# iglide® Plastic Plain Bearings

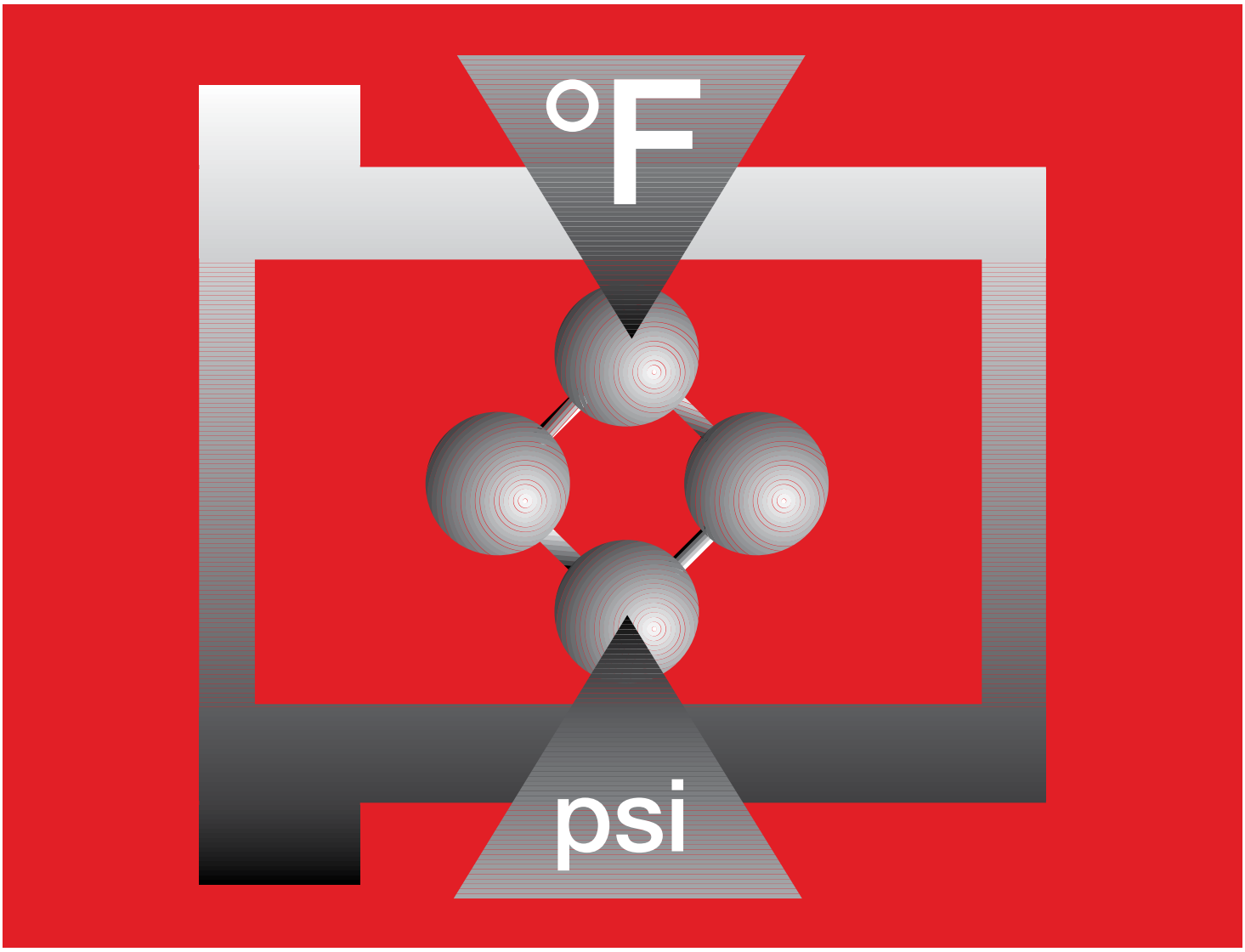
igus® iglide® plastic bearings are economical, dry-running and maintenance-free. Offered in three of the most popular materials with or without flanges, these plain bearings are an excellent choice for a wide range of motion applications.

