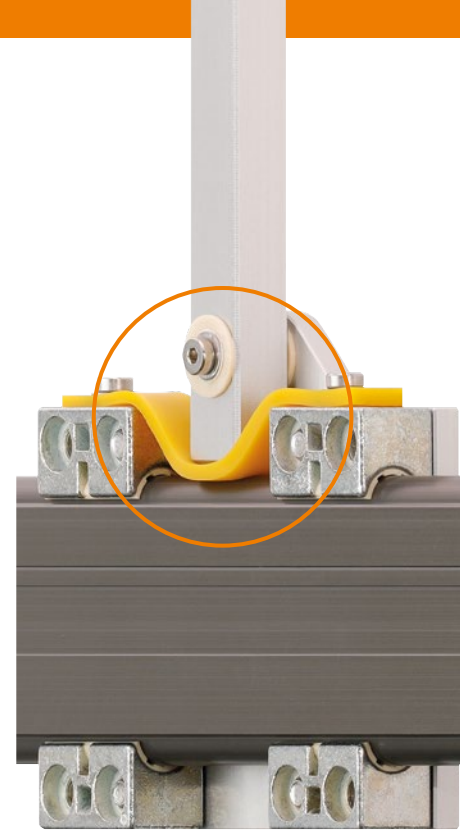


Suitable drylin® W profile rails: WS-10-40-CA and WS-10-40

... tough

grip ...

An elastomer strip holds the position of the carriage firmly in place, protecting the rail surface. The tough design ensures safe handling.



Tech up

- Linear carriage with integrated manual clamp
- Fast clamping with holding strength up to 30N
- Secure handling and quiet clamping
- Tough, easy-grip manual clamp

Cost down

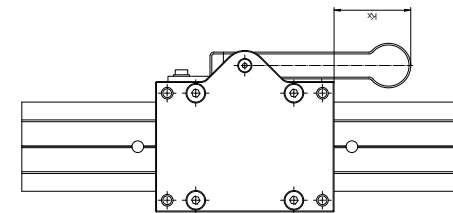
- Ready-to-install clamping in linear carriages
- Ready concept for integration into the linear guide
- Securing the guide carriage position against unintentional adjustment

Proof

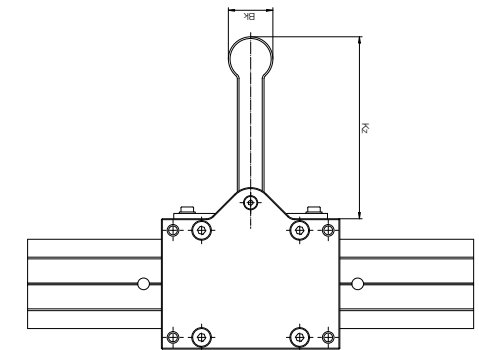
- Tested: clamping as single-stage parking brake on rail profile WS-10-40, vertical installation position, load 30N, customer requirement fulfilled: 14 days without loss of position

Sustainability

- 100% lubrication-free operation
- All metallic parts completely reusable
- No contamination in the application environment



Open clamp



Closed clamp

Part No.	Weight [g]	A	C	A2	C2	K2	H2 ±0.25
WW-10-40-10-HKX	290	73	100	60	87	M6	24

Part No.	Kx	Kz	Bk	Min. holding strength*	Static load capacity			
					Coy [N]	Coz [N]	Mox [Nm]	Moz [Nm]
WW-10-40-10-HKX	45.5	104.5	25	30	8,400	4,200	96	170

* Condition: dry rail surface

The manual clamp thread was developed for simple tasks. The creep behaviour of the clamped plastic causes a reduction in clamping force over time. Therefore no safety-relevant parts may be clamped.

Available from May

igus.eu/manual-clamp

... bearing change in extreme environments ...

Open housing at the side, change bearing, close and you are finished. The system is "new" and ready to use again in a very short time.



high chemical resistance



housing can be separated for easy liner exchange

Tech up

- Split stainless steel housing allows for changing the bearing directly on the rail
- No removal of the linear unit
- iglidur® X liner use for great chemical resistance
- iglidur® A160/A180 liners use for the food industry (complies with FDA and EU 10/2011)

Cost down

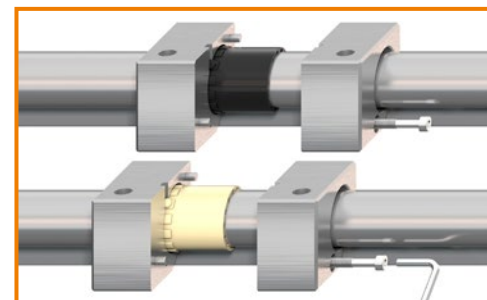
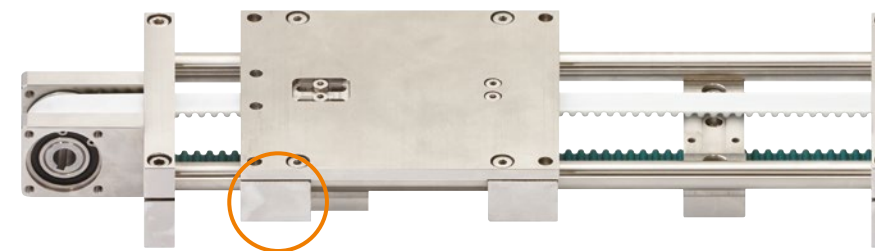
- Ready-to-install for all drylin® W linear guides, SLW linear modules, ZLW toothed belt axes - with installation size 10, 16, 20 and 25
- Use of drylin® liners made from iglidur® X, A180, A160, E7
- Bearing change within seconds

Proof

- Tested: iglidur® X resistant to acetone (10%), benzoic acid (20%, aqueous), bleaching solution, drilling oils, butyric acid, seawater, etc. igus.eu/igidurX
- Tested: drylin® W, four bearings with iglidur® X liner, installation size 20, two shafts of AISI 316Ti, spacing 400mm, dynamic axial load 250N, synchronous drive, acceleration 1.5m/s², minimum service life 2,000km or 650,000 double strokes of 1,500mm each

Sustainability

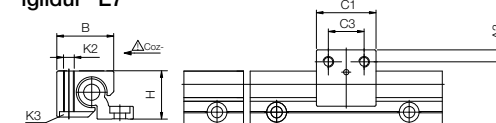
- Completely lubrication-free operation in adverse environments
- Linear housing can be used for a lifetime
- Emission-reduced replacement part handling, liner weight < 5g
- No contamination in the application environment
- Maintenance-free due to self-lubricating high-performance polymers from igus®



Bearing change within seconds



Matching liners made of iglidur® materials: iglidur® X, iglidur® A180, iglidur® A160 and iglidur® E7



Part No.	Weight [g]	B	C1	C3	A3	K2	H +0.25	K3 For flat head screw	Static load capacity		
									Coz [N]	Coz+ [N]	Coz- [Nm]
W□UMA-01-10-ES	57	26	29	16	6.5	M6	18	M5	1,200	1,200	250
W□UMA-01-16-ES	138	34.5	36	18	9	M8	27	M6	2,100	2,100	400
W□UMA-01-20-ES	283	42.5	45	27	9	M8	36	M6	3,200	3,200	500
W□UMA-01-25-ES	575	52.5	58	36	11	M10	45	M8	4,800	4,800	950

□ = Select the right liner; X = iglidur® X, A180 = iglidur® A180, A160 = iglidur® A160, EZ = iglidur® E7
 You can find the assembly manual at: igus.eu/WXUMA

... cover safely
with style ...

Rail-end caps for drylin® W single rails in three installation sizes for simple handling and optical edge trim.



dirt-resistant

Tech up

- More safety with robust end caps
- Stylish rail end protection
- Covers the axial holes
- Simple handling
- Firm press-fit

Cost down

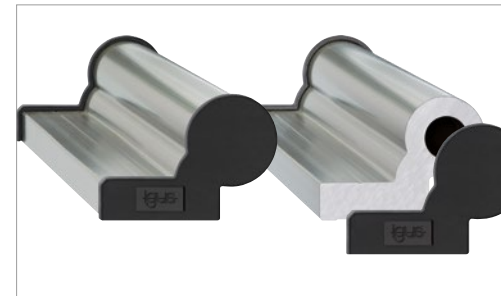
- Quick assembly without any tools
- One set for both sides of the rail
- Cost-effective production via injection moulding

Proof

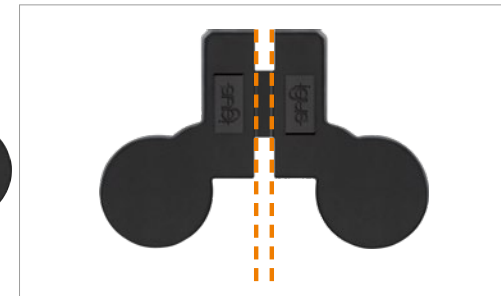
- Rounded edge protection geometry for safe handling
- Centering and flange for torque-resistant hold

Sustainability

- 100% lubrication and maintenance-free
- Material-optimised injection moulding - two covers manufactured in a single process
- Connecting bar also serves as a transport securing device
- Lightweight construction with polymers
- Reusable (removable)

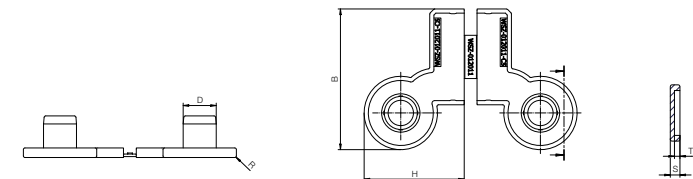


Available for drylin® W single rails WS-16, WS-20 and WS-25



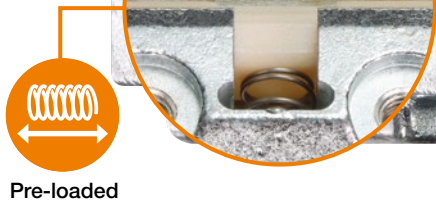
Set consists of two cost-effective end caps, injection moulded. Just separate the two caps and attach them.

Part No.	B	H	D	R	S	T	Suitable for
WSZ-16-KIT	39.3	23	(8)	0.3	2.5	1.5	WS-16/WS-16-CA
WSZ-20-KIT	44	31.3	(10.3)	0.5	3	1.7	WS-20/WS-20-CA
WSZ-25-KIT	53.3	39	(14.1)	0.5	3.5	2	WS-25/WS-25-CA



... small, spring-loaded miniature guide ...

New linear carriages with selectable spring preload, defined displacement forces and quiet operation.



Pre-loaded

Tech up

- Defined displacement forces
- Choice between two spring preloads
- Controlled friction

Cost down

- No rattling noises due to preload
- Existing linear carriages can be retrofitted

Proof

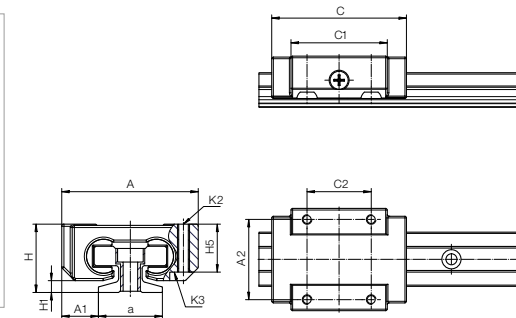
- Tested for a long service life:
4 carriages TW-04-12, 2 rails TS-04-12, distance between rails 100mm, distance between carriages 200mm, centric centre of gravity and drive, fill weight 75N, acceleration 0.25m/s², running distance until bearing replacement 10,000km

Sustainability

- 100% lubrication and maintenance-free
- No risk of contamination
- igus® supports the circular economy of plastics and is investing in chemical recycling. Find out more at:
igus.eu/sustainability



Suitable for TS-04 rails from the drylin® T modular system



Part No.	Weight [kg]	Pre-load [N]	H ±0.2	A -0.2	C ±0.3	A1 ±0.35	A2	C1	C2	H1 ±0.35	H5	a -0.2	K2 thread	Tightening torque [Nm]	K3 for screw DIN 912
TW-04-09-P30	18.0	3	10	20	29	5.5	15	18	13	1.7	7.2	9	M2	0.25	-
TW-04-12-P40	36.0	4	13	27	34	7.5	20	22	15	2.2	9.5	12	M3	0.5	M2
TW-04-12-P90	36.0	9	13	27	34	7.5	20	22	15	2.2	9.5	12	M3	0.5	M2
TW-04-15-P40	64.0	4	16	32	42	8.5	25	31	20	2.8	11	15	M3	0.5	M2
TW-04-15-P90	64.0	9	16	32	42	8.5	25	31	20	2.8	11	15	M3	0.5	M2

... preloaded and consistent ...

Two integrated elastomer elements reduce noise and rattling as well as bearing clearance to a minimum.



3N

max. elastomer camber

4x

quieter than metal bearings



pre-loaded

Tech up

- Consistent movement with preload function
- Lower bearing clearance
- High quality adjustment feel
- Low-profile, 12mm system height
- Integrated thread inserts within the carriage body

Cost down

- Ready-to-install, pre-assembled linear carriages
- Suitable for low-profile rails NS-01-80 in silver and NS-01-80-AR in black
- Fail-safe integrated preload
- Individual preload possible
- Dimensionally identical to carriages with fixed and floating bearings

Proof

- Tested: linear application, horizontal mounting position, two NS-01-80 rails, spacing 400mm, with two NW-02-80 carriages each, spacing 200mm, acceleration 1.25m/s², 50N centric load, expected service life: 30,000km
- Tested: linear up to 4x quieter than metal bearings
- Tested: corrosion resistance of linear rails, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117

Sustainability

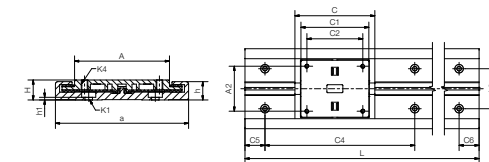
- 100% lubrication-free operation
- Sliding elements individually renewable
- Reusable carriage body
- Low emission levels in the interior due to very quiet operation
- Maintenance-free due to self-lubricating high-performance polymers from igus®



Consistent movement with preload function



Suitable rails in silver and black available



Part No.	Weight [g]	H ±0.35	A	C	C1	C2	A2	K4
NW-02-80-P	100	12.0	57.0	80	68	56	45	M4

... compact and preloaded ...

The defined pretension is the heart of the drylin® N prism guide. And we now also use this pretensioning mechanism with selectable constant displacement forces in the new prismatic telescopic rail.

4x
quieter than metal bearings

pre-loaded

Tech up

- Consistent telescopic rail due to spring pretensioning mechanism
- Constant drive forces with various preload options
- With 27mm width very narrow type for 27mm groove
- Quiet, with spring pretension

Proof

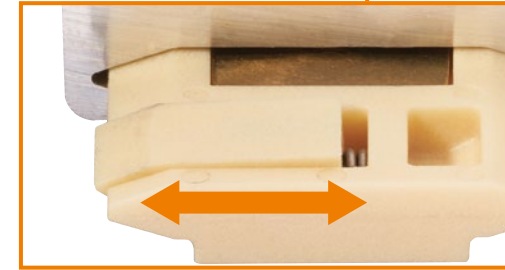
- Tested: static load capacity of 100N, horizontally adjustable drawer, 2 vertically installed systems fitted to the side of the drawer, load at the outermost point of the drawer.
- Tested: linear up to 4x quieter than metal bearings
- Tested: corrosion resistance, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117

Cost down

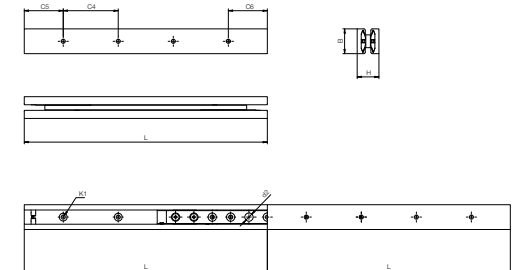
- Ready-to-install solution with 150 to 500mm extension length
- Full extension, partial extension, overextension can be configured in 50mm increments
- 100% maintenance-free as no lubricants required
- Can be ordered online from 1 piece

Sustainability

- 100% lubrication-free and maintenance-free operation
- Very quiet through sliding motion instead of metal balls
- No contamination in the application environment



Consistent telescopic rail due to spring pretensioning mechanism



Part No.	L		C4	C5		C6		B	H	K1	d2
	Min.	Max.		Min.	Max.	Min.	Max.				
NTV-27	150	500	60	25	49.5	25	49.5	27	23.7	Ø4.5	9

... conspicuously
inconspicuous ...

Black anti-reflect telescopic rails NT-35 and NT-60

Tech up

- Telescopic rails in two installation sizes, now available in black
- Unobtrusive integration into machine environment and interior
- Less light reflection
- Corrosion-free for indoor and outdoor use
- Extension length for installation size 35 up to 600mm and up to 2,000mm for installation size 60

Proof

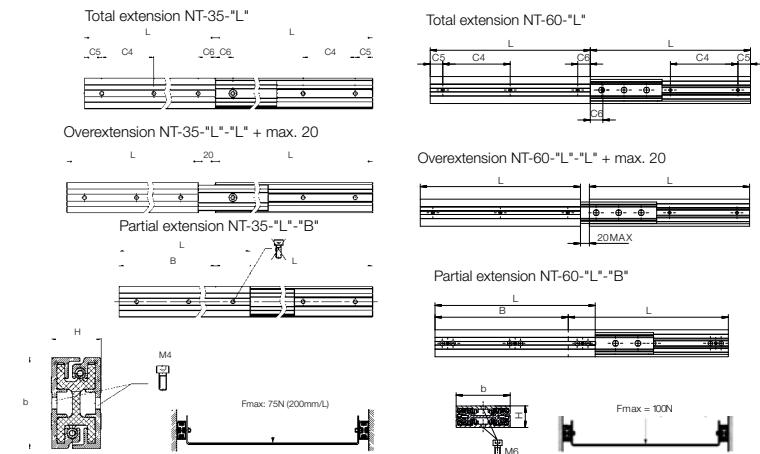
- Tested: NT-60 Load capacity of 180N on a drawer with two vertically installed telescopic rails, basic length 500mm
- Tested: NT-35 load capacity of 90N for one drawer with two vertically installed telescopic rails, basic length 250mm
- Tested: corrosion resistance, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117

Cost down

- Precise production of individual extension lengths as required
- Available as full extension, partial extension or over centre extension pull-out
- Corrosion-resistant due to a coat of anodised aluminium
- Fail-safe sliding mechanism for indoor and outdoor use
- Mechanism for latching (end position or individual) available
- Can be ordered online from 1 piece

Sustainability

- 100% lubrication-free and maintenance-free operation
- Very quiet through sliding motion instead of metal balls
- No contamination in the application environment



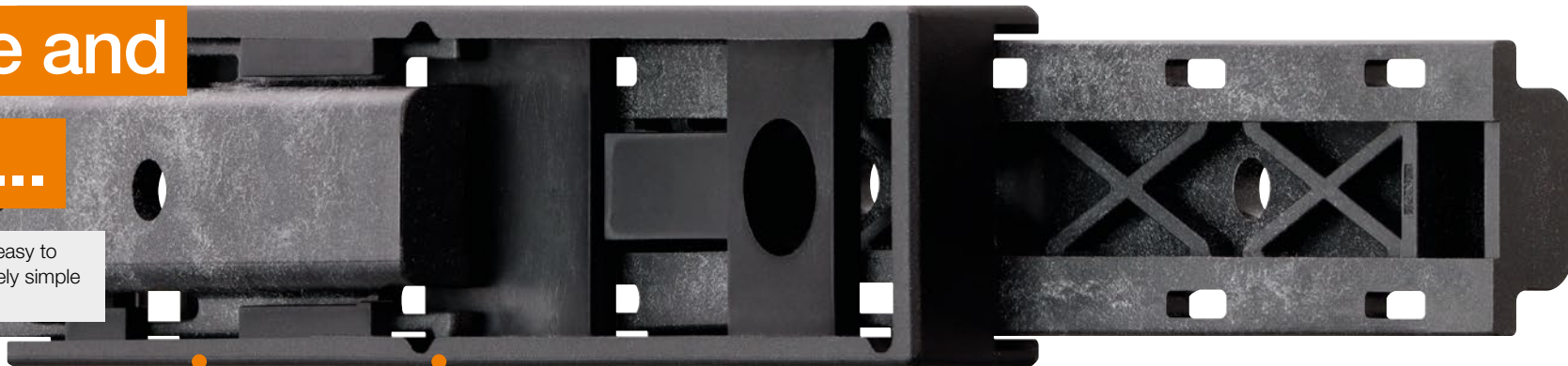
Part No.	b ±0.35	H	C4	C5		C6		L	
				Min.	Max.	Min.	Max.	Min.	Max.
NT-35-AR	35	19	60	20	49.5	20	49.5	100	600
NT-60-AR	60	24	150	25	99.5	25	99.5	200	1,000

Available from stock

igus.eu/nt-ar

... metal-free and lightweight ...

The low "metal-free" weight makes products easy to transport and take along. Assembly is extremely simple thanks to the plug-in system.



70%

lighter than steel rails

100%

non-metallic

Tech up

- The lightest drylin® NT telescopic rail weighs 45g
- 100% self-lubricating with iglidur® high-performance polymers
- Quiet due to pretensioning segments
- Stepless adjustment up to 125mm

Cost down

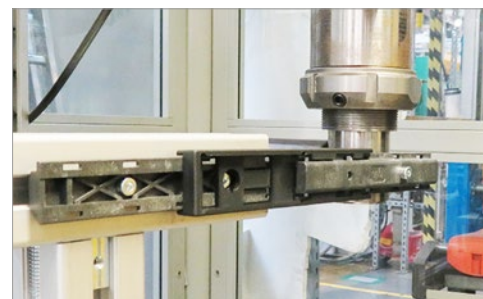
- Low mass inertia due to solid polymer material design
- Ideal for light and transportable requirements
- Fail-safe function, no risk of damage to balls, etc.
- Cost-effective injection moulding
- Can be ordered online from 1 piece

Proof

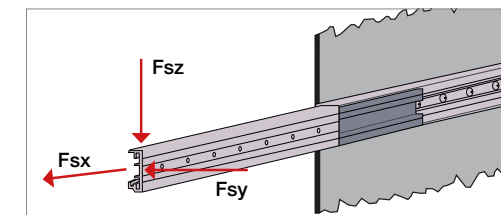
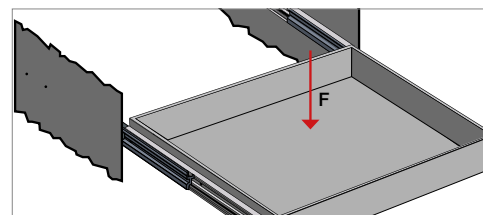
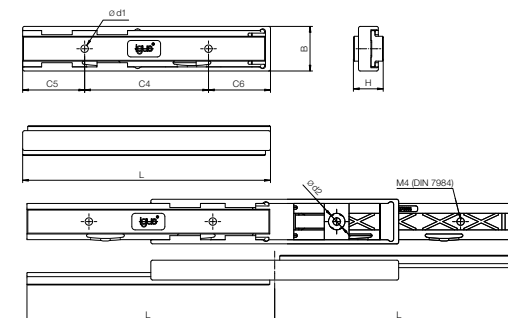
- Tested: 100% maintenance-free functionality through self-lubricating iglidur® polymers J3B and GLW
- Tested: up to 4x quieter than metal guides due to absence of rolling metal bodies
- Tested: assembly in less than 5 seconds using the snap-in principle

Sustainability

- Fully maintenance-free function due to self-lubrication
- 100% clean and no danger for adjacent materials
- Lightweight, ideal for emission-critical applications



Test setup in the igus® laboratory



Forces - installation situation

	F _{max} [N]	F [N]
F _{sx}	40	-
F _{sy}	8	-
F _{sz}	12.5	-
F	-	25

Part No.	Weight [g]	d	C5	C4	C6	B	H	d2	L
NTP-27-18-01-125	45	4.5	37.5	50	37.5	27	18	10	125

Available from stock

igus.eu/ntp-color

... precise
and rigid ...

