

igubal®

Polymer spherical bearings



... ■ ■ ■

...plastics

Tech up ... Cost down

For years the igus® motto has been "plastics for longer life®". By this we mean the production of innovative plastic products which reduce maintenance work, achieve technical improvements, at the same time as reducing costs and increasing service life, everything delivered immediately from stock. Our references from the practice show the proven employment from igubal® spherical bearings in a wide variety of applications.

Robotics chassis

To research technologies such as machine learning, engineer Josh Bowen has developed a robotics chassis. It drives autonomously over harsh, dirty terrain. One challenge was the robot axes, which must adjust independently of one another to the terrain height. For this, Bowen uses igubal® ball and socket joints. They ensure reliable, smooth operation - even in dusty or damp environments.

► www.igus.eu/igubal-applications

**Inspection trolley for seedlings**

Students at France's Institut catholique d'arts et métiers have developed an automated solution for manufacturers of agricultural machinery.

► www.igus.eu/manus-2021-seedling

**Race car with igubal® rod end bearings**

University students on the Arrabona Racing Team, based in Hungary, are building a race car that is to be especially reliable and lightweight.

► www.igus.eu/manus-2021-racecar

**Sun protection**

Arcora, a French company, is developing a system for moving sun protection fins on facades.

► www.igus.eu/manus-2021-bronze

**igubal® pillow block bearings in a catamaran**

Recreative Electric Vehicles, a shipyard in southern France, is building an electric catamaran that is 80% recyclable.

► www.igus.eu/manus-2021-catamaran

igubal® bearing elements | Product overview

... for high radial loads



New



New



Pillow block bearings with polymer housing:
P-KS-JEM-SP
► Page 938

Pillow block bearings with cast iron housing:
P-JEM-SP
► Page 939

Pillow block bearings with cost-effective metallic housing:
PP-JEM-SP
► Page 940

igubal® fixed flange bearings for supporting the centre or ends of shafts



Easy installation:
EFOM
► Page 946



For high radial loads:
EFSM
► Page 948



Universal and quick assembly, female thread:
GFSM-IG
► Page 950



Universal and quick assembly, female thread:
GFSM-AG
► Page 951

igubal® fixed flange bearings for supporting the centre or ends of shafts



High static load,
split housing:
KFSM-GT
► Page 952



For temperatures up to +200°C:
EFSM-HT
► Page 953



For temperatures up to +200°C:
EFOM-HT
► Page 954



Suitable for food contact:
EFOM-FC
► Page 955



With polymer housing:
FL-KS-JEM-SP
► Page 956



With polymer housing:
F-KS-JEM-SP
► Page 957



Compact fixed flange bearing:
FL208-30-KS
F208-30-KS
► Page 958



With cast iron housing:
FL-JEM-SP
► Page 960

igubal® spherical bearings



With cast iron housing:
F-JEM-SP
► Page 961



With cost-effective metallic housing:
PFL-JEM-SP
► Page 962



Standard,
easy to fit:
KGML
► Page 970



Easy to fit,
cost-effective:
KGML-LC
► Page 968



For extremely narrow
installation space:
KGML-SL
► Page 969



Cost-effective, selectable
spherical ball material:
EGLM-LC
► Page 971



Space-saving:
EGLM
► Page 972



FC spherical bearings:
EGLM-FC
► Page 973

igubal® clip bearings



Simply snap
into sheet metal:
ECLM
► Page 974



For high axial and
radial loads:
ECLM-HD
► Page 975



For tolerance compensation,
selectable spherical ball
material: EGFM-T
► Page 976



Clip into sheet metal, can be
assembled on both sides:
ZCLM
► Page 977

igubal® double joints and coupling joints



Robust plastic:
EGZM
► Page 978



Selectable materials,
individual dimensions:
KDGM
► Page 980



Selectable materials,
individual dimensions:
WDGM
► Page 982



Removable,
selectable materials:
WDGM-DE
► Page 984

igubal® spherical thrust bearings



Variable coupling joint for
dirty environments:
WDGM-FX
► Page 985



Crimped coupling joints
with clevis joints:
GDGM-V
► Page 986

New

New



Crimped
threaded inserts:
TDGM
► Page 987



Resistant to edge loads:
SAM
► Page 992

igubal® bearing elements | Product overview

igubal® spherical balls - different material options



Standard, low coefficient
of friction:

WKM/WEM

inch

► Page 997



Cost-effective, good wear
resistance:

RKM/REM

inch

► page 998



For temperatures
up to +250°C:

XKM/XEM

inch

► page 999



Low moisture absorption:

JKM/JEM

inch

► page 1000



Low moisture absorption:

JKM

► Page 1001



Low moisture absorption:

JKM-GT

► Page 1002



Low moisture absorption,
split design:

JEM-GT

► Page 1002



Cost-effective and low
total moisture absorption:

J4KM/J4EM

► Page 1003

igubal® spherical balls - different material options



Stainless steel spherical
ball:

EK

► Page 1004



For underwater
applications:

UWEM

► page 1005



Clearance-free,
pre-loaded:

J4VEM

► page 1006



For the food industry:

A181/FC180

► page 1007



Spherical insert bearings
for metallic bearing housings:

JEM/A180EM/A350EM/J3EM

► Page 1009



Cost-effective alternative
to machined options:

JEM-SP/J4EM-SP/A350EM-SP/J3EM-SP

inch

► Page 1010

igubal® accessories



Fixing collar,
galvanised steel:

SRM-ES

► Page 1012



Fixing collar,
polymer:

SRM-KS

► Page 1012



Ball stud,
Female thread:

GZRM-IG

► Page 1013



Ball stud,
Male thread:

GZRM-AG

► Page 1014



Adapter screws with
circlip:

PKRM/PKLM

► Page 1015



End caps for fixed flange bearings
with spherical insert bearings:

EC-208/EC-208-CLEAR

► Page 1016

Self-aligning maintenance-free spherical bearings made from high-performance polymers

igubal® is a system of self-aligning bearing elements completely made from plastic. igubal® puts a complete system of self-aligning bearings - rod end bearings, clevis joints, fixed flange bearings, spherical bearings and pillow block bearings - at the developer's fingertips.

Self-aligning bearings are easy to fit, adapt to all angular deviations and replace special housings in many cases.

With igubal®, the user can take advantage of all the benefits of high performance polymers. They can be used in dry operation and have excellent vibration dampening properties. They are resistant to dirt, can operate in liquids and even in chemicals and are completely resistant to corrosion.

The weight of the igubal® parts is approximately 80% lighter than comparable steel parts. Additional savings are cost-savings at the time of purchasing and during operation. igubal® bearings are also extremely cost-effective due to the elimination of maintenance and installation costs.

The installation space can also be reduced due to their small dimensions. igubal® self-aligning spherical bearings are made from a polymer housing for high strengths and a spherical ball made from maintenance-free self-lubricating high-performance polymers allowing low wear and long service life.



Picture 01: igus® test lab: More than 13,000 tribological tests (friction and wear) each year in 300 test rigs in the industry's largest laboratory (3,800m²). View inside igubal® test rigs.

The benefits of igubal®

- Especially cost-effective
- Maintenance-free
- Lubrication-free
- Insensitive to dust and dirt
- Corrosion-free
- Can be used in liquid media
- Vibration-dampening
- Spherical ball set in housings with very low clearance
- No ingress of dirt
- Lightweight
- Temperature resistance up to +200°C, depending on the material

igubal® spherical balls

In standard spherical bearings, the spherical ball is made of iglidur® W300 material, which is known for its low coefficient of friction in dry operation and extremely low tendency to stick-slip. This is especially important for low loads and very slow movements.

► More information about iglidur® W300, [page 175](#)

Taking advantage of its long experience in polymers and based on several tests, igus® decided in the last years to respond more precisely to the different applications and customer requests by developing spherical balls in other materials.

Further to the standard material iglidur® W300, spherical balls are now available in nine other materials presenting particular advantages:

- iglidur® X for high temperatures
- iglidur® J for low moisture absorption
- iglidur® J4 for low moisture absorption at lower costs
- iglidur® R as a low-cost alternative
- iglidur® UW for underwater applications
- iglidur® J4V as pre-loaded spherical ball
- iglidur® FC180, the detectable material
- iglidur® A350 for food applications
- iglidur® A181 for food applications

► Spherical balls, [page 993](#)

Do not hesitate to ask for technical support concerning the choice of the material.

igubal® housing

There are different housing materials available, each of them offering particular properties:

- Standard housings made from igumid® G, an extremely shock-resistant, long-fibre reinforced polymer. Temperatures from -30°C to +80°C
 - High temperature housings are made from iguton G. This material has a high chemical resistance and is suitable for temperatures from -40°C to +200°C.
 - Detectable housings made from RN246 material. Temperatures from -30°C to +80°C
 - Housings made from igumid® FC material suitable for food contact. This material is FDA and EU10/2011-compliant and suitable for temperatures from -30°C to +100°C
 - Zinc die-casting and stainless steel for metallic rod ends. Temperatures from -30°C to +80°C
 - Painted cast iron and galvanised steel for pillow block bearing and fixed flange bearings. Temperatures from -30°C to +80°C
- Material properties, [page 1190](#)

Application areas

igubal® bearing elements can be used without problems even in harsh environments. In moist or wet environments, the bearings are corrosion-free, and resistant to weak acids and alkalis. The operating temperatures range from -30°C to +200°C. The insensitivity to dirt should also be emphasised, because even under extreme soiling, the plain bearings of the igubal® bearing elements do not require a seal. This is true for fine dust as well as coarse dirt.

Detectable

Made from the special materials iglidur® FC180 for the spherical ball and igumid® FC for the housing, the parts of metal detectable igubal® polymer bearings can be verified as foreign particles with all common parameters used in the metal detection technology and thus ensure safe food.

► Material properties, [page 1186](#)

Loads

The load capacity of the maintenance-free igubal® bearing element parts is very high at normal ambient temperatures. igubal® bearings absorb high forces and weigh only one fifth of traditional, metal bearing housings. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel.

However, plastic specific properties, such as dependence on temperature and behaviour under long-term stress, must be taken into consideration when using igubal® bearings. The load capacity of the rod end should therefore be checked in a practical test, particularly if it will be used under continuous high loads and at elevated temperatures.

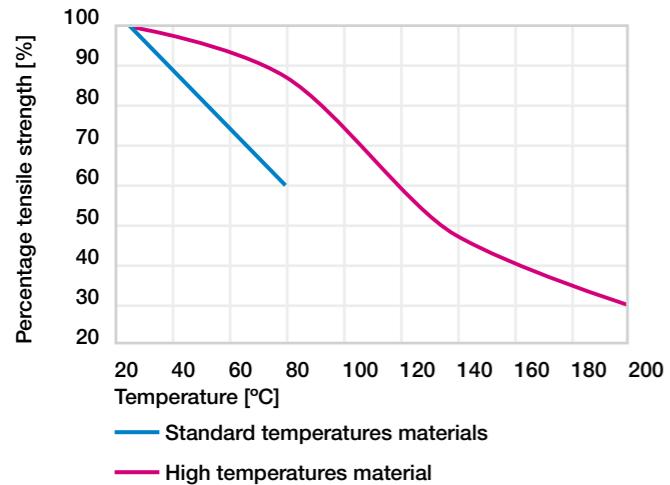


Diagram 01: Trends indicate the effect of temperature on the max. tensile strength of igubal® rod end bearings.

Coefficient of sliding friction and speed

One important advantage of igubal® spherical bearings is that rapid, shaft rotation takes place directly within the spherical portion, made of iglidur® W300. The advantage therefore lies in the plastic vs. steel relationship. Polymer produces lower friction and permits high speeds, even in dry operation. Taking the radial loads into account, maximum surface speeds up to 0.5m/s rotating can be attained.

By contrast, rotations of the shaft are supported directly in the inner diameter of the spherical portion. The maintenance-free igubal® bearing elements also permit linear movements of the shaft.

Application temperatures

igubal® standard bearing elements can be used in temperatures from -30°C to +80°C. The high temperatures versions can be used at continuous temperatures up to +200°C. Diagram 01 trends indicate the effect of temperature on the maximum tensile strength of igubal® rod end bearings.

igubal®	Application temperature		
	Standard	HT version	FC version
Minimum	-30°C	-40°C	-30°C
Max. long-term	+80°C	+200°C	+90°C
Maximum, short-term	+120°C	+240°C	+110°C

Table 01: Temperature limits of igubal® bearing elements

Thread type	Pitch [mm]
M2	0.40
M3	0.50
M4	0.70
M5	0.80
M6	1.00
M8	1.25
M10	1.50
M10 F	1.25
M12	1.75
M12 F	1.25
M14	2.00
M16	2.00
M16 F	1.50
M18	1.50
M20	1.50
M20 M20	2.50
M22	1.50
M24	2.00
M27	2.00
M30	2.00

Table 02: Thread pitches of igubal® rod ends and clevis joints

Chemical resistance of igubal® bearing elements

The spherical balls made from iglidur® W300 and the housing made from igumid® G are resistant to weak alkalis, weak acids and fuels, as well as all types of lubricants. The HT versions can be used for applications with a higher chemical demand. The moisture absorption of igubal® spherical bearings is about 1.3% by weight in normal climate. The saturation limit submerged in water is 6.5%. This must be taken into evaluation for applications. If a lower moisture absorption is essential, a look on to the different materials is helpful.

► Chemical table, page 1170

Check the inner diameter



Inadequate test equipment;
plug gauge too short



Wrong test equipment;
caliper



Tolerance test with plug gauge

Table 03: Chemical resistance of igubal® bearing elements

+ resistant 0 conditionally resistant – not resistant

All data given at room temperature [+20°C]

Radiation resistance

Self-aligning igubal® bearings are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV resistance

The corrosion resistance of igubal® bearings gives them special value for outside applications.

igubal® bearings are permanently resistant to UV radiation. A small change in colour (dark colouration) of the spherical ball due to UV radiation does not affect the mechanical, electrical or thermal properties.

Tolerances

igubal® bearing elements can be used with different tolerances according to each application. They are designed with a large bearing clearance in the standard product range, which enables a secure operation even under high peripheral speeds. The inner ring inner diameter has a tolerance of E10. The shaft tolerance should be manufactured between h6 and h9. The tolerances are provided in the table below. Please contact us in case you require lower or other bearing tolerances.

Nominal size [mm]	Tolerance	
	Plug gauge falls	Plug gauge sticks
to 3	x.01	x.05
> 3 to 6	x.02	x.07
> 6 to 10	x.02	x.08
> 10 to 18	x.03	x.10
> 18 to 30	x.04	x.12
> 30 to 50	x.05	x.15

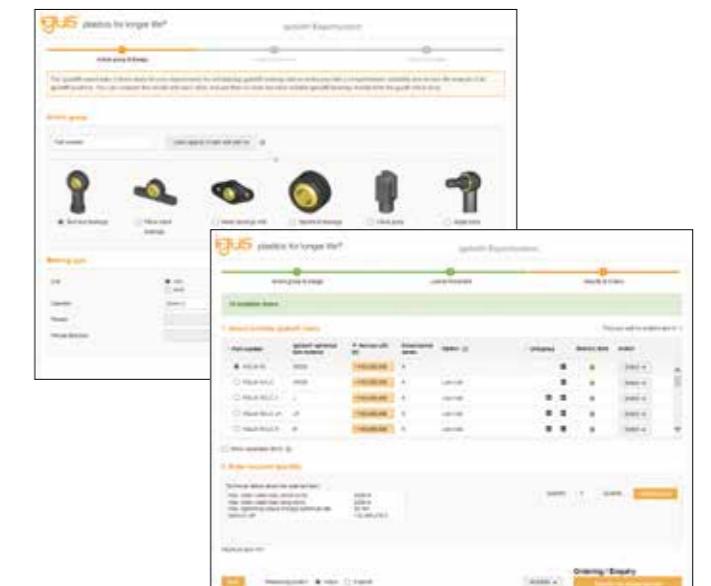
Table 04: Tolerances of inner diameter (spherical balls)

Service life calculation

The igubal® expert allows to check the suitability of igubal® bearings for every application. You can choose from different igubal® bearings and specific load (radial, axial or static, cyclic and dynamic).

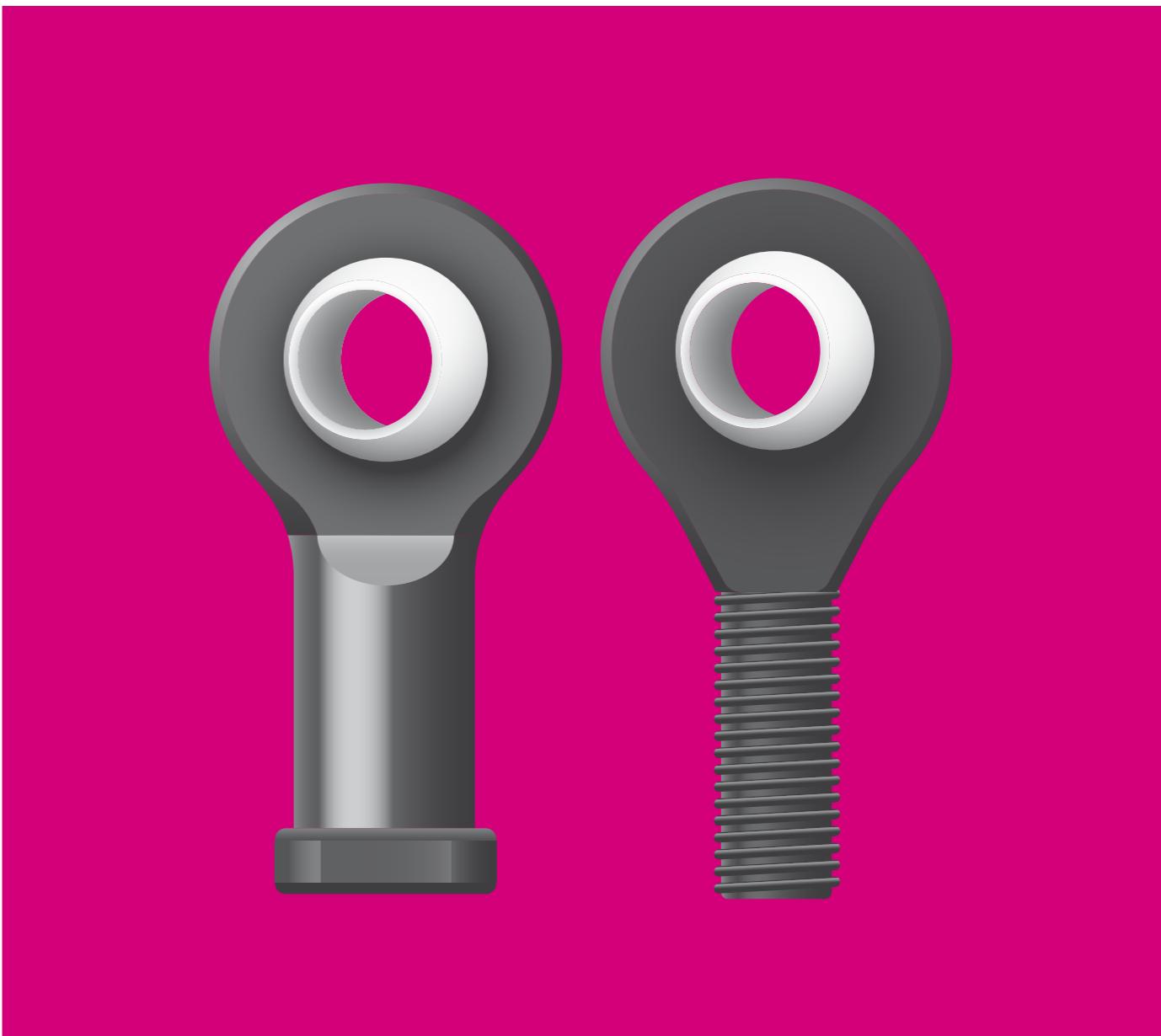
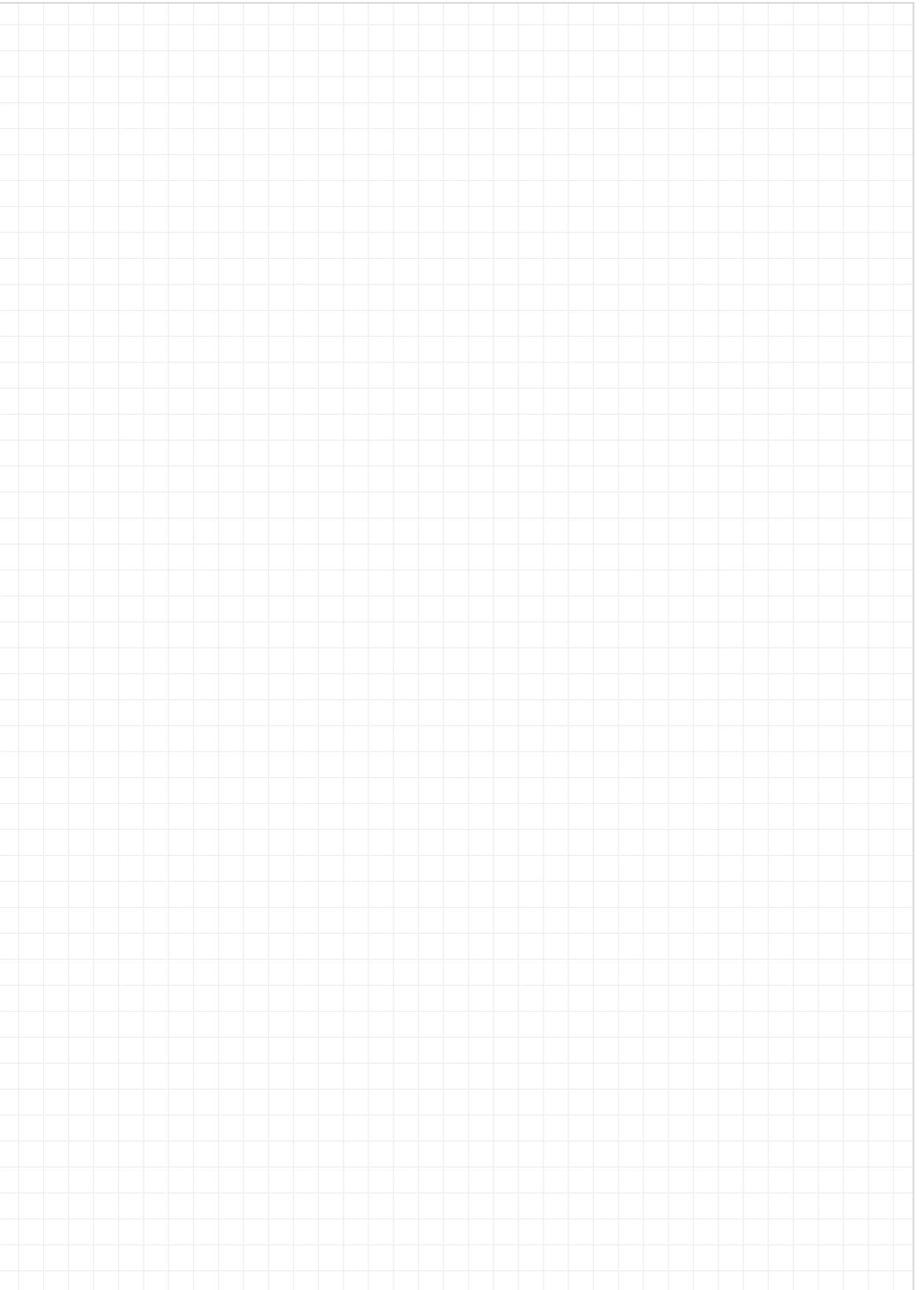
The expert system will calculate from these input data:

- The bearing wear
- The theoretical service life



igubal® expert system
www.igus.eu/igubal-expert

igubal® product finder
► www.igus.eu/igubal-finder



igubal® rod ends

Maintenance-free dry operation

High rigidity

Durable

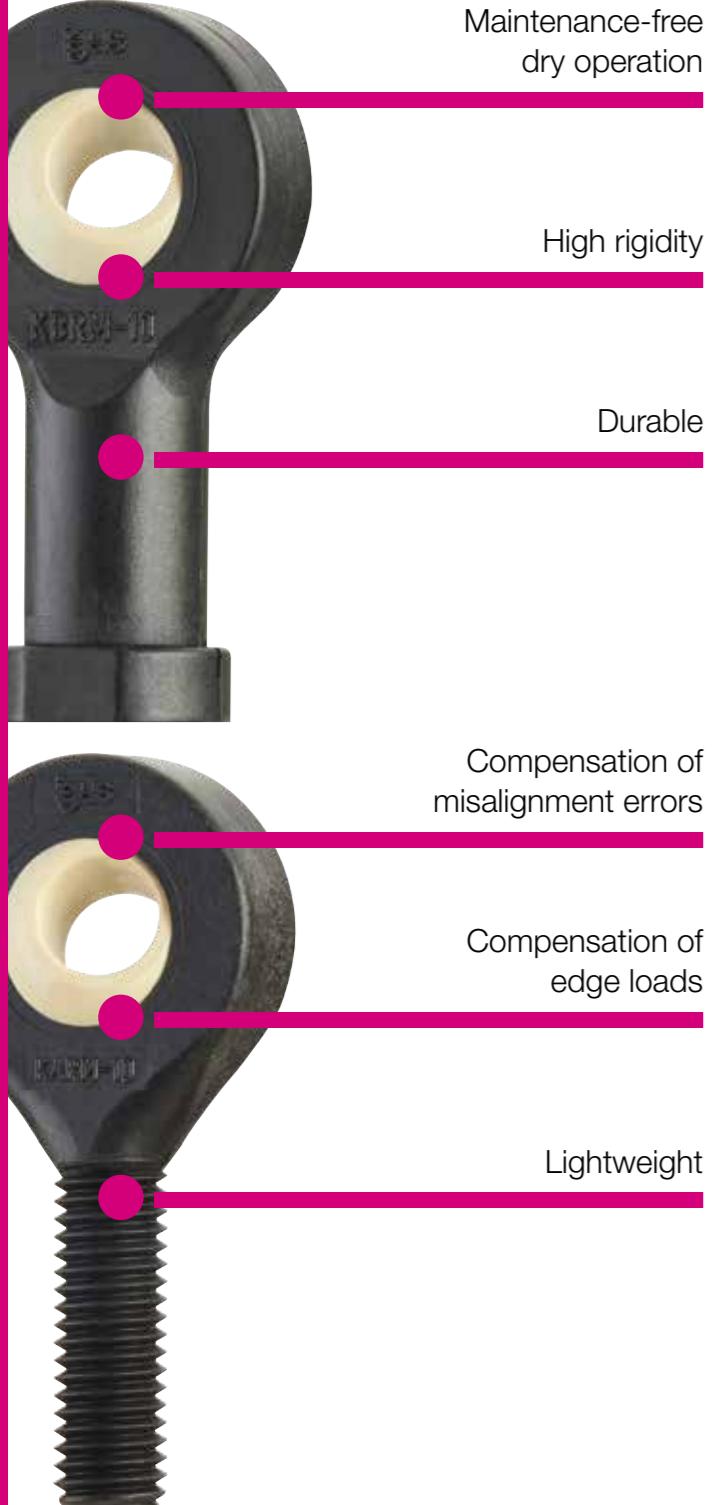
Compensation of misalignment

Compensation of edge loads

Lightweight



igubal® rod ends can also be used in rough environments. They are corrosion-resistant in humid environments and resistant to weak acids and media. Depending on the version (HT) the operation temperature is from -40°C to +200°C. Rod ends are also resistant to dirt and dust, they are also available as detectable version.



When do I take them?

- If you want to save weight
- For rotating, oscillating and linear movements
- If high-frequency oscillations/vibrations occur
- If silent operation is required
- If you need an electrically insulating part
- If corrosion resistance is required
- In combination with pneumatic cylinders and gas struts
- When chemical resistance is required
- If high rigidity is required
- If they should be detectable



When do I not take them?

- When temperatures are higher than +80°C
 - ▶ HT version, page 892-893
- If rotation speeds of more than 0.5 m/s are to be achieved
- When really high tensile and axial forces occur
- When applications must be implemented with hydraulic cylinders
- If diameters above 30 mm are required



Available from stock

Detailed information about delivery time online.



Price breaks online

No minimum order value. No minimum order quantity



Exoskeleton

The Jožef Stefan Institute in Slovenia is building an exoskeleton to physically assist warehouse workers with lifting. It must be lightweight to be successful. That is why the engineers are using lightweight, maintenance-free igubal® polymer plain bearings to connect the exoskeleton frame and iglidur® tribo-tape for several sliding surfaces.



Ornithopter

The ornithopter from the company citrsträume in Groß-Gerau has two flapping wings with the wingspan of an eagle (190cm), which generate the forward and upward thrust. To keep its weight as minimal as possible, the engineers rely on igubal® polymer rod end bearings (KBRM-03-MH) in the joints of the wings.



Mini car

IBR, a Brazilian company, is developing a petrol-driven mini car boasting 6.5 horsepower which will excite the kids. Because it is a recreational vehicle for children, all components must be as durable and low-maintenance as possible. That is why the design engineers are using iglidur® W300 rod ends (KBRM-12) in the steering rods, igubal® pillow block bearings (ESTM-08) in the front suspension and igubal® fixed flange bearings (EFOM-15) in the steering column.



Online product finder

► www.igus.eu/igubal-finder

Benefits

- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional K and E series, according to standard DIN ISO 12240
- Available with stainless steel sleeve for higher tightening torque

Product range

igubal® rod ends are available in the dimensional K and E series for shaft diameters of 2 to 30mm according to standard DIN ISO 12240

- Form A - with male thread and
- Form B - with female thread

Stainless steel sleeve

The dimensional K and partially E series are available in imperial dimensions, as well as a special version containing a stainless steel sleeve in the spherical ball. This allows a significantly higher tightening torque than for the standard polymer race. Please contact us if you need other dimensions.

Loads

igubal® rod ends handle high loads at ambient temperatures, have excellent dampening properties and weigh only a fifth of traditional metallic bearing housings. In applications with high continuous loads and high temperatures, the load capacity of igubal® rod ends should be tested in an experiment that simulates the application.

► www.igus.eu/igubal-finder

Coefficient of sliding friction and speed

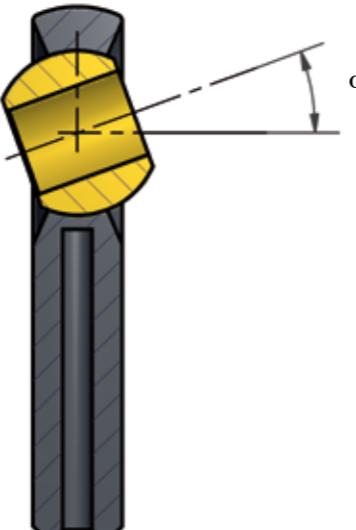
Shaft rotation takes place directly within the spherical ball made of iglidur® W300. The advantage therefore lies in the plastic vs. steel relationship. Polymer produces lower friction and permits high speeds, even in dry operation. Taking the radial loads into account, maximum surface speeds up to 0.5m/s rotating can be attained. The maintenance-free igubal® rod end bearings permit linear and oscillating movements of the shaft.

Temperatures

The igubal® rod ends can be used in temperatures from -30°C up to +80°C. The igubal® rod ends made from HT material are suitable for temperatures up to +200°C (E series, female and male threads).

