



**APPLICATION OVERVIEW:**  
iglide® L280 and iglide® Q plastic bushings improve an artificial knee joint.

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igus Inc.

PO Box 14349

East Providence, RI 02914

P. 1-800-527-2747

F. (401) 438-7270

sales@igus.com

[www.igus.com](http://www.igus.com)

# CASE STUDY

## MEDICAL INDUSTRY



### Plastic bushings improve an artificial knee joint

#### Plastic bearings used for improved performance

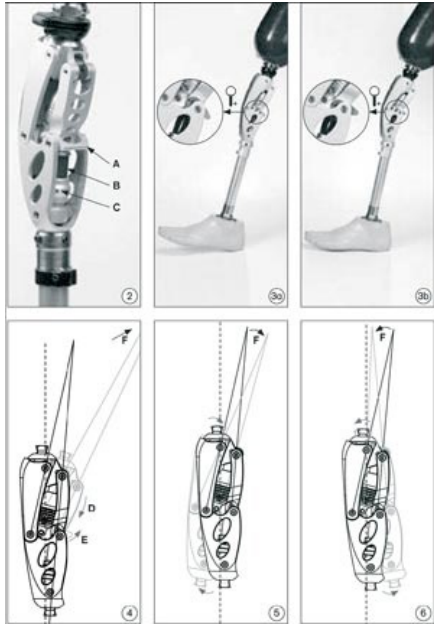
A leading worldwide supplier of orthopedic technology for the past 90 years offers sophisticated, top-quality products and services to people with restricted mobility. By using plastic bushings, instead of needle or bronze bearings, the company's artificial knee-joint design was significantly improved. Metal bearings proved to be susceptible to dust and dirt and developed disturbing noise with increased play and significant wear. The challenge was to find a plain bearing which could operate without



the need for any maintenance or play. They should also run noiselessly, cushion impacts and have a good cost/performance ratio. iglide® L280 and iglide® Q plastic bushings from igus® are situated in all the bearing points of the artificial knee joint.

iglide® L280 plastic bushings have low coefficients of friction and extremely high wear resistance. They are suitable for soft shafts and withstand chemicals. iglide® L280 also has a very high compressive strength, despite high elasticity. Under the maximum permissible load of 8,702 psi, the deformation at room temperature

is less than 3 percent. The coefficients of friction also do not increase with higher surface speeds. Compared to other materials, it can achieve slightly higher surface speeds - for instance up to 4.9 ft/s during rotating movements and up to 16.4 ft/s during linear movements. Due to the exceptional wear resistance, bearing wear remains low even long term even at high speeds on hardened shafts. For minimum coefficients of friction with iglide® L280, the surface should not be too smooth.



### Fit for high loads

If very high loads are involved, iglide® Q bearings are generally recommended, as they were developed especially for such applications. With a radial load of 3,626 psi, they even surpass bearings made from highly wear-resistant iglide® L280. Under the maximum permitted load of 14,504 psi, the elastic deformation at room temperature is less than 3 percent.

iglide® Q plastic bushings offer the greatest advantages in terms of high loads and low speeds. Due to their excellent coefficient of friction, high surface speeds are also possible. iglide® Q bearings retain their excellent wear resistance at high temperatures as well.

The permissible long-term application temperature is 302°F.

The artificial limb is now lighter and smooth-running thanks to the implementation of plastic bushings. The patient need only rarely visit an orthopedic mechanic.

### More product information

[iglide® L280 plastic bushings](#)

[iglide® Q plastic bushings](#)

[iglide® plastic bushings overview](#)

### More application examples from different industries

[Plastic bearings - applications overview](#)