The robust and durable clip-in liners made of the high-performance polymer iglidur® W360 convince with a lower bearing clearance at the operating point due to reduced elasticity.



50%

lower bearing clearance than standard liners

1:1

dimensionally interchangeable with standard recirculating ball bearings

Tech up

- Up to 50% less bearing clearance at the operating point
- Easy-running lubrication-free clip-on films with reduced elasticity
- Secure mounting due to clip-in function and press fit
- Corrosion-free due to clear anodised adapter housing
- Three installation sizes: $\varnothing 12\text{mm}$, 16mm and 20mm
- Suitable bearing housings RGA/RGAS/RQA available

Proof

- Tested: bearing clearance at operating point in mm, test force 40N, measuring jib 200mm, load point 150mm from bearing centre, result: 50% lower bearing clearance than RJUM-01 series.
- Online service life calculator for drylin® R

Cost down

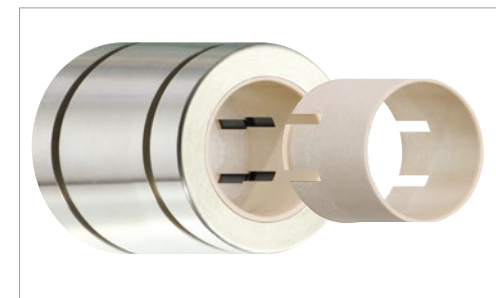
- Linear adapter 1:1 dimensionally interchangeable with metallic ball bearings
- Quick mounting in bearing housing type RGA/RGAS and linear carriage RQA (can also be retrofitted)
- One bearing for linear and rotating applications
- For igus® round shafts made of aluminium, steel and stainless steel

Sustainability

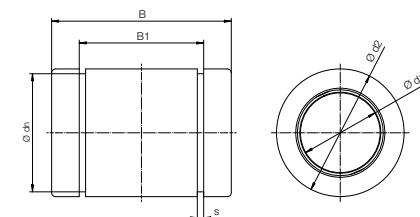
- 100% maintenance-free due to self-lubrication
- No greasing and oiling necessary
- No contamination in the application environment
- Self-lubricating igus® polymers for highest cleanliness and hygiene as well as quick cleaning



Test setup in the igus® laboratory



Clip-in liner made of iglidur® W360 for easy replacement



Part No.	d1 +0.01 +0.05	d2 h6	B -0.1	B1 +0.1	s H10	dn h10	Fmax. dyn. [N]	Fmax. stat. [N]
RW360CM-01-12*	12	22	32	22.6	1.3	20.5	960	1,920
RW360CM-01-16*	16	26	36	24.6	1.3	24.2	1,140	2,280
RW360CM-01-20	20	32	45	31.2	1.6	29.6	2,250	4,500

* Delivery time for size 12 and 16: from July 2021

Available from stock

igus.eu/rw360

... low cost and lightweight ...

Cost-effective production via injection moulding, extremely low weight for lightweight constructions, corrosion-free in applications where stainless steel is required.

75%

lighter than RJUM-05

Tech up

- Linear housings made of robust lightweight igus® polymers
- Works with all Type 02 liners (short, closed design)
- Linear housings for round shafts made of aluminium, steel and stainless steel

Proof

- 75% lighter than RJUM-05 series linear housing
- Service life can be calculated online
- 8x longer service life on steel and stainless steel due to iglidur® E7 linear liner
- Housing with integrated locating spigot and anti-rotation feature of the liners

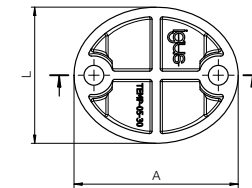
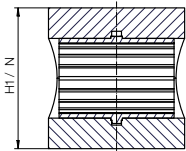
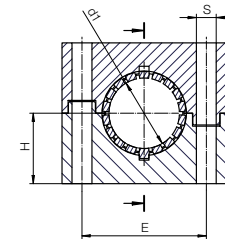
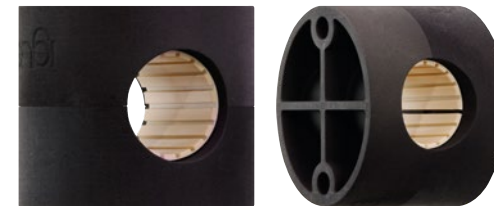
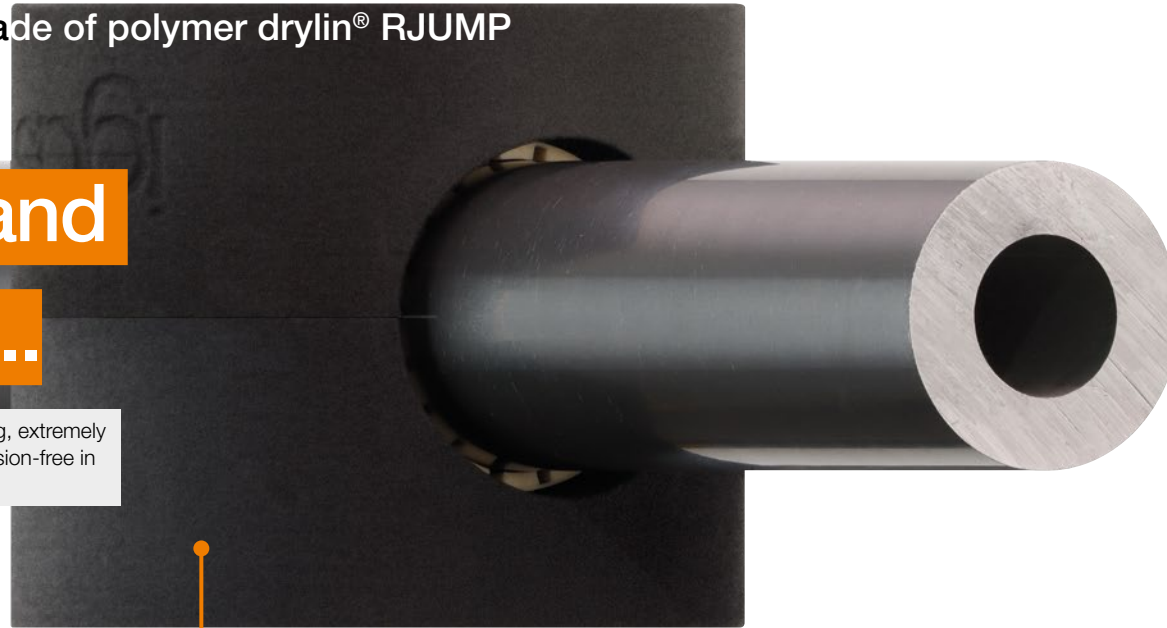
Cost down

- Injection moulding production is cost-effective
- Quick assembly via plug connection
- Split housing for fast film replacement

Sustainability

- Lightweight polymer construction to optimise dynamics and efficiency
- Maintenance-free due to self-lubricating high-performance polymers from igus®
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:

[igus.eu/sustainability](https://www.igus.eu/sustainability)



More liners upon request, e.g. iglidur® E7

Part No.	Weight	Ø d1	d1 tolerance*	H	H1	A	E	S	N	L	Mounting screws*	Permissible load
	[g]	[mm]	[mm]	[mm]	[mm]			- 0.1				1MPa
RJUMP-05-25	90	25	+0.1 / +0.2	27	54	65	48	8.5	54	45	M8	400N
RJUMP-05-30	121	30	+0.1 / +0.2	30	60	70	53	8.5	60	58	M8	500N

* Use screw locking device

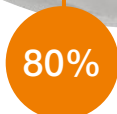
... FDA compliant ...

low inertia ...

Cost-effectively injection moulded from the FDA-compliant material iglidur® A180, the bearings are extremely tough and resistant.



FDA compliant



80%
lighter than bearing made of stainless steel



4x
quieter than metal bearings



max. +60°C
min. -20°C

Tech up

- FDA-compliant igus® polymer for use in the food environment
- Firm press-fit
- 80% weight saving compared to dimensionally identical bearings made of stainless steel
- Integrated channels for applications with high levels of dirt
- For all round shafts with Ø12, 16 and 20mm

Cost down

- Dimensionally interchangeable with standard ball bearings
- Simple handling with lightweight parts
- Easy and fast cleaning possible
- Reuse of previous adapters and housings
- Manufacturing with the injection-moulding method

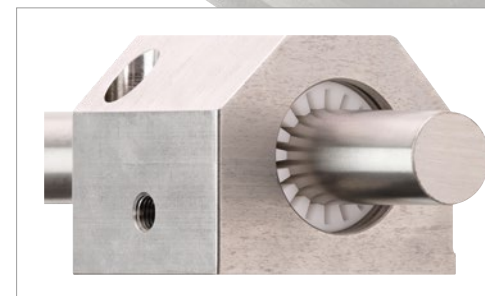
Sustainability

- 100% lubrication-free and maintenance-free operation
- No contamination in the application environment

Proof

- Tested: for temperature ranges from -20°C up to 60°C
- Tested: max. moisture absorption at +23°C and 50% relative humidity; result 0.3% weight
- Tested: linear up to 4x quieter than metal bearings
- Online service life calculation in preparation

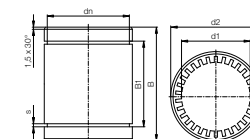
igus.eu/drylin-expert



Example: linear housing RGA with solid plastic bearing*



Linear bearing made of iglidur® A180



Part No.	Ø d1 [mm]	d1 tolerance** [mm]	Weight [g]	d2 [mm]	B [mm]	s	dn
RA180M-01-10***	10	+0.025 +0.07	7	19	29	1.3	17.5
RA180M-01-12	12	+0.03 +0.08	9	22	32	1.3	20.5
RA180M-01-16***	16	+0.03 +0.07	13	26	36	1.3	24.2
RA180M-01-20***	20	+0.04 +0.09	24	32	45	1.6	29.6
RA180M-01-25***	25	+0.04 +0.09	47	40	58	1.85	36.5
RA180M-01-30***	30	+0.04 +0.09	72	47	68	1.85	43.5

* Mounting with circlips according to DIN 471 and DIN 472(not included in delivery). Inner tolerance applies only after the press-fit ** According to igus® testing method *** Available upon request

Lubrication-free made easy ...

dryspin® lead screw technology ... replacing ball screws ... It's our job

Lubrication is indispensable for metal lead screw nuts, without it they will rust and degrade during use. Our dryspin® polymer lead screw nuts do not require a single drop of lubrication. As a result, drylin® lead screw technology scores points in terms of quiet operation, as there is no metallic operating noise. They also score points for their very low breakaway torque.

... new

highlight 10/2021↑...

...206

dryspin® lead screw nuts for the rail industry ... can be certified according to EN45545 Hazard level 3



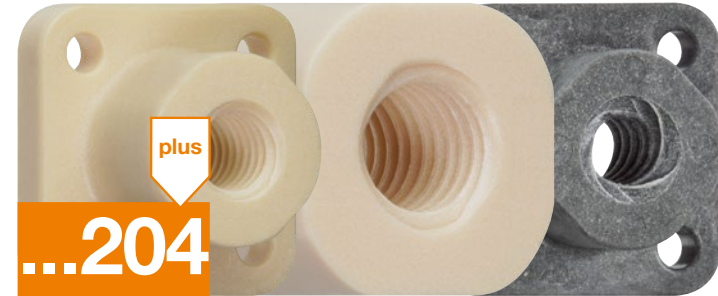
...200

New dryspin® dimensions, corresponding high helix lead screws and high helix lead screw nuts



...202

dryspin® ... New thread dimensions for even more variety ...



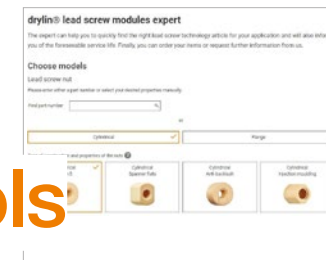
...204

Injection-moulded lead screw nuts with tapped dryspin® high helix thread ... longer service life due to asymmetry



...208

dryspin® JGRM lead screw nut ... robust and with the same connection as common ball screws



... online tools

dryspin® lead screw expert ... simple, fast product selection and service life calculation

... save through sliding thread ...

Higher efficiency and longer service life than conventional lead screws thanks to the unique dryspin® high helix thread technology. Corrosion-resistant and 100% lubrication-free and maintenance-free.



Rust-free



Up to 30% longer service life than conventional lead screw drives



Up to 25% less wear than conventional lead screw drives

Tech up

- **New sizes:** dryspin® lead screws with pitch DS6.35x6.35 and 8x40
- dryspin® lead screws with pitches of DS10x3 LH; DS12x25 LH; DS14x4; DS16x5; DS18x4; DS20x10
- Quiet due to thread geometry
- Up to 30% longer service life thanks to asymmetry

Proof

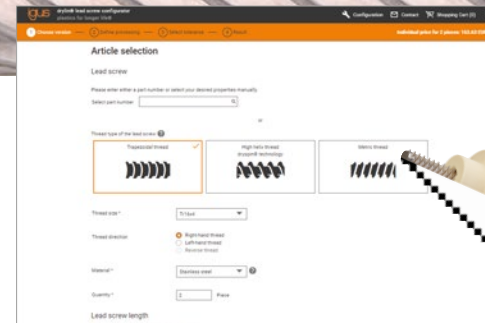
- Service life can be calculated online
- Tested: up to 25% less wear
- Compared to PET+PTFE (dimension 10x3) [igus.eu/dryspin-test-reports](https://www.igus.eu/dryspin-test-reports)
- Corrosion-resistant due to material AISI 304
- Online configuration with plausibility check
- Selection security, 2D PDF and 3D step model included

Cost down

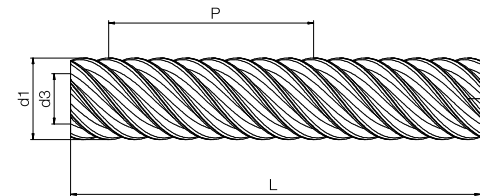
- Online lead screw configuration tool
- Live price display
- Lead screw machining online without CAD knowledge

Sustainability

- Lubrication-free operation
- Easy to clean
- Required length without waste
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about the topic at: [igus.eu/info/sustainability](https://www.igus.eu/info/sustainability)



Configure and order lead screws and machined ends online [igus.eu/lead-screw-configurator](https://www.igus.eu/lead-screw-configurator)



Part No.	Screw threads	d1	d3 -0.1	P	L Max.	Weight [kg]	Number of gears	Pitch angle [°]
DST-LS-6.35X6.35-R-Q-ES	DS6.35x6.35	6.35	4.3	6.35	1,000	0.40	3	17.65
DST-LS-8X40-R-Q-ES	DS8x40	8	5.8	40	1,000	0.25	8	57.86
DST-LS-10X3-L-Q-ES	Ds10x3	10	7.85	3	3,000	0.62	2	5.45
DST-LS-12X25-L-Q-ES	Ds12x25	12	8.95	12	3,000	0.90	8	33.55
DST-LS-14X4-R-Q-ES	Ds14x4	14	9.95	4	3,000	1.22	1	5.20
DST-LS-16X5-R-Q-ES	Ds16x5	16	11.15	5	3,000	1.59	1	5.68
DST-LS-18X4-R-Q-ES	Ds18x4	18	13.95	4	3,000	2.01	1	4.04
DST-LS-20X10-R-Q-ES	Ds20x10	20	15.55	10	3,000	2.48	2	9.04

□ = Variable length, information about other materials and dimensions available online – [igus.eu/leadscrew](https://www.igus.eu/leadscrew)

... high efficiency ...

self-lubricating ...

82%

Up to 82% higher efficiency

25%

Up to 25% less wear than conventional lead screw drives

30%

Up to 30% longer service life than conventional lead screw drives

Tech up

- **New sizes:** dryspin® lead screws with pitch DS6.35x6.35 and 8x40
- Higher levels of efficiency, up to 82%
- Quiet and vibration dampening
- Lead screw nuts in cylindrical design or with flange

Proof

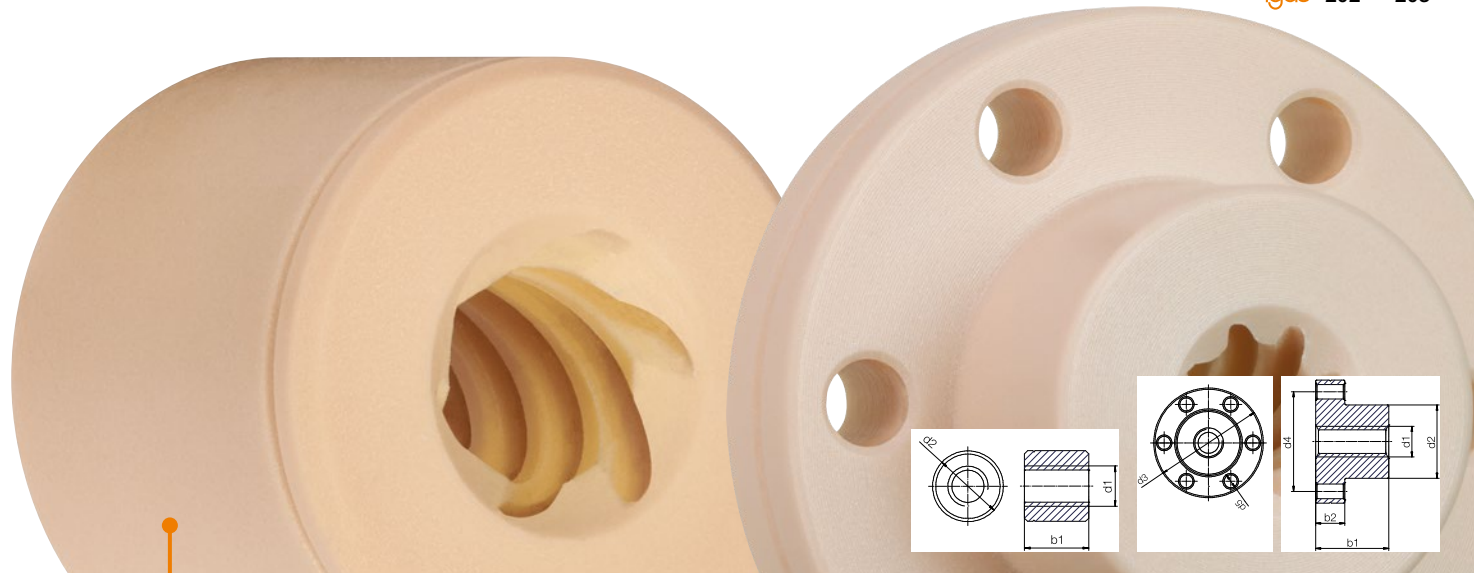
- Tested: up to 25% less wear compared to PET+PTFE (dimensions: 10x3) igus.eu/dryspin-test-reports
- Lead screw drive service life can be calculated online
- FDA-compliant materials available
- Lead screw nuts and lead screws can be ordered in the online shop

Cost down

- 100% lubrication-free and maintenance-free
- Up to 50.9% more cost-effective than metallic lead screw nuts
- Free online tools with service life calculation and instant price

Sustainability

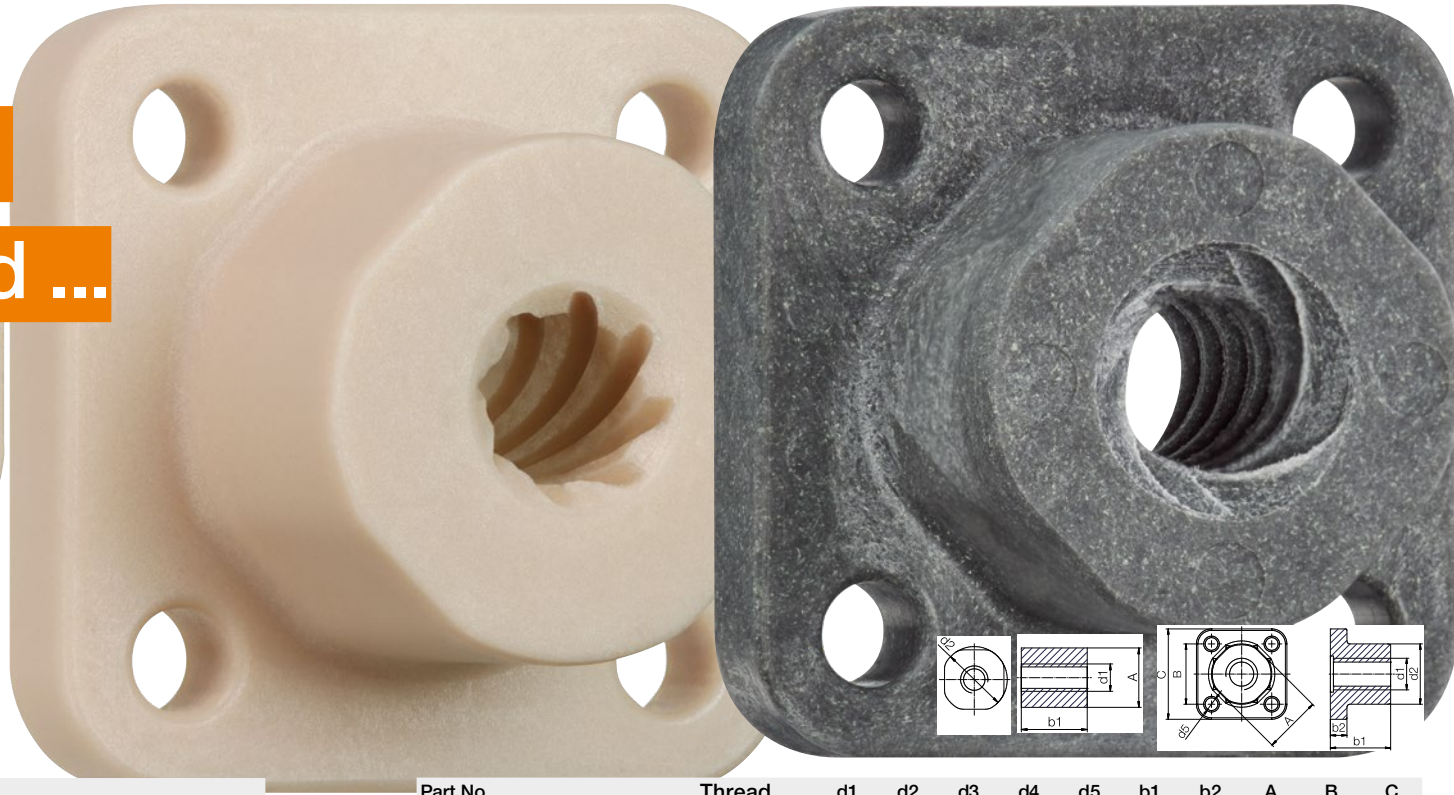
- No grease or oil in the lead screw drive
- Long-lasting use due to patented asymmetry
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Part No.	Thread d1 x P	d1	d2	d3	d4	d5	b1	b2	SW
Cylindrical lead screw nuts									
DST-□SRM-1413DS6.35X6.35	Ds6.35x6.35	6.35	14	-	-	-	13	-	-
DST-□SRM-1812DS8X40	Ds8x40	8	18	-	-	-	12	-	-
DST-□SLM-2220DS10X3	Ds10x3	10	22	-	-	-	20	-	-
DST-□SLM-2624DS12X25	Ds12x25	12	26	-	-	-	24	-	-
DST-□SRM-3027DS14X4	Ds14x4	14	30	-	-	-	27	-	-
DST-□SRM-253027DS14X4	Ds14x4	14	30	-	-	-	27	-	25
DST-□SRM-3632DS16X5	Ds16x5	16	36	-	-	-	32	-	-
DST-□SRM-273632DS16X5	Ds16x5	16	36	-	-	-	32	-	27
DST-□SRM-4036DS18X4	Ds18x4	18	40	-	-	-	36	-	-
DST-□SRM-274036DS18X4	Ds18x4	18	40	-	-	-	36	-	27
DST-□SRM-4540DS20X10	Ds20x10	20	45	-	-	-	40	-	-
DST-□SRM-304540DS20X10	Ds20x10	20	45	-	-	-	40	-	30
Lead screw nuts with flange									
DST-□FRM-1315DS6.35X6.35	Ds6.35x6.35	6.35	13	25	19	3.2	15	5	-
DST-□FRM-131315DS6.35X6.35	Ds6.35x6.35	6.35	13	25	19	3.2	15	5	13
DST-□FRM-2020DS8X40	Ds8x40	8	20	36	28	4	20	8	-
DST-□FRM-202020DS8X40	Ds8x40	8	20	36	28	4	20	8	20
DST-□FLM-2525DS10X3	Ds10x3	10	25	42	34	5	25	10	-
DST-□FLM-2835DS12X25	Ds12x25	12	28	48	38	6	35	18	-
DST-□FRM-2835DS14X4	Ds14x4	14	28	48	38	6	35	12	-
DST-□FRM-282835DS14X4	Ds14x4	14	28	48	38	6	35	12	28
DST-□FRM-2835DS16X5	Ds16x5	16	28	48	38	6	35	12	-
DST-□FRM-282835DS16X5	Ds16x5	16	28	48	38	6	35	12	28
DST-□FRM-2835DS18X4	Ds18x4	18	28	48	38	6	35	12	-
DST-□FRM-282835DS18X4	Ds18x4	18	28	48	38	6	35	12	28
DST-□FRM-3244DS20X10	Ds20x10	20	32	55	45	7	44	12	-
DST-□FRM-323244DS20X10	Ds20x10	20	32	55	45	7	44	12	32

□ = Information about other materials and dimensions available online – igus.eu/leadscrew

... injection moulding
with machined thread ...

