# igubal® | Technical data

| Medium | Resistance | |
|---|---|---|
| | Standard | HT-Version |
| Alcohol | + to 0 | + |
| Hydrocarbons | + | + |
| Greases, oils without additives | + | + |
| Fuels | + | + |
| Diluted acids | 0 to – | + to 0 |
| Strong acids | – | + to – |
| Diluted alkalines | + | + |
| Strong alkalines | 0 | + |

**Table 03: Chemical resistance of igubal® bearings**
**+ 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 resistant of igubal® bearings gives them special value for outside applications
igubal® bearings are permanently resistant to UV radiation. A small change in colour (dark coloration) of the spherical ball due to UV radiation does not affect the mechanical, electrical or thermal properties.

## Tolerances

igubal® spherical bearings can be used with different tolerances according to each application. They are designed with a large clearance in the standard product, which enables a secure operation even under high peripheral speeds. The bore of the inner race is produced to a standard tolerance range E10. Shafts should also meet recommended tolerances h6 and h9. The tolerances are provided in the table below. Please contact us in case you require lower or other bearing tolerances.

| Basic size [mm] | Tolerance | |
|---|---|---|
| | Gauge falls | Gauge hangs |
| up 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)**

## Check the Inner Diameter

**Inadequate test equipment; plug gauge too short**

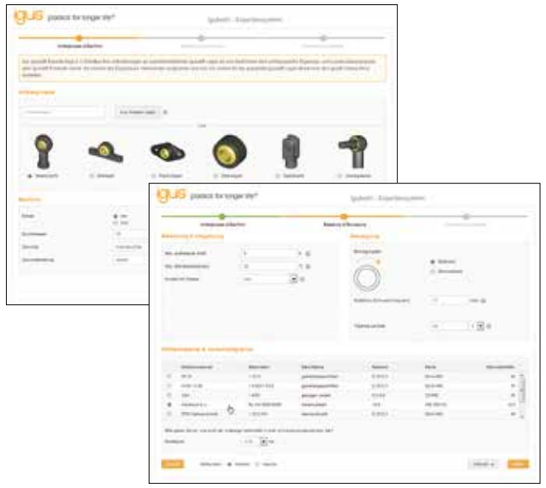
**Wrong test equipment; caliper**

**Tolerance test with plug gauge**

## 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 end bearings

**Maintenance-free, dry operation**

**High rigidity**

**High strength**

**Compensation of misalignment**

**Compensation of edge loads**

**Lightweight**

# igubal® rod ends

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


**When to use it?**
- 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 resistant is required
- In combination with pneumatic cylinders and gas struts
- If chemical resistance is required
- If high stiffness is required
- If they should be detectable

**When not to use it?**
- If temperatures are higher than +80 °C
  ▶ HT version, page 661
- If rotation speeds higher than 0.5 m/s are required
- If really high tensile and axial forces occur
- With a hydraulic cylinder
- If dimensions above 30 mm are required

**max. +200 °C**
**min. –40 °C**
(depending on material: Standard –30 °C up to +80 °C; HT –40 °C up to +200 °C)

**18 types**
**Ø 2–30 mm**

**Available from stock**
Detailed information about delivery time online.

**Imperial dimensions available**
**▶ From page 1337**

**Block pricing online**
No minimum order value. From batch size 1.

**Online product finder**
**▶ www.igus.eu/igubal-finder**



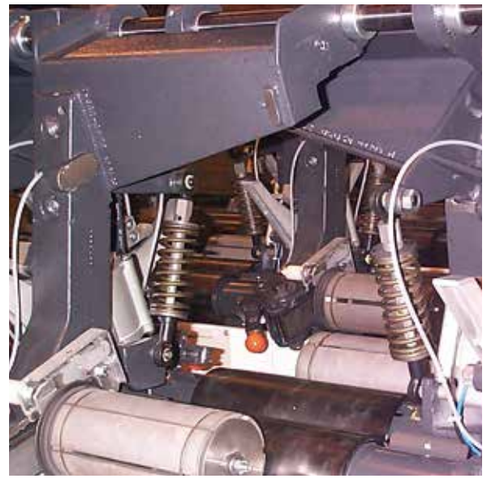


# igubal® rod ends | Application examples

**Typical sectors of industry and application areas**
● Bicycle manufacturing ● Plant design
● Packaging ● Offshore etc.

**Improve technology and reduce costs – 110 exciting examples online**
**▶ www.igus.eu/igubal-applications**

**▶ www.igus.eu/special-bikes**



**▶ www.igus.eu/textil**

**▶ www.igus-packaging.eu**

**▶ www.igus.eu/offshore**

# igubal® rod ends | Technical data

## Advantages

- Maintenance-free, dry operation
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignments
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Corrosion and chemical resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K and E, according to standard DIN ISO 12240
- Available with a stainless steel sleeve to take a higher torque

## Product range

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

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

## Stainless steel sleeve

The dimensional series K and partially E are available in imperial dimensions, as well as a special version containing a stainless steel sleeve in the inner race. This allows a significantly higher torque than for the standard polymer race. Please ask us for more dimensions.

## Loads

igubal® rod ends handle high loads at normal room temperatures, have excellent dampening properties and weigh only a fifth of traditional metallic rod ends. 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**

## Coefficients of sliding friction and speed

Rotary movements of a mounted shaft take place directly in the spherical portion, made from iglidur® W300. In metallic rod ends, rotary motion takes place between the race and the spherical bearing. Taking the radial loads into account, maximum surface speeds up to 0.5 m/s rotating can be attained.

The maintenance-free igubal® rod end bearings permit linear and oscillating movements of the shaft.

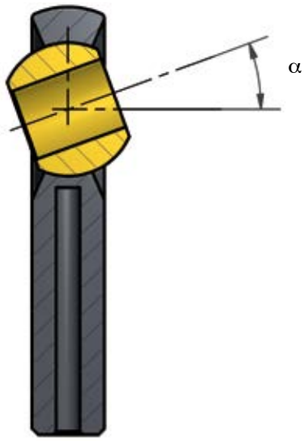
## Temperatures

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 (Series E, types A and B).

## Tolerances

igubal® rod ends can be used at different tolerances depending on the individual application. They are designed with a large clearance in the standard product, which enables a secure operation even under high peripheral speeds. The bore of the inner race is produced to a standard tolerance range E10. Shafts should also meet recommended tolerances h6 and h9. Please contact us in case you require lower or other bearing tolerances.

## Pivot angle








# igubal® rod ends | Product overview

## igubal® rod end bearings with female thread

**Classic design**

Dimensional series K

KBRM
KBLM

**▶ From page 646**

**Easy assembly**

Dimensional series K

KBRM CL
KBLM CL

**▶ Page 648**

**Selectable ball material**

Dimensional series K

KCRM
KCLM

**▶ Page 650**

**Space saving**

Dimensional series E

EBRM
EBLM

**▶ Page 656**

**For temperatures up to +200 °C**

Dimensional series E

EBRM HT
EBLM HT

**▶ Page 660**

**Classic design, imperial dimensions**

Dimensional series K

KBRI
KBLI

**▶ Page 1398**

**For small space requirement, imperial dimensions**

Dimensional series E

EBRI
EBLI

**▶ Page 1396**

## igubal® rod end bearings with male thread

**Classic design**

Dimensional series K

KARM
KALM

**▶ From page 652**

**For higher forces**

Dimensional series K

KARM CL

**▶ Page 654**

**Space saving**

Dimensional series E

EARM
EALM

**▶ From page 658**

**For temperatures up to +200 °C**

Dimensional series E

EARM HT
EALM HT

**▶ Page 661**

**Classic design, imperial dimensions**

Dimensional series K

KARI
KALI

**▶ From page 1397**

## igubal® angled and in-line joints

**Angled ball and socket joint**

WGRM
WGLM

**▶ Page 662**

**Angled ball and socket joint, low-cost**

WGRM-LC
WGLM-LC

**▶ Page 663**

**Easy assembly and disassembly**

WGRM-DE
WGLM-DE

**▶ Page 664**

**In-line ball and socket joint**

AGRM
AGLM

**▶ Page 665**

**In-line ball and socket joint, low-cost**

AGRM-LC
AGLM-LC

**▶ Page 666**

## igubal® accessories for rod ends

**Clevis joints with clevis pin and circlip**

Dimensional series E

GERMK
GELMK

**▶ Page 674**

**Clevis joints with spring-loaded fixing clip**

Dimensional series E

GERMF
GELMF

**▶ Page 675**

**Detectable clevis joints**

**▶ From page 751**

## Rod ends with female thread: KBRM and KBLM

Standard design

Metal sleeve version (MH)

