

# igus® DryLin® R Linear Plain Bearings

igus® DryLin® R linear plain bearings are dimensionally interchangeable with other popular brands, but offer a low cost alternative to recirculating ball bearings. The low friction liner makes DryLin R suitable for wet or dirty environments.

## Features

- Dimensionally interchangeable with ball bearings
- Available in four shaft diameters in both fixed and self-aligning housings
- Type J polymer is an excellent all-purpose sliding material
- Ideally suited to work with Drylin R hard-anodized aluminum shafting



igus® DryLin® R Linear Plain Bearings													
Item Photo	Part Number	Housing Fit	Size I.D. (inch)	Length (inch)	Housing Type	Bearing Material	Housing Material	Qty. per Package	Weight (lb)	Price	Drawing Link		
	<b>A-RJZI-01-04</b>	Fixed housing	1/4	3/4	Closed	Type J polymer	Anodized aluminum	1	0.00	\$9.00	<a href="#">PDF</a>		
	<b>A-RJUI-01-08</b>		1/2	1-1/4				1	0.04	\$10.50	<a href="#">PDF</a>		
	<b>A-RJUI-01-12</b>		3/4	1-5/8				1	0.06	\$12.50	<a href="#">PDF</a>		
	<b>A-RJUI-01-16</b>		1	2-1/4				1	0.23	\$19.50	<a href="#">PDF</a>		
	<b>A-RJI-01-08</b>		1/2	1-1/4				1	0.03	\$6.25	<a href="#">PDF</a>		
	<b>A-RJI-01-12</b>		3/4	1-5/8				1	0.05	\$6.75	<a href="#">PDF</a>		
	<b>A-RJI-01-16</b>		1	2-1/4	1		0.11	\$9.50	<a href="#">PDF</a>				
	<b>A-OJUI-01-08</b>		1/2	1-1/4	Open		Type J polymer	Anodized aluminum	1	0.11	\$14.00	<a href="#">PDF</a>	
	<b>A-OJUI-01-12</b>		3/4	1-5/8					1	0.06	\$16.00	<a href="#">PDF</a>	
	<b>A-OJUI-01-16</b>		1	2-1/4					1	0.23	\$22.00	<a href="#">PDF</a>	
	<b>A-RJUI-03-08</b>		Self-aligning housing	1/2	1-1/4				Closed	1	0.03	\$11.00	<a href="#">PDF</a>
	<b>A-RJUI-03-12</b>			3/4	1-5/8					1	0.06	\$12.50	<a href="#">PDF</a>
	<b>A-RJUI-03-16</b>			1	2-1/4					1	0.11	\$20.50	<a href="#">PDF</a>
	<b>A-OJUI-03-08</b>			1/2	1-1/4		Open	1	0.11	\$11.00	<a href="#">PDF</a>		
	<b>A-OJUI-03-12</b>			3/4	1-5/8			1	0.06	\$13.50	<a href="#">PDF</a>		
	<b>A-OJUI-03-16</b>			1	2-1/4			1	0.23	\$20.50	<a href="#">PDF</a>		
	<b>A-FJUI-11-08</b>	Fixed housing	1/2	1-11/16	4-bolt flange pillow block	Anodized aluminum	1	0.18	\$39.50	<a href="#">PDF</a>			
	<b>A-FJUI-11-12</b>		3/4	2-1/16			1	0.46	\$48.50	<a href="#">PDF</a>			
	<b>A-FJUI-11-16</b>		1	2-13/16			1	1.21	\$79.00	<a href="#">PDF</a>			
	<b>A-FJUI-13-08</b>	Self-aligning housing	1/2	1-11/16			1	0.18	\$39.50	<a href="#">PDF</a>			
	<b>A-FJUI-13-12</b>		3/4	2-1/16			1	0.46	\$48.50	<a href="#">PDF</a>			
	<b>A-FJUI-13-16</b>		1	2-13/16			1	1.21	\$79.00	<a href="#">PDF</a>			



## DryLin<sup>®</sup> R Round Shaft Guide Systems

- Self-lubricating
- Maintenance-free
- Corrosion-free
- Resistant to dirt
- Low weight
- Dimensionally interchangeable with recirculating ball bearings