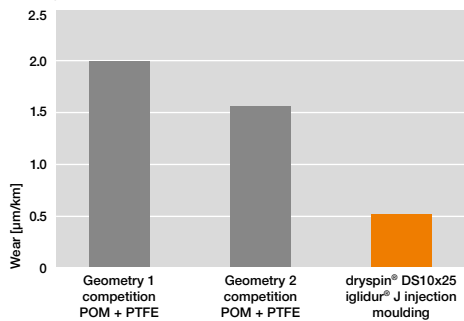


Tech up

- **New sizes:** dryspin® lead screws with pitch DS6.35x6.35 and 8x40
- Longer service life through injection moulding
- Higher efficiency up to 82%
- Quiet and vibration dampening
- Lead screw nuts in cylindrical design or with flange

Proof

- Wear after 630,000 cycles, 140mm stroke, 100rpm, 200N load, no lubrication



Cost down

- Cost-effective production in injection moulding
- 100% lubrication-free and maintenance-free
- Up to 50.9% more cost-effective than metallic lead screw nuts
- Free online tools with service life calculation and instant price

Sustainability

- No grease or oil in the lead screw drive
- Long-lasting use due to patented asymmetry
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

Part No.	Thread d1 x P	d1	d2	d3	d4	d5	b1	b2	A	B	C
Cylindrical injection-moulded nuts											
DST-□SRM-C-01-DS6.35X6.35	Ds6.35x6.35	6.35	12	-	-	-	12	-	11.0	-	-
DST-□SRM-C-01-DS8X40	Ds8x40	8	20	-	-	-	20	-	18.0	-	-
DST-□SLM-C-01-DS10X3	Ds10x3	10	22	-	-	-	20	-	18.0	-	-
DST-JSLM-C-01-DS12X25	Ds12x25	12	24	-	-	-	25	-	22.6	-	-
DST-□SRM-C-01-DS14X4	Ds14x4	14	24	-	-	-	25	-	22.6	-	-
DST-JSRM-C-01-DS16X5	Ds16x5	16	28	-	-	-	25	-	25.5	-	-
DST-JSRM-C-01-DS18X4	Ds18x4	18	28	-	-	-	25	-	25.5	-	-
DST-JSRM-C-01-DS20X10	Ds20x10	20	32	-	-	-	25	-	29.0	-	-
Injection-moulded nuts with flange											
DST-□FRM-C-01-DS6.35X6.35	Ds6.35x6.35	6.35	12	-	-	3.2	12	4.0	11.0	12	18
DST-□FRM-C-01-DS8X40	Ds8x40	8	20	-	-	4.2	20	5.5	19.0	20	30
DST-□FLM-C-01-DS10X3	Ds10x3	10	20	-	-	4.2	20	5.5	19.0	20	30
DST-JFLM-C-01-DS12X25	Ds12x25	12	24	-	-	5.0	25	6.0	22.6	24	34
DST-JFRM-C-01-DS14X4	Ds14x4	14	24	-	-	5.0	25	5.0	22.6	24	34
DST-JFRM-C-01-DS16X5	Ds16x5	16	28	-	-	6.0	25	6.5	25.5	27	38
DST-JFRM-C-01-DS18X4	Ds18x4	18	28	-	-	6.0	25	6.5	25.5	27	38
DST-JFRM-C-01-DS20X10	Ds20x10	20	32	-	-	6.0	25	8.0	29.0	30	42

□ = Information about other materials and dimensions available online - igus.eu/leadscrew

... can be certified according to EN45545 Hazard level 3 ...

Tested according to requirement set R24, for components up to 500 grams.



EN45545
Hazard level 3



Tech up

- Complies with EN45545 Hazard level 3
- For use in rail vehicles without additional documentation
- Large range of dimensions

Cost down

- Cost advantages compared to metallic solutions
- Suitability for hazard class HL 3
- Predictable service life
- Customised lead screw nut design

Proof



Sustainability

- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at:
igus.eu/sustainability



Large range of dimensions especially for use in rail vehicles ...

General properties	igidur® J350
Density	1.44g/cm ³
Colour	yellow
Max. moisture absorption at +23°C and 50% r.h.	0.3% weight
Max. moisture absorption	1.6% weight
Electrical properties	
Specific transitional resistance	>10 ¹³ Ωcm
Surface resistance	>10 ¹⁰ Ω
Mechanical properties	
Shore D hardness	80
Max. recommended surface pressure in the thread at +20°C	3MPa
Physical and thermal properties	
Max. continuous operating temperature	+150°C
Max. short-term operating temperature	+150°C
Min. application temperature	-20°C
Thermal conductivity [W/m - K]	0.24
Coefficient of thermal expansion at +23°C [K ⁻¹ · 10 ⁻⁵]	7

Part No.	Thread d1 x P	d1	d2	d3	d4	d5	b1	b2	Weight [g]	Effective support surface	Max. stat. axial F
DST-J350FRM-2835DS18x100	Ds18x100	18	28	48	38	6	35	18	49.15	266	665
DST-J350FRM-3244DS20x60	Ds20x60	20	32	55	45	7	44	12	58.21	729	1,822

Large dimensional range available online: igus.eu/leadscrew

Available from stock

Ask for a free sample

igus.eu/dryspin-EN45545

... identical geometry to equivalent ball screw nuts ...

Lightweight design optimised for injection moulding, connection and pitch dimensions identical to conventional ball screw nuts.



**dryspin®
technology**

30%

**up to 30%
higher static axial
loads possible**



kg

Tech up

- New lead screw nut sizes make it easy to fix securely
- Connection sizes identical to conventional ball screws
- Robust, secure front mounting without flange
- Available as heavy-duty version with metal plate for high static loads

Proof

- Easy installation due to thread centering spigot and 4 M6 cap head screws
- Service life can be calculated online
- The heavy-duty version can cope with 30% higher static axial load than threaded flange nuts with the same threads

Cost down

- Cost-effective design optimised for injection moulding
- Alternative to metallic ball screw nuts
- Variable design for all thread sizes Ø14/16 and Ø18/20

Sustainability

- Lightweight and low inertia thanks to polymer instead of metal
- Noise reduction due to rounded thread flanks
- Lubrication-free and maintenance-free operation
- Long-lasting use due to patented asymmetry
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability

Screw-in channel for M6 cap head screw

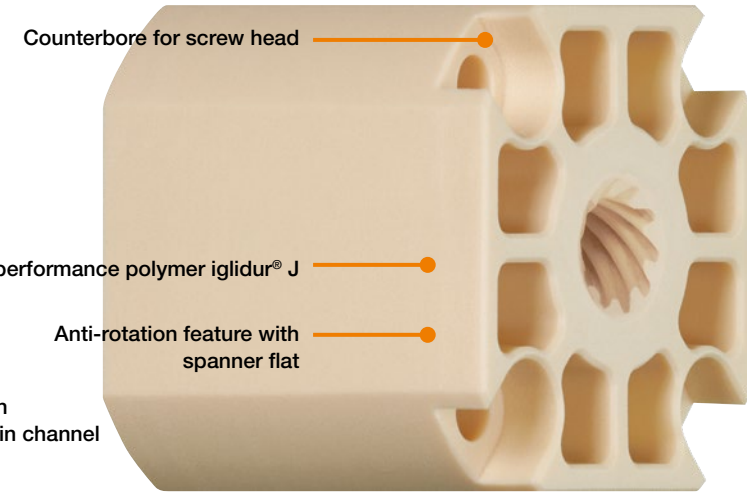
Thread centering spigot

Material: high-performance polymer iglidur® J

Anti-rotation feature with spanner flat

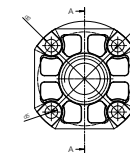
Simple, straight fixing with indentation on the screw-in channel

HD version with ES metal plate (option)

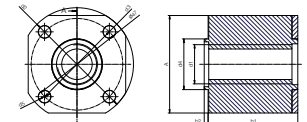
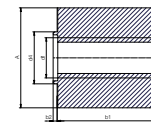


Part No.	Thread	d1	d2	d3	d4	d5	b1		b2	A□	Max. stat. load axial [N]	
							□ C-01	□ HD-02			□ C-01	□ HD-02
DST-JGRM-□-DS14X25	Ds14x25	14	48	38	20	5.3	45	42	2	40	2,936	4,110
DST-JGRM-□-DS14X30	Ds14x30	14	48	38	20	5.3	45	42	2	40	2,936	4,110
DST-JGRM-□-DS14X70	Ds14x70	14	48	38	20	5.3	45	42	2	40	1,567	2,194
DST-JGRM-□-DS16X5	Ds16x5	16	48	38	20	5.3	45	42	2	40	3,466	4,853
DST-JGRM-□-DS16X10	Ds16x10	16	48	38	20	5.3	45	42	2	40	3,466	4,853
DST-JGRM-□-DS16X35	Ds16x35	16	48	38	20	5.3	45	42	2	40	3,434	4,807
DST-JGRM-□-DS18X24	Ds18x24	18	58	47	26	6.3	50	46	2	50	4,716	6,508
DST-JGRM-□-DS18X40	Ds18x40	18	58	47	26	6.3	50	46	2	50	4,368	6,028
DST-JGRM-□-DS18X80	Ds18x80	18	58	47	26	6.3	50	46	2	50	3,016	4,162
DST-JGRM-□-DS18X100	Ds18x100	18	58	47	26	6.3	50	46	2	50	2,646	3,652
DST-JGRM-□-DS20X5	Ds20x5	20	58	47	26	6.3	50	46	2	50	5,019	6,924
DST-JGRM-□-DS20X10	Ds20x10	20	58	47	26	6.3	50	46	2	50	5,019	6,926
DST-JGRM-□-DS20X20	Ds20x20	20	58	47	26	6.3	50	46	2	50	4,921	6,791
DST-JGRM-□-DS20X50	Ds20x50	20	58	47	26	6.3	50	46	2	50	4,031	5,562
DST-JGRM-□-DS20X60	Ds20x60	20	58	47	26	6.3	50	46	2	50	3,313	4,572
DST-JGRM-□-DS20X80	Ds20x80	20	58	47	26	6.3	50	46	2	50	3,408	4,703
DST-JGRM-□-DS20X90	Ds20x90	20	58	47	26	6.3	50	46	2	50	3,313	4,572

□ = C-01/HD-02 | Order example: DST-JGRM-C-01-DS14x25: C-01 lead screw nut made of iglidur® J, with 14x25 right-hand thread



Design C-01



Design HD-02

Available from stock

igus.eu/dryspin-5x10-news

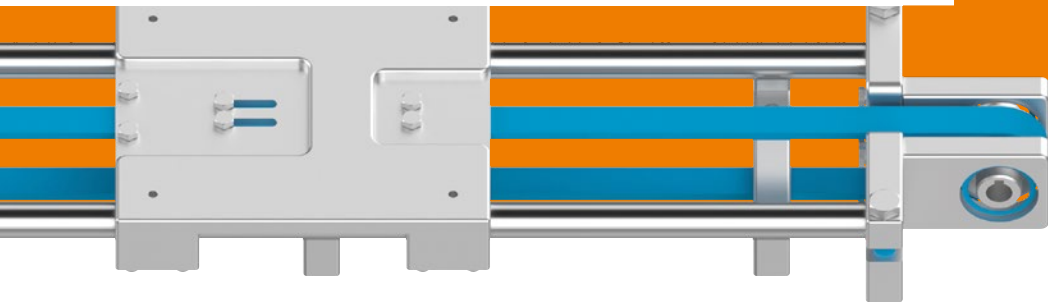
Lubrication-free made easy ...

drylin® drive technology... ready-to-connect linear modules, motors and gearboxes ... It's our job

The expansion of the drylin® linear construction kit also continues in the drive technology. The new widths of the 16 installation size are now available as linear modules with different carriage sizes, as tandem version as well as XY tables. Lubrication-free and maintenance-free, lightweight and quiet, with online predictable service life.

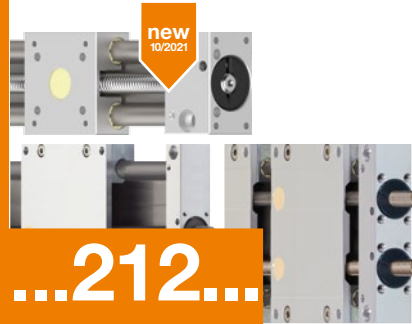
... new

highlight 10/2021...



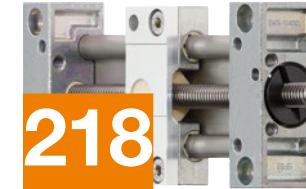
...222

ZLW-10-120-HYD ... Highly resistant stainless steel, FDA-compliant materials and the design is based on the guidelines of hygienic design compatibility.



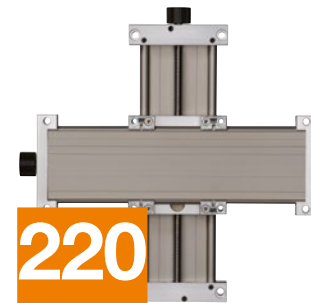
...212...

Strong and low-profile ... drylin® SLW with **new width** ... with double lead screw and dual carriage (drylin® SLWT)



218

drylin® SLWC ... linear module with short carriage, with plain bearing or ball bearing lead screw



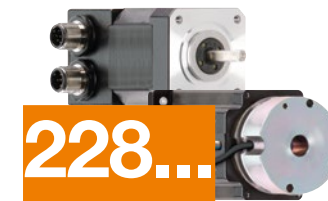
220

Ready-to-install for surfaces ... drylin® SLW XY tables with new installation sizes



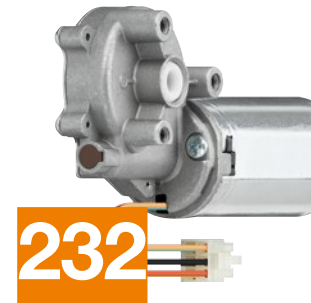
...224

Precise, powerful z-axis drylin® GRR-20-120... with drylin® RW360CM linear plain bearing for low clearance



228...

drylin® E motor shop ... stepper motors with shaft seal and brake



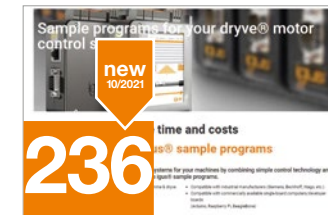
232

drylin® E motor shop ... DC motors with Hall for powerful drive



...234

With the new dryve D1/D2 firmware, commissioning is now even faster



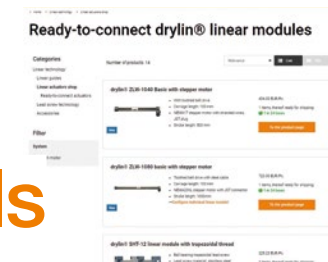
236

Save time & costs with free sample program



238...

drylin® D2 motor control system ... space-saving and lightweight ... step direction controllers for industrial control systems



...online tools

Order configured, ready-to-connect linear modules now with just a click in the online shop

... the service life can also be calculated online

... slim, strong
actuator ...

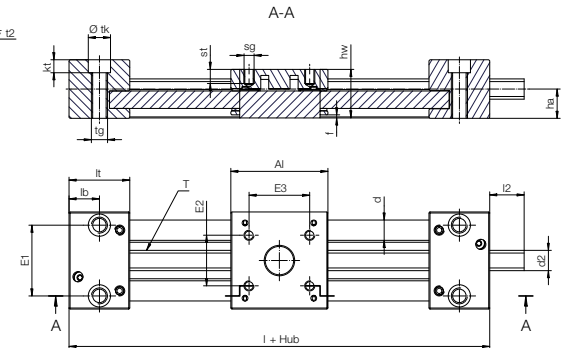
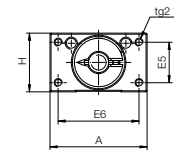
The compact design and the ball bearing spindle allow precise manual and dynamic electrical adjustments, especially in limited installation spaces.

35%

Save installation space

48mm

48mm



Tech up

- Most compact SLW linear actuator in installation size 10
- Space-saving design: 35% narrower than SLW-1040
- Slim, milled linear carriage

Cost down

- Efficient with dryspin® high helix thread
- Self-locking due to trapezoidal thread
- Ready for connection up to motor and control system

Proof

- 35% space-saving in system width compared to the narrowest version in installation size 10 to date (-1040)
SLW-BB-1040: 74mm
SLW-BB-1030-FL: 48mm

Sustainability

- 100% maintenance-free with self-lubrication
- Clean and hygienic

Part No.	Max. stroke length [mm]	Weight additional (per 100mm) [kg]		Max. static load capacity axial [N] radial [N]		Shaft end support material			
		E1	E2	E3	E5		E6	tg2	t2
SLW-BB-1030-FL	400	0.39	0.15	250	1,000	Aluminium			

Part No.	A	AI	H	E1	E2	E3	E5	E6	tg2	t2	lb	lt	tk
SLW-BB-1030-FL	-0.3	-0.3	29	±0.15	±0.15	±0.15	±0.15	±0.15	M4	8	15	30	±0.1

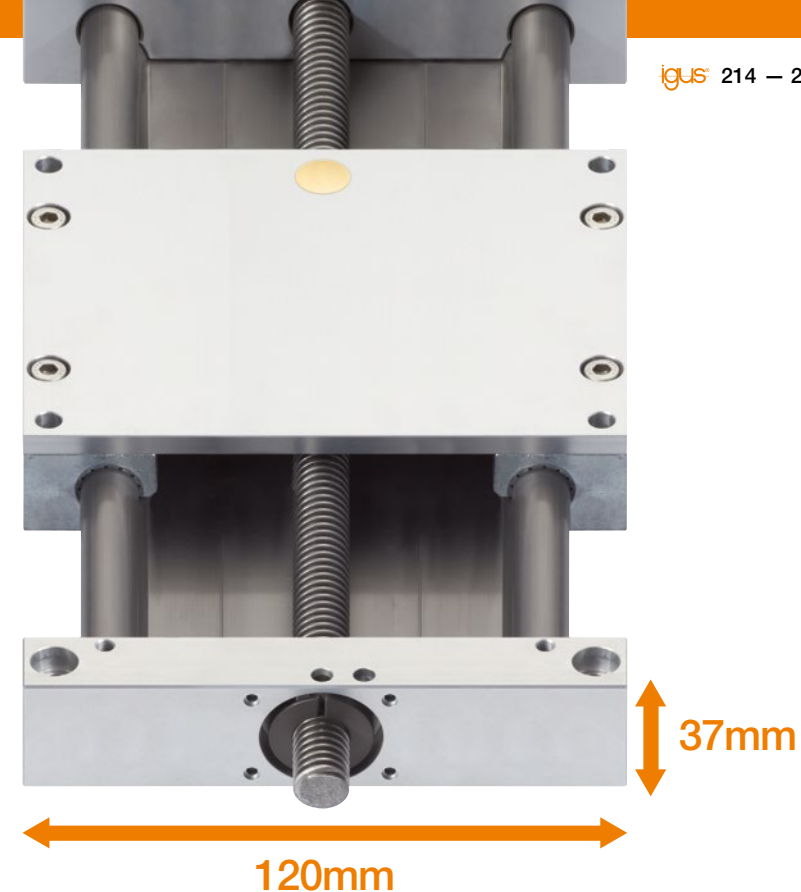
Part No.	tg	kt	st	sg	d	T	l2	d2	d2*	ha	l	hw	f
SLW-BB-1030-FL	M8	6.4	7	M5	10	TR10x2	17	TR10x2	6 h9	14.50	108	24	1.5

* Version with turned lead screw end optionally available

... low-profile design and strong ...

Based on the new drylin® W rail profile WS-16-120, we have also developed the drylin® linear module. As the first linear module from igus®, we rely entirely on dryspin® lead screw technology.

- 60%** greater support than size 1660
- dryspin® technology**
- 5.75x** higher geometrical moment of inertia
- 3x** higher moment of resistance than the 60mm width



Tech up

- Linear module with wide torsionally rigid rail support
- Linear carriage with up to 60% larger support than installation size 1660
- Lead screws with dryspin® technology for high-speed and trapezoidal threads for self-locking
- Lubrication-free lead screws with plain bearing or dynamic ball bearing support
- For manual or electrical adjustments

Proof

- More than three 3x torque resistance (compared to the 60mm width)
- Up to 5.75 higher geometrical torque of inertia
- Hard anodised linear rail, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117

Cost down

- Ready-to-install linear module with a desired stroke length of up to 750mm
- Choice of 3 carriage lengths for optimum support
- Also configurable as multi-carriage structure and right/left opposite drive
- Matching motors and control system assembled ready for connection

Sustainability

- Self-lubricating igus® polymers in bearing and threaded points for maintenance-free operation
- 100% clean and hygienic
- No washing out of fats and oils in cleaning processes

Part No.	Max. stroke length	Weight	Max. static load capacity			Shaft end support material	Max. feed rate
			axial	radial**			
	[mm]	[kg]	[kg]	[N]	[N]		m/min.
SLW-16120	750	1.7	0.4	1,200	4,600	Aluminium	0.3
SLW-BB-16120	750	1.9	0.4	700	2,800	Aluminium	4.5

Part No.	A	Al*	H	E1	E2	E3	l	hw	f	lt	tk	ts
	-0.3	-0.3		±0.15	±0.15	±0.15				±0.1		
SLW-16120	166	150	37	146	148	132	200	35	1.5	25	15	9.0
SLW-BB-16120	166	150	37	146	148	132	220	35	1.5	35	15	9.0

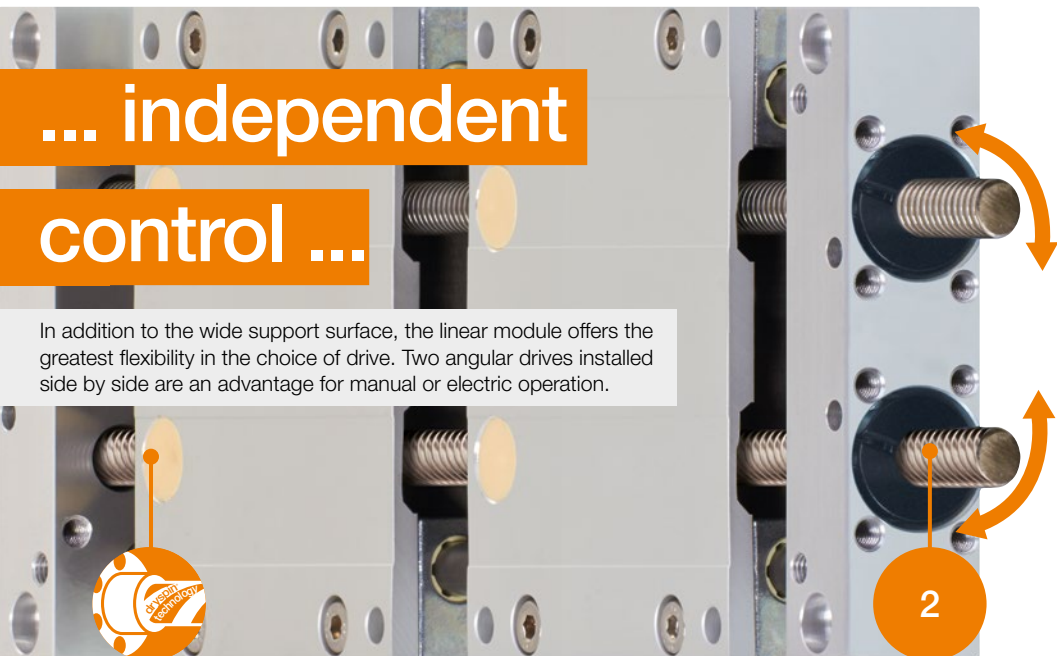
Part No.	tg	kt	sk	sg	kq	d	T	l2	d2	d2*	ha
		±0.1							Standard	optional	
SLW-16120	M10	8.6	11	M8	5.5	16	TR14x3	20	TR14x3	8 h9	18.50
SLW-BB-16120	M10	8.6	11	M8	5.5	16	TR14x3	20	TR14x3	8 h9	18.50

* More carriage lengths for 200mm and 250mm ** Only bearing load without consideration of possible shaft deflection

One linear module with 2 drives drylin® SLWT

... independent control ...