- Maintenance-free, dry operation
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignments
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Corrosion and chemical resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K according to standard DIN ISO 12240
- Available with a stainless steel sleeve to take a higher torque
- Adapter bolt with circlip available

▶ Accessories, **page 748**

Inch **Imperial dimensions available**

▶ **Page 1398**

## Technical data

| Part No. | | Max. static tensile strength | | Max. static radial load | | Min. thread depth | Max. torque strength | Max. torque through ball | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | Thread | Inner threading | without stainless steel sleeve | with stainless steel sleeve | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [mm] | [Nm] | [Nm] | [Nm] | [g] |
| **KBRM-02** | **KBLM-02** | 200 | 100 | 50 | 25 | 4 | 0.30 | 1 | – | 0.4 |
| **KBRM-03** | **KBLM-03** | 800 | 400 | 100 | 50 | 5 | 0.50 | 2 | 4 | 2.7 |
| **KBRM-05 M4** | **KBLM-05 M4** | 1,000 | 500 | 250 | 125 | 7 | 0.75 | 5 | 12 | 3.5 |
| **KBRM-05** | **KBLM-05** | 1,000 | 500 | 250 | 125 | 7 | 1.00 | 5 | 12 | 3.4 |
| **KBRM-06** | **KBLM-06** | 1,400 | 700 | 400 | 200 | 8 | 1.50 | 10 | 15 | 4.7 |
| **KBRM-08** | **KBLM-08** | 2,100 | 1,050 | 700 | 350 | 11 | 5.00 | 12 | 40 | 8.6 |
| **KBRM-10** | **KBLM-10** | 3,100 | 1,550 | 800 | 400 | 13 | 15.00 | 20 | 50 | 14.6 |
| **KBRM-10 F** | **KBLM-10 F** | 3,100 | 1,550 | 800 | 400 | 13 | 6.00 | 20 | 50 | 14.6 |
| **KBRM-12**[129)] | **KBLM-12** | 3,600 | 1,800 | 900 | 450 | 15 | 20.00 | 30 | 70 | 22.0 |
| **KBRM-12 F** | **KBLM-12 F** | 3,600 | 1,800 | 900 | 450 | 15 | 15.00 | 30 | 70 | 22.0 |
| **KBRM-14** | **KBLM-14** | 4,000 | 2,000 | 1,000 | 500 | 17 | 25.00 | 35 | 75 | 30.9 |
| **KBRM-16** | **KBLM-16** | 4,200 | 2,100 | 1,300 | 650 | 19 | 30.00 | 40 | 110 | 39.6 |
| **KBRM-16 F** | **KBLM-16 F** | 4,200 | 2,100 | 1,300 | 650 | 19 | 27.50 | 40 | 110 | 39.6 |
| **KBRM-18** | **KBLM-18** | 4,600 | 2,300 | 1,600 | 800 | 21 | 45.00 | 45 | 150 | 55.0 |
| **KBRM-20** | **KBLM-20** | 5,400 | 2,700 | 2,100 | 1,050 | 22 | 60.00 | 55 | 200 | 73.5 |
| **KBRM-20 M20** | **KBLM-20 M20** | 5,400 | 2,700 | 2,100 | 1,050 | 22 | 60.00 | 55 | 200 | 73.5 |
| **KBRM-22** | **KBLM-22** | 7,000 | 3,500 | 2,200 | 1,100 | 25 | 75.00 | 60 | – | 94.8 |
| **KBRM-25** | **KBLM-25** | 8,500 | 4,250 | 2,300 | 1,150 | 28 | 120.00 | 60 | – | 119.8 |
| **KBRM-30** | **KBLM-30** | 10,500 | 5,250 | 2,500 | 1,250 | 34 | 135.00 | 60 | – | 177.0 |
| **KBRM-30 M27x2** | **KBLM-30 M27x2** | 10,500 | 5,250 | 2,500 | 1,250 | 34 | 135.00 | 60 | – | 189.6 |

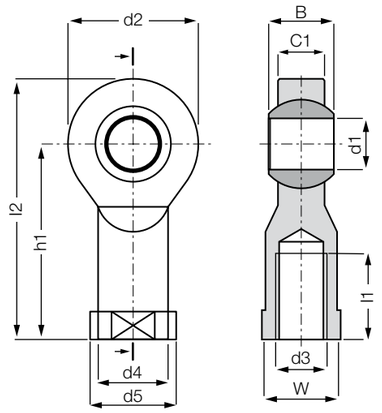
[129)] **Hexagonal body. Drawing as for KCRM, page 651**



igubal® rod ends

igubal® rod ends | Product range

## Rod ends with female thread: KBRM and KBLM




## Order key

| Type | | | | Size [mm] | Options |
|---|---|---|---|---|---|
| K | B | ... | M- | 02 | |

- Dimensional series K
- Housing (female thread)
- Thread
- Metric
- Inner Ø

**Thread**
L = left-hand thread
R = right-hand thread

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**

## Dimensions [mm]

| Part No. | | d1 | d2 | d3 | d4 | d5 | C1 | B | | h1 | l1 | l2 | W | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | | | without stainless steel sleeve | with stainless steel sleeve +0.2 | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | | | | | |
| **KBRM-02** | **KBLM-02** | 02 | 9 | M02 | 4.0 | 4.6 | 3.0 | 4 | – | 12.5 | 6 | 17 | SW04 | 30° |
| **KBRM-03** | **KBLM-03** | 03 | 13 | M03 | 6.5 | 8.0 | 4.5 | 6 | 6.2 | 18.5 | 8 | 25 | SW06 | 30° |
| **KBRM-05 M4** | **KBLM-05 M4** | 05 | 18 | M04 | 9.0 | 12.0 | 6.0 | 8 | 8.2 | 27 | 10 | 36 | SW09 | 30° |
| **KBRM-05** | **KBLM-05** | 05 | 18 | M05 | 9.0 | 12.0 | 6.0 | 8 | 8.2 | 27 | 10 | 36 | SW09 | 30° |
| **KBRM-06** | **KBLM-06** | 06 | 20 | M06 | 10.0 | 13.0 | 7.0 | 9 | 9.2 | 30 | 12 | 40 | SW11 | 29° |
| **KBRM-08** | **KBLM-08** | 08 | 24 | M08 | 13.0 | 16.0 | 9.0 | 12 | 12.2 | 36 | 16 | 48 | SW14 | 25° |
| **KBRM-10** | **KBLM-10** | 10 | 30 | M10 | 15.0 | 19.0 | 10.5 | 14 | 14.2 | 43 | 20 | 58 | SW17 | 25° |
| **KBRM-10 F** | **KBLM-10 F** | 10 | 30 | M10x1.25 | 15.0 | 19.0 | 10.5 | 14 | 14.2 | 43 | 20 | 58 | SW17 | 25° |
| **KBRM-12** | **KBLM-12** | 12 | 34 | M12 | – | – | 12.0 | 16 | 16.2 | 50 | 25 | 67 | SW17 | 25° |
| **KBRM-12 F** | **KBLM-12 F** | 12 | 34 | M12x1.25 | 18.0 | 22.0 | 12.0 | 16 | 16.2 | 50 | 22 | 67 | SW19 | 25° |
| **KBRM-14** | **KBLM-14** | 14 | 38 | M14 | 20.0 | 25.0 | 13.5 | 19 | 19.2 | 57 | 25 | 76 | SW22 | 25° |
| **KBRM-16** | **KBLM-16** | 16 | 42 | M16 | 22.0 | 27.0 | 15.0 | 21 | 21.2 | 64 | 28 | 85 | SW22 | 23° |
| **KBRM-16 F** | **KBLM-16 F** | 16 | 42 | M16x1.5 | 22.0 | 27.0 | 15.0 | 21 | 21.2 | 64 | 28 | 85 | SW22 | 23° |
| **KBRM-18** | **KBLM-18** | 18 | 46 | M18x1.5 | 25.0 | 31.0 | 16.5 | 23 | 23.2 | 71 | 32 | 94 | SW27 | 23° |
| **KBRM-20** | **KBLM-20** | 20 | 50 | M20x1.5 | 28.0 | 34.0 | 18.0 | 25 | 25.2 | 77 | 33 | 102 | SW30 | 23° |
| **KBRM-20 M20** | **KBLM-20 M20** | 20 | 50 | M20x2.5 | 28.0 | 34.0 | 18.0 | 25 | 25.2 | 77 | 33 | 102 | SW30 | 23° |
| **KBRM-22** | **KBLM-22** | 22 | 56 | M22x1.5 | 30.0 | 37.0 | 20.0 | 28 | – | 84 | 37 | 112 | SW32 | 22° |
| **KBRM-25** | **KBLM-25** | 25 | 60 | M24x2.0 | 32.0 | 41.0 | 22.0 | 31 | – | 94 | 42 | 124 | SW36 | 22° |
| **KBRM-30** | **KBLM-30** | 30 | 70 | M30x2.0 | 37.0 | 50.0 | 25.0 | 37 | – | 110 | 50 | 145 | SW41 | 22° |
| **KBRM-30 M27x2** | **KBLM-30 M27x2** | 30 | 70 | M27x2.0 | 37.0 | 50.0 | 25.0 | 37 | – | 110 | 50 | 145 | SW41 | 22° |