Tolerances

igubal® rod ends can be used with different tolerances according to each application. They are designed with a large bearing clearance in the standard product range, which enables a secure operation even under high peripheral speeds. The hole of the spherical ball is produced to a standard tolerance range E10. The shaft tolerance should be manufactured between h6 and h9. All values and tolerances according to ISO 2768-m. Please contact us in case you require lower or other bearing tolerances.

pivot angle**igubal® rod end bearings with female thread**

Selectable spherical ball material	Easy assembly	Classic design	Space-saving	For temperatures up to +200°C
K series ► Page 878	K series ► Page 880	K series ► From page 882	E series ► Page 888	E series ► Page 892
Suitable for food contact	Suitable for food contact	Metallic housing		New
E series ► Page 894	K series ► Page 894	K series ► Page 896		

igubal® rod end bearings with male thread

For higher loads	Classic design	Space-saving	For temperatures up to +200°C	Metallic housing
K series ► Page 884	K series ► From page 886	E series ► From page 890	E series ► Page 893	K series ► From page 897

igubal® angled and in-line ball and socket joints

Angled ball and socket joints	Angled ball and socket joints, low-cost	Easy assembly and disassembly	igubal® accessories for rod ends
► Page 898	► Page 899	► Page 900	Clevis joints with clevis pin and circlip
In-line ball and socket joint	In-line ball and socket joints, low-cost		Clevis joints with spring-loaded fixing clip
► Page 901	► Page 902		E series ► Page 912

Rod ends with female thread:
KCRM and KCLM



- Successor model of KBRM
 - New design resists dirt
 - Spherical ball is clipped in
 - Choice of iglidur® spherical ball materials
 - Compensation of misalignment errors
 - Lightweight
 - Absolute corrosion resistance
 - Available with stainless steel sleeve for higher tightening torque
 - Dimensional series K following DIN ISO 12240
 - Adapter screw with circlip available
- Accessories, [page 1015](#)

Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball without stainless steel sleeve	Max. tightening torque through ball with stainless steel sleeve	Weight
	Short-term	Long-term	Short-term	Long-term					
KCRM-05	1,200	600	180	90	7	1.00	5	12	4.0
KCRM-06	1,400	700	300	150	8	0.75	10	15	4.2
KCRM-08	2,100	1,050	500	250	11	2.00	12	40	7.6
KCRM-10	3,100	1,550	800	400	13	3.00	20	50	12.8
KCRM-10-F	3,100	1,550	800	400	13	3.00	20	50	12.8
KCRM-12	3,560	1,780	750	375	15	15.0	30	70	19.0
KCRM-12-F	3,560	1,780	750	375	15	15.0	30	70	19.0
KCRM-16	3,800	1,900	800	400	19	15.0	40	110	34.0
KCRM-16-F	3,800	1,900	800	400	19	15.0	40	110	34.0
KCRM-20	4,550	2,275	400	200	22	20.0	55	200	55.0
KCRM-20-M20	4,550	2,275	400	200	22	20.0	55	200	55.0

Alternative spherical ball materials ► [Page 993](#)



RKM:
Low-cost



JKM: Low
moisture
absorption



WKM-MH:
Standard spherical
ball with stainless
steel sleeve

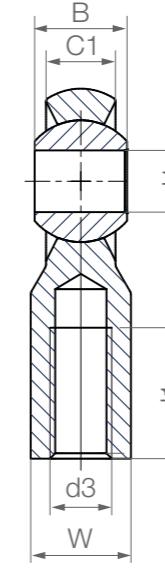
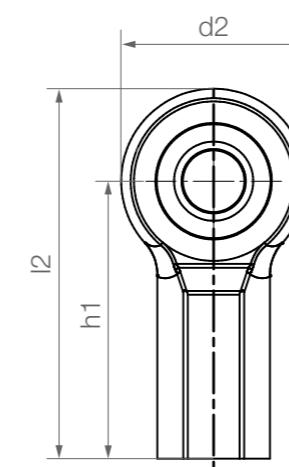


J4KM:
Low-cost and low
moisture absorption

Rod ends with female thread:
KCRM and KCLM



Type	Size	Options
K C □ M- 06 - MH	Housing (female thread) Thread Metric	Inner Ø [mm]



Options:

Thread	Spherical ball material
L : Left-hand thread	Blank : iglidur® W300
R : Right-hand thread	R : iglidur® R
Add-on:	J : iglidur® J
MH : With stainless steel sleeve	J4 : iglidur® J4
	EK : Stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1 E10	d2	d3	W	B		C1	h1	l1	l2	Max. pivot angle
					without stainless steel sleeve	with stainless steel sleeve +0.2					
KCRM-05	5	18	M5	SW9	8	8.2	6.0	27	12.0	36	43°
KCRM-06	6	20	M6	SW10	9	9.2	7.0	30	13.5	40	40°
KCRM-08	8	24	M8	SW13	12	12.2	9.0	36	17.0	48	35°
KCRM-10	10	30	M10	SW15	14	14.2	10.5	43	22.0	58	35°
KCRM-10-F	10	30	M10 x 1.25	SW15	14	14.2	10.5	43	22.0	58	35°
KCRM-12	12	34	M12	SW17	16	16.2	12.0	50	25.0	67	35°
KCRM-12-F	12	34	M12 x 1.25	SW17	16	16.2	12.0	50	25.0	67	35°
KCRM-16	16	42	M16	SW20	21	21.2	15.0	64	30.0	85	35°
KCRM-16-F	16	42	M16 x 1.5	SW20	21	21.2	15.0	64	30.0	85	35°
KCRM-20	20	50	M20 x 1.5	SW24	25	25.2	18.0	77	35.0	102	35°
KCRM-20-M20	20	50	M20 x 2.5	SW24	25	25.2	18.0	77	35.0	102	35°

Rod ends can be ordered in metric dimensions **with stainless steel sleeve** with the addition of **MH** after the part numbers listed here. Example: KCRM-10-MH (Inner Ø: 10mm).

For another spherical bearing material than iglidur® W300, please add "J" to the part number. Example: KCRM-05-J.

Alternative spherical ball materials ► [Page 993](#)



EK:
Stainless steel
spherical ball

Rod ends, female thread; 2nd generation:
KBRM CL and KBLM CL



Online service life calculation
► www.igus.eu/igubal-expert

- Available with stainless steel sleeve for higher tightening torque
- Dimensional series K following DIN ISO 12240
- Adapter screw with circlip available
- ▶ Accessories, [page 1015](#)



Simple assembly due to the hexagonal body and the integrated lock nut

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]				
KB□M-06-CL	1,400	700	300	150	8	0.75	10	4.5
KB□M-08-CL	2,100	1,050	500	250	11	2	12	8.6
KB□M-10-CL	3,100	1,550	800	400	13	3	20	14.1

Alternative spherical ball materials ► [Page 993](#)



RKM:
Low-cost



JKM: Low
moisture
absorption



WKM-MH:
Standard spherical
ball with stainless
steel sleeve

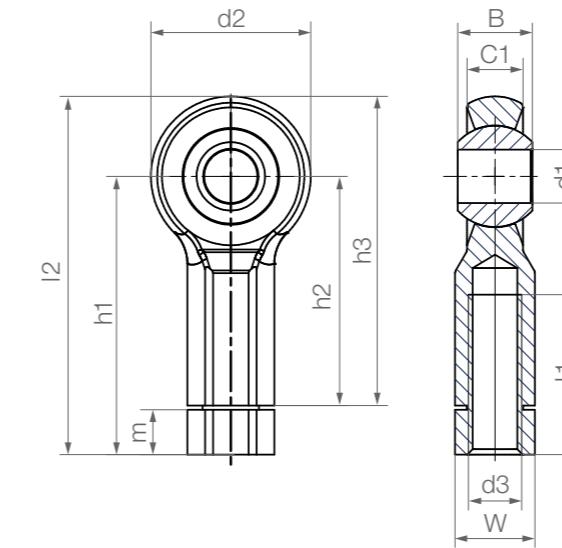


J4KM:
Low-cost and low
moisture absorption

Rod ends, female thread; 2nd generation:
KBRM CL and KBLM CL



Order key



Type	Size	Version
K B □ M- 06 -CL -MH		
K series	Housing (female thread)	
	Thread	
	Metric	
	Inner Ø [mm]	2nd generation

Options:

Thread
L : Left-hand thread
R : Right-hand thread
Add-on:
MH : With stainless steel sleeve

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4

Dimensions [mm]

Part No.	d1 E10	d2	d3	W	B		C1	h3	h1	h2	I1	I2	m	Max. pivot angle
					without stainless steel sleeve	with stainless steel sleeve +0.2								
KB□M-06-CL	6	20	M6	SW10	9	9.2	7	40	36.5	30	20	46.5	5.7	40°
KB□M-08-CL	8	24	M8	SW13	12	12.2	9	48	44.3	36	25	56.3	7.5	35°
KB□M-10-CL	10	30	M10	SW15	14	14.2	10.5	58	52.2	43	30	67.2	8.4	35°

Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of **MH** after the part numbers listed here. Example: KBRM-10-CL-**MH** (Inner Ø: 10mm).

For another spherical bearing material than iglidur® W300, please add "J" to the part number. Example: KBRM-10-CL-J

Rod ends with female thread: KBRM and KBLM



Standard design

Stainless steel sleeve
version (MH)

- Predecessor model of KCRM
- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K following DIN ISO 12240
- Available with stainless steel sleeve for higher tightening torque
- Adapter screw with circlip available

► Accessories, page 1015

Online service life calculation
► www.igus.eu/igubal-expert

Technical data

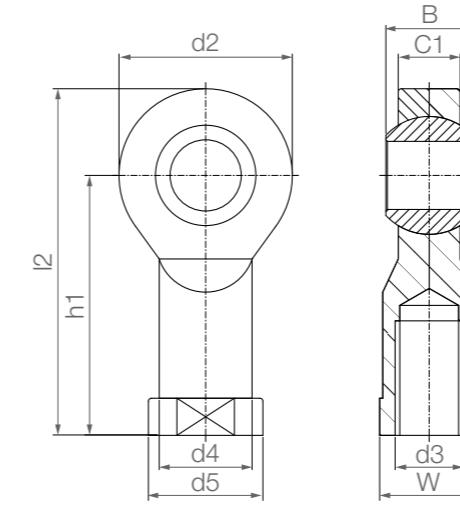
Part No.	Max. static tensile strain		Max. static axial load		Min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]			Female thread [Nm]	without stainless steel sleeve [Nm]	
KB□M-02	200	100	50	25	4	0.30	1	—	0.4
KB□M-03	800	400	100	50	5	0.50	2	4	2.7
KB□M-05-M4	1,000	500	250	125	7	0.75	5	12	3.5
KB□M-05	1,000	500	250	125	7	1.00	5	12	3.4
KB□M-06	1,400	700	400	200	8	1.50	10	15	4.7
KB□M-08	2,100	1,050	700	350	11	5.00	12	40	8.6
KB□M-10	3,100	1,550	800	400	13	15.00	20	50	14.6
KB□M-10-F	3,100	1,550	800	400	13	6.00	20	50	14.6
KB□M-12 ²⁹⁾	3,600	1,800	900	450	15	20.00	30	70	22.0
KB□M-12-F	3,600	1,800	900	450	15	15.00	30	70	22.0
KB□M-14	4,000	2,000	1,000	500	17	25.00	35	75	30.9
KB□M-14-F	4,000	2,000	1,000	500	17	25.00	35	75	30.9
KB□M-16	4,200	2,100	1,300	650	19	30.00	40	110	39.6
KB□M-16-F	4,200	2,100	1,300	650	19	27.50	40	110	39.6
KB□M-18	4,600	2,300	1,600	800	21	45.00	45	150	55.0
KB□M-20	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KB□M-20-M20	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KB□M-22	7,000	3,500	2,200	1,100	25	75.00	60	—	94.8
KB□M-25	8,500	4,250	2,300	1,150	28	120.00	60	—	119.8
KB□M-30	10,500	5,250	2,500	1,250	34	135.00	60	—	177.0
KB□M-30-M27x2	10,500	5,250	2,500	1,250	34	135.00	60	—	189.6

²⁹⁾ Integrated lock nut. Drawing as for KCRM, page 879

Rod ends with female thread: KBRM and KBLM



Order key



Type	Size	Options
K B □ M- 02 - MH		

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
MH : With stainless steel sleeve
F : Fine thread

Material:
Housing: igumid® G ► Page 1190
Spherical ball: iglidur® W300 ► Page 175

Imperial dimensions available
► Page 1154

Dimensions [mm]

Part No.	d1	d2	d3	d4	d5	C1	B	h1	I1	I2	W	Max. pivot angle
KB□M-02	2	9	M2	4.0	4.6	3.0	4	—	12.5	6	17	SW4 30°
KB□M-03	3	13	M3	6.5	8.0	4.5	6	6.2	18.5	8	25	SW6 30°
KB□M-05-M4	5	18	M4	9.0	12.0	6.0	8	8.2	27	10	36	SW9 30°
KB□M-05	5	18	M5	9.0	12.0	6.0	8	8.2	27	10	36	SW9 30°
KB□M-06	6	20	M6	10.0	13.0	7.0	9	9.2	30	12	40	SW11 29°
KB□M-08	8	24	M8	13.0	16.0	9.0	12	12.2	36	16	48	SW14 25°
KB□M-10	10	30	M10	15.0	19.0	10.5	14	14.2	43	20	58	SW17 25°
KB□M-10-F	10	30	M10 x 1.25	15.0	19.0	10.5	14	14.2	43	20	58	SW17 25°
KB□M-12	12	34	M12	—	—	12.0	16	16.2	50	25	67	SW17 25°
KB□M-12-F	12	34	M12 x 1.25	18.0	22.0	12.0	16	16.2	50	22	67	SW19 25°
KB□M-14	14	38	M14	20.0	25.0	13.5	19	19.2	57	25	76	SW22 25°
KB□M-14-F	14	38	M14 x 1.5	20.0	25.0	13.5	19	19.2	57	25	76	SW22 25°
KB□M-16	16	42	M16	22.0	27.0	15.0	21	21.2	64	28	85	SW22 23°
KB□M-16-F	16	42	M16 x 1.5	22.0	27.0	15.0	21	21.2	64	28	85	SW22 23°
KB□M-18	18	46	M18 x 1.5	25.0	31.0	16.5	23	23.2	71	32	94	SW27 23°
KB□M-20	20	50	M20 x 1.5	28.0	34.0	18.0	25	25.2	77	33	102	SW30 23°
KB□M-20-M20	20	50	M20 x 2.5	28.0	34.0	18.0	25	25.2	77	33	102	SW30 23°
KB□M-22	22	56	M22 x 1.5	30.0	37.0	20.0	28	—	84	37	112	SW32 22°
KB□M-25	25	60	M24 x 2.0	32.0	41.0	22.0	31	—	94	42	124	SW36 22°
KB□M-30	30	70	M30 x 2.0	37.0	50.0	25.0	37	—	110	50	145	SW41 22°
KB□M-30-M27x2	30	70	M27 x 2.0	37.0	50.0	25.0	37	—	110	50	145	SW41 22°

Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of MH after the part numbers listed here. Example: KBRM-10-MH (Inner Ø: 10mm).

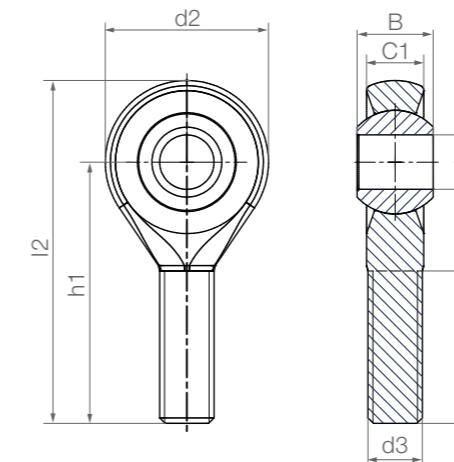
Rod ends, male thread; 2nd generation:
KARM CL



- New design resists dirt
 - Compensation of misalignment errors
 - Lightweight
 - Absolute corrosion resistance
 - Available with stainless steel sleeve for higher tightening torque
 - Dimensional series K following DIN ISO 12240
 - Adapter screw with circlip available
- Accessories, [page 1015](#)



Order key



Type	Size	Version
K A □ M- 06 -CL - MH		
K series	Housing (male thread)	
	Thread	
	Metric	
	Inner Ø [mm]	2nd generation

Options:

Thread	Spherical ball material
L : Left-hand thread	Blank : iglidur® W300
R : Right-hand thread	R : iglidur® R
Add-on:	J : iglidur® J
MH : With stainless steel sleeve	J4 : iglidur® J4
	EK : Stainless steel (AISI 303)

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term	Long-term	Short-term	Long-term			Thread	Male thread	
	[N]	[N]	[N]	[N]			without stainless steel sleeve	with stainless steel sleeve	
KA□M-05-CL	800	400	80	40	13	0.4	5	12	2.3
KA□M-06-CL	1,000	500	100	50	15	0.5	10	15	3.5
KA□M-08-CL	1,700	850	200	100	18	2.0	12	40	6.2
KA□M-10-CL	2,500	1,250	300	150	20	5.0	20	50	11.2
KA□M-12-CL	2,700	1,350	400	200	22	6.0	30	70	15.6

Dimensions [mm]

Part No.	d1 E10	d2	d3	C1	B		h1	l1	l2	Max. pivot angle
					without stainless steel sleeve	with stainless steel sleeve +0.2				
KA□M-05-CL	5	18	M5	6.0	8	8.2	33	19	42	43°
KA□M-06-CL	6	20	M6	7.0	9	9.2	36	21	46	40°
KA□M-08-CL	8	24	M8	9.0	12	12.2	42	25	55	35°
KA□M-10-CL	10	30	M10	10.5	14	14.2	48	28	63	35°
KA□M-12-CL	12	34	M12	12.0	16	16.2	54	32	71	35°

Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of **MH** after the part numbers listed here. Example: KARM-10-CL-MH (Inner Ø: 10mm).

For another spherical bearing material than iglidur® W300, please add "J" to the part number. Example: KARM-10-CL-J.

Alternative spherical ball materials ► Page 993



RKM:
Low-cost



JKM: Low
moisture
absorption



WKM-MH:
Standard spherical
ball with stainless
steel sleeve



J4KM:
Low-cost and low
moisture absorption

Alternative spherical ball materials ► Page 993



EK:
Stainless steel
spherical ball

Rod ends with male thread:
KARM and KALM



Standard design

Stainless steel sleeve
version (MH)

- Predecessor model of KARM-CL
 - Maintenance-free dry operation
 - High rigidity
 - Very high durability under alternating loads
 - Compensation of misalignment errors
 - Compensation of edge loads
 - Resistant to dirt, dust and lint
 - Resistant to corrosion and chemicals
 - Vibration-dampening
 - Suitable for rotating, oscillating and linear movements
 - Lightweight
 - Dimensional series K following DIN ISO 12240
 - Available with stainless steel sleeve for higher tightening torque
 - Adapter screw with circlip available
- Accessories, page 1015

Online service life calculation
► www.igus.eu/igubal-expert

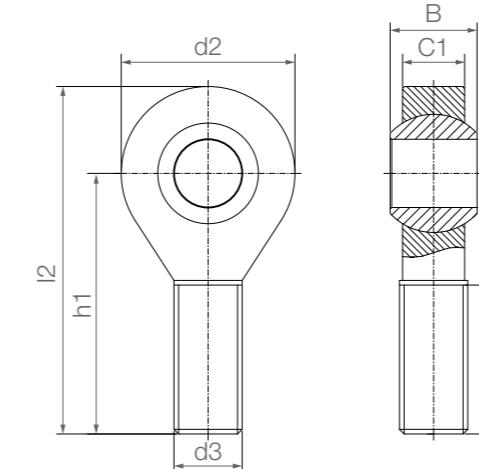
Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth Threads	Max. tightening torque Male thread	Max. tightening torque through ball		Weight [g]
	Short-term	Long-term	Short-term	Long-term			without stainless steel sleeve	with stainless steel sleeve	
	[N]	[N]	[N]	[N]			[mm]	[Nm]	
KAM-05	800	400	80	40	13	0.4	5	12	2.7
KAM-06	1,000	500	100	50	15	0.5	10	15	3.9
KAM-08	1,700	850	200	100	18	2.0	12	40	7.1
KAM-10	2,500	1,250	300	150	20	5.0	20	50	12.5
KAM-10-F	2,500	1,250	300	150	20	3.0	20	50	12.5
KAM-12	3,400	1,700	400	200	22	6.0	30	70	18.0
KAM-12-F	3,400	1,700	400	200	22	6.0	30	70	18.0
KAM-14	3,400	1,700	700	350	25	12.0	35	75	25.0
KAM-16	3,900	1,950	800	400	26	17.0	40	110	34.0
KAM-16-F	3,900	1,950	800	400	26	17.0	40	110	34.0
KAM-18	4,200	2,100	1,000	500	29	20.0	45	150	45.9
KAM-20	6,000	3,000	1,300	650	32	25.0	55	200	58.0
KAM-20-M20	6,000	3,000	1,300	650	32	25.0	55	200	58.0
KAM-22	7,200	3,600	1,500	750	34	25.0	60	—	86.2
KAM-25	7,500	3,750	1,900	950	39	45.0	65	—	99.1
KAM-30	8,800	4,400	2,300	1,150	46	85.0	70	—	160.4

Rod ends with male thread:
KARM and KALM



Type	Size	Options
K A □ M- 05 - MH		
K series	Housing (male thread)	
	Thread	
	Metric	
	Inner Ø [mm]	



Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
MH : With stainless steel sleeve
F : Fine thread

Material:
Housing: igumid® G ► Page 1190
Spherical ball: iglidur® W300 ► Page 175

Imperial dimensions available
► Page 1153

Dimensions [mm]

Part No.	d1 E10	d2	d3	C1	B		h1	l1	l2	Max. pivot angle
					without stainless steel sleeve	with stainless steel sleeve +0.2				
KAM-05	5	18	M5	6.0	8	8.2	33	19	42	30°
KAM-06	6	20	M6	7.0	9	9.2	36	21	46	29°
KAM-08	8	24	M8	9.0	12	12.2	42	25	55	25°
KAM-10	10	30	M10	10.5	14	14.2	48	28	63	25°
KAM-10-F	10	30	M10 x 1.25	10.5	14	14.2	48	28	63	25°
KAM-12	12	34	M12	12.0	16	16.2	54	32	71	25°
KAM-12-F	12	34	M12 x 1.25	12.0	16	16.2	54	32	71	25°
KAM-14	14	38	M14	13.5	19	19.2	61	36	79	25°
KAM-16	16	42	M16	15.0	21	21.2	66	37	88	23°
KAM-16-F	16	42	M16 x 1.5	15.0	21	21.2	66	37	88	23°
KAM-18	18	46	M18 x 1.5	16.5	23	23.2	72	41	96	23°
KAM-20	20	50	M20 x 1.5	18.0	25	25.2	78	45	104	23°
KAM-20-M20	20	50	M20 x 2.5	18.0	25	25.2	78	45	104	23°
KAM-22	22	56	M22 x 1.5	20.0	28	—	84	48	112	22°
KAM-25	25	61	M24 x 2.0	22.0	31	—	95	55	126	22°
KAM-30	30	71	M30 x 2.0	25.0	37	—	112	66	147	22°

Rod ends can be ordered in metric dimensions **with stainless steel sleeve** with the addition of **MH** after the part numbers listed here. Example: KAM-10-MH (Inner Ø: 10mm).

Rod ends with female thread:
EBRM and EBLM



- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240
- For temperatures up to +200°C we recommend EBRM-HT and EBLM-HT ► Page 892
- Version for contact with food ► Page 894

Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term				
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EB□M-04 ¹⁷⁾	800	400	100	50	7	0.4	2.0	1.8
EB□M-05	1,300	650	150	75	8	0.5	2.0	3.2
EB□M-06	1,500	750	200	100	8	1.5	2.5	4.0
EB□M-08	2,000	1,000	450	225	11	5.0	7.0	6.9
EB□M-10	2,300	1,150	500	250	13	15.0	14.0	11.2
EB□M-10-F	2,300	1,150	500	250	13	6.0	14.0	11.2
EB□M-12	3,300	1,650	550	275	14	20.0	25.0	17.1
EB□M-12-F	3,300	1,650	550	275	14	15.0	25.0	17.1
EB□M-15	4,800	2,400	800	400	18	25.0	30.0	28.9
EB□M-16 ¹⁷⁾	5,000	2,500	850	425	18	20.0	32.0	32.6
EB□M-16-F ¹⁷⁾	5,000	2,500	850	425	18	15.0	32.0	32.6
EB□M-17	5,300	2,650	1,100	550	19	30.0	35.0	42.4
EB□M-17-F	5,300	2,650	1,100	550	19	27.5	35.0	42.4
EB□M-20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EB□M-20-M20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EB□M-25	10,000	5,000	2,600	1,300	27	115.0	55.0	125.9
EB□M-30	10,500	5,250	3,000	1,500	33	130.0	70.0	184.1

Alternative spherical ball materials ► Page 993



J4VEM:
Clearance-free,
pre-loaded



JEM: Low
moisture
absorption



REM:
Low-cost

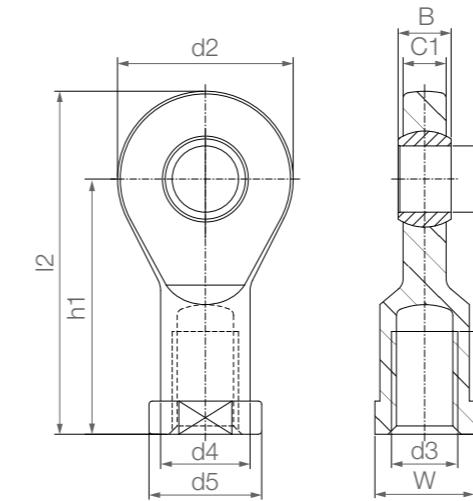


J4EM:
Low-cost and low
moisture absorption

Rod ends with female thread:
EBRM and EBLM



Order key



Material:

Housing: igumid® G ► Page 1190

Spherical ball: iglidur® W300 ► Page 175

Type	Size
E series	Housing (female thread)
	Thread
	Metric
	Inner Ø [mm]

Options:
Thread
L : Left-hand thread
R : Right-hand thread
Add-on:
F : Fine thread

Spherical ball material

Blank :	iglidur® J4
R :	iglidur® R
J :	iglidur® J
	(AISI 303)

Dimensions [mm]

Part No.	d1 E10	d2	d3	d4	d5	C1	B	h1	I1	I2	W	Max. pivot angle
EB□M-04 ¹⁷⁾	4	15	M4	–	–	3.5	5	22.5	9.5	30.0	SW8	33°
EB□M-05	5	19	M5	9.0	11	4.4	6	30	12.0	39.5	SW9	33°
EB□M-06	6	21	M6	11.0	13	4.4	6	30	12.0	40.5	SW11	27°
EB□M-08	8	24	M8	13.0	16	6.0	8	36	14.0	48.0	SW14	24°
EB□M-10	10	29	M10	15.0	19	7.0	9	43	18.0	57.5	SW17	24°
EB□M-10-F	10	29	M10 x 1.25	15.0	19	7.0	9	43	18.0	57.5	SW17	24°
EB□M-12	12	34	M12	18.0	22	8.0	10	50	20.0	67.0	SW19	21°
EB□M-12-F	12	34	M12 x 1.25	18.0	22	8.0	10	50	20.0	67.0	SW19	21°
EB□M-15	15	40	M14	21.0	26	10.0	12	61	26.0	81.0	SW22	21°
EB□M-16 ¹⁷⁾	16	43	M16	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EB□M-16-F ¹⁷⁾	16	43	M16 x 1.5	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EB□M-17	17	46	M16	24.0	30	11.0	14	67	27.0	90.0	SW27	18°
EB□M-17-F	17	46	M16 x 1.5	24.0	30	11.0	14	67	27.0	90.0	SW27	18°
EB□M-20	20	53	M20 x 1.5	27.0	34	13.0	16	77	31.0	103.5	SW30	16°
EB□M-20-M20	20	53	M20 x 2.5	27.0	34	13.0	16	77	31.0	103.5	SW30	16°
EB□M-25	25	64	M24 x 2.0	34.0	41	17.0	20	94	38.0	126.5	SW36	16°
EB□M-30	30	73	M30 x 2.0	41.0	48	19.0	22	110	47.0	146.5	SW41	13°

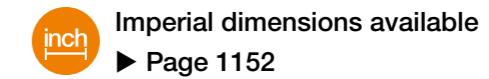
¹⁷⁾ Special design with hexagonal foot

For another spherical bearing material than iglidur® W300, please add "J" to the part number. Example: EBRM-05-J.

Alternative spherical ball materials ► Page 993



EK:
Stainless steel
spherical ball



Imperial dimensions available
► Page 1152

Rod ends with male thread:
EARM and EALM



- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240
- For temperatures up to +200°C we recommend EARM-HT and EALM-HT ► Page 893

Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]				
EAM-05	550	275	50	25	14	0.4	2.0	2.2
EAM-06	850	425	80	40	14	0.5	2.5	2.7
EAM-08	1,600	800	160	80	17	2.0	7.0	5.1
EAM-10	2,600	1,300	250	125	19	5.0	14.0	8.4
EAM-10-F	2,600	1,300	250	125	19	3.0	14.0	8.4
EAM-12	3,100	1,550	300	150	20	6.0	25.0	14.3
EAM-12-F	3,100	1,550	300	150	20	6.0	25.0	14.3
EAM-15	3,400	1,700	600	300	24	12.5	30.0	21.1
EAM-17	3,600	1,800	900	450	26	17.5	35.0	30.2
EAM-17-F	3,600	1,800	900	450	26	21.0	35.0	30.2
EAM-20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EAM-20-M20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EAM-25	7,000	3,500	1,000	500	37	45.0	55.0	94.8
EAM-30	7,000	3,500	2,000	1,000	46	85.0	70.0	156.4

Alternative spherical ball materials ► Page 993



J4VEM:
Clearance-free,
pre-loaded



JEM: Low
moisture
absorption



REM:
Low-cost

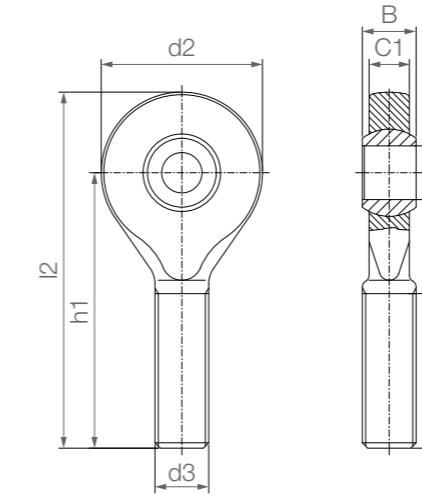


J4EM:
Low-cost and low
moisture absorption

Rod ends with male thread:
EARM and EALM



Type	Size
E series	Housing (male thread) Thread Metric



Material:
Housing: igumid® G ► Page 1190
Spherical ball: iglidur® W300 ► Page 175

Options:

Thread
L : Left-hand thread
R : Right-hand thread

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V
EK : Stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1 E10	d2	d3	C1	B	h1	l1	l2	Max. pivot angle
EAM-05	5	19	M5	4.4	6	36.0	20	45.5	33°
EAM-06	6	21	M6	4.4	6	36.0	20	46.5	27°
EAM-08	8	24	M8	6.0	8	41.0	24	53.0	24°
EAM-10	10	29	M10	7.0	9	47.5	27	62.0	24°
EAM-10-F	10	29	M10 x 1.25	7.0	9	47.5	27	62.0	24°
EAM-12	12	34	M12	8.0	10	54.0	29	71.0	21°
EAM-12-F	12	34	M12 x 1.25	8.0	10	54.0	29	71.0	21°
EAM-15	15	40	M14	10.0	12	63.0	34	83.0	21°
EAM-17	17	46	M16	11.0	14	69.0	37	92.0	18°
EAM-17-F	17	46	M16 x 1.5	11.0	14	69.0	37	92.0	18°
EAM-20	20	53	M20 x 1.5	13.0	16	80.0	43	106.5	16°
EAM-20-M20	20	53	M20 x 2.5	13.0	16	80.0	43	106.5	16°
EAM-25	25	64	M24 x 2.0	17.0	20	97.0	53	129.0	16°
EAM-30	30	73	M30 x 2.0	19.0	22	113.0	65	149.5	13°

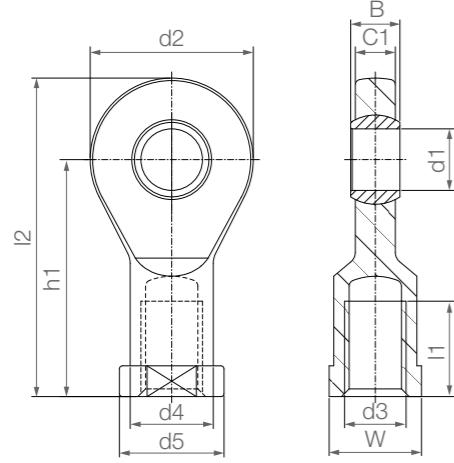
For another spherical bearing material than iglidur® W300, please add "J" to the part number. Example: EAM-05-J.