## Features

- 3 popular materials - J (low friction), G300 (general purpose), T500 (high temp)
- Sleeve and flange bearings
- Fits shafts from 1/4" to 1"
- Good chemical resistance
- Link to selection guide materials

CE

| igus® iglide® Plain Bearings | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Item Photo | Part Number | Material | Size I.D. (inch) | Size O.D. (inch) | Flange | Qty. per Package | Weight (lb) | Price | Drawing Link |
|  | A-JSI-0406-04 | J | 1/4 | 3/8 | No | 10 | 0.19 | $2a6b: | PDF |
| | A-JSI-0810-08 | | 1/2 | 5/8 | | 10 | 0.04 | $2a6c: | PDF |
| | A-JSI-1214-12 | | 3/4 | 7/8 | | 5 | 0.03 | $2a6d: | PDF |
| | A-JSI-1618-16 | | 1 | 1-1/8 | | 2 | 0.44 | $2a6e: | PDF |
|  | A-JFI-0406-04 | | 1/4 | 3/8 | Yes | 10 | 0.02 | $;2a6f: | PDF |
| | A-JFI-0810-08 | | 1/2 | 5/8 | | 10 | 0.49 | $2a66: | PDF |
| | A-JFI-1214-12 | | 3/4 | 7/8 | | 5 | 0.49 | $2a67: | PDF |
| | A-JFI-1618-16 | | 1 | 1-1/8 | | 2 | 0.04 | $2a68: | PDF |
|  | A-GSI-0405-04 | G300 | 1/4 | 5/16 | No | 10 | 0.02 | $2a69: | PDF |
| | A-GSI-0809-08 | | 1/2 | 9/16 | | 10 | 0.03 | $2a6a: | PDF |
| | A-GSI-1214-12 | | 3/4 | 7/8 | | 5 | 0.04 | $2a6g: | PDF |
| | A-GSI-1618-16 | | 1 | 1-1/8 | | 2 | 0.04 | $2a6h: | PDF |
|  | A-GFI-0405-04 | | 1/4 | 5/16 | Yes | 10 | 0.02 | $-2a6i: | PDF |
| | A-GFI-0809-08 | | 1/2 | 9/16 | | 10 | 0.04 | $-2a6j: | PDF |
| | A-GFI-1214-12 | | 3/4 | 7/8 | | 5 | 0.05 | $2a6k: | PDF |
| | A-GFI-1618-16 | | 1 | 1-1/8 | | 2 | 0.03 | $-2a6l: | PDF |
|  | A-TSI-0405-04 | T500 | 1/4 | 5/16 | No | 5 | 0.02 | $2a6n: | PDF |
| | A-TSI-0809-08 | | 1/2 | 9/16 | | 5 | 0.02 | $2a6o: | PDF |
| | A-TSI-1214-12 | | 3/4 | 7/8 | | 2 | 0.03 | $2a6p: | PDF |
| | A-TSI-1618-16 | | 1 | 1-1/8 | | 2 | 0.03 | $2a6q: | PDF |
|  | A-TFI-0405-04 | | 1/4 | 5/16 | Yes | 5 | 0.01 | $2a6s: | PDF |
| | A-TFI-0809-08 | | 1/2 | 9/16 | | 5 | 0.02 | $;2a6t: | PDF |
| | A-TFI-1214-12 | | 3/4 | 7/8 | | 2 | 0.02 | $2a6u: | PDF |
| | A-TFI-1618-16 | | 1 | 1-1/8 | | 2 | 0.04 | $2a6v: | PDF |