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

# igubal® rod ends | Product range

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

- Available with a stainless steel sleeve to take a higher torque
- Dimensional series K according to standard DIN ISO 12240
- Adapter bolt with circlip available

▶ Accessories, **page 748**

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

### Technical data

| Part No. | | Max. static tensile strength | | Max. static axial force | | Min. thread depth | Max. torque strength | Max. torque through ball | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | Thread | Inner threading | without stainless steel sleeve | with stainless steel sleeve | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [mm] | [Nm] | [Nm] | [Nm] | [g] |
| **KBRM-06 CL** | **KBLM-06 CL** | 1,400 | 700 | 300 | 150 | 8 | 0.75 | 10 | 15 | 4.5 |
| **KBRM-08 CL** | **KBLM-08 CL** | 2,100 | 1,050 | 500 | 250 | 11 | 2.0 | 12 | 40 | 8.6 |
| **KBRM-10 CL** | **KBLM-10 CL** | 3,100 | 1,550 | 800 | 400 | 13 | 3.0 | 20 | 50 | 14.1 |

### Spherical ball materials to choose ▶ Page 731

RKM:
low-cost

JKM:
low moisture absorption

W300:
standard spherical ball with stainless steel sleeve

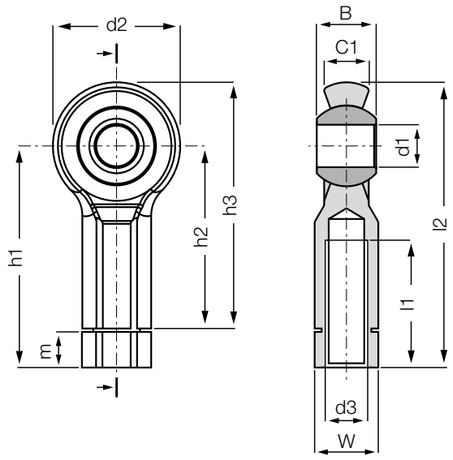
J4KM:
low-cost and low moisture absorption



igubal®
rod ends

igubal® rod ends | Product range

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




### Order key

| Type | | | | Size [mm] | Version | Options |
|---|---|---|---|---|---|---|
| K | B | ... | M- | 06 | CL | |
| Dimensional series K | Housing (female thread) | Thread | Metric | Inner Ø | 2nd generation | Thread<br>L = left-hand thread<br>R = right-hand thread |

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**
More spherical ball materials on request ▶ **Page 731**

### Dimensions [mm]

| Part No. | | d1 | d2 | d3 | W | B | | C1 | h3 | h1 | h2 | l1 | l2 | m | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | without stainless steel sleeve | with stainless steel sleeve | | | | | | | | |
| Right-hand thread | Left-hand thread | | | | | | +0.2 | | | | | | | | |
| **KBRM-06 CL** | **KBLM-06 CL** | 06 | 20 | M06 | SW10 | 9 | 9.2 | 7 | 40 | 36.5 | 30 | 20 | 46.5 | 5.7 | 40° |
| **KBRM-08 CL** | **KBLM-08 CL** | 08 | 24 | M08 | SW13 | 12 | 12.2 | 9 | 48 | 44.3 | 36 | 25 | 56.3 | 7.5 | 35° |
| **KBRM-10 CL** | **KBLM-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** insert with the addition of **MH** after the part numbers listed here. Example: KBRM-10 CL **MH (Inner-Ø: 10 mm**).
For another spherical bearing material than iglidur® W300, please add **J** or **R** to the part number. Example: KBRM-10 CL J.

# igubal® rod ends | Product range

## Rod ends with female thread: KCRM and KCLM

- Smooth design has no dirt traps
- Spherical ball is clipped in
- Choice of iglidur® ball materials
- Compensation of misalignment
- Lightweight
- Corrosion resistant
- Available with a stainless steel sleeve to take a higher torque
- Dimensional series K according to standard DIN ISO 12240
- Adapter bolt with circlip available

▶ Accessories, **page 748**

## Technical data

| Part No. | | Max. static tensile strength | | Max. static axial force | | Max. torque strength | Max. torque through balls | | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | Inner threading | without stainless steel sleeve | with stainless steel sleeve | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [Nm] | [Nm] | [Nm] | [g] |
| **KCRM-05** | **KCLM-05** | 1,200 | 600 | 180 | 90 | 1.00 | 5 | 12 | 4.0 |
| **KCRM-06** | **KCLM-06** | 1,400 | 700 | 300 | 150 | 0.75 | 10 | 15 | 4.2 |
| **KCRM-08** | **KCLM-08** | 2,100 | 1,050 | 500 | 250 | 2.00 | 12 | 40 | 7.6 |
| **KCRM-10** | **KCLM-10** | 3,100 | 1,550 | 800 | 400 | 3.00 | 20 | 50 | 12.8 |
| **KCRM-10-F** | **KCLM-10-F** | 3,100 | 1,550 | 800 | 400 | 3.00 | 20 | 50 | 12.8 |
| **KCRM-12** | **KCLM-12** | 3,560 | 1,780 | 750 | 375 | 15.0 | 30 | 70 | 19.0 |
| **KCRM-12-F** | **KCLM-12-F** | 3,560 | 1,780 | 750 | 375 | 15.0 | 30 | 70 | 19.0 |
| **KCRM-16** | **KCLM-16** | 3,800 | 1,900 | 800 | 400 | 15.0 | 40 | 110 | 34.0 |
| **KCRM-16-F** | **KCLM-16-F** | 3,800 | 1,900 | 800 | 400 | 15.0 | 40 | 110 | 34.0 |
| **KCRM-20** | **KCLM-20** | 4,550 | 2,275 | 400 | 200 | 20.0 | 55 | 200 | 55.0 |
| **KCRM-20-M20** | **KCLM-20-M20** | 4,550 | 2,275 | 400 | 200 | 20.0 | 55 | 200 | 55.0 |

## Spherical ball materials to choose ▶ Page 731

RKM:
low-cost

JKM:
low moisture absorption

W300:
standard spherical ball with stainless steel sleeve

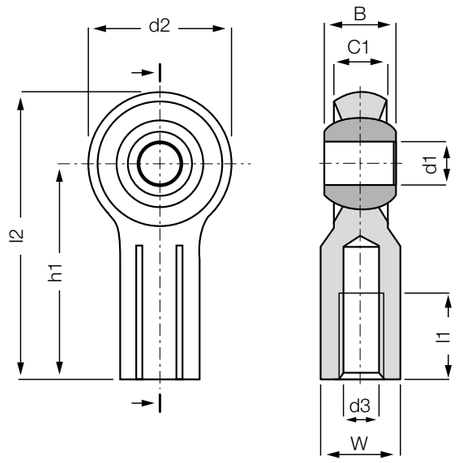
J4KM:
low-cost and low moisture absorption



igubal®
rod ends

igubal® rod ends | Product range

## Rod ends with female thread: KCRM and KCLM




## Order key

| Type | | | | Size [mm] | Options |
|---|---|---|---|---|---|
| K | C | ... | M- | 06 | |
| Dimensional series K | Housing (female thread) | Thread | Metric | Inner Ø | Thread<br>L = left-hand thread<br>R = right-hand thread |

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**
More spherical ball materials on request
▶ **Page 731**