Alternative spherical ball materials ► Page 993



EK:
Stainless steel
spherical ball

High temperature rod ends with female thread: EBRM-HT and EBLM-HT



Order key

Type	Size	Version
E B □ M- 05 - HT		
E series	Housing (female thread)	Thread
	Metric	
	Inner Ø [mm]	High temperature

- Applicable up to +200°C
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment and edge loads
- Resistant to corrosion and chemicals (chemical table ▶ Page 1170)
- Can be used underwater
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240

Technical data

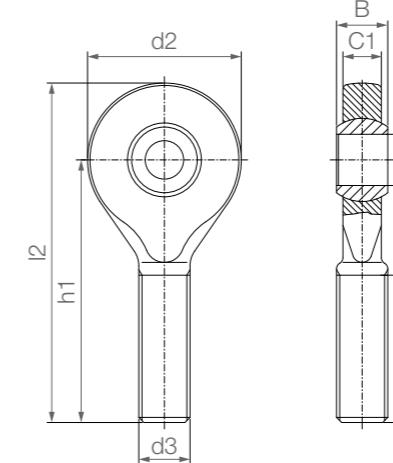
Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term				
	[N]	[N]	[N]	[N]	Thread	Female thread	through ball	[g]
EB□M-05-HT	625	313	140	70	8	0.4	2.0	3.8
EB□M-06-HT	832	416	172	86	8	0.5	2.5	5.0
EB□M-08-HT	1,317	658	175	88	11	2.0	7.0	8.5
EB□M-10-HT	1,470	735	253	126	13	5.0	14.0	13.7
EB□M-12-HT	1,600	800	279	139	14	6.0	25.0	21.4

Dimensions [mm]

Part No.	d1	d2	d3	d4	d5	C1	B	h1	I1	I2	W	Max. pivot angle
	E10											
EB□M-05-HT	5	19	M5	9.0	11	4.4	6	30	12	39.5	SW9	33°
EB□M-06-HT	6	21	M6	11.0	13	4.4	6	30	12	40.5	SW11	27°
EB□M-08-HT	8	24	M8	13.0	16	6.0	8	36	14	48.0	SW14	24°
EB□M-10-HT	10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°
EB□M-12-HT	12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°

Other dimensions available upon request

High temperature rod ends with male thread: EARM-HT and EALM-HT



Order key

Type	Size	Version
E A □ M- 05 - HT		
E series	Housing (male thread)	Thread
	Metric	
	Inner Ø [mm]	High temperature

- Applicable up to +200°C
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment and edge loads
- Resistant to corrosion and chemicals (chemical table ▶ Page 1170)
- Can be used underwater
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240

Technical data

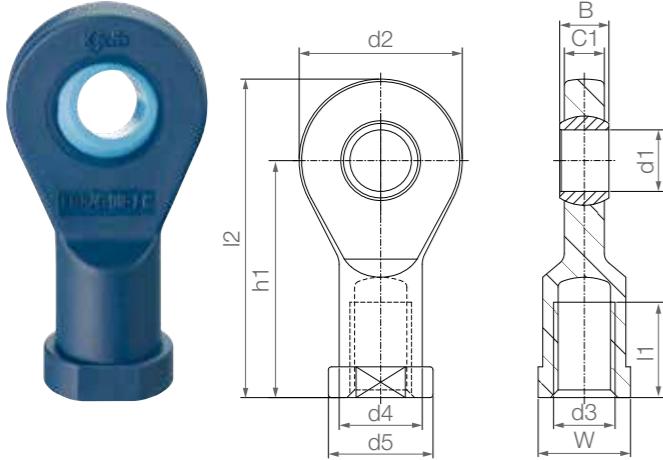
Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term				
	[N]	[N]	[N]	[N]	Thread	Male thread	through ball	[g]
EA□M-05-HT	380	190	20	10	14	0.4	2.0	2.8
EA□M-06-HT	600	300	30	15	14	0.5	2.5	3.4
EA□M-08-HT	931	465	48	24	17	2.0	7.0	6.1
EA□M-10-HT	1,125	563	57	28	19	5.0	14.0	10.2
EA□M-12-HT	1,200	600	65	33	20	6.0	25.0	15.7

Dimensions [mm]

Part No.	d1	d2	d3	C1	B	h1	I1	I2	Max. pivot angle
	E10								
EA□M-05-HT	5	19	M5	4.4	6	36.0	20	45.5	33°
EA□M-06-HT	6	21	M6	4.4	6	36.0	20	46.5	27°
EA□M-08-HT	8	24	M8	6.0	8	41.0	24	53.0	24°
EA□M-10-HT	10	29	M10	7.0	9	47.5	27	62.0	24°
EA□M-12-HT	12	34	M12	8.0	10	54.0	29	71.0	21°

Other dimensions available upon request

Rod ends with female thread, suitable for food contact: EBRM-FC



Order key

Type Size Version

E B R M - 06 - FC

E series Housing (female thread) Thread Metric Inner Ø [mm] Suitable for food contact



Material:

Housing: igumid® FC ► Page 1191
Spherical ball: iglidur® A181 ► Page 401
iglidur® FC180 ► upon request

- Cost-effective
- Left-hand thread upon request

- Complies with FDA and EU 10/2011
- Lubrication and maintenance-free
- Visually and magnetically detectable (FC180)
- In industry-standard blue
- Corrosion and media-resistant
- Vibration-dampening

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term				
	[N]	[N]	[N]	[N]	Thread	Female thread	through ball	[g]
Efrm-04-FC	New	700	350	100	50	7.0	0.4	1.9
Efrm-05-FC	New	1,100	550	150	75	8.0	0.5	3.9
Efrm-06-FC		1,300	650	300	150	8.0	1.5	4.0
Efrm-08-FC		1,900	950	500	250	11.0	5.0	7.0
Efrm-10-FC		2,220	1,100	500	250	13.0	10.0	6.0
Efrm-10-FC-F		2,220	1,100	500	250	13.0	10.0	6.0
Efrm-12-FC		3,000	1,500	800	400	14.0	15.0	17.4

Dimensions [mm]

Part No.	d1	d2	d3	d4	d5	C1	B	h1	I1	I2	W	Max. pivot angle	
	E10												
Efrm-04-FC	New	4	15	M4	—	—	3.5	5	22.5	9.5	30.0	SW8	33°
Efrm-05-FC	New	5	19	M5	9.0	11	4.4	6	30	12	40.5	SW9	33°
Efrm-06-FC		6	21	M6	11.0	13	4.4	6	30	12	40.5	SW11	27°
Efrm-08-FC		8	24	M8	13.0	16	6.0	8	36	14	48.0	SW14	24°
Efrm-10-FC		10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°
Efrm-10-FC-F		10	29	M10 x 1.25	15.0	19	7.0	9	43	18	57.5	SW17	24°
Efrm-12-FC		12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°

Left-hand thread and other dimensions available upon request

Rod ends with female thread, suitable for food contact: KCRM-FC

Order key

Type Size Version

K C R M - 06 - FC

K series Housing (female thread) Thread Metric Inner Ø [mm] Suitable for food contact



Material:

Housing: igumid® FC ► Page 1191
Spherical ball: iglidur® A181 ► Page 401
iglidur® FC180 ► upon request

- Cost-effective
- Left-hand thread upon request

- Complies with FDA and EU 10/2011
- Lubrication and maintenance-free
- Visually and magnetically detectable (FC180)
- In industry-standard blue
- Corrosion and media-resistant
- Vibration-dampening

Technical data

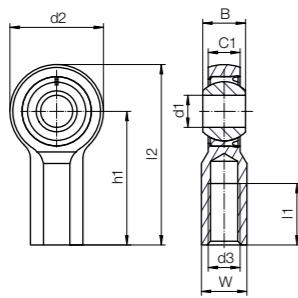
Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term				
	[N]	[N]	[N]	[N]	Thread	Male thread	through ball	[g]
Kcrm-05-FC	New	1,000	500	170	7.0	1.0	2.0	3.5
Kcrm-06-FC		1,300	650	400	8.0	1.0	2.0	4.3
Kcrm-12-FC	New	3,200	1,600	600	15.0	12.0	20.0	21.0

Dimensions [mm]

Part No.	d1	d2	d3	C1	B	h1	I1	I2	W	Max. pivot angle	
	E10				without stainless steel sleeve						
Kcrm-05-FC	New	5	18	M5	6.0	8.0	27	12.0	36.0	SW9	43°
Kcrm-06-FC		6	20	M6	7.0	9.0	30	13.5	40.0	SW10	40°
Kcrm-12-FC	New	12	34	M12	7.0	12.0	50	25.0	67.0	SW17	35°

Left-hand thread and other dimensions available upon request

Rod ends with female thread, metallic housing with maintenance-free inner ring:
KCRM-ES/S



- Metallic housing: higher breaking strength than igumid® G
- 10 times more abrasion-resistant against metallic spherical balls than polyamide
- Inner ring made of FDA-compliant material (iglidur® A181)

Material:
Housing: Stainless steel, zinc die-casting
Inner ring: iglidur® J ► Page 163
iglidur® A181 ► Page 401
Spherical ball: Stainless steel

¹⁹²⁾ The weight refers to a zinc die-cast housing with iglidur® J inner ring

Technical data

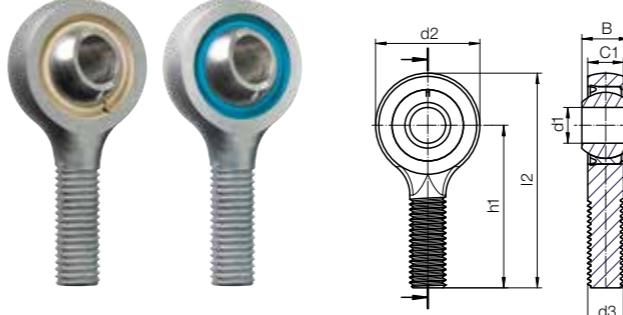
Part No.	Max. tensile strain		Max. axial force [N]	Max. axial load [N]	min. thread depth [mm]	Weight ¹⁹²⁾ [g]
	Short-term [N]	Long-term [N]				
KC□M-□-06-□-EK	1,900	1,100	600	110	14	22.8
KC□M-□-08-□-EK	3,750	1,825	1,150	270	16	43.2
KC□M-□-10-□-EK	4,500	2,250	2,100	500	18	67.4
KC□M-□-12-□-EK	5,500	3,625	2,500	475	20	98.3
KC□M-□-16-□-EK	7,000	6,000	2,600	1,250	23	179.4
KC□M-□-20-□-EK	10,000	8,950	3,300	2,000	27	309.5
KC□M-□-20-M20-□-EK	10,000	8,950	3,300	2,000	27	309.5

All values refer to KC□M-S-XX-J-EK

Dimensions [mm]

Part No.	d1	d2	d3	h1	I1	I2	B	C1	W	Max. pivot angle
KC□M-□-06-□-EK	6	22.0	M6	30.0	13	41.00	9	7.0	10	29°
KC□M-□-08-□-EK	8	26.5	M8	36.0	16	49.25	12	9.0	13	25°
KC□M-□-10-□-EK	10	31.0	M10	43.0	19	58.50	14	10.5	15	25°
KC□M-□-12-□-EK	12	35.0	M12	50.0	23	67.50	16	12.0	17	25°
KC□M-□-16-□-EK	16	44.0	M16	64.0	28	86.00	21	15.0	20	23°
KC□M-□-20-□-EK	20	53.0	M20 x 1.5	77.0	33	103.50	25	18.0	24	23°
KC□M-□-20-M20-□-EK	20	53.0	M20 x 2.5	77.0	33	103.50	25	18.0	24	23°

Rod ends with male thread, metallic housing with maintenance-free inner ring:
KARM-ES/S



- Metallic housing: higher breaking strength than igumid® G
- 10 times more abrasion-resistant against metallic spherical balls than polyamide
- Inner ring made of FDA-compliant material (iglidur® A181)

Material:
Housing: Stainless steel, zinc die-casting
Inner ring: iglidur® J ► Page 163
iglidur® A181 ► Page 401
Spherical ball: Stainless steel, aluminium, steel, iglidur® materials

¹⁹²⁾ The weight refers to a zinc die-cast housing with iglidur® J inner ring

Technical data

Part No.	Max. tensile strain		Max. axial force [N]	Max. axial load [N]	min. thread depth [mm]	Weight ¹⁹²⁾ [g]
	Short-term [N]	Long-term [N]				
KA□M-□-06-□-EK	1,900	1,100	160	110	14	18.2
KA□M-□-08-□-EK	3,750	1,825	330	270	16	34.4
KA□M-□-10-□-EK	4,500	2,250	500	500	18	56.3
KA□M-□-12-□-EK	5,500	3,625	750	475	20	85.5
KA□M-□-16-□-EK	7,000	6,000	1,500	1,250	23	179.3
KA□M-□-20-□-EK	10,000	8,950	2,000	2,000	27	309.0
KA□M-□-20-M20-□-EK	10,000	8,950	2,000	2,000	27	309.0

All values refer to KA□MS-XX-J-EK

Dimensions [mm]

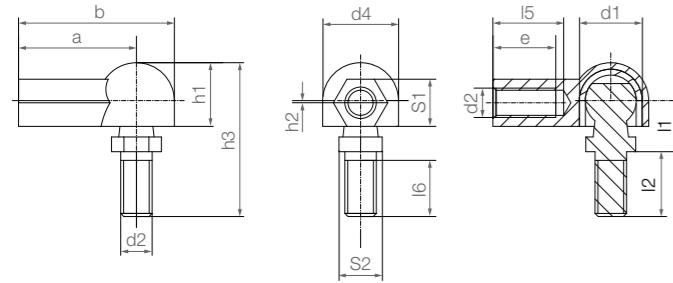
Part No.	d1	d2	d3	h1	I1	I2	B	C1	Max. pivot angle
KA□M-□-06-□-EK	6	22.0	M6	36.0	21	47.00	9	7.0	29°
KA□M-□-08-□-EK	8	26.5	M8	42.0	24	55.25	12	9.0	25°
KA□M-□-10-□-EK	10	31.0	M10	48.0	27	63.50	14	10.5	25°
KA□M-□-12-□-EK	12	35.0	M12	54.5	30	72.00	16	12.0	25°
KA□M-□-16-□-EK	16	44.0	M16	66.0	34	88.50	21	15.0	23°
KA□M-□-20-□-EK	20	53.0	M20 x 1.5	78.0	40	104.50	25	18.0	23°
KA□M-□-20-M20-□-EK	20	53.0	M20 x 2.5	78.0	40	104.50	25	18.0	23°

Angled ball and socket joints:
WGRM and WGLM



- Connection for rotating and pivoting movements
- Lightweight
- Easy and quick assembly
- Vibration-dampening
- Insensitive to dirt and dust
- Ball studs made of plastic, galvanised steel and stainless steel¹⁹⁾

► Accessories, page 1011



Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile force		Max. static compressive strength		Max. axial tensile force		Max. axial tensile force steel stud		Weight [g]	
	(Ball stud axis)		(Ball stud axis)		(Housing axis)		(Housing axis)			
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]	
WG□M-05-MS	30	15	200	100	100	50	600	300	2.6	
WG□M-06-MS	35	17.5	300	150	140	70	800	400	3.8	
WG□M-08-MS	250	125	500	250	200	100	1,500	750	8.0	
WG□M-10-MS	250	125	900	450	400	200	1,900	950	13.7	

Dimensions [mm]

Part No.	d1	d2	d4	I1	I2	I5	I6	h1	h2	h3	a	b	e	S1	S2	Max. pivot angle
	±0.1	±0.5	±0.2	±0.3	min.	±0.4	±0.5	±0.5	±0.3	±0.5	±0.5	±1.0				
WG□M-05-MS	8	M5	12.8	9	10.2	14	6.2	10.8	0.65	24.9	22	28.4	11	SW8	SW7	25°
WG□M-06-MS	10	M6	14.8	11	12.5	16	9.0	12.3	0.70	30.9	25	32.4	13	SW9	SW8	25°
WG□M-08-MS	13	M8	19.3	13	16.5	18	11.2	16.2	1.15	39.15	30	39.7	16	SW12	SW11	25°
WG□M-10-MS	16	M10	24.0	16	20.0	20	12.7	20.0	1.15	48.0	35	47.0	18	SW14	SW13	25°

¹⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁸⁾ Stainless steel ball stud upon request

Angled ball and socket joints (low-cost):
WGRM-LC and WGLM-LC



Type	Size	Version
WG□M-05-LC-MS		Low-cost

- Options:
Thread (housing)
L : Left-hand thread
R : Right-hand thread
- Ball stud¹⁹⁾
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel²⁸⁾

Online service life calculation
► www.igus.eu/igubal-expert

Material:
Housing: igumid® G ► Page 1190

Technical data

Part No.	Max. static tensile force		Max. static compressive strength		Max. axial tensile force		Max. axial tensile force steel stud		Weight [g]	
	(Ball stud axis)		(Ball stud axis)		(Housing axis)		(Housing axis)			
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]		
WG□M-04-LC-MS ²⁰⁾	100	50	150	75	—	—	500	250	2.4	
WG□M-05-LC-MS	150	75	200	100	100	50	600	300	2.6	
WG□M-06-LC-MS	200	100	300	150	140	70	800	400	4.0	
WG□M-08-LC-MS	250	125	500	250	200	100	1,500	750	8.2	
WG□M-10-LC-MS	250	125	900	450	400	200	1,900	950	13.8	

Dimensions [mm] - technical drawing ► Page 898

Part No.	d1	d2	d4	I1	I2	I5	I6	h1	h2	h3	a	b	e	S1	S2	Max. pivot angle
	±0.1	±0.5	±0.2	±0.3	min.	±0.4	±0.5	±0.5	±0.3	±0.5	±0.5	±1.0				
	[N]	[N]	[N]	[N]	[N]	[N]										
WG□M-04-LC-MS ²⁰⁾	6	M4	10.6	8.5	8.0	11.9	6.8	9.0	0.20	21.8	18	23.3	10.5	SW7	SW5	20°
WG□M-05-LC-MS	8	M5	12.8	9.0	10.2	14.0	6.2	10.8	0.65	24.9	22	28.4	11.0	SW8	SW7	25°
WG□M-06-LC-MS	10	M6	14.8	11.0	12.5	16.0	9.0	12.3	0.70	30.9	25	32.4	13.0	SW9	SW8	25°
WG□M-08-LC-MS	13	M8	19.3	13.0	16.5	18.0	11.2	16.2	1.15	39.15	30	39.7	16.0	SW12	SW11	25°
WG□M-10-LC-MS	16	M10	24.0	16.0	20.0	20.0	12.7	20.0	1.15	48.0	35	47.0	18.0	SW14	SW13	25°

¹⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁰⁾ Only available with galvanised steel stud

²⁸⁾ Stainless steel ball stud upon request

Ball joints, removable:
WGRM-DE and WGLM-DE



Order key

Type	Size	Version
WG □ M- 05 -DE - MS		
Angled ball and socket joint	Thread (housing)	Metric
		Thread size M ... [mm]
		Disassembly

Options:

Thread (housing)

L : Left-hand thread

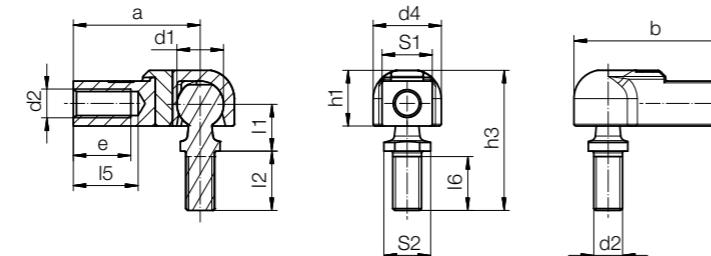
R: Right-hand thread

Ball stud¹⁹⁾

Blank : Made of plastic

MS : Made of galvanised steel

ES : Made of stainless steel²⁸⁾



- Cost-effective ball joint
- Lightweight
- Absolute corrosion resistance
- Easy assembly and disassembly
- High holding strength when assembled (260N)
- Ball studs made of plastic, galvanised steel and stainless steel¹⁹⁾ ► Accessories, page 1011

Material:

Housing: igumid® G ► Page 1190

Technical data and dimensions [mm]

Part No.	Assembly force and disassembly		Max. static tensile force ¹⁸⁰⁾		Max. static compressive force ¹⁸⁰⁾		Max. axial tensile force ¹⁸⁰⁾		Max. pivot angle		Weight [g]
	force ¹⁷⁶⁾		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	a		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]			
WG□M-05-DE-MS	40	120	60	360	180	1,200	600	23°	3.4		
WG□M-06-DE-MS	55	160	80	460	230	1,400	700	25°	5.5		
WG□M-08-DE-MS New	45	400	200	1,000	500	2,200	1,100	25°	8.4		
WG□M-10-DE-MS New	85	400	200	1,400	700	3,800	1,900	25°	16.0		

Dimensions [mm]

Part No.	d1	d2	d4	l1	l2	l5	l6	h1	h3	S1	S2	a	b	e
	±0.1	±0.5	±0.2	±0.5	min.	min.	±0.4	±0.5		±0.3	±0.5	±1.0		
WG□M-05-DE-MS	8.0	M5	12.8	9	10.2	13.0	6.2	10.8	25.6	SW9	SW7	25.0	31.4	11
WG□M-06-DE-MS	10.0	M6	16.0	11	12.5	15.0	9.0	13.0	32.0	SW11	SW8	30.0	38.0	13.5
WG□M-08-DE-MS New	13.0	M8	19.0	13	16.5	18.0	15.0	15.75	39.0	SW14	SW11	35.3	44.8	16
WG□M-10-DE-MS New	16.0	M10	23.0	16	20.0	20.0	16.0	19.0	47.25	SW17	SW13	42.0	53.5	18

¹⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁸⁾ Stainless steel ball stud upon request

¹⁷⁵⁾ Measured values for variant with steel pin (-MS) with open pin

¹⁸⁰⁾ Measured values for variant with steel pin (-MS) with closed pin

In-line ball and socket joints:
AGRM and AGLM

Order key

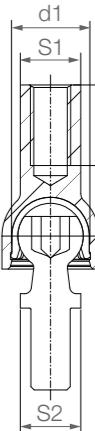
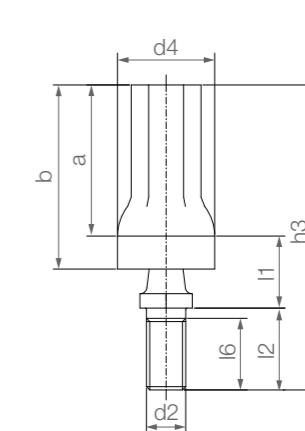
Type	Size
AG □ M- 08 - MS	
In-line ball and socket joint	Thread (housing)
	Metric
	Thread size M ... [mm]

- For all mechanical combinations
- Easy to assemble
- Maintenance-free, predictable service life
- Resistant to corrosion and chemicals
- Vibration-dampening
- Ball studs made of plastic, galvanised steel and stainless steel¹⁹⁾ ► Accessories, page 1011

Material:

Housing: igumid® G ► Page 1190

Spherical cap: iglidur® W300 ► Page 175



Technical data

Part No.	Max. static axial tensile force				Max. static axial compressive strength				Max. assembly force				Weight [g]
	Short-term		Long-term		Short-term		Long-term		Short-term		Long-term		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
AG□M-08-MS	250	125	1,000	500	110	7.8							

Dimensions [mm]

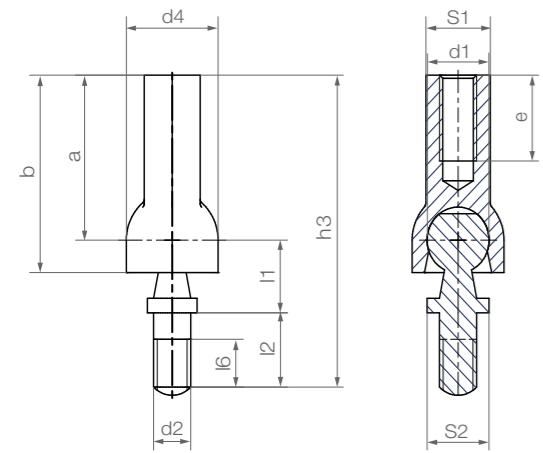
Part No.	d1	d2	d4	l1	l2	l6	h3	S1	S2	a	b	e	pivot angle
AG□M-08-MS	13.0	M8	19.3	13	16.5	11.2	59.5	SW12	SW11	30	36.5	16	18° 25°

¹⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁸⁾ Stainless steel ball stud upon request

igubal® in-line ball and socket joints | Product range

In-line ball and socket joints (low-cost):
AGRM-LC and AGLM-LC



Type	Size	Version
AG □ M- 06 - LC - MS		
In-line ball and socket joint	Thread (housing)	
	Metric	
	Inner Ø [mm]	
	Low-cost	

Options:

Thread (housing)

Ball stud¹⁹⁾

L : Left-hand thread

Blank : Made of plastic

R: Right-hand thread

MS : Made of galvanised steel

ES : Made of stainless steel²⁸⁾



Material:

Housing: igumid® G ► Page 1190

- Housing with ball stud
- Lightweight
- Maintenance-free
- Ball studs made of plastic, galvanised steel and stainless steel¹⁹⁾ ► Accessories, page 1011

Technical data

Part No.	Max. static tensile strain		Max. static compressive force		Max. static compressive force		Max. assembly force	Weight [g]
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[N]	[N]		
AG□M-04-LC-MS ²⁰⁾ New	120	60	1,600	800	—	—	280	3.3
AG□M-06-LC-MS	100	50	2,000	1,000	800	400	320	10.8
AG□M-08-LC-MS	150	75	2,800	1,400	1,400	700	430	23.1

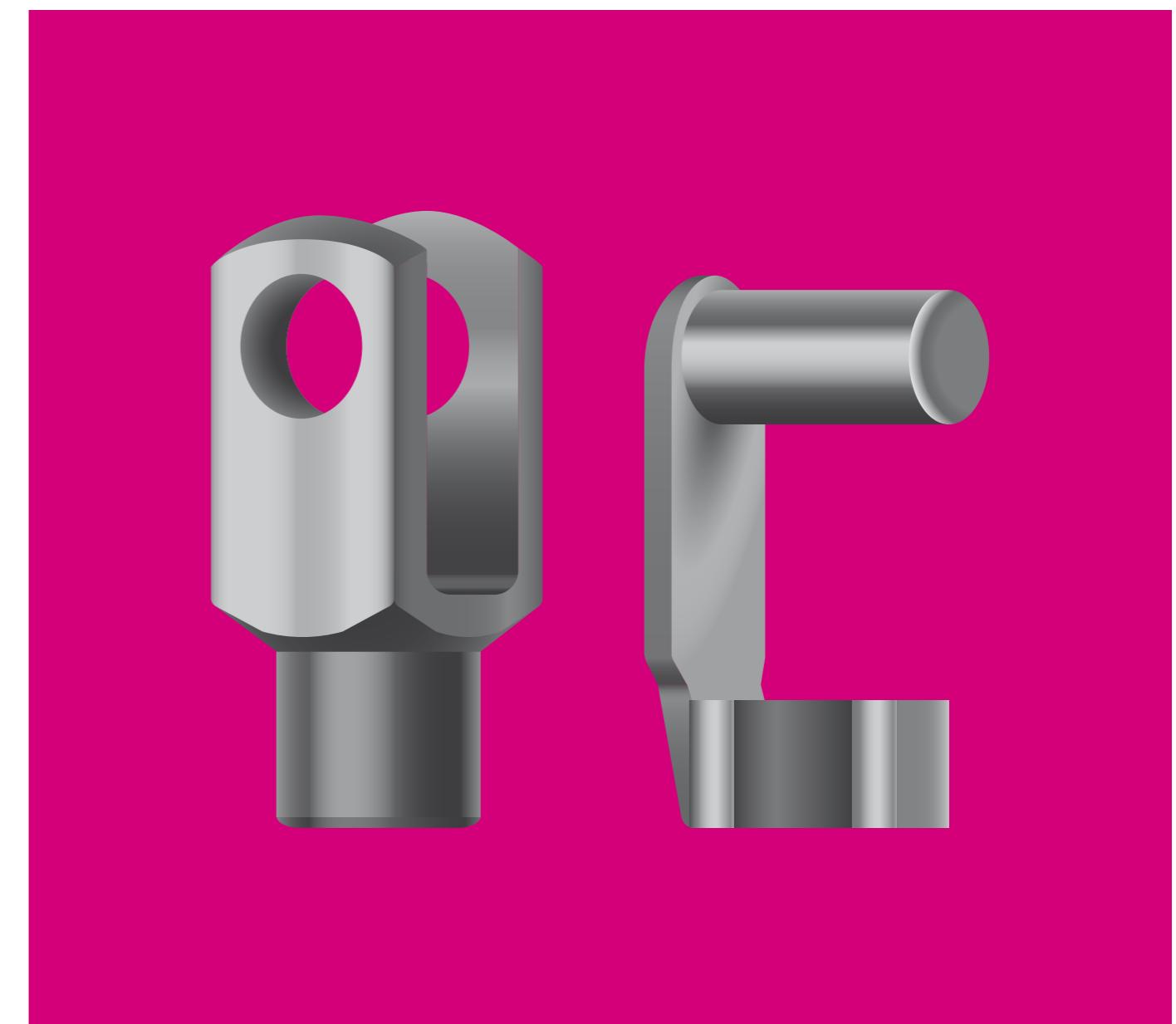
Dimensions [mm]

Part No.	d1	d2	d4	I1	I2	I6	h3	S1	S2	a	b	e	Max. pivot angle
	±0.1	±0.5	±0.2	±0.3	min.	±0.5		±0.3	±0.5	min.	Recom.	max.	
AG□M-04-LC-MS ²⁰⁾ New	6	M4	10.6	8.5	8.0	6.8	36.5	SW7	SW5	20	23.0	10.25	18° 25°
AG□M-06-LC-MS	10	M6	14.8	11	12.5	9.0	48.5	SW9	SW8	25	29.9	13	18° 25°
AG□M-08-LC-MS	13	M8	19.3	13	16.5	11.2	59.5	SW12	SW11	30	35.0	16	18° 25°

¹⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁰⁾ Only available with galvanised steel stud

²⁸⁾ Stainless steel ball stud upon request



igubal® clevis joints

High tensile force



Vibration-dampening

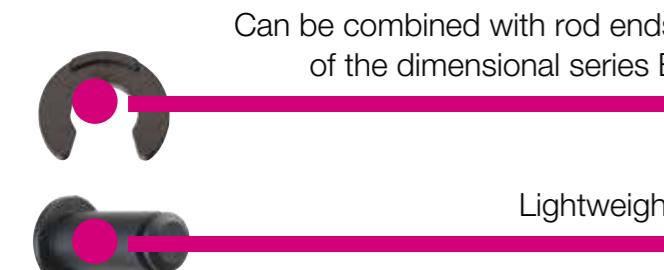
Noise-dampening

Can be combined with rod ends of the dimensional series E

Lightweight

igubal® clevis joints

igubal® clevis joints are all made from solid plastic igumid® G to DIN 71752, which can be combined with E series rod ends. Available components are clevis joint, clevis pin and circlip or as an alternative, spring-loaded fixing clip.