In addition to the wide support surface, the linear module offers the greatest flexibility in the choice of drive. Two angular drives installed side by side are an advantage for manual or electric operation.



**dryspin®
technology**

**directions,
independent control**

Tech up

- Adjustment of two linear carriages with one linear module
- Wide structural type for connection of two electric motors
- Ergonomic operation due to parallel angular drives
- Choice of identical lead screws or individual pitches possible
- Three carriage lengths for optimum support torque

Proof

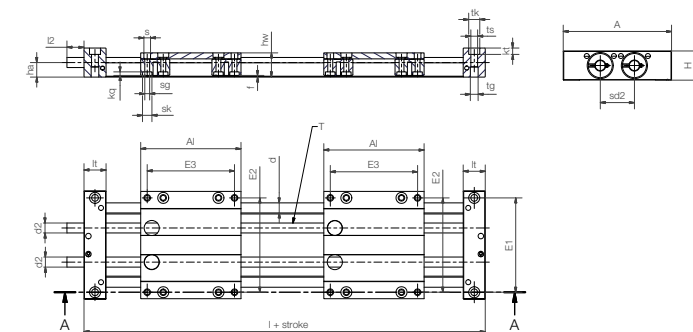
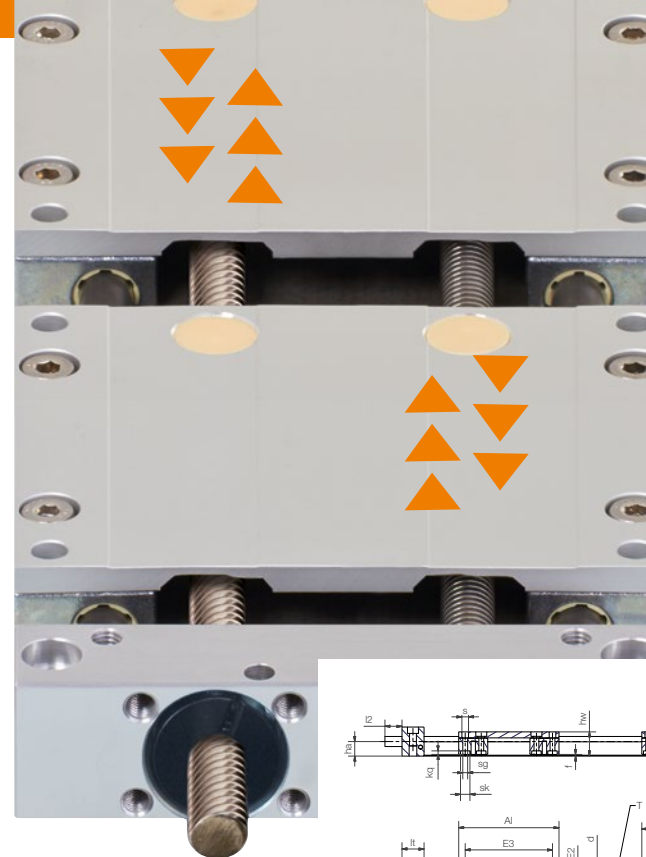
- Hole pattern 20/40 front side for NEMA stepper motors and angular drives WT series 3 and 4
- Resistance torque higher by a factor of 3 compared to width 1660
- Up to 5.75 higher geometrical torque of inertia
- Hard anodised aluminium rail profile, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117

Cost down

- Ready-to-install linear module with two adjustment carriages
- Supplied ready for connection with operating accessories or electric motors
- Stroke lengths accurate to the millimetre up to 750mm
- Fast bearing replacement with drylin® W exchange bearing
- No brake necessary due to self-locking dryspin® lead screw DS14x3, DS14x4

Sustainability

- Two adjustment options in one linear module
- 100% maintenance-free with self-lubrication
- All bearing points made of igus® polymers for clean and hygienic operation, optionally also FDA compliant



Part No.	Max. stroke length [mm]	Weight		Max. static load capacity		Shaft end support material
		[kg]	addit. (per 100mm) [kg]	axial [N]	radial** [N]	
SLWT-16120	750	1.8	0.5	1,200	4,600	Aluminium
SLWT-BB-16120	750	2.1	0.5	700	2,800	Aluminium

Part No.	A	Al	H	E1	E2	E3	I	hw	f	lt	tk	ts
	-0.3	-0.3		±0.15	±0.15	±0.15				±0.1		
SLWT-16120	166	150	37	146	148	132	200	35	1.5	25	15	9.0
SLWT-BB-16120	166	150	37	146	148	132	220	35	1.5	35	15	9.0

Part No.	tg	kt ±0.1	sk	sg	kq	d	T	l2	d2		ha	sd2
									Standard	optional		
SLWT-16120	M10	8.6	11	M8	5.5	16	TR14x3	20	TR14x3	8 h9	18.50	65
SLWT-BB-16120	M10	8.6	11	M8	5.5	16	TR14x3	20	TR14x3	8 h9	18.50	65

** Only bearing load without consideration of possible shaft deflection

Available from stock

For more information and a film: igus.eu/drylin-slw-ews

Linear module with short carriage drylin® SLWC

... reduce installation space
by up to 70% ...

The short SLWC can be configured with dryspin® lead screw technology as well as a trapezoidal thread - with or without self-locking.



**dryspin®
technology**

**SLWC-1040 with
plain bearing
supported lead
screw**

Tech up

- New series of linear modules for reduced installation space
- Save up to 70% installation space with a short linear carriage compared to long carriage type
- Ideal for multi-carriage or right/left opposite drives
- Short carriage version available in 5 SLW(C) installation sizes
- Lead screw with plain or ball bearing

Proof

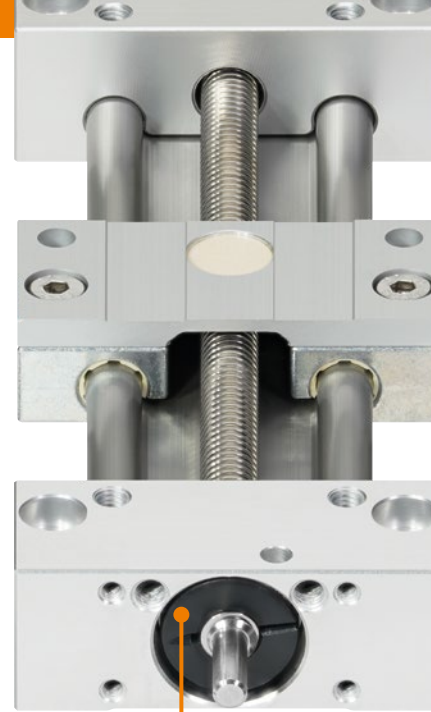
- Save up to 50% in system length compared to the SLW range:
- Example SLW-2080 system length I (without stroke) 206mm, SLWC-2080 system length I (without stroke) 101mm
- All SLWC linear rails are corrosion-free, hard anodised and salt-spray tested (NSS) according to DIN EN 9227 / ASTM B-117

Cost down

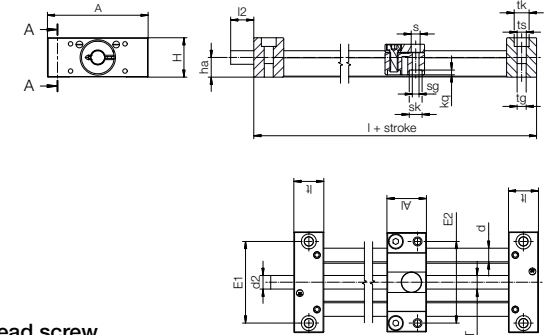
- Linear module delivered from a single source - ready to install
- Directly installed with manual controls or motor of choice
- Rails and bearings from the drylin® linear system.
- No need for lubrication devices due to freedom from maintenance
- Simple cleaning processes due to durable system components

Sustainability

- Completely clean and hygienic operation due to self-lubrication and dry operation
- Washing out of fats and oils is not possible
- Self-lubricating igus® polymers in bearing and threaded points for maintenance-free operation



SLWC-BB-1040 with ball bearing supported lead screw



Part No.	Max. stroke length	Weight	Max. static load capacity		Max. rotation speed	Max. feed rate	
			axial	radial*			
	[mm]	[kg]	addit. (per 100mm) [kg]	[N]	[N]	rpm	m/min.
SLWC-0630	300	0.2	0.08	50	100	100	0.15
SLWC-1040	750 / 500	0.6	0.1	700	1,400	100	0.20
SLWC-1660	750	1.2	0.3	1,200	2,300	100	0.40
SLWC-2080	1000 / 900	2.6	0.4	1,600	3,200	100	0.40
SLWC-25120	1250	4.8	0.9	2,500	5,000	100	0.50

Part No.	A	Al	H	E1	E2	I	hw	f	lt	tk	ts	ts
	-0.3	-0.3		±0.15	±0.15				±0.1	±0.1		
SLWC-0630	54	20	20	40	45	60	18	1.2	20	11	6.2	
SLWC-1040	74	29	29	60	60	73	24	1.5	22	11	6.8	
SLWC-1660	104	36	37	84	86	86	35	1.5	25	15	9.0	
SLWC-2080	134	45	46	116	116	101	44	1.5	28	15	8.6	
SLWC-25120	200	58	60	173	173	128	55	2.5	35	20	13.5	

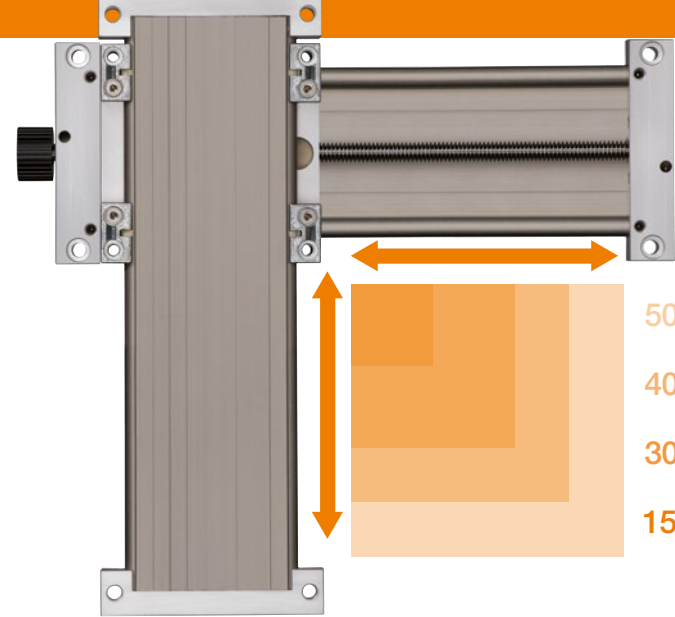
Part No.	tg	kt ±0.1	sk	sg	kq	d	T	l2	d2		ha
									Standard	optional	
SLWC-0630	M8	8	7	M4	2	6	TR08x1.5	15	TR08x1.5	-	9.5
SLWC-1040	M8	6.4	9.5	M6	4.4	10	TR10x2	17	TR10x2	6 h9	14.5
SLWC-1660	M10	8.6	11	M8	5.5	16	TR14x4	20	TR14x4	8 h9	18.5
SLWC-2080	M10	8.6	14	M8	5.5	20	TR18x4	26	12 h9	-	23.0
SLWC-25120	M14	12.6	15	M8	5	25	TR24x5	38	14 h9	14 h9	30.0

* Only bearing load without consideration of possible shaft deflection

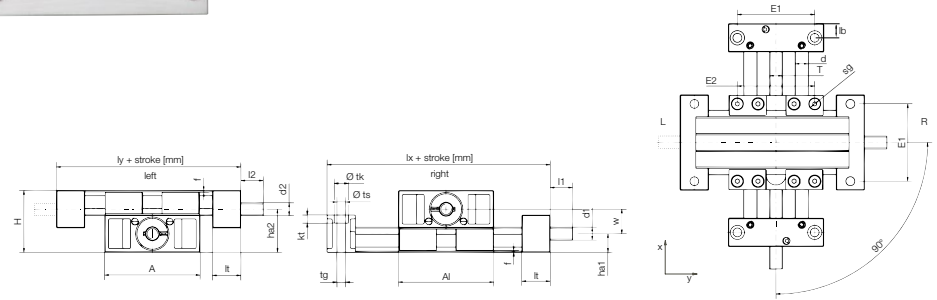
XY tables for multi-direction drylin® SLW-XY

... ready-to-install for surfaces ...

igus® has developed ready-to-install XY tables suitable for your desired work surface. The new installation size, 16120, is now also available.



500 x 500mm
400 x 400mm
300 x 300mm
150 x 150mm



Tech up

- Only one unit for multi-direction
- For positioning in a working space of up to 500 x 500mm
- 8 system widths in 4 sizes
- New installation size SLW-XY-16120 with wide support and efficient dryspin® lead screw technology

Cost down

- Reduced construction effort thanks to ready-to-install delivery
- Both adjustments integrated in one linear unit
- Easy configuration involving lead screw clamping, position indicator, and hand wheel
- Linear guide from the drylin® W linear system
- Drive from the dryspin® modular system for lead screw technology

Proof

- Area ratio (installation height/work surface) always ≤ 2
- Stroke lengths suitable for working spaces of up to 500 x 500mm
- Tested: Tr14x4 trapezoidal thread (SLW-XY-1660), dynamic axial load 500N, stroke length 200mm, feed rate 0.4m/min., speed 100rpm, minimum service life 62,863 double strokes

Sustainability

- 100% lubrication and maintenance-free
- One component instead of two
- Self-lubricating bearing points made of igus® polymers for clean and hygienic operation

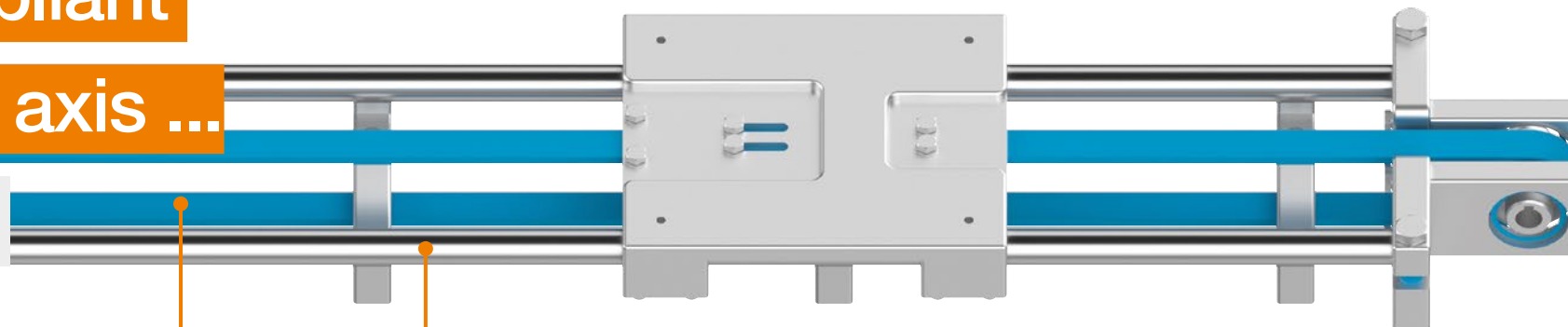
Part No.	Max. stroke length	A	H	E1	E2	Base length		f	lt	tk	ts	tg	kt
		-0.3		±0.15	±0.15	lx	ly		±0.1				H7
SLW-XY-0630	150	54	37.4	40	45	94	94	1.2	20	11	6.6	-	8
SLW-XY-0660	150	85	37.4	71	76	125	125	1.5	20	11	6.6	-	8
SLW-XY-1040	300	74	48	60	60	118	118	1.5	22	11	6.6	M8	6.4
SLW-XY-1080	300	108	48	94	94	152	152	1.5	22	11	6.6	M8	6.4
SLW-XY-1660	400	104	72.5	84	86	154	154	1.5	25	15	9.0	M10	8.6
SLW-XY-16120	500	166	72.5	146	148	216	216	1.5	25	15	9.0	M10	8.6
SLW-XY-2080	500	134	82	116	116	190	190	1.5	28	15	8.6	M10	8.6

Part No.	sg	d	T	l1	d1		ha1	l2	d2 *		ha2	W
					Standard	Alternative			Standard	Alternative		
SLW-XY-0630	M4	5	TR08x1,5	15	TR08x1,5	-	9.5	15	TR08x1,5	-	28	18.5
SLW-XY-0660	M4	5	TR08x1,5	15	TR08x1,5	-	9.5	15	TR08x1,5	-	28	18.5
SLW-XY-1040	M6	10	TR10x2	17	TR10x2	6h9	14.5	17	TR10x2	6h9	33.5	19
SLW-XY-1080	M6	10	TR10x2	17	TR10x2	6h9	14.5	17	TR10x2	6h9	33.5	19
SLW-XY-1660	M8	16	TR14x4	20	TR14x4	8h9	18.5	20	TR14x4	8h9	54	35.5
SLW-XY-16120	M8	16	TR14x3	20	TR14x3	8h9	18.5	20	TR14x3	8h9	54	36
SLW-XY-2080	M8	20	TR18x4	26	12h9	-	23	26	12h9	-	59	36

The Y-axis is the cantilever axis. The shaft end supports move. Y-axis connecting plate available upon request. Y-axis drive pin can be right or left, as desired

... FDA-compliant toothed belt axis ...

Resistant stainless steel, FDA-compliant materials and the design is based on the guidelines of hygienic design.



Tech up

- Linear axis compliant with Hygienic Design
- Bearing points FDA-compliant through iglidur® A160
- Resistant to corrosion and chemicals

Cost down

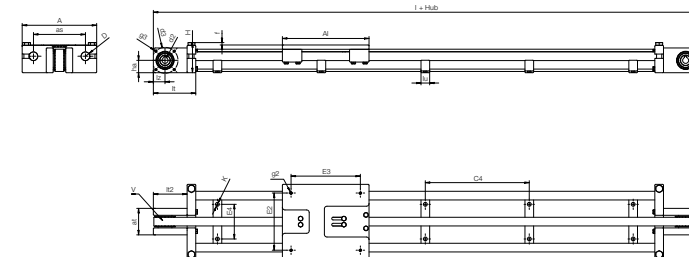
- Ready-to-connect linear axis
- Simple cleaning processes
- Individual configuration (stroke length/drive)

Proof

- ZLW-20120-ES, tested service life:
Fill weight 3kg, stroke length 1,000mm, speed 0.5m/s, acceleration 2.0m/s²; dutycycle 100%, double strokes 1,443,000

Sustainability

- 100% lubrication-free through the use of igus® polymers in the bearing points
- Corrosion-resistant
- No contamination of production goods



Part No.	Max. stroke length	Weight	Transmission	Tooth profile	Toothed belt material	Toothed belt tension
	[mm]	[kg]	additional (per 100mm)	[mm/U]		[N]
			[kg]			
ZLW-20120-HYD	3,000	2.03	0.16	144	8M PU (FDA) + stainless steel	750

Part No.	A	AI	H	E2	E3	E4	C4	f	lt	ha	lz	l	d2
													H7
ZLW-20120-HYD	172	200	69.4	132	AI - 40	80	240	5.4	98	28.5	27	396	14

Part No.	d3	g3	D	K	at	lt2	lu	V
								[mm/U]
ZLW-20120-HYD	60	M5	20	9	61	78	20	144

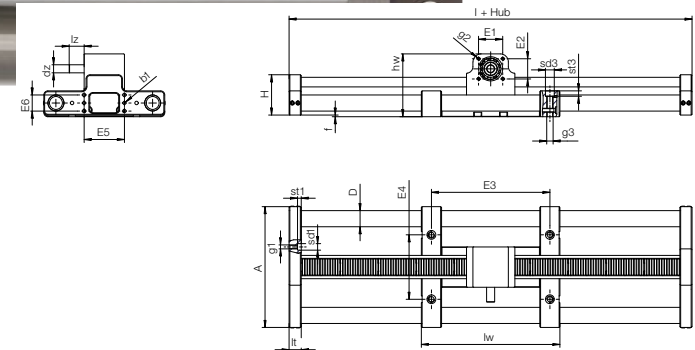
... precise, powerful

z-axis ...

Transparent, lightweight construction due to plastic and aluminium. Precision through the use of the new drylin® RW360CM linear plain bearings for more system rigidity.



Loads of up to 10kg



Tech up

- drylin® R linear plain bearing RW360CM for low clearance
- High dynamics due to rack and pinion drive
- For loads up to 10kg
- Light due to hard-anodised hollow aluminium tubes
- High support due to 120mm shaft distance
- Robust z-axis for linear robots

Cost down

- Lightweight design
- In desired stroke length
- Ready for connection with motor and control system

Proof

- GRR-20120 tested in the laboratory:
- Fill weight 5kg; Speed 0.65m/s; Acceleration; 4m/s²; Cycles: 444,754

Sustainability

- 100% clean and hygienic
- 100% maintenance-free due to self-lubricating polymers

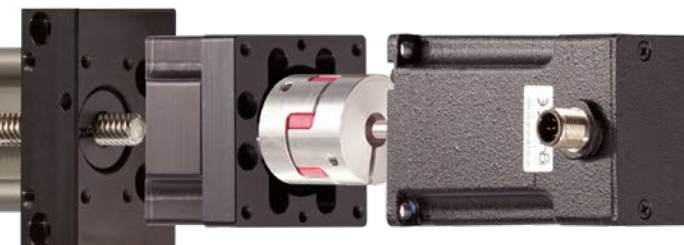
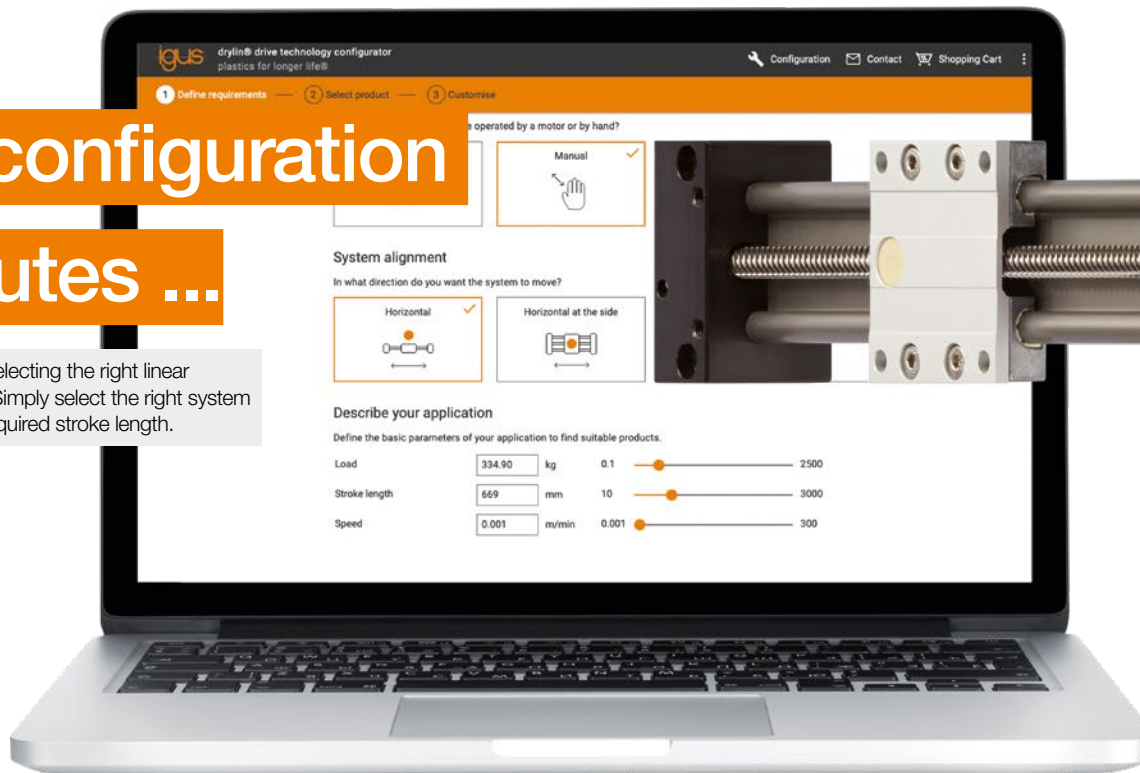
Part No.	Max. stroke length		Weight		Transmission		Tooth profile	
	[mm]	[kg]	[kg]	additional (per 100mm)	[mm/U]			
GRR-20120	1,000	1.62	0.11	72.26	Module 1			

Part No.	l	A	H	lw	hw	lz	dz	f	lt	E1	E2	g2
GRR-20120	202	150	50	172	78	18	10	2	15	30	25	M4-10

Part No.	E3	E4	g3	sd3	st3	E5	E6	g1	sd	st	b1	D
GRR-20120	147	80	M8	11	6.6	50	20	M5	8	4.5	3	20

... reliable configuration in two minutes ...