## Dimensions [mm]

| Part No. | | d1 | d2 | d3 | W | B | | C1 | h1 | l1 | l2 | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | without stainless steel sleeve | with stainless steel sleeve +0.2 | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | | | |
| **KCRM-05** | **KCLM-05** | 05 | 18 | M5 | SW9 | 8.0 | 8.2 | 6.0 | 27 | 12 | 36 | 43° |
| **KCRM-06** | **KCLM-06** | 06 | 20 | M06 | SW10 | 9.0 | 9.2 | 7.0 | 30 | 13.5 | 40 | 40° |
| **KCRM-08** | **KCLM-08** | 08 | 24 | M08 | SW13 | 12.0 | 12.2 | 9.0 | 36 | 17 | 48 | 35° |
| **KCRM-10** | **KCLM-10** | 10 | 30 | M10 | SW15 | 14.0 | 14.2 | 10.5 | 43 | 22 | 58 | 35° |
| **KCRM-10-F** | **KCLM-10-F** | 10 | 30 | M10x1.25 | SW15 | 14.0 | 14.2 | 10.5 | 43 | 22 | 58 | 35° |
| **KCRM-12** | **KCLM-12** | 12 | 34 | M12 | SW17 | 16.0 | 16.2 | 12.0 | 50 | 25 | 67 | 35° |
| **KCRM-12-F** | **KCLM-12-F** | 12 | 34 | M12x1.25 | SW17 | 16.0 | 16.2 | 12.0 | 50 | 25 | 67 | 35° |
| **KCRM-16** | **KCLM-16** | 16 | 42 | M16 | SW20 | 21.0 | 21.2 | 15.0 | 64 | 30 | 85 | 35° |
| **KCRM-16-F** | **KCLM-16-F** | 16 | 42 | M16x1.5 | SW20 | 21.0 | 21.2 | 15.0 | 64 | 30 | 85 | 35° |
| **KCRM-20** | **KCLM-20** | 20 | 50 | M20x1.5 | SW24 | 25.0 | 25.2 | 18.0 | 77 | 35 | 102 | 35° |
| **KCRM-20-M20** | **KCLM-20-M20** | 20 | 50 | M20x2.5 | SW24 | 25.0 | 25.2 | 18.0 | 77 | 35 | 102 | 35° |

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

# igubal® rod ends | Product range

## Rod ends with male thread: KARM and KALM

Standard design

Metal sleeve version (MH)

- Maintenance-free, dry operation
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignments
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Corrosion and chemical resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K according to standard DIN ISO 12240
- Available with a stainless steel sleeve to take a higher torque
- Adapter bolt with circlip available

▶ Accessories, **page 748**

Inch **Imperial dimensions available**

▶ **Page 1397**

## Technical data

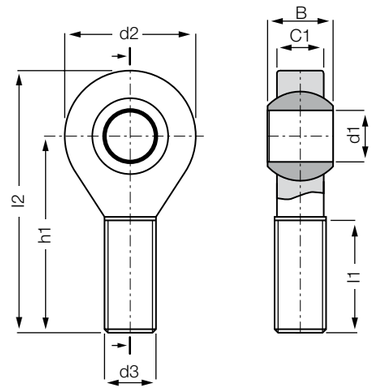
| Part No. | | Max. static tensile strength | | Max. static axial force | | Min. thread depth | Max. torque strength | Max. torque through ball | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | | | without stainless steel sleeve | with stainless steel sleeve | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | Thread [mm] | Male thread [Nm] | [Nm] | [Nm] | [g] |
| **KARM-05** | **KALM-05** | 800 | 400 | 80 | 40 | 13 | 0.4 | 5 | 12 | 2.7 |
| **KARM-06** | **KALM-06** | 1,000 | 500 | 100 | 50 | 15 | 0.5 | 10 | 15 | 3.9 |
| **KARM-08** | **KALM-08** | 1,700 | 850 | 200 | 100 | 18 | 2.0 | 12 | 40 | 7.1 |
| **KARM-10** | **KALM-10** | 2,500 | 1,250 | 300 | 150 | 20 | 5.0 | 20 | 50 | 12.5 |
| **KARM-10 F** | **KALM-10 F** | 2,500 | 1,250 | 300 | 150 | 20 | 3.0 | 20 | 50 | 12.5 |
| **KARM-12** | **KALM-12** | 2,700 | 1,350 | 400 | 200 | 22 | 6.0 | 30 | 70 | 18 |
| **KARM-12 F** | **KALM-12 F** | 2,700 | 1,350 | 400 | 200 | 22 | 6.0 | 30 | 70 | 18 |
| **KARM-14** | **KALM-14** | 3,400 | 1,700 | 700 | 350 | 25 | 12.0 | 35 | 75 | 25 |
| **KARM-16** | **KALM-16** | 3,900 | 1,950 | 800 | 400 | 26 | 17.0 | 40 | 110 | 34 |
| **KARM-16 F** | **KALM-16 F** | 3,900 | 1,950 | 800 | 400 | 26 | 17.0 | 40 | 110 | 34 |
| **KARM-18** | **KALM-18** | 4,200 | 2,100 | 1,000 | 500 | 29 | 20.0 | 45 | 150 | 45.9 |
| **KARM-20** | **KALM-20** | 6,000 | 3,000 | 1,300 | 650 | 32 | 25.0 | 55 | 200 | 58 |
| **KARM-20 M20** | **KALM-20 M20** | 6,000 | 3,000 | 1,300 | 650 | 32 | 25.0 | 55 | 200 | 58 |
| **KARM-22** | **KALM-22** | 7,200 | 3,600 | 1,500 | 750 | 34 | 25.0 | 60 | – | 86.2 |
| **KARM-25** | **KALM-25** | 7,500 | 3,750 | 1,900 | 950 | 39 | 45.0 | 65 | – | 99.1 |
| **KARM-30** | **KALM-30** | 8,800 | 4,400 | 2,300 | 1,150 | 46 | 85.0 | 70 | – | 160.4 |



igubal® rod ends

igubal® rod ends | Product range

## Rod ends with male thread: KARM and KALM




## Order key

| Type | | | | Size [mm] | Options |
|---|---|---|---|---|---|
| K | A | ... | M- | 05 | |
| Dimensional series K | Housing (male thread) | Thread | Metric | Inner Ø | Thread<br>L = left-hand thread<br>R = right-hand thread |

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**

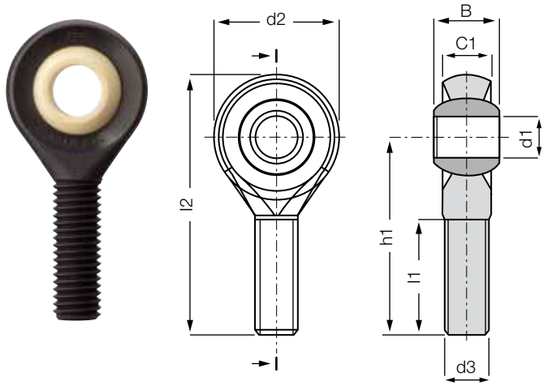
## Dimensions [mm]

| Part No. | | d1 | d2 | d3 | C1 | B | | h1 | l1 | l2 | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | without stainless steel sleeve | with stainless steel sleeve +0.2 | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | | |
| **KARM-05** | **KALM-05** | 05 | 18 | M05 | 6.0 | 8 | 8.2 | 33 | 19 | 42 | 30° |
| **KARM-06** | **KALM-06** | 06 | 20 | M06 | 7.0 | 9 | 9.2 | 36 | 21 | 46 | 29° |
| **KARM-08** | **KALM-08** | 08 | 24 | M08 | 9.0 | 12 | 12.2 | 42 | 25 | 55 | 25° |
| **KARM-10** | **KALM-10** | 10 | 30 | M10 | 10.5 | 14 | 14.2 | 48 | 28 | 63 | 25° |
| **KARM-10 F** | **KALM-10 F** | 10 | 30 | M10x1.25 | 10.5 | 14 | 14.2 | 48 | 28 | 63 | 25° |
| **KARM-12** | **KALM-12** | 12 | 34 | M12 | 12.0 | 16 | 16.2 | 54 | 32 | 71 | 25° |
| **KARM-12 F** | **KALM-12 F** | 12 | 34 | M12x1.25 | 12.0 | 16 | 16.2 | 54 | 32 | 71 | 25° |
| **KARM-14** | **KALM-14** | 14 | 38 | M14 | 13.5 | 19 | 19.2 | 61 | 36 | 79 | 25° |
| **KARM-16** | **KALM-16** | 16 | 42 | M16 | 15.0 | 21 | 21.2 | 66 | 37 | 88 | 23° |
| **KARM-16 F** | **KALM-16 F** | 16 | 42 | M16x1.5 | 15.0 | 21 | 21.2 | 66 | 37 | 88 | 23° |
| **KARM-18** | **KALM-18** | 18 | 46 | M18x1.5 | 16.5 | 23 | 23.2 | 72 | 41 | 96 | 23° |
| **KARM-20** | **KALM-20** | 20 | 50 | M20x1.5 | 18.0 | 25 | 25.2 | 78 | 45 | 104 | 23° |
| **KARM-20 M20** | **KALM-20 M20** | 20 | 50 | M20x2.5 | 18.0 | 25 | 25.2 | 78 | 45 | 104 | 23° |
| **KARM-22** | **KALM-22** | 22 | 56 | M22x1.5 | 20.0 | 28 | – | 84 | 48 | 112 | 22° |
| **KARM-25** | **KALM-25** | 25 | 61 | M24x2.0 | 22.0 | 31 | – | 95 | 55 | 126 | 22° |
| **KARM-30** | **KALM-30** | 30 | 71 | M30x2.0 | 25.0 | 37 | – | 112 | 66 | 147 | 22° |