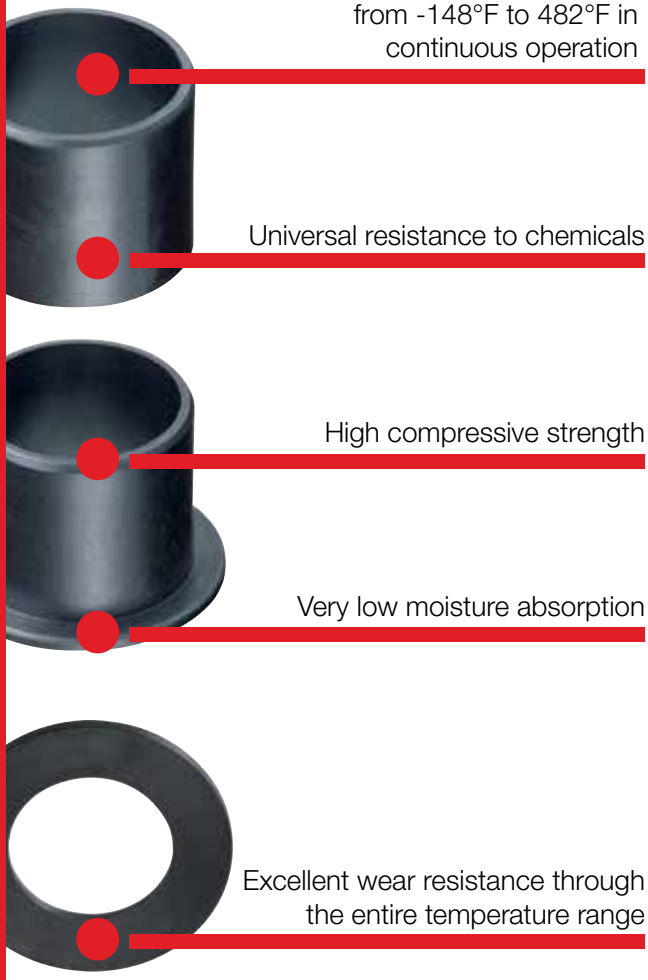



# iglide® T500

- Temperature resistant from -148°F to 482°F in continuous operation
- Universal resistance to chemicals
- High compressive strength
- Very low moisture absorption
- Excellent wear resistance through the entire temperature range

# iglide® T500 - High-Tech Problem Solver

## High temperature and chemical resistance




iglide® T500 is defined by its combination of high temperature resistance with compressive strength, along with high resistance to chemicals. iglide® T500 is designed for higher speeds than other iglide® bearings.

### Best Applications

- When especially high temperature resistance is necessary
- For pressure loads up to 21,760 psi
- For linear movements with a hard stainless steel
- For linear movements especially at high temperatures
- When universal resistance to chemicals is required
- Very low moisture absorption

### Not For Use In Applications

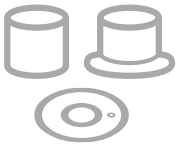
- For very low wear at high loads
- For economical underwater applications
- For edge compression

**Typical application areas**

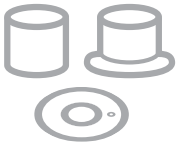
- Beverage technology
- Woodworking
- Aerospace engineering
- Cleanroom
- Plastic processing industry