Whether on laptop, pad or smart phone, selecting the right linear module is now very convenient and easy. Simply select the right system with a few technical parameters and the required stroke length.



Tech up

- Quick selection of the right linear module
- Configure ready-to-connect units directly in the online tool
- Safe with indication of the running performance in double strokes and motor utilisation
- With manual controls or electric motors

Proof

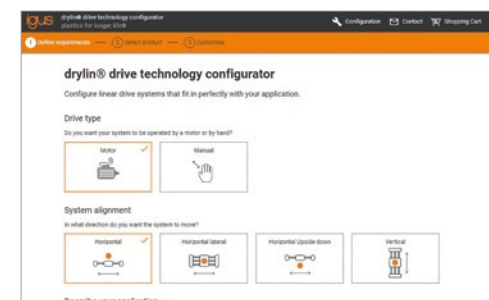
- Suitability check included. All selected items (linear module, accessories, etc.) fit together.
- Linear rails, salt-spray tested (NSS) according to DIN EN 9227/ASTM B-117
- Tested: ZLW-1040 series standard, 1500mm stroke, motor NEMA24, 25N load, acceleration 0.8m/s², speed 1.5m/min, duty cycle 25%: over 5,900,000 double strokes, motor utilisation is 58%.

Cost down

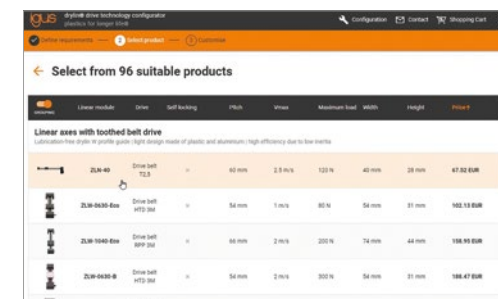
- Delivered ready to install from a single source
- Save design time with directly loadable 3D CAD model and dimensioned drawing
- Industrial solutions such as stainless steel or FDA-compliant selectable by a click
- Documentation and system description included
- Unique part number and drawing number indication

Sustainability

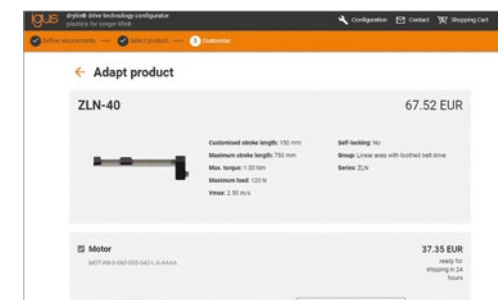
- All configurable linear modules are 100% maintenance-free due to self-lubricating igus® polymers in all bearing points
- 100% clean and hygienic
- No washing out of fats and oils in cleaning processes



1. Configure



2. Select system



3. Refine selection, modify and add to shopping cart

... sealed
and protected ...

The new stepper motors with IP65 protection are designed for splash water applications. The integrated shaft seal prevents the ingress of water.



protection class IP65 thanks to the shaft seal



▲ Tech up

- Protection class IP65 (splash guard)
- Standardised motor connection by means of M12 connector
- With encoder for secure positioning

▼ Cost down

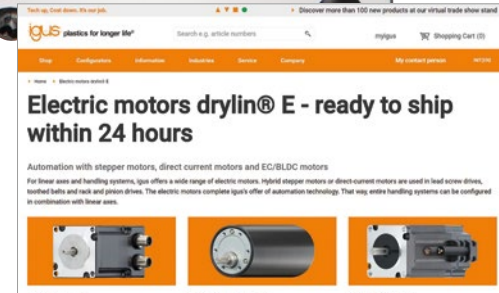
- Shaft seal fitted as standard
- Alternative to high-voltage servo motors

■ Proof

- Tested on the robolink® RL-DP (splashproof)

● Sustainability

- Maintenance-free
- CE according to ROHS
- CE according to EMC



Quick and simple ordering in the motor shop igus.eu/motorshop

Part No.	Motor size	Distance over hubs	Holding torque	Angular encoder impulses	Encoder
			[Nm]		
MOT-AN-S-060-005-042-M-C-AAAS	NEMA17	42	0.5	500	✓
MOT-AN-S-060-020-056-M-C-AAAS	NEMA23	56	2.0	500	✓
MOT-AN-S-060-035-060-M-C-AAAS	NEMA24	60	3.5	500	✓

Available from stock

igus.eu/n21-shaft-seal

... reliable
and compact ...

The new stepper motors with integrated brake hold vertical loads safely in the application. Control of the brake by means of 24V industrial voltage simplifies integration.

24V

supply for the brake

Tech up

- Motor with brake for vertical loads
- Motor connection with stranded wires and JST connector
- 24V supply for the brake

Proof

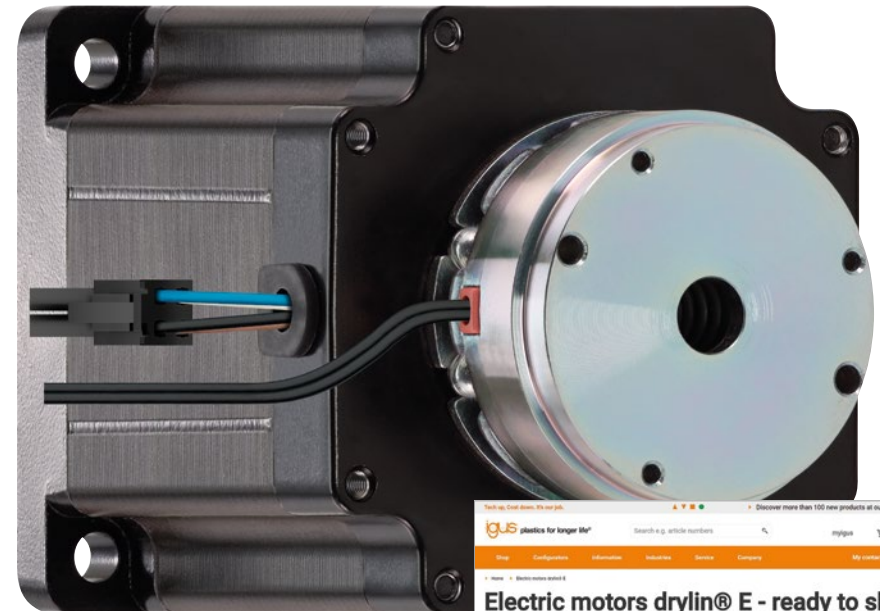
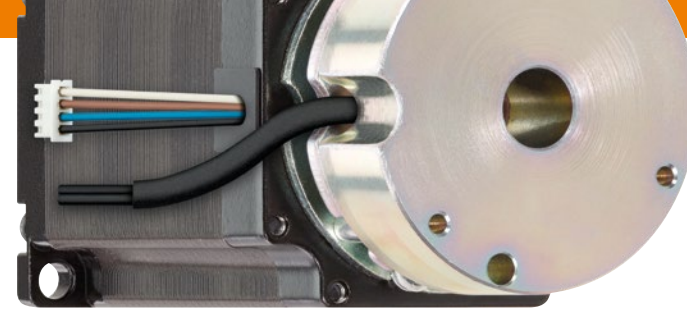
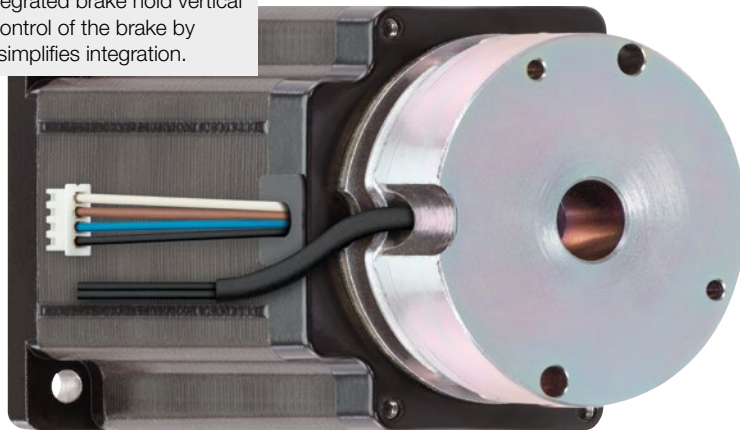
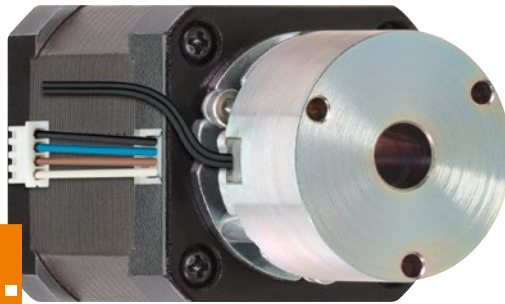
- Up to 10% weight saving compared to igus® brake motors with metric connectors

Cost down

- 5x more cost-effective than motors with metric connector
- Quick and easy set up with igus® D1 or D2 motor controls

Sustainability

- Maintenance-free
- CE according to ROHS
- CE according to EMC



Quick and simple ordering in the motor shop igus.eu/motorshop

Part No.	Motor size	Distance over hubs	Holding torque [Nm]	Brake [Nm]
MOT-AN-S-060-005-042-L-B-AAAA	NEMA17	42	0.5	0.5
MOT-AN-S-060-020-056-L-B-AAAA	NEMA23	56	2.0	1.0
MOT-AN-S-060-035-060-L-B-AAAA	NEMA24	60	3.5	1.0
MOT-AN-S-060-059-086-L-B-AAAA	NEMA34	86	5.9	2.0

... compact
and quiet ...

The motor can be easily mounted on the linear module by fitting it directly on the positive-locking mount of the drive pin, without any additional coupling being necessary. The system is especially suitable for small installation spaces.

Tech up

- More powerful DC motors
- With Hall encoder for positioning
- Power transmission by means of serration 7 x 8 DIN 5481

Cost down

- Fast assembly
- No coupling necessary

Proof

- Up to 48% more torque compared to the existing series
- Up to 25% more speed compared to the existing series

Sustainability

- Maintenance-free
- CE according to ROHS
- CE according to EMC

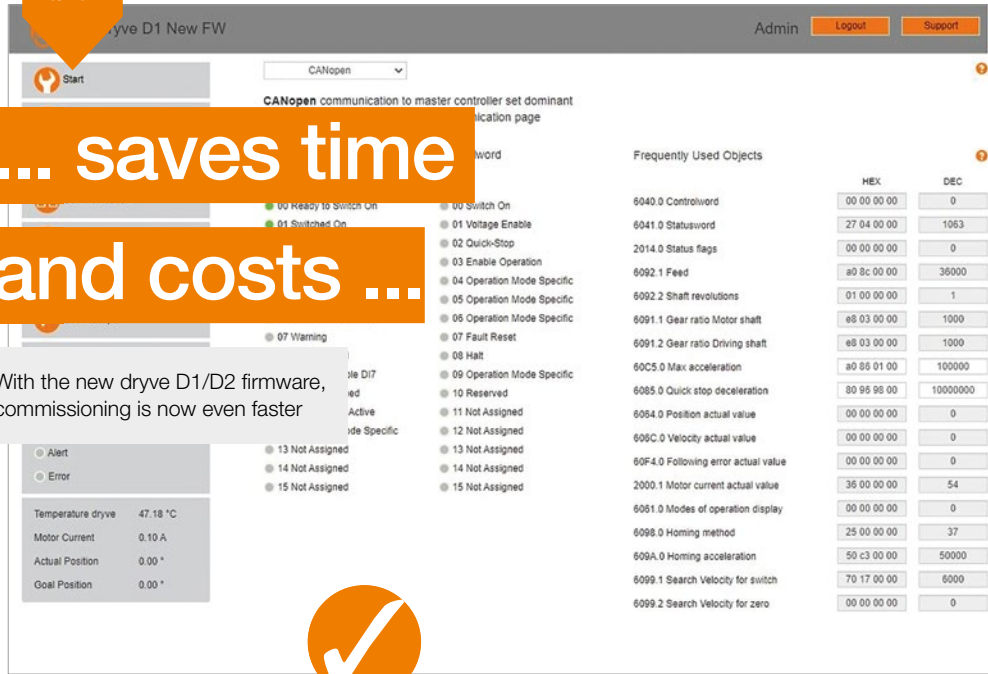
Suitable for drylin® linear modules

Direct, positive-fit mounting of the drive pin without coupling

Part No.	Installation size	Nominal voltage [V]	Rated torque [Nm]	Rated speed [rpm]	Idling speed [rpm]
MOT-DC-42-J-H-J	42	24	3.00	80	100
MOT-DC-42-J-H-L	42	24	2.50	110	135
MOT-DC-42-J-H-B	42	24	2.00	50	60
MOT-DC-42-J-H-D	42	24	1.75	100	125
MOT-DC-42-J-H-N	42	24	1.60	280	350
MOT-DC-42-J-H-F	42	24	1.50	180	230
MOT-DC-42-J-H-P	42	24	1.40	400	500
MOT-DC-42-J-H-H	42	24	1.00	380	400

... saves time
and costs ...

With the new dryve D1/D2 firmware, commissioning is now even faster



Suitable for stepper, DC and EC motors

Tech up

- Direct error display on the control system
- 184 new CANopen objects
- 61 new Ethernet TCP/IP objects
- Motor current monitoring via bus
- Error & warnings readable via bus
- Motor control parameters adjustable via BUS
- 8PDO's allow greater programming flexibility
- Status & control word visible on GUI

Proof

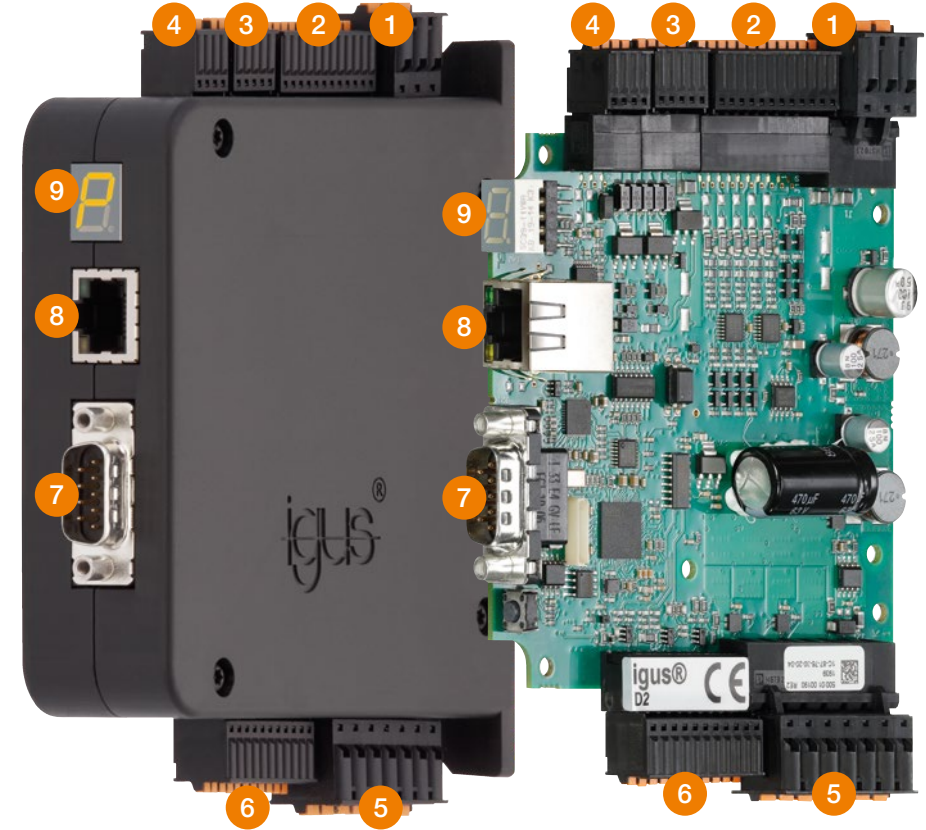
- 10% faster commissioning through GUI parametrization of the CANopen & Ethernet TCP/IP parameters

Cost down

- 10% cost savings due to faster commissioning
- Free Firmware Download

Sustainability

- Maintenance-free
- CE according to ROHS
- CE according to EMVt



For the communication buses CANopen and Ethernet TCP/IP (CANopen Gateway) all parameters can now be set directly on the GUI. Many new parameters, as well as an error display directly on the device, reduce the commissioning time and this saves costs.



The firmware update and motor control systems for linear & rotary applications can be found in the shop under Downloads: igus.eu/dryve

- 1 Voltage supply
- 2 Digital inputs
- 3 Digital outputs
- 4 Analogue inputs
- 5 Motor/brake connection
- 6 Input encoder
- 7 CANopen
- 8 Ethernet/Modbus TCP
- 9 LED status indicator

... save through sample programs ...

Faster integration of the drive motor control systems for your machines by combining simple control technology and the igus® sample programs



Tech up

- Ready-made sample programs for igus® motor control systems D1, D2, D3, D7, D8, D9
- Suitable for Siemens, Raspberry PI, PC, Laptop, LabVIEW
- See the function of the sample programs directly via video and choose the right solution
- Request sample programs

Proof

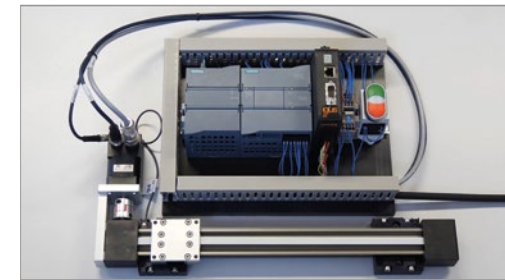
- 10% faster commissioning through GUI parametrization of the CANopen & Ethernet TCP/IP parameters

Cost down

- 50% cost savings due to faster commissioning
- Download free sample programs

Sustainability

- Multiple use
- Free download
- Available online 24hrs
- Further sample programs are regularly put online



Sample programs for your drive® motor control system

Save time and costs with the igus® sample programs

Faster integration of the drive® motor control systems for your machines by combining simple control technology and the igus® sample programs.

- Free download programs with master control systems & drive parametrization
- Compatible with industrial mainframes (Siemens, Beckhoff, Ingate, etc.)
- Compatible with commercially available single-board computers (Raspberry Pi)

1. Sample programs D1-1-1212C-DIO-1

- Suitable for Siemens TIA Portal V15.1
- Control system via digital inputs & outputs
- Prefabricated function module (FB)
- Up to 32 travel movements
- Reference/Homing run

applications

- Simple pick & place handling
- Inspection tasks with camera

Further information and sample programs for various applications online:
igus.eu/sample-program



Motor control systems for linear & rotary applications can be found in the shop under Downloads:
igus.eu/dryve

... easy and cost-effective ...

The output stage is adjusted directly on the unit with simple micro-switches. No software, programming or expertise is required.

i The dryve step direction controller supply the motor with power, controlled by a push-button or customer control.



Tech up

- Step/direction and Jog operating modes
- Smooth running
- Motor self-tuning

Cost down

- Standardised step/dir interface
- Compatible with many industrial control systems
- Quick and easy set up

Proof

- Can be controlled with 5-24 V directly on a PLC or developer boards (no series resistor)
- Can be used with ready-made software modules from renowned manufacturers

Sustainability

- Maintenance-free
- CE according to ROHS

Sample programs for your dryve® motor control system

Save time and costs with the igus® sample programs

Faster integration of the dryve® motor control systems for your machines by combining simple control technology and the igus® sample programs.

- Free download programmes with master/control system programme & dryve parameterisation.
- Compatible with industrial manufacturers (Siemens, Beckhoff, Viago, etc.)
- Compatible with commercially available single-board computers (Raspberry Pi).

Sample programs for your dryve motor control system igus.eu/sample-programm

Electric motors drylin® E - ready to ship within 24 hours

Automation with stepper motors, direct current motors and EC/BLDC motors

For linear axes and handling systems, Igit offers a wide range of electric motors. Hybrid stepper motors or direct-current motors are used in load screw drives, toolbed belts and rack and pinion drives. The electric motors complete Igit's offer of automation technology. That way entire handling systems can be configured in combination with linear axes.

Quick and simple ordering in the motor shop igus.eu/motorshop

Part No.	For motor	For installation size	Load voltage [V]	Control voltage [V]	Motor current peak [A]
D7	Stepper motor	NEMA11 - NEMA17	24-48	5-24	3.0
D8	Stepper motor	NEMA23 - NEMA24	24-48	5-24	5.5
D9	Stepper motor	NEMA34	24-48	5-24	9.8

... space-saving and lightweight ...

The D2 motor control is a control board without housing. All the functions of the igus® D1 motor control system are also incorporated in the D2 motor control system.



suitable for stepper, DC and EC motors

i The drylin® D2 is basically a drylin® D1 (without housing) for small installation spaces, such as in desktop devices.



drylin® D2
20mm width



drylin® D1
31mm width

Tech up

- Space-saving installation
- More freedom in integration

Cost down

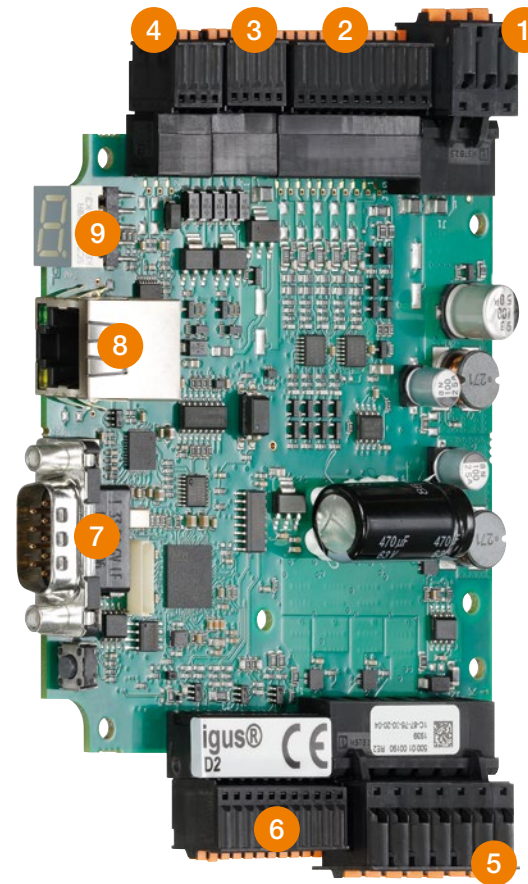
- 5% lower price compared to the D1 motor control system
- Integrated mounting holes

Proof

- 40% weight saving compared to the igus® D1 motor control system
- 50% reduction of the installation height compared to the igus® D1 motor control system

Sustainability

- Maintenance-free
- CE according to ROHS
- CE according to EMC



- 1 Voltage supply
- 2 Digital inputs
- 3 Digital outputs
- 4 Analogue inputs
- 5 Connection for motor/brake
- 6 Input for rotary encoder
- 7 CANopen
- 8 Ethernet/Modbus TCP
- 9 LED status display

For motor type	Stepper, DC, EC motors
With web server	✓
Load voltage	24-48 V
Control voltage	5-24V
Motor current nominal	7.0A
Motor current peak	21.0A

Quick and simple ordering in the motor shop
igus.eu/motorshop

Sample programs for your dryve motor control system
igus.eu/sample-programm

Build or buy robots ...