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

# igubal® rod ends | Product range

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




- Smooth design, no dirt traps
- Compensation of misalignment
- Lightweight
- Corrosion resistant
- Available with a stainless steel sleeve to take a higher torque
- Left-hand thread version KALM in preparation
- Dimensional series K according to standard DIN ISO 12240

### Order key

| Type | | | | Size [mm] | Version |
|---|---|---|---|---|---|
| K | A | R | M- | 06 | CL |
| Dimensional series K | Housing (male thread) | Right-hand thread | Metric | Inner Ø | 2nd generation |

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**
More spherical ball materials on request
▶ **Page 731**

- Adapter bolt with circlip available
  ▶ Accessories, **page 748**

### Technical data

| Part No. | Max. static tensile strength | | Max. static axial force | | Min. thread depth | Max. torque strength | Max. torque through ball | | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | Short-term | Long-term | Short-term | Long-term | Thread | male thread | without stainless steel sleeve | with stainless steel sleeve | |
| | [N] | [N] | [N] | [N] | [mm] | [Nm] | [Nm] | [Nm] | [g] |
| **KARM-06 CL** | 1,000 | 500 | 100 | 50 | 15 | 0.5 | 10 | 15 | 3.5 |
| **KARM-08 CL** | 1,700 | 850 | 200 | 100 | 18 | 2.0 | 12 | 40 | 6.2 |
| **KARM-10 CL** | 2,500 | 1,250 | 300 | 150 | 20 | 5.0 | 20 | 50 | 11.2 |
| **KARM-12 CL** | 2,700 | 1,350 | 400 | 200 | 22 | 6.0 | 30 | 70 | 15.6 |

### Dimensions [mm]

| Part No. | d1 | d2 | d3 | C1 | B | | h1 | l1 | l2 | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|
| | E10 | | | | without stainless steel sleeve | with stainless steel sleeve +0.2 | | | | |
| **KARM-06 CL** | 06 | 20 | M06 | 7.0 | 9.0 | 9.2 | 36 | 21 | 46 | 40° |
| **KARM-08 CL** | 08 | 24 | M08 | 9.0 | 12.0 | 12.2 | 42 | 25 | 55 | 35° |
| **KARM-10 CL** | 10 | 30 | M10 | 10.5 | 14.0 | 14.2 | 48 | 28 | 63 | 35° |
| **KARM-12 CL** | 12 | 34 | M12 | 12.0 | 16.0 | 16.2 | 54 | 32 | 71 | 35° |

Rod ends can be ordered in metric dimensions **with stainless steel** insert with the addition of **MH** after the part numbers listed here. Example: KARM-10 CL **MH (Inner-Ø: 10 mm)**.
For another spherical bearing material than iglidur® W300, please add **J** or **R** to the part number. Example: KARM-10 CL J.



## My sketches

igubal® rod ends

## Rod ends with female thread: EBRM and EBLM

- Maintenance-free, dry operation
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignments
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Corrosion and chemical resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E according to standard DIN ISO 12240
- For temperatures up to +200 °C we recommend EARM-HT and EALM-HT ▶ Page 660
- Detectable version ▶ Page 751

Inch **Imperial dimensions available** ▶ Page 1396

### Technical data

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

### Spherical ball materials to choose ▶ Page 731

J4VEM: clearance free, preloaded

JEM: low moisture absorption

REM: low-cost

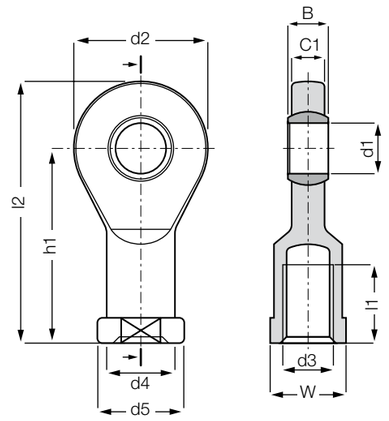
J4EM: low-cost and low moisture absorption



igubal® rod ends

igubal® rod ends | Product range

## Rod ends with female thread: EBRM and EBLM




### Order key

| Type | | | | Size [mm] | Options |
|---|---|---|---|---|---|
| E | B | ... | M | - 04 | |

- Dimensional series E
- Housing (female thread)
- Thread
- Metric
- Inner Ø

Thread
L = left-hand thread
R = right-hand thread

**Material:**
Housing: **igumid G** ▶ Page 1433
Spherical ball: **iglidur® W300** ▶ Page 153
More spherical ball materials on request ▶ Page 731

### Dimensions [mm]

| Part No. | | d1 | d2 | d3 | d4 | d5 | C1 | B | h1 | l1 | l2 | W | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | | | | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | | | | |
| EBRM-04[17] | EBLM-04[17] | 4 | 15 | M04 | – | – | 3.5 | 5 | 22.5 | 9.5 | 30.0 | SW08 | 33° |
| EBRM-05 | EBLM-05 | 5 | 19 | M05 | 9.0 | 11 | 4.4 | 6 | 30 | 12 | 39.5 | SW09 | 33° |
| EBRM-06 | EBLM-06 | 6 | 21 | M06 | 11.0 | 13 | 4.4 | 6 | 30 | 12 | 40.5 | SW11 | 27° |
| EBRM-08 | EBLM-08 | 8 | 24 | M08 | 13.0 | 16 | 6.0 | 8 | 36 | 14 | 48.0 | SW14 | 24° |
| EBRM-10 | EBLM-10 | 10 | 29 | M10 | 15.0 | 19 | 7.0 | 9 | 43 | 18 | 57.5 | SW17 | 24° |
| EBRM-10 F | EBLM-10 F | 10 | 29 | M10x1.25 | 15.0 | 19 | 7.0 | 9 | 43 | 18 | 57.5 | SW17 | 24° |
| EBRM-12 | EBLM-12 | 12 | 34 | M12 | 18.0 | 22 | 8.0 | 10 | 50 | 20 | 67.0 | SW19 | 21° |
| EBRM-12 F | EBLM-12 F | 12 | 34 | M12x1.25 | 18.0 | 22 | 8.0 | 10 | 50 | 20 | 67.0 | SW19 | 21° |
| EBRM-15 | EBLM-15 | 15 | 40 | M14 | 21.0 | 26 | 10.0 | 12 | 61 | 26 | 81.0 | SW22 | 21° |
| EBRM-16[17] | EBLM-16[17] | 16 | 43 | M16 | – | – | 10.5 | 13 | 64.5 | 26.5 | 86.0 | SW22 | 21° |
| EBRM-16 F[17] | EBLM-16 F[17] | 16 | 43 | M16x1.5 | – | – | 10.5 | 13 | 64.5 | 26.5 | 86.0 | SW22 | 21° |
| EBRM-17 | EBLM-17 | 17 | 46 | M16 | 24.0 | 30 | 11.0 | 14 | 67 | 27 | 90.0 | SW27 | 18° |
| EBRM-17 F | EBLM-17 F | 17 | 46 | M16x1.5 | 24.0 | 30 | 11.0 | 14 | 67 | 27 | 90.0 | SW27 | 18° |
| EBRM-20 | EBLM-20 | 20 | 53 | M20x1.5 | 27.0 | 34 | 13.0 | 16 | 77 | 31 | 103.5 | SW30 | 16° |
| EBRM-20 M20 | EBLM-20 M20 | 20 | 53 | M20x2.5 | 27.0 | 34 | 13.0 | 16 | 77 | 31 | 103.5 | SW30 | 16° |
| EBRM-25 | EBLM-25 | 25 | 64 | M24x2.0 | 34.0 | 41 | 17.0 | 20 | 94 | 38 | 126.5 | SW36 | 16° |
| EBRM-30 | EBLM-30 | 30 | 73 | M30x2.0 | 41.0 | 48 | 19.0 | 22 | 110 | 47 | 146.5 | SW41 | 13° |