Available from stock

Detailed information about delivery time online.

Price breaks online

No minimum order value. No minimum order quantity

Max. +80°C min. -30°C

4 types Ø 4-20mm

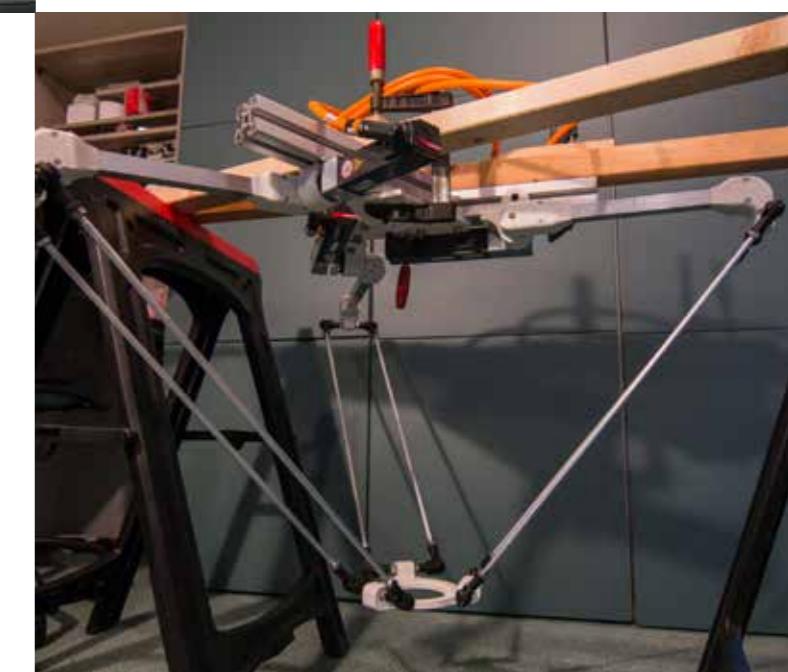
Online product finder ► www.igus.eu/igubal-finder

igubal® clevis joints | Application examples



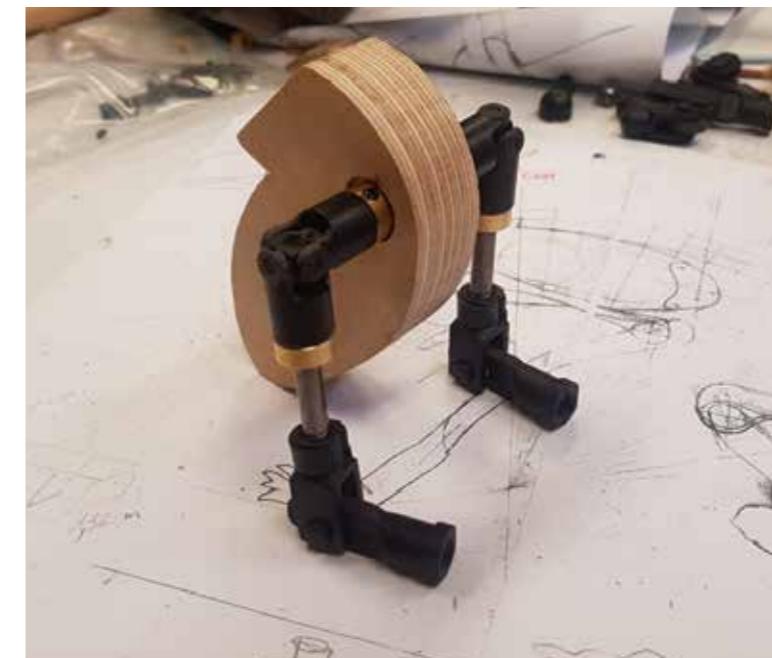
Table

Klaus Thiesler from Bad Pyrmont, Germany is building a table without legs that can be folded out from a kitchen unit when needed. Thiesler is using igubal® spherical thrust bearings (SAM-08) for the swivel axes, iglidur® M250 polymer plain bearings (M250-MFM-06) and igubal® double joints (EGZM-06-25) for the aluminium retaining pins in the support.



Asparagus-harvesting robot

Slovenia's University of Ljubljana is developing a robotic system for automated asparagus harvesting. To ensure that the vision system can operate in wet and dusty environments, the design engineers are using iglidur® polymer plain bearings (GFM-0810-03) and drylin® aluminium shafts (AWMP-08). The components are lightweight, so the robot's mechanical system achieves good dynamics. They require no maintenance, so the system is easy for the end user to handle.



Rabbit puppet

Lutkovno Gledališce Ljubljana, a Slovenian company, has designed a cute bunny for a puppet theatre. To optimise its joints' flexibility and minimise their weight, the company uses lightweight, maintenance-free igubal® angled ball and socket joints.

igubal® - clevis joint combinations



Clevis joints with clevis pin and circlip

E series

► Page 912



Clevis joints with spring-loaded fixing clip

E series

► Page 913



Combination, easy to fit

E series

► Page 914



Combination, easy to fit

E series

► Page 915

igubal® component parts



Clevis joints, high strength

E series

► From page 908



Clevis joint with male thread

E series

► From page 910



Clevis joint combination

► Page 911



Spring-loaded fixing clip

► Page 916



Clevis pin and circlip
GBM - Clevis pin
GSR - Circlip

► Page 917



Clevis joints, detectable, FDA and EU10/2011-compliant

E series

► Page 918



Spring-loaded pin, detectable, FDA and EU10/2011-compliant

E series

► Page 919



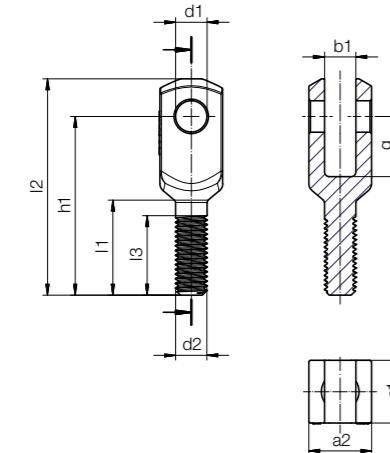
Clevis joints with spring-loaded pin, detectable; FDA and EU10/2011-compliant

E series

► Page 920

Notes

Clevis joints with male thread:
GARM-10



Type	Size
G A R M - 1 0	
Clevis joint	Inner Ø [mm]
Male thread	
Thread	
Metric	

- Available from stock in thread size M10 (M8 and M12 in preparation)
- For direct connection to, for example, igubal® rod end bearings
- Lightweight
- Lubrication and maintenance-free
- Absolute corrosion resistance
- Available for right-hand thread (left-hand thread upon request)

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[Nm]	[g]
GARM-10	3,000	1,500	200	100	5.0	12.5

Dimensions [mm]

Part No.	d1	g	a1	a2	b1	d2	l2	l3	h1	l1
	+0.1	h11	+0.3	+0.3	B13		±0.5	±0.3	±0.3	±0.2
							-0.16	-0.16		
GARM-10	10	19	20	20	10	M10	69	25	57	30.3

Clevis joint combination:
GARMK-10



Type	Size
G A R M K - 1 0	
Clevis joint	Inner Ø [mm]
Male thread	
Thread	
Metric	
With clevis pin and circlip	

Can be combined with:

- Safety bolt GBM-10 and circlip GSR-10 - part number GARMK-10
- As clevis joint combination with rod end bearing EARM-10 - part number GARMKE-10
- All igubal® parts with female thread M10

i Material:
igumid® G ► Page 1190

o Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GARMK-10	3,000	1,500	200	100	15.7

Clevis joints with spring-loaded fixing clip in combination with E series rod ends, EARM ► Page 890

Clevis joints with clevis pin and circlip:
GERMK and GELMK



- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with rod ends of the dimensional series E

Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MK-04-M3.5	500	250	250	125	1.3
GE□MK-04	500	250	250	125	1.3
GE□MK-05-DIN-M4	800	400	250	125	2.1
GE□MK-05-DIN-M5	800	400	250	125	2.1
GE□MK-05	900	450	250	125	3.3
GE□MK-05-DIN-M5-LS ²²⁾	800	400	130	65	2.9
GE□MK-06	1,300	650	300	150	3.3
GE□MK-06-LS ²²⁾	1,300	650	130	65	4.4
GE□MK-08	2,100	1,050	650	325	7.9
GE□MK-10	3,000	1,500	800	400	16.4
GE□MK-10-F	3,000	1,500	800	400	16.4
GE□MK-12	3,500	1,750	900	450	25.3
GE□MK-12-F	3,500	1,750	900	450	25.3
GE□MK-14	6,100	3,050	1,000	500	31.2
GE□MK-15	2,800	1,400	1,000	500	38.9
GE□MK-16	7,000	3,500	1,200	600	60.8
GE□MK-16-F	7,000	3,500	1,200	600	60.8
GE□MK-17	3,600	1,800	1,200	600	62.3
GE□MK-17-F	3,600	1,800	1,200	600	62.3
GE□MK-20	9,000	4,500	3,000	1,500	125.2
GE□MK-20-M20	9,000	4,500	3,000	1,500	125.2

²²⁾ LS = longer shank



Single components: clevis pin GBM and circlip GSR
► Page 917

Clevis joints with spring-loaded fixing clip:
GERMF and GELMF



- One-piece design
- Easy assembly/disassembly
- Easy assembly also for use in hard to reach locations
- Can be combined with rod ends of the dimensional series E
- Corrosion-resistant and lightweight

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MF-04-M3.5	500	250	250	125	1.3
GE□MF-04	500	250	250	125	1.3
GE□MF-05-DIN-M4	800	400	250	125	2.3
GE□MF-05-DIN-M5	800	400	250	125	2.3
GE□MF-05-DIN-M5-LS ²²⁾	800	400	130	65	2.3
GE□MF-05	900	450	250	125	3.8
GE□MF-06	1,300	650	300	150	3.9
GE□MF-06-LS ²²⁾	1,300	650	130	65	3.9
GE□MF-08	2,100	1,050	650	650	9.1
GE□MF-10	3,000	1,500	800	800	18.2
GE□MF-10-F	3,000	1,500	800	800	18.2
GE□MF-12	3,500	1,750	900	900	28.6
GE□MF-12-F	3,500	1,750	900	900	28.6
GE□MF-16	7,000	3,500	1,200	600	61.8
GE□MF-16-F	7,000	3,500	1,200	600	61.8

²²⁾ LS = longer shank



Single components: spring-loaded fixing clip GEFM
► Page 916

Clevis joint combination:
GERMKE and GELMKE



Order key

Type	Size	Options
G E □ M KE - 05		
Clevis joint	Thread	Metric
E series	With clevis pin, circlip and rod end	With clevis pin, circlip and rod end
Inner Ø [mm]		

Thread
L : Left-hand thread
R : Right-hand thread
F : Fine thread

- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with E series rod end

i Material:
igumid® G ► Page 1190

mouse Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MKE-05	900	450	150	75	6.4
GE□MKE-06	1,300	650	200	100	7.3
GE□MKE-08	2,000	1,000	450	225	14.6
GE□MKE-10	2,300	1,150	500	250	27.1
GE□MKE-10-F	2,300	1,150	500	250	27.1
GE□MKE-12	3,300	1,650	550	275	42.7
GE□MKE-12-F	3,300	1,650	550	275	42.7
GE□MKE-15	2,800	1,400	800	400	68.4
GE□MKE-16	5,000	2,500	850	425	86.9
GE□MKE-16-F	5,000	2,500	850	425	86.9
GE□MKE-17	3,600	1,800	1,100	550	98.3
GE□MKE-17-F	3,600	1,800	1,100	550	98.3
GE□MKE-20	7,200	3,600	1,800	900	175.2
GE□MKE-20-M20	7,200	3,600	1,800	900	175.2

Clevis joints with spring-loaded fixing clip in combination with E series rod ends,
EBRM and EARM ► Page 888-891

Clevis joint combination:
GERMFE and GELMFE

Order key



Type	Size	Options
G E □ M FE - 05		
Clevis joint	Thread	Metric
E series	With spring-loaded fixing clip and rod end	With spring-loaded fixing clip and rod end
Inner Ø [mm]		

Thread
L : Left-hand thread
R : Right-hand thread
F : Fine thread

- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with E series rod end

i Material:
igumid® G ► Page 1190

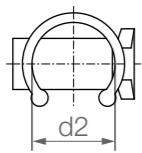
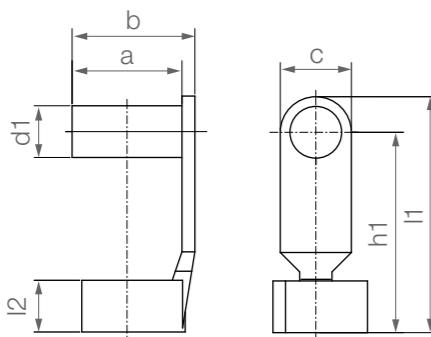
mouse Online service life calculation
► www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MFE-05	900	450	150	75	7.0
GE□MFE-06	1,300	650	200	100	7.9
GE□MFE-08	2,000	1,000	450	225	15.9
GE□MFE-10	2,300	1,150	500	250	29.2
GE□MFE-10-F	2,300	1,150	500	250	29.2
GE□MFE-12	3,300	1,650	550	275	46.0
GE□MFE-12-F	3,300	1,650	550	275	46.0
GE□MFE-16	5,000	2,500	850	425	94.4
GE□MFE-16-F	5,000	2,500	850	425	94.4

Clevis joints with spring-loaded fixing clip in combination with E series rod ends,
EBRM and EARM ► Page 888-891

Spring-loaded fixing clips: GEFM

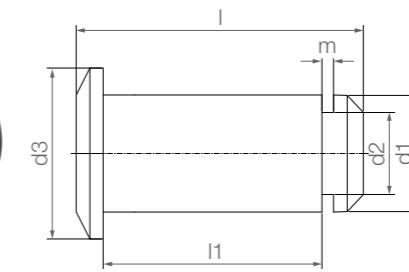


Dimensions [mm]

Part No.	d1	d2	a	b	c	l1	h1	l2	Weight [g]
GEFM-04	4	8	9.5	10.5	8	19.0	15	4.5	0.5
GEFM-05-DIN	5	9	12.0	13.5	8	23.0	19	5.5	0.8
GEFM-05-DIN-M5-LS ²²⁾	5	9	12.0	13.5	8	33.0	29	5.5	1.0
GEFM-05	5	10	14.0	15.5	8	27.0	23	6.5	1.1
GEFM-06-LS ²²⁾	6	10	14.0	15.5	8	39.0	35	6.5	1.0
GEFM-06	6	10	14.0	15.5	8	27.0	23	6.5	1.2
GEFM-08	8	14	19.0	21.0	11	35.5	30	8.0	2.8
GEFM-10	10	18	23.0	25.5	14	45.0	38	10.0	5.0
GEFM-12	12	20	28.0	31.0	16	53.0	45	12.0	8.3
GEFM-16	16	26	36.0	40.0	22	73.0	62	16.0	18.3

²²⁾ LS = longer shankMaterial:
igumid® G ► Page 1190

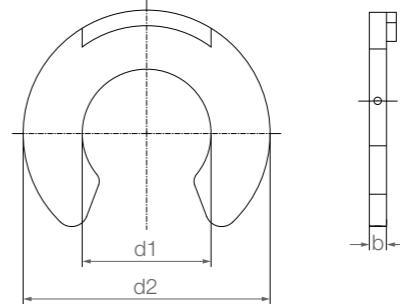
Clevis pins: GBM

Material:
igumid® G ► Page 1190Imperial dimensions available
► Page 1157

Dimensions [mm]

Part No.	d1	d2	d3	l	l1	m	Clip	Weight [g]
GBM-04	4	3.2	7	12.5	8	1.05	GSR-04	0.3
GBM-05	5	4.0	8	16.5	12	1.15	GSR-06	0.5
GBM-05-DIN	5	4.0	8	14.5	10	1.15	GSR-06	0.5
GBM-06	6	4.0	9	16.5	12	1.15	GSR-06	0.7
GBM-08	8	5.0	12	21.5	16	1.15	GSR-08	1.5
GBM-10	10	7.0	15	27.0	20	1.35	GSR-10	3.0
GBM-12	12	9.0	18	31.5	24	1.50	GSR-12	4.8
GBM-14	14	12.0	22	36.0	27	1.70	GSR-16	5.7
GBM-15	15	12.0	23	36.0	27	1.70	GSR-16	8.3
GBM-16	16	12.0	24	42.0	32	1.70	GSR-16	10.4
GBM-17	17	12.0	25	42.0	32	1.70	GSR-16	12.3
GBM-20	20	15.0	30	51.0	40	2.00	GSR-20	19.2

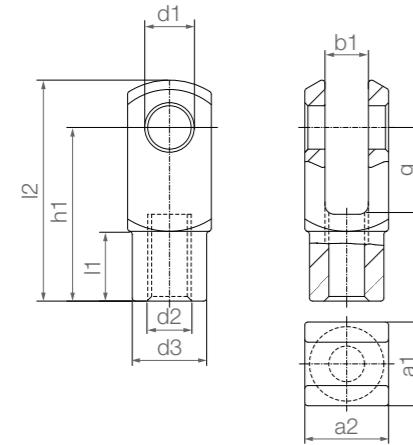
Circlips: GSR

Material:
POM ► Page 1192

Dimensions [mm]

Part No.	d1	d2	b	Weight [g]
GSR-04	3.2	7.0	1.0	0.05
GSR-06	4.0	9.0	1.1	0.06
GSR-08	5.0	11.0	1.1	0.12
GSR-10	7.0	14.0	1.3	0.16
GSR-12	9.0	18.5	1.4	0.31
GSR-16	12.0	23.0	1.6	0.58
GSR-20	15.0	28.0	1.9	0.96

Clevis joints, detectable,
FDA and EU10/2011-compliant: GERM-FC



Order key

Type	Size	Version
GERM- 04 - FC		
Clevis joint	E series	Thread
Metric		
Inner Ø [mm]		Suitable for food contact

- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Left-hand thread upon request

Material:
igumid® FC ► Page 1191

Technical data

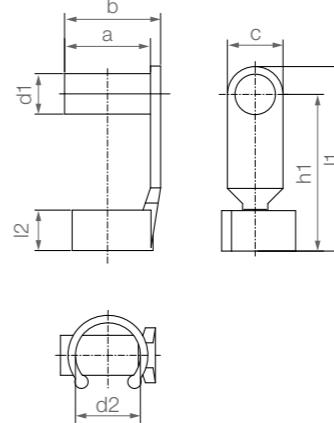
Part No.	Max. static tensile strain		Max. static axial force		Max. tightening torque	Weight [g]
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]		
GERM-04-FC	600	300	200	100	1.0	0.8
GERM-05-DIN-M5-FC	800	400	250	125	1.5	1.5
GERM-05-FC New	900	450	250	125	0.5	3.0
GERM-06-FC	1,400	700	250	125	1.5	2.5
GERM-08-FC	2,300	1,150	650	325	5.0	6.4
GERM-10-FC	4,000	2,000	800	400	10.0	13.2
GERM-10-FC-F	4,000	2,000	800	400	10.0	13.2
GERM-12-FC	5,000	2,500	900	450	15.0	20.7
GERM-12-FC-F	5,000	2,500	900	450	15.0	20.7

Dimensions [mm]

Part No.	d1	g	a1	a2	b1	d2	d3	l2	h1	l1
	+0.3	+0.3	-0.16	-0.16			±0.3	±0.5	±0.3	±0.2
GERM-04-FC	4	8.0	8.0	8.0	4.1	M4	8	21.0	16.0	6.0
GERM-05-DIN-M5-FC	5	10.0	9.9	9.9	5.3	M5	9	24.5	20.0	7.5
GERM-05-FC New	5	12.0	12.0	12.0	6.0	M5	10	31.0	24.0	9.0
GERM-06-FC	6	12.0	12.0	12.0	6.2	M6	10	31.0	24.0	9.0
GERM-08-FC	8	15.9	15.8	15.8	8.2	M8	14	42.0	32.0	12.0
GERM-10-FC	10	19.5	19.9	19.9	9.5	M10	18	51.3	39.5	14.8
GERM-10-FC-F	10	19.5	19.9	19.9	9.5	M10 x 1.25	18	51.3	39.5	14.8
GERM-12-FC	12	24.0	23.7	23.7	12.2	M12	20	61.3	48.0	18.0
GERM-12-FC-F	12	23.5	23.7	23.7	12.2	M12 x 1.25	20	61.3	48.0	18.0

Left-hand thread and other dimensions available upon request

Spring-loaded fixing clips, detectable,
FDA and EU10/2011-compliant: GEFM-FC



Order key

Type	Size	Version
GEFM- 04 - FC		
Clevis joint	E series	Spring-loaded fixing clip
Metric		
Inner Ø [mm]		Suitable for food contact

- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

- Corrosion and media-resistant
- Vibration-dampening
- Cost-effective

Material:
igumid® FC ► Page 1191

Dimensions [mm]

Part No.	d1	d2	a	b	c	l1	h1	l2	Weight
						±0.5			[g]
GEFM-04-FC	4	8.0	9.5	10.5	8	19	15	4.5	0.5
GEFM-05-DIN-M5-FC	5	9.0	12.0	13.5	8	23	19	5.5	0.8
GEFM-05-FC New	5	10.0	14.0	15.5	8	27	23	6.5	0.9
GEFM-06-FC	6	10.0	14.0	15.5	8	27	23	6.5	1.2
GEFM-08-FC	8	14.0	19.0	21.0	11	36	30	8.0	2.7
GEFM-10-FC	10	17.5	23.0	25.5	14	45	38	10.5	5.1
GEFM-12-FC	12	20.2	27.5	30.5	16	53	45	12.0	8.3

igubal® clevis joints | Product range

Clevis joints with spring-loaded fixing clips,
detectable, FDA and EU10/2011-compliant:
GERMF-FC



- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines



Order key

Type	Size	Version
G E R M F - 04 - FC		
Clevis joint	E series	
	Thread	
	Metric	
	Spring-loaded fixing clip	
	Inner Ø [mm]	
		Suitable for food contact

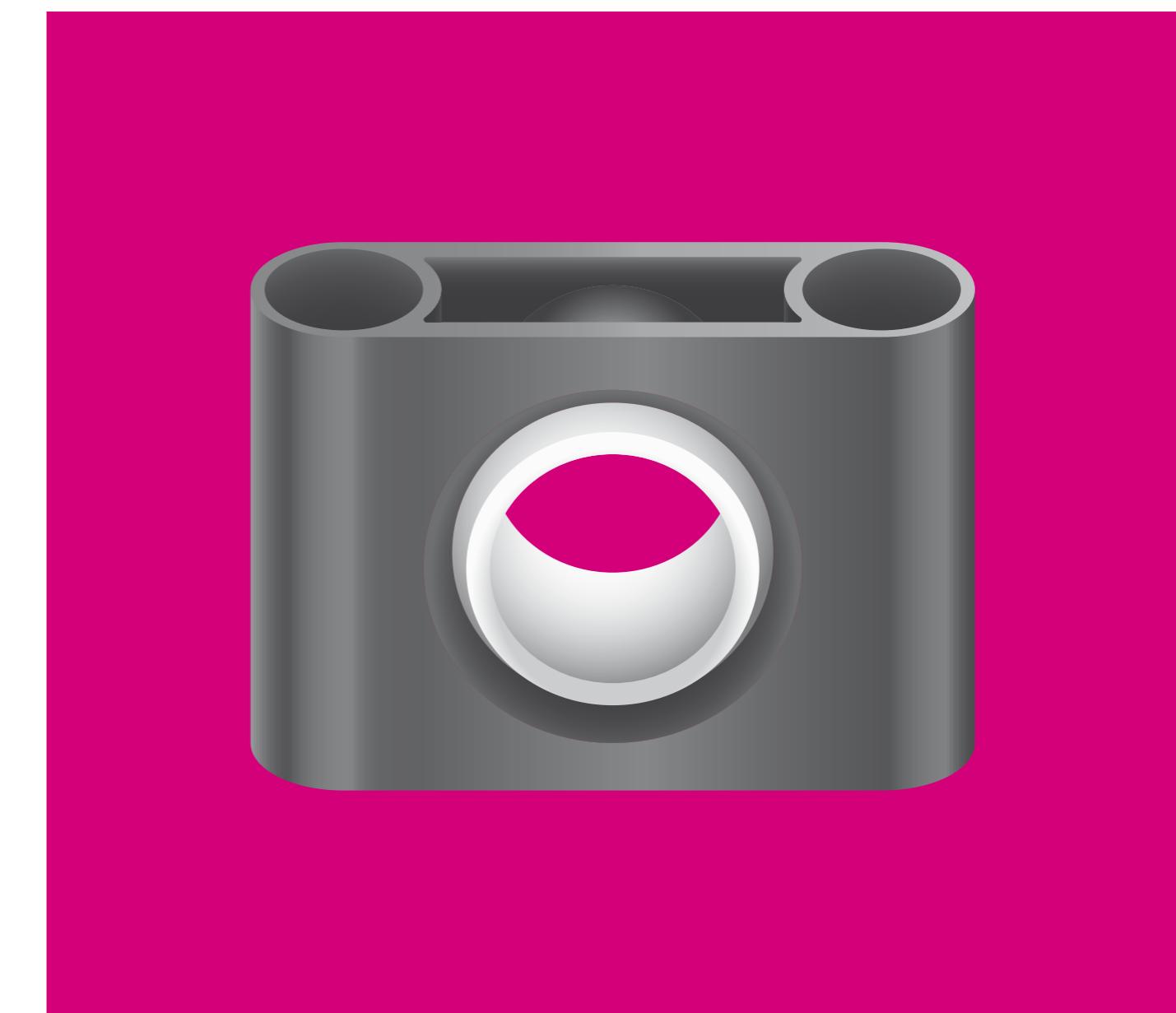


Material:
igumid® FC ► Page 1191

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GERMF-04-FC	400	200	200	100	1.3
GERMF-05-DIN-M5-FC	700	350	250	125	2.3
GERMF-05-FC New	800	450	250	125	3.9
GERMF-06-FC	1,200	600	250	125	3.9
GERMF-08-FC	2,000	1,000	650	325	9.1
GERMF-10-FC	3,000	1,500	800	400	18.3
GERMF-10-FC-F	3,000	1,500	800	400	18.3
GERMF-12-FC	3,000	1,500	900	450	29.0
GERMF-12-FC-F	3,000	1,500	900	450	29.0

Left-hand thread upon request



igubal® pillow block bearing

Maintenance-free dry operation



High rigidity



Durable

Media-resistant

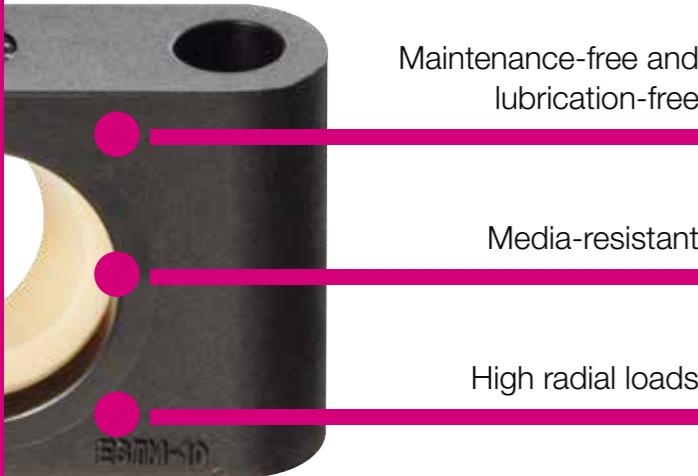
High radial loads

igubal® pillow block bearing

igubal® pillow block bearings are bearing units especially easy to install and which are able to compensate alignment errors and prevent edge pressure.



Maintenance-free dry operation



Maintenance-free and lubrication-free

Media-resistant

High radial loads



When do I take them?

- When chemical resistance is required
- If a cost-effective alternative is needed
- When dirt-resistant bearings are required
- To adjust misalignment
- If you need split components



When do I not take them?

- When temperatures are higher than +80°C
- When an integrated fixing collar is required
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Available from stock

Detailed information about delivery time online.

Price breaks online

No minimum order value. No minimum order quantity

Max. +80°C min. -30°C

6 types Ø 5 - 150mm

Imperial dimensions available ► Page 1155

Online product finder ► www.igus.eu/igubal-finder

igubal® pillow block bearings | Application examples



Pedal boat

The Polish company P.P.H. Samar manufactures pedal boats. The drive system bearings must be waterproof, robust and wear-resistant - and lubrication-free so that the operator does not need to maintain the boats during the season and that oil does not contaminate the water. The engineers therefore chose igubal® pillow block bearings for the drive rotor and drive shafts.

(KSTM) of the igubal® series.



Drone

Mo Team, a UK-based company, is developing a drone that is to be lightweight and low-maintenance. That is why the design engineers are using plain bearings, pillow block bearings and rod ends made of igus® high-performance polymer. The components are lightweight and, thanks to the self-lubricating effect, maintenance-free.



Hydro generator

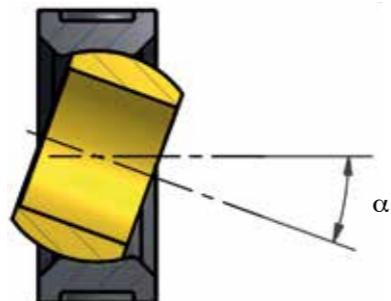
Sailing yachts use so-called hydro-generators, which use the water flow to generate electricity for the on-board battery. The engineers of the company Ocean Power GbR from Eldingen (Germany) use E STM-30 pillow block bearings from igus® for linear movement of the generator. In order to be able to follow the flow of the sea more effectively, the polymer bearings also enable low-friction rotation by up to 20 degrees in the water.