**max. +482°F**
**min. –148°F**

**Ø 1/4 to 1 inch**
more **sizes available from igus**



**Ø 2 to 75 mm**
metric sizes available from igus



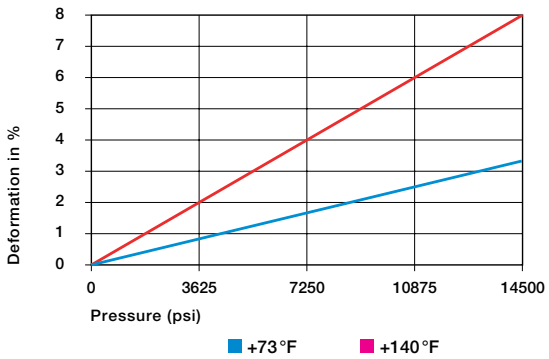
# iglide® T500 - Technical Data

**Material Properties Table**

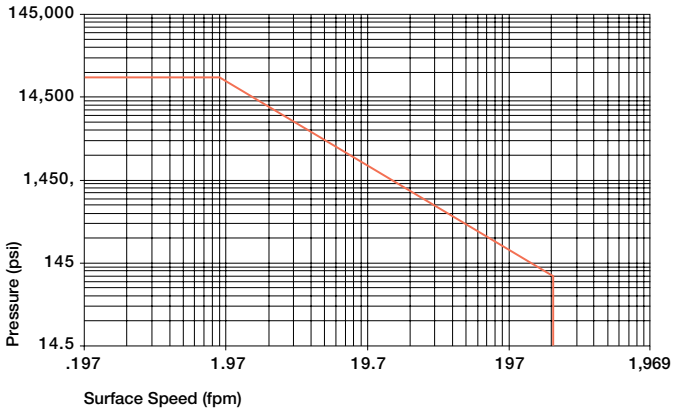
| General Properties | Unit | iglide® T500 | Testing Method |
|---|---|---|---|
| Density | g/cm³ | 1.44 | |
| Color | | black | |
| Max. moisture absorption at 73°F / 50% r.h. | % weight | 0.1 | DIN 53495 |
| Max. moisture absorption | % weight | 0.5 | |
| Coefficient of friction, dynamic against steel | µ | 0.09 - 0.27 | |
| pv value, max. (dry) | psi x fpm | 37,700 | |
| **Mechanical Properties** | | | |
| Modulus of elasticity | psi | 1,174,800 | DIN 53457 |
| Tensile strength at 68°F | psi | 24,660 | DIN 53452 |
| Compressive strength | psi | 14,500 | |
| Permissible static surface pressure (68°F) | psi | 21,760 | |
| Shore D-hardness | | 85 | DIN 53505 |
| **Physical and Thermal Properties** | | | |
| Max. long-term application temperature | °F | 482 | |
| Max. application temperature, short-term | °F | 599 | |
| Min. application temperature | °F | -148 | |
| Thermal conductivity | W/m x K | 0.6 | ASTM C 177 |
| Coefficient of thermal expansion | $K^{-1} \times 10^{-5}$ | 5 | DIN 53752 |
| **Electrical Properties** | | | |
| Specific volume resistance | Ωcm | $< 10^5$ | DIN IEC 93 |
| Surface resistance | Ω | $< 10^3$ | DIN 53482 |

## Compressive Strength

The graph shows the special compression resistance of iglide® T500 also at very high temperatures. Even at the highest long-term application temperature of 482°F, iglide® T500 plain bearings still withstand a static surface pressure of approximately 4350 psi.




**Deformation under load and temperature**




**Permissible pv values for iglide® T500 running dry against a steel shaft, at 68°F**

## Permissible Surface Speeds

iglide® T500 is designed for higher speeds than other iglide® bearings. This is due to its high temperature resistance and excellent heat conductivity. These benefits are readily apparent in the pv values of max. 37,700 psi x fpm. However, only the smallest radial loads may act on the bearings. At the given speeds, friction can cause a temperature increase to maximum permissible levels.

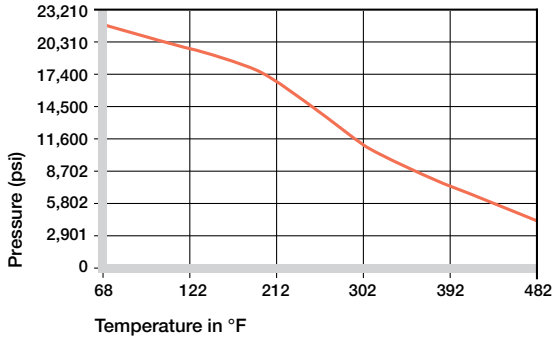
| | Continuous fpm | Short Term fpm |
|---|---|---|
| Rotating | 295 | 689 |
| Oscillating | 216 | 492 |
| Linear | 984 | 1968 |

