Aluminum shafts from stock...lifetime predictable...

...Aluminum shafts from stock...lifetime predictable...

11.2012...plastics for longer life...

www.igus.eu/shafts
What characterizes igus® as a shaft supplier?
A bearing system includes, besides the plain bearing, the shaft and its surface character. The objective is to provide the ideal material to optimize the coefficients of friction, resistance and service life for the customers. For this purpose a construction kit consisting of 8 shaft materials and 29 plain bearing materials are available.

What are the advantages of the shaft variety?
Low-weight aluminum shafts, extremely high resistance to corrosion and chemicals by the application of V4A shafts are only few of the advantages. First of all, the calculability of the lifetime – based on numerous tests – enables the determination of the optimum bearing-shaft combination. Thus the customer gets the long-lasting linear bearing solution for his specific application.

Do you supply individually machined shafts for customers?
Besides the usual, hardened standard shafts made of steel and stainless steel, we can also individually machine all other shaft materials.

Applications with high holding times, speeds or accelerations in demanding environmental conditions require tested and functionally safe linear systems...

... igus® in its laboratory conducts approximately 5,000 tests per year with plain bearings on different shaft materials...

... The results of the friction and wear tests are applied in the lifetime calculation program...

... Anyone interested can assess before hand the lifetime and undertake a function check online:

www.igus.eu/drylin-lifetime
Delivery times
Quick and reliable

- Precision aluminum shaft, hard anodized
- Aluminum hollow shaft, hard anodized
- Supported aluminum shaft, hard anodized

24-48 hrs

- Hardened steel shaft
- Hard-chromed steel shaft
- Hardened steel shaft
- Drawn VA stainless steel

3-8 days

- Supported steel and stainless steel shaft
- Shaft with machining

8-14 days

20:00h
Place your orders till the newscast.
Mo-Fri order from 7.00 am to 8.00 pm, Sa from 8.00 am to 12.00 pm. No minimum order quantities. Phone. +49 2203 9649-145 Fax -334

igus.eu/24
Buy online – 24 hrs!
## Delivery program

### Table: Material Specifications

<table>
<thead>
<tr>
<th>Designation</th>
<th>Aluminum</th>
<th>Steel</th>
<th>Hardened stainless steel</th>
<th>SS, soft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 6</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
<tr>
<td>Ø 8</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
<tr>
<td>Ø 10</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
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</tr>
<tr>
<td>Ø 12</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
<tr>
<td>Ø 16</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
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<tr>
<td>Ø 20</td>
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<td>![Material Icon]</td>
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<tr>
<td>Ø 25</td>
<td>![Material Icon]</td>
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</tr>
<tr>
<td>Ø 30</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
<tr>
<td>Ø 40</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
<tr>
<td>Ø 50</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
<td>![Material Icon]</td>
</tr>
</tbody>
</table>

### Ø Tolerance

- h8: –0,1
- h9: –0,2
- h6: –0,2
- h7: –0,2
- h6: –0,2
- h6: –0,2
- h9: –0,2
- h9: –0,2

### Max. supply length

- Ø 8–10: 3.000
- Ø 12–50: 3.000

### Surface

- Hard anodized
- Hardened/
  Smoothened
- Hard chrome-plated
- Hardened/
  Smoothened
- Hardened/
  Smoothened
- Drawn

### Surface roughness

- Ra: < 0,6
- 0,15–0,3
- 0,15–0,3
- 0,15–0,3
- 0,15–0,3
- 0,3–0,6

### Surface hardness

- 450–550 HV
- 60+4 HRC
- 60–4 HRC
- 52+8 HRC
- 52+8 HRC
- Soft

### Roundness

- ≤ 1/2 Ø Tolerance
- ≤ 1/2 Ø Tolerance
- ≤ 1/2 Ø Tolerance
- ≤ 1/2 Ø Tolerance
- ≤ 1/2 Ø Tolerance

### Delivery time

- From stock: 3–14 days
- On request

### Special machining

- Female thread, axial
- Male thread
- Keyway
- Groove cut-in
- Hex flat
- Female thread, radial

### Article number

**Order example:**

- **AWMU - 12 - 500**
  - Corresponds to a supported aluminum shaft with 12 mm diameter and 500 mm length