Benefits

- Maintenance-free dry operation
- High rigidity
- Durable in varying loads
- Compensation of misalignment errors
- Compensation of edge loads
- Corrosion-resistant
- Chemical resistance
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- High radial loads
- Media-resistant
- Space-saving
- Easy to fit
- Predictable service life
- Maintenance-free and lubrication-free

Product range

igubal® pillow block bearings are available in the dimensional K and E series for shaft diameters from 5 to 150mm. The dimensional K series is available in imperial dimensions. Please ask us for other dimensions.

pivot angle**Application areas**

igubal® pillow block bearings ideally compensate for shaft misalignment, tilts and bends through their spherical movement. Applications in which these effects cannot be prevented are suitable for igubal® pillow block bearings.

Tolerances

Maintenance-free igubal® pillow block bearings are designed with an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. The bearing clearance compensates for bearing expansion due to warming. All values and tolerances according to ISO 2768-m.

Assembly

igubal® pillow block bearings are designed for mounting with two or four bolts. An exact positioning of the bearing housing is not necessary, since the spherical bearing compensates for alignment errors. Special adjusting rings can be used to fix the shaft.

igubal® pillow block bearing

Clip-on version:
KSTM-CL

K series

► [Page 926](#)



**Compensation of
misalignment errors**

K series

► [Page 928](#)



**Easy to disassemble,
split housing and ball**

K series

► [Page 930](#)



Easy installation

E series

► [Page 931](#)



**For quick assembly and
low total moisture
absorption**

E series

► [Page 932](#)



**Split housing with parallel
hole**

E series

► [Page 933](#)



**Extremely light,
compact design**

E series

► [Page 934](#)



Space-saving

E series

► [Page 935](#)



**Split pillow block bearings
for square profiles**

E series

► [Page 936](#)



**Pillow block bearings for
contact with food**

E series

► [Page 937](#)



**Pillow block bearing with
polymer housing**

► [Page 938](#)



**Pillow block bearing with
cast iron housing**

► [Page 939](#)



**Pillow block bearings with
cost-effective metallic
housing**

► [Page 940](#)

igubal® combination with xiros® ball bearings

**Low coefficient of friction,
fixed and pivoting version**

E series

► [From page 1086](#)

Pillow block bearings: KSTM-CL



- 30% higher strength due to optimised housing (bio-mechanic design) compared to standard KSTM
- Can be combined with all materials for spherical balls for a wide range of requirements
- Fast delivery time
- More even movement of the spherical ball in the housing
- 10% more cost-effective than the overmoulded previous version KSTM



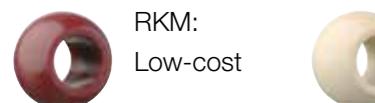
Online service life calculation
► www.igus.eu/igubal-expert

Technical data

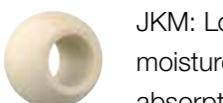
Part No.	Max. radial load		Max. axial load		Max. tightening torque for longitudinal holes ¹⁴⁴⁾	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]		
KSTM-06-CL-□ New	950	475	250	125	1.3	2.9
KSTM-08-CL-□ New	1,400	700	230	115	1.3	4.8
KSTM-10-CL-□ New	2,150	1,075	500	250	2.5	9.0
KSTM-12-CL-□ New	2,300	1,150	350	175	2.5	12.1
KSTM-16-CL-□ New	3,200	1,600	620	310	4.5	23.6
KSTM-20-CL-□ New	6,000	3,000	730	365	10.5	40.7
KSTM-25-CL-□ New	7,200	3,600	850	425	10.5	73.3
KSTM-30-CL-□ New	8,800	4,400	1,200	600	21.5	115.4

¹⁴⁴⁾ To achieve the max. tightening torque, we recommend the use of washers.

Alternative spherical ball materials ► Page 993



RKM:
Low-cost



JKM: Low
moisture
absorption

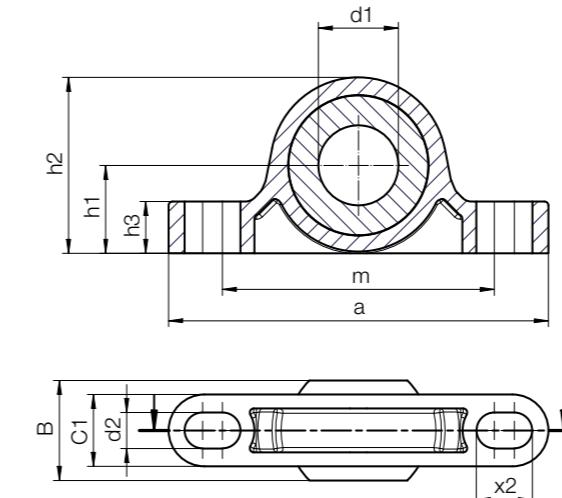


J4KM:
Low-cost and low
moisture absorption

Pillow block bearings: KSTM-CL



Type	Size
K STM-06-CL	

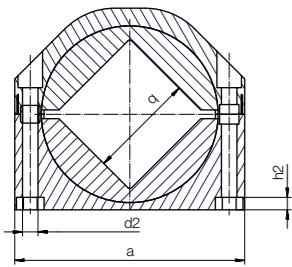
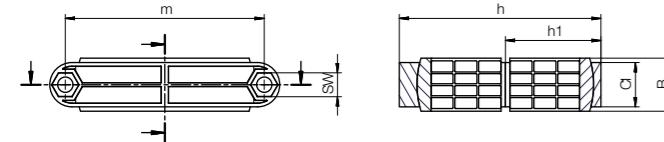


i Material:
Housing: igumid® G ► Page 1190
Spherical ball: iglidur® W300 ► Page 175

Dimensions [mm]

Part No.	d1 E10	B	C1	h1	h2	m	a	h3	d2	x2	Max. pivot angle
KSTM-06-CL-□ New	6	9	7.0	10	18	33	43	5.5	4.5	6.0	36°
KSTM-08-CL-□ New	8	12	9.0	10	20	33	47	6.0	4.5	7.0	33°
KSTM-10-CL-□ New	10	14	10.5	14	26	46	62	7.5	5.5	8.0	33°
KSTM-12-CL-□ New	12	16	12.0	14	28	46	65	8.5	5.5	9.0	33°
KSTM-16-CL-□ New	16	21	15.0	18	36	60	86	10.5	6.6	12.0	32°
KSTM-20-CL-□ New	20	25	18.0	22	44	68	95	13.0	9.0	14.0	31°
KSTM-25-CL-□ New	25	31	22.0	27	54	86	121	16.0	9.0	17.0	31°
KSTM-30-CL-□ New	30	37	25.0	32	64	96	139	17.0	11.0	20.0	31°

Split pillow block bearings for square profiles:
ESQM

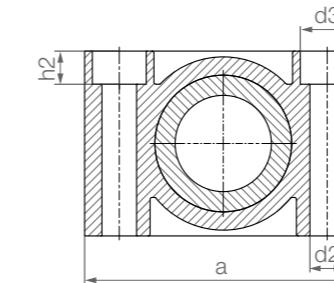
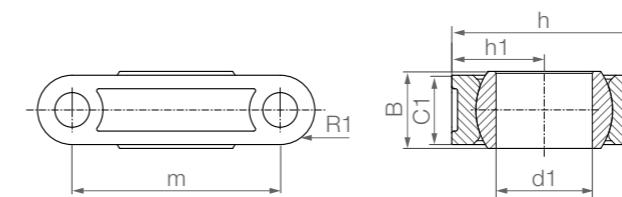


- Profile 100x100mm, 110x110mm, 120x120mm
140x140mm or 150x150mm
- Split version of housing and spherical balls
- Easy assembly and disassembly
- High loads
- Lightweight
- Compensation of misalignment errors
- Mounting: M16 screw
- Recommended tightening torque: 50Nm

Dimensions [mm]

Part No.	q +1	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	120.0	24	17.5	228	108	13.6	260	225	60	50	1,210
ESQM-125 New	125.0	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

Pillow block bearings for contact with food:
ESTM-FC



Order key

Type	Size	Version
E series	Pillow block bearing for square profiles Metric	Inner Ø [mm] Suitable for food contact (Food Contact)

i Material:

Housing: igumid® FC ► Page 1191
Spherical ball: iglidur® A181 ► Page 401
iglidur® FC180 ► upon request

- Solid polymer solution: corrosion-free, lightweight and still detectable
- Lubrication-free: No lubricants to washout
- For contact with food: FDA and EU 10/2011 compliant

Technical data

Part No.	Max. radial tensile force		Max. radial compressive strength		Max. axial strength		Max. tightening torque fixing holes		Weight [g]
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	[N]	[N]	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	
ESTM-10-FC New	2,600	1,300	3,400	1,700	460	230	1.5	7.5	
ESTM-20-FC New	6,800	3,400	8,000	4,000	1,800	900	3.5	31.0	

Dimensions [mm]

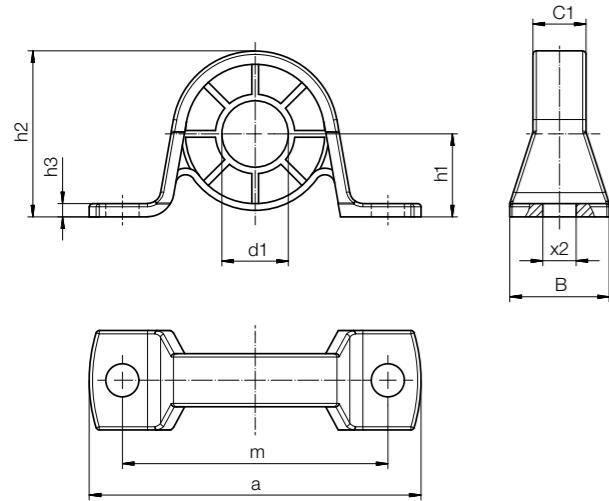
Part No.	d1	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
ESTM-10-FC New	10	5.5	-	22	11	-	36	26	10	9	5	22°
ESTM-20-FC New	20	9.0	14.0	40	20	8.6	62	46	16	16	8	22°

igubal® pillow block bearings | Product range

Pillow block bearings with cost-effective metallic housing: PP-JEM-SP



- Lubrication and maintenance-free
- Cost-effective
- Resistant to dirt
- Cost-effective spherical ball material iglidur® J4 available (order example: PP204-J4EM-20-14-SP)



Technical data

Part No.	Max. static radial tensile strain [N]	Max. static axial compressive force [N]	Weight [g]	Material:	
				Housing:	Spherical ball:
PP203-J4EM-17-12-SP New	1,800	600	68	Galvanised steel (stainless steel upon request)	iglidur® J (alternative iglidur® J4)
PP204-□EM-20-14-SP	1,000	3,000	140		
PP205-□EM-25-15-SP	1,800	5,000	164		
PP206-□EM-30-16-SP	1,800	6,000	206		
PP207-JEM-35-17-SP New	2,500	7,000	292		
PP208-JEM-40-18-SP New	2,000	5,000	378		

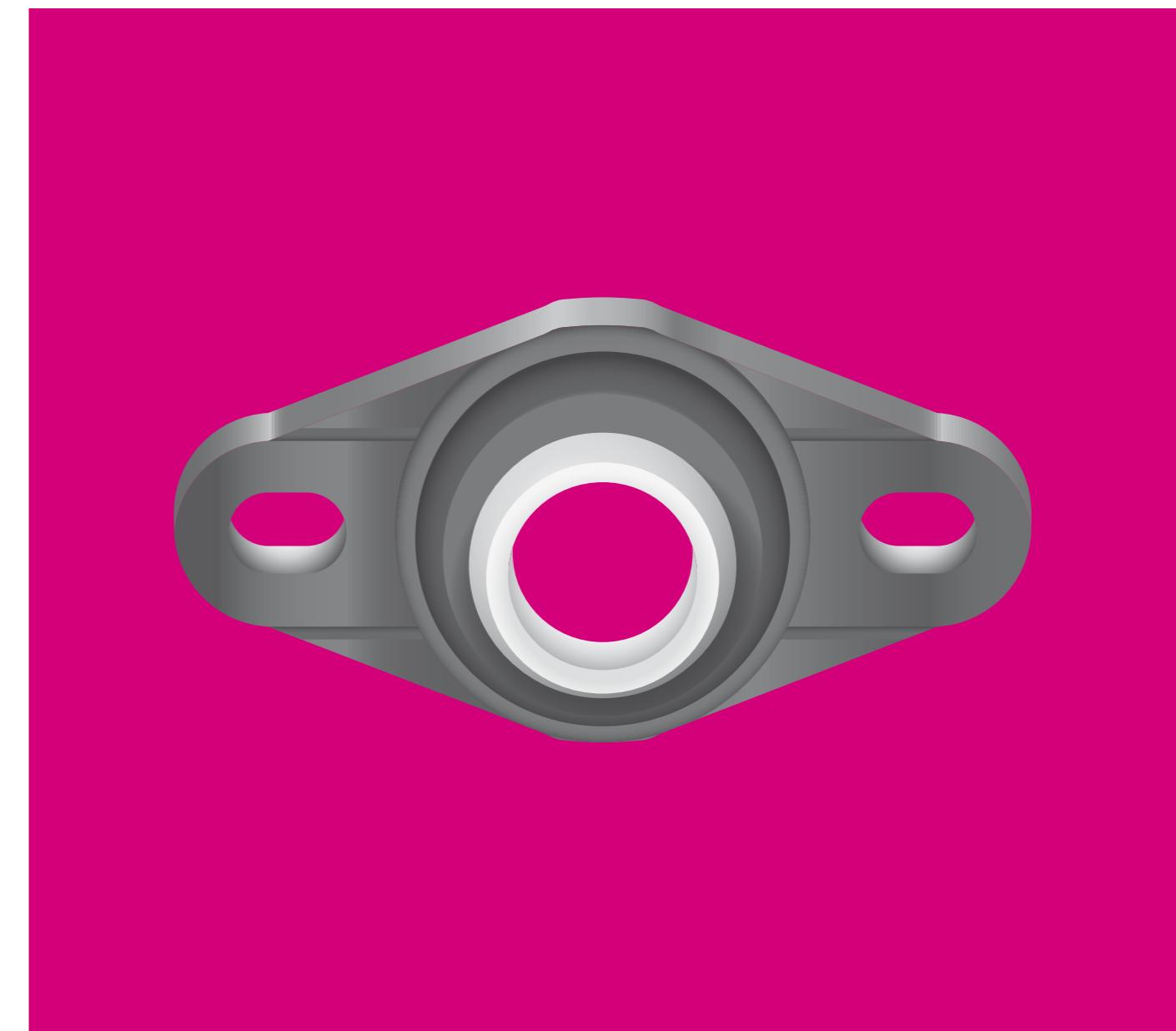
Dimensions [mm]

Part No.	d1	h1	h2	h3	a	m	C1	B	x2
PP203-J4EM-17-12-SP New	17	22.2	43.8	3.0	86	68	21.0	25	9.5
PP204-□EM-20-14-SP	20	25.4	50.5	3.0	98	76	22.0	32	9.5
PP205-□EM-25-15-SP	25	28.6	56.6	4.0	108	86	24.0	32	11.5
PP206-□EM-30-16-SP	30	33.3	66.3	4.0	117	95	26.5	38	11.5
PP207-JEM-35-17-SP New	35	39.7	78.0	4.6	129	106	27.5	42	11.5
PP208-JEM-40-18-SP New	40	43.6	86.0	5.0	148	120	29.0	44	12.5

Can be combined with SRM fixing collars ► Page 1012



Type	Size	Version
PP204 - J E M - 20 - 14 - SP		
Pillow block bearing	Spherical ball material	
	Dimensional series	
	Metric	
	Spherical ball inner Ø [mm]	
	Spherical ball width [mm]	
	Injection moulding	



igubal® fixed flange bearings

Maintenance-free dry operation



High rigidity



Durable

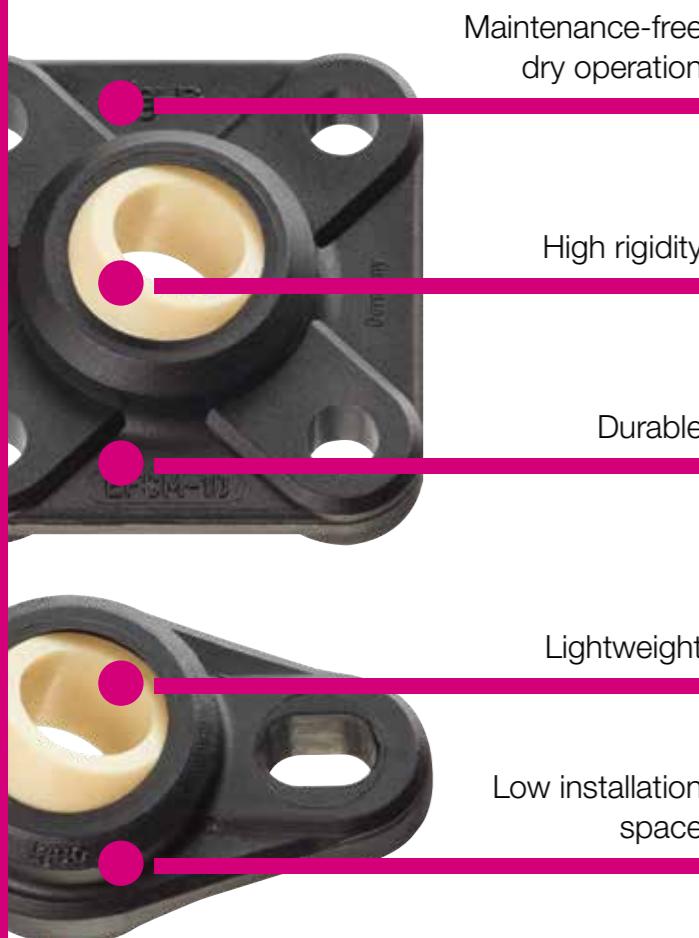
Compensation of misalignment errors

Compensation of edge loads

Lightweight

igubal® fixed flange bearings

igubal® fixed flange bearings have been developed for supporting the centre or ends of shafts. Like all standard igubal® products, these bearings consist of an igumid® G housing and an iglidur® W300 spherical ball. For temperatures up to +200°C please select the HT version (High Temperature). igubal® fixed flange bearings are made to the dimensional E series and are offered with two or four mounting holes.



Maintenance-free
dry operation

High rigidity

Durable

Lightweight

Low installation
space



When do I take them?

- When chemical resistance is required
- If a cost-effective alternative is needed
- When dirt-resistant bearings are required
- To adjust misalignment
- If you need split components
- If temperatures higher than +200°C are required



When do I not take them?

- When temperatures are higher than +200°C
 - HT version, page 953-954
- When an integrated fixing collar is required
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Available from stock

Detailed information about delivery time online.

Price breaks online

No minimum order value. No minimum order quantity

Max. +200 °C min. -40°C

(depending on material: standard from -30°C to +80°C; HT from -40°C to +200°C)

5 types Ø 4-50mm

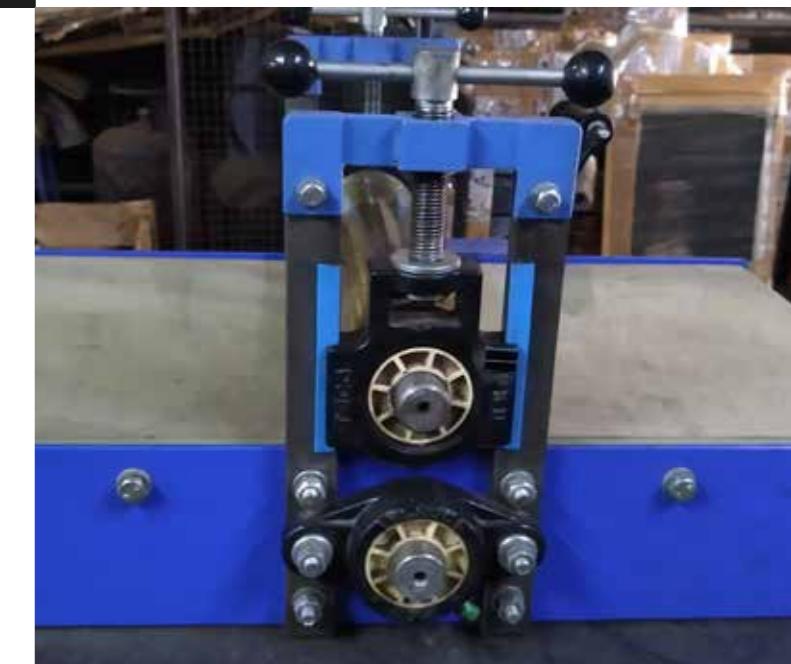
Online product finder ► www.igus.eu/igubal-finder

igubal® fixed flange bearings | Application examples



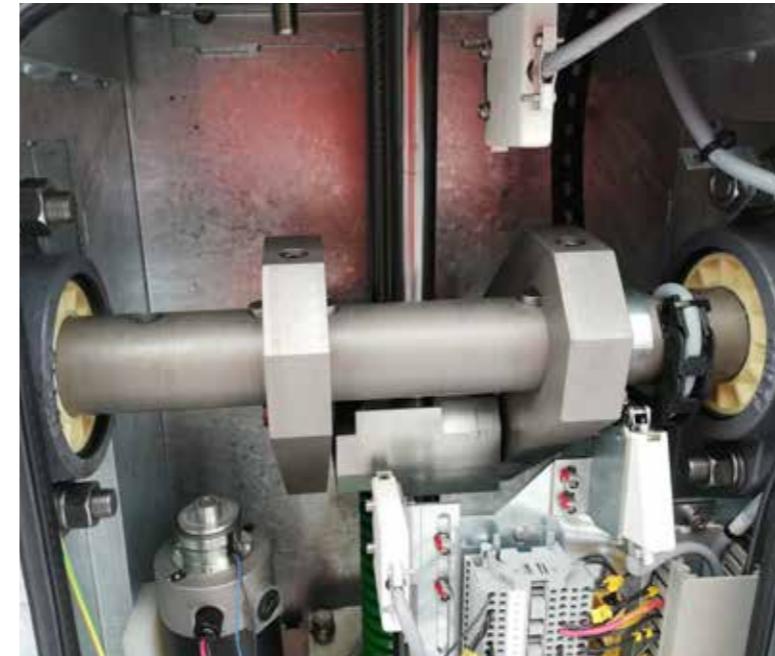
Powder coating system

The Indian company Brakes India manufactures a powder coating system that works with spray booths and drying ovens. In the past, the paint powder was deposited in the difficult-to-reach rolling bearings of the system and resulted in a lot of maintenance work having to be done. The engineers solved the problem by replacing the metal rolling bearings with lubrication-free polymer bearings from igus®.



Printing machine

If manual printing machines for the gravure printing process are not used for a long period of time, the roller bearings will rust in humid environments. Rotating and sliding movements are blocked and uniform printing is almost impossible. That is why the manufacturer Ravi Engineering Works from India switched from metal bearings to spherical bearings and plain bearings made from high-performance plastic from igus®. The bearings now operate reliably in damp environments without a single drop of lubricant.



Railway barrier

The company Bombardier Transportation from Poland is continuously looking for components that function reliably even under the most difficult environmental conditions - in cold, hot and dusty environments alike. For the 90-degree pivoting movement of the barrier, the engineers use weather-resistant and maintenance-free igubal® polymer bearings (JEM-50-24-SP) and iglidur® X linear guide lead screws.

Application areas

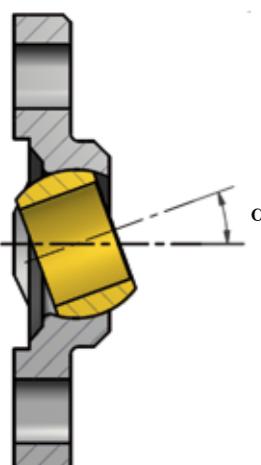
Since igubal® fixed flange bearings are made for maintenance-free dry operation, they are especially suitable for applications in which access to the bearing is limited, in wet environments or cleanroom environments. igubal® fixed flange bearings are also found in electric brushes, awnings, conveyor technology, and bakery machines.

Tolerances

Maintenance-free igubal® fixed flange bearings have an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. The bearing clearance compensates for bearing expansion due to warming. All values and tolerances according to ISO 2768-m. Please contact us if you require lower or other bearing tolerances.

Assembly

igubal® fixed flange bearings are designed for mounting with two or four bolts, depending on the design. The 2-hole types are provided with elongated holes, which allow easy and flexible installation. An exact positioning of the bearing housing is not necessary, since the fixed flange bearing compensates for alignment errors. Special adjusting rings can be used to fix the shaft.

pivot angle**igubal® fixed flange bearings - for temperatures up to +80 °C**

Easy installation

E series

► From page 946



For high radial loads

E series

► From page 948



Universal and quick assembly

Female thread

► Page 950



Universal and quick assembly

Male thread

► Page 951

igubal® fixed flange bearings - for temperatures up to +200°C

High static load, split housing

K series

► Page 952



For high radial loads

E series

► Page 953



Easy installation

E series

► Page 954



Suitable for food contact

E series

► Page 955

igubal® fixed flange bearing with plastic housing - dimensionally interchangeable with cast iron housings

Easy installation

E series

► Page 956



Completely corrosion-free

E series

► Page 957



High static loads

E series

► Page 960



Low coefficient of friction

E series

► Page 961

igubal® fixed flange bearings with cost-effective metallic housing

Easy replacement of the spherical ball

► Page 962



Low coefficient of friction, pivoting version

E series

► Page 1088



Low coefficient of friction, pivoting version

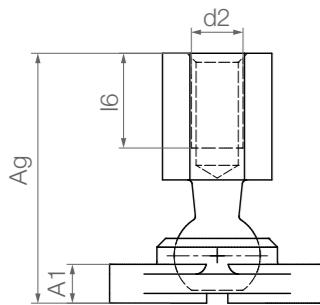
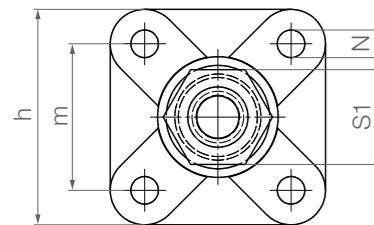
E series

► Page 1089

Complete housing with ball stud,
female thread: GFSM-IG



- Maintenance and corrosion-free
- Easy connection - easy assembly
- Compensation of misalignment errors



Technical data

Part No.	Max. static tensile strain		Max. static compressive force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GFSM-06-IG	150	75	350	175	16.4
GFSM-08-IG	250	125	750	375	34.0
GFSM-10-IG	140	70	1,200	600	61.1

Dimensions [mm]

Part No.	d2	m	h	Ag	A1	I6	N	S1	Max. pivot angle
GFSM-06-IG	M6	17	25	29.0	4.5	11	3.2	SW11	32°
GFSM-08-IG	M8	22	33	36.0	5.5	12	4.3	SW14	40°
GFSM-10-IG	M10	26	38	43.5	6.5	16	5.3	SW17	34°

²⁸⁾ Stainless steel ball stud upon request



Order key

Type	Size	Version
GF S M- 06 - IG - ES		
Flange mounted	4 holes	Metric
	Inner Ø [mm]	
		Female thread

Options:

Ball stud

Blank : Galvanised steel

ES : Made of stainless steel²⁸⁾

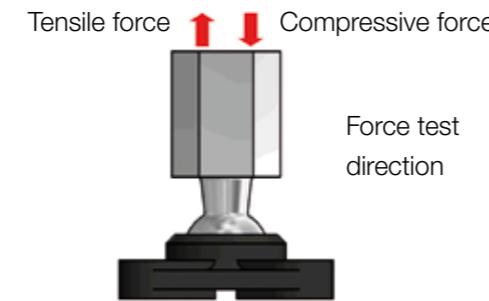


Material:

Housing: igumid® G ► Page 1190

Ball stud: galvanised and stainless steel²⁸⁾

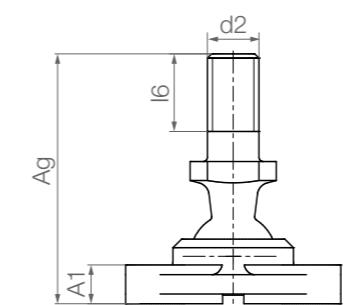
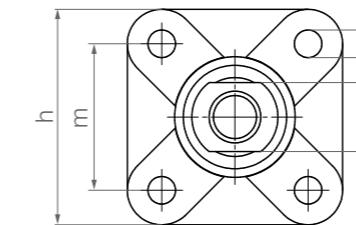
► Accessories, page 1013



Complete housing with ball stud,
male thread: GFSM-AG



- Maintenance and corrosion-free
- Easy connection - easy assembly
- Compensation of misalignment errors



Technical data

Part No.	Max. static tensile strain		Max. static compressive force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GFSM-06-AG	150	75	350	175	10.6
GFSM-08-AG	250	125	750	375	23.1
GFSM-10-AG	140	70	1,200	600	41.2

Dimensions [mm]

Part No.	d2	m	h	Ag	A1	I6	N	S1	Max. pivot angle
GFSM-06-AG	M6	17	25	29.0	4.5	10.5	3.2	SW8	32°
GFSM-08-AG	M8	22	33	36.0	5.5	13.5	4.3	SW11	34°
GFSM-10-AG	M10	26	38	43.5	6.5	16.0	5.3	SW13	34°

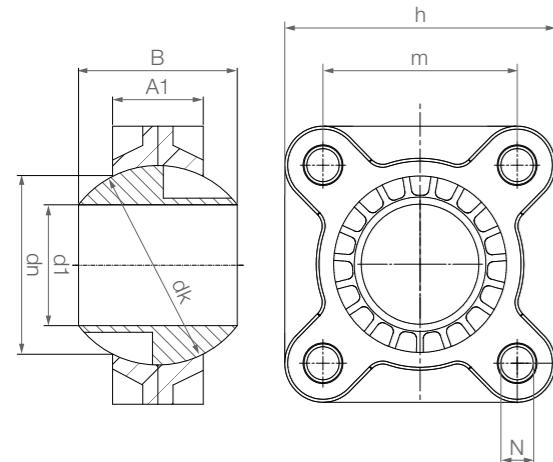
²⁹⁾ Ball stud with right-hand thread; left-hand thread upon request

²⁸⁾ Stainless steel ball stud upon request

Fixed flange bearings with 4 mounting holes and split housing: KFSM-GT



- Pre-assembled
- Option with push-in feet
- Resistant to dirt
- Lightweight
- Low installation space
- For high static loads
- High rigidity and durability
- Predictable service life
- Maintenance-free dry operation
- Mounting: with push-in feet M10, without push-in feet M12



Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight [g]
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	
KFSM-GT35-A ²³⁾	5,000	2,500	4,500	2,250	183.5
KFSM-GT40-A	5,000	2,500	4,500	2,250	161.6
KFSM-GT45-A ²³⁾	6,000	3,000	5,000	2,500	294.6
KFSM-GT50-A	6,000	3,000	5,000	2,500	260.1

Max. tightening torque for fixing: 30Nm

Dimensions [mm]

Part No.	d1	dn	d3	dk	A1	A2	B	m	h	N	Max. pivot angle
	E10										
KFSM-GT35-A ²³⁾	35.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT40-A	40.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT45-A ²³⁾	45.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°
KFSM-GT50-A	50.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°

For KFSM with distance pieces, please add an "A" to the Part No. Example: KFSM-GT-50-A