**Maximum surface speeds**

# iglide® T500 - Technical Data

## Temperatures

In terms of temperature resistance, iglide® T500 has taken on a leading position. Having a permissible long-term application temperature of 482°F, iglide® T500 will even withstand 599°F for the short-term.
As in all thermoplastics, the compression resistance of T500 decreases with increasED temperature. However, the wear drops considerably when used within the observed temperature range of 73°F to 302°F. In certain cases, relaxation of the bearing can occur at temperatures greater than 275°F. This could lead to the bearing moving out of the housing after re-cooling. At temperatures over 275°F, the axial securing of the bearing in the housing needs to be tested. If necessary, secondary measures must be taken to mechanically secure the bearing. Please contact us if you have questions on bearing use.



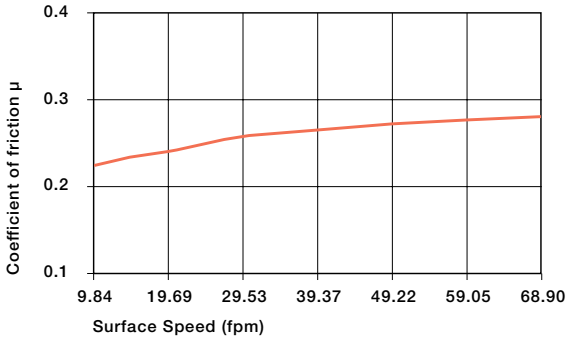

**Recommended maximum permissible static surface pressure of iglide® T500 as a result of temperature**

| iglide® T500 | Application Temperature |
|---|---|
| Minimum | - 148°F |
| Max. long-term | +482°F |
| Max. short-term | +599°F |
| Additional axial securing | +275°F |

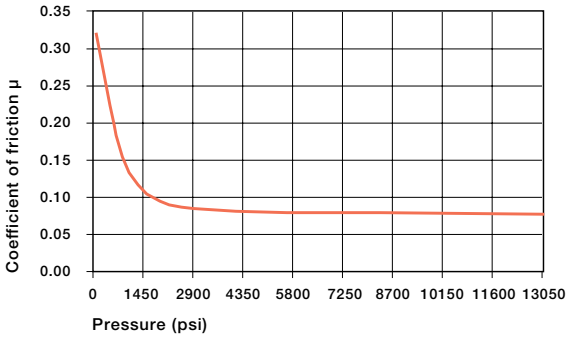
**Temperature limits for iglide® T500**

## Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction increases with an increase in surface speed. On the other hand, an increased load has an inverse effect: the coefficient of friction decreases. This explains the excellent performance of iglide® T500 plain bearings for high loads.
Friction and wear are also dependent to a large degree on the shafting partner. Shafts that are too smooth increase the coefficient of friction of the bearing. For iglide® T500, a ground surface with an average roughness range of 24 - 32 rms is recommended for the shaft.



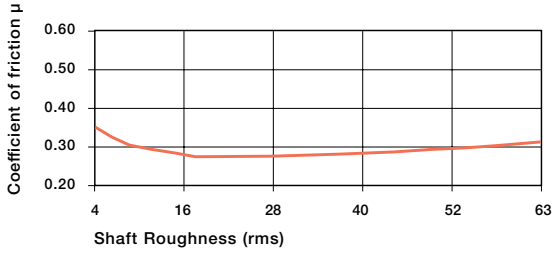

**Coefficient of friction for iglide® T500 as a result of the surface speed; p = 108 psi, 1050 hard chromed**




**Coefficient of friction for iglide® T500 as a result of the load, v = 1.97 fpm**

| iglide® T500 | Coefficient of Friction |
|---|---|
| Dry | 0.09 - 0.27 |
| Grease | 0.09 |
| Oil | 0.04 |
| Water | 0.04 |