Queries can also be sent online:

**www.igus.eu/shaftinquiry**

More on coefficients of friction and material in the bearings catalog

1) Hollow profile 30x7.5; 40x10; 50x11
2) Material 1.4112
# Material properties

## Aluminum
- Low weight
- Lower wear of the plain bearing
- Corrosion resistant
- Ideal in combination with liners made of iglidur® J/J 200
- Delivered from stock

## Steel
- Low-priced standard
- High load capacity
- Application in dry area
- Hard chrome-plated also available
- Lower coefficient of friction against plastic bearing

## Stainless steel
- High corrosion resistance
- High resistance to chemicals
- Ideal solution for the wet area
- 316 for extreme chemical intensive applications

### Wear
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

### Coefficient of friction
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

### Corrosion
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

### Weight
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

### Costs
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

### Chemical resistance
- Aluminum hard anodized
- Hardened steel
- Steel hard chrome-plated
- Hardened stainless steel
- Soft stainless steel

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Aluminum shafts in combination with iglidur® J enable high speeds due to the low weight.

Steel shafts with iglidur® J plain bearings withstand the high pressures and powder particles of the press.

Stainless steel shafts combined with iglidur® X offer maximum resistance at 120°C cleaning in filling machine.

Low cost guide for workpiece carriage in a machine tool through supported aluminum shaft.

Stainless steel and iglidur® J linear bearings provide for a lubricant-free continuous operation in this mobile saw mill.

Stainless steel combined with iglidur® J in-cut-off grinding machine. Grinding particles and coolants, extreme conditions.
Dimensions

AWMU – Supported aluminum shaft
Dimensions [mm]

<table>
<thead>
<tr>
<th>Art-No.</th>
<th>D</th>
<th>B</th>
<th>H</th>
<th>V</th>
<th>d₁ (º)</th>
<th>E</th>
<th>T₁</th>
<th>C5/C6</th>
<th>max. length</th>
<th>Weight (kg/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWMU-12</td>
<td>12</td>
<td>40</td>
<td>22</td>
<td>5</td>
<td>4,5</td>
<td>50</td>
<td>29</td>
<td>50</td>
<td>75</td>
<td>0,75</td>
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<tr>
<td>AWMU-16</td>
<td>16</td>
<td>45</td>
<td>26</td>
<td>5</td>
<td>5,5</td>
<td>50</td>
<td>33</td>
<td>100</td>
<td>20</td>
<td>1,00</td>
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<tr>
<td>AWMU-20</td>
<td>20</td>
<td>52</td>
<td>32</td>
<td>6</td>
<td>6,6</td>
<td>50</td>
<td>37</td>
<td>100</td>
<td>20</td>
<td>1,42</td>
</tr>
<tr>
<td>AWMU-25</td>
<td>25</td>
<td>57</td>
<td>36</td>
<td>6</td>
<td>6,6</td>
<td>50</td>
<td>42</td>
<td>120</td>
<td>20</td>
<td>1,81</td>
</tr>
<tr>
<td>AWMU-30</td>
<td>30</td>
<td>69</td>
<td>42</td>
<td>7</td>
<td>9,0</td>
<td>50</td>
<td>51</td>
<td>150</td>
<td>20</td>
<td>2,69</td>
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<tr>
<td>AWMU-40*</td>
<td>40</td>
<td>73</td>
<td>50</td>
<td>8</td>
<td>9,0</td>
<td>50</td>
<td>55</td>
<td>200</td>
<td>20</td>
<td>4,06</td>
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</tbody>
</table>

Order example: AWMU-16-500 is conform to a supported Aluminum shaft Ø 16 mm, 500 mm length.
* The tolerance for the shaft diameter D is ±0,15.