# DryLin® R Round Shaft Guide Systems - Advantages



Hard-anodized aluminum shafts guarantee optimum running properties

Steel, stainless steel, and carbon fiber shafts available

Round shaft and supported round shafts available

Linear adapter and complete housing made from aluminum

DryLin® liner made from dry-tech® high-performance plastics

5 liner material options available

Lightweight, hard anodized aluminum tubes available


## Self-lubricating round shaft guide systems – DryLin® R


DryLin® R is dimensionally interchangeable with linear ball bearings, but offers cleaner, more cost-effective results even in harsh environments. The standard RJUI/RJUM bearing consists of an iglide® J liner slip-fit into an aluminum housing. The unique grooved design of the J liner minimizes clearance, is suitable for use in extremely wet and dirty environments, and is easily replaceable. Dimensionally interchangeable 100% plastic parts RJI/RJM/RJIP/RJMP are also available for cost-savings, weight reduction, and other technical advantages. DryLin® R bearings may also be used with high temperature and chemically resistant iglide® T500 (X)\* (TUI/TUM) liners for more demanding applications, and E7 material liners for steel and stainless shafting.

- 100% self-lubricating
- Dimensionally interchangeable with standard recirculating ball bearings
- Large variety of housing options
- Shafts, shaft-end supports and accessories available
- Replaceable bearing liner
- 300 series stainless steel housing available

### Typical application areas:

- Packaging
- Lab
- Kiosk
- 3D Printing

 max. +482°F (+250°C)  
min. -130°F (-90°C)  
(depending on material)

 8 shaft materials  
8 versions  
Inner-Ø up to 60 mm

 Inch dimensions available



Cleanroom certified  
IPA Fraunhofer



Free of toxins  
ROHS 2011/65/EU



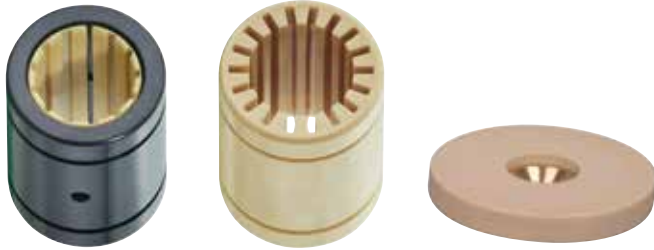
ESD-compatible  
(electrostatic discharge)

# DryLin® R Round Shaft Guide Systems - Product overview



## Liners and pressfit bearings

- Low friction, optimized wear quality
- Space saving, lightweight
- High chemical resistance



## Linear plain bearing

- Aluminum or stainless steel adapter with iglide® material liner
- Solid iglide® plastic bearings available, dimensionally interchangeable with recirculating ball bearings
- Closed or open versions available
- Self-aligning
- Sliding discs available



## Pillow blocks and floating pillow blocks

- Easy to assemble
- Stands up to high static load
- Replaceable bearing liners
- Split housing for quick liner replacement available



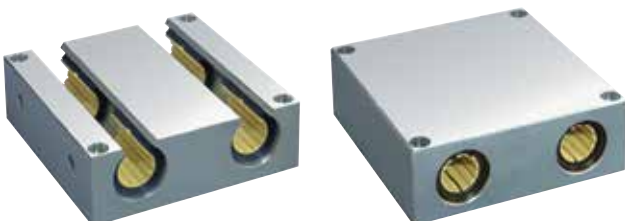
## Open linear plain bearings

- For supported loads using supported shafting
- Round or mounted design
- Adjustable options
- Optional floating bearing for quick assembly and design optimization



## Flange bearing

- Easy to fit
- Round or square options available
- Standard or twin flange designs



## Quad block

- Closed or open design options
- Quad block housing with 4 bearing liners
- Floating bearing available

# DryLin® R - Application Examples



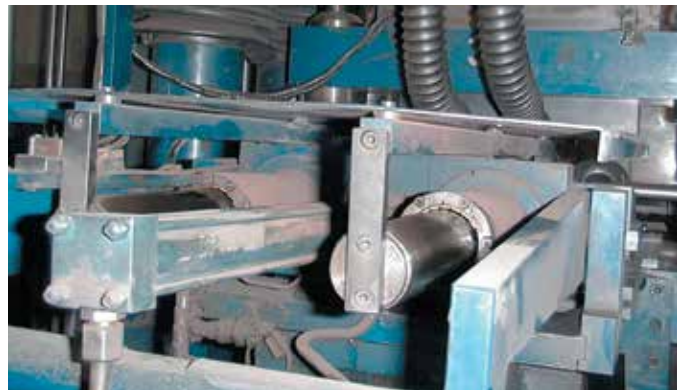
DryLin® R linear plain bearings on supported aluminum shafts are used in the guide for this cutting table. The DryLin® components stand up to the high levels of dust and dirt, and offer accurate, smooth operation.