[17] Special form with hexagonal foot

# igubal® rod ends | Product range

## Rod ends with male thread: EARM and EALM

- Maintenance-free, dry operation
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignments
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Corrosion and chemical resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E according to standard DIN ISO 12240
- For temperatures up to +200 °C we recommend EARM-HT and EALM-HT ▶ **Page 661**

## Technical data

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

## Spherical ball materials to choose ▶ **Page 731**

J4VEM:
clearance free, preloaded

JEM:
low moisture absorption

REM:
low-cost

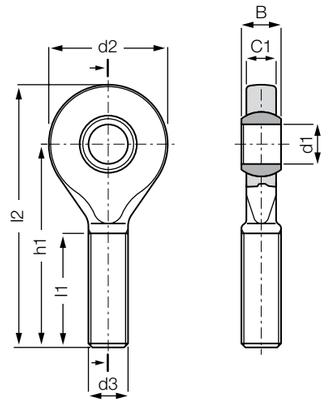
J4EM:
low-cost and low moisture absorption



igubal®
rod ends

igubal® rod ends | Product range

## Rod ends with male thread: EARM and EALM




## Order key

| Type | | | | Size [mm] | Options |
|---|---|---|---|---|---|
| E | A | ... | M- | 05 | |
| Dimensional series E | Housing (male thread) | Thread | Metric | Inner Ø | Thread<br>L = left-hand thread<br>R = right-hand thread |

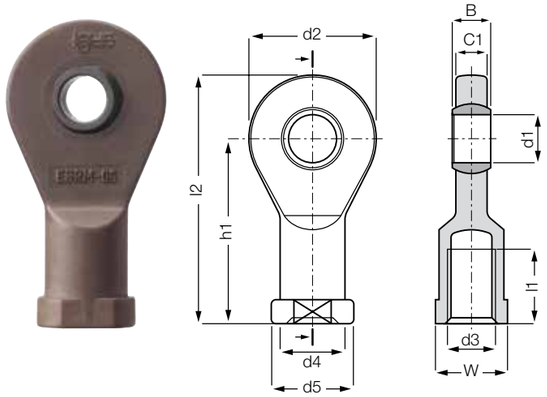
**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® W300** ▶ **Page 153**
More spherical ball materials on request
▶ **Page 731**

## Dimensions [mm]

| Part No. | | d1 | d2 | d3 | C1 | B | h1 | l1 | l2 | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | |
| **EARM-05** | **EALM-05** | 5 | 19 | M05 | 4.4 | 6 | 36 | 20 | 45.5 | 33° |
| **EARM-06** | **EALM-06** | 6 | 21 | M06 | 4.4 | 6 | 36 | 20 | 46.5 | 27° |
| **EARM-08** | **EALM-08** | 8 | 24 | M08 | 6.0 | 8 | 41 | 24 | 53.0 | 24° |
| **EARM-10** | **EALM-10** | 10 | 29 | M10 | 7.0 | 9 | 47.5 | 27 | 62.0 | 24° |
| **EARM-10 F** | **EALM-10 F** | 10 | 29 | M10x1.25 | 7.0 | 9 | 47.5 | 27 | 62.0 | 24° |
| **EARM-12** | **EALM-12** | 12 | 34 | M12 | 8.0 | 10 | 54 | 29 | 71.0 | 21° |
| **EARM-12 F** | **EALM-12 F** | 12 | 34 | M12x1.25 | 8.0 | 10 | 54 | 29 | 71.0 | 21° |
| **EARM-15** | **EALM-15** | 15 | 40 | M14 | 10.0 | 12 | 63 | 34 | 83.0 | 21° |
| **EARM-17** | **EALM-17** | 17 | 46 | M16 | 11.0 | 14 | 69 | 37 | 92.0 | 18° |
| **EARM-17 F** | **EALM-17 F** | 17 | 46 | M16x1.5 | 11.0 | 14 | 69 | 37 | 92.0 | 18° |
| **EARM-20** | **EALM-20** | 20 | 53 | M20 x 1.5 | 13.0 | 16 | 80 | 43 | 106.5 | 16° |
| **EARM-20 M20** | **EALM-20 M20** | 20 | 53 | M20x2.5 | 13.0 | 16 | 80 | 43 | 106.5 | 16° |
| **EARM-25** | **EALM-25** | 25 | 64 | M24x2.0 | 17.0 | 20 | 97 | 53 | 129.0 | 16° |
| **EARM-30** | **EALM-30** | 30 | 73 | M30x2.0 | 19.0 | 22 | 113 | 65 | 149.5 | 13° |

# igubal® rod ends | Product range

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




### Order key

| Type | | | | Size [mm] | Version | Options |
|---|---|---|---|---|---|---|
| E | B | ... | M- | 05 | HT | |
| Dimensional series E | Housing (female thread) | Thread | Metric | Inner Ø | high temperature | Thread<br>L = left-hand thread<br>R = right-hand thread |

- Applicable up to +200 °C
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignment and edge loads
- Corrosion and chemical resistant (chemical table ▶ **Page 1424**)
- For underwater applications
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E according to standard DIN ISO 12240

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® X** ▶ **Page 237**

### Technical data

| Part No. | | Max. static tensile strength | | Max. static axial force | | Min. thread depth | Max. torque strength | Max. torque through ball | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | Thread | Female thread | | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [mm] | [Nm] | [Nm] | [g] |
| **EBRM-05-HT** | **EBLM-05-HT** | 625 | 313 | 140 | 70 | 14 | 0.4 | 2.0 | 3.8 |
| **EBRM-06-HT** | **EBLM-06-HT** | 832 | 416 | 172 | 86 | 14 | 0.5 | 2.5 | 5.0 |
| **EBRM-08-HT** | **EBLM-08-HT** | 1,317 | 658 | 175 | 88 | 17 | 2.0 | 7.0 | 8.5 |
| **EBRM-10-HT** | **EBLM-10-HT** | 1,470 | 735 | 253 | 126 | 19 | 5.0 | 14.0 | 13.7 |
| **EBRM-12-HT** | **EBLM-12 HT** | 1,600 | 800 | 279 | 139 | 20 | 6.0 | 25.0 | 21.4 |

### Dimensions [mm]

| Part No. | | d1 | d2 | d3 | d4 | d5 | C1 | B | h1 | l1 | l2 | W | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | | | | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | | | | |
| **EBRM-05-HT** | **EBLM-05-HT** | 5 | 19 | M05 | 9.0 | 11 | 4.4 | 6 | 30 | 12 | 39.5 | SW09 | 33° |
| **EBRM-06-HT** | **EBLM-06-HT** | 6 | 21 | M06 | 11.0 | 13 | 4.4 | 6 | 30 | 12 | 40.5 | SW11 | 27° |
| **EBRM-08-HT** | **EBLM-08-HT** | 8 | 24 | M08 | 13.0 | 16 | 6.0 | 8 | 36 | 16 | 48.0 | SW14 | 24° |
| **EBRM-10-HT** | **EBLM-10-HT** | 10 | 29 | M10 | 15.0 | 19 | 7.0 | 9 | 43 | 18 | 57.5 | SW17 | 24° |
| **EBRM-12-HT** | **EBLM-12 HT** | 12 | 34 | M12 | 18.0 | 22 | 8.0 | 10 | 50 | 20 | 67.0 | SW19 | 21° |

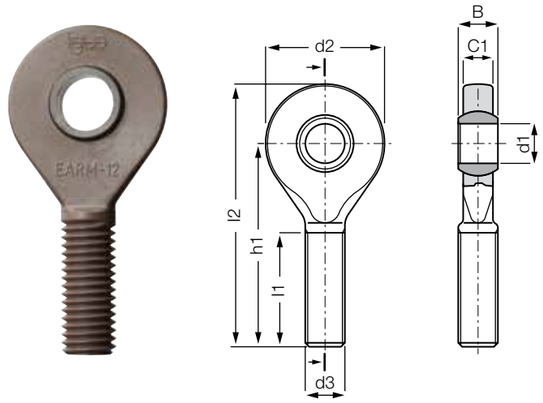
Other dimensions available on request



igubal® rod ends

igubal® rod ends | Product range

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




### Order key

| Type | | | | Size [mm] | Version | Options |
|---|---|---|---|---|---|---|
| E | A | ... | M- | 05 | HT | |
| Dimensional series E | Housing (male thread) | Thread | Metric | Inner Ø | high temperature | Thread<br>L = left-hand thread<br>R = right-hand thread |