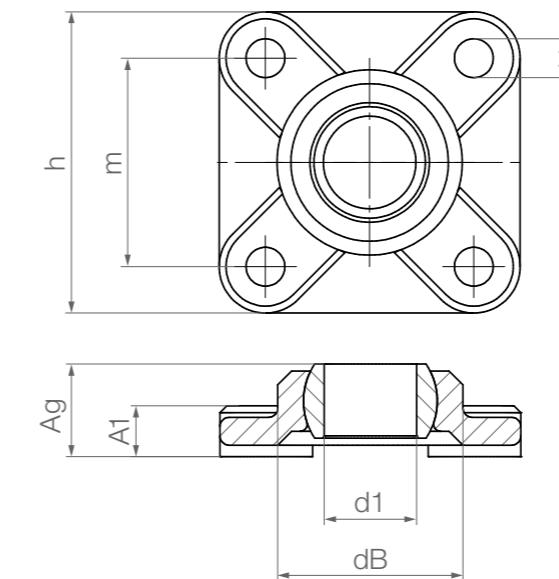
²³⁾ Diameter given by iglidur® J bore reducer

High-temperature fixed flange bearings with 4 mounting holes: EFSM-HT



Type	Size	Version
E series	Fixed flange bearing	High temperature

i Material:
Housing: iguton G ► Page 1191
Spherical ball: iglidur® X ► Page 291



Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque [Nm]	Weight [g]
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]		
EFSM-05-HT	275	138	440	220	0.6	3.5
EFSM-06-HT	339	170	523	262	0.6	3.3
EFSM-08-HT	412	206	713	356	1.3	7.1
EFSM-10-HT	864	432	1,202	601	2.5	11.2
EFSM-12-HT	1,024	512	1,347	674	2.5	13.3

Dimensions [mm]

Part No.	d1	dB	h	m	A1	Ag	N	Max. pivot angle
	E10		Width	Hole pitch ±0.1	Height of plate	Total height	Bore d	
EFSM-05-HT	5	14	25	17	4.5	8.5	3.2	29°
EFSM-06-HT	6	14	25	17	4.5	8.5	3.2	25°
EFSM-08-HT	8	18	33	22	5.5	10.5	4.3	25°
EFSM-10-HT	10	22	38	26	6.5	12.0	5.3	25°
EFSM-12-HT	12	25	40	28	7.0	13.0	5.3	21°

Other dimensions available upon request

Compact fixed flange bearings with 2 mounting holes, polymer housing: FL208-30-KS



Order key

Type Size Version

FL208- 30 -KS-□

Fixed flange bearing	Spherical ball inner Ø [mm]	Polymer	Spherical ball material
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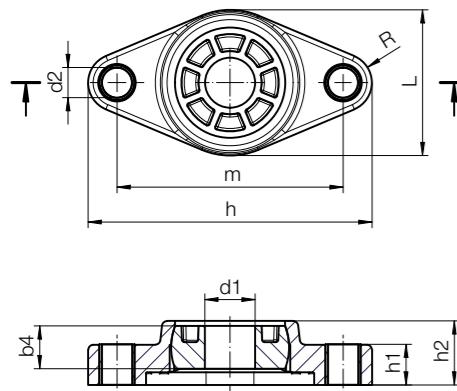
Material:

Housing: igumid® G ► Page 1190

Spherical ball: iglidur® J ► Page 163

- machined (hygienic)
- iglidur® J-SP ► Page 163
- moulded (cost-effective)
- iglidur® J3 ► Page 187
- machined (longer service life, hygienic)
- iglidur® J3-SP ► Page 187
- injection moulded
- (longer service life, cost-effective)

- Dimensions to equal to those of common flange bearings including in the bottling and packaging industry
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves



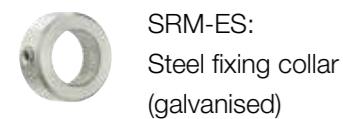
Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
FL208-30-KS-□ New	9,000	4,500	2,200	1,100	175.1
FL208-35-KS-□ New	9,000	4,500	2,200	1,100	172.1
FL208-40-KS-□ New	9,000	4,500	2,200	1,100	168.8

Dimensions [mm]

Part No.	d1	d2	h	L	b4	h1	R	m	h2
FL208-30-KS-□ New	30	10	147	93	21	14.2	15	117	30.5
FL208-35-KS-□ New	35	10	147	93	21	14.2	15	117	30.5
FL208-40-KS-□ New	40	10	147	93	21	14.2	15	117	30.5

Can be combined with accessories ► Page 1012



SRM-ES:
Steel fixing collar
(galvanised)



SRM-KS:
Polymer fixing
collar

Can be combined with accessories ► Page 1016



EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

Compact fixed flange bearings with 4 mounting holes, polymer housing: F208-30-KS



Order key

Type Size Version

F208- 30 -KS-□

Fixed flange bearing	Spherical ball inner Ø [mm]	Polymer	Spherical ball material
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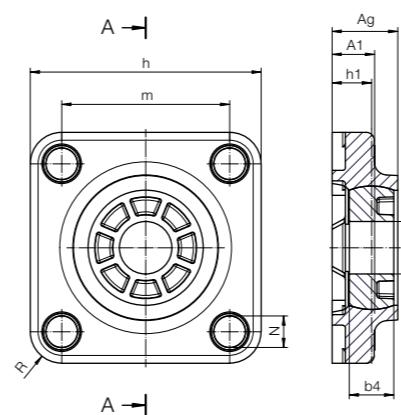
Material:

Housing: igumid® G ► Page 1190

Spherical ball: iglidur® J ► Page 163

- machined (hygienic)
- iglidur® J-SP ► Page 163
- moulded (cost-effective)
- iglidur® J3 ► Page 187
- machined (longer service life, hygienic)
- iglidur® J3-SP ► Page 187
- injection moulded
- (longer service life, cost-effective)

- Dimensions to equal to those of common flange bearings including in the bottling and packaging industry
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves



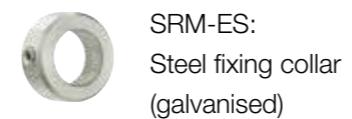
Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
F208-30-KS-□ New	16,500	8,250	1,200	600	236.8
F208-35-KS-□ New	18,000	9,000	1,200	600	233.8
F208-40-KS-□ New	20,000	10,000	1,200	600	230.5

Dimensions [mm]

Part No.	d1	h	m	A1	Ag	N	b4	h1	R
F208-30-KS-□ New	30	115	82.8	16.2	29	12	21	16	16.1
F208-35-KS-□ New	35	115	82.8	16.2	29	12	21	16	16.1
F208-40-KS-□ New	40	115	82.8	16.2	29	12	21	16	16.1

Can be combined with accessories ► Page 1012



SRM-ES:
Steel fixing collar
(galvanised)



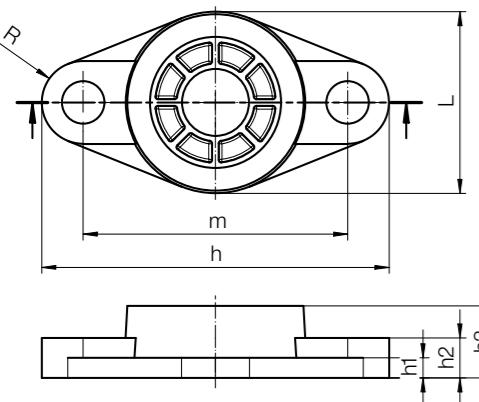
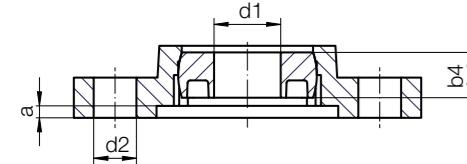
SRM-KS:
Polymer fixing
collar

Can be combined with accessories ► Page 1016



EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

Fixed flange bearings with 2 mounting holes,
cast iron housing: FL-JEM-SP



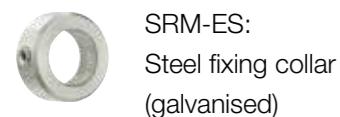
Technical data and dimensions [mm]

Part No.	Max. static radial load [N]	Max. static axial load [N]	d1	m	d2	L
FL204-JEM-20-17-SP New	8,000	4,000	20	90	12	60
FL205-JEM-25-17-SP New	9,000	3,500	25	99	16	68
FL206-JEM-30-19-SP New	13,500	5,000	30	117	16	80
FL208-JEM-40-21-SP New	21,000	6,000	40	144	16	100
FL210-JEM-50-24-SP New	25,000	5,500	50	157	19	115

Dimensions [mm]

Part No.	h	h1	h2	h3	R	a	b4
FL204-JEM-20-17-SP New	112	6.0	12	25.5	11.5	3.6	17
FL205-JEM-25-17-SP New	130	7.5	15	25.5	15.5	4.5	17
FL206-JEM-30-19-SP New	147	7.0	14	31.0	15.5	4.2	19
FL208-JEM-40-21-SP New	175	8.0	16	36.0	15.5	4.8	21
FL210-JEM-50-24-SP New	197	9.0	18	40.0	20.0	5.4	24

Can be combined with accessories ► Page 1012



SRM-ES:
Steel fixing collar
(galvanised)

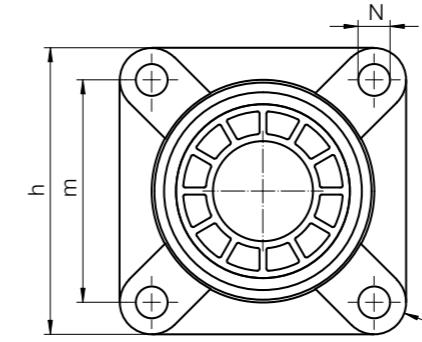
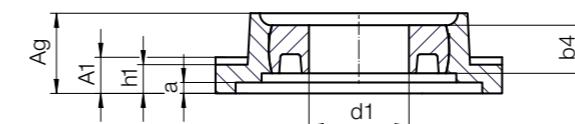
SRM-KS:
Polymer fixing
collar

Can be combined with accessories ► Page 1016



EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

Fixed flange bearings with 4 mounting holes,
cast iron housing: F-JEM-SP



Technical data and dimensions [mm]

Part No.	Max. static radial load [N]	Max. static axial load [N]	d1	a	h	m
F204-JEM-20-17-SP New	8,000	4,000	20	3.6	86	64
F205-JEM-25-17-SP New	9,000	3,500	25	4.2	95	70
F206-JEM-30-19-SP New	13,500	5,000	30	4.2	108	83
F208-JEM-40-21-SP New	21,000	6,000	40	4.8	130	102
F210-JEM-50-24-SP New	25,000	5,500	50	5.4	143	111

Dimensions [mm]

Part No.	A1	Ag	N	b4	h1	R
F204-JEM-20-17-SP New	12	25.5	12	17	9.6	11.0
F205-JEM-25-17-SP New	14	27.0	12	17	11.2	12.5
F206-JEM-30-19-SP New	14	31.0	12	19	11.2	12.5
F208-JEM-40-21-SP New	16	36.0	16	21	12.8	14.0
F210-JEM-50-24-SP New	18	40.0	16	24	14.4	16.0

Can be combined with accessories ► Page 1012



SRM-ES:
Steel fixing collar
(galvanised)

SRM-KS:
Polymer fixing
collar

Can be combined with accessories ► Page 1016



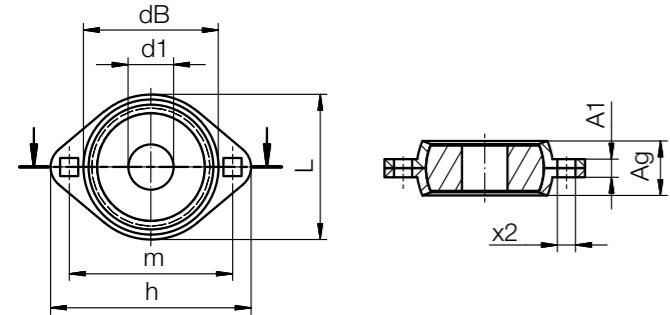
EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

igubal® fixed flange bearings | Product range

Fixed flange bearings with cost-effective metallic housing: PFL-JEM-SP



- Cost-effective spherical ball material iglidur® J4 available (order example: PFL204-J4EM-20-14-SP)
- Lubrication and maintenance-free
- Cost-effective
- Resistant to dirt



Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Weight [g]
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	
PFL203-J4EM-17-12-SP New	1,500	750	3,000	1,500	83.6
PFL204-□EM-20-14-SP	2,000	1,000	4,000	2,000	108.7
PFL205-□EM-25-15-SP	2,000	1,000	5,000	2,500	119.3
PFL206-□EM-30-16-SP	2,000	1,000	7,000	3,500	180.3
PFL207-JEM-35-17-SP New	2,500	1,250	8,000	4,000	242.6
PFL208-JEM-40-18-SP New	2,500	1,250	9,000	4,500	398.6

Dimensions [mm]

Part No.	d1	h	L	m	A1	Ag	x2
	E10				+0.1		
PFL203-J4EM-17-12-SP New	17	81	59	63.5	4.0	14	7.1
PFL204-□EM-20-14-SP	20	90	67	71.5	4.0	16	9.0
PFL205-□EM-25-15-SP	25	95	71	76.0	4.0	18	9.0
PFL206-□EM-30-16-SP	30	113	84	90.5	5.2	18	11.0
PFL207-JEM-35-17-SP New	35	122	94	100.0	5.2	20	11.0
PFL208-JEM-40-18-SP New	40	148	100	119.0	6.8	21	13.5

Can be combined with SRM fixing collars ► Page 1012

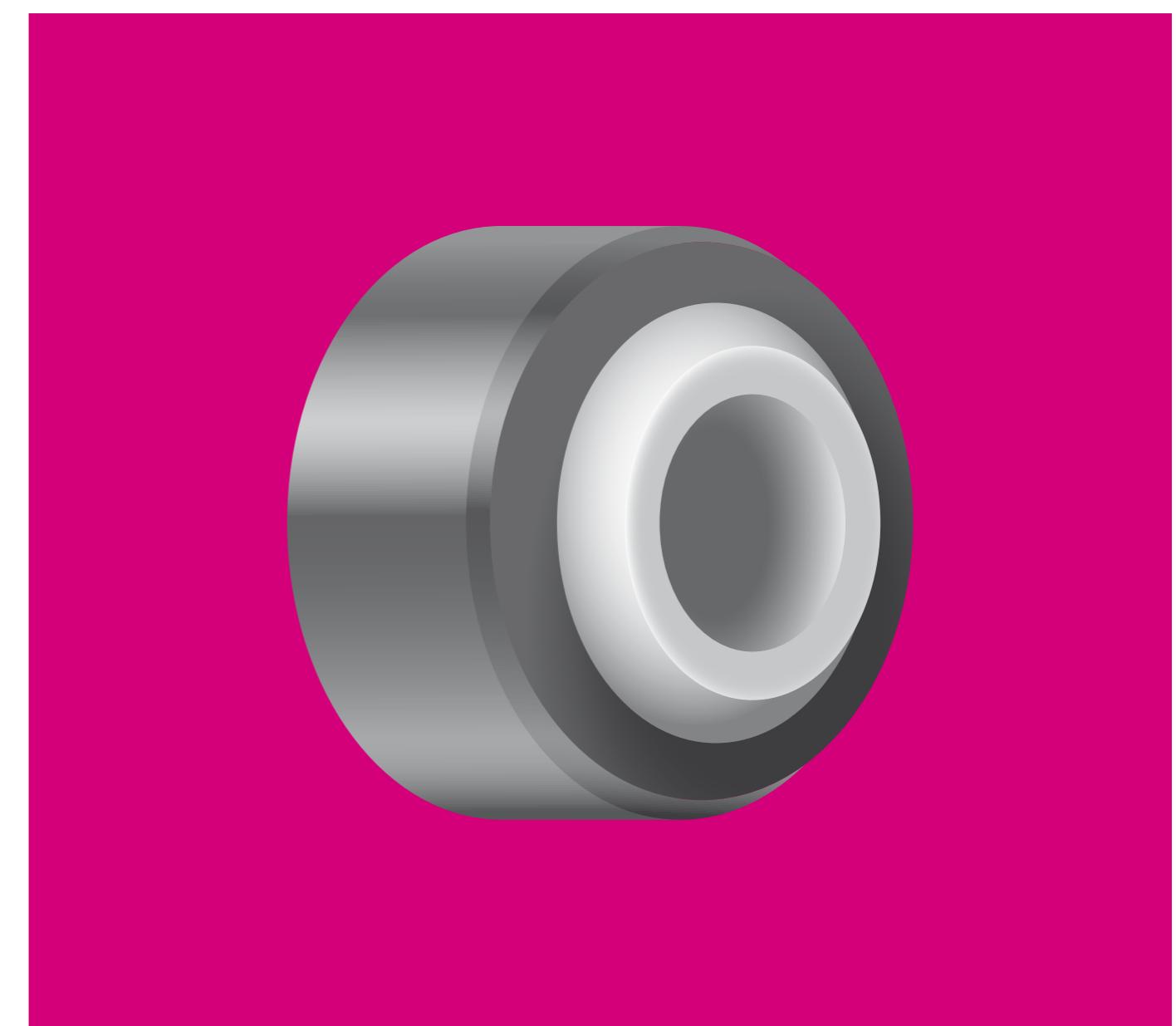


Type	Size	Version
PFL204- J E M - 20 - 14 - SP		
Fixed flange bearing	Spherical insert bearing material	
	Dimensional series	
	Metric	
	Spherical ball inner Ø [mm]	
	Spherical ball width [mm]	
	Injection moulding	



Material:

Housing: Galvanised steel
(stainless steel upon request)
Spherical ball: iglidur® J
(alternative iglidur® J4)



igubal® spherical bearings

Easy to fit



Cost-effective



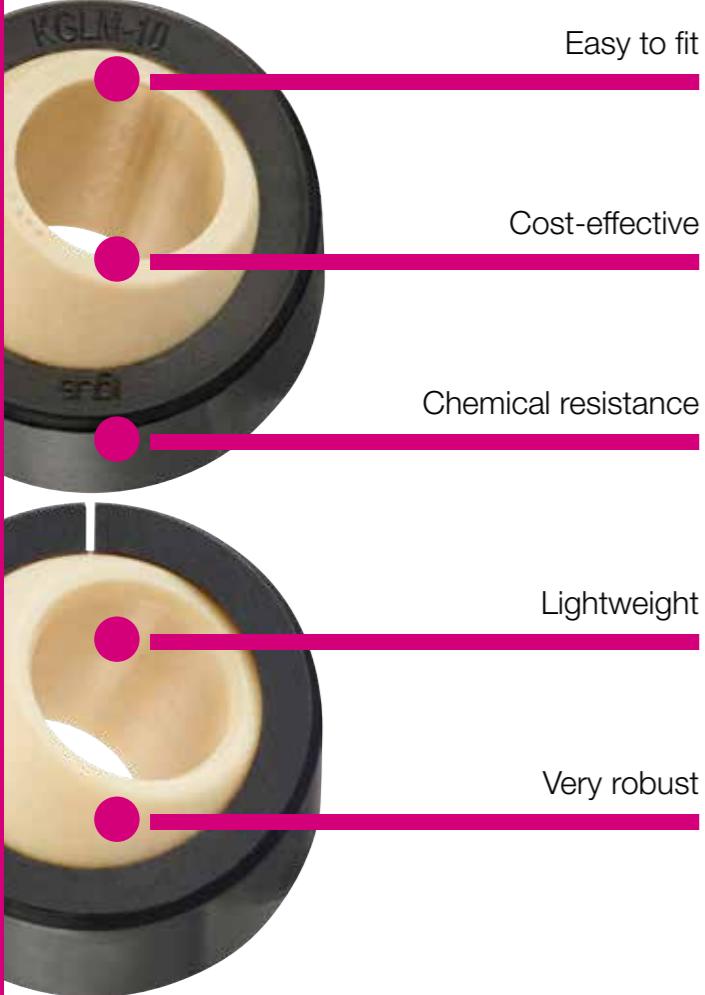
Chemical resistance

Lightweight

Very robust

igubal® spherical bearings

The use of spherical bearings is usually associated with heavy materials, difficult installation, and high costs. Most of the time, maintenance is still necessary long-term, and the bearings are only corrosion-resistant in special designs. igubal® spherical bearings put an end to all of these disadvantages: they are easy to fit, cost-effective, lightweight and robust.



Easy to fit

Cost-effective

Chemical resistance

Lightweight

Very robust



When do I take them?

- For high axial and radial loads
- For the simplest installation
- When extremely small installation spaces are available
- When chemical resistance is required
- If a cost-effective option is requested
- When dirt-resistant bearings are required
- To adjust misalignment



When do I not take them?

- When temperatures are higher than +80°C
- For dimensions above 30mm
- If rotation speeds of more than 0.5m/s are to be achieved

Available from stock

Detailed information about delivery time online.

Price breaks online

No minimum order value. No minimum order quantity

Max. +80°C min. -30°C

13 types Ø 2-40mm

Imperial dimensions available ► From page 1160

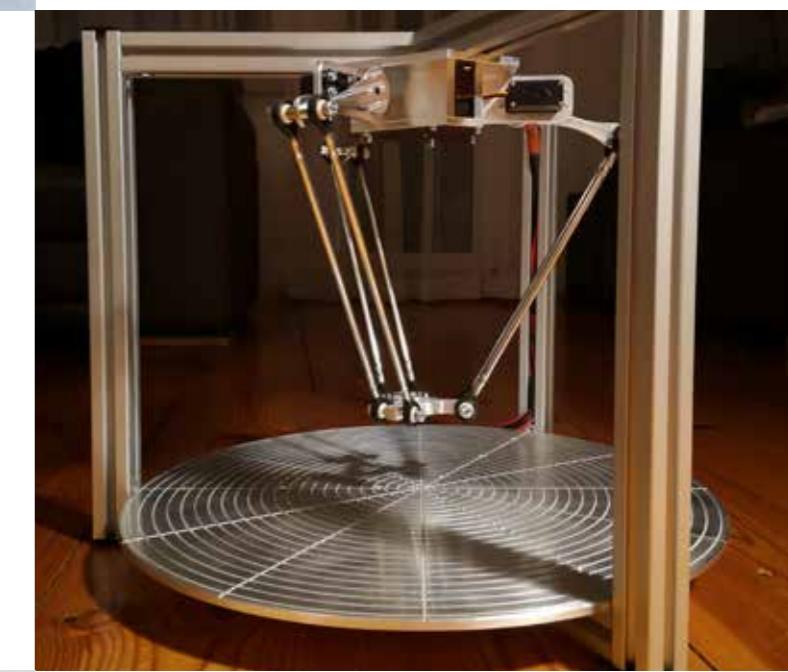
Online product finder ► www.igus.eu/igubal-finder

igubal® spherical bearings | Application examples



Saxophone

A saxophone that can be played with one hand. The transmission of force from the stop to the saxophone key was to be silent. Here, the engineers opted for igubal® KGLM polymer spherical bearings from igus®. The bearings operate quietly and ensure the necessary ease with which it should be possible to play high-quality musical instruments.



Delta robot

Contec, a Polish company, develops delta robots that position labels and tags. The company uses igubal® double joints (KDGM-06-A-ER-J) for the robot arms. The bearings require no external lubrication and are maintenance-free.



Folding table and folding chair

It is the same in most university lecture halls: some students treat folding tables and folding chairs very roughly - for example, by flopping down on them with the full weight of their body. A tough application for the bearings of a chair. The manufacturer Audia Italia therefore places its trust in igubal® KGLM-10 spherical bearings. What the engineers like about them is their resilience, self-lubricating nature and, above all, self-alignment capability.

Spherical bearings are usually associated with heavy materials, difficult installation, and high costs. In most cases, however, maintenance is required in the longer term and the bearings are only corrosion-free in special designs. Often roller bearings or plain bearings malfunction prematurely due to high edge loads, or because they need to be readjusted, reamed, or refitted in order to compensate for alignment errors.

igubal® spherical bearings put an end to all of these disadvantages and open up many new possibilities for your engineering design:

- Easy to use
- Especially cost-effective
- Lightweight
- Very robust

Application areas

Ease of installation makes many applications possible for igubal® spherical bearings. They can be used anywhere. The self-aligning feature offers design advantages and helps to simplify assembly.

Tolerances

Maintenance-free igubal® spherical bearings are designed with an inner diameter tolerance of E10. The shaft tolerance should be manufactured between h6 and h9. These recommended tolerances allow for changes in the bearing due to temperature.

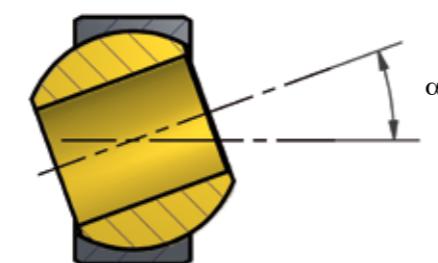
Assembly

igubal® spherical bearings are press-fitted into a recommended H7 housing bore and axially secured. An exact orientation of the bearing housing is not necessary, since the spherical bearing compensates for alignment errors.

Dimensions

igubal® spherical bearings are manufactured according to DIN ISO 12240 for dimensional K and E series. The product range provides standard dimensions from 2 to 40mm. The dimensional K series is available in imperial dimensions.

pivot angle



igubal® spherical bearings



Easy to fit, cost-effective, selectable spherical ball material

K series

► Page 968



For extremely narrow installation space

K series

► Page 969



Standard, easy to fit

K series

► Page 970



Cost-effective, selectable spherical ball material

E series

► Page 971

igubal® self-aligning clip bearings



Space-saving

E series

► Page 972



Suitable for food contact

E series

► Page 973



Simply snap into sheet metal

E series

► Page 974



For high axial and radial loads, selectable spherical ball material

E series

► Page 975

igubal® self-aligning clip bearings



For tolerance compensation, selectable spherical ball material

E series

► Page 976



Simply snap-in into sheet metal, can be assembled on both sides

E series

► Page 977

igubal® double joints and coupling joints



Robust plastic, selectable spherical ball material

E series

► Page 978



Selectable materials, individual dimensions and alignment

► Page 982

igubal® double joints and coupling joints

New



Selectable materials, individual dimensions and alignment

► Page 980



Removable, selectable materials, individual dimensions and alignment

► Page 984



Crimped coupling joints, particularly resistant to dirt

with clevis joints



Crimped coupling joints

with clevis joints

► Page 985

► Page 986

Double joints: EGZM



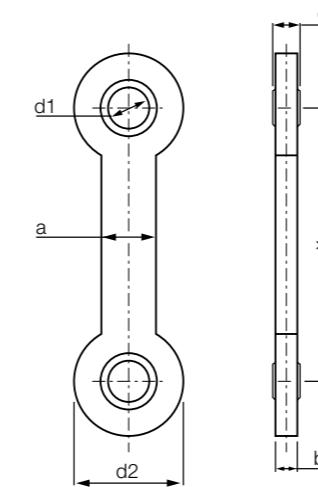
- Maintenance-free dry operation
- Mechanical joining link between two components
- Compensation of misalignment errors
- Corrosion-resistant
- Double joint turned 90° available upon request



Material:

Housing: igumid® G ► Page 1190
Spherical ball: iglidur® W300 ► Page 175

Double joints: EGZM



Type	Size			
E series	Double joints	Metric	Inner Ø d1 [mm]	Pitch X [mm]
E GZM-04-25				

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V

Technical data [mm]

Part No.	Max. static load (short-term)		Max. static load (long-term)		Max. pivot angle	Weight
	Tensile force	Compressive force	Tensile force	Compressive force		
	[N]	[N]	[N]	[N]		
EGZM-04-25	1,100	1,300	550	650	32°	3.5
EGZM-04-50	1,100	750	550	375	32°	4.8
EGZM-04-75	1,100	500	550	250	32°	6.1
EGZM-05-25	1,100	1,300	550	650	37°	2.2
EGZM-05-50	1,100	750	550	375	37°	4.9
EGZM-05-75	1,100	500	550	250	37°	6.3
EGZM-06-25	1,100	1,300	550	650	30°	3.4
EGZM-06-50	1,100	750	550	375	30°	4.8
EGZM-06-75	1,100	500	550	250	30°	6.0
EGZM-08-60	3,000	3,500	1,500	1,750	20°	15.2
EGZM-08-100	3,000	1,900	1,500	950	20°	19.5
EGZM-08-150	3,000	900	1,500	450	20°	24.5
EGZM-10-60	2,500	3,500	1,250	1,750	25°	15.3
EGZM-10-85	2,500	2,300	1,250	1,150	25°	18.1
EGZM-10-100	2,500	1,900	1,250	950	25°	19.4
EGZM-10-150	2,000	900	1,000	450	25°	23.7
EGZM-12-60	2,000	3,500	1,000	1,750	25°	14.7
EGZM-12-100	2,500	1,900	1,000	950	25°	18.8
EGZM-12-150	2,500	900	1,250	450	25°	23.3

Alternative spherical ball materials ► Page 993



REM:
Low-cost



JEM:
low moisture
absorption



J4EM:
low-cost and
low moisture
absorption



J4VEM:
clearance-free
pre-loaded
spherical ball

EN 09/2023

EN 09/2023

Variable double joints: KDGM

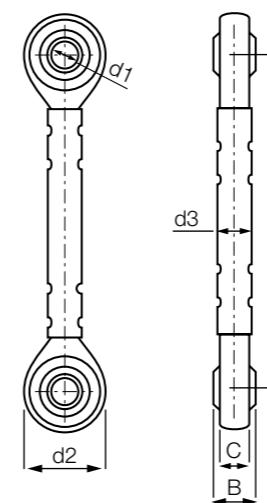


- Ball diameters 5, 6, 8, 10 and 12mm
- Individual centre distance
- Individual alignment of the bearing position

**Material:**

Housing: igumid® G ► Page 1190
 Spherical ball: Variable ► Page 993
 Tube: Galvanised or stainless steel

Variable double joints: KDGM



Order key

Type	Size	Options
KDGM- 06 - A -ER- J		
K series	Double joints	Metric
Inner Ø [mm]	Ball stud direction (A or B)	Tube material
		Spherical ball material

Options:	Spherical ball material
Tube material	Blank : iglidur® W300
ER : Stainless steel (AISI 303)	J : iglidur® J
SR : Galvanised steel	J4 : iglidur® J4
R	R : iglidur® R
EK	EK : Stainless steel (AISI 303)

Technical data

Part No.	Max. static tensile strain		Max. static compressive force ¹⁹⁰⁾		Max. pivot angle
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	
KDGM-05-A-ER [] ³²⁾	220	110	1,250	625	45°
KDGM-06-A-ER-J [] ³²⁾	220	110	1,250	625	40°
KDGM-08-A-ER-J [] ³²⁾	500	250	1,500	750	35°
KDGM-10-A-ER-J ¹⁴⁵⁾ [] ³²⁾	700	350	2,500	1,250	35°
KDGM-12-A-ER-J [] ³²⁾	1,000	500	3,500	1,750	35°

³²⁾ Please add the required centre distance in mm

¹⁴⁵⁾ Size only available with stainless steel tube (ER)

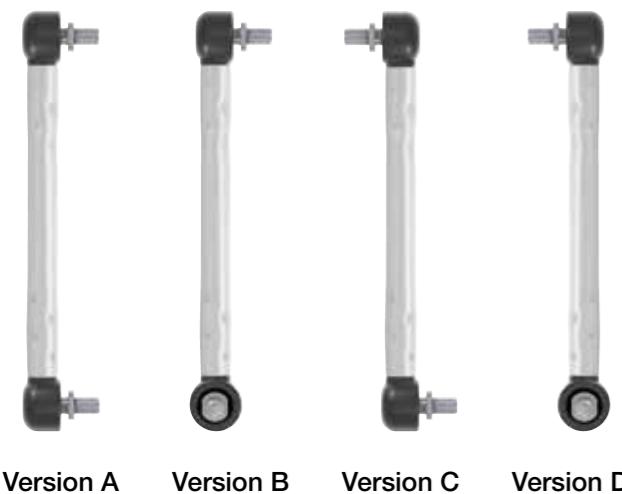
¹⁹⁰⁾ The values refer to a length of 200mm