Low Cost Automation ... build or buy ... It's our job

Individual automation projects can be implemented with the new modular gearbox system. The product range of lightweight drygear® polymer joints for various kinematics is complemented by high-performance gearboxes. In addition to the modular system for your designs including the control system, there are ready-to-connect robot arms as well as kits for integrating additional axes or rotary modules.

... new

highlight 10/2021...

...258...

Apiro® modular gearbox system; with finished iDeas including parts lists and CAD data
Hygienic Design study and connection to drylin® threads and linear modules



...244...

ReBel® modular gearbox for cobots ... build or buy

...264

Ideal for simple robotics and assembly tasks ... drylin® SCARA robots

...270...

More installation space thanks to rotary axes, 7th axis and integration kits
New: 7th axis adapter kits for all robots



... online tools

250...

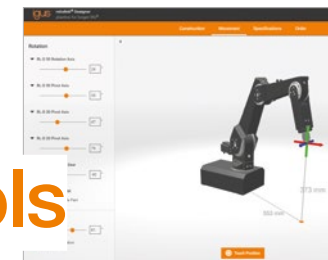
drygear® shaft and planetary gearbox ... compact, lightweight and efficient

266

igus® Robot Control with new PLC interface now even more flexible to use

278

Configure individual gantries in 5 minutes



254...

Complete systems: drylin® XXL linear robots for palletising applications and delta robot study with two-axis kinematics

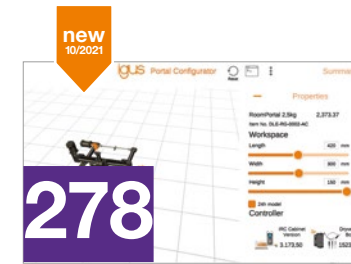
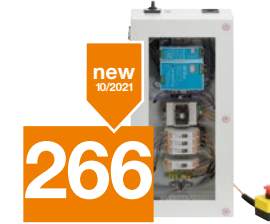
268

Test before invest ... Your free application review in the Customer Testing Area

280...

rbtx.com ... more complete solutions and new partners, remote integration at a fixed price

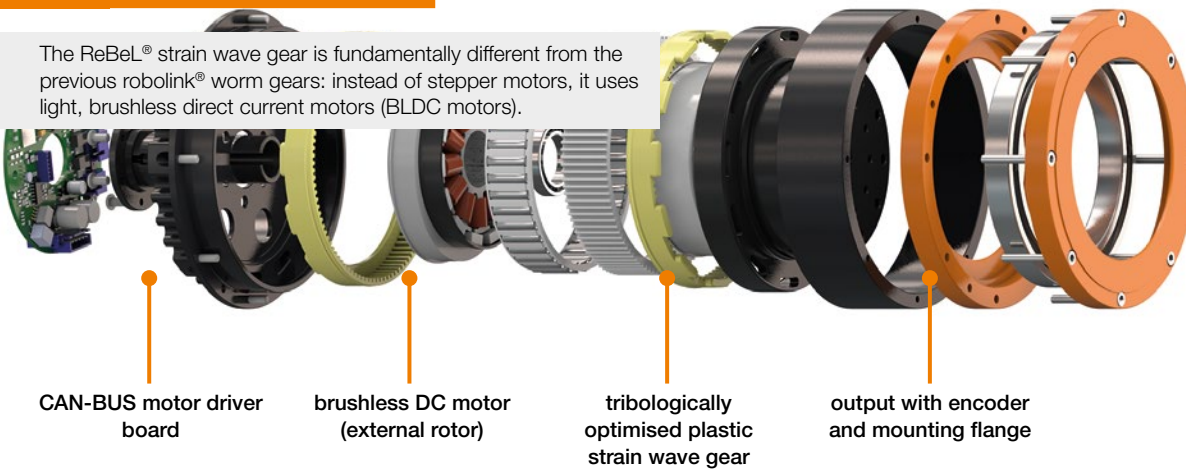
With the new robolink® designer, you can quickly and easily configure your individual robolink® D robot arm online, in an intuitive CAD interface.



Fully integrated strain wave gears ReBeL® - the element for low-cost robotics ... build ...

... cost-effective and compact ...

The ReBeL® strain wave gear is fundamentally different from the previous robotlink® worm gears: instead of stepper motors, it uses light, brushless direct current motors (BLDC motors).



CAN-BUS motor driver board

brushless DC motor (external rotor)

tribologically optimised plastic strain wave gear

output with encoder and mounting flange



5x

8x

2

25%

faster integration than a gearbox without control system

up to 8x more torque than RL-S-17

installation size

lighter than standard strain wave gears

Tech up

- 25% lighter than conventional strain wave gears with the use of igus® high-performance polymers
- Strain wave gear incl. power electronics, driver and encoder
- Minimum service life 1,000,000 cycles

Cost down

- Start directly with the robot kinematics through fully integrated strain wave gears
- Direct connections of grippers to flange plate
- Installation size Ø80mm, for 1 piece - EUR 395.38
- Installation size Ø105mm, for 1 piece - EUR 494.55

Proof

- Tested in our Low Cost Automation laboratory

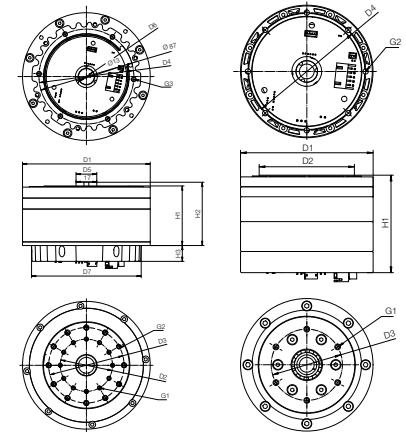


Sustainability

- Low cost automation products are completely maintenance-free
- Lightweight components
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at:

igus.eu/sustainability

Technical data	RL-SE-80-1-50-AL	RL-SE-105-1-50-AL
Outer diameter [mm]	80	105
Height [mm]	60	62
Weight [g]	330	1000
Max. output torque [Nm]	3	12.5
Rated torque [Nm]	2	10
Output speed [1/min]	10	
Transmission	50:1	
Mechanical service life	1,000,000 cycles min.	
Control data		
Nominal voltage logic	5V	
Nominal voltage motor	24V	
Nominal current	3A	
Peak current	9A	
Communication	CAN500k with CPR-CANV2 protocol	



Part No.	Ø D1	Ø D2	Ø D3	Ø D4	Ø D5	Ø D6	H1	H2	H3	G1	G2	G3
RL-SE-80-1-50-AL	80	57.5	43	71	-	-	58.8	-	-	M3	M3	-
RL-SE-105-1-50-AL	105	43	62	78	17	13	49	52	13	M3	M4	M3

Available upon request

igus.eu/rebel-modular-gearbox-system

... build or buy
the ReBeL® ...



Build your automation with ReBeL® actuator, cost-effective and fast control with the igus® iRC Robot Control for up to 16 channels

Tech up

- 25-50% lighter than conventional multi-axis robots with the use of igus® high-performance polymers
- Quickly find the right robot for you through build-or-buy concept
- Easier to use in cobot applications thanks to lightweight construction

Proof

- Tested in the low-cost automation lab

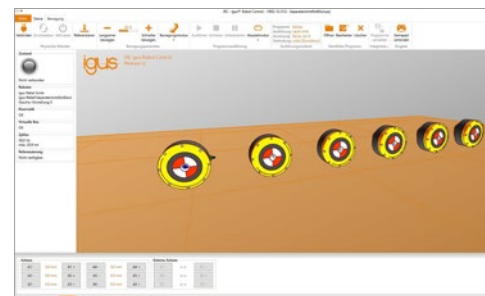
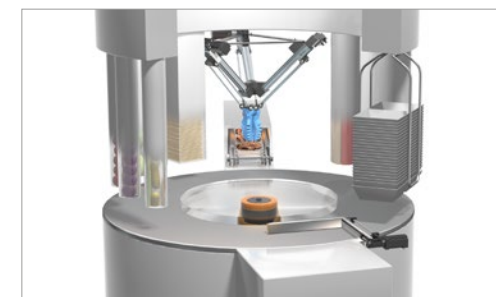
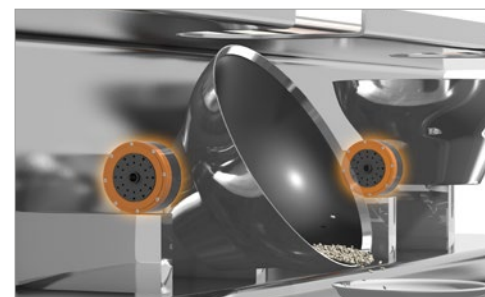


Cost down

- Controllable with the igus® Robot Control iRC, one control system for all robots
- Particularly energy-efficient thanks to lightweight construction

Sustainability

- Completely maintenance-free drylin® and robolink® robotics solutions
- Lightweight components



Quickly build your own robot kinematics with fully integrated individual joints. There are no limits to your automation ideas.

On the basis of the ReBeL® gearbox, an individual robot can also be designed as a cobot with the help of joining links, thanks to the additional electronic components. The ReBeL® gearbox can be used along the last axis of an articulated arm, linear robot or delta robot - in front of various gripper systems, for example. The cobot gearbox system with fully integrated gearboxes helps implement a wide variety of cobot concepts quickly. The plug-and-play solution means that the user doesn't have to worry about power electronics.

ReBeL® can be controlled with the igus® Robot Control iRC, one control system for all robots up to 16 drives



Strain wave gears are also controllable with the igus® Robot Control iRC

Available upon request

igus.eu/rebel-build-or-buy

... industrial and service robots ...

The new ReBeL® robot does not need a switch cabinet and is compatible with the igus® Robot Control system. Starting right away, you can program and test your individual service robotics application before purchase.

2x

up to 2x lighter than other cobots

control unit

no control cabinet, control system integrated in the base

HRC

HRC-capable

Tech up

- The lightest cobot on the market
- Plastic structure
- Do more with less, extremely cost-effective
- 2kg payload incl. tool

Proof

- The outer contour and most of the mechanical components are made of polymers and are therefore cost-effective and lightweight
- Tested in the low-cost automation lab



Cost down

- Robots with or without control system
- Controllable with the igus® Robot Control, one control system for all robots
- Do more with less, extremely cost-effective
- Price/pc: approx. EUR 3,900

Sustainability

- Low Cost Automation products are completely maintenance-free
- Lightweight components
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at igus.eu/sustainability



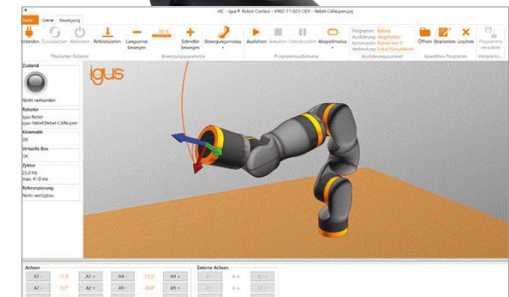
Buy service robots ...

Starting in the autumn of 2021, the Low Cost Automation portfolio will boast its first cobot for service tasks. HRC capabilities are possible thanks to the electronic components in the fully integrated ReBeL® strain wave gear. The ReBeL® robot arm is suitable for:

- Industrial and private applications as cobot or service robot
- Mobile applications
- Collection and delivery services
- Pick & place tasks
- Assembling aid

Technical data ReBeL® robot arm

Kinematics/type	Articulated arm robot
Number of axes	6
Total reach	600mm
Nominal reach	350mm
Application area	Service robotics
Angular speed	90°/s
Final speed TCP	250mm/s
Dynamics with 500 g payload	10 picks/min
Payload incl. tools	2kg
Repetition accuracy	±1mm



Controllable with the igus® Robot Control iRC, one control system for all robots

... connection of couplings ...

The strain wave gear with a direct output shaft allows connection of various couplings, including shaft couplings, such as elastomer couplings or metal bellows couplings.

50%
higher efficiency

3x
lower torque fluctuations

2x
lower breakaway torque

Tech up

- Lightweight due to igus® high-performance polymers
- Extremely compact for integration into robotics
- All-round improved performance and running performance
- A direct output shaft enables the connection of various couplings such as shaft couplings, elastomer couplings, metal bellows couplings

Proof

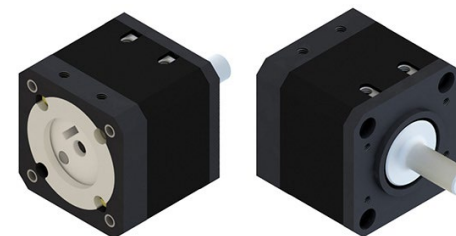
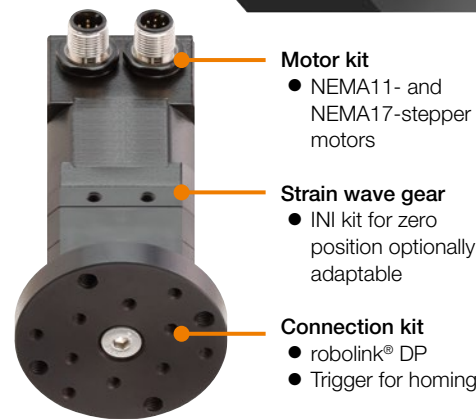
- 50% higher efficiency
- 94% higher load-bearing capacity
- Torque fluctuations reduced by factor 3
- Reduction of the breakaway torque by factor 2

Cost down

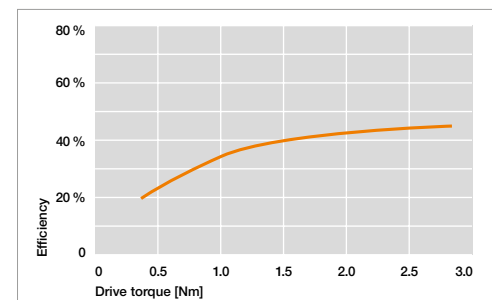
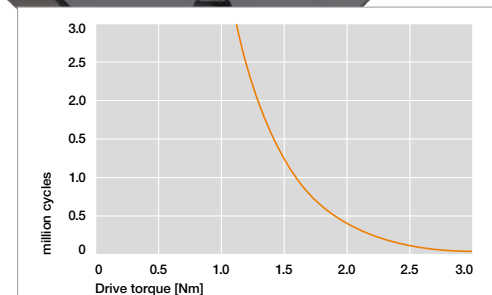
- Cost-effective gearboxes made of solid polymer material
- Quick and easy adaption as 5th axis in robolink® DP
- Compatibility with gripper systems of other robot manufacturers
- Adapter disc of, among others, grippers and vision prepared

Sustainability

- Smooth and completely lubrication-free operation
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



- Optional couplings: all drylin® E couplings for Ø8 shaft
- Standard motor option: stepper motor, DC motor, BLDC motor



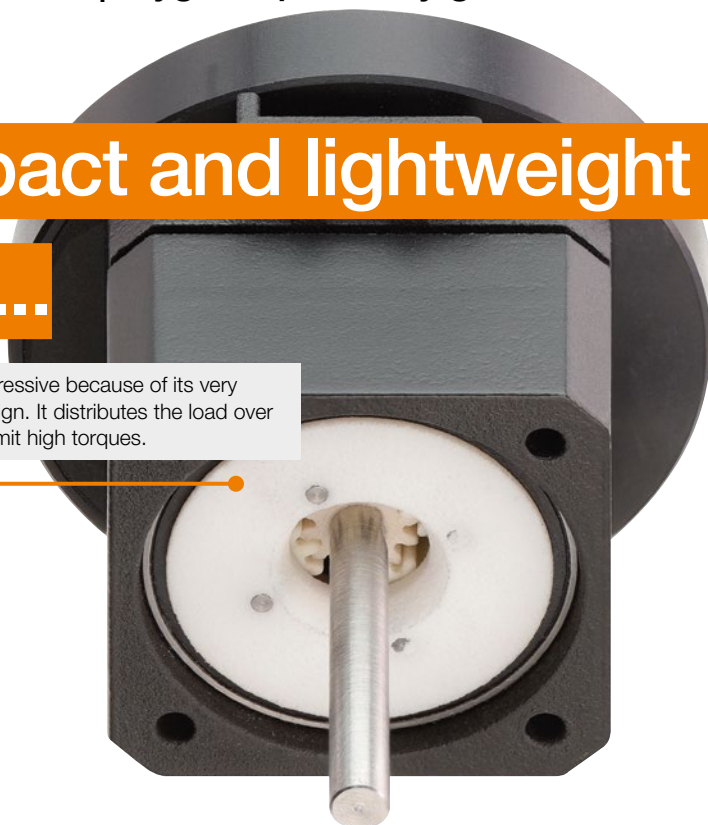
Part No.	B	B1	B2	B3	D1	D2	G1	G2	L1	T	T1	T2
RL-S-17-28-AA-02	42	15	18	31	Ø 8h7	Ø 26h7	M3x4	M4x4	20	38.5	8.6	33.6

... compact and lightweight design ...

The planetary gearbox is impressive because of its very compact and lightweight design. It distributes the load over several gears, so it can transmit high torques.



lubrication-free planetary gearbox



▲ Tech up

- Tribologically optimised high-performance polymers
- Flexible use of motors from the drylin® E product range
- Without lubrication in the gearbox
- Lightweight construction (149.1 g with 4:1 transmission ratio)

■ Proof

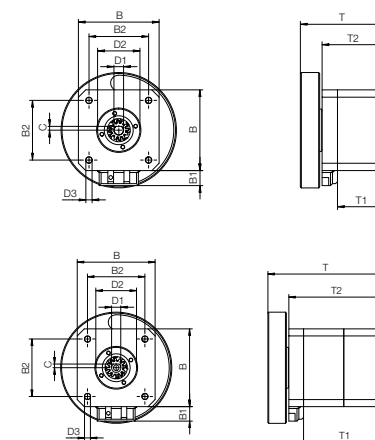
- Gearbox performance data determined through extensive testing
- High efficiency, quiet running

▼ Cost down

- Cost-effective gearbox unit with motor
- Use of injection moulding and 3D printing components
- Maintenance-free thanks to solid plastic gears
- Energy efficiency through weight savings

● Sustainability

- Lubrication-free
- Exchangeable components
- igus® supports the circular economy of plastics and is investing in chemical recycling. More about this topic at: igus.eu/sustainability



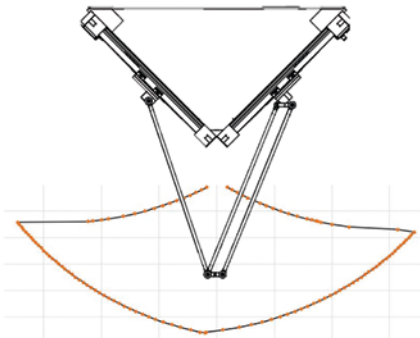
Technical data

Part No.	RL-P-17-4-AA	RL-P-17-16-AA
Weight	149.1g	191.3g
Number of gearbox stages	1	2
Max. drive speed	>700rpm	>700rpm
Efficiency	>90%	>80%
Backlash	>7°	>7°
Mechanical service life	1,000,000 cycles at 1Nm and 25rpm	1,000,000 cycles at 3Nm and 25rpm

Part No.	B	B1	B2	D1	D2	D3	C	T	T1	T2
RL-P-17-4-AA	42	7.8	31	Ø5x24	Ø22x2	Ø3.2	2	43	23.7	31.7
RL-P-17-16-AA	42	7.8	31	Ø5x24	Ø22x2	Ø3.2	2	62.2	42.9	50.9

... for fast handling for pick & place applications ...

Ready for connection with stepper motors for dryve D1 motor control system or as plug & play with the igus® Robot Control (iRC).



Tech up

- For simple, fast and automated assembly tasks
- Ready for connection with stepper motors for dryve D1 motor control system or as plug & play with the igus® Robot Control
- Maintenance-free dry operation
- Resistance to dust and dirt
- Quiet operation
- Corrosion-free

Proof

- Precise positioning due to motors with encoders
- Pick rate of 100/min due to low-weight components made of plastic and aluminium
- The igus® delta robots consist largely of components that have been tested in the igus® laboratory.
- Use of a maintenance-free delta robot under extreme conditions

DLE-ZR-0001

- Working space up to 450mm with a height of 60mm

DLE-ZR-0002

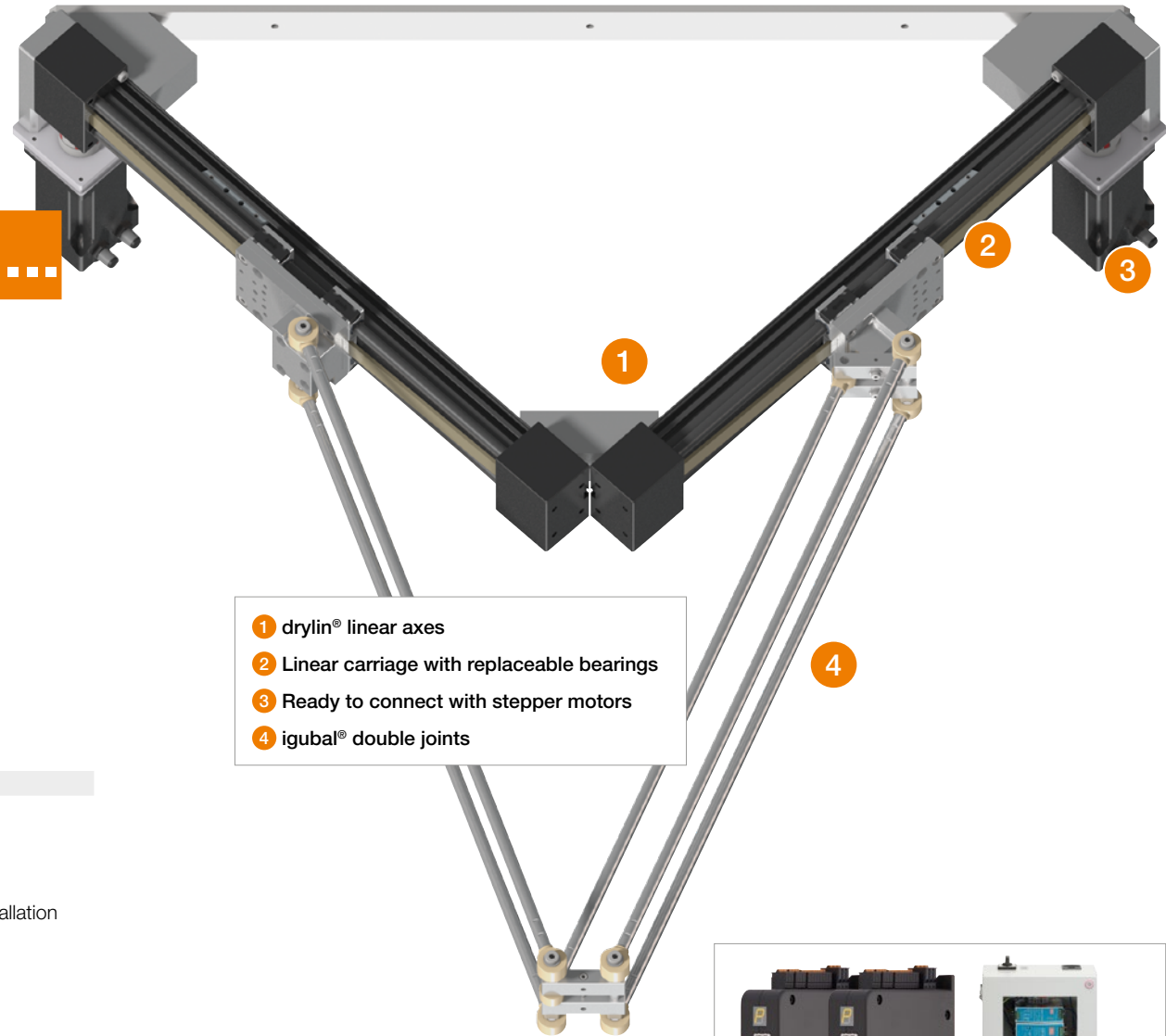
- Working space up to 700mm with a height of 90mm

Cost down

- Pre-assembled system
- Lower maintenance costs
- No costs for lubrication
- Less downtime
- Low assembly costs due to simple installation

Sustainability

- Lubrication and maintenance-free
- 100% clean operation
- No need to wash out grease and oil in the cleaning process
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



- 1 drylin® linear axes
- 2 Linear carriage with replaceable bearings
- 3 Ready to connect with stepper motors
- 4 igubal® double joints

Part No.	Stroke -20mm for initiator [mm]	Centre distance articulated rods [mm]
DLE-ZR-0001	200	450
DLE-ZR-0002	315	550



dryve D1 und igus® robot control

... extra large for palletising applications ...