This saw mill uses a DryLin® linear bearing with iglide® J plastic liner for the angle stops.



This heavy duty application has run reliably for more than three years thanks to DryLin® RJUM-01 linear bearings



Despite the high stresses from abrasive particles and powder particles, this compactor unit can extend maintenance-free uptime by up to two years after switching to DryLin® R linear bearings.



Maintenance-free, precise, compact, and wear resistant bearing liners were mounted directly in the passages of this machine's frame.

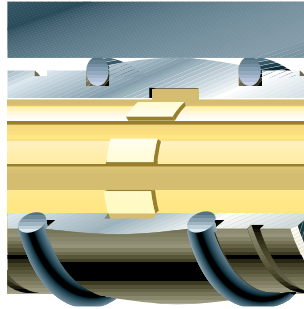


To enable fast, and precise adjustment of a production line without the need for downtime, DryLin® precision linear guides were utilized.

# DryLin® R - Technical data

## DryLin® R linear plain bearings

The DryLin® standard round bearings consist of a replaceable iglide® J, J200, A180 or T500 (X)\* bearing liner, manufactured to fit securely into an anodized aluminum bearing housing, axially secured via a snap ring groove. DryLin® linear bearings are designed as dimensionally interchangeable with standard ball bearings. Made of highly wear resistant iglide® J, J200, A180 or T500 (X)\* materials, which offer technical advantages as well as cost savings. Plastic bearings are well suited for applications where machine components are primarily stainless steel, such as in food production and packaging equipment, as well as applications where weight savings are critical. DryLin® R linear plain bearings are designed to fit housings with our recommended tolerances, secured via circlips in the same way as ball bearings.



## Dirt, dust, fibers

An important feature of all the linear plain bearings is their tolerance of dirt and other abrasive particles. For most conventional bearing systems, the use of wiper or seals is recommended to prevent the accumulation of dirt. With DryLin®, the patented design of the bearing surface, which uses connected slide pads, provides performance benefits for dirty environments. Dirt, even if it becomes wet on the shaft, is wiped away by the individual slide pads and is wiped to an open area. The running sections of the DryLin® bearings then slide on the shaft that has been cleared of all contaminants.

## Split linear bearings

Applications on the edge of technical feasibility or in extreme environments often require frequent replacement of linear bearings. DryLin® linear bearings can provide significant increases in service life, and even when replacement is necessary, the replaceable bearing liners can offer substantial cost savings. Replacing only the bearing's liner can reduce maintenance time by 90%. The range of split bearing housings are easily opened, and the split shell means that the shafts are able to stay in place while a new bearing and liner can be installed around the shaft, keeping installation time to a minimum.



The "all-rounder" – iglide® J



The specialist – iglide® J200



The extreme – iglide® T500 (X)



The marathon runner – iglide® E7



FDA compliant – iglide® A180

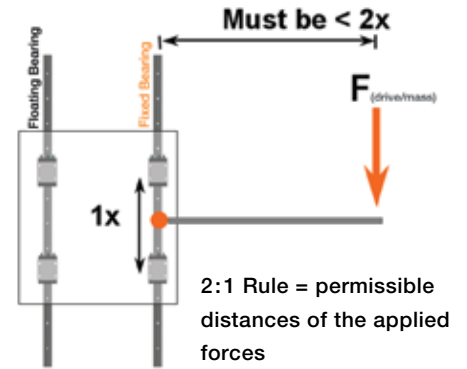
	The "all-rounder" – iglide® J	The specialist – iglide® J200	The extreme – iglide® T500 (X)	The marathon runner – iglide® E7	FDA compliant – iglide® A180
<b>Optimal shaft material(s)</b>	all shaft materials	Aluminum, hard anodized	Hardened stainless steel Hard chromed plated steel	Steel stainless steel shaft	all shaft materials
<b>Application temperature</b>	-40°F to +194°F (-40°C to +90°C)	-40°F to +194°F (-40°C to +90°C)	-148°F to +482°F (-100°C to +250°C)	-40°F to +194°F (-40°C to +90°C)	-40°F to +194°F (-40°C to +90°C)
<b>Best coefficient of friction with</b>	Steel shaft	Aluminum, hard anodized	Steel hard chrome-plated	Steel stainless steel shaft	Stainless steel shaft
<b>Maximum life time</b>	Aluminum, hard anodized	Aluminum, hard anodized	Hardened stainless steel	Steel stainless steel shaft	Stainless steel shaft
<b>Permissible stat. surface pressure</b>	35 MPa	23 MPa	150 MPa	18 MPa	28 MPa
<b>Moisture absorption</b>	1.3% weight	0.7% weight	0.5% weight	< 0.1% weight	0.2% weight
<b>Volume resistance</b>	> 10 <sup>13</sup> Ωcm	> 10 <sup>8</sup> Ωcm	< 10 <sup>5</sup> Ωcm	> 10 <sup>9</sup> Ωcm	> 10 <sup>12</sup> Ωcm
<b>Part No.</b>	JUM-...	J200UM-...	TUM-.../XUM-...	E7UM-...	A180UM-...