Dimensions [mm]

d1	d2	d3	X	B	C
E10			min.		
5	20	6	72	9	7.0
6	20	6	72	9	7.0
8	24	8	84	12	9.0
10	30	10	96	14	10.5
12	34	12	108	16	12.0

Order example, KDGM-05-A-SR, 100 : Double joint with 5mm inner diameter, version A, tube material made of steel, spherical ball made of iglidur® W300, centre distance 100mm

Variable coupling joints: WDGM

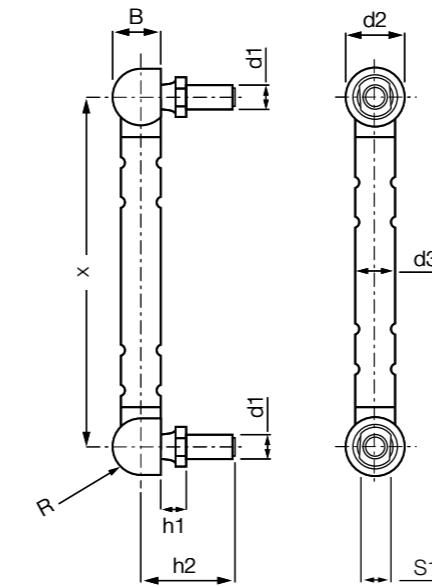


- Socket cup M5, M6, M8 and M10
- Individual centre distance
- Individual alignment of the bearing position

**Material:**

Housing: igumid® G ► Page 1190
 Ball stud: Plastic, galvanised or stainless steel²⁸⁾
 Tube: Galvanised or stainless steel

Variable coupling joints: WDGM



Order key

Type	Size	Options
WDGM - 05	- A -SR-SZ	
Angle	Coupling joint	Metric
	Ball stud thread [mm]	Ball stud direction (A, B, C or D)
		Tube material
		Ball stud material

Options:
 Ball stud material
 SZ : Galvanised steel
 SR : Galvanised steel
 EZ : Stainless steel²⁸⁾
 ER : Stainless steel (AISI 303) PZ : igumid® G

Technical data

Part No.	Max. static tensile strain		Max. static compressive force ¹⁹⁰⁾		Max. pivot angle
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	
WDGM-05-A-SR-SZ	800	400	1,250	625	23°
WDGM-06-A-ER-SZ ¹⁴⁵⁾	1,700	850	2,400	1,200	25°
WDGM-08-A-SR-SZ	950	475	3,200	1,600	24°
WDGM-10-A-SR-SZ	950	475	3,200	1,600	24°

²⁸⁾ Stainless steel ball stud upon request

³²⁾ Please add the required centre distance in mm

³³⁾ Housing's size 8 with a special M10 stud, available only in metal

¹⁴⁵⁾ Size only available with stainless steel tube (ER)

¹⁹⁰⁾ The values refer to a length of 200mm

Dimensions [mm]

d1	d2	d3	X	B	h1	h2	S1	R
min.								
M5	12.8	8	64	10.8	4.6	19.2	SW8	6.4
M6	14.8	10	80	12.3	6.1	23.5	SW9	7.4
M8	19.3	12	80	16.2	5.9	29.5	SW12	9.7
M10 ³³⁾	19.3	12	80	16.2	7.9	36.0	SW14	9.7

 Order example, WDGM-05-A-SR-SZ, 100: Coupling joint with 5mm ball stud thread, version A, tube material made of steel, ball stud made of steel, centre distance 100mm

Can be combined with accessories ► From page 1011:



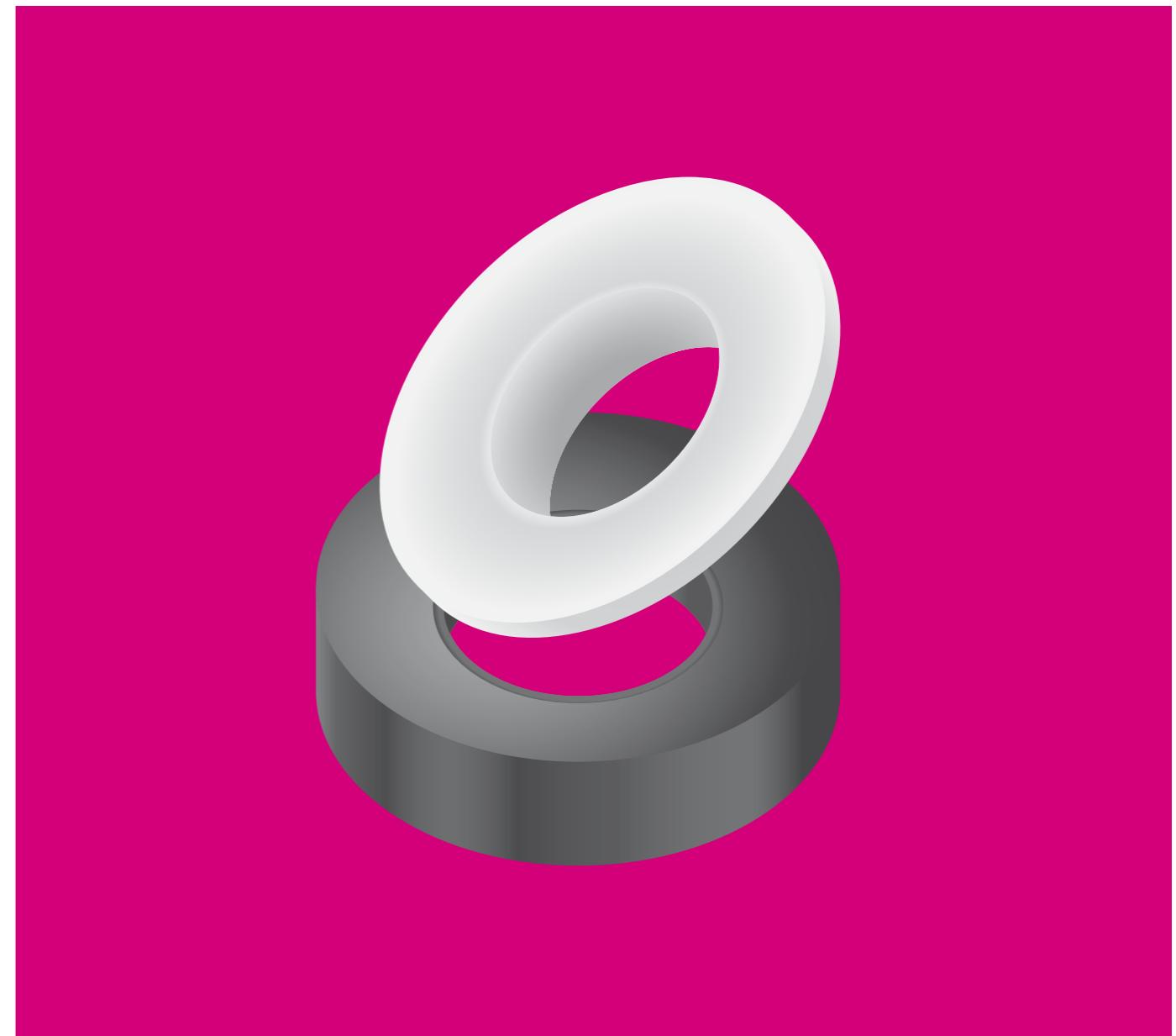
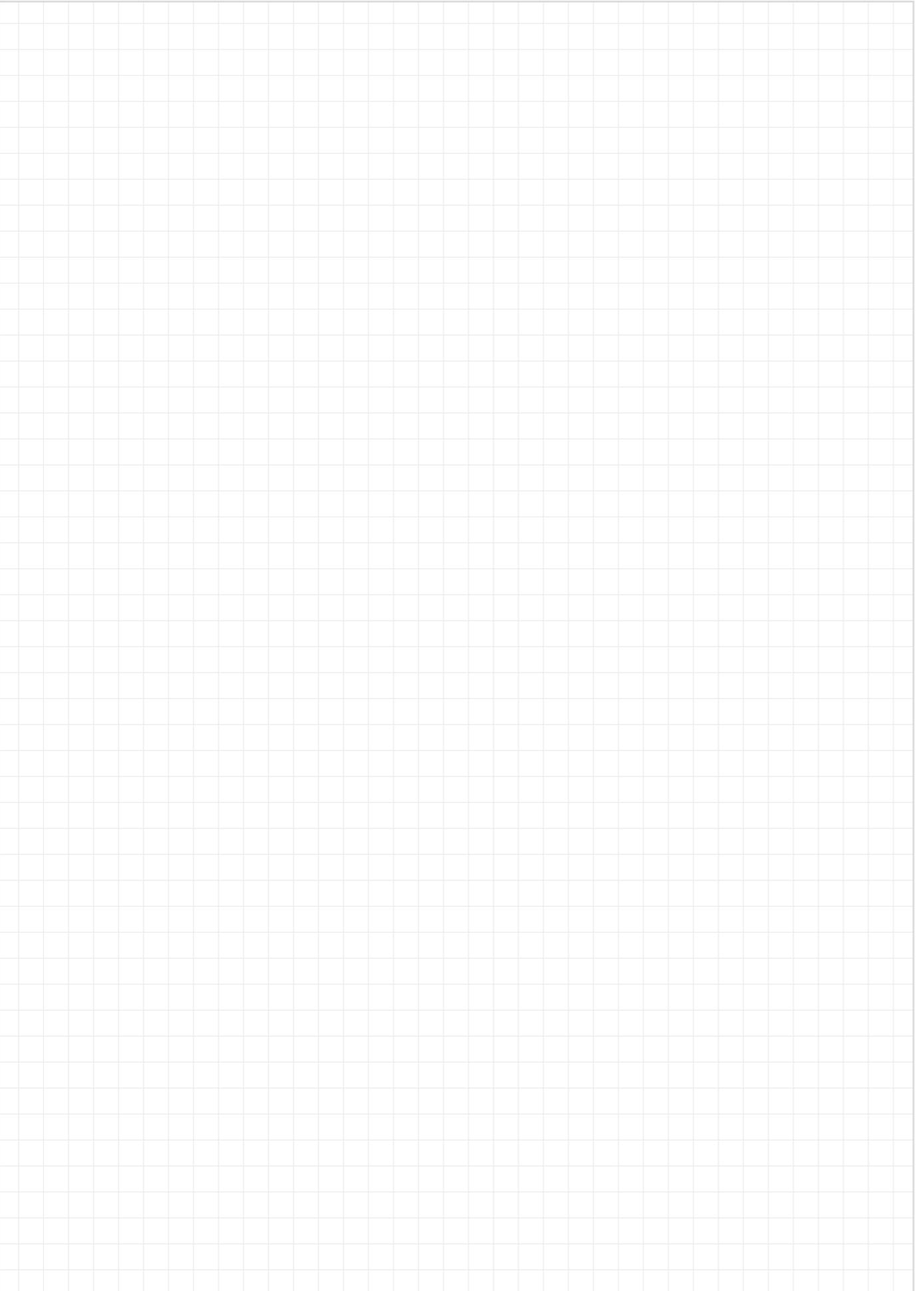
GZRM-IG



GZRM



GZRM-MS / GZRM-ES



igubal® - spherical thrust bearing

Easy installation

Compensation of misalignment errors

Compensation of edge loads

Very good friction and wear properties



igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate for alignment errors and prevent edge pressure.



Easy installation



Compensation of misalignment errors

Compensation of edge loads

Very good friction and wear properties

When do I take them?

- If you want to save weight
- If corrosion resistance is requested
- When a bearing with low coefficient of friction is required

When do I not take them?

- At very high loads
- When temperatures are higher than +80°C
- When high speeds have to be achieved

Available from stock

Detailed information about delivery time online.

Price breaks online

No minimum order value. No minimum order quantity

Max. +80°C min. -30°C

1 type Ø 5 - 20mm

Online product finder ► www.igus.eu/igubal-finder

Mechanical properties

igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate for alignment errors and prevent edge pressure. The housing pad is made of the impact-resistant, thermoplastic composite igumid® G. The spherical washer is made of iglidur® W300 material. This combination provides exceptionally good friction and wear properties.

Loads

The load capacity of igubal® spherical thrust bearings is very high in standard ambient temperatures. For high continuous loads and high temperatures, the load capacity of the spherical thrust bearings should be tested in an experiment that simulates the application.

Coefficient of sliding friction and speed

Taking into account the radial load, maximum surface speeds up to 0.5m/s rotating are possible.

Assembly

The housing pad is installed so that it is countersunk and secured. The spherical washer is loosely fitted in the socket and is held in place by the shaft that is placed into the bearing.

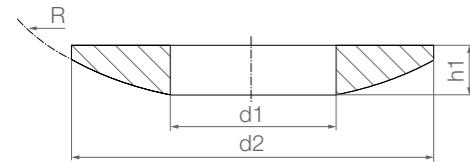
Product range

igubal® spherical thrust bearings are available in standard form to suit diameters from 5 to 20mm. Please contact us if you require other dimensions.

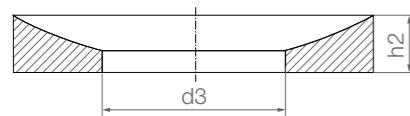
Spherical thrust bearings: SAM



Spherical washer



Housing pad



Technical data

Part No.	Max. static axial compressive strength		Max. static axial compressive strength		Weight [g]	
	Short-term		Long-term			
	[N]	[N]	[N]	[N]		
SAM-05	4,000		2,000		0.9	
SAM-06	5,000		2,500		1.1	
SAM-08	8,000		4,000		2.2	
SAM-10	10,000		5,000		3.4	
SAM-12	12,000		6,000		5.9	
SAM-16	17,000		8,500		8.5	
SAM-20	22,000		11,000		12.8	

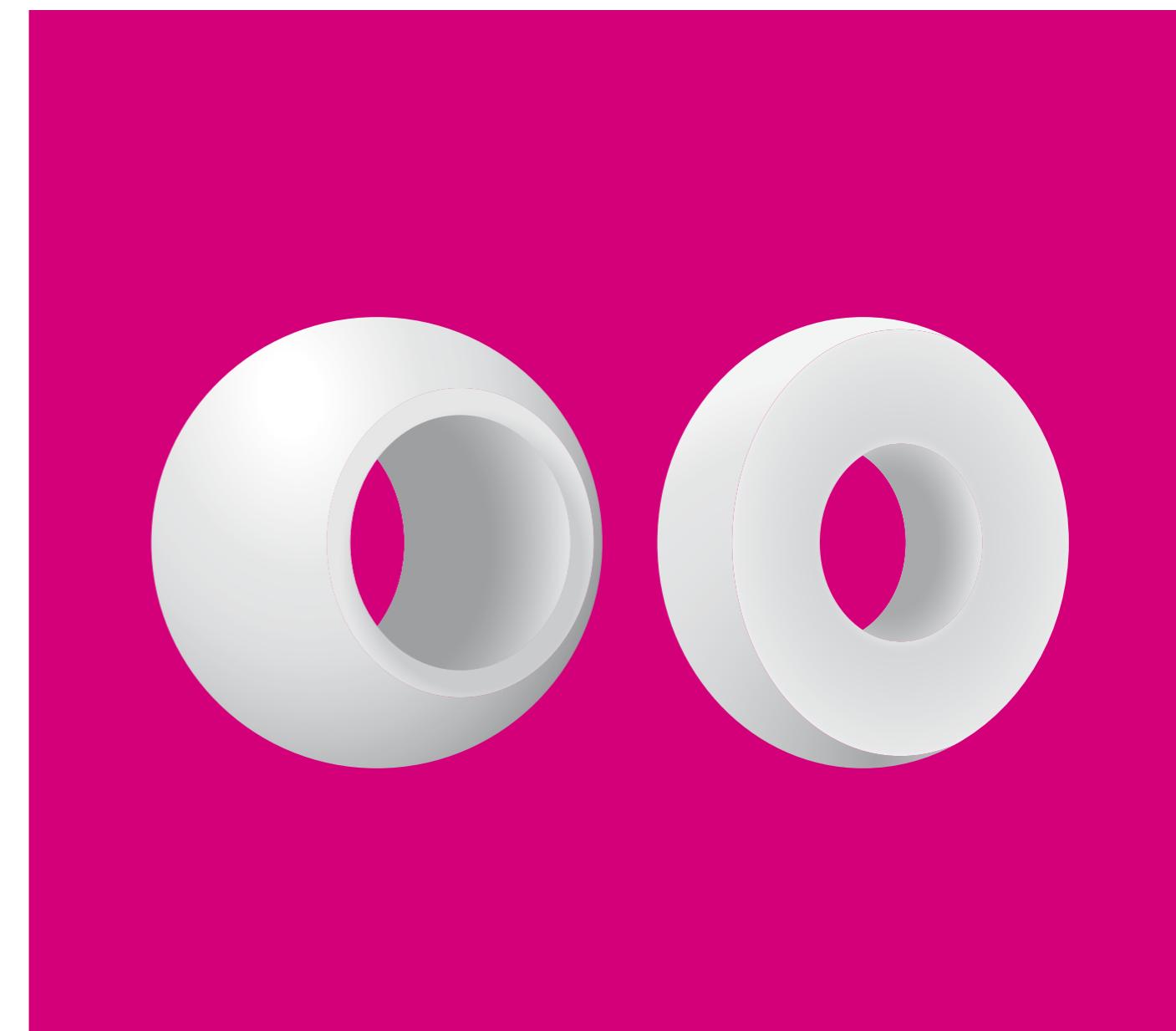
Dimensions [mm]

Part No.	d1 Spherical washer DIN 2768 medium	d3 Housing pad DIN 2768 medium	d2	h1 Spherical washer	h2 Housing pad	H ³⁴⁾ Overall height	R Radius	Compensation angle
SAM-05	5.2	7.0	15	3.0	3.5	4.7	15	3°
SAM-06	6.2	7.5	16	3.0	4.0	5.3	16	3°
SAM-08	8.2	10.0	20	4.0	5.0	6.8	20	2°
SAM-10	10.2	12.0	24	4.5	5.5	7.5	24	2°
SAM-12	12.5	14.5	30	5.0	6.2	8.0	32	2°
SAM-16	16.2	19.0	36	5.5	6.5	8.7	40	2°
SAM-20	20.2	23.0	44	6.0	7.0	8.6	45	2°

³⁴⁾ In assembled condition

Type	Size
SA M-05	Inner Ø d1 [mm]

i Material:
Spherical washer: iglidur® W300 ► Page 175
Housing pad: igumid® G ► Page 1190

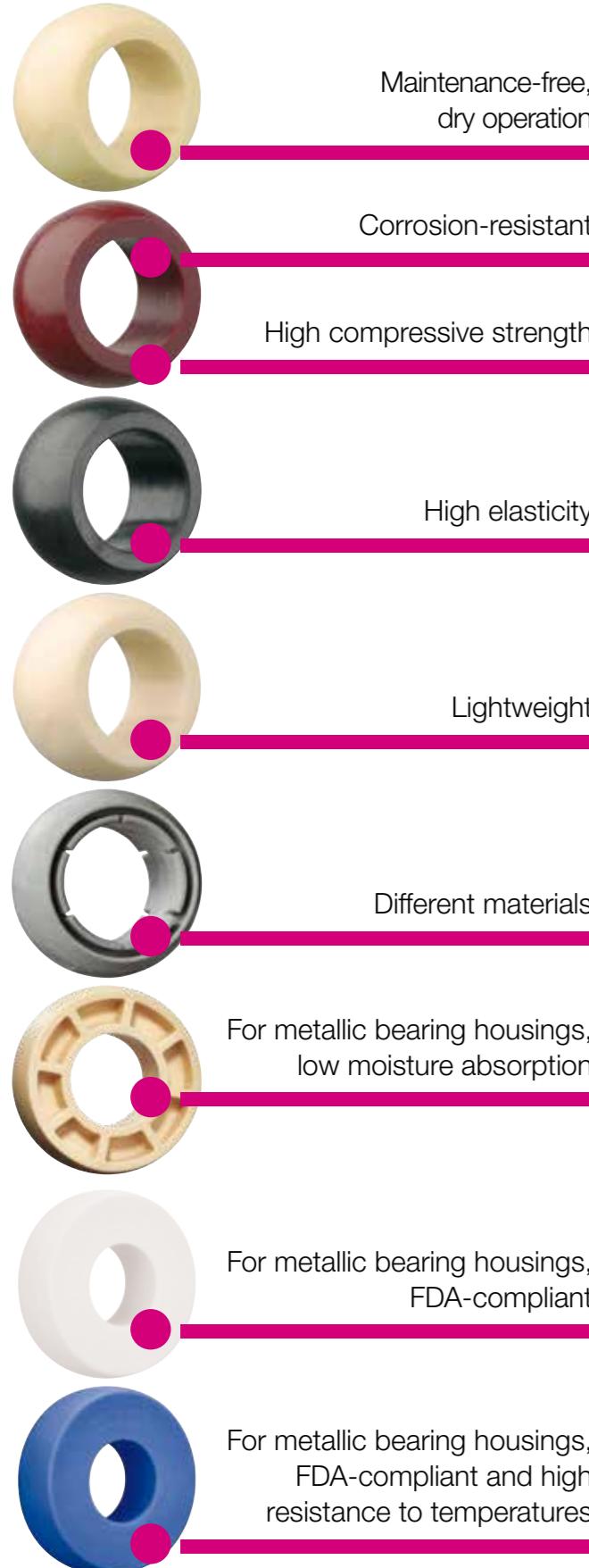


igubal® spherical balls

Maintenance-free dry operation**Corrosion-resistant****High compressive strength****High elasticity****Lightweight****Different materials****Spherical ball for metallic bearing housings**

igubal® spherical balls

Every single iglidur® material has its own special properties, which determines the suitability for your special applications and requirements. We have available spherical balls made from iglidur® materials W300 (standard), J, J4, R, A181, FC180, UW and X. The spherical balls for metallic bearing housings are available in three materials for housing numbers 203 to 210.



When do I take them?

- If you need maintenance-free material
- When dimensional series E and K components should be fitted
- If different iglidur® materials should be tested
- If high compressive strength is required
- If high flexibility is required
- Replacing ball bearings in metallic housings



When do I not take them?

- When temperatures are higher than +250°C
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Tolerances

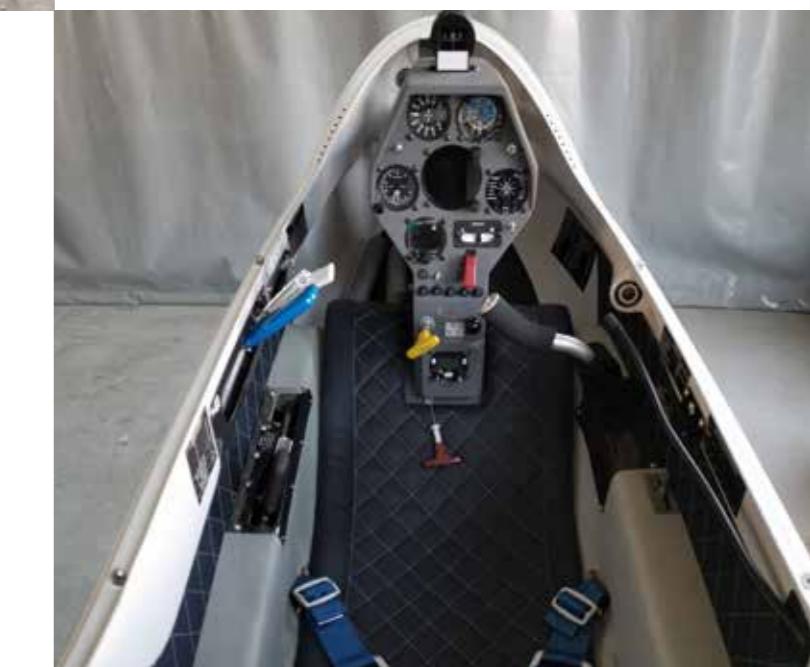
Maintenance-free igubal® spherical balls are designed with an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. All values without tolerance are dealt with according to DIN ISO 2768-m.

igubal® spherical balls | Application examples



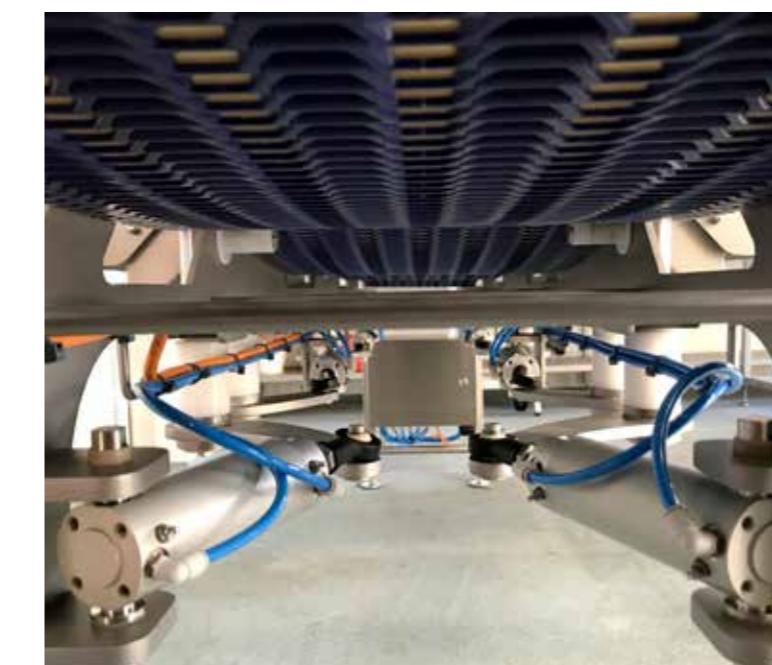
Truck gearshift

Cabovel, a South American company, develops gear shifts for lorries. The systems are subjected to millions of cycles at temperatures of -10°C to +80°C. That is why engineers use igubal® bearings manufactured from a high-performance polymer. The bearings are resistant to impacts, mechanical influences and abrasion, and absorb little moisture.



Glider

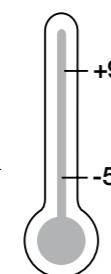
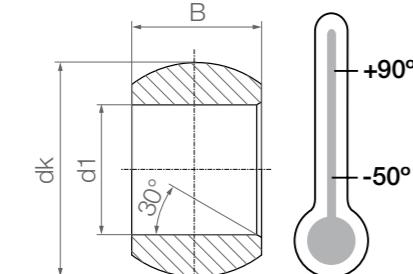
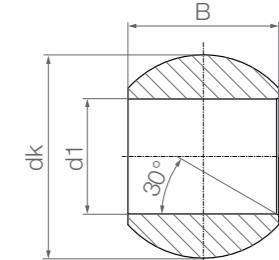
Avionic Sp., a Polish company, develops gliders. All components must be able to handle changing weather conditions - fluctuating temperatures and moisture. That is why the engineers used around 20 different sizes and types of igus® polymer plain bearings made of high-performance polymers for the rudder, elevator and flaps. igubal® spherical bearings are used to guide the rods.



Cutting machine

The Spanish company Astech Food Machinery builds machines for slicing frozen meat and fish. At the exit of the slicing machine, ejector arms separate sections on a conveyor belt according to preset characteristics. Between the piston rods and the pneumatic pistons, the engineers use polymer spherical bearings from igus®, and two hole flange bearings made of high-performance polymer in the elements where there is movement between the pneumatic piston and the machine frame.