- Applicable up to +200 °C
- High rigidity
- Very high tensile strength for varying loads
- Compensation of misalignment and edge loads
- Corrosion and chemical resistant (chemical table ▶ **Page 1424**)
- For underwater applications
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E according to standard DIN ISO 12240

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical ball: **iglidur® X** ▶ **Page 237**

### Technical data

| Part No. | | Max. static tensile strength | | Max. static axial force | | Min. thread depth | Max. torque strength | Max. torque through ball | Weight |
|---|---|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | Thread | Male thread | | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [mm] | [Nm] | [Nm] | [g] |
| **EARM-05-HT** | **EALM-05-HT** | 380 | 190 | 20 | 10 | 14 | 0.4 | 2.0 | 2.8 |
| **EARM-06-HT** | **EALM-06-HT** | 600 | 300 | 30 | 15 | 14 | 0.5 | 2.5 | 3.4 |
| **EARM-08-HT** | **EALM-08-HT** | 931 | 465 | 48 | 24 | 17 | 2.0 | 7.0 | 6.1 |
| **EARM-10-HT** | **EALM-10-HT** | 1,125 | 563 | 57 | 28 | 19 | 5.0 | 14.0 | 10.2 |
| **EARM-12-HT** | **EALM-12-HT** | 1,200 | 600 | 65 | 33 | 20 | 6.0 | 25.0 | 15.7 |

### Dimensions [mm]

| Part No. | | d1 | d2 | d3 | C1 | B | h1 | l1 | l2 | Max. pivot angle |
|---|---|---|---|---|---|---|---|---|---|---|
| | | E10 | | | | | | | | |
| Right-hand thread | Left-hand thread | | | | | | | | | |
| **EARM-05-HT** | **EALM-05-HT** | 5 | 19 | M05 | 4.4 | 6 | 36.0 | 20 | 45.5 | 33° |
| **EARM-06-HT** | **EALM-06-HT** | 6 | 21 | M06 | 4.4 | 6 | 36.0 | 20 | 46.5 | 27° |
| **EARM-08-HT** | **EALM-08-HT** | 8 | 24 | M08 | 6.0 | 8 | 41.0 | 24 | 53.0 | 24° |
| **EARM-10-HT** | **EALM-10-HT** | 10 | 29 | M10 | 7.0 | 9 | 47.5 | 27 | 62.0 | 24° |
| **EARM-12-HT** | **EALM-12-HT** | 12 | 34 | M12 | 8.0 | 10 | 54.0 | 29 | 71.0 | 21° |

Other dimensions available on request

## Angled ball and socket joint: WGRM and WGLM

- Connection for rotating and pivoting movements
- Lightweight
- Easy and quick assembly
- Vibration-dampening
- Resistant to dirt and dust
- Ball studs made from plastic, galvanised steel and stainless steel [19]

▶ Accessories, **page 745**

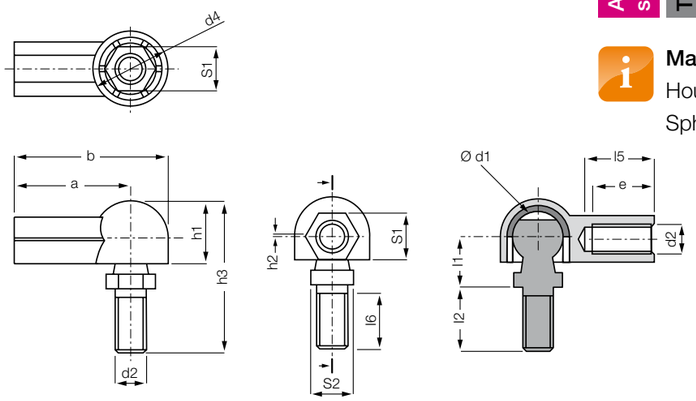
### Order key

| Type | Size [mm] | Options |
|---|---|---|
| WG ... M - | 05 | |

Angled ball and socket joint | Thread | Metric | Inner Ø

**Thread**
L = left-hand thread
R = right-hand thread
**Ball stud**
Blank = plastic stud
MS = ball studs made from galvanised steel[19]
ES = ball stud made from Stainless steel[28]

**Material:**
Housing: **igumid G** ▶ **Page 1433**
Spherical cap: **iglidur® W300** ▶ **Page 153**




### Technical data

| Part No. | | Max. axial tensile force (Ball stud axis[19]) | | Max. axial compressive force (Ball stud axis) | | Max. axial tensile force (Housing axis) | | Max. axial Tensile force steel stud (Housing axis) | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| Right-hand thread | Left-hand thread | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | [g] |
| WGRM-05 | WGLM-05 | 30 | 15 | 200 | 100 | 100 | 50 | 600 | 300 | 2.6 |
| WGRM-06 | WGLM-06 | 35 | 17.5 | 300 | 150 | 140 | 70 | 800 | 400 | 3.8 |
| WGRM-08 | WGLM-08 | 250 | 125 | 500 | 250 | 200 | 100 | 1,500 | 750 | 8.0 |
| WGRM-10 | WGLM-10 | 250 | 125 | 900 | 450 | 400 | 200 | 1,900 | 950 | 13.7 |

### Dimensions [mm]

| Part No. | | d1 | d2 | d4 | l1 | l2 | l5 | l6 | h1 | h2 | h3 | a | b | e | S1 | S2 | Max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Right-hand thread | Left-hand thread | +0.1 –0.1 | | +0.5 –0.5 | +0.2 –0.2 | +0.3 –0.3 | | Min. | +0.4 –0.4 | +0.5 –0.5 | +0.5 –0.5 | +0.3 –0.3 | +0.5 –0.5 | +1.0 –1.0 | | | pivot angle |
| WGRM-05 | WGLM-05 | 8.0 | M5 | 12.8 | 9.0 | 10.2 | 14.0 | 8.2 | 10.8 | 0.65 | 25.6 | 22.0 | 28.4 | 11.0 | SW 8 | SW 7 | 25° |
| WGRM-06 | WGLM-06 | 10.0 | M6 | 14.8 | 11.0 | 12.5 | 16.0 | 10.5 | 12.3 | 0.70 | 30.9 | 25.0 | 32.4 | 13.0 | SW 9 | SW 8 | 25° |
| WGRM-08 | WGLM-08 | 13.0 | M8 | 19.3 | 13.0 | 16.5 | 18.0 | 13.5 | 16.2 | 1.15 | 38.8 | 30.0 | 39.7 | 16.0 | SW12 | SW11 | 25° |
| WGRM-10 | WGLM-10 | 16.0 | M10 | 24.0 | 16.0 | 20.0 | 20.0 | 16.0 | 20.0 | 1.15 | 47.0 | 35.0 | 47.0 | 18.0 | SW14 | SW13 | 25° |

[19] Galvanised steel stud only available with right-hand thread. Order example: WGRM-05 MS
[28] Stainless steel ball stud on request





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

- Housing with ball stud
- Lightweight
- Maintenance-free
- Ball studs made from plastic, galvanised steel and stainless steel[19]

▶ Accessories, **page 745**

### Order key

| Type | Size [mm] | Version |
|---|---|---|
| WG ... M - | 05 | LC |

Angled ball and socket joint | Thread | Metric | Inner Ø | Low-cost

Options:
**Thread**
L = left-hand thread
R = right-hand thread

**Ball stud**
blank = plastic stud
MS = ball studs made from galvanised steel[19]
ES = ball studs made from stainless steel[28]

**Material:**
Housing: **igumid G** ▶ **Page 1433**

### Technical data

| Part No. | | Max. axial tensile force (Ball stud axis[19]) | | Max. axial compressive force (Ball stud axis) | | Max. axial tensile force (Housing axis) | | Max. axial tensile force steel stud (Housing axis) | | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| Right-hand thread | Left-hand thread | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | Short-term [N] | Long-term [N] | [g] |
| WGRM-04 LC-MS[20] | WGLM-04 LC-MS[20] | 100 | 50 | 150 | 75 | – | – | 500 | 250 | 2.4 |
| WGRM-05 LC | WGLM-05 LC | 30 | 15 | 200 | 100 | 100 | 50 | 600 | 300 | 2.6 |
| WGRM-06 LC | WGLM-06 LC | 35 | 17.5 | 300 | 150 | 140 | 70 | 800 | 400 | 4.0 |
| WGRM-08 LC | WGLM-08 LC | 250 | 125 | 500 | 250 | 200 | 100 | 1,500 | 750 | 8.2 |
| WGRM-10 LC | WGLM-10 LC | 250 | 125 | 900 | 450 | 400 | 200 | 1,900 | 950 | 13.8 |