SWUM/EWUM – Supported steel shaft/stainless steel shaft
Dimensions [mm]

<table>
<thead>
<tr>
<th>Art-No.</th>
<th>D</th>
<th>B</th>
<th>H</th>
<th>V</th>
<th>N₁</th>
<th>N₂</th>
<th>d₁</th>
<th>M  (º)</th>
<th>E</th>
<th>T₁*</th>
<th>C5/C6</th>
<th>T₂</th>
<th>C5/C6</th>
<th>Weight (kg/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWUM/EWUM-12</td>
<td>12</td>
<td>40</td>
<td>22</td>
<td>5</td>
<td>8,0</td>
<td>5,0</td>
<td>4,5</td>
<td>5,8</td>
<td>50</td>
<td>29</td>
<td>75</td>
<td>20</td>
<td>57</td>
<td>1,75</td>
</tr>
<tr>
<td>SWUM/EWUM-16</td>
<td>16</td>
<td>45</td>
<td>26</td>
<td>5</td>
<td>9,5</td>
<td>6,0</td>
<td>5,5</td>
<td>7,0</td>
<td>50</td>
<td>33</td>
<td>100</td>
<td>20</td>
<td>69</td>
<td>2,64</td>
</tr>
<tr>
<td>SWUM/EWUM-20</td>
<td>20</td>
<td>52</td>
<td>32</td>
<td>6</td>
<td>11,0</td>
<td>6,5</td>
<td>6,6</td>
<td>8,3</td>
<td>50</td>
<td>37</td>
<td>100</td>
<td>20</td>
<td>69</td>
<td>3,97</td>
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<tr>
<td>SWUM/EWUM-25</td>
<td>25</td>
<td>57</td>
<td>36</td>
<td>6</td>
<td>14,0</td>
<td>8,5</td>
<td>6,6</td>
<td>10,8</td>
<td>50</td>
<td>42</td>
<td>120</td>
<td>20</td>
<td>79</td>
<td>5,65</td>
</tr>
<tr>
<td>SWUM/EWUM-30</td>
<td>30</td>
<td>69</td>
<td>42</td>
<td>7</td>
<td>17,0</td>
<td>10,5</td>
<td>9,0</td>
<td>11,0</td>
<td>50</td>
<td>51</td>
<td>150</td>
<td>20</td>
<td>94</td>
<td>7,93</td>
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<tr>
<td>SWUM/EWUM-40</td>
<td>40</td>
<td>73</td>
<td>50</td>
<td>8</td>
<td>17,0</td>
<td>10,5</td>
<td>9,0</td>
<td>15,0</td>
<td>50</td>
<td>55</td>
<td>200</td>
<td>20</td>
<td>119</td>
<td>12,88</td>
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<td>SWUM/EWUM-50</td>
<td>50</td>
<td>84</td>
<td>60</td>
<td>9</td>
<td>19,0</td>
<td>12,5</td>
<td>11,0</td>
<td>19,0</td>
<td>46</td>
<td>63</td>
<td>200</td>
<td>20</td>
<td>119</td>
<td>19,60</td>
</tr>
</tbody>
</table>

* Two hole pitches are available, T2 (standard) or T1

SWUMN/EWUMN – Low supported steel shaft/stainless steel shaft
Dimensions [mm]

<table>
<thead>
<tr>
<th>Art-No.</th>
<th>d</th>
<th>H</th>
<th>H₁</th>
<th>A</th>
<th>A₁</th>
<th>A₂</th>
<th>d₁</th>
<th>d₂</th>
<th>T</th>
<th>C5/C6</th>
<th>Weight (kg/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWUMN/EWUMN-12</td>
<td>12</td>
<td>14,5</td>
<td>3</td>
<td>11</td>
<td>5,5</td>
<td>5,4</td>
<td>M4</td>
<td>4,5</td>
<td>75</td>
<td>20</td>
<td>1,62</td>
</tr>
<tr>
<td>SWUMN/EWUMN-16</td>
<td>16</td>
<td>18</td>
<td>3</td>
<td>14</td>
<td>7,0</td>
<td>7,0</td>
<td>M5</td>
<td>5,5</td>
<td>75</td>
<td>20</td>
<td>2,54</td>
</tr>
<tr>
<td>SWUMN/EWUMN-20</td>
<td>20</td>
<td>22</td>
<td>3</td>
<td>17</td>
<td>8,5</td>
<td>8,1</td>
<td>M6</td>
<td>6,6</td>
<td>75</td>
<td>20</td>
<td>3,81</td>
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<tr>
<td>SWUMN/EWUMN-25</td>
<td>25</td>
<td>26</td>
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<td>21</td>
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<td>5,62</td>
</tr>
<tr>
<td>SWUMN/EWUMN-30</td>
<td>30</td>
<td>30</td>
<td>3</td>
<td>23</td>
<td>11,5</td>
<td>11,0</td>
<td>M10</td>
<td>11,0</td>
<td>100</td>
<td>20</td>
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<td>39</td>
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<td>M12</td>
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<td>100</td>
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<td>13,47</td>
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<td>SWUMN/EWUMN-50</td>
<td>50</td>
<td>46</td>
<td>5</td>
<td>35</td>
<td>17,5</td>
<td>19,0</td>
<td>M14</td>
<td>15,5</td>
<td>100</td>
<td>20</td>
<td>20,31</td>
</tr>
</tbody>
</table>