Low-cost spherical balls:
RKM and REM



Order key

Type	Size	Options
------	------	---------

R □ M-08-12

Dimensional series
K : Dimensional K series
E : Dimensional E series

iglidur® R spherical balls	Dimensional series	Metric	Inner Ø d1 [mm]	Width [mm]
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Imperial dimensions available
► Page 1162

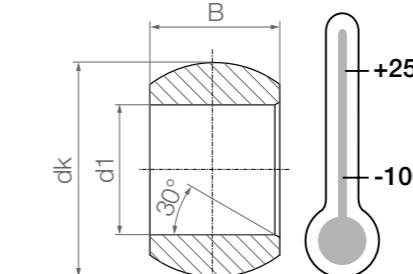
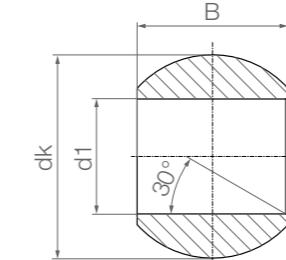
Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
RKM-06-09	6	12.80	9	1.01
RKM-08-12	8	15.90	12	1.80
RKM-10-14	10	19.00	14	2.90
RKM-12-16	12	22.10	16	4.48

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
REM-04-05	4	8.30	5	0.22
REM-05-06	5	10.20	6	0.40
REM-06-06	6	10.20	6	0.40
REM-08-08	8	13.20	8	0.80
REM-10-09	10	16.10	9	1.30
REM-12-10	12	18.10	10	1.60
REM-16-13	16	24.10	14	3.69
REM-20-16	20	29.10	16	5.94

High temperatures spherical balls:
XKM and XEM



Order key

Type	Size	Options
------	------	---------

X □ M-10-14

Dimensional series
K : Dimensional K series
E : Dimensional E series

iglidur® X spherical balls	Dimensional series	Metric	Inner Ø d1 [mm]	Width [mm]
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Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
XKM-10-14	10	19.10	14	2.90
XKM-16-21	16	28.40	21	9.40

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
XEM-05-06	5	10.30	6	0.40
XEM-06-06	6	10.20	6	0.40
XEM-08-08	8	13.30	8	0.80
XEM-10-09	10	16.10	9	1.30
XEM-12-10	12	18.10	10	1.60
XEM-16-13	16	24.10	13	3.83
XEM-20-16	20	29.10	16	6.15

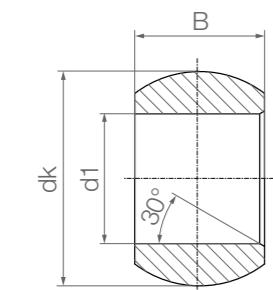
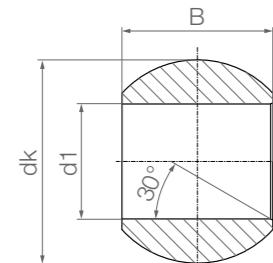
Low moisture absorption spherical balls: JKM and JEM



JKM



JEM



Order key

Type Size Options

J □ M-03-06

Dimensional series
K : Dimensional K series
E : Dimensional E series

iglidur® J spherical balls
Dimensional series Metric
Inner Ø d1 [mm] Width [mm]

Imperial dimensions available

► Page 1163

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JKM-03-06	3	8.10	6	0.3
JKM-05-08	5	11.30	8	0.7
JKM-06-09	6	12.80	9	1.0
JKM-08-12	8	15.90	12	1.9
JKM-10-14	10	19.00	14	3.1
JKM-12-16	12	22.10	16	4.7
JKM-16-21	16	28.40	21	9.4
JKM-18-23	18	31.50	23	13.2
JKM-20-25	20	35.10	25	17.6
JKM-25-31	25	42.80	31	31.6
JKM-30-37	30	51.20	37	53.0

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JEM-04-05	4	8.30	5	0.3
JEM-05-06	5	10.20	6	0.4
JEM-06-06	6	10.20	6	0.4
JEM-08-08	8	13.30	8	0.8
JEM-10-09	10	16.10	9	1.3
JEM-12-10	12	18.10	10	1.7
JEM-15-12	15	22.00	12	2.9
JEM-16-13	16	24.10	13	3.9
JEM-17-14	17	25.20	14	4.1
JEM-20-16	20	29.10	16	6.4
JEM-25-20	25	35.60	20	11.5
JEM-30-22	30	40.90	22	14.5
JEM-40-28	40	53.00	28	31.0

Low moisture absorption spherical balls: JKM



JKM spherical ball with plain bearing



JKM spherical ball without plain bearing



Order key

Type Size

J K M-35-49

iglidur® J spherical balls
K series Metric
Inner Ø d1 [mm] Width [mm]

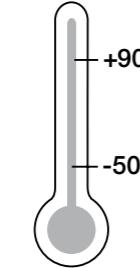
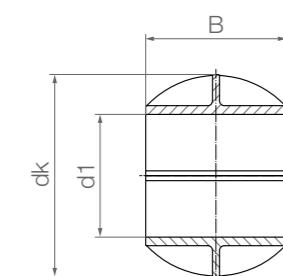
Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JKM-35-49 ³⁵⁾	35	66.30	49	75.5
JKM-40-49	40	66.30	49	54.5
JKM-45-60 ³⁵⁾	45	82.40	60	125.1
JKM-50-60	50	82.40	60	92.1

³⁵⁾ Diameter reduced by means of a plain bearing

igubal® spherical balls | Product range

Low moisture absorption split spherical balls: JKM-GT



Order key

Type Version Size

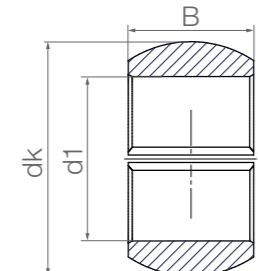
J K M - GT - 40

igidur® J spherical balls	
K series	
Metric	
Split ball	
Inner Ø d1 [mm]	

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JKM-GT-40	40	66.30	49	54.5
JKM-GT-50	50	82.40	60	92.1

Low moisture absorption split spherical balls: JEM-GT



Order key

Type Version Size

J E M - GT - 16

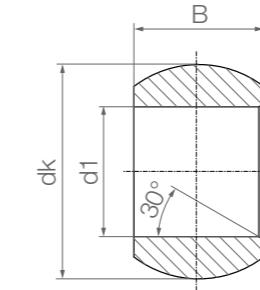
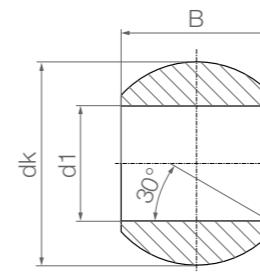
igidur® J spherical balls	
E series	
Metric	
Split ball	
Inner Ø d1 [mm]	

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JEM-GT-16	16	23.7	13	3.7
JEM-GT-20	20	28.9	16	6.1
JEM-GT-25	25	35.6	20	10.9
JEM-GT-30	30	40.8	22	14.6

igubal® spherical balls | Product range

Spherical balls, cost-effective:
J4KM and J4EM



Order key

Type Size Options

J4 □ M-10-14

igidur® J4 spherical balls	
Dimensional series	
K : Dimensional K series	
E : Dimensional E series	
Inner Ø d1 [mm]	
Width [mm]	

Dimensional series

K : Dimensional K series

E : Dimensional E series

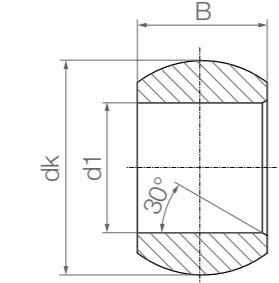
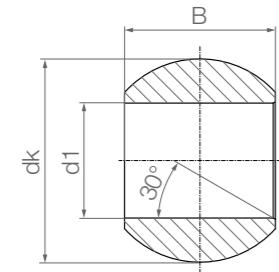
Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
J4KM-06-09	6	12.80	9	1.0
J4KM-08-12	8	15.90	12	1.9
J4KM-10-14	10	19.10	14	3.1
J4KM-12-16	12	22.10	16	4.7
J4KM-14-19	14	25.40	19	7.0
J4KM-16-21	16	28.40	21	9.4
J4KM-25-31	25	42.80	31	31.6

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
J4EM-04-05	4	8.25	5	0.3
J4EM-05-06	5	10.20	6	0.4
J4EM-06-06	6	10.20	6	0.4
J4EM-08-08	8	13.30	8	0.8
J4EM-10-09	10	16.00	9	1.3
J4EM-12-10	12	18.00	10	1.7
J4EM-15-12	15	22.00	12	2.9
J4EM-16-13	16	24.00	13	3.9
J4EM-17-14	17	25.10	14	4.1
J4EM-20-16	20	28.90	16	6.4
J4EM-25-20	25	35.50	20	11.5
J4EM-30-22	30	40.90	22	14.5

Spherical balls, stainless steel: EK



Order key

Type Size Version Options

EK - 03 - KSpherical ball made of
stainless steel

Inner Ø d1 [mm]

K series

Dimensional series

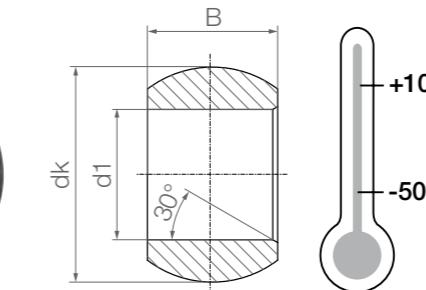
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
EK-03-K	3	8.10	6	1.7
EK-05-K	5	11.30	8	4.0
EK-06-K	6	12.80	9	5.5
EK-08-K	8	16.00	12	10.4
EK-10-K	10	19.00	14	16.8
EK-12-K	12	22.10	16	25.7
EK-16-K	16	28.40	21	52.3
EK-20-K	20	35.00	25	95.7
EK-25-K	25	42.90	31	171.1
EK-30-K	30	51.20	37	286.6

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
EK-04	4	8.30	5	1.4
EK-05	5	10.30	6	2.5
EK-06	6	10.30	6	2.1
EK-08	8	13.30	8	4.4
EK-10	10	16.10	9	7.4
EK-12	12	18.10	10	9.3
EK-15	15	22.00	12	15.7
EK-16	16	24.10	13	21.2
EK-20	20	29.10	16	34.6
EK-25	25	35.46	20	61.6
EK-30	30	40.70	22	80.7

Spherical balls for underwater applications:
UWEM

Order key

Type Size

UW E M-16-13

iglidur® UW spherical balls

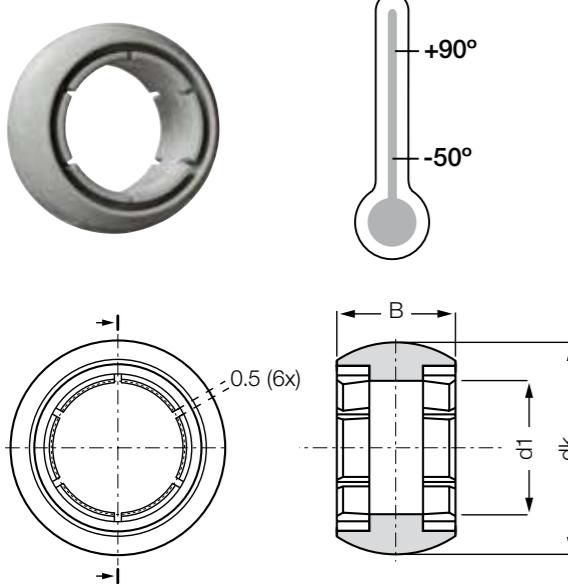
E series

Metric

Inner Ø d1 [mm]

Width [mm]

Spherical balls, clearance-free, pre-loaded:
J4VEM



Order key

Type	Size
------	------

J4 V E M-08-08

iglidur® J4 spherical balls	pre-tensioned	E series	Metric	Inner Ø d1 [mm]	Width [mm]
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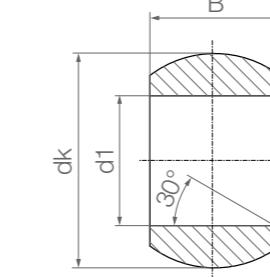
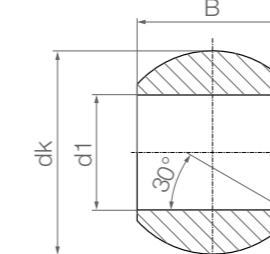
Dimensions [mm]

Part No.	d1	dk	B	Weight
	E10			[g]
J4VEM-08-08	8	13.20	8	0.7
J4VEM-10-09	10	16.10	9	1.2
J4VEM-12-10	12	18.10	10	1.5
J4VEM-16-13	16	24.10	13	3.7
J4VEM-20-16	20	29.10	16	6.2

5 sizes available: Ø 8, 10, 12, 16, 20mm combinable with:

igubal® rod ends	EA(L)RM	► Page 890	igubal® fixed flange bearings	EFSM	► Page 948
igubal® rod ends	EB(L)RM	► Page 888	igubal® clip bearings	EGFM-T	► Page 976
igubal® pillow block bearings	ESTM	► Page 931	igubal® spherical bearing	EGLM	► Page 972
igubal® fixed flange bearings	EFOM	► Page 946	igubal® double joints	EGZM	► Page 978

Spherical balls, for contact with food:
A181KM and A181EM



Order key

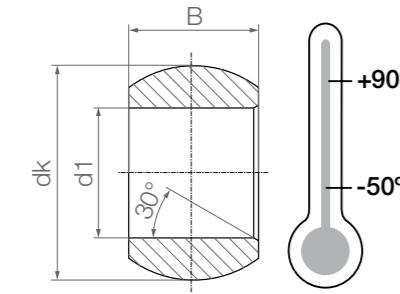
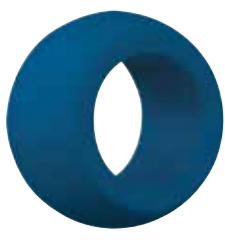
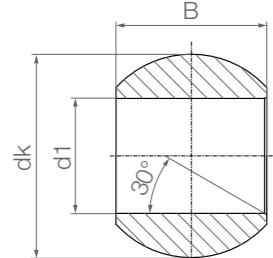
Type	Size	Options
------	------	---------

A181□M-05-08

Spherical ball made of iglidur® A181	Dimensional series	Metric	Inner Ø d1 [mm]	Width [mm]
--------------------------------------	--------------------	--------	-----------------	------------

Dimensional series
K : Dimensional K series
E : Dimensional E series

Spherical balls, for contact with food:
FC180KM and FC180EM



Order key

Type	Size	Options
FC180 □ M-06-09		
Spherical ball made of iglidur® FC180	Dimensional series	
Metric	Inner Ø d1 [mm]	Width [mm]

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
FC180KM-06-09 New	6	12.8	9	1.26

Dimensions [mm]

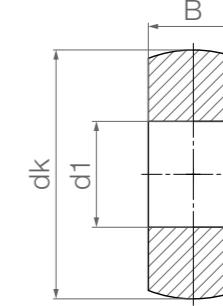
Part No.	d1 E10	dK	B	Weight [g]
FC180EM-04-05 New	4	8.3	5	0.55
FC180EM-05-06 New	5	10.3	6	0.55
FC180EM-06-06 New	6	10.3	6	0.56
FC180EM-08-08 New	8	13.3	8	0.97
FC180EM-10-09 New	10	16.1	9	1.61
FC180EM-12-10 New	12	18.1	10	2.09
FC180EM-20-16 New	20	29.1	16	7.83

Slim spherical insert bearings made of iglidur® materials for various metallic bearing housings



iglidur® J iglidur® A180 iglidur® A350 iglidur® J3

- 4 different spherical ball materials available: iglidur® J, A180, A350 and J3
- Eight dimensions for housing numbers range includes UC203 to UC210
- Maintenance-free, dry operation
- Durable
- Corrosion-resistant
- Resistant to dirt



Dimensions [mm]

Part No.	Housing No.	d1 E10	dk	B	Max. static compressive force radial [N]	axial [N]
made of iglidur® J, low coefficient of friction (material information ► From page 163)						
JEM-17-17	UC203	17	47	17	10,000	7,500
JEM-20-17	UC204	20	47	17	11,500	7,500
JEM-25-17	UC205	25	52	17	14,500	7,500
JEM-30-19	UC206	30	62	19	19,500	9,500
JEM-35-20	UC207	35	72	20	24,000	10,500
JEM-40-21	UC208	40	80	21	29,000	12,000
JEM-45-22	UC209	45	85	22	34,000	13,000
JEM-50-24	UC210	50	90	24	41,500	15,500
made of iglidur® A180, FDA-compliant all-rounder (material information ► From page 425)						
A180EM-17-17	UC203	17	47	17	7,500	6,000
A180EM-20-17	UC204	20	47	17	9,000	6,000
A180EM-25-17	UC205	25	52	17	11,500	6,000
A180EM-30-19	UC206	30	62	19	15,500	7,500
A180EM-35-20	UC207	35	72	20	19,000	8,500
A180EM-40-21	UC208	40	80	21	23,000	9,000
A180EM-45-22	UC209	45	85	22	27,000	10,000
A180EM-50-24	UC210	50	90	24	33,000	12,000
made of iglidur® A350, for high temperatures and chemicals (material information ► From page 409)						
A350EM-17-17	UC203	17	47	17	17,000	13,000
A350EM-20-17	UC204	20	47	17	20,000	13,000
A350EM-25-17	UC205	25	52	17	25,000	13,000
A350EM-30-19	UC206	30	62	19	34,000	17,000
A350EM-35-20	UC207	35	72	20	41,500	18,500
A350EM-40-21	UC208	40	80	21	50,000	20,000
made of iglidur® J3, for longer service life (material information ► From page 187)						
J3EM-30-21-80 New	UC208	30	80	21	26,500	12,000
J3EM-40-21 New	UC208	40	80	21	29,000	12,000

igubal® spherical insert bearings | Product range

Cost-effective spherical insert bearings for various metallic bearing housings



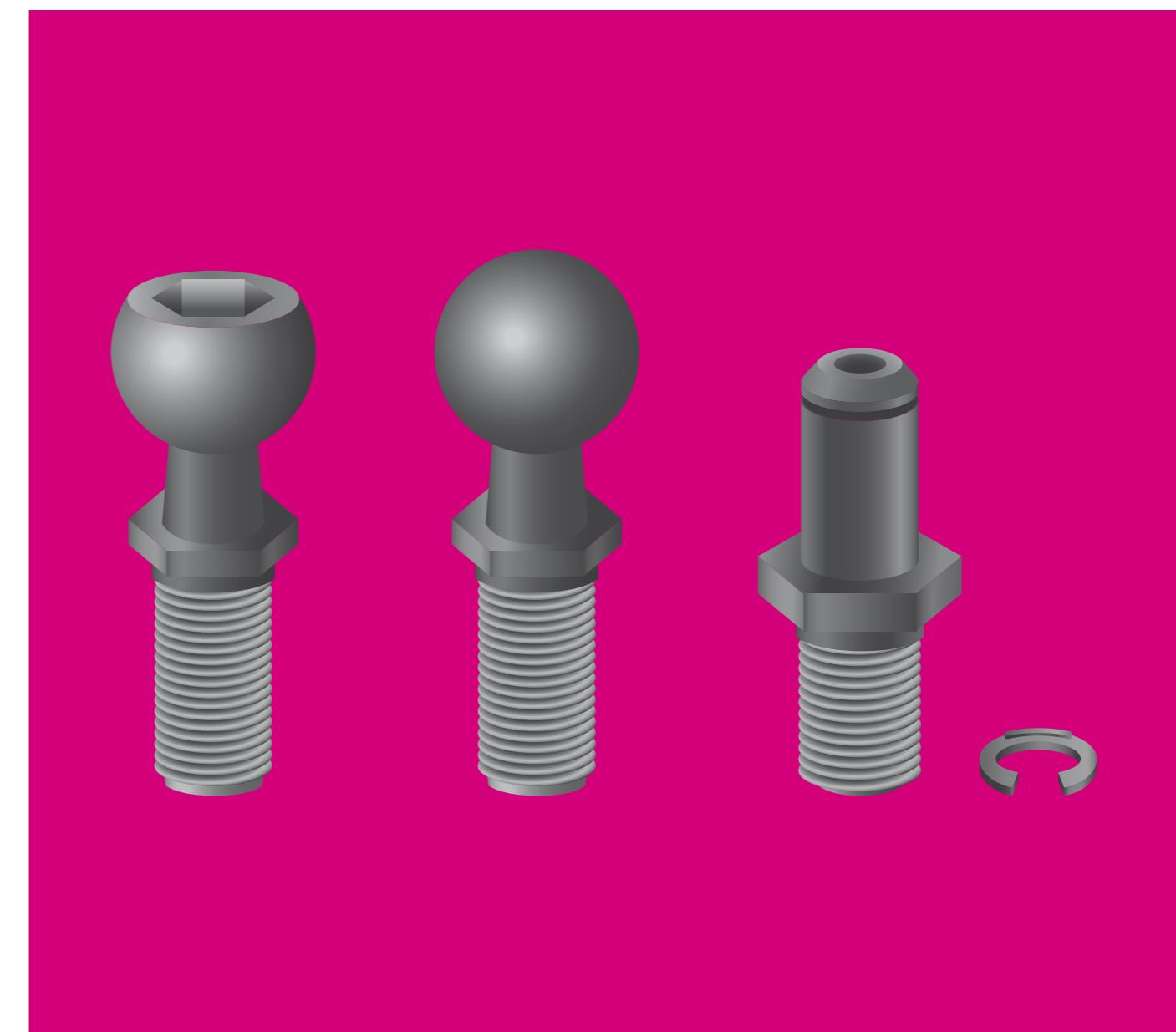
iglidur® J iglidur® J4 iglidur® A350 iglidur® J3

- Cost-effective due to injection moulding method
- Eight dimensions for housing numbers range includes UC203 to UC210
- Durable
- Low moisture absorption

Imperial dimensions available ► Page 1163

Dimensions [mm]

Part No.	Housing No.	d1 E10	dk	B	Max. static compressive force			
					radial		axial	
					Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]
made of iglidur® J, low coefficient of friction (material information ► From page 163)								
JEM-17-12-SP	New	P203	17	40	12	-	-	-
JEM-17-17-SP		UC203	17	47	17	7,500	3,750	4,000
JEM-20-14-SP		P204	20	47	14	8,000	4,000	4,000
JEM-20-17-SP		UC204	20	47	17	8,000	4,000	4,000
JEM-25-15-SP		P205	25	52	15	9,000	4,500	4,000
JEM-25-17-SP		UC205	25	52	17	9,000	4,500	3,500
JEM-30-16-SP		P206	30	62	16	13,500	6,750	5,000
JEM-30-19-SP		UC206	30	62	19	13,500	6,750	5,000
JEM-30-21-80-SP	New	UC208	30	80	21	16,500	8,250	6,000
JEM-35-17-SP	New	P207	35	72	17	14,500	7,250	6,500
JEM-35-20-SP		UC207	35	72	20	14,500	7,250	6,500
JEM-35-21-80	New	UC208	35	80	21	-	-	-
JEM-35-21-80-SP	New	UC208	35	80	21	18,000	9,000	6,000
JEM-40-18-SP	New	P208	40	80	18	17,000	8,500	6,000
JEM-40-21-SP		UC208	40	80	21	21,000	10,500	6,000
JEM-45-22-SP		UC209	45	85	22	23,000	11,500	5,500
JEM-50-24-SP		UC210	50	90	24	25,000	12,500	5,500
made of iglidur® J4, low-cost material (material information ► From page 1186)								
J4EM-17-12-SP	New	P203	17	40	12	-	-	-
J4EM-20-14-SP		P204	20	47	14	8,000	4,000	4,000
J4EM-25-15-SP		P205	25	52	15	9,000	4,500	4,000
J4EM-30-16-SP		P206	30	62	16	13,500	6,750	5,000
made of iglidur® A350, for high temperatures and chemicals (material information ► From page 409)								
A350EM-20-17-SP		UC204	20	47	17	9,000	4,500	4,500
made of iglidur® J3, for longer service life (material information ► From page 187)								
J3EM-30-21-80-SP	New	UC208	30	80	21	16,500	8,750	6,000
J3EM-40-21-SP	New	UC208	40	80	21	21,000	10,500	6,000



igubal® accessories

Ball studs made of plastic, galvanised steel and stainless steel



Adapter screw made from plastic



Fixing collars for spherical insert bearings

Fixing collar,
galvanised steel
with threaded pin



- Easy installation
- DIN 705 (lightweight series)
- Incl. DIN 914 threaded pin (Allen key)

Fixing collar made of
polymer



Order key

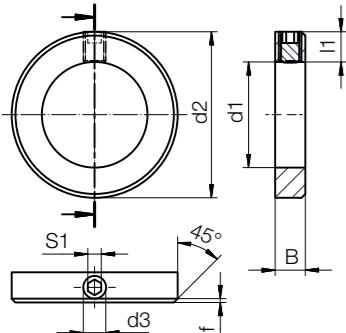
Type Size Version

SR M-S 20 - V - ES

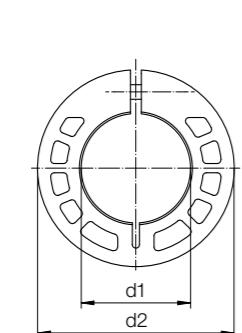
Fixing collar Metric without thread Shaft diameter [mm]
Pre-assembled (screw)

i Material:

Galvanised and stainless steel (AISI 303)



Fixing collar, steel



Polymer fixing collar



Image exemplary

Dimensions [mm]

Part No.	d1	d2	B	f	d3	l1	S1	Weight [g]
SRM-S17-V	17	28	12	1.2	M6	6	SW3	38.0
SRM-S20-V	20	32	14	1.4	M6	6	SW3	53.0
SRM-S25-V	25	40	16	1.6	M8	8	SW4	95.6
SRM-S30-V	30	45	16	1.6	M8	8	SW4	111.0
SRM-S35-V	35	56	16	1.6	M8	10	SW4	187.0
SRM-S40-V	40	63	18	1.8	M10	10	SW5	261.0
SRM-S45-V	45	70	18	1.8	M10	12	SW5	317.0
SRM-S50-V	50	80	18	1.8	M10	14	SW5	429.0

Part No.	d1	d2	B	d3	S1	Weight [g]
SRM-S20-V-KS New	20	40	14	M4	SW3	19.9
SRM-S25-V-KS New	25	45	14	M4	SW3	20.4
SRM-S30-V-KS New	30	54	14	M4	SW3	29.8
SRM-S40-V-KS New	40	60	14	M4	SW3	31.2
SRM-S50-V-KS New	50	78	18	M6	SW5	65.4

Available from stock
Upon request

Ball studs with female thread



- Easy installation
- DIN connection size
- Corrosion-resistant

Order key

Type Size Version

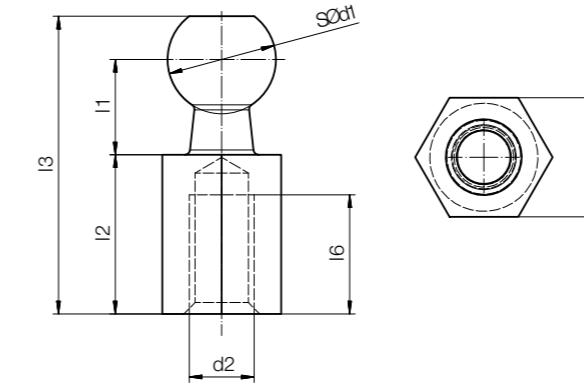
GZ R M- 05 -IG- ES

Threaded pin Thread direction Metric
Thread size M ... [mm] Female thread

Options:

Thread
R : Right-hand thread
L : Left-hand thread
(upon request)

i Material:
Galvanised and stainless steel (AISI 303)



Dimensions [mm]

Part No.	d1	d2	l1	l2	l6	l3	S1	Weight [g]
GZRM-05-IG	-0.05	M5	7.0	12.2	9	22.7	SW10	10
GZRM-06-IG	8	M6	8.8	14.7	11	27.5	SW11	15
GZRM-08-IG	10	M8	10.8	18.7	12	35.2	SW14	30
GZRM-10-IG	13	M10	13.3	22.7	16	43.0	SW17	55

²⁸⁾ Stainless steel ball stud upon request

Can be combined with:



WGR(L)M



WGR(L)M LC



WGR(L)M-DE



GFSM-IG



ZCLM-06-10

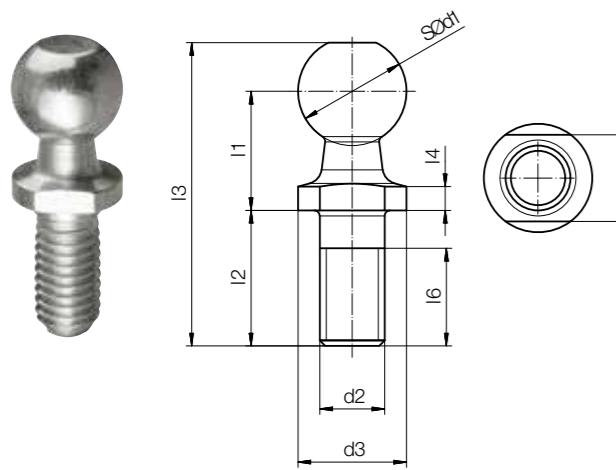
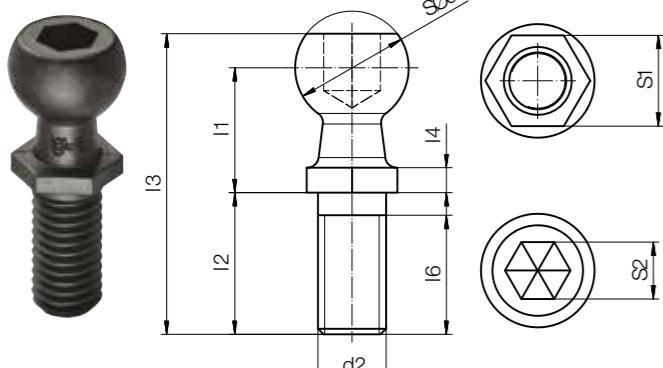


WDGM



WDGM-DE

Ball studs with male thread



Order key

Type	Size
GZ R M- 05 - MS	
Threaded pin	
Thread direction	
Metric	
Thread size M... [mm]	

Options:

Thread
R : Right-hand thread
L : Left-hand thread
(upon request)

Add-on:

Blank : Plastic
MS : Galvanised steel
ES : Stainless steel
(upon request)

Material:

Polymer: igumid® G ► Page 1190
Galvanised and stainless steel (AISI 303)

- Easy installation
- DIN connection size
- Corrosion-resistant

Dimensions [mm] - ball studs made from plastic

Part No.	d1 ±0.1	d2	l1	l2	l3	l4 ±0.2	l6	s1	s2	Weight [g]
GZRM-05	8	M5	9	10.2	21.7	2.0	8.2	SW7	4	1
GZRM-06	10	M6	11	12.5	26.5	2.2	10.5	SW8	5	1
GZRM-08	13	M8	13	16.5	33.5	2.4	13.5	SW11	6	3
GZRM-10	16	M10	16	20.0	40.5	2.7	16.0	SW13	8	6

Dimensions [mm] - ball studs made of galvanised and stainless steel

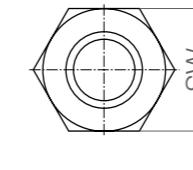
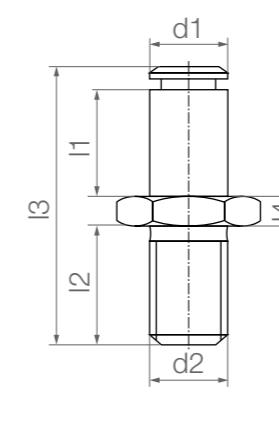
Part No.	d1	d2	d3	l1	l2	l3	l4	l6	s1	Weight [g]
				h9	h14	±0.3	±0.3	±0.3	min. h14	
GZRM-05-MS ¹¹⁵⁾	8	M5	8	9	10.2	22.7	2.0	6.2	SW7	4.5
GZRM-06-MS ¹¹⁵⁾	10	M6	10	11	12.5	28.0	2.2	8.5	SW8	8.5
GZRM-08-MS ¹¹⁵⁾	13	M8	13	13	16.5	35.0	2.4	11.2	SW11	17.7
GZRM-10-MS ¹¹⁵⁾	16	M10	16	16	20.0	43.0	2.7	12.7	SW13	35.1

¹¹⁵⁾ For the stainless steel version please replace the suffix MS by ES

Can be combined with:



Adapter screw



Order key

Type	Size	Options
P K □ M- 05		
Adapter screw	K series	Thread
	Thread direction	L : Left-hand thread ²¹⁾
	Metric	R : Right-hand thread
	Thread size M... [mm]	

i Material:
POM ► Page 1192

- Lightweight
- Absolute corrosion resistance
- Can be combined with K series rod end
- Vibration-dampening
- Easy installation
- Left-hand thread upon request
- Circlip (GSR) included

Technical data and dimensions [mm]

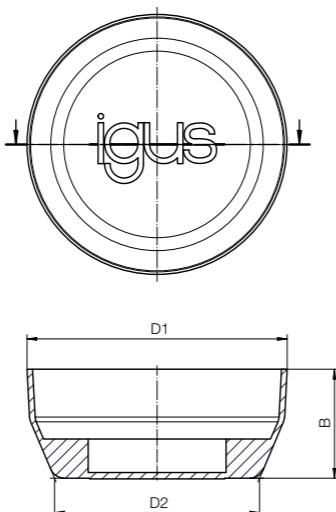
Part No.	Max. static tensile strain		Max. static radial load		d1 h11	d2 Thread	l1	l2	l3	l4	SW	Weight [g]
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]								
	[N]	[N]	[N]	[N]								
PK□M-05	100	50	200	100	5	M5	8.5	11.3	25.0	2.7	SW8	0.7
PK□M-06	150	75	250	125	6	M6	9.5	12.8	28.0	3.2	SW10	1.2
PK□M-08	250	125	400	200	8	M8	12.5	12.5	32.0	4.0	SW13	2.6
PK□M-10	500	250	600	300	10	M10	14.5	14.5	37.5	5.0	SW16	4.0
PK□M-12	700	350	900	450	12	M12	16.5	15.5	42.0	6.0	SW18	7.5
PK□M-14	800	400	1,100	550	14	M14	19.5	15.5	47.0	7.0	SW21	11.4
PK□M-16	900	450	1,400	700	16	M16	22.0	16.5	52.0	8.0	SW24	16.9
PK□M-18	800	400	1,700	850	18	M18 x 1.5	24.0	20.5	59.0	9.0	SW27	16.9
PK□M-20	500	250	2,200	1,100	20	M20 x 1.5	26.0	25.0	67.0	10.0	SW30	34.4

²¹⁾ Delivery time: 4-6 weeks

Can be combined with:



End caps for fixed flange bearings with spherical insert bearings



- Easy assembly and disassembly by attaching to the housings
- For 2- and 4-hole fixed flange bearings with 40mm diameter
- No damage due to flexible material

Dimensions [mm]

Part No.		D1	D2	B	Weight [g]
EC-204	New	59.0	47.4	29.5	21.8
EC-206	New	74.2	59.4	31.5	31.9
EC-208	New	93.2	73.5	39.0	43.0
EC-208-CLEAR	New	93.2	73.5	39.0	43.0