For reliable and flexible palletising applications with up to 10kg lift weight.



2,000 x 2,000 x 1,500mm
working space



Loads of up to 10kg

Tech up

- Maintenance-free dry operation
- Resistance to dust and dirt
- Quiet operation
- Corrosion-free
- Modular system
- Plug & Play solution with the igus® Robot Control (iRC)
- Maximum length: 6,000 x 6,000 x 1,500mm, according to technical design

Proof

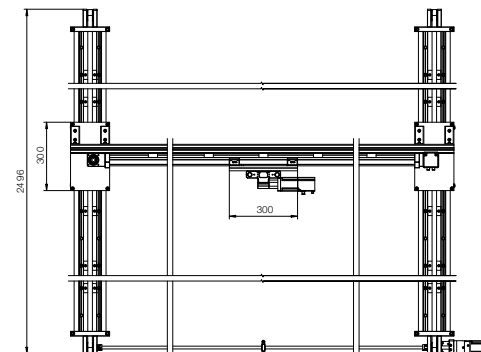
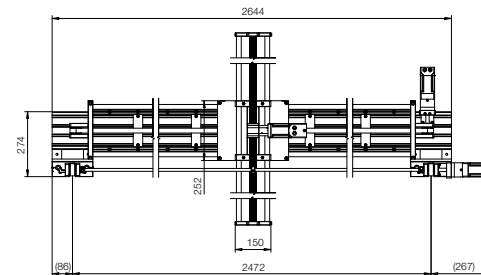
- The igus® linear robots consist of components that have been tested in the igus® laboratory.
- Use of a maintenance-free linear robots under extreme conditions.

Cost down

- Lower maintenance costs
- No costs for lubrication
- Less downtime
- Individual workspace
- Up to 60% more cost-effective than conventional gantries
- Low assembly costs due to simple installation

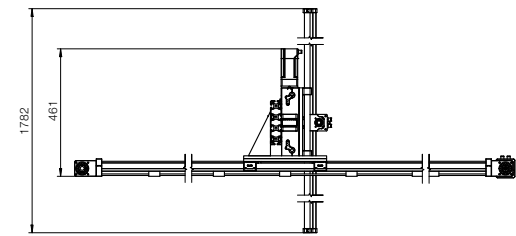
Sustainability

- 100% clean operation
- No need to wash out grease and oil in the cleaning process
- Lubrication and maintenance-free
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Part number.: DLE-RG-0004

- Working space: 2.000 x 2.000 x 1.500[mm]
- Payload: up to 10kg
- Speeds up to 500mm/s
- Repeat accuracy: ± 0.8mm



... individual and modular superstructures ...

Modular gearbox Apiro® (Greek for "infinite") now with even more combinations for your application; with ready-made iDeas including parts lists and CAD data - build or buy.

Tech up

- Durable, efficient, low clearance, smooth operation
- Infinite number of possible combinations
- Individual kinematics can be implemented

Proof

- Great product compatibility
- Worm gears made of tribologically optimised igus® high-performance polymers
- Gearbox performance data determined in comprehensive testing

Cost down

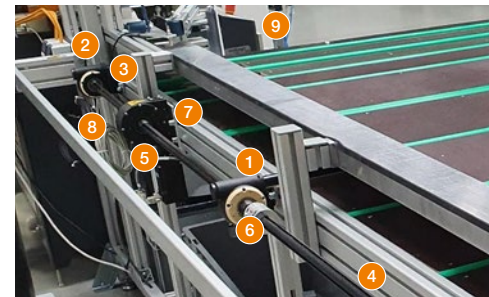
- Maintenance-free thanks to iglidur® polymer gears
- Fast conversion possible

Sustainability

- Completely lubrication-free operation
- Lightweight components



Apiro® iDea: multi-axis pusher applications as inspiration for a customer development



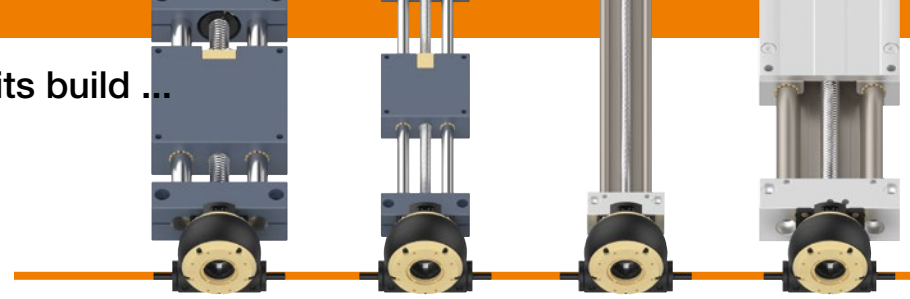
You can find more Apiro® iDeas online for inspiration
igus.eu/apiro-ideas

- 1 drygear® Apiro cantilever axis
- 2 RL-D-30 gearbox with adapter to Apiro®
- 3 drygear® Apiro® INI kit
- 4 drygear® Apiro® multi-functional profile
- 5 robolink® D direct drive
- 6 Jaw coupling with round axis clamp
- 7 drygear® Apiro® installation option
- 8 chainflex® connection cables
- 9 Optional: drylin® D1 motor control system

Individual components from the drygear® Apiro® modular system for the construction of a pusher application

... for drive technology and lead screw technology ...

Modular connection and synchronisation with drygear® Apiro®. Typical application areas are lane adjustments, pusher tasks, gearboxes with various gear ratios, slewing rings and rotary axes.



Easy synchronisation thanks to Apiro® gearboxes connected in series



Application example from the beverage industry
For more information and a film:
[igus.eu/connection-linear-axes](https://www.igus.eu/connection-linear-axes)

Tech up

- Expansion of the modular drygear® Apiro® gearbox system
- Combination and synchronisation with the drylin® modular drive technology
- Assembly instructions including parts lists

Cost down

- Cost-effective gearboxes made of solid polymer material
- Modular design for manual and motor-operated adjustments
- Fast conversion possible
- Assembly without any special tools

Proof

- Easy assembly in seconds
- Maintenance-free through the use of self-lubricating igus® polymers

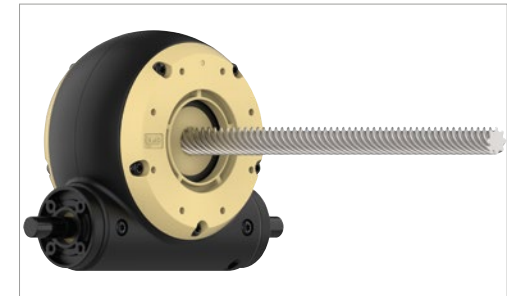
Sustainability

- Completely lubrication-free operation
- Lightweight components



Direct connection to drylin® drive technology: Apiro® gears can be installed directly on the output journal of drylin® SHT and SLW linear modules using an adapter. Thanks to this structure, drylin® systems can be synchronised and several Apiro® gearboxes can be connected in series.

Available options:
SHT-12 / SLW-10xx
SLW-1660
SHT-20
SHT-BB-20 / SLW-BB-2080
SHT-30
SHT-BB-30 / SLW-BB-25120



Direct connection to dryspin® lead screw technology: Lead screws with diameters of 10, 12 and 16mm can be directly connected to Apiro® gearboxes via the output journal. Depending on the thread pitch, the lead screw can be moved. You can find the igus® lead screw shop online:

[igus.eu/leadscrewshop](https://www.igus.eu/leadscrewshop)
Available options:
DS10x25
DS12x5
TR16x2

... drygear® Apiro®

Hygienic Design ...

The design of the study is intended to prevent contamination during production and allow simple, safe cleaning, which is important in such industries as food and pharmaceuticals.



specifically for the hygiene and food sectors

Tech up

- Expansion of the modular drygear® Apiro® gearbox system
- Easy and safe to clean

Proof

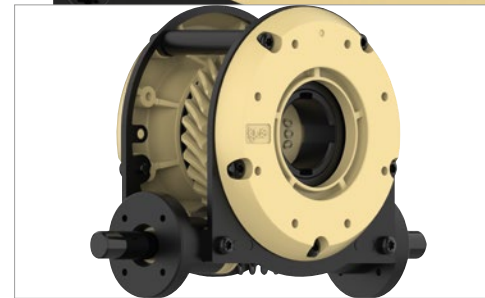
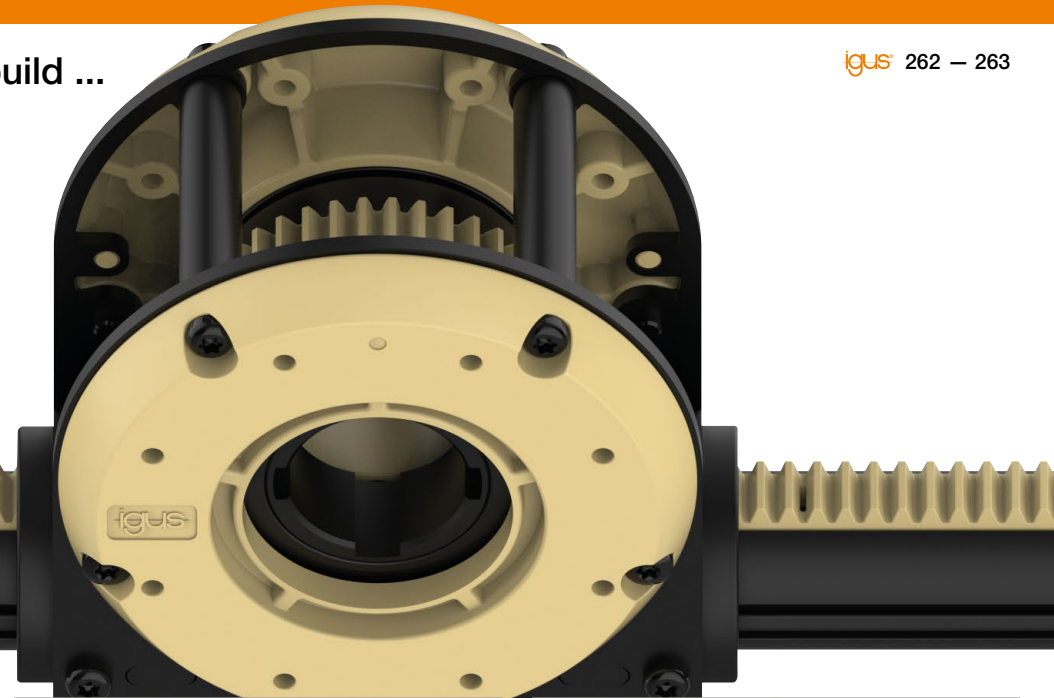
- Great product compatibility
- Worm gear made of tribologically optimised high-performance plastics

Cost down

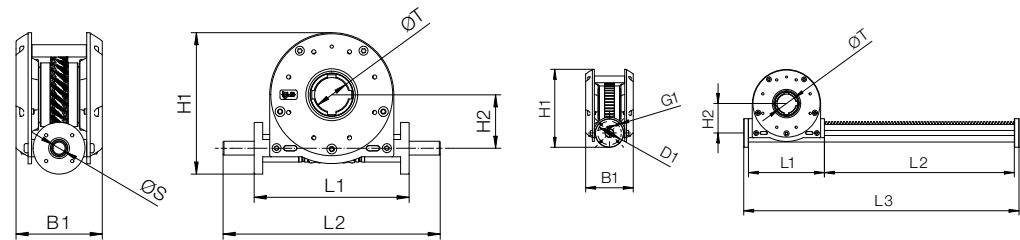
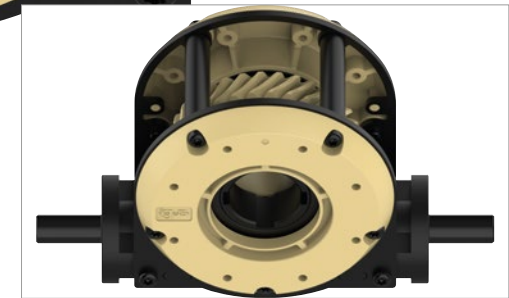
- Cost-effective gearboxes made of solid polymer material
- Modular design for manual and motor-operated adjustments
- Fast conversion possible
- Assembly without any special tool

Sustainability

- Completely lubrication-free operation
- Lightweight components



Prepared for hygienic design use



Part No.	H1	H2	B1	ØS	ØT	L1	L2	L3	D1	G1
RL-A10.0105.HD	82	31	50	8	20	90	126	-	-	-
RL-A14.0107.6.HD	82	31	50	-	20	80	60-1,050	150-1,140	25	M3

... fast, flexible and configurable ...

drylin® SCARA robot for fast, flexible use. Typical application areas include assembly and joining tasks in the electronics industry. In most cases, it is used for loads of up to 3kg.

IP44
version available

2s
cycle times from 2s

▲ Tech up

- Flexible use due to modular design
- Suitable for splash-water applications
- For process speeds from 2 seconds
- With and without protective housing

▼ Cost down

- Efficient operation through stepper motor technology
- Controllable with the igus® Robot Control, one control system for all robots
- Try before you buy: Test now in advance at the Customer Testing Area

■ Proof

- Min. service life: 10 million cycles, tested in the low cost automation laboratory

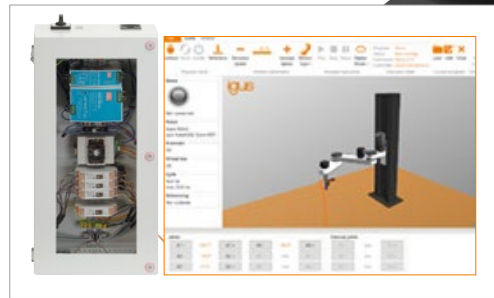


● Sustainability

- Low cost automation solutions are completely maintenance-free
- Lightweight components



DLE-SR-0001



Programmable and controllable with igus® Robot Control iRC

Technical data	
Payload	30N
Reach	600mm
Reach in z-axis	150mm
Max clearance load to TCP	X: 150mm Z: 100mm
Speed	30 picks/min*
Min. service life	10,000,000 cycles
IP protection class	IP 44 splash water (optional)

... simple
intuitive control ...

igus® Robot Control with new PLC interface such as Modbus TCP/IP; CRI interface now even more flexible to use.



Tech up

- More power and improved response times through 48V operation
- Smooth function optimises the driving profile and increases the cycle time
- Compatible with more than 50 different igus® kinematics
- Other functions:
New: PLC interface like Modbus TCP/IP; CRI interface
 Camera interfaces
 Digital I/O's for binary coding
 Preconfigured ROS packages available

Proof

- Live testing in the Customer Testing Area and in the igus® test lab rbtx.com
- Proven compatibility with various kinematic systems from different manufacturers in
- Use in in-house igus® factory

Cost down

- One control system for all igus® robots: gantries, delta robots, multi-axis articulated robots, Scara robots, single axes and AGVs
- Up to 50% time savings in programming due to the manual guidance function on linear robot systems & delta robots
- Low assembly costs thanks to a plug-and-play solution
- More than 100 example programmes to support programming
- Test before investing with free igus® Robot Control software

Sustainability

- Software is downward compatible
- Powerful hardware for controlling all igus® robots
- Continuous expansion with new functions
- Existing iRC software can be updated
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability

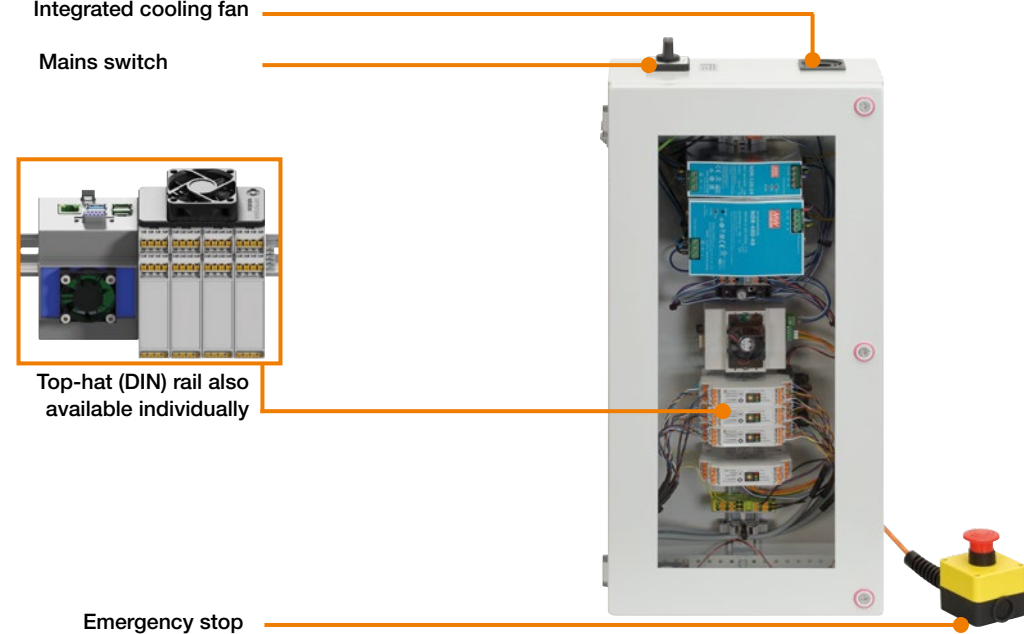
Integrated cooling fan

Mains switch



Top-hat (DIN) rail also available individually

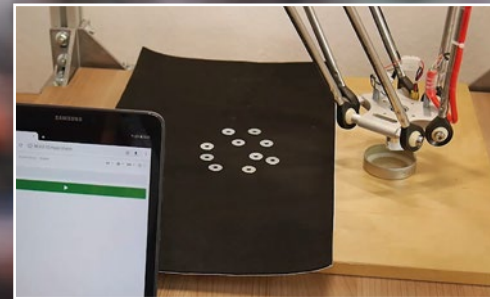
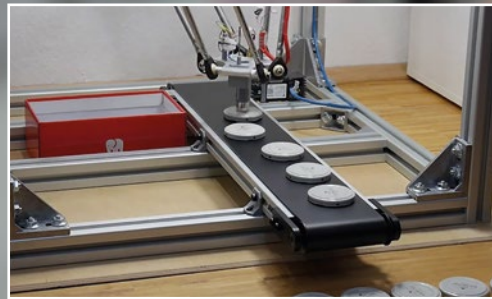
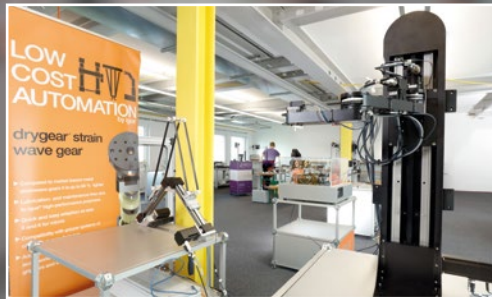
Emergency stop



Available in 1 week

igus.eu/igus-robot-control

... test your application free of charge ...



▲ Tech up

- With accessories such as grippers or vision
- Test in robot cells straight away
- Find the perfect robot for your application

▼ Cost down

- Test before Invest - send us your workpiece, we test it free of charge
- Exceptionally fast towards feasibility without own set-up

■ Proof

- Over 1,000 customer tests
- 400m² Customer Testing Area
- Typical applications are pick & place, end of the line quality control or gluing and joining applications.

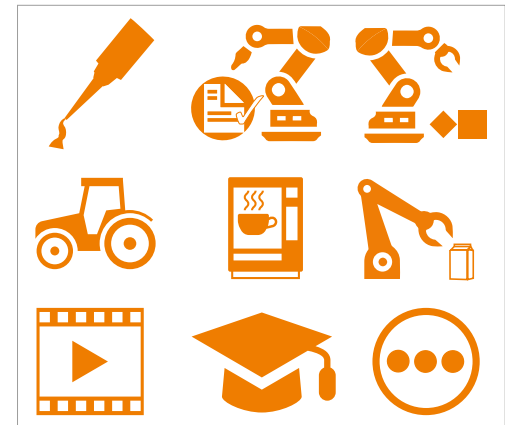
● Sustainability

- Energy-efficient (lightweight robotics)
- Without own set-up for feasibility analysis



Free test in the Customer Testing Area

Do you want to be on the safe side when it comes to the feasibility of your application? We offer a free handling test. Simply send us your workpiece/object and we will send you a video of our test or show you the feasibility live.

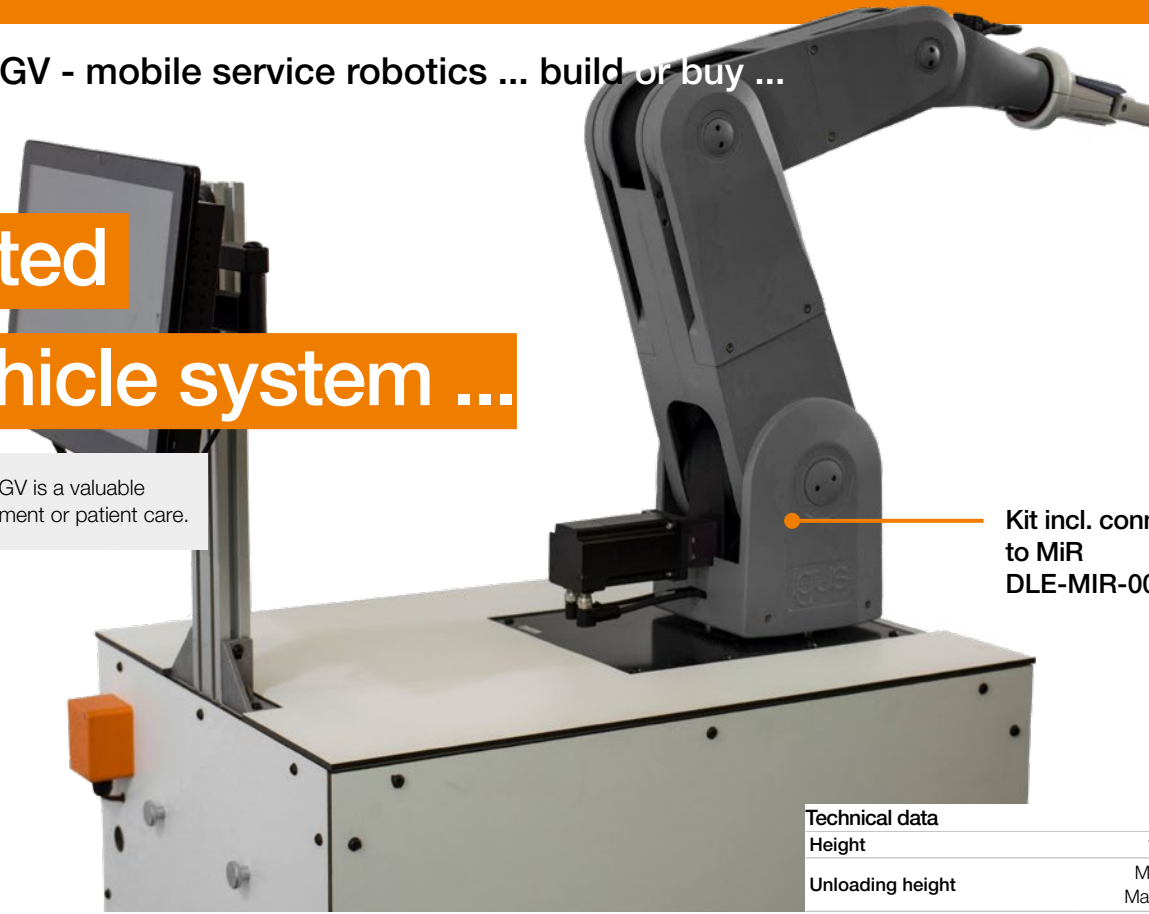


Find the already implemented tests in our Application Library online:

igus.eu/lca-applications

... automated guided vehicle system ...