# DryLin® R - Design standards

## Eccentric Forces

### The 2:1 Rule

When using linear plain bearings it is important to ensure that the acting forces follow the 2:1 Rule (see drawing). If either the load or the drive force (F) is greater than twice the bearing length (1X), then a binding or interrupted motion may occur. If the location of the drive force or load cannot be changed, simply increase the distance between the bearings, or create a counterbalance to move the center-of-gravity back within the 2 to 1 ratio.



## Fixed and Floating Bearing Mounting Instructions

When using systems with 2 parallel rails, one side must be designated as the “fixed” rail, and the opposite side as the “floating” rail.

### Why use floating bearings?

- Promotes smooth gliding performance and maximizes bearing life
- Prevents binding caused by parallelism and angle errors
- Decreases necessary drive force and wear by minimizing friction-forces
- Enhances the precision of the system over the bearings' lifetime.
- Reduce assembly time and cost

### Fixed Bearings

The “fixed” bearing rail should be positioned closest to the drive force. This rail will determine the precision of the system; no system should contain more than two “fixed” bearings.

### Floating/Self-Aligning Bearings

The “floating” rail should be the rail located furthest from the drive force. It is to act only as a guide, and will compensate for any misalignments or angle errors in the system ensuring proper functionality.

### Mounting Surfaces

The mounting surfaces for rails and bearings should have a very flat surface (e.g milled surface) in order to enhance performance. Variations in these surfaces may be compensated for by using floating bearings.

## DryLin® R - Mounting Instructions

DryLin® R linear plain bearings in the 03 Design Series are self-aligning and offer great advantages in applications with parallel shafts. They are able to compensate for alignment and parallelism errors and should be used on the shaft located furthest from the drive mechanism.

The design provides a raised spherical area on the outer diameter of the aluminum adapter for self-alignment. Load capacity is the same as the fixed version.

Even in unfavorable edge-load conditions, the load is supported by the entire projected surface

In order to compensate for parallelism errors between two shafts, the outer diameter is designed to be smaller than the

housing bore diameter by 0.2 - 0.3 mm (depending on the size). With the use of mounted O-rings, these bearings have an elastic bearing seat.

### Compensation for angle errors

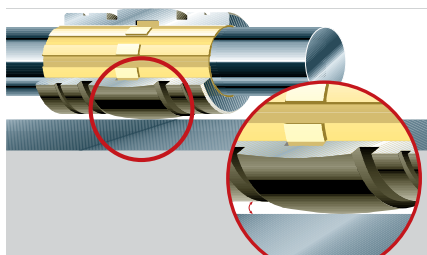
Series RJUI/RJUM/OJUI/OJUM-03  $\pm 0.5^\circ$

Series RJUM-06-LL/OJUM-06-LL  $\pm 3.5^\circ$

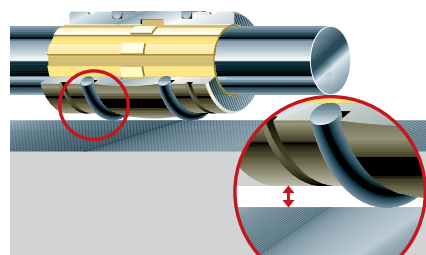
### Compensation of parallelism errors

Series RJUI/RJUM/OJUI/OJUM-03  $\pm 0.1$  mm (.004")

Series RJUM-06-LL/OJUM-06-LL  $\pm 3$  mm (.12")



The spherical DryLin® adapters can compensate for alignment errors. A hard-anodization protects the aluminum adapter from wear.



With built in clearances and the use of O-rings, the self-aligning DryLin® R bearings of the 03 Design Series can compensate for parallelism errors.



The self-aligning DryLin® R bearings of the 06 LL design series can compensate parallelism errors up to  $\pm .12$ " (3mm).