**Coefficient of friction for iglide® T500 against steel (Shaft finish = 40 rms, 50 HRC)**

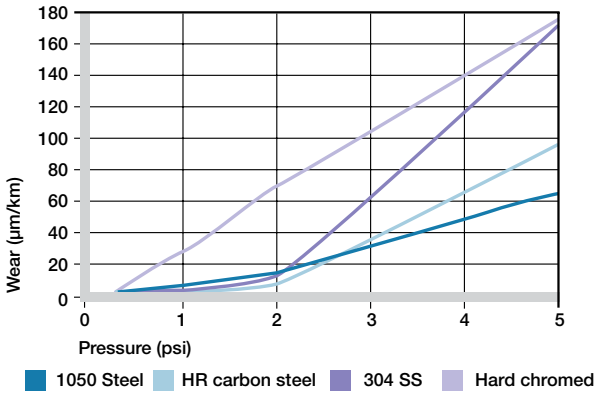



**Coefficients of friction as a function of the shaft surface (1050 hard chromed)**

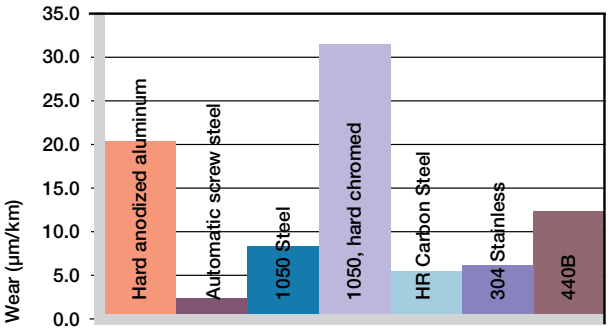
# iglide® T500 - Technical Data

## Shaft Materials

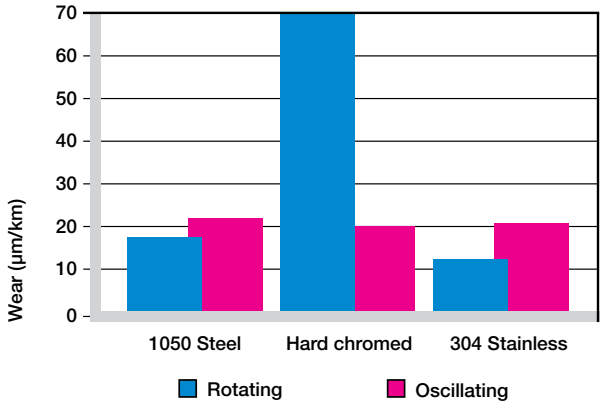
The graphs show results of testing different shaft materials with plain bearings made of iglide® T500. For low loads in rotating operation, the best wear values are found with 303 Stainless and HR Carbon Steel shafts. However, above a load of 290 psi, the bearing wear greatly increases with these two shaft materials. For the higher load range, hard-chromed shafts or Cold Rolled Steel shafts are advantageous. In oscillating operation at low loads, similar wear values for cold rolled steel and 303 stainless steel shafts occur. The wear is somewhat higher than during rotational movements.
If the shaft material you plan to use is not contained in this list, please contact us.




**Wear of iglide® T500 with different shaft materials in rotational operation**




**Wear of iglide® T500 with different shaft materials, p = 108 psi, v = 98 fpm**



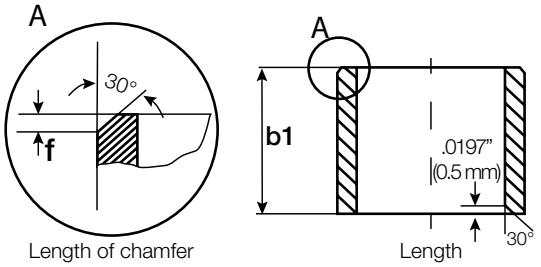

**Wear for oscillating and rotating applications with different shaft materials p = 290 psi**

## Installation Tolerances

iglide® T500 plain bearings are oversized before being pressfit. After proper installation into a recommended housing bore, the inner diameter adjusts to meet our specified tolerances. Please adhere to the catalog specifications for housing bore and recommended shaft sizes. This will help to ensure optimal performance of iglide® plain bearings.