### Dimensions [mm] – technical drawing ▶ Page 662

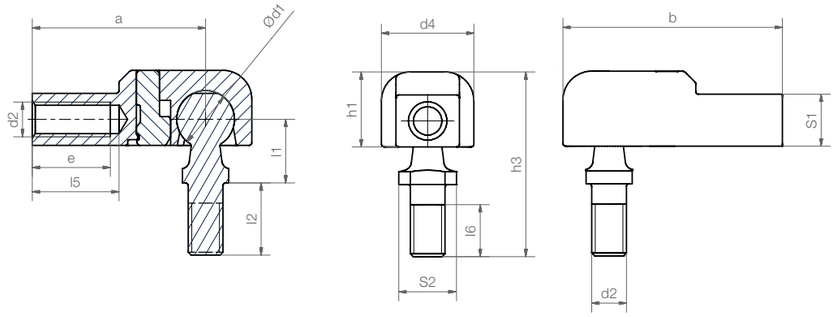
| Part No. | | d1 | d2 | d4 | l1 | l2 | l5 | l6 | h1 | h2 | h3 | a | b | e | S1 | S2 | Max. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Right-hand thread | Left-hand thread | +0.1 –0.1 | | +0.5 –0.5 | +0.2 –0.2 | +0.3 –0.3 | | Min. | +0.4 –0.4 | +0.5 –0.5 | +0.5 –0.5 | +0.3 –0.3 | +0.5 –0.5 | +1.0 –1.0 | | | pivot angle |
| WGRM-04 LC-MS[20] | WGLM-04 LC-MS[20] | 6.0 | M4 | 10.6 | 8.5 | 8.0 | 12.5 | 6.8 | 9.0 | 0.2 | 21.8 | 18.0 | 23.3 | 10.5 | SW 7 | SW 7 | 20° |
| WGRM-05 LC | WGLM-05 LC | 8.0 | M5 | 12.8 | 9.0 | 10.2 | 14.0 | 8.2 | 10.8 | 0.65 | 25.6 | 22.0 | 28.4 | 11.0 | SW 8 | SW 7 | 25° |
| WGRM-06 LC | WGLM-06 LC | 10.0 | M6 | 14.8 | 11.0 | 12.5 | 16.0 | 10.5 | 12.3 | 0.70 | 30.9 | 25.0 | 32.4 | 13.0 | SW 9 | SW 8 | 25° |
| WGRM-08 LC | WGLM-08 LC | 13.0 | M8 | 19.3 | 13.0 | 16.5 | 18.0 | 13.5 | 16.2 | 1.15 | 38.8 | 30.0 | 39.7 | 16.0 | SW 12 | SW 11 | 25° |
| WGRM-10 LC | WGLM-10 LC | 16.0 | M10 | 24.0 | 16.0 | 20.0 | 20.0 | 16.0 | 20.0 | 1.15 | 47.0 | 35.0 | 47.0 | 18.0 | SW 14 | SW 13 | 25° |

[19] Galvanised steel stud only available with right-hand thread. Order example: WGRM-05 LC MS
[20] Only available with galvanised steel stud
[28] Stainless steel ball stud on request

## Ball joint, removable: WGRM-DE and WGLM-DE

- Cost-effective ball joint
- Lightweight
- Corrosion resistant
- Easy assembly (75 N) and disassembly
- High holding forces when assembled (260 N)
- Ball studs made from plastic, galvanised steel and stainless steel[19] ▶ Accessories, **page 745**

**Material:**
Housing: **igumid G ▶ Page 1433**




### Order key

| Type | Size [mm] | Version |
|---|---|---|
| WG ... M - | 05 | DE |
| Angled ball and socket joint / Thread / Metric | Inner Ø | Disassembly |

Options:

**Thread**
L = left-hand thread
R = right-hand thread

**Ball stud**
blank = plastic stud
MS = ball studs made from galvanised steel[19]
ES = ball studs made from stainless steel[28]

### Technical data and dimensions [mm]

| Part No. | | Assembly force | Disassembly force | d1 | d2 | d4 | l1 | l2 | l5 | Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | +0.1 | | +0.5 | +0.2 | +0.5 | | |
| Right-hand thread | Left-hand thread | [N] | [N] | –0.1 | | –0.5 | –0.2 | –0.5 | Min. | [g] |
| WGRM-05-DE | WGLM-05-DE | 35 | 200 | 8.0 | M5 | 12.8 | 9.0 | 10.2 | 13.0 | 3.4 |
| WGRM-06-DE | WGLM-06-DE | 50 | 275 | 10.0 | M6 | 16.0 | 11.0 | 12.5 | 14.5 | 5.5 |

### Dimensions [mm]

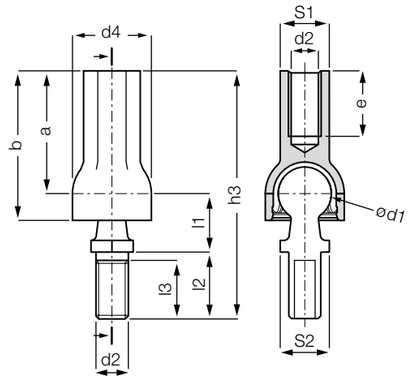
| Part No. | | l6 | h1 | h3 | S1 | S2 | a | b | e | Pivot angle | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | +0.4 | +0.5 | | | +0.3 | +0.5 | +1.0 | | |
| Right-hand thread | Left-hand thread | Min. | –0.4 | –0.5 | | | –0.3 | –0.5 | –1.0 | Recom. | Max. |
| WGRM-05-DE | WGLM-05-DE | 8.2 | 10.8 | 25.6 | SW9 | SW7 | 25.0 | 31.4 | 11.0 | 18° | 25° |
| WGRM-06-DE | WGLM-06-DE | 10.5 | 13.0 | 32.0 | SW11 | SW8 | 30.0 | 38.0 | 12.0 | 18° | 25° |

[19] Galvanised steel stud only available with right-hand thread. Order example: WGRM-05-DE MS
[28] Stainless steel ball stud on request





## In-line ball and socket joint: AGRM and AGLM




### Order key

| Type | Size [mm] | Options |
|---|---|---|
| AG ... M - | 08 | |
| In line ball and socket joint / Thread / Metric | Inner Ø | |

**Thread**
L = left-hand thread
R = right-hand thread
**Ball stud**
Blank = plastic stud
MS = ball studs made from galvanised steel[19]
ES = ball stud made from Stainless steel[28]

**Material:**
Housing: **igumid G ▶ Page 1433**
Spherical cap: **iglidur® W300 ▶ Page 153**

- For all mechanical combinations
- Very easy to assemble
- Maintenance-free, predictable service life
- Corrosion and chemical resistant
- High vibration-dampening
- Ball studs made from plastic, galvanised steel and stainless steel[19] ▶ Accessories, **page 745**

### Technical data

| Part No. | | Max. static axial tensile strength | | Max. static axial compressive force | | Max. assembling force | Weight |
|---|---|---|---|---|---|---|---|
| | | Short-term | Long-term | Short-term | Long-term | | |
| Right-hand thread | Left-hand thread | [N] | [N] | [N] | [N] | [N] | [g] |
| AGRM-08 | AGLM-08 | 250 | 125 | 1,000 | 500 | 110 | 7.8 |

### Dimensions [mm]

| Part No. | | d1 | d2 | d4 | l1 | l2 | l3 | h3 | S1 | S2 | a | b | e | Pivot angle | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | +0.1 | | +0.5 | +0.2 | +0.3 | | +0.5 | | | +0.3 | +0.5 | | | |
| Right-hand thread | Left-hand thread | –0.1 | | –0.5 | –0.2 | –0.3 | Min. | –0.5 | | | –0.3 | –0.5 | Min. | Recom. | Max. |
| AGRM-08 | AGLM-08 | 13.0 | M8 | 19.3 | 13.0 | 16.5 | 13.5 | 59.0 | SW12 | SW11 | 29.5 | 36.5 | 16.0 | 18° | 25° |

[19] Galvanised steel stud only available with right-hand thread. Order example: AGRM-08 MS
[28] Stainless steel ball stud on request