The robolink® in combination with an AGV is a valuable addition in intralogistics, office management or patient care.



Kit incl. connecting frame to MiR DLE-MIR-0002

Technical data	
Height	1,780mm
Unloading height	Min. 600mm Max. 1,500mm
Total weight	22.4kg + 62.5kg
Supported container sizes	300 x 400mm
Container size upon request	400 x 600mm

Tech up

- Using AGVs autonomously with the robolink® DP
- Plug & play integration between AGV and robolink® DP
- Autonomous support for employees

Cost down

- Ready-to-use integration with software and hardware
- Expected ROI after 12-18 months
- Use of Low Cost Automation products

Proof

- Fast integration within a few minutes thanks to plug & play system; switch on, map, set stations and get started

Sustainability

- robolink® DP robot completely maintenance-free
- igus® supports the circular economy and is investing in chemical recycling. More about this topic at igus.eu/sustainability



The robolink® in combination with an AGV is a valuable addition in intralogistics, office management or patient care. Depending on the application, it can be individually configured



robolink® DP incl. software and touch display available in 2 versions:
Without connecting frame to MiR
 Part number: DLE-MIR-0001
With connecting frame to MiR
 Part number DLE-MIR-0002



The complete solution together with the AGV (MiR) is available on RBTX, the igus® marketplace for low-cost robotics.
rbtx.com

... expand the workspace of common robots ...

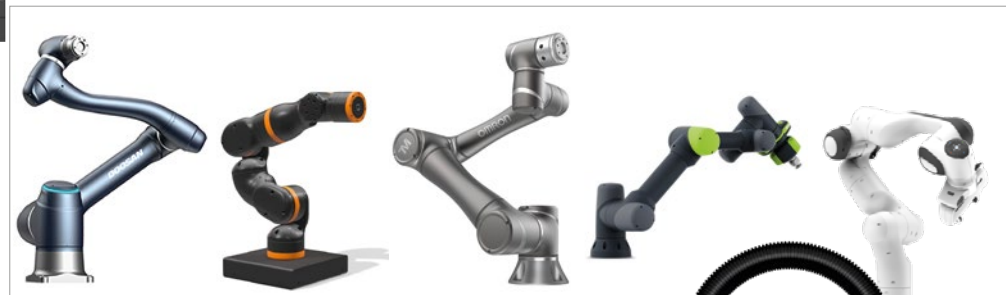
With the 7th axis kit, the workspace of common lightweight robots can be expanded in the blink of an eye via digital inputs & outputs and at the same time meet safety criteria.

drylin® ZLW-20200

Adapter kit
roboLink® RL-DP



Adapter kit
Universal Robots



Adapter plates for Omron, Franka Emika, Doosan, Yuanda Robotics, igus® robots and much more. Please contact us.



Switch cabinet integration for drylin® 7th axis
DLE-EPSON-0001



Adapterkit
EPSON

Tech up

- Suitable adapter kits for igus® robots, Universal Robots, Epson, Omron, Franka Emika, Doosan, Yuanda Robotics and many more.
- For the flexible use of robots in the workspace
- Ready-to-install linear axis 7 in robotics

Cost down

- Toothed belt axis ZLW-20 from the standard linear construction kit
- Adapter kits suitable for linear carriages of the ZLW-20
- Kits available individually or save build time and effort and order completely assembled as ready-to-connect linear axis
- Fast control via digital I/Os

Sustainability

- 100% lubrication-free ZLW-20 toothed belt axis
- Materials can be recycled
- Existing ZLW-20 toothed belt axes can be retrofitted
- Adapter kits can be ordered separately

Proof

- Service life of the toothed belt axis can be calculated online
- Up to four times the robot working area thanks to linear adjustment with seventh axis

... for EPSON robots as a plug & play system ...

Expand the working area of your EPSON robot



Tech up

- Suitable adapter kits for EPSON Scara T3 and T6, as well as articulated arm VT6
- For the flexible use of robots through enlarged workspace
- Plug & Play: Ready-to-install linear 7th axis in robotics

Proof

- Service life of the toothed belt axis can be calculated online
- Up to four times the robot working area thanks to linear adjustment with seventh axis
- Configurable on the low-cost robotics marketing platform RBTX

Cost down

- Toothed belt axis ZLW-20 from the standard linear construction kit
- Adapter kits suitable for linear carriages of the ZLW-20
- Kits available individually or save build time and effort and order completely assembled as ready-to-connect linear axis

Sustainability

- 100% lubrication-free ZLW-20 toothed belt axis
- Recyclable materials
- Existing toothed belt axes ZLW-20 can be retrofitted
- Adapter kits can be ordered separately



Stabilisation suitable for corrugated hoses: SCARA cable solution



Switch cabinet integration for drylin® 7th axis DLE-EPSON-0001



Adapter kit for other EPSON kinematics available on RBTX, the igus® marketing platform for low-cost robotics.
rbtx.com

... more flexibility for robots ...

The external robolink® D rotary axis allows circular workpiece movements. The radius of robot action is extended, making robots much more flexible in their applications.

External robolink® D rotary axis
RL-D-50-A0210

▲ Tech up

- Lightweight due to igus® high-performance polymers
- Extremely compact for integration as external rotary axis or 7th axis in robotics
- Ready to install, including motor and D1 dryve motor control system
- Mechanical service life: min. 1,000,000 cycles

■ Proof

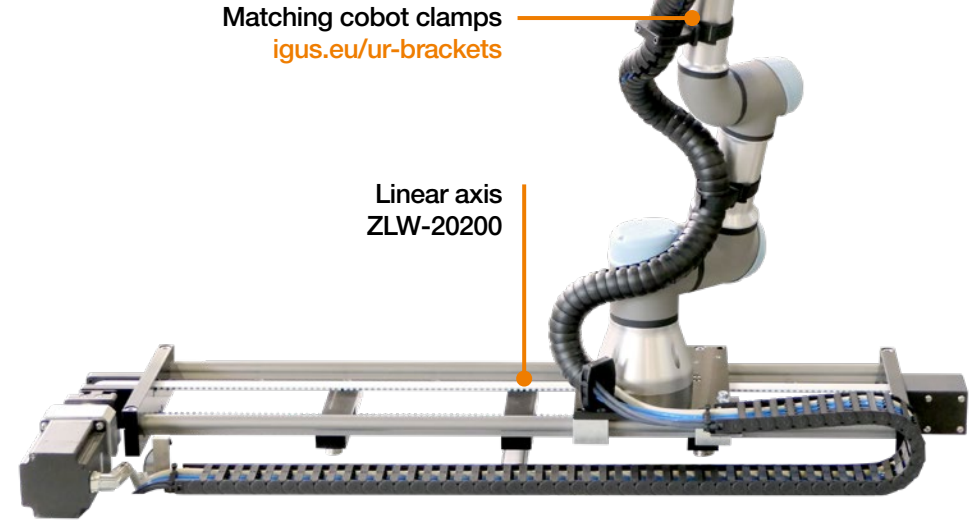
- Easy assembly in seconds
- Maintenance-free through the use of self-lubricating igus® polymers

▼ Cost down

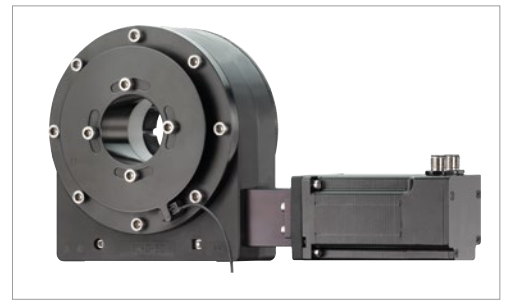
- Cost-effective due to use of iglidur® polymer material
- Quick and easy adaptation as external rotary axis or 7th axis in robots
- Compatibility with robot systems from other robot manufacturers including Universal Robots

● Sustainability

- Completely lubrication-free operation



ZLW-20200S-7TH-DCUR-01-XXXX
Stroke lengths of up to 3,000mm are standard. Further strokes of up to 6,000mm are available upon request



External robolink® D rotary axis
RL-D-A0210
Installation size 50, transmission 48:1, motor kit NEMA23XL with connector and encoder



UR CAP + switch cabinet integration for drylin®
7th axis and external rotary axis
DLE-UR-0001 (7th axis)
DLE-UR-0002 (rotary axis)

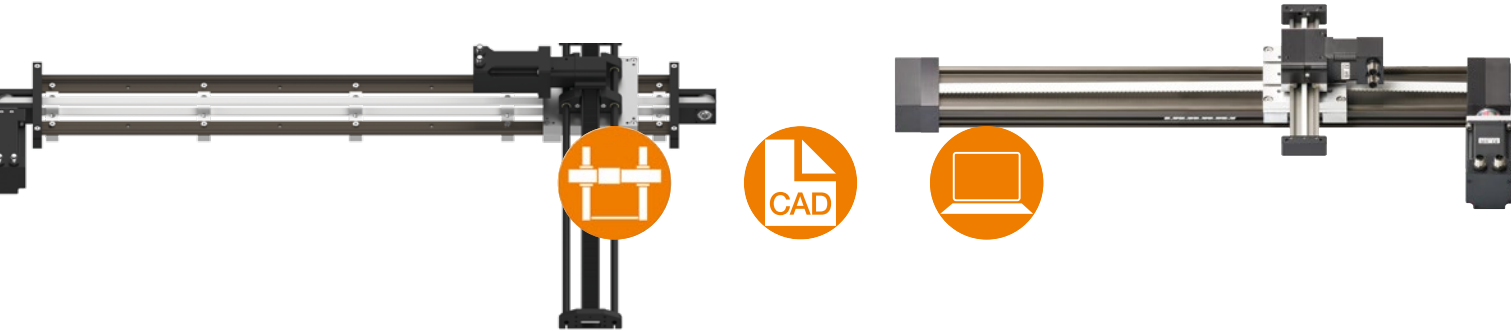
Adapter kit for UR3e, UR5e, UR10e, UR16e is delivered in an unassembled condition. Energy chains not included in delivery. Further information and ordering at: igus.eu/7th-axis
Matching cobot clamps available: igus.eu/ur-brackets

For more information on all the products listed here, see igus.eu/external-rotary-axis

... configure individual gantries in 5 minutes ...

Now it is even faster and easier to configure a linear robot with direct price information at rbtx.com.

ear resistance and good degree of toughness. ext.



Tech up

- Quick selection of the appropriate linear robot system
- Configure ready-to-connect units directly in the online tool
- Selection of the different control techniques
- All igus® standard linear robots available

Proof

- Suitability check included. All selected positions (linear robot, control system, etc.) fit together
- Linear robot systems tested for service life

Cost down

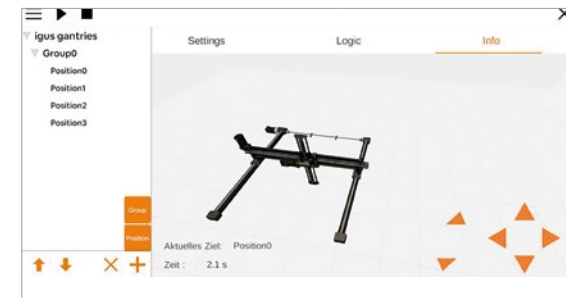
- Test before invest through AR representation (Augmented Reality)
- Direct price overview
- Delivered ready to install from a single source
- Save design time with immediately available 3D CAD models and dimension drawings
- Live programming online to test the cycle time

Sustainability

- All configurable linear robot systems 100% maintenance-free due to self-lubricating igus® polymers in all bearing points
- 100% clean and hygienic
- No washing out of fats and oils in cleaning processes
- igus® supports the circular economy of plastics and is investing in chemical recycling. Learn more about this topic at: igus.eu/sustainability



Configure individual requirements for stroke lengths and working space simply online.



- Get CADs and technical drawing of gantries
- Live price display for individual workspace with and without control systems
- Program the digital twin of the robot directly online and test the application



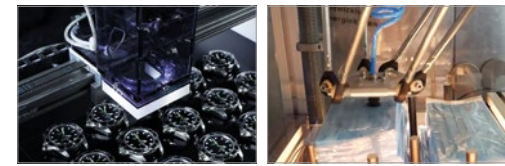
Taiwan Pulse Motion



23 partners



7 robot manufacturers



More than 50 applications in the fields of: agricultural, laboratory, pharmaceutical, consumer electronics, vertical farming and many more.

... 2 years RBTX ...

RBTX Complete Solutions: 6 new complete solutions with fixed price guarantee under EUR 45k. Discover a total of 10 solutions online at rbtx.com



TruRunner



TruPixel



Storage and retrieval unit



Solutions online



Painting automation

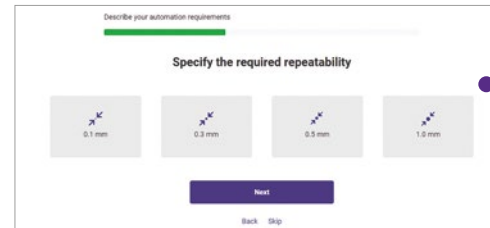


Palletising application



Laboratory automation

Online RBTX services:



- RBTXpert live video consultation with fixed price
- MyRobot configurator
- Click by Click - consultation wizard
- Country-specific network integration
- The colour of your choice: your robot in your company colour

Active markets:

- Germany
- France
- Austria
- United Kingdom
- For other countries available upon request



Tested and proven:



We have provided advise to more than 500 customer projects



Thousands of visitors per week



... remote integration
with fixed price ...

RBTXpert: hardware costs EUR 3-25k with an integration work of max 100hrs | Stand-alone solutions | ROI < 12 months

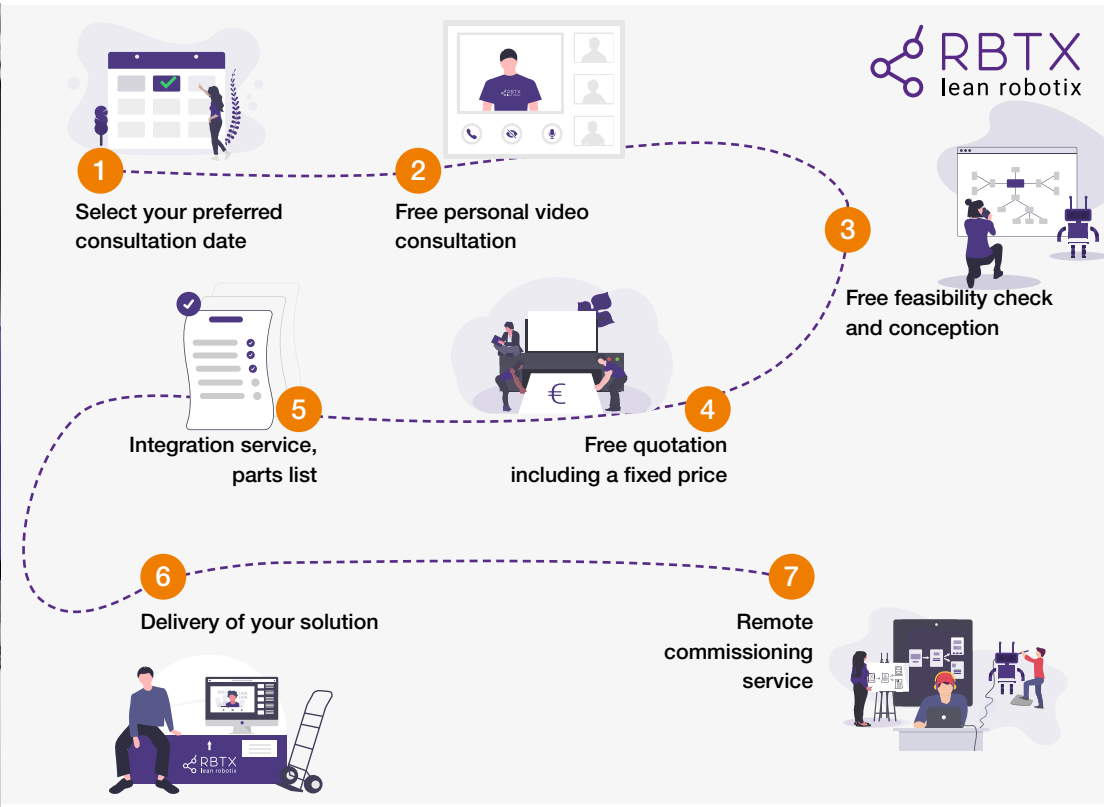
"Our typical projects have EUR 8,000 hardware costs and approx. 20hrs integration effort."
Jens Klärner, RBTXpert

It's about the automation of your application. RBTX, the marketplace for Low Cost Automation - now with RBTXpert service and remote integration for simple automation solutions at fixed price.

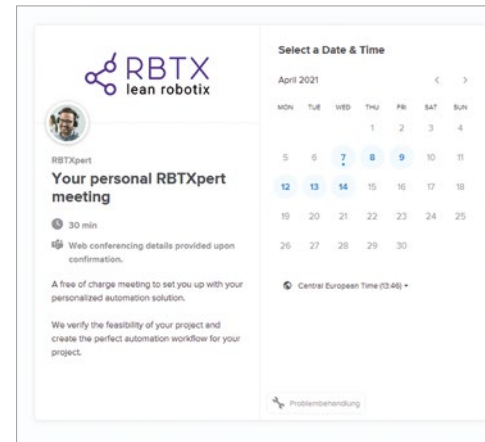
During the video call, you will describe your project. The RBTXpert will work with you to check its feasibility and create a list of necessary components. He will show you the advantages of various kinematic elements live. At the end of the free consulting session, you will be confident of your project's feasibility, and you will receive a quotation with fixed price. As part of the project scope, the RBTXpert helps you with the commissioning of the components via remote consultation.



- ✓ Feasibility check
- ✓ Parts list
- ✓ Fixed price
- ✓ Commissioning remote support

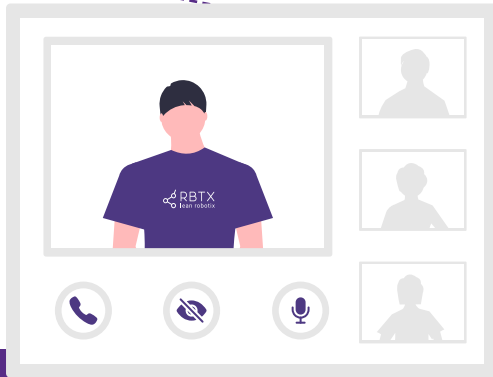


User journey based on the example of a mask dispenser



- 1 Make an appointment with our automation expert
Select a free time slot. You will receive an e-mail with a calendar day and a link to a video conference

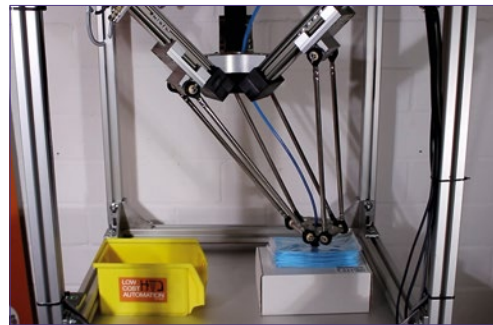
RBTXpert, remote Integration for Low Cost Automation with fixed price ... buy ... user journey based on the example of a mask dispenser



2

Live consultation

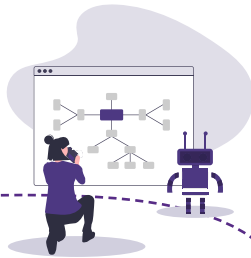
Free live video consultation with our automation's expert



3

Feasibility check

Feasibility check with different kinematics. Simply send us your workpiece. For example, your face mask.



4

Quotation with fixed price

Free quotation including a binding fixed price for hardware components and integrations work of less than 100hrs. For the masks dispenser EUR 6,947 and 44hrs, for example.

"More complex projects that cannot yet be implemented with Low Cost Automation and the RBTXpert today will be included in our development plan". Jens Klärner, RBTXpert



5

Parts list

You receive a parts list tailored to your application.



Shopping cart	
Parts list	Price
Delta Robot - Pre-Assembled, with Control Unit, Working Space Dia...	Components €5,819
igus® GmbH	Peripherals €128
	Total €6,947
Vacuum End Effectors VEE STARTERSET	
J. Schmalz GmbH	€795
SoftMAC 301 Compact Motion Controller CANopen	
Sercolabix GmbH	€319
Compact Ejector - 1.0 mm, Normally Closed	
J. Schmalz GmbH	€445
End effector mounting plate	
RBTX	€59

6

Delivery of your components

Delivery of your individual solution and hardware resulting from your consultation.



7

Remote commissioning service

The expert supports you during the commissioning of your application. This is part of the fixed price offer.



Typical applications for the RBTXpert:



Available

rbtx.com

... robots need
to run ...



Tech up

- More automation options thanks to mobility
- Plug & play integration between AGV and robotlink® DP
- Autonomous support for employees

Cost down

- Save time and money with ready-to-use integration for software and hardware
- Expected ROI after 12-18 months
- Use of Low Cost Automation components

Proof

- Fast integration within a few minutes thanks to plug & play system; switch on, map, set stations and get started

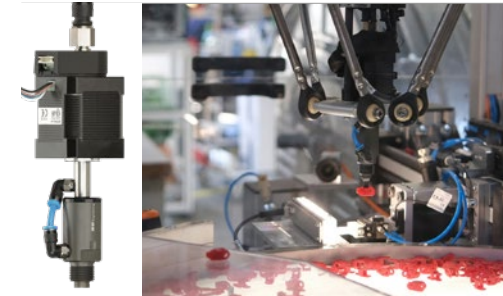
Sustainability

- robotlink® DP robot completely maintenance-free



Robots need to run

New in the product range: cost-effective mobile robots. We offer various AGV sizes for research and education. Three installation sizes directly with a robot arm, control with igus® Robot Control.



A tool that finds its way around

An extra degree of freedom of movement for such systems as delta robots: the lift-and-swivel suction unit gives you an extra rotary axis around the tool centre point, including a suction pad with Z-lift.

Virtual trade show 2021

igus® motion plastics® show ...

iF Design Award winner 2021

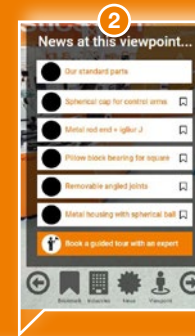
... discover new products virtually ...

Your benefits:

- 1 Browse through our trade show stand & get more information without leaving the website.
- 2 Clear listing of new products in the menu.
- 3 Book a guided news presentation with an igus® expert LIVE at the trade show at any time.
- 4 Use our watch list function - add news products to your watch list and receive more information via e-mail.



... www.igus.eu/imps



Electrically discharging and extremely robust igus® AX500 - new food contact material in the high-temperature range

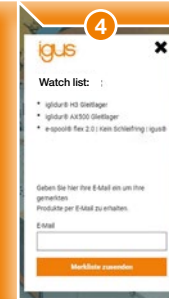
igus® AX500 is a further development of igus® AX300, which was able to operate continuously for a long time. What is special about AX500 is that it is a conductive material. In addition, AX500 has an even lower coefficient of wear than its predecessor. The material was specially developed for the food industry and can therefore be used in contact with food products.



Discover new products via video or "live" like the telescopic triflex®TRX - space-saving installation with a retraction length of up to 40% ...



... or smart 3D printed, wear-resistant parts.



Trade show stand

To the virtual trade show



Factory