| For Inch Size Bearings | | |
|---|---|---|
| Length Tolerance (b1) | | |
| Length (inches) | Tolerance (h13) (inches) | Length of Chamfer (f) Based on d1 |
| 0.1181 to 0.2362 | -0.0000 /-0.0071 | f = .012 → $d_1$ .040" - .236" |
| 0.2362 to 0.3937 | -0.0000 /-0.0087 | f = .019 → $d_1$ > .236" - .472" |
| 0.3937 to 0.7086 | -0.0000 /-0.0106 | f = .031 → $d_1$ > .472" - 1.18" |
| 0.7086 to 1.1811 | -0.0000 /-0.0130 | f = .047 → $d_1$ > 1.18" |
| 1.1811 to 1.9685 | -0.0000 /-0.0154 | |
| 1.9685 to 3.1496 | -0.0000 /-0.0181 | |

| For Metric Size Bearings | | |
|---|---|---|
| Length Tolerance (b1) | | |
| Length (mm) | Tolerance (h13) (mm) | Length of Chamfer (f) Based on d1 |
| 1 to 3 | -0 /-140 | f = 0.3 → $d_1$ 1 - 6 mm |
| > 3 to 6 | -0 /-180 | f = 0.5 → $d_1$ > 6 - 12 mm |
| > 6 to 10 | -0 /-220 | f = 0.8 → $d_1$ > 12 - 30 mm |
| >10 to 18 | -0 /-270 | f = 1.2 → $d_1$ > 30 mm |
| >18 to 30 | -0 /-330 | |
| >30 to 50 | -0 /-390 | |
| >50 to 80 | -0 /-460 | |



# iglide® T500 - Technical Data

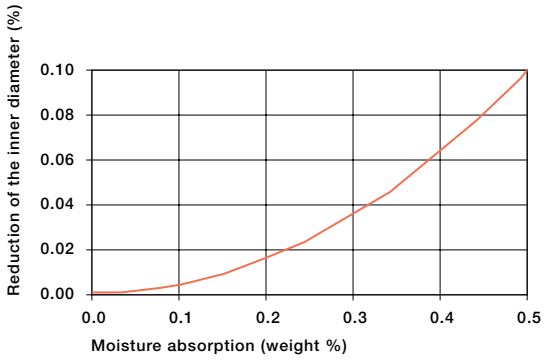
## Chemical Resistance

iglide® T500 plain bearings are close to universally resistant to chemicals. They are only attacked by concentrated nitric acid and by sulfuric acid with acidity levels over 65%. The list at the end of this catalog provides more comprehensive detailed information.

| Medium | Resistance |
|---|---|
| Alcohol | + |
| Hydrocarbon | + |
| Greases, oils without additives | + |
| Fuels | + |
| Weak acids | + |
| Strong acids | – |
| Weak alkaline | + |
| Strong alkaline | + |

+ resistant, 0 conditionally resistant, – not resistant

**Chemical resistance of iglide® T500**
**All data given concerns the chemical resistance at room temperature (68°F).**




**Effect of moisture absorption on iglide® T500 plain bearings**

## Radiation Resistance

Plain bearings made from iglide® T500 are resistant to radiation up to an intensity of $1x10^5$ Gy. iglide® T500 is the most radioactive-resistant material of the iglide® product line. iglide® T500 is extremely resistant to hard gamma radiation and withstands a radiation dose of 1000 Mrad without detectable change in its properties. The material also withstands an alpha or beta radiation of 10,000 Mrad with practically no damage.

## UV Resistance

The excellent material properties of iglide® T500 do not change under UV radiation and other weathering effects.

## Vacuum

In a vacuum environment, iglide® T500 plain bearings can be used virtually without restrictions. Outgassing takes place to a very limited extent.

## Electrical Properties

iglide® T500 plain bearings are electrically conductive.

| iglide® T500 | |
|---|---|
| Specific volume resistance | < $10^5$ Ωcm |
| Surface resistance | < $10^3$ Ω |

**Electrical properties of iglide® T500**