Order example: SWUM-16-500 is conform to a supported steel shaft Ø 16 mm made of 1.1213, 500 mm length.
Best bearings for your shaft

The combination of shaft and bearing material is decisive for the operation feature of the linear bearing. Besides coefficient of friction and wear, moisture absorption, chemical or temperature resistance can be crucial factors for the right choice of the bearing material. The drylin® kit offers three bearing materials as standard, which is executed in the form of a slotted liner. These are supplied from stock ready for installation, completely mounted in the required adapter or housing.

<table>
<thead>
<tr>
<th>Potential reverse partner</th>
<th>The allrounder – iglidur® J</th>
<th>The specialist – iglidur® J200</th>
<th>The extreme – iglidur® X</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All shaft materials</td>
<td>Aluminum, hard anodized</td>
<td>hardened stainless steel</td>
</tr>
<tr>
<td>Application temperature</td>
<td>-50 to +90 °C</td>
<td>-50 to +90 °C</td>
<td>-100 to +250 °C</td>
</tr>
<tr>
<td>Best coeff. of friction with</td>
<td>Steel shaft</td>
<td>Aluminum, hard anodized</td>
<td>Hard chromed steel</td>
</tr>
<tr>
<td>Maximum lifetime</td>
<td>Aluminum, hard anodized</td>
<td>Aluminum, hard anodized</td>
<td>hardened stainless steel</td>
</tr>
<tr>
<td>Max. surface pressure</td>
<td>35 MPa</td>
<td>23 MPa</td>
<td>150 MPa</td>
</tr>
<tr>
<td>Moisture</td>
<td>1.3% weight</td>
<td>0.7 % weight</td>
<td>0.5 % weight</td>
</tr>
<tr>
<td>Volume resistance</td>
<td>&gt; 10¹² Ωcm</td>
<td>&gt; 10⁹ Ωcm</td>
<td>&lt; 10³ Ωcm</td>
</tr>
<tr>
<td>Speciality</td>
<td>Lubricant-free</td>
<td>Lubricant-free</td>
<td>Lubricant-free</td>
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<tr>
<td>Art-No.</td>
<td>JUM-...</td>
<td>J200UM-...</td>
<td>XUM-...</td>
</tr>
</tbody>
</table>

Product range

- RJUM-01-... Linear bushing
- RJUM-03-... Linear bushing Self-aligning
- TJUM-01-... Linear bushing Split
- OJUM-01-... Linear bushing Adjustable
- OJUM-03-... Linear bushing Compact
- RJUM-05-... Flange bearing
- RJUM-07-... Compact housing
- RJUM-09-... Compact housing Adjustable
- TJUM-05-... Compact housing Split
- RJUM-09-... Housing bearing
- RJUM-11-... Housing bearing Floating bearing
- RJUM-13-... Housing bearing Floating bearing
- RQA-01/03/04 Quad block
- OQA-01/03-... Quad block
- OTA-01/03-... Pillow block
- RGA-01/03/04 Housing
- OGA-01/03-... Housing
- RGA-01/03-... Housing
- RGAS-01/03-... Housing
- WAF-... Shaft block Flange
- TA-... Shaft end support

More accessories in the igus® Bearing-Catalog
Bearings Catalog

Over 10,200 products in the definitive book for igus® polymer bearings
● Handy in DIN A5 size
● Quick web links (3D CAD data, configurators, downloads in PDF)

www.drylin.eu

Visit us online and use all advantages
● Lifetime calculation
● 3D-CAD-Data
● Online-price list and Online-Shop

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